bold italicized text is used to indicate items requiring attention before next meeting

Florida Water Resources Monitoring Council (FWRMC)
Public Meeting of Statewide Council – February 21-22, 2012

Tuesday, February 21, 2012 (1:00pm – 5:00pm)
Attendees (X indicates present):

Agency	Primary Members	In Person	Webinar
DACS	Chris Brooks		
DOH	Bob Vincent	X	X
FWC	Amber Whittle		
DEP	Kate Muldoon		X
NWFWMD	Nick Wooten		X
SRWMD	Megan Wetherington		X
SJRWMD	Aiša Cerić	X	
SWFWMD	Roberta Starks	X	
SFWMD	Linda Crean		X
USEPA	Dave Melgaard	X	
NOAA	Cathy Tortorici		
USGS	Rafael Rodriguez		
FLERA-NW (Escambia Co.)	Keith Wilkins		
FLERA-SR (Alachua Co.)	Chris Bird		
FLERA-SJ (City of Jacksonville)	Vince Seibold		X
FLERA-SW (Manatee Co.)	Rob Brown		
FLERA-S (Miami - Dade)	Susan Markley		X
Vol. Monitoring Programs (FL LAKEWATCH)	Mark Hoyer	X	
Agency	**Alternate Members**	**In Person**	**Webinar**
DACS	Kal Knickerbocker		
DOH	Patti Anderson		
FWC	Paul Carlson		X
DEP	Rick Copeland		X
NWFWMD	Graham Lewis		
SRWMD	Louis Mantini		
SJRWMD	Steven Richter	X	
SWFWMD	Mark Rials		
SFWMD	Julianne LaRock		X
USGS	David Sumner		
FLERA-SJ (Volusia Co.)	Michelle Leigh		
FLERA-SW (Pinellas Co.)	Kelli Levy		
FLERA-S (Palm Beach Co.)	Rob Robbins		
Agency	**Council Chair**	**In Person**	**Webinar**
DEP	Gail Sloane	X	

Agency	Council Liaison	In Person	Webinar
DEP	Stephanie Sunderman	X	X
Agency	**Guests**	**In Person**	**Webinar**
NOAA	Chris Sinigalliano	X	
USGS	Kevin Grimsley	X	
USGS	Marian Berndt		X
USGS	Darrell Lambeth		X
US Army Corps of Engineers	Susan Kemp	X	
DOH	David Polk		X
DEP	David Whiting		X
DEP	Gary Maddox		X
DEP	Jay Silvanima		X
DEP	Diana Bandlow		X
SWFWMD	Jerry Mallams	X	
Escambia Co.	Taylor Kirschenfeld		X
Palm Beach Co.	Eddie Gibson		X
Hillsborough Co. EPC	Tom Ash	X	
City of Jacksonville	Dana Morton		X
FL Pulp and Paper Association	Ron Stewart		X
England, Thims, and Miller	Amy Tracy		X

Introduction
Gail Sloane (GS) welcomed everyone to the meeting and indicated that the meeting would focus on continuing the discussions of progress on action items and current monitoring efforts throughout the state. Specific topics to be covered on Tuesday afternoon include an update from the Salinity Network workgroup, presentations on current monitoring efforts from several agencies, and a discussion on event specific response monitoring coordination.

Salinity Network Workgroup Update
Rick Copeland (RC) gave an update on the Salinity Network (SalNet) Workgroup's Activities.
(Presentation slides can be found in the 2012 archive section of FWRMC website. For a more information on the Salinity Network Workgroup meetings, please see the archived materials from the meetings on 12/14/11 and 2/9/12.)

- Salinity Network workgroup (SalNet) has met three times (October 2011, December 2011, and February 2012)
- SalNet will operate under the guidance of the FWRMC as network of existing networks that are predominantly focused on groundwater (GW) monitoring, but are committed to working closely with surface water (SW) monitoring programs and will consider GW-SW interactions if applicable.
- Action items include
    - Compiling GW site information from USGS, WMDs, DEP, other state agencies, counties, and volunteers
    - Developing a framework document for SalNet
    - Develop indices for GW levels and GW quality

- Have compiled GW site info from WMDs – greatest density of sites in each aquifer system in areas of greatest use (e.g. intermediate aquifer system has greatest density of GW monitoring sites in SWFWMD and SJRWMD)
- Many additional GW monitoring sites exist that are associated with consumptive use permits
- RC is currently discussing the possibility of incorporating volunteer GW monitoring data from FL LAKEWATCH, especially to help fill in gaps in GW level and GW quality monitoring coverage for wells in the surficial aquifer system
- Framework document is being drafted.
    - Includes legal justification from FS 373.026 - Identify areas of the State where saltwater intrusion is a threat to freshwater. Report…to the WMDs, counties and the public
    - Include justification from FWRMC action plan - Improve coordination among monitoring entities. Increase integration of freshwater and coastal monitoring. Create/Sustain collaboration among monitoring entities.
    - Will use EPA 10 elements of monitoring program as a guide
    - Draft preamble, mission statement, goal, and objectives are being edited by the SalNet participants.
- Developing indices
    - Use of percentile ranks for GW levels has support from SalNet participants
    - Will discuss index for salinity at April SalNet meeting
    - Indices will use uniform methodology, be used at a variety of scales, and be recognized by public, policy makers, and scientists.
- Additional issues to be resolved include establishing a decision making process for the SalNet (recommended same process used in Statewide FWRMC), deciding who or what organization will chair the SalNet, and deciding how to address non-salinity related issues that arise during SalNet meetings.

Questions / Discussion:
Roberta Starks (RS) suggested that further discussion of nomenclature for the aquifers and aquifer systems be included in future SalNet meetings and the framework document.

RS asked how the SalNet will tie into the National GW Quality Monitoring Network (NGWQMN) efforts. RC responded that the national group is encouraging states to form their own network of existing networks, so that the state's networks will aid in forming a national network. Both the SalNet and the NGWQMN are interested in compiling GW level and GW quality data.

Steve Richter (SR) asked RC to clarify the time period that the proposed GW level index would be based on. RC indicated that, at the moment, each district that has used this method has specified their own period of record. The group will still need to discuss and agree upon the details of the analysis that will be conducted statewide.

Mark Hoyer (MH) indicated that he is continuing to pursue RC's recommendations, and will be ready to start the volunteer GW monitoring in the near future, after the details of the sampling plan have been approved.

Susan Markley (SM) indicated that there are many additional GW level and GW quality monitoring wells in the Miami – Dade area. ***SM will follow up with RC to submit the additional site information to the SalNet catalog.***

Southwest Florida Water Management District
Roberta Starks (RS) presented information about current monitoring activities at the Southwest FL Water Management District (SWFWMD)
(Presentation slides can be found in the 2012 archive section of FWRMC website.)

