Tiered Framework for Data Integration

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Integrated Monitoring Networks Meeting

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ALLARM
Alliance for Aquatic Resource Monitoring
est. 1986

Dickinson

Agenda

- Introduction to Tiered Framework

- Framework Tiers with examples

- Tier 2 Discussion

Project Partners

2015-2020 Timeline

2015
- Inventory monitoring groups and identify data gaps and needs
- Develop tiered framework for data integrations into CBP network

2016
- Develop protocols for monitoring methods and data reporting
- Develop user-friendly database and data entry tools
- Research and develop data-based indictors and metrics
- Develop training materials and conduct training targeted at priority areas

2017
- Develop online toolkit for monitoring groups
- Conduct training targeted to priority areas
- Provide training on data analysis, synthesis, and communication

2018 – 2020
- Conduct training targeted to priority areas
- Provide training on data analysis, synthesis, and communication

Framework Introduction

- Why a tiered approach?
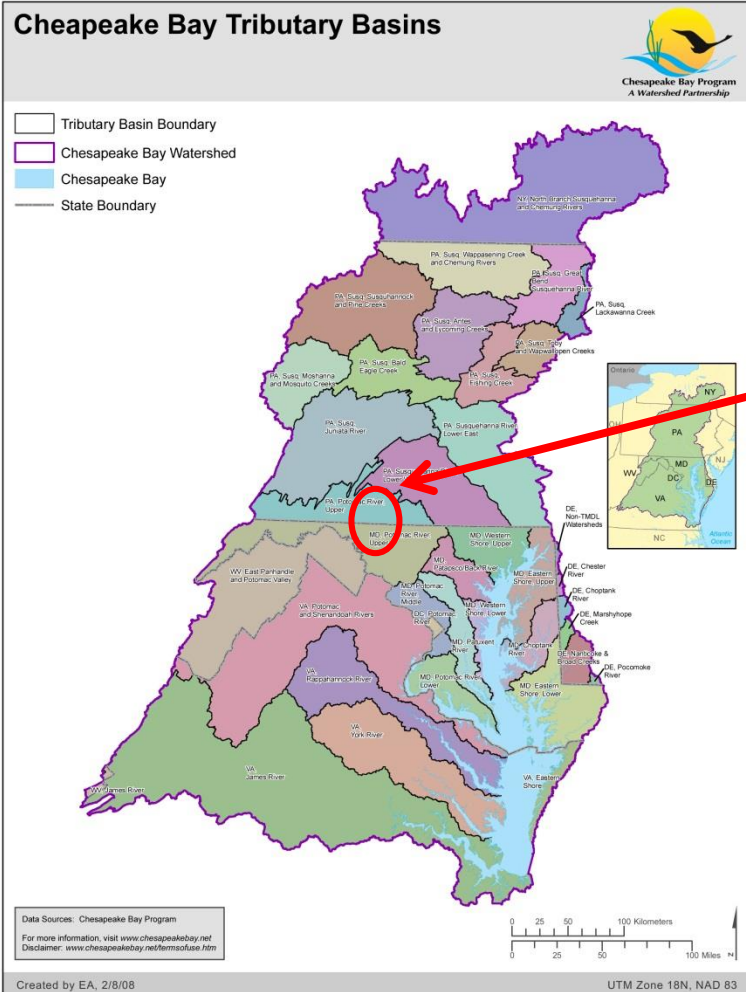
- Look to states for models of data integration.

Framework

TIERS	Intended Data Use
TIER 1	Education, Environmental Health Screening
TIER 2	Environmental Health Report Cards, Environmental Health Screening, Targeting of Management Actions
TIER 3	Regulatory Assessments of Water Quality Standards Attainment

Hidden Tier Zero – there are data requirements that must be met to be included in this project.

Tier 1 – Education & Environmental Health Screening

Definition	Data do not meet Tier 2 or 3 but are of known quality and can contribute to understanding
Data Uses	- Provide location information on where monitoring is taking place; - Provide on-the ground information for future site development; - Indicate potential pollution hot spots; - Prioritize sites for follow-up monitoring; - Target restoration projects; - Inform sub watershed report cards; and - Highlight local, community projects that are implemented to improve the health of the Bay watershed.
Data Requirements	Clearly documented monitoring methodology, site locations, and written study designs (which document basic QA/QC measures).

