



Town of Casco Water Quality Plan December 19, 2025

Introduction

This Water Quality Plan is drafted as a result of an action by the Casco Selectboard and the Comprehensive Plan Implementation Committee (CPIC) to address one of the top priorities of the Comprehensive plan: to maintain the Water Quality of the lakes and ponds of the town of Casco Maine. Rivers, streams, wetlands, and aquifers, while critical, will be addressed in future updates to this plan.

In order to address the controlled growth expected in Casco in accordance with the comprehensive plan, a plan is needed to lay out the implementation and methodologies to maintain and / or improve the water quality of our water resources as the town grows and evolves.

This plan is divided into seven Chapters. Each chapter will describe the purpose of these actions and initial steps for implementation.

Table of Contents:

Introduction	page 1
Purpose & Major Recommendation.....	page 2
Town & Casco Map of Lakes & Ponds	page 3
Casco Surface Water & Watersheds Map.....	page 4
Chapter 1 Land use Ordinances.....	pages 5 - 6
Chapter 2 Watershed Stewardship	pages 7 - 8
Chapter 3 Testing and Inspections.....	pages 8 - 9
Chapter 4 Shoreline Condition Documentation.....	pages 9-10
Chapter 5 Education and Outreach.....	page 11
Chapter 6 Funding.....	page 12
Appendix A: Stakeholders.....	page 13
Appendix B: Water Quality Tests.....	page 14
Appendix C: Funding Sources.....	page 15
Appendix D: Casco Waterbodies and Watersheds.....	pages 16 - 27

Purpose

The purpose of the plan is to maintain and improve the water quality of all bodies of water in Casco.

The plan will serve as a road map for the establishment of a clean water commission for the town of Casco Maine. The Commission will serve as support to the CEO, Planning Board, and Select Board by providing reviews, research, assessments and recommendations for actions on shoreland zone permits or projects in Casco that may impact the water quality.

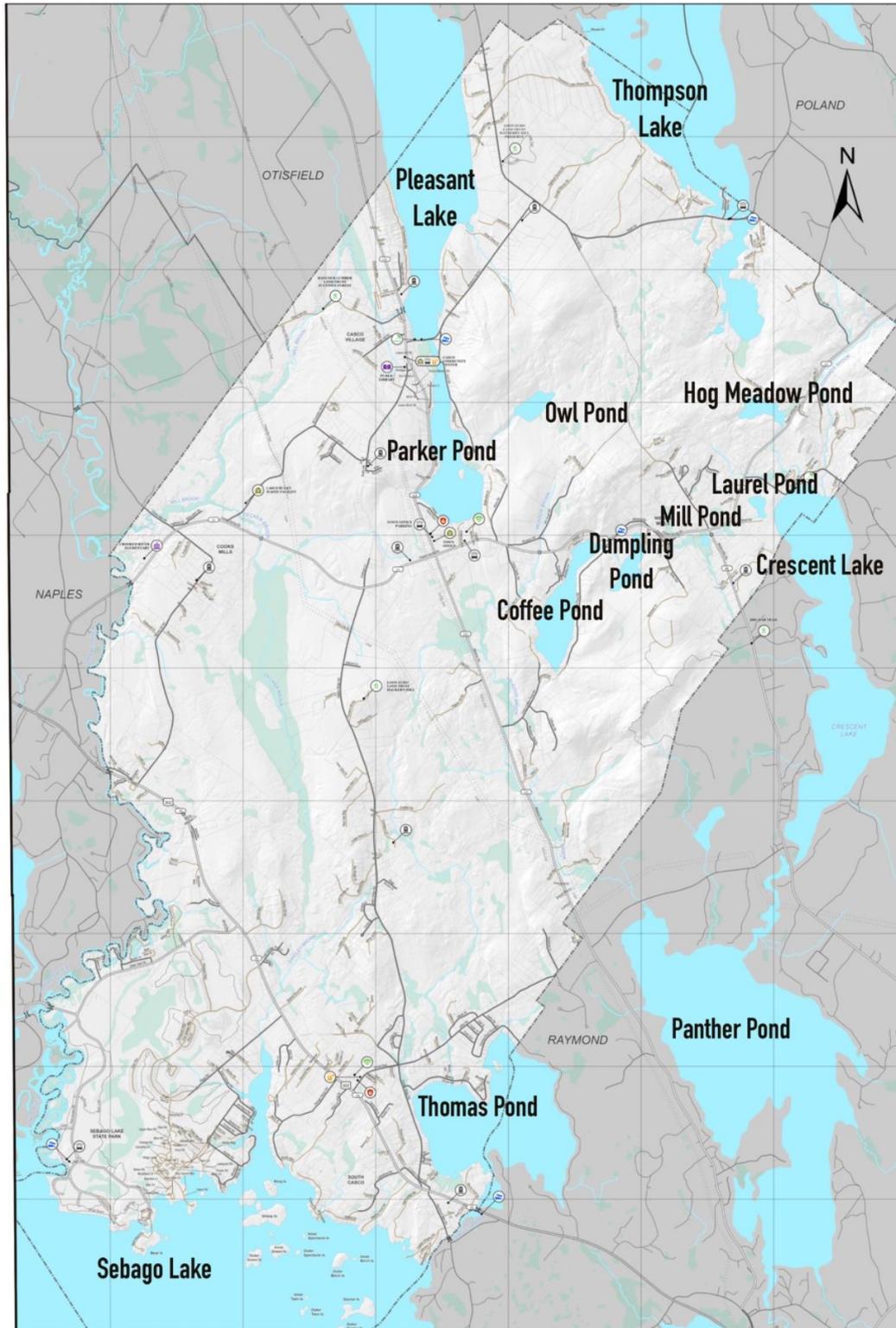
The Commission's initial focus will be implementation of the recommendations in the plan and to establish the methodologies that the commission will use in meeting the goals of maintaining and / or improving the water quality of our water resources. In addition, Commission will work closely with our neighboring towns where we share water resources

Major Recommendations

1. Establish a permanent Water Quality Commission tasked with executing the Water Quality Plan.
2. Notify the Commission of any permits within shoreland zones, to solicit input back to the decision makers on the Selectboard, Comprehensive Plan Implementation Committee (CPIC), Planning Board, and the CEO by reviewing and providing recommendations for all plans, projects, and permits that have the potential to impact Casco Water Quality.
3. Form a Water Quality Ordinance Task Force to coordinate this work and integrate it into other ordinance update plans.
4. Task the Water Quality Commission with managing the water quality budget line item to be allocated to lake associations.

