Science and Management Planning for Galveston Bay, Texas

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Galveston Bay is a 1554 square km (600 square mi) shallow, wind-driven estuary in the northern Gulf of Mexico. Numerous human activities affect this estuary. For example, the largest petrochemical complex in the nation lies on the shoreline of Galveston Bay, producing some thirty percent of the nation's refining and nearly half of nation's chemicals. The Port of Houston is the sixth largest in the world, third largest in the U.S. The immediate counties surrounding the Bay are populated by some 3.5 million residents, and more than sixty percent of the waste water produced in Texas flows to Galveston Bay. Non-point runoff affects water quality, for example oil and grease in annual storm water runoff from the Bay's urbanized shoreline is estimated at about 40 percent of the historic Exxon *Valdez* spill.

The Galveston Bay National Estuary Program was begun in 1990 to address problems resulting from human pollution, development, and overuse of estuarine resources. Work was undertaken to: (1) identify specific estuarine problems; (2) conduct a scientific program to determine status, trends, and probable causes related to problems; and (3) create a comprehensive management plan to enhance governance of the Bay at the ecosystem level.

A Scientific/Technical Advisory Committee (STAC) was established to advise the Management Committee during this process. The STAC undertook some 30 projects over four years to characterize estuarine issues of concern. This process presented numerous challenges in reconciling scientific and resource management philosophies, activities and personalities. The role of the STAC was indispensable in comprehensive planning but was shaped by the fundamentally different world views of scientists and resource managers.

Four years of committee interactions have confirmed five generalized needs: 1) science must address the right questions, requiring that managers have a role in identifying and ranking project topics; 2) science must be undertaken in the context of a perturbed ecosystem, requiring that projects focus on impact dynamics rather than traditional ecology; 3) science must provide data at a scale of resolution applicable to management, requiring generalized geographic ordering of projects and sampling within projects; 4) results must be available to managers in an accessible, useful format; requiring that data be converted to synoptic information; and 5) science must provide to management an ongoing sensory component, requiring a monitoring program with a direct link to management objectives and managers themselves. Very similar needs have been identified in other coastal programs. It is fulfilling these needs in a committee process which presents the greatest challenge.