2019 Tampa Bay Water Quality Assessments







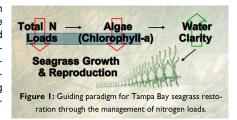
A Tampa Bay Estuary Program Initiative to Maintain and Restore the Bay's Seagrass Resources

Historic results:

Historic results:								
	OTB	HB	MTB	LTB				
1975	red	red	yellow	yellow				
1976	red	red	yellow	yellow				
1977	red	red	red	red				
1978	red	red	red	yellow				
1979	red	red	red	red				
1980	red	red	red	red				
1981	red	red	red	red				
1982	red	red	red	red				
1983	red	yellow	red	red				
1984	red	green	red	yellow				
1985	red	red	red	yellow				
1986	red	yellow	yellow	green				
1987	yellow	yellow	yellow	green				
1988	green	green	green	green				
1989	red	yellow	yellow	yellow				
1990	yellow	green	yellow	green				
1991	green	yellow	green	yellow				
1992	green	green	green	yellow				
1993	yellow	green	green	yellow				
1994	yellow	yellow	yellow	red				
1995	red	yellow	yellow	yellow				
1996	yellow	green	green	green				
1997	green	green	yellow	green				
1998	red	yellow	red	red				
1999	yellow	green	green	yellow				
2000	green	green	green	yellow				
2001	yellow	green	yellow	yellow				
2002	yellow	green	green	green				
2003	red	green	green	green				
2004	yellow	green	green	yellow				
2005	green	green	green	yellow				
-	green	green	green	green				
2007	green	green	green	green vellow				
2008	yellow yellow	green yellow	green					
2010		,	green	green				
2010	green red	green green	green yellow	green				
2011		Ü		green				
2012	green	green	green	green				
2013	green green	green green	green green	green green				
2014	yellow	green	yellow	green				
2015	yellow	green	green	green				
2010	yellow	green	green	green				
2017	yellow	green	green	green				
2019	yellow							
2019	yenow	green	green	green				

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 1) 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).



Decision Support Approach

Year to year algae abundance (measured as chlorophyll-a concentrations) and visible light penetration through the water column (depth of secchi disk 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.

Freen projects. Report data via annual progress reports and Baywide Environmental Monitoring Report.

"Caution" Review monitoring data and nitrogen loading estimates. Begin/continue TAC and Management Board development of specific management recommendations.

"On Alert" Finalize development and

"Stay the Course" Continue planned

Red implement appropriate management actions to get back on track.

2019 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 the Summer and Fall 2019, contributing to a small magnitude chlorophyll-a exceedance. In all bay segments, separate algal bloom events contributed to individual stations exceeding the bay segment chlorophyll-a targets (Figure 4). However, effective light penetration was supportive of seagrass in all bay segments (Table 1).

Table 1: Observed water quality indicators & recommended management outcomes for 2019.

Bay seg- ment	Chl-a (ug/L)		Light etration	Effective Light Penetration (m^{-1})	
	2019	target	2019	target	outcome
ОТВ	10.64	8.5	0.76	0.83	yellow
HB	11.31	13.2	0.97	1.58	green
MTB	5.83	7.4	0.59	0.83	green
LTB	4.05	4.6	0.61	0.63	green



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

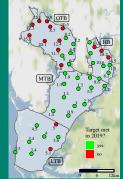


Figure 4: Chlorophyll attainment outcomes by site for 2019.

Figure 2: Decision matrix results for 1975 to 2019.

Acknowledgments: Continuing water quality monitoring support provided by the Environmental Protection Commission of Hillsborough County.