Building and Sustaining Integrated Monitoring Networks in the Chesapeake Bay and Basin

BASIN

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STAR Meeting

October 23, 2014

Approaches to Building and Sustaining Integrated Water Quality Networks

Challenges

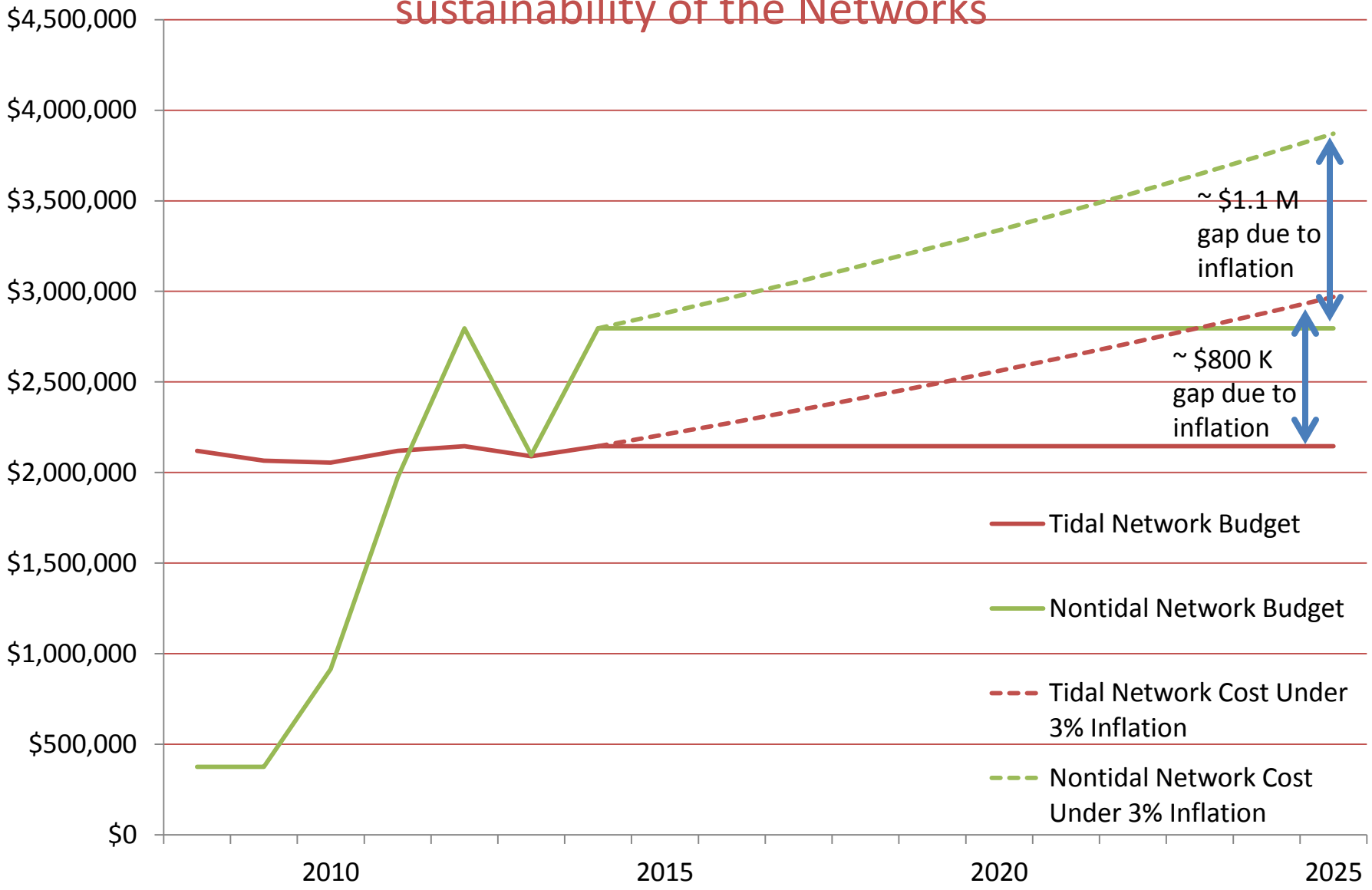
1) What are some of the best approaches to reduce the uncertainties of measuring attainment of tidal water-quality standards (DO, Clarity, and Chlorophyll)?