The currently identified Lakes and Ponds for Casco Maine are included in the maps below. Watersheds for each are listed alphabetically in Appendix D at the end of this document.

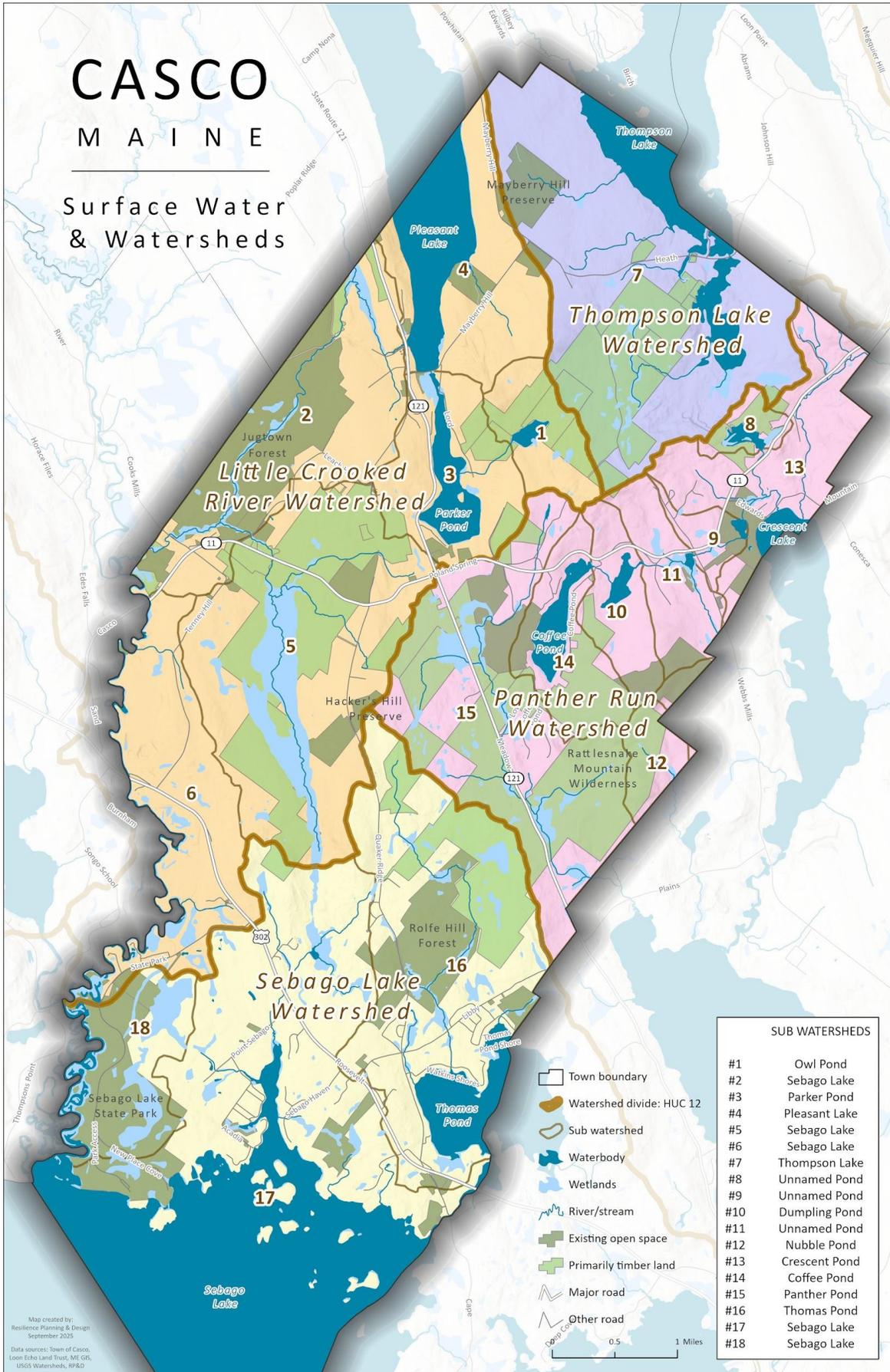
Town of Casco Lakes & Ponds



- Coffee Pond
- Crescent lake
- Dumpling Pond
- Hog Meadow Pond
- Laurel Pond
- Mill Pond
- Owl Pond
- Panther Pond
- Parker Pond
- Pleasant Lake
- Sebago Lake
- Thomas Pond
- Thompson Lake

CASCO MAINE

Surface Water & Watersheds



SUB WATERSHEDS	
#1	Owl Pond
#2	Sebago Lake
#3	Parker Pond
#4	Pleasant Lake
#5	Sebago Lake
#6	Sebago Lake
#7	Thompson Lake
#8	Unnamed Pond
#9	Unnamed Pond
#10	Dumpling Pond
#11	Unnamed Pond
#12	Nubble Pond
#13	Crescent Pond
#14	Coffee Pond
#15	Panther Pond
#16	Thomas Pond
#17	Sebago Lake
#18	Sebago Lake

Map created by:
Resilience Planning & Design
September 2025
Data sources: Town of Casco,
Loon Echo Land Trust, MA GIS,
USGS Watersheds, RPS/D

1. Land Use Ordinances

Objective

Casco's lakes and streams face pressures from shoreline development, stormwater runoff, septic systems, and land clearing. While land use ordinances exist to help manage these impacts, their enforcement and adequacy are not always clear. Proactively reviewing, updating, and enforcing ordinances is essential to ensure long-term water quality protection across all of Casco's watersheds.

