

## WQPP Management Committee Recommended Priority Topics for 2023 EPA Special Studies Funding

### **1. Nutrient Loading Budget/Modeling:**

- Conduct a nutrient loading analysis to assess the relative contribution of local anthropogenic sources of nitrogen and phosphorus (wastewater, stormwater, liveaboards, etc.) vs. natural sources of nutrients (upwelling, rainwater) to nearshore waters of the Florida Keys; include analysis of changes in anthropogenic nutrient loading over time compared to former nutrient loading estimates conducted before wastewater upgrades and other corrective actions were implemented.
- Develop a nutrient loading model to demonstrate nutrient and contaminant loadings from regional sources (Florida Bay, the Gulf of Mexico, and southeastern Florida) into waters surrounding the Florida Keys.

**2. Coastal Resiliency and Stormwater Mitigation:** Monitor the efficacy of stormwater treatment systems associated with road elevation and other coastal resiliency and sea-level rise adaptation projects to ensure adequate protection of surface waters. Evaluate if a higher level of service is necessary for stormwater treatment systems and identify more efficient technologies, green infrastructure, or best management practices that may be employed, particularly in areas with restricted land availability, such as the Florida Keys and urban environments.

**3. Canal Water Quality Improvements:** Demonstrate “test or prove” activities to improve water quality in marine residential canals that may include canal master planning; canal restoration demonstration projects and design; pilot projects proving or testing feasibility or efficacy of innovative technologies; education and outreach program for canal homeowners and marinas; collecting bathymetric data for restoration; and monitoring to evaluate effectiveness of canal restoration techniques. Water quality results should be disseminated to the public as part of the outreach and education component. Innovative technologies or management practices identified must comply with all applicable regulations and water quality standards.

**4. Water Reuse:** Investigate opportunities to improve wastewater systems beyond advanced treatment standards and repurpose purified wastewater for beneficial use in south Florida. This may include an updated review of innovative wastewater treatment technologies or processes such as reverse osmosis, omni-processing and/or nanofiltration, pilot projects to test or prove the effectiveness of innovative technologies for removing pharmaceuticals and other contaminants of emerging concern, or feasibility studies on potable reuse of wastewater in south Florida.

**5. Nearshore Water Quality Monitoring Transects:** Establish water quality monitoring transects within nearshore “halo zone” waters (within 500 meters of shore) to determine the geographic extent of the impact of local, land-based anthropogenic nutrients within the Keys. Identify the optimal distance from shore for measuring the 'endpoint' of Keys' land-based vs. regional water quality impacts to inform appropriate water quality targets and the effectiveness of local efforts to reduce pollution to adjacent marine waters.

**6. Florida Keys Water Quality Monitoring Program Evaluation:** Conduct an independent evaluation of the long-term water quality monitoring programs within Florida Keys National Marine Sanctuary. The objective of this effort is to assess the programs' effectiveness in supporting evolving resource management priorities and identify opportunities to improve data collection to better inform management decision-making and consistency in water quality monitoring efforts across Florida's Coral Reef and associated habitats.