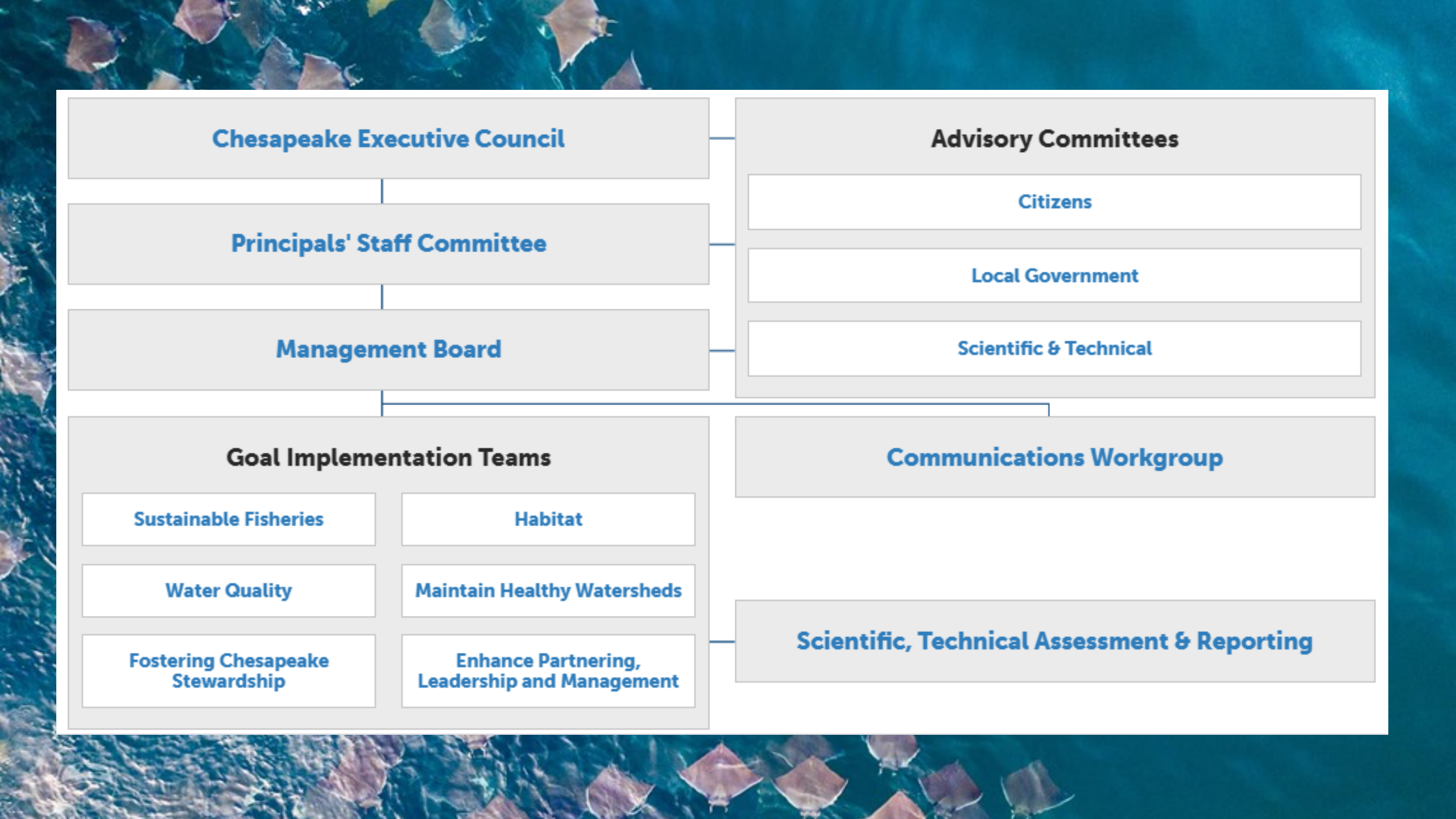
