Water Quality: Frequently Asked Questions

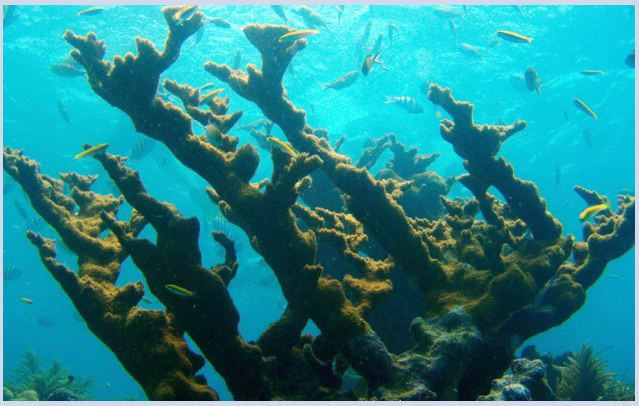
1. What is water quality and what factors influence the quality of waters in the Florida Keys?

The term "water quality" is used to describe the condition of the water — usually with respect to its suitability for a particular purpose such as drinking, swimming, or fishing. In Florida, state water quality standards call for the nearshore waters to be suitable for "fish consumption, recreation" and "maintenance of a healthy, well-balanced population of fish and wildlife." In the Florida Keys, surface waters are influenced both by surface runoff from the islands themselves and from waters that flow to the Keys from other locations including from Florida's southwest coast and the Gulf of Mexico.

2. Why is good water quality important to people?

People like to swim, fish, and dive in clean, clear water. Waters with poor quality tend to have fewer fish, lower oxygen levels, and are often cloudy due to algae blooms. Poorly treated stormwater and/or sewage entering nearshore waters can pose health risks. Upgrades in wastewater treatment made by local communities help keep Florida Keys waters safer for people and wildlife. As part of the *Florida Healthy Beaches* program, many Keys beaches are tested for fecal coliform bacteria, which may indicate the presence of disease-causing organisms. Harmful algal blooms such as red tides can also affect water quality. Red tides originate on Florida's west coast, but can be carried to Keys waters by surface currents where they can make conditions unsafe for swimming and harm marine life. For more information on red tide conditions, visit https://myfwc.com/research/redtide/.

People enjoy the clear waters of the Keys.



Corals are adapted to low nutrient waters.

3. Why is good water quality important to marine life?

Good water quality is essential to a healthy marine ecosystem. Seagrass meadows and coral reefs thrive in clean, clear waters that are low in nutrients. In time, a seagrass bed or coral reef exposed to nutrient pollution will gradually be replaced by nutrient-loving algae and have fewer fish and invertebrates. When nutrient enrichment leads to a visible change in ecosystem, it is known as eutrophication, which means "too much food" in Latin. Confined bodies of water, including many residential canals in the Florida Keys, exhibit signs of eutrophication.

4. Why do our actions have such a direct and immediate impact on water quality?

In the Florida Keys, people live and work close to nearshore waters, thus they can easily affect the quality of those waters. Excessive nutrients from fertilizers and chemical pollutants (motor oil, gasoline, pesticides, etc.) from land-based activities enter nearshore waters through stormwater runoff. Hard, non-porous surfaces such as roads, bridges, and parking lots contribute to runoff. Significant runoff also occurs from yards and other landscaped areas. Additionally, chemical pollutants can also soak into the ground where they may eventually reach nearby surface waters through the porous limestone bedrock. Protecting groundwater and preventing runoff are key to having good nearshore water quality.

5. What can my family and I do to help protect and improve water quality?

There are many things you can do to prevent degradation to sanctuary waters.

- On your boat and at home, use phosphate-free soaps and detergents.
- Dispose of household chemicals and hazardous waste according to label instructions.
- In your yard, keep fertilizers and leaves out of nearshore waters and avoid fertilizing before rain.
- When fishing, keep nutrient-rich fish scraps out of nearshore waters.
- On your boat, use an absorbent cloth to soak up oil or gasoline spills before they reach the bilge or marine waters.
- Use mobile vessel pump-out services or a marina pump-out station. Discharging into sanctuary waters is prohibited.
- Report fish kills and other unusual marine events to FWC's fish kill hotline: 800-636-0511.

People in the Keys live and work close to nearshore waters and should take steps to prevent land-based pollution.

6. What do scientists measure to determine water quality?

Scientists measure chemical, physical, and biological properties of water to determine its quality. This may include measuring concentrations of dissolved oxygen, plant nutrients (nitrogen and phosphorus), suspended sediments, salinity, fecal coliform bacteria (from human and animal wastes), pesticides, herbicides, heavy metals, and other contaminants. Concentrations of chlorophyll-a, a green plant pigment, indicate the intensity of an algae bloom. While blooms can be natural events, persistent blooms are indicative of too many nutrients and can lead to low dissolved oxygen conditions and murky, discolored water.

7. What is the Water Quality Protection Program (WQPP)?

The Water Quality Protection Program (WQPP) is an interagency program called for in the legislation that created Florida Keys National Marine Sanctuary in 1990. The WQPP is charged with recommending and implementing corrective actions that restore and maintain water quality and healthy fish and wildlife populations in the sanctuary. Administered jointly by the U.S. Environmental Protection Agency and Florida's Department of Environmental Protection, the WQPP provides coordination on water quality projects and issues, and offers opportunities for public input.

8. What are some of the accomplishments and contributions of the WQPP?

Since 1992, the WQPP has been involved in evaluating water quality and working with its many partners toward improving conditions in the Florida Keys. Under guidance and oversight of the WQPP, local Keys communities upgraded sewage treatment to the highest level – Advanced Wastewater Treatment. In 2010, all waters within Florida Keys National Marine Sanctuary became a no discharge zone for vessel sewage. Currently, strides are being made in improving stormwater management and restoring water quality in nearshore waters and residential canals. Education and outreach have also been a feature of the WQPP, which sponsored production of the illustrated book *Tropical Connections*.

Macro-algae can "bloom" or grow rapidly under high nutrient conditions.

The WQPP has supported scientific studies and monitoring programs that have provided valuable information for resource managers and added greatly to our knowledge about the Florida Keys marine ecosystem. Special studies projects have provided useful information on groundwater, canals, pharmaceuticals, and other topics of interest. Monitoring programs have allowed sanctuary managers to track the status and trends in water quality, seagrass meadows and coral reefs throughout the sanctuary for the past 25 years. Monitoring results point to the interconnectedness of the region's surface waters and indicate that nutrient-rich waters from rivers on Florida's southwest can reach the Florida Keys. Results also serve as the baseline by which changes may be measured,including changes associated with Everglades' restoration projects on the South Florida mainland.