

AGENDA
TOWN COUNCIL WORKSHOP
WEDNESDAY, MARCH 7, 2018
STORMWATER MS4 PERMIT EDUCATION/
WATERSHED PLAN UPDATE
6:00 P.M. - COUNCIL CHAMBERS

Item 1. Call to Order.

Item 2. Those Present.

Item 3. Review of MS4 Permit on stormwater.

Item 4. Adjournment.



Scarborough Marsh

Credit: Bob Travis via flickr

What is stormwater runoff?

Stormwater runoff is precipitation (rain or melted snow) that flows over land. Stormwater can pick up pollutants as it runs off the land into lakes, streams, rivers, and the ocean; this is called polluted runoff.

Storm drains collect runoff and convey it without treatment directly into water bodies. Polluted runoff affects drinking water, human health, wildlife, and property values.

What are common stormwater pollutants?



Soil, sand, and sediments cloud the water and smother wildlife habitat.

Chemicals (fertilizer, weed & bug killers, vehicle fluids, coal tar pavement sealers, etc.), are carried with runoff and can be toxic to wildlife.

Pet waste contains bacteria that can wash into swimming areas and create health hazards, and may contribute to beach closures.

Salt, which is spread on roads, sidewalks, and parking lots to melt snow and ice, dissolves in water or snowmelt. Once salt gets into our water it cannot be removed. Salt in our waterways can be toxic to wildlife.

Debris, like cigarette butts and other forms of litter, is unsightly and can harm wildlife.



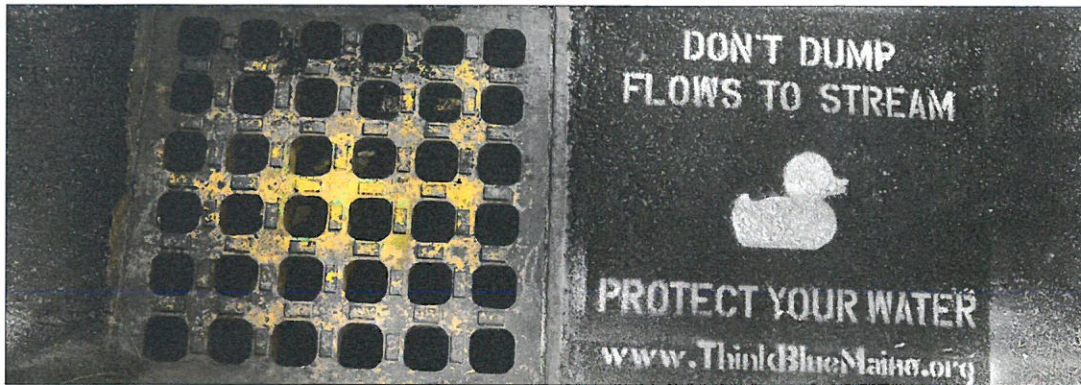
What is an MS4?

MUNICIPAL SEPARATE STORM SEWER SYSTEM, or MS4, means a stormwater conveyance that is separated from sanitary sewer systems. The storm sewer system includes roads, curbs and gutters, ditches, storm drains, outfalls, and pipes connecting these features.

Your municipality has a **CLEAN WATER ACT PERMIT** that is administered by the Maine Department of Environmental Protection (DEP) that allows you to discharge runoff into water bodies if measures are taken to minimize pollution from your storm sewer system and municipal facilities and operations. This permit is referred to as the Maine Pollution Detection and Elimination System (MPDES) MS4 Permit.

*Under the Federal
CLEAN WATER ACT,
some municipalities must
have a permit that allows
them to direct stormwater
to water bodies in their
communities, provided that
specific steps are taken to
minimize pollution.*

**IMPLEMENTATION OF
THESE STEPS IS
MANDATORY**
*if you are a regulated
municipality.*



Who is regulated, and what does it mean for Scarborough?

Municipalities, transportation agencies, public universities, prisons, military bases, and other state and federal facilities are subject to MPDES regulation.

Regulated municipalities are determined by population density and proximity to population density, based on US Census Bureau data. The regulated municipalities in Greater Portland and Saco areas are shown on the map to the right.

As a regulated community, you are subject to:

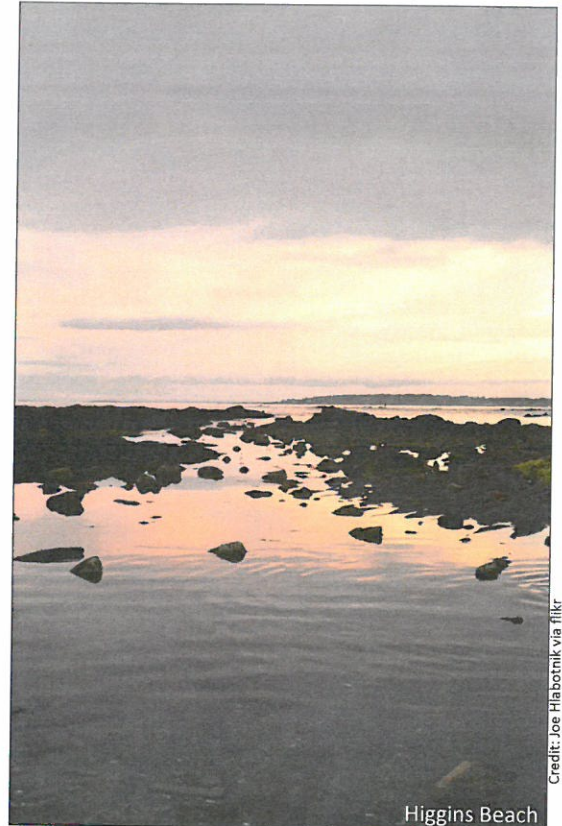
- Full compliance with permit requirements, including six minimum steps outlined in the permit (see opposite page).
- Higher costs (operational, permitting, capital improvements, etc.) than non-regulated municipalities.
- Heightened scrutiny from Maine DEP, EPA, and environmental or citizen action groups.
- Identification and improvement of your priority water body. Scarborough's priority water body is Red Brook.



What are the minimum steps required in the MS4 Permit?

- 1** Educate the public and municipal staff and officials about polluted runoff and how to reduce pollution.
- 2** Provide the public an opportunity to participate in Scarborough's stormwater program.
- 3** Identify and eliminate illegal sewer connections, dumping into storm drains, and other sources of pollution. Carry out long-term maintenance and mapping of all stormwater infrastructure.
- 4** Ensure that construction on both public and private property does not impact water resources.
- 5** Implement new development and redevelopment stormwater ordinances, and encourage developers to utilize techniques to reduce the impact of development on water resources.
- 6** Prevent pollution from municipal operations and facilities.
Educate municipal staff about practices to reduce polluted runoff.

In addition to these minimum steps, Scarborough is also required to protect and restore polluted water bodies within your municipality.



Higgins Beach

Credit: Joe Hlabotnik via Flickr

INTERDEPARTMENTAL COORDINATION IS ESSENTIAL FOR SUCCESS.

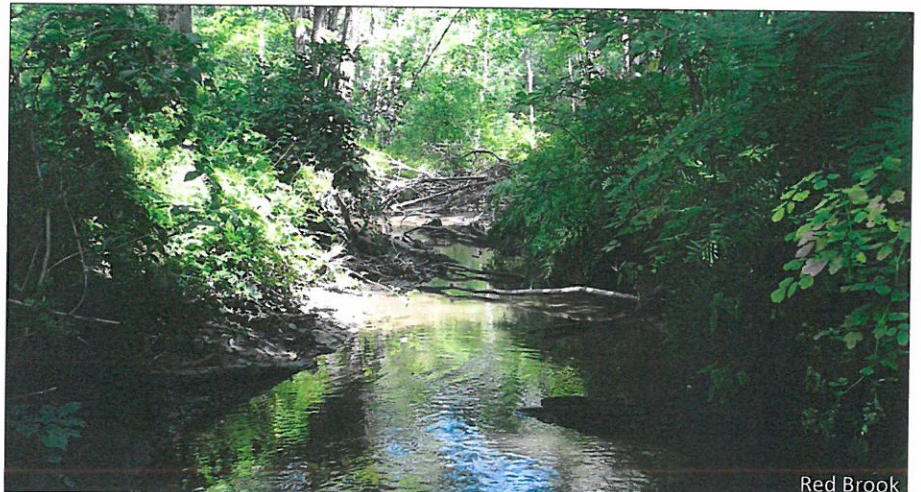
A municipality-wide effort is needed to meet the requirements of the Clean Water Act permit.

To meet these requirements, Scarborough must adopt increased stormwater standards applicable to:

- New development, redevelopment, and construction;
- Long-term maintenance and inspection of stormwater infrastructure;
- Preventing pollution from all municipal operations and facilities;
- Improving polluted water bodies within your municipality, with priority given to Red Brook; and
- Raising awareness of stormwater, specifically the appropriate practices that should be used, inspected, and maintained on a regular basis to reduce polluted runoff.

RED BROOK AND PHILLIPS BROOK

Red Brook, which starts near the Westbrook town line and flows to South Portland, and Phillips Brooks, which flows from the Saco town line through Dunstan corner to the marsh, are two of Scarborough's Urban Impaired Streams, and are Scarborough's priority water bodies. The Brooks are impaired, which means pollution levels make it difficult for stream life to survive. Scarborough is currently implementing a restoration plan for Red Brook and is in the process of creating one for Phillips Brook.



Red Brook

How is Scarborough meeting these Clean Water Act requirements?

The Town of Scarborough is working hard to comply with stormwater permit requirements. Responsibilities of departments within Scarborough are summarized below.

Public Works Department

Primary Points of Contact: Mike Shaw, *Director* and Stephen Buckley, *Deputy Director*

- Works with Town Engineer to implement Stormwater Management Plan.
- Ensures Stormwater Pollution Prevention Plans (SWPPP) are followed at the public works garage to prevent polluted runoff from entering water resources.
- Ensures the use of erosion and sedimentation control (ESC) measures during all construction and maintenance activities.
- Ensures staff are trained in procedures for minimizing pollution, including: chemical storage, spill prevention and clean up, and erosion control.
- Inspects and maintains all municipal stormwater infrastructure.
- Identifies possible pollution sources within the community and works to eliminate these sources with Scarborough's Town Engineer and Code Enforcement Officer.
- Oversee up-to-date inspection and mapping of all municipal stormwater infrastructure.
- Ensures all publically-owned streets and parking areas are swept routinely.

Engineering, Planning, and Code Enforcement

Primary Point of Contact: Angela Blanchette, *Town Engineer*

- Reviews site and subdivision plan proposals for erosion and sedimentation control practices to ensure:
 - Construction projects include stormwater control measures (SCMs) to avoid polluting water resources; and
 - Post-construction SCMs are incorporated into development designs to keep untreated runoff from entering into Scarborough's stormwater infrastructure.
- Encourages developers to use Low Impact Development, to minimize environmental impacts from development.
- Through technical review and permitting follow-up, ensures stormwater systems designed to collect and treat stormwater (on public and private property) are maintained and functioning
- Coordinates implementation of Scarborough's Stormwater Management Plan through coordination with all municipal departments and serves as the stormwater program point of contact (POC) with DEP.
- References Scarborough's non-stormwater ordinance when needed.
- Requires a Third-Party Inspector be included on large projects to ensure proper SCMs are used.

Code Enforcement Point of Contact: Brian Longstaff, *Zoning Administrator*

- Inspects small-scale (e.g. single family homes) construction projects (on both public and private property) to ensure proper erosion and sedimentation controls are being used and pollutants are not entering the storm drain system.
- Identifies possible pollution sources within the community and notifies the primary POC as needed.

Parks & Recreation

Primary Point of Contact: Todd Souza, *Director of Community Services*

- Follows operation and maintenance plan for their facility to ensure activities do not pollute water resources.
- Ensures staff are trained in procedures for minimizing pollution, including: chemical storage and spill prevention and clean up.
- Identifies possible pollution sources within the community and notifies the primary POC as needed.

Public Safety

Primary Points of Contact: Michael Thurlow, *Fire Chief* and Robbie Moulton, *Police Chief*

- Follows operation and maintenance plans for their facilities to ensure activities do not pollute water resources.
- Ensures staff are trained in procedures for minimizing pollution, including: chemical storage and spill prevention and clean up.
- Identifies possible pollution sources within the community and notifies the primary POC as needed.

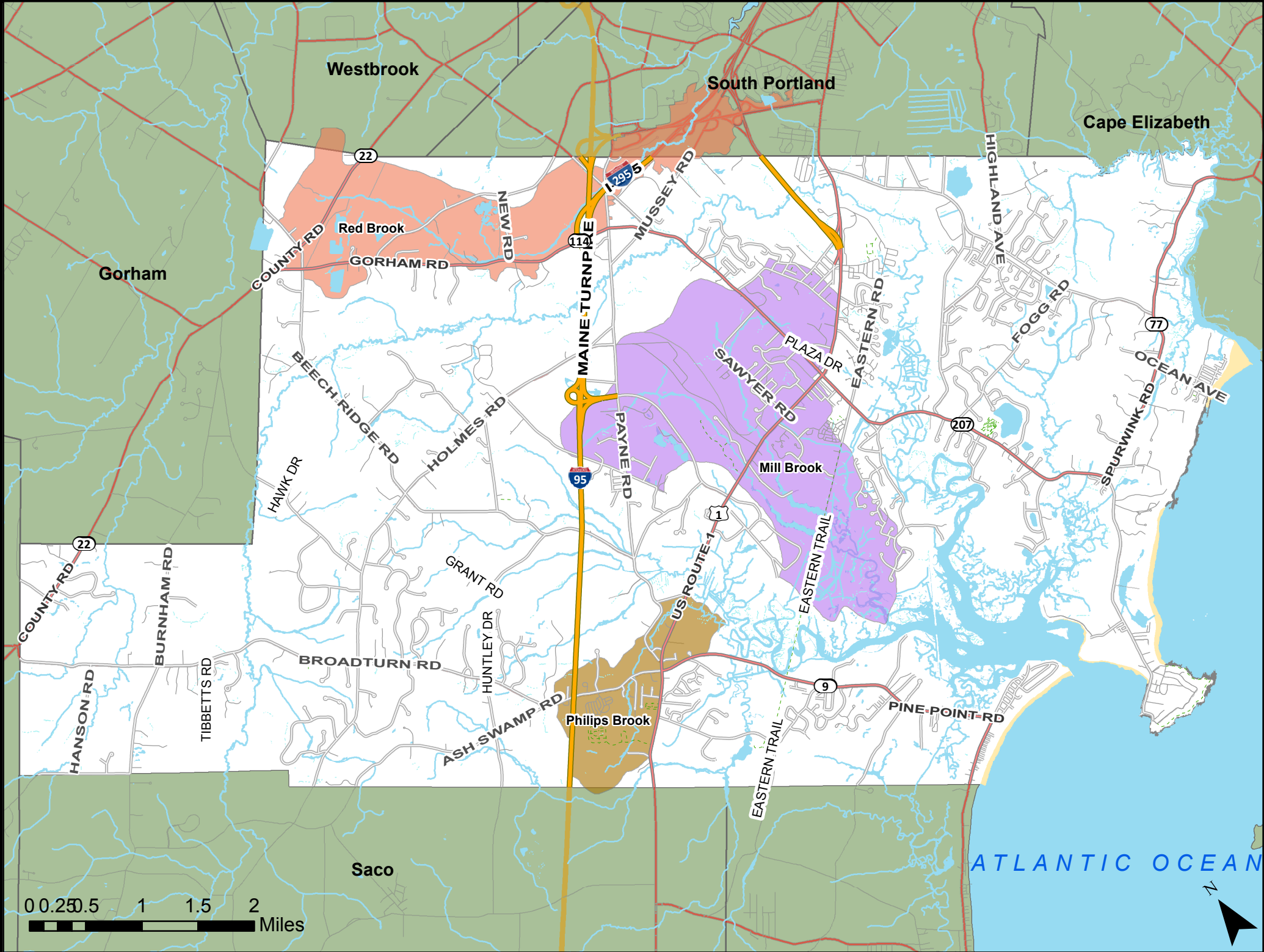
School Department

Primary Points of Contact: Todd Jepson, *Facilities Manager*

- Follows operation and maintenance plans for their facilities to ensure activities do not pollute water resources.
- Ensures staff are trained in procedures for minimizing pollution, including: chemical storage and spill prevention and clean up.
- Identifies possible pollution sources within the community and notifies the primary POC as needed.

The Interlocal Stormwater Working Group (ISWG)

is comprised of 14 MS4 communities in the Greater Portland and Saco Bay areas (see map on Page 2). ISWG is coordinated by the Cumberland County Soil & Water Conservation District and works cooperatively to meet the permit's education requirements (steps 1 & 2) for all 14 municipalities collectively.



Westbrook

South Portland

Cape Elizabeth

Gorham

Red Brook

GORHAM RD

NEW RD

MAINE TURNPIKE

PAYNE RD

MUSSEY RD

SAWYER RD

PLAZA DR

EASTERN RD

HIGHLAND AVE

FOGG RD

OCEAN AVE

(77)

SPURWINK RD

(207)

Mill Brook

EASTERN TRAIL

BEECH RIDGE RD

HOLMES RD

HAWK DR

GRANT RD

HUNTLEY DR

BROADTURN RD

ASH SWAMP RD

Phillips Brook

US ROUTE-1

(9)

PINE-POINT RD

Saco

ATLANTIC OCEAN

0 0.25 0.5 1 1.5 2 Miles



PHILLIPS BROOK WATERSHED

MANAGEMENT PLAN



Executive Summary

Watershed Location

The Phillips Brook Watershed (Figure 1) covers 838 acres (1.3 square miles) in the Dunstan Corner area of Scarborough, Maine. A small portion of the upper watershed is within the neighboring community of Saco. The upper watershed is primarily forested land with some residential development. The lower watershed is primarily dominated by commercial development with more heavily traveled roads. The open water of Phillips Brook itself runs 2.77 miles from headwater wetlands through a residential area, across Broadturn Road and Payne Road, and then behind

A WATERSHED is the land area that drains to a lake, river, stream, or other body of water.

the commercial development along US Route 1 in Dunstan Corner before entering Scarborough Marsh northeast of Pine Point Road.

The Dunstan area is a designated growth area in Town. The Dunstan Revitalization Strategy was developed in 2006 and was updated in 2014. The vision for the Dunstan area is to build upon the traditional 19th century down-town experience with clustered and attached housing and a variety of amenities, including commercial development, trail connectivity, and farmland preservation. In 2008, the area was re-zoned to allow mixed-use development and build-out analysis, based on available land area and redevelopment, estimates up to 400 new households and 150,000 square feet of additional commercial development.

Stream Water Quality & Habitat

Phillips Brook does not currently meet its designated Class C water quality standards for aquatic habitat use and dissolved oxygen and has been listed on the 303(d) list of impaired waters. In developing this watershed-based management plan, the causes for these impairments were investigated.

Reviewing all available information for the Phillips

Brook Watershed, technical staff were able to identify one principal issue affecting watershed health: altered hydrology resulting in severe bank erosion and excessive sedimentation within the stream channel creating unsuitable habitat and further reducing already depleted dissolved oxygen.

Excessive sediment transport associated with flow alterations can be the result of decreased groundwater infiltration and increased amounts of and faster moving stormwater from existing and increasing impervious cover within the watershed. Undersized and misaligned culverts contribute to stream channel instability and alteration of flow. Where roads cross the stream channel, culverts restrict and alter the stream flow. These altered flows have resulted in severe bank erosion and the transportation of sediment from unstable banks to areas downstream. This is problematic for both habitat and water quality as the sediment aggraded downstream coats the natural stream bottom, directly damaging habitat and reducing dissolved oxygen by creating a smooth stream channel with little aeration.

Reestablishing stability and a natural flow regime in the Phillips Brook Watershed will help improve dissolved oxygen levels. However, it is critical to protect the system from further reductions in available dissolved oxygen in the future. Excess nutrients in a stream system can result in an overgrowth of algae, which would severely deplete available dissolved oxygen. A likely potential for increased nutrients in Phillips Brook would be improper fertilizer use and disposal of yard waste.

Impervious cover consists of any hardened surface such as roads, parking lots, driveways, sidewalks, and buildings which prevents rain water or snow melt from soaking into the ground, often causing it to discharge at higher rates into a nearby stream channel. Water quality and aquatic habitat can begin to show signs of stress when impervious cover in a watershed reaches 8-10% because of increased amounts of polluted stormwater runoff or snow melt related to increasing development. The current impervious cover for Phillips Brook is 9%. In 2005, the Maine Department of Environmental Protection (DEP) completed a Total Maximum Daily Load (TMDL) that used impervious

cover as a surrogate of a suite of pollutants commonly found in urban stormwater runoff (Appendix I).

Heightened conductivity readings suggest that road salt in the watershed should be carefully monitored in the freshwater portion of the watershed and cautiously used to limit potential future effects on water quality. Increased chloride levels in freshwater streams, indicated by conductivity readings, can be the result of winter maintenance activities within the watershed. Road salt application results in chloride compounds running off into the water, which can be toxic to freshwater stream organisms. When chloride gets into the ground water supply it is especially damaging to stream health. In drier months, streams are primarily fed by ground water. If ground water is chloride loaded, it results in a higher concentration of the toxin in the water column since there is little dilution effect from rainwater.

Management Plan Goals

The overall purpose of this locally-supported, watershed-based plan is to identify specific actions needed to improve Phillips Brook's water quality and aquatic habitat to attain Class C standards. The specific actions identified herein address three goals identified by Phillips Brook Watershed stakeholders through the Phillips Brook Watershed Management Plan (WMP) development process:

- **Goal #1 - Restore water quality and stream habitat** to help ensure Phillips Brook meets its Class C state water quality standards
- **Goal #2 - Protect water quality and stream habitat** from potential degradation associated with future land use activities within the watershed
- **Goal #3 - Build and sustain community support** for the protection and restoration of the land and water resources of the Phillips Brook Watershed

Restoration and Protection Actions

This WMP outlines specific steps needed to achieve plan goals by reducing impacts and threats to water quality within the Phillips Brook Watershed. The ten-year plan (2019-2029) consists of five

phases and includes plans for 17 structural solutions and six non-structural solutions. The structural solutions consist of stream crossing, in-stream restoration, and structural retrofit sites and are estimated to cost a total of \$1.7 million. The non-structural solutions consist of education and outreach programs and policy, ordinance, and development standard reviews and have a total estimated cost of \$15K.

The WMP, including the Restoration Strategy and Timeline (Section 8) and the Action Plan Table and Timeline (Appendix X) describe the actions in detail, which address these primary areas of focus:

- **Stream Crossing Sites** – Habitat and water quality degradation associated with improperly sized and/or placed roadway culverts will be addressed by pursuing culvert upgrade projects throughout the watershed. As funding and other project parameters allow, culverts will strive to meet standards, such as aquatic organism passage standards, that go above and beyond current requirements.
- **Stream Habitat Restoration** – Restoration efforts will be completed at stream bank erosion sites as detailed in the WMP Action Plan. These sites should be addressed concurrently with associated stream crossing improvement projects wherever possible, to ensure that in-stream work is protected from future damage at undersized or improperly sized culverts.
- **Stormwater Treatment and Impervious Cover Reduction** – Through non-structural solutions focusing on municipal ordinance language and design standards, the impact of impervious cover will be reduced. The effect of existing impervious can be minimized by requiring upgrades to stormwater management systems with redevelopment. The potential effects of new development can be minimized by holding stormwater planning and management to a higher, more protective standard than current practices.
- **Nutrient Reduction** – Redevelopment and new development will be encouraged to employ stormwater management practices such as vegetated filter strips and bioretention systems which directly address nutrient (i.e.,



phosphorus) inputs. Education and outreach efforts will help address residential nutrient sources.

- **Chloride Reduction** – Efforts to reduce chlorides will target municipal, state, commercial, and residential salt storage and application, and will include winter maintenance best management practice (BMP) training. The potential for groundwater contamination will be reduced by limiting the use of infiltration BMPs in areas with higher salt use.
- **Citizen Outreach** – A comprehensive education and outreach plan will be implemented throughout the watershed. YardScaping workshops and Snow Pro workshops will be held. Stream crossing or watershed improvement project signs will be considered to highlight sensitive areas and/or high-visibility projects.

and adapt to meet needs that are subsequently better defined or newly discovered. An adaptive management approach is widely recommended for restoring urban watersheds (CWP, 2003) and is critical to ensuring plans stay current and relevant. The adaptive management approach recognizes that the entire watershed cannot be restored with a single restoration action or within a short-time frame. As new data, information and/or technology become available, this approach establishes a mechanism for restoration efforts that can be adjusted to meet the current needs of the watershed over time.

ADAPTIVE MANAGEMENT
incorporates new data, information, or technology into the Plan.

The Phillips Brook Workgroup, which is expected to include members of the steering, technical advisory, and outreach committees, will oversee plan implementation and will continue to engage the local community to ensure adaptive management strategies are employed.

Adaptive Management Strategies

Adaptive management is the process by which new information informs current practice; plans shift

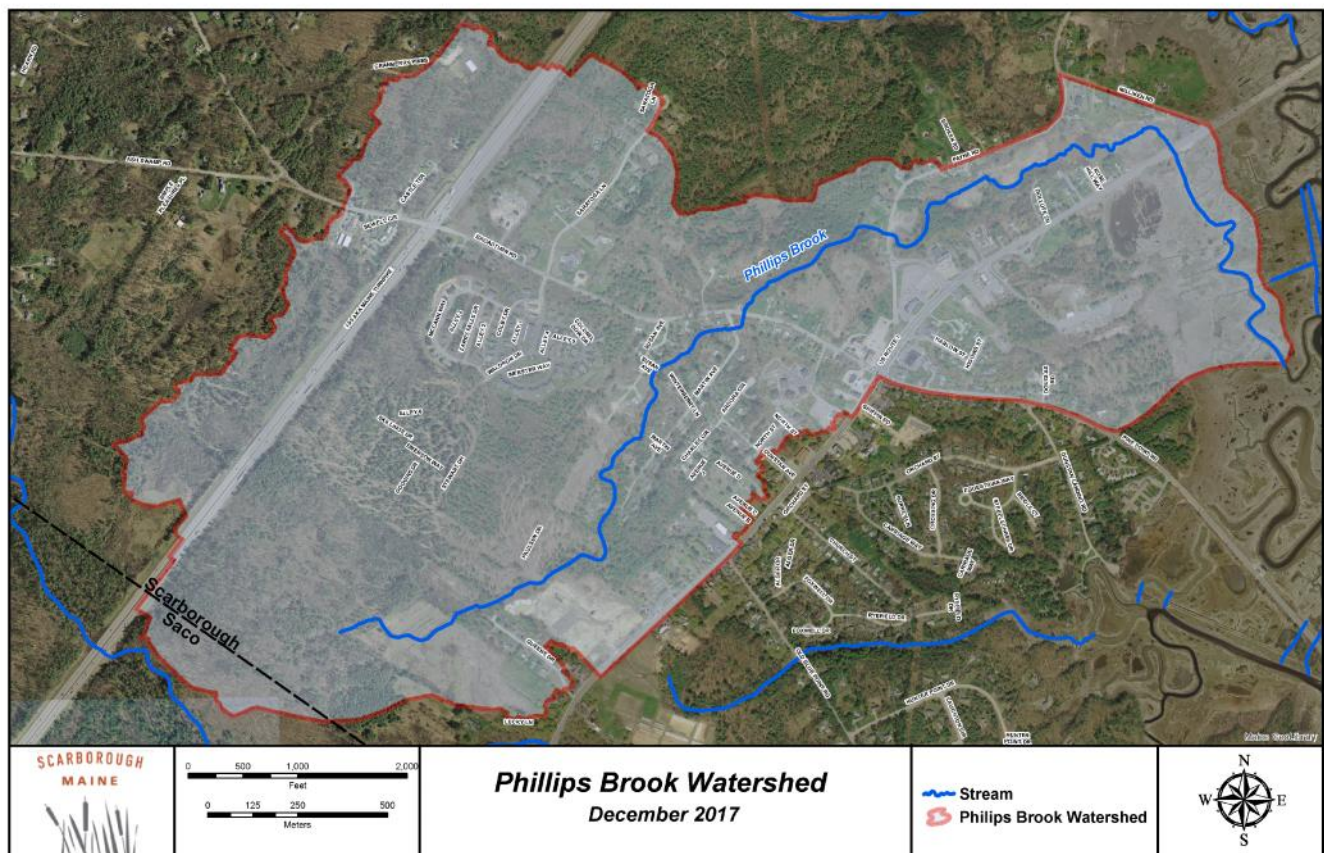
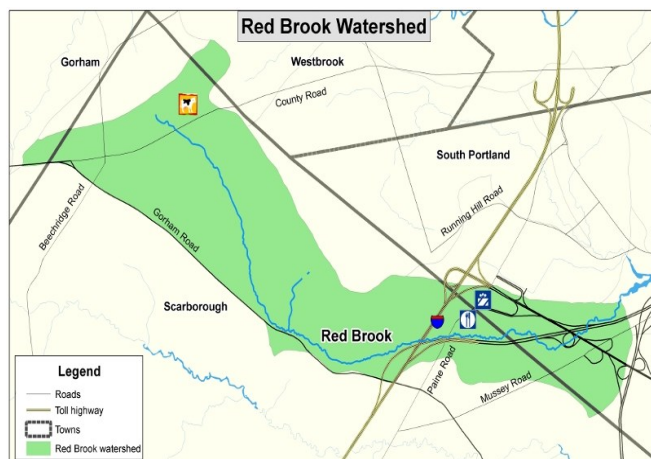


