Got Mussels?

Freshwater Mussel Volunteer Survey Program

What kind of mussels are we talking about?

Umm..
Not
these!

And not these either –
(Saltwater mussels-yummmmmm)

Freshwater mussels!

-Bivalves (meaning "2 shells")

-Some species live 80-100 years!

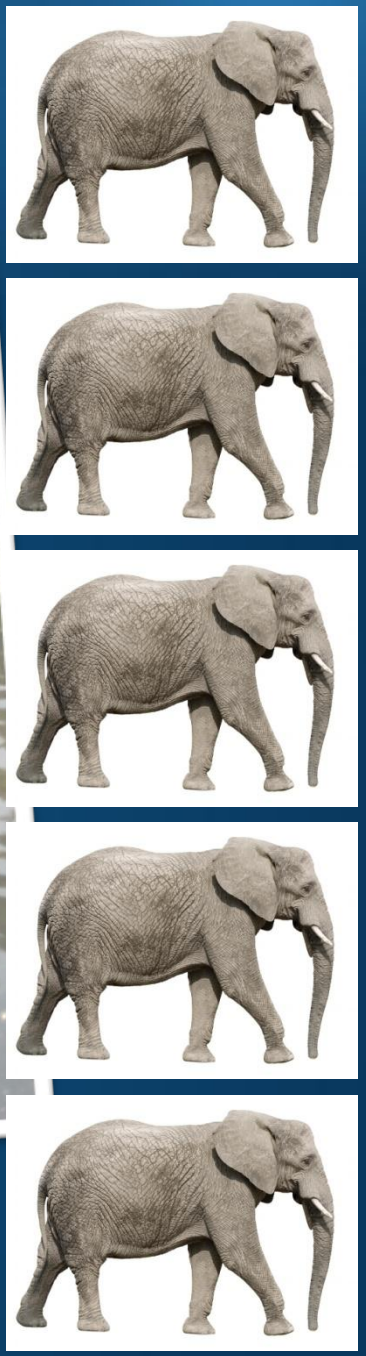
-Not at all good to eat (unlike their delicious, shorter-lived saltwater cousins).

-Provide incredible eco-services:

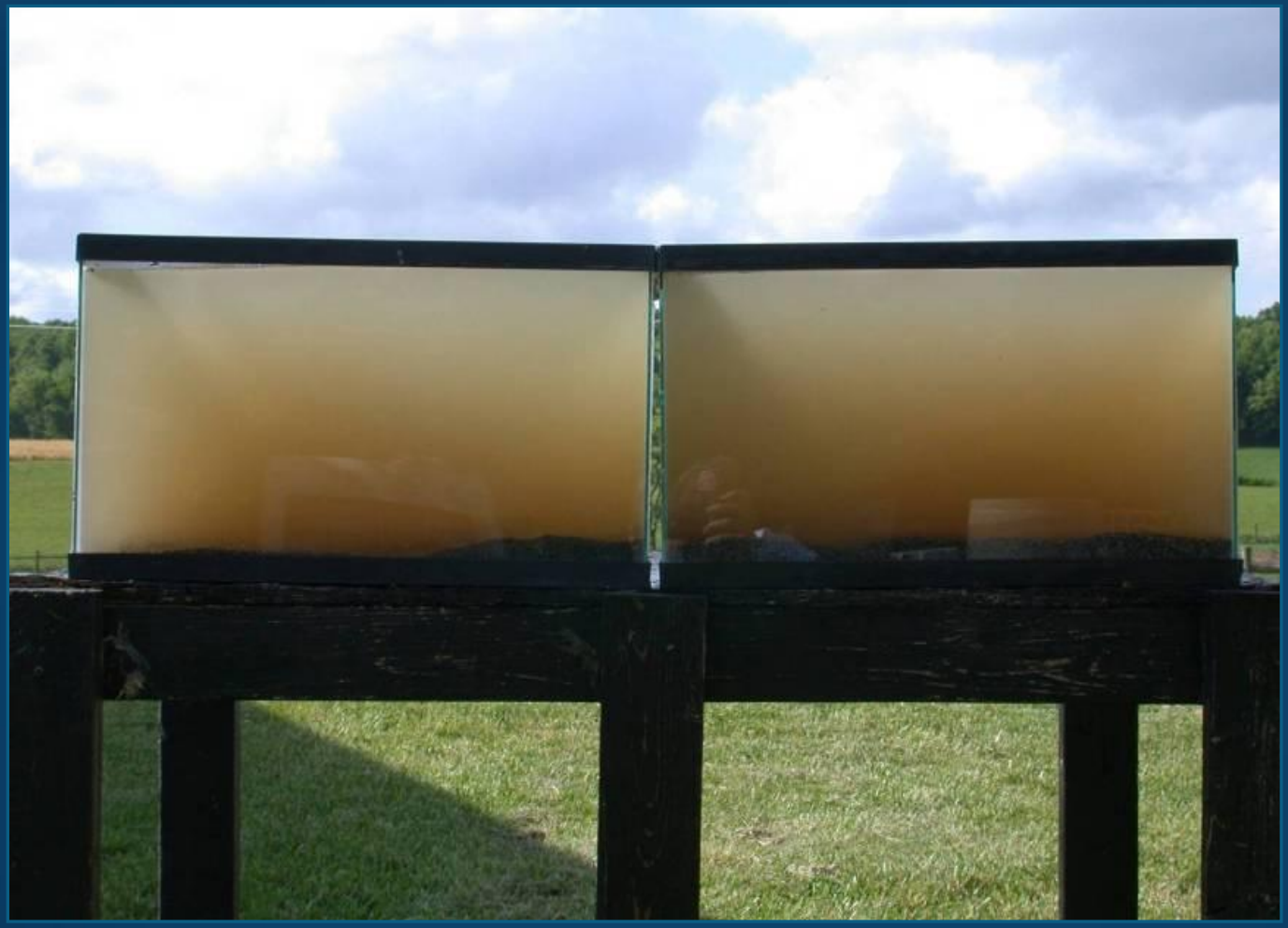
- Water filtration (20+ gallons/day per adult mussel in warm seasons)
- Streambed erosion prevention
- Food & Habitat for other animals

