Coastal Priorities
of the
St. Johns River Water Management District
Palatka, Florida

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Savannah, Georgia

OUTLINE

- Coastal Mission

- Key Areas of Interest and Problems

- Data produced and consumed

ST. JOHNS RIVER
WATER MANAGEMENT
DISTRICT

St. Marys River

Lower St. Johns River

"Northern" Coastal Basins

Indian River Lagoon

" … ensure the availability of sufficient water for existing and future reasonable-beneficial uses and natural systems…"

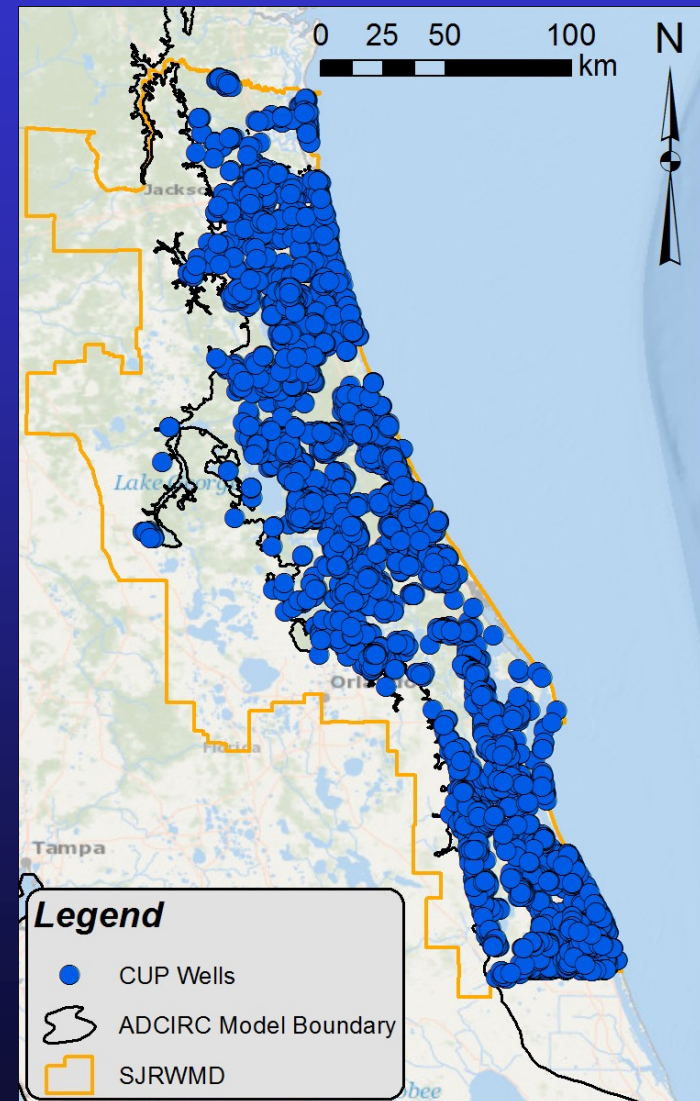"Enhance and protect the water quality and ecological habitat of the coastal basins of northeast Florida …"

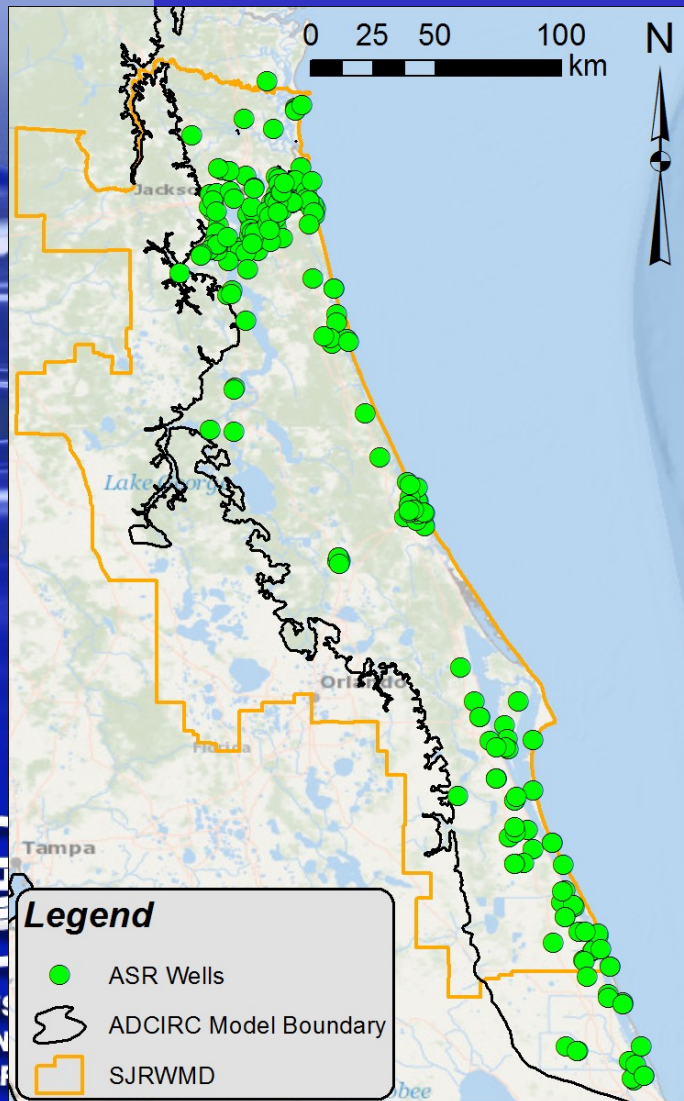"Develop a System-wide Improvement Framework (SWIF) for levee and water control structure maintenance and restoration …"

