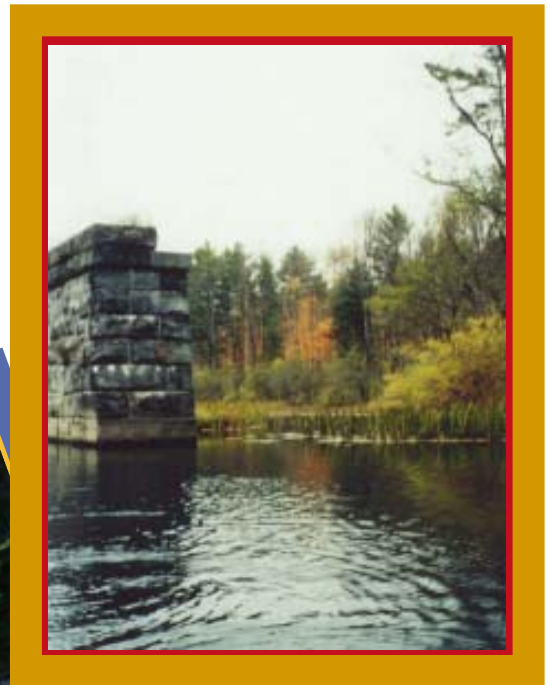


**SHORELINE
SURVEY
REPORT
&
ACTION
PLAN**



Housatonic River
Stockbridge Stream Team
May 2002



Housatonic Valley Association

Massachusetts Riverways Adopt-A-Stream Program

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- The Massachusetts Executive Office of Environmental Affairs
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STOCKBRIDGE STREAM TEAM REPORT

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Cover photos (from top), upstream of the Glendale Dam (Section 4); Mead Paper Co. (Willow Mill) in South Lee (Section 1); good fishing in Stockbridge (Section 2); pipe discharge (Section 1).

I. Introduction: The Stockbridge Stream Team

After 25 years of federal, state & local action under the Clean Water Act of 1973, most of the obvious discharges directly into our waterways from industry have been brought under control, and the long process of removing contaminated soils from the banks and bottoms of our rivers is well underway. However, more than half of the rivers and streams tested by the State of Massachusetts are still not safe to swim in, and their fish are not safe to eat.

After years of public education and research into water quality issues, we now see that, in addition to industrial contamination, what each of us does in our daily lives can also affect the quality of the water that runs underneath and through our communities. In the Housatonic watershed, except for the presence of PCBs, most remaining water pollution problems do not arise from easily traceable “point sources” that drain out the end of a pipe directly into a waterway. Today’s pollution is more likely to come from less precisely located “non-point sources,” such as stormwater runoff from streets and parking lots, fertilizer and pesticide impacts, failed septic systems, soil erosion from construction sites & stream banks and seepage from abandoned dumps and landfills.

These problems need creative solutions. Today, the focus is on empowering community leaders and concerned citizens so they may play a larger role in identifying problems and shaping solutions. State agencies and regional environmental groups are helping communities find answers that make sense. To do this, we must have good local information on the quantity and quality of water flowing through our neighborhoods, and we need to understand the who, what, when and where of pollution that comes from our everyday decisions and actions.

The Stockbridge Stream Team is one of the teams being formed by the Housatonic Valley Association (HVA) throughout the Housatonic watershed in Massachusetts. These teams, comprised of local community members, are the hands, eyes and ears of the Community Watershed Initiative, a project of HVA’s that seeks to build the capacity of volunteers to reclaim the Housatonic from past abuses and preserve it and its bordering lands for future generations to understand and enjoy. The Massachusetts Executive Office of Environmental Affairs, various private foundations, and HVA members fund this project.

To date, the Stockbridge Stream Team has inventoried the shoreline of the main stem of the Housatonic River from the Willow Mill Dam in South Lee to the Fox River Rising Pond dam.

Several areas have been identified for further protection, and other areas have problems that need to be addressed. Team members are prioritizing the importance of these projects, and some volunteers may choose to be trained as water quality monitors. The water quality monitoring program is expected to become an important source of current, professional quality data for problem solvers and decisionmakers at all levels.



Members of the Stockbridge Stream Team are trained and advised by environmental and water quality experts, including Joan Kimball, Director the Massachusetts Riverways Program, and Rachel Calabro, Adopt-a-Stream Program Coordinator, who provide technical guidance and assist in the analysis and interpretation of stream team findings. Through this project, Stream Team volunteers, neighborhood and community leaders, environmental professionals, HVA and its staff, and Massachusetts state regulatory agencies seek to learn how we may work, build, farm and expand our communities without damaging the clean water and other natural resources that keep our communities strong and healthy.

II. Descriptions and Summary of Findings for Stockbridge Stream Sections

See Maps on Pages 11 & 12

Section 1: Willow Mill Dam (*South Lee*) to Route 7 Bridge (*Stockbridge*)

Surveyors: Shep Evans

Distance: 1.8 miles

Average Elevation: 837 feet

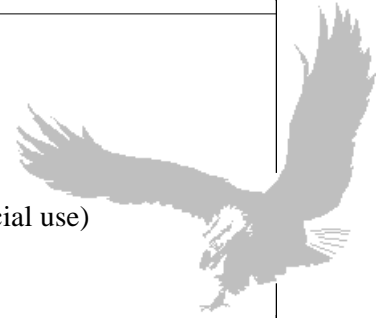
Tributaries: Kampoosa (Sepoosa) Brook

Access Points: 2 on Park Street, West end @ Town Park (*proposed*)

East end @ Laurel Hill Association bridge site (unofficial use)

Associated Ecologically Sensitive Areas: Kampoosa Bog (ACEC)

Ice Glen (*Laurel Hill Association*)



Overview: This two-mile section runs generally east to west. The grade is gentle with an elevation loss over the distance of about 10 feet with water flow characterized by a few locations with quickwater and riffles. Topographic features include an impressive ravine formed by the mountains of Beartown State Forest and Ice Glen that rise up to 1,000 feet above the river on the south bank (river left) and the slopes of a slightly lower elevated plateau on the north bank (river right). A railroad line and generally narrow flood plain can be found on the south bank. The north shore has a wider flood plain but is more extensively developed with residences, industrial development and a highway (Route 102). Near Town Park, at the western end of the section, the river enters the edge of a broad wetland to the south and Stockbridge Village to the north.