Maine's Mandatory Shoreland Zoning Act (MSZA) requires all municipalities to adopt and enforce ordinances regulating land use activities within 250 feet of lakes, ponds, rivers, and wetlands. Casco has implemented these standards, but enforcement and ordinance strength can vary by town.

Casco's ordinances are grounded in the MSZA framework, but the town has the authority to adopt stronger standards where necessary. Reviewing Casco's ordinances in the context of neighboring municipalities (e.g., Raymond, Naples, Bridgton) will ensure consistent protections across shared watersheds. This context underscores Casco's ability to exceed state minimums where local water quality data show it is needed.

Goals

The goals for this section of the Plan are twofold:

1. Ensure that our existing ordinances are being used, followed and enforced to the greatest extent practical.
2. Adopt additional ordinance provisions to further protect water quality when appropriate.

Implementation Steps

For both goals:

- a. Identify which ordinances most directly affect water quality (shoreland zoning, stormwater/erosion control, septic, wetlands/streams, aquifer protection, canopy management).
- b. Use findings from recent watershed surveys to identify recurring problems (erosion, runoff, septic issues), and assess whether these problems could have been prevented by current ordinances or enforcement.
- c. Build accountability through ongoing monitoring and public reporting.

Goal 1. Ensure adequate enforcement of existing ordinances

- a. Review all permits requested within the Shoreland Zone, and other permits that have the potential to impact water quality. Provide recommendations to the CEO and Planning Board as appropriate.
- b. Track and assess Shoreland Zone permits and evaluate outcomes.
- c. Identify instances where the public's lack of knowledge was the issue.
- d. Identify where enforcement was inconsistent or insufficient.
- e. Develop a plan to improve compliance through staffing, training, and public education.
- f. Deliver periodic status updates and recommendations to the Selectboard.
- g. Provide education and outreach for landowners.

Goal 2. Adopt additional ordinance provisions when appropriate.

- a. Form a Water Quality Ordinance Task Force to coordinate this work and integrate it into other ordinance update plans.
- b. Compile and review all relevant Casco ordinances.
- c. Research other towns' ordinances.
- d. Gather scientific studies on the relationship of land use and water quality.
- e. Draft Recommendations for Planning Board and Selectboard review.

Ongoing Evaluation & Reporting

- a. Maintain an up-to-date public database of permits, violations, and enforcement actions.
- b. Track the number of groups, e.g. lake and road associations, to whom the CWQC has presented information regarding water-quality related ordinances.
- c. Prepare an annual "Land Use & Water Quality" report for the Selectboard and community.
- d. Hold annual public forums to share progress and gather resident input.

Integration with Watershed Plans

Findings from recent watershed surveys in Casco—such as the one for Thompson Lake—provide evidence of recurring land use impacts including road erosion, shoreline vegetation loss, and septic system concerns. The Land Use Ordinance Task Force will explicitly use these findings when evaluating whether such issues could have been prevented through stronger ordinances or better enforcement.

By grounding ordinance review in real survey data rather than theoretical assumptions, Casco can ensure that updates are data-driven and address on-the-ground conditions. This approach closes the loop between watershed science and town policy, strengthening long-term protections for water quality.

2. Watershed Stewardship

Objective

Watershed stewardship refers to protecting, maintaining, and improving the health and function of the town's watersheds. A watershed is an area of land that channels rainfall, snowmelt, and runoff into a common body of water such as a river, lake, or pond. All land areas are within a watershed. Watershed management is critical for environmental quality, drinking water, recreation, wildlife habitat, and sustainable development. Casco's lakes, ponds, and rivers are one of the town's most valuable natural assets.

Goals

1. Preserving or improving the water quality of our lakes and ponds
2. Identifying, preventing, and reducing nonpoint source pollution (NPS)
NPS occurs when rain, snowmelt, or irrigation runoff picks up pollutants from roads, streams, agricultural, and lawns, and carries them out into water bodies and groundwater. It is diffuse and comes from multiple sources. Common pollutants include excess fertilizers, pesticides, oil, grease, sediment, animal waste, and bacteria.
3. Identifying, preventing, and reducing point source pollution
Point source pollution comes from a single, identifiable source, such as a malfunctioning septic system or a factory smokestack. Septic systems release bacteria, nitrogen, phosphorus, and other contaminants that can leak into our bodies of water. These can fuel the growth of aquatic plants and algae, leading to a degradation in water quality.
4. Implementing best management practices (BMPs) such as erosion control, vegetated buffers, and improved road drainage to reduce runoff.
5. Adapting watershed management to address changing rainfall patterns, warmer temperatures, and more frequent extreme weather events.
6. Identifying and involving key stakeholders, promoting cooperation, and providing public education.

Implementation Steps

1. Ensure watershed surveys are conducted regularly.
2. Identify and engage representatives from each watershed in Casco (e.g., lake association, road associations, major landowners, etc.).
3. Create, share and maintain a "How to do a Watershed Survey" document.
4. With the various lake and road associations, create a multi-year implementation schedule in coordination with the Cumberland County Soil and Water Conservation District (CCS&WCD) that will prioritize the implementation of watershed surveys.
5. Research, create, and share a guide of potential sources of funding.
6. Review existing town ordinances regarding septic systems.

