QUARTERLY PROGRESS MEETING – July 2020
Chesapeake Bay Program

Water Quality Standards Attainment & Monitoring Outcome

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Through the Chesapeake Bay Watershed Agreement*, the Chesapeake Bay Program has committed to…*

Goal: *Water Quality*

Outcome:

Continually improve the capacity to monitor and assess the effects of management actions being undertaken to implement the Bay TMDL and improve water quality. Use the monitoring results to report annually to the public on progress made in attaining established Bay water-quality standards and trends in reducing nutrients and sediment in the watershed.

How You Can Help

Overview:

- Traditional monitoring capacity is declining
- Analysis and synthesis are improving.

Help Needed:

Monitoring support:

- Maintain & enhance funding
- Prioritize State grant match funding investments
- Incorporate new data streams
- Update assessment methods

Jurisdictional involvement

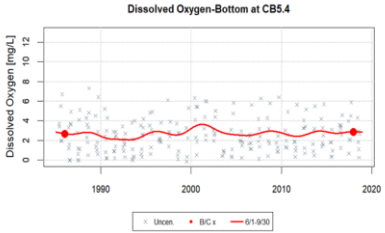
- CAP WG

Learn

What have we learned in the last two years?

Successes and Challenges

- New analysis tools
- Enhanced communications
- Implemented CBP's Strategic Science and Research Framework
- Advanced scientific syntheses completed
- Supported an MOU using Citizen Science -based data



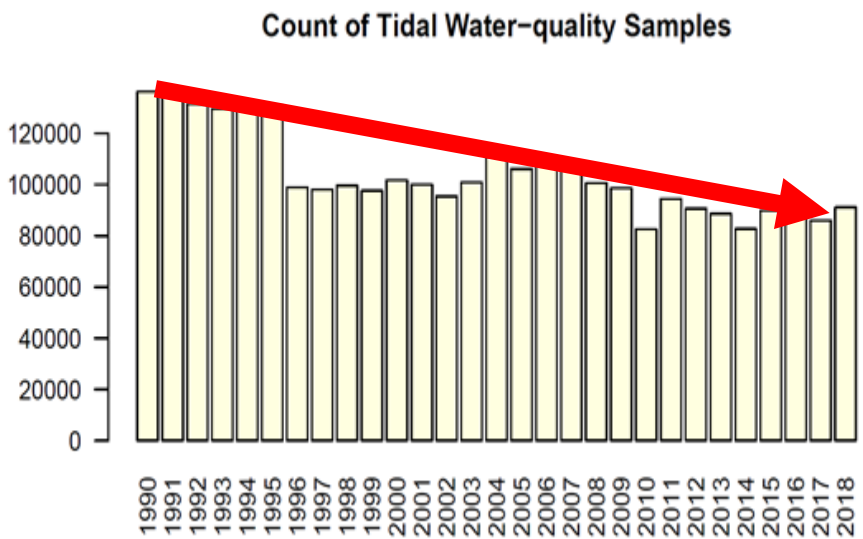
Successes and Challenges

- Unassessed criteria remain a hurdle for delisting decisions of State-adopted water quality standards with our existing framework
- Contraction of traditional long-term monitoring programming
- Limited non-traditional data use in assessments
- Needs for deeper explanation of water quality response to BMPs

= Inability to report on standard attainment

Designated Use	Dissolved oxygen Criteria Concentration/Duration		Temporal Application
Migratory fish spawning and nursery use	7-day mean ≥ 6 mg/L tidal habitats with 0-0.5ppt salinity		February 1 – May 31
	Instantaneous min ≥ 5 mg/L		
	Open water fish & shellfish designated use criteria apply		June 1 – January 31
Shallow water Bay grass use	Open water fish & shellfish designated use criteria apply		Year-round
Open water fish and shellfish use	30-day mean	≥ 5.5 mg/L Salinity: (0-0.5ppt)	Year-round
		≥ 5 mg/L Salinity: >0.5ppt	
	7-day mean	≥ 4 mg/L	
	Instantaneous min ≥ 3.2 mg/L		
Deep-water seasonal fish and shellfish use	30 day mean > 3mg/L		June 1 – September 30
	1-day mean >2.3 mg/L		
	Instantaneous min ≥1.7 mg/L		
	Open water Fish and shellfish designated use criteria apply		October 1-May 31
Deep channel seasonal refuge	Instantaneous min > 1 mg/L		June 1 – September 30
	Open water F & S applies		October 1 – May 31

What is our Expected and Actual Progress?

