



Water Quality: Response to Issues, Accomplishments and Future Action

Florida Keys National Marine Sanctuary: Marine Zoning and Regulatory Review

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Advisory Council Work Plan Direction



Objectives:

- **Increase public participation and understanding of Water Quality Protection Program**
- **Identify any necessary regulatory modifications**

Actions to date:

- **Presentation by Bill Cox from EPA on February 19**
- **WQPP Steering Committee Meeting on January 20**
- **Responses to Comments from 2012 Scoping Period**
- **WQPP Management Committee Review**

Water Quality Protection Program



Purpose:

To recommend priority corrective action and compliance schedules addressing point and non-point sources of pollution; to restore and maintain the chemical, physical, and biological integrity of the Sanctuary.

This includes restoration and maintenance of a balanced, indigenous population of corals, shellfish, fish, and wildlife, and recreational activities in and on the water.

Water Quality Protection Program



Co-Chairs:

U.S. Environmental Protection Agency

Florida Department of Environmental Protection

**NOAA Florida Keys National Marine Sanctuary
National Park Service,
Army Corps of Engineers
U.S. Fish and Wildlife Service,
Florida Fish and Wildlife Research Institute,
Florida Department of Economic Opportunity,
Florida Department of Health,
Florida Keys Aqueduct Authority,
South Florida Ecosystem Restoration Task Force
Monroe County Board of County Commissioners
Key Largo Wastewater Treatment District
Florida Keys Mosquito Control District**

**City of Key Colony Beach,
City of Key West,
Village of Islamorada**

**Community Members:
Sanctuary Advisory Council
FK Environmental Fund
Sandra Walters Consultants**

Water Quality Issues from Scoping

1. Everglades Restoration and Florida Bay
2. Sewage Treatment and Stormwater Runoff
3. Canal Restoration
4. Mooring Fields / Liveaboards / Pumpouts
5. Oceanic / Marine Vessel Discharges
6. Gulf of Mexico / Mississippi River
7. Marine Debris
8. Monitoring and Research



Water Quality Issues from Scoping

9. Water Quality Criteria
10. Turbidity
11. Mosquito Control
12. Safe Beaches
13. Law Enforcement
14. Climate Change / Ocean Chemistry
15. Endocrine Disruptors



Everglades Restoration and Florida Bay



Concerns: Negative impacts from agricultural runoff and need for more enforcement, monitoring and freshwater flow into Florida Bay

Current and Future Actions:

- Ongoing monitoring and investigation of macro algae bloom events.
- Everglades restoration projects to reduce nutrient flow from agriculture
- Development of stormwater treatment systems in Caloosahatchee System
- Restoration to increase freshwater flow to Florida Bay

Sewage Treatment and Stormwater Runoff



Concerns: Poor water quality resulting from wastewater contamination and stormwater runoff. Need better sewage treatment in the Florida Keys

Current and Future Actions:

- Legislative requirement requiring sewage treatment connection to central sewer or use Best Available Technologies by December 31, 2015
- Key West, Marathon, Key Largo have Advanced Wastewater Treatment online.
- Cudjue regional facility and Islamorada under construction

Canal Restoration



Concerns: Improve water quality in canals and increase water circulation to increase dissolved oxygen levels.
Monroe County has 502 canal systems

Current and Future Actions:

- Ongoing assessment of water quality in all canals
- Bathymetry, chemical analysis of sediment
- WQPP formed canal restoration subcommittee
- Testing different technologies in pilot projects
- Pursuit of Restore Act and other funding opportunities

Mooring Fields, Liveaboards and Pumpouts



Concerns: Support for more managed mooring fields and need to address discharges from liveaboards. Need for more pumpout facilities and enforcement.

Current and Future Actions:

- FWC Pilot Program in Monroe County to promote public managed mooring fields
- Monroe County approved anchoring and mooring regulations in 2012
- FDEP awarded \$539K in Clean Vessel Act grants to provide no-cost mobile pumpout services
- Ongoing education and enforcement

Oceanic and Large Vessel Discharges



Concerns: Impacts to resources from cruise ships and other large vessel discharges from human waste, trash, oily bilge water. Need for more enforcement.

Current and Future Actions:

- All sewage, trash, oil discharges are prohibited
- Ongoing inspection, monitoring and enforcement by FWC and USCG
- Area to Be Avoided restricts large vessel transit near reef

Gulf of Mexico and Mississippi River



Concerns: Poor water quality in Keys originates from Mississippi River and Gulf of Mexico dead zone. Questions of effectiveness of local regulations.

Current and Future Actions:

- EPA and State management of land based discharges in Mississippi Basin.
- EPA Gulf of Mexico Program
- Gulf of Mexico Partnership – 22 Agencies
- EPA supports 543 projects in characterizing environmental issues.



Marine Debris



Concerns: Marine debris continues to impact natural resources – including trap debris, fishing line, trash and plastic.

