



Florida Water Atlas: An Overview of the WaterAtlas.org Program

Florida Water Resources Monitoring Council

3rd Meeting: March 21-22, 2007

Tallahassee, Florida

Florida Center for
Community Design + Research

Shawn Landry

Outline of Presentation

- **Background**
- **Overview of the Water Atlas**
- **Discussion of Data Management Approach**
- **Future Directions**

WaterAtlas.org Vision

Vision statement

The goal of the water atlas program is to provide a comprehensive information resource for the entire State of Florida that helps citizens, scientists and resource managers make informed decisions concerning our vital water resources.

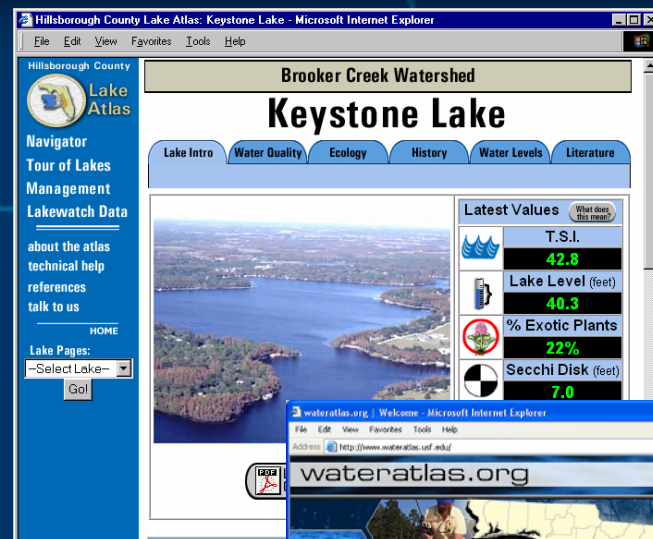
- **Water Atlas Program concept is inclusive and citizen-based**
 - Faculty, staff and students at USF and other Florida universities
 - Project sponsors in local and regional governments
 - Local, regional, state and federal government partners
 - Private sector partners
 - Volunteer citizen-based groups
- **Water resources include surface water (1°) and groundwater (2°)**
- **Primary target audiences includes citizenry and resource managers**

Program Organization

- **Program staff:**
 - Faculty principal investigators
 - Functional teams led by professional staff: GIS, Web, Database, Content, Field Assessments
 - Students augment team efforts and gain practical experience
- **Partnership through the Water Atlas Advisory Group balances the needs of *specific* Project Sponsors with the long-term interests of *all* users**

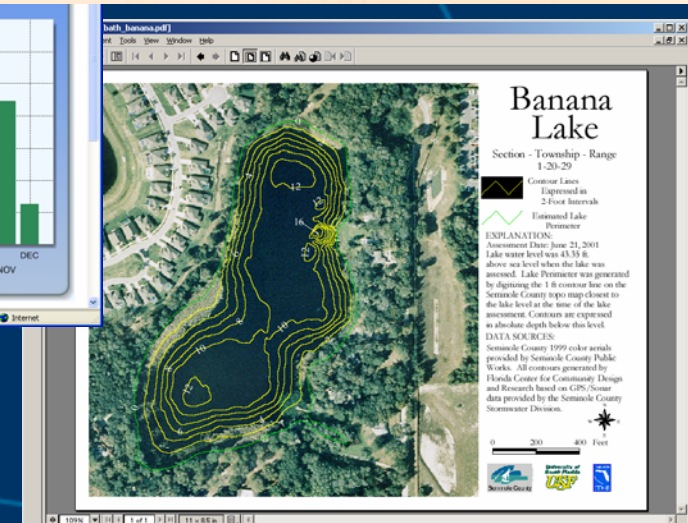
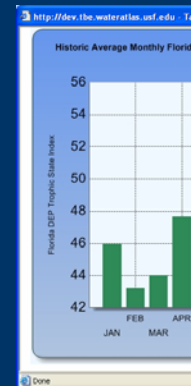
Brief History of the Water Atlas Program

- **Project scope:**
 - Initially created to support lake management in Hillsborough County (1997)
 - Expanded to support watershed management by including rivers and then near-shore marine
 - Stormwater and watershed management continues to drive funding
- **Technological evolution:**
 - Initially a static website
 - Led to separate county-specific database-driven applications
 - Currently implementing a single statewide data portal and information management system
 - Technology hosted at the Central Florida Regional Data Center (USF)



