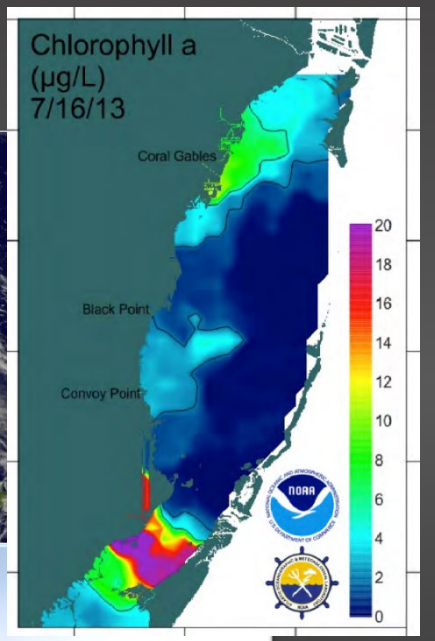
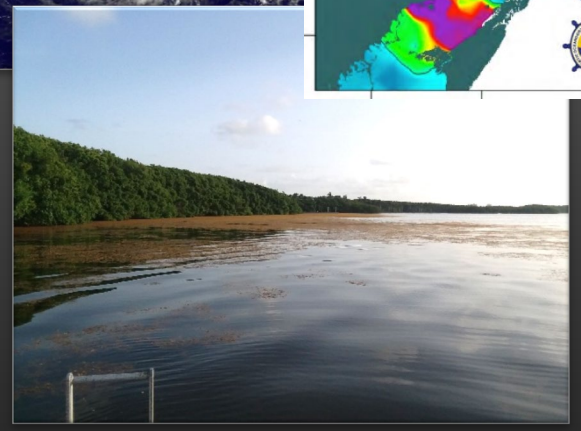
NATURAL HAZARDS AND SEAGRASS FAUNAL COMMUNITIES: IDENTIFYING EXTREME NATURAL AND ANTHROPOGENIC EVENTS FROM NATURAL VARIABILITY

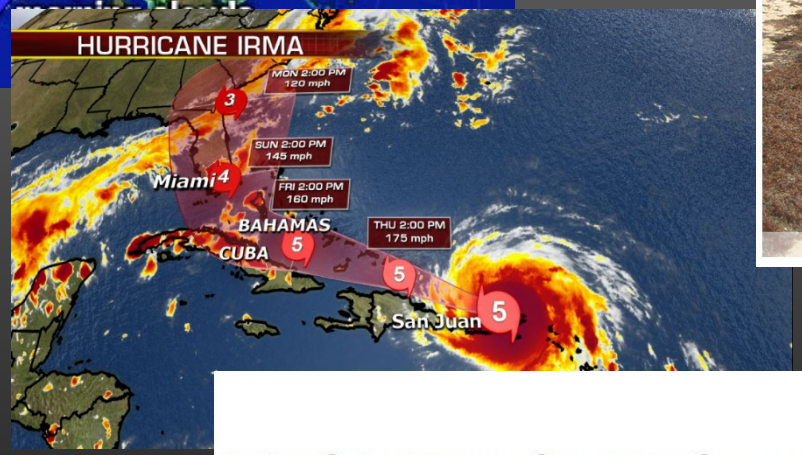




Ian C. Zink[1,2], Joan A. Browder[2], Diego Lirman[3], Joseph E. Serafy[2,3], Erik Stabenau[4], and Christopher R. Kelble[5]

[1]CIMAS, RSMAS, University of Miami
2PRBD, SEFSC, NMFS, NOAA
[3]MBE, RSMAS, University of Miami
[4]South Florida Natural Resources Center, NPS
[5]OCD, AOML, NOAA

SOUTH FLORIDA NATURAL HAZARDS



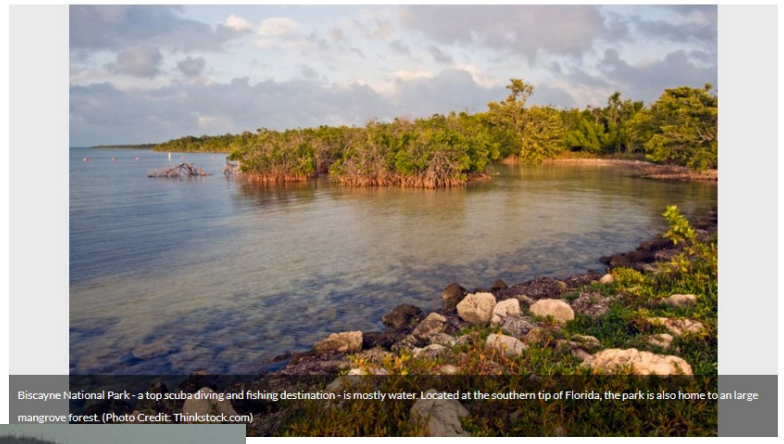
Is another type of algae bloom – Sargassum – coming to a beach near you?

Posted July 5, 2018 by Seán Kinane & filed under Caribbean, News and Public Affairs, Science, Water.

Sargassum covers Playa Flamenco in Puerto Rico in 2015. By Seán Kinane.

