

## **Purpose**

The outpouring of environmental concern that began in the 1960s in the United States resulted in passage of more than 20 major federal statutes and scores of state and local laws. As new problems were identified, new laws were added to the list. Thus U.S. environmental policy is embodied in a multitude of laws and carried out by many different agencies at different levels of government. The early laws tended to focus on a single medium or problem: air, water, noise, endangered species. Growing experience and scientific understanding suggested the importance of a more comprehensive approach such as the "cradle-to-grave" oversight of hazardous materials required by the Resource Conservation and Recovery Act (RCRA). Nevertheless, U.S. environmental policy remains generally fragmented, a result of the history of incremental additions to the statutory arsenal. Recent concerns about cross-media pollution and preservation of entire ecosystems have yet to be embodied in law.

Important exceptions to this generally piecemeal approach to environmental oversight are the more comprehensive planning requirements of the federal Coastal Zone Management Act of 1972 and the National Estuary Program established by the Water Quality Act of 1987. The former law encouraged coastal states to develop comprehensive plans for protecting coastal resources, including beaches, sand dunes, and wetlands, and tried to overcome one of the most important barriers to coherent policy making by allowing states to control federal projects in state waters. The National Estuary Program reflects the new scientific understanding of the importance of estuaries in maintaining the health of large coastal ecosystems and calls for development of Comprehensive Conservation and Management Plans (CCMPs) in "estuaries of national significance."

The CCMP rests on a clear and systematic understanding of the multitude of federal, state, and local laws and agencies that have gained authority over different aspects of the environment during the last quarter century and on the effectiveness with which those laws are implemented and enforced. The purpose of this report is to provide an evaluation of those agencies and laws, along with their associated regulations, that constitute the regulatory framework for environmental protection of Galveston Bay, one of the estuaries of national significance covered under the 1987 law. This evaluation is the second stage in a multistage process that will result in development of the CCMP. The first stage was an inventory of the laws and regulations, which is available separately but which forms the basis of this report. This management evaluation, along with a number of scientific studies being conducted contemporaneously, will form the

2. Program procedures, funding, and staffing. For this, we are assessing an agency's capacity to undertake the duties outlined in the statutes and regulations. When examining capacity, the questions to be asked (standards to be applied) are:

- To what extent has the legislative branch funded the program compared to the size of the task?
- Has the agency provided for enough staff to implement the program? Are there support personnel? Do staff turn over frequently, so that the program is always being implemented by novices?
- Has the agency assigned legal and other professional staff specifically to the program, or do the program staff have to work with whoever is available when they need internal support?
- Does the program have appropriate material resources: computers, travel, measuring equipment, etc.?

3. Agency policy, funding, and organization. For this, we are assessing whether the implementing agency has internal policies that are adequate to fulfilling its authority—in other words, does it have the will to implement the program goals. When examining agency policy, the questions to be asked (standards to be applied) are:

- Does the agency policy making body support the program? Do they usually approve rules and regulations suggested by program staff, or do they water them down? Do they support program staff's requests for assistance in working with federal agencies and the state legislature?
- Has the agency created a separate program or is the program subsumed in another office?
- Has the agency ensured that the program receives all the money due to it?
- Does the agency require program staff to undertake unrelated tasks?
- Does the agency's legal division work closely with program staff to ensure adequate enforcement? Do they enforce consistently and at a high enough level to suggest seriousness of purpose?

4. Technical and environmental results. For this, we are examining the environmental outcome of agency programs. When examining environmental outcomes, the questions to be asked (standards to be applied) are:

- Has the water quality improved or deteriorated, with respect to all relevant pollutants? What are the continuing number of shellfish closures, fish kills, etc.?
- Has the quantity and quality of wetlands improved or deteriorated?
- Has the quantity and diversity of living resources improved or deteriorated?
- Have factors affecting human health improved or deteriorated? What are the continuing numbers of shellfish closures, recreation closures, consumption advisories, pathogen indicators?
- Has the level of freshwater inflow been maintained or improved?
- Is land use consistent with environmental protection of the Bay? Are there new shoreline development restrictions, are they enforced? Is there any new shoreline development or changes near the estuaries?

As noted, all these questions may not be answerable with data presently available. Limitations of the study are described in more detail below.

