

Water Quality and Other Monitoring Programs

3/13/23

AGENCY	DATASET/DESCRIPTION/LINKS
DEP	<p>Environmental Resource Permit and Joint Coastal Permit programs – Benthic Monitoring</p> <p>DEP requires extensive benthic monitoring for permitted projects that are impacting coral reef and hardbottom habitat; however, much of this data is not currently comparable to long term data sets.</p>
DEP	<p>Kristin Jacobs Coral Reef Ecosystem Conservation Area Monitoring Efforts</p> <p>The DEP Coral Reef Conservation Program:</p> <ul style="list-style-type: none"> • Funds annual benthic data (SECREMP) collection at 22 permanent sites (20+ years) • Conducts annual Disturbance Response Monitoring for the FWC at approximately 30 stratified random sites (20 years) • Conducted a Fishery-Independent Baseline Assessment: 2012-2016 <p>They also:</p> <ul style="list-style-type: none"> • Conduct benthic and fish surveys every two years for the national coral reef monitoring program under NOAA CRCP • Train stakeholders in the BleachWatch assessment protocol via the Southeast Florida Action Network • Conduct reef injury assessments associated with vessel damage cases under Florida’s Coral Reef Protection Act <p>Links:</p> <p>https://floridadep.gov/sites/default/files/SEFCRI_FIA_5_Year_Summary_%20Report-FINAL_1.pdf</p> <p>https://floridadep.gov/rcp/coral/content/coral-eca-kristin-jacobs-coral-reef-ecosystem-conservation-area</p> <p>https://floridadep.gov/rcp/coral/content/bleachwatch</p>
DEP	<p>Southeast Region Aquatic Preserves – Benthic Monitoring</p> <p>The Southeast Region Aquatic Preserves at Biscayne Bay, Lignumvitae, and Coupon Bite all have ongoing benthic (seagrass) monitoring programs.</p> <p>Links:</p> <p>https://floridadep.gov/rcp/rcp/content/mapping-and-monitoring-seagrass-communities</p>
FIU/SERC	<p>FIU’s Southeastern Environmental Research Program (SERC) Water Quality Monitoring Network</p> <p>The function of the SERC Water Quality Monitoring Network is to address regional water quality concerns that exist outside the boundaries of individual political entities. Funding for the Network has come from many different sources with individual programs being added as funding became available. Field sampling occurs over different time periods due to the nature of the funding. The Florida Keys National Marine Sanctuary and the Southwest Florida Shelf are sampled quarterly. Parameters: Surface and bottom temperature (deg. C), salinity, dissolved oxygen (mg/L), nitrate (mg/L), nitrite (mg/L), ammonium (mg/L), total nitrogen (mg/L), total organic nitrogen (mg/L), total phosphorus (mg/L), soluble reactive phosphorus (mg/L), total organic carbon (mg/L), total silicate (mg/L), chlorophyll a (ppb), alkaline phosphatase activity (uM/hr), turbidity (NTU), pH, light attenuation (Kd), depth</p>

