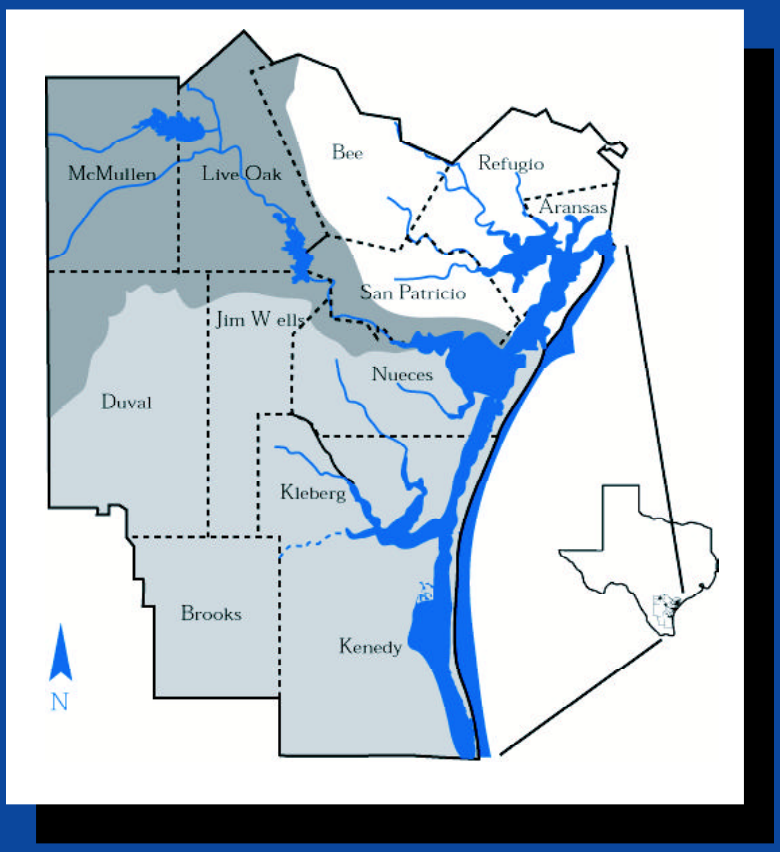
An Inventory and Analysis of Bay Management Structure for the Corpus Christi Bay National Estuary Program Study Area



Corpus Christi Bay National Estuary Program
CCBNEP-09 • February 1996

This project has been funded in part by the United States Environmental Protection Agency under assistance agreement #CE-9963-01-2 to the Texas Natural Resource Conservation Commission. The contents of this document do not necessarily represent the views of the United States Environmental Protection Agency or the Texas Natural Resource Conservation Commission, nor do the contents of this document necessarily constitute the views or policy of the Corpus Christi Bay National Estuary Program Management Conference or its members. The information presented is intended to provide background information, including the professional opinion of the authors, for the Management Conference deliberations while drafting official policy in the Comprehensive Conservation and Management Plan (CCMP). The mention of trade names or commercial products does not in any way constitute an endorsement or recommendation for use.

An Inventory and Analysis of Bay Management Structure for the Corpus Christi Bay National Estuary Program Study Area

Ms. Barbara Richard
Principal Investigator

Contributors:
Ms. Elise Bacon
Mr. Robert Dietz
Ms. Karin DeMoors
Mr. Kevin Needham

Apogee Research, Inc.

And

Jay Reining
Coastal Bend Bays Foundation

Publication CCBNEP-09

February 1996

Policy Committee

Commissioner John Baker
Policy Committee Chair
Texas Natural Resource Conservation Commission

Ms. Jane Saginaw
Policy Committee Vice-Chair
Regional Administrator, EPA Region 6

Ray Allen
Coastal Citizen

Commissioner John Clymer
Texas Parks and Wildlife Department

The Honorable Vilma Luna
Texas Representative

Commissioner Garry Mauro
Texas General Land Office

The Honorable Josephine Miller
County Judge, San Patricio County

Mr. Bernard Paulson
Coastal Citizen

The Honorable Mary Rhodes
Mayor, City of Corpus Christi

The Honorable Carlos Truan
Texas Senator

Management Committee

Mr. Dean Robbins, Co-Chair

Mr. William H. Hathaway, Co-Chair

Local Governments Advisory Committee

Mr. James Dodson, Chair

Commissioner Gordon Porter, Vice-Chair

Scientific/Technical Advisory Committee

Dr. Terry Whitledge, Chair

Dr. Wes Tunnell, Vice-Chair

Citizens Advisory Committee

Mr. William Goldston, Co-Chair

Mr. John Hendricks, Co-Chair

Financial Planning Advisory Committee

Dr. Joe Mosely, Chair

Program Director

Mr. Richard Volk

Natural Resources Center, Suite 3300, TAMU-CC • 6300 Ocean Drive • Corpus Christi, TX 78412
512/980-3420 • FAX 512/980-3437 • CCBNEP home page: //www.sci.tamucc.edu/ccbnep

Published and distributed
by the
Texas Natural Resource Conservation Commission
Post Office Box 13087
Austin, Texas 78711-3087

CORPUS CHRISTI BAY NATIONAL ESTUARY PROGRAM

The Corpus Christi Bay National Estuary Program (CCBNEP) is a four-year, community based effort to identify the problems facing the bays and estuaries of the Coastal Bend, and to develop a long-range, Comprehensive Conservation and Management Plan. The Program's fundamental purpose is to protect, restore, or enhance the quality of water, sediments, and living resources found within the 600 square mile estuarine portion of the study area.

The Coastal Bend bay system is one of 28 estuaries that have been designated as an **Estuary of National Significance** under a program established by the United States Congress through the Water Quality Act of 1987. This bay system was so designated in 1992 because of its benefits to Texas and the nation. For example:

- Corpus Christi Bay is the gateway to the nation's sixth largest port, and home to the third largest refinery and petrochemical complex. The Port generates over $1 billion of revenue for related businesses, more than $60 million in state and local taxes, and more than 31,000 jobs for Coastal Bend residents.
- The bays and estuaries are famous for their recreational and commercial fisheries production. A study by Texas Agricultural Experiment Station in 1987 found that these industries, along with other recreational activities, contributed nearly $760 million to the local economy, with a statewide impact of $1.3 billion, that year.
- Of the approximately 100 estuaries around the nation, the Coastal Bend ranks fourth in agricultural acreage. Row crops -- cotton, sorghum, and corn -- and livestock generated $480 million in 1994 with a statewide economic impact of $1.6 billion.
- There are over 2600 documented species of plants and animals in the Coastal Bend, including several species that are classified as endangered or threatened. Over 400 bird species live in or pass through the region every year, making the Coastal Bend one of the premier bird watching spots in the world.

The CCBNEP is gathering new and historical data to understand environmental status and trends in the bay ecosystem, determine sources of pollution, causes of habitat declines and risks to human health, and to identify specific management actions to be implemented over the course of several years. The 'priority issues' under investigation include:

- altered freshwater inflow
- declines in living resources
- loss of wetlands and other habitats
- bay debris
- degradation of water quality
- altered estuarine circulation
- selected public health issues

The **COASTAL BEND BAYS PLAN** that will result from these efforts will be the beginning of a well-coordinated and goal-directed future for this regional resource.

STUDY AREA DESCRIPTION

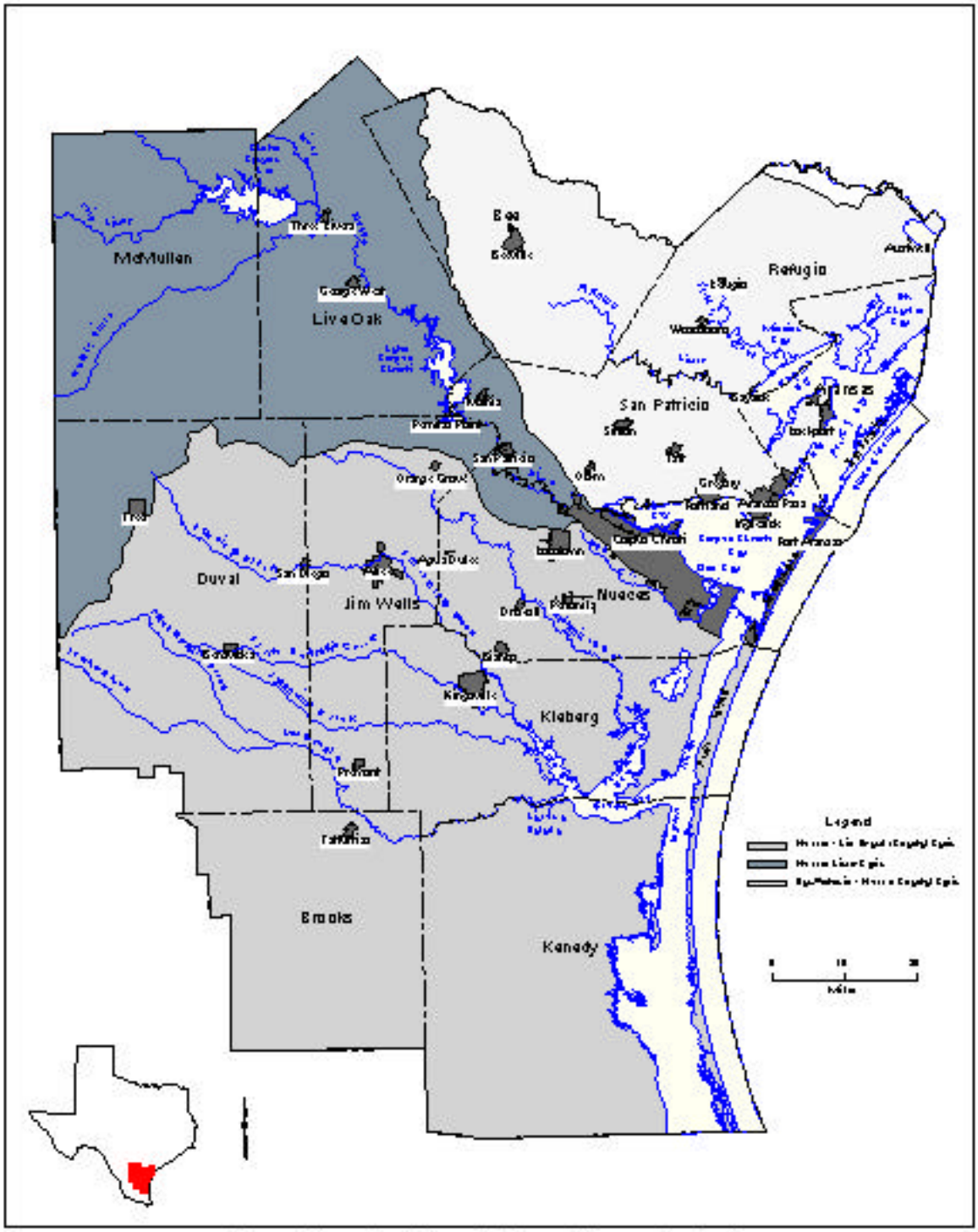
The CCBNEP study area includes three of the seven major estuary systems of the Texas Gulf Coast. These estuaries, the Aransas, Corpus Christi, and Upper Laguna Madre are shallow and biologically productive. Although connected, the estuaries are biogeographically distinct and increase in salinity from north to south. The Laguna Madre is unusual in being only one of three hypersaline lagoon systems in the world. The study area is bounded on its eastern edge by a series of barrier islands, including the world's longest -- Padre Island.

Recognizing that successful management of coastal waters requires an ecosystems approach and careful consideration of all sources of pollutants, the CCBNEP study area includes the 12 counties of the Coastal Bend: Refugio, Aransas, Nueces, San Patricio, Kleberg, Kenedy, Bee, Live Oak, McMullen, Duval, Jim Wells, and Brooks.

This region is part of the Gulf Coast and South Texas Plain, which are characterized by gently sloping plains. Soils are generally clay to sandy loams. There are three major rivers (Aransas, Mission, and Nueces), few natural lakes, and two reservoirs (Lake Corpus Christi and Choke Canyon Reservoir) in the region. The natural vegetation is a mixture of coastal prairie and mesquite chaparral savanna. Land use is largely devoted to rangeland (61%), with cropland and pastureland (27%) and other mixed uses (12%).

The region is semi-arid with a subtropical climate (average annual rainfall varies from 25 to 38 inches, and is highly variable from year to year). Summers are hot and humid, while winters are generally mild with occasional freezes. Hurricanes and tropical storms periodically affect the region.

On the following page is a regional map showing the three bay systems that comprise the CCBNEP study area.



Corpus Christi Bay National Estuary Program Study Area

TABLE OF CONTENTS

Table of Contents

1. EXECUTIVE SUMMARY

Corpus Christi Bay National Estuary Program
An Inventory and Analysis of the Institutional Framework for Implementing the CCMP

Written by:

Apogee Research, Inc.
and
Robert J. Reining

PURPOSE OF THIS INVENTORY AND ANALYSIS OF THE INSTITUTIONAL FRAMEWORK

The purpose of this report is to provide the Corpus Christi Bay National Estuary Program (CCBNEP) and all stakeholders concerned about the environmental health of the CCBNEP study area with an increased knowledge of the institutional framework currently managing the study area's resources. This framework is the web of federal, state, regional, local, and non-governmental institutions that conduct activities related to CCBNEP's initiatives. An understanding of the institutional framework will help CCBNEP develop a Comprehensive Conservation and Management Plan (CCMP) by allowing CCBNEP and its partners to identify roles and responsibilities for implementation of the CCMP.

The inventory portion of this report describes the activities of 69 federal, state, regional, local, and non-governmental institutions that are involved to varying degrees in natural resource management efforts related to the study area. This inventory provides general information about each institution's mission, current activities, and programmatic resources. The Inventory is designed to serve as a reference during the CCMP development process.

The Inventory also serves as a basis for an analysis of the study area's managing institutional framework. This framework is represented by 37 institutions (selected from the 69 in the Inventory) whose roles and responsibilities are most closely related to the study area's priority problems.

The Analysis evaluates the ability of the overall management framework to achieve successful resource management in the study area. Building upon the institutional inventory, the Analysis examines each institution's formalized objectives, current activities, and potential future activities. It then assesses the effectiveness of the group of institutions with respect to current operations and future CCMP implementation. More specifically, the Analysis examines the capacity of institutions to carry out relevant activities in the study area as well as their potential to play an expanded role in the management of the estuary program. Where gaps in management capacity are identified, the Analysis recommends options to improve effectiveness.

METHODOLOGY

This inventory and analysis of the bay management structure is based on interviews with agency and program staff involved in management and protection of study area resources, as well as examination of documents and other published resources relevant to the institutions and issues addressed in this report. This study was conducted under the direction of the CCBNEP Program Director who provided additional insights. Written materials consulted include documents from the Galveston Bay National Estuary Program, the Gulf of Mexico Program, and the Texas Coastal Management Plan, as well as annual reports and budget submissions for the institutions studied.

This study was conducted in two main stages:

1. Development of an inventory of existing programs and institutions active in the study area; and
2. Evaluation of how well existing entities carry out their current activities affecting the estuary, and their capacity to expand their roles in managing CCMP-related activities.

As a first step, the Project Team surveyed over 100 institutions about their activities related to study area resources. Based on responses received, the team recommended further documentation of 69 institutions' missions, activities, and resources in the Inventory. Recommendations were based on current level and scope of involvement with priority problems and contributing factors, and potential for enhanced involvement. Institutions included in the Inventory were approved by the CCBNEP Management Committee and the CCBNEP Program Director.

The Project Team then reviewed the institutional information developed for the inventory and identified those institutions with the strongest current and potential roles in CCBNEP activities. Based on this review and discussions with the Program Director, the Project Team recommended 37 institutions for further analysis. Institutions included in the Analysis were approved by the CCBNEP Management Committee and Program Director.

Recommendations for enhancements of the institutional framework are based on a review of all information collected and presented in this study and an analysis that focused on four issues: (1) legal scope for funding and implementing activities, including geographic jurisdictions; (2) compatibility between institutional mission and current activities related to CCBNEP problems; (3) effectiveness of each institution; and (4) examination of the framework as a whole, highlighting gaps in the management structure. Matrices were used extensively as analytical tools and as summaries of information.

FINDINGS

Analysis of the 37 institutions most directly involved in addressing the study area's priority problems revealed that the current management framework is fairly effective. As a group, they currently have sufficient authority and resources to carry out their responsibilities. Further, with a few notable exceptions, the patchwork of institutions together cover the priority problems and contributing factors CCBNEP has identified for special attention in the CCMP. Federal and state

institutions have the strongest presence, while regional and local institutions are somewhat less involved. Exhibits 1-1 through 1-3 provide a review of which institutions address the contributing factors. The exhibits do not list those contributing factors that are priority problems or caused by nature.

General recommendations for enhancements to the management framework, which are derived from the Analysis, are summarized below.

- In choosing institutions to address those contributing factors that are not receiving enough attention, CCBNEP should consider institutions that:
  - ◊ Are most heavily involved in addressing contributing factors;
  - ◊ Have broad legal authority to address priority problems and can expand that authority;
  - ◊ Are doing less than the scope of their missions allow;
  - ◊ Are operating effectively;
  - ◊ Can secure additional funding;
  - ◊ Can accept additional workloads; and
  - ◊ Are not impeded by political factors.
- CCBNEP should attempt to obtain commitments from active institutions to maintain efforts and continue beneficial programs and activities.
- CCBNEP should make full use of local educational and research institutions that can conduct activities on virtually any contributing factor and play a coordinating role.
- CCBNEP should seek increased involvement from regional and local institutions.

Exhibit 1-1. Federal Coverage of CCBNEP Contributing Factors												
Contributing Factors	**Federal Institutions**											
	CFSA	***NRCS***	***NMFS***	***NOS***	***USCOE***	***Bur. Rec.***	***NBS***	***NPS***	***USFWS***	***USGS***	***USCG***	***EPA***
Priority Problem A -- Altered Freshwater Inflows												
A❶ Water demand						✓			✓	✓		
A❷ Timing and volume			✓		✓	✓			✓	✓		✓
A❸ Tributary location			✓		✓	✓			✓	✓		✓
A❺ Conservation, etc.						✓				✓		
Priority Problem B -- Condition of Living Resources												
B❸ Brown tide			✓									✓
B❹ Over-utilization			✓	✓			✓		✓			
Priority Problem C -- Loss of Wetlands and Estuarine Habitats												
C❶ Dredging			✓		✓				✓			✓
C❷ Loss of vegetation	✓	✓	✓		✓			✓	✓			✓
C❸ Brown tide			✓									✓
C❹ Development	✓	✓	✓	✓	✓			✓				✓
C❺ Point sources	✓			✓					✓			✓
C❻ Nonpoint sources	✓	✓		✓	✓				✓	✓		✓
C❼ Submerged habitats			✓									✓
Priority Problem D -- Degradation of Water Quality												
D❶ Dredging			✓		✓				✓			✓
D❷ Point sources	✓			✓					✓			✓
D❸ Nonpoint sources	✓	✓		✓	✓				✓	✓		✓
D❹ Brown tide			✓									✓
D❺ Oil field discharge			✓									✓
D❻ Pollutants			✓	✓					✓		✓	✓
D❿ Air pollution												✓
Priority Problem E -- Altered Estuarine Circulation												
E❶ Channelization					✓							✓
E❸ Bay bottom mods.			✓						✓	✓		✓
E❹ Dredging			✓		✓				✓			✓
E❺ Artificial barriers					✓				✓			
E❼ Industrial water												✓
Priority Problem F -- Bay Debris												
F❶ Land-based sources								✓				✓
F❷ Boat litter									✓		✓	
F❸ Oil facilities											✓	✓
F❼ Tourists and locals								✓	✓		✓	✓
F❽ Industrial sites												✓
F❾ Attitude & enforce.								✓	✓		✓	✓
Priority Problem G -- Public Health Issues												
G❶ Toxic deposition												✓
G❷ Pathogens	✓										✓	✓
G❸ Toxic sediments							✓					✓
G❹ Point sources	✓			✓								✓
G❺ Nonpoint sources	✓			✓								✓

Exhibit 1-2. State Coverage of CCBNEP Contributing Factors										
Contributing Factors	**State Institutions**									
	CCC	***RRCT***	***TDA***	***TDH***	***TxDOT***	***GLO***	***TNRCC***	***TPWD***	***TSSWCB***	***TWDB***
Priority Problem A -- Altered Freshwater Inflows										
A❶ Water demand	✓						✓	✓		✓
A❷ Timing and volume	✓						✓	✓		✓
A❸ Tributary location							✓	✓		✓
A❺ Conservation, etc.							✓			✓
Priority Problem B -- Condition of Living Resources										
B❸ Brown tide										
B❹ Over-utilization	✓							✓		
Priority Problem C -- Loss of Wetlands and Estuarine Habitats										
C❶ Dredging	✓						✓	✓		
C❷ Loss of vegetation	✓					✓				
C❸ Brown tide										
C❹ Development	✓		✓		✓	✓	✓			
C❺ Point sources	✓						✓			
C❻ Nonpoint sources	✓		✓				✓			
C❼ Submerged habitats	✓					✓		✓		
Priority Problem D -- Degradation of Water Quality										
D❶ Dredging	✓						✓	✓		
D❷ Point sources	✓	✓					✓			
D❸ Nonpoint sources	✓		✓				✓		✓	
D❹ Brown tide										
D❺ Oil field discharge	✓	✓					✓			
D❻ Pollutants	✓	✓				✓	✓			
D❿ Air pollution	✓						✓			
Priority Problem E -- Altered Estuarine Circulation										
E❶ Channelization					✓	✓				
E❸ Bay bottom mods.						✓		✓		
E❹ Dredging	✓						✓	✓		
E❺ Artificial barriers	✓				✓	✓				✓
E❼ Industrial water							✓			
Priority Problem F -- Bay Debris										
F❶ Land-based sources	✓					✓	✓			
F❷ Boat litter						✓				
F❸ Oil facilities		✓								
F❼ Tourists and locals	✓					✓	✓	✓		
F❽ Industrial sites	✓						✓			
F❾ Attitude & enforce.						✓	✓	✓		
Priority Problem G -- Public Health Issues										
G❶ Toxic deposition		✓	✓	✓			✓	✓		
G❷ Pathogens				✓		✓	✓	✓		
G❸ Toxic sediments		✓					✓			
G❹ Point sources							✓			
G❺ Nonpoint sources			✓				✓			

Exhibit 1-3. Regional, Local, and Non-Governmental Coverage of CCBNEP Contributing Factors												
Contributing Factors	**Regional, Local, and Non-Governmental Institutions**											
	Cor. Chr.	***Other Cities***	***CBCOG***	***Coast. Count.***	***CBBF***	***Drain. Dist.***	***GBRA***	***Nav Dist.***	***NRA***	***PCCA***	***SWCDs***	***TSA***
Priority Problem A -- Altered Freshwater Inflows												
A❶ Water demand	✓	✓	✓				✓		✓			
A❷ Timing and volume	✓	✓	✓				✓		✓	✓		
A❸ Tributary location							✓		✓			
A❺ Conservation, etc.									✓		✓	
Priority Problem B -- Condition of Living Resources												
B❸ Brown tide					✓							
B❹ Over-utilization												
Priority Problem C -- Loss of Wetlands and Estuarine Habitats												
C❶ Dredging					✓			✓		✓		
C❷ Loss of vegetation					✓						✓	
C❸ Brown tide					✓							
C❹ Development	✓	✓		✓						✓		
C❺ Point sources	✓	✓		✓						✓		
C❻ Nonpoint sources	✓	✓		✓	✓					✓	✓	
C❼ Submerged habitats					✓			✓		✓		
Priority Problem D -- Degradation of Water Quality												
D❶ Dredging								✓		✓		
D❷ Point sources	✓	✓		✓			✓			✓		
D❸ Nonpoint sources	✓	✓		✓	✓		✓			✓	✓	
D❹ Brown tide					✓							
D❺ Oil field discharge												
D❻ Pollutants	✓	✓		✓				✓		✓		
D❿ Air pollution												
Priority Problem E -- Altered Estuarine Circulation												
E❶ Channelization					✓			✓		✓		
E❸ Bay bottom mods.												
E❹ Dredging					✓					✓		
E❺ Artificial barriers					✓							
E❼ Industrial water												
Priority Problem F -- Bay Debris												
F❶ Land-based sources	✓	✓	✓	✓	✓	✓						✓
F❷ Boat litter					✓			✓		✓		
F❸ Oil facilities					✓							
F❼ Tourists and locals	✓	✓			✓							
F❽ Industrial sites					✓							
F❾ Attitude & enforce.	✓	✓			✓							✓
Priority Problem G -- Public Health Issues												
G❶ Toxic deposition				✓								
G❷ Pathogens				✓				✓		✓		
G❸ Toxic sediments												
G❹ Point sources	✓			✓						✓		
G❺ Nonpoint sources	✓			✓	✓					✓		

Table of Contents

2. INTRODUCTION

PURPOSE OF THIS INVENTORY AND ANALYSIS

Corpus Christi Bay, located in southeastern Texas, is part of a watershed that includes 12 counties: Aransas, Bee, Brooks, Duval, Jim Wells, Kenedy, Kleberg, Live Oak, McMullen, Nueces, Refugio, and San Patricio. The Corpus Christi Bay National Estuary Program (CCBNEP) has the goal of protection and restoration of water quality and habitat throughout this study area. In order to accomplish its goal, CCBNEP will develop and implement a Comprehensive Conservation and Management Plan (CCMP) that will contain action plans for the 12-county study area.

The CCBNEP CCMP is being developed in four phases. Having established the initial decision-making framework under Phase I, Management Conference members are embarking on Phase II, "Characterization," the development of an understanding of the study area's problems, technical solutions, and management structures. Phase II comprises two elements: (1) a technical investigation of pollution sources and their impacts; and (2) an analysis of existing efforts at the federal, state, regional, and local levels, as they affect the study area.

This project addresses the latter component of Phase II and will provide the Management Conference with an increased understanding of the current institutional infrastructure and its impacts on the estuary, through a Base Programs Analysis. This inventory and evaluation of institutional and program capabilities will assist the CCBNEP Management Conference to identify roles and responsibilities for implementation of its CCMP. This report includes an inventory of existing programs and institutions, assesses the effectiveness of efforts to protect the resources within the study area, and offers recommendations for possible actions to be taken by the CCBNEP Management Conference to enhance existing institutional arrangements or to develop alternative management options.

PRIORITY PROBLEMS, CONCERNS, AND CONTRIBUTING FACTORS

CCBNEP has identified seven potential environmental and resource management problem areas that are priorities for the CCMP. CCBNEP also has identified specific concerns related to these problems and factors that contribute to their existence and severity. Exhibit 2-1 identifies the CCBNEP priority problems and their associated concerns and contributing factors. Where contributing factors are the result of natural conditions (e.g., climate), the following note appears: *[NATURE]*. Where contributing factors are also identified as priority problems, this dual listing is noted, e.g., contributing factor B5 is also *[PRIORITY PROBLEM E]*. This also is the case where contributing factors are identified under more than one priority problem.

Exhibit 2-1. CCBNEP Priority Problems, Concerns, and Contributing Factors	
A. ALTERED FRESHWATER INFLOW INTO BAYS AND ESTUARIES	
Concerns	① maintenance of adequate freshwater inflows to support ecological health and productivity and environmental quality
	② sedimentation processes, delta building and loss of marsh
	③ adequate water supplies for current and future societal needs
	④ economic concerns and impacts
	⑤ nutrient input
Contributing Factors	current water demand and planned increases due to water development projects
	alterations in timing and volume of tributary flow due to existing impoundments and withdrawals
	alteration of the location of tributary flows
	natural conditions (semi-arid climate) ***[NATURE]***
	conservation, reuse, and technology advances
B. CONDITION OF LIVING RESOURCES	
Concerns	① protection and/or enhancement of ecologically and economically important estuarine species characteristic to the study area
	② protection and enhancement of endangered, threatened, and protected species
	③ recent declines or die-offs of indigenous wildlife (e.g., dolphins)
Contributing Factors	habitat destruction and degradation ***[PRIORITY PROBLEM C]***
	degradation of water quality due to eutrophication, industrial effluents, agricultural pesticides, chemical/petroleum spills, bay debris and dredging ***[PRIORITY PROBLEM D]***
	persistent brown tide in the upper Laguna Madre ***[CONTRIBUTING FACTOR D4]***
	over-utilization of living resources
	altered estuarine circulation ***[PRIORITY PROBLEM E]***
	altered freshwater inflows ***[PRIORITY PROBLEM A]***

C. LOSS OF WETLANDS AND ESTUARINE HABITATS	
Concerns	① maintenance of ecological health and characteristic productivity of the estuarine system(s) ② degradation of important wetland functions including fishery and wildlife habitat, flood mitigation, pollutant trapping, etc. ③ maintenance of critical habitats for the protection of endangered, threatened, and protected species ④ maintenance of critical habitats for the protection of ecologically and commercially important species ⑤ destruction and alteration of bay bottom habitats
Contributing Factors	dredging and disposal of dredged materials loss of coastal vegetation due to subsidence, sea level rise, erosion and bulkheading persistent brown tide events in the upper Laguna Madre contributing to losses of seagrasses ***[CONTRIBUTING FACTOR D4]*** commercial and residential development, including bridge and highway construction, etc. point sources of pollutants from municipal and industrial activities ***[CONTRIBUTING FACTOR D2]*** nonpoint sources of pollution, including urban and agricultural sources ***[CONTRIBUTING FACTOR D3]*** disturbance of submerged habitats from trawling, prop washing, and other activities altered freshwater inflows and accompanying sediment and nutrient inputs ***[PRIORITY PROBLEM A]***
D. DEGRADATION OF WATER QUALITY	
Concerns	① maintenance of the environmental quality of the estuary ② maintenance of designated uses ③ protection of human and ecological health
Contributing Factors	dredging and the disposal of dredged materials ***[CONTRIBUTING FACTOR C1]*** point sources of pollutants from storm drains and municipal/industrial wastewater treatment nonpoint sources of pollution, including urban and agricultural sources persistent brown tide events in the upper Laguna Madre tidal discharge of oil field produced waters discharge and spillage of pollutants, sewage, and solid wastes loss of wetlands ***[PRIORITY PROBLEM C]*** altered circulation ***[PRIORITY PROBLEM E]*** freshwater inflows ***[PRIORITY PROBLEM A]*** atmospheric pollution

E. ALTERED ESTUARINE CIRCULATION	
Concerns	① localized concentration of pollutants due to reduced tidal exchange and flushing
	② altered exchange within the Laguna Madre and between the bays and Gulf of Mexico
	③ recruitment of living resources
Contributing Factors	channelization and other navigation improvements
	natural processes (e.g., flooding/hurricanes, sedimentation and sea level rise) ***[NATURE]***
	modifications to natural passes and benthic features (e.g., oyster reefs and seagrass beds)
	dredging and the disposal of dredged materials ***[CONTRIBUTING FACTOR C1]***
	artificial barriers to water circulation (e.g., causeway, groins and jetties)
	altered freshwater inflows ***[PRIORITY PROBLEM A]***
	industrial intakes/discharges
F. BAY DEBRIS	
Concerns	① protection of human health from potentially hazardous debris and wastes
	② ingestion and entanglement by local fauna
	③ degradation of the aesthetic quality of the bays
Contributing Factors	land-based sources of debris, including washoff from urban areas, floatables from point sources, etc.
	littering from recreational and commercial boating operations, including barges, tugboats, recreational vessels, ships and commercial fishing boats
	oil exploration/production facilities
	meteorological events, including wind and floods ***[NATURE]***
	converging ocean currents ***[NATURE]***
	natural sources such as dead animals/birds, driftwood, seagrass and natural hydrocarbon seepage ***[NATURE]***
	tourists and local population
	industrial and construction sites
	public attitudes, lack of education, and lack of enforcement of existing laws

G. PUBLIC HEALTH ISSUES	
Concerns	① protection of human health from contaminated seafood (fish/shellfish)
	② health problems related to contact with polluted water
	③ shellfish bed closures due to contamination with enteric bacteria and viruses
Contributing Factors	deposition of bioaccumulating toxic substances into the estuary
	pathogenic organisms (bacterial and viral) from inadequate sewage treatment, septic systems, and/or marine sanitation practices
	existing sediment sources of toxics
	point sources ***[CONTRIBUTING FACTOR D2]***
	nonpoint sources ***[CONTRIBUTING FACTOR D3]***

SUMMARY OF STUDY METHODOLOGY

This project was conducted in two main stages:

1. Development of an inventory of existing institutions active in the study area; and
2. Evaluation of existing institutions to assess how well they carry out their current activities affecting the estuary, and their capacity to expand their roles in the management of CCMP-related activities.

The methodology summarized below was presented in the Project Work Plan and approved by CCBNEP. The technical approach is based on the study description presented in CCBNEP's Request for Proposals for this project. The approach draws on EPA's *National Estuary Program Guidance: Base Program Analysis* (EPA 842-B-93-001), which provides guidance for this type of NEP study.

Step 1: Identify Management Concerns and Universe of Institutions For Study. As a first step, the Project Team confirmed CCBNEP's priority problems and identified a list of institutions that might be addressing one or more of those problems. This list was based on the Project Team's knowledge of institutions currently active in the study area, discussions with CCBNEP staff, interviews with selected members of various committees, review of relevant written materials (including documents from the Galveston Bay National Estuary Program, the Gulf of Mexico Program, and the Texas General Land Office Coastal Management Plan), and discussions with other stakeholders in the estuary. The Project Team used a matrix to list existing institutions for investigation in this study and indicate their relationships to the priority problems, concerns, and contributing factors. Roles of the candidate institutions considered for this study included:

- Regulatory and enforcement activities;
- Resource management;
- Financial assistance;
- Technical assistance;
- Planning;

- Public education;
- Research;
- Voluntary activities; and
- Monitoring.

Step 2: Identify Institutions and Programs Most Strongly Focused on Priority Problems For Inventory and Analysis. A survey questionnaire was mailed to all institutions identified in Step 1, above, for the purpose of gathering more specific information about their involvement in addressing priority problems. Using resulting survey information and the other sources identified above, the Project Team submitted recommended candidates for inclusion in the Inventory to the CCBNEP. Recommendations were based on current level and scope of involvement with priority problems and contributing factors, and potential for enhanced involvement. Institutions included in the Inventory were approved by the CCBNEP Management Committee and the Program Director.

Step 3: Institutional Inventory. For each institution or agency active in the estuary, the Project Team collected information in four areas: (1) mission or charter; (2) current activities; (3) existing budgets and funding sources; and (4) existing administrative resources. The Project Team identified legal authorities to undertake particular activities and/or to fund activities, general laws and regulations promulgated by or associated with the institution, and geographic jurisdictions. The team also identified pollution problems currently addressed, and described current institutional roles. Where information was available, the Project Team identified financial and personnel resources dedicated to estuary activities, sources of funds, and management and staff resources dedicated to the estuary.

Step 4: Identification of Institutions for Further Analysis. The Project Team reviewed the institutional information developed for the Inventory and identified those institutions with the strongest current and potential role in CCBNEP activities. To facilitate this identification, the team developed a decision matrix indicating selected institutions' relationships to CCBNEP priority problems and involvement in addressing contributing factors. Based on this review and discussions with the CCBNEP Program Director, the Project Team recommended selected institutions for further analysis. Institutions included in the Analysis were approved by the CCBNEP Management Committee and the Program Director.

Step 5: Institutional Analysis and Recommendations. As a last step, the Analysis evaluates the effectiveness of the overall management framework for achieving successful resource management. Building upon the Institutional Inventory, the Project Team first examined each institution's formalized objectives, current activities, and potential future activities individually. The Project Team then assessed the effectiveness of the group of institutions that constitutes the management framework with respect to its current operation and future CCMP implementation. More specifically, the team examined the capacity of existing institutions to both carry out their current activities affecting the estuary and their potential to play an expanded role in the management of the estuary program. Where gaps in management capacity were identified, the Project Team made recommendations to improve effectiveness.

DESCRIPTION OF STUDY CHAPTERS

The results of the methodology outlined above are incorporated into this report. The remainder of the report is organized as outlined below.

- ***Chapter 3. Inventory of Institutional Framework.*** This chapter presents the rationale for choosing institutions included in the Inventory and methods for obtaining information. It then provides a master list of inventoried institutions and a matrix of roles and responsibilities. Each institution's mission, current activities, and program resources are described.
- ***Chapter 4. Analysis of Institutional Framework.*** This chapter presents the rationale for choosing institutions included in the Analysis and provides a master list of analyzed institutions, along with a matrix identifying roles in addressing priority problems and contributing factors. It then identifies the legal scope for funding and implementing activities, including geographic jurisdictions. Next, it provides a matrix that describes the level of compatibility between institutional missions and current activities related to CCBNEP problems. Finally, this chapter provides an analysis of the effectiveness of each institution, and examines the framework as a whole, highlighting gaps in the management structure.
- ***Chapter 5. Recommendations.*** This chapter provides recommendations for choosing institutions to fill gaps in the management structure and accept expanded roles. It also lists other general recommendations drawn from the findings of the Analysis.
- ***Chapter 6. References.*** This chapter provides literature and materials that provide further information on topics covered in the Inventory and Analysis.
- ***Appendices.*** Appendix A presents the Inventory Questionnaire, Appendix B presents the Analysis Questionnaire, and Appendix C provides a glossary of acronyms used throughout this report.

Table of Contents

3. INVENTORY OF INSTITUTIONAL FRAMEWORK

RATIONALE FOR SELECTING INSTITUTIONS TO INCLUDE IN THE INVENTORY

As a first step in deciding which institutions to include in the inventory, the Project Team reviewed relevant documents from the Galveston Bay National Estuary Program, Gulf of Mexico Program, and the Texas General Land Office Coastal Management Plan. From this review, the Project Team developed a list of all candidate institutions, including governmental agencies and non-governmental organizations.

After obtaining further information from each of the candidate institutions and consulting with CCBNEP staff, the Project Team narrowed the list of institutions, and determined those federal, state, regional, local, and non-governmental organizations to include in the inventory. Each of the selected institutions conducts some level of activity to solve one or more of the priority problems as determined by CCBNEP. Exhibit 3-1, below, is the master list of institutions in the inventory. The 69 institutions in the inventory consist of 23 federal, 16 state, 13 regional or local, and 17 non-governmental institutions.

METHODS FOR OBTAINING INFORMATION FROM INSTITUTIONS

In order to gather the necessary information to complete the inventory, the Project Team developed a questionnaire and sent it to key staff at each of the institutions. The questionnaire, which is provided in Appendix A, consists of a series of questions designed to obtain information on the following topics:

- Institutional missions and goals;
- Roles within the CCBNEP study area (e.g., regulatory, resource management, planning, and education/outreach);
- Specific activities that relate to CCBNEP plans and programs;
- Staff, administrative resources, and financial resources dedicated to CCBNEP issues;
- Institutional authority based on legislative and regulatory powers;
- Coordination with other institutions; and
- Effectiveness of institutional programs.

As a follow-up to the questionnaire, members of the Project Team visited offices of many of the institutions to strengthen responses provided in the questionnaire. These site visits included lengthy discussions with staff to obtain information about institutional involvement in estuary-related activities. In addition, phone interviews were conducted with those institutions that did not receive an office visit or did not respond to the questionnaire.

Exhibit 3-1. Master List of Institutions in the Inventory
Federal Institutions
Federal Emergency Management Agency (FEMA)
National Aeronautics and Space Administration (NASA)
U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS)
USDA, Consolidated Farm Service Agency (CFSA)
USDA, Cooperative Extension Service (CES)
USDA, Natural Resource Conservation Service (NRCS)
U.S. Department of Commerce (USDOC), National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS)
USDOC, NOAA, National Ocean Service (NOS)
USDOC, NOAA (other than NOS and NMFS)
U.S. Department of Defense (USDOD), U.S. Army Corps of Engineers (USACE)
USDOD, U.S. Navy (USN)
U.S. Department of Health and Human Services (USHHS), U.S. Public Health Service (USPHS), U.S. Food and Drug Administration (USFDA)
U.S. Department of the Interior (USDOI), Bureau of Land Management (BLM)
USDOI, Bureau of Reclamation
USDOI, Minerals Management Service (MMS)
USDOI, National Biological Service (NBS)
USDOI, National Park Service (NPS)
USDOI, U.S. Fish and Wildlife Service (USFWS)
USDOI, U.S. Geological Survey (USGS)
U.S. Department of State (USDOS)
U.S. Department of Transportation (USDOT), Research and Special Programs Administrations (RSPA)
USDOT, U.S. Coast Guard (USCG)
U.S. Environmental Protection Agency (EPA)
State Institutions
Coastal Coordination Council (CCC)
Railroad Commission of Texas (RRCT)
Texas A&M University System (TAMUS)
Texas Attorney General (AG Office)
Texas Department of Agriculture (TDA)
Texas Department of Health (TDH)
Texas Department of Public Safety (TDPS)
Texas Department of Transportation (TxDOT)
Texas General Land Office (TGLO)
Texas Governor's Office
Texas Historical Commission (THC)
Texas Natural Resource Conservation Commission(TNRCC)
Texas Parks and Wildlife Department (TPWD)
Texas State Soil and Water Conservation Board (TSSWCB)
Texas Water Development Board (TWDB)
University of Texas System (UT)

Exhibit 3-1. Master List of Institutions in the Inventory
Regional and Local Institutions
City of Corpus Christi
Cities other than Corpus Christi
Coastal Bend Council of Governments (CBCOG)
Counties in the Study Area
Drainage Districts
Guadalupe Blanco River Authority (GBRA)
Gulf of Mexico Program
Navigation Districts (other than PCCA)
Nueces River Authority (NRA)
Port of Corpus Christi Authority (PCCA)
San Antonio River Authority (SARA)
Soil and Water Conservation Districts (SWCDs)
Water Districts
Non-Governmental Institutions
Audubon Outdoor Club of Corpus Christi
Board of Trade, Port of Corpus Christi (BOT)
Coastal Bend Audubon Society
Coastal Bend Bays Foundation (CBBF)
Coastal Bend Sierra Club
Corpus Christi Taxpayers Association
Greater Corpus Christi Business Alliance
Gulf Coast Conservation Association
Kenedy Ranch
King Ranch
National Audubon Society
OPUS
Rob and Bessie Welder Wildlife Foundation
Save Lake Corpus Christi Association
Texas Marine Mammal Stranding Network
Texas Seafood Producers Association, Inc.
Texas State Aquarium (TSA)

DESCRIPTIONS OF INSTITUTIONS

Each of the institutions listed above in Exhibit 3-1 conducts some level of activity to solve one or more of the priority problems as determined by CCBNEP. This chapter describes each of these institutions using a standardized format. For each institution, a summary table displays the role(s) of the institution and the priority problem(s) addressed. The key for these summary tables is provided below in Exhibit 3-2.

The mission, activities, budgets, funding sources, and administrative resources also are described for each institution. The mission includes information on the major goals of the institution, as well as the legal source(s) of its authority. The overview of activities describes institutional operations that are related to CCBNEP initiatives. The section on budgets and funding sources describes institutions' funding sources and expenditures or revenues. Estimates of the dollar amounts spent on CCBNEP activities are also provided in this section, where they were available. The section on administrative resources describes resources such as staff and offices available to the institution.

Exhibit 3-2. Key for Summary Tables

Institutional Roles		CCBNEP Priority Problems	
Regulatory			
Resource Management		Altered Freshwater Inflows	
Financial Assistance		Condition of Living Resources	
Technical Assistance		Loss of Wetlands and Estuarine Habitats	
Planning		Degradation of Water Quality	
Education/Outreach		Altered Estuarine Circulation	
Research		Bay Debris	
Volunteer Coordination		Public Health Issues	
Monitoring			

A few of the institutions examined have a small role with respect to the CCBNEP study area, and, therefore, do not exactly fit into this standard inventory format. Summary-level descriptions are provided for these institutions, as well as for those that were not able to furnish extensive information. In addition, some institutions included in the inventory are actually groupings of individual institutions (e.g., "counties in the study area" represents Aransas, Bee, Brooks, Duval, Jim Wells, Kenedy, Kleberg, Live Oak, McMullen, Nueces, Refugio, and San Patricio Counties). Although information was obtained from individual institutions, this inventory combines data for such grouped institutions.

Exhibit 3-3 is a matrix that identifies institutional roles and involvement in addressing priority problems. This matrix summarizes information that is presented for each institution in the sections that follow it.