Current and Future Actions:

- Ongoing efforts to reduce marine debris through education, cleanups, and regulatory actions
- Team OCEAN volunteers removed more than 36,000 pounds of debris between 2007 and 2012
- FWC and trap fisherman continue to improve trap retrieval methods
- Stormwater systems improved to reduce litter entering shore waters

Water Quality Monitoring and Research



Concerns: Need to use research results to take tangible management actions

Current and Future Actions:

- WQPP Monitoring Program in place since 1992
- Ongoing Seagrass and Coral Monitoring programs
- Documented impacts of excess nutrients
- Contribution of nutrients and other pollutants identified and provided FDEP numeric nutrient targets

Water Quality Criteria



Concerns: Need to develop specific nutrient and other pollutant goals and criteria and develop restoration plan to reverse declining trends.

Current and Future Actions:

- 1985 Outstanding Florida Waters requirements for point source discharges
- DEP set strict nutrient targets and models indicate targets will be met with wastewater and stormwater management actions
- Nutrient criteria set for different water segments
- Next assessment set for 2017 and Reasonable Assurance Document to be updated in 2016

Concerns: Poor visibility and deteriorating water quality are caused by increasingly turbid waters

Current and Future Actions:

- Monitoring programs collect data on turbidity in addition to chlorophyll values, salinity, dissolved oxygen and nutrients.
- Ongoing work investigating source of nutrients and impacts of micro-algal blooms that cause green water and poor visibility
- Water quality standards and restoration plans continue to be implemented.

Mosquito Control Spraying



Concerns: Need to evaluate all research on mosquito control spraying on impacts to natural resources

Current and Future Actions:

- Active research program to evaluate impacts of pesticides on near shore waters
- Significant improvements by Mosquito Control District – modification of spraying based on research
- Current research underway to understand impacts of commonly used insecticides on spiny lobster and shallow water starlet coral

Safe Beaches



Concerns: High bacteria levels and stormwater runoff pollute near shore waters and cause unhealthy conditions for swimmers

Current and Future Actions:

- Florida Department of Health collaborations with local agency partners
- Weekly monitoring and advisories regarding health at 17 beaches in Florida Keys
- City of Key West developed Stormwater Master Plan in 2012 to address flooding, stormwater diversion, pollutant reduction. New injection wells, retrofitting of old wells

Climate Change and Ocean Chemistry



Concerns: Ocean warming and ocean acidification are degrading ecosystem and this increasing stress highlights need to address other local stressors.

Current and Future Actions:

- Thermographs deployed since 1989 to record temperature changes in addition to federal, state and academic in-situ temperature monitoring.
- Bleach Watch program continues to be implemented
- Partnerships in the Florida Reef Resilience Program which also monitors coral condition and disturbance response

Endocrine Disruptors



Concerns: Need to address human-related releases of endocrine disruptors, anti-biotics, hormones and sunscreens

Current and Future Actions:

- Increasing body of research in EPA Endocrine Disruptor Screening Program
- Increasing education including recent “Waterways” episode
- Ongoing use of research and risk evaluations for regulatory and other management actions.

Law Enforcement



Concerns: Need for increased enforcement of water quality regulations (cuts across all issues)

Current and Future Actions:

- Discharges identified as a top priority in Joint Enforcement Agreement
- Enforcement coordination across NOAA, FWC, USCG, FWS, NPS, and Department of Justice.
- Increased use of USCG Auxiliary to identify enforcement issues and provide education on regulations

What's next?

- Water quality issues will continue to be concern
- Information provided to Advisory Council with other regulatory options for consideration.
- Discussion and review of water quality related regulatory changes
- Continue to increase coordination between Advisory Council and WQPP Steering Committee





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Water Quality Protection Program

Good water quality is critical to the health of coral reefs and all the habitats of Florida Keys National Marine Sanctuary. Changes in water quality, including increases in levels of specific nutrients, can have serious negative effects on marine life. To better understand how humans have an impact on water quality and how those changes affect sanctuary habitats, the Water Quality Protection Program was created in 1994.

The [Water Quality Protection Program](#) is administered by the U.S. Environmental Protection Agency and the State of Florida's Department of Environmental Protection. The program is designed to make recommendations on how to maintain and restore the ideal water quality needed for healthy native plant and animal populations to thrive in sanctuary waters. Through the Water Quality Protection Program, water quality, seagrass meadows, and coral reefs have been monitored in the sanctuary since the mid-1990s.

Information from these long-term monitoring programs provides insight into the complex balance of the marine ecosystem in the Florida Keys. This information also allows researchers and managers to detect any changes in the sanctuary from upstream influences.

For additional information, read [Water Quality: Frequently Asked Questions \(pdf, 420 kb\)](#).

Water Quality Monitoring	Coral Reef Monitoring	Seagrass Monitoring	Special Projects
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Water Quality Monitoring Program

Since 1995, scientists from Florida International University have been collecting water quality samples at 154 sites throughout the Florida Keys as part of the [Water Quality Monitoring Program](#). Water quality is based on many factors, including the levels of specific nutrients — nitrogen and phosphate — which are often found in high concentrations in wastewater and stormwater. If the levels of these nutrients get too high it put stress on marine life, making them more prone to disease and even death.

Scientists in the Water Quality Monitoring Program also look at how sanctuary waters are influenced

