Information for Gulf Consortium Meeting May 17, 2013

Welcome to the Florida Keys Reception
May 16, 2013 5:30 pm – 7:00 pm EDT
Lobby of Murray Nelson Government Center
102050 Overseas Highway
Key Largo, Fl 33037

Gulf Consortium Meeting
May 17, 2013 9:00 am – 2:00 pm EDT
Murray Nelson Government Center
102050 Overseas Highway
Key Largo, Fl 33037

Hotels for Meeting:

Hampton Inn Key Largo
102400 Overseas Highway
Key Largo, Fl 33037
305-451-1400
(government rates)

About a mile away:

Key Largo Bay Resort Marriott
103800 Overseas Highway
Key Largo, Fl 33037

Holiday Inn Key Largo
99701 Overseas Highway
Key Largo, FL 33037
305-451-2121
http://www.holidayinnkeylargo.com/

Courtyard Key Largo - Marriott
99751 Overseas Highway
Key Largo, FL 33037
305-451-3939
http://www.marriott.com/hotels/travel/mthcy-courtyard-key-largo/

Gulf Consortium Agenda
May 17, 2013 9:00 a.m.-2:00 (EDT)
Murray Nelson Government Center
102050 Overseas Highway
Key Largo, Fl 33037

1. Call to Order
2. Pledge of Allegiance
3. Consent Agenda
    a. Minutes Approval
    b. Updated List of Directors/Alternates
    c. Financial Report
4. Procurement Partnership with Leon County
5. Discussion of U.S. Treasury Rules
6. Update of Legislative Actions and Memorandum of Understanding (MOU) with Executive Office of the Governor
7. Update by Chair Robinson and Doug Darling on meeting with NFWF
8. Presentation by Mr. Ben Scaggs, Director, Gulf of Mexico Program, US Environmental Protection Agency
9. Supervisor Connie Rockco, Harrison County Board of Supervisors
10. Mayor George Neugent introduction to Monroe and Florida Keys
    a. Billy Causey, Florida Keys National Marine Sanctuary
    b. Dr. Jerry Ault, Marine Ecosystem and Impact on Economy
    c. Dr. James Byrne, TNC Florida Keys coral reef conservation/Florida Keys issues
    d. Dr. Jerry Lorenz, Audubon Florida, Watershed Impairment
11. Working Lunch

12. Presentation by TJ Marshall, Ocean Conservancy/David White, National Wildlife Federation, Healthy Marine Fisheries
13. Mr. Keith Wilkins, Escambia County, Watershed Multi County Coordination
14. Mr. Brett Boston, Wildlife Foundation of Florida, Mitigation Bank
15. Update/Questions Kevin Claridge, Director, Coastal & Aquatic Managed Areas, FDEP
16. Federal Council guidance discussion, if received
17. New Business
    a. Proposal to Establish a Committee of Fifteen Non-disproportionately Affected Counties
18. Public Comment
19. Adjourn

Gulf Consortium

May 17, 2013

Agenda Item # 5 Discussions of U.S. Treasury Rules

Statement of Issue or Executive Summary: U.S. Treasury Rules (Rules) implementing the RESTORE Act will have significant impact on the Gulf Consortium's and Counties' abilities to adequately develop the respective Comprehensive Plans.

Background: Due to the delay in receiving the Rules, there is the opportunity to make known the Consortium's/Counties' desires and present a unified message on rule development. It is proposed the Consortium and individual Counties contact the Florida Congressional Delegation and lobbyists asking for the Rules to reflect the following:

1. As provided for in the RESTORE Act, allow plan development costs and pre-award costs to be reimbursed, even before funds have been allocated.
2. Incorporate by Rule, that Pot #1 funds flow ***directly*** to the Counties.
3. Incorporate by Rule, the Gulf Consortium is the "…***consortia of local political subdivisions***" specified in the RESTORE Act.
4. Adopt by rule the percentages agreed to by the Eight Disproportionately Affected Counties.

Analysis: By presenting the same Rule requests, our position will be much stronger in the Rule development process currently underway in Washington, D.C.

Options:

1) Make a Motion adopting the above specific Rule requests as the official position of the Gulf Consortium.
2) Add to the above list and make a Motion adopting the amended list as the official position of the Gulf Consortium.
3) Provide other direction.

Fiscal Impact: None.

Recommendation: Either Option 1 or 2.

Staff Person's Name: Doug Darling, Interim Manager

Moved _____; Seconded_____;

Action: Approved____; Approved as amended_____; Defeated_____.

Gulf Consortium
May 17, 2013
Agenda Item # 17a Proposal to Establish a Committee of Fifteen

Non-disproportionately Affected

Executive Summary: Much like the Gulf Consortium's decision to establish a Committee of 8 Disproportionately Affect Counties to deal with a lack of formula for Pot #1 in the RESTORE Act, there is also the opportunity to have input into how the US Treasury implements the calculations for the 15.

Background: The RESTORE Act directs 35 percent of the available civil penalties under the Clean Water Act are to be distributed to the Gulf Coast States in equal shares. The RESTORE Act divides the Florida share into two pieces. One is for the 15 non-disproportionately affected counties which are to receive 25 percent of Florida's share. The RESTORE Act includes a formula for dividing the 25 percent among the 15 counties based on distance to the BP event, population and sales tax collections. However, there is ambiguity in how the formulas are developed and what authoritative sources are to be used.

Analysis: Charlotte County has taken the initiative to consult with the US Treasury and there is the opportunity for the 15 non-disproportionately affected counties to submit a consensus formula methodology. After getting clarification from Treasury, the following guidance is provided:

1) Treasury is not looking simply for percentages; they are looking for input on how to calculate the three elements of the formula.
2) What is the inverse proportion of the weighted average distance from the Deepwater Horizon oil rig to each of the nearest and farthest points of the shoreline? What authoritative source can provide this information?
3) What year and source should be used for determining the average population of the county?
4) What does "weighted average" mean in this context

These are a few of the questions that Treasury is asking for input on. This is a unique opportunity for the 15 Non-disproportionately Affected Counties to have similar involvement as the 8.

Options:

1) Approve a motion to establish a Committee of 15 Non-disproportionally Affected Counties to provide Treasury options on formula methodology.
2) Provide other direction.

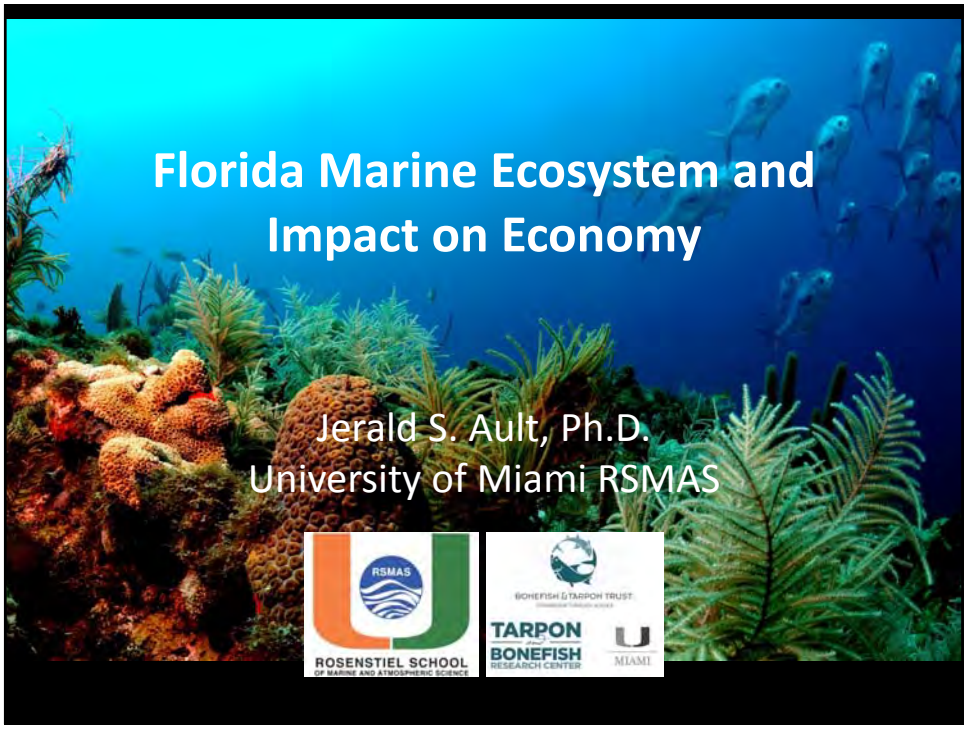
Fiscal Impact: Minor administrative expenses.

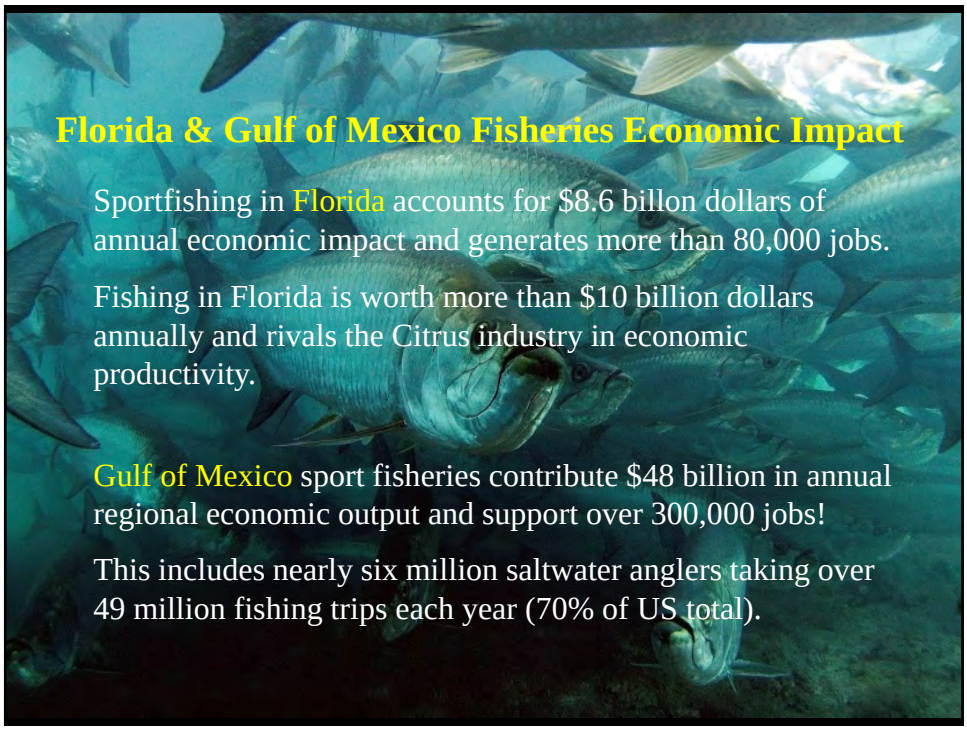
Recommendation: Approve a motion to establish a Committee of 15 Non-disproportionally Affected Counties to provide Treasury options on formula methodology.

Prepared by: Doug Darling, Interim Manager

Moved _____; Seconded_____.

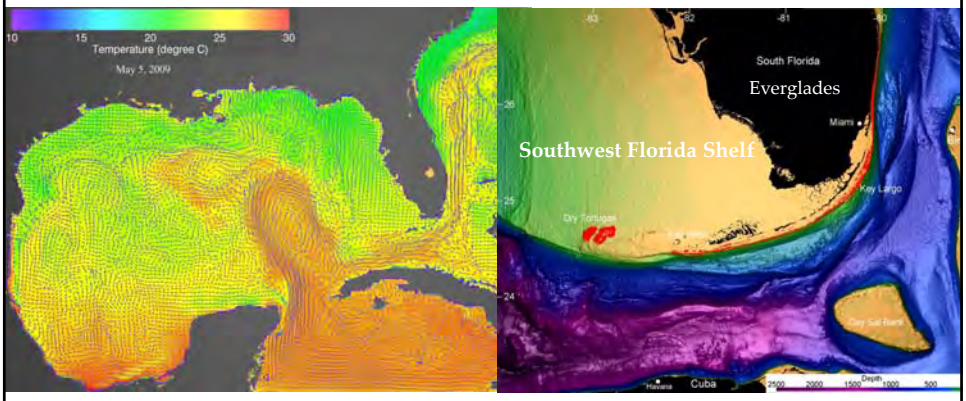
Action: Approved____; Approved as amended_____; Defeated_____.

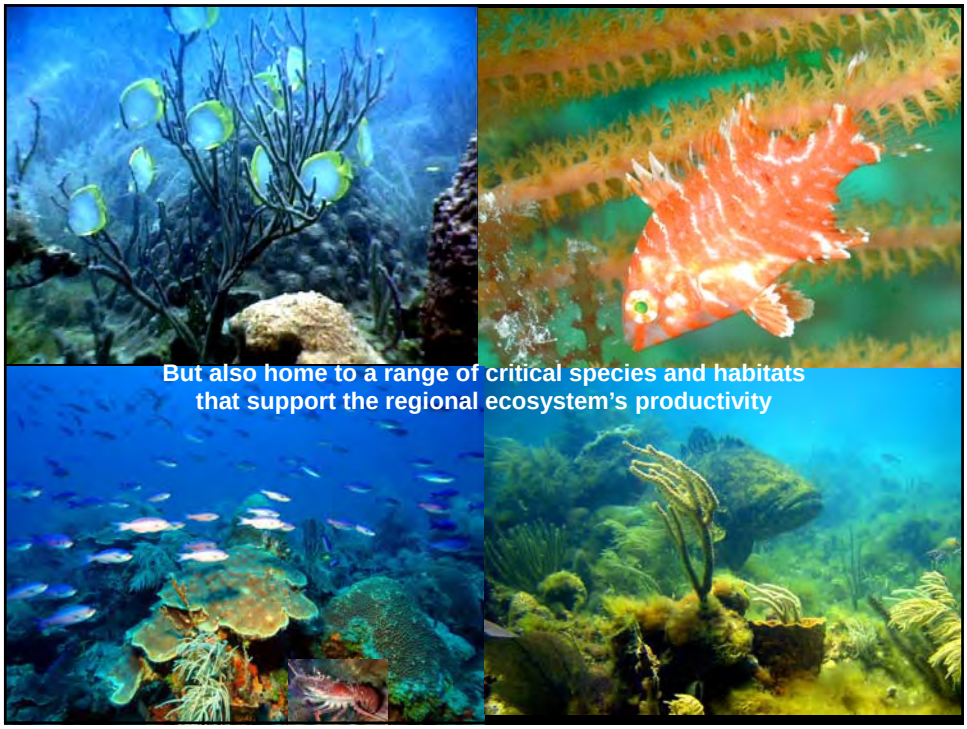

Florida Marine Ecosystem and Impact on Economy
Jerald S. Ault, Ph.D.
University of Miami RSMAS
RSMAS
ROSENSTIEL SCHOOL
OF MARINE AND ATMOSPHERIC SCIENCE
BONEFISH & TARPON TRUST
TARPON
BONEFISH
RESEARCH CENTER
MIAMI


Florida & Gulf of Mexico Fisheries Economic Impact
Sportfishing in Florida accounts for $8.6 billon dollars of annual economic impact and generates more than 80,000 jobs.
Fishing in Florida is worth more than $10 billion dollars annually and rivals the Citrus industry in economic productivity.
Gulf of Mexico sport fisheries contribute $48 billion in annual regional economic output and support over 300,000 jobs!
This includes nearly six million saltwater anglers taking over 49 million fishing trips each year (70% of US total).

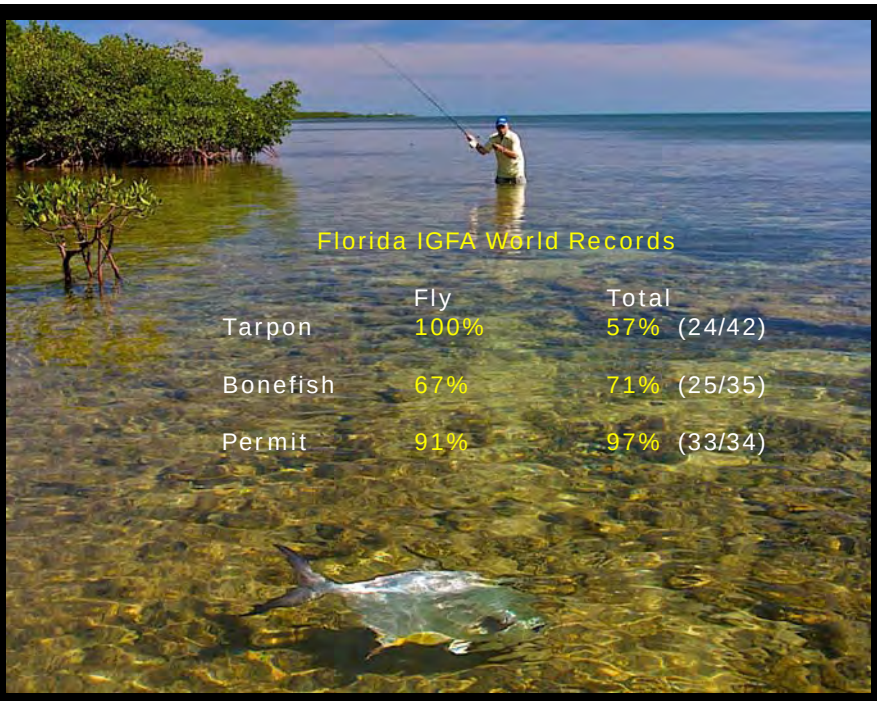
Regional Ecosystem Connections

Florida Keys are a world-class tourist destination that provide critical environmental, ecological and economic benefits and connectivity to the 22 counties in the Consortium.

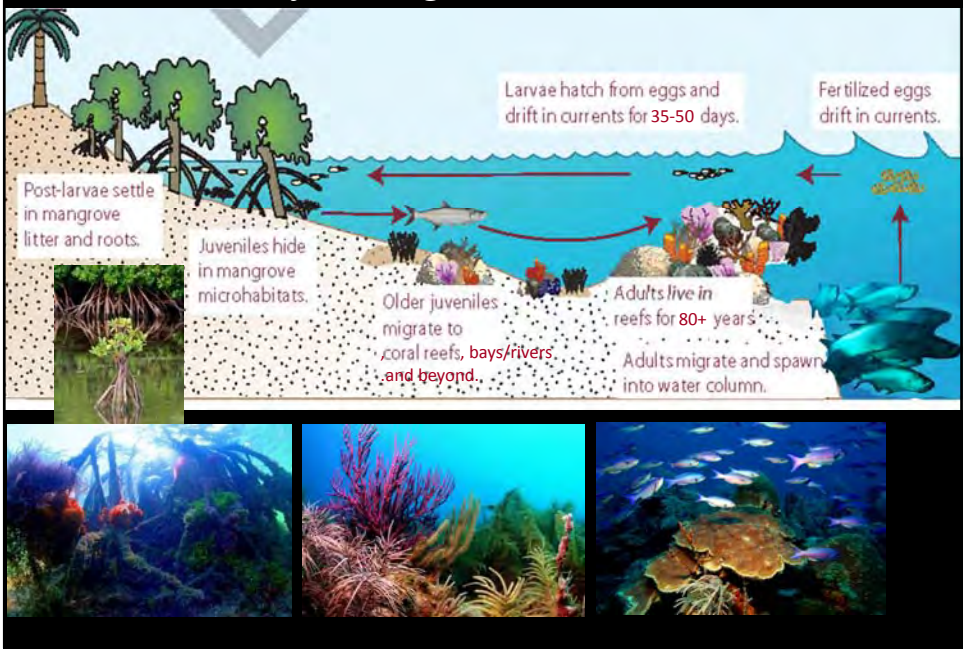



But also home to a range of critical species and habitats
that support the regional ecosystem's productivity


"Fishing Capital of the World"



Life-history Ontogenic Uses of "Habitat"

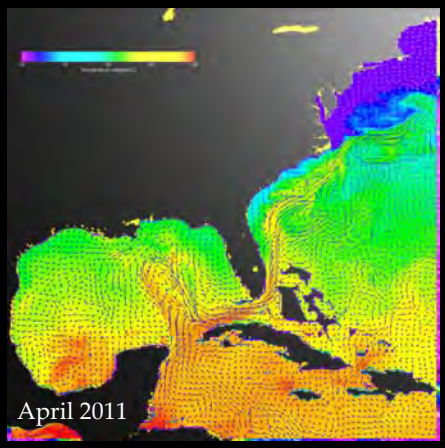


Use of Satellite-based Technologies to study migrations, habitat use and spawning areas

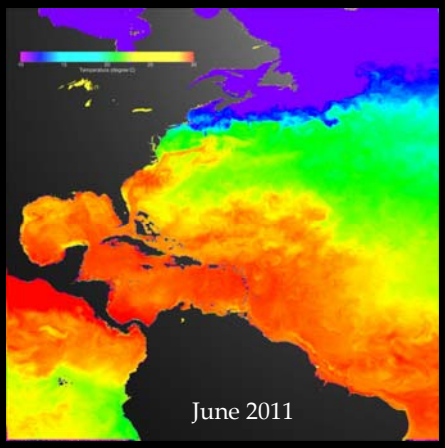
Atlantic tarpon

Habitat Use is Defined by Oceanography

Seasonal Sea Surface Temperature



April 2011

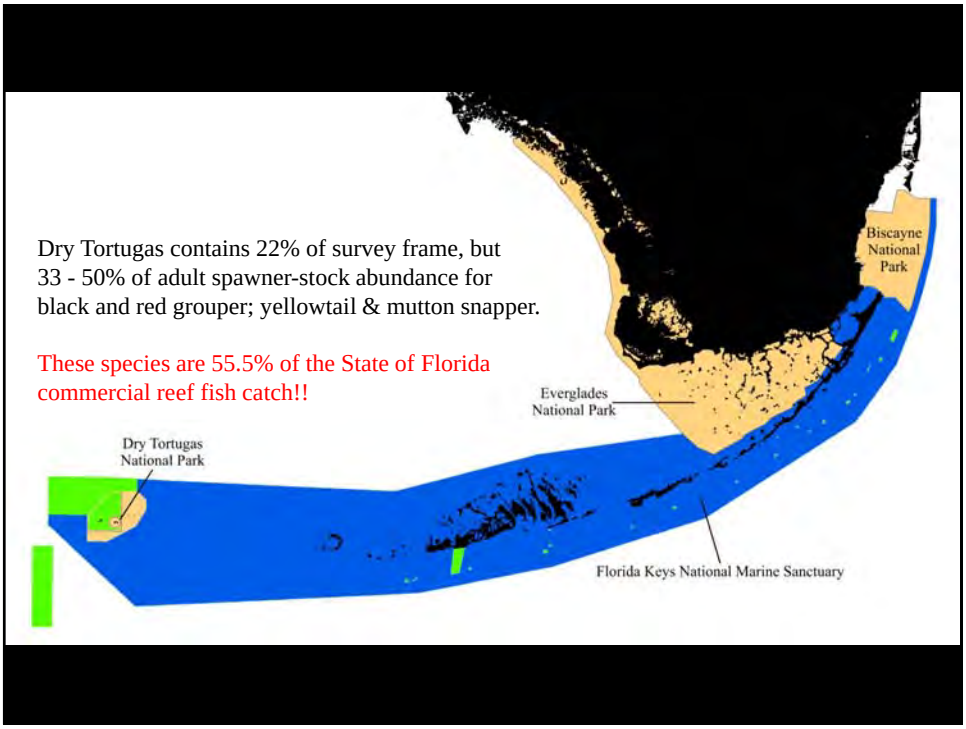


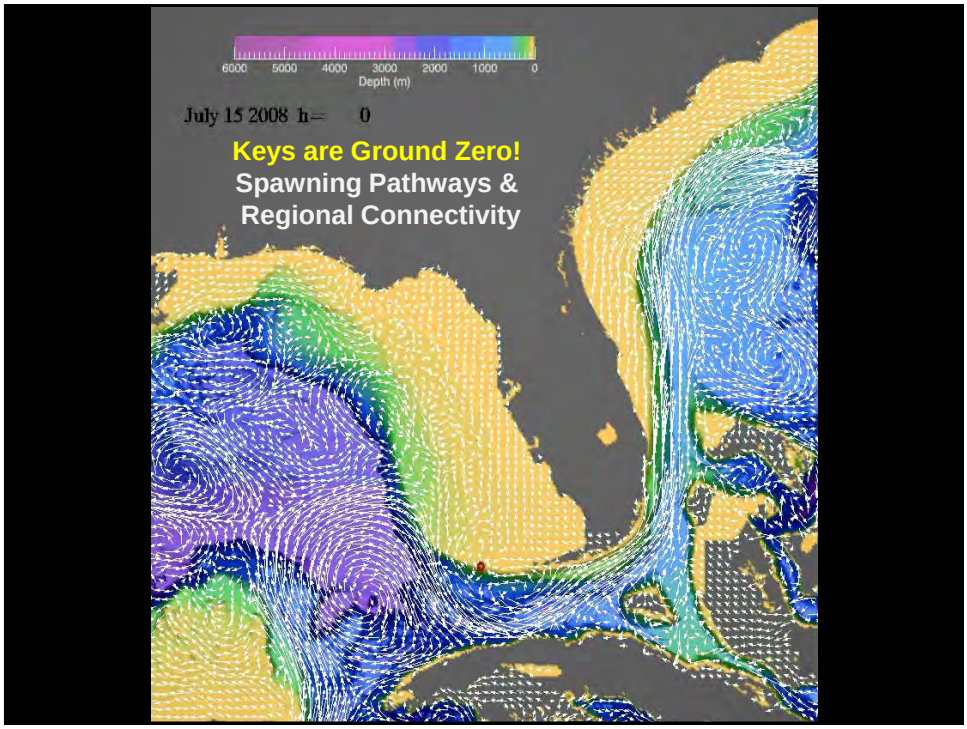
June 2011

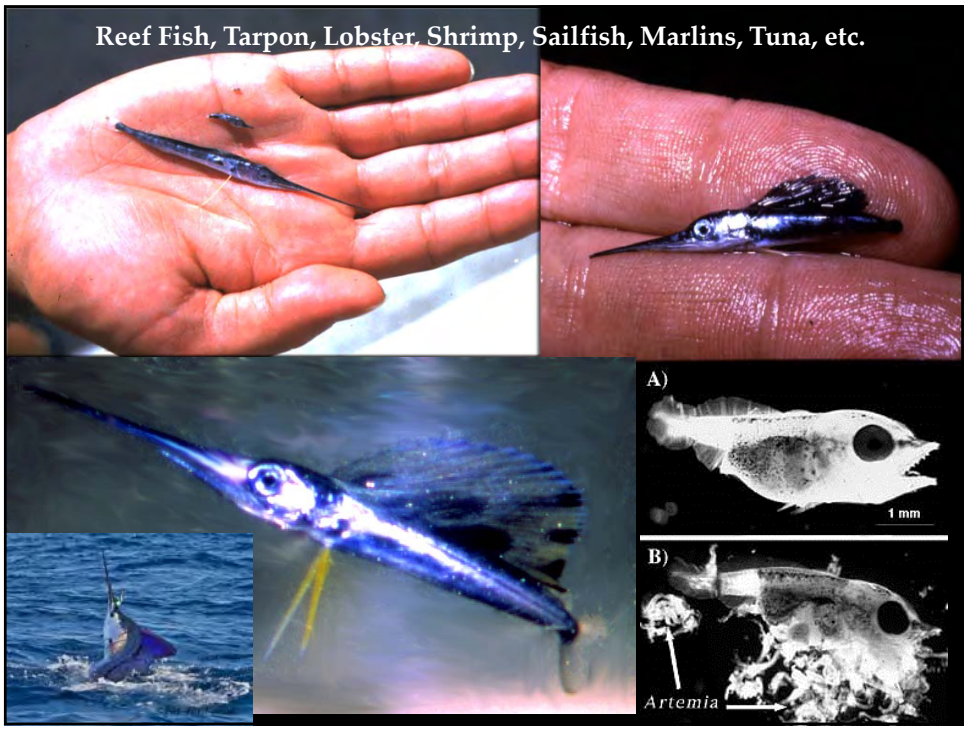
Regional importance of Keys is even broader/wider than we ever believed!

Tarpon migrations strongly correlated with 79 F ocean isotherm, the lower bound for tropical cyclone generation. Will be affected by climate changes!

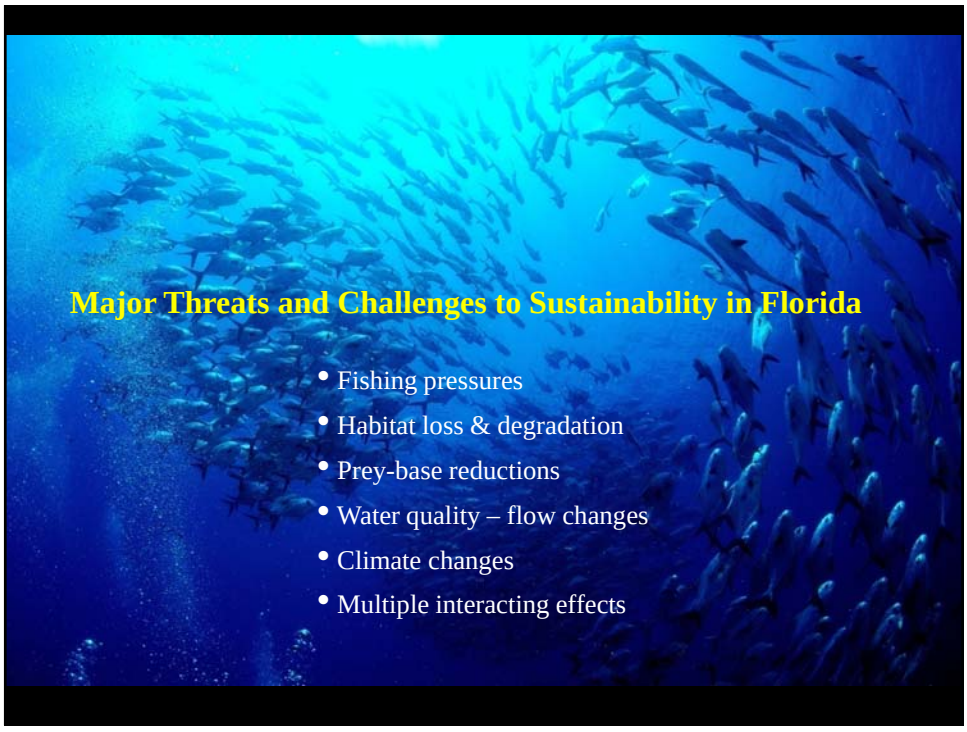

National Park Service
U.S. Department of the Interior
Natural Resource Program Center
A Cooperative Multi-agency
Reef Fish Monitoring Protocol for
the Florida Keys Coral Reef Ecosystem
Natural Resource Report NPS/SFCN/NRR—2009/150
NOAA
Miami
ROSENSTIEL SCHOOL


Dry Tortugas contains 22% of survey frame, but
33 - 50% of adult spawner-stock abundance for
black and red grouper; yellowtail & mutton snapper.
These species are 55.5% of the State of Florida
commercial reef fish catch!!
Biscayne
National
Park
Everglades
National Park
Dry Tortugas
National Park
Florida Keys National Marine Sanctuary


6000 5000 4000 3000 2000 1000 0
Depth (m)
July 15 2008 h= 0
Keys are Ground Zero!
Spawning Pathways &
Regional Connectivity


Reef Fish, Tarpon, Lobster, Shrimp, Sailfish, Marlins, Tuna, etc.
A)
1 mm
B)
Artemia


The Nature of Sustainability
Key management concern
• Sustainability of multispecies reef fisheries and their habitats
"Sustainability"
Ability of exploited stock to maintain sufficient reproductive capacity to produce yields at suitable levels into the indefinite future.


Major Threats and Challenges to Sustainability in Florida
• Fishing pressures
• Habitat loss & degradation
• Prey-base reductions
• Water quality – flow changes
• Climate changes
• Multiple interacting effects

What the Florida reef fishery used to be?

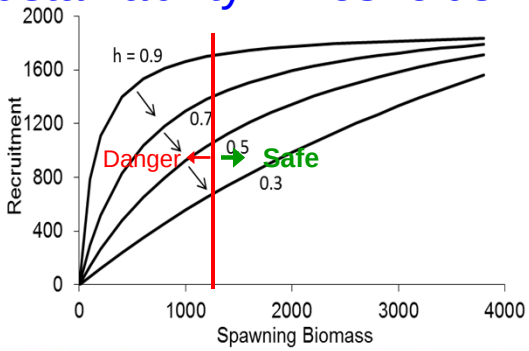
An "average day" of fishing in the Florida Keys in the 1930s-1950s.

Competition for Finite Resources

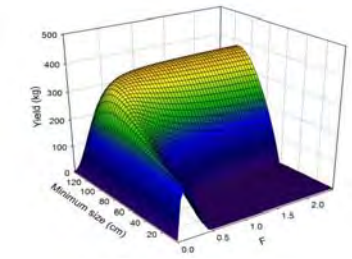
Pressures

Sustainability Thresholds

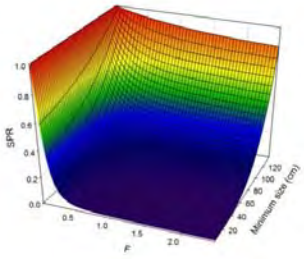
"Steepness"



Fishery Yields

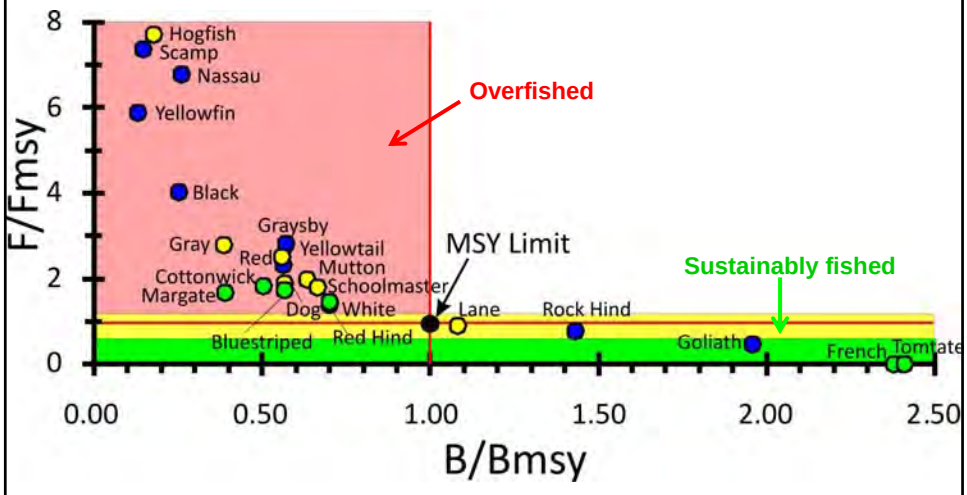


Spawning Stock Biomass



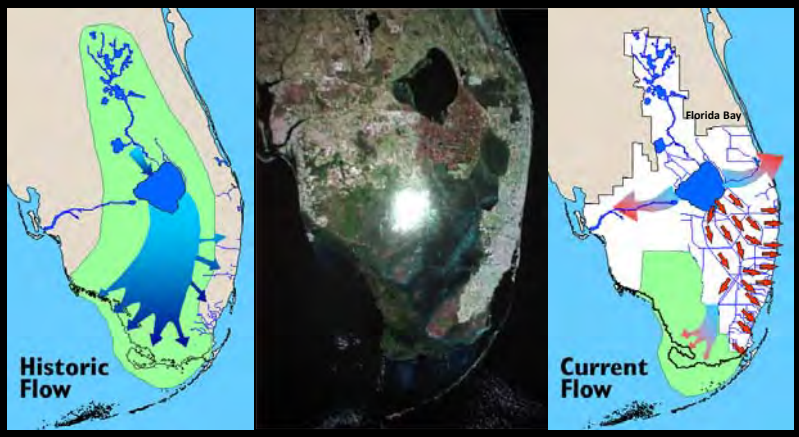
Florida Keys – Dry Tortugas

Current Status of Reef fishes

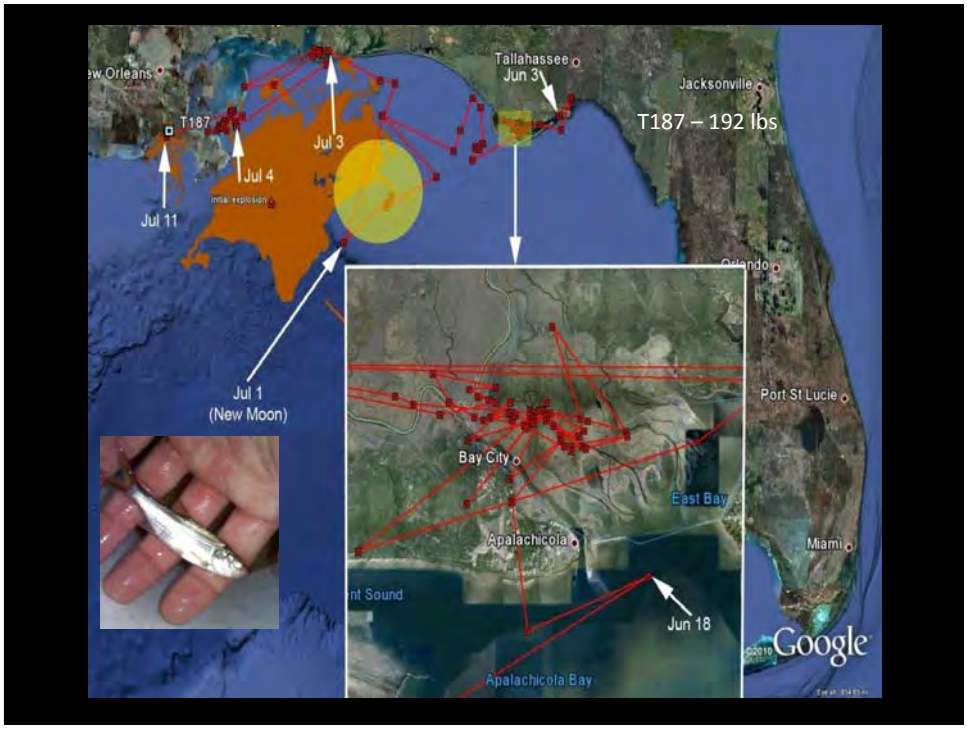


Ault et al. 1998. Fishery Bulletin 96(3): 395-414.
Ault et al. 2005. ICES J. Marine Science 62: 417-423.
Ault et al. 2009. International Coral Reef Symposium 11: 989-993.

Land- & Seascape Changes in Florida

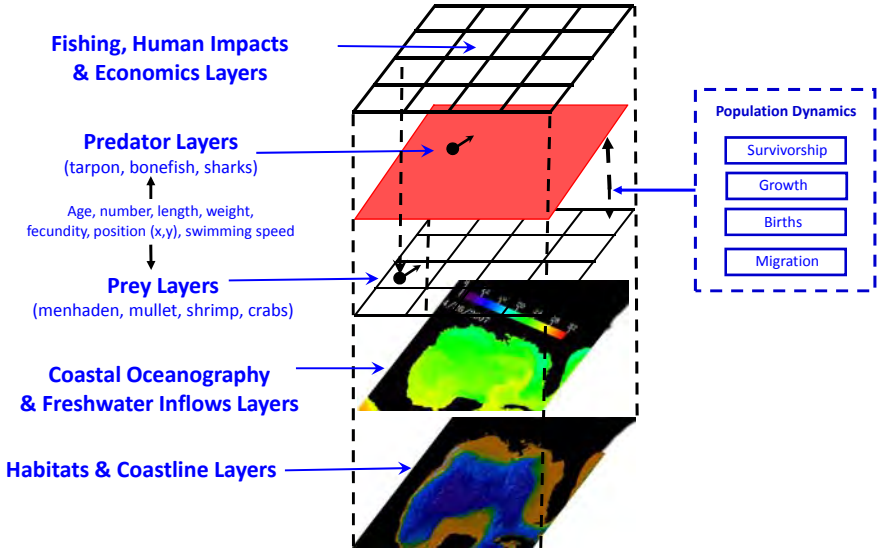


Fish Habitat Degradation & Loss


Tallahassee
Jun 3
Jacksonville
T187 – 192 lbs
T187
Jul 3
Jul 4
Jul 11
Jul 1
(New Moon)
Orlando
Port St Lucie
Bay City
East Bay
Apalachicola
Miami
Jun 18
Apalachicola Bay
Google


OPERATION FLORIDA SUSTAINABILITY

21st Century Scientific Challenge to Achieve Fishery Sustainability



Wildlife Foundation of Florida

Established by the Florida Legislature 1994

Our Mission…

Work closely with the Florida Fish and Wildlife Conservation Commission to ensure the preservation and protection of Florida's fish and wild life resources so they can survive and thrive for current and future generations of Florida residents and visitors.

- Finance programs to preserve and restore the unique, diverse plants, animals, and natural communities of Florida.
- Build effective partnerships with communities, businesses, organizations, and people throughout the State.
- Create opportunities for residents and visitors to use, enjoy, and learn about the State's fish and wildlife resources.

WILDLIFE FOUNDATION OF FLORIDA

Established by the Florida Legislature 1994

You probably haven't heard of us

- Florida-only 501 (c) 3 not-for-profit
- Largest species mitigation banker in Florida
- $2.2M annually in economic benefit to fish and wildlife conservation efforts
- Provide $650K in license plate revenue for conservation grants
- We manage 120 funds for Federal, State, and County Agencies; other NGOs; and corporate and private donors
- Exponential growth, low overhead, State-wide reach

WILDLIFE FOUNDATION OF FLORIDA

Established by the Florida Legislature 1994

Our last 5 years…

- Grown funds under management from $1M to $12M
- Provided $2.3M for conservation grants
- Designed and coordinated a state-wide saltwater hatchery network (and just recently got one funded in Pensacola)
- Fund critical research for species such as bear, coral, conch, eagles, etc…
- Fight invasive species:
  - Launched the Python Challenge
  - Eliminated the Gambian Pouch Rat from the Keys

WILDLIFE FOUNDATION OF FLORIDA

Established by the Florida Legislature 1994

The New Conservation Challenges

- The scale of the conservation issues we face has grown
- Solutions require unique partnerships and cooperation, we can be the vehicle
- Conservation funding is shrinking
- Identifying and prioritizing conservation investments that balance complex societal needs

WILDLIFE FOUNDATION OF FLORIDA

Established by the Florida Legislature 1994

Helping Organizations Meet the New Conservation Challenges

- Flexible, secure, responsive banking solutions are the key to addressing new conservation problems
- Ability to deliver break-thru public-private Partnerships: Federal, State, NGO, and Corporate
- Highly sophisticated fund management capability
- Florida-only, unbiased, apolitical partner


The Florida Keys: America's Caribbean Outpost and Crossroads to the Gulf of Mexico

Gulf Consortium of Counties
RESTORE Act Meeting

May 17, 2013
Key Largo, Florida

Billy D. Causey, Ph.D.
Southeast Regional Director
NOAA's Office of National Marine Sanctuaries

OUTLINE of TALK

- **The National Marine Sanctuary System**
- **America's Living Barrier Coral Reef Ecosystem**
- **Connectivity of the Florida Keys to the Wider Caribbean, including the Gulf of Mexico**
- **The Economy and the Environment are ONE**

What are National Marine Sanctuaries?

"Areas of the marine environment with special conservation, recreational, ecological, historical, cultural, archeological, or esthetic qualities…"

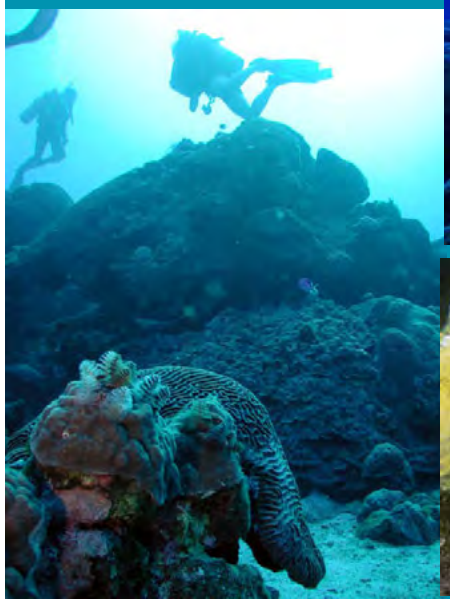
National Marine Sanctuary Act (sec. 301)

Multiple-use Program


National Marine Sanctuaries
4 Regions - 13 National Marine Sanctuaries & Papahanaumokuakea Marine National Monument
Conserve, protect, and enhance biodiversity, ecological integrity, and marine heritage.
Olympic Coast
Cordell Bank
Gulf of the Farallones
Monterey Bay
Channel Islands
Thunder Bay
Stellwagen Bank
Monitor
Gray's Reef
Flower Garden Banks
Florida Keys
Northwestern Hawaiian Islands
Hawaiian Islands Humpback Whale
National Marine Sanctuary
National Marine Monument
Fagatele Bay
Satellite Image: NOAA


Texas
Louisiana
Houston
San Antonio
Florida
Gray's Reef National Marine Sanctuary
Gulf of Mexico
Flower Garden Banks National Marine Sanctuary
Monterrey
Florida Keys National Marine Sanctuary
Nassau
The Bahamas
La Habana
(Havana)
Cuba
George Town
Navassa
Jamaica
Kingsto
de México
(Mexico City)
Puebla
Belmopan
Belize
Huatulco Mexico
Caribbe
Guatemala
© 2006 Europa Technologies
Guatemala
Image © 2006 TerraMetrics
duras
Image © 2006 NASA
El Salvador
San Salvador
© 2005 Google
Pointer 22°19'10.13" N 88°01'22.78" W elev -176 ft
Streaming 100%
Eye alt 1400.46 mi

Flower Garden Banks National Marine Sanctuary

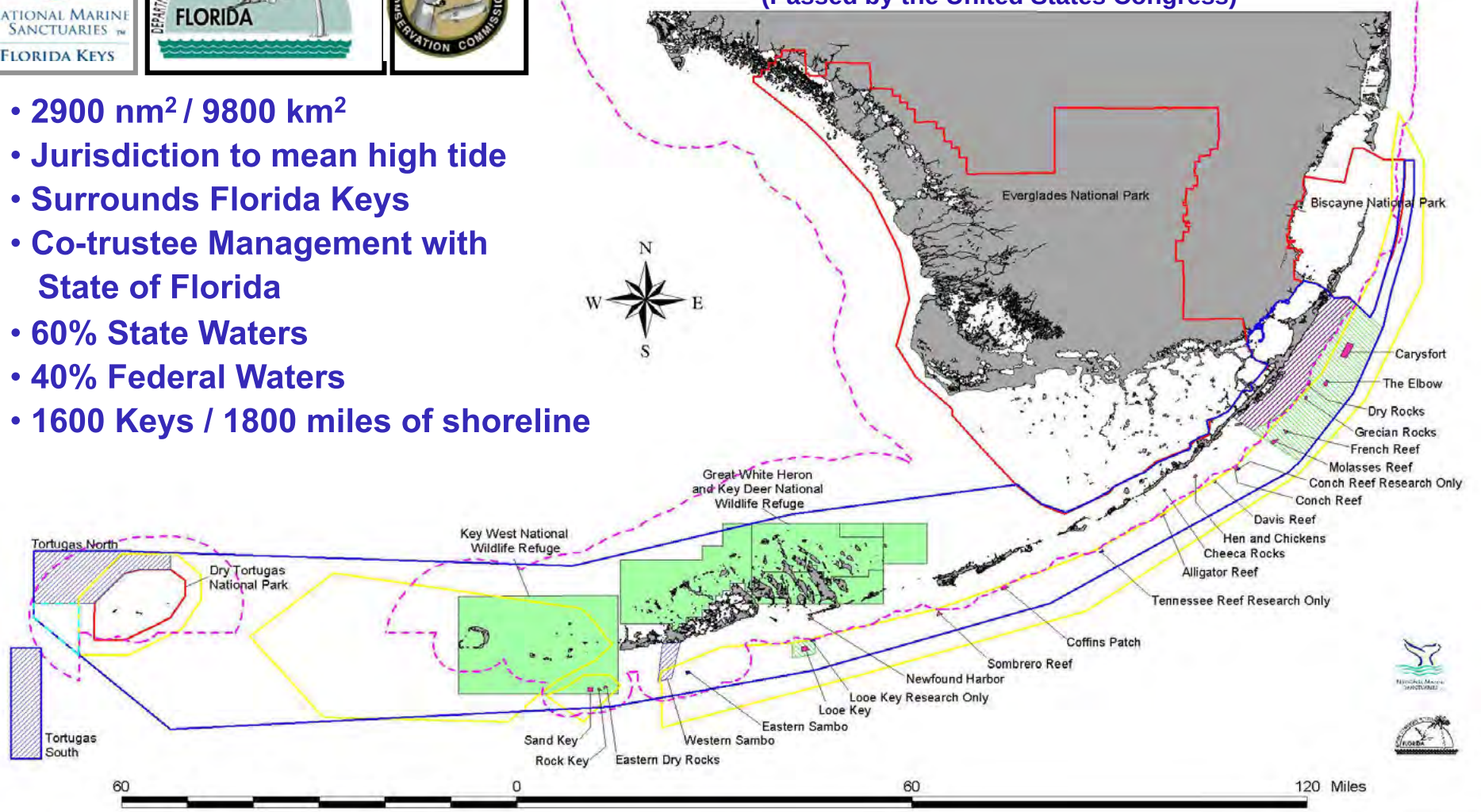


Florida Keys National Marine Sanctuary

Florida Keys National Marine Sanctuary and Protection Act - 1990

(Passed by the United States Congress)

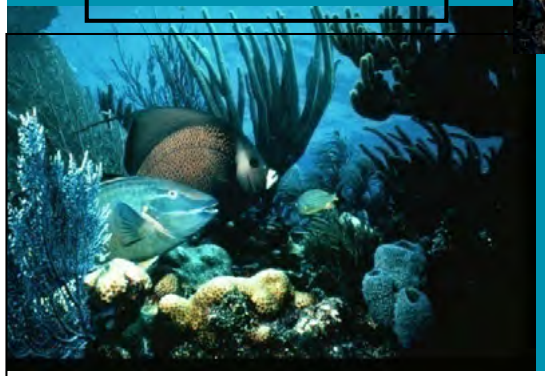
- **2900 nm² / 9800 km²**
- **Jurisdiction to mean high tide**
- **Surrounds Florida Keys**
- **Co-trustee Management with State of Florida**
- **60% State Waters**
- **40% Federal Waters**
- **1600 Keys / 1800 miles of shoreline**