Algae Bloom Leads To Smelly Biscayne Bay

July 19, 2013 at 9:36 pm **Filed Under:** Algae Bloom, Biscayne Bay, Card Sound, Environment, Polution, Rickenbacker Causeway, Runoff, Turkey Point



Biscayne National Park - a top scuba diving and fishing destination - is mostly water. Located at the southern tip of Florida, the park is also home to an large mangrove forest. (Photo Credit: Thinkstock.com)

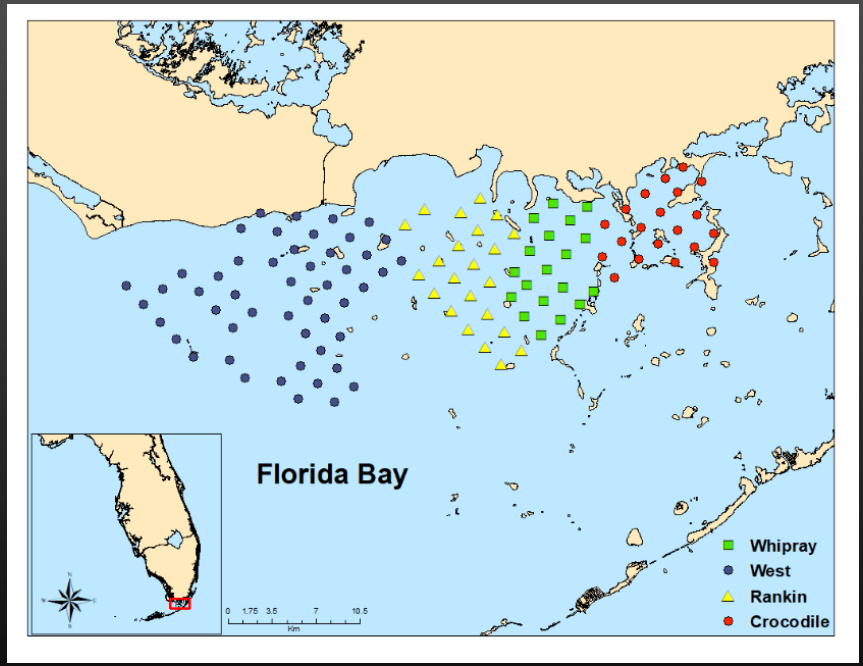
Florida man jumps in canal of toxic blue-green algae fleeing a traffic stop, say police

Florida man jumps in toxic algae fleeing police

Author: Melissa Montoya, Fort Myers News-Press
Published: 1:33 PM MDT September 5, 2018
Updated: 2:20 PM MDT September 5, 2018

INTEGRATED BISCAYNE BAY ECOLOGICAL ASSESSMENT AND MONITORING (IBBEAM)

