

The Catalog of Florida Monitoring Programs *update*

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2008 FWPMC Action Plan

- Issue I: Improve knowledge of monitoring activities
 - ACTION ITEM I-1: Create and populate a comprehensive digital catalog of existing and legacy water-resources monitoring activities.
 - ACTION ITEM I-2: Make the catalog accessible.
 - ACTION ITEM I-3: Continually maintain and update the catalog (data and design).

Catalog Features

- Metadata elements only; links to URL to obtain monitoring data
- Web-based, interactive, easily navigated
- Searchable by text or spatially by map
 - location - county, polygon, bounding box
 - monitoring parameters or categories
 - date range (period of record)
 - organization
 - project
- Providers maintain metadata via
 - bulk uploads
 - shapefiles
 - Extrapolate from data

Funding and Contractor Selection

- FWRMC recommended USF Center for Community Design & Research (Water Atlas)
 - 3 year contract
 - Year 1: Functional requirements document, Catalog design and implementation
 - Years 2 & 3: Refinement and maintenance
 - Iterative process between workgroup, DEP, and USF
 - Dovetailing architectural efforts with STORET replacement (WIN)
- Funded with EPA 106 supplemental funds

Metadata development

- 4 teleconferences between Nov. 1– Dec. 19, 2012
- Developed straw man that incorporated existing metadata elements:
 - NPS Southeast Coastal Water Quality Monitoring Metadata Project
 - GOMA Catalog
- Ensured that metadata elements compliant with standards:
 - DEP Locational Data Standards
 - International Standards Organization (ISO)
 - National Geophysical Data Center (NGDC)
- USF participated in metadata discussions

Catalog Features: metadata elements (example)

(DEP Locational Data Stds., ISO, NGDC)

METADATA ELEMENT NAME	REQUIRED (Y/N)	DEFINITION	DATA TYPE	DOMAIN LIMITED (Y/N)	DATA SIZE	POPULATED BY	INFORMATION LEVEL
UNIQUE_STATION_ID	Y	Primary key identifier for stations within the Monitoring Catalog database. Automatically generated by Water Atlas staff – likely to be a combination of the ORGANIZATION_NAME and STATION_ID.	VARCHAR2	N	150	Water Atlas Staff	Station
ORGANIZATION_NAME	Y	Organization overseeing monitoring project collecting information at the station.	VARCHAR2	Y	100	Data Providers	Project
PROJECT_NAME	Y	Monitoring project collecting information at the station. A station can belong to many projects overseen by the same organization or other projects overseen by other organizations.	VARCHAR2	N	250	Data Providers	Project
PROJECT_URL	N	Address (URL) for a web page describing the project.	VARCHAR2	N	250	Data Providers	Project
PROJECT_DESIGN_METHODODOLOGY	N	Strategy to meet the goals and objectives of the project. Domain: <i>Deterministic; Probabilistic; Other; Unknown; Not Reported</i>	VARCHAR2	Y	25	Data Providers	Project
PROJECT_ABSTRACT	Y	Brief summary of the project.	VARCHAR2	N	4000	Data Providers	Project
PROJECT_PURPOSE	Y	Reason for information collection. Includes data quality objectives (DQOs).	VARCHAR2	N	4000	Data Providers	Project
PROJECT_DATA_QUALITY_OBJECTIVES	Y	Conveys whether documented data quality objectives (DQOs) are available. Domain: <i>Yes, No, Not Reported</i>	VARCHAR2	Y	12	Data Providers	Project
STATION_NAME	Y	Full name of the site or station.	VARCHAR2	N	50	Data Providers	Station
STATION_ID	Y	Code or identifier used as the station identifier within the data provider's internal database.	VARCHAR2	N	50	Data Providers	Station

Metadata development

- Entity: Station
- Will include metadata on monitoring for:
 - surface water
 - groundwater
 - sediments
 - biological monitoring
- Parameters
- Element population - data providers, USF



Metadata Development

- Addressed accuracy of locational data
 - “proximity”
 - XY Datum
 - Location Collection Method
- Station Type: FL STORET & Water Atlas domains
- Period of record & frequency: by station
- Project Purpose: DQO
- Groundwater
 - Station Description – parcel no. or address
 - Added “total depth” and “casing depth”

Data Providers

- Current Water Atlas providers
- STORET providers
- USF arranged with NPS SE Coastal Metadata Catalog to use code and mine metadata
- Arrangement with GOMA Catalog to concurrently provide data
- Regional Councils to serve as communication point for local data providers and non-STORET data providers

Importance to state and regional coordination efforts

- Freshwater to marine water - Coastal Monitoring Network
- Statewide surface water and ground water monitoring
- Coastal and Aquatic Managed Areas (CAMA)
- STORET/WIN
- South Atlantic Alliance (SAA)
- Gulf of Mexico Alliance (GOMA)
- Oceanic and Coastal Observing Systems (COOS)

Next Steps . . .

