
SUMMARY OF ACCOMPLISHMENTS

SEVEN SWMP SITES ARE COMPLETED (#3, #6, #8, #10, #21, #28, #52)
WHICH ACCOUNTS FOR:

7,504 LBS/YR SEDIMENT

12.2 LBS/YR PHOSPHORUS

44.5 LBS/YR NITROGEN

It's important to note that carrying out the Watershed Plan will not be exclusive work of the SLA, but rather the unified commitment of the Squam community

PROJECT BREAKDOWN

Cotton Cove (Site #3): Paving base and installing infiltration berms to reduce stormwater erosion potential on roadways from the mountain, constructed armored infiltration trench along route 113 to filter stormwater, and built vegetative buffer along the lakeside.

Culvert on Coolidge Farm Road (Site #6): Town of Sandwich cleaned out and reestablished infiltration and turn-out zones above and below inflow and outflow.

Camp Hale (Site #8): Camp Hale constructed terraced recreation areas utilizing reclaimed sidewalks and built vegetative rain gardens to redirect and clean stormwater.

Sandwich Beach (Site #10): 50 Volunteers aided SLA and MRWC staff in re-establishing degraded vegetative buffer to anchor the shoreline and limit erosion potential and slow stormwater.

ADDITIONAL ACCOMPLISHMENTS

- Shoreline and near-shore monitoring- **Tile Project**
- Enhanced deep site monitoring
 - Switched winter sampling from monthly to biweekly
 - New YSI sensors for an expanded suite of water quality parameters
- Private property stormwater and septic assessment and guidance by implementing NHLakes **LakeSmart**
- Helping property owners become LakeSmart – **Shore Up Squam Program**
- Hosting community engagement events to update the community on water quality and Squam Lakes Watershed Management Plan status
- Reestablished volunteer **Weed Watchers Program** with communities of High Haith and Livermore Cove while offering trainings and education at SLA
- Shoreline best management practices example areas built on SLA campus
- Developed a cyanobacteria monitoring plan to early detect, predict, and advise.
- Bolstered milfoil management program with building of Millie 2

INFRASTRUCTURE PHASE

The SLA is finalizing the infrastructure improvements for the Squam Watershed Management Plan. Key highlights include the SLA building, establishing a state-of-the-art water quality lab, scientific buoys, enhancing office and classroom spaces, and upgrading the Fisher Family Barn. Additionally, the SLA is working on improving, relocating, and rebuilding high-use trails.

SLA is focused on the top 10 watershed restoration sites (bold are completed)

- Site #1: Ice House Creamery
- Site #2: Agricultural field between Moo Corners and Winterberry Lane
- **Site #3: Route 113 along Cotton Cove**
- Sites #4, 5, & **6: Coolidge Farm Road**
- Site #7: Squam Lake Road East of Sandwich-Harbor line
- **Site #8: Camp Hale**
- Site #9: Squam Lakes Association crew cabin driveway
- **Site #10: Sandwich Town Beach**



ZONE PHASE

With the majority of the infrastructure phase completed, we are now shifting our focus to a zone-by-zone approach. The watershed has been divided into six zones, each with its own unique challenges and projects. Every zone has specific environmental and programmatic targets. Based on the work completed and Watershed Plan estimates we are targeting \$2,750,000, though we recognize that maintaining water quality is an ongoing effort.

INCOME

Donations	\$2,339,823
Written Pledges	\$507,835
Grants	\$1,013,000
TOTAL	\$3,860,658

