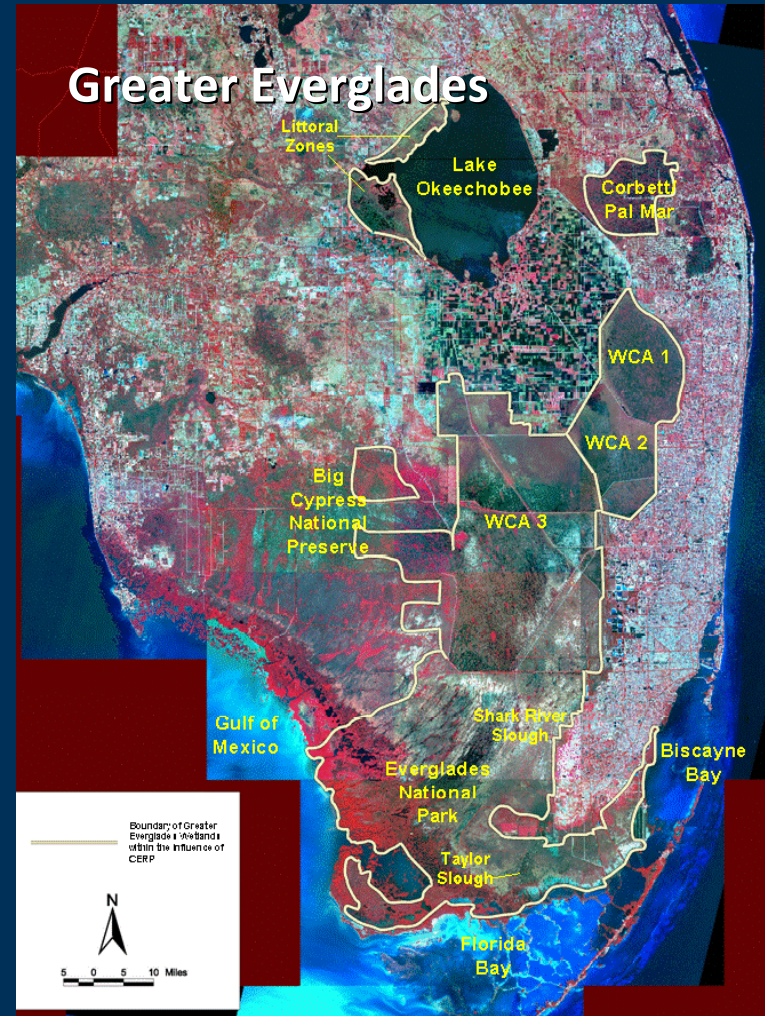
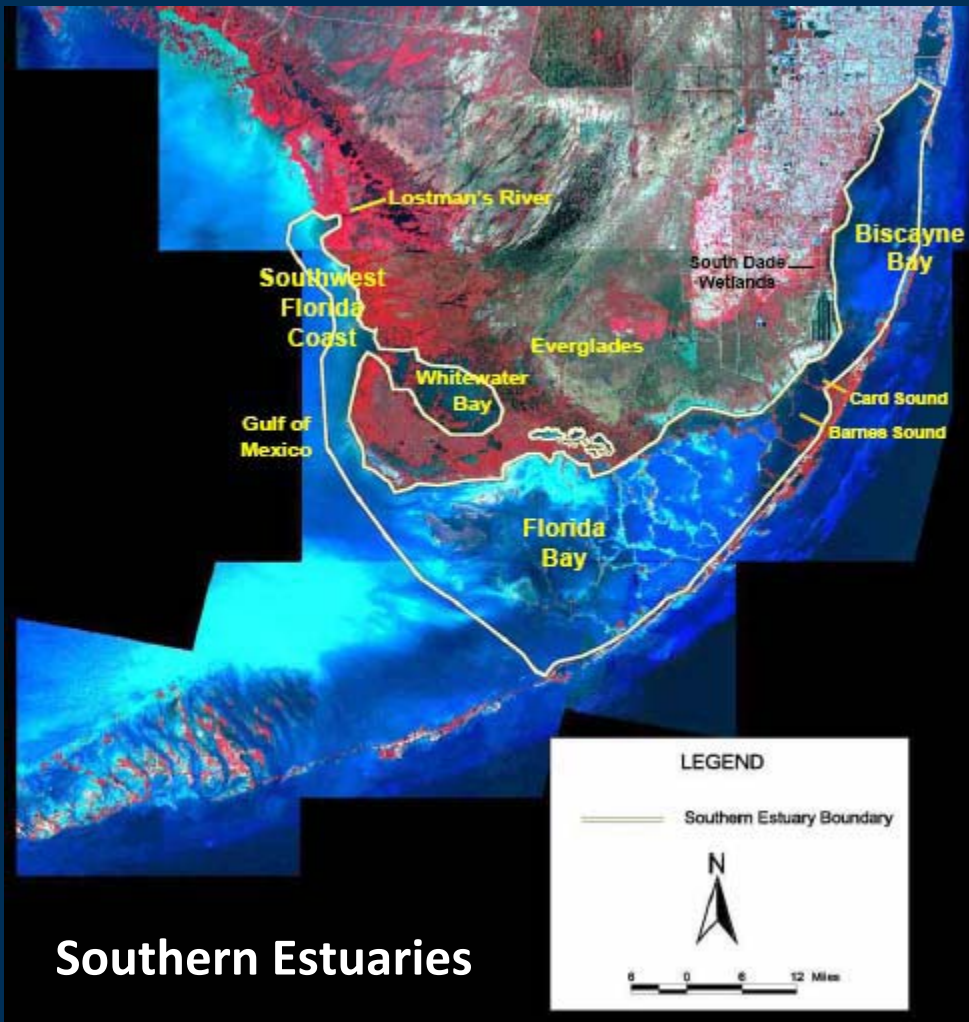




