

**TOWN OF WINDHAM
WATERSHED PROTECTION FUND
2017 GRANT APPLICATION**

Eligible Projects: Grant funds can only be used for the protection or restoration of water bodies located in whole, or in part, within the Town of Windham. Preference will be shown toward non-profit organizations that are based in Windham. Preference will also be shown toward projects that will promote the sharing of equipment, knowledge, and other resources with other non-profit groups in the Town of Windham.

Application Deadline: The grant application deadline is February 10, 2017. All applications must be delivered to the Windham Town Manager's Office by that date. Incomplete applications will not be accepted. Applicants will be notified of incomplete applications within five days of their receipt at the Town Manager's Office.

Grant Award and Disbursement: The Windham Town Council will complete their review of the applications and select grant recipients by March 14, 2017. All applicants will be notified by mail of the Council's decision. Projects that have been awarded a grant will receive the funds by April 11, 2017. The Town reserves the right to grant all, or any part, of the total amount requested.

Deliverables: Grant recipients will be required to submit a Final Report upon completion of all project activities. The Final Report shall include an accounting of all income and expenses presented in the same format as the original budget spreadsheet, a list of accomplishments, digital photographs, and the name of the organization responsible for maintaining any equipment or infrastructure associated with the project.

Applicant Contact Information:

Applicant Name Forest Lake Association

Contact Person Janene Gorham , President FLA

Address 25 Forest Lane

City Cumberland State Me Zip Code 04021

Phone 207-332-0946 Fax

E-mail gorhamjanene3@gmail.com

Qualifications and Experience:

In 500 words, or less, present a brief summary of applicant qualifications to carry out the project. Summarize relevant experience and financial, administrative, and technical qualifications of the organization. Summarize relevant experience of the person that will manage the project. (Attach more pages, if necessary.)

The Forest Lake Association is a vital, active organization dedicated to stewardship of our lake for the past 65 years. We are active in protecting our 200 acre lake surrounded by Cumberland, Gray, and Windham towns. We have conducted Watershed surveys in 1986 and 2003 and received grant monies to correct multiple run off sites in conjunction with DEP and Cumberland County Soil and Water Conservation organizations. Many of our volunteer surveyors will be trained "citizen scientists" with Volunteer Lake Monitoring Program certifications.

Because Forest Lake remains on the DEP list of most at risk lakes in Maine, we plan a Watershed survey for April 2017.

Our Steering Committee includes :

Wendy Garland DEP project leader

Tom Gruber, Cumberland Town Council member who has participated in Watershed surveys on other lakes

Greg Scultz, Tina LeBlanc, Janene Gorham Forest Lake Association Board members, all of whom have participated in both previous surveys

Debi Curry, Web Administrator, Town of Gray.

In addition, we will work with Heather True of the Cumberland County Soil & Water Conservation District to develop Forest Lake Watershed-based Protection Plan. which along with the watershed



Project Schedule and Cost:

Planned Duration: Start Date: April 29, 2017 End Date: 9/1/2017

Total Cost of the Project \$ 9,000

Amount Requested from the Windham Watershed Protection Fund \$ 2,500

Matching Funds: Cash: \$ 3,000 Services: \$ 3,500

Who will provide the matching funds/services?

See separate pages

Forest Lake Association Request for Funds Project Description / Additional Narrative

Forest Lake, a 200 acre body of water, with extensive watershed in Windham, Gray and Cumberland, is embarking on a watershed survey in 2017 to identify problem areas which contribute to water quality issues in the lake. Of the watershed area, approximately 65% is located in the Town of Windham.

This project has begun, with meetings of a steering committee and early outreach to enlist volunteers for training and survey implementation in April / May. We are seeking \$2500 from the Town of Windham to help meet the project budget of \$9000 which includes contributions of funds from the Town of Gray, Town of Cumberland, Forest Lake Association; and services from DEP, CCSWCD, volunteers and area businesses.

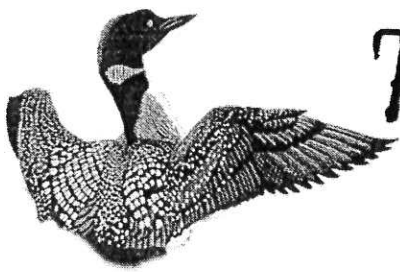
This will be the 3rd watershed survey with the last one done in 2003. This extensive survey identified 108 problem sites, 58 of which were in Windham. Follow up remedial work was done through grant monies from the Federal 319 Clean Water Act program (\$134,635 in 2 phases - 2004 and 2007), and technical assistance from DEP and CCSWCD. A total of 46 "on ground fixes" sites were remedied using funds and volunteers, with many others being improved through technical assistance and education.

Our goal with this current survey is to follow up on sites and issues identified in the Forest Lake Watershed Management Plan which resulted from the survey, and to identify new areas of concern. There has been a lot of growth since 2003, especially in the Windham portion, and concern exists that there may be impact on the lake resulting from some of these changes.

We are in hopes of receiving financial help in this survey endeavor, and look forward to having another productive partnership with the Town of Windham.

Attachments include maps showing the watershed, and 2003 identified sites in Windham, as well as excerpts from the Survey Report, Management Plan, and Conservation Project Phases I and II. A Forest Lake Newsletter and brochure is also included for information on the Association's mission, make up and other activities.

Copies of the full reports and any additional information on the Association or current survey process will be provided as requested.



Forest Lake Association

**Spring/Summer 2015
Annual Meeting
July 25, 2015**

Greetings Neighbors, and Happy Summer to All!

What a pleasure it has been to be Board members of the Forest Lake Association—many of us for 20 plus years! Forest Lake is a real gem. She is spring fed, close to Portland, with clear and clean water, and just so beautiful. A quiet kayak outing can make any day great. We can all enjoy the opportunity to be good stewards of this gift and do what we can to protect it. We invite all who read this to consider becoming members, if you already are not, and get involved in this fun and rewarding organization.

Sincerely,

*Members of the Board
Forest Lake Association*

4TH OF JULY BOAT-IN



**Decorate your boats &
join us for the boat parade!**

**Meet at 11 AM in the cove by Loon Island.
Decorations, costumes, music, and dancing
all encouraged.**

Show your Independence Day spirit!

Don't Miss the Annual Potluck Gathering!

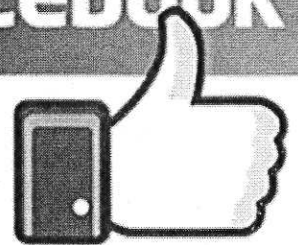
**Saturday, July 25
8:00 AM—11:00 AM**

West Cumberland Methodist
Church Hall, Blackstrap Road

Potluck Breakfast

**Coffee, Door Prizes,
Raffle & Pie Auction**

**Find us on
facebook**



Join Forest Lake Maine Facebook group!

Share photos, baby loon updates
and more. Connect with our
community!

[https://www.facebook.com/
groups/forestlakeme/](https://www.facebook.com/groups/forestlakeme/)

Just click the "Join" button, and a
group member will get you "in".

Look forward to seeing you there!

Important Contacts

Lake Association Officers

Please call if you have questions about Forest Lake Association activities and meetings:

Jim Gameros, Vice President
(207) 657-6933

Ellie Schulz, Treasurer
(207) 615-3525

Janene Gorham, Secretary
(207) 829-3878

Other board members

Jon Curry, Charlie Mitchell, John Gorham, Liz Hamilton, Kaylene Mitchell, Debi Curry

Code Enforcement Officers

Gray

Tom Reinsborough
657-3112
treinsborough@graymaine.org

Windham

Heather McNally
894-5960
hmcnally@windhammaine.us

Cumberland

Bill Longley
829-2207
wlongley@cumberlandmaine.com

Boating/Fishing Safety

Anonymous Boating
Regulation Violations
1-800-253-7887

Maine Game Warden

Gray Headquarters
657-2345/1-800-482-0730

Maine Inland Fisheries and Wildlife

287-8000

Maine Audubon Society

Susan Gallo
781-2330

Maine Department of Environmental Protection (DEP)

"On Call"
822-6300 or 888-769-1036

Invasive Aquatic Plant Species

An invasive aquatic plant species is a plant that is introduced to an area where it does not naturally belong. Aquatic invasive species can be harmful to all aspects of the watershed including water quality and health, recreational activities, and businesses and property values. Organisms like zebra mussels, milfoil, and mystery snails can overtake an area and deprive naturally occurring aquatic life of necessary resources such as space and nutrients.

Lake associations like ours help to spread information and employ Invasive Plant Patrollers (IPPs) who search lake bottoms and shorelines for invasive plants. The goal of the IPP is early detection of these invaders, so that they can be removed before they cause problems in the lake. (*Information from Maine Coalition of Lake Associations*)

Invasive Plant Patrollers

Please contact one of the patrollers if you find a suspicious plant in or near your water, or if you are interested in being trained as an IPP.

