



Chesapeake Monitoring Cooperative: Overview

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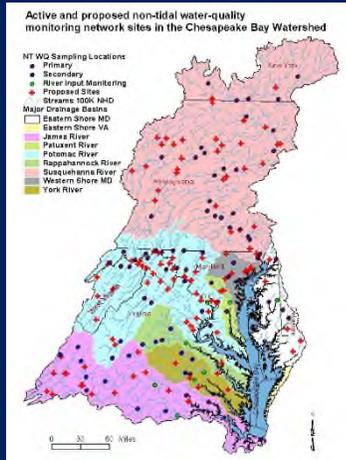
ptango@chesapeakebay.net

National Water Quality Monitoring Council Conference, Denver, CO

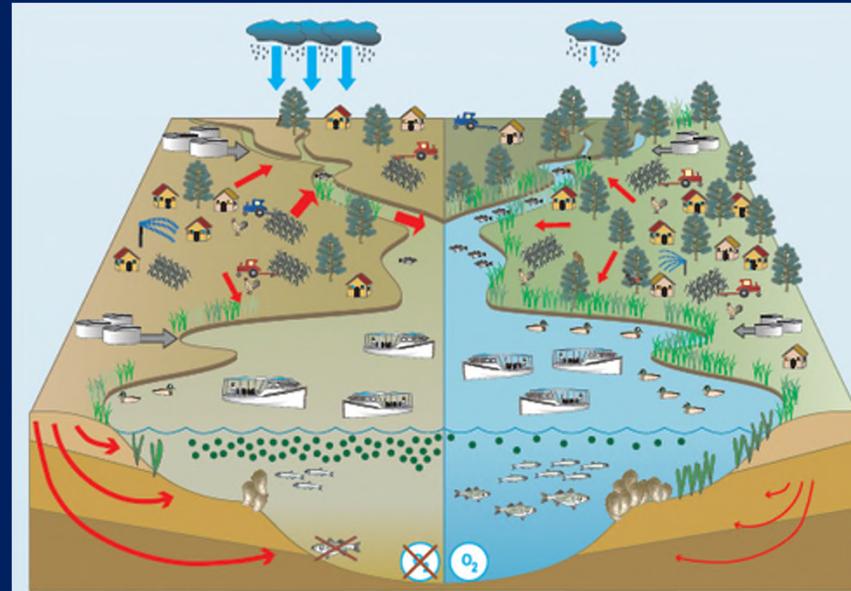
March 27, 2019

Background: Chesapeake Bay Program Monitoring Networks

1984-present



Watershed Monitoring



(Modified from Phillips, 2006)

Present

Future

Source IAN-Ecocheck

Assessing bay health status and trends



Bay Water Quality Monitoring



Shallow Water Habitat



Phytoplankton, Benthos Monitoring

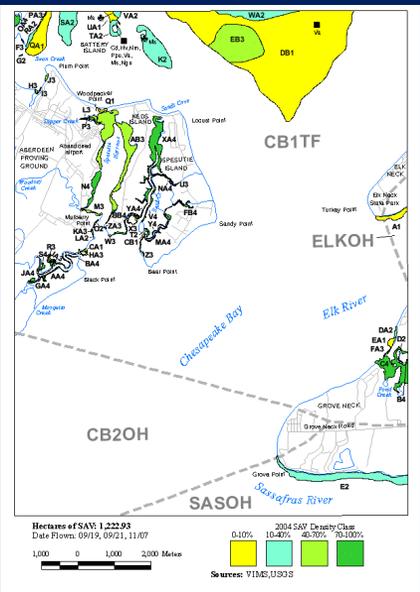
Data drive management and policy decisions. E.g. Submerged Aquatic Vegetation: Habitat Assessment and Restoration Targeting.



Resource status:
Aerial mapping SAV

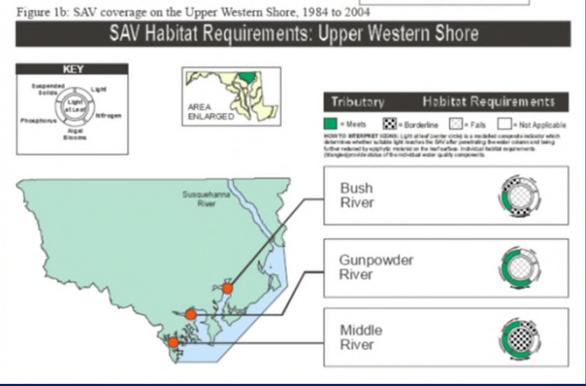
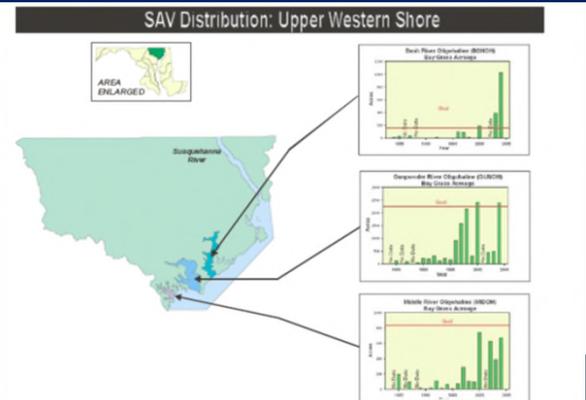