7. Initiate an inventory and create a database of all septic systems within 500 feet of the town's lakes, ponds, and streams.
8. Make recommendations to the town for additional oversight of septic system inspections within 500ft of lakes, ponds, and major streams.
9. Review existing ordinances that would apply to watershed protection and suggest appropriate changes.

Ongoing Evaluation & Reporting

1. Review the progress of watershed stewardship activities regularly.
2. Track key activities such as stakeholder engagement, watershed surveys, and implementation of best management practices.
3. Assess the availability and usefulness of important resources and guides.
4. Encourage collaboration among local organizations, property owners, and other stakeholders.
5. Share updates and recommendations with the Town of Casco officials, the community, and relevant parties to support transparency and continuous improvement.

3. Testing & Inspections

Objective

It is fundamental that testing and watchful monitoring of water resources be done on a regular basis. Doing so is the only way to see the effects of the actions taken in other parts of the Plan. We have identified several water quality measures, including dissolved oxygen, water temperature, turbidity, and phosphorus levels, which should be performed consistently across water bodies on a regular basis. Most of the work for testing is done by volunteers, but phosphorus samples need to be tested at a laboratory for a fee. See Appendix B for a list of recommended tests and how frequently they should be taken.

There are two additional types of inspections that should be conducted. The first is checking our water bodies for aquatic invasive species (AIS) on an annual basis. The second is Courtesy Boat Inspections (CBI) - the inspection of boats, motors, trailers and fishing gear at public boat launches for invasive species to prevent their introduction in the first place. Courtesy Boat Inspections (CBI) are an ongoing cost for lake associations since they are typically conducted by trained and paid inspectors.

Goals

1. To test water quality consistently across all Casco lakes and ponds in order to identify and mitigate those issues that arise from degraded water quality.
2. To eliminate or mitigate the impact of aquatic invasive species.

Implementation Steps

1. Establish minimum requirements for testing water quality and checking for invasive plant species, in conjunction with local lake associations.
2. Collect, document, and analyze testing data.
3. Take action to mitigate issues found.
4. Request that lake associations track and evaluate CBI coverage at all public boat launches and report findings back to the CWQC.
5. Ensure that lake associations are familiar with available training and grant sources for testing and inspections.
6. Research testing equipment, determine what equipment each lake association has, and purchase or rent equipment that could be shared with multiple lake associations.

Ongoing Evaluation & Reporting

1. Establish procedures for collecting and managing test data
2. Determine how many lake associations provide their data.
3. Track and map the locations of aquatic invasive species.
4. Report on effectiveness of CBI programs.
5. Assess the level of collaboration between CWQC and lake associations. Make recommendations to strengthen as appropriate
6. Report testing and inspection status to relevant parties (selectboard, lake associations, etc.) on an annual basis.

4. Shoreline Condition Documentation

Objective

The objective of shoreline documentation is to create a consistent, long-term visual record of Casco's lakes and ponds. This record supports water quality protection, adherence to Maine's Shoreland Zoning regulations, and informed decision-making. Regular photographic documentation enables the Town, the Planning Board, the Code Enforcement Officer (CEO), and lake associations to monitor shoreline conditions, evaluate the impacts of development, and identify erosion or vegetation changes that could affect water quality.

Goals

1. Compliance – Ensure adherence to Article 9 of Casco’s Shoreland Zoning Ordinance, requiring pre- and post-construction photographs for all permitted shoreland activities.
2. Monitoring – Maintain updated visual data to track shoreline changes, vegetation health, and erosion patterns over time.
3. Planning – Provide accurate and accessible imagery to support shoreline management strategies, permitting decisions, and grant applications.
4. Public Engagement – Encourage collaboration with lake associations and volunteers to build community stewardship and shared responsibility for water resource protection.

Implementation Steps

Permit-Required Photos: Update photo submission requirements for all shoreland zone permit application checklists. Pre-construction photographs must be submitted with the application, and post-construction photographs within 20 days of project completion. This approach strengthens applicant accountability and creates a clear visual record of site conditions before and after development, supporting enforcement if needed.

Photos and Aerial Video from the Water: Partner with lake associations, community volunteers, and licensed drone pilots to collect shoreline photographs and videos from both water-based and aerial perspectives. Imagery should be updated every 3-5 years to establish a reliable baseline for detecting major shoreline changes. All imagery should be stored on a secure town server for future analysis and reference.

Watershed Surveys: When a survey is complete, all photo imagery collected should also be added to the town’s secure server providing a snapshot of the water body’s shoreline status at the time the survey was conducted. A watershed survey’s photo documentation could also fulfill the every 3-5 years imagery update recommended.

Ongoing Evaluation & Reporting

Informal Ongoing Review: It is recommended that the Casco Water Quality Committee (CWQC) conduct informal, periodic reviews of shoreline photo documentation throughout the year. These reviews can help the Committee stay aware of emerging shoreline issues, observe developing trends, and note whether permit-related photo submissions appear complete. The CWQC may request assistance or clarification from the Code Enforcement Officer (CEO) or Planning Board when enforcement or permitting concerns arise.

Five-Year Review: To maintain a long-range perspective on shoreline conditions, it is recommended that the CWQC, in collaboration with the CEO and the Planning Board, undertake a comprehensive shoreline imagery review every five years. This broader assessment can help identify long-term changes, highlight areas experiencing erosion or development pressure, and support recommendations for adjusting documentation practices, data management approaches, or enforcement strategies as needed.