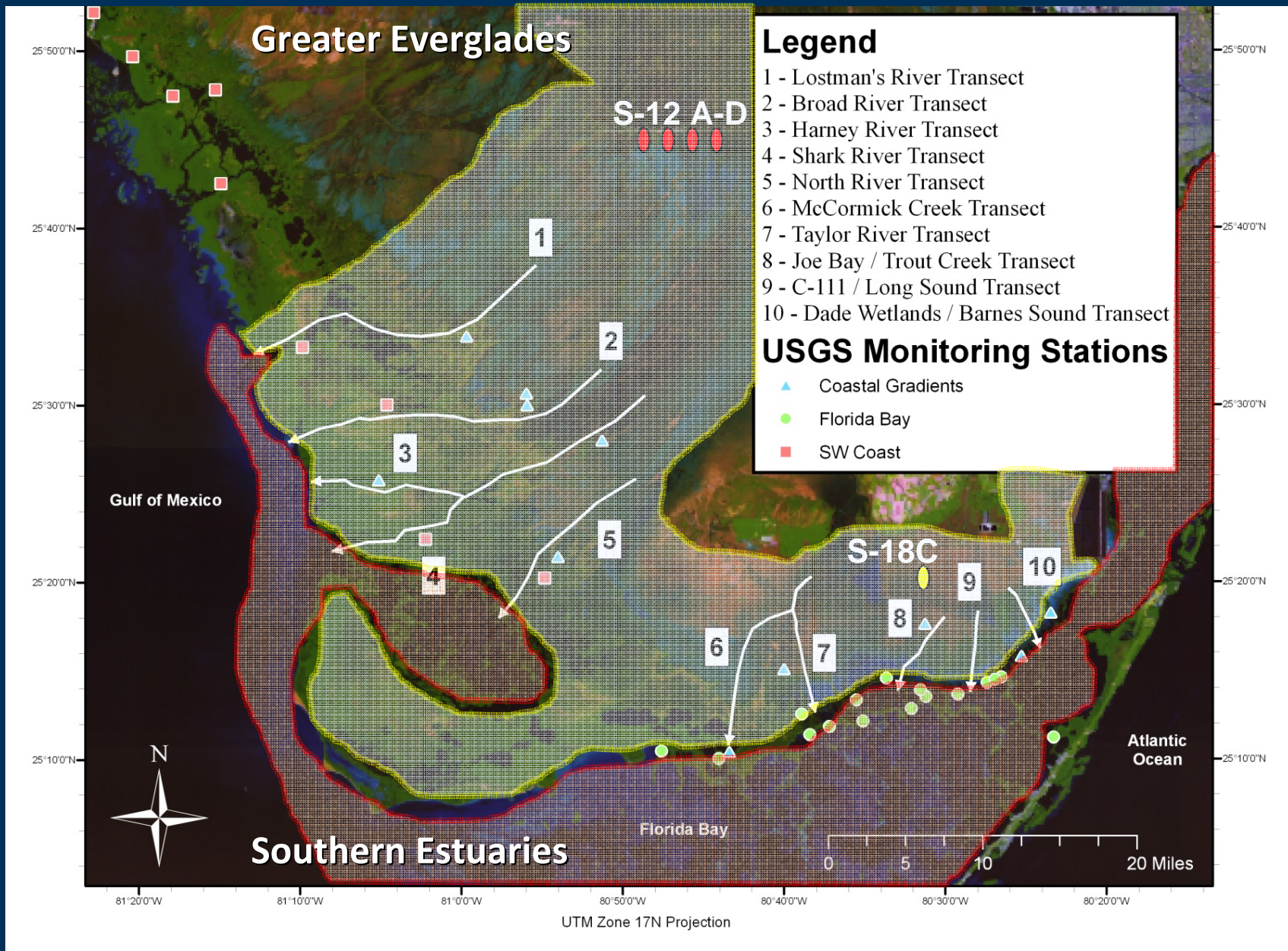
Using Hydrologic Monitoring as a Tool for Synthesis of the Greater Everglades and Southern Estuaries Modules of the Monitoring and Assessment Plan

RECOVER Modules



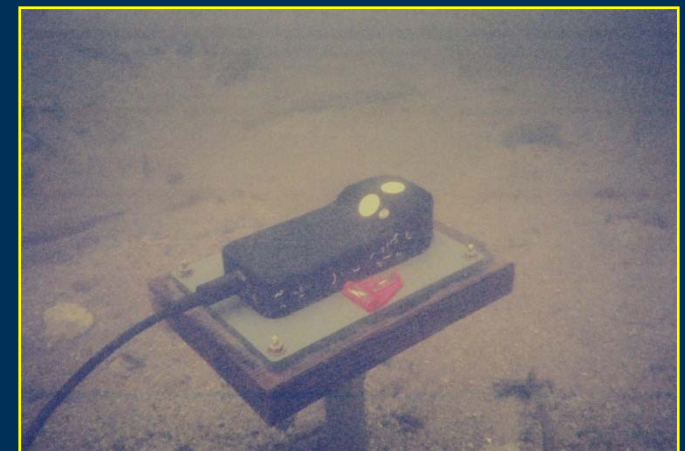
Modified from the 2006 System Status Report

