

Florida Water-CAT:

Making it easier to share metadata about chemical, physical and biological water monitoring activities

10th National Water Quality Monitoring Conference, May 2-6, 2016

Panel: Useful, Timely, Florida-specific Monitoring Products... From a Council of your Peers

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What is the Water-CAT?

This...

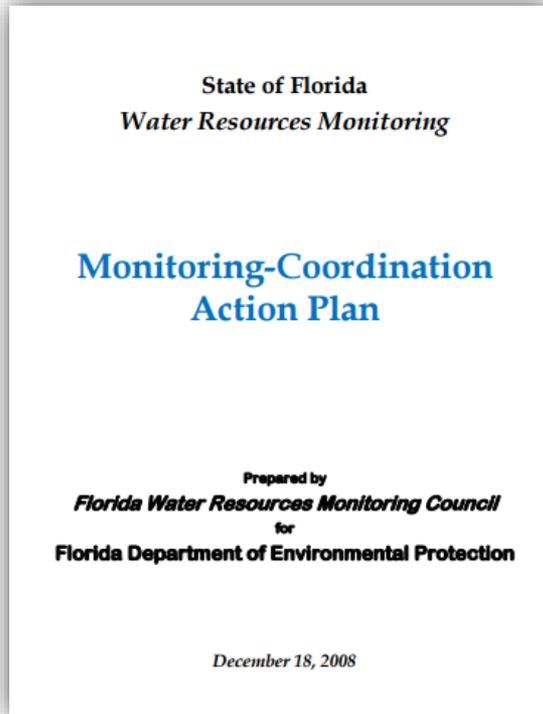


Florida Water Resource Monitoring Catalog
www.water-cat.org

Not this...

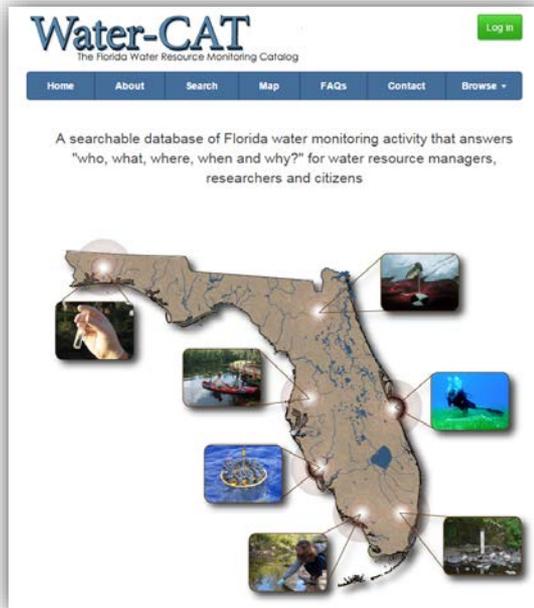


Genesis of the Water-CAT



- Conceived by the Florida Water Resource Monitoring Council
- Overall goal is to **improve knowledge of monitoring activities**
 - *Create and populate a comprehensive digital catalog of existing and legacy water-resources monitoring activities*
 - *Make the catalog accessible*
 - *Continually maintain the catalog*
- Developed in partnership with USF
- Launched in May, 2014

Overview of Water-CAT.org



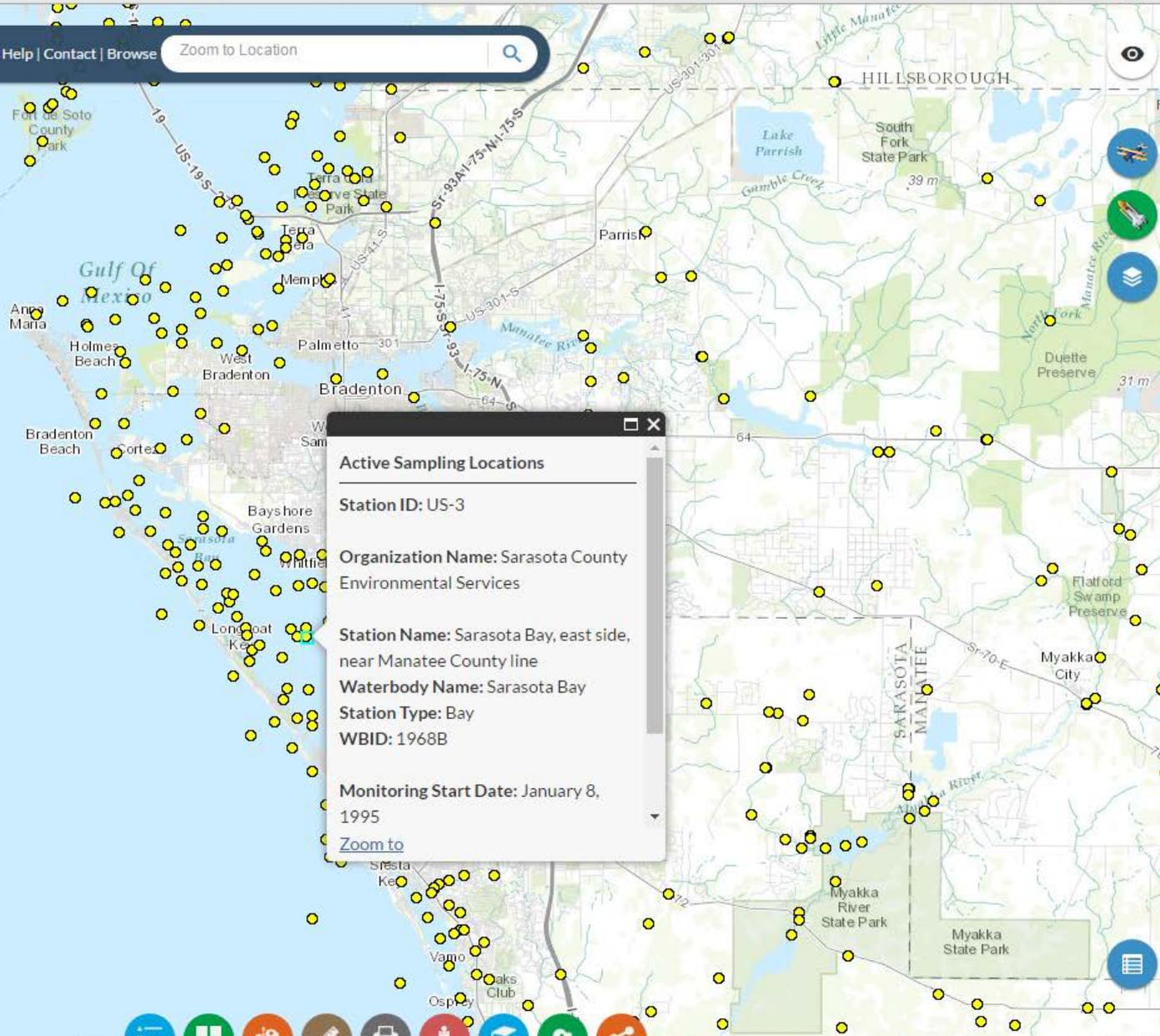
- metadata for water resource monitoring
 - Who is monitoring what, where they are doing it, when and why
- Browse by
 - Organizations, Projects or Stations
- Search by
 - Geography / Map
 - Detailed monitoring attributes