Field sampling -
species, density
assessments



Goal setting
GIS coverage
mapping of
SAV beds

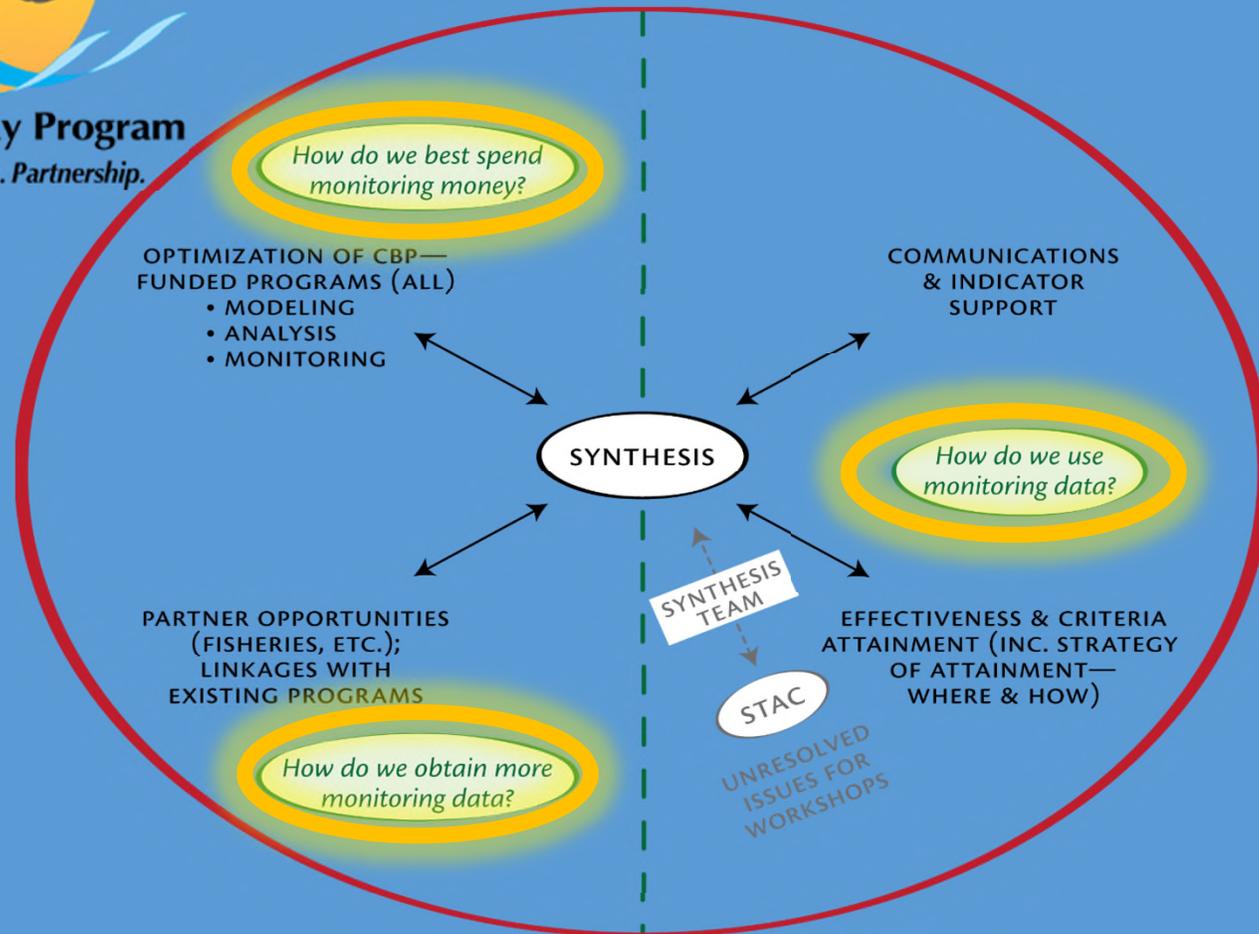
Outcome progress tracking:
SAV and Water Quality
Status and Trends