Water Quality and Other Monitoring Programs

3/13/23

AGENCY	DATASET/DESCRIPTION/LINKS
	<p>Links: https://data.florida-seacar.org/programs/details/509</p>
FKNMS	<p>Continuous Bottom Temperature Measurements along the Florida Reef Tract To document bottom seawater temperature in strategic areas of the Florida Reef Tract on a continuing basis and make that information available to management and research user groups. These thermographs provide valuable information regarding temperature conditions on the sea floor, which indicate the actual environmental exposures for benthic organisms. Initially, the collected data are made available to FKNMS Managers and others who monitor and assess environmental conditions that influence FKNMS areas of the Florida Reef Tract. An archival copy of these data is maintained and available from the U.S. National Oceanographic Data Center.</p> <p>Links: https://data.florida-seacar.org/programs/details/989</p>
FWC	<p>Demographic Monitoring and Population Enhancement of <i>Acropora palmata</i> along the Florida Reef Tract FWC conducts demographic monitoring of <i>Acropora</i> spp. along the Florida Reef Tract and assists NOAA in implementing the ESA Recovery Plan for coral reefs. The goal of these actions is to assist managers in assessing the species' status and promote their recovery. This is an on-going monitoring project with thrice yearly surveys in the upper Florida Keys and Biscayne National Park started in 2010. 150 m² radial plots in which all attached <i>Acropora palmata</i> colonies are mapped and surveyed. Individual tagged <i>A. palmata</i> colonies are surveyed to assess their health and condition. Data collected includes coral counts, size, recruitment, mortality, condition assessments, disease, percent live cover, and water temperature.</p> <p>Links: Not in SEACAR database</p>
FWRI	<p>CREMP Water Temperature on Coral Reefs in the Florida Keys Coral Reef Evaluation and Monitoring Project (CREMP) has been monitoring temperature along the Florida Reef Tract since 1996. Temperature loggers have been or are being deployed at every active CREMP site, and currently have 52 loggers recording water temperatures on sites ranging from just south of Biscayne National Park to the waters surrounding Dry Tortugas National Park.</p> <p>Links: https://data.florida-seacar.org/programs/details/986</p>
FWRI NOAA	<p>Florida Keys and Southeast Florida Coral Reef Evaluation and Monitoring Project (CREMP/SECREMP) CREMP has monitored the condition of coral reef and hardbottom habitats annually throughout the Florida Keys since 1996 (conducted by FWRI), southeast Florida since 2003 (conducted by the National Coral Reef Institute at Nova Southeastern University Oceanographic Center), and the Dry Tortugas since 2004 (conducted by FWRI). It is one of the</p>

Water Quality and Other Monitoring Programs

3/13/23

AGENCY	DATASET/DESCRIPTION/LINKS
	<p>longest running coral reef monitoring projects in south Florida and has been extremely important in documenting the temporal changes that have occurred in recent years.</p> <p>Since 2003 NOAA CRCP has funded this long-term status and trends monitoring program in SE Florida through a cooperative agreement with the Florida Department of Environmental Protection Office of Resilience and Coastal Protection. SECREMP is an expansion of the Florida Keys Coral Reef Evaluation and Monitoring Project (CREMP). By using the same methods, SECREMP and CREMP provide comparable coral reef monitoring data along Florida's Coral Reef (Gilliam et al. 2013). SECREMP originally started with ten sites in 2003 and has expanded over the years to 22 permanent sampling sites within the 105-mile Southeast Florida region (Gilliam et al. 2015). FDEP CRCP contracts this work to the FWC's Fish and Wildlife Research Institute (FWRI). The Coral Reef Research Group at FWC FWRI, who has been monitoring reefs in the Florida Keys through CREMP since 1996, works with Nova Southeastern University (NSU) on data collection and analysis.</p> <p>Links: https://data.florida-seacar.org/programs/details/295 https://myfwc.com/research/habitat/coral/cremp/</p>
FWRI	<p>Florida Reef Resilience Program: Disturbance Response Monitoring Program (DRM)</p> <p>Recently transitioned from The Nature Conservancy, the Florida Reef Resilience Program's (FRRP) DRM Program was developed for monitoring shallow reef systems from Martin County to the Dry Tortugas to better understand how rising sea temperatures will affect Florida's coral reefs. The DRM program is the largest, collaborative volunteer-based coral monitoring effort in the world and brings together partners across the jurisdictions of the Florida Reef Tract. The data generated by the DRM provides reef managers with an annual assessment of the extent of coral bleaching and disease and its potential impacts on the Florida reef system.</p> <p>Links: https://data.florida-seacar.org/programs/details/981 https://myfwc.com/research/habitat/coral/drm/</p>
FWRI	<p>FWC-FWRI GIS Data Layers</p> <p>GIS Data Layers made available by the GIS Librarian of the Florida Fish and Wildlife Conservation Commission, Florida Wildlife Research Institute on the Open Data Portal (geodata.myfwc.com). These are data layers that are not attributable to a specific FWC program other than the GIS Librarian. Data include: Seagrass - compilation of statewide seagrass data from various source agencies and scales ranging in date from 1987 to 2017; Coral - compilation of coral and other hard bottom type data available to FWRI as of July, 2013; Oyster - oyster coverage for available study areas and represents the data available to FWRI as of January, 2019; updated oyster data available November, 2020.</p> <p>Links: https://data.florida-seacar.org/programs/details/5059</p>

