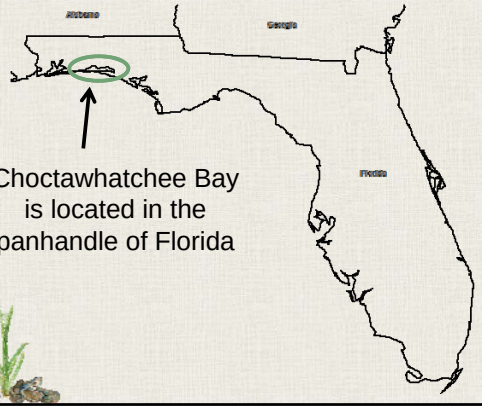
CHOCTAWHATCHEE BASIN ALLIANCE OF NWF STATE COLLEGE:

Choctawhatchee Bay

Alison McDowell
Director
Choctawhatchee Basin Alliance



Choctawhatchee Bay is located in the panhandle of Florida

History

- Florida Dept. of Community Affairs grant used to bring community stakeholders together
- Result of the meetings was the creation of what is now called Choctawhatchee Basin Alliance of NWF State College in 1996
- Quickly became adopted by NWF State College: provided fiduciary stability for grants, contracts, gift-giving, memberships, etc.

Currently—20 years later

- Fully adopted College program
  - space and overhead
  - fiduciary agent
  - support staff (account, purchasing, graphics, etc.)
- Voluntary Community-Based Advisory Committee
- Paid staff
  - Director, 4 Coordinators, 3 PT staff,
- 4 Growing Program areas
  - Monitoring, Restoration, Education, Research

Mission

Choctawhatchee Watershed

- ◆Watershed area is over 5,000 mi^2
- ◆One main river on east side of watershed
- ◆Most of the watershed is in Alabama
- ◆Major land use is Agricultural/ Forest/ Grasslands
- ◆Most of the urban use is in Okaloosa & Walton Counties

Choctawhatchee Bay

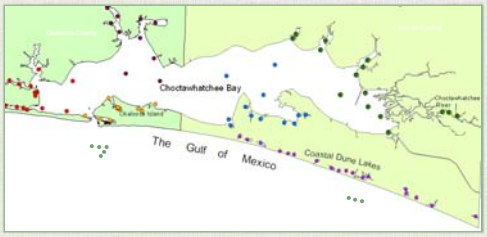
CBA Monitoring Program

Oyster reefs

Seagrass

Water Quality

CBA Monitoring Program: Water Quality



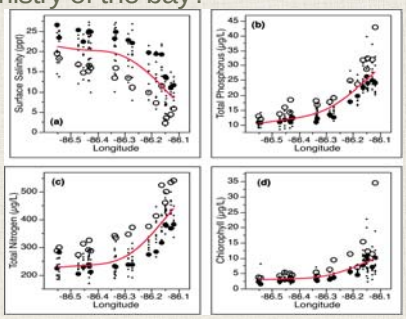
- Over 130 sampling areas monitored by 75 volunteers
- What is Sampled?
  - Total phosphorus, Total nitrogen, Chlorophyll, Water clarity, Color
  - Temperature, Oxygen, Salinity, Turbidity, pH, Specific Conductivity

Water Quality Data

Mean values from 2000-2009

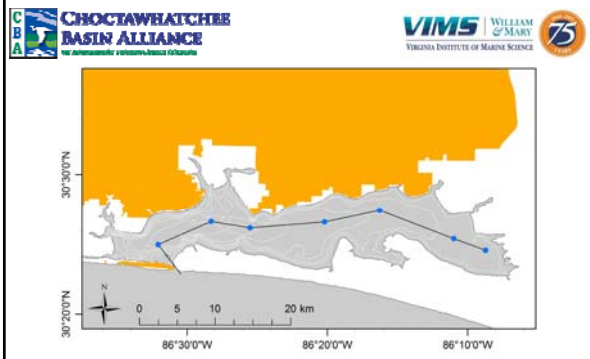
	Western	Middle	Eastern
Number of samples	1074	2586	995
TP (µg/L)	12	16	25
TN (µg/L)	246	269	413
CHL A (µg/L)	4	5	9
Secchi (m)	3	2	1
Color (Pt-Co Units)	9	16	22
Bottom Depth (m)	0.5 - 11.3	0.34 - 11.0	0.30 - 4.88
Surface Salinity (ppt)	22	18	11
Bottom Salinity (ppt)	27	25	17
Surface turbidity (NTU)	4	11	13
Bottom turbidity (NTU)	6	16	18

Is there spatial variation in the water chemistry of the bay?

