



IMPACT OF TROPICAL STORM ISAAC ON STORMWATER TREATMENT AREAS

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Technical Oversight Committee Meeting

December 18, 2012

Tropical Storm Isaac

August 26 – 27, 2012

- **Record Rainfall Event (last 20 years)**
 - 2nd largest 1-day rainfall event
 - 3rd largest 2-day rainfall event
- **Heaviest rainfall in Palm Beach, Broward & Dade Counties**
 - C-51 Basin: 1 in 100 year rainfall event
 - Almost 15 inches rain in 72 hr period



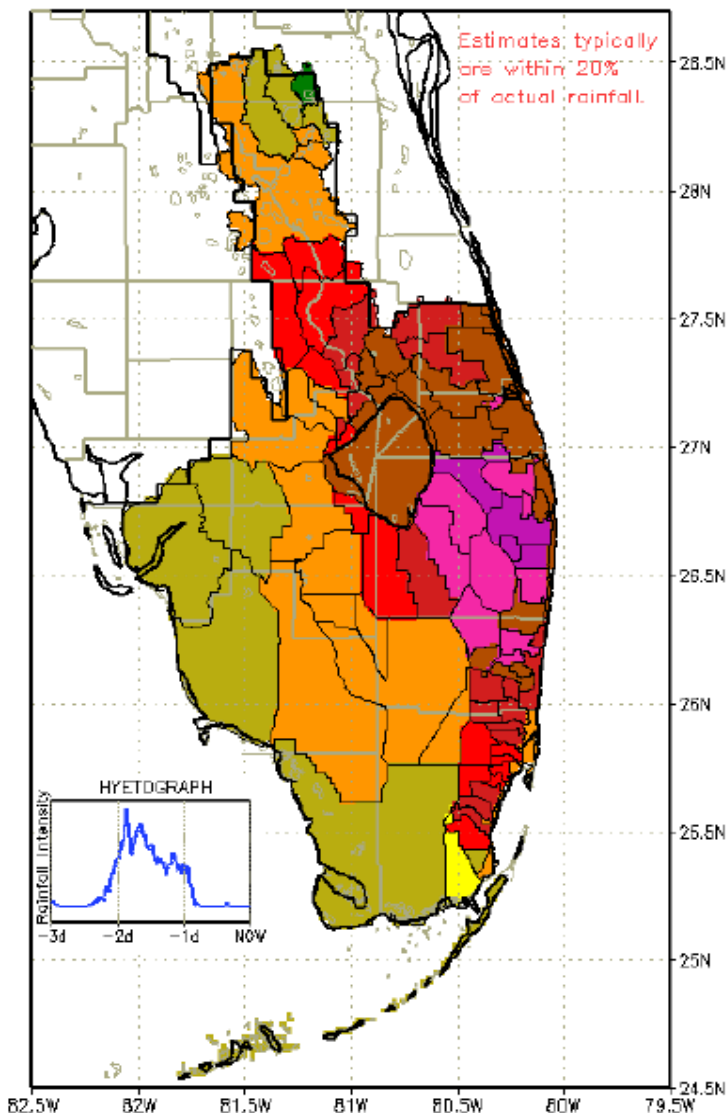
STA-1W G-303 gated structure

3-Day Rainfall Estimate



SFWMD RAINDAR 3-DAY BASIN RAINFALL ESTIMATES

FROM: 1200 EST, 08/25/2012 THROUGH: 1200 EST, 08/28/2012



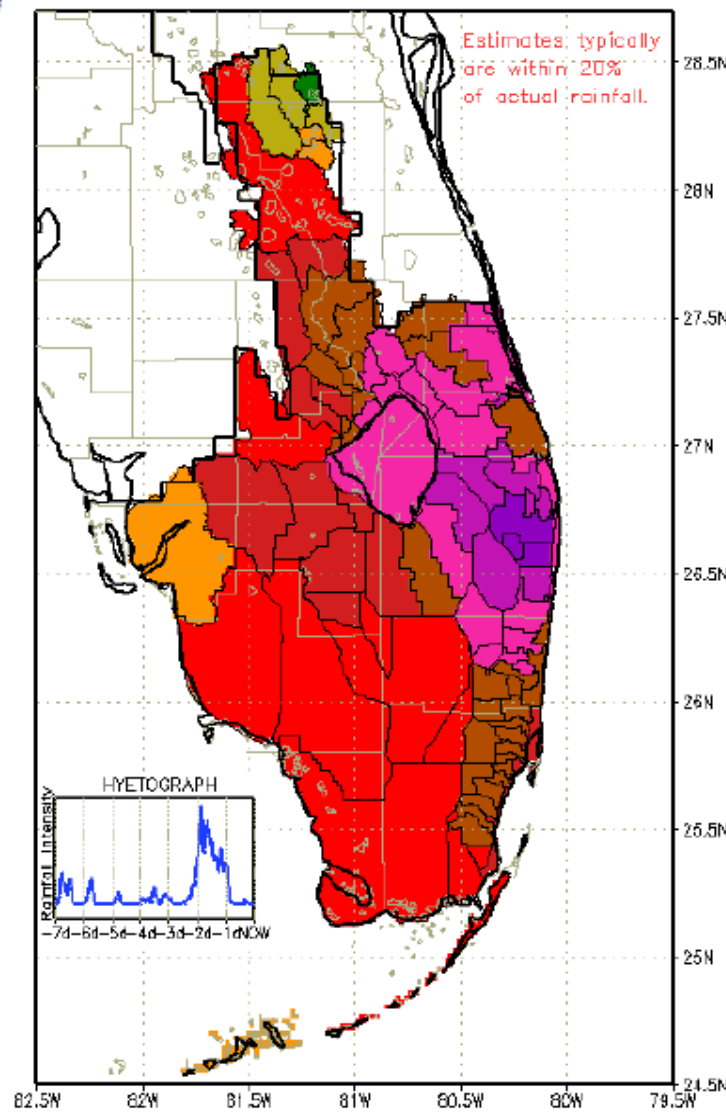
DISTRICT-WIDE RAINFALL ESTIMATE: 4.755"

7-Day Rainfall Estimate



SFWMD RAINDAR 7-DAY BASIN RAINFALL ESTIMATES

FROM: 1130 EST, 08/21/2012 THROUGH: 1130 EST, 08/28/2012



DISTRICT-WIDE RAINFALL ESTIMATE: 6.249"









Newly planted parsley field impacted by T.S. Isaac. *Photo from T. Strowd Water Conditions Report, October 2012 Governing Board.*



Flooded field at Knights Farm on east side of Sam Senter Road. *Photo from T. Strowd Water Conditions Report, October 2012 Governing Board.*

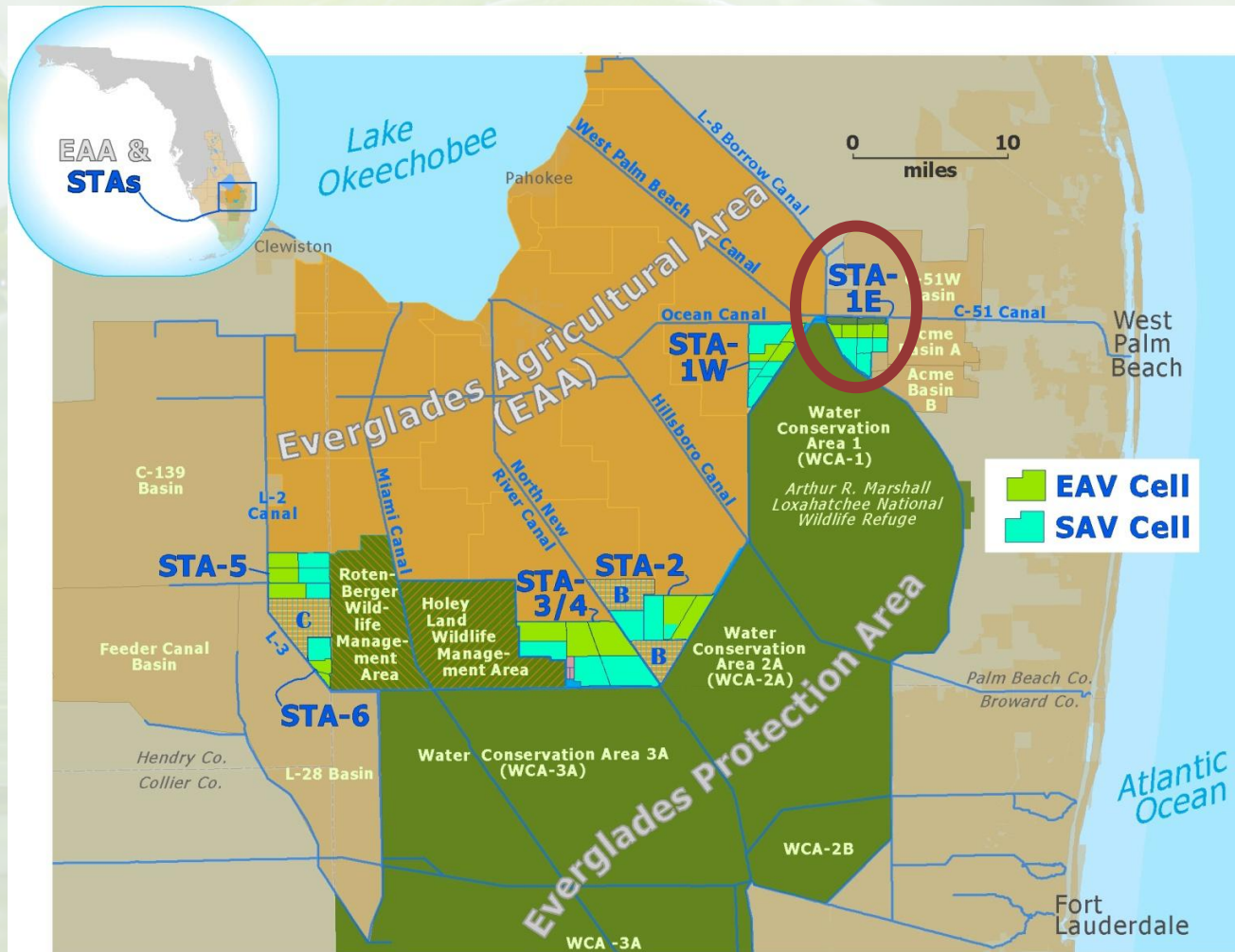
Impact on STAs

- Elevated Inflow flows, total phosphorus (TP) loads & concentrations
- 24 hr pumping @ STA-1E, STA-1W, STA-2 & STA-3/4
 - S-5A & S-319 maximum pumping rate
- Some STA-1E/STA-1W structures under repair
- Deep water depths
- Diversions into Water Conservation Area 1 (WCA-1)
- STA-5 & STA-6 unaffected

