

Florida Water Resources Monitoring Council (FWRMC)
Public Meeting of Monitoring Catalog Workgroup – October 26, 2011

Attendees:

Agency	Name
DEP	Kate Muldoon
DEP	Gail Sloane
DEP	Stephanie Sunderman
DEP	Rick Copeland
DOH	Bob Vincent
SJRWMD	Aiša Cerić
SJRWMD	Tom Mirti
SWFWMD	Roberta Starks

Introduction

Gail Sloane (GS) welcomed everyone to the first FWRMC workgroup meeting, and noted that the group is enthusiastic about moving forward with the catalog effort and identifying the next steps required to make the monitoring catalog a reality.

Review of existing online catalogs and data portal

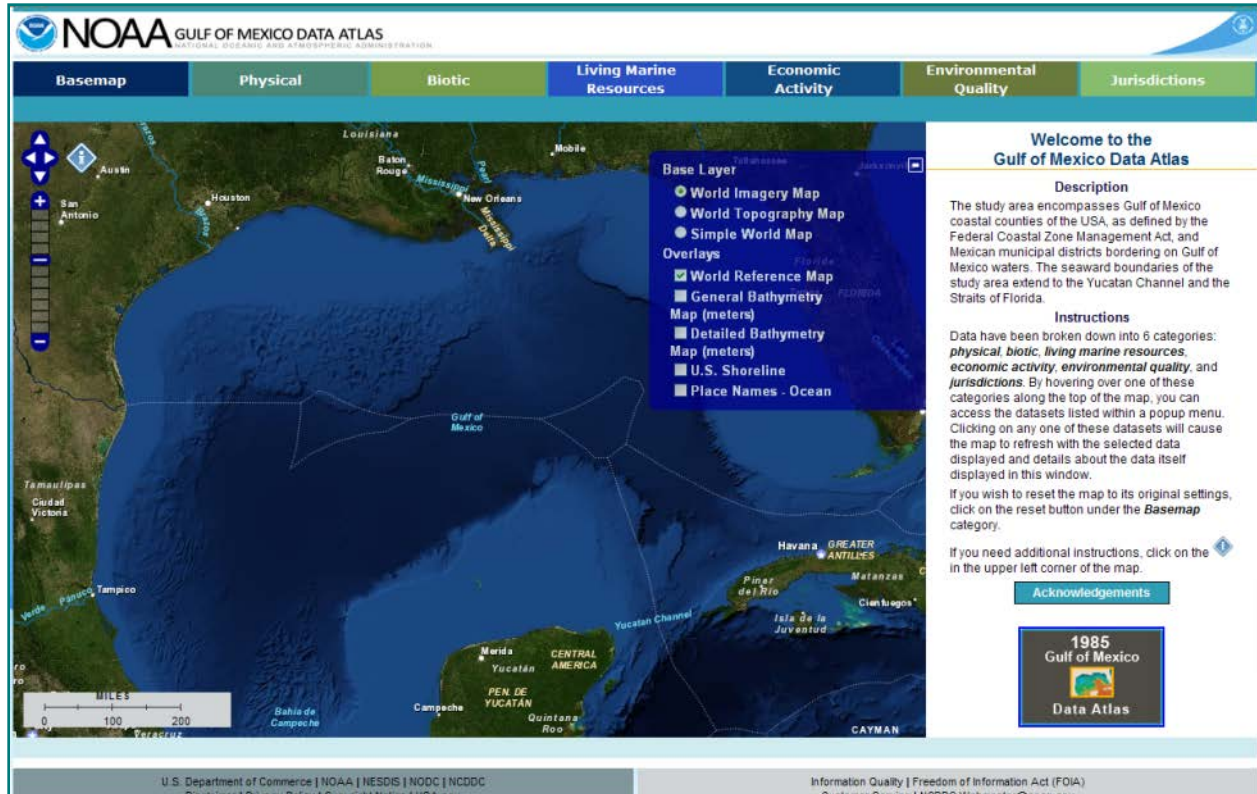
Kate Muldoon (KM) explained that the material that she and Stephanie Sunderman (SS) prepared was a preliminary review of a list of some of the existing catalogs and data portals. The review was focused on the user interface, the ability to display metadata for monitoring stations, and the ability to upload stations/metadata.

1. Gulf of Mexico Alliance (GOMA) Catalog of Monitoring Programs

KM gave a brief overview of the Catalog of Monitoring Programs project that the Gulf of Mexico Alliance (GOMA) has begun. A contract is being set up with the University of Miami to create an online mapping application that will serve as the Catalog of Monitoring Programs (Monitoring Catalog) for GOMA. The contract will be for 6 months, and the details of the catalog are still in the process of being worked out. The GOMA Catalog effort will likely dovetail with the FWRMC Catalog effort and the Catalog effort that is being developed by the South Atlantic Alliance (SAA). Even though the focus on the GOMA project is on coastal waters, it can be designed so that freshwater monitoring information can be entered and displayed as well. Great potential exists to collaborate and piggyback onto these other efforts, if the group decides that is the direction that the FWRMC catalog effort will go.

2. NOAA Gulf of Mexico Digital Atlas

SS gave a brief overview of the NOAA Gulf of Mexico (GOM) Digital Atlas. (Which was publically released on 11/1/11, and can be accessed at <http://gulfatlas.noaa.gov/>). SS is currently serving on the Executive Steering Committee for the GOM Atlas, representing the GOMA Water Quality (WQ) Team Monitoring Workgroup needs. In future iterations of the GOM Atlas, NOAA has indicated that it would be possible to include a plate for the GOMA Monitoring Workgroup where monitoring station locations could be displayed next to a link back to the GOMA Catalog of Monitoring Programs website where users could search and explore the more detailed metadata information associated with each station.