- Begin/continue iterative efforts with other Council projects
 - Coastal Monitoring Network workgroup
 - Salinity Network
 - Regional Council workgroup
- Ensure communication with regional efforts
- Potentially address data provider “fatigue”



Many thanks!

Florida Department of Health (DOH)	Bob Vincent, Charles Donahue
St. Johns River Water Management District (SJRWMD)	Aiša Cerić, Tom Mirti
Southwest Florida Water Management District (SWFWMD)	Carol Kraft, Catherine Wolden, Dave DeWitt
South Florida Water Management District (SFWMD)	Brian Turcotte
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Questions?



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STATION_NAME	Y	Full name of the site or station.	VARCHAR2	N	50	Data Providers	Station
STATION_ID	Y	Code or identifier used as the station identifier within the data provider's internal database.	VARCHAR2	N	50	Data Providers	Station

METADATA ELEMENT NAME	REQUIRED (Y/N)	DEFINITION	DATA TYPE	DOMAIN LIMITED (Y/N)	DATA SIZE	POPULATED BY	INFORMATION LEVEL
STATION_DESCRIPTION	N	Description of the site or station. Information such as the address or parcel number associated with a station may be entered here.	VARCHAR2	N	250	Data Providers	Station
STATION_URL	N	Address (URL) for a web page describing the station.	VARCHAR2	N	250	Data Providers	Station
LATITUDE	Y	The decimal degree latitude.	FLOAT	N	14,8	Data Providers	Station
LONGITUDE	Y	The decimal degree longitude.	FLOAT	N	14,8	Data Providers	Station
PROXIMITY_TO_SAMPLING_ACTIVITY	Y	How close the LATITUDE and LONGITUDE are to the actual point where sampling activity occurred. Domain: <i>EXACT - Exact sampling location;</i> <i>APPRX - Approximate sampling location;</i> <i>VICIN - Vicinity of sampling location;</i> <i>OFFST - Offset to exact sampling location;</i> <i>START - Beginning vertex of a linear sampling location (e.g. transect);</i> <i>BNDRY - One of a set of points used to describe the boundary of a polygon sampling location</i> <i>CENTR - Center of polygon containing sampling location(s);</i> <i>ADMIN - Administrative center of site or facility containing sampling location;</i> <i>OTHER - Coordinates given represent a scenario not listed;</i> <i>UNKNO - Relationship between the coordinates given and the sampling location is unknown;</i> <i>NOREP - Information is not reported regarding the relationship between the coordinates given and the sampling location.</i>	VARCHAR2	Y	5	Data Providers	Station
XY_DATUM	Y	The horizontal reference for measuring locations on the Earth's surface. Domain: <i>CAC - Cape Canaveral,</i> <i>HARN - High Accuracy Reference Network,</i> <i>HPGN - High Precision GIS Network / High Precision Geodetic Reference,</i> <i>NAD27 - North American Datum of 1927,</i> <i>NAD83 - North American Datum of 1983,</i> <i>WGS84 - World Geodetic Survey of 1984,</i>	VARCHAR2	Y	10	Data Providers	Station