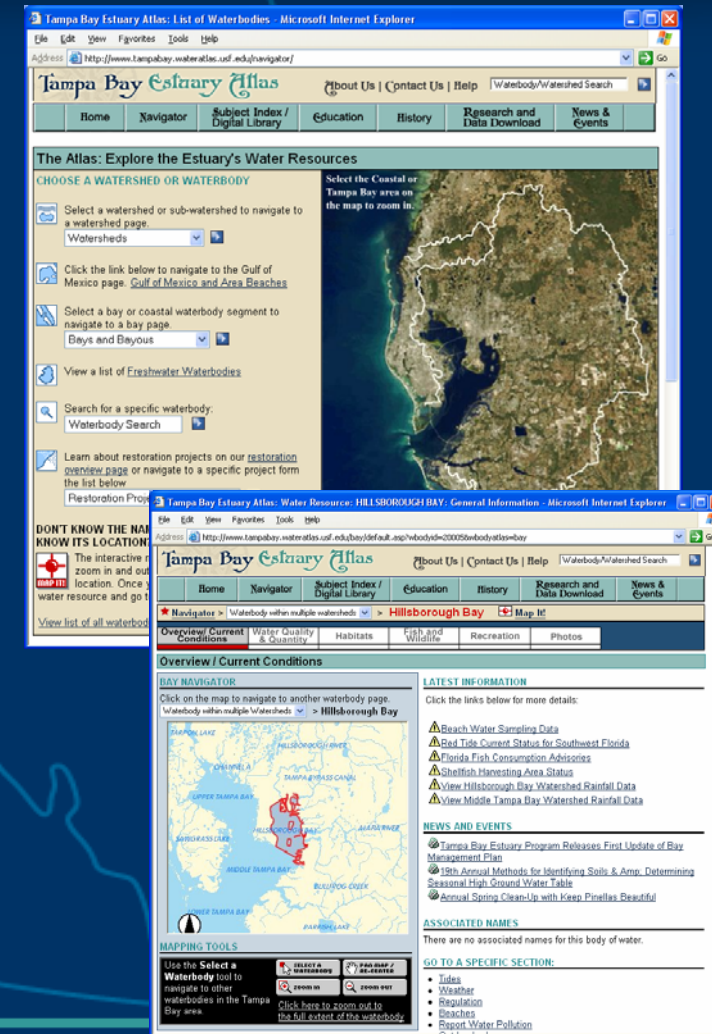
Examples of Information on the Atlas

- **Raw and summarized data**
 - Water quality and ecological
 - Hydrologic and meteorological
 - Near-realtime data
- **Mapping**
 - Habitats, land use, sample locations
 - Aerial photographs, flood zones
- **Documents and Information**
 - Historic narratives and information
 - User-submitted photographs
 - Volunteer recruitment forms
 - K-12 Curriculum
- **Portal to related information**
 - Water resource management efforts such as TMDL
 - Recreational Information
 - Digital libraries from other organizations



Web Application Overview

- **Navigation: geographical and topical**
- **Tools to manage and access raw and summarized data**
- **Online mapping systems**
- **Digital library and content management**
- **Subject-specific access tools such as real-time and restoration sites**
- **Specific water resource pages:**
 - Bay Segments
 - Gulf and Beaches
 - Watersheds
 - Lakes/ponds
 - Rivers/streams
 - Stormwater ponds



Water Resource Summaries

Hillsborough County Water Resources Atlas: Water Resource: BRANT, LAKE: Water Quality - Microsoft Internet Ex...

File Edit View Favorites Tools Help

Address http://www.hillsborough.wateratlas.usf.edu/lake/waterquality.asp?wbodyid=5630&wbodyatlas=lake

The Atlas Research Management Education News & Events About The Atlas Help Contact Us

Hillsborough County Watershed Atlas

Waterbody Search Search

★ Current Water Resource: **LAKE BRANT** is in the **ROCKY BRUSHY CREEK Watershed** Map it!

General Info **Water Quality** Hydrology Ecology History & Recreation Photos

WATER QUALITY

Overall Trophic State Index

"Trophic" means "relating to nutrition." The Trophic State Index (TSI) takes into account chlorophyll, nitrogen, and phosphorus, which are nutrients required by plant life. [Learn more about the Trophic State Index >>](#)

Latest Value	Limiting Nutrient	Historic Range	Additional Information
53.3 (GOOD) 1/27/2006 Source: LAKEWATCH V	BALANCED	32.9 (GOOD) - 86.8 (POOR) 8/20/1990 - 1/27/2006 200 samples	10 Year Graph

GOOD 0-59 Fully supports designated use.
FAIR 60-69 Partially supports designated use.
POOR 70-100 Does not support designated use.

Nutrient Chemistry

Although present in all surface waters, nutrients are among the leading causes of degradation of Florida waterbodies. [Learn more about nutrient chemistry >>](#)

Nutrient	Latest Value	Historic Range	Additional Information
Total Nitrogen (TN)	910 ug/L 1/27/2006 Source: LAKEWATCH V	150 - 2720 ug/L 8/20/1990 - 1/27/2006 200 samples	10 Year Graph
Total Phosphorus (TP)	34.7 ug/L 1/27/2006 Source: LAKEWATCH V	9 - 113.3 ug/L 8/20/1990 - 1/27/2006 202 samples	10 Year Graph
Chlorophyll	15 ug/L 1/27/2006	1 - 216 ug/L 8/20/1990 - 1/27/2006	10 Year Graph

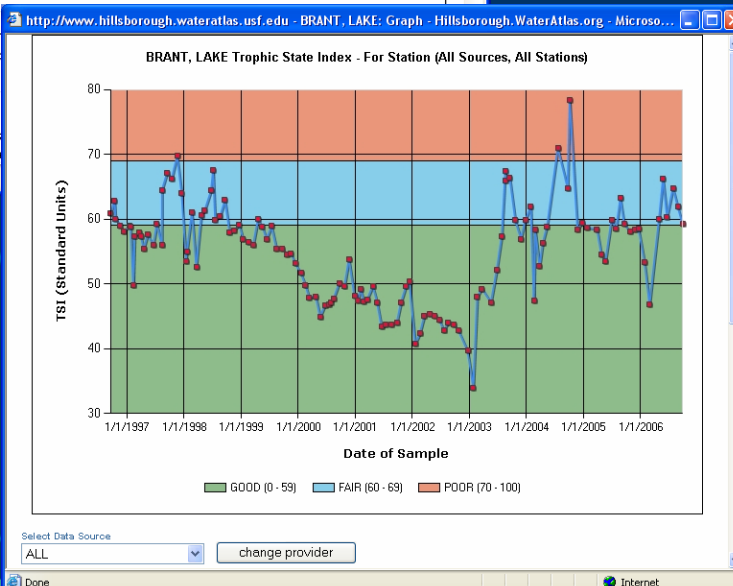
http://www.hillsborough.wateratlas.usf.edu - Hillsborough County Wat...

Trophic State Index (TSI)

What does this mean?

Trophic (pronounced TROH-fik) means "of or relating to nutrition." The Trophic State Index is a classification system designed to "rate" individual lakes and reservoirs based on the amount of biological productivity occurring in the water. Using the index, one can gain a quick idea about how productive a lake is by its assigned TSI number. Classifications range from 1 to 100 and are generally described as follows.

