**FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION**
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VIA EMAIL

April 3, 2017

Peggy Morgan
Pinellas County Watershed Monitoring
22211 US 19 N
Clearwater, FL 33765
Email: mmorgan@co.pinellas.fl.us

**Re: Final Audit Report for Stream Condition Index Laboratory Audit of Pinellas County; OGC Case No. 17-0143**

Dear Ms. Morgan:

Thank you for responding to the preliminary audit report for the Stream Condition Index (SCI) Laboratory Audit conducted by the Florida Department of Environmental Protection (department) during 2016. The department has reviewed your response and determined that the proposed corrective actions are acceptable and have been implemented. The indicated corrective actions will improve the quality assurance system for your freshwater invertebrate taxonomic identifications and SCI determinations.

Attached is the final audit report detailing the audit procedure and the department's recommendation for usability of the data. The final audit report will also be posted on the department's website at http://www.dep.state.fl.us/labs/cgi-bin/reports/search.asp. The details of the department's review are provided in the audit findings tables. As noted in the report, the department has determined that your invertebrate taxonomy analysis procedures meet the data quality objectives for SCI data, and the department may use the data in support of its Strategic Monitoring Plan (SMP) and Impaired Waters Rule assessments for streams in the Pinellas County area.

Under Chapter 120 of the Florida Statutes, you and any other person whose substantial interests are affected by the department's agency action may challenge the attached final audit report, including the corrective actions and the data usability analysis. The process to challenge any portion of this agency action is described below in the Notice of Rights section.

If you have any questions or concerns about this final audit report, please feel free to contact Nia Wellendorf at (850)245-8190 or Joy Jackson at (850)245-8074.

**Notice of Rights**

This action is final and effective on the date mailed (via e-mail) unless a sufficient petition for an administrative hearing is timely filed under sections 120.569 and 120.57 of the Florida Statutes as provided below. If a sufficient petition for an administrative hearing is timely filed, this agency action becomes only proposed agency action, subject to the result of the administrative review process. Therefore, on the filing of a timely and sufficient petition, this action will not be final and effective until further order of the department. Because an administrative hearing may result in the reversal or substantial modification of this action, the petitioner is advised not to proceed until the deadlines noted below for filing a petition for an administrative hearing or request for an extension of time have expired. Mediation is not available.

A person whose substantial interests are affected by the department's action may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received by the clerk) in the Office of General Counsel of the department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000. The petitioner shall also mail a copy of the petition to Pinellas County at the address indicated above at the time of filing.

Under rule 62-110.106(4), F.A.C., a person whose substantial interests are affected by the department's action may also request an extension of time to file a petition for an administrative hearing. The department may, for good cause shown, grant the request for an extension of time. Requests for extension of time must be filed with the Office of General Counsel of the department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, before the applicable deadline. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon. If a request is filed late, the department may still grant it upon a motion by the requesting party showing that the failure to file a request for an extension of time before the deadline was the result of excusable neglect.

If a timely and sufficient petition for an administrative hearing is filed, other persons whose substantial interests will be affected by the outcome of the administrative process have the right to petition to intervene in the proceeding. Intervention will be permitted only at the discretion of the presiding officer upon the filing of a motion in compliance with rule 28-106.205, F.A.C.

In accordance with rules 28-106.111(2) and 62-110.106(3)(a), F.A.C., petitions for an administrative hearing by the petitioner must be filed within 21 days of receipt of this written notice. Petitions filed by any persons who were not entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within 21 days of publication of the notice, if published, or within 21 days of receipt of the written notice, whichever occurs first. Under section 120.60(3) of the Florida Statutes, however, any person who has asked the department for notice of agency action may file a petition within 21 days of receipt of such notice, regardless of the date of publication.

The failure of any person to file a petition for an administrative hearing within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 of the Florida Statutes.