Water Quality and Other Monitoring Programs

3/13/23

AGENCY	DATASET/DESCRIPTION/LINKS
	https://geodata.myfwc.com/
FWRI	<p>HAB Monitoring Database</p> <p>The Florida Fish and Wildlife Conservation Commission's Fish and Wildlife Research Institute (FWRI) harmful algal bloom (HAB) database documents <i>Karenia brevis</i> blooms, also called red tides, from 1953 to the present – one of the longest records of red tide data. The database contains more than 200,000 records from samples provided by more than 190 state and county agencies, private research institutions, universities, and FWC staff. Data include location coordinates, cell counts of <i>Karenia brevis</i> and other HAB species, and a variety of water quality measurements such as temperature, salinity and dissolved oxygen. The database is updated daily and data are routinely provided to FWC scientists, other researchers, resource managers, and the public.</p> <p>Links: https://myfwc.com/research/redtide/monitoring/database/ https://data.florida-seacar.org/programs/details/95</p>
FWRI	<p>Unified Reef Maps</p> <p>The Unified Reef Map is a regional map of benthic habitats that occur throughout the Florida reef tract. The Unified Reef Map consists of individual maps and monitoring data provided by our numerous partners. The purpose of the Unified Reef Map is to provide a comprehensive view of habitats from Martin County through the Florida Keys to the Dry Tortugas. The Unified Reef Map supports the larger effort to coordinate scientific research and promote a reef-wide approach for protecting Florida’s reef tract.</p> <p>Links: https://myfwc.com/research/gis/fisheries/unified-reef-map/ https://data.florida-seacar.org/programs/details/4041</p>
NOAA	<p>Mission: Iconic Reefs</p> <p>Mission: Iconic Reefs (M:IR) is a large coral reef restoration initiative within Florida Keys National Marine Sanctuary (FKNMS) at reef sites that span the upper, middle, and lower Florida Keys. To Support M:IR, a Mission: Iconic Reefs Monitoring and Research Plan (hereafter ‘Plan’) was developed to overview the core monitoring activities and research priorities for the M:IR restoration initiative. This Plan summarizes multiple approaches to evaluate changes to coral reef functions that result from M:IR restoration. M:IR monitoring and research includes the evaluation of restoration actions (e.g., coral outplanting and introduction of herbivorous invertebrates), as well as actions taken prior to restoration implementation (e.g., site preparation). This Plan provides an overview of multiple methods for data collection and metrics within sample designs intended to be quantitative and statistically robust. Evaluation approaches include reef ecosystems, reef structural complexity, communities, populations, and organisms. M:IR monitoring and research is being conducted at all seven M:IR reefs and will occur throughout all of the reef habitats, including within specific Restoration Monitoring Areas (RMAs) and Control Areas (CAs). M:IR-specific</p>

Water Quality and Other Monitoring Programs

3/13/23

AGENCY	DATASET/DESCRIPTION/LINKS
	<p>monitoring and research will be compatible with and comparable to ongoing ecosystem monitoring efforts where feasible, to enable comparisons between M:IR and the broader Florida Keys coral reef ecosystem. Monitoring will be conducted by multiple partners from multiple institutions. M:IR monitoring efforts are extensive, interconnected, and compatible with existing monitoring in FKNMS. There are three major M:IR monitoring themes. These include 1) M:IR monitoring complementary to ongoing monitoring efforts that span the Florida reef tract, 2) M:IR-specific monitoring at permanent fixed sites in RMAs and CAs, and 3) M:IR monitoring by restoration practitioners.</p> <p>Links: https://marinesanctuary.org/mission-iconic-reefs/ https://www.fisheries.noaa.gov/southeast/habitat-conservation/restoring-seven-iconic-reefs-mission-recover-coral-reefs-florida-keys</p>
NOAA	<p>NOAA’s National Coral Reef Monitoring Program (NCRMP)</p> <p>This program is led by NOAA’s Coral Reef Conservation program and implemented with partners across the U.S. as a strategic framework for conducting sustained observations of biological, climatic, and socioeconomic indicators in U.S. states and territories. The resulting data provide a robust picture of the condition of U.S. coral reef ecosystems and the communities connected to them.</p> <p>The primary goals of NCRMP are to:</p> <ul style="list-style-type: none"> • develop consistent and comparable methods and standard operating procedures (SOPs), which detail specific field, laboratory, and/or analytical procedures and best practices, for all indicators (with periodic updates to reflect new technologies or logistical considerations) • develop and maintain strong partnerships with federal, state/territory, and academic partners • collect scientifically sound, geographically comprehensive biological, climate, and socioeconomic data in U.S. coral reef areas • deliver high-quality data, data products, and tools to the coral reef conservation community • provide context for interpreting results of localized monitoring • provide periodic assessments of the status and trends of the nation’s coral reef ecosystems <p>The Coral Program’s national status and trends monitoring focuses on four priority themes with indicators defined for each of the themes:</p> <ol style="list-style-type: none"> 1. reef-associated benthic communities (emphasizing scleractinian corals) 2. reef associated fish communities 3. climate change parameters (thermal/heat stress and ocean acidification), and reef ecosystem responses (calcification, bioerosion, habitat persistence) 4. human dimensions related to perceptions of, and interactions with, coral reef ecosystems