Figure 1. Phillips Brook Watershed

Red Brook Watershed

- The watershed, or the area of land that drains to Red Brook, is a complex mix of land uses that includes residential, industrial, retail, and forested land.
- Stormwater that falls in developed areas will pick up more pollutants than forested and undeveloped areas.
- The upper watershed is more rural and residential with stable stream habitat due to the lack of development.
- The lower watershed is highly developed. Sections of the stream here are unstable and showing signs of stress due to alterations to the stream channel and flood-plain from development and construction of highway crossings over the stream.



What Are Common Stormwater Pollutants?



Chemicals (fertilizer, weed & bug killers, vehicle fluids, coal tar pavement sealers, etc.) are carried with runoff and can be toxic to plants and animals in the watershed.

Pet waste contains bacteria that can wash into swimming areas and create health hazards.

Salt which is spread on roads, sidewalks, and parking lots to melt snow and ice, dissolves in water or snowmelt. Once salt gets into our ground water it cannot be removed. Salt in our waterways can be toxic to wildlife.

Debris like cigarette butts and other forms of litter, is not only unsightly but can clog stormwater drains.

Protecting Red Brook

ENHANCING LOCAL WATERWAYS THROUGH STORMWATER MANAGEMENT



Red Brook, a stream that flows through Scarborough and South Portland, is a priority water body. Red Brook is impaired, which means pollution levels make it difficult for stream life to survive. The Town of Scarborough, in collaboration with the Cumberland County Soil & Water Conservation District, developed a watershed management plan to restore Red Brook.

Maintaining and Improving Water Quality

Through cooperative partnerships, public support, and strategic planning, the Town of Scarborough is positively impacting Red Brook.

Goal 1: Improve the water quality of Red Brook to meet Maine water quality standards.

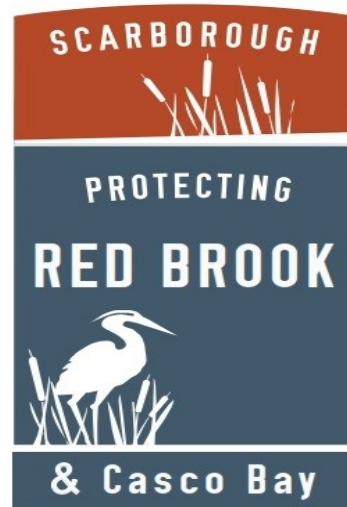
Goal 2: Protect water quality and aquatic wildlife habitat from degradation so Red Brook continues to meet State water quality standards.

Goal 3: Build community support for the protection and enhancement of the land and water resources of the Red Brook Watershed.



It's All Connected

The water quality of Red Brook is also important to the health of Clark's Pond, the Fore River and ultimately, the Casco Bay Estuary. Looks for these signs in the Red Brook watershed.



Scan the QR Code or visit www.scarboroughmaine.org/departments/planning-codes/planning/stormwater-management for more information about Town stormwater initiatives.



How Property Owners Can Help

Reduce or Eliminate Fertilizer and Pesticide Applications

Better mowing and landscaping practices can reduce and eliminate the need for fertilizing. Choose slow release organic fertilizer or top dressing with compost or worm castings if you do fertilize your lawn.

Pick Up After Your Pet

Pet waste contains bacteria that can enter well water and contaminate swimming areas.

Let It Soak

Use rain barrels, rain gardens and smart landscape design to maximize the amount of time stormwater has to soak into the ground.

Watch Out For Storm Drains

Do not dump anything into drains. Storm drains in Scarborough lead directly to nearby water bodies.