AND



JUVENILE SPORTFISH MONITORING AND ASSESSMENT

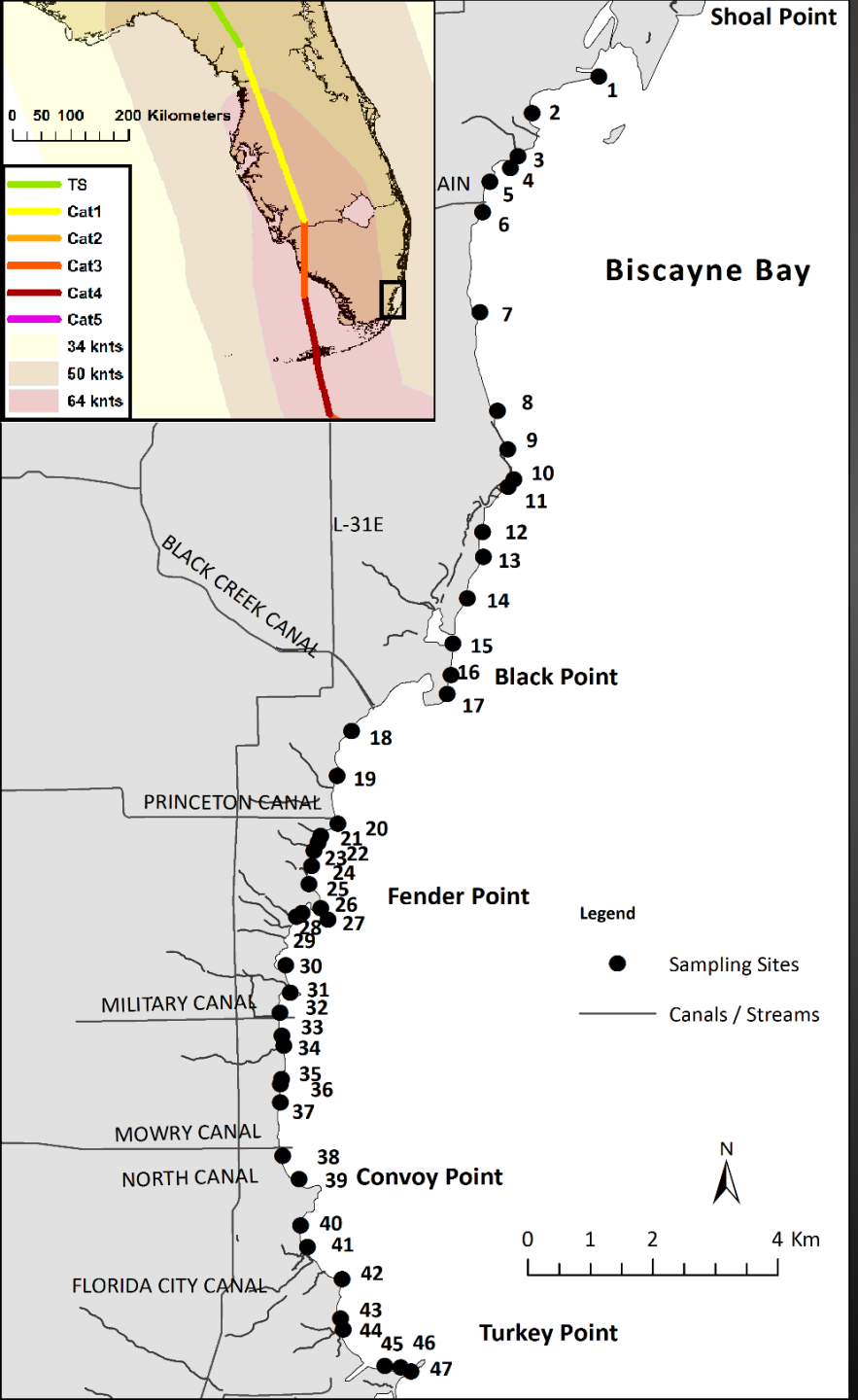
IBBEAM: EPIFAUNAL COMMUNITIES

Bi-Seasonal (Dry and Wet) @ 47 fixed sampling locations
2007 dry season to 2018 wet season

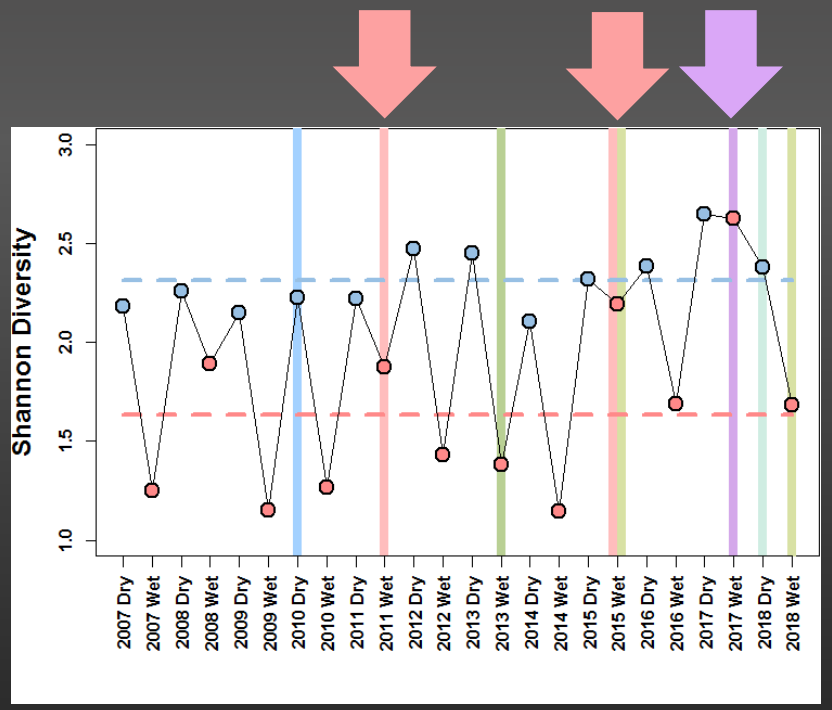
Water Quality (Temp, Sal, pH, D.O.)
Water Depth / Sediment Depth

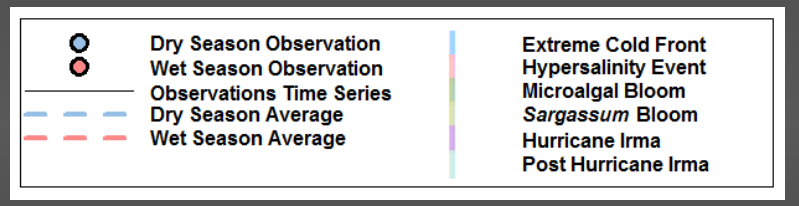
Epifaunal Communities:
1 m² throw trap x3

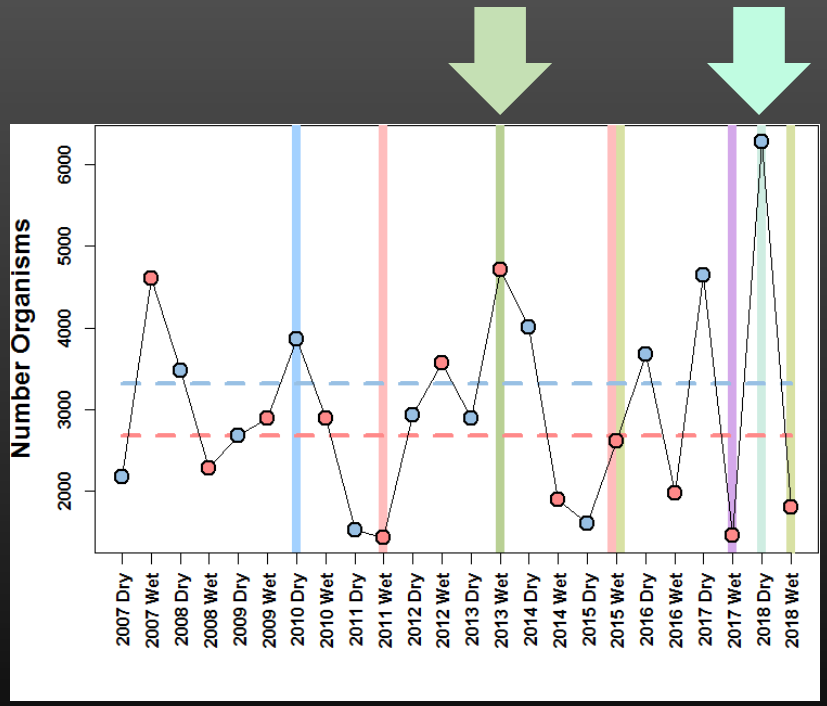
Submerged Aquatic Vegetation:
0.25 m² x10

