

The Acton Wakefield Watersheds Alliance

Youth Conservation Corps

2020 Season Report



Jon Balanoff; James Shimansky
Acton Wakefield Watersheds Alliance
PO Box 235
254 Main Street
Union, NH 03887

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Jon Balanoff

Crew Leader

James Shimansky

2020 Crew

Bryce Stetson

Jamie Carlberg

Jaden Dussault





Executive Director

Jon Balanoff

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About AWWA

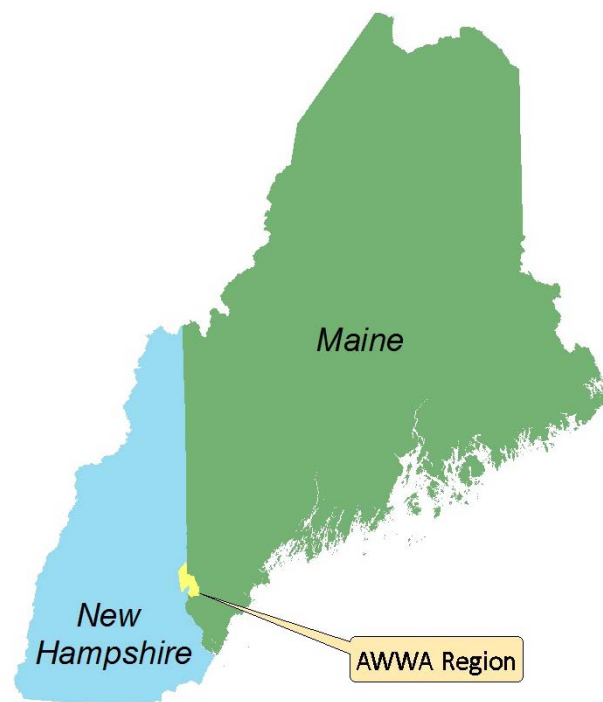
Mission

The mission of the Acton Wakefield Watersheds Alliance is to protect and restore water quality to maintain the social, economic, and environmental stability in our towns and in the region.

The members of AWWA include representatives of local lake associations, members of town committees including planning boards, and local residents. Our partners include UNH and UME Cooperative Extensions, Maine DEP, New Hampshire DES, York County Soil & Water Conservation District, and the local lake associations.

Watersheds

The AWWA Youth Conservation Corps (YCC) focuses its efforts on the Salmon Falls-Piscataqua and Saco River watersheds within the towns of Acton, Maine and Wakefield, New Hampshire. Within these watersheds AWWA currently services 10 water bodies – Balch Lake, Belleau Lake, Branch River, Horn Pond, Great East Lake, Lake Ivanhoe, Lovell Lake, Pine River Pond, Province Lake, and Wilson Lake.



Executive Summary

The Acton Wakefield Watersheds Alliance, a non-profit organization established in 2005, is dedicated to protecting and restoring the water quality of the lakes, ponds, rivers and streams of Wakefield, New Hampshire and the border region of Acton, Maine. AWWA staff members and volunteers work within the communities to strengthen the understanding that what happens on land determines the health of the local waters. Healthy waterbodies provide essential benefits to our communities as a natural resource, wildlife habitat, recreational opportunity and economic engine.

AWWA's Youth Conservation Corps (YCC) program was developed in 2006 to implement erosion control projects in our target region. The program is designed to reduce pollution caused by runoff from rain events and seasonal melt water that flows into our local lakes, rivers, and streams. The YCC tackles this through the installation of "Best Management Practices" (BMPs) or landscaped features that promote the infiltration of runoff or divert the runoff away from the lake toward vegetation where it can soak into the ground. Each project showcases solutions to environmental problems faced by waterfront properties that landowners can do themselves.



The process starts with a technical assistance visit between the homeowner and the AWWA program manager. During this initial meeting, the discussion centers on how the homeowners use their property, identifying areas with erosion, and going over potential fixes. The homeowners have the option to sign a pledge indicating they will install at least one of the recommendations within the next 12 months. If they sign the pledge they receive a free technical assistance packet that includes a site design, recommendations, local suppliers, and BMP fact sheets. At this point, homeowners have the option to apply to become a project host for our YCC program. The homeowner can also implement the recommendations themselves or hire a contractor. In addition to the landscape design provided to the homeowner, the program manager focuses on educating homeowners on why the design features were chosen, what they will accomplish, and how to maintain them. This process is important in raising stakeholder awareness of the relationship between land use and water quality. The AWWA board and staff also focus efforts on local outreach to highlight the conservation practices that can reduce pollution.

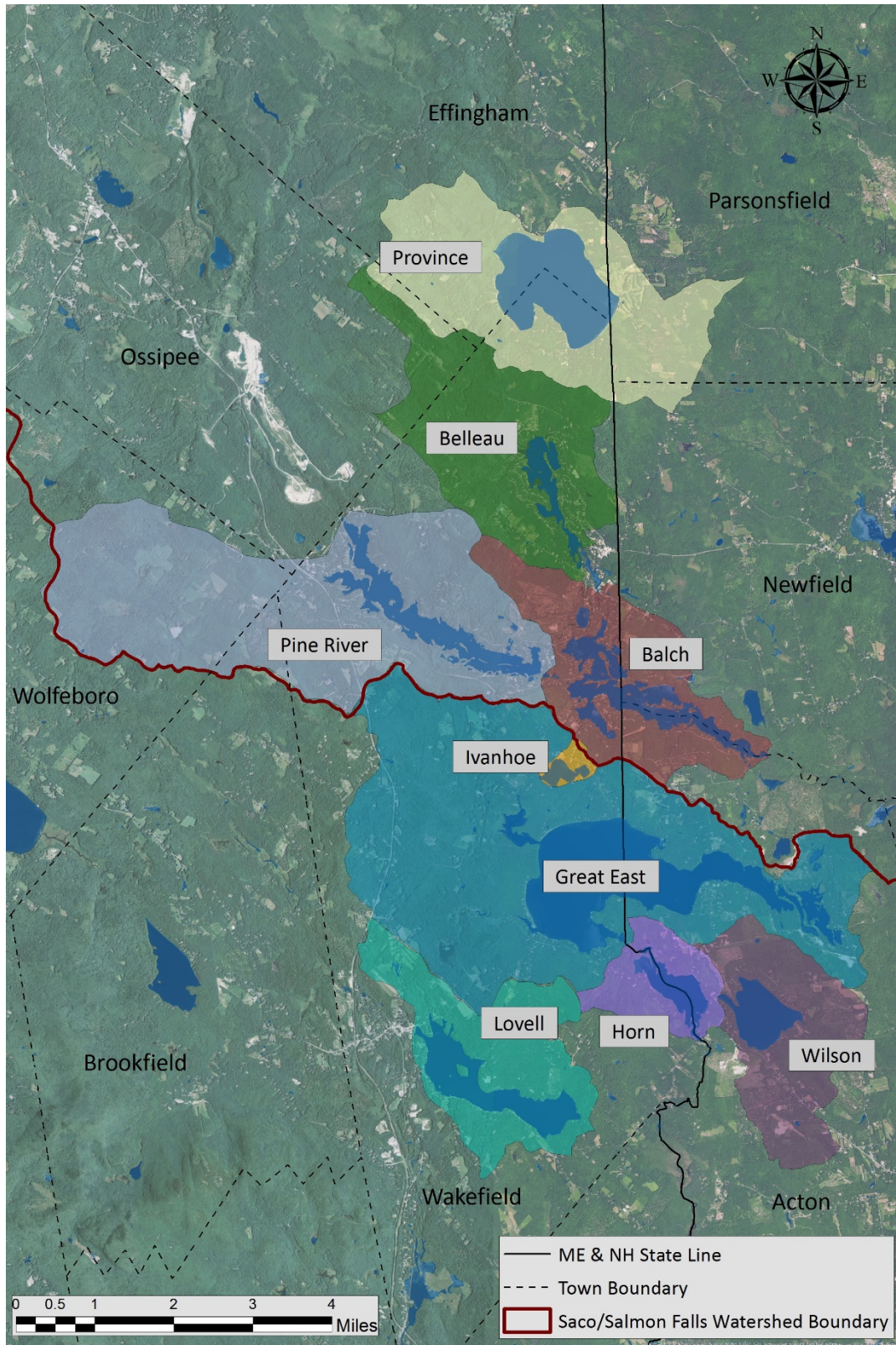
If the site is conducive to a YCC project, the homeowner will receive a second packet that outlines specifically what AWWA will do and what is expected of the homeowner. The YCC will then provide free labor to install the BMPs and the homeowner is responsible for buying the materials. Homeowners are also asked to make an optional donation of 20% of the cost of AWWA's labor. The labor of crew is funded by donations and grants, and the landowner provides all the necessary materials. Behind these projects is a crew of eager high school students supervised by a crew leader and the program manager. The YCC program gives its youth corps the opportunity to effect environmental solutions and empowers them to become the future stewards of our water resources. Since 2006, the AWWA YCC has completed 273 projects across 10 water bodies in the Wakefield, NH and Acton, ME region. These past successes set the bar high, but every year the YCC exceeds expectations and does fantastic work.

