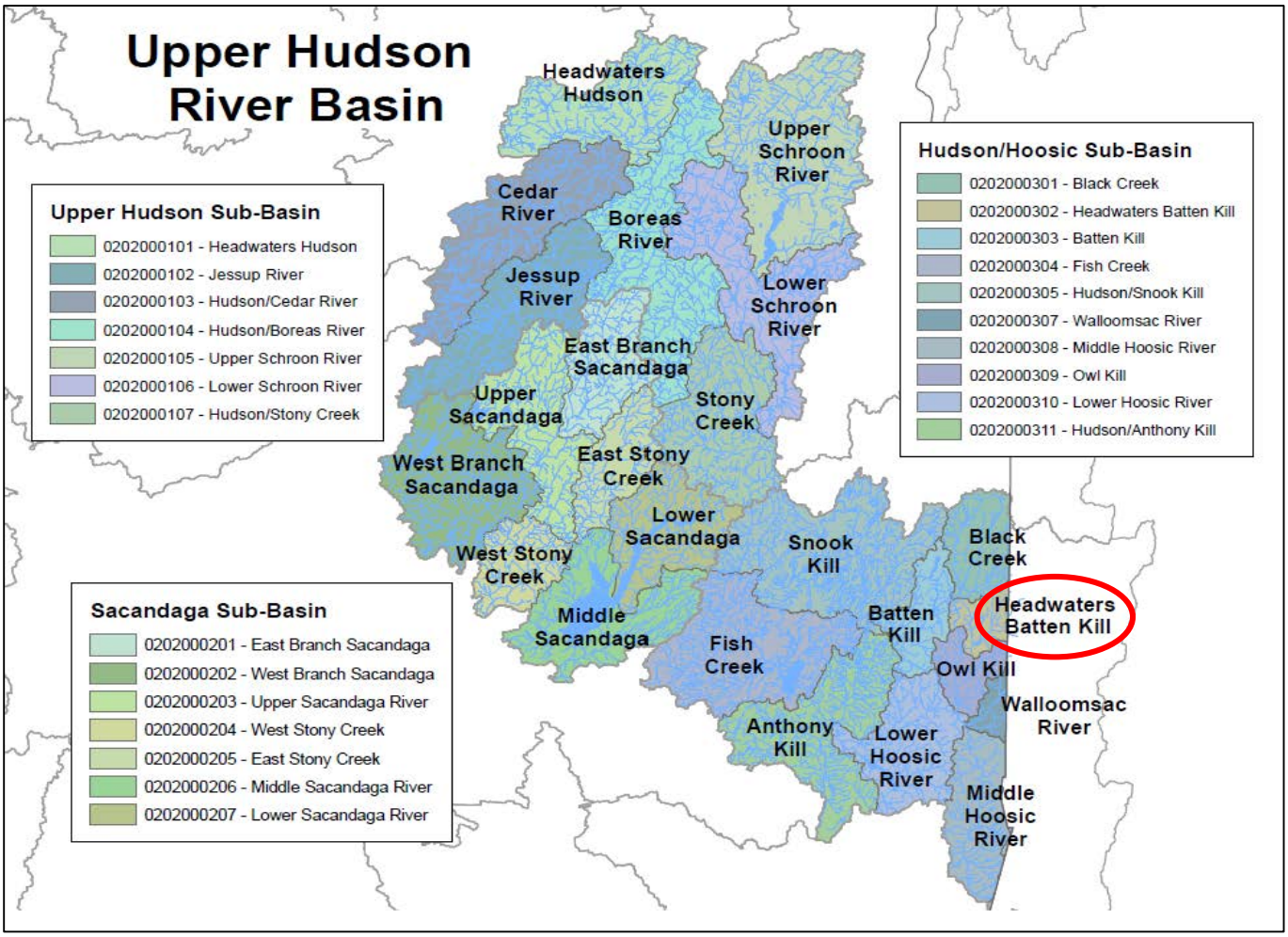

Headwaters Batten Kill Watershed
(0202000302)

Water Index Number
H-301
H-301-21-P88,P89

Waterbody Segment
Batten Kill, Upper, and tribs (1103-0012)
Hedges Lake, Clark Pond (1103-0023)

Category
Impaired Seg
UnAssessed

Batten Kill, Upper, and tribs (1103-0012) Impaired Seg

Waterbody Location Information

Revised: 10/02/2006

Water Index No:	H-301			**Drain Basin:**	Upper Hudson River
Hydro Unit Code:	02020003/080	**Str Class:**	C*		Upper Hudson-Hoosic
Waterbody Type:	River			**Reg/County:**	5/Washington Co. (58)
Waterbody Size:	72.5 Miles			**Quad Map:**	SHUSHAN (I-27-3)
Seg Description:	stream and tribs, above E.Greenwich				

