2021 Tampa Bay Water Quality Assessments

A Tampa Bay Estuary Program Initiative to Maintain and Restore the Bay's Seagrass Resources



Historic results:



Figure 1: Decision matrix results for 1975 to 2021 (April, May data missing for 2020).

Background

Light availability to seagrass is the guiding paradigm for TBEP's Nitrogen Management Strategy. Because excessive nitrogen loads to the bay generally lead to increased algae blooms (higher chlorophyll-a levels) (Figure 2) and reduce light penetration to seagrass, an evaluation method was developed to assess whether load reduction strategies are achieving desired water quality results (i.e. reduced chlorophyll-a concentrations and increased water clarity).



Figure 2: Seagrass restoration with N management.

Decision Support Approach

Year to year algae abundance (measured as chlorophyll-a concentrations) and visible light penetration through the water column (secchi disk depth visibility) have been identified as critical water quality indicators in Tampa Bay. Tracking the attainment of bay segment specific targets for these indicators provides the framework for developing and initiating bay management actions. TBEP management actions adopted in response to the annually-assessed decision support results are shown to the right.

	"Stay the Course" Continue planned projects. Report
G	data via annual progress reports and Baywide
	Environmental Monitoring Report.
	"Caution" Review monitoring data and nitrogen loading
Υ	estimates. Begin/continue TAC and Management Board
	development of specific management recommendations.
	"On Alert" Finalize development and implement
R	appropriate management actions to get back on track.
	appropriate management detrone to bet back on track

2021 Decision Matrix Results

Water quality (chlorophyll-a and light penetration) remained supportive of seagrass in Hillsborough Bay (HB), Middle Tampa Bay (MTB), and Lower Tampa Bay (LTB)(Table 1, Figure 3). The nuisance alga, *Pyrodinium bahamense*, was again reported in Old Tampa Bay (OTB) during June - Sept 2020, contributing to a large magnitude chlorophyll-a exceedance that has persisted for a long duration (6 yrs). However, it should be noted that effective light penetration was still observed to be supportive of seagrass in all bay segments, including OTB (Table 1).

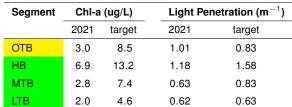


Table 1: Water quality outcomes for 2021.

- Annual Mean Management Target - +1 se (small exceedance) - +2 se (large exceedance)
Old Tampa Bay

Hillsborough Bay

30
20
1975 1980 1985 1990 1995 2000 2005 2010 2015 2020

Middle Tampa Bay

Lower Tampa Bay

Lower Tampa Bay

2.8 2.8 OTB
3.1
2.6 2.7 2.8 5.7 6.3 HB
2.9 2.4 5.2 8.7
2.9 2.4 5.2 8.7
3.2
2.1 1.5 2.9 4.7

MTB 2.7 5.7 5.8 6.7 16.1

MTB 2.7 2.2 2.7

2.8 2.8 2.8 1.8 2.2 2.7

2.1 2.2 2.8 2.9 4.7

LTB

LTB

LTB

Figure 3: Historic chlorophyll-a annual averages for the four bay segments.

1975 1980 1985 1990 1995 2000 2005 2010 2015 2020

Figure 4: Chlorophyll attainment outcomes by site for 2021.

Note: Continuing water quality monitoring support provided by the Environmental Protection Commission of Hillsborough County. Consulting support provided by Janicki Environmental, Inc. Full methods in Janicki et al. 2000. TBEP Technical Report #04-00. Points in map above show site-specific attainment of a bay segment target and are for reference only.

1975 1980 1985 1990 1995 2000 2005 2010 2015 2020