Ed Keenan

657-6463, ekeen@maine.rr.com

Janene Gorham

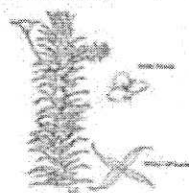
829-3878, jgorham6@maine.rr.com

Jim Gameros

657-6933, jgameros@aol.com

Maine's Eleven Most UNWANTED Invasive Aquatic Plants

BRAZILIAN ELODEA
(*Egeria densa*)¹



CURLY-LEAF PONDWEED
(*Potamogeton crispus*)²



EURASIAN WATERMILFOIL
(*Myriophyllum spicatum*)¹



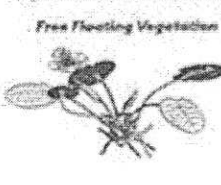
EUROPEAN NAIAD
(*Najas minor*)³



FANWORT
(*Cabomba caroliniana*)¹



EUROPEAN FROGBIT
(*Hydrocharis morsus-ranae*)⁴



HYDRILLA
(*Hydrilla verticillata*)¹



PARROT FEATHER
(*Myriophyllum aquaticum*)¹



VARIABLE-LEAF WATERMILFOIL
(*Myriophyllum heterophyllum*)¹



YELLOW FLOATING HEART
(*Nymphoides peltata*)²



WATER CHESTNUT
(*Tropea natans*)¹



Under Maine law, it is now illegal to transport ANY aquatic plant on the outside of a vehicle. It is also illegal to sell, propagate, or introduce to Maine waters these eleven invasive aquatic plants.

**Don't Miss Our
Annual Potluck Breakfast Meeting
Saturday, July 25th at 8:00 AM**
At the nearby West Cumberland Methodist Church Hall
Blackstrap Road

Please **bring a favorite breakfast food to the annual meeting.** We won't have access to a stove or microwave, so hot dishes should be in crockpots or hot from your oven and wrapped well. Breakfast casseroles, bacon, egg dishes, home fries, fruit, scones, blueberry pancakes, whatever you can bring is welcome. We'll provide plates, utensils, syrup, butter, and beverages. If you have questions, call or email Janene Gorham at 829-3878 or gorhamjanene3@gmail.com.

8-8:30 a.m.	Coffee/Potluck Breakfast
8:30	Welcome Secretary's & Treasurer's Reports Water Quality Report Safety Report and Q&A Special Reports or Guests
10:00	Membership Voting/Election Pie Auctions and Raffles
10:30	Meeting Adjourned

Election of New Trustees and Officers:

Each year at the annual meeting FLA members elect new Trustees and the Officers for the year. The slate of new officers recommended by the Board of Trustees for 2015/16 is:

- Janene Gorham, President
- Debi Curry, Vice President
- Ellie Schulz, Treasurer
- Kaylene Mitchell, Secretary

Other nominations are welcomed and encouraged at the meeting. If you have any questions or are interested in becoming a new Trustee, please contact Janene Gorham at 829-3878 or gorhamjanene3@gmail.com.

New Trustees nominations will also be requested at the annual meeting, so think about volunteering and joining the team!

Good Neighbors!

Four things you can do to help our lake and be a good neighbor:

- Make sure your septic system has been inspected and is working well to help keep our watershed clean and healthy.
- Avoid creating a wake within 200 feet of shore to prevent dock damage, swimming hazards and environmental degradation.
- Help protect the wildlife on our lake. Give our wildlife and our loons plenty of space and make sure to use lead-free and lake-friendly fishing gear.
- Avoid using pesticides and fertilizers to help prevent algae blooms and protect our fish.

LAKE WATER QUALITY REPORT

At the last annual meeting Vice President Jim Gameros reported that the water quality in Forest Lake is very good. Volunteers Ed Keenan and Jim tested water quality every other week.

- Water clarity is high
- Oxygen levels are good
- Native low water milfoil continues to be in dormant stage with no new growths
- And as a result, the bass fishing is good!

An updated water quality report will be provided at the annual meeting on July 25th! If you are interested in volunteering on water quality, or have any questions about water quality, please contact the Forest Lake Association at forestlakeinfo@forestlakeme.org

Who we are

The Forest Lake Association (FLA) helps to maintain the quality of our lake water and the quality of life in our community. The Association builds a sense of community among the neighbors and the residents of the four towns that share the Forest Lake Watershed.

The Association is a community non-profit with no paid staff that is governed by an elected board of nine Trustees and up to five Alternate Trustees.

What we do

The Forest Lake Association undertakes a variety of activities to help improve our lake and our community, including but not limited to:

- Providing water quality testing and support for statewide data collection through the Volunteer Lakes Monitoring Program.
- Coordinating a volunteer plant patrol group that conducts a yearly lake-wide survey of plant growth and invasive species inspections.
- Monitoring the lake's only dam, providing repairs as needed.
- Serving as community advocates for the benefit of lake residents and for the preservation of water quality.
- Hosting periodic social events and activities to foster a greater awareness of the watershed community.
- Delivering newsletters and other information (by email or website) of value to lake residents.

Trustees: Our Trustees are volunteer board members who are elected to three-year terms at the annual meeting. Trustees help manage the work of the Association and ensure its many accomplishments. Typically the Board of Trustees meets 4-6 times per year in addition to the annual meeting.

Members: Our members are neighbors like you who support the work of the Forest Lake Association each year by becoming a member and paying a membership due of \$25 that covers everyone in your household.

What You Can Do

Please make sure to become a member each year and encourage your neighbors too. If you are interested in volunteering on a project, like water testing, invasive plant patrolling, or something new, or you are interested in volunteering as a Trustee, please contact us!

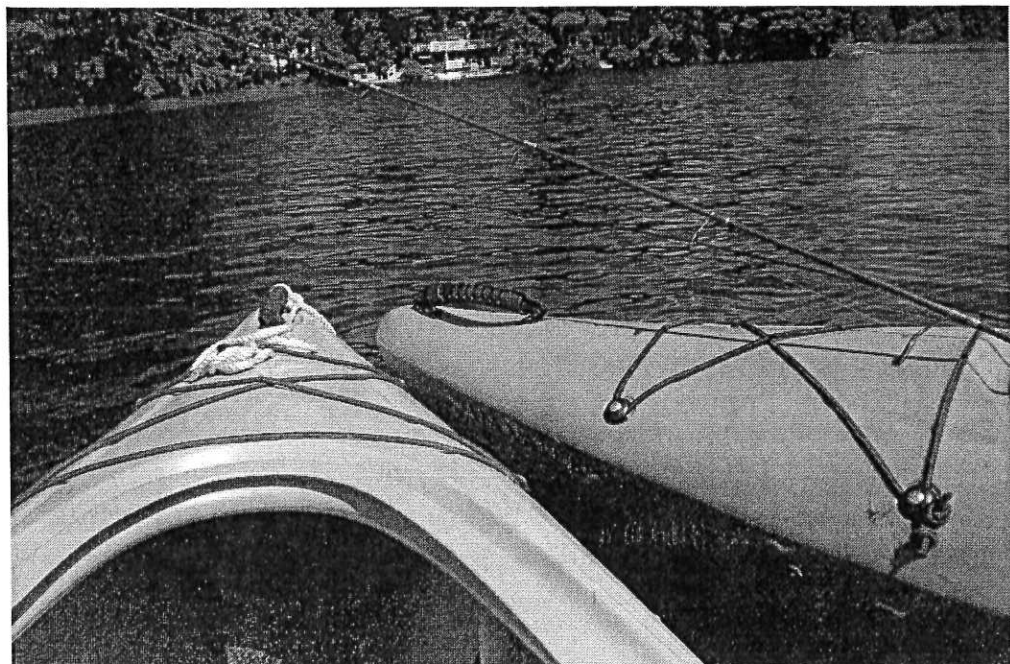
We also hope to see you at the annual meeting on July, 25th!

Boating Concerns

Recently a few lake dwellers have contacted us to express concern about property erosion and dock damage that has occurred as a result of excessive wakes. We want to know what you think.

Please visit our website and tell us more:

<http://www.forestlakeme.org/resident-feedback/>

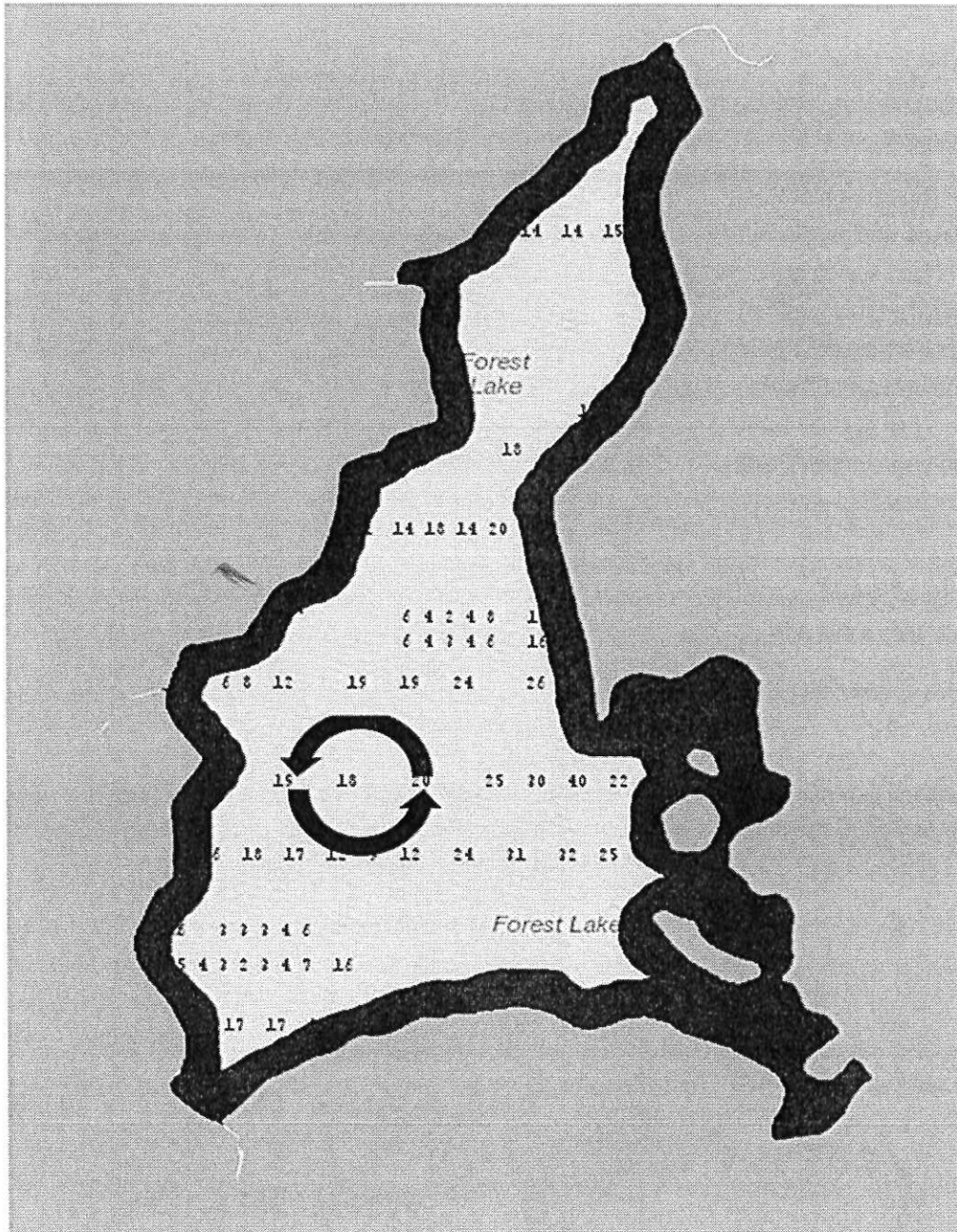


Boating Safety

Boating safety is key to keeping our lake happy and healthy. When operating any motorized boats or jet skis remember:

- **Water Skiing and tubing runs go counter-clockwise.**
- **You should make no wake within 200' of any shore.**
(see the arrows and black areas on the map below)

If you have concerns or questions about boating safety, please contact Jon Curry at 650-4736 or nitro882b@gmail.com



Be Aware of Swimmers!

In a lake as small as Forest Lake, it is easy to forget that boats and jet skis are required to keep to "headway speed" anytime they are within 200 feet of shore. Your wake may swamp the floatation device of a poor swimmer or send a wave crashing over the head of a small child. Watch out for swimmers who swim the shoreline or even cross the lake!

Parents, don't leave your young children unattended in the water. Help keep Forest Lake safe!

Maine Boating

Laws

Improper Speed or Distance

1. Operators must regulate their speed to avoid endangering, injuring, or unnecessarily inconveniencing another vessel and its occupants, whether anchored or underway.
2. Operators also must also consider the effect of their vessel's wake on waterfront piers, floats, other property, or shorelines.
3. Operators may not operate a vessel at greater than "headway speed" while within 200 feet of any shoreline, including islands. "Headway speed" means the slowest speed at which it is still possible to maintain steering and control of the vessel.

Reckless Operation & Operating To Endanger

is operating a vessel, water ski, surfboard, or similar device in a manner that recklessly creates a substantial risk of serious bodily injury to another person.

Imprudent Operation of a Vessel

is engaging in prolonged circling, informal racing, wake jumping, or other types of continued and repeated activities that harass another person while operating on Maine waters.

Operating To Molest Wildlife is chasing, molesting, harassing, driving, or herding wildlife with your vessel, unless allowed during the open season on that species.

Unlawfully Permitting Operation

is negligently permitting another person to operate your vessel in violation of Maine law.

2014 Forest Lake Meeting Annual Meeting Notes—July 19, 2014

45 Members present

Welcome: Karen Hall, FLA President, welcomed folks and reviewed FLA projects over past year: consistent water testing, testing around island, follow-up with reported septic issues, addressing turnpike clear cutting, updating member databases and mailing lists, and getting FLA on Facebook.

Turnpike clear cutting update: FLA Trustee Charlie Mitchell advocated for the Maine Transportation Authority to address increased noise pollution, run-off and road salt issues as a result of turnpike clear-cutting. They will now visit the sit in July to assess.

Wildlife update: Member Rob Berube has been working with Loon Conservation Group and scheduled the guest speaker.

Communications update: Alternate Trustee Debi Curry created a new Facebook site for the Lake. Post pictures through Deb or share your own and join our Facebook group!

Septic update: FLA Trustees secured group septic pumping discounts to help save neighbors money and protect the lake. Contact Karen Hall for more info.

Guest Speaker Dr. David Evers of Biodiversity Research Institute: Author of Conserve the Call, presented at the annual meeting. Loons are one of the best indicator of the health of air, lakes, and people in their environments. We have one pair with baby this year. Ed Keenan and Rod Berube had the privilege of going on the night loon search last night to band, take blood and feather samples of our loons. This pair has not been banded so they are a new pair to Forest Lake this year. Male loons are very territorial. Intruders will frequently land come in and try to drive off existing loons. They will fight to control their territories. The noisy "circle dances" and bill dipping indications that an intruder has flown in uninvited. Baby loons will have brown fuzzy molt until about 7 weeks At 10-11 weeks they attempt to fly. Forest Lake should only have one pair of loons due to size. There is an 80% chance a pair of loons will return to same lake each year. Loons mate for life. There is 7-8% mortality rate per year. Many deaths are related to environmental toxins mostly mercury and lead. Global treaty on mercury signed by 120 countries. Mercury poisons the air and waters from coal fired power plants, gold mining, waste incinerators. 1TBSP of mercury can contaminate a lake for a decade.

Many states, including Maine, have also outlawed lead sinkers due to loons ingesting them. Dr. Evers concluded that ours loons and lake are very healthy right now and we will continue work to keep it that way.

Pie Auction: Limited donations this year: \$10 cake, \$13 pickles

Raffles: Nice selection of prizes. \$125

Safety Report: Ed Keenan welcomed new members, 6 new members and 3 new attendees. He reviewed the guidelines for counterclockwise boating, non-motorized vessels have ROW, jet ski operation, fishing and boating license, registrations, floats, docks, alcohol. He asks members to please speak to anyone who is doing thoughtless or dangerous actions on the lake, reminding them of state laws.

Officer Elections:

President: Karen Hall

Vice President: Jim Gameros

Secretary: Janene Gorham

Treasurer: Ellie Schulz

Trustees:

Janene Gorham

Jon Curry

Ellie Schulz

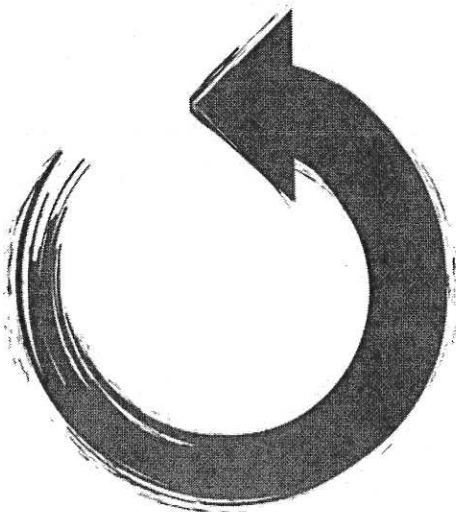
Alternate Trustees:

Kaylene Mitchell

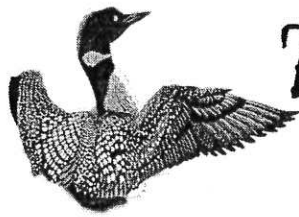
Charlie Mitchell

Deb Curry

Meeting adjourned at 10:45 AM.



**Learn what this
means, and
why it is so
important!**



Forest Lake Association

Membership Application

Yes, I'd like support the Forest Lake Association goals of quality, safety, and community by applying for/renewing membership in the Association.

Membership is from June 1st - May 31st annually. Dues are payable as of June 1. Membership is for the entire household/residence.

Name(s): _____

Mailing Address: _____

City/State/Zip: _____

Phone Number: _____

Email Address: _____

☐

My check for \$25 made out to "Forest Lake Association" is enclosed

☐

I am interested in being contacted in regards to special projects

☐

I am interested in being considered for the Board of Trustees (3 year position).

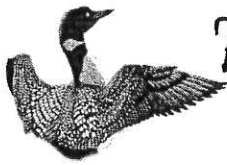
I understand that new board members are elected at the annual meeting.

