



## TMDL Assessment Summary

# Unnamed Tributary to the Androscoggin River (near Topsham Fairgrounds)

### Watershed Description

This **TMDL** assessment summary applies to the 1.77-mile Unnamed Tributary to the Androscoggin River (near Topsham Fairgrounds), located in the Town of Topsham, Maine. The watershed boundary is located near the intersection of Routes 196 and 201 to the west, and Old Farm Road and Thomas Avenue to the east. The impaired stream begins near Brown Street in the southwestern corner of the watershed. The stream then crosses Route 201, and flows southeast through a wooded area before flowing just north of the Topsham Fairgrounds and crossing the Eastern Maine Railroad. The Unnamed Tributary to the Androscoggin River (near Topsham Fairgrounds) then flows south and empties into the Androscoggin River near Pinewood Drive. The watershed covers 576 acres in the Town of Topsham, Maine.

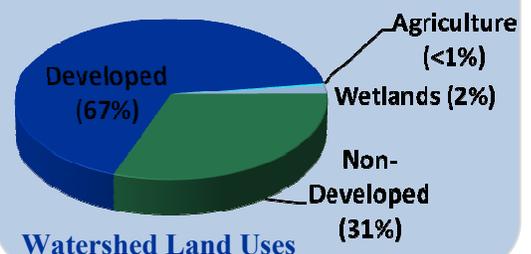
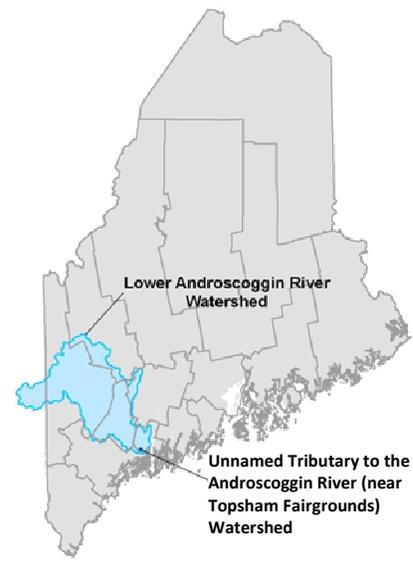
- Stormwater runoff from **impervious cover (IC)** is likely the largest source of pollution to this impaired stream. Stormwater falling on IC in developed areas flows quickly off impervious surfaces, carrying pollutants, and sending high volumes of flow to the nearest section of the stream.
- The watershed is predominately developed (67%), and is characterized by low intensity development.
- Woodland areas absorb and filter some stormwater pollutants and help protect both water quality in the stream and stream channel stability.
- This stream is on Maine’s list of Urban Impaired Streams (DEP, 2010).

### Definitions

- **TMDL** is an acronym for **Total Maximum Daily Load**, representing the total amount of a pollutant that a water body can receive and still meet water quality standards.
- **Impervious cover** refers to landscape surfaces (e.g. roads, sidewalks, driveways, parking lots, and rooftops) that no longer absorb rain and may direct large volumes of stormwater runoff into the stream.

### Waterbody Facts

- **Segment ID:** ME0104000210\_420R04
- **City:** Topsham, ME
- **County:** Sagadahoc
- **Impaired Segment Length:** 1.77 miles
- **Classification:** Class B
- **Direct Watershed:** 0.9 mi<sup>2</sup> (576 acres)
- **Watershed Impervious Cover:** 20%
- **Major Drainage Basin:** Lower Androscoggin River Watershed



## Why is a TMDL Assessment Needed?

The Unnamed Tributary to the Androscoggin River (near Topsham Fairgrounds), a Class B freshwater stream, has been assessed by DEP as not meeting water quality standards for aquatic life use and has been listed on the 303(d) list of impaired waters. The Clean Water Act requires that all 303(d)-listed waters undergo a TMDL assessment that describes the impairments and establishes a target to guide the measures needed to restore water quality. The goal is for all waterbodies to comply with state water quality standards.

The impervious cover TMDL assessment for the Unnamed Tributary addresses the water quality impairments to aquatic life use (based on stream habitat and benthic macroinvertebrate assessments). These impairments are associated with a variety of pollutants in urban stormwater as well as erosion, habitat loss and unstable stream banks caused by excessive amounts of runoff.



*Unnamed Tributary to the Androscoggin River (near Topsham Fairgrounds) upstream of Station S-633*  
(Photo: DEP Biomonitoring Program)

## Sampling Results & Pollutant Sources

Sampling Station	Sample Date	Statutory Class	Model Results
S-633	8/23/2002	B	C
S-633	8/13/2008	B	I

DEP makes aquatic life use determinations using a statistical model that incorporates 30 variables of data collected from rivers and streams, including the richness and abundance of streambed organisms, to determine the probability of a sample meeting Class A, B, or C conditions. Biologists use the model results and supporting information to determine if samples comply with standards of the class assigned

to the stream or river (Davies and Tsomides, 2002).

This impairment is based on DEP's stream habitat assessments. DEP also collected benthic-macroinvertebrate data in 2002 and 2008 at one sampling station (S-633). The most recent data collected at this station indicate Class B Unnamed Tributary is "indeterminate" (I), meaning too few organisms were collected to meet the minimum needed to statistically determine classification.

## Impervious Cover Analysis

Increasing the percentage of impervious cover (%IC) in a watershed is linked to decreasing stream health (CWP, 2003). Because the impairment is not caused by a single pollutant, %IC is used for this TMDL to represent the mix of pollutants and other impacts associated with excessive stormwater runoff. The Unnamed Tributary to the Androscoggin River (near Topsham Fairgrounds) watershed has an impervious surface area of **20%** (Figure 1). DEP has found that in order to support Class B aquatic life use, the Unnamed Tributary watershed may require the characteristics of a watershed with **8%** impervious cover. This WLA & LA target is intended to guide the application of Best Management Practices (BMP) and Low Impact Development (LID)

*8% IC represents an approximate **60% reduction** in stormwater runoff volume and associated pollutants when compared to existing pollutant loads.*

### Impervious Cover GIS Calculations

*The Impervious Cover Calculations are based on analysis of GIS coverage's presented in Figure 1. These maps were derived from a detailed field assessment conducted by DEP Staff, as described in the TMDL.*

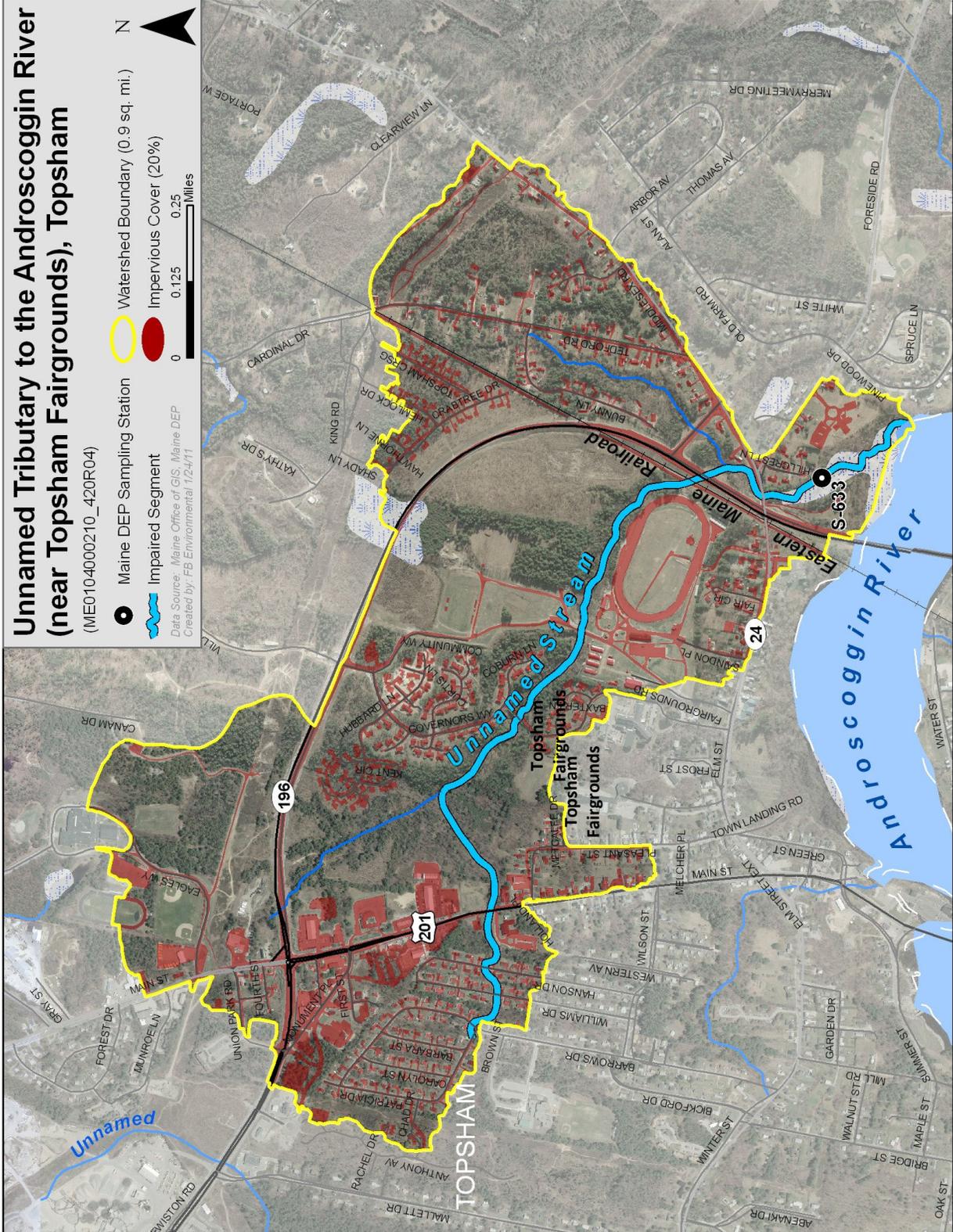
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techniques to reduce the *impact* of impervious surfaces. Ultimate success of the TMDL will be the Unnamed Tributary's compliance with Maine's water quality criteria for aquatic life.

### Next Steps

Because the Unnamed Tributary to the Androscoggin River (near Topsham Fairgrounds) is an impaired water, specific sources of stormwater runoff in the watershed should be considered during the development of a watershed management plan to:

- Encourage greater citizen involvement through the development of a watershed coalition to ensure the long term protection of the Unnamed Tributary;
- Address existing stormwater problems in the Unnamed Tributary watershed by installing structural and applying non-structural best management practices (BMPs); and
- Prevent future degradation of Unnamed Tributary through the development and/or strengthening of local stormwater control ordinances.



**Figure 1:** Map of the Unnamed Tributary to the Androscoggin River (near Topsham Fairgrounds) watershed impervious cover.