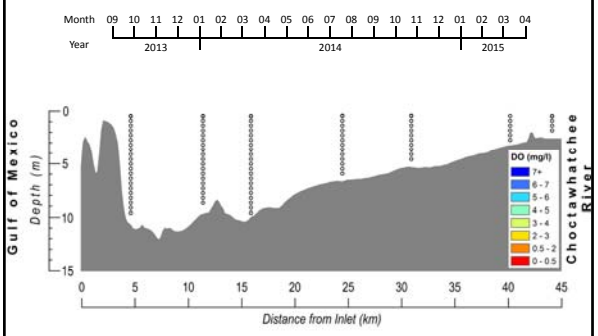


Hoyer, Terrell, Canfield, Florida Scientist, 2014

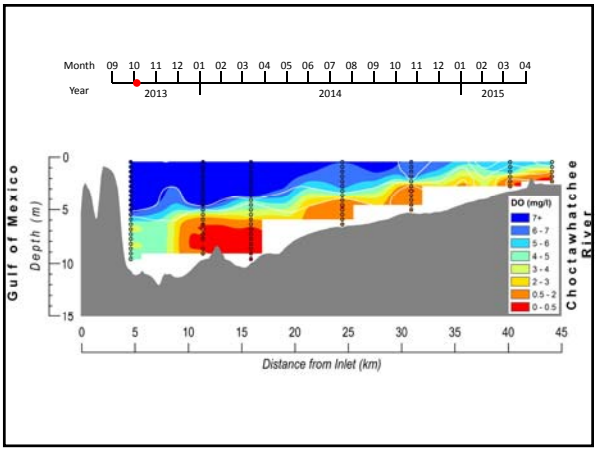
Choctawhatchee Bay

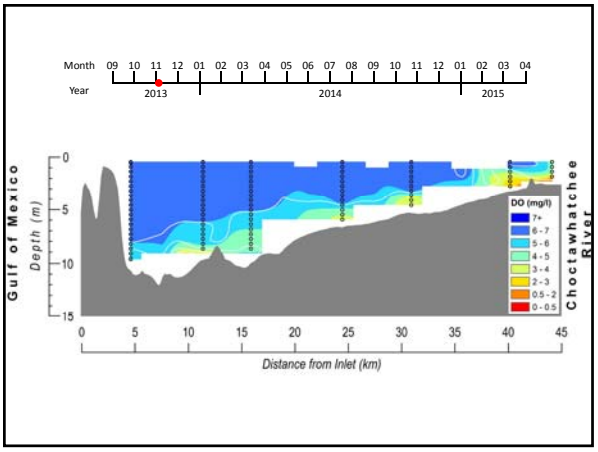


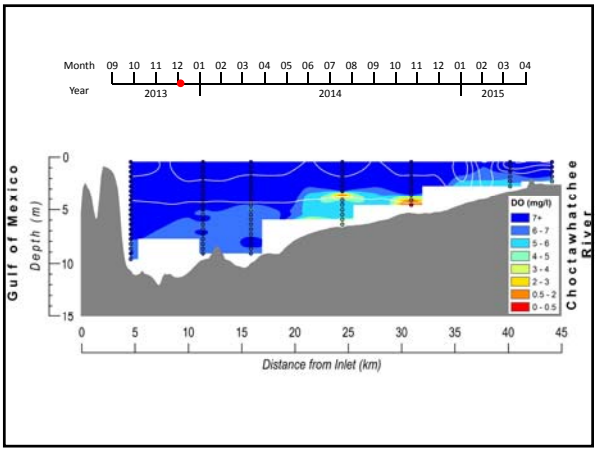
Sam Lake, 2015

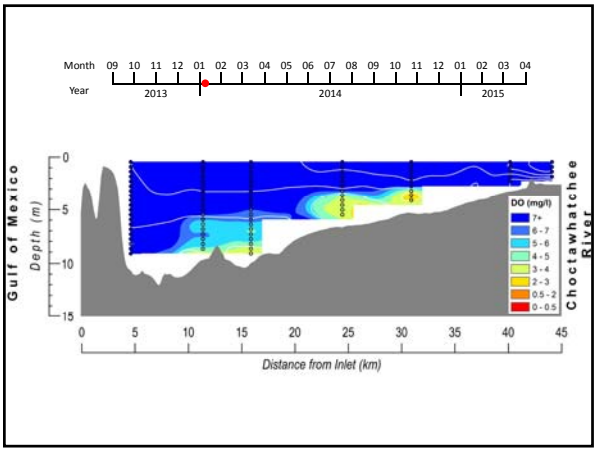


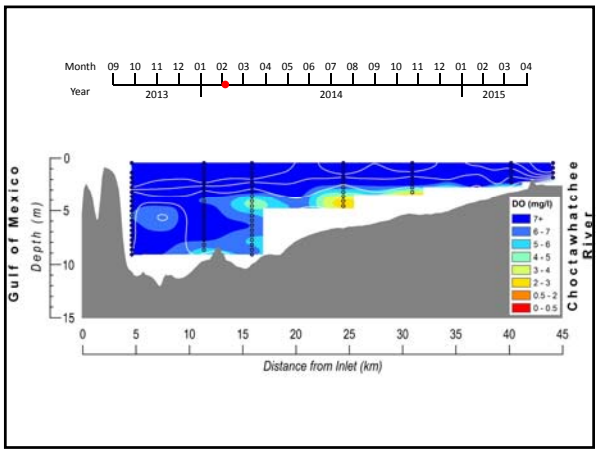
Sam Lake, 2015