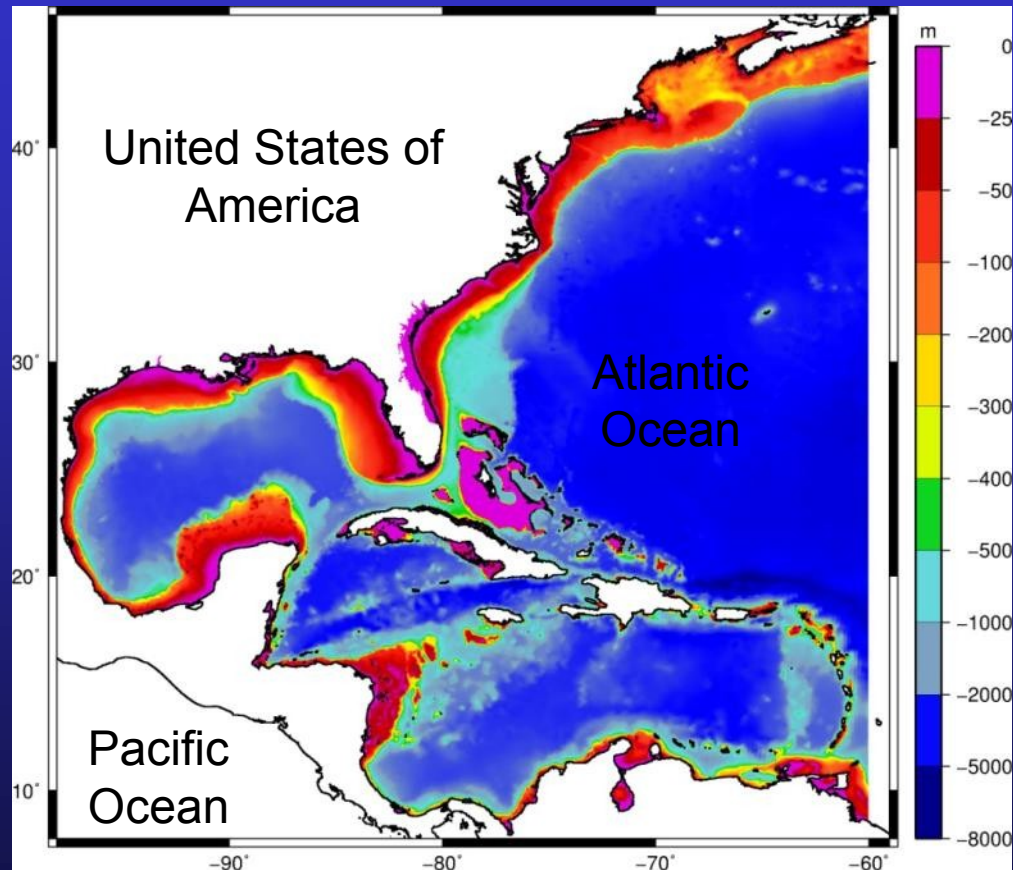" Identify and implement restoration and vegetation management projects on District-owned lands…"

District Core Mission Areas

water supply
water quality
flood protection
natural systems

From District Strategic Plan, April 2014 (http://floridaswater.com/StrategicPlan.pdf)

WATER SUPPLY
Location of ASR (238) and CUP (8077) Wells

WATER SUPPLY
Unstructured Mesh & Bathymetry

CUP Wells

2100 High

Case 6 (1.57m SLR)

