



Water Quality Monitoring Project for the Water Quality Protection Program

April 26, 2016
Marathon, Florida

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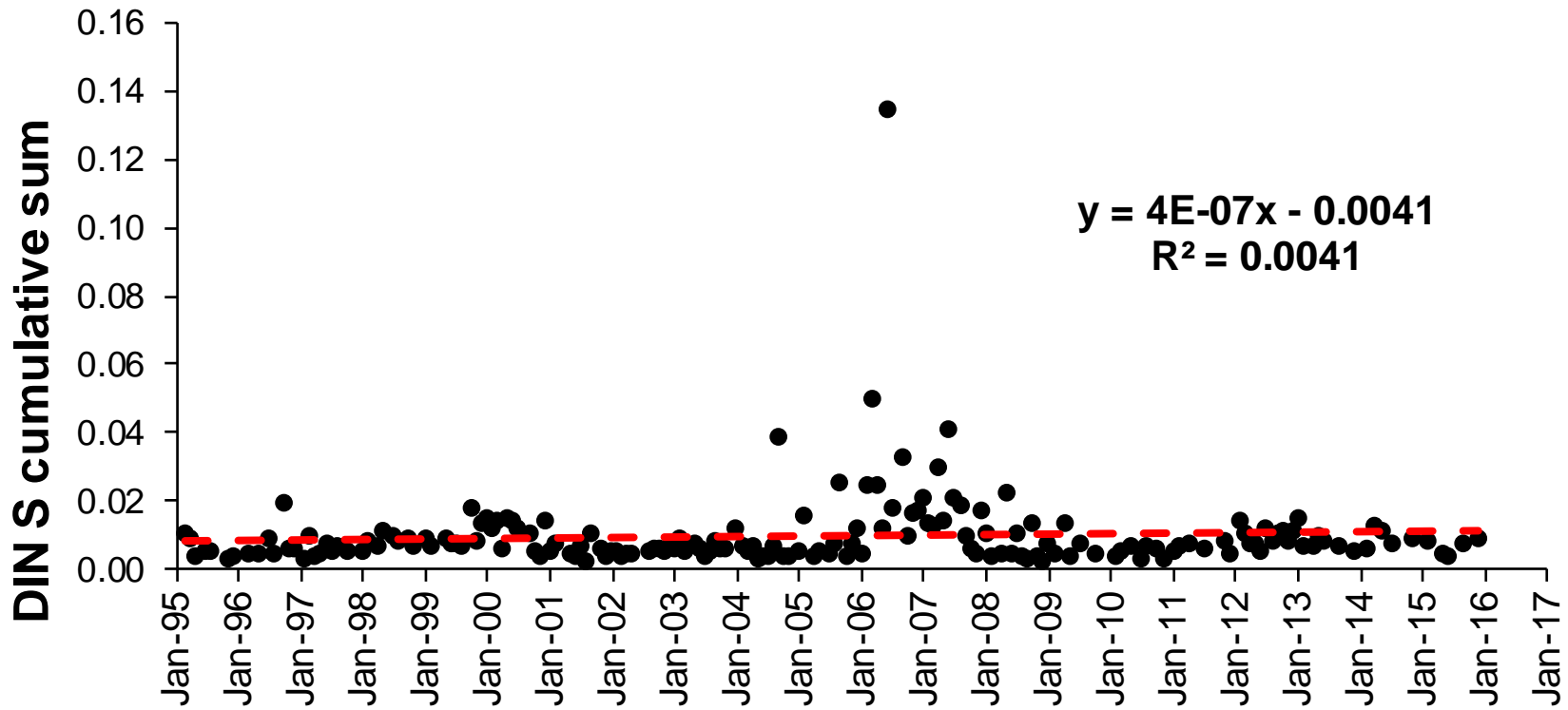
Summary 2016

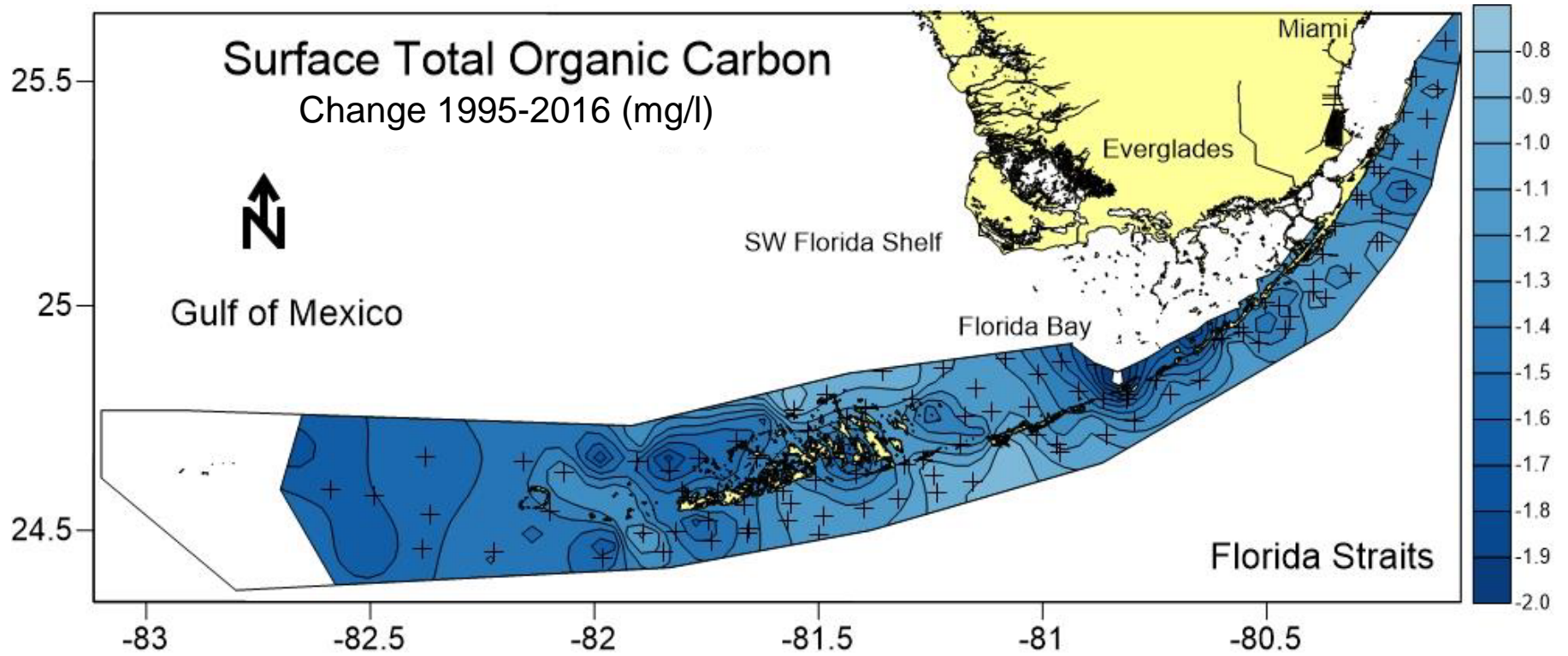
Water Quality Targets

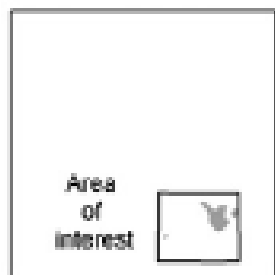
Reef Stations

All Stations (excluding SHORE)