EXPENSE

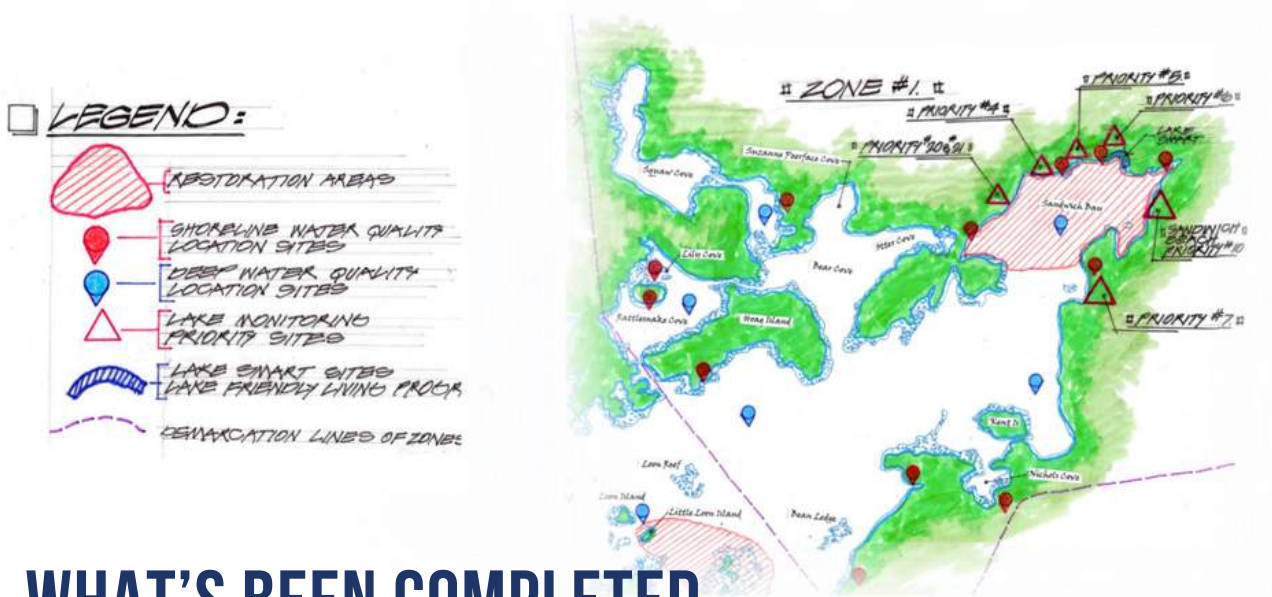
Infrastructure Phase	\$2,900,000
Zone Phase	\$2,750,000
Total	\$5,650,000
TO GOAL	\$1,789,342



ZONE 1 - NORTHERN COVES, PONDS, & SANDWICH BAY

Although the coves and bays of Zone 1 are oligotrophic, these areas are on the verge of transitioning to mesotrophic conditions. Ecologically, Zone 1 features several critical and unique areas, including shallow coves, sandy bottoms, narrow channels, clear water, and wetland zones, all of which provide pristine wildlife habitats. However, these areas are fragile and vulnerable to cultural eutrophication and degradation due to multiple inflow sources such as streams, ponds (Intervale, Barville, Kusumpe), stormwater, and road runoff.

Currently, Zone 1 contains 29 sites from the Squam Watershed Management Plan (SWMP), including 6 of the top 10 priority sites. Of these 6 sites, 3 have been completed to date. In total, these 29 sites contribute 23,433 pounds of sediment, 35 pounds of phosphorus, and 115 pounds of nitrogen annually to the watershed.



WHAT'S BEEN COMPLETED

3 of the top 10 priority sites in Zone 1 have been completed

- #6 - Town of Sandwich cleaned out and reestablished infiltration and turn out zones
- #8 - Camp Hale constructed terraced recreation areas utilizing reclaimed sidewalk and built vegetative rain gardens to redirect and clean stormwater
- #10 - 50 Volunteers aided SLA and Merrimack River Watershed Council staff in reestablishing degraded vegetative buffer to anchor shoreline and limit erosion potential and slow stormwater

ANNUAL TOTAL OFFSET OF SITES 6, 8, & 10

- 3,848 lbs/yr sediment
- 6 lbs/yr phosphorus
- 22 lbs/yr nitrogen

OUR PLAN

- Re-stabilization of stone culvert at site priority 4. Unstable inlet/outlet, road shoulder/ditch erosion, lots of loose sediment, high PCB site
- Adding infiltration zones and stabilized inflow areas above/below culvert at site priority 5
- Woody additions to slow flow of water in Smith and Eastman Brook to limit sediment and phosphorus loading into Eastman Cove

Zone Monitoring Overview

- 7 deep water monitoring sites
- 10 shallow water monitoring sites
- Survey Eastman Cove for Milfoil yearly as it is prime habitat for invasive species establishment

ZONE 1 - NORTHERN COVES, PONDS, & SANDWICH BAY (CONTINUED)

