



ANNUAL SYSTEM STATUS REPORT AND QUALITY MANAGEMENT PLAN REVIEW FY-2022

NEIWPCC

December 2022

Submitted by:

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NEIWPCC Quality Assurance Program Manager

Date

A. YEAR IN REVIEW

WORKPLAN REPORTING

NEIWPCCC has an EPA-funded work plan and associated resources to allow the quality assurance program manager (QAPM) to support the organizational quality management system. Activities for this effort are reported to the appropriate EPA project officer. Below is the reporting for FY-2022.

§106 QUALITY MANAGEMENT

NEIWPCCC Job Cost Codes: 1081-006

First Quarter

- Completed QA orientation trainings for 8 new employees.
- Completed Phase 2 of the annual staff self-assessment.
- Met with NEIWPCCC Quality Management Steering Committee (QMSC) to discuss designee program and provide update on QMS anticipated FY2022 activities on 11/2/2021.
- NEIWPCCC staff completed two QA field assessments: Q21-029 - Efficacy of the Vermont Stormwater Management Manual Bioretention Soil Specification in Removing Pollutants and Supporting Plant Health; Q20-016 - Quantifying the road salt pollution load to Mirror Lake and the Chubb River; full reports are included in Appendix C.
- Participated in EPA's listening sessions on their QAPP standards update process on 10/5/2021 & 10/7/2021.
- Participated in Northeast QA Round Table virtual meeting on 11/4/2021.
- Submitted annual system status report and QMP review for FY-21 to QMSC and EPA Regions 1 & 2 on 12/21/2021.

Second Quarter

- Completed QA orientation trainings for 3 new employees.
- Participated in EPA flash workgroup related to QAPP guidance through Q2.
- NEIWPCCC staff completed two QA Field Assessments: Q21-017 - Collection and Management of Restoration Site Data in the Tidal Hudson River Estuary; EPA award #00A00758 - Conservation of the Lamoille River Mudpuppy (*Necturus maculosus*) Population Using Translocation and Monitoring; full reports are included in Appendix C.
- Provided Quality Management System update to NEIWPCCC Commissioners on 1/14/2022.
- Attended EPA's virtual Quality Conference 2/8-2/10/2022.
- Presented annual awareness training at NEIWPCCC's All-Staff meeting on 3/24/2022.

Third Quarter

- Completed QA orientation trainings for 12 new employees.
- Onboarded new Assistant QAPM.
- Participated in EPA flash workgroup related to QAPP guidance through Q3.
- NEIWPCCC staff completed one QA Field Assessment: Q18-004 - Long-term water quality and biological monitoring project for Lake Champlain; full report included in Appendix C.
- Attended EPA Northeast QA Roundtable Virtual Meeting 5/12/2022.

Fourth Quarter

- Completed QA orientation trainings for 3 new employees.
- Initiated QAPM Designee Base Training for three NEIWPCCC staff and QAPM Designee refresher training for one staff person on 8/25/2022 & 8/31/2022.
- NEIWPCCC staff completed one QA field assessments: Q21-030 - Lake Champlain high-frequency monitoring program 2021-2025; full report included in Appendix C.
- Provided QMP review and update plan to NEIWPCCC Commissioners on 9/9/2022.

QAPP REVIEW AND APPROVAL

In FY-2022, 30 quality assurance project plans (QAPPs) were approved. A list of the QAPPs reviewed and approved is contained in Appendix B. Twenty-three of the projects originated from the Lake Champlain Basin Program (LCBP), four from the Long Island Sound Study, and three originated at the Hudson River Estuary Program (HREP). In addition, there are several QAPPs that were submitted in FY-2022 that will be approved and finalized in FY-2023. Those QAPPs will be included in next year's report.

QA FIELD ASSESSMENTS

Five QA field assessments were performed on projects with NEIWPCCC QAPPs in FY-2022.

The field assessment reports for these projects are contained in Appendix C. The projects assessed and the dates of the assessments are:

- Q21-029 - Efficacy of the Vermont Stormwater Management Manual Bioretention Soil Specification in Removing Pollutants and Supporting Plant Health, 10/5/21
- Q20-016 - Quantifying the road salt pollution load to Mirror Lake and the Chubb River, 10/7/21
- Q21-017 - Collection and Management of Restoration Site Data in the Tidal Hudson River Estuary, 3/10/22
- Q18-004 - Long-term water quality and biological monitoring project for Lake Champlain, 6/2/22
- Q21-030 - Lake Champlain high-frequency monitoring program 2021-2025, 8/12/22

Due to minor deviations noted during the assessments for projects Q21-029 and Q20-016, the relevant QAPPs were updated and provided to the project teams and oversight officers, with an opportunity to comment and additional action. No deviations or nonconformances were observed during the assessments of the remaining projects.

In addition, a QA field assessment was completed on the following project by NEIWPCCC staff, "Conservation of the Lamoille River Mudpuppy (*Necturus maculosus*) Population Using Translocation and Monitoring" (EPA award #00A00758) on 3/21/22.

QA PRESENTATIONS AND TRAINING

In FY-2022 there were several presentation and training opportunities offered in association with the quality management system. These included:

- Conducted 26 QA awareness trainings for new employees.
- Participated in Northeast QA Round Table virtual meetings on 11/4/2021 and 5/12/22
- Attended EPA's virtual Quality Conference 2/8-2/10/2022.