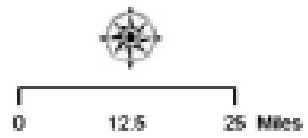
Year	CHLA $\leq 0.35 \mu\text{g l}^{-1}$	$K_d \leq 0.20 \text{ m}^{-1}$	DIN $\leq 0.75 \mu\text{M}$ (0.010 mg l^{-1})	TP $\leq 0.25 \mu\text{M}$ (0.008 mg l^{-1})
1995-05	1778 of 2367 (75.1%)	1042 of 1597 (65.2%)	7826 of 10254 (76.3%)	7810 of 10267 (76.1%)
2006	196 of 225 (87.1%)	199 of 225 (88.4%)	432 of 990 (43.6%)	316 of 995 (31.8%)
2007	198 of 226 (87.6%)	202 of 222 (91.0%)	549 of 993 (55.3%)	635 of 972 (65.3%)
2008	177 of 228 (77.6%)	181 of 218 (83.0%)	836 of 1,000 (83.6%)	697 of 1,004 (69.4%)
2009	208 of 228 (91.2%)	189 of 219 (86.3%)	858 of 1,003 (85.5%)	869 of 1,004 (86.6%)
2010	170 of 227 (74.9%)	176 of 206 (85.4%)	843 of 1,000 (84.3%)	738 of 1,003 (73.6%)
2011	146 of 215 (67.9%)	156 of 213 (73.2%)	813 of 1,012 (80.3%)	911 of 1,013 (89.9%)
2012	142 of 168 (84.5%)	135 of 168 (80.4%)	489 of 683 (71.6%)	634 of 684 (92.7%)
2013	148 of 172 (86.0%)	150 of 172 (87.2%)	496 of 688 (72.1%)	603 of 688 (87.6%)
2014	141 of 172 (82.0%)	133 of 172 (77.3%)	426 of 690 (61.7%)	540 of 690 (78.3%)
2015	122 of 172 (70.9%)	135 of 172 (78.5%)	487 of 688 (70.8%)	613 of 688 (89.1%)
2016	131 of 172 (76.2%)	129 of 170 (75.9%)	427 of 687 (62.2%)	549 of 688 (79.8%)