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Fish Consumption	Stressed	Suspected
HABITAT/HYDROLGY	Impaired	Suspected

Type of Pollutant(s)

Known: - - -
Suspected: METALS (mercury), OTHER POLLUTANTS (loss of cover, predation)
Possible: - - -

Source(s) of Pollutant(s)

Known: - - -
Suspected: ATMOSPH. DEPOSITION, HABITAT MODIFICATION
Possible: - - -

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 4 (Source Identified, Strategy Needed)
Lead Agency/Office: DEC/FWMR **Resolution Potential:** Medium
TMDL/303d Status: 4c (Impaired by Pollution, Not Pollutant(s), Not Listed))

Further Details

Habitat/hydrology use of this reach of the Batten Kill is thought to be impaired as a result of the systematic removal of stream cover, combined with increased predation by birds. These conditions hinder the ability of the river to support a trout fishery. Fish consumption is listed as stressed due to slightly elevated levels of mercury found in a crayfish sample. Atmospheric deposition is the most likely source of this pollutant.

Historically, the Batten Kill supported a very strong wild brown trout fishery. However since the mid-1980s, the brown trout population has been in decline. The most recent explanation for the decline has focused on channel alterations and the systematic removal of trees, brush and limbs that hinder canoeists, kayakers and other recreationists in the river. But this habitat alteration removes the most effective refuge for fish from predators, flooding and high temperatures. This cover is especially important to support young trout. Though the loss of habitat as a cause of the decline of the fishery remains a theory, it is gaining considerable acceptance. To support the number of mergansers recorded on the river would require a considerable fish population. Furthermore, the size and class of trout that have declined is consistent with what mergansers would be expected to consume. Decrease abundances of other species would also be consistent with predation by mergansers. (DEC/DFWMR, Region 5, July 2005)
Biological (macroinvertebrate) surveys of the Batten Kill at multiple sites between the mouth and the Vermont state

line (and beyond) were conducted in 1999 and 2001. Sampling results indicated water quality conditions that range between non-impacted and slightly impacted. Many sites are borderline between these two categories, depending on flow-year. Historically, water quality in the Batten Kill has been excellent, with typically non-impacted conditions throughout the reach. However, the 1999 survey found slightly impacted conditions at a number of sites within this reach. In the 2001 follow-up macroinvertebrate sampling, some upstream sites returned to non-impacted conditions, while apparent slight declines in water quality compared to 1986 conditions were documented within the reach at Shushan, and farther below this reach at Battenville, Center Falls, and Clarks Mills. Impacts appear assignable to nonpoint source nutrient enrichment. Slight increases in conductance in the river occurred since 1984 are likely related to residential and commercial development in the watershed. Further sampling is needed in the upper Batten Kill to examine the apparent trend. Crayfish collected in 1994 near the Vermont border showed endosulfan sulfate present above detection limits, and mercury present at 0.50 ug/g, exceeding the provisional level of concern of 0.20 ug/g for crayfish. (DEC/DOW, BWAM/SBU, June 2005)

Fish surveys conducted in 2000 also point to causes other than water quality. These surveys found high abundance of wild fingerling trout and more old, large trout than were present in the 1970s. But natural reproduction by trout is typically the first life stage to fail when water quality degrades. And the presence of older trout indicate that water quality over time is capable of supporting the fishery over a longer continuum. Neither of these indicators is definitive, as tribs, springs and other refuge can sustain the fish. But these indicators along with healthy macroinvertebrate community suggest impacts not the result of poor water quality. (DEC/DFWMR, Reg 5, July 2005)

Biological (macroinvertebrate) assessments of two tribs to this portion of the Batten Kill, Camden Creek and Chunks Creek, were also conducted in 1999. This sampling indicated non-impacted water quality at both sites. The fauna contained many species of clean-water mayflies, stoneflies, and caddisflies.

This segment includes the portion of the stream and all tribs within NYS from Black Creek (-20) near East Greenwich to the Vermont border. The waters of the stream are Class C(TS). Tribs to this reach/segment, including Flaxmill Brook (-21), Juniper Swamp Brook (-22), Steele Brook (-26), Murray Hollow Brook (-27), Camden Creek (-28) and Chunks Brook (-30), are primarily Class C,C(T),C(TS); small portions are Class B(T) and Class D. Larger lakes in the watershed are listed separately.