Description: Immediately downstream of the Willow Mill Dam in South Lee are riffles and pools marked with heavy algae growth. Grey slippery clay-like material in weed below pipes 1 & 2. Also seen and photographed below the mill were red and blue stains exposed on the river bottom soil. Garbage noted along north bank (river right) and out-fall near the paper mill. *Note:* possible wetland violation at the Industrial Park — storing trailers and paper bales in 200-foot riverfront lands and small ad lib dumpsite in flood plain as well.

Following the industrial area downstream of the dam the riverbank is generally forested with the river a mix of pools, deep runs, and occasional gravel shoals and riffles. At 1.0 mile Kampoosa Brook enters from the north (river right) from the Kampoosa Bog that is a state listed Area of Critical Environmental Concern (ACEC). The brook is often just a trickle at times of low flow.

Erosion problems emanate from storm water runoff near the Stockbridge Plain School ball field and at the dry hydrants in the SW corner of the Town Park. Overall, however, this section is attractive and appears healthy.

Natural Resource and Assets	Problems	Priority Actions
<ul style="list-style-type: none"> ● Entire section offers good fishing and recreational boating especially during higher flow. ● Area along south bank (river left) near old trolley bed has potential for trail development. Construction of The Mary Flynn Trail, by the Stockbridge Laurel Hill Association, is proposed for the summer of 2002. ● Potential access areas on Park St. 	<ul style="list-style-type: none"> ● Heavy algae growth, and soil discoloration found below Willow Mill and its dam. ● Erosion from storm drain runoff below the ball field (near school) and at the dry hydrant site (Town Park). ● Invasive plants (Japanese knotweed and purple loosestrife) noted at two locations. ● Trailers and bales of paper found within the 200 foot area protected by River Protection Act at Industrial Park; small dump in flood plain nearby. 	<ul style="list-style-type: none"> ● Investigate cause of algae growth, clay-like material and soil discoloration. Determine content, volume, and frequency of discharge near paper mill. ● Stabilize and repair areas of storm drain induced erosion near school and Town Park. ● Implement measures to control invasive plant species at noted locations. ● Assess and cleanup Industrial Park site(s). ● Work with Laurel Hill Association on trail and conservation of land and river access.



Stockbridge Wetlands (Section1)

Section 2: Route 7 Bridge (Stockbridge) to Middle Road Bridge (Glendale)

Surveyors: Nick Nadorff , Nick Nadorff Jr., Joe Burke, and Jolene Kroll

Distance: 1.3 miles

Elevation: 817 feet

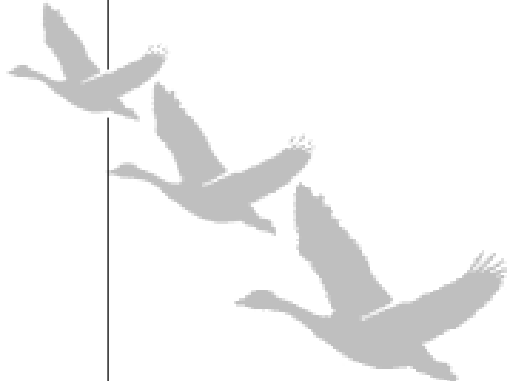
Tributaries: Konkapot Brook

Access Points: Middle Road Bridge (unofficial)

Associated Ecologically Sensitive Areas: Konkapot Brook Wetlands

Overview: This 1.3-mile section wanders through Stockbridge Meadow, an area of marble-limestone bedrock marked by a very wide floodplain and the nearby extensive wetlands of Konkapot Brook. The gentle relief of the valley produces flatwater conditions with some quickwater and wide looping meanders. The golf course of the Stockbridge Country Club occupies much of the north bank (river right). In the early eighteenth century the meadow was the site of the Stockbridge Indian town lead by the Sachem Konkapot.

Description: The river meanders through a golf course, mostly on the right bank, and fully wooded riparian lands, mostly on the left bank. “Strainers” (fallen trees) frequently block portions of the river. Konkapot Brook enters river left at 0.7 miles. The banks along the golf course are often riprapped to inhibit erosion. This is a great section for recreation including paddling, fishing and birding with slow moving water and attractive scenery.

Natural Resource and Assets	Problems	Priority Actions
<ul style="list-style-type: none"> Great recreational area for paddling, fishing and birding. 	<ul style="list-style-type: none"> “Strainers” (fallen trees) in river. 	<ul style="list-style-type: none"> Remove “strainers” to improve navigability, but leave portions for wild-life habitat. Inquire about type and use of pesticides and fertilizers that are used on golf course.

Section 3: Middle Road Bridge (Glendale) to Butler Bridge (Glendale)

Surveyors: Sally Underwood-Miller and Kate Ryan

Distance: 1.8 miles


Elevation: 815 feet

Tributaries: Larrywaug Brook Access Points: Butler Bridge (unofficial)

Associated Ecologically Sensitive Areas: none identified (perhaps Larrywaug Brook confluence)

Overview: This nearly 2-mile section flows through the northern portion of Stockbridge Meadow traveling first generally north before turning sharply south. It is characterized by a broad floodplain with some wetlands that occupy the east (river right) bank where the Stockbridge Country Club golf course and the sewage treatment facility are located. Larrywaug Brook that drains Stockbridge Bowl and Lake Averic enters in an area of wetland from the north (river right) just beyond the sewage treatment facility. The west bank (river left) is a mix of floodplain and rolling hills. Current is quickwater throughout with some shore-side strainers.

Description: From Middle Road Bridge the water is clear with a moderate current. From bridge to first footbridge passes through golf course with tree species including willow, silver maple, and sycamore. Three footbridges (at 0.25, 0.6, and 0.7 miles) cross the river at different points along the golf course. Trash noted along bank and in branches of strainers between the first and second footbridges. Active cow pasture is passed river left after third footbridge. Larrywaug Brook enters in shallow wetland at 1.2 miles. Visible remains of old dump along river.

Natural Resource and Assets	Problems	Priority Actions
<ul style="list-style-type: none"> ● Wonderful wildlife habitat. ● Larrywaug Brook confluence and associated wetland. 	<ul style="list-style-type: none"> ● Access. ● Possible impact from waste transfer station, sewage treatment facility, manure and cows in river near active pasture, and golf course along river-side. ● Old trash dump. ● Bank erosion. 	<ul style="list-style-type: none"> ● Check and monitor water quality near waste transfer station, sewage treatment facility, pasture (esp. for nitrates), and golf course. ● Evaluate Larrywaug wetland for rare and endangered species. ● Develop official access. ● Investigate possibility of cleaning up old dump site without disturbing bank.

Section 4: Butler Bridge (*Glendale*) to Glendale Dam (*Glendale*)

Surveyors: Roland Ginzel, Shep Evans

Distance: 1.2 miles

Elevation: 807 feet

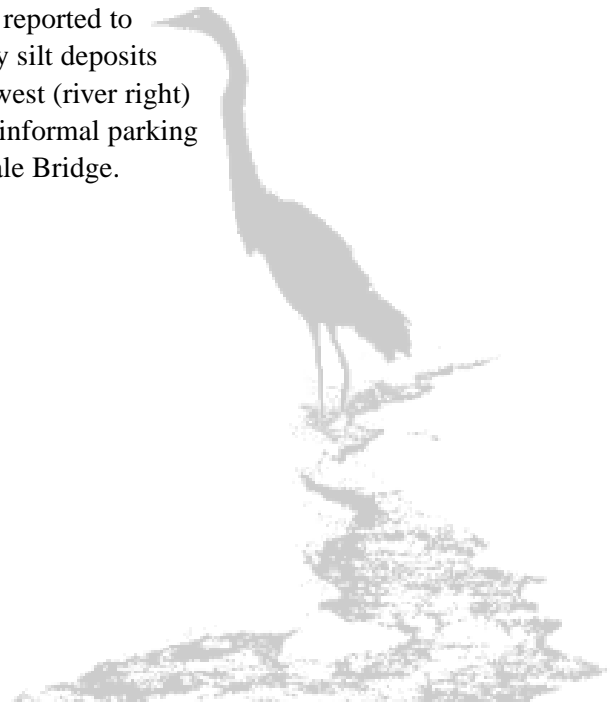
Tributaries: none

Access Points: Butler and Glendale Bridges (*informal*)

Associated Ecologically Sensitive Areas: Bowker's Woods (*Laurel Hill Association*)

Overview: This section of river flows over long stretches of marble-limestone bedrock that help produce sensitive environments (including Bowker's Woods). The river grade steepens producing a mix of quickwater and flatwater that provides excellent fishing as well as habitat for many species of birds and other animals. An attractive island can be found at a bend in the river at the southeast end of Bowker's Woods. The impoundment created by the Glendale Dam produces an area of flatwater that marks the end of this section.

Description: The river flows with steady current from Butler Bridge to the Glendale rapids after which it slows down and deepens. The banks are mostly forested with riparian species. This stretch of the river has excellent fishing and paddling opportunities. Two areas of stillwater near the old trolley bridge abutments just north of the Glendale Bridge provide attractive breeding ground for ducks and other water and wading birds. Sediments in the impounded areas upstream of the Glendale Hydro dam are reported to contain pollutants including PCBs. Heavy silt deposits noted below the Glendale Bridge on the west (river right) shore. Someone placed large boulders at informal parking area located between railroad and Glendale Bridge.



Natural Resource and Assets	Problems	Priority Actions
<ul style="list-style-type: none"> ● Sensitive ecological areas rich in biodiversity with habitats similar to Bartholmew’s Cobble in Ashley Falls. ● Great wildlife habitat and recreational canoeing and kayaking area. 	<ul style="list-style-type: none"> ● Sediment upstream of dam, and possible contamination of silt. ● Impact of dam on natural flow. ● Influx of duckweed above dam. 	<ul style="list-style-type: none"> ● Investigate extent of pollution upstream of dam. ● Pursue possibilities of conservation easement opportunities with specific landowners along river. ● Pursue conducting a biological inventory at Bowker’s Woods for endangered or threatened species. ● Investigate and develop strategy for addressing flow conditions ● Investigate boulders at Glendale Bridge.

Section 5: Glendale Dam (*Glendale*) to Route 183 Bridge (*Housatonic*)

Surveyors: Steve Bridges, Shep Evans

Distance: 2.8 miles

Elevation: 750 feet

Tributaries: Mohawk Brook

Access Points: Dugway Road/Route 183 (unofficial)

Associated Ecologically Sensitive Areas: none identified

Overview: This portion of the river has a much steeper grade than previous sections dropping nearly 100 feet over 2.7-miles. The steep grade results in rapids interspersed with areas of quickwater. The northwest shoulder of Monument Mountain, comprises the south bank (river left) for much of the reach. Route 183 and the railroad follow the river on the west (river right) bank for most of the way. Much of the east (river left) bank is undeveloped while the west bank is lightly residential. The final portion in the village of Housatonic, about four tenths of a mile, is urban with mills and other development.

Description: This section of the Housatonic is swift with lots of quickwater and several mid-sized rapids. Below the Glendale Dam are rapids and quickwater runs, extensive gravel pits are a short distance to the south. Mohawk Brook enters river right at 1.0 miles below dam. This section is largely undeveloped with woodland that runs almost its entire length, an excellent location for trail development or greenway acquisition. The majority of the lands to the east of the river have already been protected with a conservation restriction. Rapids and quickwater runs alternate for much of the remaining distance providing excellent scenery as well as opportunities for fishing, birding, and paddling. The area near the Route 183 Bridge in Housatonic is heavily developed.

Natural Resource and Assets	Problems	Priority Actions
<ul style="list-style-type: none"> ● Many stretches of whitewater with several challenging rapids for paddlers. ● Northwest section of Monument Mountain forms large stretch of east bank providing long undeveloped riverfront area. Possible trail or greenway locations. ● Excellent fishing 	<ul style="list-style-type: none"> ● Historic water flow management problem associated with the hydro plant. FERC is conducting a long-term compliance review. Glendale Hydro is up for relicensing in 2006. ● Lack of access point for section(s) of recreational whitewater below Glendale Dam. ● access point at Dugway Road has erosion problems and needs maintenance 	<ul style="list-style-type: none"> ● Stay in touch with Shep Evans and Pat Huckery at MNH&ESP who are complainants in these proceedings. ● Pursue acquiring access point for paddlers upstream of bridge in Housatonic. ● Acquire and develop access for white water use. ● Investigate trail opportunities near Monument Mountain.

Scenic view (Section 8)



Section 6: Route 183 Bridge (*Housatonic*) to Rising Dam (*Housatonic*)

Surveyors: Lauren Gaherty and Rick Harrington

Distance: 1.0 miles

Elevation: 740 feet

Tributaries: none

Access Points: Rising Pond (*unofficial*)

Associated Ecologically Sensitive Areas: Monument Mountain Reservation (*Trustees of Reservations*)

Overview: Rising Pond, a long, narrow in-stream impoundment formed by Rising Mill Dam, now owned by Fox River Paper Co., is the primary feature of this section. The pond offers a wealth of habitat for many species of plants, birds, and other animals as well as providing excellent fishing and flatwater paddling.

Description: There are two distinct river types: The northern segment is 0.1 miles long with (A) cobble bottom with a pool on the right. The southern segment begins at northern edge of the impoundment 0.1 miles downstream of bridge and continues 0.9 miles to Rising Dam (B). Pond is flatwater with a mud/silt bottom. A pressing problem is the alluvial fan of sand deposited at a discharge of a stormwater pipe from Route 183 (P2). The cove into which the pipe discharges has algae and has an oily sheen just downstream. The immediate banks are vegetated on both sides. A large carp population was observed. Water was unusually low for July. Many areas harbor invasive plant species including milfoil, purple loosestrife, Japanese knotweed, and *phragmites* (L on map).

Natural Resource and Assets	Problems	Priority Actions
<ul style="list-style-type: none"> ● Possible vernal pool, #7 on map. ● Flatwater impoundment is easy to paddle. ● Access at Rising Pond is easy to drive to with easy put-in. ● Abundant wildlife habitat. 	<ul style="list-style-type: none"> ● Stormwater discharge pipe and alluvial fan in water (= pipe #P2). ● Areas of established invasive plants including purple loosestrife and <i>phragmites</i>. 	<ul style="list-style-type: none"> ● Investigate vernal pool — if it is then attempt certification. ● Investigate storm drain pipe #P2 (alluvial sand deposit) and remediate as needed. ● Investigate extent of invasive plant problem, construct action plan if needed.

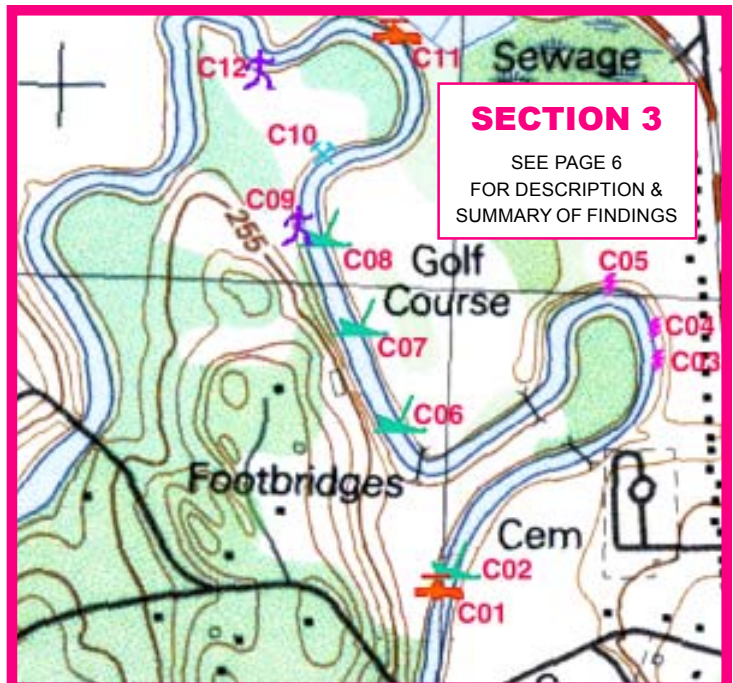
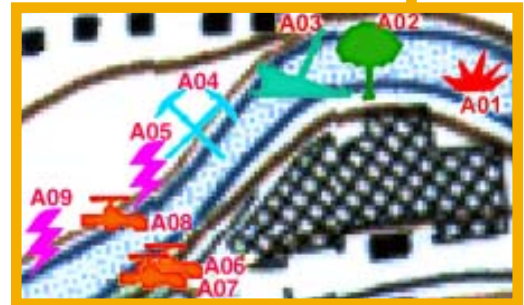
III. Section Maps



SECTION 1
SEE PAGES 3 & 4
FOR DESCRIPTION &
SUMMARY OF FINDINGS



SECTION 2
SEE PAGE 5
FOR DESCRIPTION &
SUMMARY OF FINDINGS












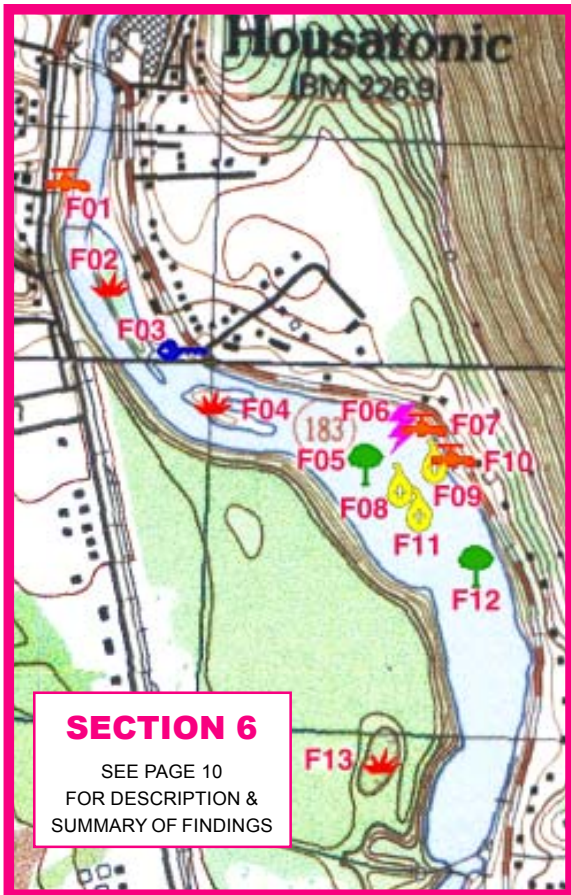
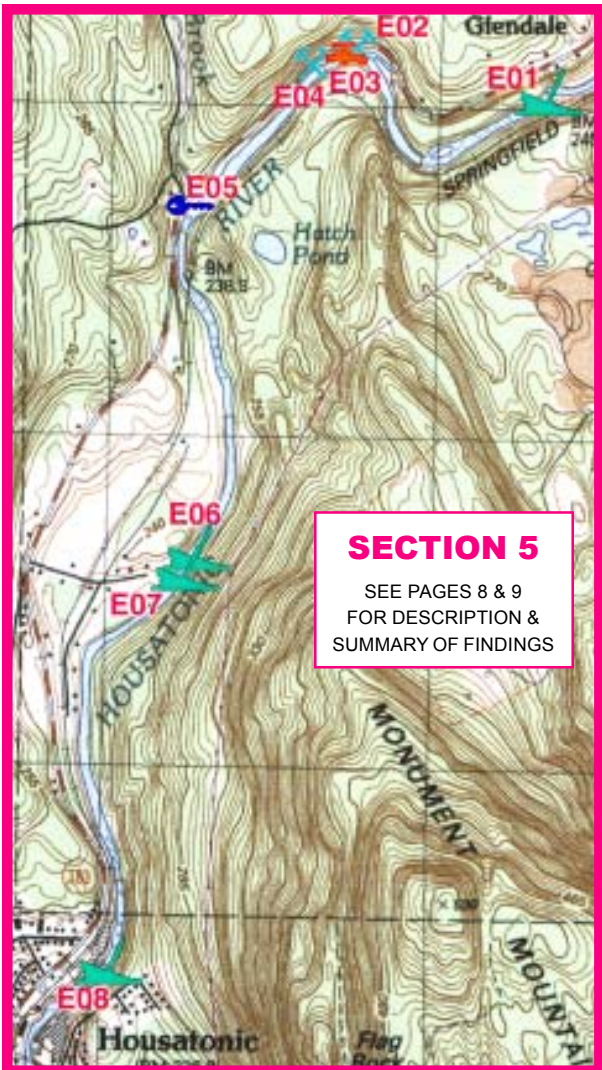
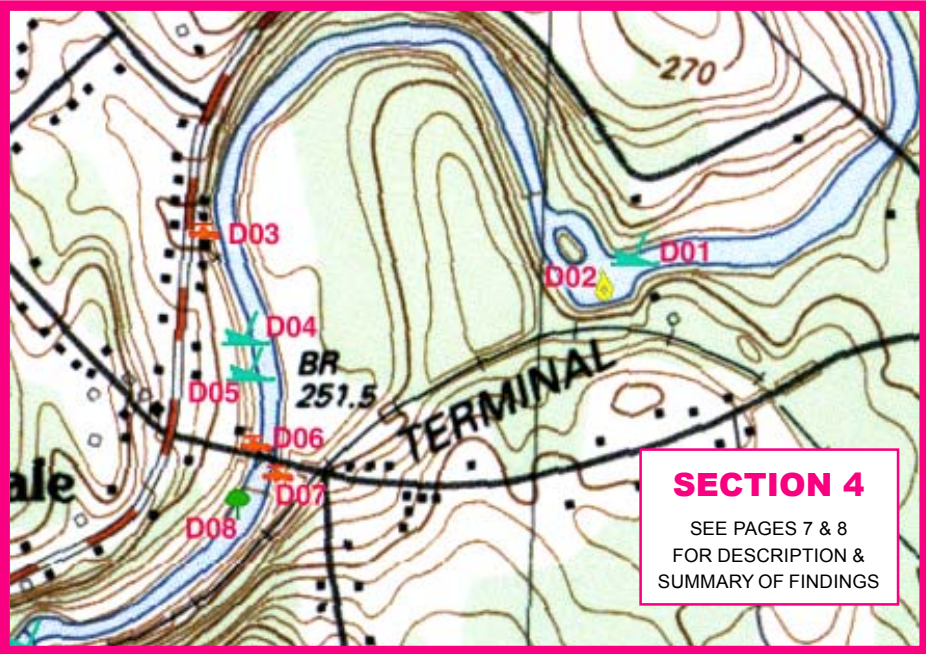
SECTION 3
SEE PAGE 6
FOR DESCRIPTION &
SUMMARY OF FINDINGS

LEGEND	
	WETLAND IMPACT
	PIPE
	ACCESS
	LAND IMPACT
	IMPEDIMENT
	RUNOFF
	TRASH
	STREAM IMPACT
	VEGETATION IMPACT

Map codes explained on pages 13 and 14.

LEGEND

-  WETLAND IMPACT
-  PIPE
-  ACCESS
-  LAND IMPACT
-  IMPEDIMENT
-  RUNOFF
-  TRASH
-  STREAM IMPACT
-  VEGETATION IMPACT



Map codes explained on page 14.

Stockbridge Stream Team Feature Data

(USE WITH STREAM TEAM MAPS)

CODE	FEATURES	ATTRIBUTES	NOTES
A01	Wetland impact	Loosestrife	
A02	Vegetation impact	Algae	
A03	Impediment	Dam	
A04	Land impact	Riprap	
A05	Trash	Bulky	Gears, hoops, tanks, stove parts, cast iron
A06	Pipe		
A07	Pipe		
A08	Pipe		
A09	Trash	Bulky	Gears, hoops, tanks, stove parts, cast iron
A10	Vegetation impact	Weeds	
A11	Trash	Dumpsite	Rubble, wood, white drums
A12	Wetland impact	Trash	Wetland violations – 5 semitrailers, flatbed, paper bales
A13	Impediment	Abutments	Old trolley bridge
A14	Access	Proposed	Small public off Lincoln Lane
A15	Pipe		
A16	Wetland impact	Vernal pool	
A17	Vegetation impact	Weeds	Knotweed
A18	Trash	Bulky	250-gallon fuel tank
A19	Land impact	Erosion	
A20	Access	Unofficial	
A21	Access	Unofficial	
A22	Land Impact	Erosion	Town dry hydrant site
B01	Pipe		
B02	Impediment	Tree	
B03	Pipe		
B04	Pipe		
B05	Impediment	Tree	Branches
B06	Pipe		
C01	Pipe		
C02	Impediment	Tree	Snag
C03	Trash		
C04	Trash		
C05	Trash	Bulky	Cylinders

CODE	FEATURES	ATTRIBUTES	NOTES
C06	Impediment	Large object	Concrete reinforcement
C07	Impediment	Tree	
C08	Impediment	Tree	
C09	Runoff	Manure	Cattle present
C10	Land impact	Erosion	
C11	Pipe		Sewage plant outflow, cement material
C12	Runoff	Manure	
D01	Impediment	Large object	Old bridge abutments
D02	Stream impact	Sedimentation	
D03	Pipe		
D04	Impediment	Beaver lodge	
D05	Impediment	Abutments	Railroad
D06	Pipe		
D07	Pipe		
D08	Vegetation impact	Weeds, algae	Duckweed
E01	Impediment	Dam	
E02	Land impact	Riprap	
E03	Pipe		
E04	Land impact	Riprap	
E05	Access	Official	Canoe, fishing
E06	Impediment	Large object	Dam remnants
E07	Impediment	Large object	Dam remnants
E08	Impediment	Tree	Lodged between abutments
F01	Pipe		
F02	Wetland impact	Loosestrife	
F03	Access	Unofficial	Potential
F04	Wetland impact		
F05	Vegetation impact	Algae	
F06	Trash	Litter	
F07	Pipe		
F08	Stream impact	Oily sheen	
F09	Stream impact	Sedimentation	
F10	Pipe		
F11	Stream impact	Sedimentation	
F12	Vegetation impact	Algae	
F13	Wetland impact	Vernal pool	

IV. Action Plan

Based on the Summer of 2001 Shoreline Surveys
of the Stockbridge Stream Team

A. Reporting

Because these problems directly threaten the stream, reporting to appropriate parties is the first step in the action plan. From our priority items, we determined that the following should be reported:

To the Property Owners:

- 1) Municipal property regarding erosion in at the dry hydrant site on Park St.
- 2) Contact and work with appropriate landowners and agencies to evaluate river bank and riparian environments to determine the existence of rare and endangered species of floral and fauna, and in providing protection for those sites.
- 3) Industrial Park site below Willow Mill regarding dump sites and storage of trailers and paper bales within the river protection zone.
- 4) Investigate existence of vernal pool in section #6.

B. Short Term / High Priority Projects

We recommend the following short-term projects because they can be completed in a few months, or because we feel they are of high priority. Because there are many suggestions, the stream team will select some for 2002 and others as time permits.

- 1) Improve access and navigability, including portages around the dams.
- 2) Remove downed trees that impede navigability, but leave portions for wildlife habitat.
- 3) Identify and map vegetative invasive species.
- 4) Organize shoreline cleanups as needed. Investigate the impact of cleaning up old dump site.
- 5) Develop plan to address flow conditions. Stay involved in FERC relicensing of Glendale Hydro project which begins in 2003 and will continue until 2008.

C. Long-Term/Ongoing Projects

These activities serve as the glue that holds the stream team together. They are our long-term action issues.

- 1) *Develop a water quality monitoring project:*
 - A) Create a meaningful water quality monitoring program with a Quality Assurance Project Plan.
 - 1) Investigate cause of algae growth, clay-like material and soil discoloration below Willow Mill Dam. Determine content, volume, and frequency of discharge near paper mill.
 - 2) Assess impact of various riparian land uses such as Golf Course and farming operations

- B) Provide regular monitoring.
 - C) Assess and interpret the data and communicate the results in an annual report.
 - D) Work with towns, the Technical Advisory Committee, the Housatonic Watershed Team, and others to restore water quality and to correct problems.
 - E) Investigate the impact on water quality from the storm drains, sewer plants and waste transfer station.
- 1) *Greenways and access and dams:*
- A) Work with local landowners to develop portages around dams and better access to river.
 - B) Encourage development of a trail connecting Beartown State Forest to the Mary Flynn Trail.
 - C) Get involved in FERC relicensing of Glendale Hydro project.

V. Data Collection Examples

The following multi-page Shoreline Survey form and Summary Sheet illustrate how stream team members record their observations along the river. These notations, along with locations identified on large-scale field reference maps, and photographs taken by stream team members, form the permanent record of each shoreline survey and are on file at the Berkshire office of the Housatonic Valley Association. Eventually, all shoreline survey data will be converted into data layers by stream team volunteers and HVA Staff, and will be widely available through the HVA Geographic Information System (GIS).

Information from the Stockbridge Shoreline Survey has been entered into HVA's GIS system.

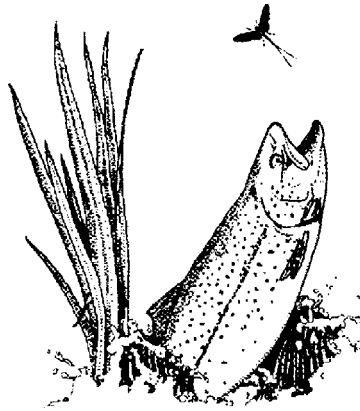


Adopt a Stream

SHORELINE SURVEYS

A Stream Team Monitoring Project and Action Tool

Data Sheets



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Adapted from Shoreline Surveys Leaders' Manual, Publication No.1779-94-500-2.08 CIR
Approved by Philmore Anderson III, State Purchasing Agent

Prepared by
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Assisted by
Maria Van Dusen, Riverways Program Coordinator
Karen I. Pelto, Stream Ecologist

Tips for Shoreline Surveyors

Safety and Legalities

- Always walk with someone.
- Watch out for irate dogs. Walk cautiously and practice good dog etiquette.
- Do not drink the river water.
- Lifejackets are required by law for each person in the canoe.
- From September 15 to May 15 all canoe or kayak occupants must wear a U.S. Coast Guard Approved Personal Flotation Device.
- Wear long-sleeved shirts and pants to protect against, ticks, mosquitoes, poison ivy and nettles.
- Wear insect repellent if necessary.
- Consider landowner rights. Ask permission to cross private land, posted or not.
- Do not enter posted areas without permission. Take advantage of any public access points.

Environment:

- Don't walk on unstable banks; your footsteps could speed erosion.
- Be aware of wildlife and animal homes, for both of your sakes.

NEVER PUT YOURSELF IN DANGER TO GATHER SURVEY INFORMATION

If at anytime you feel uncomfortable about the stream conditions or surroundings, please STOP your Shoreline Survey.

You and your safety are much more valuable than any of the objectives of the Shoreline Survey.

Checklist: What to take on your Survey:

- A buddy
- Data sheets and map
- Clipboard or other surface for writing
- Two pens/pencils – color is good to mark on maps
- Long-sleeved, snag-free clothing / pants (for bugs and thorns)
- Sunblock
- Sunglasses (polarized to see into the water better)
- Lifejackets & paddles if canoeing
- Camera and film
- Gloves
- Copy of letter sent out to landowners

Optional:

- Rubber boots or waders
- Yardstick or measuring tape (useful for pipes)
- Compass
- Field guides (in ziplock bags)
- Food, for energy!

What you need to do:

Tonight: Coordinate with your segment team. Arrange canoes, meeting place, etc.

This weekend: Conduct the survey! Fill out the data sheets while you're on the river. With your team, fill out the Summary Sheets-the segment description and the priority Sheet – after you are finished surveying your segment. Return all Data and Summary Sheets (one set per team) to:

_____ Return by: _____

This month: Attend action planning meeting, which will be held: _____

Adopt a Stream

SHORELINE SURVEY FIELD DATA SHEET

Segment begins: _____

Segment ends: _____

Date: _____
Observers: _____
Today's weather: _____
Weather over past 24-48 hours: _____

If you take photographs, mark the location on the map, and write it on the backs of the photos, along with date. Be specific (reference nearby road or house), so that people can compare later photos.

INSTREAM CONDITIONS

Stream bottom

1. What is stream bottom made of? (mark from 1 = most typical to 6 = least typical)

_____ Organic debris (leaves, twigs)	_____ Gravel (1/4.2")
_____ Silt (mud)	_____ Cobbles (2-10')
_____ Sand (1/16 to 1/4")	_____ Boulders (> 10")

2. What color is the stream bottom? (circle one)

Black Brown Orange/Red Yellow Sandy Gray Other _____

Water

1. What color is the water? (circle) Cloudy Tea Milky Muddy Other _____

2. What is the water odor? (circle) None Rotten eggs Musky Fishy Oily Ammonia Other _____

3. Problem areas. (checkmark, describe location and cause, if apparent *Locate on map)

_____ Oily sheen or smell _____
_____ Sewage: smell, milky color, toilet paper _____
_____ Foam or scum (describe. Does a stick break it up?) _____
_____ Fishy odor or fish kill _____
_____ Floating garbage _____

4. How deep is the water? (circle) Less than 1 ft. More than 1 ft. More than 2 feet More than 3 feet

5. How does the water level compare to normal for this time of year? (circle)
Normal Higher Lower Don't know If very high or low, can you tell why?