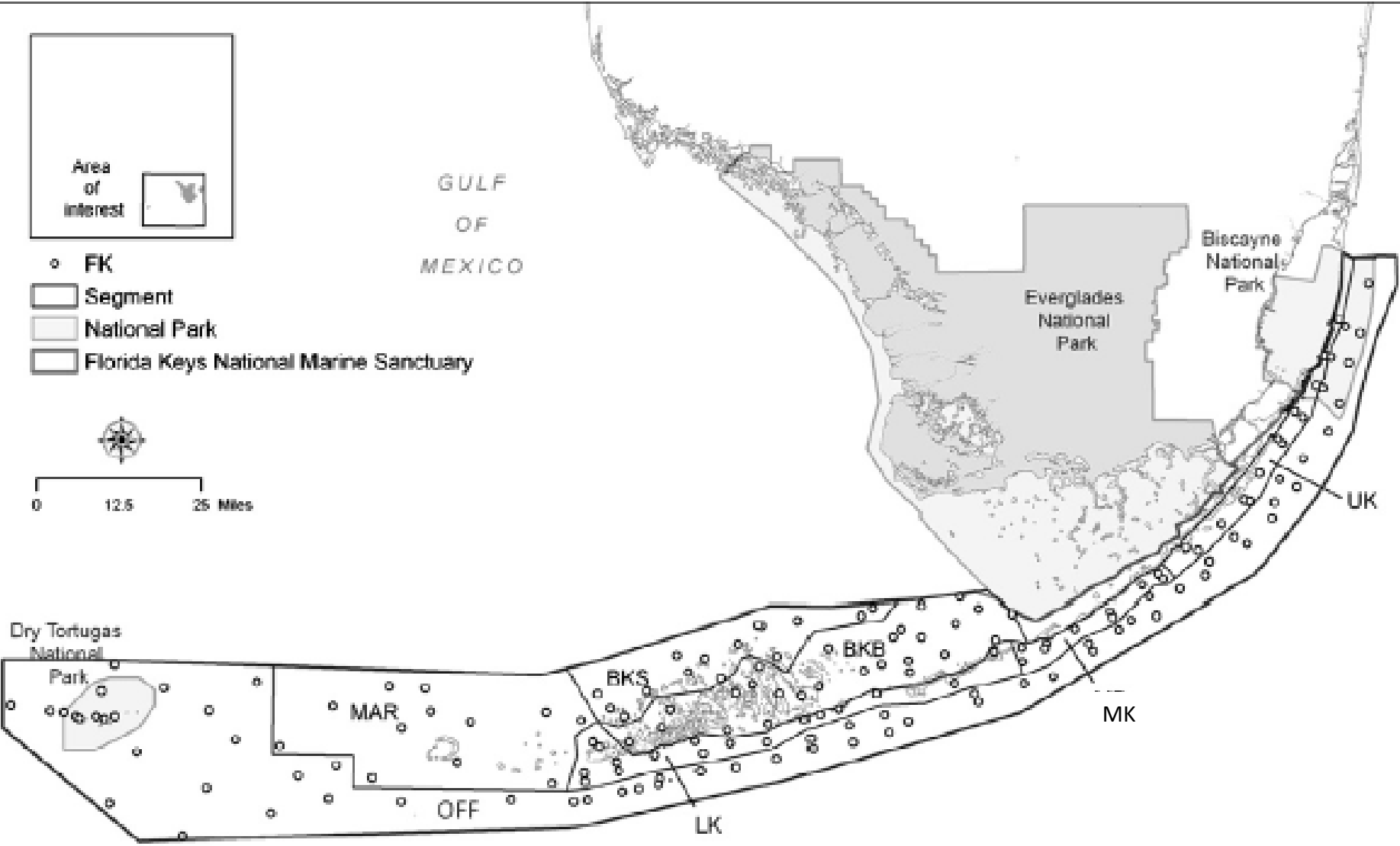




- FK
- Segment
- ▒ National Park
- ▭ Florida Keys National Marine Sanctuary



GULF
OF
MEXICO



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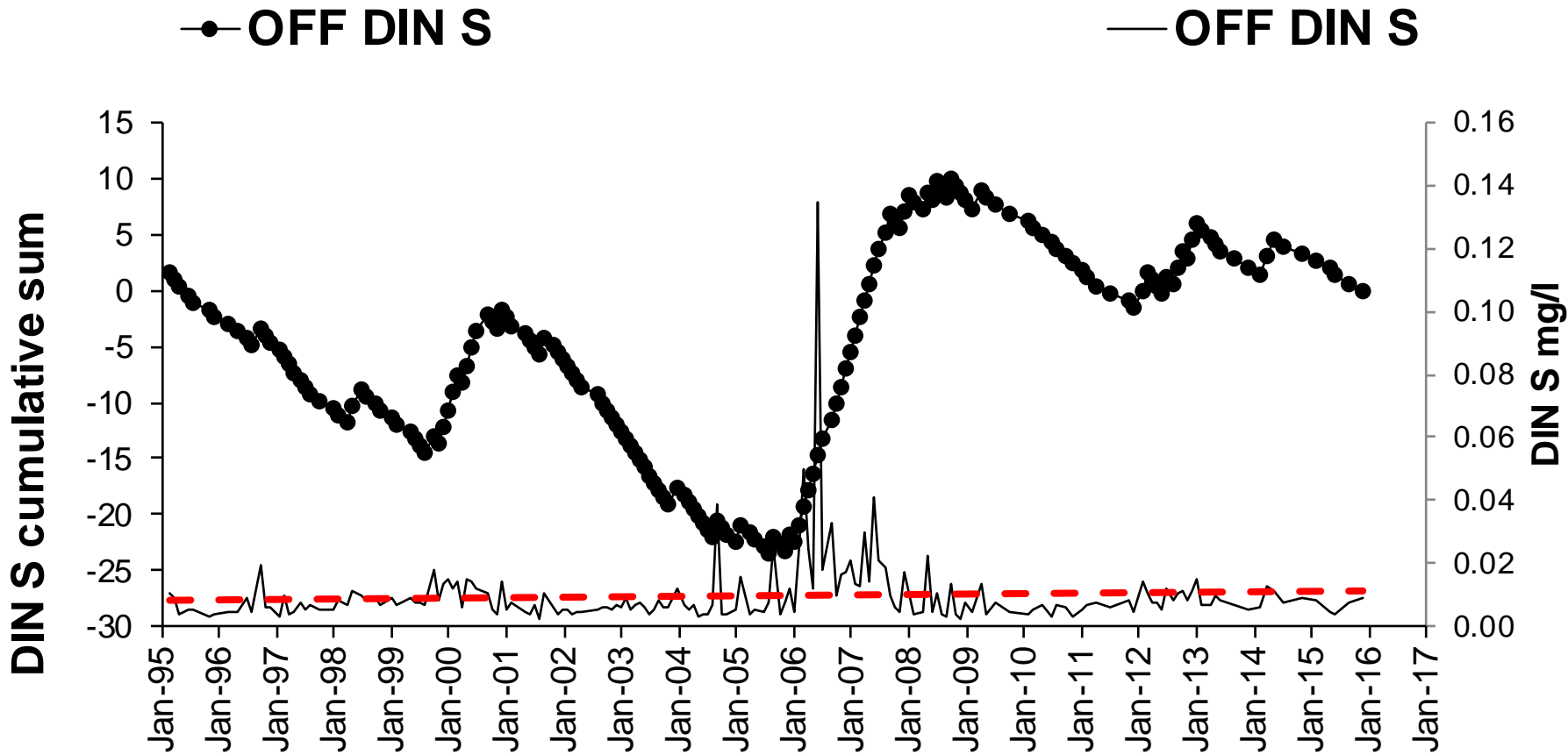
Marine Pollution Bulletin

Biogeochemical classification of South Florida's estuarine and coastal waters
Henry O. Briceño^{A*}, Joseph N. Boyer^{A1}, Joffre Castro^D, Peter Harlem

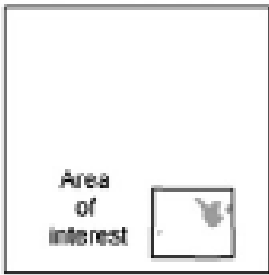


ATLANTIC OCEAN

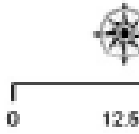




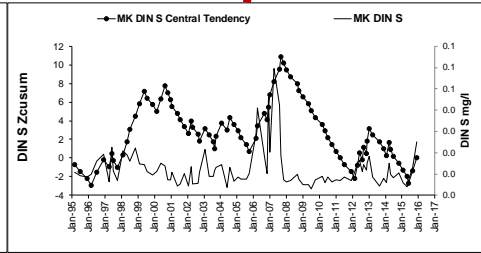
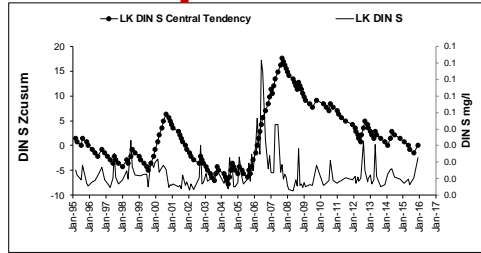
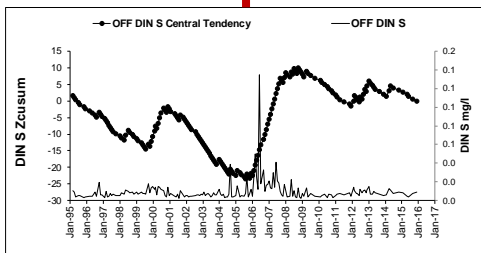
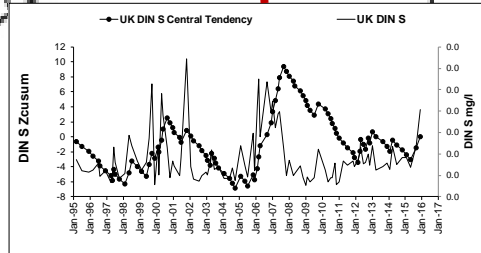
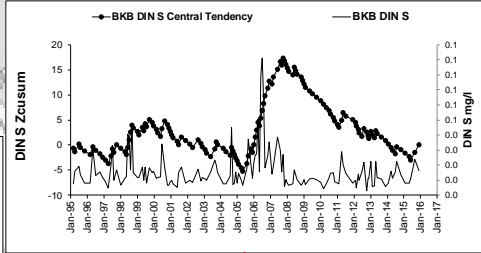
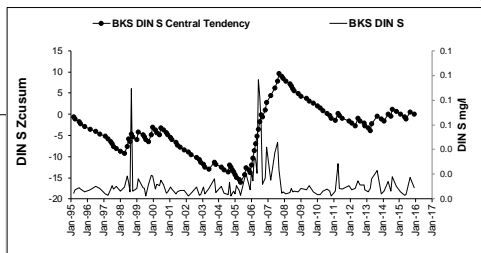
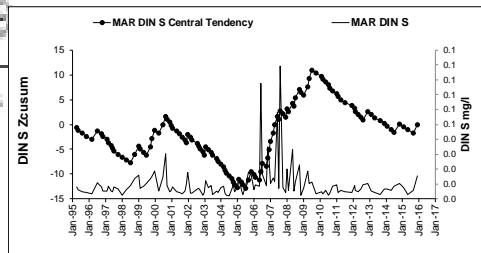
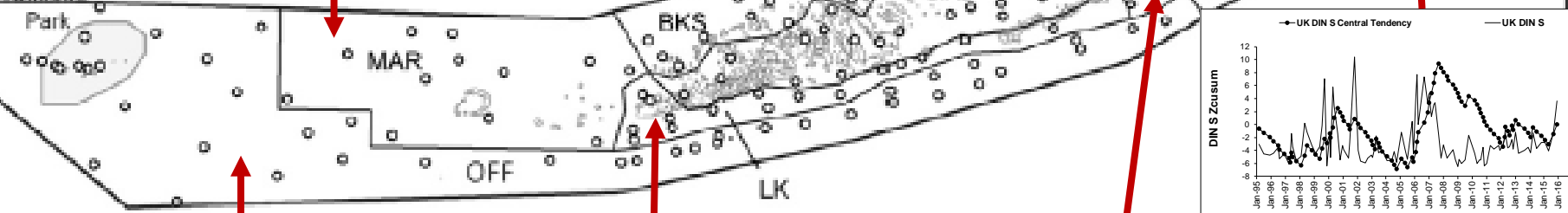
Dissolved Inorganic Nitrogen



