Exhibit I

NEW HAMPSHIRE
FINAL 2004 LIST OF THREATENED OR IMPAIRED WATERS THAT REQUIRE A TMDL
(i.e., Category 5 Impairments - this represents the Section 303(d) List)

(Excluding Fish/Shellfish Consumption Advisories due to Mercury - see Note 3)

Notes:
1. See the Consolidated Assessment and Listing Methodology (CALM) for definitions and details regarding how this list was developed.
2. This list is sorted by Waterbody Type and then Assessment Unit ID.
3. By this note, all surface waters in New Hampshire (which are divided into over 5000 Assessment Units) are also included on this list due to statewide fish/shellfish consumption advisories issued because of mercury levels in fish/shellfish tissue. To keep the size of this list manageable, mercury impairment for fish/shellfish consumption are not shown below.
4. TMDL stands for Total Maximum Daily Load study. TMDL schedules are subject to change as funding and resources become available. DES recommends that EPA take the lead on regional TMDLs such as low pH due to acid rain and fish/shellfish consumption advisories due to mercury, PCBs and dioxin.
5. Waters presented on this list may also be threatened or impaired by other pollutants or nonpollutants that do not require a TMDL.

Waterbody Type: RIVER

Assessment Unit ID	Assessment Unit Name and Description	Assessment Unit Size	Units	AU Category
NHRIV802010301-09	ASHUELOT RIVER	1.71	MILES	5

Use	Use Support Status	Threatened?	Cause	Suspected Sources	TMDL Schedule	Impairment Category
Aquatic Life	Not Supporting		pH	Source Unknown	2017	5

Assessment Unit ID	Assessment Unit Name and Description	Assessment Unit Size	Units	AU Category
NHRIV802010301-11	ASHUELOT RIVER	2.57	MILES	5

Use	Use Support Status	Threatened?	Cause	Suspected Sources	TMDL Schedule	Impairment Category
Aquatic Life	Not Supporting		Dissolved oxygen saturation	Municipal (Urbanized High Density Area)	2007	5
Aquatic Life	Not Supporting		pH	Source Unknown	2016	5

Assessment Unit ID	Assessment Unit Name and Description	Assessment Unit Size	Units	AU Category
NHRIV802010301-12	MILL CREEK	0.2	MILES	5

Use	Use Support Status	Threatened?	Cause	Suspected Sources	TMDL Schedule	Impairment Category
Aquatic Life	Not Supporting		Benzo(a)pyrene (PAHs)	Petroleum/natural Gas Activities (Legacy)	2017	5

Assessment Unit ID	Assessment Unit Name and Description	Assessment Unit Size	Units	AU Category
NHRIV802010303-01	ROCKWOOD BROOK - UNNAMED BROOK	3.05	MILES	5

Use	Use Support Status	Threatened?	Cause	Suspected Sources	TMDL Schedule	Impairment Category
Aquatic Life	Not Supporting		pH	Source Unknown	2017	5

Assessment Unit ID	Assessment Unit Name and Description	Assessment Unit Size	Units	AU Category
NHRIV802010303-12	SOUTH BRANCH ASHUELOT RIVER	0.88	MILES	5

Use	Use Support Status	Threatened?	Cause	Suspected Sources	TMDL Schedule	Impairment Category
Primary Contact Recreation	Not Supporting		Escherichia coli	Source Unknown	2017	5

NEW HAMPSHIRE

FINAL 2004 LIST OF THREATENED OR IMPAIRED WATERS THAT REQUIRE A TMDL

(i.e., Category 5 Impairments - this represents the Section 303(d) List)

(Excluding Fish/Shellfish Consumption Advisories due to Mercury - see Note 3)

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4. TMDL stands for Total Maximum Daily Load study. TMDL schedules are subject to change as funding and resources become available. DES recommends that EPA take the lead on regional TMDLs such as low pH due to acid rain and fish/shellfish consumption advisories due to mercury, PCBs and dioxin.
5. Waters presented on this list may also be threatened or impaired by other pollutants or nonpollutants that do not require a TMDL.

Waterbody Type: RIVER

Assessment Unit ID	Assessment Unit Name and Description	Assessment Unit Size	Units	AU Category
NHRIV600030602-03	AXE HANDLE BROOK - HOWARD BROOK	7.01	MILES	5

Use	Use Support Status	Threatened?	Cause	Suspected Sources	TMDL Schedule	Impairment Category
Primary Contact Recreation	Not Supporting		Escherichia coli	Livestock (Grazing or Feeding Operations)	2017	5
Secondary Contact Recreation	Not Supporting		Escherichia coli	Livestock (Grazing or Feeding Operations)	2017	5
Aquatic Life	Not Supporting		pH	Source Unknown	2016	5

Assessment Unit ID	Assessment Unit Name and Description	Assessment Unit Size	Units	AU Category
NHRIV600030603-01	COCHECO RIVER	5.12	MILES	5

Use	Use Support Status	Threatened?	Cause	Suspected Sources	TMDL Schedule	Impairment Category
Primary Contact Recreation	Not Supporting		Escherichia coli	Source Unknown	2016	5
Secondary Contact Recreation	Not Supporting		Escherichia coli	Source Unknown	2016	5
Aquatic Life	Not Supporting		Aluminum	Source Unknown	2017	5
Aquatic Life	Not Supporting		Dissolved oxygen saturation	Landfills Municipal Point Source Discharges	2005	5
Aquatic Life	Not Supporting		Oxygen, Dissolved	Landfills Municipal Point Source Discharges	2005	5
Aquatic Life	Not Supporting		pH	Source Unknown	2016	5

Assessment Unit ID	Assessment Unit Name and Description	Assessment Unit Size	Units	AU Category
NHRIV600030603-02	POKAMOONSHINE BROOK	2.92	MILES	5

Use	Use Support Status	Threatened?	Cause	Suspected Sources	TMDL Schedule	Impairment Category
Primary Contact Recreation	Not Supporting		Escherichia coli	Source Unknown	2016	5
Aquatic Life	Not Supporting		Oxygen, Dissolved	Source Unknown	2016	5
Aquatic Life	Not Supporting		pH	Source Unknown	2016	5

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2002 Ashuelot TMDL Data Report

NEW HAMPSHIRE DEPARTMENT OF
Environmental Services

Contents

August 29, 2001
Hydrolab Deployment Team and Calibration Information
Pre and Retrieval In-Situ Measurements
Hydrolab Deployment Information
Hydrolab Meter Agreement
Hydrolab Data Results
Temperature for the Ashuelot River from August 28 to August 30
DO mg/L for the Ashuelot River from August 28 to August 30
DO % Saturation for the Ashuelot River from August 28 to August 30

August 28, 2002
Hydrolab Deployment Team and Calibration Information
Hydrolab Deployment Information
Pre and Retrieval In-Situ Measurements
Keene WWTF Calibration Information
Hydrolab Meter Agreement
Hydrolab Data Results
Temperature for the Ashuelot River from August 27 to August 29
DO mg/L for the Ashuelot River from August 27 to August 29
DO % Saturation for the Ashuelot River from August 27 to August 29

Section 6 Sampling Data Results

August 16, 2001
Field Meter Calibration Sheet
Early Morning Sampling Team Data and Graph
Afternoon Sampling Team Results
Field Duplicate Check
Laboratory Custody Sheets
Laboratory Results
Individual Results of Laboratory Analysis
CBOD Calculations and BOD Lab Results
Ashuelot River Flow Results

August 23, 2001
Field Meter Calibration Sheet
Early Morning Sampling Team Data and Graph
Afternoon Sampling Team Results
Field Duplicate Check
Laboratory Custody Sheets
Laboratory Results
Individual Results of Laboratory Analysis
CBOD Calculations and BOD Lab Results
Ashuelot River Flow Results

August 29, 2001
Field Meter Calibration Sheet
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Ashuelot River Flow Results

August 28, 2002
Meter Agreement Field Sheet
Early Morning Sampling Team Results
Afternoon Sampling Team Results
Field Duplicate and Replicate Results
Field Duplicate and Replicate Data Averages
Laboratory Custody Sheet
Laboratory Results
Individual Results of Laboratory Analysis
CBOD Calculations Worksheet
BOD Lab Results
Ashuelot River Flow Results
21-Ash, 17-Ash, OA-Bra, OA-Asb, 16D-Ash, 2-Sba, 14T-Ash, 12-Ash

Section 7 Sediment Oxygen Demand Report

Measurement of Sediment Oxygen Demand in the Ashuelot River
US EPA Report

Section 1
Project Summary and Data

Summary
Flagged Data

2002 Ashuelot River TMDL Sumary

On August 28, 2002, staff from the New Hampshire Department of Environmental Services ("NHDES") collected one round of water quality samples and flow measurements on approximately 20 miles of the Ashuelot River in Keene and Swanzey for a dissolved oxygen TMDL. This information is collected in support of the NHDES Waste Water Engineering Bureau's NPDES permitting staff. Fourteen main stem river sampling sites, three tributaries, the Keene Waste Water Treatment Facility ("WWTF") effluent discharge and the Swanzey WWTF effluent discharge were identified as desired sample collection locations. Samples were collected from all of the identified sites. A total of five hydrolabs were deployed in mainstem river locations. One hydrolab was deployed in the impoundment behind the dam on West Street at the Ashuelot River Park in Keene. Hydrolabs were also deployed upstream and downstream of the two WWTF's where their effluent pipes discharge into the river. The requirements for field personnel training, weather and flow conditions, equipment use, and sample collection and tracking were all met according to the Quality Assurance Project Plan ("QAPP")[1] for the project as approved by the Environmental Protection Agency ("EPA") on July 24, 2002. One addendum to the QAPP, for the measurement of Sediment Oxygen Demand, was approved by EPA on September 11, 2002. Standard operating procedures for equipment preparation, field sampling and analysis and laboratory testing are included in the appendixes of the approved QAPP.

All questionable or suspect data has been "flagged", or identified by the use of pink highlighting, in the field and laboratory data sheets in sections 5 and 6 of this report. A table which identifies each item of flagged data and information pertaining to the item can be found on page 2 of this report. It is up to the user to determine if the inclusion of flagged data is appropriate for their application.

[1] 2002 Quality Assurance Project Plan for the Upper Ashuelot River TMDL Study, July 17, 2002, NHDES

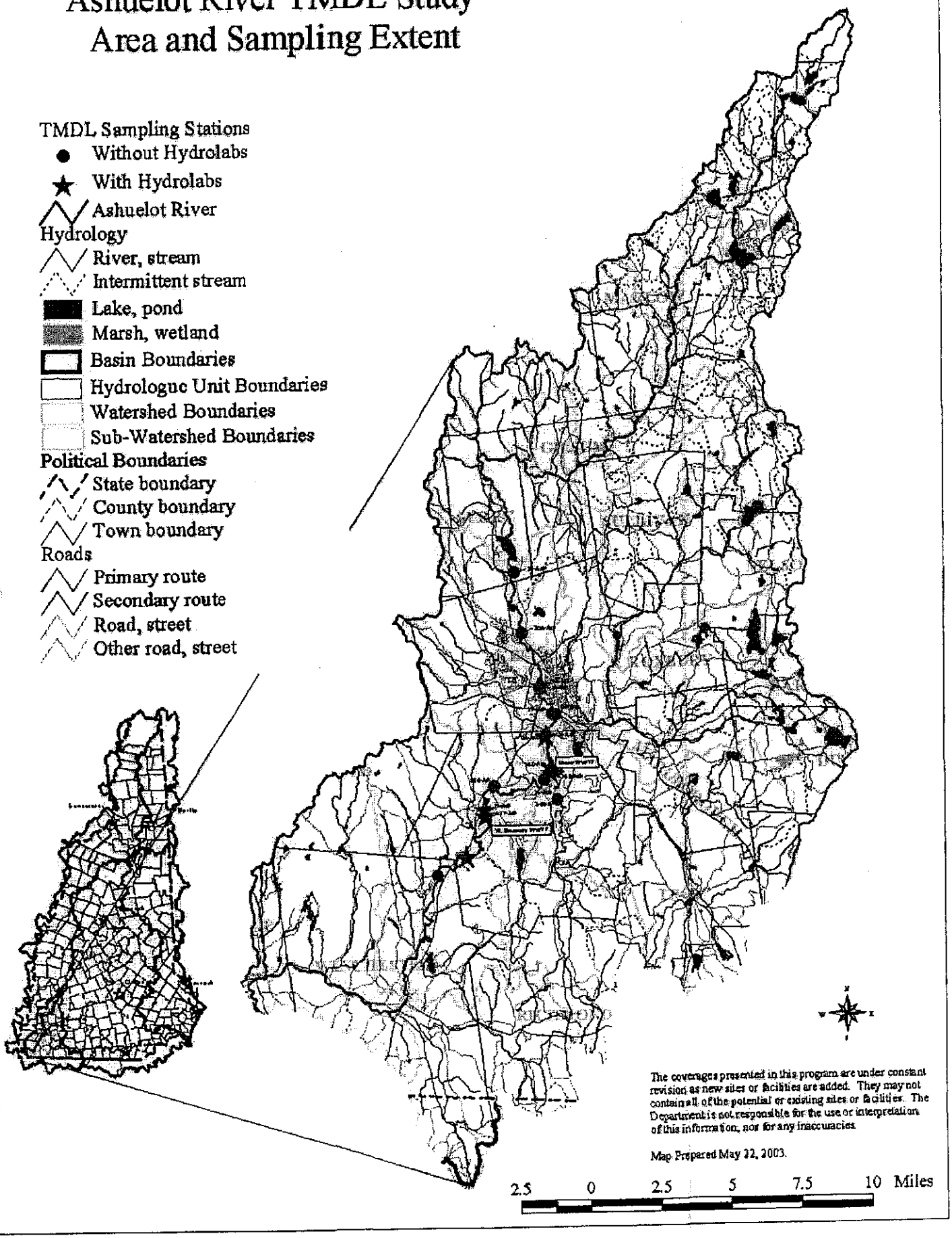
FLAGGED DATA

	Item	Information
Section 5		
	Hydrolab Pre-Calibration	Uncollected/missing information on field sheets.
	Hydrolab Pre-Deployment	Uncollected/missing serial number for the hand held DO meter.
	Hydrolab #37790 Deployed at 19A-Ash	"Noisy reading"
Section 6		
	DO/Temp Meter Calibration/ Group Meter Agreement Field Sheet, Check1,2 and 3.	Air temperature not recorded on field data sheet.
	DO/Temp Meter Calibration/ Group Meter Agreement Field Sheet, Check 2	Initial calibration chamber % saturation reading and group bucket % saturation DO reading Not recorded on data sheet.
	DO/Temp Meter Calibration/ Group Meter Agreement Field Sheet, Check 3	Initial calibration % saturation not recorded on field data sheet.
	EMST Data	River width, depth, distance from River bank, and post-sample storage Chamber % saturation reading not Recorded on field data sheet for some locations.
	PMST Data	Data was not recorded on the field Data sheets in highlighted areas.
	Laboratory Report	No data obtained for the Chlor A Sample for 16-ASH due to lab accident.

Section 2
Project Maps and Contact Information

Ashuelot River Watershed Map
Ashuelot River Sampling Station Spreadsheet
Ashuelot River Sampling Station Map
Ashuelot River Sampling Site Directions
Ashuelot River Contact Information

Ashuelot River TMDL Study Area and Sampling Extent



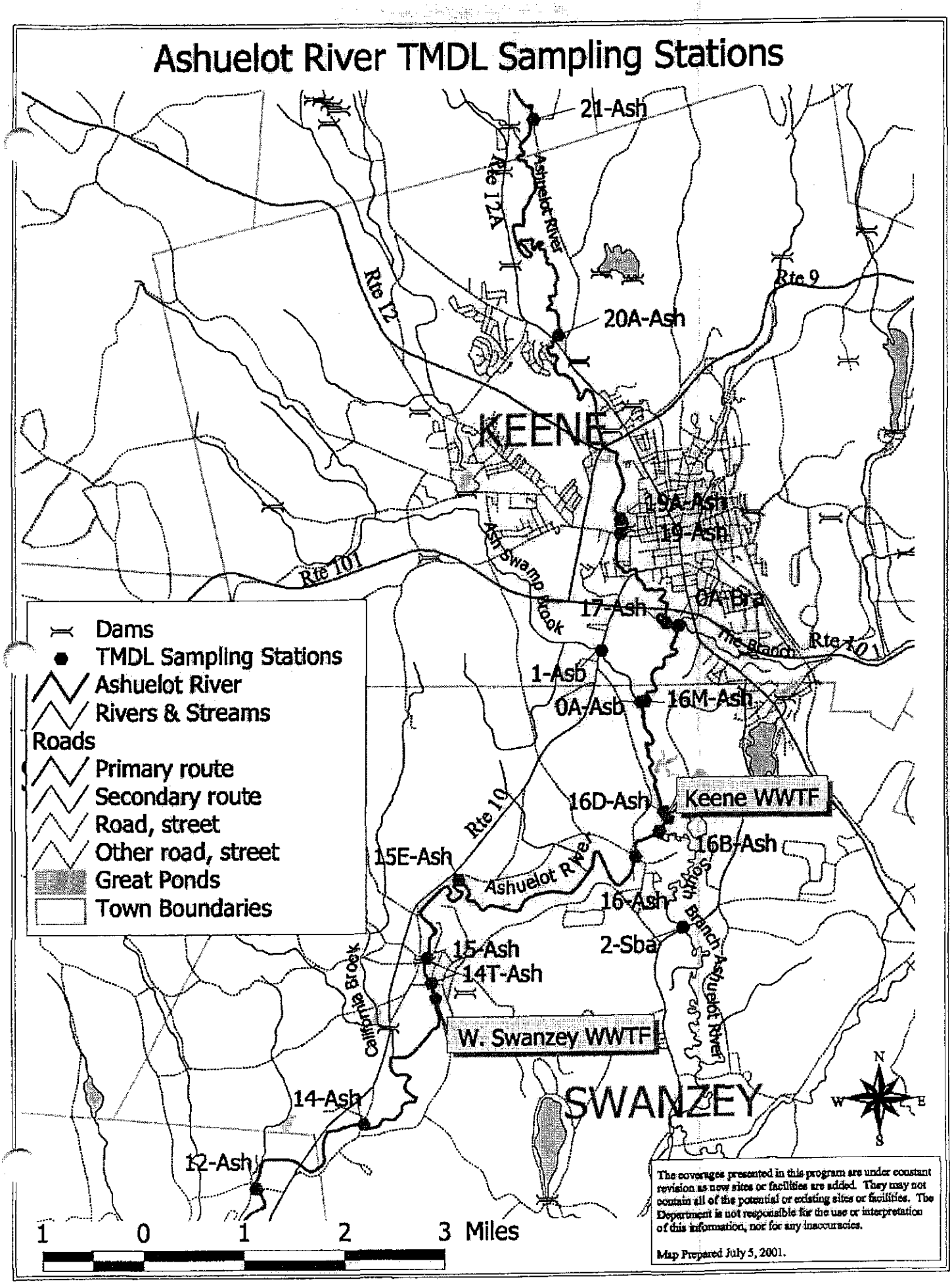
Waterbody	Station ID	Description	Feet from 21-Ash	Miles from 21-Ash*	Watershed Area (ft^2)**	Watershed Area (miles^2)**
Ashuelot River	21-Ash	Surry Mountain Road Bridge, Surry	*0.0*	0.00	*2846672185*	102.1
Ashuelot River	20A-Ash	Stone Arch Bridge located ~200 feet upstream of Rte 12 A Bridge, Keene	*18937.2*	3.59	*3091514496*	110.9
Ashuelot River	19A-Ash	Foot suspension bridge across impoundment upstreams of ~8 foot high dam upstream of West Street bridge, Keene.	*32645.4*	6.18	*3173746803*	113.8
Ashuelot River	19-Ash	West Street Bridge , Keene	*33391.4*	6.32	*3182408512*	114.2
Ashuelot River	17-Ash	Stone Arch Bridge off of Martel Road on the south of Rte 101, Keene.	*41558.1*	7.87	*3223927445*	115.6
The Branch River	0A-Bra	Approximately 100 feet upstream of confluence with Ashuelot River (behind pump station off of Martel Avenue)	*42085.9*	7.97	*6016365034*	215.8
Ashuelot River	16M-Ash	~100 feet upstream of Ash Swamp Brook confluence, Keene.	*47578.1*	9.01	*6033113994*	216.4
Ash Swamp Brook	1-Asb	Rte 10 crossing, Keene.	*47678.1*	9.03	*6539315820*	234.6
Ash Swamp Brook	0A-Asb	Approximately 100 feet upstream of confluence with Ashuelot River, Swanzey.	*47678.1*	9.03	*6539315820*	234.6
Ashuelot River	16D-Ash	~50 feet upstream of the Keene WWTF outfall, Swanzey.	*54089.2*	10.24	*6631890880*	237.9
Keene WWTF	Keene WWTF discharge	Keene WWTF outfall, Swanzey	*54523.0*	10.33	*6632744399*	237.9
Ashuelot River	16B-Ash	Just downstream of Keene WWTF and upstream of S. Branch Ashuelot River, Keene.	*55284.5*	10.47	*6634187326*	238.0
South Branch Ashuelot River	2-Sba	Rte 32 bridge. Park on southwest side. Take sample from walkway on upstream side of bridge.	*55565.9*	10.52	*8672442985*	311.1
Ashuelot River	16-Ash	~100 feet upstream of Sawyers Crossing Road bridge (covered bridge called Cresson Bridge) just downstream of S. Branch Ashuelot River confluence, Swanzey.	*57408.3*	10.87	*8677919090*	311.3
Ashuelot River	15E-Ash	Adjacent to Rte 10	*71673.1*	13.57	*8789614657*	315.3
Ashuelot River -	15-Ash	Covered bridge over Homestead Woolen Dam Impoundment	*79274.8*	15.01	*8809154826*	316.0
Ashuelot River	14T-Ash	Denman Thompson Highway bridge. Sample on upstream side.	*80770.5*	15.30	*8811889311*	316.1
W. Swanzey WWTF	W. Swanzey WWTF	Access to WWTF is from Denman Thompson Highway. Install composite sampler in red chlorine contact building.	*81560.5*	15.45	*8815195554*	316.2
Ashuelot River	14-Ash	~100 feet upstream of covered bridge (under construction), Swanzey	*93359.4*	17.68	*9157949937*	328.5
Ashuelot River	12-Ash	Coombs Road covered bridge, Winchester.	*102185.4*	19.35	*9247736666*	331.7

Notes:

* Distances are based on location of impact on the Ashuelot River

** Watershed Areas are based on location of impact on the Ashuelot River

Ashuelot River TMDL Sampling Stations



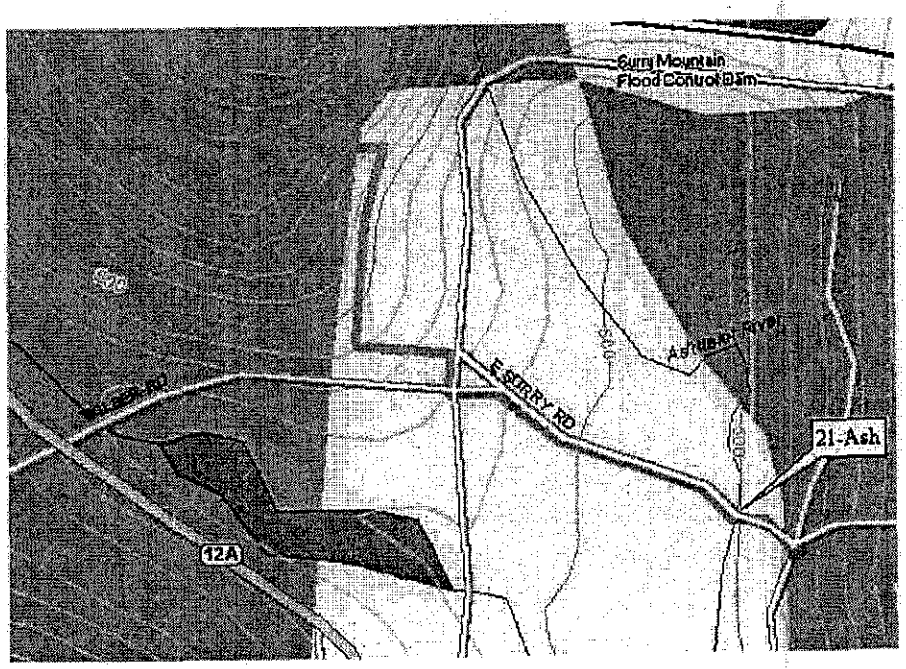
6/13/03

ASHUELOT RIVER TMDL SAMPLING SITES

River	Site ID	Site Location	Location Description
Ashuelot River	21-Ash	Upstream side of bridge on East Surry Road just below Surry Mountain dam, Surry.	Downstream of Surry Mtn. Dam and upstream of golf course. Wadable..

This photo was taken from the bridge over the Ashuelot looking upstream. The golf course is downstream of this bridge.

Note: This photo was taken in Spring 2002. The water level may be significantly lower when samples are collected.



