

SECTION 2: MONITORING GOALS AND OBJECTIVES

The Texas Seagrass Monitoring Program will focus on two primary goals:

1. Protection and propagation of seagrass through water quality management programs.
2. Conservation and restoration of seagrasses through estuarine habitat management programs.

Goal 1: In order to effectively protect seagrasses through water quality or dredging regulations, seagrass monitoring can be utilized in three different regulatory situations . These three situations underscore the broad regulatory context for seagrass monitoring: performing assessments, validating permit decisions, and establishing water quality standards. Each application also represents a facet of specific state or federal regulatory programs, with differing statutory jurisdictions. These regulatory programs are identified as follows:

Assessments: Clean Water Act activities such as “305(b)” Reports, “303(d)” Assessments, Total Maximum Daily Loads (TMDL’s), and Watershed Restoration.

Clean Water Act Permit Decisions: Wastewater (NPDES) and Army Corps of Engineers (Sec. 404/401) permits; Consistency review of Sec. 404 permits under Texas Coastal Management Program (CMP).

Texas Surface Water Quality Standards: Aquatic life use designation and quantitative criteria Development.

Goal 2: In order to evaluate the effectiveness of coastal habitat management programs, seagrass monitoring can provide data for evaluating the results of state or local estuarine management policies. Several monitoring objectives address non-regulatory management programs such as Coastal Preserves, State Scientific Areas, Estuarine Reserves, State Estuary programs, and non-governmental organization projects. A variety of strategies, many are also common to first goal above, comprise the specific actions to accomplish seagrass management and conservation objectives.

The following monitoring objectives and strategies are identified:

Objective 1: Monitor status and trends of seagrass distribution

Strategy 1: Perform coastwide seagrass status and trends inventories at 5-year intervals. Map distribution and coverage from 1:24,000 scale, true color (not color infrared) aerial photography. The resulting baseline maps will be the primary basis for designating seagrass use in coastal waterbody segments.

Strategy 2. If possible, perform seagrass mapping (both aerial and ground reconnaissance) after hurricanes or other natural catastrophic events.

Strategy 3. Perform seagrass surveys and mapping in conjunction with estuary program implementation projects. (e.g. GBEP and CBBEP)

Objective 2: Monitor ecological health of seagrass by assessing environmental criteria for seagrass beds

Strategy 1: Determine seagrass ecological health in coastal waterbody segments by field surveys. Define the threshold of impairment with ecological health tools, such as indices of biological integrity. From this analytical strategy, determine the threshold of seagrass change that equals impairment.

Strategy 2: Document ambient conditions of constituents that support seagrass propagation and determine loadings that prevent seagrass use.

Strategy 3: Develop health indicators for compliance monitoring and as possible biomonitoring assessment tools.

Objective 3: Monitor ecological health of seagrass by assessing spatial or landscape criteria for seagrass beds

Strategy 1: Acquire high resolution remote sensing/aerial photography data at a landscape scale (1:9,600 or greater). Develop high resolution (large-scale) maps with standardized methodology. Quantify seagrass acreage and species composition, and other relevant landscape features, such as propeller scarring, for water-body segments.

Strategy 2: Develop large scale maps of appropriate detail at project sites and delineate zones of influence (e.g. for discharges). Compile detailed base maps in areas of high human activity and population growth.

Strategy 3: Determine seagrass ecological health in coastal waterbody segments at landscape scale. Define the threshold of impairment with ecological health tools, such as indices of biological integrity. From this analytical strategy, determine the threshold of seagrass change that equals impairment.

Objective 4: Monitor ecological health of seagrass by assessing conditions necessary to maintain seagrass use and propagation

Strategy 1: For site assessments, document constituents of concern that impact seagrasses such as light, nutrients, total suspended solids, toxics, etc. Although it is assumed that existing toxic criteria are adequate, additional information on toxicity to seagrass may need to be developed.

Strategy 2. Perform assessments of seagrass health indicators (as identified in Strategy 1) and develop indices of biological integrity.

Strategy 3: For developing numeric water quality standards, determine related seagrass plant stress criteria. The long-term goal is to have seagrass-specific quantitative criteria, with associated threshold data (i.e. What is the effect threshold for various parameters? That is, what concentrations, conditions, and/or loadings result in a plant effect?)

Strategy 4: In order to determine limits for permit compliance, develop health indicators for compliance monitoring and as possible biomonitoring assessment tools.

Objective 5. Monitor to support seagrass mitigation and restoration programs.

Strategy 1: In support of seagrass restoration and creation projects, identify conditions to enhance, restore, or create seagrass habitat.

Strategy 2: In order to establish effective seagrass mitigation ratios, monitor selected restoration sites, planting methods, important habitat variables, success criteria, and health indicators.

Strategy 3: Document constituents of concern that impact seagrasses such as light, nutrients, total suspended solids, etc. TCEQ assumes existing toxic criteria are adequate. Is there specific information on toxicity to seagrass that needs consideration?

Strategy 4: Use seagrass monitoring data to develop and assess effectiveness of Best Management Practice's (BMP's) for the Army Corps of Engineers Dredged Material Placement Plan (DMMP).

Objective 6. Develop a seagrass monitoring Data Management System (DMS) .

Strategy 1: Design the DMS to handle compilation and formatting of seagrass monitoring data, custodial quality assurance/quality control (QA/QC) issues, and data archiving.

Strategy 2: As part of the DMS, establish a data clearinghouse for access and distribution of data through a web-based server application.