Water Quality Monitoring and Protect Captiva Update Greater Pine Island Civic Association

June 4, 2024



To protect and care for Southwest Florida's coastal ecosystems

- Founded in 1967
- Land Acquisition & Preservation
- Wildlife Habitat Management
- Coastal Wildlife
- Native Landscapes & Garden Center
- Environmental Education
- Marine Research & Monitoring
- Environmental Policy & Advocacy
- Coastal Watch





SCCF is a leader in Water Quality Science REAL-TIME WATER QUALITY DATA

RECON stations are throughout the region covering the estuary and nearshore Gulf of Mexico



SCCF MARINE LAB PROVIDES EQUIPMENT AND LOGISTICAL SUPPORT FOR FIELD OPERATIONS

UF PhD Collin Ortals conducting dissertation research on an SCCF boat



SCCF SCIENTISTS PROVIDE CHEMISTRY, BIOLOGY, PHYSICS EXPERTISE



Reviewing microscopic images of phytoplankton

SCCF ENVIRONMENTAL POLICY STAFF EDUCATE ABOUT POLICY CHALLENGES TO WATER MANAGERS

SCCF's James Evans shares insights on local policy needs.





Healthy Ecosystems and Modeling







Determine how and why harmful algae blooms occur Eric Milbrandt (SCCF), Edward Phlips (UF), Elise Morrison (UF), Natalie Nelson (NCSU)







Research bloom events as they evolve



Microcystis aeruginosa Toxin-Microcystin Blooms in FW





Provide evidence of human influence on blooms

Human activity intensifies naturally occurring *K. brevis* blooms in southwest Florida, USA



Medina, M., D. Kaplan, E.C. Milbrandt, D. Tomasko, R. Huffaker, C. Angelini, 2022. Nitrogen-enriched discharges from a highly managed watershed intensify red tide (*Karenia brevis*) blooms in southwest Florida. Science of the Total Environment 827:1541-1549.

SCCF SANIBEL-CAPTIVA CONSERVATION FOUNDATION

Sea Turtle Research

- Green turtle satellite telemetry
- Long-term affects of brevetoxins in nesting females; characterizing sub-lethal effects of red tide on hatchling success
- Brevetoxin accumulation in tissues of red tide strandings
- Groundwater influence on nest temperature, moisture, and hatchling sex ratios

Collaborations

 Isotopes study (FWC), sex ratio of sea turtles (FAU), green turtle genetics project (UGA)









Habitats as indicators





Seagrasses/Submerged Aquatic Vegetation



Importance of seagrasses

- 6 different species in Florida
- Provides food for manatees and sea turtles
- Nursery areas for many species of fish and invertebrates
- Reduces turbidity
- Prevents low oxygen conditions (hypoxia)

Threats to seagrass

- Red tide and algae blooms
- Too much freshwater
- Declines in water transparency
- Nutrient pollution from people
- Macroalgae
- Boats
- Climate Change







Starting new research on the causes of seagrass declines & algal overgrowth 2024





Weekly WQ Conditions

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Ft. Myers

Poer(>15) Fair (10 - 15) Good(<10)









SCCF, Lighthouse Beach Park, 10-4-23 12:56 PM, Tide: 0.4 ft 14-day average flow at S-79: 5,045 cfs



Local Economic Impact of Poor WQ







CONNECTING OUR WATER, ECONOMY AND QUALITY OF LIFE









We cannot do our work without invidual donors like you.





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SIGN UP FOR ACTION ALERTS

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Questions?



What is the current status of WQ?







Blue-green Algae Status

Lake Okeechobee





Southwest Coast *Karenia brevis* concentrations 05/23/2024 - 05/30/2024

NOTE: Sampling efforts for other areas are not depicted on this map.

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Karenia brevis (cells/liter)

not present/background (0-1,000)
very low (>1,000-10,000)
low (>10,000-100,000)
medium (>100,000-1,000,000)
high (>1,000,000)

63 mi

ata SIO, NOAA, U.S. Navy, NGA, GEBCO Image Landsat / Copernicus Data LDEO-Columbia, NSF, NOAA

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Charlott

Collier

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Google Earth