Jon Balanoff



AWWA Executive Director

Salmon Falls – Piscataqua River and Saco River Watersheds Map



2020 Technical Assistance (TA) Visits

Requests for technical assistance were received from residents on 8 lakes in the AWWA region. These requests were the result of recruitment efforts by AWWA at community events, press articles, presentations at lake association meetings, the display of AWWA signs at past project host sites, and word of mouth from neighbors. All of these efforts came together to further AWWA’s message and grow AWWA’s project host program.

In 2020, AWWA received 40 TA requests from property owners who had erosion issues or wished to have their property assessed for issues that could be harming the lake. Of these, 27 warranted a site visit. Not every technical assistance visit results in a design delivered to property owners for use correcting erosion issues on their property. In some cases, TA visits result in a project being completed in the same year. In other cases, homeowners did not receive designs, as their properties were erosion free and in good shape. In additional cases, some problems require serious engineering beyond the scale of a technical assistance visit.

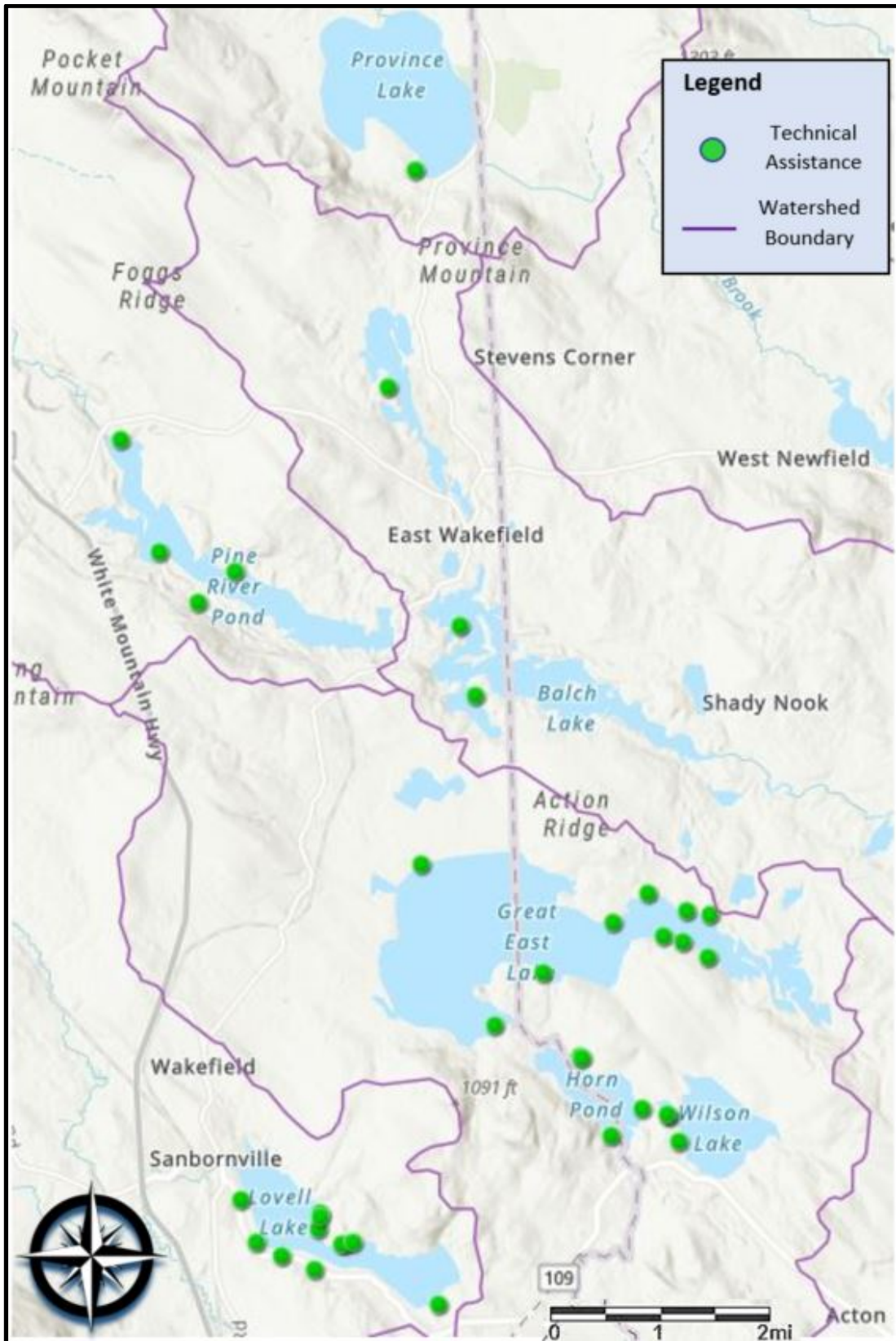
The property owners that do receive design packets sign a pledge stating that they will perform at least one of the recommended designs in the packet within 12 months. Property owners can go about this in several ways. They can do the work themselves using the BMP fact sheets provided to them, they can hire a contractor to perform the work, or they can apply to be part of the AWWA project host program and have the YCC perform the work.

Every year AWWA contacts the previous year’s TA clients and performs checks on their sites. This is in compliance with the pledge signed by the property owners and allows AWWA to pursue the property owner as a project host or to see if the owner needs a new design to fit their budget or landscaping. The technical assistance design packets include an introductory letter, an outline of the recommendations and an explanation of why those specific BMPs were chosen, a landscape design plan, a pledge sheet, a local suppliers list, and fact sheets for the recommend BMPs. The fact sheets outline the purpose, design, and instructions for constructing the BMP.