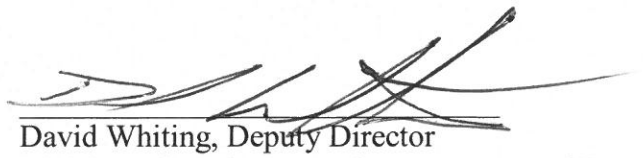
A petition that disputes the material facts on which the department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests are or will be affected by the agency determination; (c) A statement of when and how the petitioner received notice of the agency decision; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts that the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes that the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and (g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts on which the department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by rule 28-106.301, F.A.C.. Under paragraphs 120.569(2)(c) and (d) of the Florida Statutes, a petition for administrative hearing must be dismissed by the agency if the petition does not substantially comply with the above requirements or is untimely filed.

This agency action constitutes an order of the department. Subject to the provisions of paragraph 120.68(7)(a) of the Florida Statutes, which may require a remand for an administrative hearing, the applicant has the right to seek judicial review of the order under section 120.68 of the Florida Statutes, by the filing of a notice of appeal under rule 9.110 of the Florida Rules of Appellate Procedure with the Clerk of the department in the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000; and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within 30 days from the date when the final order is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



David Whiting, Deputy Director
Division of Environmental Assessment and Restoration
2600 Blair Stone Road
Tallahassee, FL 32399
Tel. No.: (850) 245-8191

Attachments:
Final Audit Report

Copies furnished to:

Stacey Cowley, DEP Office of General Counsel
File

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this agency action, including all copies, was e-mailed before the close of business on APRIL 3rd, 2017, to the above listed persons.

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to 120.52(7)
Florida Statutes, with the designated Department Clerk,
receipt of which is hereby acknowledged.

Clerk 4/3/17
Date

# Final Audit Report

# Pinellas County

## Stream Condition Index Laboratory Audit
## OGC Case No. 17-0143

**Aquatic Ecology and Quality Assurance Section**
**Water Quality Standards Program**
**Division of Environmental Assessment and Restoration**
**Florida Department of Environmental Protection**
**March 2017**

# STREAM CONDITION INDEX LAB AUDIT REPORT

**Scope of Audit**
Pinellas County Environmental Management Laboratory (Pinellas County) has provided Stream Condition Index (SCI) data to the Florida Department of Environmental Protection (DEP or department) in support of its Strategic Monitoring Plan (SMP) for streams in the Pinellas County area beginning in 2014. To provide assurance that Pinellas County follows the sample processing and index calculation protocols in DEP SOP SCI 2000, the DEP Aquatic Ecology and Quality Assurance Section (AEQAS) conducted a records audit of the required documentation associated with a subset of sample results submitted by Pinellas County as part of the SMP sampling effort.

Records for four samples, collected between April 24, 2014 and November 16, 2014, were reviewed for adherence to sample preparation and identification protocols. The first three samples were entered into the DEP Biological Database (SBIO) and thus were not reflective of Pinellas County's procedures for determination of component SCI metrics and final score calculations, which began with the Bee Branch sample, collected on November 16, 2014. The other samples were: Rattlesnake Creek (G5SW0001/WBID 1614), sampled on April 24, 2014; Stevenson Creek (G5SW002/WBID 1567C), sampled on May 1, 2014; and Spring Branch (G5SW0016/WBID 157B), sampled on May 14, 2014. The samples were collected by Peggy Morgan and Robin Barnes of Pinellas County. Some of the audit findings are unique to the individual SCI sample while other findings and comments pertain to the overall laboratory protocols for the handling and processing of SCI samples.

**Summary of Findings/Acceptance of Corrective Actions**
A preliminary audit report was sent to Peggy Morgan on November 10, 2016. Ms. Morgan provided responses to the preliminary report on January 9, 2017. The findings, Ms. Morgan's responses, and the department's comments are provided in Table 1.

The department found that Pinellas County's macroinvertebrate taxonomy lab sorting procedures fully comply with DEP SOP SCI 2000 with the adoption of the items noted below and in Table 1. The taxonomic identification and index calculations also comply, with a few deficiencies noted in Table 1, but the deficiencies have been addressed. Pinellas County has provided acceptable responses to the listed findings.