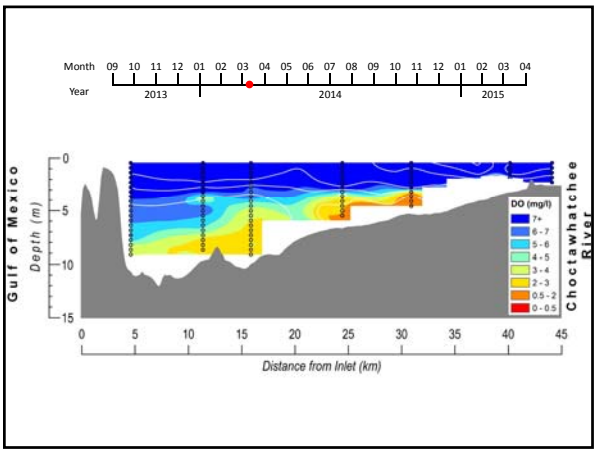


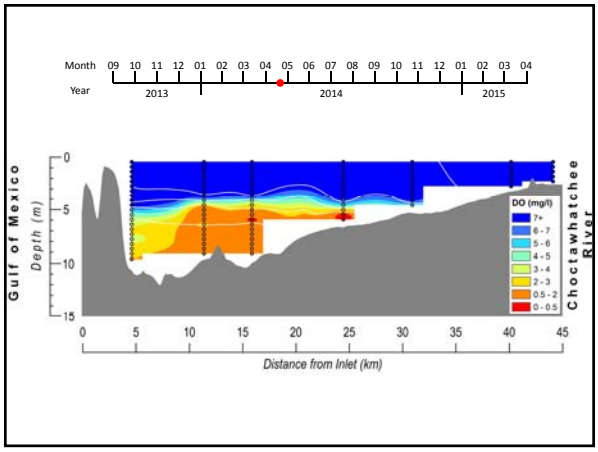


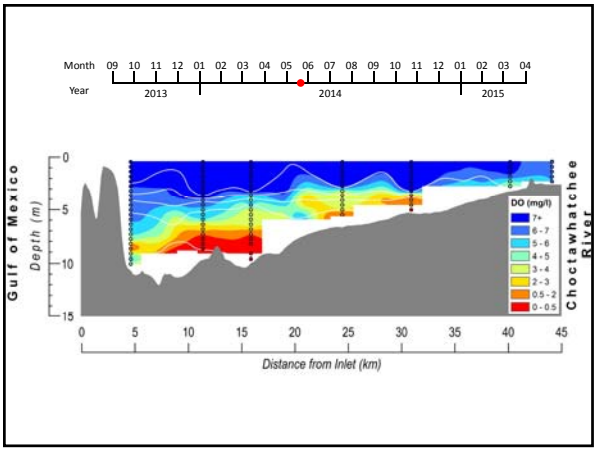


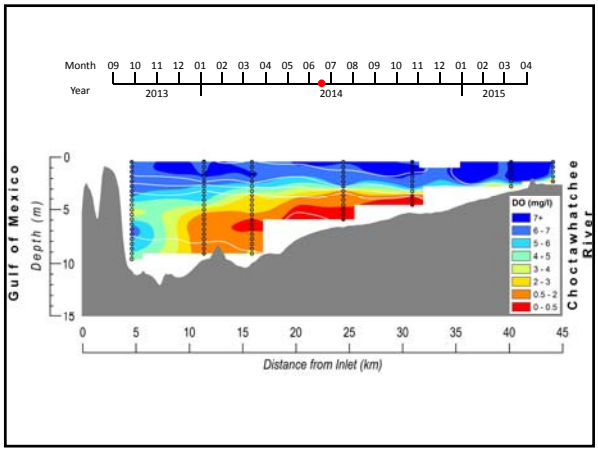


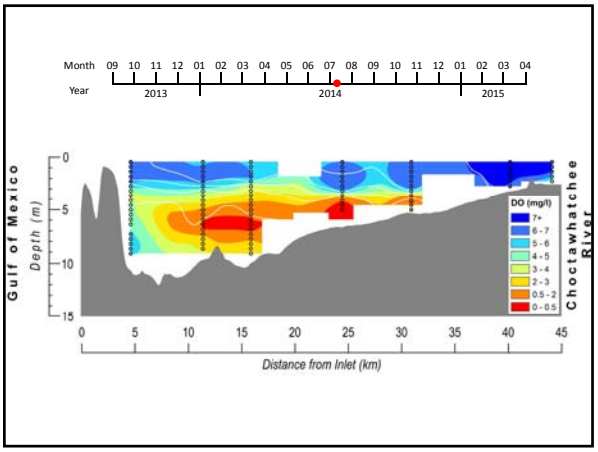

Month 09 10 11 12 01 02 03 04 05 06 07 08 09 10 11 12 01 02 03 04
Year 2013 2014 2015
Gulf of Mexico
Depth (m)
Choctawhatchee River
