



ANNUAL SYSTEM STATUS REPORT AND QUALITY MANAGEMENT PLAN REVIEW FY-2021

NEIWPCC

December 2021

Submitted by:

A handwritten signature in blue ink that reads "Peter A. Zaykoski".

12/21/2021

Peter Zaykoski
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-2021.

§106 QUALITY MANAGEMENT

NEIWPCCC Job Cost Codes:1080-002-001 & 1081-006

First Quarter

- Completed QA orientation trainings for 3 new employees.
- Completed Phase 2 of the annual staff self-assessment .
- Submitted comments on EPA's draft Quality Policy and Procedure update, representing the New England states, 10/9/2020.
- Met with NEIWPCCC Quality Management Steering Committee (QMSC) to provide update on QMS anticipated FY2020 activities on 11/3/2020.
- Participated in Northeast QA Round Table virtual meeting on 11/5/2020.
- Completed QAPM Designee Base Training for two NEIWPCCC Lowell employees on 12/2/2020 and notified EPA of list of current designees on 12/14/2020.
- Submitted annual system status report and QMP review for FY-20 to QMSC and EPA Regions 1 & 2 on 12/23/2020.

Second Quarter

- Completed QA orientation trainings for 3 new employees.
- Provided Quality Management System update to NEIWPCCC Commissioners on 1/15/2021.
- Presented annual awareness training at NEIWPCCC's virtual All-Staff meeting on 3/25/2021.

Third Quarter

- Completed QA orientation trainings for 4 new employees.
- Attended EPA National Quality Program Virtual Meeting 4/27/2021-4/29/2021.
- Attended EPA Northeast QA Roundtable Virtual Meeting 5/6/2021.

Fourth Quarter

- Completed QA orientation trainings for 3 new employees.
- NEIWPCCC staff completed five QA field assessments: Q18-004 - Long-Term Water Quality and Biological Monitoring Project for Lake Champlain; Q21-003 - Utilizing Seaweed Aquaculture to Improve Water Quality in the Long Island Sound; Q21-015 - Port Henry Stream Study; Q21-025 - Rapid detection of Atlantic salmon and trout in the Boquet and Ausable Rivers using environmental DNA; and Q21-028 - Follensby Clear Pond Aquatic Invasive Species Removal. Full reports are included in Appendix C.
- Participated in meetings hosted by EPA Headquarters as part of the update to QAPP and QMP standards on 9/21/2021, 9/27/2021, 9/28/2021, & 9/30/2021.
- Held annual coordination meeting with QAPM designees on 9/24/2021.

QAPP REVIEW AND APPROVAL

In FY-2021, 37 quality assurance project plans (QAPPs) were approved. A list of the QAPPs reviewed and approved is contained in Appendix B. Twenty-one of the projects originated from the Lake Champlain Basin Program (LCBP), eight from the East of Hudson Community Wastewater Planning Assistance Grant Program, two from the Long Island Sound Study, and one originated at the Hudson River Estuary Program (HREP). In addition, there are several QAPPs that were submitted in FY-2021 that had approved finalized in early FY-2022. Those QAPPs will be included in next year's report.

QA FIELD ASSESSMENTS

Five QA field assessments were performed in FY-2021.

No deviations from (or discrepancies with) the approved QAPPs were observed or noted during all but one of the assessments. The field assessment reports for these projects are contained in Appendix C. The projects assessed and the dates of the assessments are:

- Q18-004 - Long-Term Water Quality and Biological Monitoring Project for Lake Champlain, 9/23/2021
- Q21-003 - Utilizing Seaweed Aquaculture to Improve Water Quality in the Long Island Sound, 9/10/2021
- Q21-015 - Port Henry Stream Study, 9/24/2021
- Q21-025 - Rapid detection of Atlantic salmon and trout in the Boquet and Ausable Rivers using environmental DNA, 8/24/2021
- Q21-028 - Follensby Clear Pond Aquatic Invasive Species Removal, 8/24/2021

Minor discrepancies were observed during the assessment for the Long-Term Water Quality and Biological Monitoring Project for Lake Champlain. These discrepancies were communicated to all signatories of the QAPP and others on the distribution list and changes be integrated into the QAPP during the annual update in early 2022.

QA PRESENTATIONS AND TRAINING

In FY-2021 there were several presentation and training opportunities offered in association with the quality management system. These included:

- Conducted thirteen QA awareness trainings for new employees.
- Participated in Northeast QA Round Table virtual meetings on 11/5/2020 and 5/6/2021.
- Completed QAPM Designee Base Training for two NEIWPCCC Lowell employees on 12/2/2020 and notified EPA of list of current designees on 12/14/2020.
- Provided Quality Management System update to NEIWPCCC Commissioners on 1/15/2021.
- Presented annual awareness training at NEIWPCCC's virtual All-Staff meeting on 3/25/2021.

PHASE 2 QA SELF-ASSESSMENTS

Phase 2 QA self-assessment questionnaires were distributed to 26 staff on November 1, 2021; utilizing an online survey format for response collection. These staff were contacted to complete the self-assessment questionnaire because they indicated on their 2021 performance appraisal that they were involved with environmental data operations on behalf of NEIWPCCC in FY-2021.

24 responses (92%) have been returned. The QAPM will continue efforts to maintain and increase the percentage of responses received.

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, including advanced coordination of QAPM designees to provide prompt review of a batch of eight QAPPs that were submitted concurrently and to which we agreed to provide review on a specific timeline.
- Formalization of a process and standard documentation to accompany memo updates to QAPPs.
- 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, despite interruptions from COVID-19.
- Strong survey response for staff self-assessments.

AREAS OF IMPROVEMENT

The system is performing well and continuous improvement efforts are planned for FY-2022, 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

- Continue to optimize system performance and identify areas for system strengthening.
- Complete training of two to three new QAPM designees, using the updated QAPP standard (not yet finalized) and conduct a refresher training for existing designees.
- Conduct and coordinate a high rate of field assessments, engaging project managers and QAPM designees.
- Development of guidance for staff and QAPP writers on expectations for the level of detail and format of QAPPs based on the expected content of the project and its size (i.e., related to the graded approach)
- Further document existing and new processes within the quality management system; update existing documentation as needed.