Please mail to:

Forest Lake Association

PO Box 793

Gray, ME 04039



Forest Lake
Association

PO Box 793

Gray, ME 04039

**Support our lake and our community -
Renew or start your membership!**

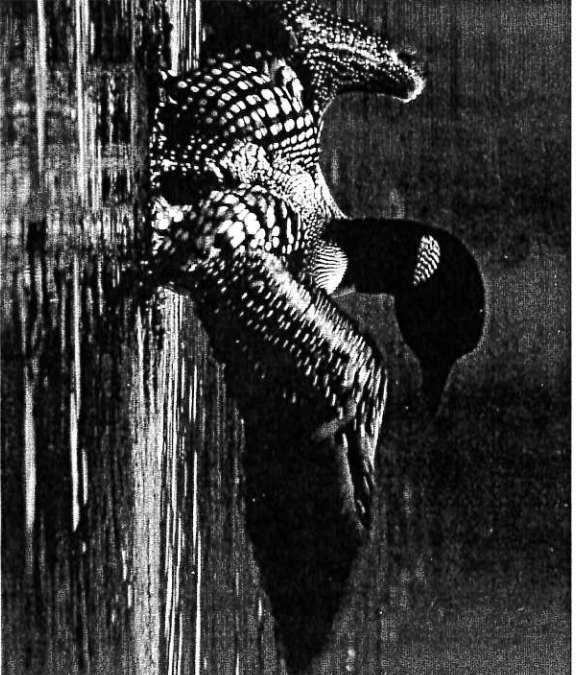
Are you already a member? Are you new to our community?

Now is the time to join or renew your membership.

Whether you are lakefront, have lake access, or live in the surrounding watershed area, you can cooperate with neighbors and others who have an interest in the quality of the Forest Lake watershed community. Working together, common goals and approaches can be formulated to protect the entire area.

An annual household membership (June 1st through May 31st) costs only \$25.00. This contribution is used to maintain our water quality testing and invasive plant patrol efforts as well help support our annual meeting and newsletters. Please take a moment to complete the membership form on the back of this newsletter, or sign-up and make your contribution at the annual meeting.

Thank you for your support!



About Forest Lake

Our watershed is just about 3 square miles, and while Windham, Cumberland, and Gray come together on the lake itself, the town of Falmouth is also within its watershed.

The lake is about 200 acres in size with a mean depth of 12 feet and one deep basin (41 feet).

There is no public access to the lake, although many non-waterfront residents enjoy access by any of several right-of-ways.

Water quality, which affects both our ability to enjoy the lake and also our property values, is an ongoing concern. The Forest Lake Association volunteers monitor lake stability by measuring water clarity, oxygen depletion, and bacterial growth. Volunteer plant patrollers survey lake plants each summer to avoid invasive species. Many hands contribute to maintaining the quality of life in the Forest Lake watershed.

What You Can Do

Become a member today!

Your \$25 annual membership fee is an important financial support of our Association.

The more members, the more truly representative we are when we speak to the community about lake needs and concerns.

The more informed everyone is, the more likely water quality will be maintained.

The better funded we are, the better we are able to address water quality, plant patrol, safety, and dam issues.

Apply Online

<http://www.forestlakeme.org/association>

Find Us on Facebook

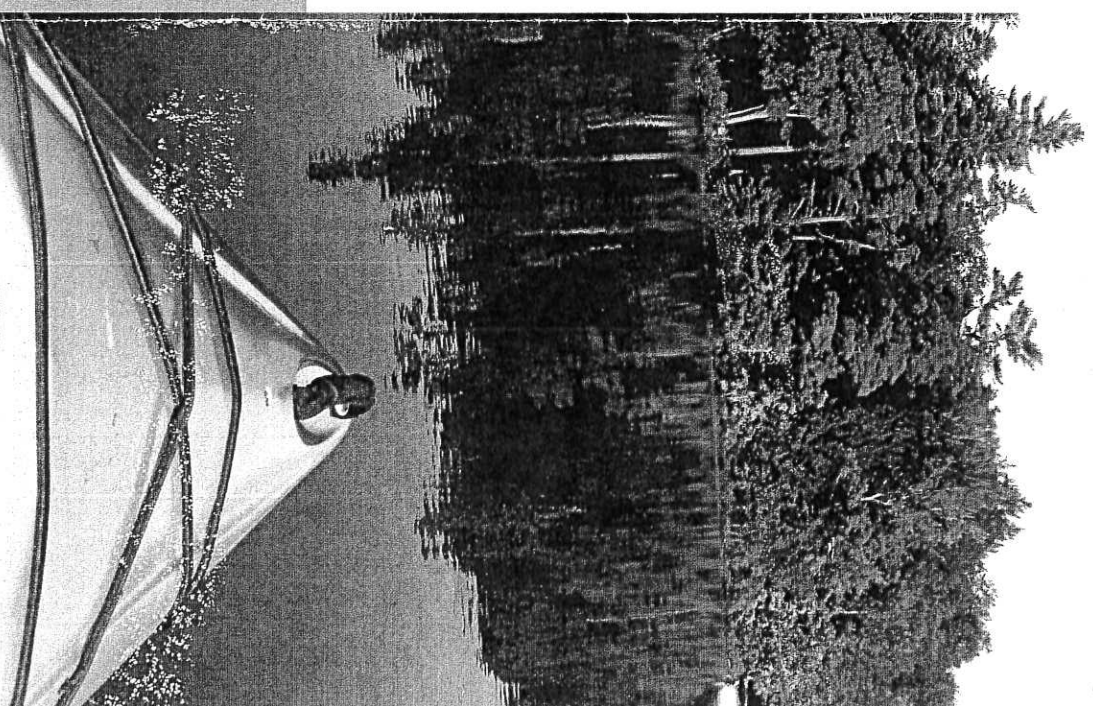
<https://www.facebook.com/groups/forestlakeme/>



Contact Us

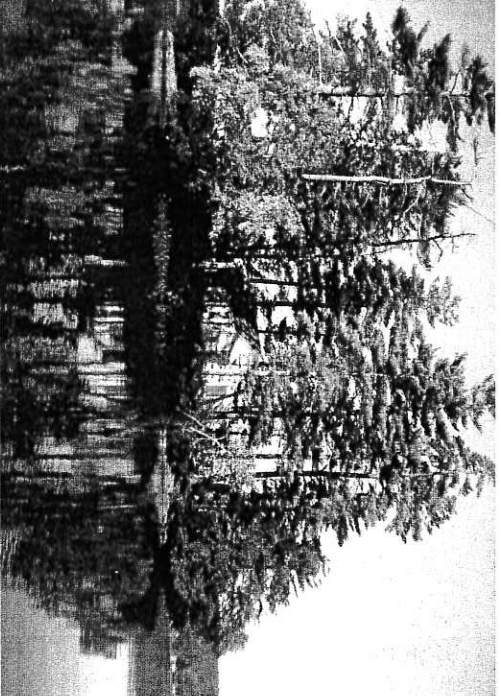
Forest Lake Association
PO Box 793
Gray ME 04039
(207) 657-6933
Forestlakeinfo@forestlakeme.org
www.forestlakeme.org
www.facebook.com/groups/forestlakeme

Forest Lake Association



We're all about the quality of life, lake water, and community within the four-town watershed of

Forest Lake.



Who We Are

Association membership is open to any person or family with an interest in the lake. You do not need to be a property owner to join the Forest Lake Association.

Each household is considered one membership.

We have no paid staff and are governed by an elected board of 9 trustees and up to 5 alternate trustees who meet between annual general membership meetings.

Four Association officers are elected at the general meeting: president, vice president, secretary, and treasurer.

We are incorporated in the state of Maine as a Not For Profit entity.

What We Do

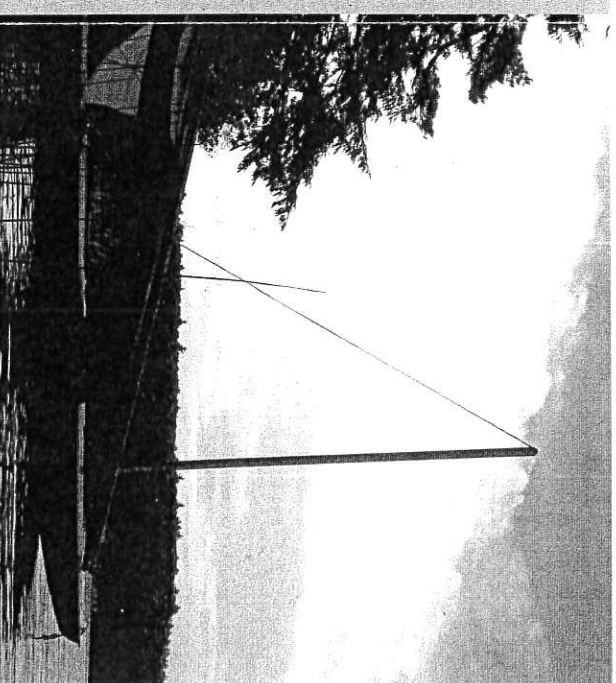
- Provide water quality testing and support statewide data collection through the Volunteer Lakes Monitoring Program.
- Coordinate volunteer plant patrol groups that conduct a yearly lake-wide survey of plant growth and invasive species inspections.
- Serve as a community voice for the benefit of lake residents and for the preservation of our water quality.
- Deliver newsletters and other information of value to lake residents.
- Conduct an annual meeting with informational workshops.