- FK
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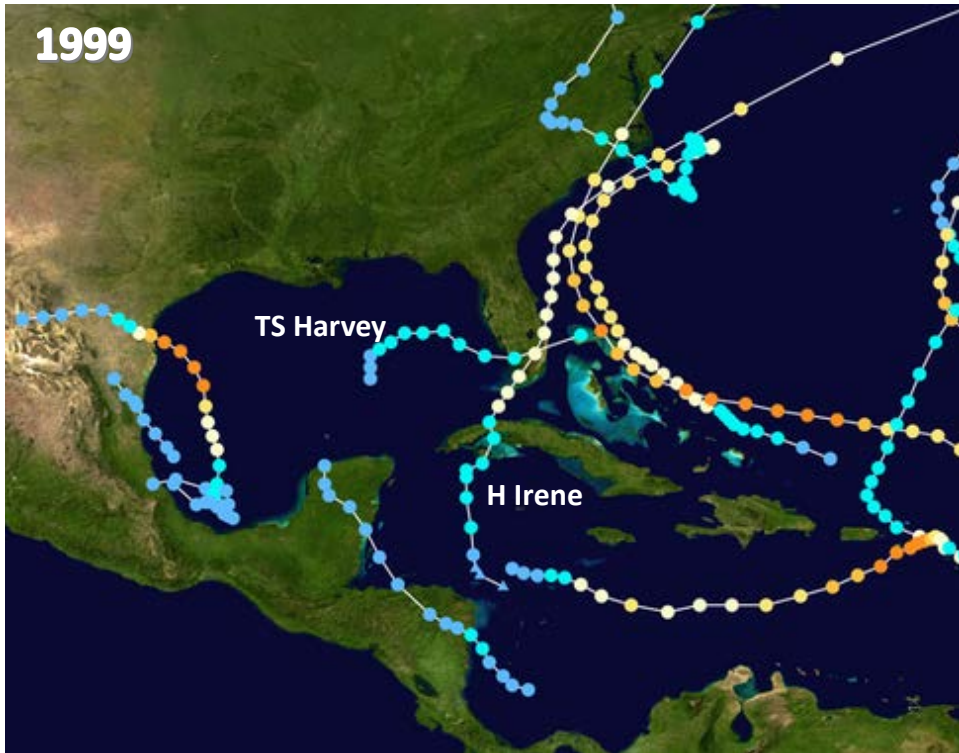