D. QUALITY MANAGEMENT PLAN REVIEW

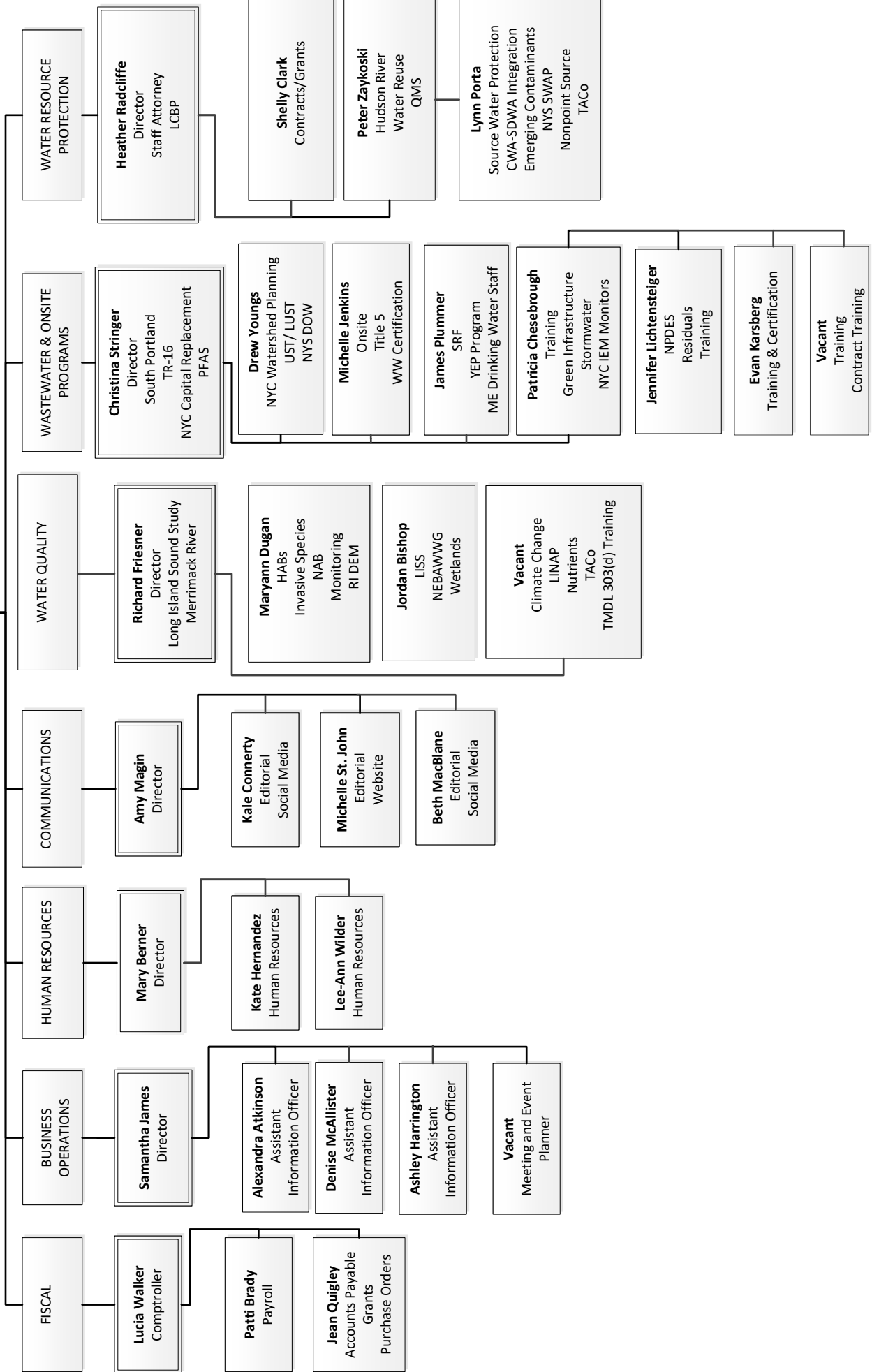
Version 6 of the NEIWPCCC QMP was fully-approved by EPA Region 1 and 2 in March 2018 and is valid into 2023. Version 6 of the NEIWPCCC QMP can be viewed at <http://neiwpc.org/our-programs/assessment-and-research/quality-management/>.

The QAPM will work with the NEIWPCCC Quality Management Steering Committee over the course of the coming fiscal year to plan and draft the next version of NEIWPCCC's QMP in anticipation of moving through EPA review and approval early in FY 2023. It is likely that EPA's updated QMP standard will be finalized within this timeframe and we anticipate that the update to our QMP will be in compliance with the updated standard.