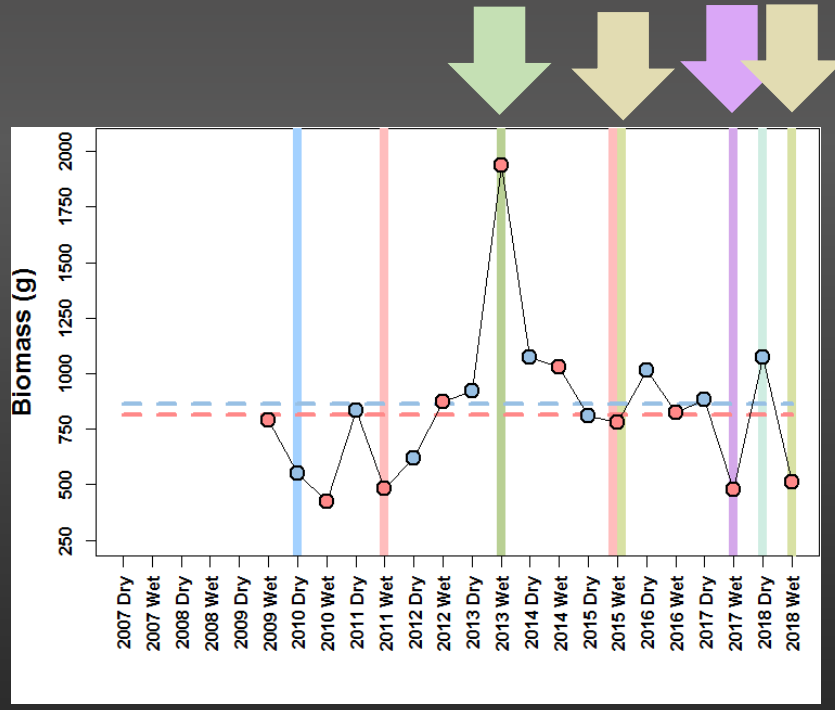


IBBEAM: EPIFAUNAL COMMUNITIES

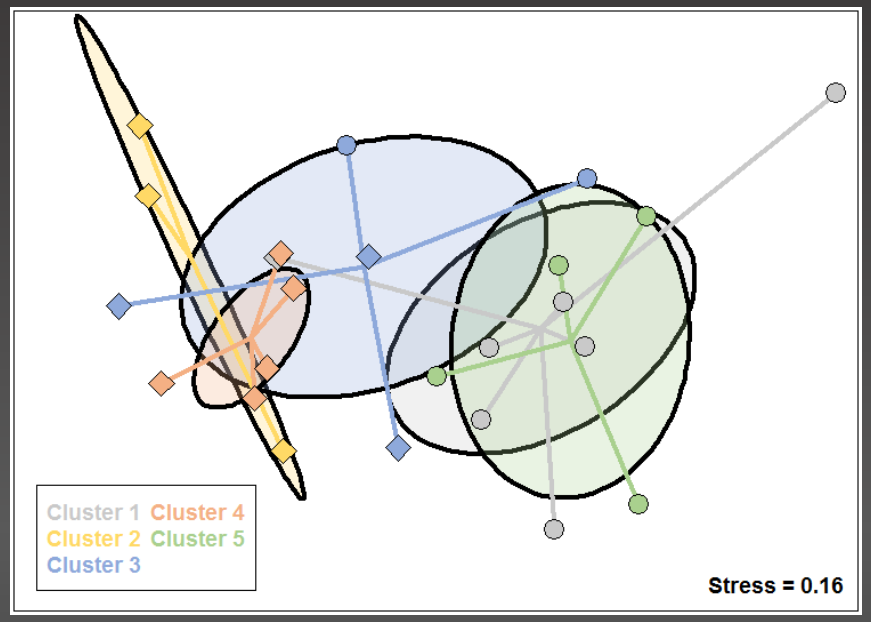




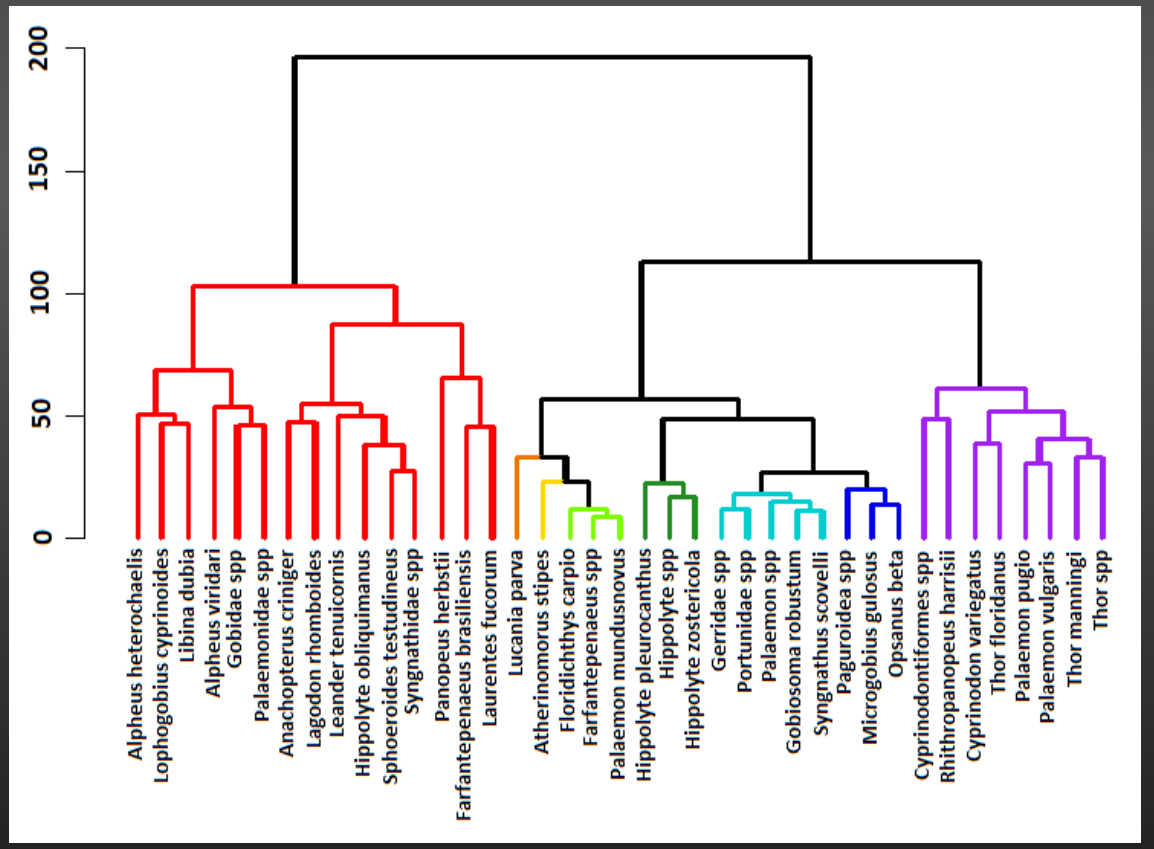




IBBEAM: EPIFAUNAL COMMUNITIES

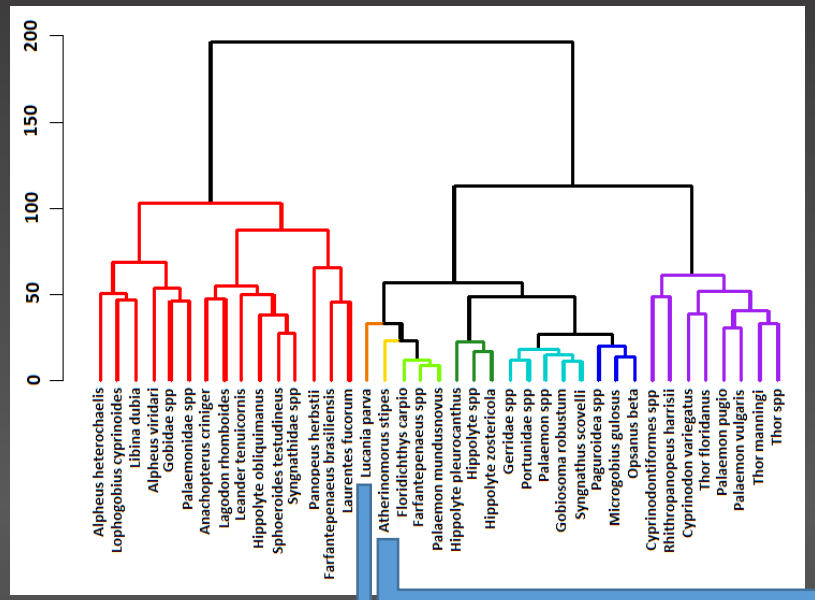


Year-Season Cluster	Year-Season Cluster Membership						
