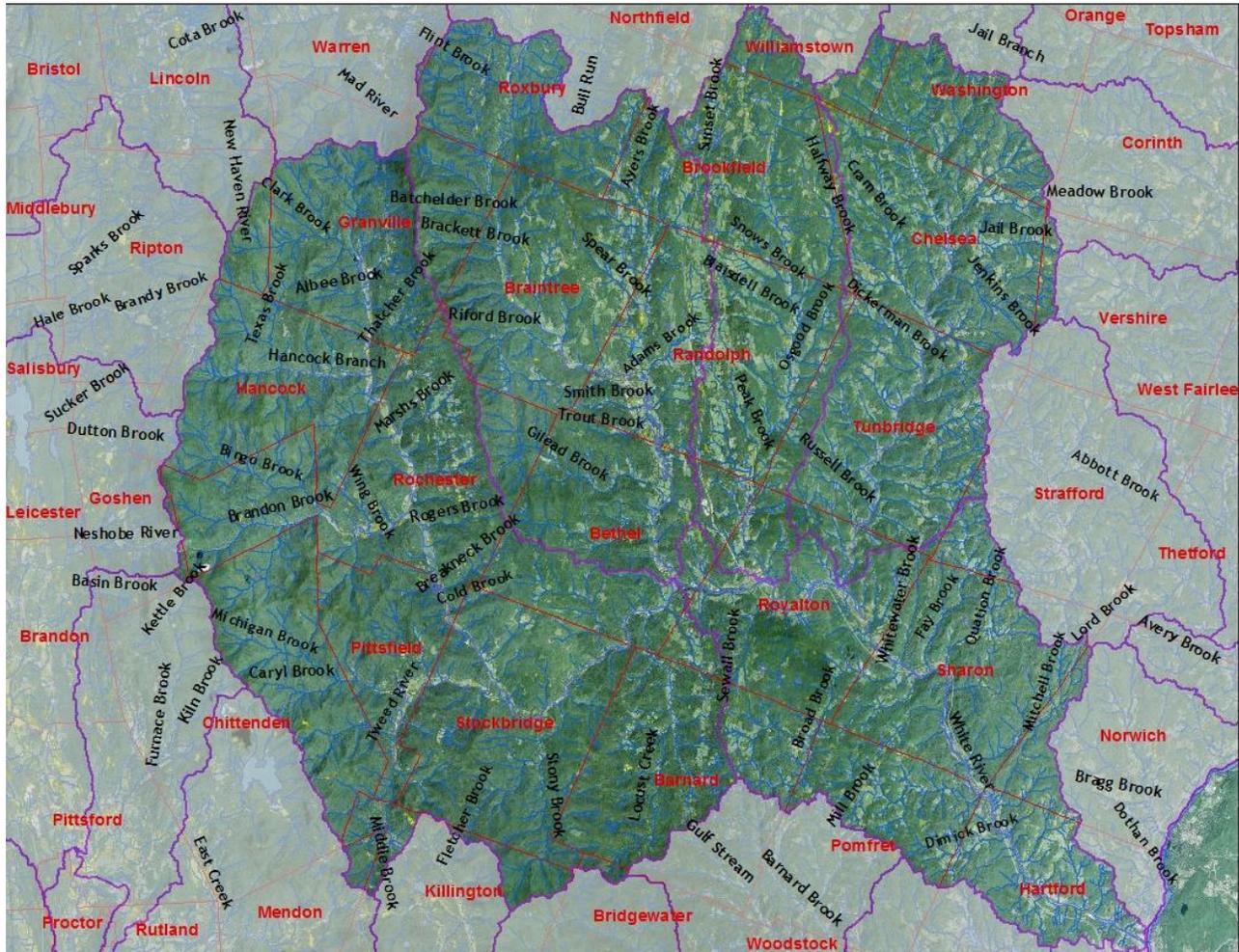


# White River Watershed

## Updated Water Quality/Aquatic Habitat Assessment Report

December 2016



**Vermont Agency of Natural Resources**  
**Department of Environmental Conservation**  
**Watershed Management Division**  
**Monitoring, Assessment and Planning Program**

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## Earlier Assessments on the White River Watershed

There are three earlier assessment reports for the White River Watershed including the first one done in 1997, an update done in 2002, and then a significant revision and evaluation of data and information in 2012. [The 2012 report](#) contains a list on page 4 of the substantial changes made between the first two reports and it.

The 2012 White River Water Quality and Aquatic Habitat Assessment Report contains biological monitoring data from 1992 through 2010; *E. coli* monitoring data from 2001 to 2010; descriptions of special values and features including waterfalls and cascades, swimming holes, very high quality waters, significant natural communities, and rare, threatened or endangered species; fisheries of specific streams; and assessment information for streams as well as lakes and ponds.

This 2016 assessment update of the White River Watershed tries not to repeat much of the information that is part of the 2012 report. It includes a table of the biological results from the last seven years with a longer history of biological results given in the 2012 assessment report. There is also a table with a list of streams where biological monitoring is needed.

## General Description of the White River Watershed

The White River Basin encompasses 710 square miles or approximately 454,400 acres in Vermont draining portions of Addison, Orange, Rutland, Washington, and Windsor Counties. The White River itself is approximately 56 miles long. It originates in the town of Ripton on the slope of Battell Mountain then flows southerly and easterly before emptying into the Connecticut River at White River Junction in the town of Hartford.

The White River has five major tributaries:

- First Branch with a length of 24 miles and drainage area of 103 square miles;
- Second Branch with a length of 20 miles and a drainage area of 74 square miles;
- Third Branch with a length of 19 miles and a drainage area of 136 square miles;
- Tweed River with a length of 10 miles and a drainage area of 51 square miles; and
- West Branch with a length of 10 miles and a drainage area of 43.4 square miles.

The White River is significant for being the largest free-flowing river in Vermont. It is thought to be the highest pH watershed in the Connecticut River watershed with its calcareous setting ( Waits River formation).

## White River Watershed Summary of Segments with Impacts

**Table 1. Stretches of river or stream, segment of lake or pond with impacts**

Stream or Lake Segment	Mileage & Status	Pollutant	Source	Other information
First Branch White River, mouth to rm <sup>1</sup> 15.2	15.2 miles <b>Impaired</b> Part A List	<i>E. coli</i>	Not yet known	New to 303(d) list in 2016. Monitoring continues.
Second Branch White River, mouth to rm 9.8	9.8 miles <b>Impaired</b> Part A List	<i>E. coli</i>	Not yet known	New to 303(d) list in 2016. Monitoring continues.
Third Branch White River, mouth to rm 4.3	4.3 miles <b>Impaired</b> Part A List	<i>E. coli</i>	Not yet known	New to 303(d) list in 2016. Monitoring continues.
Smith Brook, mouth to rm 0.3	0.3 miles <b>Impaired</b> Part A List	Iron	Old landfill	
Skylight Pond (Ripton)	2 acres <b>Impaired</b> Part D List	Acid	Atmospheric deposition	EPA approved the TMDL Sept. 20, 2004
Lower Flint Brook	0.3 miles <b>Altered</b> Part F List	Lack of minimum flow	Fish hatchery withdrawal	New intake built post Irene - no permits – needs ACOE 404 & DEC 401 permits
White River, mouth to Third Branch in Bethel	26.0 miles <b>Stressed</b>	<i>E. coli</i>	Not identified	
White River, West Hartford area	0.2 miles <b>Stressed</b>	Metals (Ni, Cr)	Not known	Early 1990s USGS study – new sampling needed
White River, Third Branch mouth up to West Branch confluence	24.0 miles <b>Stressed</b>	Physical alterations, sediment, thermal modifications, knotweed	Loss of riparian vegetation, road maintenance & runoff, floodplain encroachments..	
Jericho Brook, mouth upstream	0.2 miles <b>Stressed</b>	Siltation, turbidity	Eroding stream-banks, road close to brook	
First Branch, mouth up to Chelsea	15.5 miles <b>Stressed</b>	Sediment, temperature	Streambank erosion, loss of riparian veg.	
Kingsbury Brook	0.5 miles <b>Stressed</b>	Nutrients, temperature	Ag runoff, loss of riparian veg.	
Third Branch, from Bethel up to Ayers Brook confluence	10.0 miles <b>Stressed</b>	Sediment, nutrients	Stormwater & ag runoff, stream-bank erosion, loss of riparian veg.	