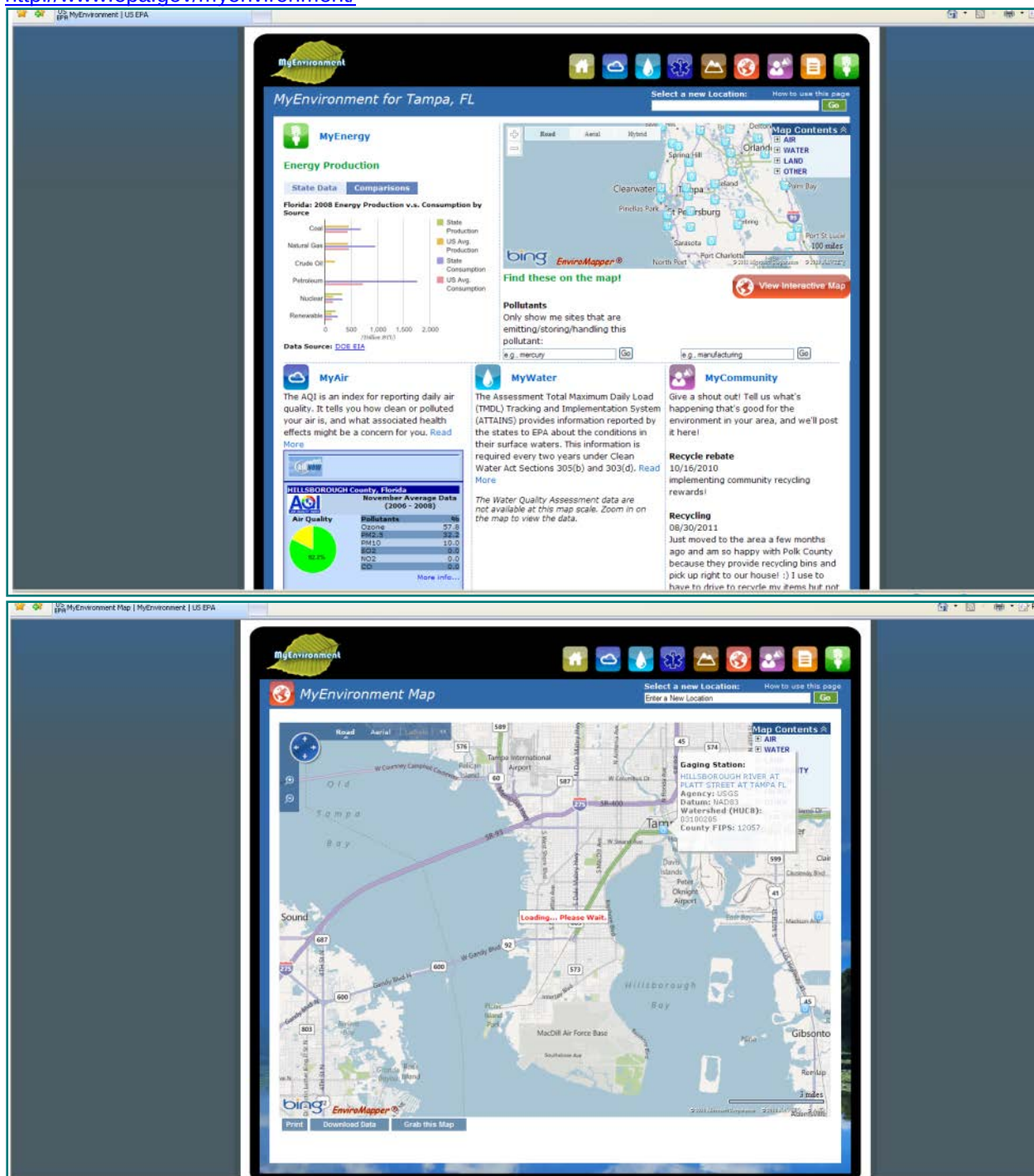
Summary: The basic design of the GOM Digital Atlas (shown above) includes types of data organized by tabs at the top (physical, biotic, economic activity, etc.), and within each tab are a series of plates or individual map views (for example, the mean annual seawater salinity plate is located in the physical data tab). Each plate is a gulfwide view of one type of data, with a text description, legend, and a link to the data provider's website on the right hand side. The maps on the plates are fairly static, with no tools available besides zooming and a basic identify function. It is also not possible to see data from multiple plates combined using the GOM Digital Atlas, but most data are also available as REST services, where more overlaying and interactivity is possible.

Discussion:

- The first version of the project was funded for one year, which is now coming to an end, and NOAA is beginning to hold demonstrations of the product for various groups of stakeholders and investigating sources of funding for future years.
- A feature like the side bar area in the Atlas could be useful to display metadata from search results or stations that users click on.

3. EPA My Environment

<http://www.epa.gov/myenvironment/>



Summary: Includes data related to air, water, permits, and other environmental issues. Includes USGS gauging stations and information from EPA STORET;

PRO: Good visualization of results with a “report card” appearance. Excellent reports and data available for watershed assessment and tracking of environmental results. Users can click on individual stations and link to data.

CON: Overview map options and tools are limited. Appears very TMDL-centric. Metadata available is limited – difficult to understand what program stations are associated with (and subsequent information about programs such as frequency, analytes, etc).

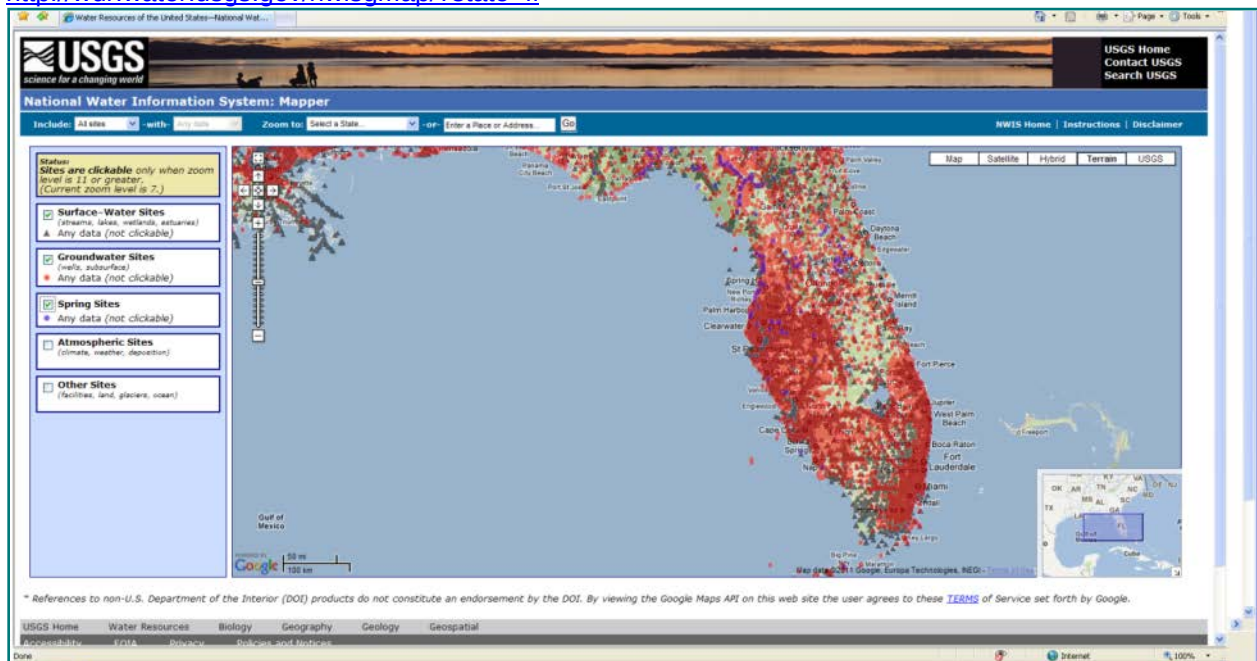
Discussion:

- Links to other data providers (e.g. USGS) can be live connections. Other data is only updated periodically (frequency of updates not easily determined). Not a lot of information available on other types of monitoring (marine, seagrass, etc.). NOAA GOM Atlas seems more comprehensive and informative than this site. Site was not very fast and accessing data from STORET was not easy.