- Lakes with TSI values ranging from 0 to 49 are considered to be at the lowest end of the biological productivity scale. In other words: because there are fewer nutrients available in the water, these lakes tend to support fewer algae, aquatic plants, birds, fish, insects and other wildlife.
- Lakes with TSI values ranging from 50 to 59 are considered to be moderately productive; they have a moderate amount of nutrients and generally support a moderate amount of algae, aquatic plants, birds, fish, insects and other wildlife.
- Lakes with TSI values ranging from 60 to 69 are considered to be highly productive; they have a high amount of nutrients and generally support a high amount of algae, aquatic plants, birds, fish, insects and other wildlife.
- Lakes with TSI values ranging from 70 to 100 are considered to be extremely productive; they have a very high amount of nutrients and generally support a very high amount of algae, aquatic plants, birds, fish, insects and other wildlife.



Online Mapping: ArcIMS and Google Maps

Tampa Bay Estuary Atlas - Restoration Program Overview - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://www.tampabay.wateratlas.usf.edu/restoration/Default.aspx?pid=1&sid=> Go

Tampa Bay Estuary Atlas About Us | Contact Us | Help

Home Navigator Subject Index / Digital Library Education History Research and Data Download News & Events

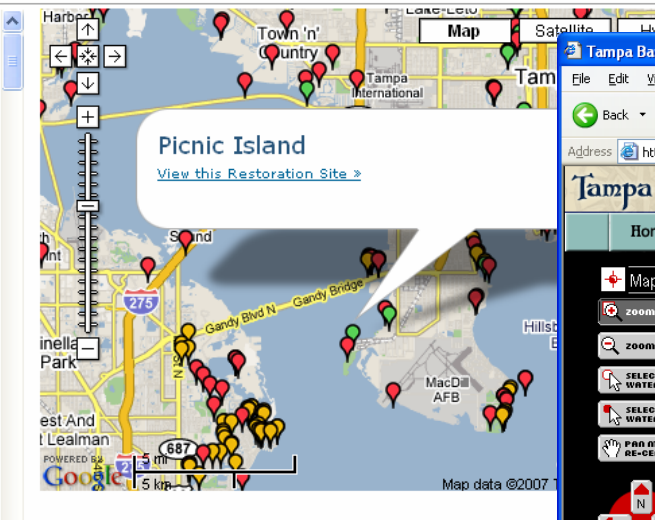
Navigator » Restoration Overview

Current Restoration Projects

[Mayor's Beautification Program](#)
[Tampa Bay Estuary Restoration](#)

Please use the links above to navigate to the TBEP or MBP Restoration Project home page.

The map to the right allows viewing of the TBEP and MBP Restoration Sites. The Red sites are TBEP Habitat sites, the Orange sites are TBEP Oyster Reef sites and the Green sites are MBP Shoreline Restoration sites. The site name appears when you "mouse over" its position. By clicking any TBEP site you



Maintenance | About the Atlas | Disclaimer | Accessibility | Copyright

Tampa Bay Estuary Atlas - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Print Mail W Y I L People

Address <http://map.wateratlas.usf.edu/website/tampabayv2/index.asp> Go

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Waterbody Search

Home Navigator Subject Index / Digital Library Education History Research and Data Download News & Events

Map Navigation Tools

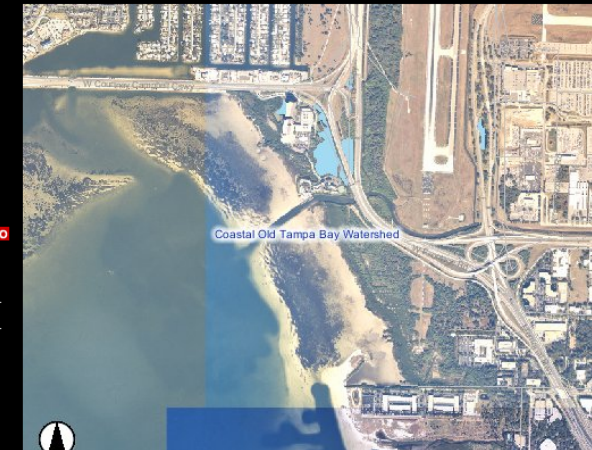
Zoom In Zoom Out 1:500K 1:250K 1:100K 1:50K 1:25K 1:12.5K

Select a Watershed Select a Waterbody Pan Map / Re-center Max Zoom

Enter a Scale 1: 24000 Go

Advanced Map Tools

Get Info / Identify Download Data View Printable Map



Coastal Old Tampa Bay Watershed

Copyright 2002 USF Scale 1:24000

MAP HELP MAP THEMES

Search For: an address a water resource

Enter Water Resource Name Go

Display

MAP LAYERS LOCATOR MAP

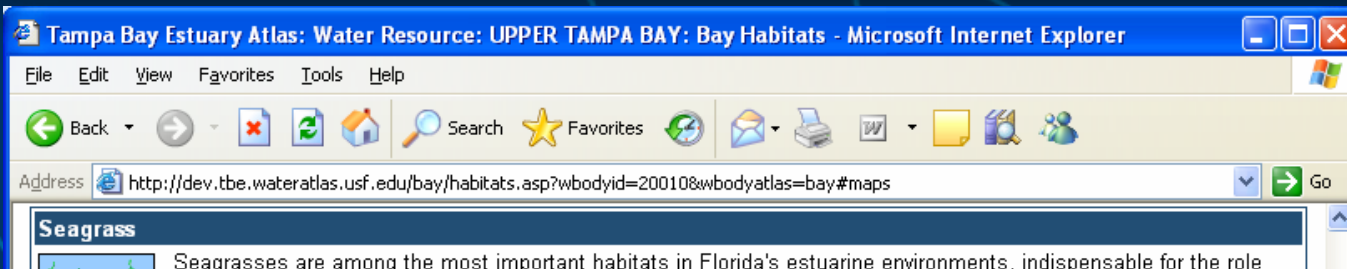
- WATER
- ENVIRONMENTAL
- RECREATION
- PLANNING & INFRASTRUCTURE
- HABITATS
- SAMPLING LOCATIONS
- DEMOGRAPHICS
- AERIAL PHOTOGRAPHY

Click on layer name to view metadata.