APPENDIX A: NEIWPCCC ORGANIZATIONAL CHART



Executive Committee & Commission
Susan Sullivan
 Executive Director



APPENDIX B: QAPP LIST FOR FY-21

FY 2021 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	Q20-028	Quantifying Phosphorus Reductions for Proposed Projects in NY Reduction Plan	Meg Modley	GLFC	4/20/2020	5/7/2020	11/9/2020	<input checked="" type="checkbox"/>
Meg Modley Gilbertson	Q20-042-A1	Lake Hortonia Milfoil Management	Peter Zaykoski	GLFC	9/3/2021	9/3/2021	9/8/2021	<input checked="" type="checkbox"/>
Ryan Mitchell	Q21-001	Understanding Public Awareness of Lake Issues and Engagement in Watershed Stewardship Across the Lake Champlain Basin	Meg Modley	L-2020-074	10/1/2020	10/15/2020	2/16/2021	<input checked="" type="checkbox"/>
Lauren Jenness	Q21-002	Village of Whitehall Green Infrastructure Plan	Meg Modley	GLFC	10/14/2020	11/23/2020	2/8/2021	<input checked="" type="checkbox"/>
Kristin Kraseski	Q21-003	Utilizing Seaweed Aquaculture to Improve Water Quality in the Long Island Sound	Richard Friesner	LI-00A00688	12/18/2020	1/7/2021	3/19/2021	<input checked="" type="checkbox"/>
Drew Youngs	Q21-004	East of Hudson Community Wastewater Planning Assistance Grant Program - Lake Casse	Richard Friesner	CRO-597	1/19/2021	2/1/2021	3/3/2021	<input checked="" type="checkbox"/>
Drew Youngs	Q21-005	East of Hudson Community Wastewater Planning Assistance Grant Program - Lake Gilead Study Area	Meg Modley	CRO-597	1/19/2021	2/4/2021	3/17/2021	<input checked="" type="checkbox"/>
Drew Youngs	Q21-006	East of Hudson Community Wastewater Planning Assistance Grant Program - Lakeview Road Study Area	Meg Modley	CRO-597	1/19/2021	2/4/2021	3/17/2021	<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
Drew Youngs	Q21-007	East of Hudson Community Wastewater Planning Assistance Grant Program - Mud Pond Brook Study Area	Richard Friesner	CRO-597	1/19/2021	2/1/2021	3/3/2021	<input checked="" type="checkbox"/>
Drew Youngs	Q21-008	East of Hudson Community Wastewater Planning Assistance Grant Program - Lake Kitchawan	Peter Zaykoski	CRO-597	1/19/2021	2/3/2021	3/17/2021	<input checked="" type="checkbox"/>
Drew Youngs	Q21-009	East of Hudson Community Wastewater Planning Assistance Grant Program - Lake Truesdale	Peter Zaykoski	CRO-597	1/19/2021	2/3/2021	3/4/2021	<input checked="" type="checkbox"/>
Drew Youngs	Q21-010	Lake Waccabuc Engineering Study: Wastewater Issues and Solutions Westchester County, New York	Peter Zaykoski	CRO-597	1/19/2021	2/4/2021	2/11/2021	<input checked="" type="checkbox"/>
Drew Youngs	Q21-011	East of Hudson Community Wastewater Planning Assistance Grant Program - Palmer Lake	Courtney Schmidt	CRO-597	1/19/2021	2/4/2021	3/17/2021	<input checked="" type="checkbox"/>
Matthew Vaughan	Q21-012	Lake Champlain Environmental Condition and Change Analysis	Peter Zaykoski	LC00A00695	2/22/2021	2/24/2021	3/8/2021	<input checked="" type="checkbox"/>
Colleen Hickey	Q21-013	From Arrowhead to Yellow Pond Lily: An Outreach Campaign for Lake Champlain's Native Aquatic Plants	Richard Friesner	LC00A00605	3/30/2021	4/9/2021	5/10/2021	<input checked="" type="checkbox"/>
Christina Stringer	Q21-014	Regional Sludge Generation Estimate	Peter Zaykoski	N/A	3/10/2021	3/10/2021	3/10/2021	<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
Mae Kate Campbell	Q21-015	Port Henry Stream Study	Peter Zaykoski	LC00A00695 0	3/15/2021	3/19/2021	5/4/2021	<input checked="" type="checkbox"/>
Mae Kate Campbell	Q21-016	Using multi-metric modeling, field surveys, and online spatial tools to support conservation and management for flood resilience, water quality, and native species habitat	Peter Zaykoski	LC- 00A00695-0	3/12/2021	3/23/2021	4/14/2021	<input checked="" type="checkbox"/>
Daniel Miller	Q21-017	Collection and Management of Restoration Site Data in the Tidal Hudson River Estuary	Peter Zaykoski	C011814	3/19/2021	3/30/2021	4/12/2021	<input checked="" type="checkbox"/>
Meg Modley Gilbertson	Q21-018	Knockout Knotweed	Peter Zaykoski	LC- 00A00695	4/12/2021	4/16/2021	5/19/2021	<input checked="" type="checkbox"/>
Mae Kate Campbell	Q21-019	East Branch Restoration Program, Project 13 Design Development	Peter Zaykoski	LC00A00695 -0	4/1/2021	4/15/2021	6/15/2021	<input checked="" type="checkbox"/>
Mae Kate Campbell	Q21-020	Biodiversity assessment of potentially high ecological value wetlands and riparian woods with a conservation objective	Peter Zaykoski	GLFC	4/5/2021	4/9/2021	4/23/2021	<input checked="" type="checkbox"/>
Richard Friesner	Q21-021	Developing a Management Plan for a Subwatershed of Long Island Sound in Westchester County (NY)	Peter Zaykoski	EPA / NFWF ID: 1401.19.065 940 / EPA:	4/29/2021	5/11/2021	9/30/2021	<input checked="" type="checkbox"/>
Victoria O'Neill	Q21-022	Surface Elevation Tables (SETs) and Marker Horizons (MH) Monitoring at Four New York Locations along Long Island Sound	Peter Zaykoski	LI-00A00384	5/26/2021	5/27/2021	9/2/2021	<input checked="" type="checkbox"/>

NEIWPC	Project Manager	QAPP ID	QAPP Title	QAPP Reviewer	Grant Number	Date Draft QAPP Received	Date Review Completed	Date Final QAPP Received	Signature Page Received
	Richard Friesner	Q21-023	Economic Analysis of the New York-New Jersey Harbor Estuary	Peter Zaykoski	196275701	5/6/2021	5/11/2021	6/22/2021	<input checked="" type="checkbox"/>
	Meg Modley Gilbertson	Q21-024	Water Chestnut Mapping and Removal Project	Peter Zaykoski	GLFC	5/18/2021	5/25/2021	6/22/2021	<input checked="" type="checkbox"/>
	Meg Modley Gilbertson	Q21-025	Rapid Detection of Atlantic salmon and trout in the Boquet and Ausable Rivers using environmental DNA	Peter Zaykoski	LC00A00695 -0	5/10/2021	5/18/2021	6/8/2021	<input checked="" type="checkbox"/>
	Richard Friesner	Q21-026	Meetinghouse Creek Habitat Restoration Restoration Engineering Design and Permitting Services	Peter Zaykoski	CE97230303	5/12/2021	5/25/2021	7/8/2021	<input checked="" type="checkbox"/>
	Mae Kate Campbell	Q21-027	Nutrient Quantification and Phase 1 Restoration Design of Mill Brook Floodplain	Richard Friesner	LC00A00695 -0	5/13/2021	5/28/2021	6/22/2021	<input checked="" type="checkbox"/>
	Meg Modley Gilbertson	Q21-028	Follensby Clear Pond Aquatic Invasive Species Removal	Peter Zaykoski	EPA LC-00A006950 EPA LC-00A006950	5/26/2021	5/28/2021	6/21/2021	<input checked="" type="checkbox"/>
	Matthew Vaughan	Q21-029	Efficacy of the Vermont Stormwater Management Manual Bioretention Soil Specification in Removing Pollutants and Supporting Plant Health	Peter Zaykoski	LC00A00695	5/27/2021	5/28/2021	8/3/2021	<input checked="" type="checkbox"/>
	Matthew Vaughan	Q21-030	Lake Champlain high-frequency monitoring program	Peter Zaykoski	LC00A00695	6/7/2021	6/10/2021	6/24/2021	<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
Richard Friesner	Q21-031	Investigation of the Effects of Sea Level Rise on Connecticut Coastal Road Flooding	Peter Zaykoski	DEPA00004 000387	6/24/2021	7/8/2021	8/2/2021	<input checked="" type="checkbox"/>
Lauren Jenness	Q21-032	Mt. Norris Boy Scout Camp BMP Final Design	Meg Modley	GLFC	5/24/2021	6/29/2021	8/11/2021	<input checked="" type="checkbox"/>
Meg Modley Gilbertson	Q21-033	Planning/Prioritization for Stormwater Projects in the McCabe's Brook Watershed	Peter Zaykoski	GLFC	8/4/2021	8/6/2021	9/1/2021	<input checked="" type="checkbox"/>
Lauren Jenness	Q21-035	Phosphorus Control Plan for Rutland City	Peter Zaykoski	LC00A00695 -0	7/22/2021	7/28/2021	9/29/2021	<input checked="" type="checkbox"/>
Mae Kate Campbell	Q21-037	Swanton and Highgate Shoreline Stormwater and Erosion Assessment	Peter Zaykoski	L-2021-014	8/23/2021	9/1/2021	9/22/2021	<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 and Mae Kate Campbell