4. USGS Water Data Discovery

<http://water.usgs.gov/data/>

<http://wdr.water.usgs.gov/nwisgmap/?state=fl>



http://waterdata.usgs.gov/fl/nwis/inventory?search_criteria=county_cd&submitted_form=introduction

News updated July, 2011

Site Inventory for Florida

[Click Here](#) for information on data reliability

Select sites which meet all of the following criteria:
Define one or more values for each of the following site-selection criteria: --- or select [new criteria](#)

County -- select one or more

- Alachua County
- Baker County
- Bay County
- Bradford County
- Brevard County
- Broward County

Choose Output Format
Display Summary of Selected Sites
Choose one of the following options for displaying descriptions of the sites meeting the criteria above:

- ☐ Show sites on a map
- ☒ Table of sites sorted by Site number grouped by
- ☐ Scroll list of sites -- allows selection of data for multiple sites
- ☐ Brief descriptions -- allows selection of data for multiple sites
- ☐ Site-description information displayed in table format

Agency
Site identification number
Site name
Site type

<--Select fields to include in site-description output

- ☐ Save file of selected sites to local disk for future upload

Retrieve Site Inventory data for Selected Sites
Choose one of the following options for displaying data for the sites meeting the criteria above:

- ☐ Detailed descriptions with links to available data for each site

Submit Reset Help

Summary: Focus is on USGS monitoring stations (SW, GW, springs, etc). Tools include zooming and selecting visible layers.

PRO: Has overview map with all data points shown. Can click on stations in each type of resource.

CON: No specific information about monitoring network(s)' metadata – only actual data is available. No tools or tool bar readily available. Sites appear very slowly on map.

Discussion:

- Direct connection to USGS databases. Has limited metadata - doesn't describe data quality objectives (DQOs) for different projects. Has more types of information and more functionality than EPA page, but doesn't have flow data like EPA page did.

5. USGS SOFIA (South Florida Information Access)

<http://sofia.usgs.gov>

SOFIA
South Florida Information Access
Integrated Science for the Greater Everglades

SOFIA provides scientific information access in support of research, decision-making, and resource management for the Nation's Greater Everglades Ecosystem Restoration effort.

Last updated: October 31, 2011

Now Here!
(Looking for past Featured News?)

Events/Outreach
Society of Wetland Scientists and the Greater Everglades Ecosystem Restoration Conference will meet in conjunction with INTECOL 9, June 3-8, 2012, in Orlando, FL.

9th INTECOL International Wetlands Conference offers a platform to review research on complex challenges and integrated solutions for sustainable management of wetland resources in a changing world. Special emphasis will be placed on the influence of climate change on wetland biota, biogeochemical cycling, hydrology, carbon sequestration, greenhouse gases, salinity, water quality, and long-term storage of nutrients and contaminants.

Publications Search
Try our publications search - over 800 records are ready for searching by author and/or topic and/or type... Search away!

New Publications
New Paper: The use of historical charts and photographs in ecosystem restoration: examples from the Everglades Historical Air Photo Project

Benthic Habitat Classification in Ummymvilee Key Basin, Florida Bay, using the U.S. Geological Survey Along-Track Reef Imaging System (ATRIS): USGS Open File Report 2010-1126

Analysis and Simulation of Water-Level, Specific Conductance, and Total Phosphorus Dynamics of the Loxahatchee National Wildlife Refuge, Florida, 1995-2006: USGS Scientific Investigations Report 2010-5244

New Report: An Isotopic Study of Northeast Everglades National Park and Adjacent Urban Areas: Third Interim Technical Report for Isotope Study, Phase I

Distribution of the Non-Native Gastropod *Melanoides tuberculatus* in Biscayne National Park, Florida: USGS Open File Report 2010-1126

New Data
New Stations added to South Florida Hydrology Data Download

Update: **Ecosystem History Access Database**

South Florida Gage Gazetteer

Featured Websites
Everglades Depth Estimation Network (EDEN) for Support of Biological and Ecological Assessments

- New EDEN Rappi DEM released
- New EDEN water surface model and data released
 - Difference Maps
- July and August Rainfall Data
- 2011 Q2 provisional data released
- NWIS WaterAlert web page
- Water Depth Measurements web page

Learn about the **Arthur R. Marshall Loxahatchee National Wildlife Refuge's Enhanced Water Quality Monitoring and Modeling Program**

Everglades National Park Critical Ecosystem Studies Initiative (CESI) website now available!

The South Florida Watershed Journal: a daily passport into the inner realm of south Florida's water cycle and interconnected watersheds

Sign up for "SOFIA News":
email address Submit

Read the July Issue
SOFIA News is a FREE email update of new postings on the USGS South Florida Information Access (SOFIA) website. [Learn more...](#)

Free South Florida Screensavers! Download your choice of two different screensavers.

Example of single project: http://sofia.usgs.gov/exchange/zucker_woods_patino/index.php

USGS
Science for a changing world

South Florida Information Access - Data Exchange

Clear All Selections

Time Frame
Enter a date range in the format "YYYYMMDD" (data at 15 minute intervals from 1995-10-01 to 2009-09-30; not all stations have full range of data-coverage for each station is detailed in the Stations table).

Start of date range: 19951001
End of date range: 20100930

Data Variables
Select the measured parameters you would like to download. Not all variables are available for all stations-see list of available variables in the Stations table.

