MBON Data Dashboard Products

Dan Otis, Tylar Murray, Frank Muller-Karger
University of South Florida, College of Marine Science

Climate Science and Information for Sanctuaries Task Force Mtg.
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Link to Flower Garden Banks dashboard:
http://fgbnms-dashboard.marine.usf.edu:3000

Goals

- Provide a ”one stop shop” data dashboard for environmental data from satellites and other sources

- Both near real-time and historical data

- Users can select time period, parameters and locations to display

- Automatically updated nightly

- Email alerts of anomalous conditions

- Ability to add more data sets over time or use in other locations

Phenomena to capture

- Nutrient-rich waters impacting coral reefs

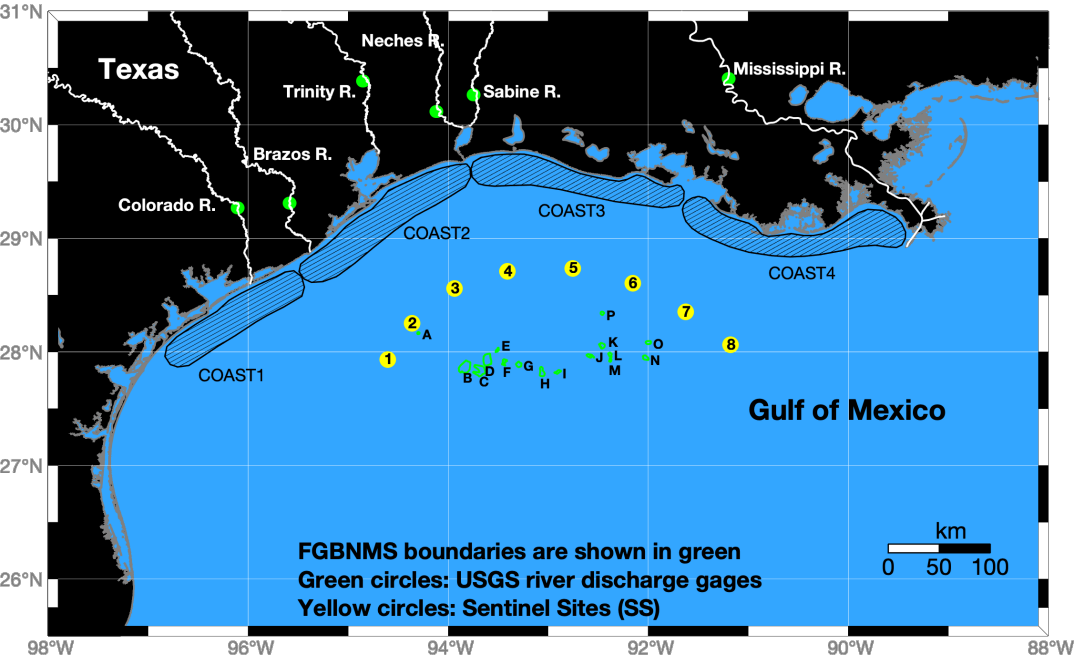
- Coral disease

- Periods of high river discharge

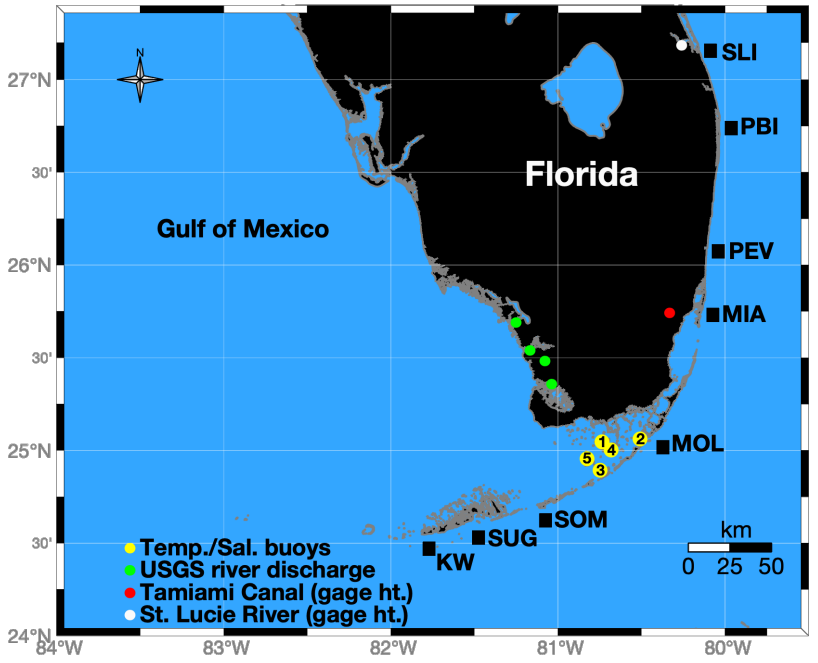
- Red tide/HABs

- Hypersaline waters from Everglades

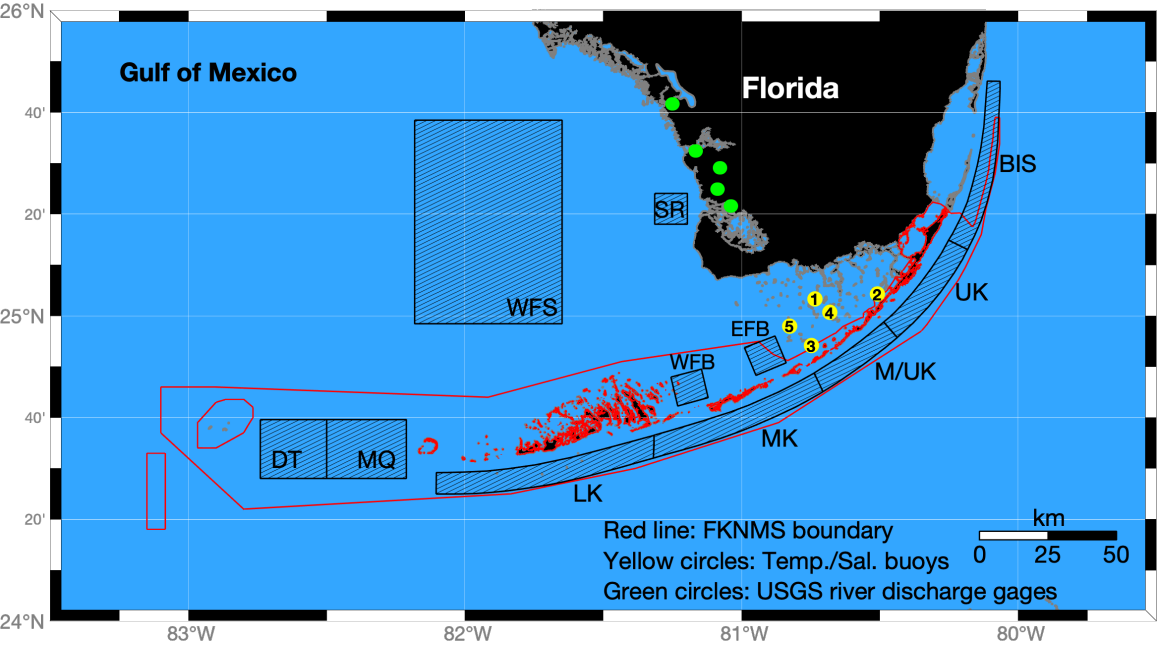
- Turbidity events (resuspension by storms)



FGBNMS (2017 – Sanctuary expanded in 2021)



FWC Coral Disease (2020)



FKNMS (2018)

