



March 23, 2014

Town Manager's Office  
Town of Windham, Maine  
School Street  
Windham, ME 04062

To whom it may concern:

Please accept this application from the Windham Land Trust for the Town of Windham Watershed Protection Fund 2014 Grant. WLT's project is Monitoring, Preservation and Protection of Pringle Preserve and Otter Brook and Black Brook.

In the past year we have gained so much knowledge about water quality and how to test for it as well as learning how to improve it with the right types of plantings. This year we will continue our work on Otter Brook and expand it to Black Brook which is another Windham Land Trust property.

The addition of the Environmental Canine Services to this grant is vitally important to this project as it is necessary to determine if the high concentrations of e coli are from human or animal fecal material. This includes preparation time to determine an investigation strategy, a half-day in the field, the cost for some water samples taken during the day, and a report summarizing the findings. The dogs assist FB Environmental and the business is called Environmental Canine Services. They are out of Dover, NH.

This spring Windham Land Trust will continue the 2013 work as stated in our 2013 grant proposal by planting in Pringle Preserve to begin to mitigate problems with the water quality in Otter Brook. We have appreciated the support of the Town of Windham and the Windham Town Council in funding our project.

**Windham Land Trust**

P.O. Box 1622 • Windham, Maine 04062 • e-mail: [info@thewindhamlandtrust.org](mailto:info@thewindhamlandtrust.org)

*[www.TheWindhamLandTrust.org](http://www.TheWindhamLandTrust.org)*

It is our hope that you will view this application positively as improving the water quality of our brooks, streams and wetlands is an important part of improving the quality of the environment of the town and of the entire watershed.

Thank you for the opportunity to apply for this funding.

Sincerely,

  
Priscilla Payne  
Windham Land Trust Co-President

Attachments:

Grant Application

Budget Spreadsheet

Results of Water Quality Testing of Otter Brook by WLT volunteers – Data compiled by FB Environmental

Chart of Waters that Don't Meet Water Quality Standards

Town of Windham Comprehensive Master Plan Chapter 5 pages 5-1 – 5-2

Map showing Waters in Casco Bay Watershed That Do Not Meet State Standards

Maps showing Pringle Preserve and Otter Brook and Black Brook Preserve

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**TOWN OF WINDHAM  
WATERSHED PROTECTION FUND  
2014 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 March 24, 2014. All applications must be hand-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 April 22, 2014. All applicants will be notified by mail of the Council's decision. Projects that have been awarded a grant will receive the funds by May 20, 2014. 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** Windham Land Trust

**Contact Person** Priscilla Payne

**Address** 19 Quartz Circle

**City** Windham **State** ME **Zip Code** 04062

**Phone** 207-892-5787 **Fax** NA

**E-mail** pmpayne@roadrunner.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 Windham Land Trust has many volunteers who have the skills needed to manage this project. We have an established relationship with Forrest Bell of FB Environmental. We have worked with him and his colleague Whitney Baker. They have trained us to do water quality testing and have helped analyze the results of the testing.

We will also be working with Kevin Ryan at FB Environmental. He will be training two of our members in using GIS systems so that we may continue inventorying our property and creating maps with data layers to show various levels of the property. This training will be funded by a grant from the Southern Maine Conservation Collaborative of which we are a member.

We will continue working with a local nursery as well as a wetland scientist to continue plantings that will help with erosion control and improving water quality and get assistance with proper planting methods. We hope to establish a habitat for the New England Cottontail Rabbit, which is being considered for the Federal Endangered Species list. The members of the Windham Land Trust and additional volunteers will be doing all of the planting of trees and shrubs, collecting water quality samples and doing much of the research needed to move this project forward.

This project will be managed and overseen by the two co-presidents of the Windham Land Trust, Dennis Hawkes and Priscilla Payne. Both individuals have many years of administrative experience and organizational skills as well as budget preparation and oversight. We will rely on the services of FB Environmental for assistance with the technical aspects of this project.