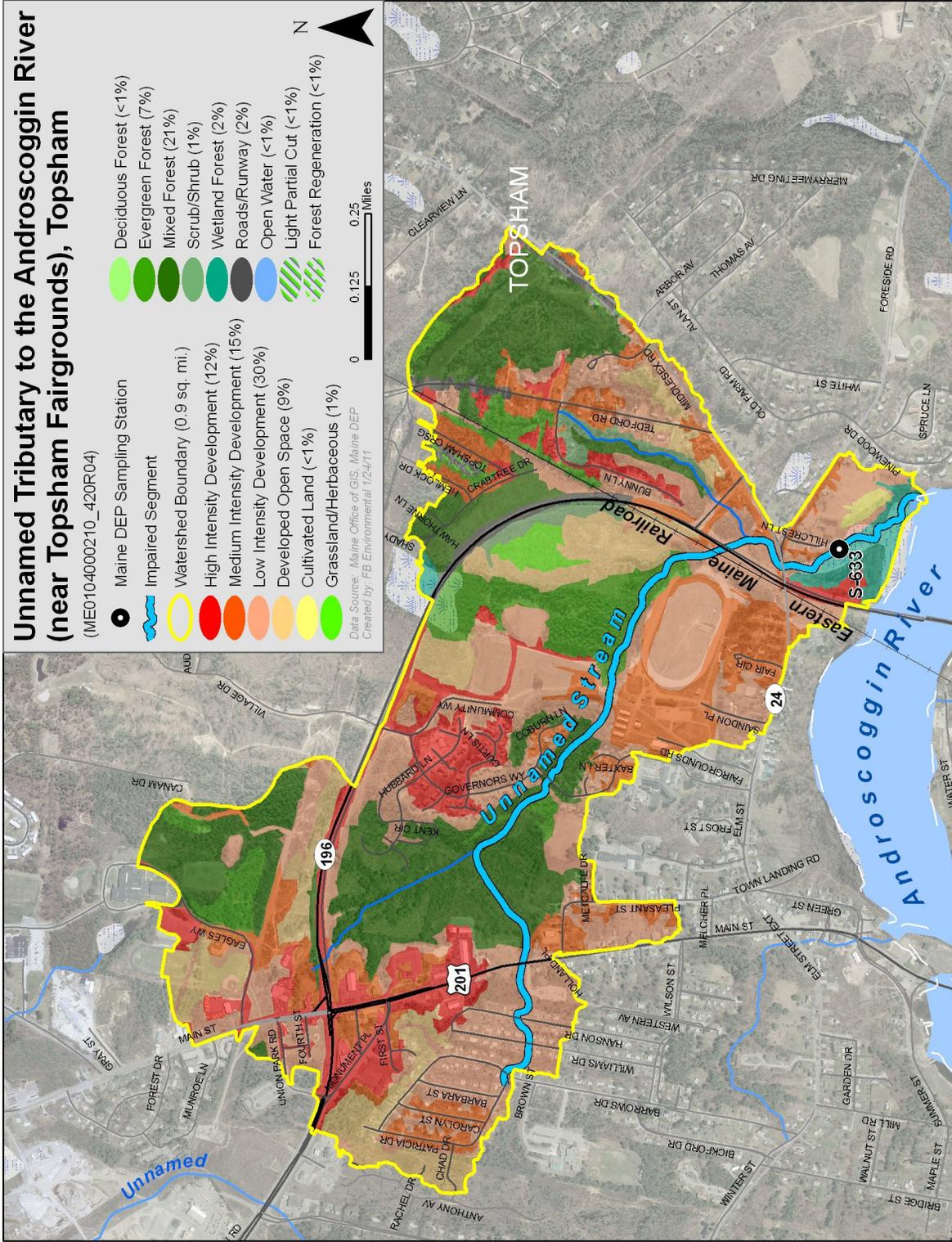


Figure 2: Map of the Unnamed Tributary to the Androscoggin River (near Topsham Fairgrounds) watershed.

### References

- Center for Watershed Protection (CWP). 2003. Impacts of Impervious Cover on Aquatic Systems. Watershed Protection Research Monograph No. 1. Center for Watershed Protection, Ellicott City, MD. 142 pp.
- Davies, Susan P. and Leonidas Tsomides. 2002. Methods for Biological Sampling and Analysis of Maine's Rivers and Streams. Maine Department of Environmental Protection. Revised August, 2002. DEP LW0387-B2002.
- Maine Department of Environmental Protection (DEP). 2010. Assessment Database Detail Report for the Unnamed Tributary to the Androscoggin River (near Topsham Fairgrounds). Bureau of Land and Water Quality, Augusta, ME.