

III. Fiscal Year 1992 Projects

Projects planned for FY 1992 consist of both continuance of work begun earlier, and conception of new projects. These projects are briefly described below, with detailed technical descriptions available from the Program Office in the form of work scopes and work plans for each project. Projects with full federal participation are committed to under the full terms of the National Estuary Program. Additional projects without federal participation (denoted *) are not funded with federal monies, and are listed as possible projects in addition to the commitments of this Work Plan.

Management Assessments

Bay-wide Management Evaluation. This project is the main effort leading to regulatory changes later under the CCMP. The purpose of the Bay-wide Management Evaluation will be to produce a written analysis entitled "Framework for Action," which, combined with the scientific and technical characterization publications, will serve as the foundation for drafting the CCMP. The Bay-wide Management Evaluation is expected to lead to significant improvements in the effectiveness of the regulatory/management framework for Galveston Bay. The Evaluation is expected to fulfill and go beyond the federal requirement for a "Base Programs Analysis."

The process utilized to conduct the Bay-wide Management Evaluation will include: 1. Identification of objective standards by which to evaluate management effectiveness; 2. Program-by-program resource agency review of technical elements of management influenced by policy; 3. Identification of gaps and overlaps in current management activity; 4. Identification of shortcomings in current management activities, as these activities actually affect recognized estuarine problems; and 5. Drafting of recommendations for changes in the current regulatory/management framework.

Support for Characterization Reporting. This funds a full-time temporary position and/or contract help to support the Program Office in drafting two characterization reports: An Environmental Characterization Report and a State of the Bay publication. The intent of this commitment is to effectively draw together the results of the different characterization projects into a synthesis at the ecosystem level. The findings will be summarized for both managers and for the general public.

Funding Source Inventory. This project will gather information essential for drafting a financial plan for funding implementation of the CCMP. Existing information on current local, state, and federal revenue sources will be drawn together for the purpose of generating alternative funding mechanisms for implementation of the CCMP. This work will fall under the purview of a Financial Advisory Committee, to be appointed and convened in FY 1992.

Scientific/Technical Projects

Information Center. The Information Center was initiated in FY 1990 at the Jack K. Williams Library on the Texas A&M at Galveston Campus. Work in FY 1990 was primarily to compile a Galveston Bay Bibliography. FY 1991 work emphasized acquisition of a special collection of published and unpublished agency reports, journal articles, maps, films, videos, slide programs and aerial photos. Establishment of the Information Center and opening the doors to the Galveston Bay user community will take place in FY 1992. Although the Center is funded as a Scientific/Technical Project, and will be a source of information for resource managers, it is created for the entire Galveston Bay community, and is perceived by the public as the single most beneficial GBNEP project.

Wetland Habitat Survey. This is the third and final year for this project which involves mapping of shoreline and submerged aquatic vegetation (seagrass) habitats based on aerial photo interpretation and field verification. The work includes digitizing of maps for a computer geographic information system. Comparisons are made with previous maps from 1956 and 1979 to determine trends; further investigations determine causes for major trends/losses of critical habitat types. FY 1992 work focused on digitizing the newest photos, combined with field investigations to characterize habitat to a level of detail corresponding to plant species associations. FY 1991 work will involve wrap-up of this project including synthesis of results, cause determination and developing the final report.

Living Resources Probable Causes. This is the second and final year for this project. The objective is to determine status and trends in populations of ecologically or economically significant organisms in Galveston Bay. Species were chosen for which historical data sets exist, or which were critical in the food web. Multivariate and time series analyses were applied to data sets, with correlations sought between identified trends and possible controlling variables. Critical missing information has been identified for this final year's work. During FY 1992, probable causes will be determined for trends and status as a result of FY 1991's work.

Oyster Survey. This is a continuation of an FY 1991 project. The development of complete, accurate maps depicting the location and aerial extent of oyster reefs in Galveston Bay is of considerable importance to the development of a CCMP. The FY 1991 project provides for mapping East and West Bays first, followed by the remainder of the Bay. The current time-frame allows for the entire bay to be surveyed (including health assessments) but maps and GIS output would not be developed because of the lack of time and money. The maps and GIS output will be completed with the additional funding of this project in FY 1992.