Restoration
targeting
site selection

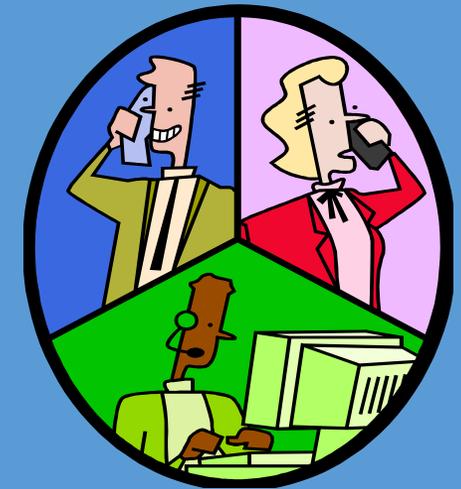


Program history: 2008-2010 Chesapeake Bay Program Monitoring Program Realignment process



Workshops
and Meetings

Weekly
Conference
Calls



Focused
Reports

2014 Chesapeake Watershed Agreement: 10 goals, 31 outcomes with progress tracking information needs



How do we obtain
more monitoring data?

New Partnering
Opportunities

How do we obtain more
monitoring data?





Gap analysis and What is our recovery progress?

Our capacity to Monitor

Watershed loads and trends: Adequate

Bay Water Quality Standards Attainment: Marginal

** World class monitoring programs may have gaps in their fundamental needs to obtain decision-support information.*

Capacity to Monitor
(USEPA 2003 scale):

1. Recommended
2. Adequate
3. Marginal



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Water quality outcome example:
Information gap analysis points to
monitoring information needs of the bay
and watershed scientists, managers and
policy-makers

Strategy for addressing information needs across the Chesapeake Bay watershed:

CMC Chesapeake Monitoring Cooperative

Citizen and Nontraditional Partner Monitoring
2015-present

ISSUES IN ECOLOGY

Published by the Ecological Society of America

Investing in Citizen Science Can Improve Natural Resource Management and Environmental Protection 2015

Duncan C. McKinley, Abraham J. Miller-Rushing, Heidi L. Ballard, Rick Bomers, Hannah Brown, Daniel M. Evans, Rebecca A. French, Julia K. Parrish, Tina B. Phillips, Sean F. Ryan, Lea A. Shanley, Jennifer L. Shirk, Kristine F. Stepaniak, Jake F. Weltzin, Andrea Wiggins, Owen D. Boyle, Russell D. Briggs, Stuart F. Chapin III, David A. Hewitt, Peter W. Preuss, and Michael A. Soukup



Environmental Protection Belongs to the Public

A Vision for Citizen Science at EPA

2016



Fall 2015

Information to Action

Strengthening EPA Citizen Science Partnerships for Environmental Protection

2018



National Advisory Council on Environmental Quality and Technology (NACEP)
December 2016

National Advisory Council on Environmental Quality and Technology (NACEP)
April 2018

EPA-220-R-18-021

Chesapeake Monitoring Cooperative

A partnership that aims to provide **technical, logistical, and outreach support** for the integration of volunteer-based and nontraditional water quality and benthic macroinvertebrate monitoring data into the Chesapeake Bay Program (CBP) partnership.

Cooperative Agreement

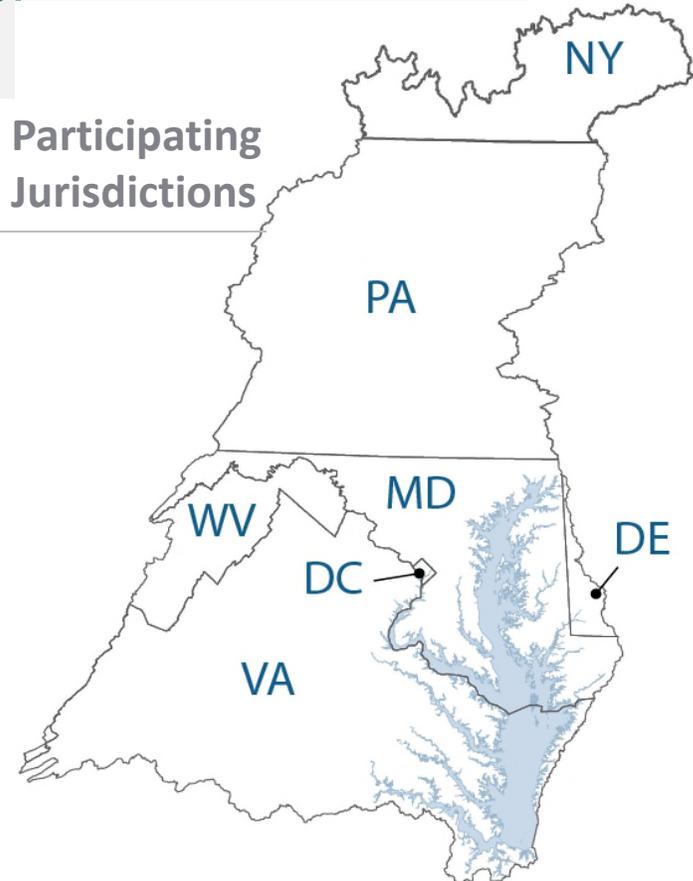


CMC development team partners & service providers



University of Maryland
CENTER FOR ENVIRONMENTAL SCIENCE

Participating Jurisdictions



The 2019 CMC Team



Liz Chudoba (ACB)
Project Manager



Emily Bialowas (IWLA)
Project Coordinator



Nissa Dean (ACB)