USGS Hydrologic Monitoring Network

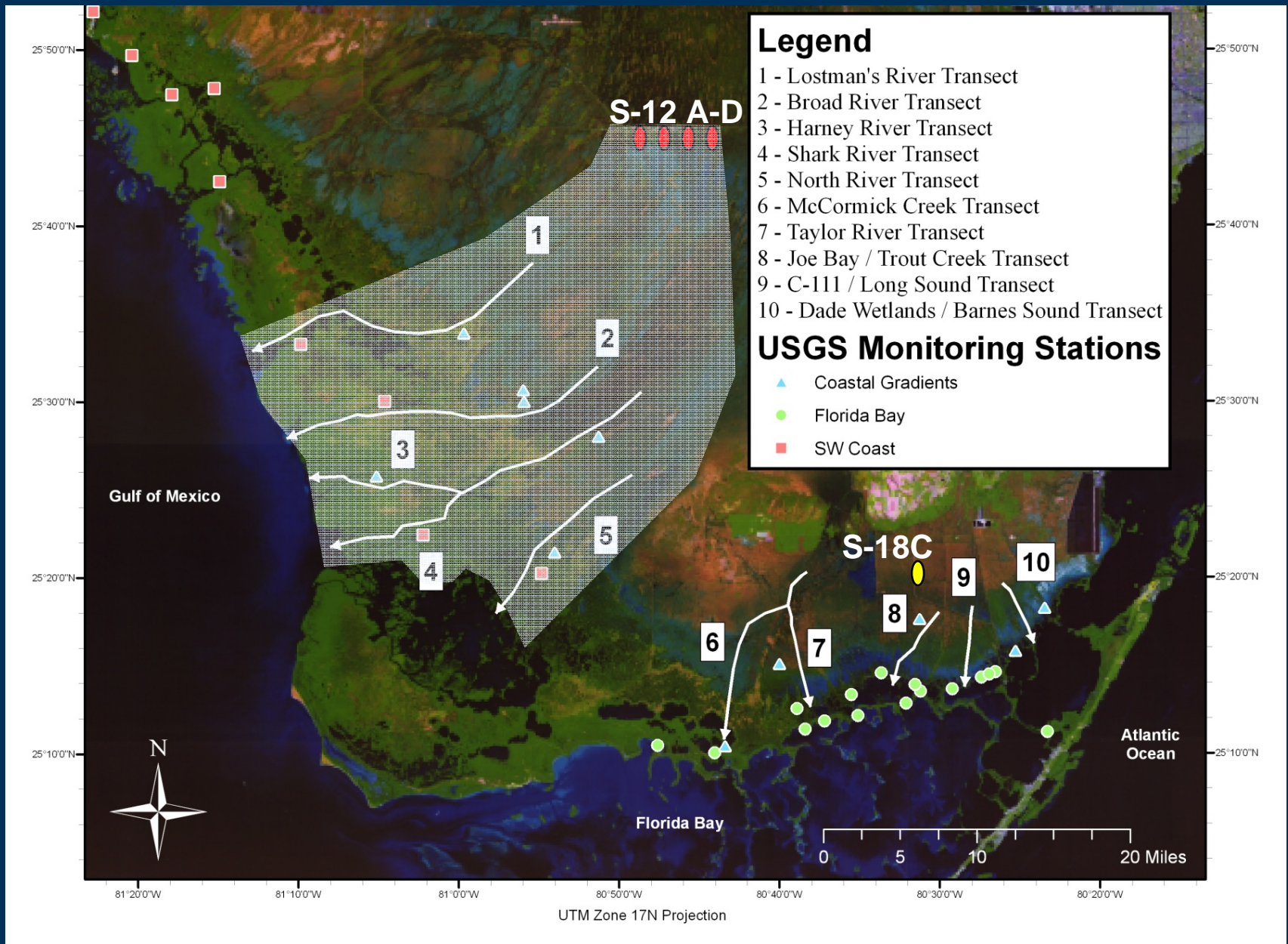


Instrumentation

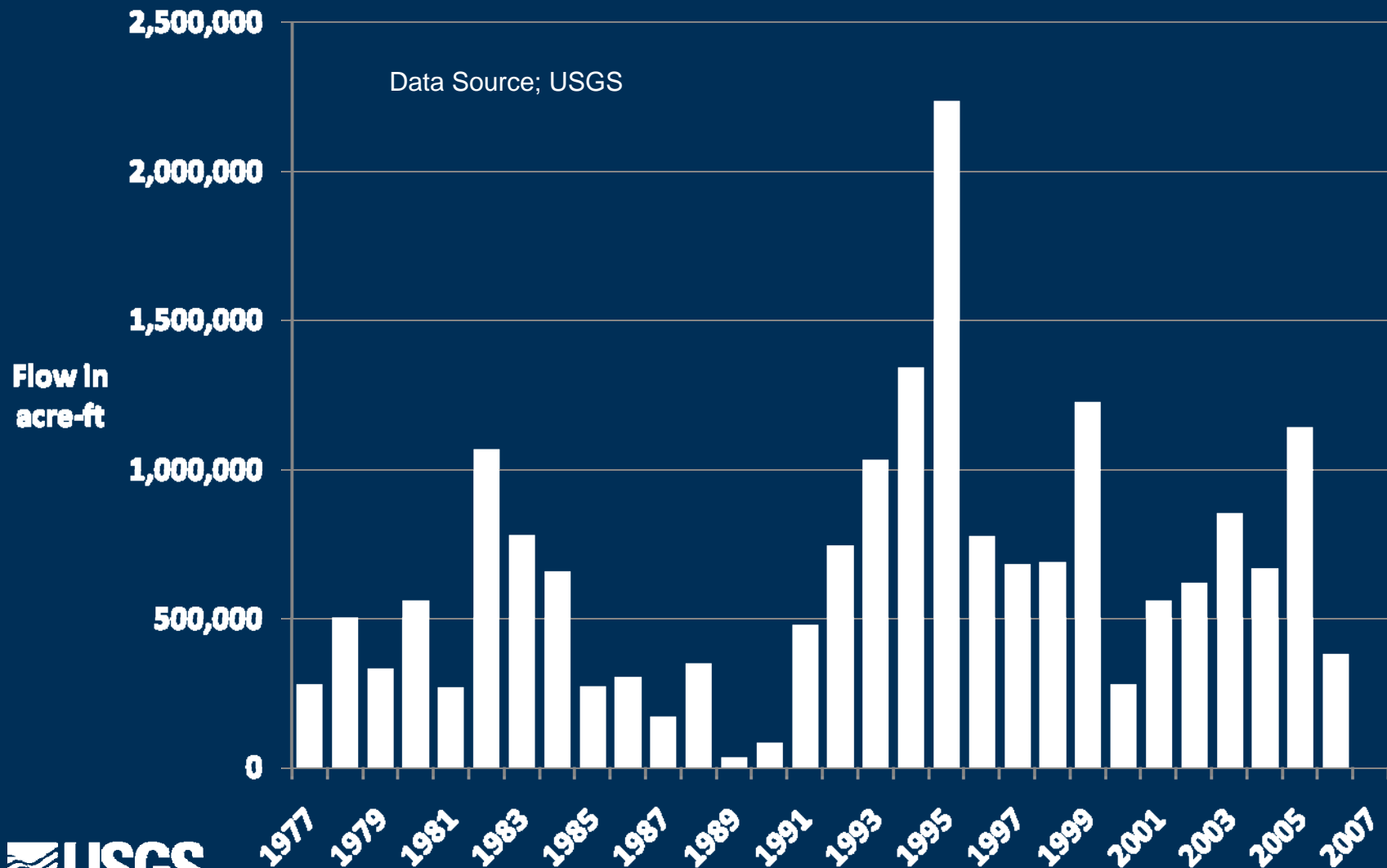
- Acoustic meters, continuous monitors, and auto-samplers.