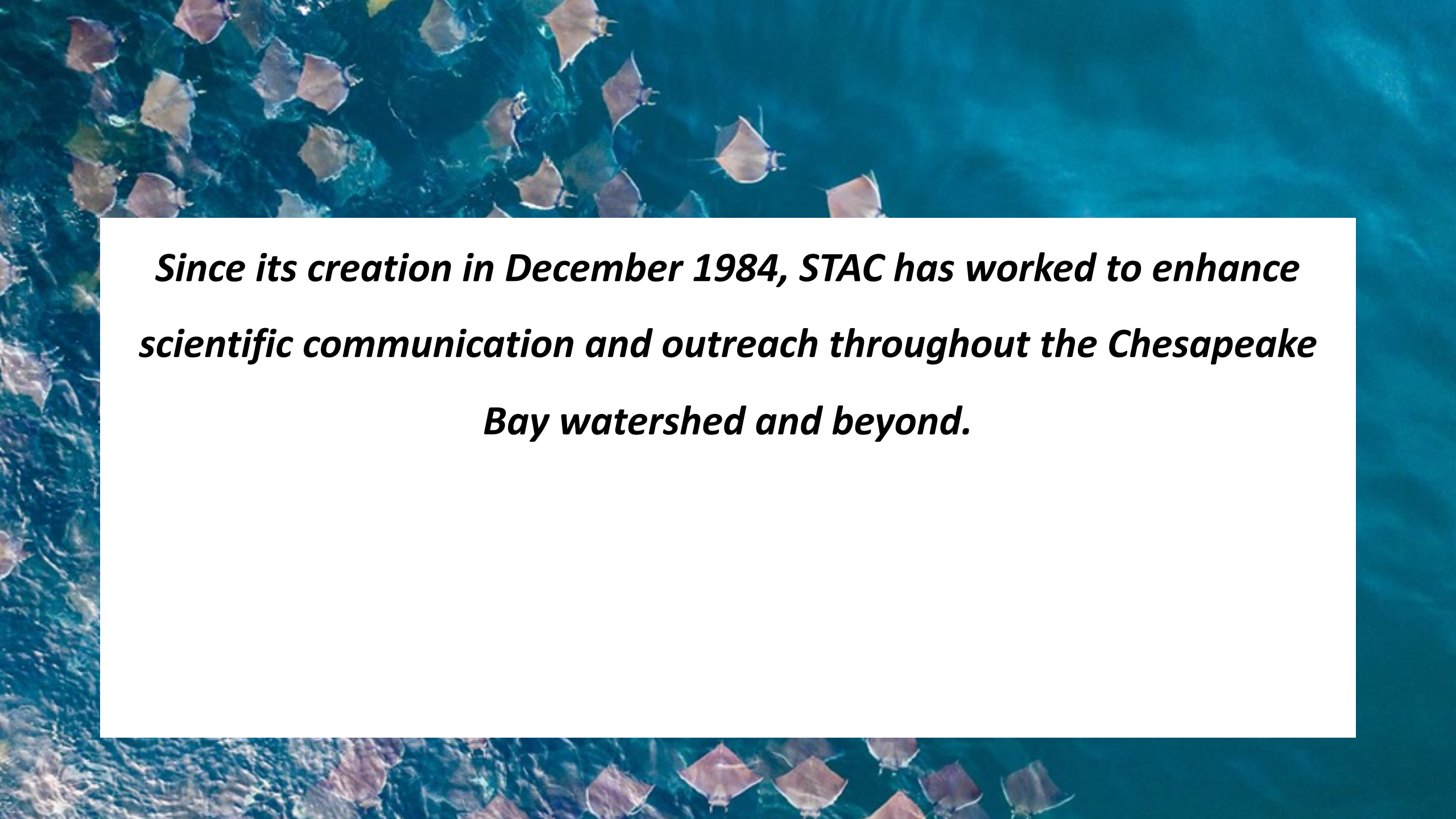

Chesapeake Executive Council
Principals' Staff Committee
Management Board
Advisory Committees
Citizens
Local Government
Scientific & Technical
Goal Implementation Teams
Sustainable Fisheries
Habitat
Water Quality
Maintain Healthy Watersheds
Fostering Chesapeake Stewardship
Enhance Partnering, Leadership and Management
Communications Workgroup
Scientific, Technical Assessment & Reporting



Since its creation in December 1984, STAC has worked to enhance scientific communication and outreach throughout the Chesapeake Bay watershed and beyond.

Turning a report to an article

- What is the new science?
- Does the public possess the background knowledge to understand the significance?
- What is the significance of the new science for the watershed?
- How does that relate to peoples' lives?
- Why would the public care?

Title and Audience

- Microplastics in the Chesapeake Bay and its Watershed: State of the Knowledge, Data Gaps, and Relationship to Management Goals
- Understanding and Explaining 30 Years of Water Clarity Trends in the Chesapeake Bay's Tidal Waters
- How do we accelerate riparian buffer plantings across the Chesapeake Bay with the greatest economic, social and environmental impacts?

Simplify and relate

- Microplastics in the Chesapeake Bay and its Watershed: State of the Knowledge, Data Gaps, and Relationship to Management Goals
- Small plastics are a big problem
- Understanding and Explaining 30 Years of Water Clarity Trends in the Chesapeake Bay's Tidal Waters
- A look back at 30 years of water clarity
- How do we accelerate riparian buffer plantings across the Chesapeake Bay with the greatest economic, social and environmental impacts?
- What's in a tree? Oxygen, food, clean water and money

Summarizing: report

Water clarity report summary

Why did long-term Secchi depth trends decline from the mid-1980s to present day, despite reductions in both point- and nonpoint- source nutrient loads from the watershed? SMALL ORGANIC PARTICLES

Why have we seen a different story with light attenuation trends (i.e., water clarity as Kd, measured with radiometers)? SMALL ORGANIC PARTICLES

Why have mainstem Secchi depth trends begun to improve in the last decade? DON'T KNOW

What has more impact on trends in water clarity: internal resuspension of particulate matter, or sediment inputs from the watershed and local shoreline? IT DEPENDS

What about biology? REALLY IMPORTANT, BUT MAY BE INDIRECT

Current management strategies aim to improve Chesapeake Bay water quality (including water clarity) by reducing nitrogen, phosphorus, and sediment inputs to tidal waters (Chesapeake Bay Program 2019). Does this approach target the appropriate drivers of poor water clarity? YES, BUT MORE TARGETED RESEARCH NEEDED

Keisman et al., 2019

University of Maryland
Center for Environmental Science

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Summarizing: article subheadings

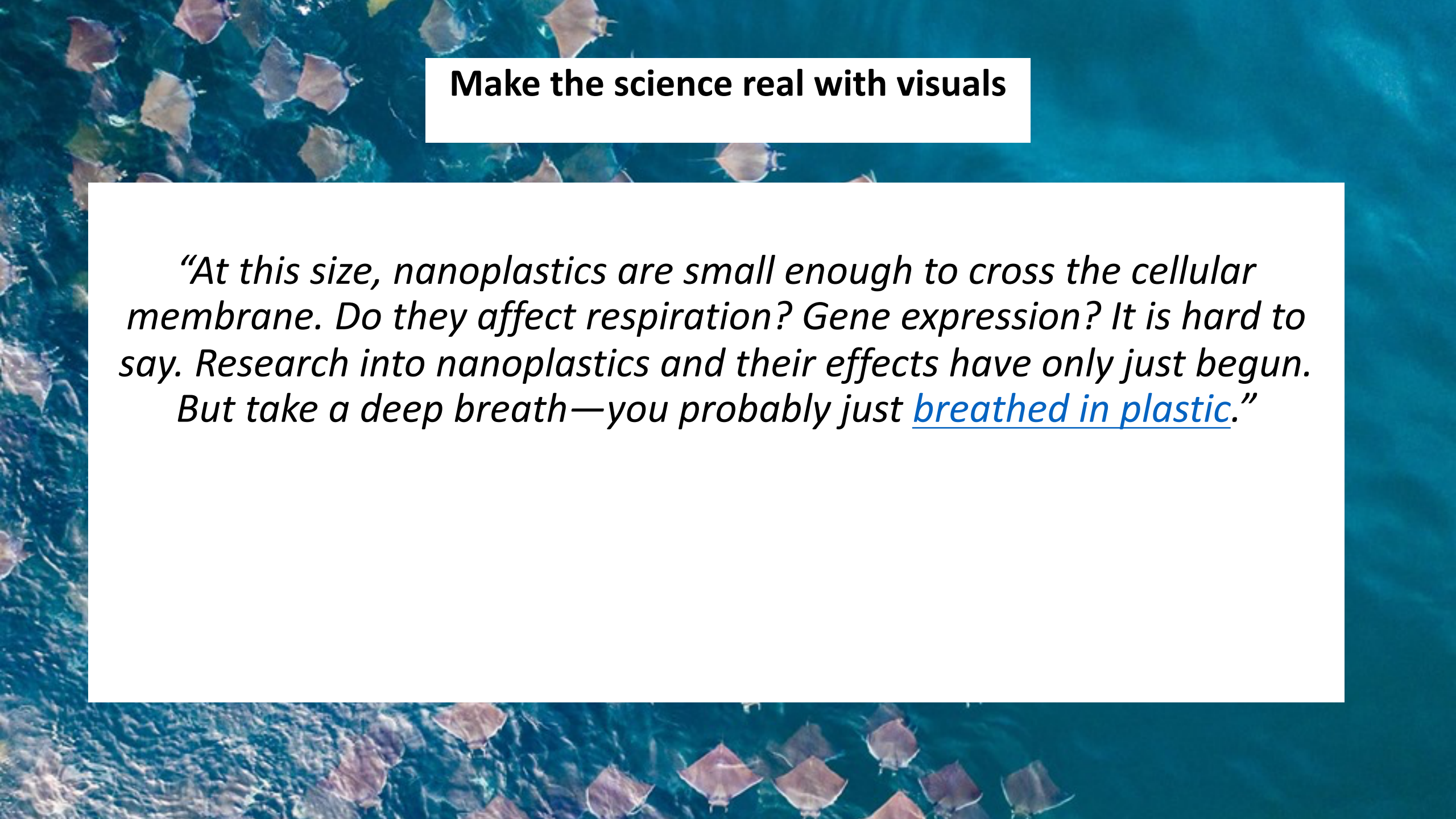
- What is water clarity?
  - 2 common definitions, defined, therefore: cloudy but more light
- Sunlight and sediment
  - Fine particulates… *“like mixing powder into a drink”*
- The impact of algal blooms on clarity
  - Temporary effect, chronic stress if occurs too often
- Underwater grasses and bivalves rely on clear water, and vice versa
  - The ecosystem is connected. Corbicula fluminea in Potomac
- How to improve water clarity
  - Best management practices, but watch out for extreme weather

