

**Acton-Shapleigh**  
**Youth Conservation Corps**  
**Season in Review**  
Annual Season Program Report  
2009



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# The Acton-Shapleigh Youth Conservation Corps

## Executive Summary

The Acton-Shapleigh Youth Conservation Corps (ASYCC) has been committed to protecting Goose Pond, Loon Pond, Mousam Lake, and the Square Pond watersheds since 2001. Since the start of the ASYCC program, the program has provided education, community outreach, technical assistance, courtesy boat inspections, and the installation of conservation projects within the watershed to help improve and protect the quality of the water in the regions local waterways.

The ASYCC has two programs that work independently of each other while still working to protect the valuable resources of the watersheds. These programs, which include the Courtesy Boat Inspection (CBI) program and the Erosion Control Crew (ECC) program, hire local year-round or seasonal residents of the watersheds including students from area high schools. By hiring local residents of the watershed, the ASYCC's employees have a vested interest in the success of the program not only for available jobs but they realize like many other residents of the watersheds that the economy of the region depends on the quality of the watersheds' environment.

The CBI program works to prevent the introduction of invasive aquatic plants from entering the local watersheds. Invasive aquatic plants threaten the livelihood of the freshwater bodies, surrounding towns, and wildlife populations in the area. Once invasive aquatic plants enter the waterway, they are unmanageable, and kill off the native aquatic plants that are necessary for the survival of the waterway and the surrounding ecosystem. Eventually, if these invasive aquatic plants are left unmanaged, they grow densely and prevent boaters, swimmers, and wildlife from using the waterway.

The ASYCC's CBI program has grown since it was established, once working with only two CBI's on the weekends on Mousam Lake boat ramp. The program has now grown to cover both Square Pond and Mousam Lake, with over five CBI's covering the ramps on a daily rotating basis. Since 2008, the ASYCC has increased the amount of coverage on both Square Pond and Mousam Lake Boat ramps. In 2008, the Square Pond boat ramp was covered Saturday and Sunday for a total of 12 hours per week. This year in 2009, Square Pond was covered Thursday through Sunday for a total of 28 hours. In 2008, The Mousam Lake boat ramp was covered Monday through Thursday for a total of 8 hours each day, and Friday through Sunday for 10 each day, with a total of 62 hours per week. This year Mousam Lake has seen a significant increase in the amount of coverage. Monday through Thursday, the ramp is covered for 12 hours each day, and Friday through Sunday 14 hours per day, with a total of 90 hours per week.

The CBI program on Mousam Lake and Square Pond boat ramps has also increased the number of boats inspected since 2008. In 2008 there were 1,182 boats inspected on Mousam Lake and in 2009 there were 2,316, showing an increase of 49 percent. Square Pond also increased the number of inspections in 2009. During 2008, there were 173 boats inspected and in 2009, there were 233 boats inspected which is an increase of 26 percent. In addition to increasing the amount of coverage on both water bodies there were 18 plant fragments found, of which two were considered invasive.

The ECC program is group of high school aged students working under the direction of a crew leader, working together to install conservation projects around the watersheds. These conservation projects are for landowners, business owners, and municipalities who request the services of the ECC. While the ASYCC ECC provides labor at no charge, the property owners are merely asked to supply the project materials.

This season the ECC completed a total of 16 projects between the water bodies of Mousam Lake, Square Pond, and Goose Pond. The total number of projects is down slightly from the 2008, however, the projects this year were larger in scope. In part, due to the rainy summer and depressed economy, projects for the season started slowly. The later portion of the year proved very busy and late season requests for assistance was strong. With the late surge of requests from property owners around the lake, many projects have been penciled in for 2010 and it is expected to be a very busy season.

The threat of invasive plants in the region and the continued erosion of property in the watershed demand our attention. The environmental, recreational and economic life of this region depends on the good stewardship of our valuable natural resources. The Acton-Shapleigh Youth Conservation Corps has made great progress over our nine years of service to the community, but the need still grows. With the continued support of the property owners and boaters in the watershed, the dedicated financial support of the towns of Acton and Shapleigh, the lake associations and private donors, and the hard work of all those involved in our effort; the ASYCC will continue to be a valuable asset to the community and a protector of our lakes.



## **The Acton-Shapleigh Youth Conservation Corps**

The Acton-Shapleigh Youth Conservation Corps (ASYCC), was founded in 2001, and is committed to protecting the waterways of Goose Pond, Loon Pond, Mousam Lake, and Square Pond. The ASYCC provides education, community outreach, technical assistance, and the installation of conservation projects to improve water quality in the watershed. The ASYCC continues to work to sustain and protect the areas valuable water resources for the enjoyment of the community, the goodness of the environment, and the success of the local economy.

Each season the ASYCC program works to improve on past seasons success, while continuing the workmanship the community has grown to know. The ASYCC is committed to hiring knowledgeable employees, making a presence in the community, providing educational resources, and working together with the towns to make Goose Pond, Loon Pond, Mousam Lake, and Square Pond an enjoyable place to not only visit but to live.

### **A brief historical overview**

Goose Pond, Loon Pond, Mousam Lake, and Square Pond are located in Southern Maine in the towns of Acton and Shapleigh, York County Maine. Since Shapleigh was first settled in 1772, the area has seen the shores of its water bodies developed for saw mills, businesses, and residential homes. The original settlers could have never guessed the fate of Mousam Lake or the other water bodies within the area; over time since being first settled, Mousam Lake has seen the rapid development of naturally forested area, which has now been rapidly urbanized. The rapid urbanization of the area led to a decrease in water quality in Mousam. A decrease in water quality was caused by the use of phosphorus, nitrate, nitrate, and other fertilizers used on lawns of properties and the clear cutting of vegetation that once existed as buffers. These factors have led to a decrease in dissolved oxygen (DO), clarity of the water, and in turbidity. Indicator species such as frogs, salmon, cranes, loons, and other native birds and wildlife left the area due to the poor water quality and development of their native habitat and breeding grounds.

During the 1970s to the early 1990's the Maine Department of Environmental Protection noticed a decrease in water quality and place Mousam on Maine's Impaired Waters List. This allowed Mousam to receive special attention and funding from the state and local governments to help fix the damage that had occurred for so long on the lake. In 2007, Mousam Lake was removed from the impaired waters way list. This does not mean that Mousam cannot revert back to its impaired state, what it does mean is that native species such as the loons and the salmon have started to return back to the area and that the community must take care of its valuable resources. However without proper management and protection from invasive species and harmful elements, Mousam can fall back into its impaired state. Square Pond, although it is not a lake at risk, has recently been put on the lake watch list. What this means is that Maine Department of Environmental Protection and local experts know that something is going on with the Pond but are not quite sure what. With the help from concerned residents, the ASYCC, and local governments, Square Pond can be saved from a costly fight against nature.

All though Goose Pond and Loon Pond are not and have not been on the impaired water bodies list or watch list this does not mean that it can not happen. With the help of landowners educating themselves and the works of the ASYCC, Goose Pond, Loon Pond, Mousam Lake, and Square Pond have a better chance of staying off the list, continuing to improve their current state or help fix the current problems to improve the quality of the water.

### **Problems affecting the watersheds**

Watersheds such as Goose Pond, Loon Pond, Mousam Lake, and Square Pond face many threats to the quality of the water, environment, and way of life. Threats include erosion from

lawns, the use of fertilizers and herbicides, and the increased activity on the water may decrease water quality. Erosion and water issues remain a major threat to the quality of our lake and pond waters and the natural beauty of the shoreline. Excess sediments deposit led to high levels of phosphorus build up, resulting in algae blooms, ultimately causing an impaired water body.

- Sedimentation deposits and excess nutrient loading can create unpleasant shoreline situations which include mud flats, or excessive beds of aquatic vegetation.
- Phosphorus is a natural element, which is essential to plant and animal growth. However, too much algae creates algae blooms or promotes the growth of native and invasive aquatic plants.
- Algae blooms, deplete water quality because algae reduces the amount of available oxygen and will often kill off fisheries. Species most affected by algae blooms are cold water species which include salmon.

Another issue affecting watersheds all over New England is the introduction of invasive aquatic plants. Invasive aquatic plants are native to Asia, Europe, and Africa, and have made their way into our local waterways. The first introductions of these plants are often by an unknowing person dumping their fish tanks filled with non-native plants into local waterways. Once these plants enter states the main source of transportation for these plants is boats, and boat trailers. Invasive aquatic plants have no natural predators in the United States allowing them to threaten the livelihood of the freshwater bodies, surrounding towns, and wildlife populations in the area. Invasive aquatic plants threatening New England's waterways include Hydrilla, Eurasian Milfoil, and Variable Leaf Milfoil. Once these invasive aquatic plants enter a waterway, they are very expensive to control and even harder to eradicate.





## Supporters, Staff and Board

### Program Supporters:

- Town of Acton, Maine
- Town of Shapleigh, Maine
- Mousam Lake Region Association
- Square Pond Improvement Association
- Maine Department of Environmental Protection
- Lakes Environmental Association
- Private Donors

### Acton-Shapleigh Youth Conservation Corps Staff:

- Amanda Loomis, Program Director
- Emil Cashin, Erosion Control Crew Leader
- Erosion Control Crew members
  - Kelsey Best
  - Dean Scott
  - Morgan Johnson
  - Norris Johnson
  - Kady Lemlin
  - Taylor Perkins
- Courtesy Boat Inspectors
  - Gail Boisvert
  - Donald Lelievre
  - Erica Mrazik

- Sue Mrazik
- Alan Walsh

### ASYCC Board Members:

- Bill Sherman, President
- Pat Baldwin, Vice President
- Jim McClaine, Treasurer
- Phil Gannon, Secretary
- George Emery
- Sheila Hayes
- Jane Thomas

### Overview of ASYCC Hired Positions

**Program Director:** Program director is a forty-hour per week, salary position. The program director is in charge of hiring, scheduling, and direct supervision of all employees, in addition to all logistics. During the month of May the program director's duties include, but are not limited to, hiring, conducting technical assistance visits, composing and distributing handouts and advertising, in addition to attending meetings. During June, the program director trains the CBI's, schedules CBI hours on the boat launch, books sites for the ECC and continues technical assistance visits. In July and August, the program director continues to provide technical assistance to landowners, gather materials for the ECC projects, educates landowners, attends meetings, and monitors the CBI program.

