

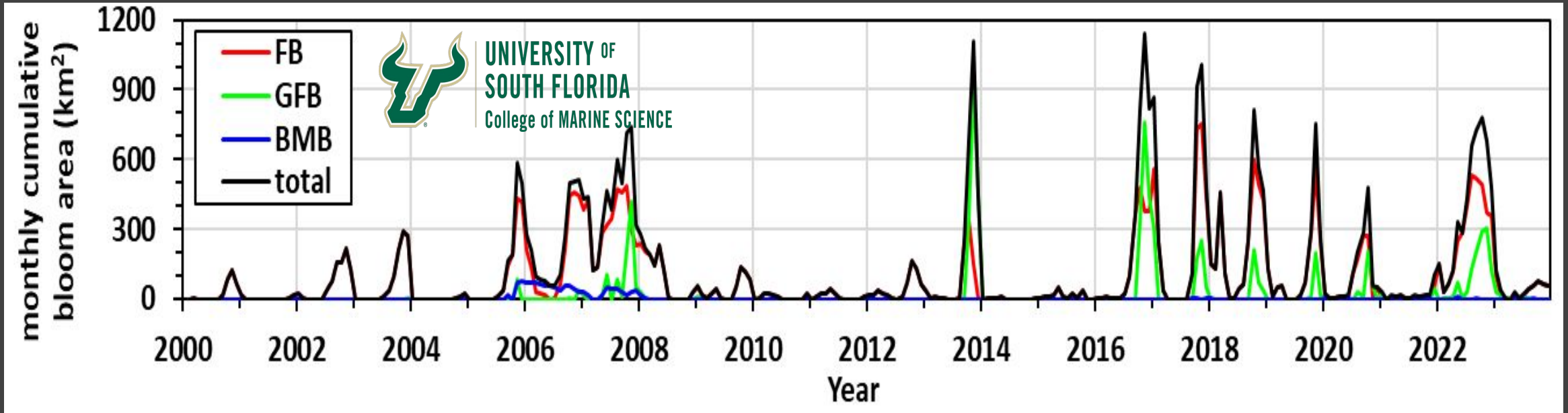
Florida Keys Harmful Algae Bloom Update

A presentation to the
Water Quality Protection Program Steering Committee



Thomas R. Matthews
Fish and Wildlife Research Institute
12 March 2025

Cyanobacteria Blooms in Florida Bay



**Bloom definition: Cyanobacterial Chl-a (Chl_{C1} ; Cannizzaro et al., 2019) $> 5 \text{ mg m}^{-3}$

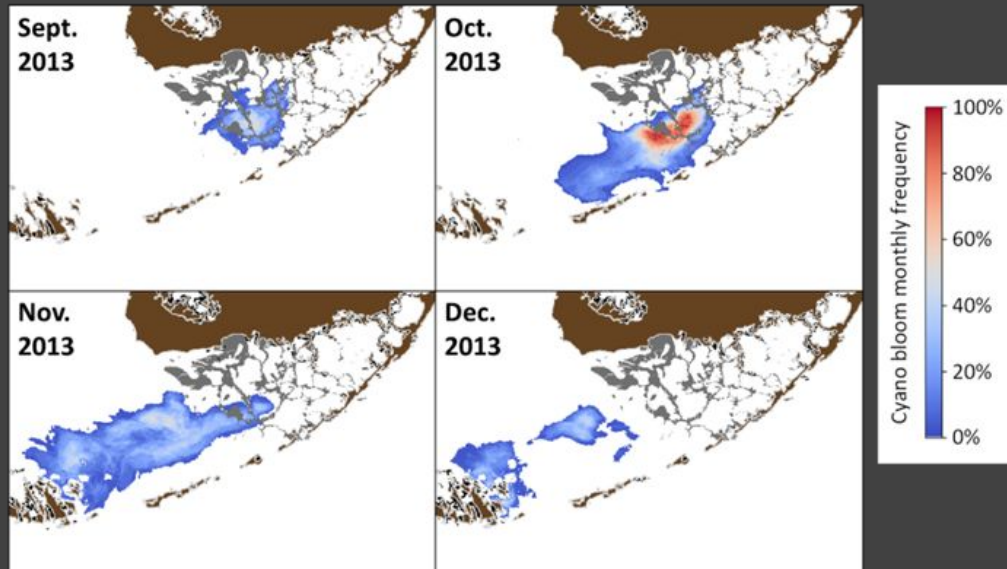
- Widespread and persistent Ecosystem Disruptive Algal Blooms commonly occur.
- Picocyanobacteria blooms are dominated by *Synechococcus* sp.
- Cascade of ecological disturbances beginning in the late 1991 caused declines in sponge populations

