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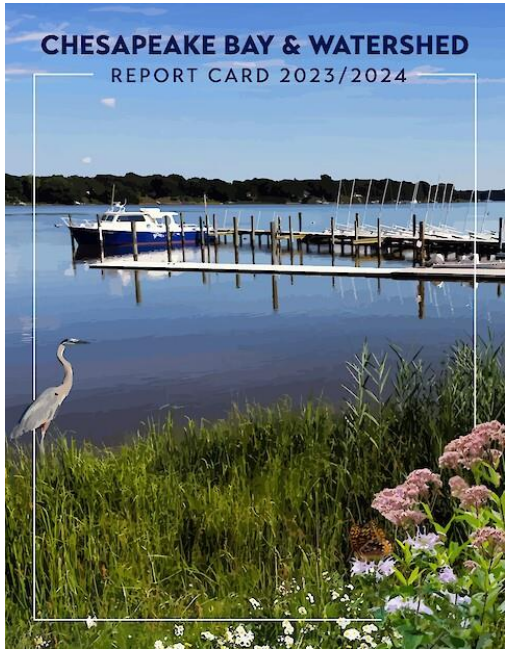
Creating a Man-made Debris Indicator for the Chesapeake Bay and Watershed Report Card



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Help us!

October 29, 2024

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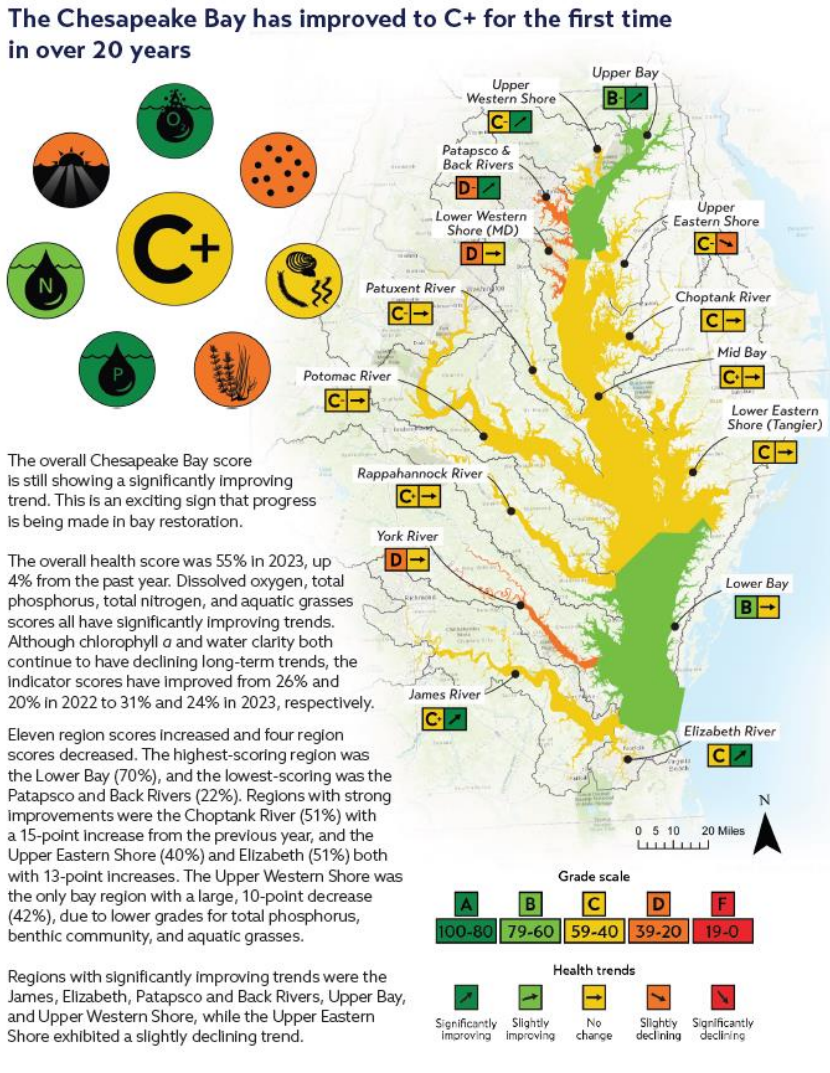
Chesapeake Bay and Watershed Report Card

1. What is the big picture?
2. What do we measure?
3. What is healthy?
4. How does it add up?
5. What is the story?



Bay indicators:

- Phosphorous
- Nitrogen
- Dissolved oxygen
- Condition of benthic community
- Water clarity
- Chlorophyll a
- Aquatic grasses

https://ian.umces.edu/chesapeakebayreportcard.org

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Chesapeake Bay and Watershed Report Card

Watershed indicators

Ecological:

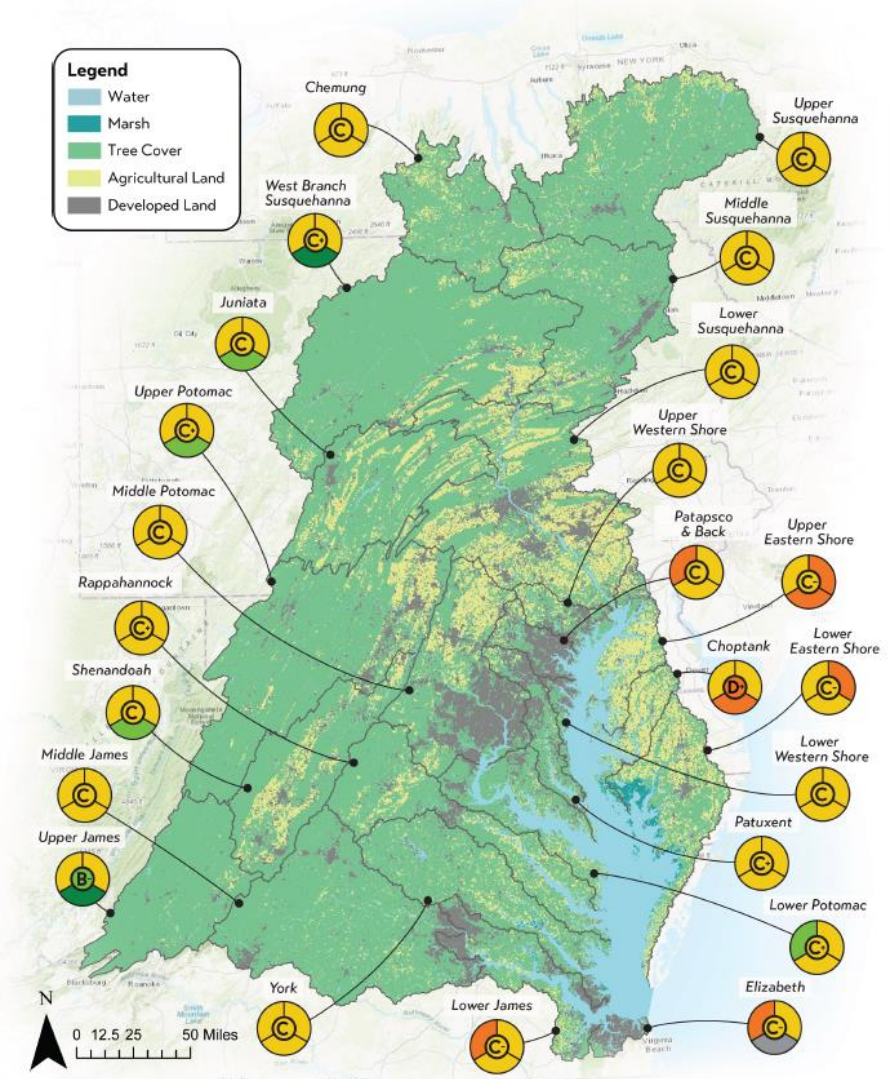
- Protected lands
- Water quality (P and N)
- Fish community index
- Condition of stream benthic community

Social:

- Citizen stewardship
- Heat vulnerability
- Social vulnerability
- Walkability

Economic:

- Median household income
- Jobs growth
- Income inequality
- Housing affordability



Map of the Chesapeake Bay Watershed showing land use and the overall grade for each reporting region based on scores for the economic (top left), social (top right) and ecological (bottom) categories.