Exhibit 3-3. Matrix of Institutional Roles and Involvement in Priority Problems																	
	Roles									Priority Problems							
Institution																	
Federal Institutions																	
Federal Emergency Management Agency (FEMA)			✓	✓	✓							✓					
National Aeronautics and Space Admin. (NASA)									✓			✓					
U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS)	✓												✓		✓		
USDA, Consolidated Farm Service Agency (CFSA)		✓	✓	✓				✓			✓	✓	✓				✓
USDA, Cooperative Extension Service (CES)				✓		✓							✓				
USDA, Natural Resources Conservation Service (NRCS)		✓	✓	✓	✓						✓	✓	✓				

Exhibit 3-3. Matrix of Institutional Roles and Involvement in Priority Problems																
	Roles									Priority Problems						
Institution																
U.S. Department of Commerce (USDOC), National Oceanic and Atmospheric Admin. (NOAA), National Marine Fisheries Service (NMFS)	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓
USDOC, NOAA, National Ocean Service (NOS)	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓		
USDOC, NOAA, (other then NOS and NMFS)	✓	✓	✓	✓			✓		✓		✓	✓	✓			
U.S. Department of Defense (USDOD), U.S. Army Corps of Engineers (USCOE)	✓	✓	✓	✓	✓		✓			✓	✓	✓	✓	✓		
USDOD, U.S. Navy		✓			✓						✓		✓		✓	

Exhibit 3-3. Matrix of Institutional Roles and Involvement in Priority Problems																
	Roles									Priority Problems						
Institution																	
U.S. Department of Health and Human Services (USHHS), U.S. Public Health Service (USPHS), U.S. Food and Drug Administration (USFDA)	✓			✓			✓	✓								✓
U.S. Department of the Interior (USDOI), Bureau of Land Management (BLM)				✓	✓							✓	✓			
USDOI, Bureau of Reclamation		✓	✓	✓	✓		✓			✓		✓				
USDOI, Minerals Management Service (MMS)	✓			✓			✓						✓		✓	
USDOI, National Biological Service (NBS)				✓		✓	✓		✓		✓	✓	✓			✓
USDOI, National Park Service (NPS)	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓			✓	

Exhibit 3-3. Matrix of Institutional Roles and Involvement in Priority Problems																	
	Roles									Priority Problems							
Institution																	
USDOI, U.S. Fish and Wildlife Service (USFWS)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
USDOI, U.S. Geological Survey (USGS)			✓	✓		✓	✓		✓	✓		✓	✓	✓			
U.S. Department of State (USDOS)	✓												✓				
U.S. Department of Transportation (USDOT), Research and Special Programs Admin. (RSPA)	✓												✓				
USDOT, U.S. Coast Guard (USCG)	✓		✓	✓	✓	✓	✓						✓		✓	✓	
U.S. Environmental Protection Agency (EPA)	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
State Institutions																	
Coastal Coordination Council (CCC)	✓				✓					✓	✓	✓	✓	✓	✓		

Exhibit 3-3. Matrix of Institutional Roles and Involvement in Priority Problems																	
	Roles									Priority Problems							
Institution																	
Railroad Commission of Texas (RRCT)	✓	✓	✓	✓		✓			✓		✓		✓		✓	✓	
Texas A&M University System (TAMUS)			✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Texas Attorney General (AG Office)	✓											✓	✓	✓			
Texas Department of Agriculture (TDA)	✓			✓	✓	✓			✓		✓	✓	✓				
Texas Department of Health (TDH)	✓			✓	✓		✓		✓								✓
Texas Department of Public Safety (TDPS)			✓	✓	✓								✓				✓
Texas Department of Transportation (TxDOT)		✓	✓		✓		✓					✓	✓	✓			
Texas General Land Office (GLO)	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓
Texas Governor's Office			✓		✓					✓	✓	✓	✓	✓	✓	✓	✓

Exhibit 3-3. Matrix of Institutional Roles and Involvement in Priority Problems																	
	Roles									Priority Problems							
Institution																	
Texas Historical Commission (THC)	✓				✓						✓	✓					
Texas Natural Resource Conservation Commission (TNRCC)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Texas Parks and Wildlife Department (TPWD)	✓	✓			✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Texas State Soil and Water Conservation Board (TSSWCB)		✓	✓	✓	✓	✓	✓	✓					✓				
Texas Water Development Board (TWDB)		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓			
University of Texas System (UT)			✓			✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Regional and Local Institutions																	
City of Corpus Christi	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	

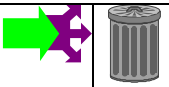
Exhibit 3-3. Matrix of Institutional Roles and Involvement in Priority Problems																	
	Roles									Priority Problems							
Institution																	
Cities other than Corpus Christi	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓		✓	
Coastal Bend Council of Governments (CBCOG)			✓	✓	✓	✓	✓	✓		✓			✓	✓	✓	
Counties in the Study Area	✓	✓	✓	✓	✓	✓						✓	✓		✓	✓
Drainage Districts		✓			✓										✓	
Guadalupe Blanco River Authority (GBRA)		✓	✓		✓					✓			✓			
Gulf of Mexico Program			✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓
Navigation Districts (other than PCCA)	✓											✓	✓	✓	✓	✓
Nueces River Authority (NRA)		✓	✓		✓					✓			✓			
Port of Corpus Christi Authority (PCCA)	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓

Exhibit 3-3. Matrix of Institutional Roles and Involvement in Priority Problems																
	Roles									**Priority Problems**						
Institution																	
San Antonio River Authority (SARA)		✓	✓		✓		✓		✓	✓			✓			
Soil and Water Conservation Districts (SWCDs)	✓	✓	✓	✓	✓	✓				✓		✓	✓			
Water Districts	✓	✓	✓	✓	✓	✓				✓			✓			✓
Non-Governmental Institutions																
Audubon Outdoor Club of Corpus Christi		✓				✓		✓		✓	✓	✓	✓	✓	✓	✓
Board of Trade, Port of Corpus Christi (BOT)			✓			✓	✓	✓	✓	✓			✓			
Coastal Bend Audubon Society		✓				✓		✓		✓	✓	✓	✓	✓	✓	✓
Coastal Bend Bays Foundation (CBBF)		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Coastal Bend Sierra Club						✓		✓		✓	✓	✓	✓	✓	✓	✓
Corpus Christi Taxpayers Association										✓						

Exhibit 3-3. Matrix of Institutional Roles and Involvement in Priority Problems																	
	Roles									Priority Problems							
Institution																	
Greater Corpus Christi Business Alliance					✓	✓											
Gulf Coast Conservation Association		✓	✓			✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
Kenedy Ranch		✓	✓								✓	✓					
King Ranch		✓	✓			✓	✓				✓	✓	✓				
National Audubon Society		✓				✓					✓	✓					
OPUS					✓	✓		✓					✓		✓		
Rob & Bessie Welder Wildlife Foundation		✓				✓	✓				✓	✓					
Save Lake Corpus Christi Association								✓		✓							
Texas Marine Mammal Stranding Network		✓						✓			✓						

Exhibit 3-3. Matrix of Institutional Roles and Involvement in Priority Problems																	
	Roles									Priority Problems							
Institution																	
Texas Seafood Producers Association, Inc.				✓		✓			✓	✓	✓	✓	✓		✓	✓	
Texas State Aquarium		✓		✓		✓	✓	✓			✓	✓	✓		✓	✓	

Federal Institutions

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)	
Role(s)	**Priority Problem(s)**
  	

MISSION

FEMA was established under the authority of Reorganization Plan 3 of 1978 and Executive Orders 12127 and 12148. Part of FEMA's mission is to provide federal insurance protection in coastal and flood-prone areas of the U.S. FEMA obtains its authority on flood insurance from the National Flood Insurance Act of 1968.

OVERVIEW OF ACTIVITIES

FEMA provides federal insurance through the National Flood Insurance Program. Flood insurance policies are actuarially based and are not subsidized by the federal government. FEMA also maps flood-prone areas, establishes criteria for land management and use, and gives planning recommendations for flood-prone and erosion-prone areas. FEMA and the designated state agency liaison assist local communities with the development of quality floodplain management programs.

BUDGETS AND FUNDING SOURCES

All mapping, study work, and staff expenses are paid by the insurance fund, rather than appropriated funds.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)	
Role(s)	**Priority Problem(s)**
	

MISSION

NASA was established by the National Aeronautics and Space Act of 1958. NASA's Space Shuttle Earth Observations Office is responsible for photographing and cataloging photos of the earth from Space Shuttle missions. Astronauts are trained in scientific observation of geological, oceanographic, environmental, and meteorological phenomena.

OVERVIEW OF ACTIVITIES

During shuttle missions, project personnel monitor the Earth for events of special interest such as hurricanes and floods. Real color, black and white, and color infrared photos are taken by astronauts with a hand-held camera at altitudes ranging from 204 to 555 km above the Earth.

U.S. DEPARTMENT OF AGRICULTURE (USDA), ANIMAL AND PLANT HEALTH INSPECTION SERVICE (APHIS)	
Role(s)	**Priority Problem(s)**
	 

MISSION

The Animal and Plant Health Inspection Service was reestablished on March 14, 1977, under the authority of the Reorganization Plan of 1953. The element of APHIS's mission that is related to CCBNEP is regulation of trash disposal from foreign ships to prevent entry and spread of exotic pests and disease in the United States.

OVERVIEW OF ACTIVITIES

APHIS regulates transport and disposal of trash on ships arriving at U.S. ports that have visited foreign ports (other than Canada). APHIS requires ships entering the U.S. from a foreign port to sterilize, incinerate, or dispose of trash in a USDA-approved waste system. APHIS also works with the U.S. Coast Guard in approving trash disposal facilities and in tracking compliance with the International Convention for the Prevention of Pollution from Ships (MARPOL), Annex V.

USDA, CONSOLIDATED FARM SERVICE AGENCY (CFSA)	
Role(s)	**Priority Problem(s)**
   	   

MISSION

CFSA administers commodity and related land use programs. These programs include the Agricultural Conservation Program, the Conservation Reserve Program and the Wetlands Program. In addition, CFSA administers various agricultural commodity production programs which are designed to balance the production of commodities that are in demand. Commodities addressed include cotton, rice, corn, wheat, peanuts, tobacco, and others. Commodity program decisions influence land use and nutrients applied to land. CFSA has an office in almost every county in the nation.

OVERVIEW OF ACTIVITIES

CFSA works closely with the Natural Resources Conservation Service to implement conservation programs. CFSA also administers various rural financial assistance programs for rural residents and small communities. These programs distribute grants for rural water and sewerage projects and provide loans for small watershed project sponsors.

Agriculture Conservation Program. CFSA's Agriculture Conservation Program pays up to 80 percent of the cost of conservation and environmental measures on farms in an attempt to minimize nonpoint source pollution. The 1990 Farm Bill includes significant water quality incentives to reduce the impacts of agriculturally applied pesticides on the aquatic environment. These incentives, in the form of payments, are provided to farmers who implement agricultural practices that reduce surface or groundwater contamination.

Conservation Reserve Program. The Conservation Reserve Program conserves and improves soil and water resources by setting aside highly erodible land that, if put into production, could adversely affect water quality.

Water Bank Program. The Water Bank Program authorizes payments for preventing serious losses of wetlands and preserving, restoring, and improving inland fresh water for owners of eligible wetlands in important migratory waterfowl habitat. CFSA also offers small cost-share grants to farmers for the installation of best management practices (BMPs) and capital improvements. Volunteer programs are operated for participants which preserve wetlands and use BMPs.

Farm Debt Restructuring and Conservation Set-Aside Program. CFSA also implements provisions of the Farm Debt Restructuring and Conservation Set-Aside Program. One provision of this program allows the Secretary of Agriculture to grant partial debt relief to CFSA borrowers in exchange for 50-year conservation easements on selected acres of wetlands. A related provision pertains to the resale of land in the CFSA inventory. The inventory consists of lands whose owners defaulted on their loans to CFSA. Section 1314 of the Act allows the Secretary to grant or sell easements, deed restrictions, or development rights of inventory lands to local governments or non-profit organizations, prior to resale of the properties to other parties. Actual implementation of this provision has not yet occurred. This provision could have sizable impacts, however, since there are currently approximately 687,990 hectares (1.7 million acres) of inventory property, and this number is expected to expand significantly.

USDA, COOPERATIVE EXTENSION SERVICE (CES)	
Role(s)	**Priority Problem(s)**
	

MISSION

CES is the education and outreach branch of land grant colleges and institutions.

OVERVIEW OF ACTIVITIES

CES focuses on four main areas: Agriculture and Natural Resources; Family and Consumer Sciences (Home Economics); 4-H and Youth; and Community and Rural Development. CES promotes the use of best management practices through public education/outreach programs and other activities, including applied field demonstrations to illustrate the proper and efficient use of fertilizers, agricultural chemicals, integrated pest management, and tillage practices. CES works through the Texas Agricultural Extension Service and county extension agents.

BUDGETS AND FUNDING SOURCES

Funding for CES is provided through a cooperative effort among the U.S. Department of Agriculture, individual states, and local governments.

ADMINISTRATIVE RESOURCES

CES works through the county extension staffs, which are located in each county, with specialists at the state level (the Texas Agricultural Extension Service) to support their activities.

USDA, NATURAL RESOURCES CONSERVATION SERVICE (NRCS)	
Role(s)	**Priority Problem(s)**
   	  

MISSION

NRCS is USDA's primary technical agency in the areas of soil and water conservation and in water quality. It is responsible for developing and carrying out national soil and water conservation programs, and assisting in agricultural pollution control, environmental improvement, and rural community development. NRCS focuses its assistance primarily on non-federal land, but assistance may also be given to public lands upon request from the administering agency. NRCS works primarily with private land owners in planning and applying measures to reduce soil erosion, conserve water, protect and improve water quality, and protect other renewable natural resources, such as plants and wildlife. The guiding principles are conservation and amicable use of land and water.

NRCS's basic authorities were created by Public Laws 74-46, 83-566, and 78-534. Program authorities were added under various farm bills including those enacted in 1961 (Resource Conservation and Development Program), 1985 (Swampbuster, Sodbuster, and Conservation Compliance and Conservation Reserve Program), and 1990 (Wetlands Reserve Program and others).

OVERVIEW OF ACTIVITIES

The main active duties of NRCS are runoff reduction, erosion control, and wetland protection.

Reduction of Runoff and Erosion Control. NRCS compiles technical guides and offers farmers grants and training on BMPs aimed at reducing runoff and controlling erosion. The agency is involved in several projects within the CCBNEP study area to try to measure runoff within various watersheds.

Conservation Reserve Program. In conjunction with CFSA, NRCS also administers the Conservation Reserve Program (CRP), which is designed to remove highly erodible croplands from production. Land owners wishing to enter any of their land in the CRP sign ten-year agreements with the Department of Agriculture stating that they will not perform any activities on the land for those ten years. Participants receive annual payments, as well as 50 percent federal cost-sharing for the establishment of vegetative cover. While CRP was not initially designed for wetlands protection, wetlands have been added to the program. Nationwide, approximately 203,000 hectares (500,000 acres) of wetlands had been enrolled by 1989.

Wetland Identification and Protection. NRCS assists landowners with the identification and protection of wetlands. Significant economic consequences, including loss of USDA program benefits, can result for agricultural producers who convert wetlands to agricultural fields. NRCS works with private landowners and others to preserve, protect, and restore wetlands and to develop wildlife and fisheries habitats. NRCS also provides technical assistance in implementing the wetland conservation programs under the Food Security Act of 1985.

Wetland Reserve Program. In addition to the Conservation Reserve Program, NRCS also administers the Wetland Reserve Program with CFSA. A target enrollment of one million acres by the end of 1995 has been set by Congress. Areas of farmed wetlands and formerly converted cropland are the principal wetland types expected to be placed into the program. Land owners will receive payments based on the length of easements they accept, either long-term (30 years) or perpetual. All lands accepted into the Wetland Reserve Program will have to be maintained according to a wetland restoration plan for the life of the easement. It is expected that the Wetland Reserve Program will have a significant and positive effect on the nation's wetland resources. NRCS performs soil surveys and operates a system of 27 Plant Material Centers for selecting, developing, testing, and releasing plants for use in conservation programs.

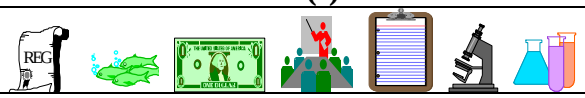
BUDGETS AND FUNDING SOURCES

Ninety-five percent of funding comes from appropriated funds, with the remainder originating from various grants and contracts.

ADMINISTRATIVE RESOURCES

NRCS has a staff of 750 in Texas, with 10 engaged in activities relating to CCBNEP priority problems. NRCS has an office in almost every county in the U.S., where it works closely with local subdivisions of state government called soil and water conservation districts. The conservation districts are governed by local citizens and typically have legislative mandates to plan and implement comprehensive soil and water conservation programs within their boundaries. These boundaries often coincide with county lines. Local NRCS offices are located in Alice,

Tilden, Kingsville, Raymondville, Falfurrias, Benavides, Robstown, Sinton, George West, Beeville, and Refugio.

U.S. DEPARTMENT OF COMMERCE (USDOC), NATIONAL OCEANIC AND ATMOSPHERIC ADMIN. (NOAA), NATIONAL MARINE FISHERIES SERVICE (NMFS)	
Role(s)	**Priority Problem(s)**
	

MISSION

The mission of NMFS is stewardship of the nation's living marine resources, including fishery species and protected species (e.g., marine mammals and sea turtles). NMFS is in charge of the routine assessment of stocks and the management of stocks through regulation of fisheries. Preservation of habitat is recognized by NMFS as essential to the long-term sustainability of marine resources and protected species.

NMFS is authorized by the Magnuson Fishery Conservation and Management Act, the U.S. Fish and Wildlife Coordination Act, the Marine Mammal Protection Act, the Endangered Species Act, the Federal Aid in Wildlife Restoration Act (Pittman-Robertson Act), the Federal Aid in Sport Fish Restoration and Management Projects Act (Dingell-Johnson Act), the National Environmental Policy Act, and the Clean Water Act.

OVERVIEW OF ACTIVITIES

Fishery Management. NMFS compiles statistics on fishery landings and fishing effort throughout U.S. territorial seas. NMFS performs its duties in five regions: Northeast; Southeast (including the U.S. Caribbean); Southwest (including Hawaii and U.S. South Pacific territories); Northwest; and Alaska. Each region works with Fishery Management Councils, made up of representatives from state governments, commercial and recreational fisheries, and environmental and consumer groups, to develop and implement Fishery Management Plans for all species under federal jurisdiction. NMFS also conducts important economic analyses of the nation's fisheries.

Habitat Conservation. The continuing loss of U.S. coastal wetlands due to development, pollution, subsidence, and dredging seriously jeopardizes fisheries productivity. NMFS monitors and protects the health of the nation's abundant coastal habitats -- estuarine marshes, coral reefs, seagrass beds, and mangroves -- that are vitally important to living marine resources. Together with NOAA's National Ocean Service and General Counsel, NMFS shares management of NOAA's Damage Assessment and Restoration Program, which works to mitigate coastal habitat damage resulting from oil and chemical spills and other environmental disasters.

Through its Habitat Conservation Program, NMFS works to conserve the habitats of living marine resources by reviewing permits and legislation, and advising on habitat-related activities

of other agencies. The Habitat Conservation Program compiles information on the ecological importance of marine and estuarine habitats and develops recommendations to reduce coastal habitat degradation. Since most species under NOAA's management authority spend some portion of their life cycle in estuaries, NMFS is concerned about the ability of estuarine habitats to sustain productivity and diversity. Habitat conservation activities are carried out through NMFS Regional Field Offices and Fisheries Science Center Laboratories. The recently created headquarters-level NMFS Restoration Center plays a significant role in habitat restoration efforts nationwide.

Protected Species Management. NMFS serves as caretaker for many marine species protected under the Endangered Species Act and the Marine Mammal Protection Act. Populations of some species of dolphins, whales, seals, sea lions, sea turtles, and (increasingly) stocks of pacific salmon have declined to the point that their future existence is now in jeopardy. NMFS works to recover these depleted resources, protecting species from activities that threaten their safety and critical habitats.

Seafood Safety and Inspection. NMFS plays a key role in safeguarding the health of the nation's seafood consumers by assisting industry with the production of wholesome, quality products. Together with the Food and Drug Administration, NMFS inspects hundreds of processing plants, distributors, and vessels, and works cooperatively with other nations to ensure that both domestic and imported fish and shellfish are safe to eat.

International Affairs. Since many U.S. stocks of marine animals are shared with other countries, Congress has approved international treaties and agreements to conserve and manage these resources. NMFS fishery managers and scientists are key participants in many worldwide organizations including: the International Whaling Commission, International Commission of the Conservation of Atlantic Tunas, Inter-American Tropical Tuna commission, International Council for Exploration of the Seas, Pacific Halibut Commission, Convention for the Conservation of Antarctic Marine Living Resources, and MEXUS-Gulf and MEXUS-Pacifico.

National Partnerships. NMFS counts on many partners to help conserve and manage living marine resources. It works closely with industry, federal, state, academic, and environmental organizations, and with many Native American groups. Guidance is provided by the Federal Marine Fisheries Advisory Committee (MAFAC), representing commercial and recreational fishing interests, fishery management agencies, the three Interstate Marine Fisheries Commissions (Atlantic States, Gulf States, and Pacific), conservation groups, and academia.

BUDGETS AND FUNDING SOURCES

NMFS is funded through annual appropriations from the U.S. Congress to NOAA. Most of NMFS's funding is devoted to maintaining fishery statistics and activities related to fisheries management.

ADMINISTRATIVE RESOURCES

NMFS has approximately 2,500 full-time equivalent (FTE) employees. Three FTEs are dedicated to activities within the CCBNEP study area. Two are port agents that gather fishery landing data and one is a NMFS enforcement officer.

USDOC, NOAA, NATIONAL OCEAN SERVICE (NOS)	
Role(s)	**Priority Problem(s)**
	

MISSION

NOS supports a variety of estuarine activities related to the broad mission of NOAA. Many of these efforts are associated with NOAA's historical mission related to navigation in estuarine and coastal waters. NOS draws most of its authority from the Coastal Zone Management Act of 1972 (CZMA) and the Reauthorization Amendments of 1990 (CZARA).

Coastal Zone Management Act. CZMA was enacted by Congress to improve the nation's management of coastal resources, which, in some areas, were being damaged by poorly planned development. Specific concerns at the time of passage were the loss of living marine resources and wildlife habitat, decreases of open space for public use, and shoreline erosion. Congress also recognized the need to resolve the conflicts between various uses that were competing for coastal lands and waters. CZMA establishes a state-federal partnership in which states take the lead in managing their coastal resources, while the federal government provides financial and technical assistance and agrees to act in a manner consistent with the federally approved state management programs. The fundamental goal of CZMA is to encourage and assist coastal states with the development of comprehensive management programs. The act authorizes NOAA to issue grants for state coastal management programs.

Coastal Zone Act Reauthorization Amendments. Section 6217 of CZARA requires states to establish coastal nonpoint programs, which must be approved by both NOAA and EPA. Once approved, the coastal nonpoint programs are implemented through the state nonpoint source pollution program, approved by EPA under Section 319 of the Clean Water Act, and through the state coastal zone management program, approved by NOAA under Section 306 of CZMA. The central purpose of Section 6217 is to strengthen the links between federal and state coastal zone management and water quality programs in order to improve state and local efforts to manage land use activities that degrade coastal waters and habitats.

OVERVIEW OF ACTIVITIES

NOS has a major role in tide and tidal current prediction and in nautical charting, including maintenance of U.S. coastal charts. NOS provides information for marine boundary determinations and generates records of long-term sea level change. NOS also has a number of programs directed at coastal and estuarine management.

Office of Ocean and Coastal Resources Management. Three programs operate within the Office of Ocean and Coastal Resources Management (OCRM): the States Assistance Program promotes prudent use of the U.S. coastal zone; the Interstate Grants Program provides funding to coordinate interstate coastal zone planning; and the National Estuarine Research Reserve Program manages estuarine reserves and supports research reserves that serve as natural field laboratories for research and education. OCRM also administers the federal Coastal Zone Management Program and Coastal Nonpoint Pollution Control Program. The Gulf/Caribbean Region staff works with CCBNEP and the Texas General Land Office on development of the Texas Coastal Management Program (CMP). Once the Texas CMP is approved, the state will be eligible to receive funds under CZMA Sections 306, 306a, 309, and 308, as well as CZARA Section 6217 coastal nonpoint pollution funds.

Estuarine Assessment. NOS also manages specific programs directed at estuarine assessment. Within the Office of Resource Conservation and Assessment (ORCA), the Strategic Environmental Assessments Division (SEA) carries out assessments of multiple resource uses. Products include a National Estuarine Inventory, Coastal Wetlands Inventory, and the National Coastal Pollution Discharge Inventory (NCPDI). NCPDI estimates of discharges for watersheds draining to the Gulf of Mexico were previously for a base year of 1987, and were updated to a 1991 base year in FY 1994. As part of the update, the study area was expanded to incorporate more inland areas, and the methods used to estimate discharges were improved for all sources. SEA is also developing geographic information systems to facilitate the use of these databases including: the Computer Mapping and Analysis System (CMAS); the Coastal Ocean Management, Planning, and Assessment System (COMPAS); and GeoCOAST (Texas was used as the pilot project for the COMPAS project). In addition, under the auspices of ORCA, the Hazardous Materials Response Division provides scientific support for hazardous material spills, using numerical modeling and environmental sensitivity analyses.

Strategic Environmental Assessments. SEA also develops comprehensive information about environmental quality as it relates to estuarine and oceanic resources. These data are used for national and regional assessments to develop practical strategies to balance conservation requirements and use demands. The Division is conducting the Estuarine Eutrophication Survey, a national survey of the conditions and trends of nutrient enrichment and eutrophication in the estuaries of the contiguous U.S. The goal is to assess the scale and scope of existing problems and provide an information base to identify future research and monitoring needs. Activities of interest within the CCBNEP study area include: the Fisheries Abundance Studies/Reports; the National Shellfish Register, which identifies acreage of approved and prohibited shellfish harvesting waters, as well as general impacts to those waters from point and nonpoint sources; tracking of population changes for coastal counties; and reports assessing coastal wetlands of the U.S.

BUDGETS AND FUNDING SOURCES

Funding for NOS is derived from the federal appropriations process. In FY 1995, the Coastal Zone Management budget was $51.9 million, the Coastal Programs Division budget was $2 million, and the Sanctuaries/Reserves Program budget was $13 million.

ADMINISTRATIVE RESOURCES

Support for the CCBNEP study area is provided through OCRM's Coastal Program Division in Silver Spring, MD, and ORCA's Coastal Resources Branch, operating out of EPA Region 6 in Dallas, TX. Nineteen FTEs are assigned to the Texas Coastal Program and 3 FTEs are assigned to the Texas National Marine Sanctuaries Program.

USDOC, NOAA (OTHER THAN NOS AND NMFS)	
Role(s)	**Priority Problem(s)**
	

MISSION

NOAA is a lead federal agency in the development and dissemination of scientific information for the nation's estuarine and coastal ocean waters. NOAA was formed on October 3, 1970, under the authority of Reorganization Plan 4 of 1970. NOAA provides a wide range of observational, assessment, research, and predictive services for estuarine and coastal ocean regions. In the Gulf of Mexico, NOAA maintains coastal and marine research facilities, National Estuarine Research Reserves, and National Marine Sanctuaries, oversees approved Coastal Zone Management Plans in three coastal states, and has direct ties to universities and colleges through the National Sea Grant College Program. NOAA has developed an array of programs to address not only national-scale estuarine issues, but also specific problems affecting individual estuarine and coastal ocean systems.

OVERVIEW OF ACTIVITIES

NOAA directs several sub-agencies and programs that have a role in CCBNEP issues. These include: the Coastal Ocean Program (COP), which includes the National Status and Trends (NS&T) Program; the National Environmental Satellite, Data, and Information Service (NESDIS); the National Weather Service (NWS); and the Office of Oceanic and Atmospheric Research (OAR).

BUDGETS AND FUNDING SOURCES

NOAA is primarily funded by federal appropriations, although the agency does receive some supporting grants.

U.S. DEPARTMENT OF DEFENSE (USDOD), U.S. ARMY CORPS OF ENGINEERS (USCOE)	
Role(s)	**Priority Problem(s)**
	

MISSION

USCOE is responsible for water resources projects including flood control, hydropower production, navigation, water supply storage, recreation, and fish and wildlife resources. USCOE contracts and regulates coastal engineering projects, particularly harbor dredging and beach renourishment projects. USCOE also reviews and is the permitting agency for coastal development projects and artificial reefs.

USCOE draws its authority from by several acts, including: the Federal Water Pollution Control Act Amendments of 1972 (Clean Water Act of 1977), as amended; the Rivers and Harbors Act of 1899; the Fish and Wildlife Coordination Act; the Marine Protection, Research, and Sanctuaries Act; the Water Resources Development Act of 1986; the Coastal Wetlands Planning, Protection, and Restoration Act; and the Coastal Barrier Resources Act of 1982.

OVERVIEW OF ACTIVITIES

USCOE activities include operating a regulatory program for wetlands protection, completing studies of shore protection projects, constructing authorized projects, and extensive research. These are described below.

Wetlands Protection and Management. Under the Clean Water Act (CWA), USCOE has responsibility for conducting a regulatory program that considers all functions and values of wetlands and the effects of individual or multiple projects in wetlands. USCOE is directly involved in wetlands protection and management through its project planning, construction, operations and maintenance (primarily of navigation and flood control projects), regulation, and permitting.

Post-Authorization Studies. The Corps is responsible for conducting post-authorization studies, which are planning and engineering studies for shore protection projects authorized under Section 105 (a) and (b) of PL 99-662. These studies are conducted under a contract providing for 50/50 federal/non-federal cost sharing. Evaluation studies for disposal of materials dredged from navigation inlets and channels onto adjacent beaches under Section 145 of PL 94-587, as amended, are initially financed by USCOE. Studies for extension of beach nourishment periods under Section 934 of PL 99-662 are also initially financed by the federal government.

Project Construction. Construction of authorized projects is a responsibility of USCOE. However, local interests may construct portions of projects after they are authorized by Congress and be reimbursed by the federal government within the limitations of Section 215 of PL 90-483, as amended, if prior approval is obtained from the Chief of Engineers. Periodic beach

nourishment, by placement of suitable materials on a beach at appropriate intervals of time, is considered "construction" for cost sharing purposes when, in the opinion of the Chief of Engineers, such periodic nourishment is a more economical erosion protection measure than retaining structures.

Research. The Waterways Experiment Station (WES), in Vicksburg, Mississippi, is the major research facility for USCOE. It operates labs that study hydraulics, geophysical issues, coastal structures, coastal engineering, and environmental issues. WES is responsible for most of USCOE's environmental research. Through the Wetland Regulatory Assistance Program, WES provides assistance to USCOE districts in wetland delineation and evaluation. The Dredging Research and Assistance Programs study beneficial uses of dredged material (including wetland and terrestrial habitat development). The Aquatic Plant Research and Assistance Program is targeted at developing techniques for keeping aquatic vegetation at desirable levels.

WES also administers the Wetlands Research Program (WRP) which is targeted at refining techniques for wetlands delineation, wetlands evaluation, wetlands restoration and development, and wetlands management. The purpose of WRP is to use the scientific and engineering disciplines of USCOE in coordination and cooperation with other agencies and offices, to provide environmentally sound, cost-effective techniques to manage the nation's wetlands. In addition, WES has a Work Unit that, through an interagency working group, will develop standards for monitoring and success criteria for wetlands. Through partnering with the Gulf Coast Initiative, WES will use the information from the Work Unit to develop regional wetlands monitoring and success criteria for the northern Gulf Coast region. WES also will develop a brochure for wetland restoration, protection, and creation criteria for the northern Gulf Coast.

BUDGETS AND FUNDING SOURCES

USCOE receives its funding primarily from federal appropriations. In FY 1995, the Galveston District, which has authority in the CCBNEP study area, had appropriations of over $117 million, with $38 million for construction and $66 million for operations and maintenance. Funding for projects in the CCBNEP study area included $928,000 for studies (general investigations), $611,000 for construction, and $7.9 million for operations and maintenance.

ADMINISTRATIVE RESOURCES

The Galveston District has an area office in Corpus Christi staffed by 17 personnel.

USDOD, U.S. NAVY	
Role(s)	**Priority Problem(s)**
 	  

MISSION

The modern legislative authority for the U.S. Navy is the National Security Act of 1947. The Navy operates Naval Station Ingleside and Naval Air Station Corpus Christi on Corpus Christi Bay. In addition, the Navy operates Naval Air Station Kingsville in Kleberg County. The missions at Naval Air Stations Corpus Christi and Kingsville are training prospective aviators and Naval flight officers, and advanced jet flight training, respectively. Naval Station Ingleside is the Navy's Mine Warfare Center of Excellence. It is still in the process of planning the construction of facilities to support training operations in the Gulf of Mexico. The Navy conducts its defense-related operations with appreciation for the environment in a manner that conforms to CCBNEP initiatives.

OVERVIEW OF ACTIVITIES

Navy management and planning activities include reductions of both hazardous and solid waste and implementation of the Oil and Hazardous Waste Spill Prevention Control and Countermeasures Plan, the Facility Spill Response Plan, Oily Waste/Waste Oil Management, and the Stormwater Pollution Prevention Plan.

Shipboard Pollution Abatement Program. Since 1971, the U.S. Navy has led a Shipboard Pollution Abatement Program to regulate waste discharges from naval vessels. The Navy has implemented a program reducing the amount of plastics dumped by its ships by 70 percent. The Navy also is developing alternatives to current shipboard waste management systems and shipboard pollution control equipment. For example, the Navy has investigated source reduction, researched alternative packing materials, begun an education program, and explored new waste management technology, such as shipboard trash compactors that are designed to process solid and plastic waste generated aboard Navy vessels.

Management and Planning Activities. The Navy is responsible for managing submerged acres at the Naval Station waterfront as well as a dredge spoil site. In addition, the Navy conducts planning activities to ensure that it is in compliance with all applicable laws and regulations. Planning activities focus on spill response, dredging issues, shoreline development, habitat/species protection, and erosion control.

BUDGETS AND FUNDING SOURCES

Funding for all Naval activities is from federal appropriations.

ADMINISTRATIVE RESOURCES

The Public Works Department has an environmental staff at the three Navy installations devoted to managing environmental and natural resource programs. One person at Naval Station Ingleside devotes a portion of his time serving on the CCBNEP Management Committee.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES (USHHS), U.S. PUBLIC HEALTH SERVICE (USPHS), U.S. FOOD AND DRUG ADMINISTRATION (USFDA)	
Role(s)	**Priority Problem(s)**
	

MISSION

USFDA is responsible for establishing safe levels for poisonous or deleterious substances that contaminate food (other than pesticide residues, which EPA regulates). USFDA conducts its activities under the authority of the Federal Food, Drug, and Cosmetic Act (FFDCA).

OVERVIEW OF ACTIVITIES

USFDA regulates the level of harmful substances in food, including shellfish. In addition to its administrative role, the department performs inspections to ensure compliance.

Seafood Regulation. Enforcement actions for toxic constituents in seafood are based upon USFDA action levels, which are the only available criteria on contaminants in fisheries products. In controlling toxic substances in seafood, USFDA publishes a manual of operations for the National Shellfish Sanitation Program, which sets legal requirements and general administrative procedures to be followed by state health programs. USFDA reviews state shellfish sanitation control programs to ensure compliance.

General Food Regulation. Under ideal conditions, USFDA will attempt to establish a formal tolerance or maximum permissible level of harmful substances in food. When toxicological data are sparse or conflicting, when additional data are being developed, or when other conditions are rapidly changing, Sections 306, 402(a) and 406 of the FFDCA allow the use of action levels. Action levels meet the same criteria as tolerances except they are intended for interim periods and can be instituted and changed more quickly than tolerances.

U.S. DEPARTMENT OF THE INTERIOR (USDOI), BUREAU OF LAND MANAGEMENT (BLM)	
Role(s)	**Priority Problem(s)**
 	 

MISSION

BLM was established on July 16, 1946, and is governed by the Federal Land Policy and Management Act of 1970. It focuses its efforts on assisting states with the identification of affected bodies of water and development of nonpoint source management plans. The foundation for these efforts is provided by the Clean Water Act, Section 208.

OVERVIEW OF ACTIVITIES

The Bureau and the U.S. Forest Service jointly developed a training program for natural resource managers and planners on the role and responsibility of each agency in nonpoint source pollution control. Congress provided specific funding for the Bureau's Riparian Management Program. This program has had and will continue to have a significant effect on improving water quality in stream reaches under Bureau management and will remain one of the Bureau's highest priorities.

USDOI, BUREAU OF RECLAMATION	
Role(s)	**Priority Problem(s)**
    	 

MISSION

The Bureau's mission is to assist states, local governments, and other federal agencies in stabilizing and stimulating local and regional economies, enhancing and protecting the environment, and improving the quality of life through management, conservation, and development of water and related land resources. In 1987, the Bureau announced a redirection in its mission. Instead of concentrating primarily on water resource development, the Bureau is placing greater emphasis on more efficient operation of existing projects and resource management issues, such as water quality and environmental restoration. Several initiatives address nonpoint source pollution, including irrigation drainage research, technology development, cooperative basin water quality studies, and a national irrigation water quality program. The Bureau of Reclamation operates under the authority of the 1902 Reclamation Act and Amendments and various executive orders.

OVERVIEW OF ACTIVITIES

Bureau of Reclamation projects serve some or all of the following functions: irrigation service; municipal and industrial water supply; hydroelectric power generation; water quality

improvement; groundwater management; fish and wildlife enhancement; outdoor recreation; flood control; navigation; river regulation and control; and system project beneficiaries. The Bureau does some work on non-interior lands, but it would like to broaden its authority to do so. In addition, the Bureau would also like to conduct projects to protect wetlands, beyond interior lands. The Bureau also arranges for repayment to the government of reimbursable costs incurred in the construction and operation of water resource projects.

Nueces Bay Project. Within the CCBNEP study area, the Bureau participates on the Nueces Estuary Advisory Council, which is chaired by TNRCC, and reviews water supply issues. The Bureau is conducting a project intended to increase the productivity of Nueces Bay by digging channels that simulate riparian overflows and distribute water in a natural way in the estuary. This project represents the Bureau's main function that relates to the priority problems in the CCBNEP study area.

The project involves a fairly large amount of research, including research in maintenance of freshwater inflows, delta building, loss of marsh, nutrient concentrations and transport, alterations in timing and volume of tributary flow, and natural climatic conditions. The Bureau also has produced brochures and is trying to produce a video on the benefits of a healthy ecosystem. These educational materials address loss of wetlands and estuarine habitats in the CCBNEP study area. The Bureau also is sponsoring the Audubon Society in touring the Nueces Bay area and collecting information on the birds of the area.

Other Activities. The Bureau owns and helps the city of Corpus Christi operate the Choke Canyon Reservoir. The Bureau also participates on the Technical Advisory Committee on freshwater inflows, which is chaired by TNRCC.

BUDGETS AND FUNDING SOURCES

The Bureau is funded by appropriations. For the Nueces Bay project, the Bureau receives some cost sharing from the city of Corpus Christi.

ADMINISTRATIVE RESOURCES

The Bureau's total involvement in CCBNEP issues represents approximately one full-time equivalent, operating mainly out of the Austin office.

USDOI, MINERALS MANAGEMENT SERVICE (MMS)	
Role(s)	**Priority Problem(s)**
	

MISSION

MMS was established by Secretarial Order # 3071 on January 19, 1982, under the authority of Reorganization Plan 3 of 1950. Its basic authorities are derived from the Mineral Management Act of 1947 and the Outer Continental Shelf Lands Act. It is the lead regulatory agency for federal offshore oil and gas operations. MMS's activities are conducted on the outer continental shelf beyond the Texas three-league boundary line.

OVERVIEW OF ACTIVITIES

Most of MMS's activities, mentioned below, have minimal involvement in the CCBNEP study area. Only pollutants originating from regulated activities (oil and gas) that enter the bay system through the passes affect the study area.

Petroleum Activities Pollution Reduction. MMS has established pollution prevention and control regulations for the drilling, production, and pipeline transportation of oil and gas on the OCS, as well as handling and treating trash and wastes generated by petroleum activities. MMS restricts the disposal of solid waste materials into the ocean and inspects offshore operations to ensure compliance. Under the theme "Take Pride Gulf-Wide," MMS takes an active role in developing methods and supporting research to mitigate the effects of pollution. In 1986, MMS issued a special directive to all Gulf of Mexico oil and gas operations to train employees on proper waste disposal. MMS also sponsors an annual Information Transfer Meeting to present major Gulf environmental issues to industry, state, and local governments, and the general public. Recently, MMS held special sessions on marine debris.

Research on the Effects of Oil and Gas Activities. MMS supports and administers a multidisciplinary studies program to develop information needed for assessment and mitigation of impacts to human, marine, and coastal environments that may be affected by outer continental shelf oil and gas activities. MMS's Outer Continental Shelf Environmental Studies Program has recently (1991) funded a series of studies through Texas A&M University on the distribution and abundance of marine mammals in the north-central and western Gulf of Mexico. The study is designed to produce a first-step estimate of the potential effects of deep-water exploration and production on these species. The studies include systematic aerial and shipboard surveys, behavioral observations, and the tagging and subsequent tracking of a limited number of sperm whales using satellite telemetry. Data acquired from shipboard surveys and remote sensing will be used to characterize preferred habitats of cetaceans in the study area, whereas data acquired from behavioral observations will be used to determine preferred geographic areas and temporal patterns of critical activities such as feeding, breeding, and mating.

MMS also studies the potential impact of offshore activities, including the placement and construction of petroleum pipelines, on coastal wetlands and resources. In addition, MMS funds research through state geoscience agencies for identifying mineral resources in the coastal zone.

BUDGETS AND FUNDING SOURCES

Funding is provided through federal appropriations.

ADMINISTRATIVE RESOURCES

The MMS Corpus Christi Subdistrict office is located within the CCBNEP study area.

USDOI, NATIONAL BIOLOGICAL SERVICE (NBS)	
Role(s)	**Priority Problem(s)**
	

MISSION

NBS is the biological research division of the Department of Interior. It was created by consolidating the biological science programs from seven Interior bureaus: USFWS; NPS; BLM; MMS; USGS; Bureau of Reclamation; and the Office of Surface Mining. It became operational in 1993, with the signing of the FY 1994 Interior Appropriations Act. Its mission is to provide the scientific understanding and technologies needed to support sound management and conservation of the nation's biological resources. NBS has no regulatory mandate, management responsibility, or advocacy role. It is dedicated to independent science. It is responsible for research on species, habitats, and ecosystems with an emphasis on conservation of biodiversity.

OVERVIEW OF ACTIVITIES

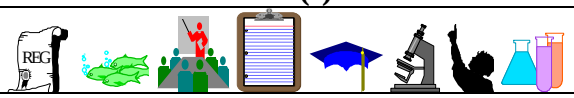
In the CCBNEP study area, NBS, through its Texas Gulf Coast Field Station, conducts research on habitat needs of neotropical migrant songbirds, wintering biology of redheads, factors responsible for major changes in seagrass distribution, and distribution and effects of contaminants in bog and marine sediments. NBS also has cooperative agreements with various universities to support studies related to its own research activities and provide technical assistance.

BUDGETS AND FUNDING SOURCES

The FY 1995 budget for NBS was $166.9 million and the FY 1996 budget request is $172.7 million. The budget for NBS offices within the CCBNEP study area is approximately $700,000 and is covered primarily by appropriated funds.

ADMINISTRATIVE RESOURCES

The local office has eight biologists and one clerical staff person, and also uses part-time researchers on a cooperative and contract basis.

USDOI, NATIONAL PARK SERVICE (NPS)	
Role(s)	**Priority Problem(s)**
	

MISSION

NPS manages an extensive system of public lands including national parks, monuments, lakeshores, seashores, set asides for the protection of natural environments, and historic properties for the education and enjoyment of citizens. Management, enforcement, and research activities are conducted by NPS on lands subject to its jurisdiction, including management of wildlife resources, such as fisheries.

NPS draws most of its authority from the act which created it, the National Park Service Organization Act of 1916. The purpose of this Act is to "conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations..."

OVERVIEW OF ACTIVITIES

NPS operates and manages the 133,000 acre Padre Island National Seashore (PINS), part of which is in the CCBNEP study area. PINS forms most of the eastern shoreline of the Upper Laguna Madre.

Marine Debris. NPS conducts research on marine debris and has established programs to address disposal and cleanup. Marine debris is a significant problem at PINS, and is the subject of an ongoing study. NPS actively participates in "Take Pride in the Gulf" education programs at or related to national seashores, lakeshores, and rivers, including interpretive programs. NPS also works with private groups (such as Keep America Beautiful) to develop solutions to solid waste problems. NPS has collaborated with the U.S. Coast Guard and others since 1984 in inventorying, removing, and analyzing the contents of 55-gallon drums washing up on the 65 miles of Gulf shoreline at Padre Island National Seashore. NPS also is conducting a systematic investigation of marine debris at eight National Parks located along the Pacific, Gulf, and Atlantic coasts.

BUDGETS AND FUNDING SOURCES

NPS's primary source of funding is Congressional appropriations, with limited additional funding received from user fees, other agencies, and oil production operators.

ADMINISTRATIVE RESOURCES

PINS has 53 FTE positions, of which approximately eight are involved in activities relating to CCBNEP priority problems. NPS has 15,000 permanent and 20,000 seasonal employees.

USDOI, U.S. FISH AND WILDLIFE SERVICE (USFWS)	
Role(s)	**Priority Problem(s)**
	

MISSION

USFWS is responsible for: conserving; enhancing; and protecting fish and wildlife and their habitats for the continuing benefit of species; protecting certain marine mammals; preserving inland sports fisheries; and conducting specific research projects on fish and wildlife. USFWS has managerial responsibilities for many coastal fish and wildlife species including anadromous and interjurisdictional fish (fish living in international waters), migratory birds, marine mammals, and hundreds of endangered species. Since its formation over a century ago, USFWS has played a key role in the conservation of the nation's coastal ecosystems. USFWS's 1970 seven-volume coastal assessment (National Estuary Study) was a pioneering work that helped focus attention on the problems of U.S. coastal resources.

USFWS manages living resources and habitats under several statutes, including: the Endangered Species Act; the Fish and Wildlife Coordination Act; the Anadromous Fish Conservation Act; the Marine Mammal Protection Act; the Federal Aid in Sport Fish Restoration Act; the Federal Aid in Wildlife Restoration Act; the Fish and Wildlife Act of 1956; the Food Security Act of 1985; the Clean Water Act; the Coastal Wetlands Planning, Protection, and Restoration Act; the North American Waterfowl Conservation Act; the Migratory Bird Conservation Act; the Hunting Stamp Act; the Coastal Barriers Improvement Act; and the Striped Bass Act.

OVERVIEW OF ACTIVITIES

USFWS assists in coastal and marine habitat protection through the regulatory review of federal projects and permit actions and by providing comments to regulatory agencies. USFWS also provides expert ecological assistance and reviews more than 36,000 proposed federal actions each year, including federal water development projects, oil and gas leases, coastal zone management activities, Clean Water Act permits, and hydropower licenses. Forty to 65 percent of these activities involve coastal lands and waters, encompassing hundreds of thousands of acres of important coastal habitat.

Federal Aid. USFWS renders financial and professional assistance to states through federal aid programs for the enhancement and restoration of fish and wildlife resources. The Service distributes millions of dollars annually though federal aid to state agencies for fisheries and habitat improvement projects.

Law Enforcement. USFWS establishes and enforces regulations to protect migratory birds, marine mammals, fish, and other non-endangered wildlife from illegal taking, transportation, or sale within the U.S. or foreign countries

USFWS Fisheries Resource Offices. USFWS Fisheries Resource Offices participate in the management of interjurisdictional fisheries of the Gulf of Mexico and its rivers through various interagency committees, commissions, and councils.

The Fish and Wildlife Coordination Act of 1958 (as amended). USFWS ensures that fish and wildlife concerns are considered equally with navigation, landfill, hydroelectric power generation, flood control, and other water resource interests whenever a federal agency plans, licenses, or permits a watercourse modification for any purpose. The Act empowers USFWS and the National Marine Fisheries Service to review and comment on the impact on fish and wildlife of all new federal projects and federally permitted projects that take place in or affect navigable waters. This authority covers projects permitted under Section 404 and activities sanctioned, permitted, assisted, or conducted by the U.S. Army Corps of Engineers, Bureau of Reclamation, and other federal agencies. The review focuses on potential damage to fish and wildlife and their habitat, particularly in near-shore waters, and may, therefore, serve to provide protection to fishery resources from federal activities.

Wildlife Refuges. USFWS acquires, protects, and manages unique ecosystems necessary to sustain fish and wildlife, such as migratory birds and endangered species. USFWS operates wildlife refuges to provide, restore, and manage a national network of lands and waters sufficient in size, diversity, and location to meet society's needs for areas with the widest possible spectrum of benefits associated with wildlife and wildlands. Most of the Aransas National Wildlife Refuge (ANWR) and portions of the Matagorda Island National Wildlife Refuge (MINWR -- part of the ANWR complex) are located within the CCBNEP study area. They are a winter area for the endangered whooping crane and other threatened and endangered species. Approximately 40 percent of USFWS's nearly 500 National Wildlife Refuges are coastal, covering over 60 million acres. Additional coastal acquisitions are planned.

Fish Protection and Management. Under the Federal Aid in Sport Fish Restoration Act, the federal government collects taxes on the sale of recreational fishing and boating equipment, and the Secretary of the Interior (through USFWS) apportions these revenues to state fish and wildlife agencies for sport fish restoration and management purposes in fresh and marine waters. In addition, under the Fish Restoration and Management Projects Act, the Department of the Interior (through USFWS) apportions funds to state fish and game agencies for fish restoration and management projects. Funds for protection of threatened fish communities located within state waters, including marine areas, can be made available under this Act.

Migratory Bird and Waterfowl Protection. Through the Migratory Bird Program and the North American Waterfowl Management Plan, USFWS cooperates with a broad array of partners to ensure the conservation of many species of coastal migratory birds, including neotropical migrants (those that annually come to the U.S. and Canada from the New World tropics), waterfowl, and other water and shorebirds. Four of the North American Joint Venture efforts

under the North American Waterfowl Management Plan (NAWMP) cover nearly 75 percent of the U.S. continental coastline. Within the CCBNEP study area, the NAWMP sponsors an ongoing prairie wetlands program to restore, enhance, and create shallow wetlands in coastal prairies in partnership with private landowners.

Endangered Species Act. The Endangered Species Act is administered by USFWS and the National Marine Fisheries Service. The Act provides for the listing of threatened or endangered plant and animal species. The Act also provides for the designation of critical habitats for those species, as needed. Once listed as a threatened or endangered species, taking (including harassment) is prohibited. The process ensures that projects authorized, funded, or carried out by federal agencies do not jeopardize the species' existence or result in habitat deterioration, including actions that would eliminate, degrade, or make less accessible any of the physical or biological features essential to the conservation of the species.