Samantha Briggs (IWLA)



Julie Vastine (ALLARM)



Helen Schlimm (ALLARM)



Caroline Donovan (UMCES)



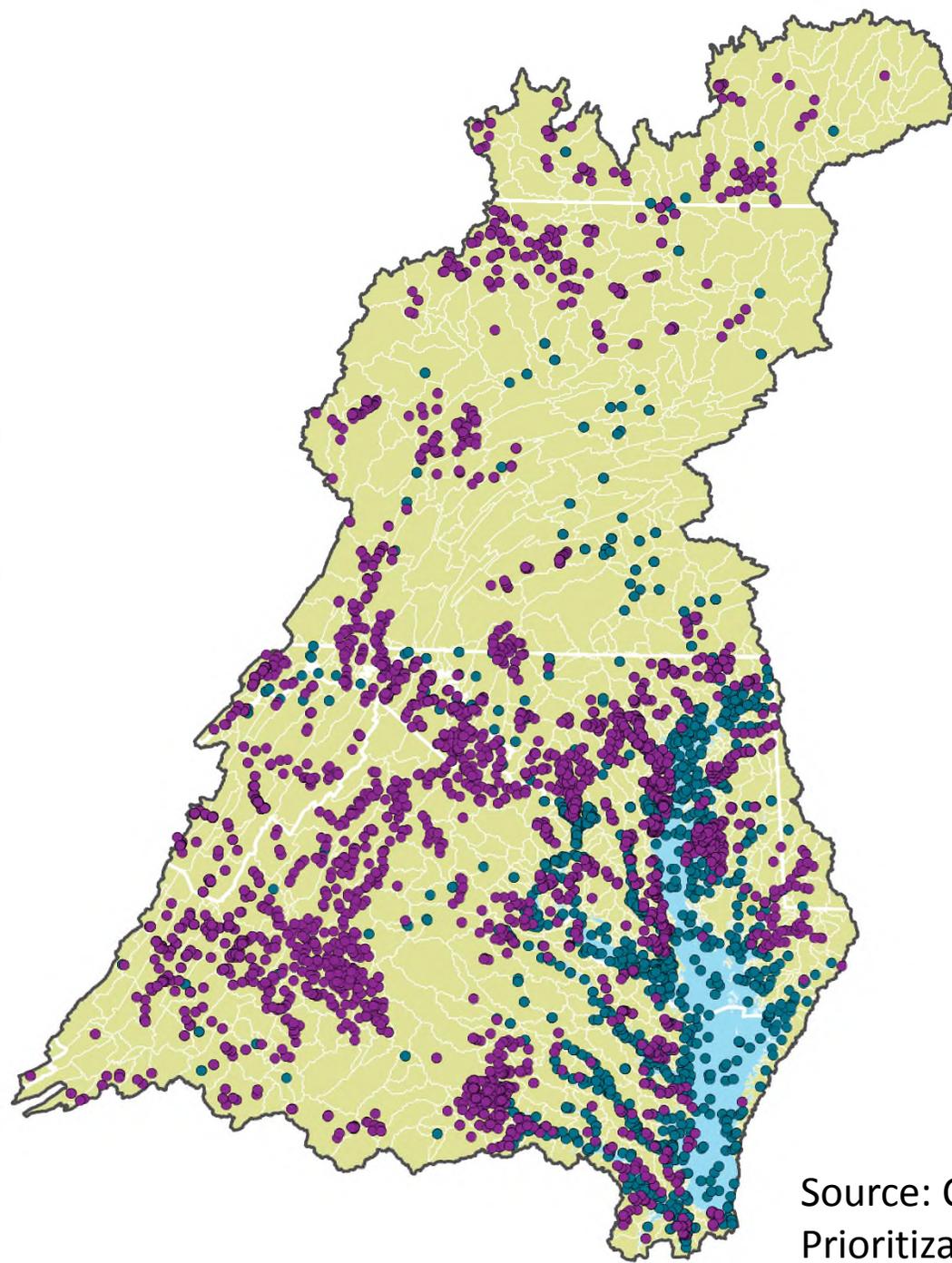
Alex Fries (UMCES)

New data opportunities!
Preliminary site coordinates of
nontraditional (aka volunteer)
monitoring.