DO (mg/l)
7+
6 - 7
5 - 6
4 - 5
3 - 4
2 - 3
0.5 - 2
0 - 0.5
Distance from Inlet (km)

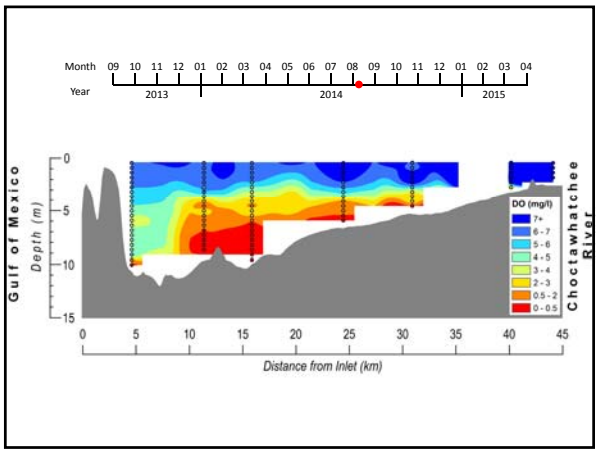

Month 09 10 11 12 01 02 03 04 05 06 07 08 09 10 11 12 01 02 03 04
Year 2013 2014 2015
Gulf of Mexico
Depth (m)
Choctawhatchee River
DO (mg/l)
7+
6 - 7
5 - 6
4 - 5
3 - 4
2 - 3
0.5 - 2
0 - 0.5
Distance from Inlet (km)