USFWS is the primary federal agency responsible for the protection and recovery of threatened and endangered populations of coastal birds, and provides a supporting role in the recovery of sea turtles. USFWS operates a system of national wildlife refuges that encompasses a substantial amount of coastal estuarine habitat important to fisheries in the Gulf of Mexico. USFWS also oversees the import and export of plants and animals through coastal ports-of-entry. USFWS's administration of the Endangered Species Act not only protects listed species and their ecosystems, but implements actions to recover and restore them to full reproductive capacity. With 50 percent of endangered and threatened species dependent upon coastal areas for habitat, administration of the Endangered Species Act plays an important role in the recovery and conservation of these species and their imperiled coastal ecosystems.

Environmental Contaminants Program. Through the Environmental Contaminants Program, USFWS responds to and assesses the impacts of oil spills, point and nonpoint source pollution, and hazardous materials in coastal areas. The program also includes efforts to repair damages to living resources at Superfund sites and other contaminated or polluted habitats. In addition, USFWS conducts research for NOAA on marine debris ingestion rates and possible effects on seabirds, and cooperates with state agencies to educate fishermen and boaters on the hazards of marine debris.

Nonpoint Source Pollution Projects. USFWS focuses attention on nonpoint source pollution problems in a number of areas. USFWS has conducted research to define the scope and effect of pollutants from urban and agricultural runoff, mining, silviculture, and hydromodification on fish and wildlife species and their habitats. USFWS also has conducted special information and education efforts to encourage farm owners to participate in the USDA Conservation Reserve Program, and worked with the Agricultural Extension Service to develop a pamphlet emphasizing the benefits of riparian vegetation in reducing nonpoint source pollution.

USFWS routinely provides recommendations on best management practices (BMPs) to control nonpoint source pollution when reviewing permit/license applications, federal project construction and operation plans, resource management plans, conservation easements, and other

types of land management activities. Measures to mitigate damage to fish and wildlife resources or their habitats are included in these recommendations.

In addition, under the Irrigation Drainwater Program, USFWS is determining the causes and degree of problems associated with excessive levels of micronutrients (e.g., selenium, boron) in irrigation wastewaters. Controls and alternatives to mitigate these problems are under development.

Dioxin Pollution. USFWS has identified dioxin, primarily from pulp and paper mills, as a major problem within the Southeast Region. It is recognized that dioxin is contributing to the contaminant load in many rivers and streams flowing into the Gulf of Mexico. USFWS will seek support in identifying the extent of this problem and initiating remedial activity.

Wetland Acquisition Programs. USFWS administers a number of wetland acquisition programs. The Migratory Bird Hunting and Conservation Stamp Act of 1934 requires all waterfowl hunters to buy "duck stamps," the proceeds of which are used by USFWS to acquire migratory waterfowl habitat. The Small Wetlands Acquisition Program, also administered by USFWS, offers landowners the opportunity to sell wetlands and surrounding upland area outright, or to enter into a perpetual easement agreement that places a restriction on the wetlands. Lease and purchase prices under this program reflect current market conditions. Through the Partners for Wildlife Program, USFWS assists private land owners in the restoration of wetlands and other fish and wildlife habitat. Additional funds for the purchase of wetlands are available through USFWS' Land and Water Conservation Fund.

Wetlands Research. What was formerly the USFWS's National Wetlands Research Center is now part of the National Biological Service, headquartered in Lafayette, LA, with field stations in Vicksburg, Mississippi, and Corpus Christi, Texas. Research focuses on migratory birds, spatial analysis, and wetlands ecology. Migratory bird research emphasizes wintering waterfowl and neotropical migrants, as well as shorebirds and colonial nesting birds. Research includes the inventory and monitoring of migratory bird populations, monitoring of habitat changes, particularly seagrass coverage, population modeling, habitat and ecosystem requirements, estimates of time-specific survival rates, and development of management data bases and models. USFWS also administers the National Wetlands Inventory. This inventory provides standard and digital wetland maps at various scales.

Coastal Ecosystem Program. USFWS's Coastal Ecosystem Program is an integral component of all Service efforts, activities, and authorities with a role in the conservation of coastal living resources. This program consists of individual bay/estuary efforts tailored to meet the challenges of the watersheds in which they occur. Each Coastal Ecosystem Program involves seven major functions, including: (1) coordination of all service activities in the watershed, advocacy for fish and wildlife resource needs and solutions in the planning and programs of other agencies; (2) development of partnerships to accomplish coastal habitat restoration projects; (3) compilation and management of existing data; (4) assistance with identification of priority resource needs and solutions; (5) identification of data gaps; (6) development of status and trend information; and

(7) provision of public outreach and education activities. The Galveston Bay/Texas Coast Ecosystem Program participates in CCBNEP activities.

Other Research and Data Collection. While USFWS conducts extensive research, approximately 50 percent of which focuses on coastal habitats, ecosystems, or species, most of USFWS's former research capacity is now housed in the National Biological Service. USFWS administers one of the most comprehensive databases on coastal living resources, ecosystems, and biodiversity in the world.

BUDGETS AND FUNDING SOURCES

Appropriations are the major source of funding. However, additional funding is obtained through grants, fees, and donations.

ADMINISTRATIVE RESOURCES

Listed below are the elements of USFWS located within the CCBNEP study area:

- ***Ecological Services Field Office (CCESFO)*** -- 15 employees;
- ***National Wildlife Refuges (ANWR and MINWR)*** -- more than 15 employees and numerous volunteers;
- ***Coastal Fisheries Resources Office (CFRO)*** -- 4 employees;
- ***Law Enforcement*** -- one special agent; and
- ***Realty Division*** -- one person in Victoria servicing the area.

In addition, USFWS contributes personnel resources to address CCBNEP priority problems as follows.

- **Altered Freshwater Inflows** -- One part-time person from CCESFO;
- **Condition of Living Resources** -- Four employees and three students from CCESFO, one person from CFRO, five persons from ANWR and MINWR, and one law enforcement special agent;
- **Loss of Wetlands/Estuarine Habitat** -- Four employees and three students from CCESFO, three employees and four students from CFRO, and two persons, plus some students, from the National Wildlife Refuges;
- **Degradation of Water Quality** -- Five persons from CCESFO;
- **Altered Estuarine Circulation** -- One part-time person from CCESFO;
- **Bay Debris** -- Two or three part-time persons from MINWR and several volunteers; and
- **Public Health** -- One student from CFRO.

USDOI, U.S. GEOLOGICAL SURVEY (USGS)	
Role(s)	**Priority Problem(s)**
	

MISSION

Established by the Act of March 3, 1879, the mission of USGS' Water Resources Division, is to provide the hydrologic information and understanding needed for the optimum utilization and management of the nation's water resources for the overall benefit of the people of the United States. USGS receives most of its authority from the Water Resource Research Act of 1984. This Act established a Water Resource Institute or Center in each of the 50 states.

OVERVIEW OF ACTIVITIES

USGS engages in numerous activities, it: conducts research on the geologic framework of coasts and on sediment transport processes; collects and analyzes hydrologic data; makes topographic, geologic, and hydrologic maps of coastal areas; and investigates ancient and modern coastal environments. Scientific studies of sedimentary processes and seismicity traditionally have been part of the USGS mandate, and recently, Congress directed USGS to take the lead in geologic studies of the coastal zone and wetlands by creating a National Coastal Geology Program. Areas of study include erosion, polluted sediments, and wetlands deterioration. Within the CCBNEP study area, the Texas District of the USGS' Water Resources Division conducts research and provides technical and financial assistance for issues such as altered freshwater inflows into the bay and degradation of water quality.

Functions of the Water Resource Institutes or Centers.

1. Provide centers of expertise in water and associated land-use problems and serve as a repository of knowledge for use in education, research, planning, and community service.
2. Serve public and private interests in the conservation, development, and use of water resources.
3. Provide training opportunities in higher education, whereby skilled professionals become available to serve government and the private sector.
4. Assist planning and regulatory bodies at the local, state, regional, and federal levels.
5. Communicate research findings to potential users in a form that encourages quick comprehension and direct application to water-related problems.

BUDGETS AND FUNDING SOURCES

The Texas District of the Water Resources Division receives approximately $13 million in appropriated funds per year. USGS also relies on grants from other federal, state, and local authorities.

U.S. DEPARTMENT OF STATE (USDOS)	
Role(s)	**Priority Problem(s)**
	

MISSION

USDOS, established by the Act of July 27, 1789, represents the U.S. in international meetings on marine pollution issues and in the negotiation of treaties and agreements for foreign fishing in U.S. waters.

OVERVIEW OF ACTIVITIES

The State Department played a leading role in U.S. ratification of MARPOL Annex V, and ensures that the U.S. complies with its international obligations under these agreements.

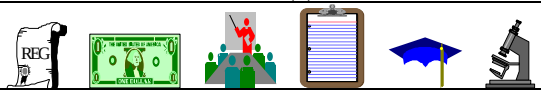
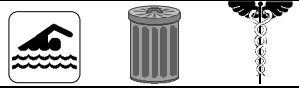
U.S. DEPARTMENT OF TRANSPORTATION (USDOT), RESEARCH AND SPECIAL PROGRAMS ADMINISTRATIONS (RSPA)	
Role(s)	**Priority Problem(s)**
	

MISSION

RSPA's Office of Pipeline Safety regulates pipelines carrying oil and hazardous substances under the Pipeline Safety Act.

OVERVIEW OF ACTIVITIES

RSPA is responsible for regulating pipelines that run through the CCBNEP study area and pose a pollution threat from leaks and breakage.

USDOT, U.S. COAST GUARD (USCG)	
Role(s)	**Priority Problem(s)**
	

MISSION

USCG is one of the five armed forces. During peacetime, it is an administration within the Department of Transportation. In times of war, it operates as part of the Department of Navy. The Coast Guard is the nation's primary maritime law enforcement agency, enforcing applicable federal laws and international agreements. It is also the nation's maritime and port safety regulatory agency. It has numerous functional programs, such as search and rescue, waterways

management, maritime law enforcement, marine environmental protection, bridge administration, and vessel safety.

The Coast Guard acts under the authority of several laws, including: marine safety laws in subtitle II of Title 46 U.S.C.; the Ports and Waterways Safety Act; the Oil Pollution Act of 1990; MARPOL Annex V; the Clean Water Act; the Rivers and Harbors Act; and the Marine Plastic Pollution Research and Control Act.

OVERVIEW OF ACTIVITIES

USCG has a role in two areas of importance to the CCBNEP study area: oil spill prevention and response; and waste management, aimed at reducing marine debris. Under its broad law enforcement authority, USCG also assists NMFS with enforcement of the turtle excluder device regulations.

Oil Spill Prevention and Response. The functions of the Coast Guard most relevant to the CCBNEP study area are the activities aimed at preventing marine casualties and efforts to prevent oil and hazardous material incidents on vessels and waterfront facilities. These activities are carried out under the marine safety laws in Subtitle II, of Title 46 U.S.C., and the Ports and Waterways Safety Act, which also give the USCG additional marine environmental protection duties.

When an oil or hazardous substance spill occurs in the coastal zone, USCG responds to coordinate the cleanup. Under the direction of the local Captain of the Port, acting as the Federal On-Scene Coordinator, action is taken to clean up the spill and protect the environment. In addition, through its National Strike Teams, the Coast Guard renders technical assistance to oil and hazardous substance responses. The Coast Guard promotes and participates in research efforts aimed at advancing response techniques for oil spills.

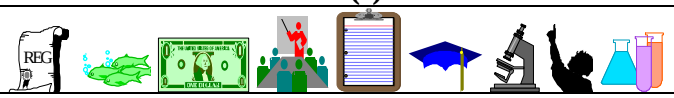
Waste Management. USCG enforces its regulations for marine sanitation devices to meet federal performance standards in an effort to protect water quality. To combat marine debris, USCG enforces the provisions of MARPOL Annex V and the Marine Plastic Pollution Research and Control Act, which regulate the discharge of wastes from vessels and prohibit the disposal of plastics into the waters of the United States, including the 200-mile exclusive economic zone. USCG issues certificates to terminals and ports that are equipped with proper disposal facilities for operational solid waste from ships. In addition, USCG enforces a rule requiring vessels over 40 feet to have a waste management plan and vessels over 26 feet to display placards outlining plastic and solid waste dumping restrictions.

BUDGETS AND FUNDING SOURCES

The Corpus Christi Marine Safety Office's total annual budget is approximately $1 million dollars. The source of this funding is appropriated funds. In addition funding is available from the Oil Spill Liability Trust Fund and Superfund for specific pollution incidents.

ADMINISTRATIVE RESOURCES

Approximately 500 personnel are assigned to local Coast Guard units, with 53 assigned to the Marine Safety Office, whose functions apply to CCBNEP priority problems.

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)	
Role(s)	**Priority Problem(s)**
	

MISSION

EPA, established on December 2, 1970, under Reorganization Plan 3 of 1970, administers several comprehensive environmental protection laws. Water quality is protected by nearly all of these laws. Air pollution controls, for example, keep harmful pollutants from entering the atmosphere, and subsequently from reaching the waters. Laws governing toxic substances and pesticides also address special pollution problems that affect water quality. The statutes and programs that EPA administers are discussed below.

OVERVIEW OF ACTIVITIES

Clean Water Act (CWA). In 1972 the U.S. Congress significantly amended the Federal Water Pollution Control Act of 1948 and issued further amendments in 1977, 1981, and 1987. These amendments, while commonly known as the Clean Water Act, are also referred to as the Federal Water Pollution Control Act of 1972 (FWPCA). The goal of the CWA is to "allow for protection and propagation of fish, shellfish, and wildlife and to allow for recreation in and on the water," otherwise known as the fishable/swimmable goal. The objective of the CWA is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters" in order to protect the health of humans, fish, shellfish, and wildlife from harmful pollutants. The Act establishes national water quality goals and creates a national permit system with minimum standards for the quality of the discharged waters (effluent).

Waters of the U.S. protected by the CWA include rivers, streams, estuaries, the territorial seas, and most ponds, lakes, and wetlands. In determining waters that are within the scope of the CWA, Congress intended to assert federal jurisdiction to the broadest extent permissible under the commerce clause of the Constitution. One factor that establishes a commerce connection is the use or potential use of waters for navigation. Other factors include, but are not limited to: use of a wetland (or other water) as habitat by migratory birds, including waterfowl; use by a federally listed endangered species; or use for recreation by interstate visitors.

CWA - Criteria for Water Quality. The CWA directs EPA to develop ambient water quality criteria that accurately reflect the latest scientific knowledge about the effects of pollutants on aquatic life and human health. In developing criteria to protect water quality, EPA examines the effects of specific pollutants on plankton, fish, shellfish, wildlife, plant life, aesthetics, and recreation in any body of water. This includes specific information on the concentration and

dispersal of pollutants through biological, physical, and chemical processes as well as the effects of pollutants on biological communities as a whole.

EPA periodically publishes the results in the form of guidance to help states determine the levels of pollutants that can exist in the water column and the sediment without harming human and aquatic life. These levels are called "water quality criteria." Criteria can also describe the biological and physical characteristics that a lake, river, or estuary must have to support a healthy environment for fish and wildlife. CWA does not set specific standards for water bodies, but states have the option to adopt criteria developed by EPA. States are required to establish standards based on the designated uses of their respective water bodies, and these state-imposed standards are subject to EPA approval.

CWA - Categories of Pollutants. The CWA establishes types of pollution to be regulated and categories of industries to be regulated. Conventional pollutants, toxic or "priority" pollutants, and non-conventional pollutants are regulated under the CWA. EPA has established numeric criteria for many priority pollutants.

Section 303(d) requires states to list waters not meeting water quality standards, and identifies where total maximum daily loads (TMDLs) will be developed to ensure attainment of standards.
CWA - Permit System. The CWA creates a national permit system with minimum standards for the quality of the discharged waters. The Act requires that direct point source dischargers obtain National Pollutant Discharge Elimination System (NPDES) permits and maintain effluent standards. The NPDES controls the discharge of effluent from any point source into any surface waters, pursuant to effluent limitations published in federal regulations. It is relevant to wetlands and coastal waters where municipal or industrial discharge is a potential problem. Dischargers must apply for permits that delineate site-specific requirements concerning the frequency, quantity, and location of pollution discharges. Some permits also prescribe abatement schedules and requirements for monitoring and reporting the discharge.

Specific wastewater dischargers into storm water drainage systems must also receive permits. In addition to establishing all water quality criteria, EPA develops the framework for the issuance of NPDES permits for municipal and industrial storm water discharges. The NPDES Program also provides EPA with the authority to regulate oil and gas industry discharges of produced waters (brine). Alabama and Mississippi have been delegated authority by EPA to administer the NPDES program, while the other Gulf states (Florida, Louisiana, and Texas) have not. In addition, EPA establishes standards for oil and hazardous substances discharges from boats into federal waters and promulgates performance standards for marine sanitation devices.

CWA - Pretreatment of Industrial Discharge. CWA requires indirect dischargers to control conventional and toxic and non-conventional pollutants. An indirect discharger is a non-domestic discharger that introduces pollutants to a publicly owned treatment works (POTW) or other municipal sewage system. CWA requires many indirect dischargers to "pretreat" their wastewater prior to releasing effluent to POTW collection systems. Pretreatment includes pollution prevention and waste reduction practices, as well as on-site and off-site pollution control technology.

CWA - Municipal Wastewater Discharge. Municipal wastewater treatment plants (called publicly owned treatment works or POTWs) are also required to meet ambient water quality standards. Technology-based regulation of discharges from POTWs focuses almost exclusively on conventional pollutant control by requiring POTWs to achieve secondary levels of treatment--85 percent removal of suspended solids and biochemical oxygen demand. To meet state water quality standards, some municipal wastewater treatment plants have been required to go to more advanced levels of treatment (tertiary treatment).

CWA - Nonpoint Source Pollution Control. Section 319 of the CWA establishes a program for managing contaminated runoff from nonpoint sources of pollution. Each state identifies all waterbody segments that fail to meet water quality standards for designated uses due to runoff, boating wastes, faulty septic systems, and other sources of nonpoint pollution. Each state has submitted a four-year management program for controlling these pollutant sources. Each plan is subject to EPA approval and may be eligible for grants (up to 60 percent of costs, excluding construction) to assist in implementation.

CWA - Discharge of Dredged and Fill Material. CWA Section 404 regulates the discharge of dredged and fill material into waters of the U.S. Dredged sediments may be contaminated by industrial or municipal wastes and can pollute the water and pose a threat to marine life. Activities regulated by Section 404 include discharges of dredged and fill material commonly associated with activities such as port development, channel construction and maintenance, fills to create development sites, transportation improvements, and water resource projects (such as dams, jetties, and levees).

The U.S. Army Corps of Engineers (USCOE) and EPA jointly develop guidelines for permit applications. These permits are subject to review by EPA, and under its joint authority with USCOE, EPA can deny a permit if discharge of dredge materials would adversely affect water quality or habitat. Usually, USCOE works with EPA during the review process to resolve concerns through interagency consultation. EPA can also enforce compliance with permit conditions; however, EPA generally focuses its resources towards discovering and prohibiting unauthorized discharges. The CWA also includes specific exemptions from permitting requirements for certain activities under Section 404(f)(1), such as maintenance of currently serviceable structures (e.g., dikes, dams, levees, ditches), normal farming, silviculture, ranching practices, and construction or maintenance of farm or forest roads.

Anyone in violation of the Section 404 Program, either by conducting an unauthorized activity or by violating permit conditions, is subject to civil or criminal action or both. Section 309 gives USCOE and EPA the authority to impose administrative penalties. EPA has developed an Administrative Penalty Policy which outlines procedures for establishing fines. When judicial action is pursued, violators may be required to restore sites and may be subject to payment of fines, imprisonment, or both.

CWA - National Estuary Program. Sections 317 and 320, as amended in 1987, established the National Estuary Program (NEP). The purpose of the Program is to identify nationally significant estuaries, to protect and improve their water quality, and to enhance their living

resources. CCBNEP is one of 28 NEPs. Under the Program, which is administered by EPA, a Comprehensive Conservation and Management Plan (CCMP) is developed to protect and enhance environmental resources. The CCMP is developed by representatives from federal, state, and interstate agencies, academic and scientific institutions, industry, and citizen groups. These participants define objectives for protecting the estuary, select the chief problems to be addressed in the Plan, and ratify a pollution control and resource management strategy to meet each objective. In managing NEPs, EPA tries to:

1. Establish working partnerships among federal, state, and local governments;
2. Transfer scientific/management information and expertise to program participants;
3. Increase public awareness of pollution problems;
4. Promote area-wide planning to control pollution and manage resources; and
5. Oversee development and implementation of pollution reduction and control programs.

CWA - Enforcement. Under Section 309, EPA can obtain settlement clean-ups in its actions against parties that violate permit limits. Under Section 311, EPA may remove or order removal of an actual discharge or address a threatened discharge of oil or hazardous substance into waters of the U.S. Under Section 311, EPA also can recover its costs. Section 504 permits EPA to use emergency powers to stop discharges that imminently threaten public health.

Clean Air Act of 1970 and 1977 (CAA). Under this Act, EPA controls air pollution by specifying maximum acceptable levels for pollutants in outdoor air, limiting the release of hazardous substances, developing standards for new stationary and motor vehicle emissions, and requiring states to develop and enforce state implementation plans that specify measures that will be taken to achieve acceptable air quality. Pesticides may also be subject to regulation established under this statute.

Section 112 of the CAA addresses hazardous air pollution, defined as "air pollution to which no ambient air quality standard is applicable and, which in the judgment of the Administrator, causes or contributes to air pollution which may reasonably be anticipated to result in an increase in mortality or an increase in serious irreversible or incapacitating reversible, illness." EPA has developed a list of hazardous air pollutants for which regulations establish stationary sources emission standards, but has not yet developed a corresponding list for pesticides.

Section 112(m) of the 1990 CAA Amendments requires EPA and NOAA to estimate the importance of atmospheric deposition of hazardous air pollutants to the Great Waters. This section requires documentation of gross atmospheric contaminant loadings to each water body, as well as quantification of the relative importance of those loadings compared to those from all other possible sources. Further, the agencies are required to determine whether atmospherically derived contamination results in exceedences of water quality standards and to estimate the fraction of contaminants accumulating in biota which are derived from the atmosphere. Simply stated, Section 112(m) requires the agencies to construct quantitative chemical mass balances for relevant contaminants in each of the Great Waters.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, or "Superfund"). Superfund authorizes EPA to respond immediately or provide remedial action when a release or threatened release of any hazardous substance, pollutant, or contaminant poses a danger to human health or the environment. The agency has the authority to take both immediate removal and long-term cleanup actions and to seek damages from responsible parties.

Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA). EPCRA is part of the Federal Superfund Amendments and Reauthorization Act of 1982. EPCRA is based on the premise that citizens have a "right-to-know" about hazardous and toxic chemicals in their communities. This Act requires states to establish State Emergency Response Commissions and Local Emergency Planning Committees that will collect detailed information about toxic and hazardous chemicals in local facilities in order to prepare procedures for possible chemical accidents and emergency situations.

EPCRA Section 313 requires owners and operators of designated manufacturing facilities to report the presence and release of certain toxic chemicals to local, state, and federal governments so that EPA may establish the Toxic Release Inventory (TRI). The facilities that must submit reports are those that manufacture, process, or otherwise use a listed toxic chemical in excess of specified threshold quantities. The TRI includes names, locations, chemicals used, amounts of the toxic chemical present at any one time, quantity of the chemical entering the air, land or water, and off site locations for waste, waste treatment, and waste disposal.

Environmental Monitoring and Assessment Program (EMAP). EMAP is a long-term, interagency monitoring activity designed to evaluate the status and trends of U.S. ecological resources and the effectiveness of pollution control. EMAP conducts annual surveys to assess the health of plants and animals, the quality of their surroundings, and the presence of pollutants by examining key indicators at designated sites. The indicators are representative of the general condition of a site's estuarine resources. The indicators address three areas of concern: estuarine biotic integrity; aesthetic appeal for public use of the estuarine resources; and exposure of biota to pollutants.

EMAP is structured on a regional scale by dividing all of the nation's coastal waters, bays, and estuaries into regions for study; the Louisianian Province corresponds to the Gulf of Mexico area. The information collected is used to address large areas such as the Gulf of Mexico, rather than smaller systems like Corpus Christi Bay. An intense study of every bay and estuary would be too costly. Within each region, scientific measurements will be made every year at randomly selected stations. During the summers of 1991-94, EMAP sampled 183 sites between Anclote Anchorage, FL, and the Rio Grande, TX. All sampling is conducted during the summer months because summer is when plants and animals generally are most active and when the effects of pollution are most severe.

Federal Food, Drug, and Cosmetic Act (FFDCA). This Act, as amended (21 U.S. C. 301 et seq.), authorizes EPA to establish tolerance limits for pesticide residues in foods. Any pesticide proposed for food or feed use must have a tolerance (or an exemption) established for those foods/feeds. Tolerance limits are set by EPA (usually when petitioned by registrant) and enforced by the U.S. Food and Drug Administration.

Federal Insecticide, Fungicide, and Rodenticide Act of 1982 (FIFRA). FIFRA, as amended, governs the licensing or registration of pesticide products. FIFRA also governs storage and disposal of banned pesticides, indemnities, and enforcement. All pesticide products, with some exceptions, must be registered by EPA before they can be sold within the US. FIFRA gives EPA the authority and responsibility for registering pesticides for specified uses, provided that those uses do not pose an unreasonable risk to human health or the environment. It is a violation of the law for any person to use a pesticide in a manner inconsistent with its label. FIFRA empowers EPA to restrict, suspend, or cancel the registration of pesticides that pose significant threats to human health or the environment.

FIFRA - Pesticide Testing. Pesticide registration decisions are primarily based on EPA's evaluation of test data provided by pesticide applicants. EPA can require up to 70 different kinds of specific tests. This testing is needed to determine whether a pesticide has the potential to cause adverse effects on humans, wildlife, fish, and plants, including endangered species. Laboratory tests may be used to identify potential human risks, including acute toxic reactions, such as poisoning and skin and eye irritation, as well as potential long-term effects, such as cancer, birth defects, and reproductive system disorders. As part of the testing, EPA evaluates data on environmental fate -- how the chemicals react in the environment. As a result of FIFRA, EPA has canceled the registration of some persistent pesticides (e.g., DDT, dieldrin, endrin, and chlordane) that had widespread use in the 1950s and 1960s.

FIFRA - Pesticide Registration. Since 1978, when EPA began requiring more extensive data on pesticides than it did previously, over 130 new chemical active ingredients have been registered (between ten and 15 new pesticide active ingredients each year). Registration may authorize only certain uses, and a pesticide may be registered with conditions, as experimental, or for restricted use. Pesticides that were registered prior to 1978 must be re-registered under current, more stringent, standards of toxicology. Registration lasts for five years, at which time the registration expires, unless re-registration has been requested, but not necessarily carried out, by a registrant. Under re-registration of old chemicals, EPA has issued 194 registration standards that represent about 350 individual active ingredients that account for 85 to 90 percent of the total volume of pesticides used in the U.S. Re-registration may also be denied.

FIFRA - State Role in Pesticide Regulation. A state may regulate the sale or use of a federally registered pesticide only if that regulation does not permit a sale or use that is prohibited under FIFRA. A state may impose more stringent standards than FIFRA and a state may register a pesticide for additional uses, if those additional uses are limited to the issuing state. A state cannot issue registration for food/feed uses unless a tolerance has been set under FFDCA that permits the residues of the pesticides on the food. A state's ability to issue special local needs registration is dependent upon the Administrator's approval.

FIFRA - Integrated Pest Management. EPA is working with state and local governments to develop integrated pest management plans (IPM), guidance documents, and research papers on IPM technology for home lawns, golf courses, and urban areas. EPA annually issues the Consolidated Pesticide Agreement Guidance, which outlines the national enforcement priorities

and the activities that every state, tribe, and territory must address under its cooperative enforcement agreement.

FIFRA - Regulations for Pesticides in Drinking Water. EPA, as of 1989, published Health Advisories for 55 pesticides to assist government officials in their response to the contamination of drinking water. EPA has set standards that regulate 17 pesticides in drinking water, and it has initiated a National Pesticide Survey of drinking water wells. EPA also is preparing to publish a final Pesticides in Groundwater Strategy based on analysis and consultation with farmers, other business organizations, environmentalists, and government officials.

Marine Protection, Research and Sanctuaries Act (MPRSA). MPRSA primarily regulates the dumping of wastes into the oceans and provides funding for ocean research programs and ocean habitat sanctuaries. The Ocean Dumping Ban Act, which took effect in 1992, prohibits the dumping of any industrial waste or sewage sludge into the ocean. The Act also authorizes grants to EPA and NOAA to study ocean pollution. The National Marine Sanctuaries Program sets aside threatened or fragile areas of ocean-based habitat as protected park-like environments for preservation and educational purposes. The sanctuaries are maintained by NOAA, which works closely with the nearest state and with USFWS.

EPA, in consultation with USCOE, establishes environmental impact criteria to assist in evaluating proposed projects that involve transporting and dumping dredged material in coastal waters and in the ocean. EPA has the primary responsibility for choosing ocean dumping sites. Under Section 105 of this Act, EPA can assess civil penalties and seek injunctive relief if contaminated sediments are dumped in the ocean illegally.

National Environmental Education Act of 1990 (NEEA). NEEA is designed to increase public understanding of the natural environment and to advance and develop environmental education and training. NEEA builds upon the efforts that EPA has undertaken and establishes formal communication and advisory links with educational institutions and other federal agencies. NEEA also requires partnership among federal government agencies, local education institutions, state agencies, not-for-profit educational and environmental organizations, and private sector interests.

NEEA provides for several mandates and authorizations. NEEA establishes an Office of Environmental Education, an Environmental Education and Training Program, an Environmental Education Advisory Council and Task Force, and a National Environmental Education Foundation. In addition, NEEA authorizes EPA to enter into grants and contracts, requires EPA to facilitate internships for college students with agencies of the federal government, requires EPA to provide national awards recognizing outstanding contributions in environmental education and authorizes funds to carry out the Act.

National Environmental Policy Act of 1969 (NEPA). NEPA requires consideration of the impacts on environmental and cultural resources caused by any federal action, including federally funded or permitted projects. It requires agencies to recognize and give appropriate consideration to environmental amenities and values in the course of their decision-making. It also requires examination of alternatives to minimize those impacts. Compliance with NEPA is

an additional requirement to regulatory programs such as Section 404 of CWA when federal agencies or federal funds are involved in a proposed project.

Environmental investigations carried out in accordance with NEPA are documented in an environmental assessment or an environmental impact statement prior to undertaking major federal actions that significantly affect the quality of the human environment. In some cases, issuing a discharge permit may constitute a "major federal action." Within these statements, alternatives to the proposed action that may better safeguard environmental values are to be carefully assessed.

Pollution Prevention Act of 1990 (PPA). Pollution prevention can be accomplished through increased efficiencies in the use of raw materials, energy, water or other resources, or through conservation. These objectives can be met through: changes in equipment or technology; process or procedural changes; reformulation or redesign of products; raw material substitution; or operational improvements in housekeeping, maintenance, training or inventory control. EPA is encouraged to work across program and regional boundaries to apply multimedia responses to intractable problems like toxic contamination. EPA's waste management hierarchy focuses on preventing or reducing pollution at the source. At the top of the hierarchy is source reduction, followed by recycling, treatment, and, as a last resort for waste management, disposal.

EPA's approach in implementing the Pollution Prevention Act and its 33-50 toxics reduction program (started in February 1991) is aimed at voluntary compliance in the reduction of 18 targeted chemicals. Using 1988 as a baseline year, EPA's 33-50 program aims for 33 percent reduction of the 17 targeted chemicals by 1992, and a 50 percent reduction by 1995. The 17 targeted chemicals are: 1,1,1-trichloroethane and 1,1,2-trichloroethane; benzene; cadmium and cadmium compounds; carbon tetrachloride; chloroform; chromium and chromium compounds; cyanide compounds and hydrogen cyanide; dichloromethane; lead and lead compounds; mercury and mercury compounds; methyl ethyl ketone; methyl isobutyl ketone; nickel and nickel compounds; tetrachloroethylene; toluene; trichloroethylene; and xylene.

Resource Conservation and Recovery Act of 1976 (RCRA). RCRA empowers EPA to regulate the transportation, treatment, storage, and disposal of solid and hazardous waste in the U.S. Many toxic and pesticide wastes fall under the RCRA definition: "A solid waste, or combination of solid wastes, which because of its quantity, concentrations, or physical, chemical, or infectious characteristics may: cause or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or pose a substantial present or potential hazard to human heath or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."

Under Section 3004(u) of the Act, EPA must permit treatment, storage, and disposal facilities that require corrective action to address all releases of hazardous waste from any solid waste management unit. Corrective action may address contaminated sediments. Section 3004(v) allows EPA to require corrective action for releases that have migrated beyond the boundaries of a facility (e.g., off-site sediments).

Under Section 3008(a), EPA may issue administrative orders or take civil action for appropriate relief, including a temporary or permanent injunction. Other sections allow EPA to issue orders that require interim status facilities to take corrective action or other response measures and bring suit against persons whose past or present handling, storage, treatment, transportation, or disposal of solid or hazardous waste substantially threatens health or the environment.

Safe Drinking Water Act of 1974, as amended (SDWA). SDWA authorizes EPA to establish national standards for drinking water from both surface and groundwater sources and to protect aquifers against contamination from the disposal of wastes by injection into deep wells. Under the Safe Drinking Water Act, grants are available to states from EPA to develop wellhead area protection plans for public groundwater drinking supply recharge areas. The grants can cover from 50 to 90 percent of the costs of establishing and running a protection program. If a wetland is hydrologically located such that any contaminants entering it are reasonably likely to reach a public water supply, the protection program may apply to activities in the wetland. Decreasing freshwater inflow to and consequent increasing salinities of Gulf of Mexico estuaries could have potential impact on wellhead protection in low-lying areas.

Toxic Substances Control Act of 1976 (TSCA). This Act empowers EPA to regulate chemical substances and mixtures that present an unreasonable risk to human health or the environment, and to address chemical substances and mixtures that pose imminent hazards. TSCA also authorizes EPA to gather information on chemical risks from those who manufacture or process chemicals. EPA can require companies to test selected existing chemicals for toxic effects and EPA must review new chemicals before they are manufactured. To prevent unreasonable risks, EPA may select from a broad range of control options under TSCA, from requiring hazard-warning labels to outright bans on the manufacture or use of especially hazardous chemicals.

EPA may regulate a chemical at any stage in its life cycle. Under Section 6(a) of TSCA, "Any requirement or combination of requirements imposed under this subsection may be limited in application to specific geographic areas." Under Section 7 of the Act, EPA may commence civil action for temporary or permanent relief from any unreasonable risks posed by an imminently hazardous chemical substance, mixture, or article. EPA may require remediation of sediments contaminated by use or disposal of material after the effective date of EPA's regulation. If the contamination occurred before the regulation, EPA's authority under this law may be limited.

Wetlands - Initiatives. Executive Order 11990, Protection of Wetlands, directs federal agencies to take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out their activities. The Executive Order sets forth several major requirements that federal agencies are required to comply with before undertaking any new construction in wetlands. They are as follows:

1. Prior to undertaking an action in wetlands, determine whether a practical alternative to the action exists (if a practical alternative exists, the action should not be undertaken in wetlands);
2. If the action must be undertaken in wetlands, include practical measures to minimize harm to wetlands which may result from such use;

3. Preserve and enhance the natural and beneficial values of the wetlands; and
4. Involve the public early in the decision making process for any action involving new construction in wetlands.

The key requirement of the Executive Order is determining whether a practical alternative to locating an action in a wetland exists. The alternative could be: location outside of a wetland (alternative sites); other means that would accomplish the same purpose(s) as the proposed action (alternative actions); and no action. If there is no practical alternative to locating an action in wetlands, the Executive Order requires that the action include all practical measures to minimize harm to the wetlands, and preserve and enhance the natural and beneficial values of the wetlands.

In 1987, EPA convened the National Wetlands Policy Forum to discuss major policy concerns about how the U.S. should protect and manage its wetlands. The Action Agenda developed by the Forum includes three general categories of recommendations: protecting the resource; improving the protection and management process; and implementing the Forum's recommended program.

Wetlands - Research. EPA's Wetlands Research Program (WRP) was initiated in 1987, and is located at the Environmental Research Laboratory at Corvallis, Oregon. Although the emphasis of this program has been largely on freshwater wetlands, some research has been performed on Gulf Coast systems, including the cumulative loss of bottomland hardwood wetlands and the effects of Section 404 permitting on freshwater wetlands in Louisiana, Alabama, and Mississippi.

In FY 92, the Environmental Research Laboratory at Gulf Breeze, Florida, initiated a pilot project as part of WRP to begin research on coastal wetlands. A project has been funded to identify limits of incident light on growth, survival, and restoration of a common Gulf of Mexico seagrass species. Resources permitting, this research will be expanded to other species and will include an investigation of watershed management practices, which are vital to estuarine and nearshore wetland and seagrass communities.

BUDGETS AND FUNDING SOURCES

The Water Quality Management Grants Program has 119 active cooperative agreements with state and local agencies for a total of $30 million. The Nonpoint Source Management Program has grants totaling $11.2 million. The Clean Lakes Program (CLP) has 26 active projects in Region VI with approximately $10.9 million total project funds. The Region VI CLP Fiscal Year 1992 allocation is $691,000, out of a national appropriation of $7 million.

ADMINISTRATIVE RESOURCES

In order to administer the many laws for which its is responsible, EPA has ten regional offices. Region VI in Dallas oversees the CCBNEP study area. Between 200 and 500 EPA employees are involved in programs relating to the CCBNEP study area. Primary activities involve water

permitting (industrial and municipal) and enforcement, water quality (standards, criteria, nonpoint source control, and marine/estuarine/watershed assessments), RCRA, and solid waste management issues.

State Institutions

COASTAL COORDINATION COUNCIL (CCC)	
Role(s)	**Priority Problem(s)**
	

MISSION

The CCC oversees the Texas Coastal Management Program (CMP). The Council adopts the Coastal Management Program, and ensures that the activities of state and federal agencies and subdivisions within the coastal zone are consistent with the goals and policies of the program.

The CCC draws its authority from the Coastal Coordination Act, which requires the CCC to review actions taken or authorized by a state agency or subdivision that may adversely affect a Coastal Natural Resource Area if three members submit the action to the CCC. The CCC can also remand proposed actions to a state or local agency whose action is found to be inconsistent with goals and policies of the CMP. A determination that an action is inconsistent with the CMP requires a two-thirds vote of the CCC.

If the CCC and an agency disagree on whether an agency action is consistent with the CMP, the issue is referred to the Attorney General for a determination. If the Attorney General finds the action inconsistent, the Attorney General must file suit against the agency. The CCC will review and certify an agency's rules for consistency with the CMP, if requested by the agency. An agency whose rules are certified by the CCC may set thresholds for its actions below which the CCC will not review individual actions. A list of specific actions subject to the program is found in 31 TAC Chapter 505.

OVERVIEW OF ACTIVITIES

Development and implementation of the Texas Coastal Management Program is the CCC's primary role. The actions and rulemaking activities listed below are subject to the CMP.

GLO, School Land Board for lease of state-owned lands when issuing or approving:

- a mineral lease plan of operations;
- a geophysical or geochemical permit;
- a miscellaneous easement;
- a surface lease;
- a structure registration;
- a coastal easement;
- a coastal lease;

- a cabin permit;
- a navigation district lease;
- certification of a subdivision beach access or dune protection plan; or
- an agency or subdivision wetlands mitigation bank.

Public Utility Commission of Texas (PUC) when issuing a certificate of convenience and necessity.

RRCT when issuing:

- a wastewater discharge permit;
- a waste disposal or storage pit permit; or
- a certification of a federal permit for the discharge of dredge or fill material.

TxDOT when issuing:

- an acquisition of a site for the placement or disposal of dredge material from, or the expansion, relocation, or alteration of, the Gulf Intracoastal Waterway; or
- an environmental document for a transportation construction project or maintenance program.

THC when issuing:

- a permit for destruction, alteration, or taking of a coastal historic area; or
- a review of a federal undertaking affecting a coastal historic area.

TNRCC when issuing or approving:

- a wastewater discharge permit;
- a permit for a new concentrated animal feeding operation located one mile or less from a critical area or coastal waters;
- a permit for solid or hazardous waste treatment, storage, or disposal;
- creation of a special purpose district or approval of bonds to construct infrastructure on coastal barriers;
- levee improvement or flood control projects;
- a certification of a federal permit for the discharge of dredge or fill material;
- a declaration of an emergency and request for an emergency release of water;
- a new permit for an annual appropriation of:
  - 5,000 or more acre-feet of water within the program boundary; or
  - 10,000 or more acre-feet of water outside the program boundary but within 200 stream miles of the coast;
- an amendment to a water permit for an increase in the annual appropriation of:
  - 5,000 or more acre-feet of water within the program boundary; or
  - 10,000 or more acre-feet of water outside the program boundary but within 200 stream miles of the coast;

- a change in the purpose of use of an annual appropriation of water to a more consumptive use of:
  - 5,000 or more acre-feet of water within the program boundary; or
  - 10,000 or more acre-feet of water outside the program boundary but within 200 stream miles of the coast.

Note: the CCC may not review an action of TNRCC described in the three preceding paragraphs if undertaken to implement a part of the Trans-Texas Water Program that the Trans-Texas Water Program Policy Management Committee has found to be consistent with the CMP goals and policies. To find that the program is consistent with the CMP goals and policies, the Trans-Texas Water Program Policy Committee must:

- include at least three members of the CCC, or representatives of those members, as voting members of the committee; and
- make the finding by a majority vote of those members or their representatives

TPWD when issuing or approving:

- an oyster lease;
- a permit for taking, transporting, or possessing threatened or endangered species;
- a permit for disturbing marl, sand, shell, or gravel on state-owned land; or
- development by a person other than the TPWD that requires the use or taking of any public land in a state park, wildlife management area or preserve,

GLO rule governing the prevention of, response to, or remediation of a coastal oil spill

TNRCC rules governing air pollutant emissions, on-site sewage disposal systems, or underground storage tanks;

TSSWCB rule governing agricultural or silvicultural nonpoint source pollution;

Any rule governing an individual action described in one of preceding paragraphs, including thresholds for referral.

BUDGETS AND FUNDING SOURCES

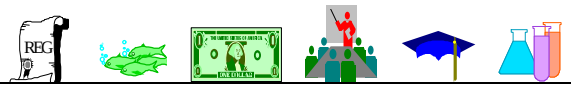
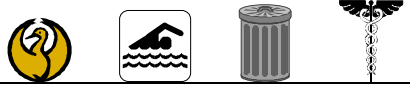
The CCC has no budget. Travel and administrative costs of members are funded by the GLO.

ADMINISTRATIVE RESOURCES

The members of the Coastal Coordination Council are each appointed by the Governor with the advice and consent of the Senate for a two-year term:

- Commissioner of the General Land Office, who serves as chair;
- Chair of the Parks and Wildlife Commission or a member of the commission designated by the chair;

- Chair of the Texas Natural Resource Conservation Commission or a member of the commission designated by the chair;
- A member of the Railroad Commission of Texas appointed by the commission;
- Chair of the Texas Water Development Board or a member of the board designated by the chair;
- Chair of the Texas Transportation Commission or a member of the commission designated by the chair;
- A member of the State Soil and Water Conservation Board appointed by that board;
- One city or county elected official who resides in the coastal area;
- One owner of a business located in the coastal area who resides in the coastal area;
- One resident from the coastal area; and
- A representative of agriculture.

RAILROAD COMMISSION OF TEXAS (RRCT)	
Role(s)	**Priority Problem(s)**
	

MISSION

RRCT's mission is to serve Texas by stewardship of natural resources and the environment, concern for personal and community safety, and support for enhanced development and economic vitality for the benefit of all Texans. The Commission has extensive authority in the prevention and abatement of pollution in the oil and gas industry.

OVERVIEW OF ACTIVITIES

RRCT is responsible for prevention of pollution of surface and subsurface water caused by activities related to the exploration, development, and production of oil and gas, including the transportation of crude oil and natural gas by pipeline. In addition to the above, the Commission also regulates surface mining for lignite, uranium, and iron ore to ensure protection of the natural environment. In conjunction with these regulatory activities, the Commission issues wastewater permits for produced water discharge as well as drilling permits for oil and gas wells.

Rules and Regulations for Protection of Surface and Subsurface Waters. RRCT has adopted the following rules related to the protection of surface and subsurface waters: Rule 9 on disposal wells (16 TAC 3.9); Rule 13 on casing, cementing, drilling, and completing wells (16 TAC 3.13); Rule 14 on plugging of wells (16 TAC 3.14); Rule 46 on fluid injection into production reservoirs (16 TAC 3.46); Rule 91 on cleanup of soil contaminated by a crude oil spill (16 TAC 3.91); Rule 94 on disposal of oil and gas NORM wastes (16 TAC 3.94); Rule 95 on underground storage of liquid or liquefied hydrocarbons in salt formations (16 TAC 3.95); Rule 96 on underground storage of gas in productive or depleted reservoirs (16 TAC 3.96); Rule 97 on underground storage of gas in salt formations (16 TAC 3.97); and Rule 77 on the RRCT's

NPDES program (16 TAC 3.75), which is pending EPA approval. In addition, RRCT regulates rail and intrastate natural gas and hazardous liquid pipeline safety.

Statewide Rule 8 (16 TAC 3.8) on Water Protection is the most significant rule protecting the waters of the state from pollution associated with oil and gas operations. The rule contains provisions which expressly prohibit the pollution of offshore waters and adjacent estuarine zones (16 TAC 3.8(8)(e)). This section also applies to operations conducted in/near inland fresh waters of the state. The same provisions prohibit pollution which may threaten aquatic life, and require discharges that may affect such life to be treated to remove constituents that may be harmful to aquatic life or injurious to life or property.

RRCT also regulates oil and gas wastes, including the use of pits to store and dispose of wastes, disposal of wastes by other methods, such as discharge into surface waters and landfarming, and commercial hauling of wastes.

Permitting and Enforcement. Federal NPDES permits and RRCT permits are both currently required for the discharge of oil and gas wastes. The Oil and Gas Division of RRCT regulates nearly all phases of the oil and gas production process, and handles permitting and enforcement duties for discharges of wastes associated with such operations. RRCT issues permits for waste discharges under Section 26.131(b) of the Texas Water Code and Section 91.101(4) of the Natural Resource Code. For surface discharges, most pits and disposal methods require a permit, unless prescribed conditions are met. In addition, oil and gas waste haulers are required to obtain a permit from RRCT. Section 26.131 of the Water Code requires that discharges permitted by RRCT meet TNRCC water quality standards. RRCT monitors discharges through monthly reports to the District office and inspections normally conducted on an annual basis.

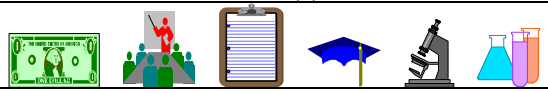
BUDGETS AND FUNDING SOURCES

The total agency budget for 1995 was $54,523,170. The agency's expenditures in 1994 were $54,234,709, and in 1993 were $47,598,239. The goals supported by this money include: environmental protection; development and conservation of oil and gas; transportation regulation; gas utilities regulation; research, education and marketing of alternative funds; pipeline safety regulation; oversight of high speed rail project; and safety regulation of liquefied petroleum gas/condensed natural gas (LPG/CNG), quarries, and aggregate mining.

Funding sources include: general revenue; appropriated receipts; interagency contracts; federal funds; earned federal funds; Texas aggregates quarry and pit safety fund; LPG examination fund; alternative fuels research and education fund; oil field cleanup fund; well plugging fund; compressed natural gas examination fund; motor carrier act enforcement fund transfers; and comptroller salary increase funding transfers. The Oil Field Cleanup Fund, with a $10 million ceiling, is funded through the collection of fees and penalties and is used to plug abandoned wells and clean up wastes that are likely to cause water pollution.