- RS is the Bureau Chief of SWFWMD's newly reconstituted Data Collection Bureau, and will summarize internal long-term data collection efforts

- Geohydrologic data collection program
  - Monitor well installation and well logging, repair, back-plugging, and abandonment
  - Aquifer performance testing and collection of lithologic data
  - Regional Observation Monitor Well Program (ROMP) has been collecting data since 1974, and now has 140 sites with approximately 504 wells. Program initiated to determine aquifer geology, hydrology, GW quality, hydraulic properties, and install wells for long term monitoring. Data support water quality and water level monitoring, water supply monitoring, and water use permitting.
  - Special project support: ~150 sites with ~260 wells. Many of these wells are not monitored long-term.
  - Quality of Water Improvement Program (QWIP) provides funding assistance to abandon wells. Since 1974, program has assisted with abandoning over 5,000 wells.
- Hydrologic data collection program
  - GW level monitoring conducted at 1478 district sites and 52 USGS sites. Data used in water supply planning, MFL recovery, hydrologic condition reports (to SWFWMD Governing Board), and special projects.
  - SW stage and flow monitoring conducted at 759 district sites and 164 USGS sites. Data used for FEMA mapping , engineering, MFL establishment and recovery, and water supply planning.
  - Meteorologic monitoring conducted at 186 district sites (178 rainfall, 8 evapotranspiration (ET)) and 2 USGS ET sites. Data used for modeling support, hydrologic conditions reports, and calibration of RADAR rainfall.
- Water quality monitoring program and laboratory analysis
  - Collect data related to biological quality, GW quality, SW quality.
  - Laboratory analyzes for nutrients, trace metals, major ions, physical properties, chlorophyll, and bacteria.
    - NELAC certified and has been performing analyses for 25 years.
    - Greatest degree of accuracy and precision among participating labs in the GOMA split-sample round robin
    - First in the state to successfully implement ADaPT/EDMS data quality tools
    - Manage data pump to SWFWMD WIMS and upload to FL STORET
  - Saltwater intrusion / WUP network has ~320 sites. Data used for water use and well construction permitting, water supply permitting, and various water resource modeling efforts.
  - Springs and recharge basins project monitors 70 springs four times per year and 80 wells once per year to characterize nutrient concentrations in spring basins. Future plans include expanding network to include Crystal Springs in Pasco County and Lithia Springs in Hillsborough Co. Data are used for restoration initiatives and TMDL assessments.
  - Rivers and streams monitoring at ~70 sites (45 sites per month). Network is designed to work cooperatively with counties to eliminate duplication of effort that could be caused by monitoring the same sites. Data used in trend and loading estimates, TMDL assessments, and numeric nutrient development.
- Mapping and GIS program and land surveying
  - Orthophotography serves as foundation to GIS datasets and WMIS, provides regulation support, supports mapping of land use/land cover and seagrass.
  - Land use/land cover supports SWUCA recovery strategy by tracking agricultural land use over time. It's also used for land acquisition / restoration / management and water quality and SW modeling.
  - Topographic mapping supports watershed management program planning, updating FEMA flood insurance rate maps, and digital terrain modeling
  - Land surveying provide support for all mapping projects involved with management and monitoring activities, including bathymetry.

Florida LAKEWATCH

Mark Hoyer (MH) presented information about current volunteer monitoring activities with the FL LAKWWATCH program

(Presentation slides can be found in the 2012 archive section of FWRMC website.)

- Volunteer monitoring program started in 1986. Currently maintaining 580 lakes, 129 coastal sites, 124 river sites, and 5 springs. Dataset includes ~150 lakes with monthly water quality data for ~20 years.
- Program objectives followed land grant university mission – research, extension, and teaching. Program started as a means to collect data on a large number of lakes throughout the state to increase understanding of how lakes function.
- For core baseline data collection and trend analysis, volunteers are trained and equipped to collect water samples and data for total phosphorus, total nitrogen, chlorophyll, and visibility (secchi). Samples are stored (frozen) at county extensions serving as collection centers and analyzed at the LAKEWATCH laboratory in Gainesville.
- Many supplemental research projects focused on areas of volunteer interest including bathymetric mapping, surveys for fish / plants / birds / bacteria, angler diaries, exotic species reporting, augmentation, muck removal, and nutrient criteria.
- Several peer reviewed publications produced from LAKEWATCH data, including three in press related to nutrient criteria for FL lakes.
- Outreach to volunteer community through regional meetings, answering questions, information circulars, LAKEWATCH web site, and production of TEAM Lake Management Plans (Together for Environmental Assessment and Management).
- LAKEWATCH hosts Fishing for Success program where ~15,000 children per year visit stocked fishing ponds at UF for educational programs about fish, invertebrates, etc.
- Over 40 graduate students have been involved in LAKEWATCH program. They have lead additional research efforts and used LAKEWATCH data for thesis projects.
- FL LAKEWATCH was established by 1993 legislature
- Quality / Use of volunteer collected data
    - Would like to see volunteer data included in the new STORET database, with a qualifier indicating that it is tier two data – appropriate for background information and trend analysis, but should not be used in regulatory proceedings
    - Comparison study of freezing vs. fresh samples – samples thawed and analyzed in 30 day intervals for 180 days. pH changed overtime. No change in chlorophyll, total phosphorus, total nitrogen, total alkalinity, or specific conductance. Supports use of freezing instead of acid preservation for nutrient, chlorophyll, and alkalinity samples.
    - Comparison studies of professional samplers vs. volunteers collecting samples at same site and time. 1993 study = no significant difference in any analytes. 2011 study = chlorophyll and total nitrogen not significantly different, but total phosphorus is significantly different (same slope with 1.5 ug/L difference).
    - Variance among replicate samples at same lake is very small (<5%) – supports devoting resources to monitoring more lakes instead of collecting more replicates.

National Oceanographic and Atmospheric Administration

Chris Sinigalliano (CS) presented information about current monitoring activities at the National Oceanic and Atmospheric Administration (NOAA)

(Presentation slides can be found in the 2012 archive section of FWRMC website.)

- Many national monitoring efforts focused on National Ocean Service (NOS), supported by the National Centers for Coastal & Ocean Science (NCCOS), through the Center for Coastal Monitoring & Assessment and the Center for Sponsored Coastal Ocean Research. Many regional and local efforts supported by the Office of Oceanic & Atmospheric research.
- National long-term programs that incorporate FL
    - Conducted as public-private-academic partnerships, where much of the work is conducted by Universities cooperating with NOAA

  - Mussel Watch program (through NOAA National Stats & Trends)
    - Longest nationwide contaminant monitoring program in US coastal waters
    - Goal is to support ecosystem based management, assess current status and detect changes in conditions, and inform local management decisions.
    - Objectives are to provide coastal managers with national context to measures of local and regional environmental condition, to quantify and assess broad scale spatial and temporal trends in coastal contamination, and to provide a baseline to assess impacts of anthropogenic and natural events, including chemical spills, tropical storms, and hurricanes.
    - Over 300 sites nationwide with 150 contaminants - sediments sampled every 10 years and half of sites have bivalve tissue sampled annually. Additional event specific sampling occurs as needed.
  - Harmful Algal bloom (HAB) research & forecasting project
    - Samples often collected by local partners (e.g. FWC, MOTE Marine Laboratory) and analyzed for chlorophyll-a and cell counts
    - MODIS satellite imagery (ocean color data) and forecasted weather data also used
    - Data collected used to inform HAB forecasting models
    - *Karenia brevis* is the primary HAB species monitored in FL waters – goal is to monitor the extent of blooms and predict (3-4 days in advance) location, transport, and potential public health impact at beaches
  - GOM Hypoxia Assessment
    - Many small hypoxia zones at outfalls of rivers around FL
    - Objectives are to provide assessment of the causes and consequences of GOM hypoxia, to generate quantitative information that can be used in management and mitigation strategies, and to provide baseline data to assess changes over time
- NOAA National Estuarine Research Reserves (NERRs)
  - 3 NERRs in FL (Rookery Bay, Apalachicola, & Guana Tolomato Matanzas)
  - Organized and funded by NOAA, but operations and sampling conducted by local partners
  - Reserve-wide (nationwide) water quality monitoring network (SWMP) began in 1995 – central data management office is at University of SC – real time stations and monthly sampling
  - Objectives are to assess short-term variability and long-term changes in estuarine regions, to gain a better understanding of how human activities and natural events change coastal ecosystems, to provide resources (monitoring network data and reserve facilities) for researches
- NOAA National Marine Sanctuaries - FL Keys National Marine Sanctuary (NMS)
  - NOAA is starting to implement System Wide Monitoring program (SWiM), but FL Keys (NMS) are not yet included
  - FL Keys NMS has active water quality monitoring since 1995, conducted by local partners
  - Monthly and quarterly sampling of nutrients and physical parameters, with additional short-term monitoring of “hot spots” for specific parameters
- NOAA Atlantic Oceanographic & Meteorological Laboratory (AOML)
  - South FL Program (SFP) for ecosystem assessment
    - Conducting long-term monitoring to produce a comprehensive, long-term baseline regarding regional circulation, salinity, water quality, and biology
    - Bi-monthly bay-wide shipboard surveys, moored oceanographic buoys, & drifter deployments
    - Parameters include chlorophyll-a, dissolved inorganic nutrients, salinity, CDOM, & primary productivity in zooplankton
  - Florida Area Coastal Environment Program (FACE) on SE FL shelf
    - Focuses on identifying sources of various chemical species in coastal ocean (anthropogenic contamination, upwelling, discharges, etc)
    - Annual regional cruises and many short-term area specific studies
    - Parameters include nutrients, microbiology, outfall plumes, & ocean currents
  - Inlet flux studies