- Provided Quality Management System update to NEIWPCCC Commissioners on 1/14/2022.
- Presented annual awareness training at NEIWPCCC's All-Staff meeting on 3/24/2022.
- Initiated QAPM Designee Base Training for three NEIWPCCC staff and QAPM Designee refresher training for one staff person on 8/25/2022 & 8/31/2022.
- Provided QMP review and update plan to NEIWPCCC Commissioners on 9/9/2022.

PHASE 2 QA SELF-ASSESSMENTS

Phase 2 QA self-assessment questionnaires were distributed to 28 staff on November 16, 2022 utilizing an online survey format for response collection. These staff were contacted to complete the self-assessment questionnaire because they indicated on their 2022 performance appraisal that they were involved with environmental data operations on behalf of NEIWPCCC in FY-2022. One staff member has since left NEIWPCCC, and 27 responses (100%) have been returned.

B. QUALITY SYSTEM REVIEW

AREAS OF SUCCESS

The following activities are indicators of a well-functioning quality management system:

- Continued success in efficiently processing QAPP reviews.
- Implementation of processes for annual QAPP data verification and project managers' certification of QAPP annual review.
- Continuation of a high rate of QA field assessments.
- 100% survey response for staff self-assessments.

AREAS OF IMPROVEMENT

The system is performing well and continuous improvement efforts are planned for FY-2023, including:

- Continued development and revision of process documentation.
- Adjustment of our standard electronic filing system to provide more intuitive organization and better align with our annual data verification processes.

C. GOALS FOR NEXT YEAR

- Complete update to NEIWPCCC Quality Management Plan.
- Complete training of two to three new QAPM designees and conduct a refresher for existing designees, as appropriate.
- Complete training for project managers, using the updated QAPP standard when available.
- Conduct and coordinate a high rate of field assessments, engaging project managers and QAPM designees.
- Update QAPP guide for project managers and contractors based on the updated EPA standard (when available).
- Refine documentation of processes within the quality management system.