**Erosion Control Crew Leader:** The erosion control crew leader is in charge of training and educating the members of the ECC, oversees all projects conducted by the ECC, and speaks with landowners in the absence of the program director, in addition to ensuring that all projects conducted by the ECC are done safe, efficient and in a fun manor. This position is a 40-hour per week, Monday through Friday position, which pays \$12.00 an hour.

**Erosion Control Crew Members:** The ECC consists of five full-time members and one alternate member. All ECC members are residents (seasonal or year-round) of the towns within the watershed or attend a regional high school. ECC members install the erosion and runoff control practices designed by the program director. The crew is only allowed to use hand tools during the construction of the project. This position is a 30-hour per week, Monday through Friday position, which pays \$9.00 an hour.

**Courtesy Boat Inspector:** The CBI's job entails educating boat owners about the potential dangers of invasive species within waterways, inspecting boats, trailers, and equipment in the boat, and protecting the waterways from invasive plants. The staff are required to be of college age or older and be either year-round or seasonal residents of the area. In the 2009 season, seven CBI were hired, two of the seven worked on a fulltime 40 hour per week schedule, while the other five worked part time between the hours of 20-30 hours per week. CBI's are paid an hourly wage of \$10.00, and work both Mousam Lake and Square Pond boat ramps.

### ASYCC Programs

Under the umbrella of the ASYCC there are two very important programs that work independent of each other, while still working to protect the valuable resources within the watersheds of Goose Pond, Loon Pond, Mousam Lake, and Square Pond. These programs work to educate landowners and users of the local water bodies and protect the waterways from invasive plants or harmful elements. ASYCC programs include the Courtesy Boat Inspection (CBI) program and the Erosion Control Crew (ECC) program, which will be, described in the next several sections.

#### ASYCC Erosion Control Program

The older of the two programs is the ECC, which works to protect landowners, business owners, and municipalities' properties from the affects of weather, wave action, and development. The ECC program is group of six local high school students working under the direction of a crew leader, who work together to install conservation projects around the watersheds. Crewmembers are trained to install conservation projects during the first week, when they work on the Foot of Mousam Lake beach and the Shapleigh Town Beach projects.

Work from the ECC is open to all residents, landowners, business owners, and municipalities located within the watersheds of Goose Pond, Loon Pond, Mousam Lake, and Square Pond. Landowners must request the services of the ECC to make recommendations, and to work on their properties. The object of the ECC is to conserve and protect landowners' properties from the affects of storm water, erosion, and shoreline wake. While the ASYCC ECC provides labor at no charge, the property owners are merely asked to supply the project materials.

During the 2008 ECC summer season the crew completed 20 projects, ten on Mousam Lake, five on Square Pond, three on Loon Pond, and one on Goose Pond. In the 2009 ECC summer season, the crew was faced with many challenges, two major challenges included foul weather, and the slow start to the season due in part to the economic recession. Despite these

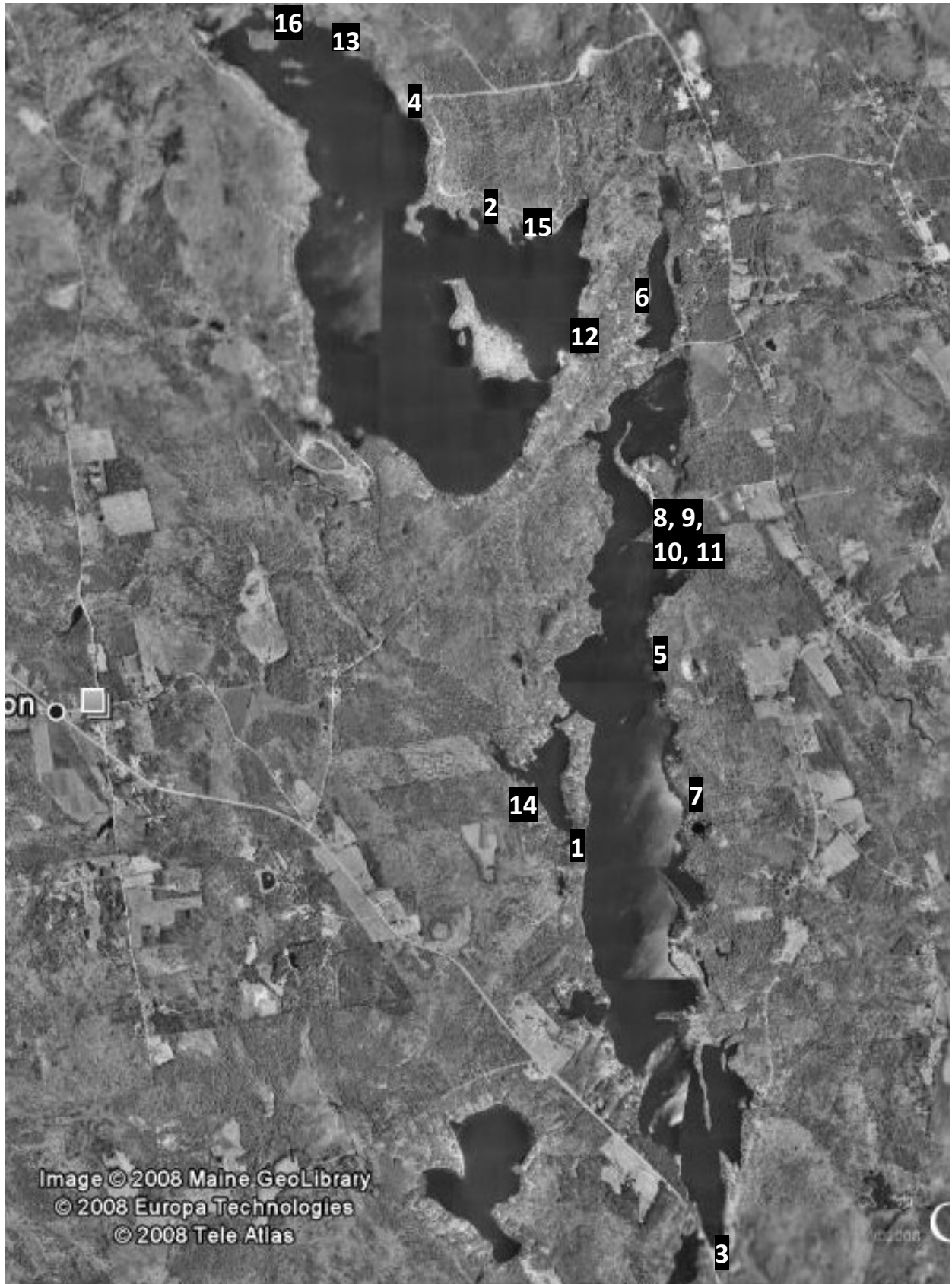
challenges, the crew completed 16 extremely large projects. In years past the ECC often sees a variety of projects sizes, however, this season several projects were the size of three projects from previous years. The break down for the total number of projects in 2009 was, nine on Mousam Lake, six on Square Pond, and one on Goose Pond. With the response rate from property owners around the lake at the end of the 2009 season, it is expected that the 2010 season will be a very busy season.



### ASYCC Erosion Control Crew 2009 Summer Projects

1. 2009-001: Emery, 13<sup>th</sup> Street, Acton (Mousam Lake)
2. 2009-002: Nowers, 18 Chestnut Drive, Shapleigh (Square Pond)
3. 2009-003: Foot of Mousam Lake
4. 2009-004: Shapleigh Town Beach
5. 2009-005: Gole, 158 23<sup>rd</sup> Street, Shapleigh (Mousam Lake)
6. 2009-006: Thorrott, 79 Totte Road, Shapleigh (Goose Pond)
7. 2009-007: Surig/ Thompson, 50 Portside, Shapleigh (Mousam Lake)
8. 2009-008: Lessard, 111 21<sup>st</sup> Street, Shapleigh (Mousam Lake)
9. 2009-009: Singlar, 114 21<sup>st</sup> Street, Shapleigh (Mousam Lake)
10. 2009-010: Goodnough, 116 21<sup>st</sup> Street, Shapleigh (Mousam Lake)

11. 2009-011: Chartrain, 113 21<sup>st</sup> Street, Shapleigh (Mousam Lake)
12. 2009-012: Gannon, 19 Dahlia Street, Shapleigh (Square Pond)
13. 2009-013: Atwood, 110 Apple Road, Shapleigh (Square Pond)
14. 2009-014: Lambert, 76 Covewood Drive, Acton (Mousam Lake)
15. 2009-015: Belle, 376 Cedar Drive, Shapleigh (Square Pond)
16. 2009-017: Chadbourne, 182 Apple Road, Shapleigh (Square Pond)