- Gulf stream eddies
- Microbiology assessment programs
- Ocean acidification
- CREWS/ICON automated monitoring stations coupled with coral studies

Questions / Discussion:
SR asked if mollusk sampling was also conducted on the west coast of the United States. CS indicated that the Mussel Watch program has extensive sampling on both coasts, and other programs also monitor bivalve tissue in specific areas or more frequently to address specific questions.

SR asked what labs are used for conducting chemical analyses in many of the NOAA projects. CS indicated that it depends on the program type, scope, and scale. Most analyses are conducted at NOAA labs. AOML has a low sensitivity nutrient lab, and other labs have instruments developed at NOAA using wave guide fluidics to conduct very low level ammonia analyses. FIU, NOVA Southeastern, University of Miami, and contract NELAC labs are also used.

Kevin Grimsley (KG) asked what the decision making process is for determining smaller areas where detailed studies are conducted. CS indicated that it depends on the program, but collaborations with local partners play a major role. Anthropogenic impact study sites in the FACE program were identified as high priority by DEP and DOH. NOAA functions through cooperative institutes (in FL, Cooperative Institute for Marine and Atmospheric Studies is administered out of University of Miami and includes many other Universities).

Comprehensive Everglades Restoration Plan
Susan Kemp (SK) presented information about south FL restoration efforts and the Comprehensive Everglades Restoration Plan (CERP)
(Presentation slides can be found in the 2012 archive section of FWRMC website.)

- CERP goal is to restore meandering Kissimmee River, reduce flow through Caloosahatchee and St. Lucie rivers, and redistribute flows through canal system to increase sheet flow through the everglades
- CERP implementation
  - Three phases: foundation projects, 1st generation CERP projects, and 2nd generation CERP projects
  - 68 components to be implemented over 35 years (reservoirs, aquifer storage & recovery, stormwater treatment areas, seepage management, removing barriers to sheetflow such as levees and canals, wastewater reuse, and operational changes)
- RECOVER (Restoration Coordination and Verification) = multi-agency, multi-disciplinary team of scientists, modelers, planner & resource specialists
  - Role in CERP is to organize, analyze and apply scientific and technical information in support of achievement of system-wide goals of CERP
  - Authorized in CERP Programmatic Regulations
  - Principles: Science-based, restoration focus, collaborative, accountability, adaptive management
  - 12 partners (federal agencies, state agencies, tribes). US Army Corps of Engineers (US ACE) and SFWMD are two implementing agencies (50/50 cost share between state and federal governments)
- Monitoring and Assessment Plan (MAP) (RECOVER project)
  - Adaptive assessment and monitoring authorized by Water Resources Development Act of 2000 and CERP Programmatic Regulations
  - Original MAP developed in 2004, based on decades of science
  - MAP built upon existing monitoring and research to fill gaps necessary for successful system-wide ecosystem restoration
  - Single, integrated plan used and supported by all agencies and tribes to track and measure restoration performance

  - MAP revised in 2009 – emphasized linkage between science and decision making, updated monitoring plan, addressed changing priorities based on deliverable schedule, and incorporated project-level monitoring as projects were being implemented
  - Monitoring components include: Stage/flow, Ground/surface water quality, Submerged aquatic vegetation, Oysters, Shrimp, Estuarine/freshwater fish, Birds, Trophic-level integration, Vegetation mapping, Landscape patterning, Tree island dynamics, Crocodiles/Alligators, Sediment deposition
  - Funding this year = ~ $4.2 million with US ACE contributing $3.7 million (MAP 2009 recommended $7.9 million at minimum)
- System Status Report (SSR)
  - Formal assessment of data generated from the RECOVER MAP
  - Status, condition, and trends of hydrological, water quality, and biological data critical to Everglades restoration
  - Report produced every 2-5 years to establish pre-CERP reference conditions, and ultimately determine whether the goals and objectives of CERP are being met (most recent was 2009, next will be 2014)
  - Address the overall status of the ecosystem relative to system level hypotheses, performance measures, and restoration goals
- CERP data management tools
  - CERPZone = password protected website for all collaborators to store and access information (documents, monitoring data, and GIS data)
    - Monitoring data and project metadata is uploaded using MORPHO
    - EGRET (EverGlades Restoration data Extraction Tool) used to query data and display results in tabular or map format, also allows users to download data

Questions / Discussion:
SK noted that gaps in monitoring apparent in other presentations could be filled by collaborating with US ACE (CERP, Jacksonville District, or Mobile District), NPS, US FWS, tribes, and universities.

GS asked who the primary contact would be for some of these organizations. SK indicated that members could contact her and she would help them to locate the appropriate contacts. Joe Boyer would likely be the primary contact at FIU.

SK and other members of the group commented that many different catalog efforts are underway (NOAA Digital Atlas, GOMA Catalog of Monitoring Programs, FWRMC catalog effort) and all efforts need to coordinate and integrate to make sure that catalogs will be able to share information with each other. For example, the Deepwater Horizon database and the CERP database were similar but separate projects that were developed at the same time. Concurrent efforts may have different features, answer different questions, or be accessible to different audiences, but at least the developers from those efforts can collaborate to share technology.

GS and KG noted that many of the existing catalogs contain the actual monitoring data, but the FWRMC effort can serve the important role of collecting information and then providing links to where actual data is.

SK cautioned that it can be difficult to get data providers to respond and update information in catalog, as was the case with the CERP Monitoring Locater project, which referenced a static database of project information. GS agreed that hosting the catalog, updating the monitoring information, and updating the software will be challenging and come at cost.

DEP Deepwater Horizon Oil Spill Update / Summary
David Whiting (DW) presented information about DEP's monitoring activities associated with the Deepwater Horizon Oil Spill
(A list of websites included in the live demonstration can be found in the 2012 archive section of FWRMC website.)