Sponge biomass is the largest heterotrophic component of benthic biota



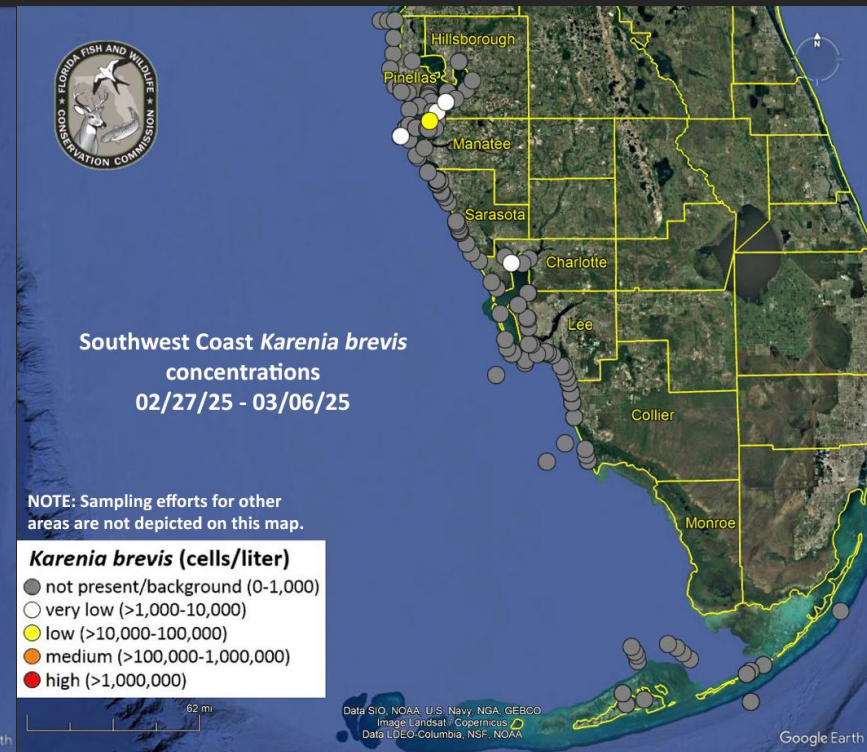
