

Concord Gully Brook Watershed Survey

#2011PP20

Waterbody Name: Concord Gully Brook
Location: Freeport - Cumberland County
Waterbody Status: Urban Impaired Stream
Project Grantee: Town of Freeport (assisted by Cumberland County Soil & Water Conservation District)
Project Duration: January 2012 – December 2013
319 Grant Amount: \$15,385
Local Match: \$7,966



PROBLEM:

Concord Gully Brook has a watershed area of 0.9 square miles. The main stem of the brook is approximately 1.5 miles in length. The main stem receives input from three tributaries, the primary one being Porters Landing Brook that drains the northern, more heavily developed part of the watershed. The brook drains to Allen's Pond, a dammed wetland which discharges to the Harraseeket River. Land use consists of commercial, residential, industrial, highway, roads, and forest. Development is concentrated in the northern part of the watershed which drains portions of the commercial downtown area and the Route 1 corridor. Portions of the watershed are also largely forested including the riparian corridor. Overall, the watershed has 22% impervious cover.

Concord Gully has a statutory water quality classification of Class B, but it does not meet its designated uses and criteria. The causes of non-attainment are aquatic life and habitat assessment. Stormwater runoff from impervious areas is the largest contributor to impairment. Bacteria monitoring in 2012 and 2013 indicates that the stream also fails to meet standards for bacteria. Additional monitoring was also recently completed by Cumberland County Soil & Water Conservation District (District) and Maine DEP. Monitoring shows that the brook is experiencing high conductivity and chloride levels likely due to ongoing and historic winter salt sources and periodic low dissolved oxygen in one tributary that drains a developed portion of the watershed along Main Street.

PROJECT DESCRIPTION:

The purpose of the project was to identify, document, and prioritize soil erosion and polluted runoff sites, and recommend best management practices. An additional goal was to complete a stream corridor survey to document riparian and habitat conditions. Between June and October 2012 the District, project partners, and volunteers completed a watershed survey. The District, Maine DEP, and a volunteer completed the Stream Corridor Survey. Also a geomorphology assessment of the stream was completed by in 2013.



Concord Gully Brook watershed survey, eroded parking area.

PROJECT OUTCOMES:

- Four steering committee meetings were held that included representatives from the town, business community, and watershed representatives. Ten citizen volunteers participated in the project.
- 45 NPS problem sites were identified: 2 high impact, 24 medium impact and 19 low impact. Impacts are primarily from parking lots and roads and are clustered in the commercial district.
- The “Concord Gully Watershed Survey” and “Fluvial Geomorphic Assessment of Concord Gully Brook in Freeport, Maine” reports were completed.
- Sediment transport from land use is minimal. Total soil loss from high and medium impact sites is estimated to be 5.73 tons per year and phosphorus loading is 4.87 pounds per year.
- The Fluvial Geomorphic Assessment led by John Field Geology Services identified contrasting morphologies between the main stem and Porters Landing Brook which is incised with unstable banks, has poor pool formation, and lacks flow complexity; while the main stem has a meandering channel, with access to the flood plain and ample wooded cover.
- The project focus transitioned into the Watershed Management Plan development during 2013, and there is considerable energy to develop a locally supported watershed based management plan.



Porters Landing Brook, degradation due to high flows.



Concord Gully Brook main stem.

PROJECT PARTNERS:

Casco Bay Estuary Partnership
Cumberland County Soil & Water Conservation District
Maine Department of Environmental Protection

Citizen Volunteers
L.L. Bean
Maine Department of Transportation

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Suggested Citation:

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