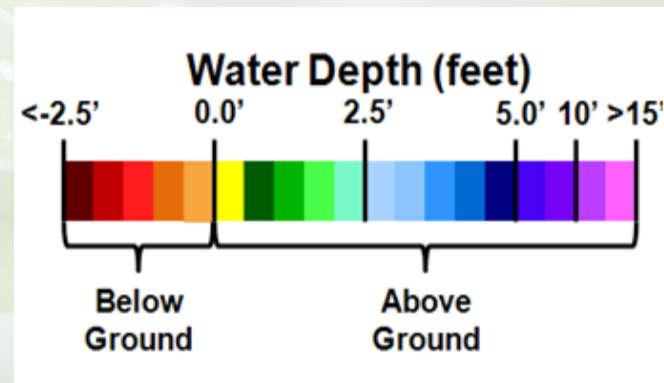
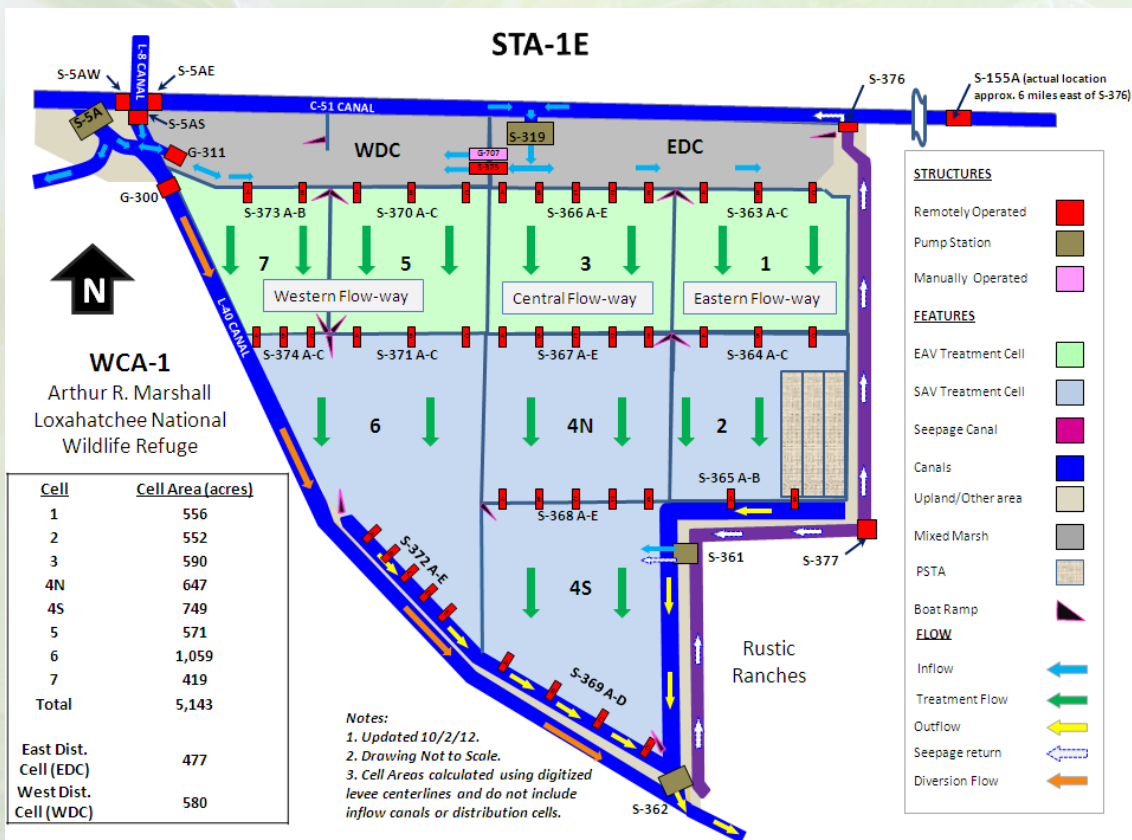


STA-1E Cell 3 outflow structure S-367A vegetation TuffBoom® buckled due to high flows. Vegetation remaining on the railing on left indicates elevated water levels.

STA-1E

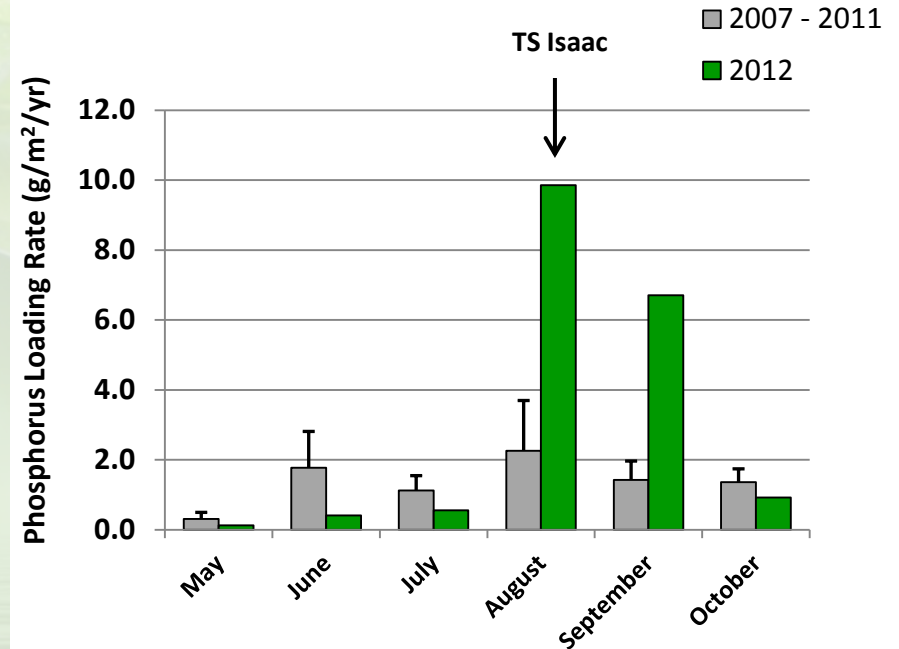
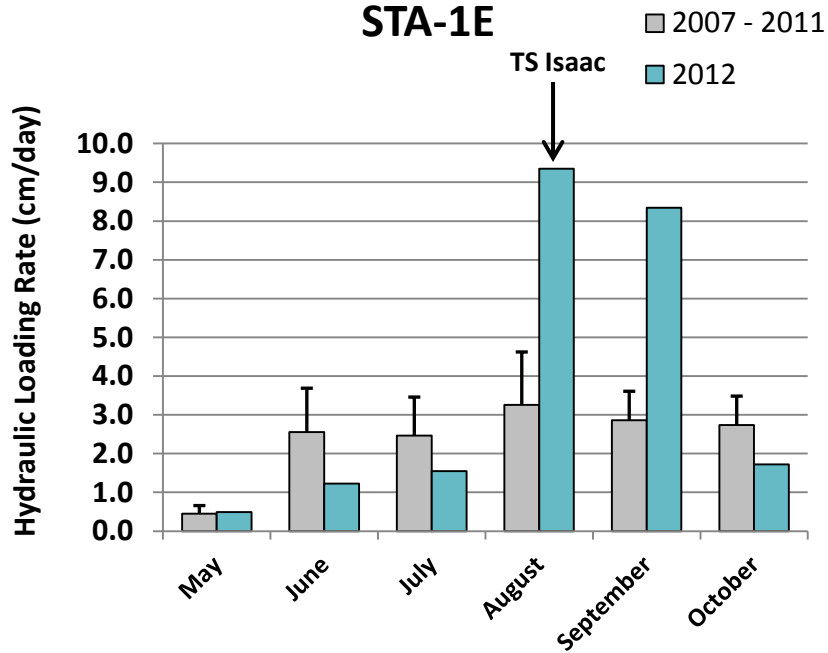


STA-1E Water Depths



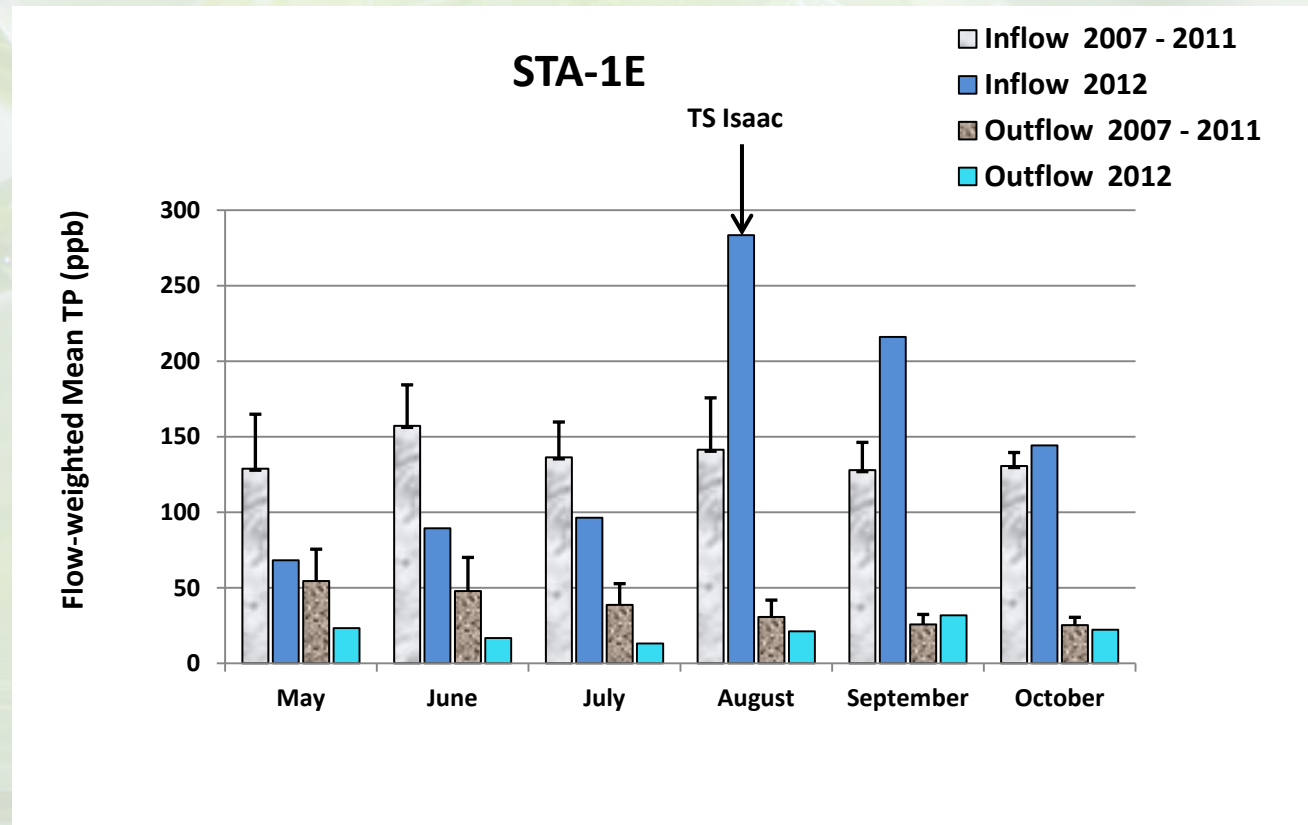
[STA-1E Animation](#)