- DEP was designated lead FL state agency for Deepwater Horizon (DWH) oil spill response, and DEP Division of Environmental Assessment and Restoration (DEAR) was tasked with providing DOH with petroleum related analytical data and providing field support so that DOH could determine what the potential public health threats were for persons visiting FL beaches
- Beach water monitoring was initiated on 5/1/2010
- DEAR resources were also used to collect baseline data prior to oil reaching FL (collected samples along coast from Pensacola to east coast). Some samples sent to NOAA contract laboratory and some processed at DEP central laboratory.
- Collected samples of oil, water at known distances from oil, and visibly clean sand and water. (DOH instruction to beach goers was to avoid sand and water that had been visible oiled. Sample collection designed to test if those following instructions were still being exposed to unacceptable levels of contamination.)
- DWH response website (http://www.dep.state.fl.us/deepwaterhorizon/default.htm) contains links to water sampling data (http://www.dep.state.fl.us/deepwaterhorizon/water.htm) as tabulated results of petroleum contaminant detections for all sampling events.
- DEP contracted with Columbia Analytical Services who had developed method for detecting a component found in dispersant (Corexit 9500 / DOSS / dioctyl sodium sulfosuccinate)
- Summary of 2010 monitoring season:
    - Most detections occurred in late June – early July when rough weather / surf brought oil up onto the beach and dispersed it throughout the water column, but concentrations observed did not exceed EPA's human health thresholds
    - Escambia Co. / Santa Rosa Co. had 18 of 160 samples containing measurable concentrations of petroleum
    - Okaloosa Co. / Walton Co. had 1 of 119 samples containing measurable concentrations of petroleum
- Sampling discontinued after August 2010 because detects had not been observed recently
- Sampling conducted again in February 2011-August 2011 (bathing season)
    - DEP DWH data website (http://www.dep.state.fl.us/deepwaterhorizon/data.htm) allows users to select the county, site, and sampling date of interest for viewing results of analyses for dispersant constituents and petroleum contaminants
    - Analysis allowed DOH to advise that compounds were not present and no significant human health concerns were present
    - 2011 sampling had only sporadic hits of one petroleum contaminant, which did not have the same signature as the DHW oil
- Over 1,300 water and sediment/sand samples collected during 2010-2011
- No additional routine monitoring related to DWH oil spill anticipated

Questions / Discussion:
Paul Carlson (PC) asked if DEAR data were incorporated into NRDA or EPA databases. DW indicated that all data were uploaded to EPA's SCRIBE database.

PC asked if NRDA and SCRIBE did a crosswalk of their databases. DW indicated that he was not aware of any crosswalk efforts.

GS asked DW to provide an update on the SCAT (Shoreline Cleanup Assessment Techniques) reports. DW indicated that DEAR is monitoring those SCAT reports, and they have indicated that the cleanup effort has reached a level indicating that no additional action is necessary. Teams continue to monitor shorelines and remove debris as needed.

Discussion: sharing information related to event specific response monitoring communication and coordination
GS indicated that during the last Statewide FWRMC meeting, there was some interest in discussing event specific response coordination and possibly forming a workgroup related to those efforts.

GS summarized that during the DWH oil spill there were several response centers around the Gulf of Mexico, including several smaller centers in FL. These centers were coordinating many aspects of the response including resource protection (boom placement, etc) and cleanup efforts. However, there was also a need to coordinate the water resource monitoring that was taking place in response to the event. The NRDA approach was very different than the monitoring that DEP DEAR was conducting. DEAR did assist with some of the baseline monitoring in some of the bays and in the keys. For the response, DEAR had a network of samplers that could be called to sample when reports of oil came in. As the sampling coordinator, GS has an email chain of people from EPA, NOAA, etc. to discuss who was collecting shoreline and sand samples so that DEAR would be able to assist other agencies if they needed samples collected quicker than they could mobilize their resources. Sampling information was posted at FL emergency centers. GS asked what additional coordination could have been done, and suggested that a phone tree could be formed to assist with communication during events.

RS indicated that there are several tests and certifications that were required in order to be reimbursed for event response efforts, and suggested that someone from incident command could speak at a future FWRMC meeting about these requirements and the approval and reimbursement process. CS indicated that the National Response Center is the federal point of contact for such events. ***CS will send information on the National Response Center to GS, and GS will compile and share some of the emergency response contacts / information for FL.***

GS indicated that there is an interest in making sure the data are available, making sure different agency's communicate with each other about their monitoring efforts, and being able to engage resources quickly. KG indicated that forming a chain, coordinated by a national or regional (e.g. GOM) group, to share information may be very beneficial, but may be complex because of the large internal structure at some of the larger agencies. CS added that setting protocols ahead of time will help with coordination and minimize startup efforts at the onset of events.

Questions / Comments / Open Member Dialog

Susan Kemp (SK) presented a live demonstration of the CERPZone and EGRET online applications

- EGRET uses Microsoft Silverlight
- All data is not yet present because CERP is still in the process of uploading the past ten years of data into CERPZone/EGRET
- Can perform spatial query using box tool, then filter results using date range, etc.
- Results are shown on map and in table with tabs for each record showing the site information (metadata) and data, organized by type, for each site (tabs are grayed out if that data type is not available at a site)
- Would like to have links to reports and photos associated with sites
- USGS and NDRA have the ability to have live linked tablet computers in the field that input data directly to the holding area of the database

SR asked if there is a key describing what the table headers mean. SK indicated that they still need to develop a metadata sheet to explain elements of the database like column headings.

SK noted that CERP requires all principal investigators to follow state of FL SOPs. If there is no FL SOP for a component of a project, CERP will create one.

RS asked how the CERPZone database was created. SK indicated that it was created by contractors working for the dual funded (US ACE/SFWMD) IT group.

MH asked why CERPZone is not available to public access. SK indicated that they were trying to alleviate concern by principle investigators (PIs) that public access would make it easier for others to use their data for publications similar to those that the PIs were working on. The data is still available to the public, but only by completing a public records request.

GS commented that tools like this will be key for enabling managers to use all of the information being gathered.

RS asked if this system is used on the front end to look for existing sites to use for a new study. SK indicated that it is possible to do that and ideally you could use the site ID to link the two projects.

Aiša Cerić (AS) asked what the process is for starting a new project. SK indicated that once the CERPZone database is populated, people will be able to use online tools to see how their project may fit into existing projects being done, but for now there is still a lot of offline discussion between project managers and planners required.

RS asked if the CERP data is entered in FL STORET. SK indicated that US ACE data is not entered into STORET, but data from some partner agencies (SFWMD, Miami-Dade, etc.) is. Julianne LaRock (JR) indicated that data from SFWMD's DBHYDRO does get uploaded to FL STORET.

RS commented that common metadata attribute tables must be devised that make it easier for uploading and updating information. GS indicated that metadata standards were developed by the original FWRMC and the FL Oceans and Coastal Council (FOCC), and can be found at http://www.floridaoceanscouncil.org/reports/idm.htm.

MH commented that the FWRMC should continue to focus its efforts on metadata information only, and not try to host data. Entering data is time consuming and requires a larger commitment from the data providers, but getting metadata with link to data or contact information for data provider will be a good first step. Many smaller entities may not be included in larger catalog projects yet.

SR disagreed and commented that a universal database, not just metadata, is needed for data users to be able to understand the data because it will all be in one place and has been standardized.

SK added that CERP had many of these same discussions. They decided that if the data was already stored in large publically accessible databases (NWIS / STORET / DBHYDRO) then CERP would not duplicate the data. CERP still needed to add site information to its own database, but they were then able to link to remote databases using station names as links. In the future, the CERP database will have live links to all remote databases to ensure that the data queried is the most recent version.

RS commented that there is an open source software program that can be used to merge databases that may be useful for these cataloging efforts.

GS commented that DEP Water Information Network (WIN) (the replacement for STORET) is several yrs out from implementation, but discussions are ongoing to include metadata fields and biological and GW information.

GS asked SK if there is a way to make CERP site information (not data) available to a larger audience. SK cautioned that the monitoring catalog will have same problems as CERP's old monitoring locator application if the database is static. Live links to databases are needed because data providers won't update their information often.