Ecosystem Conceptual Model. This project will result in a diagrammatic representation of components of the Galveston Bay Ecosystem and the relationships among these components, as well as narrative descriptions of ecosystem structure and functions. The objectives of the conceptual model development are to 1) demonstrate the diverse habitat types, their susceptibility to climatically-based physical forcing and the complex history of anthropogenic perturbations to the estuary; 2) provide an "ecological manual" for the estuary that will simplify the real ecosystem while preserving essential features, and improve communication between decision-makers, advisors, and the public; 3) summarize the different management objectives of various agencies, and guide management and regulatory decisions to assure they are not at cross-purposes; 4) assist in the development of appropriate segmentation schemes; monitoring programs; assessment of cumulative impacts; and predicting, quantitative computer-based models which likely will be needed to meet program goals; 5) aid in matching the scale of a

problem to the scale of processes that result in altered ecological structure and rate of outputs, and determining the appropriate level of biological and ecological aggregation in addressing a specific environmental problem; and 6) codify knowledge and theoretical constructs regarding the estuary to achieve scientific consensus, improve communication, and transfer this knowledge to other users of the bay. The conceptual models are to be habitat-based and focus on the priority problems identified for the bay. Six habitats are to be incorporated into the model. The model is expected to help contribute to an integrated approach to characterization studies, but is not intended to be quantified as a simulation model.

Public Health Synopsis. The results of this work should identify the extent that shellfish harvesting areas have been affected by bacterial pollutants on a historical basis. All streams which impact Galveston Bay will be evaluated on a historical basis as to the extent of their being classified acceptable for contact or non-contact recreation, based on indicator bacteria criteria. The extent of areas in the Galveston Bay system which are deemed to be closed for public health reasons will be identified. Disease incidence from swimming and other forms of contact recreation in polluted water or ingestion of contaminated seafood will be addressed, with special reference to *Vibrio species* contamination. Both point and non-point sources of bacteria contamination will be included.

Survey of Toxicants in Sediments/Benthos. This project will characterize bay sediments utilizing a Sediment Triad Approach, i.e., coordinating chemical analyses, benthic community analyses, and sediment bioassays. The study design will build upon existing information collected by the Bureau of Economic Geology during the late 1970's, utilizing a number of the same sampling locations.

Human Induced Incidental Fish Mortality. There has been continuing concern over the magnitude of incidental fish losses associated with human uses of the Bay. This project would address five sources of incidental fish loss: 1) bycatch from commercial fishing; 2) impingement/entrainment on industrial intake structures; 3) recreational fishing mortality of non-target species; 4) dredge and fill project impacts; and 5) oil/gas exploration impacts. The project would gather both existing and new data to estimate the magnitude of these impacts and their possible implications for fish populations in the estuary.

***Dredge/Fill Impacts Study.** This is a relatively small information-gathering and synthesis project to strengthen the characterization effort by accumulating existing historical information regarding the impacts of dredge and fill operations within the estuary.

Public Participation

Bayline Newsletter. The GBNEP newsletter will be produced three times this year. *Bayline* is produced by the staff with articles contributed by a variety of organizations and individuals in the Bay area. *Bayline* includes: Management Conference updates, NEP news, requests for public involvement and information on specific issues that affect the estuary. The main topics vary depending on current information and issues. *Bayline* addresses all elements of the Priority Problems List.

Publication Series. All of the GBNEP products that are in report form will be duplicated and made available to the public upon request. The FY 1992 list will vary depending upon

deliverable arrival times and the number of copies needed. Publications include along with the technical and scientific reports, planning documents, membership directories, brochures, white papers and the conceptual model.

Speaker's Bureau. The Program Office will continue to coordinate outside speaking engagements by volunteer Management Conference members and staff. Invitations will be solicited from service and other organizations for programs involving slide presentations, video productions, and speeches. Funds for this project go toward slide duplication, equipment maintenance, and other incidental costs.

Portable Display. A display backboard and supplementary materials were acquired in FY 1990 for large audience education at various trade shows, festivals and other exhibits. FY 1992 funding is for shipping, photo print updates and space rental.

Public Meetings. Galveston Bay Public Forum meetings continue to support interaction between Program participants and the public. Comments received at these meetings will help direct all aspects of the Program. The Program is presently committed to holding public meetings quarterly. The topics vary and will include all elements of the Priority Problems List. Funding for this project provides advertisement, meeting space and other meeting expenses.

Citizen's Monitoring. This is a continuation of an FY 1991 project. Citizens from the Bay area will have the opportunity to directly support Galveston Bay management through this plan. A Citizen's Monitoring Committee has been appointed to coordinate with the Texas Water Commission to begin volunteer citizen monitoring of water quality and other estuary conditions. The data gathered will supplement the existing data collected by agencies, expanding the amount of information available to managers. Armand Bayou was selected as a pilot project for this effort. The FY 1992 project will involve volunteer citizens in the monitoring of the Galveston Bay estuary and watershed. The funds are to provide planning, training and limited equipment for environmental monitoring. Citizen monitoring is seen as a significant component of community involvement in the welfare of the estuary.