Once commonly found in local creeks, rivers and ponds – you may have stepped on one & didn't even know it!

A healthy population of freshwater mussels does the work of a small water filtration plant, capable of removing an estimated 26 metric tons of sediment from a 6-mile stream segment in a single summer season.



It’s not hard to see…



…that streams without freshwater mussels are at a SERIOUS disadvantage.

Slides from Dick Neves, VA Tech

Mussels are in trouble

Patchy, Impaired

Elliptio complanata

Rare

Strophitus undulatus

Endangered

Alasmidonta heterodon

		State Conservation Status		
Scientific Name	**Scientific Name**	**DE**	**NJ**	**PA**
ALASMIDONTA HETERODON	DWARF WEDGEMUSSEL	Endangered	Endangered	Critically Imperiled
ALASMIDONTA UNDULATA	TRIANGLE FLOATER	Extirpated ?	Threatened	Vulnerable
ALASMIDONTA VARICOSA	BROOK FLOATER	Endangered	Endangered	Imperiled
ANODONTA IMPLICATA	ALEWIFE FLOATER	Extremely Rare	no data	Extirpated ?
ELLIPTIO COMPLANATA	EASTERN ELLIPTIO	common	common	Secure
LAMPSILIS CARIOSA	YELLOW LAMPMUSSEL	Endangered	Threatened	Vulnerable
LAMPSILIS RADIATA	EASTERN LAMPMUSSEL	Endangered	Threatened	Imperiled
LASMIGONA SUBVIRIDIS	GREEN FLOATER	no data	Endangered	Imperiled
LEPTODEA OCHRACEA	TIDEWATER MUCKET	Endangered	Threatened	Extirpated ?
LIGUMIA NASUTA	EASTERN PONDMUSSEL	Endangered	Threatened	Critically Imperiled
MARGARITIFERA MARGARITIFERA	EASTERN PEARLSHELL	no data	no data	Imperiled
PYGANODON CATARACTA	EASTERN FLOATER	no data	no data	Vulnerable
STROPHITUS UNDULATUS	SQUAWFOOT	Extremely Rare	Species of Concern	Apparently Secure