Water Quality Impacts

STA-1E

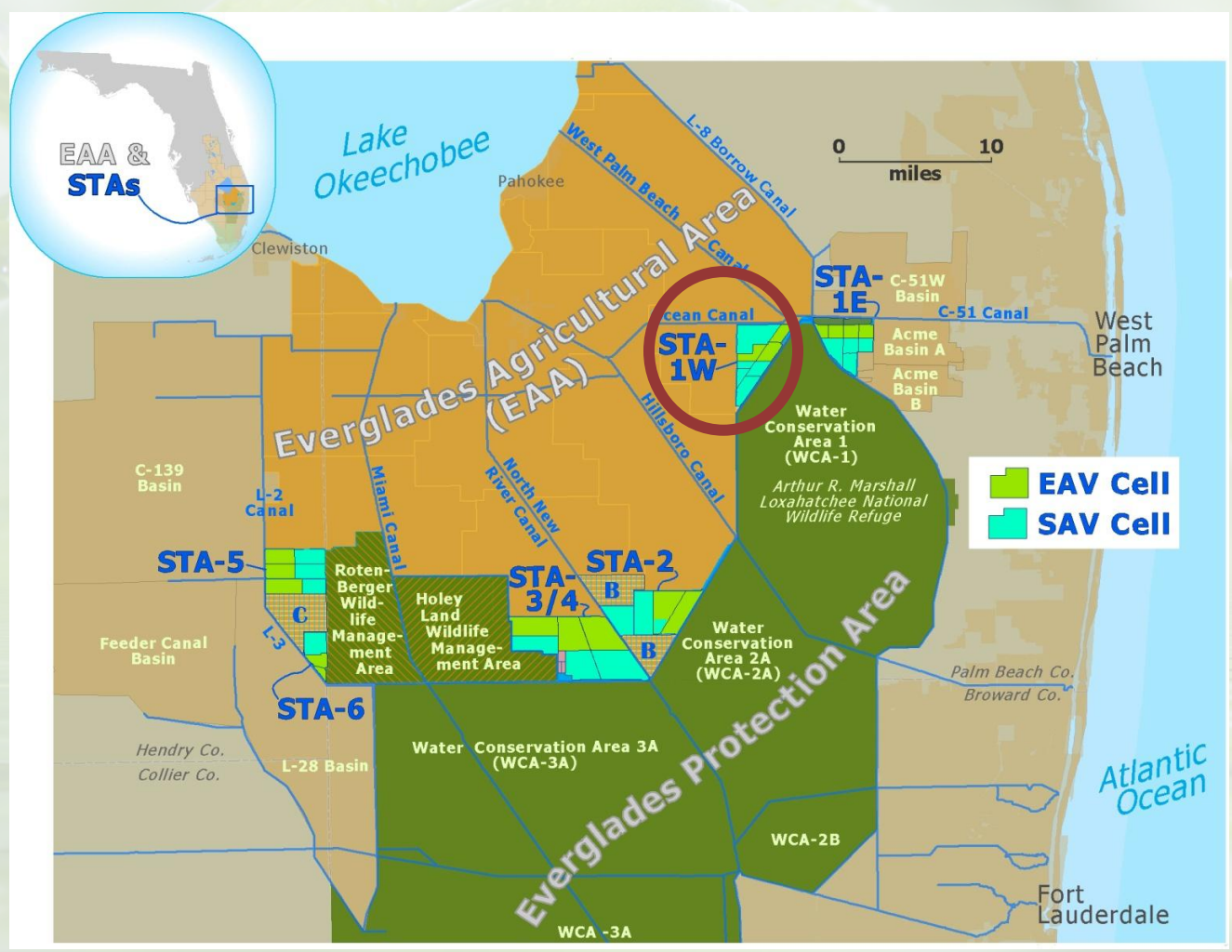
Average values and standard error bars are shown for 2007 - 2011. Graph contains preliminary data.

Water Quality Impacts

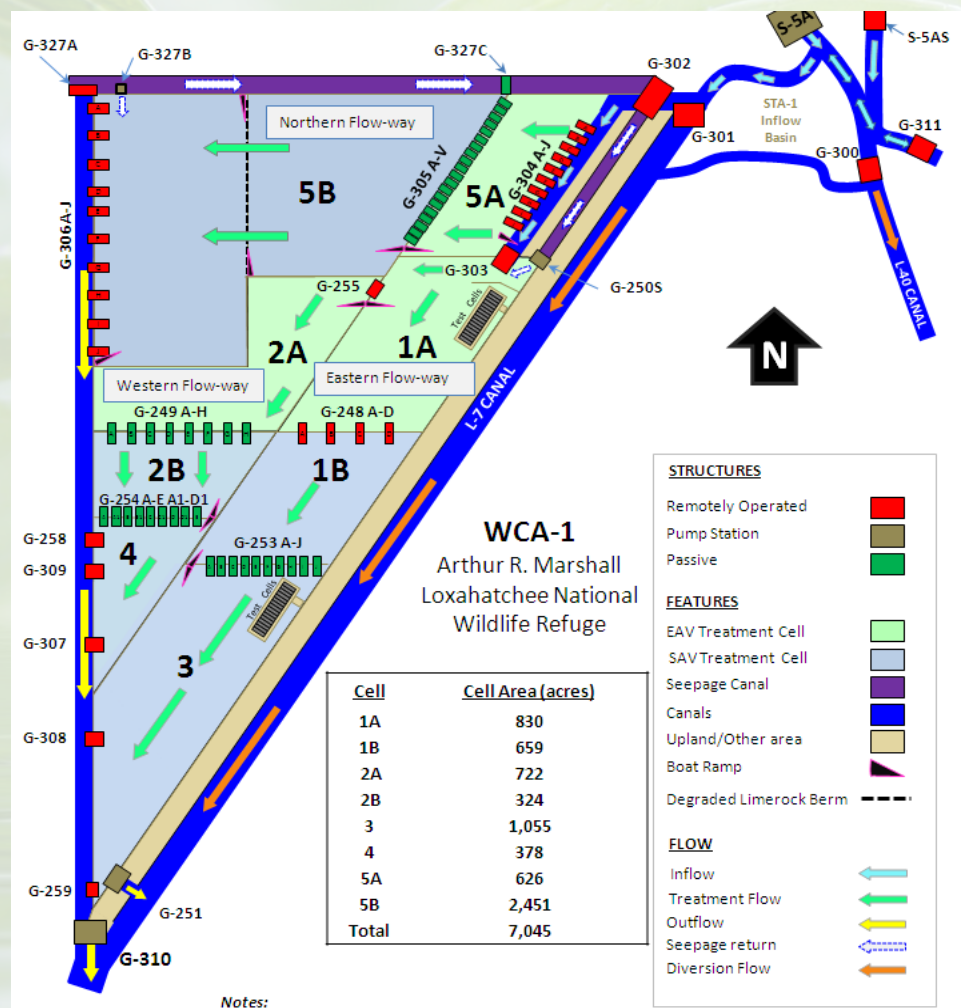


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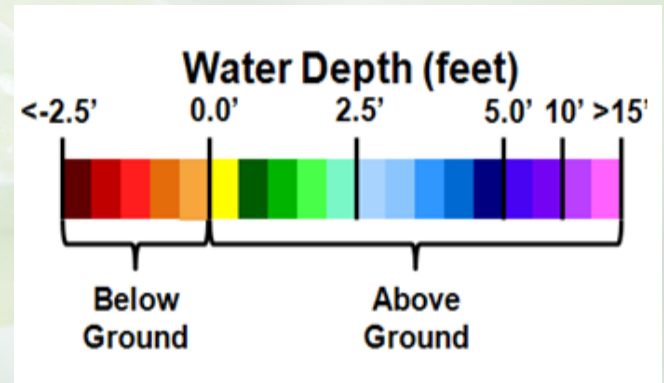
STA-1W



STA-1W Water Depths



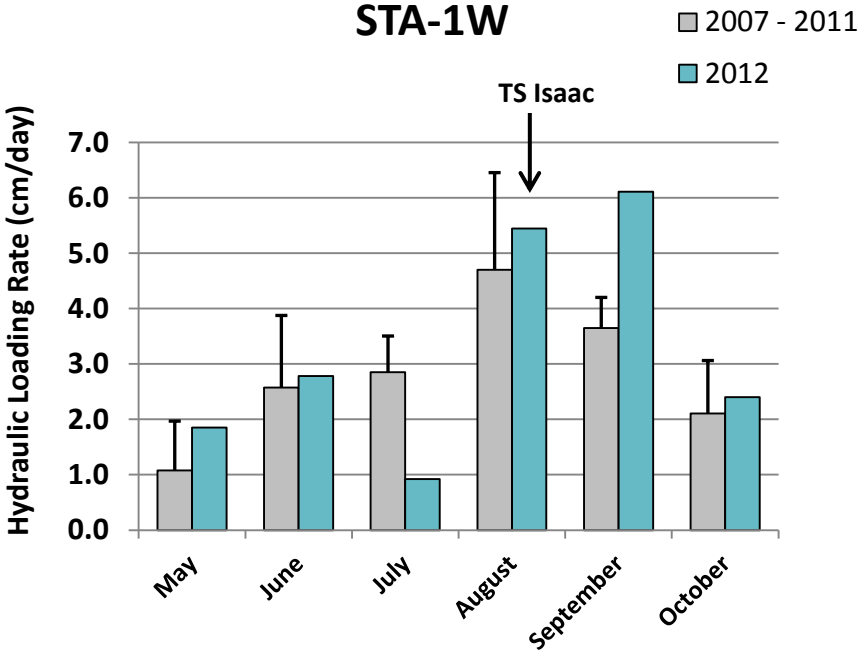
Notes:
1. Updated 9/12/12.