Select All Variables
Clear Selected Variables

☐ Stage (st, ft)
☐ Temperature (Te, °C)
☐ Surface Temperature (STe, °C)
☐ Bottom Temperature (BT, °C)
☐ Salinity (sa, ppt)
☐ Surface Salinity (ssa, ppt)
☐ Bottom Salinity (bsa, ppt)
☐ Discharge (di, ft³/s)
☐ Filtered Discharge (fdi, ft³/s)
☐ Specific Conductance (sca, µS/cm)
☐ Turbidity (Tu, NTU)

Stations
Select the stations for which you would like to download data. Ranges of data collection are noted below each station, as are the observed variables (range may not receive full coverage for all variables). Selecting larger date ranges or variables not available for some or all of your selected stations will not cause a problem; your resultant dataset will merely be blank for the period/variables in question. Clicking on a station name will bring up the period of record for the individual parameters in a separate window. Station data updates are indicated by a "U" link, which will bring up a window detailing update information.

Select All Stations

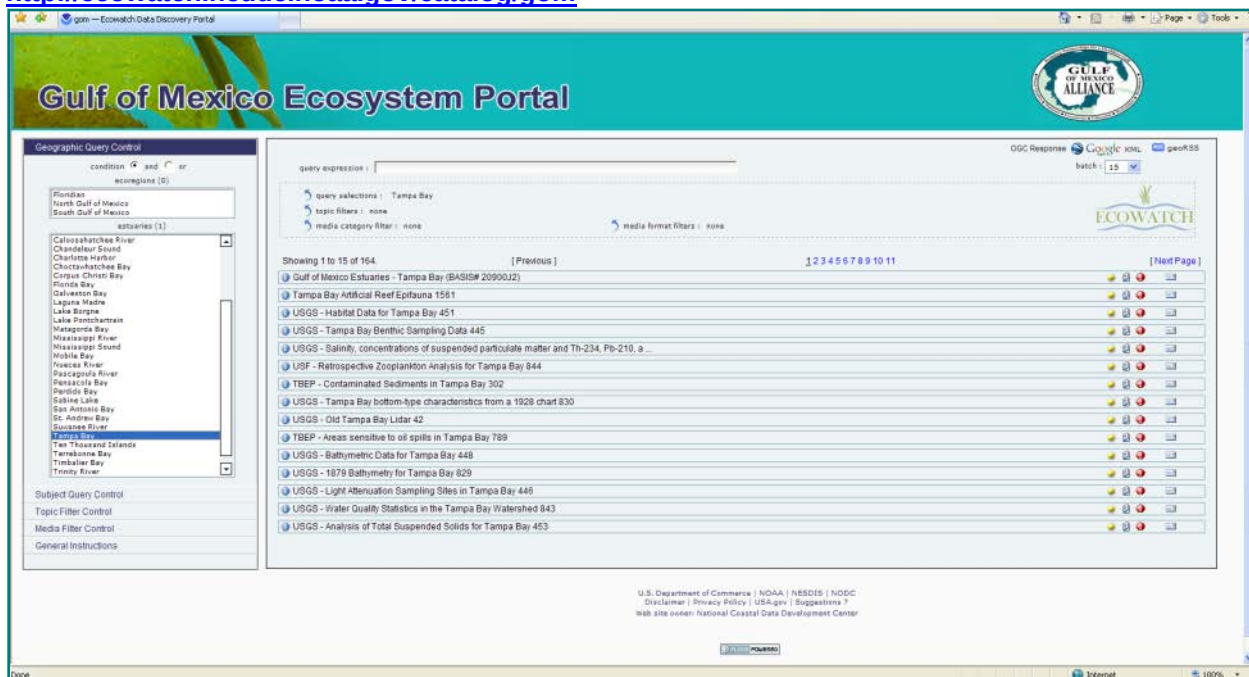
Card Sound Canal 25181608232200
Surface Water
Latitude: 25°18'18" Longitude: -80°23'23"
POR: 2003-09-30 to 2010-09-30
Parameters:
Stage, Surface Temperature, Bottom Temperature, Surface Salinity,
Bottom Salinity, Discharge, Filtered Discharge
[NWIS Real-time Data](#)
[NWIS Daily Data](#)

PRO: Data organized by topic. *Includes several hydrology projects. Each project has its own detailed page that provides information about stations, as well as information about each project's data quality objectives. Users can search projects by project, by region, etc.

CON: Maps can provide good detail for individual projects but are not linked together.

6. Gulf of Mexico Ecosystem Portal

<http://ecowatch.ncddc.noaa.gov/catalog/gom>

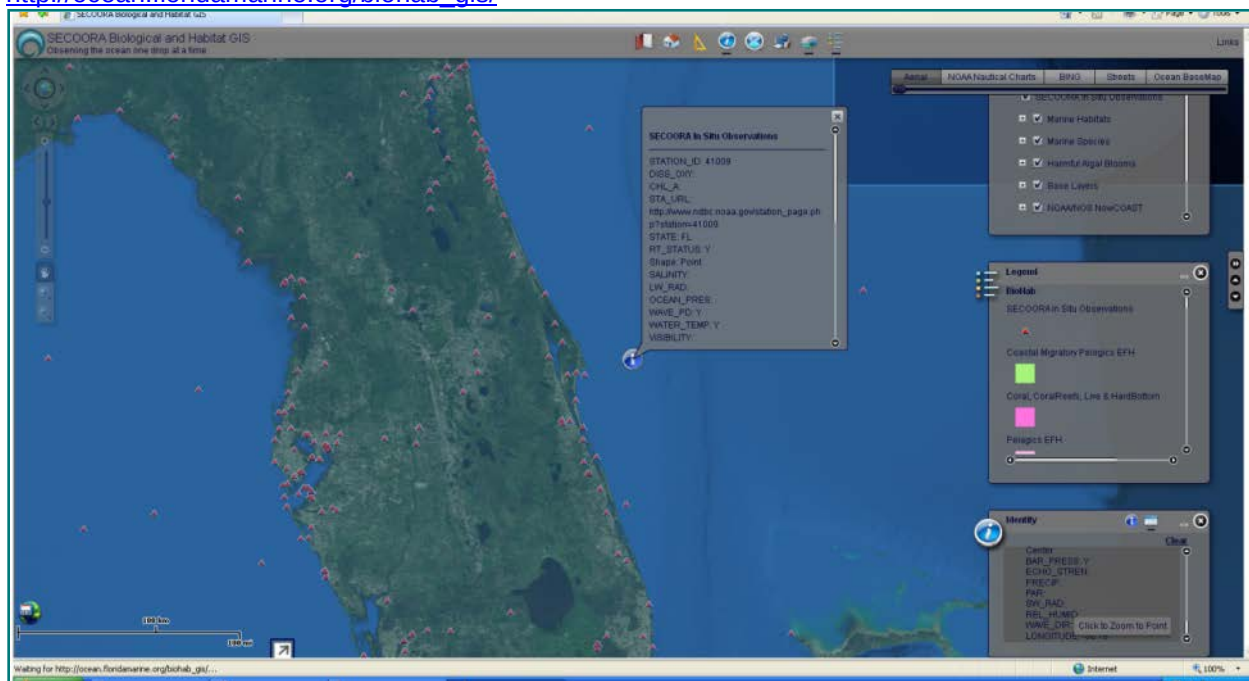


PRO: Each station provides link to program data quality objectives. Has drop-down menus to facilitate data search and upload (by state, program, station, type, etc). Possible option to add KML file to download and display in Google Earth.