## Number of Technical Visits:

1. 6/2/09: Foot of Mousam Lake
2. 6/2/09: Shapleigh Town Beach
3. 6/2/09: Henry Gole, 158 23<sup>rd</sup> Street, Shapleigh, ME
4. 6/2/09: Jessi Surig, 50 Portside, Shapleigh, ME
5. 6/2/09: Wayne Thurrott, 79 Totte Road, Shapleigh, ME
6. 6/2/09: Michael Quigg, 140 16<sup>th</sup> Street, Shapleigh, ME
7. 6/6/09: Jim and Kelli Lessard, 111 21<sup>st</sup> Street, Shapleigh, ME
8. 6/6/09: Steve and Katy Singlar, 114 21<sup>st</sup> Street, Shapleigh, ME
9. 6/18/09: Dottie Stozeski, 28 Hubbard's Cove Drive, Shapleigh, ME
10. 6/18/09: Nower, 18 Chestnut Drive, Shapleigh, ME
11. 6/18/09: Dawn and Joe Flak, Chestnut Drive, Shapleigh, ME
12. 7/1/09: George Emery, 36 13<sup>th</sup> Street, Acton, ME
13. 7/6/09: Bruce Ballard, 166 Indian Village Road, Shapleigh, ME
14. 7/7/09: Phil Gannon, 19 Dahlia Street, Shapleigh, ME
15. 7/7/09: Gannon, Dahlia Street, Shapleigh, ME
16. 7/10/09: Hinkley, 82 17<sup>th</sup> Street, Shapleigh, ME
17. 7/14/09: Linda, 676 13<sup>th</sup> Street, Acton, ME
18. 7/14/09: John Atwood, 110 Apple Road, Shapleigh, ME
19. 7/14/09: Oscar Belle, 376 Cedar Drive, Shapleigh, ME
20. 7/20/09: Marie and Raymond Sirois, Shapleigh, ME
21. 7/21/09: Paul Powers, 266 Indian Village Road, Shapleigh, ME
22. 7/23/09: Ken Macaskill, 104 Dogwood Drive, Shapleigh, ME
23. 7/23/09: Chris and Mary Leupold, 115 Kato's Nose, Shapleigh, ME
24. 7/27/09: Norm and Linda Lambert, 76 Covewood Drive, Acton, ME
25. 7/28/09: Jane Thomas, 1062 West Shore Drive, Acton, ME
26. 7/29/09: Carol and Dick Ogden, 138 Shapleigh Corner Road, Shapleigh, ME
27. 7/30/09: Bernard "Chad" Chadbourne, 182 Apple Road, Shapleigh, ME
28. 8/3/09: Barbara Tewksbury, 136 Covewood Drive, Acton, ME
29. 8/4/09: Raymond Chartrain, 115 21<sup>st</sup> Street, Shapleigh, ME
30. 8/4/09: Dick Goodnough, 116 21<sup>st</sup> Street, Shapleigh, ME
31. 8/4/09: Dick Chartrain, 113 21<sup>st</sup> Street, Shapleigh, ME
32. 8/12/09: Karen and Dale Johnson, 120 Dogwood, Shapleigh, ME
33. 8/18/09: William Porreca, 150 Apple Road, Shapleigh, ME

## ASYCC Erosion Control Crew Project Breakdown List:

- **Total Number of Technical Visits:**
  - ✓ 33 Technical visits made in 2009, 32 Technical visits in 2008
  - ✓ 29 Site report written in 2009, 26 Site reports written in 2008
  
- **Projects Completed:**
  - ✓ Total Number of Projects Completed: 16
  - ✓ Project breakdown:
    - ❖ Mousam-Shapleigh: 7
    - ❖ Mousam-Acton: 2
    - ❖ Square- Shapleigh: 6
    - ❖ Square- Acton: 0
    - ❖ Goose- Shapleigh: 1
    - ❖ Loon- Acton: 0

### Conservation Practices Installed:

- Rubber Razor Blade
- Infiltration Trench
- Drip Line Trench
- Rain Garden
- Water Bars
- Infiltration Pathway
- Shoreline Vegetation
- Slope Stabilization Planting
- Vegetated Buffer Strip
- Rip Rap
- Retaining Wall
- Check Dams
- Mulch (erosion control mulch)
- Dry -well
- Storm water well



- Infiltration Staircase
- C-Shaped Storm Water Catchers

## ASYCC Erosion Control Crew Projects for the 2009 Season:

(Please refer to appendix for pictures of sites)

### 1. 2009-001: Emery, 13<sup>th</sup> Street, Acton, ME:

**Existing Problem:** The storm water catch basin installed when 13<sup>th</sup> Street was paved, is located at the bottom of a major slope across the street from the Emery property. Since the construction of the storm water, catch basin storms have gotten much bigger causing storm water to over flow out of the basin. Storm water runs directly off the road, from the steep slope, and fills up the storm water catch basin, often the well over flows and an excessive amount of water floods the neighbors yard.

**Solutions and conservation practices installed:** Since the storm water catch basin already exists, the ECC redesigned the dimension and installed several infiltration pipes. The width, depth and the length of the original storm water catch basin was expanded to allow the basin to handle more storm water during large storms. In addition to increasing the dimensions of the basin, the crew installed and infiltration system under the stone using PVC pipes, crushed stone, and infiltration fabric.

A piece of PVC pipe was cut into three pieces, roughly 3' long each. Along the sides of each pipe, 1" holes were drilled, to allow water to drain out of the pipes, and then the pipes were wrapped with infiltration fabric to prevent sand from clogging the pours of the pipe. In the middle of the well, three holes were dug in a triangle shape, roughly 2.5' deep each. One pipe was placed in each hole, and then crushed stone was placed inside of the pipes, and then around the base of each pipe. After the pipe had been completely filled with crushed stone and the holes were filled half way with crushed stone, the remainder of the hole was filled with sediment to ensure that the pipes would stay in place. Once the pipes are secure in the holes only 6" of the pipe sticks above the ground, to protect the head of the pipes, the crew used only planter pots, cut holes in the sides of the pot, and then wrapped infiltration fabric around the outside. The area around the planters' heads had riprap stone carefully places around them to secure them on ton of the pipes.

#### Materials used:

- Rip rap stone
- PVC pipe (4" diameter)

- Infiltration fabric
- Old planting pots
- Staple gun

## 2. 2009-002: Nowers, 18 Chestnut Drive, Shapleigh, ME:

**Existing problem:** Over the years Square Pond has seen its water level increase, causing many properties on the pond to lose parts of their shorelines. In the case of 18 Chestnut Drive, high water levels and increase levels of boat traffic has cause the shoreline on this property to recede into the lake. When water levels are high, the pond is within 5 to 6 yards of the camp. With water levels this high mixed with wave action, any amount of wave action causes the soil to be carried away, often deposited in the lagoon located next to the camp.

The high water levels of the pond are not the only things affecting this property. The camp is set at a low point at the end of Chestnut Drive, storm water runs from Cedar Drive down Chestnut Drive taking soils with it. The soils around the camp are exposed and covered slightly by pine needles.

**Solution and conservation practices installed:** To help protect this piece of property from further erosion caused by high water levels the ECC created an access way into the water with stone pavers. The pavers will protect the underlying soils from wave action and foot traffic. In addition, since a large amount of the soils from this area was located in the lagoon next to the camp the ASYCC received a special permit from the Maine Department of Environmental Protection allowing the ECC to take soil from the lake and place it along the shoreline. In addition to restoring the soils, and the stone pathway, the ECC planted several blueberry bushes along the shorelines where Sweet Gail is currently growing well. The additional plants will to help increase the amount of vegetation within this area, while holding soil in place once the roots are established.

To help protect the property from the erosion caused but the roadways, the crew placed erosion control mulch on the exposed soils. The erosion control mulch will help slow down the rate of water in this area, while allowing it time to infiltrate into the ground.

### Materials used:

- Stone pavers
- Erosion control mulch
- Blueberry bushes
- Infiltration fabric

## 3. 2009-003: Foot of Mousam Lake

**Existing problem:** The Foot of Pond is a heavily used beach located at the base of Mousam Lake. During the summer months, this beach receives heavy foot traffic, which results in erosion along the shore. In addition to the heavy foot traffic, a lot of storm water runs off the road, down the slope, and

then into the lake. The runoff from the road carries pollutants and sediments into the lake, which in turn decreases the quality of the lake's water.

**Solution and conservation practices installed:** To prevent further soil and vegetation loss, the ECC spread 10 more yards of erosion control mulch. Before spreading the mulch, the crew carefully removed several plants that were planted by the 2008 ECC that were either in walking paths or were not doing well due to their locations. Since this area receives significant numbers of visitors during the summer months, bringing with them heavy foot traffic, it was found that plants that were planted in close proximity to each other grew well and looked healthy. However, the plants that were planted by themselves were often not doing well. In normal conditions these plants would have been fine and would have spread on their own, however with the poor soil conditions and the amount of foot traffic the crew strategically moved these plants to better locations on the site. A new planting to the site was Northern Bayberry, which are know to do extremely well in sandy soil conditions were planted next to each other in a location where a lot of storm water runoff runs, it is with hope these two plants do well.

**Materials used:**

- Plantings (2 Northern Bayberry, Junipers, Daylilies)
- Erosion Control Mulch

#### 4. 2009-004: Shapleigh Town Beach

**Existing problem:** Like the Foot of Mousam Lake, the Shapleigh Town Beach is a heavily used piece of land located on Square Pond, and only used by the residents of Shapleigh. In the 2008 ECC season, the crew laid roughly 12 yards of erosion control mulch to protect the ground from the heavy foot traffic. In addition, in the 2008 season the ECC planted roughly 20 different plants, after a summer and a winter, both the mulch and the plants were doing well.

**Solution and conservation practices installed:** To help protect the underlying soils from erosion, the crew laid an additional 8 yards of erosion control mulch to work with the mulch that was spread last year. In addition, the crew spent a little time revamping the walkway that the crew installed in 2008 to make ensure it was still safe and serving its purpose.

**Materials used:**

- 8yards erosion control mulch

#### 5. 2009-005: Gole, 158 23<sup>rd</sup> Street, Shapleigh, ME

**Existing problem:** On the Gole property the pathway that was runs from the top of the property to the lake was receiving wear by foot traffic and erosion causing a walking hazard, and the loss of soil. In addition, several years ago the well to the camp was replaced leaving exposed soil.

**Solution and conservation practices installed:**

- **Pathway:** To solve the problem of erosion on the pathway and to aid in walking, the ECC removed the stone pavers that were in the pathway and replaced the pathway with infiltration steps. The infiltration staircase is made out of timbers, crushed stone, infiltration fabric, and pavers. The infiltration staircase allows water to infiltrate into the ground between the steps while still allowing the area to be easily walked on.
- **Camp well:** To cover the exposed soils within this area the ECC planted blueberry bushes and daylilies to help vegetate this area. Blueberry bushes and daylilies are both hardy plants, that are drought tolerant, and thrive in the sandy soil conditions in Southern Maine.