BETA

Water-CAT

Home | About | Search | Help | Contact | Browse

Zoom to Location



Active Sampling Locations

Station ID: US-3

Organization Name: Sarasota County Environmental Services

Station Name: Sarasota Bay, east side, near Manatee County line

Waterbody Name: Sarasota Bay

Station Type: Bay

WBID: 1968B

Monitoring Start Date: January 8, 1995

[Zoom to](#)

27.680 -82.692 Degrees

4mi



Water-CAT

The Florida Water Resource Monitoring Catalog

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[Home](#) / [Station List](#) / [Station Details](#)

Sarasota Bay, east side, near Manatee County line US-3

[Download Metadata ▾](#)
[Station Details](#)
[Location](#)

Bays and Rivers

Project Description: Surface water ambient monitoring of Coastal Bays in Sarasota County, Florida. -- The study area is divided into eight segments: Upper Sarasota Bay (Segment US), West Lower Sarasota Bay (Segment 10), East Lower Sarasota Bay (Segment 11), North Roberts Bay (Segment 13), Little Sarasota Bay (Segment 14), Blackburn Bay (Segment 16), Dona and Roberts Bay (Segment DR) and Lemon Bay (Segment LB). The Myakka River was sampled up until October, 2007 (Segments MU and ML).. Each segment is divided into 5 polygon. Within each polygon there are 12 randomly-chosen specific sample locations that get repeated once per year in the same month each year. The Station_ID defines the Segment + Station + Month, thereby creating a unique identifier for every sampling site. For example: 10-1-01 is a sample from segment 10 in Sarasota Bay, more specifically from polygon 1 of segment 10, and sampled in month 1 (January). This Station_ID gets resampled every January, and so on with the other sample sites. -- For several years meter readings were taken from 3 depths both early in the morning and at midday. There were also datalogger deployments that measured diel conditions. The Activity_ID defines these sampling conditions, as follows: Station_ID + Letter for relative depth + Letter for Relative time of day + 2 digits for year. Relative Depth is either M for middepth, T for top, or B for Bottom. Relative time of day is either N for noon-ish, E for early morning, or D for diel (datalogger). All grab samples were taken midday, middepth. -- There are several early years of this data set in STORET that do not follow these naming conventions. Users of this data may be confused by this. The previous convention was to create a unique Activity_ID for each sample event based on the Organization Code + Sample Date (yearmonthday) + Segment + Station polygon. Users may not realize that sample sites get reused once/year or that this is a stratified random sampling program. -- These comments were made on 01-26-04 by Sarasota County Water Resources, 941-861-0663.

Overview

Organization	Sarasota County Environmental Services
Project Status	Active
Project Duration	-
Sampling Frequency	Discrete - Sampled Monthly
Project URL	Not Provided
Data URL	How to Obtain Project Data

Parameters Monitored[†]

Parameter Group	Parameter
Biological	Chlorophyll a, corrected for pheophytin
Field	Apparent Color, Cloud cover, Depth, bottom, Dissolved oxygen (DO), Dissolved oxygen saturation, Light, underwater extinction coefficient (k), pH, Salinity, Secchi disk depth, Specific conductance, Temperature, water, Turbidity, Wave height, Wind direction (direction from, expressed 0-360 deg), Wind velocity
Physical/Chemical	BOD, Biochemical oxygen demand, Nitrogen, ammonia (NH3) + ammonium (NH4), Nitrogen, Kjeldahl, Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N, Phosphorus as P, Phosphorus, phosphate (PO4) as P

[†] **Note:** This is one of possibly many stations monitored by a project. Each project defines the list of parameters monitored and this station may collect all of the parameters shown or only a subset.

Water-CAT

The Florida Water Resource Monitoring Catalog

Log in

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Search

Use this form to obtain a list of monitoring stations that satisfy a specified set of conditions. All search fields are optional. After making your selections, click the SUBMIT button to view a list of stations that satisfy ALL the conditions you specified. You may then choose a particular station to inspect its metadata, or download the metadata for all stations in the list in one of several formats.