CON: Limited information in search because much information is stored in text fields, and most fields are not required. No mapping/spatial component in application. Doesn't seem to load quickly.

7. SECOORA (Southeast Coastal Ocean Observing Research Assesiation) Biological and Habitat GIS

http://ocean.floridamarine.org/biohab_gis/



PRO: Can draw polygon or bounding box to highlight area of interest and select stations within it. Very nice large overview map.

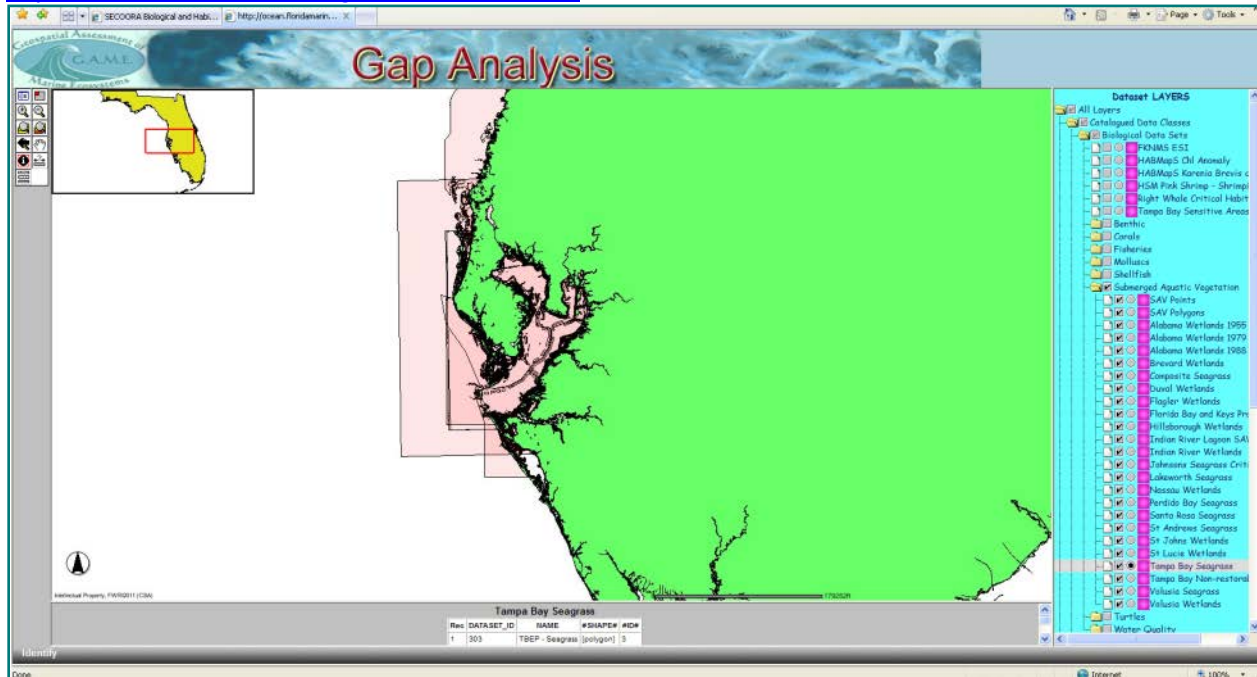
CON: Can search/select by station, but not by project. Selection tool isn't ideal – can't make base layer(s) non-selectable.

Discussion:

- Has limited metadata available that is GIS-based (more data centric), instead of focusing on the project details.
- This seems closer to what we may want, but it is important to ensure that all of the tools and searches are functioning as desired.

8. GAME

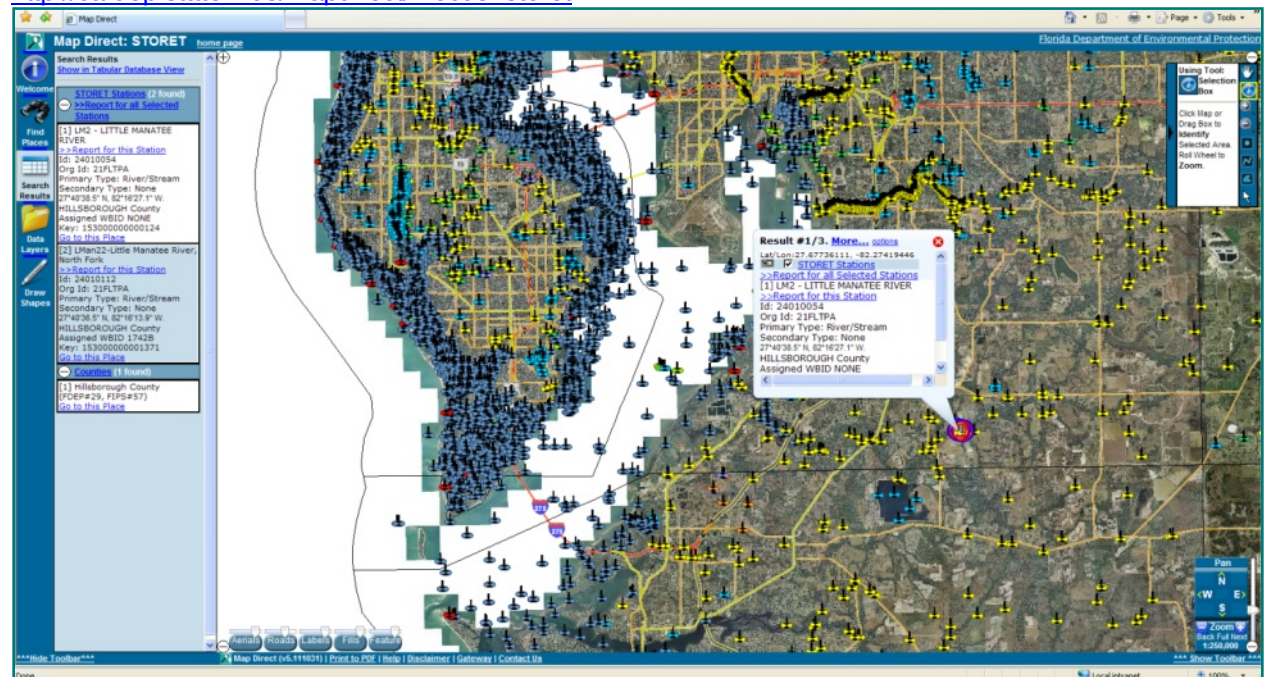
<http://ocean.floridamarine.org/GAME/Viewer.htm>



CON: Only gap analysis subheading shows up. Not very user friendly - difficult navigation. Sparse information with very limited metadata. May no longer be maintained?