1	2007W	2009W	2010W	2012W	2013W	2014W	2014D
2	2010D	2017D	2018D				
3	2011D	2012D	2015D	2015W	2017W		
4	2007D	2008D	2009D	2013D	2016D		
5	2008W	2011W	2016W	2018W			

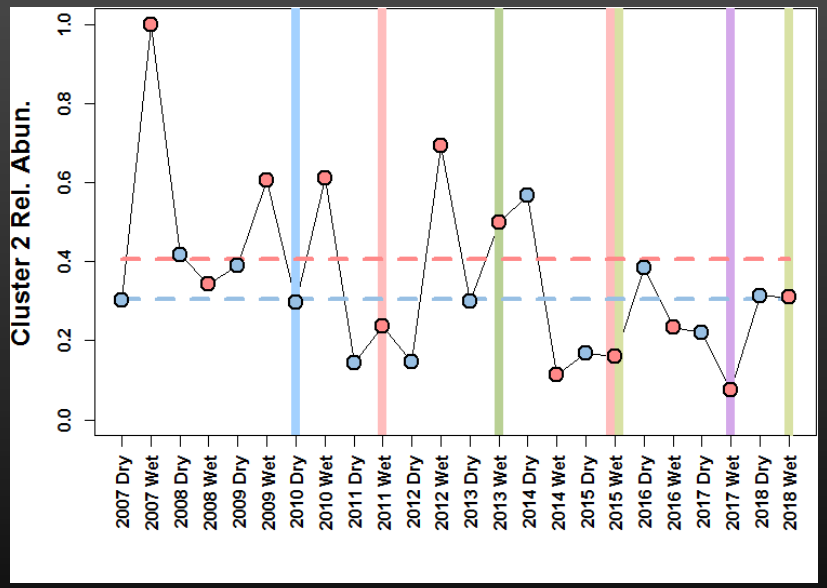


Extreme Cold Front
Hypersalinity Event
Microalgal Bloom
Sargassum Bloom
Hurricane Irma
Post Hurricane Irma