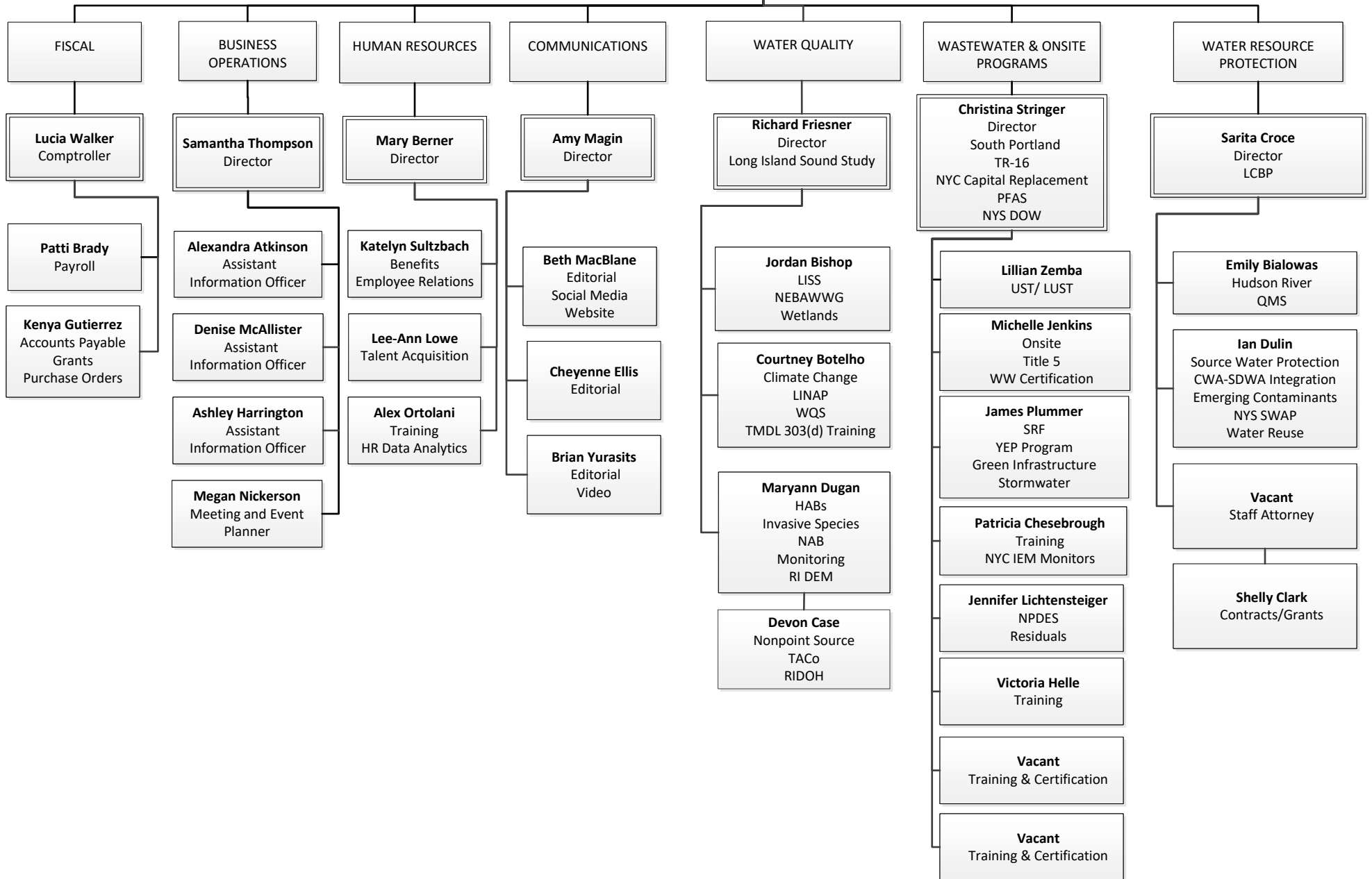
D. QUALITY MANAGEMENT PLAN REVIEW

As of the time of submission of this report, Version 6 of the NEIWPCC QMP is still in effect. The QAPM and NEIWPCC staff have completed updates to the QMP and this version (Version 7) has been approved by the NEIWPCC QMSC. This version will be submitted in January 2023 for concurrence by EPA Regions 1 and 2.

APPENDIX A: NEIWPCCC ORGANIZATIONAL CHART



Executive Committee & Commission
Susan Sullivan
 Executive Director



January 2023

APPENDIX B: QAPP LIST FOR FY-22

FY 2022 Approved QAPPs

NEIWPCC Project Manager	QAPP ID	QAPP Title	QAPP Reviewer	Grant Number	Date Draft QAPP Received	Date Review Completed	Date Final QAPP Received	Signature Page Received
Meg Modley Gilbertson	Q20-025-A1	Lake Champlain Basin Boat Launch Steward Programs	Peter Zaykoski	LC00A00605	5/2/2022	5/9/2022	5/16/2022	<input checked="" type="checkbox"/>
Meg Modley Gilbertson	Q20-042-A2	Aquatic Plant Survey of Lake Hortonia	Peter Zaykoski	LC 00A00707-0	8/16/2022	8/22/2022	9/8/2022	<input checked="" type="checkbox"/>
Meg Modley Gilbertson	Q21-018-A1	Knockout Knotweed: Return of the Jedi QAPP, V1	Peter Zaykoski	LC- 00A00695	6/17/2022	6/22/2022	7/12/2022	<input checked="" type="checkbox"/>
Meg Modley Gilbertson	Q21-028-A1	Follensby Clear Pond Aquatic Invasive Species Removal Amendment 1	Peter Zaykoski	LC- 00A006950	5/18/2022	5/19/2022	6/8/2022	<input checked="" type="checkbox"/>
Lauren Jenness	Q21-034	Lake Forest HOA Stormwater System Upgrade and Stream Daylight	Peter Zaykoski	LC00A00377	7/6/2021	7/14/2021	11/17/2021	<input checked="" type="checkbox"/>
Jordan Bishop	Q21-036	The Long Island Sound Study Ecosystem Target and Supporting Indicators Microsite	Peter Zaykoski	LI00A00688 EPA	8/12/2021	8/18/2021	11/30/2021	<input checked="" type="checkbox"/>
Meg Modley Gilbertson	Q21-038	Irish Farm Stormwater Improvements	Peter Zaykoski	LC00A00695	9/10/2021	9/20/2021	10/18/2021	<input checked="" type="checkbox"/>
Matthew Vaughan	Q21-039	Dam Prioritization Tool for the New York Portion of the Lake Champlain Basin	Peter Zaykoski	GLFC	9/28/2021	9/29/2021	10/25/2021	<input checked="" type="checkbox"/>

NEIWPCC Project Manager	QAPP ID	QAPP Title	QAPP Reviewer	Grant Number	Date Draft QAPP Received	Date Review Completed	Date Final QAPP Received	Signature Page Received
Daniel Miller	Q22-001	City of Hudson Climate Adaptive Design	Peter Zaykoski	C011814	10/14/2021	10/15/2021	10/28/2021	<input checked="" type="checkbox"/>
Matthew Vaughan	Q22-002	Consequences of winter perturbations on nutrient export to Lake Champlain	Peter Zaykoski	LC00A00695-0	11/19/2021	12/8/2021	12/21/2021	<input checked="" type="checkbox"/>
Daniel Miller	Q22-003	Preliminary Design of a Shoreline Revitalization and Community Connectivity Project in Ossining, NY	Peter Zaykoski	C011814	12/10/2021	12/15/2021	1/14/2022	<input checked="" type="checkbox"/>
Megan Lung	Q22-004	Town of Red Hook and Town of Milan Stream Crossing Management Plan	Peter Zaykoski	C011814	3/1/2022	3/7/2022	3/21/2022	<input checked="" type="checkbox"/>
Mae Kate Campbell	Q22-005	Lake Assessment and Watershed Action Planning for New York Lakes & Clean Water Safe Roads Partnership	Peter Zaykoski	LC-00A00707-0	3/15/2022	3/21/2022	4/19/2022	<input checked="" type="checkbox"/>
Meg Modley Gilbertson	Q22-006	Distribution and Ecological Impacts of Round Goby in the Lake Champlain Region	Peter Zaykoski	GLFC	3/18/2022	3/21/2022	4/6/2022	<input checked="" type="checkbox"/>
Jordan Bishop	Q22-007	Utilizing Ribbed Mussel Aquaculture to Improve Water Quality in the Long Island Sound	Richard Friesner	LI-00A00688	3/29/2022	4/12/2022	8/23/2022	<input checked="" type="checkbox"/>
Jordan Bishop	Q22-008	Developing Conservation Plans for New York's Long Island Sound Marsh Complexes-Phase 2	Peter Zaykoski	LI-00A00384	3/29/2022	4/19/2022	6/16/2022	<input checked="" type="checkbox"/>