Suggestions for new workgroups:
1. Statewide coastal monitoring network
2. Group to compile existing statewide surface water trend monitoring locations

GS indicated that there is no coordinated statewide coastal monitoring effort throughout the state of FL. Both the Gulf of Mexico Alliance (GOMA) and the South Atlantic Alliance (SAA) are tasked with coordinating coastal monitoring in their respective regions. FWRMC could help ensure coordination throughout FL and between regions.

SM asked for clarification of what areas coastal monitoring network would be interested in gathering monitoring information from. We will first need to define coastal vs. offshore. GS indicated that the group could use the extent of state waters for FL (9 miles on the west coast and 3 miles on the east coast). GS noted that this is a very important point, as criteria for waters of varying distances from shore are often different (sometimes orders of magnitude different).

It was asked if coastal GW monitoring efforts would be included. GS indicated that the focus would likely be on waters that have environmental health standards, and efforts to integrate GW resources that must also meet drinking water standards would need special consideration. Models and transport studies may be helpful for tying these resources together, and at minimum, all types of data collection efforts can be documented in the monitoring catalog effort.

RS indicated that there were estuarine and nearshore monitoring efforts that have been ongoing since the 1990s, using the LAKEWATCH SOPs. MH indicated that LAKEWATCH had a grant for coastal volunteer monitoring, many volunteers were trained, but funding was not maintained. However, some areas have found their own sources of funding and continue to collect data.

GS indicated that she has already asked GOMA participants from each state to send her the station locations for their long term coastal monitoring.

GS asked FWRMC members to submit feedback regarding interest in participating in either of the new workgroups to her and Stephanie Sunderman (SS).

Wednesday, February 22, 2012 (8:30am – 12:00pm)
Attendees (X indicates present):

Agency	Primary Members	In Person	Webinar
DACS	Chris Brooks		
DOH	Bob Vincent		X
FWC	Amber Whittle		
DEP	Kate Muldoon	X	
NWFWMD	Nick Wooten		X
SRWMD	Megan Wetherington		
SJRWMD	Aiša Cerić	X	
SWFWMD	Roberta Starks	X	
SFWMD	Linda Crean		X
USEPA	Dave Melgaard	X	
NOAA	Cathy Tortorici		
USGS	Rafael Rodriguez		
FLERA-NW (Escambia Co.)	Keith Wilkins		
FLERA-SR (Alachua Co.)	Chris Bird		
FLERA-SJ (City of Jacksonville)	Vince Seibold		X
FLERA-SW (Manatee Co.)	Rob Brown		X
FLERA-S (Miami - Dade Co.)	Susan Markley		X
Vol. Monitoring Programs (FL LAKEWATCH)	Mark Hoyer	X	

Agency	Alternate Members	In Person	Webinar
DACS	Kal Knickerbocker		
DOH	Patti Anderson		
FWC	Paul Carlson		X
DEP	Rick Copeland		X
NWFWMD	Graham Lewis		
SRWMD	Louis Mantini		
SJRWMD	Steven Richter	X	
SWFWMD	Mark Rials		
SFWMD	Julianne LaRock		X
USGS	David Sumner		
FLERA-SJ (Volusia Co.)	Michelle Leigh		
FLERA-SW (Pinellas Co.)	Kelli Levy		
FLERA-S (Palm Beach Co.)	Rob Robbins		
Agency	**Council Chair**	**In Person**	**Webinar**
DEP	Gail Sloane	X	
Agency	**Council Liaison**	**In Person**	**Webinar**
DEP	Stephanie Sunderman	X	X
Agency	**Guests**	**In Person**	**Webinar**
NOAA	Chris Sinigalliano	X	
USGS	Kevin Grimsley	X	
USGS	Marian Berndt		X
USGS	Bryan McCloskey	X	
US Army Corps of Engineers	Susan Kemp	X	
FWC	Ryan Moyer	X	
DEP	Gary Maddox		X
DEP	Diana Bandlow		X
SJRWMD	Tom Mirti	X	
SWFWMD	Jerry Mallams	X	
SWFWMD	Carol Kraft	X	
Palm Beach Co.	Eddie Gibson		X
Hillsborough Co. EPC	Tom Ash		X
Lee Co.	Keith Kibbey	X	
Univ. South FL	Jim Griffin	X	
FLERA	Richard Tschantz	X	
FL Pulp and Paper Association	Ron Stewart		X
England, Thims, and Miller	Amy Tracy		X

Introduction
Gail Sloane (GS) welcomed everyone to the meeting, and indicated that specific topics to be covered on Wednesday morning include presentations and discussion related to the FWRMC monitoring catalog effort and the formation of the FWRMC Regional Councils.

Monitoring Catalog Workgroup Update
Kate Muldoon (KM) gave an update on the Monitoring Catalog Workgroup's activities.
(Presentation slides can be found in the 2012 archive section of FWRMC website. For a more information on the Monitoring Catalog Workgroup meetings, please see the archived materials from the meetings on 1/11/12.)

- The FWRMC action plan identifies the need for a statewide Catalog of Monitoring Programs for: aiding in aligning freshwater and coastal monitoring efforts, serving as a starting point for assessing metadata/data comparability, minimizing duplication of efforts, leveraging resources between different monitoring programs, and aligning SW and GW monitoring efforts.
- The FWRMC monitoring catalog effort should take advantage of the time and resources that other projects have devoted to similar efforts, look for guidance from their experiences, and take advantage of the cost efficiency associated with using an existing platform.
- The Monitoring Catalog Workgroup has reviewed over 15 existing catalogs and atlases, to identify applications that had easy to navigate user interfaces, the ability to search metadata from program and project information, and the ability to individual entities to upload/update information on their stations/metadata.
- Three of these existing applications were evaluated at the 1/11/2012 Workgroup meeting.
    - SJRWMD Environmental Data Retrieval Tool http://webapub.sjrwmd.com/agws93/edqt_pub/
    - SFWMD Data Portal http://www.sfwmd.gov/portal/page/portal/xweb%20environmental%20monitoring/dbhydro%20application
    - Comprehensive Everglades Restoration Plan (CERP) EverGlades Environmental data Retrieval Tool (EGRET)
- Created report card to summarize review of existing applications, to be used in discussions of workgroup progress with upper management.
- CERP EGRET, Water Atlas, and USGS SOFIA had many of the features that the group was interested in, so experts from those organizations were called in to give demonstrations at this meeting.
- Summary of recommendations for three major criteria that the application selected for the FWRMC monitoring catalog will have
    - Interface
        - Focus of the application has been defined – to display monitoring stations and their associated metadata
        - Spatial component should be a main focus (information should be tied to stations instead of projects/programs)
        - Need to define common interface, including platform, place mark styles, and balloon content
        - Need to define common information to be displayed in catalog or place marks (location name, latitude, longitude, description, parameters available, period of record, etc.)
        - Need to partition monitoring information into historical vs. current (active vs. inactive stations)
        - Need to provide links to organizations' websites where data can be downloaded. FWRMC effort will only include information about monitoring programs and stations and will not include the actual data being collected.
    - Metadata searchability
        - The following elements are desirable: data quality objectives, station locations, frequency of sampling, period of record, organizations responsible for sampling &

data management, links to organizations' websites and data, links to other types of data such as flow data from USGS
        - Need to decide on analytes & analyte groups/categories. May want to use lists from other efforts such as the GOMA Catalog of Monitoring Programs to inform this effort.
    - Individual entity metadata uploads
        - Need strategy to maintain continuity in data collection when monitoring is transferred from one agency to another.
        - Need strategy to include as many organizations as possible
        - Need to develop a strategy for data/metadata management where agencies are responsible for their own information
        - Can encourage agencies to frequently upload & update their own information and/or create live links to other databases where available.
- Additional logistical considerations
    - Need to use an existing database that includes all of the types of information that the site will access. Without that existing structure, application design would be much more complicated
    - Need to work out the logistics of information assembly. For example, KML files can be created for subsets of a database's information.
    - Need to decide what existing/developing efforts to collaborate/integrate with. Suggestions include collaborating with GOMA/SAA Catalog of Monitoring Programs, USF Water Atlas, or other existing applications.
- Next steps will be to develop storyboards showing process steps and a timeline for how to proceed.
    - "Strawman" timeline suggests that the FWRMC effort could be functional by January 2014
- Need to start looking at strategies and options for developing the catalog and gaining upper management support / funding / collaboration for the catalog effort
    - Preliminary discussions with DEP upper management have indicated that there is some interest in an effort that the FWRMC catalog may be able to dovetail with

Questions / Discussion:
SR requested that lists with suggestions for analyte groups be distributed as appropriate.

