



2011 Annual Quality Assurance Report

Watershed Management and Monitoring Program

December 2011

Executive Summary

The Central District Watershed Management and Monitoring (WMM) Program of the Florida Department of Environmental Protection performs water quality and macroinvertebrate sampling in support of the Department's ongoing water quality monitoring programs and special projects. The Central District Watershed Management and Monitoring Program follows the applicable collection and quality control protocols and requirements described in the Department's Standard Operating Procedures (SOPs).

In the 2011 calendar year, watershed employees participated in a series of training workshops which built upon their capabilities in biological assessments and water chemistry sampling. Biologists coordinated with macroinvertebrate taxonomy experts within and outside of the Department via teleconferences and coordinated training sessions. Bioassessment training was conducted throughout the year as part of annual biological workshops. The Lake Vegetation Index (LVI) training provided an opportunity for the Central District LVI sampling team to complete their annual refresher audit.

The only major quality assurance issue for the year was a series of contaminated nitrate/nitrite field blanks samples. Watershed employees thoroughly examined their sampling process to identify the source of contamination which is believed to have been the result of mistakenly using the same transfer pipette for both nitric and sulfuric acids when preserving samples. Subsequently all nutrient samples preserved with the contaminated sulfuric acid were properly coded and corrective action was put in place to prevent future contamination.

Watershed employees performed routine quality control practices and audit exercises throughout the year. These practices included data entry verification, macroinvertebrate sample sorting quality checks, and annual performance audits for water quality sampling and the LVI assessment. No major deficiencies were found and corrective actions were enacted to address minor deficiencies. Quality assurance issues were routinely discussed in the bimonthly statewide quality assurance teleconferences and internal program meetings.

Report of Quality Assurance Activities and Issues

1. Quality Assurance Training Activities

Macroinvertebrate Taxonomy QC and the Taxonomic Round Robin

In January 2011 watershed staff participated in a teleconference with FDEP biologists to discuss macroinvertebrate taxonomy quality control practices. Included in this discussion were suggestions on the training process for new taxonomists as well as possibly changing the current requirements for initial demonstration of proficiency. The taxonomic round robin was also discussed. Feedback from this discussion contributed to the revised taxonomy SOP.

Midge Identification Training

In January 2011 watershed staff participated in a one day midge identification training session with Reedy Creek biologist Dana Denson. The training session consisted of an overview of midge species common to the Central Florida area and concluded with an open midge identification exercise.

Quality Assurance Training

In April 2011 Central District staff participated in a two day quality assurance workshop organized by the Standards and Assessment section. All Watershed staff attended this training. The first day of the workshop covered the QA Directive, assessment of data usability, approved analytical methods for regulatory uses, data quality objectives, field and laboratory audits, field meter calibration, and training for quality assurance officers. The second day of training consisted of classroom and field sessions on DEP SOP sampling training.

Lake Vegetation Index Training

In April 2011 watershed staff attended Lake Vegetation Index (LVI) training conducted by Tallahassee QA staff. The training took place over the course of 3 days and concluded with a field exercise which served as the annual refresher audit for the LVI sampling team. The training consisted of the following topics: quality assurance proposals, field identification tips, LVI sampling and testing, field plant training, and in

depth training for *Ludwigia*, *Utricularia*, *Polygonum*, *Myriophyllum*, *Najas*, *Potamogeton*, *Sagittaria*, *Eleocharis*, grasses, sedges, and rushes.

Biocriteria

In November 2011 watershed staff attended the statewide Biocriteria meeting in Sarasota. The meeting facilitated discussion on biocriteria issues and included training on biological assessment methods. Discussion topics included the QA Rule and SOP revisions, the Fyke net method, Chironomidae taxonomic updates, and revisions to dissolved oxygen criteria. Watershed staff participated in the Stream Condition Index, Rapid Periphyton Survey, Lake Vegetation Survey, Habitat Assessment, and Fyke net method training.

2. Quality Control Practices and Audits

Dissolved Oxygen Study

All records associated with the Dissolved Oxygen Study were audited as part of a statewide effort to ensure the validity of the data. Field records were audited using a spreadsheet checklist provided by the Standards and Assessment Section (SAS). Sample collection records and laboratory reports for nutrients, color, and chlorophyll *a* were also audited. No major deficiencies were found and a final report was sent to SAS staff.

Surface Water Sampling

Internal proficiency audits are conducted on field sampling teams annually utilizing the DEP Audit checklists. Watershed employees were audited as sampling teams during routine sampling events to ensure conformance to the Department's SOPs for surface water quality sampling. Only minor deficiencies were found which resulted in documented corrective action responses.

Lake Vegetation Index

The LVI sampling team successfully completed the annual LVI Refresher audit at Wekiwa Springs State park. The Central District LVI sampling team conducted the LVI at Ella Lake as part of a state-wide, three day LVI workshop organized by Standard and Assessment Program. The sampling team passed the audit with a score that fell within ± 12 points of the median expert LVI score.

Macroinvertebrate Sample Sorting

Macroinvertebrate sample sorting efficiency is performed in accordance with SOP LQ7410. At least 10% of the aliquots sorted by each taxonomist were randomly selected and resorted. All laboratory personnel met the 95% cumulative efficiency target.

Data Entry

Watershed employees routinely enter field data into the District's Laboratory Information Management System (LIMS). This field data is merged with the corresponded laboratory reports and formatted for upload into the Store and Retrieval database (STORET). All data entry is verified by a second person and checked for the following: correct sampling station and site description, collection times, field measurements, project identification code, sampling depth, and request identification number.

Ecosummaries

Watershed employees generated several reports that summarized the ecological health of various water bodies in the Central District. Reports were drafted using existing chemistry and biological data and then submitted to a second employee for technical review. The review process involves verification of data and proofreading of the report. This draft is reviewed by the Watershed manager and then submitted to the Standards and Assessment Program where it is reviewed three more times before being posted to the Department's website.

3. Quality Assurance Coordination

Quality Assurance Teleconferences

Quality assurance officers and other interested staff attended statewide bimonthly teleconferences to discuss issues ranging from SOP revisions and quality assurance plans to program specific quality assurance issues. Meeting notes and other relevant documents are made available to all Central District staff.

Internal Meetings

Quality assurance issues are discussed as needed in section meetings. Throughout the year, watershed employees involved with biological assessments met to discuss the quality assurance of the Stream Condition Index (SCI), Biorecon, and LVI. The purpose of these meetings was to discuss SOPs, documentation in the field, the data entry process, and data review. These meetings resulted in procedural changes to the data entry process.

4. Quality Assurance Issues

Contaminated Blanks

A series of field blank samples were reported with significant nitrate/nitrite contamination. The concentration levels were too low to have been the result of preserving the sample with nitric acid. Watershed employees investigated the problem by closely examining every step of the sampling process. While several changes were made to decrease the risk of future contamination, the source of this occurrence was believed to have resulted from the accidental reuse of transfer pipettes while preserving samples with nitric and sulfuric acids.

Acid bottles were replaced and new measures were put in place to prevent the reuse of transfer pipettes when preserving samples. All nutrient samples affected by the contaminated acid were properly qualified.

5. Goals for 2012

Watershed employees will continue to follow quality control practices. Quality assurance issues will be routinely discussed and corrective action will be enacted as needed. The program's Quality Assurance Plan will be updated to reflect new quality control practices, SOP revisions, and other applicable program information. Watershed employees will continue to receive internal and external training in various aspects of their duties. Annual audits will continue to routinely assess compliance with the Department's SOPs.