Dashboard products

Satellite data – MODIS Aqua

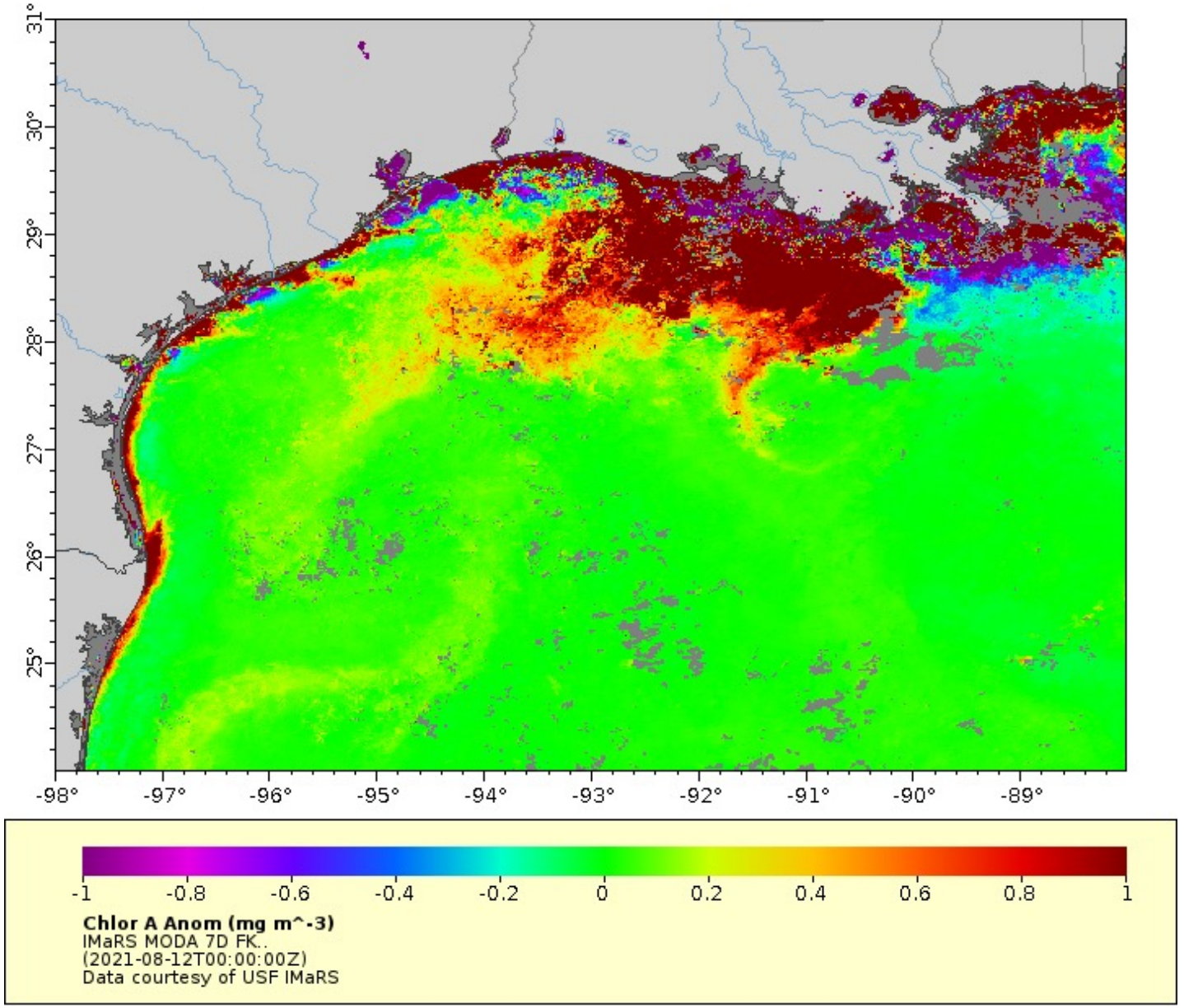
Imagery (7-Day composites) and extracted time series (daily)

a. Chlorophyll-a concentration
b. Sea-surface temperature
c. Algal Bloom Index (HABs)
d. Red reflectance (turbidity proxy)
e. Kd(490) – proxy for water clarity

