Continuous Monitoring Network Strategy – Continued Discussion

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USGS@CBPO
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DIWG-INWG meeting @ SERC

Existing Chesapeake Bay Program Continuous Monitoring Programming

- Shallow water monitoring in the Bay
- Vertical Profilers – Harris Creek project, Virginia Monitoring
- NOAA Interpretive Buoys – Surface measures of water quality
- Small Watersheds Assessments – Fairfax Co. USGS
  - Pilot work on some RIM stations too.

Recongizing there is other work out there: Examples

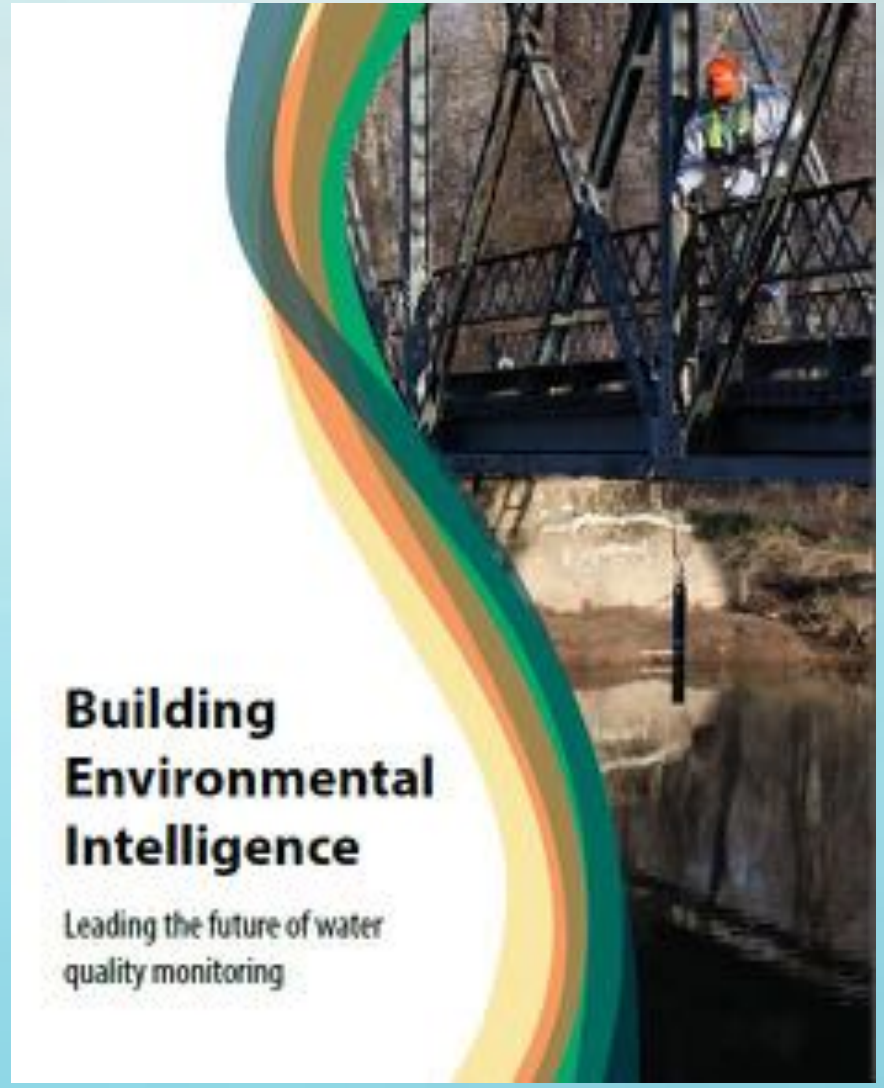
- Baltimore Ecosystem
- Northern PA Realtime Monitoring Network
- Weather stations
- Air pollutant monitoring

New Budget Year with EPA-CBPO

- Support for existing work in the grants
- Need a clear strategy for even $1 more invested in Continuous Water Quality Monitoring programming