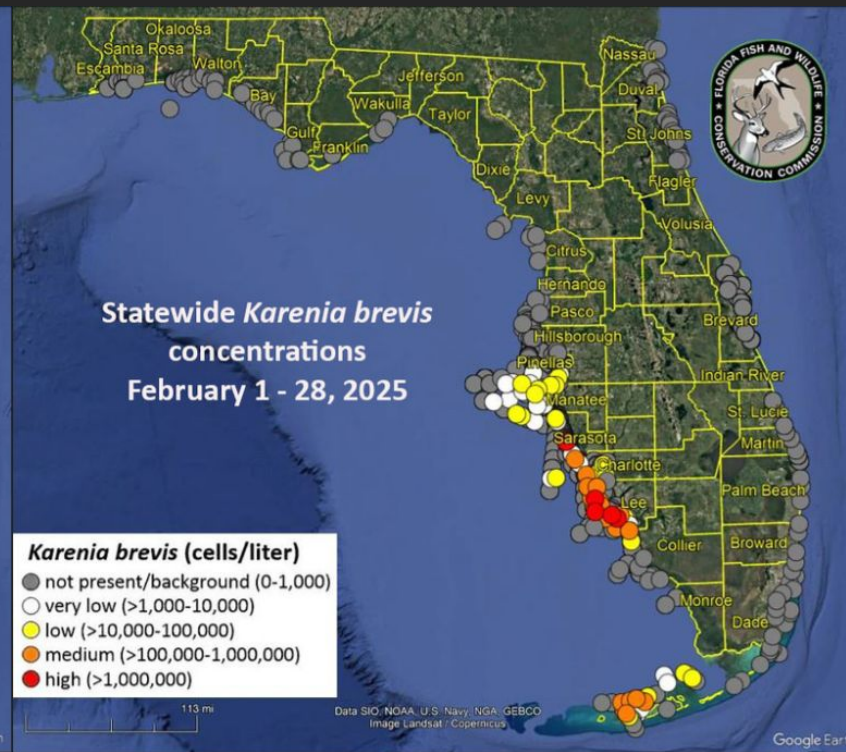
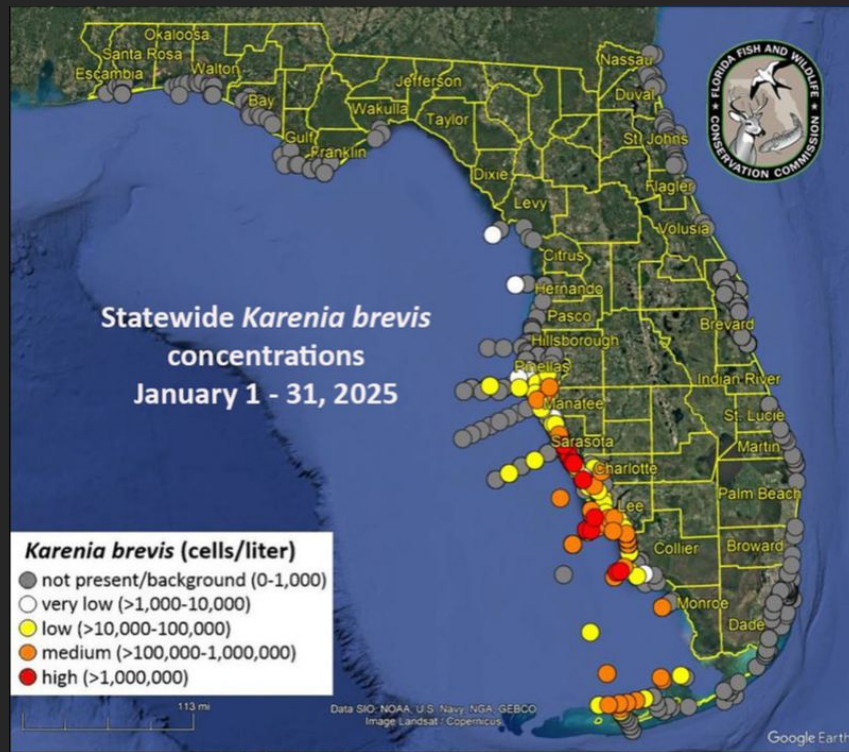
Bloom-Associated Mortality of Sponges