Coral Reef Ecosystem

Includes the Full Seascape

Full-Range of Habitats

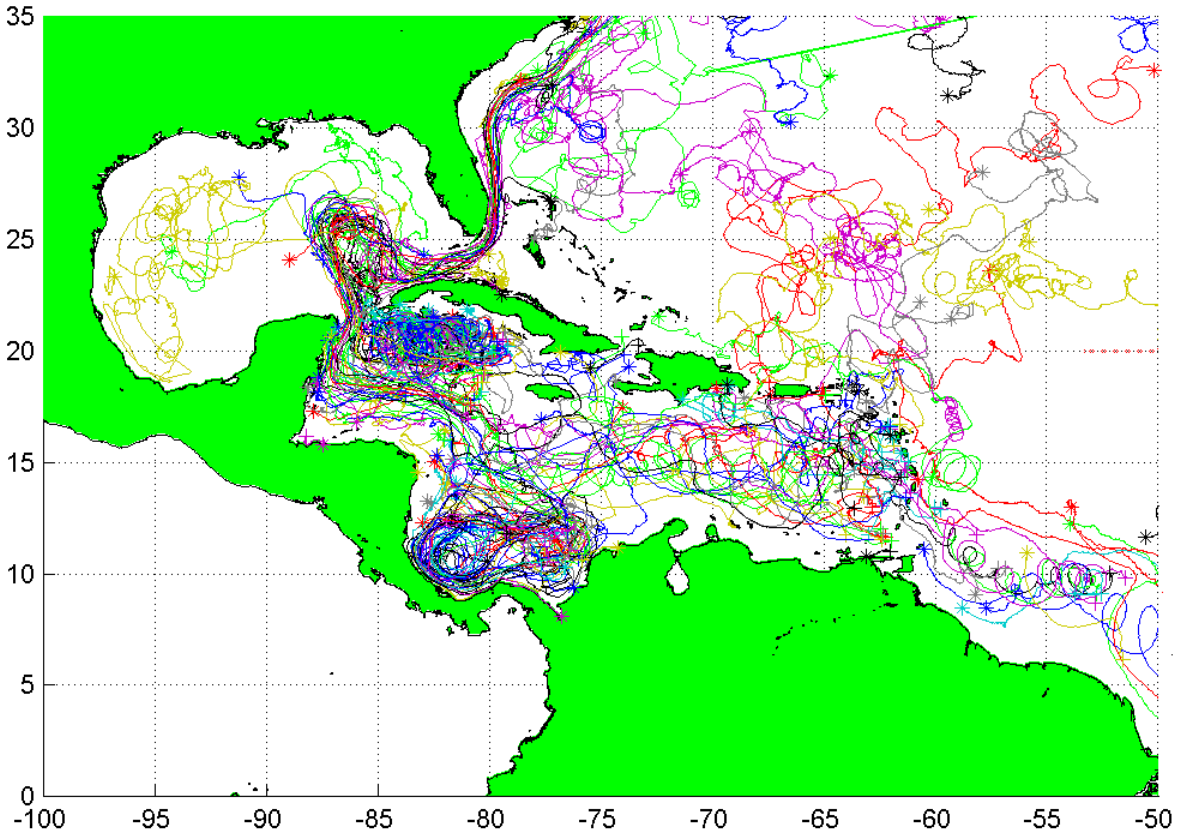


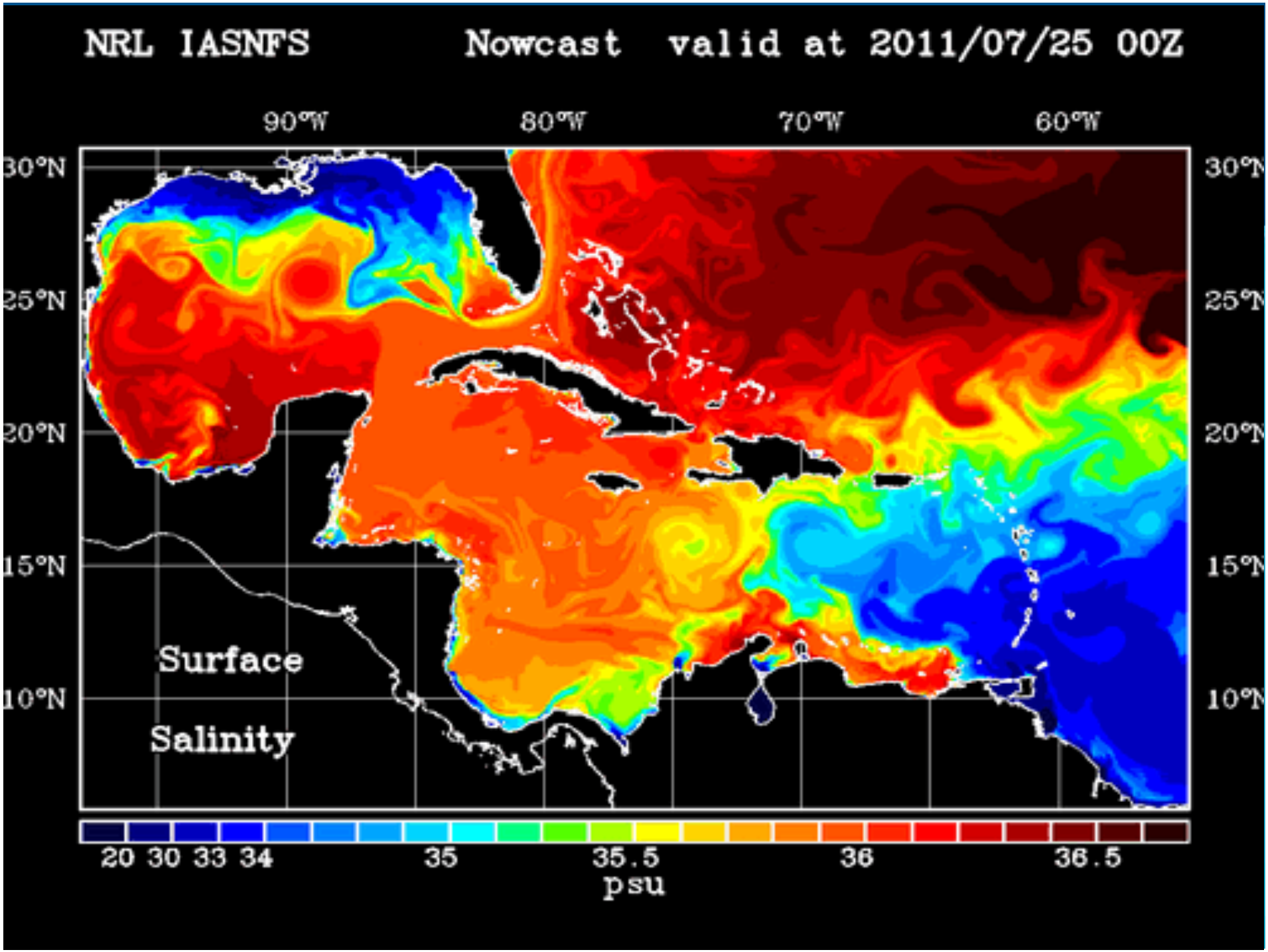
And All of the Marinelife

Caribbean Connectivity

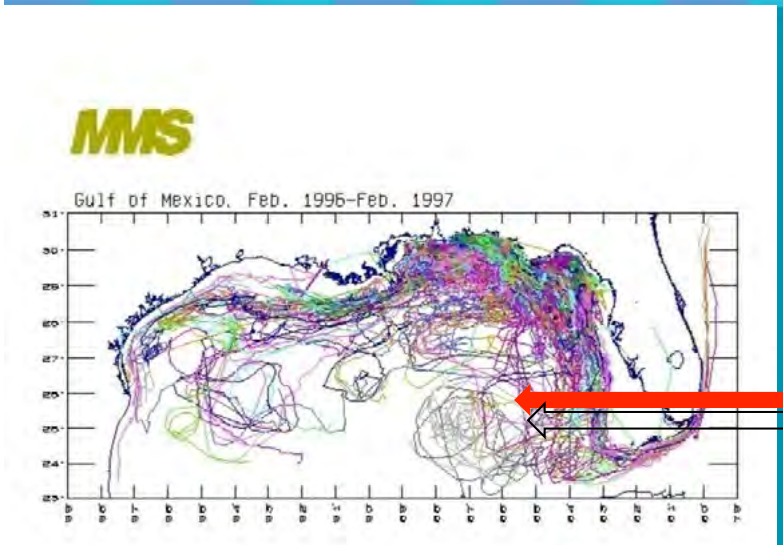
Drifter

Current Drifters (1998-2000)
Credit: Kevin Leaman (UM/RSMAS)



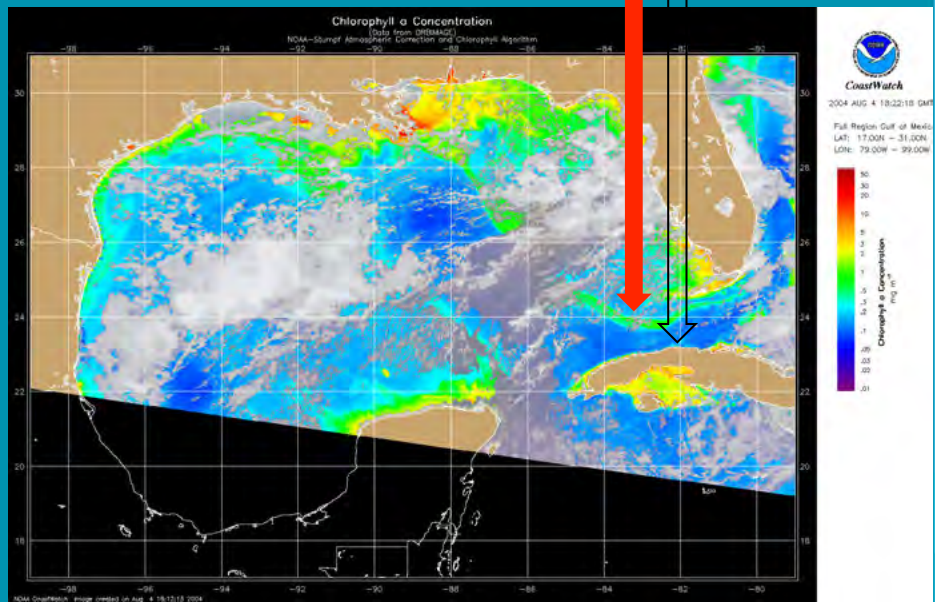

NRL IASNFS
Nowcast valid at 2011/07/25 00Z
90°W
80°W
70°W
60°W
30°N
25°N
20°N
15°N
10°N
Surface
Salinity
20 30 33 34
35
35.5
36
36.5
psu

Connectivity within the Gulf of Mexico

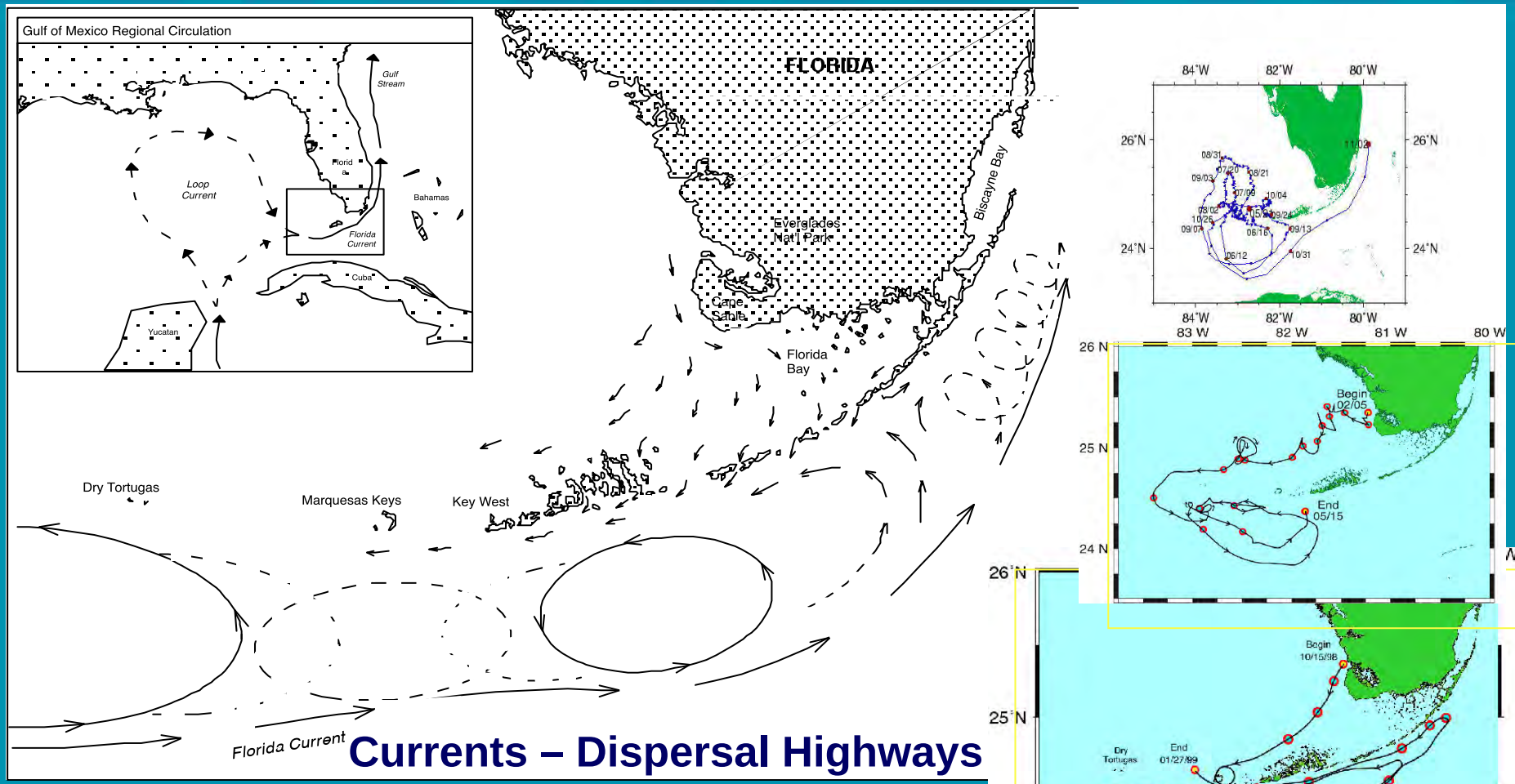


Satellite Current Trackers

Mississippi River Runoff



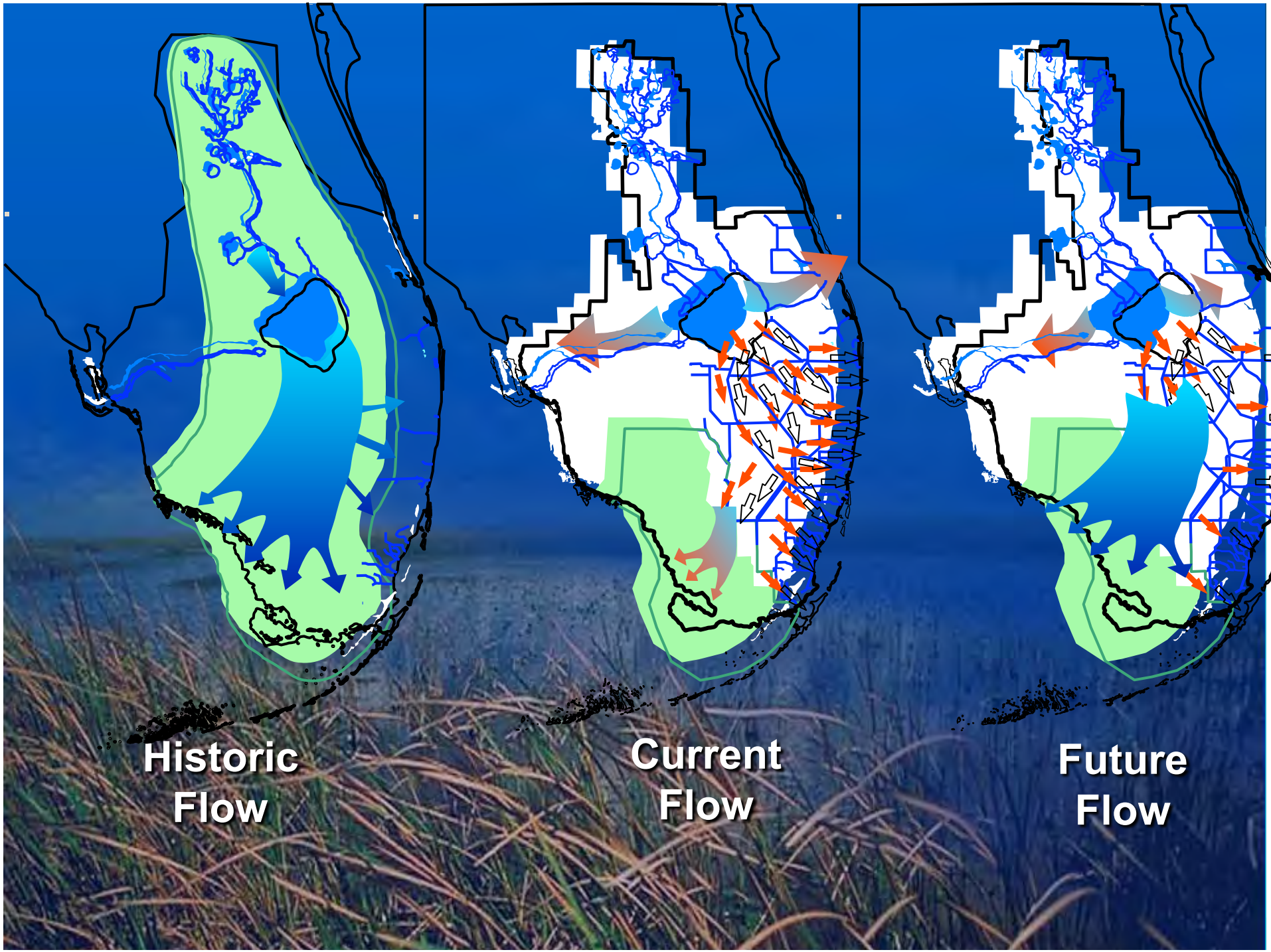
Florida Keys Connectivity



Currents – Dispersal Highways

(Lee and Williams - Univ of Miami)

South Florida Ecosystem


Historic
Flow
Current
Flow
Future
Flow

Comprehensive Everglades Restoration Plan (CERP) is... *Getting the Water Right!*

Now including:
CEPP
(Central Everglades Planning Project)

Threats to Coral Reefs

- Climate Change
- Land-based Sources of Pollution
- Habitat Loss and Degradation
- Overfishing

Multiple Stressors Affecting Coral Reefs

Habitat Destruction

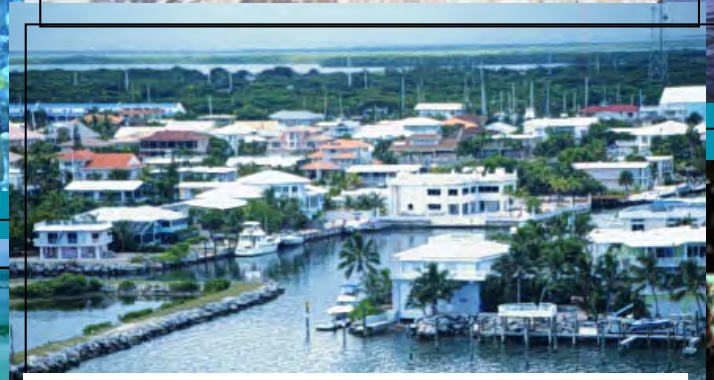
Coral Diseases

Pollution

Global Climate Change

Coral Bleaching

Overfishing



Intense Coastal Development

Ocean Dumping

Massive Algal Blooms

Introduction of Marine Exotics

Land-based Sources of Pollution

Water Quality Protection Program

Keys-wide No Discharge Zone

Boot Key Harbor

Live-aboard Anchorage

> 250,000 gallons of sewage pumped out since 2005

Had in 1990:

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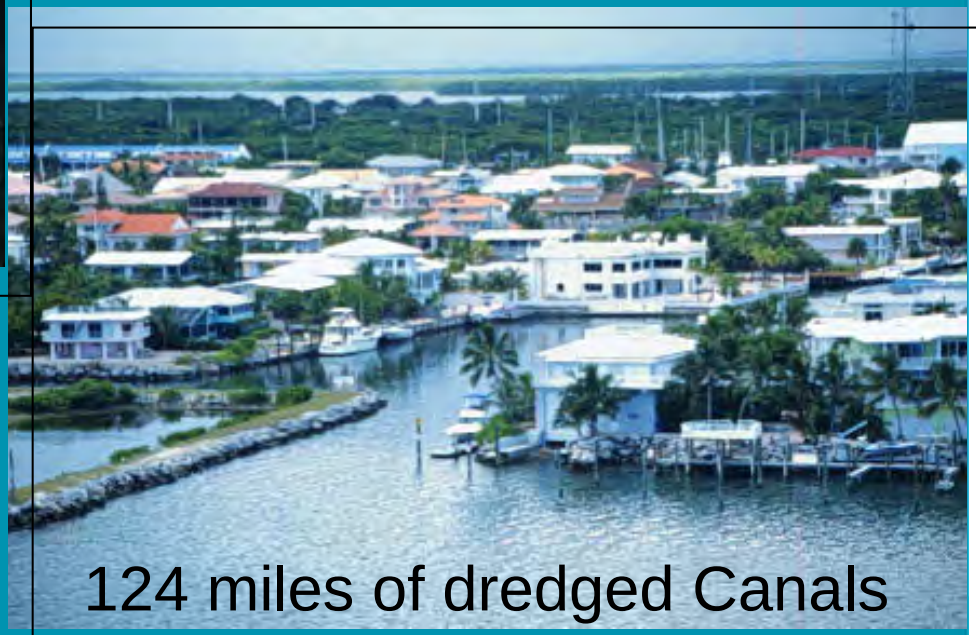

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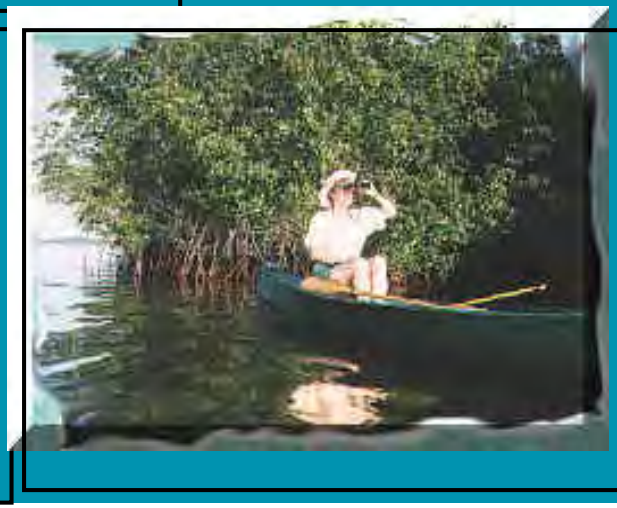

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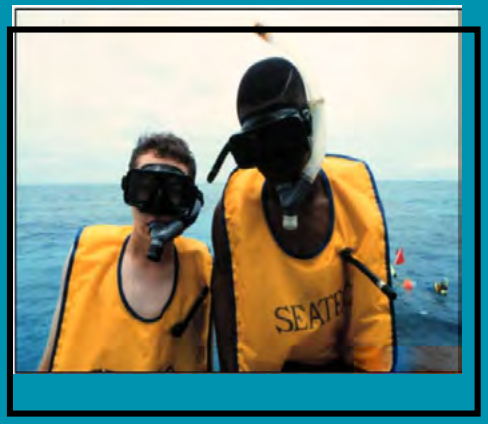

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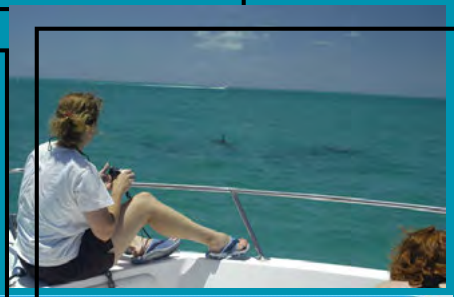

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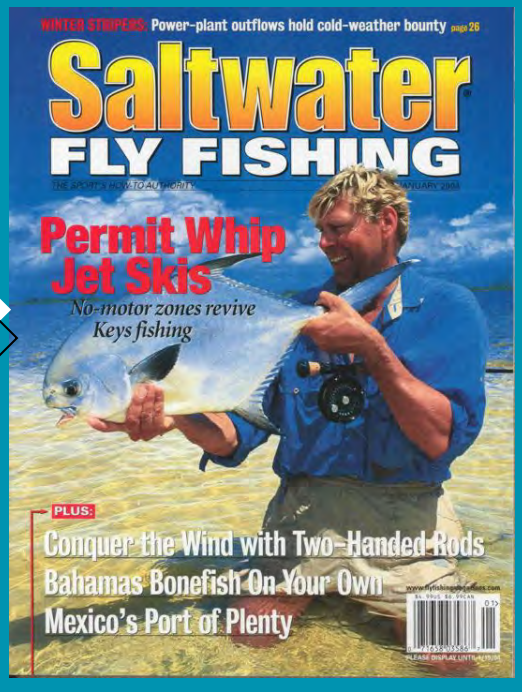

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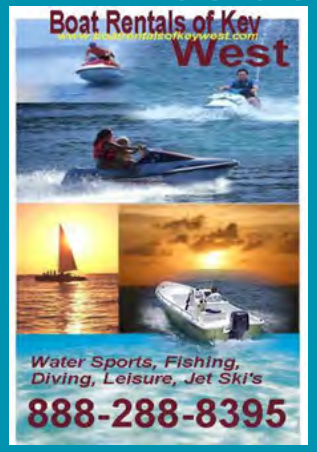

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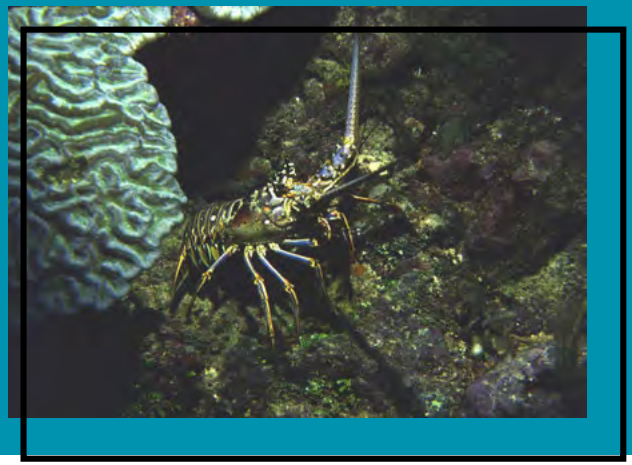
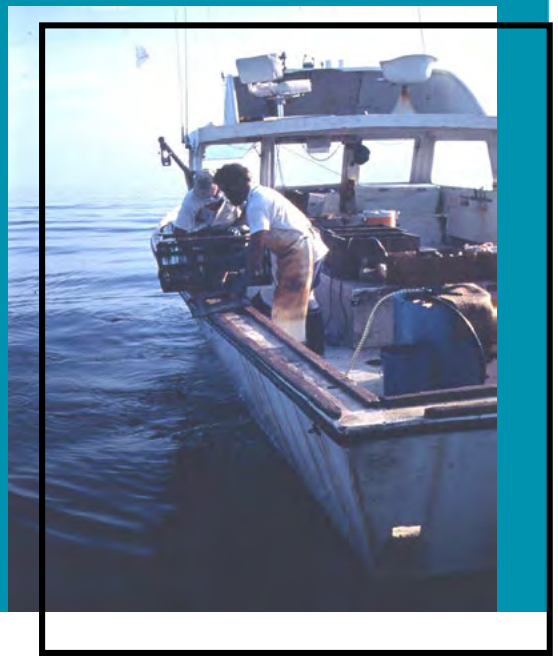
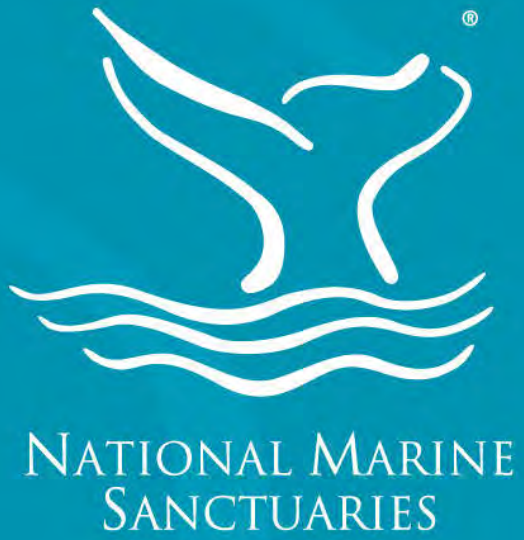




National Marine Sanctuaries
National Oceanic and Atmospheric Administration



http://sanctuaries.noaa.gov


The Florida Keys: America's Caribbean Outpost and Crossroads to the Gulf of Mexico

Gulf Consortium of Counties
RESTORE Act Meeting

May 17, 2013
Key Largo, Florida

Billy D. Causey, Ph.D.
Southeast Regional Director
NOAA's Office of National Marine Sanctuaries

OUTLINE of TALK

- **The National Marine Sanctuary System**
- **America's Living Barrier Coral Reef Ecosystem**
- **Connectivity of the Florida Keys to the Wider Caribbean, including the Gulf of Mexico**
- **The Economy and the Environment are ONE**

What are National Marine Sanctuaries?

"Areas of the marine environment with special conservation, recreational, ecological, historical, cultural, archeological, or esthetic qualities…"

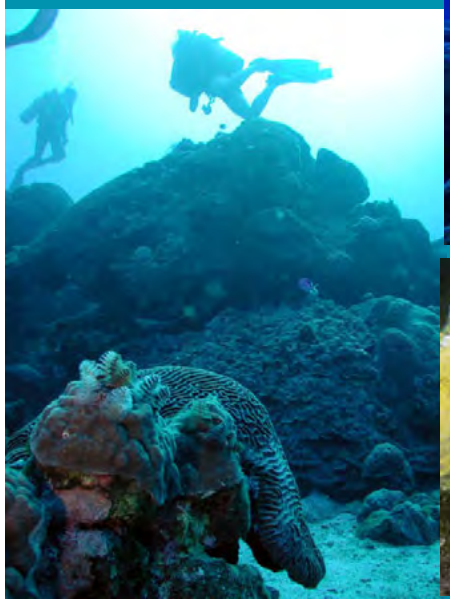
National Marine Sanctuary Act (sec. 301)

Multiple-use Program


National Marine Sanctuaries
4 Regions - 13 National Marine Sanctuaries & Papahanaumokuakea Marine National Monument
Conserve, protect, and enhance biodiversity, ecological integrity, and marine heritage.
Olympic Coast
Cordell Bank
Gulf of the Farallones
Monterey Bay
Channel Islands
Thunder Bay
Stellwagen Bank
Monitor
Gray's Reef
Flower Garden Banks
Florida Keys
Northwestern Hawaiian Islands
Hawaiian Islands Humpback Whale
National Marine Sanctuary
National Marine Monument
Fagatele Bay
Satellite Image: NOAA


Texas
Louisiana
Houston
San Antonio
Florida
Gray's Reef National Marine Sanctuary
Gulf of Mexico
Flower Garden Banks National Marine Sanctuary
Monterrey
Florida Keys National Marine Sanctuary
Nassau
The Bahamas
La Habana
(Havana)
Cuba
George Town
Navassa
Jamaica
Kingsto
de México
(Mexico City)
Puebla
Belmopan
Belize
Huatulco Mexico
Caribbe
Guatemala
© 2006 Europa Technologies
Guatemala
Image © 2006 TerraMetrics
duras
Image © 2006 NASA
El Salvador
San Salvador
© 2005 Google
Pointer 22°19'10.13" N 88°01'22.78" W elev -176 ft
Streaming 100%
Eye alt 1400.46 mi

Flower Garden Banks National Marine Sanctuary

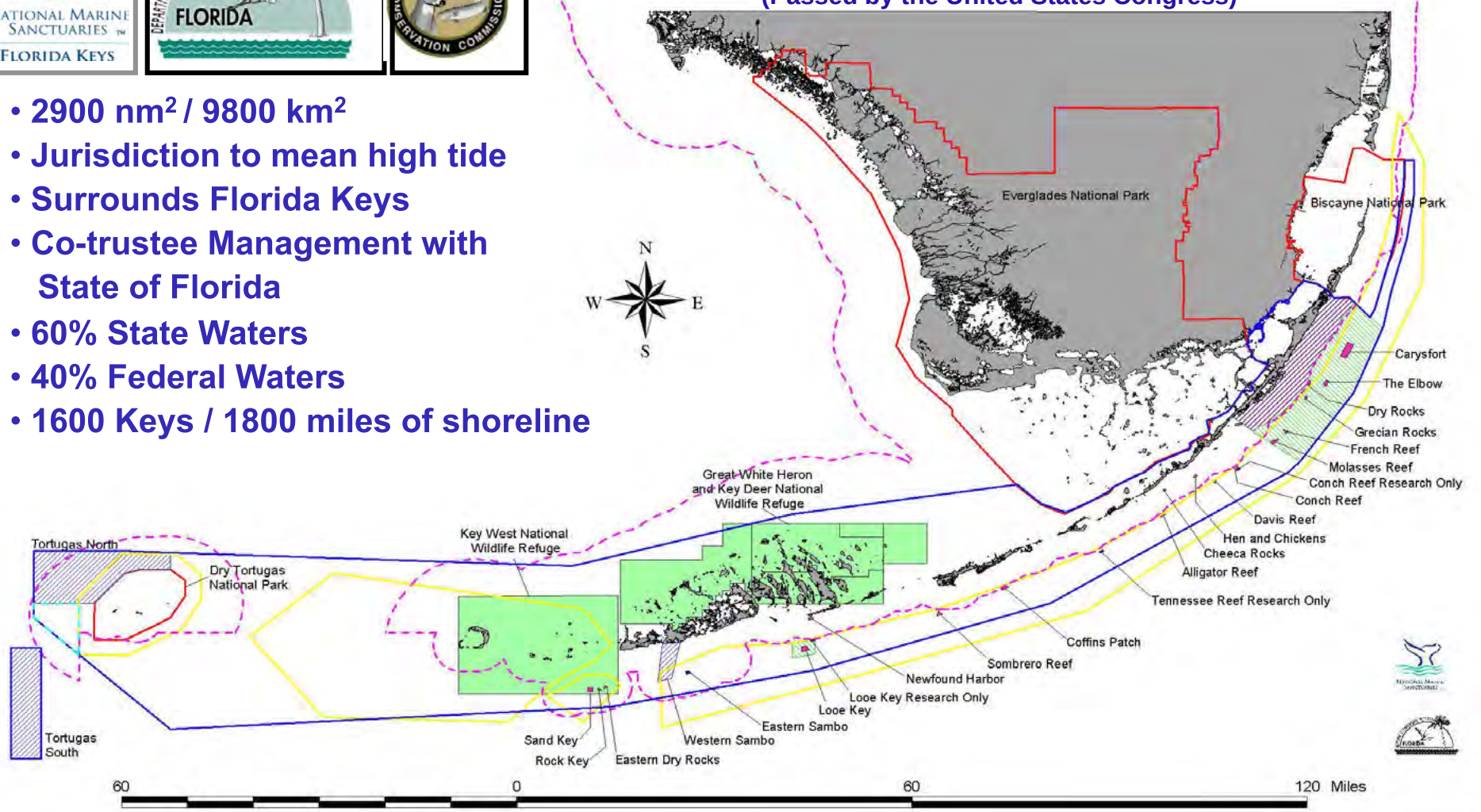


Florida Keys National Marine Sanctuary

Florida Keys National Marine Sanctuary and Protection Act - 1990

(Passed by the United States Congress)

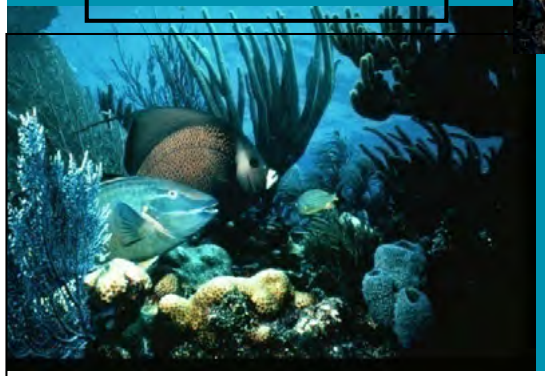
- **2900 nm² / 9800 km²**
- **Jurisdiction to mean high tide**
- **Surrounds Florida Keys**
- **Co-trustee Management with State of Florida**
- **60% State Waters**
- **40% Federal Waters**
- **1600 Keys / 1800 miles of shoreline**



Coral Reef Ecosystem

Includes the Full Seascape

Full-Range of Habitats

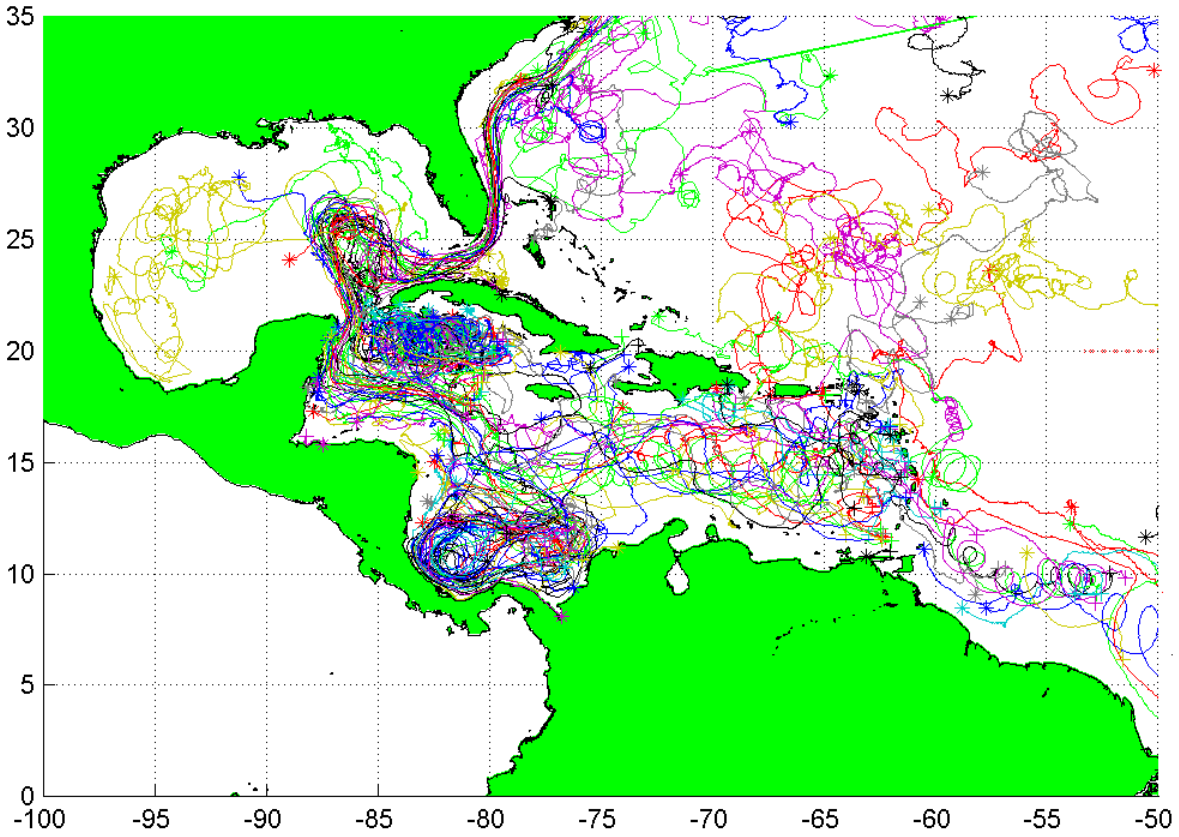


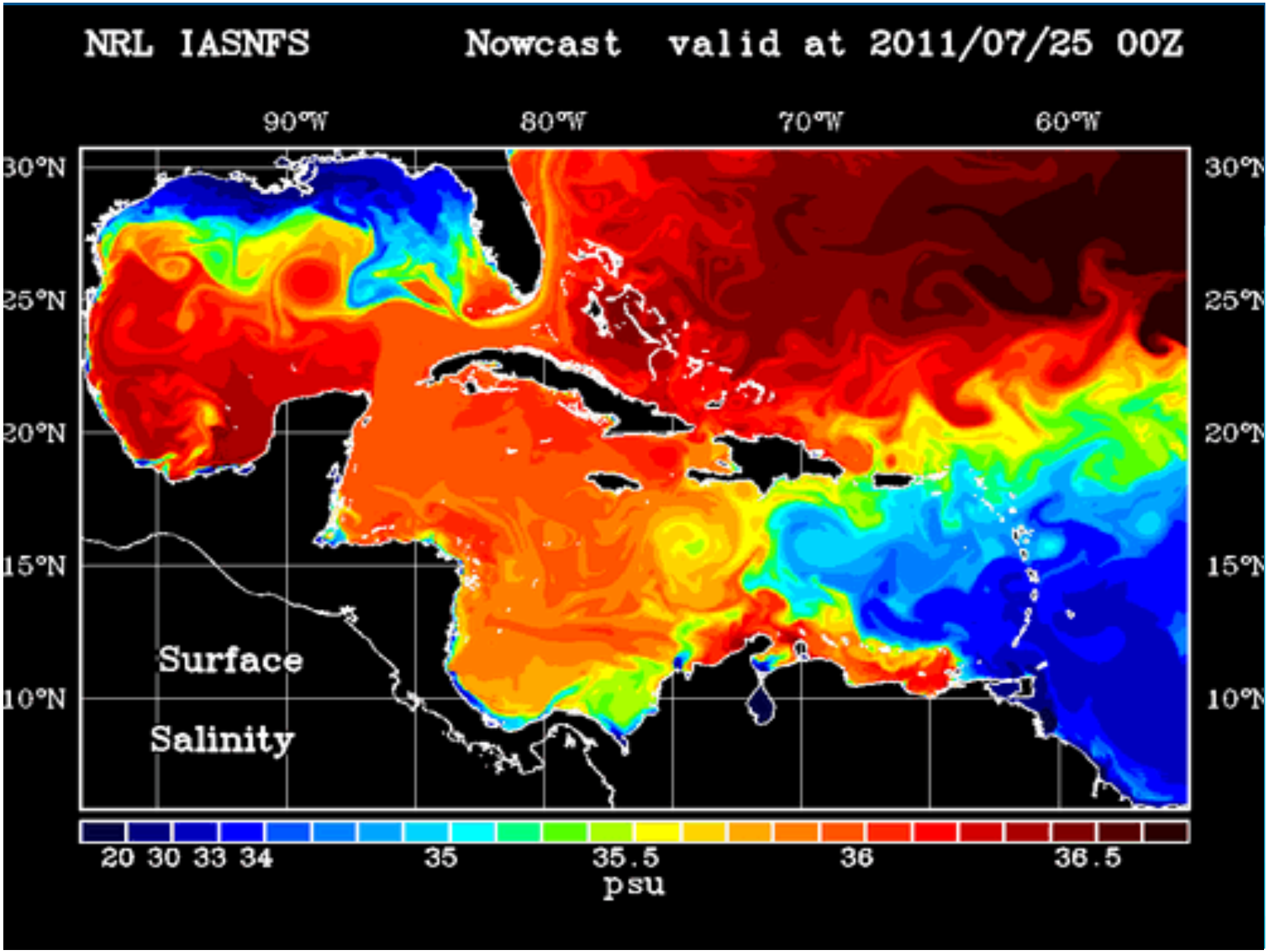
And All of the Marinelife

Caribbean Connectivity

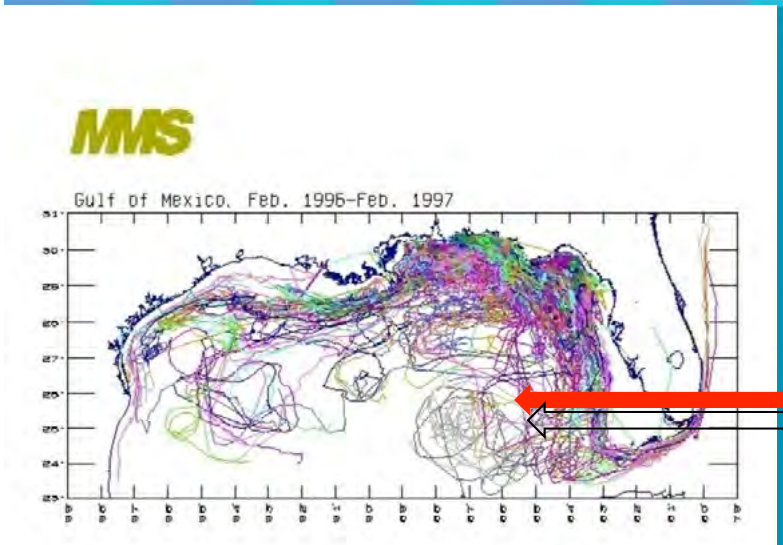
Drifter

Current Drifters (1998-2000)
Credit: Kevin Leaman (UM/RSMAS)



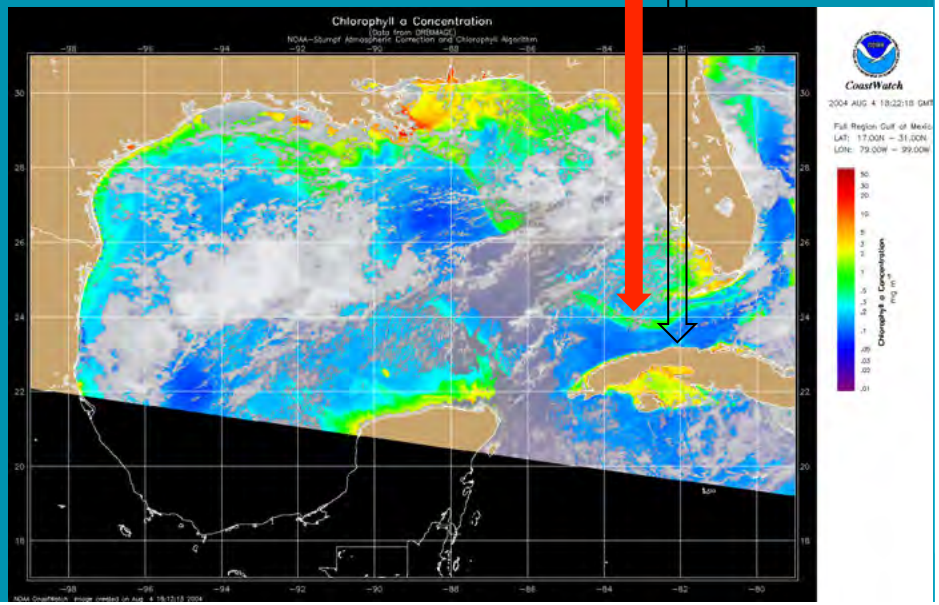

NRL IASNFS
Nowcast valid at 2011/07/25 00Z
90°W
80°W
70°W
60°W
30°N
25°N
20°N
15°N
10°N
Surface
Salinity
20 30 33 34
35
35.5
36
36.5
psu

Connectivity within the Gulf of Mexico

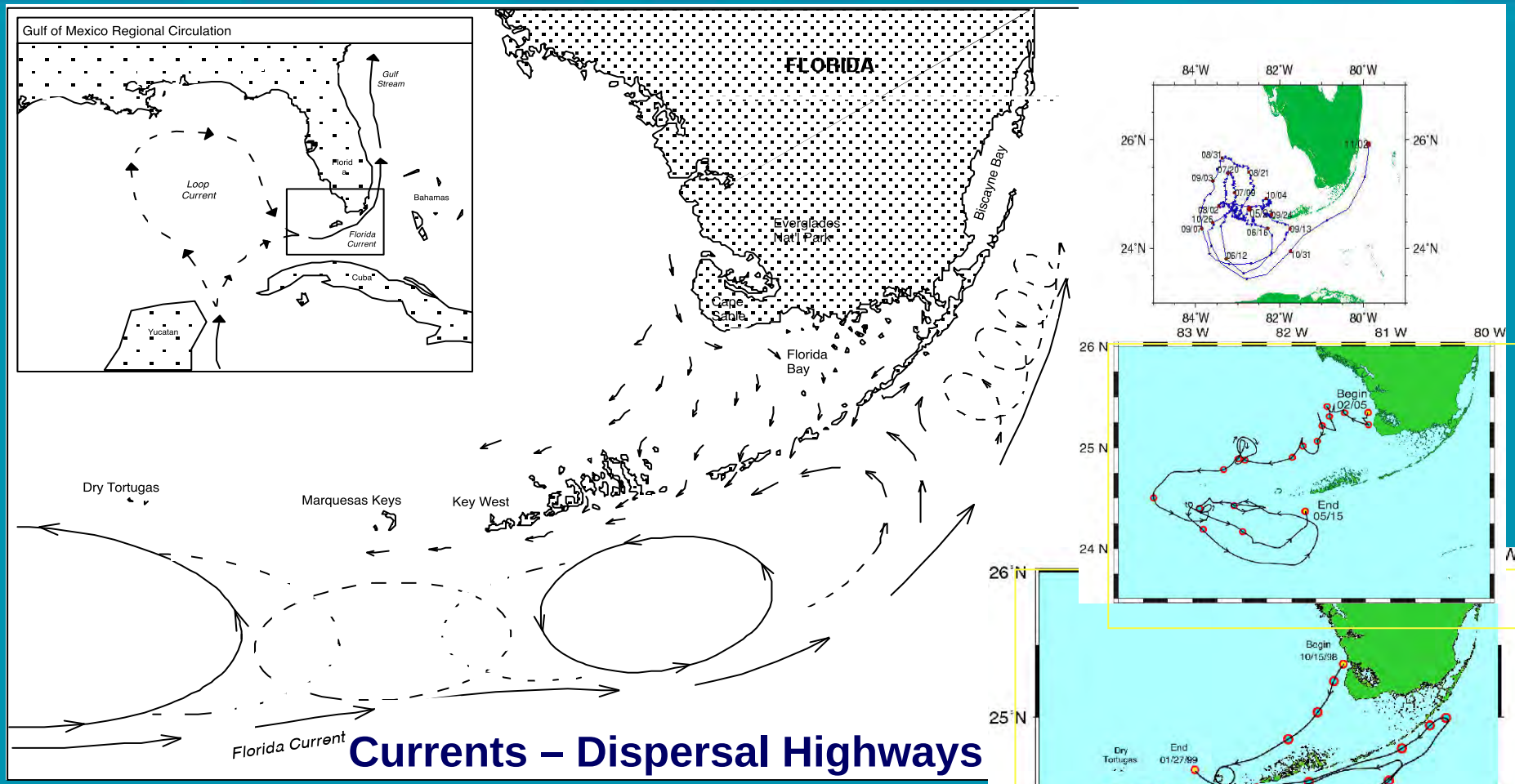


Satellite Current Trackers

Mississippi River Runoff



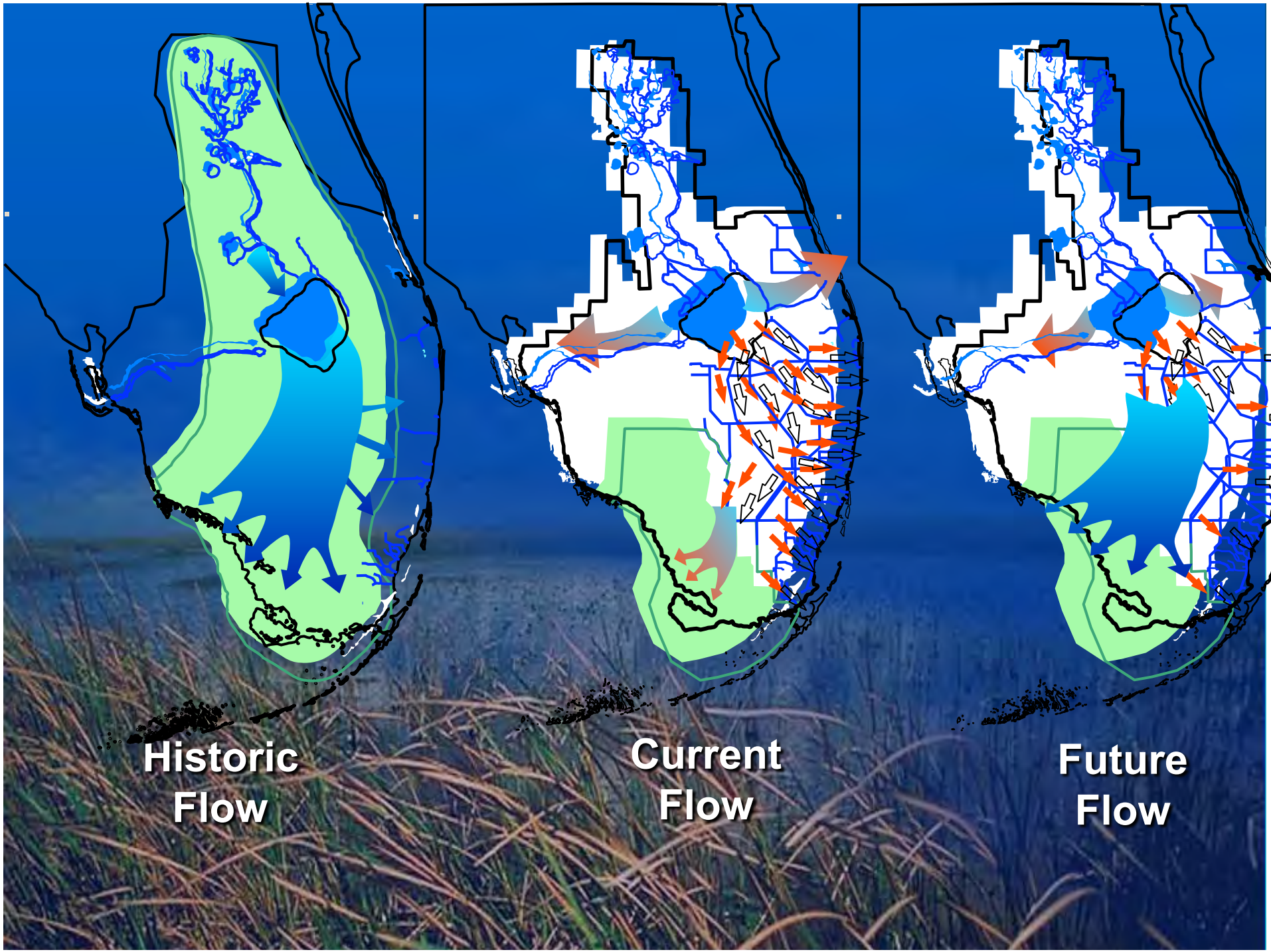
Florida Keys Connectivity



Currents – Dispersal Highways

(Lee and Williams - Univ of Miami)

South Florida Ecosystem


Historic
Flow
Current
Flow
Future
Flow

Comprehensive Everglades Restoration Plan (CERP) is... *Getting the Water Right!*

Now including:
CEPP
(Central Everglades Planning Project)

Threats to Coral Reefs

- Climate Change
- Land-based Sources of Pollution
- Habitat Loss and Degradation
- Overfishing

