To restore or not to restore? That is the McQuesten.

Michele L. Tremblay, President
Board of Directors
New Hampshire Rivers Council

Stephen C. Landry, Coordinator
Nonpoint Source Program
New Hampshire Dept of Environmental Services

National Nonpoint Source Training Workshop
November 6, 2018
McQuesten by the Numbers
Learn more and get involved at NHRivers.org

563 acres
Over 193 acres or 34 percent of the watershed are covered by impervious surfaces. Negative impacts to water resources and the communities within them occur once a watershed reaches 10 percent impervious cover.

330 catch basins
This means that there are 330 ways for stormwater carrying litter, fertilizer, pet waste, oil, sediment, yard clippings, and other contaminants to flow directly into McQuesten Brook and McQuesten Pond.

50 volunteers
Volunteers include individuals from Anheuser-Busch, City of Manchester, Town of Bedford, Trout Unlimited Merrimack Valley Chapter, Manchester Flyfishing Association, NH Department of Environmental Services, New Hampshire Fish and Game Department, and neighbors working on clean-up events and serving on the McTeam Steering Committee.

fifteen fourteen road crossings
There are fourteen (one was removed in 2015) habitat fragmentation and stream constrictions sites in the watershed or, through replacement and restoration, there are fourteen opportunities to improve the flow and fish passage.

thirteen subwatersheds
This means that there are thirteen McQuesten watershed community neighborhoods identified to rise up to meet the restoration challenge.

(over) a dozen partner organizations
Partners and supporters include the NH Department of Environmental Services, NH Fish and Game Department, City of Manchester, Manchester Urban Ponds Restoration Program, Town of Bedford, River Network, Anheuser-Busch, Samuel P. Hunt Foundation, Manchester Flyfishing Association, Trout Unlimited Merrimack Valley Chapter, Ducks Unlimited, Amoskeag Fishways, and University of New Hampshire

four ZERO dams
There are ZERO places where flowing water is impounded, gets warmer, and loses oxygen. Four dams were removed through grants from the NH Department of Environmental Services.

two communities
Coordination across city and town lines can be challenging but not in this case. Bedford and Manchester have come together through the McTeam and have pledged tremendous in-kind support and other resources for the restoration effort.

two NOW ONE waterbody
With the four dams, one barrier, and two culverts removed (one replaced with a bridge), the watershed is now connected as a single waterbody: McQuesten Brook. Vital oxygen and connectivity is restored for water quality and the native brook trout population.

one watershed
Our goal is for the McQuesten watershed to be a healthy and fully functioning system capable of supporting the native brook trout population while providing this busy and highly populated Manchester and Bedford neighborhood with floodwater storage and an oasis for bird watching, fishing, and connecting with nature in a cool, green place.
1953

Where did they go?
New “channel” connecting two streams?

McQuesten “Ponds” forming

1965
POSTED

No Poachin’ No Trespassin’
NO NUTHIN’
This applies to friends, relatives, enemies and YOU

VIOLATORS WILL BE PROSECUTED
SURVIVORS
McQuesten Brook Geomorphic Assessment and Watershed Restoration Plan

Final Report
October 1, 2013

Prepared for:
New Hampshire Rivers Council
54-207 Portsmouth Street
Concord, NH 03301

Prepared by:
Comprehensive Environmental Inc.
with Headwaters Hydrology,
FB Environmental Associates, Inc. and
Field Geology Services

With Funding by:
New Hampshire Department of Environmental Services,
New Hampshire Fish and Game Department,
New Hampshire Rivers Council, and
Samuel P. Hunt Foundation
### Watershed 305(b) Assessment Summary Report:

**HUC 12 010700060803**

**HUC 12 Name** South Manchester Tributaries

(Locator map on next page only applies to this HUC12)

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<td>Geomorphic Compatibility</td>
<td>AOP</td>
<td>Culvert Type &amp; Dimensions</td>
<td>Percent Bankfull Width</td>
<td>Observations &amp; Measurements</td>
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<td>Stream flow makes sharp bend at inlet, entire length of culvert backwatered at low flow, substrate on culvert bottom throughout</td>
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<td>Second Street</td>
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<td>Mostly Compatible</td>
<td>Reduced AOP</td>
<td>66” RCP 210’ long</td>
<td>73%</td>
<td>Entire length of culvert back-watered at low flow, substrate &gt;3’ thick on culvert bottom throughout</td>
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Looking out for the trout
With native species in mind, an urban brook gets a makeover

I
L
I
M 3, volunteers clean up the stream, removing trash and debris.

McQuen Brook remains one of the most important waterways in the city, providing habitat for many species of fish and wildlife. The stream is home to several species of trout, including theBrown Trout, which are a vital part of the ecosystem.

Workers drain ponds, remove dam to make way for McQuen Brook

in times of heavy rainfall. Landry had heard that a "brown trout" center located on Second Street in the past, but the center has since been closed. He said that the stream's average width is about 12 feet, and that the stream's average depth is about 2 feet. The stream also has a few small islands and areas of wetland that provide habitat for wildlife.