☒ 2002 Aerial Imagery

REFRESH MAP RESET MAP LAYERS

Online Mapping: Linked Map Themes

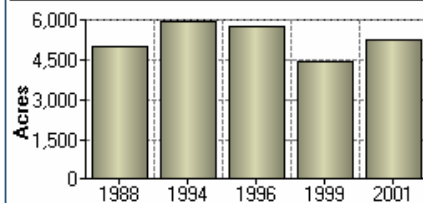


Seagrass



Seagrasses are among the most important habitats in Florida's estuarine environments, indispensable for the role they play in nutrition cycling, primary production, sediment stabilization and habitat for shellfish. [Learn more about seagrasses >>](#)

SEAGRASS ACREAGE VARIATION WITHIN UPPER TAMPA BAY BETWEEN 1988 AND 2001



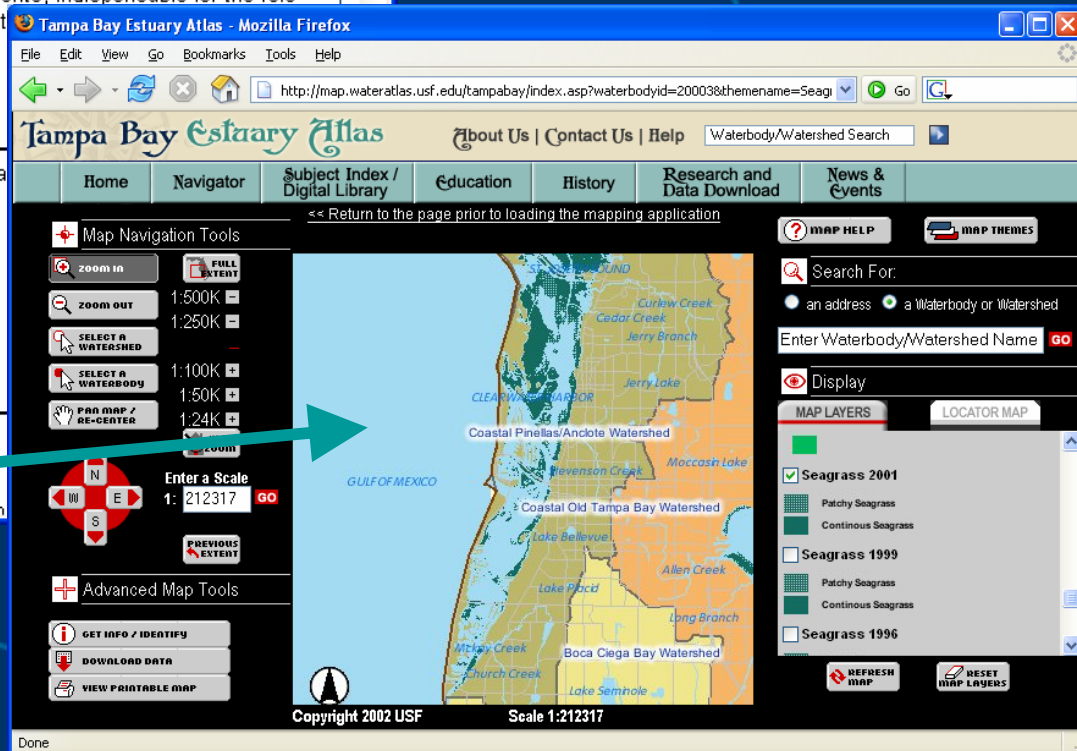
There has been a **16.3% increase** in seagrass coverage.

Source: [Southwest Florida Water Management District](#)

ADDITIONAL INFORMATION RELATED TO SEAGRASS

- [View a Map of Non-Restorable Seagrass Locations Within the Mapping Interface](#)
- [View a Map of the Latest Seagrass Distribution Within the Mapping Interface](#)

This report is an element of the data review and analysis performed by the Estuary Program to



Advanced Data Access

Hillsborough County Water Resources Atlas: Research: Data Download - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address: <http://www.hillsborough.wateratlas.usf.edu/research/download.asp>

Hillsborough County Watershed Atlas

Metadata **Data Download** Graphing Documents

DOWNLOAD DATA

Follow the steps below to download data from the Atlas. After each step, please click the "Next" button (or at the final step, the "Download Data" button) to continue. At the end of your selections, you may choose whether you would like to download the information as comma-delimited plain text or in Microsoft Excel format. After you click "Download Data," you will receive instructions on how to save your selected data to your computer's hard drive.