**Project Description:**

**Project Name Monitoring, Preservation and Protection of Pringle Preserve, Otter Brook and Black Brook**

**Water Bodies Name - Otter Brook, Black Brook**

**In 500 words, or less, describe the proposed project (problem/solution). Attach maps and sketches, if appropriate.**

As noted in the 2013 grant application, Pringle Preserve is one of the Windham Land Trust properties. It is located at the corner of River Road and Windham Center Road; Otter Brook runs through the property. During 2013 WLT volunteers tested the water quality of Otter Brook multiple times. Last year's grant allowed WLT to use the services of FB Environmental to produce water quality reports and educate WLT volunteers about water quality. Results show that Otter Brook is definitely an impaired stream and has very high concentrations of e coli as well as poor readings for dissolved oxygen, which may be the most important parameter to consider relative to aquatic life.

Friends of Casco Bay lent WLT a water-quality testing meter so we took advantage of the opportunity to test the water quality in Black Brook as well as Otter Brook. (See attached charts) WLT is adding water quality monitoring of Black Brook to this year's grant application because of concerns about the proximity of a towing company and auto repair shop that is very close to the start of Black Brook. In addition, beavers have created dams in Black Brook that have changed the flow of the stream and created problems in the wetland areas. WLT will be correcting these issues.

In the coming year WLT volunteers will continue with the weekly water quality testing as soon as the ice is out of both brooks. WLT will continue with plantings to designed to improve the water quality in Otter Brook. With funds from this grant, WLT will hire the services of Environmental Canine Services to assist with the identification of the source of e coli in Otter Brook. These dogs are trained to differentiate between human and animal fecal material. This would help us to isolate the causes of the high readings of e coli contamination. Using the services of Katahdin Labs in Scarborough, WLT has tested five different Otter Brook water samples for e coli. In order to have a good profile of the level of e coli in Otter Brook, WLT must do at least five more tests in different weather conditions and in several different locations. WLT will also continue its relationship with FB Environmental for further training and analysis of the water quality testing.

**Project Benefits:**

**In 500 words, or less, describe the project benefits. Who and/or what will directly benefit from the project and how will it benefit the citizens of Windham? What are the consequences of not completing the project?**

When the water quality of an impaired stream becomes cleaner, everyone benefits. One of the reasons for this project is to improve the quality of the water in both Otter Brook and Black Brook as they both enter directly into the Presumpscot River and it will ultimately benefit the Presumpscot Watershed. Every small brook or stream that gets cleaned is a benefit to the entire Watershed.

Since Otter Brook empties into the Presumpscot above Dundee Park, the residents of Windham who use this popular recreational area will benefit from cleaner water.

While taking care of the brook the overall health of the Pringle Preserve will continue to improve. The Preserve is used by many local residents for bird watching and nighttime celestial activities, such as meteor showers in the summer and fall.

WLT intends to place some plantings to in the Preserve to not only make the Preserve a more attractive area but to provide a home for Monarch Butterflies and other wildlife. It already attracts a wide variety of birds. The plantings will also provide shelter for wildlife that inhabit the area.

With the addition of Black Brook to this project WLT can have an even larger impact on helping to preserve the water quality of the Presumpscot Watershed. We will not only test the waters in Black Brook but we will try to determine what damage the beaver invasion has done to the flow of the brook and the wetlands surrounding it. The water will be tested at the start of the brook to create a baseline so we can make sure that the water quality is not being harmed by the nearby towing and auto repair business and new housing in the area. There has also been a concern of pollution in South Windham where Black Brook enters the Presumpscot, so some testing will be done in that area.

We see this as a project that has wide ranging benefits for the watershed, aquatic animals and other wildlife as well as residents of the area.

We began this project because of a concern about the water quality in Otter Brook and the impact it has on the larger watershed. Without continued monitoring the water quality could continue to deteriorate.