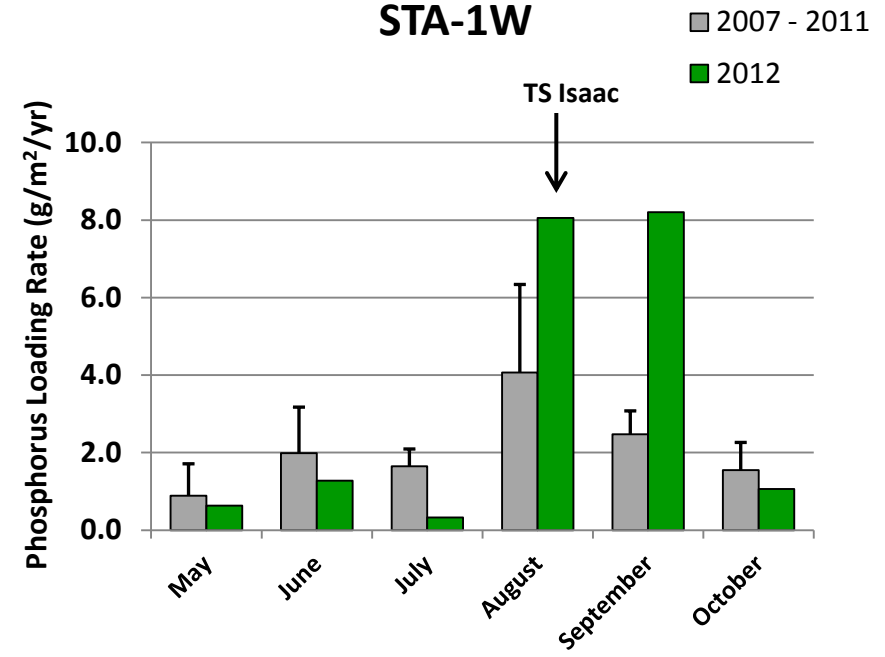
[STA-1W Animation](#)

