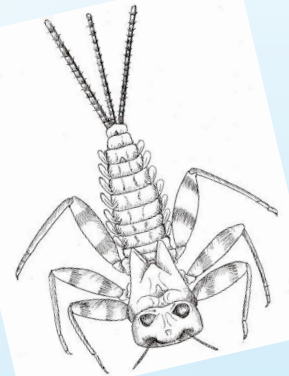




Developing Student Scientists:
**THE WATERSHED
REPORT CARD**



Ann Strozyk
HCPSS Environmental Educator





A map of Howard County, Maryland, showing its watershed boundaries in light blue. The map is set against a background that transitions from light green at the top to a darker teal at the bottom. The text is overlaid on the map.

WATERSHED REPORT CARD

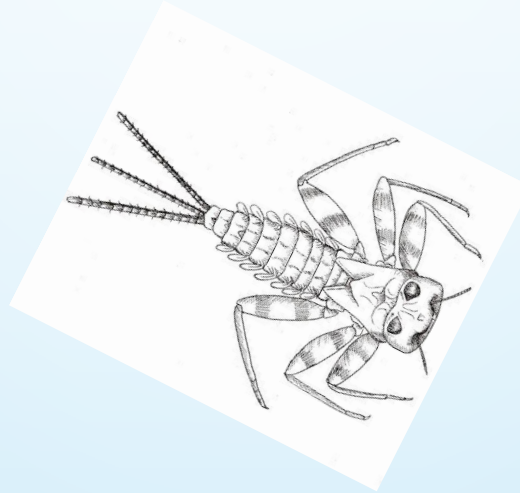
Student Scientists in Action

#hcmwee



Howard County Conservancy

Funding and Support



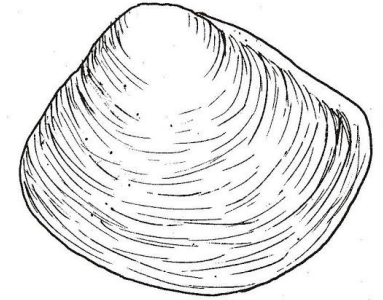
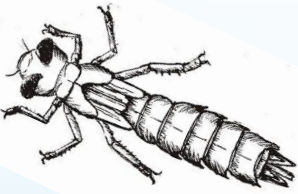
Real Life Question

How do we as students solve the problem of declining water quality in our watersheds?