6. Is the water flowing (circle) Quickly Slightly Almost still

7. Number of pools Number of riffles Don't know

8. Is stream flow blocked by... (circle and *locate on map.) Trees Trash Large objects

Vegetation

1. Are there areas of extremely dense or clogging aquatic vegetation in any section? (circle) Yes No
*If yes, locate on map and describe cause, if obvious. _____

Species, if known (circle) Duckweed Water chestnut Other _____

2. Are there areas covered with algae? (Circle) streambed around pipes
If algae seems abnormally heavy, *locate on map.

3. Are there wetlands? (Circle. *locate on map.) Yes No If yes, are they degraded by ... (circle)
Phragmites Purple Loosestrife Fill Blockages Ditches
Sediment Disturbed banks Pipes Trash Other _____

STREAM CORRIDOR CONDITIONS

Stream Bank and Land Use

1. Do trees and shrubs overhang the stream and provide shade? (circle) Yes No
If yes, estimate what percentage of the bank is shaded.
2. What are the stream bank conditions? (circle. Put a star* next to the most common.)
Eroding Buildings/pavement Dense Forest Wetlands I marsh
Beaches Riprap/channelized Shrubstbrambles Lawns
3. Are there places that have fill or clear-cutting? (circle) Yes No
If yes, mark locations on map as fill **F1, F2, E3**. etc.) or clear-cutting **CCI CC2, CC3**, etc).
4. What land uses are visible from the river?
(Checkmark all uses and circle the dominant land use type.)
___ Industrial ___ Parking lots ___ Golf courses
___ Commercial ___ Roads ___ Protected/conservation land
___ Agricultural ___ Landfills ___ Undeveloped/unprotected land
___ Residential ___ Railroads ___ Wastewater treatment plants
___ Park / ballfields ___ Junkyards ___ Other (describe)
5. Do you see runoff from any of the following? (Circle. *If runoff is significant locate on map.)
Manure Pet / goose droppings Lawns Sewage Roads
Bridges Construction Plowed fields Parking lots Other _____

Pipes: Please fill out separate pipe survey and mark locations on map as **P1, P2, P3**, etc.

Trash: Describe any potential cleanup areas. *Locate on map.

Recreation

6. Is there designated public access to the stream? Is it appropriate for... (circle and *locate on map.)
Canoeing Fishing Swimming Walking Bicycling Other _____
If there are areas which are informal or potential access points, describe and *locate on map.
7. For what activities do people use the stream and its banks?
Fishing Rowing Sailing Swimming Walking
Motorboating Bicycling Rollerblading Canoeing Other _____

WILDLIFE

Aquatic Species

1. Fish or evidence of fish? (describe) _____
Estimate number _____. If possible, describe species & size. _____
2. Other forms of aquatic life? (circle, identify species if known)
Aquatic insects Turtles Salamanders Snails Mussels Clams Other _____

Land Species

1. Animals or evidence of animals? (circle) Beaver Muskrat Otter Other _____
2. Birds? (circle) Herons Mallard ducks Wood ducks Canada geese Other _____
3. Do you know if there are rare & endangered species of plants or animals in your segment?
If so, identify.

Adopt a Stream

Shoreline Survey Summary Sheet

River: _____ Segment Begins: _____ Segment Ends: _____
Date: _____ Today's Weather: _____ Weather over past 48 Hours: _____
Observers' Names: _____

These sheets are designed to give the "big picture" of your segment. They provide the basis of the narrative description of segments in the Shoreline Survey report.

NARRATIVE DESCRIPTION

SAMPLE 1: The river flows slowly through this segment. The banks on one side are eroded, with parkland behind it. On the other side of the river, the banks have cement walls, industrial buildings and parking lots. There was a marsh at the lower end. A small stream came into the river, and the water quality seemed worse after it entered. Bits of oil floated on the water and the stream smelled like asphalt. There were a few gulls in the industrial section, and there were turtles, a muskrat hole (7) and a great blue heron in the wetland/marsh.

SAMPLE 2: Segment 2 flows quickly through conservation land, with several small riffles. We saw several anglers along the banks. There were many downed trees in the stream, which provide good habitat for fish. Vegetation along the stream is thick, second-growth forest with an old dirt road providing good access for walking or mountain biking. There are several old appliances in the river near the Rt. 20 bridge.

Describe your segment in a paragraph:

Adopt a Stream

Shoreline Survey: Priorities for Action

Look back at your Field Data sheet and include your observations. The information from these sheets will be used to develop the Action Plan.

<p>Problems found in your segment, such as: pipes discharging in dry weather erosion, runoff, trash, dense algae, water quality problems (odor, color, oil, foam, sewage), degraded wetlands (phragmites, loosestrife), other problems (<i>describe, give location</i>)</p> <ol style="list-style-type: none"> 1. 2. 	<p>Assets found in your segment, such as: Good habitat, wildlife species, businesses or landowners using the river (in a friendly way), recreational access (canoe, trails, parks), potential recreational access, potential park/conservation land (<i>describe, give location</i>)</p> <ol style="list-style-type: none"> 1. 2. 	<p>Priorities for action: (<i>List items from problems/assets columns that you feel need more work.</i>)</p> <ol style="list-style-type: none"> 1. 2.
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Adopt-A-Stream Pipe Survey of River/Brook







Segment # _____

Date: _____

Names of observers: _____

Weather today: _____

Weather over past 48-72 hours: _____

Pipe #	Time	Pipe material and condition	Pipe size & amount of flow	Color of Flow	Odor of Flow	Algae below pipe	Sediment below pipe	Comments? If pipe should be rechecked- describe location	GPS Latitude GPS Longitude: (Optional)
Sample # 1	9:33 AM	concrete good shape	 Consistent moderate flow 1' diameter	red- brown	fishy	green growth coating rocks below pipe.	sand accumulation at outfall	Should be rechecked. Downstream of Jones St bridge	
									
									
									
									
									

Sample Shore line Survey Map
 Fictitious Brook, Anytown
 Segment 4, 5-23-97