Water Quality Impacts

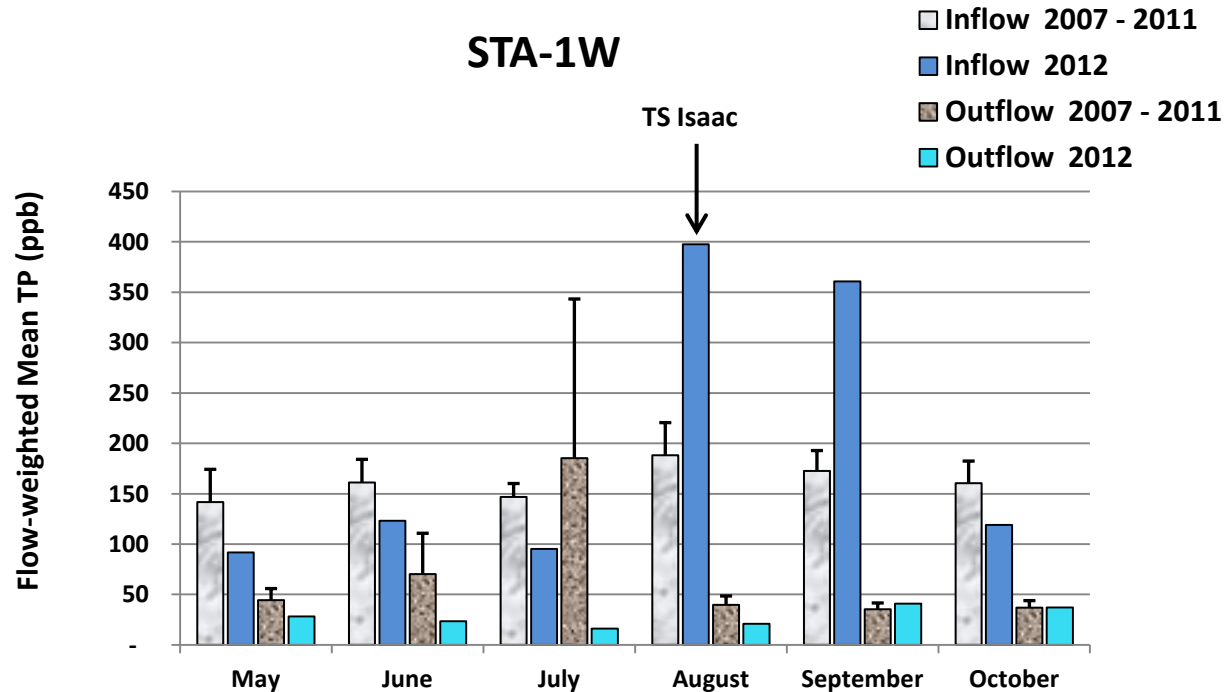
STA-1W



STA-1W

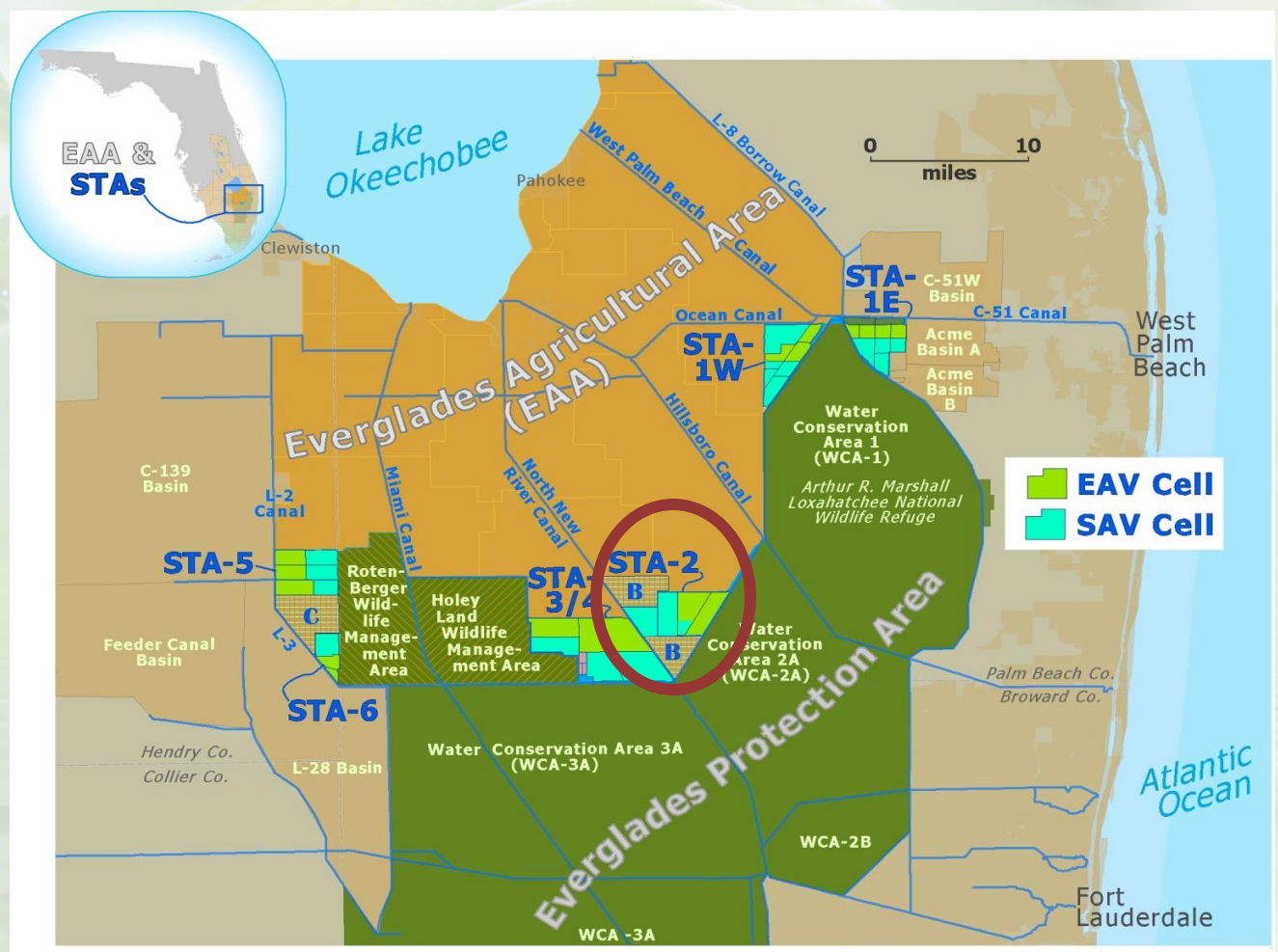


Water Quality Impacts



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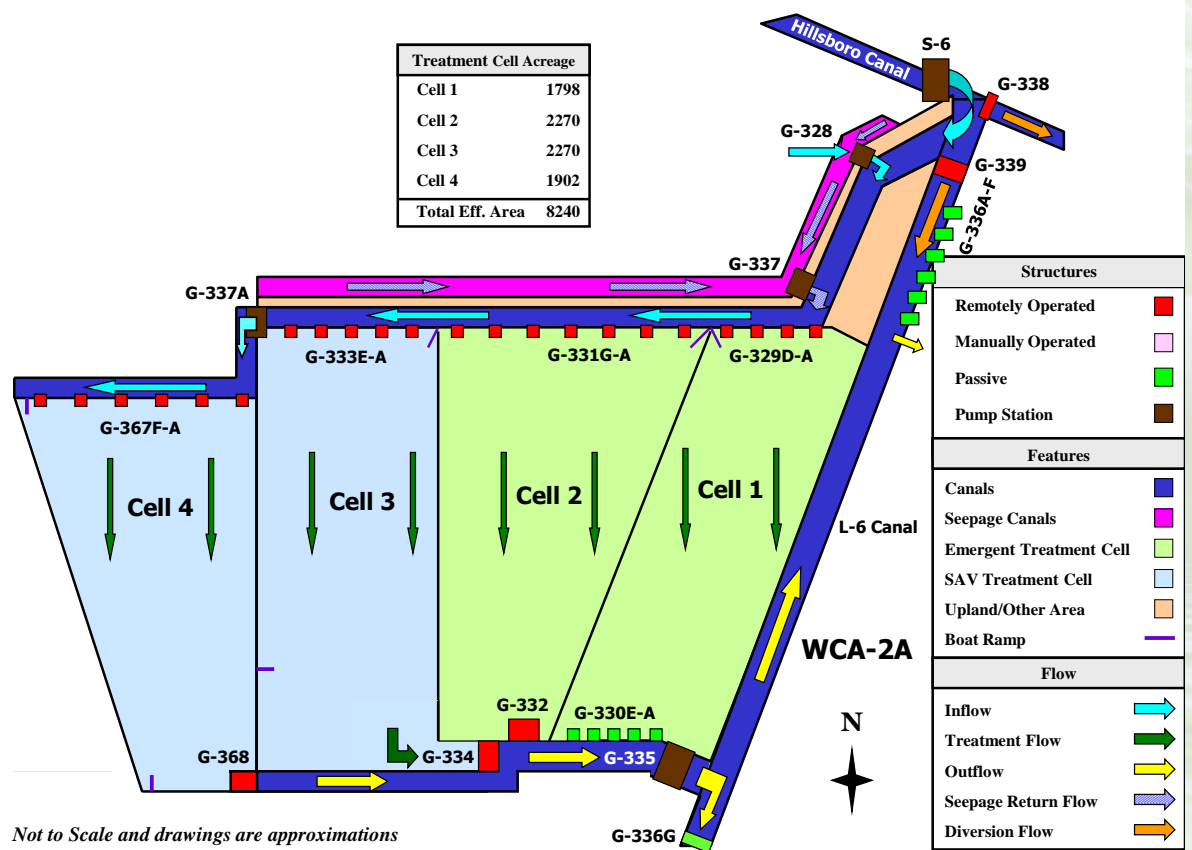
STA-2



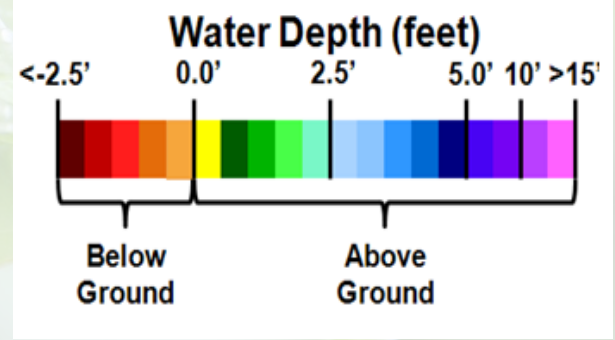
STA-2 Water Depths

STA-2

Treatment Cell Acreage	
Cell 1	1798
Cell 2	2270
Cell 3	2270
Cell 4	1902
Total Eff. Area	8240



Not to Scale and drawings are approximations

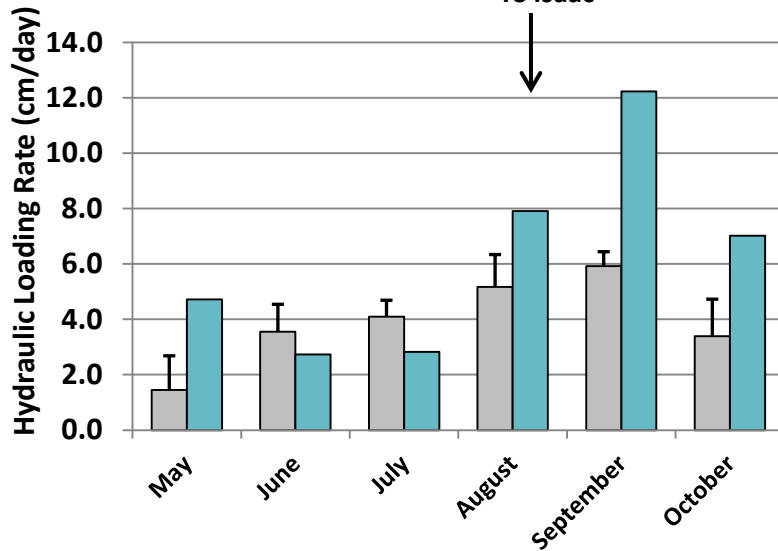


[STA-2 Animation](#)