Dry Tortugas National Park

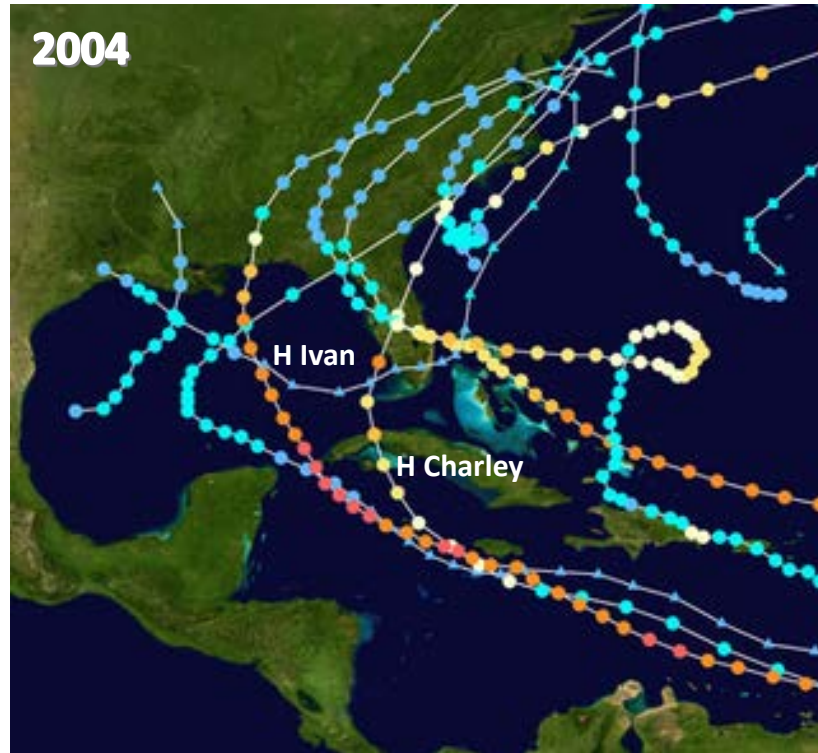


OCEAN

1999



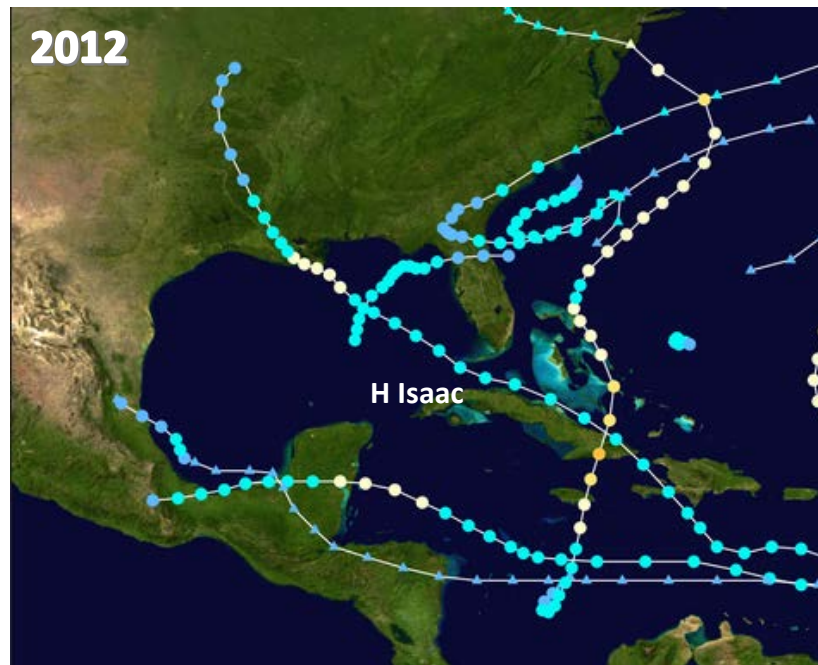
2004

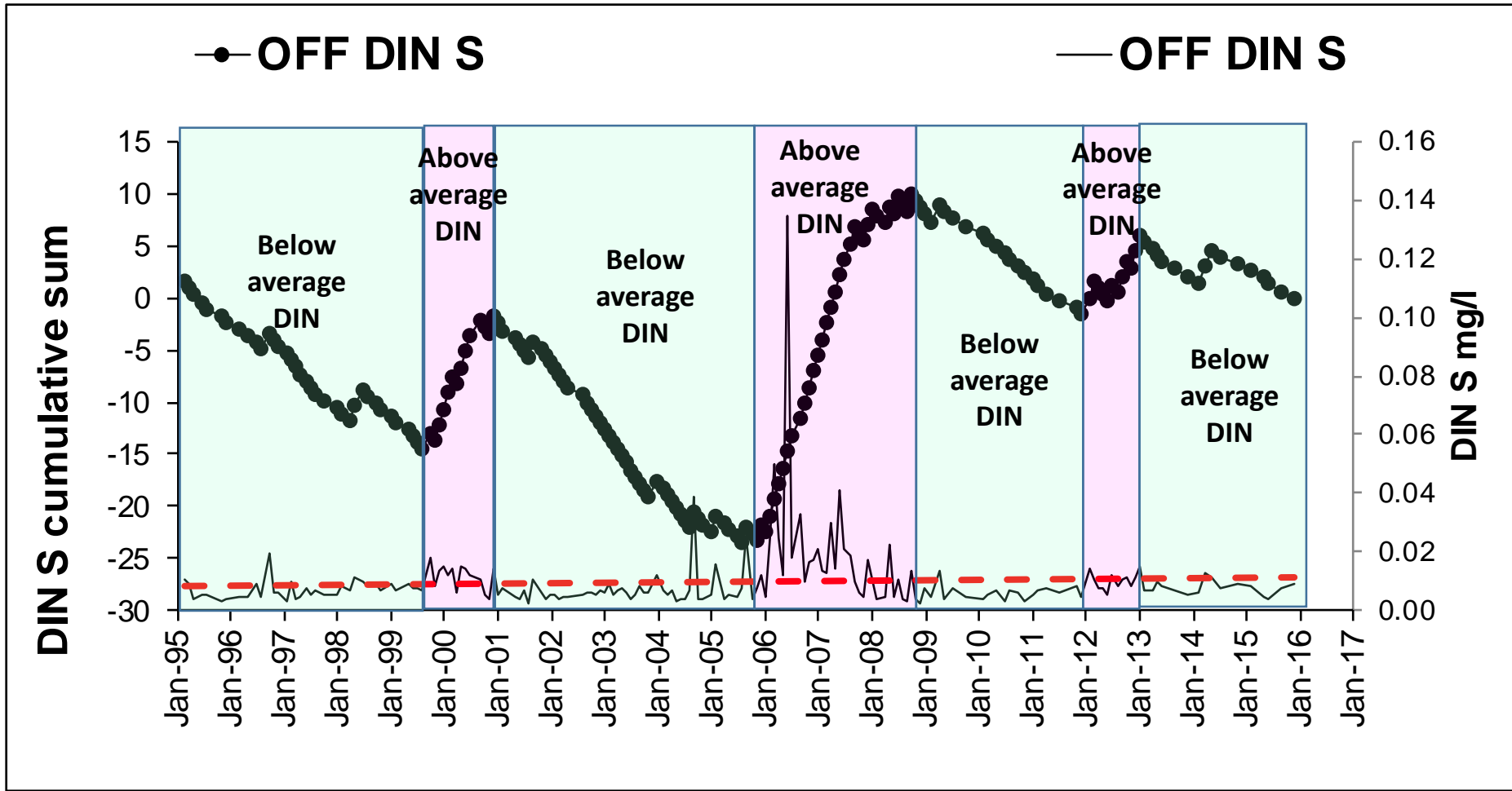


2005



2012

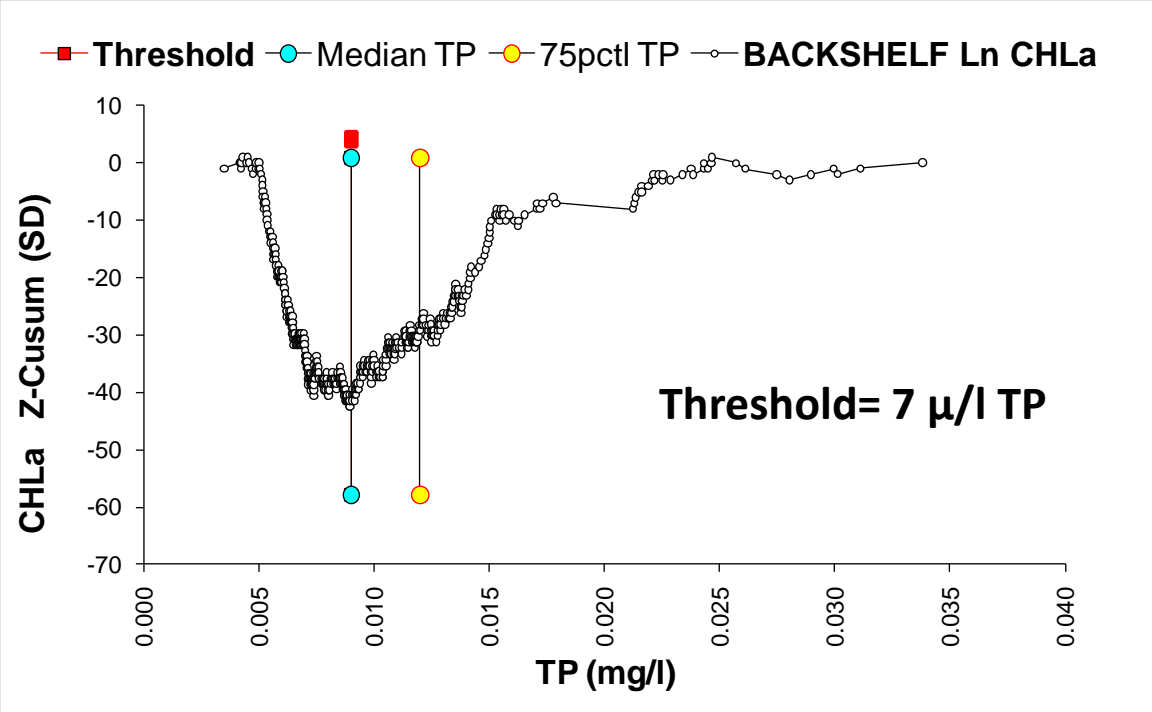




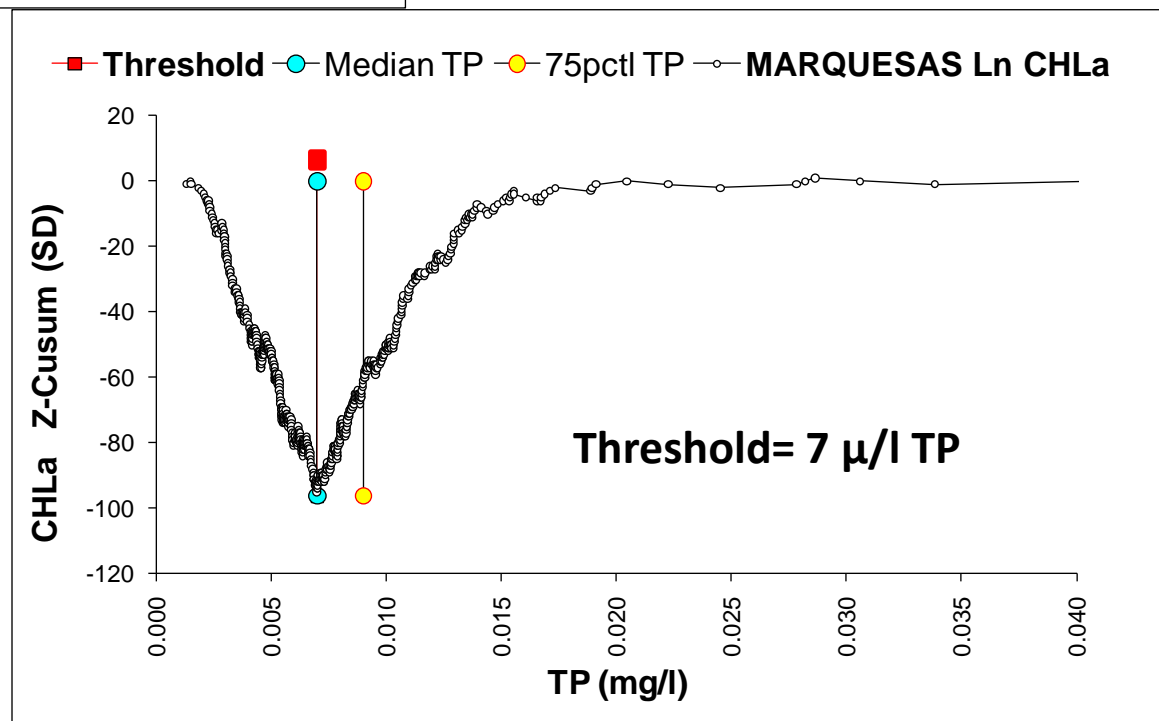
Quantitatively, more important than Long-Term trend are deviations from central tendency caused by events (natural or human induced)