2013
“Mystery Basin” in Central
Florida Bay



- Loss of all Large Structure-Forming Sponge Species
- Pre-Bloom Biomass: 176 kg/site
- Post-Bloom Biomass: ~0.3 kg/site

Red Tide Winter 2025 Florida Keys



<https://myfwc.com/research/redtide/statewide/>

Fish Kills Red Tide Winter 2025 Florida Keys

Species Affected included: Atlantic Spadefish, Barracuda, Bonefish, Cowfish, boxfish, Filefish, Gray Snapper, Grunt, Hogfish, Jack Crevalle, Lane Snapper, Lookdown, Mutton Snapper, Parrotfish, Pinfish, Puddingwife, Pufferfish, Snook, White Grunt, and Yellow Jack.

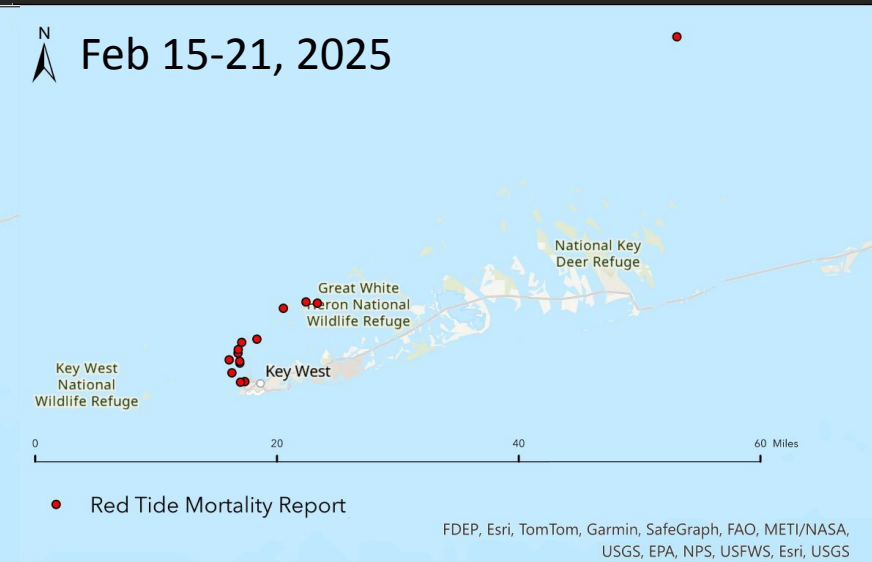
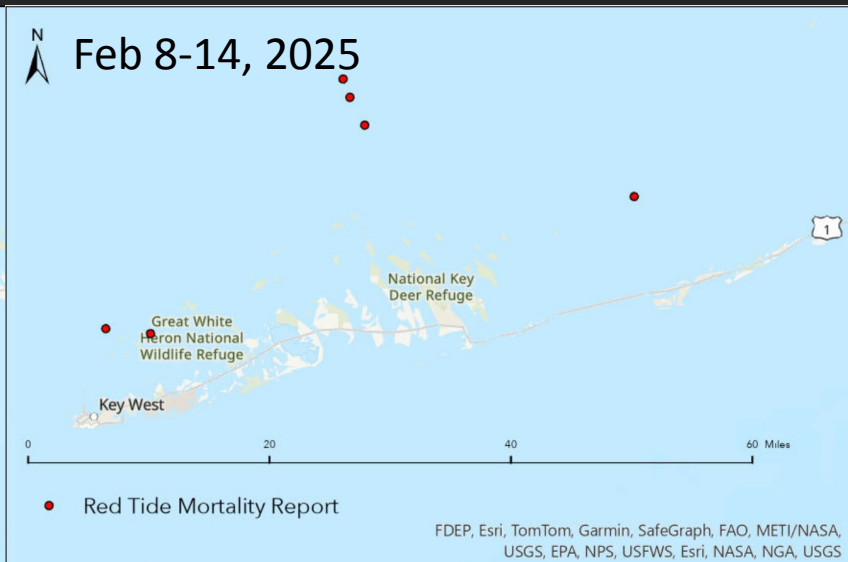
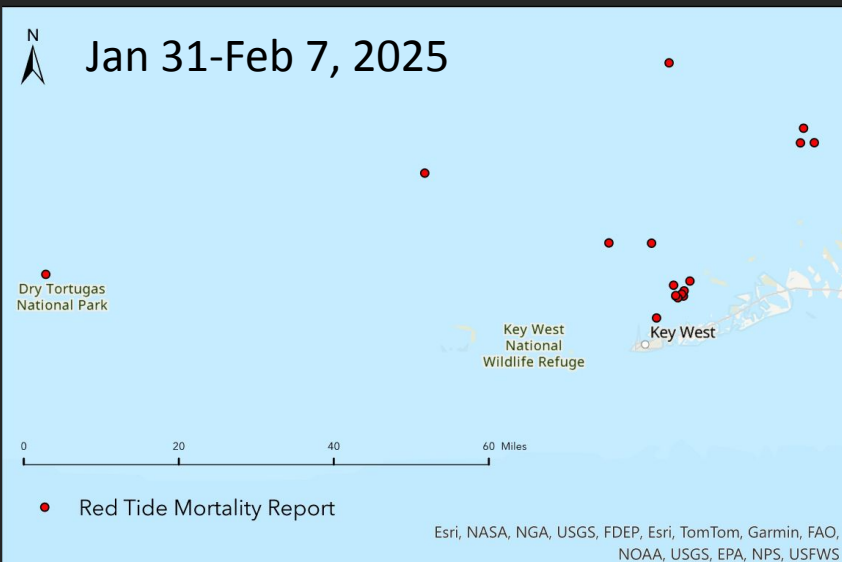