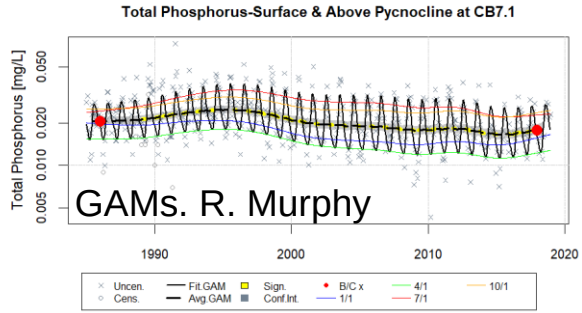


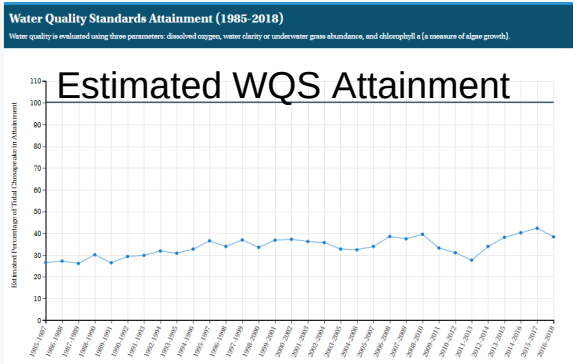
Monitoring Capacity: Good/Fair/Poor

- Capacity is highly stressed and declining
- Data collections remain "marginal" for the Bay criteria assessment, "adequate" for the watershed loads estimates

What is our Expected and Actual Progress?