ADMINISTRATIVE RESOURCES

RRCT has a total of 1,020 budgeted positions statewide. The Oil and Gas Division has 450 budgeted positions, including 18 in the District IV Office in Corpus Christi. The Transportation/Gas Utilities Division's pipeline safety program has 45 full-time equivalents statewide, including six in Corpus Christi.

TEXAS A&M UNIVERSITY SYSTEM (TAMUS)	
Role(s)	**Priority Problem(s)**
	

MISSION

The Texas A&M University System is one of several higher education systems within the state of Texas. TAMUS has several campuses and component organizations involved in CCBNEP activities. Most are related to research or provide technical assistance to other agencies and organizations. The Texas A&M System was established by Texas Constitution Article 7, Sections 9, 13, 17, and 18.

OVERVIEW OF ACTIVITIES

TAMUS operates the Texas Agricultural Experiment Station, Texas Agricultural Extension Service agency, and the Texas Sea Grant program. In addition, at Texas A&M Corpus Christi, the Center for Coastal Studies and the Conrad Blucher Institute are major participants in the CCBNEP program and conduct detailed research within the study area. The Texas A&M Kingsville campus also operates four additional programs surrounding water use and preservation research.

Texas Agricultural Experiment Station (TAES). The Texas Agricultural Experiment Station fulfills the research component of the TAMUS Agriculture Program's land-grant mission of research, education, and extension. TAES was established by the U.S. Congress through the Hatch Act of 1887 with the authority to conduct research programs to support Texas' food and agricultural system and to enhance the state's environment and natural resources. TAES's mission is: to conduct research and provide regulatory programs that maintain and enhance the environment for the benefit of the agricultural industry and consumers; ensure a safe, wholesome, and affordable supply of agricultural products; and contribute to the state's economic vitality, especially in rural regions. TAES's water quality research programs in agriculture include: developing integrated management systems approaches that encompass soil, air, and water interactions to enhance environmentally sound land uses; developing management strategies and techniques to increase water supplies and use of wastewater; developing management strategies to maintain or improve the quality of ground and surface water and develop improved techniques for detecting, preventing, and removing contaminants from point and nonpoint sources; and developing methods to enhance the use of wastewater and improve the

quality of agricultural, municipal, and industrial by-products for recycling in agricultural and forestry production systems.

The Texas A&M University Agricultural Research and Extension Center in Corpus Christi is one of the 13 agricultural research and extension centers. The Corpus Christi Center emphasizes research endeavors that focus on solving agriculturally related natural resource and environmental problems related to the South Texas coastal region. Of relevance to CCBNEP is the Center's program to monitor and evaluate nonpoint source pollutants from croplands in the 12-county CCBNEP study area

Texas Agricultural Extension Service. The Texas Agricultural Extension Service (TAEX) is a knowledge-based organization that provides education through resources of the land grant university system in areas of agriculture, environmental stewardship, youth and adult life skills, human capital, and leadership, and community economic development for the purposes of self-improvement, individual action, and community problem solving. TAEX is a state agency affiliated with TAMUS that provides technical and educational leadership for training, informing, and educating farmers, ranchers, homeowners, commercial pest control specialists, agribusiness, suppliers, and others about a number of issues, including water quality management and protection. TAEX water quality programs in agriculture include: proper use of nutrients, pesticides, and other chemicals; contamination of rural wells; irrigation water management, including salinity control; and reduction of runoff and leaching of water containing pesticides, nutrients, and animal wastes. TAEX is linked in a unique partnership with the federal Cooperative Extension Service and the counties. County extension agents work as community educators and facilitators to provide these programs. Extension specialists at TAMUS and regional Research and Extension Centers provide expertise and materials to support the local educational programs.

Texas Sea Grant. Texas Sea Grant is part of the federal Sea Grant program and operates from Texas A&M. Texas Sea Grant projects comprise research related to coastal management and the ocean, including mariculture, oil spills, ocean dumping, impacts of deepwater ports, marine education. They also include ecological studies related to fisheries, marine chemistry, and water quality. The program has supported marine research, promoted public education, developed resource awareness, and successfully transferred technology to residents and visitors to Texas. The program emphasizes coastal habitats, aquaculture, fisheries, environmental quality, toxics, marine education, and sustainable development. Texas Sea Grant is funding several research projects which are directly or indirectly related to CCBNEP priority problems.

Texas A&M -- Corpus Christi. Texas A&M Corpus Christi is a public, degree granting institution of higher education that is part of the Texas A&M University System. The University focuses on the higher education needs of South Texas and the state, and on coastal and urban issues. The University emphasizes research endeavors that focus on solving problems related to the South Texas coastal region. Of note to the CCBNEP are the Center for Coastal Studies, Conrad Blucher Institute for Surveying and Science, National Spill Control School, and the Center for Water Supply Studies.

Center for Coastal Studies. The Center for Coastal Studies is an interdisciplinary marine research institute dedicated to increasing knowledge and understanding of marine ecosystems. It provides research, teaching, and service programs. Staff and affiliated professionals conduct applied research in coastal marine ecosystems, including barrier islands, hypersaline lagoons and estuaries, coastal wetlands, and offshore ecosystems.

The Center is housed in the Center for Environmental Studies and Services, which also houses the National Spill Control School and the offices of various federal and state agencies, such as the Texas General Land Office, Texas Parks and Wildlife Department, U.S. Fish and Wildlife Service, National Biological Service, and Minerals Management Service. This close proximity fosters an atmosphere of interagency cooperation and synergy. Through cooperative work agreements with industry and federal and state agencies, students gain opportunities for graduate studies and professional work experience.

Conrad Blucher Institute. The Conrad Blucher Institute was established to lead scientific research and education in surveying, mapping, and remote sensing of land and coastal waters. In addition to its education programs in modern land and hydrographic surveying and geographic information systems, the Conrad Blucher Institute measures physical processes and water quality to model and analyze coastal and estuarine processes. Through the Texas Coastal Observation Network, the Institute collects and analyzes a wide variety of environmental data along the Texas coast, typically acquiring real-time data by radio and satellite, a specialty of the Institute. Several recent projects involve beach erosion, estuary bank erosion, and shore protection.

Texas A&M Kingsville. Texas A&M Kingsville is a public, degree granting institution of higher education that is part of the Texas A&M University System. Of importance to the CCBNEP are four research projects:

- The Welhausen Water Resources Center is devising methods for effective use of water in arid and semi-arid regions;
- A program to use microbes to clean up oil spills;
- A study of intermittent irrigation with saline water; and
- A study of water conditions at Oso Creek in Corpus Christi.

Texas Forest Service and Nonpoint Source Pollution. The Texas Forest Service is responsible for the Texas Silvicultural Nonpoint Source Project, a cooperative project designed to reduce nonpoint source water pollution from forestry activities by encouraging widespread adoption of voluntary silvicultural best management practices (BMPs) in Texas. The Project is funded by a Section 319 grant from EPA. The Project embodies the following six objectives:

1. Education of the forestry community using a variety of media which have reached an approximate audience of over 20,000 individual landowners, foresters, loggers, silvicultural contractors, and the general public;
2. Integration of BMPs into all relevant state forestry management programs;

3. Demonstration of various BMPs using two demonstration areas developed for use as an educational tool;
4. Cooperation between agencies and the forestry community to ensure a coordinated, effective program;
5. Program evaluation and implementation of revisions as needed; and
6. Monitoring BMP compliance and effectiveness through a program of on-site inspections of silvicultural activities.

BUDGETS AND FUNDING SOURCES

The following table briefly identifies budget and funding information for the TAES Corpus Christi Center, TAMUS's Center for Coastal Studies, and the Conrad Blucher Institute for Surveying and Science.

Funding Sources	**% of Total**	**Expenditures**	**% of Total**
TAES Corpus Christi Center			
Federal	8%	Salaries and Wages	71%
State	45%	Capital Equipment	2%
Product Sales	6%	Travel	4%
Private	40%	Operating Expenses	20%
Other (designated services, etc.)	1%	Other (repairs, maintenance, etc.)	3%
Center for Coastal Studies			
Federal	21%	Salaries and Wages	69%
State	57%	Capital Equipment	10%
Private	21%	Furnishings and Equipment	7%
Other	1%	Travel	5%
		Other	9%
Conrad Blucher Institute			
Federal	40%	Salaries and Wages	38%
State	35%	Capital Equipment	25%
Private	21%	Furnishing & Equipment	22%
Other (City)	4%	Travel	3%
		Other	12%

Funding for research at the TAES Corpus Christi Center for fiscal year 1995 was $3,498,039. *Total* expenses for the year were $2,576,968.

TAES Corpus Christi Center receives most of its funding for research efforts from state appropriations and grants, contracts with private industries, federal and state agencies, and private foundations. Funding for TAMUS's Center for Coastal Studies for fiscal year 1994 was $685,469. Total expenses for the year were $683,000.

Texas A&M -- Corpus Christi receives most of its funding for research efforts from federal and state agencies, such as EPA, U.S. Fish and Wildlife Service, National Biological Service, U.S. Army Corps of Engineers, National Park Service, Texas Parks and Wildlife Department, Texas General Land Office, and Texas Sea Grant. Texas Sea Grant obtains its funding from the federal government, funds appropriated by the State Legislature, and grants from local governments, foundations and other colleges and universities.

Funding for Texas A&M -- Corpus Christi's Conrad Blucher Institute for Surveying and Science for fiscal year 1995 was $2,156,000. Total expenses for the year were $2,100,000. The funding sources and expenditures for the Institute are in the following table. The Blucher Institute receives most of its funding for research efforts from federal and state agencies. Principal funding sources are the U.S. Army Corps of Engineers (several Corps Districts around the U.S.), Texas General Land Office, U.S. Environmental Protection Agency, Texas Department of Transportation, and Texas Water Development Board, as well as private and public entities such as the Port of Corpus Christi, the City of Corpus Christi, and the Port of Freeport.

ADMINISTRATIVE RESOURCES

TAES has about 2,000 employees, including 460 scientists. Almost two thirds of the agency's resources are expended in 17 academic departments of the Colleges of Agriculture and Life Sciences and Veterinary Medicine at Texas A&M University in College Station The other one-third of the Experiment Station's funds are expended at 13 agricultural research and extension centers and associated research stations located across the state. The centers provide support for site-specific agricultural production and natural resource systems.

The TAES Corpus Christi Center's research is carried out by 11 faculty/research scientists, 12 postdoctoral/research associate/research assistant personnel, 11 graduate research assistants, and 39 other technical and support personnel.

The following members of the Texas Sea Grant staff are involved in some fashion with the CCBNEP: Deputy Director, Associate Director, two marine agents, and six marine specialists. Texas A&M -- Corpus Christi's Center for Coastal Studies has eight full-time employees, 11 associate professionals, and 15 co-op students/research assistants.

TEXAS ATTORNEY GENERAL (AG OFFICE)	
Role(s)	**Priority Problem(s)**
	

MISSION

The AG Office is the legal arm of Texas government. The Environmental Protection Division represents state environmental and natural resource agencies in court cases. Attorneys process citizen complaints and handle cases they receive from agencies concerning violations of agency

statutes and regulations. The Division prosecutes violations of the Texas Open Beaches Act, Texas Clean Air Act, Texas Water Quality Act, Solid Waste Disposal Act (Texas Health and Safety Code, Section 361.001 et seq.), Radiation Control Act, and other laws. In addition, the Division defends statutes and regulations from legal challenges and provides legal counsel to client agencies.

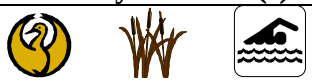
OVERVIEW OF ACTIVITIES

The AG Office's role in dealing with the priority problems in the CCBNEP study area is limited. However, there are three areas where the office has a moderately active role. They are the School Land Board, the review of channel cutting proposals, and the assessment of priority problems within the CCBNEP study area.

School Land Board. The School Land Board is a three-member committee responsible for approving leasing and easements of submerged lands. The Board reviews applications for use of state-owned bay bottoms. The AG Office appoints one member to serve on the Board. The functions of the Board overlap with the regulatory management of wetlands and estuarine habitat.

Channel Cutting Proposals. The AG Office also has a regulatory role in approving/denying proposals to cut channels that affect public beaches under the Public Beaches Act. The AG Office has reviewed proposals to build channels between the Laguna Madre and the Gulf of Mexico.

Assessment of Priority Problems. The AG Office has an indirect role in addressing the priority problems within the CCBNEP study area. The Office acts as the lawyer for the state agencies that administer programs in the area. The AG Office can act on behalf of an agency to defend permit decisions, and enforce permit requirements. The AG's role varies and the number of full-time equivalents within the AG Office working on issues in the study area depends on the number of legal actions brought by or against state agencies.

TEXAS DEPARTMENT OF AGRICULTURE (TDA)	
Role(s)	**Priority Problem(s)**
	

MISSION

TDA implements agricultural programs in regulation, marketing, producer outreach, agricultural resource protection, agricultural research, and economic analysis. As a part of its responsibilities, TDA safeguards water quality from the effects of agriculture.

OVERVIEW OF ACTIVITIES

TDA's two primary activities are implementation of pesticide regulations and marketing and promoting sustainable agriculture. TDA is also involved in an aquaculture program in the Intergovernmental Relations Division that assists producers raising fish and aquatic species. In an advisory capacity, TDA works with the Texas Parks and Wildlife Department.

Pesticide Regulation. Among other duties, TDA regulates the use, distribution, and disposal of pesticides within the state to protect human health and the environment. TDA also works with federal and state soil conservation officers to develop best management practices (BMPs) for pesticide use. TDA has obtained authority from EPA's Pesticide Program to administer the FIFRA program, which covers: state registration of pesticides; establishing specific use criteria for high risk pesticides; licensing private, commercial, and non-commercial applicators; monitoring health and environmental impacts in areas of pesticide use; and enforcing federal and state pesticide laws. TDA has an Endangered Species Coordinator, who helps ensure that emergency exemptions and special local needs registrations for pesticides are evaluated for potential effects on endangered species. In addition, under the Pest Management Program, TDA controls destructive plant pests and diseases.

Sustainable Agriculture. TDA's Producer Relations Division includes staff with specialization in sustainable agriculture and low-resource-use agriculture, agricultural systems. Staff in these programs work with farmers to develop methods of farming and ranching that preserve and enhance habitat, reduce runoff and erosion, and limit the use of pesticides (including herbicides) when appropriate.

BUDGETS AND FUNDING SOURCES

The 1994-1995 biennium appropriation to TDA is $43,215,500.

TEXAS DEPARTMENT OF HEALTH (TDH)	
Role(s)	**Priority Problem(s)**
	

MISSION

TDH administers programs to protect and promote public health. The Seafood Safety Division, within the Bureau of Food and Drug Safety, surveys, classifies, and monitors coastal waters to reduce the risk to public health from contaminated shellfish under Section 436 of the Texas Health and Safety Code (the Texas Parks and Wildlife Department enforces violations of this section). The Division also licenses and monitors shellfish processing plants.

OVERVIEW OF ACTIVITIES

TDH operates three regulatory programs: the Shellfish Survey Program; Shellfish and Crab Meat Certification; and the Seafood Survey Program.

Shellfish Survey Program. The Shellfish Survey Program involves surveying all coastal waters to determine where it is safe to harvest molluscan shellfish. The end product of the survey is a map that depicts exactly what areas can be used for taking shellfish. The Shellfish Survey Program is currently 80 percent (by cost) of TDH's total regulatory program, but it will drop to approximately 20 percent over the next few years.

Shellfish and Crab Meat Certification. Shellfish and Crab Meat Certification involves licensing and inspection of crab meat processing plants for sanitary control. In addition, TDH grants certificates to all shellfish handlers and conducts monthly inspections. This program is currently 15 percent of TDH's regulatory program, but it will decrease to approximately 10 percent over the next few years.

Seafood Survey Program. The Seafood Survey Program involves sampling seafood tissue for contaminants. Only edible tissues are sampled. This program is relatively new and somewhat expensive. It currently accounts for only 5 percent of the current regulatory program, but it is expected to increase to approximately 70 percent over the next few years.

Other Public Health Activities. TDH also conducts other public health activities within the CCBNEP study area. TDH advises local health departments, wholesaler, and retailers on maintaining sanitary conditions for handling shellfish and other seafood. The Texas Sea Grant Program supports the education and training of TDH on an as needed basis as monetary resources allow. TDH is active in planning the prevention of seafood contamination. TDH coordinates with other agencies to share information and develop strategies for protecting human health. TDH is prohibited by law from conducting in-house research, but it is active in guiding other researchers and projects. TDH has a board that reviews the various research projects in Texas bays and estuaries.

BUDGETS AND FUNDING SOURCES

The total FY 1994 budget for TDH was $775,356,987. The sources of revenue for 1994 were federal funds (64%), general revenue (30%), fees (3%), earned federal funds (2%), interagency contracts (1%), and SLIAG (1%). These funds were then expended on prevention and promotion (70%), promote equitable access (12%), assure quality services (9%), the State Coordinated Health System (6%), and administration (3%). In addition, there were five expenditure types within these broad categories: client services (52%), personnel (19%), grants (15%), operating cost (12%), and capital outlay (1%).

The Division of Seafood Safety operates under the Food-Drug Product Safety budget. This budget includes the units of food and drug, milk and dairy, and product safety and shellfish

sanitation. The total FY 1994 budget for the Food-Drug Product Safety Strategy was $9,398,689.

ADMINISTRATIVE RESOURCES

TDH has a total staff of 5,891 FTEs. The Food-Drug Product Safety Strategy represents 239 of these FTEs, three of which work directly with the CCBNEP study area.

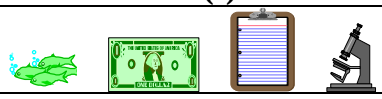
TEXAS DEPARTMENT OF PUBLIC SAFETY (TDPS)	
Role(s)	**Priority Problem(s)**
	

MISSION

The Director of TDPS serves as the Director of the Governor's Division of Emergency Management. The Division of Emergency Management provides leadership for the State Comprehensive Emergency Management Program and coordinates relief and recovery operations for local governments in the event of natural and manmade disasters. The Division also serves as coordinator for state activities under EPCRA (Superfund Amendments and Reauthorization Act, Title III). TDPS is governed by Chapter 411 of the Texas Government Code.

OVERVIEW OF ACTIVITIES

The Division of Emergency Management is involved with the coordination and training efforts of local governments through the District Disaster Committee in regional TDPS offices, and assists local governments with the development of Local Emergency Management Plans. The Division also oversees the state's emergency management planning program.

TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT)	
Role(s)	**Priority Problem(s)**
	

MISSION

TxDOT is responsible for road construction and planning. The Department administers federal funds for mass transit and may plan, purchase, construct, lease, and contract for public transportation systems in the state. The Department constructs and maintains bridges and ferries, serves as the state sponsor of the Gulf Intracoastal Waterway, and can acquire easements and rights-of-way from the Texas General Land Office for channel expansion, relocation, or alteration. TxDOT's authority is derived from Texas Civil Statute 6663, et seq.

OVERVIEW OF ACTIVITIES

TxDOT's major activities with respect to the CCBNEP priority problems relate to planning and research efforts that address minimization of transportation-related impacts on water quality and characteristics. As part of its planning and research efforts, TxDOT is funding studies relating to the effects of the JFK Causeway on circulation in Upper Laguna Madre. TxDOT also is the official sponsor of the Gulf Intracoastal Canal in Texas.

TEXAS GENERAL LAND OFFICE (GLO)	
Role(s)	**Priority Problem(s)**
	

MISSION

The GLO, in conjunction with the School Land Board, manages the state's public lands and mineral right properties totaling 20.5 million acres, including coastal public lands -- beaches, bays, estuaries, and submerged lands out 10.3 miles in the Gulf of Mexico from the shoreline. The Land Commissioner issues permits for geological, geophysical, and other investigations within the tidewater limits of the state. The commissioner also grants easements or leases for right-of-way across state lands for pipelines and other transmission lines. In addition, the commissioner is responsible for technical assistance and compliance under the Dune Protection Act and implementation of the Texas Coastal Preserve Program.

The GLO obtains most of its authority from various acts within the Texas Natural Resources Code. These acts include the Open Beaches Act (Sections 61.001-61.025), which guarantees the public's right of free and unrestricted access to public beaches, and the Dune Protection Act (Sections 63.001-63.122), which prohibits damage to dunes or dune vegetation seaward of a dune protection line.

OVERVIEW OF ACTIVITIES

On June 7, 1991, the Texas State Legislature passed two bills creating a State-Owned Wetlands Conservation Plan and a Coastal Management Plan addressing coastal erosion, beach access, dune protection, and planning and coordination of these activities. In working toward its program goals, the GLO, in coordination with coastal citizens and local, state, and federal agencies, has developed a coastal management program for Texas. The GLO's Land Commissioner serves as chairman of the Coastal Coordination Council, which oversees the Coastal Management Council. The Council is composed of elected and appointed state officials and private citizens appointed by the Governor. As of October 1995, the Governor of Texas has given notice to the Department of Commerce that Texas will submit a coastal management program for approval under the federal Coastal Zone Management Act.

The School Land Board, in conjunction with the GLO, manages the state's coastal public lands. The Board may grant: leases to certain governmental bodies for public purposes; leases for

mineral exploration and development; easements to littoral landowners; channel easements to surface or mineral interest holders; leases to educational, scientific, or conservation interests; and permits for limited use of previously unauthorized structures. The GLO also directly manages some state lands.

Adopt-A-Beach Program. The Texas Adopt-A-Beach Program was established in 1986 and has enrolled over 190 groups that have adopted all 172 miles of accessible beaches in Texas. Over 67,000 volunteers have removed 1,700 tons of debris from Texas beaches.

The GLO's program also has gone beyond beach cleanups, instituting educational efforts and pilot projects to involve commercial fishermen, oil companies, recreational boaters and fishermen, and other Gulf user groups. The GLO also operates the Oil Spill and Resource Management Programs, which are involved in numerous regulatory, educational, research, and other programs aimed at preserving and enhancing the coastal environment, including wetlands.

Solid Waste Management and Recycling. The GLO administers rules to prevent the dumping of solid waste from marinas, rigs and vessels operating in state waters under state permits. The agency's Recycling Division has an extensive public education program to promote recycling and the purchase of products manufactured from recycled materials.

Research Activities. The GLO passes federal grants to other organizations to provide funding for various research projects and activities, such as grants to local governments for bayshore and waterfront planning, the Coastal Bend Bays Foundation's bay circulation study, implementation of Clean Vessel Program to provide sewage pumpout facilities, and the Boaters' and Anglers' Pledge Program to combat marine debris.

BUDGETS AND FUNDING SOURCES

In fiscal year 1995, the GLO's total budget was $37.8 million, of which $18.3 million was allocated to improve and protect the Texas environment and promote use of resources. The sources of funding were:

Funding Sources	*Amount (Mil)*
State General Revenues	$11.7
Coastal Protection Fund	$12.5
General Land Office Special Fund	$1.2
Veteran Lands Fund	$9.4
Federal Funds	$0.4
Other Funds	$0.4
Interagency Contracts	$0.6
Appropriated Receipts	$1.4

Additionally, the total spent in 1993 was $31,395,800. The estimated amount spent in 1994 was $35,763,422.

The GLO has issued several $10,000 grants for experiments in controlling bayshore erosion with smooth cordgrass plantings. Through GLO's efforts, the Texas Legislature established a special account for the deposit of fees levied for surface damages from seismic activity on or across state land. Almost $400,000 has been collected and used to make permanent improvements on state lands for erosion prevention, protection of vegetation, and other conservation projects.

ADMINISTRATIVE RESOURCES

Out of a total GLO staff of 600, the following staff elements are involved in activities directly related to the CCBNEP study area:

- *Resource Management* — 23 employees, who run the Coastal, Adopt-A-Beach, and Marine Environmental Affairs programs;
- *Asset Management* — 17 employees, who manage, lease, and trade state lands to ensure the "highest and best use;"
- *Oil Spill Prevention and Response* — 12 employees responsible for coastal oil spill response and certification of facilities;
- *Field Operations* — 10 employees, including biologists responsible for managing and inspecting state-owned land in bays, tidal-influenced rivers, and the Gulf of Mexico; and
- *The Energy Resources Program* also has activities relating to the CCBNEP study area, including and leasing and auditing revenue from oil, gas, and mineral development on state-owned lands.

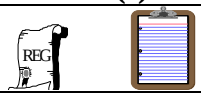
TEXAS GOVERNOR'S OFFICE	
Role(s)	**Priority Problem(s)**
	

MISSION

The Governor's Office, under Texas Constitution Article IV, Section 3a, has the power to appoint the members of various agencies and serves as the Chief Budget Officer for the state. The Governor's Office of Budget and Planning prepares recommendations for the budget and is responsible for administration of state review and comment procedures for all federal or federally funded projects.

OVERVIEW OF ACTIVITIES

The Governor's Office of Budget and Planning prepares recommendations for the budget and is responsible for administration of state review and comment procedures for all federal or federally funded projects. Recommendations of the Office have the potential to affect all CCBNEP priority problems.

TEXAS HISTORICAL COMMISSION (THC)	
Role(s)	**Priority Problem(s)**
	

MISSION

THC's mission is to protect and preserve the state's historic and prehistoric cultural resources for the use, education, and enjoyment of present and future generations. THC is charged with leading and coordinating historic preservation efforts in the state, supplying information about historic preservation matters to the public, providing technical assistance for historic preservation and restoration activities, and administering federal and state laws, regulations, and programs relating to cultural resources. It operates under the authority of the following laws: National Historic Preservation Act of 1966, as amended; the Tax Reform Act of 1936, as amended; Chapters 318 and 442, Texas Government Code; and Tide 98, Chapter 191, Texas Natural Resources Code.

OVERVIEW OF ACTIVITIES

THC has a federal and state regulatory role as well as a role in the development, review, and implementation of regional and local historic preservation plans. THC also issues archeological and historic structures permits for investigations on non-federal state lands. THC reviews and comments on federal development undertakings, and through the prior notification process, comments as well on activities on non-federal state lands, including state underwater lands.

Regulatory Responsibilities. THC has regulatory responsibilities for various activities that occur under the priority problems. The THC reviews permitted and development projects to ensure minimization of impacts on cultural resources (including historic structures, districts, objects, and archeological sites). THC coordinates regulatory aspects with federal and state agencies, and has jurisdiction over state underwater sites as well as state underwater sites.

Development of Historic Preservation Plans. THC develops historic preservation plans to make preservation and mitigation recommendations to other agencies and project sponsors. The agency is currently developing the Southern Coastal Corridor Historic Preservation Plan, which focuses on preserving the archeological resources in and along the southern coast of Texas. THC proposes to include the Southern Coastal Corridor Plan a part of the Coastal Zone Management Program, which is being produced under the direction of the Texas General Land Office.

Review of Development Projects. Project reviews occur for any development project occurring in the study area that is federally funded, licensed, permitted or approved, or is on lands owned or controlled by a state agency or a political subdivision of the state of Texas. In FY 1995, over 8,000 projects were reviewed by the THC.

Permit Issuance for Historical and Archeological Investigations. The THC requires permits for activities on non-federal state land when they have the potential to affect state archeological

landmarks, which includes historical and archeological sites, structures, sunken ships, etc. The THC issues eight types of permits (to project sponsors, landowners, and principal investigators) covering all aspects of historical and archeological investigation, including reconnaissance, survey, test excavations, excavations, and destruction.

BUDGET AND FUNDING RESOURCES

For FY 1995, total THC revenues were $2,578,526, and in FY 1996, they are $6,782,105.

ADMINISTRATIVE RESOURCES

As of October 1995, the THC employed 82 full-time employees. There are approximately 3 to 4 FTEs from THC working within the CCBNEP study area, but they spend only part of their time on issues that overlap with CCBNEP objectives.

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION(TNRCC)	
Role(s)	**Priority Problem(s)**
	

MISSION

The Texas Natural Resource Conservation Commission (TNRCC) is a public agency dedicated to protecting human health and the environment by ensuring clean air for Texans to breathe, an adequate supply of clean water for the benefit of Texas citizens and businesses, and proper and safe disposal of various forms of pollutants, consistent with sustainable economic development. TNRCC also is committed to providing prompt and efficient service to all citizens of Texas.

TNRCC was created in September 1993 with the merger of the former Texas Water Commission and the Texas Air Control Board. TNRCC takes action based on numerous federal and state laws and rules. Some of these are the Clean Water Act, the Texas Water Code, the Safe Drinking Water Act, and the Clean Rivers Act.

OVERVIEW OF ACTIVITIES

The majority of TNRCC's activities revolve around water quality. TNRCC has a role in protecting groundwater and surface water through its various programs. Some of these programs include the issuing of permits, response to fish kills, city pollution abatement programs, nonpoint source reduction, monitoring of water quality, wellhead protection, and watershed wide pollution assessments.

Protection of Surface and Groundwater Quality. TNRCC has the responsibility of protecting surface and groundwater quality. The Commission issues wastewater treatment plant operator certificates, licenses water well drillers and petroleum storage tanks, and sets water rates for

certain privately owned public water/wastewater systems. The Commission also has jurisdiction over water quality monitoring and management, abandoned waste site cleanup, and oil and hazardous material spill response coordination.

In addition to these responsibilities, the Commission oversees surface water rights administration, dam safety management, the National Flood Insurance Program and flood control improvement project administration, injection well program administration, waste minimization initiatives, and water district supervision. TNRCC also issues Section 401 certifications.

Issuance of Water Rights Permits. The 69th Texas Legislature assigned the responsibility for water rights permitting to TNRCC. TNRCC has the authority to develop/enforce regulations affecting stream flow to the Gulf. These regulations are contained in Chapters 11.147 and 11.152 of the Texas Water Code. The Texas Parks and Wildlife Department (TPWD) has the authority to be a party in hearings on applications for permits to store, take, or divert water -- actions that can change the pattern or quantity of freshwater inflow. The Legislature directed TNRCC to consider effects on bays and estuaries for all water rights permits, with a specific directive to include protective provisions in certain permits by applying a performance standard when making decisions concerning water rights on rivers and streams leading to bays and estuaries.

Responses to Fish Kills. In conjunction with TPWD, TNRCC responds to and documents fish kills. TNRCC has the lead on water quality problems relating to discharges, while TPWD responds to, investigates, and is responsible for recovering damages to fish and wildlife for all kills.

Required Pollution Abatement Programs in Cities. Texas Water Code Section 26.177 requires cities with populations of 5,000 or more to develop and have TNRCC-approved water pollution abatement programs. The programs may address nonpoint source pollution, which the statute specifically notes to include urban runoff from rainwater. The cities may extend the controls of their water pollution abatement programs into their extraterritorial jurisdictions. TNRCC assesses fees to recover the costs of administering Section 26.177. About 300 Texas cities have populations in excess of 5,000. Section 26.177 does not contain deadlines for implementation. TNRCC has not adopted rules to implement Section 26.177.

Nonpoint Source Pollution Reduction. Texas is implementing a $2.7 million project, among others, to demonstrate innovative methods for controlling nonpoint source pollution, from several primary causes, namely erosion and sedimentation from new construction or existing development, silviculture, and animal waste runoff.

State Monitoring Program. TNRCC operates a statewide trends monitoring program that includes 15 sampling stations in estuaries along the Gulf Coast. At these sampling stations, metals and organics, including pesticides, are measured in water, sediment, and biota at least once a year. Water and sediment samples are analyzed for 17 metals, 21 organic compounds,

and conventional water quality parameters. Whole-body samples of fish are routinely analyzed for seven metals and 15 organic compounds.

Sediment concentration is compared with historical data. Follow-up bioassay or elutriate testing is conducted if a problem is defined. A problem is defined to exist if the sediment concentration exceeds 90 percent of the state's historic data or 85 percent of the data maintained by EPA. TNRCC recently has completed special studies in nine bays and estuaries. The water, sediment, and biota trends monitoring program has changed in recent years, with more emphasis on special studies and less emphasis on long-trend monitoring.

Clean Texas 2000 Campaign. On April 7, 1992, the Texas Water Commission (now TNRCC) kicked off its Clean Texas 2000 campaign. This campaign includes programs that, if fully implemented, will result in reduced nonpoint source pollution. These include expanding the citizens monitoring program (Texas Watch), providing technical assistance and funding to help cities establish household chemical collection programs, and funding of annual agricultural pesticide container collection days. Clean Texas 2000 also contains a public education component which encourages reduction in the creation of household hazardous wastes and exchange of environmental education. Excellent environmental accomplishments will be recognized through an awards and recognition program.

Pollution Reduction Project Technology and Education Transfer. Section 319 federal grant-funded nonpoint source demonstration projects are required to include technology transfer and general education components. These projects must examine the effectiveness of construction erosion and sedimentation controls, roadway runoff controls, urban wetponds, and animal waste management techniques and report the results so that others will benefit from the information.

Wellhead Protection Programs. Congress amended the Safe Drinking Water Act in 1986 to provide for EPA-approved state wellhead protection programs. In order to obtain EPA approval, these programs have to establish means for designation of public water supply wellhead protection areas and have to include contingency plans for public water supply in the event of groundwater contamination. The federal inducement for states to adopt wellhead protection programs is the authorization of funding for grants with which to operate the programs. However, due to budget constraints, federal appropriation levels for the grants have been low.

Watershed Wide Pollution Assessments. The Clean Rivers Act, passed in 1991, directs TNRCC to ensure a comprehensive regional assessment of water quality in each watershed and river basin in Texas. The purpose of the Act is to provide sufficient information to regulatory entities in order to take necessary corrective action to maintain and improve water quality in Texas. Watershed Texas is a new program that crosses traditional program lines to develop a coordinated approach to cover all agency activities within individual watersheds.

BUDGETS AND FUNDING SOURCES

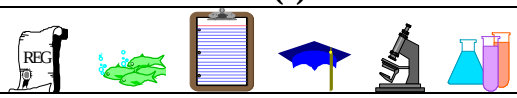
TNRCC's budget for FY 1996 is $391,522,380 -- $164,410,057 in operating budget and $227,112,323 in pass-through funds. The pass through funds are budgeted as follows: Water

quality (Clean Rivers and Nonpoint Source Grants) $9,941,290 (4.4%), Used Oil Recycling Grants $1,115,000 (0.5%), Solid Waste Management Grants $14,793,000 (6.5%), Local Air Enforcement Grants $1,491,488 (0.7%), Superfund Contracts $49,167,827 (21.6%), Petroleum Storage Tank Reimbursements $122,253,796 (53.8%), and Tire Recycling Reimbursements $28,349,922 (12.5%). The total includes $7,200,000 carried forward from FY 1995. The FY 1995 budget was $395,146,763 -- $173,643,467 in operating budget and $221,503,296 in pass through funds.

TNRCC has a number of dedicated funds. The Clean Rivers Program is fee-based, and the wastewater inspection fees are used to pay for inspections. All fees that are collected can be spent, although there is a cap on collections. There is no appropriation process for this type of fee. Fines that are collected contribute to state general revenues.

ADMINISTRATIVE RESOURCES

TNRCC has 3,125 employees and 15 regional offices. In Corpus Christi, the Regional Manager and four other managers oversee TNRCC's air, water, waste, and environmental assessment programs.

TEXAS PARKS AND WILDLIFE DEPARTMENT (TPWD)	
Role(s)	**Priority Problem(s)**
	

MISSION

Under the Parks and Wildlife Code, Chapter 1, TPWD is the lead agency for the conservation and protection of fish and wildlife and their habitats. State parks and their managers play a relatively minor role in estuary management, provision of public information and access to park areas. For federal 404 permits, along with TNRCC, TPWD provides comments to the Army Corps of Engineers. TPWD also has specific responsibilities to make recommendations to TNRCC for instream flow and freshwater inflows to protect fish and wildlife that are dependent upon rivers and estuaries.

OVERVIEW OF ACTIVITIES

TPWD is divided into several divisions. The operational divisions are the Resource Protection Division, the Wildlife Division, the Inland Fisheries Division, the Law Enforcement Division, and the Coastal Fisheries Division. Within these divisions are various branches with more specific duties.

Resource Protection Division. Through its Resource Protection Division, A permit must be obtained from TPWD for the disturbance or dredging of sand, shell, or marl in public waters not authorized by other state or federal agencies. Public waters are defined as all the salt and fresh

waters underlying the beds of navigable streams under the jurisdiction of the Parks and Wildlife Commission.

The Resource Protection Division has four branches: Habitat Assessment; Aquatic Studies; Endangered Resources; and Environmental Quality. The Habitat Assessment Branch is primarily concerned with terrestrial and wetland resources, providing comments and consulting with USCOE on Section 404 permits, and reviewing environmental impact statements. The Aquatic Studies Branch is primarily concerned with riparian and other aquatic habitats, and assesses impacts from proposed water rights and evaluating aquatic studies in environmental impact statements. The Environmental Quality Branch investigates fish kills and conducts various research studies on environmental quality (e.g., study of the effects of selenium).

Wildlife Division. The Wildlife Division recommends rules and regulations to the Texas Parks and Wildlife Commission for the taking of terrestrial wildlife, including commercial taking (e.g. trapping for furs). The division is also implementing public information programs to teach urban habitat management.

Coastal Fisheries Division. The four main roles of the Coastal Fisheries Division are to determine the changes in size of finfish and shellfish populations caused by environmental conditions and fishing, determine landings of marine species and the associated social and economic characteristics of the fisheries, develop mariculture techniques for selected species and educate consumers regarding high quality, wholesale seafood products. The Coastal Fisheries Division also operates saltwater fish hatcheries. In addition, the division administers a monitoring program that uses beach seines, shrimp trawls, gill nets, and oyster dredging. (The Inland Fisheries Division is responsible for operating inland fish hatcheries.)

Fishery Management. The Coastal Fisheries Division is responsible for making management recommendations regarding the state's saltwater fishery resources in Texas bays and estuaries and nine nautical miles into the Gulf of Mexico. The goal of the Coastal Fisheries Program is to develop management plans for selected fisheries utilizing the concept of optimum yield. Management plans include harvest regulations, resource stock enhancements or habitat enhancements based on monitoring programs and the best scientific information available.

Education Programs. TPWD provides extensive education programs on a wide range of subjects, including wildlife, conservation, and environmental awareness programs taught in public schools. TPWD's Wildlife In Learning Design Project (WILD) is an environmental education program for adults who work with children. It provides wildlife education themes, a teaching guide, and six hours of instruction relating to terrestrial wildlife. Project Aquatic WILD is similar, but emphasizes aquatic species. The agency also provides general educational information on its activities and implements dedicated programs at various parks and refuges. In addition, TPWD administers the Texas Natural Heritage Program to collect and provide data on sensitive and unique natural flora, fauna, and habitats within the state.

BUDGETS AND FUNDING SOURCES

The Department's appropriations for fiscal year 1994 were $139 million. The funding sources are summarized in the table below.

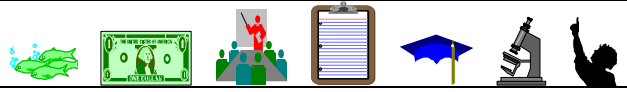
Funding Sources	*Amounts (Mil)*
Anglers and Commercial Fisherman	$45.1
Hunters	$29.2
Sporting Goods Purchasers	$26.6
Boaters	$25.1
Park Users	$21.9
General Taxes	$0.5
Other	$19.8

This money is allocated to the following divisions: Executive Office; Resource Protection; Public Lands; Fisheries and Wildlife; Law Enforcement; Conservation Communications; Human Resources; Chief Financial Officer Services; Legal Services; Federal Grants and Pass Throughs; Local Park Grants; and, Other/Contingencies. The agency has had some difficulty in obtaining state funding for parks that are managed jointly by TPWD and another governmental entities (e.g., counties, cities, etc.).

ADMINISTRATIVE RESOURCES

TPWD has 2,500 regular full-time employees and 400 temporary/seasonal employees.

TEXAS STATE SOIL AND WATER CONSERVATION BOARD (TSSWCB)

Role(s)	**Priority Problem(s)**
	

MISSION

Under the Texas Agriculture Code, Chapter 201, TSSWCB has the responsibility to administer the state's conservation law, and in so doing to coordinate the programs of and provide assistance to the state's soil and water conservation districts. Under the Texas Agriculture Code, Section 201.026, TSSWCB has the responsibility to plan, implement, and manage programs and practices for abating agricultural and silvicultural nonpoint pollution, and is designated as the lead agency in Texas for such activities.

OVERVIEW OF ACTIVITIES

TSSWCB administers voluntary conservation programs that provide assistance and education to landowners through soil and water conservation districts to conserve soil and water resources and reduce/eliminate agricultural nonpoint source pollution. TSSWCB shares the costs for

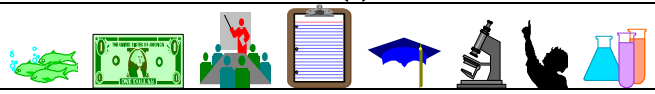
implementation of certain best management practices. The voluntary programs operate through 214 local soil and water conservation districts, which encompass over 99 percent of the surface acres of Texas. The agency also provides partial funding for these soil and water conservation districts. Through these voluntary programs over 215,000 cooperating landowners are applying conservation practices on more than 48.6 million hectares (120 million acres), and approximately 1,000 landowners are implementing certified water quality management plans. In addition, TSSWCB drafted and obtained EPA approval of the agricultural and silvicultural components of the nonpoint source management program under Section 319 of the Clean Water Act, and is in the process of implementation. This includes administration of the agricultural/silvicultural portion of the grant program authorized in Section 319.

BUDGETS AND FUNDING SOURCES

Legislative appropriations for the 1995 fiscal year total $7,319,298. Of this amount, 30 percent goes to district operations in the form of grants and payments and 37 percent goes to conservation cooperators. Eighty-seven percent of TSSWCB funding comes form general revenues, 10 percent from federal and interagency contracts, and three percent from the Agricultural Soil and Water Conservation Fund. Of the federal funds, total fiscal year 1994 base funds were $1,573,883 and competitive funds were $2,732,957.

ADMINISTRATIVE RESOURCES

TSSWCB has 63 employees, with 25 assigned to the headquarters in Temple, Texas. There is a regional office in Weslaco that provides services dealing with nonpoint source management within the CCBNEP study area.

TEXAS WATER DEVELOPMENT BOARD (TWDB)	
Role(s)	**Priority Problem(s)**
	

MISSION

TWDB's mission is to provide state leadership in the conservation and responsible development of water resources for current and future generations. TWDB is the state agency responsible for planning, financing, and developing water and wastewater projects. One of TWDB's primary goals is to plan and provide financial assistance for water supplies of sufficiently high quality for human use and for maintenance and enhancement of the natural environment.

TWDB was created in 1957 by acts of the 55th Texas Legislature, and its duties and responsibilities have been increased by subsequent legislative sessions and constitutional amendments. Statutory authority, specifically for the freshwater inflow needs assessment of Texas bays and estuaries, was expanded by acts of the 69th Legislature in 1985. The 69th Legislature also directed TWDB and the Texas Parks and Wildlife Department to establish and

maintain a continuous data collection and analytical study program aimed at determining bay conditions that provide a sound ecological environment. TWDB's authority under state statutes is found in Chapters 6 and 15-20 of the Texas Water Code.

OVERVIEW OF ACTIVITIES

TWDB is the state's water planner and financier, issuing bonds and loans to finance water supply, wastewater treatment, and flood control projects. The Board needs a city government, local sponsor, or other governmental entity to take/borrow money and administer a project. TWDB may not apply funds that have been earmarked for financing water supply, wastewater treatment, and flood control projects to administer these activities. TWDB operates some special programs to disburse funds, such as the Economically Disadvantaged Activities Program, which seeks to eliminate substandard water delivery and treatment systems in Texas. In order to carry out its job as a bank, TWDB conducts many activities that relate to solving CCBNEP priority problems.

Modeling and Research. TWDB is the lead agency in research on freshwater inflows and modeling bay circulation and salinity patterns. TWDB is also active in researching the impacts of physical structures and water management practices on coastal wetlands. For planning and modeling of coastal bays and estuaries, TWDB analyzes sediments, nutrients, salinity gradients, biological productivity, and fisheries. TWDB also examines reservation and optimization of freshwater inflows, as well as the beneficial use of wastewater return flows, both of which are important features of watershed protection and the ecological enhancement of wetlands associated with bays and estuaries.

Technical Assistance Programs. TWDB participates in at least three technical assistance programs that affect the CCBNEP study area: the Texas Coastal Ocean Observation Network; the State-Federal Co-op Program for Stream Gauging; and oil spill response. For the Texas Coastal Ocean Observation Network, TWDB helped design and finance the tide gauges system that has been collecting data since 1990. Several of the state's 44 gauges are located in the CCBNEP study area. For the State-Federal Co-op Program for Stream Gauging, TWDB and the U.S. Geological Survey operate a statewide network for flood forecasting. When the Texas General Land Office responds to oil spills, TWDB assists by conducting oil spill trajectory modeling. With the information gained from the modeling, TWDB advises the on-site field coordinator and clean-up crews on where the oil is likely to move.

Water Development Planning. Planning is an important function of TWDB. The agency develops water development plans that have 50-year horizons. These plans account for changes in demographics, economies, land use, etc. to project future water demands for districts throughout Texas. Development of the water plans involves public hearings and consensus water planning. Consensus water planning involves obtaining recommendations from agencies that are users of the water plans. These agencies contribute their expertise to obtain a consensus on population, methods, coefficients, and other variables that are used in the plans. This consensus planning adds confidence and validity to the water plans. The Trans-Texas Water

Program, which examines cross-basin transfers and super-scale projects, can contribute aspects to the water plans.

Public Relations and Education. TWDB has a public relations officer who has implemented several initiatives, including development of the "Wally Water" character. The Major Rivers Program teaches school children about the use of water in society and how to wisely manage water resources. TWDB enlists local sponsors to distribute educational materials where it is unable to teach children directly. TWDB also makes other school appearances outside of the Major Rivers Program to talk to students and distribute educational information. Most of the school programs focus on urban areas. In addition, TWDB participates in the Clean Beaches Program and science fairs.

Research Funding. TWDB funds a significant amount of water-related research, but does not generally conduct research itself, with the exception of the freshwater inflow studies. TWDB administers the Water Research and Planning Fund and the Water Assistance Fund. The Water Research and Planning Fund supplies grants to political subdivisions of government to conduct studies on water development. As a part of these studies, TWDB often supplies in-house modeling. TWDB also produces Requests For Proposals and administers contracts for studies on water supply, wastewater, and flood control. For example TWDB's Bays and Estuaries Program administers contracts with universities, U.S. Geological Survey, U.S. Army Corps of Engineers, NOAA, TPWD, TNRCC, and out-of-state scientists. One area of research in which TWDB is involved is measuring the effects of conservation of water on freshwater inflows to the Gulf of Mexico.

BUDGETS AND FUNDING SOURCES

Funding for TWDB's activities comes primarily from state general revenues, federal programs, and capitalization grants which finance the State Revolving Fund (SRF) for construction of wastewater treatment plants. TWDB's financing for public water projects and the freshwater inflow studies also is supplemented by the Texas Water Assistance Fund, the Texas Water Development Bond Program, and the Texas Water Resources Finance Authority.

The environmental section of TWDB has an annual budget of approximately $800,000. Contractors who conduct research receive $300,000 to $350,000. Eighty-five percent of the budget (and the resources) are devoted to the Bays and Estuaries Program. Of that, approximately $340,000 is allocated to the CCBNEP study area. Under its banking functions, TWDB will contribute well in excess of $10 million dollars to the CCBNEP study area in grants, loans, and bonds in the next few years (the exact amount depends on how many and what type of projects local governments want to implement).