As part of the long-term project, officials will also look at replacing some of the undersized culverts along the stream's route. That includes a 36-inch culvert in Bedford and a 48-inch culvert in Manchester. The average width of the stream should be about 12 feet, Landry said.

The stream goes under South Main Street and emerges through a dilapidated 66-inch culvert in four places. The culverts back up water flow, and the stream has outflanked the culvert on one side, eroding banks and causing mature trees to fall. The culvert has backed up with lawn clippings, trash, and saplings, as well as the occasional tire.

"It appears to be serving no purpose other than to mess up the channel," Landry said.

Anheuser-Busch holds a river cleanup event each year, where its employees take a morning to tackle trash and debris along the river. It was one of the first campaigns to help clean up the stream.

Make way for brook trout
NH Rivers Council pushing restoration of McQuen Brook in Manchester

The ponds have been around for a long time, and the last time this year, the Gagnon said.

"We believe there will be three brook trout runs this year," Gagnon said.

"We believe there will be three brook trout runs this year," Gagnon said.

The ponds run through the entire length of the stream, and are a popular destination for anglers. The ponds are filled with a variety of fish, including Brown Trout and Brook Trout. The ponds are also home to several species of birds, including gulls, Geese, and ducks.

"When you look at how few natural places exist in a place like Manchester, we should be focusing more on restoring and keeping them," Tremblay said. At the heart of the proposed restoration efforts is the eastern brook trout. Wild eastern brook trout typically grows to 6 to 8 inches in length and can be found in the ponds of your hand. Once widespread in New Hampshire, wild brook trout are extremely rare today, typically found only in clean, well-oxygenated mountain streams and deep, clear northern lakes and ponds. (New Hampshire Fish and Game stocks waterbodies throughout the state with brook trout, brown trout and rainbow trout from state hatcheries for anglers.)

That's why it was so surprising New Hampshire Fish and Game was able to verify the presence of wild eastern brook trout a few years ago in McQuen Brook. The fish weren't just living and reproducing there; they were thriving. They still are, but conditions in the brook are not the same as they were in the past, and that's the reason for the brook's future, Fish and Game officials said. The brook is dammed in three places, including the two dams in the pond, which is on the state's list of impaired waters.

McQuen Brook begins in agricultural land in Bedford and flows through residential neighborhoods and commercial areas before joining the Merrimack River. The brook has a long history of pollution, but in recent years, efforts have been made to restore the stream. The brook is home to several species of fish, including Brown Trout and Brook Trout. The brook is also home to several species of birds, including gulls, Geese, and ducks.
CONSTRUCTION PLANS

MCQUESTEN BROOK RESTORATION

BRIDGE NO. 179/151

BEDFORD, NEW HAMPSHIRE

DRAWING INDEX

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BEDFORD PUBLIC WORKS
24 NORTH AMHERST ROAD
BEDFORD, NH 03110

Prepared By:

McFarland Johnson

TOWN OF BEDFORD

BEDFORD PROJECT # 07-2014
Eastman Ave
Collapsed Culvert

Eastman Ave Culvert

Wathen Road Culvert
How many dams* are in New Hampshire?

National Inventory of Dams (NID)  
= 641

NID + remaining active dams  
= 2,621

NID + active + inactive dams =  
5,212

Source: NH Dam Bureau Database

* 75% privately owned
NHDES Watershed Assistance Grants: Section 319 and 604(b)

• Created as result of the provisions to Section 319 of the U.S. EPA Clean Water Act

• Nonpoint Source Pollution (NPS) contributes to over 90% of water pollution problems in NH.

• Major Sources of NPS pollutants:
  – Developed lands
  – Septic systems
  – Landscape and turf management
  – Road maintenance activities
  – Habitat and hydrologic modification
  – Agriculture
Priority dams and barriers for removal must meet the following criteria:

1. The structure impounds or diverts water;

2. The waterbody for which it is located must be on New Hampshire’s 303(d) list, as impaired for at least one of the following parameters:
   - Chlorophyll-a
   - Dissolved oxygen saturation
   - Dissolved oxygen
   - Cyanobacteria hepatotoxic microcystins; and

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3. The dam or barrier owner has contacted the DES River Restoration Program and expressed their interest in removal.
Request for Qualifications
Design, Engineering, and Permitting for the Removal of the McQuesten Pond and McQuesten Brook Dams - Manchester, NH
MCQUESTEN BROOK DAM REMOVAL
HILLSBOROUGH COUNTY, NH
75% DESIGN SUBMITTAL
JULY 30, 2015

STATE OF NEW HAMPSHIRE
NOT TO SCALE

PROJECT LOCATION

SITE MAP

VICINITY MAP

SHEET INDEX
1. Cover, Sheet Index, and Vicinity Map
2. Existing Conditions, Access and Staging
3. Dam Removal Plan and Profiles
4. Dam Removal Cross Sections
5. Dam Removal Cross Sections
6. Typical Details
7. Planting Plan

FOR UTILITY LOCATION
CALL 811
AFTER CLEARING AND
72 BUSINESS HOURS
BEFORE EXCAVATION

McQuesten Brook Dam Removal
New Hampshire Rivers Council