2020 Technical Assistance Visits by Lake			
Balch Lake			
1.	Cindy Tuttle	74 Cove Road	East Wakefield
2.	Bob Glidden	Concord Point	East Wakefield
Belleau Lake			
3.	Keri Vachon	84 Gold Coast Drive	East Wakefield
Great East Lake			
4.	David Barr	107 Leisure Lane	East Wakefield
5.	Dave Upton	106 Grandview Road	Acton
6.	Mary Sakellarios	38 Katy Lane	Acton
7.	Jean Theurkaf	65 Chamberlin Road	Acton
8.	Dave Savukinas	15 Rafferty Drive	Acton
9.	Stacey West	105 Stewart Drive	Wakefield
10.	Dabney Frake	322 Robinson Road	Wakefield

Great East Lake (cont.)			
11.	Joe Diorio	890 Lake Side Drive	Wakefield
12.	Doug Wood	186 Beechwood Park Road	Acton
13.	Amy Marshall	68 Leisure Lane	Wakefield
14.	Sanae Yamada	1 Mallard Lane	Wakefield
15.	Nancy Ginns	170 Wilkins Road	Acton
Horn Pond			
16.	Gunter Schramm	127 Mountain View Road	Acton
17.	Robin Ketterer	45 Sawyer Road	Acton
18.	Carol O'malia	206 Donahue Road	Wakefield
19.	Tracy Gaudet	117 Mountain Road	Acton
20.	Mark Joncas	90 Martha Horn Road	Acton
Lake Ivanhoe			
21.	Simon Delekta	343 Round Pond Road	Wakefield
Lovell Lake			
22.	Mary & Rob Plante	714 Brackett Road	Wakefield
23.	Nick Mourginis	356 Lovell Lake Road	Sanbornville
24.	Mary Beth Giffune	486 Brackett Road	Sanbornville
25.	Anusia Hirsch	698 Brackett Road	Sanbornville
26.	Rachel Surrency	54 Mount Sky View Way	Sanbornville
27.	Amy Lessard	131 lovell Lake Road	Wakefield
28.	Monette Coutreau	668 Brackett Road	Sanbornville
29.	Vinny Nagle	498 Brackett Road	Sanbornville
30.	Red Gate Road	Red Gate Road	Sanbornville
31.	Pat Dery	754 Brackett Road	Wakefield
32.	Kevin Ray	Lovell Lake Road/R t109	Wakefield
Province Lake			
33.	Ed Harrington	115 Bonnyman Road	East Wakefield
Pine River Pond			
34.	George Varoudakis	128 Buck Road	East Wakefield
35.	Iana Costa	539 Crew Road	Wakefield
36.	Pine River Association	boat launch	East Wakefield
37.	Linda Doucette	66 Clearwater Lane	Wakefield
Wilson Lake			
38.	Pam Grignaffini	73 Hummingbird Lane	Acton
39.	Hummingbird Road Boat Launch	Hummingbird Lane	Acton
40.	David Spahn	Finch Road	Acton

2020 Technical Assistance Map



2020 Youth Conservation Corps (YCC) Overview

The 2020 AWWA YCC consisted of the Executive Director Jon Balanoff, Crew Leader James Shimansky, and crew members, Bryce Stetson, Jaime Carlberg, & Jaden Dussault. James was on the AWWA Crew for 3 years before becoming our crew leader. Having just finished up his Freshman year in college, James was younger than past crew leaders and yet, James displayed strong leadership and virtue throughout the season. Having an understanding of the quirks of the job, he knew when to push the crew harder and when to let them set the pace.

This year, the YCC program faced additional challenges due to closures and health recommendations resulting from the COVID-19 pandemic. In the early days of the crises, there was considerable discussion over whether the YCC program could be implemented safely in the 2020 season. As we gained a better understanding of the virus and guidance emerged from the CDC to minimize community transmission, we decided that the program was too critical to water quality, and to our community, to simply cast aside for an entire year. We hired



a small crew and ensured that they followed a strict protocol to keep themselves and our project hosts safe. The crew wore masks indoors and in the work vehicle, used hand sanitizer regularly, and maintained social distancing from project hosts while on site, avoiding going into homes much as possible. Crew members were screened every morning with a no-touch thermometer and checked for any symptoms. With these protocols in place, no one got sick during the season, and the crew formed a tight bond under these strange circumstances. They worked as hard as ever and had a productive YCC season.

The crew even ventured into new territory this season, conducting YCC projects on Belleau Lake, Balch Lake, and Pine River Pond. YCC has been to these lakes before, but word of mouth has finally caught on in these communities enough to solidify a total of 7 projects on the Saco River Watershed Lakes this season. All told, we conducted 13 YCC projects on 7 lakes in Acton and Wakefield; installing a total of 174 BMPs. We had 3 crew members join and quit within a week at different points in the season, but our core crew toughed it out and completed everything we had set out to achieve. These kids choose to come together and do this great work, despite their worlds being turned upside down, and came out of it with a renewed appreciation for lake health and working together, however possible. The pandemic did slow us down, it did not stop us and indeed it forced us to approach YCC creatively and think about how the program should operate in the future.

How to Count Best Management Practices for YCC programs

This list standardizes BMP types, which encourages continuity across YCC programs in New Hampshire & Maine. AWWA has adopted this method so that we are consistent with our fellow YCC programs. BMPs are grouped by type, and some types are split into size categories. Larger BMPs will control more pollutant loading from larger drainage areas and, therefore, count as more than one BMP in the “Type of BMP Installed” table. Categories are based on size or how much material is used for each project.

Three types of BMPs:

Infiltration includes trenches, drip edge drains, dry wells, erosion control berms, rain gardens, detention basins and infiltration steps.

Diversion includes rubber razors, water bars, culverts and turnouts.

Stabilization includes rip-rap, vegetative buffers, ECM, driveway stabilization, path stabilization.

Infiltration Standards

Type of BMP	Small (Counts as 1 BMP)	Medium (Counts as 2 BMPs)	Large (counts as 3 BMPs)
Infiltration trench	<10'	10-20'	20'+
Dripline Trench	<10'	10-20'	20'+
Dry well*	<5 cubic feet	5-10 cubic feet	10+ cubic feet
ECM berm	<10'	10-20'	20'+
Rain gardens	At least 9 sq. ft	9-25 square ft	> 25 square ft
Detention basins	<6' diameter	6-10' diameter	10' diameter
Infiltration steps	<5	5-10	10+

*dry well size refers to capacity to store water (if the structure is filled with crushed stone, divide your capacity by 2)

Diversion Standards

Type of BMP	Small (Counts as 1 BMP)	Medium (Counts as 2 BMPs)	Large (counts as 3 BMPs)
Rubber razors	<14'	14-28'	28'+
Water Bars	<10'	10-20'	20'
Culverts (metal or plastic)	<15" diameter pipe	15-24" diameter pipe	> 24" diameter
Turnouts	1 road/driveway turnout	2 road/driveway turnouts	3 road/driveway turnouts
Open Top Culverts	<14'	14-28'	28'+
Seed Bumps/ Drainage Swale	<14'	14-28'	28'+
Ditches	<100'	100-200'	200'+