Community Feedback: The CWQC is encouraged to seek ongoing input from lake associations, volunteers, and shoreline residents. Gathering community feedback can improve documentation methods, highlight priority areas of concern, and help strengthen local involvement in shoreline and water-quality protection. This engagement may also support broader participation in imaging efforts and watershed surveys.

5. Education & Outreach

Objective

The purpose of the Education and Outreach Program is to inform and engage Casco residents, visitors, seasonal renters, area businesses and all lake users about protecting the town's water bodies from invasive species, water pollution, and watershed mismanagement.

Goals

1. Build partnerships with lake associations, environmental groups, businesses, and schools
2. Raise awareness of threats to water quality and lake health
3. Promote stewardship among residents and recreational users
4. Prevent the spread of invasive species through behavior change
5. Encourage compliance with ordinances and best use practices

Implementation Steps

These steps would be implemented by volunteers working in partnership with lake associations, town officials, schools, and local businesses. All content for printed and digital materials, workshops, and signage will be gleaned from the other major sections of this Water Quality Plan.

1. Printed Materials: Fact sheets, rack cards, welcome packets available at town office, library, realtors, and rentals
2. Digital Outreach: Updates via town website and social media, Newsletters and seasonal alerts, Videos and resources (e.g., LEA's LakeSmart)
3. Workshops & Presentations (in partnership with Maine Lakes, LEA Lake Smart) hosted at town office, schools and public venues.
4. Signage & On-Site Education: Boat launch signs with cleaning protocols, "You're in the Watershed" boundary signs, Educational signage at access points and parks
5. School Partnerships: Curriculum integration with science programs, Field trips, guest speakers, hands-on activities, Summer camp or afterschool club content

Ongoing Evaluation & Reporting

1. Track reach: workshop attendance, material distribution, digital engagement
2. Gather feedback via surveys or interviews
3. Monitor participation in events and programs
4. Use water quality data to evaluate long-term progress

6. Funding & Grant Opportunities

Objective

Lake Associations carry the primary burden of maintaining the water quality of their respective water bodies. There are a number of grants available that lake associations could be using to help them fund water quality activities. As such, CWQC will support the associations in procuring funding.

All lakes in Casco will receive town funding to conduct testing, monitoring, and reporting, provided that results are shared to the Casco Water Quality Committee (CWQC) and Lake Stewards of Maine. For lakes without formal associations, volunteers affiliated with the CWQC will conduct the necessary water quality testing.

The town has been allocating approximately \$16,000 each year to support lake water quality projects. Moving forward, the water quality committee will work with lake associations to set an annual budget dedicated to water quality testing and reporting. The annual budget will be allocated to each lake association based on an objective framework.

The committee will also research outside funding opportunities to provide and encourage lake associations to apply for grant opportunities to support additional programs such as watershed studies and erosion control projects.

Goals

1. Fund lake associations in an objective fashion from the Town Budget
2. Create and maintain a list of grant opportunities relevant to water quality
3. Provide resources to lake associations for them to supplement their budgets from other sources.

Implementation Steps

1. Create objective budget framework for allocations to lake associations
2. Submit an annual budget request, and manage the allocation of funds to the lake associations
3. Maintain and annually share a list of funding sources (See: Appendix C)

Ongoing Evaluation & Reporting

1. Request water quality reports from lake associations on a yearly basis.
2. Compile list of open grants to distribute to lake associations yearly.
3. Outreach to the lake associations to inquire about grants received.

Appendix A: Stakeholders

The establishment, development, and execution of the Casco Water Quality Commission will require coordination and support of the stakeholders to our water quality. The following are the stakeholders the committee have identified:

1. Casco Residents
2. Casco property owners
3. Local businesses
4. Lake associations
5. Road associations
6. Casco Selectboard
7. Casco Planning Board
8. Casco Code Enforcement staff
9. Casco Open Space Commission
10. Cumberland County Soil and Water Conservation District
11. Maine Department of Environmental Protection

Appendix B: Water Quality Tests

1. Dissolved Oxygen and Water Temperature using a Pro—Solo Monitor.

Conducted every two weeks from May-Sept (Standard is Monthly) Use revised form DEP-142a (Rev 3/25) mailed promptly to LSM (and online but not required). Also provide this information to CWQC.

2. Secchi Disk – Measures Turbidity (water clarity)

Conducted every two weeks from May-Sept (Standard is Monthly) Use form DEP-142a (rev 3/25) mailed promptly to LSM. Take surface and core tests in an approved lab provided testing container in May or June and repeat in September. Results provided to LSM and CWQC.

3. Phosphorus Testing

Essential due to pressures for increased development and destruction of forest canopies. This should be done several times during the summer in various locations on our lakes.

Appendix C: Funding Sources

Multiple grant programs in Maine support erosion control, water quality monitoring, and stormwater management. The Maine Department of Environmental Protection (DEP) 319 Nonpoint Source Grants are a primary funding source for projects that reduce runoff pollution through erosion control and stormwater retrofits, especially in watersheds with an approved management plan. For lake watersheds, the DEP Stormwater Compensation Fund offers support for stormwater infrastructure projects aimed at offsetting the impacts of development.

The Maine Natural Resource Conservation Program (MNRCP) provides funding for streambank stabilization and wetland restoration projects to help reduce sedimentation. Water quality monitoring can also receive support through partnerships with local Soil & Water Conservation Districts. Additionally, USDA Rural Development grants and loans assist small towns with stormwater infrastructure projects that address public health and environmental protection.