Bay Day. Bay Day is a continuation project. The purpose of Bay Day is to call attention to and celebrate Galveston Bay by providing bay-oriented family activities for all ages, thereby increasing public awareness of the Bay's value and diversity of uses. The first Bay Day will have been held May 25-26, 1991. Plans are to make Bay Day an annual event.

Education. This project includes: 1. Bay Area Calendar Contest; 2. Book covers for students to increase Bay awareness; 3. Sponsoring a school district to develop a pilot project for environmental education. GBNEP would provide equipment, materials and supplies; 4. Teacher Training Program in environmental education - work is being done to develop the program by a University of Houston professor and the Galveston Bay Foundation is supporting the effort; 5. Support for local science fairs; 6. Water Education Teams - support for Bay area schools; 7. Educational posters.

***Staffing Increase.** The Public Participation Program requires an intensive amount of direct involvement by staff members or outside consultants to adequately perform. Because all the projects planned for 1992 are considered important to building the foundation for public support of the CCMP, a part time Public Participation Staff member will be added.

***Promotions.** In order to increase awareness of the Bay and the activities of GBNEP, it is important to give the public something to take home to remember our brief contact. These specialty advertising items would serve as useful items to increase awareness of the Bay and the Program activities.

Administration

Administration of the GBNEP has been well refined since the beginning of the program and requires no substantial changes.

Action Plan Demonstration Projects

Shoreline Erosion and Estuary Enhancement. Awarded as the FY 1991 Action Plan Demonstration Project, the Shoreline Erosion and Estuary Enhancement will continue through FY 1992 and into FY 1993. Contractors will continue to plant *Spartina alterniflora* along eroding shorelines in Galveston Bay using techniques which have been previously developed and proven, in order to stabilize shorelines and restore fringing wetland habitat. This demonstration results in additions to critical habitat types in Galveston Bay and serves as an example alternative to concrete bulkheads and other expensive and ecologically intrusive shoreline structures designed to control erosion. This project requires no FY 1992 funding.

Ship Channel Toxicity Reduction. Appendix I of this report describes a cooperative effort by the Texas Water Commission and key industries on the Houston Ship Channel to reduce toxicant loadings to this stressed portion of the estuary. This project is being undertaken as an FY 1992 Action Plan Demonstration Project awarded to the GBNEP.

Table 6.
Galveston Bay National Estuary Program
Management Assessments Draft Project Budget
Amount = 210,000

Project	Cost	Cumulative Cost
Bay-wide Management Evaluation	175	175,000
Support of Characterization Reporting	75	185,000
Funding Source Inventory	25	210,000

Table 7.
Galveston Bay National Estuary Program
Scientific/Technical Assessments Draft Project Budget
Amount = 450,000

Project	Cost	Cumulative Cost
Galveston Bay Information Center	60,000	60,000
Status/Trends for Wetland/Aquatic Habitats	50,000	110,000
Status/Trends for Living Resources	40,000	150,000
Oyster Survey	30,000	180,000
Ecosystem Conceptual Model	15,000	195,000
Shellfish Closure/Path. Contamination	40,000	235,000
Bay Bottom Characterization	100,000	335,000
Human-Induced Incidental Fish Mortality	90,000	425,000
Dredge & Fill Impact Study	25,000	450,000

Table 8.
Galveston Bay National Estuary Program
Public Participation Draft Project Budget¹
Amount (Includes Publishing) = 125,975

Project	Cost	Cumulative Cost
Bayline Newsletter	10,000	10,000
Publication Series (73K not for CASC proj.) ²	19,975	29,975
Speaker's Bureau	2,000	31,975
Portable Information Display	2,000	33,975
Pubic Meetings	5,000	35,975
Citizen's Monitoring	25,000	60,975
Bay Day	25,000	85,975
Education	30,000	115,975
*Promotions	10,000	125,975

¹An additional one-half time student intern position is being created, not reflected in this table.

²Additional funds will be sought from state funds for a total of \$88,135.