Multiple Stressors Affecting Coral Reefs

Habitat Destruction

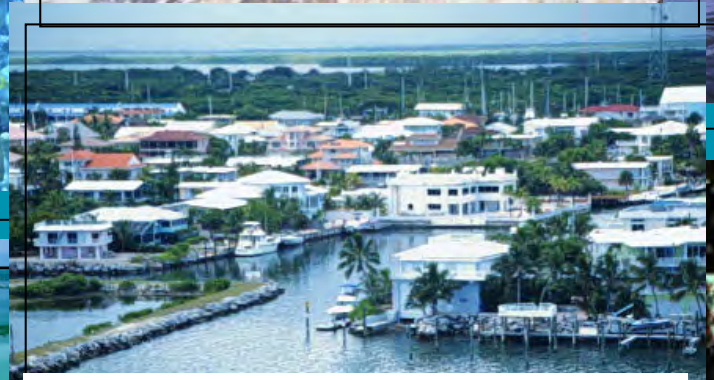
Coral Diseases

Pollution

Global Climate Change

Coral Bleaching

Overfishing



Intense Coastal Development

Ocean Dumping

Massive Algal Blooms

Introduction of Marine Exotics

Land-based Sources of Pollution

Water Quality Protection Program

Keys-wide No Discharge Zone

Boot Key Harbor

Live-aboard Anchorage

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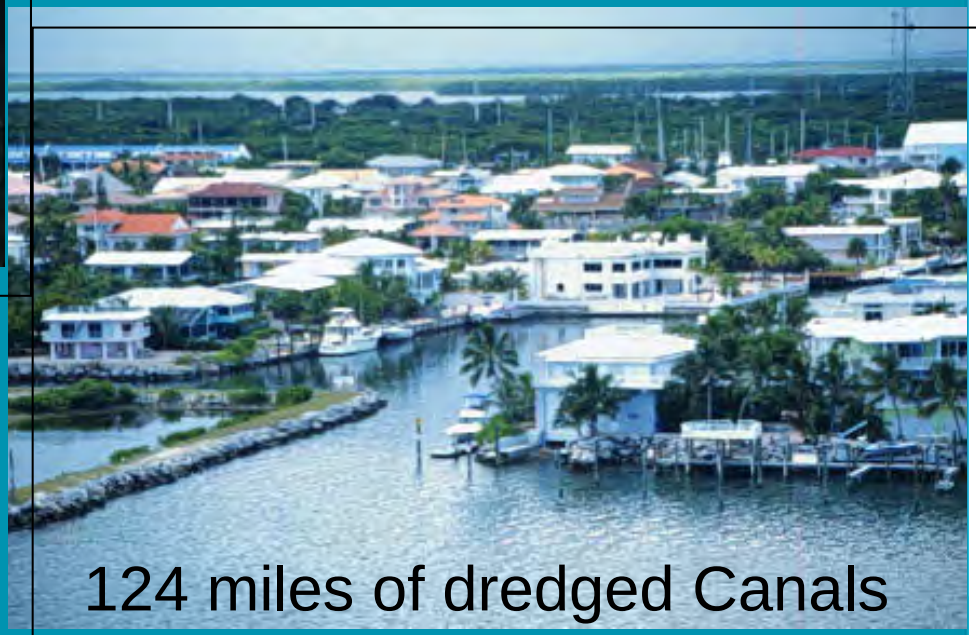

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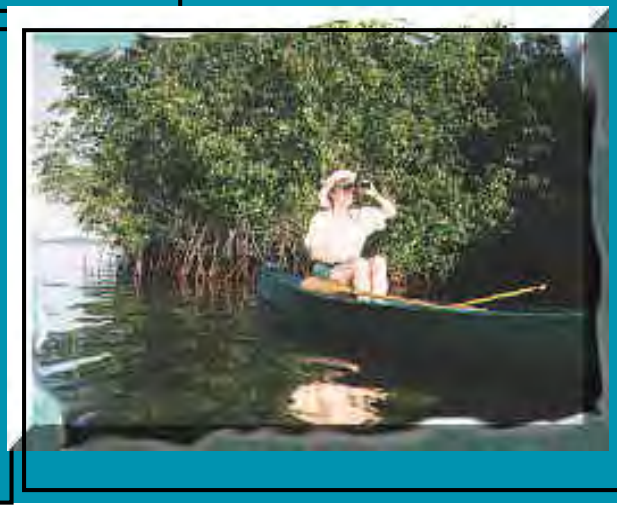

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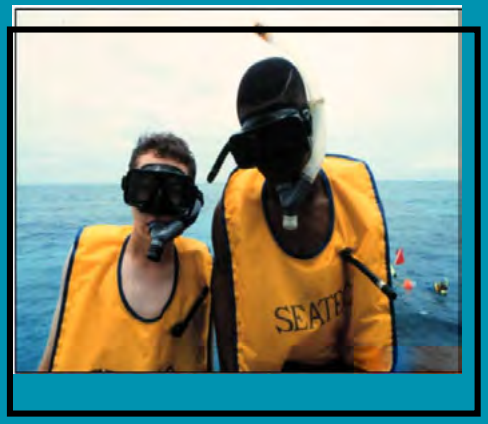

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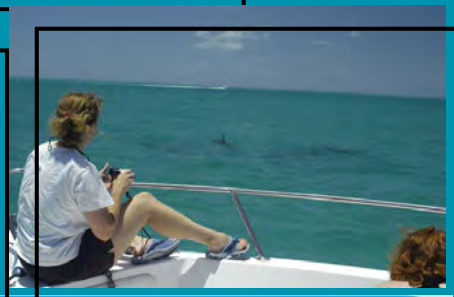

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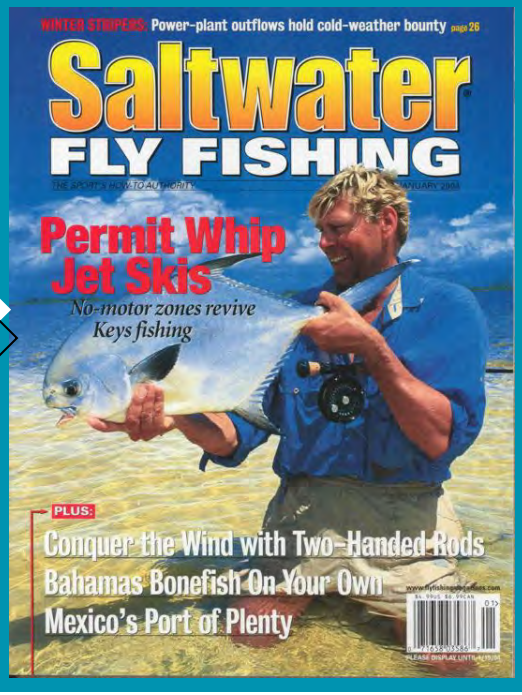

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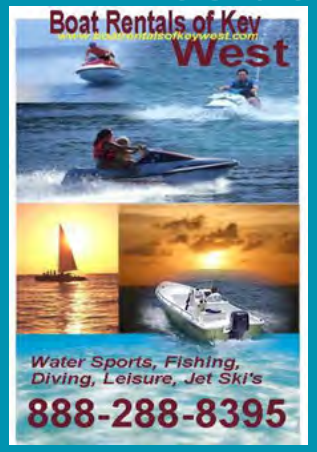

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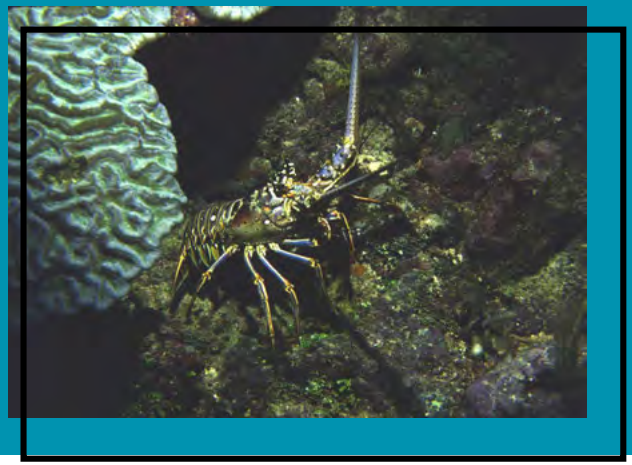

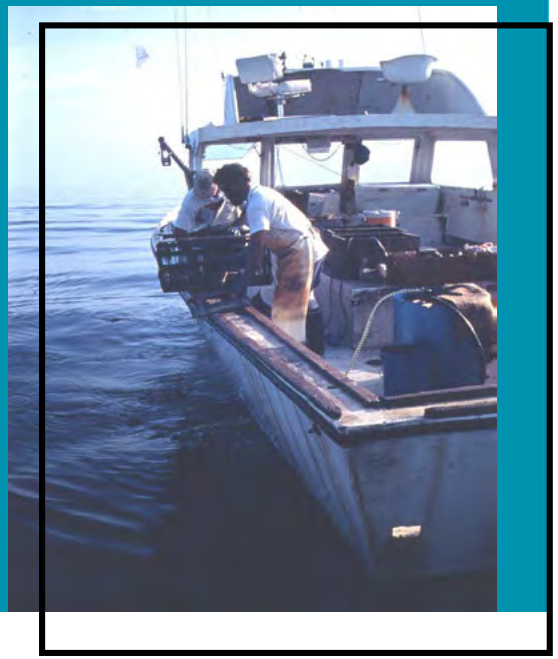

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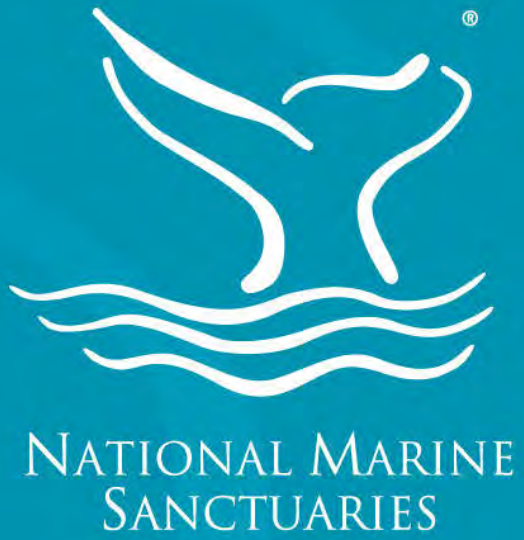
National Oceanic and Atmospheric Administration



http://sanctuaries.noaa.gov

Gulf Consortium Board Meeting Agenda Item Cover Sheet

May 17, 2013

Consent Agenda Item # 3.a

Statement of Issue or Executive Summary: The Gulf Consortium is a public entity under Chapter 119, Florida Statutes (F.S.) and as such, meetings are required to have minutes.

Background: The attached minutes summarize actions taken at the last Gulf Consortium Meeting held April 5, 2013 9:00 a.m.-12:00 noon (EDT), Tallahassee City Commission Chambers, Tallahassee, FL.

Analysis: The attached accurately reflects Consortium actions.

Options:

1) Approve a motion to accept minutes as presented.
2) Amend minutes.

Fiscal Impact: None.

Recommendation:

Approve a motion that approves minutes.

Division and Staff Person's Name: Doug Darling, Florida Association of Counties.

Moved _____; Seconded_____.

Action: Approved____; Approved as amended_____; Defeated_____.

Gulf Consortium Meeting
April 5, 2013, 9:00 a.m.-12:00 p.m. EDT at
Tallahassee City Commission Chambers, Tallahassee, FL
Leon County

Directors / Alternates in Attendance

Commissioner Mike Thomas (Bay), Commissioner Christopher Constance (Charlotte), Commissioner Rebecca Bays (Citrus), Commissioner Tom Henning (Collier), Director Tim Alexander (Dixie), Commissioner Grover Robinson (Escambia), Commissioner Cheryl Sanders (Franklin), Commissioner Warren Yeager (Gulf), Commissioner Wayne Dukes (Hernando), Commissioner Betsy Barfield (Jefferson), Commissioner Tammy Hall (Lee), Coordinator Fred Moody (Levy), Director Charlie Hunsiker (Manatee), Commissioner George Neugent (Monroe), Commissioner Dave Parisot (Okaloosa), Commissioner Jack Mariano (Pasco), Commissioner Susan Latvala (Pinellas), Commissioner Lane Lynchard (Santa Rosa), Manager Laird Wreford (Sarasota), Commissioner Jim Moody (Taylor), Administrator David Edwards (Wakulla), Commissioner Sara Comander (Walton)

Agenda Item #3 – Approval of Minutes from February 28, 2013 Gulf Consortium Meeting

A motion to approve the minutes from the February 28, 2013 Gulf Consortium Board of Directors' (Board) Meeting in Bay County was presented by Commissioner Sara Comander (Walton) and seconded by Commissioner Jim Moody (Taylor).

ACTION: PASSED

Agenda Item #4 – Updated List of Gulf Consortium Directors and Alternates

Mr. Doug Darling, FAC Consultant, distributed a list of Gulf Consortium Directors and Alternates. Change made to Dixie County Alternate, County Manager Mike Cassidy.

Agenda Item #5 – Financial Report

Mr. Doug Darling, FAC Consultant, reported the financial information requested by the Board. Board members reviewed financials with Commissioner Tammy Hall (Lee) moving to accept the financial information as presented with Commissioner George Neugent (Monroe) seconding.

ACTION: PASSED

Agenda Item #6 – Memorandum of Understanding (MOU) with Executive Office of the Governor

Mr. Doug Darling, FAC Consultant, briefed the Board on the most recent draft MOU between the Consortium and the Executive Office of the Governor with Commissioner Christopher Constance (Charlotte) moving to authorize Chair Robinson to sign the MOU on behalf of the Board. The motion was seconded by Commissioner Tom Henning (Collier).

ACTION: PASSED

Agenda Item #7 – Presentation by The Honorable Bob Inzer, Clerk of Court, Leon County on Financial Controls for RESTORE Funding – Postponed until later in agenda.

Agenda Item #8 – Cities Participation Proposal

Ms. Sarah Bleakley briefed the Board on city participation in the Gulf Consortium and discussion ensued. A motion to ask the Florida League of Cities to appoint a city representative to serve as a non-voting member of the Gulf Consortium was presented by Commissioner Jim Moody (Taylor) and seconded by Commissioner Mike Thomas (Bay). Discussion continued and Commissioner Jim Moody withdrew his motion with Commissioner Mike Thomas agreeing to the withdrawal.

ACTION: MOTION WITHDRAWN, NO VOTE TAKEN

Agenda Item #9 – Update by Ms. Mimi Drew, Florida's Representative to the Gulf Coast Ecosystem Restoration Council – Postponed until later in agenda.

Agenda Item #10 – Presentation by Mr. Kevin Claridge, Director, Coastal & Aquatic Managed Areas, Florida Department of Environmental Protection – Postponed until later in agenda.

Agenda Item #11 – Update by Selected Counties on Local Planning

Commissioner Rebecca Bays (Citrus) provided the Board with an update of Citrus County's local plans including identifying goals and objectives and developing a methodology for project selection. Commissioner Warren Yeager (Gulf) informed the Board Gulf County had established a committee to develop pre-application criteria for local projects including representatives from the Gulf County Tourist Development Council, Gulf County Chamber of Commerce, Port St. Joe, Wewahitchka and members of the public. David Edwards (Wakulla) informed the Board Wakulla County had established a committee and are planning public meetings to focus on regional plans as well as education. Mr. Doug Darling, FAC Consultant, informed the Board this agenda item would be carried forward at future meetings in the interest of sharing best practices.

Agenda Item #12 – Presentation by Nick Wiley, Executive Director, Florida Fish and Wildlife Conservation Commission

Mr. Nick Wiley, Executive Director, Florida Fish and Wildlife Conservation Commissioner provided the Board with an update on Federal funding from the National Fish and Wildlife Service and encouraged the Board to read the settlement agreement. The settlement can be found here:

http://www.justice.gov/iso/opa/resources/915201313122945254063.pdf

Agenda Item #7 – Presentation by The Honorable Bob Inzer, Clerk of Courts, Leon County on Financial Controls for RESTORE Funding

The Honorable Bob Inzer, Leon County Clerk of Courts, briefed the Board on the activities of the New Clerk Council which has 21 members. Education and training is ongoing in preparation for the US Treasury Department rules and regulations relating to the distribution of RESTORE Act funds.

Agenda Item #9 – Update by Mimi Drew, Florida's Representative to the Gulf Coast Ecosystem Restoration Council

Ms. Drew briefed the Board on Council actions. Discussion ensued with Board members asking questions which Ms. Drew answered to the best of her ability based on current information.

Agenda Item #10 – Presentation by Mr. Kevin Claridge, Director, Coastal & Aquatic Managed Areas (CAMA), Florida Department of Environmental Protection (FDEP)

Mr. Kevin Claridge, Director of FDEP CAMA, briefed the Board on FDEP's early efforts to solicit and prioritize projects. He informed the Board that there would be coordination among various State Agencies as well as among departments within the Agencies and counties.

Agenda Item #13 – Federal Rules Update

Mr. Doug Darling, FAC Consultant, reported that draft Treasury Rules have still not been released. Commissioner Dave Parisot (Okaloosa) asked Mr. Darling to find out if the Rules would address reimbursement for expenditures during the planning phase.

Agenda Item #14 – Next Meeting

The next meeting is planned for Friday, May 17, 2013 in Key Largo from 10-12:00 noon, EST.

Agenda Item #15 – New Business

Mr. Doug Darling, FAC Consultant, then opened the floor for new business. Charlie Hunsicker (Manatee) asked that those counties who have ports try to collaborate on their plans.

Commissioner Dave Parisot (Okaloosa) asked for an update on the trial. Ms. Mimi Drew informed the Board that the Federal part of the trial was complete and the Department of Justice issued their ruling. The current subcontractor phase of the trial will be followed by BP which could be in May.

Commissioner Sara Comander (Walton) asked Ms. Drew when previously submitted NRDA projects could expect funding. She informed the Board that she was hopeful it would be in the next few months.

Agenda Item # 16 – Public Comment
The Board heard public testimony:
Janet Bowman representing The Nature Conservancy
TJ Marshall representing Ocean Conservancy
Julie Wraithmell representing Audubon Florida
Jessica Koelsch representing National Wildlife Federation
JB Hillard representing Walton County Tax Payers Association
Jim McFarlane representing Reef Ball Foundation / Reef Innovation
Darryl Boudreau representing The Nature Conservancy

Agenda Item # 17 – Motion to Adjourn
There being no additional items for discussion, Chair Robinson (Escambia) adjourned.

Gulf Consortium Directors Alternates
May 17, 2013

County	Director and Alternate
Bay	Comm Mike Thomas Director; Comm George Gainer, Alternate
Charlotte	Comm Christopher Constance, Director; Comm Tricia Duffy, Alternate
Citrus	Comm Rebecca Bays, Director; Richard Wesch, County Attorney, Alternate
Collier	Comm Tom Henning, Director; Comm Donna Fiala, Alternate
Dixie	Tim Alexander, Director of Emergency Management; Administrator Mike Cassidy, Alternate
Escambia	Comm Grover Robinson, Director; Comm Gene Valentino, Alternate
Franklin	Comm Cheryl Sanders, Director; County Administrator Alan Pierce
Gulf	Comm Warren Yeager, Director; Tan Smiley, Alternate
Hernando	Comm Wayne Dukes, Director; Comm David Russell, Alternate
Hillsborough	Comm Les Miller, Director; Comm Ken Hagan, Alternate
Jefferson	Comm Betsy Barfield, Director; County Coordinator Parrish Barwick, Alternate
Lee	Comm Tammy Hall , Director; Comm John Manning, Alternate
Levy	Comm Ryan Bell, Director; County Coordinator Fred Moody, Alternate
Manatee	Comm Carol Whitmore, Director; Charlie Hunsicker, Natural Resources Dept., Alternate
Monroe	Comm George Neugent, Director; Mayor David Rice, Alternate
Okaloosa	Comm Dave Parisot, Director; Comm Kelly Windes, Alternate
Pasco	Comm Jack Mariano, Director; Comm Henry Wilson, Alternate
Pinellas	Comm Susan Latvala, Director
Santa Rosa	Comm Lane Lynchard, Director; Comm Jim Melvin, Alternate
Sarasota	Comm Nora Patterson, Director; Laird Wreford, Natural Resources Manager, Alternate
Taylor	Comm Jim Moody, Director; Jack Brown, County Administrator, Alternate
Wakulla	David Edwards, County Administrator, Director; Comm Ralph Thomas, Alternate
Walton	Comm Sara Comander, Director; Comm Cindy Meadows, Alternate

Gulf Consortium Board Meeting Agenda Item Cover Sheet
May 17,
2013
Consent Agenda Item # 3.c

Statement of Issue or Executive Summary: At previous Gulf Consortium meetings, a request was made, and approved by Directors, that financial status reports are provided at each Gulf Consortium meeting.

Background: Gulf Consortium member counties have contributed to the operation of the Consortium during this transition phase of establishment.

Analysis: The sheets below provide a recap of revenue and expenses to date compared to budget.

Options:

1) Approve a motion to accept the financial reports as presented.
2) Provide other direction.

Fiscal Impact: None.

Recommendation: Approve a motion that approves financial reports.

Division and Staff Person's Name: Doug Darling, Florida Association of Counties.

Moved _____; Seconded_____.

Action: Approved____; Approved as amended_____; Defeated_____.

Gulf Consortium
Transition Budget to Actual
October 1, 2012 - April 30, 2013

	Revised Interim Budget*	Year To Date Actual
Revenues		
Interim County Funding	133,866.00	100,423.00
Total Revenues	**133,866.00**	**100,423.00**
Disbursements		
Consulting-Administration	60,000.00	25,000.00
Consulting-Legal & Expenses	65,000.00	25,578.79
Meeting and Travel Expense	8,000.00	3,841.41
Miscellaneous	866.00	471.52
Total Disbursements	**133,866.00**	**54,891.72**
Revenues Over (under) Disbursements	**-**	**45,531.28**

Statements Prepared on Cash Basis

**Revised Interim Budget includes 3/27/13 invoicing of $70,026*

Gulf Consortium
Expense Register Detail
October 1, 2012 to April 30, 2013

Check #	Payee	Date	Total Amount	Consult-Admin	Consult-Legal	Meeting & Travel	Misc	Description
Debit	Suntrust	1/17/2013	105.51				105.51	Printing Costs - Checks
1001	FAC (Darling-Oct, Nov, Dec, Jan)	2/27/2013	20,955.18	20,000.00		955.18		Admin Consulting Expenses and travel (Oct - Jan)
1002	FAC (Reimb Direct Expenses)	2/27/2013	1,820.68			1,633.18	187.50	Meeting Expenses and Logo Creation
1003	FL Department of State	2/27/2013	32.68			32.68		Meeting notice 1/18/2013
1004	FL Department of State	2/27/2013	47.88			47.88		Meeting Notice 2/15/2013
1005	Nabors Giblin	2/27/2013	5,015.62		5,015.62			Oct 22-31 consulting (2550) plus expenses (2465.62
1006	VOID							VOIDED CHECK
1007	Nabors Giblin	2/27/2013	5,086.14		5,086.14			Nov 2012 consulting (5000) plus expenses (86.14)
1008	FL Dept of State	3/14/2013	31.73			31.73		Meeting Notice 2/28/2013
1009	Nabors Giblin & Nickerson	3/14/2013	5,273.00		5,273.00			Feb 2013 Consulting (5000) plus expenses (273.00)
1010	Nabors Giblin & Nickerson	3/14/2013	5,145.50		5,145.50			Jan 2013 Consulting (5000) plus expenses (145.50)
1011	Nabors Giblin & Nickerson	3/14/2013	5,058.53		5,058.53			Dec 2012 Consulting (5000) plus expenses (58.53)
1012	City of Tallahassee	3/14/2013	111.35			111.35		Room Rental -Chambers 4/5/13
1013	EBLRTF	3/19/2013	75.00				75.00	Exec Branch Lobbyist Reg- Reepen, Delegal, Holley
1014	Florida Legislature	3/19/2013	60.00				60.00	Legisalture Lobbyist Reg - Reepen, Delegal, Holley
1015	FAC	3/28/2013	6,029.41	5,000.00		1,029.41		Feb 2013 Admin (5000) plus expenses (1029.41)
1016	FL Department of State	4/24/2013	43.51				43.51	Meeting Notice 4/5/2013
	Total Expenses		$ 54,891.72	$ 25,000.00	$ 25,578.79	$ 3,841.41	$ 471.52	

THE ENVIRONMENTAL CHALLENGE OF

"HEALTHY MARINE FISHERIES & ECOSYSTEMS"

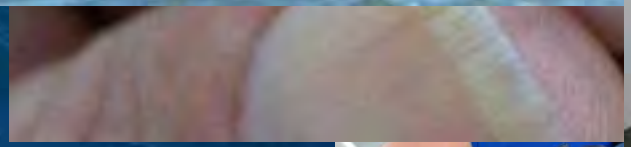
TJ Marshall
Ocean Conservancy

What's at Risk with Marine Fisheries?

- Fisheries worth $22.6 Billion annually
  - 63 Species managed by Gulf of Mexico Fishery Council
- Regional Tourism worth $34 billion annually
  - Local economies that depend on a healthy Gulf.

Challenges to blue water fisheries and ecosystems

- Financial resources are limited .
- Implement fishing limits according to "best available science".
- Reductions in catches if "unknowns" aren't addressed timely.
- Understanding impacts of marine mammal deaths



Looking back at our Marine Fisheries

Overfished Stocks (48) – as of March 31, 2011

North Pacific:
1. Blue king crab – Pribilof Islands
2. Southern Tanner crab - Bering Sea

New England:
1. Atlantic cod – Georges Bank
2. Atlantic halibut
3. Atlantic salmon[1]
4. Atlantic wolffish[1]
5. Ocean pout
6. Smooth skate
7. Thorny skate
8. White hake
9. Yellowtail flounder – Georges Bank
10. Yellowtail flounder – Southern New England/Mid-Atlantic
11. Yellowtail flounder – Cape Cod/Gulf of Maine
12. Windowpane - Gulf of Maine/Georges Bank
13. Winter flounder - Southern New England/Mid-Atlantic
14. Winter flounder - Georges Bank
15. Witch flounder

Pacific:
1. Canary rockfish
2. Cowcod
3. Petrale sole
4. Chinook salmon - California Central Valley: Sacramento (fall)[1]
5. Coho salmon - Washington Coast: Queets[1]
6. Coho salmon - Washington Coast: Western Strait of Juan de Fuca[1]
7. Yelloweye rockfish

Highly Migratory Species:
1. Albacore – North Atlantic[2]
2. Blacknose shark
3. Blue marlin – Atlantic[2]
4. Bluefin tuna – West Atlantic[2]
5. Dusky shark
6. Porbeagle shark
7. Sandbar shark
8. White marlin – Atlantic[2]

Mid-Atlantic:
1. Butterfish (Atlantic)

South Atlantic:
1. Black Sea Bass
2. Pink Shrimp
3. Red Grouper
4. Red Porgy
5. Red Snapper
6. Snowy Grouper

Western Pacific
1. Seamount Groundfish Complex – Hancock Seamount

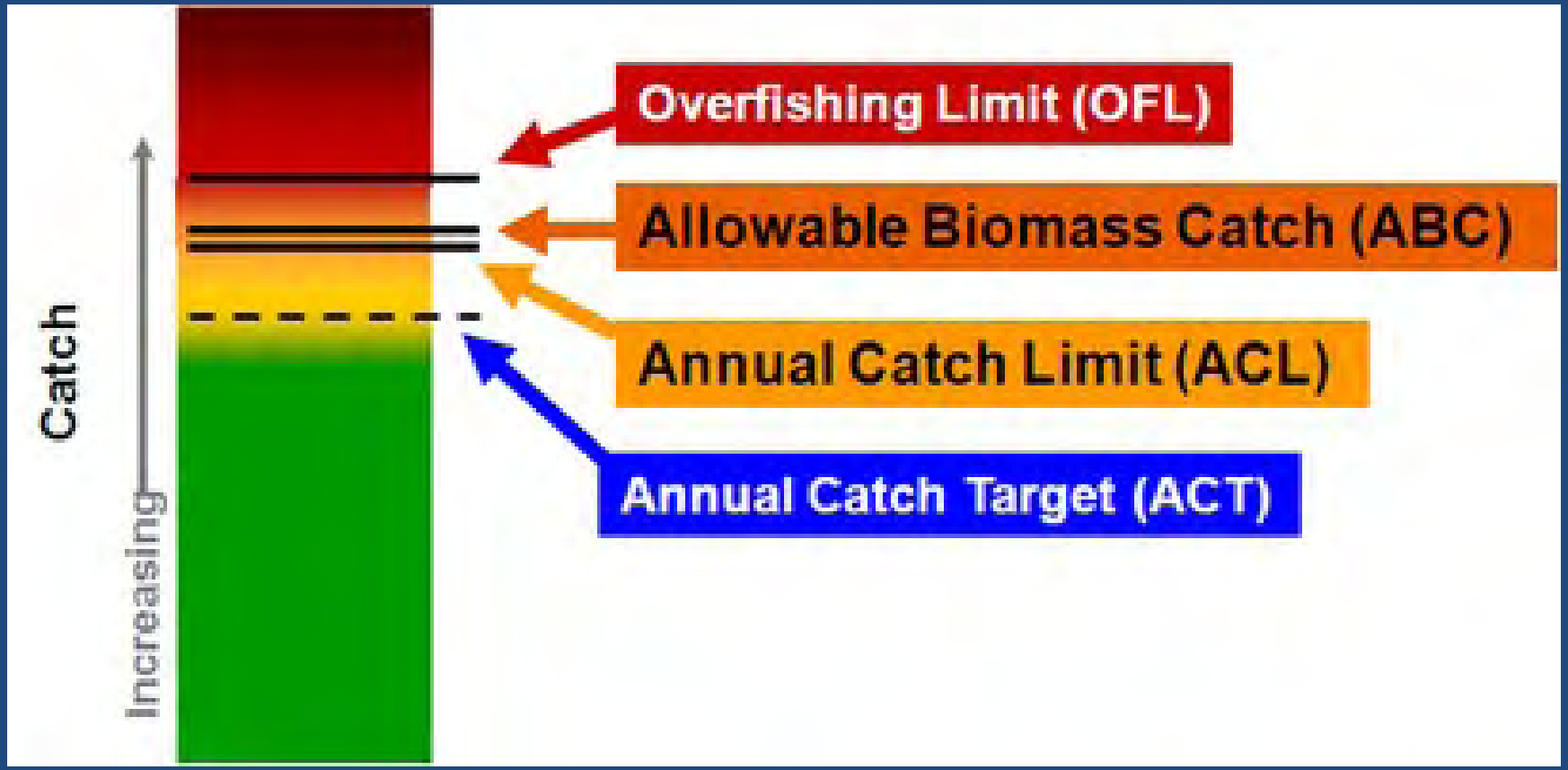
Gulf of Mexico:
1. Gag
2. Gray triggerfish
3. Greater amberjack
4. Red snapper

Caribbean:
1. Grouper Unit 1
2. Grouper Unit 2
3. Grouper Unit 4
4. Queen conch

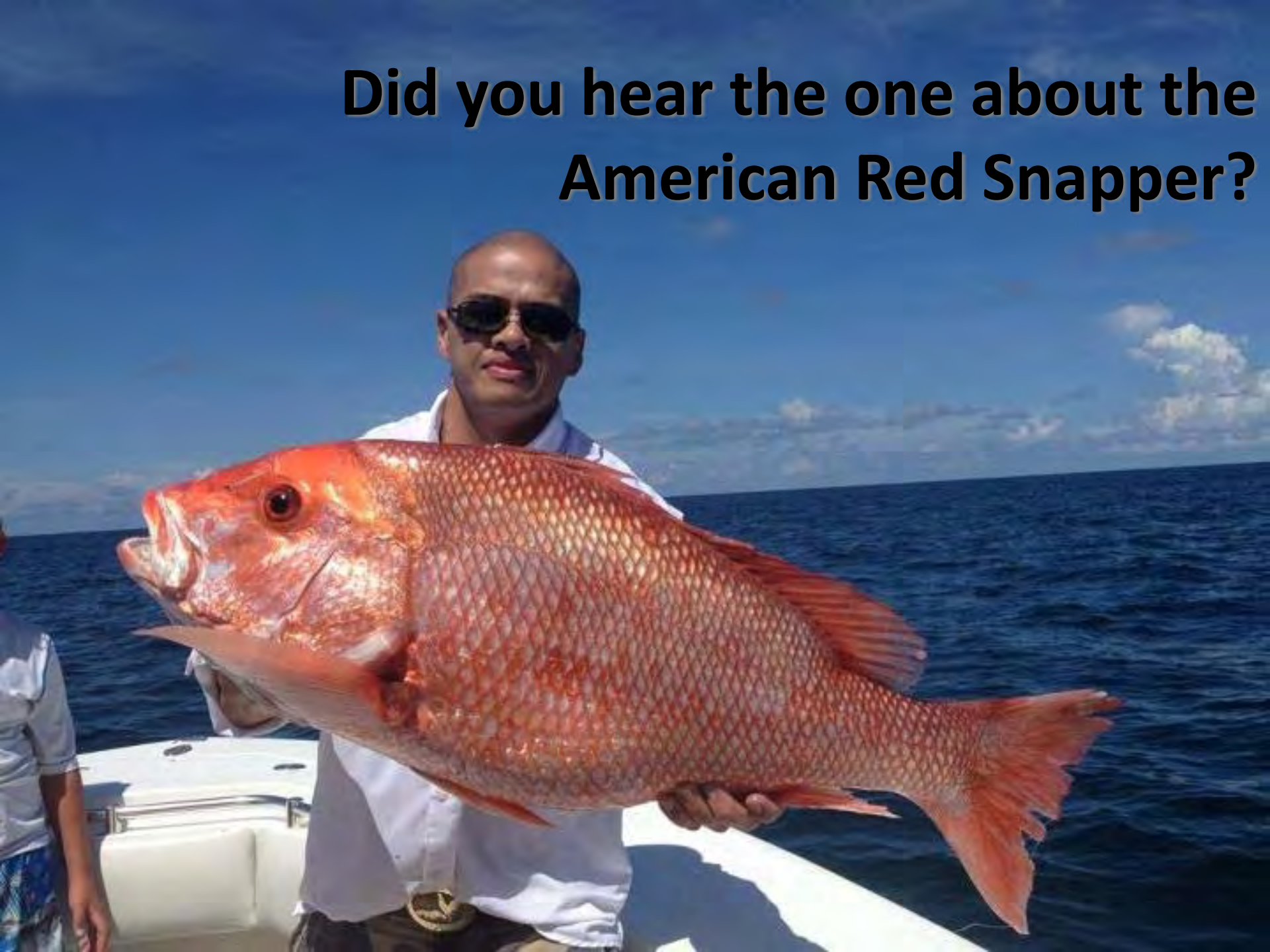
U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Office of Sustainable Fisheries

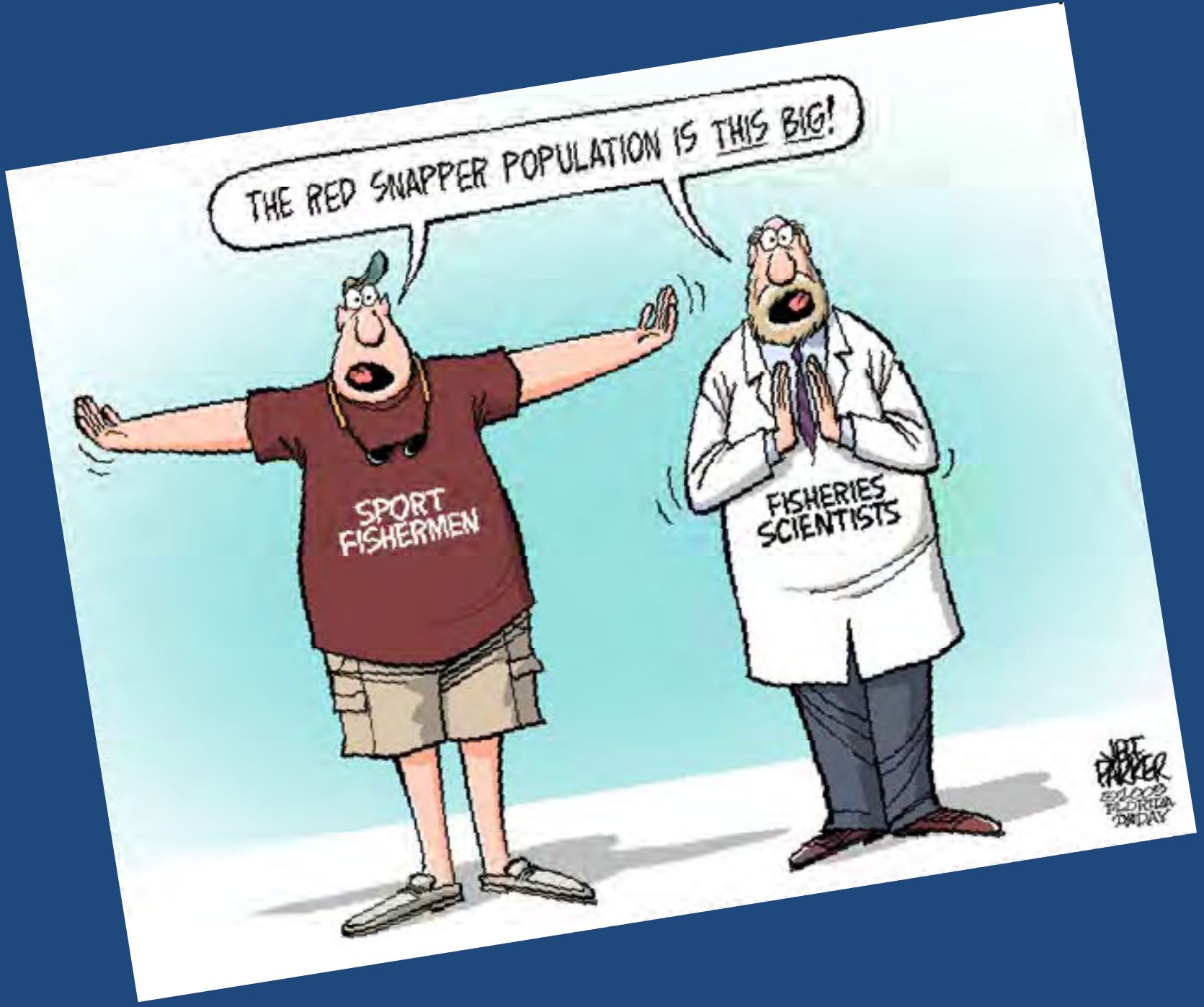
1. Non-FSSI stock
2. Stock is fished by U.S. and International fleets

What is a Sustainable Fishery



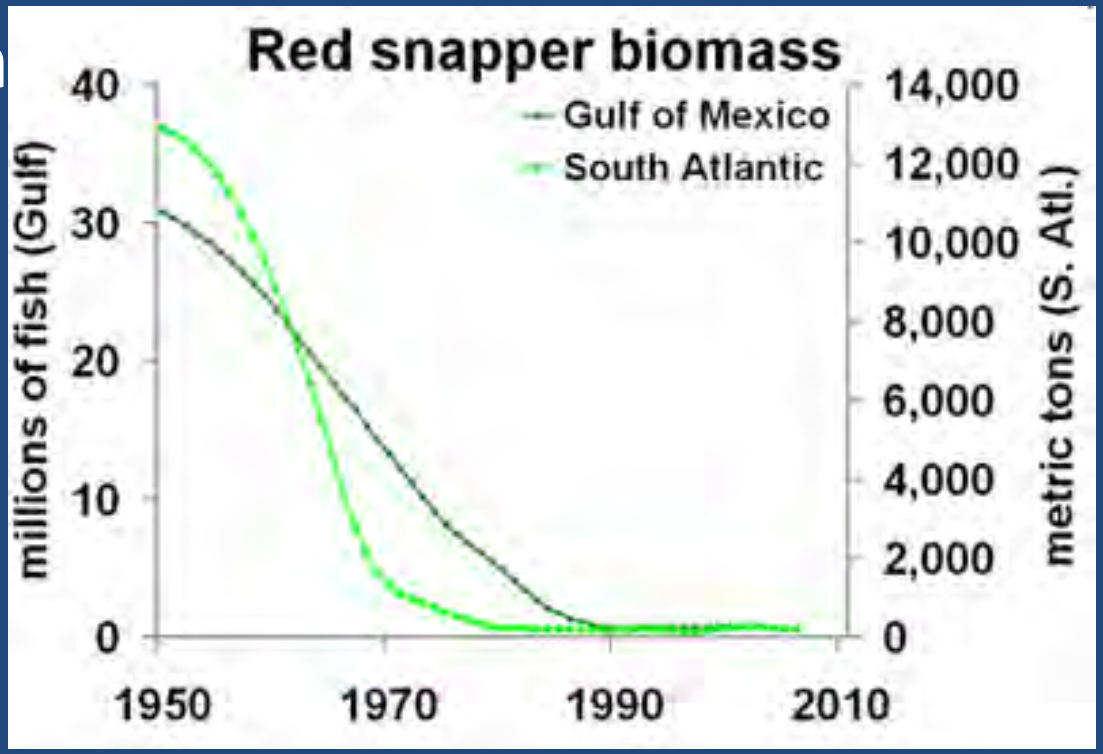
Counting on a high catch of fish every year in perpetuity


Did you hear the one about the
American Red Snapper?

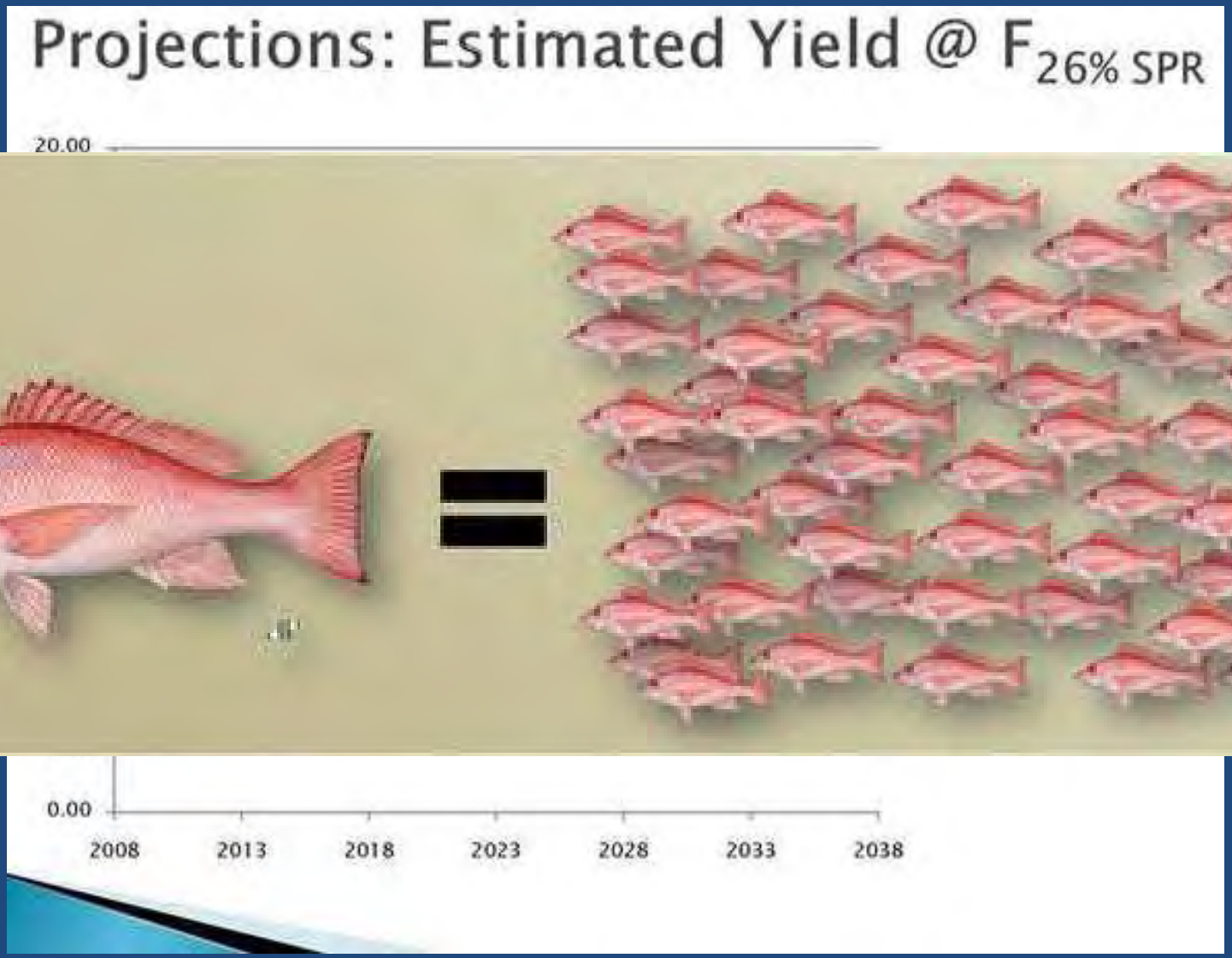

THE RED SNAPPER POPULATION IS THIS BIG!
SPORT FISHERMEN
FISHERIES SCIENTISTS

Red Snapper

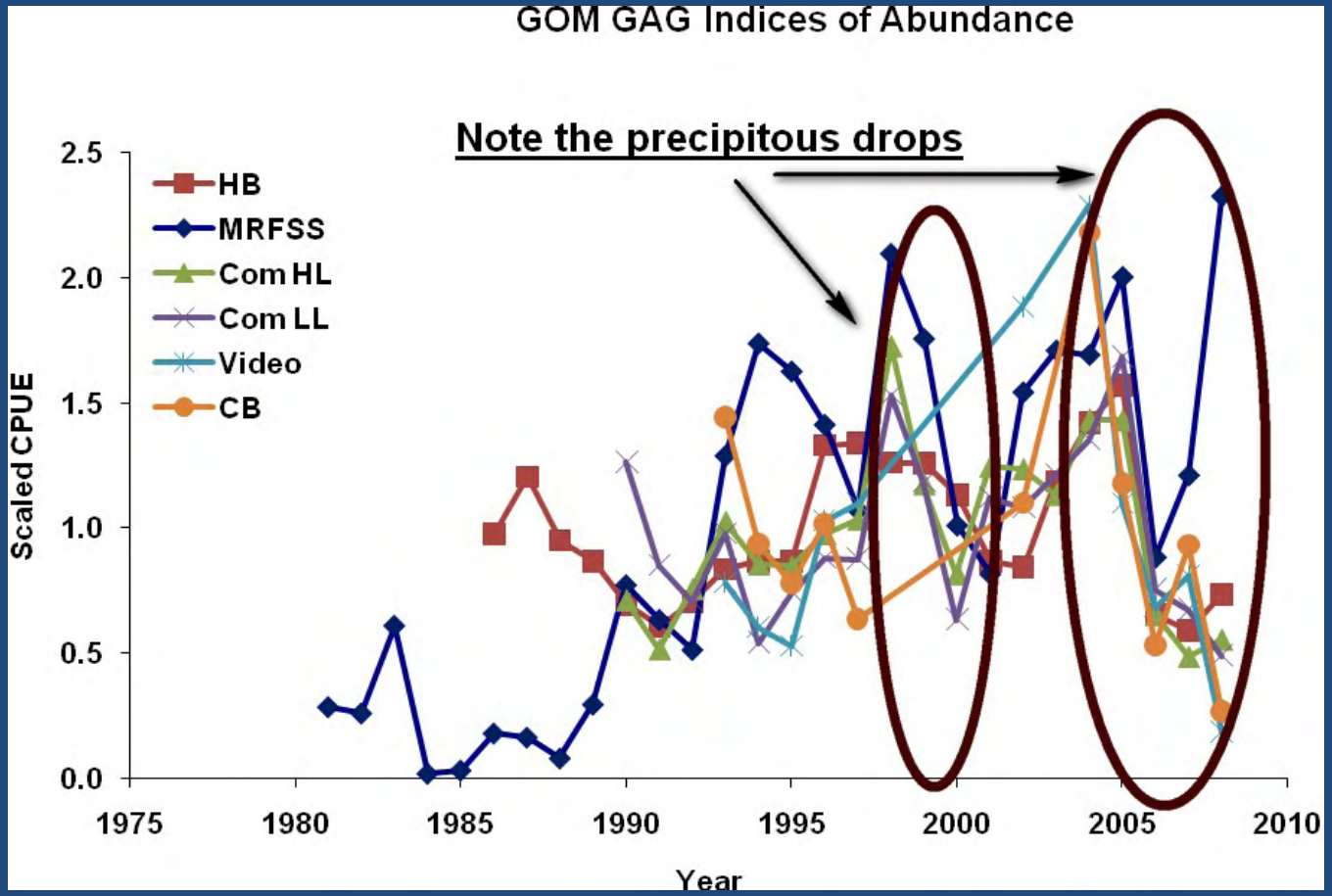
- Experience has shown that past perspectives on bag limits and length of fishing seasons inevitably leads to:
  - stock depletion
  - profit loss
  - populations crashing
  - fisheries collapsing