USGS Hydrologic Monitoring Network



Annual Flow through the S-12 Structures

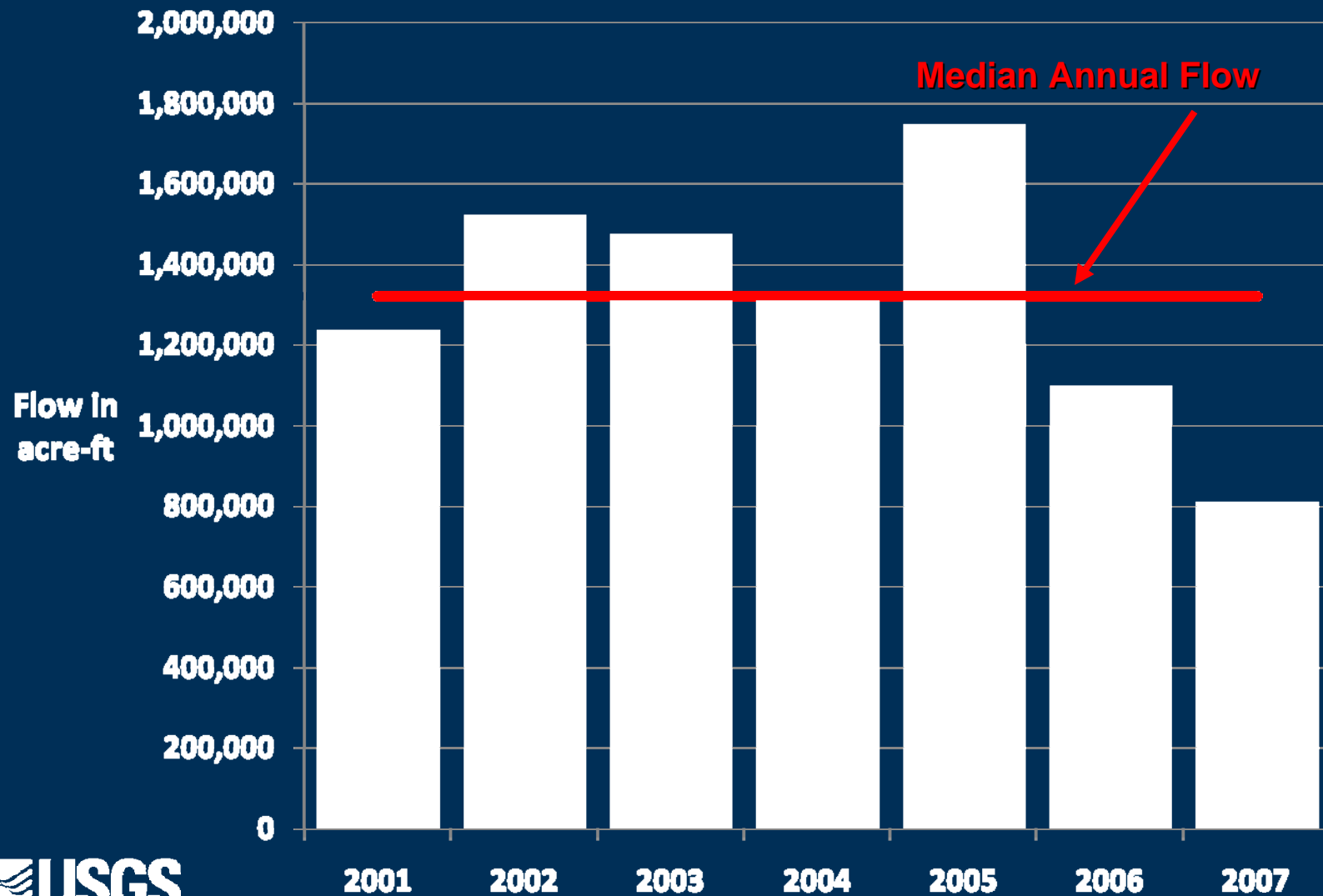


Monthly Flow in acre-ft at S-12D

	June	July	August	September	4-month total
2007	696	768	71	179	1,714
Mean (1977-2007)	7,726	17,867	22,159	28,699	76,451
Median (1977-2007)	3,850	5,460	15,120	31,830	56,260

Flow from June – September was lower in 2007 than any other year from 1977 – 2007 except for 1977 (0 acre-ft), 1987 (902 acre-ft), and 1989 (627 acre-ft)