Table 9.
Project Status Table, Fiscal Year 1992

Project	Management Conference Purposes	Products	Date
Coastal Preserves:			
Nomination Packages	1-6	Slides, Maps	2/90
Establishment	1-6	Tide Gauges	8/90
Environmental Inven.	1-2	Reports	8/90
Regulatory Surveys	4-5	Reports	8/90
Regulatory Evaluations	4-5	Reports	12/90
Management Plans	4	Plans	8/91
Management Implement.	5		
Informational Video	4	Video	8/90
Public Participation	4		
Management Assessments			
History of Res. Util.	4	Report	8/91
Regulatory Survey/Eval.	4-5	Report	8/91
Bay-wide Management Sur.	4-5	Report	8/92
Support for Characterization	1-3		8/92
Funding Source Inventory	4-6	Report	8/92
Scientific/Technical			
Data Base Inventory	2,4	Report, Database	8/90
Shoreline Survey	3	Report	8/90
Toxicants/Seafood Organisms	1-3	Report	8/90
Oyster Survey	1-3	Report, GIS	8/90
Information Center	4	Bibliog., Database	8/90
Wetland Habitat Survey	1-2	Report, GIS	8/92
Bay Segmentation	4-5	Report, Map	8/91
Point Source Loading	1-3	Report	8/91
Non-Point Source Loading	1-3	Report	8/91
Ambient Water/Sediment	1-3	Report	8/91
Living Resources	1-2	Report	8/91
Socioeconomics	1,4	Report	8/91
Ecosystem Conceptual Model	1,4	Report	8/92
Public Health Synopsis	1,3	Report, Maps	8/92
Bay Bottom Characterization	1-3	Report	8/92
Human Induced Fish Mortality	1	Report	8/92
Dredge/Fill Study	1-2	Report	8/92
Public Participation¹			
Public Perception Survey	4	Survey	8/90
Consensus Building	4	Report	8/90
Bayline Newsletter	4	Continuing 3 times/year	

Table 9. (cont.)
Project Status Table, Fiscal Year 1992

Project	Management Conference Purposes	Products	Date
Publication Series	4	Ongoing	
Education	4	Calendar	8/92
Video Presentations	4	Videos	8/90
Video PSA	4	Videos	8/90
Portable Display	4	Display	6/92
Speaker's Bureau	4	Ongoing	
Citizen Monitoring	4	Ongoing	
Public Meetings	4		8/92
Bay Day	4		8/92
Pollution Hotline Development	4		8/92
*Promotions	all		8/92

¹OMEP Guidance Item 4 also provides for Public Participation

**Table 9. (Cont.)
Project Status Table, Fiscal Year 1992**

Project	Cost (K)*			Responsible Organization
	1990	1991	1992	
Coastal Preserves:				
Nomination Packages	15			Bureau of Econ. Geology
Establishment	23.7	27.5		General Land Office
Environmental Inventories	28			Gal. Bay Foundation
Regulatory Surveys	22			Houston-Gal. Council
Regulatory Evaluations	22			Houston-Gal. Council
Management Plans	5	30		Texas Parks and Wildlife
Management Implementation	35.7			Texas Parks and Wildlife
Informational Video	10			Seagrant
Public Participation	1	1.4		Program Office
Management Assessments				
History of Res.Util.		15		U. of Houston-Clear Lake
Bay-wide Regulatory Survey			60	U. of Texas-Austin
Bay-wide Management Eval.			175	U. of Texas-Austin
Funding Source Inventory			25	U. of Texas-Austin
Scientific/Technical				
Data Base Inventory		57.5		Univ. of Texas-Austin
Shoreline Survey		30		Texas A&M, GERG
Toxics/Seafood Organisms		140		Texas A&M, GERG
Oyster Survey	80		30	Texas A&M
Information Center	135	100	60	Texas A&M at Galveston
Wetland Habitat Survey	40	151	50	Bureau of Econ. Geology
Bay Segmentation		25		Jones and Neuse, Inc.
Point Source Loading		60		U. of Texas-Austin
Non-Point Source Loading		125		Groundwater Services, Inc.
Ambient Water/Sediment		100		U. of Texas-Austin
Living Resources		125	40	Texas Parks and Wildlife
Socioeconomics		50		U. of Houston-Clear Lake
Ecosystem Conceptual Model			15	McFarlane & Associates
Public Health Synopsis			40	Espey, Huston & Associates
Bay Bottom Characterization			100	USFWS
Human Induced Fish Mortality			90	Jones & Neuse, Inc.
Dredge & Fill /Study			25	U. of Texas-Austin
Public Participation				
Bayline Newsletter	8	10	10	Program Office
Publication Series		54.8	88.1	Program Office
Education	3	25	30	Program Office
Video Presentations	25.7	12		U.of Hou; 91 Not Awarded
Video PSA	7.5	7.5		Texas Water Commission

**Table 9. (Cont.)
Project Status Table, Fiscal Year 1992**

Project	Cost (K)*			Responsible Organization
	1990	1991	1992	
Portable Display	1.5	2	2	Texas Water Commission
Speaker's Bureau	3	2	2	Program Office
Citizen Monitoring	25	25	25	Texas Water Commission
Public Meetings	8.5	15	5	Program Office
Bay Day	4.5	25	25	Galveston Bay Foundation
Pollution Reporting Hotline		37		
*Promotions			10	
Action Plan Demonstration Project				
Shore. Erosion & Est. Enh.	130			Soil Conservation Service
Ship Channel Toxicity Reduction			133	Texas Water Commission

* All project funds derive from EPA monies matched by Texas general revenue.