Search Help (pdf)

NOTES:

1. In general, specifying value(s) in more fields will yield a list with fewer stations; conversely, specifying value(s) for fewer fields will produce a list with more stations.
2. Once you have reviewed your initial search results, you may find it necessary to adjust your search selections several times in order to zero in on the stations of greatest interest to you.
3. Be aware that the database records of many monitoring stations are incomplete, with blanks in one or more metadata fields. Unless stated otherwise, a blank in a particular field will preclude a station from being included in the results list when a search value has been specified for that field.

If you are primarily interested in locating monitoring stations in a particular geographic area, you may find that it is more convenient to use the [interactive map of monitoring stations](#) to perform a geospatial search.

Note: This site requires that browser cookies and javascript be enabled in order to function properly. Some third-party browser plug-ins also may cause unexpected errors or interfere with its operation.

Organization Name ⓘ

- Alachua County Environmental Protection Department (Florida)
- Avon Park Air Force Range - 23 WG DET 1 OLA
- Babcock Ranch (Florida)
- Biological Research Associates (Florida)
- Brevard County Stormwater Utility Department (Florida)
- Broward County Environmental Protection Department
- Century Realty/Schreuder, Inc.
- Charlotte County Department of Health
- Charlotte County Stormwater Division

For windows: Hold down the control (ctrl) button to select multiple options. For Mac: Hold down the command button to select multiple options

clear selection(s)

Station ID ⓘ

case-insensitive, partial text match

clear entry

Station Name ⓘ

case-insensitive, partial text match

clear entry

Project Status ⓘ

- Active Inactive Inferred Active Inferred Inactive Unknown

clear selection(s)

Date Range ⓘ

Start Date: End Date:

Include stations that have no date

clear dates

Water-CAT

The Florida Water Resource Monitoring Catalog

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Organizations

Listed below are those organizations that participate in water resource monitoring in Florida and have station metadata in this Catalog. Included are federal, state, regional, county and municipal agencies, as well as volunteer/nonprofit organizations and educational/research institutions. Note that larger state and regional agencies may have more than one listing, with different districts, departments, or programs being listed as separate organizations. The search tool may be used to filter the list of organizations displayed; it is case-insensitive and will match text anywhere in the organization name.

Organization Filters

Text Search ⓘ

reset

10 ▾ organizations per page

Showing 1 to 10 of 22 organizations

Organization Name (click for details) ▲	Number of Projects (click to view) ▾
Alachua County Environmental Protection Department (Florida)	2
Brevard County Stormwater Utility Department (Florida)	5
Broward County Environmental Protection Department	1
Charlotte County Department of Health	2
Charlotte County Stormwater Division	2
Collier County Coastal Zone Management Department (FL)	3
Collier County Pollution Control (Florida)	16
Environmental Protection Commission of Hillsborough County	9
FDEP Okaloosa County Environmental Council	1
Lake County Water Resource Management	6

Contents of the Water-CAT

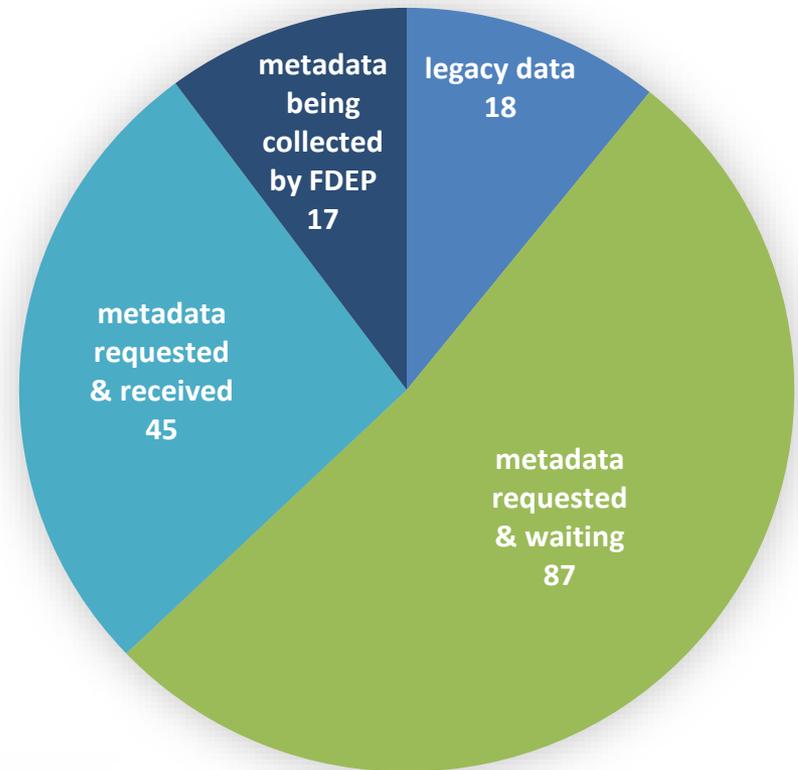
Organization Name (click for details)	Number of Projects (click to view)
Alachua County Environmental Protection Department (Florida)	2
Apalachicola National Estuarine Research Reserve (Florida)	4
Avon Park Air Force Range - 23 WG DET 1 OLA	3
Babcock Ranch (Florida)	2
Biological Research Associates (Florida)	4
Brevard County Stormwater Utility Department (Florida)	5
Broward County Environmental Protection Department	2
Century Realty/Schreuder, Inc.	2
Charlotte County Department of Health	2
Charlotte County Stormwater Division	2
Charlotte Harbor National Estuaries Program (Florida)	20
Choctawhatchee Basin Alliance	3
City of Atlantic Beach	2
City of Cape Coral	4
City of Deltona	2
City of Jacksonville	9
City of Jacksonville Beach	2
City of Key West (Florida)	2
City of Lakeland, Lakeland Florida	7
City of Naples (Florida)	3
City of Neptune Beach	2
City of Orlando - Streets and Stormwater Division (Florida)	2
City of Port St. Joe Wastewater Treatment Plant (Florida)	2
City of Port St. Lucie (Florida)	4
City of Punta Gorda (Florida)	3
City of Sanibel, Natural Resources Department (Florida)	2
City of Tallahassee Stormwater	4
City of Study G...	...