Traditional Sites

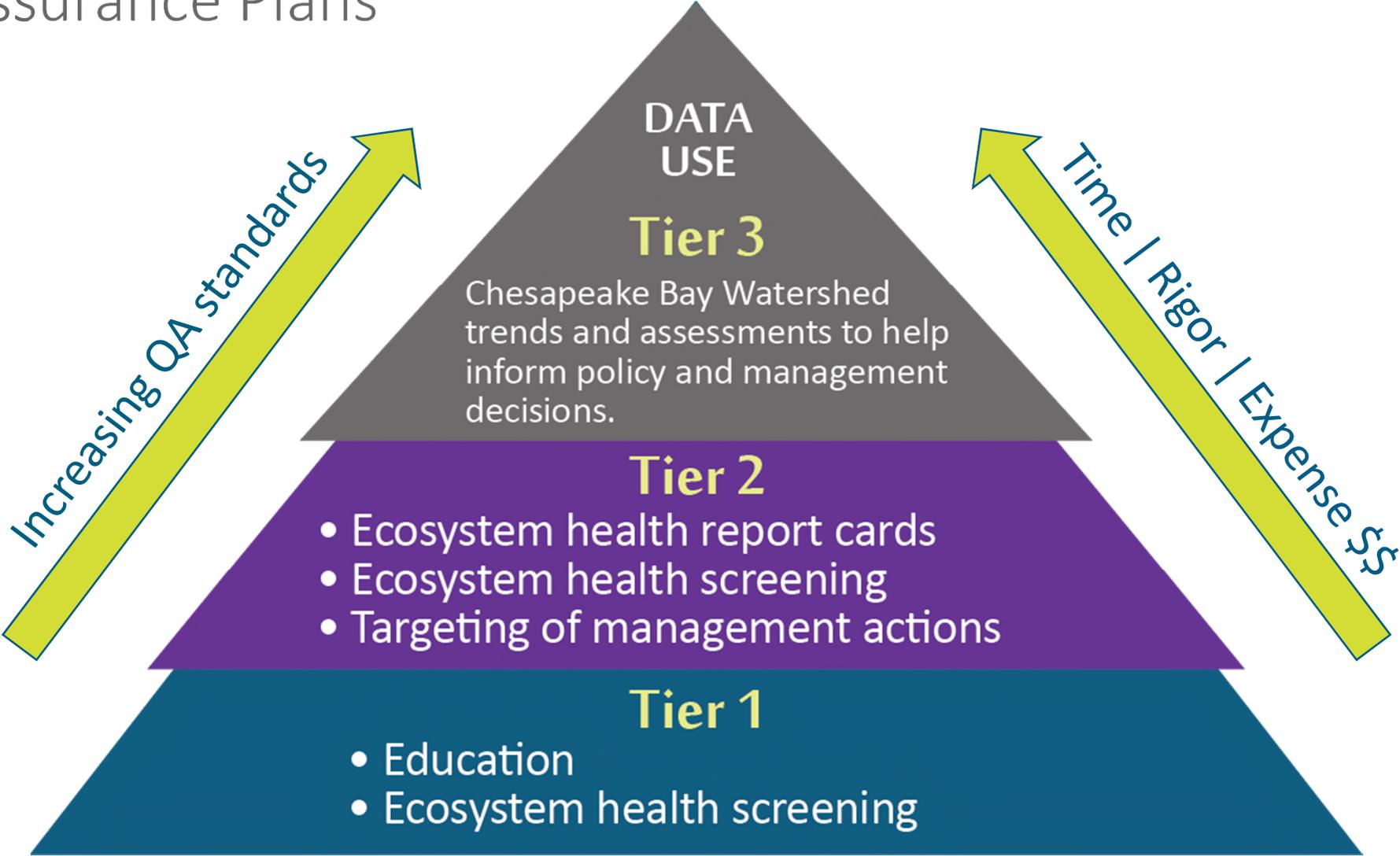


Nontraditional Sites

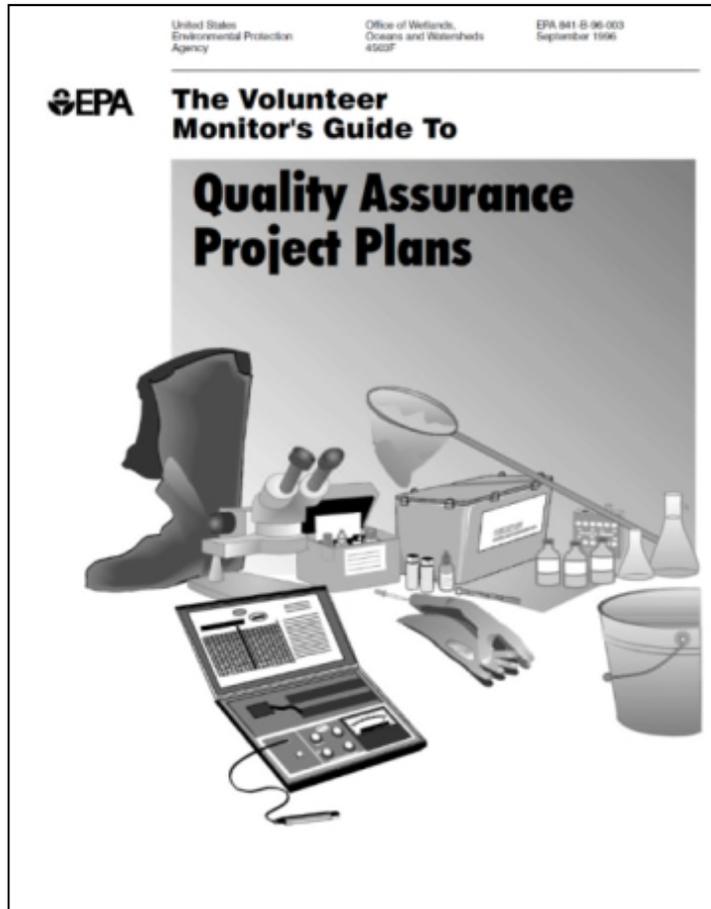


Source: CMC 2016
Prioritization Report

CMC: Guiding volunteers collecting data of known quality supported by Quality Assurance Plans



Quality Assurance Project Plans



Water Quality Monitoring:

Tidal streams (Tier 1 & 2)

Nontidal streams (Tier 1 & 2)

Benthic Macroinvertebrate Monitoring:

Nontidal wadable streams (Tier 1 & 2)

Approved by USEPA



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Additional monitoring guidance available: User-friendly Method Manuals

TIDAL METHODS MANUAL

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NON-TIDAL METHODS MANUAL

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NONTIDAL BENTHIC MACROINVERTEBRATE METHODS MANUAL

LOWER WATERSHED

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Chesapeake Data Explorer: A central database for Chesapeake volunteer monitoring data

Mapping!

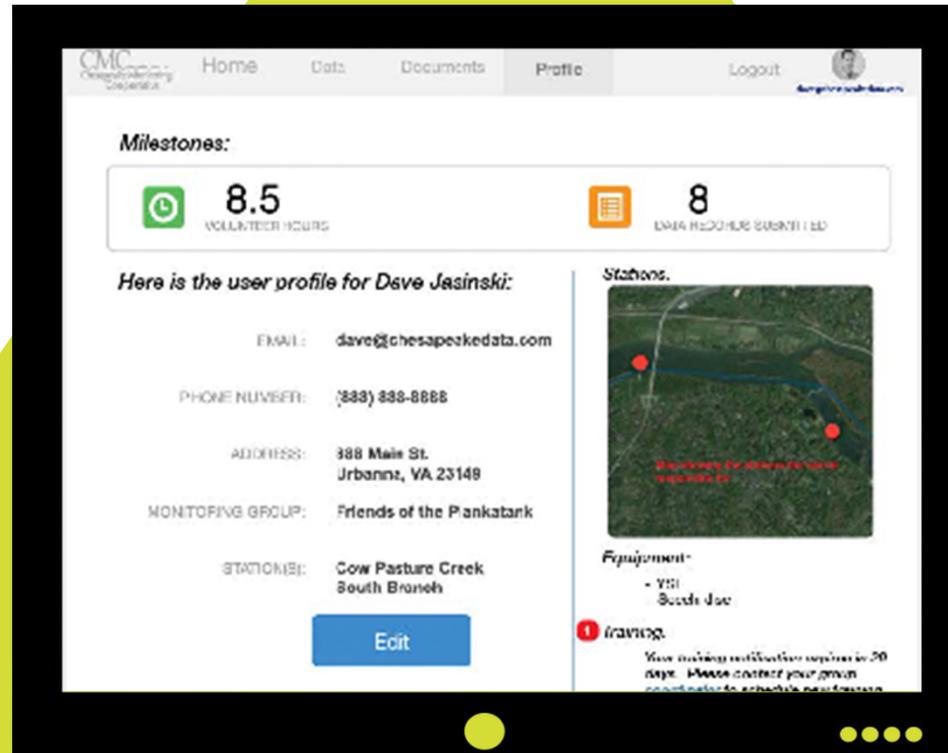
Graphing!

Data Management!

Trends!

Data Sharing!

Data Download!