FLORIDA KEYS NUMERIC NUTRIENT CRITERIA

	TP	TN
1. Back Bay	0.009 mg/L	0.25 mg/L
2. Backshelf	0.011 mg/L	0.23 mg/L
3. Lower Keys	0.008 mg/L	0.21 mg/L
4. Marquesas	0.008 mg/L	0.21 mg/L
5. Middle Keys	0.007 mg/L	0.22 mg/L
6. Oceanside	0.007 mg/L	0.17 mg/L
7. Upper Keys	0.007 mg/L	0.18 mg/L

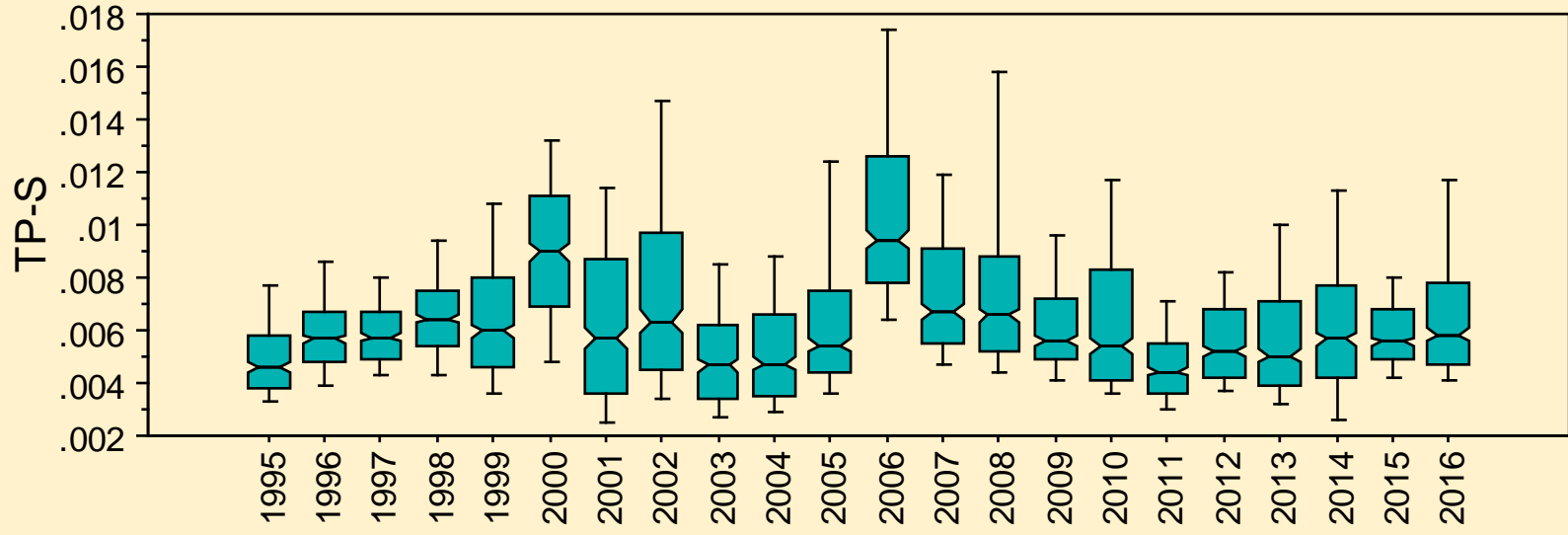
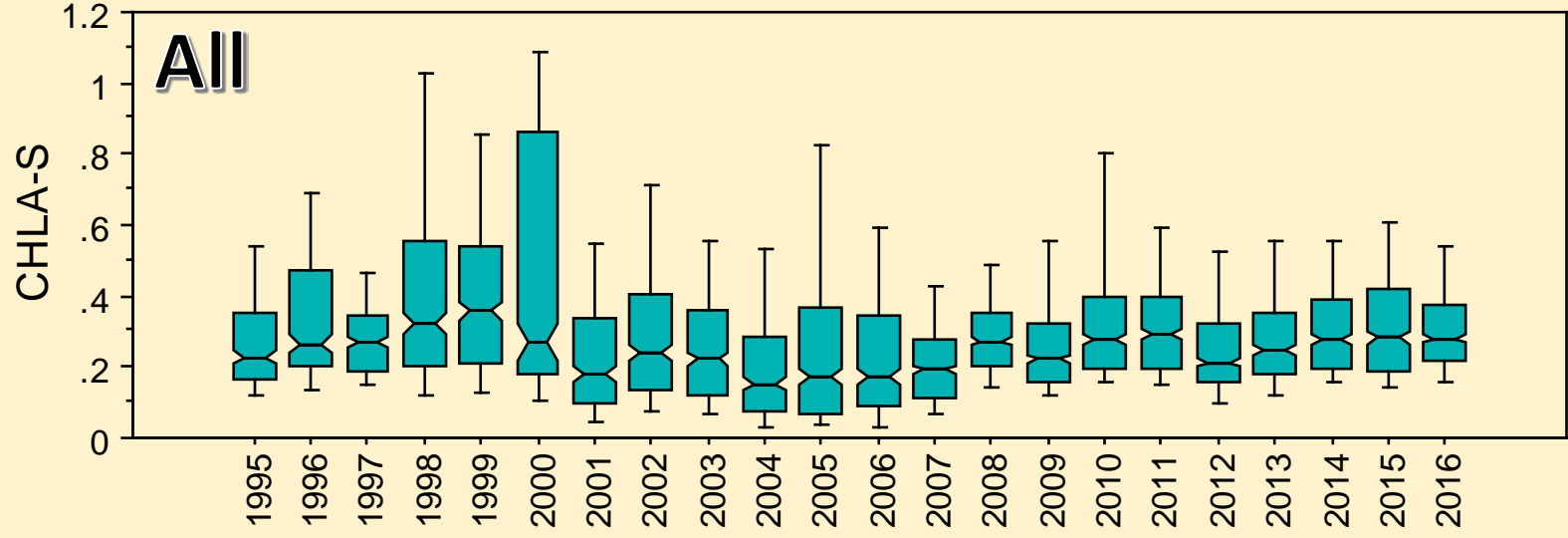