**Project Schedule and Cost:**

**Planned Duration:** Start Date: 6/01/2014 End Date: 6/30/2015

**Total Cost of the Project** \$7,605.00

**Amount Requested from the Windham Watershed Protection Fund** \$3,155.00

**Matching Funds:** Cash: \$700.00 Services: \$3,750.00

**Who will provide the matching funds/services?**

Matching in kind services will be provided by members of the Windham Land Trust as well as other volunteers. We estimate a total of 250 hours to complete the project at a cost \$15.00 per hour.

\$700.00 will be contributed from the annual budget of the Windham Land Trust.

**Will there be any other sources of funding?**

This amount of money should be enough to complete the initial stage of the project. We will be applying for additional grants to help us implement and sustain the project into the future.

**Please attach a project budget spreadsheet including all income and expenses including material, equipment, labor, and indirect costs (e.g., insurance).**

## Resource Sharing:

**In 500 words, or less, describe if equipment, knowledge, or other resources that would be acquired in association with this project can be shared with other non-profit groups in Windham. Will there be partnerships formed as a result of this project? List all the groups that could potentially benefit from this project.**

The members of the Windham Land Trust have already gained knowledge in how to assess water quality of a valuable resource such as Otter Brook and to make changes that will improve that water quality through research and consultation with a variety of environmental scientists.

We will be more than happy to share our knowledge and experience with other groups in Windham as well as residents who may border this or other small bodies of water, as water quality in all of our brooks and streams is important to the quality of life here in Windham. We have been a part of the Presumpscot Watershed Land Conservation Coalition. That group has completed their work and we have the final report to share as well as a copy that is at the Windham Public Library. We have also had contact with the Presumpscot River Watch Group that has monitored many brooks and streams in the watershed and in the Town of Windham as well as Otter Brook.

([http://www.maine.gov/dep/water/monitoring/rivers\\_and\\_streams/vrmp/reports/2011/presump\\_report.pdf](http://www.maine.gov/dep/water/monitoring/rivers_and_streams/vrmp/reports/2011/presump_report.pdf)) (Map of present monitoring site attached)

As a result of the 2013 project we have established a relationship with the Friends of Casco Bay which facilitated their loan to us of the water testing meter.

One of the major beneficiaries will be the Town of Windham and its departments such as Parks and Recreation.

We have joined the Southern Maine Conservation Collaborative, which is a group of Land trusts that have organized together, and we have had access to webinars and seminars that have greatly enhanced our knowledge. We have received services from this group that have resulted in WLT becoming a better organization.

We continue to explore a partnership with the Presumpscot Regional Land Trust located in Gorham. They own properties in Windham, so that makes for a natural partnership for sharing of information and possibly grant writing and equipment as well as the Arc GIS software.

One of the most important partnerships that we envision is partnering with the owners of the adjacent horse farm. Together we might develop ways to mitigate any runoff from the farm into the brook. Eventually we would hope to work with other landowners along the brook to continue to improve the water quality of the entire brook.

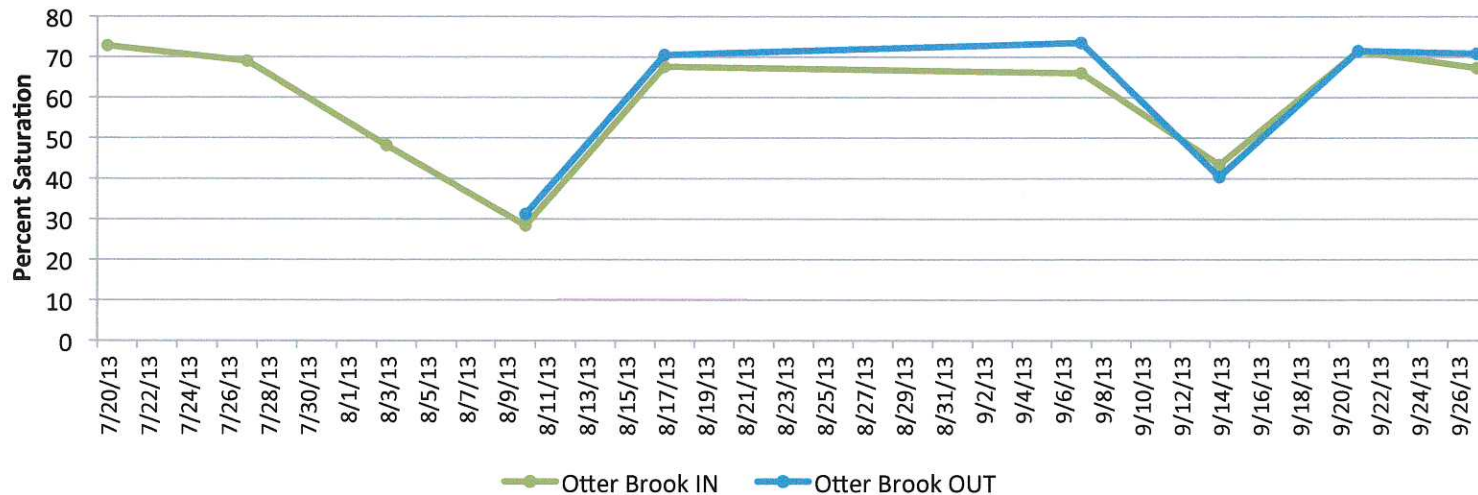
As the project moves forward we anticipate that other partnerships will develop that are not identifiable at the present time.