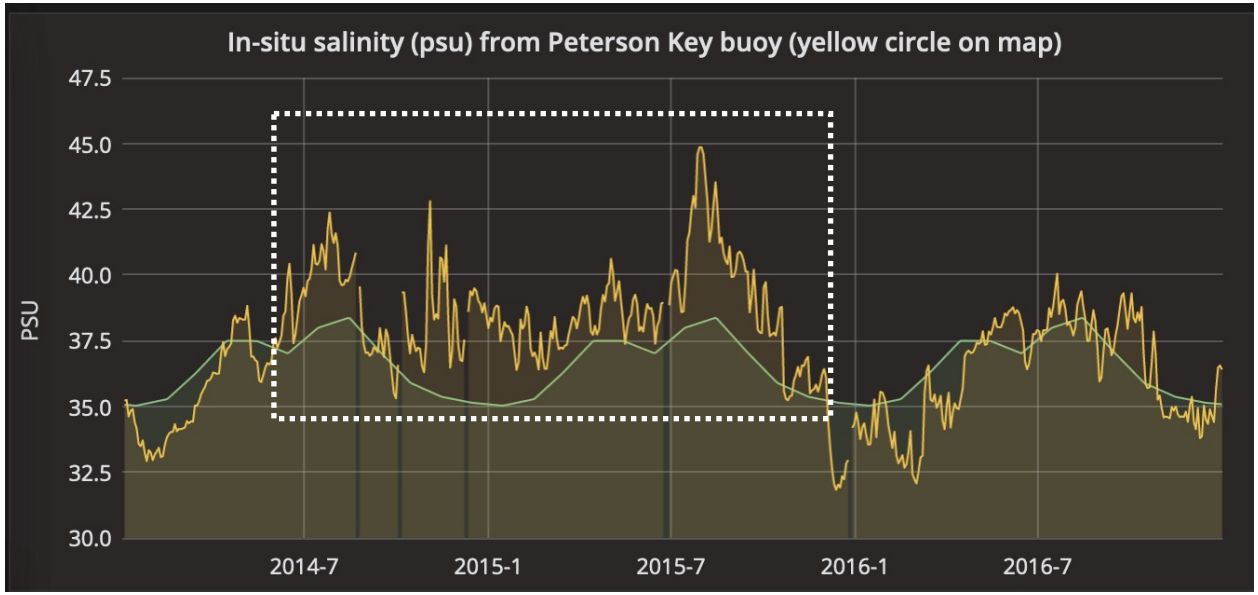
Other environmental data

- River discharge and gage height (USGS)
- Buoy data in FL Bay from National Park Service (FL Keys)
  - In-situ temperature and salinity

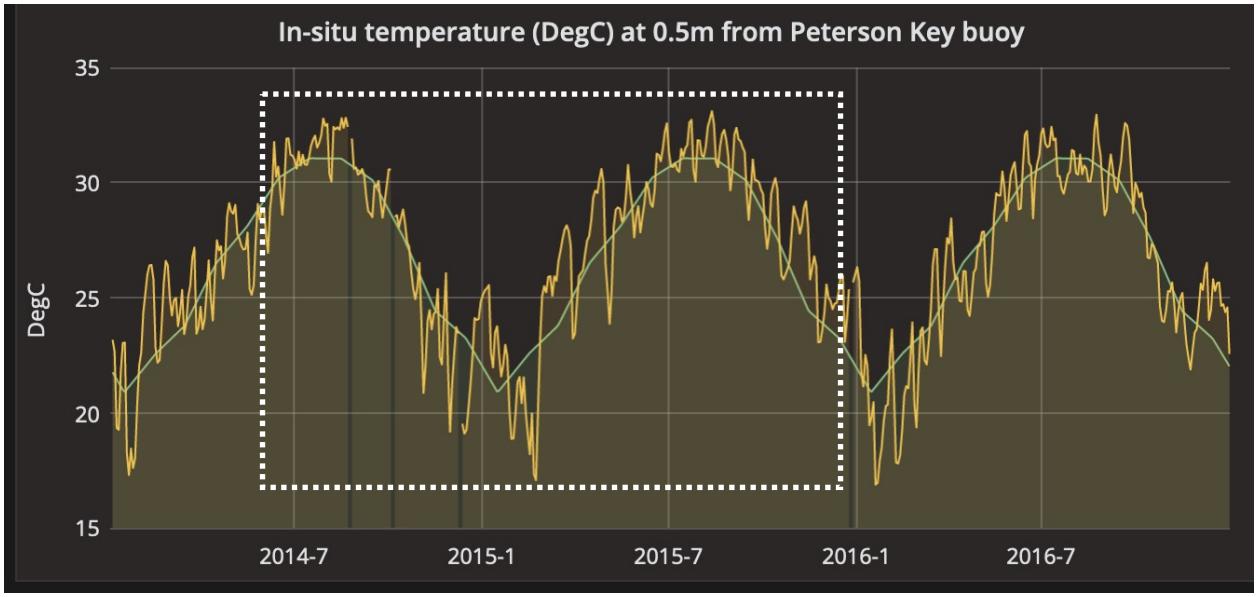
Satellite Images (anomalies):