Through amendments to the state constitution, the Legislature and voters have authorized the TWDB to issue up to $2.7 billion in general obligation bonds. Through May 1994, the TWDB has used a little more than $1 billion. The TWDB also has statutory authorization to issue an unlimited amount of revenue bonds. The TWDB has issued $416 million in revenue bonds from the SRF program through May 1994. The Legislature and voters authorized the TWDB to use

up to $250 million of its existing water and sewer general obligation bonding authority to provide grants and loans to assist economically distressed areas across the state. In 1993, EPA provided an additional $50 million for wastewater improvements in border counties. Through May 1994, nearly $17.5 million in Economically Distressed Areas Program bonds have been issued, and the TWDB was approaching $100 million in project commitments.

The TWDB anticipates reaching the $1 billion funding mark for projects through the SRF program in late fiscal year 1994 or early fiscal year 1995. An estimated $1.8 billion in projects will be funded through this program during the next five years. The Legislature appropriated $40 million in 1980 to provide planning and research grants to local entities and institutions to assist in developing long-term solutions for water-related matters. These appropriated funds were virtually exhausted at the end of the 1992-1993 biennium. The Legislature appropriated an additional $4.9 million in 1995 from Texas Water Resources Finance Authority bond proceeds for use in the 1996-1997 biennium.

ADMINISTRATIVE RESOURCES

TWDB's environmental section has 11 technical full-time equivalents (FTEs). Approximately five of these FTEs work on projects relating to the CCBNEP study area.

UNIVERSITY OF TEXAS SYSTEM (UT)	
Role(s)	**Priority Problem(s)**
	

MISSION

The University of Texas System is one of several higher education systems within the state of Texas. Its flagship institution is the University of Texas at Austin. UT has several component organizations involved in CCBNEP activities. Most are related to research or provide technical assistance to other agencies and organizations. Often, the various components of UT provide technical assistance to government agencies and organizations, based on applied research. The University of Texas System was created by Texas Constitution Article 7, Sections 9 and 15.

OVERVIEW OF ACTIVITIES

UT operates the Marine Science Institute, the Bureau of Economic Geology, the Center for Research in Water Resources and a Public Education/Outreach Program.

Marine Science Institute (UTMSI). The University of Texas Marine Science Institute is a branch of the University of Texas at Austin located in Port Aransas, Texas. It educates students in various marine science disciplines, and its faculty and research associates conduct research on a wide range of subjects. While its studies are global in nature, most work is conducted in the CCBNEP study area.

The Institute is dedicated to the three central functions of a major university (education, research, and service) as they apply to the Texas coastal zone. As an organized research unit, the primary goal of the Institute is to improve understanding of the marine environment through rigorous scientific investigation. This is accomplished through the research efforts of the scientific staff, and the training of young scientists in cooperation with the Department of Marine Science. The research and teaching functions require the unique facilities of the Institute and its shore-side location on the Texas Gulf coast. The Institute's mission is broad and encompasses a variety of scientific disciplines. The scope of research is equally diverse, especially in marine biology, ranging from the ecosystem and community levels to the subcellular and molecular levels. The other subdisciplines of marine science -- marine chemistry, marine geology, and physical oceanography also contribute to understanding of the Texas coastal zone and to the training of students.

Bureau of Economic Geology. The Bureau of Economic Geology at UT Austin is responsible for much of the mapping of coastal resources, energy, minerals, land, geology, and biology. It also monitors erosion along the Texas Gulf Coast.

Center for Research in Water Resources. The Center for Research in Water Resources, a part of the Bureau of Engineering Research at UT Austin, is an organized research unit that provides facilities and equipment to support faculty research on all aspects of water resources. It is an interdisciplinary program with research being conducted by personnel from various departments throughout the University in the following areas: hydrology; hydraulics; ground water; sediment processes; contaminant transport; waste treatment; bays; estuaries; lakes; reservoirs; rivers; and watersheds. Other research units that operate in the CCBNEP study area include the Center for Space Studies and the LBJ School of Public Affairs.

Public Education/Outreach. UT also provides education/outreach to the general public. UTMSI's Visitor Center accommodates 40,000 visitors a year and approximately 9,000 school children visit on field trips. UTMSI also sponsors workshops for 300 teachers per year.

BUDGETS AND FUNDING SOURCES

As a public institution, the University of Texas receives part of its income directly from the state through appropriations. The Texas Constitution prohibits any appropriations from the general revenues for construction of buildings at the University of Texas at Austin, but appropriations for equipment and operating expenses have been made by each legislature since 1889. An additional source of income is the Permanent University Fund, which consists of revenue from the two million acres of land in West Texas granted to the University and its branches in 1876 and 1883. The land has been leased since 1884 for grazing and other purposes; since oil production began there in 1923, income from mineral leases and royalties has been added to the fund. Income earned by the Permanent University Fund is called the Available University Fund. One-third of the Available Fund is dedicated to the support of the Texas A&M University System, and two-thirds to the University of Texas System for operating expenses and permanent improvements. Fees paid by students are a third source of income, and proceeds of endowment

funds donated by individuals and organizations provide important additional support to research and teaching at the University.

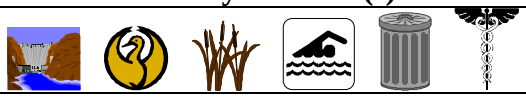
UTMSI in FY 1994-95 received financial support from all sources of $4,483,066, including $1,197,019 in state appropriated funds (27%), $2,491,204 in sponsored research (56%), $583,850 for research support/services (13%), and $210,993 in private gifts and earned interest (4%). Funding for sponsored research included $1,992,936 from federal agencies (45%), $387,645 from state agencies (9%), and $110,623 from the private sector (2%).

ADMINISTRATIVE RESOURCES

The University of Texas System is governed by a board of nine regents nominated by the Governor and appointed with the advice and consent of the State Senate.

UTMSI supports 109 persons: 35 full-time students, 2 full-time faculty, 1 part-time faculty member, 13 full-time administrative and professional positions (11 also hold faculty appointments), 1 part-time administrative and professional position, 41 full-time classified positions, and 16 part-time classified positions.

Regional and Local Institutions

CITY OF CORPUS CHRISTI	
Role(s)	**Priority Problem(s)**
	

MISSION

The City of Corpus Christi, as part of its comprehensive plan, has adopted goals and a series of policy statements. The goals of the City are:

- Maintain and improve the quality of life for all citizens;
- Develop a thriving and growing economic base for Corpus Christi;
- Preserve the stability of existing residential and commercial areas;
- Protect the natural and man-made amenities of Corpus Christi;
- Promote equal opportunity for all citizens to participate in a quality living, working, cultural, and recreational environment;
- Encourage orderly development of new residential, commercial, and industrial properties to accommodate growth; and
- Endorse a high level of design in the overall development of the City.

As an incorporated, home rule city with a council manager form of government, Corpus Christi derives its authority from the Texas State Constitution Article II, Section 5 and Local Government Code, Chapters 7, 26, and 51.

OVERVIEW OF ACTIVITIES

The City has developed specific policies and undertaken actions to maintain a positive relationship between people and the environment, promote a safe and healthy environment, and preserve or minimize damage to environmentally sensitive areas. These actions support CCBNEP efforts in many ways.

The City of Corpus Christi has regulatory and resource management functions relating to point source pollution, nonpoint source pollution, spills and dumping, freshwater inflows, shoreline development, habitat protection, public health, and erosion control. The City also provides some financial assistance on public health matters, and provides technical assistance, planning services, and educational and volunteer programs on various aspects of bay and estuary health.

As the primary supplier of water in the region and principal owner of the two major impoundments on the Nueces River, the City of Corpus Christi plays a large role in addressing issues such as the problem of altered freshwater inflows. Quality of water discharged from City-owned wastewater treatment facilities affects water quality in the tributaries and bays.

In Texas, municipalities with populations over 5,000, such as Corpus Christi, are required to comply with the Municipal Water Pollution Control and Abatement Program. Storm water runoff from populated areas is a major source of pollutants in the bays and tributaries. Corpus Christi is required to have a nonpoint source water pollution control and abatement program to address these water quality problems. The City also regulates its trash collection, solid waste disposal, and storm water discharge practices to prevent bay debris. Planning and zoning functions administered by the City address CCBNEP's priority problem, loss of wetlands and estuarine habitat.

BUDGETS AND FUNDING SOURCES

Primary funding sources for the City are taxes, utility fees, bonds, and grants. The City also receives grants from various federal and state agencies to fund activities. In 1995, the City had a budget of $302M, with a property tax rate of $0.6127 per $100 of value on a tax base of $6,465M.

ADMINISTRATIVE RESOURCES

Of the City's 3,333 paid employees, approximately 606 full-time and 2 part-time employees are involved in activities that relate to CCBNEP priority problems. These employees are assigned to the Regional Water Director's Office, Water Department, Storm Water Department, Solid Waste Department, Waste Water Department, City/County Health Department, and Engineering Department.

CITIES OTHER THAN CORPUS CHRISTI	
Role(s)	**Priority Problem(s)**
	

MISSION

The basic authority of incorporated cities is in the Texas State Constitution Article II, sections 4 and 5 and Local Government Code Chapters 5, 6, 7, 8, 9, 21, 22, 23, 24, 25, 26, and 51, depending on population and form of government selected. Generally larger municipalities are home rule cities with a council/manager form of government. While smaller municipalities are general law cities with an aldermanic (mayor/council) form of government.

OVERVIEW OF ACTIVITIES

Many cities are involved in operating municipal water treatment plants and municipal wastewater treatment plants, handling drainage and storm water runoff, and operating a water supply utility. The larger cities, with populations of over 5,000, have nonpoint source water pollution control and abatement programs. In addition, several cities, such as Three Rivers, which owns a share of the storage capacity of Choke Canyon Reservoir, are involved in removal of water from local tributaries to the bay systems. Cities also have zoning authority, but many

lack zoning ordinances. The cities also manage parks and other public lands. Many cities also administer trash collection and solid waste disposal. See the following table for additional information on the 17 cities represented on the CCBNEP Local Government Advisory Committee.

BUDGETS AND FUNDING SOURCES

Taxes, utility revenues, and grants are the primary funding sources for cities in the CCBNEP study area. See the following table for additional information on the 17 cities represented on the CCBNEP Local Government Advisory Committee.

ADMINISTRATIVE RESOURCES

See the following table for additional information on the 17 cities represented on the CCBNEP Local Government Advisory Committee.

City or Town	Form of Govern-ment	Budget	City Employees	Tax rate $ per $100 or percentage	Tax base	Pop. (1990)	Per Cap. Income (1989)	Activities
Aransas Pass	Home Rule Council/ Manager	$5.8M	72	Prop. 0.89	$177M	7,180	$8,736	Zoning, water supply, solid waste manage-ment, sewage, drainage, parks, economic develop-ment, navigation/ harbor
Austwell	General Law Aldermanic	N/A	1	N/A				Water supply, sewage, parks
Bayside	General Law Aldermanic	$0.2M	3	Prop. 0.59	$7.3M			Zoning, water supply, solid waste manage-ment (proposed), sewage, drainage, parks
Bishop	General Law Aldermanic	$1.3M	28	Prop. 0.524 Sales 1%	$7.3M	3,337	$10,047	Zoning, water supply, solid waste manage-ment, sewage, drain-age, parks, economic development (being developed)
Fulton	General Law Aldermanic	$0.1M	2.5	Prop. 0.194 Sales 1%	$5.7M			Sewage, parks, convention center
Gregory	General Law Aldermanic	$0.5M	10	Prop. 0.823	$17.6M			Solid waste manage-ment (by contract), sewage, parks
Ingleside	Home Rule Council/ Manager	$3.8M	49	Prop. 0.78 Sales 0.5%	N/A	5,696	$9,311	Zoning, water supply, solid waste manage-ment, sewage, drain-age, parks, economic development

City or Town	Form of Govern-ment	Budget	City Employees	Tax rate $ per $100 or percentage	Tax base	Pop. (1990)	Per Cap. Income (1989)	Activities
Ingleside on the Bay	General Law Aldermanic	$75K	0.5	Prop. 0.25 Sales 1%	$20M			Zoning, water supply (from Ingleside), solid waste management (under contract with BFI), sewage (seeking grant to install a collection system), drainage (limited), parks
Kingsville	Home Rule Council/ Manager	$12.0M	220	Prop. 0.71 Sales 1.5%	$356M	25,276	$9,338	Zoning, water supply, solid waste management, sewage, drainage, parks
Mathis	General Law Aldermanic	$1.0M	54	Prop. 1.05 Sales .5%	$45.4M	5,423	$4,717	Zoning, water supply, solid waste management, sewage, drainage, parks
Port Aransas	Home Rule Council/ Manager	$5.9M	52	Prop. 0.47 Sales 1%	$307M			Zoning, solid waste management, drainage, parks, navigation/ harbor
Portland	Home Rule Council/ Manager	$8.5M	85	Prop. 0.60 Sales 1.5%	$350M	12,224	$14,187	Zoning, water supply, solid waste management, sewage, drainage, parks, economic development
Refugio	General Law Aldermanic	$3.4M	27	Prop. 0.726 Sales 2%	$51M	3,158	$10,511	Water supply, solid waste management, sewage, drainage, parks, economic development
Robstown	Home Rule Council/ Manager	$3.8M	75	Prop. 1.08 Sales 1%	$128M	12,849	$5,740	Water supply, solid waste management, sewage, drainage, parks, economic development
Rockport	Home Rule Council/ Manager	$5.7M	72	Prop. 0.352	$344M	4,753	$11,515	Zoning, parks, economic development
Sinton	Home Rule Council/ Manager	$3.0M	50	Prop. 0.680 Sales .5%	$81M	5,549	$7,787	Zoning, water supply, solid waste management (contract), sewage, parks, economic development
Three Rivers	General Law Aldermanic	$1.7M	30	Prop. 0.330	$165M			Water supply, solid waste management (contract), sewage, parks, economic development

COASTAL BEND COUNCIL OF GOVERNMENTS (CBCOG)

MISSION

CBCOG is a regional planning commission regulated under Chapter 391 of the Local Government Code. It is a voluntary association of several local governments in the CCBNEP study area.

OVERVIEW OF ACTIVITIES

CBCOG's general planning activities are diverse and incorporate actions such as service to the aging, implementation of a regional 911 system, and economic development. Its activities that relate to CCBNEP initiatives are area-wide water quality management efforts, development of a regional solid waste management plan, and study of land use. CBCOG also provides planning, technical assistance, and education to local agencies on water quality and solid waste management issues. In its capacity as a forum for addressing common concerns among various agencies and communities, CBCOG promotes conferences on the alteration of freshwater inflows into the bay and on altered estuarine circulation. CBCOG serves as a coordinating agency that awards various grants received from other federal and state agencies to programs it sponsors. CBCOG also coordinates various volunteer efforts, such as Texas Watch for the Texas Natural Resource Conservation Commission.

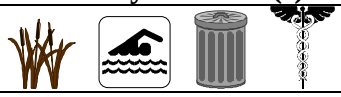
BUDGETS AND FUNDING SOURCES

CBCOG has an overall budget of approximately $7 million, with an operating budget of $2.5 million. Approximately $100,000 is spent on its water quality and solid waste management issues.

ADMINISTRATIVE RESOURCES

CBCOG has a staff of 21, with 19 full-time and two part-time employees.

COUNTIES IN THE STUDY AREA

Role(s)	Priority Problem(s)
	

MISSION

The basic authority vested in counties is found in the Texas State Constitution Article IX, Section 1 and Article V, Section 18 and Local Government Code Chapter 18. Counties are

subdivisions of the state of Texas and responsible for the execution of state laws. They have very limited authority to issue orders, and lack the broad authority of municipalities to create ordinances. The Commissioners Court has the authority under Texas Constitution Article III, Section 52, to create districts for various purposes, such as water supply, irrigation, drainage, or navigation.

OVERVIEW OF ACTIVITIES

Counties generally operate courts, record keeping, tax collection, and law enforcement agencies. They also build and maintain roads that are not managed by TxDOT. Given their limited regulatory authority, the counties are primarily involved in the enforcement of state laws and standards and provide some technical assistance relating to installation of septic systems, solid waste management, regulation of flood plains, animal control, mosquito control, and emergency response. However, each county's operations differ, with some counties providing basic utilities and services, and others relying on municipalities and districts to provide selected services. The counties in the study area also manage properties they own, including parks. The local emergency planning committees are involved in response to incidents involving hazardous substances that could be the source of nonpoint pollution. In addition, the counties are involved with planning associated with point and nonpoint source pollution, solid waste disposal, shoreline development, and public health issues. The following table provides a brief summary of the activities of the twelve counties within the CCBNEP study area.

BUDGETS AND FUNDING SOURCES

Taxes, utility revenues, and grants are the primary funding sources. See the following table for additional information on the 12 counties in the CCBNEP study area.

ADMINISTRATIVE RESOURCES

Counties are managed by a Commissioners Court consisting of the county judge elected at large and four commissioners elected from precincts. Most counties have limited resources. See the following table for additional information on the 12 counties in the CCBNEP study area.

County	Budget	County Employees	Tax rate $ per $100 or percentage	Tax base	Pop. (1992)	Per Cap. Income (1991)	Activities
Aransas	$7.5M	111	Prop. 0.399	$791M	19,118	$14,975	Septic and flood zone regulation, solid waste management (transfer station), storm water management (drainage districts), parks, economic development
Bee	$6.2M	105	Prop. 0.52 Sales .5%	$458M	24,697	$12,051	Water supply (working on grant for small communities), solid waste management (collection station), sewage (limited)

County	Budget	County Employees	Tax rate $ per $100 or percentage	Tax base	Pop. (1992)	Per Cap. Income (1991)	Activities
Brooks	$7.5M	144	Prop. 0.943	$334M	8,187	$10,052	Solid waste management (rural pickup), storm water management (maintain drainage ditches)
Duval	$6.0M	230	Prop. 2.08	$481M	12,721	$9,643	Zoning (working on subdivision order), solid waste management (no current activity, but applied for type IV landfill permit), parks
Jim Wells	$7.1M	N/A	Prop. 0.710	$930M	38,259	$12,273	Solid waste management, storm water management (drainage ditch clean-out), parks, limited economic development
Kenedy	$1.6M	40	Prop. 0.65	$202M	439	$23,660	Solid waste management, storm water management (limited drainage ditch maintenance), parks
Kleberg	$9.0M	250	Prop. 0.638	$822M	30,377	$12,978	Storm water management (limited drainage ditch maintenance, parks
Live Oak	$5.0M	125	Prop. 0.594	$600M	9,809	$12,841	Solid waste management (transfer station and contract collection services), parks, limited economic development
McMullen	$2.4M	30	Prop. 0.525	$220M	806	$21,485	Solid waste management (landfill operation)
Nueces	N/A	N/A	Prop. 2.84	N/A	300,815	$16,034	Zoning (limited to flood plain and septic regulation), solid waste management (contractor services in rural area and debris pickup), storm water management (limited debris pickup), parks
Refugio	$3.2M	95	Prop. 0.506	$438M	7,839	$17,976	Solid waste management (transfer station), sewage ordinance, storm water management (limited drainage ditch maintenance), parks, economic development
San Patricio	$20.3M	428	Prop. 0.540	$1,883M	60,600	$12,689	Zoning (limited to flood plain and septic regulation enforcement), parks, economic development

DRAINAGE DISTRICTS	
Role(s)	**Priority Problem(s)**
	

MISSION

Drainage districts are water conservation and reclamation areas created by either the Texas Legislature, with jurisdiction over special law districts, or the Texas Natural Resource Conservation Commission, which monitors the general law districts. They derive their authority from the Texas Constitution Article III, Section 52 and Article XVI, Section 59 and Water Code, Chapter 56.

OVERVIEW OF ACTIVITIES

There are several drainage districts within the CCBNEP study area, including Nueces County Drainage District #2 and the San Patricio County Drainage District. Drainage districts are primarily involved in constructing and maintaining drainage systems for flood control and soil conservation. Nueces County Drainage District #2 was established by the Nueces County Commissioners Court to construct and maintain drainage canals in Nueces County. The San Patricio County Drainage District operates drainage canals within San Patricio County. This district was established by Texas Civil Statutes, Article 8280-411. It is also involved in removal of debris from the Aransas River and Chiltipin Creek to ensure proper run-off of storm waters. By regularly removing trash and debris from drainage ditches under their control, drainage districts help eliminate bay debris.

BUDGET AND FUNDING SOURCES

Nueces County Drainage District #2 has a budget of $500,000, derived from property taxes at a rate of $0.3705 per $100 on a tax base of $174M. San Patricio County Drainage District has a budget of $1.9M, derived from property taxes at a rate of $0.107 per $100 on a tax base of $1.8 billion.

ADMINISTRATIVE RESOURCES

Nueces County Drainage District #2 has a 14 employees and is governed by a board of three directors elected by residents of the district. San Patricio County Drainage District has 5 directors appointed by the San Patricio County Commissioners Court.

GUADALUPE BLANCO RIVER AUTHORITY (GBRA)	
Role(s)	**Priority Problem(s)**
  	 

MISSION

GBRA was established in 1933 under Texas Civil Statutes, Article 8280-106 as a water conservation and reclamation district. The State of Texas Constitution Article III, Section 52 and Article XVI, Section 59 provide for the creation of water districts to address both local and regional issues associated with the use, preservation, and protection of the state's water resources. The various types of districts are created by either special law or general law, and must comply with the laws contained in the Texas Water Code and other applicable statutes.

GBRA is one of 17 river authorities in Texas, and is responsible for a ten-county statutory district within the Guadalupe-Blanco River system watershed that includes: Kendall; Comal; Hays; Caldwell; Guadalupe; Gonzales; Dewitt; Victoria; Calhoun; and Refugio Counties.

As adopted by its board of directors in 1995, "The mission of the Guadalupe-Blanco River Authority is to protect, conserve, reclaim and steward the resources of the ten-county District in order to ensure and promote quality of life for those we serve."

OVERVIEW OF ACTIVITIES

To meet its responsibilities, GBRA operates eleven divisions: General; Water Resource; Guadalupe Valley Hydroelectric; Canyon Hydroelectric; Victoria Regional Wastewater Reclamation; Lockhart Wastewater Reclamation; Rural Utilities; Luling Water Treatment; Port Lavaca Water Treatment; Calhoun County Rural Water Supply; and Coleto Creek.

Many river authorities operate major reservoirs, sell untreated water on a wholesale basis, and may also have responsibility for flood control, hydropower, soil conservation and water quality. Many of the responsibilities delegated to river authorities and other types of water districts may influence the amount and timing of freshwater inflows to coastal waters.

GBRA is involved in planning efforts relating to water resources, and point and nonpoint pollution prevention through water quality studies funded by the Texas Clean Rivers Program. GBRA ensures the river system contributes adequate freshwater inflows to the San Antonio Bay system.

BUDGETS AND FUNDING SOURCES

GBRA cannot levy or collect taxes or assessments or in any way pledge the general credit of the state of Texas, and derives no resources from taxation, grants, or government appropriations. It operates on a fiscal year of September 1 through August 31; its ongoing operations are funded by

user fees provided by hydroelectric facilities, water treatment plants, wastewater treatment plants, parks, irrigation canals, and lake operations.

ADMINISTRATIVE RESOURCES

GBRA is governed by a board of nine directors appointed by the Governor of Texas. Each director serves a six-year term with three directors appointed or reappointed every two years. Management and administrative functions are performed by the general manager under policies established by the board.

The following table provides budget information based on GBRA's most recent Comprehensive Annual Financial Report and information on the number of GBRA employees.

Revenue Source	*Amount*	*Employees*
Power Sales	$3,352,033	24
Water Sales	$4,865,188	27
Recreation and Land Use	$442,231	11
Wastewater Services	$2,509,191	25
Laboratory Services	$186,056	3
Other	$1,603,559	24
Total	$12,958,258	114

GULF OF MEXICO PROGRAM

Role(s)	Priority Problem(s)
	

MISSION

The Gulf of Mexico Program is an intergovernmental consortium with a goal of implementing strategies to protect and restore the ecological health and productivity of the Gulf of Mexico. The U.S. Environmental Protection Agency oversees the program, drawing authority from the Clean Water Act.

OVERVIEW OF ACTIVITIES

The Gulf of Mexico Program provides grants to individuals and local governments to further its program goals. Subcommittees within the program provide financial and technical assistance, education, planning services, and research for a number of issues related to the health of the Gulf. Many of these issues are related to CCBNEP priority problems.

NAVIGATION DISTRICTS (OTHER THAN PCCA)	
Role(s)	**Priority Problem(s)**
	

MISSION

Navigation districts are water conservation and reclamation areas created by either the Texas Legislature (which has jurisdiction over special law districts) or the Texas Natural Resource Conservation Commission (which monitors general law districts). They derive their authority from the Texas Constitution Article III, Section 52 and Article XVI, Section 59 and Water Code Chapters 60 -63. Navigation districts are primarily involved in operating mooring facilities for vessels. They also sponsor channel construction and maintenance projects to provide access to its mooring facilities.

OVERVIEW OF ACTIVITIES

Navigation districts regulate the activities of vessels moored at their facilities and assist in the control of discharges of oil, hazardous substances, sewage, and debris from vessels. Navigation districts also are local sponsors for dredging projects that provide deep water access to their facilities. Examples include San Patricio County Navigation District #1, which operates a harbor in Aransas Pass, and Aransas County Navigation District No. 1, which operates the Rockport, Fulton, and Cove Harbors. These districts are organized under Texas Water Code Chapter 62. The cities of Aransas Pass, Corpus Christi, and Port Aransas operate harbors within their jurisdictions that are not under the control of navigation districts.

BUDGETS AND FUNDING SOURCES

The Aransas County Navigation District No. 1 has an annual budget of $490,000 derived from leases and property taxes. The District has a tax rate of 0.0504 on a tax base of $776M.

ADMINISTRATIVE RESOURCES

The Aransas County Navigation District is governed by five commissioners elected from Aransas County.

NUECES RIVER AUTHORITY (NRA)	
Role(s)	**Priority Problem(s)**
  	 

MISSION

Within the state of Texas, the Constitution Article III, Section 52 and Article XVI, Section 59 provides for the creation of water districts to address both local and regional issues associated with the use, preservation, and protection of the state's water resources. The various types of districts are created by either special law or general law, and must comply with the regulations contained in the Texas Water Code and other applicable statutes.

One of 17 river authorities in Texas, NRA's general function is regulating streamflow in the Nueces River system. NRA was established by Texas Civil Statutes, Article 8280-115. NRA serves all or parts of 22 counties in South Texas, covering over 17,000 square miles, generally constituting the drainage area of the Nueces River and its tributaries and the adjoining coastal basins. Under the supervision of TNRCC, NRA has broad authority to preserve, protect, and develop surface water resources, including flood control, irrigation, navigation, water supply, wastewater treatment, and water quality control. It may develop parks and recreation facilities and may acquire and dispose of solid wastes.

OVERVIEW OF ACTIVITIES

NRA is a local sponsor of, and owns 20% of the water rights for Choke Canyon Reservoir, located on the Frio River in Live Oak County. This project is operated exclusively by the City of Corpus Christi as a municipal and industrial water supply for the Coastal Bend. NRA works closely with the city to protect the water quality and supply associated with Choke Canyon.

NRA functions substantially as a regional water resource planning agency, being the only governmental entity having specific jurisdiction throughout the Nueces and adjoining coastal basins. It tracks state and federal activities that could affect Nueces Basin interests and responds as appropriate, attempting to mediate controversial issues. NRA does not operate any facilities, other than its general office located in Uvalde, Texas. NRA also has no regulatory responsibilities.

BUDGETS AND FUNDING SOURCES

NRA's income is primarily from interest on investments and contracted services; it receives no state or federal appropriations or tax revenues. It may issue bonds and receive grants and loans.

ADMINISTRATIVE RESOURCES

NRA is governed by a Board of 21 directors, appointed for six-year terms by the Governor with the advice and consent of the Senate. NRA employs only one person, an Executive Director, and contracts for legal, engineering, and administrative services.

PORT OF CORPUS CHRISTI AUTHORITY (PCCA)	
Role(s)	**Priority Problem(s)**
	

MISSION

The PCCA, originally known as the Nueces County Navigation District No. 1, was established on November 30, 1922, by order of the Nueces County Commissioners Court after an election was held on October 31, 1922. The District is coterminous with Nueces County. The District was organized under Texas Constitution Article III, Section 52, but has since been transferred to and is operating under Article XVI, Section 59 and Texas Water Code Chapter 62. The PCCA operates independently with its own Port Commissioners as the governing body. On May 20, 1981, the name of the District was changed to Port of Corpus Christi Authority of Nueces County, Texas. PCCA is a special law water conservation and reclamation district, or navigation district, with jurisdiction within Nueces County over the Port of Corpus Christi and the emergent and submerged lands in Corpus Christi and Nueces Bays. PCCA manages the Port of Corpus Christi Inner Harbor, Corpus Christi Ship Channel, La Quinta Channel, and the Rincon Canals and owns or controls lands surrounding these waterways, some of which are used as upland dredged material containment areas.

OVERVIEW OF ACTIVITIES

Resource Management. PCCA's activities with respect to resource management involve: point source pollution control; nonpoint pollution control; control of spills and dumping; dredging for channel improvement and maintenance; freshwater inflow issues as they relate to water supply for channel industries; shoreline development; habitat and species protection; public health; subsidence control; and erosion control. PCCA exercises some regulatory control over activities taking place at facilities owned or controlled by PCCA. PCCA has provided financial assistance for studies relating to nonpoint source pollution issues, dredging issues, circulation studies, freshwater inflow studies, and bay debris. For example, PCCA was a leader in developing local solutions to the disposal of trash from vessels calling at the Port and assisting in the implementation of MARPOL Annex V. In addition, PCCA provides technical assistance and education to port users.

Prevention of Pollution and Alteration of Freshwater Inflows. PCCA has a direct stake in preventing alteration of freshwater inflows to Corpus Christi Bay, since availability of adequate freshwater supplies is vital to the maintenance of the channel industries. PCCA also conducts its

activities to minimize adverse effects on natural resources, including habitats. PCCA is studying ways to make beneficial use of dredged materials. PCCA also is involved in various point and nonpoint pollution issues and supports the Corpus Christi Area Oil Spill Control Association to respond to oil spills.

Dredging and Bay Circulation Concerns. PCCA has been involved in and provided financial assistance for studies relating to dredging and bay circulation. As the sponsor of the Corpus Christi Ship Channel, PCCA is concerned with improving and maintaining its navigable channels without adversely impacting circulation.

BUDGETS AND FUNDING SOURCES

The primary sources of revenues for PCCA are wharfage and dockage fees from vessels using facilities within the port. Secondary revenue sources are bonds and grants. In 1994, PCCA had operating revenues of approximately $28.3 million and operating expenses of approximately $22.9 million. The original property, plant, and equipment was acquired from the sale of bonds and repaid from ad valorem taxes levied on the property within Nueces County. The PCCA does not currently assess ad valorem taxes, except to cover a special bond issue to cover the cost of acquiring the property for Naval Station Ingleside.

ADMINISTRATIVE RESOURCES

PCCA has a staff of 135.

SAN ANTONIO RIVER AUTHORITY (SARA)	
Role(s)	**Priority Problem(s)**
	

MISSION

One of 17 river authorities in Texas, SARA's general function is regulating streamflow in the San Antonio River system and enforcing regulations that have effects on streamflow to the Gulf. SARA was established by Texas Civil Statute Article 8280-119, under the authority of the Constitution Article III, Section 52 and Article XVI, Section 59. Under the supervision of TNRCC, SARA has broad authority to conserve and develop water and soil resources of Bexar, Wilson, Karnes, Goliad, and portions of Refugio (to the Guadelupe River) Counties in the San Antonio River basin.

OVERVIEW OF ACTIVITIES

SARA seeks to improve the quality of water flowing in the San Antonio River and its tributaries through: an effective basin-wide quality management program; the operation and maintenance of sewage treatment facilities; basic research, particularly in the field of nutrient control; and research applications. It operates and maintains floodwater retarding structures, which provide flood control and reduce soil erosion in five rural watersheds in San Antonio River basin. It

supports TNRCC in the Clean Rivers and Watershed Texas Programs. It also supports TWDB in the implementation of a comprehensive State Water Plan and participation in the Trans-Texas Water Program. It works with federal, state, regional, and local agencies for the conservation and development of the basin's water and soil resources.

SARA is participating in the Trans-Texas Water Program, West Central Study Area, as the managing partner for other local participants. Participants include: San Antonio Water System; Edwards Underground Water District (Edwards Aquifer Authority); Bexar Metropolitan Water District; Nueces River Authority; Guadalupe-Blanco River Authority; and Lower Colorado River Authority. SARA is cooperating with TWDB, TNRCC, and TPWD in this effort. The Trans-Texas Water Program is a comprehensive, integrated water resources planning program. The program evaluates water management strategies to determine which projects are most acceptable for meeting the future water needs of the citizens in the San Antonio River basin and Edwards Aquifer region.

SARA's Environmental Services Division operates a regional water laboratory providing analytical services to various agencies, municipalities, water suppliers, and the general public in the San Antonio and Nueces River basins. In recent years, the laboratory has expanded its analytical capabilities in order to provide services requested by permitted potable water suppliers, private well owners, industrial dischargers, and commercial interest that must comply with government health and environmental regulations.

BUDGET AND FUNDING SOURCES

SARA's FY 1996 budget anticipates $30 million in revenue from taxes, fees, and grants, and $38.5 million in expenditures, including $21.8 million in capital improvement projects.

ADMINISTRATIVE RESOURCES

SARA is governed by 12 elected directors. The Authority has a full time staff of 120 FTEs, operating out of its general office, water quality laboratory, and 10 operating units.

SOIL AND WATER CONSERVATION DISTRICTS (SWCDS)	
Role(s)	**Priority Problem(s)**
	

MISSION

Soil and water conservation districts, chartered by the Texas State Soil and Water Conservation Board (TSSWCB), are composed of owners and operators of farms and grazing land. Members of these districts govern themselves with respect to soil and water resources through voluntary participation in cost-effective best management practices. These BMPs are designed to achieve the state's agricultural and silvicultural nonpoint source pollution goals.

OVERVIEW OF ACTIVITIES

There are eight SWCDs in the CCBNEP study area. The following table reports their locations, budgets, and staffs.

SWCD	*Counties*	*Budget*	*FTEs*
311	Nueces, Jim Wells, Kleberg, and portions of Kenedy	$14,500	1.5
321	Duval	$12,500	0.5
323	Live Oak	$13,400	0.5
324	San Patricio	$17,800	1.5
328	Brooks	$10,500	0.5
329	Refugio and Aransas	$20,000	1.0
344	Bee	$11,000	0.5
353	McMullen	$7,500	0.5

SWCDs provide technical assistance for farms and ranches to develop site water quality management plans using BMPs, including: structural erosion and runoff control practices; planned cropping practices; planned tillage practices; establishment and maintenance of permanent vegetation; support practices for grasslands; agricultural waste management practices; nutrient management practices; pesticide and harvest aid in chemical management practices; and irrigation return flow management practices. Once approved by TSSWCB, the site water quality management plans have the same legal status as point source pollution permits from the Texas Natural Resource Conservation Commission. SWCDs also develop annual plans to address changes in agriculture, the economy, and natural resources. Further, they are involved in various educational efforts relating to soil and water conservation efforts, nonpoint source pollution, and agricultural BMPs.

For example, last year the San Patricio SWCD: provided technical assistance to over 370 land users; continued to maintain and evaluate shoreline plantings for erosion control on Copano and Nueces Bays; constructed terraces; completed precision land forming of 800 acres; obtained three test plots to test grasses in sand dune stabilization, shoreline plantings, and waste water management; began providing water quality plans to land users to implement state water quality laws; and secured financing to provide cost-share assistance to land users installing water quality conservation practices.

BUDGETS AND FUNDING SOURCES

Primary funding is raised at the local level, with funding assistance provided by TSSWCB. SWCDs do not have powers of taxation. The table above shows the annual budgets of the SWCDs in the CCBNEP study area.

ADMINISTRATIVE RESOURCES

SWCDs are governed by 5 directors elected by participating landowners. The table above displays the number of employees at each SWCD in the CCBNEP study area.

WATER DISTRICTS	
Role(s)	**Priority Problem(s)**
	

MISSION

The Texas Constitution Article III, Section 52 and Article XVI, Section 59 provides for the creation of water districts to address both local and regional issues associated with the use, preservation, and protection of the state's water resources. The various types of districts are created by either special law or general law and must comply with the laws contained in the Texas Water Code, generally Chapters 51, 55, 57, and 65, and other applicable statutes. Under this classification are the various districts that provide water supplies, both finished and raw, to customers within their district boundaries. Some cities also provide these services, such as Corpus Christi and Three Rivers.

OVERVIEW OF ACTIVITIES

In general, water districts have a limited regulatory role relating to water supply and distribution. However, as managers of their water supplies, the districts take an active role in several areas related to CCBNEP efforts. The water districts in the CCBNEP study area are involved in funding the studies of reuse of wastewater in the Nueces River delta. In addition, they are active in educational, planning, and technical assistance efforts relating to freshwater inflows, water quality, and public health.

The San Patricio Municipal Water District acquires, transmits, treats, stores, and sells water to the residents of the cities of Odem, Taft, Gregory, Portland, Ingleside, Aransas Pass, Rockport, Fulton, and Port Aransas, as well as surrounding areas, and local industries such as Reynolds, Dupont, and Oxychem. It acquires its water from the City of Corpus Christi. The district was established by Texas Civil Statutes Article 8280-145.

The South Texas Water Authority acquires and wholesales water to local governments within portions of Nueces and Kleberg Counties. It acquires its water from the City of Corpus Christi. In addition, it provides support to local communities applying for and administering TWDB

grant for conducting studies on issues such as wastewater reuse, storm water control, and basin studies.

Nueces County Water Control and Improvement District Numbers 3 and 5 acquire and distribute raw and treated water to both residential and agricultural customers within rural areas of Nueces County. Nueces County Water Control and Improvement District #4, which provides water supply and sewage treatment on Mustang and Harbor Islands, was established by order of the Nueces County Commissioners Court on November 24, 1952.

Other districts within the CCBNEP study area include:

- Refugio County Water Control and Improvement District #1, established by Texas Civil Statute article 8280-153;
- Refugio County Water Control and Improvement District #4 and McMullen County Water Control and Improvement District #2, established by Texas Civil Statute article 8280-290; and
- Aransas County Conservation and Reclamation District, established by Texas Civil Statute article 8280-296, which buys water from the San Patricio County Municipal Water District for resale to the City of Rockport.

BUDGETS AND FUNDING SOURCES

Primary funding sources for water districts are bonds, water sale revenues, and grants. San Patricio Municipal Water District has a budget of $4.2M and derives its funds from water sales and grants. South Texas Water Authority has a budget of $3.5M and derives its funds from take or pay contracts, plus taxes for the Authority's interest and sinking fund with a tax rate of 0.1417 on a tax base of $840M. Nueces County Water Control and Improvement District 3 has a budget of $2.0M collected through water sales. Nueces County Water Control and Improvement District 4 has a budget of $1.8M, derived from utility fees and a property tax of $0.0746 on a tax base of $368M.

ADMINISTRATIVE RESOURCES

The San Patricio Municipal Water District is governed by 7 directors (6 are elected from each of the member municipalities and one is appointed by the other directors). The South Texas Water Authority is governed by 9 commissioners (5 appointed by the Kleberg County Commissioners Court and 4 by the Nueces County Commissioners Court). The Nueces County Water Control and Improvement District Number 3 is governed by 5 elected directors. Most water districts have between 10 and 20 employees. Nueces County Water Control and Improvement District 4 has 5 elected directors and 17 employees.

Non-Governmental Institutions

AUDUBON OUTDOOR CLUB OF CORPUS CHRISTI	
Role(s)	**Priority Problem(s)**
	

MISSION

The Audubon Outdoor Club of Corpus Christi, unaffiliated with the National Audubon Society, is the oldest non-governmental environmental organization in the area. It is active in local environmental issues and is concerned about the preservation of wildlife. Birdwatching is one of the most important activities to the club.

OVERVIEW OF ACTIVITIES

The club currently owns and operates four local refuges: Flour Bluff contains an oak moat and has undisturbed native vegetation; White Point, on the north side of Nueces Bay in San Patricio County, also contains extensive native vegetation; a wetland located near Rivera in Kenedy County; and a migratory bird stopover located along the Nueces River in Nueces County. The Club also coordinates hawk watching activities at the Hazel Bazemore County Park.

BUDGETS AND FUNDING SOURCES

The club receives its funding from dues and grants.

BOARD OF TRADE, PORT OF CORPUS CHRISTI (BOT)	
Role(s)	**Priority Problem(s)**
	

MISSION

BOT is an organization composed of the major channel-related industries (oil refineries, chemical processing, bauxite processing, and power generation) that addresses the needs of the local industries. Its mission is to ensure a sound business climate and to provide a forum for industry to discuss and address common concerns and issues.

OVERVIEW OF ACTIVITIES

BOT supports research and other activities that benefit the local community and member industries. It has a public outreach program targeted at understanding and addressing community needs and communicates the industries' environmental and safety performance record, effective risk management efforts, and economic and social contributions to the area. Employees of BOT

companies have been active in a number of volunteer programs. For example, Oxychem Ingleside has been an active participant with the Coastal Bend Bays Foundation in the Texas Watch program with a water quality sampling program in the LaQuinta Channel. Koch Refining sponsors the Tuloso-Midway Junior High School participation in the water quality sampling program along the Nueces River.

As major user of fresh water, BOT is concerned about the future availability of water supplies. In addition, BOT members have been dedicated to meet or exceed all federal and state environmental standards and have been actively reducing air emissions and water discharges to achieve water quality goals.

COASTAL BEND AUDUBON SOCIETY	
Role(s)	**Priority Problem(s)**
	

MISSION

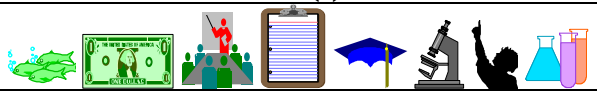
The Coastal Bend Audubon Society is the local chapter of the National Audubon Society. It is primarily involved with providing educational materials and assistance to schools in the region. But it also is active in local environmental issues and is concerned for the preservation of wildlife, particularly birds.

OVERVIEW OF ACTIVITIES

The Society has recently acquired a piece of property in Ingleside from Dupont to be used as an outdoor education center. The Society also develops and presents other educational materials. The other major activity of the Society is administration of volunteer programs that support its efforts.

BUDGETS AND FUNDING SOURCES

The society is funded by grants and member dues.

COASTAL BEND BAYS FOUNDATION (CBBF)	
Role(s)	**Priority Problem(s)**
	

MISSION

CBBF is a non-profit organization dedicated to the conservation and wise use of freshwater, estuarine and marine habitats (wetlands), and other natural resources of South Texas through creation, restoration, enhancement, and acquisition. CBBF has five functions: facilitation,

conservation, education, advocacy, and research. As facilitator, CBBF provides a forum for dialogue among diverse users of bays, estuaries, and wetlands in order to find solutions to conflicts among users. As conservator, CBBF develops projects for the purpose of preserving and enhancing the natural resources and acts as a "land trustee" for the purpose of acquiring, preserving, and enhancing wetlands and other ecologically important areas. As educator, CBBF provides resources and guidance for education projects that develop a constituency for the bays, estuaries, and wetlands. CBBF's advocacy goal is to garner public support to defend the bays, estuaries, and wetlands of South Texas. CBBF's research supports the allocation of public and private resources for studies of that pertain to the health of the bays, estuaries, and wetlands.

OVERVIEW OF ACTIVITIES

Bay Advocacy. CBBF members have been active in advocacy for a number of regulatory issues such as adoption of the Texas Coastal Zone Management Plan, raising the JFK causeway, mandating water releases from Choke Canyon and Lake Corpus Christi, and issues surrounding wastewater discharges at LaQuinta Channel. CBBF also is seeking to acquire property in the Nueces River delta to help restore this wetland area. CBBF has raised over $150,000 to help fund numerous research efforts, including a circulation study of Upper Laguna Madre by the Conrad Blucher Institute at Texas A&M Corpus Christi and a study of the brown tide at UTMSI. CBBF also lends financial support for local environmental events and programs.

Technical Advice. CBBF provides technical advice to various environmental regulatory authorities relating to proposed projects, such as PCCA's Safeharbor project, which involves analysis of the need for a deep draft inshore facility as opposed to an offshore monobouy approach.

Bay Management. CBBF is an active participant in all local and statewide planning efforts that relate to the bays, estuaries, and wetlands of South Texas. CBBF has been active in the development of CCBNEP, the Texas Coastal Management Plan, the Corpus Christi Beach Access and Dune Protection Plan, and the Nueces County Beach Management Plan. Along with its planning efforts, CBBF has organized diverse education programs in the past and is currently seeking grants from EPA for several new efforts, including a program modeled after the successful Galveston Bay Foundation's Ambassador program.

Funding Research. Through grants and advocacy, CBBF encourages research on problems facing the bays, estuaries, and wetlands in the Coastal Bend area. Examples of CBBF-sponsored research efforts within the CCBNEP study area are studies of the effects of the JFK Causeway on circulation in the Upper Laguna Madre, the brown tide, sources of bay debris, and the potential for beneficial use of dredged materials to create and restore wetlands. In addition, CBBF coordinates and participates in volunteer efforts, such as beach cleanups, planting of seagrasses, and participation in the Clean Texas 2000 and Texas Watch programs.

Freshwater Negotiations. CBBF participates in negotiations among the City of Corpus Christi, the Texas Natural Resource Conservation Commission, the Texas Water Development Board, the Nueces River Authority, the Bureau of Reclamation, and other agencies in ensuring that

adequate freshwater is released from Lake Corpus Christi and Choke Canyon Reservoir to maintain the viability of the Nueces River Delta. The foundation has been advocating the rerouting of wastewater discharges from the City of Corpus Christi to offset some of the losses from municipal and industrial uses.

BUDGETS AND FUNDING SOURCES

CBBF obtains funds from member dues and grants from industry, government agencies, and other charitable organizations and individuals. Most funding is raised for specific projects.

ADMINISTRATIVE RESOURCES

CBBF is currently staffed through its volunteer members. Most actions are conducted by its officers and directors. CBBF has a volunteer, part-time acting executive director.

COASTAL BEND SIERRA CLUB	
Role(s)	**Priority Problem(s)**
	

MISSION

The Coastal Bend Sierra Club is the local chapter of the national organization, the Sierra Club. The CBSC is also affiliated with the statewide Lone Star Chapter. The chapter serves most of South Texas, from Victoria to Laredo, with the exception of the Lower Rio Grande Valley. It is a non-profit organization, but is not tax-exempt, so it is able to engage in lobbying and political activities. It is active in all local environmental issues and is concerned about the preservation of wildlife and habitat, as well as other environmental issues.

OVERVIEW OF ACTIVITIES

The primary activities of the Coastal Bend Sierra Club relate to educating public about environmental concerns of the area. In addition, to educational activities, the club conducts various volunteer programs aimed at improving the local environment.

CORPUS CHRISTI TAXPAYERS ASSOCIATION	
Role(s)	**Priority Problem(s)**
	

MISSION

The Corpus Christi Taxpayers Association is a local public interest group composed of citizens concerned about the way local governments spend taxpayers' money.

OVERVIEW OF ACTIVITIES

The association is currently involved in litigation with the City of Corpus Christi attempting to void a city contract to acquire water from Lavaca-Navidad River Authority and Garwood Irrigation Company.

GREATER CORPUS CHRISTI BUSINESS ALLIANCE	
Role(s)	**Priority Problem(s)**
	

MISSION

The Greater Corpus Christi Business Alliance was formed from the merger of the Corpus Christi Chamber of Commerce, the Corpus Christi Area Convention and Visitors Bureau, and the Corpus Christi Bay Area Economic Development Corporation. Its mission is to provide leadership that promotes an environment of economic vitality throughout the Corpus Christi Bay Area.