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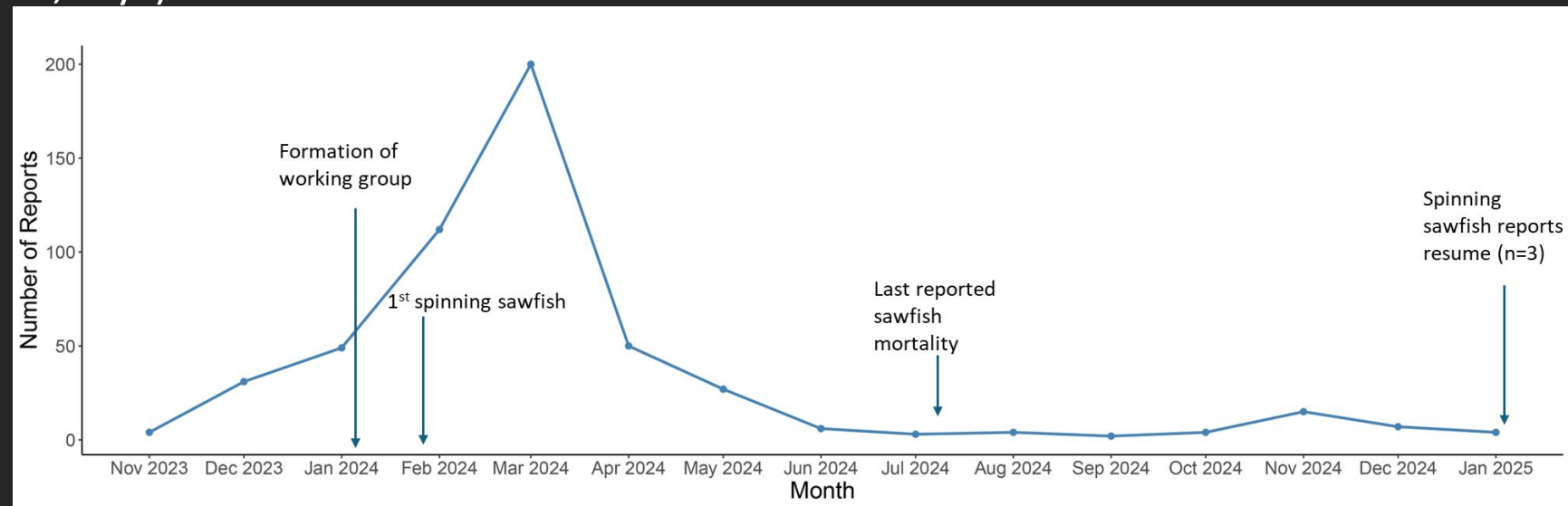
Fish Kills Red Tide Winter 2025 Florida Keys

- Since January 31, 2025, the FWC Fish Kill Hotline received 37 reports of fish kills
- Twenty-six of those reports noted small scale mortalities of less than 100 fish affected
- Six reports noted hundreds of dead fish.
- The remaining reports did not specify the magnitude of the event.