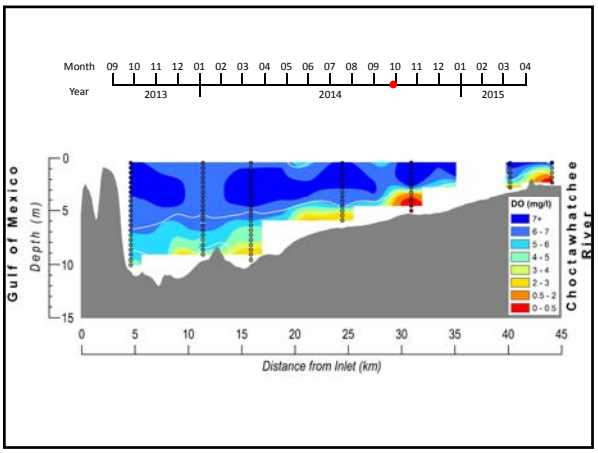

Month 09 10 11 12 01 02 03 04 05 06 07 08 09 10 11 12 01 02 03 04
Year 2013 2014 2015
Gulf of Mexico
Depth (m)
Choctawhatchee River
DO (mg/l)
7+
6 - 7
5 - 6
4 - 5
3 - 4
2 - 3
0.5 - 2
0 - 0.5
Distance from Inlet (km)

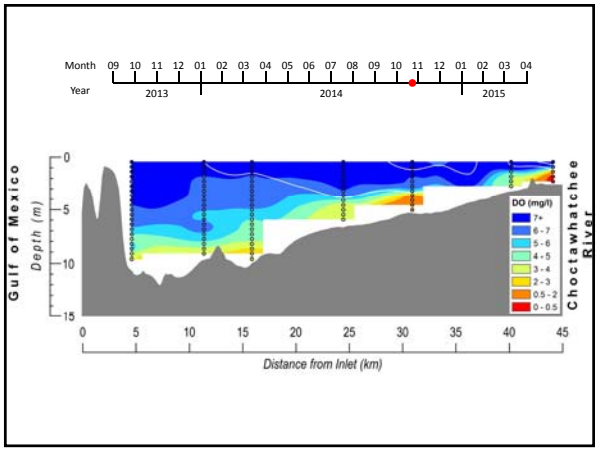

Month 09 10 11 12 01 02 03 04 05 06 07 08 09 10 11 12 01 02 03 04
Year 2013 2014 2015
Gulf of Mexico
Depth (m)
Choctawhatchee River
DO (mg/l)
7+
6 - 7
5 - 6
4 - 5
3 - 4
2 - 3
0.5 - 2
0 - 0.5
Distance from Inlet (km)

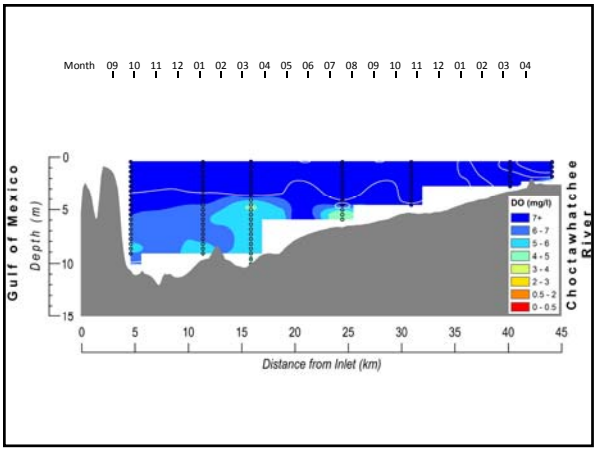

Month 09 10 11 12 01 02 03 04 05 06 07 08 09 10 11 12 01 02 03 04
Year 2013 2014 2015
Gulf of Mexico
Depth (m)
Choctawhatchee River
DO (mg/l)
7+
6 - 7
5 - 6
4 - 5
3 - 4
2 - 3
0.5 - 2
0 - 0.5
Distance from Inlet (km)

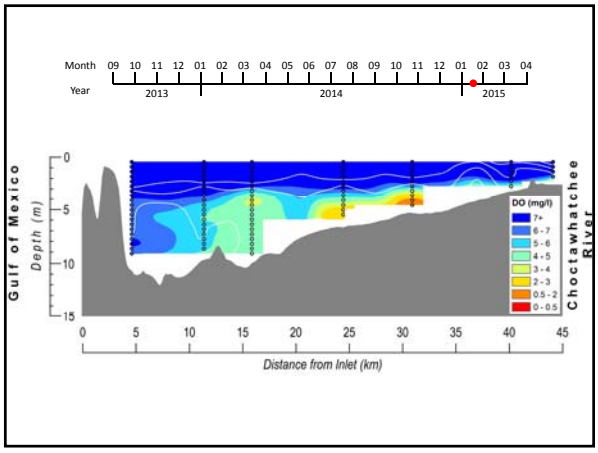

Month 09 10 11 12 01 02 03 04 05 06 07 08 09 10 11 12 01 02 03 04
Year 2013 2014 2015
Gulf of Mexico
Depth (m)
Choctawhatchee River
DO (mg/l)
7+
6 - 7
5 - 6
4 - 5
3 - 4
2 - 3
0.5 - 2
0 - 0.5
Distance from Inlet (km)