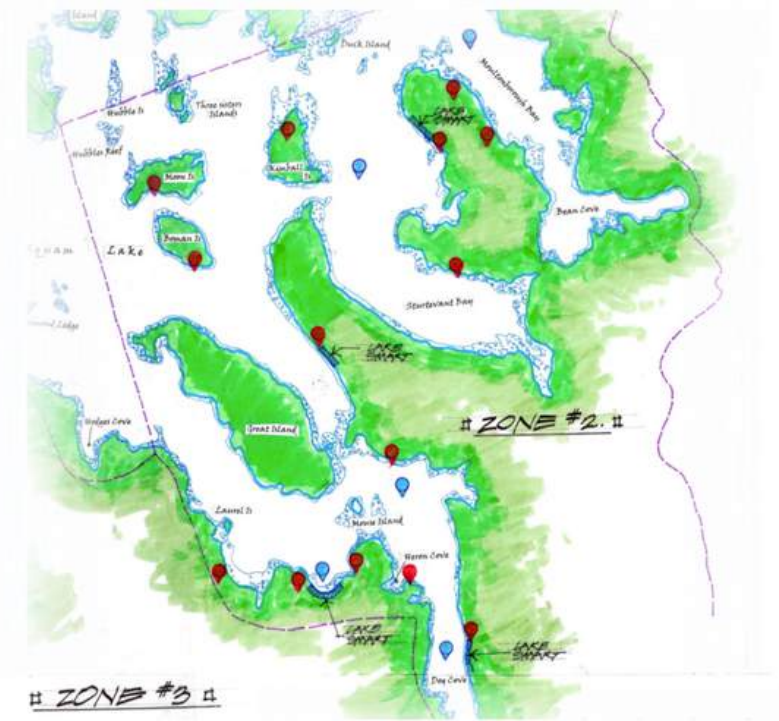
WHAT NEEDS TO BE DONE

- Many of the sites in Zone 1 (24 of 29) are along roadsides and steep slopes. These areas of concern are stacked right on top of the water or are where streams are forced through undersized or unstable culverts.
- We need to coordinate with current road managers and abutting private property owners on installing infiltration trenches and vegetative road shoulders, pitching roads away from water, and adapting current culvert maintenance plans.
- Road maintenance budgets are often tight and time, people, and resources are limiting factors. We need resources available to make these projects happen sooner than routine maintenance and improvement plans allow.



ZONE 2 - STURTEVANT BAY, MOULTONBOROUGH BAY, & BEAN COVE

The coves and bays of Zone 2 overall water quality remains stable and well within oligotrophic status. Protecting Zone 2 is supported by consistent monitoring at 4 deep-water sites and 18 shallow-water sites, the High Haith weed watchers, community water quality volunteers, along with milfoil surveys and removal in Dog Cove. One key site from the Squam Watershed Management Plan, site #42 at the intersection of East Holderness Road and US Route 3, requires the installation of turnouts and infiltration ditches along US Route 3 to manage stormwater runoff.



WHAT'S BEEN COMPLETED

Vegetative floating wetland installed in Swainey Cove

- Researching native wetland plant ability to absorb sediment and phosphorus suspended in water column

OUR PLAN

In stream remediation for Swainey Brook

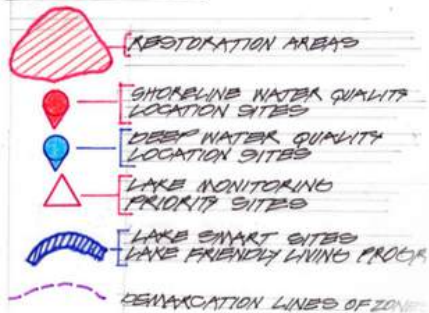
- Swainey Brook is the largest sub-basin of Squam Lake bringing 105 pounds of phosphorus per year.
- Swainey Brook runs along US route 3, so any material on or alongside the road like sand, salt, and plastics are susceptible to being washed into it.
- As greater rain occurs, the amount of water entering the brook increases, which forces more water into Squam Lake.
- Erosion and loading potential need to be mitigated alongside and in Swainey Brook to limit the direct inflow of nutrients, pollutants, and sediments into Zone 2 and Squam Lake.