Local Foundations and Trusts

Maine is home to many grant foundations and trusts that support environmental initiatives. The following local foundations and trusts have a history of supporting water quality projects in Maine:

1. The Davis Conservation Fund
2. Stephen and Tabitha King Foundation
3. Carol and David Hancock Charitable Trust
4. John Sage Foundation
5. Margaret E. Burnham Charitable Trust
6. Morton Kelly Charitable Trust
7. New England Grassroots Environmental Fund

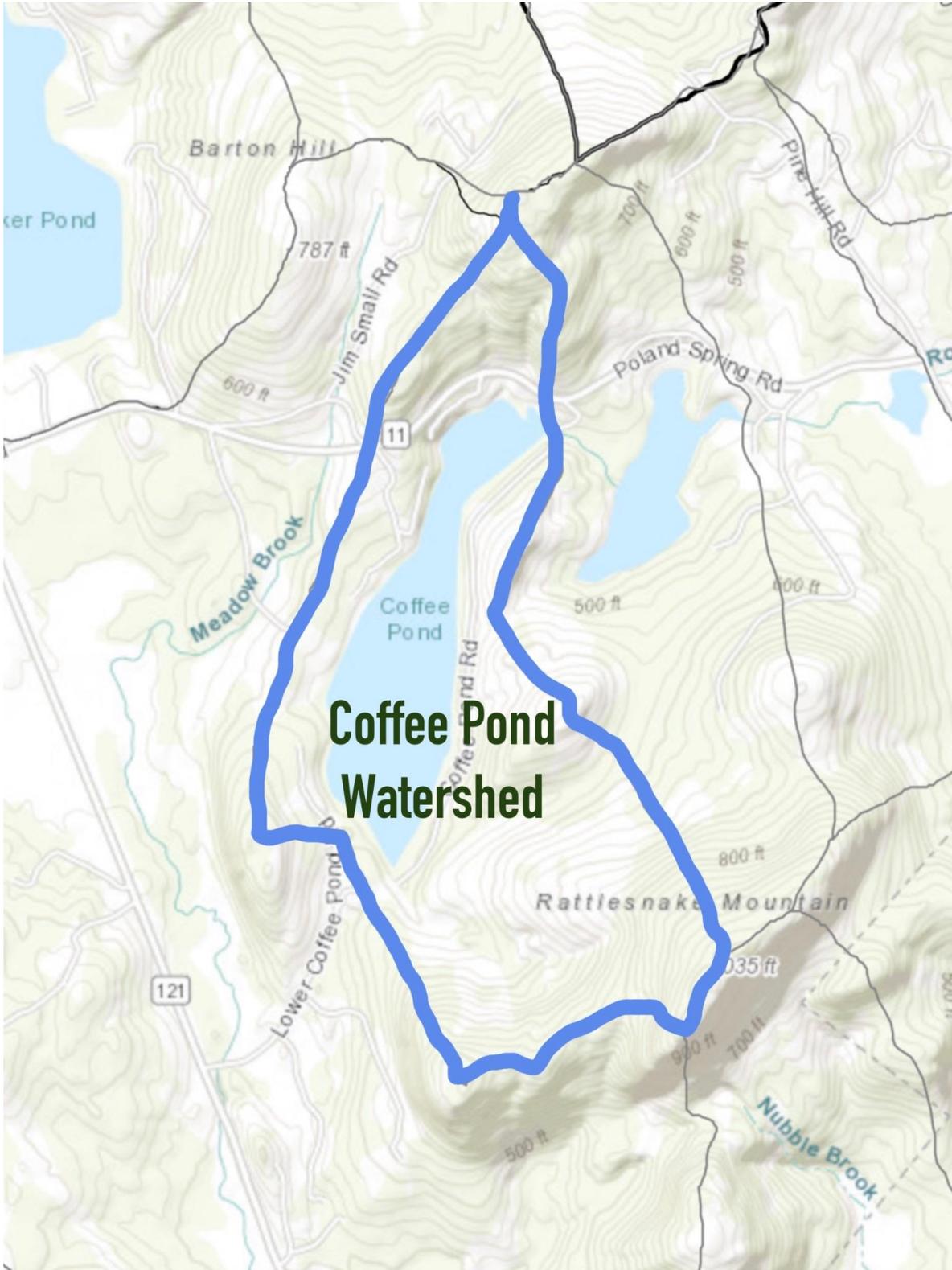
State and Federal Grant Programs

Several grant programs support erosion control, water quality monitoring, and stormwater management in Maine. The Maine Department of Environmental Protection's (DEP) 319 Nonpoint Source Grants are a primary funding source for projects that reduce runoff pollution through erosion control and stormwater retrofits, particularly in watersheds with an approved management plan. For lake watersheds, the DEP Stormwater Compensation Fund provides support for stormwater infrastructure projects designed to offset the impacts of development.

The Maine Natural Resource Conservation Program (MNRCP) offers funding for streambank stabilization and wetland restoration projects that help reduce sedimentation. Water quality monitoring efforts may be funded through partnerships with local Soil & Water Conservation Districts. Additionally, USDA Rural Development grants and loans can assist small towns with stormwater infrastructure projects connected to public health and environmental protection.