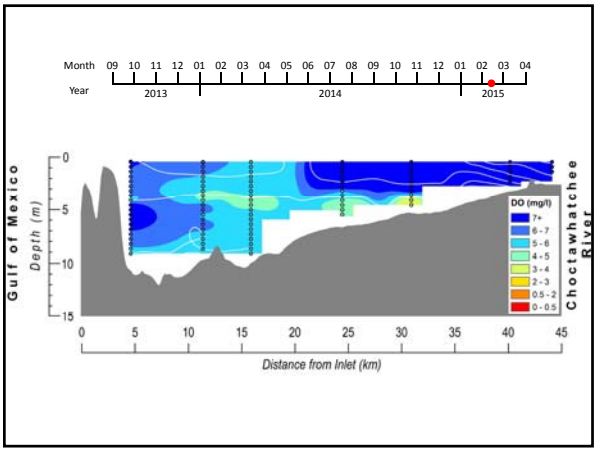

Month 09 10 11 12 01 02 03 04 05 06 07 08 09 10 11 12 01 02 03 04
Year 2013 2014 2015
Gulf of Mexico
Depth (m)
Choctawhatchee River
DO (mg/l)
7+
6 - 7
5 - 6
4 - 5
3 - 4
2 - 3
0.5 - 2
0 - 0.5
Distance from Inlet (km)

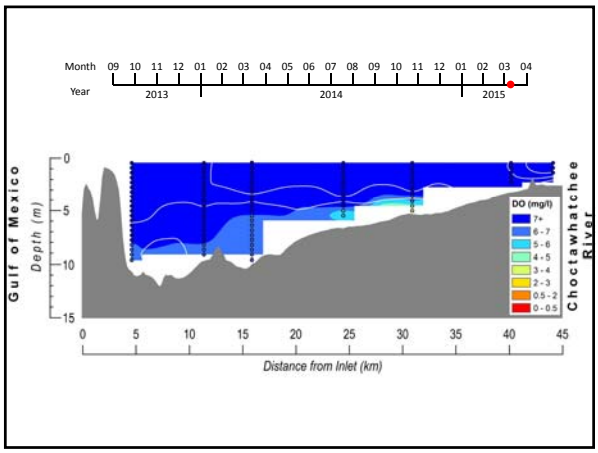

Month 09 10 11 12 01 02 03 04 05 06 07 08 09 10 11 12 01 02 03 04
Year 2013 2014 2015
Gulf of Mexico
Depth (m)
Choctawhatchee River
DO (mg/l)
7+
6 - 7
5 - 6
4 - 5
3 - 4
2 - 3
0.5 - 2
0 - 0.5
Distance from Inlet (km)

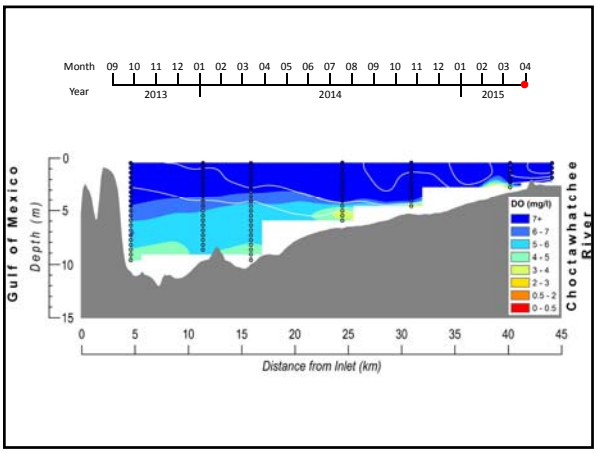

Month 09 10 11 12 01 02 03 04 05 06 07 08 09 10 11 12 01 02 03 04
Year 2013 2014 2015
Gulf of Mexico
Depth (m)
Choctawhatchee River
DO (mg/l)
7+
6 - 7
5 - 6
4 - 5
3 - 4
2 - 3
0.5 - 2
0 - 0.5
Distance from Inlet (km)