Provide examples

- What threat do microplastics pose?
  - Wildlife ingestion numbers across the world
  - Microplastics in all samples at nontidal stations in the watershed
- Disease and other contaminants
  - Susanne Brander and sea bass
  - 3 species of vibrio
- Oysters
  - Christine Knauss and oyster stress.
- Wastewater
  - 516 major wastewater treatment plants in the watershed
- What can we do?
  - VIMS biopolymers

Clearly explain easy mistakes

- “Microplastics in the water column float along in much the same way as algae, the oyster’s preferred food source. Knauss exposed oysters to water containing concentrations of microplastics that match the current pollution levels found in the wild. Over six days, the oysters that ate plastic significantly increased their algal clearance rates. Algal clearance rates relate to how much water the oysters are filtering, so at first glance this would sound like good news.
- What it really means is stress. The oysters eating microplastics must clear more algae in order to get the same amount of nutrition as their clean-water brethren. Think of it like hyperventilating—you aren’t better at breathing by doing it faster; your system is stressed, and something is wrong.”



Make the science real with visuals

“At this size, nanoplastics are small enough to cross the cellular membrane. Do they affect respiration? Gene expression? It is hard to say. Research into nanoplastics and their effects have only just begun. But take a deep breath—you probably just breathed in plastic.”

Make the science real with visuals

“Like a piece of tape is a magnet for dust in a room, microplastics pick up chemicals—and diseases.”

What do I seek in a STAC report?

- Direct science
- Clear examples
- Names and details
- Accessible authors

Social media

CHESAPEAKEBAY.NET

Small plastics are a big problem | Chesapeake Bay Program

Learn More

8,408 People Reached

982 Engagements

Boost Again

Boosted on Dec 13, 2019
By Joan Smedinghoff

Completed

People Reached **5.0K**

Link Clicks **509**

View Results

101

6 Comments 56 Shares

Our Scientific and Technical Advisory Committee reviewed 30 year's worth of water monitoring data to see where we are today and what it might mean for our future.

CHESAPEAKEBAY.NET

A look back at 30 years of water clarity | Chesapeake Bay Program

1,100 People Reached

122 Engagements

Boost Post

44

5 Comments 13 Shares