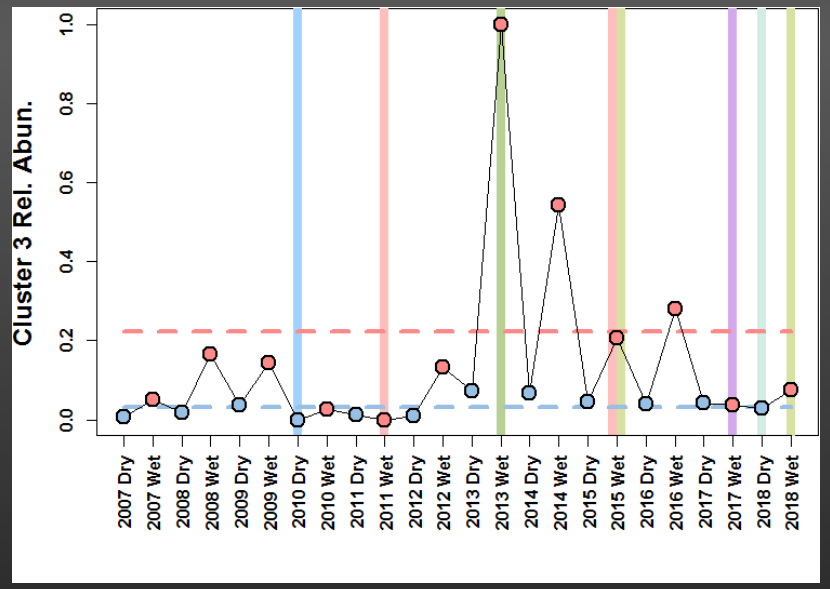
IBBEAM: EPIFAUNAL COMMUNITIES

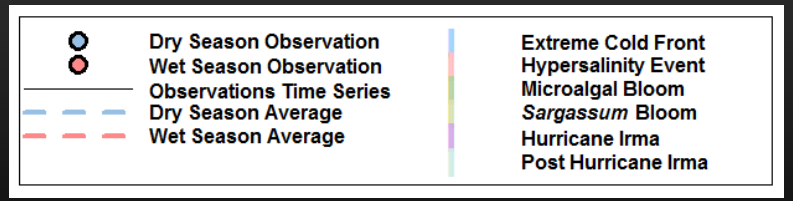


Rainwater Killifish (*Lucania parva*)