On September 23, 2021, Matthew Vaughan (LCBP Chief Scientist and Project Officer) and Mae Kate Campbell (LCBP Technical Associate) accompanied Pete Stangel and Kelsey Colbert 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 sites 19 (Main Lake), 16 (Shelburne Bay), and 21 (Burlington Bay).

Nearly all field efforts observed were conducted in accordance with the approved quality assurance project plan (QAPP). One minor deviation was that samples for dissolved organic carbon analysis were collected in 250 mL glass amber bottles. The QAPP specifies 125 mL polyethylene bottles for this collection. This change was due to the cost of supplies and is not expected to impact data quality.

Other deviations from the QAPP were discussed with Pete Stangel:

- The Pike River continues to be inaccessible for sampling due to COVID-19 travel restrictions at the US-Canadian border. This was noted in the 2020 annual report, and will be noted again in the 2021 annual report.
- The program has discontinued Winkler titration QA checks on Hydrolab sonde dissolved oxygen measurements. Their reasoning is that measurement agreement between the methods in previous years has been very good (as described in the QAPP, Section 12.1, Figure 8), and that the new laboratory location makes this analysis difficult to complete within holding time requirements. Pete Stangel noted that there is still time to conduct Winkler titration QA checks this field season if required.

Matthew Vaughan will discuss the above deviations with Peter Zaykoski (NEIWPCC QA Officer) to determine any appropriate follow-up actions and updates to the QAPP.

Photos from this field assessment are included on the following pages.



Pete Stangel preparing to collect digital water quality sonde measurements.



Kelsey Colbert taking a Secchi disk reading.



View of Lake Champlain near LTMP sampling site 19 (Main Lake).



View of Lake Champlain near LTMP sampling site 21 (Burlington Bay).



QA FIELD ASSESSMENT REPORT

September 10, 2021

Project Title: Utilizing Seaweed Aquaculture to Improve Water Quality in the Long Island Sound

QAPP ID: Q21-003

Conducted By: Kristin Kraseski

On September 10, 2021, the NEIWPC Project Lead, Kristin Kraseski, accompanied Cornell Cooperative Extension of Suffolk County (CCE) staff, Deborah Aller, Anastasia Yakaboski, and Dominick Zeppetella during field activities associated with Sugar Kelp Fertilizer portion of the Utilizing Seaweed Aquaculture to Improve Water Quality in the Long Island Sound project.

Field activities were conducted on Friday, September 10, 2021 – work was postponed from the 9th due to rain. This work was associated with the final harvest for the tomato field trials for the project, and included harvesting ripe tomatoes, assessing their quality, sizing and counting them, and taking Brix measurements. Fruit was also collected to be sent for laboratory analysis. Data was collected for the purpose of comparing the impacts of different types of kelp amendments and application methods on plant properties.

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 were observed or noted.



CCE Staff, Deborah Aller and Dominick Zeppetella, harvesting ripe tomatoes at field site.



Tomatoes harvested from a row of tomato plants.



Tomato sizing device used to sort tomatoes.



CCE Staff person Anastasia Yakaboski sizing and sorting harvested tomatoes.



CCE Staff person Deborah Aller preparing a tomato to be measured for Brix.



CCE Staff person Deborah Aller taking a Brix measurement.



QA FIELD ASSESSMENT DATA SHEET

Project Title: Utilizing Seaweed Aquaculture to Improve Water Quality in the Long Island Sound

QAPP ID: Q21-003

Assessor(s): Kristin Kraseski

Assessment Date: Friday, September 10th, 2021

Project Location: Riverhead, 3059 Sound Avenue

Project Staff: Debbie Aller, Anastasia, Dom Zeppetella

Brief Project Description: Component of sugar kelp bioextraction project - cultivated kelp used to grow tomatoes (for field trial) to investigate the impact of different types of kelp amendments and application methods on plant + soil properties.

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

Yes - I got confirmation from staff that the QAPP has been reviewed by appropriate personnel.

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 - it is available electronically at the farm plot sites, and electronically at the office next to the fields

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

Yes, all field work is being done in accordance with the QAPP

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

No

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

No, there are no deviations

Have any corrective actions been taken during the project?

No

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

No, there have been no corrective actions taken

QA FIELD ASSESSMENT REPORT

Project Title: Port Henry Stream Study

QAPP ID: Q21-015

Assessor(s): Mae Kate Campbell

On September 24, 2021, Mae Kate Campbell (LCBP Technical Associate) accompanied Essex County Soil and Water Conservation District (SWCD) staff Alice Halloran, Joe Braun, and Brandon Russell during field activities associated with the *Port Henry Stream Study* project.