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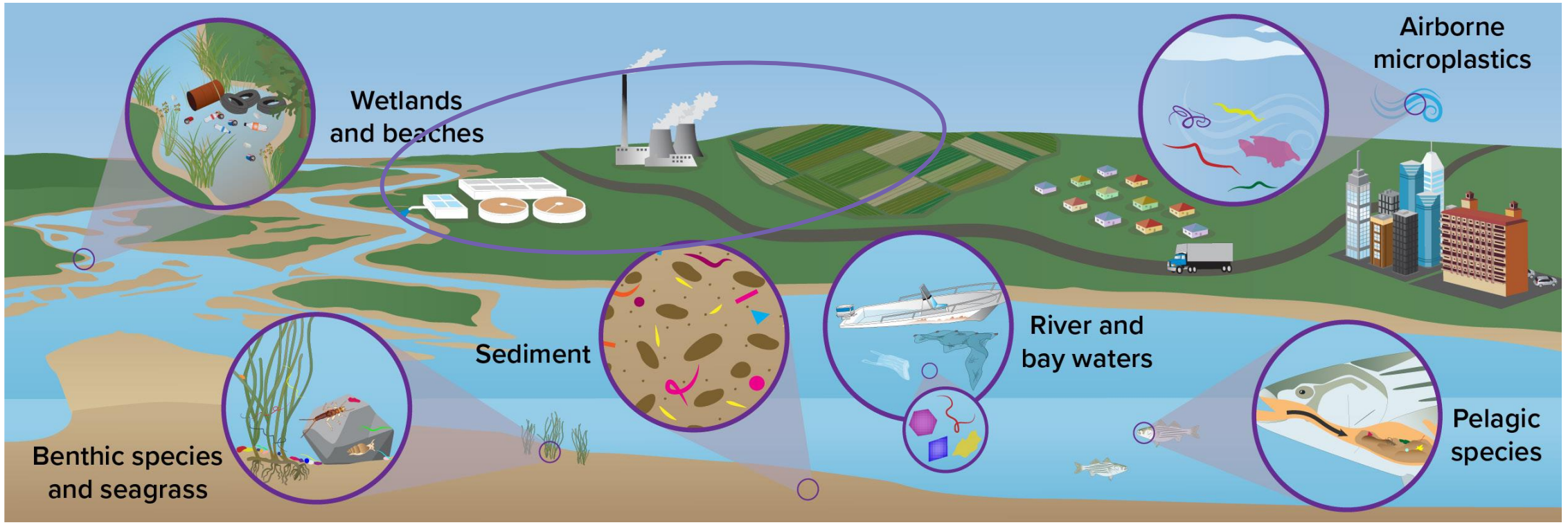
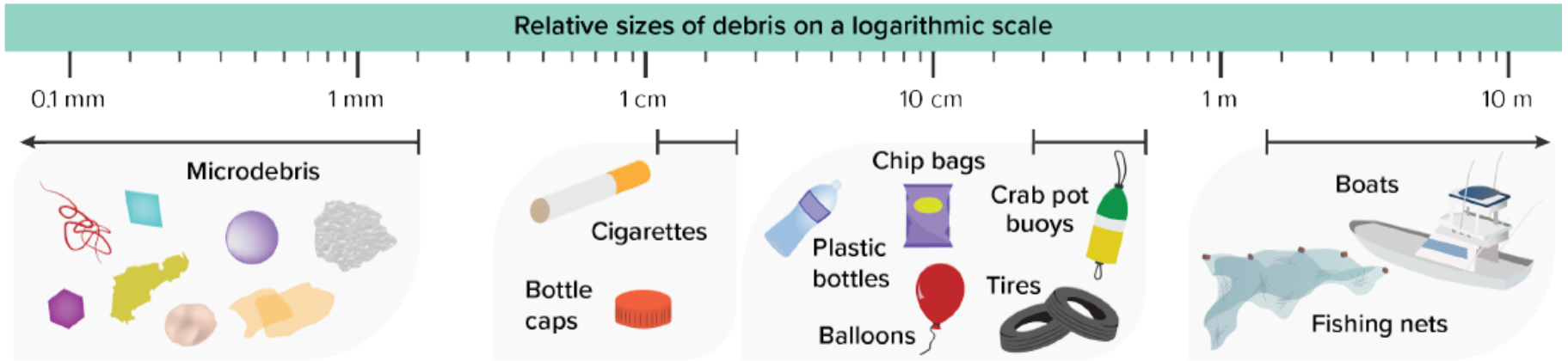
Our Vision





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Steps to Create a Score

- Establish categories-size classes, item types, units, etc.
- Gather and evaluate all existing data
- Identify monitoring gaps
- Evaluate risk and effect thresholds

- Create a framework to fill those gaps (build off Bob Murphy et al. MP water monitoring framework, and MDP action plans) and support new monitoring programs
- Gather and organize new data
- Reevaluate risk and effect thresholds
- Create a score

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Examples of Monitoring Programs

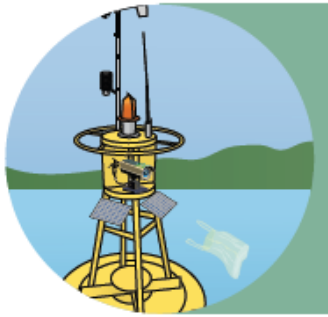
- Baltimore Harbor trash wheels
- Trash traps in Anacostia
- Trash total maximum daily load (TMDL) for Anacostia and Baltimore Harbor
- Prince Georges County, MD stream trash monitoring
- MD and VA are monitoring abandoned, lost, and derelict vessels
- Many groups doing clean ups and registering the data on apps

Beach & waterway cleanups

Every year there are many cleanup efforts which can provide an understanding of the type and amount of man-made debris present in and around the water.

Mr. Trash Wheel

An iconic feature of the Baltimore Harbor, Mr. Trash Wheel is a trash interceptor that collects about 500 tons of debris each year.



Remote monitoring on buoys and towers

Cameras on buoys and other existing infrastructure throughout the bay can provide snapshots of debris in the water.

