

EPA URBAN WATERS GRANT

Development of an urban waters fish community program to target restoration actions to improve water quality

PARTNERS

Woonasquackett River Watershed Council

Wood-Pawcatuck Watershed Association

Friends of the Moshassuck

Ten-Mile River Watershed Council



WOONASQUACKETT RIVER
WATERSHED COUNCIL



Wood-Pawcatuck Watershed Association

Friends of the Moshassuck



Ten Mile River
Watershed Council

Or a better title

VOLUNTEER FISHING
MONITORING –
IT'S SHOCKINGLY GOOD!



WOONASQUACKET RIVER
WATERSHED COUNCIL



Wood-Pawcatuck Watershed Association

Friends of the Moshassuck






Ten Mile River
Watershed Council

This Project is

A collaboration between Woonasquatucket Watershed Council and Wood-Pawcatuck Watershed Association to develop a volunteer based fish monitoring program for wadeable streams in urban areas using backpack electrofishing equipment.

Friends of the Moshassuck and Ten Mile River Watershed Council were also partners in the project.

Goals of the Project

-  **Actively engage the community** in water quality issues
-  **Increase knowledge** of baseline water quality & habitat conditions in urban rivers
-  **Disseminate information** regarding rivers in urban areas





Why do electrofishing?

- 🐟 Effectively demonstrates that rivers are full of life
- 🐟 Reasonably easy to learn technique
- 🐟 Extremely engaging activity
- 🐟 It's more fun than fishing with dynamite!

Backpack Electrofisher









First Year of Project

-  Gather fish data from agencies
-  Analyze and develop target fish communities for urban rivers
-  (This was determined to be beyond the scope of this project)
-  Decide parameters to use for monitoring

First Year

Focus on volunteers

-  Develop training manual and QAPP
 -  Establish relationship with urban watershed councils
 -  Solicit, train, and supervise volunteers
 -  Create Fish ID cards
 -  Develop monitoring protocols, including forms
-  Try out everything at select sites to see what worked

Training Volunteers






















Volunteers Test the Equipment
And Protocol



State Fishery Biologist, Alan Libby,
Assists with Fish ID & Provides QA/QC

Equipment List

-  Electrofishing backpack, with battery power source, control box, anode and cathode
-  Rubber lineman's gloves
-  Waders with rubber soles
-  3 to 4 buckets
-  Hand nets with non-conductive handles
-  Dissolved Oxygen Kit
-  Thermometer
-  Nitrile gloves & safety goggles
-  Data sheets
-  Fish ID resources
-  Fish box with centimeter ruler
-  Digital camera and laminated numbers
-  Bug spray, sunscreen, water and other personal items
-  Polarized glasses
-  Cell phones
-  100 foot measuring tape
-  Yard ruler for measuring stream depth
-  First aid kit
-  Emergency contact information for each team member






Urban Rivers Fish Monitoring Project Habitat Assessment and Fish Data Forms

Second Year of Project

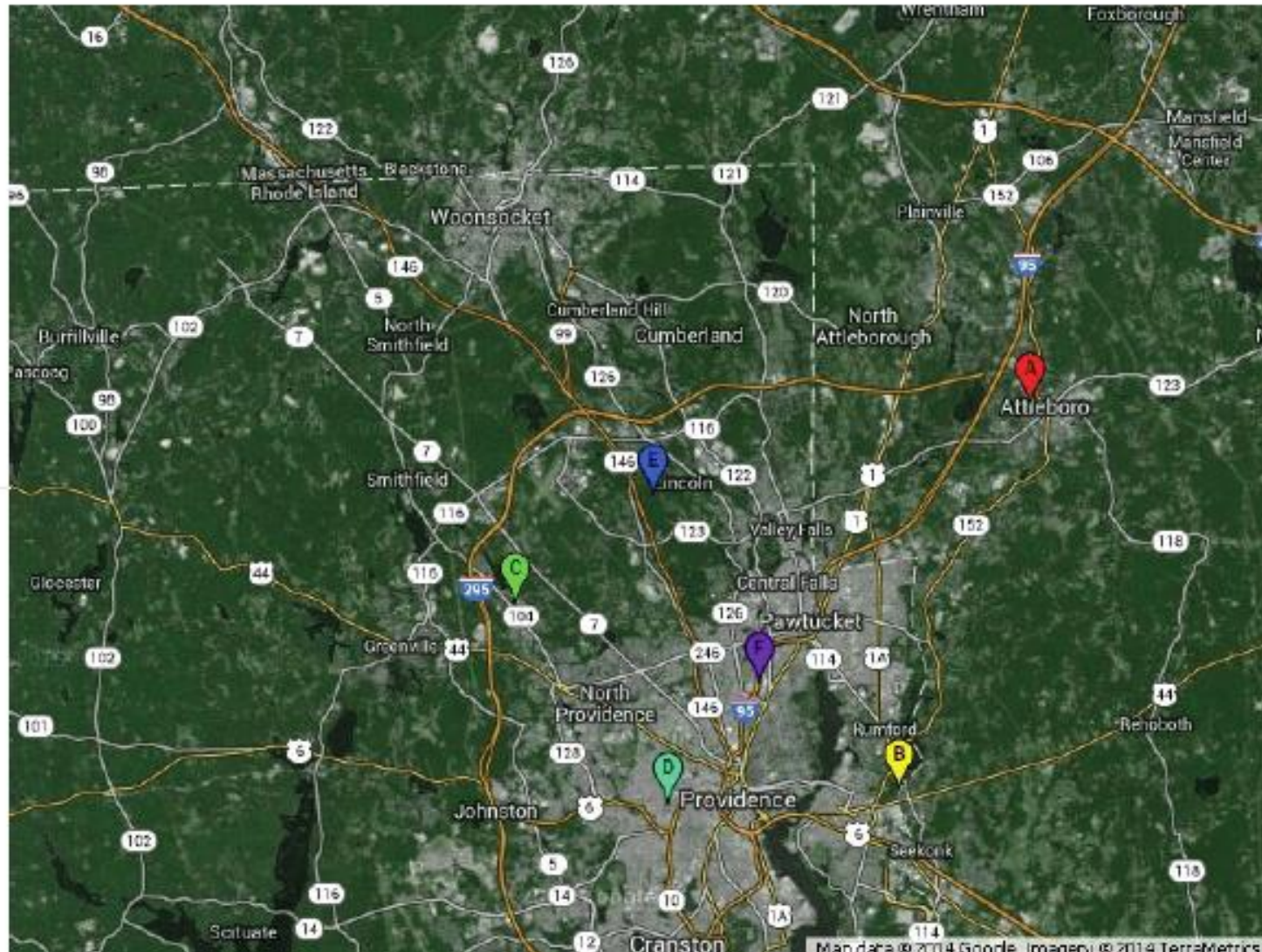
- 🐟 Identify upstream and downstream sites for yearly monitoring
- 🐟 Refine monitoring protocols, forms, and fish ID process
- 🐟 Obtain all necessary equipment
- 🐟 Solicit more volunteers

Urban Fish Community Monitoring Sites

Urban Fish Community Monitoring Locations

-  Ten Mile River Upstream - Attleboro, MA
-  Ten Mile River Downstream - East Providence, RI
-  Woonasquatucket River Upstream - Smithfield, RI
-  Woonasquatucket River Downstream - Providence, RI
-  Moshassuck River Upstream - Lincoln, RI
-  Moshassuck River Downstream - Pawtucket, RI

Permanent for Monitoring Locations for Urban Fish Community Electroshock Monitoring



<https://www.google.com/maps/d/edit?mid=zfEhrOuFG3lo.kjox8LFVSTPE>

Second Year



Conduct sampling on all 6 sites with volunteers




Collect and organize data



Analyze and publish results

Year 2 Data Collection Moshassuck

-  Jacqueline M. Walsh School for the Performing and Visual Arts- Pawtucket, RI
-  Thanks to Chris Kane, Visual Arts Instructor and Laura Ciano, Environmental Science Teacher
-  Thanks to The Nature Conservancy for access to Lime Rock Preserve and Providing Funding for Student Transportation

26 Students Collect Data



One Team Collects Fish



One Team IDs

Moshassuck Continued



Photo Record of Each Kind of Fish Collected
Photos Sent to Alan Libby at RIDEM for QAQC ID

Sample Data Sheet

URBAN RIVER FISH COMMUNITY MONITORING TRAINING MANUAL | 2013
Habitat Assessment and Fish Data Form

Collectors: Upper Woonasquatucket Whipple Field

Location:




Date: 7/2/14 Page No. 1 of 2

Fish species name:		Fish species name:		Fish species name:		Fish species name:	
Crayfish		Tessellated Darter		Longnose Dace White sucker		white Sucker	
Length (mm)	Photo ID No.	Length (mm)	Photo ID No.	Length (mm)	Photo ID No.	Length (mm)	Photo ID No.
### 1	1	66	2	36	3	42	4
		52		37		37	
		62				45	
		54				30	

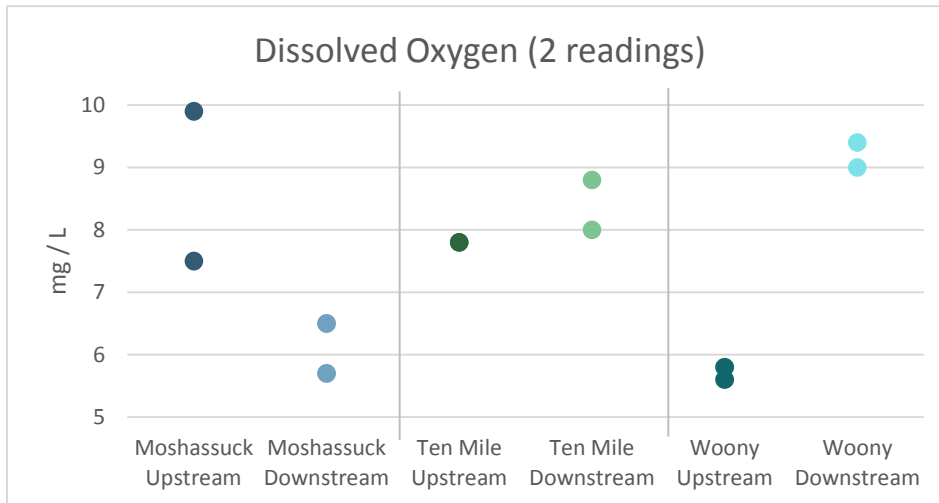
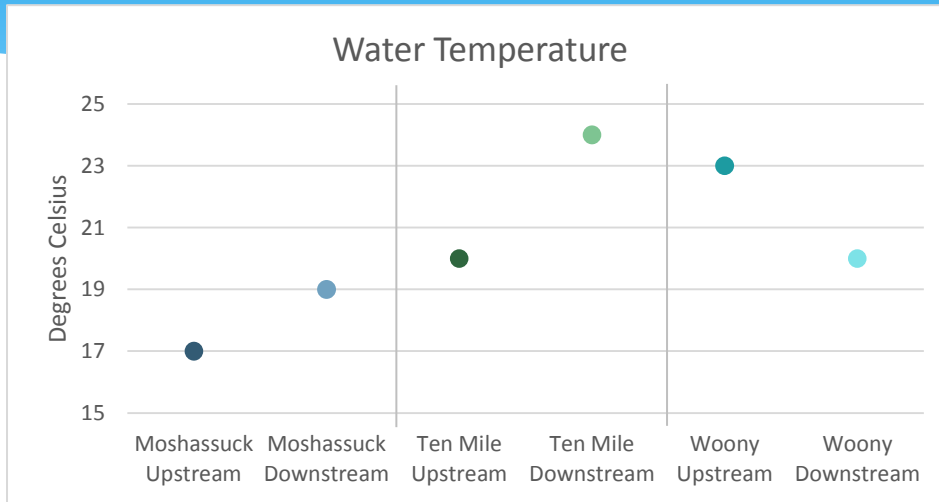
cont WS

28 37
30 39
35 39
40 38

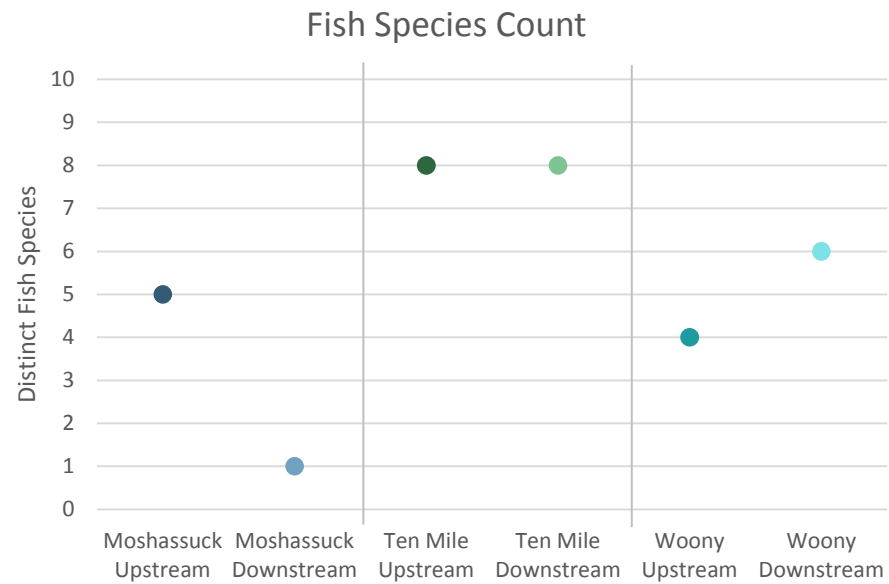
Results

-  Basic Water Chemistry
-  Total Fish Counts Per Site
-  Fish Types Found Per Site

Chemistry Summary



Fish Counts



Fish Count Details

Fish Species	Count Sites
American Eel	6
Tessellated Darter	4
White Sucker	4
Bluegill	3
Large Mouth Bass	3
Longnose Dace	2
Creek Chubsucker	1
Pumpkinseed	1
White Catfish	1
Golden Shiner	1
White Perch	1
Perch	1
Yellow Bullhead Catfish	1
Sunfish	1
Yellow Perch	1
Blacknose Dace	1

Moshassuck Upstream	
<i>Fish</i>	<i>Count</i>
Tessellated Darter	15
White Sucker	10
Longnose Dace	7
American Eel	3
Creek Chubsucker	1

Ten Mile Upstream	
<i>Fish</i>	<i>Count</i>
White Sucker	130
Pumpkinseed	63
Bluegill	25
White Catfish	16
Large Mouth Bass	13
Tessellated Darter	12
Golden Shiner	4
American Eel	2

Woony Upstream	
<i>Fish</i>	<i>Count</i>
White sucker	39
Tessellated Darter	20
Large Mouth Bass	2
American Eel	2

Moshassuck Downstream	
<i>Fish</i>	<i>Count</i>
American Eel	2

Ten Mile Downstream	
<i>Fish</i>	<i>Count</i>
Large Mouth Bass	47
Bluegill	12
American Eel	9
White Perch	4
Perch	3
Yellow Bullhead Catfish	2
Sunfish	1
Yellow Perch	1

Woony Downstream	
<i>Fish</i>	<i>Count</i>
American Eel	47
Tessellated Darter	20
Longnose Dace	9
Blacknose Dace	4
White Sucker	4
Bluegill	4

Crayfish were found at both Moshassuck and Woony sites.

Project Wins



- 🐟 Volunteers Loved It – At least 7 volunteers each time we monitored
- 🐟 Very Photogenic Project – Press Interest
- 🐟 Worked Well to Involve High School Students
- 🐟 Surprising Numbers and Types of Fish Everywhere but Moshassuck Downstream

Lessons Learned



Identifying Fish is Hard

Bottom of eye is well above uppermost edge of its mouth.



Length of snout is about equal to the Width of its eye (measure from the tip of the snout to the forward edge of the lower jaw).

Longnose Dace

Back and sides are dark brown with some mottling, ventral surface lighter in color.

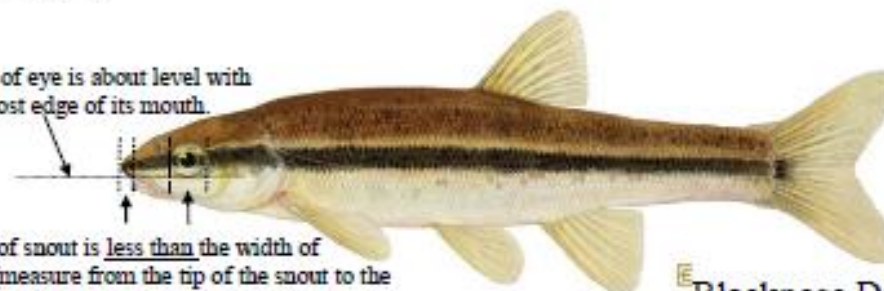
Dark lateral band commonly found on younger fish fades with age, may entirely lack in adults.

Barbel on each side of jaw at posterior end of the maxillary.

Small band of tissue (frenum) connects upper lip with the snout.

**Location of eyes in relation to its mouth and length of its snout distinguish from BLACKNOSE DACE.

Bottom of eye is about level with uppermost edge of its mouth.



Length of snout is less than the width of its eye (measure from the tip of the snout to the forward edge of the lower jaw).

Blacknose Dace

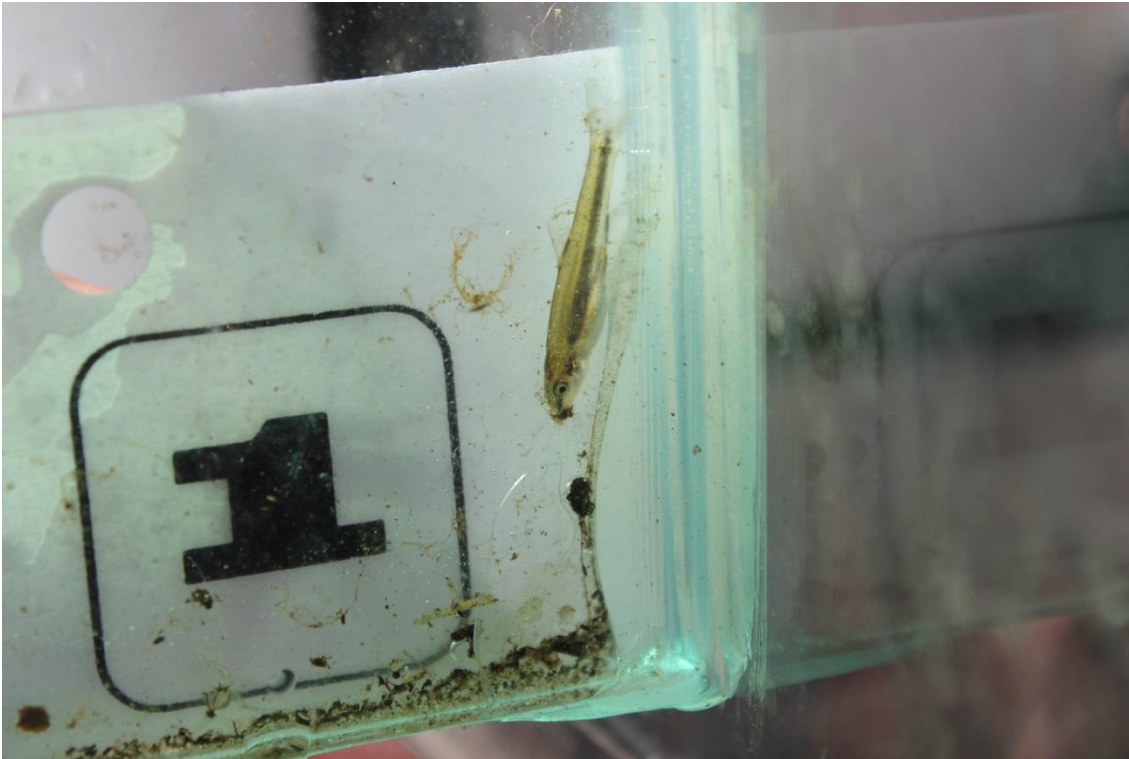
Dorsal side dark olive-brown, dark longitudinal stripe extends from tip of snout to caudal fin & separates darker dorsal surface from pale whitish coloration below.

Barbel on each side of jaw at posterior end of the maxillary.

Small band of tissue (frenum) connects upper lip with the snout.

**Location of eyes in relation to its mouth and length of its snout distinguish from LONGNOSE DACE.

Name That Fish



Longnose Dace?
Blacknose Dace?

Help Alan Libby!

Our volunteers will
get better every
year as they become
familiar with fish in
their rivers.

Lessons Learned



Target fish communities? Beyond us.



We will have to settle for developing baselines at each location and comparing changes year to year with changes in water and habitat quality.

Looking Ahead



WRWC will maintain equipment and online databases for all RI river groups to use



Results posted annually on WRWC and Watershed Counts website



Urban Rivers will continue to monitor annually as done in 2014



River/Watershed Councils encouraged to use protocol and equipment

Protocol? Results? Pics? Want to Volunteer? Contact and Visit Us



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