



# Florida's Coral Reef: 2023 Coral Bleaching Response

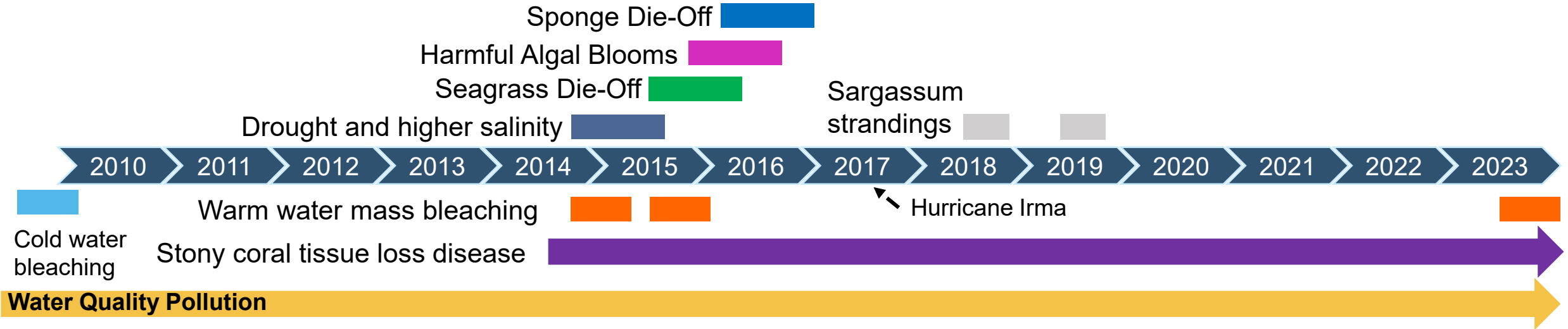


**Joanna C. Walczak**  
Office of Resilience and Coastal Protection  
Coral Protection and Restoration Program  
Florida Department of Environmental Protection