What We've Accomplished

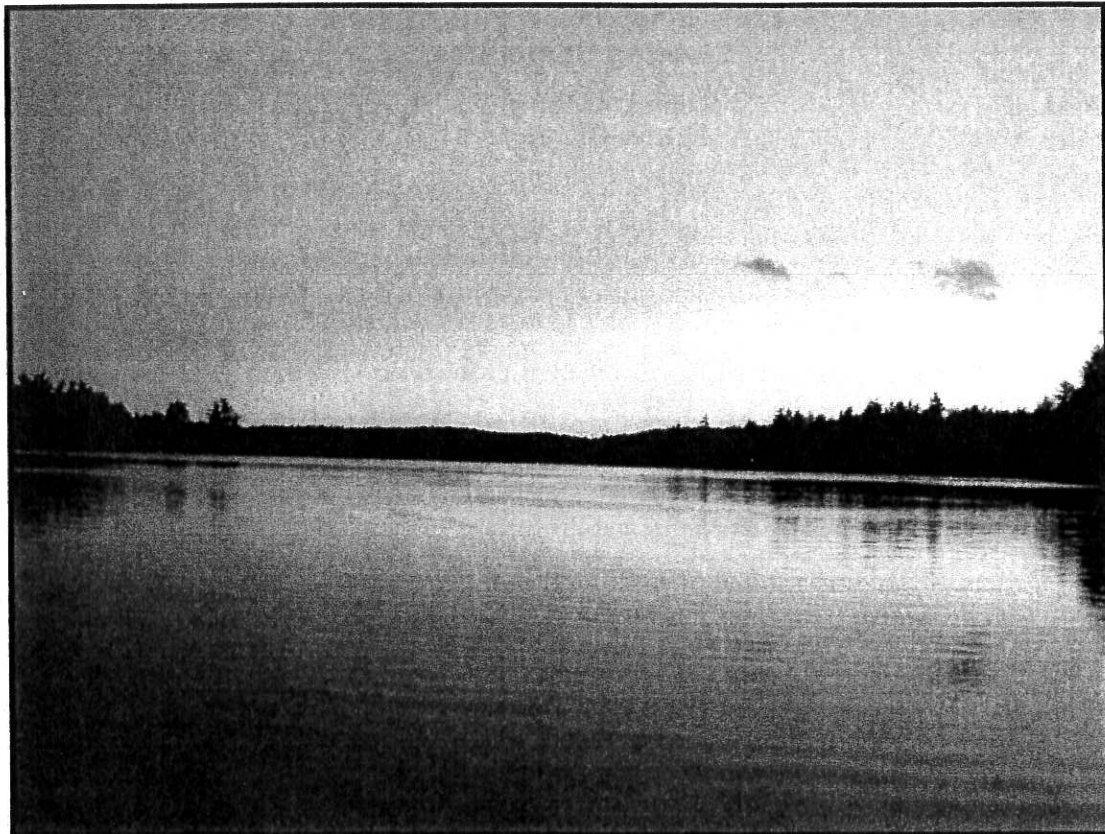
- Maintained 22 years of continuous certified testing of lake water quality.
- Performed two complete NPS surveys of the lake, involving dozens of volunteers and 1600 hours of time. The state-funded surveys paved the way for federal and state-paid repairs and improvements to some of our roads, culverts, and erosion-prone lots.
- Conducted informational workshops including those on vegetative buffers, septic systems, camp road maintenance, and loons.
- Provided baseline testing for bacteria and hydrocarbons in the water.
- Provided yearly plant surveys to avoid infestation of non-native, invasive plant species.

A Way of Life

Forest Lake Association works towards maintaining the quality of life, lake water, and community within our four-town watershed area.



Forest Lake Watershed Survey Report



**Cumberland County Soil and Water Conservation District
Forest Lake Association
Maine Department of Environmental Protection**

April 2003

Acknowledgments

The following people were instrumental in the Forest Lake Watershed Survey Project and deserve special recognition for their efforts:

Watershed Survey Volunteers

Donald Hughes
Ray Mercier
Ralph Ludington
Greg Schultz

Anthony Hughes
Brad Rounds
Lyn Ludington
Jane Swan

Bob Heyner
Joe Garland
Rob Berube
Jim Gameros

Steering Committee

Brad Rounds
Bob Heyner
Don Hughes

Ralph Ludington
John McGinnis
Mitch Berkowitz

Technical Staff

Betty Williams, Cumberland County Soil & Water Conservation District

Wendy Garland, Maine Department of Environmental Protection

Tamara Lee Pinard, Lakes Program Manager, Cumberland Co. Soil & Water Conservation District

Noralee Raymond, AmeriCorps

Don Kale, Maine Department of Environmental Protection

Mary Ellen Dennis, Maine Department of Environmental Protection

Jessie Mae MacDougall, Maine Department of Environmental Protection

Report Prepared by

Betty Williams

This project was funded in part by a grant from the Maine Department of Environmental Protection. Funds were provided from the U.S. Environmental Protection Agency through the Clean Water Act, Section 319. The contents of this document do not necessarily reflect the view or policies of the EPA or Maine DEP, nor does the mention of trade names or commercial products constitute endorsement or recommendation for use.

All programs and services of the Cumberland County Soil & Water Conservation District are offered on a non-discriminatory basis, without regard to race, ethnicity, color, gender, religion, age, disability, political belief, sexual orientation, or marital or family status.

Introduction

Is there a water quality problem in the Forest Lake Watershed?

The Forest Lake Association has tested water quality in Forest Lake for more than 25 years. This testing has found the lake's water quality to be slightly above average based on secchi disk transparency, total phosphorus and chlorophyll-a measurements.

As a result of development trends in the area and the water quality conditions Forest Lake has been placed on the Maine Department of Environmental Protection (DEP) list of *Priority Watersheds* and the State's list lakes *Most at Risk from New Development* under the Maine Stormwater Law.

However, recent dissolved oxygen profiles show moderate oxygen depletion in deep areas of the lake to levels that pose a moderate risk of phosphorus recycling problems. Based on observations at other Maine lakes, these trends indicate that the lake is under stress.

WATERSHED

All the land surrounding a lake that drains or sheds its water into the lake through streams, ditches, directly over the ground surface or through ground water.

The Forest Lake Watershed covers 3 square miles (1913 acres) (Fig. 1).

What is polluting Forest Lake?

NONPOINT SOURCE POLLUTION



Also called NPS or polluted runoff. Pollution that can not be traced back to a discharge from a particular direct source (e.g., an industrial outfall pipe).

One way to visualize NPS pollution is to think of rain and snow melt as a giant broom that sweeps over the watershed, moving debris and soil into the lake from the surrounding land and streams.

Declining water quality may be a result of the concentrated development around the lake and extensive network of gravel roads to reach these homes. The biggest pollution culprit in Maine's lakes is **nonpoint source (NPS) pollution** found in the runoff from rain and snowmelt. During and after storms, soil, and nutrients like phosphorus and nitrogen, wash into lakes from the surrounding landscape by streams and overland flow.

In an undeveloped, forested watershed, storm water runoff is slowed and filtered by trees, shrubs and other vegetation. It then soaks into the uneven forest floor.

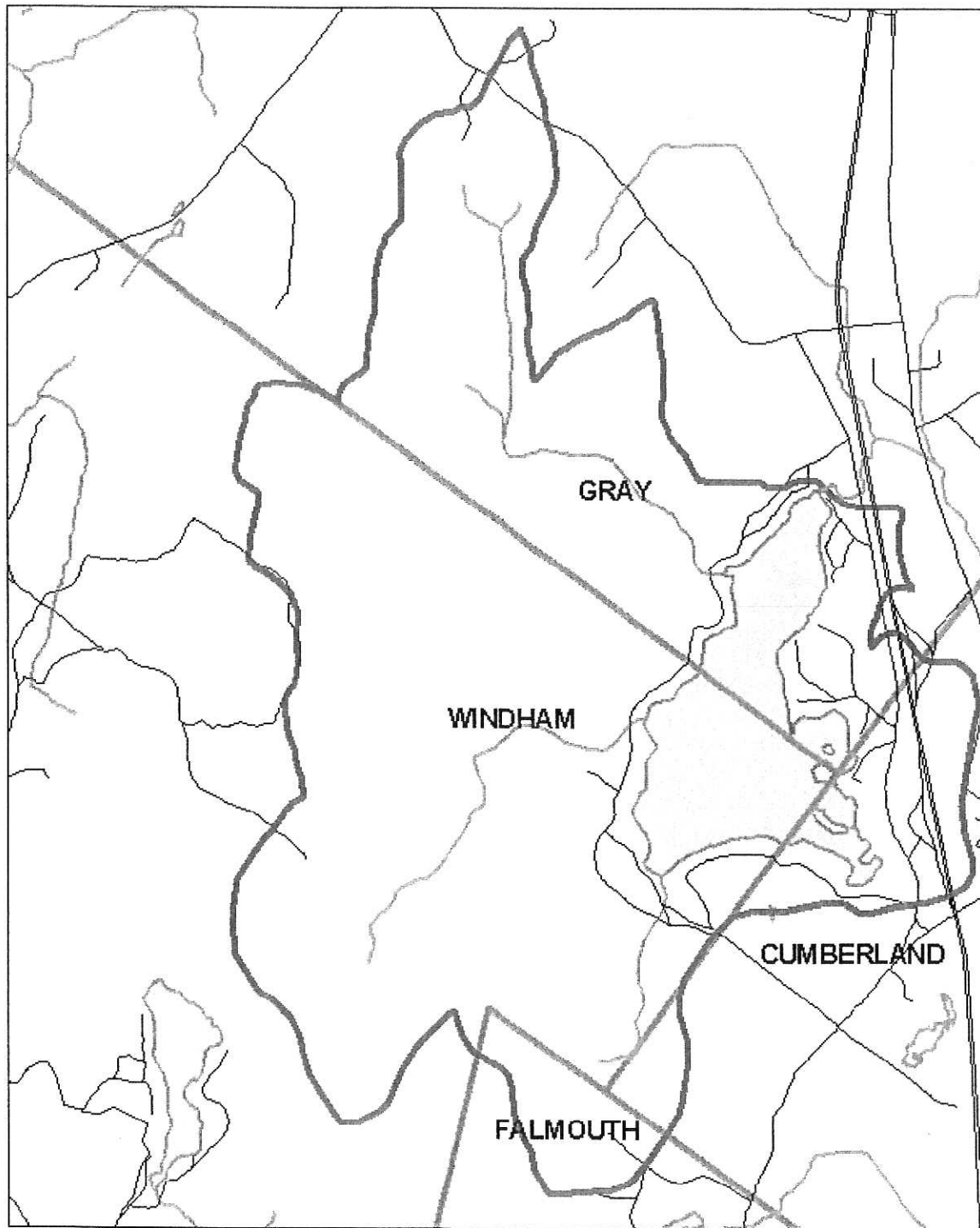
In a developed watershed, storm water velocity increases on impervious surfaces like rooftops, compacted soil, gravel camp roads and pavement, and does not always receive the filtering treatment the forest once provided.