STAR 2015 Building Environmental Intelligence Report

- Building support for next steps in the Bay and watershed monitoring programs
- Recommendations will serve as one reference to our strategy development



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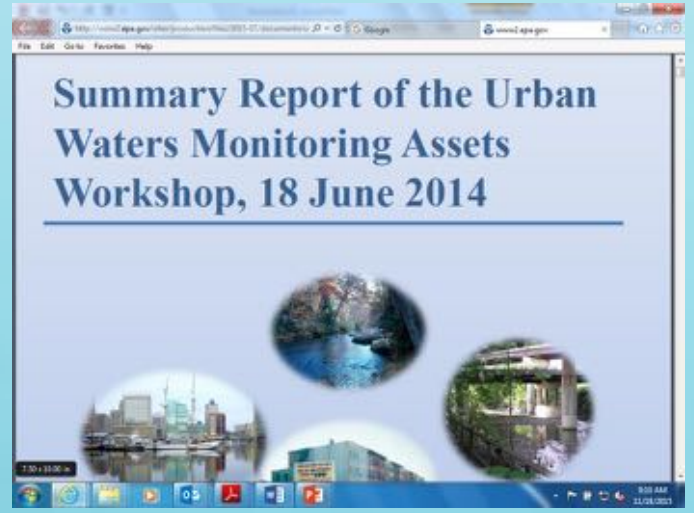
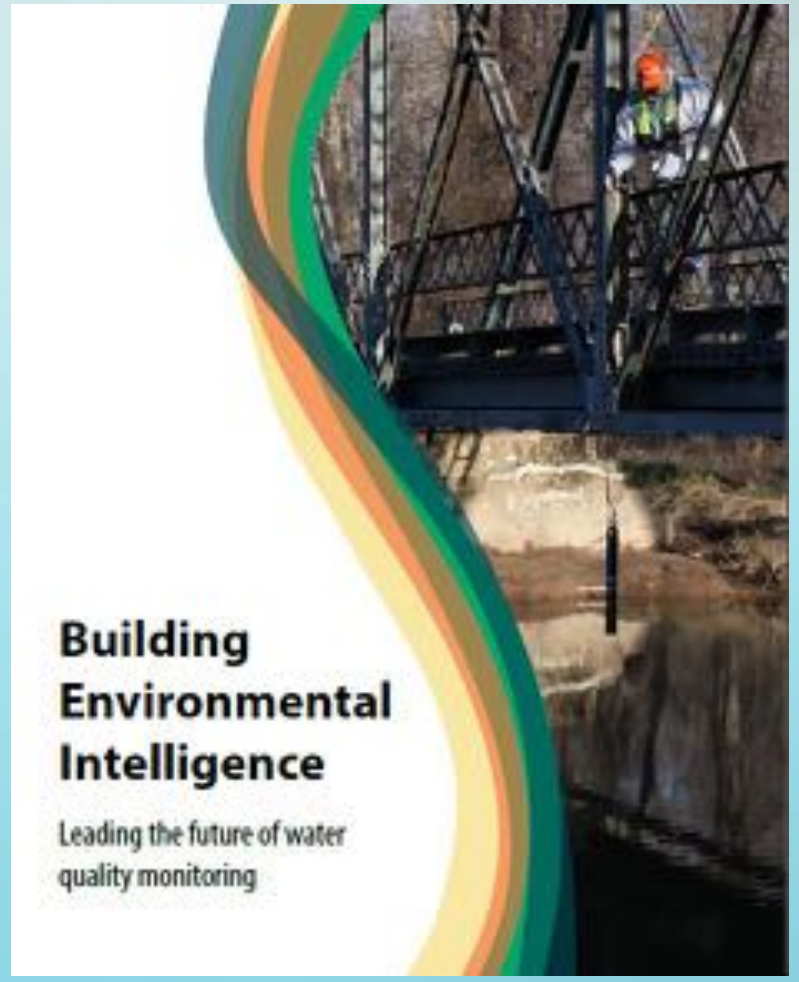