Stabilization Standards

Type of BMP	Small (Counts as 1 BMP)	Medium (Counts as 2 BMPs)	Large (counts as 3 BMPs)
Rip-Rap	<25sq ft	25-50 sq ft	50+ sq ft
Vegetative Buffers	< 6 plants	6 -15 plants	15+ plants
ECM	<100 sq ft	100-400 sq ft	400+ sq ft
Driveway stabilization	<30 linear ft of driveway	30-60' linear ft	60+ linear ft
Path Stabilization	<50 linear ft	50-100 linear ft	100+ linear ft
Crown/Ramp Driveway	<30 linear ft of driveway	30-60' linear ft	60+ linear ft
Crown/Ramp Path	<50 linear ft	50-100 linear ft	100+ linear ft
Cover Path with Erosion Control Mulch	<50 linear ft	50-100 linear ft	100+ linear ft

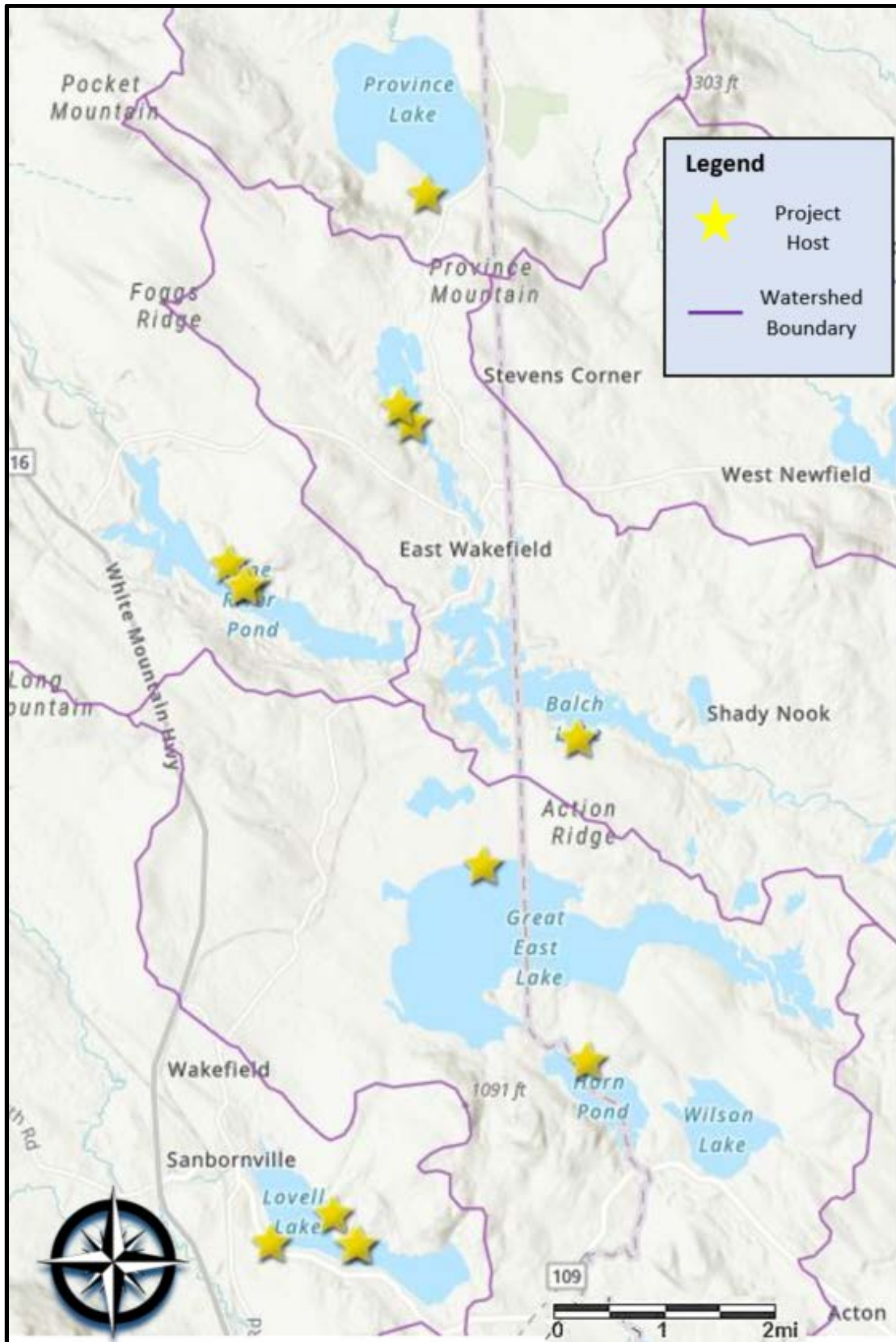


2020 Summary of Installed BMPs	
Best Management Practice (BMP)	Number Completed
Erosion Control Mulch	37
Vegetated Buffer	0
Dripline Trench	9
Waterbar	49
Infiltration Trench	15
Native Vegetation	24
Rubber Razor	20
Infiltration Pathway	9
Firehose Diverter	0
Rain Garden	0
Infiltration Steps	0
Detention Basin	0
Retrofit Infiltration Steps	3
Crushed Stone	0
Dry Well	7



2020 YCC Projects by Lake			
Balch Lake			
1.	Denise Bowden	526 Racoon Road	Acton
Belleau Lake			
2.	Cheryl Gifford	521 Beverly Hills Drive	East Wakefield
3.	Keri Vachon	84 Gold Coast Drive	Wakefield
Great East Lake			
4.	Ellen & Dean Musser	211 North Shore Drive	East Wakefield
Horn Pond			
5.	Gunter schramm	127 Mountain View Road	Acton
Lovell Lake			
6.	Nick Mourginis	356 Lovell Lake Road	Sanbornville
7.	Mary Beth giffune	486 Brackett Road	Sanbornville
8.	Anusia Hirsch	698 Brackett Road	Wakefield
9.	Mary & Rob Plante	714 Brackett Road	Wakefield
Province Lake			
10.	Ed Harrington	115 Bonnyman Road	East Wakefield
Pine River Pond			
11.	Pine River Association	Beach Site	East Wakefield
12.	Pine River Association	PRA Boat Launch	East Wakefield
13.	Samantha Stone	954 Lord Road	Sanbornville

2020 YCC Project Host Site Map

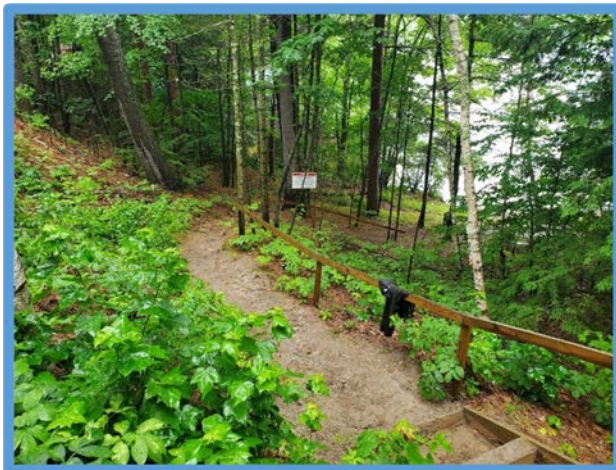


Pine River Association Beach

Pine River Pond - East Wakefield, NH

The Pine River Association came to AWWA this season with a few potential YCC projects, the first of which was their association beach. We realized quickly that it was an excellent spot for a project, with its steep winding slope that led directly to the water. This site had lots of erosion from the road as well as the slope that leads down to the beach itself.

Our crew placed six waterbars and retrofitted four steps by digging them out and filling them with crushed rock as a first line of defense against soil erosion. Then, around those waterbars and down the winding slope we laid erosion control mulch on the exposed soil. On the left side of the path the crew dug a three-foot deep by two-foot wide trench, which we filled with rip rap. Around the picnic area at the bottom of the slope we placed three more waterbars to help keep the slope intact as well as plantings in and around those three waterbars. The bottom portion of the site was tied together with erosion control mulch.