Water Atlas
Jim Griffin (JG) presented information about the Water Atlas program (www.wateratlas.org)
(Presentation slides can be found in the 2012 archive section of FWRMC website.)

- Goals of FWRMC and Water Atlas program are very similar
- Water Atlas is part of USF School of Architecture and Community Design, FL Center for Community Design and Research, which has a focus on sustainable communities
- Web portal has recently undergone redesign using ESRI products, Google Maps, and Bing Maps.
- Water Atlas covers over 11,000 sq mi in FL, with information on over 7,000 ponds, lakes, river reaches, and coastal waters
- Focus is on mapping - the atlas database is spatially related. Every water body has its own page, and every page has its own map.
- Near real time data is included in Water Atlas, where available
- Field group collects information as needed (e.g. lake and river monitoring in Hillsborough Co. - bathymetric mapping, flow analysis, vegetation mapping, water quality)
- Content management groups adds relevant event and news information
- Digital library (content added by Water Atlas staff and partners) – adding spatial component to documents in library through project with New College
- Atlas includes volunteer data – volunteers can upload data and view data in a variety of ways
- Sarasota Bay Estuary Program project added report for bay conditions and a wiki for coastal systems. Report includes "pass" or "alert" for chlorophyll a, nitrogen, and phosphorus, with alert indicating a yearly mean value above the threshold.
- Water quality contour mapping now available with additional features for Tampa Bay, Sarasota Bay and Charlotte Harbor. Interactive seagrass coverage also available in bays.
- Atlas has new social media connections.

- All data presented in the Water Atlas has metadata about each station and the source agencies/programs.
- Data undergoes QA process where questionable data are flagged and hidden from public view until data provider follow up is complete.

Questions / Discussion:
MH asked what the cost might be for getting statewide information into a usable format as part of the Water Atlas, and what the expected lifetime is for the software used in the Water Atlas. JG indicated that the Water Atlas has been in production since 1997. The software has changed several times throughout the course of the project, but the university's discount greatly reduces the cost. The cost for sponsored areas to participate in the program is for design and maintenance. Additional sources with real time connection can easily be incorporated into the Atlas.

MH asked if others can add station information to public view. JG indicated that the Atlas has a feature called Watershed Excursion where educators can submit information to create custom sites with new stations.

JG indicated that the whole Charlotte Harbor Estuary Program atlas was added for $70,000, with an annual maintenance cost of $50,000 to support staff working with data providers, GIS, web design, content management, and data management.

South Florida Information Access (SOFIA) System / Everglades Depth Estimation Network (EDEN)
(Bryan McCloskey (BM) presented information prepared by Heather Henkel about the SOFIA (http://sofia.usgs.gov) and EDEN (http://sofia.usgs.gov/eden) online applications and tools
(Presentation slides can be found in the 2012 archive section of FWRMC website.)

- Problem: large suite of South FL data sets and projects from multiple agencies, projects can be transitory, and data management is not always a priority
- Solution: provide data management support and bring all data together in one cohesive publically accessible place
- Funded through Greater Everglades portion of USGS Priority Ecosystem Science (PES) program
- SOFIA established in1996 to facilitate exchange of information in south FL, in support of research, decision-making, and resource management
- Includes USGS PES & other federal, state, & local governments, universities, and NGOs
- Purpose: single place for all to access up-to-date and historical information
- SOFIA website provides access to project proposals, publications, data, FGDC compliant metadata, current events, outreach programs, and personnel
- Additional components include:
    - Clearinghouse for South Florida Restoration Science Forum
    - Hosting DOI Science Plan in support of Ecosystem Restoration, Preservation and Protection in South FL
    - SOFIA News (email newsletter for new publications, data sets, and upcoming events)
    - Loxahatchee NWR Enhanced Water Quality Monitoring and Modeling website
    - Tides and Inflows in the Mangroves of the Everglades (TIME) website
    - EDEN (integrated network of real time water level monitoring, ground elevation modeling, and water surface modeling)
- SOFIA is updated several times per week
- Over 180 projects in database (listed by title, investigator, region, or topic) with each project page linking to all associated information
- 900 publications in database (most available on SOFIA), searchable by topic, type, author, or full text
- Data exchange organized by topic (Biology, Chemistry, Ecology, Geology, Geography, Modeling, Hydrology, GIS Data) and provides access to data (raw data and interpreted results), format, methodology, location maps, site listings, photos, sampling frequency, and period of record
- South FL Hydrology Data Download tool provides access to 74 stations (through Google Map with station metadata) with 11 water system variables with real time and daily data (through USGS NWIS)

- Metadata library has over 230 projects (dedicated SOFIA staff for maintaining FGDC metadata) – accessible through SOFIA, FGDC clearinghouse, and Geospatial One Spot websites
- Coming soon to SOFIA: Aquatic Cycling of Mercury in the Everglades Data Download tool and Carbonate Aquifer Characterization Laboratory website
- EDEN = integrated network of real time water level monitoring, ground elevation modeling, and water surface modeling that provides scientists & managers with online water depth information for the entire portion of the Greater Everglades from 1990-ppresent
    - Provides consistent, documented hydrologic data at a scale used by biologists and ecologists
    - 300 water level gauges providing hourly measurements. Daily median values entered into EDEN model to extrapolate full surface water level coverage as 400m by 400m grid.
    - Data can be combined with digital elevation model to create depth measurement surface.
    - Real-time processing of water surfaces with 4-day delay to allow for quality assurance
    - EDEN data (from USGS, NPS, SFWMD, USFWS, UF, FAU, FIU) available: water level, land surface elevation, vegetation data, rainfall, evapotranspiration, depth (derived), days since dry (derived), and slope (derived)
- EDEN websites provide access to station data, maps, and water surface and digital elevation models
- EDEN apps tools allow users to view EDEN data online (users do not need ArcGIS to use data) using Data Viewer, xyLocator, Transect Plotter, Depth & Days Since Dry, and conversion tools

Questions / Discussion:
KM asked if the EDEN model was developed in house. BM indicated that it was developed largely in house, with collaboration from universities.

KG asked how the EDEN team fits into the USGS organization structure. BM indicated that most staff are located in St. Petersburg, some are in Jacksonville, and much collaboration is done with Ft. Lauderdale office. The project is largely funded through USGS PES.

AS asked if the EDEN model can be used for other areas. BM indicated that the model is based on a kriging extrapolation and should be able to be used with any network with sufficient gauging station coverage.

SM asked for more information on the possibility of extending the EDEN model into coastal areas. BM indicated that there is a lot of other data available on SOFIA related to GW levels, intrusion, and GW-SW interactions. Hydrology data is currently available through NWIS, but there is currently not a model or extrapolation available for the coastal area.