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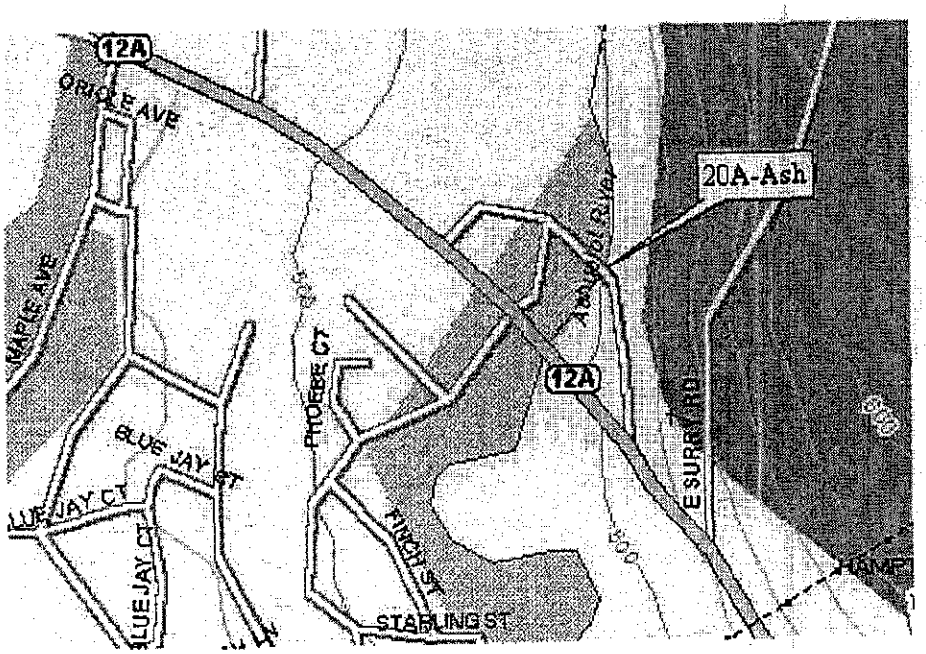
ASHUELOT RIVER TMDL SAMPLING SITES

River	Site ID	Site Location	Location Description
Ashuelot River	20A-Ash	Upstream side of the Stone Double-Arch Bridge (closed to traffic) located ~ 200 feet upstream of Rte 12 A Bridge, Keene	Upstream of City and Tenant Swamp and downstream of golf course. Wadable.

This is the view of the stone double-arch bridge looking downstream. There is a small seasonal tributary that enters the Ashuelot just upstream of where this photo was taken.

Note: This photo was taken in Spring 2002. The water level may be significantly lower when samples are collected.



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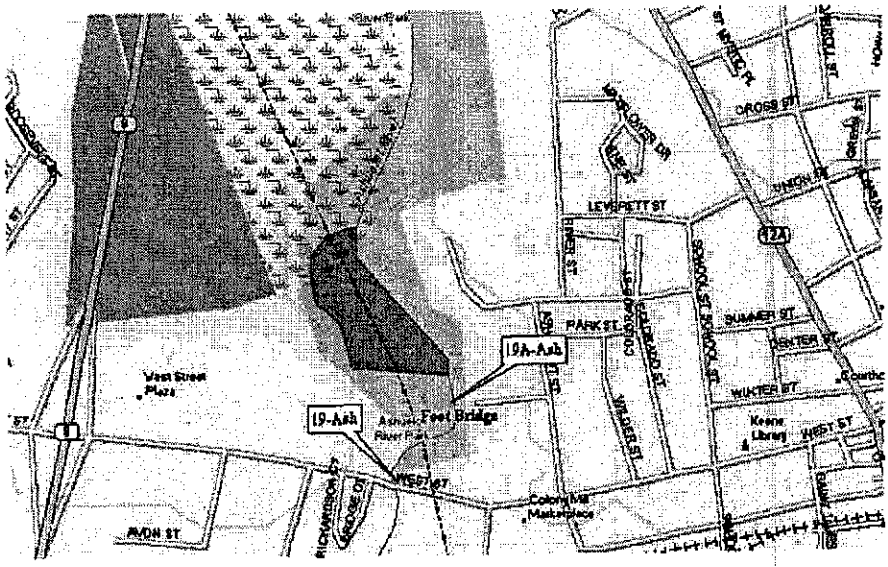
ASHUELOT RIVER TMDL SAMPLING SITES

River	Site ID	Site Location	Location Description
Ashuelot River	19A-Ash	Foot suspension bridge across impoundment upstream of ~ 8 foot high dam upstream of West Street bridge, Keene.	Impoundment downstream of Tenant Swamp. Very slow moving. Would need boat if hydrolab is deployed. Access from parking lot on west side.



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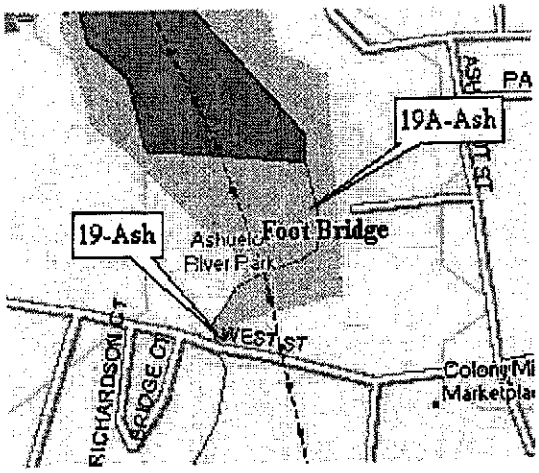
ASHUELOT RIVER TMDL SAMPLING SITES

River	Site ID	Site Location	Location Description
Ashuelot River	19-Ash	Upstream side of West Street Bridge	Accounts for reaeration from dam. Wadable. Lots of poison ivy. If need to get to river go on side by Taco Bell. Partially submerged pipe upstream.



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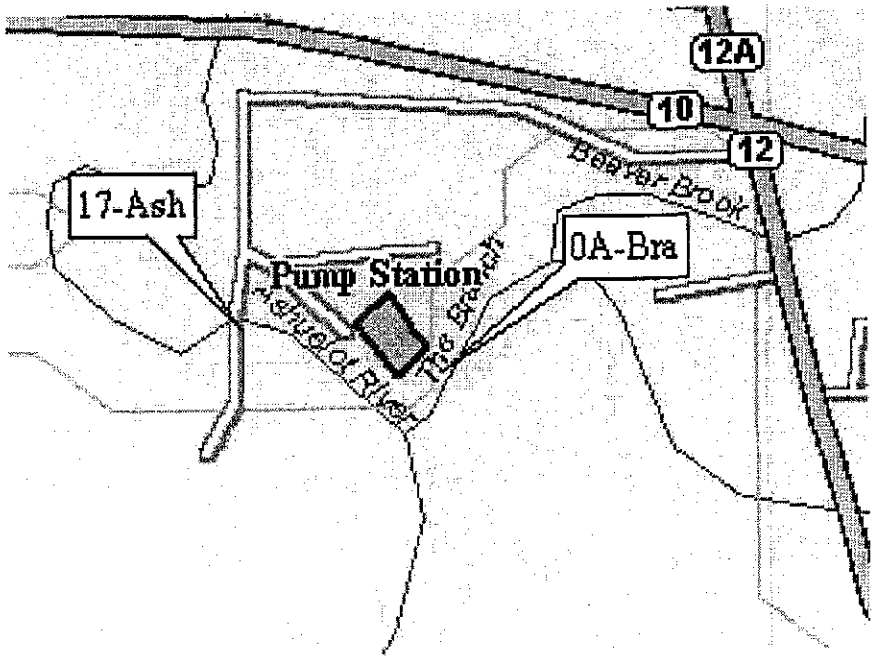
ASHUELOT RIVER TMDL SAMPLING SITES

River	Site ID	Site Location	Location Description
Ashuelot River	17-Ash	Foot Bridge off of Martel Road on the south of Rte 101, Keene.	Accounts for much of City and is just upstream of The Branch River confluence. Probably wadable at low flow.

This photo was taken next to the old Keene WWTF building where the old outfall pipe is located in the bank of the Ashuelot. This view is looking downstream just below the footbridge (where the sample is taken) and just above where the Branch River enters the Ashuelot. The footbridge leads to some of Keene State College's athletic fields on the other side of the Ashuelot.

Note: This photo was taken in Spring 2002. The water level may be significantly lower when samples are collected.



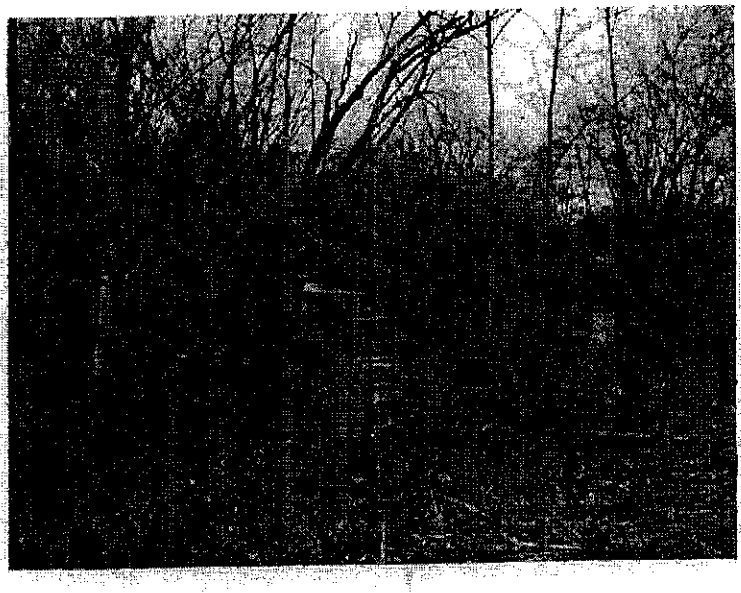
6/13/03

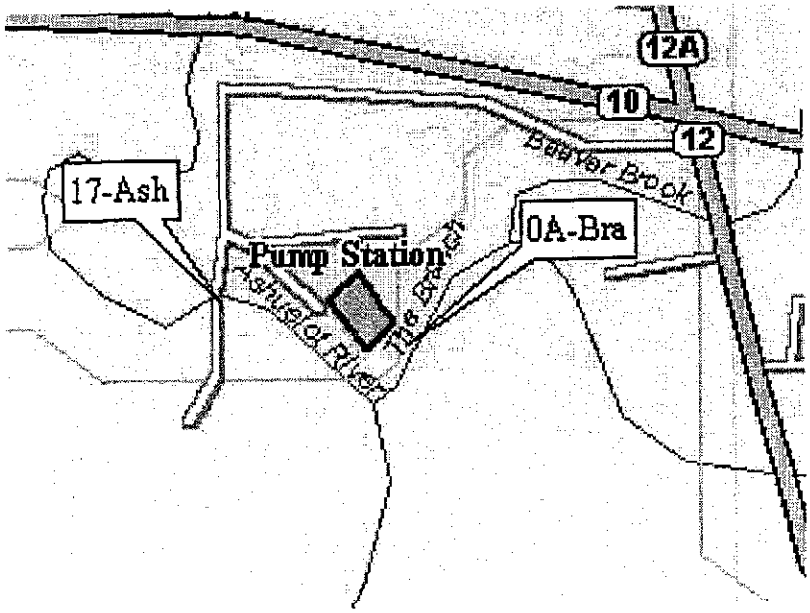
ASHUELOT RIVER TMDL SAMPLING SITES

River	Site ID	Site Location	Location Description
The Branch River	0A-Bra	Approximately 100 feet upstream of confluence with Ashuelot River. Take Martel Avenue to Pump Station. Walk down right side of pump station to river. Sample downstream of exposed sewer pipe.	Background: Major tributary draining part of City that may be affecting DO upstream of Keene WWTF. Wadable

This photo was taken behind the old Keene WWTF. The view is looking downstream at the end of The Branch River where it flows into the Ashuelot River (the Ashuelot is at the "bend" in the photo).

Note: This photo was taken in Spring 2002. The water level may be significantly lower when samples are collected.





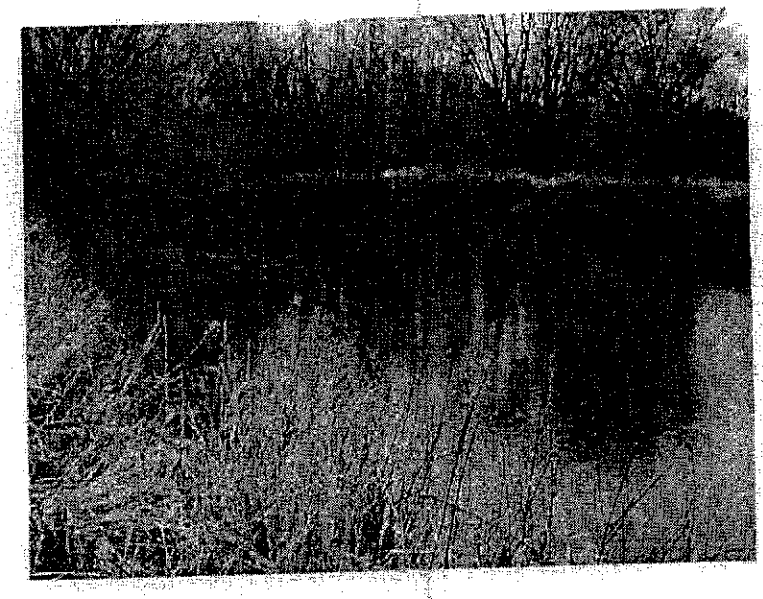
6/13/03

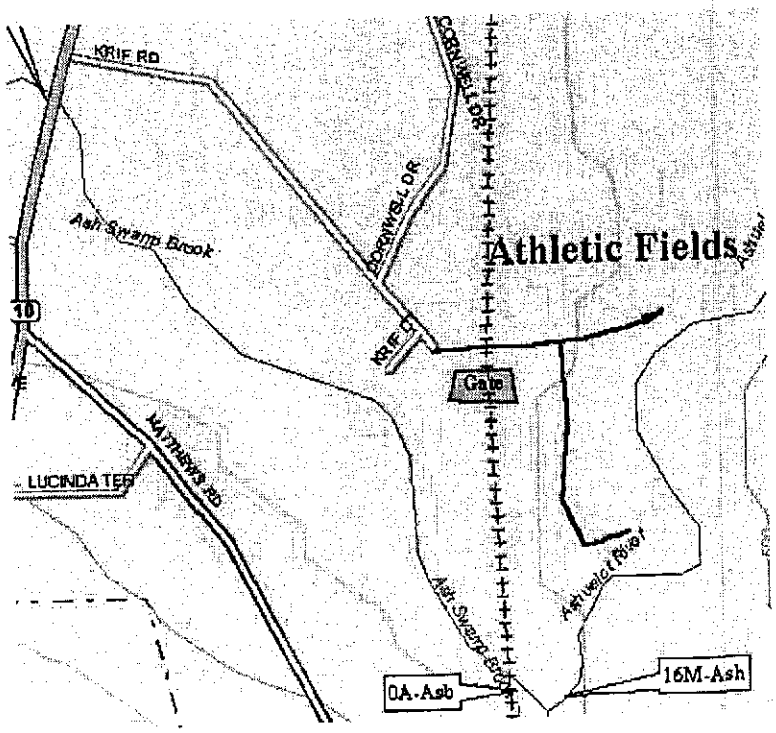
ASHUELOT RIVER TMDL SAMPLING SITES

River	Site ID	Site Location	Location Description
Ashuelot River	16M-Ash	Just upstream of Ash Swamp Brook confluence, Keene.	To determine influence of Ash Swamp Brook on DO upstream of WWTF. Wadable. Take Kirk Road (sign for Keene State Athletic Complex). Just before gate to Athletic Field bear right onto old Railroad Bed/Bike Trail (get key to gate from Gregg). Lock gate after you go in. At Ash Swamp Brook, hike across to Ashuelot River and take sample approx. 25 feet upstream of Ash Swamp Br.

This is a photo of the Ashuelot River just upstream of where Ash Swamp Brook enters the river. The view is looking upstream (Ash Swamp Brook is to the back of the photographer).

Note: This photo was taken in Spring 2002. The water level may be significantly lower when samples are collected.





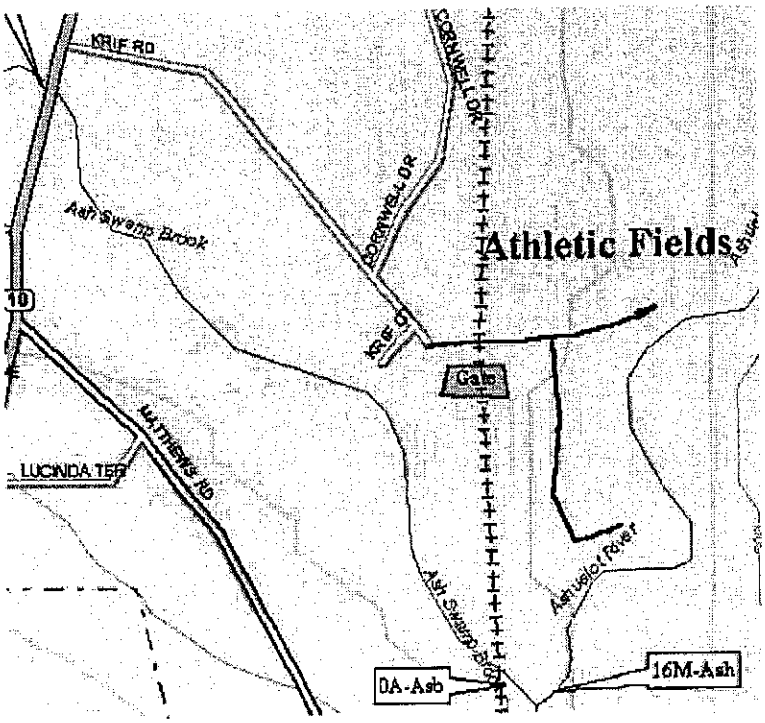
6/13/03

ASHUELOT RIVER TMDL SAMPLING SITES

River	Site ID	Site Location	Location Description
Ash Swamp Brook	0A-Asb	Bridge over old railroad bed approximately 200 feet upstream of confluence with Ashuelot River, Swanzey.	Background: To determine contribution of Ash Swamp Brook. See directions for Station 16M-Ash.

This photo was taken from the railroad bridge looking down at the upstream side of Ash Swamp Brook. The Ashuelot River is about 200 feet downstream from this bridge.

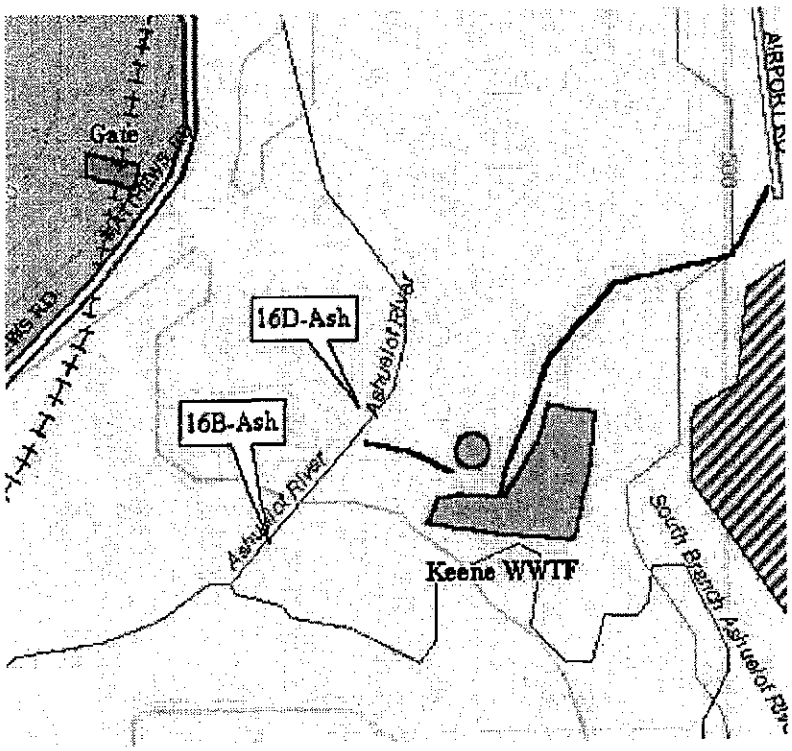
Note: This photo was taken in Spring 2002. The water level may be significantly lower when samples are collected.



6/13/03

ASHUELOT RIVER TMDL SAMPLING SITES

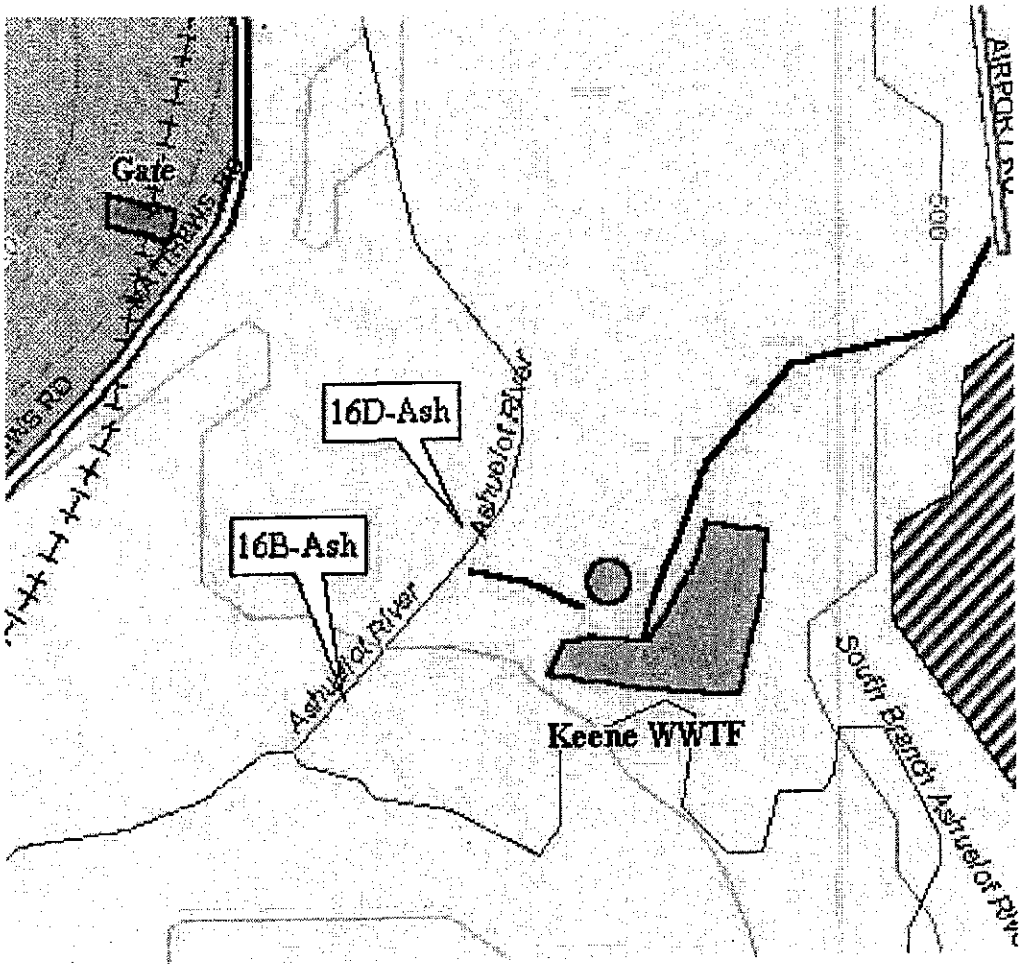
River	Site ID	Site Location	Location Description
Ashuelot River	16D-Ash	~ 50 feet upstream of the Keene WWTF outfall, Just upstream of Keene WWTF, Swanzey.	Background for model. Accounts for influence of all upstream sources including wetlands by airport. Take road to Airport off of Rte 12. Go past terminal and through gate by sign for WWTF (we have a key). Go about 1.5 miles to the WWTF. Take a right past the contact tanks to another gate (we have a key). Go through gate along dirt road to river. WWTF has a small boat if needed. Flow to be taken about 1/2 mile upstream from WWTF where river is wadable. Gregg has key to gate across Railroad Bed/Bike Trail at Matthews Road for Flow team. To sample in mid-stream will probably need boat.