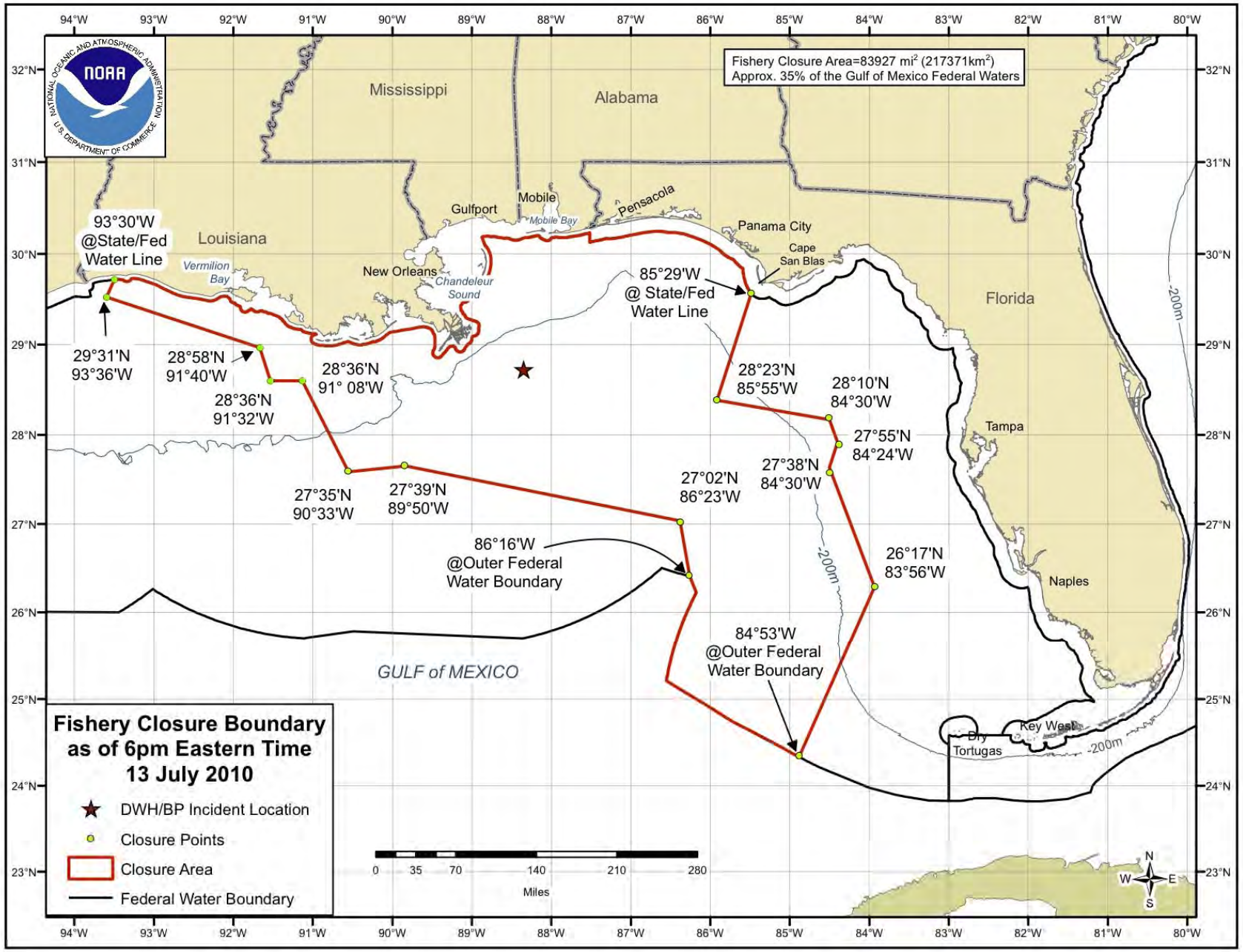


Red Snapper Rebuilding

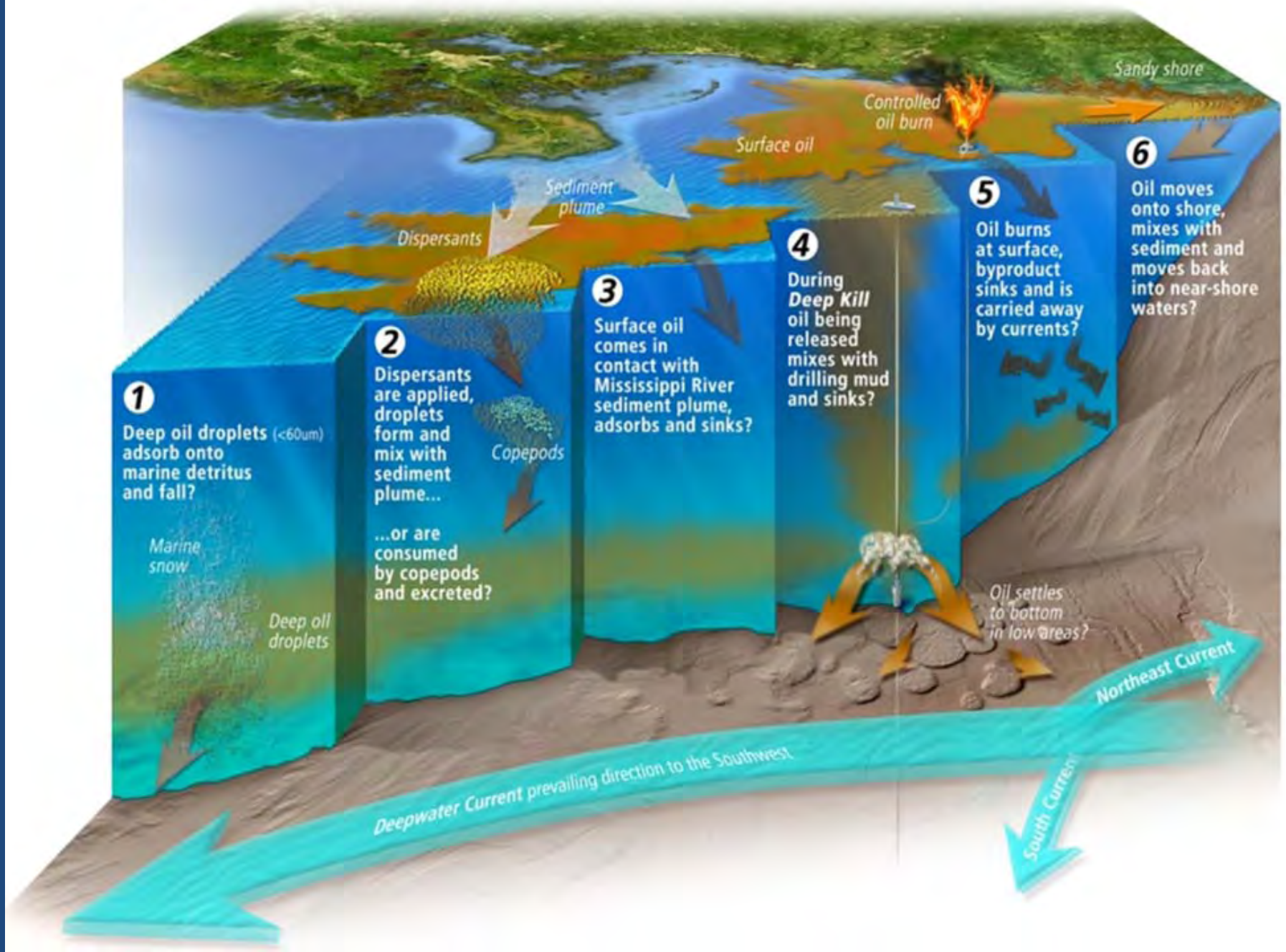


Gag Grouper

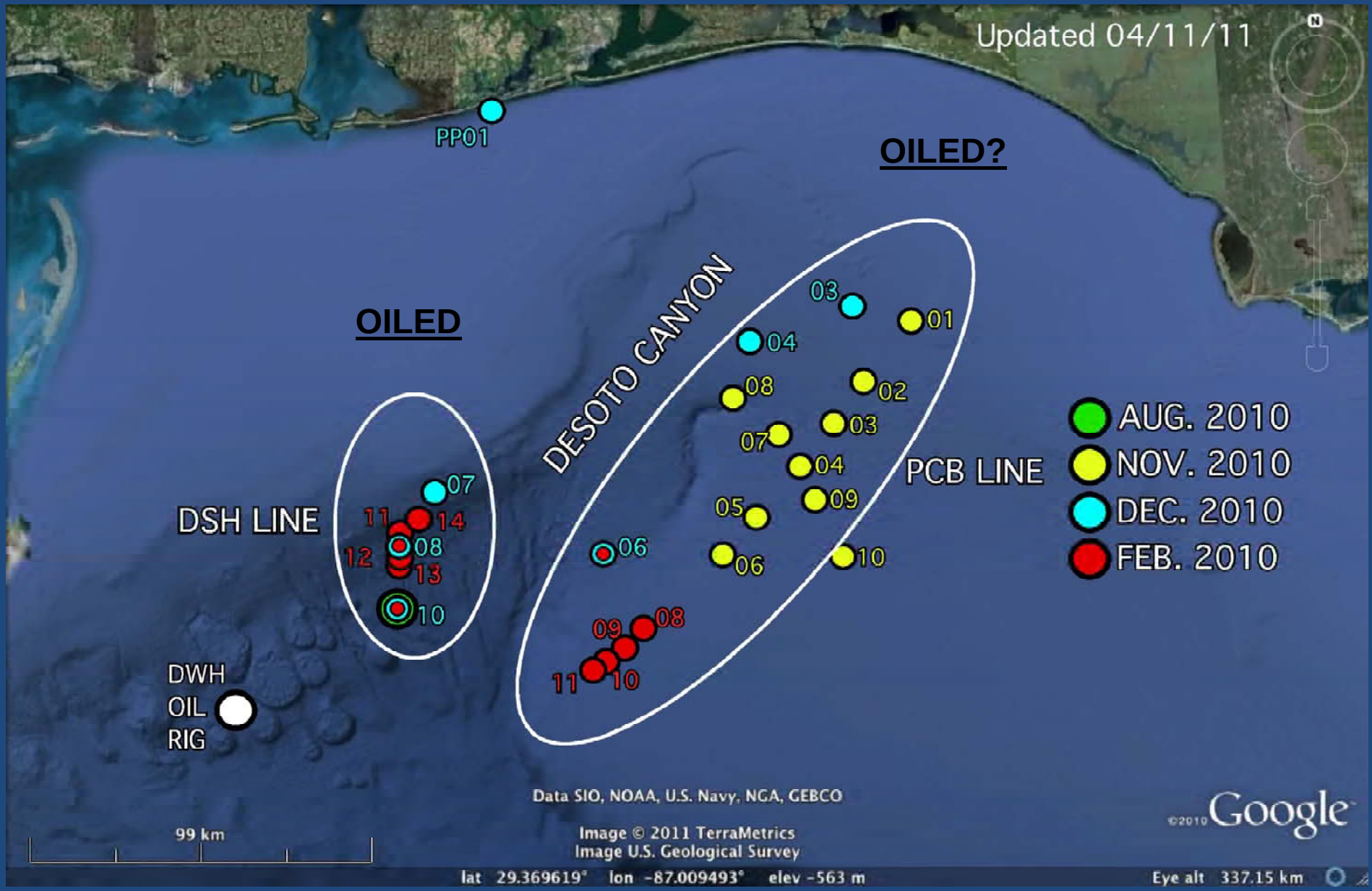

GOM GAG Indices of Abundance
Note the precipitous drops
HB
MRFSS
Com HL
Com LL
Video
CB
Scaled CPUE
2.5
2.0
1.5
1.0
0.5
0.0
1975
1980
1985
1990
1995
2000
2005
2010
Year


Fishery Closure Area=83927 mi² (217371km²)
Approx. 35% of the Gulf of Mexico Federal Waters
Mississippi
Alabama
Louisiana
Florida
Gulfport
Mobile
Mobile Bay
Pensacola
Panama City
Cape San Blas
New Orleans
Chandeleur Sound
Vermilion Bay
Tampa
Naples
Key West
Dry Tortugas
GULF of MEXICO
93°30'W @State/Fed Water Line
29°31'N 93°36'W
28°58'N 91°40'W
28°36'N 91°32'W
28°36'N 91° 08'W
27°35'N 90°33'W
27°39'N 89°50'W
86°16'W @Outer Federal Water Boundary
27°02'N 86°23'W
27°38'N 84°30'W
27°55'N 84°24'W
28°10'N 84°30'W
28°23'N 85°55'W
85°29'W @ State/Fed Water Line
26°17'N 83°56'W
84°53'W @Outer Federal Water Boundary
-200m
Fishery Closure Boundary as of 6pm Eastern Time 13 July 2010
DWH/BP Incident Location
Closure Points
Closure Area
Federal Water Boundary
0 35 70 140 210 280
Miles
N
W
E
S

Potential Scenarios for Oil in Sub-surface Areas

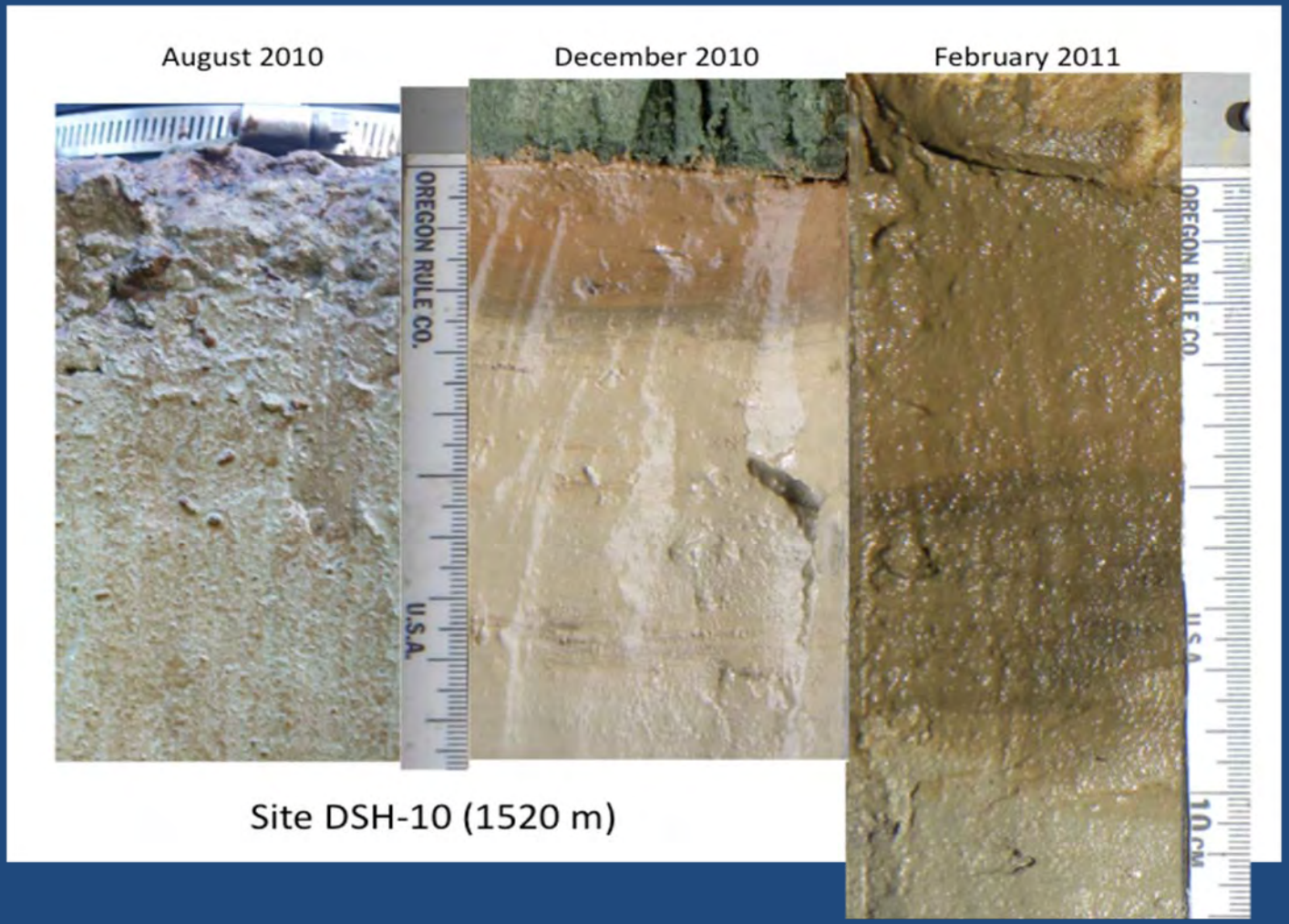


Full depth transect SE of DeSoto Canyon



- "Bathtub rings" hypothesis

8-9 cm of sediment in <6 months?!

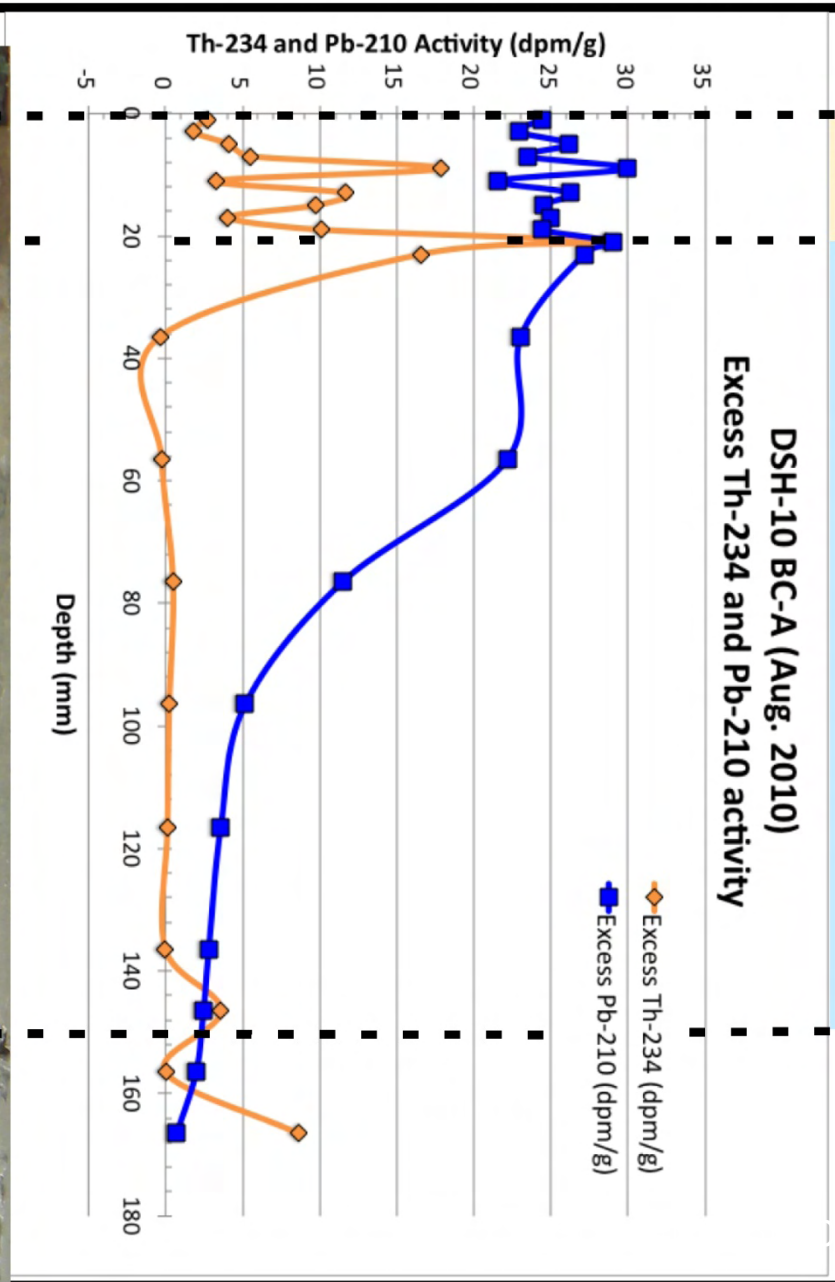


- First dark brown layer appears at 0.6 cm (August), 2-2.5 cm (December), and 8-9 cm (February).

Photograph
Core Collected Dec. 2010

DSH-10 BC-A
Collected Aug. 2010

28 58.6 N
87 52.4W
Water Depth = 1520 m



Dating

^{234}Th

20mm
July

^{210}Pb

150mm
1888

• >20 mm in <3 months

Effect on benthic biota: DSH-10 core top

Cibicidoides wuellerstorfi (normal)

Brown and Flower, preliminary data

Cibicidoides wuellerstorfi (deformed)

- 8 of 42 specimens deformed (hydrocarbon impact?)

Crises of Confidence are going to develop, threatening the region's image

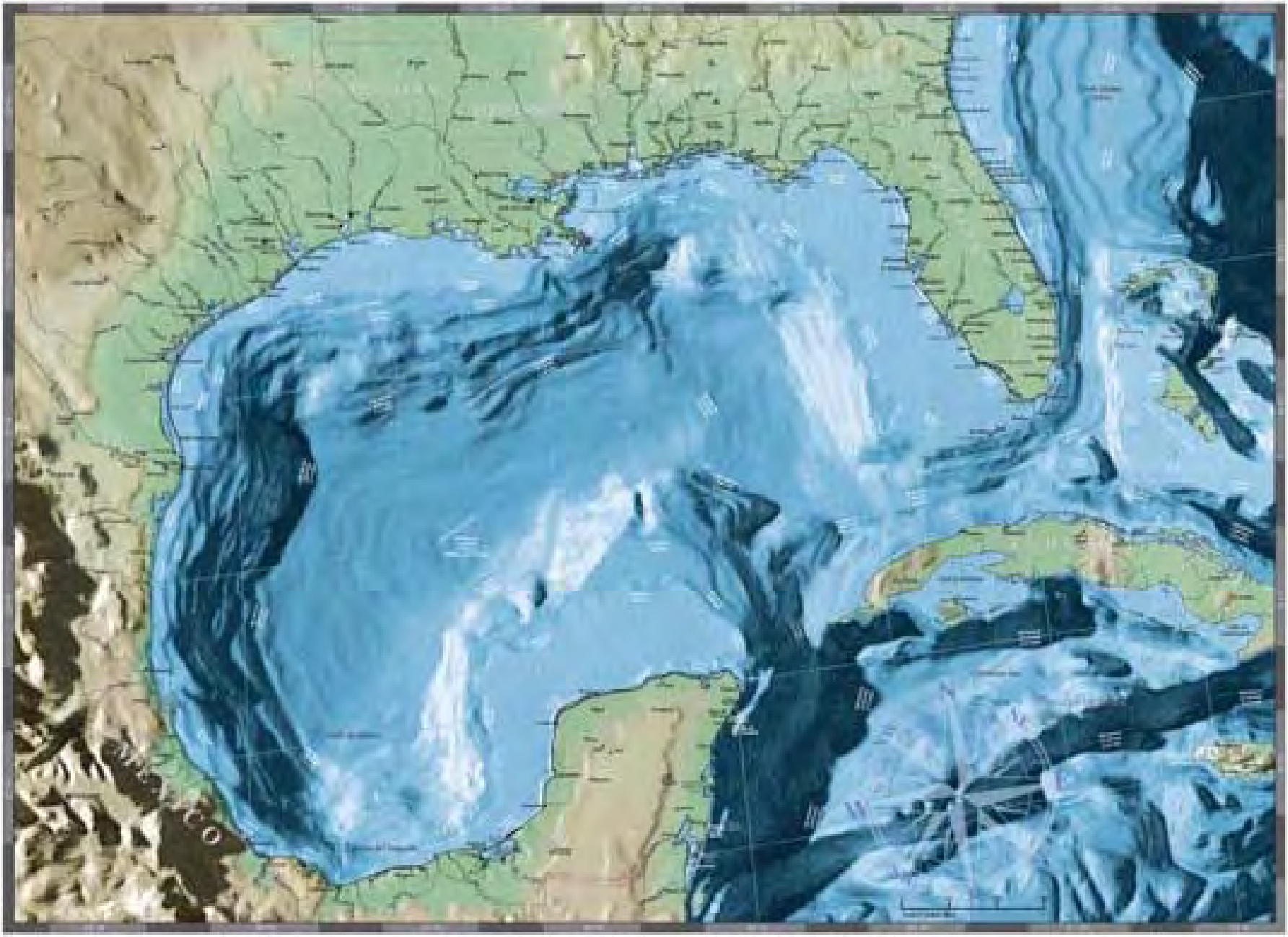
Possible Solutions:

SUSTAINABLE FISHERIES FOR STRONG COASTAL ECONOMIES

- Estuarine Habitat Restoration
  - Coastal Estuaries
  - Oyster Reefs
  - Sea Grasses (example – restore prop scarring)
- Marine Habitat Protection
  - Hard Bottom and Patch Reefs (example – mooring balls to prevent anchor damage)

Purpose:

Ensure nursery habitat for marine fisheries and the areas most interacted with by human activity remain healthy and productive.



GULF OF MEXICO SEAFLOOR

Possible Solutions:

SUSTAINABLE FISHERIES FOR STRONG COASTAL ECONOMIES

- Co-Operative Research with Fishermen
  - Barotrauma Research to reduce dead discarded fish
- Enhanced Data Collection and Monitoring
  - Modernize how catch data is processed so decisions can be made faster
- Improving Information in Stock Assessments
  - Habitat Mapping will exponentially improve accuracy of stock assessments

Purpose:

Modernize highly valuable recreational and commercial fisheries are evaluated to maximize fishing opportunities within sustainable catch limits.

Possible Solutions:

SPECIES PROTECTION

- Enhanced Marine Mammal Stranding Networks
  - Chronically underfunded
  - Largely Volunteer based
  - Infrastructure and equipment is poor
- Habitat protection and improvement
  - Upgrade signage in areas of potential interaction
  - Reduce human impact within species habitat areas
  - Prioritize habitat improvements for species

Purpose:

Enhanced wildlife viewing and tourism promotion. Learn about problems with marine mammals before they become bigger problems.

Possible Solutions:

Fishery Enhancement

- Hatcheries
  - Unproven in offshore fisheries, only 1% - 4% improvements envisioned for Spawning Potential Ratio (SPR)
  - Cost – Benefit Analysis
  - DNA Tagging to monitor effectiveness
- Artificial Reefs
  - Science does not support as Ecosystem Restoration
    - Assumes the Gulf is Habitat limited
  - Improper location detrimental to juvenile habitat
  - Heavy fishing pressure

Purpose:

Enhance Fishing Experiences .

NRDA wasn't built for the "unknowns" of a blue water oil spill…

- NRDA requires proof of damage from the oil; a rarely immediate event in blue water.

…Clean Water Act (CWA) fines are ONLY resource to monitor “unknowns” of the oil spill.

- Restoration in blue water is long term research and monitoring of “unknowns” before they become serious problems.

Recommended Restoration Strategies

- Restore, Protect and Maintain Coastal and Marine Habitats
- Restore, Protect and Maintain Wildlife Populations
- Sustain Globally Competitive Gulf Fisheries
- Invest in real time monitoring of recreational fisheries to maximize fishing opportunities

TJ Marshall
Ocean Conservancy
Director, Constituent Outreach
tmarshall@oceanconservancy.org
Office: 727.369.6616
Mobile: 305.898.2695
www.oceanconservancy.org

Gulf of Mexico Overview

The Gulf of Mexico

Most productive body of water in the World :

- 615,000 sq miles
- Contains 660 quadrillion gallons of water
- 14,383 ft at its deepest point
- Over 15,000 species in Gulf Waters
- 1.4 billion pounds of commercial seafood
- 44% of US marine recreational catch
- 50% of the nation's wetlands
- Diversity Habitats - **LMR: marsh & mangroves, corals and seagrasses, fish, oysters, turtles, marine mammals, shorebirds, crabs and shrimp**

23 million marine recreational fishing trips/year

47% of recreational catch is released

198 sq miles converted from marsh to open water from Katrina & Rita

The Gulf of Mexico

The population of the Gulf Region increased by 109% since 1970

Vital Economic Engine for the Nation:

- **8.3 million coastal jobs (> 120,000 oil & gas)**
- **3700 active oil & gas platforms**
- **$5–6 billion annually to the U.S Treasury**
- **Transportation corridor for the world**
- **Key to the energy security of the nation**
- **Largest watershed in North America**
- **The nation benefits, the region suffers**

$15.6billion in oil & gas wages

8% of the jobs are in tourism & recreation

The Gulf of Mexico

The population of the Gulf Region increased by 109% since 1970

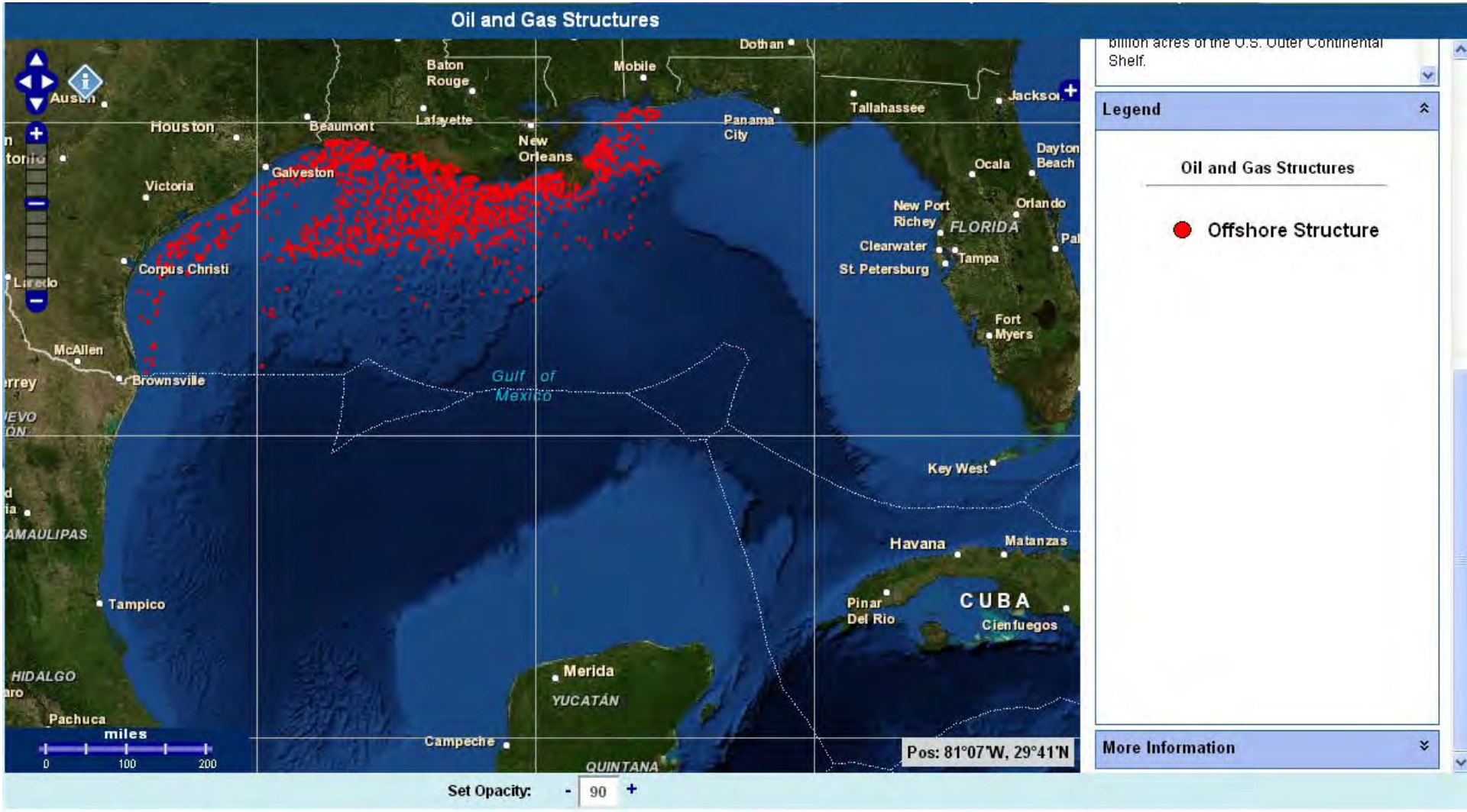
Vital Economic Engine for the Nation:

- **> 56 Million in Gulf States, 21 million in coastal area**
- **78% of total U.S. Shrimp Landings**
- **62% of U.S. Oyster Landings**
- **7th in global Gross Domestic Product**
- **50% of the nation's trade tonnage**
- **>50% of National Oil & Gas Production**
- **~50% of National Refinery Capacity**

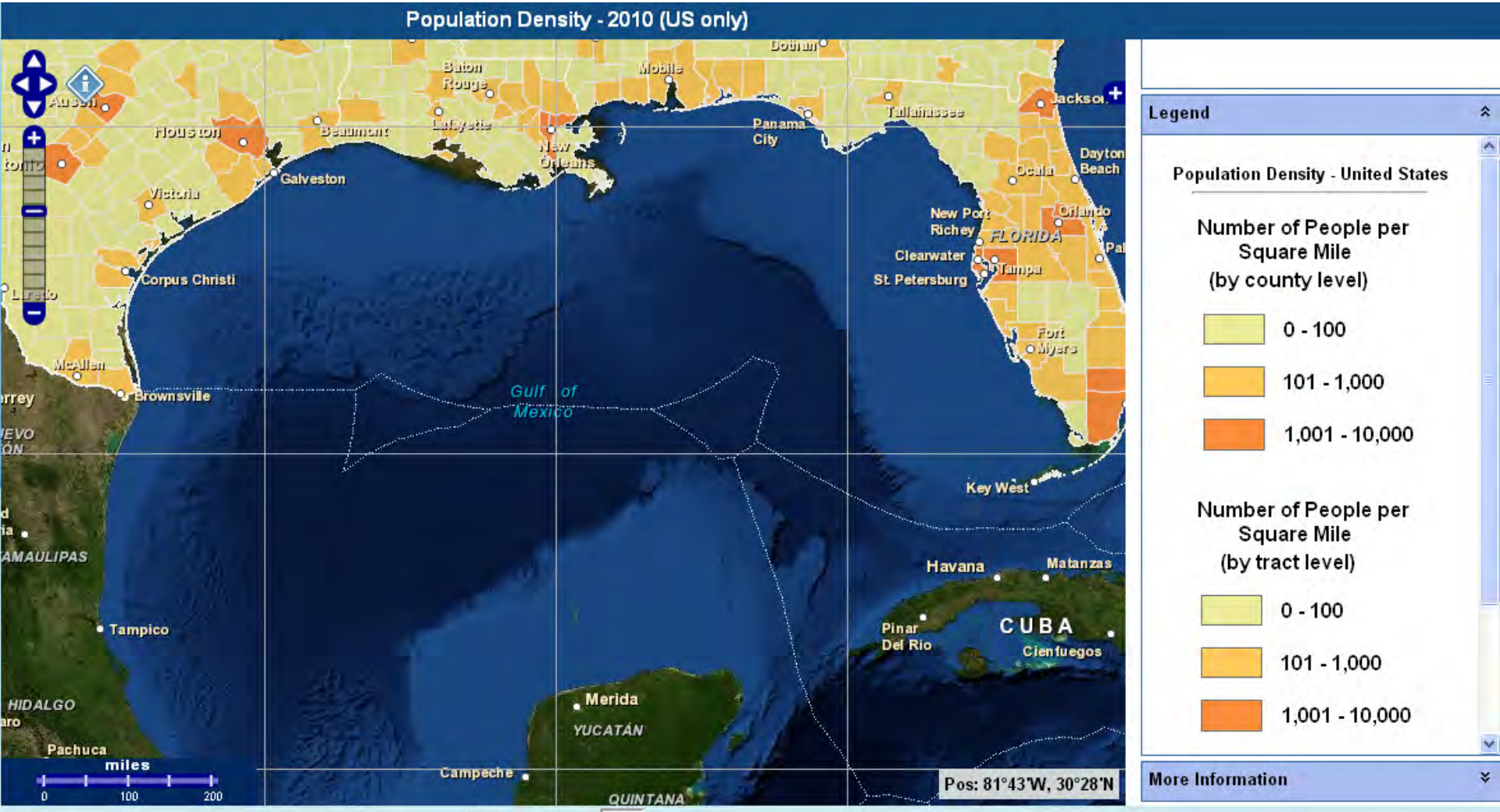
$359 billion in wages

8% of the jobs are in tourism & recreation

Extensive Oil & Gas Structures



More on Population Distribution



Gulf Challenges

- Sustaining Gulf Economy
- Habitat Loss (subsidence)
  - Sediment Management
- Excessive Nutrients (Water Quality)
- Tropical Storms
- Man-made disasters
- Fresh-Water Inflow
- Sea Level Rise
- Seafood Safety
- Population Shifts
- Fresh Water Inputs
- Harmful Algal Blooms
- Invasive Species
- Transportation
- Beach Closures

Gulf Challenges and Opportunities

Tropical Storms

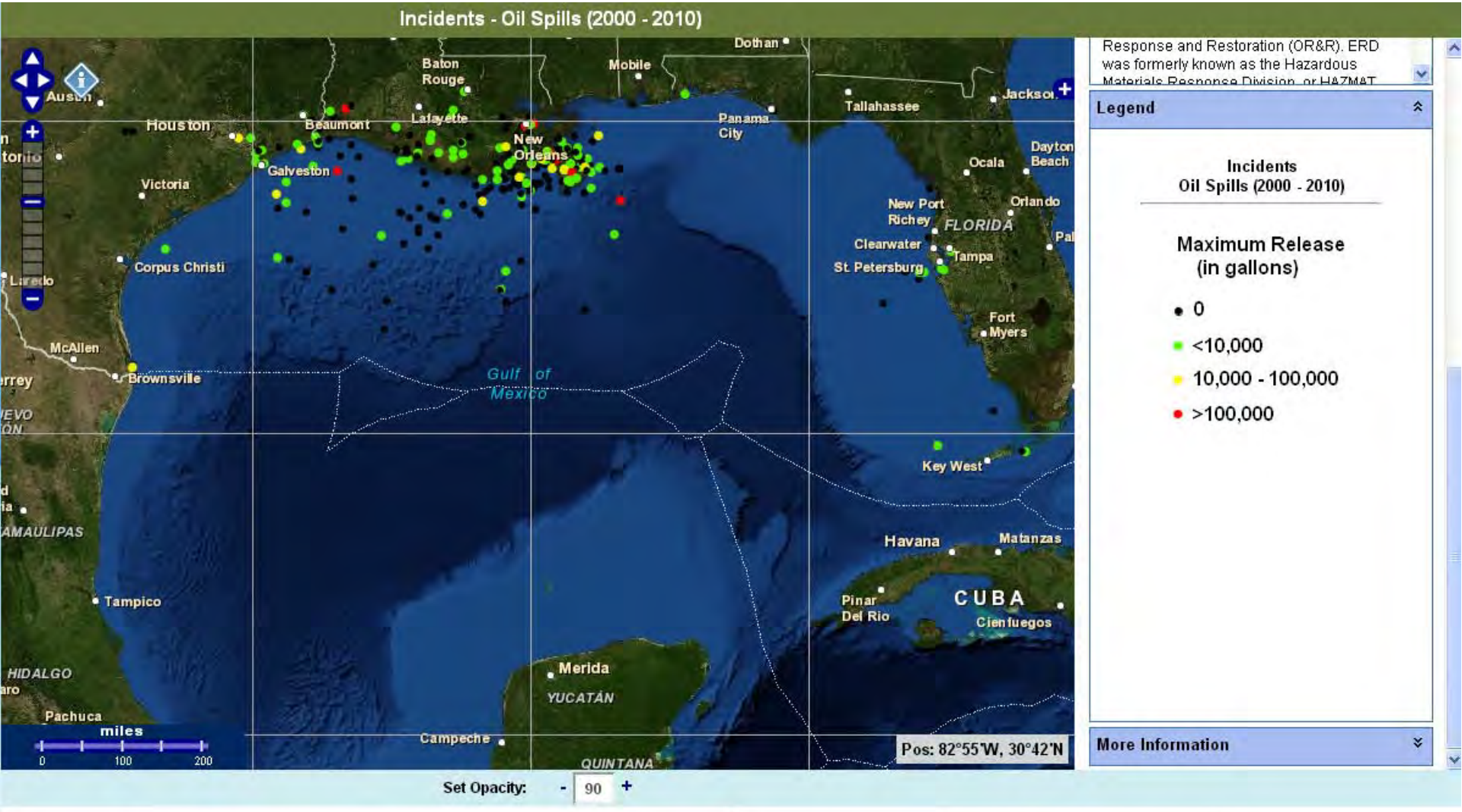
- **MS/ Louisiana Recovery Road-map**
- **Gulf Coast Ecosystem Restoration Task Force**
- **RESTORE**

Gulf Challenges and Opportunities

Deep Water Horizon

- **Clean-up**
- **Data Collection**
- **NRDA**
- **Clean-Water Enforcement**
- **Research**

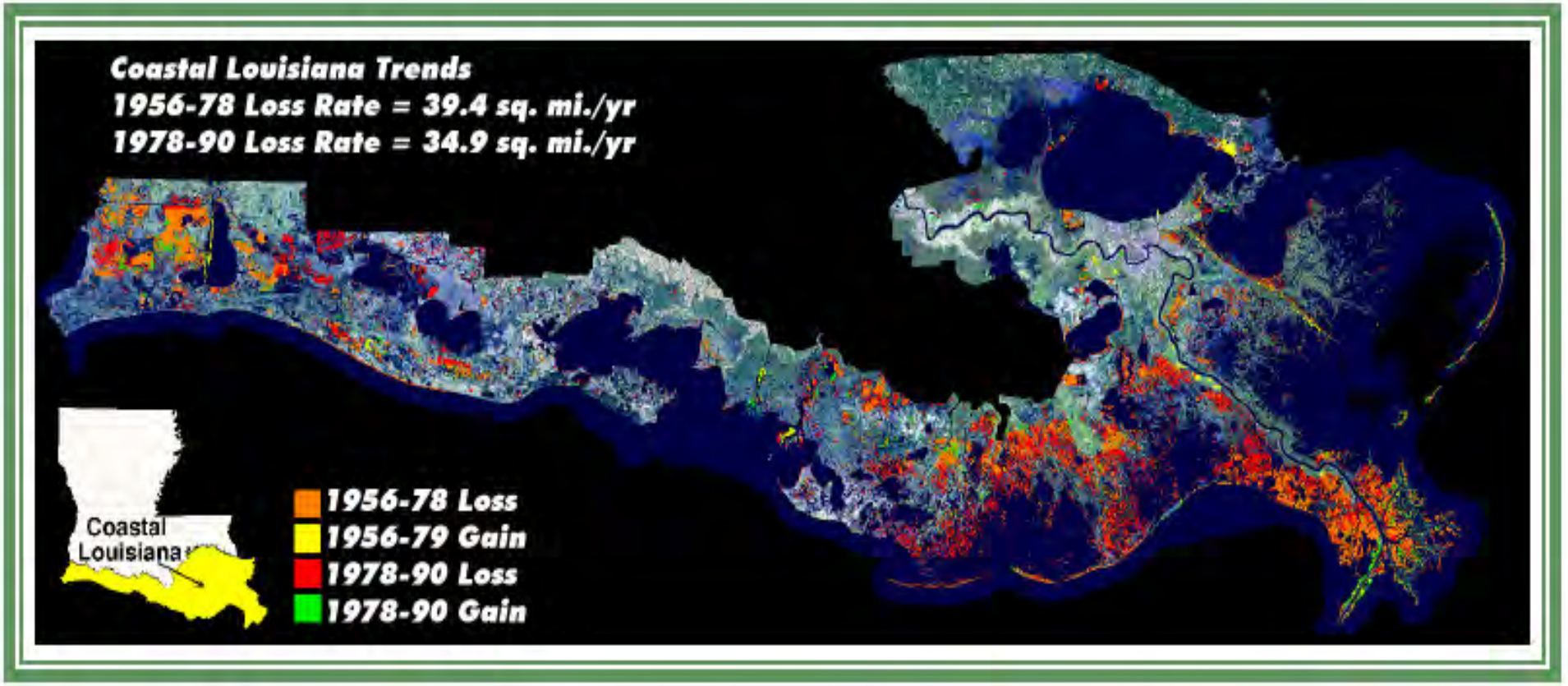
Previous Spills



Gulf Challenges and Opportunities

Coastal Land loss

- 3.4 Million Acres of Wetlands
- Losing an area the size of a football field every 38 minutes
- 2,400 sq miles by 2050



Sea Level Rise and Coastal Flooding Impacts

National Oceanic and Atmospheric Administration

Sea Level Rise | Confidence | Marsh | Vulnerability | Flood Frequency

Sea Level Rise

Current MHHW

Legend

- Water Depth
- Low-lying Areas
- Area Not Mapped
- Visualization Location

View Levees

Overview

Use the slider bar above to see how various levels of sea level rise will impact this area.

Levels represent inundation at high tide. Areas that are hydrologically connected are shown in shades of blue (darker blue = greater depth).

Low-lying areas, displayed in green, are hydrologically "unconnected" areas that may flood. They are determined solely by how well the elevation data captures the area's hydraulics. A more detailed analysis of these areas is required to determine the susceptibility to flooding.

Understanding the Map

Additional Information

Zoom to: Full Extent | Glossary | Share

Imagery | Streets

ESCAMBIA, Brewton, Atmore, Alabama, Florala, Florida, GENEVA, Geneva, HOLMES, Bonifay, Chipley, JACKSON, Marianna, SANTA ROSA, Crestview, OKALOOSA, De Funiak Springs, WALTON, WASHINGTON, Freeport, Niceville, Fort Walton Beach, Destin, Pensacola, Gonzalez, Milton, Fountain, CALHOUN, BAY, Panama City, Wewahitchka, Mexico Beach, GULF

Quietwater Beach

Use the slider to view a simulation of sea level rise at this location.

50 km
40 mi

Sea Level Rise and Coastal Flooding Impacts

National Oceanic and Atmospheric Administration

Sea Level Rise | Confidence | Marsh | Vulnerability | Flood Frequency

Sea Level Rise

1 ft SLR

Legend

- Water Depth
- Low-lying Areas
- Area Not Mapped
- Visualization Location

View Levees

Overview

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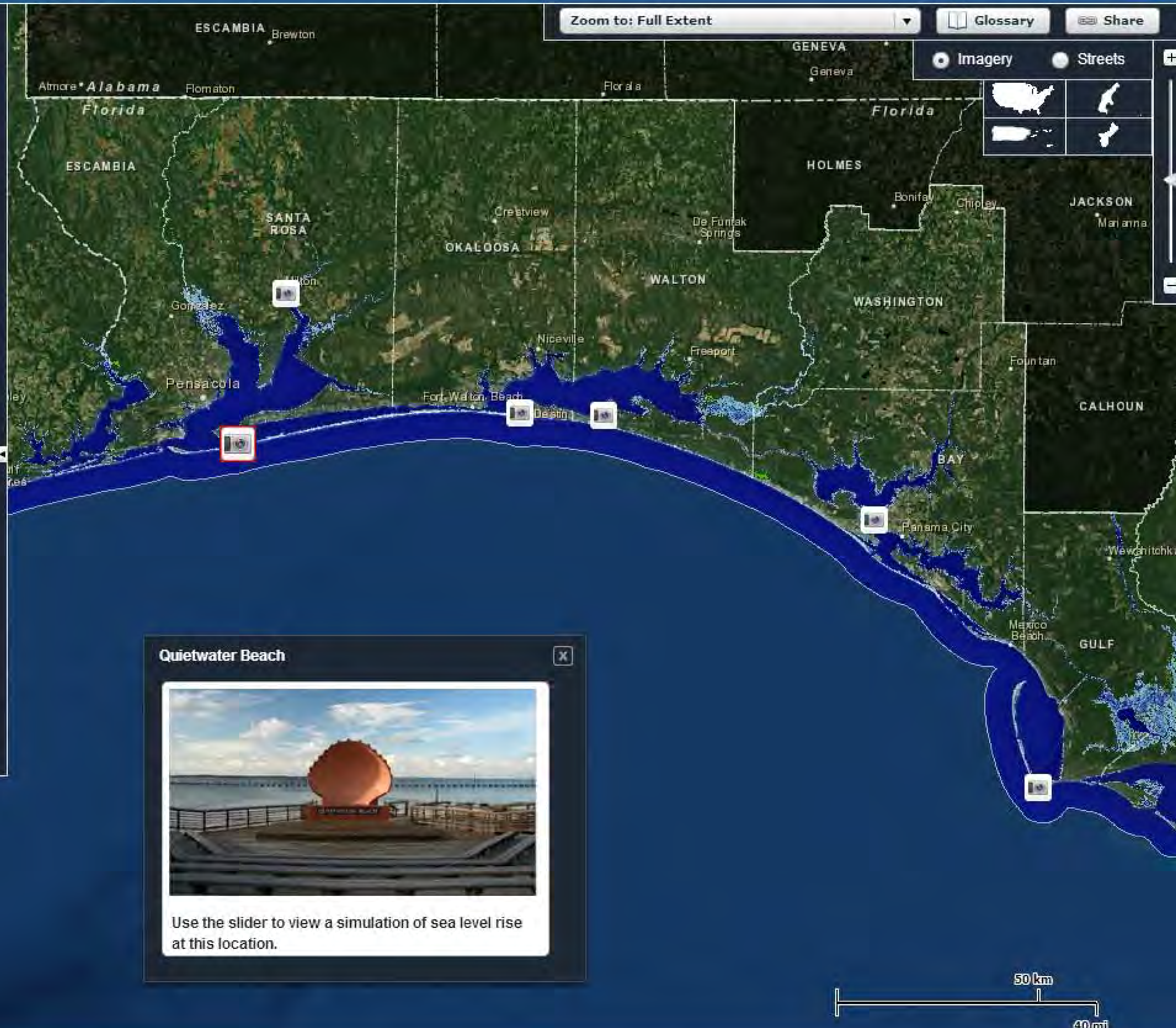
Understanding the Map

Additional Information



Sea Level Rise and Coastal Flooding Impacts

National Oceanic and Atmospheric Administration

Sea Level Rise | Confidence | Marsh | Vulnerability | Flood Frequency

Sea Level Rise

2 ft SLR

Legend

- Water Depth
- Low-lying Areas
- Area Not Mapped
- Visualization Location

View Levees

Overview

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Understanding the Map

Additional Information

Zoom to: Full Extent | Glossary | Share

Imagery | Streets

ESCAMBIA, Brewton, Atmore, Alabama, Florida, Flomaton, Florala, GENEVA, Geneva, Florida, ESCAMBIA, SANTA ROSA, Crestview, OKALOOSA, De Funiak Springs, HOLMES, Bonifay, Chipley, JACKSON, Marianna, WALTON, WASHINGTON, Gonzalez, Pensacola, Niceville, Freeport, Fort Walton Beach, DeSoto, Fountain, CALHOUN, BAY, Panama City, Wewahitchka, Mexico Beach, GULF

Quietwater Beach

Use the slider to view a simulation of sea level rise at this location.

50 km
40 mi

Sea Level Rise and Coastal Flooding Impacts

National Oceanic and Atmospheric Administration

USGS--Water Resources of the United States - Hydrologic Unit Maps
water.usgs.gov/GIS/huc.html

Sea Level Rise | Confidence | Marsh | Vulnerability | Flood Frequency

Sea Level Rise ?

3 ft SLR

Legend

- Water Depth
- Low-lying Areas
- Area Not Mapped
- Visualization Location

View Levees

Overview

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Imagery | Streets

Quietwater Beach

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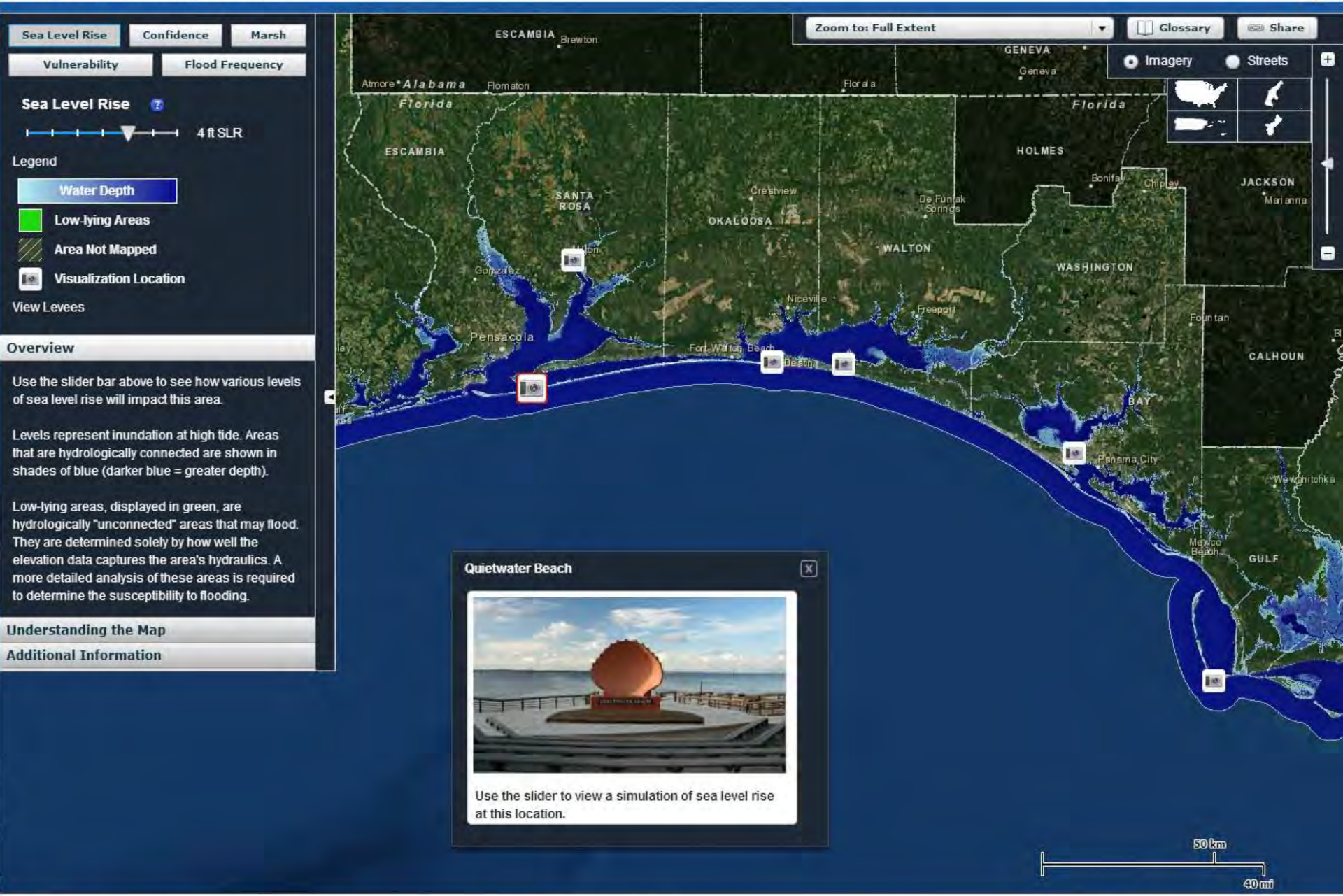
Sea Level Rise and Coastal Flooding Impacts

National Oceanic and Atmospheric Administration



Sea Level Rise and Coastal Flooding Impacts

National Oceanic and Atmospheric Administration

Sea Level Rise | Confidence | Marsh | Vulnerability | Flood Frequency

Sea Level Rise

5 ft SLR

Legend

- Water Depth
- Low-lying Areas
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Brewton | Atmore | Alabama | Florala | Florida | Geneva | Crestview | De Funiak Springs | Bonifay | Chipley | Marianna | Milton | Gonzalez | Pensacola | Niceville | Freeport | Fort Walton Beach | Destin | Fountain | Panama City | Wewahitchka | Mexico Beach

Quietwater Beach

Use the slider to view a simulation of sea level rise at this location.

50 km

40 mi

Sea Level Rise and Coastal Flooding Impacts

National Oceanic and Atmospheric Administration

Sea Level Rise | Confidence | Marsh | Vulnerability | Flood Frequency

Sea Level Rise

6 ft SLR

Legend

- Water Depth
- Low-lying Areas
- Area Not Mapped
- Visualization Location

View Levees

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50 km

40 mi

Sea Level Rise and Coastal Flooding Impacts

National Oceanic and Atmospheric Administration

Sea Level Rise | Confidence | Marsh | Vulnerability | Flood Frequency

Sea Level Rise

Current MHHW

Legend

- Water Depth
- Low-lying Areas
- Area Not Mapped
- Visualization Location

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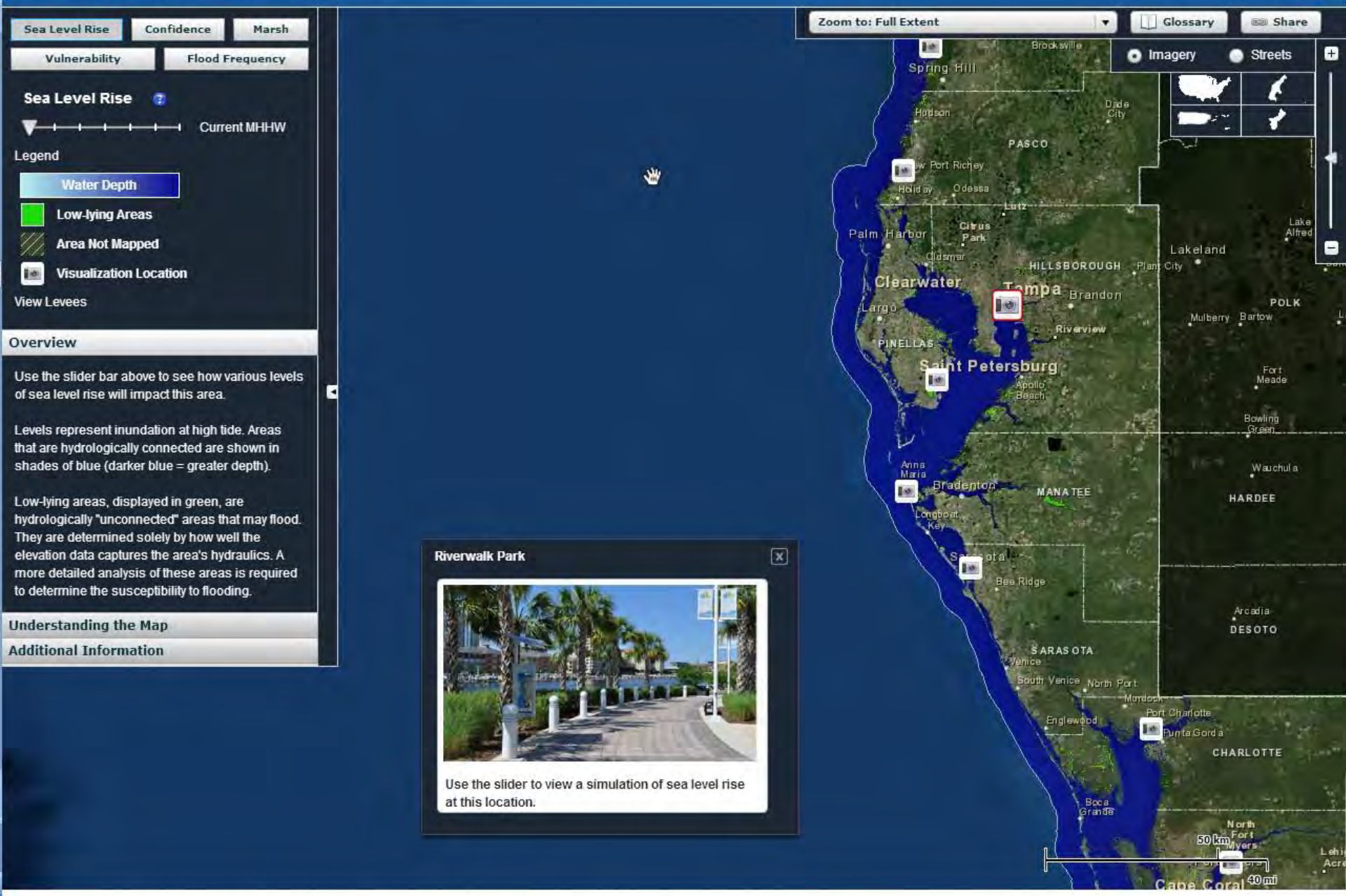

Riverwalk Park

Use the slider to view a simulation of sea level rise at this location.