- 98 organizations (so far)
 - Florida STORET
 - Water Management Districts
 - US Geological Survey
- 1,874 monitoring projects
- 105,634 monitoring stations

Maintaining the catalog metadata

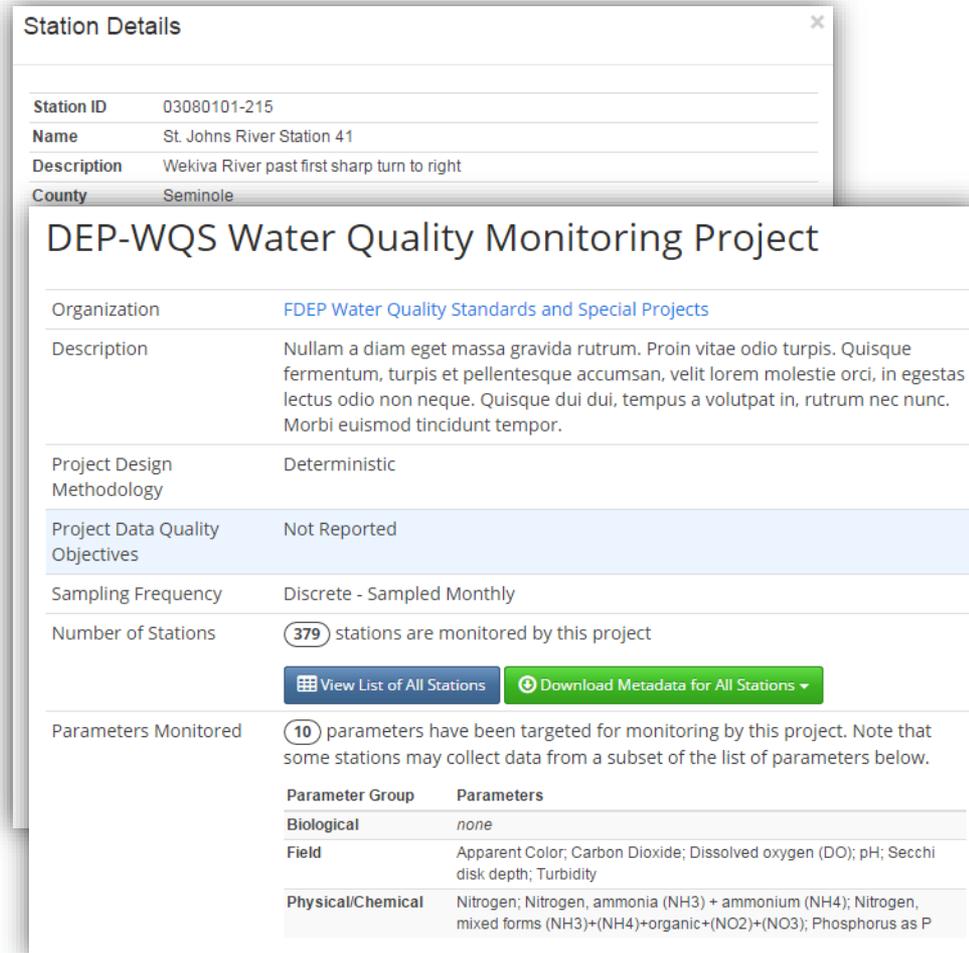
- STORET and USGS used as initial source of metadata:
 - Comprehensive but incomplete
 - Lacks detailed project information
- 167 Data providers asked to provide updated/missing information
- Ongoing challenges
 - Data providers have limited time
 - Expansion to include biological and other types of monitoring
 - Adapting to changes in technology
 - Adobe Flash & responsive design

Information From Data Providers



Modifications balance detail vs. limited time

- Active status of stations
 - Originally “Active” vs “Inactive”
 - Added an “inferred active/inactive” (4-year cutoff)
- Monitored parameters
 - Originally linked to station
 - Now generalized to project
 - Easier for data providers



The screenshot displays a 'Station Details' window with the following information:

Station ID	03080101-215
Name	St. Johns River Station 41
Description	Wekiva River past first sharp turn to right
County	Seminole

Below this is a section for the 'DEP-WQS Water Quality Monitoring Project' with the following details:

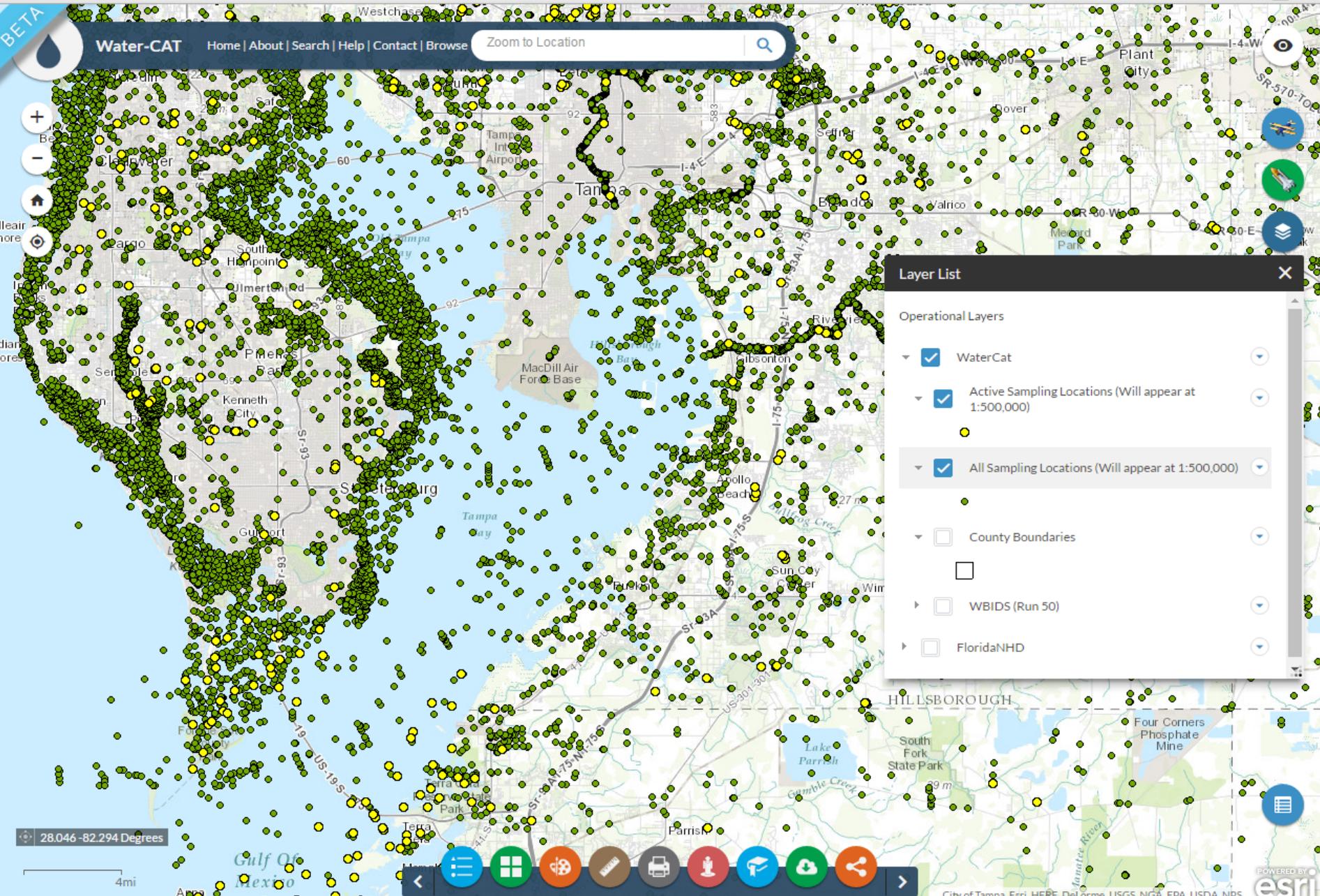
Organization	FDEP Water Quality Standards and Special Projects
Description	Nullam a diam eget massa gravida rutrum. Proin vitae odio turpis. Quisque fermentum, turpis et pellentesque accumsan, velit lorem molestie orci, in egestas lectus odio non neque. Quisque dui dui, tempus a volutpat in, rutrum nec nunc. Morbi euismod tincidunt tempor.
Project Design Methodology	Deterministic
Project Data Quality Objectives	Not Reported
Sampling Frequency	Discrete - Sampled Monthly
Number of Stations	379 stations are monitored by this project

Buttons: [View List of All Stations](#) and [Download Metadata for All Stations](#)

Parameters Monitored: 10 parameters have been targeted for monitoring by this project. Note that some stations may collect data from a subset of the list of parameters below.

Parameter Group	Parameters
Biological	none
Field	Apparent Color; Carbon Dioxide; Dissolved oxygen (DO); pH; Secchi disk depth; Turbidity
Physical/Chemical	Nitrogen; Nitrogen, ammonia (NH3) + ammonium (NH4); Nitrogen, mixed forms (NH3)+(NH4)+organic+(NO2)+(NO3); Phosphorus as P





Layer List

Operational Layers

- WaterCat
- Active Sampling Locations (Will appear at 1:500,000)
- All Sampling Locations (Will appear at 1:500,000)
- County Boundaries
- WBIDS (Run 50)
- FloridaNHD