6/13/03

ASHUELOT RIVER TMDL SAMPLING SITES

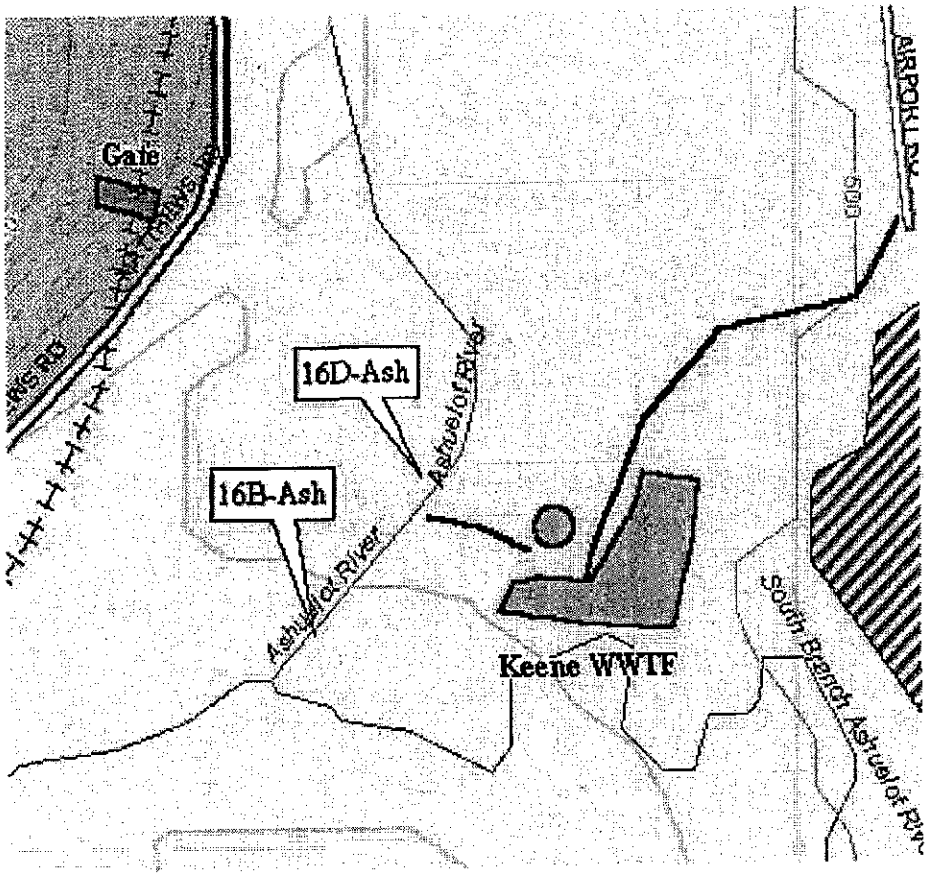
River	Site ID	Site Location	Location Description
Keene WWTF	Keene WWTF	Keene WWTF outfall, Swanzey.	Take road to Airport off of Rte 12. Go past terminal and through gate by sign for WWTF (we have a key). Go about 1.5 miles to the WWTF. Take a right to contact tank. Set up composite sampler on metal deck by contact tank.



6/13/03

ASHUELOT RIVER TMDL SAMPLING SITES

River	Site ID	Site Location	Location Description
Ashuelot River	16B-Ash	Just downstream of Keene WWTF and upstream of S. Branch Ashuelot River, Swanzey	Access by boat from WWTF.



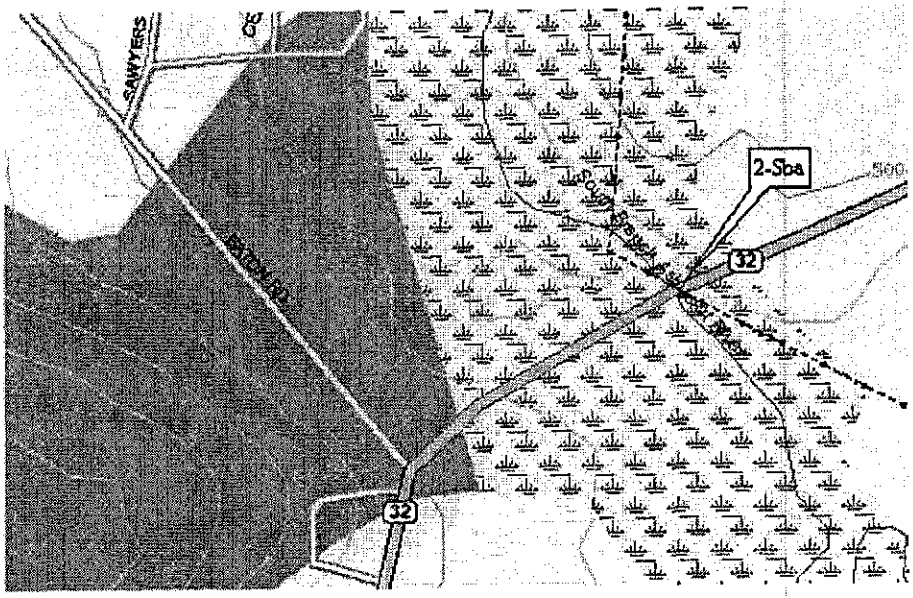
6/13/03

ASHUELOT RIVER TMDL SAMPLING SITES

River	Site ID	Site Location	Location Description
South Branch Ashuelot River	2-Sba	Rte 32 bridge, Swanzey.	Flow measured in 1989 WLA. Macrophytes. Wadable. Park on southwest side. Take sample from walkway on upstream side of bridge.

This photo of the sample site was taken from the bridge on Route 32 looking upstream at the South Branch. Power lines go over the river at this sampling location.

Note: This photo was taken in Spring 2002. The water level may be significantly lower when samples are collected.



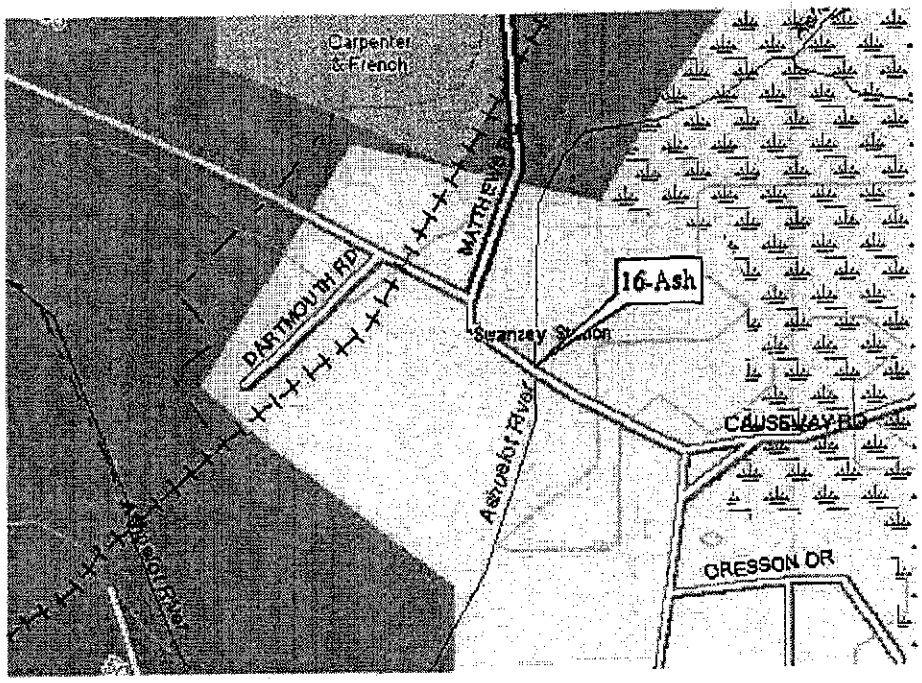
6/13/03

ASHUELOT RIVER TMDL SAMPLING SITES

River	Site ID	Site Location	Location Description
Ashuelot River	16-Ash	Sawyers Crossing Road bridge (covered bridge called Cresson Bridge) , Swanzey.	Just downstream of S Branch Ashuelot River confluence. Access is by dirt parking lot on northwest side. Cannot sample from bridge. River is wadable.

This photo shows the Cresson Bridgeover the Ashuelot River on Sawyers Crossing Road. The view is looking downstream and the sample is taken at the spot of the photo.

Note: This photo was taken in Spring 2002. The water level may be significantly lower when samples are collected.



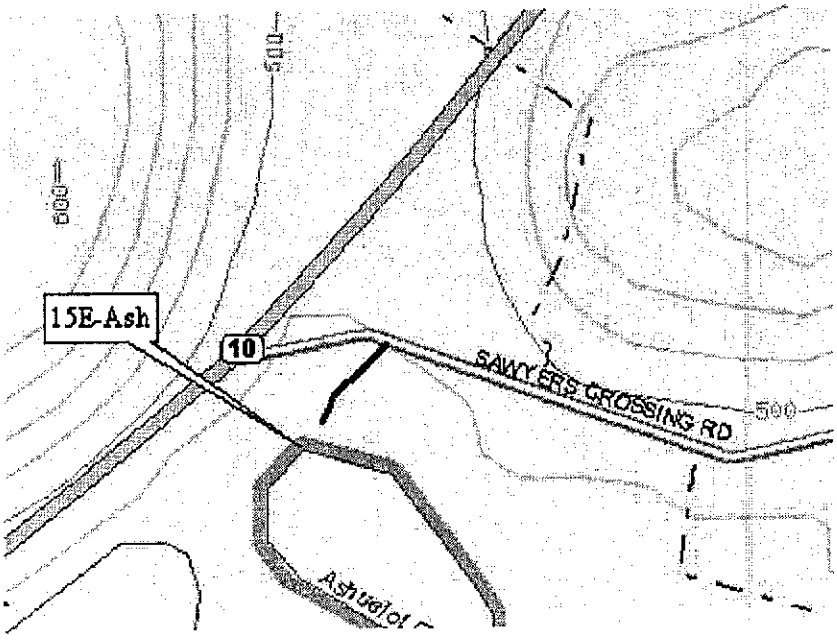
6/13/03

ASHUELOT RIVER TMDL SAMPLING SITES

River	Site ID	Site Location	Location Description
Ashuelot River	15E-Ash	Dirt road off of Sawyer's Crossing Road just before it intersects with Rte 10, Swanzey	Very wide, deep and slow. Backwater from dam. Will most likely need boat if want to sample midstream.

This is the view of the sample site looking upstream. There is a small dirt parking area at the site. Look for the "crooked" tree with the orange flagging on it. The sample is taken in the middle of the channel.

Note: This is **deep** section of the river. You will most likely need a boat to access the middle of the stream for sampling.

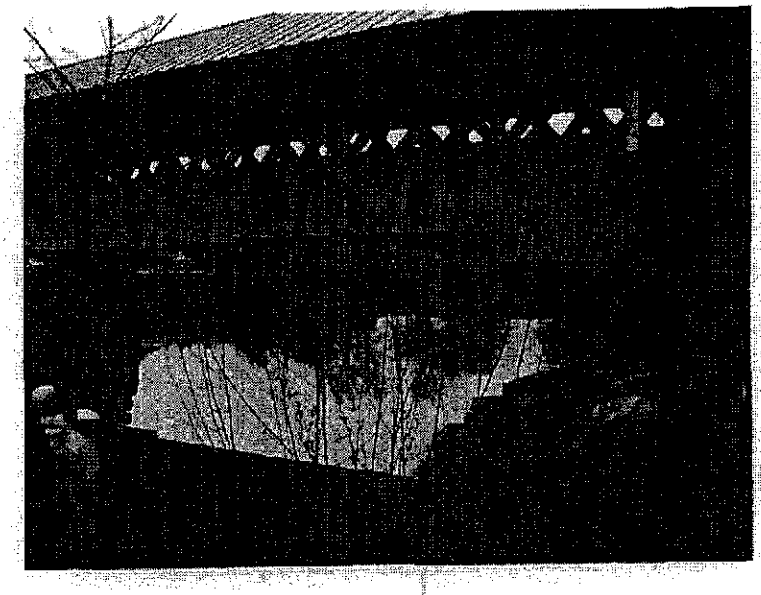


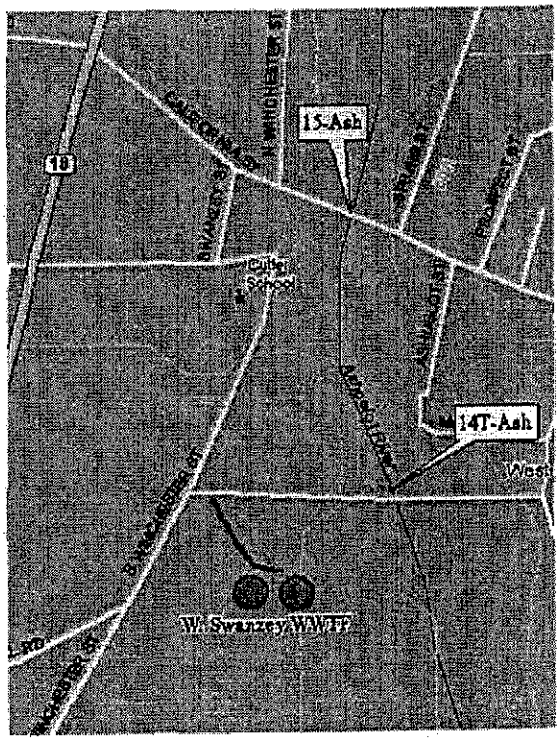
6/13/03

ASHUELOT RIVER TMDL SAMPLING SITES

River	Site ID	Site Location	Location Description
Ashuelot River - Homestead Woolen Dam Impoundment	15-Ash	Covered bridge (Thompson Bridge), Swanzey.	Impoundment of the Homestead Woolen Dam. Old USGS gage is located in the dirt parking area on the southeast side. Take sample from sidewalk on upstream side of bridge.

This photo was taken from the dirt parking area next to the river. The view is looking upstream at the Thompson Bridge. The dam is just downstream to the left and the Homestead Woolen Mill directly is across the river from this spot. The sample is taken on the upstream side of the bridge from the sidewalk.



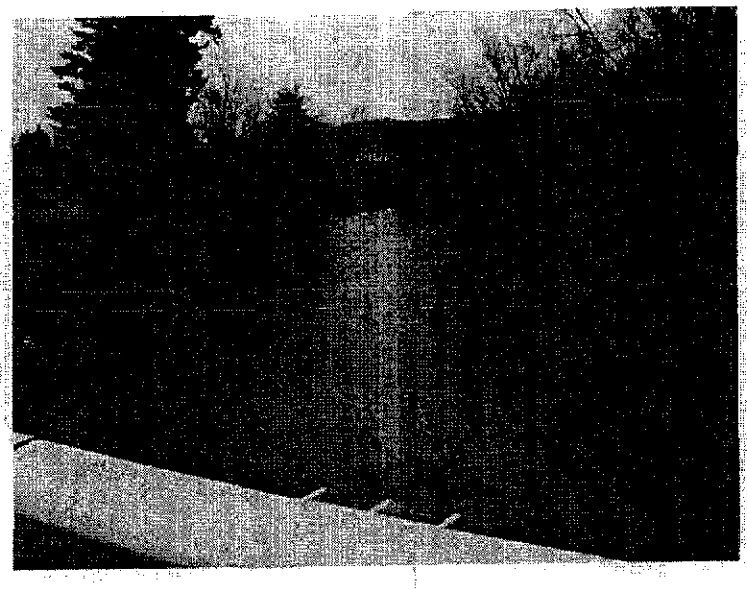


6/13/03

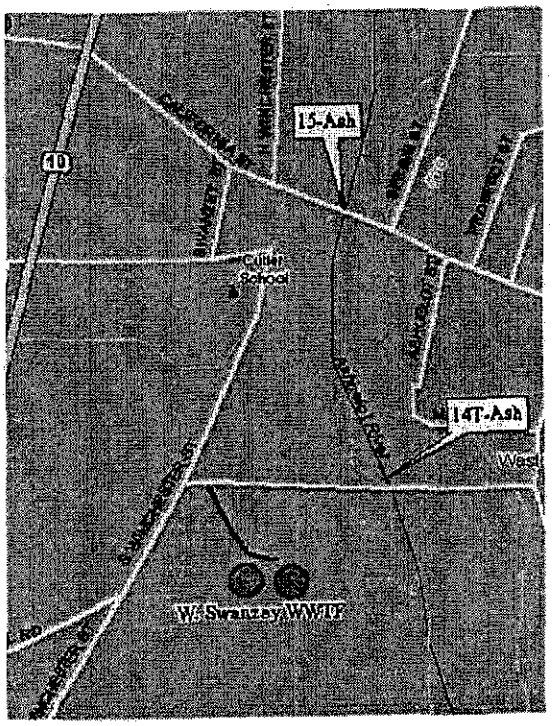
ASHUELOT RIVER TMDL SAMPLING SITES

River	Site ID	Site Location	Location Description
Ashuelot River	14T-Ash	Denman Thompson Highway bridge, Swanzey. Sample on upstream side.	Downstream of dam and just upstream of W. Swanzey WWTF outfall. Wadable. Sample on upstream side.

This photo was taken from the Thompson Highway bridge. The view is looking upstream back towards the Homestead Woolen Mill and spillway. Pull of the side of the road just past the bridge and there is a small path that leads down to the upstream side of the bridge where the sample is taken.



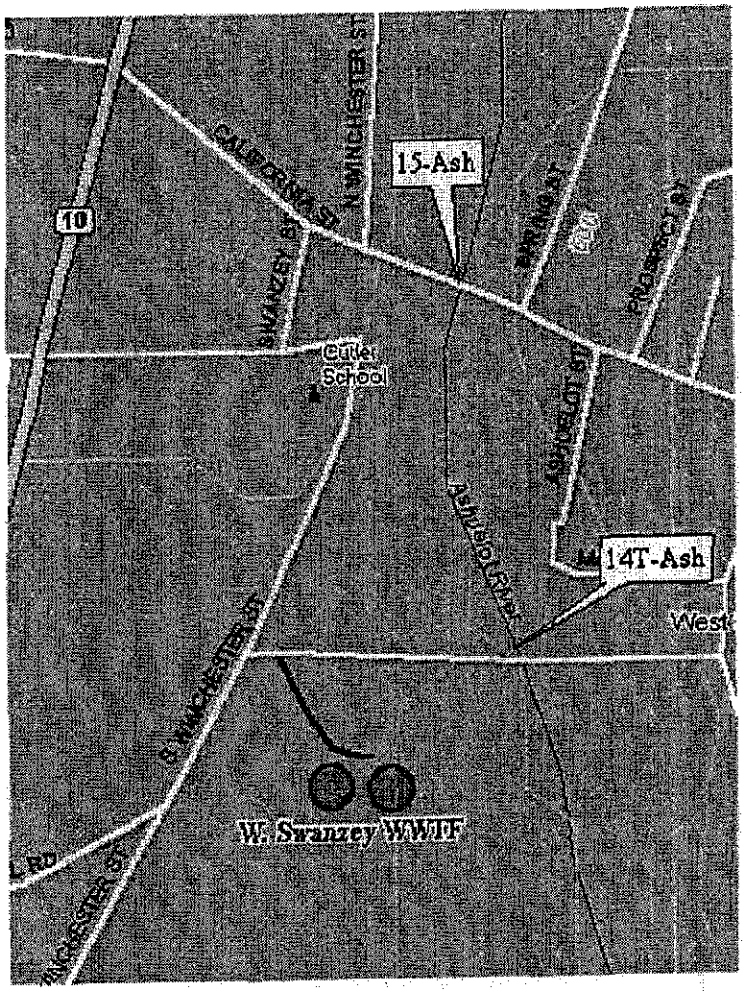
Note: This photo was taken in Spring 2002. The water level may be significantly lower when samples are collected.



6/13/03

ASHUELOT RIVER TMDL SAMPLING SITES

River	Site ID	Site Location	Location Description
	W. Swanzey WWTF	Access to WWTF is from Denman Thompson Highway.	Access to WWTF is from Denman Thompson Highway. Install composite sampler in red chlorine contact building.

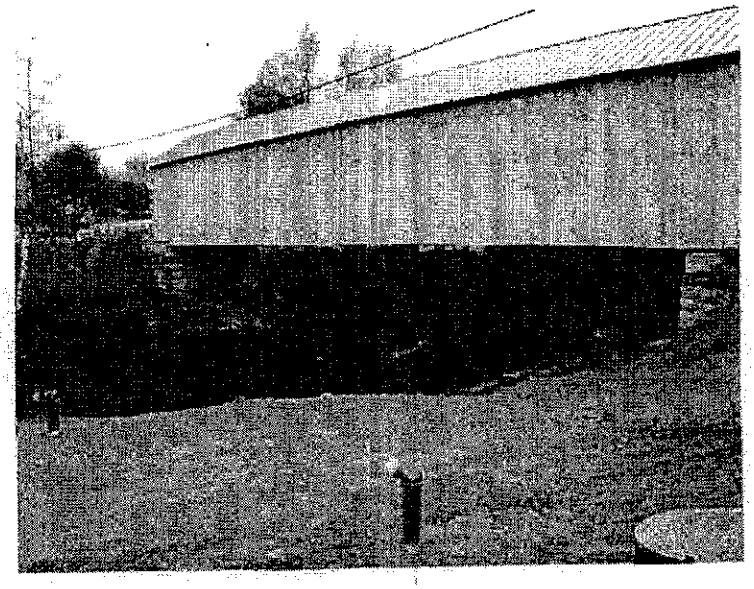


6/13/03

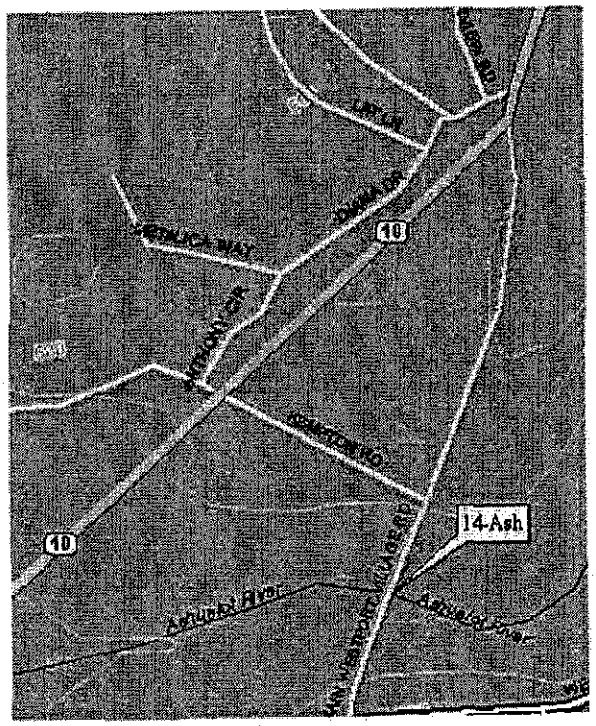
ASHUELOT RIVER TMDL SAMPLING SITES

River	Site ID	Site Location	Location Description
Ashuelot River	14-Ash	~ 100 feet upstream of the new covered bridge in Swanzey.	Slow wide and deep. **Boat** needed if want to sample mid channel. Access from northeast side (downstream side) .

This picture shows the new covered bridge over the Ashuelot River in Swanzey looking upstream. Access the river from this side and paddle to the upstream side of the bridge to take the sample.



Note: The sign over the bridge says there is a $5 fine for driving through the bridge faster than a walk. Drive carefully ☺.



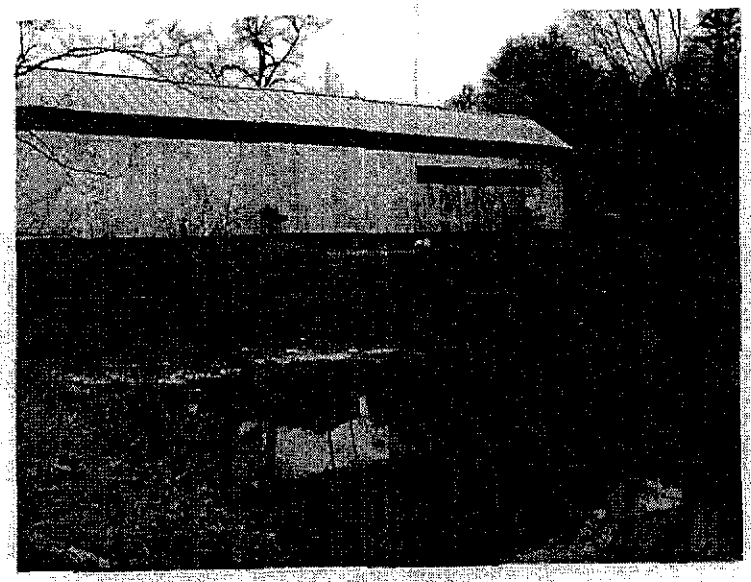
6/13/03

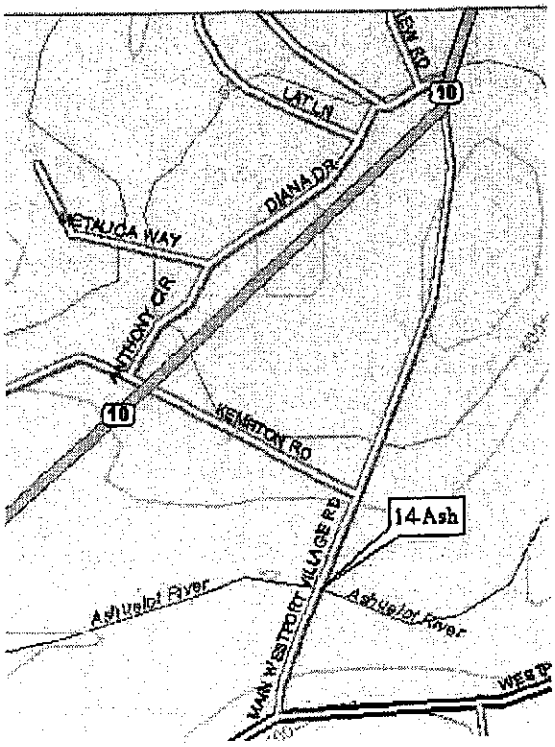
ASHUELOT RIVER TMDL SAMPLING SITES

River	Site ID	Site Location	Location Description
Ashuelot River	12-Ash	Coombs Road covered bridge, Winchester.	Sample just upstream of bridge. Access from northeast side. Cannot take sample from bridge. River is wadable. Flow may be measured at the Rte 10 crossing upstream.

This photo shows the upstream side of the Coombs Road covered bridge, looking downstream. This site is in the Town of Winchester. The footpath leading to this spot isn't much to speak of so watch your footing.

Note: This photo was taken in Spring 2002. The water level may be significantly lower when samples are collected.