NEIWPCC Project Manager	QAPP ID	QAPP Title	QAPP Reviewer	Grant Number	Date Draft QAPP Received	Date Review Completed	Date Final QAPP Received	Signature Page Received
Mae Kate Campbell	Q22-009	Establishing Bankfull Discharge and Hydraulic Geometry Relationships, Ausable River Watershed	Peter Zaykoski	LC 00A00707-0	4/5/2022	4/19/2022	5/5/2022	<input checked="" type="checkbox"/>
Lauren Jenness	Q22-010	Caspian Lake & Watershed Action Plan, Greensboro VT	Peter Zaykoski	LC 00A00707-0	4/8/2022	5/4/2022	9/20/2022	<input checked="" type="checkbox"/>
Mae Kate Campbell	Q22-011	NY NPS Subwatershed Assessment Plan Update	Richard Friesner	LC 00A00707-0	4/20/2022	5/2/2022	7/5/2022	<input checked="" type="checkbox"/>
Lauren Jenness	Q22-012	Lake and Watershed Action Plan for Keeler Bay	Peter Zaykoski	LC 00A00707-0	5/4/2022	7/27/2022	8/22/2022	<input checked="" type="checkbox"/>
Jordan Bishop	Q22-013	Utilizing Seaweed Aquaculture to Improve Water Quality in the Long Island Sound – Fertilizer Extension	Peter Zaykoski	LI-00A00688	5/4/2022	5/11/2022	7/11/2022	<input checked="" type="checkbox"/>
Matthew Vaughan	Q22-014	Going deep: evaluating deep and shallow water drivers of mercury in Lake Champlain fish	Richard Friesner	LC00A00707	5/6/2022	5/31/2022	7/12/2022	<input checked="" type="checkbox"/>
Mae Kate Campbell	Q22-016	Concept Design for Ahead of the Storm Demonstration Site in Hinesburg	Peter Zaykoski	LC 00A00707-0	5/18/2022	5/26/2022	7/12/2022	<input checked="" type="checkbox"/>
Meg Modley	Q22-017	Native Plantings and Soil Health for Healthy Streams, Ausable River Watershed	Peter Zaykoski	EPA LC 00A00707-0	6/16/2022	6/22/2022	8/1/2022	<input checked="" type="checkbox"/>

NEIWPCC Project Manager	QAPP ID	QAPP Title	QAPP Reviewer	Grant Number	Date Draft QAPP Received	Date Review Completed	Date Final QAPP Received	Signature Page Received
Matthew Vaughan	Q22-018	Development of a Comprehensive Binational Phosphorus Mass Balance Analysis Toolkit for the Missisquoi Bay Watershed	Peter Zaykoski	LC00A00707	6/6/2022	6/10/2022	7/15/2022	<input checked="" type="checkbox"/>
Matthew Vaughan	Q22-019	Achieving Verifiable Phosphorus Removal from Tile Drains Discharging to Lake Carmi Tributaries	Richard Friesner	LC00A00707	6/9/2022	7/5/2022	9/14/2022	<input checked="" type="checkbox"/>
Mae Kate Campbell	Q22-020	Completion of the planification for the revitalization of the Lake Parker watershed	Peter Zaykoski	GLFC	6/23/2022	6/24/2022	7/11/2022	<input checked="" type="checkbox"/>
Mae Kate Campbell	Q22-021	Long-Term Monitoring of a Myco-Phytoremediation Project for Phosphorus Mitigation & Pollinator Habitat at Shelburne Farms	Peter Zaykoski	LC 00A00707-0	7/5/2022	7/6/2022	9/26/2022	<input checked="" type="checkbox"/>
Lauren Jenness	Q22-023	Lake Iroquois Watershed Action Plan	Peter Zaykoski	LC 00A00707-0	8/3/2022	8/17/2022	9/27/2022	<input checked="" type="checkbox"/>
Meg Modley Gilbertson	Q22-024	Lake Eden Eurasian watermilfoil aquatic plant survey	Peter Zaykoski	GLFC	8/11/2022	8/11/2022	8/15/2022	<input checked="" type="checkbox"/>

APPENDIX C: FIELD ASSESSMENT REPORTS

QA FIELD ASSESSMENT REPORT

Project Title: Long-term water quality and biological monitoring project for Lake Champlain

QAPP ID: Q18-004

Assessor(s): Matthew Vaughan

On June 2, 2022, Matthew Vaughan (LCBP Chief Scientist and Project Officer) accompanied Pete Stangel and Connor Quinn during field activities associated with the *Long-term water quality and biological monitoring project for Lake Champlain*.

Field activities conducted during this visit included water quality sample collection, digital water quality sonde measurements, zebra mussel veliger tows, and Secchi disk readings. The team visited LTMP site 25 (Malletts Bay). This is the location of the recently deployed Malletts Bay monitoring buoy, though no maintenance was performed on the buoy.