Plan for Learning



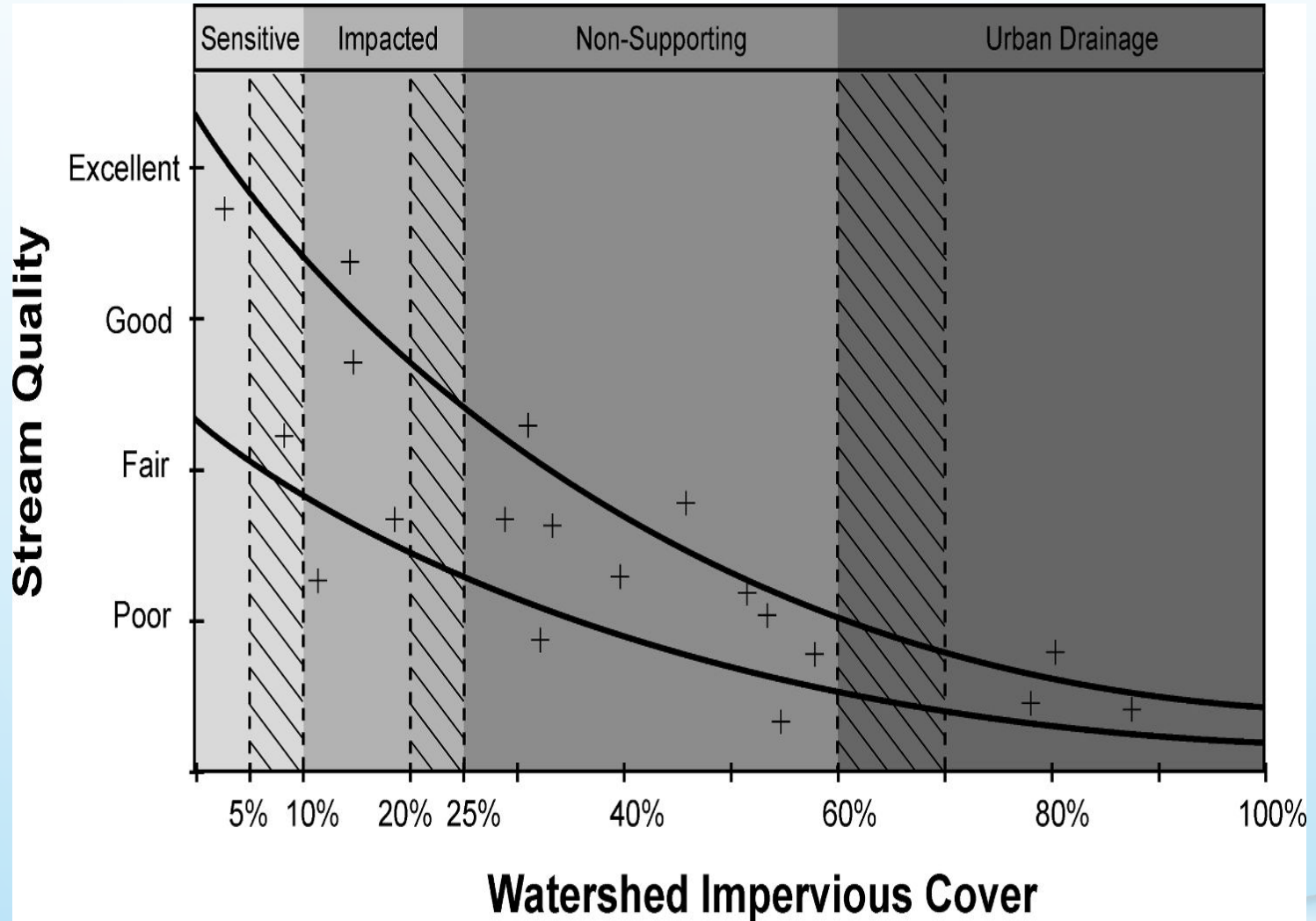
Step 1:
Data
Collection

Step 2:
Data
Analysis

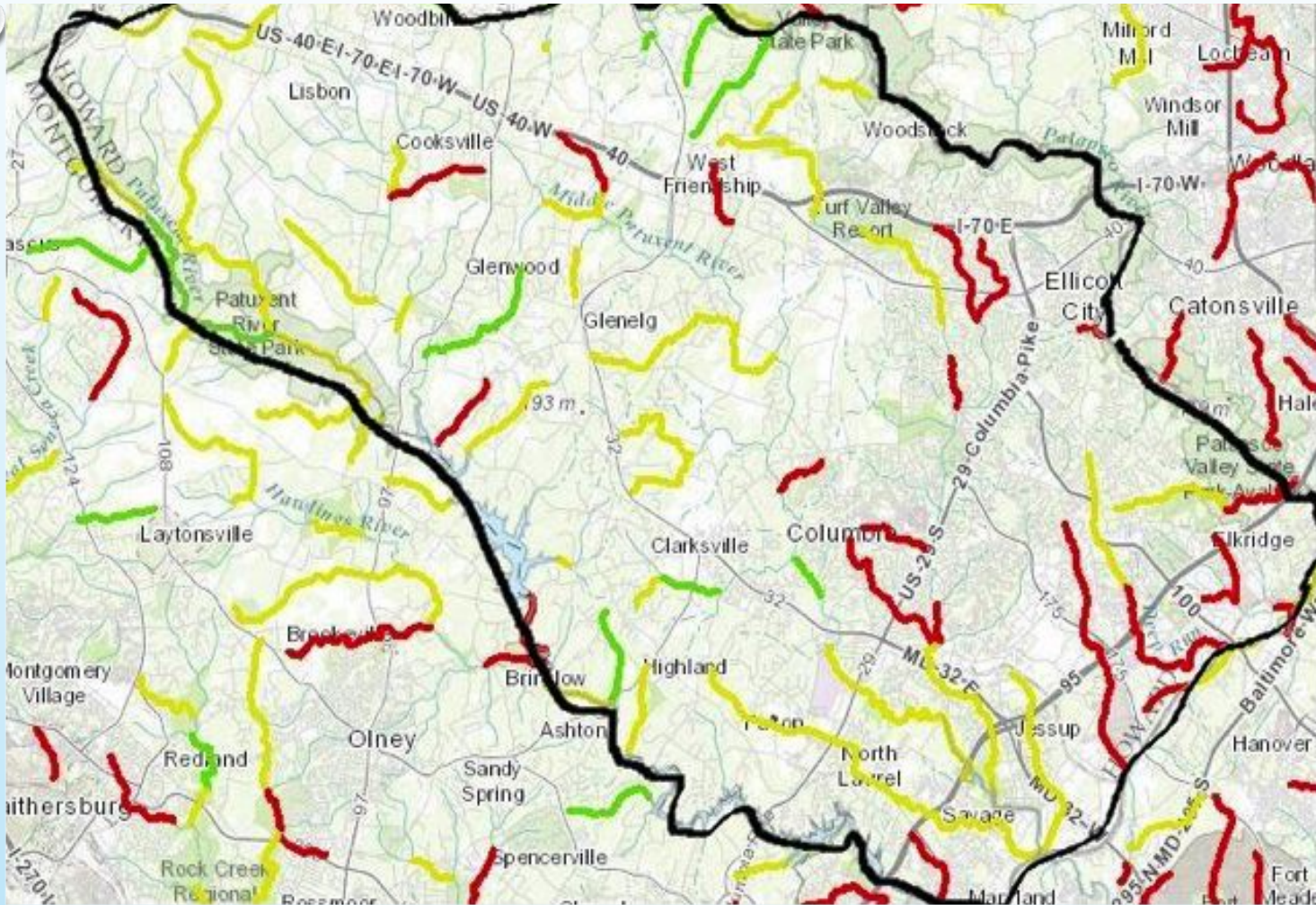
Step 3:
Advocacy &
Action Plan

Step 4:
Summit

Stressors to Streams



Howard County Stream Health



DNR Stream Health – Howard County

TIME-SCALE

SHORT-TERM (DAYS)

LONG-TERM (MANY YEARS)



2-Year
Snapshot

Water-Quality Test

Nitrite

Nitrate

Phosphate



Macroinvertebrate Tally

Biological Assessment: Macroinvertebrate Survey

Collection method:

Kick Netting or 30-Second Netting

If using a Kick Net, collect samples 1 hour.

If using a 30-sec. net, collect 20 sweeps and record the number of sweeps taken from each of the habitat zones in the table.



Number of Macroinvertebrates

Order	Number
Caddisflies	
Stoneflies	
Mayflies	
Trichoptera	
Other (specify):	
TOTAL	

Check all of the macroinvertebrates that you find in your stream and calculate the stream's water quality rating. You may also record the number of each organism found in each of the habitat zones and record that in a separate table if you wish.

WATER QUALITY RATING	WATER QUALITY RATING	WATER QUALITY RATING
1	2	3

Corridor Assessment




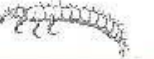



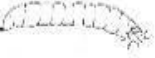



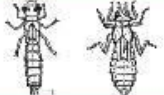









Data Collection

School Name: _____ Date: _____ Location: _____

Biological Assessment: Macroinvertebrate Survey

Benthic Habitat Sampled	Habitat	Riffles	Pools	Runs	Rootwads/leafpack/woody debris	Submerged Vegetation	Undercut Banks
	Sampled? <input checked="" type="checkbox"/>						

Check all of the macroinvertebrates that you find in your stream and calculate the stream's water quality rating