PHONE NUMBERS
MUNICIPAL CONTACTS

Ashuelot River TMDL:	
Keene WWTF (Donna Hanscom) (Erin Costa – rain information) (Eric Swope – Hydrolabs)	357-9836 (ext 2) same (ext 6502 same (ext 6504)
Surry Mtn and Otter Brook Dam Operator (USACOE), Jim Lewis – Operator	352-4130
West Swanzey WWTF (Tom Hastings;Tom is the operator at Swanzey but works at Keene WWTF too)	357-9870 (x6501)
Keene Police Dept: Emergency Only All other business	352-2222 357-9815

2002 NHDES TMDL SAMPLE STAFF PHONE NUMBERS

Staff	Work Phone Numbers
Gregg Comstock	271-2983
Peg Foss	271-5448 Cell Phone : 419-0321
Ken Edwardson	271-8864 Cell Phone: 419-0322
Paul Piszczek	271-2471
Wayne Ives	271-3548
Phil Trowbridge	271-8872
Beth Malcolm	271-2083 Basement: 271-5983
Deb Soule	271-8863
Andrea Donlon	271-8862
Steve Couture	271-8801
Mike Racine	271-8860
Walter Henderson	271-8802
Sharon Pozner	271-2083
Chrissey Weston	271- 5329
Joe Cunningham	430-7977
Rayann Richard	271-7889
Jeanne Chwasciak	271-2841
George Berlandi	271-2458
Sharon Ducharme	271-3307
Tom Croteau @ DES 271-2985	Cell Phone:419-9497 Beep:771-1977
Stephanie Larson @ DES 271-1493	Cell Phone:419-9498 Beep:771-9677
Jeff Andrews	271-2984
George Carlson	271- 2052
Dan Dudley	271-8871
Sterg Spanos	271-6637
Sarah Sheehy	271-6876
Zoe Owers	271-3380

Section 3
Sampling Prerequisite Information

August 16, 23, 29, 2001
Weather Data
Gage and 7Q10 Information

August 28, 2002
Weather Data
Gage and 7Q10 Information

August 16, 2001 Weather Data from Jaffrey Airport

Mon (mm)	Day (dd)	Year (yy)	Hour (hh)	Solar Radiation (BTU/ft²·hr)	Cloud	Dry Temp (F)	Wet Temp (F)	Barr Pressure (Hg)	Wind Speed (ft/s)
08	16	01	0.0	0.05	0	58	57	29.05	0
08	16	01	3.0	0.05	0	57	56	29.03	5.06
08	16	01	6.0	0.05	0.44	58	57	29.04	10.13
08	16	01	9.0	0.05	0	71	63	29.06	10.13
08	16	01	12.0	0.05	0.44	79	67	29.02	11.81
08	16	01	15.0	0.05	0.13	80	67	28.98	15.19
08	16	01	18.0	0.05	0	76	65	28.99	15.19
08	16	01	21.0	0.05	0	71	63	29.02	13.5
08	16	01	0.0	0.05	0	58	57	29.05	0
08	16	01	3.0	0.05	0	57	56	29.03	5.06
08	16	01	6.0	0.05	0.44	58	57	29.04	10.13
08	16	01	9.0	0.05	0	71	63	29.06	10.13
08	16	01	12.0	0.05	0.44	79	67	29.02	11.81
08	16	01	15.0	0.05	0.13	80	67	28.98	15.19
08	16	01	18.0	0.05	0	76	65	28.99	15.19
08	16	01	21.0	0.05	0	71	63	29.02	13.5
08	16	01	0.0	0.05	0	58	57	29.05	0
08	16	01	3.0	0.05	0	57	56	29.03	5.06
08	16	01	6.0	0.05	0.44	58	57	29.04	10.13
08	16	01	9.0	0.05	0	71	63	29.06	10.13
08	16	01	12.0	0.05	0.44	79	67	29.02	11.81
08	16	01	15.0	0.05	0.13	80	67	28.98	15.19
08	16	01	18.0	0.05	0	76	65	28.99	15.19
08	16	01	21.0	0.05	0	71	63	29.02	13.5
08	16	01	0.0	0.05	0	58	57	29.05	0
08	16	01	3.0	0.05	0	57	56	29.03	5.06
08	16	01	6.0	0.05	0.44	58	57	29.04	10.13
08	16	01	9.0	0.05	0	71	63	29.06	10.13
08	16	01	12.0	0.05	0.44	79	67	29.02	11.81
08	16	01	15.0	0.05	0.13	80	67	28.98	15.19
08	16	01	18.0	0.05	0	76	65	28.99	15.19
08	16	01	21.0	0.05	0	71	63	29.02	13.5
08	16	01	0.0	0.05	0	58	57	29.05	0
08	16	01	3.0	0.05	0	57	56	29.03	5.06
08	16	01	6.0	0.05	0.44	58	57	29.04	10.13
08	16	01	9.0	0.05	0	71	63	29.06	10.13

August 16, 2001 Weather Data from Jaffrey Airport

08	16	01	12.0	0.05	0.44	79	67	29.02	11.81
08	16	01	15.0	0.05	0.13	80	67	28.98	15.19
08	16	01	18.0	0.05	0	76	65	28.99	15.19
08	16	01	21.0	0.05	0	71	63	29.02	13.5
08	16	01	0.0	0.05	0	58	57	29.05	0
08	16	01	3.0	0.05	0	57	56	29.03	5.06
08	16	01	6.0	0.05	0.44	58	57	29.04	10.13
08	16	01	9.0	0.05	0	71	63	29.06	10.13
08	16	01	12.0	0.05	0.44	79	67	29.02	11.81
08	16	01	15.0	0.05	0.13	80	67	28.98	15.19
08	16	01	18.0	0.05	0	76	65	28.99	15.19
08	16	01	21.0	0.05	0	71	63	29.02	13.5
08	16	01	0.0	0.05	0	58	57	29.05	0
08	16	01	3.0	0.05	0	57	56	29.03	5.06
08	16	01	6.0	0.05	0.44	58	57	29.04	10.13
08	16	01	9.0	0.05	0	71	63	29.06	10.13
08	16	01	12.0	0.05	0.44	79	67	29.02	11.81
08	16	01	15.0	0.05	0.13	80	67	28.98	15.19
08	16	01	18.0	0.05	0	76	65	28.99	15.19
08	16	01	21.0	0.05	0	71	63	29.02	13.5
08	16	01	0.0	0.05	0	58	57	29.05	0
08	16	01	3.0	0.05	0	57	56	29.03	5.06
08	16	01	6.0	0.05	0.44	58	57	29.04	10.13
08	16	01	9.0	0.05	0	71	63	29.06	10.13
08	16	01	12.0	0.05	0.44	79	67	29.02	11.81
08	16	01	15.0	0.05	0.13	80	67	28.98	15.19
08	16	01	18.0	0.05	0	76	65	28.99	15.19
08	16	01	21.0	0.05	0	71	63	29.02	13.5
08	16	01	0.0	0.05	0	58	57	29.05	0
08	16	01	3.0	0.05	0	57	56	29.03	5.06
08	16	01	6.0	0.05	0.44	58	57	29.04	10.13
08	16	01	9.0	0.05	0	71	63	29.06	10.13
08	16	01	12.0	0.05	0.44	79	67	29.02	11.81
08	16	01	15.0	0.05	0.13	80	67	28.98	15.19
08	16	01	18.0	0.05	0	76	65	28.99	15.19
08	16	01	21.0	0.05	0	71	63	29.02	13.5
08	16	01	0.0	0.05	0	58	57	29.05	0

August 16, 2001 Weather Data from Jaffrey Airport

08	16	01	3.0	0.05	0	57	56	29.03	5.06
08	16	01	6.0	0.05	0.44	58	57	29.04	10.13
08	16	01	9.0	0.05	0	71	63	29.06	10.13
08	16	01	12.0	0.05	0.44	79	67	29.02	11.81
08	16	01	15.0	0.05	0.13	80	67	28.98	15.19
08	16	01	18.0	0.05	0	76	65	28.99	15.19
08	16	01	21.0	0.05	0	71	63	29.02	13.5
08	16	01	0.0	0.05	0	58	57	29.05	0
08	16	01	3.0	0.05	0	57	56	29.03	5.06
08	16	01	6.0	0.05	0.44	58	57	29.04	10.13
08	16	01	9.0	0.05	0	71	63	29.06	10.13
08	16	01	12.0	0.05	0.44	79	67	29.02	11.81
08	16	01	15.0	0.05	0.13	80	67	28.98	15.19
08	16	01	18.0	0.05	0	76	65	28.99	15.19
08	16	01	21.0	0.05	0	71	63	29.02	13.5
08	16	01	0.0	0.05	0	58	57	29.05	0
08	16	01	3.0	0.05	0	57	56	29.03	5.06
08	16	01	6.0	0.05	0.44	58	57	29.04	10.13
08	16	01	9.0	0.05	0	71	63	29.06	10.13
08	16	01	12.0	0.05	0.44	79	67	29.02	11.81
08	16	01	15.0	0.05	0.13	80	67	28.98	15.19
08	16	01	18.0	0.05	0	76	65	28.99	15.19
08	16	01	21.0	0.05	0	71	63	29.02	13.5

August 23, 2001 Weather Data from Jaffrey Airport

Mon (mm)	Day (dd)	Year (yy)	Hour (hh)	Solar Radiation (BTU/ft²·hr)	Cloud	Dry Temp (F)	Wet Temp (F)	Barr Pressure (Hg)	Wind Speed (ft/s)
08	23	01	0.0	0.05	0	58	57	28.97	0
08	23	01	3.0	0.05	0	57	56	28.96	0
08	23	01	6.0	0.05	0	55	54	28.97	0
08	23	01	9.0	0.05	0	73	61	28.96	10.13
08	23	01	12.0	0.05	0	78	63	28.95	13.5
08	23	01	15.0	0.05	0	78	64	28.9	8.44
08	23	01	18.0	0.05	0.13	73	66	28.89	8.44
08	23	01	21.0	0.05	0	67	64	28.89	0
08	23	01	0.0	0.05	0	58	57	28.97	0
08	23	01	3.0	0.05	0	57	56	28.96	0
08	23	01	6.0	0.05	0	55	54	28.97	0
08	23	01	9.0	0.05	0	73	61	28.96	10.13
08	23	01	12.0	0.05	0	78	63	28.95	13.5
08	23	01	15.0	0.05	0	78	64	28.9	8.44
08	23	01	18.0	0.05	0.13	73	66	28.89	8.44
08	23	01	21.0	0.05	0	67	64	28.89	0
08	23	01	0.0	0.05	0	58	57	28.97	0
08	23	01	3.0	0.05	0	57	56	28.96	0
08	23	01	6.0	0.05	0	55	54	28.97	0
08	23	01	9.0	0.05	0	73	61	28.96	10.13
08	23	01	12.0	0.05	0	78	63	28.95	13.5
08	23	01	15.0	0.05	0	78	64	28.9	8.44
08	23	01	18.0	0.05	0.13	73	66	28.89	8.44
08	23	01	21.0	0.05	0	67	64	28.89	0
08	23	01	0.0	0.05	0	58	57	28.97	0
08	23	01	3.0	0.05	0	57	56	28.96	0
08	23	01	6.0	0.05	0	55	54	28.97	0
08	23	01	9.0	0.05	0	73	61	28.96	10.13
08	23	01	12.0	0.05	0	78	63	28.95	13.5
08	23	01	15.0	0.05	0	78	64	28.9	8.44
08	23	01	18.0	0.05	0.13	73	66	28.89	8.44
08	23	01	21.0	0.05	0	67	64	28.89	0
08	23	01	0.0	0.05	0	58	57	28.97	0
08	23	01	3.0	0.05	0	57	56	28.96	0
08	23	01	6.0	0.05	0	55	54	28.97	0
08	23	01	9.0	0.05	0	73	61	28.96	10.13

August 23, 2001 Weather Data from Jaffrey Airport

08	23	01	12.0	0.05	0	78	63	28.95	13.5
08	23	01	15.0	0.05	0	78	64	28.9	8.44
08	23	01	18.0	0.05	0.13	73	66	28.89	8.44
08	23	01	21.0	0.05	0	67	64	28.89	0
08	23	01	0.0	0.05	0	58	57	28.97	0
08	23	01	3.0	0.05	0	57	56	28.96	0
08	23	01	6.0	0.05	0	55	54	28.97	0
08	23	01	9.0	0.05	0	73	61	28.96	10.13
08	23	01	12.0	0.05	0	78	63	28.95	13.5
08	23	01	15.0	0.05	0	78	64	28.9	8.44
08	23	01	18.0	0.05	0.13	73	66	28.89	8.44
08	23	01	21.0	0.05	0	67	64	28.89	0
08	23	01	0.0	0.05	0	58	57	28.97	0
08	23	01	3.0	0.05	0	57	56	28.96	0
08	23	01	6.0	0.05	0	55	54	28.97	0
08	23	01	9.0	0.05	0	73	61	28.96	10.13
08	23	01	12.0	0.05	0	78	63	28.95	13.5
08	23	01	15.0	0.05	0	78	64	28.9	8.44
08	23	01	18.0	0.05	0.13	73	66	28.89	8.44
08	23	01	21.0	0.05	0	67	64	28.89	0
08	23	01	0.0	0.05	0	58	57	28.97	0
08	23	01	3.0	0.05	0	57	56	28.96	0
08	23	01	6.0	0.05	0	55	54	28.97	0
08	23	01	9.0	0.05	0	73	61	28.96	10.13
08	23	01	12.0	0.05	0	78	63	28.95	13.5
08	23	01	15.0	0.05	0	78	64	28.9	8.44
08	23	01	18.0	0.05	0.13	73	66	28.89	8.44
08	23	01	21.0	0.05	0	67	64	28.89	0
08	23	01	0.0	0.05	0	58	57	28.97	0
08	23	01	3.0	0.05	0	57	56	28.96	0
08	23	01	6.0	0.05	0	55	54	28.97	0
08	23	01	9.0	0.05	0	73	61	28.96	10.13
08	23	01	12.0	0.05	0	78	63	28.95	13.5
08	23	01	15.0	0.05	0	78	64	28.9	8.44
08	23	01	18.0	0.05	0.13	73	66	28.89	8.44
08	23	01	21.0	0.05	0	67	64	28.89	0
08	23	01	0.0	0.05	0	58	57	28.97	0

August 23, 2001 Weather Data from Jaffrey Airport

08	23	01	3.0	0.05	0	57	56	28.96	0
08	23	01	6.0	0.05	0	55	54	28.97	0
08	23	01	9.0	0.05	0	73	61	28.96	10.13
08	23	01	12.0	0.05	0	78	63	28.95	13.5
08	23	01	15.0	0.05	0	78	64	28.9	8.44
08	23	01	18.0	0.05	0.13	73	66	28.89	8.44
08	23	01	21.0	0.05	0	67	64	28.89	0
08	23	01	0.0	0.05	0	58	57	28.97	0
08	23	01	3.0	0.05	0	57	56	28.96	0
08	23	01	6.0	0.05	0	55	54	28.97	0
08	23	01	9.0	0.05	0	73	61	28.96	10.13
08	23	01	12.0	0.05	0	78	63	28.95	13.5
08	23	01	15.0	0.05	0	78	64	28.9	8.44
08	23	01	18.0	0.05	0.13	73	66	28.89	8.44
08	23	01	21.0	0.05	0	67	64	28.89	0
08	23	01	0.0	0.05	0	58	57	28.97	0
08	23	01	3.0	0.05	0	57	56	28.96	0
08	23	01	6.0	0.05	0	55	54	28.97	0
08	23	01	9.0	0.05	0	73	61	28.96	10.13
08	23	01	12.0	0.05	0	78	63	28.95	13.5
08	23	01	15.0	0.05	0	78	64	28.9	8.44
08	23	01	18.0	0.05	0.13	73	66	28.89	8.44
08	23	01	21.0	0.05	0	67	64	28.89	0

August 29, 2001 Weather Data from Jaffrey Airport

Mon (mm)	Day (dd)	Year (yy)	Hour (hh)	Solar Radiation (BTU/ft²·hr)	Cloud	Dry Temp (F)	Wet Temp (F)	Barr Pressure (Hg)	Wind Speed (ft/s)
08	29	01	0.0	0.05	0	65	61	28.81	5.06
08	29	01	3.0	0.05	0	57	56	28.84	5.06
08	29	01	6.0	0.05	0.13	56	55	28.9	6.75
08	29	01	9.0	0.05	0	67	58	28.94	13.5
08	29	01	12.0	0.05	0.13	73	59	28.93	13.5
08	29	01	15.0	0.05	0	74	58	28.92	15.19
08	29	01	18.0	0.05	0.13	70	58	28.94	5.06
08	29	01	21.0	0.05	0	56	53	28.99	0
08	29	01	0.0	0.05	0	65	61	28.81	5.06
08	29	01	3.0	0.05	0	57	56	28.84	5.06
08	29	01	6.0	0.05	0.13	56	55	28.9	6.75
08	29	01	9.0	0.05	0	67	58	28.94	13.5
08	29	01	12.0	0.05	0.13	73	59	28.93	13.5
08	29	01	15.0	0.05	0	74	58	28.92	15.19
08	29	01	18.0	0.05	0.13	70	58	28.94	5.06
08	29	01	21.0	0.05	0	56	53	28.99	0
08	29	01	0.0	0.05	0	65	61	28.81	5.06
08	29	01	3.0	0.05	0	57	56	28.84	5.06
08	29	01	6.0	0.05	0.13	56	55	28.9	6.75
08	29	01	9.0	0.05	0	67	58	28.94	13.5
08	29	01	12.0	0.05	0.13	73	59	28.93	13.5
08	29	01	15.0	0.05	0	74	58	28.92	15.19
08	29	01	18.0	0.05	0.13	70	58	28.94	5.06
08	29	01	21.0	0.05	0	56	53	28.99	0
08	29	01	0.0	0.05	0	65	61	28.81	5.06
08	29	01	3.0	0.05	0	57	56	28.84	5.06
08	29	01	6.0	0.05	0.13	56	55	28.9	6.75
08	29	01	9.0	0.05	0	67	58	28.94	13.5
08	29	01	12.0	0.05	0.13	73	59	28.93	13.5
08	29	01	15.0	0.05	0	74	58	28.92	15.19
08	29	01	18.0	0.05	0.13	70	58	28.94	5.06
08	29	01	21.0	0.05	0	56	53	28.99	0
08	29	01	0.0	0.05	0	65	61	28.81	5.06
08	29	01	3.0	0.05	0	57	56	28.84	5.06
08	29	01	6.0	0.05	0.13	56	55	28.9	6.75
08	29	01	9.0	0.05	0	67	58	28.94	13.5

August 29, 2001 Weather Data from Jaffrey Airport

08	29	01	12.0	0.05	0.13	73	59	28.93	13.5
08	29	01	15.0	0.05	0	74	58	28.92	15.19
08	29	01	18.0	0.05	0.13	70	58	28.94	5.06
08	29	01	21.0	0.05	0	56	53	28.99	0
08	29	01	0.0	0.05	0	65	61	28.81	5.06
08	29	01	3.0	0.05	0	57	56	28.84	5.06
08	29	01	6.0	0.05	0.13	56	55	28.9	6.75
08	29	01	9.0	0.05	0	67	58	28.94	13.5
08	29	01	12.0	0.05	0.13	73	59	28.93	13.5
08	29	01	15.0	0.05	0	74	58	28.92	15.19
08	29	01	18.0	0.05	0.13	70	58	28.94	5.06
08	29	01	21.0	0.05	0	56	53	28.99	0
08	29	01	0.0	0.05	0	65	61	28.81	5.06
08	29	01	3.0	0.05	0	57	56	28.84	5.06
08	29	01	6.0	0.05	0.13	56	55	28.9	6.75
08	29	01	9.0	0.05	0	67	58	28.94	13.5
08	29	01	12.0	0.05	0.13	73	59	28.93	13.5
08	29	01	15.0	0.05	0	74	58	28.92	15.19
08	29	01	18.0	0.05	0.13	70	58	28.94	5.06
08	29	01	21.0	0.05	0	56	53	28.99	0
08	29	01	0.0	0.05	0	65	61	28.81	5.06
08	29	01	3.0	0.05	0	57	56	28.84	5.06
08	29	01	6.0	0.05	0.13	56	55	28.9	6.75
08	29	01	9.0	0.05	0	67	58	28.94	13.5
08	29	01	12.0	0.05	0.13	73	59	28.93	13.5
08	29	01	15.0	0.05	0	74	58	28.92	15.19
08	29	01	18.0	0.05	0.13	70	58	28.94	5.06
08	29	01	21.0	0.05	0	56	53	28.99	0
08	29	01	0.0	0.05	0	65	61	28.81	5.06
08	29	01	3.0	0.05	0	57	56	28.84	5.06
08	29	01	6.0	0.05	0.13	56	55	28.9	6.75
08	29	01	9.0	0.05	0	67	58	28.94	13.5
08	29	01	12.0	0.05	0.13	73	59	28.93	13.5
08	29	01	15.0	0.05	0	74	58	28.92	15.19
08	29	01	18.0	0.05	0.13	70	58	28.94	5.06
08	29	01	21.0	0.05	0	56	53	28.99	0
08	29	01	0.0	0.05	0	65	61	28.81	5.06

August 29, 2001 Weather Data from Jaffrey Airport

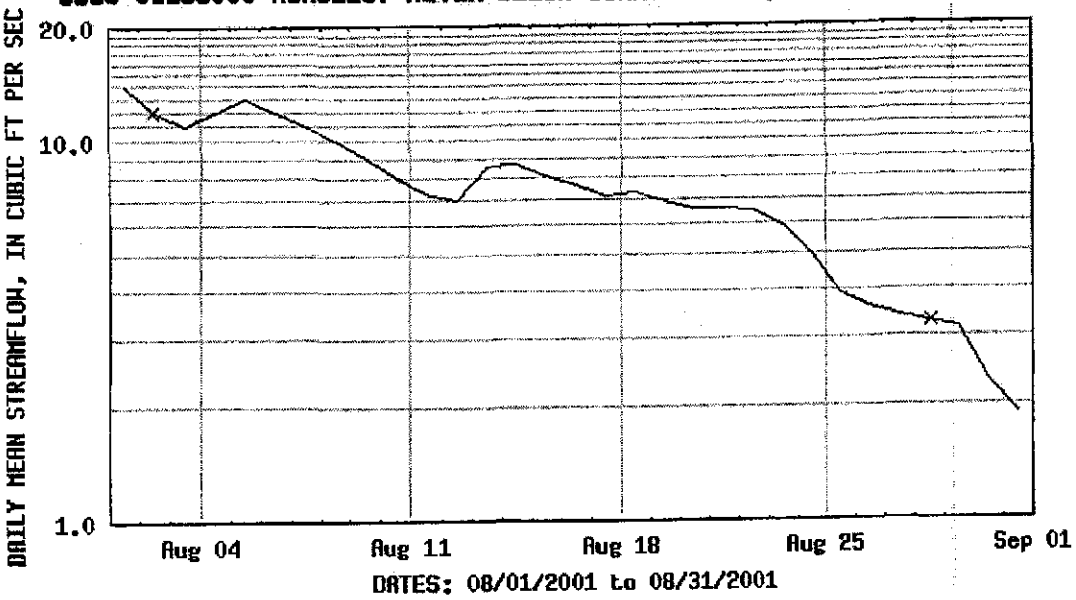
08	29	01	3.0	0.05	0	57	56	28.84	5.06
08	29	01	6.0	0.05	0.13	56	55	28.9	6.75
08	29	01	9.0	0.05	0	67	58	28.94	13.5
08	29	01	12.0	0.05	0.13	73	59	28.93	13.5
08	29	01	15.0	0.05	0	74	58	28.92	15.19
08	29	01	18.0	0.05	0.13	70	58	28.94	5.06
08	29	01	21.0	0.05	0	56	53	28.99	0
08	29	01	0.0	0.05	0	65	61	28.81	5.06
08	29	01	3.0	0.05	0	57	56	28.84	5.06
08	29	01	6.0	0.05	0.13	56	55	28.9	6.75
08	29	01	9.0	0.05	0	67	58	28.94	13.5
08	29	01	12.0	0.05	0.13	73	59	28.93	13.5
08	29	01	15.0	0.05	0	74	58	28.92	15.19
08	29	01	18.0	0.05	0.13	70	58	28.94	5.06
08	29	01	21.0	0.05	0	56	53	28.99	0
08	29	01	0.0	0.05	0	65	61	28.81	5.06
08	29	01	3.0	0.05	0	57	56	28.84	5.06
08	29	01	6.0	0.05	0.13	56	55	28.9	6.75
08	29	01	9.0	0.05	0	67	58	28.94	13.5
08	29	01	12.0	0.05	0.13	73	59	28.93	13.5
08	29	01	15.0	0.05	0	74	58	28.92	15.19
08	29	01	18.0	0.05	0.13	70	58	28.94	5.06
08	29	01	21.0	0.05	0	56	53	28.99	0

Ashuelot River TMDL
2001

Gage Name	Station ID	7Q10 (ft^3/sec)	7Q10 x 3
Ashuelot River at Surry Mountain	01158000	2.8 cfs	8.4 cfs
Ashuelot River at West Swanzey	01160350	~25 cfs	~75 cfs

USGS

USGS 01158000 ASHUELOT RIVER BELOW SURRY MT DAM, NEAR KEENE, NH



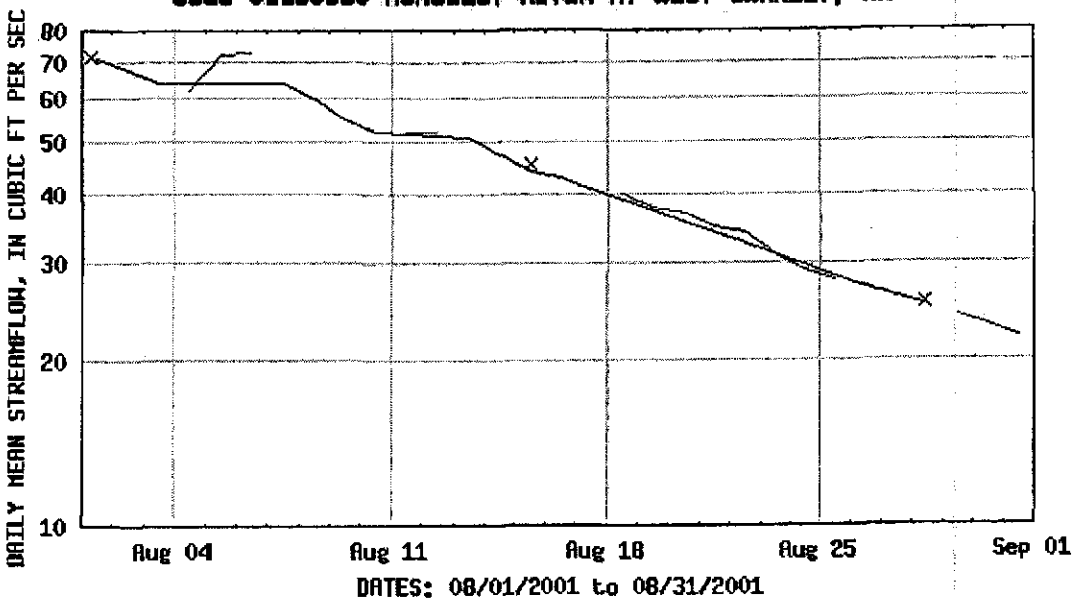
EXPLANATION

—— DAILY MEAN STREAMFLOW

× MEASURED STREAMFLOW

USGS

USGS 01160350 ASHUELOT RIVER AT WEST SWANZEY, NH



DATES: 08/01/2001 to 08/31/2001

EXPLANATION

—— DAILY MEAN STREAMFLOW × MEASURED STREAMFLOW —— ESTIMATED STREAMFLOW

August 28, 2002 Weather Data from Jaffrey Airport

Mon (mm)	Day (dd)	Year (yy)	Hour (hh)	Solar Radiation (BTU/ft²·hr)	Cloud	Dry Temp (F)	Wet Temp (F)	Barr Pressure (Hg)	Wind Speed (ft/s)
08	28	02	0.0	0.05	0	55	52	29.23	0
08	28	02	3.0	0.05	0	53	51	29.24	0
08	28	02	6.0	0.05	0	53	51	29.29	0
08	28	02	9.0	0.05	0	62	54	29.32	10.13
08	28	02	12.0	0.05	0	68	57	29.31	6.75
08	28	02	15.0	0.05	0	69	58	29.28	8.44
08	28	02	18.0	0.05	0	64	57	29.28	8.44
08	28	02	21.0	0.05	0	59	54	29.29	0
08	28	02	0.0	0.05	0	55	52	29.23	0
08	28	02	3.0	0.05	0	53	51	29.24	0
08	28	02	6.0	0.05	0	53	51	29.29	0
08	28	02	9.0	0.05	0	62	54	29.32	10.13
08	28	02	12.0	0.05	0	68	57	29.31	6.75
08	28	02	15.0	0.05	0	69	58	29.28	8.44
08	28	02	18.0	0.05	0	64	57	29.28	8.44
08	28	02	21.0	0.05	0	59	54	29.29	0
08	28	02	0.0	0.05	0	55	52	29.23	0
08	28	02	3.0	0.05	0	53	51	29.24	0
08	28	02	6.0	0.05	0	53	51	29.29	0
08	28	02	9.0	0.05	0	62	54	29.32	10.13
08	28	02	12.0	0.05	0	68	57	29.31	6.75
08	28	02	15.0	0.05	0	69	58	29.28	8.44
08	28	02	18.0	0.05	0	64	57	29.28	8.44
08	28	02	21.0	0.05	0	59	54	29.29	0
08	28	02	0.0	0.05	0	55	52	29.23	0
08	28	02	3.0	0.05	0	53	51	29.24	0
08	28	02	6.0	0.05	0	53	51	29.29	0
08	28	02	9.0	0.05	0	62	54	29.32	10.13
08	28	02	12.0	0.05	0	68	57	29.31	6.75
08	28	02	15.0	0.05	0	69	58	29.28	8.44
08	28	02	18.0	0.05	0	64	57	29.28	8.44
08	28	02	21.0	0.05	0	59	54	29.29	0
08	28	02	0.0	0.05	0	55	52	29.23	0
08	28	02	3.0	0.05	0	53	51	29.24	0
08	28	02	6.0	0.05	0	53	51	29.29	0

August 28, 2002 Weather Data from Jaffrey Airport

Mon (mm)	Day (dd)	Year (yy)	Hour (hh)	Solar Radiation (BTU/ft²·hr)	Cloud	Dry Temp (F)	Wet Temp (F)	Barr Pressure (Hg)	Wind Speed (ft/s)
08	28	02	9.0	0.05	0	62	54	29.32	10.13
08	28	02	12.0	0.05	0	68	57	29.31	6.75
08	28	02	15.0	0.05	0	69	58	29.28	8.44
08	28	02	18.0	0.05	0	64	57	29.28	8.44
08	28	02	21.0	0.05	0	59	54	29.29	0
08	28	02	0.0	0.05	0	55	52	29.23	0
08	28	02	3.0	0.05	0	53	51	29.24	0
08	28	02	6.0	0.05	0	53	51	29.29	0
08	28	02	9.0	0.05	0	62	54	29.32	10.13
08	28	02	12.0	0.05	0	68	57	29.31	6.75
08	28	02	15.0	0.05	0	69	58	29.28	8.44
08	28	02	18.0	0.05	0	64	57	29.28	8.44
08	28	02	21.0	0.05	0	59	54	29.29	0
08	28	02	0.0	0.05	0	55	52	29.23	0
08	28	02	3.0	0.05	0	53	51	29.24	0
08	28	02	6.0	0.05	0	53	51	29.29	0
08	28	02	9.0	0.05	0	62	54	29.32	10.13
08	28	02	12.0	0.05	0	68	57	29.31	6.75
08	28	02	15.0	0.05	0	69	58	29.28	8.44
08	28	02	18.0	0.05	0	64	57	29.28	8.44
08	28	02	21.0	0.05	0	59	54	29.29	0
08	28	02	0.0	0.05	0	55	52	29.23	0
08	28	02	3.0	0.05	0	53	51	29.24	0
08	28	02	6.0	0.05	0	53	51	29.29	0
08	28	02	9.0	0.05	0	62	54	29.32	10.13
08	28	02	12.0	0.05	0	68	57	29.31	6.75
08	28	02	15.0	0.05	0	69	58	29.28	8.44
08	28	02	18.0	0.05	0	64	57	29.28	8.44
08	28	02	21.0	0.05	0	59	54	29.29	0
08	28	02	0.0	0.05	0	55	52	29.23	0
08	28	02	3.0	0.05	0	53	51	29.24	0
08	28	02	6.0	0.05	0	53	51	29.29	0
08	28	02	9.0	0.05	0	62	54	29.32	10.13
08	28	02	12.0	0.05	0	68	57	29.31	6.75
08	28	02	15.0	0.05	0	69	58	29.28	8.44

August 28, 2002 Weather Data from Jaffrey Airport

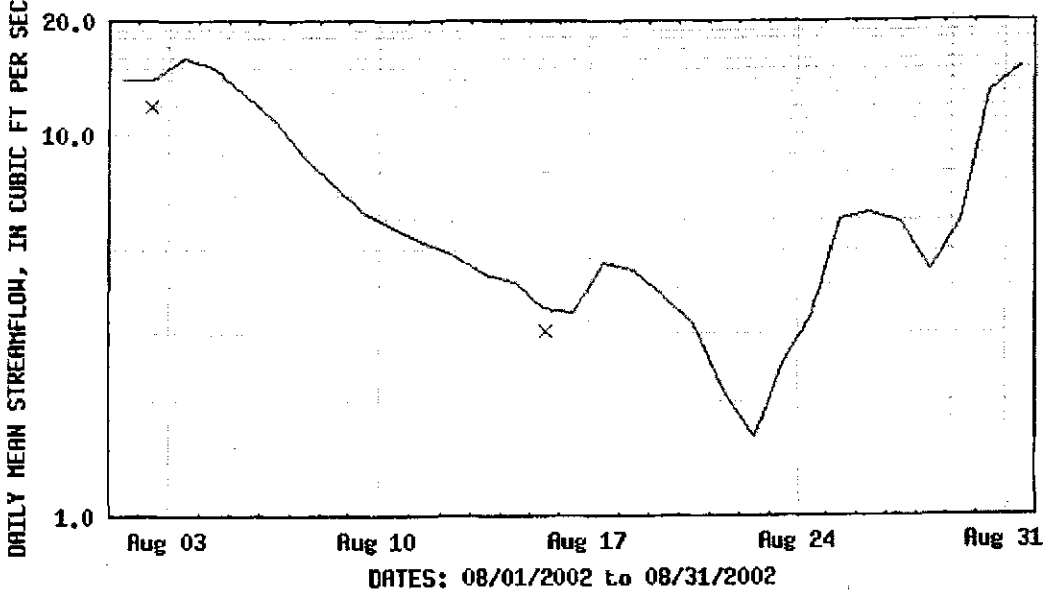
Mon (mm)	Day (dd)	Year (yy)	Hour (hh)	Solar Radiation (BTU/ft²·hr)	Cloud	Dry Temp (F)	Wet Temp (F)	Barr Pressure (Hg)	Wind Speed (ft/s)
08	28	02	18.0	0.05	0	64	57	29.28	8.44
08	28	02	21.0	0.05	0	59	54	29.29	0
08	28	02	0.0	0.05	0	55	52	29.23	0
08	28	02	3.0	0.05	0	53	51	29.24	0
08	28	02	6.0	0.05	0	53	51	29.29	0
08	28	02	9.0	0.05	0	62	54	29.32	10.13
08	28	02	12.0	0.05	0	68	57	29.31	6.75
08	28	02	15.0	0.05	0	69	58	29.28	8.44
08	28	02	18.0	0.05	0	64	57	29.28	8.44
08	28	02	21.0	0.05	0	59	54	29.29	0
08	28	02	0.0	0.05	0	55	52	29.23	0
08	28	02	3.0	0.05	0	53	51	29.24	0
08	28	02	6.0	0.05	0	53	51	29.29	0
08	28	02	9.0	0.05	0	62	54	29.32	10.13
08	28	02	12.0	0.05	0	68	57	29.31	6.75
08	28	02	15.0	0.05	0	69	58	29.28	8.44
08	28	02	18.0	0.05	0	64	57	29.28	8.44
08	28	02	21.0	0.05	0	59	54	29.29	0
08	28	02	0.0	0.05	0	55	52	29.23	0
08	28	02	3.0	0.05	0	53	51	29.24	0
08	28	02	6.0	0.05	0	53	51	29.29	0
08	28	02	9.0	0.05	0	62	54	29.32	10.13
08	28	02	12.0	0.05	0	68	57	29.31	6.75
08	28	02	15.0	0.05	0	69	58	29.28	8.44
08	28	02	18.0	0.05	0	64	57	29.28	8.44
08	28	02	21.0	0.05	0	59	54	29.29	0

Ashuelot River TMDL
2002

Gage Name	Station ID	7Q10 (ft^3/sec)	7Q10 x 3
Ashuelot River at Surry Mountain	01158000	2.702	8.106
Ashuelot River at Hinsdale	01161000	46.807	140.421
Otter Brook below dam near Keene	01158600	1.093	3.279

USGS

USGS 01158000 ASHUELOT RIVER BELOW SURRY MT DAM, NEAR KEENE, NH



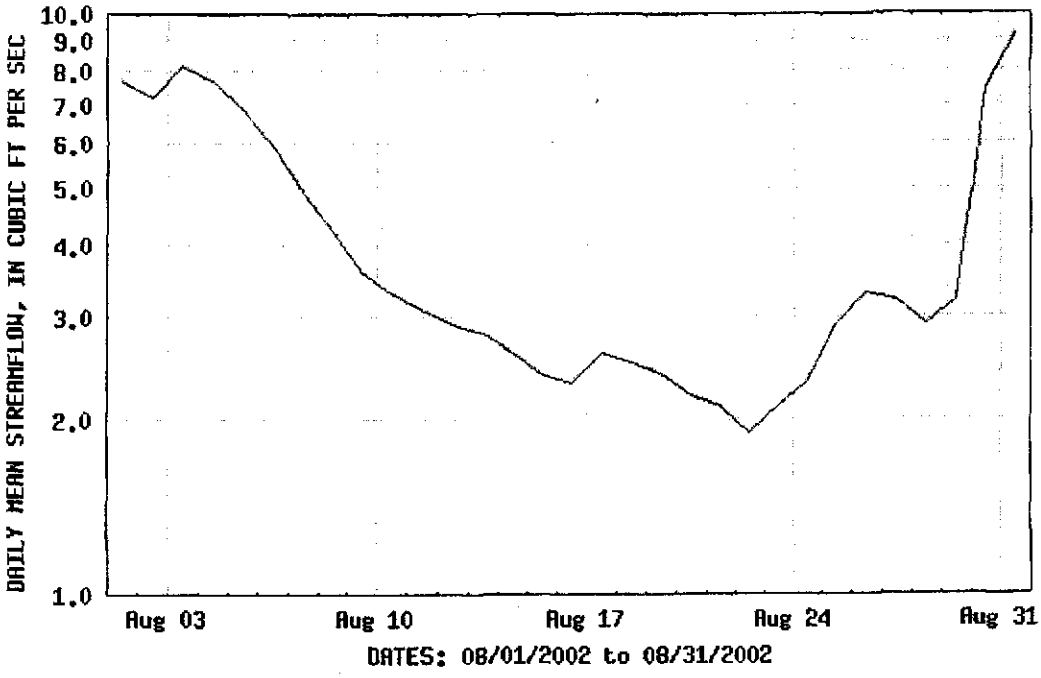
DATES: 08/01/2002 to 08/31/2002

EXPLANATION

—— DAILY MEAN STREAMFLOW × MEASURED STREAMFLOW

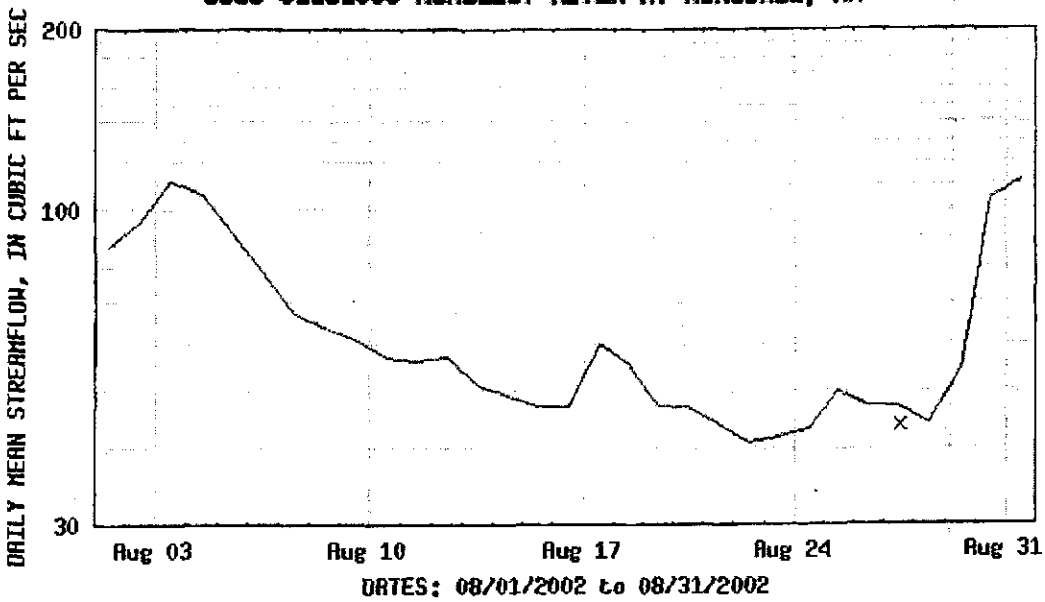
USGS

USGS 01158600 OTTER BROOK BELOW OTTER BROOK DAM, NEAR KEENE, NH



USGS

USGS 01161000 ASHUELOT RIVER AT HINSDALE, NH



DATES: 08/01/2002 to 08/31/2002

EXPLANATION

— DAILY MEAN STREAMFLOW

× MEASURED STREAMFLOW

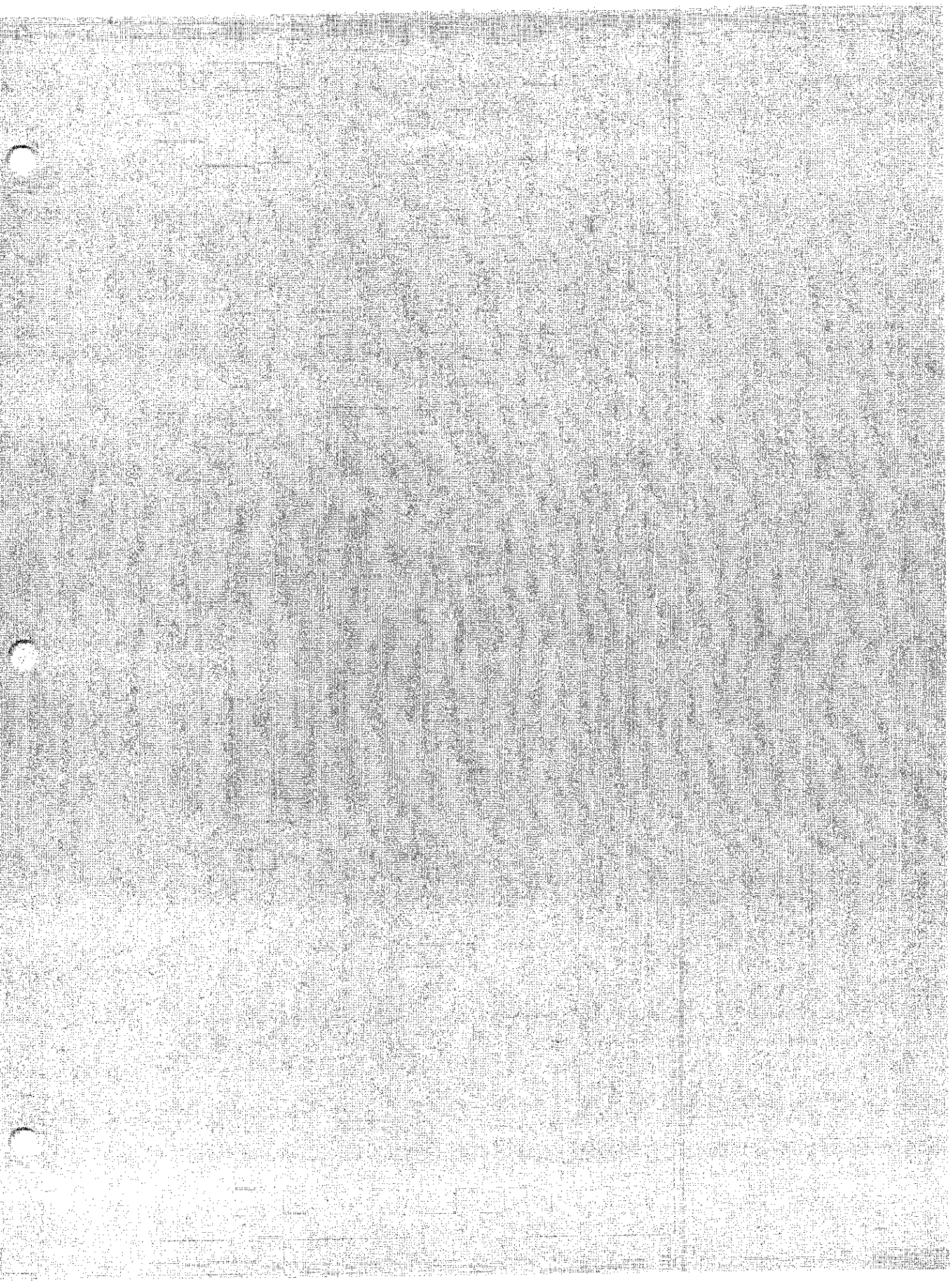
Section 4
Sampling Field Worksheets

August 16, 2001
Ashuelot River TMDL Sampling Teams
Ahsuelot River Early Morning Sampling Team Field Worksheets
Ashuelot River Sampling Field Worksheets
Flow by Velocity Meter Field Worksheets
Meter Agreement Field Sheet
24 Hour Flow Compositing Worksheets

August 23, 2001
Ashuelot River TMDL Sampling Teams
Ahsuelot River Early Morning Sampling Team Field Worksheets
Ashuelot River Sampling Field Worksheets
Flow by Velocity Meter Field Worksheets
Meter Agreement Field Sheet
24 Hour Flow Compositing Worksheets

August 29, 2001
Ashuelot River TMDL Sampling Teams
Ahsuelot River Early Morning Sampling Team Field Worksheets
Ashuelot River Sampling Field Worksheets
Flow by Velocity Meter Field Worksheets
Meter Agreement Field Sheet
24 Hour Flow Compositing Worksheets

August 28, 2002
2002 Ashuelot River TMDL Sampling Teams
2002 TMDL Sampler Training Sign-In Sheet
Ahsuelot River Early Morning Sampling Team Field Worksheets
Ashuelot River Sampling Field Worksheets
Flow by Velocity Meter Field Worksheets
Meter Agreement Field Sheet
24 Hour Flow Compositing Worksheets



2001 ASHUELOT RIVER TMDL SAMPLING TEAMS
August 16, 2001

Early Morning Sampling Team 1 :	Gregg Comstock (GC) Paul Pisczcek (PP)
Early Morning Sampling Team 2 :	George Berlandi (GB) Sharon Ducharme (SD)
Sampling Team 1 :	George Berlandi (GB) Paul Pisczcek (PP)
Sampling Team 2 :	Matt Wood (MW) Ashley Bourland (AB)
Sampling Team 3 :	Kendell Perkins (KP) Tom Croteau (TC)
Sampling Team 4 :	George Carlson (GC) Andrea Donlon (AD)
Flow Team 1 :	Ken Edwardson (KJE) Matt Jones (MJ)
Flow Team 2 :	Jeff Andrews (JA) Rod Owre (RO)

EM-

Early Morning Sampling Team (EMST) Field Worksheet

Date: 08-16-01 EMST #: 1 Names: Gregg Comstock; Paul Piszczek

Project: Ashuelot River TMDL DO/Temp Meter Serial Number: 01C0218 AC

Station	Time (Military)	Bucket or Instream (B or I)	Location (ie, midchannel, X feet from bank).	Total Water Depth (feet)	Depth of Measurement	Temperature (degrees C)	Dissolved Oxygen (mg/L)	Comments
14-Ash	06:21	B	15' from bank	5-10'	Surface	23	6.52	Sample collected ~15' u.s. from bridge on north bank (~15' from bank) using ext. rod width ~60'
15-Ash	06:[illegible]	I	Mid channel	5.0	Surface	[illegible]	7.26	
[illegible]	[illegible]					22.3	[illegible]	
15-[illegible]	[illegible]					[illegible]		
[illegible]					[illegible]	22.[illegible]		
16-Ash	07:00	B	~15' from bank	5-0' ?	Surface	20.4	6.55	Sample collected ~50' u.s. from bridge on west bank using ext. rod width ~75'
2-Sbr	07:24	B	Mid channel	3-4'	Surface	19.2	7.10	Sample collected from u.s. side of bridge width ~25-30'; good flow; some macrophytes
17-Ash	07:37	B	Mid channel	2-2.5'	Surface	21.6	6.65	Sample collected from u.s. side of bridge width ~25-30'; good flow; woody debris collected from footbridge
0A-Br[illegible]	07:44	B	~Mid channel	2-2.5'	Surface	18.7	8.13	Sample collected w/ ext rod + bucket ~30' d.s. from pipe + 50' u.s. from Ashuelot River @ west bank
16D-Ash	08:08	B/I	~Mid channel	~6-7'	Surface	21.0	6.63	Sample collected from boat w/ bucket & hydrolab ~100' u.s. from Keene WWTF outfall width ~90'
16D-Ash	08:10	I	~Mid channel	~6-7'	See comments	21.1 21.1 21.4	6.50 6.55 6.52	~0.5' deep (0.5' deep [initials]) ~3.0' deep ~4.0' deep
↓	↓					21.0 21.0	6.42 6.38	~5.0' deep ~6.0' deep

Calibrate to elevation 300 feet for the Cocheco River TMDL and 500 feet for the Ashuelot River TMDL

For impoundments, in addition to DO/Temp at the top 6 inches, record DO/Temp at mid-depth and 1 foot from the bottom.

16B-Ash	08:22	I	Mid channel	~2.0	Surface	21.0 21.1 [illegible]	6.68 6.52 [illegible]	Sample collected from boat just d.s. from hydrolab w/ bucket ~0.5' deep [illegible]

EMST)

Early Morning Sampling Team (EMST) Field Worksheet

Date: 8/16/01
Project: Ashuelot TMDL

EMST #: 2 Names: George Berland, Shawn Duchaine
DO/Temp Meter Serial Number: 98 E 0378 AE

Station	Time (Military)	Bucket or Instream (B or I)	Location (ie, midchannel, X feet from bank).	Total Water Depth (feet)	Depth of Measurement	Temperature (degrees C)	Dissolved Oxygen (mg/L)	Comments
12-Ash	6:16AM	B	M		Top foot	22.2	6.65	Changed membrane prior to calibration at 5.45am
14T-Ash	6:35	B	M		Top foot	21.6	7.03	
15E-Ash	6:51	B	20ft from bank L		Top foot	21.7	7.83	3:1 found along shore. Sheen appeared & odor when sediment was disturbed
16A-Ash	7:02	B				20.2	6.88	Meter check
17A-Ash	7:33	B	M		Top foot	16.6	7.69	battery w/ Brood under bridge
16M-Ash	7:43	B	M		Top foot	20.6	7.87	Beware of quick sand!
19-Ash	8:04	B	M		Top foot	22.1	7.15	@ Bridge
	8:09	B	M		Top foot	22.1	7.13	Upstream of pipe ≈ 80 feet
19A-Ash	8:24	B	M	7.0ft	Top foot	22.3	6.14	Salmon water Sheen - crushed bucket
	8:33	I	M		5.25ft	22.3	5.72	
20A-Ash	8:35	I	M	↓	3.5ft	22.5	5.09	
	8:37	I	M		1.75ft	22.5	5.18	
20A-Ash	8:52	B	M		Top foot	20.6	7.17	
21-Ash	9:03	B	M		Top foot	22.4	7.27	

Calibrate to elevation 300 feet for the Cocheco River TMDL and 500 feet for the Ashuelot River TMDL
For impoundments, in addition to DO/Temp at the top 6 inches, record DO/Temp at mid-depth and 1 foot from the bottom.

Sampling Field Worksheet

Project: Ashuelot River TMDL | Date: 8/16/01

Name of Samplers: KLP / TC

Waterbody Name: Ashuelot River | Station ID: 16B-Ash (2)

Weather: Clear / Dry

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments –see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L).	Conductivity (uS/cm)	pH	
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP): SEE CALIBRATION SHEET	
				1233 X	1238	23.5	7.09	3635	6.77	
Is DUPLICATE to be run? NO (If yes, record duplicate of last set of field measurements in this row.)						Dup	Dup	Dup	Dup	6.0 std.

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): | Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	NO	1			
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	1			
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.		1			
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.		1			
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		2			

Aquatic Plant Growth: % Coverage

Macrophytes (rooted plants): 3 scattered/common

Phytoplankton (free floating): 0

Periphyton (attached algae): 75

Canopy (Well Shaded, Moderately Shaded, Mostly Open): Midstream-O Banks-10

Other Comments / Observations

Color (clear, tea-colored, etc): Pale straw

Substrate (ie, sandy, cobbles, muck, etc.):

Odor:

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and ~ 1 foot from the bottom.

Sampling Field Worksheet

Project: Ashuelot River TMDL	Date: 8/16/01
Name of Samplers: KLP / TC	
Waterbody Name: Ashuelot River	Station ID: 16D-Ash (3)
Weather: Clear/Dry	

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments – see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L).	Conductivity (uS/cm)	pH	
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP): SEE CALIBRATION SHEET	
				1304	1304	23.5	6.92	238.6	6.65	
Is DUPLICATE to be run? NO (If yes, record duplicate of last set of field measurements in this row.)						Dup	Dup	Dup	Dup	6.0 std.

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	NO	1	1304		
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		1			
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.		1			
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.		1			
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		2			

Aquatic Plant Growth: % Coverage
Macrophytes (rooted plants): Sparse
Phytoplankton (free floating):
Periphyton (attached algae):
Canopy (Well Shaded, Moderately Shaded, Mostly Open):

Other Comments / Observations:
Color (clear, tea-colored, etc): Pale straw
Substrate (ie, sandy, cobbles, muck, etc.): Silt + sand
Odor:

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and ~ 1 foot from the bottom.

Sampling Field Worksheet

Project: Ashuelot River TMDL	Date: 8/15/01 – 8/16/01
Name of Samplers: KLP/TC	START @ 1300 PM – END @ 1300 PM
Waterbody Name: W. Swanzey WWTF	Station ID: W. Swanzey WWTF (1)
Weather: Clear/Dry (Temp of samples 18.6°)	

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments –see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L).	Conductivity (uS/cm)	pH	
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP): SEE CALIBRATION SHEET	
				1353	1355	24.4	3.66	747	7.25	
Is DUPLICATE to be run? (If yes, record duplicate of last set of field measurements in this row.)						Dup	Dup	Dup	Dup	6.0 std.

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
BOD5 and/or BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	No	1			
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		1			
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.		1			
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.		1			
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		2			

Aquatic Plant Growth: % Coverage
Macrophytes (rooted plants): _____
Phytoplankton (free floating): _____
Periphyton (attached algae): _____
Canopy (Well Shaded, Moderately Shaded, Mostly Open):

Other Comments / Observations
Color (clear, tea-colored, etc): Greenish Effluent
Substrate (ie, sandy, cobbles, muck, etc.):
Odor:

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and ~ 1 foot from the bottom.

Sampling Field Worksheet

Project: Ashuelot River TMDL | Date: 8-16

Name of Samplers:

Waterbody Name: Keene WWTF | Station ID: Keene WWTF (5)

Weather: Composite from 11:00 AM 8-15 to 10:AM 8-16

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments –see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L).	Conductivity (uS/cm)	pH	
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP): SEE CALIBRATION SHEET	
	Sample Collected at 2:30 pm from Effluent					23.0	6.23	803	7.04	
Is DUPLICATE to be run? NO (If yes, record duplicate of last set of field measurements in this row.)						Dup	Dup	Dup	Dup	6.0 std.

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): | Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
BOD5 and/or BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	NO	1			
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		1			
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.		1			
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.		1			
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		2			

Aquatic Plant Growth: % Coverage

Macrophytes (rooted plants): _____

Phytoplankton (free floating): _____

Periphyton (attached algae): _____

Canopy (Well Shaded, Moderately Shaded, Mostly Open):

Other Comments / Observations

Color (clear, tea-colored, etc):

Substrate (ie, sandy, cobbles, muck, etc.):

Odor:

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and ~ 1 foot from the bottom.

See 2cA for membrane note

5 of 4

Sampling Field Worksheet

Project: Ashuelot River TMDL	Date: 3/16/01
Name of Samplers: George Carlson and Andrea Donlon	
Waterbody Name: Ashuelot River	Station ID: 14T-Ash
Weather: Sunny, Warm	

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments –see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L)	Conductivity (uS/cm)	pH	
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP):	
B				10:30	10:46	23.2	8.29	177.3	6.99	
Is DUPLICATE to be run? NO (If yes, record duplicate of last set of field measurements in this row.)						Dup	Dup	Dup	Dup	6.0 std.

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): | Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	NO	1			
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		1			
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.		1			
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.		1			
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		2			

Aquatic Plant Growth:	% Coverage
Macrophytes (rooted plants):	30 %
Phytoplankton (free floating):	10 %
Periphyton (attached algae):	
Canopy (Well Shaded, Moderately Shaded, Mostly Open):	Mostly open

Other Comments / Observations
Color (clear, tea-colored, etc): light brown
Substrate (ie, sandy, cobbles, muck, etc.): cobbles, shopping cart
Odor: none

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and ~ 1 foot from the bottom.

see ... for ...

Sampling Field Worksheet

Project: Ashuelot River TMDL	Date: 8/16/01
Name of Samplers: George Carlson + Andrea Donlon	
Waterbody Name: S. Branch Ashuelot River	Station ID: 2-SBa
Weather: Sunny + warm, light breeze	

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments –see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min: Bucket sample collected	Military Time – Hours:Min: Field measurements taken	Temperature (degrees C)	DO (mg/L).	Conductivity (uS/cm)	pH slope (SLP):	pH
						see note below for Calibration Elevation and measuring DO in impoundments.				
B				11:05	11:15	20.7	7.94	101.7	6.69	
Is DUPLICATE to be run? NO (If yes, record duplicate of last set of field measurements in this row.)						Dup	Dup	Dup	Dup	6.0 std.

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet):
Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	NO	1			
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	1			
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.	↓	1			
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.	↓	1			
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	2			

Aquatic Plant Growth: % Coverage
Macrophytes (rooted plants): 10%
Phytoplankton (free floating): –
Periphyton (attached algae): –
Canopy (Well Shaded, Moderately Shaded, Mostly Open): Open

Other Comments / Observations
Color (clear, tea-colored, etc): tea-colored
Substrate (ie, sandy, cobbles, muck, etc.): ~~cobbles + muck~~ rippled sand
Odor: none

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and ~ 1 foot from the bottom.

See 20A 5: membrane note

Sampling Field Worksheet

Project: Ashuelot River TMDL	Date: 8/16/01
Name of Samplers: George Carlson + Andrea Dunlon	
Waterbody Name: Ashuelot River	Station ID: 17-Ash
Weather: Sunny, Warm, light breeze	

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments –see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L).	Conductivity (uS/cm)	pH	
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP):	
				12:15	12:25	23.1	7.31	92.1	6-15	
Is DUPLICATE to be run? NO (If yes, record duplicate of last set of field measurements in this row.)						Dup	Dup	Dup	Dup	6.0 std.

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): | Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	No	1			
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		1			
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.		1			
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.		1			
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		2			

Aquatic Plant Growth: % Coverage
Macrophytes (rooted plants): 5%
Phytoplankton (free floating): 5%
Periphyton (attached algae): 40%
Canopy (Well Shaded, Moderately Shaded, Mostly Open): moderately Shaded

Other Comments / Observations
Color (clear, tea-colored, etc):
Substrate (ie, sandy, cobbles, muck, etc.): pipes, tin pans, rocks, sand
Odor: none

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and – 1 foot from the bottom.

Is membrane cap replaced after these readings because air bubble noticed. Recalibrated afterwards → 101.3% (15.0)

Sampling Field Worksheet

Project: Ashuelot River TMDL — Date: 8/16/01

Name of Samplers: George Carlson + Andrea Donlon

Waterbody Name: Ashuelot River — Station ID: 20A-Ash

Weather: Sunny, Warm, light breeze

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments –see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L).	Conductivity (uS/cm)	pH	
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP):	
B				12:50	12:55	22.4	7.77	88.1	6.36	
Is DUPLICATE to be run? (yes) (If yes, record duplicate of last set of field measurements in this row.)				13:00		Dup 22.5	Dup 8.00	Dup 87.8	Dup 6.50	6.0 std.

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): — Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	Yes	2	12:50/13:00		
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		2	12:50/13:00		
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.		2	12:50/13:00		
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.		2	12:50/13:00		
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		4	12:50/13:00		

Aquatic Plant Growth: (% Coverage)
Macrophytes (rooted plants): 40%
Phytoplankton (free floating): —
Periphyton (attached algae): —
Canopy (Well Shaded, Moderately Shaded, Mostly Open): Some shade

Other Comments / Observations
Color (clear, tea-colored, etc): Clear, lightly colored
Substrate (ie, sandy, cobbles, muck, etc.): ~~large~~ Sand Course
Odor: none

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and 1 foot from the bottom.

DUP1 DUP2

Sampling Field Worksheet

Project: Ashuelot River TMDL | Date: 8/16/01

Name of Samplers: George Carlson + Andrea Donlon

Waterbody Name: Ashuelot River | Station ID: 21-ASH

Weather: Warm, Some clouds, breeze picking up

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments –see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L).	Conductivity (uS/cm)	pH	
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP):	
			13:35 →	B 13:35	13:45	25.4	~~8.2~~ 7.69	67.0	6.73	
Is DUPLICATE to be run? NO (If yes, record duplicate of last set of field measurements in this row.)						Dup	Dup	Dup	Dup	6.0 std.

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): | Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	NO	1			
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		1			
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.		1			
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.		1			
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		2			

Aquatic Plant Growth: (% Coverage)
Macrophytes (rooted plants): —
Phytoplankton (free floating): —
Periphyton (attached algae): 20%
Canopy (Well Shaded, Moderately Shaded, Mostly Open): Some Shade

Other Comments / Observations
Color (clear, tea-colored, etc): mostly clear
Substrate (ie, sandy, cobbles, muck, etc.): Coarse Sand, gravel
Odor:

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and ~ 1 foot from the bottom.

1 of 2

Flow by Velocity Meter Field Worksheet

Project: Ashwater
Waterbody Name: Ashwater R.
Station ID: 29A - Ash
Station Description: (Draw sketch in field book)
By (Staff Names): Matt Jones, Ken Edwardson

Date: 8-16-01
Time begin (Military): 15:00
Time end (Military):

Total River Width (ft-in):

Distance Readings		Depth (ft)	Velocity (V) Readings (ft/sec)			Comments
			FOR DEPTHS ≤ 2 FT	FOR DEPTHS > 2 FT		
Tape (ft)	Bank (ft)		V @ 60% depth from surface	V @ 20% depth from surface	V@ 80% depth from surface	
3	0	0	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
4		.3	0			
5		.45	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
6		.6	.06			
7		.7	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
.8		.7	.04			
9		.8	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
10		.95	.07			
11		.8	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
12		.85	.08			
13		1.15	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
14		1.25	.1			
15		1.15 MM	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
16		1.2	.15			
17		1.1	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
18		1.1	.17			
19		1.2	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
20		1.2	.16			
21		1.3	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
22		1.3	.19			
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
>>>>>>>	>>>>>>>	>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>>>>>
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	Run 1 duplicate reading for each set of 10 readings (duplicate the last set of readings recorded on this page)
22		1.3	.19			
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	

Flow by Velocity Meter Field Worksheet

Project:_____ Date:_____
Waterbody Name:_____ Time begin (Military):_____
Station ID: 207- Ash Time end (Military): _____
Station Description:_(Draw sketch in field book)_____
By (Staff Names): _____

Total River Width (ft-in):_____

Distance Readings		Depth (ft)	Velocity (V) Readings (ft/sec)			Comments
			FOR DEPTHS ≤ 2 FT	FOR DEPTHS > 2 FT		
Tape (ft)	Bank (ft)		V @ 60% depth from surface	V @ 20% depth from surface	V@ 80% depth from surface	
23		1.4	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
24		1.55	.19			
25		1.7	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
26		1.7	.15			
27		1.6	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
28		1.6	.19			
29		1.7	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
30		1.7	.21			
31		1.95	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
32		1.95	.19			
33		1.75	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
34		1.9	.17			
35		1.85	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
36		1.85	.14			
37		1.8	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
38		1.8	.13			
39		1.8	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
40		1.95	.11			
41		2.1	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
42		2.2		.07	.08	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
>>>>>>>	>>>>>>>	>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>>>>>
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	Run 1 duplicate reading for each set of 10 readings (duplicate the last set of readings recorded on this page)
42				.16	.15	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	

Flow by Velocity Meter Field Worksheet

Project: _____ Date: _____

Waterbody Name: _____ Time begin (Military): _____

Station ID: 20A-Ash Time end (Military): _____

Station Description: (Draw sketch in field book) _____

By (Staff Names): _____

Total River Width (ft-in): _____

Distance Readings		Depth (ft)	Velocity (V) Readings (ft/sec)			Comments
			FOR DEPTHS ≤ 2 FT	FOR DEPTHS > 2 FT		
Tape (ft)	Bank (ft)		V @ 60% depth from surface	V @ 20% depth from surface	V@ 80% depth from surface	
43		2.1	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
44		1.9	.16			
45		1.95	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
46		1.8	.11			
47		1.8	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
48		1.5	.11			
49		1.5	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
50		1.3	.11			
51		1	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
52		0	0			
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
>>>>>>>	>>>>>>>	>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>>>>>
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	Run 1 duplicate reading for each set of 10 readings (duplicate the last set of readings recorded on this page)
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	

Sampling Field Worksheet

Project: Ashuelot River TMDL — Date: 08-16-01

Name of Samplers: GEORGE BERLANDI, PAUL PISZCZEK

Waterbody Name: ~~Ashuelot River~~ Ash Swamp Brook — Station ID: ~~AR~~ OA-Ash

Weather: PARTLY CLOUDY, LIGHT WINDS, UPPER 70s

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments – see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L).	Conductivity (uS/cm)	pH	
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP): SEE CALIBRATION SHEET	
I	SURFACE	MID CHANNEL	0	12:48	12:50	23.1	8.82	157.3	6.47	
Is DUPLICATE to be run? (If yes, record duplicate of last set of field measurements in this row.) (NO)				N/A	N/A	Dup N/A	Dup N/A	Dup N/A	Dup N/A	6.0 std. N/A

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): — Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	NO	1		MID CHANNEL	0
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	1		↓	↓
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.		1			
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.		1			
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	2		↓	↓

Aquatic Plant Growth: (% Coverage)

Macrophytes (rooted plants): 0

Phytoplankton (free floating): 0

Periphyton (attached algae): 0

Canopy (Well Shaded, Moderately Shaded, Mostly Open): MODERATELY SHADED

Other Comments / Observations

Color (clear, tea-colored, etc): CLEAR

Substrate (ie, sandy, cobbles, muck, etc.): SAND : MINIMAL SILT SOME WOOD DEBRIS

Odor: NONE

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and ~ 1 foot from the bottom.

Sampling Field Worksheet

Project: Ashuelot River TMDL	Date: 08-16-01
Name of Samplers: GEORGE BERLANDI PAUL PISZCZEK	
Waterbody Name: Ashuelot River	Station ID: 14-Ash
Weather: CLEAR, SUNNY, CALM WIND - HIGH 70s	

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments –see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L).	Conductivity (uS/cm)	pH	
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP): SEE CALIBRATION SHEET	
B w/ EXT. ROD	SURFACE	~ 30	~ 15'	10:39	10:45	29.9	7.25	80.5	6.58	
Is DUPLICATE to be run? (If yes, record duplicate of last set of field measurements in this row.) NO				N/A	N/A	Dup N/A	Dup N/A	Dup N/A	Dup N/A	6.0 std. N/A

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): 5-10' | Approximate width of river (feet): 90

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	NO	1	10:39	30	15
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	1	10:39	30	15
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.	↓	1	10:39	30	15
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.	↓	1	10:39	30	15
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	2	10:39	30	15

Aquatic Plant Growth: % Coverage
Macrophytes (rooted plants): 5
Phytoplankton (free floating): 5
Periphyton (attached algae): 5
Canopy (Well Shaded, Moderately Shaded, Mostly Open): MOSTLY OPEN

Other Comments / Observations
Color (clear, tea-colored, etc): MAINLY CLEAR
Substrate (ie, sandy, cobbles, muck, etc.): SAND, SILT, WOODY DEBRIS
Odor: NONE – DECREASED AT SOME WATER EDGE

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and ~ 1 foot from the bottom.

Sampling Field Worksheet

Project: Ashuelot River TMDL	Date: 08-16-01
Name of Samplers: GEORGE BERLANDI, PAUL PISZCZEK	
Waterbody Name: Ashuelot River	Station ID: 15E-Ash
Weather: CLEAR, SUNNY CALM WIND; UPPER 70s	

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments –see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L)	Conductivity (uS/cm)	pH	
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP):	
Bucket W/EXT. ROD	SURFACE	~~40~~ 35	15	11:15	11:19	23.7	7.40	97.0	6.70	
Is DUPLICATE to be run? (If yes, record duplicate of last set of field measurements in this row.) NO				N/A	N/A	Dup N/A	Dup N/A	Dup N/A	Dup N/A	6.0 std. N/A

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	NO	1	15 11:16	35	15
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	1	15 11:16	35	15
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.		1	15 11:16	35	15
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.		1	15 11:16	35	15
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		2	15 11:16	35	15

Aquatic Plant Growth: % Coverage
Macrophytes (rooted plants): 1
Phytoplankton (free floating): 0
Periphyton (attached algae): 1
Canopy (Well Shaded, Moderately Shaded, Mostly Open): MOSTLY OPEN

Other Comments / Observations
Color (clear, tea-colored, etc): MAINLY CLEAR
Substrate (ie, sandy, cobbles, muck, etc.): SAND, SILT, WOODY DEBRIS
Odor: NONE PATCHES OF DECOMPOSED FLOATING MATERIAL

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and ~ 1 foot from the bottom.

Sampling Field Worksheet

Project: Ashuelot River TMDL	Date: 08-16-01
Name of Samplers: GEORGE BERLANDI, PAUL PISZCZEK	
Waterbody Name: [redacted] Ashuelot River	Station ID: [redacted] 16M-Ash
Weather: CLEAR, SUNNY, LIGHT WINDS; HIGH 70s	

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments –see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L).	Conductivity (uS/cm)	pH	
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP):	
I	SURFACE	MID CHANNEL	0	12:31	12:34	22.8	7.52	113.8	0.98	
Is DUPLICATE to be run? (NO) (If yes, record duplicate of last set of field measurements in this row.)				N/A	N/A	Dup N/A	Dup N/A	Dup N/A	Dup N/A	6.0 std. N/A

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): $\bar{X} \approx 2.5$ $Z_{max} \approx 5.0$ | Approximate width of river (feet): 50

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	NO	1	12:31	MID CHANNEL	0
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	1	12:31	↓	↓
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.	↓	1	12:31	↓	↓
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.	↓	1	12:31	↓	↓
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	2	12:31	↓	↓

Aquatic Plant Growth:

	% Coverage	
Macrophytes (rooted plants):	20	- RUSHES, POND WEED
Phytoplankton (free floating):	0	
Periphyton (attached algae):	5	

Canopy (Well Shaded, Moderately Shaded, Mostly Open): MOSTLY OPEN

Other Comments / Observations

Color (clear, tea-colored, etc): CLEAR

Substrate (ie, sandy, cobbles, muck, etc.): SAND, SILT, WOODY DEBRIS (SOFT BOTTOM)

Odor: NONE

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and ~ 1 foot from the bottom.

ST 2

Sampling Field Worksheet

Project: Ashuelot River TMDL — Date: 8/16/01

Name of Samplers: M. Wood, A. Bourland

Waterbody Name: Ashuelot River — Station ID: 19A-Ash

Weather: (Impoundments)

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments – see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L)	Conductivity (uS/cm)	pH
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP):
	Surface			13:01	13:01	25.0	7.25	126.5	6.48
	2.5 feet			12:54		23.0	6.83		
	Bottom 1' from bottom			〃		22.5	5.91		
				12:56		22.5	5.85		
Is DUPLICATE to be run? (Yes) on surface sample (If yes, record duplicate of last set of field measurements in this row.)				12:57	1307	Dup 24.9	Dup 7.36	Dup 126.4	Dup 6.46 6.0 std.

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): — Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	Yes	2			
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		2			
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.		2			
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.		2			
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		4			

Aquatic Plant Growth: % Coverage
Macrophytes (rooted plants): >80%
Phytoplankton (free floating): <5%
Periphyton (attached algae): not visible N/A
Canopy (Well Shaded, Moderately Shaded, Mostly Open): mostly open

Other Comments / Observations
Color (clear, tea-colored, etc): light tea-colored
Substrate (ie, sandy, cobbles, muck, etc.): not visible too turbid
Odor: Slight bad smell
Dog Swimming upstream

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and ~1 foot from the bottom.

19A-Ash site info = DUP1

DUP2 → 19A-Ash as site (Dup) info.

Sampling Field Worksheet

Project: Ashuelot River TMDL | Date: 8/16/01

Name of Samplers: M. Wood, A. Bourland

Waterbody Name: Ashuelot River | Station ID: 12-Ash

Weather: Sunny, low 80's

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments – see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L).	Conductivity (uS/cm)	pH	
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP):	
I	Surface	1-2 ft	10 ft.	~~10:24~~ 10:52	10:24	22.7	6.75	171.7	6.38	
Is DUPLICATE to be run? (If yes, record duplicate of last set of field measurements in this row.) NO						Dup	Dup	Dup	Dup	6.0 std.

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): | Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	NO	1			
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	1			
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.		1			
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.		1			
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		2			

Aquatic Plant Growth: % Coverage

Macrophytes (rooted plants): 0-5%

Phytoplankton (free floating): 0-5%

Periphyton (attached algae): 15%

Canopy (Well Shaded, Moderately Shaded, Mostly Open): mostly open

Other Comments / Observations

Color (clear, tea-colored, etc): clear to light yellow

Substrate (ie, sandy, cobbles, muck, etc.): cobble & sand

Odor: none

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and ~ 1 foot from the bottom.

Sampling Field Worksheet

Project: Ashuelot River TMDL | Date: 8/16/01

Name of Samplers: M. Wood, A. Bourland

Waterbody Name: Ashuelot River | Station ID: 16-Ash

Weather: Sunny, low 80's

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments –see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L).	Conductivity (uS/cm)	pH	
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP):	
B	1'	~~5~~ 15'	4'	10:53	10:57	21.3	7.13	199.0	6.37	
Is DUPLICATE to be run? NO (If yes, record duplicate of last set of field measurements in this row.)						Dup	Dup	Dup	Dup	6.0 std.

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): | Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	NO	1			
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		1			
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.		1			
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.		1			
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		2			

Aquatic Plant Growth: % Coverage
Macrophytes (rooted plants): 10%
Phytoplankton (free floating): 5%
Periphyton (attached algae): 5%
Canopy (Well Shaded, Moderately Shaded, (Mostly Open))

Other Comments / Observations
Color (clear, tea-colored, etc): Slightly tea-colored
Substrate (ie, sandy, cobbles, muck, etc.): Sandy
Odor: None

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and ~ 1 foot from the bottom.

Sampling Field Worksheet

Project: Ashuelot River TMDL	Date: 8/16/01
Name of Samplers: M. Wood, A. Bourland	
Waterbody Name: The Branch River	Station ID: OA-Bra
Weather:	

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments –see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L).	Conductivity (uS/cm)	pH	
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP):	
B	1'	2'	4'	12:15	12:20	21.2	8.41	330.2	6.52	
Is DUPLICATE to be run? No (If yes, record duplicate of last set of field measurements in this row.)						Dup	Dup	Dup	Dup	6.0 std.

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): | Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	No	1			
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	1			
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.	↓	1			
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.	↓	1			
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	2			

Aquatic Plant Growth:	% Coverage
Macrophytes (rooted plants):	10%
Phytoplankton (free floating):	< 5%
Periphyton (attached algae):	30% 30% per Mat/Mtg
Canopy (Well Shaded, Moderately Shaded, Mostly Open):	

Other Comments / Observations

Color (clear, tea-colored, etc): Slightly tea

Substrate (ie, sandy, cobbles, muck, etc.): Sandy

Odor: none

Notes: Label sample bottles ~~with black permanent~~ marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and ~ 1 foot from the bottom.

* New batteries put in cond. meter prior to sampling

Sampling Field Worksheet

Project: Ashuelot River TMDL | Date: 8/16/01

Name of Samplers: M. Wood, A. Bourland

Waterbody Name: Ashuelot River | Station ID: 19-AS4

Weather: Sunny, Hot

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments –see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L).	Conductivity (uS/cm)	pH	
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP):	
B	<1'	0	4'	12:39	12:43	24.1	7.44	119.8	6.46	
Is DUPLICATE to be run? NO (If yes, record duplicate of last set of field measurements in this row.)						Dup	Dup	Dup	Dup	6.0 std.

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): | Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of botties to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	NO	1			
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	1			
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.	↓	1			
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.	↓	1			
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	2			

Aquatic Plant Growth: % Coverage

Macrophytes (rooted plants): 80%

Phytoplankton (free floating): <5%

Periphyton (attached algae): 30%

Canopy (Well Shaded, Moderately Shaded, ~~Mostly Open~~):

Other Comments / Observations

Color (clear, tea-colored, etc): clear

Substrate (ie, sandy, cobbles, muck, etc.): cobbles

Odor: none

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and – 1 foot from the bottom.

S B

Sampling Field Worksheet

Project: Ashuelot River TMDL

Name of Samplers: KLP / TC

Waterbody Name: Ashuelot River

Weather: CLEAR / DRY

Date: 8/16/01

Station ID: 15-Ash (1) (Impoundment)

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments - see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min: Bucket sample collected	Military Time – Hours:Min: Field measurements taken	Temperature (degrees C)	DO (mg/L). see note below for Calibration Elevation and measuring DO in impoundments.	Conductivity (uS/cm)	pH slope (SLP): see calibration sheet	pH
B	surface = 0	10'	30'	10:25	10:36	22.8	7.61	183.3	6.74	
	25% D	1'8"			1048	22.4	7.40			
	50% D	6'8" D			1047	22.3	7.42			
	1' from bottom	1'			1046	22.2	7.34			
Is DUPLICATE to be run? (If yes, record duplicate of last set of field measurements in this row.)						Dup	Dup	Dup	Dup	6.0 std.

depth

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet):

Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	NO	1	1025		
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	1	1025		
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.	↓	1	1025		
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.	↓	1	1025		
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	2	1025		

Aquatic Plant Growth: % Coverage

Macrophytes (rooted plants): Common on edges (Pickerel Burreed)

Phytoplankton (free floating):

Periphyton (attached algae): sparse (sparse)

Canopy (Well Shaded, Moderately Shaded, Mostly Open): 50% Shaded

Other Comments / Observations

Color (clear, tea-colored, etc): PALE STRAW COLOR

Substrate (ie, sandy, cobbles, muck, etc.): Can't See

Odor: normal

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and ~ 1 foot from the bottom.

V Pg

Flow by Velocity Meter Field Worksheet

Project: Ashley TMDL Sampling
Waterbody Name: Ashley R
Station ID: 17-ASL
Station Description: (Draw sketch in field book)
By (Staff Names): Matt Sorn, Ken Edmondson
Meter Serial #:
Total River Width (ft-in): 45'

Date: 8-16-01
Time begin (Military): 1405
Time end (Military): 1520

Distance Readings		Depth (ft)	Velocity (V) Readings (ft/sec)			Comments
			FOR DEPTHS ≤ 2 FT	FOR DEPTHS > 2 FT		
Tape (ft)	Bank (ft)		V @ 60% depth from surface	V @ 20% depth from surface	V@ 80% depth from surface	
5	0	0	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
6		.2	-.04			
7		.45	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
8		.75	.06			
9		1	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
10		1.2	.09			
11		1.35	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
12		1.4	.14			
13		1.5	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
14		1.65	.10			
15		1.7	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
16		1.65	.16			
17		1.9	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
18		1.9	.27			
19		1.7	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
20		1.9	.32			
21		1.9	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
22		1.9	.23			
23		1.9	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
24		1.9	.23			
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
>>>>>>>	>>>>>>>	>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>>>>>
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	Run 1 duplicate reading for each set of 10 readings (duplicate the last set of readings recorded on this page)
24		1.9	.24			
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	

Flow by Velocity Meter Field Worksheet

Project: _____ Date: _____
Waterbody Name: _____ Time begin (Military): _____
Station ID: 17. Ash Time end (Military): _____
Station Description: (Draw sketch in field book) _____
By (Staff Names): _____
Meter Serial #: _____
Total River Width (ft-in): _____

Distance Readings		Depth (ft)	Velocity (V) Readings (ft/sec)			Comments
			FOR DEPTHS ≤ 2 FT	FOR DEPTHS > 2 FT		
Tape (ft)	Bank (ft)		V @ 60% depth from surface	V @ 20% depth from surface	V@ 80% depth from surface	
25		1.9	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
26		1.95	.25			
27		1.9	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
28		1.85	.16			
29		1.85	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
30		1.9	.18			
31		1.9	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
32		1.9	.19			
33		1.9	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
34		1.75	.17			
35		1.55	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
36		1.5	.15			
37		1.5	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
38		1.45	.13			
39		1.35	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
40		1.25	.22			
41		1.15	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
42		1.15	.17			
43		1.05	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
44		.95	.16			
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
>>>>>>>	>>>>>>>	>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>>>>>>
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	Run 1 duplicate reading for each set of 10 readings (duplicate the last set of readings recorded on this page)
44		.95	.16			
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	

Flow by Velocity Meter Field Worksheet

Project:______________________________ Date:______________________

Waterbody Name:______________________ Time begin (Military):__________

Station ID: 17-Ash Time end (Military): __________

Station Description:_(Draw sketch in field book)______________________

By (Staff Names): ______________________________

Meter Serial #: ______________________________

Total River Width (ft-in):______________________________

Distance Readings		Depth (ft)	Velocity (V) Readings (ft/sec)			Comments
			FOR DEPTHS ≤ 2 FT	FOR DEPTHS > 2 FT		
Tape (ft)	Bank (ft)		V @ 60% depth from surface	V @ 20% depth from surface	V@ 80% depth from surface	
45		.6	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
46		.6	.06			
47		.65	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
48		.6	0.0			
49		.4	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
50		0	0			
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
>>>>>>>	>>>>>>>	>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>>>>>>
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	Run 1 duplicate reading for each set of 10 readings (duplicate the last set of readings recorded on this page)
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	

Flow by Velocity Meter Field Worksheet

Project: [illegible]
Waterbody Name: [illegible]
Station ID: [illegible]
Station Description: (Draw sketch in field book) [illegible]
By (Staff Names): [illegible]

Date: [illegible]
Time begin (Military): 1455
Time end (Military): [illegible]

Total River Width (ft-in): [illegible]

Distance Readings		Depth (ft)	Velocity (V) Readings (ft/sec)			Comments
			FOR DEPTHS ≤ 2 FT	FOR DEPTHS > 2 FT		
Tape (ft)	Bank (ft)		V @ 60% depth from surface	V @ 20% depth from surface	V@ 80% depth from surface	
[illegible]		[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
0.5		0.4				[illegible]
—		—	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
1.0		0.13	[illegible]			[illegible]
1.5		[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
2.0		[illegible]	0.49			
2.5		0.22	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
3.0		0.21	0.74			
3.5		0.26	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
4.0		0.27	[illegible]			
4.5		[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
[illegible]		[illegible]	0.26			
[illegible]		[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
[illegible]		[illegible]	[illegible]			
[illegible]		[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
[illegible]		[illegible]				
[illegible]		[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
[illegible]		[illegible]	[illegible]			
[illegible]		[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
[illegible]		[illegible]	[illegible]			[illegible]
[illegible]		[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
>>>>>>>	>>>>>>>	>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>>>>>>
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	Run 1 duplicate reading for each set of 10 readings (duplicate the last set of readings recorded on this page)
10		[illegible]	[illegible]			
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	

Flow by Velocity Meter Field Worksheet

Project: [illegible]
Waterbody Name: [illegible]
Station ID: [illegible]
Station Description: (Draw sketch in field book) [illegible]
By (Staff Names): [illegible]

Date: [illegible]
Time begin (Military): [illegible]
Time end (Military): [illegible]

Total River Width (ft-in): [illegible]

Distance Readings		Depth (ft)	Velocity (V) Readings (ft/sec)			Comments
			FOR DEPTHS ≤ 2 FT	FOR DEPTHS > 2 FT		
Tape (ft)	Bank (ft)		V @ 60% depth from surface	V @ 20% depth from surface	V@ 80% depth from surface	
10.5		0.31	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
11		0.35	0.92			
11.5		0.30	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
12		0.31	0.85			
12.5		0.32	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
13		0.33	0.85			
13.5		0.27	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
14		0.30	0.92			
14.5		0.31	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
15		0.33	0.89			
15.5		0.31	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
16		0.30	0.92			
16.5		0.26	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
17		0.27	0.42			
17.5		0.28	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
18		0.23	0.47			
18.5		0.24	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
19		0.21	0.72			
19.5		0.20	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
20		0.20	0.21			Dup. 20.5 = 0.22
20.5		2	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
>>>>>>>	>>>>>>>	>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>>>>>>
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	Run 1 duplicate reading for each set of 10 readings (duplicate the last set of readings recorded on this page)
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	

Flow by Velocity Meter Field Worksheet

Project: _____ Date: _____
Waterbody Name: _____ Time begin (Military): _____
Station ID: _____ Time end (Military): _____
Station Description: (Draw sketch in field book) _____
By (Staff Names): _____

Total River Width (ft-in): _____

Distance Readings		Depth (ft)	Velocity (V) Readings (ft/sec)			Comments
			FOR DEPTHS ≤ 2 FT	FOR DEPTHS > 2 FT		
Tape (ft)	Bank (ft)		V @ 60% depth from surface	V @ 20% depth from surface	V@ 80% depth from surface	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
0.5		0.13	0.60			
1.0		0.22	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
1.5		0.29	0.92			
2.0		0.34	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
2.5		0.34	0.77			
3.0		0.31	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
3.5		0.30	0.92			
4.0		0.30	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
4.5		0.28	1.04			
5.0		0.27	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
5.5		0.24	0.85			
6.0		0.26	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
6.5		0.25	0.91			
7.0		0.27	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
7.5		0.27	0.82			
8.0		0.26	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
8.5		0.17	0.16			Average = 0.15
8.8		0	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
>>>>>>>	>>>>>>>	>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>>>>>>
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	Run 1 duplicate reading for each set of 10 readings (duplicate the last set of readings recorded on this page)
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	

Flow by Velocity Meter Field Worksheet

Project: _____ Date: _____
Waterbody Name: _____ Time begin (Military): _____
Station ID: _____ Time end (Military): _____
Station Description: (Draw sketch in field book) _____
By (Staff Names): _____

Total River Width (ft-in): 52.5

Distance Readings		Depth (ft)	Velocity (V) Readings (ft/sec)			Comments
			FOR DEPTHS ≤ 2 FT	FOR DEPTHS > 2 FT		
Tape (ft)	Bank (ft)		V @ 60% depth from surface	V @ 20% depth from surface	V@ 80% depth from surface	
1.5		0	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
2.5		0.23	0.47			
3.5		0.30	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
4.5		0.30	0.45			
5.5		0.25	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
6.5		0.39	0.47			
7.5		0.34	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
8.5		0.34	0.45			
9.5		0.40	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
10.5		0.35				
11.5		0.32	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
12.5		0.42	0.60			
13.5		0.42	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
14.5		0.30	0.[illegible]			
15.5		0.45	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
16.5		0.51	[illegible]			
17.5		[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
18.5		[illegible]	[illegible]			
19.5		[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
20.5		1.71	[illegible]			
21.5		[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
>>>>>>>	>>>>>>>	>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>>>>>>
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	Run 1 duplicate reading for each set of 10 readings (duplicate the last set of readings recorded on this page)
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	

Flow by Velocity Meter Field Worksheet

Project: _____ Date: _____
Waterbody Name: _____ Time begin (Military): _____
Station ID: _____ Time end (Military): _____
Station Description: (Draw sketch in field book) _____
By (Staff Names): _____

Total River Width (ft-in): _____

Distance Readings		Depth (ft)	Velocity (V) Readings (ft/sec)			Comments
Tape (ft)	Bank (ft)		FOR DEPTHS ≤ 2 FT	FOR DEPTHS > 2 FT		
			V @ 60% depth from surface	V @ 20% depth from surface	V@ 80% depth from surface	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
22.5		0.21	0.[illegible]			
23.5		1.15	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
24.5		2[illegible]	0.[illegible]			
25.5		.62	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
26.5		.22	1.14			
27.5		1.26	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
28.5		.12	0.54			
29.5		1.13	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
30.5		1.13	0.[illegible]			
[illegible]		1.26	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
32.5		.20	0.[illegible]			
[illegible]		1.28	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
34.5		.42	0.27			
35.5		1.32	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
[illegible]		1.30	0.27			
37.5		1.34	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
38.5		1.08	0.[illegible]			
[illegible]		1.[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
40.5		1.28	0.[illegible]			Run 1 ave = 0.53
41.5		1.32	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	Run 2 ave = 0.44
>>>>>>>	>>>>>>>	>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>>>>>>
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	Run 1 duplicate reading for each set of 10 readings (duplicate the last set of readings recorded on this page)
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	

Flow by Velocity Meter Field Worksheet

Project: [illegible]
Waterbody Name: [illegible]
Station ID: [illegible]
Station Description: (Draw sketch in field book) [illegible]
By (Staff Names): [illegible]

Date: [illegible]
Time begin (Military): [illegible]
Time end (Military): [illegible]

Total River Width (ft-in): [illegible]

Distance Readings		Depth (ft)	Velocity (V) Readings (ft/sec)			Comments
			FOR DEPTHS ≤ 2 FT	FOR DEPTHS > 2 FT		
Tape (ft)	Bank (ft)		V @ 60% depth from surface	V @ 20% depth from surface	V@ 80% depth from surface	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
42.5		3.81	0.52			
43.5		0.63	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
44.5		0.56	0.36			
45.5		0.51	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
46.5		0.42	0.26			
47.5		0.34	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
48.5		0.35	0.18			
49.5		0.41	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
50.5		3.41	0.12			[illegible]
51.5		4.43	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
52		0.31	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
>>>>>>>	>>>>>>>	>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>>>>>>
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	Run 1 duplicate reading for each set of 10 readings (duplicate the last set of readings recorded on this page)
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	

Flow by Velocity Meter Field Worksheet

Project: Asheville TMDL Samplings
Waterbody Name: South Branch Asheville
Station ID: 2-SBA
Station Description: (Draw sketch in field book)
By (Staff Names): Jean Edwards, Matt Jones
Meter Serial #:
Total River Width (ft-in):

Date: 8-16-01
Time begin (Military): 1255
Time end (Military): 1310

Distance Readings		Depth (ft)	Velocity (V) Readings (ft/sec)			Comments
			FOR DEPTHS ≤ 2 FT	FOR DEPTHS > 2 FT		
Tape (ft)	Bank (ft)		V @ 60% depth from surface	V @ 20% depth from surface	V@ 80% depth from surface	
4	0	0	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
4'9"		.2	.01			
5'6"		.35	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
6'3"		.4	.09			
7'		.65	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
7'6"		.85	.17			
8'6"		1	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
9'3"		1.3	.27			
10'		1.4	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
10'9"		1.45	.34			
11'6"		1.6	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
12'3"		1.7	.22			
13'		1.9	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
13'9"		2.1	✓	.23	.21	
14'6"		2.1	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
15'3"		2.1		.30	.25	
16'		2	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
16'9"		1.95	.25		~~.35~~	
17'6"		1.9	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
18'3"		1.85	.35			
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
>>>>>>>	>>>>>>>	>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>>>>>
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	Run 1 duplicate reading for each set of 10 readings (duplicate the last set of readings recorded on this page)
18'3"		1.85	.33			
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	

Flow by Velocity Meter Field Worksheet

Project: _____ Date: _____
Waterbody Name: _____ Time begin (Military): _____
Station ID: 2 - Sha Time end (Military): _____
Station Description: (Draw sketch in field book) _____
By (Staff Names): _____
Meter Serial #: _____
Total River Width (ft-in): _____

Distance Readings		Depth (ft)	Velocity (V) Readings (ft/sec)			Comments
Tape (ft)	Bank (ft)		FOR DEPTHS ≤ 2 FT	FOR DEPTHS > 2 FT		
			V @ 60% depth from surface	V @ 20% depth from surface	V@ 80% depth from surface	
19'		1.8	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
19'9"		1.8	.27			
20'6"		1.7	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
21'3"		1.75	.49			
22		1.75	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
22'9"		1.75	.39			
23'6"		1.7	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
24'3"		1.7	.37			
25		1.7	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
25'9"		1.65	.46			
26'6"		1.65	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
27'3"		1.65	.47			
28		1.6	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
28'9"		1.6	.54			
29'6"		1.55	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
30'3"		1.55	.52			
31'		1.6	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
31'9"		1.65	.46			
32'6"		1.65	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
33'3"		1.6	.56			
[illegible]			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
>>>>>>>	>>>>>>>	>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>>>>>>
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	Run 1 duplicate reading for each set of 10 readings (duplicate the last set of readings recorded on this page)
33'3"		1.6	.54			
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	

Flow by Velocity Meter Field Worksheet

Project:
Waterbody Name:
Station ID: Q-Sh[illegible]
Station Description: (Draw sketch in field book)
By (Staff Names):
Meter Serial #:
Total River Width (ft-in):

Date:
Time begin (Military):
Time end (Military):

Distance Readings		Depth (ft)	Velocity (V) Readings (ft/sec)			Comments
			FOR DEPTHS ≤ 2 FT	FOR DEPTHS > 2 FT		
Tape (ft)	Bank (ft)		V @ 60% depth from surface	V @ 20% depth from surface	V@ 80% depth from surface	
34'		1.65	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
34'9"		1.7	.38			
35'6"		1.65	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
36'3"		.75	.32			
37'		.75	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
37'9"	0	0	0			
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
>>>>>>>	>>>>>>>	>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>>>>>>
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	Run 1 duplicate reading for each set of 10 readings (duplicate the last set of readings recorded on this page)
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	

FT2

Flow by Velocity Meter Field Worksheet

Project: [illegible]
Waterbody Name: [illegible]
Station ID: [illegible]
Station Description: (Draw sketch in field book) [illegible]
By (Staff Names): [illegible]
Meter Serial #: [illegible]
Total River Width (ft-in): [illegible]

Date: 8/16/[illegible]
Time begin (Military): [illegible]
Time end (Military): [illegible]

Distance Readings		Depth (ft)	Velocity (V) Readings (ft/sec)			Comments
			FOR DEPTHS ≤ 2 FT	FOR DEPTHS > 2 FT		
Tape (ft)	Bank (ft)		V @ 60% depth from surface	V @ 20% depth from surface	V@ 80% depth from surface	
[illegible]		[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
[illegible]		[illegible]	[illegible]			
[illegible]		[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
[illegible]		[illegible]	[illegible]			
[illegible]		[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
[illegible]		[illegible]	1.32			
9.75		0.69	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
10.5		0.87	1.26			
11.25		[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
12		[illegible]	1.51			
12.75		[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
13.5		[illegible]	2.35			
14.25		[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
15		0.62	2.31			TURBULENCE
15.75		[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
16.5		[illegible]	[illegible]			
17.25		[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
18		0.95	[illegible]			TURBULENCE
18.7		1.0	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
19.5		1.03	[illegible]			TURBULENCE
20.25		0.41	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
>>>>>>>	>>>>>>>	>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>>>>>>
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	Run 1 duplicate reading for each set of 10 readings (duplicate the last set of readings recorded on this page)
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	

Flow by Velocity Meter Field Worksheet

Project: [illegible]
Date: [illegible]
Waterbody Name: [illegible]
Time begin (Military): [illegible]
Station ID: 147-A3[illegible]
Time end (Military): [illegible]
Station Description: (Draw sketch in field book) [illegible]
By (Staff Names): JSA, [illegible]

Total River Width (ft-in): 3[illegible].75

Distance Readings		Depth (ft)	Velocity (V) Readings (ft/sec)			Comments
			FOR DEPTHS ≤ 2 FT	FOR DEPTHS > 2 FT		
Tape (ft)	Bank (ft)		V @ 60% depth from surface	V @ 20% depth from surface	V @ 80% depth from surface	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
21		0.9[illegible]	1.2[illegible]			
21.75		1.2	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
22.5		1.25	1.7[illegible]			
23.25		1.21	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
24		1.06	[illegible]			
24.75			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
25.5		1.02	1.74			
26.25		[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
27		1.[illegible]	2.15			
27.75		1.20	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
28.5		1.20	2.05			
29.25		1.15	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
30		1.[illegible]	1.84			
30.75		1.06	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
31.5		0.79	1.22			
32.25		0.72	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
33		[illegible]	1.2[illegible]			
33.75		0.55	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
34.5		0.33	[illegible]			[illegible]
35.25		[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
>>>>>>>	>>>>>>>	>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>>>>>>
36.25		[illegible]	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	Run 1 duplicate reading for each set of 10 readings (duplicate the last set of readings recorded on this page)
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	

FT 1

Flow by Velocity Meter Field Worksheet

Project: Klamath TMDL
Waterbody Name: Klamath 12
Station ID: 12- KSH # (6) 12T 10 (crossing)
Station Description: (Draw sketch in field book) 2 FT Downstream of 12T 10 Cross
By (Staff Names): MAT ~~[illegible]~~ / Kim Edmondson
Meter Serial #: Jons
Total River Width (ft-in): 75'

Date: 9/16/01
Time begin (Military): 11:25
Time end (Military): 12:10

Distance Readings		Depth (ft)	Velocity (V) Readings (ft/sec)			Comments
			FOR DEPTHS ≤ 2 FT	FOR DEPTHS > 2 FT		
Tape (ft)	Bank (ft)		V @ 60% depth from surface	V @ 20% depth from surface	V@ 80% depth from surface	
3'	0	0	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
4.5		~~.5~~ 1.5	.08			
6		1.7	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
7.5		2.5		.12	.21	
9		2.7	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
10.5		2.8		.14	.23	
12		2.8	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
13.5		2.3		.34	.33	
15		2.85	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
16.5		2.7		.31	.37	
18		2.8	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
19.5		2.9		.37	.41	
21		2.7	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
22.5		2.95		.35	.36	
24		2.7	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
25.5		2.4		.40	.35	
27		2.4	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
28.5		2.35		.40	.39	
30		2.45	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
31.5		2.6		.46	.52	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
>>>>>>>	>>>>>>>	>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>>>>>>
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	Run 1 duplicate reading for each set of 10 readings (duplicate the last set of readings recorded on this page)
31.5		2.6		.55	.51	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	

Flow by Velocity Meter Field Worksheet

Project: _____ Date: _____
Waterbody Name: _____ Time begin (Military): _____
Station ID: 12-Ash Rb 10 crossing Time end (Military): _____
Station Description: (Draw sketch in field book) _____
By (Staff Names): _____
Meter Serial #: _____
Total River Width (ft-in): _____

Distance Readings		Depth (ft)	Velocity (V) Readings (ft/sec)			Comments
			FOR DEPTHS ≤ 2 FT	FOR DEPTHS > 2 FT		
Tape (ft)	Bank (ft)		V @ 60% depth from surface	V @ 20% depth from surface	V@ 80% depth from surface	
33		2.7	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
34.5		2.7		.51	.44	
36		2.45	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
37.5		2.7		.51	.50	
39		2.8	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
40.5		2.8		.61	.46	
42		2.8	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
43.5		2.8		.61	.45	
45		2.85	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
46.5		2.85		.54	.52	
48		2.9	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
49.5		2.9		.66	.42	
51		2.75	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
52.5		2.85		.48	.44	
54		2.8	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
55.5		2.7		.57	.42	
57		2.6	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
58.5		2.5		.55	.47	
60		2.55	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
61.5		2.55		.40	.34	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
>>>>>>>	>>>>>>>	>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>>>>>>
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	Run 1 duplicate reading for each set of 10 readings (duplicate the last set of readings recorded on this page)
61.5				.46	.36	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	