METADATA ELEMENT NAME	REQUIRED (Y/N)	DEFINITION	DATA TYPE	DOMAIN LIMITED (Y/N)	DATA SIZE	POPULATED BY	INFORMATION LEVEL
LOCATION_ COLLECTION_ METHOD	Y	The method or mechanism used to derive the location measurements. Domain: ADDM – Address Matching, AGPS – Autonomous GPS, CALC – Calculated by GIS Software, CSUR – Cadastral Survey, DGPS – Differentially Corrected GPS (USGS coordinate datum code "D"), DMAP – Digital Map Interpolation (USGS coordinate datum code "N"), DPHO – Digital Aerial Photography With Ground Control, GGPS – Geodetic Quality GPS, LORN – LORAN-C Navigational Device (USGS coordinate datum code "L"), MMAP – Manual Map Interpolation (USGS coordinate datum code "M"), MPHO – Manual Aerial Photography With Ground Control, OTHR – A Method Not Listed, PARC – Parcel Matching SATI – Satellite Imagery With Ground Control, T- Transit, theodolite, or other surveying method, TOWN – Township / Range Matching WGPS – GPS with Wide-Area Augmentation Service Correction, UNKN – Unknown Method, ZIP2 – ZIP Code + 2 Segment Centroid, ZIP4 – ZIP Code + 4 Segment Centroid, ZIPC – Zip Code Centroid	VARCHAR2	Y	4	Data Providers	Station
COUNTY	Y	The name of the FL county station is located in. Domain will include the names of all 67 counties and "Not Applicable".	VARCHAR2	Y	50	Data Providers	Station
DRAINAGE_BASIN	Y	The name of the 8-digit USGS HUC that the station is located in. Domain will include all 8-digit USGS HUCs in FL and "Not Applicable".	VARCHAR2	Y	14	Water Atlas Staff	Station

METADATA ELEMENT NAME	REQUIRED (Y/N)	DEFINITION	DATA TYPE	DOMAIN LIMITED (Y/N)	DATA SIZE	POPULATED BY	INFORMATION LEVEL
WATER_ RESOURCE_NAME	Y	The name of the waterbody that the station is located in. For groundwater wells, this should include the aquifer tapped. (Note: "Unknown" is permitted if aquifer tapped is not known.)	VARCHAR2	N	100	Data Providers	Station
STATION_TYPE	Y	The type of station that data collection occurs at / in. Domain: <i>Atmosphere</i> <i>Bay</i> <i>Canal</i> <i>Cave</i> <i>Channelized Stream</i> <i>Combined Sewer</i> <i>Constructed Wetland</i> <i>Estuary</i> <i>Facility</i> <i>Lake</i> <i>Land</i> <i>Land Runoff</i> <i>Landfill</i> <i>Mine / Mine Discharge</i> <i>Ocean</i> <i>Reservoir</i> <i>River / Stream</i> <i>Riverine Impoundment</i> <i>Spring</i> <i>Storm Sewer</i> <i>Tidal Fresh</i> <i>Tidal Brackish</i> <i>Waste Pit</i> <i>Waste Sewer</i> <i>Well–Non-potable Well (includes monitoring wells)</i> <i>Well–Potable Well</i> <i>Wetland</i> <i>Other</i> <i>Not Applicable</i>	VARCHAR2	Y	25	Data Providers	Station
START_DATE	Y	Date monitoring activity started at the station.	DATE	N		Data Providers	Station
END_DATE	N	Date the monitoring activity ended or is anticipated to end at the station (enter "active" for stations with ongoing monitoring with no anticipated end date).		N		Data Providers	Station

METADATA ELEMENT NAME	REQUIRED (Y/N)	DEFINITION	DATA TYPE	DOMAIN LIMITED (Y/N)	DATA SIZE	POPULATED BY	INFORMATION LEVEL
SAMPLING_ FREQUENCY	Y	The time interval between sampling events at the station. Domain: <i>Continuous (sampled more frequently than daily)</i> <i>Discrete - Sampled Daily</i> <i>Discrete - Sampled Weekly</i> <i>Discrete - Sampled Monthly</i> <i>Discrete - Sampled Quarterly</i> <i>Discrete - Sampled Semi-Annually</i> <i>Discrete - Sampled Annually</i> <i>Discrete – Triggered</i> <i>Discrete – Varied</i> <i>Discrete - Other</i>	VARCHAR2	Y	250	Data Providers	Station
PARAMETERS	Y	Parameters / variables / information collected at the station, including STORET/WQX names when possible. Target level of detail is individual analytes (e.g. “phosphorus”), but groups of analytes (e.g. “nutrients”) may be provided if finer detail is not available.		N		Data Providers (Water Atlas Staff will assist with formatting and translating information provided to a standard list of values.)	Station
DATA_URL	Y	Address (URL) for a web page or FTP site for obtaining data from the site or station. “Not available” may be entered if data is not available online.	VARCHAR2	N	250	Data Providers	Station
DATA_SOURCE_ NAME	Y	Name of data source or providers of data to the Monitoring Catalog, whether within or outside the organization conducting monitoring at the station.	VARCHAR2	Y	100	Data Providers	Project
PUBLICATION_ DATE	Y	Date station was first added to the Monitoring Catalog.	DATE	N		Water Atlas Staff	Station
DATE_LAST_ UPDATED	Y	Date station information was last updated in Monitoring Catalog.	DATE	N		Water Atlas Staff	Station
DATA_TRANSFER_ METHOD	Y	Method of transferring information to the Monitoring Catalog	VARCHAR2	N	250	Water Atlas Staff	Station
CONTACT_NAME	Y	Name of contact person affiliated with data source.	VARCHAR2	N	100	Data Providers	Project