Ayers Brook	0.2 miles <b>Stressed</b>	Metals ( Ni, Cr)		Early 1990s USGS study – new sampling needed
Ayers Brook, mouth up to Brookfield Gulf	5.5 miles <b>Stressed</b>	Sediment	Stream instability	
Batchellor Brook, mouth up to rm 0.2	0.2 miles <b>Stressed</b>	Sedimentation physical alterations	Beaver dam removal, dredging, channelization	
Hancock Branch	4.3 miles <b>Stressed</b>	Acidity	Atmospheric deposition	

1 rm = river mile

## Physical Assessment in the White River Watershed

**Table 2. Physical Assessment Reports for White River watershed rivers or streams**

12/24/2014	Middle and Third Branch White River	<a href="#">Middle White River and Third Branch Watersheds Stream Geomorphich Assessment and River Corridor Plan</a>	Redstart Consulting
7/17/2014	First Branch White River	<a href="#">First Branch White River Corridor Plan</a>	Redstart Consulting
3/15/2010	White River Watershed	<a href="#">River Corridor Plan for the White River and tributaries in Sharon, VT</a>	Fitzgerald Environmental
4/18/2008	Tweed River	<a href="#">Tweed River Watershed Corridor Plan</a>	Redstart Consulting
7/15/2015	White River and Tributaries	<a href="#">Upper &amp; Middle White River Watershed Corridor Plan</a>	Bear Creek Environmental
2/01/2008	Upper White	<a href="#">Upper White River Corridor Plan</a>	Redstart Consulting
11/01/2006	Ayers Brook	<a href="#">Ayers Brook Phase 1 and 2 SGA</a>	Bear Creek Environmental
6/22/2007	Ayers Brook	<a href="#">Ayers Brook River Corridor Management Plan</a>	Bear Creek Environmental

# Lower White River Watershed

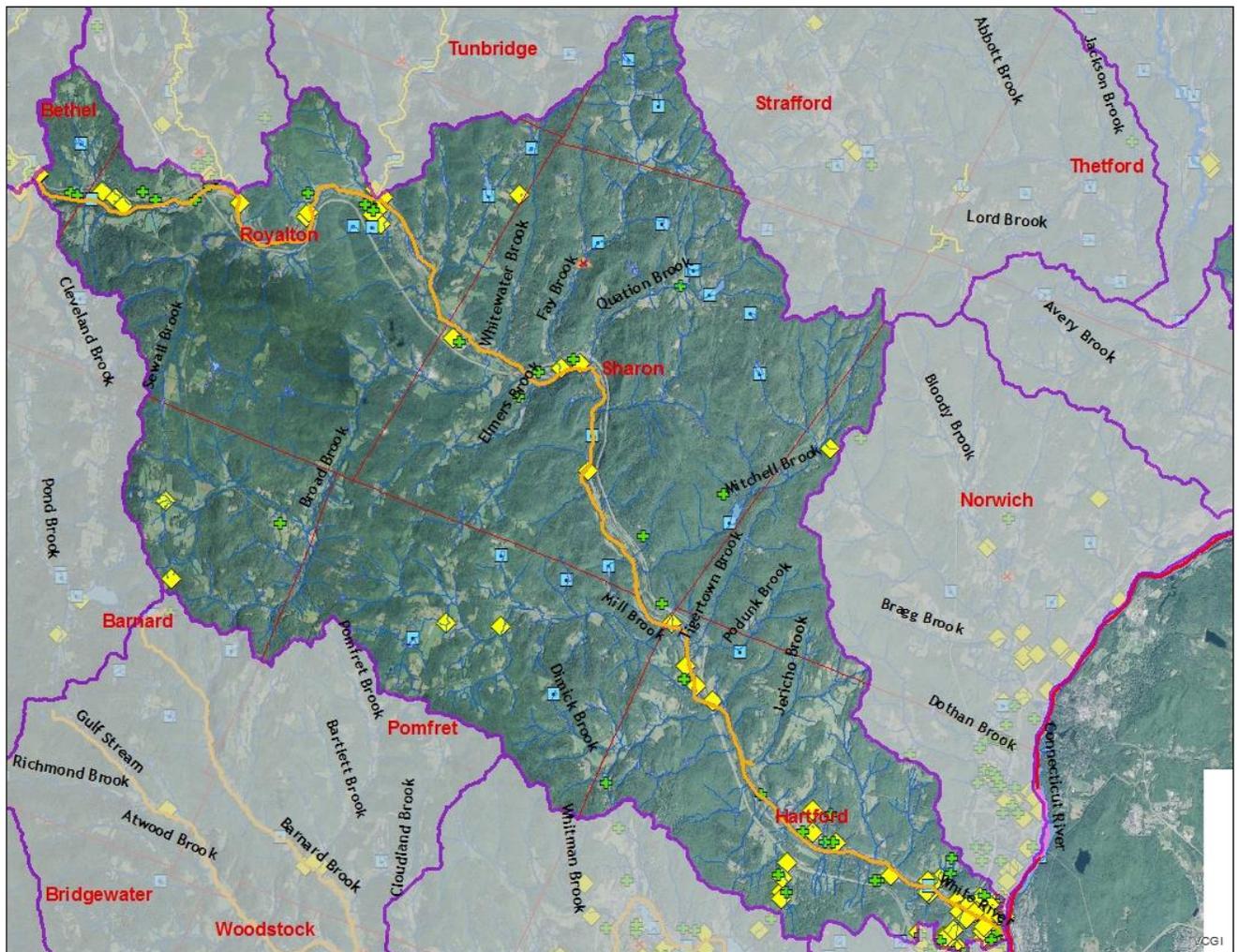


Figure 1. The Lower White River showing the stressed reach (orange line), hazardous waste sites (yellow diamond), dams (turquoise squares), stormwater permits (green crosses)

## General Description

For this assessment report and for planning purposes, the Lower White River subwatershed consists of the White River mainstem from its mouth upstream to Bethel and the tributaries to this reach but not including the First and Second Branches. The named tributaries include: Jericho, Dimick, Podunk, Tigertown, Mill, Mitchell, High Pole, Quotton, Fay, Whitewater, Broad, and Sewall Brooks.

## Assessment

### Biological Monitoring

There is a need for much more biological monitoring on tributaries to the lower White River. See Table 5 below.

**Table 3. Biological community sampling results for lower White River & Tribs – 2010 to 2016**

WBID	Stream Name	River -mile	Date	Assessment - macroinvertebrates	Assessment - fish
VT09-01	White River	15.4	9/2/2104	very good	----
VT09-01	White River	21.8	9/2/2014	very good	----
VT09-03	Happy Hollow Brook	0.4	9/5/2014	good	excellent
VT09-03	Podunk Brook	0.9	9/8/2014	excellent-very good	very good

**Table 4. Biological sampling site locations**

Wbid	Stream name	River-mile	Town	Description
VT09-01	White River	15.4	Sharon	Below WWTF outfall, below powerlines/town line
VT09-01	White River	21.8	Royalton	At the head of two islands above Second Branch confluence
VT09-03	Happy Hollow Brook	0.4	Royalton	Below Morgan Rd. - between road crossing and house at 162 Happy Hollow
VT09-03	Podunk Brook	0.9	Hartford	At culvert on Wildlife Road downstream fo Podunk road

### ***Specific Streams***

#### **Happy Hollow Brook**

This brook in Royalton was sampled for the first time in 2014. Some of the macroinvertebrate community metrics were near the Class B2 threshold. The assessment found that the abundance and richness were both low. Ephemeroptera and Plecoptera were especially low in composition and the stream community was dominated by an unusual mix of Diptera and Coleoptera.

The field comments noted that the stream was silted and disturbed from the mouth all the way up to the houses above the reach sampled. Habitat observations show sediment indicators were high with sand at 17%, embeddedness at 50%, and a silt rating of 4/5. There should be more monitoring and field investigation of this stream.

#### **Podunk Brook**

This brook was also sampled for the first time in 2014 and its assessment was “excellent-very good” for macroinvertebrates and “very good” for the fish community. This brook should be sampled again to confirm its very high quality condition for aquatic biota.