Field activities conducted during this visit centered around the completion of Phase II stream geomorphic assessment protocols along a tributary to McKenzie Brook in Moriah, NY. The Phase II protocols included: walking the entire ~2-mile length of the tributary being assessed, taking GPS coordinates, photos, and descriptions of a variety of natural and human-caused features within and around the stream channel (when present), measuring stream channel and floodplain dimensions at a representative reach of the tributary, and conducting a pebble count at the representative site identified.

All field efforts observed were conducted in accordance with the approved quality assurance project plan (QAPP). The LCBP Technical Associate was unable to directly assess water sample collection protocols, as the laboratory does not accept samples on Fridays, but those field methods were discussed with the project team as well.

Photos from this field assessment are included on the following pages.



Essex County SWCD staff measuring the active stream channel width at a representative reach.



Essex County SWCD staff measuring the bankfull stream channel width at a representative reach.



Essex County SWCD staff conducting a pebble count and taking field notes.

QA FIELD ASSESSMENT REPORT

Project Title: Rapid detection of Atlantic salmon and trout in the Boquet and Ausable Rivers using environmental DNA

QAPP ID: Q21-025

Assessor(s): Meg Modley Gilbertson

On August 24th, 2021, the NEIWPCC Quality Assurance Program Manager Designee (Meg Modley Gilbertson) accompanied Carrienne Pershyn, Biodiversity Research Manager for the Ausable River Association and Liz Metzger, River Steward for the Ausable River Association, during field activities associated with the Rapid detection of Atlantic salmon and trout in the Boquet and Ausable Rivers using environmental DNA project.

Field activities conducted on August 24th, 2021 included roadside and hiking to remote sites to sample for eDNA water samples at a four locations up the East Branch of the Ausable River off of Gristmill Lane in Keene, NY.

Meg Modley Gilbertson, QA Program Manager Designee, met Carrienne and Liz at the Stewarts gas station in Keene, NY and then followed Carrienne to the first sampling site off of Gristmill Lane. Using the USFS grid map identified in the QAPP, Carrienne used her iPhone GPS to navigate to the sampling locations. At the first sampling location Carrienne explained that the USFS sampling grid has the sites spaced out 1 km apart, but when a tributary enters the river the sampling sites include upstream of where the tributary enters the mainstem of the East Branch of the Ausable River and just upstream in the tributary (Walton Brook in this case).

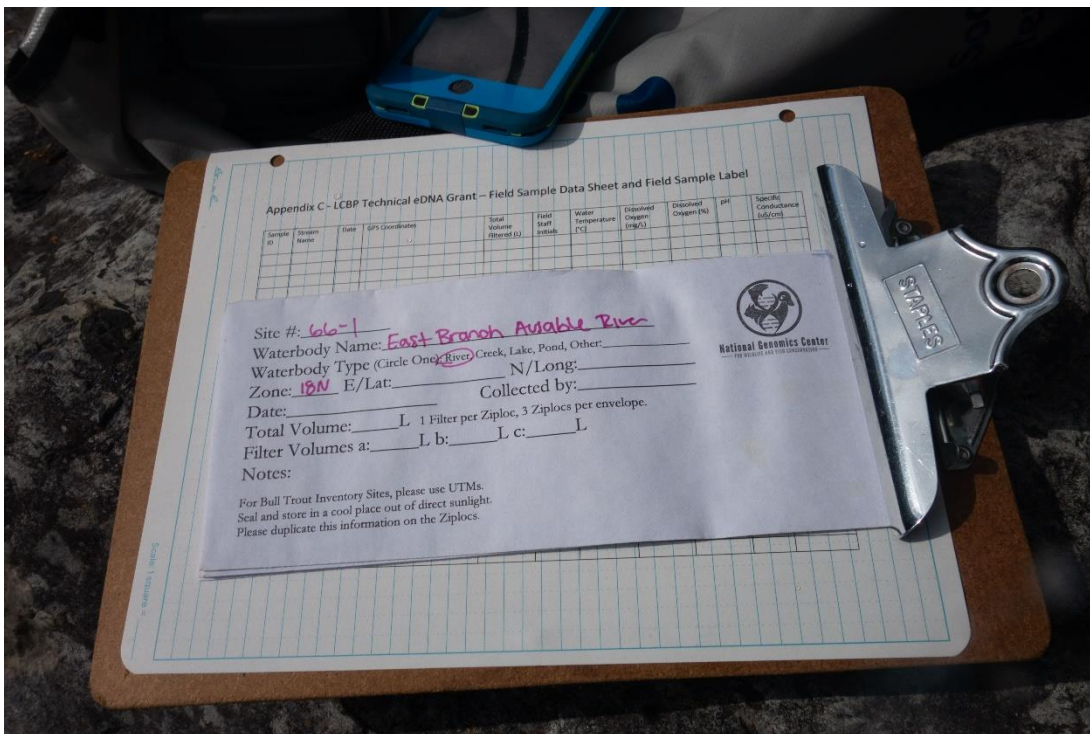
The first sampling site of the day was on the East Branch of the Ausable River. Carrienne is seen here making sure we are at the correct site:



After we hauled all the equipment down to the site including the peristaltic pump, hoses, water samples collection kit, data collection sheets and water quality measuring sonde, Carrienne donned the appropriate PPE (blue gloves).



Liz prepared and recorded data on the data sheets:



Carrienne carefully waded out into the middle of the river into the fastest flowing section and submerged the water pump cone with the filter attached and Liz turned on the peristaltic pump to collect 5 liters of water. You can see Carrienne's gloved hand holding the eDNA cone, filter and hose attachment underwater.