All field efforts observed were conducted in accordance with the approved quality assurance project plan (QAPP).



Sampling equipment and Malletts Bay monitoring buoy in the background



Malletts Bay monitoring buoy

QA FIELD ASSESSMENT REPORT

Project Title: Quantifying the road salt pollution load to Mirror Lake and the Chubb River

QAPP ID: Q20-016

Assessor(s): Matthew Vaughan

On October 7, 2021 LCBP Project Officer (Matthew Vaughan) accompanied Leanna Thalmann (Ausable River Association), Brendan Wiltse and Sue O'Reilly (Adirondack Watershed Institute) during field activities associated with the *Quantifying the road salt pollution load to Mirror Lake and the Chubb River* project.

Field activities conducted on this day included in-lake water quality sonde measurements, water sample collection, and in-situ conductivity and temperature sensor data downloading at two locations.

Nearly all field efforts observed were conducted in accordance with the approved quality assurance project plan (QAPP). There were two minor deviations from the QAPP:

1. Rather than using physical field sheets described in the QAPP, the field team used the ESRI Data123 smartphone app to record field visit information. All form information was identical to the field sheets described in the QAPP. The smartphone app stores information locally then syncs to the cloud and their office computers when connected to the internet.
2. The Adirondack Watershed Institute laboratory Standard Operating Procedure (SOP) has changed regarding the frequency of field blanks and field duplicate collection. When the QAPP was approved, the SOP stated that a field blank and field duplicate would be collected every sampling trip. The lab SOP has been altered to read: "During each year a field duplicate and field blank for each sampling site will be collected either one per year or once per ten sampling trips, whichever is greater."

Photos of the QA field assessment follow.



Brendan Wiltse collects a 2-meter integrated water sample, and Sue O'Reilly prepares to make water profile measurements of dissolved oxygen, specific conductance, and pH at 1-meter intervals using a hand-held water quality sonde.



Leanna Thalmann filters a water sample.



Sue O'Reilly and Leanna Thalmann download in-situ conductivity and temperature data at the outlet of Mirror Lake.



Brendan Wiltse downloads in-situ conductivity and temperature data at a stormwater outflow location.



Mirror Lake

QA FIELD ASSESSMENT REPORT

Project Title: Collection and Management of Restoration Site Data in the Tidal Hudson River Estuary

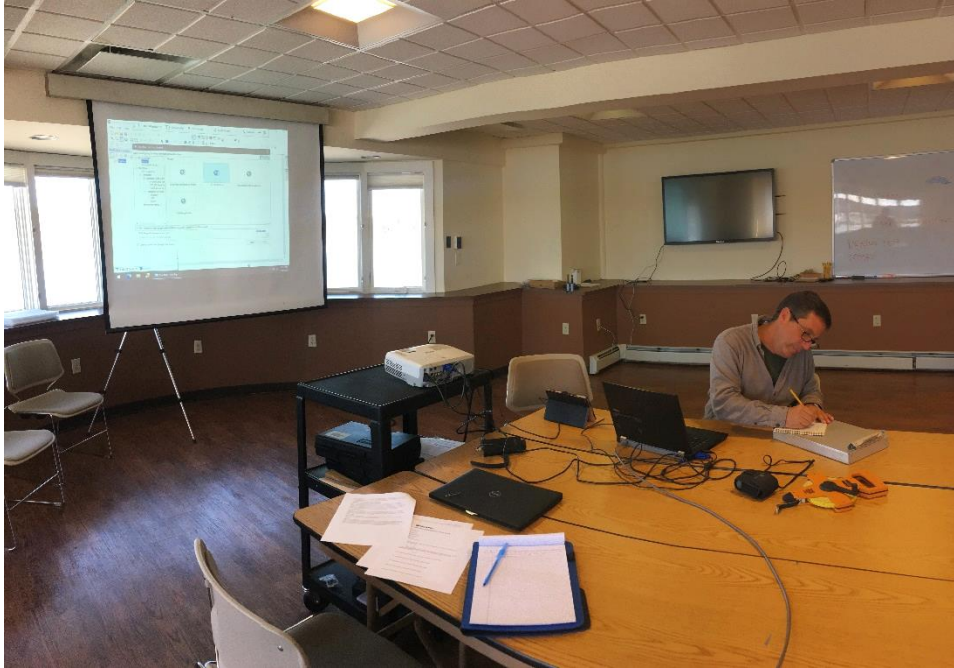
QAPP ID: Q21-017

Assessor: Peter Zaykoski, QAPM

On March 4, 2022, the NEIWPC Quality Assurance Program Manager (Peter Zaykoski) accompanied Daniel Miller, NEIWPC Environmental Analyst in the Hudson River Estuary Program during desktop and field activities associated with the Collection and Management of Restoration Site Data in the Tidal Hudson River Estuary project.

Activities conducted during the assessment included both desktop and field components of the site assessment protocol. Dan Miller completed the desktop components of the assessment at the Hudson River National Estuarine Research Reserve office at the Norrie Point Environmental Center in Staatsburg, NY. He demonstrated to me the tools in place for accessing data and the process to add relevant information from those geographic layers into the Survey 123 application for specific sites. We then traveled to Rhinebeck, NY, to a site where there is a dam on the Landsman Kill, to complete the field component of the protocol. Dan walked me through the process to open the site record in Survey 123 and add relevant data gathered through observations at the site. Pictures from the assessment are provided below and a copy of the assessment data sheet is attached at the end of this report.