**Table 5. Biological monitoring needed in the Lower White River watershed**

Water-body id	Stream or river name	Location/number of sites	Comments
VT09-03	Trib 3 to lower White River	One site north of Route 14.	Trib 3 comes from north of the White River and flows under Route 14 to reach the river. Its two branches drain an area of residential development.
VT09-03	Podunk Brook	Another sample at rm 0.9	Sampled in 2014 and exc-very good bugs; another bug sample and a fish sample to confirm very high quality..
VT09-03	Jericho Brook	Sample again at rm 0.1	Good-fair in 2006. Needs re-checking.
VT09-03	Mill Brook	One or two sites	Relatively large, named trib to lower White and not been sampled
VT09-03	Mitchell Brook	Two sites	Never been sampled. One site below Mitchell Pond and one upstream would be valuable.
VT09-03	Fay Brook	One site	This large, named tributary has not been sampled biologically.
VT09-03	Broad Brook	At least one site	This large, named tributary has not been sampled biologically.
VT09-03	Sewall Brook	At least one site	This large, named trib has not been sampled biologically.

### **E. coli Monitoring**

There are slightly elevated *E. coli* numbers from sampling that has been done on the Lower White River. Sampling results from 2010 to the present are shown below. There are many years of sampling prior to those shown below.

**Table 6. *E. coli* sampling<sup>1</sup> on the White River- mouth up to Bethel<sup>2</sup>**

Site (mouth upstream)	2010	2011	2012	2013	2014	2015	2016
Watson Park, rm 1.0	84 (1)	62 (1)	120 (3)	140	37	129 (4)	33 (1)
W Hartford Bridge, rm 7.3	99 (2)	61 (2)	156 (4)	130	62	119 (3)	34 (1)
Sharon Academy, rm 15.3	----	94 (2)	285 (5)	158	125	225 (3)	83 (1)
Pinch Rock, rm 19.4	----	86 (1)	336 (6)	131	124	143 (2)	91 (1)
Bethel below WWTF, rm 25.2	144 (2)	----	----	----	----	----	----

1 geometric means; shaded values are above the standard of 126 geometric mean

2 more years' results are available from Vermont DEC WSMD or the White River Partnership

### **Hazardous Waste Sites**

***The Bethel/Royalton landfill***, from which groundwater flows towards the White River and Second Branch, was capped in October 1993. The first post-closure certification for this unlined landfill was in 2001. It has been recently re-certified (February 2017) and the information below comes from the certification document.

The post closure period monitoring for this landfill facility began in 1994. Four groundwater monitoring wells and two supply wells have been sampled on a semi-annual basis. Two of

the groundwater monitoring wells lie up-gradient of the landfill, BE-1A and SB-3, although SB-3 has sustained damage that has made it unable to be sampled since 2014.

“As of the most recent groundwater monitoring event completed on October 19, 2016, one of the two down-gradient monitoring wells had exceedances of the Vermont Groundwater Enforcement Standards (VGES). These exceedances, which have historically been detected within this monitoring well were for arsenic, iron, manganese, and vinyl chloride. Concentrations have been stable or decreasing with time, and this well, BE-2, is located <100 feet from the limit of waste. No other exceedances were detected within the other monitoring wells or the supply wells.”

### **Johnson & Dix**

The Johnson & Dix site (#890437) is located adjacent to the White River. Two underground storage tanks were removed in 1989. A petroleum plume exists on the central portion of this site but it does not appear to have migrated over the last 25 years. The plant that was there has been demolished and soil has been removed from the site (over 250 tons). Remediation by soil vapor extraction was completed. Annual groundwater monitoring still occurs with the last data in the files being from June 2015. Seven wells were monitored at that time and five had one or more VOCs above the VGES including benzene, naphthalene, and 1,2,4 trimethylbenzene.

### **Former Parkway Drycleaners**

The Former Parkway Drycleaners site (2006-3470) is located about 500 feet from the White River and a number of assessments done on this site have found tetrachloroethene (PCE) and trichloroethene (TCE) in the soil, soil gas, indoor air of neighboring residences, and groundwater. Some of the monitoring and assessment results are in documents done for: a Phase 1 Environmental Site Assessment (ESA); a limited Phase II Subsurface Investigation (LSI) in 2006; a Removal Program Preliminary Assessment/Site Investigation Report in 2010; and then a Final Preliminary Assessment (PA) Report in 2014 by H&S/Nobis Environmental.

From the Final PA report in 2014 by H&S/Nobis Environmental reflecting 2006 sampling:

*“The PCE detected in each of the groundwater samples, and the trichloroethene detected in monitoring well VHB-MW-2D exceed the Vermont Groundwater Enforcement Standards (VGES) of 5 µg/L (for both substances), and were significantly above the most upgradient monitoring well, which suggests a release attributable to the PDC property has occurred. Additionally, according to VHB, these results may be indicative of the presence of dense non-aqueous phase liquids (DNAPL) on the property.*

*Between 22 and 24 March 2010, Weston START collected 65 groundwater samples from 10 MIP boring locations on the PDC property and from residential and commercial properties surrounding the site... Weston START also collected seven grab groundwater samples from existing monitoring wells... All groundwater samples were screened on site for selected VOCs by the EPA OEME Mobile Laboratory. Ten groundwater samples, plus a duplicate, were selected for confirmation analysis and sent to the EPA OEME fixed laboratory for VOC analyses. Only the results of the grab groundwater samples are discussed herein...*

The March 2010 screening results are several orders of magnitude lower than the 2006 VHB sample results; however, the presence of PCE and trichloroethene at concentrations that exceed the VGES, and the most upgradient monitoring well (VHB-MW-1) remain. These results indicate that a release of PCE and TCE to the Groundwater Pathway has occurred, and that the release is attributable to past dry cleaning operations at the PDC property.

Surface topography on the PDC property slopes down towards Hazen Street along the northern boundary, and Union Street along the western boundary. Three storm drains were noted; two along Hazen Street (at the northwestern and northeastern property boundaries), and one opposite the northwestern corner of the PDC property, and it is likely that surface water runoff feeds into one or more of these storm drains. The storm drains discharge storm water to the White River..., which constitutes the Probable Point of Entry (PPE) into the Surface Water Migration Pathway. From the PPE, surface water flows east-southeast in the White River for approximately 0.4 miles prior to discharge into the Connecticut River. Surface water in the Connecticut River generally flows south for 14.6 miles to the 15-mile downstream Target Distance Limit located at the Bridge Street crossing in Windsor.... No Surface Water Pathway sampling has been performed as part of past PDC site investigations.”



Figure 2. Former Parkway Drycleaners Site in relation to the Lower White River

# Upper White River Watershed



Figure 3. Upper White River Watershed showing the stressed reach (orange line), hazardous waste sites (yellow diamond), dams (turquoise squares), stormwater permits (green crosses), and landfills (brown with red x).

## Assessment

### Biological Monitoring

**Table 7. Biological community sampling results for upper White River & Tribs – 2010 to 2016**

WBID	Stream Name	River -mile	Date	Assessment - macroinvertebrates	Assessment - fish
VT09-02	White River	32.4	10/14/2010	excellent	----
VT09-02	White River	32.4	10/12/2011	fair <sup>1</sup>	----
VT09-02	White River	32.4	9/12/2012	very good-good	----
VT09-02	White River	32.4	9/17/2013	excellent	----
VT09-02	White River	32.4	9/5/2014	very good	----
VT09-02	White River	32.4	9/3/2015	very good	----
VT09-07	Bingo Brook	1.8	9/29/2010	excellent	----
VT09-07	Bingo Brook	1.8	10/4/2011	good-fair <sup>1</sup>	----
VT09-07	Bingo Brook	1.8	10/2/2012	very good-good	----
VT09-07	Bingo Brook	1.8	9/17/2013	excellent-very good	----
VT09-07	Bingo Brook	1.8	9/4/2014	very good	----
VT09-07	Bingo Brook	1.8	9/3/2015	very good	very good
VT09-07	Bingo Brook	1.8	9/8/2016	excellent-very good	good
VT09-07	Breakneck Brook	0.2	9/4/2014	excellent-very good	very good
VT09-07	Breakneck Brook	0.2	9/3/2015	very good	----
VT09-07	Breakneck Brook	0.2	9/7/2016	good	very good
VT09-07	Chittenden Brook	2.4	9/2/2014	excellent-very good	Brook trout only, passes B2, also #s support B1 <sup>2</sup>
VT09-07	Chittenden Brook	2.4	9/2/2015	very good	----
VT09-07	Corporation Brook	1.1	9/4&17/2014	very good-good	excellent
VT09-07	Corporation Brook	1.1	9/2/2015	very good	----
VT09-07	Corporation Brook	1.1	9/8/2016	good	----
VT09-07	Deer Hollow Brook	0.9	9/2/2015	very good	Brook trout only, passes B2, also B1
VT09-07	George Brook	0.1	9/8/2016	excellent	----
VT09-07	Grindstone Brook	0.1	9/7/2016	very good-good	----
VT09-07	Liberty Hill Brook	0.1	9/4/2014	good-fair	----
VT09-07	Liberty Hill Brook	0.1	9/3/2015	good	----
VT09-07	Liberty Hill Brook	0.1	10/7/2016	fair-poor	----
VT09-07	Locust Creek	4.7	9/12/2012	excellent-very good	very good
VT09-07	Marsh Brook	1.0	9/4/2014	excellent	very good
VT09-07	Marsh Brook	1.0	9/3/2015	good	excellent
VT09-07	Marsh Brook	1.0	9/7/2016	excellent-very good	very good
VT09-07	Robbins Branch	1.4	10/4/2011	fair <sup>1</sup>	very good
VT09-07	Smith Brook	1.3	10/14/2010	very good	----