Sea Level Rise and Coastal Flooding Impacts

National Oceanic and Atmospheric Administration

Sea Level Rise | Confidence | Marsh | Vulnerability | Flood Frequency

Sea Level Rise

1 ft SLR

Legend

- Water Depth
- Low-lying Areas
- Area Not Mapped
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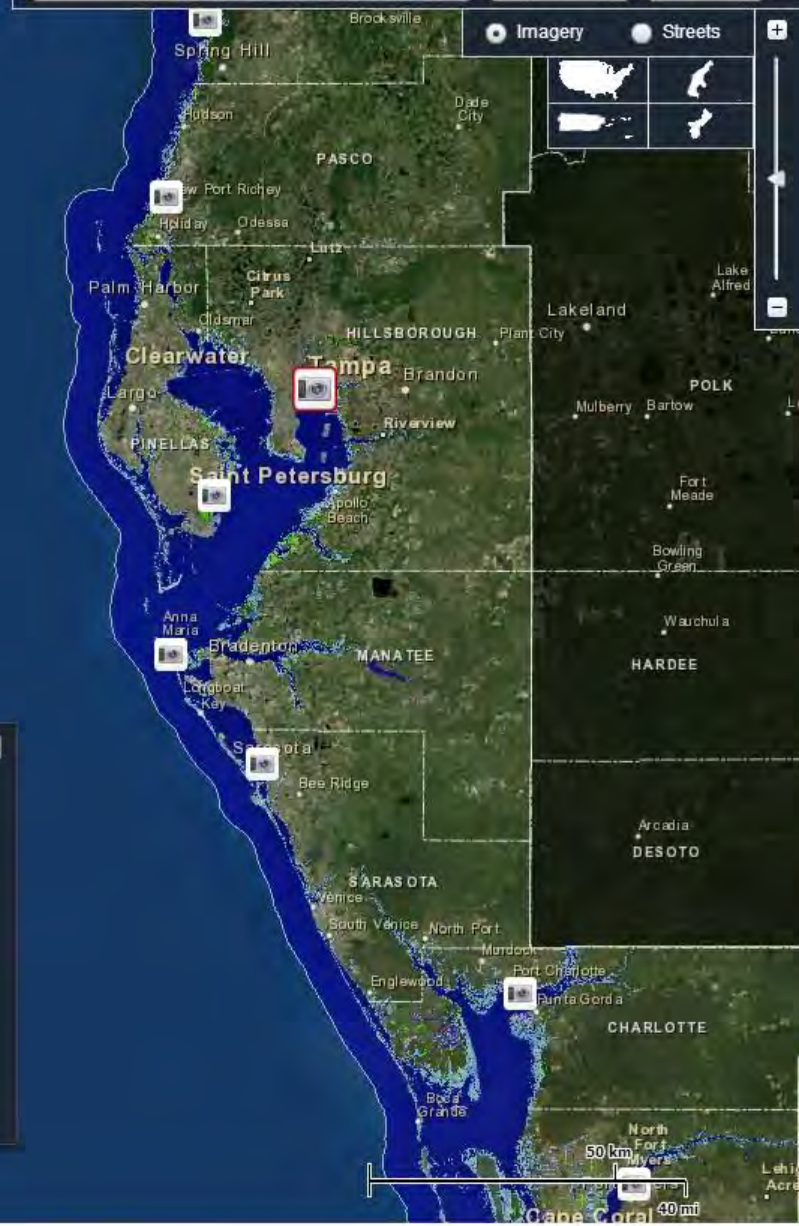

Riverwalk Park

Use the slider to view a simulation of sea level rise at this location.

Sea Level Rise and Coastal Flooding Impacts

National Oceanic and Atmospheric Administration

Sea Level Rise | Confidence | Marsh | Vulnerability | Flood Frequency

Sea Level Rise

2 ft SLR

Legend

- Water Depth
- Low-lying Areas
- Area Not Mapped
- Visualization Location

View Levees

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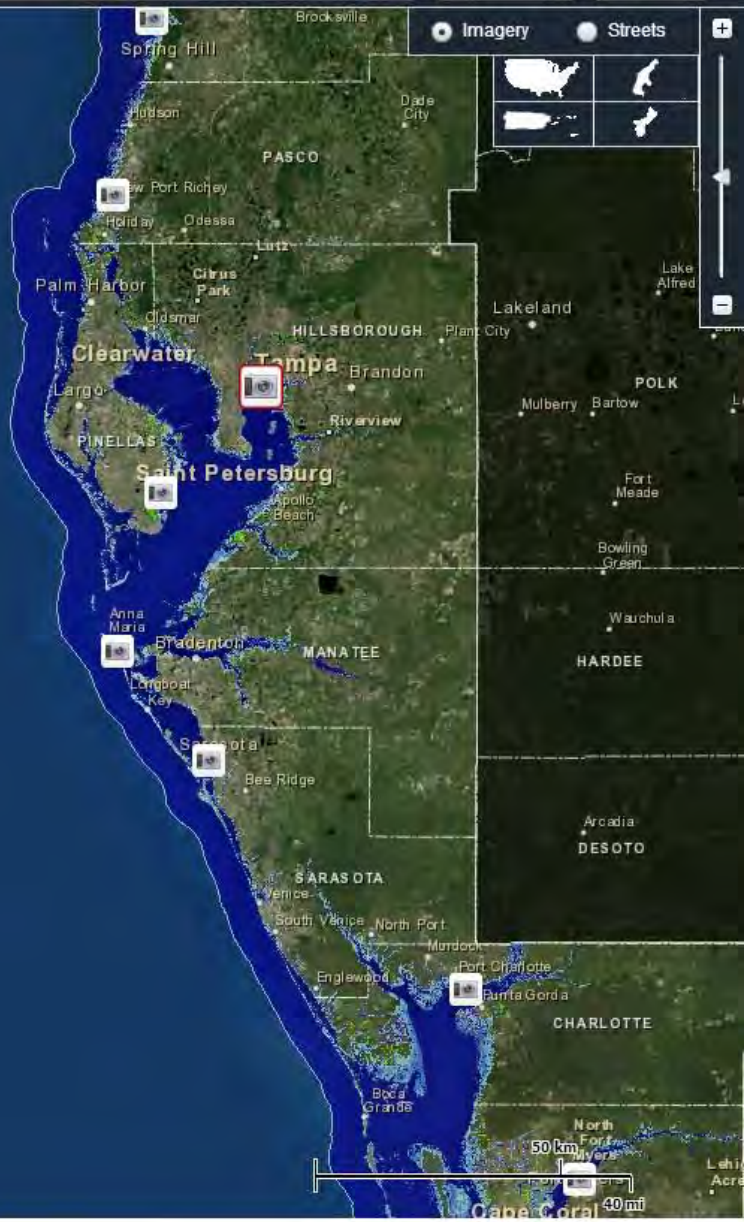

Riverwalk Park

Use the slider to view a simulation of sea level rise at this location.

Sea Level Rise and Coastal Flooding Impacts

National Oceanic and Atmospheric Administration

Sea Level Rise | Confidence | Marsh | Vulnerability | Flood Frequency

Sea Level Rise

3 ft SLR

Legend

- Water Depth
- Low-lying Areas
- Area Not Mapped
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View Levees

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Imagery | Streets

Spring Hill, Brooksville, Hudson, Dade City, PASCO, New Port Richey, Holiday, Odessa, Lutz, Palm Harbor, Citrus Park, Oldsmar, Clearwater, Largo, HILLSBOROUGH, Tampa, Brandon, Plant City, Lakeland, Lake Alfred, Mulberry, Bartow, POLK, Riverview, PINELLAS, Saint Petersburg, Apollo Beach, Fort Meade, Bowling Green, Anna Maria, Bradenton, MANATEE, Wauchula, HARDEE, Longboat Key, Bee Ridge, Arcadia, DESOTO, SARASOTA, Venice, South Venice, North Port, Murdock, Port Charlotte, Englewood, Punta Gorda, CHARLOTTE, Boca Grande, North Fort Myers, Cape Coral

50 km | 40 mi

Riverwalk Park

Use the slider to view a simulation of sea level rise at this location.

Sea Level Rise and Coastal Flooding Impacts

National Oceanic and Atmospheric Administration

Sea Level Rise | Confidence | Marsh | Vulnerability | Flood Frequency

Sea Level Rise

4 ft SLR

Legend

- Water Depth
- Low-lying Areas
- Area Not Mapped
- Visualization Location

View Levees

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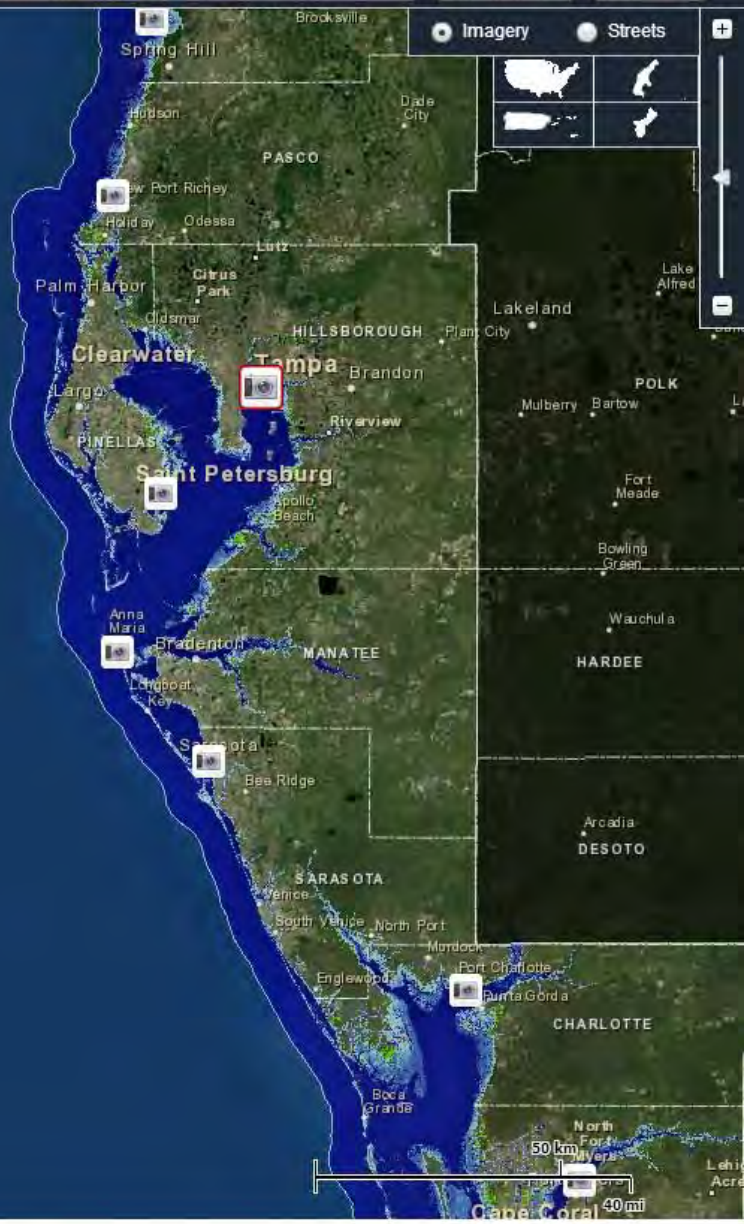

Riverwalk Park

Use the slider to view a simulation of sea level rise at this location.

Sea Level Rise and Coastal Flooding Impacts

National Oceanic and Atmospheric Administration

Sea Level Rise | Confidence | Marsh | Vulnerability | Flood Frequency

Sea Level Rise

5 ft SLR

Legend

- Water Depth
- Low-lying Areas
- Area Not Mapped
- Visualization Location

View Levees

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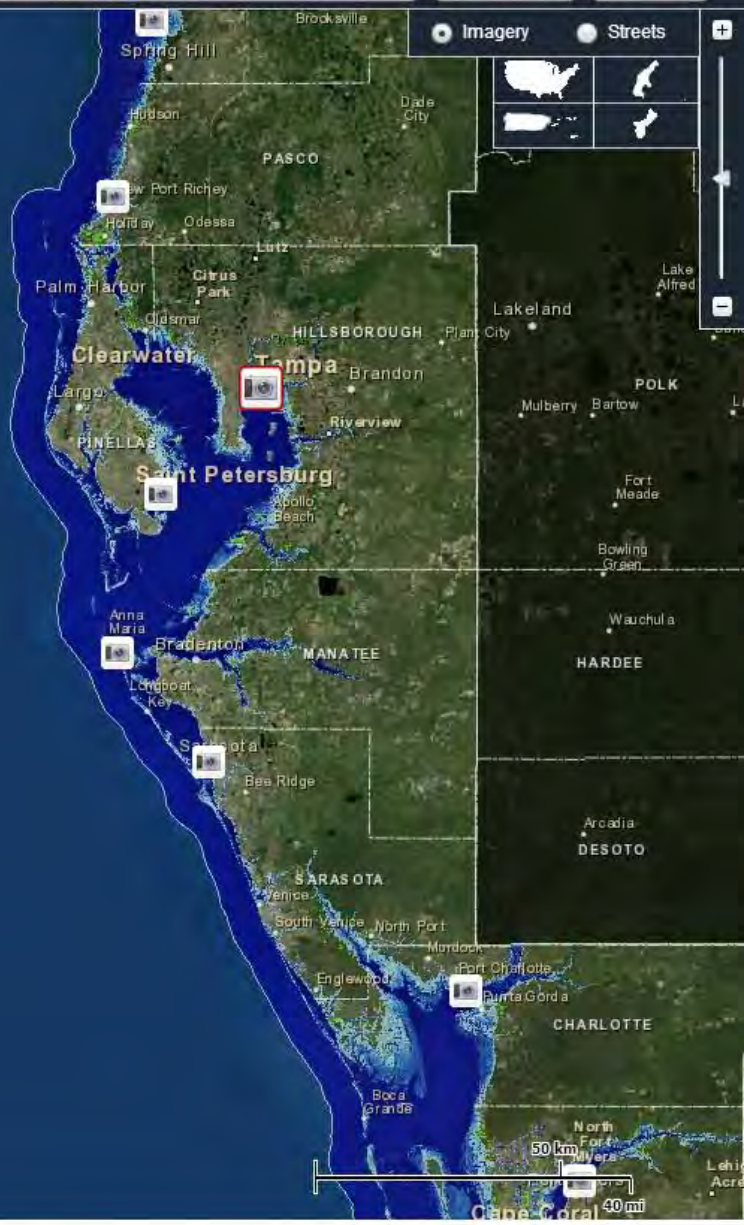

Riverwalk Park

Use the slider to view a simulation of sea level rise at this location.

Sea Level Rise and Coastal Flooding Impacts

National Oceanic and Atmospheric Administration

Sea Level Rise | Confidence | Marsh | Vulnerability | Flood Frequency

Sea Level Rise

6 ft SLR

Legend

- Water Depth
- Low-lying Areas
- Area Not Mapped
- Visualization Location

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50 km | 40 mi

Riverwalk Park

Use the slider to view a simulation of sea level rise at this location.

Sea Level Rise and Coastal Flooding Impacts

National Oceanic and Atmospheric Administration

Sea Level Rise | Confidence | Marsh | Vulnerability | Flood Frequency

Sea Level Rise

Current MHHW

Legend

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Understanding the Map

Additional Information

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Imagery | Streets

Bee Ridge
Arcadia
DESOTO
SARASOTA
Venice
South Venice
North Port
Englewood
Port Charlotte
Punta Gorda
CHARLOTTE
GLADES
Moore Haven
Boca Grande
La Belle
North Fort Myers
Fort Myers
Lehigh Acres
Cape Coral
LEE
HENDRY
Sanibel
Fort Myers Beach
Estero
Immokalee
Bonita Springs
North Naples
East Naples
COLLIER
Marco Island
MONROE
50 km
40 mi

Charlotte County Historic Center

Use the slider to view a simulation of sea level rise at this location.

Sea Level Rise and Coastal Flooding Impacts

National Oceanic and Atmospheric Administration

Sea Level Rise | Confidence | Marsh | Vulnerability | Flood Frequency

Sea Level Rise

1 ft SLR

Legend

- Water Depth
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Bee Ridge
Arcadia
DESOTO
SARASOTA
Venice
South Venice
North Port
Murdock
Englewood
Port Charlotte
Punta Gorda
CHARLOTTE
GLADES
Moore Haven
Boca Grande
La Belle
North Fort Myers
Fort Myers
Lehigh Acres
Cape Coral
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HENDRY
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Bonita Springs
North Naples
East Naples
COLLIER
Marco Island
MONROE
50 km
40 mi

Charlotte County Historic Center

Use the slider to view a simulation of sea level rise at this location.

Sea Level Rise and Coastal Flooding Impacts

National Oceanic and Atmospheric Administration

Sea Level Rise | Confidence | Marsh | Vulnerability | Flood Frequency

Sea Level Rise ?

2 ft SLR

Legend

- Water Depth
- Low-lying Areas
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Imagery | Streets

Sarasota, Bee Ridge, Arcadia, DESOTO, SARASOTA, Venice, South Venice, North Port, Murdock, Port Charlotte, Englewood, Punta Gorda, CHARLOTTE, GLADES, Moore Haven, Boca Grande, La Belle, North Fort Myers, Fort Myers, Lehigh Acres, Cape Coral, LEE, HENDRY, Sanibel, Fort Myers Beach, Estero, Immokalee, Bonita Springs, North Naples, East Naples, COLLIER, Marco Island, MONROE

50 km

40 mi

Charlotte County Historic Center

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Sea Level Rise and Coastal Flooding Impacts

National Oceanic and Atmospheric Administration

Sea Level Rise | Confidence | Marsh | Vulnerability | Flood Frequency

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Marco Island
MONROE
50 km
40 mi

Charlotte County Historic Center

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Sea Level Rise and Coastal Flooding Impacts

National Oceanic and Atmospheric Administration

Sea Level Rise | Confidence | Marsh | Vulnerability | Flood Frequency

Sea Level Rise

4 ft SLR

Legend

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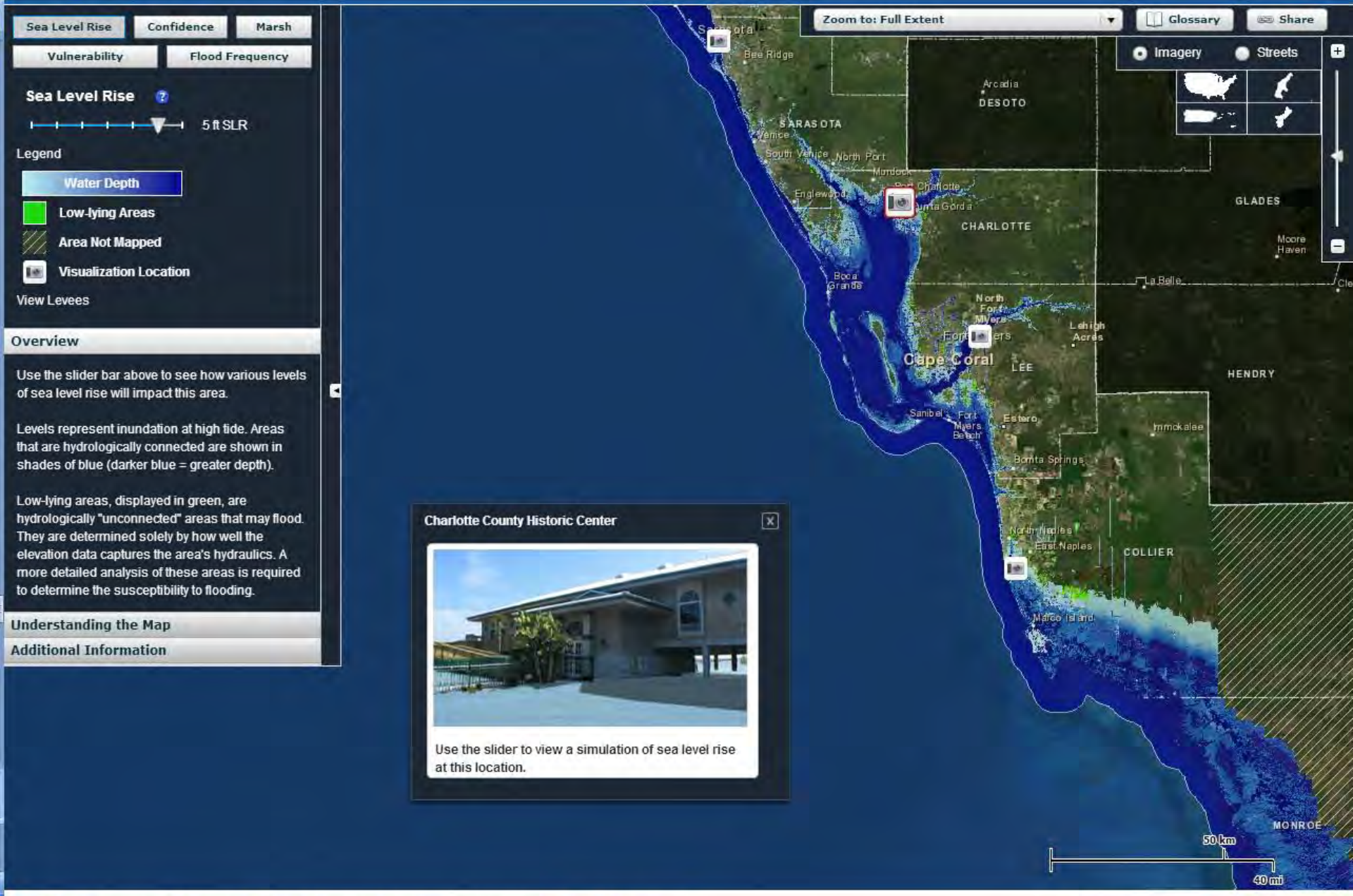
40 mi

Charlotte County Historic Center

Use the slider to view a simulation of sea level rise at this location.

Sea Level Rise and Coastal Flooding Impacts

National Oceanic and Atmospheric Administration



Sea Level Rise and Coastal Flooding Impacts

National Oceanic and Atmospheric Administration

Sea Level Rise | Confidence | Marsh | Vulnerability | Flood Frequency

Sea Level Rise ?

6 ft SLR

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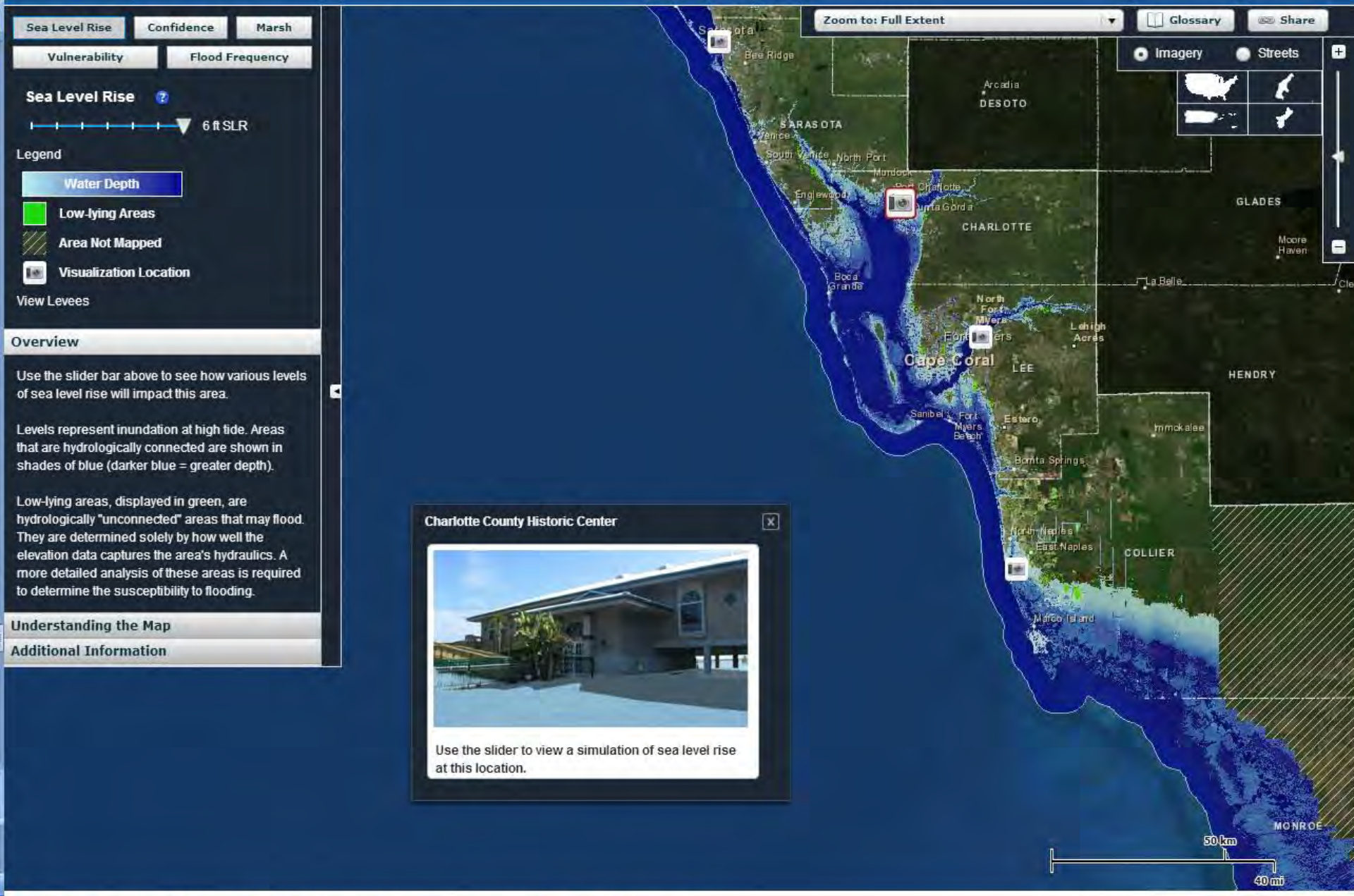
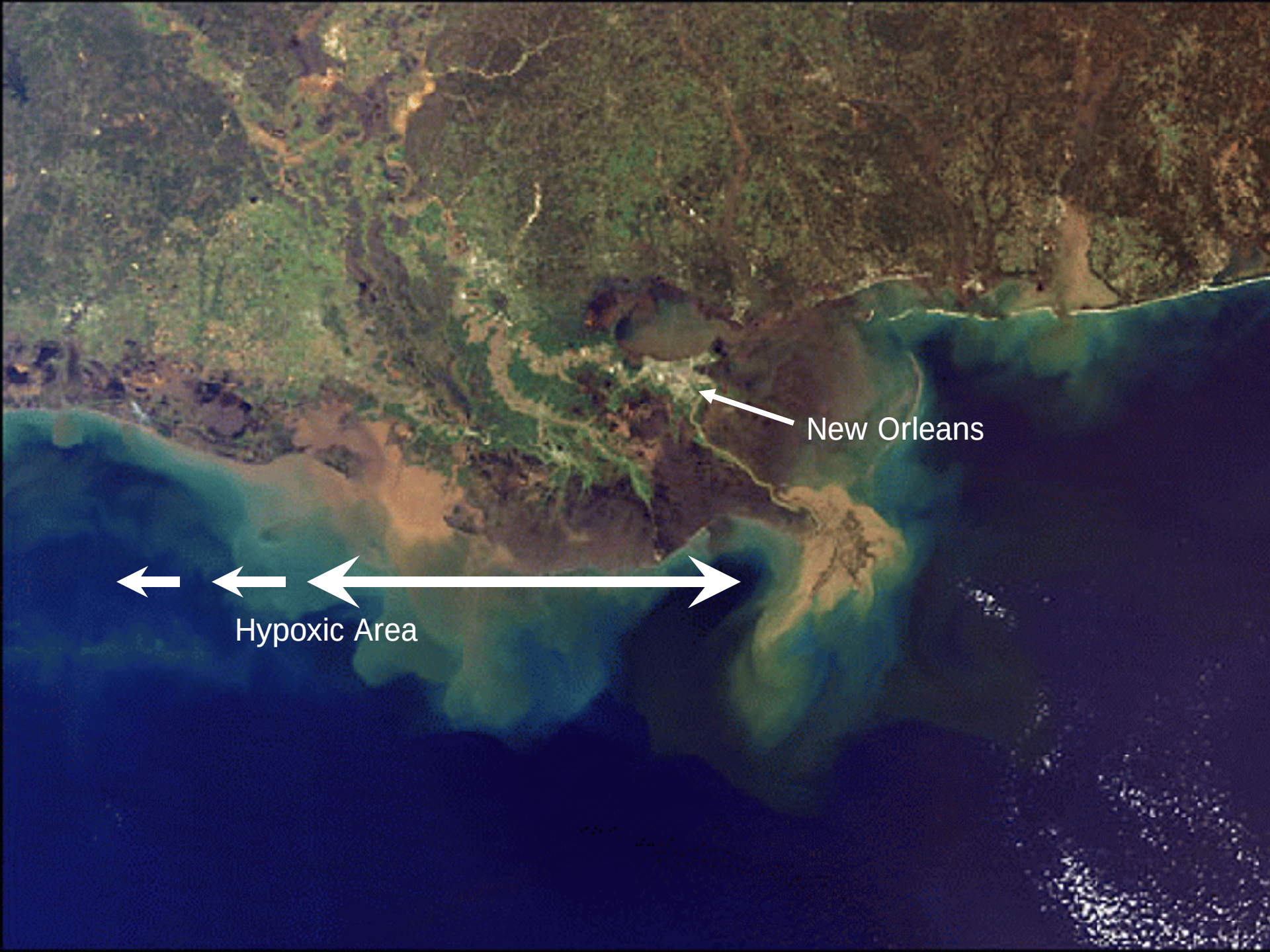


Charlotte County Historic Center

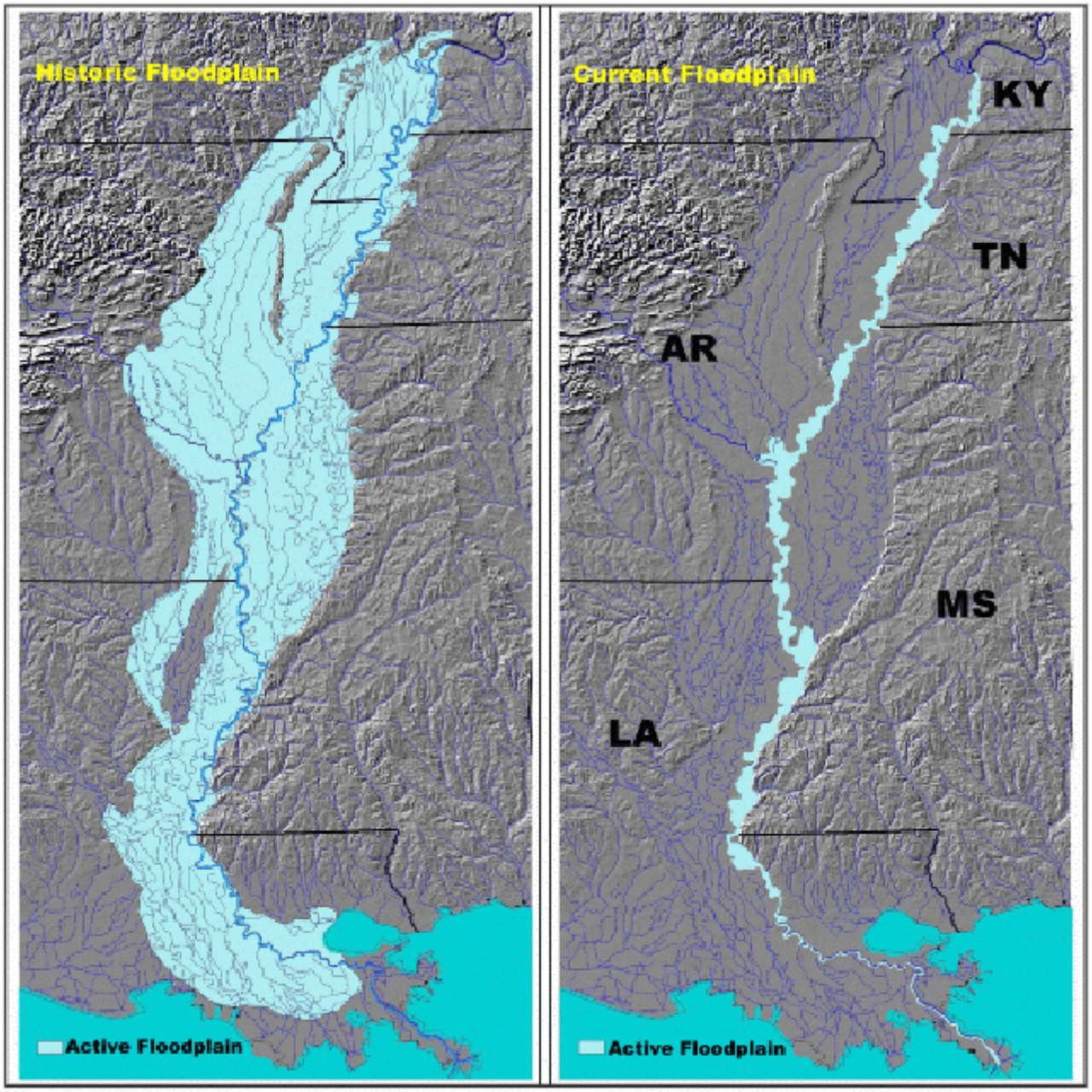
Use the slider to view a simulation of sea level rise at this location.

Gulf Challenges and Opportunities

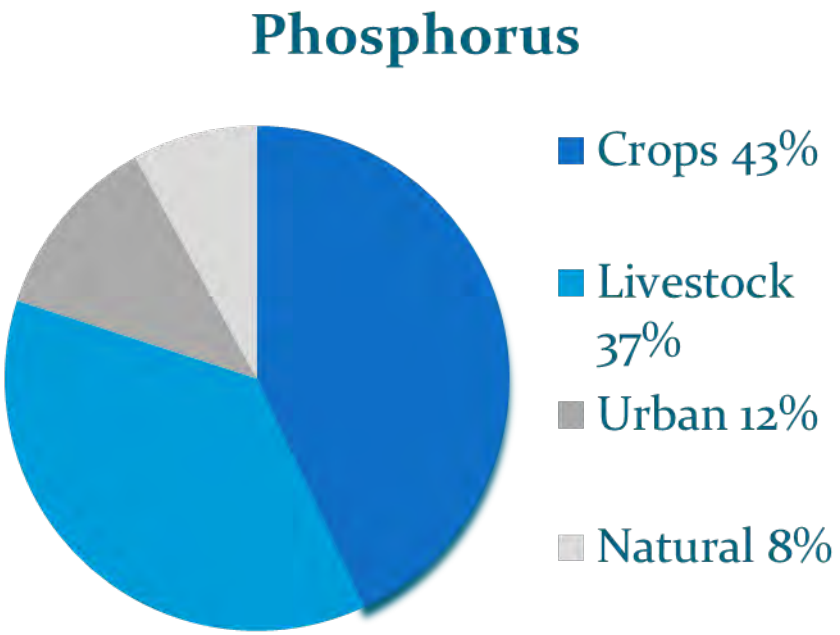
2nd Largest Hypoxic Zone in the World

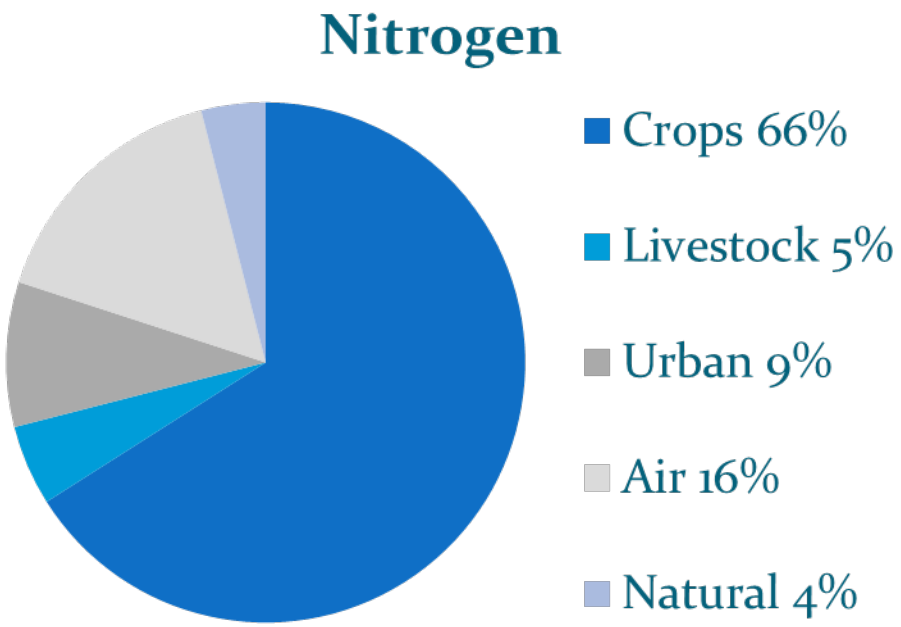

New Orleans
Hypoxic Area

LOSS OF NATURAL FLOOD STORAGE



Sources of Nutrients into the Gulf





MORE on the ongoing activity dealing with the oil spill…

Natural Resource Damage Assessment (NRDA)

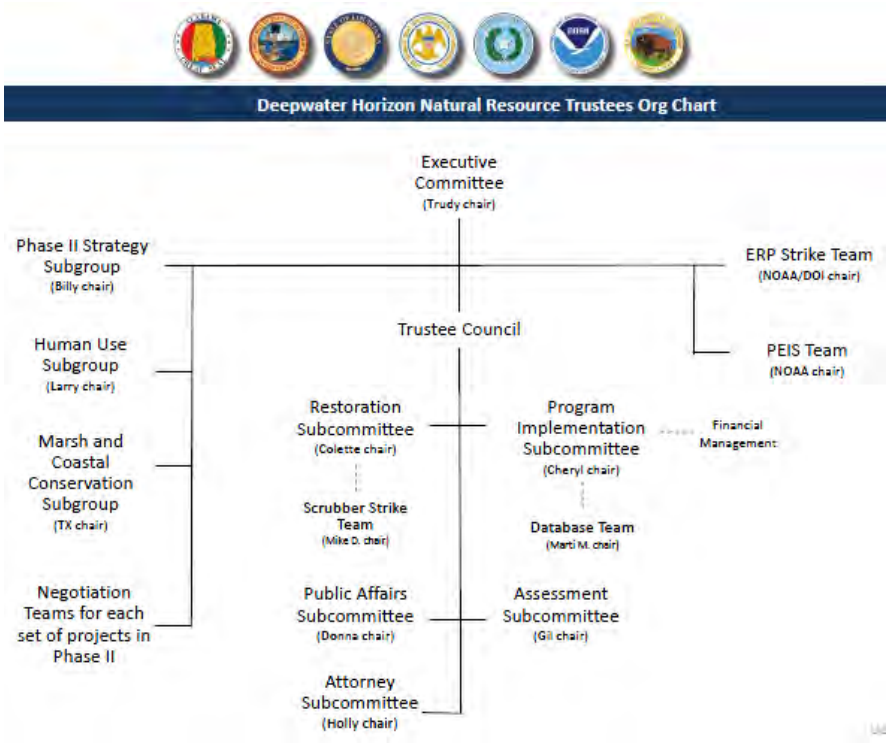
- how bad was the injury?; what do we do to recover from the injury?
- Paid for through the Oil Pollution Act

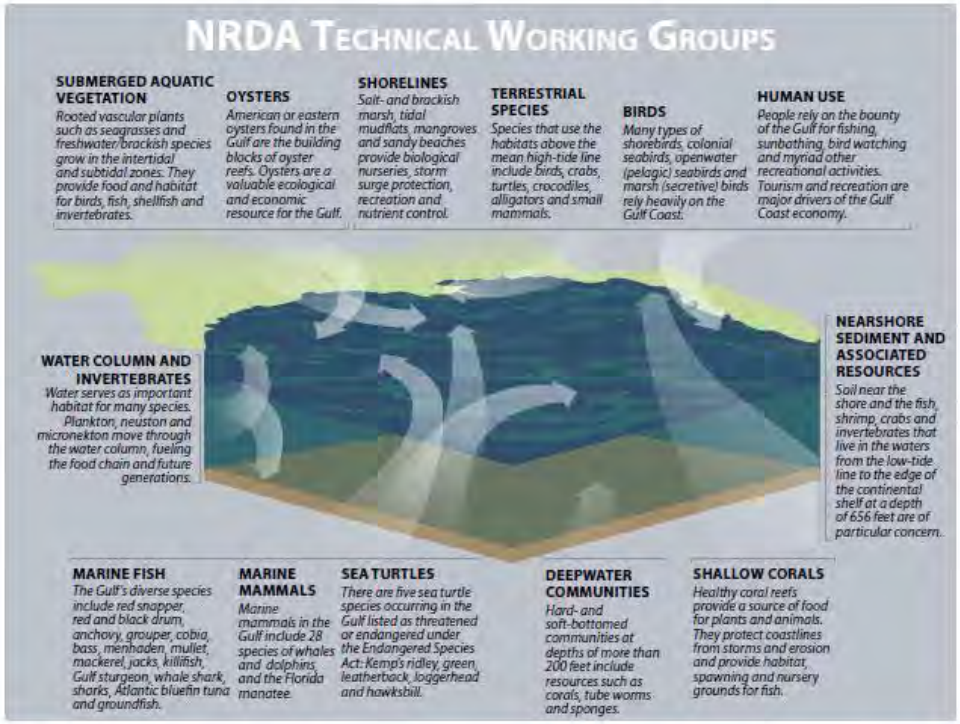
RESTORE Act

- Passed by Congress & signed by the President this year
- Lays out a program to spend Clean Water act Civil fines for restoration and economic development activities

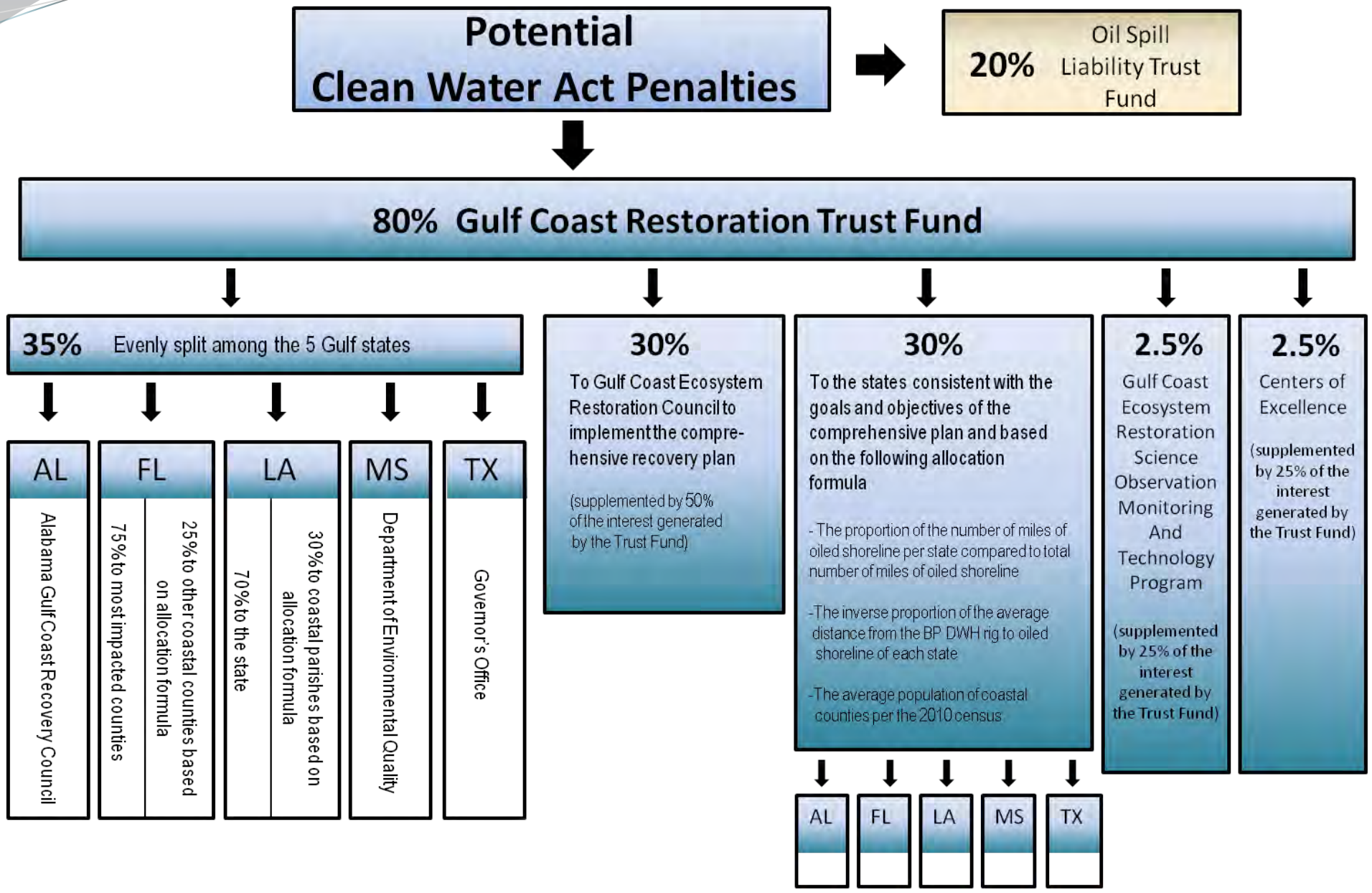
NRDA: Structure and Requirements

Conducts its assessment , planning, and restoration work through an Executive Committee, 5 subcommittees with 19 teams or workgroups, 3 subgroups and 2 additional teams.
A total of 30 distinct organizational units.





Distribution of Potential Clean Water Act penalties to Gulf Recovery per the RESTORE Act



Questions?

Ben Scaggs
Gulf of Mexico Program
US EPA
228-688-3726
scaggs.ben@epa.gov

Keala Hughes
Gulf of Mexico Program
US EPA
228-688-2651
hughes.keala@epa.gov

Coral Reef Conservation, Restoration, and Coastal Resilience in South Florida

James Byrne

jbyrne@tnc.org

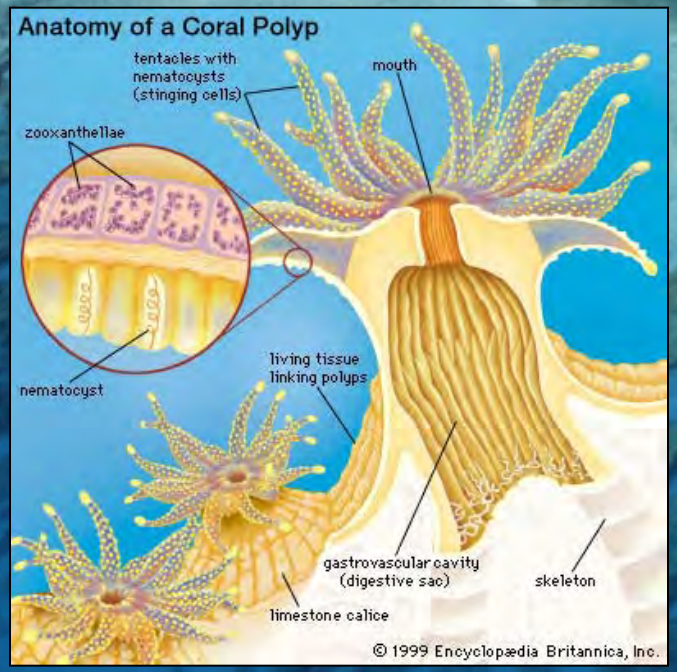
305.872.7071

The Nature Conservancy

Protecting nature. Preserving life.™

nature.org

Polyps…Colonies…Reefs…Ecosystem……



Wildlife depends on reefs.

People depend on reefs.

South Florida's Coral Reef Economy

Percent of County Income and Employment Tied to Reef Use

County	Personal Income (a)	Employment
Martin	0.11	0.24%
Palm Beach	0.42	0.98%
Broward	2.19	4.19%
Miami-Dade	1.07	1.46%
Monroe	4.98	19.00%

(a) Personal income is income from all sources including employee compensation, proprietor's income, other property income and government transfer payments.

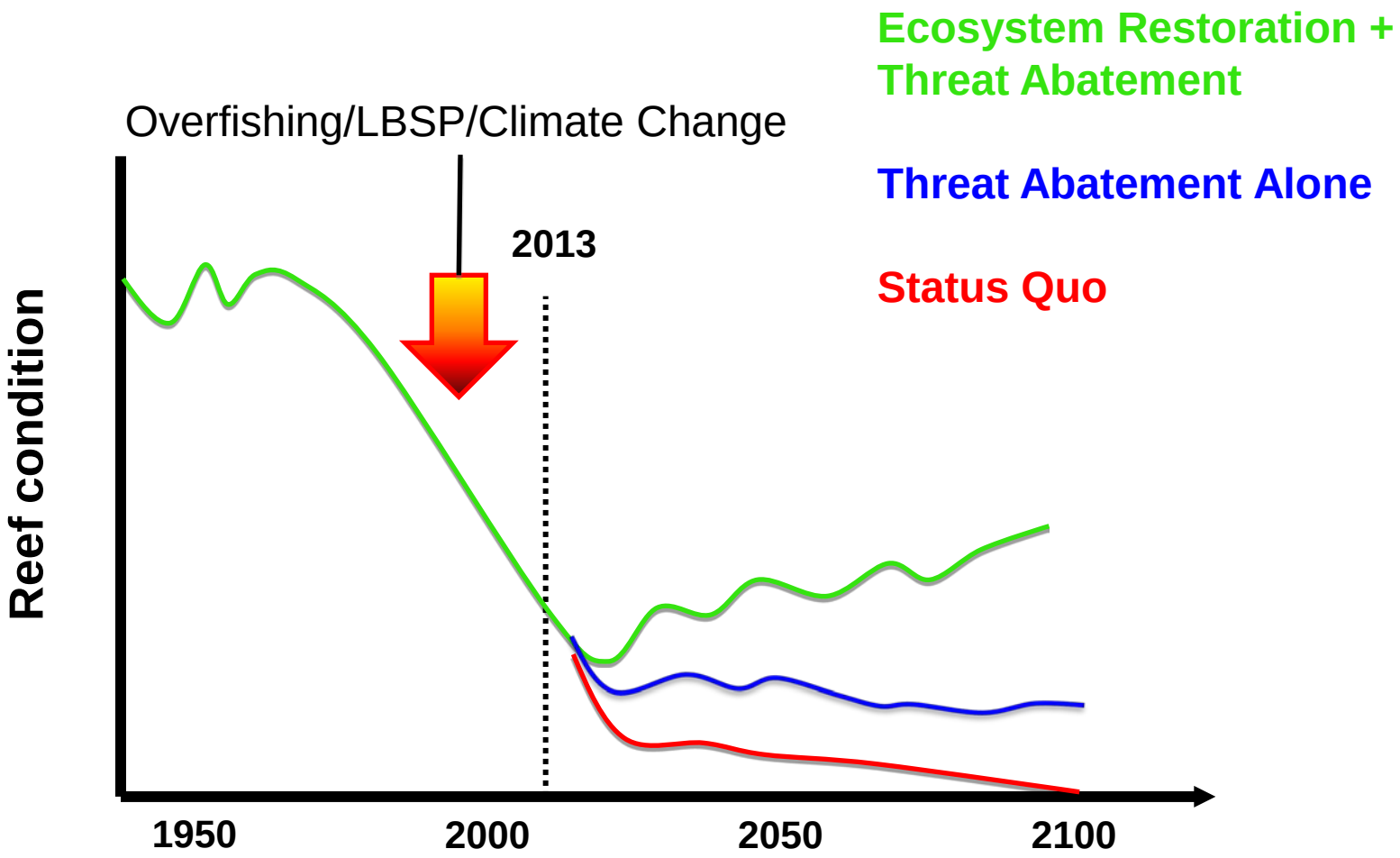
$3,000,000,000 for all of SE FL in 2001

Johns et al. 2001

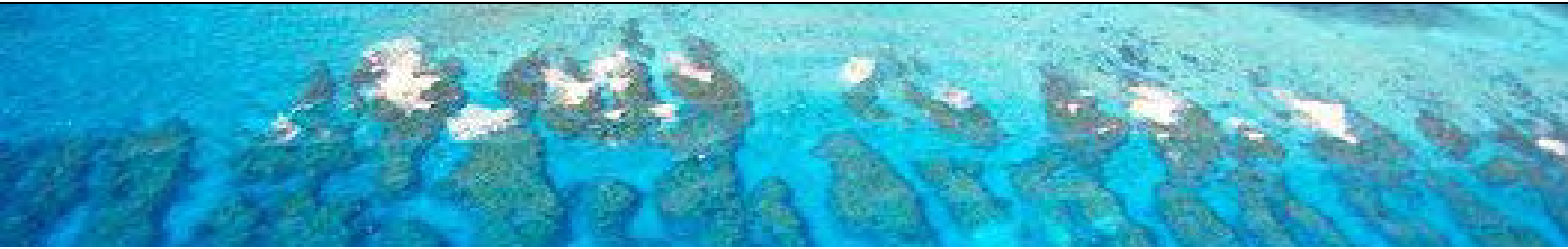
REEFS AT RISK IN THE ATLANTIC/CARIBBEAN

Source: World Resources Institute, *Reefs at Risk Revisited*, 2011.