Zoom 1

Wells Inundated: 854
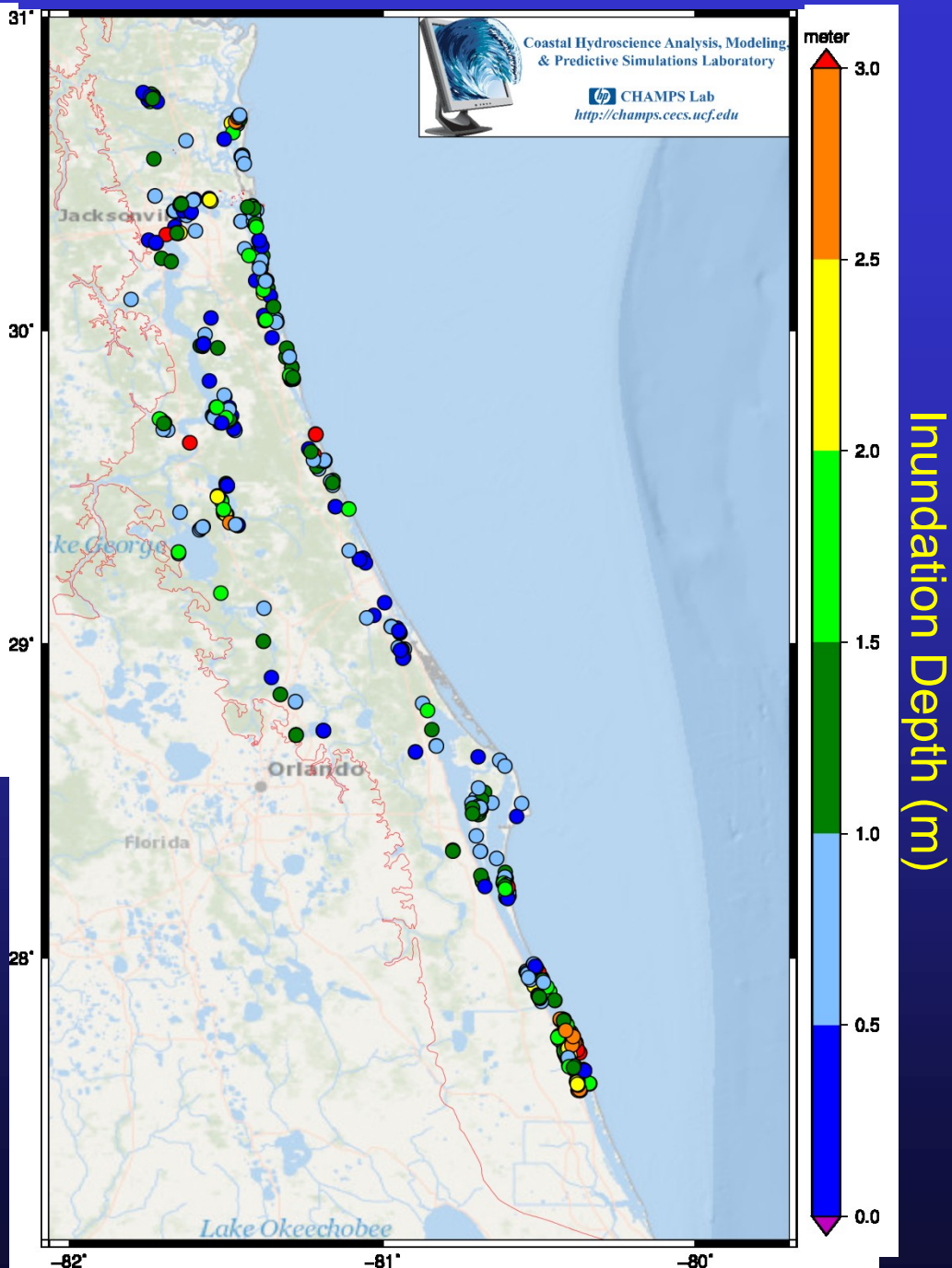
WATER SUPPLY & WATER QUALITY
Lower St. Johns River