**Materials used:**

- 4x4 timbers
- 4x6 timbers
- Rebar
- Nails
- Plants: Blueberry Bushes and Daylilies
- ¾" crushed stone
- Erosion control mulch
- Stone pavers
- Infiltration fabric

**6. 2009-006: Thorrott, 79 Totte Road, Shapleigh, ME**

**Existing problem:** The Thorrott camp was built on an extremely steep slope, over the years the driveway has become in drivable due to the amount of storm water that runs from Totte Road towards the lake. In addition to the slope of the driveway, the slope behind, next to, and in front of the camp has received quite a bit of erosion caused by the steep slope and the increasing size of the storm events in recent years.

**Solution and conservation practices installed:**

- **Slope stabilization #1:** behind and next to the camp the ECC planted three 1'x1' pieces of blueberry sod to help hold the soils within this area in place. Once established the blueberry sod should spread to cover a large part of this area. In addition to the blueberry sod, erosion control mulch was spread to slow down and allow storm water to infiltrate into the ground.
- **Slope stabilization #2:** In the front of the camp, the ECC placed rip rap stone to help decrease the amount of storm water that follows directly off the driveway down this slope.
- **Step way:** Next to the camp the ECC installed three water bar infiltration steps to decrease the amount of erosion caused by foot traffic.
- **Infiltration Trench:** The driveway sits roughly at a 45-degree angle, during storm events the water runs off Totte Road, down the driveway creating trenches and cuts in the driveway. The ECC

installed three large infiltration trenches across the driveway roughly 10” apart from each other. The trenches were dug 1.5” deep, lined with infiltration fabric, then 6” rip rap stone was placed in the trenches, another piece of infiltration fabric was placed on top of the stone, and a 4” thick layer was placed on top of the trench covering the infiltration fabric and rip rap stone. Once the trench is complete, the crew tamps down the stone so the trench is level with the remainder of the driveway.

**Materials used:**

- Rip rap stone
- Erosion Control Mulch
- Infiltration fabric
- ¾” crushed stone
- 4x4 Timbers
- Blueberry Sod

**7. 2009-007: Surig/ Thompson, 50 Portside, Shapleigh, ME**

**Existing problem:** The Surig/Thompson camp is located at the bottom of a steep slope, next to Mousam Lake. Every year, the camp receives water from a road running adjacent to the camp, the driveway leading to the camp, and from the main road to the camp. The footpath used to get to the camp has seen severe erosion caused by the amount of storm water that runs through this area and foot traffic. In front of the camp, ice pulls away vegetation, causing the soils within this area to run into the lake during storm events.

**Solution and conservation practices installed:**

- **Rain catcher:** At the top of the slope where the driveway and the two roads meet, the ECC dug a rain catcher to catch, contain and infiltrate storm water into the ground rather than letting it run down the slope at a fast rate. The outside of the rain catcher is lined with riprap stone and bermed around the top. Unlike traditional rain catchers this one does not have vegetation and is not completely lined with stone, the crew left it this way to allow easily cleaned out with machinery.
- **Driveway/ pathway:** In the driveway that leads into the pathway, the ECC installed three infiltration trenches across the driveway. The infiltration trenches were installed the same way that project 2009-006: Thurrott were installed. Once the trenches were in place the ECC spread ¾” crushed stone over the entire driveway (unlike Thurrott's). Once the driveway meets the pathway the ECC installed water bars roughly 3 yards apart to break up sheet flow within this area. Between the water bars the ECC continued to spread the ¾” stone and placed stone pavers to aid in walking.

- Slope: Along the slope next to the driveway and pathway, the crew planted a mix of shrubs, perennials, and ferns to vegetate the steep slope to help prevent further loss of soil during storm events. In combination with the vegetation, erosion control mulch was spread to help protect the exposed soils and retain water for the plants.
- Slope in front of camp: In front of the camp the ECC planted several hardy, drought tolerant, sandy soil perennials and shrubs to help hold soil in its place. Once plants were installed, the crew spread erosion control mulch to protect the disturbed soils until the plants roots were established.

#### Materials used:

- Erosion control mulch
- ¾" crushed stone
- Rip rap stone
- 4x6 timbers
- Perennials and shrubs
- Infiltration fabric
- Rebar
- 2'x2' Stone pavers

#### 8. 2009-008: Lessard, 111 21<sup>st</sup> Street, Shapleigh, ME

**Existing problem:** The Lessard House is located on the top of slope next to Mousam Lake. Storm water runs from 21<sup>st</sup> street, over the black top driveway, and then down a steep slope into the lake. This flow of water has occurred for years causing soil to become bare, roots of large pine trees exposed, and continuous foot traffic has aided in the loss of soil.

#### Solution and conservation practices installed:

- Infiltration pathway: Starting at the top of the slope, the ECC installed an infiltration pathway to help decrease and slow down the amount of water that runs through this area. For this portion of the pathway the ECC placed timbers (water bars) roughly 1yard apart, then lined the areas with infiltration fabric, filled the areas between the water bars with ¾" crushed stone, finally the crew placed stone pavers to aid in walking.
- Infiltration staircase: Down the remainder of the slope the ECC built and installed an infiltration staircase to allow storm water to infiltrate into the ground while still allowing people to walk within this area. The infiltration steps are made out of 4x6 timbers, infiltration fabric, nails and rebar, ¾" crushed stone, and stone pavers. Along the sides of the staircase, the ECC planted a variety of perennials to help keep people on the pathway, while increasing the amount of vegetation within this area. In addition to the vegetation, the crew spread a 2' strip of erosion control mulch to help reduce the rate at which storm water flowed within this area at, in addition to protecting the new vegetation until they are established.

- C-shape rain catchers: Along the slope, the ECC built three C-shaped rain catchers out of stone wall stone which would act like rain catchers. Behind each C-Shaped rain catcher three perennials were planted, within a few years the plants will spread to increase the amount of vegetation while decreasing the rate of storm water flow within this area.
- Mulch donuts: At the bottom of the slope next to the lake, the trees have lost a large amount of soil, leaving their roots exposed. To help protect the tree from further soil loss the ECC planted several low lying perennials around the base of the tree, then spread erosion control mulch around the base to cover the exposed root system.

#### **Materials used:**

- 4x4 timbers
- 4x6 timbers
- Rebar
- Nails
- Perennials
- Ferns
- Shrubs
- Infiltration fabric
- ¾" crushed stone
- Stone wall stones
- Erosion control mulch
- Stone pavers

#### **9. 2009-009: Singlar, 114 21<sup>st</sup> Street, Shapleigh, ME**

**Existing problem:** The reconstruction of the camp was recently completed on this property, leaving exposed soils, and little vegetation around the house. The new camp receives storm water runoff from the roof of the camp, and from the roadway.

#### **Solution and conservation practices installed:**

- Infiltration pathway: Along the side of the house were a lot of the storm water runs down on its way to Mousam Lake, the ECC constructed an infiltration pathway using water bars roughly 2' apart. Between the water bars infiltration fabric was placed then covered with ¾" crushed stone. To aid in walking the ECC installed stone pavers between the water bars. Along the side of the infiltration pathway the crew planted blueberry bushes, and spread mulch to cover any remaining bar soils.
- Drip line trench: Along the side of the house where the roof is pitched, the ECC constructed drip line trenches to collect the storm water that runs off the roof. To construct the drip line trenches the crew digs a 2' deep, 2' wide, the length of the house trench. The trench is roughly 8" from the side of the house so the water does not sit next to the foundation causing the foundation to rot. Once the trench is dug, the crew lines the trench with infiltration fabric, then rip rap stone,

covers the rip rap stone with more infiltration fabric, and finally fills the remainder of the hole with ¾" crushed stone.

- **Patio:** Under the second story porch the ground was left as exposed soil, to prevent the loss of soil within this area during storm events the ECC created a sitting area. First the crew spread infiltration fabric to protect the underlying soils, then ¾" crushed stone was placed on top of the fabric, and to aid in walking or sitting the crew placed stone pavers within this area.
- **C-shaped rain catchers:** Like project 2009-008: Lessard, the crew constructed C-shaped rain catcher to help catch and reduce the rate of storm water flow within this area.

**Materials used:**

- 4x6 timbers
- Stone pavers
- Blueberry bushes
- Infiltration fabric
- Grass seed
- Rip rap stone
- ¾" crushed stone
- Stone wall stones

**10. 2009-010: Goodnough, 116 21<sup>st</sup> Street, Shapleigh, ME**

**Existing Problem:** Like many properties on 21<sup>st</sup> street, this camp receives a lot of water from the road. On this specific property, there was an area where the soils were being eroded.

**Solutions and conservation practices installed:** To stabilize the slope the ECC installed three water bars across this area to break up sheet flow. Once the water bars were installed, the ECC planted several blueberry bushes to reduce the rate of flow, and finally erosion control mulch was spread to cover the exposed soils.

In addition, within this project, the pathway from the camp to the lake was being eroded, and several of the water bars were destroyed due to the construction of the Singlar's camp. The ECC replace the broken water bars, and then spread erosion control mulch between the water bars to protect the soils from further erosion.

**Materials used:**

- Blueberry bushes
- Erosion control mulch
- 4x4 timbers

**11. 2009-011: Chartrain, 113 21<sup>st</sup> Street, Shapleigh, ME**



**Solutions and conservation practices installed:** At the request of the landowner the ECC planted several blueberry bushes, and spread erosion control mulch to increase the amount of vegetation on their property.

**Materials used:**

- Blueberry bushes
- Erosion Control Mulch

**12. 2009-012: Gannon, 19 Dahlia Street, Shapleigh, ME**

**Existing Problem:** The Gannon property is positioned at the bottom of a steep slope on Square Pond. Often storm water flows down the road and continues down towards Square Pond while taking soil from the properties on Dahlia Street. This property has little to no vegetation other than large pine trees. Although the pine trees help hold the soil in place, there is little to nothing to slow down the storm water within this area.