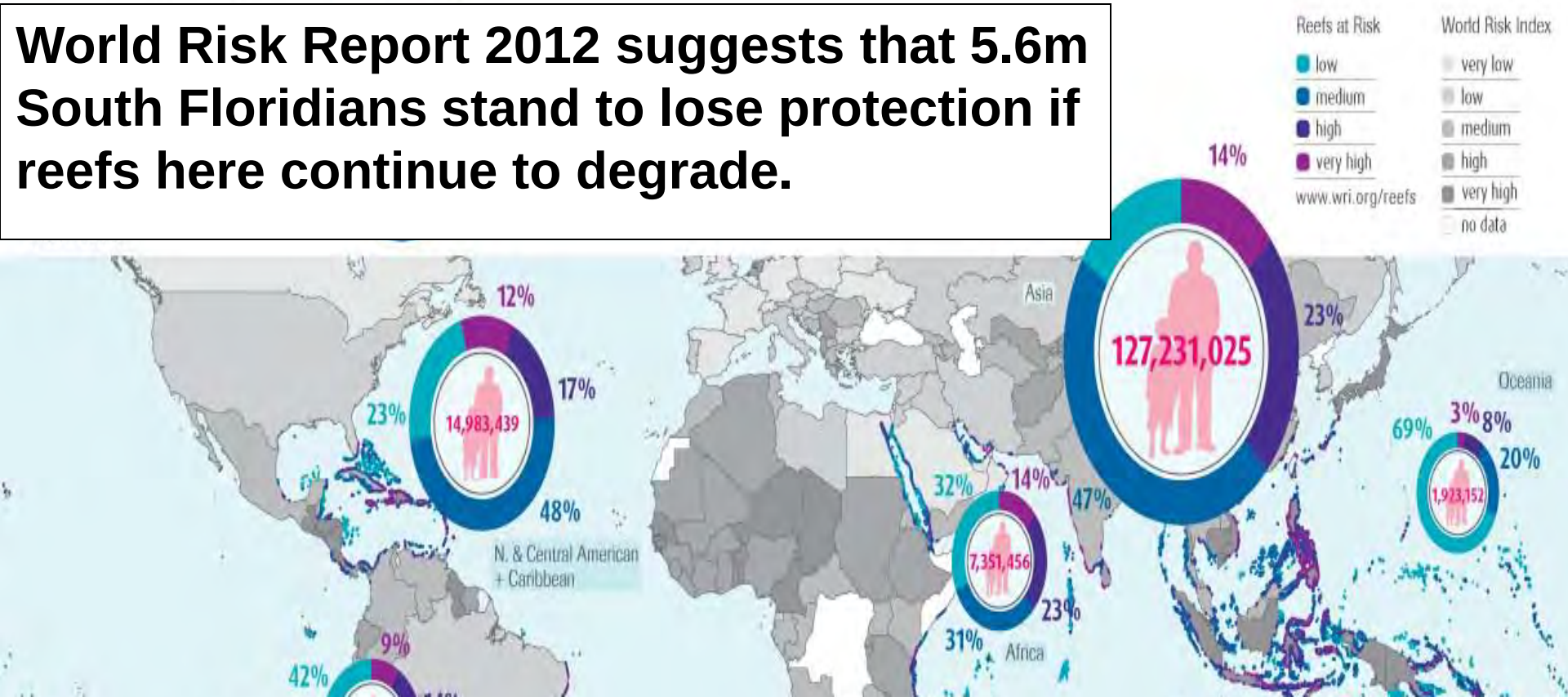
State of the Reef System



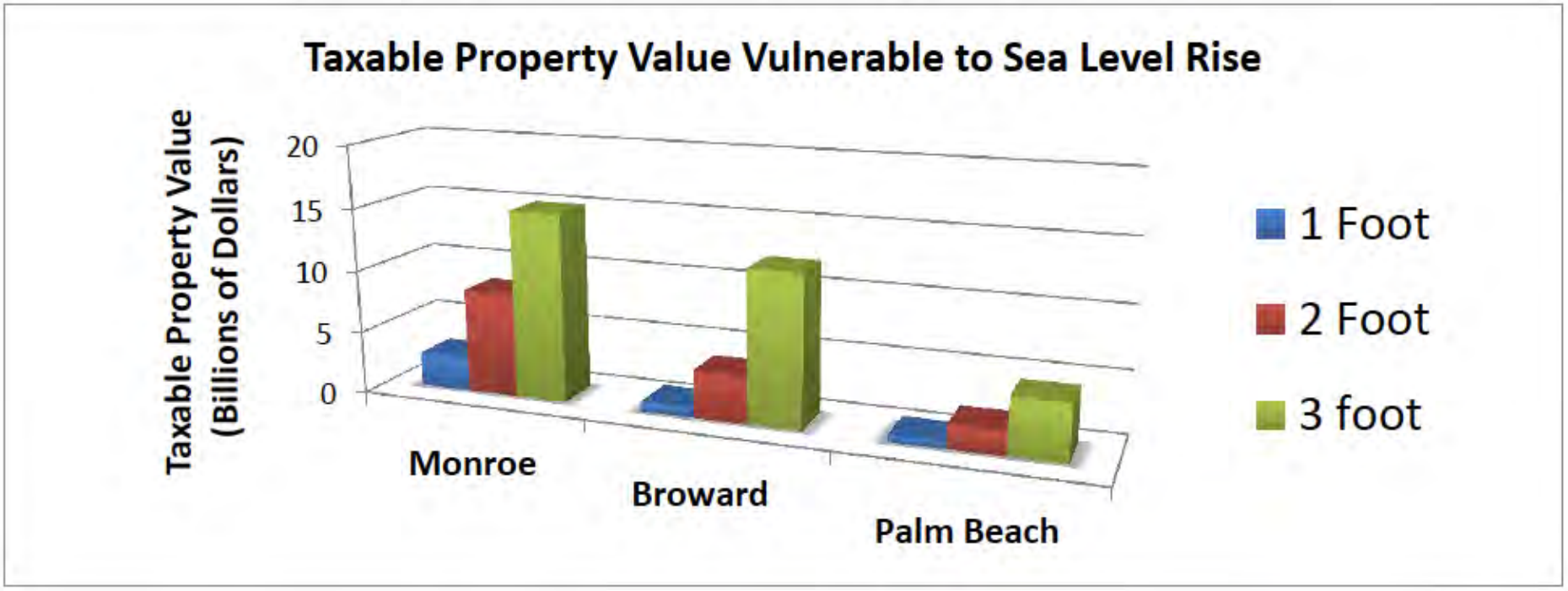
Reefs protect people and property from waves, surges and coastal erosion.



World Risk Report 2012 suggests that 5.6m South Floridians stand to lose protection if reefs here continue to degrade.



SOUTHEAST FLORIDA REGIONAL COMPACT CLIMATE CHANGE

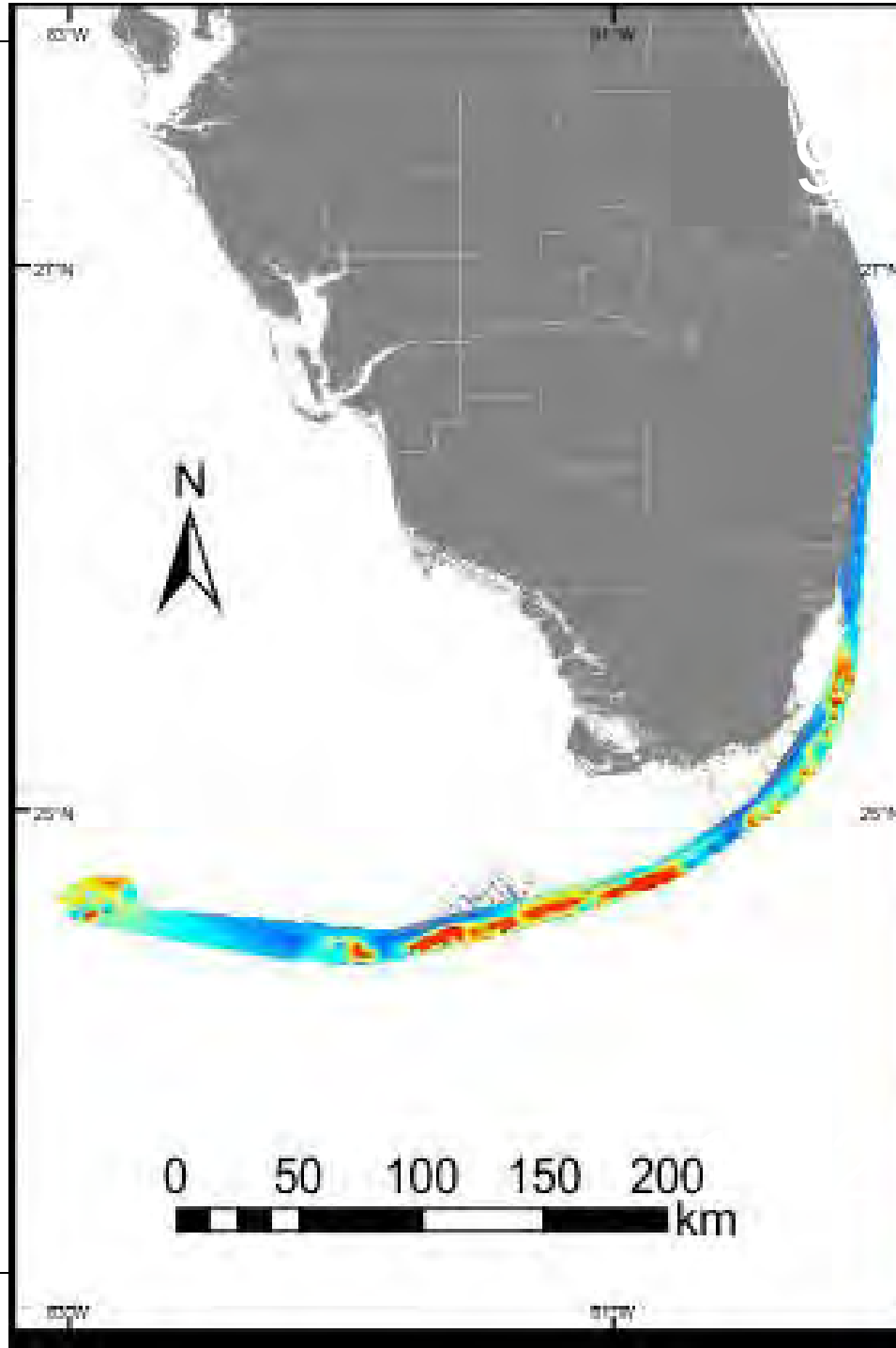


“Coastal Resilience” efforts tackle some of Florida’s greatest challenges – storms and sea level rise – and make nature part of the response.

Where are corals most abundant?

Least prone to disturbances?

How does this compare to existing protected areas and zoning?



CLIMATE CHANGE ACTION PLAN

FOR THE

Florida Reef System

2010-2015

Global threats make local action more important than ever.

Incredible *Acropora* Corals

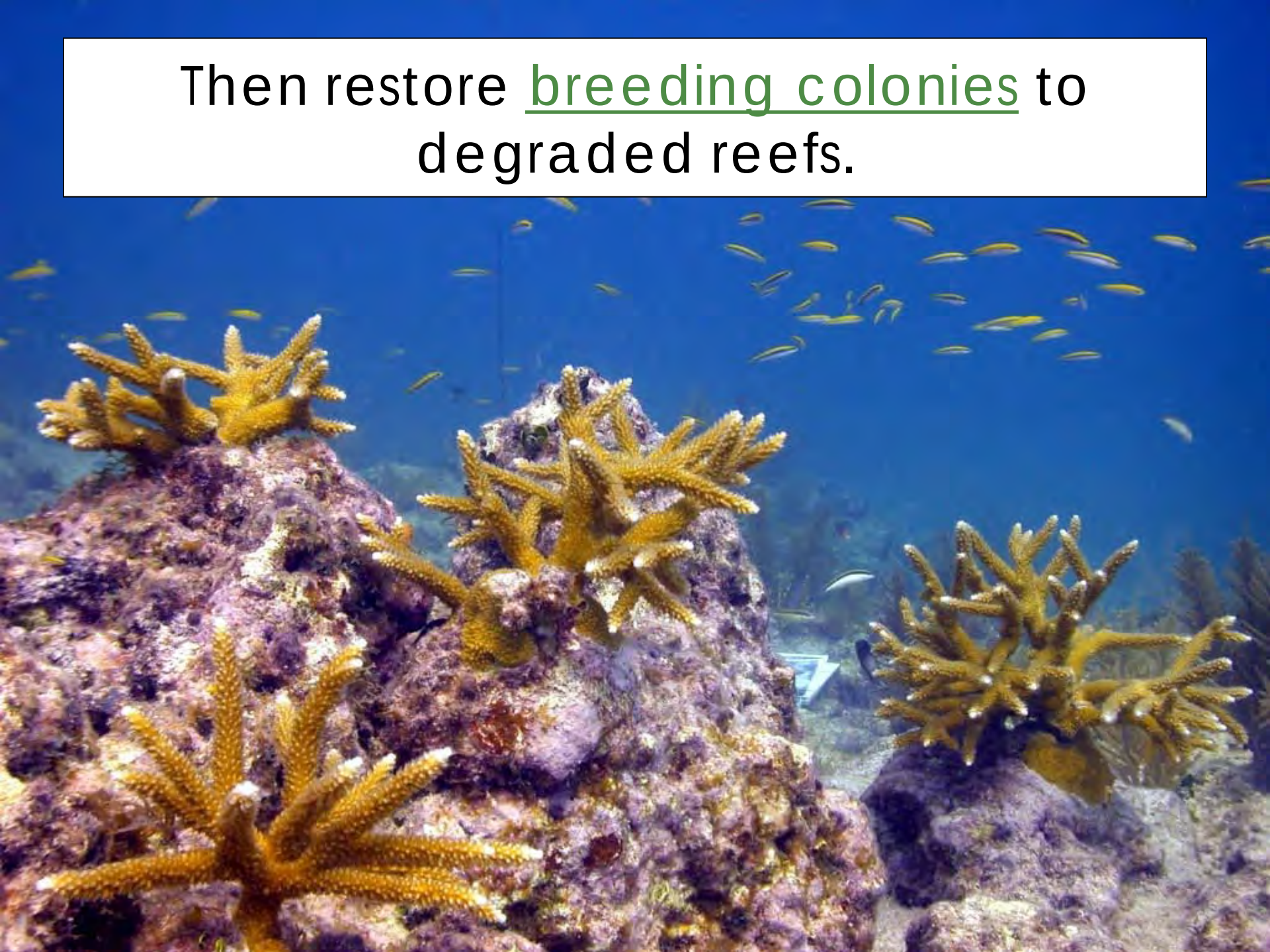
Elkhorn Coral

Staghorn Coral

We collect from diverse, wild colonies...

Grow them in coral nurseries...

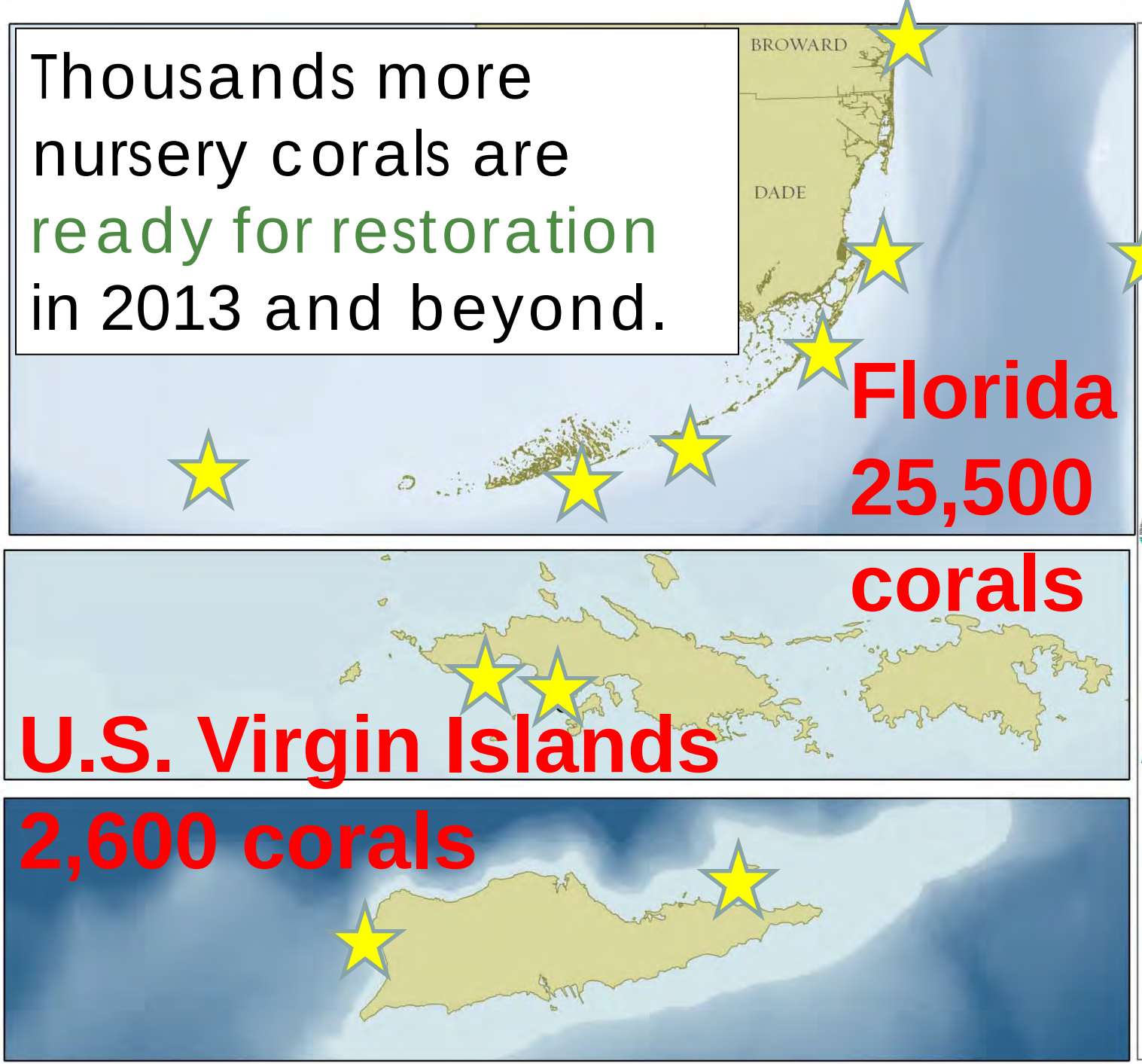
Then restore breeding colonies to degraded reefs.



In 2012 we restored more than

5,000 corals at 34 reefs in Florida.

Thousands more nursery corals are ready for restoration in 2013 and beyond.



Threatened Coral Recovery in Florida and the U.S.V.I.

Nursery

N

Questions?

James Byrne

jbyrne@tnc.org

305.872.7071

The Nature Conservancy

Protecting nature. Preserving life.™

nature.org

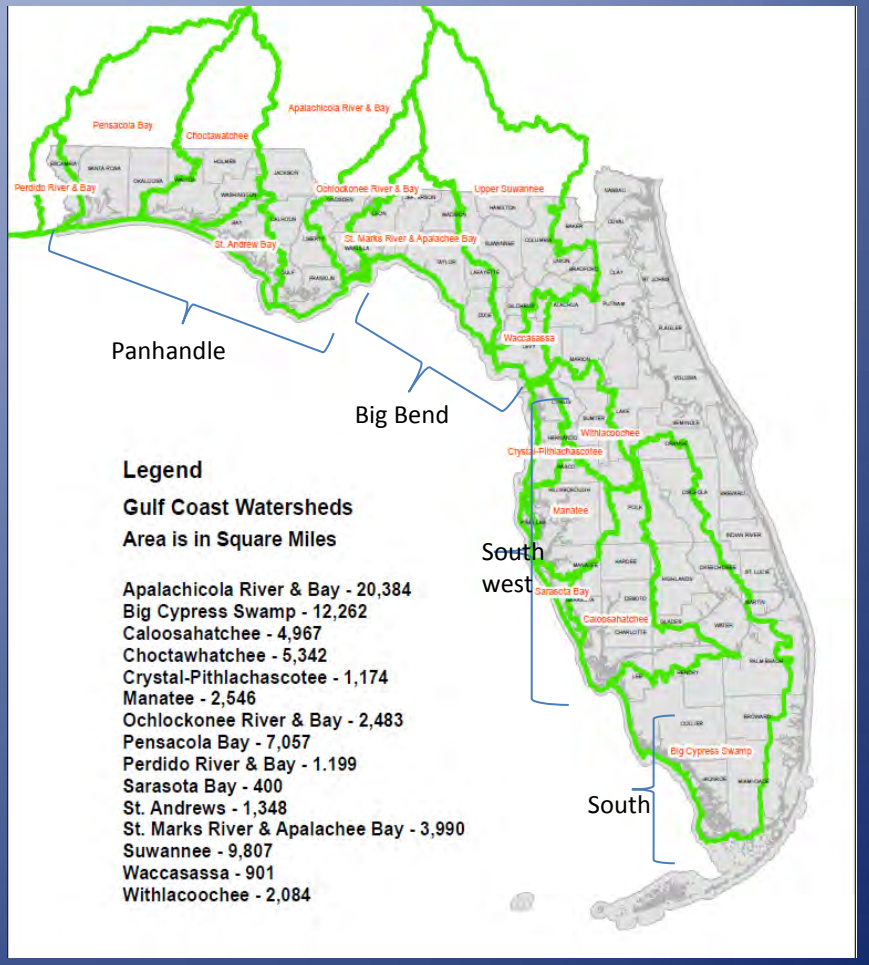
Watershed Approach Overview

Keith Wilkins, Escambia County

Darryl Boudreau, The Nature Conservancy

Watershed Approach

- Regions
  - Panhandle
  - Big Bend
  - Southwest
  - South
- Major Watersheds
  - Water Quality
  - Critical habitats
  - Coastal Resiliency




ESCAMBIA COUNTY
FLORIDA
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Watershed Approach

- SW FL NEPs process is much further along with their history and Plan already developed
- NW FL is a work in progress
- Brings together stakeholders to identify the watershed challenges and status as well as projects to address them
- Meant to build on existing Ecosystem Restoration Plans developed by FDEP and the SWIM plans by the NWFWMD to specifically address the RESTORE criteria in a condensed format

Watershed Approach

- Consider Environment & Economy Together
  - Tourism
  - Military mission

Memorial Day 2010

July 4, 2010

Perdido Bay
Perdido Bay Restoration Plan
Perdido Bay SWIM Plan
Stormwater Basin Plans

Pollutants:

- Fecal Coliform
- Nutients TP, TN
- BOD
- Mercury
- 303d Listed Impaired water body segments

Challenges:

Stormwater/Non-Point Source

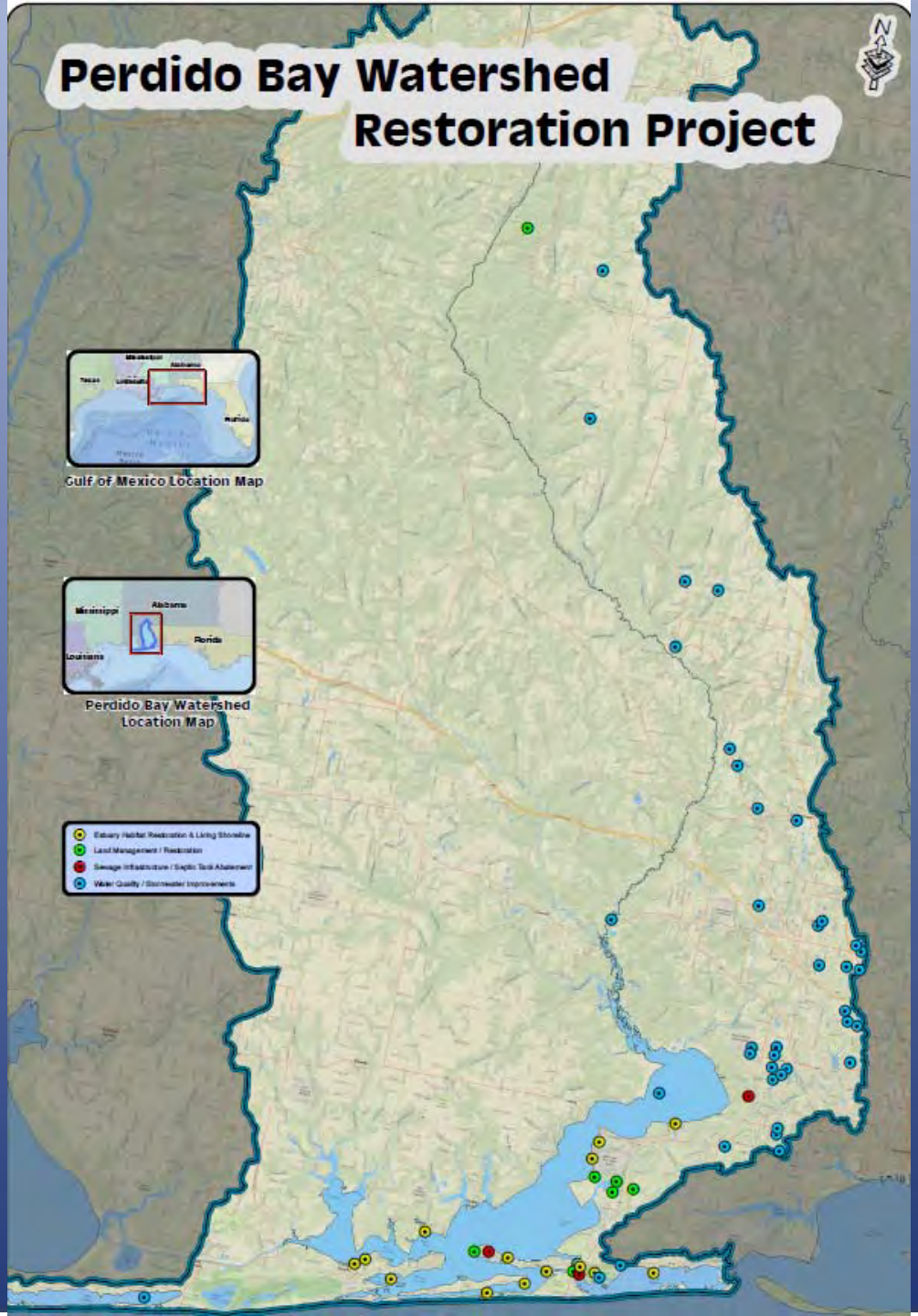
Wastewater

Shoreline Alteration
- Armoring/Erosion

Degraded Urban Streams
- Habitat loss
- Sedimentation
- Water Quality

Strategies:

- Stormwater retrofits
- Agriculture BMP's
- Buffers
- Advanced Wastewater
- Sewer Upgrades/Retrofits and Septic Tank Abatement
- Habitat Protection and Restoration
- Sediment/Erosion Management


Perdido Bay Watershed
Restoration Project
Gulf of Mexico Location Map
Mississippi
Alabama
Florida
Louisiana
Perdido Bay Watershed
Location Map

Pensacola Bay
Pensacola Bay Restoration Plan
Pensacola Bay Swim Plan
Stormwater Basin Plans

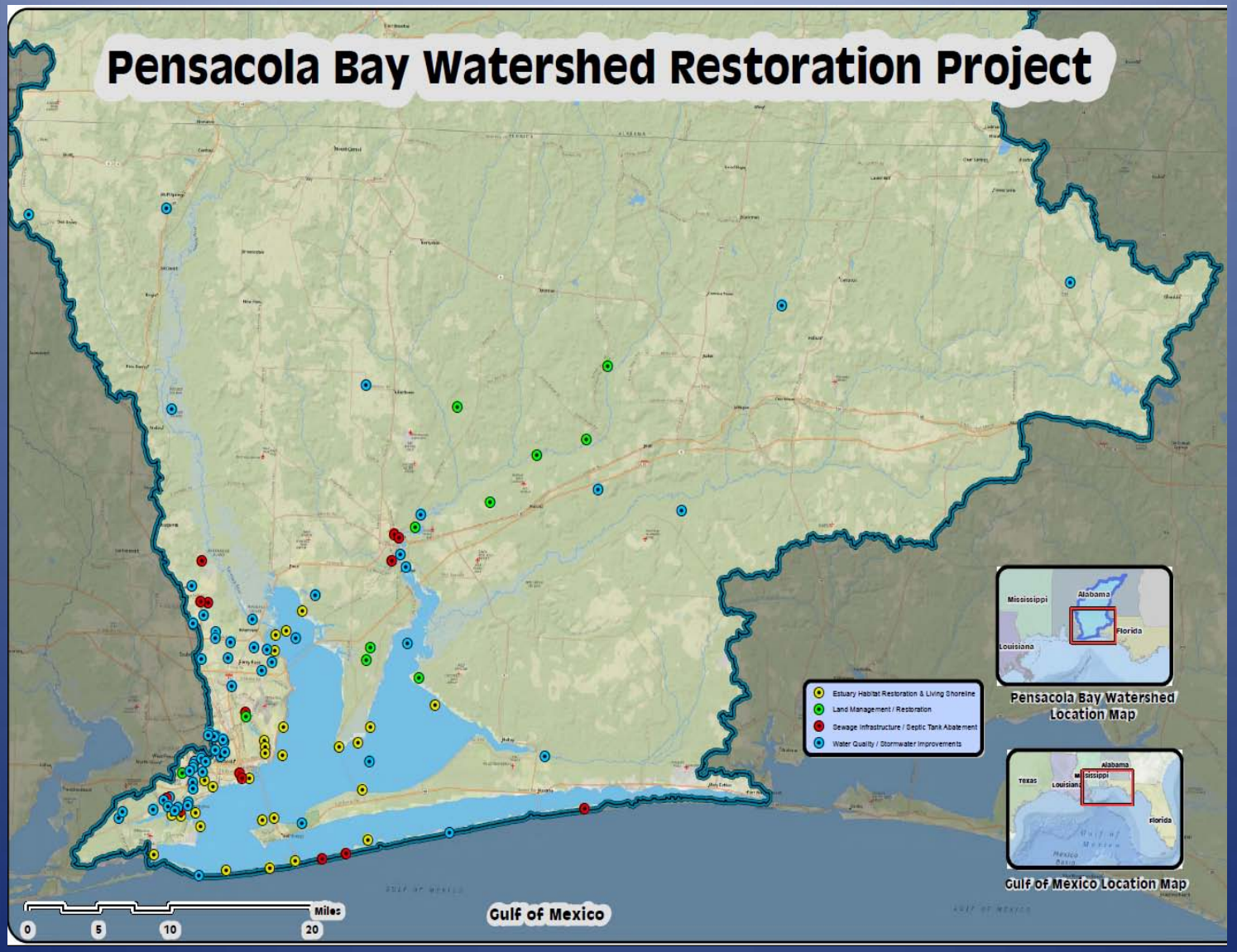
Pollutants:
- Nutrients TP, TN
- BOD
- Fecal Coliform
- Mercury
- 303 d Listed Impaired Segments

Challenges:
- Stormwater runoff/Non Point Source
- Wastewater
- Sedimentation/Unpaved Roads
- Shoreline alteration
- Degraded Seagrasses
- Turbidity
- Degraded Bayou Habitats
- Industrial Toxics
- Marine Invasive Species

Strategies:

- Stormwater retrofits
- Agriculture BMP's
- Buffers
- Advanced Wastewater
- Sewer retrofits, septic tank abatements
- Road Stabilization
- Habitat Restoration
- Ballast Management

Watershed Approach

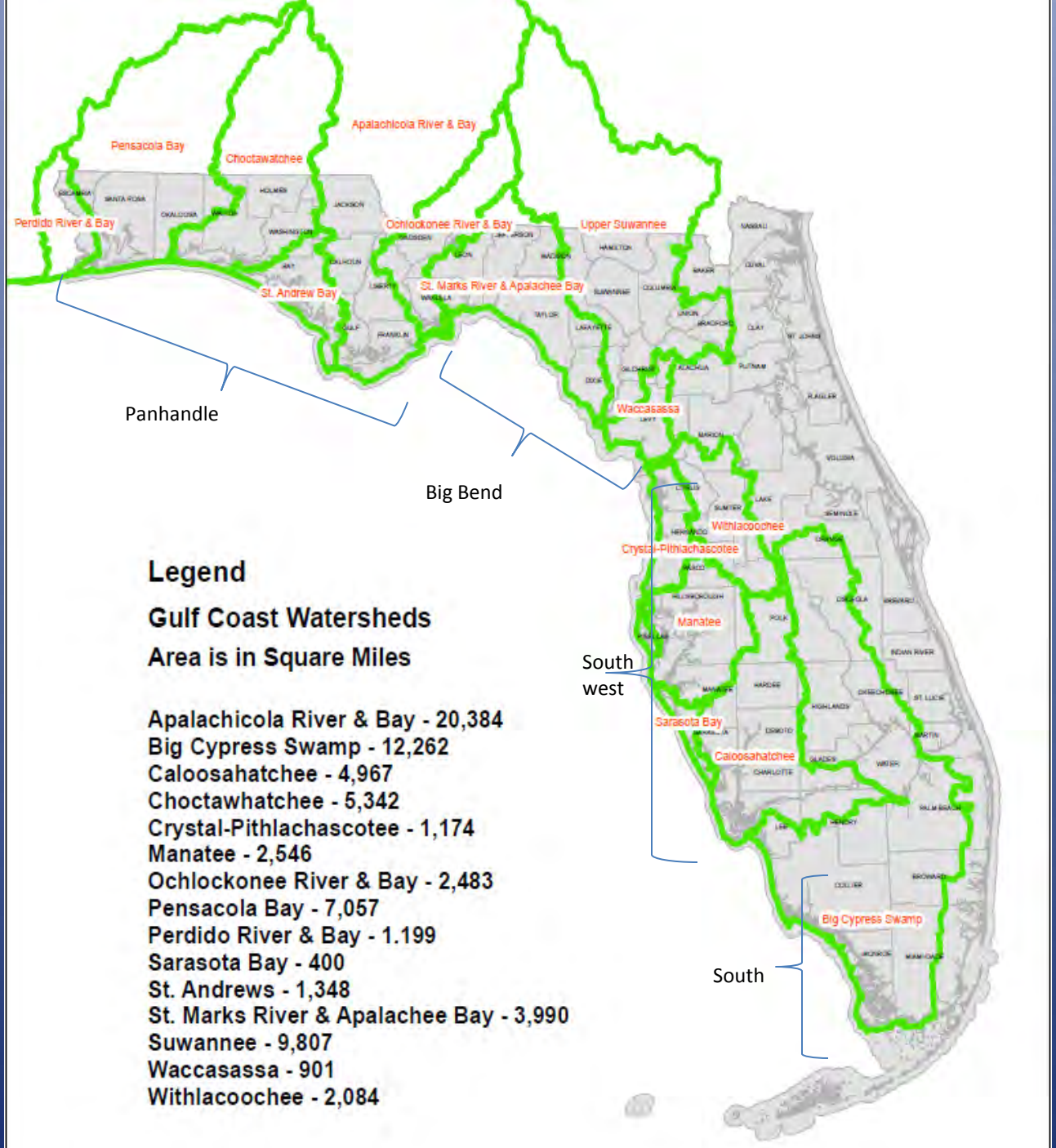


Watershed Approach

- Perdido Bay
  - TNC
  - Escambia County
  - Baldwin County AL
  - City of Orange Beach AL
  - Town of Perdido Beach
  - ADEM
  - FDEP
  - FWS

- Pensacola Bay
  - TNC
  - Escambia County
  - Santa Rosa County
  - City of Gulf Breeze
  - FDEP
  - NWFWMD
  - FWC
  - FWS
  - Town of Century
  - Bay Area Resource Council
  - WFRPC
  - Numerous NGO's

- Choctawhatchee Bay: TNC, Okaloosa and Walton Counties, Eglin AFB, CBA



Legend

Gulf Coast Watersheds

Area is in Square Miles

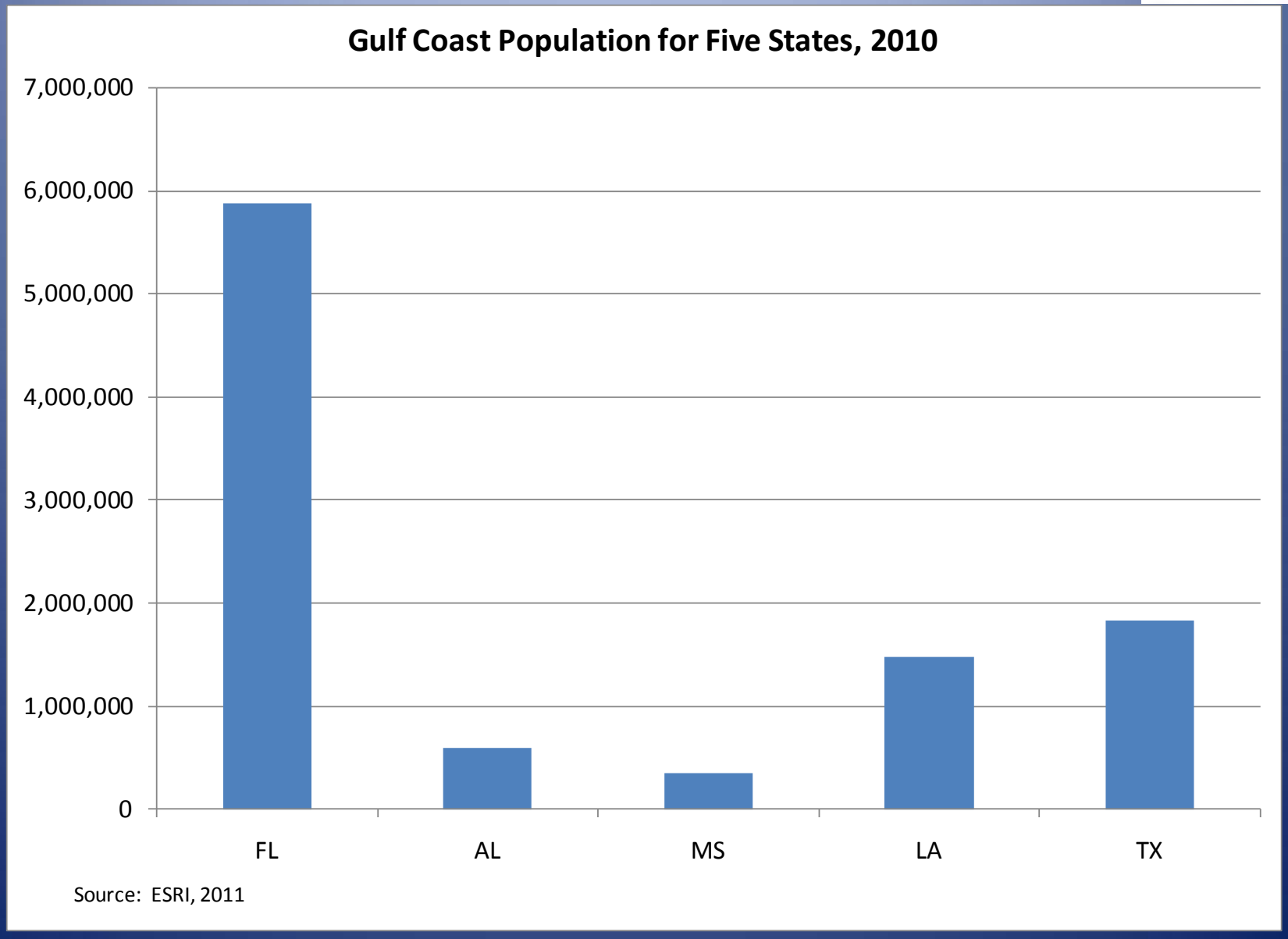
Apalachicola River & Bay - 20,384
Big Cypress Swamp - 12,262
Caloosahatchee - 4,967
Choctawhatchee - 5,342
Crystal-Pithlachascotee - 1,174
Manatee - 2,546
Ochlockonee River & Bay - 2,483
Pensacola Bay - 7,057
Perdido River & Bay - 1.199
Sarasota Bay - 400
St. Andrews - 1,348
St. Marks River & Apalachee Bay - 3,990
Suwannee - 9,807
Waccasassa - 901
Withlacoochee - 2,084

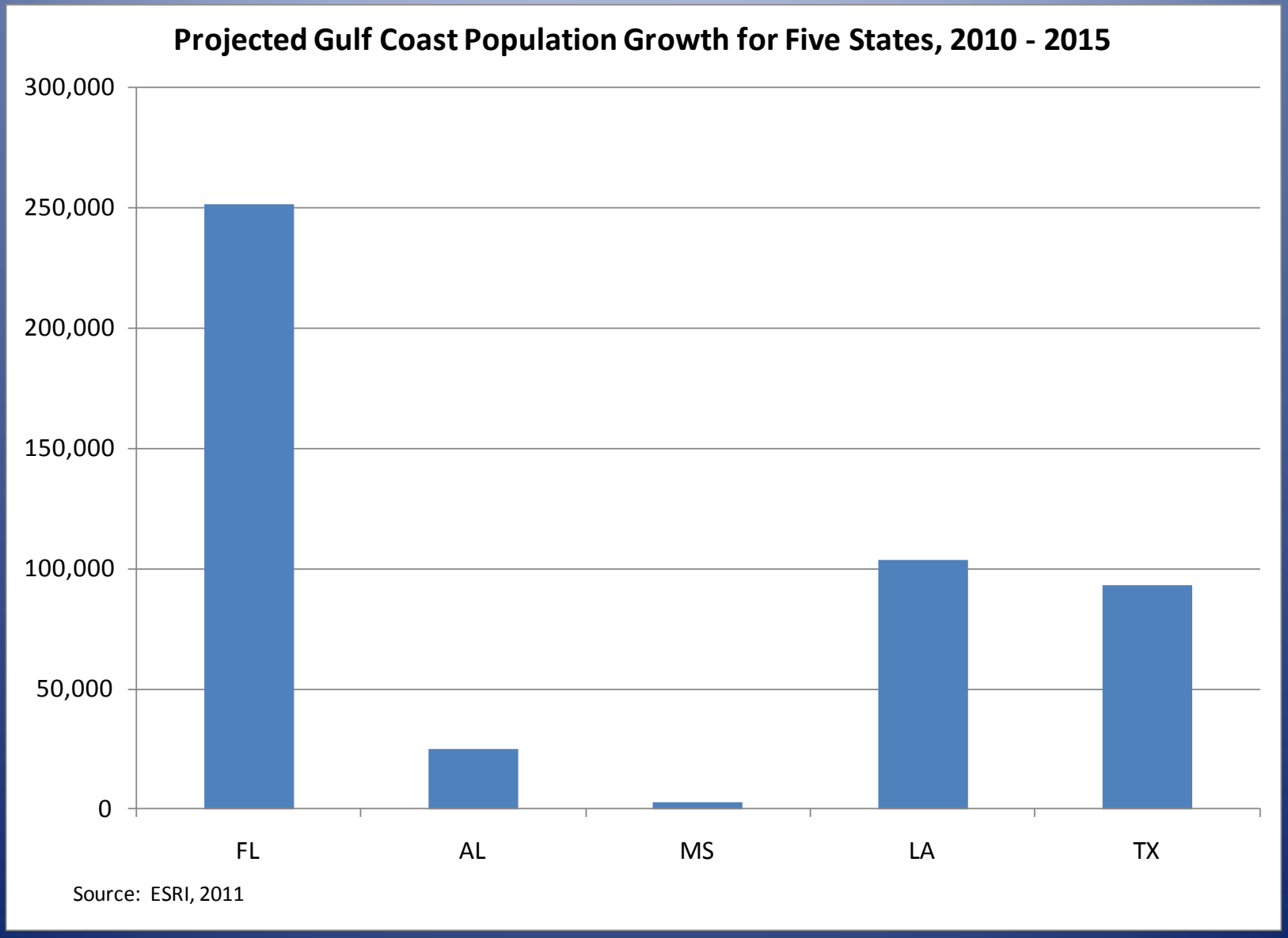
Watershed Approach

- Key Points
  - Addressing TMDL impairments
  - Stabilizing the quality of our watersheds is critical for our economic recovery/development (*DWH, Navy Federal and Plant Crist examples*)
  - Develop the Consortium Plan from the Watershed Plans
    - best position FL for Federal Pots
    - Show FL state and local governments are working together and focused on the right issues.
  - Next step: develop means to work with each watershed group and draft the Consortium Plan.

Watershed Approach

- Proposal to the Consortium:
  - complete each watershed plan
  - group plans by Region
  - Consolidate Regional plans into the Consortium Plan.
- Grouping process will identify opportunities to integrate project and leverage resources:
  - Similar projects (e.g., Sediment/Pass Management)
  - Staging of projects (e.g., dredging first then use material to create living shorelines)


Gulf Coast Population for Five States, 2010
7,000,000
6,000,000
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
0
FL
AL
MS
LA
TX
Source: ESRI, 2011

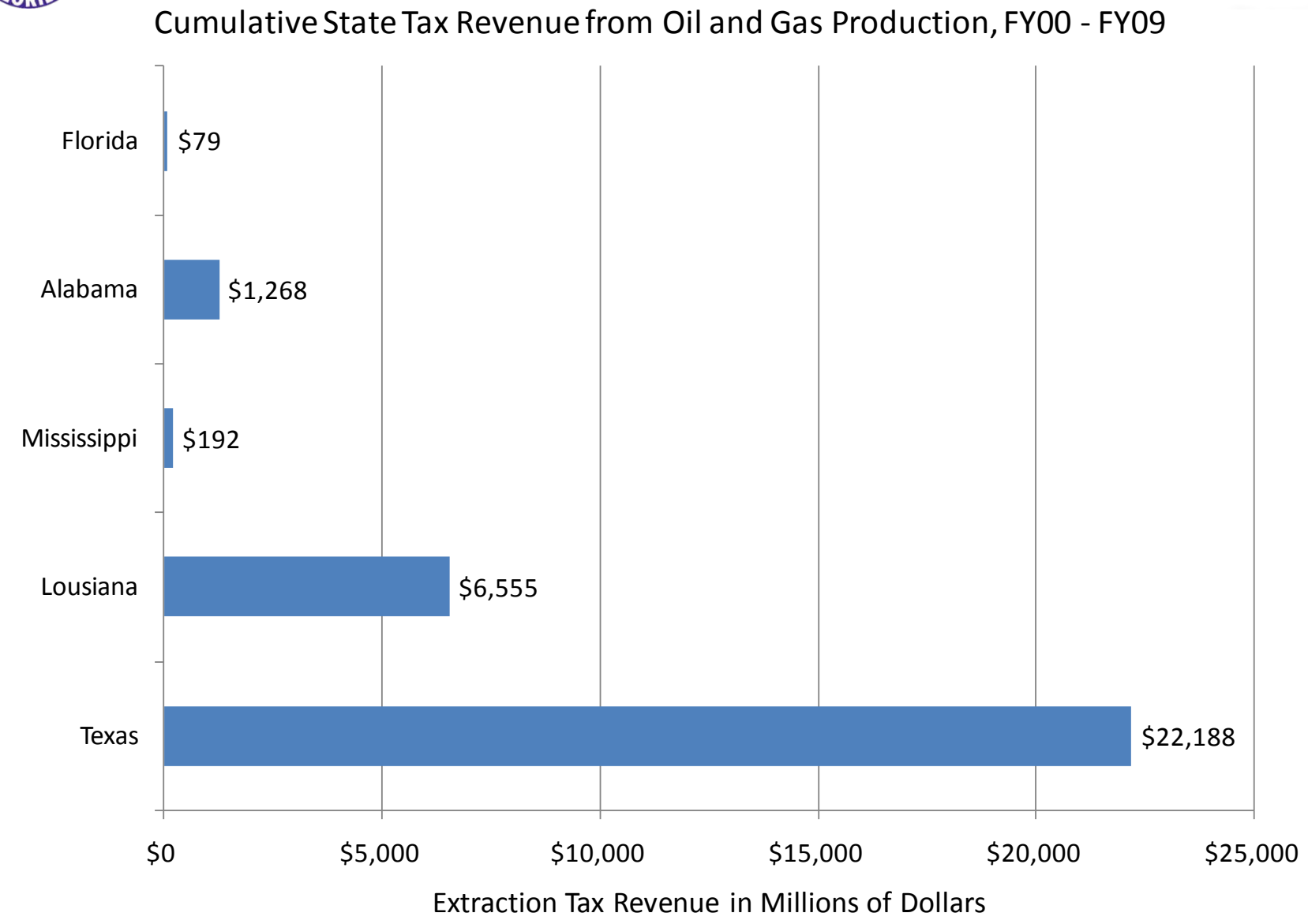

Projected Gulf Coast Population Growth for Five States, 2010 - 2015
300,000
250,000
200,000
150,000
100,000
50,000
0
FL
AL
MS
LA
TX
Source: ESRI, 2011

2008 NOAA Commercial Fisheries Economics (in $ millions)

State	Sales	Gulf %	Income	Jobs
Alabama	445	4%	245	9,750
West Florida	5,657	54%	3,108	108,695
Lousiana	2,034	19%	1,060	43,711
Mississippi	391	4%	198	8,575
Texas	2,013	19%	994	42,541
Gulf Total	10,540	100%	5,605	213,272

2008 NOAA Recreational Fisheries Economics (in $ millions)

State	Sales	Gulf %	Trips (1,000s)	jobs
Alabama	445	4%	1,671	4,719
West Florida	5,640	47%	16,928	54,589
Lousiana	2,297	19%	4,541	25,590
Mississippi	383	3%	969	2,930
Texas	3,288	27%	1,337	25,544
Gulf Total	12,073	100%	25,446	113,372


Cumulative State Tax Revenue from Oil and Gas Production, FY00 - FY09
Florida
$79
Alabama
$1,268
Mississippi
$192
Lousiana
$6,555
Texas
$22,188
$0
$5,000
$10,000
$15,000
$20,000
$25,000
Extraction Tax Revenue in Millions of Dollars

Gulf Coast Claims Facility (5/26/11)		
	Claimants	Payments (bns)
Total	513,272	$4,203
FL	179,624	$1,676
AL	74,024	$779
MS	55,724	$365
LA	204,257	$1,388
TX	12,062	$162

Questions?