Trail stabilization and invasive species remediation at Chamberlain Reynolds Memorial Forest

ZONE 3 - WHITE OAK POND

White Oak Pond is classified as mesotrophic, with water quality monitoring efforts beginning in 2023 at a deep-water site, the dam, and one shallow site. Long-term water quality data from the DES VLAP program reveal regular occurrences of anoxia and internal nutrient loading, contributing to ongoing concerns. Routine cyanobacterial blooms have made this lake a key focus for research, monitoring, and management. Additionally, the White Oak sub-watershed, the largest inflowing source, contributes 156 pounds of phosphorus annually, further highlighting the need for focused management efforts.

LEGEND:



CURRENT EFFORTS

Increased monitoring frequency to track and predict when cyanobacterial blooms form deep in the water column and may come to the surface

- Protecting recreational safety and human health as cyanobacteria can produce toxic chemicals.
- Early detection of subsurface cyanobacterial proliferations guide increased monitoring and regular testing of water column samples for cyanotoxins to ensure recreational safety.

Invasive species removal at Betsy's Park

Vegetative floating wetland installed near White Oak Pond outflow

- Researching native wetland plant ability to absorb sediment and phosphorus suspended in water column.

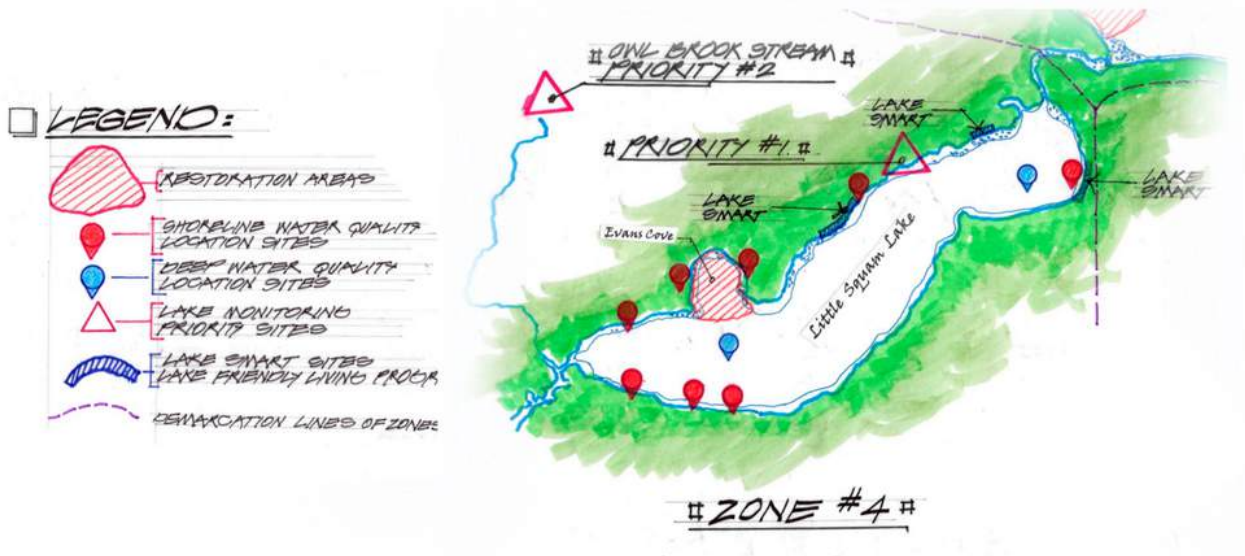
OUR PLAN

Install multiple rain gardens at Betsy's Park to limit steep slope runoff into White Oak Pond

Partner with WOPWA for White Oak Pond focused nutrient loading remediation plan

ZONE 4 - LITTLE SQUAM LAKE

Since 1981, Little Squam Lake has been classified as oligotrophic, indicating it is in good health. Since 2003, the water quality of Little Squam Lake has experienced an improvement period with lower concentrations of nutrients and increased visibility compared to the previous 2 decades. Our ongoing monitoring efforts include 2 deep-water sampling sites monitored by volunteers, 12 shallow-water sampling sites, and targeted milfoil removal at three locations. In Zone 4, there are 9 sites identified in the Squam Watershed Management Plan contributing a combined annual inflow of 7,085 pounds of sediment, 12 pounds of phosphorus, and 92 pounds of nitrogen.