Salinity and Maximum Salinity Suitability Index at Station JAXSJR40 (1995 to 2005)
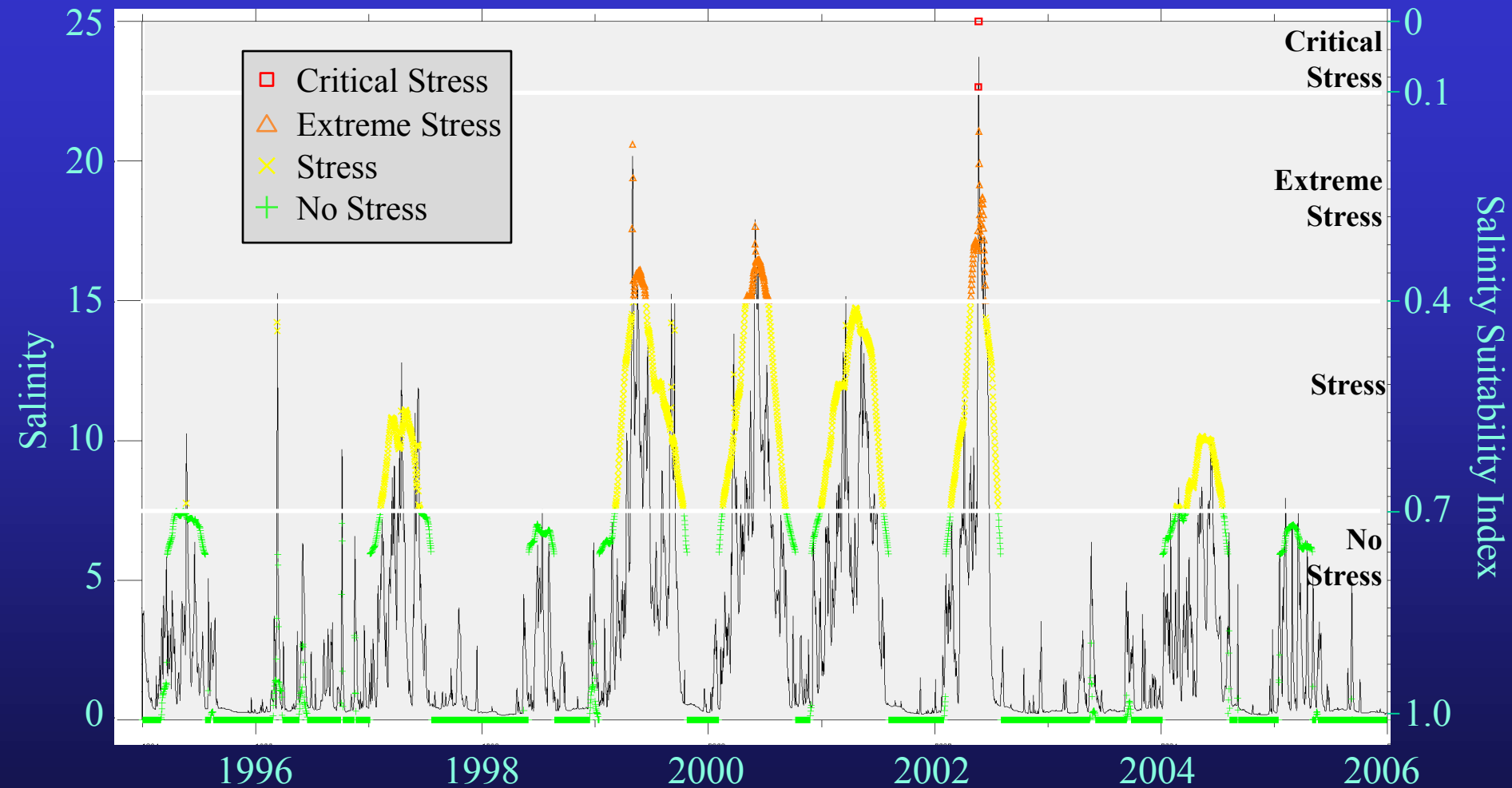
Salinity is shown as solid line and salinity suitability index as symbols indicating stress category. Station JAXSJR40 is 50 km from the river mouth.
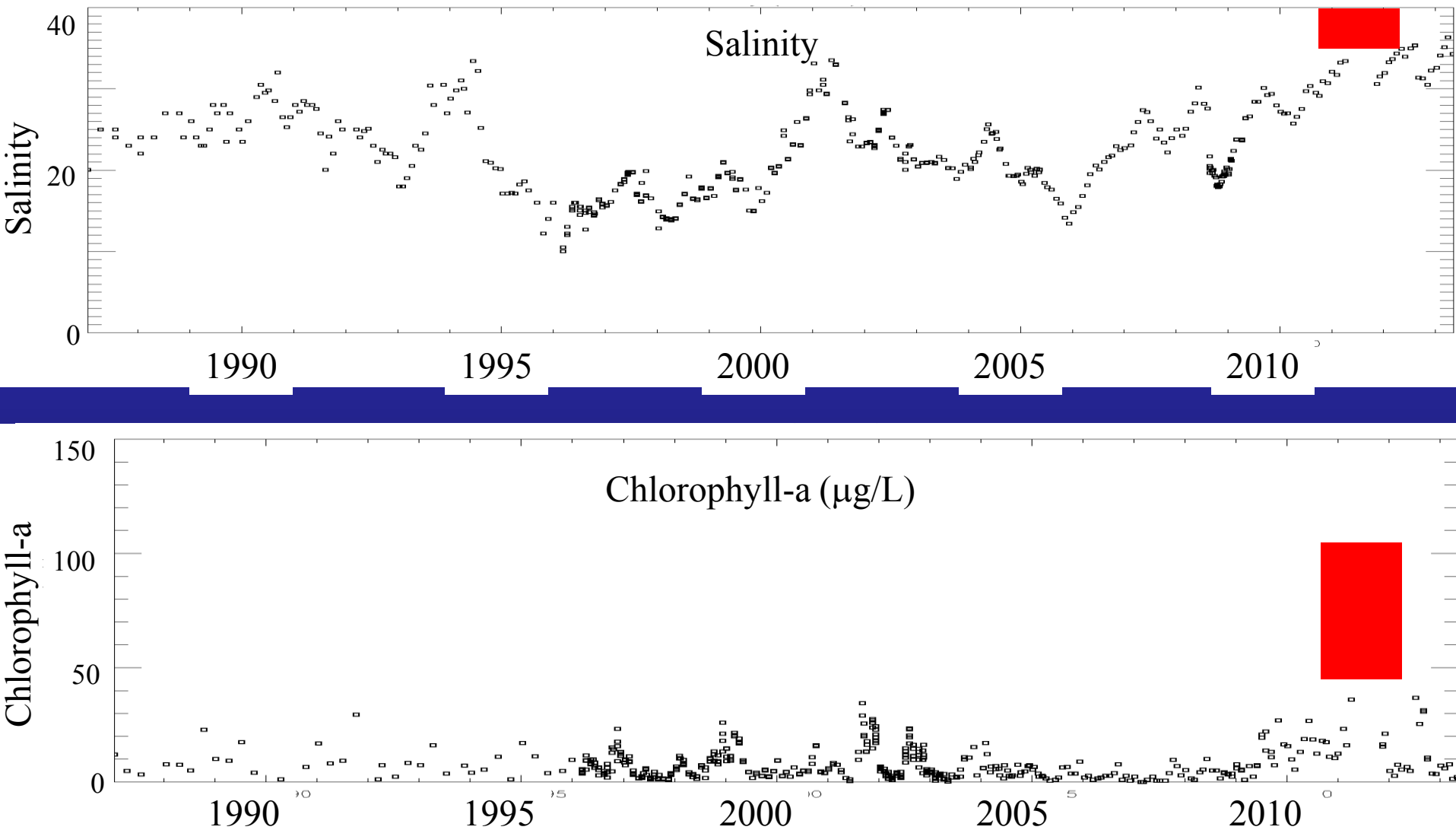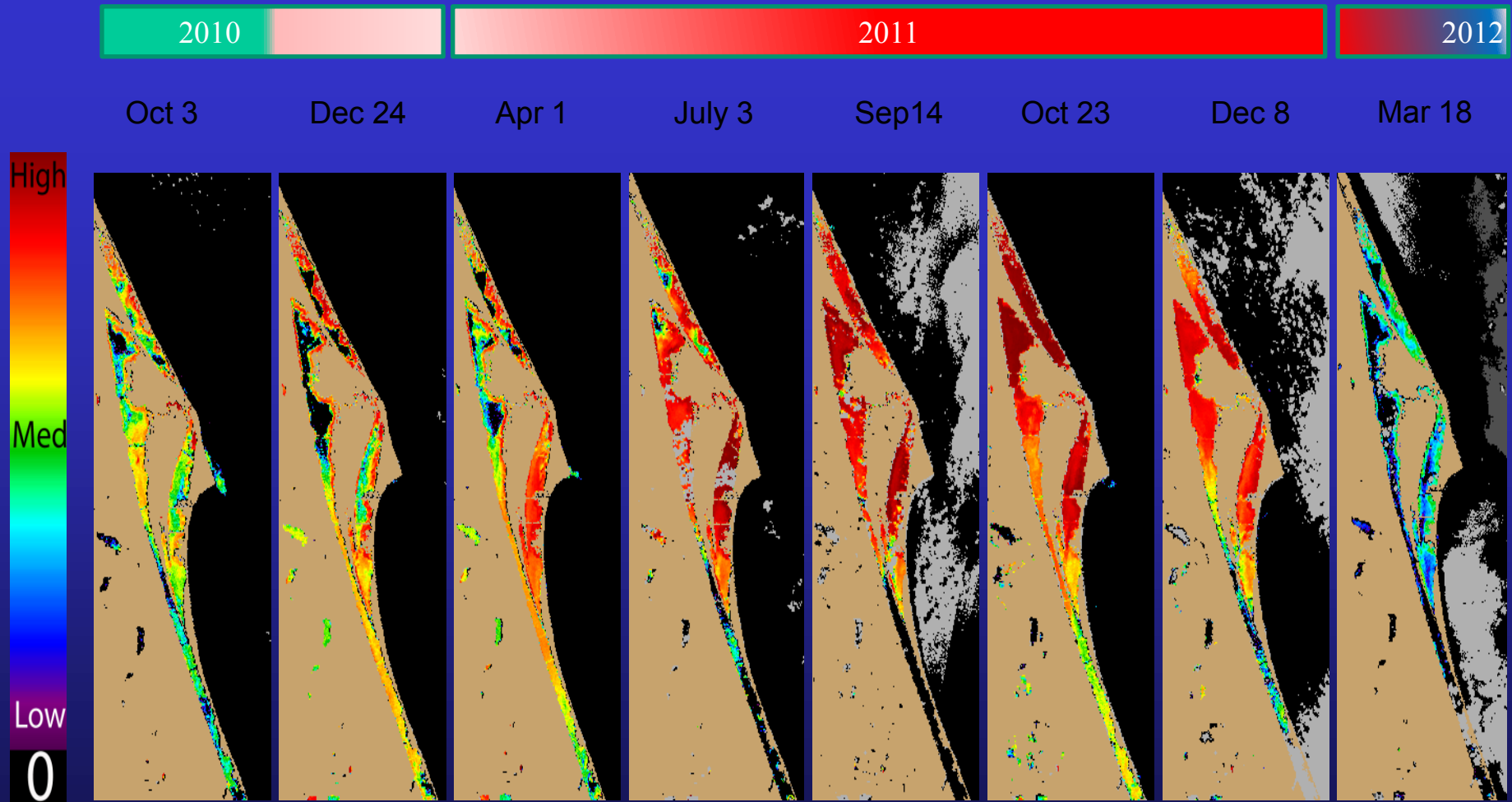
WATER QUALITY