Water Quality Impacts

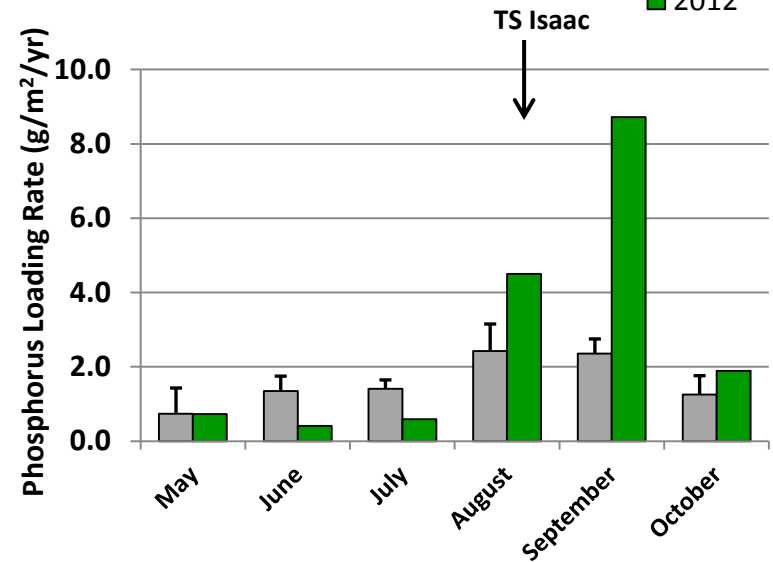
STA-2

2007 - 2011
2012



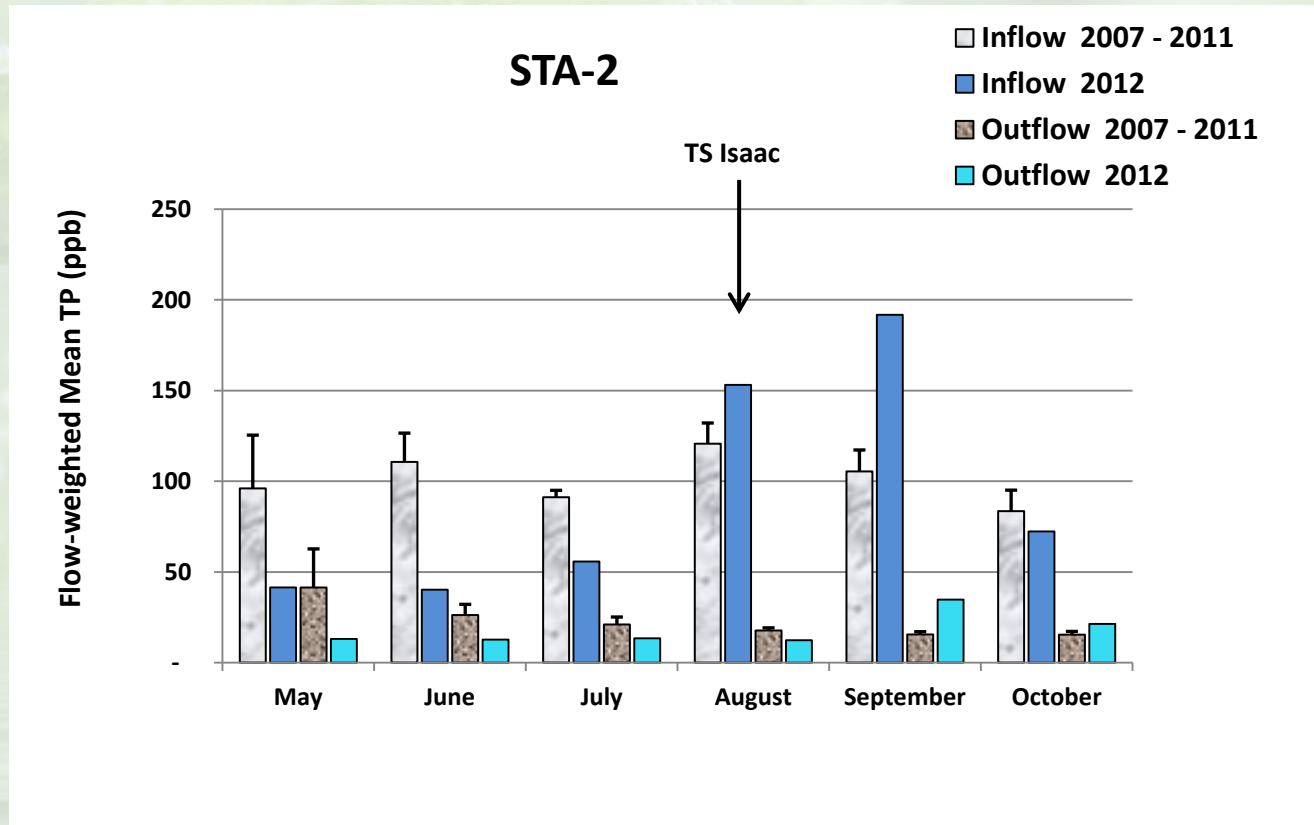
STA-2

2007 - 2011
2012



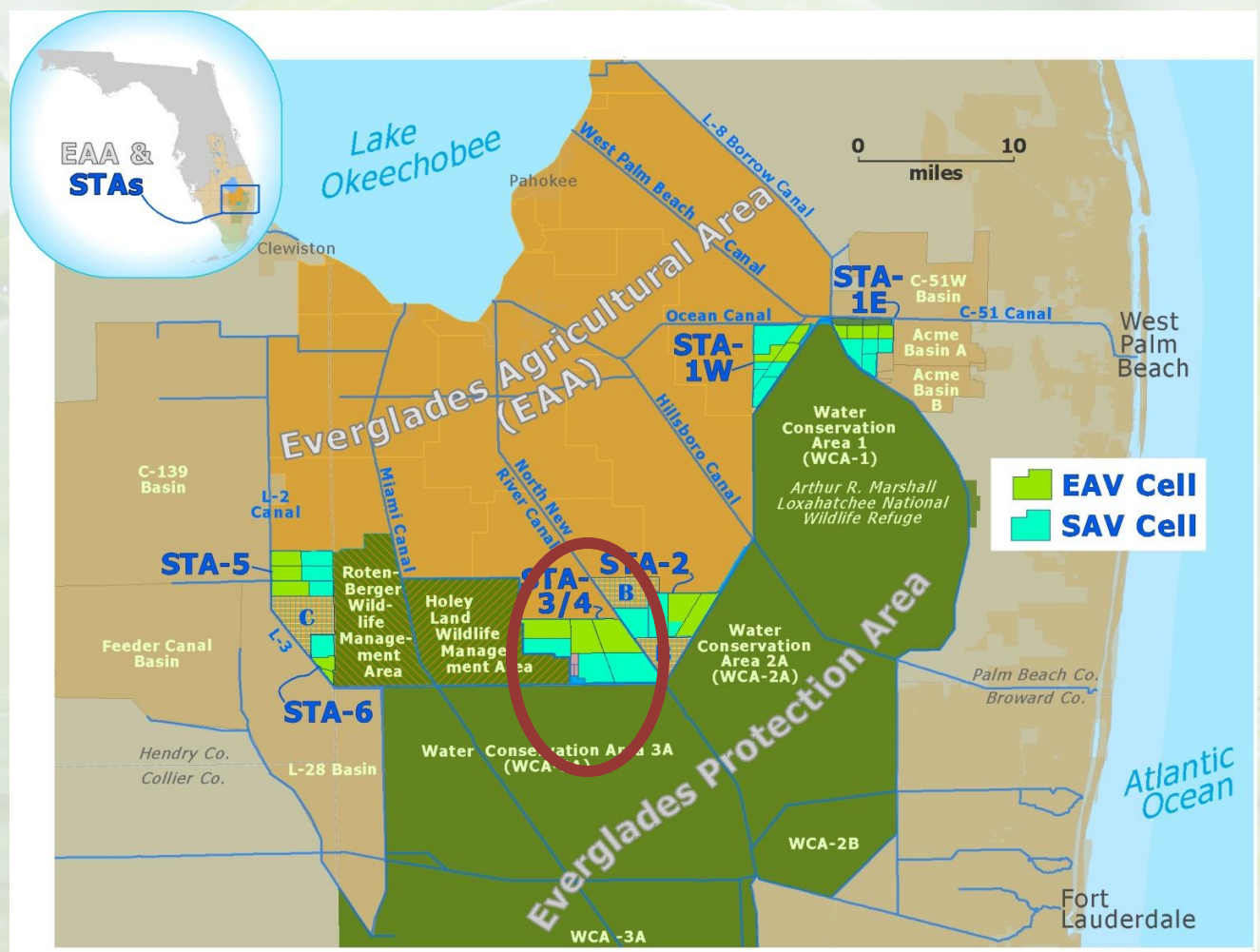
Average values and standard error bars are shown for 2007 - 2011. Graph contains preliminary data.

Water Quality Impacts

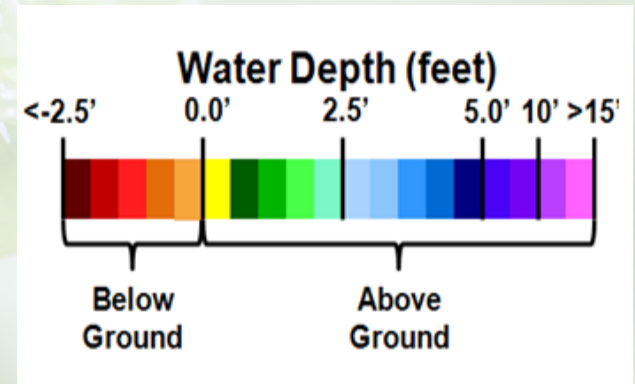
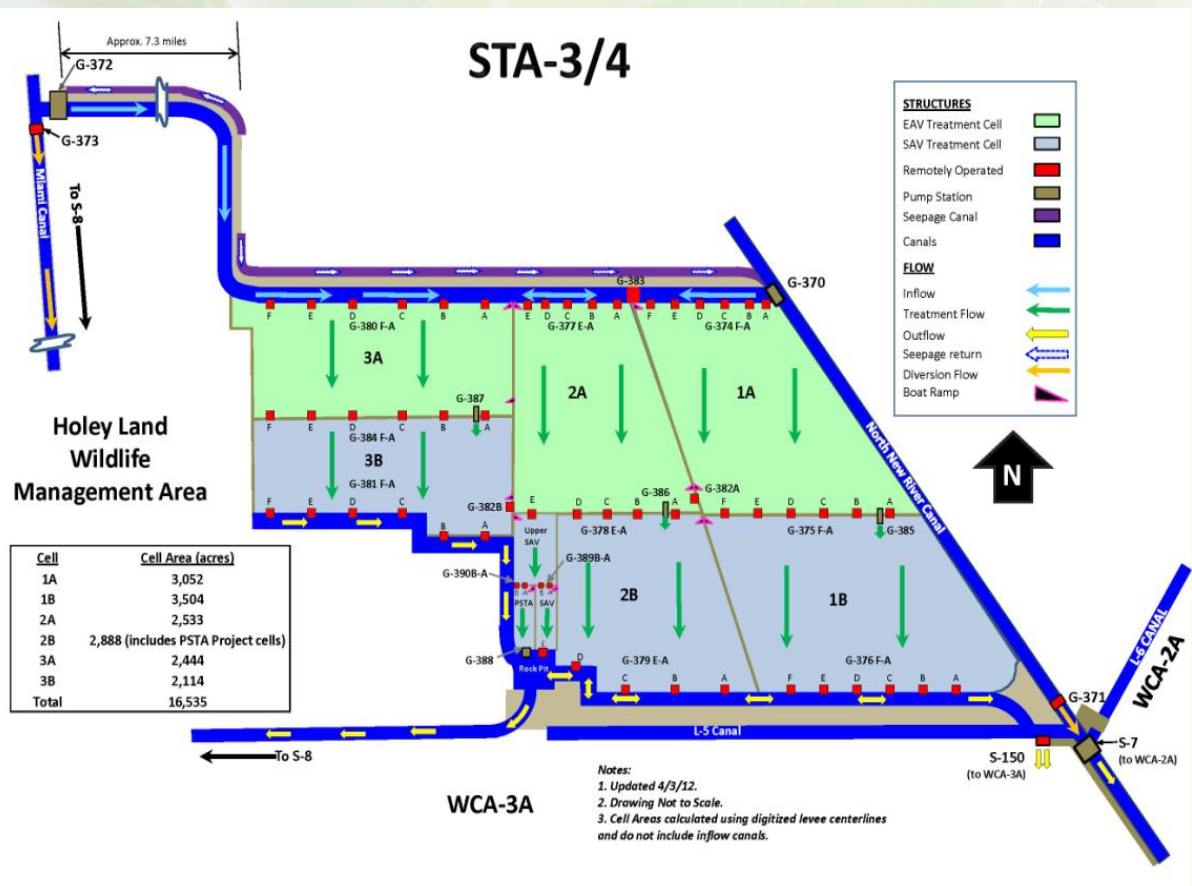


Average values and standard error bars are shown for 2007 - 2011. Graph contains preliminary data.