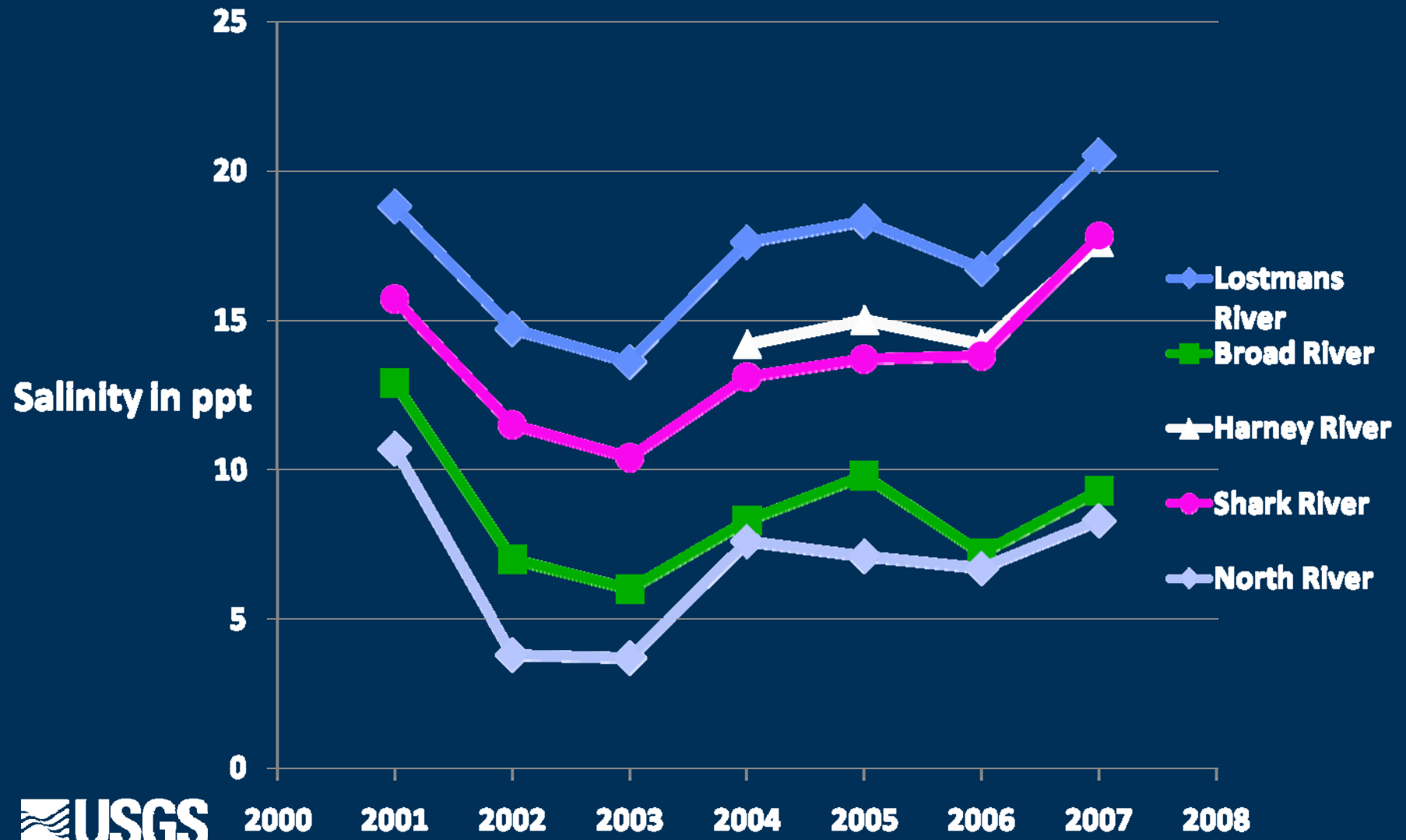
Annual Flow Southwest Coast of ENP



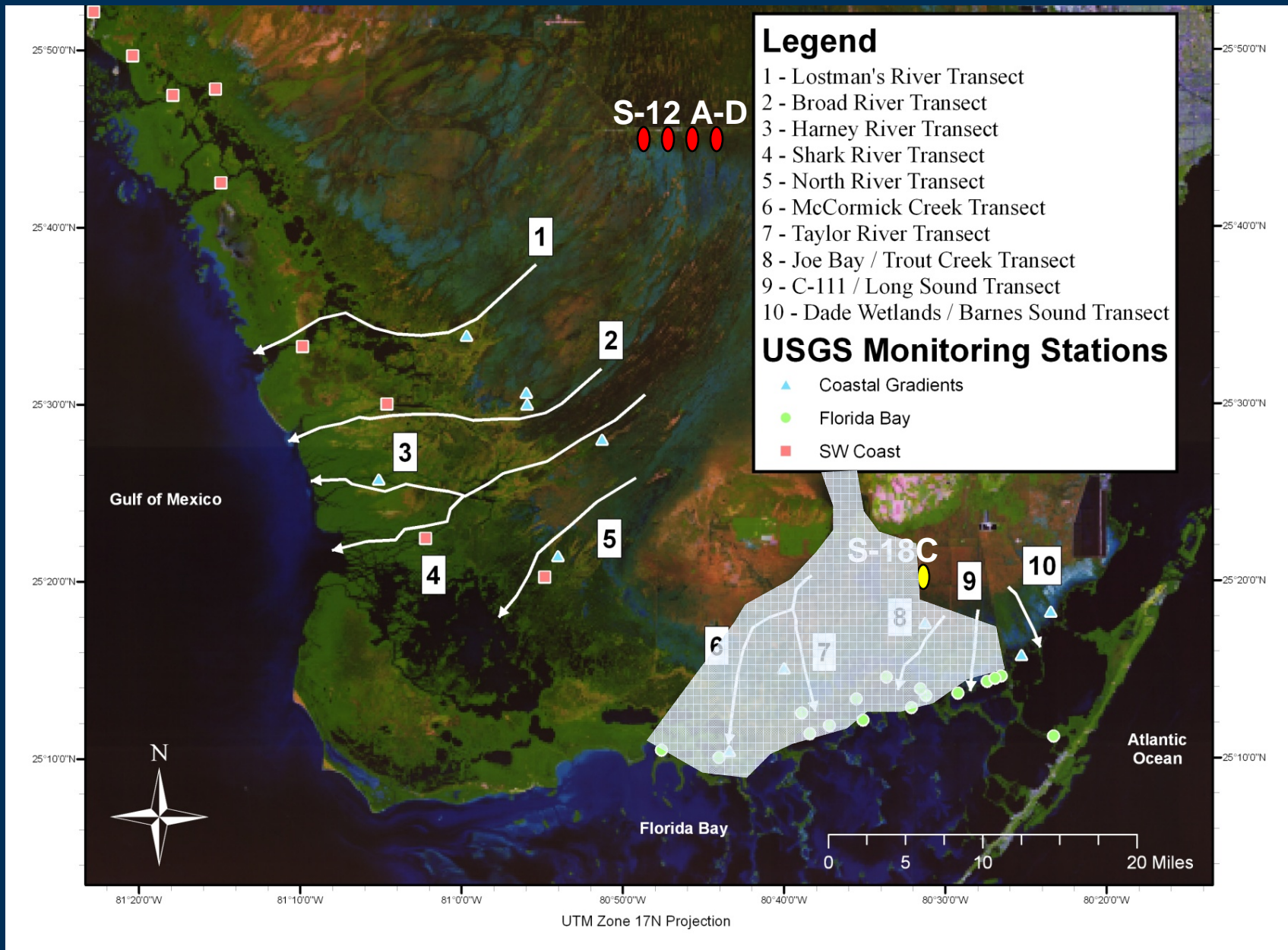
Distribution of Flow to the SW Coast of ENP

Year	Lostmans River	Broad River	Harney River	Shark River	North River	Total acre-ft
2004	51%	12%	24%	11%	2%	1,730,950
2005	45%	14%	23%	15%	3%	2,253,670
2006	42%	15%	28%	12%	3%	1,532,840
2007	49%	13%	29%	6%	3%	1,140,890
Average	47%	13%	26%	11%	3%	

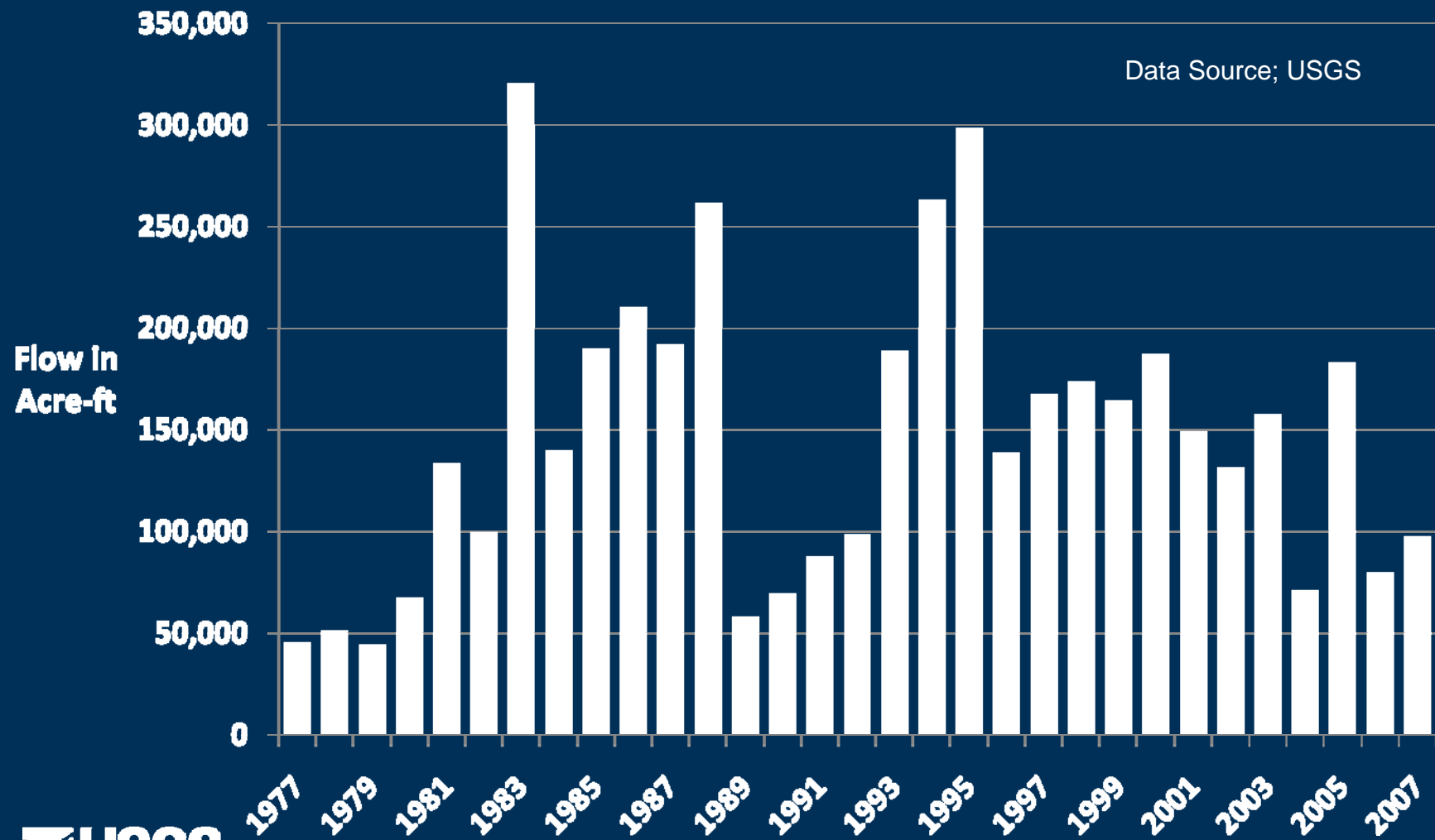
Salinity Patterns on the SW Coast of ENP