Discussion:

- Should revisit GAME presentation from previous FWRMC meeting - can be downloaded from: <http://www.dep.state.fl.us/water/monitoring/council/archive07.htm> (March 21-22, 2007 meeting file).
- Could also speak with Holly Greening to learn more about efforts that are still in existence in Tampa Bay area.



PRO: Many different types of searches available (using fields in databases or geographically by polygon). Search results will identify stations by program stations identified.

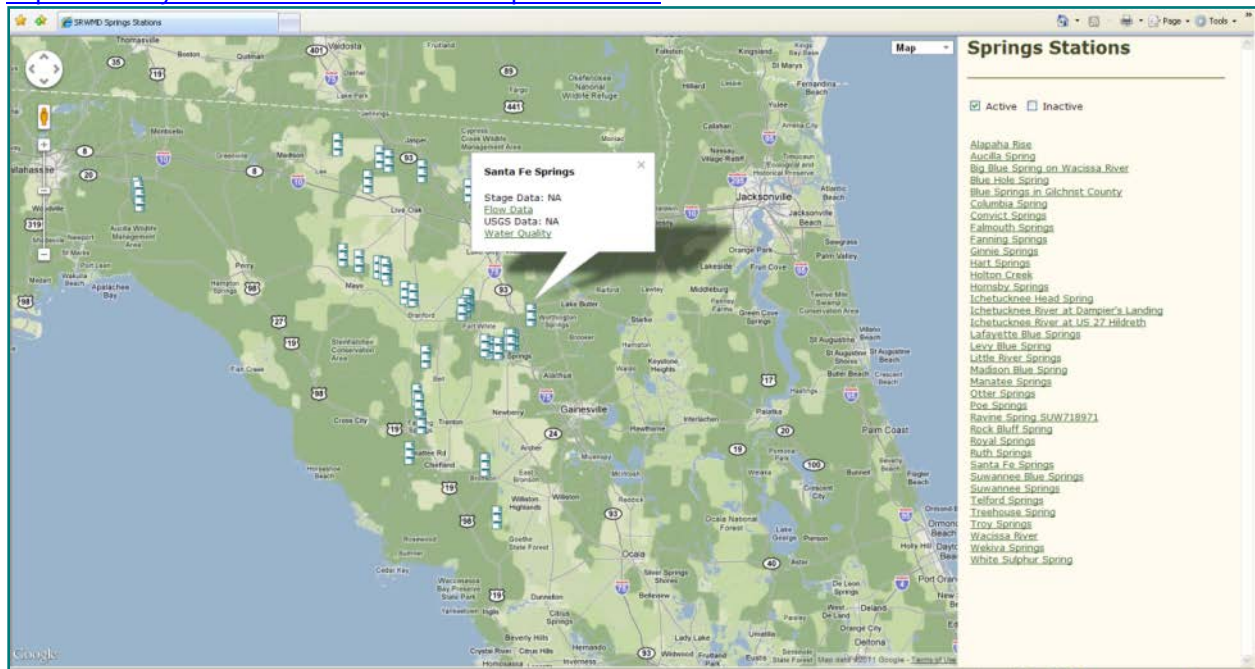
CON: Too much on screen/too many options can make it seem less user friendly. Doesn't provide overview by project, with DQOs. Some data layers are incomplete or not current. Linkage to STORET database is a bit slow/complicated.

Discussion:

- Opportunities possibly exist to collaborate/build onto this application.
- Current focus seems to be on accessing data, but FWRMC component would not need to include that complex function.
- Can customize map by eliminating/adding transportation layers, imagery, etc.
- Would be great to leverage WIN efforts with FWRMC efforts and make graphical interface combining both. FWRMC can provide input that incorporating the Catalog effort is a desired component of WIN.