Case Study #1 – 2015-2016 Seagrass die-off (FL Bay)

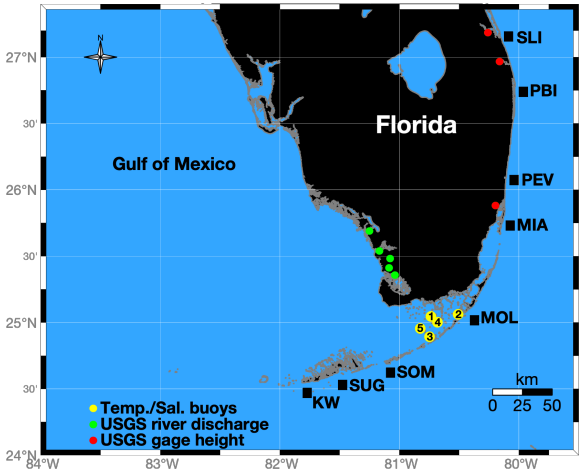


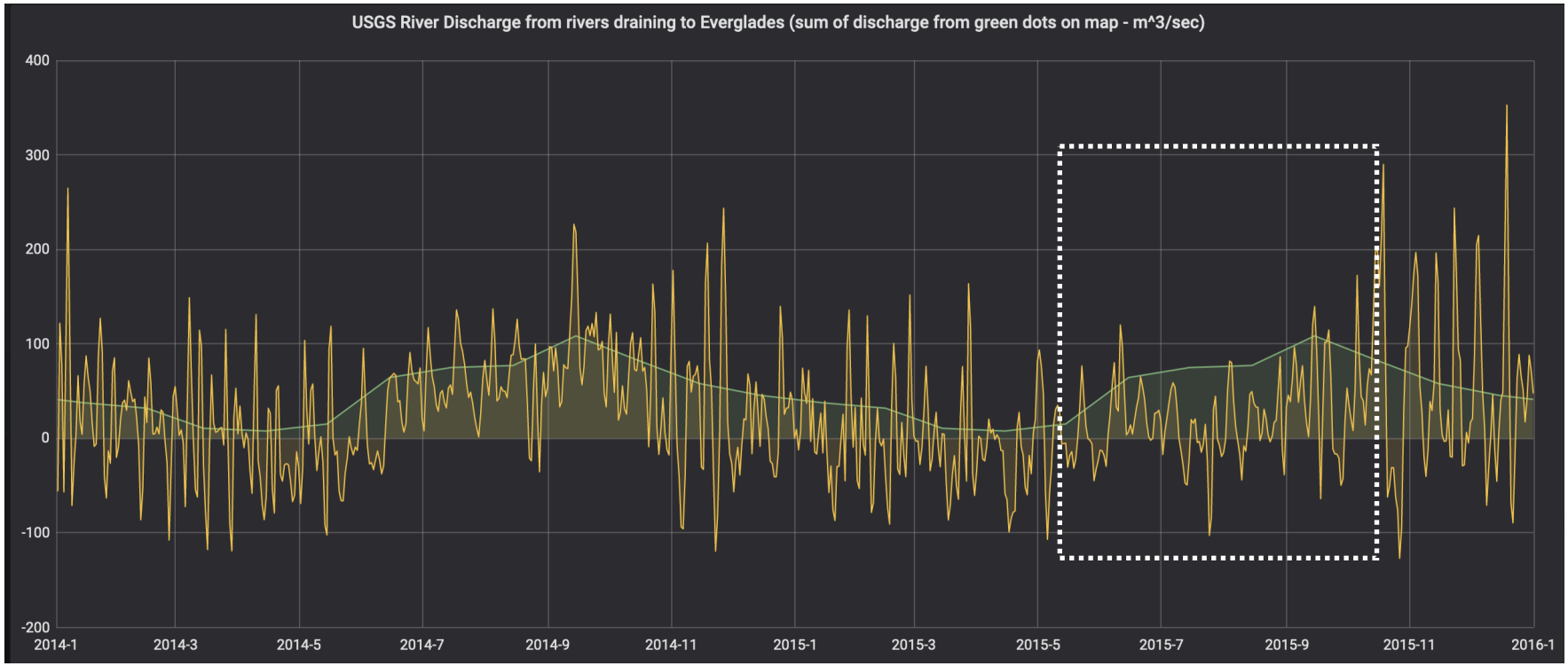
In-situ salinity (PSU)



In-situ temperature (DegC)

Case Study #1 Cont.