Keith Wilkins
ktwilkin@myescambia.com
850-595-4988

White Quartz Sand Beaches

Wetland Marshes

Hardwood Wetlands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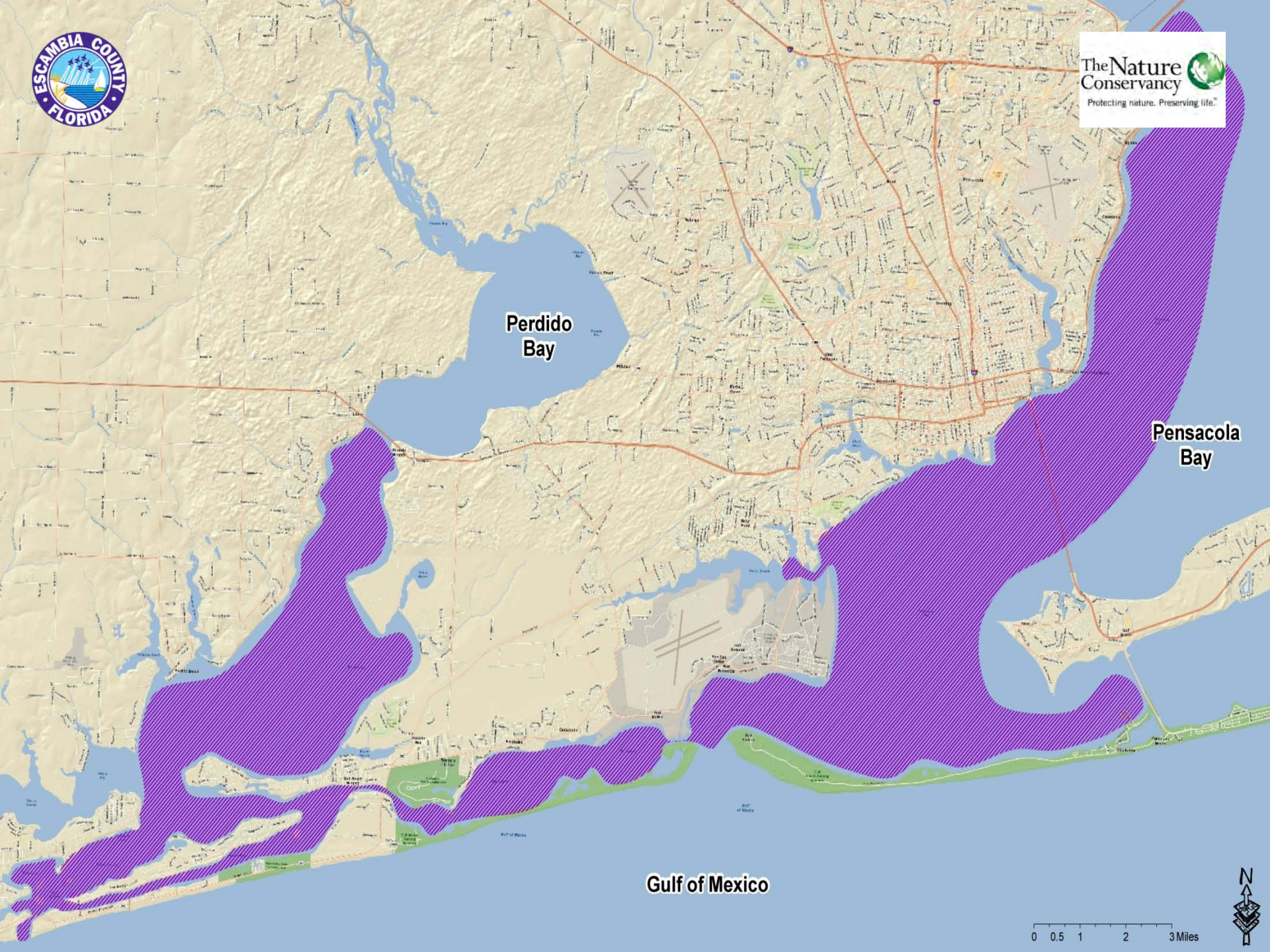
30.32435
087.31254
NAS
QUARTER FOR SCALE


ESCAMBIA COUNTY
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Perdido Bay
Pensacola Bay
Gulf of Mexico
0 0.5 1 2 3 Miles
N

Example: Oyster Reef/Marsh/SA
Project Greenshores, Pensacola


Worry 101 • Hurricane Survival Guide • Better Leadership/Horse Sense
NW Florida's Business®
Climate Magazine
Sinking the USS Oriskany
Buoys Our Regional Economy
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Volume 15, Issue 3
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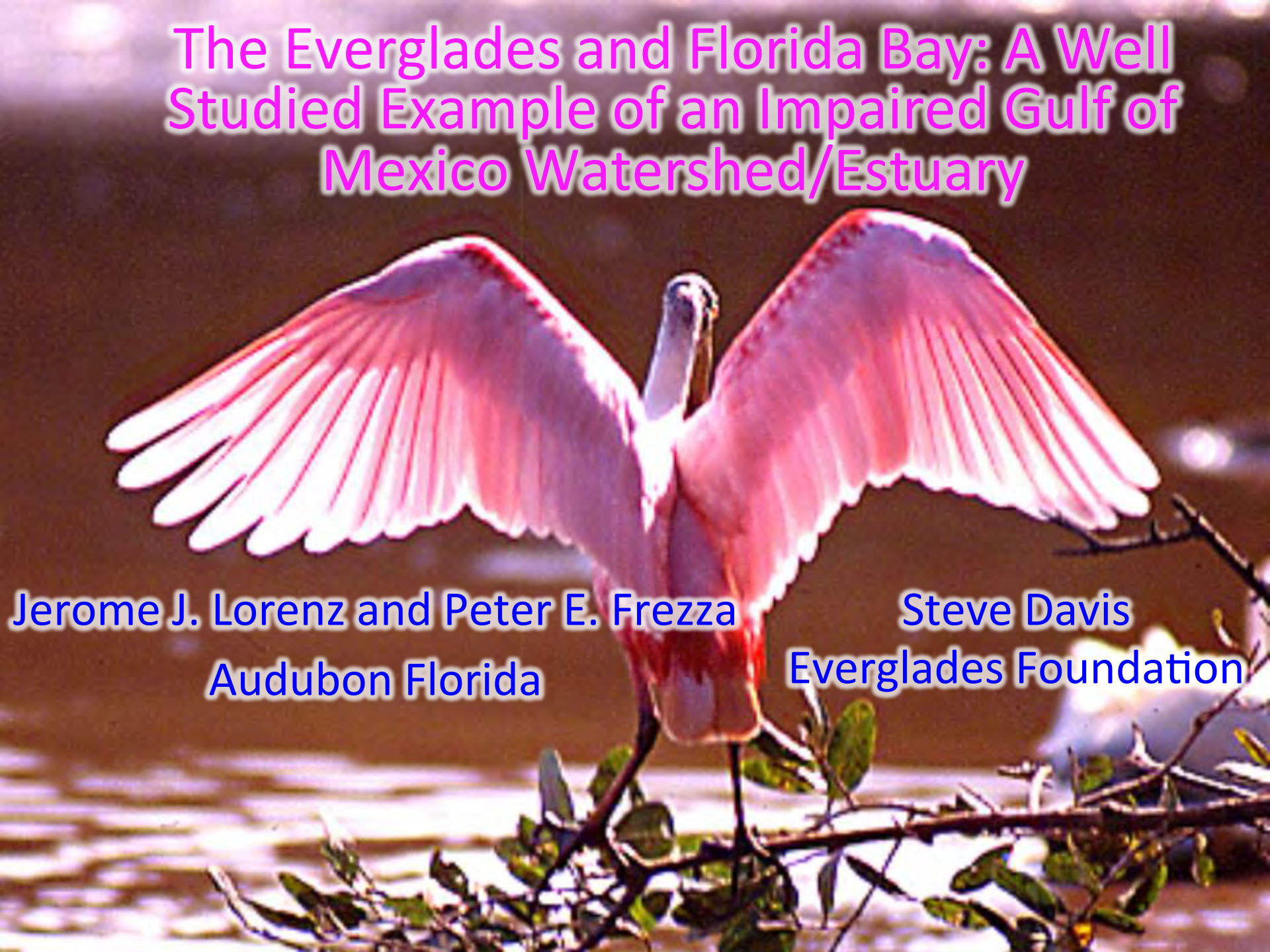
The Everglades and Florida Bay: A Well Studied Example of an Impaired Gulf of Mexico Watershed/Estuary



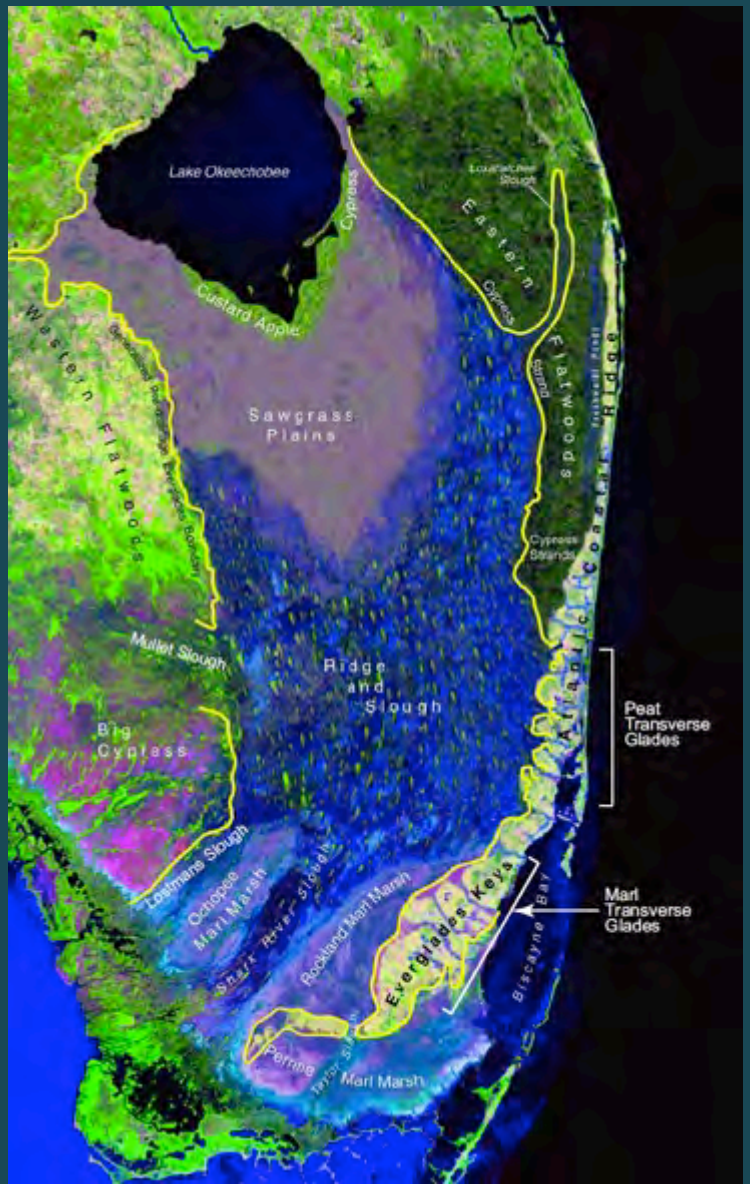
Jerome J. Lorenz and Peter E. Frezza
Audubon Florida

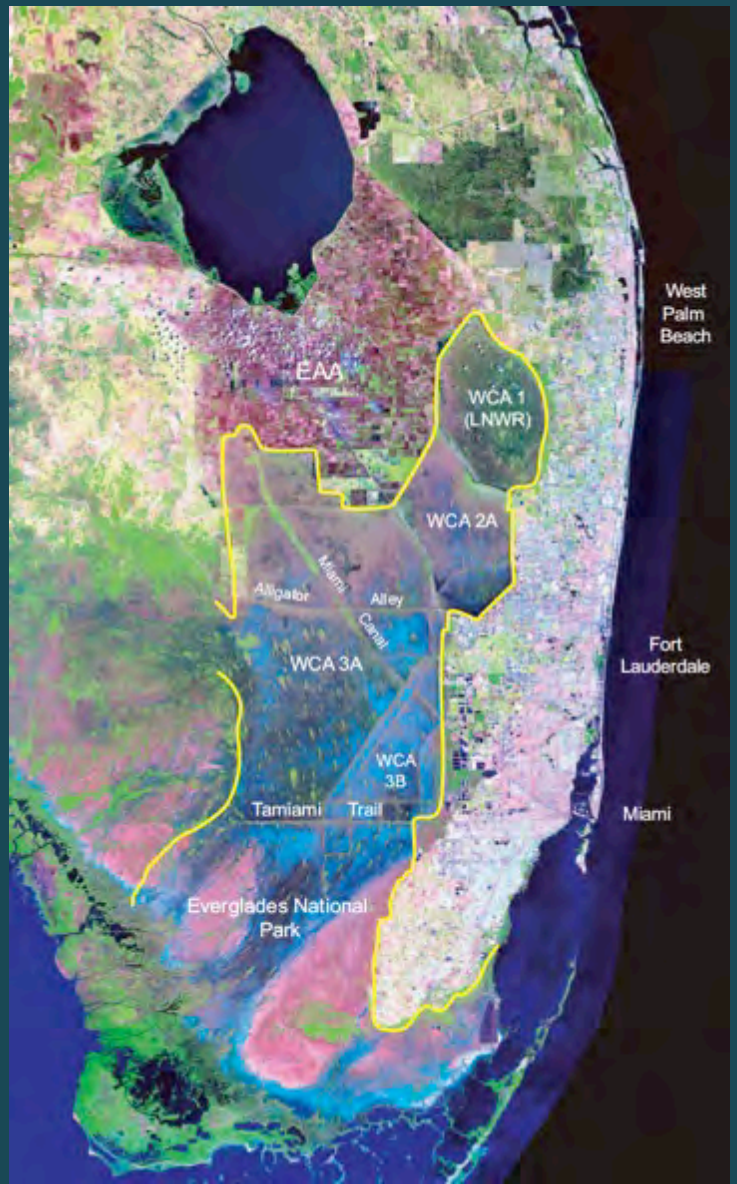
Steve Davis
Everglades Foundation

Florida's Gulf of Mexico Estuary are Imperiled

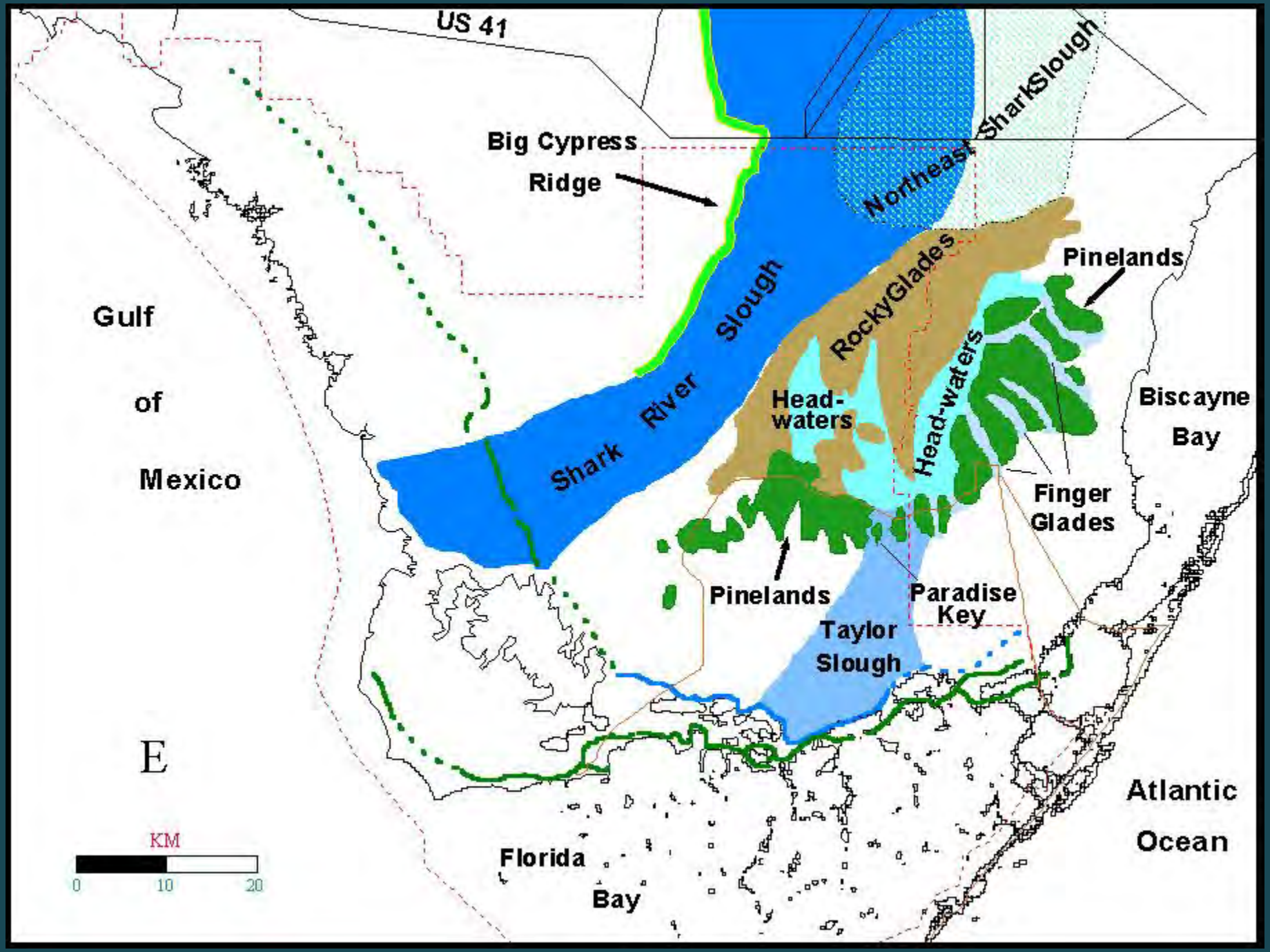
- All of Florida's Estuaries are Impaired
- The most common problems are related to freshwater flow
  - Some suffer from artificial excess of freshwater
    - E.g. Caloosahatchee
  - Some suffer from lack of natural amounts of freshwater
    - E.g. Florida Bay

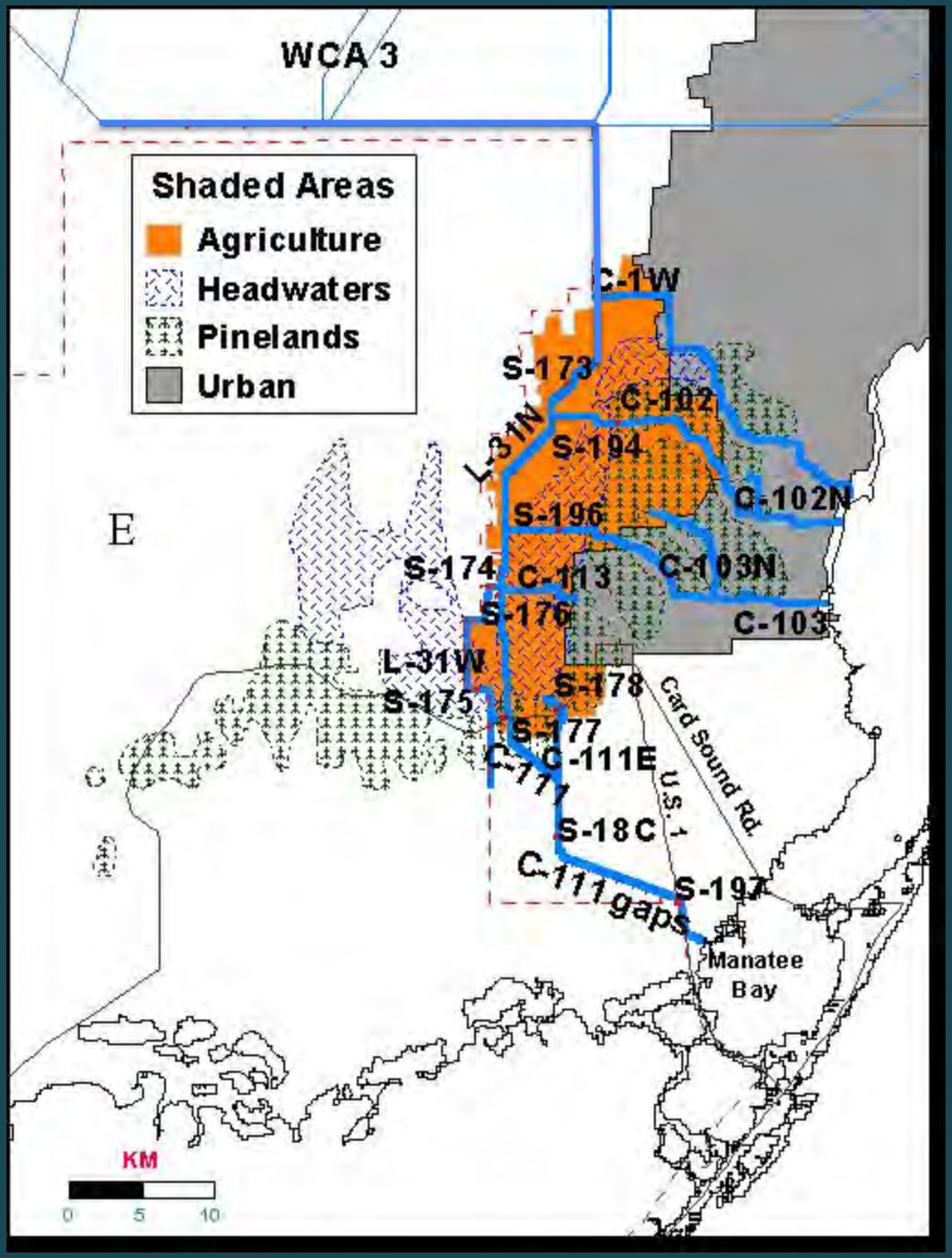
Everglades: Past and Present





Tamiami Trail as a Barrier to Flow

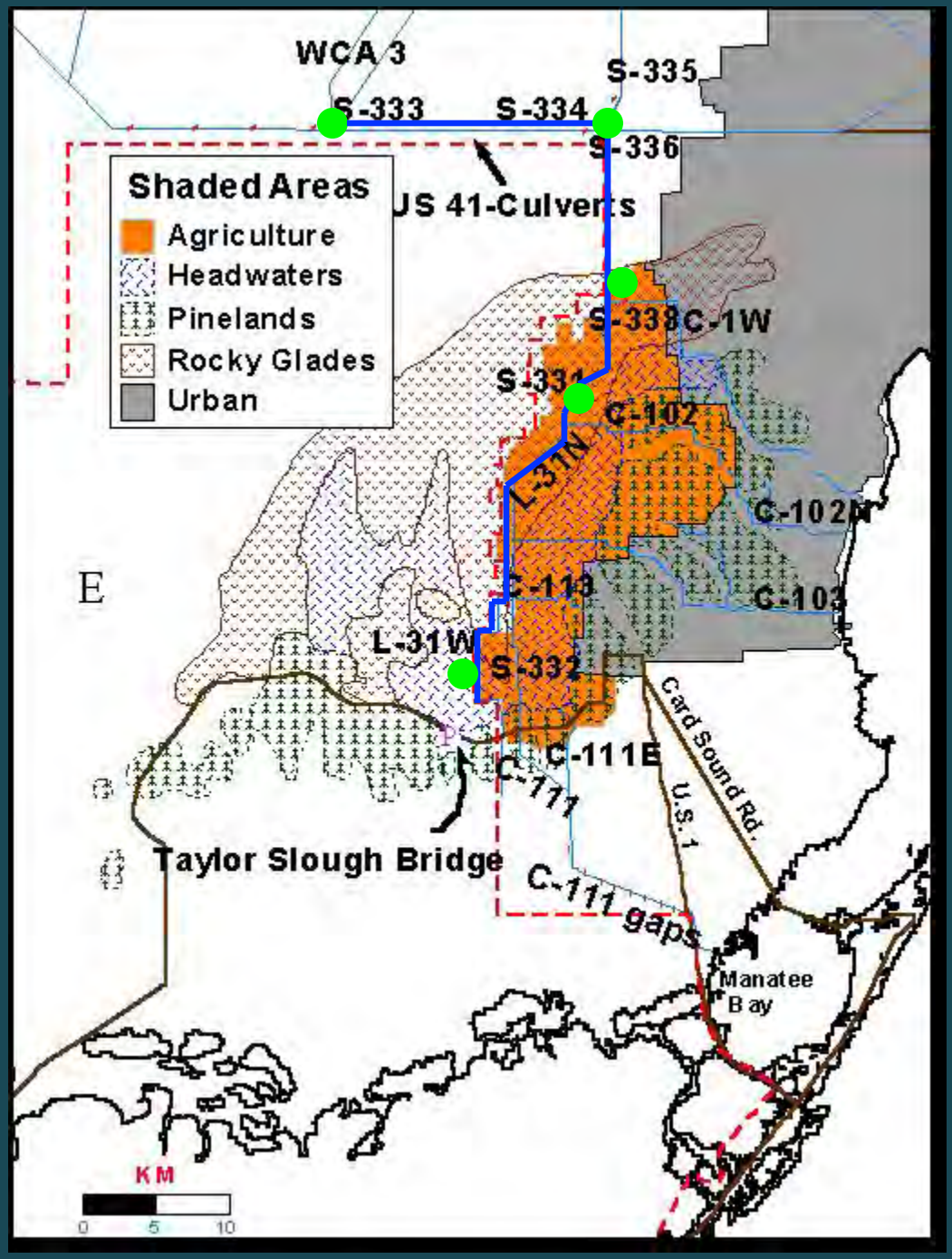

US 41
Big Cypress
Ridge
Northeast
Shark Slough
Gulf
of
Mexico
Shark River Slough
Rocky Glades
Head-
waters
Head-waters
Pinelands
Biscayne
Bay
Finger
Glades
Pinelands
Paradise
Key
Taylor
Slough
E
KM
0
10
20
Florida
Bay
Atlantic
Ocean

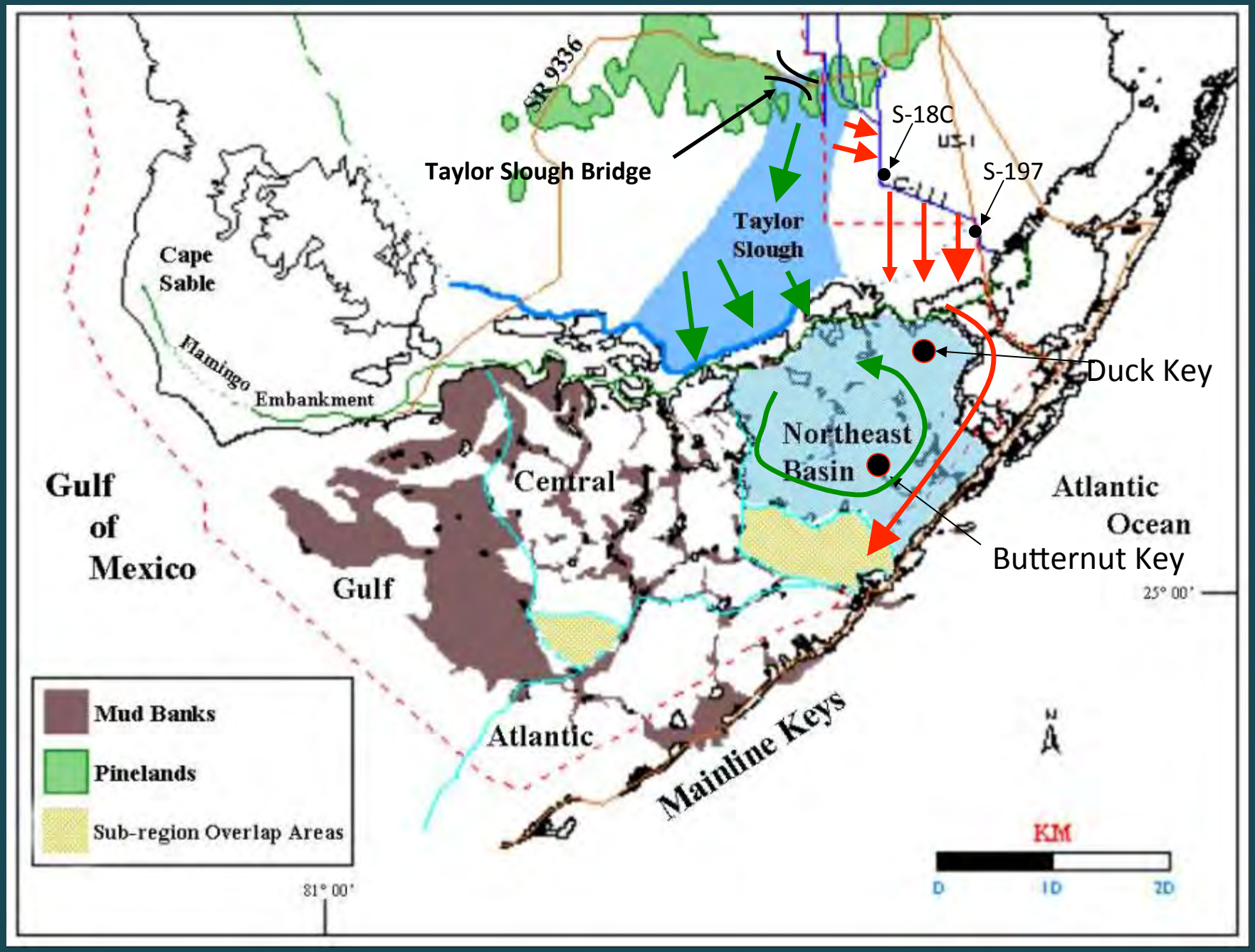

WCA 3
Shaded Areas
Agriculture
Headwaters
Pinelands
Urban
C-1W
S-173
C-102
L-31N
S-194
C-102N
S-196
E
S-174
C-113
C-103N
S-176
C-103
L-31W
S-178
S-175
Card Sound Rd.
S-177
C-111E
C-111
U.S. 1
S-18C
C-111 gaps
S-197
Manatee Bay
KM
0
5
10

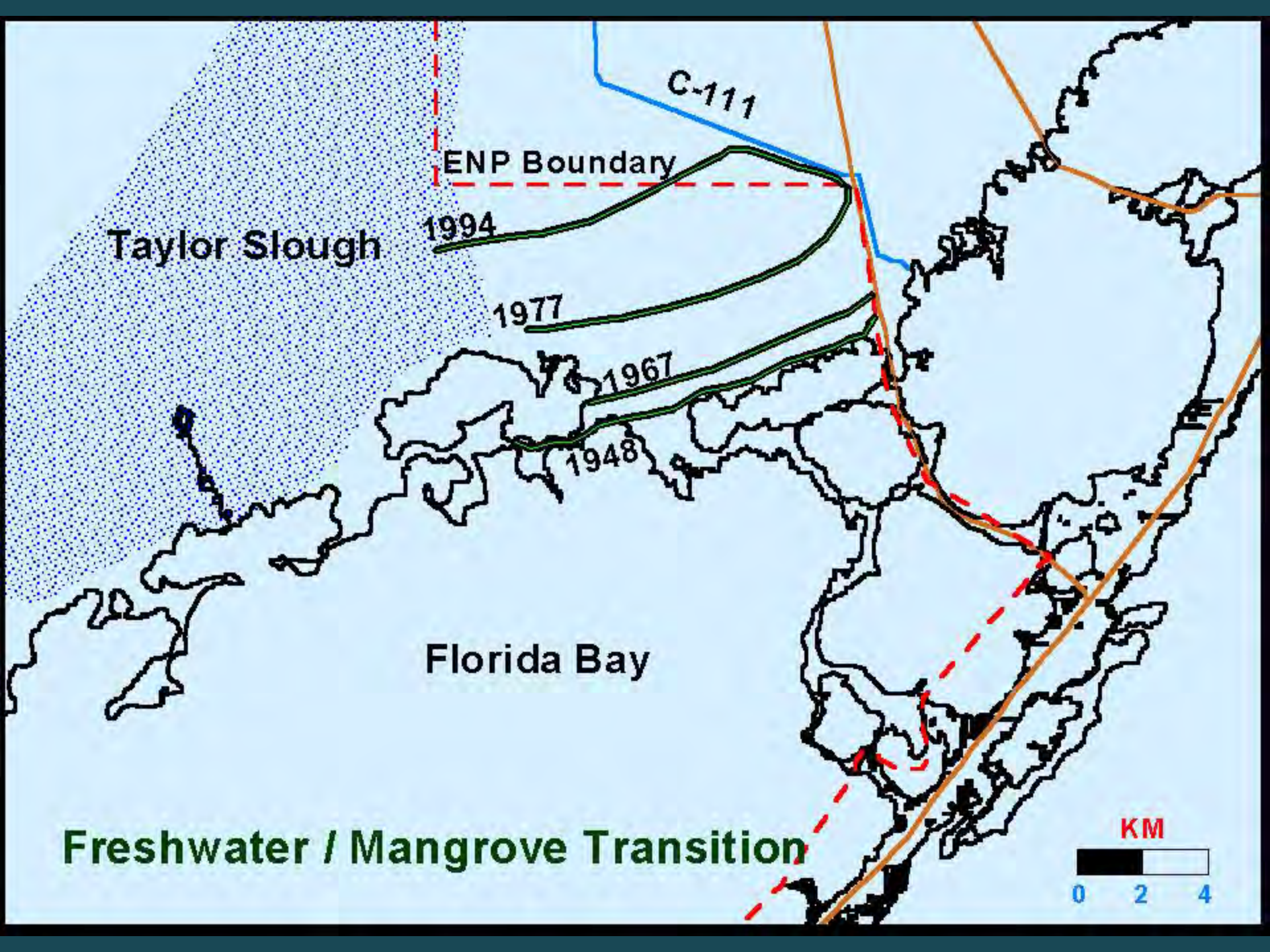
Restored Flows Improve Estuarine Conditions

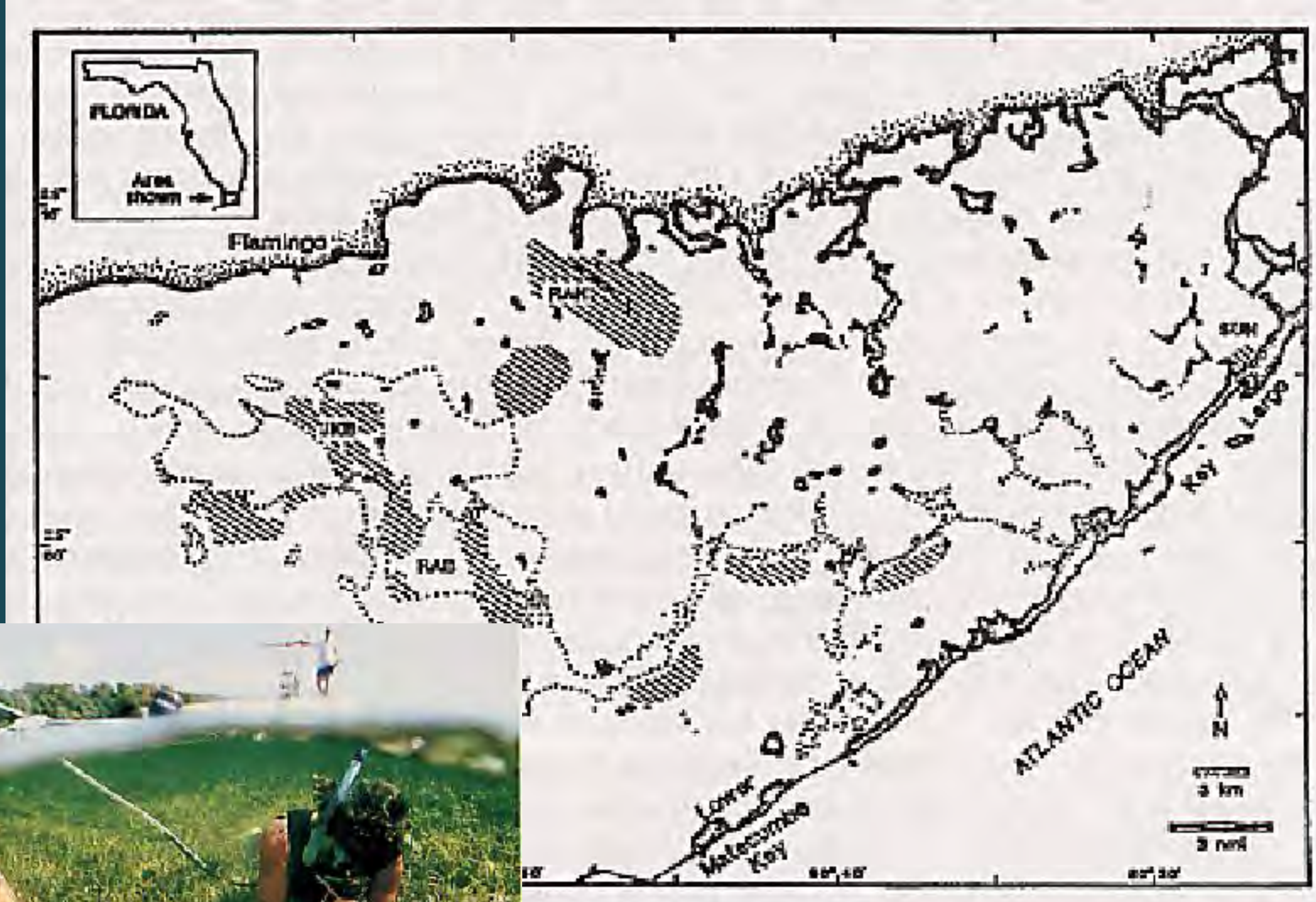
Damage to Caloosahatchee/Charlotte Harbor

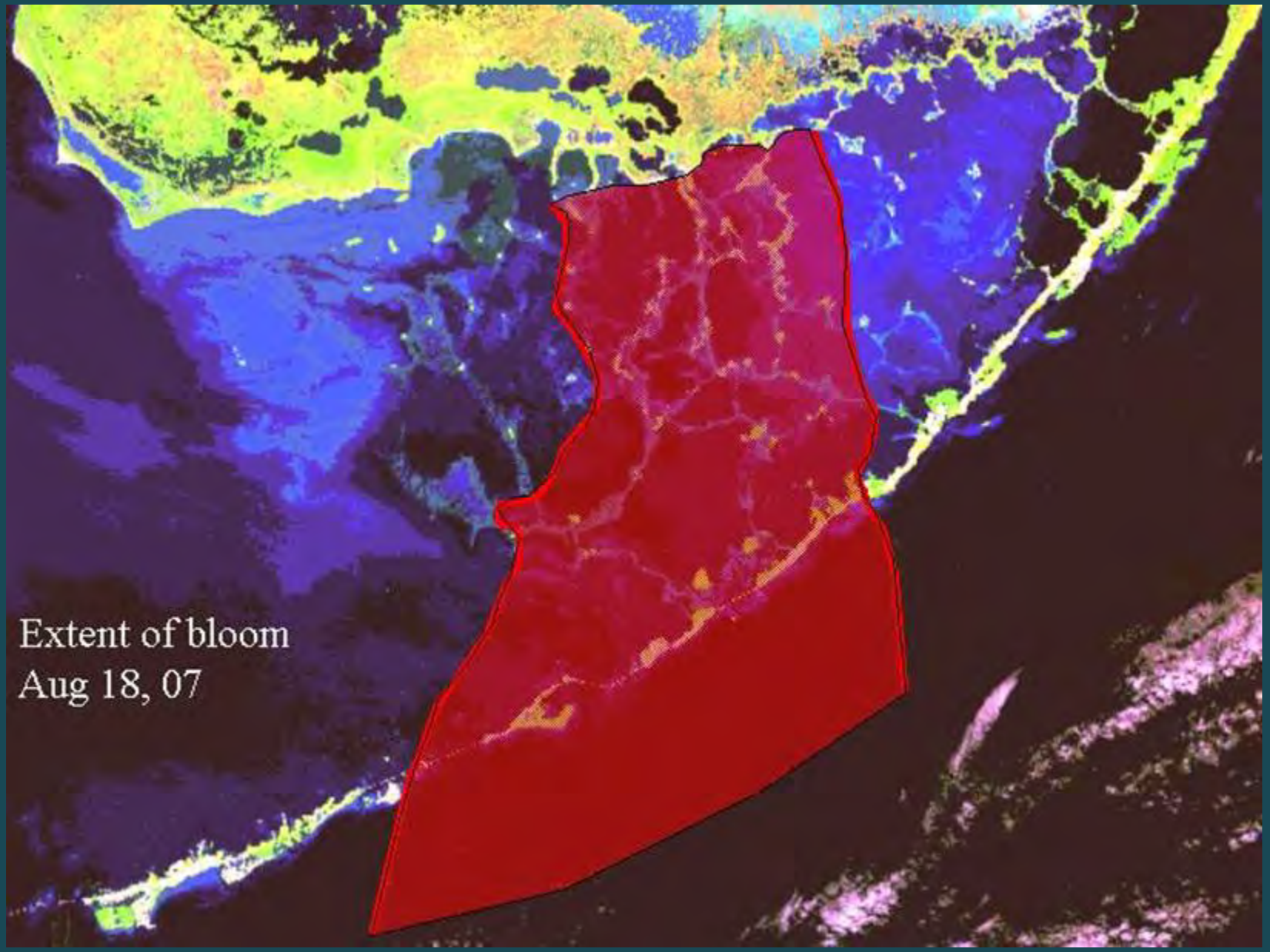
- Blackwater event
  - FKNMS
- Red tides
- Algal blooms


WCA 3
S-335
S-333
S-334
S-336
US 41-Culverts
Shaded Areas
Agriculture
Headwaters
Pinelands
Rocky Glades
Urban
S-338
C-1W
S-331
C-102
L-31N
C-102N
E
C-113
C-103
L-31W
S-332
Card Sound Rd.
C-111E
C-111
U.S. 1
Taylor Slough Bridge
C-111 gaps
Manatee Bay
KM
0
5
10


SR 9336
Taylor Slough Bridge
S-18C
US-1
S-197
Taylor Slough
Cape Sable
Flamingo
Embankment
Duck Key
Northeast Basin
Central
Gulf of Mexico
Gulf
Atlantic Ocean
Butternut Key
25° 00'
Atlantic
Mainline Keys
Mud Banks
Pinelands
Sub-region Overlap Areas
81° 00'
KM
0
10
20


C-111
ENP Boundary
Taylor Slough
1994
1977
1967
1948
Florida Bay
Freshwater / Mangrove Transition
KM
0
2
4


FLORIDA
Area shown
Flamingo
RAB
ATLANTIC OCEAN
Key Largo
Lower Matecumbe Key
N
5 km
5 nmi

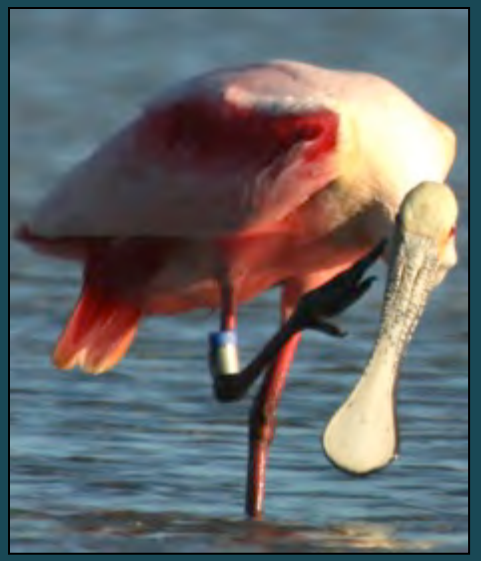

Extent of bloom
Aug 18, 07

ECOLOGICAL INDICATORS

INTEGRATING, MONITORING, ASSESSMENT AND MANAGEMENT

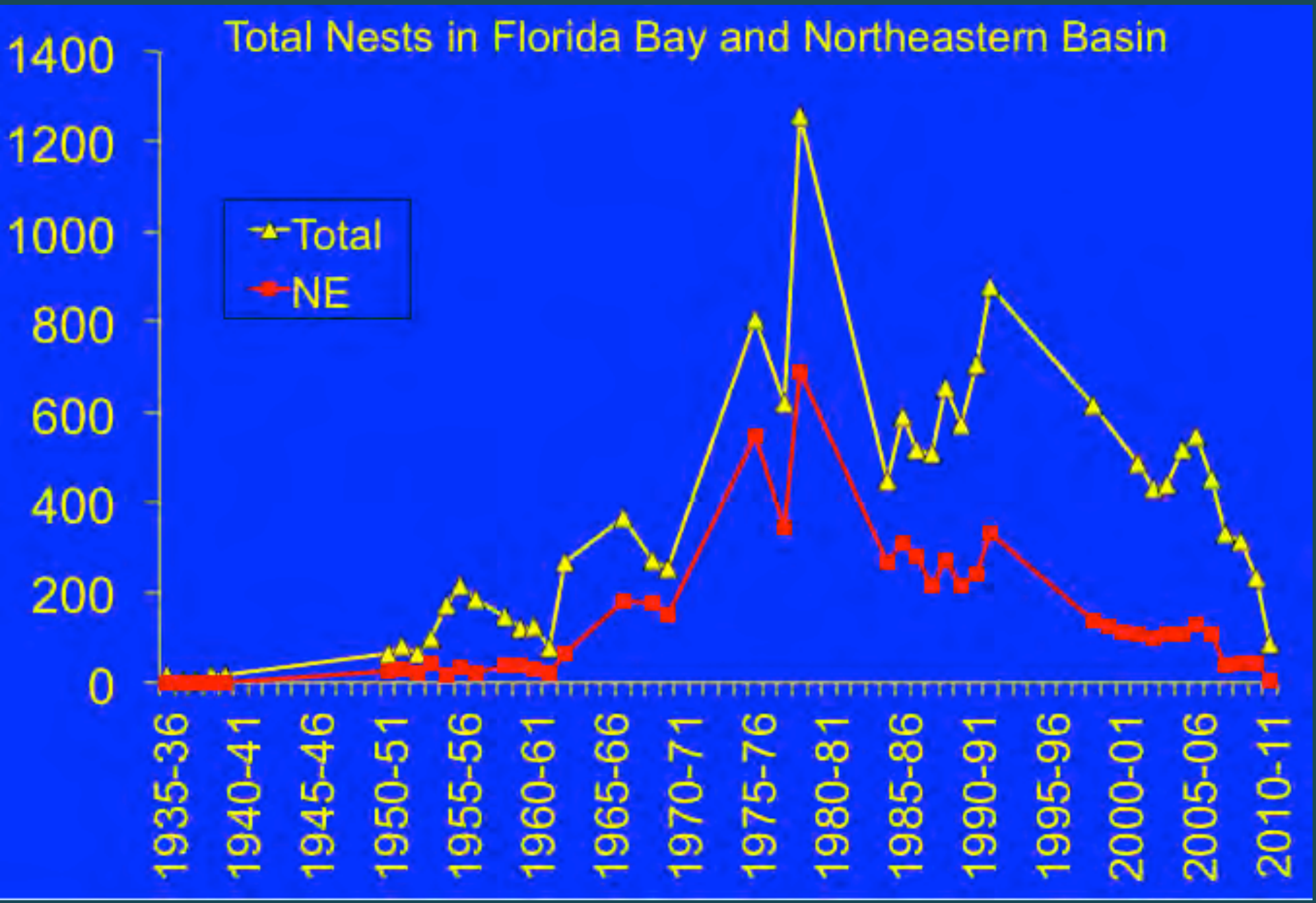
for the CERP

Spoonbills are being used as an indicator species to judge the success (or failure) of the CERP.

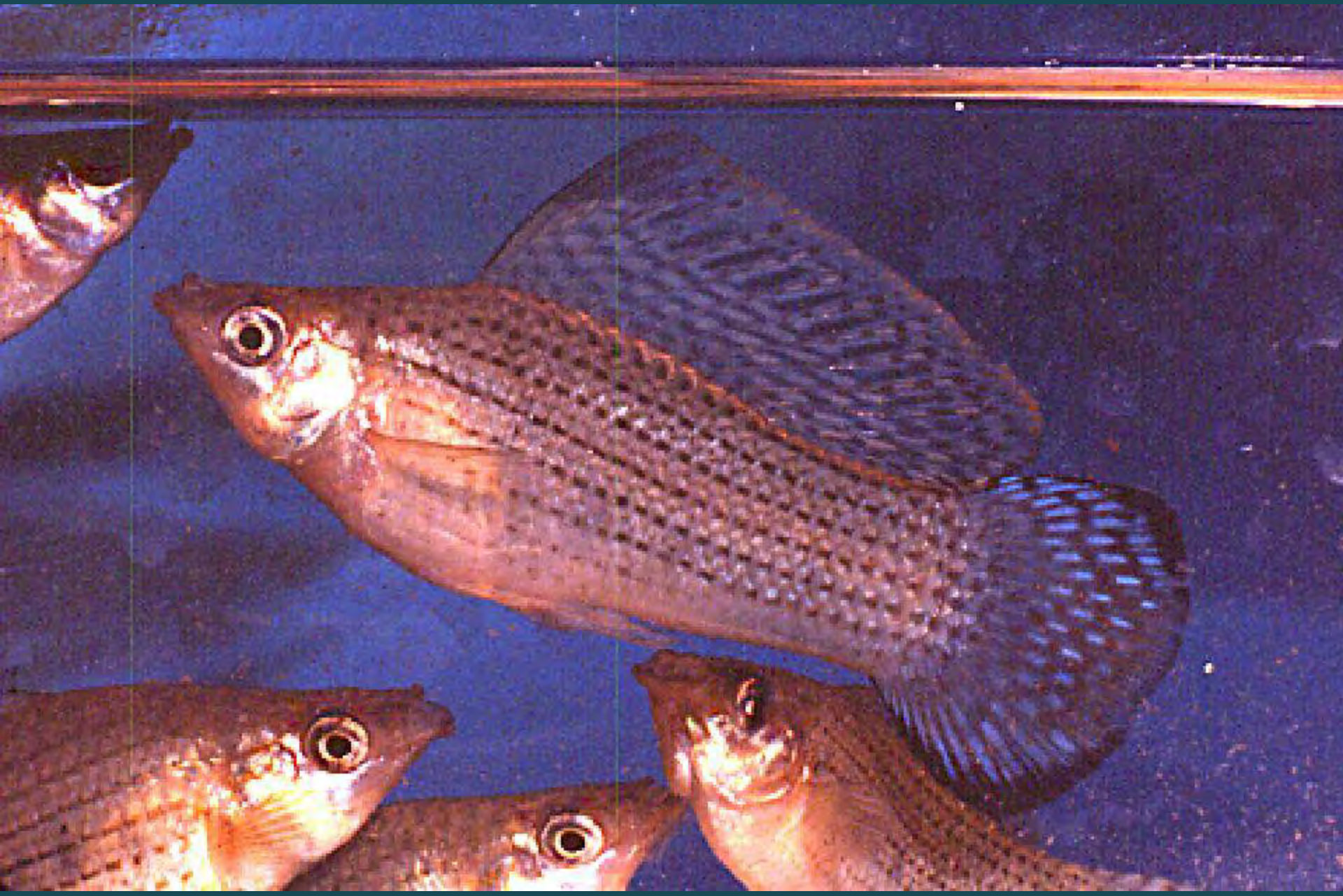


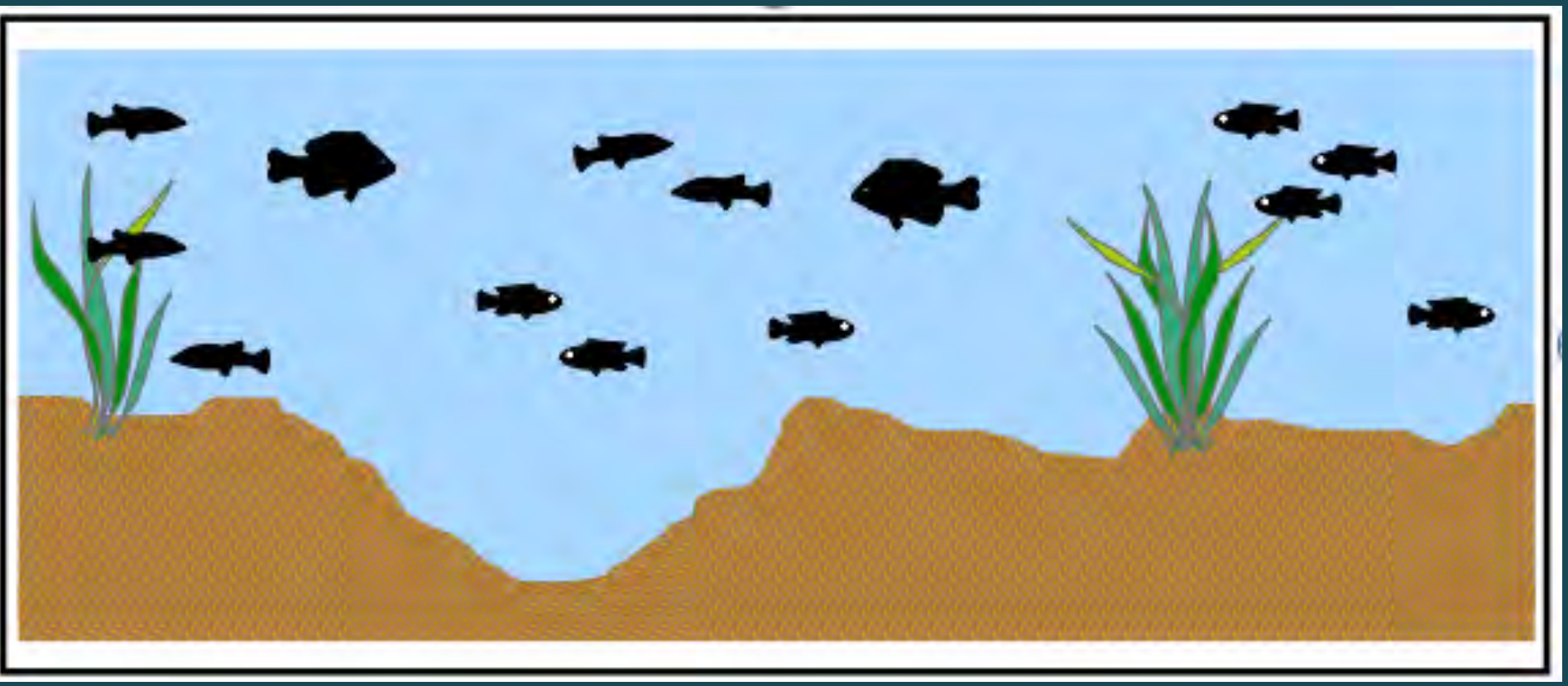
Lorenz, J.J., B. Langan-Mulrooney, P.E. Frezza, R.G.Harvey and F.J. Mazzotti. 2009. Roseate Spoonbill Reproduction as an Indicator for Restoration of the Everglades and the Everglades Estuaries. Ecological Indicators 9S:S96-S107.