11. SRWMD Water Data Portal

<http://www.mysuwanneeriver.com/index.aspx?NID=345>

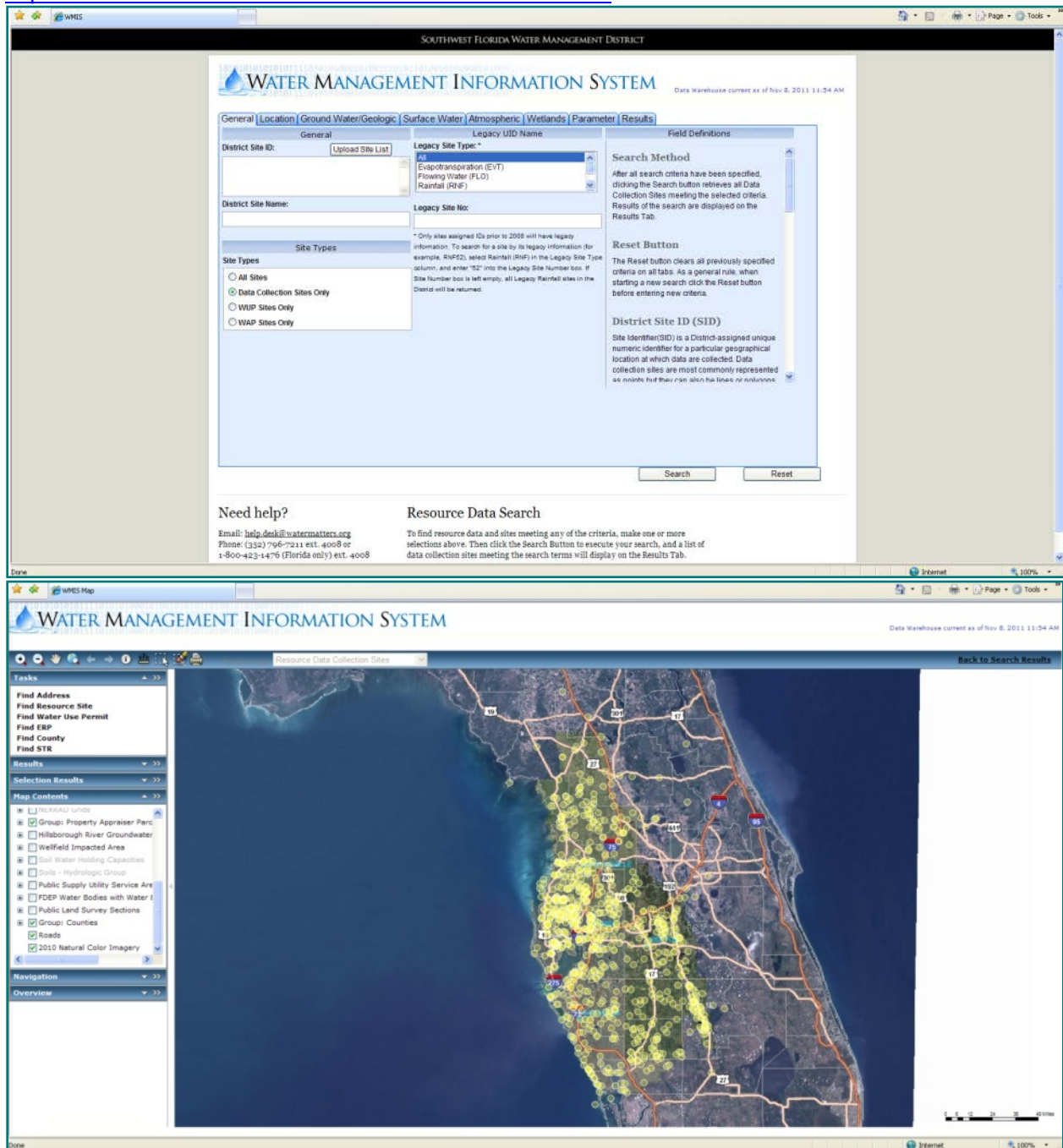


PRO: Stations separated into historic vs. current. Several types of data/projects area accessible.

CON: Can select stations, but data must be downloaded (can't just be opened online). Minimal information on metadata elements (DQO, etc) available.

12. SWFWMD Water Management Information System

<http://www.swfwmd.state.fl.us/data/wmdbweb/disclaimer.htm>



PRO: Many types of data available (SW, GW, permitting information/reports). Some metadata available (period of record, analytes, etc). Many types of searches available (can perform very specific queries if desired). Can access/download data and view graph of data values over time.

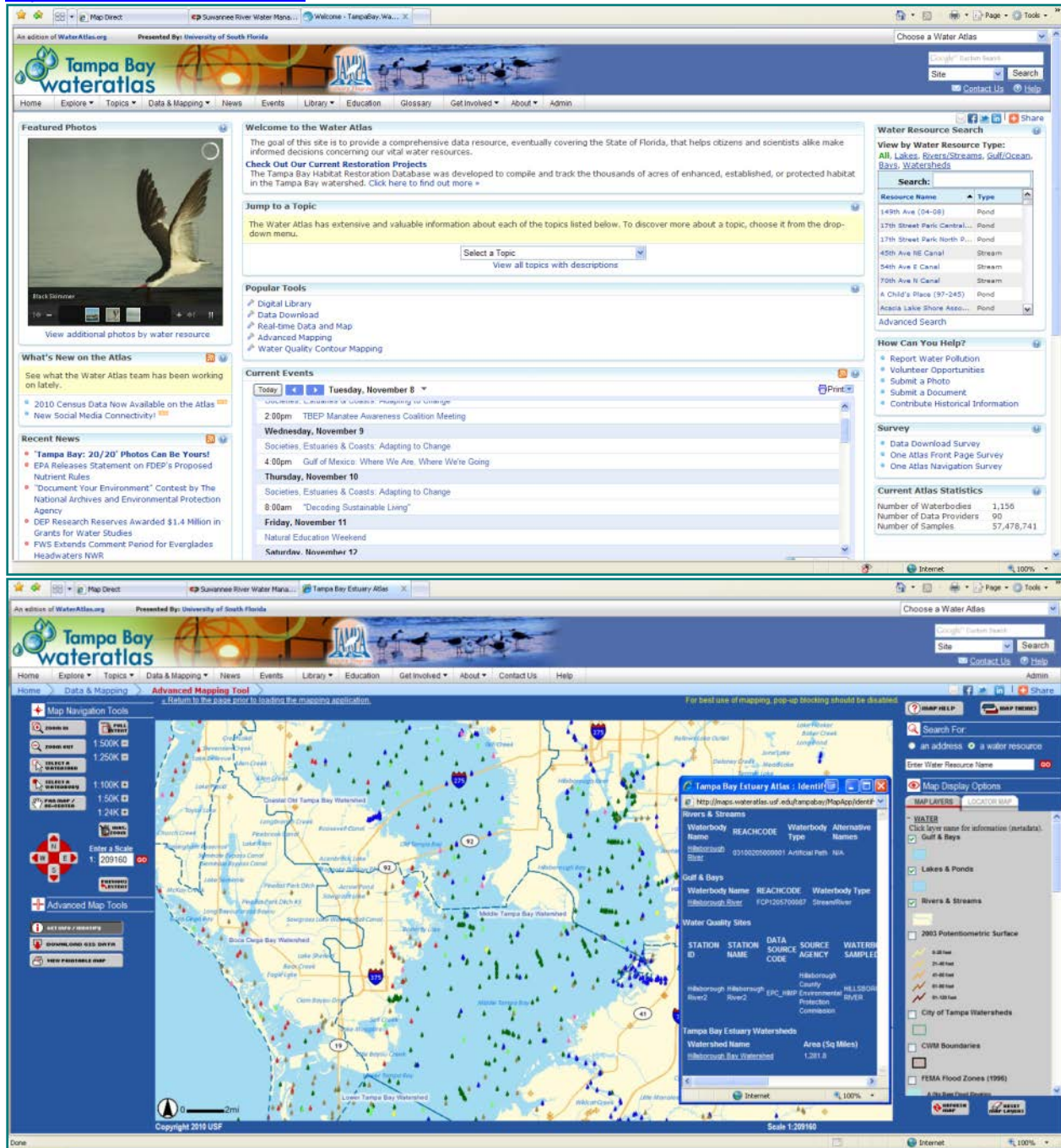
CON: Map not readily available (must first go through resource data search). Box-drawing tool not functional?

Discussion:

- PIM (Project Information Management) system contains additional metadata on SWFWMD projects and may be integrated into WMIS in the future.