## Report Organization

The regulatory framework for environmental protection of Galveston Bay is very complex, involving scores of agencies at the federal, state, and local levels. Often a single environmental problem is addressed by several different agencies, each responsible for some small part of the problem. If we were to present our evaluation on a program-by-program basis, the reader would have considerable difficulty ascertaining the effectiveness of the overall approach to the problem. Our report is therefore organized according to the ten "problems" identified by the Galveston Bay National Estuary Program, called "action plan topics." These are topics to be considered in the action plan that will precede the CCMP. Table 1 lists the action plan topics that are discussed in this report.

Table 1-1. Action Plan Topics List  
Galveston Bay National Estuary Program

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*Source Controls*

1. Point Sources
2. Non-Point sources
3. Spills/Dumping
4. Dredging/Filling
5. Freshwater Inflow

*Estuary Management*

6. Shoreline Development
  7. Habitat Protection
  8. Species Population Protection
  9. Public Health Protection
  10. Subsidence/Shoreline Erosion/Sea Level Rise
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Following a brief description of Galveston Bay and a summary of the major findings, the chapters on the action plan topics include a brief description of the laws and regulations (which are also described, often with more complete legal references, in the Management Inventory and its associated computerized regulatory information system) and of the agency programs for implementing these laws. After the description is a section which details the evaluation according to the criteria outlined above. Although we have attempted to make the chapters consistent in the way information is presented, each topic differs from the others in important ways. For example, some topics are relevant only at one level of government, and the entire analysis is devoted to that level. Similarly, some topics are comprised of several sub-issues, each of which is treated separately. The headings and subheadings in the chapters should help guide the reader.

We have included for each topic such data as are available concerning the resources devoted to the program: staff and budget. Because Galveston Bay is only one of many areas of environmental concern in Texas, it is often difficult to

determine precisely the resources devoted to the Bay alone. We have attempted to provide additional information so that readers may determine whether they think available resources are adequate to the task. We should also note that budget data were particularly difficult to obtain and that in many cases agencies resisted our request for such information.

In addition to the action plan topics, GBNEP's Management Committee identified a range of management concerns, such as permitting, research, and data management. Although each of these issues is discussed to a greater or lesser extent under the action plan topics, we have also provided considerations of each in a separate chapter. Following that, we attempt to provide an overall evaluation as well as some recommendations.

### **Report Limitations**

Any study that covers an entire estuary system, even one that has grown to the unwieldy length of this one, must have some limitations. At the urging of the Management Committee, we do not consider air pollution in this study, even though many people believe that air pollutants that waft out over the bay do contribute to diminution of water quality. We also do not consider sediment quality, an issue of considerable importance in an area that is so frequently dredged. GBNEP is sponsoring a study of sediment quality, and the Texas Water Commission is also conducting studies concerning bay sediments. Finally, this study is not as quantitative as we had hoped it would be. Although we believed from the outset that the management evaluation criteria we had identified were appropriately qualitative, we thought that we would be able to support the qualitative analysis with quantitative data. In many cases, however, we found that the appropriate data were missing. In Chapter 15, we suggest the need for more policy-relevant scientific research so that some of these numbers would be available for future students of bay management.

### **Acknowledgments**

One way we attempted to overcome the lack of numbers was by the breadth of our sources. We consulted many written documents, which are listed in the bibliography. More important, we interviewed scores of staff people in relevant agencies, members of local and state environmental groups, and industry representatives. In deference to their willingness to provide us with candid evaluations and inside information, we do not cite them as sources for particular items of information; a list of many of them is provided at the end of report, following the bibliography. We are grateful for their assistance and believe that any merits this report may have are due in large measure to their generosity with their time and expertise.

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offered technical and emotional support on numerous occasions. The computerized information system for the inventory, which we used in reviewing the laws and regulations, as well as much of the manipulation of data provided in raw form was conducted by W. James Hadden, Jr. Caren Troutman and Jerry Wermund of the LBJ School's Computer Office were invaluable in translating data from one format to the other. Neal Armstrong provided the water quality self-reporting data, saving us from having to go through the contortions associated with obtaining the data on a tape; his separate report to GBNEP should also be consulted. Special thanks to Leroy Killough and Michael McDonough of the Texas Water Commission, who turned our vague verbal descriptions into comprehensible and elegant maps.

#### **REFERENCE**

Council on Environmental Quality. Environmental Quality: 22nd Annual Report, 1990. Washington, D.C.: CEQ, 1991.