The nutrients in storm water runoff can be bad news for lakes. **Phosphorus**, a nutrient that is common on land, is a primary food for all plants, including **algae**. In natural conditions, the scarcity of phosphorus in a lake limits algae growth. However, when a lake receives extra phosphorus from the watershed, algae growth increases dramatically. Sometimes this growth causes choking blooms, but more often it results in small, insidious changes in water quality that, over time, damage the ecology, aesthetics and economy of lakes.



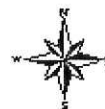
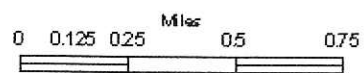
Excess **phosphorus** can "fertilize" a lake and lead to nuisance **algal blooms**.

Forest Lake Watershed



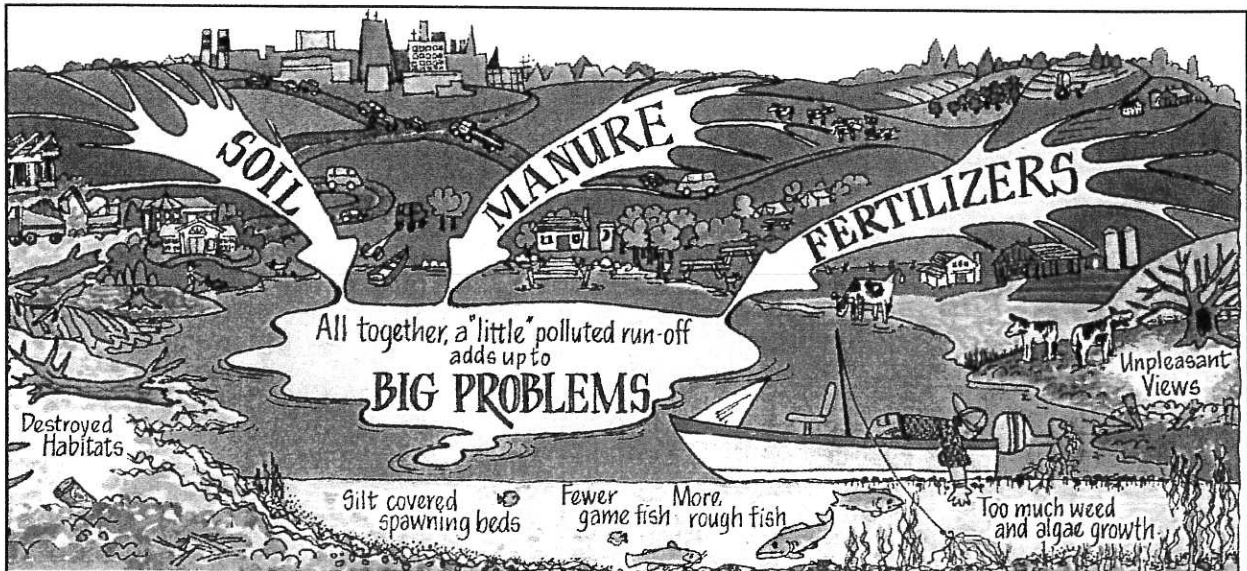
Legend

- Streams
- Lake
- Town line
- Roads
- Watershed Boundary



Why is it important to protect Forest Lake's water quality?

- ◆ Forest Lake contains valuable habitat for fish, birds and other wildlife.
- ◆ Forest Lake serves as the headwaters to the Piscataqua River, which then flows into the Presumpscot River and Casco Bay.
- ◆ A 1996 University of Maine study demonstrated that lake water quality affects property values. For every meter (3 ft) decline in water clarity, shorefront property values can decline as much as 10 to 20 percent! Declining property values affect individual landowners as well as the economics of the entire community.
- ◆ Once a lake has declined, it can be difficult or impossible to restore.



Forest Lake's water quality is directly impacted by the land uses in its surrounding watershed. The most effective way to manage lake water quality is by managing land uses within the watershed.

What is being done to protect the Forest Lake Watershed?

The Forest Lake Association (FLA) tests water quality in Forest Lake as part of the Maine Volunteer Lake Monitoring Program. FLA also works with agencies and watershed residents to promote environmental stewardship.

Volunteer watershed surveys have been found to be one of the most effective ways to protect lake water quality by getting citizens involved in identifying existing and potential sources of polluted runoff. During the summer and fall of 2002, the Forest Lake Association and the Cumberland County SWCD and DEP conducted a watershed survey. In addition, a Septic Survey was conducted to assess the condition of septic systems near the lake and a Shoreline Survey was carried out as well to assess the composition of vegetated buffers around the lake.

This report is specifically designed for citizens living in the Forest Lake Watershed. It contains a summary of the survey findings and recommendations to protect the health of the lake.

Purpose of the Watershed Survey

The primary purpose of the watershed survey was to identify and prioritize **existing** sources of polluted runoff, particularly soil erosion sites, in the Forest Lake Watershed. However, of equal importance was to:

- ◆ Raise public awareness of the connection between land use and water quality, and the impact of polluted runoff on Forest Lake.
- ◆ Inspire people to become active stewards of the watershed.
- ◆ Use the information gathered to help develop the Forest Lake Management Plan.
- ◆ Make general recommendations to landowners for fixing erosion problems on their properties.

Local citizen participation was essential in completing the watershed survey and will be even more important in upcoming years. Through the leadership of the Forest Lake Association, and with assistance from groups and agencies concerned with lake water quality, the opportunities for stewardship are limitless!



Numerous lakeshore properties were observed to have little or no **vegetated buffer** at the water's edge. These sites were not included in the survey results but it is important to note that buffers of shrubs and trees do a much more effective job than bare ground or grass at keeping polluted runoff from entering lakes. The deep roots of shrubs and trees also help stabilize the shoreline.

Buffers can be installed inexpensively. You can stop mowing and raking at the water's edge and let plants grow up naturally. Or you can plant the area with native trees and shrubs.

Buffers enhance the appearance of shorefront property and attract birds and other wildlife without ruining the landowner's view.



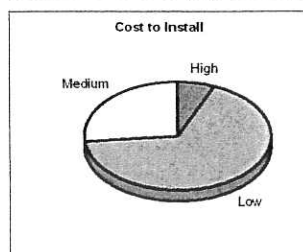
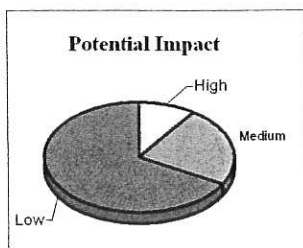
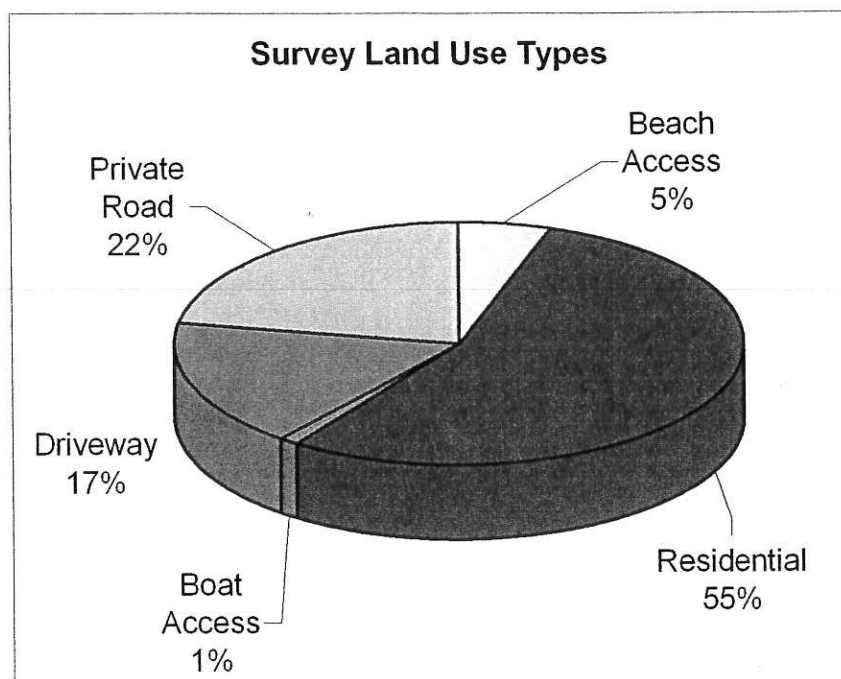
Summary of Watershed Survey Findings

Volunteers and technical staff identified 112 sites that are currently impacting or have the potential to impact water quality in the Forest Lake Watershed.