Month 09 10 11 12 01 02 03 04 05 06 07 08 09 10 11 12 01 02 03 04
Gulf of Mexico
Depth (m)
Choctawhatchee River
DO (mg/l)
7+
6 - 7
5 - 6
4 - 5
3 - 4
2 - 3
0.5 - 2
0 - 0.5
Distance from Inlet (km)

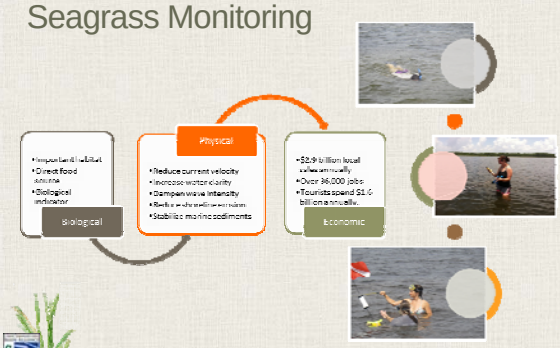

Month 09 10 11 12 01 02 03 04 05 06 07 08 09 10 11 12 01 02 03 04
Year 2013 2014 2015
Gulf of Mexico
Depth (m)
Choctawhatchee River
DO (mg/l)
7+
6 - 7
5 - 6
4 - 5
3 - 4
2 - 3
0.5 - 2
0 - 0.5
Distance from Inlet (km)


Month 09 10 11 12 01 02 03 04 05 06 07 08 09 10 11 12 01 02 03 04
Year 2013 2014 2015
Gulf of Mexico
Depth (m)
Choctawhatchee River
DO (mg/l)
7+
6 - 7
5 - 6
4 - 5
3 - 4
2 - 3
0.5 - 2
0 - 0.5
Distance from Inlet (km)





Seagrass Monitoring



108 sites of 30 X 30 meter seagrass were sampled in July 2009

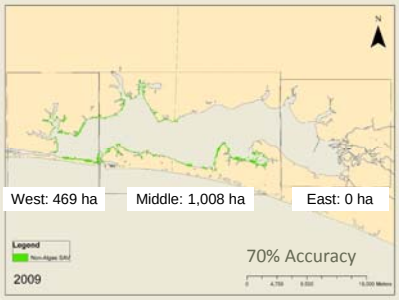
Lazzarino, *unpublished*, 2009

2009 Estimates 1,477 Hectares

70% Accuracy

Lazzarino, *unpublished*, 2009

2009 Bay wide: 1,477 Hectares



Lazzarino, *unpublished*, 2009

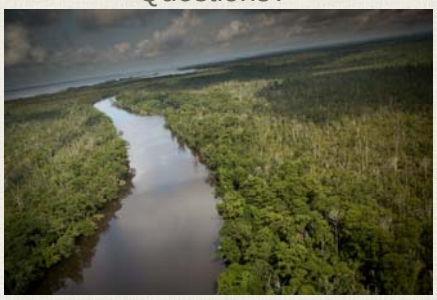
Summary of Seagrass Abundance

Year	Source	SAV West (Hectares)	SAV Middle (Hectares)	SAV East (Hectares)	Total Calculated (Hectares)	Total Reported (Hectares)
1992	USGS	927	842	2	1,771	1,726
2003	USGS	511	586	2	1,099	1,071
2009	CBA	469	1,008	0	1,477	
2010	CBA	365	1,020	0	1,385	
2011	CBA	190	1,044	0	1,234	

Chain of Eutrophication Models for Assessment of the Potential Nutrient Enrichment of Choctawhatchee Bay, FL, USA

Eutrophication models originally developed for freshwater systems function similarly in Choctawhatchee Bay:

- Nutrient loading model developed by Canfield and Bachmann (1981) did estimate nutrient concentrations in the bay.
- There is a significant relation between total phosphorus and chlorophyll in Choctawhatchee bay.
- Chlorophyll concentration is a significant driver of water clarity in Choctawhatchee Bay
- Water clarity is not limiting the seagrass coverage in Choctawhatchee Bay

Hoyer, Terrell, Canfield, *Florida Scientist*, 2015

Questions?