Indian River Lagoon
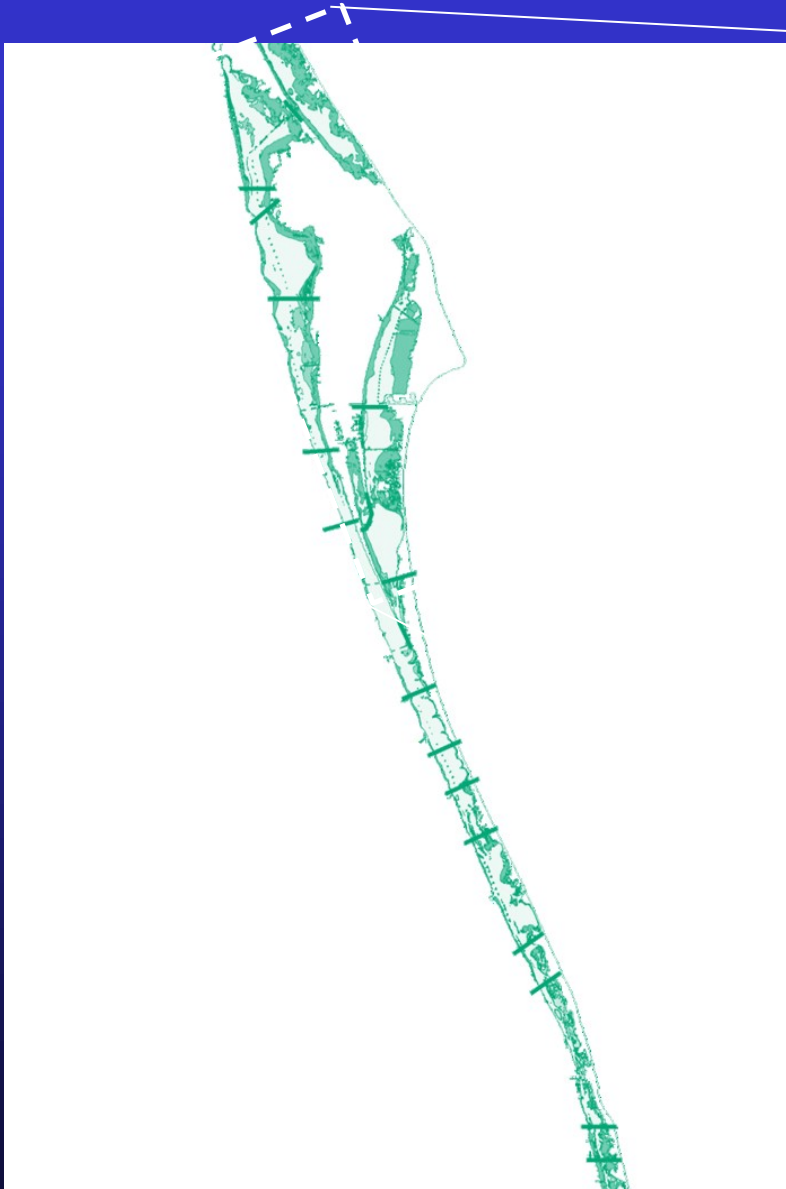**Seagrasses are the primary producers of a healthy Lagoon**