Appendix D: Casco Waterbodies and Watersheds

1. Coffee Pond & Watershed



2. Crescent Lake & Watershed



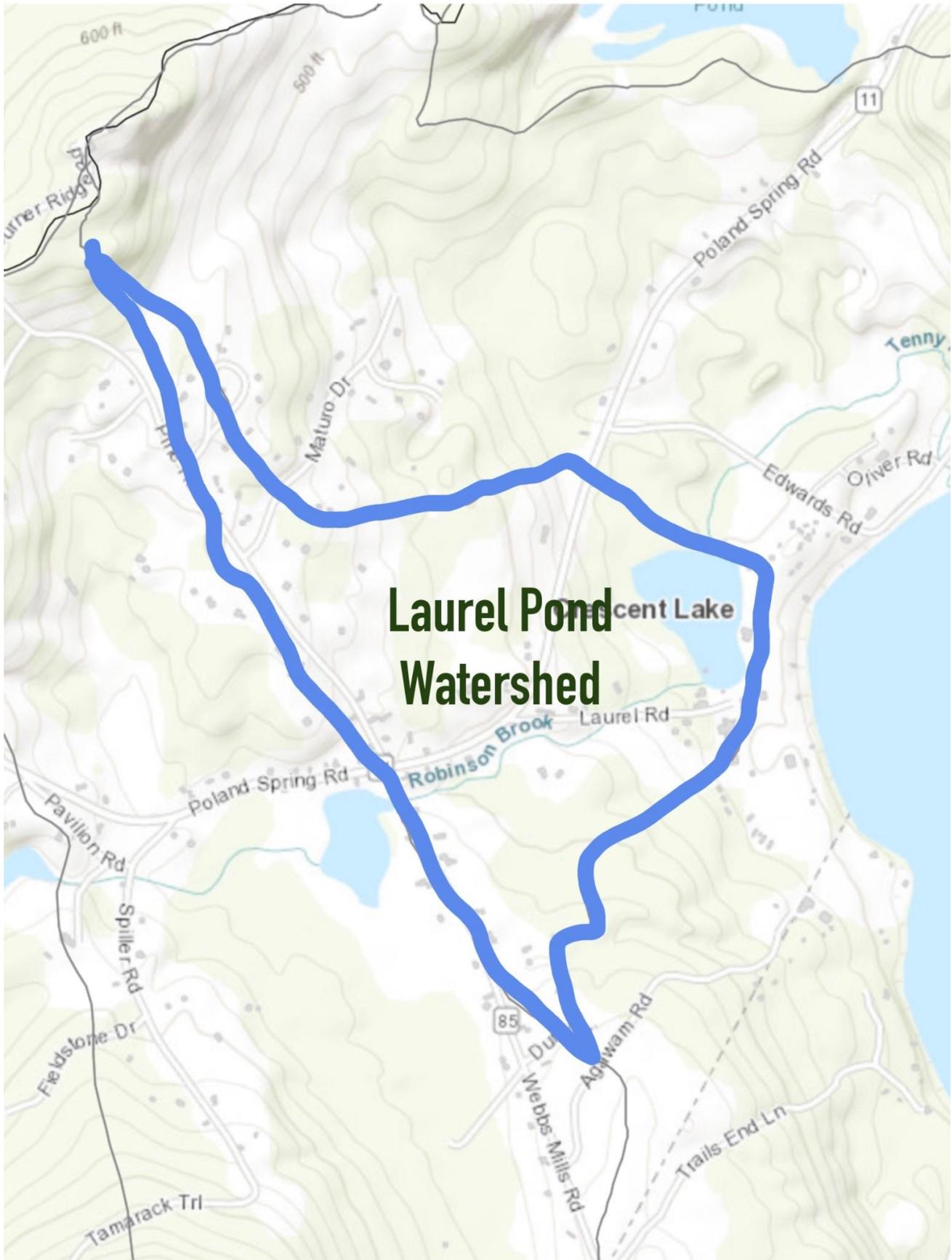
3. Dumping Pond & Watershed



4. Hog Meadow Pond & Watershed



5. Laurel Pond & Watershed



6. Mill Pond & Watershed