Tier 1 Example – Antietam Watershed Association

Cheapeake Bay Tributary Basins

http://www.cbf.org/image/area---about-the-bay/maps/tributarybasinscbp_199062400x3150.jpg

- PA Antietam Group
- Developed study design in 2004, started monitoring 2005
- East Branch – Stormwater
- West Branch – agriculture
- Washington Township opportunity

AWA – Zoning Success Story

- 3 Large Farms sold in 2006

- AWA used their data to illustrate the need for a riparian buffer, proposed a successful ordinance.

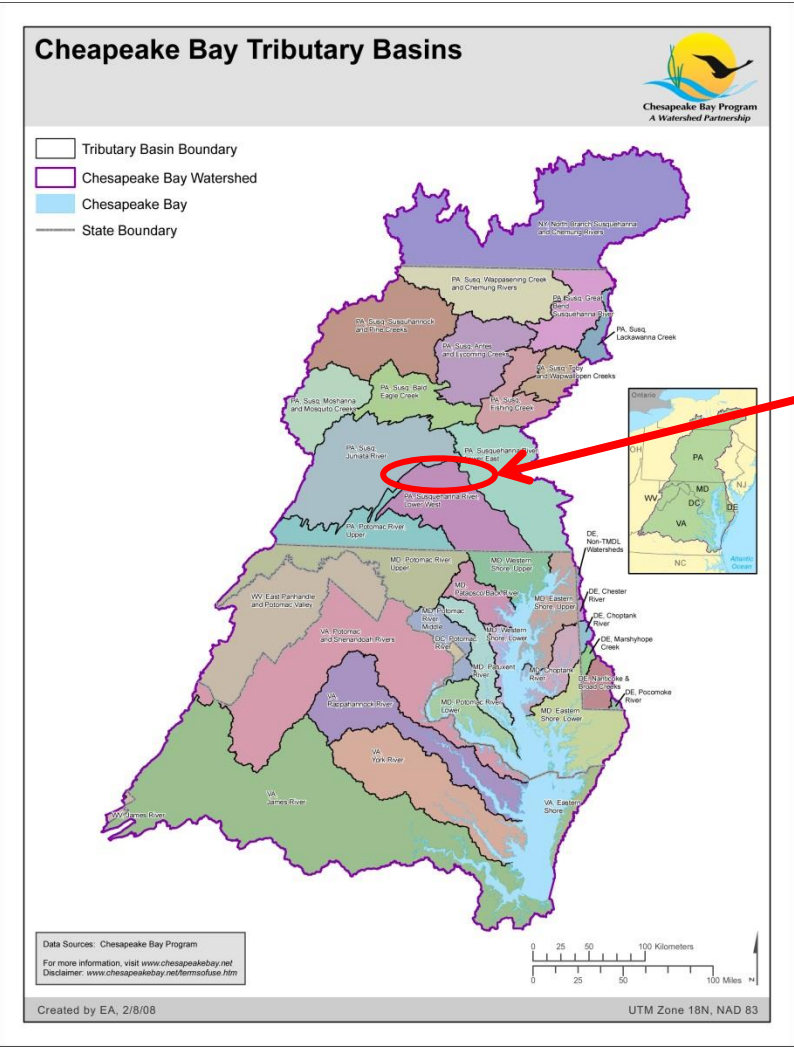- Collaborated with CBF on tree plantings.

Picture from data interpretation workshop

Tier 2 – Report Cards, Screening, Targeting of Management Actions

Definition	Data have clearly defined and approved methodology (using EPA Volunteer Monitoring QAPP guidelines) but don't meet Tier 3.
Data Uses	- Be used for Bay Program report cards; - Be used to help target stream segments for water quality standards attainment assessments and Clean Water Act 305(b) reports; - Be used for screening for Clean Water Act 303(d) stream segments; - Target new priority agency sites; - Track the performance of Total Maximum Daily Load (TMDL) implementation projects; and - Be used for all uses identified in Tier 1.
Data Requirements	At minimum, has an approved EPA Volunteer Monitoring QAPP.

Tier 2 Example – Shermans Creek Conservation Association

Cheapeake Bay Tributary Basins

http://www.cbf.org/image/area---about-the-bay/maps/tributarybasinscbp_199062400x3150.jpg

- Shermans Creek Conservation Assoc.
- Developed study design in 1999
- Watershed – heavily agriculture
- 3 Data Interpretation Workshops

SCCA – Success Stories

- Submitted a stream upgrade petition based on data

- Data used for Rivers Conservation Plan

Southern Perry County Watershed Conservation Plan

Shermans Creek

Draft 5-12-08

Tier 3 - Attainment

Definition	Tier 3 data are regulatory, decision-making, legally defensible data.
Data Uses	• Attainment purposes, Clean Water Act 305 (b) reports, Clean Water Act 303 (d) listing and delisting; and • All uses identified in Tier 1 and Tier 2.
Data Requirements	United States Environmental Protection Agency (EPA) or CBP approved QAPP and field/lab standard operating procedures.

Tier 3 – Examples

- Smaller percentage of non-traditional programs

- Volunteers collect samples for certified lab analysis

- Those data used by the states

Non-Traditional Data Producers

- Watershed Inventory (PA example):
  - County Conservation Districts, Parks, Education Centers (15%)
  - Academic institutions (5%)
  - Water Authorities (15%)
  - Communities (65%)
    - Watershed Associations
    - Trout Unlimited chapters
    - Senior Environmental Corps

Types of data collected

- Water quality/chemistry

- Biological – macroinvertebrates and submerged aquatic vegetation

- Physical – habitat and stream bank assessments

Questions

- What is the health of the Chesapeake Bay and the watershed?
  - What is the effectiveness of management actions?
  - What are the relationships in space and time between watershed health and bay health?
  - What are the effects of emerging contaminants and climate change on the status and recovery of bay and watershed health?
  - Where should natural resource managers prioritize restoration efforts?
  - How does the inclusion of citizen science data change individual behaviors and increase environmental stewardship?

Potential Data Uses

- Bay Program report cards;

- Help target stream segments for water quality standards attainment assessments and Clean Water Act 305(b) reports;

- Screening for Clean Water Act 303(d) stream segments;

- Target new priority monitoring sites;

- Track the performance of Total Maximum Daily Load (TMDL) implementation projects; and

- Be used for all uses identified in Tier 1.
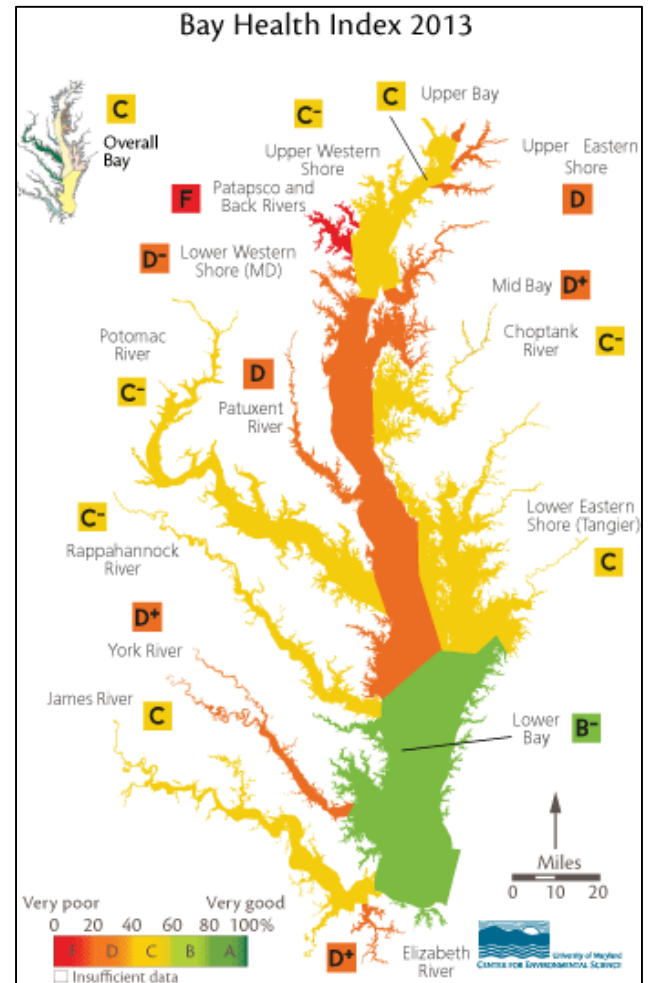
http://ian.umces.edu/ecocheck/images/2013_bhi_map.png

Discussion – Tier 2

- Thoughts?
- How does IMN expect/intend to use Tier 2 data?

Contact Information

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