

Agenda

1. Roll Call – Kate Muldoon/Carolyn Voyles
2. Introduction of Chair, Dr. David Hornsby – Kate Muldoon
3. Purpose of Today's Meeting – David Hornsby
4. Review of January 2016 Continuous Monitoring Workgroup Meeting –David Hornsby
5. DEP Continuous Monitoring Workgroup Presentation – Jessica Mostyn
6. Member Feedback/Ideas on Presentation – David Hornsby
7. Summary of Today's Major Points and Action Items – David Hornsby
8. Concluding Remarks/Future Meetings – David Hornsby

Meeting Purpose

- Summarize points from the last meeting
- Look at DEP's continuous monitoring efforts
- Discuss interests of the Workgroup and Council
- Focus on useable products from the Workgroup

January 2016 Continuous Monitoring Workgroup Meeting Summary

September 20, 2016

Intent of Council CM Workgroup

“share and assimilate experiences, lessons learned, new technology, and promising new designs in the area of remote and continuous water quality monitoring around the state”

First Meeting

- January 21, 2016 in Tallahassee
- Attended by NFWFMD, SJRWMD, ORCA, DEP, DACs, SFWMD, Manatee County, SWFWMD, SRWMD, FLERA, EPA, Volusia County, and several private citizens
- Decision: create “shared resource” on CM efforts in Florida. This would be available on public website to identify gaps, and to be utilized as guidance
- Timeline: 12 months

Potential Shared Resource

- The first product identified by the workgroup is developing a shared resource of centralized information on continuous monitoring efforts in Florida.
- Centralizing this information is our first step toward identifying gaps, and establishing a resource that can be utilized as guidance for agencies/organizations to improve existing programs, and promote data comparability.

Potential Shared Resource (cont'd)

- “shared resource” on public website could contain....
 - Florida monitoring entities using CM devices & contact information
 - SOPs
 - types/models of CM in use
 - studies/projects/purposes of monitoring
 - types of waterbodies monitored
 - deployment checklists
 - Anti-fouling procedures
 - QA/QC
 - data availability
- resources available to CM users

Challenges

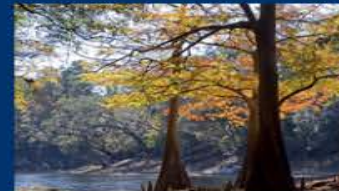
- Resources are stretched
- Others?



Florida Department of Environmental Protection

**Continuous Monitoring
Workgroup
Division of Environmental
Assessment and Restoration (DEAR)**

September 20, 2016





DEAR CM Workgroup - Purpose

Key issues identified by the Monitoring Council's Continuous Monitoring Workgroup guided the creation of the DEAR Continuous Monitoring Workgroup

- Standard Operating Procedures (SOPs) and QA/QC for standard metered parameters
- Review Technologies available; Equipment Maintenance and Associated Costs
- Data Sharing, Availability, and Comparability (QC screening and data management)
- Design and Implementation



Workgroup Members

- Corey Anderson (South District Monitoring Regional Operation Center)
 - Michael Blizzard (Aquatic Ecology and Quality Assurance)
 - John Kaba (Chemistry Program)
 - Brian Katz (Ground Water Management)
 - Jessica Mostyn (Watershed Assessment Section)
 - Kate Muldoon (Watershed Monitoring Section)
 - Garry Payne (Standards Development Section)
 - Chrisoulla Rakowski (Chemistry Program)
 - Ben Russell (North West District Monitoring Regional Operation Center)
 - Cheryl Swanson (Biology Program)
 - Julie Zimmerman (Office of Watershed Services)
- Julie Espy, Program Administrator Liaison (Water Quality Assessment Program)



Define “Continuous Monitoring”

- DEP defines Continuous Monitoring as unattended **“data collected over a time series using a recording device”** (Florida Water Resources Monitoring Council) with the time interval being sufficiently small enough to consider the record continuous.
- It can also be characterized as **“a methodology that utilizes sensors connected to data loggers and provides multiple results of a given characteristic, spaced at pre-determined time intervals”** (NWQMC Aquatic Sensor workgroup).