Step 1 of 5: Waterbody Selected
ALAFIA RIVER

Step 2 of 5: Data Type Selected
Water Quality (column formatted)

Step 3 of 5: Station(s) Selected
All Stations for ALAFIA RIVER

Step 4 of 5: Select a Date Range to Download
Minimum Date: 9/9/1933
Maximum Date: 4/9/2004
Total Records: 1283

☐ 10 Year
☐ 5 Year
☐ 2 Year
☒ Period of Record (9/9/1933 to 4/9/2004)
☐ Date Range: to

Next

Hillsborough County: Data Download - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address: <http://dev.hillsborough.wateratlas.usf.edu/datadownload/>

Hillsborough County Watershed Atlas

Metadata **Data Download** Graphing Documents

HILLSBOROUGH COUNTY DATA DOWNLOAD - SELECT BY MAP

Select By Method **Select By Map** Select Parameters Select QA Codes Choose Format Download STEP 2 of 6

Filter Data

Select County
County
☒ Hillsborough
☒ Lake
☒ Manatee
☐ Select All

Select Data Type
☐ Hydrology
☐ Water Quality

Select by Geographic Query
Please Select
Please Select
Watershed
County Boundary
County Watersheds
☒ Pemberton Creek
☐ Select All

Select Agency/Datasource
Agency/Datasource
☐ STORET_21FLA
☐ USGS_NNMS
☐ STREAMWATER_WATCH
☐ Select All

Specify Date Range
Start to
End
Submit Filter Values
Clear Filter Values

Map Tools

Status:

WATER
Click on layer name to view metadata.
☒ Surface Water
☐ Adopt A Ponds
★ Small scale
★ Large scale
☐ Impaired Waters
■ IMPAIRED
■ Not Impaired

ENVIRONMENTAL
Click on layer name to view metadata.
☐ Conservation Lands
☒ Watersheds
☐ Wetlands

PLANNING & INFRASTRUCTURE
Click on layer name to view metadata.
☐ Capital Improvement Projects
■ Small scale

Copyright 2002 USF Scale 1:26684

Selected Sample Sites

Waterbody	Waterbody ID	County	Date Range	Waterbody Type	Remove
BELL CREEK	3453	Hillsborough	3/2/1993 - 8/4/1997	River	Remove
BELLOWS LAKE OUTLET	115	Hillsborough	3/2/1993 - 8/4/1997	Lake	Remove
BIG DITCH CREEK	3469	Hillsborough	3/2/1993 - 8/4/1997	River	Remove
BLACKWATER CREEK	3427	Hillsborough	3/2/1993 - 8/4/1997	River	Remove
BOGGY CREEK	3458	Hillsborough	3/2/1993 - 8/4/1997	River	Remove
BRUSHY CREEK	3486	Hillsborough	3/2/1993 - 8/4/1997	River	Remove
CHANNEL "A"	3412	Hillsborough	3/2/1993 - 8/4/1997	River	Remove

Show Removed View Final Selection Move to Final Selection

Back - Select By Method Next Step - Select Parameters

Error on page.

Tools for Local Data Management

Water Quality Data Management System - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

water quality data management system
Orange County

Main Menu Upload File QA Station Data Export Data Log Out

Display Settings
Group By: Station & Activity Start Date
Filter By: None

Management
Delete Uploaded File: Please select a value

Upload ID	Station ID	Activity Start Date	Water Body	Approve (STORET)
108	A29	07/21/2005	Ola, Lake	0
108	AAL36	08/10/2005	Fairview, Lake	0
108	AAL63	01/04/2005	Unavailable	0
108	AAL71	01/26/2005	Lawne, Lake	0
106	AAL82	06/30/2005	Unavailable	0
108	BC7	10/12/2005	Conway, Lake	0
108	BE4	08/23/2005	Drawdy, Lake	0
108	BW81	07/25/2005	Wekiva Lake	0
108	BWB	07/25/2005	Wekiva River	0
108	BWC	07/25/2005	Wekiva River	0

1 2 3 4

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Water Quality Data Management System - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://localhost:4252/WQDMS/Station.aspx

water quality data management system
Orange County

Main Menu Upload File QA Station Data Export Data Log Out

Add Field Data
Station ID: A29
Activity Start Date: 7/21/2005
Update Records

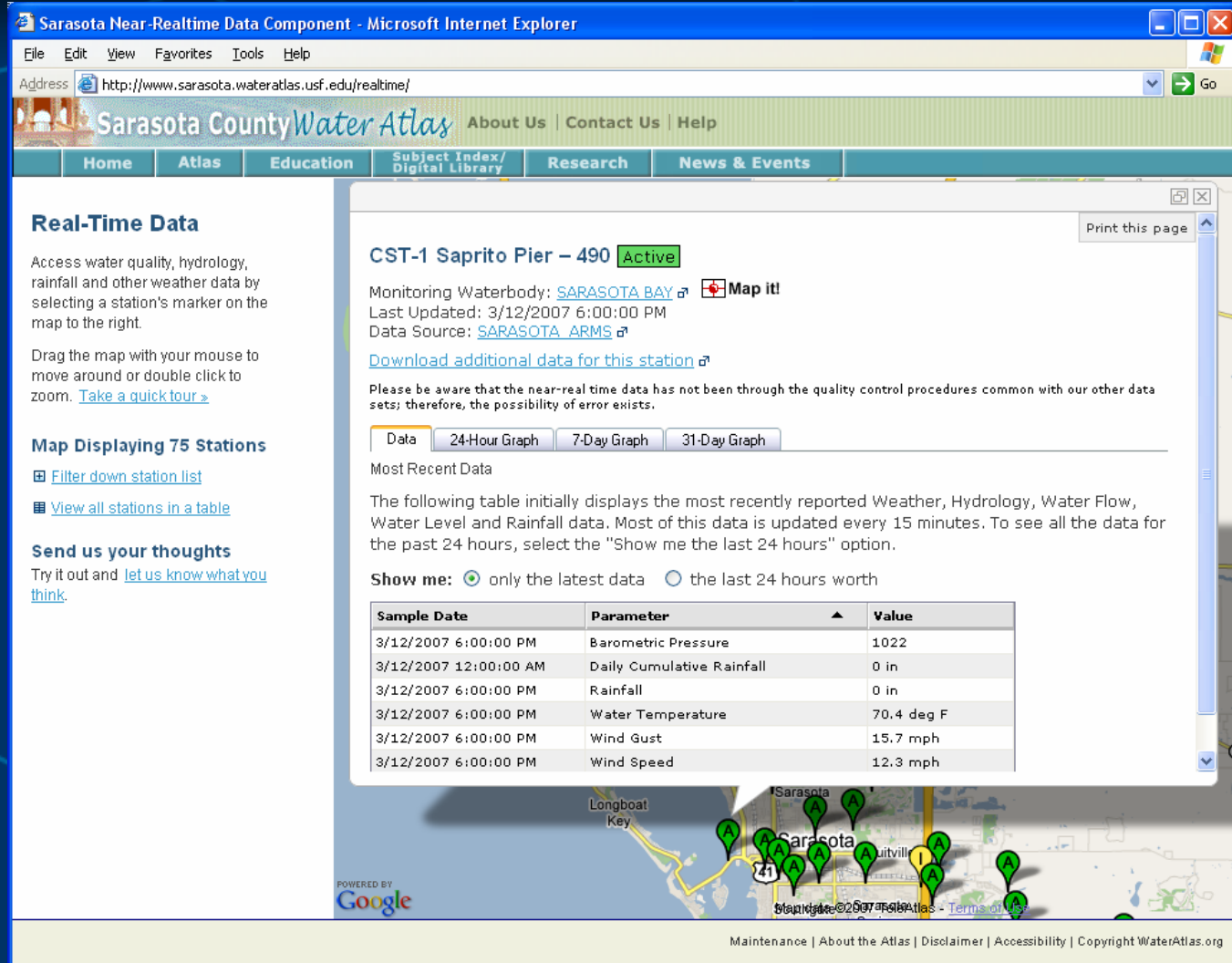
Legend
Record does not meet STORET requirements
Record meets STORET requirements
Record has been approved for Internal Use
Record has been approved for STORET
Record has been previously loaded, this record cannot be added