OUR PLAN - ICE HOUSE CREAMERY

The area of US Route 3 alongside the shoreline of Little Squam Lake and the Ice House Creamery is the #1 priority site in the Squam Watershed Management Plan

Timeline: Winter/Spring 2025

Objective: Install below-ground infiltration basins to collect polluted stormwater, removing sediments, nutrients, and pollutants before clean water enters Little Squam Lake.

WHAT NEEDS TO BE DONE

- Install vegetative buffers and berms, armored erosion ditches and infiltration basins at lower priority SWMP sites
- In stream woody additions in Evans Brook to prevent excessive sediment loading into Evans Cove
- Work with private property owners to assess individual impacts from stormwater, septic systems, and improve shoreline maintenance and vegetation.

ZONE 5 - PIPER, COTTON, SHADBUSH, & LIVERMORE COVES

Zone 5 includes Piper, Cotton, Shadbrush, and Livermore Coves and which combined are of oligotrophic status, indicating high water quality. We closely monitor this zone with 3 deep-water and 14 shallow-water sites, ensuring consistent oversight. In addition, targeted efforts include milfoil removal in Grapevine Cove. Three Squam Watershed Management Plan Sites are in Zone 5.



WHAT'S BEEN COMPLETED

Site #3 – Cotton Cove Shoreline - 4 Phase Approach

1. Property owners on the hill cleaned and replaced failing culverts, regraded and pitched the road to slow down hill runoff
2. SLA built stormwater berm on low and fragile point of shoreline to slow water flow and remove sediments and nutrients
3. SLA funded a RS Eastman designed/built armored infiltration trench to collect stormwater at the base of Range Road and along 113, slowing its flow and removing sediments and nutrients before way can enter Cotton Cove through the existing culvert
4. Paving Range Road and installing infiltration areas alongside it we will be removing the erosion potential from the road and preventing the recurrent washout into Cotton Cove.

OUR PLAN

- **SWMP #9 SLA Barn/Cabin Drive Way:** Removing erosion potential by paving steep slope driveway, and building infiltration zones at the bottom to prevent sediment and nutrient loading into Piper Cove
- **SWMP #35 SLA Boat Ramp:** Removing erosion potential of drive, reestablishing turnouts to redirect stormwater flow, and creating infiltration zones along side to prevent sediment-rich inflow to Pipers Cove.
- **Vertical Profiler in Piper Cove:** We have applied for State Conservation Commission Moose Plate Funding for a vertical profiler which would substantially improve our water monitoring capabilities by providing an autonomous and continuous water quality dataset.

ANNUAL TOTAL OFFSET OF SITE 3

- 1,419 lbs/yr sediment
- 3.1 lbs/yr phosphorus
- 11.7 lbs/yr nitrogen

ZONE 6 - CARNES, VEERIE, & BENNETT COVES, DEEPHAVEN REEF

This zone has oligotrophic waters, which indicate outstanding water quality and support a vibrant ecosystem, making it a crucial habitat for birds and fish, including salmon. Monitoring is carried out at 2 deep-water and 7 shallow-water sites, alongside targeted efforts such as milfoil removal from Bennett Cove to protect the ecosystem. Additionally, SWMP Site #36, located at the road crossing on Route 113 for West Brook, contributes 970 pounds of sediment, 2.2 pounds of phosphorus, and 1.3 pounds of nitrogen annually, highlighting the need for ongoing management and remediation efforts. The site requires the installation of turnouts and the stabilization and reshaping of road shoulders leading into the brook to reduce runoff.



WHAT'S BEEN COMPLETED

Partnered with RDC to make their property lake friendly

- With our guidance, RDC built multiple infiltration trenches and installed erosion control best management practices across their property in areas where stormwater was causing excessive nutrient and sediment loading into the waters of Zone 6.

Experimental vegetative floating wetland in RDC Bight

- We are actively researching the ability of native wetland plants to absorb sediment and phosphorus suspended in the water column.

UNIQUE SITE - BENNETT BROOK

- Cold water stream carrying nutrient rich water into Bennett Cove. Sediments being carried through Bennett Brook also carry DDT.
- **What are we doing about it:** Woody additions in Bennett Brook to slow flow of water, limit sedimentation, and prevent nutrients and legacy contaminants from entering Bennett Cove.