<input checked="" type="checkbox"/> SENSITIVE to pollution	<input checked="" type="checkbox"/> LESS SENSITIVE to pollution	<input checked="" type="checkbox"/> SOMEWHAT TOLERANT to pollution	<input checked="" type="checkbox"/> TOLERANT to pollution
Casemaker Caddisflies 	Net Spinning Caddisflies 	Clams 	Aquatic Worms 
Mayflies 	Crane Flies 	Mussels 	Black Flies 
Stoneflies 	Dragonflies 	Planaria 	Midge Flies 
Water Pennies 	Riffle Beetles 	Gilled Snails 	Leeches 
Hellgrammites 		Crayfish 	Lunged Snails 
# check marks _____	# check marks _____	# check marks _____	# check marks _____
# above x 3=	# above x 2=	# above x 1=	# above x 0=

Biological Water Quality Rating:

Add up the numbers you calculated for all four categories above.

Write the total # here: _____

Circle the rating that corresponds to the total of your macroinvertebrate count.

Good: >22

Fair: 17-22

Poor: 11-16


Very Poor: <11







2019 Data

-  Good
-  Fair
-  Marginal
-  Poor

Middle Patuxent at Sweet Hours Way

COLUMBIA

Little Patuxent at Lake Elkhorn

COLUMBIA

Middle Patuxent at Southwind Trail

CLARKSVILLE

Little Patuxent at Macomber Lane

COLUMBIA

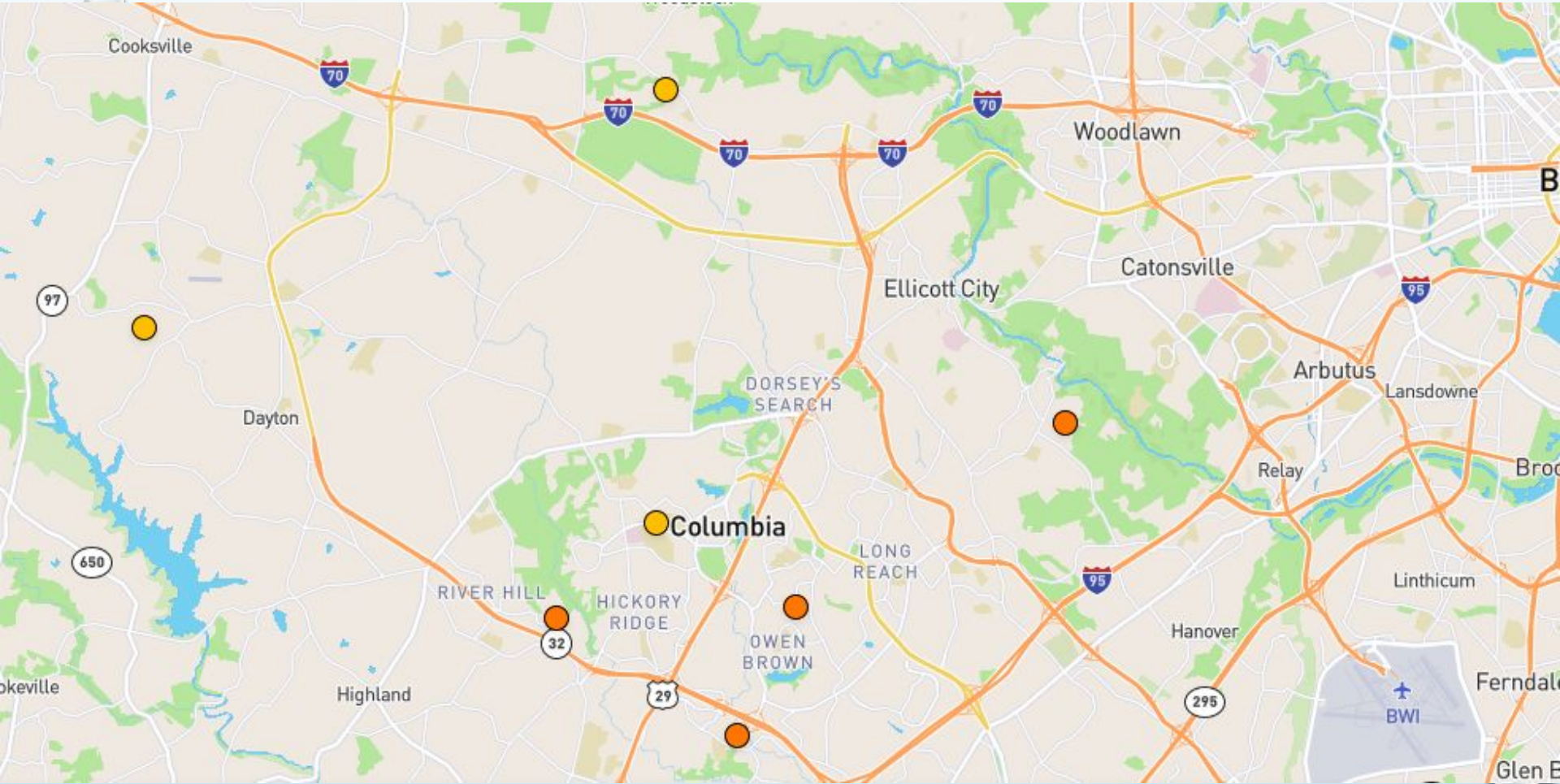
Little Patuxent at Faulkner Ridge

COLUMBIA

Middle Patuxent at Shady Lane

GLENWOOD

Water Reporter



Student Recommendations



Personal Stories

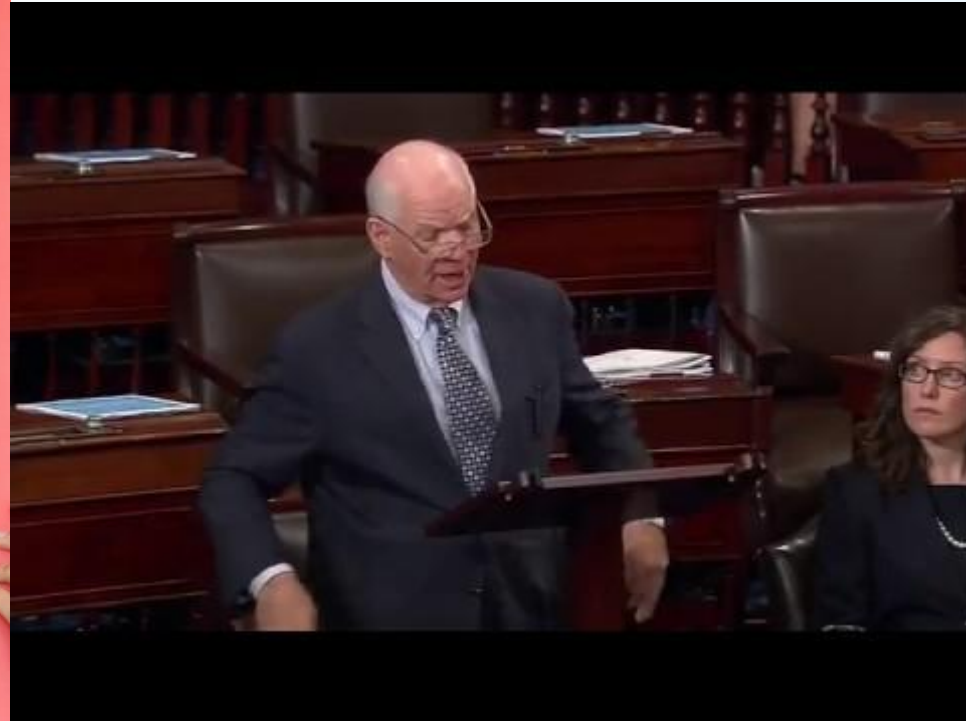


PERSON of the YEAR TIME



#ourfuture #bethechange #powerofyouth

Senator Cardin

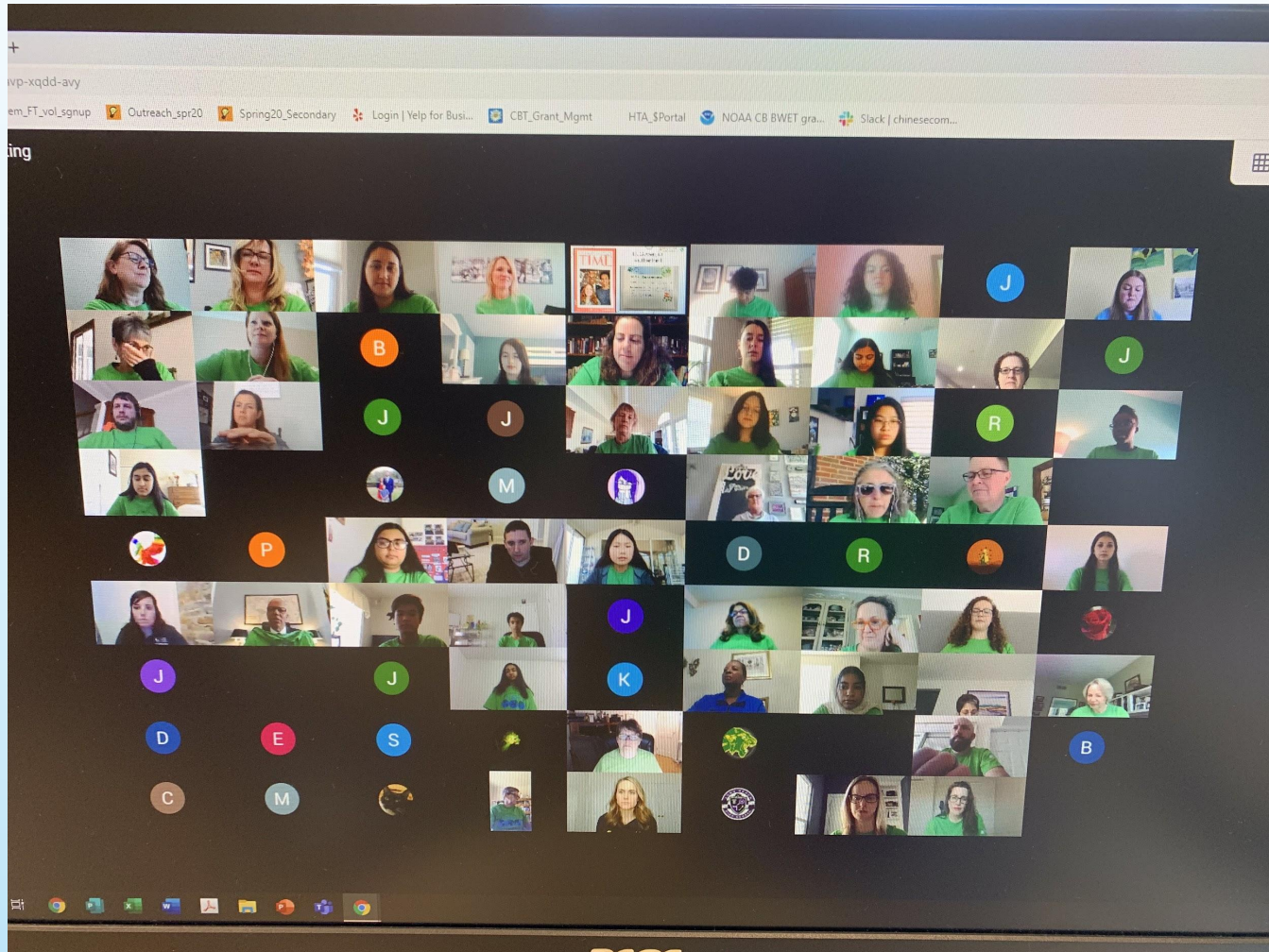


WATERSHED SUMMIT

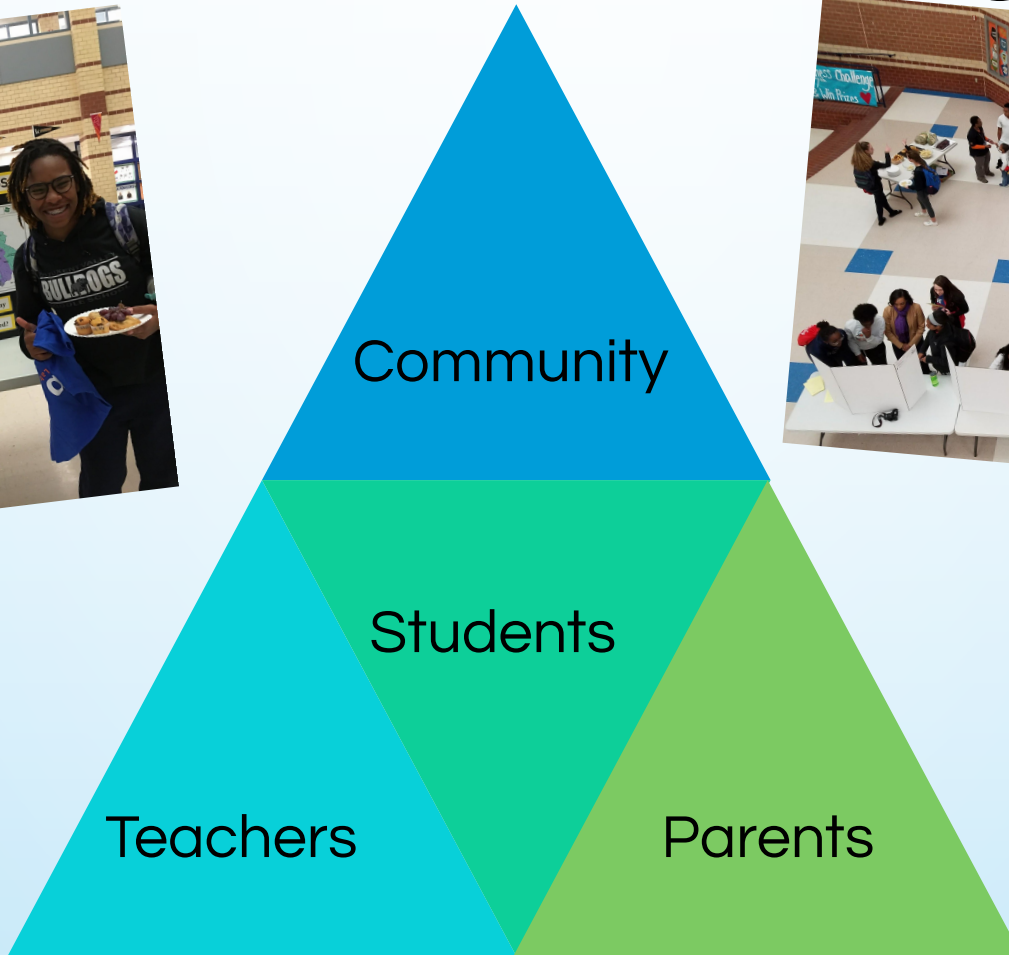
- Students share results and recommendations
- 300+ attendees!
- Watershed advocates meet with VIPs



Virtual Watershed Summit- April



Watershed Gala Night



Spin Off Programs

EC Student Task Force

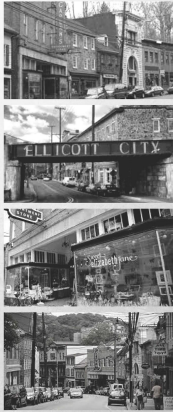
Join the Ellicott City Student Task Force
What is your vision for Main Street?

STUDENTS FROM EACH HIGH SCHOOL ARE ENCOURAGED TO APPLY TO JOIN THE EC STUDENT TASK FORCE TO DEVELOP A PLAN FOR THE FUTURE OF MAIN STREET.
PLEASE SEE YOUR TEACHER FOR MORE INFORMATION.