Water Quality and Other Monitoring Programs

3/13/23

AGENCY	DATASET/DESCRIPTION/LINKS
	<p>Links: https://www.coris.noaa.gov/monitoring/welcome.html https://data.florida-seacar.org/programs/details/3022</p>
NOAA	<p>Population Status of Elkhorn Coral This is an on-going monitoring project with thrice yearly surveys in the upper Florida Keys and annual surveys in Curaçao and only episodic surveys in Navassa (2006, 2009, 2012). Study units are 150 m2 plots in which all attached Acropora palmata colonies are mapped and surveyed each year. In Florida, individually tagged A. palmata colonies are surveyed more frequently to document their condition. Links: https://data.florida-seacar.org/programs/details/136</p>
NPS	<p>Florida Bay Water Quality Monitoring Network NPS has an automated monitoring system in Florida Bay for Chlorophyll-a, Sea Surface Temperature (SST), pH, Dissolved Oxygen (DO), and Turbidity. Taken every 30 minutes, the dataset has 12 years of data.</p>
Palm Beach County	<p>Palm Beach County Ambient Water Quality Monitoring Program Sampling conducted in Lake Worth Lagoon (Monthly) and Freshwater Canals (Bi-monthly). Program began in 1989. Sampling conducted for Chlorophyll-a, Sea Surface Temperature (SST), pH, Dissolved Oxygen (DO), Total Suspended Solids (TSS), Turbidity, Total Nitrogen (TN), and Total Kjeldahl. Links: https://floridadep.gov/dear/watershed-services-program/content/winstoret</p>
Southeast Fisheries Science Center	<p>South Florida National Coral Reef Monitoring Program The Southeast Fisheries Science Center, along with other governmental (NOAA, FWC, NPS) academic, and private partners, has been conducting a visual survey of reef fish species in the Florida Keys since 1978. This survey has since been expanded to include the Dry Tortugas and Southeast Florida Region. All the data from this survey collected since 1999 is now available as spreadsheet files for general use as part of this data portal. Links: https://grunt.sefsc.noaa.gov/rvc_analysis20/ Contacts: Jeremiah Blondeau from NOAA at jeremiah.blondeau@noaa.gov Dr. Mike Feely from NPS at michael_feeley@nps.gov</p>
USGS	<p>Florida Keys Corals: A Photographic Record of Changes from 1959 to 2015</p>

Water Quality and Other Monitoring Programs

3/13/23

AGENCY	DATASET/DESCRIPTION/LINKS
	<p>This data release contains time-series photographs taken of corals and coral habitats in the Florida Keys between 1959 and 2015 at Carysfort Reef and Grecian Rocks (a total of six sites). The original intent was to show coral reef recovery after Hurricane Donna devastated the area in 1960. Corals, especially elkhorn and staghorn coral, grew prolifically after the storm until the late 1970s, then began to decline, with the maximum period of decline centered around 1983 and 1984. These time-series photographs, showing the same individual coral colonies year after year, document the decline in coral health observed at these locations, mirroring patterns seen region-wide across the western Atlantic.</p> <p>Links: https://coastal.er.usgs.gov/data-release/doi-F7S46QWR/</p>
USGS	<p>Microbial and environmental dataset from Crocker Reef, Florida Keys</p> <p>Two seasonal sampling trips conducted in 2015. Sampling conducted for Temperature, Salinity, pH, Dissolved Oxygen (DO), Turbidity, and Vibrio counts.</p> <p>Links: https://coastal.er.usgs.gov/data-release/doi-F74Q7S25/</p>