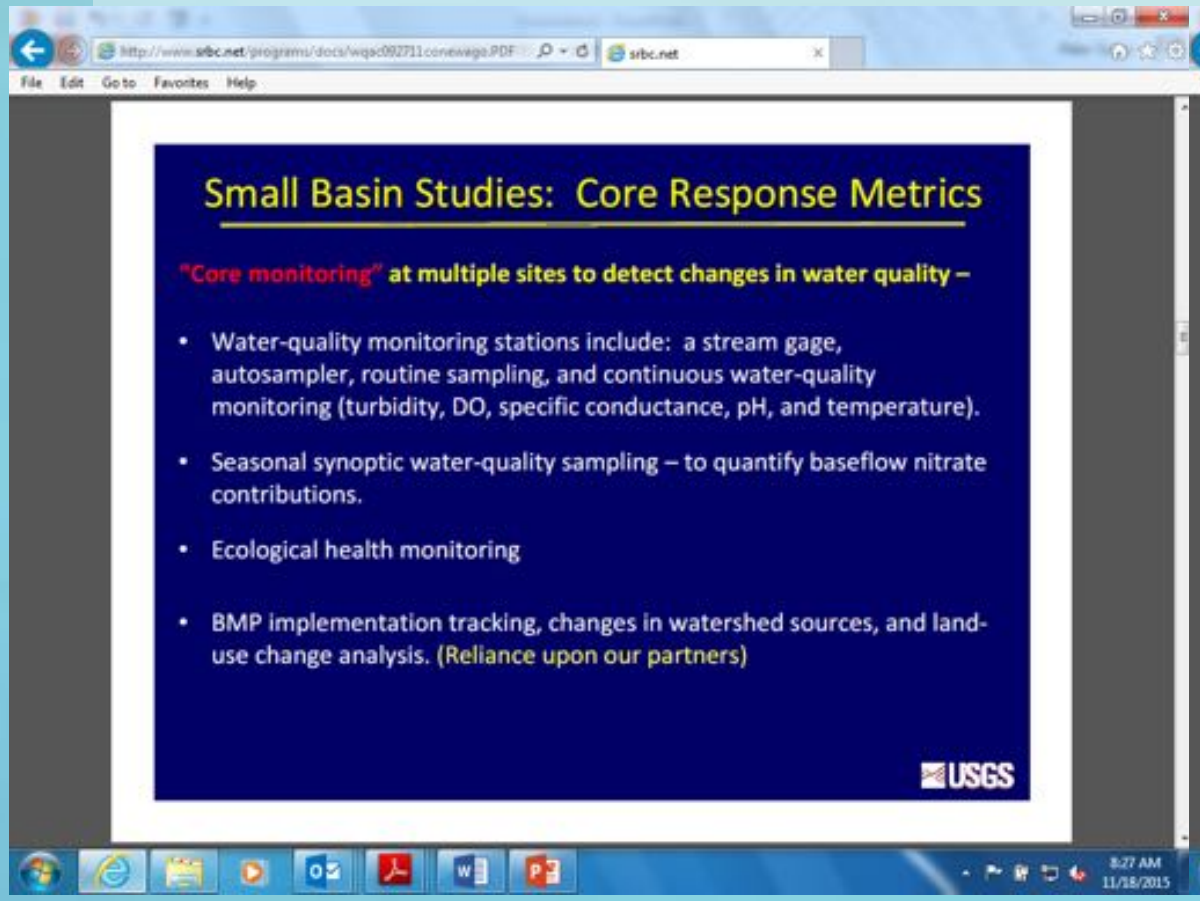


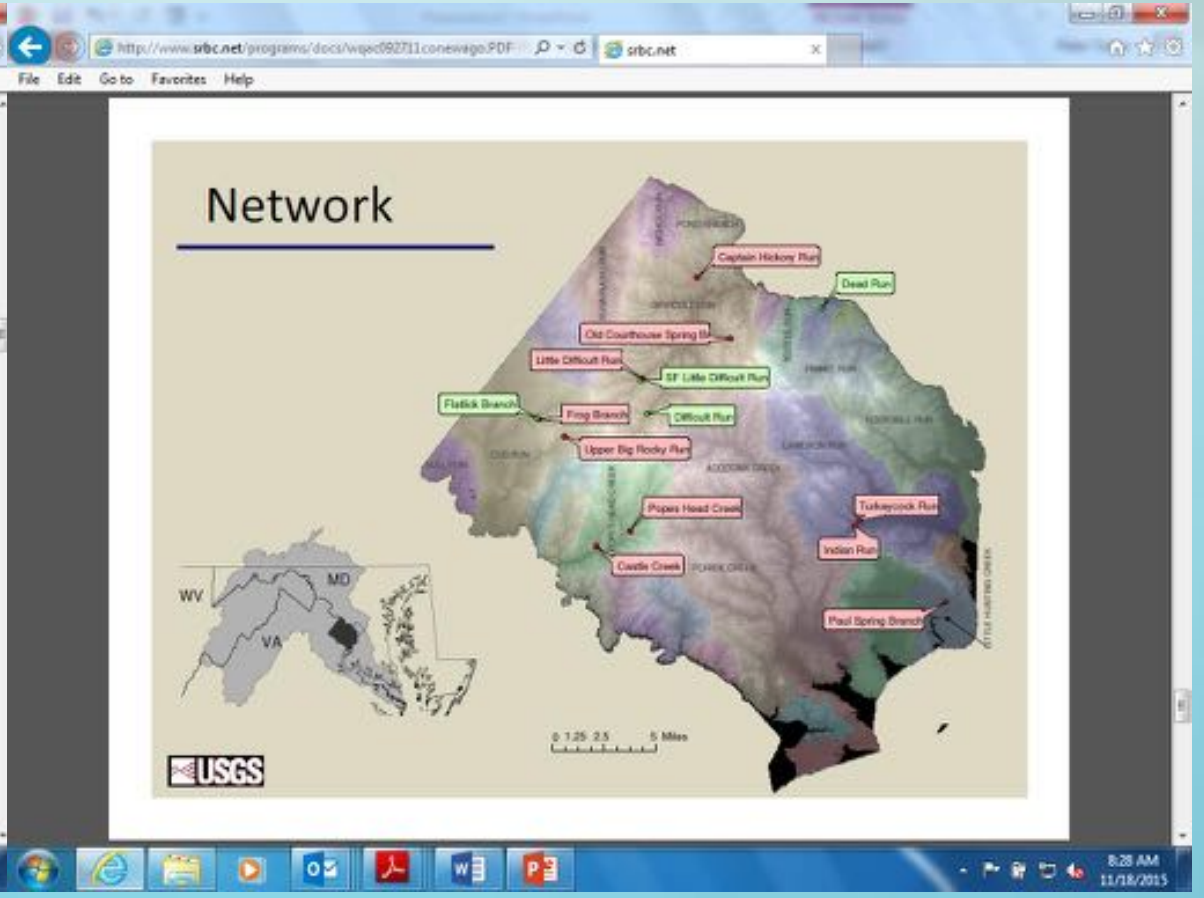
Recommendations in the STAR 2015 Building Environmental Intelligence Report

- Continuous Monitoring – Watershed
  - Continuous monitoring can improve load estimates of some nutrients and sediment to the Bay and should be considered for the major rivers entering into the Bay (such as the Susquehanna, Potomac and James or all of the RIM stations).