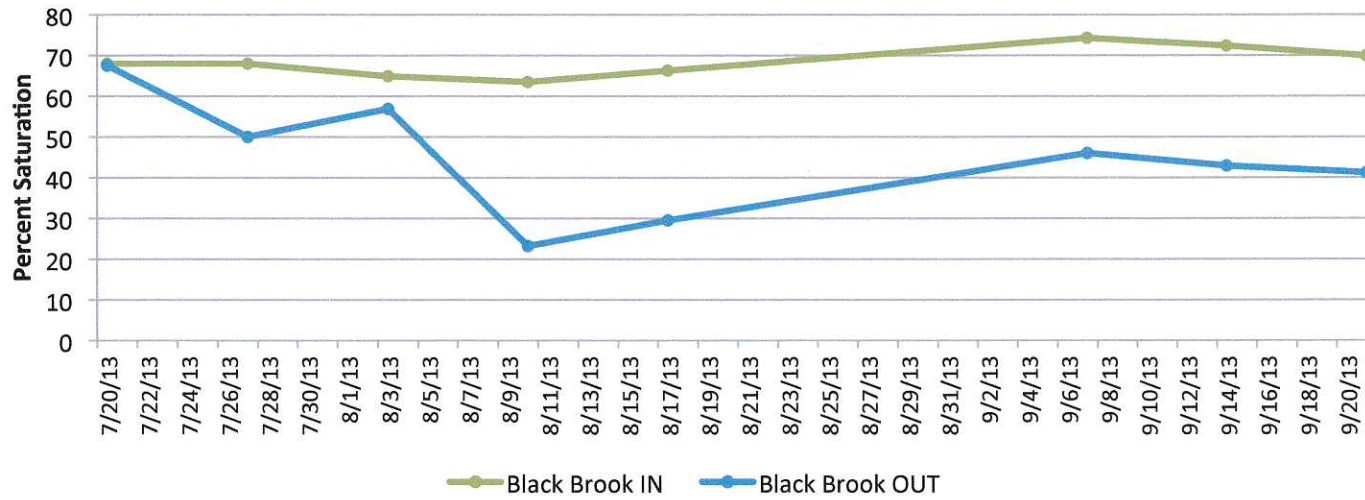


Water Quality Summary					
Otter Brook & Black Brook					
Site ID	Avg. Temp (C)	Avg D.O. (mg/L)	Avg. D.O. (%)	Avg. Sp. Cond. (mS/cm)	E. coli (colonies/100mL)
<b>Otter Brook IN</b>	14.9	6.0	59.3	218.7	<b>2419.6</b>
<b>Otter Brook OUT</b>	14.2	6.2	59.7	209.3	--
<b>Black Brook IN</b>	15.1	6.9	68.4	88.2	--
<b>Black Brook OUT</b>	15.7	4.4	44.7	193.8	--
ME Standard	--	7.0	75.0	--	236

**Dissolved Oxygen (% saturation) in Otter Brook**  
 July 20 - September 27, 2013  
 Windham Land Trust - Pringle Preserve



**Dissolved Oxygen (% saturation) in Black Brook**  
*July 20 - September 27, 2013*  
**Windham Land Trust - Black Brook Preserve**





## Waters That Don't Meet Water Quality Standards

(Maine Department of Environmental Protection is required to develop an Improvement Plan for these waters.)