2) How can we provide management with the most useful feedback on BMPs (finding linkages between Tidal and Nontidal trends)

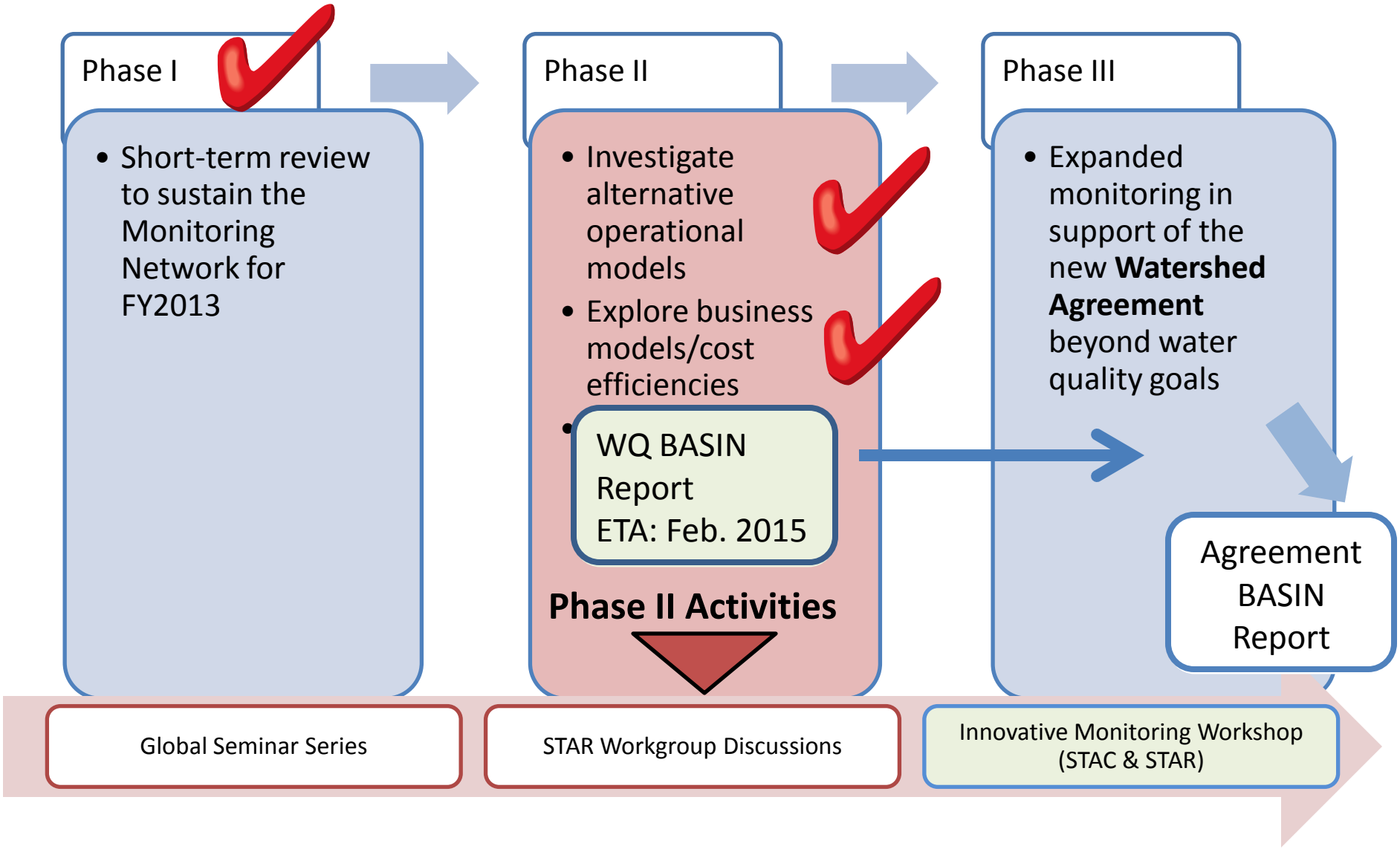
3) Resources to Sustain the Network

Our Goal is to Maintain the Quality of the Network until 2025

We recognize there are uncertainties that impact the maintenance and sustainability of the Networks



BASIN: A Three Phase Process



BASIN Phase II & III

WHAT'S AHEAD?

Water Quality BASIN Report

CHAPTERS

1) Introduction – What is BASIN? Highlights of Program History