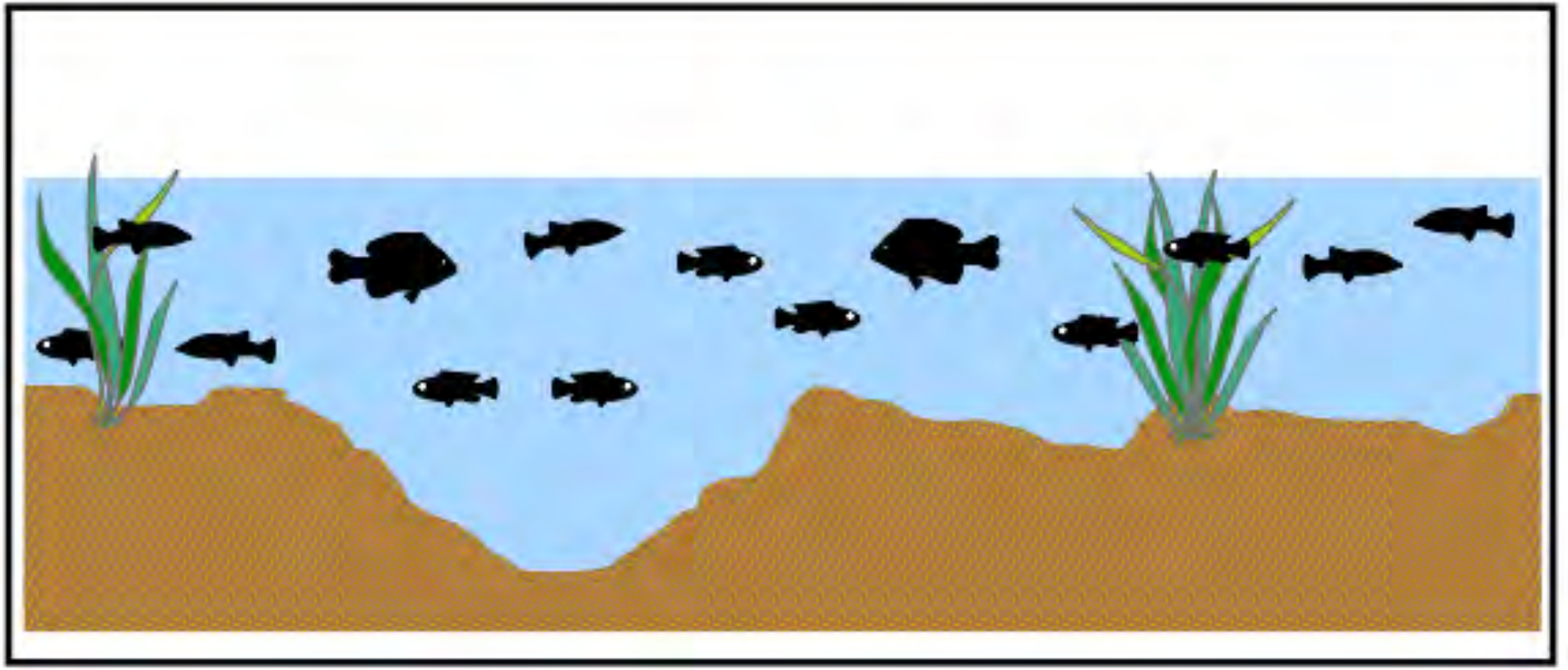

Pink Snook

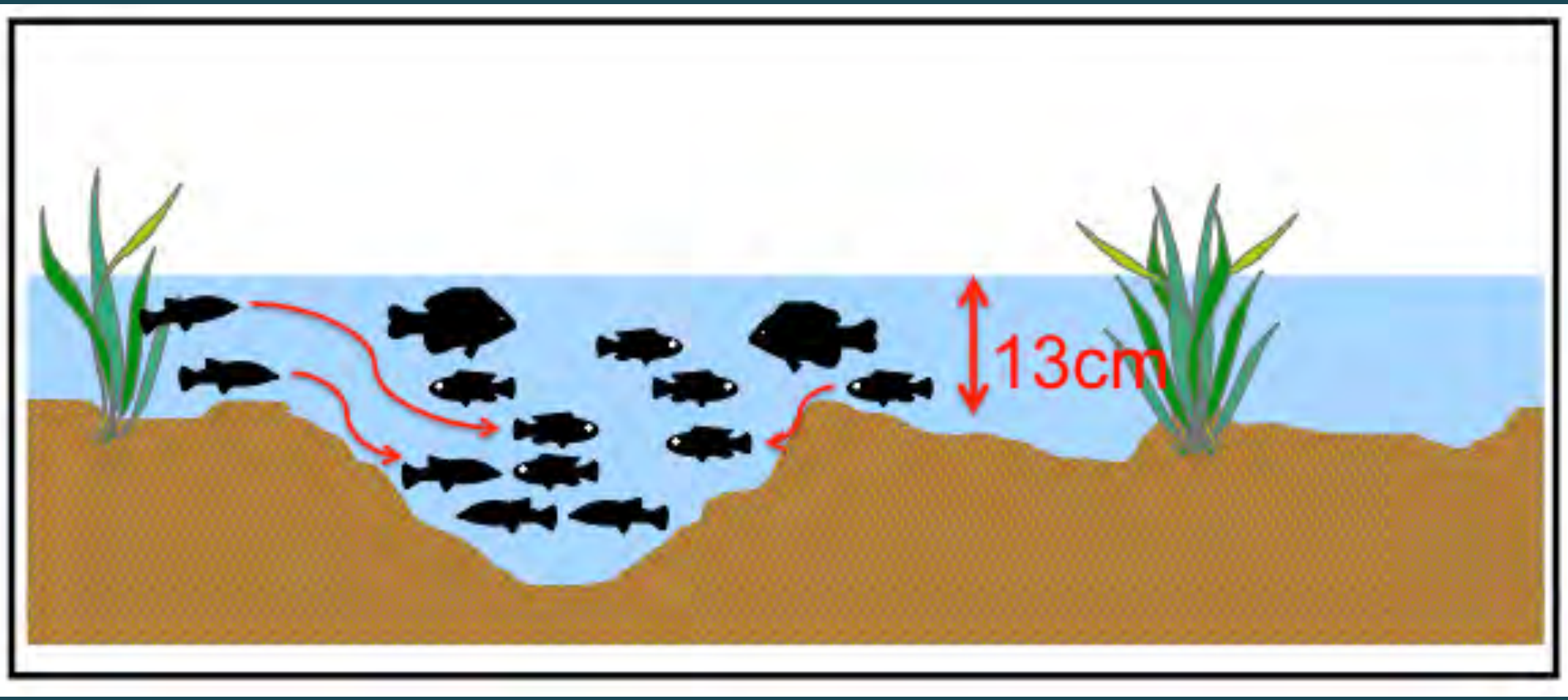

Total Nests in Florida Bay and Northeastern Basin
1400
1200
1000
800
600
400
200
0
Total
NE
1935-36
1940-41
1945-46
1950-51
1955-56
1960-61
1965-66
1970-71
1975-76
1980-81
1985-86
1990-91
1995-96
2000-01
2005-06
2010-11

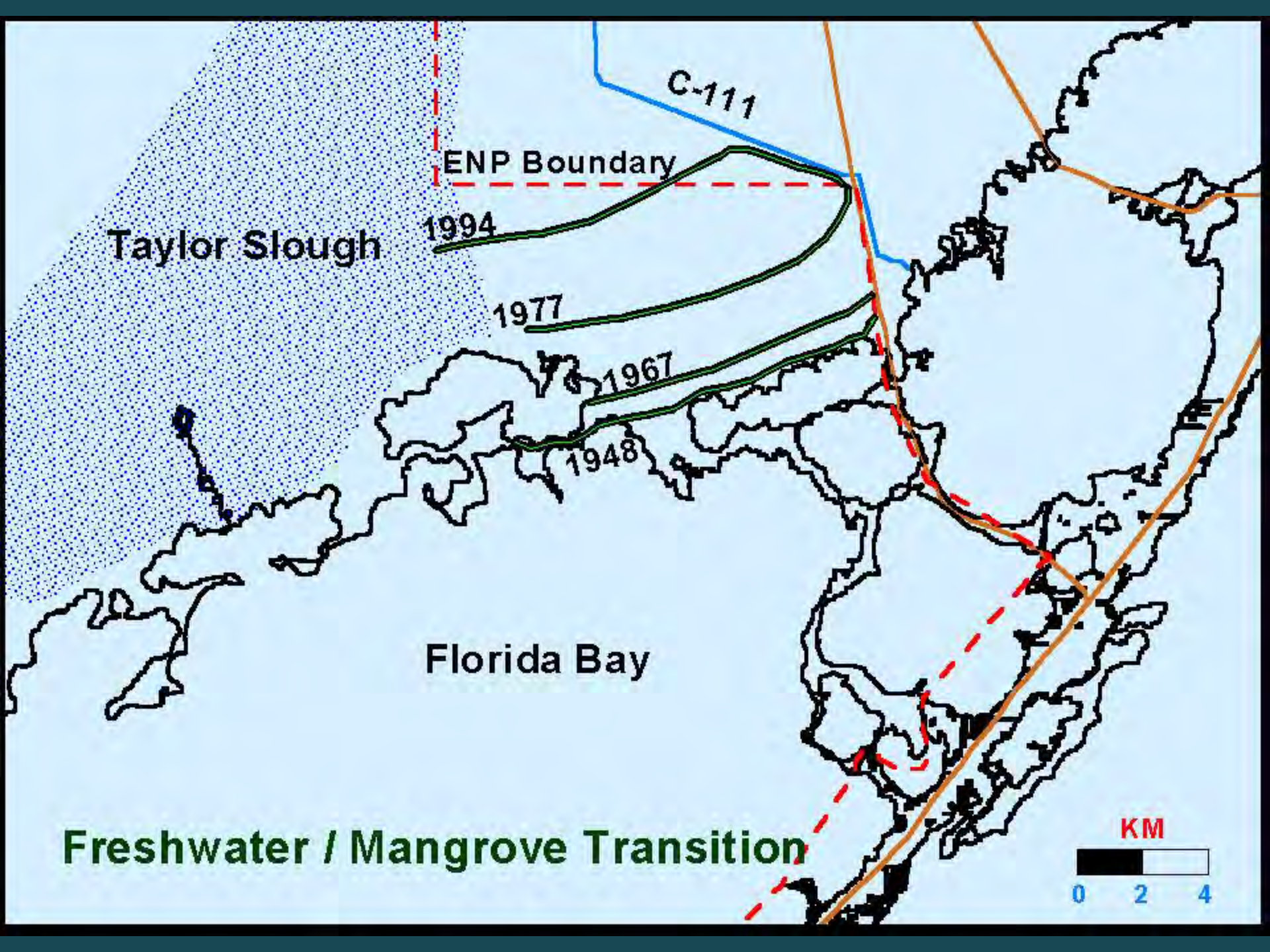

0
1cm
2
3
4
5

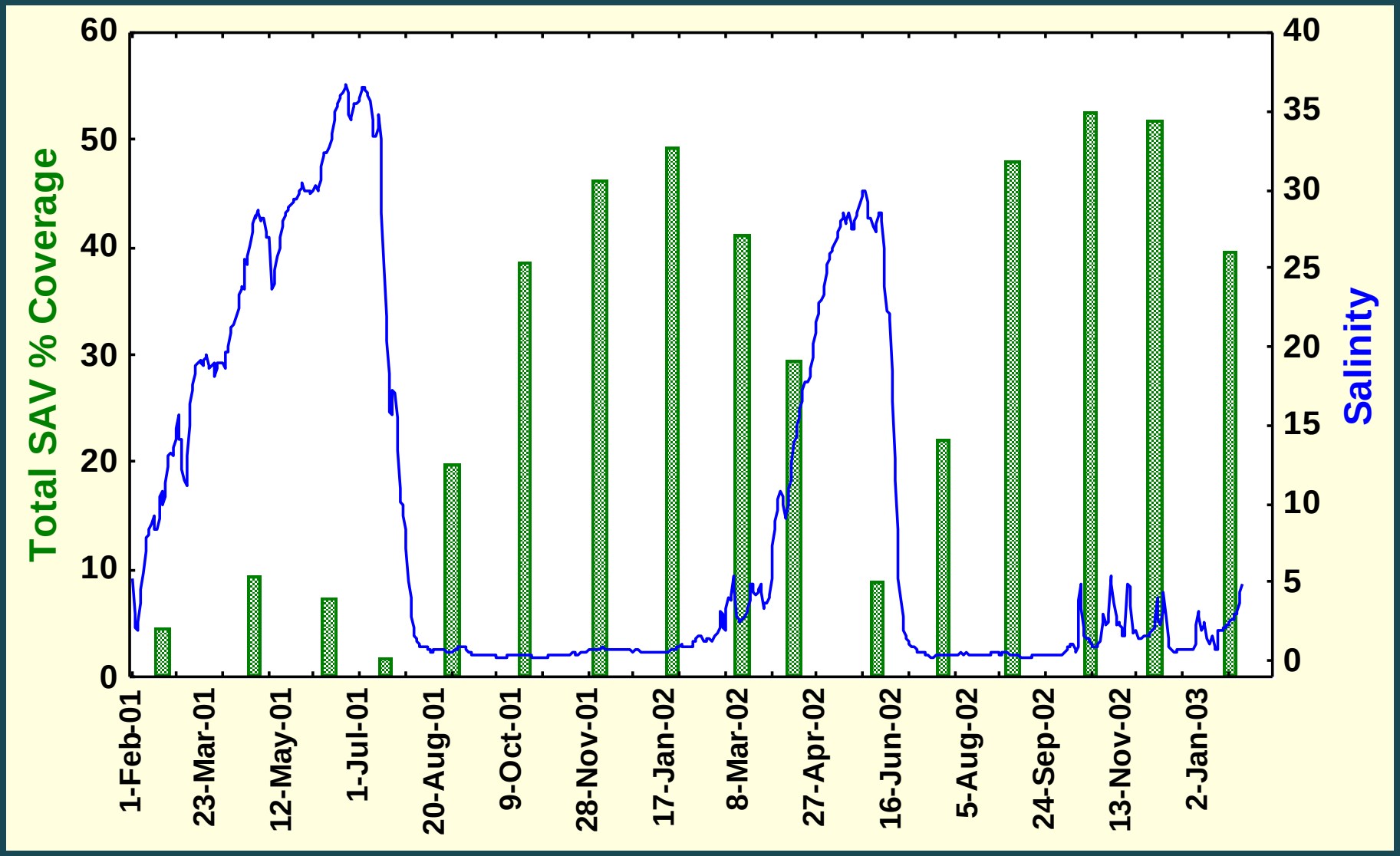


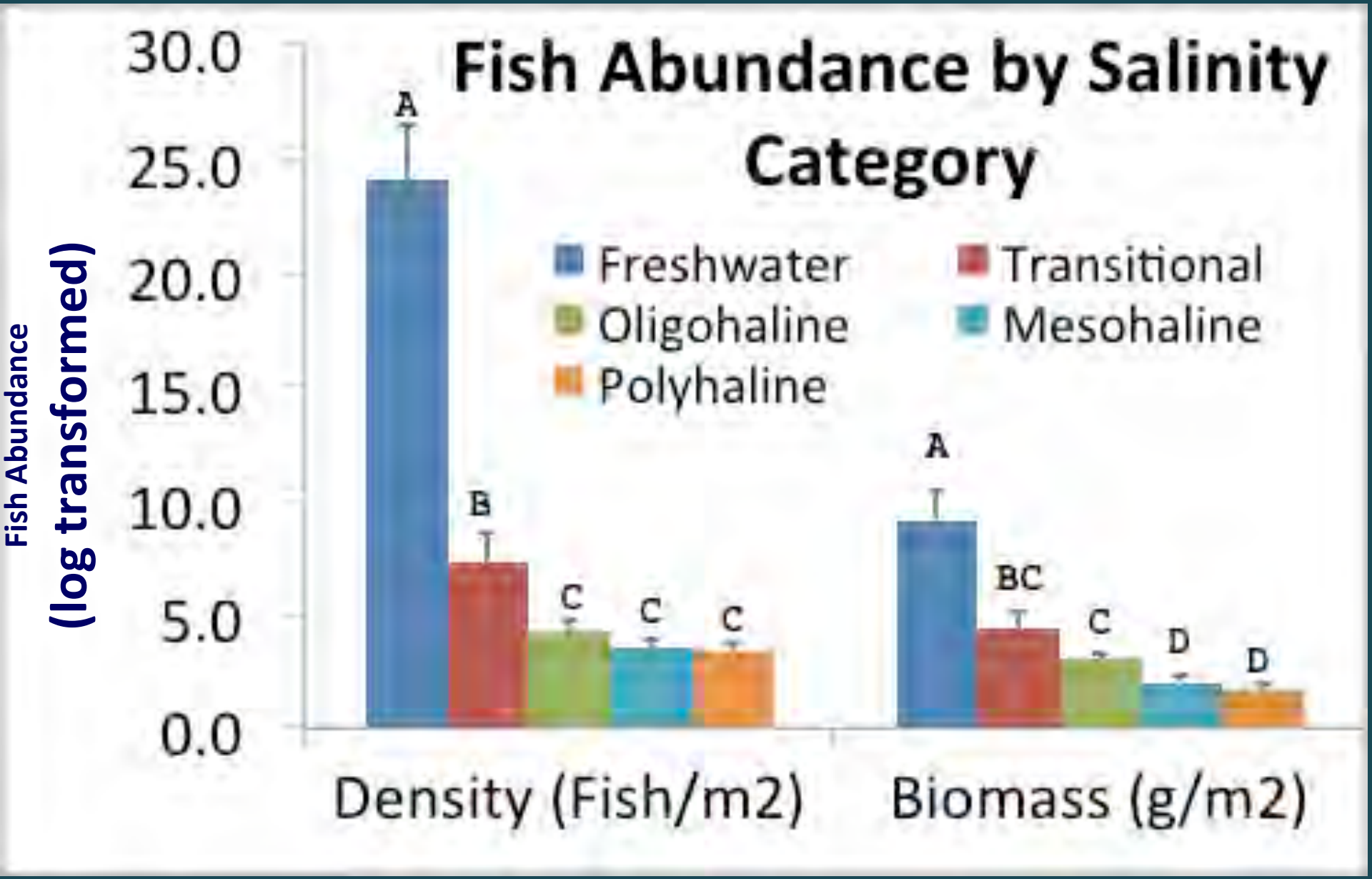


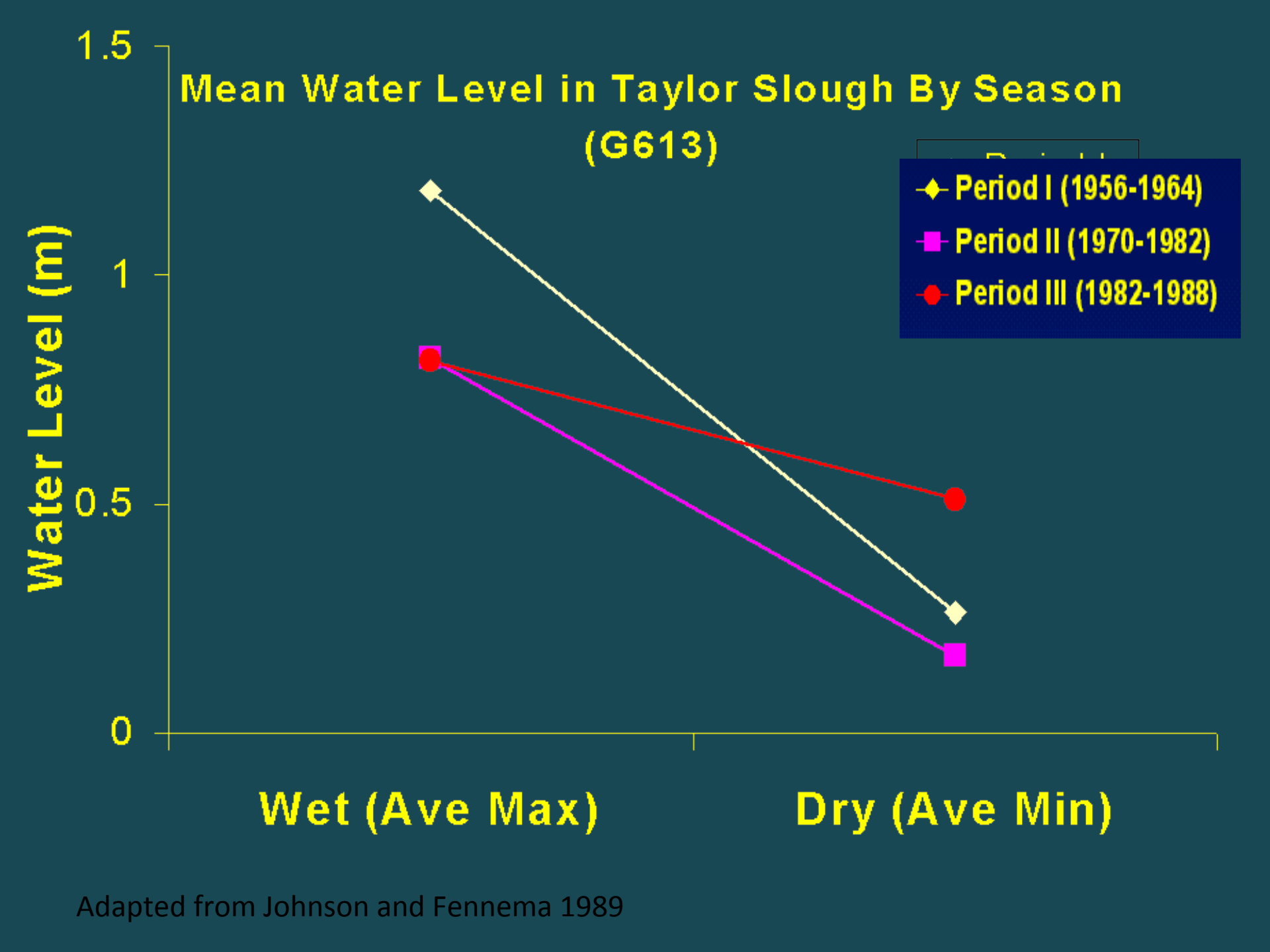



13cm

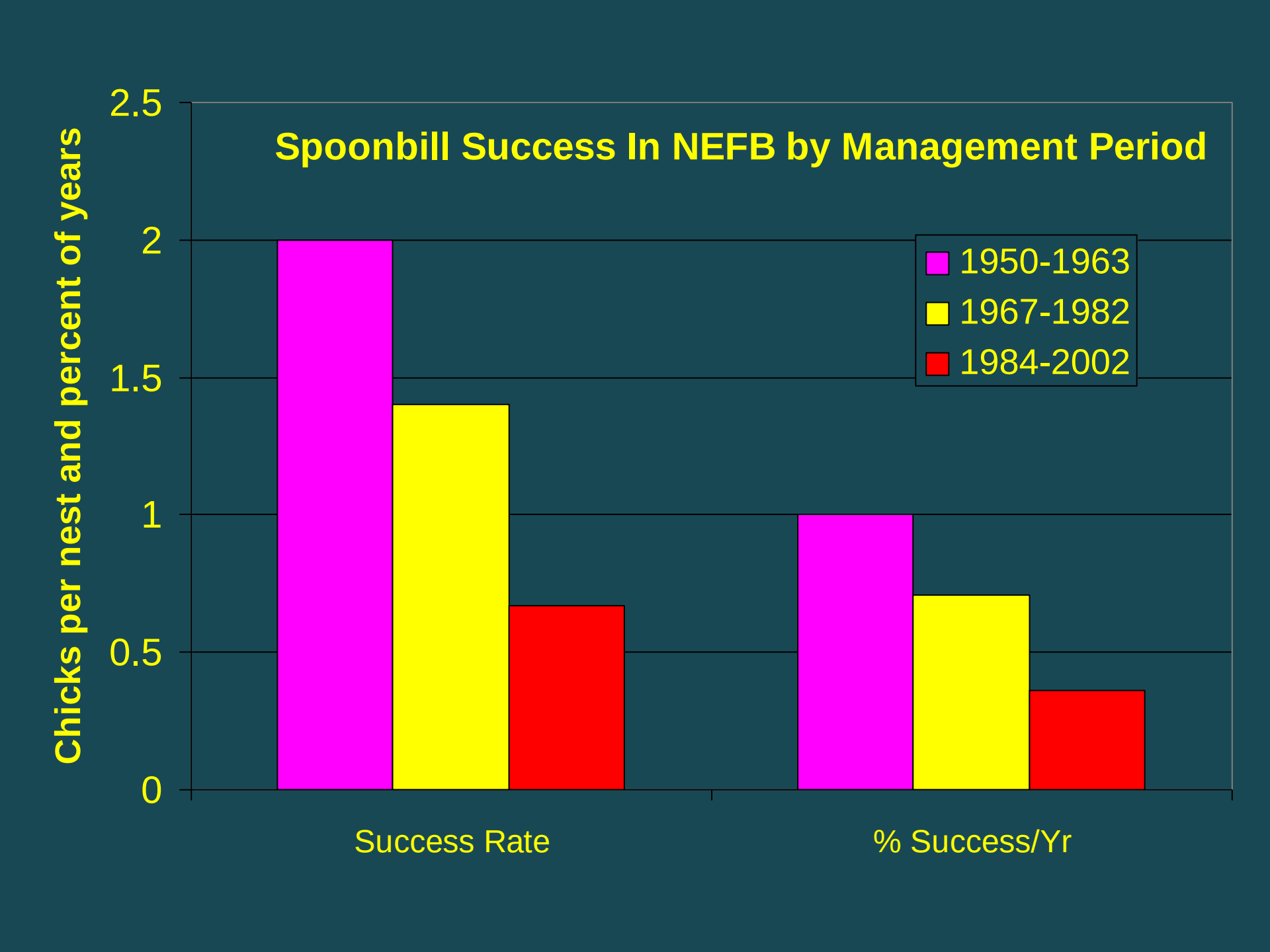

C-111
ENP Boundary
Taylor Slough
1994
1977
1967
1948
Florida Bay
Freshwater / Mangrove Transition
KM
0
2
4

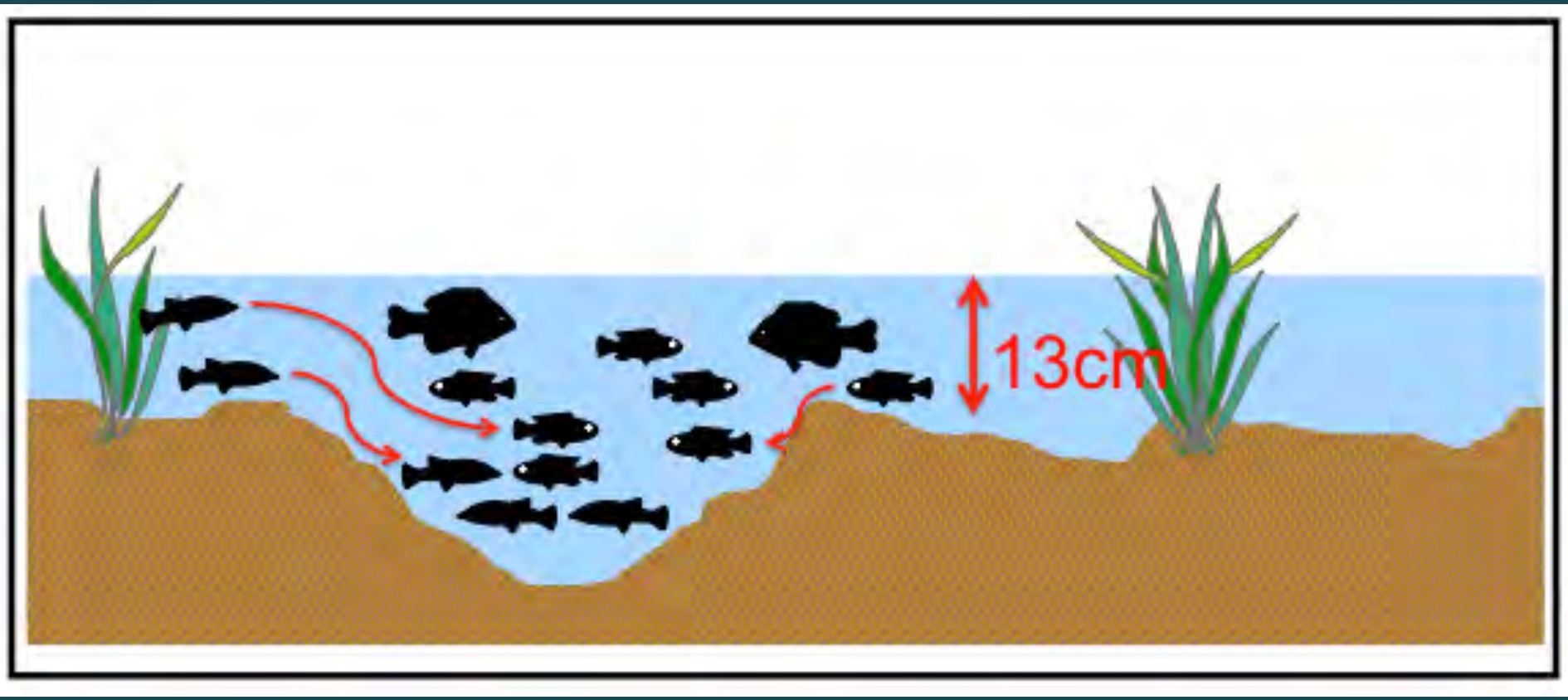

Total SAV % Coverage
Salinity
60
50
40
30
20
10
0
40
35
30
25
20
15
10
5
0
1-Feb-01
23-Mar-01
12-May-01
1-Jul-01
20-Aug-01
9-Oct-01
28-Nov-01
17-Jan-02
8-Mar-02
27-Apr-02
16-Jun-02
5-Aug-02
24-Sep-02
13-Nov-02
2-Jan-03

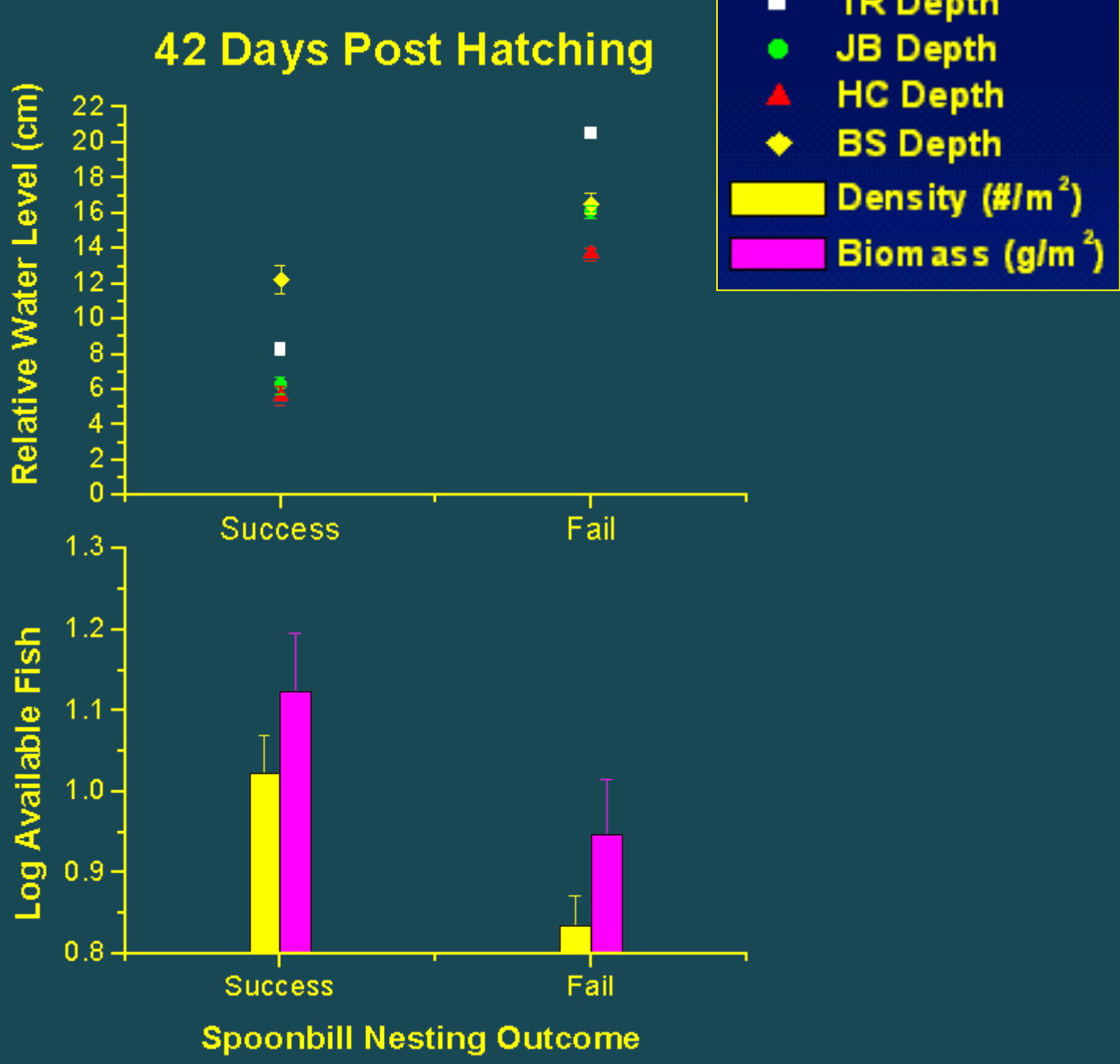

Fish Abundance by Salinity Category
Fish Abundance (log transformed)
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Freshwater
Transitional
Oligohaline
Mesohaline
Polyhaline
A
B
C
C
C
A
BC
C
D
D
Density (Fish/m2)
Biomass (g/m2)

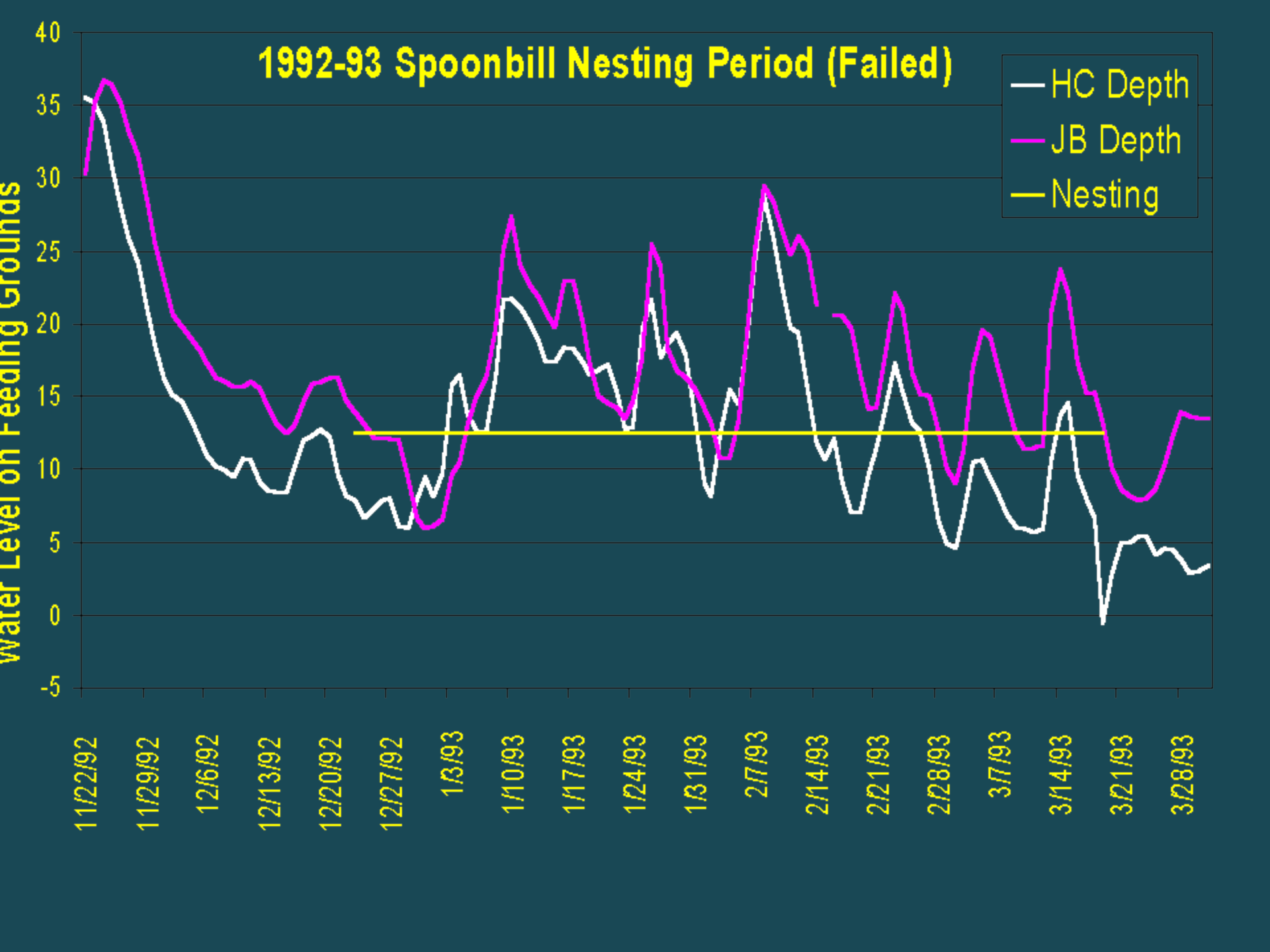


Adapted from Johnson and Fennema 1989


Spoonbill Success In NEFB by Management Period
Chicks per nest and percent of years
2.5
2
1.5
1
0.5
0
1950-1963
1967-1982
1984-2002
Success Rate
% Success/Yr


13cm


42 Days Post Hatching
TR Depth
JB Depth
HC Depth
BS Depth
Density (#/m²)
Biomass (g/m²)
Relative Water Level (cm)
22
20
18
16
14
12
10
8
6
4
2
0
Success
Fail
Log Available Fish
1.3
1.2
1.1
1.0
0.9
0.8
Success
Fail
Spoonbill Nesting Outcome

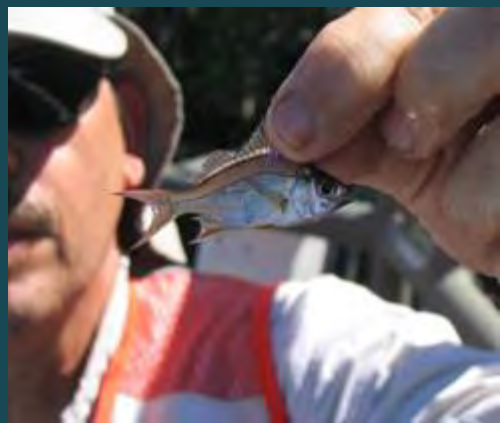

1992-93 Spoonbill Nesting Period (Failed)
HC Depth
JB Depth
Nesting
Water Level on Feeding Grounds
40
35
30
25
20
15
10
5
0
-5
11/22/92
11/29/92
12/6/92
12/13/92
12/20/92
12/27/92
1/3/93
1/10/93
1/17/93
1/24/93
1/31/93
2/7/93
2/14/93
2/21/93
2/28/93
3/7/93
3/14/93
3/21/93
3/28/93

A Review of the Effects of Altered Hydrology and Salinity on Vertebrate Fauna and Their Habitats in Northeastern Florida Bay

Jerome J. Lorenz

Species/Group	References	Type of evidence	Inferred change from historical	Documented change through time
Prey base fishes	Lorenz 1999, Lorenz 2000, Lorenz and Serafy 2006, Lorenz 2012	Inferred from field studies	Much lower productivity due to salinity stress, habitat change and reduced hydroperiod	Freshwater periods are more productive than periods with saline influence
Spotted seatrout	Rutherford et al. 1989	Inferred from field studies	Perhaps increased in number due to a more compatible higher salinity	Increased catch rates from 1972 to 1984
Red drum	Tilmont et al 1989a, Rutherford et al. 1989	Inferred from field studies	Decreased due to less freshwater runoff	
Common snook	Tilmont 1989b, Rutherford et al. 1989	Inferred from field studies	Decreased due to less freshwater runoff	Declined catch rates from 1972 to 1984
Mud bank fish community structure	Sogard et al 1989, Matheson et al. 1999	Qualitative		Changed from benthic to pelagic dominated spp from 1984-86 to 1994-96
Seagrass fish community structure	Thayer and Chester 1989, Thayer et al. 1999	Qualitative		Changed from benthic to pelagic dominated spp from 1984-85 to 1994-96
Mangrove shoreline fish productivity	Ley 1992, Montegue and Ley 1993, Ley et al. 1994	Inferred from field studies	Lowered productivity compared to historic condition	
American crocodile range	Ogden 1978, Mazzotti 1999, Mazzotti et al. 2009	Quantitative	Much more abundant and widespread historically	Nesting range shrank from all of NEFB in 1930's to just the coastal mangrove by 1999; population center in ENP shifted from NEFB to Cape Sable beginning in the early 2000's
American crocodile abundance	Ogden 1978, Mazzotti and Dunson 1984, Moler 1991, Mazzotti 1999	Quantitative, inferred from field studies	Salinity stress reduced growth rate and survival of hatchlings and juveniles resulting in population decline since 1984	Declined from up to 2000 historically to less than 400 by 1970. Modest increases in nest number since but recovery not as fast as expected under a more historic flow regime
Mangrove terrapin	Dunson and Mazzotti 1989	Inferred from experimental results	Hatchling survival reduced from historical due to salinity stress	
West Indian manatee	Beard 1938, Hartman 1974, Odell 1979, Worthy 1998	Quantitative, inferred from field studies	Less use of NEFB due to salinity stress and salinity induced habitat changes	Declined from high use in 1938 to rare in 1990's relative to overall population numbers
Bottlenose dolphin	Torres 2009	Inferred from field studies	Reduction of preferred prey (see fish) species may explain minimal use of the Northeastern Basin	
Roseate spoonbills	Lorenz 2000, Lorenz et al. 2002, Lorenz et al. 2009	Quantitative, inferred from field studies	Lower nesting success due to salinity induced declines in prey number	Decline in the number of nests from 1259 in 1979 to less than 350 currently
Great white heron	Powell and Powell 1986, Powell et al 1989	Quantitative, inferred from field studies	Lowered nest productivity due to reduced prey base	Significant decline in nesting success in the mid-1980's compared to early 1920's
Eastern brown pelican	Kushlan and Frohring 1985, Ogden 1993	Quantitative, qualitative	Were common nesters in NEFB in 1980's but have only nested twice since 1991	Baywide nest numbers declined from 850 in 1976 to 350 in 1993.
Ospreys	Ogden 1987, Poole 1989, Ogden 1993, Bowman et al. 1989	Quantitative, inferred from field studies	Reduced nest numbers and nesting success due to low prey productivity	Baywide decline from 200 nests in the 1970's to 70 nests; disproportionately larger declines in NEFB.
Bald eagle	Curnutt 1996, Baldwin et al. 2012	Quantitative		Consistently about 30 territories baywide from 1958 to mid 1980's then declined to 50% occupancy in 2003, Territories in NEFB declined from 7 to 1 since mid-1980's.

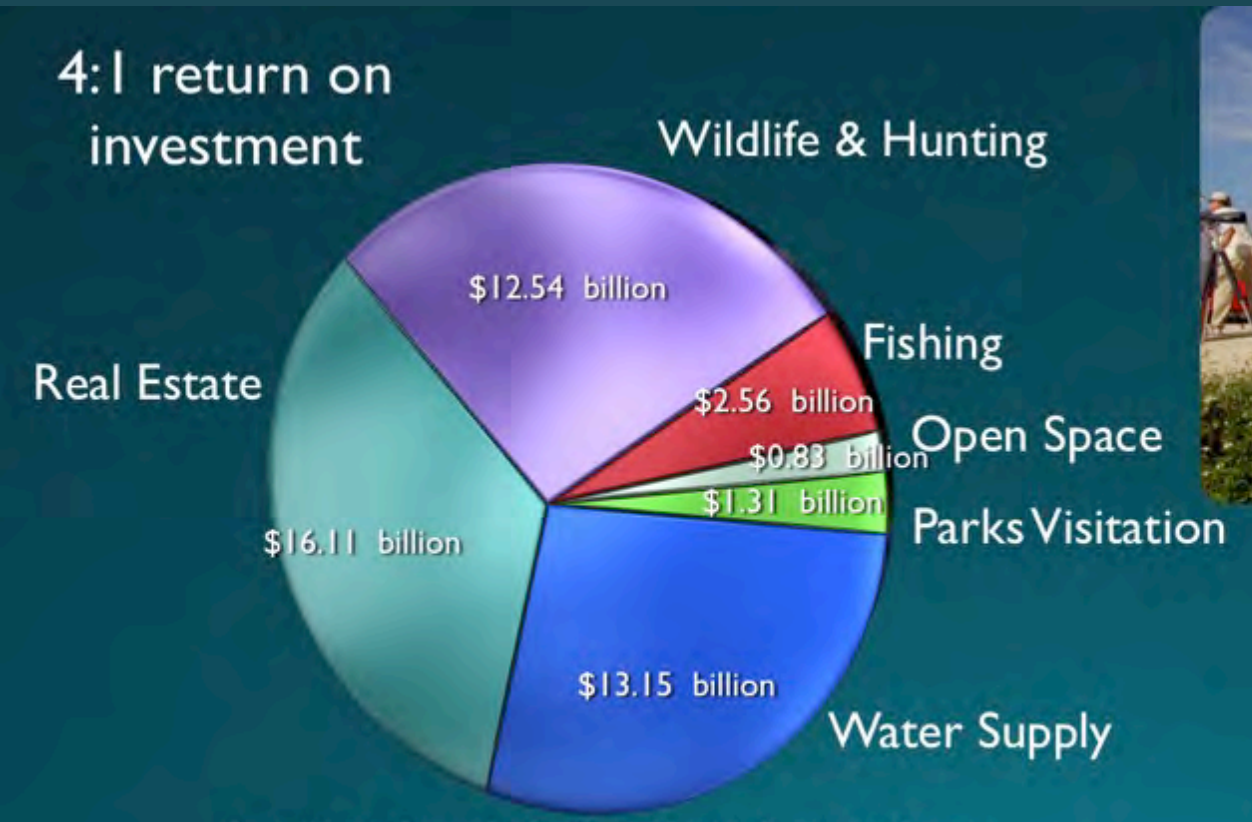
Small Fishes: Drop & Minnow Traps



Restoration benefits fish, wildlife, and recreational opportunities

…and our economy!

4:1 return on investment



Source: "Measuring Economic Benefits of America's Everglades Restoration: An Economic Evaluation of Ecosystem Services Affiliated with the World's Largest Ecosystem", Mather Economics, 2010

> 400,000 jobs created

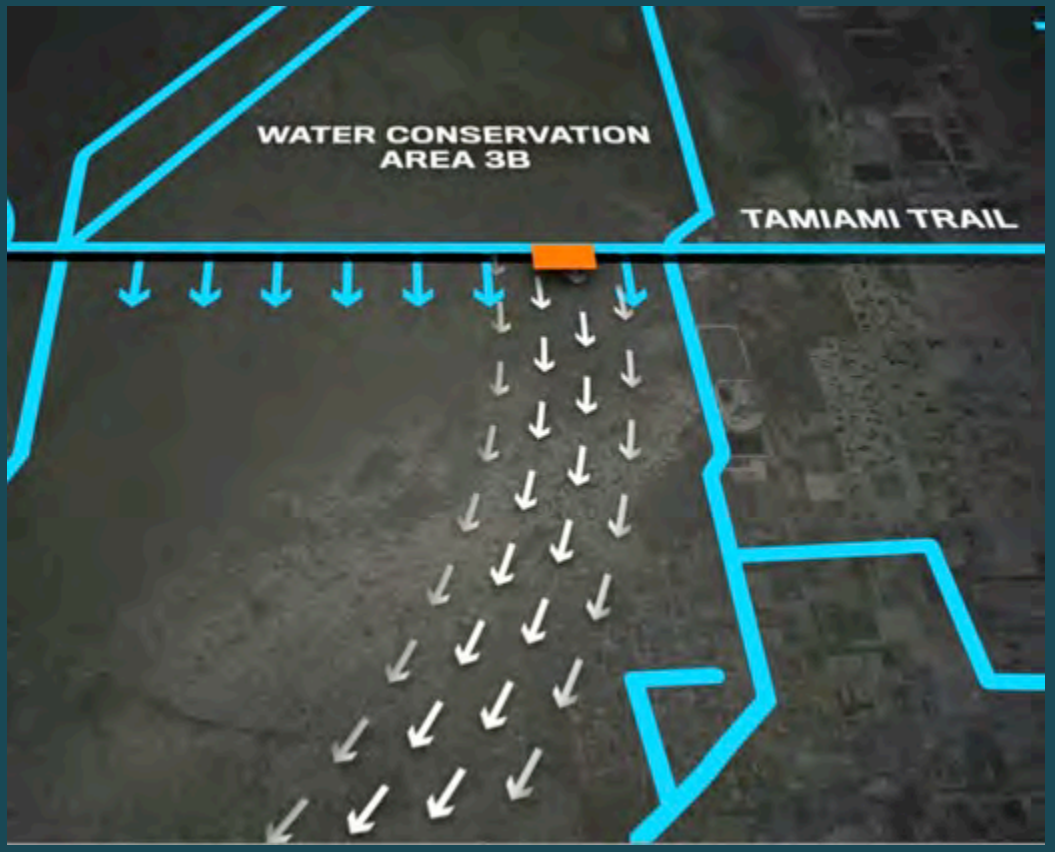
Economics (per year)

- Annual User value of water related activities: $660M
- $59 Million Shrimp Fishery
- $22 million Stone Crab Fishery
- $40 Caribbean Spiny Lobster Fishery

How can we solve the impairments to Flow For Gulf Coast Estuaries

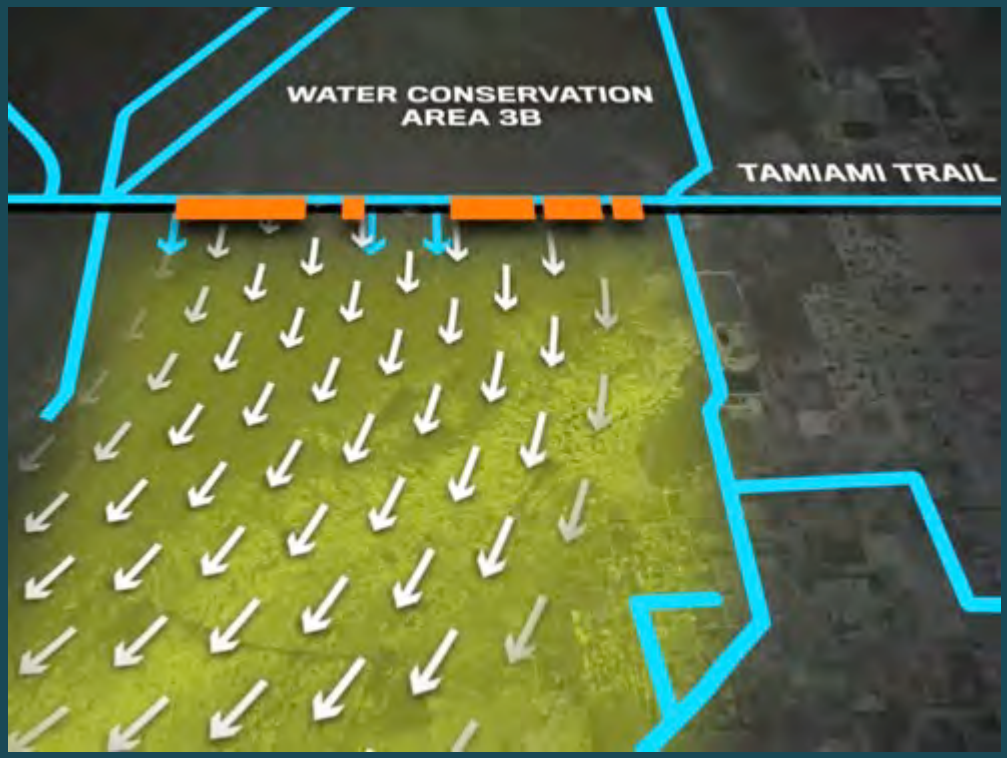
- Open up impediments to natural water flow
- Block inappropriate conduits to water flow

Removing Impediments to Flow



Bridging Tamiami Trail is the Key to Restoring Flows

- More bridging increases our capacity to flow water into Everglades National Park.
- More flow into the park improves estuarine conditions around the Everglades and across the FL Keys



C-111 Eastern Phase

Restored Flows Improve Estuarine Conditions

Conclusions

- Restoring Natural Flows to Estuaries is Gulf of Mexico Restoration
- Restoring the Everglades is helping to restore the Gulf

Audubon FLORIDA

EVERGLADES FOUNDATION

Restorefloridasgulf.org
Restorefloridabay.org

Contact :Jerry Lorenz 3058525092
.jlorenz@audubon.org
Steve Davis 786-249-4460
sdavis@evergladesfoundation.org