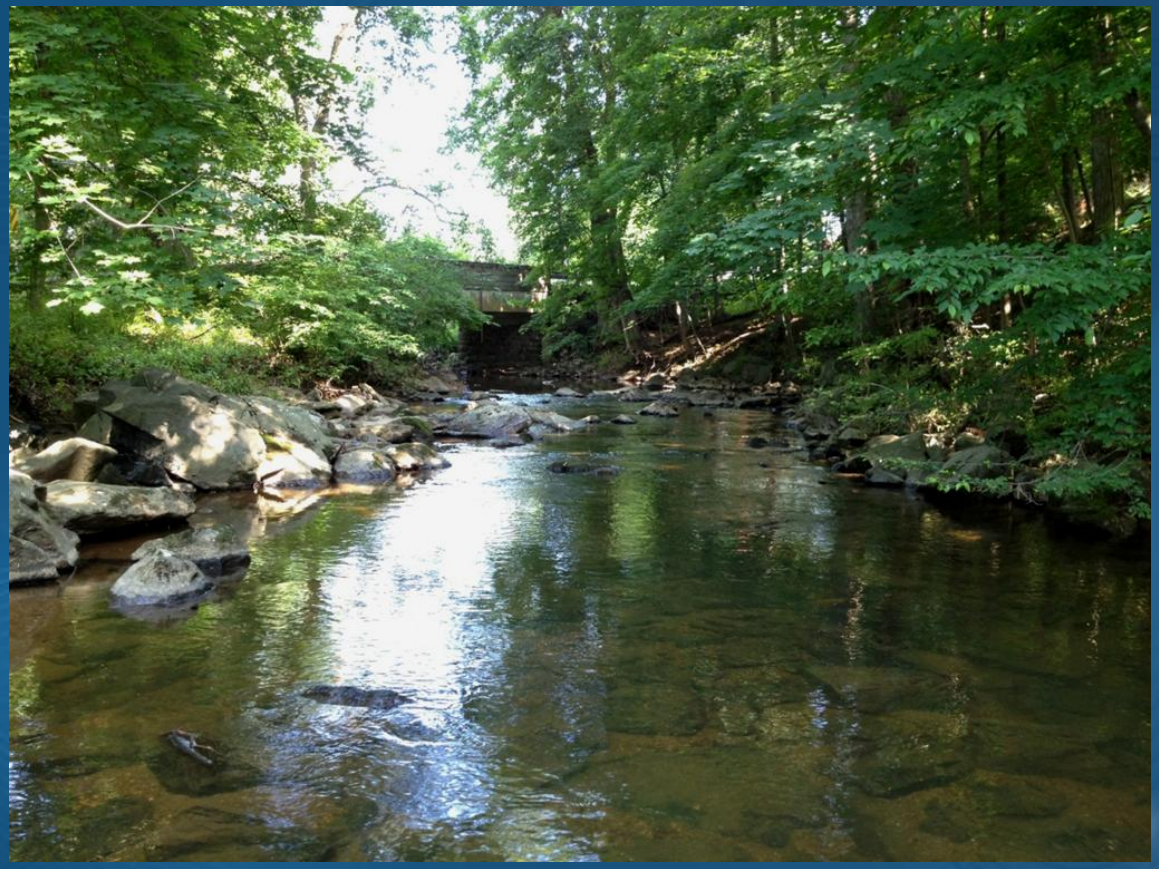
So where are they in the Delaware Estuary?

Just as important–

where <u>AREN'T</u> they now?

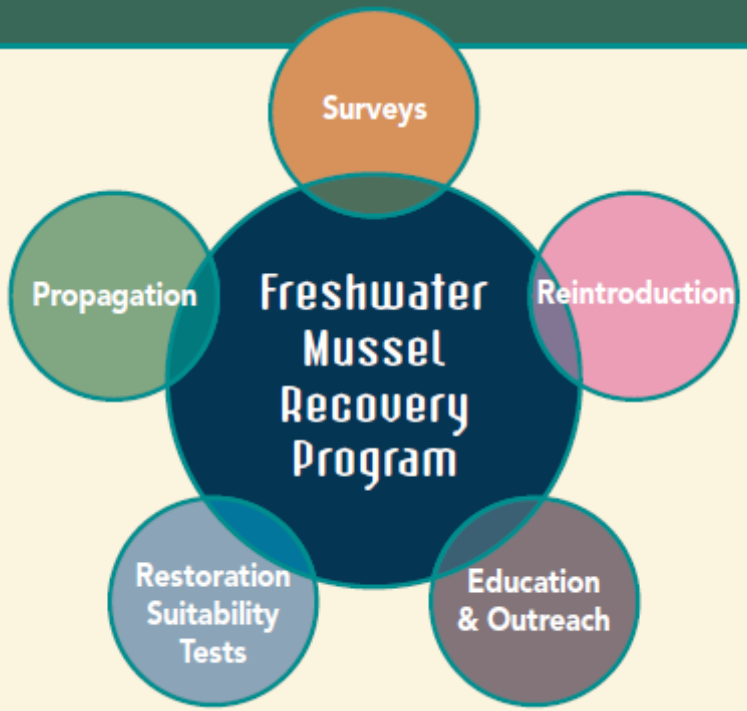
PDE decided to find out…

- Where mussels are and if they are healthy enough to use for brood stock in a hatchery.
- Where they are not, and determine if those stream segments can support a re-introduction of mussels in a future project phase.



PARTNERSHIP FOR THE DELAWARE ESTUARY INC.

The Partnership for the Delaware Estuary (PDE), through a multi-tiered approach, is working to rebuild mussel populations in the Delaware Estuary. With a goal to restore native species in their native waters, PDE aims to rebuild mussel beds that will provide cleaner water for everyone.



PDE and Academy of Natural Science staff found 7 native species in the Delaware River in May 2010 –

3 of which were believed to be extinct in PA!

Then we really got excited…

but how could we possibly survey the entire watershed?

Enormous watershed – nearly 6,500 square miles

Historically home to 12-14 freshwater mussel species – but only ONE species is (somewhat) commonly found now.

Last in-depth freshwater mussel surveying took place in 1919.

Problem(s):

- Too few scientists
- Too few dollars
- Too many stream miles

Solution:

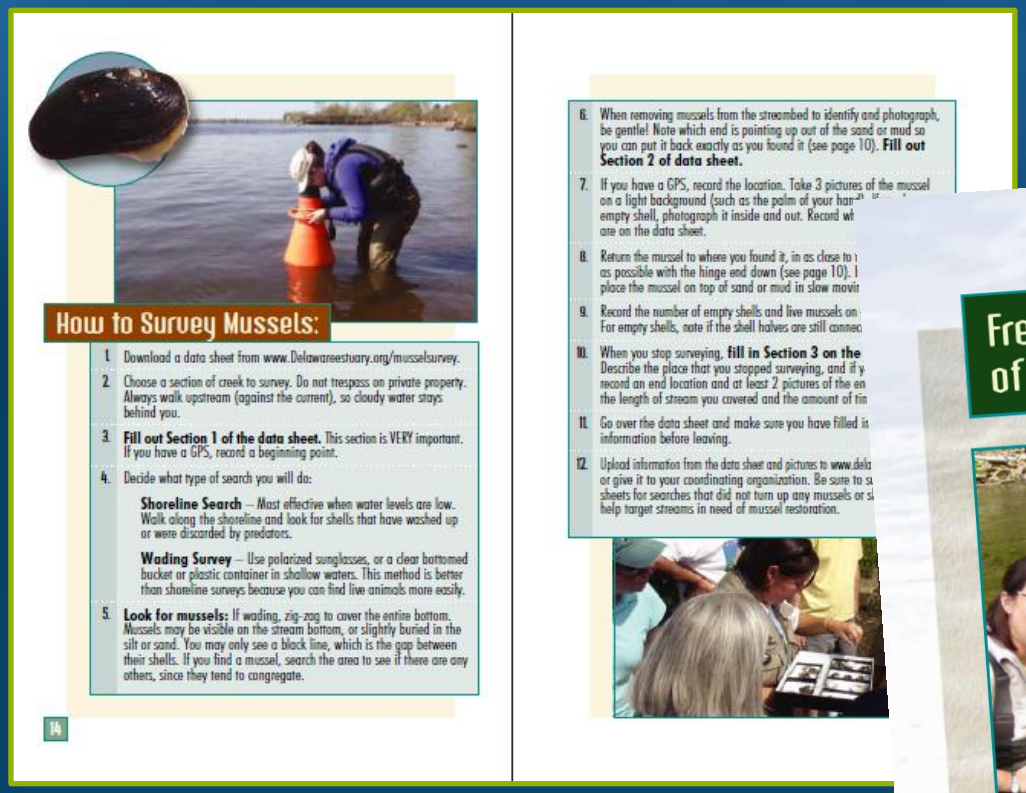
Show us your mussels…

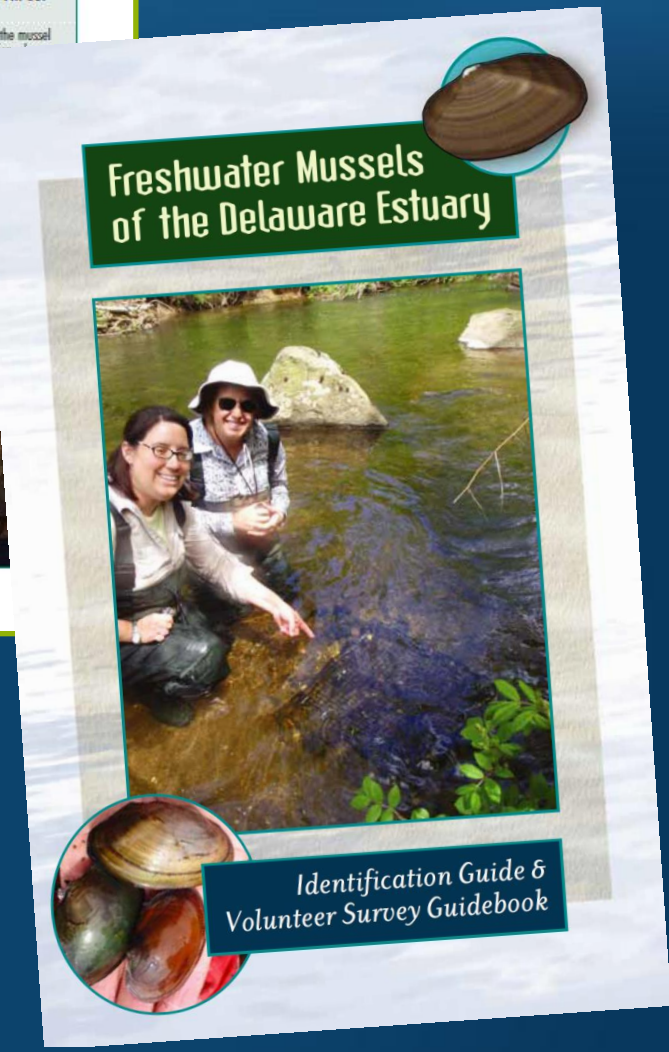
A call for trained volunteers!!!

VisualBee

Grant Received – EPA, PA CZM & Pilot Program created

- First ever Delaware Estuary Freshwater Mussel Guidebook written and printed.
- 2 Training Workshops scheduled and completed with 2 watershed organization's volunteers.
  - Tookany-Tacony Frankford Watershed Partnership
  - Chester Ridley Crum Watershed Association
- Trained volunteers surveyed all summer & uploaded their photos and data via web portal.
- 5 stream miles DONE in summer 2012!



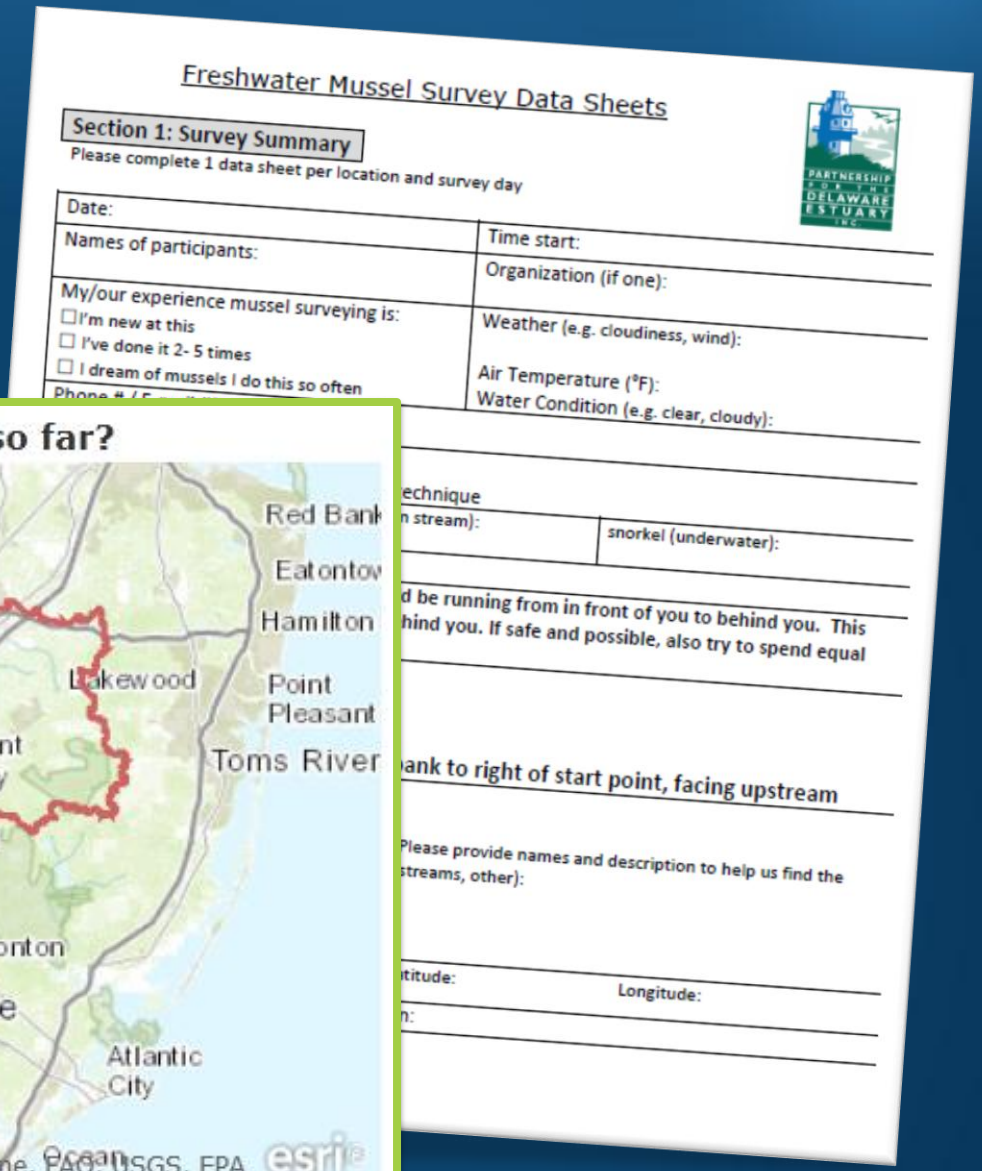


Project Product – The first ever Delaware Estuary Freshwater Mussel Guidebook!

- **24-page, spiral bound, laminated for easy field use.**

- **Created with input from watershed organizations.**

Downloadable data sheets & web portal to upload survey findings-also tested with watershed volunteer groups.



Freshwater Mussel Survey Data Sheets

Section 1: Survey Summary

Please complete 1 data sheet per location and survey day

Date:

Time start:

Names of participants:

Organization (if one):

My/our experience mussel surveying is:

☐ I'm new at this

☐ I've done it 2- 5 times

☐ I dream of mussels I do this so often

Weather (e.g. cloudiness, wind):

Air Temperature (°F):

Water Condition (e.g. clear, cloudy):

echnique

n stream):

snorkel (underwater):

d be running from in front of you to behind you. This hind you. If safe and possible, also try to spend equal

ank to right of start point, facing upstream

Please provide names and description to help us find the streams, other):

itude:

Longitude:

n:

2 Pilot WORKSHOPS

Goal – train 20 volunteers

80 attended workshops!

160 volunteers surveyed throughout the summer!

CRC Field Training

Ridley Creek State Park

Found LOTS of Elliptios (common)

Younger volunteers found the MOST! (and squealed the loudest)

TTF Field Training

Rock Creek (Tacony Creek tributary)

ZERO mussels found – so this is a stream where they are not!

The mussels we are looking for-
Not always easy to spot!

Invasive (non-native) freshwater clams – We found LOTS of these!

Next Steps

- Get other watershed organizations involved and seek grant funds to train new volunteer groups.
- Analyze data – both volunteer and scientific.
- Continue hatchery work.
- Determine best streams for restoration of freshwater mussel species.
- Reintroduce native mussels to their native waters.

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