METADATA ELEMENT NAME	REQUIRED (Y/N)	DEFINITION	DATA TYPE	DOMAIN LIMITED (Y/N)	DATA SIZE	POPULATED BY	INFORMATION LEVEL
CONTACT_ ADDRESS	Y	Mailing address of contact person affiliated with data source (including city, state, and zip code).	VARCHAR2	N	500	Data Providers	Project
CONTACT_PHONE	Y	Phone number of contact person affiliated with data source.	VARCHAR2	N	25	Data Providers	Project
CONTACT_EMAIL	Y	Email address of contact person affiliated with data source.	VARCHAR2	N	100	Data Providers	Project
ACCESS_ CONSTRAINTS	Y	Limitations for obtaining all or part of the data.	VARCHAR2	N	250	Data Providers	Project
USE_ CONSTRAINTS	Y	Disclaimer or cautionary guidance to facilitate secondary use of the data.	VARCHAR2	N	250	Data Providers	Project
KEYWORDS	Y	Set of keywords to help in free-text searches. Must include at least one International Standards Organization (ISO) Topic Category. Default value will be set to "Environment (007)." Domain for ISO Categories: <i>Farming (001) - rearing of animals and/or cultivation of plants, irrigation</i> <i>Biota (002) - flora and/or fauna in natural environments, ecology</i> <i>Boundaries (003) - legal land descriptions, political & administrative boundaries</i> <i>ClimateMeteorologyAtmpsphere (004) - processes and phenomena of the atmosphere</i> <i>Economy (005) – economic activity, conditions, and employment, forestry, fisheries</i> <i>Environment (007) – environmental resources, protection, and conservation, impact assessment, monitoring, water quality</i> <i>GeoscientificInformation (008) – information pertaining to the earth sciences, geophysics, geology, hydrogeology</i> <i>Health (009) – health, health services, human ecology, and safety</i> <i>ImageryBaseMapsEarthCover (010) – base maps, land cover, topographic maps, imagery, annotations</i> <i>IntelligenceMilitary (011) – military bases, structures, activities</i> <i>InlandWaters (012) – inland water features, drainage systems and their characteristics, rivers, lakes, water use plans, dams, currents, floods, water quality, hydrographic charts</i> <i>Location (013) – positional information and services, geodetic networks</i> (continued on next page)	VARCHAR2	N	1000	Data Providers	Project

METADATA ELEMENT NAME	REQUIRED (Y/N)	DEFINITION	DATA TYPE	DOMAIN LIMITED (Y/N)	DATA SIZE	POPULATED BY	INFORMATION LEVEL
		<i>Oceans (014) –features and characteristics of salt water bodies</i> <i>PlanningCadastre (015) – information used for appropriate actions for future use of the land</i> <i>Society (016) –characteristics of society and culture, archeology, religion, demographics, crime and justice, recreation</i> <i>Structure (017) – man-made construction</i> <i>Transportation (018) – means and aids for conveying persons and/or goods, roads, nautical charts, railways</i> <i>UtilitiesCommunication (019) – energy, water and waste systems, and communications infrastructure</i>					
TOTAL_DEPTH	N	To be completed only when STATION_TYPE = “Well-Potable Well” or STATION_TYPE = “Well–Non-potable Well”. The total depth (in feet) of the well.	FLOAT	N	10	Data Providers	Station
CASING_DEPTH	N	To be completed only when STATION_TYPE = “Well-Potable Well” or STATION_TYPE = “Well–Non-potable Well”. The depth (in feet) of the well casing.	FLOAT	N	10	Data Providers	Station