OVERVIEW OF ACTIVITIES

The Alliance is involved in promoting the economic vitality of the Corpus Christi area and assisting its member companies. The Alliance is developing a master plan for economic development and tourism in the area. The Alliance is particularly concerned with developing and maintaining an adequate infrastructure. The Alliance also promotes the attributes of the area to encourage tourism and relocation of companies to the local area.

BUDGETS AND FUNDING SOURCES

The Alliance is supported by funding from local governments through grants and taxes, and dues it collects from business members.

GULF COAST CONSERVATION ASSOCIATION	
Role(s)	**Priority Problem(s)**
	

MISSION

The Gulf Coast Conservation Association is a non-profit regional organization affiliated with the Coastal Conservation Association. It is active in Texas, Louisiana, Mississippi, and Alabama. The association is designed to advise and educate the public on conservation of marine animal and plant life and other coastal resources. The objective of the association is to promote the

present and future viability of these natural resources for the benefit and enjoyment of private citizens. The Association was organized by a group of concerned recreational fishermen.

OVERVIEW OF ACTIVITIES

With assistance from state agencies, such as the Texas Parks and Wildlife Department (TPWD), the Association operates a hatchery for red fish at the Barney Davis Power Plant in Flour Bluff. The Association also provides funding for various research projects, including ones that address bay circulation and brown tide. The Association has provided over $1.2 million for various research and restocking activities during the last three years. The Association contributed funds and volunteers for TPWD's contaminants monitoring program, brown tide studies conducted at the University of Texas, a study relating to construction of a water exchange system at Yarborough Pass for the Laguna Madre, and a bay circulation study conducted at Texas A&M University-Corpus Christi. With its focus on education and outreach, the Association publishes the periodical *Tide and the Rising Tide*, and sponsors various events in the Corpus Christi area.

BUDGETS AND FUNDING SOURCES

The Association receives its funding from member dues and trust fund revenues.

ADMINISTRATIVE RESOURCES

The Association employs one full-time professional staff in Houston. Volunteer participants also support actions.

KENEDY RANCH	
Role(s)	**Priority Problem(s)**
 	 

MISSION

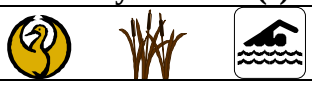
Owned by the John G. and Marie Stella Kenedy Memorial Foundation and John G. Kenedy, Jr. Trust, the Kenedy Ranch (La Parra) in Kenedy County is a large land holding of over 400,000 acres. It is located on the southern shores of Baffin Bay and most of the western shore of Laguna Madre, including the entire Landcut.

OVERVIEW OF ACTIVITIES

The Kenedy Ranch controls a significant amount of the bay shoreline within the CCBNEP study area. Most of the land is in native vegetation and is important habitat. Both the Kenedy Memorial Foundation and Kenedy Trust are major sources of charitable donations for nonprofit activities and the Catholic Church in South Texas. The preservation status imposed on the bay area by the Kenedy Ranch helps to protect various species and critical habitats.

BUDGETS AND FUNDING SOURCES

Since its inception in 1982, the Kenedy Memorial Foundation has made charitable distributions of over $117 million. Most distributions are to sectarian organizations related to the Catholic Church.

KING RANCH	
Role(s)	**Priority Problem(s)**
	

MISSION

Owned by the descendants of Captain Richard King, the South Texas unit of the King Ranch spans over 825,000 acres that include vast portions of Kleberg, Kenedy, and surrounding counties. It is reported to be the largest privately owned ranch in the world. There are four divisions within South Texas: Santa Gertrudis, west of Kingsville; Laurelles, east of Kingsville in Kleberg County; Norias, in southern Kenedy County; and Encino, south of Falfurias in Brooks County. The Laurelles Division occupies most of the north shore of Baffin Bay and the western shoreline of Laguna Madre in Kleberg County. The Norias Division covers the western shoreline of Laguna Madre in Kenedy County, south of the Landcut.

OVERVIEW OF ACTIVITIES

The King Ranch owns a significant amount of the bay shoreline within the CCBNEP study area. Much of the land is in native vegetation and is important habitat for wildlife. The preservation status imposed on the bay area by the King Ranch helps to protect various species and critical habitats. The King Ranch also is a major source of charitable donations for non-profit activities in South Texas. In addition, through public tours and educational programs, the King Ranch conducts programs to explain the activities on the ranch and efforts made to protect wildlife and enhance the local environment.

The King Ranch is currently considering conducting a study of nonpoint source pollution runoff from various segments of the Ranch to determine what, if any, pollutants originating from its activities flow into Baffin Bay. It also conducts research on the reservation and rehabilitation of various threatened and endangered species found on the ranch.

The ranch also is currently working with the Corps of Engineers in a study of dredge disposal practices to avoid the placement of dredged materials in upland spoil areas that would adversely affect critical native habitats, particularly oak moats.

NATIONAL AUDUBON SOCIETY	
Role(s)	**Priority Problem(s)**
 	 

MISSION

The National Audubon Society is dedicated to the preservation of wildlife, particularly birds.

OVERVIEW OF ACTIVITIES

The National Audubon Society operates private wildlife sanctuaries along the Texas Coast. One is located on Pelican Island in Corpus Christi Bay. It also provides oversight of sanctuary activities at Shamrock Island off Mustang Island. In addition, the Society is involved in public education and outreach activities.

ADMINISTRATIVE RESOURCES

The National Audubon Society employs a sanctuary warden in Corpus Christi for upkeep and maintenance of its sanctuaries

OPUS	
Role(s)	**Priority Problem(s)**
  	 

MISSION

OPUS is a non-profit urban conservation group that seeks to maintain a stable city environment a through its focus on aesthetics and health issues. OPUS is not generally involved in wilderness and habitat issues.

OVERVIEW OF ACTIVITIES

OPUS tracks various planning proposals, conducts educational activities, and coordinates volunteer programs within the City of Corpus Christi to ensure the quality of the local environment.

ROB AND BESSIE WELDER WILDLIFE FOUNDATION	
Role(s)	**Priority Problem(s)**
	

MISSION

The Welder Wildlife Foundation is a private foundation with the purpose of conducting research and providing educational services in the fields of wildlife management and conservation.

OVERVIEW OF ACTIVITIES

The Foundation is mainly involved in conducting wildlife research in the midst of a ranching operation and an active oil field. The Foundation operates a 7,800-acre wildlife refuge in San Patricio County. Fifteen to twenty graduate students receive fellowships to conduct research and pursue advanced degrees in wildlife conservation and management. The Foundation also conducts research on the local habitat and ecology, including vegetation and brush management studies. The Foundation's refuge property fronts 17 miles of the Aransas River, and the decline and alteration of coastal wetlands has been the subject of various research projects funded by the Foundation. Educational efforts support the Foundation's research efforts and include public tours, public school programs, teacher's in-service workshops, teacher's conservation workshops, seminar series, workshops, and meetings. The Foundation also operates a museum.

BUDGETS AND FUNDING SOURCES

The endowment was created by the will of Mr. Robert Welder a local rancher, whose family has owned the property since the earliest settlement of Texas. The exact budget is unknown; operations are funded by interest off the endowment and earnings from the property, including ranching operations and oil production.

ADMINISTRATIVE RESOURCES

The Foundation has an administrative and support staff of approximately 14.

SAVE LAKE CORPUS CHRISTI ASSOCIATION	
Role(s)	**Priority Problem(s)**
	

MISSION

The Save Lake Corpus Christi Association is a public interest group composed of landowners and other concerned citizens who live in the vicinity of Lake Corpus Christi. They seek to maintain adequate depths within Lake Corpus Christi to preserve recreational usage and property values in the area.

OVERVIEW OF ACTIVITIES

The Association attempts to affect regulation of the timing of freshwater flows to maintain the depth of Lake Corpus Christi.

TEXAS MARINE MAMMAL STRANDING NETWORK	
Role(s)	**Priority Problem(s)**
	

MISSION

The Texas Marine Mammal Stranding Network is an umbrella group of organizations that include the Texas State Aquarium, the Marine Science Institute and the University of Texas, as well as individuals who rescue stranded marine mammals, such as dolphins. These mammals are then rehabilitated when possible and returned to the Gulf or bays.

TEXAS SEAFOOD PRODUCERS ASSOCIATION, INC.	
Role(s)	**Priority Problem(s)**
	

MISSION

The Texas Seafood Producers Association is a non-profit public interest organization that represents commercial fishermen, who primarily work in the bays and estuaries of Texas.

OVERVIEW OF ACTIVITIES

The Association's primary concern is maintaining aquatic habitats to ensure a sustainable quantity of commercially viable species. The organization tries to educate the public on the working conditions of the industry, and potential adverse effects various activities might have on the marine and estuarine environments. The Association also provides technical assistance to its members on best management practices. It measures freshwater inflows to ensure adequate freshwater and nutrient supplies are entering bays and estuaries to sustain various fisheries and monitors various species to ensure sustainable harvest. Other concerns of the Association include water quality, bay debris, and the healthiness of fisheries products, all of which have direct economic effects on the fisheries industry.

TEXAS STATE AQUARIUM (TSA)	
Role(s)	**Priority Problem(s)**
	

MISSION

The Texas State Aquarium is a non-profit corporation, that displays habitats and wildlife of the Gulf of Mexico and Texas Coast.

OVERVIEW OF ACTIVITIES

TSA's main role with respect to the CCBNEP priority problems is as an educator. In addition to the displays and species on exhibit, TSA conducts classes on the marine and estuarine ecologies at the aquarium. It also has program of teaching classes at schools throughout Texas, supported by a mobile aquarium.

TSA provides specialized technical assistance for activities such as rehabilitation of marine mammals. The aquarium also has a research function, participating in cooperative research efforts with various universities. Tanks are able to recreate different conditions used by scientists in their studies. In addition, TSA is involved in various conservation efforts, such as acting as the local sponsor for beach cleanups sponsored by the Texas General Land Office.

BUDGETS AND FUNDING SOURCES

TSA has an operating budget of $3.8 million, a program budget of $0.5 million, and a capital budget of $0.8 million. The sources of its income are admission fees, contributions, memberships, and grants.

ADMINISTRATIVE RESOURCES

TSA has approximately 63 full-time employees, 50 part-time employees, and more than 300 volunteers.

Table of Contents

4. Analysis of Institutional Framework

Rationale for Selecting Institutions to Include in the Analysis

Building on information contained in Chapter 3, Inventory of Institutional Framework, the Project Team developed a descriptive list of the most important institutions for addressing the CCBNEP priority problems. Discussions with CCBNEP and EPA staff, as well as local community members active in CCBNEP efforts, pared this list to 37 institutions for inclusion in the analysis. These institutions include: 12 federal; 12 state; 11 regional or local; and 2 non-governmental institutions. A few of these institutions are actually conglomerates. For instance, the institution termed "drainage districts" includes each of the drainage districts within the CCBNEP study area. Exhibit 4-1 is a list of the institutions included in the analysis.

Exhibit 4-1. Institutions in the Analysis

Federal Institutions	
U.S. Department of Agriculture (USDA), Consolidated Farm Service Agency (CFSA)	USDA, Natural Resources Conservation Service (NRCS)
USDOC, NOAA, National Marine Fisheries Service (NMFS)	U.S. Dept. of Commerce (USDOC), National Oceanic and Atmospheric Admin. (NOAA), National Ocean Service (NOS)
U.S. Department of Defense (USDOD), U.S. Army Corps of Engineers (USCOE)	U.S. Department of Interior (USDOI), Bureau of Reclamation
USDOI, National Biological Service (NBS)	USDOI, National Park Service (NPS)
USDOI, U.S. Fish and Wildlife Service (USFWS)	USDOI, U.S. Geological Survey (USGS)
U.S. Department of Transportation (USDOT), U.S. Coast Guard (USCG)	U.S. Environmental Protection Agency (EPA)
State Institutions	
Coastal Coordination Council (CCC)	Railroad Commission of Texas (RRCT)
Texas A&M University System (TAMUS)	Texas Department of Agriculture (TDA)
Texas Department of Health (TDH)	Texas Department of Transportation (TxDOT)
Texas General Land Office (GLO)	Texas Natural Resource Conservation Commission (TNRCC)
Texas Parks and Wildlife Department (TPWD)	Texas State Soil and Water Conservation Board (TSSWCB)
Texas Water Development Board (TWDB)	University of Texas System (UT)
Regional and Local Institutions	
City of Corpus Christi	Cities other than Corpus Christi
Coastal Bend Council of Governments (CBCOG)	Coastal Counties in the Study Area
Drainage Districts	Guadalupe Blanco River Authority (GBRA)
Gulf of Mexico Program	Navigation Districts (other than PCCA)
Nueces River Authority (NRA)	Port of Corpus Christi Authority (PCCA)
Soil and Water Conservation Districts (SWCDs)	
Non-Governmental Institutions	
Coastal Bend Bays Foundation (CBBF)	Texas State Aquarium (TSA)

PURPOSE AND METHODS OF ANALYZING INSTITUTIONS

The purpose of the Analysis is to determine whether the current institutional framework is suitable for managing CCBNEP's priority problems. The Analysis also reveals those CCBNEP problems where adjustments in the framework could enhance management effectiveness. In order to accomplish this purpose, the Analysis uses two distinct, though related, approaches. The first part examines each institution separately, focusing on individual characteristics. These characteristics include level of involvement in CCBNEP initiatives, legal scope for implementing activities, compatibility between institutional missions and actions, and measures of effectiveness. The second part investigates the institutional framework as a whole, focusing on the framework's ability to address the factors that cause CCBNEP priority problems.

The Analysis uses information presented in Chapter 3, Inventory of Institutional Framework, and also relies on information gathered through phone interviews with the representatives of the relevant institutions. The phone interview guide, which is provided in Appendix C, asks questions related to institutional effectiveness and administrative capabilities.

ELEMENTS OF ANALYSIS FOR EACH INSTITUTION

Four factors are analyzed for each institution. They are:

1. Involvement in addressing CCBNEP priority problems;
2. Legal scope for implementing activities related to CCBNEP goals;
3. Compatibility between institutional mission and current activities related to CCBNEP problems; and
4. Effectiveness.

INVOLVEMENT IN ADDRESSING CCBNEP PRIORITY PROBLEMS

Exhibit 4-2 is a matrix that displays each institution's involvement in addressing CCBNEP priority problems. Check marks in the matrix indicate whether an agency is involved in addressing a particular priority problem. The size of the check mark indicates the agency's level of involvement (there are two sizes of check marks, a small one representing minor involvement and a large one representing major involvement). The matrix also reveals which concerns and contributing factors are addressed by each institution in the numbers below the check marks. See Exhibit 2-1 in Chapter 2 for a key that provides text for the concerns and contributing factors that correspond to the numbers in the matrix.

Exhibit 4-2. Matrix of Involvement in Addressing CCBNEP Priority Problems							
Agency or Organization	**Priority Problems**						
	Altered Freshwater Inflows	**Condition of Living Resources**	**Loss of Wetlands and Habitats**	**Degradation of Water Quality**	**Altered Estuarine Circulation**	**Bay Debris**	**Public Health Issues**
Consolidated Farm Service Agency (CFSA)		✓	✓	✓			✓
Concerns			①②③④	①			
Contributing Factors		❶❷	❷❹❺❻	❷❸❼			❷❹❺
Natural Resources Conservation Service (NRCS)		✓	✓	✓			
Concerns		①②	①②③④	①			
Contributing Factors		❶❷	❷❹❻	❸❼			
National Marine Fisheries Service (NMFS)	✓	✓	✓	✓	✓	✓	✓
Concerns	①②	①②③	①②③④⑤	①③	①②③	①②③	①
Contributing Factors	❷❸	❶❷❸❹❺❻	❶❷❸❹❼❽	❶❹❺❻❼❽❾	❸❹❻		
National Ocean Service (NOS)		✓	✓	✓			✓
Concerns		①②	①②③④	①②③			①③
Contributing Factors		❷❹❺	❹❺❻	❷❸❻❼			❹❺
U.S. Army Corps of Engineers (USCOE)	✓	✓	✓	✓	✓		
Concerns	②	①②	①②③④⑤	①②			
Contributing Factors	❷❸	❶❷❺❻	❶❷❹❻❽	❶❸❼❽❾	❶❹❺❻		

Exhibit 4-2. Matrix of Involvement in Addressing CCBNEP Priority Problems							
Agency or Organization	**Priority Problems**						
	Altered Freshwater Inflows	**Condition of Living Resources**	**Loss of Wetlands and Habitats**	**Degradation of Water Quality**	**Altered Estuarine Circulation**	**Bay Debris**	**Public Health Issues**
Bureau of Reclamation	✓		✓				
Concerns	①②③④		①②				
Contributing Factors	❶❷❸❺		❽				
National Biological Service (NBS)		✓	✓	✓			✓
Concerns		①②	①②③④⑤	①③			
Contributing Factors		❷❹					❸
National Park Service (NPS)		✓	✓			✓	
Concerns		①②	①②③④			①②③	
Contributing Factors		❶	❷❹			❶❼❾	
U.S. Fish and Wildlife Service (USFWS)	✓	✓	✓	✓	✓	✓	
Concerns	①	①②③	②③④⑤	①②	③	②③	
Contributing Factors	❶❷❸	❶❷❹❺❻	❶❷❺❻❽	❶❷❸❻❼❽❾	❸❹❺❻	❷❼❾	
U.S. Geological Survey (USGS)	✓		✓	✓	✓		
Concerns	①②		①	①			
Contributing Factors	❶❷❸❺		❻❽	❸❼❽❾	❸❻		

Exhibit 4-2. Matrix of Involvement in Addressing CCBNEP Priority Problems							
Agency or Organization	**Priority Problems**						
	Altered Freshwater Inflows	**Condition of Living Resources**	**Loss of Wetlands and Habitats**	**Degradation of Water Quality**	**Altered Estuarine Circulation**	**Bay Debris**	**Public Health Issues**
U.S. Coast Guard (USCG)				✓		✓	✓
Concerns				①③		①③	
Contributing Factors				❻		❷❸❼❾	❷
U.S. Environmental Protection Agency	✓	✓	✓	✓	✓	✓	✓
Concerns	①②⑤	①②③	①②③④⑤	①②③	①②③	①②③	①②③
Contributing Factors	❷❸	❶❷❸❺❻	❶❷❸❹❺❻❼❽	❶❷❸❹❺❻❼❽❾❿	❶❸❹❻❼	❶❸❼❽❾	❶❷❸❹❺
Coastal Coordination Council (CCC)	✓	✓	✓	✓	✓	✓	
Concerns	①②③④⑤	①②	①②③④⑤	①②③	①	③	
Contributing Factors	❶❷	❶❷❹❺❻❽	❶❷❹❺❻❼❽	❶❷❸❺❻❼❽❾❿	❹❺❻	❶❼❽	
Railroad Commission of Texas (RRCT)		✓		✓		✓	✓
Concerns		①②		①③		①③	①
Contributing Factors		❷		❷❺❻		❸	❶❸
Texas A&M University System (TAMUS)	✓	✓	✓	✓	✓	✓	✓
Concerns	①②③④⑤	①②③	①②③④⑤	①②③	①②③	①②③	①②③
Contributing Factors							

Exhibit 4-2. Matrix of Involvement in Addressing CCBNEP Priority Problems							
Agency or Organization	**Priority Problems**						
	Altered Freshwater Inflows	**Condition of Living Resources**	**Loss of Wetlands and Habitats**	**Degradation of Water Quality**	**Altered Estuarine Circulation**	**Bay Debris**	**Public Health Issues**
Texas Department of Agriculture (TDA)		✓	✓	✓			✓
Concerns		②	①②③	①③			
Contributing Factors		❶❷	❹❻	❸❼			❶❺
Texas Department of Health (TDH)							✓
Concerns							①③
Contributing Factors							❶❷
Texas Department of Transportation (TxDOT)			✓	✓	✓		
Concerns				①	②		
Contributing Factors			❹	❼❽	❶❺		
Texas General Land Office (GLO)		✓	✓	✓	✓	✓	✓
Concerns		①②	①②⑤	①		③	
Contributing Factors		❶❷❺	❷❹❼	❻❼❽	❶❸❺	❶❷❼❾	❷
Texas Natural Resource Conservation Commission (TNRCC)	✓	✓	✓	✓	✓	✓	✓
Concerns	①②⑤	①②③	①②③④⑤	①②③	①②③	①②③	②③
Contributing Factors	❶❷❸❺	❶❷❺❻	❶❹❺❻❽	❶❷❸❺❻❼❽❾❿	❹❻❼	❶❼❽❾	❶❷❸❹❺

Exhibit 4-2. Matrix of Involvement in Addressing CCBNEP Priority Problems							
Agency or Organization	**Priority Problems**						
	Altered Freshwater Inflows	**Condition of Living Resources**	**Loss of Wetlands and Habitats**	**Degradation of Water Quality**	**Altered Estuarine Circulation**	**Bay Debris**	**Public Health Issues**
Texas Parks and Wildlife Department (TPWD)	✓	✓	✓	✓	✓	✓	✓
Concerns	①②⑤	①②③	①②③④⑤	①		②③	①③
Contributing Factors	❶❷❸	❶❷❹❺❻	❶❼❽	❶❼❽❾	❸❹❻	❼❾	❶❷
Texas State Soil and Water Conservation Board (TSSWCB)				✓			
Concerns				①			
Contributing Factors				❸			
Texas Water Development Board (TWDB)	✓		✓	✓	✓		
Concerns	①②③④⑤		①	①	②		
Contributing Factors	❶❷❸❺		❽	❽❾	❺❻		
University of Texas System (UT)	✓	✓	✓	✓	✓	✓	✓
Concerns	①②③④⑤	①②③	①②③④⑤	①②③	①②③	①②③	①②③
Contributing Factors							
City of Corpus Christi	✓	✓	✓	✓		✓	✓
Concerns	①③④	①②	①②④	①②③		①②③	②
Contributing Factors	❶❷	❶❷❻	❹❺❻❽	❷❸❻❼❾		❶❼❾	❹❺

Exhibit 4-2. Matrix of Involvement in Addressing CCBNEP Priority Problems							
Agency or Organization	**Priority Problems**						
	Altered Freshwater Inflows	**Condition of Living Resources**	**Loss of Wetlands and Habitats**	**Degradation of Water Quality**	**Altered Estuarine Circulation**	**Bay Debris**	**Public Health Issues**
Cities other than Corpus Christi	✓	✓	✓	✓		✓	
Concerns	①③④	①②	①④	①②③		①②③	
Contributing Factors	❶❷	❶❷❻	❹❺❻❽	❷❸❻❼❾		❶❼❾	
Coastal Bend Council of Governments (CBCOG)	✓			✓	✓	✓	
Concerns	①②③④⑤			①②③	①②③	①③	
Contributing Factors	❶❷			❽❾	❻	❶	
Coastal Counties in the Study Area			✓	✓		✓	✓
Concerns			①②	①②③		③	②
Contributing Factors			❹❺❻	❷❸❻❼		❶	❶❷❹❺
Drainage Districts						✓	
Concerns						③	
Contributing Factors						❶	
Guadalupe Blanco River Authority (GBRA)	✓			✓			
Concerns	①②③④⑤			①			
Contributing Factors	❶❷❸			❷❸❾			

Exhibit 4-2. Matrix of Involvement in Addressing CCBNEP Priority Problems							
Agency or Organization	**Priority Problems**						
	Altered Freshwater Inflows	**Condition of Living Resources**	**Loss of Wetlands and Habitats**	**Degradation of Water Quality**	**Altered Estuarine Circulation**	**Bay Debris**	**Public Health Issues**
Gulf of Mexico Program	✓	✓	✓	✓	✓	✓	✓
Concerns	①②③④⑤	①②③	①②③④⑤	①②③	①②③	①②③	①②③
Contributing Factors							
Navigation Districts			✓	✓	✓	✓	✓
Concerns			①⑤	①		③	
Contributing Factors			❶❼	❶❻❼❽	❶	❷	❷
Nueces River Authority (NRA)	✓			✓			
Concerns	①②③④⑤			①			
Contributing Factors	❶❷❸❺			❾			
Port of Corpus Christi Authority (PCCA)	✓	✓	✓	✓	✓	✓	✓
Concerns	③	①②	①⑤	①		③	
Contributing Factors	❷	❶❷❺	❶❹❺❻❼	❶❷❸❻❼❽❾	❶❹❻	❷	❷❹❺
Soil and Water Conservation Districts (SWCDs)	✓		✓	✓			
Concerns	③④⑤		①②	①			
Contributing Factors	❺		❷❻	❸❼❾			

Exhibit 4-2. Matrix of Involvement in Addressing CCBNEP Priority Problems							
Agency or Organization	**Priority Problems**						
	Altered Freshwater Inflows	**Condition of Living Resources**	**Loss of Wetlands and Habitats**	**Degradation of Water Quality**	**Altered Estuarine Circulation**	**Bay Debris**	**Public Health Issues**
Coastal Bend Bays Foundation (CBBF)	✓	✓	✓	✓	✓	✓	✓
Concerns	①②③④⑤	①②③	①②③④⑤	①	①②③	①②③	①②
Contributing Factors		❶❷❸❺	❶❷❸❻❼	❸❹❼❽	❶❹❺	❶❷❸❼❽❾	❺
Texas State Aquarium (TSA)		✓	✓	✓		✓	✓
Concerns		①②③	①②③④⑤	①②③		①②③	②
Contributing Factors						❶❾	

LEGAL SCOPE FOR IMPLEMENTING ACTIVITIES RELATED TO CCBNEP GOALS

With few exceptions, it appears that the management framework has sufficient legal authority to carry out the institutions individual responsibilities as they relate to the priority problems. The following three exhibits -- Exhibit 4-3, Exhibit 4-4, and Exhibit 4-5 -- provide information on the legal scope for implementing activities related to CCBNEP goals. Exhibit 4-3 provides information on federal institutions, Exhibit 4-4 on state institutions, and Exhibit 4-5 on regional, local, and non-governmental institutions.

The analysis focuses on whether institutions have all the legal authority necessary to carry out their responsibilities related to CCBNEP priority problems and whether additional authority would substantially improve their effectiveness. Geographic limits on exercising authority are also identified. This analysis is based on information presented in the Inventory, as well as responses to interview questions (See Appendices A and B).

Summary -- Federal Institutions

Generally, it appears that the federal institutions examined have sufficient authority to carry out their CCBNEP-related activities. Two exceptions are the Bureau of Reclamation and the U.S. Fish and Wildlife Service (USFWS). Expanded authority over wetlands would allow the Bureau to increase its efforts related to water quality protection and environmental restoration. Additionally, increased authority under the Endangered Species Act would enable the USFWS to require coordination of agency actions.

Summary -- State Institutions

Most state institutions have sufficient authority to implement potential CCMP actions. Two exceptions are the Coastal Coordination Council (CCC) and the Texas Parks and Wildlife Department (TPWD). The CCC may have insufficient authority to enforce implementation of the Texas Coastal Management Program (this also applies to the GLO). TPWD could be more effective in achieving its objectives if it had greater authority in permitting and other areas of resource protection. Additionally, the Department of Health's capabilities could be enhanced if it were allowed to conduct research projects in-house.

Summary -- Regional, Local, and Non-Governmental Institutions

Overall, regional, local, and non-governmental institutions have sufficient authority to carry out environmental resource management and related activities. Nonetheless, their authority is typically limited geographically, and sometimes programmatically. In addition, Texas counties have limited authority in comparison to counties in many other states, in particular they have very limited authority to issue orders or create ordinances. In addition, both Texas cities and counties make little use of those selected zoning powers they do have.

Exhibit 4-3. Legal Scope for Federal Institutions	
Federal Institutions	**Legal Scope for Funding and Implementing Activities**
Consolidated Farm Service Agency (CFSA)	CFSA has sufficient legal authority to administer the commodity and related land use programs for which it is responsible. With specific respect to CCBNEP issues, it has sufficient authority to administer the conservation programs that it works closely with the Natural Resources Conservation Service to implement: Agriculture Conservation Program, Conservation Reserve Program, Water Bank Program, and Farm Debt Restructuring and Conservation Set-Aside Program. The agency operates throughout the country.
Natural Resources Conservation Service (NRCS)	Under Public Laws 74-46, 83-566, and 78-534 and farm bills enacted in 1961, 1985, and 1990, NRCS has sufficient legal authority to develop and carry out national soil and water conservation programs, and assist in agricultural pollution control, environmental improvement, and rural community development. Program areas covered by this authority related to CCBNEP priority problems include reduction of runoff and erosion control, the Conservation Reserve Program, wetland identification and protection, and the Wetland Reserve Program. The Service operates nationally, through local offices that are typically county-based.
National Marine Fisheries Service (NMFS)	NMFS has ample authority to carry out its responsibilities that relate to CCBNEP priority problems as granted by: the Magnuson Fishery Conservation and Management Act; the U.S. Fish and Wildlife Coordination Act; the Marine Mammal Protection Act; the Endangered Species Act; the Federal Aid in Wildlife Restoration Act; the Federal Aid in Sport Fish Restoration and Management Projects Act; the National Environmental Policy Act; and the Clean Water Act. Related program areas include fishery management, habitat conservation, protected species management, seafood safety and inspection, and participation in international organizations. NMFS's activities related to fishery management are confined to the U.S.'s 200-mile Exclusive Economic Zone. Protected species regulatory authority applies to all state and federal waters. Habitat regulation and management apply to estuarine and marine ecosystems.

Exhibit 4-3. Legal Scope for Federal Institutions	
Federal Institutions	**Legal Scope for Funding and Implementing Activities**
National Ocean Service (NOS)	NOS draws sufficient authority from the Coastal Zone Management Act of 1972 (CZMA) and the Reauthorization Amendments of 1990 (CZARA) to carry out its research and assessment responsibilities that relate to CCBNEP priority problems. NOS's activities are confined within the band between the U.S.'s 200-mile Exclusive Economic Zone and the inland extent of anadromous and catadromous fish migration.
U.S. Army Corps of Engineers (USCOE)	The Corps has ample authority to carry out programmatic and regulatory actions related to flood control, hydropower production, navigation, water supply storage, recreation, fish and wildlife resources, and coastal engineering projects, including harbor dredging and beach renourishment. This authority is granted under the following laws: Federal Water Pollution Control Act of 1972 (Clean Water Act of 1977), as amended; the Rivers and Harbors Act of 1899; the Fish and Wildlife Coordination Act; the Marine Protection, Research, and Sanctuaries Act; the Water Resources Development Act of 1986; the Coastal Wetlands Planning, Protection, and Restoration Act; and the Coastal Barrier Resources Act of 1982. All counties within the CCBNEP study area are under the jurisdiction of the Corps' Galveston District Office.
Bureau of Reclamation	The Bureau has sufficient authority under the 1902 Reclamation Act and Amendments and various executive orders to carry out its traditional responsibilities related to water resource development. In 1987, the Bureau began placing greater emphasis on more efficient operation of existing projects and resource management issues, such as water quality and environmental restoration. Currently, its authority to work on wetlands is limited to Department of Interior lands, so the Bureau is considering options to broaden its authority over wetlands projects.
National Biological Service (NBS)	The FY 1994 Interior Appropriations Act consolidated biological science programs from seven Department of Interior bureaus and granted the newly formed NBS sufficient authority to carry out its research role that focuses on species, habitats, and ecosystems with an emphasis on conservation of biodiversity. This Act does not convey any authority to engage in regulatory, management, or advocacy activities. NBS operates nationwide, and conducts its activities in the CCBNEP study area through its Texas Gulf Coast Field Station.

Exhibit 4-3. Legal Scope for Federal Institutions	
Federal Institutions	**Legal Scope for Funding and Implementing Activities**
National Park Service (NPS)	NPS draws extensive authority from the National Park Service Organization Act of 1916 to manage an extensive system of public lands including national parks, monuments, lakeshores, seashores, set asides for the protection of natural environments, and historic properties for the education and enjoyment of citizens. Within the CCBNEP study area, NPS activities are limited to 133,000 acres within the Padre Island National Seashore.
U.S. Fish and Wildlife Service (USFWS)	Numerous laws convey extensive authority to USFWS to carry out its mission to manage living resources and habitats. These laws include: the Endangered Species Act; the Fish and Wildlife Coordination Act; the Anadromous Fish Conservation Act; the Marine Mammal Protection Act; the Federal Aid in Sport Fish Restoration Act; the Federal Aid in Wildlife Restoration Act; the Fish and Wildlife Act of 1956; the Food Security Act of 1985; the Clean Water Act; the Coastal Wetlands Planning, Protection, and Restoration Act; the North American Waterfowl Conservation Act; the Migratory Bird Conservation Act; the Hunting Stamp Act; the Coastal Barriers Improvement Act; and the Striped Bass Act. Nonetheless, the Service does not have enough authority under the Endangered Species Act to require other agencies to consult it when agency actions may affect a listed species. The Service also cannot require an agency to provide adequate scientific information to support a biological opinion when consultation does occur, and cannot require an agency to carry out the measures set forth in the biological opinion. In general, the Service's activities are not limited to a specific geographic jurisdiction. Some subdivisions of the Service, such as Aransas National Wildlife Refuge, operate within designated boundaries.
U.S. Geological Survey (USGS)	Under the Act of 1879 and the Water Resource Research Act of 1984, USGS's Water Resources Division has sufficient authority to provide the hydrologic information and understanding needed for the optimum utilization and management of the nation's water resources. This Division operates nationwide, through Water Resource Institutes/Centers in each of the 50 states.

Exhibit 4-3. Legal Scope for Federal Institutions	
Federal Institutions	**Legal Scope for Funding and Implementing Activities**
U.S. Coast Guard (USCG)	Several laws provide ample authority for the Coast Guard to carry out activities that support its mission, including: marine safety laws in Subtitle II of Title 46 U.S.C.; the Ports and Waterways Safety Act; the Oil Pollution Act of 1990; MARPOL Annex V; the Clean Water Act; the Rivers and Harbors Act; and the Marine Plastic Pollution Research and Control Act. This authority is sufficient for the Coast Guard to conduct two important activities in the CCBNEP study area: oil spill prevention and response, and waste management, aimed at reducing marine debris. The Coast Guard's geographic jurisdiction stretches from the Colorado River to the Rio Grande River, extending seaward and inland to include all navigable waters in that coastal segment.
U.S. Environmental Protection Agency (EPA)	Numerous laws grant EPA extensive authority to conduct activities that support environmental protection. These include: the Clean Water Act and amendments; Clean Air Act and amendments; Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, or "Superfund"); Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA); Federal Food, Drug, and Cosmetic Act (FFDCA); Federal Insecticide, Fungicide, and Rodenticide Act of 1982 (FIFRA); Ocean Dumping Ban Act; National Environmental Education Act of 1990 (NEEA); National Environmental Policy Act of 1969 (NEPA); Pollution Prevention Act of 1990 (PPA); Resource Conservation and Recovery Act of 1976 (RCRA); Safe Drinking Water Act of 1974, as amended (SDWA); Toxic Substances Control Act of 1976 (TSCA); and Executive Order 11990, Protection of Wetlands. While most of these acts are subject to reauthorization where specific provisions could be broadened or narrowed, through the Agency's administrative, policy, and regulatory functions it has generally been successful in matching its scope of activities to current federal, state, and local environmental protection objectives. EPA operates nationwide, operating through its headquarters in Washington, D.C., several satellite programs (e.g., in Cincinnati, Ohio, and Research Triangle Park in North Carolina), and 10 regional offices, including Region 6 in Dallas, which serves the CCBNEP study area.

Exhibit 4-4. Legal Scope of State Institutions	
State Institutions	**Legal Scope for Funding and Implementing Activities**
Coastal Coordination Council (CCC)	Under the Coastal Coordination Act, the CCC has responsibility for overseeing the Texas Coastal Management Program (CMP) and ensuring that the activities of state and federal agencies and subdivisions within the coastal zone are consistent with the goals and policies of the CMP. The CCC must review actions taken or authorized by a state agency or subdivision that may adversely affect a Coastal Natural Resource Area if three members submit the action to the CCC. The CCC can also restrict an action of a state or local agency whose action is found to be inconsistent with goals and policies of the CMP. Nonetheless, it appears the CCC may have insufficient authority to enforce implementation of the CMP if enforcement should be necessary.
Railroad Commission of Texas (RRCT)	Under selected sections of the Texas Water Code, RRCT has extensive authority to prevent and abate water pollution caused by oil and gas industry activities. This authority is supported by numerous rules and regulations (16 TAC, selected sections). This combination of legislative, administrative, and regulatory authority sufficiently enables RRCT to carry out its roles and responsibilities as they relate to CCBNEP priority problems. RRCT's authority overlaps in some areas with TNRCC and EPA (e.g., NPDES and RRCT permitting), providing additional resources for managing oil and gas industry activities affecting water quality. The Commission's scope is statewide.
Texas A&M University System (TAMUS)	Under the Texas Constitution Article 7, Sections 9, 13, 17, and 18, the Texas A&M System has sufficient authority to carry out its educational mission that includes post-secondary education, research, and technical assistance. This authorization covers operation of the Texas Agricultural Experiment Station, Texas Agricultural Extension Service Agency, and the Texas Sea Grant program, which operate state-wide, as well as the Center for Coastal Studies and the Conrad Blucher Institute at Texas A&M Corpus Christi, and the Texas A&M Kingsville campus.

Exhibit 4-4. Legal Scope of State Institutions	
State Institutions	**Legal Scope for Funding and Implementing Activities**
Texas Department of Agriculture (TDA)	Through an agreement with EPA, TDA has authority to administer the Federal Insecticide, Fungicide, and Rodenticide Act of 1982 (FIFRA), which covers: state registration of pesticides; establishment of specific use criteria for high risk pesticides; licensing of private, commercial, and non-commercial applicators; monitoring of health and environmental impacts in areas of pesticide use; and enforcement of federal and state pesticide laws. This authority allows TDA to regulate the use, distribution, and disposal of pesticides within the state. TDA also has sufficient authority to implement other programs related to CCBNEP issues, covering promotion of aquaculture, pest management, sustainable (i.e., low resource use/low environmental impact) agriculture, and evaluation of potential effects of pesticides on endangered species.
Texas Department of Health (TDH)	Section 436 of the Texas Health and Safety Code gives TDH authority for its Seafood Safety Division to survey, classify, and monitor the coastal waters of Texas to reduce the risk to public health from contaminated shellfish, as well as license and monitor shellfish processing plants (the Texas Parks and Wildlife Department enforces violations of this section). TDH is prohibited by law from conducting in-house research, but it is active in guiding other researchers and projects.
Texas Department of Transportation (TxDOT)	Section 663 et. seq. of the Texas Civil Statute grants TxDOT extensive authority to conduct a variety of activities related to road construction and planning in Texas, including: administration of federal funds for mass transit; planning, purchase, constructions, lease, and contracting for public transportation systems in the state; construction and maintenance of bridges and ferries; and administration of the Gulf Intracoastal Waterway. Under the Intermodal Surface Transportation Efficiency Act of 1991 (PL 102-240), TxDOT has additional authority and funding to expand efforts to minimize the environmental impacts of road construction and maintenance, especially with respect to wetlands and air quality.
Texas General Land Office (GLO)	Selected sections of the Texas Natural Resources Code grant the GLO broad authority to manage Texas' public lands, including coastal public lands and submerged lands (to 10.3 miles from shore). The GLO uses this authority to issue permits for selected activities and grant rights of way. Although the GLO is legally responsible for developing a coastal management program for Texas, it is not yet clear that GLO (or another agency) has sufficient authority to implement and enforce such management recommendations.

Exhibit 4-4. Legal Scope of State Institutions	
State Institutions	**Legal Scope for Funding and Implementing Activities**
Texas Natural Resource Conservation Commission (TNRCC)	TNRCC, created in September 1993 through the merger of the former Texas Water Commission and the Texas Air Control Board, exercises broad authority under numerous federal and state laws, and their related regulations, including the Clean Water Act, the Texas Water Code, the Safe Drinking Water Act, and the Clean Rivers Act. Programs implemented under this authority include protection of surface and groundwater quality; issuance of water rights permits; response to fish kills; evaluation and approval of required pollution abatement programs in cities (Section 26.177 does not contain deadlines for implementation and TNRCC has not adopted rules to implement Section 26.177); nonpoint source pollution reduction, including the Clean Texas 2000 Campaign; state water quality monitoring; pollution reduction technology and education transfer; wellhead protection; and watershed wide pollution assessments.
Texas Parks and Wildlife Department (TPWD)	The Parks and Wildlife Code, Chapter 1, authorizes TPWD to act as the lead agency for the conservation and protection of fish and wildlife and their habitats in the state of Texas. This authority covers a broad range of programs and responsibilities, including: evaluation of state and federal projects, permits, and other actions affecting fish and wildlife resources (including endangered species); operation of the state parks system and wildlife management areas; habitat assessment (including Section 404 permit comments and EIS review); aquatic studies (including impact assessment; investigation of fish kills); other environmental research; recommendation of rules and regulations regarding wildlife harvesting; management and monitoring of coastal fisheries; and extensive education programs. Nonetheless, greater authority could help TPWD accomplish its goals. For example, it has only consultant powers for permits; expanded authority could grant concurrence powers. In addition, more clearly defined authority to deal with resource protection and biological resource management issues in the coastal zone could also enhance the agency's effectiveness. The agency is not constrained geographically, as it has jurisdiction over aquatic and terrestrial environments throughout the CCBNEP study area.

Exhibit 4-4. Legal Scope of State Institutions	
State Institutions	**Legal Scope for Funding and Implementing Activities**
Texas State Soil and Water Conservation Board (TSSWCB)	Chapter 201 of the Texas Agriculture Code authorizes TSSWCB to administer the state's conservation law, as well as coordinate the programs of and provide assistance to the state's soil and water conservation districts. This chapter also designates TSSWCB as the lead agency in Texas for granting authority to plan, implement, and manage programs and practices for abating agricultural and silvicultural nonpoint pollution. This authority is sufficient to carry out these activities. In addition, TSSWCB has received EPA approval, under Section 319 of the Clean Water Act, for its agricultural and silvicultural components of the nonpoint source management program.
Texas Water Development Board (TWDB)	Chapters 6 and 15-20 of the Texas Water Code grant TWDB authority to plan, finance (including issuing debt, but not fund administration of projects), and develop water and wastewater projects within the state of Texas. This includes statutory authority for assessing the freshwater inflow needs of Texas bays and estuaries. This authority is ample to support TWDB's activities, including: the Economically Disadvantaged Activities Program; modeling and research; provision of technical assistance (e.g., gauge operation and oil spill modeling); development of drinking and irrigation water sources; public education; and research grants.
University of Texas System (UT)	Article 7, Sections 9 and 15 of the Texas Constitution created the University of Texas System and provide broad authorization for it to carry out its educational mission. In addition to its educational, research, and technical activities, of particular relevance to the CCBNEP study area are the University's Marine Science Institute, Bureau of Economic Geology, Center for Research in Water Resources, and public education and outreach activities.

Exhibit 4-5. Legal Scope of Regional, Local, and Non-Governmental Institutions	
Regional, Local, & Non-Govt. Institutions	**Legal Scope for Funding and Implementing Activities**
City of Corpus Christi	The Texas State Constitution Article II, Section 5, and Local Government Code, Chapters 7, 26, and 51 incorporate and convey the authority of a home rule city on the City of Corpus Christi. This authority is broad, allowing the City to levy taxes, assess user fees, and expend funds. It also covers a variety of functions related to CCBNEP priority problems, including regulatory and resource management and water supply for the region. The City's activities generally are confined to the city limits, but on some issues, such as water supply, the City has wider jurisdiction.
Cities other than Corpus Christi	Depending on population and form of government selected, the Texas State Constitution Article II, Sections 4 and 5 and Local Government Code Chapters 5, 6, 7, 8, 9, 21, 22, 23, 24, 25, 26, and/or 51 grant basic authorities to incorporated cities. Larger municipalities are usually home rule cities, while smaller municipalities are usually general law cities (the difference being the types of legislation and activities cities may pass, engage in themselves, and which types require state action and/or approval). Under such authority, cities engage in some or all of the following activities: operation of municipal water treatment plants and municipal wastewater treatment plants; management of drainage and storm water runoff and other nonpoint source water pollution control and abatement programs; management of parks and public lands; and administration of trash collection and solid waste disposal. While Constitutional and Code authority includes the right to zone property, many have not enacted zoning ordinances that would apply this authority. Cities' authority is geographically limited to incorporated areas (although they may have some authority or influence over areas designated for annexation).

Exhibit 4-5. Legal Scope of Regional, Local, and Non-Governmental Institutions	
Regional, Local, & Non-Govt. Institutions	**Legal Scope for Funding and Implementing Activities**
Coastal Bend Council of Governments (CBCOG)	Chapter 391 of the Local Government Code establishes and regulates CBCOG as a regional planning commission. This authority covers activities such as: coordinating and implementing regional public services (e.g., 911 system, programs for the elderly, and economic development efforts); development of regional water quality, land use, and solid waste management plans; coordinating grant programs; and providing technical assistance and public education. CBCOG's activities apply to several local governments in the CCBNEP study area. CBCOG has no taxing or regulatory authority. Membership is voluntary; members pay dues to fund CBCOG programs.
Coastal Counties in the Study Area	Article IX, Section 1 and Article V, Section 18 of the Texas State Constitution, and Local Government Code Chapter 18, grant relatively limited authority to Texas counties, in comparison to counties in many other states. While counties are legally subdivisions of the state of Texas and responsible for the execution of state laws, they have very limited authority to issue orders, and lack the broad authority of municipalities to create ordinances. Special districts that serve specific purposes, such as water supply, irrigation, drainage, or navigation districts, may be created by Commissioners' Courts, which manage county government, under authority granted by Texas Constitution Article III, Section 52. County authority can be exercised in unincorporated areas within county borders.
Drainage Districts	Texas Constitution Article III, Section 52 and Article XVI, Section 59 (special law district), and/or the Texas Water Code Chapter 56 (general law district, monitored by TNRCC), grant adequate authority to drainage districts to carry out water conservation and reclamation functions, primarily related to constructing and maintaining drainage systems for flood control and soil conservation. These districts operate within their statutorily defined district boundaries.

Exhibit 4-5. Legal Scope of Regional, Local, and Non-Governmental Institutions	
Regional, Local, & Non-Govt. Institutions	**Legal Scope for Funding and Implementing Activities**
Guadalupe Blanco River Authority (GBRA)	GBRA operates under authority granted by Texas Civil Statutes, Article 8280-106, and the Texas Constitution Article III, Section 52 and Article XVI, Section 59, which convey broad powers and responsibilities of a water conservation and reclamation district. This authority covers activities associated with the use, preservation, and protection of the state's water resources, including management of freshwater inflows, flood control, water supply, water and wastewater treatment, and hydroelectric facilities. GBRA must comply with regulations contained in the Texas Water Code and other applicable statutes. GBRA has authority to charge user fees to fund its operations. It has no authority to levy taxes or other assessments, or pledge the general credit of the state. By statute, GBRA covers ten counties: Kendall; Comal; Hays; Caldwell; Guadalupe; Gonzales; Dewitt; Victoria; Calhoun; and Refugio Counties.
Gulf of Mexico Program	Under the Clean Water Act and through the sponsorship and oversight of the EPA, the Gulf of Mexico program has broad authority to conduct an array of program coordination, research, and outreach activities. This authority also covers grants, other financial assistance, and technical assistance. It does not include any regulatory authority. The Program covers the Gulf and its neighboring political jurisdictions.
Navigation Districts (other than PCCA)	Texas Constitution Article III, Section 52 and Article XVI, Section 59, and the Texas Water Code, Chapters 60-63 create and grant authority to navigation districts as water conservation and reclamation areas. This authority adequately covers the following primary functions: operation of mooring facilities; dredging and dredge spoil management; channel construction and maintenance activities; and regulation of moored vessel activities, including sewage disposal, oil discharge, control of hazardous substance, and debris management. The districts have ad valorem taxing authority within their jurisdiction.