Monitoring Data & Metadata



Data & Metadata Upload to Chesapeake Data Explorer



Data Access & Viewing on Chesapeake Data Explorer



Data & Metadata Transfer to Chesapeake Bay Program



Data & Metadata Transfer to EPA WQX

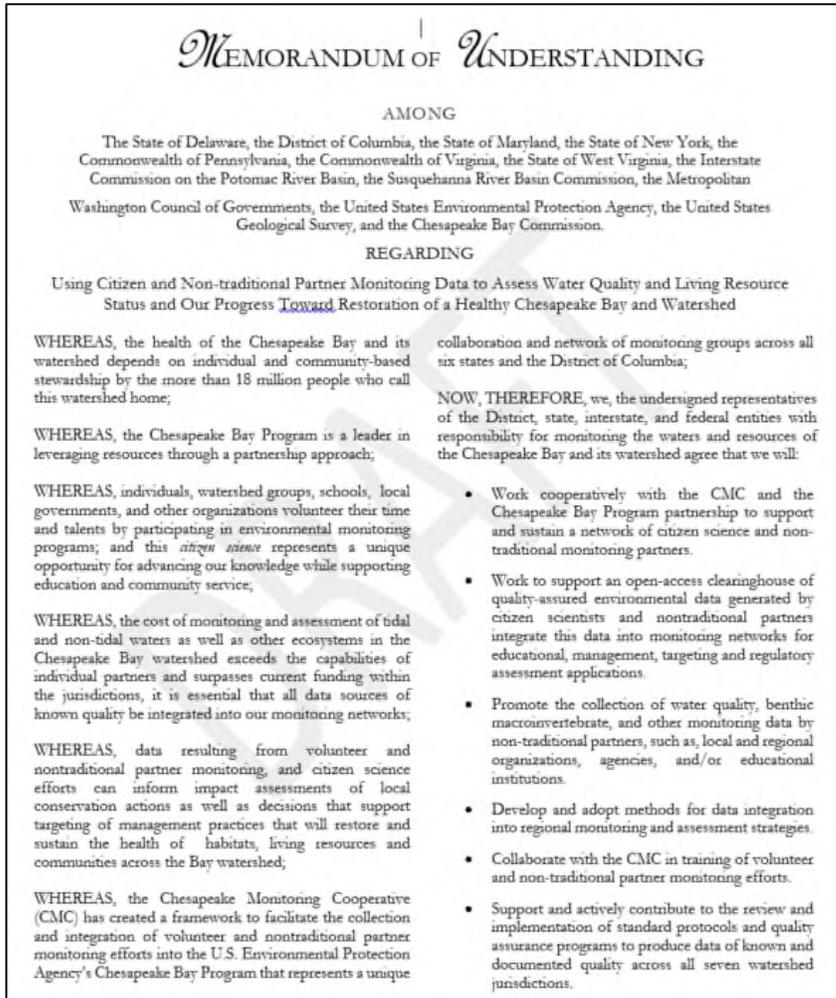
Data to Decision Workshops

Objectives

- Share knowledge of information and information needs between groups.
- Share an understanding of the purpose of different levels of data quality.
- Learn how you might integrate your data into local, state or federal agency field assessments and databases.
- Meet groups and individuals that can provide technical assistance.



Memorandum of Understanding

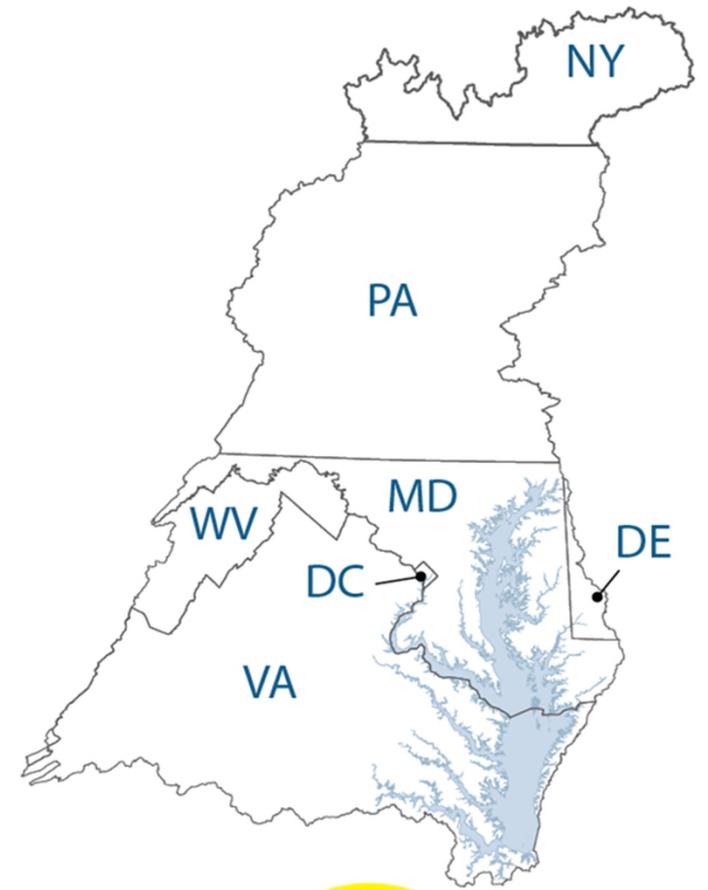


Goal

- Use of data of known quality

Tools

- Tiered framework
- Standardized QAPPs and monitoring protocols
- Training



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Leadership endorsed (2018)!