Discussion: FWRMC monitoring catalog effort
RS asked JG if the maintenance cost for a statewide metadata effort would be less than the figures cited for Charlotte Harbor because there would be no actual data to maintain so frequently. JG indicated that it may be less but the Water Atlas could give a better estimate if the FWRMC submitted a summary of the project scope to them. RS asked where any additional funding for the Water Atlas comes from and JG indicated that all of their funding comes from the atlas sponsors and supporters.

RS asked JG if the FWRMC effort would be able to capitalize on the work already being done. JG indicated that the team always takes advantage of other resources and templates that have already been developed, but the team still needs time to make sure new information is able to function within the templates.
SR asked JG if any single exceedance of the three thresholds (chlorophyll, nitrogen, or phosphorus) triggers an “alert” status for a site. JM indicated that an alert is triggered when the threshold is exceeded for at least one parameter. The program has been developed to accommodate changes in thresholds, if changes occur to the numeric nutrient criteria referenced.

RS commented that another desirable feature of the Water Atlas was the information displayed in the pop out while hovering over a station. JM indicated that tools like these pop outs are used a lot to make

information simple enough for public to understand, while still giving users the option to use additional features available elsewhere for scientists.

KG asked if the Water Atlas includes historical data. JM indicated that it includes legacy data whenever available, and the historic documents available in the Digital Library provide more historical context. KG asked if the Water Atlas relies on cooperators to provide data or information, or if the Water Atlas staff search for resources on their own. JM indicated that they leave the selection of information up to the sponsors and partners.

Southwest FL Regional Ambient Monitoring Program (RAMP)

Keith Kibbey (KK) presented information about the Regional Ambient Monitoring Program (RAMP) (Presentation slides can be found in the 2012 archive section of FWRMC website.)

- Ramp established to help fulfill Tampa Bay National Estuary Program (TBNEP) data requirements – establish baseline conditions, monitor chemical and biological parameters, use data to establish and verify models, measure effectiveness of management actions, and estimate long-term needs
- TBNEP workshop held in 1992 to develop specific monitoring objectives - to measure the effectiveness of management actions and programs implemented under the CCMP and to provide information that can be used to redirect and refocus the management plan over time
- In 1993, DEP SWAMP called for regional coordination, TBNEP partners adopted a monitoring design for Tampa Bay, and Tampa Bay Benthic Monitoring Program was implemented. Resources were limited for this program and duplication of sampling effort was occurring.
- In 1994, the first southwest FL RAMP meeting was held to provide overview of many state and local monitoring programs and increase coordination and efficiency by sharing sampling resources by intercalibrating the core parameters and evaluating field and lab methods.
- RAMP objectives - establish core parameters, standardize monitoring activities, evaluate/standardize methodologies, and minimize duplication and economize
- Core parameters: Field – temperature, dissolved oxygen, conductivity/salinity, pH, transparency; Lab – turbidity, true color, ortho-P, total P, nitrate, nitrite, ammonia, total Kjeldahl nitrogen , total suspended solids, chlorophyll a
- In 1998, RAMP participants expanded to include Lee Co. / Charlotte Harbor NEP/ City of Cape Coral / Charlotte Co. / Collier Co. / City of Marco Island
- Accomplishments:
    - Continued Tampa Bay Synoptic Benthic Monitoring Program (annual sampling since 1992)
    - Implementation of Regional EMAP
    - Quarterly interlaboratory comparisons since 1996
    - Evaluation of analytical methodologies
    - Promote RAMP concepts within SWFWMD Comprehensive Watershed Management Plans
    - Provide RAMP concepts to TMDL legislative technical advisory committee
    - Developed seagrass transect monitoring program
- In 2005, revised RAMP mission - to foster cooperative participation of regional monitoring program staffs to improve comparability of surface water sample collection, in situ field measurements, and laboratory methods used by surface water quality monitoring programs in southwest Florida marine and freshwater systems
- Current RAMP goals:
    - To provide enhanced communication and dissemination of information about surface water quality monitoring and associated analytical analyses of samples.
    - To promote partnerships with federal, state, regional, local, and private agencies to improve the effectiveness, cost efficiency, and technical quality of surface water quality monitoring programs in Southwest Florida.
    - To improve comparability of laboratory analytical methods.
    - To provide a forum for the exchange of surface water monitoring program related information and issues among SWF RAMP participants.

  - To provide and share information to SWF RAMP participants about new sampling and analytical methods to improve water quality assessment capabilities.
- RAMP round robin (RR) example: lab - representative from each lab takes triplicate samples from large container with circulating water; field –representatives from each group conduct field measurements (temperature, pH, salinity, light attenuation, etc.) at same location
- Additional accomplishments
  - Comparable Data among agencies
  - 18 years of success and cost savings
  - Unified position on policies and procedures
  - Influential on environmental restoration efforts (e.g. CCMPs)

Questions / Discussion:
MH asked if anyone has published data form RRs into a report across the years. KK indicated that there has been no report written about the RRs. There have been ~62 events, and each event's data is stored on spreadsheets which have been combined into an access database. Some of the results may be available through the Sarasota Co. Water Atlas. Report writing has not been a priority because there is no main office or staff for RAMP, as it is just a group of collaborators.

KM asked how involved the process was for getting comparable data (were there a series of steps developed or was it an iterative process). KK indicated that they first have to evaluate the methods used. If all participants are using the same method, they need to break the method into steps to identify differences. It is also important to consider matrix interactions and other small details associated with each method, as well as differences that occur with staff changes, etc.

RS asked if ramp is participating with GOMA RR. KK indicated that RAMP and GOMA had a joint meeting a few years ago where both groups did a RR together, but otherwise RAMP has not participated in GOMA activities. RS indicated that she is interested in encouraging the SWFWMD lab to attend RAMP RRs again and increasing coordination w/ GOMA. KK indicated that RAMP also address other sample matrices (upstream), while GOMA only addresses marine waters. RS asked for clarification on the scope of GOMA. GS indicated that GOMA includes offshore sampling, but currently has a major focus on nearshore and estuarine environments and inputs. KM indicated that GOMA will need to look for additional resources to ensure that RRs will continue.

KG asked if there is any work within RAMP to compare grab sampling and continuously deployed meters. KK indicated that many RAMP participants don't have any continuously deployed meters, and he is not aware of any efforts to do calibration among continuously deployed meters.

KK noted that field sampling RR efforts are important as well because field techniques aren't typically audited like labs are and many years can go by between state audits. KM indicated that QA is important for DEP samplers, and there are multiple internal field audits per year. It will be important to consider more field comparability exercises as part of GOMA RRs, as well.

RS indicated that regional audits or training would be great to include in the FWRMC Regional Councils, and it would be helpful to get everyone's work evaluated against the DEP SOPs. KK indicated that field training has not been offered as part of the RAMP meetings recently, but the FL Society of Environmental Analysts has offered training in the past.

Florida Local Environmental Resource Agencies (FLERA)
Richard Tschantz (RT) presented information about the Florida Local Environmental Resource Agencies (FLERA) organization
(Presentation slides can be found in the 2012 archive section of FWRMC website.)
- FLERA can serve as a point of contact to local governments, many of which have a large collection of water resource data in their watersheds
- FLERA was source for nominating local representatives to FWRMC.

