

The Economic Value of Improving The Environmental Quality of Galveston Bay



Galveston Bay
National Estuary Program

GBNEP-38
June 1994

GBNEP-38

The Economic Value of Improving The Environmental Quality of Galveston Bay

June 1994

The Economic Value of Improving
The Environmental Quality of
Galveston Bay



Blank

The Economic Value of Improving The Environmental Quality of Galveston Bay

Prepared by

Dale Whittington

Glenn Cassidy

Deborah Amaral

Elizabeth McClelland

Hua Wang

Christine Poulos

**Department of Environmental Sciences and Engineering
The University of North Carolina
at Chapel Hill**

The Galveston Bay National Estuary Program

Publication GBNEP-38

June 1994

This project has been funded in part by the United States Environmental Protection Agency under assistance agreement # CE-006550-01 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 Galveston Bay National Estuary Program Management Conference. The information presented is intended to provide background information for Management Conference deliberations in drafting of 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.



Policy Committee

The Honorable Rodney Ellis, Chair
Texas Senate

Mr. John Hall
*Chair, Texas Natural Resource
Conservation Commission*

Ms. Jane Saginaw
*Regional Administrator,
EPA Region 6*

Mr. James Blackburn
Galveston Bay Foundation

Ms. Terry Hershey
*Commissioner,
Texas Parks and Wildlife Commission*

Mr. Charles Miller
*Past Chairman of the Board of Directors,
Greater Houston Partnership*

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

Local Governments Advisory Committee

The Honorable Ray Holbrook, Chair

Management Committee

Mr. Myron O. Knudson, Chair

Mr. Tom Remaley, Vice-Chair

Scientific/Technical Advisory Committee

Dr. Robert McFarlane, Chair

Ms. Teresa Battenfield, Vice-Chair

Citizen's Advisory Steering Committee

Ms. Sharron Stewart, Chair

Mr. Ron Embry, Vice-Chair

Galveston Bay Public Forum

Dr. Don Bass, Chair

Program Director

Dr. Frank S. Shipley

Blank

VI

The Galveston Bay National Estuary Program

Texans increasingly express their expectations for a clean environment in terms of entire ecosystems. Until recently, our tendency was to view environmental problems in isolated pieces we could understand—indeed this view was institutionalized (and seemingly immortalized) in an elaborate mosaic of fragmented jurisdictions. The Galveston Bay National Estuary Program (GBNEP) is a forerunner in elevating hands-on management of coastal environments to the level of the ecosystem; and in doing so, is encouraging an integration of traditionally disparate institutions.

The GBNEP was established under the authority of the Water Quality Act of 1987 to develop a Comprehensive Conservation and Management Plan (CCMP) for Galveston Bay. The purpose of the CCMP is to address threats to the Bay resulting from pollution, development, and overuse. To address these threats, five years of work commenced in 1990, consisting of three phases: (1) Identification of the specific problems facing the Bay; (2) A Bay-wide effort to compile data and information to describe status, trends, and probable causes related to the identified problems; and (3) Creation of the CCMP itself to enhance governance of the Bay at the ecosystem level. The GBNEP is accomplishing this work through a cooperative agreement between the U.S. EPA (Region 6) and the State of Texas (administered by the Texas Natural Resource Conservation Commission.)

The structure of the GBNEP reflects a strong commitment to consensus-building among all Galveston Bay user groups, government agencies, and the public. The GBNEP “Management Conference” consists of six Governor-appointed committees with broad representation, totaling about one hundred individuals. Meetings of these committees are also open to the public, and public participation in policy-setting and in Bay management are considered strengths of the program. When submitted to the Governor of Texas in late 1994, the CCMP will reflect thousands of hours of involvement (much in the form of volunteer time) by individuals who in various ways use, enjoy, or help govern this vital coastal resource.

Blank

VIII

TABLE OF CONTENTS

<i>Section</i>	<i>Page</i>	
LIST OF TABLES	xi	
LIST OF FIGURES	xiv	
EXECUTIVE SUMMARY	1	
PART I: OVERVIEW		
Chapter 1 Introduction	11	
PART II: STUDY DESIGN AND IMPLEMENTATION		
Chapter 2 Development of the Contingent Valuation Survey Instruments ..	23	
Chapter 3 Final Questionnaire Design and Survey Implementation	37	
PART III: STUDY RESULTS		
Chapter 4 Overview of Study Results	49	
Chapter 5 The Factors Determining Households' Willingness to Support a Management Plan for Galveston Bay	71	
Chapter 6 Estimates of the Economic Value of Improvements in the Environmental Quality of Galveston Bay	81	
Chapter 7 Summary and Conclusions	89	
REFERENCES	105	
APPENDIX 1	Estimates of the Economic Value of Various Uses of Galveston Bay Based on Other Methodological Approaches	109
Preface	Overview of Services Provided by the Bay	111
Chapter I	Estimates of the Economic Value of Recreational and Commercial Uses of Galveston Bay	113
Chapter II	The Marginal Value of Wetland Systems for Recreational Fisheries in Galveston Bay	131
Chapter III	The Economic Value of Galveston Bay: An Embodied Energy Analysis	139
APPENDIX 2	The Sample Selection Model	149
APPENDIX 3	Correspondence and Questionnaires Used in the Contingent Valuation Survey	167
APPENDIX 4	Frequency Tabulations of Responses from Questionnaires	241

TABLE OF CONTENTS

<i>Section</i>		<i>Page</i>
Part I	Mail/In-Person Follow-Up Survey Results	243
Part II	Mail-Only Survey Results	277