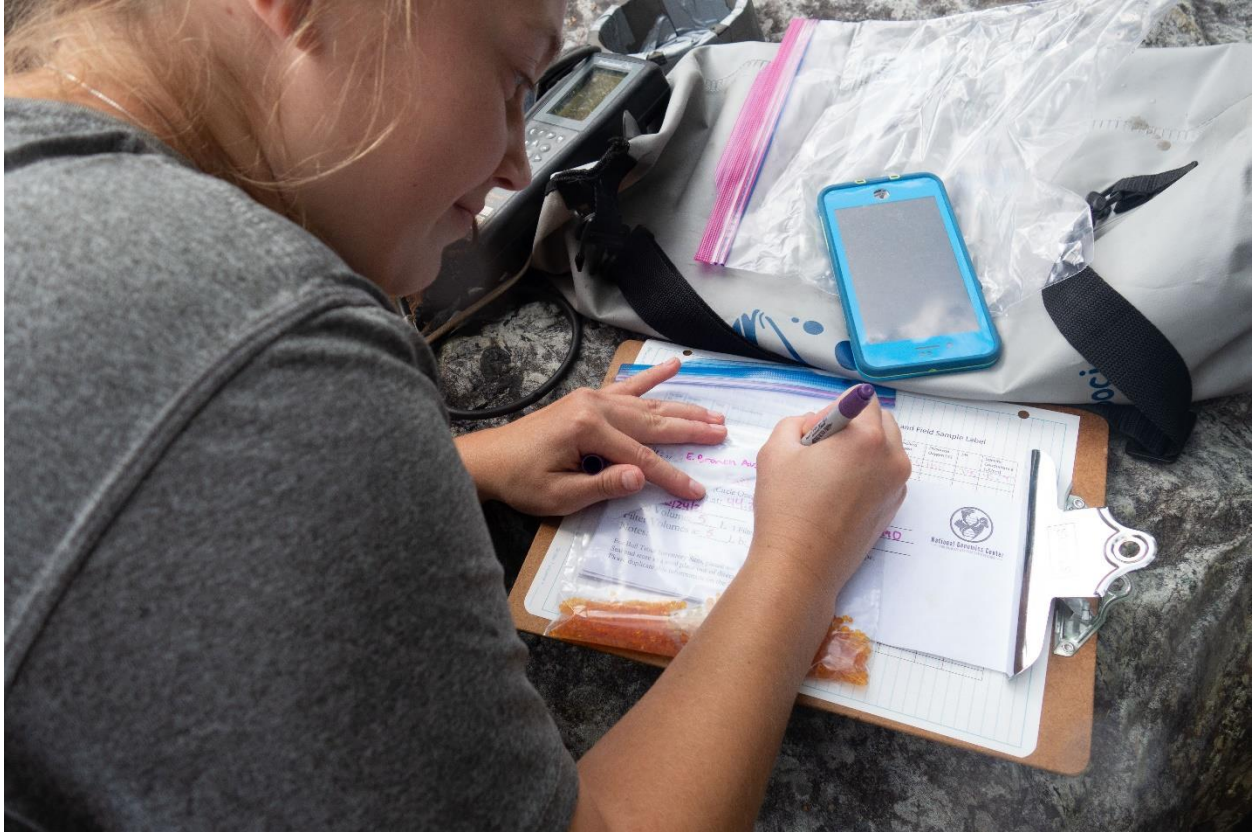


Meanwhile Liz collected the water quality information with the sonde and recorded it:



Carrienne then carefully folded up the eDNA filter and placed into a zip locked bag with silica beads. The filters are mailed in the envelopes provided by USFS in batches and are kept in a cooler until placed in a freezer at the end of the day.

Here you can see Liz labeling the zip lock bag with the folded filter in silica beads.



The second site we visited was upstream on Walton Brook. Liz waded out into the Brook wearing the gloves and submerged the eDNA water sampling collection cone in the fastest flowing section of the stream. I observed the team setting up the peristaltic pump, hosing, testing the pump, putting on gloves to avoid contamination of the sample, and Liz submerging the cone in the area of the highest flow of the stream. 5 liters of water was pumped through the hose into a receiving bucket.



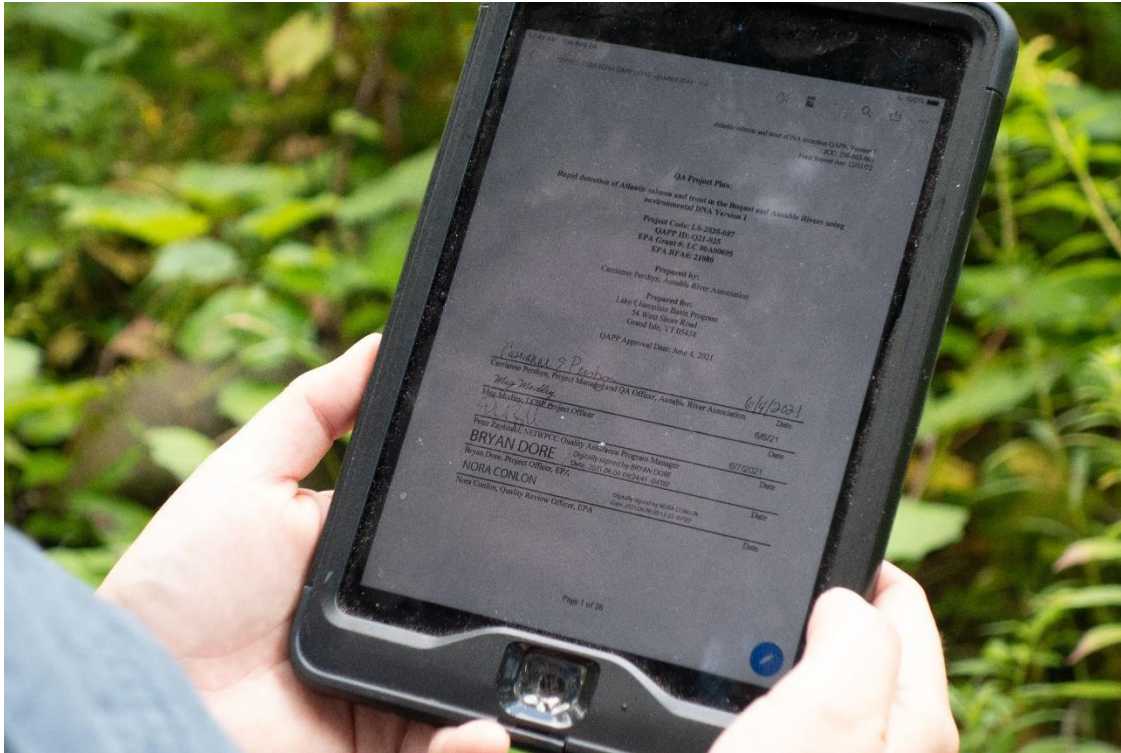


Carrienne recorded the data for the Walton Brook site. Liz carefully removed the filter and placed it into the zip lock bag with silica beads. All samples collected are held in a freezer and mailed once a month to the USFS genomic center for analysis.