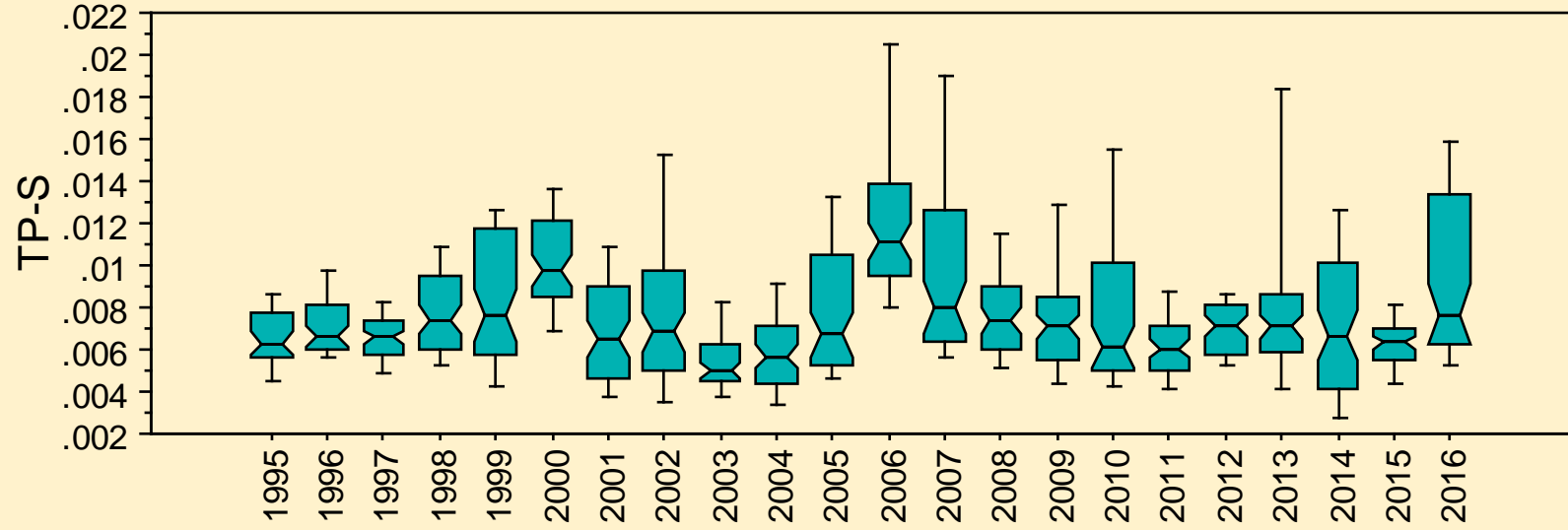
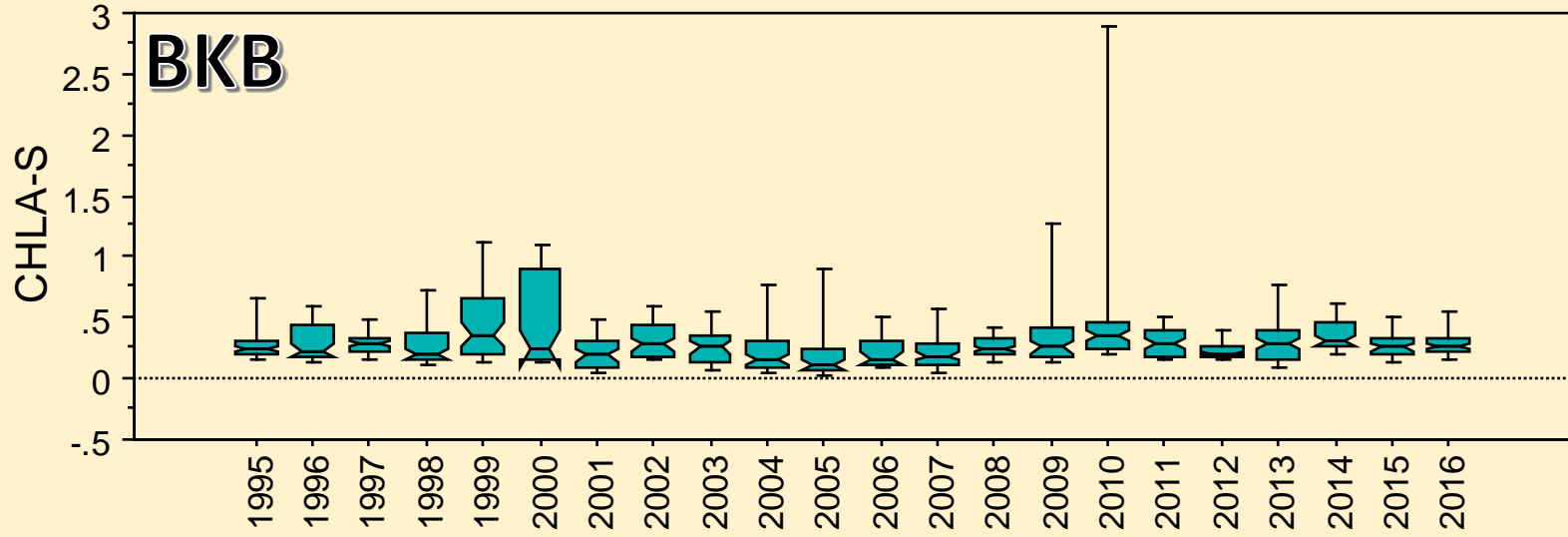
FDEP= 11 μ /I TP

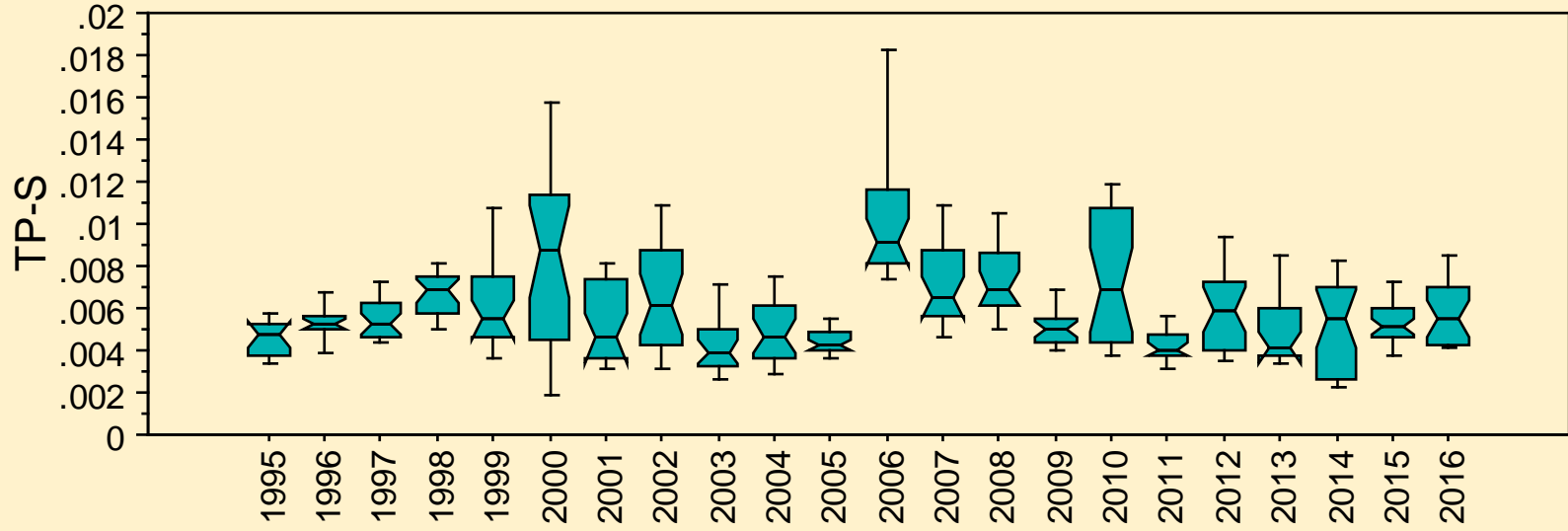
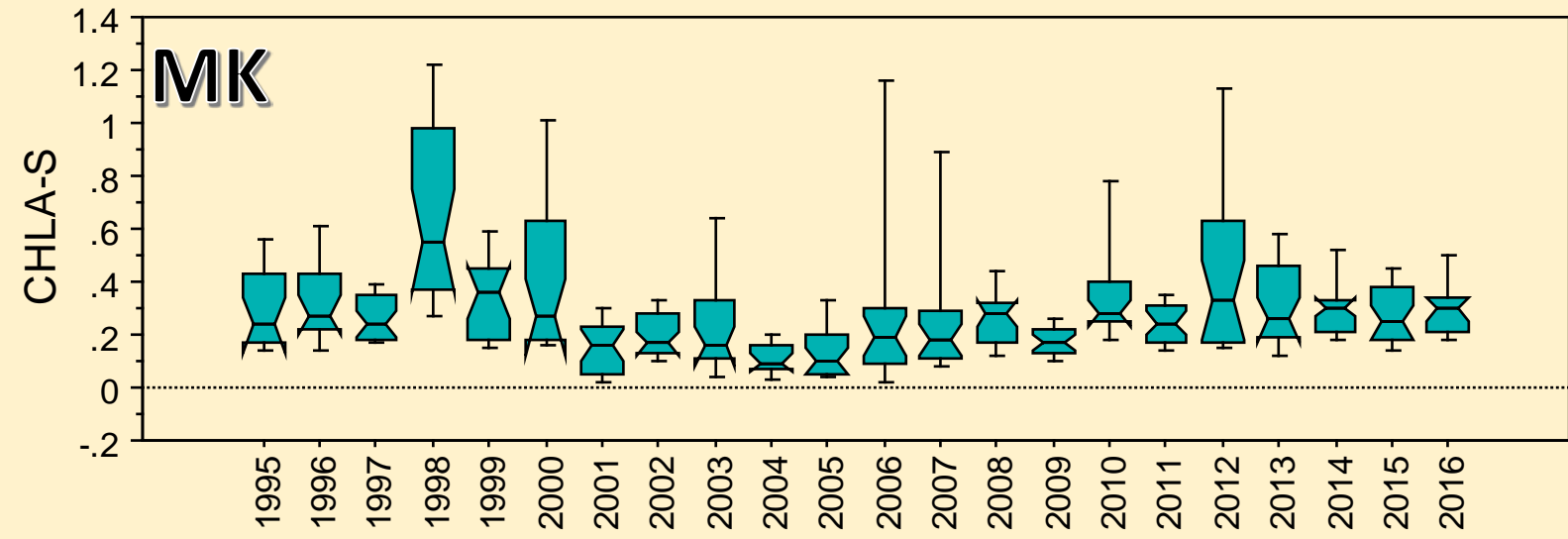