Continuous Monitoring - Small Watershed Assessments in the Watershed

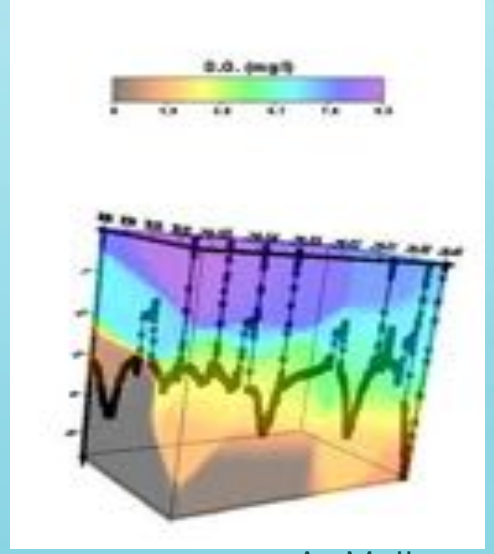
- Enhanced monitoring in distinct source sectors.





Continuous Monitoring – Chesapeake Bay

- Improve measurements of dissolved oxygen in tidal waters. Vertical water quality profilers, or another technology that can similarly accomplish the task (e.g., Navy demonstrated the use of AUVs to get 3-dimensional monitoring assessments) are needed to support greater spatial resolution of dissolved oxygen patterns for more accurate assessments and attainment of standards.



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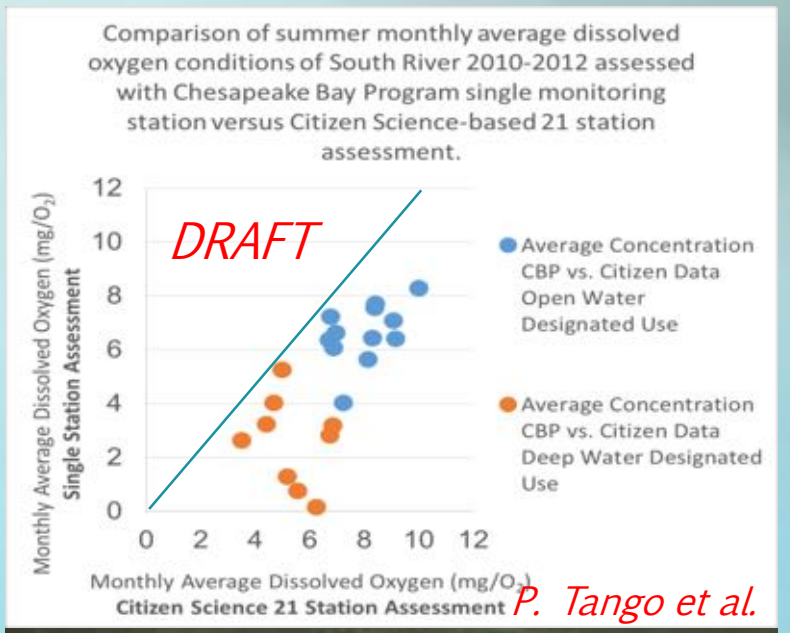

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Continous Monitoring – Chesapeake Bay Sentinel Site Network links

- Sentinel sites to assess long-term changes in water quality as practices are implemented should be considered for the watershed and tidal waters.
  - Example: Chesapeake Bay Sentinel Site Cooperative: storm flooding, long term local sea level rise, barrier island movement, degraded water quality, and wetland loss.

Continuous Monitoring Strategy – Initial Overarching Themes

- Track watershed level improvements in water quality
- Assess impacts and success of restoration and management efforts

Continuous Monitoring Strategy – Sub-Themes and Considerations for Monitoring Designs

- Watershed level improvements to Water Quality
  - Improving conceptual models of ecosystem condition and drivers of change
  - Define causes and resulting effects for watershed change
    - Causes: land use change, BMP implementation, climate impacts
    - Effects: improved/degraded water quality and living resources
    - Impacts and Success of Restoration
- Impacts and Success of Restoration and Management
  - Determine the effectiveness of management actions at different scales, under different environmental settings
- Resilience and Sustainability
  - Understanding climate effects on water resource quality and quantity

Next steps

- Discuss/Agree on Themes supported by the Continuous Monitoring Strategy
- Continue to discuss and refine sub-themes
- Within themes – define and defend our suggested sampling design needs, available networks to leverage, strategy and parameters
- 2017 strategy document submission to CBP Management Board