STA-3/4

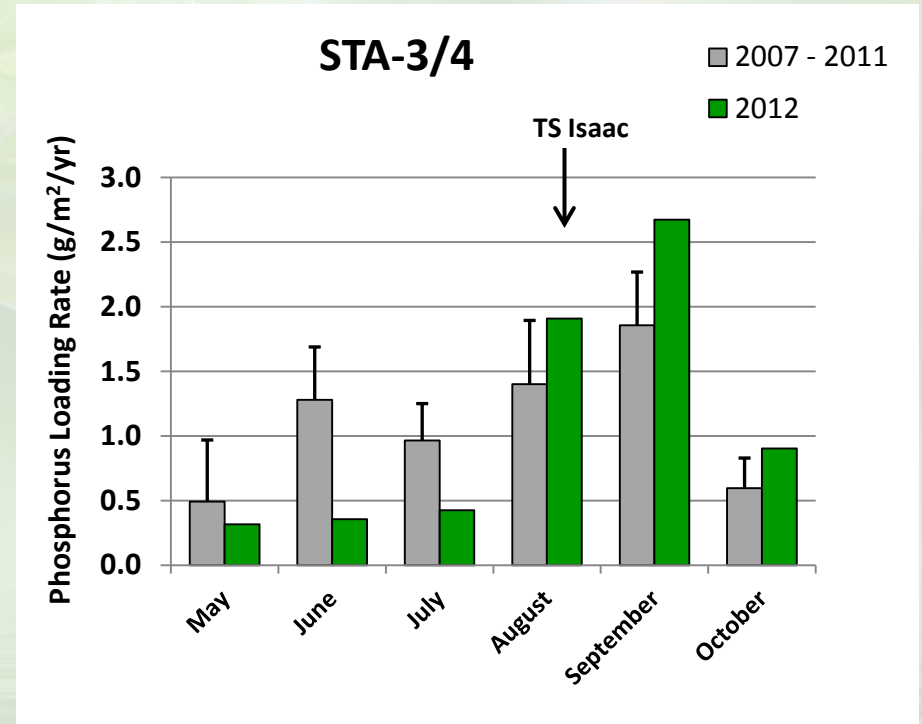
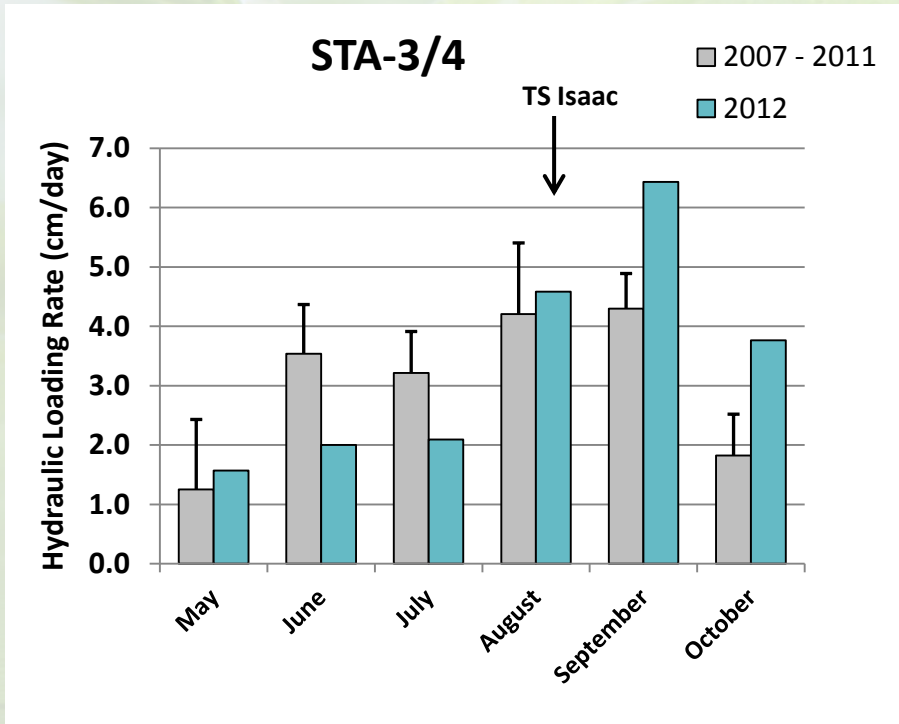


STA-3/4 Water Depths



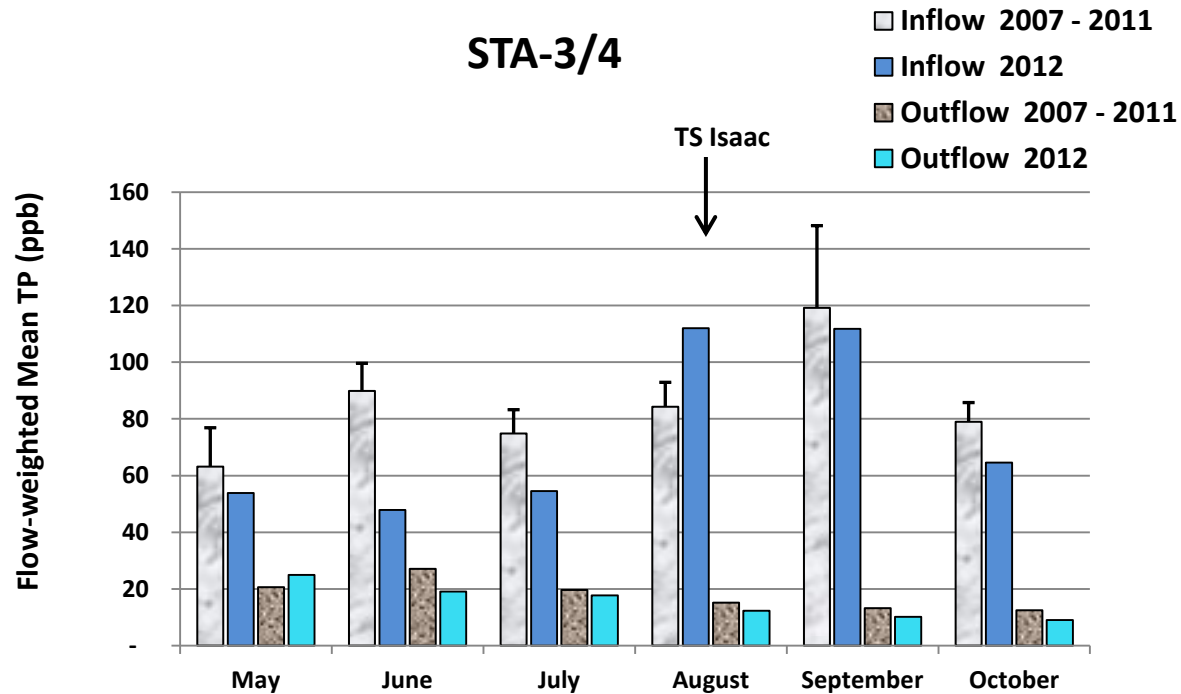
[STA-3/4 Animation](#)

Water Quality Impacts



Average values and standard error bars are shown for 2007 - 2011. Graph contains preliminary data.

Water Quality Impacts

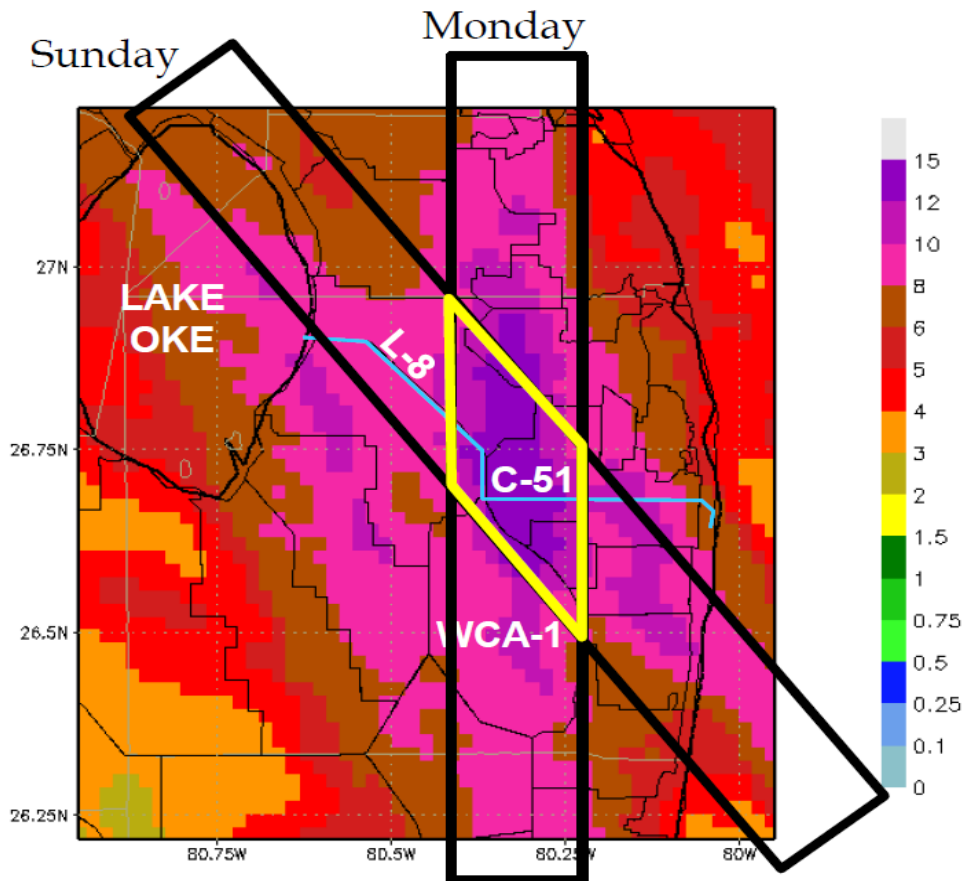


Standard error bars shown. Graph contains preliminary data.

Average values and standard error bars are shown for 2007 - 2011. Graph contains preliminary data.

STA-1E/STA-1W Diversion

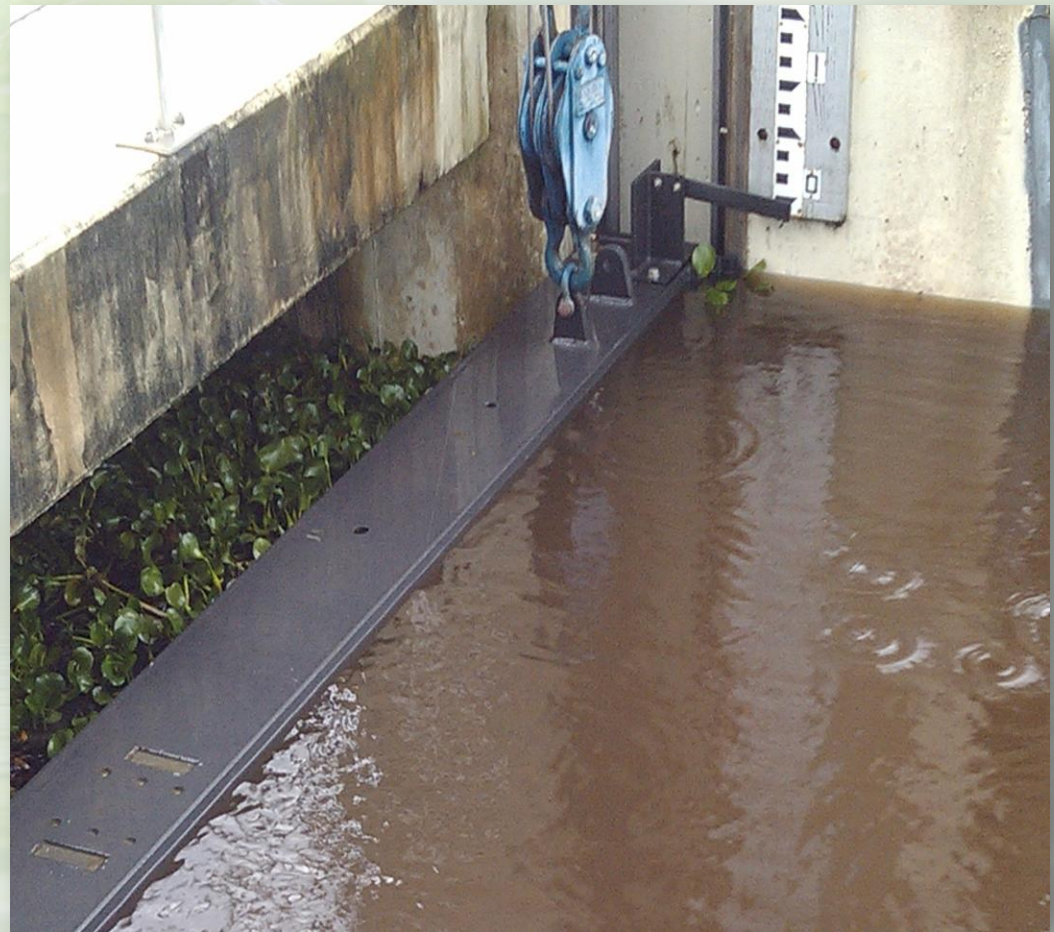
48-Hour Isaac Estimated Rainfall Amounts
8pm Saturday – 8pm Monday (Aug 25-27)