- FLERA was created in the 1960s, as an informal way for local pollution control agencies to discuss common issues.
- In the mid 2000s, FLERA became professionally managed. Diverse membership of county governments, municipalities, and consulting firms.
- Purpose of FLERA is to enhance communication among local government environmental resource agencies and enhance their link to state and federal resource protection agencies, (example: FLERA can organize local entities to discuss program changes with DEP), promote local program efficiently and environmental protection performance measurement, and to promote a better public understanding of the necessity for a sustainable environment and environmental protection programs
- Services / Activities:
    - Quarterly training sessions to provide training on current issues (FWRMC could be a future topic)
    - Annual conference providing practical training, technical presentations and current information on environmental issues (FWRMC could be a topic here, as well)
    - Advocacy for environmental resource agencies with the Florida Legislature
    - Electronic newsletter on issues of concern to local environmental programs and professionals
    - Networking with federal, state and local environmental professionals involved with similar activities and concerns
- FLERA would like to assist in getting more members involved in FWRMC activities

Questions / Discussion:
GS noted that the FWRMC Regional Councils will be a great opportunity to ensure involvement of more local governments. RT indicated that FLERA could help to get more local participants involved in those efforts.

SR asked what the yearly cost is for being a member of FLERA. RT indicated that it varies by population: individual or consulting firm = $75, small city = $250, large county = $1,000.

Discussion: Logistics / Organizing FWRMC Regional Councils
GS indicated that the RAMP mission statement and goals are very similar to those of the FWRMC, and the Regional Council effort would like to use and enlarge upon them. Logistics will be difficult to establish the Region Councils, especially in times of reduced resources, but it will be a great opportunity to include many other local partners.

Regional representative who will be in Regional Council Planning Group:
Northwest - Nick Wooten would like to provide leadership from the WMD
Suwannee River – still looking for regional leaders
St. Johns River - Steve Richter indicated that the WMD has asked for additional leadership assistance, perhaps from counties.
Southwest – Rob Brown has indicated that the RAMP organization has very similar goals as FWRMC. Relevant FWRMC information can be included in RAMP meetings.
South (Gulf Coast) could be its own group if there is enough interest and participation, but leaders would need to be identified. South could also be part of southwest or southeast regional groups, as appropriate.
Southeast (Atlantic Coast) – still looking for regional leaders

SR indicated that a letter from DEP to the WMDs and local governments could help upper management understand goals and needs for the FWRMC Regional Councils and facilitate locating leadership resources.

SM indicated that there are some commonalities between southern Gulf Coast and East Coast through linkages in CERP and how the ecosystem functions. However, it might be better to have separate groups to encourage local participation. Many local entities may like to participate more, but the budget reality is that resources are limited. Letters from DEP Secretary to leaders of Counties (Mayors or County

Commissioners, instead of Departments) may be more effective at getting resources to participate. The need for participation should be understood from the top down, instead of from the bottom up.

Linda Crean (LC) indicated that SFWMD would like to participate in the Regional Council, but would not be able to lead due to the lack of resources. If would be helpful to understand what the focus would be – coastal vs. inland, everglades, or GW. GS indicated that the goal is to be comprehensive, and discussions on all water resources are encouraged.

SM commented that SW and GW are very connected in the southeast. There are many groups collecting data in this region, but it may not fit the same label/structure as the other regions. A good focus for the southeast regional group would be looking at GW and SW data together, though finding a leader may be difficult.

Questions / Comments / Open Member Dialog

GS indicated that the next statewide FWRMC meeting will likely be a webinar in April, and the next face to face meeting tentatively be scheduled in June in the northeast / St Johns River region.

Agenda for future meetings:

Meghan Wetherington volunteered to give a presentation on current monitoring efforts at the SRWMD.

GS volunteered to give a presentation on current monitoring efforts with the DEP Status and trend monitoring programs.

KM asked that we contact Tom Frasier at UF to give a presentation on his coastal monitoring work.

SM asked if the FL Oceans and Coastal Council (FOCC) is still active. GS indicated that it still exists but does not have funding or support. ***GS will contact Steve Wolfe to get a history of the FOCC and a progress update on some of the group's tasks.***

GS reminded FWRMC members that meeting notices and presentations and summaries of past meetings are available on the FWRMC website at http://www.dep.state.fl.us/water/monitoring/council/index.htm.

GS reminded FWRMC members to submit feedback regarding interest in participating in the workgroups, including the new Coastal Monitoring or SW Trend workgroups to her and Stephanie Sunderman (SS).

MH asked to be added to the Salinity Network workgroup.
AS nominated Steve Winkler for SW Trend workgroup.
RS indicated that she will nominate someone to be involved in the SW Trend workgroup.

Meeting Evaluations

What topics / presentations were most useful?

- Salinity Network Workgroup Update (2 votes)
- Monitoring effort presentations
- SWFWMD
- NOAA
- CERP
- Monitoring catalog presentations / discussions (2 votes)
- Monitoring Catalog Workgroup Update (2 votes)
- Water Atlas (2 votes)
- USGS SOFIA (2 votes)
- RAMP (2 votes)
- FLERA
- All were great
- All were interesting
- All the presentations were informative and showed the diversity of approaches to cataloging and serving data.
- Wednesday session was very informative.

What topics/presentations were least useful? Why?

- The talks that went longer than 20 minutes were hard to pay attention to on the webinar.
- RAMP presentation's tone seemed negative. Chlorophyll a issues have been explored and acknowledged for decades, and though remain a challenge, we need to focus on what we can do / solutions. Most major programs are following SOPs for QA/QC and data is reasonably reliable. Natural and methodological sources of variability are indeed issues, and besides having standard approaches to reduce uncertainty, variability is one reason supporting the need for spatially/temporally robust programs. It is important that future catalogues or metadata include information on methods, so that users may understand possible limitations for data comparability, but it should not become a barrier to sharing.
- All were very good. A great meeting!
- All presentations that I was present for were useful.
- I did not think any of the topics were not useful. I thought they all were useful.

What topics would you like to see at the next FWRMC meeting?

- Updates on workgroup progress/advancements
- Depending on meeting location, more monitoring overviews
- FDEP status monitoring
- Other WMD's monitoring plans
- SFWMD water quality monitoring programs
- National Park Service programs
- STORET replacement (WIN) status update (2 votes)
- What parameters are actually needed for regulation of state laws? This list would help focus our efforts.
- More groundwater topics

Meeting in Tampa

- Good (8 votes) / Poor (1 vote)
- Facility is great. Rush hour traffic is terrible

Webinar

- Good (5 vote)
- Excellent. Sound quality is often poor in webinars, but not for this one. Great job.

- I would have preferred to attend in person. However, the webinar was good.
- In person is always better, but the webinar worked pretty well. Your efforts in this regard are much appreciated.

Handouts (electronic format)

- Good (10 votes) / Fair (2 votes)
- Save a tree and reduce the piles on my desk.

Presentation time/format

- Good (11 votes) / Fair (2 votes)
- One presentation went too long and resulted in less discussion time on other topics.
- The allotted time was right but one talk was very long.
- A few presenters took a little more time than allotted but it was appropriate. Perhaps allow a little more time for each presentations on the agenda as the topics were very informative about monitoring activities

Discussion time/format

- Good (10 votes) / Fair (3 votes)
- More discussion time might be helpful.

Other comments/suggestions

- Each meeting has been very beneficial. Each gets better!
- Great discussions, great ideas – good things to come from this!
- Need to make it clearer that the Council is interested in parameters beyond surface water/groundwater quality. Are we interested in all hydrologic and linked ecological data? If so, make that clear.
- Keep up the good work.
- Moderator was excellent, technical setup and email notifications were excellent!
- I would like to commend everyone. Very nice!
- Please try to have a meeting in SE Florida. The SFWMD auditorium has excellent A/V capability and often is used to webcast meetings or otherwise make them available electronically.