Project ID	Station ID	Activity Category	Characteristic	Result Value	Detection Limit	Sample Depth	Action	Approve		
								STORET	Internal	Atlas
WQ	A29	Routine Sample	✗ "Chlorophyll a, corrected"	✗ 2.2 ug/L U	1.3 ug/L	0.5 m				
WQ	A29	Routine Sample	✗ "Chlorophyll a, corrected"	✗ 2.2 ug/L U	1.3 ug/L	0.5 m				
WQ	A29	Routine Sample	✗ "Chlorophyll a, uncorrected"	✗ 2.3 ug/L U	1.3 ug/L	0.5 m				
WQ	A29	Routine Sample	✗ "Chlorophyll a, uncorrected"	✗ 2.3 ug/L U	1.3 ug/L	0.5 m				
WQ	A29	Routine Sample	Chlorophyll b	1.3 ug/l	1.3 ug/l	0.5 m				
WQ	A29	Routine Sample	Chlorophyll b	1.3 ug/l	1.3 ug/l	0.5 m				

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Subject-Specific Applications: Real-time

- Access to real-time hydrologic and meteorological data
- Data volume (1-yr)
 - o 1-hour increment
 - o 950k records
 - o 64 stations



Subject-Specific Apps: Restoration Sites

Tampa Bay Estuary Atlas - Restoration Program Overview - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://www.tampabay.wateratlas.usf.edu/restoration/>

Tampa Bay Estuary Atlas

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Navigator » Restoration Overview

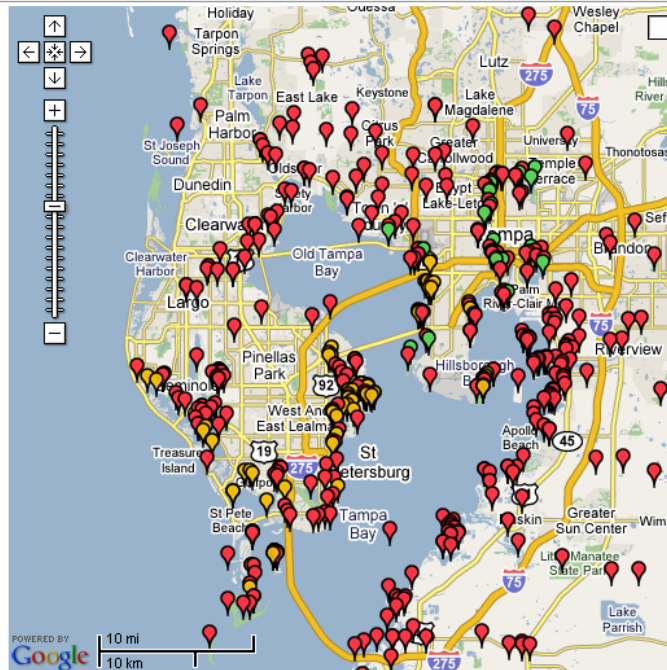
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[Mayor's Beautification Program](#)

[Tampa Bay Estuary Restoration](#)

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Tampa Bay Estuary Atlas - Restoration Site Overview - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://www.tampabay.wateratlas.usf.edu/restoration/Site.aspx?pid=1&sid=16>

Tampa Bay Estuary Atlas

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Navigator » Restoration Overview » Project Overview » Palm River

Palm River Map It!

Existing Conditions

The McKay Bay Bike Trail Park was assessed as a substitution for Palm River Park, which is not located on the river. McKay Bay Bike Trail is located on McKay Bay directly outside the mouth of the Palm River. The entire shoreline is a mangrove fringe containing both red and white mangroves (*Rhizophora mangle* and *Languncularia racemosa*) along the waterward edge of the fringe. The fringe contains approximately fifty (50) percent exotic species, forty (40) percent of which is mimosa (*Albizia julibrissin*). The mimosa is limited to the landward edge of the fringe. The shoreline is steep and there are signs of erosion.