Here you can see Carrienne deploying the YSI professional plus sonde which is calibrated every two weeks in the office. The sonde collects dissolved oxygen, temperature, pH, and conductivity at each sampling site and the data are recorded on the data sheet seen in the photo above. All hand written data collection in the field is transcribed into Excel within a week's time. You can also see Carrienne collecting the Walton Brook sample site GPS coordinates off her cell phone. Carrienne explained that if a filter clogs with too much sediment during the 5 liter water collection process, that up to 3 filters per site can be used and they are labeled with the volume of water per filter in the collection bag.



Carrienne had an electronic version of the QAPP on her iPad in the field with her.



The next two sampling sites we visited were 1 kilometer upstream of the Walton Brook and East Branch of the Ausable River and 2 kilometers upstream from that junction.

Carrienne had worked diligently to obtain private landowner permission to gain access to these Walton Brook stream sites. Here is the team setting up for the sampling 1 kilometer upstream from the Walton Brook and East Branch of the Ausable River junction.



The final site we visited on August 24th, 2021 was 2km upstream from the Walton Brook and East Branch of the Ausable junction. A private landowner advised that we hike up some trails

and then descend down a very steep bank to the appropriate location. The following 4 photographs show sampling at this site:



All field efforts observed were conducted in accordance with the approved quality assurance project plan Q21-025. No deviations from (or discrepancies with) the approved QAPP approved were observed or noted.

QA FIELD ASSESSMENT REPORT

Project Title: Follensby Clear Pond Aquatic Invasive Species Removal

QAPP ID: Q21-028

Assessor(s): Meg Modley Gilbertson

On August 24th, 2021, the NEIWPCC Quality Assurance Program Manager Designee (Meg Modley Gilbertson) accompanied Guy Middleton, Director of Upper Saranac Foundation, during field activities associated with the Follensby Clear Pond Aquatic Invasive Species Removal project.

Field activities conducted on August 24th, 2021 included boat tour of surveyed sites and active scuba diver hand harvesting of Eurasian watermilfoil plants.

Meg Modley Gilbertson, QA Program Manager Designee, met Guy Middleton at the boat launch near the intersection of Route 30 and Beaverwood Road. The southernmost bay of Follensby Clear Pond was under active scuba diver hand harvest management by Invasive Solutions Dive Company as part of the grant. The QA Program Manager Designee observed the rows of buoys deployed in the bay that the divers were navigating along to harvest Eurasian watermilfoil plants present. There was a topside kayaker on site to help support the two divers, guide their harvest in a grid fashion using buoys deployed in the bay, and to collect any plant fragments as stated in the approved QAPP.

Guy Middleton picks up QA Program Manager Designee at boat launch on Follensby Clear Pond and Invasive Solutions Divers are in the background in the bay underwater following the white buoys set out with a topside kayaker for support:



Guy also showed the QA Program Manager Designee the outlet to the Pond in the bay that had a boom with a screen deployed down into the water column to prevent any possible floating Eurasian watermilfoil fragments from exiting the pond. The boom is a great spread prevention mitigation tool:



August 24th was a clear day and it was 69 degrees Fahrenheit with low winds which was conducive to seeing the rooted aquatic plants on the bottom of the lake in shallow water and extending up into the water column in deeper water.

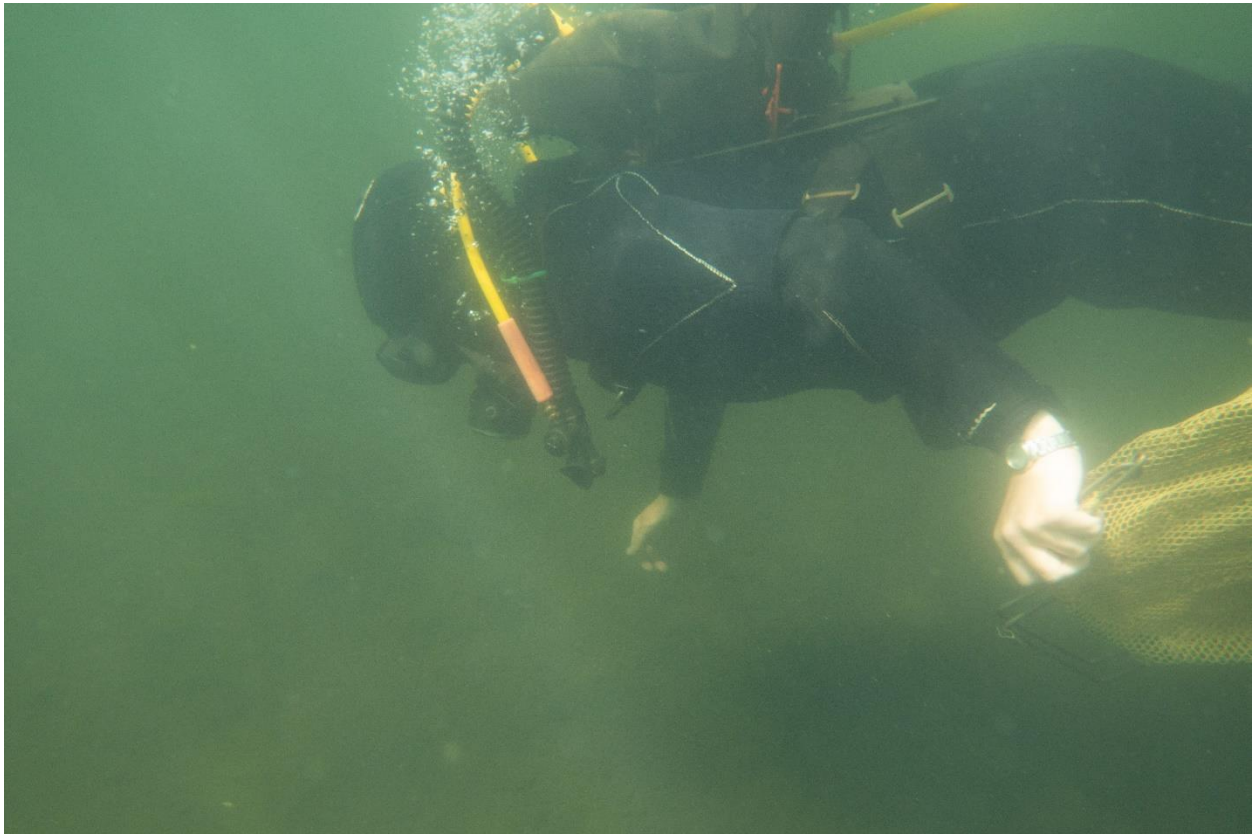
This view of the southernmost bay in Follensby Clear Pond shows a floating row boat with full bags of Eurasian watermilfoil. The kayaker support person is in the background with the rows of buoys guiding the scuba diver's harvest efforts. Eurasian watermilfoil is in low density in the bay and the diver down flag can be seen on the floating Hooka air support system for the scuba divers:



Here is a close up of a scuba diver coming to the surface to retrieve an underwater camera, the kayak support crew person, and the diver down flag on the Hooka air support system for the scuba divers.