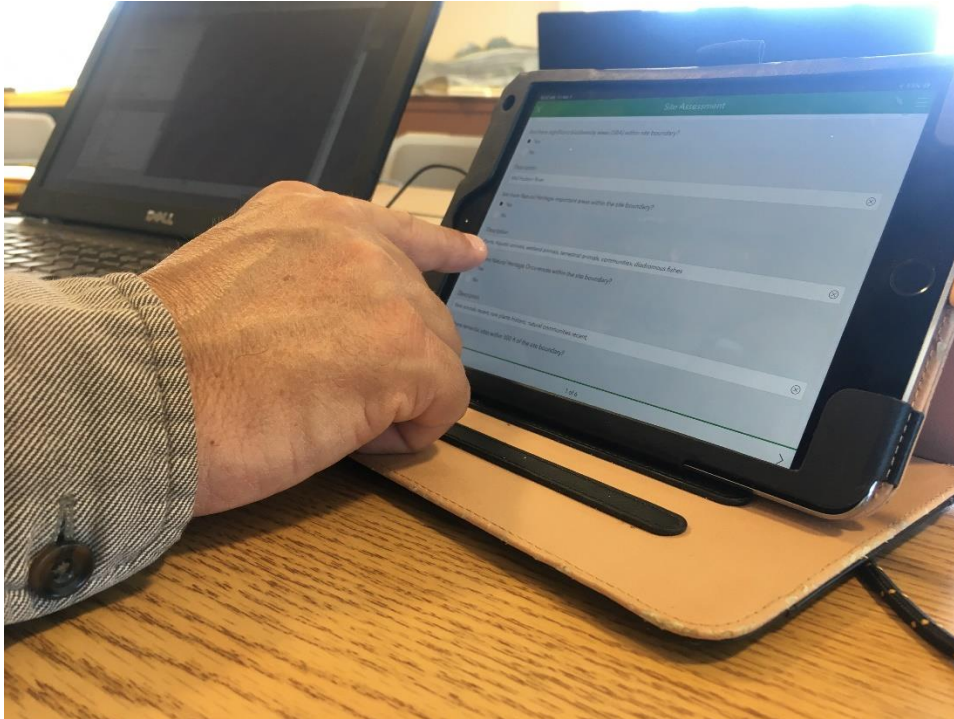
All efforts observed were conducted in accordance with the approved quality assurance project plan (QAPP). No deviations from (or discrepancies with) the approved QAPP approved were observed or noted.



Dan Miller preparing to demonstrate the desktop component of the restoration site data collection protocol at the Norrie Point Environmental Center.



Dan showing locations of potential restoration sites, where the protocol has or is planned to be used for assessment.



Walking through the Survey123 application, Dan indicates the information that is collected during the desktop portion of the assessment.



The field site: a dam on the Landsman Kill in Rhinebeck, NY.



Dan enters observations into the Survey123 application at the field site.



Dan estimates distances to characterize the dam as part of the “Hydrologic Conditions” portion of the assessment protocol.



QA FIELD ASSESSMENT DATA SHEET

Project Title: Collection and Management of Restoration Site Data in the Tidal Hudson River Estuary

QAPP ID: Q21-017

Assessor(s): Peter Zaykoski, QAPM

Assessment Date: March 4, 2022

Project Location: Norrie Point Environmental Center, Staatsburg, NY & Landsman Kill Dam, Rhinebeck, NY

Project Staff: Daniel Miller, NEIWPCC Environmental Analyst

Brief Project Description: Field observations of candidate restoration sites using mobile data collection app. Information combined in a geo-referenced database with secondary information from NYS to create site reports used to evaluate restoration site potential for further study and funding.

Is there an approved QA Project Plan for the overall project and has it been reviewed by all appropriate personnel?

Yes.

Is a copy of the current approved QA Project Plan maintained at the site? If not, briefly describe how and where quality assurance and quality control requirements and procedures are documented at the site.

Yes.

Is the implementation of the project in accordance with the QA Project Plan?

Yes.

Are there deviations from the QA Project Plan? (If yes, explain)

No.

Do any deviations from the QA Project Plan affect data quality?

N/A

Have any corrective actions been taken during the project?

No.

Did these corrective actions impact data quality (If yes, describe)

N/A

QA FIELD ASSESSMENT REPORT

Project Title: Efficacy of the Vermont Stormwater Management Manual Bioretention Soil Specification in Removing Pollutants and Supporting Plant Health

QAPP ID: Q21-029

Assessor(s): Matthew Vaughan

On October 1, 2021, Matthew Vaughan (LCBP Chief Scientist and Project Officer) accompanied Sam Brewer, Hisashi Kominami, and Paliza Shrestha during field activities associated with the *Efficacy of the Vermont Stormwater Management Manual Bioretention Soil Specification in Removing Pollutants and Supporting Plant Health* project.

Field activities included synthetic stormwater mixing, synthetic rain event experimental run, and effluent sample collection.