**Solutions and conservation practices installed:**

- Drip line trench: Around the entire camp the ECC installed drip line trenches to collect water from the roof. The construction of the drip line trenches is the same as project 2009-009: Singlar.
- Infiltration pathway: Along the side of the camp where there is very little sun light, and little foot traffic the ECC installed an infiltration pathway. Rather than using stone to fill in the areas between the water bars, the crew spread erosion control mulch, with the combination of various perennials, and stone pavers.
- Vegetated buffers: On both sides of the property at the shoreline, the ECC installed vegetated buffers to help hold soil in its place. The buffer on the left side is entirely comprised of blueberry bushes, while the buffer on the right side of the property is a variety of perennials and shrubs.

**Materials used:**

- Erosion control mulch
- ¾" crushed stone
- Rip rap stone
- Infiltration fabric
- Perennials
- Shrubs
- 4x6 timbers
- Rebar
- Stone pavers

### 13. 2009-013: Atwood, 110 Apple Road, Shapleigh, ME

#### Solutions and conservation practices installed:

- Retaining wall: The Atwood camp sits on top of a small slope, however over the years the retaining wall has slowly rotted away. The ECC removed the preexisting wall and rebuilt a new wall in the same footprint. In addition to the reconstruction of the retaining wall, the ECC planted a large amount of vegetation in front of and behind the wall to help secure the soils.
- Slope stabilization: The ECC was asked to increase the amount of vegetation within the slope of the property. The crew removed several unwanted weeds that were hindering the growth of the native blueberry bushes that were well established on the slope, in addition to increasing the amount of vegetation the crew spread erosion control mulch to help stabilize the exposed soils.

#### Materials used:

- Retaining wall stones
- ¾" crushed stone
- Shrubs
- Perennials
- Erosion control mulch
- Infiltration fabric

### 14. 2009-014: Lambert, 76 Covewood Drive, Acton, ME

**Existing Problem:** On the Lambert property, a catch well previously existed, however like the catch well on the Emery property, it often over flowed due to the increase in size of recent storms. To help prevent the flooding of the Lambert's lawn the ECC re-constructed the Lambert's catch well is the same as they re-constructed the catch well on the Emery property.

**Solutions and conservation practices installed:** Since a catch well already exists, the ECC redesigned the dimension and installed several pipes. The width, depth and the length of the original catch well extended to allow the well to handle more storm water during large storms. In addition to increasing the dimensions of the well, the crew installed an infiltration system under the stone using PVC pipes, crushed stone, and infiltration fabric. A piece of PVC pipe was cut into three pieces, roughly 3' long each. Along the sides of each pipe, 1" holes were drilled, the allow water to drain out of the pipes, then wrapped with infiltration fabric to prevent sand from clogging the pours of the pipe. In the middle of the well, three holes were dug in a triangle shape, roughly 2.5' deep each. One pipe was placed in each hole, and then crushed stone was placed into the pipes, and then around the base of each pipe. After the pipe had been completely filled with crushed stone and the holes were

filled, half was with crushed stone the remainder of the hole was filled with sediment to ensure that the pipes would stay in place. Once the pipes are secure in the holes only 6" should be showing above ground, to protect the head of the pipes, the crew used old pots from plants, cut holes in the sides of them, and then wrapped them with infiltration fabric. The area around the planters' heads had riprap stone carefully placed around them to secure them on top of the pipes.

**Materials used:**

- Rip rap stone
- PVC pipe (4" diameter)
- Infiltration fabric
- Old planting pots
- Staple gun

**15. 2009-015: Belle, 376 Cedar Drive, Shapleigh, ME**

**Existing Problem:** Belle's camp is located on Cedar Drive, when this road was re-paved; the road was pitched towards the lake rather than into the wood. The Belle's camp is located at a low point in the road causing storm water to move from the slope, down its driveway and towards the lake.

**Solutions and conservation practices installed:** To reduce the rate of storm water on the Belle's property, the ECC dug a trench along the side of the driveway, lined the trench with infiltration fabric, then placed rip rap stone in the trench, covered the stone with more infiltration fabric, and placed ¾" crushed stone so the trench would be the same height as the driveway. At the end of the trench and along the side of the trench, the ECC planted blueberry bushes, and then spread erosion control mulch to protect the new vegetation until the roots are established.

**Materials used:**

- Blueberry bush
- Rip rap stone
- Infiltration fabric
- ¾" crushed stone

**16. 2009-017: Chadbourne, 182 Apple Road, Shapleigh, ME**

**Existing Problem:** The Chadbourne camp is one of the oldest camps on Square Pond. This property is very well vegetated, however years of intense storms have caused several venerable parts of this property to erode. It should be noted that the Chadbourne camp was the site of the 2009 Annual ASYCC Workshop.

**Solutions and conservation practices installed:**

- Bottom of road slope: Prior to the Chadbourne camp, Apple Road descends in a large slope. Storm water runs off the paved slope, and directly into Square Pond. Although there is vegetation at the bottom of the slope, the amount of water is too great to it to control. The ECC planted several blueberry bushes within this area, in addition to spreading erosion control mulch to help protect the soils.
- Rubber Razor Blade: Across the mouth of the driveway where some of the water from the Apple Road slope runs, the ECC constructed and installed a rubber razor blade to detour the water into the wooded area next to the driveway. A rubber razor blade is a piece of conveyor belt sandwiched between two 2x4 boards and is then nailed together. Approximately 4" of the rubber is exposed and the other 4" is sandwiched between the boards. Once constructed the ECC digs slightly diagonal trench across the mouth of the driveway, this allow the rubber razor blade to direct the water into the woods. The rubber razor blade is placed into the ground, wood side down and the exposed rubber sitting about the ground. After the rubber razor blade is leveled into the ground the submerged board is buried, and crushed stone is placed around to ensure the wood is secure in the ground. Cars and people can drive and walk over the rubber razor blade with ease, while storm water is diverted off the road.
- Pathway: Prior to the ECC working on the site, a footpath existed between the Chadbourne and neighboring camps. The ECC constructed a stone pathway to allow both neighbor to get to other neighbors camp. The pathway was constructed by laying infiltration fabric on the exposed soil, covering the infiltration fabric with ¾" crushed stone, the placing stone pavers to aid in walking. Along the sides of the infiltration pathway the crew planted a variety of perennials, and spread erosion control mulch to cover the remaining bare soils and exposed roots.
- Shoreline stabilization: Similar to the Nower's property, over the years, the high levels of Square Pond has started to erode the shoreline of the Chadbourne property away. To stabilize the shoreline the ECC planted several shrubs and perennials, in addition to spreading erosion control mulch to help secure the exposed soils.

#### **Materials used:**

- Stone pavers
- Various shrubs and perennials
- Erosion control mulch
- ¾" crushed stone
- Conveyor belt rubber
- Infiltration fabric
- 2x4 timbers
- Nails

## ASYCC Erosion Control Crew End of the Season Project Tour

At the end of each ECC season, each crewmember selects a site to present and show off during the tour. The group drives around to each site selected by the crew, once at the site the crew explains the project and allows the attendees of the tour to ask questions and make comments. Members in attendance this were the ASYCC board, several parents of the ECC, the local TV station, and several members of the community. This year the ASYCC Erosion Control Crew Project Tour was held on August 14, 2009 and was accompanied by a film crew for MetroCast. The MetroCast crew interviewed the staff, board members and visitors present for the tour. This material was used for a half hour segment on the ASYCC that appeared on MetroCast's local broadcast channel under the "Maine Man" segment of their broadcast.

Below is the flyer distributed during the tour:



## Acton-Shapleigh Youth Conservation Erosion Control Crew 2009 Season Tour

### Sites on the Tour:

1. 50 Portside (23<sup>rd</sup> Street), Shapleigh (Mousam Lake)
2. 159 23<sup>rd</sup> Street, Shapleigh (Mousam Lake)
3. 114 21<sup>st</sup> Street, Shapleigh (Mousam Lake)
4. 111 21<sup>st</sup> Street, Shapleigh (Mousam Lake)
5. 116 21<sup>st</sup> Street, Shapleigh (Mousam Lake)
6. 27 Chestnut Drive, Shapleigh (Square Pond)
7. Cedar Drive, Shapleigh (Square Pond)
8. 162 Apple Road, Shapleigh (Square Pond)
9. 19 Dahlia Street, Shapleigh (Square Pond)
10. 13<sup>th</sup> Street Catch Basin, Acton (Mousam Lake)
11. Foot of Mousam, (Mousam Lake)



- Break down of projects by lake
  - Mousam Lake, Shapleigh: 8
  - Mousam Lake, Acton: 2
  - Square Pond, Shapleigh: 6
  - Square Pond, Acton: 0
- Number of technical visits: 29
- Number of technical reports: 21

### ASYCC Erosion Control Crew Season Overview:

- Number of Projects Completed to date: 16

### Conservation Practices Installed:

- Rubber Razor Blade
- Infiltration Trench



- Drip Line Trench
- Water bar
- Infiltration Pathway
- Shoreline vegetation
- Slope Stabilization  
Planting
- Vegetated Buffer Strip
- Rip Rap
- Retaining Wall
- Drywell
- Mulching
- Other

## ASYCC Courtesy Boat Inspection Program

The goal of the ASYCC Courtesy Boat Inspection Program (CBI) is to prevent the introduction of invasive aquatic plants from entering the local watersheds. Invasive aquatic plants threaten the livelihood of the freshwater bodies, surrounding towns, and wildlife populations in the area. Invasive aquatic plants that are threatening New England's waterways include Hydrilla, Eurasian Milfoil, and Variable Leaf Milfoil. The ASYCC CBI program working with boat owners to educate and check their own boats for fragments are the watershed's the best methods to protect, Mousam Lake, Square Pond, Loon Pond, and Goose Pond from the attack of invasive aquatic plants. CBI's are placed on both Mousam Lake and Square Pond public boat ramps to check all boats, trailers, and other items within the boats such as fishing tackle, lines and ropes, etc for invasive aquatic plants and fragments. If plants are found in or on the boat the CBI removes the plants, and sends the fragment to the lab for identification.