13. Water Atlas (FL Center for Community Design & USF)

<http://www.wateratlas.usf.edu/>



PRO: Comprehensive – includes a lot of different types of information. Includes data from STORET and other programs not in STORET. Many types of searches available (by station, water body, watershed, etc). Can download data. Many types of graphs/summaries available.

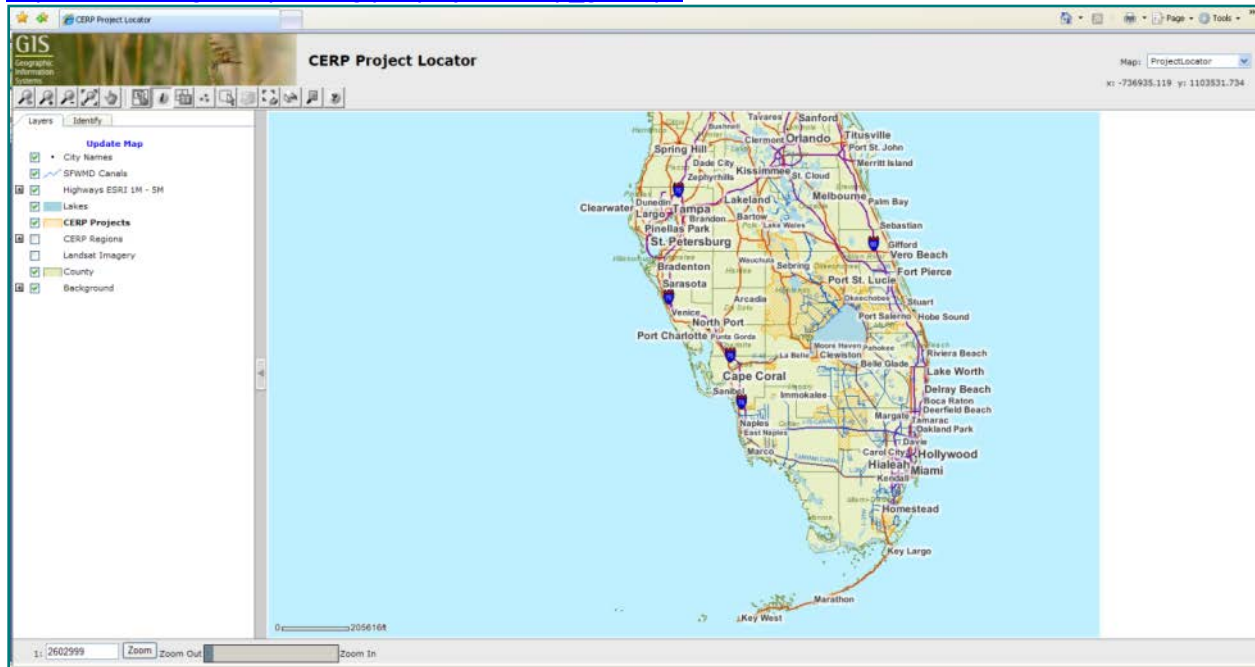
CON: Cost to join & maintain can be high. Not much program or project metadata/overview linked to stations.

Discussion:

- If FWRMC product does not collaborate or include data from the Water Atlas, there may be concern for duplication of effort in some areas.

14. Comprehensive Everglades Restoration Plan (CERP)

http://www.evergladesplan.org/pm/projects/cerp_gis.aspx



CON: Not maintained/updated frequently? Developed in IMS with some tools (identify) not functioning properly.

Discussion:

- There may be a more recent / updated mapping application available from CERP.

General Discussion of FWRMC Effort (Compiled from discussions that occurred between evaluating specific applications above)

- For FWRMC effort, it will be important to define the focus of the application – to display monitoring stations and their associated metadata.
- May be necessary to summarize information collected by analyte groups instead of listing many similar analytes for each station (e.g. metals).
- We will also need to agree on common definitions for analytes, etc.
- May want to provide links to organization's websites where data can be downloaded instead of trying to incorporate it into Catalog.
- May want to consider partitioning monitoring information in catalog into historical vs. current to avoid experiencing problems with site speed, like the USGS site had.
- Will also need to address how to maintain continuity in data collection when monitoring is transferred from one agency to another.
- Will need to develop a strategy for data/metadata management. First step will be to design catalog so that agencies are responsible for uploading their own information and then updating it as needed (e.g. several times per year, when stations change, when analytes change, etc).
- Will need to develop strategy to include as many organizations as possible, and not limit data available to just those organizations active in the FWRMC or GOMA.
- Maintenance/funding for maintenance may be a problem with using a structure like SOFIA with separate pages for each program.
- For GOMA Catalog effort, some funding already exists.
- Is GOMA funding limited to western side of FL? – Yes, but FL efforts can be designed to be complementary to GOMA efforts so that the rest of the state can use the structure and database built for the GOMA effort.

- Will need to determine level of metadata necessary if Monitoring Catalog will be more than just links back to organizations' websites.
- Is it possible to make a request for basic funding for the FWRMC Monitoring Catalog? KM and GS will be discussing the issue with their Division Director.
- It will be very helpful to increase visibility of various monitoring efforts. Having information on the programs available is the key to getting more funding, if it can be shown that the Catalog is useful for identifying duplication and increasing efficiency by promoting cooperation among programs.
- For FWRMC Monitoring Catalog, it will be important that data providers frequently update their information so that the system doesn't get too full / messy.
- Would be helpful to separate stations into active vs. inactive stations.
- What is the desired content for the FWRMC Monitoring Catalog? – Still need to discuss how to address analytes/analyte groups, but previous discussions have indicated that the following elements are desirable: DQOs, period of record, frequency, station locations, organizations responsible for sampling & data management, links to organizations' websites and data. Other types of data such as flow data from USGS are also desirable to include.
- Important to make the spatial component a main focus so that everything isn't strictly tied to projects/programs, and it will be easier to document that sampling was maintained even though sampling organization may have changed.

Next Steps

- Aiša Cerić will send information to workgroup regarding SJRWMD data retrieval tool.
- Compile thoughts/recommendations regarding catalog functionality for brief discussion on the Monitoring Catalog at the statewide FWRMC meeting on 11/16/11
- Consider if the FWRMC effort should collaborate/integrate with other existing/developing efforts (Which ones?)
- Consider how to present Catalog effort to upper management
- Develop priorities for how to proceed with the FWRMC effort
- Visit NOAA GOM Atlas site (<http://gulfatlas.noaa.gov/>) and consider how FWRMC & GOMA Catalog effort could potentially collaborate by adding a plate that links back to the Monitoring Catalog.