2) Need for Monitoring to Support Management Questions/Decision Making
3) Global Seminar Series Insights
4) Approaches to Sustaining the Water Quality Networks
5) Addressing the Advancement of the Chesapeake Bay Program/Expanded Management Needs
6) Recommendations and/or Summary

Global Seminar Series Communications Product

- Innovative Operations of Monitoring Networks

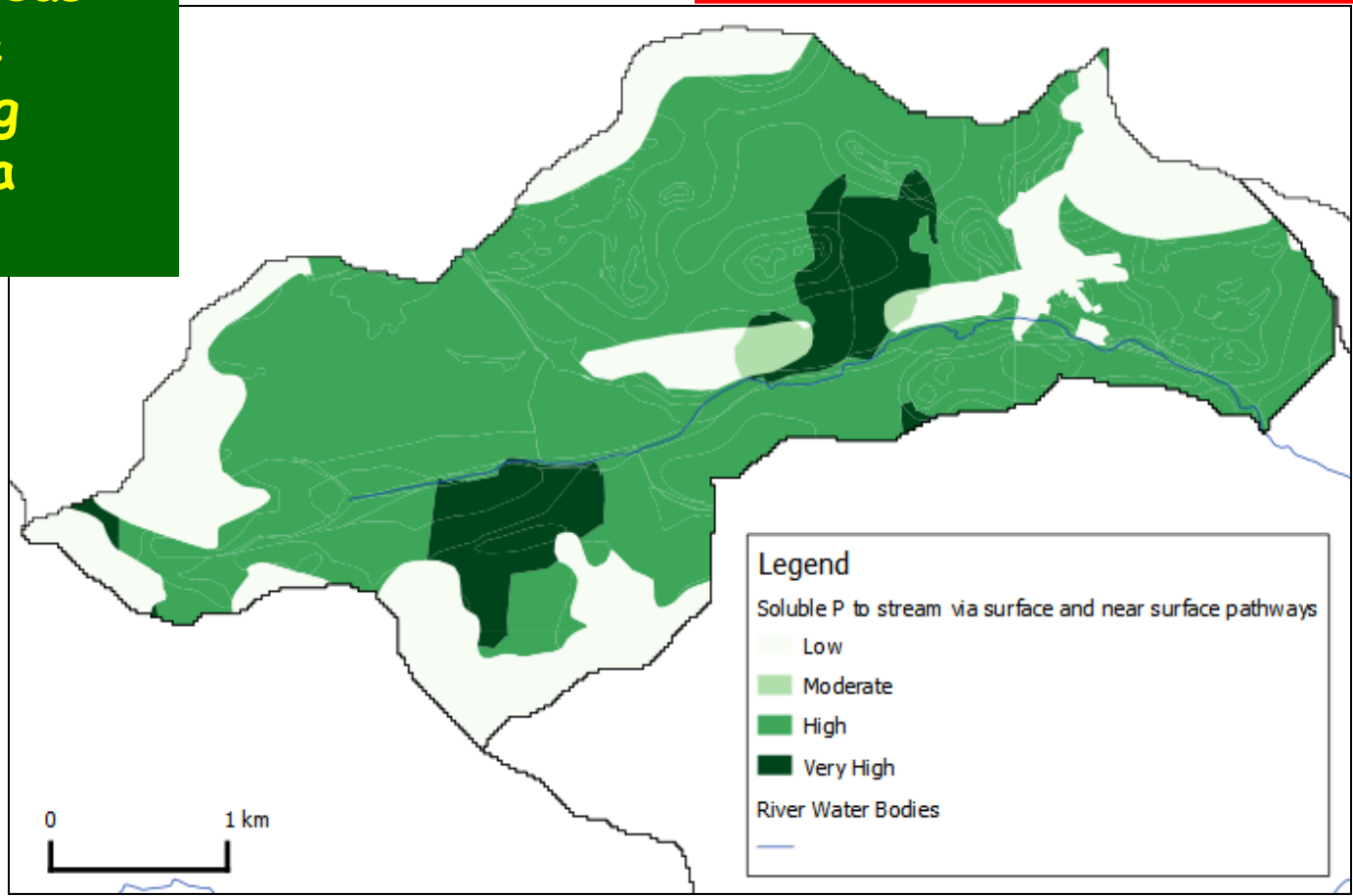
Tier 2: Identifies susceptible areas & significant pressures

Catchment characterisation tool (CCT)

These maps provide the basis for measures – what? & where? & how?

Pollution Impact Potential Map

Critical Source Areas (CSAs) for soluble phosphate entering Surface Water via Surface Pathway



Source: Jenny Deakin

For effective, focussed decision-making, consideration must be given to the contrasting physical settings present in Ireland and the associated variation in risk to water

Three TIERS of risk characterisation so that the level of assessment is commensurate with the risk posed

Tier 1: Screening; identifies "at risk" or "not at risk" water bodies

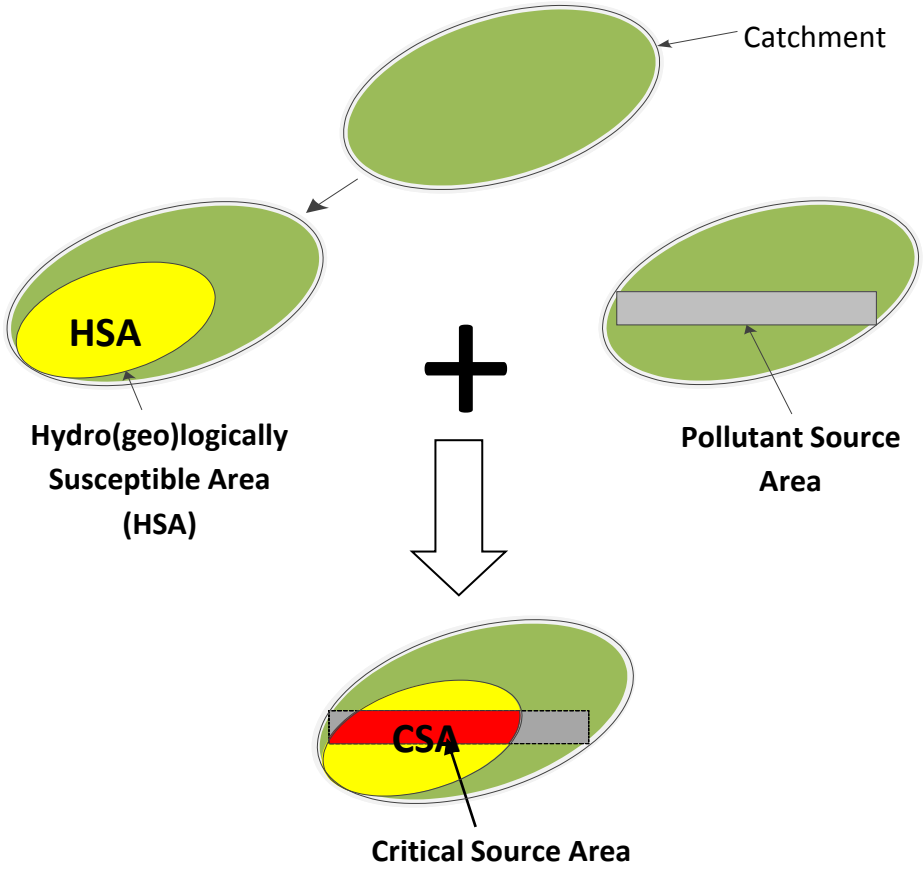
(using EPA water body risk assessment tool (WRAT))

Tier 2: Identifies susceptible areas & significant pressures

(using EPA catchment characterisation tool (CCT))

Tier 3: Detailed investigations

(including EPA catchment modelling tool (CMT))



Global Seminar Series Communications Product

- Innovative Operations of Monitoring Networks/ Technology
- Innovative Business Models and Leveraging Resources

Global Case Studies – MARACOOS

Leveraging Data & Products

Regional Priority Themes	Regional Observation & Modeling Capabilities					
				Satellite Imagery		
Theme 1. Maritime Safety	Operational Input to USCG SAROPS	Operational input to USCG SAROPS	Operational input to USCG SAROPS	SST for survivability planning	Assimilation dataset for forecast models	Surface currents for SAROPS
Theme 2. Ecological Decision Support	Weather forecast ensemble validation	Circulation and divergence maps for habitat		SST & Color for habitat	Subsurface T & S for habitat	3-D fields of T, S, circulation for habitat
Theme 3. Water Quality	Winds for transport, river plumes, & upwelling	Surface currents for flotables, bacteria, spill response	Surface currents for flotables, bacteria, spill response	Ocean color for river plumes	Nearshore dissolved oxygen surveys	Surface currents for floatables, bacteria, spill response
Theme 4. Coastal Inundation	Weather forecast ensemble validation	Current forecast model validation		SSTs assimilation into forecast models	Assimilation dataset for forecast models	Nested forecast ensembles
Theme 5. Offshore Energy	Historical analysis & wind model validation	Historical current analysis & wind model validation		Historical analysis surface fronts & plumes for siting	Historical analysis of subsurface fronts & plumes	Coupled ocean-atmosphere models for resource estimates

Global Seminar Series Communications Product

- Innovative Operations of Monitoring Networks/ Technology
- Innovative Business Models and Leveraging Resources
- Engaging the Public/ Citizen Science/ Non-traditional Partners

Recognizing WI Citizen Monitoring Volunteers

RFP: Integration of Citizen-based Monitoring and Nontraditional Monitoring Partners into the Chesapeake Bay Program Partnership

- The integration of citizen-based and nontraditional partner monitoring programs into the CBP partnership's monitoring networks will provide additional, cost-effective data and information that supports shared decision-making and adaptive management by the CBP partners focused on restoration of the Chesapeake Bay and its watershed.

Innovative Monitoring Workshop

- December 8, 2014
- What are some of the best approaches to reduce the uncertainties of measuring attainment of tidal water-quality standards (DO, Clarity, and Chlorophyll)?

Approaches to Building and Sustaining Integrated Water Quality Networks

Challenges

1) What are some of the best approaches to reduce the uncertainties of measuring attainment of tidal water-quality standards (DO, Clarity, and Chlorophyll)?
   - Innovative Monitoring Workshop
   - Shallow-water Action Team
2) How can we provide management with the most useful feedback on BMPs (finding linkages between Tidal and Nontidal trends)
   - Explaining Trends STAC Workshop
3) Resources to Sustain the Network
   - Global Seminar Series

Addressing the Advancement of the Chesapeake Bay Program/Expanded Management Needs

Climate Change