Analysis: Good/Fair/Poor

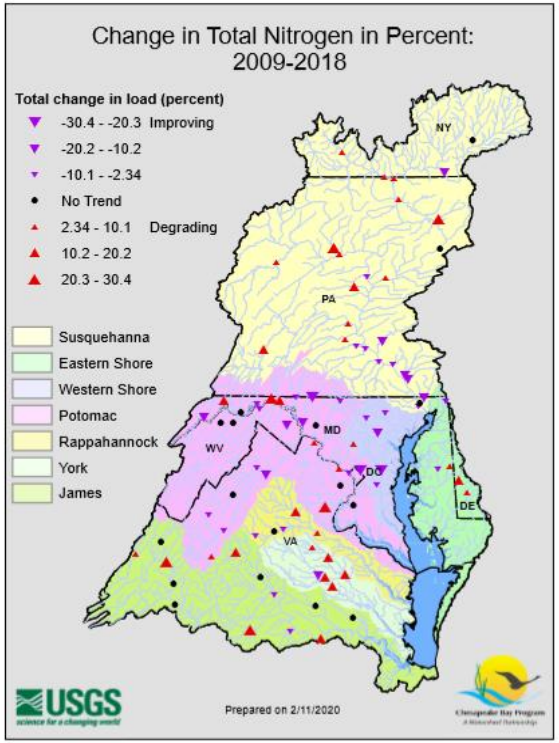


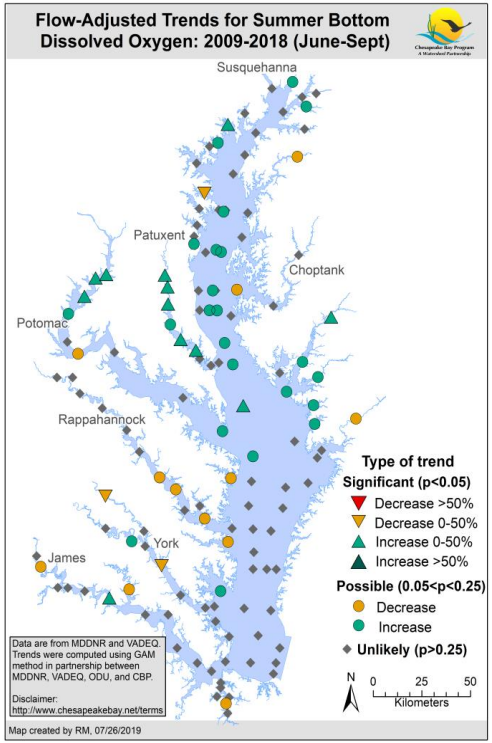


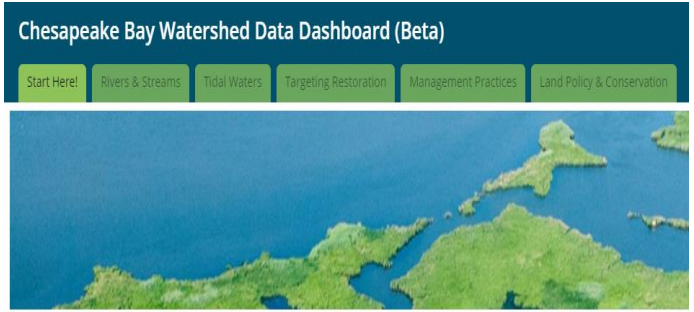
- Annual updates for status and trends
- Increased analysis supported the Mid-Point Assessment:
  *new tools, explanations and publications
- Continued focus on explaining effects of BMPs and stressors

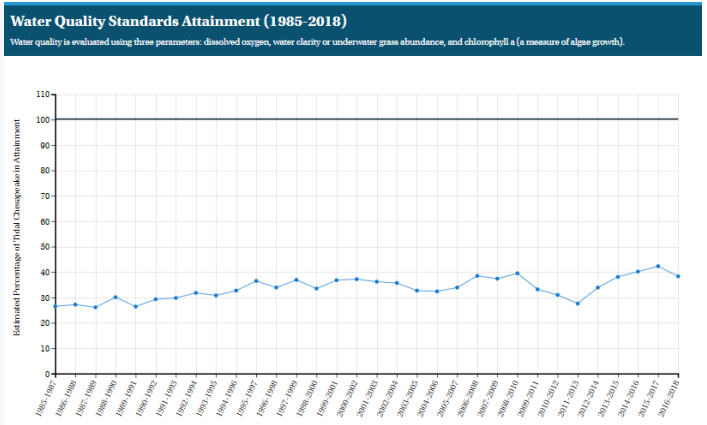
What is our Expected and Actual Progress?

Communication: Good/Fair/Poor









On the Horizon

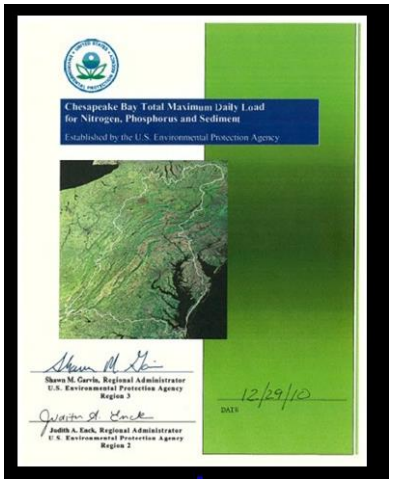
Fiscal:

- Our traditional monitoring program capacity is declining
  - *fixed and reduced funding levels
  - * State match considerations
  - * rising costs
  - * pandemic impacts
- Fewer data will cost your jurisdiction more money:
  - Less data produces greater uncertainty in assessments
  - Creating a big enough WQ response to overcome uncertainty costs more money.