Exhibit 4-5. Legal Scope of Regional, Local, and Non-Governmental Institutions	
Regional, Local, & Non-Govt. Institutions	**Legal Scope for Funding and Implementing Activities**
Nueces River Authority (NRA)	NRA operates under authority granted under Texas Civil Statutes, Article 8280-115, and the Texas Constitution Article III, Section 52 and Article XVI, Section 59, which convey broad powers and responsibilities of a water conservation and reclamation district. This authority covers activities associated with the use, preservation, and protection of the state's water resources, including: development of parks and water-based recreational facilities; management of freshwater inflows; flood control; irrigation; navigation; water supply; water and wastewater treatment and other water quality control activities (e.g., acquisition and disposal of solid waste); as well as hydroelectric facilities. NRA must comply with the regulations contained in the Texas Water Code and other applicable statutes. NRA can charge user fees and may issue bonds and receive grants and loans. It has no authority to levy taxes or other assessments, or pledge the general credit of the state. By statute, NRA serves all or parts of 22 counties in south Texas, covering over 17,000 square miles, generally constituting the drainage area of the Nueces River and its tributaries and the adjoining coastal basins.
Port of Corpus Christi Authority (PCCA)	PCCA derives authority under Article XVI, Section 59 and Texas Water Code Chapter 62 as a special law water conservation and reclamation district, or navigation district. PCCA's authority is broad with respect to navigational and resource management activities, including dredging and dredge spoil management, pollution control, shoreline development, public health protection, and species and habitat protection. PCCA exercises some regulatory control over activities taking place at facilities it owns or controls. Under its authority, it may levy wharfage and docking fees, as well as ad valorem taxes in certain circumstances. PCCA's jurisdiction covers Nueces County, including the Port of Corpus Christi and the emergent and submerged lands in Corpus Christi and Nueces Bays.
Soil and Water Conservation Districts (SWCDs)	Under authority granted to it, the Texas State Soil and Water Conservation Board (TSSWCB) charters soil and water conservation districts for the purposes of providing assistance to and managing agricultural land use activities in a manner consistent with sustainable agricultural production and water quality goals. Site water quality management plans developed by landowners have the same legal status as point source pollution permits from TNRCC. SWCDs are generally county-based, and in the CCBNEP study area cover Nueces, Jim Wells, Kleberg, and portions of Kenedy Counties.

Exhibit 4-5. Legal Scope of Regional, Local, and Non-Governmental Institutions	
Regional, Local, & Non-Govt. Institutions	**Legal Scope for Funding and Implementing Activities**
Coastal Bend Bays Foundation (CBBF)	CBBF is chartered as a non-profit organization under Section 501(c)(3) of the U.S. Internal Revenue Service Code. Its facilitation, conservation, education, advocacy, and research activities must conform to activities proscribed under the IRS Code. For example, it may not engage in lobbying or political activities. Within those proscriptions, it has broad authority to engage in a variety of projects throughout the CCBNEP study area (although its charter does not limit activities geographically), including land acquisition and financial assistance programs.
Texas State Aquarium (TSA)	TSA is chartered as a non-profit organization under Section 501(c)(3) of the U.S. Internal Revenue Service Code, and under this authority engages in education and research activities. Although located in Corpus Christi, its activities are not constrained geographically by charter. For example, TSA participates in cooperative research efforts with various universities, is involved in various conservation efforts, and has an educational program that conducts classes at schools throughout Texas.

COMPATIBILITY BETWEEN INSTITUTIONAL MISSION AND CURRENT ACTIVITIES RELATED TO CCBNEP PROBLEMS

Exhibit 4-6 is a matrix that indicates the level of compatibility between the missions of the institutions and the actions implemented by the institutions with respect to CCBNEP priority problems. Each institution has one of three possible levels of compatibility:

1. The institution's current CCBNEP activities directly coincide with the objectives stated in its mission;
2. The institution's current CCBNEP activities stretch beyond the scope of the objectives stated in its mission; and
3. The institution's current CCBNEP activities do not cover all actions that are within the scope of objectives stated in its mission.

The matrix is based on the agreement of the activities of each institution with the mission of that institution as stated in Chapter 3.

The majority of institutions (28) conduct activities that coincide directly with their mission statement. Six are involved in resource protection or conservation activities that appear to exceed their mission's scope. Three institutions, the Texas Department of Agriculture (TDA), the Texas Department of Health (TDH), and the city of Corpus Christi, appear to address less than their missions allow in their current activities.

Part of TDA's mission is to safeguard water quality from the effects of agriculture. According to its mission, TDA could be involved in addressing more CCBNEP contributing factors, such as *alteration in timing and volume of tributary flow due to existing impoundments and withdrawals*. TDH's mission includes protection and promotion of public health. With this mission, the agency could address all of the contributing factors of the *Public Health* priority problem. The City of Corpus Christi's mission includes protection of the natural amenities of the city. While the city must balance this part of its mission with many other elements, it could conceivably work on all CCBNEP contributing factors.

Exhibit 4-6. Matrix of Compatibility Between Institutional Missions and Actions			
Institution	Current CCBNEP Activities Directly Coincide with Mission Objectives	Current CCBNEP Activities Stretch Beyond the Scope of the Mission	Current CCBNEP Activities Address less than the Scope of the Mission
Consolidated Farm Service Agency		✓	
Natural Resources Conservation Service	✓		
National Marine Fisheries Service	✓		
National Ocean Service		✓	
U.S. Army Corps of Engineers	✓		
Bureau of Reclamation	✓		
National Biological Service	✓		
National Park Service	✓		
U.S. Fish and Wildlife Service	✓		
U.S. Geological Survey	✓		
U.S. Coast Guard	✓		
U.S. Environmental Protection Agency	✓		
Coastal Coordination Council	✓		
Railroad Commission of Texas	✓		
Texas A&M University System	✓		
Texas Department of Agriculture			✓
Texas Department of Health			✓
Texas Department of Transportation		✓	
Texas General Land Office	✓		
Texas Natural Resource Conservation Commission	✓		
Texas Parks and Wildlife Department	✓		
Texas State Soil and Water Conservation Board	✓		
Texas Water Development Board	✓		
University of Texas System	✓		
City of Corpus Christi			✓
Cities other than Corpus Christi	✓		
Coastal Bend Council of Governments	✓		
Coastal Counties in the Study Area	✓		
Drainage Districts		✓	
Guadalupe Blanco River Authority	✓		
Gulf of Mexico Program	✓		
Navigation Districts (other than PCCA)		✓	
Nueces River Authority	✓		
Port of Corpus Christi Authority		✓	
Soil and Water Conservation Districts	✓		
Coastal Bend Bays Foundation	✓		
Texas State Aquarium	✓		

EFFECTIVENESS

This section provides information on the effectiveness of the major institutions operating on CCBNEP priority problems. The measures of effectiveness considered for each institution in this analysis are:

- Use of quantitative measures of success;
- Sufficiency of technical capabilities with respect to CCBNEP problems;
- Availability of monitoring data to track results;
- Adequacy of management resources devoted to CCBNEP initiatives; and
- Ability to function within the political environment.

This analysis is based in part on information presented in the Inventory, as well as on information gathered during interviews with institutional representatives. For some of the measures, institutions rated their capabilities using a scale of 1 to 5 and a corresponding range of descriptive terms. For ease of reporting, only descriptive terms are used below. Exhibit 4-7 presents the rating system used for the effectiveness analysis. For more information on the questions that were asked to the institutions, see the question guide in Appendix B. For each institution that is actually a conglomeration of several institutions (e.g., Coastal Counties in the Study Area), the Project Team analyzed the effectiveness of a representative sample of institutions in the conglomeration (e.g., Aransas, Kenedy, Nueces, and San Patricio Counties).

Exhibit 4-7. Interpretation of Institutional Ratings for Effectiveness

Institutional Rating	Interpretation		
	Technical Capabilities	***Managerial Capabilities***	***Political Environment***
1	**Completely lacking**	**Completely lacking**	**Extremely hostile**
2	**Inadequate**	**Inadequate**	**Somewhat hostile**
3	**Adequate**	**Adequate**	**Neutral**
4	**Solid**	**Solid**	**Generally cooperative**
5	**Outstanding**	**Outstanding**	**Consistently cooperative**

Exhibit 4-8. Institutional Effectiveness					
Institution	**Quantitative Measures**	**Technical Capabilities**	**Collection of Data to Track Results**	**Managerial and Administrative Resources**	**Political Environment**
Consolidated Farm Service Agency	None.	Completely lacking. CFSA does not have any scientific infrastructure. The agency defers to NRCS on technical issues.	CFSA does not collect data to track its CCBNEP-related programs.	Completely lacking.	Neutral. CFSA operates within a farmer-elected committee system.
Natural Resources Conservation Service	NRCS produces an annual report that lists accomplishments, but nothing is aimed directly at Corpus Christi Bay.	Outstanding. NRCS has an office in each county in the study area to provide technical support and solve environmental problems.	NRCS collects various types of data to track programs, but its collection efforts are not specifically aimed at Corpus Christi Bay.	Adequate. A lack of funding to manage technical support programs limits managerial abilities.	Generally cooperative. Favorable legislation has provided NRCS with mandates to provide leadership for numerous programs.
National Marine Fisheries Service	NMFS has a quality assurance program to produce reports for each project. Project reports can vary and may include quantitative measures.	Completely lacking. NMFS does not have a lab in the CCBNEP study area; the nearest lab is in Galveston.	NMFS currently does not collect data in order to track the results of its bay programs.	Inadequate. NMFS lacks priorities and funding for the CCBNEP study area.	Neutral. Regulatory issues sometimes conflict with agency initiatives, affecting the agency's data collection.
National Ocean Service	None.	Outstanding. NOS's focus on its estuary research reserves enhances its technical abilities.	NOS collects fisheries information through the National Environment Satellite Data Information Service that may relate to CCBNEP initiatives.	Adequate. Organizational management could be strengthened.	Hostile. General opposition to government programs may affect future funding, which will damage NOS's ability to accomplish its goals.
U.S. Army Corps of Engineers	Insufficient information available to evaluate.	Outstanding.	USCOE does not collect data to track its CCBNEP-related programs.	Solid.	Insufficient information available to evaluate.

Exhibit 4-8. Institutional Effectiveness					
Institution	**Quantitative Measures**	**Technical Capabilities**	**Collection of Data to Track Results**	**Managerial and Administrative Resources**	**Political Environment**
Bureau of Reclamation	None.	Adequate. Location of expertise away from the coast and lack of experience with the Gulf of Mexico limit the Bureau's capabilities.	The Bureau will be collecting data to track its results. It will use a GIS, aerial photography, and other methods to obtain data on vegetation, water quality, and nutrient uptake. Data will be available to the public.	Adequate. The Bureau has the ability to manage programs effectively, but its responsibilities are not conducive to effective management.	Consistently cooperative. The Bureau has problems implementing some programs on a national basis, but it has no problems with its CCBNEP-related programs.
National Biological Service	None. Since NBS is primarily a research agency, its measures of success are publishing reports and having them used by others.	Outstanding.	NBS does not collect data to track the results of its bay programs.	Because its focus is research, NBS has a minor managerial and administrative role in CCBNEP initiatives.	Extremely hostile. Congress has proposed to abolish NBS. At the local level, the political environment is much more cooperative.
National Park Service	NPS uses amount of debris removed from 16 miles of coastline as a quantitative measure of success for its CCBNEP-related efforts.	Outstanding. Access to national resources bolsters the agency's technical abilities.	NPS tracks data on marine debris.	Outstanding. NPS has outstanding resources for its marine debris program	Consistently cooperative. NPS works with three county Boards of Supervisors, as well as USFWS, USCOE, and TPWD.
U.S. Fish and Wildlife Service	USFWS uses the number of permits that it evaluates as a quantitative measure of success.	Solid. Most personnel have advanced degrees in biology, chemistry, or hydrology.	USFWS does not primarily focus on research, so it does not collect many data. Most evaluations use historical information.	Completely lacking. The agency has too few resource to manage its programs effectively.	Hostile. The agency makes attempts to cooperate with other institutions.
U.S. Geological Survey	None.	Outstanding. The agency has a strong scientific and technical background.	USGS collects data on water quality, surface water, and hydrodynamics. These data are available to the public.	Because its focus is research, USGS has a minor managerial and administrative role in bay initiatives.	Neutral. The agency has survived abolishment proposals, but it often works with groups that have political agendas.

Exhibit 4-8. Institutional Effectiveness					
Institution	**Quantitative Measures**	**Technical Capabilities**	**Collection of Data to Track Results**	**Managerial and Administrative Resources**	**Political Environment**
U.S. Coast Guard	The Coast Guard has some measures of success, including number of incidents handled and amount of pollution cleaned. These data are available to the public.	Solid. The Coast Guard is in a unique position to detect pollution incidents.	The Coast Guard keeps data on vessel and facility inspections and the number of pollution incidents handled. These data gauge the effectiveness of the Coast Guard's activities.	Solid.	Generally cooperative. Although the political environment is favorable, some individuals have expressed disapproval of the Coast Guard's programs.
Environmental Protection Agency	EPA uses water quality data as a quantitative measure of success. EPA also has some guidance for other general measures of success.	Solid.	EPA collects data on water quality to track the results of its estuary programs. These data are currently unavailable, but will be available in the future.	Adequate.	Extremely hostile. When the administration changes, EPA's priorities and funding can change. Congress has targeted EPA programs for significant funding cuts.
Coastal Coordination Council	The CCC does not have quantitative measures or milestones, but state agencies under its jurisdiction do use performance measures.	Adequate to Outstanding. In general the CCC has high-quality technical personnel, but not enough to handle all projects. Also, equipment is lacking for some field activities.	Currently the CCC tracks the number of permits it issues by county, compliance inspections, and education programs. The Council also plans to improve its GIS system, reform its permit data system, and set up an on-line information system.	Solid.	Generally cooperative. There has been political hostility surrounding some issues, but the CCC has been able to solve those problems. The CCC notes, however, a lack of trust at the local level that may be hinder environmental initiatives.
Railroad Commission of Texas	RRCT uses several measures of success, including number of inspections completed, violations detected, and permits issued per employee.	Solid. RRCT has a more limited staff than other agencies, which limits the agency's participation in CCBNEP efforts, but the staff that does participate has outstanding qualifications.	RRCT collects and maintains data on discharge permits; monitoring results; and spills from oil, gas, and other substances.	Outstanding. RRCT is somewhat limited by staff size, but the current staff's management abilities are outstanding.	Neutral. The political environment can differ dramatically for different issues.

Exhibit 4-8. Institutional Effectiveness					
Institution	**Quantitative Measures**	**Technical Capabilities**	**Collection of Data to Track Results**	**Managerial and Administrative Resources**	**Political Environment**
Texas A&M University System	TAMUS measures its success with respect to bay initiatives by biological, ecological, and water quality data.	Solid.	The only data TAMUS uses to track results are its quantitative measures of success.	Outstanding. The University has numerous Ph.D.s to provide assistance to city government and general leadership for CCBNEP issues.	Neutral. Politics can play a role through the City Council of Corpus Christi.
Texas Department of Agriculture	TDA does not have any quantitative measures of success for CCBNEP-related actions.	Insufficient information available to evaluate.	Insufficient information available to evaluate.	Insufficient information available to evaluate.	Generally cooperative.
Texas Department of Health	TDH's Division of Seafood Safety uses minimum number of samples collected to gauge its success.	Outstanding.	In addition to data necessary to implement its programs, such as weather conditions, TDH collects data on environmental factors that can reveal program results.	Solid. The agency views its split managerial functions, with two managers assigned to each employee, as a strength.	Generally cooperative. The Seafood Safety Program has strong support from various political directions and is in position to maintain current budget levels.
Texas Department of Transportation	TxDOT does not have any quantitative measures to gauge the success of its environmental objectives.	Inadequate. The agency possesses expertise in engineering, design, and environmental resources, but it does not have strong capabilities in modeling or evaluation.	TxDOT does not have a data collection effort aimed specifically at CCBNEP issues.	Inadequate. TxDOT considers its managerial resources to be relatively weak for CCBNEP issues.	Generally cooperative. TxDOT attempts to work cooperatively within the local political and environmental community to address concerns.
Texas General Land Office	The GLO has quantitative measures of success that are part of the agency's strategic plan.	Solid. Field office staff in the Corpus Christi area have a high degree of technical expertise.	The GLO produces field assessments and reports that track the results of various projects. Although these are not organized or filed electronically, data are available to the public.	Solid. The agency is familiar with its activities and level of involvement, and participates in many significant activities that occur in the bays.	Variable. The agency has experienced hostility and turf battles on some issues, but it has received cooperation for other issues.

Exhibit 4-8. Institutional Effectiveness					
Institution	**Quantitative Measures**	**Technical Capabilities**	**Collection of Data to Track Results**	**Managerial and Administrative Resources**	**Political Environment**
Texas Natural Resource Conservation Commission	TNRCC uses water quality data to measure program success. The agency gathers data in its statewide water quality inventory, which is conducted every two years	Solid. TNRCC has strong technical capabilities, especially with respect to its on-the-ground regulatory initiatives.	TNRCC collects several types of data to track results. These include data on water quality, sediment quality, and fish tissue. The data are available to the public.	Insufficient information available to evaluate.	Insufficient information available to evaluate.
Texas Parks and Wildlife Department	TPWD does not have direct quantitative measures of success, but it does track changes in commercial fisheries over time.	Solid. The agency employs high-caliber research biologists and produces quality products.	TPWD collects data through its Coastal Monitoring Program to discover trends in fisheries and other information. The data are publicly available.	Adequate. Agency personnel are being stretched, and staff are responsible for scientific research and management at the same time.	Variable. The environment is hostile for some issues, such as protection of endangered species. The political climate for other issues, such as regulation of the shrimp industry, is relatively cooperative.
Texas State Soil and Water Conservation Board	TSSWCB has several quantitative measures for its programs, although they are not necessarily related to its involvement in CCBNEP initiatives.	Solid. TSSWCB has strong technical knowledge within the CCBNEP study area.	TSSWCB collects data on water quality management plans and implementation of plans. These data are available to the public.	Solid. The Board has a strong ability to manage the programs for which it is responsible.	Generally cooperative. TSSWCB is non-partisan and insulated from political pressures.
Texas Water Development Board	TWDB tracks its output, ability to finish projects, and cost per project or per analysis. Such data appear in strategic plans and reports.	Outstanding. The agency pays attention to detail and does a comprehensive job of long-range planning.	TWDB tracks projects to make sure they are done on time. Some data are available to the public, but some are confidential.	Solid. The agency has a very concerned staff that knows the bay resources. In addition, voluntary board members meet monthly to discuss managerial issues.	Neutral. Because the agency is not an "enforcer," it avoids some hostility. There can be protests against TWDB projects, which must be cosponsored by local governments.

Exhibit 4-8. Institutional Effectiveness					
Institution	**Quantitative Measures**	**Technical Capabilities**	**Collection of Data to Track Results**	**Managerial and Administrative Resources**	**Political Environment**
University of Texas System (Marine Science Institute)	The Marine Science Institute does not have any standardized measures of success, although it may use some for certain projects.	Outstanding. The Institute possesses a great staff, excellent equipment, and quality support.	The Institute collects many scientific data, including information on microbial ecology, larval fish, tides, benthos, phytoplankton, nutrients, zooplankton, and hydrographic changes.	Adequate. The Institute could use additional funding and staff to maximize scientific output.	Variable. The climate is somewhat hostile and competitive at the state level, but generally cooperative at the regional/local level.
City of Corpus Christi	The city does not have any quantitative measures at this time, but it is trying to develop some.	Generally good. The city does not have a very strong environmental group yet, but it is trying to gain expert staff.	Corpus Christi has in-place, real-time monitoring of freshwater inflows and real-time monitoring of wastewater outfalls. These data are publicly available.	Inadequate. No managers are strictly devoted to the bays.	Generally cooperative. In particular, the city council is open to measures suggested by the Water Department.
Other cities	Other cities tend not to have any quantitative measures of success for bay-related programs.	Inadequate. Other cities tend to have almost no in-house technical abilities, but they do hire contractors to handle technical issues.	Some cities do not collect any data to track results, while others keep data on water quality issues, such as wastewater discharges.	Variable. Cities vary widely in the level of their managerial ability, but most have inadequate resources.	Relatively cooperative. All cities are concerned and unified toward the same directive of having a clean bay system.
Coastal Bend Council of Governments	CBCOG does not have quantitative measures. EPA provided the lead for calculating such measures in the late 1970s, which was the last time the Council calculated any.	Solid. The Council has been conducting water quality studies for many years, and has a firm grasp on conditions within the CCBNEP study area.	CBCOG does not collect its own data to track results; it obtains data from other agencies.	Solid.	Generally cooperative. CBCOG's water quality efforts have been fine politically, due to the value of the bays. For solid waste, the political climate has been cooperative with local governments.

Exhibit 4-8. Institutional Effectiveness					
Institution	**Quantitative Measures**	**Technical Capabilities**	**Collection of Data to Track Results**	**Managerial and Administrative Resources**	**Political Environment**
Coastal counties	Counties generally do not have quantitative measures of success for bay-related programs.	Variable. Counties tend to lack technical capabilities, although some have solid abilities. Many counties hire contractors to conduct technical work.	The counties generally do not collect data on CCBNEP initiatives.	Variable Some counties regard environmental programs as a low priority and offer few managerial resources. Others have adequate or solid managerial resources.	Generally cooperative. Counties view their political climates as favorable. Citizens often participate cooperatively in decision-making processes.
Drainage districts (San Patricio County Drain. District)	The San Patricio County Drainage District does not have any quantitative measures of success or cost-effectiveness for bay-related programs.	Inadequate. The district's in-house technical capabilities are inadequate, but it uses a consulting firm to provide technical support.	The district does not collect data on CCBNEP initiatives at this time.	Completely lacking. The district is hampered by staff and budgetary constraints.	Consistently cooperative. Drainage districts are non-political institutions, so they can successfully collaborate with communities.
Guadalupe Blanco River Authority	GBRA uses preventative maintenance records, safety records, flows of rivers, and lab samples of rivers and bays as measures of success.	Insufficient information available to evaluate.	GBRA collects data through the Texas Watch Program and the House Bill A-18 Program, which mandates water quality standards. Data are available to the public.	Inadequate. GBRA is a large agency with many divisions, causing difficulties with focusing attention on specific topics.	Consistently cooperative.
Gulf of Mexico Program	The Gulf of Mexico Program develops separate programs for each state. The states set their own measures of success in five-year agreements with EPA.	Solid. The Gulf of Mexico Program possesses technical expertise on wetlands, sediment, fish tissue, and water quality.	The Gulf of Mexico Program does not collect data to track its results; this function is conducted by the states.	Adequate to solid. The program does not have its own discretionary budget, and it could use more resources.	Somewhat hostile. The Program does not yet have a budget for this year, due to the political environment.
Navigation districts (Aransas Cty. Nav. Dist. #1)	Aransas County Navigation District # 1 does not have quantitative measures of success.	Inadequate. The navigation district has an inactive technical representative.	Aransas County Navigation District #1 does not collect data on CCBNEP initiatives.	Completely lacking.	Insufficient information available to evaluate.

Exhibit 4-8. Institutional Effectiveness					
Institution	**Quantitative Measures**	**Technical Capabilities**	**Collection of Data to Track Results**	**Managerial and Administrative Resources**	**Political Environment**
Nueces River Authority	NRA does not have any quantitative measures of success.	Inadequate.	NRA does not collect data in order to track the results of its bay programs.	Outstanding.	Generally cooperative.
Port of Corpus Christi Authority	PCCA uses engineering and construction records as a measure of success. In addition, PCCA links its environmental activities to its engineering contracts, to track details.	Solid.	PCCA collects data for regulatory programs and research investigations. Most of the time, these data can be made available to the public.	Slightly above adequate.	Generally cooperative. PCCA has a cooperative reputation, and it tries to maintain relations with local, regional, and federal parties. PCCA disagrees with these parties on occasion.
Soil and water conservation districts	Some SWCDs have quantitative measures that they receive from the agricultural community (e.g., BMP installation data). Others have no measures of success.	Adequate to outstanding. SWCDs typically have highly trained staff.	SWCDs do not tend to collect large amounts of data to track results, but they do work closely with other agencies to gain access to data.	Adequate to outstanding.	Cooperative. SWCDs have been able to obtain funding for their water quality initiatives, and local communities have been supportive.
Coastal Bend Bays Foundation	CBBF does not have any quantitative measures of success.	Inadequate. Experts are not always available to the organization as volunteers.	CBBF does not collect data in order to track the results of its bay programs.	Adequate.	Neutral. The Foundation had a closer relationship with the previous governor's administration than with the current one.

Exhibit 4-8. Institutional Effectiveness					
Institution	**Quantitative Measures**	**Technical Capabilities**	**Collection of Data to Track Results**	**Managerial and Administrative Resources**	**Political Environment**
Texas State Aquarium	TSA's quantitative measures of success include the number of people who attend educational programs and number of sponsors who finance programs.	Solid. TSA has a high degree of technical competence, but its technical capabilities are limited by its staff size.	Data collected by TSA are aimed at research rather than tracking the results of its programs. TSA keeps data on "willingness to pay" for various programs and the places from which aquarium visitors arrive. These and other data are available to the public.	Solid.	Variable. TSA's political environment is extremely hostile at the local level, but generally cooperative at the state and federal levels.

ABILITY OF EXISTING INSTITUTIONAL FRAMEWORK TO SUPPORT CCMP IMPLEMENTATION

The key to solving CCBNEP priority problems lies in addressing and attacking the contributing factors of those problems. Exhibit 4-2 (the "check mark" matrix), along with a closer examination of each institution's actions, form the basis for analyzing how well the institutions are covering CCBNEP priority problems. The following sections and Exhibits 4-8 through 4-14 present information on the networks of institutions addressing each contributing factor. Each of these exhibits is followed by a description of the ability of the existing framework to support CCBNEP initiatives. Exhibits 1-1, 1-2, 1-3, in the Executive Summary, also summarize institutional coverage of contributing factors for federal, state, and regional/local/non-governmental institutions, respectively.

Several contributing factors are not explicitly analyzed here. They are:

- Those that are the uncontrollable result of natural causes;
- Those that are also listed as priority problems -- they are evaluated within the contributing factors of the relevant priority problem; and
- Those that are repeated under multiple priority problems -- these are only analyzed under one priority problem.

Labels and cross references are displayed in the exhibits for contributing factors that are not analyzed.

Institutions that are described in Chapter 3, but that are not part of the analysis, may also contribute substantially to solving CCBNEP priority problems. Their exclusion in this section does not detract from their roles in protecting resources in the CCBNEP study area. In addition, certain institutions that are included in this analysis chapter may conduct projects on a particular contributing factor from time to time, but are not otherwise involved in addressing that contributing factor. These institutions (e.g., the university systems and the Gulf of Mexico Program) typically have a broad array of projects that may address any number of contributing factors, depending on current interests at the institutions. Thus, Exhibits 4-9 through 4-15 and the discussions that follow them are not necessarily exhaustive. Rather, they provide a picture of those institutions that are involved in solving CCBNEP priority problems most consistently.

Ability of Existing Framework to Support CCMP Actions for Priority Problem A

Exhibit 4-9. Institutional Coverage of Altered Freshwater Inflows		
Priority Problem A	**Contributing Factors**	**Number of Institutions**
Altered Freshwater Inflows	current water demand and planned increases due to water development projects	3 Federal, 4 State, 5 Reg./Loc.
	alterations in timing and volume of tributary flow due to existing impoundments and withdrawals	6 Federal, 4 State, 6 Reg./Loc.
	alteration of the location of tributary flows	6 Federal, 3 State, 2 Reg./Loc.
	natural conditions (semi-arid climate)	*Nature*
	conservation, reuse, and technology advances	2 Federal, 2 State, 2 Reg./Loc.

Current water demand and planned increases due to water development projects (Contributing Factor A1) is addressed by the Bureau of Reclamation, the U.S. Fish and Wildlife Service, the U.S. Geological Survey, the Coastal Coordination Council, the Texas Natural Resource Conservation Commission, the Texas Parks and Wildlife Department, the Texas Water Development Board, the City of Corpus Christi, other cities, the Coastal Bend Council of Governments, the Guadalupe Blanco River Authority, and the Nueces River Authority. The strong local presence with support from a network of state and federal institutions in addressing this contributing factor forms a positive prospect for controlling water demand and its effect on freshwater inflows.

A sizable web of institutions from all levels of government addresses alterations in timing and volume of tributary flow due to existing impoundments and withdrawals (Contributing Factor A2). The institutions are the National Marine Fisheries Service, U.S. Army Corps of Engineers, Bureau of Reclamation, the U.S. Fish and Wildlife Service, the U.S. Geological Survey, the Environmental Protection Agency, the Coastal Coordination Council, the Texas Natural Resource Conservation Commission, the Texas Parks and Wildlife Department, the Texas Water Development Board, the City of Corpus Christi, other cities, the Coastal Bend Council of Governments, the Guadalupe Blanco River Authority, the Nueces River Authority, and the Port of Corpus Christi Authority.

A strong network of institutions addresses alteration of the location of tributary flows (Contributing Factor A3) from many perspectives. The institutions involved are the National Marine Fisheries Service, U.S. Army Corps of Engineers, Bureau of Reclamation, U.S. Fish and Wildlife Service, the U.S. Geological Survey, the Environmental Protection Agency, the Texas Natural Resource Conservation Commission, the Texas Parks and Wildlife Department, the Texas Water Development Board, the Guadalupe Blanco River Authority, and the Nueces River Authority.

Conservation, reuse, and technology advances (Contributing Factor A5) is addressed by several institutions. These are the Bureau of Reclamation, the U.S. Geological Survey, the Texas Natural Resource Conservation Commission, the Texas Water Development Board, the Nueces River Authority, and soil and water conservation districts. The Texas Water Development Board is the only institution conducting research to determine the effects of water conservation, reuse, and technology advances on freshwater inflows. While the institutions listed above, as well as others, have authority to address this contributing factor, few action-oriented initiatives are being conducted.

Ability of Existing Framework to Support CCMP Actions for Priority Problem B

Exhibit 4-10. Institutional Coverage of the Condition of Living Resources

Priority Problem B	Contributing Factors	Number of Institutions
Condition of Living Resources	habitat destruction and degradation	*See Priority Problem C*
	degradation of water quality	*See Priority Problem D*
	persistent brown tide in the upper Laguna Madre	*See Contributing Factor D4*
	over-utilization of living resources	4 Federal, 2 State
	altered estuarine circulation	*See Priority Problem E*
	altered freshwater inflows	*See Priority Problem A*

All but one of the contributing factors that negatively affect living resources are contained within other priority problems: over-utilization of living resources (Contributing Factor B4). The institutions that address this contributing factor are the National Marine Fisheries Service, the National Ocean Service, the National Biological Service, the U.S. Fish and Wildlife Service, the Coastal Coordination Council, and the Texas Parks and Wildlife Department. In addressing Contributing Factor B4, these six agencies tend to focus their efforts on regulating the use of fisheries, although some resources are directed toward other types of wildlife and habitats. No regional or local institutions direct substantial resources toward this contributing factor.

Ability of Existing Framework to Support CCMP Actions for Priority Problem C

Exhibit 4-11. Institutional Coverage of the Loss of Wetlands and Estuarine Habitats		
Priority Problem C	**Contributing Factors**	**Number of Institutions**
Loss of Wetlands and Estuarine Habitats	dredging and disposal of dredged materials	4 Federal, 3 State, 2 Reg./Loc., 1 Non-Governmental
	loss of coastal vegetation due to subsidence, sea level rise, erosion and bulkheading	7 Federal, 2 State, 1 Reg./Loc., 1 Non-Governmental
	persistent brown tide events in the upper Laguna Madre contributing to losses of seagrasses	*See Contributing Factor D4*
	commercial and residential development including bridge and highway construction, etc.	7 Federal, 5 State, 4 Reg./Loc.
	point sources of pollutants from municipal and industrial activities	*See Contributing Factor D2*
	nonpoint sources of pollution including urban and agricultural sources	*See Contributing Factor D3*
	disturbance of submerged habitats from trawling, prop washing, and other activities	2 Federal, 3 State, 2 Reg./Loc., 1 Non-Governmental
	altered freshwater inflows and accompanying sediment and nutrient inputs	*See Priority Problem A*

A large, balanced network of federal, state, and regional institutions examines and manages issues associated with dredging and disposal of dredged materials. Contributing Factor C1 is addressed by the National Marine Fisheries Service, the U.S. Army of Corps of Engineers, the U.S. Fish and Wildlife Service, the Environmental Protection Agency, the Coastal Coordination Council, the Texas Natural Resource Conservation Commission, the Texas Parks and Wildlife Department, navigation districts, the Port of Corpus Christi Authority, and the Coastal Bend Bays Foundation.

Federal institutions play the largest role in addressing the loss of coastal vegetation. State, regional, and non-governmental institutions round out efforts to contain this contributing factor. Contributing Factor C2 is addressed by the Consolidated Farm Service Agency, the Natural Resources Conservation Service, the National Marine Fisheries Service, the U.S. Army of Corps of Engineers, the National Park Service, the U.S. Fish and Wildlife Service, the Environmental Protection Agency, the Coastal Coordination Council, the Texas General Land Office, soil and water conservation districts, and the Coastal Bend Bays Foundation.

A balanced web of institutions copes with commercial and residential development. Contributing Factor C4 is addressed by the Consolidated Farm Service Agency, the Natural Resources Conservation Service, the National Marine Fisheries Service, the National Ocean Service, the U.S. Army Corps of Engineers, the National Park Service, the Environmental Protection Agency, the Coastal Coordination Council, the Texas Department of Agriculture, the Texas Department of Transportation, the Texas General Land Office, the Texas Natural Resource Conservation

Commission, the City of Corpus Christi, other cities, coastal counties, and the Port of Corpus Christi Authority.

Several institutions are involved in controlling the disturbance of submerged habitats. Contributing Factor C7 is addressed by the National Marine Fisheries Service, the Environmental Protection Agency, the Coastal Coordination Council, the Texas General Land Office, the Texas Parks and Wildlife Department, navigation districts, the Port of Corpus Christi Authority, and the Coastal Bend Bays Foundation. While this list of institutions seems sufficient to tackle Contributing Factor C7, it is somewhat lacking. The local institutions in this list have very specific and limited jurisdictions. In addition, many institutions that have authority over submerged habitats do not have specific programs to reduce disturbance of these habitats.

Ability of Existing Framework to Support CCMP Actions for Priority Problem D

Exhibit 4-12. Institutional Coverage of the Degradation of Water Quality

Priority Problem D	Contributing Factors	Number of Institutions
Degradation of Water Quality	dredging and the disposal of dredged materials	*See Contributing Factor C1*
	point sources of pollutants from storm drains and municipal/industrial wastewater treatment	4 Federal, 3 State, 5 Reg./Loc.
	nonpoint sources of pollution including urban and agricultural sources	7 Federal, 4 State, 6 Reg./Loc., 1 Non-Governmental
	persistent brown tide events in the upper Laguna Madre	2 Federal, 1 Non-Governmental
	tidal discharge of oil field produced waters	2 Federal, 3 State
	discharge and spillage of pollutants, sewage, and solid wastes	5 Federal, 4 State, 5 Reg./Loc.
	loss of wetlands	*See Priority Problem C*
	altered circulation	*See Priority Problem E*
	freshwater inflows	*See Priority Problem A*
	atmospheric pollution	1 Federal, 2 State

A balanced group of institutions is involved in controlling point sources of pollution. Contributing Factor D2 is addressed by the Consolidated Farm Service Agency, the National Ocean Service, the U.S. Fish and Wildlife Service, the Environmental Protection Agency, the Coastal

Coordination Council, the Railroad Commission of Texas, the Texas Natural Resource Conservation Commission, the city of Corpus Christi, other cities, coastal counties, the Guadalupe Blanco River Authority, and the Port of Corpus Christi Authority.

Contributing Factor D3, nonpoint source pollution, is addressed by more institutions than any other single contributing factor. The institutions are the Consolidated Farm Service Agency, the Natural Resources Conservation Service, the National Ocean Service, the U.S. Army of Corps of Engineers, the U.S. Fish and Wildlife Service, the U.S. Geological Survey, the Environmental Protection Agency, the Coastal Coordination Council, the Texas Department of Agriculture, the Texas Natural Resource Conservation Commission, the Texas State Soil and Water Conservation Board, the city of Corpus Christi, other cities, coastal counties, the Guadalupe Blanco River Authority, the Port of Corpus Christi Authority, soil and water conservation districts, and the Coastal Bend Bays Foundation.

Only three institutions specifically work on containing the brown tide. Contributing Factor D4 is addressed by the National Marine Fisheries Service, the Environmental Protection Agency, and the Coastal Bend Bays Foundation. NMFS and EPA also have no explicit directives to handle brown tide, but can address it through other programs.

Many resources from federal and state institutions are directed at controlling tidal discharges from oil fields. No regional or local institutions, however, delve into Contributing Factor D5, which is addressed by the National Marine Fisheries Service, the Environmental Protection Agency, the Coastal Coordination Council, the Railroad Commission of Texas, and the Texas Natural Resource Conservation Commission.

Although regional and local institutions are active, federal agencies and state programs conduct more directed and extensive activities to handle this discharge and spillage of pollutants, sewage, and solid wastes. Contributing Factor D6 is addressed by the National Marine Fisheries Service, the National Ocean Service, the U.S. Fish and Wildlife Service, the U.S. Coast Guard, the Environmental Protection Agency, the Coastal Coordination Council, the Railroad Commission of Texas, the Texas General Land Office, the Texas Natural Resource Conservation Commission, the city of Corpus Christi, other cities, coastal counties, navigation districts, and the Port of Corpus Christi Authority.

Only three institutions are working on atmospheric pollution. Activities to control this contributing factor seem to be at a relatively early stage in development. Contributing Factor D10 is addressed by the Environmental Protection Agency, the Coastal Coordination Council, and the Texas Natural Resource Conservation Commission. EPA's actions are associated with its general regulation of air quality. TNRCC is in a study phase in developing policies on atmospheric pollution of water bodies. CCC is not conducting specific actions at this time, but has the power to develop a special management plan to deal with atmospheric pollution.

Ability of Existing Framework to Support CCMP Actions for Priority Problem E

Exhibit 4-13. Institutional Coverage of Altered Estuarine Circulation		
Priority Problem E	**Contributing Factors**	**Number of Institutions**
Altered Estuarine Circulation	channelization and other navigation improvements	2 Federal, 2 State, 2 Reg./Loc., 1 Non-Governmental
	natural processes (e.g., flooding/hurricanes, sedimentation and sea level rise)	*Nature*
	modifications to natural passes and benthic features (e.g., oyster reefs and seagrass beds)	4 Federal, 2 State
	dredging and the disposal of dredged materials	*See Contributing Factor C1*
	artificial barriers to water circulation (e.g., causeway, groins and jetties)	2 Federal, 4 State, 1 Non-Governmental
	altered freshwater inflows	*See Priority Problem A*
	industrial intakes/discharges	1 Federal, 1 State

A well rounded network of institutions takes responsibility for controlling changes to estuarine circulation that are caused by navigation improvements (Contributing Factor E1). This group includes the U.S. Army of Corps of Engineers, the Environmental Protection Agency, the Texas Department of Transportation, the Texas General Land Office, navigation districts, the Port of Corpus Christi Authority, and the Coastal Bend Bays Foundation.

Contributing Factor E3 is covered by a substantial group of federal and state institutions, but regional and local organizations are relatively uninvolved. Modifications to natural passes and benthic features and their effects on circulation are managed by the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, the U.S. Geological Survey, the Environmental Protection Agency, the Texas General Land Office, and the Texas Parks and Wildlife Department. Other institutions that do not have specific programs to address modifications to benthic features have the necessary authority to conduct such programs.

A reasonable network of institutions is involved in addressing artificial barriers to circulation within the bays (Contributing Factor E5), although no regional or local institutions provide substantial assistance. Most of the activities are directed at conducting or funding research. The institutions are the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Coastal Coordination Council, the Texas Department of Transportation, the Texas General Land Office, the Texas Water Development Board, and the Coastal Bend Bays Foundation.

Contributing Factor E7, industrial intakes/discharges, is addressed only by the Environmental Protection Agency and the Texas Natural Resource Conservation Commission. These two agencies do not have programs specifically targeted to suppress the effects of industrial intakes and discharges on estuarine circulation. Instead they are able to assert general control over intakes and discharges.

Ability of Existing Framework to Support CCMP Actions for Priority Problem F

Exhibit 4-14. Institutional Coverage of Bay Debris		
Priority Problem F	**Contributing Factors**	**Number of Institutions**
Bay Debris	land-based sources of debris including washoff from urban areas and floatables from point sources	2 Federal, 3 State, 5 Reg./Loc., 2 Non-Governmental
	littering from recreational and commercial boating operations including barges, tugboats, recreational vessels, ships and commercial fishing boats	2 Federal, 1 State, 2 Reg./Loc., 1 Non-Governmental
	oil exploration/production facilities	2 Federal, 1 State, 1 Non-Governmental
	meteorological events including wind and floods	*Nature*
	converging ocean currents	*Nature*
	natural sources such as dead animals/birds, driftwood, seagrass and natural hydrocarbon	*Nature*
	tourists and local population	4 Federal, 4 State, 2 Reg./Loc., 1 Non-Governmental
	industrial and construction sites	1 Federal, 2 State, 1 Non-Governmental
	public attitudes, lack of education and lack of enforcement of existing laws	4 Federal, 3 State, 2 Reg./Loc., 2 Non-Governmental

A large network of institutions, including a sizable regional and local presence, is attempting to curb land-based sources of debris. Contributing Factor F1 is addressed by the National Park Service, the Environmental Protection Agency, the Coastal Coordination Council, the Texas General Land Office, the Texas Natural Resource Conservation Commission, the city of Corpus Christi, other cities, the Coastal Bend Council of Governments, coastal counties, drainage districts, the Coastal Bend Bays Foundation, and the Texas State Aquarium.

Contributing Factor F2 is addressed by the U.S. Fish and Wildlife Service, the U.S. Coast Guard, the Texas General Land Office, navigation districts, the Port of Corpus Christi Authority, and the Coastal Bend Bays Foundation. Although only one state program is included in this group, the framework for handling litter from vessels is solid.

Although a few institutions are undertaking actions that address debris from oil production facilities, most of the institutions do not have programs directed specifically at this source of debris. In addition, no local institutions are involved. Contributing Factor F3 is addressed by the U.S. Coast Guard, the Environmental Protection Agency, the Railroad Commission of Texas, and the Coastal Bend Bays Foundation.

A substantial web of institutions works on controlling bay debris (mostly through educational programs) that is generated by tourists and the local population (Contributing Factor F7). The institutions are the National Park Service, the U.S. Fish and Wildlife Service, the U.S. Coast Guard, the Environmental Protection Agency, the Coastal Coordination Council, the Texas General Land Office, the Texas Natural Resource Conservation Commission, the Texas Parks and Wildlife Department, the City of Corpus Christi, other cities, and the Coastal Bend Bays Foundation.

A relatively small group of institutions without any regional or local support addresses debris generated by industrial and construction sites (Contributing Factor F8). These institutions are the Environmental Protection Agency, the Coastal Coordination Council, the Texas Natural Resource Conservation Commission, and the Coastal Bend Bays Foundation.

A sizable, well balanced array of institutions explores the issues of public attitudes, lack of education, and lack of enforcement of existing laws on bay debris. Contributing Factor F9 is addressed by the National Park Service, the U.S. Fish and Wildlife Service, the U.S. Coast Guard, the Environmental Protection Agency, the Texas General Land Office, the Texas Natural Resource Conservation Commission, the Texas Parks and Wildlife Department, the city of Corpus Christi, other cities, the Coastal Bend Bays Foundation, and the Texas State Aquarium.

Ability of Existing Framework to Support CCMP Actions for Priority Problem G

Exhibit 4-15. Institutional Coverage of Public Health Issues

Priority Problem G	Contributing Factors	Number of Institutions
Public Health Issues	deposition of bioaccumulating toxic substances into the estuary	1 Federal, 5 State, 1 Reg./Loc.
	pathogenic organisms (bacterial and viral) from inadequate sewage treatment, septic systems, and/or marine sanitation practices	3 Federal, 4 State, 3 Reg./Loc.
	existing sediment sources of toxics	2 Federal, 2 State
	point sources	*See Contributing Factor D2*
	nonpoint sources	*See Contributing Factor D3*

Contributing Factor G1, deposition of bioaccumulating toxic substances, is addressed by the Environmental Protection Agency, the Railroad Commission of Texas, the Texas Department of Agriculture, the Texas Department of Health, the Texas Natural Resource Conservation Commission, the Texas Parks and Wildlife Department, and coastal counties. No regional or local institutions are implementing specific programs aimed at reduction of toxic deposition. The

counties working on this contributing factor have broad programs to control hazardous substances.

A solid web of institutions address Contributing Factor G2, pathogenic organisms. These institutions are the Consolidated Farm Service Agency, the U.S. Coast Guard, the Environmental Protection Agency, the Texas Department of Health, the Texas General Land Office, the Texas Natural Resource Conservation Commission, the Texas Parks and Wildlife Department, coastal counties, navigation districts, and the Port of Corpus Christi Authority.

Contributing Factor G3 is addressed by a relatively small network, with no substantial support from regional or local institutions. The institutions working on existing sediment sources of toxics include the National Biological Service, the Environmental Protection Agency, the Railroad Commission of Texas, and the Texas Natural Resource Conservation Commission.

CONTRIBUTING FACTORS THAT ARE NOT SUFFICIENTLY ADDRESSED BY THE EXISTING INSTITUTIONAL FRAMEWORK

Analysis of the existing institutional framework's coverage of priority problems and contributing factors, as presented in Exhibits 4-9 through 4-15 and the accompanying text, reveals that thirteen contributing factors are not sufficiently addressed by the existing institutional framework. These contributing factors, or gaps in the management framework, are presented in Exhibit 4-16.

Exhibit 4-16. Contributing Factors that are not Sufficiently Addressed

1. Contributing Factor A5	Water conservation, reuse, and technology advances
2. Contributing Factor B4	Over-utilization of living resources
3. Contributing Factor C7	Disturbance of submerged habitats from trawling, prop washing and other activities
4. Contributing Factor D4	Persistent brown tide events in the upper Laguna Madre
5. Contributing Factor D5	Tidal discharge of oil field produced waters
6. Contributing Factor D10	Atmospheric pollution
7. Contributing Factor E3	Mods. to natural passes and benthic features (e.g., oyster reefs and seagrass beds)
8. Contributing Factor E5	Artificial barriers to water circulation (e.g., causeway, groins and jetties)
9. Contributing Factor E7	Industrial intakes/discharges
10. Contributing Factor F3	Oil exploration/production facilities
11. Contributing Factor F8	Industrial and construction sites
12. Contributing Factor G1	Deposition of bioaccumulating toxic substances into the estuary
13. Contributing Factor G3	Existing sediment sources of toxics

The final chapter of this report, Chapter 5, presents recommendations on how to fill these gaps, as well as other recommendations for efficient use of the institutional framework to support CCMP implementation.

Table of Contents

5. RECOMMENDATIONS

The purpose of this chapter is to provide recommendations that will help enable the institutional framework to address CCBNEP priority problems as thoroughly and efficiently as possible. To accomplish this purpose, the chapter is divided into three sections. The first section explains how to address those contributing factors that lack sufficient attention from the institutional framework. The second section highlights the ability of institutions to accept greater responsibilities in attacking CCBNEP priority problems. This section can be used in conjunction with the first section to select institutions to handle specific tasks. The third section presents other general recommendations developed by the Project Team over the course of this project.

SPECIFIC RECOMMENDATIONS TO ADDRESS GAPS

This section presents recommendations on how to address those contributing factors that are receiving too little attention from the institutional framework. The section lists each contributing factor that represents a gap, provides a general recommendation on how to eliminate the gap, and lists institutions with missions that make them suitable candidates to help combat the contributing factor.