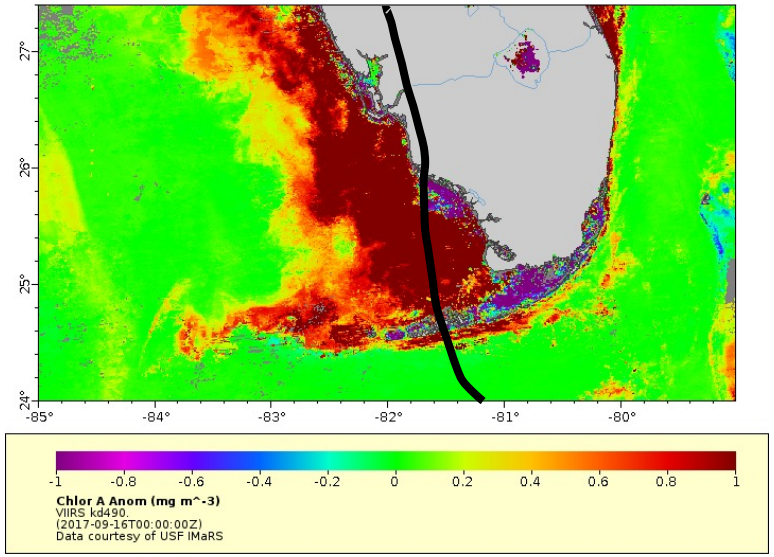




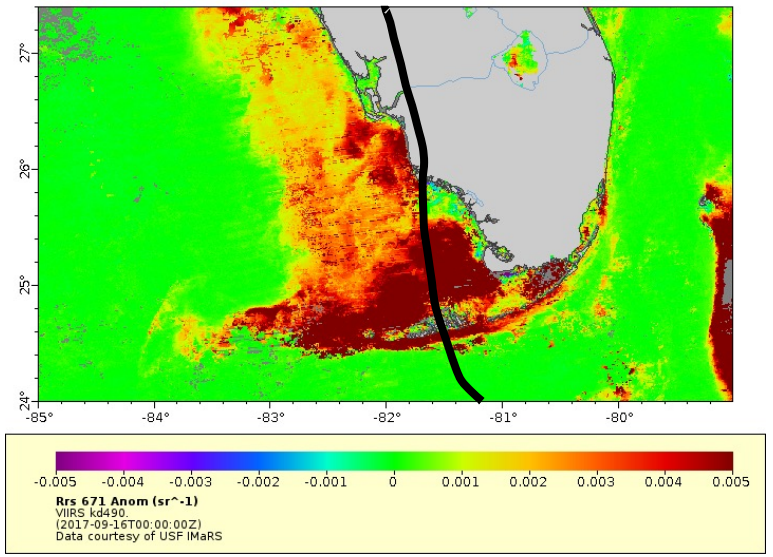
River discharge 2014-2016

The summer of 2015 was dry and led to below normal river discharge into Florida Bay