Emily



Caroline



Helen

The rest of the CMC story today

- Emily Bialowas, Building Blocks for Chesapeake Bay Monitoring Cooperative
- Helen Schlimm, Establishing Essential Building Blocks to Inform Data Integration & New Monitoring throughout the Chesapeake Bay
- Caroline Donovan, Chesapeake Monitoring Cooperative's resources are available to everyone!

Acknowledgements

Cooperative Agreement

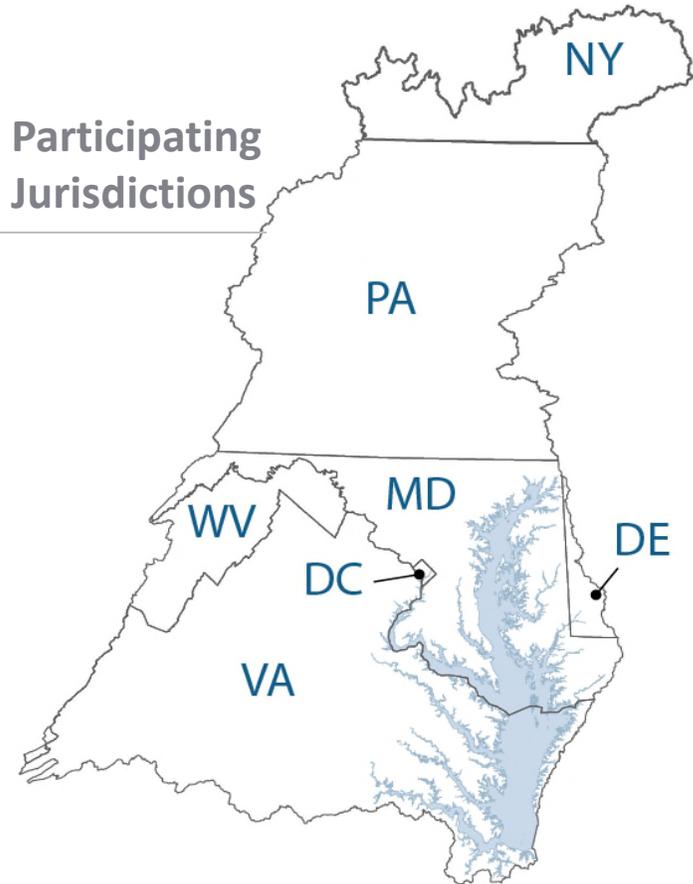


CMC development team partners & service providers



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Participating Jurisdictions



Technical Support Resources

- Quality Assurance Project Plans – Tier 1 & 2
- Standard Operating Procedures (SOPs) – Tier 1 & 2
- User-friendly Methods Manuals
- Indicator Fact Sheets
- Prioritization Report: How volunteer and nontraditional monitoring can help fill data gaps in the Chesapeake Bay Watershed



2014 Chesapeake Watershed Agreement

Goals and Outcomes



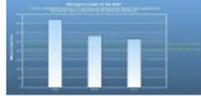
Sustainable Fisheries

- Blue Crab Abundance
- Blue Crab Management
- Oyster
- Forage Fish
- Fish Habitat



Vital Habitats Goal

- Wetlands
- Black Duck
- Stream Health
- Brook Trout
- Fish Passage
- Submerged Aquatic Vegetation (SAV)
- Forest Buffer
- Tree Canopy



Water Quality Goal

- 2017 Watershed Implementation Plans (WIP)
- 2025 WIP
- Water Quality Standards
- Attainment and Monitoring



Toxic Contaminants Goal

- Toxic Contaminants Research
- Toxic Contaminants Policy and Prevention



Healthy Watersheds Goal

- Healthy Waters



Stewardship Goal

- Citizen Stewardship
- Local Leadership
- Diversity



Land Conservation Goal

- Protected Lands
- Land Use Methods and Metrics Development
- Land Use Options Evaluation



Public Access Goal

- Public Access Site Development



Environmental Literacy Goal

- Student
- Sustainable Schools
- Environmental Literacy Planning



Climate Resiliency Goal

- Monitoring and Assessment
- Adaptation Outcome

Links with data needs