Since 2008, the ASYCC has increased the amount of coverage on both Square Pond and Mousam Lake Boat ramps. In 2008, the Square Pond boat ramp was covered Saturday and Sunday for a total of 12 hours per week, running from the first weekend of July to the last weekend of August, with coverage on Columbus Day weekend. This year Square Pond has increased its coverage to Friday through Sunday for a total of 21 hours, running from June 15<sup>th</sup> to Columbus Day weekend, October 12<sup>th</sup>.

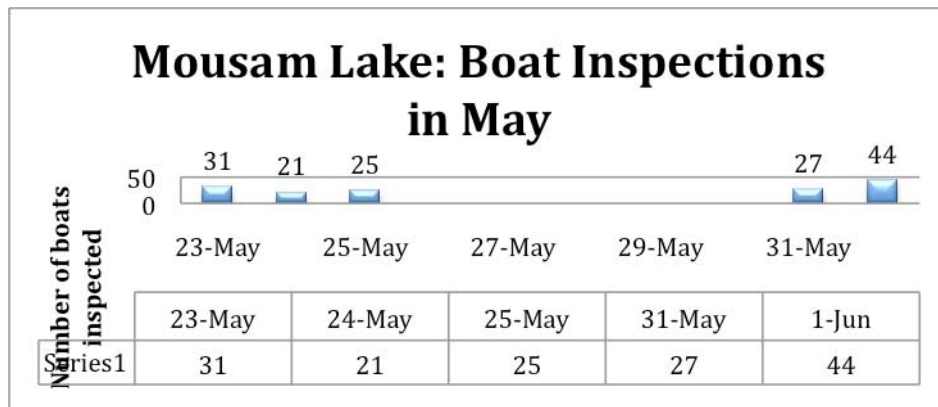
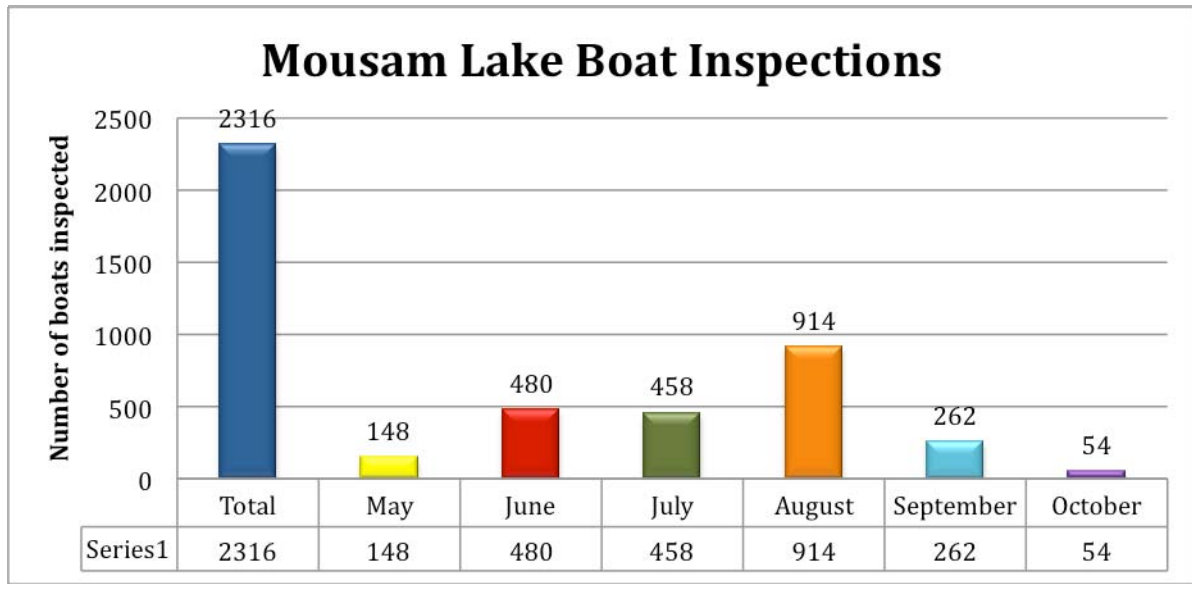
In 2008, The Mousam Lake boat ramp was covered Monday through Thursday for a total of 8 hours each day, and Friday through Sunday for 10 each day, with a total of 62 hours per week. This year Mousam Lake has seen a significant increase in the amount of coverage throughout the week. Monday through Thursday, the ramp is covered for 12 hours each day, and Friday through Sunday 14 hours per day, with a total of 90 hours per week. In addition to the increased number of hours covered on Mousam Lake, the ASYCC was also able to extend the season of the program. In 2008, the Mousam Lake CBI season ran from June 21 to October 13, 2008. In the 2009, the CBI coverage on the Mousam Lake boat ramp started much earlier, May 22, to October 12, 2009.

In addition to the increase in the length of the program and the number of hours covered on the ramps, the total number of boats inspected also increased. The total number of boats inspected on Mousam Lake was 2,316 boats, an increase of 49 percent from 1,182 boat inspections for the CBI season of 2008. Like Mousam Lake the number of inspections on Square Pond also increased, in 2008, 173 boats were inspected. While in 2009, 233 boats were inspected, a 26 percent increase from 2008 to 2009, for the total number of boats inspected. The graphs over the next several pages show the number of boats inspected, per day, month, and for the year. Additionally, four graphs at the end of this section compare 2008's number to the 2009 season.

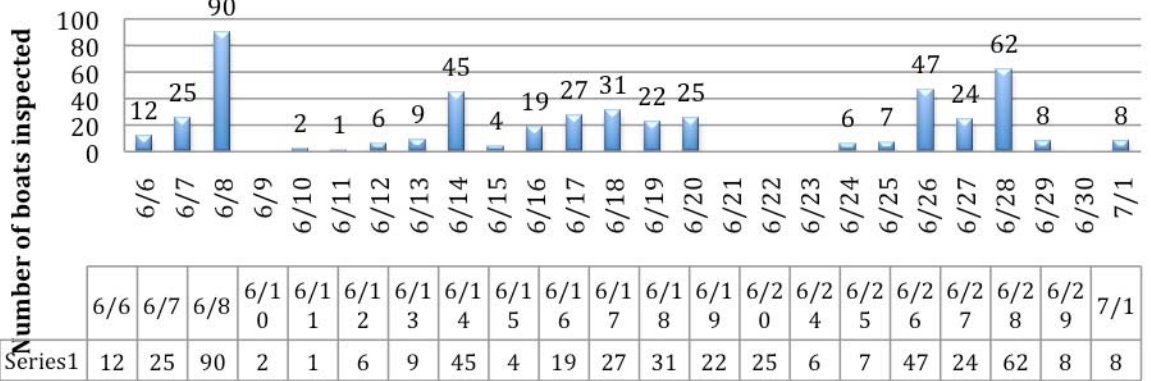


In 2008, there were a total of seven plants found; two from Square Pond and five from Mousam Lake. The plants found in 2008 were native to the area. This season, the CBI's were quite busy, with a total of 18 plant fragments found. The Square Pond CBI's found two, and 16 found by the Mousam Lake CBI's. Of the 16 plants found either entering or leaving Mousam, two plant fragments stopped were from two lakes with known invasive species problems, Lake Arrowhead, and a lake in Massachusetts.

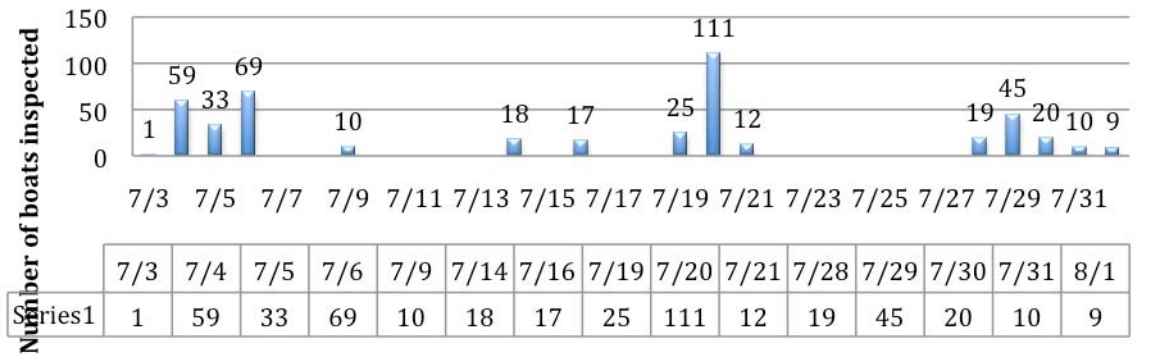
### Mousam Lake Boat Inspections Data



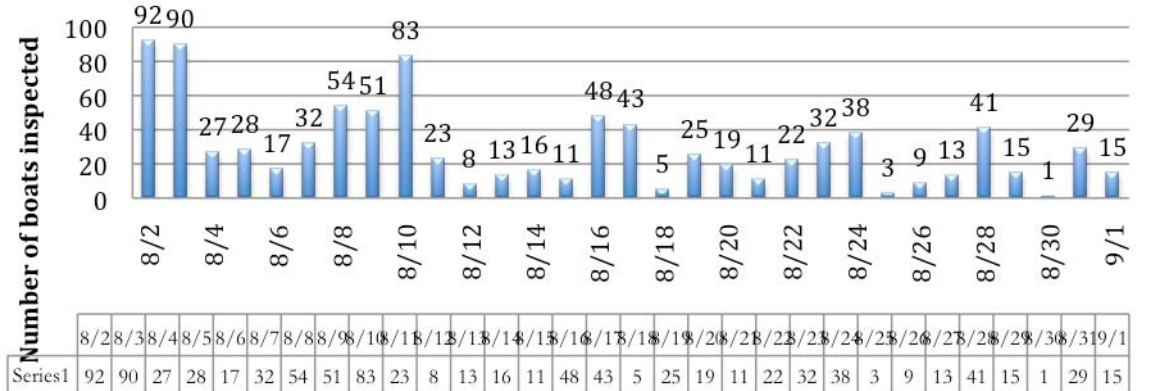
## Mousam Lake : Boat Inspections in June