SFERTF Working Group / Science Coordination Team | Mar. 20, 2024



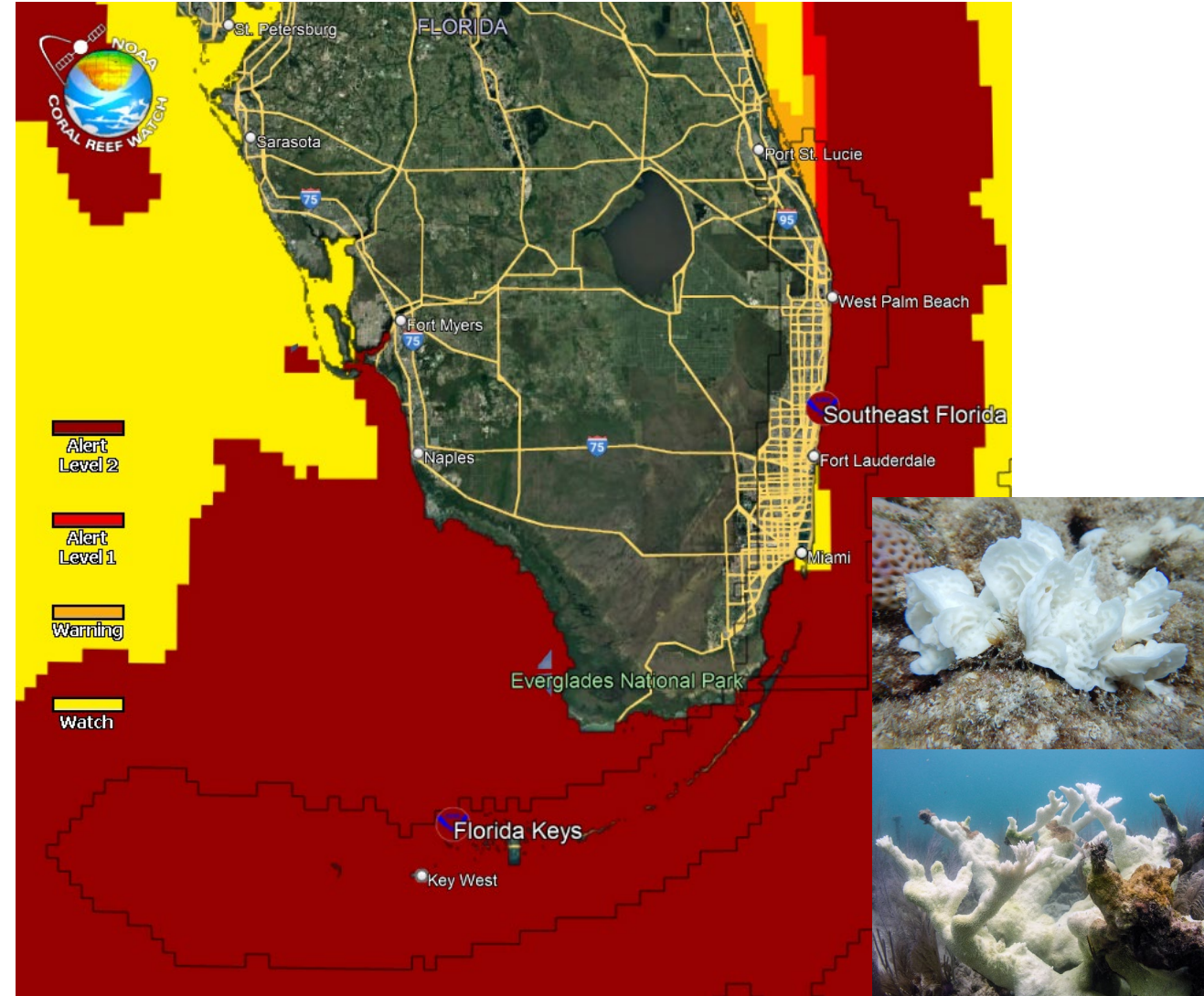
# FLORIDA'S CORAL REEF ENVIRONMENTAL AND BIOLOGICAL STRESSORS OVER TIME





# FLORIDA'S CORAL REEF

## 2023 BLEACHING





# FLORIDA'S CORAL REEF RESILIENCE PROGRAM

## LEVERAGING EXISTING NETWORKS

### Coral Rescue & Propagation and Restoration Networks

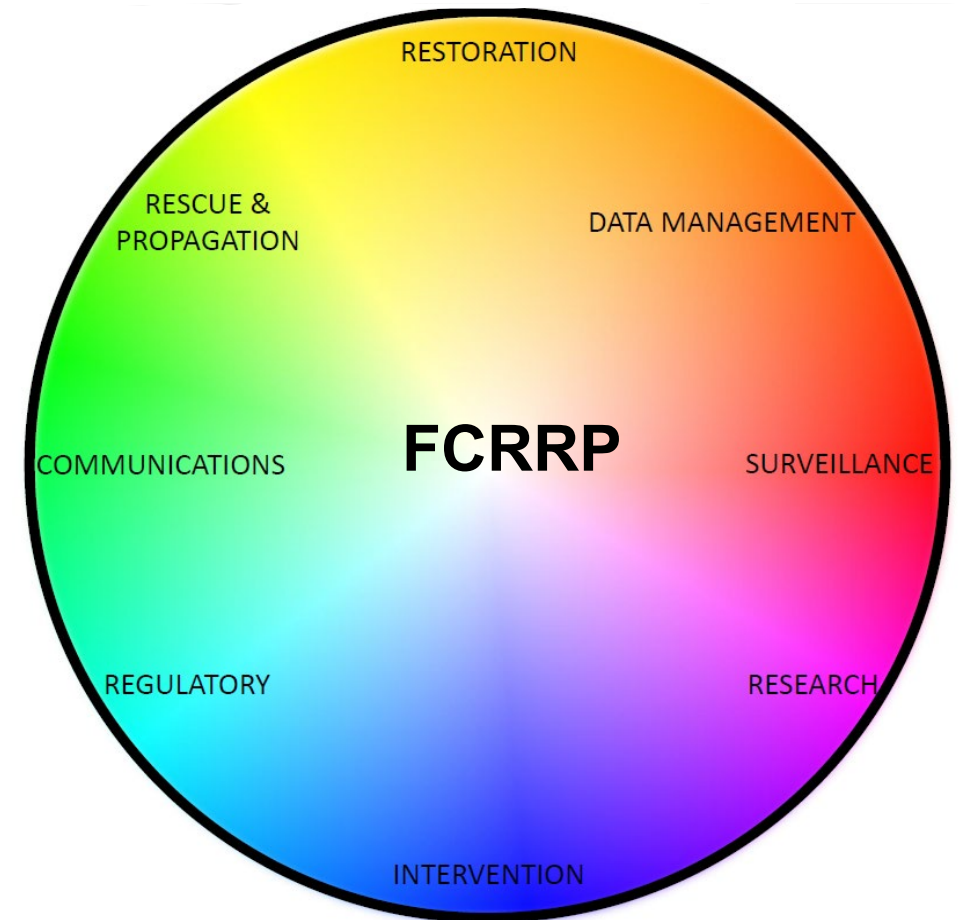
- Rapidly coordinated to implement conservation actions.
- Collated emergency triage funding needs.