Nearly all field efforts observed were conducted in accordance with the approved quality assurance project plan (QAPP). The following deviations from the approved QAPP were observed:

- The synthetic stormwater runoff volumes have been revised to 30, 60, and 90 gallons, rather than the volumes specified in the QAPP (Table 7; 34.3, 52.8, and 68.7 gallons, converted from liters). The new volumes were chosen to represent small, medium, and large storms. The maximum practical volume for each storage tank is 90 gallons.
- The copper concentration in synthetic stormwater has been doubled to address sensitivity concerns at the suggestion of a laboratory technician. The concentrations are now 0.32 mg/L (for 1x concentration) and 0.64 mg/L (for 2x concentration) (QAPP Table 6).

Photos from this visit are on the following pages.



Synthetic stormwater tanks rest above experimental bioretention plots before the simulated rainfall event.



A full view of the experimental site. The lower storage containers catch simulated rainfall event effluent for sampling.



Sam Brewer combines the concentrated pollutant mixture with “clean” groundwater to create the synthetic stormwater.



A close-up view of an experimental bioretention basin during a simulated rainfall event.

QA FIELD ASSESSMENT REPORT

Project Title: Lake Champlain high-frequency monitoring program 2021-2025

QAPP ID: Q21-30

Assessor(s): Matthew Vaughan

On August 12, 2022, Matthew Vaughan (LCBP Chief Scientist and Project Officer) accompanied Pete Stangel (Aquatic Biologist), Peter Isles (Aquatic Biologist), and Connor Quinn (Field Assistant) during field activities on the Lamoille River associated with the *Lake Champlain high-frequency monitoring program*.

Field activities conducted during this visit included routine cleaning and sensor calibration for specific conductivity, dissolved oxygen, turbidity, nitrate, and pH probes on the YSI EXO2 multi-parameter sonde.

All field efforts observed were conducted in accordance with the approved quality assurance project plan (QAPP).



Water quality monitoring buoy deployed on the Lamoille River



Peter Isles (front) and Connor Quinn (back) remove the multi-parameter water quality sonde from the buoy housing for cleaning and sensor calibration.



Pete Stangel uses a winch to raise the buoy anchor for maintenance.



YSI EXO2 multi-parameter water quality sonde and calibration standards.

QA FIELD ASSESSMENT REPORT

Project Title: Conservation of the Lamoille River Mudpuppy (*Necturus maculosus*) Population Using Translocation and Monitoring

QAPP ID: EPA award: #00A00758; RFA:#21050

Assessor(s): Meg Modley Gilbertson

On March 21st, 2022, the LCBP/NEIWPCC Project Officer (Meg Modley Gilbertson) accompanied Mark Ferguson, Vermont Department of Fish and Wildlife Biologist and Gwen Lavalla, Vermont Department of Fish and Wildlife seasonal technician, during field activities associated with the Mudpuppy Translocation project.

Field activities conducted on March 21st, 2022 included visiting the three sampling locations to retrieve 8 traps per site and the pit tagging of selected individuals to be translocated above the Arrowhead Mountain Dam.

All field efforts observed were conducted in accordance with the approved quality assurance project plan (QAPP). No deviations from (or discrepancies with) the approved QAPP approved were observed or noted.

I met Mark and Gwen at the first sampling site on March 21st, 2022 on a 40-degree day. The water temperature was reading 2 degrees centigrade and optimal sampling for mudpuppies is 3 degrees centigrade based on the literature and the Vermont Department of Fish and Wildlife's past experience collecting mudpuppies.

The first array of 8 traps were set just below the Peterson Dam off of Peterson Rd. Each trap is a metal mesh cylinder that opens in the middle, weighted with slate, and baited with 3 golden shiner minnows that are crushed and inserted into a small plastic bottle with holes in it inside the trap. Each trap is checked every 48 hours so the sampling effort is intense. Each trap is targeted to be placed along the shoreline underwater and is connected to shore by a rope that is tied off to trees and spaced out about 10 meters apart. In the spring flows it can be challenging to retrieve the traps with debris and spring run-off water levels. I observed the retrieval, opening of each trap, removal of mudpuppies if found, rebaiting of the trap, and the return of the trap to the water. Trap 5 had two mudpuppies present. They were carefully removed and put into a 5-gallon bucket with water. Once all traps had been checked at the first sample site the mudpuppies were put in the back of the car with a battery-operated aerator and we continued to the next sample site.



First sample location just below the Peterson Dam off of Peterson Rd.



Mark Ferguson and Gwen Lavalla, VTFWD work to retrieve mudpuppy traps along the Lamoille River in Milton, VT.



Mark and Gwen retrieve a mudpuppy trap.



Mark Ferguson redeploys a baited mudpuppy trap.



Two mudpuppies retrieved in trap 5 before transfer to 5 gallon bucket.



Two mudpuppies from trap 5 at first sampling site transferred into 5 gallon bucket with Lamoille River water in the field.

The second sample site was just downstream along the embankment of the Lamoille River just off of West Milton Road. The second array of traps has a few more mudpuppies. Trap 2 had 1 plus a crayfish that was returned to the river, trap 4 had 3 mudpuppies, and trap 6 had 1 mudpuppy.



Field data sheet at site 2 shows trap 2 had 1 mudpuppy and 1 crayfish present.