Location	Impaired Use	Causes	Potential Source(s)
Mile Brook (Casco)	Aquatic life	Aquatic life criteria	Aquaculture Point Source
Royal River below Collyer Brook	Drinking water	Ambient Water Quality Criteria	Hazardous waste
Chandler River incl. East Branch	Aquatic life	Dissolved oxygen	NPS (nonpoint source) (unspecified)
Cole Brook (Gray)	Aquatic life	Aquatic life criteria	Agricultural NPS
Black Brook (Windham)	Aquatic life	Dissolved oxygen	General Development NPS
Colley Wright Brook (Windham)	Aquatic life, Recreation	Dissolved oxygen, Bacteria	General Development NPS
Hobbs Brook (Cumberland)	Aquatic life, Recreation	Dissolved oxygen, Bacteria	General Development NPS
Inkhorn Brook (Westbrook)	Aquatic life, Recreation	Dissolved oxygen, Bacteria	General Development NPS
Mosher Brook (Gorham)	Aquatic life, Recreation	Dissolved oxygen,	General Development NPS
Otter Brook (Windham)	Aquatic life, Recreation	Dissolved oxygen, Bacteria	General Development NPS
Thayer Brook (Gray)	Aquatic life	Dissolved oxygen	Agricultural NPS
Nasons Brook (Portland)	Aquatic life	Aquatic life criteria	Urban NPS
Norton Brook (Falmouth)	Aquatic life	Aquatic life criteria	General Development NPS
Capisic Brook (Portland)	Aquatic life	Aquatic life criteria	Urban NPS, Habitat, CSO
Clark Brook (Westbrook)	Aquatic life	Dissolved oxygen	General Development NPS, Habitat
Long Creek (South Portland)	Aquatic life	Aquatic life criteria	Urban NPS, Habitat
Stroudwater River (S. Portland, Westbrook)	Aquatic life	Dissolved oxygen	General Development NPS
Trout Brook (South Portland)	Aquatic life	Aquatic life criteria	Urban NPS
Kimball Brook (South Portland)	Aquatic life	Aquatic life criteria	Urban NPS
Red Brook (Scarborough, S. Portland)	Aquatic life, Fish consumption	Aquatic life criteria, PCBs	Urban NPS, Waste disposal
Fall Brook (Portland)	Aquatic life	Aquatic life criteria	Urban NPS, Habitat
Barberry Creek (South Portland)	Aquatic life	Aquatic life criteria	Urban NPS
Frost Gully Brook (Freeport)	Aquatic life	Dissolved oxygen, Bacteria	Urban NPS
Mare Brook (Brunswick)	Aquatic life	Aquatic life criteria	Indus (military) NPS, Urban NPS
Concord Gully (Freeport)	Aquatic life	Aquatic life criteria	Urban NPS
Highland Lake (Bridgton)	Aquatic life	Dissolved oxygen	General development NPS
Long Lake (Naples)	Aquatic life	Dissolved oxygen	General development NPS
Fore River Estuary	Aquatic life	Toxics, Elevated Fecals	Municipal point source, NPS, Historic sources
Royal & Cousins River Estuaries	Aquatic life	Dissolved oxygen, Elevated Fecals	Municipal point source, Nonpoint source, Sediment Oxygen Demand

# Chapter 5 Natural Resources

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## 1. Introduction

This chapter of the comprehensive plan examines the natural environment within Windham. Natural environment is a broad term which encompasses a variety of features including the town's topography, soils, wetlands, water resources, and fish and wildlife habitat. These resources are part of a natural system that provides the underlying environment on which all man-made development within the town occurs. Proper management of this system is therefore important for maintaining its ability to function effectively, as well as to support the quality of life that Windham's residents have come to appreciate.

