2019 Tampa Bay Water Quality Assessments

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



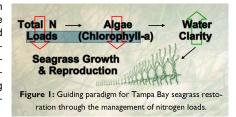
Historic results:

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	OŢB	ΗB	MŢB	LŢB					
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	yellow					
2006		green	green	green					
2007	green	green	green	green					
2008 - 2009 -	yellow	green	green	yellow					
2010-		yellow	green	green					
2010	green red	green	green yellow	green					
2011		green		green					
2012		green	green green	green green					
2013		green green	green	green					
2014			yellow						
2016		green green	green	green green					
2017		green	green	green					
2018	yellow	green	green	green					
2019		green	green	green					
2017	ychow	green	green	green					

Figure 2: Decision matrix results for 1975 to 2019.

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.

Green	"Stay the Course" Continue planned projects. Report data via annual progress reports and Baywide Environmental Monitoring Report.
Yellow	"Caution" Review monitoring data and nitrogen loading estimates. Begin/continue TAC and Management Board development of specific management recommendations.
Red	"On Alert" Finalize development and 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 large magnitude and duration (5 yrs) chlorophyll-a exceedance. However, effective light penetration was observed to be 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	
	2019	target	2019	target	outcome
ОТВ	10.09	8.5	0.74	0.83	yellow
HB	11.10	13.2	0.94	1.58	green
MTB	5.87	7.4	0.57	0.83	green
LTB	4.02	4.6	0.60	0.63	green

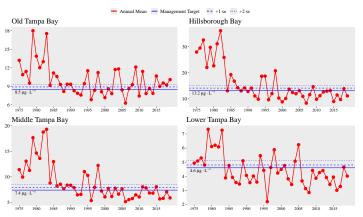


Figure 3: Historic chlorophyll-a annual averages for the four bay segments.

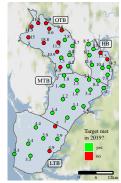


Figure 4: Chlorophyll attainment outcomes by site for 2019.

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Consulting support provided by Janicki Environmental, Inc. Full methods in Janicki, A., Wade, D., Pribble, R.J. 2000. TBEP Technical Report #0400.