Mudpuppy Trapping Datasheet

Site Lansville River below Peter's Dam Town Mt. Vernon
 Biologists M. Ferguson, G. J. Jansala
 Precipitation (last 48 hrs) _____

Trap Set Date 03-17-22 Time (range) 8:30am-12:45pm Flow _____
 H₂O Temperature 33°F
 Trap Check Date _____ Time (range) _____ H₂O Temperature 23°C

Number of Mudpuppies

Array	Trap #							
	1	2	3	4	5	6	7	8
Array 1	0	0	0	0	0	0	0	0
Array 2	0	1 (1 crayfish)	0	0	0	0	0	0
Array 3								

*Array and trap numbers increase from downstream to upstream.
 up stream to down stream

Mudpuppy Data First eight: 98900103

Sex	Total Length (mm)	SVL (mm)	Weight (g)	PIT tag #	Photo? (y/n/lt)



Mark retrieves crayfish from trap 2 and prepares to release it in the Lamoille River.



Mudpuppies caught in the field are placed in 5 gallon buckets and aerators are inserted in the back of the VTFWD truck for transport.

The third sample site was located just upstream of the Bear Trap Road bridge and West Milton Road. Trap 2 had 2 mudpuppies, trap 4 had three mudpuppies, trap 6 fell apart as it was being retrieved and half the trap was lost in the river so it was replaced with a new trap, and trap 8 had 4 mudpuppies present.



Gwen shows data collection sheet and approved QAPP on her phone during field assessment at site 3 on the Lamoille River.

After all the traps were checked at all three sites then the mudpuppies were transferred in their aerated buckets to the Vermont Department of Fish and Wildlife facility off of Gravelle Road in Milton, VT. There the mudpuppies were carefully transferred into blue bins so they could be

inspected with gloved hands for sex and then placed in a plastic bag to get their weight.



Mudpuppy in blue bin.



Gwen carefully checks the mudpuppy sex.



Mudpuppy placed in plastic bag for weight measurement.

Then the mudpuppies were clipped and a subset were pit tagged before being relocated above the Arrowhead Mountain Dam. Mark and Gwen used bleach to sterilize the scissors and tweezers used to take the tail clip after each use. Since the mudpuppies are so slippery they used a wet small towel to aid in picking up and handling the mudpuppies. Mark snipped skin off the tail to preserve of each mudpuppy caught and put the sample in a marked vile and the info was recorded on the data sheet. The process for pit tagging involved using the HPR lite handheld pit tagger. First the pit tag was scanned and the number was recorded on the data sheet. Then the tag was inserted into select mudpuppies. Then the mudpuppy was scanned for the tag to ensure it could be read and was correct. Any mudpuppy under 150mm in length was not pit tagged.



Mark and Gwen work to collect tail tissue from each mudpuppy.



Gwen and Mark work to pit tag mudpuppies over 150mm in length

The LCBP/NEI Project Officer had to leave before all pit tagging and tail clipping was complete but Gwen and Mark were headed out right after to release them above the Arrowhead Mountain Dam. They still had a long day ahead of them.

QA FIELD ASSESSMENT DATA SHEET

Project Title: Conservation of the Lamoille River Mudpuppy (*Necturus maculosus*) Population Using Translocation and Monitoring

QAPP ID: EPA award: #00A00758; RFA#21050

Assessor(s): Meg Modley Gilbertson

Assessment Date: March 21st, 2022

Project Location: Lamoille River in Milton, VT

Project Staff: Mark Ferguson, Vermont Department of Fish and Wildlife and Gwen Lavalla – VTFWD intern

Brief Project Description: The Vermont Natural Heritage Inventory assigns the mudpuppy a conservation status rank of S2, indicating it is rare in the state. Due to concern about its long-term population viability and in order to ensure they remain a vital part of the LCB aquatic fauna an immediate conservation strategy identified is to establish a subpopulation upstream of the known inhabited reach of the Lamoille River and separated from it by 2 dams. VTFWD will carry out trapping and translocation of 50-150 mudpuppies on the Lamoille River from below the Peterson Dam and move them upstream of the Arrowhead Mountain Dam. Translocated mudpuppies will be marked with PIT tags and a subset will be fitted with radio transmitters to assess survival and movement.

Is there an approved QA Project Plan for the overall project and has it been reviewed by all appropriate personnel?

Yes, this is a Lake Champlain Basin Program/NEI funded project supported by EPA funds that went directly from EPA to Vermont Department of Fish and Wildlife. LCBP project officer assigned to assist and track the project is Meg Modley Gilbertson. Meg worked with Mark Ferguson at VTFWD to ensure the QAPP was prepared and reviewed by EPA and signed by the appropriate parties. During the QA field site assessment Meg ensured that Mark and Gwen were aware of the QAPP and had a copy on hand.

Is a copy of the current approved QA Project Plan maintained at the site? If not, briefly describe how and where quality assurance and quality control requirements and procedures are documented at the site.

Yes, VTDFW had a copy of the QAPP on hand and in the field during data collection

Is the implementation of the project in accordance with the QA Project Plan?

Yes the project is operating in accordance with the QA Project Plan.

Are there deviations from the QA Project Plan? (If yes, explain)

No, there were no deviations from the QA Project Plan that I observed or heard about.

Do any deviations from the QA Project Plan affect data quality?

N/A

Have any corrective actions been taken during the project?

No

Did these corrective actions impact data quality (If yes, describe)

N/A