The town's 1993 comprehensive plan presented a brief inventory of natural resources as well as an assessment of their existing conditions and potential threats. The plan also provided extensive policy guidance and implementation strategies for protecting and preserving these resources. These policies and implementation strategies are presented in the Appendix of this plan along with an assessment of what has been accomplished over the past decade. This comprehensive plan expands upon the previous natural resource inventory based on updated information that has been compiled by a variety of state and federal agencies as well the use of a geographical information system (GIS), which allowed for more detailed mapping to support the review process.

## 2. Major Findings and Conclusions

- Water resources represent a shared regional asset. It has become increasingly important for Windham to work with its neighboring communities to insure that land use activities do not have adverse impacts within watersheds that cross municipal boundaries.
  
- Windham lies partially within the Sebago Lake watershed which encompasses one of the

state's largest public drinking water supplies which is also the source of the town's public water system. There are many potential threats to the water quality of the lake that are posed by the commercial and industrial uses located in the North Windham area that will need to be continually monitored in order to protect this drinking water supply.

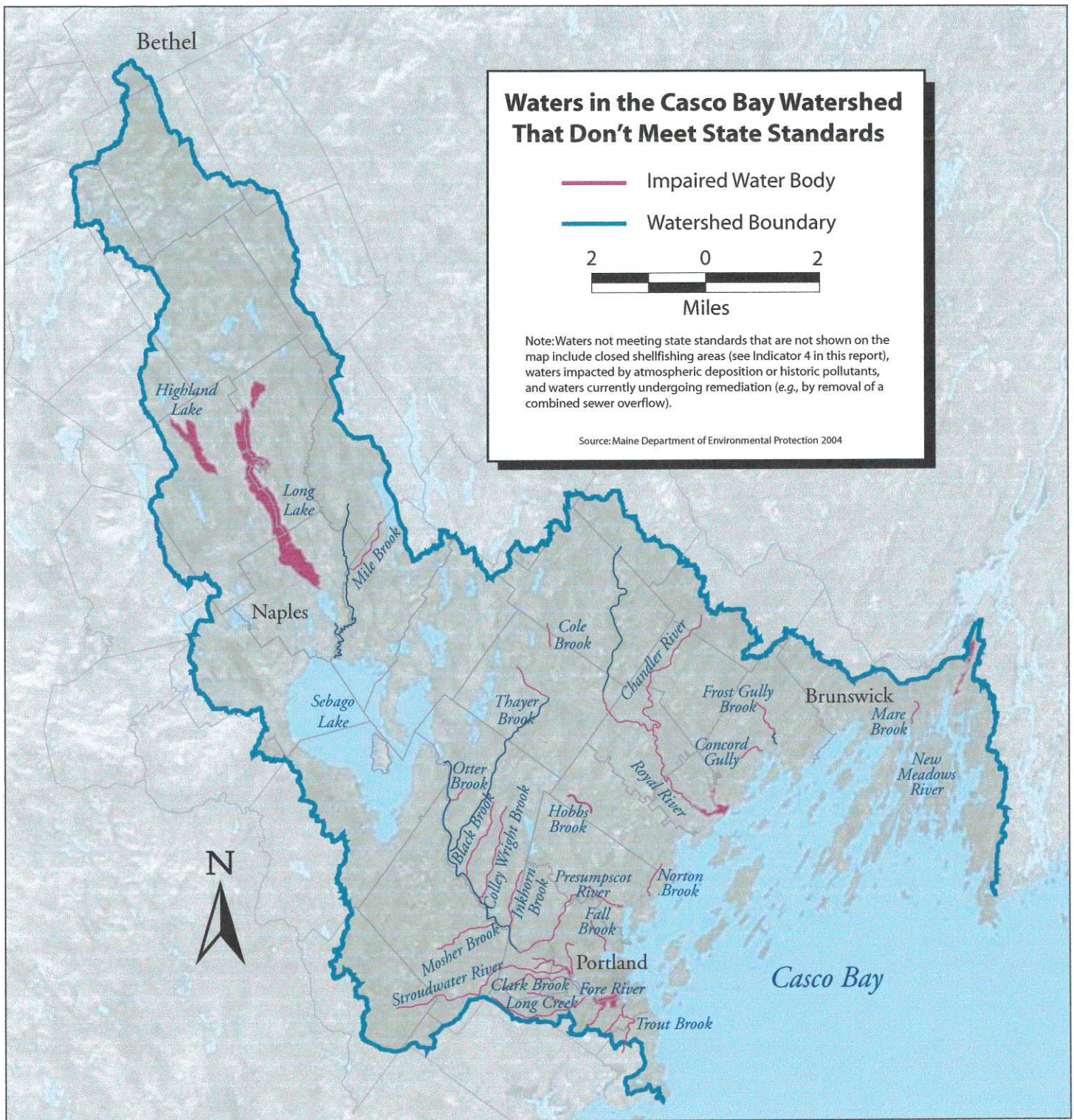
- Overall, the quality of Windham's surface waters is very good. However, there will be a need for greater caution and monitoring in more heavily developed watersheds, such as in the North Windham area, to prevent a degradation of water quality in the future.
- Updated mapping of Windham's high yield groundwater aquifers by the Maine Geological Service has determined that the size of these aquifers is considerably larger in area than previously estimated. The town will need to re-evaluate existing zoning regulations for these areas based on this new information.
- There are only a few large tracts of land in Windham that remain unfragmented by roads and other development.