Total Number of BMPs	Approximate Cost to Landowner
23	\$550
Tons of Sediment Reduced	Pounds of Phosphorus Reduced
1	0.9
Crew Hours	Crew Value
103.5	\$2,572.50
BMPs Installed	Materials Used
Erosion Control Mulch	Erosion Control Mulch – 10 yards
Native Vegetation	Crushed Stone – 2 yards
Waterbars	Pressure Treated Lumber - 60 feet
Retrofit Steps	Rip Rap – 9 yards
Rip Rap Trench	Plants - 20

Robert & Mary Plante

Lovell Lake - Wakefield, NH

The Plante's property, although not a very steep slope, was still a major source of runoff and soil erosion. Water would race down their driveway, across their side yard, and into the lake. There was an existing pathway that the water seemed to be following so it was an excellent spot to fit in some of our BMP's.

We installed a seventy-foot-long winding infiltration pathway where the erosion was occurring, as well as waterbars to break the pathway up into sections, with erosion control mulch on the sides as a finishing touch. The infiltration pathway started at the corner of their driveway and ended on the lake side of their house next to a wooden walkway that lead to the water. Runoff would enter the yard at the start of the pathway and any water that did not infiltrate into the ground immediately was stopped by the waterbars placed along the path or the erosion control mulch lining the sides. We also cleaned out a pre-existing rip rap trench that went down the side of their driveway that was filled with sediment from the road.





Total Number of BMPs	Approximate Cost to Landowner
14	\$845
Tons of Sediment Reduced	Pounds of Phosphorus Reduced
0.6	0.5
Crew Hours	Crew Value
87	\$1,490.00
BMPs Installed and Maintained	Materials Used
Rip Rap Trench	Erosion Control Mulch – 3 yards
Infiltration Pathway w/waterbars	Crushed Stone – 5 yards
Erosion Control Mulch	Pressure Treated Lumber – 32 feet
	Rebar – 32 feet

Bruce & Denise Bowden

Balch Lake – East Wakefield, NH

The Bowden's were one of very few projects that AWWA has done on Balch Lake in its fifteen-year history, and we were very excited to be there. They have a long steep driveway down to their house that needed reinforcing with a few of our BMP's. Their pathway to the water and area around their house were also ideal for erosion control.

As a crew, we installed three rubber razors in their driveway to divert water off the driveway and into naturally forested soils. We then installed a sixty-five-foot-long infiltration trench alongside the driveway to further support the driveway from washouts and erosion. Down at the house we installed a dripline trench to allow water coming off the roof of their house to better infiltrate into the ground. Next to the wooden stair that lead to the porch, we planted native vegetation and put down erosion control mulch. The erosion control mulch extended along the side of their house and down the path that lead to the water. In that path there were a few existing waterbars that we retrofitted with crushed stone.





Total Number of BMPs	Approximate Cost to Landowner
18	\$976
Tons of Sediment Reduced	Pounds of Phosphorus Reduced
2.2	1.8
Crew Hours	Crew Value
50.25	\$1,138.75
BMPs Installed and Maintained	Materials Used
Rubber Razors	Erosion Control Mulch – 7 yards
Infiltration Pathway	Crushed Stone – 7 yards
Erosion Control Mulch	Pressure Treated Lumber 2x6 – 160 feet
Native Vegetation	Nails – 1 Box
Dripline Trench	Rubber Razor – 60 feet
	Plants – 10

Ed & Debbie Harrington

Province Lake – East Wakefield, NH

The crew was excited to see a simpler but still very important site at the Harrington’s. They have a slope leading down to the water that doubles as a driveway and had significant erosion. Runoff would travel through their backyard across the road and down into the lake across the street. For this site we installed a very large infiltration pathway that included two rubber razors and their adjoining drywells, within the infiltration pathway itself. This would hopefully do its job by slowing down the pace of the water and then diverting it into the drywells on the ends of the rubber razors.



Total Number of BMPs	Approximate Cost to Landowner
8	\$319
Tons of Sediment Reduced	Pounds of Phosphorus Reduced
0.4	0.3
Crew Hours	Crew Value
36.25	\$733.75
BMPs Installed and Maintained	Materials Used
Rubber Razors	Rubber – 30 feet
Infiltration Pathway	Crushed Stone – 5 yards
Drywell	Pressure Treated Lumber 2x6 – 64 feet

Ellen & Dean Musser

Great East Lake – East Wakefield, NH

The Musser's property was another perfect site for the crew this year. While they didn't have a steep slope like some other projects, they did have a wide-open area with little native vegetation, which is a prime circumstance for sheet erosion to occur. Water from the road and surrounding yard had only one place to go and it was down their cement stairwell and into the water.

For this site we installed a large infiltration trench between their boat house and the edge of their deck. This and the addition of lots of erosion control mulch in the surrounding area were vital to the improvement of the erosion problem area. Then to top the site off we filled in all their low spots in and around their picnic and grilling area. This was important because it served as a first line of defense against the rushing water that came from a passing storm.





Total Number of BMPs	Approximate Cost to Landowner
7	\$459
Tons of Sediment Reduced	Pounds of Phosphorus Reduced
0.6	0.5
Crew Hours	Crew Value
37.75	\$771.25
BMPs Installed and Maintained	Materials Used
Erosion Control Mulch	EMC – 5 yards
Infiltration Trench	Crushed Stone – 2 yards
	Stepping Stones – 3

Cheryl Gifford

Belleau Lake – East Wakefield, HN

Belleau is another lake that AWWA has been eager to conduct more YCC projects on and this site was a step in that direction. We installed many BMP's at this site that all had a major role in slowing down soil erosion and pollution entering the lake. As a first line of defense we installed a rubber razor at the top of the driveway to divert water into a drywell/forested area surrounding the driveway. Next, we laid down erosion control mix alongside a pathway leading to the water. We then installed a large infiltration pathway that included four waterbars to break up the flow of water even further. Further down the path there were existing steps which we retrofitted with crushed stone. Finally, we installed a dripline trench alongside the house to capture roof runoff. This allowed water to seep into the ground instead of running down the steep bank and into the water.





Total Number of BMPs	Approximate Cost to Landowner
18	\$802
Tons of Sediment Reduced	Pounds of Phosphorus Reduced
1.0	0.8
Crew Hours	Crew Value
77.5	\$1,547.50
BMPs Installed and Maintained	Materials Used
Erosion Control Mulch	EMC – 6 yards
Infiltration Trench	Crushed Stone – 8 yards
Waterbars	6x6 Pressure Treated Lumber – 12 feet
Rubber Razor	2x6 Pressure Treated Lumber – 48 feet
Dripline Trench	Rubber – 20 feet
Retrofit Steps	Rebar – 16 feet

Nick Mourginis

Lovell Lake – Wakefield, NH

Nick had a YCC project on his property previously. He has a very steep slope that leads to the water. This year we reinforced the erosion control mix in this area, because it had slowly eroded over a year of intense storms. We also used crushed rock to retrofit some existing waterbars placed around an infiltration trench installed a few years previous. To top off the project we cleaned out an existing rip rap trench down the side of his property as it had become filled with sediment from years of rain and runoff.