Recommendation for Contributing Factor A5:
Effects of water conservation, reuse, and technology advances on freshwater inflows.

Encourage institutions that are currently involved to conduct specific activities to understand and curb the effects of conservation, reuse, and technology advances on freshwater inflows. Recruit other institutions to take actions that will directly combat this contributing factor.

Exhibit 5-1. Candidate Institutions to Fill Gap A5

Institutions with Well Matched Missions	*Institutions with Generally Matched Missions*
• Environmental Protection Agency • Coastal Coordination Council • City of Corpus Christi • Other cities • Drainage districts • Guadalupe Blanco River Authority	• National Marine Fisheries Service • U.S. Fish and Wildlife Service • U.S. Army Corps of Engineers • Texas Parks and Wildlife Department • Coastal Bend Council of Governments

Recommendation for Contributing Factor B4:
Over-utilization of living resources.

Secure help from more institutions, especially regional and local organizations, to prevent over-utilization of living resources. Regional and local institutions could be extremely helpful in educating the public about how to manage resource use effectively. In addition, ensure that those institutions already involved in this contributing factor cover the full range of living resources, including plants, birds, shellfish, and others.

Exhibit 5-2. Candidate Institutions to Fill Gap B4	
Institutions with Well Matched Missions	***Institutions with Generally Matched Missions***
• Natural Resources Conservation Service • National Park Service • Environmental Protection Agency • Texas Nat. Res. Conservation Commission • City of Corpus Christi • Other cities • Coastal Bend Bays Foundation	• U.S. Army Corps of Engineers • Port of Corpus Christi Authority

Recommendation for Contributing Factor C7:
Disturbance of submerged habitats from trawling, prop washing and other activities.

Encourage involved institutions to develop specific programs to reduce disturbance of submerged habitats. Also invite regional or local institutions with broad jurisdictions, such as cities, to help preserve submerged habitats.

Exhibit 5-3. Candidate Institutions to Fill Gap C7	
Institutions with Well Matched Missions	***Institutions with Generally Matched Missions***
• Natural Resources Conservation Service • National Ocean Service • U.S. Army Corps of Engineers • U.S. Fish and Wildlife Service • U.S. Geological Survey • Texas Nat. Res. Conservation Commission	• City of Corpus Christi • Other cities • Coastal counties

Recommendation for Contributing Factor D4:
Persistent brown tide events in the upper Laguna Madre.

Enlist the help of as many institutions as possible to help control brown tide (institutions with research functions could be especially valuable). The large number of institutions with a stake in water quality provides many possibilities for increased support.

Exhibit 5-4. Candidate Institutions to Fill Gap D4	
Institutions with Well Matched Missions	***Institutions with Generally Matched Missions***
• National Biological Service • U.S. Fish and Wildlife Service • Coastal Coordination Council • Texas General Land Office • Texas Nat. Res. Conservation Commission • Texas Parks and Wildlife Department	• National Ocean Service • City of Corpus Christi • Other cities • Texas State Aquarium

Recommendation for Contributing Factor D5:
Tidal discharge of oil field produced waters.

Recruit regional and local organizations to play a role in combating tidal discharge of oil field produced waters. Support from local institutions could bolster work being conducted by federal agencies and state programs.

Exhibit 5-5. Candidate Institutions to Fill Gap D5	
Institutions with Well Matched Missions	***Institutions with Generally Matched Missions***
• Texas General Land Office • Coastal Bend Bays Foundation	• National Ocean Service • U.S. Fish and Wildlife Service • City of Corpus Christi • Other cities • Coastal counties

Recommendation for Contributing Factor D10:
Effects of atmospheric pollution on water quality.

The three agencies already involved in this contributing factor are the best suited to address atmospheric pollution, so it may be desirable to expand their involvement. Since work on this contributing factor is currently confined mostly to research activities, obtain additional support from institutions that have broad authority to conduct research on water quality issues (e.g., universities and the Gulf of Mexico Program).

Exhibit 5-6. Candidate Institutions to Fill Gap D10	
Institutions with Well Matched Missions	***Institutions with Generally Matched Missions***
• Texas Department of Transportation • Coastal Bend Bays Foundation	• National Marine Fisheries Service • U.S. Fish and Wildlife Service • National Ocean Service • Texas Parks and Wildlife Department • Coastal Bend Council of Governments

Recommendation for Contributing Factor E3:
Modifications to natural passes and benthic features (e.g., oyster reefs and seagrass beds) and their effects on estuarine circulation.

Obtain support from regional or local institutions to control the effects of modifications to bay bottoms on estuarine circulation. While several federal and state institutions are implementing substantial actions, regional and local organizations could help solidify efforts.

Exhibit 5-7. Candidate Institutions to Fill Gap E3	
Institutions with Well Matched Missions	***Institutions with Generally Matched Missions***
• U.S. Army Corps of Engineers • Texas Nat. Res. Conservation Commission • Port of Corpus Christi Authority • Navigation districts • Coastal Bend Bays Foundation	• Texas State Aquarium

Recommendation for Contributing Factor E5:
Artificial barriers to water circulation.

Enlist support from regional and local institutions to help the federal and state network address artificial barriers to water circulation. Also encourage action-oriented programs to bolster research efforts directed at this contributing factor.

Exhibit 5-8. Candidate Institutions to Fill Gap E5	
Institutions with Well Matched Missions	***Institutions with Generally Matched Missions***
• National Marine Fisheries Service • Environmental Protection Agency • Texas Nat. Res. Conservation Commission • Texas Parks and Wildlife Department • Port of Corpus Christi Authority • Navigation districts	• U.S. Geological Survey • Coastal Bend Council of Governments

Recommendation for Contributing Factor E7:
Effects of industrial intakes/discharges on estuarine circulation.

Encourage EPA and TNRCC to expand their efforts and develop targeted programs to prevent industrial activities from interfering with estuarine circulation. In addition, solicit other institutions to adopt roles to handle this contributing factor.

Exhibit 5-9. Candidate Institutions to Fill Gap E7	
Institutions with Well Matched Missions	***Institutions with Generally Matched Missions***
• Coastal Coordination Council • Railroad Commission of Texas • City of Corpus Christi • Other cities • Coastal Bend Bays Foundation	• U.S. Geological Survey • Texas General Land Office

Recommendation for Contributing Factor F3:
Debris from oil exploration/production facilities.

Spread the responsibility of handling debris from oil facilities to more institutions, including regional and local ones. Also encourage institutions that are currently addressing this contributing factor through broad programs to target their efforts.

Exhibit 5-10. Candidate Institutions to Fill Gap F3	
Institutions with Well Matched Missions	***Institutions with Generally Matched Missions***
• Coastal Coordination Council • Texas General Land Office • Texas Nat. Res. Conservation Commission • City of Corpus Christi • Other cities • Coastal counties	• National Marine Fisheries Service • U.S. Fish and Wildlife Service • Texas Parks and Wildlife Department • Texas State Aquarium

Recommendation for Contributing Factor F8:
Debris from industrial and construction sites.

Much like Contributing Factor F3, Contributing Factor F8 is addressed by a solid, though relatively small, network of institutions. However, most of the institutions do not have targeted programs to stop debris specifically caused by industrial and construction sites. Thus, in addition to spreading the responsibilities of handling this contributing factor to other institutions, the current institutions that are involved should consider targeting this particular source of debris.

Exhibit 5-11. Candidate Institutions to Fill Gap F8	
Institutions with Well Matched Missions	***Institutions with Generally Matched Missions***
• Texas General Land Office • City of Corpus Christi • Other cities • Coastal Bend Council of Governments • Coastal counties • Texas State Aquarium	• Railroad Commission of Texas • Drainage districts

Recommendation for Contributing Factor G1:
Deposition of bioaccumulating toxic substances into the estuary.

This contributing factor is addressed mostly through broad efforts to protect water quality and public health. Therefore, encourage institutions to implement explicit toxic reduction programs. Enlist more regional and local institutions to complement the efforts of federal agencies and state programs. Given the scientific nature of the work on this contributing factor, though, very few local organizations have the technical capability to provide substantial services. Thus, the efforts of the institutions that are currently involved may need to be expanded and shared by other federal and state institutions.

Exhibit 5-12. Candidate Institutions to Fill Gap G1	
Institutions with Well Matched Missions	***Institutions with Generally Matched Missions***
• National Biological Service • Tex. St. Soil and Water Conservation Board • Soil and water conservation districts • Coastal Bend Bays Foundation	• City of Corpus Christi • Other cities • Texas State Aquarium

Recommendation for Contributing Factor G3:
Existing sediment sources of toxics.

Encourage institutions to implement programs expressly designed to handle toxic sediment. Secure more help from regional and local institutions that have the technical capability to provide substantial assistance.

Exhibit 5-13. Candidate Institutions to Fill Gap G3	
Institutions with Well Matched Missions	***Institutions with Generally Matched Missions***
• Texas Department of Health • Coastal Bend Bays Foundation	• U.S. Army Corps of Engineers • Texas General Land Office • Texas Parks and Wildlife Department • Port of Corpus Christi Authority • Navigation districts

ABILITY OF INSTITUTIONS TO ADOPT EXPANDED ROLES

Many institutions could accept a greater role in coping with the various contributing factors. Some institutions have a mission statement or legal authority that would seemingly allow them to adopt additional tasks without a problem. Others can only adopt new tasks by first obtaining additional legal authority. Thus, criteria that are examined for these institutions are:

- Ability to secure additional revenues;
- Ability to expand workloads;
- Existence of political factors that might impede expansion of activities; and
- Ability to obtain legal authority to adopt activities.

The Project Team recommends that CCBNEP use these criteria in selecting candidate institutions to fill gaps in the management framework, assume greater roles, or conduct entirely new activities. Exhibit 5-15 reveals information on these criteria for each institution. Information was collected from responses to the questionnaire found in Appendix B. Institutions rated their capabilities using a scale of 1 to 5 and a corresponding range of descriptive terms. Exhibit 5-14 presents the rating system used for the effectiveness analysis. For ease of reporting, only descriptive terms are used in Exhibit 5-15.

Exhibit 5-14. Interpretation of Institutional Ratings for Ability to Adopt Roles

Institutional Rating	Interpretation		
	Ability to secure additional revenues	***Ability to expand workloads***	***Ability to obtain legal authority***
1	**None**	**None**	**None**
2	**Limited**	**Limited**	**Limited**
3	**Reasonable**	**Reasonable**	**Reasonable**
4	**Solid**	**Solid**	**Solid**
5	**Exceptional**	**Exceptional**	**Exceptional**

Exhibit 5-15. Institutional Ability to Expand Roles				
Institution	**Ability to secure additional revenues**	**Ability to expand workloads**	**Political factors that impede expansion of activities**	**Ability to obtain legal authority to adopt activities**
Consolidated Farm Service Agency	None.	None. All workloads and budgets are mandated by the Secretary of Agriculture.	Tight control by the Secretary of Agriculture.	None.
Natural Resources Conservation Service	Exceptional. NRCS can increase its funding from appropriations, EPA, and local governments.	Exceptional. If the agency can acquire more funding and staff, it can easily expand.	None.	Solid.
National Marine Fisheries Service	Solid. NMFS can impose fees on fisheries and other user fees.	None. The agency is affected by the sentiment to shrink government.	Reductions in government spending and demand for increased productivity.	Solid.
National Ocean Service	None.	Reasonable. NOS can selectively add duties that fall under specific mandates.	Very few. The agency is well removed from centers of political power.	Very limited.
U.S. Army Corps of Engineers	Solid. USCOE has the ability to secure federal funds.	Solid. Along with funding, USCOE can expand workloads.	None.	Reasonable. It is possible for the Corps to obtain additional legal authority.
Bureau of Reclamation	Reasonable. The Bureau can obtain appropriations or cooperate with other agencies.	Reasonable. Present staff levels may allow expansion.	None.	Limited.
National Biological Service	None.	Very limited.	Proposed abolishment by Congress and limited resources.	Almost none. NBS could conceivably conduct projects through sister agencies.
National Park Service	Limited. NPS has little chance of increasing its federal or state appropriations.	Reasonable. NPS can expand workloads, but it needs to set priorities to handle a lack of staff.	Protection of CCBNEP resources is not in NPS's mandate, and the agency faces jurisdictional constraints.	Very limited. NPS has almost no chance of receiving additional authority from Congress.
U.S. Fish and Wildlife Service	None.	Very limited. The agency is overflowing with work; it must set priorities.	Efforts depend on agency resource allocation, and the CCBNEP study area receives few resources.	Very limited. The agency can only obtain authority from Congress.

Exhibit 5-15. Institutional Ability to Expand Roles				
Institution	**Ability to secure additional revenues**	**Ability to expand workloads**	**Political factors that impede expansion of activities**	**Ability to obtain legal authority to adopt activities**
U.S. Geological Survey	Reasonable. USGS can obtain federal funding or support from state and local programs.	Relatively good. USGS has available resources and cooperative agreements with other agencies.	Budget cuts and Congressional attempts to eliminate the agency.	Insufficient information available to evaluate.
U.S. Coast Guard	Reasonable. Success obtaining funding is specific to sites and projects.	Limited. Current staff is at its limit.	Categorization of missions by Congress and inability to regulate all segments of marine industries.	Limited. It is difficult to obtain such authority, but it does happen.
Environmental Protection Agency	Limited. EPA has little chance of stretching base program or regional budgets.	Solid. EPA continually receives more work and finds a way to complete it.	EPA administrator is an appointee and funding is controlled by Congress.	Limited. EPA cannot obtain extra authority, but it can often influence the activities of other agencies.
Coastal Coordination Council	Limited. No additional funding is likely for the Coastal Management Program (CMP).	Limited. Implementation of the CMP will stretch staff resources.	None.	Variable. CCC can receive authority from the legislature, but it could be difficult to obtain for regulatory issues.
Railroad Commission of Texas	Limited.	Limited. RRCT lacks available resources.	None.	Reasonable. RRCT can obtain authority more easily than funding.
Texas A&M University System	Insufficient information available to evaluate.	Insufficient information available to evaluate.	Insufficient information available to evaluate.	Insufficient information available to evaluate.
Texas Department of Agriculture	Limited.	Reasonable. TDA has room to grow and does not necessarily need funding.	None.	None.
Texas Department of Health	Variable. TDH can get funding for shellfish, but it cannot for other programs.	Variable. TDH can only expand workloads where additional funding (e.g. oyster fees) is available.	Funding process.	Solid to exceptional. TDH can obtain legal authority, although it may take several years.
Texas Department of Transportation	None. TxDOT has no control over its funding.	Limited. The budget and staff size are mandated by the legislature.	None.	None.

Exhibit 5-15. Institutional Ability to Expand Roles				
Institution	**Ability to secure additional revenues**	**Ability to expand workloads**	**Political factors that impede expansion of activities**	**Ability to obtain legal authority to adopt activities**
Texas General Land Office	Limited. The GLO has a slight chance of increasing funding from federal grants, partnerships, and state appropriations.	Exceptional. The agency is always willing to accept more work.	Interagency turf battles and hostility from interest groups.	Solid.
Texas Natural Resource Conservation Commission	Reasonable. TNRCC can obtain limited federal grants, which require state matching funds.	Limited. Administering extra workloads may be a problem.	Budget process.	Limited.
Texas Parks and Wildlife Department	Limited. TPWD is operating under self-imposed budget cuts.	Limited. Expansion of workloads is possible, but it may decrease the agency's effectiveness.	None.	Limited.
Texas State Soil and Water Conserv. Board	Limited.	None. Staff are overworked already.	Lack of authority and staff.	Variable. Ability depends on legislative support for the activity in question.
Texas Water Development Board	Limited. Funding has been decreasing while responsibilities have been increasing.	Limited. There workloads have been increasing without adding staff.	Sentiment to decrease the power and expenditures of government agencies.	Reasonable. TWDB can obtain extra authority, but it usually forms partnerships instead to conduct new activities.
University of Texas System	Reasonable. UT can receive additional federal and state funding, as well as donations.	None. Without more funding, the staff is working at peak capacity.	Lower state budgets for higher education and favoritism toward smaller universities.	None. UT's authority allows diverse activities, but it cannot overstep its authority (e.g., research for profit).
City of Corpus Christi	None.	Limited. The city is already stretching its workload with its current resources.	Ability to generate revenue and a strong anti-tax sentiment in the community.	Reasonable. The city can obtain authority, but it is subject to the decisions and schedule of the legislature.
Other cities	Variable. Sampled cities ranged from no ability to solid ability. Grants and taxes are a source of funding for some.	Limited to reasonable. Cities have some ability to expand workloads, but face various staffing situations.	Most cities express no political impediments, but local politics in the area are variable.	Reasonable to solid. Cities seem to have the ability and desire to obtain extra authority to conduct certain projects.

Exhibit 5-15. Institutional Ability to Expand Roles				
Institution	**Ability to secure additional revenues**	**Ability to expand workloads**	**Political factors that impede expansion of activities**	**Ability to obtain legal authority to adopt activities**
Coastal Bend Council of Governments	Limited. EPA fines on industry for pollution are a potential source of revenue.	None. CBCOG has rejected worthy projects because it has more work than it can handle.	Lack of access to rural areas, interagency disagreements, and lack of authority among counties.	None. CBCOG has been unable to conduct any programs outside of its jurisdiction.
Coastal Counties	Reasonable to solid. Counties are able to get additional funding from fees, grants, and taxes.	Limited to solid. Counties generally are able to conduct more activities, although each county faces different constraints.	None.	Variable. Some counties are unwilling to consider any activities beyond their jurisdiction, while others have an exceptional ability to obtain additional authority.
Drainage Districts	Variable. Districts can secure grants or collect taxes, but both can be extremely difficult.	Limited. Districts already must cope with trimmed staffs and equipment.	None.	Reasonable.
Guadalupe Blanco River Authority	Variable.	Limited. GBRA has many ideas for expansion, but limited funding.	None.	Variable. GBRA's ability depends on how serious the activity is and the existence of a lobbying effort.
Gulf of Mexico Program	Reasonable. The Program can potentially receive Congressional funding increases.	Reasonable. The Program constantly expands its workload.	Anti-environmental political climate and lack of funding.	Limited. Rather than obtaining authority, the Program works with agencies that have authority.
Navigation Districts	Insufficient information available to evaluate.	Insufficient information available to evaluate.	Insufficient information available to evaluate.	Insufficient information available to evaluate.
Nueces River Authority	Limited.	Limited. NRA requires additional funding to accept greater workloads.	None.	Solid.
Port of Corpus Christi Authority	Limited to reasonable. PCCA has taxing authority, but it does not exercise it and is unlikely to do so now.	Solid. PCCA can contract with service providers and manage available staff effectively.	Lack of ability and desire to pay for certain programs.	Limited to reasonable. PCCA can generate new authority, but it tries to avoid this when another agency has such authority.

Exhibit 5-15. Institutional Ability to Expand Roles				
Institution	**Ability to secure additional revenues**	**Ability to expand workloads**	**Political factors that impede expansion of activities**	**Ability to obtain legal authority to adopt activities**
Soil and water conservation districts	None to limited. SWCDs have little or no chance of obtaining additional funding.	Limited. SWCDs cite small or shrinking staffs and increased burdens as reasons for limited ability.	None.	Variable. Some SWCDs have experienced problems obtaining authority, but others use interagency partnerships to adopt additional activities.
Coastal Bend Bays Foundation	Exceptional. CBBF can obtain funding from other foundations and from industry.	Reasonable. Dependent upon funding and staff.	Lack of responsibility for land use planning in the government, and lack of authority among counties.	Unnecessary. CBBF does not have or require legal authority; no activity is beyond its authority.
Texas State Aquarium	Reasonable. TSA can expand revenues from foundations to bolster federal and state funding.	Exceptional. TSA has available staff to handle increased workloads.	Lack of implementation of the Coastal Management Plan and interagency turf battles.	None. TSA is mostly restricted to educational programs.

GENERAL RECOMMENDATIONS

The recommendations below are intended to suggest steps CCBNEP and institutions concerned about the health of the CCBNEP study area can take to maintain and enhance important bay management efforts. They reflect a common-sense approach that emphasizes coordination, cooperation, and partnerships to leverage scarce resources in a way that makes the most effective use of the tools available to manage study area resources.

- **CCBNEP should use information contained in the exhibits in this report to slate institutions for specific roles.**
  - ◊ CCBNEP should rely heavily on those institutions that are most involved. Exhibit 4-2 is a matrix that displays each institution's involvement in addressing CCBNEP priority problems.
  - ◊ CCBNEP should especially enlist the help of those institutions with the broadest authority. Exhibits 4-3 through 4-5 provide information on the legal scope for implementing activities related to CCBNEP goals.
  - ◊ CCBNEP should attempt to expand the activities of those institutions that are doing less than their missions allow. Exhibit 4-6 is a matrix that indicates the level of compatibility between the missions of the institutions and the actions implemented by the institutions.
  - ◊ CCBNEP should consider institutional effectiveness when assigning roles. Exhibit 4-8 provides information on the effectiveness of each institution and methods of measuring effectiveness.
  - ◊ CCBNEP should review the comprehensiveness of efforts to eliminate each contributing factor. Exhibits 4-9 through 4-15 present information on the number of institutions addressing each contributing factor.
  - ◊ Address selected contributing factors are the most in need of attention. Exhibit 4-16 displays which contributing factors are insufficiently addressed by the existing institutional framework.
  - ◊ CCBNEP can find with candidate institutions to fill the gaps noted in Exhibit 4-15 in Exhibits 5-1 through 5-13.
  - ◊ CCBNEP can use information on the ability of institutions to accept additional roles in solving CCBNEP priority problems (Exhibit 5-15) to choose candidates from Exhibits 5-1 through 5-13.

- **Maintain current level of effort.**
  - ◊ Because strong managerial networks address many of the contributing factors, CCBNEP should attempt to obtain commitments from active institutions to continue beneficial programs and activities.
  - ◊ For example, Contributing Factor D3, nonpoint sources, is well covered by the existing institutional framework. CCBNEP should try to preserve that framework.

- **Fully utilize and direct research institutions.**
  - ◊ For any special projects or support of ongoing activities, CCBNEP should consider enlisting help from research "generalists." These are the institutions that do not regularly address contributing factors, but are involved in many aspects related to the priority problems. Some of these are the university systems, the Gulf of Mexico Program, the Texas State Aquarium, and numerous non-governmental organizations (see Chapter 3).
  - ◊ CCBNEP should consider these institutions strong candidates to coordinate information, especially for the purposes of research and public education.
  - ◊ CCBNEP should obtain as much assistance from these institutions as possible. The "generalists" are often less susceptible to political impediments and administrative difficulties than other institutions.
  - ◊ Given the limited resources of many of these institutions, often coupled with high levels of expertise on many issues, CCBNEP should assign projects judiciously.

- **CCBNEP should seek increased involvement from regional and local institutions.**
  - ◊ Although many regional and local organizations have limited authority compared to federal and state institutions, they can play a major role in solving CCBNEP priority problems.
  - ◊ Regional and local institutions tend to have less technical expertise than federal and state programs, but they usually have a stronger idea of the extent and causes of problems in local areas. They are also closer to their constituencies, which is an important aspect for CCBNEP's consensus-building efforts.
  - ◊ Involvement of local organizations to the greatest extent possible will help maintain long-term efforts to protect the estuary and its resources.

- **In thinking about the best arrangements for tackling each contributing factor, CCBNEP should consider which institutions are in the best position to play coordination roles.**
  - ◊ Such institutions are generally unaffected by political factors, have a strong local presence, and are involved in most, if not all, priority problems.
  - ◊ Recommended institutions include the Texas A&M University System, University of Texas System, City of Corpus Christi, Coastal Bend Council of Governments, and Port of Corpus Christi Authority.
  - ◊ With certain agencies playing a coordinating role, CCBNEP can benefit from interagency partnerships that enable institutions to increase their level of effort without using additional resources.
  - ◊ Along with CCBNEP supervision, such coordinating institutions can prevent any duplicative actions among the management framework.

Table of Contents

6. REFERENCES

Agricultural Extension and Experimentation: Matrix for Describing Program Activity in the CCBNEP Study Area.

Board of Trade, Port of Corpus Christi, *Public Outreach Campaign Summary*.

James E. Bruseth, Texas Historical Commission, *Compliance With Laws to Protect Historical Sites: A User's Guide for Project Sponsors*, May 1994.

Robert G. Buckley, *Agency Strategic Plan for the 1995-1999 Period*, Texas State Soil and Water Conservation Board, June 1, 1994.

Robert G. Buckley, *Status of Implementation of Agricultural and Silvicultural Nonpoint Source Pollution Management Programs in Texas*, Texas State Soil and Water Conservation Board.

City of Corpus Christi, Texas, *Corpus Christi Policy Statements - An Element of the Comprehensive Plan*.

Coastal Conservation Association, *Tide*, July-August 1993.

Corpus Christi Bay Area Business Alliance, *Program of Work*.

Sally Davenport, Texas General Land Office, *CCBNEP Management Structure Survey*.

Bobby R. Eddleman, The Texas A&M University System, Texas Agricultural Experiment Station, *CCBNEP Management Structure Survey*,. *Strategic Plan FY 1995-1999*, April 1994.

Galveston Bay National Estuary Program, Summary: *The Galveston Bay Plan, A Comprehensive Conservation Management Plan, Draft,* April 1994.

Cheri J. Gossett, *The Rising Tide*, Coastal Conservation Association, December, 1993.

Gary Graham and Dewayne Hollin, *Fuel Efficiency Analysis of Trawl Nets in the Gulf of Mexico Shrimp Fisheries*, Texas A&M University, Marine Advisory, Sea Grant College Program, January 1993.

Greater Corpus Christi Business Alliance, Economic and Community Development Department, *Economics and Demographic: Corpus Christi MSA*, January 1995.

Michael G. Haby et al., *The Importance of Seafood-Linked Employment and Payroll in Texas*, Texas Marine Advisory Service, May 1993.

Susan G. Hadden, *Environmental Management Inventory of Galveston Bay,* Galveston Bay National Estuary Program, October 1992.

Susan G. Hadden, *Framework for Action: Galveston Bay Management Evaluation,* Galveston Bay National Estuary Program, January 1993.

Michael Halby, Dewayne Hollin, and Mel C. Russell, *Texas Commercial Fisheries Profile*, Texas A&M University, Marine Advisory, Sea Grant College Program, October 1989.

John Hall, Pam Reed, and Peggy Garner, *Request for Legislative Appropriations for Fiscal Years 1996 and 1997,* August 31, 1994.

Mike Hightower, *An Interpretative Manual for Texas Coastal Wetlands - Laws, Regulations, and Policies*, Texas General Land Office, Coastal Management Program, April, 1993.

Mike Hightower, *The Functions and Values of Coastal Wetlands*, Texas A&M Sea Grant College Program, April 1993.

Mike Hightower, Charles Branton, and Granvil Treece, *Interim Guide: Governmental Permitting and Regulatory Requirements Affecting Texas Coastal Aquaculture Operations*, July 1990.

Nancy Adele Kenmotsu, *Protecting Significant Archeological Sites Through Designation: A User's Guide for the Public*, Texas Historical Commission, May 1994.

Garry Maurs, *Requests for Legislative Appropriations, Fiscal Years 1996 and 1997,* August 31, 1994.

Roni Morales, Texas Historical Commission, *Biennial Report*.

James E. Nugent and Bob Krueger, *Requests for Legislative Appropriations for Fiscal Years 1994 and 1995*, Railroad Commission of Texas, September 28, 1992.

Port of Corpus Christi, *Channels*, Volume 6, Number 2, Spring 1994.

Rob and Bessie Welder Wildlife Foundation, *Biennial Report*, 1992-1993.

Frank S. Shipley and Russell W. Kiesling, *The State of the Bay: A Characterization of the Galveston Bay Ecosystem,* Galveston Bay National Estuary Program, March 1994.

Bob Spain, *Resource Protection in Texas - A Staff Guide to Making it Work*, Texas Parks and Wildlife Department, Environmental Policy.

Steve Stein, *Padre Island: The Oil Underneath*, Corpus Christi Caller Times, April 16, 1995, p. G1-G2.

Texas A&M University, *Graduate Catalog*, Volume 22, Number 2, May 1994.

Texas A&M University, *Texas Shoreline*, Volume 6, Number 4, October 1993.

Texas A&M University, *Texas Shoreline*, Volume 6, Number 3, July 1993.

Texas A&M University Corpus Christi, *Catalog 1994-1995*, July 1994.

Texas A&M University Corpus Christi, Center for Coastal Studies, Research Education Service, *Annual Report 1993-1994 (FY 94) Ten Year Anniversary.*

Texas A&M University Corpus Christi, *Coastal Oilspill Simulation System*.

Texas A&M University, Sea Grant College Program, *Shoreline*, Volume 7, Number 1, December 1993.

Texas A&M University, Sea Grant College Program, *Shoreline*, Volume 7, Number 2, May 1994.

Texas A&M University, Sea Grant College Program, *Shoreline*, Volume 7, Number 3, July 1994.

Texas A&M University, Sea Grant College Program, *Shoreline*, Volume 7, Number 4, October 1994.

The Texas A&M University System, *Environmental Food, Science, Safety, and Engineering, Intrasystem Initiative Report, Strategic Plan Fiscal Years 1992-1995*, November 1990.

The Texas A&M University System, *Environmental Marine Science and Engineering, Intrasystem Initiative Report, Strategic Plan Fiscal Years 1992-1995*, November 1990.

The Texas A&M University System, *Environmental Quality Intrasystem Initiative Report, Strategic Plan Fiscal Years 1992-1995*, November 1990.

The Texas A&M University System, *Environmental Toxicology, Intrasystem Initiative Report, Strategic Plan Fiscal Years 1992-1995*, November 1990.

The Texas A&M University System, *Environmental Water Resources, Intrasystem Initiative Report, Strategic Plan Fiscal Years 1992-1995*, November 1990.

The Texas A&M University System, *Executive Summary, Strategic Plan Fiscal Years 1992-1995*.

The Texas A&M University System, *Executive Summary, Strategic Plan Fiscal Years 1995-1999.*

The Texas A&M University System, *Intrasystem Initiatives, Strategic Plan Fiscal Years 1992-1995.*

Texas A&M University, Texas A&M Sea Grant College Program, *Program Directory*.

The Texas Clean Rivers Program, *The Clean Rivers Program Long Term Action Plan 1991-2000*.

Texas Coastal Management Program, *On the Coast - A Bimonthly Newsletter of the Texas Coastal Management Program*, January-February 1995.

Texas Department of Agriculture, *Requests for Legislative Appropriations Fiscal Years 1996 and 1997*, August 31, 1994.

Texas Department of Health, *Fiscal Year 1994 Operating Budget.*

Texas Department of Health, Division of Shellfish Sanitation Control, *Texas Molluscan Shellfish Rules*, August 1, 1993.

Texas General Land Office, *EnviroNomics*, Volume 2, Number 3, Winter 1993.

Texas General Land Office, *EnviroNomics*, Volume 3, Number 1, Spring/Summer 1994.

Texas General Land Office, *OSPRA Update*, Oil Spill Prevention and Response Act, Fall 1994.

Texas General Land Office, *Protecting Our Heritage - 1993-1994*.

Texas General Land Office, *Resource Management Program - Quality Environmental Management for Texas*.

Texas General Land Office, *Texas Beach Bulletin*, Volume 7, Number 2, Summer 1994.

Texas General Land Office, *Texas Beach Bulletin*, Volume 7, Number 3, Winter 1995.

Texas General Land Office, *Texas Coastal Management Program - A Cooperative Approach*.

Texas General Land Office, *Texas Coastal Management Plan*.

Texas General Land Office, Texas Coastal Management Program, *A Plan for the Future*.

Texas General Land Office, *The Texas General Land Office and the Environment - A Record of Responsibility and Achievement*, 1993.

Texas Historical Commission, Department of Antiquities Protection, *Antiquities Code of Texas*, September 1, 1987.

Texas Historical Commission, Department of Antiquities Protection, *CFR Part 800 - Protection of Historic Properties*.

Texas Historical Commission, Department of Antiquities Protection, *Texas Antiquities Committee - Rules of Practice and Procedure, Chapter 41*.

Texas Historical Commission, Department of Antiquities Protection, Advisory Council on Historic Preservation, *The National Historic Preservation Act of 1966, as amended*, 1993.

Texas Historical Commission Antiquities Committee, Texas Sunset Advisory Commission, *Staff Report - 1994*, March 1994.

Texas Natural Resource Conservation Commission, *Employee Handbook*, September 1994.

Texas Natural Resource Conservation Commission, *Guide to the Texas Natural Resource Conservation Commission*, March 1994.

Texas Natural Resource Conservation Commission, *Introduction to the Technical Programs of the Texas Natural Resource Conservation Commission - Reference Manual*, January 1, 1995.

Texas Natural Resource Conservation Commission, *The Texas Clean Rivers Program*, August 1994.

Texas Natural Resource Conservation Commission, *The Texas Environment*, Spring 1994.

Texas Natural Resource Conservation Commission, *The Texas Environment*, Winter 1994.

Texas Natural Resource Conservation Commission, *Texas Utilities Update*, Volume 5, Issue 1, January, 1995.

Texas Natural Resource Conservation Commission, *TNRCC Consolidation Update*, August 1993.

Texas Natural Resource Conservation Commission, Agricultural and Rural Assistance Division, *Texas Watch*.

Texas Natural Resource Conservation Commission, Environmental Partnerships, *Clean Texas 2000*, July 1994.

Texas Natural Resource Conservation Commission, Water Utilities Division, *What is a Water District*, September 1994.

Texas Parks and Wildlife Department, *Natural Agenda: A Strategic Plan for Texas Parks and Wildlife, 1995-1999*.

Texas Sea Grant College Program, *Texas Shores*, Volume 27, Number 2, Summer 1994.

Texas Sea Grant College Program, *Texas Shores - Competing for Space*, Volume 24, Number 3, Fall 1991.

Texas Sea Grant College Program, *Texas Shores -Recognizing Corpus Christi Bay*, Volume 27, Number 1, Spring 1994.

Texas Sea Grant College Program, *Texas Shores - A Reflective Forecast*, Volume 26, Number 4, Winter 1994.

Texas Sea Grant College Program, *Texas Shores - Research By the Sea*, Volume 22, Number 1, Spring 1989.

Texas Sea Grant College Program, *Texas Shores - Setting In-Once Again*, Volume 27, Number 3, Fall 1994.

Texas Sea Grant College Program, *Texas Shores - Warning: Toxic Texas*, Volume 25, Number 4, Winter 1993.

Texas State Soil and Water Conservation Board and Texas Soil and Water Conservation Districts, *Directory*.

Texas State Soil and Water Conservation Board and Texas Soil and Water Conservation Districtss, *Nonpoint Source Pollution and Groundwater*.

Texas State Soil and Water Conservation Board, *You Have a Choice*.

Texas Water Development Board, *Agency Strategic Plan for the 1995-1999 Period*, June 1, 1994.

United States Bureau of the Census, *County and City Data Book: 1994*, Washington, DC: U.S. Government Printing Office, 1994.

United States Coast Guard, Marine Safety Office, *South Texas Area Contingency Plan*, Corpus Christi, Texas.

United States Department of Health and Human Services, Food and Drug Administration, *National Shellfish Sanitation Program Manual of Operations, Part I - Sanitation of Shellfish Growing Areas*, 1993.

United States Department of Health and Human Services, Food and Drug Administration, *National Shellfish Sanitation Program Manual of Operations, Part II - Sanitation of the Harvesting, Processing and Distribution of Shellfish*, 1993.

United States Department of the Interior, National Park Service, *Padre Island - Official Map and Guide, National Seashore Texas.*

United States Environmental Protection Agency, *The New Generation of Environmental Protection - A Summary of EPA's Five-Year Strategic Plan*, 200-2-94-001, July 1994.

United States Environmental Protection Agency, Gulf of Mexico Program, 800-K-94-003, *Coastal and Shoreline Erosion Action Agenda for the Gulf of Mexico,* July 1994.

United States Environmental Protection Agency, Gulf of Mexico Program, *Freshwater Inflow Action Agenda for the Gulf of Mexico,* 800-K-94-006, July 1994.

United States Environmental Protection Agency, Gulf of Mexico Program, 800-K-94-002, *Habitat Degradation Action Agenda for the Gulf of Mexico,* July 1994.

United States Environmental Protection Agency, Gulf of Mexico Program, 800-K-94-007, *Living Aquatic Resources Action Agenda for the Gulf of Mexico*, July 1994.

United States Environmental Protection Agency, Gulf of Mexico Program, 800-K-93-002, *Marine Debris Action Agenda for the Gulf of Mexico*, September 1993.

United States Environmental Protection Agency, Gulf of Mexico Program, *Nutrient Enrichment Action Agenda for the Gulf of Mexico*, 800-K-94-004, July 1994.

United States Environmental Protection Agency, Gulf of Mexico Program, *Public Health Action Agenda for the Gulf of Mexico*, 800-K-93-001, September 1993.

United States Environmental Protection Agency, Gulf of Mexico Program, *Toxic Substances and Pesticides Action Agenda for the Gulf of Mexico*, 800-K-94-005, July 1994.

United States Fish and Wildlife Service, *Meeting Our Coastal Challenges*.

United States Environmental Protection Agency and Texas General Land Office, *Coastal Wetlands in Texas*, November 1993.

United States Environmental Protection Agency and Texas General Land Office, *Dune Protection Guide*.

United States Environmental Protection Agency, Office of Wetlands, Oceans, and Watersheds, 842-F-93-002, *National Estuary Program: Bringing Our Estuaries New Life*.

Woolford Publishing, *Business*, Corpus Christi Bay Area, Summer 1994, Volume 3, Number 1.

Woolford Publishing, *Business*, Corpus Christi Bay Area, Winter 1994-1995, Volume 3, Number 3.

To Top

APPENDIX A

CCBNEP MANAGEMENT STRUCTURE SURVEY

Name of agency/organization:

Name, title, address and telephone number of contact person:

Specific Activities that Relate to CCBNEP

Role of Agency/Organization in Activities Relating to the CCBNEP							
Activity/Role	User	Regulator	Resource Management	Financial Assistance	Technical Assistance	Planning	Education
Point source pollution Non-point source pollution Control of spills/dumping							
Dredging							
Freshwater inflow							
Shoreline development							
Habitat/species protection							
Public health Subsidence control Erosion control							

The preceding table lists various activities that effect the condition of the bays and estuaries within the CCBNEP study area and the roles an agency or organization might be engaged in. Please "X" or check the appropriate boxes that best describe the various activities and roles your agency or organization is involved in.

Which offices or programs within your agency/organization are involved in these activities that relate to the CCBNEP study area?

What is the size of the staff dedicated to the activities relating to the CCBNEP priority problems? (See attached for a description of the CCBNEP priority problems.)

What funding sources does your agency/organization use to support these activities? Please specify the various funding sources (legislative appropriation, fees, grants, etc.)?

What agency/organization resources (offices, facilities, activities) are located within the CCBNEP study area?

Overview of Agency Activities

Please describe the resources or activities that are managed by your agency/organization.

Are your activities limited to any specific geographic jurisdiction? If so, please describe.

Please describe the organizational structure of your agency/organization. (Please provide an organization chart, if available.)

Who (by title) has policy making authority within your agency/organization?

Does the agency/organization have a written environmental policy to guide the agency/organization in its daily activities?

What is the total staff of your agency/organization?

Authority

What is the underlying statutory or regulatory authority for each activity identified? (Please provide copies of the applicable law or a citation, if the material is readily available (U.S. Code, Code of Federal regulations, Texas Statutes and Codes).)

Does your agency/organization have all the legal authority it needs to effectively carry out its responsibilities that relate to the CCBNEP priority problems?

If not, what additional authority would help the agency/organization carry out its responsibilities?

Public Involvement

If a private citizen walked into your office today, are there any agency plans, policy statements, or other documents that could be handed to him/her so he/she could read the agency's/organization's official policies?

Coordination with Other Agencies/Organizations

What other agencies/organizations does your agency/.organization deal with relating to the activities described above?

Do any other agencies/organizations duplicate any of your functions and activities? If so, which ones?

Do any other agencies/organizations impede your effectiveness? If so, which ones?

Are you able to leverage your resources and increase your effectiveness through cooperation with other agencies/organizations?

Are there any special districts within your county or region whose activities might relate to a CCBNEP priority problem? If so, please provide the name of the organization and a contact person's name, address, and telephone number.

Effectiveness

Are there any policies or activities that the agency/organization would like to adopt, but doesn't because there are inadequate resources to implement them?

If so, what policies or activities would you like to implement if you had additional resources?

Are there any activities that the agency/organization could do better if it had additional resources?

If so, what activities would be aided by additional resources?

Are there any areas of environmental activity that are not currently being handled by your agency/organization that you believe should be handled by your organization? If so, which activities and why?

Additional comments:

To Top

APPENDIX B

PHONE INTERVIEW GUIDE FOR THE ANALYSIS

From our previous research, we are aware of your agency's activities related to the goals of the Corpus Christi Bay National Estuary Program. We want to obtain more information on two areas of interest. These are the effectiveness of your programs and administrative issues surrounding your activities. I have a series of questions that I will ask you on each of these topics.

Effectiveness

Does your agency have any quantitative measures or milestones that it uses to measure success or cost-effectiveness with respect to bay-related programs? If so, what are the measures -- examples include pollution reduced per dollar spent and rates of compliance. *[get both a description and the figures themselves, if possible]*

On a scale of 1 to 5, with 1 representing "completely lacking" and 5 representing "outstanding," how would you rate your agency's technical capabilities with respect to initiatives in the Corpus Christi Bay area? What factors influence your rating?

Completely lacking 1 2 3 4 5 Outstanding

Does your agency collect data in order to track the results of its bay programs? If so, what types of data are collected? Are these data adequate? Can you submit these data to us?

On a scale of 1 to 5, with 1 representing "completely lacking" and 5 representing "outstanding," how would you rate your agency's managerial and administrative resources devoted to bay initiatives? What factors influence your rating?

Completely lacking 1 2 3 4 5 Outstanding

On a scale of 1 to 5, with 1 representing "extremely hostile" and 5 representing "consistently cooperative," how would you rate the political environment in which your agency operates? Can you provide examples of how the political environment has impacted your agency's performance?

Extremely hostile 1 2 3 4 5 Consistently cooperative

Can you describe three strengths of your agency that make it effective in accomplishing its goals? Can you also describe three general weaknesses of your agency that detract from your abilities to accomplish your goals?

Administrative issues

Suppose that additional activities were discovered that would be helpful for achieving your agency's goals. On a scale of 1 to 5, with 1 representing "no chance at all" and 5 representing "easy," how would you rate your agency's ability to expand its budget or secure additional revenues? *[If they did not answer with "1," ask the following]* What potential revenue sources could be tapped?

No chance at all 1 2 3 4 5 Easy

Under the same scenario, using the same scale, how would you rate your agency's ability to expand its workload? What factors influence your rating?

No chance at all 1 2 3 4 5 Easy

Are there specific political factors that impede your agency from expanding its activities related to protecting Corpus Christi Bay? If yes, what are they and how can they be removed or avoided?

Suppose that your agency believes it can implement a program that will be effective in protecting the bay. This program, however, is outside of the scope of your agency's authority. On a scale of 1 to 5, with 1 representing "nearly impossible" and 5 representing "quick and easy," how would you rate your agency's ability to obtain legal authority to implement the program? *[If the respondent can only answer, "it depends," then get them to explain the factors on which "it depends"]*

Nearly impossible 1 2 3 4 5 Quick and easy

To Top

APPENDIX C

Acronym Glossary

Acronym	Meaning
AG	Attorney General
ANWR	Aransas National Wildlife Refuge
APHIS	Animal and Plant Health Inspection Service
BLM	Bureau of Land Management
BMP	Best management practice
BOT	Port of Corpus Christi Board of Trade
CAA	Clean Air Act
CBBF	Coastal Bend Bays Foundation
CBCOG	Coastal Bend Council of Governments
CCBNEP	Corpus Christi Bay National Estuary Program
CCC	Texas Coastal Coordination Council
CCESFO	Ecological Services Field Office
CCMP	Comprehensive conservation and management plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CES	Cooperative Extension Service
CFRO	Coastal Fisheries Resources Office
CFSA	Consolidated Farm Service Agency
CLP	Clean Lakes Program
CMP	Texas Coastal Management Program
COP	Coastal Ocean Program
CRP	Conservation Reserve Program
CWA	Clean Water Act
CZARA	Coastal Zone Act Reauthorization Amendments
CZMA	Coastal Zone Management Act
EMAP	Environmental Monitoring and Assessment Program
EPA	United States Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
FEMA	Federal Emergency Management Agency
FFDCA	Federal Food, Drug, and Cosmetic Act
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FTE	Full time equivalent
FWPCA	Federal Water Pollution Control Act
FY	Fiscal year
GBRA	Guadalupe Blanco River Authority
GLO	Texas General Land Office
IPM	Integrated pest management
IU	Industrial user
LPG/CNG	Liquefied petroleum gas/condensed natural gas
MAFAC	Federal Marine Fisheries Advisory Committee

Acronym	Meaning
MARPOL	International Convention for the Prevention of Pollution from Ships
MINWR	Matagora Island National Wildlife Refuge
MMS	Minerals Management Service
MPRSA	Marine Protection, Research and Sanctuaries Act
NASA	National Aeronautics and Space Administration
NBS	National Biological Service
NCPDI	National Coastal Pollution Discharge Inventory
NEEA	National Environmental Education Act
NEP	National Estuary Program
NEPA	National Environmental Policy Act
NESDIS	National Environmental Satellite, Data, and Information Service
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRA	Nueces River Authority
NRCS	Natural Resources Conservation Service
NS&T	National Status and Trends Program
NWS	National Weather Service
OAD	Ocean Assessments Division
OAR	Office of Oceanic and Atmospheric Research
OCRM	Office of Ocean and Coastal Resources Management
ORCA	Office of Resource Conservation and Assessment
PCCA	Port of Corpus Christi Authority
PINS	Padre Island National Seashore
PL	Public Law
POTW	Publicly owned treatment works
PPA	Pollution Prevention Act
PUC	Public Utility Commission of Texas
RCRA	Resource Conservation and Recovery Act
RRCT	Railroad Commission of Texas
RSPA	Research and Special Programs Administration
SAB	Strategic Assessment Branch
SARA	San Antonio River Authority
SDWA	Safe Drinking Water Act
SEA	Strategic Environmental Assessments
SRF	State Revolving Fund
SWCD	Soil and Water Conservation District
TAC	Texas Administrative Code
TAES	Texas Agricultural Experiment Station

Acronym	Meaning
TAEX	Texas Agricultural Extension Service
TAMUS	Texas A&M University System
TDA	Texas Department of Agriculture
TDH	Texas Department of Health
TDPS	Texas Department of Public Safety
THC	Texas Historical Commission
TMDL	Total maximum daily load
TNRCC	Texas Natural Resource Conservation Commission
TPWD	Texas Parks and Wildlife Department
TRI	Toxic Release Inventory
TSA	Texas State Aquarium
TSCA	Toxic Substances Control Act
TSSWCB	Texas State Soil and Water Conservation Board
TWDB	Texas Water Development Board
TxDOT	Texas Department of Transportation
U.S.C.	United States Code
USCG	United States Coast Guard
USCOE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USDOC	United States Department of Commerce
USDOD	United States Department of Defense
USDOI	United States Department of the Interior
USDOS	United States Department of State
USDOT	United States Department of Transportation
USFDA	United States Food and Drug Administration
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USHHS	United States Department of Health and Human Services
USPHS	United States Public Health Service
UT	University of Texas System
UTMSI	University of Texas Marine Science Institute
WES	Waterways Experiment Station
WILD	Wildlife In Learning Design Project
WRP	Wetlands Research Program

To Top