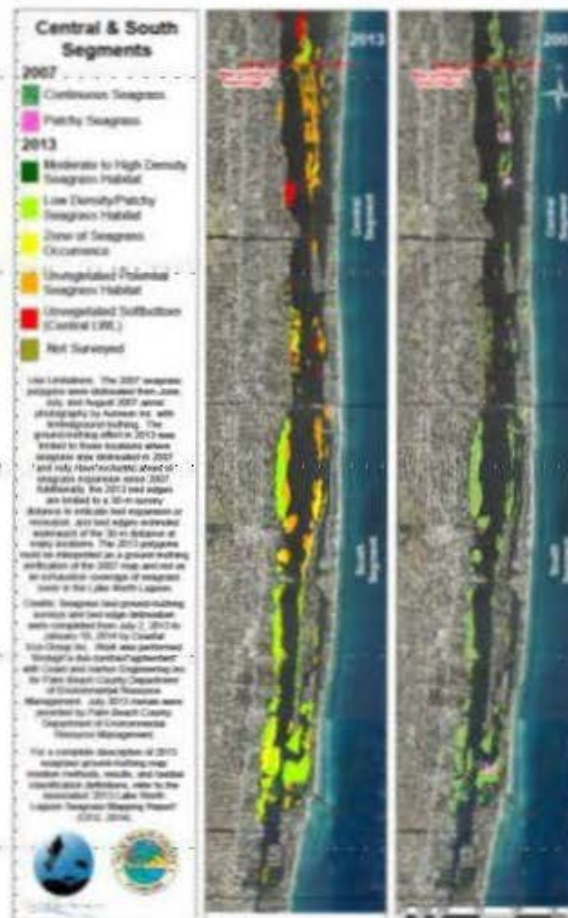


2013 Seagrass mapping project

Year	North Segment	Central Segment	South Segment	Total Acres
2007	65%	12%	23%	1688
2013	76%	2%	22%	1592

Note: 2013 total acreages includes zone of seagrass occurrence (average BB scores of 0.01 to 0.5)



- Similar to the 2007 maps, highest seagrass cover was found in the northern segment and the lowest cover in the central segment.