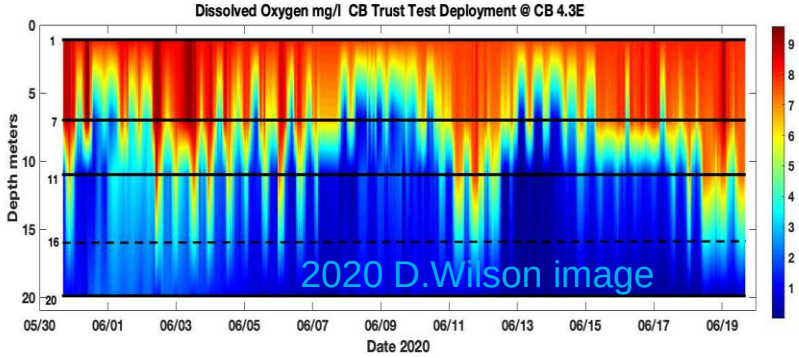
On the Horizon

Policy:

- Discussing EPA policy for allowable grant match
- Better informed targeting of BMP implementation for the Bay TMDL: 2-year milestones
- Preparing for 2025 communications: WQ standards are not coincidentally attained



On the Horizon



Science:

- Updating assessments, explaining patterns with new data and approaches
- Incorporating new tech, research recommendations and climate change impacts into our future monitoring plans
- Demonstrating use of citizen science data to fill gaps

D.Wilson image

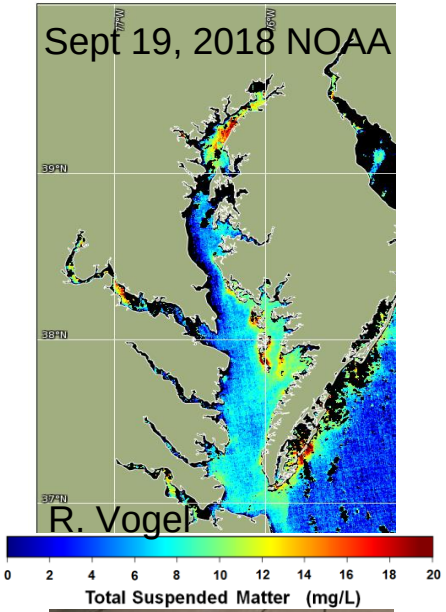
Adapt

How does all of this impact our work?

Based on what we learned, we plan to …

Fiscal:

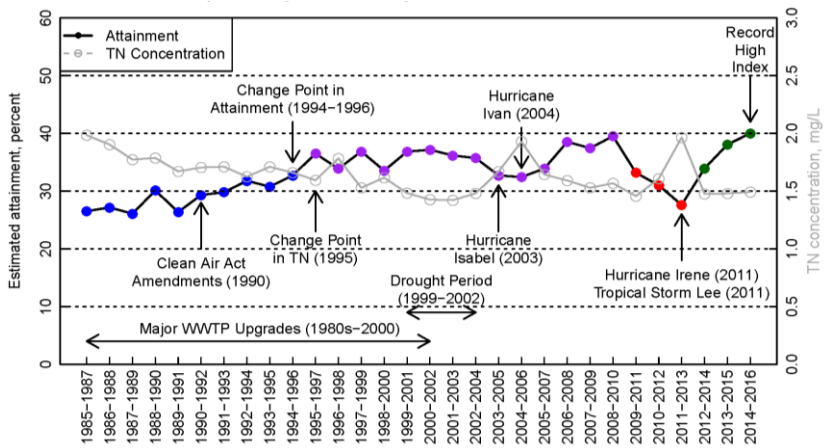
- Work with financial professionals for options with monitoring support
- Use new data from existing investments on citizen science to enhance assessments
- Consider reprogramming funding for better information return on investment



Based on what we learned, we plan to …

Policy:

- Expand presentations on explaining WQSA indicator and water quality patterns
- Increase jurisdiction use of results informing 2-year milestones
- Increase interaction through jurisdictional meetings
- Work on further engaging science provider partners

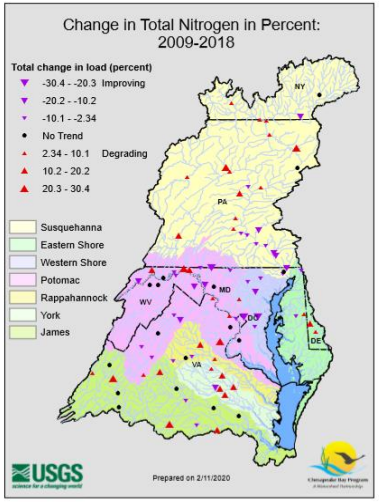


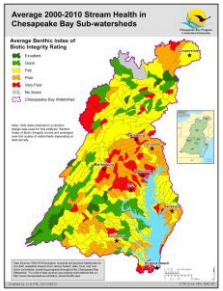
Zhang et al. 2018

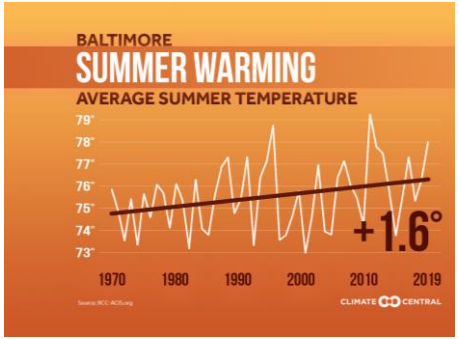
Based on what we learned, we plan to …

Science:

- Expand analysis collaboration with jurisdictional technical staff
- Further explore factors influencing patterns and trends
- Adopt freely available data streams
- Apply new tools to fill information gaps







Help

How can the Management Board lead the Program to adapt?

Help Needed

Monitoring Support:

- Maintain existing monitoring support
- Request the MB to commit to a future discussion on alternative financing strategies for the monitoring programs
- Commit to assessing application of matching funds in 117e grants. Adjust your match portfolio

Help Needed

Monitoring Support:

- Request WQGIT and STAR to formally incorporate new data streams (e.g. Citizen Science data) into WQS attainment assessments
- Request STAC and STAR to work with the Bay science and management community to extend monitoring capacity with monitoring program updates.

Help Needed

Jurisdictional Involvement: Maintain existing funding support

- Commit to providing a list of essential jurisdictional participants for the Criteria Assessment Protocol Workgroups
- Work with jurisdictions on making their jurisdictional technical staff available to help improve use of monitoring results to inform 2-year milestones

Discussion

Perspective

1834 Charleston, West Virginia enacts a law protecting vultures from hunters. The birds help eat the city's garbage.

1860s Residents of Washington, D.C., dump garbage and slop into alleys and streets, pigs roam freely, slaughterhouses spew nauseating fumes, and rats and cockroaches infest most dwellings including the White House.

1951 Low dissolved oxygen levels kill thousands of fish during the summer. The Washington Post calls the Potomac River “an open sewer.”

Policies a century in the making:

1965 The Solid Waste Disposal Act, the first federal solid waste management law, is enacted.

1970 The federal Clean Air Act enacted. New regulations lead to incineration shut downs.

1972 The federal Clean Water Act is enacted to restore and maintain the chemical, physical, and biological integrity of the nation's waters

USGS science for a changing world

Chesapeake Bay Program
A Watershed Partnership

Since 2003 we have not,
nor will we anytime soon,
assess all our water quality criteria
to evaluate standards for the TMDL

MANAGEMENT and POLICY OPTIONS

Update data collections
and analyses through
revised investments and programming

- Apply existing analyses to data with improved resolution in space and time
- Approve new data interpolation procedures
- Approve new methods of data interpretation

No new data
Sustain existing monitoring

- Update accepted analyses
- Use existing data with new rules of interpretation
- Revise the statements of the standards to simplify assessment and statement of protection

Since 2003 we have not,
nor will we anytime soon,
assess all our water quality criteria
to evaluate standards for the TMDL

MANAGEMENT and POLICY OPTIONS

Update data collections
and analyses through
revised investments and programming

Apply existing analyses using old and new data sources with improved resolution in space and time

Approve new interpolation procedures (e.g. approve application of a mechanistic model to interpret dissolved oxygen data)

Approve new methods of data interpretation (e.g., develop proxy relationships for satellite-based data for water clarity and chlorophyll e.g., AI-based SAV assessment)

No new data
Sustain existing monitoring

Update accepted analyses

Apply Umbrella Criteria tools (USEPA 2017)

Use existing data with new rules of interpretation (e.g. DO data Applied to assessing all criteria)

Revise the statements of the standards to simplify assessment and statement of protection