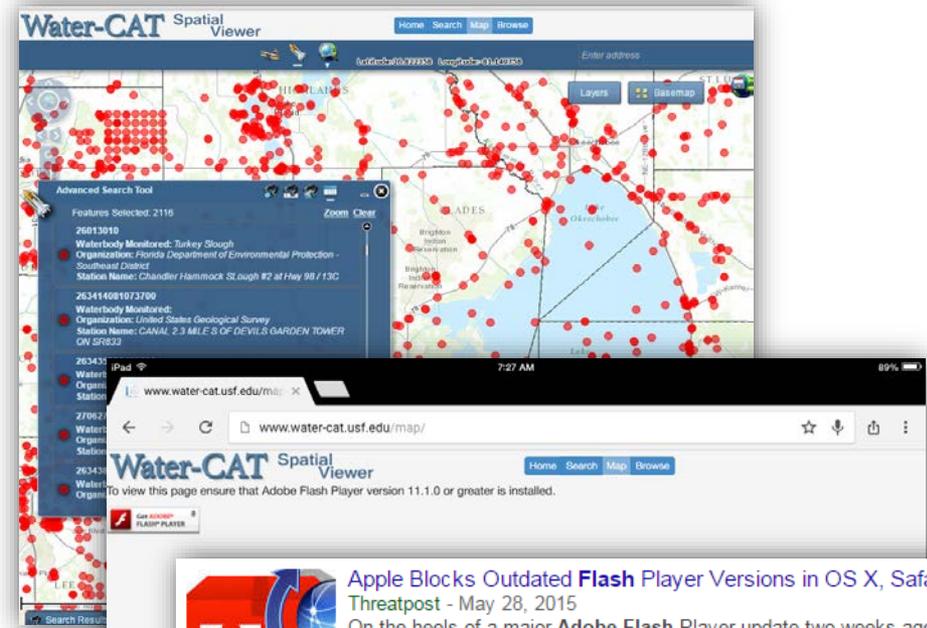
28.046 -82.294 Degrees

4mi



Accommodate different users

- Obtaining buy-in by overworked metadata providers
- Website for novice (public) and advanced (professional) users
- Avoiding presentations that might be misinterpreted by the public or policy makers
 - e.g., active vs inactive stations
- Adapting to changes in technology
 - Adobe Flash
 - Small-screen responsive design



Apple Blocks Outdated Flash Player Versions in OS X, Safari Threatpost - May 28, 2015
On the heels of a major Adobe Flash Player update two weeks ago, Apple last night updated its blacklist to include older versions of the ...

Adobe Drops Flash Player Support in Android 4.1

PC Magazine - Jun 29, 2012

Adobe Drops Flash Player Support in Android 4.1 ... able to download it via the Google Play store, "and in most cases it worked," Adobe said.

Adobe drops all Android Flash support, removing Flash Player from ... Pocket Gamer - Jun 29, 2012

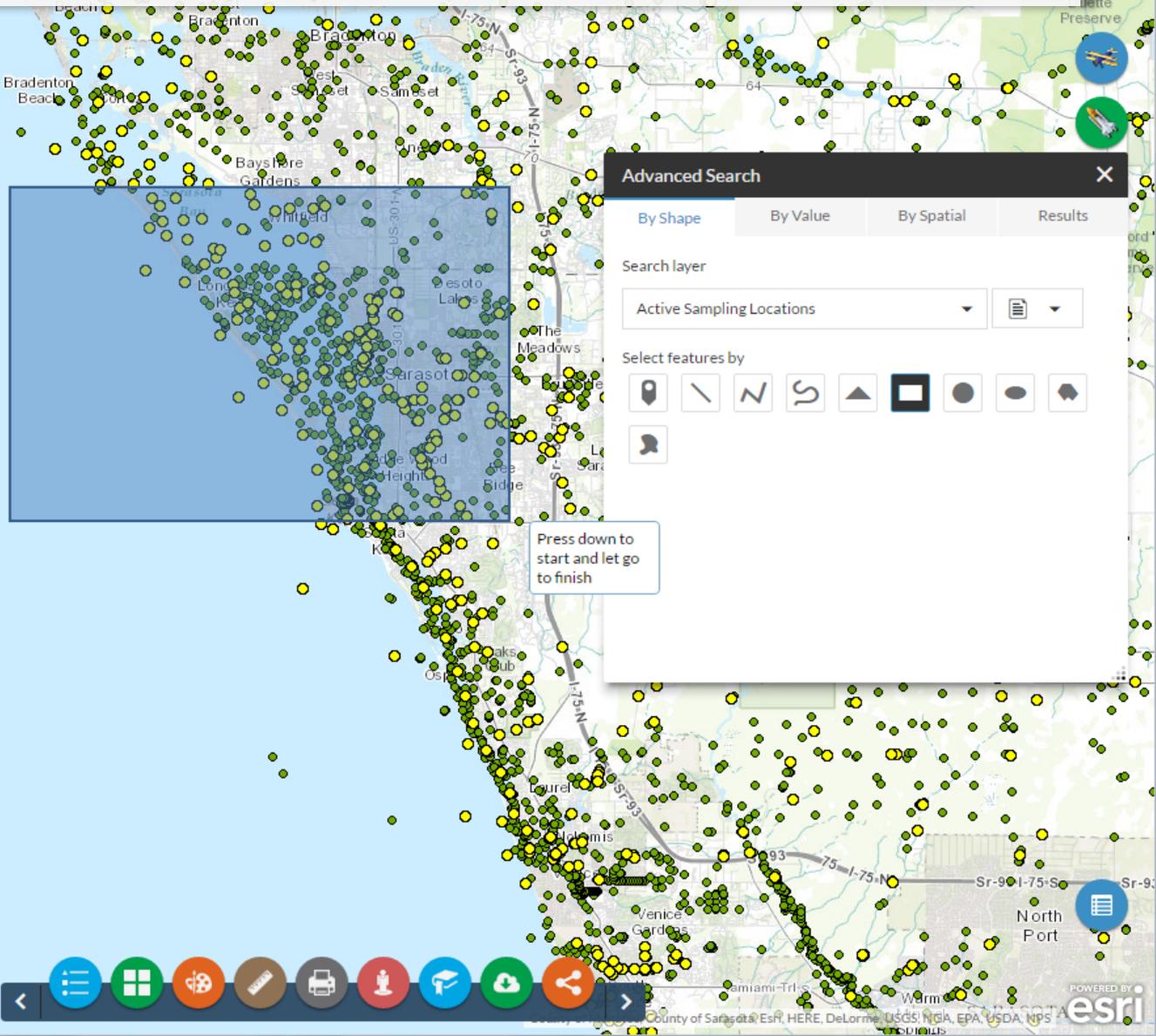
[Explore in depth](#) (166 more articles)

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Accommodating novice and advanced users



Advanced Search [X]

By Shape | By Value | By Spatial | Results

Search layer

Active Sampling Locations [v] [i]