Bill Keogh

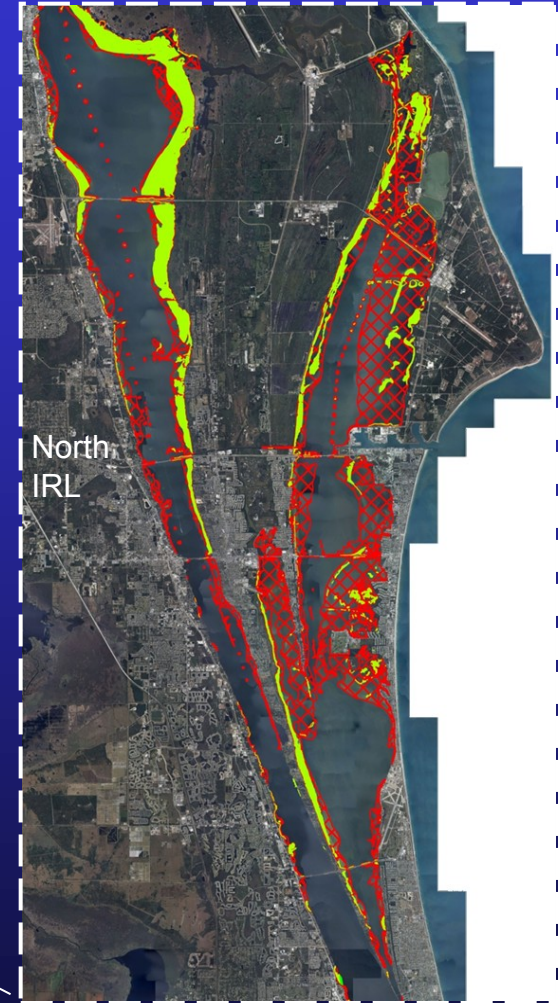# In 2011, a hypersalinity event was followed by an unprecedented algal bloom