Flow by Velocity Meter Field Worksheet

Project: _____ Date: _____
Waterbody Name: _____ Time begin (Military): _____
Station ID: 12 - Ash Rt. 10 (Gassaway) Time end (Military): _____
Station Description: (Draw sketch in field book) _____
By (Staff Names): _____
Meter Serial #: _____
Total River Width (ft-in): _____

Distance Readings		Depth (ft)	Velocity (V) Readings (ft/sec)			Comments
			FOR DEPTHS ≤ 2 FT	FOR DEPTHS > 2 FT		
Tape (ft)	Bank (ft)		V @ 60% depth from surface	V @ 20% depth from surface	V@ 80% depth from surface	
63		2.4	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
64.5		2.45		.49	.42	
66		2.45	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
67.5		2.4		.49	.41	
69		2.2	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
70.5		2.2		.48	.39	
72		2.05	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
73.5		1.15	.44			
75		1.05	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
76.5		.85	.31			
78		0	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	
>>>>>>>	>>>>>>>	>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>>>>>
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	Run 1 duplicate reading for each set of 10 readings (duplicate the last set of readings recorded on this page)
			>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	

551

Field Meter Calibration Field Sheet

Date: 08-16-01 **Sampling Team ID:** —

Project Name: ASSABET RIVER TMDL

Meter Serial Numbers for Each Team

Sampling Team	EMST 1	EMST 2	ST 1	ST 2	ST 3	ST 4
Team Member Initials	GC PP	GB SD	GB PP	MW AB	KP TC	GC AD
DO/Temp Meter Serial No.	01C0218 AC	98E 0378AE	01C0218 AC	98E 0378 AE	01C0218 AM	01C0218 AB
PH Meter Serial No.	009971	013496	009971	013496	019093	010732
Spec Conductivity Meter Serial Number	01C0665 AB	99ED526 AC	01C0665 AB	99ED526	00D0153 AA	01C0665 AD

DO/Temp Meter

		EMST 1	EMST 2	ST 1	ST 2	ST 3	ST 4
Date when membrane cap and KCL solution were last changed.		08-16-01	08-16-01	08-16-01	08-16-01	08-16-01	08-16-01
	Calibration Elevation (ft)	500	500	500	500	500	500
Calibration Check 1	Time (Military)	~~06-08~~ 06:05	06:00	0945	09:45	09:45	09:45
	Temp (deg C)	18.8	18.7				
	% Sat Reading (calibration chamber-should be > 98%)	98.1	98.1	98.1 / 103.5	98.1 / 103.2	98.1 / ~~92.7~~ 92.6	98.1 / 95.3
Group check (all probes same bucket-should be within 0.4 mg/L or 4%, whichever is larger)							
	Temp (deg C)	22.2	22.1	22.9	22.8	22.9	22.9
	DO (mg/L)	6.38	6.61	6.65	6.78	6.90	6.83
	Comments	20.3°, 6.53 mg/L AGREEMENT CHECK AFT 3 SITES	20.2°, 6.88 mg/L				
Calibration Check 2	Time (Military)	07:07	07:07	11:40	11:40	11:40	11:40
	Temp (deg C)	18.1	18.2	29.7	27.2	25.9	27.6
	% Sat Reading (calibration chamber-should be +/- 2% of CAL 1 value)	96.1	99.2	91.7	91.2	96.1	96.7
Group check (all probes same bucket-should be within 0.4 mg/L or 4 %, whichever is larger)							
	Temp (deg C)	19.9	19.9	22.7	* 22.6	22.6	22.6
	DO (mg/L)	~~6.66~~ 6.67	6.87	7.65	7.58	8.05	7.97
	Comments	METER RAPIDLY % SAT DECLINED AFTER RECALIBRATION		95.0% 8.00 22.8°	92.3% 8.02 22.7°	100.% 7.86 22.7	96.4% 7.57 22.7
Calibration Check 3	Time (Military)	09:33	09:33	14:39	14:39	14:39	14:39
	Temp (deg C)	21.7 (25.7)	21.6 (23.1)	29.2	32.8	30.7	31.9
	% Sat Reading (calibration chamber-should be +/- 2% of CAL 1 value))	(102.2) 78.5 BUCKET	(STORAGE CHAMBER (103.6)) 80.5	98.2	98.2	98.0	97.9
Group check (all probes same bucket-should be within 0.4 mg/L or 4%, whichever is larger)							
	Temp (deg C)	21.9	21.8	25.9	25.5	25.7	25.8
	DO (mg/L)	7.34	7.17	8.11	7.18	7.36	7.30
	Comments						

See back for pH Calibration Check 558

pH Meter Calibration Field Sheet

	EMST 1	EMST 2	ST 1	ST 2	ST 3	ST 4
Calibration 1						
Time (Military)	08:50	08:50	08:50	08:50	08:50	08:50
% Slope using 7.0 and 4.01 standard	—	—	97.6	96.2	99.6	95.5
pH Reading using 6.0 test buffer	—	—	6.01	6.11	6.12	6.07
pH reading - Group check (all probes in same bucket)	—	—	6.71	6.94	6.57	6.84
Comments	—	—				
Calibration 2						
Time (Military)	—	—	11:54	11:54	11.54	11.54
% Slope using 7.0 and 4.01 standard	—	—	98.9	97.5	100.8	98 3
pH Reading using 6.0 test buffer	—	—	6.01	6.03	6.03	6.04
pH reading - Group check (all probes in same bucket)	—	—	[6.54 POST	2ND SET OF SAMPLES 6.78	6.88	6.50] 19:5
Comments	—	—				
Calibration 3						
Time (Military)	—	—				
% Slope using 7.0 and 4.01 standard	—	—				
pH Reading using 6.0 test buffer	—	—				
pH reading - Group check (all probes in same bucket)	—	—				
Comments	—	—				

W. Swanzey

24 Hour Flow Compositing

W. Swanzey POTW

first sample at: 11:00 date: 8-15

final sample at: 10:00 date: 8-16

maximum chart reading: 3.2

Time	Flow	% of maximum flow	375 ml.	= amount from	bottle #
11:00	3.2	100		375 ✓	1.
12:00 noon	3.0	.94		352 ✓	2.
1	2.8	.88		328 ✓	3.
2	2.6	.81		305 ✓	4.
3	2.5	.78		293 ✓	5.
4	2.3	.72		270 ✓	6.
5	2.1	.66		246 ✓	7.
6	2.1	.66		246 ✓	8.
7	2.1	.66		246 ✓	9.
8	2.2	.69		258 ✓	10.
9	2.4	.75		281 ✓	11.
10	2.4	.75		281 ✓	12.
11	2.1	.66		246 ✓	13.
12 midnight	1.9	.59		223 ✓	14.
1	1.6	0.5		188 ✓	15.
2	1.2	.38		141 ✓	16.
3	1.1	.34		129 ✓	17.
4	1.0	.31		117 ✓	18.
5	0.9	.28		105 ✓	19.
6	1.0	.31		117 ✓	20.
7	1.0	.31		117 ✓	21.
8	1.6	0.5		188 ✓	22.
9	2.7	.84		316 ✓	23.
10	2.9	.91		340 ✓	24.
					25.
					26.
					27.
					28.
					Standby

rfp 9/95

2001 ASHUELOT RIVER TMDL SAMPLING TEAMS
August 23, 2001

Early Morning Sampling Team 1 :	Gregg Comstock (GC) Paul Pisczcek (PP)
Early Morning Sampling Team 2 :	George Berlandi (GB) Sharon Ducharme (SD)
Sampling Team 1 :	George Berlandi (GB) Paul Pisczcek (PP)
Sampling Team 2 :	Deb Soule (DS) Ashley Bourland (AB)
Sampling Team 3 :	Stephanie Larson (SL) Tom Croteau (TC)
Sampling Team 4 :	George Carlson (GC) Matt Jones (MJ)
Flow Team 1 :	Ken Edwardson (KJE) Sterg Spanos (SS)
Flow Team 2 :	Jeff Andrews (JA) Rod Owre (RO)

Early Morning Sampling Team (EMST) Field Worksheet

Date: 08-23-01 EMST #: 1 Names: GREGG COMSTOCK, PAUL PISZCZEK

Project: ASHUELOT RIVER TMDL DO/Temp Meter Serial Number: 01C026 AD

Station	Time (Military)	Bucket or Instream (B or I)	Location (ie, midchannel, X feet from bank).	Total Water Depth (feet)	Depth of Measurement	Temperature (degrees C)	Dissolved Oxygen (mg/L)	Comments
14-Ash	06:33	B	~15' from bank	5-10'	SURFACE	22.5	6.56	COLLECTED ~ 15' FROM NORTH BANK USING EXT. ROD
15 Ash	~~06:46~~ 06:46	~~B~~ B	~ MID CHANNEL	~~5-6~~ 6.0	~~SURFACE~~ SURFACE	~~21.7~~ 21.7	6.37 ~~6.37~~	COLLECTED FROM MID CHANNEL W/ ROPE & BUCKET
15-Ash	06:59	—			5.0 (1.0' from bot)	21.9	6.29	TEMP - DO PROFILE
15-Ash	06:59	—			3.0 (MID)	21.8	6.20	DO PROBE + TAPE MEASURE
15-Ash	07:00	—			1.5 (25%)	21.7	6.20	
16-Ash								SEE EMST #2 DATA SHEET
2-Sba	07:18	B	MIDCHANNEL	2-2.5'	SURFACE	18.8	7.04	~~BUCKET~~ COLLECTED USING BUCKET SUSPENSION FROM BRIDGE (UPSTREAM SIDE)
17-Ash	07:32	B	MID CHANNEL	2-2.5	SURFACE	21.1	6.84	COLLECTED FROM UPSTREAM SIDE OF BRIDGE W/ ROPE + BUCKET - ~~WATER~~ PUMPING WATER OUT OF STREAM ~ 100' + 2 FROM SAMPLE 4" DIAM.
0A-Bra	07:40	B	~MID CHANNEL	2-3'	SURFACE	18.8	6.79	COLLECTED ~ 50' U/S FROM ASHUELOT RIVER ALONG WEST BANK USING EXT. ROD
16B-Ash	~~08:08~~ 08:08	B I	MID CHANNEL ~MID CHANNEL	2' 2'	SURFACE SURFACE	20.7 20.8	6.01 5.89	METER TURNED OFF - RECALIBRATED TO 20.2 - ACTUAL 20.0 COLLECTED SAMPLE & HYDROLAB
16B-Ash	08:11	I	~MIDCHANNEL	2'	1.5	20.8	5.36	
16D-Ash	08:22	B	MIDCHANNEL	~~4~~ 6'	SURFACE	20.6	6.26	COLLECTED NEAR HYDROLAB ~ 100' U/S FROM WATER OUTFALL

Calibrate to elevation 300 feet for the Cocheco River TMDL and 500 feet for the Ashuelot River TMDL

For impoundments, in addition to DO/Temp at the top 6 inches, record DO/Temp and depth at 25% depth, mid-depth and 1 foot from the bottom.

16D Ash	08:25	I	THALWEG ~20' from Mid channel	0.5	20.8	6.18	~ TEMP-DO PROFILE
				1.5	20.8	6.15	
				2.5	20.8	6.13	
				3.5	20.8	6.13	
				4.5	20.8	6.11	

Group 419-9726

Data entered 2/13/02 CMZ

Early Morning Sampling Team (EMST) Field Worksheet

Date: 6/23/01 EMST #: 2 Names: George Berlandi / Sharon Ducharme

Project: Ashuelot River TMDL DO/Temp Meter Serial Number: 01202 18 AM

Station	Time (Military)	Bucket or Instream (B or I)	Location (ie, midchannel, X feet from bank).	Total Water Depth (feet)	Depth of Measurement	Temperature (degrees C)	Dissolved Oxygen (mg/L)	Comments
12-Ash	6:25	B	15 feet	3 ft	top foot	22.0	6.65	
14T-Ash	6:38	B	M.channel	2 4'	top foot	21.2	7.01	
15E-Ash	6:49	B	12 ft	?	top foot	21.4	6.19	
~~16-Ash~~	~~7.01~~	B	12'		Top foot	20.2 ~~20.2~~	6.18 ~~6.18~~	
16 Check To see Paula's for check data								
0A-Ash	7:25	B	Mid	6"	surface	15.3	7.12	
16M-Ash	7:29	B	M	1½'	Surface	20.6	6.23	
19-Ash	7:48	B	M	6-8"	Surface	21.9	6.39	
19A-Ash	7:56	B	M	7'3"	surface	22.3	5.37	
	8:01	I	M	7'3"	1' off bottom	22.4	5.07	
19A Ash	8:05	I	M	7'3"	50% 3.65 ft	22.5	5.13	
19A-Ash	8:07	I	M	7'3"	75% 1.8 ft	22.6	5.21	
20A-Ash	8:22	B	M	?	Surface	20.7	6.12	
21-Ash	8:31	B	M	?	Surface	21.8	6.01	

Calibrate to elevation 300 feet for the Cocheco River TMDL and 500 feet for the Ashuelot River TMDL

For impoundments, in addition to DO/Temp at the top 6 inches, record DO/Temp and depth at 25% depth, mid-depth and 1 foot from the bottom.

Sampling Field Worksheet

Project: Ashuelot River TMDL — Date: 8/23/01

Name of Samplers: D. Saule, A. Bourland

Waterbody Name: Ashuelot River — Station ID: 12-Ash

Weather: Sunny/partly cloudy, high 70's

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments –see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L).	Conductivity (uS/cm)	pH	
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP):	
I	surface	0	25 ft	10:08		22.2 C	6.60	216.9	6.67	
Is DUPLICATE to be run? NO (If yes, record duplicate of last set of field measurements in this row.)						Dup	Dup	Dup	Dup	6.0 std.

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): — Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	NO	1			
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	1			
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.		1			
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.		1			
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	2			

Aquatic Plant Growth: (% Coverage)
Macrophytes (rooted plants): 5-10%
Phytoplankton (free floating): 10-20%
Periphyton (attached algae): 50% at dam site midchannel 20%
Canopy (Well Shaded, Moderately Shaded, Mostly Open): mostly open upstream

Other Comments / Observations
Color (clear, tea-colored, etc): green tea- colored
Substrate (ie, sandy, cobbles, muck, etc.): Sandy (along bank) → muck
Odor: none

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and ~ 1 foot from the bottom.

Sampling Field Worksheet

Project: Ashuelot River TMDL — Date: 8/23/07

Name of Samplers: D. Soule, A. Bowland

Waterbody Name: Ashuelot River — Station ID: 16-Ash

Weather:

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments –see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L).	Conductivity (uS/cm)	pH	
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP):	
I	Surface	50 ft.	10ft.	10:44		21.0	6.72	218.0	0.69	
Is DUPLICATE to be run? No (If yes, record duplicate of last set of field measurements in this row.)						Dup	Dup	Dup	Dup	6.0 std.

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): — Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	NO	1			
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		1			
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.		1			
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.		1			
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		2			

Aquatic Plant Growth: (% Coverage)

Macrophytes (rooted plants): 0-5%

Phytoplankton (free floating): 20%

Periphyton (attached algae): 10-20%

Canopy (Well Shaded, Moderately Shaded, Mostly Open): mostly open

Other Comments / Observations

Color (clear, tea-colored, etc): light tea-colored

Substrate (ie, sandy, cobbles, muck, etc.): ~~muck~~/ silty

Odor: none

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and ~ 1 foot from the bottom.

Sampling Field Worksheet

Project: Ashuelot River TMDL — Date: 8/23/01

Name of Samplers: D. Soule, A. Bourland

Waterbody Name: The Branch River — Station ID: OA-Bra

Weather:

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments –see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L).	Conductivity (uS/cm)	pH	
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP):	
I	surface	0	15.0	11:45		20.0	7.75	343.5	6.59	
Is DUPLICATE to be run? No (If yes, record duplicate of last set of field measurements in this row.)						Dup	Dup	Dup	Dup	6.0 std.

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): — Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	No	1			
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	1			
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.		1			
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.		1			
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		2			

Aquatic Plant Growth: (% Coverage)
Macrophytes (rooted plants): 0-5%
Phytoplankton (free floating): 0-5%
Periphyton (attached algae): 100% very fuzzy rocks
Canopy (Well Shaded, Moderately Shaded, Mostly Open):

Other Comments / Observations
Color (clear, tea-colored, etc): light tea-colored
Substrate (ie, sandy, cobbles, muck, etc.): Sandy
Odor: Slight septic water smell

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and ~ 1 foot from the bottom.

Sampling Field Worksheet

Project: Ashuelot River THDL | Date: 8/23/01

Name of Samplers: D. Soule, A. Bourland

Waterbody Name: Ashuelot River | Station ID: 19-A54

Weather:

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments –see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft) RB LB	Military Time – Hours:Min Bucket sample collected	Military Time – Hours:Min Field measurements taken	Temperature (degrees C) see note below for Calibration Elevation and measuring DO in impoundments.	DO (mg/L). see note below for Calibration Elevation and measuring DO in impoundments.	Conductivity (uS/cm)	pH pH slope (SLP):	
B	Surface	0	10ft – 20ft	12:16		23.5	7.21	126.1	6.71	
Is DUPLICATE to be run? No (If yes, record duplicate of last set of field measurements in this row.)						Dup	Dup	Dup	Dup	6.0 std.

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): | Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	No	1			
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	1			
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.		1			
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.		1			
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	2			

Aquatic Plant Growth: % Coverage

Macrophytes (rooted plants): 80-90% just upstream of bridge then

Phytoplankton (free floating): 0-5% at bridge; 30% ~ 50ft upstream

Periphyton (attached algae): 10%

Canopy (Well Shaded, Moderately Shaded, Mostly Open): mostly open

Other Comments / Observations:

Color (clear, tea-colored, etc): light green tea-colored

Substrate (ie, sandy, cobbles, muck, etc.): Cobble

Odor: none

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and ~ 1 foot from the bottom.

3.55

10.7
10.2
6.7 deep

Sampling Field Worksheet

Project: Ashuelot River TMDL	Date: 8/23/01
Name of Samplers: D. Soule, A. Bourland	
Waterbody Name: Ashuelot River	Station ID: 19A-ASH (Impoundments)
Weather: overcast/partly cloudy, warm, high 70's	

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments –see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L).		Conductivity (uS/cm)	pH
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.				pH slope (SLP):
	Surface 0			13:05	12:41	24.5	7.5	7.84	125.7	6.74
	25% 1.25				12:48	23.1	6.4			
	Middle				12:51	22.7	6.03			
	1' from bottom				12:53	23.5	5.93			
Is DUPLICATE to be run? (If yes, record duplicate of last set of field measurements in this row.)				Yes on surface sample 13:20		Dup 24.2	Dup	7.74	Dup 125.4	Dup 6.67 6.0 std.

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet):

Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	Yes	2			
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		2			
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.		2			
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.		2			
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.		4			

Aquatic Plant Growth: % Coverage

Macrophytes (rooted plants): ~~5-10%~~ 70-80% (submerged)

Phytoplankton (free floating): 5-10%

Periphyton (attached algae): N/A impossible to see

Canopy (Well Shaded, Moderately Shaded, Mostly Open): mostly open

Other Comments / Observations

Color (clear, tea-colored, etc):

Substrate (ie, sandy, cobbles, muck, etc.): muck? impossible to see

Odor: none

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and 1 foot from the bottom.

DUP1 DUP2

Sampling Field Worksheet

Project: Ashuelot River TMDL — Date: 8/23/01

Name of Samplers: S. Larson / T Croteau

Waterbody Name: Ashuelot River — Station ID: 15-Ash (1) (Impoundment)

Weather: light clouds

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments -see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L).	Conductivity (uS/cm)	pH	
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP):	
	surface			9:58	1000	22.4	7.07	213.9	6.836	
	25% D					22.4	7.02			
	60% D					21.9	6.58			
	1' from bottom					21.9	6.45			
Is DUPLICATE to be run? (If yes, record duplicate of last set of field measurements in this row.)						Dup	Dup	Dup	Dup	6.0 std.

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): 2'

Approximate width of river (feet):

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time- Hours:Min	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	NO	1			
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	1			
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.		1			
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.		1			
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	2			

Aquatic Plant Growth: % Coverage

Macrophytes (rooted plants):

Phytoplankton (free floating): 10% duckweed mostly along banks, some in middle

Periphyton (attached algae):

Canopy (Well Shaded, Moderately Shaded, Mostly Open):

Other Comments / Observations

Color (clear, tea-colored, etc): pale straw colored

Substrate (ie, sandy, cobbles, muck, etc.): covered w/ sed

Odor: —

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and ~ 1 foot from the bottom.

Sampling Field Worksheet

Project: Ashuelot River TMDL	Date: 08-23-01
Name of Samplers: GEORGE BERLANDI	
Waterbody Name: Ashuelot River	Station ID: 14-ASH
Weather: SUNNY, CALM WIND; 80° F	

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments –see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L).	Conductivity (uS/cm)	pH	
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP): SEE CALIBRATION SHEET	
B (U/S EXT end)	SURFACE	30	15	10:07	10:09	23.4	6.74	214.1	6.73	
Is DUPLICATE to be run? (If yes, record duplicate of last set of field measurements in this row.) NO				N/A	N/A	Dup N/A	Dup N/A	Dup N/A	Dup N/A	6.0 std. N/A

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): 5-10 | Approximate width of river (feet): 90

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Mim	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	NO	1	10:07	80	15
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	1	↓	↓	↓
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.	↓	1	↓	↓	↓
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.	↓	1	↓	↓	↓
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	2	↓	↓	↓

Aquatic Plant Growth:	% Coverage	
Macrophytes (rooted plants):	5	DUCKWEED & WATER EDGE
Phytoplankton (free floating):	5	– TOO DARK WATER; DEEP
Periphyton (attached algae):	5	DIFFICULT TO DISCERN
Canopy (Well Shaded, Moderately Shaded, Mostly Open):	MOSTLY OPEN	

Other Comments / Observations
Color (clear, tea-colored, etc): DARK, NOT TURBID
Substrate (ie, sandy, cobbles, muck, etc.): PROBABLY SILT, MUCK; SLIGHTLY DETRITUS
Odor: NONE

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and ~ 1 foot from the bottom.

Sampling Field Worksheet

Project: Ashuelot River TMDL | Date: 08-23-01

Name of Samplers: GEORGE BERLANDI, PAUL PISCOCEK

Waterbody Name: Ashuelot River | Station ID: 15E-Ash

Weather: SUNNY W/ HIGH CLOUDS, CALM WIND; 80° F

Field Measurements (Most are bucket samples taken within the top 6 inches of water except at impoundments –see note below)

Bucket (B) or Instream (I)	Depth of Sample from surface(feet)	~ distance from mid-channel (ft)	~ distance from bank (ft)	Military Time – Hours:Min		Temperature (degrees C)	DO (mg/L).	Conductivity (uS/cm)	pH	
				Bucket sample collected	Field measurements taken	see note below for Calibration Elevation and measuring DO in impoundments.			pH slope (SLP): SEE CALIBRATION SHEET	
B (w/ EXTRA)	SURFACE	30	15	10:36	10:38	22.7	6.68	213.4	6.86	
Is DUPLICATE to be run? (NO) (If yes, record duplicate of last set of field measurements in this row.)				N/A	N/A	Dup N/A	Dup N/A	Dup N/A	Dup N/A	6.0 std. N/A

Lab Samples (All lab samples are bucket samples taken within the top 6 inches of water)

Approximate Average Depth of River (feet): 5-10 | Approximate width of river (feet): 90

Parameters	Bottle Type	Preservation	Duplicates?	Total # of bottles to fill.	Military Time-Hours:Min	~ distance from mid-channel (ft)	~ distance from bank (ft)
~~BOD5 and/or~~ BOD20, TSS, NO2+NO3-N,	1.6 L (1/2 gal) white, polyethylene	Chilled on ice to 4 deg C.	NO	1	10:36	30	15
TKN, NH3-N, TP	250 mL, brown polyethylene	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	1	↓	↓	↓
Ortho-P	50 mL clear polyethylene	Field filtered through 0.45 um filter; chilled on ice to 4 deg C.	↓	1	↓	↓	↓
Chlor A	1L brown polyethylene	Chilled on ice to 4 deg C.	↓	1	↓	↓	↓
TOC	2-40 mL glass vials	(pre-acidified), 0.5 mL of 9N H_2SO_4 to pH <2, chilled on ice to 4 deg C.	↓	2	↓	↓	↓

Aquatic Plant Growth:

	% Coverage
Macrophytes (rooted plants):	1
Phytoplankton (free floating):	0
Periphyton (attached algae):	0

Canopy (Well Shaded, Moderately Shaded, Mostly Open): MOSTLY OPEN

DUCKWEED @ WATER EDGES
DIFFICULT TO DISCERN DUE TO DEET, DARK WATER

Other Comments / Observations

Color (clear, tea-colored, etc): DARK, NOT TURBID

Substrate (ie, sandy, cobbles, muck, etc.): SAND, SILT, WOODY DEBRIS

Odor: NONE

Notes: Label sample bottles with black permanent marker before they get wet. Each bottle label must include the following: Waterbody name, station ID, sample date, sample time, initials of samplers, and the parameters to be analyzed. If duplicates are taken, designate one bottle as "D1" and the other as "D2". Do not take duplicates from the same bucket of water. For calibration of the DO meter, use an elevation of 300 ft for the Cocheco River and 500 ft for the Ashuelot River. Most field measurements are taken of the top 6 inches by bucket. At certain impoundments, however, DO/Temp and depth measurements will also be taken in-stream, at 25% depth from surface, at mid-depth and – 1 foot from the bottom.