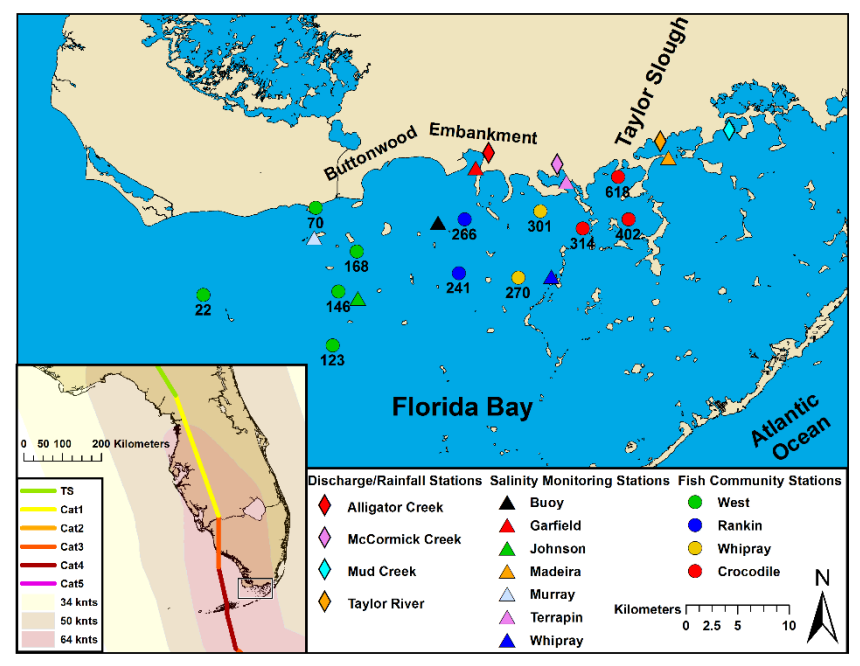


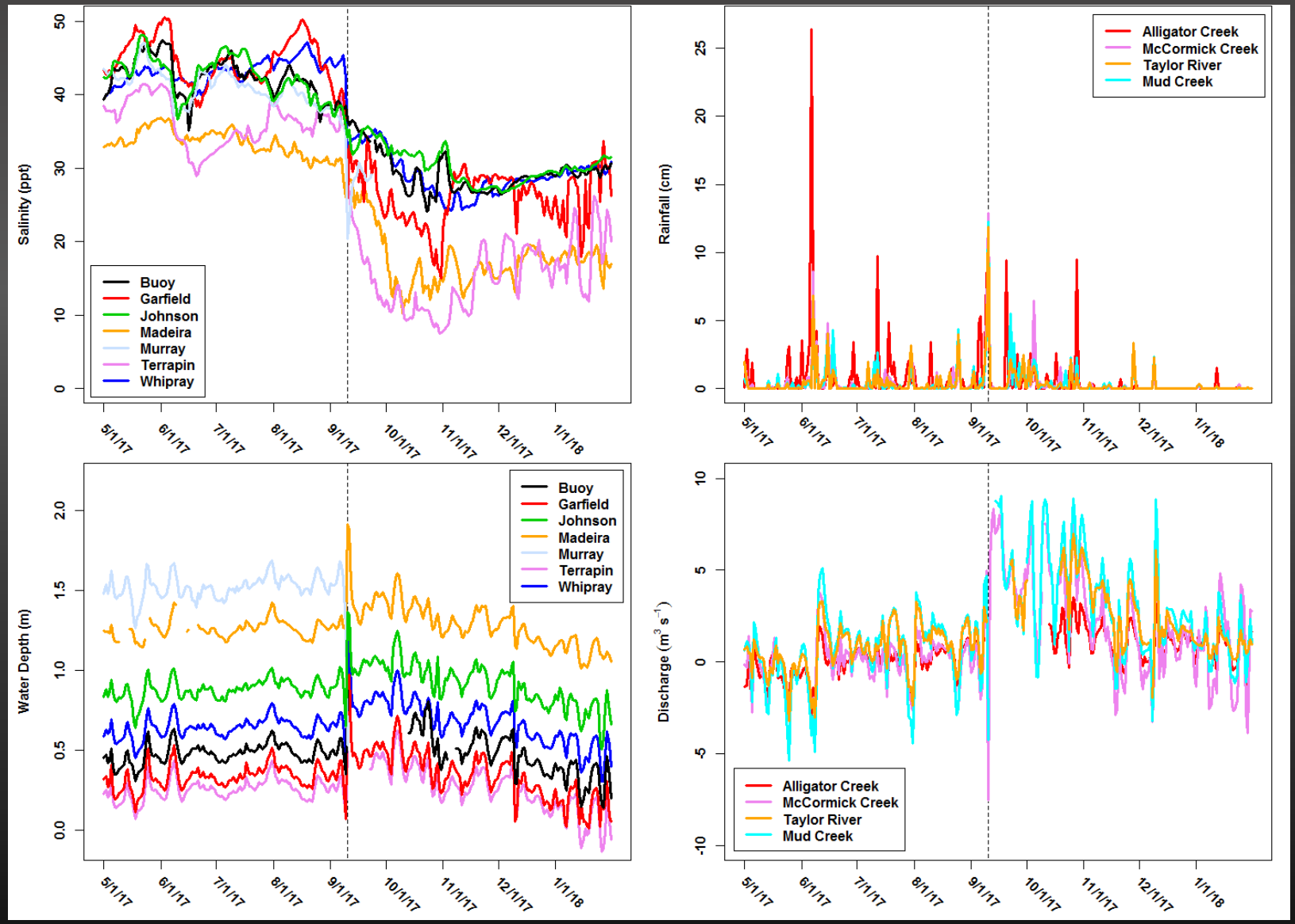
Hardhead Silverside (*Atherinomorus stipes*)