11/13 6-7 pm Work Group
@ Mt. Pleasant
5:30 Optional Dinner

12/11 6-7 pm Work Group
@HC Central Library
5:30 Optional Dinner

1/15 6-7 pm Work Group
@Mt.Pleasant
5:30 Optional Dinner




PLEASE EMAIL ANN_STROZYK@HCPCS.ORG TO REGISTER BY WEDNESDAY 9/12 AT 3 PM.

Plastics Student Task Force

Join the Plastics Student Task Force
Are you concerned about plastics in our waterways?

STUDENTS FROM EACH HIGH SCHOOL ARE ENCOURAGED TO APPLY TO THE PLASTICS STUDENT TASK FORCE.
PLEASE SEE YOUR TEACHER FOR AN APPLICATION.



All meetings will take place at the Howard County Conservancy 10520 Old Frederick Road, Woodstock, MD.

10/9 5:30-7 Work Group
11/6 5:30-7 Work Group
12/11 5:30-7 Work Group
1/8 5:30-7 Work Group
2/5 5:30-7 Work Group
3/4 5:30-7 Work Group

PLEASE EMAIL ANN_STROZYK@HCPCS.ORG WITH ANY QUESTIONS

Climate Change Institute

THE HOWARD COUNTY CONSERVANCY AND HCPCS

STUDENT CLIMATE CHANGE INSTITUTE

Meets Online:
10/27, 11/5, 11/10, 11/17, 12/1, 12/8

LEARN



Lectures from climate experts discussing:

- How does climate change impact public health?
- How has it impacted food and agriculture?
- How is environmental policy made?
- How can we find reliable information?

COLLABORATE



Work with experts and fellow students to determine and compare solutions to global climate issues:

- Regenerative agriculture
- Sustainable alternatives
- New MD and Howard County climate initiatives

ACT



Become ambassadors to educate others and form initiatives in our schools and communities against climate change.

In collaboration with:

<p>Biohabitats</p> <p>University of Maryland Department of Entomology</p>	<p>Ready Sense</p> <p>University of Maryland</p>	<p>Chesapeake Bay National Estuarine Research Reserve - MD</p> <p>Maryland League of Conservation Voters</p>	<p>Howard County Office of Community Sustainability</p> <p>Maryland Department of Natural Resources</p>	<p>University of Maryland Extension Service</p>
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10th Grade Students Only! Apply Now! Application Forms

Outcomes & Dumb Luck!

- **Students**

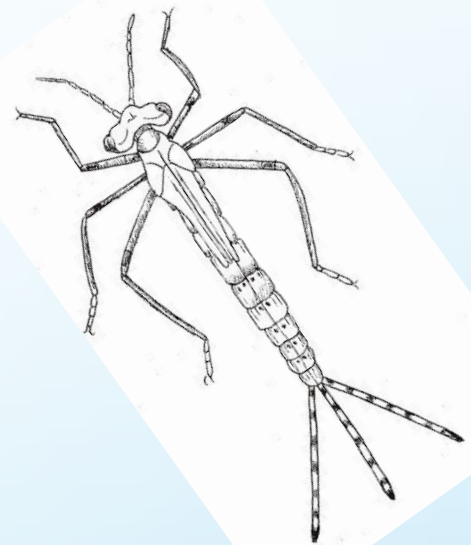
- Watershed vernacular
- Jobs
- Action Projects
- **Surge of Activism**

- **Teachers**

- Using questions to drive the learning
- Mentoring
- Systemic Meaningful Watershed Educational Experience (MWEE)

- **Community**

- Gala Night



Contact Information

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ann_strozyk@hcpss.org

Twitter handle: @AnnStrozyk

FOR MORE INFORMATION ON THE WATERSHED REPORT CARD:

[HTTP://WWW.HCCONSERVANCY.ORG/WATERSHEDSUMMIT.HTML](http://www.hccconservancy.org/watershedsummit.html)