WBID	Stream Name	River -mile	Date	Assessment - macroinvertebrates	Assessment - fish
VT09-07	Smith Brook	1.3	10/11/2011	very good-good	----
VT09-07	Smith Brook	1.3	10/2/2012	very good	----
VT09-07	Smith Brook	1.3	9/17/2013	excellent-very good	----
VT09-07	Smith Brook	1.3	9/4/2014	very good	----
VT09-07	Smith Brook	1.3	9/3/2015	very good	----
VT09-07	Stoddard Brook	0.5	9/5/2014	excellent	----
VT09-07	Tweed River	3.2	8/31/2012	very good-good	good
VT09-07	White River	43.7	9/4/2014	very good	----
VT09-07	Wing Brook	0.2	10/2/2014	excellent	very good
VT09-07	Wing Brook	0.2	9/2/2015	good	----
VT09-07	Wing Brook	0.2	9/8/2016	excellent-very good	----

**1 post Tropical Storm Irene**

**2 for brook trout only streams, an IBI cannot be generated however the number and ages of brook can determine if standards are met using best professional judgement (BPJ). If the numbers of brook trout are high enough then B1 standards can be met from fish community side.**

**Table 8. Biological sampling site locations**

Wbid	Stream name	River-mile	Town	Description
VT09-02	White River	32.4	Stockbridge	On private dirt road off Route 107 below confluence with Tweed River 0.7 miles
VT09-07	Bingo Brook	1.8	Rochester	Off Forest Service Road 42 above foot bridge to private property
VT09-07	Breakneck Brook	0.2	Rochester	Off Jerusalem Road, driveway to brook then path down to site
VT09-07	Chittenden Brook	2.4	Chittenden	Above Chittenden Brook campground about 100 meters up a hiking trail
VT09-07	Corporation Brook	1.1	Rochester	At a Forest Service Boundary marked at a small tributary
VT09-07	Deer Hollow Brook	0.9	Granville	About 100 meters up from culvert on Patterson Brook road
VT09-07	Liberty Hill Brook	0.1	Rochester	Above snowmobile bridge at parking area off Liberty Hill Rd near junction w/ Rte 100
VT09-07	Locust Creek	4.7	Barnard	Located along Route 12 across from Fort Defiance Road
VT09-07	Marsh Brook	1.0	Rochester	Adjacent to Marsh Brook Road, downs steep bank about 50 meters
VT09-07	Robbins Branch	1.4	Hancock	Located adjacent to (south of) route 125
VT09-07	Smith Brook	1.3	Rochester	Below Forest Service Road 61 crossing of the brook
VT09-07	Stoddard Brook	0.5	Bethel	Upstream of & adjacent to Sand Hill Road
VT09-07	Tweed River	3.2	Stockbridge	Off Route 100, downstream of Guernsey Brook mouth
VT09-07	White River	43.7	Rochester	Located above Route 73 bridge crossing below Rochester in 1 <sup>st</sup> riffle
VT09-07	Wing Brook	0.2	Rochester	Upstream of culvert off Wing Farm Road

## **Specific Streams**

**Bingo Brook** and its tributaries downstream to the Green Mountain National Forest boundary above Kings Pond (33.3 miles) have been re-classified to Class A for aquatic biota and habitat as well as fishing and boating. Macroinvertebrate community sampling has found “very good” to “excellent” results since sampling started in 1999 with over a dozen samples taken over the years. The fish community has been sampled in 2015 and 2016 with “very good” and “good” results. The “good” assessment is due to an increase in rainbow trout.

**Breakneck Brook** in Rochester was sampled in 2014 and at rm 0.2, the macroinvertebrate community was "excellent-very good". The fish community at the same site and year was "very good". In 2015, at rm 0.2, the macroinvertebrate community was "very good" again, but in 2016, fell back to a "good" assessment. In 2016, the fish community was "very good" again.

The 2014 biological assessment noted that “[T]here is considerable bank erosion along the entire reach (and more). Sand deposition throughout. Banks appear to be stabilizing, but still contributing sediment. Irene again! Dirt road is not a factor. Big bank collapse just above reach.”

The 2015 assessment notes also discussed instability and ongoing recovery since tropical storm Irene including that many trees were down across the stream (and creating good fish habitat) and banks are still eroding. There is still increasing sand and embeddedness is moderate.

Macroinvertebrate sampling on **Chittenden Brook** in 2003, 2004, and 2005 at rm 0.1 found a community in "excellent-very good" condition in the first two years and "excellent" in the third. Macroinvertebrates were sampled higher upstream at rm 2.4 in 2014 and 2015 and the community was assessed as "excellent-very good" and "very good" respectively. The fish community is brook trout only and the numbers of brook support a B1 classification.

**Corporation Brook** was sampled at rm 1.1 and the macroinvertebrates were assessed as "very good-good" in 2014; "very good" in 2015; and "good" in 2016. The fish community at rm 1.1 was "excellent" in 2014 and "very good" in 2016.

**Liberty Hill Brook** has been sampled three consecutive years and has had low density all three years. Liberty Hill Brook was sampled at rm 0.1 in 2014 and was "good-fair". It was sampled again in 2015 and at this time, it was "good". However, in 2016, the community declined to "fair-poor" although 2016 was an exceptionally dry year and the stream was difficult to sample. All the other metrics indicate a very high quality community, the EPT and richness were high, the bio index was low and EPT/EPTc high.

The **Marsh Brook** macroinvertebrate community was "very good" at rm 0.1 in 2001. Marsh Brook was sampled again, however, at rm 1.0. In 2014, the macroinvertebrate community was "excellent" as was the fish community. In 2015, the macroinvertebrate community was "good" and the fish community "excellent". In 2016, the macroinvertebrate community improved to “excellent-very good” and the fish community was "very good".

Macroinvertebrate sampling has been done on **Smith Brook** for a number of years beginning in 1997. The community has been "excellent" in six of the sampling years; "very good" for four of the years; and "excellent-very good" one year. Only in 2011, following TS Irene was the assessment lower but then still at "very good-good". Smith Brook and tributaries from the headwaters downstream to Route 73 have been re-classified to A1 for aquatic biota, aquatic habitat, and boating for 6.8 miles.

Macroinvertebrate sampling on the **Tweed River** at rm 6.0 and 7.0 in 2007 found a community in "excellent" condition. Macroinvertebrate sampling at rm 3.2 in 2012 found a community that was "very good-good" while the fish community was "good".

**Wing Brook** was sampled at rm 0.2 and in 2014, the macroinvertebrates were "excellent", but in 2015, the community was only "good". The community came back to "excellent-very good" in 2016 providing more confirmation of the explanation that frequent scour events were likely the reason for the lower assessment in 2015.

Macroinvertebrate sampling on the **White River** in Rochester at rm 43.7 in 2006 found a macroinvertebrate community in "excellent" condition. Fish sampling on the White River in Rochester at 47.7 found a "very good" community. This sample was taken after a huge runoff event when water was turbid and much silt was present. Rm 43.7 was sampled again in 2014 and the macroinvertebrate community was "very good".

Biological sampling from other brooks occurred in the 1990s and early 2000s. Those results are in the [2012 White River Water Quality and Aquatic Habitat Assessment Report](#) or available through the Water Data Portal (WDP) or through the Vermont Integrated Watershed Information System (V-IWIS).