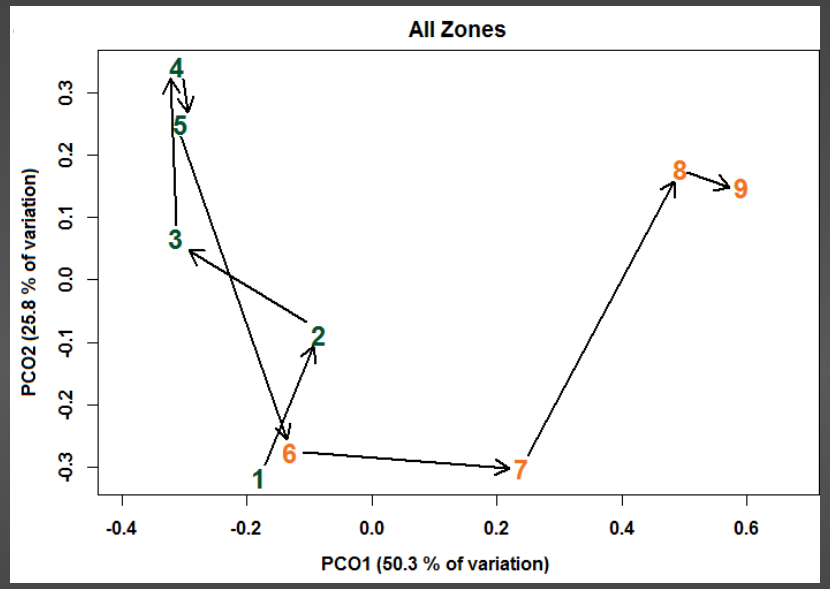


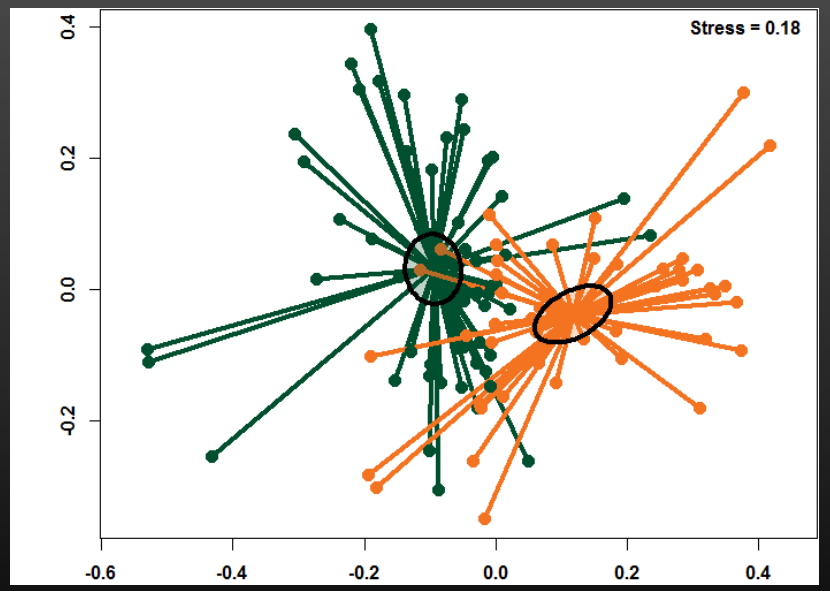
JUVENILE SPORTFISH





JUVENILE SPORTFISH

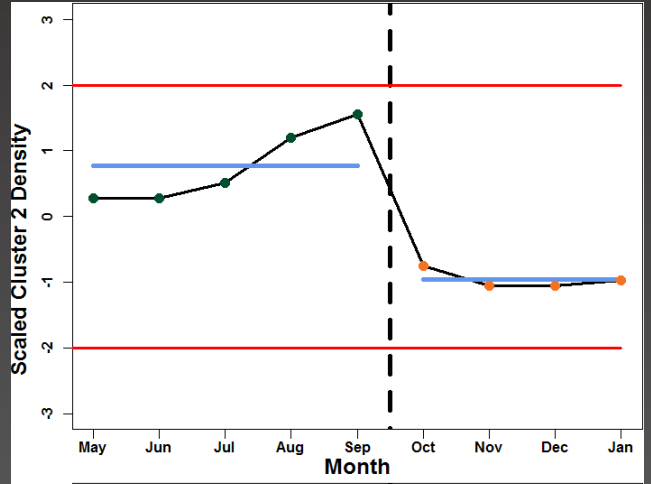


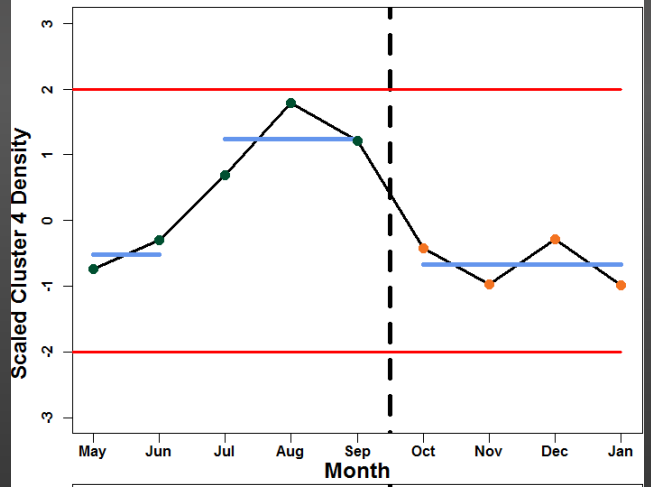


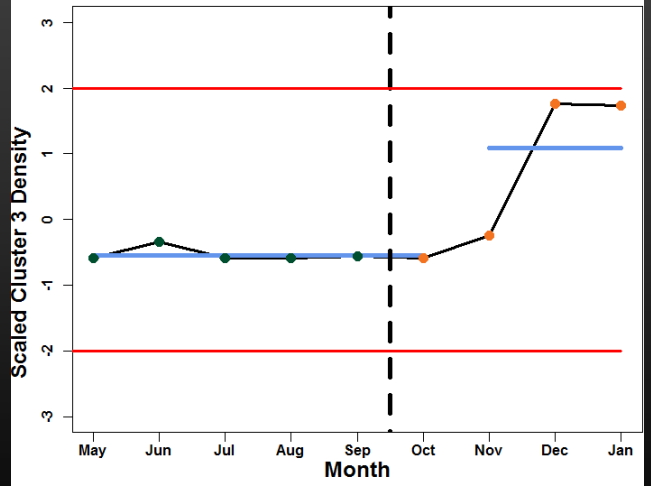
Cluster 2: Goldspotted Killifish (*Floridichthys carpio*)
Gulf Pipefish (*Syngnathus scovelli*)

Cluster 4: Mojarra spp (*Eucinostomus* spp)
Rainwater Killifish (*Lucania parva*)

Cluster 3: Bay Anchovy (*Anchoa mitchilli*)







NATURAL HAZARDS AND SEAGRASS FAUNAL COMMUNITIES: CONCLUSIONS

- A long time-series is needed to understand ‘natural variability’ including natural hazard impacts
- Not all species or groups are affected equally
- A better understanding of natural hazard impacts will help interpret the past and predict the future
- Biscayne Bay seems resilient…thus far?

ACKNOWLEDGEMENTS:

Team IBBEAM: Herve Jobert (UMiami/NPS), Nicole Besemer (UMiami/NOAA NMFS) and MANY, MANY others who have contributed to field/laboratory operations

Team Sportfish: Lindsey Visser (former UMiami/NOAA AOML) and Charline Quenee (UMiami/NOAA AOML) and MANY, MANY others who have contributed to field/laboratory operations

IBBEAM and Juvenile Sportfish Monitoring and Assessment programs are components of Southern Coastal Systems Module of the Monitoring and Assessment Plan of the Restoration Coordination and Verification

QUESTIONS?

The hurricane sent foul water from the sewers into Biscayne Bay. What happens now?

BY JENNY STALETOVICH

OCTOBER 22, 2017 10:35 AM, UPDATED OCTOBER 23, 2017 09:13 PM

A month after Irma pounded Biscayne Bay, scientists founded elevated levels of chlorophyll and low salinity that they fear may be an early sign of more trouble for the urban bay where 23-square miles of seagrass meadows have died over the last decade. WILFREDO LEE *AP*