Select features by

[Point] [Line] [Wavy Line] [Curved Line] [Triangle] [Square] [Circle] [Oval] [Polygon]

[Point]

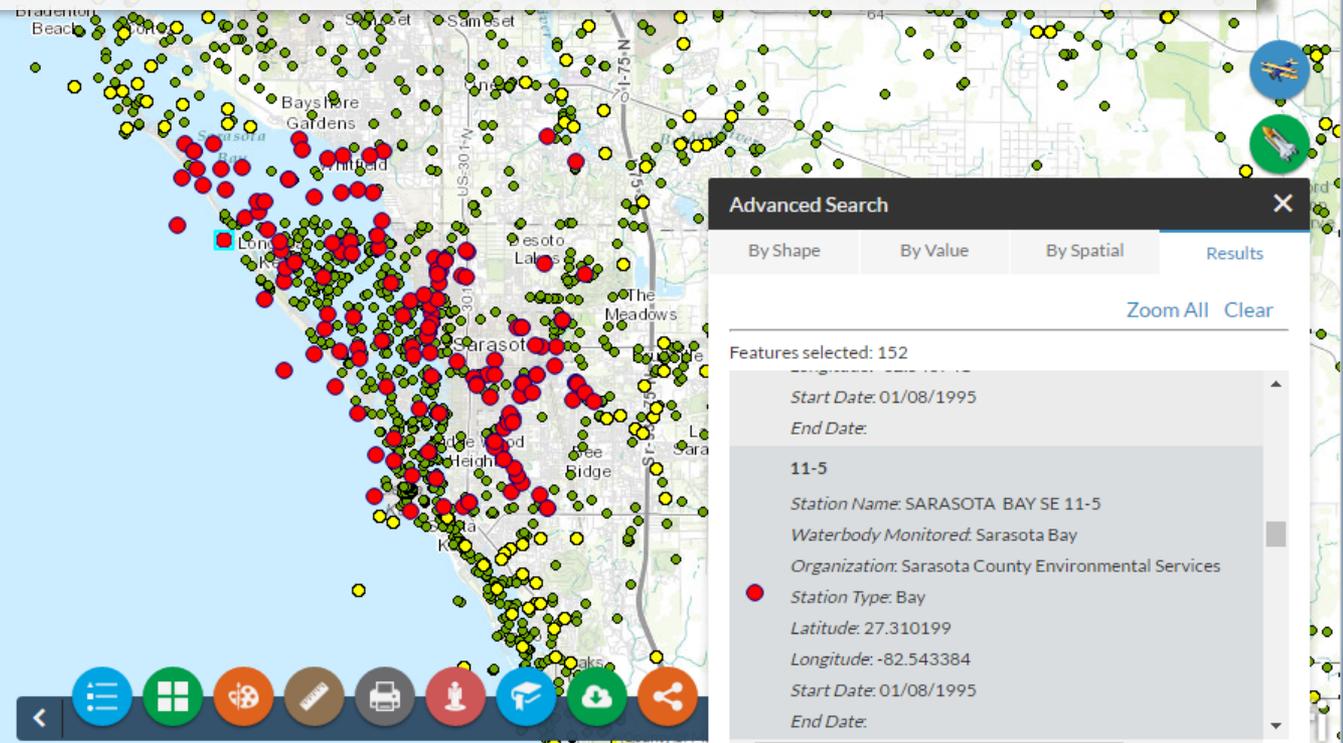
Press down to start and let go to finish

27.428 -82.734 Degrees

4mi



Accommodating novice and advanced users



27.212 -82.436 Degrees

4mi

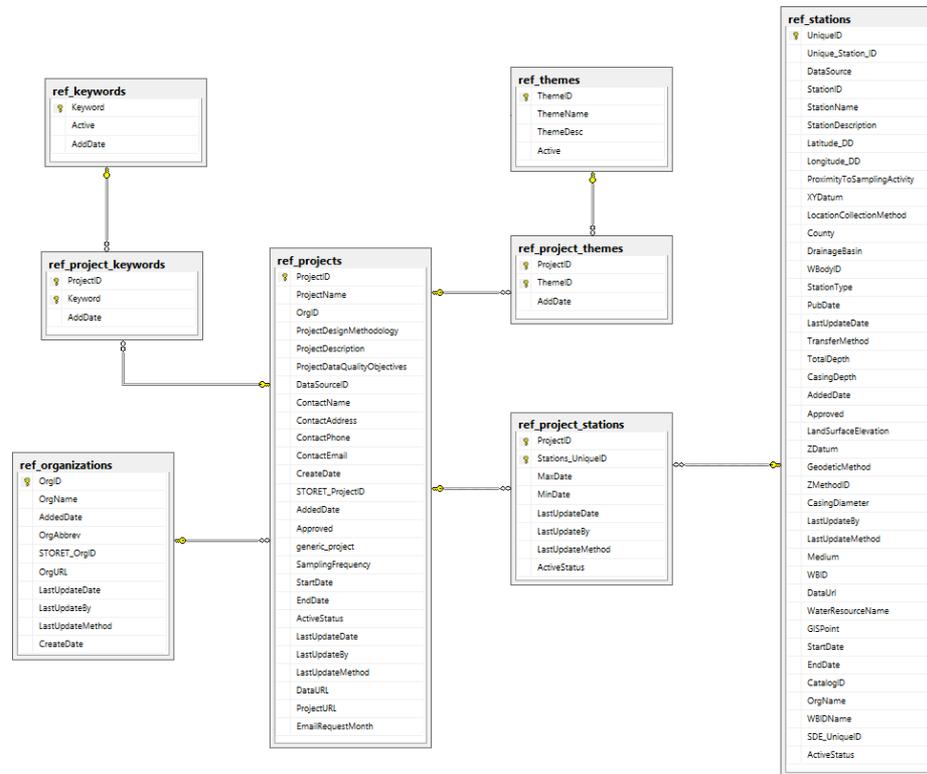
Options Filter by Map Extent Zoom to Clear Selection Refresh