Summary

Literature Review for existing SOPs

- USGS
- NOAA - NERR SOP
- NWQMC Sensor Group
- SFWMD SOP for Sonde Deployment & Data Retrieval
- British Columbia Ministry of Environment
- Texas Commission on Environmental Quality
- Utah Department of Environmental Quality

Identified who is currently collecting and/or using CM data within DEAR

- South and Central ROCs have collected CM data for various Strategic Monitoring, BMAPs, salinity intrusion, etc.
 - Use YSI manual recommendations with DEP Field SOP calibration requirements
- GW has contracts with multiple Water Management Districts
 - WMDs use USGS SOP (same calibration of DO as DEP)
- TMDL collecting CM data for WQBELs
 - Use YSI manual recommendations with DEP Field SOP calibration requirements
- Aquatic Preserves and NERRs are collecting CM data
 - Use NOAA – NERR SOP



Draft CM SOP

Developed a draft general Continuous Monitoring SOP

- Recording-keeping & documentation
- Minimum calibration requirements
 - o DO, Specific Conductance, Field Temperature, pH, and Turbidity
- Optional comparison with grab sample measurements
- Preventive maintenance

We specify “unattended” and drafted a Continuous Monitoring SOP for Environmental Field Deployments

- The 2014 DEP SOPs (cited in DEP QA Rule, 62-160, F.A.C.) includes SOP [FT 1900](#) Continuous Monitoring with Installed Meters



Draft CM SOP Objectives

- Incorporate the current DEP SOPs that already apply
(FA 1000 Administrative, FD 1000 Documentation, FQ 1000 Quality Control, FT 1000 Field Testing General, FT 1500 Field Dissolved Oxygen, etc.)
- Parameters include Dissolved Oxygen, pH, Salinity, Temperature, and Turbidity
- Design and Implementation were purposely not addressed in the SOP because we did not want to limit design and implementation practices already in use by other agencies (WMD, Aquatic Preserves, CAMA, NERRs)
- Currently DEP SOPs avoid sampling design issues but the SOP includes some precautionary guidance to avoid common issues related to CM sensors such as biofouling (Section 10 Preventive Maintenance)



Survey

- 1) Do you have a Continuous Monitoring Standard Operating Procedure written? Can you provide a link?
- 2) What sensor/sonde configurations are you using and what analytes are you collecting?
- 3) What are the pros and cons for the system(s) you use?
- 4) How many system units do you deploy for long-term data?
- 5) What is your calibration and verification scheme?
- 6) Are you also collecting grab samples for laboratory analysis (e.g. chlorophyll a, nitrate, phosphate)?
- 7) How is the data stored? Can you provide an example data file?



Future Goals

- Review potential SOP comments and decide if we will include it in the QA rule (2017)

- Populate a Technology Recommendation spreadsheet

Maintenance process

Costs

Unit Specifications

Expected calibration duration

Embedded software/formats

Pros/Cons of different models for different purposes

Manufacture capabilities

Known data providers that use this model and pro/cons of their experience

Current design and implementation practices uses

Staff time required

- Department purchased AQUARIUS Time Series software
 - Upload DEAR CM data sets
 - Determine minimum data elements required to store/analyze data
 - Recommendation to use in place of or in conjunction with the Watershed Information Network (WIN)
- Author a Scope document for a subsequent DEAR workgroup to focus more completely on CM Data Management



Contacts

Jessica Mostyn
Environmental Consultant
Water Quality Assessment Program
Watershed Assessment Section
Jessica.Mostyn@dep.state.fl.us
850.245.8441

Julie Espy
Program Administrator
Water Quality Assessment Program
Julie.Espy@dep.state.fl.us
850.245.8416

Websites

DEP Water website, see Water Quality Assessment and Restoration section for DEAR programs:

<http://www.dep.state.fl.us/water/default.htm>

DEP SOPs:

<http://www.dep.state.fl.us/water/sas/sop/sops.htm>

Next steps . . .

- Today's Major Points
- Action Items
- Future Meetings
- Other

Chair Contact Info

David Hornsby

FWRMC Continuing Monitoring Workgroup Chair

c/o: St. Johns River Water Management District

P.O. Box 1429

Palatka, FL 32178-1429

dhornsby@sjrwmd.com

386-312-2371