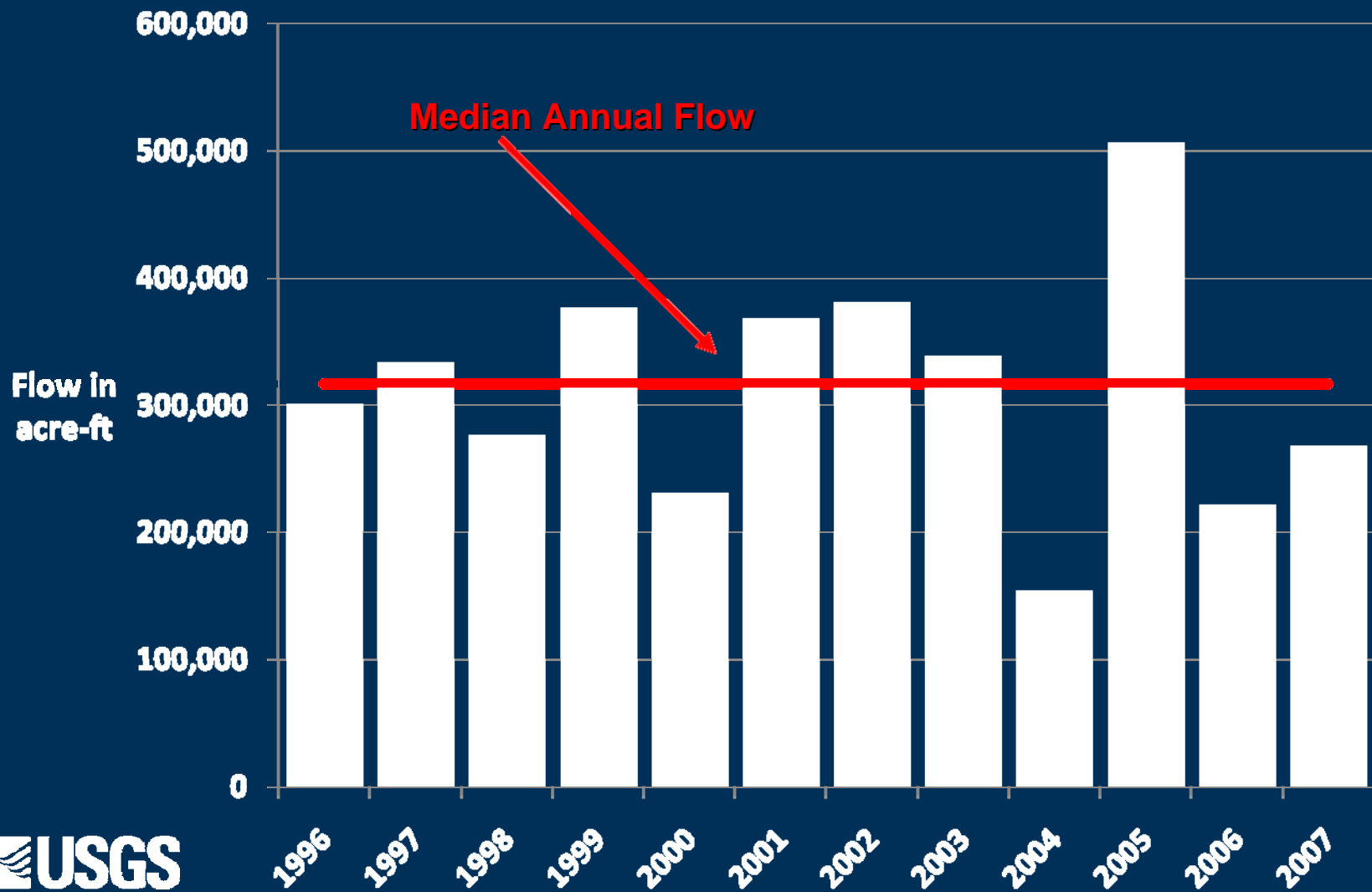
USGS Hydrologic Monitoring Network



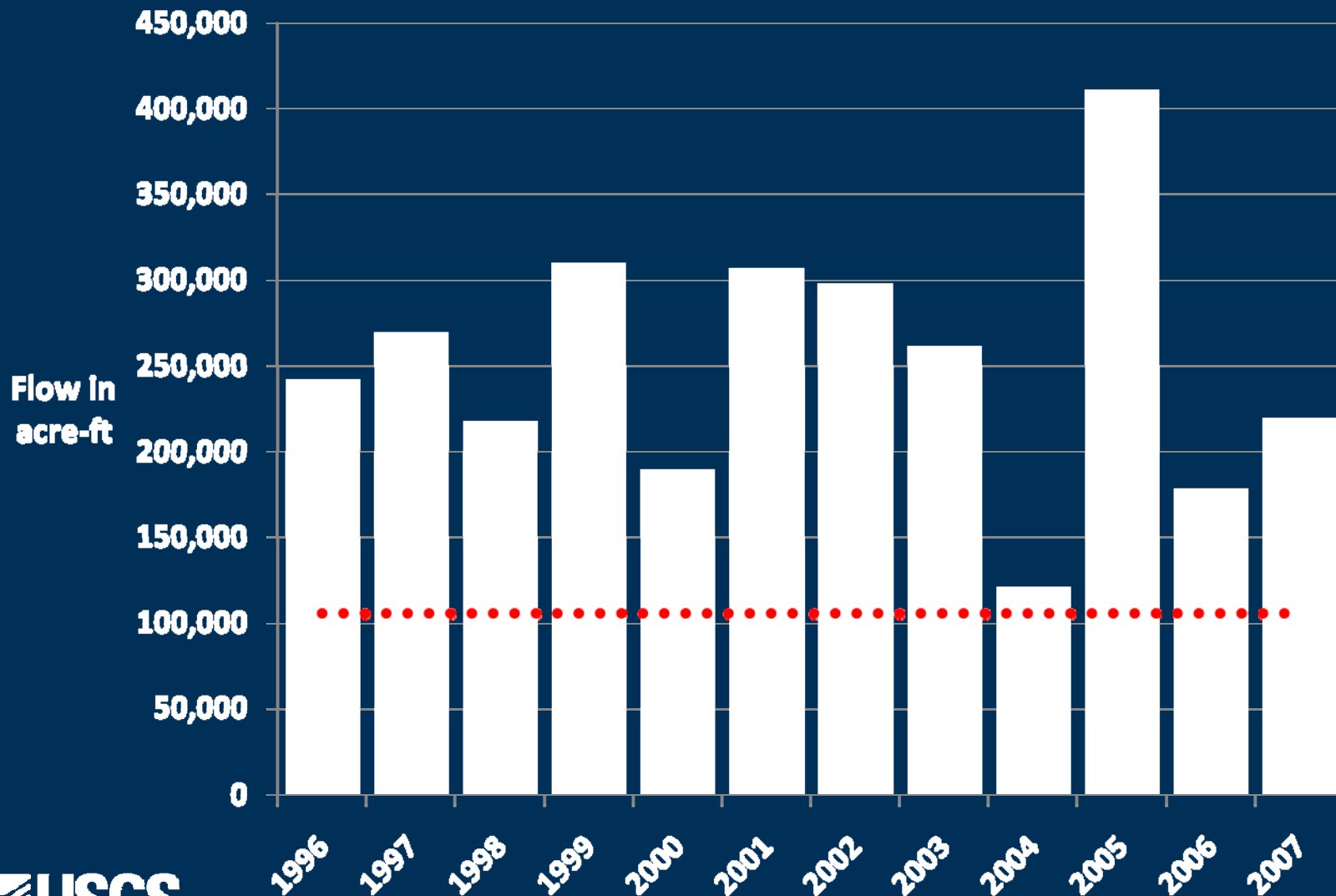
Annual Flow Through S-18C



Annual Flow Northeastern Florida Bay



Minimum Flows and Levels Criteria

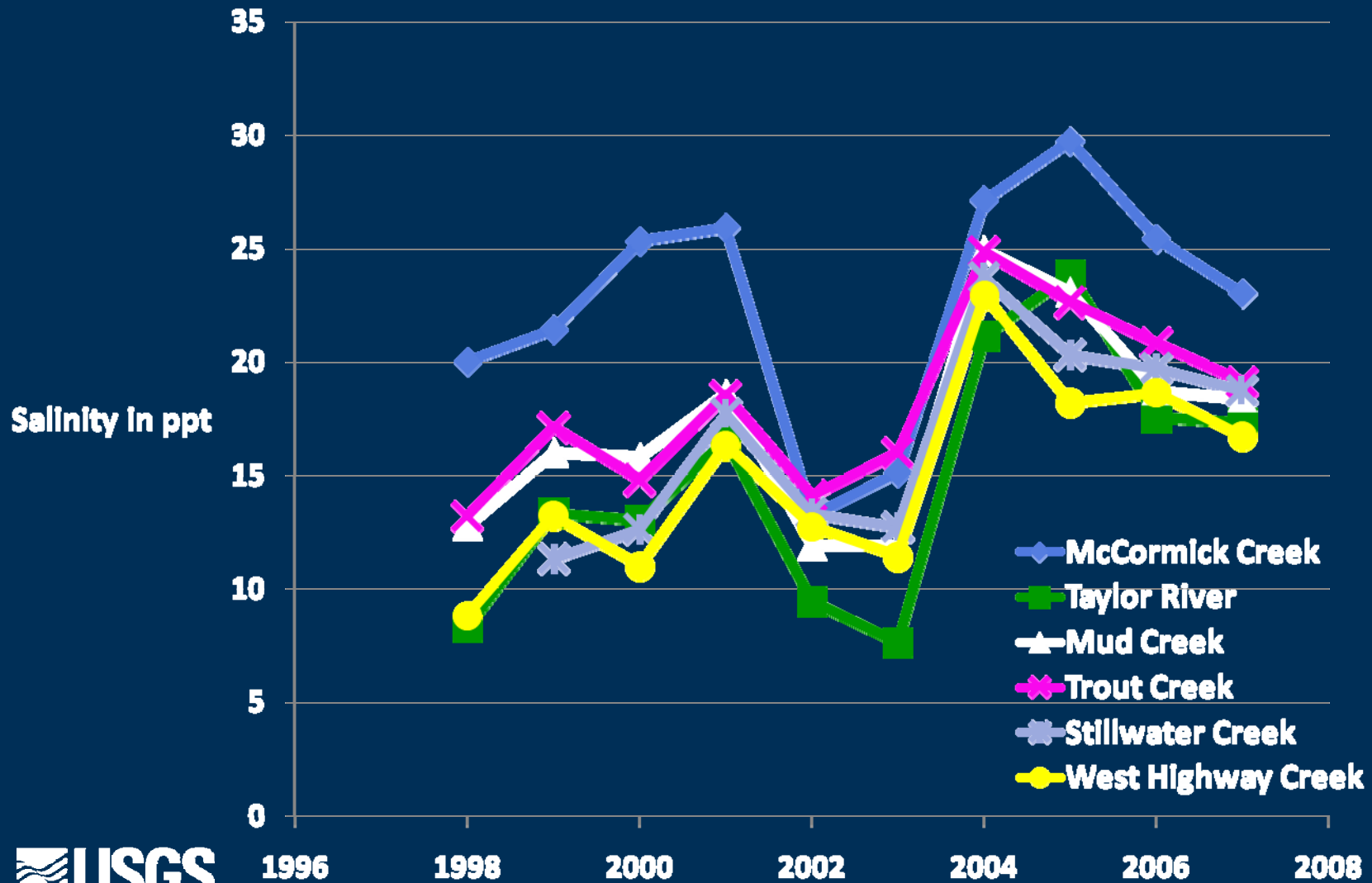


Distribution of Flow NE FL Bay

Year	East Highway	West Highway	Oregon Creek	Stillwater Creek	Trout Creek	Mud Creek	East Creek	Taylor River	McCormick Creek	Total Flow acre-ft
1996	5%	12%	4%	4%	50%	7%	8%	6%	5%	301,340
1997	5%	14%	3%	5%	52%	6%	6%	7%	3%	332,900
1998	5%	13%	3%	5%	50%	7%	9%	11%	-3%	275,680
1999	4%	10%	3%	3%	48%	9%	9%	10%	5%	376,370
2000	5%	14%	3%	2%	54%	5%	7%	10%	-1%	230,340
2001	7%	10%	4%	1%	51%	8%	5%	8%	7%	367,420
2002	8%	9%	4%	2%	44%	7%	8%	9%	8%	379,980
2003	6%	8%	5%	4%	42%	9%	10%	11%	7%	338,650
2004	3%	13%	3%	3%	36%	9%	13%	13%	7%	154,130
2005	5%	10%	3%	3%	46%	9%	8%	8%	8%	506,170
2006	4%	13%	4%	3%	35%	9%	9%	12%	12%	221,560
2007	4%	12%	3%	1%	43%	8%	9%	10%	8%	267,880
Average	5%	12%	3%	3%	46%	8%	8%	10%	6%	