The scuba divers take the yellow mesh bag underwater with them to collect Eurasian watermilfoil harvested plants:



Scuba diving to hand remove Eurasian watermilfoil is a selective process. Divers are able to remove only the invasive Eurasian watermilfoil and leave the other native vegetation in place:



The scuba divers carefully remove the Eurasian watermilfoil plant root system and all of the plant stem and place it in the yellow mesh bag:



A scuba diver descends on a single Eurasian watermilfoil plant to remove it from Follensby Clear Pond.



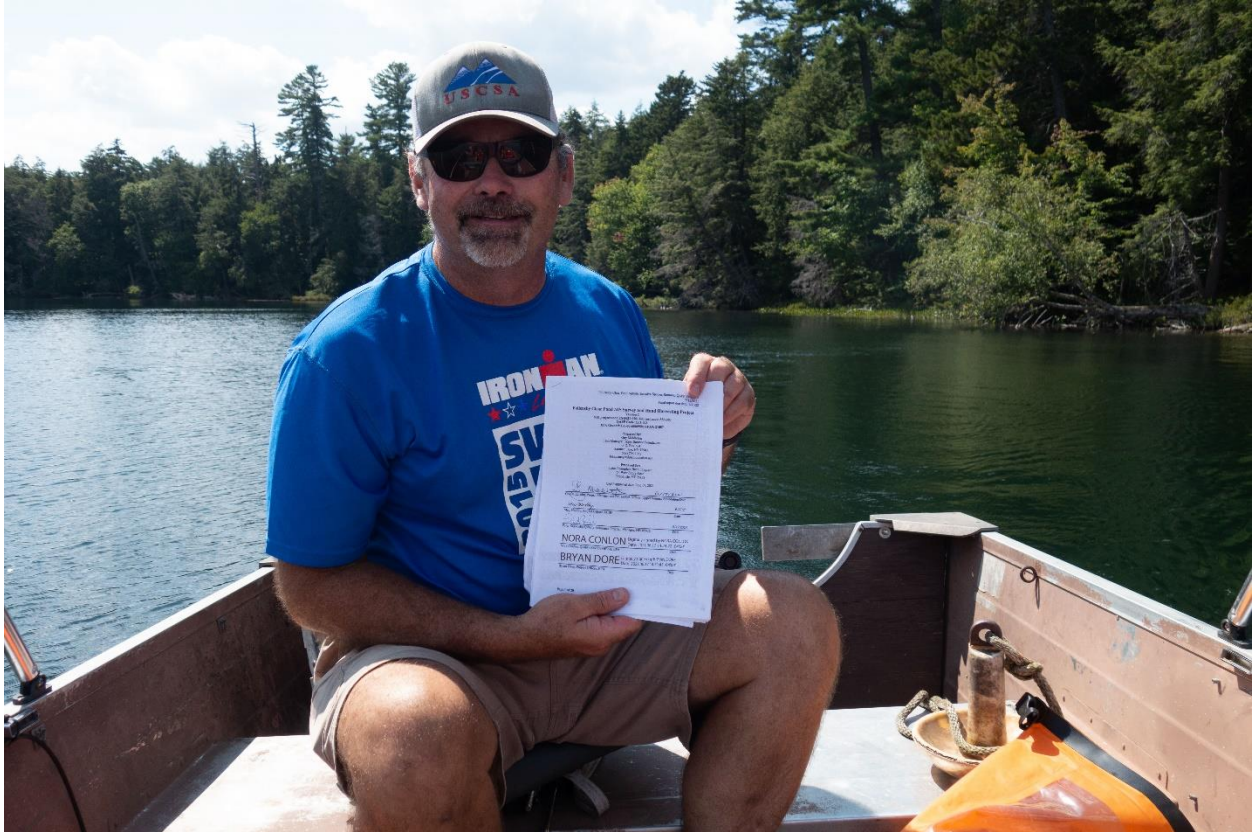
Low densities of Eurasian watermilfoil were observed and harvested on August 24th, 2021 in the southernmost bay of Follensby Clear Pond. These few Eurasian watermilfoil plants are about to be harvested by hand by scuba divers:



Guy then took the QA Program Manager Designee clockwise around the perimeter of the lake to check on the sites where Eurasian watermilfoil was identified using the Biobase survey and visual survey. The Biobase survey was conducted pre-harvest in the beginning of July to obtain the number of sites, size of the infestation, and density at each site. The Biobase will be conducted again at the end of the month to gather post treatment scuba diver hand removal success.

Guy noted that since the bays can silt up easily the diver harvesting team sometimes has to start managing a site, then go to the next and then come back for visibility efficiency purposes. Guy typically goes ahead of the harvesting team and puts buoys out at harvest sites to direct the diver's management. The southern bay of Follensby Clear Pond has low density populations of Eurasian watermilfoil so if there is good visibility Guy can drop buoys at the infested sites identified in the Biobase survey. If the visibility is poor with low density then buoys are deployed in a line to direct diver efforts in a systematic way to focus their harvest efforts (lines of buoys in previous photos).

Guy had the Q21-028 approved QAPP on hand in the boat and available to the divers and the project team:



Guy reviewed that after the July survey they allow 5-6 weeks for regrowth and then return to the sites to see how many plants regenerate and then there is another harvest opportunity.

Guy brought the QA Program Manager Designee back to the boat dock with a view of the scuba harvesting operation in the background:



All field efforts observed were conducted in accordance with the approved quality assurance project plan Q21-028. No deviations from (or discrepancies with) the approved QAPP approved were observed or noted.

Guy brought the harvested Eurasian watermilfoil bags to shore to dispose of properly:

