



SCIENCE PRIORITIES OF THE GOAL IMPLEMENTATION TEAMS AND WORKGROUPS

Management Board Call

February 11, 2016

Scientific, Technical Assessment and Reporting Team

Presenters: Scott Phillips & Mindy Ehrich

SCIENCE NEEDS GATHERED

- DECISION FRAMEWORK
- SCIENCE NEEDS & GAPS Identified
- GITs PRIORITIZED
- MANY UNMET SCIENCE NEEDS
- NEXT STEPS
 - STAR working to expand science providers
 - MB update and opportunities
 - Focus on monitoring needs today

ADAPTIVE MANAGEMENT FOR THE CHESAPEAKE BAY PROGRAM

(CBP, 2011)



Note: Climate Workgroup needs are NOT incorporated.

CHESAPEAKE SCIENCE SUPPORT

GOAL IMPLEMENTATION TEAMS: SCIENCE NEEDS

FISHERIES

HABITAT

WATER
QUALITY

HEALTHY
WATERSHEDS

STEWARDSHIP

LEADERSHIP

STAC: Science Advisors

- GUIDANCE
- REVIEW
- ADVICE ON PROVIDERS

STAR: Science Coordination

- MONITORING
- DATA INTEGRITY
- STATUS AND TRENDS
- EXPLAIN AND PREDICT CHANGE
- MODELING
- CLIMATE CHANGE
- INFORMATION AND GIS SUPPORT
- SYNTHESIZE AND INFORM

Science Providers

CBP OFFICE

FEDERAL

STATE

LOCAL

ACADEMIC

NGOs

OUTLINE AND MB DISCUSSION ITEMS

- Status of Indicators & Monitoring for Outcomes
- High Priority Science Needs of Goal Teams
- MB Discussion:
 - Are there efforts within your agency (or others within your jurisdiction) that can help meet science needs?
 - Who are the best contacts?
 - Who in your agency can become involved in the STAR WGs to address needs?
 - Integrated Monitoring WG and Status and Trends WG
 - What other approaches should be considered to meet these additional needs?

OVERVIEW: OUTCOMES WITH ESTABLISHED INDICATORS & MONITORING PROGRAMS

Resources:

- Blue Crab Abundance and Blue Crab Management
- Fish Passage
- Submerged Aquatic Vegetation (SAV)
- Protected Lands
- 2017 and 2025 Watershed Implementation Plans (WIPs)
- Water Quality Standards Attainment and Monitoring

Outreach:

- Public Access

Science Needs Still Exist

OVERVIEW: OUTCOMES WITH INDICATORS & MONITORING PLANS **UNDER DEVELOPMENT**

Resources:

- Oyster
- Forage Fish
- Brook Trout
- Stream Health
- Wetlands
- Black Duck
- Forest Buffer
- Tree Canopy
- Healthy Watersheds
- Toxic Contaminants Policy and Prevention

Outreach:

- Citizen Stewardship
- Student
- Sustainable Schools
- Environmental Literacy

*Status of Indicator Development or
Monitoring Plans Vary
→ Assistance Needed Varies*

OVERVIEW: OUTCOMES **WITHOUT** INDICATORS

Resources:

- Fish Habitat

Outreach:

- Local Leadership
- Diversity

*No Indicators of Progress
Currently*

The Others:

- Land Use Methods and Metrics Development
- Land Use Options Evaluation
- Climate Monitoring and Assessment
- Climate Adaptation
- Toxic Contaminants Research

"Plans for Plans"

HIGH PRIORITY NEEDS

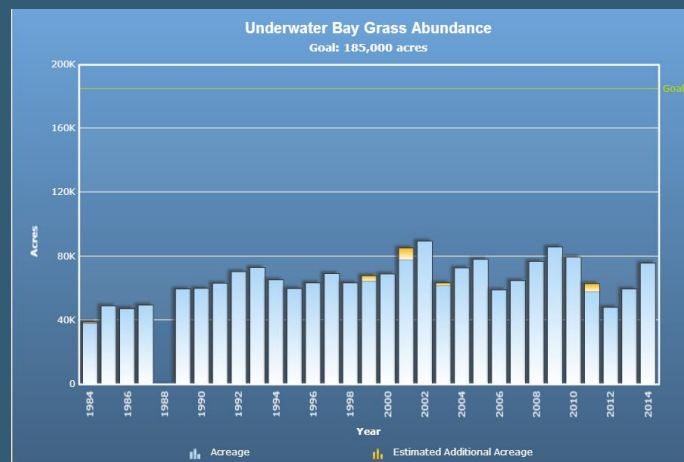


Types of Needs

Indicator Support - Technical Guidance

Monitoring Support - Getting Additional Data

Research - Improved Understanding



INDICATOR SUPPORT: FISHERIES

Oysters

Identification of a specific reporting indicator.

Discussions occurring between STAR and Bruce Vogt.



Fish Habitat

INDICATOR that captures sub-tidal, nearshore, intertidal, non-tidal warm, cold and upstream waters, and tidal areas .

INDICATOR SUPPORT: HABITAT

Brook Trout

Translation of sampling data into an indicator depicting progress toward the 8% increase in occupied patch area.

TetraTech doing some work with this, but expertise needed to weigh in.

Stream Health

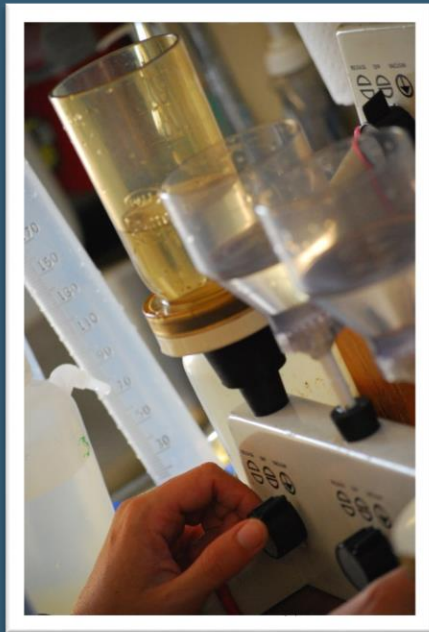
1. Besides the Chessie BIBI, what stream qualities should be a part of the indicator and how so?
2. Support to gather data and determine the Chessie BIBI scores to report progress in future years

Black Duck

Guidance with using the habitat prioritization map (to be refined by Spring 2016) to develop a habitat-based indicator.



INDICATOR SUPPORT: WATER QUALITY



Water Quality

Identification of main indicators of for TMDL and water-quality standards (numerous metrics exist currently).

Discussions occurring.

Toxic Contaminants

More expertise needed for the following:

PCB Strategy

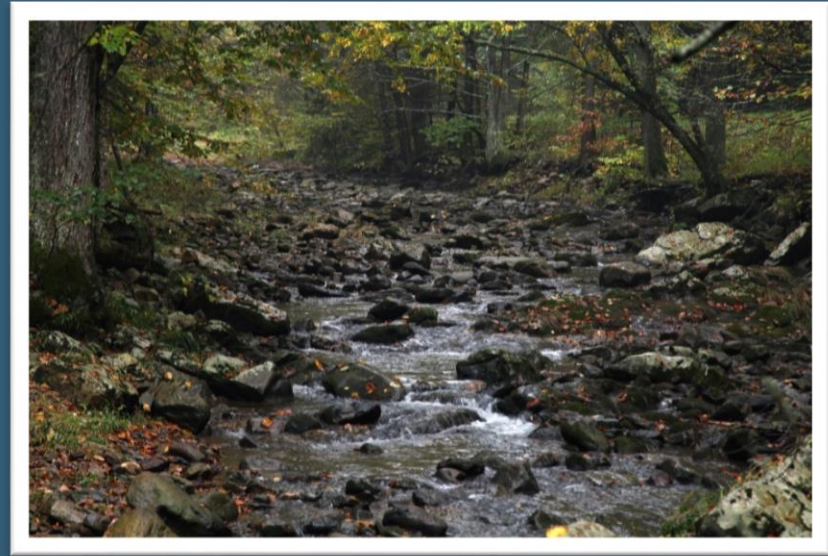
1. Map of impaired areas for PCBs, TMDL locations, where TMDLs are being developed
2. Fish tissue concentrations Bay-wide
3. Fish advisory mapping
4. Sources and loading calculations

Research Strategy

INDICATOR SUPPORT: HEALTHY WATERSHEDS

Formation of a cross-GIT tracking workgroup to assist with tracking health of the state-identified healthy watersheds in future as well as other GIT needs.

STAR to help gather this workgroup together.



INDICATOR SUPPORT: STEWARDSHIP AND LOCAL LEADERSHIP

Environmental Literacy

1. Continued analysis of the ELIT survey results (Medium).
2. Identification of the metrics and indicators to use from the survey.
3. Mapping and visualization of the results.



Continuation of TetraTech funding and working with STAR.

Local Leadership Baseline

Best way to use funding to establish a baseline.



STAR/STAC to be brought into the conversation.

MONITORING: FISHERIES



Oysters

Monitoring or funding to monitor restoration sites post-construction.

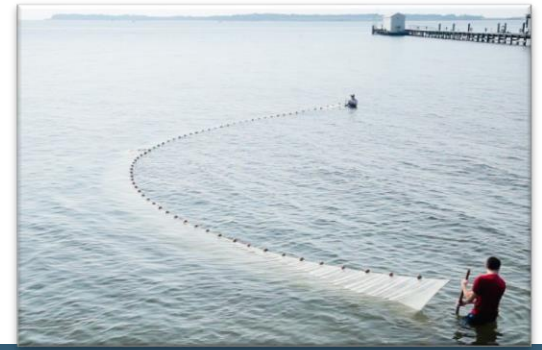
Fisheries: Blue Crab / Forage Fish / Fish Habitat

Shallow water fish surveying.

Blue Crab

1. Funding for stock assessment.
2. Funding to continue gear efficiency study between MD and VA surveys.

MONITORING: FISHERIES



Forage Fish

1. Increased sampling and monitoring of forage fish in all their habitats.
2. Zooplankton & phytoplankton monitoring.

Fish Habitat

Measuring fish in actual habitat areas, especially the identified species of interest in the 5 habitat classifications and understanding how they interact and depend on these environments.

MONITORING: HABITAT

Wetlands

Funding to improve mapping of tidal and non-tidal wetlands.

- There is a pending proposal from PA to work with Upper Susquehanna Coalition to conduct a Derived Supplement to NWI for PA by September 2016.

SAV

Continued funding for aerial surveys.

Brook Trout

Continued funding for brook trout monitoring (summer of 2016 and beyond).



MONITORING: STEWARDSHIP

Citizen Stewardship

OpinionWorks assisting with developing a stewardship index baseline with a survey

but....funding needed for...

1. Increased Baseline Monitoring -> Additional funds for full baseline measurement with statistical significance for each jurisdiction.
2. Future Assessment -> Funding for repeat surveying in the future (every few years).



RESEARCH NEEDS



Blue Crabs

1. Better characterize recreational harvest or funding to continue.
2. Integrating summer trawl data into population assessment and understanding the life of a crab from the winter dredge survey to full grown (account for losses and changes between surveys).

Fish Habitat

Understand habitat requirements of fish and how habitat conditions affect productivity, health, and function.

RESEARCH NEEDS



Land Use Methods and Metrics

Need: Approaches for IMPACT of conversion on water quality, healthy watersheds and communities.

Land Use Options

1. Review/study to determine the range of policy options and tools
2. Create an online repository of the study results

Toxic Contaminants

How can we integrate toxic contaminant reductions through multi-benefits of BMPs for TMDL?

Water Quality: MPA (enhance models and explain trends)

SOME IDEAS AND NEXT STEPS



Short-term:

- STAC workshops on:
 - Aligning resources
 - Expanding monitoring needs
- Existing efforts
- Approach to set priorities
- Expand STAR WG capacity

Longer-term:

- Collaborate with new partners
- Future STAC workshops to address needs
- Incentives and funding to build science capacity

MOST CHALLENGING MONITORING NEEDS TO FILL

New Monitoring Needed:

- Fish surveying in shallows and of forage fish
- Oyster reef monitoring in future

Continuation of Monitoring:

Sustaining long-term efforts:

- Crab stock assessment
- SAV aerial survey

Building upon recent efforts:

- Brook trout (have 1 year of data)
- Stewardship Index

Improvements:

- Wetland mapping



MB DISCUSSION

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