### Leadership Network

- Collaborated to ensure that funding was made available to practitioners.
  - ~\$1M in Federal funding.
  - ~\$3M in State funding.

### Communications & Outreach Network

- Rapidly developed common talking points and coordinated media requests.





# NURSERY EVACUATIONS

## ESA-LISTED CORAL COLLECTIONS



Healthy Elkhorn Coral

Bleached Elkhorn Coral



Evacuated thousands of corals from *in situ* nurseries to land-based facilities

Focused first on acroproids.

- ESA-listed.
- Limited genotypes remain.
- Exhibited signs of stress rapidly.
- Traditional 'rescue' species were well represented in land-based holding.

Supplemental collections of known (or assumed) unique genetic individuals of *Acropora palmata* and *Dendrogyra cylindrus*.



# NURSERY EVACUATIONS

## ESA-LISTED CORAL COLLECTIONS



### Evacuee care

At least 7 facilities held evacuated corals.

### HeaRT (**H**eat **R**esponse **T**eams).

- Aquarists from 8 institutions across four states and the Bahamas assisted with coral care.

*In situ* practitioners learned land-based care “on the job”.



# INTERVENTIONS

## SMALL TRIALS & MONITORING

### Physical interventions

Moved some nurseries into deeper water or areas of higher circulation.

- FKNMS designated a 'special use area' using emergency authorities.

### Shading experiments.

- Permitting challenges for fixed structures.
- Considered vessel-tended shades for priority nursery and outplant locations.





# INTERVENTIONS

## SMALL TRIALS & MONITORING

### Other actions

Supplemental feeding (*considered*).

- Passive: glowsticks to attract zooplankton.

Corallivore removal.

- Snail collection derbies held at sites where predation is known to cause extensive mortality.

Monitoring to assess the event and identify hardy corals, resilient locations, etc.

- Recent NOAA survey shows ~22% survivorship of outplanted *Acropora cervicornis* across all Mission: Iconic Reef sites.







# LESSONS LEARNED

## PATH FORWARD

### **National Academies of Science:**

**Interventions to Increase the Resilience of Coral Reefs**

#### **Genetic and Reproductive**

- Supportive breeding and managed selection and breeding.
- Genetic manipulation: corals and symbionts.

#### **Physiological**

- Stress Manipulations: corals, symbionts, and microbiome.
- Antibiotics, phage therapy to reduce pathogens.

#### **Coral Population and Community**

- Managed Relocation: assisted gene flow, migration, etc.

#### **Environmental**

- Shading: marine and atmospheric
- Mixing of cool water.

### **Florida Keys Restoration NOAA's Mission: Iconic Reefs**

**Overall: focus on preservation of genetic diversity rather than preservation of biomass.**

**Limit large-scale evacuations.**

**Permanently establish deeper nurseries.**

**Consider refocus from Acroporids to other corals and organisms.**

**Reframe communications: restoration is only one piece of the puzzle!**



# THANK YOU



**Joanna C. Walczak**

Office of Resilience and Coastal Protection  
Coral Protection and Restoration Program  
Florida Department of Environmental Protection

Contact Information:

786-798-4516

[Joanna.Walczak@FloridaDEP.gov](mailto:Joanna.Walczak@FloridaDEP.gov)

**Florida's Coral Reef**

[www.FloridasCoralReef.org](http://www.FloridasCoralReef.org)