Active Sampling Locations (Will appear at 1:500,000) All Sampling Locations (Will appear at 1:500,000) Search Results: Active Sampling Locations

StationID	Station Name	Latitude	Longitude	Station Type	Waterbody Monitored	Start Date	End Date	Organization
HUD-3	Bahia Vista St., Sarasota	27.32203	-82.52647	River/Stream	Hudson Bayou	7/27/2006, 8:00 PM		Sarasota County Environmental Services
LBKC4	Gulf of Mexico Longboat Key Center	27.3817	-82.6419	Ocean	Gulf Of Mexico	8/25/2009, 8:00 PM		Sarasota County Environmental Services

152 features 1 selected

Modifications to include Biological Monitoring



KEYWORDS replace water related analytes:

- All STORET analytes/characteristics
- Plus, Characteristic groups: Atmospheric; Biological; Discharge/Flow; Hydrologic; Inorganic; Metal; Nutrient; Organic; Other Meteorological; Physical; Rainfall; Water Level; Water Quality

THEMES describe monitoring purpose:

- Regional Ecosystem Assessment
- Trend Analyses
- Habitat Assessment
- Regulatory
- Saltwater Intrusion
- Research
- Resource Management
- Potable water supply
- Other

ref_stations	
UniqueID	
Unique_Station_ID	
DataSource	
StationID	
StationName	
StationDescription	
Latitude_DD	
Longitude_DD	
ProximityToSamplingActivity	
XYDatum	
LocationCollectionMethod	
Country	
DrainageBasin	
WBodyID	
StationType	
PubDate	
LastUpdateDate	
TransferMethod	
TotalDepth	
CasingDepth	
AddedDate	
Approved	
LandSurfaceElevation	
ZDatum	
GeodeticMethod	
ZMethodID	
CasingDiameter	
LastUpdateBy	
LastUpdateMethod	
Medium	
WBID	
DataURL	
WaterResourceName	
GISPoint	
StartDate	
EndDate	
CatalogID	
OrgName	
WBIDName	
SDE_UniqueID	
ActiveStatus	

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What's next

- Metadata catalog updates
 - Continue to acquire new and updated metadata
- Water-CAT website improvements
 - Monitor and improve performance
 - Implement web-admin and tools for online updates
 - Notification system request updates from data providers
 - Create linkages to Florida STORET replacement
 - WIN – Water Information Network (2017)



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Expansion for Terra-CAT

- FWC Species and Habitat Monitoring Programs Catalog
 - Partnership with FWC
 - Modify for biological/ecological monitoring
 - Including species and habitat
- Add polygons/areas and lines/transects to monitoring “sites”
- Improve bulk uploading / automated data transfers





Thank you!

www.water-cat.org

www.waterinstitute.usf.edu

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Sponsors

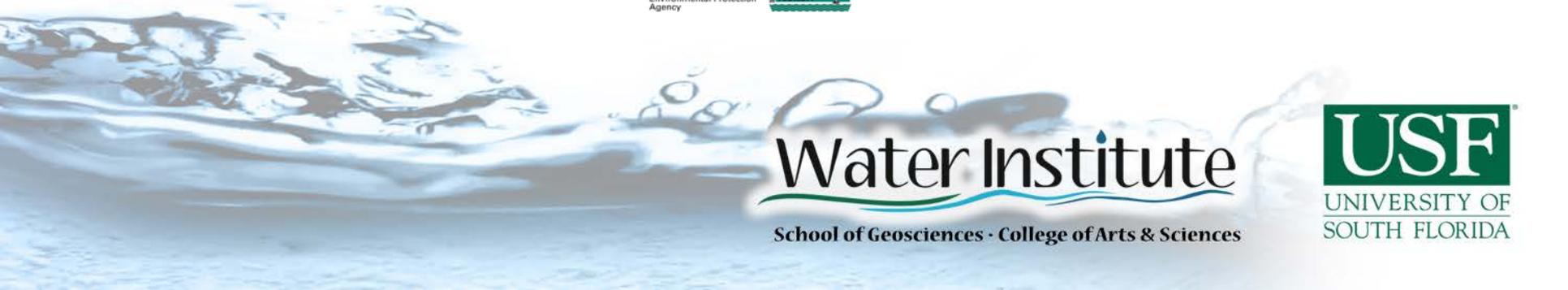
💡 Knowledge

The catalog is being developed with the guidance of members of the [Florida Water Resources Monitoring Council](#), a council of stakeholders from many disciplines and organizations that participate in water resource monitoring and management. Organizations represented in the FWRMC include:

- Florida Lake Management Society
- Florida Department of Health
- Florida Department of Agriculture & Consumer Services
- Florida Department of Environmental Protection
- Florida Fish & Wildlife Conservation Commission
- [University of Florida/IFAS Volunteer Monitoring Programs](#)
- Florida Local Environmental Resource Agencies
- National Oceanic & Atmospheric Administration
- Northwest Florida Water Management District
- South Florida Water Management District
- Southeast Coastal Ocean Observing Regional Association (SECOORA)
- Southwest Florida Water Management District
- St. Johns River Water Management District
- Suwannee River Water Management District
- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- U.S. Geological Survey

Support

Funding for the Catalog of Florida Monitoring Programs is provided by the U.S. Environmental Protection Agency through a grant to the Florida Department of Environmental Protection.



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