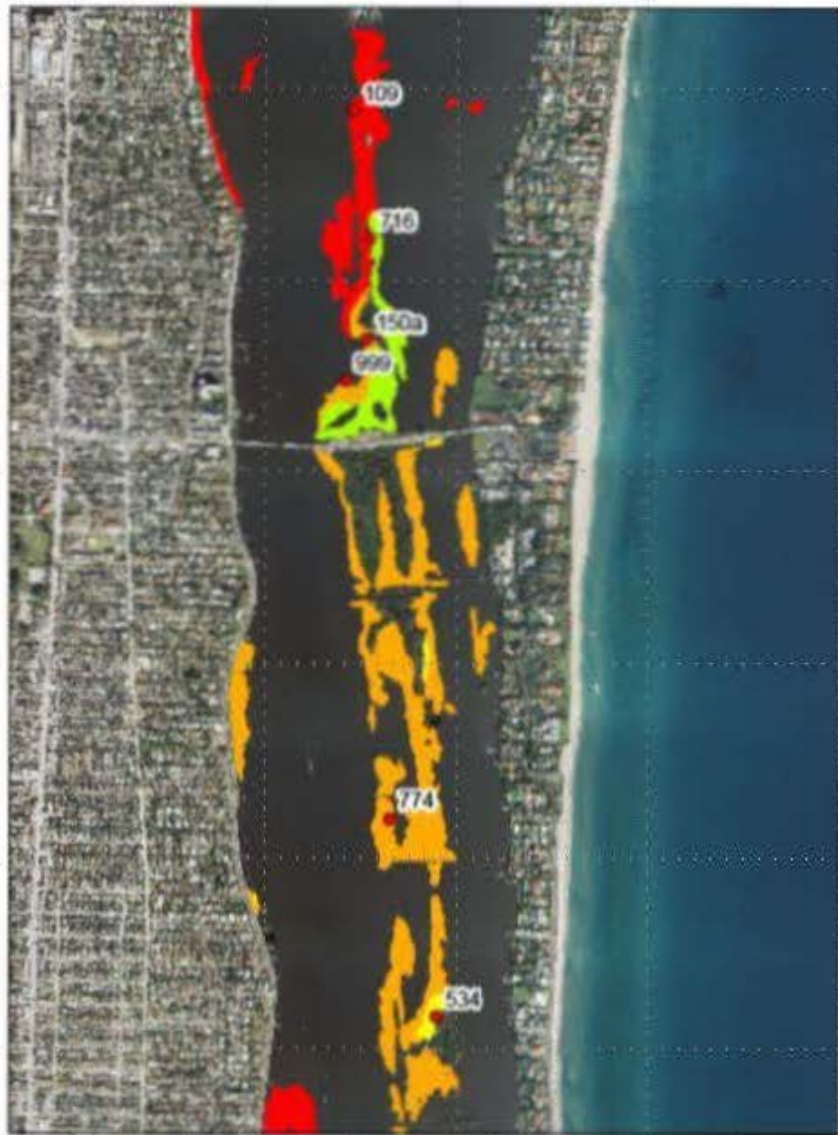


North LWL

2014 Ground-truthing results similar to 2013

- Seagrass at all stations
- Exception Reduction at Site 588;
 - HJ, HW, Sf, and Tt
 - BB Score of 3
 - Density Moderate to High

SITE_ID	North_Y	East_X	Method	DEPTH_Field	DEPTH_NAVD	TOTAL_BBsc	SPECIES	SUBSTRATE	QUAL_INDEX
74	897213	966035	Line	7.9	-8.6	0		Shelly Sand	Low Density/Patch
588	897605	969974	Line	3.2	-3.3	3	HJ HW SFT	Sand	Moderate to High
843	894823	966656	Line	6.4	-6.7	2	Hd	Sand	Low Density/Patch
225b	901634	966692		8.4	-8	0.1	Hd	Sand	Zone of Occurrence
318a	883862	967932		9	-9	0.5	Hw	Sand	Zone of Occurrence
727b	881332	967995		10	-12	2	Hd	Sand	



Central LWL

Results are similar to 2013 with a few additional observations of rooted shoots (BB 0.1) at one central site 534 where we did not observe seagrass last year.

Seagrass at 534, 716, 150a

SITE_ID	North_Y	East_X	Method	DEPTH_Feet	DEPTH_Meters	TOTAL_Miles	W	SUBSTRATE	TL_M_PRODUCT	QUAL_INDEX
109	84038	88007	Line	7.8	-0.1	0		City Sand	No	No Seagrass
534	84077	88008	Line	2.2	-0.2	0.5	No	Sand	No	Clump of Occurrence
716	84002	88008	Line	7.8	-0.3	0.5	No	Sand	No	No Seagrass
774	84700	88049	Point	6.5	-0.3	0		City Sand	No	No Seagrass
999	83026	88017	Line	8.2	-0.4	0		City Sand	No	No Seagrass
150a	83008	88001	-	3	-0.2	2	0.5	City Sand	No	-



South LWL

Some expansion of bed edges in the south segment around Boynton Inlet. We also saw some losses in the south where we had relatively moderate to dense seagrass last year (Sites 51 and 3)

No seagrass at 348

SITE_ID	North_Y	East_X	Method	DEPTH_Field	DEPTH_NAVD	TOTAL_BBsc	SPECIES	SUBSTRATE	SG_IN_RADIUS	QUAL_INDEX
3	824276	967418	Radius	3.2	-5.1	0.1	Hw Sand	Sand	Yes	Low Density/Patchy
51	825929	967196	Radius	3.7	-4.4	3	Hl Hw Sand	Sand	Yes	Moderate to High
348	815160	967073	Line	6.1	-8	0		SS/Muck	No	
649	816748	967017	Line	5.4	-7.5	0.1	Hd	SS/Muck	No	Low Density/Patchy
975	807189	967957	Radius	6.5	-6.8	1	Hd	Shelly Sand	Yes	
273b	807802	968150		5.3	-6.7	0.5	Hd	Sand	No	

LWL Fixed Transect Program Overview

- PBCERM initiated a long-term seagrass monitoring program in 2000 with 5 permanent transects
- 9 transects surveyed annually since 2001 except for 2006. Transects selected by proximity to LWL Partnership Grant projects or habitat improvement projects
- *H. decipiens* and *H. johnsonii* are dominant species
- Document annual changes in seagrass abundance and distribution as an indicator of lagoon-wide seagrass health

N 862500 N 868500 N 874500 N 880500 N 886500 N 892500 N 898500 N 904500 N 910500



Transect 1: No coverage at Station I, Moderate Halophila decipiens at Station II and III (30 cells seagrass)

Transect 3: Low coverage at Station I, and III (4 cells seagrass)