Total Number of BMPs	Approximate Cost to Landowner
6	\$361
Tons of Sediment Reduced	Pounds of Phosphorus Reduced
0.5	0.6
Crew Hours	Crew Value
32.5	\$627.50
BMPs Installed and Maintained	Materials Used
Erosion Control Mulch	EMC – 5 yards
Infiltration Trench	Crushed Stone – 2 yards
Rip Rap Trench	

Samantha Stone

Pine River Pond – Sanbornville, NH

This site was the second one on Pine River Pond this season and we were very excited to see that word was spreading of our work. For this site we installed a dripline trench along the entire front of the house and edged the trench with erosion control mix. We continued by digging three infiltration trenches in front of the entry way and down the slope of the hill a few yards. All three of these were edged with erosion control mix. Finally, running down the side of their steps to the water we planted native vegetation and laid down erosion control mix.





Total Number of BMPs	Approximate Cost to Landowner
20	\$900
Tons of Sediment Reduced	Pounds of Phosphorus Reduced
1.1	0.8
Crew Hours	Crew Value
72.5	\$1,547.50
BMPs Installed and Maintained	Materials Used
Erosion Control Mulch	EMC – 5 yards
Native Vegetation	Plants - 40
Infiltration Trench	Crushed Stone – 5 yards
Dripline Trench	Loam – 1 yard

Gunter Schramm

Horn Pond – Acton, ME

This was an excellent site for our crew this year. There was not a big slope but rather a long gradual slope leading from the road to the water. This allowed for significant sheet and gully erosion to occur. We installed a few BMP's on this site; the first being a dripline trench. We installed it under the eaves of the house right next to a walking path. Because of this we integrated a pathway into the trench that included steppingstones provided by the homeowner. To top this section off we mulched around the trench. We also mulched in and around the large flat area as well as their walking path up to the driveway itself. Finally, we left a berm for the homeowner to later plant native vegetation next to the pathway.





Total Number of BMPs	Approximate Cost to Landowner
6	\$415
Tons of Sediment Reduced	Pounds of Phosphorus Reduced
3.0	2.6
Crew Hours	Crew Value
22.5	\$617.50
BMPs Installed and Maintained	Materials Used
Erosion Control Mulch	EMC – 10 yards
Dripline Trench	Crushed Stone – 1 yard

Anusia Hirsch

Lovell Lake – Sanbornville, NH

This was a straight-forward job for the crew. Instead of starting new BMP's on the site we fixed up old ones that had been constructed many years prior. The BMP's were in disrepair from several major storms that had occurred recently and it was our job to make sure they were working again. For this site, we retrofitted three existing water bars and then mulched and planted native vegetation in between them. This allowed the water to infiltrate into the ground instead of passing over the full waterbars. We also removed a stone path from the area to reduce foot traffic and allow this area to act solely as stormwater management.



Total Number of BMPs	Approximate Cost to Landowner
10	\$361
Tons of Sediment Reduced	Pounds of Phosphorus Reduced
0.3	0.3
Crew Hours	Crew Value
21	\$495.00
BMPs Installed and Maintained	Materials Used
Retrofit Waterbars	EMC – 1 yard
Erosion Control Mulch	Crushed Stone – 2 yards
Native Vegetation	Plants - 6

Mary Beth Giffune

Lovell Lake – Sanbornville, NH

This was an excellent site for AWWA and its YCC crew. Stormwater runoff would rush down the boat launch adjacent to the Giffune’s driveway, carrying sediment as it came. The sediment would run down the driveway and across the side of their house, ultimately making it to the lake. To solve this problem, we decided to first dig an infiltration trench across the length of the driveway itself. Then alongside the driveway and down the slope we laid four waterbars in two different locations. Their aim was to trap and divert water along with the help erosion control mulch spread around the waterbars.



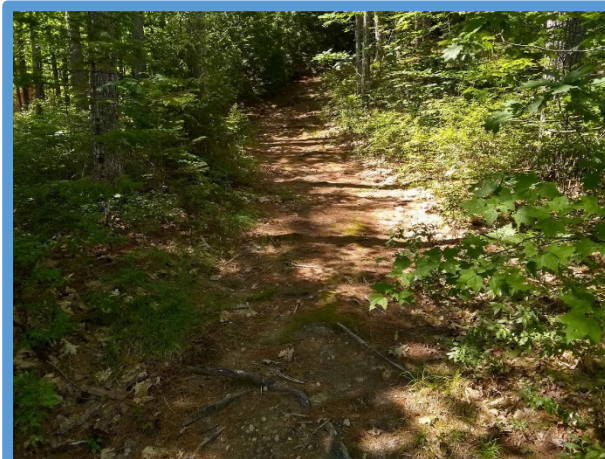


Total Number of BMPs	Approximate Cost to Landowner
12	\$630
Tons of Sediment Reduced	Pounds of Phosphorus Reduced
2.3	1.9
Crew Hours	Crew Value
34.75	\$816.25
BMPs Installed and Maintained	Materials Used
Waterbars	EMC – 6 yards
Erosion Control Mulch	Crushed Stone – 1 yard
Infiltration Trench	6x6 Pressure Treated Lumber – 40 feet
	Rebar – 18 feet

Keri Vachon

Belleau Lake – East Wakefield, NH

This site was probably the most extensive of the season. Massive amounts of water and sediment were reaching the lake from a steep 150' path from the house to the dock. The pathway was relatively skinny in width, which allowed us to easily divert water into the native vegetation surrounding the path. To do this we installed fourteen waterbars along the path and laid down erosion control mix around the waterbars. There was also a secondary path that had pre-existing waterbars, which we retrofitted with stone to make sure they were doing their job.





Total Number of BMPs	Approximate Cost to Landowner
23	\$657
Tons of Sediment Reduced	Pounds of Phosphorus Reduced
3.1	2.7
Crew Hours	Crew Value
48	\$1,120.00
BMPs Installed and Maintained	Materials Used
Waterbars	EMC – 11 yards
Erosion Control Mulch	Crushed Stone – 3 yards
Retrofit Waterbars	6x6 Pressure Treated Lumber – 48 feet
	Rebar – 90 feet

Pine River Association Boat Launch

Pine River Pond – Wakefield, NH

This project was a little different from any project we did this year. It was a straight, gradual slope leading directly into the water. For this site we decided that four rubber razors and a very large rip rap trench would be perfect. Down the right side of the boat launch we dug a rip rap trench that lead almost to the bottom of the boat launch itself. Then, at a thirty-degree angle sloping downhill, we put in three rubber razors. The fourth and final rubber razor we placed facing the opposite way leading to a drywell, that is used to store water and better allow it to infiltrate into the ground.