2011 Superbloom was of record magnitude & duration

Red hatching → *seagrass loss from 2009 to 2011*

North IRL

Many Manatee died the following winter.
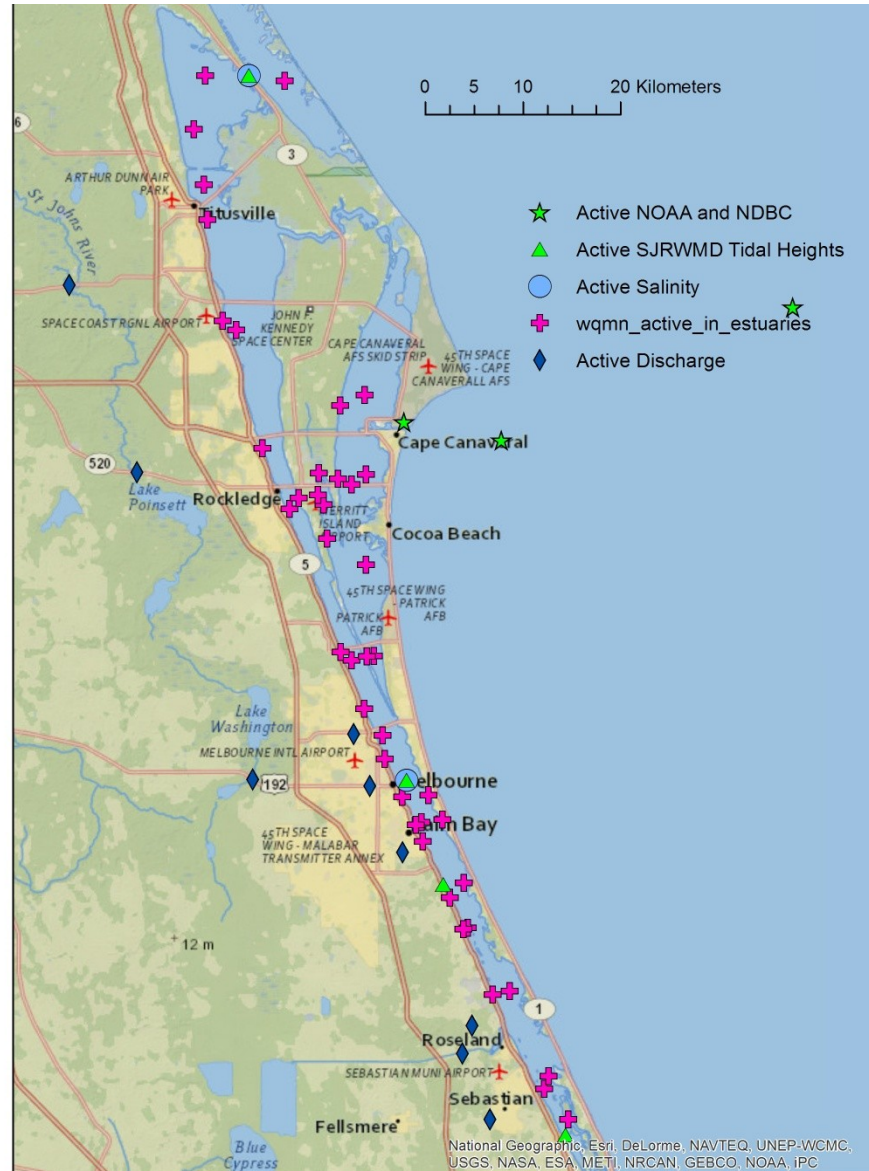

SKIP O'ROURKE | Times
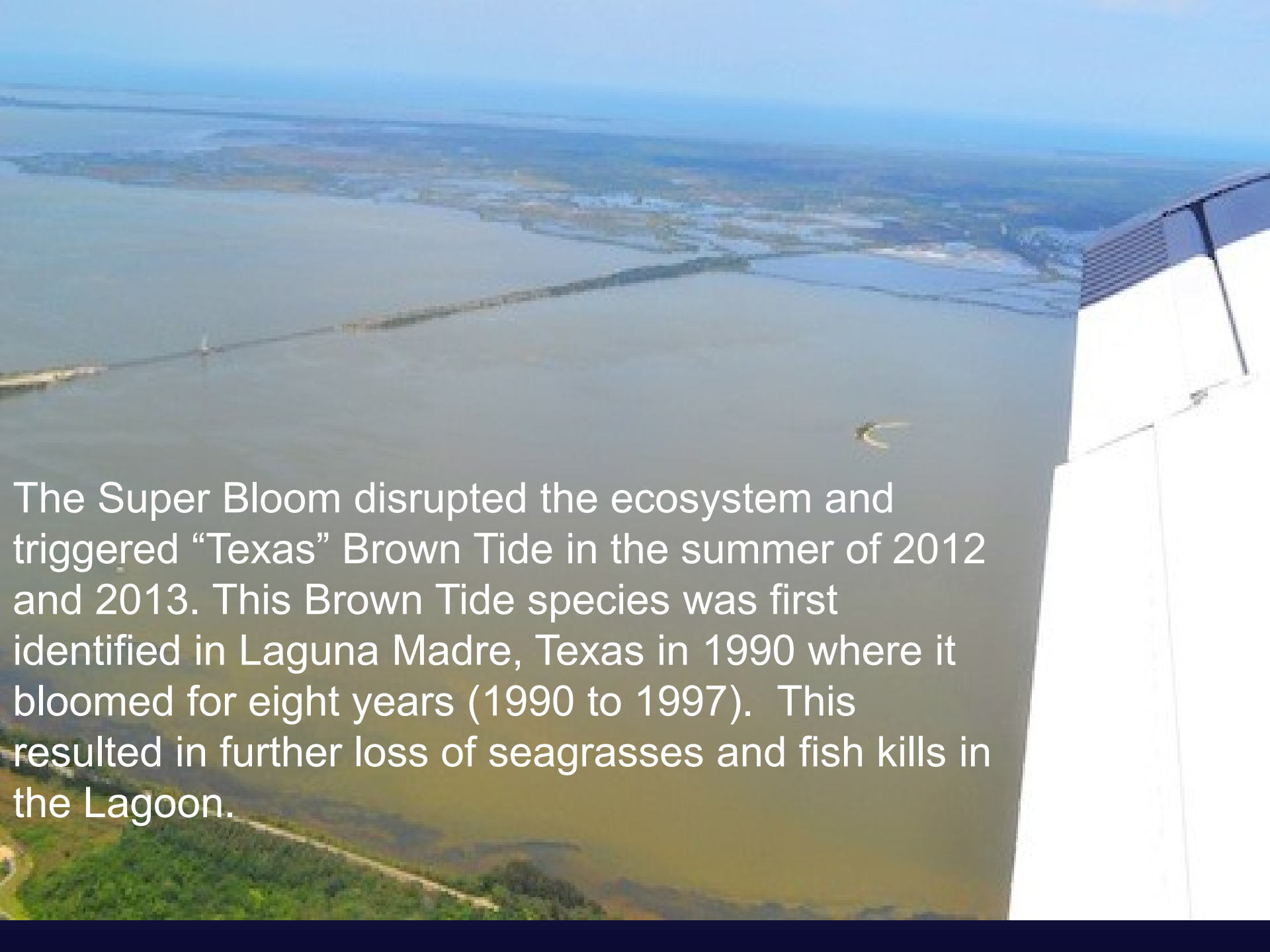
The Super Bloom disrupted the ecosystem and triggered "Texas" Brown Tide in the summer of 2012 and 2013. This Brown Tide species was first identified in Laguna Madre, Texas in 1990 where it bloomed for eight years (1990 to 1997). This resulted in further loss of seagrasses and fish kills in the Lagoon.

