DEPTH PERCEPTION

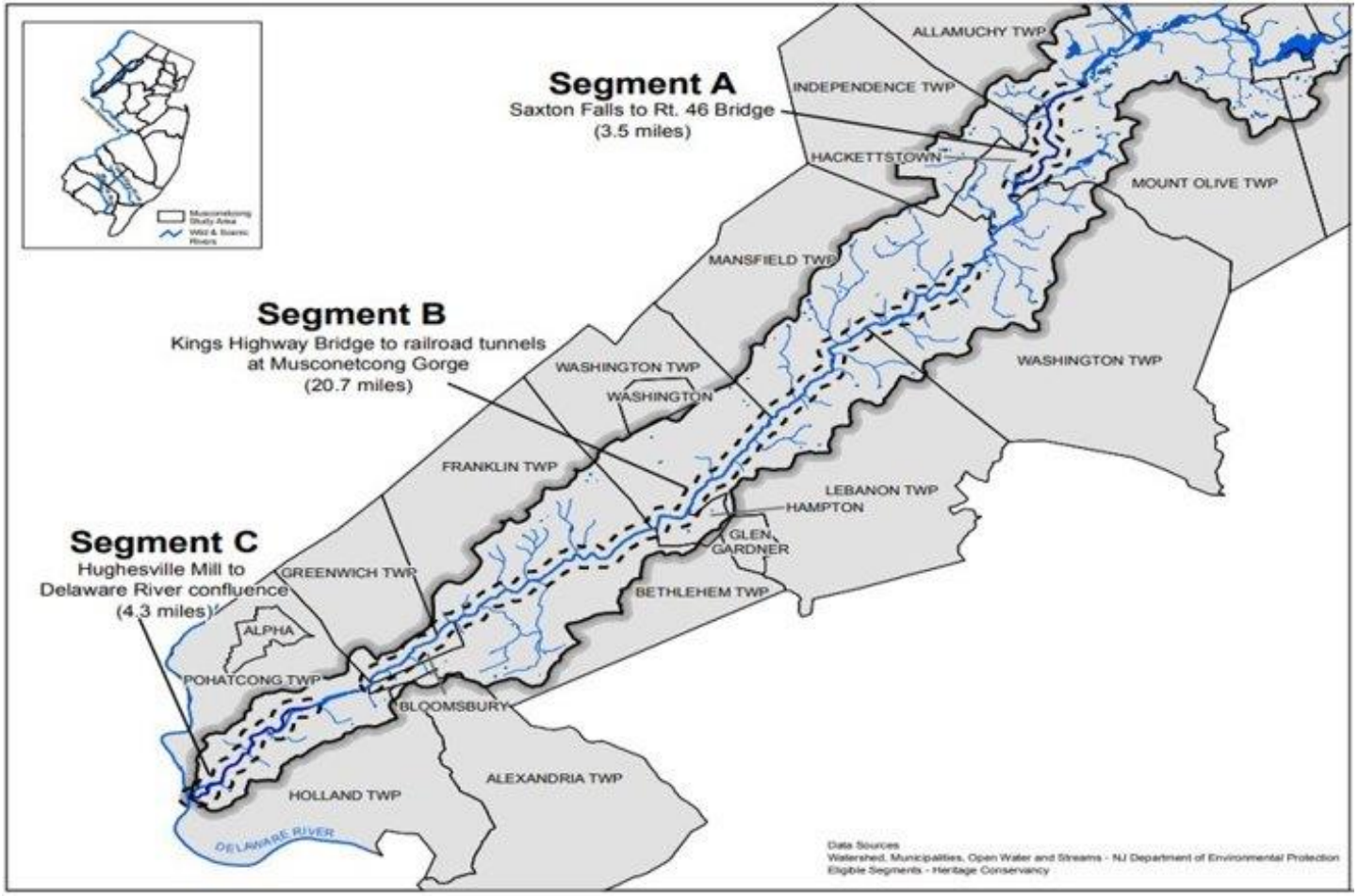
USING CONTINUOUS WATER DEPTH TO INFORM RECREATION, MONITORING & LOADING

CHRISTA REEVES, WQ PROGRAM MANAGER

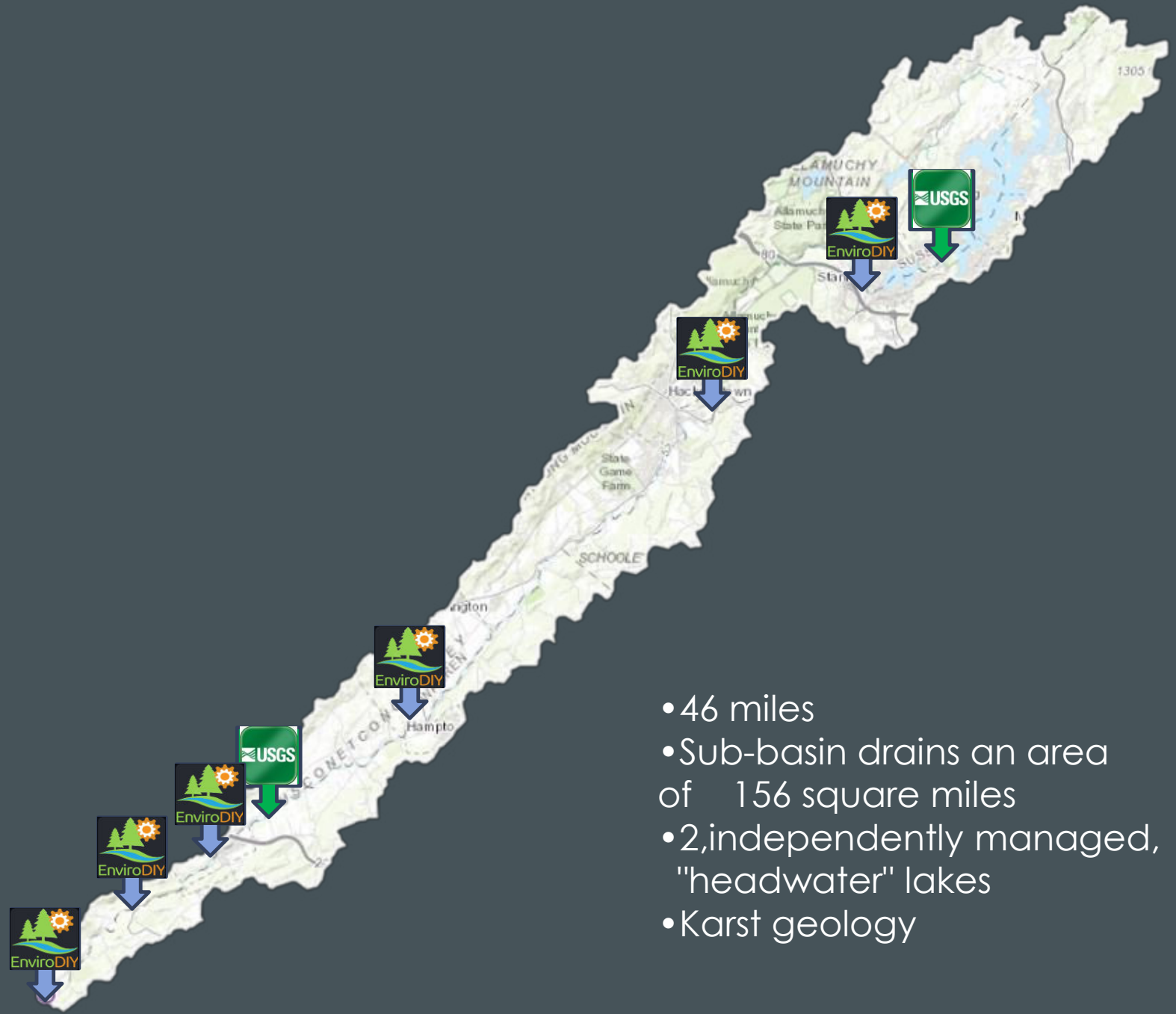
MUSCONETCONG WATERSHED ASSOCIATION

MUSCONETCONG RIVER WILD AND SCENIC

- Mission: Protect and improve the quality of the Musconetcong Watershed and its waters for people and nature
- Vision: By 2050, the watershed is a healthy ecosystem; the river and its aquifers are resilient to threats, restored as needed and are a valued part of the communities in which they flow.



GO WITH THE FLOW



- 46 miles
- Sub-basin drains an area of 156 square miles
- 2,independently managed, "headwater" lakes
- Karst geology

USGS GAUGE AND SUPPLEMENTAL DATA

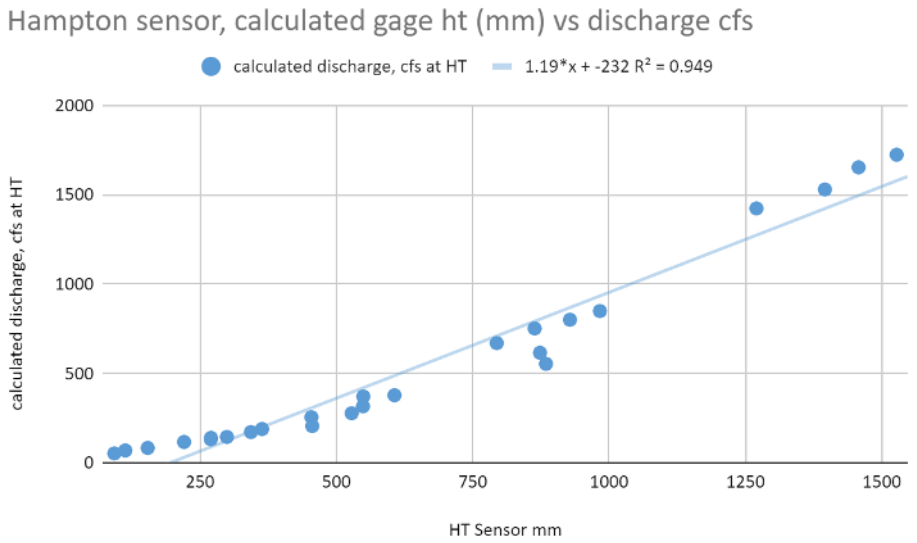
date	actual	Bloomsbury gage	difference	% difference	
6/3/2021	253.1	277	23.9	0.914	
6/10/2021	423.3	502	78.7	0.843	
6/17/2021	159.8	181	21.2	0.883	
6/23/2021	170.9	199	28.1	0.859	
6/24/2021	138.9	174	35.1	0.798	
7/1/2021	95.93	109	13.07	0.880	
7/8/2021	136.3	149	12.7	0.915	
7/15/2021	303.5	331	27.5	0.917	
7/22/2021	152.8	165	12.2	0.926	
7/29/2021	143.1	152	8.9	0.941	
8/5/2021	104.5	115	10.5	0.909	
8/12/2021	143.7	205	61.3	0.701	
8/26/2021	556.2	615	58.8	0.904	
8/31/2021	221	223	2	0.991	
				0.884	Mean average

- USGS gauge has historical data going back over 100 years, but....there is only one to measure the entirety of flow below the headwater lakes.
- Several dams and inputs both above and below the station can confound flow in different regions of the main stem

- Rating curves on rating curves on rating curves!
- Or relationships!!

BEST METHODS AND QUALITY CONTROL

- After you have determined that your sensors placement is correct for both low and high-water situations, start creating a rating curve with as many points as possible
- Use equipment loan program, borrow from other DRWI partners, if you do not have the funds in-house
- QC/QA yourself with a USGS station if available and wadeable conditions apply



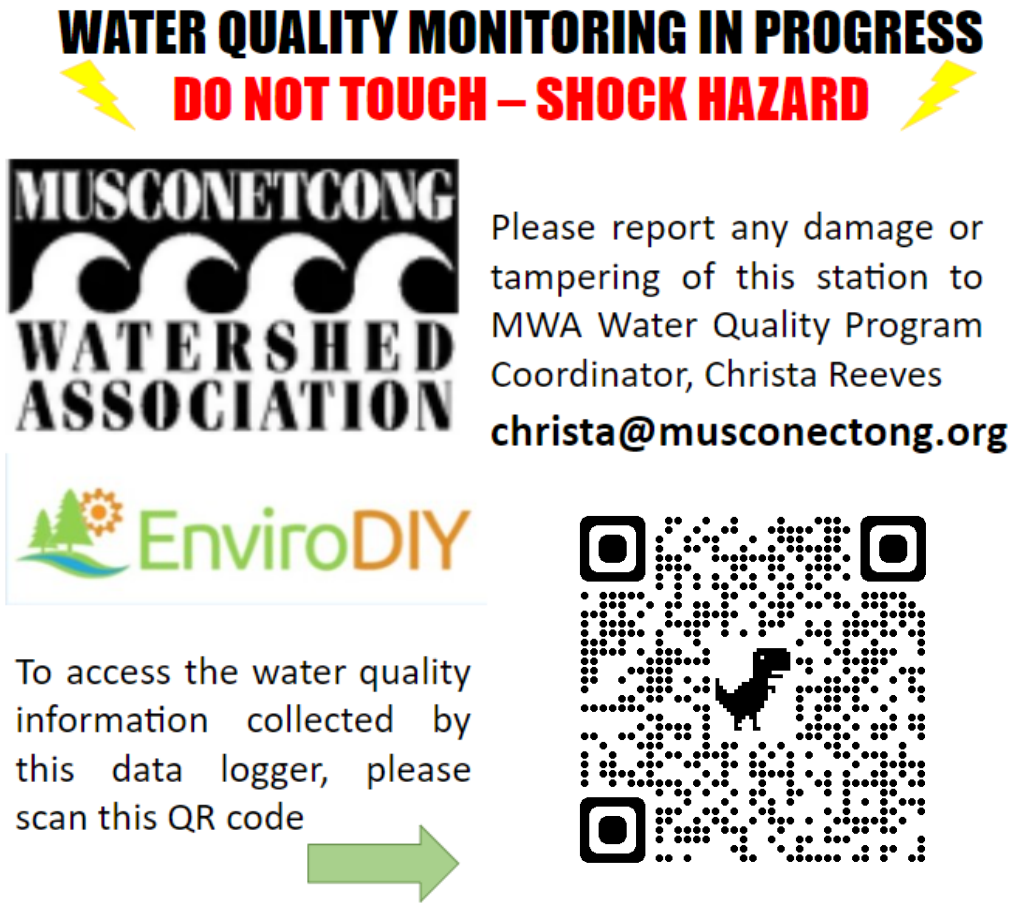
DEPTH AS AN OUTREACH TOOL

RECREATION

THERE ARE MANY KAYAKERS, TUBERS AND ANGLERS ON THE MUSCONETCONG

ACCESSIBLE TO THE PUBLIC

Point of use and distribution to clubs

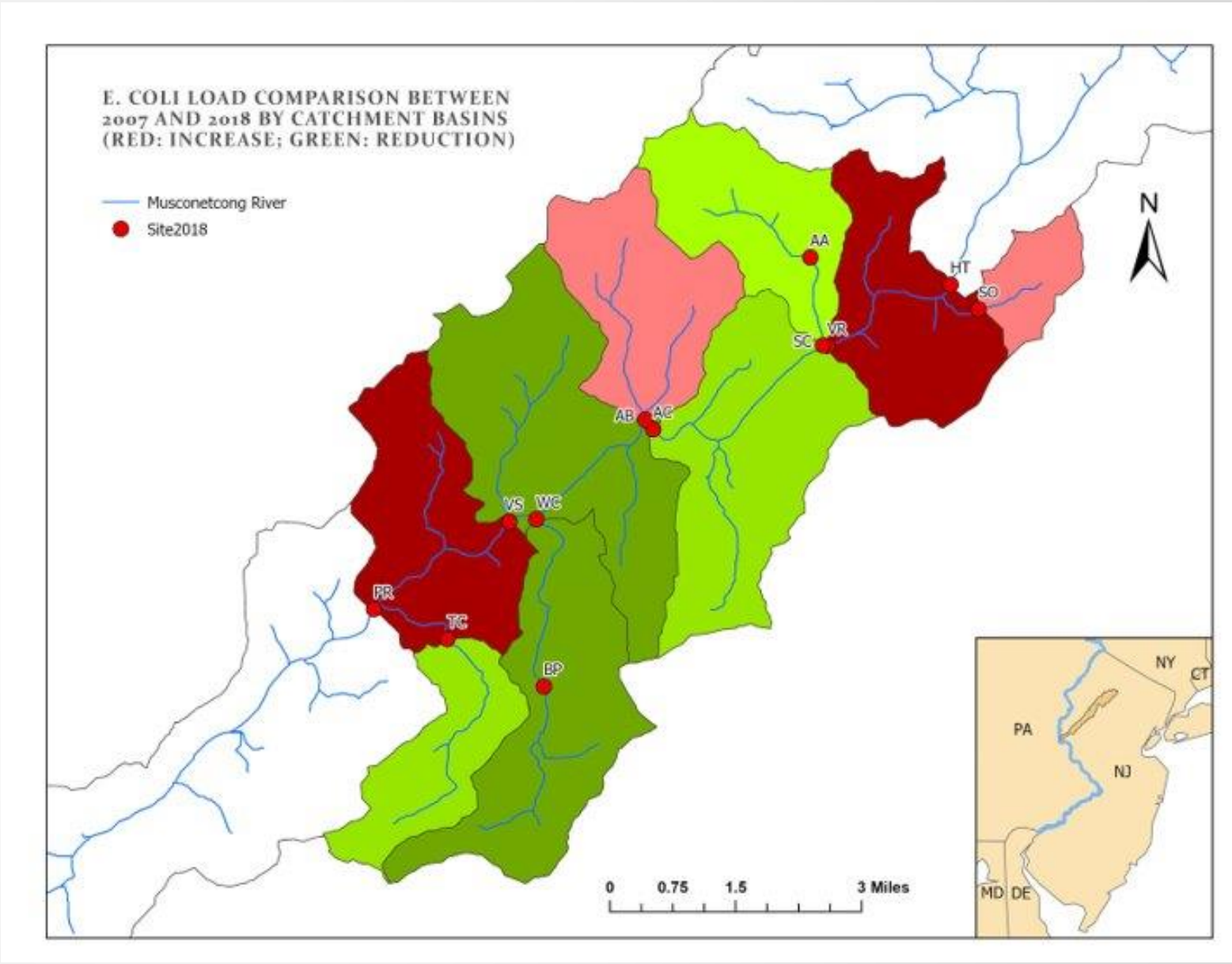


MONITORING

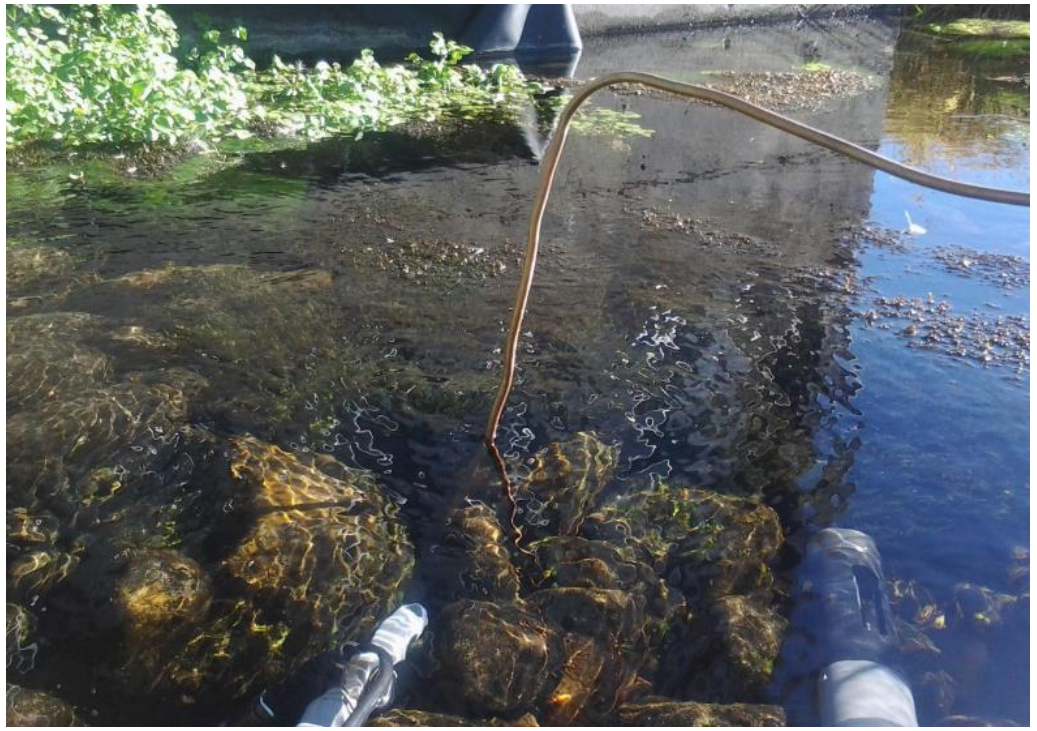
ELECTRO-SHOCKING AND EDNA COLLECTIONS

- Knowing the flow closest to each site can help determine feasibility and safety for in-stream work
- Different equipment and techniques for different conditions (i.e., barge, backpacks)

MST AND E.COLI WORK



		Calculated flow from rating curve at HT,Hampton Borough Park
FLOW AT BB GAGE,CFS	FLOW ON SITE,CFS	RATING
100	88.4	Low, may need to portage or walk for short lengths
150	132.6	Good, low chance of portage
200	176.8	Passable, no portage necessary
250	221	Passable, no portage necessary
300	265.2	Passable, no portage necessary, becoming high
350	309.4	Highest flow for water craft
400	353.6	Do not attempt, culvert and bridges dangerous



COMING FULL CIRCLE, GIVING DATA BACK TO USGS

THANK YOU, QUESTIONS?

- Christa@musconetcong.org
- Craig@musconetcong.org