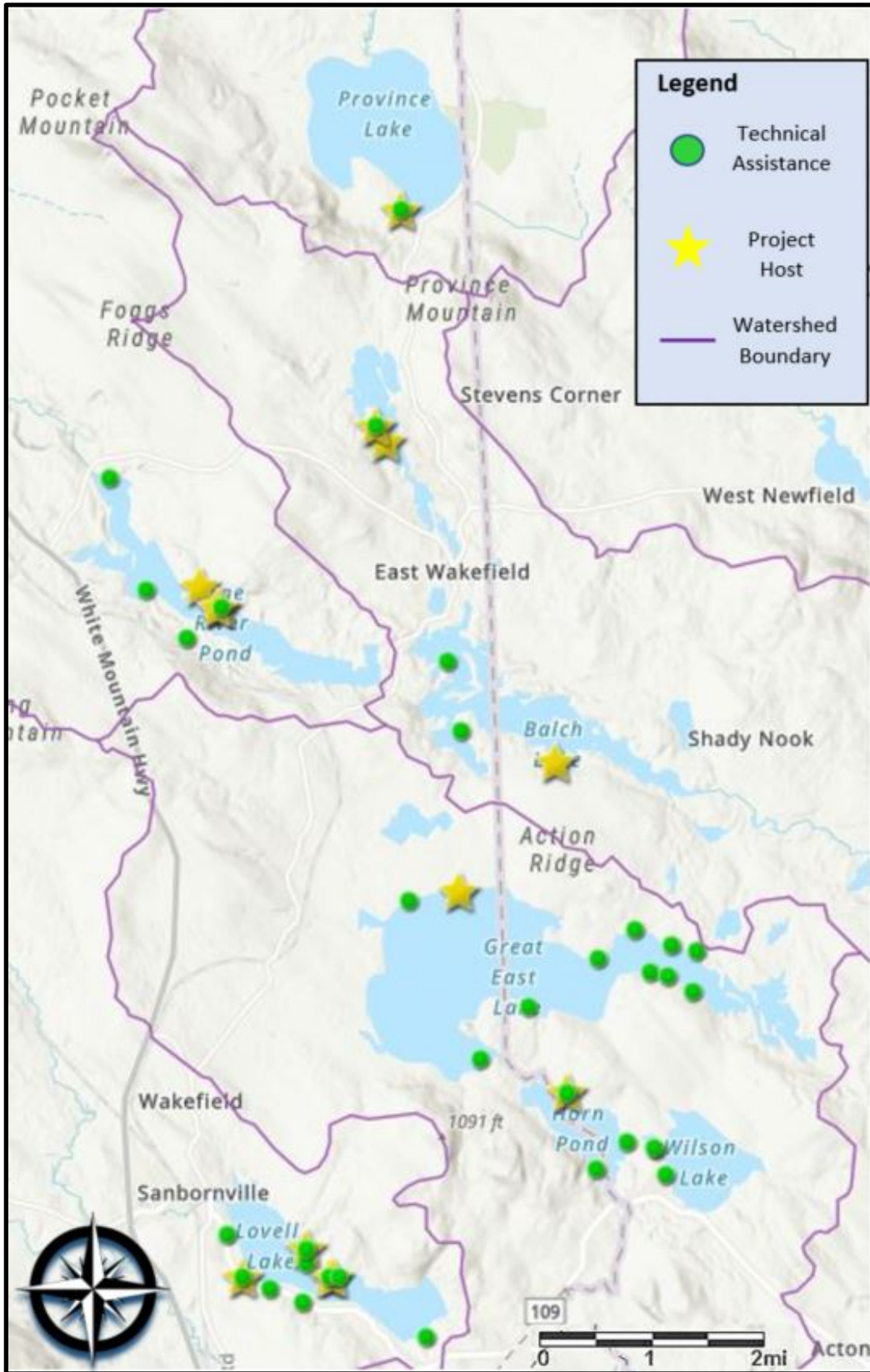
It is worth noting that there is an immense amount of stormwater that comes down this path. More extensive stormwater management is needed at the top of the launch to prevent the problem from persisting.





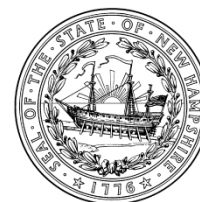
Total Number of BMPs	Approximate Cost to Landowner
10	\$954
Tons of Sediment Reduced	Pounds of Phosphorus Reduced
6.3	5.3
Crew Hours	Crew Value
98.5	\$2,447.50
BMPs Installed and Maintained	Materials Used
Rubber Razors	Rubber – 96 feet
Rip Rap Trench	Crushed Stone – 2 yards
Drywell	2x6 Pressure Treated Lumber – 192 feet
	Rip Rap – 8 yards
	Nails – 5 pound box

Appendix A – 2020 Technical Assistance and Project Host Sites Map



Appendix B – NH DES Pollutants Control Report

<p>NPS Projects - Pollutants Controlled Report New Hampshire Department of Environmental Services, Watershed Assistance Section</p>
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DES Project Number: HI-19-C-07 Date of Report: 12/11/2020

Project Title: Salmon Falls Headwaters Watershed Management Plan Implementation Project – Phase 3: Residential NPS Pollution Reduction and Community Outreach

Grantee: Acton Wakefield Watersheds Alliance

Table 1. Pollutant Load Reduction Estimates for NPS Sites Treated with BMPs

Waterbody Name	Nitrogen pounds per year	Phosphorus pounds per year	Sediment tons per year
Great East Lake	N/A	0.5	0.6
Horn Pond (Maine)	N/A	2.6	3
Lake Ivanhoe	N/A	0.0	0.0
Lovell Lake	N/A	3.3	3.7
Province Lake	N/A	0.3	0.4
Belleau Lake	N/A	3.5	4.1
Balch Lake	N/A	1.8	2.2
Totals	N/A	19	22.4

Table 2. Wetlands, Streambanks, Shoreline Protected / Restored During This Project

Resource	Planned acres	Actual acres	Planned linear feet	Actual linear feet
Wetlands restored			not applicable	not applicable
Wetlands created			not applicable	not applicable
Streambank /shoreline protected	not applicable	not applicable		
Stream channel stabilized	not applicable	not applicable		

The estimations in this report were determined using the appropriate estimation model(s) and applied according to the procedures prescribed for the model. To the best of my knowledge these are reasonable estimates using appropriate methods. Documentation is kept on file by the grantee and is available for review by NHDES and USEPA.

Submitted by (for Grantee):  Jon Balanoff Date: 12/10/2020
Signature Printed Name

Reviewed by (for DES): _____ _____ Date:
Signature Printed Name

NPS Projects - Pollutants Controlled Report

New Hampshire Department of Environmental Services, Watershed Assistance Section

DES Project Number: HI-19-C-07 Date of Report: 12/11/2020

Table 3. List of BMP Sites and Methods Used

Lake: Great East Lake

Site ID (Name or # from site list)	Site Location Description	Latitude and Longitude (decimal degrees)	Brief BMP Description	Estimation Method / Sub-Method Used	Implementation Date	Pounds of Nitrogen Per Year	Pounds of Phosphorus Per Year	Tons of Sediment Per Year
Musser	211 North Shore Dr. Wakefield, NH	East Wakefield	Erosion Control Mulch, Infiltration Trench, paver path	Region 5	7/15/2020	N/A	0.5	0.6
Totals:						N/A	0.5	0.6

Table 4. List of BMP Sites and Methods Used

Lake: Horn Pond

Site ID (Name or # from site list)	Site Location Description	Latitude and Longitude (decimal degrees)	Brief BMP Description	Estimation Method / Sub-Method Used	Implementation Date	Pounds of Nitrogen Per Year	Pounds of Phosphorus Per Year	Tons of Sediment Per Year
Schramm	127 Mountain View Rd Acton, ME		Erosion control mulch, Infiltration Pathway & Dripline Trench.	Region 5	7/27/2020	N/A	2.6	3
Totals:						N/A	2.6	3