**Lab Quality System**: Pinellas County maintains copies of the appropriate taxonomic identification keys and has a reference collection with 70 externally-verified specimens. This number represents approximately 75% of the variety of organisms that have been encountered in the SCI samples reviewed for this audit. The DEP Biological Database lists nearly 150 organisms that have been identified from SCI samples collected in Pinellas County between 2008–2014. Pinellas County is encouraged to expand their reference collection to the point where every organism encountered in routine SCI samples is represented.

**Sample Processing, Sorting and Quality Control (QC):** Pinellas County protocols follow DEP SOPs with the following three modifications.

1. According to the Pinellas County document, "Sorting and Taxonomic SOP deviations and corrective measures," the entire square from Tray 2 is sorted rather than subdividing it into a third tray. This method can result in the identification of significantly more than the target number of organisms (*e.g.,* 455, 577). In such cases, the excess organisms are placed in a gridded dish, and grids are randomly selected to remove the appropriate number of animals to achieve the desired target of 140–160. This subsampling is done per SOP (SCI 2100, Section 3.1.2.12); however, the intent of the third tray is to come closer to the target than is possible by using only the second tray (see SCI 2100, Section 3.1.2.8). While the target number of individuals was

ultimately achieved using this modification, the purpose of the subsampling steps as outlined in the DEP SOP is to reduce the possibility of exceeding the target and thus reducing the potential for sample bias.

2. In discussions with Pinellas County staff (P. Morgan, personal communication), it came to light that a single square from Tray 2 was used to obtain both replicates of 150 organisms. Step 3.1.2.16 of SCI 2100 clearly indicates that the entire process should be repeated at the point where eight squares (or 1/3) of the original material is selected from Tray 1.

3. Ms. Morgan often did not have a second analyst available to re-sort her samples. In these instances, she re-sorted her dishes on another day. This procedure does not adhere to the SOP instructions in SCI 2210 Section 1.2, which specifically states that a second analyst must randomly select one of the sorted aliquots to perform a QC check for determining sorting efficiency.

For future sample processing, Pinellas County will adhere to applicable SOP sections rather than the modifications above (see corrective actions in Table 1). These modifications are not allowed by the SOP; however, they were not sufficiently problematic to invalidate affected results.

The average cumulative sorting efficiency was not presented for each analyst; however, because no sample fell below the 95% sorting efficiency, it was determined that all analysts met the target. Annual average cumulative sorting efficiencies should be maintained for each analyst in the future.

**Taxonomic Identification QC:** Taxonomic QC checks are being performed at the specified rate and with the required proficiency; however, some elements on the taxonomic resolution form submitted for sample “27-11 McKay Creek” were incomplete or unclear. The cumulative identification error rate for total number of organisms and the cumulative total number of taxa identified was not specifically provided for the analyst(s), but this was the first QC sample processed by the newly established Freshwater Biological Assessment Program at Pinellas County and as such represented the entire record at that time.

**SCI Index Calculation:** Pinellas County correctly classified taxa according to their attributes, correctly applied the appropriate calculations, and correctly assigned the samples to the Peninsula SCI Bioregion. There was a minor collapsing error that resulted in slightly different percentages for percent dominant taxa.

**Data Usability Recommendation**

Based on the results of this audit, the AEQAS recommends that the SCI data produced by Pinellas County be used for SMP and Impaired Waters Rule assessment purposes. The corrective actions implemented pursuant to this audit will provide the department greater confidence in future SCI data produced by Pinellas County.