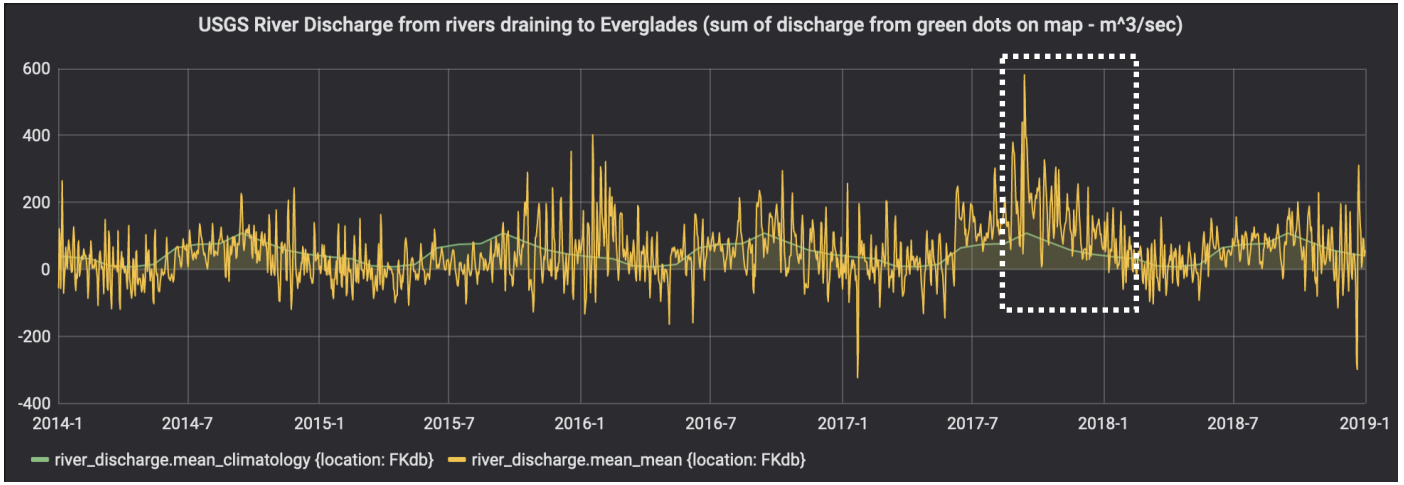
Case Study #2 - Hurricane Irma - 2017



Chlorophyll-a SEP 10-16, 2017

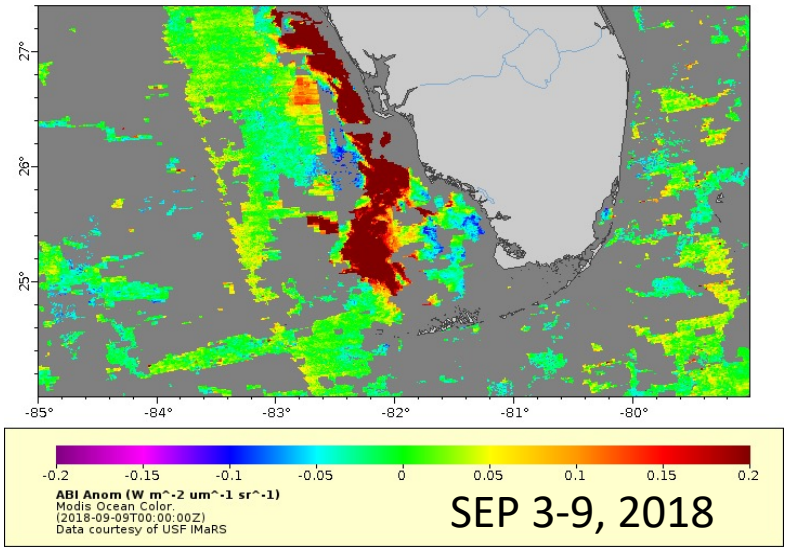


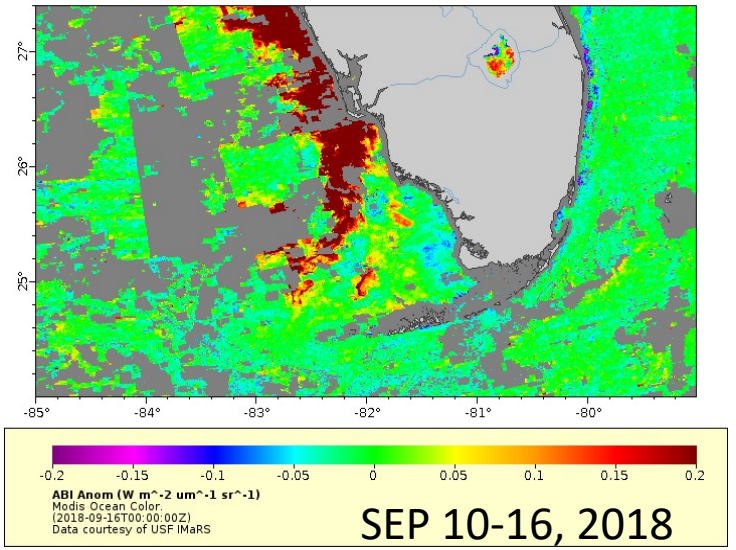
Red reflectance SEP 10-16, 2017

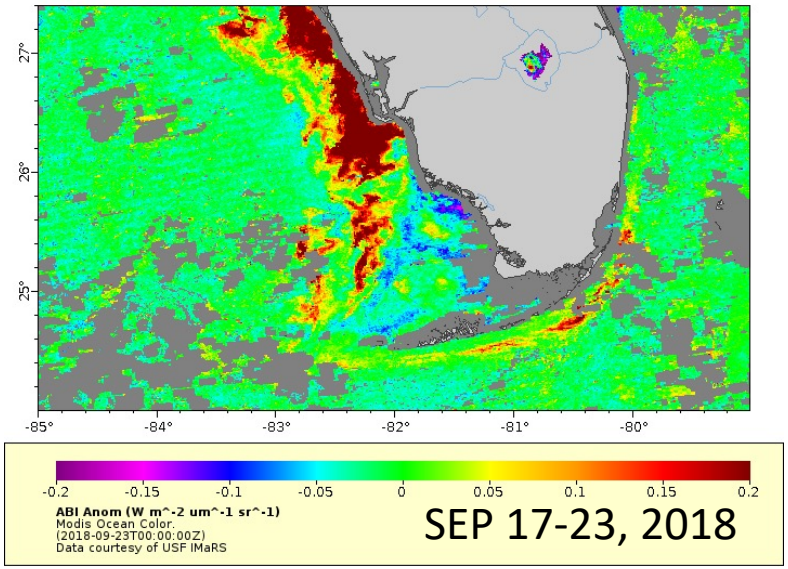


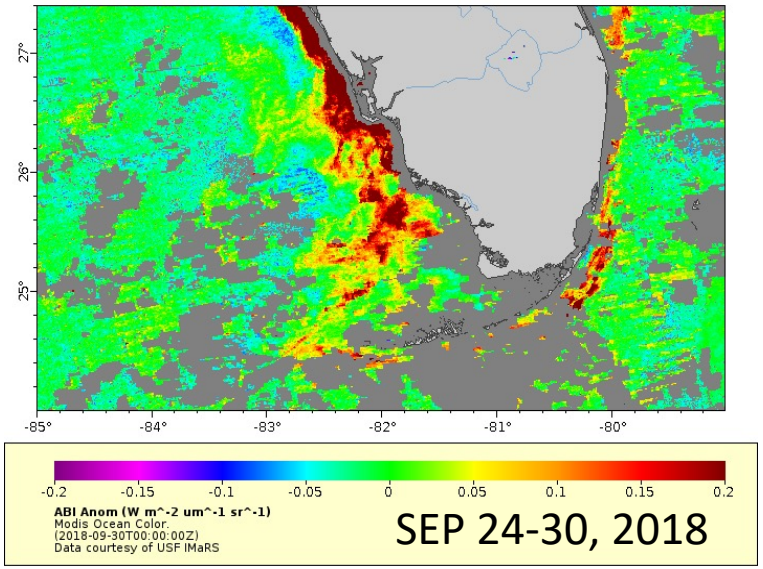
River discharge 2014-2019

Case Study #3 – 2018 Harmful Algal Blooms (WFS)









Use of dashboard products

Michelle Johnston at FGBNMS
Status and Trends Workshops for the FGBNMS Condition Report.

- Water quality, climate, and eutrophication workshops.

- Since we don't have any kind of algal bloom monitoring, using the ABI index (based on nFLH) was very helpful.

- It was great to compare the satellite data to our in situ data for temperature and chl-a.

- Having data for the newly expanded banks was a game changer since we don't have much data in those areas.

- The river discharge was also helpful. We are also starting to use the satellite data on the dashboard for our annual monitoring reports.

Future Plans

- Increase user engagement

- Extract data for individual sanctuaries

- Streamline data flows and simplify back end

- Add climate parameters (from CVAs, others)

- Add climate projections (K. Dunning, D. Cherian and group)