

Governors South Atlantic Alliance (GSAA)
Coastal Wetlands Monitoring Workgroup
February 23-24, 2016
SC DNR – 217 Fort Johnson Rd, Charleston, SC 29412
Meeting Summary

Meeting Purpose: Decide on the information to be captured in the coastal wetlands monitoring database and discuss the desired functionalities/capabilities of the database.

Attendees in person: Kim Matthews, Cyndi Karoly, Dean Carpenter, Dominic Guadagnoli, Jan MacKinnon, Jessica O’Connell, Nicole Rankin (Day 1), Katy Smith, Hyun Jung Cho, Kara Radabaugh, David Chestnut, Denise Sanger, Rusty Wenerick, Kristine Cherry

Attendees on phone: Kelly Reiss, Peter Kalla, Brandon Puckett, Ryan Moyer, Rick Viso (Day 1), Tancred Miller (Day 1), Bryan Rabon (Day 1), Rhonda Evans (Day 2)

Tuesday, February 23

The meeting started at 1:00 pm with a review of the logistics of the meeting facility and the controls for remote participants to communicate through the webinar. All participants introduced themselves.

Kim Matthews provided an overview of the project including a reminder that this workgroup is one of three tasks being conducted by the GSAA through funding provided by an EPA Region 4 Wetland Program Development Grant in 2015. The three components are:

1. Workgroup (this one)
 - Future schedule - Plan to have database ready for testing in June (another in person meeting). Finalize structure of database at this meeting and continue to put data into it over the summer.
 - Prepare a report on comparability of monitoring programs, state and federal – comprehensive review of each program and look for places to leverage resources to work together and make best use of resources. Want to prepare recommendations for groups to help make their data more easily comparable. Database is a way to help work through how to make these recommendations.
 - Meet in the late fall to review results of surveys, draft report (in person meeting)
2. Conduct outreach and trainings on stormwater BMPs
3. Regional approach to living shorelines (the Living Shorelines Summit is 12-13 April, Jacksonville, FL).

Kim reviewed the purpose of the meeting and its anticipated outcomes including a review existing databases, providing input on the structure and format of the data catalog, and provide input on how to query and access information in the data catalog. All workgroup members are encouraged to participate and provide feedback as we go along. In the future members will test the database, provide station information, and provide input on your monitoring program.

Review of other relevant databases

- NWCA: EPA National Wetland Condition Assessment (presented by Kim Matthews)
 - Presentation based on information previously presented by Gregg Serenbetz (EPA)

- Poll Results: 6 workgroup participants participated in field work for 2011 NWCA; 5 participants reviewed the NWCA draft report.
- All data from the 2011 NCWA is available at:
<http://water.epa.gov/type/wetlands/assessment/survey/index.cfm>
- Two reports have been produced – one technical, and one for the public
- Question: Which indicators from EPA’s assessment are necessary to capture in our database? Feedback: all parameters from coastal area, but tailored to coastal wetlands workgroup needs since all data is publicly available on EPA website.
- Southeast Coastal Water Quality Monitoring Metadata Portal (presented by Kim Matthews)
 - Portal developed and maintained by University of Georgia
 - Similar hierarchy to what we are planning to use – organizations and data owners
 - Contains the ability to search by location to find all of the parameters at those locations. Then you can drill down on the parameters and find out more information.
 - Portal was created in 2008 and updated in 2012. Concerns from the workgroup that the links are outdated and the information is not correct. How will the database that we are developing be updated and maintained? Currently, there is no plan for long-term maintenance.
- Florida’s Coastal Habitat Integrated Mapping and Monitoring (CHIMP) Workgroup (presented by Kara Radabaugh)
 - Modeled after the Seagrass Integrated Mapping and Monitoring (SIMM) Program (<http://myfwc.com/research/habitat/seagrasses/projects/active/simm-report-1/>)
 - Program focuses on mangroves, salt marsh, and seagrasses
 - Workgroup has held several workshops and has compiled a list of common monitoring protocols for the state.
 - Conducting a pilot program to compare different monitoring programs
- National Estuarine Research Reserve Program (presented by Kim Matthews)
 - Nine sites located with project area
 - System-wide Monitoring Program (SWMP) <http://cdmo.baruch.sc.edu/>
 - Focuses on Estuarine water quality data (real-time data)
 - Developed and maintained by University of South Carolina

Overview of the database design

- Kim presented the draft format/structure of the database including station information, owner information, and monitoring variables/parameters. [Provided before the meeting as an excel spreadsheet]
- The remainder of the day was spent in small groups reviewing the data format/structure. Two groups met in person and the remote participants formed a third group.