Keys Spinning Fish Event

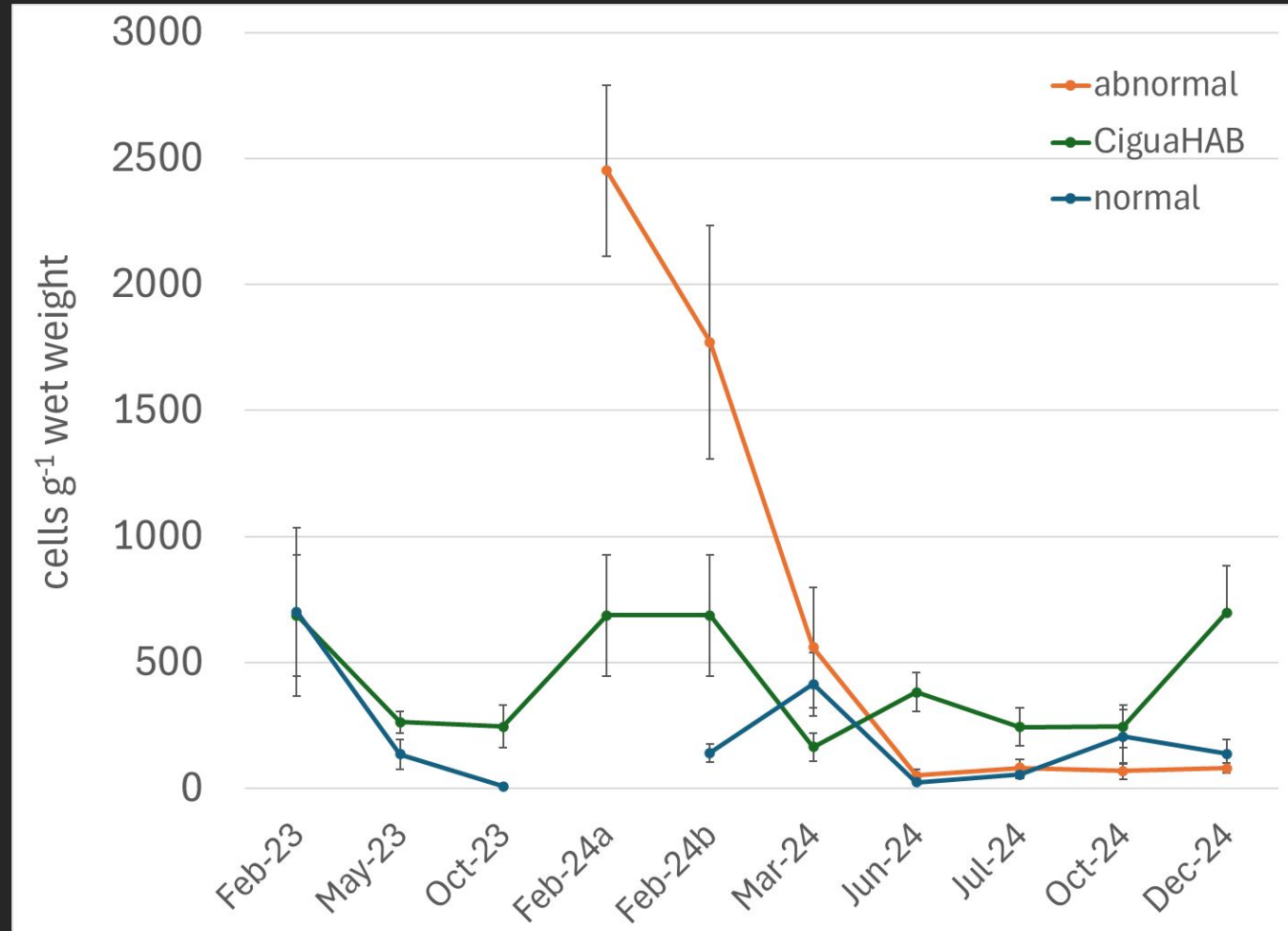
- Fish exhibited neurological signs of disease
 - ❖ Lethargy
 - ❖ Abnormal swimming (“Spinning”)
- Fish otherwise appeared healthy
- Very low density of fish mortalities
- Geographical area largely limited to the FL Keys
- Over 80 species affected
 - ❖ Teleosts (bony fish) n=70
 - ❖ Elasmobranchs (sawfish, sharks, rays) n=10
 - ❖ Few crustaceans



Keys Spinning Fish Event

Average *Gambierdiscus* cell densities
(± 1 standard error)

- Lower Keys sampling sites exhibiting abnormal fish behavior (abnormal) versus
- Middle keys sites where abnormal behavior was not observed (normal)
- monthly-averaged baseline established in earlier studies (CiguaHAB, Feb 2023 to Dec 2024)