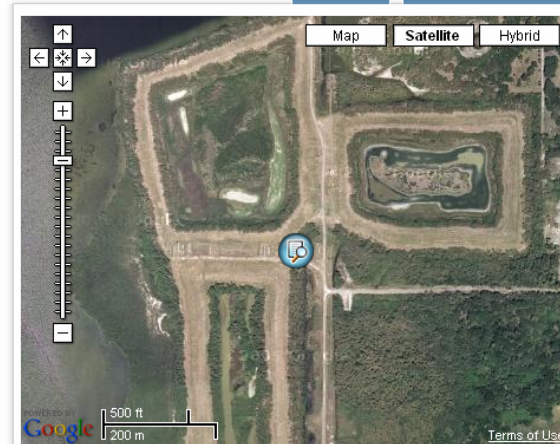
It is anticipated that this system supports wading birds, amphibians and fish. This habitat is adjacent to the bay, which allows for movement in and out of the system. The adjacent upland is primarily maintained grass, but contains three large ponds which are heavily utilized by wading and migrating birds. The park is currently closed to vehicular traffic, but it appears that pedestrians can use the bike path. The mangrove swamp has a moderate habitat quality rating. The exotic removal priority rating is high due to the percentage of nuisance and exotic species.

Existing Plans and Historical Plans

Tampa Bay Watch and other stakeholder agencies have

View Map

View Photo Gallery



Workday Reports

Click on the links below to view workday reports.

Currently a Volunteer?

Use the forms below to submit your volunteer information.

Submit Work Report

Submit Wildlife Report

Subject-Specific Apps: Wiki-style Content

Welcome to the Pinellas Watershed Excursion - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://www.pinellas.wateratlas.usf.edu/wse/PointOfInterest.aspx?Wshedid=28&poiid=10>

Pinellas Watershed Excursion
AN EDUCATIONAL INTERACTIVE TOUR

Pinellas County Water Atlas



Home » [Excursion Overview](#) » [Watershed Details](#) » [Point of Interest](#)

Lake Tarpon Sink

[View Map](#) [View Photo Gallery](#)

Lake Tarpon Sink is actually in Tarpon Springs. Knight's Sink is located in Lake Tarpon. The two sinks are connected by an underground channel and both freshwater and saltwater flow between the sinks. Knight's Sink was separated from Lake Tarpon between 1967 and 1968 when the Army Corps of Engineers built the Lake Tarpon Canal to control flooding in the region.

Both sinks have been explored. Here is a diverlog from Mike Emanuel's Cave Diving Page---"Upon entering the sink we made our way to the debris mound at a depth of 50', visibility was excellent and there was an abundance of marine life. The mound sloped down in a northerly direction where a sparse layer of hydrogen sulfide began along with the permanent guideline at 60'. With visibility reduced to 5 or 10 ft we made our way down to a depth of 205' and broke into warmer, gin clear water. The floor



tarpon_1969_sink_aerial[1].jpg

Points of Interest Tell Your Story

Home Edit Overview Edit Watershed Edit Points of Interest Edit Stories Edit Photos Logout

Edit Point of Interest Photos

Select Watershed: Point of Interest: [Back to Edit This Point](#) [View Live Page](#)

Lake Tarpon / Brooker Creek: Lake Tarpon Sink

Add Photo:

Title:

[Browse...](#)

Add Photo

Photos:

Del.	App.?	Photo	Photo Details
			tarpon_1969_sink_aerial[1].jpg
			Tarpon Bayou.jpg
			knightaer
			knight2.jpg
			knight3.jpg

Home Edit Overview Edit Watershed Edit Points of Interest Edit Stories Edit Photos Logout

Edit Points of Interest

Select Watershed: [Lake Tarpon / Brooker Creek](#) Select Point: [Lake Tarpon Sink](#) [Edit Photos](#) [View Live Page](#)

Edit Points of Interest

Page Body:

Lake Tarpon Sink

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Point Name:

Point Balloon Text:

Lat:

Long:

Zoom:

Sort Order:

[Update Point](#) [Delete This Point](#)

Add New Point Of Interest

Page Body:

Point Name:

Point Balloon Text:

Lat:

Long:

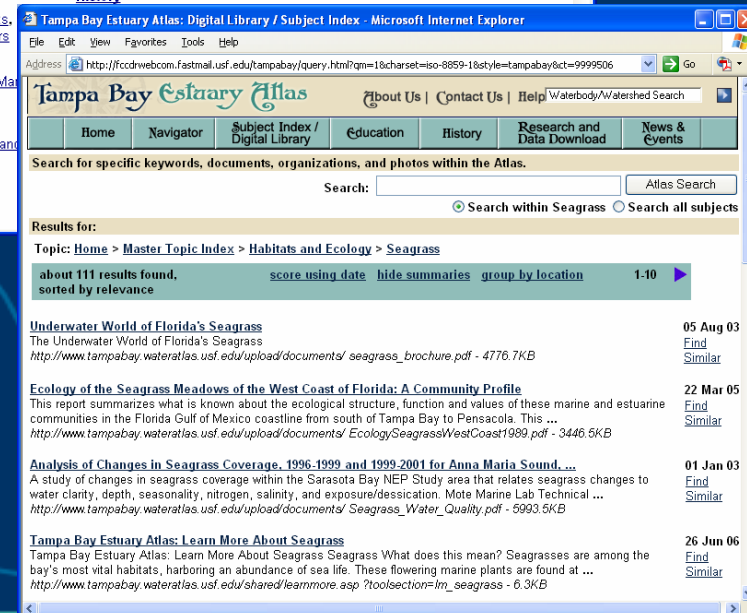
Zoom:

Sort Order:

[Add New Point](#)

Content Management

- **Content examples:**
 - Monitoring results and research reports
 - Historic information
 - Reference documents
 - Workgroup meeting agendas and documents
 - News and Events
 - Photographs
 - Portal to related websites
- Submitted by program staff, partners and users