Wednesday, February 24

Results from small groups and discussion of database design – Each group selected a main person to present their comment. Comments were given on each “page” in the workbook: Owner Information, Monitoring Program, Stations, Station Information Details, and Parameters. The comments and suggested revisions are listed below:

- Owner Information
 - Change “Description” to a required field
 - “OrgURL” is redundant; same as “WebsiteURL”
 - Add “Secondary Contact” Information

- Add “Date Owner Information updated”; auto generate field, if possible
- Rather than listing an individual person, list the general or main office phone number
- Monitoring Program
 - Change “Program Description” to a required field
 - Add URL for data since this could be different site than the program
 - Add field to identify the scale of the monitoring program; for example, regional (multi-state, state, or local)
 - QA – Data quality is an important consideration; consider adding a field to indication where the monitoring program has a QAPP or follows standard protocols. Another option is to indicate QA by parameter.
 - Add data Information was last updated; auto generate field, if possible.
- Stations
 - “Location” field is redundant with “Description”
 - In addition to “HUC8”, add “HUC10” and “HUC12”
 - Auto generate at multiple levels; determine how to query information
 - Change “DateStart” and “DateEnd” to Required Fields
 - If station is only sampled once, the start and end dates would be the same
 - Make “County” a required field
 - Add a field to indicate “Property Ownership”; possible categories include public, private, land trust
 - Add a field for sample frequency or frequency of site visit or sampling. Such as weekly, monthly, bi-weekly, annual; but also add "other" category. May need to be indicated by parameter.
 - Add a link for more information/description of dropdown options
 - Need a user guide for both upload and download of data
 - For classification of wetland station, let the user select the system used for classification. Have workgroup submit their classification system so a crosswalk could be developed.
 - Add other modifiers - essential fish habitat, state Scenic River - capture management considerations.
 - Cowardin Type - capture modifiers
 - End Data - Add "ongoing" vs. actual end of data collection; maybe add re-start date.
 - Re-populate values for multiple stations under the same program
- Station Information Details
 - Wetland_Category
 - Options: natural, compensatory mitigation, voluntary restoration, stormwater wetland (or water treatment wetland or constructed wetland”, other, living shoreline, managed wetlands, impounded wetland [add ability to select more than one category]
 - Cowardin Type – include hydrologic and other modifiers
 - Wetland Type – Let user enter in wetland type; could be NCWAM categories
 - Oyster reef is not a wetland type; add “Is it a wetland” to the station information
 - Sample Design
 - Options: probabilistic, targeted, other, trend (long-term monitoring), sentinel sites, transect, single point, Random Repeat (New draw every cycle), citizen science, spatial analysis
- Parameters

- There was a lot of discussion about the difference between Parameter Types and Parameter Groups. For example, what is the difference between Water Quality – Biology vs Biology parameter type?
- Possible options include eliminating “Water Quality” parameter group
- Macroinvertebrates are an indicator of water quality – should macroinvertebrates still be listed as a Water Quality Parameter type
- Another suggestion is to make Chemistry and biology the Parameter Types
- **Next Steps:** After much group discussion, the discussion was tabled until a future monthly call where we could look at the search option using real data sets. To move forward, Kim Matthews will select 3-4 monitoring programs and associated datasets to use to begin to build the database. She will present the workgroup with design options based on the example data/information.

Definition of Coastal Wetlands

- The workgroup re-visited the definition of “coastal wetlands” for our purposes – there discussion focused on the boundary between “wetland” and “open water”. Ultimately the following decisions were made.
- “Wetlands” definition is based on the Cowardin et al ([1979](#)) publication that defines wetlands vs. deep water habitat.
 - **Wetlands** are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. Wetlands must have one or more of the following three attributes.
 - (1) at least periodically, the land supports predominantly hydrophytes;'
 - (2) the substrate is predominantly undrained hydric soil; and
 - (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year.
 - The **upland limit of wetland** is designated as (1) the boundary between land with predominantly hydrophytic cover and land with predominantly mesophytic or xerophytic cover; (2) the boundary between soil that is predominantly hydric and soil that is predominantly nonhydric; or (3) in the case of wetlands without vegetation or soil, the boundary between land that is flooded or saturated at some time during the growing season each year and land that is not.
 - The boundary between wetland and deepwater habitat in the *Marine and Estuarine Systems* coincides with the elevation of the extreme low water of spring tide; permanently flooded areas are considered deepwater habitats in these Systems. The boundary between wetland and deepwater habitat in the *Riverine and Lacustrine Systems* lies at a depth of 2 m (6.6 feet) below low water; however, if emergents, shrubs, or trees grow beyond this depth at any time, their deepwater edge is the boundary.
- Coastal Wetlands are defined by the HUC8s that drain to the Atlantic Ocean.
- **HOWEVER, rather than limit the database to just “wetland” data, the group decided that the database should include data not only for coastal wetlands but also monitoring data associated with coastal wetlands such as nearby water quality from deep water habitats and oyster reefs. Each station will be identified as “wetland” or “non-wetland”.**

Comparability of state monitoring programs

- Before a round-robin discussion from workgroup attendees, Kim presented the Association of State Wetland Managers (<http://www.aswm.org/wetland-programs/state-wetland-programs>) recently prepared a summary state wetland programs for reference.