DATA
Indian River Lagoon Station Locations

DATA

We Produce (annual budget ~19.7 M)
- Water Quality Sampling
- Doppler Gridded Rainfall
- Tidal Water Level (FDEP)
- Discharge (USGS)
- Continuous S, T, DO, NOx
- Wells
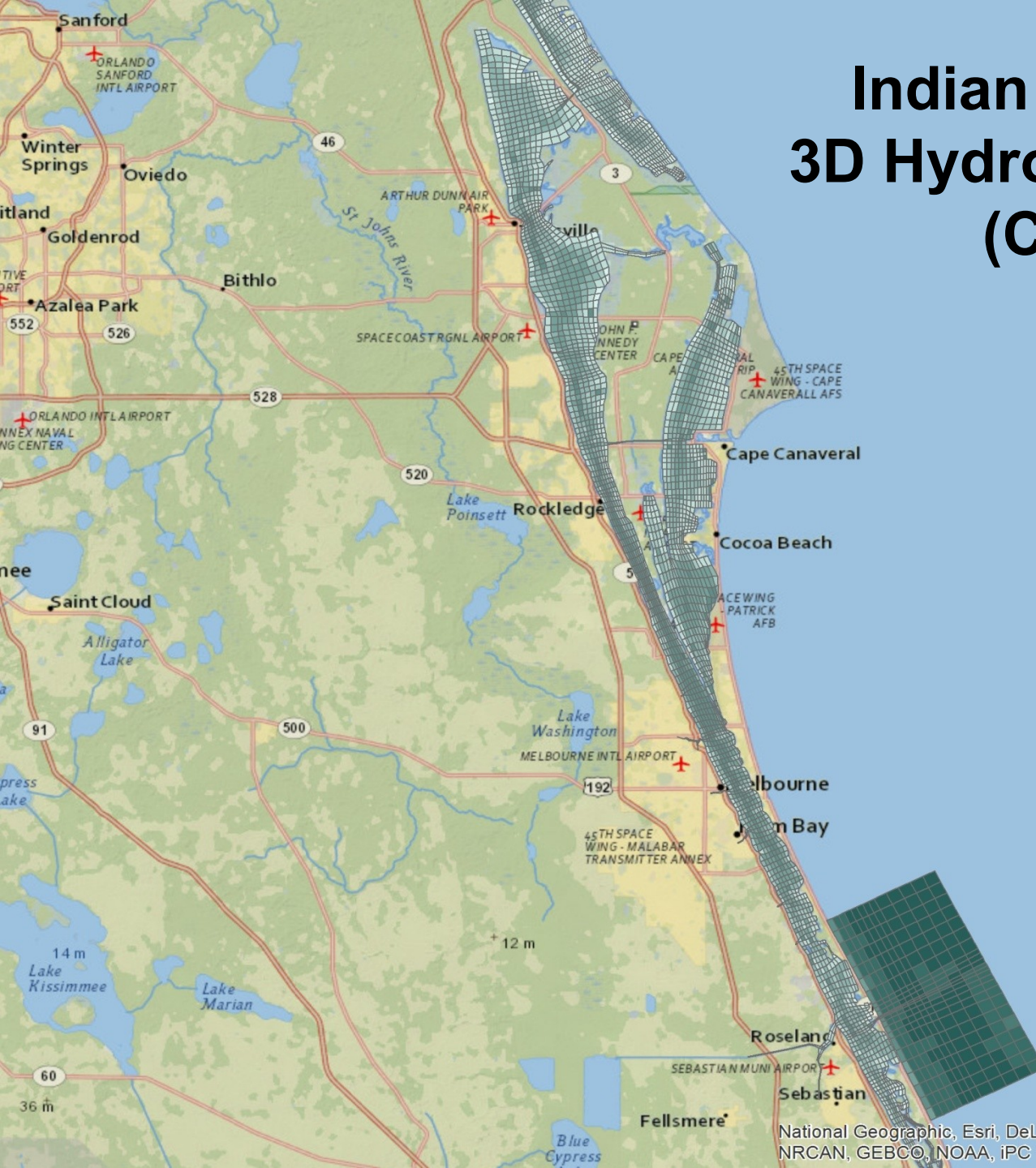- Estuarine Bathymetry
- Seagrass Transects

We Consume
- USGS Florida Water Science Center (gridded Solar, RH, airT, PET)
- NLDAS (NCEP, USGS GDP, HydroDesktop)
- Shelf bathymetry (NOAA)
- LiDAR (State & Counties)
- FEMA Mapping
- SE River Forecast Center
- NHC
- NOAA Tides and Currents

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WATER MANAGEMENT
DISTRICT

**Indian River Lagoon
3D Hydrodynamic Model
(CH3D, UF)**

DATA

We Need:

• Shelf Meteorology Hindcasts (Wind, SST, S, total nutrients)

• Shelf Tidal/Non-tidal Water Level Hindcasts

• Real-time Estuarine & Shelf Water Level

• Real-time Estuarine & Shelf Salinity & Temperature

• Shelf WQ: Nutrients, Anoxia (upwelling, Gulf stream meanders, inner shelf transport)

ST. JOHNS RIVER
WATER MANAGEMENT
DISTRICT

Summary

- SJRWMD is attempting to connect coastal inundation and SLR to water supply

- SJRWMD has a large stake in understanding estuarine water quality, but thus far has poor connection with shelf dynamics

- SJRWMD generates appreciable data in estuaries and in watersheds

- SJRWMD is in the infancy in consuming oceanographic/shelf products; we need to be part of a broader, cooperative effort

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT