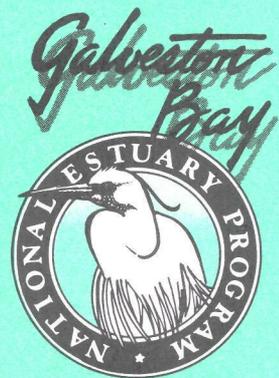


Regulatory Effectiveness Study
for the Armand Bayou
Coastal Preserve



Galveston Bay
National Estuary Program

GBNEP-13
December 1991

Regulatory Effectiveness Study for the Armand Bayou Coastal Preserve



Regulatory Effectiveness Study for the Armand Bayou Coastal Preserve

**Gary Mitchell, AICP
Principal Investigator
Houston-Galveston Area Council**

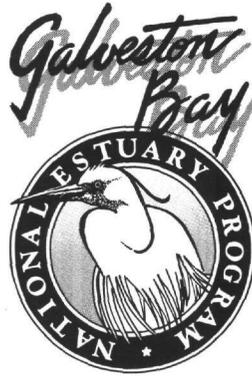
and

**Duane Windsor, Ph.D., Subcontractor
Lynette S. Autry Professor of Management
Jones Graduate School of Administration
Rice University**

The Galveston Bay National Estuary Program

Publication GBNEP-13
December, 1991

This project has been funded in part by the United States Environmental Protection Agency under assistance agreement # CE-00655-01 to the Texas Water Commission. The contents of this document do not necessarily represent the views of the United States Environmental Protection Agency, the Texas Water Commission, nor the Galveston Bay National Estuary Program, nor does mention of trade names or commercial products constitute an endorsement or recommendation for use.



Policy Committee

The Honorable Rodney Ellis, Chair
Texas Senate

Mr. Buck J. Wynne, III, Vice-Chair
Regional Administrator, EPA Region 6

Mr. John Hall
Chair,
Texas Water Commission

Mr. John Wilson Kelsey
Vice-Chair,
Texas Parks and Wildlife Commission

Ms. Linda Shead
Executive Director
Galveston Bay Foundation

Mr. Charles W. Jenness
Chair,
Texas Water Development Board

Ms. Eileen Crowley
Former President
Greater Houston Partnership
Chamber of Commerce Division

The Honorable Jon Lindsay
County Judge, Harris County

Local Governments Advisory Committee

The Honorable Ray Holbrook, Chair

Management Committee

Mr. Myron O. Knudson, Chair

Ms. Barbara Britton, Vice-Chair

Scientific/Technical Advisory Committee

Dr. Frank M. Fisher, Jr., Chair

Dr. Robert McFarlane, Vice-Chair

Citizen's Advisory Steering Committee

Ms. Sharron Stewart, Chair

Ms. Glenda Callaway, Vice-Chair

Galveston Bay Public Forum

Dr. Martin Arisco, Chair

Dr. Don Bass, Vice-Chair

Program Director

Dr. Frank S. Shipley

H-GAC Natural Resources Advisory Committee

The Honorable Ed Matuszak, Chair
Councilmember, City of LaPorte

Mr. Dennis Caputo, Vice-Chair
Proler Corporation

Mr. Jim Adams
San Jacinto River Authority

Ms. Barbara Bain
League of Women Voters

Mr. Steve Brooks
Metropolitan Transit Authority

Mr. Robert Chase
Clean Houston, Inc.

Mr. Cristopher Claunch
Claunch and Miller, Inc.

Mr. Jim Dannenbaum
Dannenbaum Engineering Corporation

Mr. Leo Davis
Sam Houston RC&D Area, Inc.

Mr. Ed Feith
Houston Lighting and Power

Mr. Dan Gerken
Fort Bend County Engineering

Mr. James Gibson
Chambers County Sanitation Department

Mr. James B. Green
Harris County Flood Control District

Mr. Mac Hall
Malcolm Pirnie, Inc.

Ms. Betty Hart
Waller Chamber of Commerce

Dr. Sherrill Jennings
Private Citizen

Mr. Tom Kessler
Galveston County Engineering

Mr. Aubrey A. LaFargue
City of Houston Public Works Dept.

Mr. William S. O'Donnell, Sr.
Greater Houston Builders Association

Mr. Allison R. Peirce
Harris County Pollution Control

Mr. Enrique Quevedo
City of Houston Health Department

Mr. Reagan Rovshach
Camp, Dresser McKee

Ms. Cathy Sisk
Harris-Galveston Coastal Subsidence District

Mr. Joe P. Teller
Gulf Coast Waste Disposal Authority

Mr. Stephen G. Wavro
Exxon

Mayor Veta Winnick
City of Dickinson

Commissioner E.R. Vacek
Matagorda County

GBNEP Coastal Preserves Task Force

Dr. Larry McKinney, Chair
Texas Parks and Wildlife Department

Dr. Neil Bishop
Turner, Collie & Braden, Inc.

Mr. James Blackburn
Galveston Bay Foundation

Ms. Glenda Callaway
EKISTICS Corporation

Ms. Sally Davenport
Texas General Land Office

Dr. Frank M. Fisher, Jr.
Rice University

Dr. Hal Irby
Texas General Land Office (formerly)

Mr. Fred Leblanc
Texas Parks and Wildlife Department

Mr. Rollin MacRae
Texas Parks and Wildlife Department

Mr. Don Moore
National Marine Fisheries Service

Mr. David Neleigh
Environmental Protection Agency

Mr. Ken Teague
Environmental Protection Agency

Dr. Jerry Wermund
University of Texas at Austin

H-GAC Project Staff

Jeff Taebel, AICP, Manager of Community and Environmental Planning
Carl Masterson, Senior Environmental Planner
Gary Mitchell, AICP, Environmental Planner (Principal Investigator)
Ed Polasek, Environmental Planner
Ann Weinle, Administrative Assistant

Subcontractor

Duane Windsor, Ph.D.
Lynette S. Autrey Professor of Management
Jones Graduate School of Administration
Rice University

Houston-Galveston Area Council

Community and Environmental Planning Department
P.O. Box 22777, 3555 Timmons
Houston, Texas 77227
713/627-3200

Fax: 713/621-8129

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
Overview of Armand Bayou Management Concerns	2
READER'S GUIDE	5
INTRODUCTION.....	7
Purpose	7
Scope	7
Study Area Description	8
Methodology.....	8
CHAPTER ONE: MANAGEMENT OVERVIEW	13
General Recommendations for Preserve Management	15
CHAPTER TWO: POINT SOURCE DISCHARGES	17
Summary of Findings.....	17
Action Recommendations	18
Management Framework.....	22
Management Concern: Point Source Discharges.....	27
Background.....	27
Nature of the Problem at Armand Bayou.....	27
Key Management Agencies.....	27
U.S. Environmental Protection Agency	27
Texas Water Commission.....	31
Railroad Commission of Texas.....	37
Harris County Pollution Control Department.....	40
Management Evaluation Findings	41
CHAPTER THREE: STORM WATER RUNOFF.....	55
Summary of Findings.....	55
Action Recommendations	56
Management Framework.....	60
Management Concern: Storm Water Runoff.....	62
Background.....	62
Nature of the Problem at Armand Bayou.....	62
Key Management Agencies.....	63
U.S. Environmental Protection Agency	63
Texas Water Commission.....	69
Management Evaluation Findings	71
CHAPTER FOUR: WETLANDS PROTECTION.....	79
Summary of Findings.....	79
Action Recommendations	80
Management Framework.....	83
Management Concern: Wetlands Protection.....	89
Background.....	89

Nature of the Problem at Armand Bayou.....	91
Key Management Agencies.....	91
U.S. Army Corps of Engineers	91
U.S. Environmental Protection Agency	98
U.S. Fish and Wildlife Service	101
National Marine Fisheries Service.....	103
Texas Parks and Wildlife Department	104
Texas General Land Office.....	107
Management Evaluation Findings	109
CHAPTER FIVE: HABITAT PROTECTION.....	117
Summary of Findings.....	117
Action Recommendations.....	118
Management Framework.....	119
Management Concern: Habitat Protection	122
Background.....	122
Nature of the Problem at Armand Bayou.....	122
Key Management Agencies.....	123
U.S. Fish and Wildlife Service	123
Texas Parks and Wildlife Department	125
National Marine Fisheries Service.....	127
Management Evaluation Findings	129
CHAPTER SIX: ILLICIT WASTE DISPOSAL.....	133
Summary of Findings.....	133
Action Recommendations	133
Management Framework.....	135
Management Concern: Illicit Waste Disposal.....	136
Background.....	136
Nature of the Problem at Armand Bayou.....	137
Key Management Agencies.....	137
Harris County Pollution Control Department.....	137
Other Involved Agencies	138
Management Evaluation Findings	139
APPENDIX A: Legislation and Regulations	143
APPENDIX B: List of Agencies Contacted.....	145
APPENDIX C: Survey Form Example	147
APPENDIX D: Agency Directory	153
SELECTED BIBLIOGRAPHY	157
LIST OF FIGURES	
Figure 1: Agency Acronyms.....	11
Figure 2: EPA Program Areas Involved in Point Source Regulation.....	29
LIST OF MAPS	
Armand Bayou Study Area.....	9

PREFACE

The National Estuary Program (NEP) was established by the Water Quality Act (WQA) of 1987. The Act authorizes the Administrator of the United States Environmental Protection Agency (EPA) to convene Management Conferences to develop Comprehensive Conservation and Management Plans (CCMPs) for estuaries of national significance that are threatened by pollution, development or overuse.

Galveston Bay was named for priority consideration for inclusion in the NEP in the Water Quality Act. The Governor of Texas submitted a Supplemental Nomination for Galveston Bay in May 1987. EPA accepted the nomination and initiated the Management Conference for Galveston Bay in July 1988. A cooperative agreement between Texas and the U.S. EPA was signed in October 1988, enabling developmental work to begin on the Galveston Bay National Estuary Program (GBNEP). (A Management Conference overview and member directory is available from the GBNEP Program Office.)

The GBNEP received approval for an Action Plan Demonstration Project from EPA's Office of Marine and Estuarine Protection in July 1989, and EPA Region 6 provided funding in September 1989. Such projects are designed to show near-term positive actions by National Estuary Programs. Under the GBNEP project, two new coastal preserves, Armand Bayou and Christmas Bay, were created under the existing joint Texas General Land Office (GLO)/Texas Parks and Wildlife Department (TPWD) Coastal Preserves Program. Armand Bayou, the focus of this regulatory survey, was recommended for Coastal Preserve designation due to its importance as an aesthetic and educational resource.

This report contains a description and evaluation of essential regulatory activities governing Armand Bayou and its watershed. This report will be used in management planning for the preserve, and will also contribute to the baseline regulatory data for developing the Galveston Bay Comprehensive Conservation and Management Plan. A companion report was prepared for the Christmas Bay Coastal Preserve.

This study was conducted by the Houston-Galveston Area Council and Duane Windsor, Ph.D., of Rice University, under contract to the Galveston Bay National Estuary Program.