Challenges

1. Huge suite of categories
2. Many of which are not monitored yet in smaller regions or across the whole watershed
3. Methods still need to be developed
4. QA/QC of the data-need to create guidelines for what can be included
5. Risk levels are not well defined

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How You Can Help

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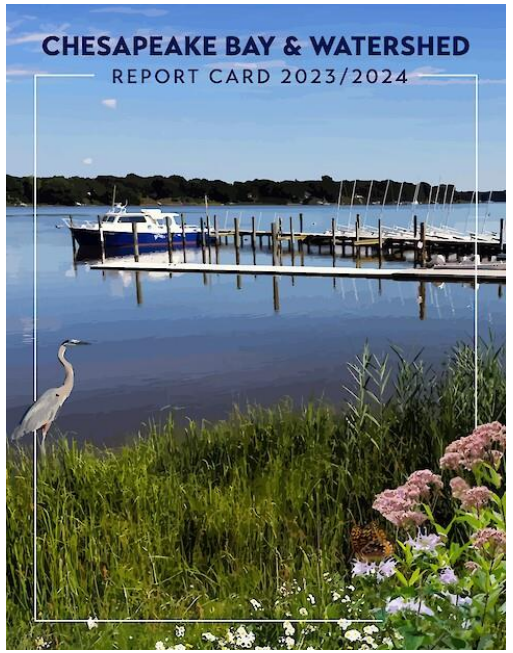

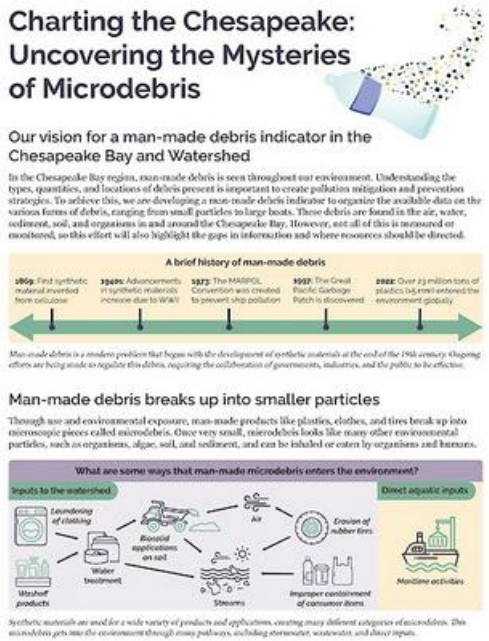

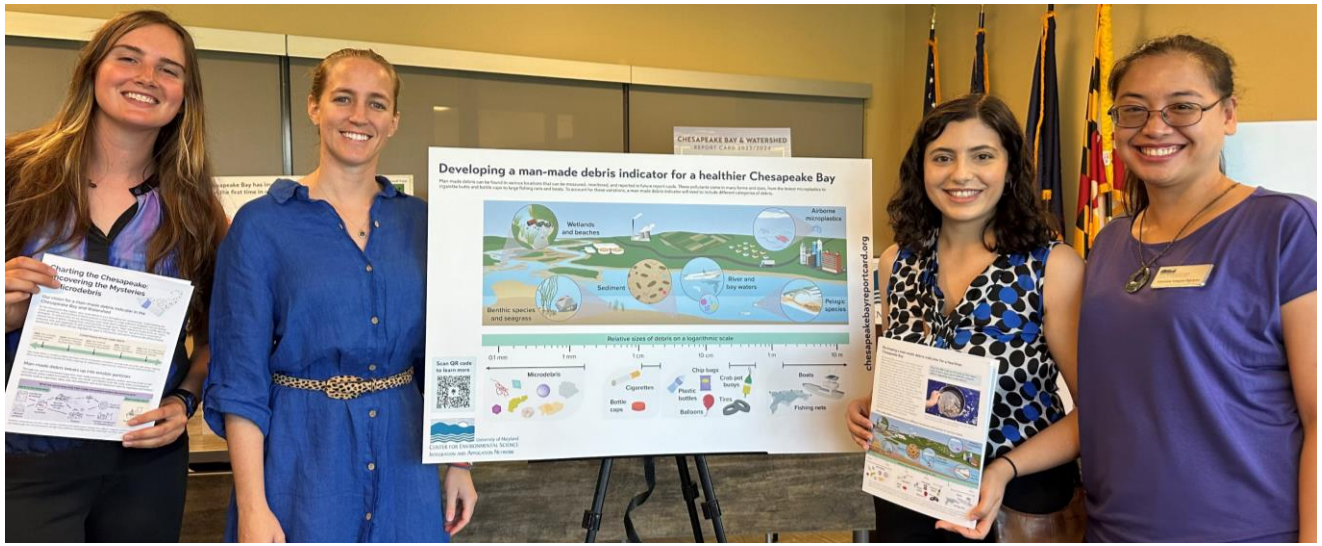

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