Data Management Approach: Data Warehousing

- **Data warehousing emphasizes (1) creating a copy of data (2) for the purpose of querying and reporting/analysis**
 - Original data are maintained and updated by the data provider
 - Data transfer procedures are designed to replicate period-of-record data to the Atlas
 - Data are converted to standardized units but otherwise left unchanged
 - Data in the Atlas database are available for instantaneous querying and reporting by web applications
- **Data include water quality, hydrologic and meteorological data from monitoring programs, volunteer sampling, real-time data**
- **Data providers include USGS, FDEP, Water Management Districts and local sources**

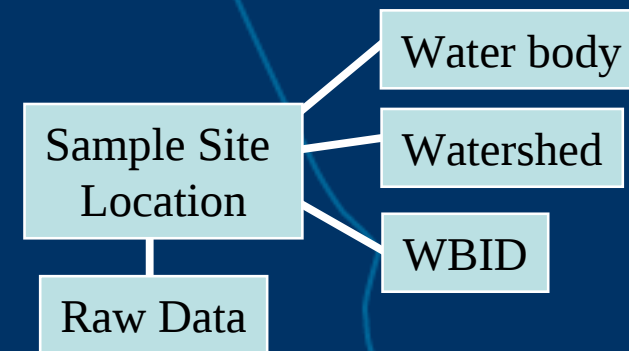
Summary of Data Providers

- 10 million rows of data
- 9,500 sampling locations
- Period-of-record 1901 to present

Data Source	Stations	Records	Data Source	Stations	Records
CASSELBERRY_WQ	11	4356	SCPW_WEATHER	8	5934
DACS_WQ	80	121800	SEMCO_PWHYDRO	130	17547
HCEPC_WQ	113	721346	SEMCO_PWWQ	80	47214
HCEPC_WQ_REPORTS	139	6179	SEMCO_PWWQYSI	6	1916534
LAKECO_SWWQ	10	2970	SFWMD_HYDRO	20	100173
LAKELAND_WQ	17	49216	SFWMD_WQ	8	3932
LAKEWATCH_SUPP	245	9977	SJRWMD_HYDRO	10	19475
LAKEWATCH_V	562	239564	SJRWMD_WQ	264	220039
LEGACY_PINELLAS	79	50271	STORET_21FLCEN	280	16447
LEGACY_SEMCO_PWWQYSI	1	33350	STORET_21FLCHAR	11	1615
LEGACYSTORET_21FLA	1,077	496179	STORET_21FLFMRI	91	4693
LEGACYSTORET_21FLGFWF	13	12827	STORET_21FLFTM	13	1519
LEGACYSTORET_21FLMML	100	32556	STORET_21FLGFWF	22	6538
LEGACYSTORET_21FLSARA	124	94091	STORET_21FLGW	450	44193
LEGACYSTORET_21FLSCES	133	20394	STORET_21FLIMCA	13	5939
LEGACYSTORET_21FLVEMD	12	23563	STORET_21FLMANA	88	91004
MANATEE_EMD_HYDRO	6	37134	STORET_21FLORAN	287	294475
MANATEE_UTILITY_WQ	20	20359	STORET_21FLORL	110	88175
MOTE_HYDRO	1	723	STORET_21FLSFWM	26	12228
ORANGECO_EPD_WQ	22	16998	STORET_21FLSWFD	50	25055
ORANGECO_STORM_LEVELS	288	31962	STORET_21FLTPA	485	77549
ORANGECO_STORM_RAINLEV	35	53021	STORET_21FLVEMD	13	7750
ORLANDO_STORM_RAINLEV	34	13152	STORET_21FLWQA	100	4809
PINELLAS_WQ	72	100208	STREAMWATER_WATCH_WQ	65	11550
POLKCO_NRD_WQ	397	114711	SWFMD_HYDRO	736	2444412
POLKCO_RAINFALL	62	37569	USGS_NWIS	2,184	1744729
SARASOTA_ARMS	107	383675	WAV_WQ	22	10525
SARASOTAES_WQ	57	149402	WINTERPARK_WQ	30	14023

Challenges to Providing Access to Multi-Agency Data

- **Our philosophy is that all data should be available to the public but users should be alerted as to appropriate/inappropriate use**
- **Sample station locations**
 - Raw data are linked to sample stations
 - Sample stations are linked to specific waterbody
 - Some stations cannot always be reliably matched
 - Mismatched stations lead to inaccurate analysis results
- **Data quality**
 - Metadata are required to document sample methods, lab methods, etc.
 - Data transfer procedures rely on metadata to include results in data warehouse
 - Some data are poorly documented and can lead to inappropriate analyses
- **Approach adopted by Water Atlas Program**
 - Students and staff provide sample station quality assurance
 - Quality Assurance Officer was hired to oversee data transfer procedures
 - Disclaimer presented for entire Atlas
 - Error are corrected immediately



Future Directions

- **Consolidate Water Atlas applications and databases to improve efficiency of maintenance**
- **Increase quality assurance for data transfer**
- **Increase flexibility of the content management systems:**
 - Allow user-driven data entry (e.g. volunteer monitoring)
 - Spatially-enable document catalog to post ecological monitoring reports, historic narratives and other documents
- **Develop advanced mapping and analysis tools: contour mapping, geographic data analysis and web services**
- **Expand geographic extent to include State of Florida**

Business Plan

- **Goal has been to serve entire State of Florida**
- **Expansion has been county-by-county**
 - Latest include Volusia County and Leon-Tallahassee
 - Many of the large population centers have been covered
 - Not all counties can afford the full cost
- **Florida Atlas of Lakes will create statewide Atlas**
 - Basic level of information for all LAKEWATCH lakes in Florida within 6-12 months
 - Statewide spatial database will test technological efficiency of the new consolidated Atlas application
- **If successful, then the statewide Atlas will be expanded to include additional water resources**

Questions?



<http://www.WaterAtlas.org>

Shawn Landry – Landry@arch.usf.edu – (813) 974-4042