A total of five land use types were associated with the identified sites. The largest number of problems were associated with residential areas, driveways, and private roads. Detailed descriptions of these sites are on the following pages.

Key Findings:

- ◆ Most of the problems were found on residential
- ◆ Most of the problems can be fixed with little expense or technical expertise. Plants, mulch and other simple solutions can go a long way towards protecting the lake.
- ◆ About 2/3 of the problems may be causing significant impact to the lake



Potential Impact of Problems

There were similar numbers of sites with low, medium and high impacts. Attention should be paid to all of the sites, since it's the cumulative impact of **all** the sites that causes water quality to decline.

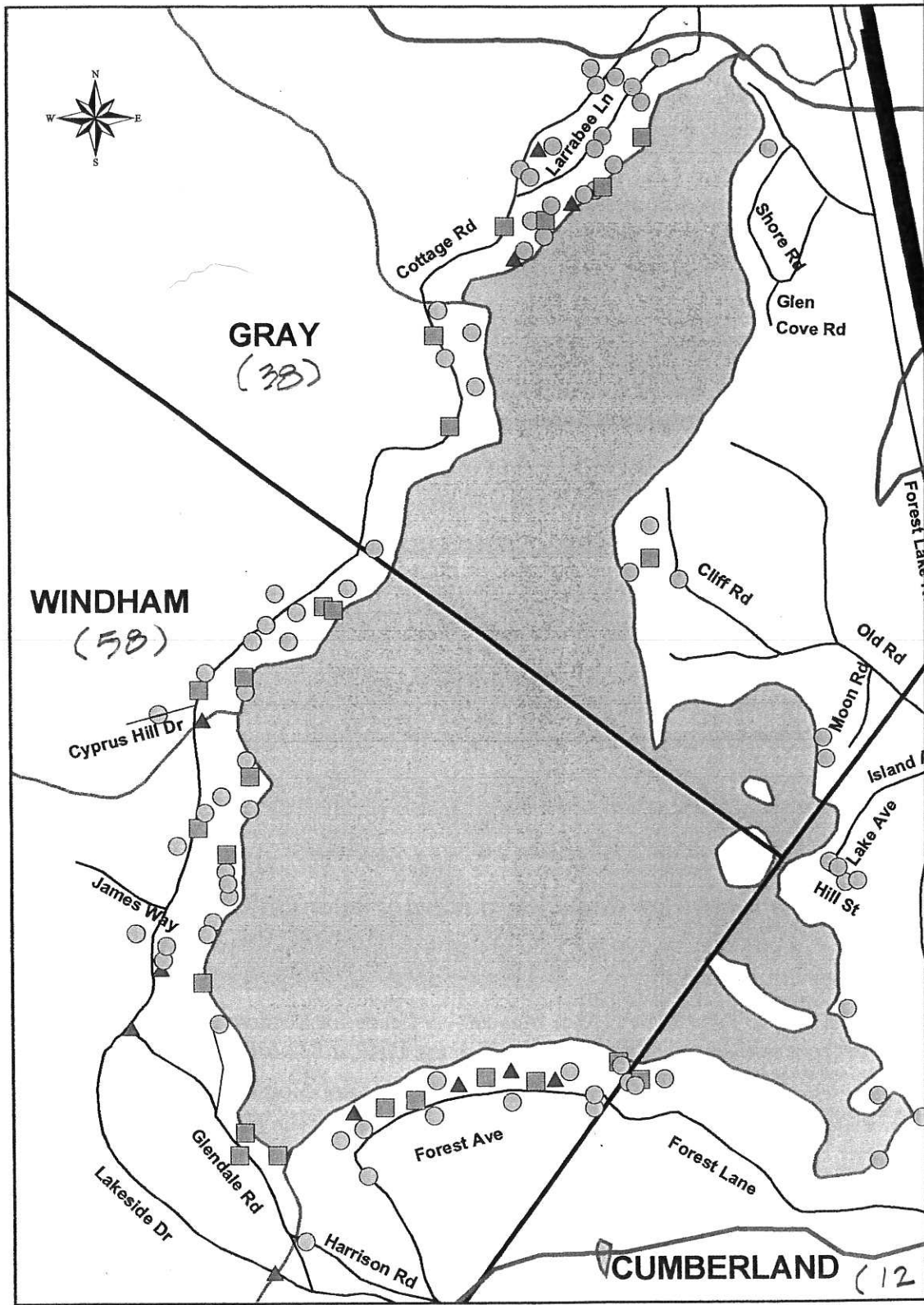
- ◆ Low—eroding site with limited transport off site, or small site with no evidence of rills or gullies
- ◆ Medium—sediment transported off site but does not reach high magnitude
- ◆ High—Large area with significant erosion and direct flow to stream, ditch or lake

Cost to Implement Recommendations

- ◆ Low—less than \$500
- ◆ Medium—\$500 to \$2,500
- ◆ High—more than \$2,500

Forest Lake Watershed Survey

Erosion Sites



0 200 400 800 1,200 1,600
Feet

Legend

Site Impact to Lake

- ▲ High
- Medium
- Low

- Watershed Bound
- Roads
- Streams
- Towns
- Lake

(108 total sites)

Forest Lake Watershed Management Plan December 2003



Prepared by:
Forest Lake Association
Cumberland County Soil & Water Conservation District
Maine Department of Environmental Protection

ACKNOWLEDGEMENTS

The project was funded by the Maine Department of Environmental Protection and sponsored by the Cumberland County Soil and Water Conservation District .

A substantial attempt was made to involve the public in the development of the Forest Lake Watershed Management Plan, the details of which are discussed in the plan.

In addition to participants at public meetings and respondents to the surveys (some being anonymous) the following individuals made significant contributions to this project:

Project Steering Committee:

Brad Rounds-Chairman, Forest Lake Association Representative
Bob Heyner-Forest Lake Association Representative
Ralph Ludington-Forest Lake Association Representative
Ralph Johnston-Town of Windham representative
Mitch Berkowitz-Town of Gray representative
Wendy Garland-Maine Dept. of Environmental Protection
Tamara Lee Pinard-Lakes Program Manager-CCSWCD
Betty Williams-Project Manager- CCSWCD

The following individuals provided comments, and assistance with the development of the plan:

Forest Lake Association
Mitch Berkowitz-Town of Gray
Tony Plante-Town of Windham
Bill Shane-Town of Cumberland

Contributing Organizations and Institutions:

Forest Lake Association
Cumberland County Soil & Water Conservation District
Town of Gray
Town of Cumberland
Town of Windham
Maine Department of Environmental Protection

This project is funded in part by the Maine DEP through a USEPA Nonpoint Source Grant under Section 319 of the federal Clean Water Act.

Executive Summary

Overview of the Watershed Management Plan

In the spring of 2003, the Forest Lake Association began the process of developing the Forest Lake Watershed Management Plan as part of a grant project funded by the Maine DEP. The goal of this project was to gather local input and devise specific strategies to protect Forest Lake and its water quality for future generations.

The project was guided by a Steering Committee comprised of interested and concerned volunteers from the lake association and watershed community, town representatives, and staff from the Cumberland County Soil and Water Conservation District and Maine Department of Environmental Protection.

The Forest Lake Management Plan has been developed with significant public participation and was centered around a Community Forum that took place in April 2003. During this daylong forum, approximately 50 watershed residents and town leaders discussed watershed trends, prioritized issues, and brainstormed lake protection strategies. The project steering committee and several Action Teams used this input to further refine a series of Action Strategies that appear in this plan.



As with many lakes in Southern Maine, soil erosion and polluted runoff is the greatest threat to Forest Lake. As such, this plan primarily focuses on these issues. The plan outlines strategies to address sources of polluted runoff, raise public awareness and promote lake stewardship. Since the watershed lies in four different towns, the plan also outlines strategies to improve coordination and communication between the towns.

This formal plan will put lake protection in the public eye with the hope that more extensive, proactive conservation will result. The

Management Plan is presented as a living document with the idea that it will be revised periodically and updated to reflect changes that may occur in the watershed in coming years.



Some things this Watershed Management Plan is not specifically designed for:

- Use as an ordinance, nor must towns formally adopt the plan in order for it to be effective. However, towns in the watershed may choose to incorporate portions of the plan in existing ordinances for future lake protection.
- Not a comprehensive conservation plan for the watershed.