Transect 8: Low coverage at Station I and III (10 cells seagrass)

Transect 4: very sparse Johnson's seagrass at Station I and observed Halophila decipiens landward of Station I, no seagrass at Stations II and III. (2 cells)

Transect 9: **No Seagrass at all three stations/transect**

Transect 6: **No seagrass at all three stations/transect**

Transect 2: Some recovery from 2013 conditions. Stations I and II had low density seagrass, no seagrass at Station III. The bed edge was landward of Station III at 187 ft- this is substantially waterward of the 2013 edge (68 ft). (20 cells seagrass)

Transect 5: **No seagrass in the three stations, dense Lyngbya and mat cyano at all stations.**

Transect 10: Low to moderate seagrass cover at Stations I and II. There was no seagrass at Station III, only dense mat cyano. (15 cells seagrass)

Overall seagrass frequency of occurrence at the transect level, 2000-2013

Transect	May 2000	Aug 2001	June 2002	June 2003	June 2004	July 2005	Sep 2006	June 2007	July 2008	May 2009	June 2010	June 2011	July 2012	July 2013
Transect 1	62	181	96	7	132	71	37	100	73	100	2	46	133	36
Transect 2	90	28	66	21	71	39		53	129	163	43	65	43	4
Transect 3	130	58	36	211	121	0	19	235	236	187	24	192	94	6
Transect 4	42	61	182	75	138	0	28	150	104	167	146	173	138	0
Transect 5	116	221	226	181	214	129		97	67	76	123	270	62	21
Transect 6		6	186	32	2	0		121	81	25	0	0	0	0
Transect 8		124	73	79	66	0	54	116	103	41	96	120	0	0
Transect 9		19	163	67	56	0		99	69	93	98	85	59	0
Transect 10		56	55	7	88	3		126	63	70	25	121	8	1
Total	440	754	1083	680	888	242	138	1097	925	922	557	1072	537	68

Red- annual record lows; blue-annual record highs

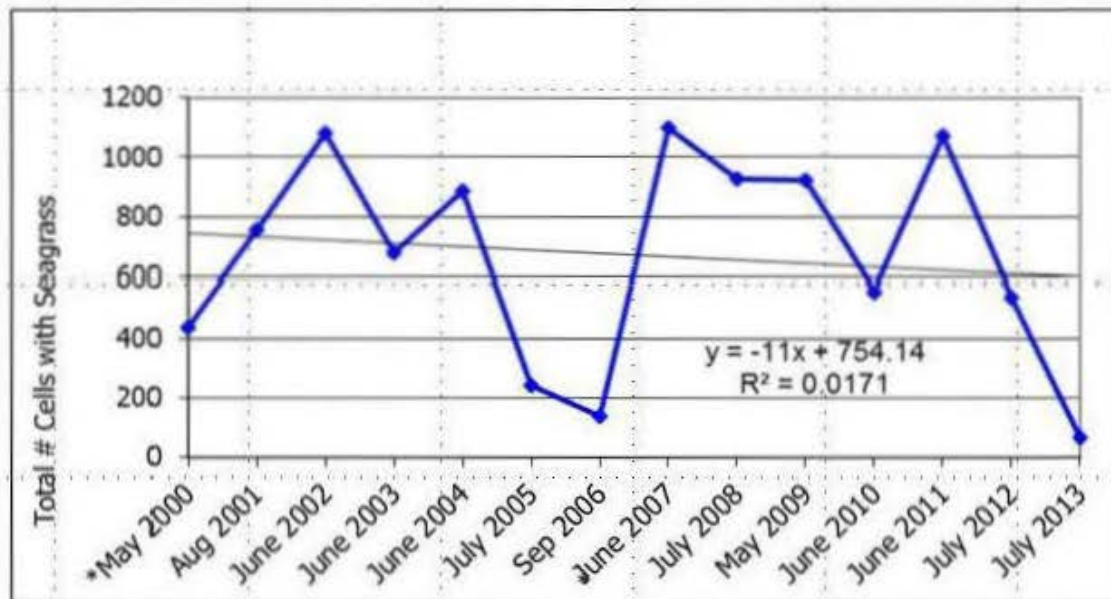
Preliminary 2014 Results: 81 total cells with seagrass

No Seagrass at three stations (5,6, and 9)

Low Coverage at four stations (3,4,8, and 10)