**Table 9. Biological monitoring needed in the Upper White River watershed**

Water-body id	Stream or river name	Location or number of sites	Comments
VT09-07	Deer Hollow Brook	Rm 0.9	Sampled once in 2015 and the bugs were "very good"; brook trout numbers support B1 classification.
VT09-07	Lilliesville Brook	1 or 2 sites	This named tributary has not been sampled
VT09-07	Locust Creek	Rm 4.7	Bug and fish communities sampled in 2012 – sample again.
VT09-07	Robbins Branch	Rm 1.4	Sampled only once and in 2011 after TS Irene – sample again.
VT09--07	Stoddard Brook	Rm 0.5	This brook was sampled once in 2014 and the bug community was "excellent" – sample bugs again and fish.
VT09-07	Stoney Brook	Rm 1.9	Sampled in 2001 and bugs were very good – re-sample.
VT09-07	Thatcher Brook	1 sample	This named tributary has not been sampled
VT09-07	Upper White River mainstem	Re-sample 2 or 3 sites that are old	A number of sites between rm 34.0 & 49.9 have not been sampled for over 10 years

## **E. coli Monitoring**

The E. coli sampling results for the upper White river are generally low with only 2012 results having values above the Vermont water quality standards.

**Table 10. WRP E. coli sampling<sup>1</sup> on the White River – Bethel upstream<sup>2</sup>**

Site (mouth upstream)	2010	2011	2012	2013	2014	2015	2016
Peavine Park Bethel	----	48 (0)	133 (2)	84	40	64 (1)	52 (1)
Gaysville Bridge	----	43 (0)	178 (4)	78	102	62 (1)	49 (2)
Peavine Stockbridge	----	60 (0)	189 (5)	52	82	88 (1)	88 (1)
Lions Club Park	56 (1)	40 (0)	186 (3)	63	99	82 (0)	122 (2)
Taylor Meadow Road	----	24 (0)	81 (1)	22	59	34 (0)	56 (1)

1 geometric means;

2 more years' results are available from Vermont DEC WSMD or the White River Partnership

## **Hazardous Waste Sites**

### ***Bettis Autoland Property***

Bettis Autoland Property (site # 2016-4683) is located along the White River in Hancock. It is a 5.9 acre site (excluding the one acre with two buildings being retained by the Bettis family) that most recently had an auto salvage and scrap metal yard on it. It is completely within the 100 year floodplain of the White River which borders the property on the east. The Two Rivers-Ottawaquechee Regional Commission used Community Development Block Grant funds to conduct Phase 1 and Phase II environmental assessments on the property for the Vermont River Conservancy who is buying the land post Tropical Storm Irene.

Soil sampling found that polycyclic aromatic hydrocarbons (PAH) and total petroleum hydrocarbons (TPH) exceed the residential soil screening values in the soils from 0 to 3 feet depth throughout the site.

Seven groundwater monitoring wells were also installed as part of the Phase II investigation. Strong petroleum odors were noted when installing two of the wells (MW16-4 and MW16-6). Benzene was above the Vermont Groundwater Enforcement Standards in MW16-4. The recommendation was for a Corrective Action Plan to be prepared for this site.

## First & Second Branches White River Watershed

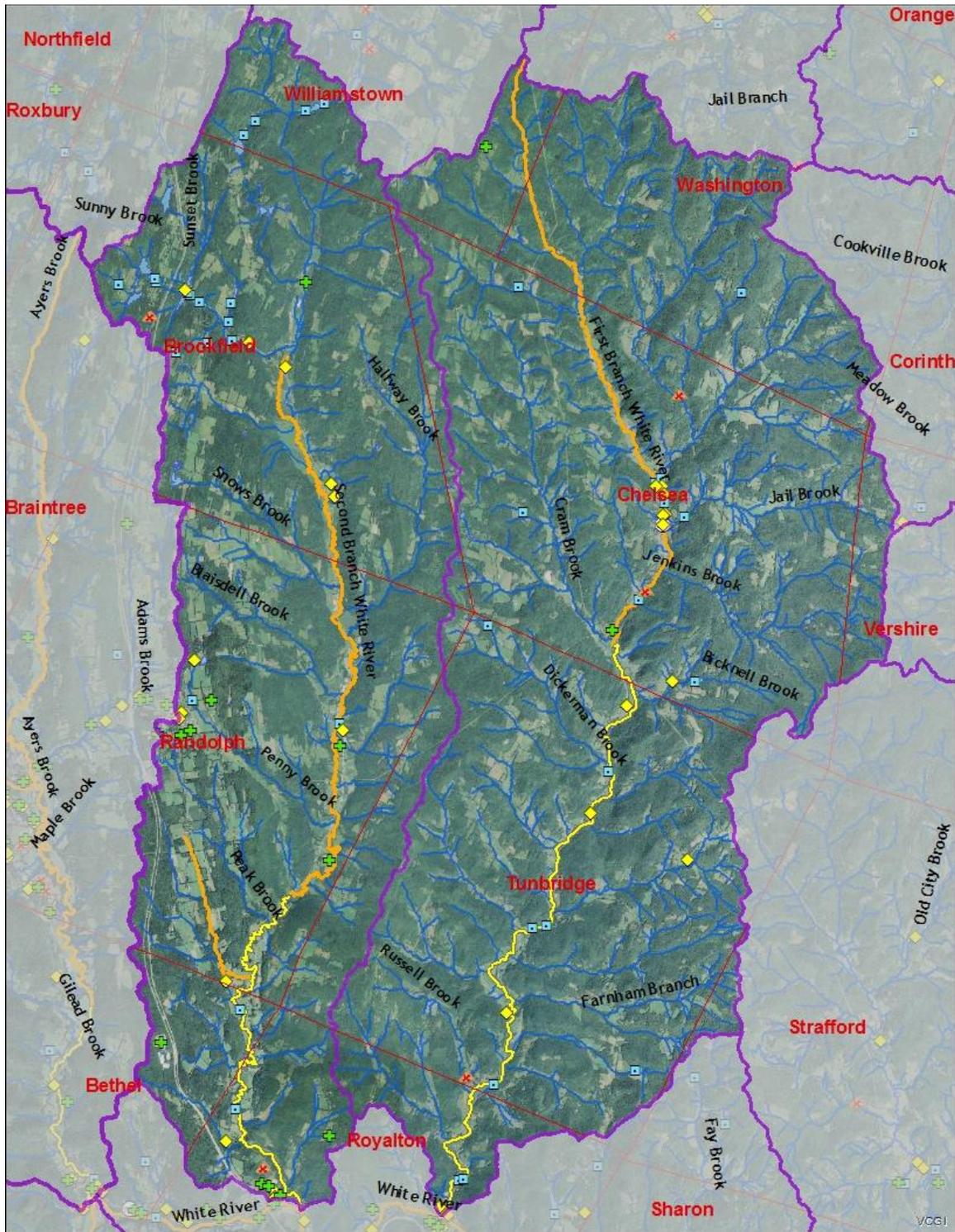


Figure 4. First and Second Branches White River showing the impaired reaches (yellow lines), stressed reaches (orange line), hazardous waste sites (yellow diamond), dams (turquoise squares), stormwater permits (green crosses), landfills (brown with red x).

## Assessment

### Biological Monitoring

**Table 11. Biological community sampling results for First Branch & tribs 2010 - 2016**

WBID	Stream Name	River-mile	Date	Assessment - macroinvertebrates	Assessment - fish
VT09-04	Button Brook	0.3	9/2/2014	good	brook trout only
VT09-04	First Branch White River	17.1	8/31/2010	good	----
VT09-04	First Branch White River	17.1	9/2/2014	excellent-very good	----
VT09-04	First Branch White River Trib #28	0.8	8/31/2010	excellent	brook trout only – high numbers
VT09-04	Foundry Brook	0.8	9/2/2014	very good	Unable to assess
VT09-05	Second Branch White River	18.5	9/2/2014	excellent-very good	very good

**Table 12. Biological sampling site locations**

Wbid	Stream name	River-mile	Town	Description
VT09-04	Button Brook	0.3	Tunbridge	Below Button Hill Road about 100 meters
VT09-04	First Branch White River	17.1	Chelsea	Sampled just below ball field below WWTF above Jenkins Brook Rd bridge
VT09-04	First Branch White River Trib #28	0.8	Washington	Adjacent to Stellar Road, southeast of intersection with Maplewood Road
VT09-04	Foundry Brook	0.8	Tunbridge	Adjacent to Foundry Road at edge of field/wooded area south of road
VT09-05	Second Branch White River	18.5	Randolph	Adjacent to Route 14 in Randolph, north of intersection with Ferris Rd

**Table 13. Biological monitoring needed in the First and Second Branches watershed**

Water-body id	Stream or river name	Location and/or # of sites	Comments
VT09-04	First Branch	Rm 6.6	This site below the fairgrounds has not been sampled since 2001.
VT09-04	Unnamed Trib that partly follows Clarksville Road	1 site	Relatively large trib to First Branch along Rix and Clarksville Roads not been sampled
VT09-04	Farnham Branch	1 site	This named trib to the First Branch has not been sampled

VT09-04	Dickerman Brook	1 site	This named trib has never been sampled
VT09-04	Cram Brook	Rm 0.7	Re-sample this stream – “good-fair” in 2006.
VT09-04	First Branch	Rm 19.3 or 23.0	Sample one of these two upper stream sites (or both) – each last sampled in 2001
VT09-05	Second Branch	One site	At least one site between rm 0.1 and rm 18.0 as this is a long stretch without a DEC biological site
VT09-05	Penny Brook	One site	This named tributary to the Second Branch has never been sampled.
VT09-05	Halfway Brook	At least one site	This relatively large named tributary has not been sampled.

### **E. coli Monitoring**

*E. coli* monitoring on the First and Second Branches of the White River has consistently found elevated to high numbers. Additional sampling has occurred, and will continue, to try and determine where the high numbers originate. A stretch of each stream was added to the impaired list in 2016 bringing focus and problem-solving resources to these streams.

**Table 14. WRP *E. coli* sampling<sup>1</sup> on the First & Second Branches White River<sup>2</sup>**

Site (mouth upstream)	2010	2011	2012	2013	2014	2015	2016
First Branch mouth 0.03	----	304 (7)	445 (?)	197 (?)	248 (5)	446 (4)	231 (3)
Tunbridge fairgrounds 6.8	----	----	282 (6)	117 (?)	213 (3)	228 (3)	276 (4)
Chelsea Rec Park 15.2	173 (4)	116 (0)	321 (5)	80 (?)	165 (3)	266 (6)	113 (1)
Tunbridge ‘town pool’ trib (to First Branch)	----	60 (2)	168 (4)	88 (#)	23 (1)	108 (3)	30 (1)
Second Branch mouth 0.5	----	247 (5)	691 (7)	390 (?)	309 (5)	383 (6)	281 (4)
Dugout Road 9.8	228 (3)	231 (4)	1086 (8)	365 (?)	213 (3)	496 (6)	300 (4)

<sup>1</sup> geometric means;

<sup>2</sup> more years’ results are available from Vermont DEC WSMD or the White River Partnership

## Third Branch White River Watershed

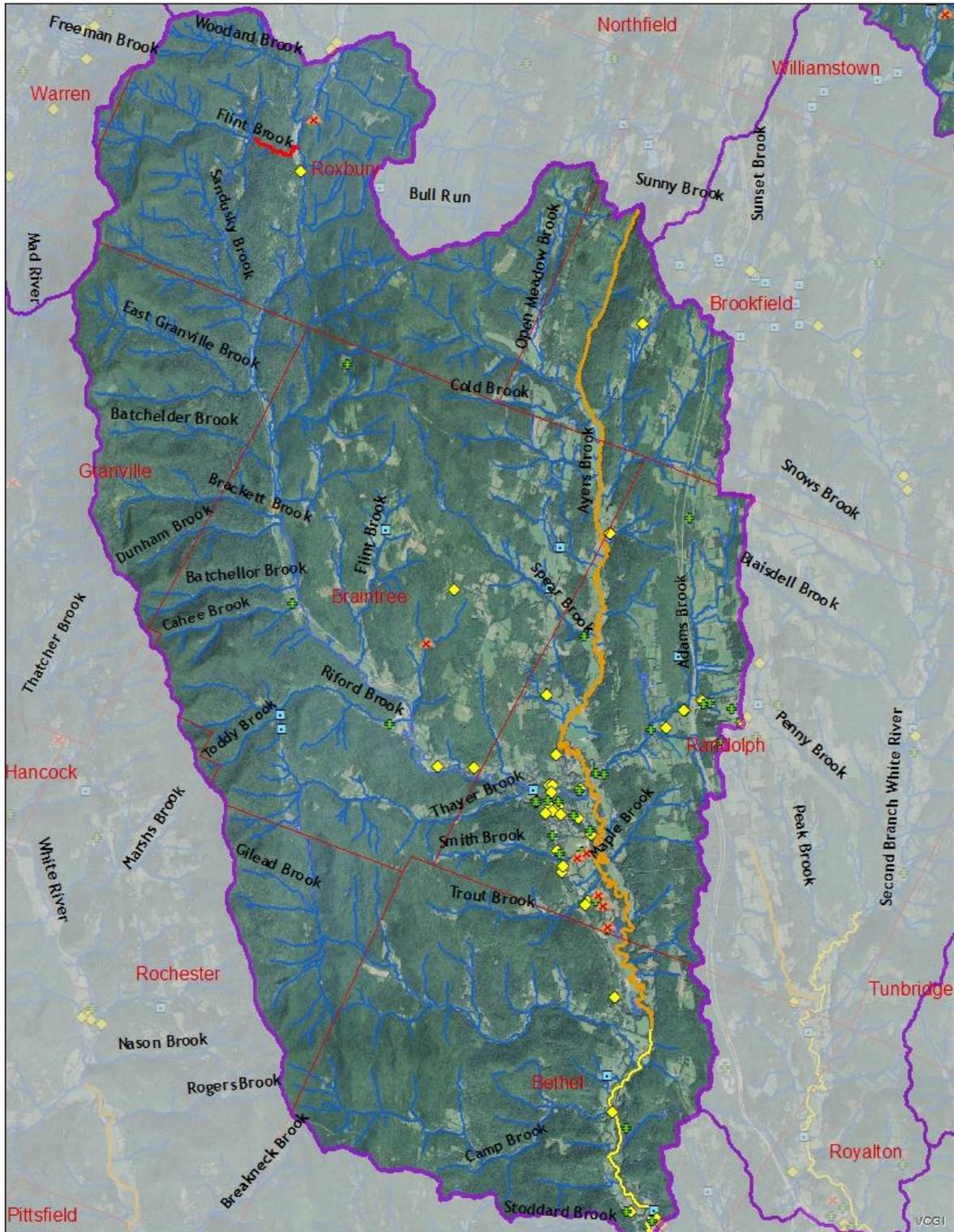


Figure 5. Third Branch White River showing the impaired reach (yellow line), stressed reach (orange line), hazardous waste sites (yellow diamond), dams (turquoise squares), stormwater permits (green crosses), landfills (brown with red x).

## Assessment

### Biological Monitoring

**Table 15. Biological community sampling results for Third Branch 2010 - 2016**

WBID	Stream Name	River-mile	Date	Assessment - macroinvertebrates	Assessment - fish
VT09-06	Third Branch	8.5	9/2/2014	good	----
VT09-06	Third Branch	9.5	9/13/2010	excellent	----
VT09-06	Third Branch	9.5	9/2/2014	good	----
VT09-06	Third Branch	9.5	8/31/2015	fair	----
VT09-06	Third Branch	9.7	9/13/2010	excellent	----
VT09-06	Third Branch	9.7	9/2/2014	good	----
VT09-06	Third Branch	9.7	8/31/2015	good	----
VT09-06	Third Branch	21.5	9/24/2010	excellent-very good	----
VT09-06	Third Branch	22.2	9/24/2010	very good	----
VT09-06	Adams Brook	1.5	9/2/2015	----	very good
VT09-06	Batchelder Brook	0.3	9/27/2012	poor	----
VT09-06	Batchelder Brook	0.5	9/27/2012	very good	----
VT09-06	Riford Brook	0.9	9/18/2012	excellent	good
VT09-06	Smith Brook	0.1	9/2/2014	poor	poor

**Table 16. Biological sampling site locations in the Third Branch subwatershed**

Wbid	Stream name	River-mile	Town	Description
VT09-06	Third Branch	8.5	Randolph	Immediately below Smith Brook
VT09-06	Third Branch	9.5	Randolph	Above confluence with Ayers Brook about 200 meters & below Randolph WWTF effluent
VT09-06	Third Branch	9.7	Randolph	About 200 meters above Randolph WWTF outfall
VT09-06	Third Branch	21.5	Roxbury	Below fish hatchery
VT09-06	Third Branch	22.2	Roxbury	Above fish hatchery
VT09-06	Batchelder Brook	0.3	Braintree	Below Rte 12A bridge
VT09-06	Batchelder Brook	0.5	Braintree	Right above Rte 12A bridge
VT09-06	Riford Brook	0.9	Braintree	Off Riford Brook road. Sampling by a doublewide home.
VT09-06	Smith Brook	0.1	Randolph	Just above confluence with the Third Branch

### **Specific Streams**

#### **Smith Brook**

The aquatic community in this stream has been impaired for a long time due to iron coating the channel bottom from an old landfill adjacent to the brook. A solution is not readily apparent as the metal, appliances, and other waste is mostly buried beneath soil and trees and vegetation that is well-established. Excavating this area next to the stream could easily do more harm than good.

### Third Branch

The trend at the Third Branch White River site rm 9.5 is not good for the period of 2010 through 2015 with the macroinvertebrate community assessment going from excellent to good to fair in 2015. This site did have several “good” assessments in early years and with a “good-fair” in 2006. This site is above the Ayers Brook confluence but below the Randolph WWTF discharge.

In 2015, the density was very high and the Bio Index result showed a moderate shift in community composition toward nutrient tolerant taxa at rm 9.5. Over 70% of the community was collector gatherers, resulting in a major alteration in the functional group composition. Habitat observations show significant amount of macro algae present. Water quality monitoring showed nutrients were also high with average total phosphorus (TP) from three base flow samples >78 ug/l, compared to about 7 ug/l above the WWTF. Total nitrogen was also double below the WWTF as compared to above (from about 0.4 to 0.8 mg/l). Chloride was elevated but well below any aquatic life concern. Dissolved oxygen does show a significant fluctuation for 75 to 100 % saturation.

**Table 17. Biological monitoring needed in the Third Branch watershed**

Water-body id	Stream or river name	Location and/or # of sites	Comments
VT09-06	Third Branch	1 or 2 sites	Need a few biological monitoring sites between the mouth and rm 8.0
VT09-06	Camp Brook	At least 1 site	No sites yet on this significant tributary to the Third Branch
VT09-06	Gilead Brook	Rm 2.0	This site was last sampled in 2001 and was “excellent” bugs – needs to be re-sampled
VT09-06	Thayer Brook	At least 1 site	This tributary to the Third Branch has never been sampled
VT09-06	Adams Brook	Rm 1.5 and 2.8	Rm 1.5 hasn’t been sampled since 2006 and rm 2.8 since 2002. Need to have current data on these sites due to their location.
VT09-06	Dunham Brook or Brackett Brook	1 site on at least 1 of these brooks	These brooks have never been sampled.
VT09-06	Sandusky Brook	1 site	This brook has never been sampled.
VT09-06	Riford Brook	Rm 0.9	Sampled in 2012 and “excellent” bugs and “good” fish – re-sample this site.
VT09-06	Third Branch	Rm 18.1	This site was last sampled in 1993. It had an “excellent” macroinvertebrate community then.

### **E. coli Monitoring**

*E. coli* sampling on the Third Branch has found consistently elevated or high numbers on the lower section of this stream. Monitoring and source identification efforts are ongoing. The stretch from the mouth up to Stock Farm Road was added to the 303(d) impaired waters list in the 2016 cycle.

**Table 18. WRP *E. coli* sampling<sup>1</sup> on the Third Branch White River<sup>2</sup>**

Site (mouth upstream)	2010	2011	2012	2013	2014	2015	2016
Mouth rm 0.03	---	109 (3)	398 (5)	148 (3)	231 (4)	202(3)	98 (2)
Stock Farm Road rm 4.3	172 (2)	117 (1)	300 (5)	177 (3)	359 (4)	312 (5)	194 (3)
Randolph Rec Park rm 11.5	----	52 (0)	134 (3)	78 (1)	66 (1)	52 (0)	94 (1)
Riford Brook Rd rm 14.6	----	58 (0)	171 (3)	61 (0)	62 (0)	74 (0)	327 (4)

<sup>1</sup> geometric means;

<sup>2</sup> more years' results are available from Vermont DEC WSMD or the White River Partnership

## **Hazardous Waste Sites**

### ***Bressett Site***

The Bressett-Wright hazardous waste site (#770069) below the Braintree/Randolph town line is near Howard Hill Brook (a tributary to Ayers Brook) and an unnamed tributary to Ayers. Dry cleaners sludge from Unifirst was improperly applied/disposed here. The area now has a soil cap over it as one remedial measure. The groundwater at this site has been re-classified to Class IV as well.

There has been surface water monitoring on the two brooks as well as sampling in a number of groundwater monitoring wells. The surface water samples on the two small tributaries to Ayers Brook have not had PCE or TCE detected. The latest sample was taken in the third quarter of 2016. In contrast, several of the monitoring wells have levels of PCE and TCE above the groundwater enforcement standards. Monitoring well 101 closest to the unnamed tributary has had some of the highest levels of these contaminants hence the need to continue with the stream sampling (on an every two year schedule).

### ***New England Land Company site***

The New England Land Company property in Randolph (site #97-2255) was once formerly the site of an “automotive fuel sales business” from 1935 to 1975. Site investigations were first conducted on this property in 2003 with soil borings and installation of groundwater monitoring wells. In 2006, four onsite underground fuel tanks were closed and monitoring wells (5 wells installed by 2006) were sampled. Volatile organic compounds (VOCs) were found to exceed the Vermont Groundwater Enforcement Standards (VGES) in three of the five wells and lead exceeded standards in all of the wells.

The monitoring wells were destroyed in construction of a bridge adjacent to the property and five new wells were installed in 2009. Three passive diffusion bags were also put in the stream sediment of the Third Branch White River. Monitoring well 5B had four contaminants above the VGES, however, there was no contamination seen in the diffusion bag samples.

The site wasn't sampled from 2010 until 2015 when there was a fall sampling event. The results from that sampling included:

- *Concentrations of dissolved iron, dissolved manganese, and sulfate exceeded the secondary Vermont Groundwater Enforcement Standard (VGES), and Vermont Preventive Action Levels (PAL) at MW-2B and MW-5B.*

- *At MW-2B concentrations of 1,2,4 trimethylbenzene, 1,3,5 trimethylbenzene, benzene, ethylbenzene and naphthalene exceeded the VGES and PAL. At MW-5B concentrations of benzene and naphthalene exceeded the VGES and PAL.*
- *The potential environmental or public health risk from these contaminants is considered to be low due to the availability and use of municipal drinking water at nearby structures, the removal of the source of contamination, the absence of direct exposure pathways to the soils and groundwater, and the high dilution in the Third Branch of the White River at the point of discharge.*

## **Restoration**

### **Main Street (Sargent, Osgood, Roundy) Dam Removal**

The Main Street dam in Randolph (also called the Sargent, Osgood, Roundy dam) was built in the 1940s to protect the 1928 bridge across the Third Branch of the White River. It was a five-foot-high, sheet-pile dam with a partial concrete cap along the left bank that impeded fish passage.

When the Route 12 bridge was replaced in 2007, the dam was no longer needed. Project partners identified the Main Street Dam as a priority for removal because it was no longer serving a purpose and removing it would open 98 miles of the Third Branch watershed to fish passage and recreation.

In addition to blocking fish passage, the dam created a long, shallow, warm pool upstream. A series of four pools has replaced the shallow backwater, creating ideal in-stream habitat for coldwater fish upstream of the former dam site.

To complete the project, the WRP and Greater Upper Valley Chapter of Trout Unlimited volunteers will plant trees along the Third Branch in fall 2016 and spring 2017 to restore riverside habitat, and will help the US Fish & Wildlife Service monitor fish passage at the former dam site.

## References and Information Sources

*Bettis Autoland Phase II Environmental Site Assessment Report*, February 22, 2017. Prepared for Two Rivers-Ottawaquechee Regional Commission by kas environmental science and engineering, Williston, Vermont.

*Fall 2015 Groundwater Monitoring New England Land Co. (SMS # 97-2255)*, January 11, 2016. Prepared for: Mr. Jesse F. Sammis III, Chairman New England Land Company Ltd. By DuBois and King Inc, Randolph, Vermont.

*Randolph Dam Removal Project: Third Branch of White River*, March 2016. White River Partnership, Royalton, Vermont.