Table 5. List of BMP Sites and Methods Used

Lake: Pine River Pond

Site ID (Name or # from site list)	Site Location Description	Latitude and Longitude (decimal degrees)	Brief BMP Description	Estimation Method / Sub-Method Used	Implementation Date	Pounds of Nitrogen Per Year	Pounds of Phosphorus Per Year	Tons of Sediment Per Year
Pine River Pond Association Beach	Lord Road Wakefield, NH		Infiltration steps, erosion control mulch path and sitting area, waterbar steps, Native vegetation, Rip rap trench.	Region 5	7/2/2020	N/A	0.9	1.0
Pine River Pond Association Boat Launch	Lord Road Wakefield, NH		Rubber Razors Infiltration Trench Drywell	Region 5	8/13/2020	N/A	5.3	6.3
Stone	954 Lord Road Wakefield, NH		Dripline trench, native vegetation, erosion control mulch	Region 5	7/23/2020	N/A	0.8	1.1
Totals:						N/A	7.0	8.4

Table 6. List of BMP Sites and Methods Used

Lake: Province Lake

Site ID (Name or # from site list)	Site Location Description	Latitude & Longitude (decimal degrees)	Brief BMP Description	Estimation Method / Sub Method Used	Implementation Date	Pounds of Nitrogen Per Year	Pounds of Phosphorus Per Year	Tons of Sediment Per Year
Ed Harrington	115 Bonnyman Road Wakefield, NH		Rubber Razors, Infiltration trench, drywells, infiltration path.	Region 5	7/13/2020	N/A	0.3	0.4
Totals:						N/A	0.3	0.4

Table 7. List of BMP Sites and Methods Used

Lake: Lovell Lake

Site ID (Name or # from site list)	Site Location Description	Latitude & Longitude (decimal degrees)	Brief BMP Description	Estimation Method / Sub Method Used	Implementation Date	Pounds of Nitrogen Per Year	Pounds of Phosphorus Per Year	Tons of Sediment Per Year
Giffune	486 Brackett Road Sanbornville, NH		Waterbars, Erosion Control Mulch, Native Vegetation, Infiltration Trench	Region 5	8/4/2020	N/A	1.9	2.3
Hirsch	698 Brackett Road Wakefield, NH		Erosion Control Mulch, retrofitted crushed stone steps and water bars.	Region 5	7/28/2020	N/A	0.3	0.3
Plante	714 Brackett Road Wakefield, NH		Infiltration Path w/ Waterbars, infiltration trench, restored rip rap trench.	Region 5	7/7/2020	N/A	0.5	0.6
Mourginis	356 Lovell Lake Rd. Sanbornville, NH 03872		Erosion Control Mulch and retrofitted infiltration steps.	Region 5	7/21/2020	N/A	0.6	0.5
Totals:						N/A	3.3	3.7

Table 8. List of BMP Sites and Methods Used

Lake: Balch

Site ID (Name or # from site list)	Site Location Description	Latitude and Longitude (decimal degrees)	Brief BMP Description	Estimation Method / Sub-Method Used	Implementation Date	Pounds of Nitrogen Per Year	Pounds of Phosphorus Per Year	Tons of Sediment Per Year
Bowden	526 Raccoon Road Acton, ME		Rubber Razors, Infiltration trench, Erosion control mulch, retrofitted waterbars.	Region 5	7/24/2020	N/A	1.8	2.2
Totals:						N/A	1.8	2.2

Table 9. List of BMP Sites and Methods Used

Lake: Belleau

Site ID (Name or # from site list)	Site Location Description	Latitude and Longitude (decimal degrees)	Brief BMP Description	Estimation Method / Sub-Method Used	Implementation Date	Pounds of Nitrogen Per Year	Pounds of Phosphorus Per Year	Tons of Sediment Per Year
Gifford	521 Beverly Hills Dr Wakefield, NH		Rubber Razor, Dripline trench, infiltration path & waterbars, erosion control mulch,	Region 5	7/20/2018	N/A	0.8	1.0
Vachon	84 Gold Coast Dr Wakefield, NH		Erosion control mulch path & waterbars, retrofitted infiltration steps,	Region 5	8/6/2020	N/A	2.7	3.1
Totals:						N/A	3.5	4.1

Appendix C – ME DEP Pollutants Control Report



Pollutants Controlled Report
 Maine Department of Environmental Protection
 NPS Grants Program – Bureau of Land and Water Quality

YEAR: 2020

NPS Project ID#: 2017RR07

Project Title: Great East Lake Watershed Protection Project (Phase 3 Maine)

Grantee: Acton Wakefield Watersheds Alliance DEP Agreement Admin: Wendy Garland


TABLE 1. Pollutant Load Reduction Estimates for NPS Sites Treated with BMPs

Water Body Name	Sediment tons per year	Phosphorus pounds per year	Nitrogen pounds per year
Balch Lake	2.2	1.8	N/A
Horn Pond	3.0	2.6	N/A
Totals	5.2	4.4	N/A

TABLE 2. Wetlands, Streambanks, Shoreline Protected / Restored During This Project

Resource	Planned acres	Actual acres	Planned lineal feet	Actual lineal feet
Wetlands restored			Not applicable	Not applicable
Wetlands created			Not applicable	Not applicable
Streambank / shoreline protected	Not applicable	Not applicable		
Stream channel stabilized	Not applicable	Not applicable		

The estimations in this report were determined using the appropriate estimation model(s) and applied according to the procedures prescribed for the model. To the best of my knowledge these are reasonable estimates using appropriate methods. Documentation of the estimates is attached to this PCR for review by DEP / EPA.

Submitted by (for Grantee) Signature:  Printed Name: Jon Balanoff

Reviewed by DEP AA: _____

Printed Name: _____

<p>Pollutants Controlled Report Maine Department of Environmental Protection NPS Grants Program – Bureau of Land and Water Quality</p>

NPS Project ID#: 2017RR07 for the year 2020

TABLES 3 & 4. List NPS Sites, Methods Used, & Pollutants Controlled

Great East

Table ID (name or # from site list)	Brief Description NPS Site	Estimation Method/ Sub-Method Used	Sediment Tons / Yr	Phosphorus Pounds / Yr	Nitrogen Pounds / Yr
Bowden	Rubber Razors, Infiltration trench, Erosion control mulch, retrofitted waterbars.	Region 5/GEE	2.2	1.8	N/A
Totals for the Year:			2.2	1.8	N/A

Horn Pond

Table ID (name or # from site list)	Brief Description NPS Site	Estimation Method/ Sub-Method Used	Sediment Tons / Yr	Phosphorus Pounds / Yr	Nitrogen Pounds / Yr
Schramm	Erosion control mulch, Infiltration Pathway & Dripline Trench.	Region 5/GEE	3.0	2.6	N/A
Totals for the Year:			3.0	2.6	N/A

Pollutant Load Reduction Estimation Methods

1. Region 5 Model Refer to EPA website <http://it.tetrattech-ffx.com/step/> Go to the Region 5 Load Estimation Users Manual, “Michigan Method”.

Descriptors to use for Region 5 Model sub-methods:

R5 / GEE	Gulley Stabilization – uses Gulley Erosion Equation
R5 / CEE	Streambank / Ditchbank and Roadbank stabilization – uses Channel Erosion Equation
R5 / Fields	Agricultural Fields – uses Revised Universal Soil Loss Equation (RUSLE), sediment delivery ration and contributing drainage area.
R5 / Filter	Filter Strips – uses relative gross filter strip effectiveness
R5 / Feedlot	Feedlot Pollution Reduction – uses a 12 step method

2. WEPP Model Refer to USFS website <http://forest.moscowfl.wsu.edu/fswepp>
 Water Erosion Prediction Project (WEPP) computer model