**Table 1.** Audit findings of deficiency and/or requests for additional information for the SCI Laboratory Audit of Pinellas County conducted by the Florida Department of Environmental Protection Aquatic Ecology and Quality Assurance Section.

| SOP reference | Audit Finding | Pinellas County Response | Corrective Action Implementation Date | DEP Comments |
|---|---|---|---|---|
| SCI 2200, Section 1 | The Pinellas County reference collection represents approximately 70 taxa, which corresponds to about 75% of the organisms found in the samples reviewed for this audit. The goal is to have at least one specimen of all taxa identified represented in the reference collection. | Organisms left at family or genus are not put in reference unless family or genus are the Lowest Practical Identification Level. Also, organisms that are bad specimens are not put in voucher. I wait for better specimen. Due to the turbulence of the SCI collection and subsampling process, the specimens are overwhelmingly small and beat up. That said, my percentage is too low so I will step up and get those unrepresented organisms in voucher and verified | 1/9/2017 | This corrective action is acceptable and considered complete. |
| SCI 2100 Sections 3.1.2.7 - 3.1.2.12 | Pinellas Country modifies the DEP SOP by processing the entire square from Tray 2 rather than subdividing it into a third tray. This method can result in significantly more than the target number of organisms (*e.g.,* 455, 577). | This process results in high likelihood that most organisms being tiny, immature and able to be identified only by highly experienced taxonomist or left at family or genus, which has ramifications not just on the SCI score, but on data record, diversity and distribution of aquatic macroinvertebrates. Pinellas County will adopt this procedure immediately as it is specific requirement for the SCI. We will use biorecon for assessment of diversity | 1/9/2017 | This corrective action is acceptable and considered complete. |
| SCI 2100, Sections 3.1.2.6 – 3.1.2.16 | Pinellas County uses a single square from Tray 2 to obtain both replicates of 150 organisms. Step 3.1.2.16 of SCI 2100 indicates that the entire process should be repeated at the point where eight squares (or 1/3) of the original material is selected from Tray 1. | Was not aware of this additional step. Will change method. | 1/9/2017 | This corrective action is acceptable and considered complete. |

| SOP reference | Audit Finding | Pinellas County Response | Corrective Action Implementation Date | DEP Comments |
|---|---|---|---|---|
| SCI 2100, Section 5 | There was one minor difference between the values Pinellas County presented and those calculated in SBIO for the Percent Dominant Taxa metric. This differences did not result in a difference in the replicate scores or the final score. | The difference in % dominant was because I didn't collapse *Enallgma* sp. to *E. coecum*. Will ensure proper collapsing in the future. | 3/20/2017 | This corrective action is acceptable and considered complete. |
| SCI 2210, Section 1.2 | Pinellas County does not have a second analyst available to re-sort samples. In these instances, Ms. Morgan re-sorts her dishes another day. This procedure does not adhere to the SOP instructions in SCI 2210 Section 1.2 that specifically states that a second analyst must randomly select one of the sorted aliquots to perform a QC check for determining sorting efficiency. | Mr. Barnes or another analyst is not always available when the re-sort is needed. Ms. Morgan has used interns for this purpose but there are times when none are available. She thought it was acceptable to re-sort on another day, but will clarify with management that a QC check must be performed by a second person. She will make a note on the sorter's calendar, ensuring they are aware that a check is needed. | 3/20/2017 | This corrective action is acceptable and considered complete. |
| SCI 2210, Section 3.1.2.10 and SCI 2200, Section 1.5 | There appears to be a discrepancy between the Quality Assurance Manual and the Freshwater Sample Logs as to the amount of material that is re-sorted for QC checks. DEP requests clarification on what proportion of samples are being re-sorted. | The note that all dishes resorted is actually an additional column so I could indicate when intern was undergoing training, or someone's efficiency is < 95%. For a trained person, just 10% of dishes are resorted. | 3/20/2017 | This clarification is acceptable and considered complete. |
| SCI 2211 | The annual average cumulative sorting efficiency per analyst was not provided. | Percentages were subsequently provided and will be tracked and identified for each analyst and intern on an annual basis in the future. | 3/20/2017 | This corrective action is acceptable and considered complete. |
| SCI 2221, Sections 1.1-1.2 | The average cumulative identification rates for the number of organisms and the number of taxa was not provided for the analyst(s) for the QC sample. | Rates were subsequently provided and will be tracked and identified for each analyst in the future. | 3/20/2017 | This corrective action is acceptable and considered complete. |