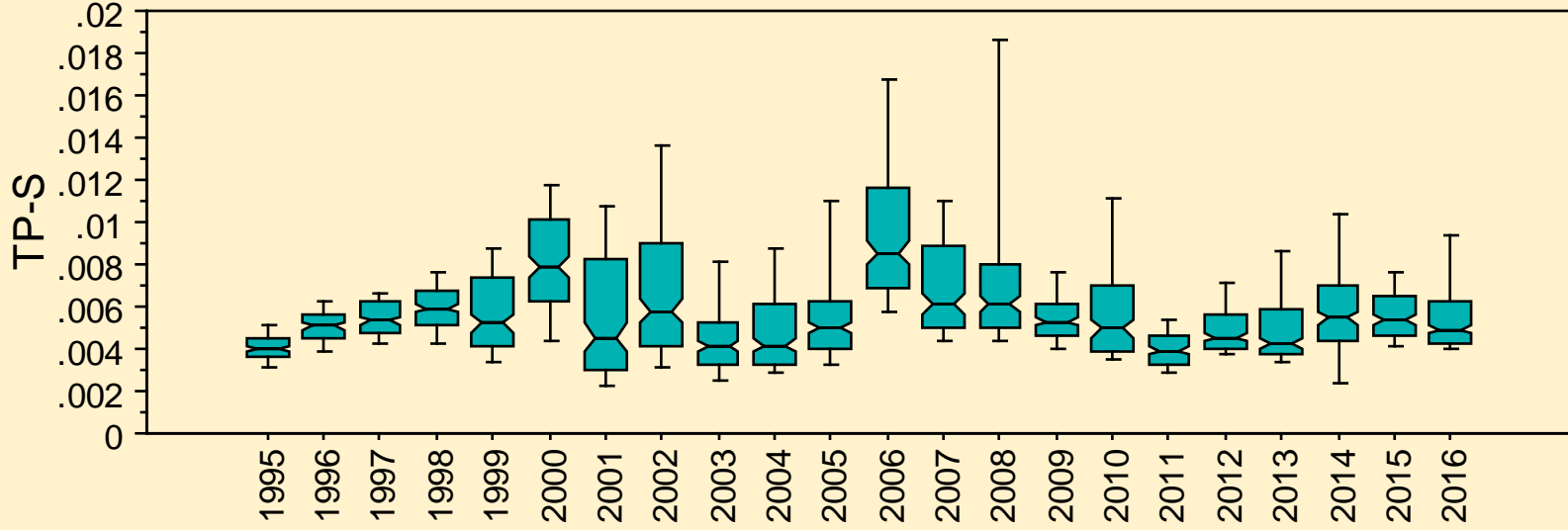
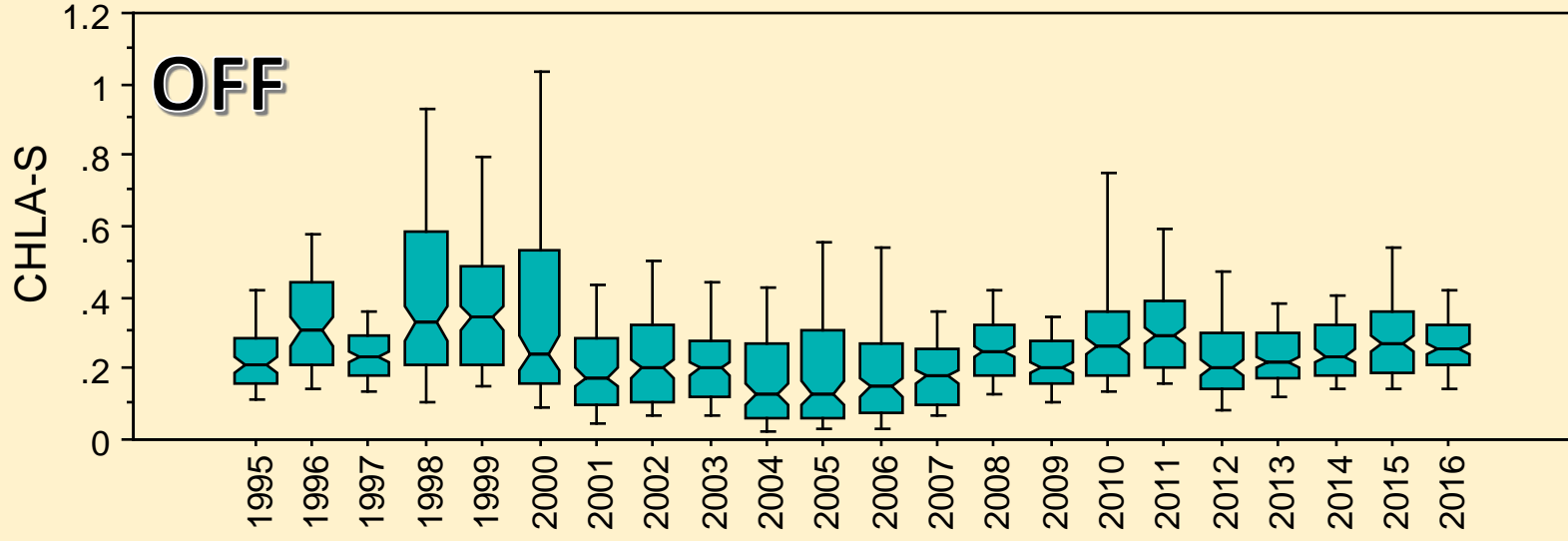
FDEP= 8 μ /I TP

Impacts from Seagrass die-off









Summary

- CHLa and Kd in reef samples were in compliance with EPA targets
- DIN in the overall Sanctuary remains out compliance. It has been so since 2012
- TP in the Sanctuary remains in compliance since 2011
- Except for TOC, most WQ variables have remained without major changes for the long-term trend assessment, but significant deviations from the mean have been driven by storms and hurricanes. Especially in 1998-1999, 2004-2009 and 2012