Forest Lake Watershed

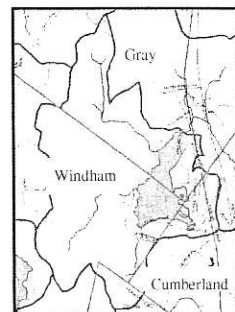
Forest Lake is located in the Towns of Gray, Cumberland, Windham and a small portion in Falmouth in Cumberland County in Southern Maine. The lake is prized for its important fish and wildlife habitat; exceptional opportunities for swimming, boating and fishing; and peace, tranquility and small community feel.

Watershed development consists of about 380 residential homes and an extensive road network, most of which are located within close proximity to the lake. The upper watershed is primarily forested, although there is some scattered residential development and logging activity. In the past decade, several of the lake's seasonal cottages have been converted to year round housing. Commercial operations in the watershed include an auto repair shop, a water-skiing school and several businesses at service area 56 of the Maine Turnpike.

Forest Lake has a surface area of 210 acres, a maximum depth of 38 feet and an average depth of 12 feet with a flushing rate of 1.4 flushes per year. The direct watershed covers three square miles and the lake serves as the headwaters to the Piscataqua River, which then flows into the Presumpscot River and ultimately Casco Bay.

A watershed is all the land surrounding a lake or waterbody that drains or sheds its water into the lake through streams, ditches, directly over the ground surface or through ground water.

The Forest Lake Watershed covers 3 square miles or 1913 acres.



The watershed management plan consists of a single water quality goal and six objectives, each of which includes several strategies:

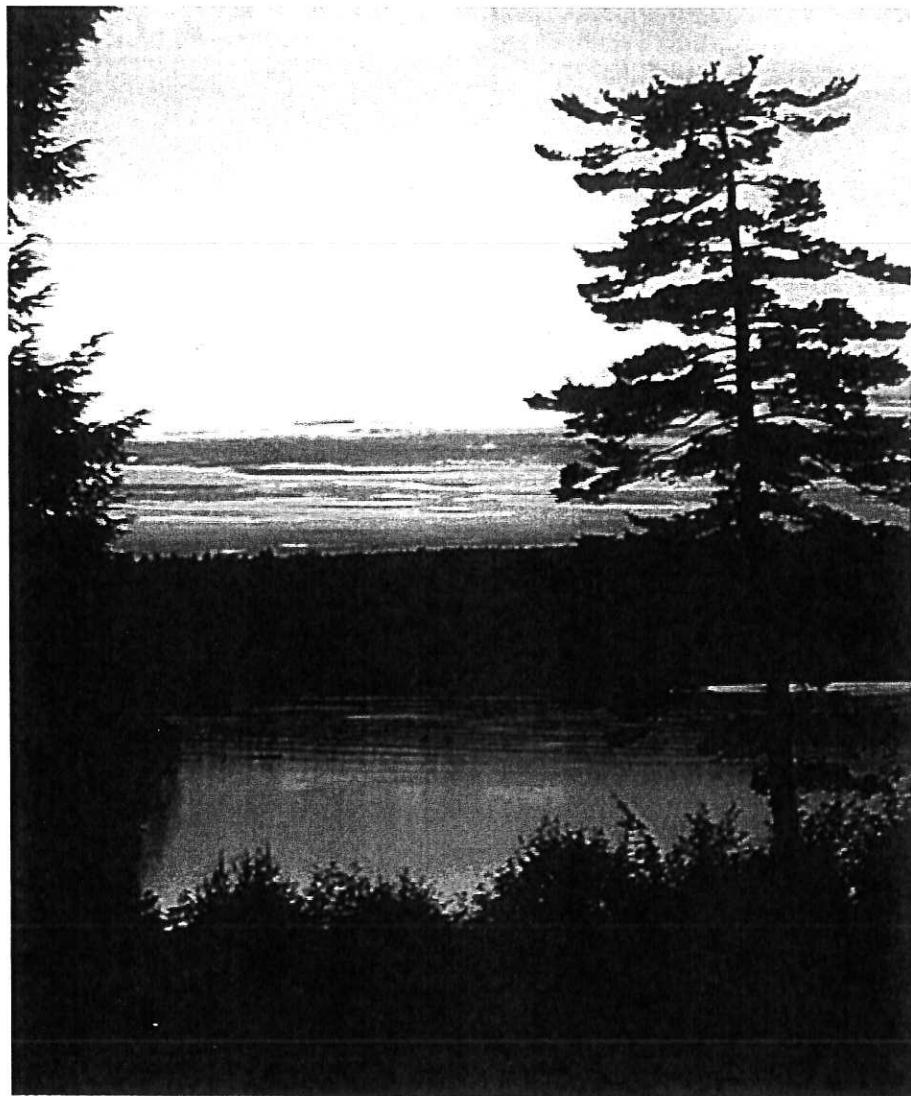
Goal

To maintain or improve the overall water quality and quality of life in the Forest Lake Watershed.

Objectives

1. Eliminate or reduce existing sources of polluted stormwater runoff, and prevent future problems from occurring throughout the watershed.
2. Implement long term strategies for raising public awareness, and inform the watershed communities about lake and watershed protection practices. Build consensus to promote sustainable watershed management and stewardship.
3. To improve coordination and communication between the three major towns in the Forest Lake Watershed in an effort to ensure consistent code and law enforcement and uniform watershed regulations.
4. Pursue financial resources necessary to implement the objectives of the watershed management plan.
5. Audit the effectiveness of the watershed management plan and make periodic changes or adjustments as required.
6. Continue to monitor the quality of Forest Lake.

*Forest Lake
Conservation Project-Phase I*



Water Quality in Forest Lake

Local volunteers and the Maine Department of Environmental Protection (DEP) biologists have monitored Forest Lake's water quality for over 27 years. In general, the lake's water quality is considered to be slightly above average based on secchi disk transparency, total phosphorus and chlorophyll-a measurements. However, data also indicates that the lake may be under stress. According to DEP, there is moderate potential for nuisance algal blooms, moderate oxygen depletion in deep areas of the lake and moderate risk of phosphorus recycling problems (MDEP files, 2000). Given this information and the fact that Forest Lake is a valued regional resource, it was placed on the State's "Nonpoint Source Priority Watersheds" lists. In addition, the Maine DEP has listed Forest Lake on their list of "Lakes Most at Risk from Development" under the Maine Stormwater Law.

Water quality problems can be attributed to polluted runoff, or nonpoint source pollution (NPS), that washes into the lake from its surrounding watershed. Phosphorus, which attaches to soil particles, poses the greatest threat to Forest Lake. Phosphorus spurs excess algae growth, causing declines in water clarity and oxygen levels. Ultimately, high inputs of phosphorus can lead to a degradation of fish habitat, development of nuisance algae blooms and losses in lakefront property values.

Volunteers have been taking water clarity (secchi disk) readings and water chemistry (e.g., dissolved oxygen, chlorophyll-a, phosphorous, etc) samples from Forest Lake since 1974 with the exception of several missing years until 1991. In 2003, the average secchi depth reading was 16 feet, slightly clearer than the average Maine lake which is about 15 feet. A substantial increase in development in the watershed has occurred recently and is likely to continue into the future.

2002 Watershed Survey & Management Plan

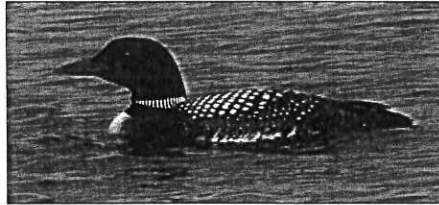
The Forest Lake Association (FLA), the Cumberland County Soil & Water Conservation District and MDEP organized a survey of the watershed and volunteers identified 112 erosion sites. The primary purpose of the watershed survey was to identify and prioritize existing source of polluted runoff but the survey also helped to raise the community awareness and foster long-term lake protection.

All of the documented erosion sites were rated for their relative impact to water quality, and the costs and technical level of potential fixes. The majority of these sites can be fixed for a low cost and little technical expertise.

The Forest Lake Management Plan was completed in 2003 and included watershed information about specific NPS pollution problems and natural resources. The successful project developed locally supported water quality goals, objectives and action strategies for protecting Forest Lake.

Conservation Project Team

- **Cumberland County Soil & Water Conservation District**
- **Forest Lake Association**
- **Towns of Cumberland, Gray and Windham**
- **Forest Lake Watershed Community**
- **Maine Department of Environmental Protection**



Conservation Project Timeline

2002	Watershed Survey & Watershed Management Plan
2004	Implementation Grant—Phase I \$59,635 received through Federal 319 Clean Water Act
2006	Proposal submitted and awarded grant for Phase II Conservation Project
2007	Start Phase II Conservation Project - \$75,000

Forest Lake Conservation Project Phase II



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207-892-4700

January 2010

Thank you to the partners of this project:

Cumberland County Soil & Water Conservation District
Forest Lake Association
Town of Cumberland
Town of Gray
Town of Windham
Maine Department of Environmental Protection

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This project funded in part by the Maine DEP through a USEPA Nonpoint Source Grant under Section 319 of the federal Clean Water Act.



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- **Cumberland County Soil & Water Conservation District**
- **Forest Lake Association**
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Project Timeline

- | | |
|-------------|---|
| 2002 | Watershed Survey and Management Plan |
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