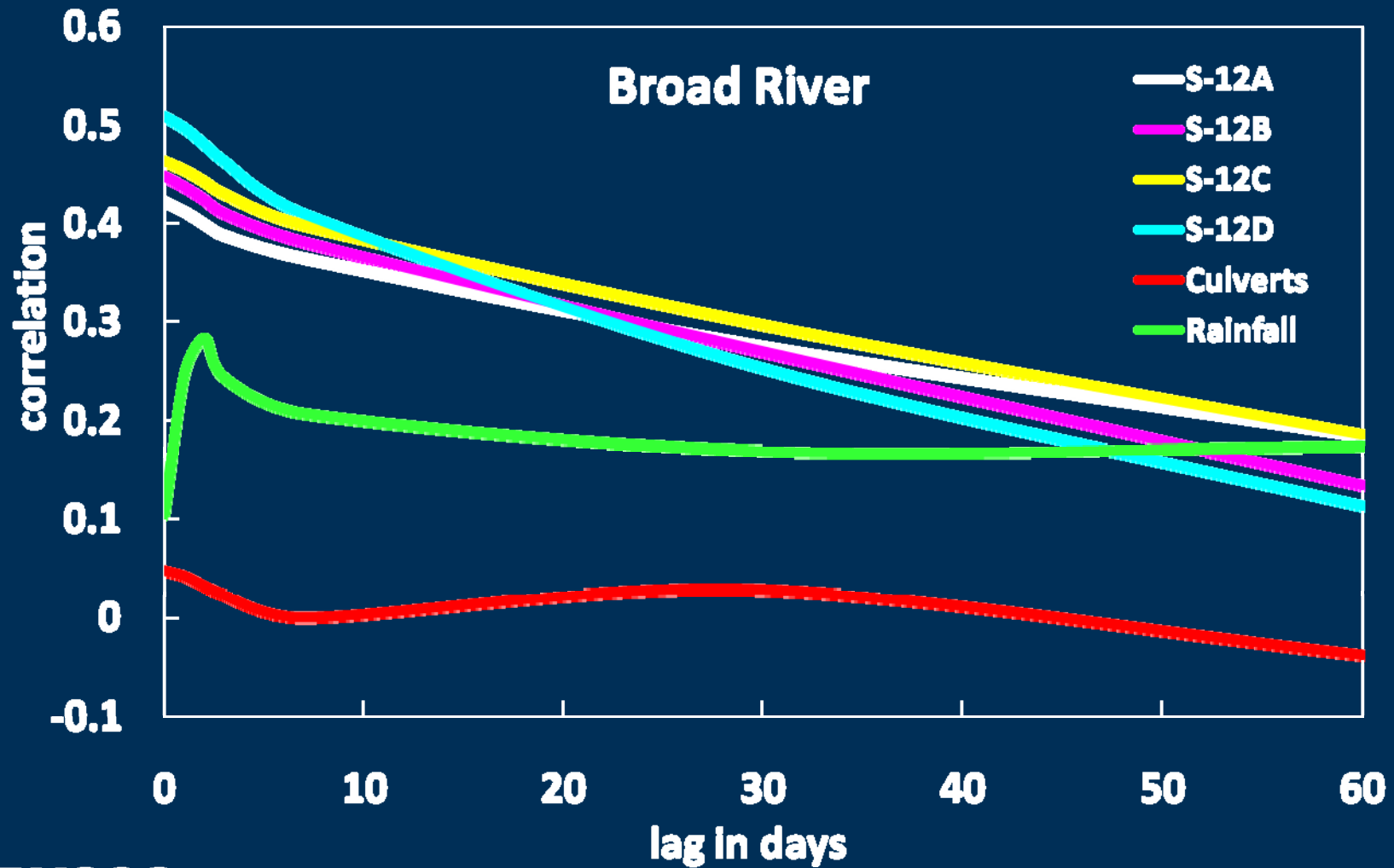
Salinity Patterns for NE Florida Bay



Future Products

- Working with SFWMD and FIU to quantify nutrient loads for the entire coastal area of ENP
- Update of the TIME model through 2007
- Correlations between coastal flows and upstream structure flows
- Network optimization project

Structure and Coastal Flow Correlation



Network Optimization Study

Class 1

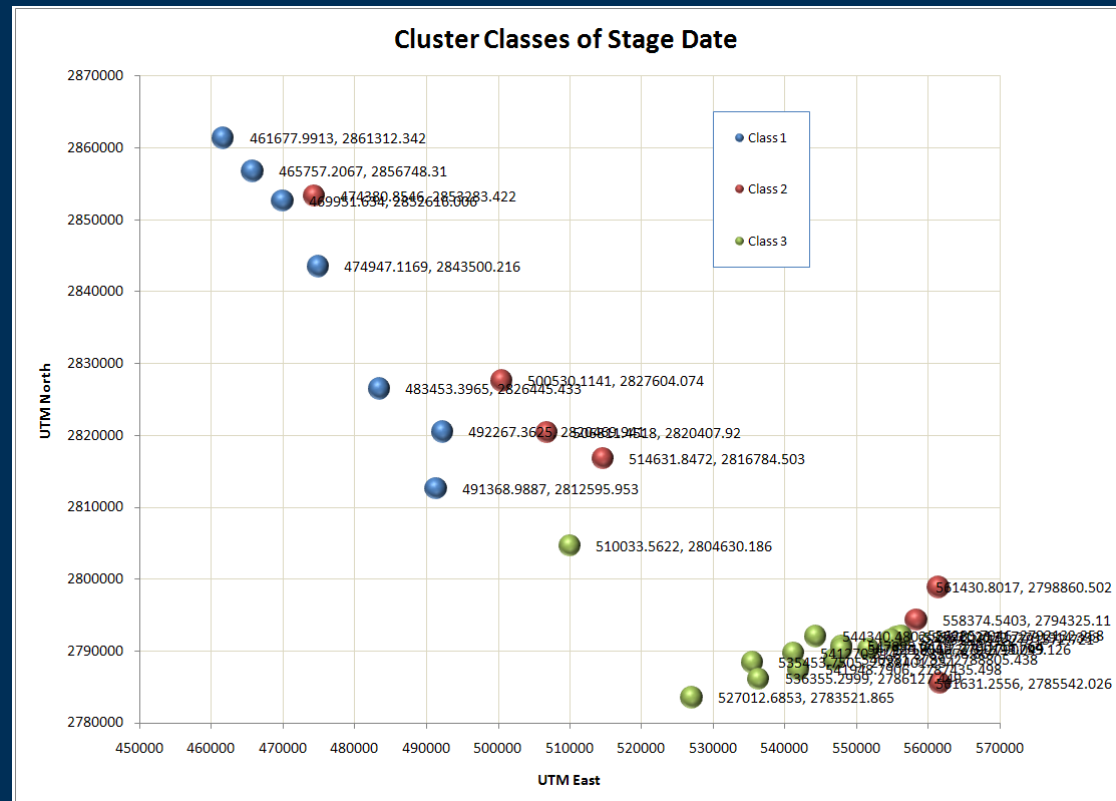
Barron River at Everglades City, FL
 Lopez River near Lopez Campsite
 Lostmans River below Second Bay
 Harney River
 Chatham River near Watson Place
 Broad River near the cutoff
 Turner River near Chokoloskee

Class 2

Bottle Creek at Rookery Branch
 New River at Sunday Bay
 Manatee Bay Creek
 Jewfish Creek
 Card Sound Canal
 Upstream Broad River
 Upstream Lostmans River

Class 3

Upstream North River Trout Creek East Highway Creek Joe Bay 1E
 Upstream Taylor River Stillwater Creek Joe Bay 8W Joe Bay 5C
 Taylor River Mouth Oregon Creek McCormick Creek
 Mud Creek West Highway Creek Joe Bay 2E



Water Budget

Average Annual

Rainfall (m³) 9,207,857,547

Average Annual

ET Rate from German (m³) -7,945,776,686

Total Flows

From US-41 (m³) 164,810,178

Total Flows

from S-18C (m³) 119,785,950

Total Flows

Southwest Coast (m³) -1,406,717,370

Total Flows

Northeastern Florida Bay (m³) -330,296,040

Net

Difference (m³) -190,336,421

Average Annual

Rainfall (m³) 9,207,857,547

ENP Potential

ET Rate from SFWMD (m³) -9,145,642,293

Total Flows

From US-41 (m³) 164,810,178

Total Flows

from S-18C (m³) 119,785,950

Total Flows

Southwest Coast (m³) -1,406,717,370

Total Flows

Northeastern Florida Bay (m³) -330,296,040

Net

Difference (m³) -1,390,202,028



Data and Product Availability

- All data available on the USGS SOFIA website
<http://sofia.usgs.gov/>
- Numerous reports and poster presentations from national conferences.
- Real time 15 minute data available for 27 surface water sites and 4 groundwater sites available on the USGS National Water Information System
<http://waterdata.usgs.gov/fl/nwis/>



Questions?



http://sofia.usgs.gov/projects/coastal_grads