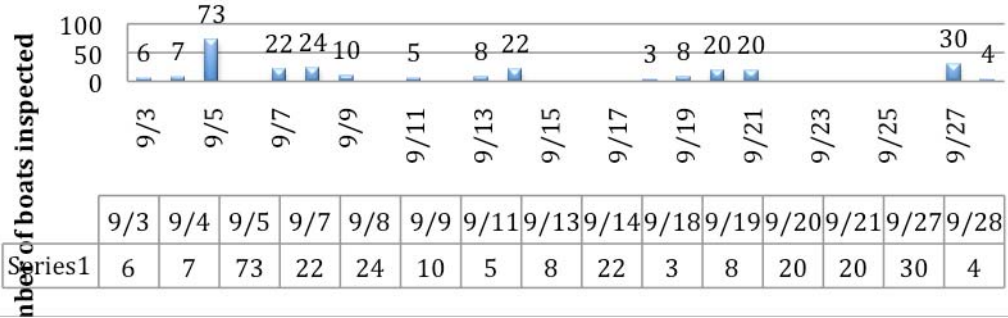
## Mousam Lake: Boat Inspections in July



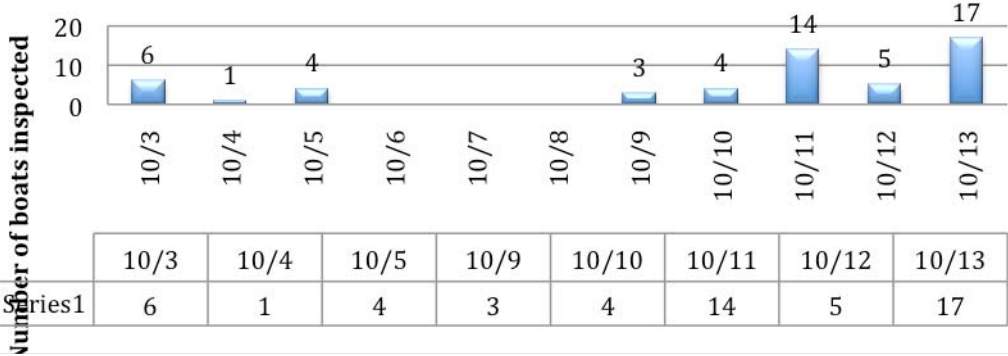
## Mousam Lake: Boat Inspections in August



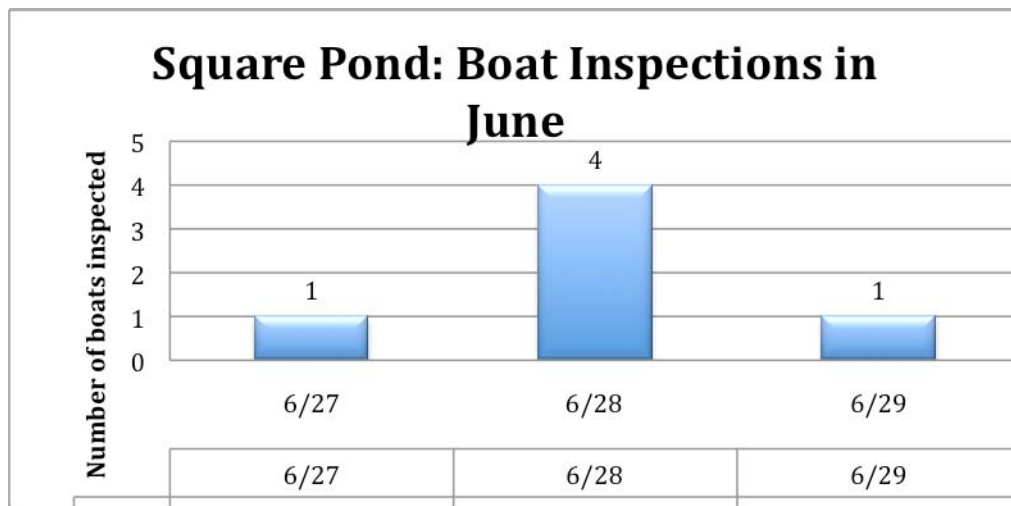
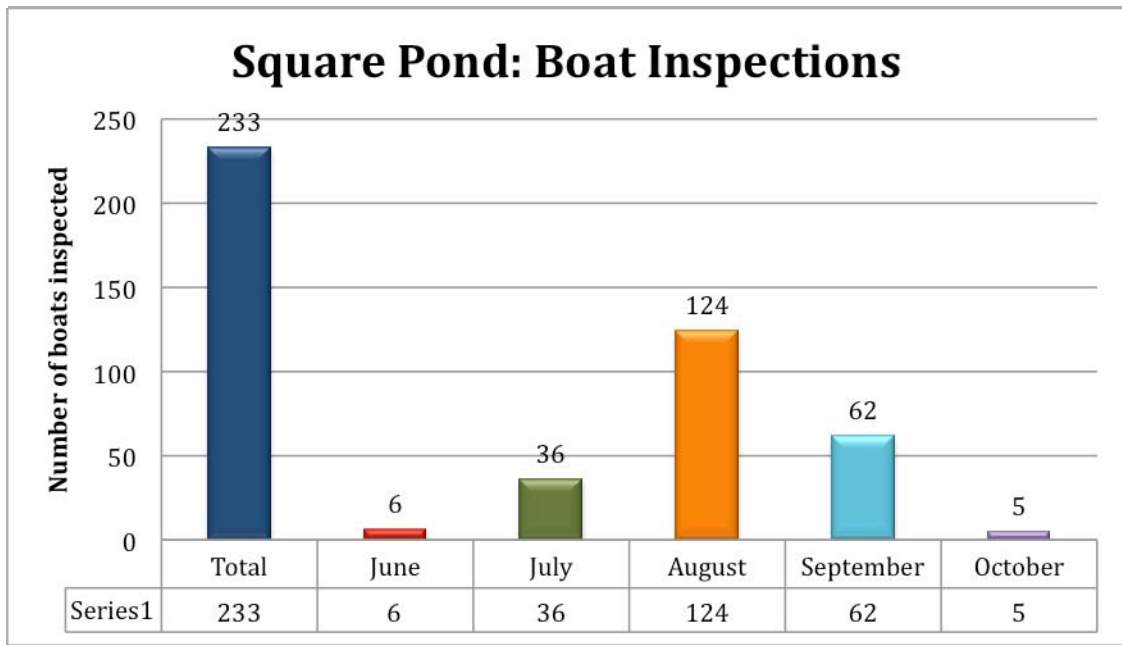
## Mousam Lake: Boat Inspections in September



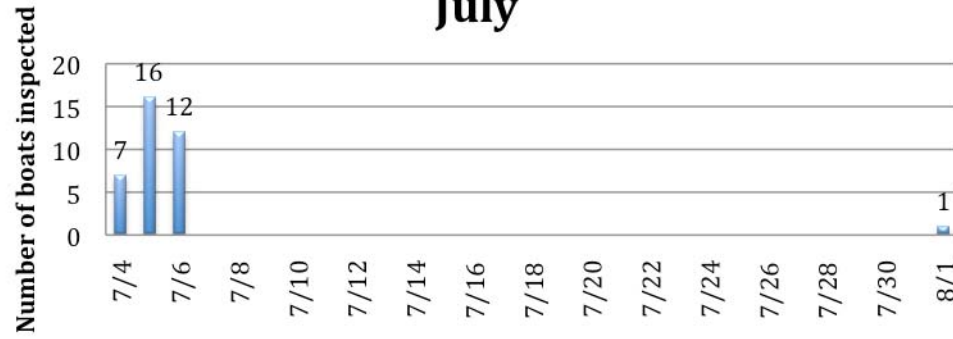
## Mousam Lake: Boat Inspections in October



### Square Pond Boat Inspections Data

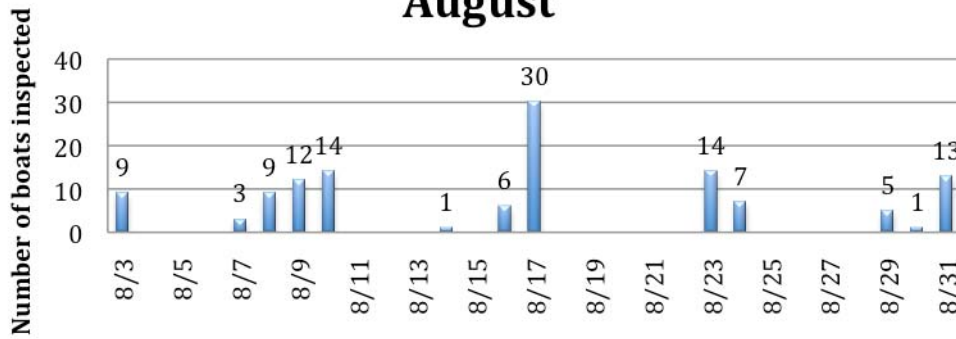


## Square Pond: Boat Inspections in July



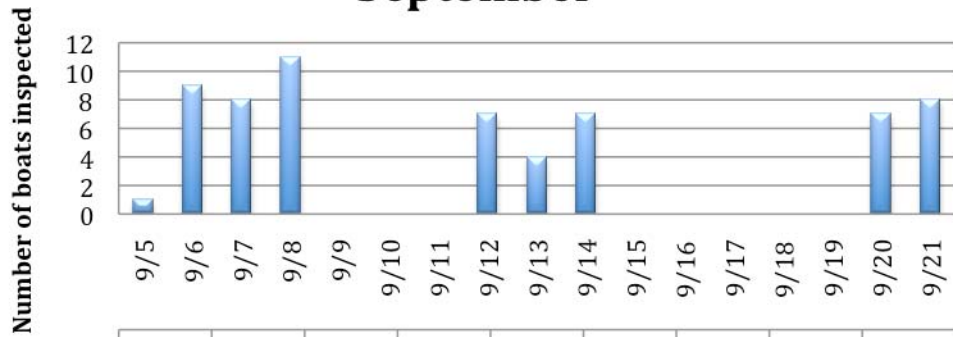
	7/4	7/5	7/6	8/1
Series1	7	16	12	1

## Square Pond: Boat Inspections in August



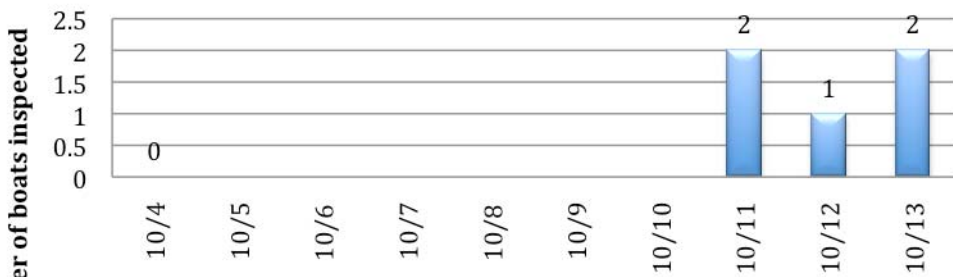
	8/3	8/7	8/8	8/9	8/10	8/14	8/16	8/17	8/23	8/24	8/29	8/30	8/31
Series1	9	3	9	12	14	1	6	30	14	7	5	1	13