2012-09-05

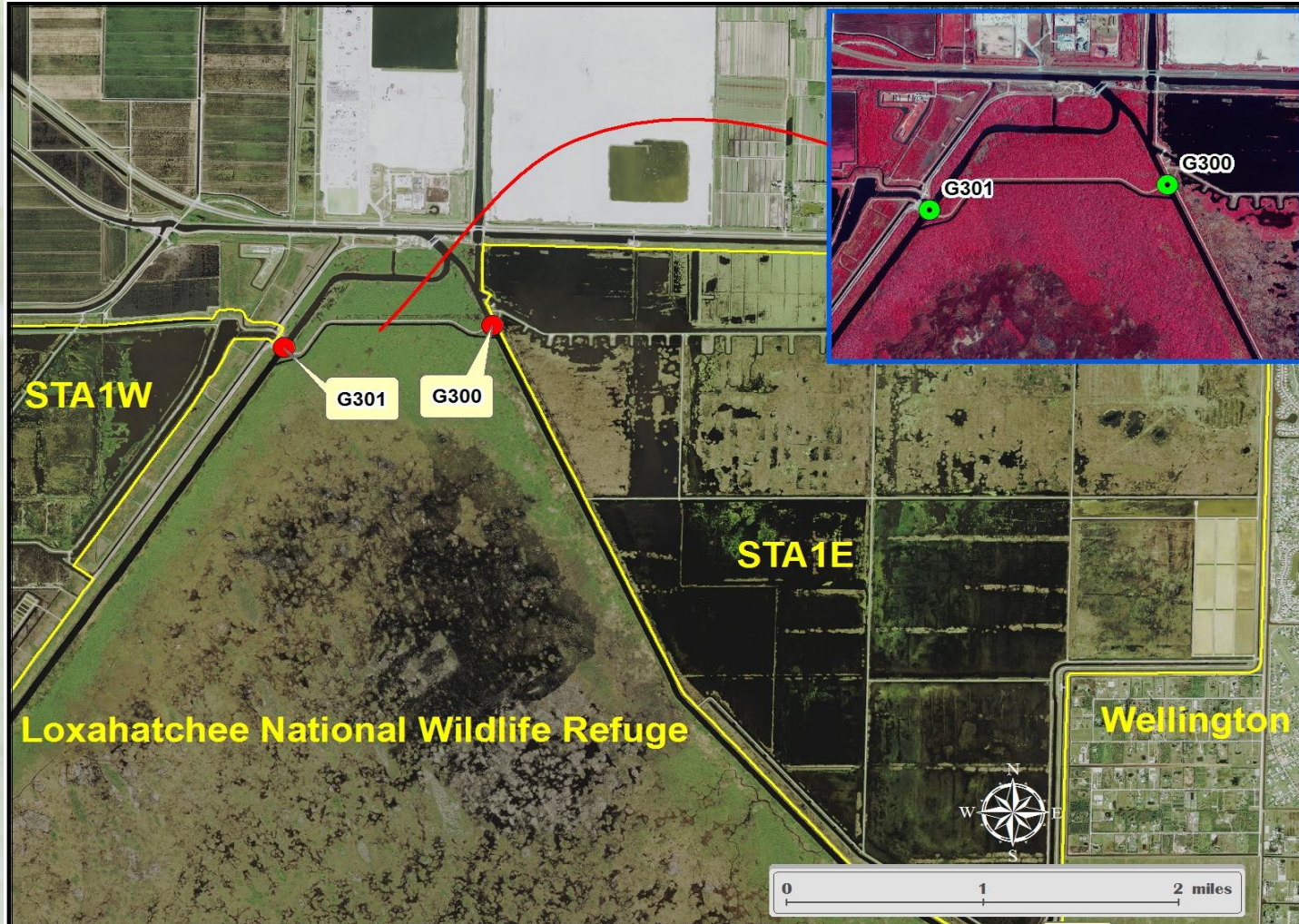
STA-1E & STA-1W Diversion

- Maximum discharges to Lake Okeechobee
- Maximum discharges to Lake Worth Lagoon
- Maximum discharges to STA-1E and STA-1W
- Rising stages in STA-1 Inflow Basin and upstream canals



Water levels at the top of the inflow gate.

STA-1E/STA-1W Diversion Structures



Upstream Gauges Prior to Diversion



Diversion Structure Average Daily Flows

Date	G-300 (STA-1E)	G-301 (STA-1W)
	Flow, cfs	Flow, cfs
8/27/2012	372	445
8/28/2012	1,500	734
8/29/2012	1,221	740
8/30/2012	1,653	609
8/31/2012	2,039	359
9/1/2012	2,046	118
9/2/2012	1,517	34
9/3/2012	669	0

cfs = cubic feet per second

Summary of Flow Volume, TP Load & TP Concentrations August 27 – September 3, 2012

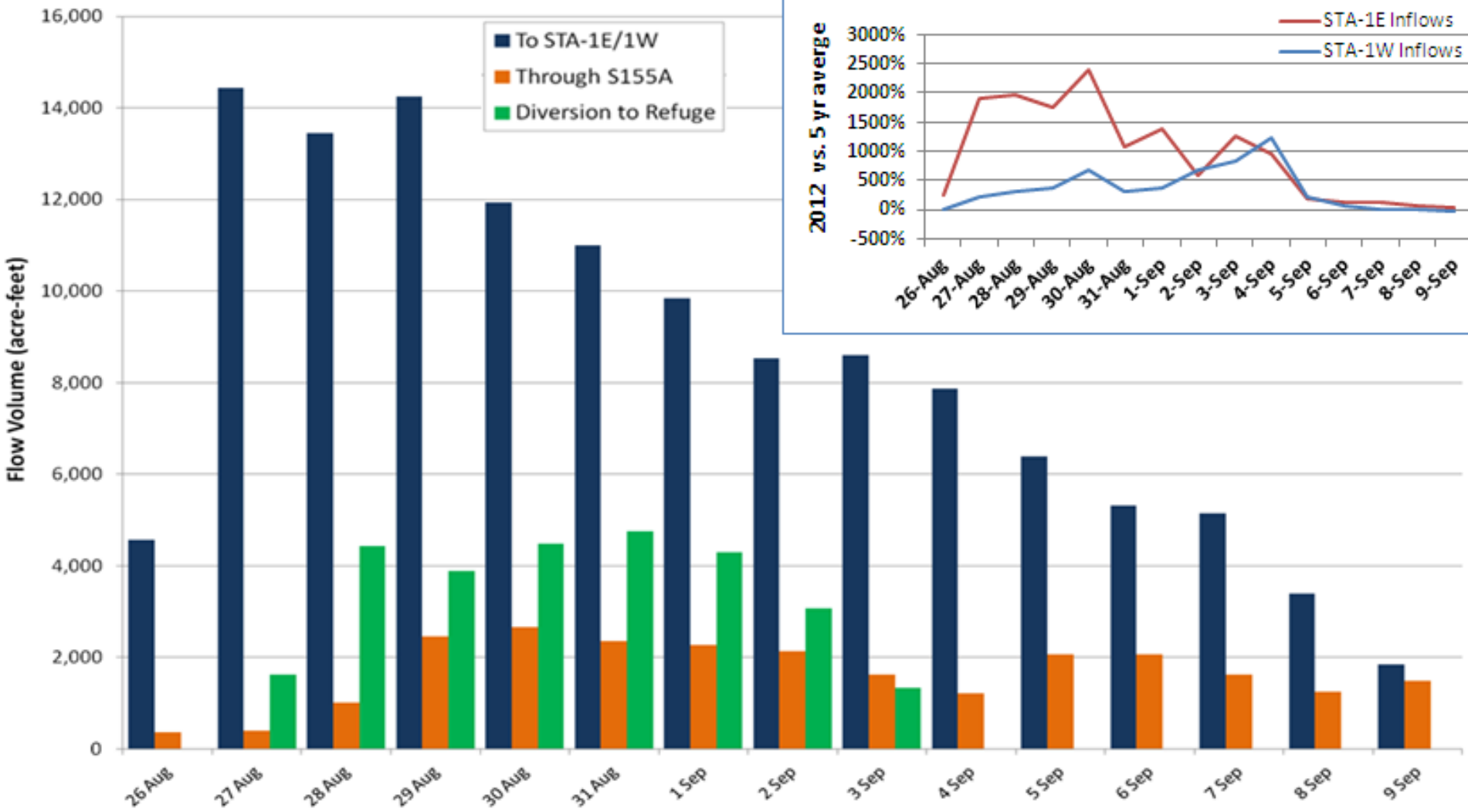
STA Diversion Structure	Flow Volume (Acre-feet)	Total Phosphorus	
		Load (metric tons) ¹	Flow-Weighted Mean Concentration ² , (mg/L)
G-300	21,850	10.0	0.371
G-301	6,026	3.1	0.421

¹Note: one metric ton equals 1,000 kilograms.

²Based on flow-proportionate composite samples collected 9/4/2012

Flows to STA-1E and STA-1W

Diversions to Loxahatchee National Wildlife Refuge & Transfers to Eastern C-51 Basin



Questions?