*Solid Waste Management Facility Certification for the Towns of Bethel/Royalton (WS060)*, 8 February 2017. Prepared by the Agency of Natural Resources, Department of Environmental Conservation, Waste Management and Prevention Division, Montpelier, Vermont.

State of Vermont 2016 303(d) List of Impaired Waters and List of Priority Surface Waters, Approved by US EPA Region 1 September 7, 2016 and issued October 2016 by Vermont DEC Watershed Management Division, Montpelier, Vermont.

*Upper & Middle White River Watershed Corridor Plan Barnard, Hancock, Pittsfield, Rochester, and Stockbridge*, Vermont July 15, 2015. Prepared by: Bear Creek Environmental, LLC, Montpelier, Vermont under contract to: White River Partnership South Royalton, Vermont

*Water Quality Conditions along the White River 2001-2008: Analyses of the White River Partnerships Water Quality Monitoring Programs* Prepared for the White River Partnership By Fritz Gerhardt, Ph.D. 30 September 2009.

## Appendix A – Dams of the White River Watershed

State id	Dam name	Town	Stream	Dam Status	Year built
11.01	Silver Lake	Barnard	Pond Brook	In Service	1968
11.07	Barnard-1	Barnard	Pond Brook	Breached	<null>
11.08	Barnard-2	Barnard	Pond Brook - OS	In Service	<null>
157.01	Freeman	Pomfret	Mill Brook-TR	In Service	<null>
21.01	Bethel Mills	Bethel	Third Branch White River	In Service	1941
21.02	Ansel Pond	Bethel	White River-TR	In Service	1969
21.03	Hyde Mill	Bethel	Second Branch White River	In Service	<null>
21.07	Kellog	Bethel	Third Branch White River-TR	Drained	<null>
157.03	McCord	Pomfret	Mill Brook-TR	In Service	1963
157.04	Johnson	Pomfret	Mill Brook	In Service	1966
157.05	Bunker Hill	Pomfret	<null>	In Service	<null>
162.01	Harvey	Randolph	Adams Brook-TR In Service	<null>	
162.02	Gulf Road	Randolph	Second Branch White River	In Service	<null>
162.03	Lake Champagne Randolph	Penny Brook	In Service	1964	
162.05	Sargent, Osgood and Roundy (Main Street)	Randolph	Third Branch White River	Removed in 2016	<null>
162.08	Playground	Randolph	Third Branch White River	Breached	<null>
168.02	Eller	Rochester	Howe Brook	In Service	<null>
168.03	Kings Pond	Rochester	West Branch-TR	Deleted	<null>
168.04	McIntyre	Rochester	White River -TR	In Service	1983
171.01	Bethel	Royalton	White River	Breached	<null>
171.02	McIntosh Pond	Royalton	White River-TR	In Service	1964
171.03	Eaton (Upper)	Royalton	First Branch White River	Breached (Partial)	<null>
171.04	Eaton (Lower)	Royalton	First Branch White River	Breached (Partial)	<null>
171.05	Royalton-5	Royalton	Second Branch White River	<null>	<null>
171.07	Clark	Royalton	Cleveland Brook-OS	In Service	1982

State id	Dam name	Town	Stream	Dam Status	Year built
171.08	Lake Casper	Royalton	White River-TR	In Service	1880
171.09	Lake John	Royalton	White River-TR	In Service	1900
171.10	Walsh	Royalton	Whitewater Brook - OS	In Service	1992
184.01	Standing Pond	Sharon	Fay Brook-TR	In Service	1930
184.03	Crescent Lake	Sharon	Quation	In Service	1920
184.04	Lake Mitchell	Sharon	Mitchell Brook	In Service	1890
184.05	Johnson Real Estate	Sharon	Mitchell Brook-TR	In Service	1967
184.06	Baribeau	Sharon	Quation Brook-TR	In Service	<null>
184.07	Day Farm Pond Upper	Sharon	Quation Brook-TR	Breached	<null>
184.08	Sharon Power Co.	Sharon	White River	Breached	<null>
184.10	Wright	Sharon	Fay Brook	Removed	<null>
184.12	Sharon-12	Sharon	<null>	In Service	<null>
184.13	Day Farm Pond Middle	Sharon	Quation Brook TR	Breached	<null>
184.14	Day Farm Pond Lower	Sharon	Quation Brook TR	Breached	<null>
188.01	Sherburne-1	Killington	South Branch Tweed River-TR	In Service	<null>
188.02	Sherburne-2	Killington	South Branch Tweed River-TR	In Service	<null>
188.03	Colton Pond	Killington	South Branch Tweed river	In Service	1964
188.12	Sherburne-12	Killington	W Branch Tweed River	Breached	<null>
198.02	Stockbridge - 1	Stockbridge	White River-TR	In Service	<null>
198.03	Stockbridge - 2	Stockbridge	White River -TR	Breached	<null>
200.02	Kratky	Strafford	Fay Brook	In Service	1966
200.09	Day-Bruorton	Strafford	Fay Brook-TR	Drained	1929
211.01	Tunbridge Trout Pond	Tunbridge	First Branch White River-TR	In Service	1925
211.02	Haywood and Noble	Tunbridge	First Branch White River	In Service	<null>
211.03	Grants Mill	Tunbridge	First Branch White River	Breached	<null>
211.04	South Tunbridge	Tunbridge	First Branch White River	Removed	<null>

State id	Dam name	Town	Stream	Dam Status	Year built
211.06	Farnham Bros.	Tunbridge	First Branch White River	Breached (Partial)	<null>
211.08	Lafogg	Tunbridge	Dickerman Brook	In Service	<null>
225.05	Washington-5	Washington	First Branch White River-TR	In Service	<null>
244.04	Goyette	Williamstown	Second Branch White River	In Service	<null>
244.05	Staples Pond	Williamstown	Second Branch White River	Breached	<null>
244.06	Rood Pond	Williamstown	Second Branch White River-TR	In Service	<null>
244.12	Matson	Williamstown	<null>	Deleted	<null>
25.02	Bass	Braintree	Spear Brook	In Service	<null>
25.03	Wain	Braintree	Riford Brook-TR	In Service	<null>
25.04	Delaney	Braintree	Riford Brook-TR	In Service	<null>
25.05	Braintree-5	Braintree	Ayers Brook-TR	In Service	<null>
25.06	Rose	Braintree	Flint Brook	In Service	1985
32.02	North Pond Upper	Brookfield	Sunset Brook-TR	Breached	<null>
32.03	North Pond (Lower)	Brookfield	Sunset Brook-TR	Breached	<null>
32.04	Sunset Lake	Brookfield	Sunset Brook	In Service	1850
32.05	Holdens Pond	Brookfield	Sunset Brook-TR	In Service	1932
32.07	Brookfield-7	Brookfield	Second Branch White River-TR	In Service	<null>
32.08	Chase	Brookfield	Sunset Brook-TR	Breached	<null>
32.09	Sunset Brook	Brookfield	Sunset Brook	Breached	1858
32.10	Brookfield-10	Brookfield	Sunset Brook - TR	In Service	<null>
32.11	Buxtonssaes Mill	Brookfield	Sunset Brook	Breached	<null>
32.12	Brookfield-12	Brookfield	<null>	In Service	<null>
32.13	Tannery Dam	Brookfield	<null>	Breached	<null>
47.01	Chelsea Mill	Chelsea	First Branch White River	Removed	<null>
47.02	Keyser	Chelsea	Bicknell Brook	In Service	1963
47.03	Whitney	Chelsea	First Branch White River	Breached	<null>
47.04	Lyons Mill	Chelsea	Jail Brook	Breached (Partial)	<null>

State id	Dam name	Town	Stream	Dam Status	Year built
47.05	Reed Mill	Chelsea	First Branch White River	Breached (Partial)	<null>
47.06	Jones Pond	Chelsea	First Branch White River-TR	Breached	<null>
47.07	Bobbin Mill	Chelsea	First Branch White River	Removed	<null>
47.08	Chelsea-8	Chelsea	Meadow Brook - TR	Breached	<null>
49.04	North Pond	Chittenden	Townshend Brook	Deleted	<null>
92.01	Camp Killooleet	Hancock	Hancock Branch-TR	In Service	1987
92.02	Camp Killooleet Diversion	Hancock	Hancock Branch	Breached	<null>
94.09	Hartford Woolen Co.	Hartford	White River	Breached	<null>
94.10	Podunk Brook	Hartford	Podunk Brook - TR	In Service	<null>