## Square Pond: Boat Inspections in September



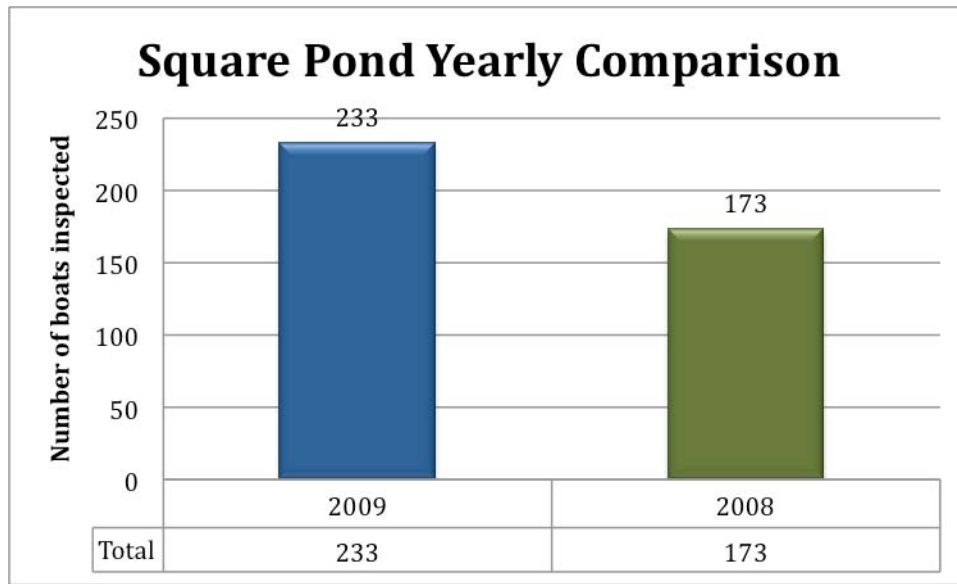
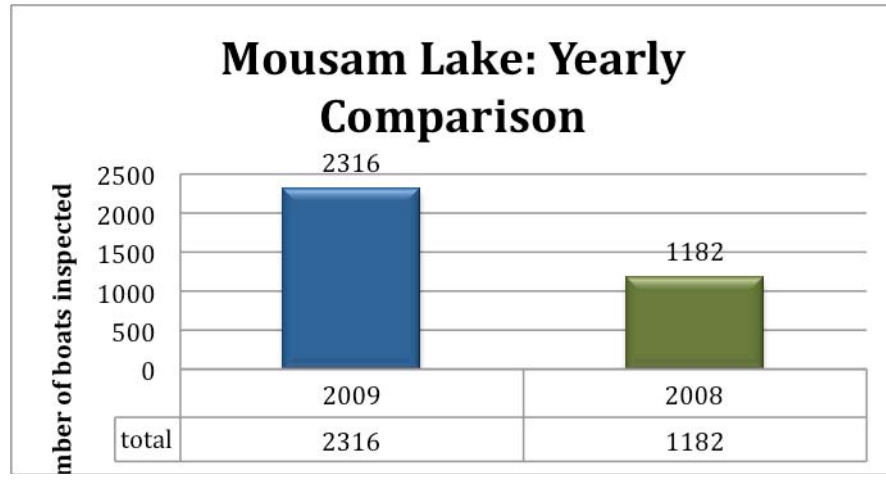
	9/5	9/6	9/7	9/8	9/12	9/13	9/14	9/20	9/21
Series1	1	9	8	11	7	4	7	7	8

## Square Pond: Boat Inspections in October

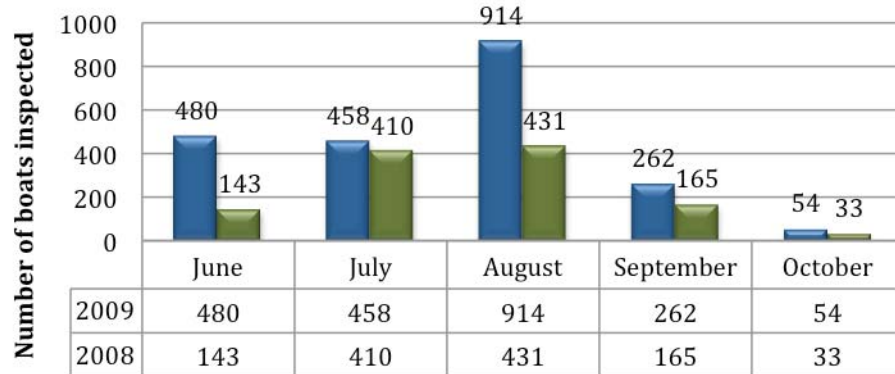


	10/4	10/11	10/12	10/13
Series1	0	2	1	2

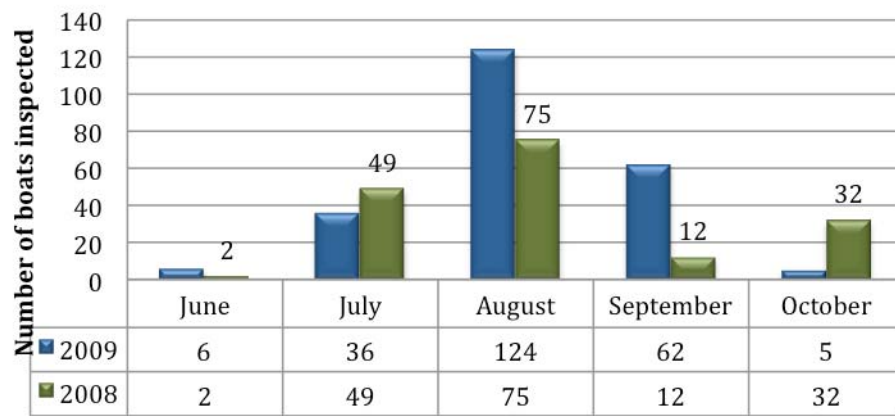
## CBI season comparison



### Mousam Lake Monthly Comparison 2008 vs. 2009



### Square Pond: Monthly Comparison 2008 vs. 2009





## Photo References:

Photo on page 6 : Retrieved on October 22, 2009, from the World Wide Web from:

[http://images.google.com/imgres?imgurl=http://image03.webshots.com/3/0/33/17/22403317OZsdDbGesVfs.jpg&imgrefurl=http://outdoors.webshots.com/photo/1022403317028856657OZsdDbGesV&usg=\\_\\_cbYD542vOpfNW8k5BWP9BvmvnY=&h=1200&w=1600&sz=213&hl=en&start=6&tbnid=WGLxOLWXGbEEbM:&tbnh=108&tbnw=143&prev=/images%3Fq%3Dmousam%2Blake%26gbv%3D2%26ndsp%3D15%26hl%3Den%26sa%3DN](http://images.google.com/imgres?imgurl=http://image03.webshots.com/3/0/33/17/22403317OZsdDbGesVfs.jpg&imgrefurl=http://outdoors.webshots.com/photo/1022403317028856657OZsdDbGesV&usg=__cbYD542vOpfNW8k5BWP9BvmvnY=&h=1200&w=1600&sz=213&hl=en&start=6&tbnid=WGLxOLWXGbEEbM:&tbnh=108&tbnw=143&prev=/images%3Fq%3Dmousam%2Blake%26gbv%3D2%26ndsp%3D15%26hl%3Den%26sa%3DN)

Photo on page 8: Retrieved on October 22, 2009, from the World Wide Web from:

[http://images.google.com/imgres?imgurl=http://image03.webshots.com/3/8/50/84/5085084TObFLcZEvR\\_ph.jpg&imgrefurl=http://outdoors.webshots.com/photo/1005085084016013032TObFLcZEvR&usg=\\_\\_cz6HUmjtbZkZIaj87odcTi9iepM=&h=480&w=640&sz=32&hl=en&start=2&tbnid=F2Q9R-0N9BsyJM:&tbnh=103&tbnw=137&prev=/images%3Fq%3Dsquare%2Bpond%2Bmaine%26gbv%3D2%26hl%3Den](http://images.google.com/imgres?imgurl=http://image03.webshots.com/3/8/50/84/5085084TObFLcZEvR_ph.jpg&imgrefurl=http://outdoors.webshots.com/photo/1005085084016013032TObFLcZEvR&usg=__cz6HUmjtbZkZIaj87odcTi9iepM=&h=480&w=640&sz=32&hl=en&start=2&tbnid=F2Q9R-0N9BsyJM:&tbnh=103&tbnw=137&prev=/images%3Fq%3Dsquare%2Bpond%2Bmaine%26gbv%3D2%26hl%3Den)