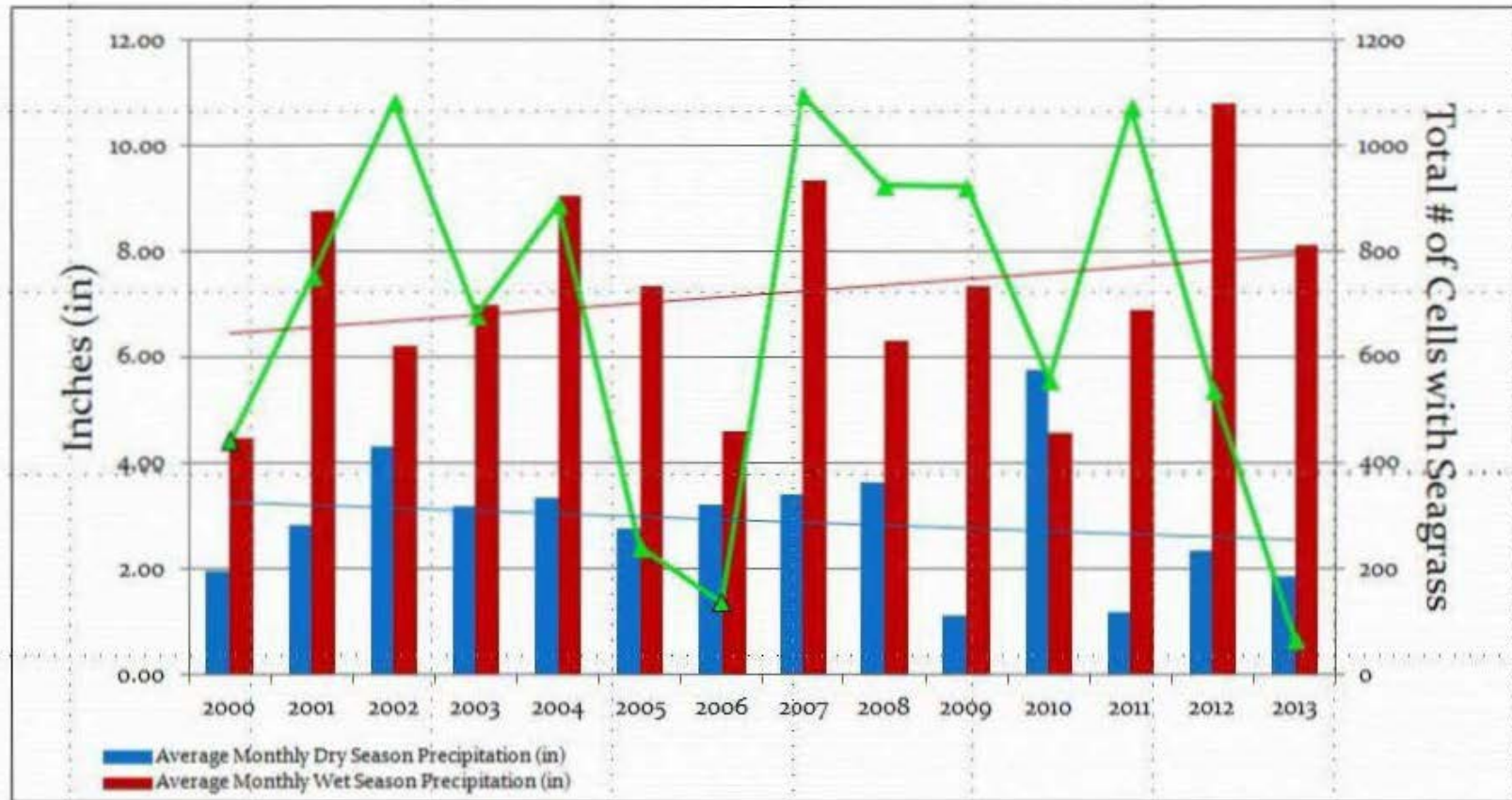
Moderate Coverage at two stations (1 and 2)

Overall seagrass frequency of occurrence 2000-2013



Large-scale events, such as the extreme freshwater discharges associated with tropical storms and hurricanes, may be the largest contributor to overall seagrass trends in the LWL.

Total seagrass frequency of occurrence vs. average wet /dry season precipitation



2007 survey followed a very dry “wet season”

2009- more normal rainy season, ~44 inches of rain between May & October

2009/2010- wetter dry season,

2011 survey preceded by a very dry “dry season”

2012 wettest season was highest on record for monitoring program, ~ 65 inches