- Georgia Coastal Resource Division (Jan MacKinnon and Dominic Guadagnoli)
 - Using drop ring samplers to monitoring fin fish and invertebrates in Spartina marsh to quantify habitat use.
 - Long-term monitoring of salt marsh to determine the impact of sea level rise. Every 5 years measuring soils, elevation, and plant communities.
 - Salt marsh restoration sites – identifying channelized areas, spoil piles and other impacts captured by GIS. Trying to determine the benefit from storing these sites.
 - 2009 NWI update. Merge GIS and Google earth to users through Restoration Access Portal (contacted to GA Tech).
 - Living Shorelines Workgroup
 - Support Citizen Science: Adopt a wetland; CRD provides training and responds to questions.
 - Shellfish Program supports wetland program with staffing and equipment
 - Shellfish Program used to monitoring over 300 monitoring sites (1980s); now only 81 sites
 - 2016 Nutrient Monitoring (partnered with EPD). Collect monthly samples in growing areas.
 - South Atlantic Bight (SABIT) is developing nutrient criteria from SC and GA. EPA-funded project. Document in preparation. Trying to develop a database with remaining funds.
 - USACE Nationwide Permit for Living Shoreline projects would improve the permit review process. Cautioned that promotion of the living shorelines with the public should not get beyond the benefits that can be supported by science
- Georgia Sea Grant (Katy Smith)
 - Focused on education and outreach
 - Investigating pharmaceuticals (i.e., tryptophan) in water
 - Have a water quality lab, but no technicians
 - Several grant proposals in process
- Georgia Coastal Ecosystem LTER (Jessica O’Connell)
 - Have a search data portal
 - 10 long-term monitoring sites with water quality and hydrologic monitoring
 - South Atlantic Bight – studying carbon flow throughout the estuary
 - GTER is considered to be pristine or reference condition; models developed at the site can be applied elsewhere
- South Carolina DNR (Denise Sanger)
 - In the ACE Basing there are (1) NEERS sites; (2) Sentinel sites with SETs and vegetation transects; (3) Freshwater wetland mapping.
 - Coastal water monitoring program – similar to National Coastal Condition Assessment
 - SCORE – oyster restoration and enhancement program has been successful and the program is growing
 - Grant to deploy Living Shorelines
 - Most oyster reefs are mapped and regularly updated

- SC Department of Health and Environmental Control
 - Wetland Program Plan was developed and is available online.
 - Participated in 2011 NWCA and 2012 Intensification study
 - Early 2000s, EPA/ERDC used data to calibrate model for HGM headwater slope wetlands
 - Surface Water monitoring comprised of fixed sites sampled bimonthly and statistical survey sites. Purpose is to evaluate waters for impairment
 - CCAP – conducted with NOAA and FWS; reports every 2 years and provide data to NCCA
- Albemarle Pamlico NEP (Dean Carpenter)
 - Wetland Monitoring and Assessment Team
 - 2012 developed a new strategic plan
 - Only wetland indicator is *Phragmites*
 - SAV Partnership
 - Aerial extent is measured every 5 years, Last released in 2008, 2012 data release is pending
 - Does not capture SAV in turbid sites
 - Sentinel Sites – 10 sites are visited every year
- NC Division of Water Resources (Cyndi Karoly)
 - Wetland monitoring program transferred to Water Sciences Program
 - Focused on the 2016 NWCA field effort
 - Working with NCSU to continue monitoring at 18 long-term wetland monitoring sites
 - RTI is developing a database for 10+ years of wetland data

Schedule for Database Development:

- Early March
 - Kim will distribute comments and revisions to database
 - Workgroup members review and submit final comments
- March 17 – Workgroup Teleconference
 - Review all comments
- Late March – April
 - Focus on limited group of monitoring programs and parameters
 - Obtain Organization, Monitoring, and Station information for limited group
- April 21
 - Review classification of limited group
 - Refine list of target monitoring programs and organizations
- April – May
 - Develop database and contact organizations and monitoring programs
- June
 - Present the draft database

Tour of the SCDNR facility and salt marsh restoration site