### 3. Topography

Topography is defined by the change in elevation of the land's surface above sea level and is reflected in the hills and valleys across the town's landscape. Windham's topography is illustrated on Map 5-1 entitled Elevation and Slope. The map illustrates only major changes in elevation in Windham which are depicted by contour lines showing 100 foot changes in elevation. The map also highlights the slope of the terrain throughout the town. Slope is an indication of the steepness of the land's surface, such as on a hillside, which is based on the change in elevation versus the change in horizontal distance (also referred to as rise over run and represented as a percent change on the map). The slope information is derived from county-wide soils mapping, prepared by the U.S.D.A. Soil Conservation Service, which assigns an average slope to each soil type. This generalized slope information is useful for town-wide planning purposes since it identifies areas that may be less suitable for various types of development due to the steepness of the terrain. Slopes in excess of 15% can place limitations on septic system installation and operation, add cost to the construction of buildings and roads, increase surface runoff, and can result in erosion from poorly managed construction sites.

Elevation changes in Windham have a general northeast to southwest trend. This characteristic is evident in the pockets of steeper slopes that create small ravines which flank the rivers and streams draining towards the Presumpscot River. The lowest elevations in town, which drop below 100 feet, are found along the Presumpscot River corridor near the southern tip of the town. The highest elevations, ranging from 500 to 600 feet, occur on Mount Hunger, to the west of Little Sebago Lake, and Atherton Hill, which is southwest of Forest Lake. Mount Hunger and Atherton Hill represent the edges of a wide drainage area that creates a "funnel" through which water from Little Sebago





While water quality in Casco Bay watershed is good overall, some lakes, rivers and streams, particularly in urbanized areas, have impaired water quality.

## References

- Maine DEP. 2004. *Integrated Water Quality Monitoring and Assessment Report* ("305b"). (<http://www.maine.gov/dep/blwq/docmonitoring/305b/index.htm#2004>) (June 1, 2005)
- Presumpscot River Management Plan Steering Committee. 2003. *A Plan for the Future of the Presumpscot River* (<http://www.cascobay.usm.maine.edu/Presumpscot.html>) (June 1, 2005)





From: Priscilla Payne <ppayne@roadrunner.com>  
Subject: Fwd: Maps  
Date: March 23, 2014 5:49:26 PM EDT



1 Attachment, 157 KB

### Black Brook Preserve