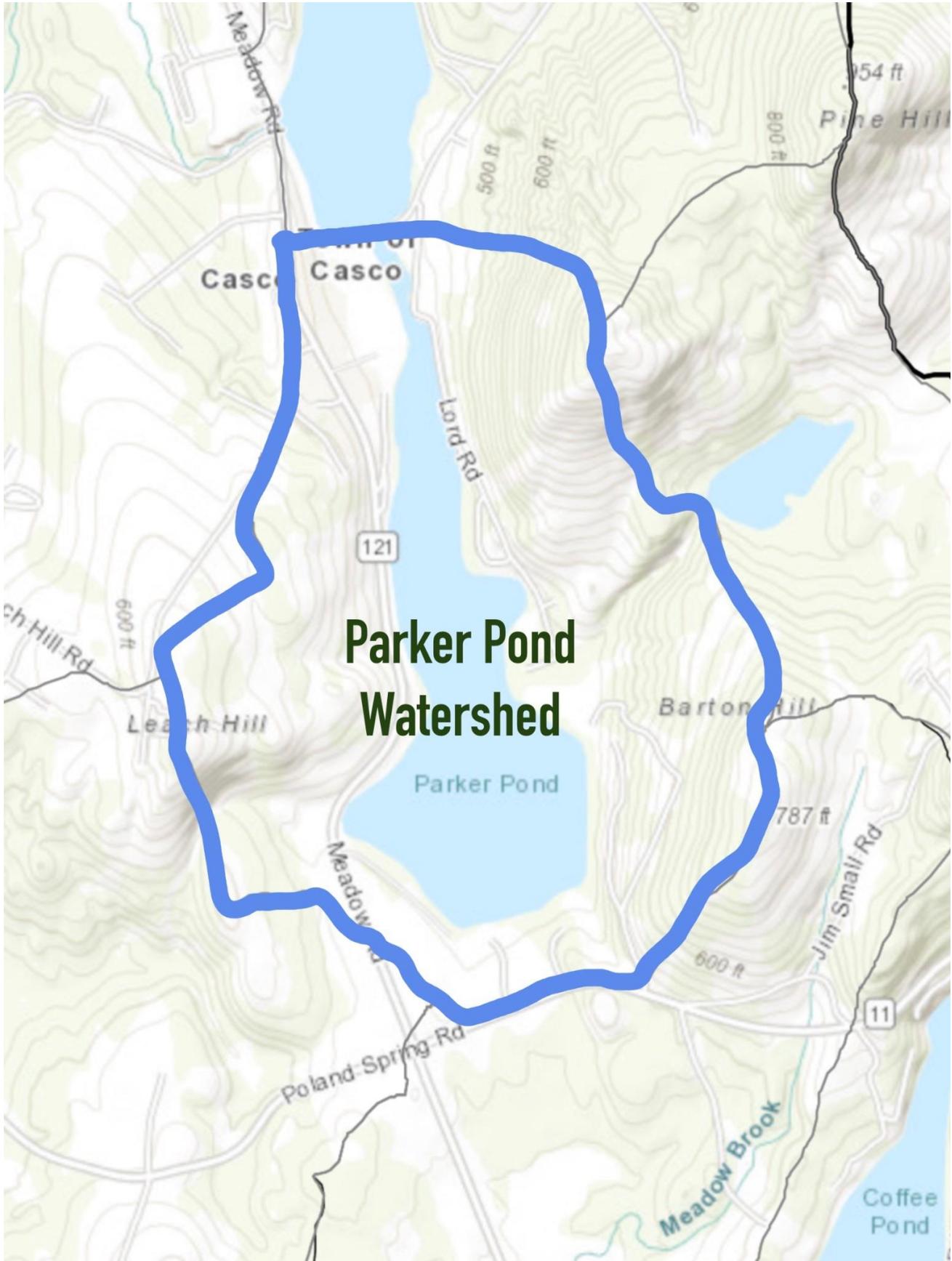
7. Owl Pond & Watershed



8. Panther Pond & Watershed



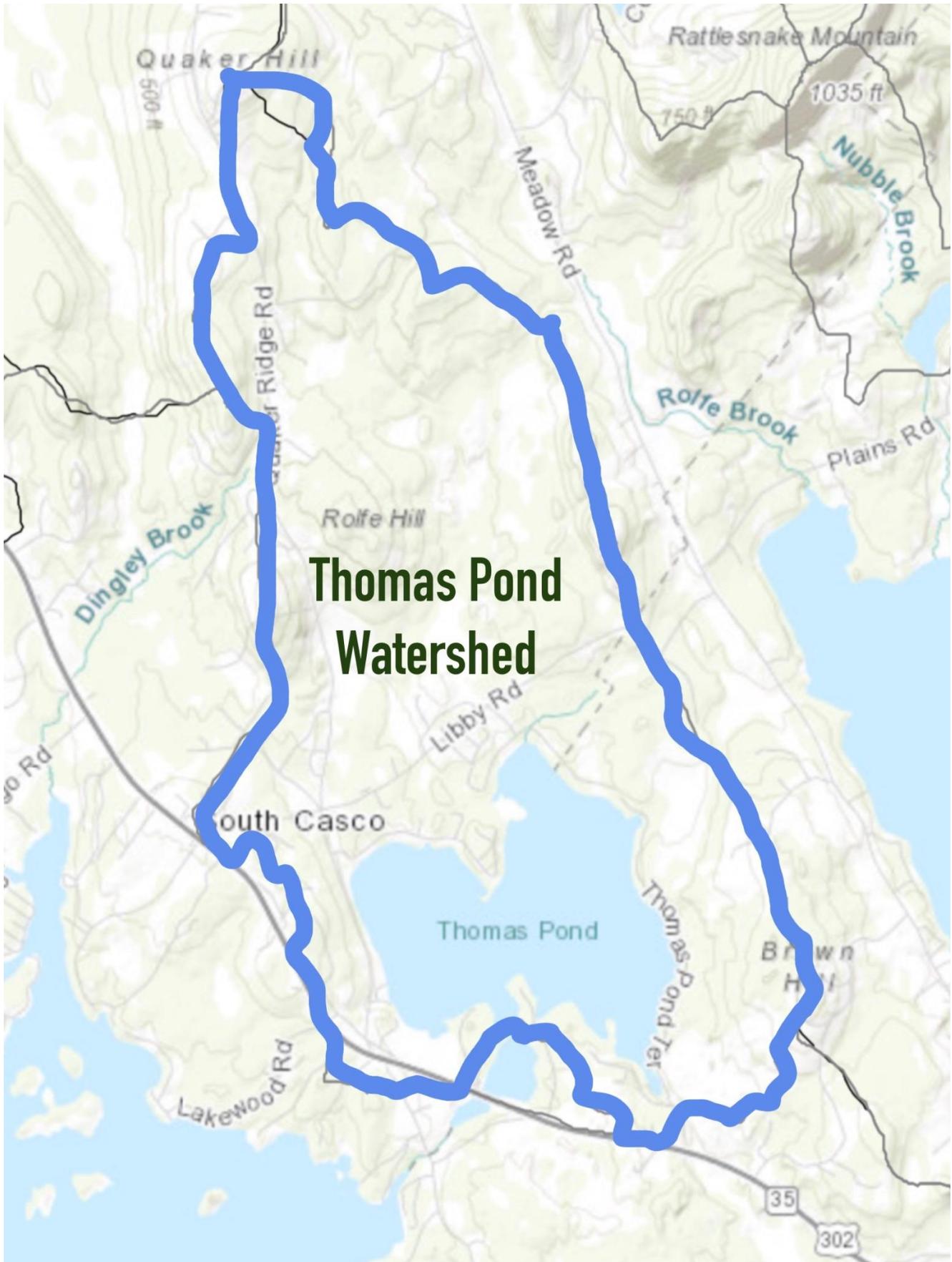
9. Parker Pond & Watershed



10. Pleasant Lake & Watershed



11. Thomas Pond & Watershed



12. Thompson Lake & Watershed