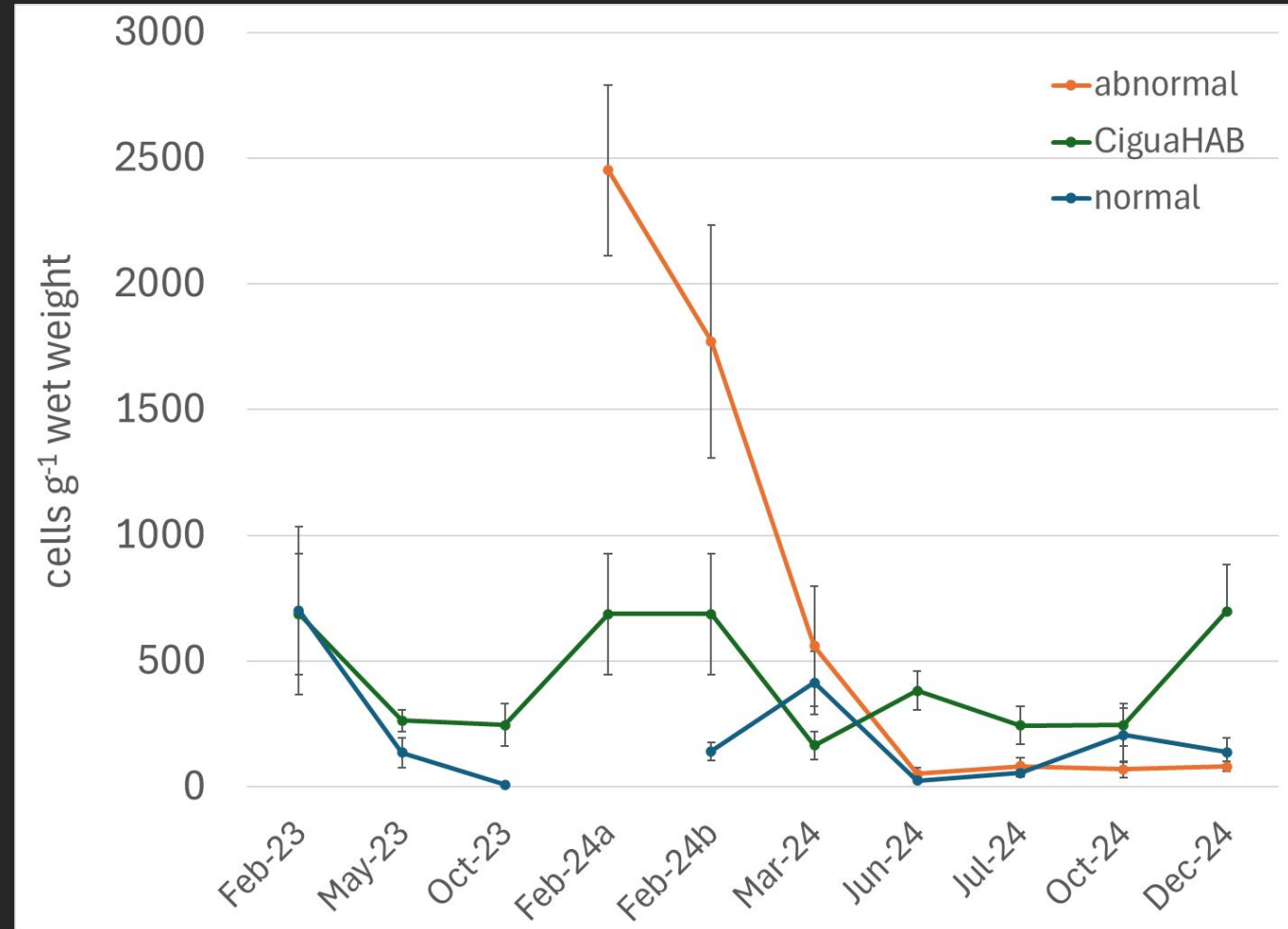


Michael L. Parsons
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Florida Gulf Coast University

Keys Spinning Fish Event

Average *Gambierdiscus* cell densities
(± 1 standard error)

- January, *G. spp.* levels are still low. Including near Channel 2 and 5 where some reports of spinning fish were noted by BTT
- February samples remain to be processed.



Michael L. Parsons
Professor of Marine Science
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Keys Spinning Fish Event, Winter 2025

Since December 2024,

- FWC received 44 reports of fish spinning behavior to the **Fish Kill Hotline**,
- including many relayed by Bonefish & Tarpon Trust and the Lower Keys Guide Association
- Affected fish have been observed primarily in the Middle and Lower Keys.
- 22 reports of sawfish behaving abnormally in the greater Keys area
- During this time, there have been six sawfish mortalities
- 62 total confirmed sawfish mortalities since December 2023.

- Fish Kill Hotline (FKH)

- Abnormal fish behavior, fish disease, fish kills
- Web form ([MyFWC.com/ReportFishKill](https://myfwc.com/ReportFishKill)) or by phone (800-636-0511)
- Monday – Friday, 9-5



Contributors to this Presentation and Research Partners

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Bonefish
& Tarpon
TRUST



LOWER
KEYS
GUIDES
ASSOCIATION



USA
UNIVERSITY OF
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Dauphin Island Sea Lab
Alabama Center for
Marine Education and Research

