Innovative Monitoring Design Workshop

December 8, 2014.

CBP STAC/STAR Collaboration

STAC sponsored workshop

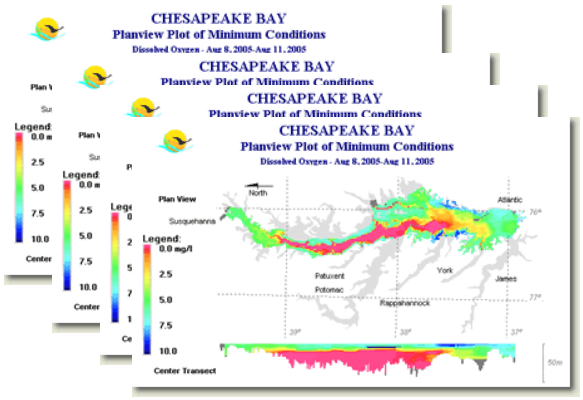
Today's workshop supports the *Building and Sustaining Integrated Networks* process supporting the 2014 Bay Agreement

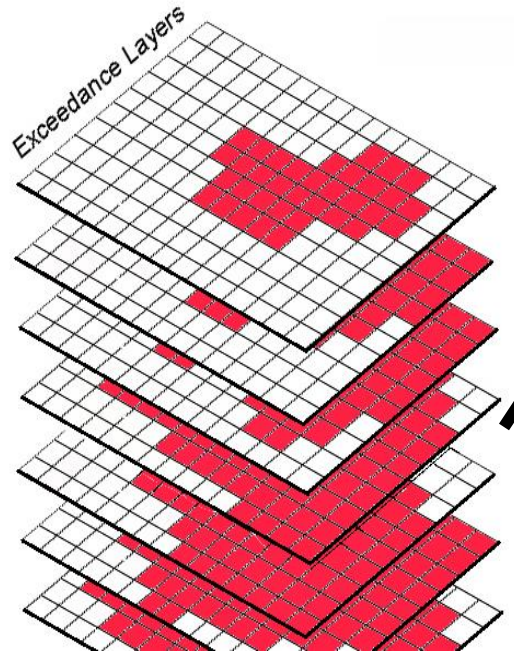
Today's focus:

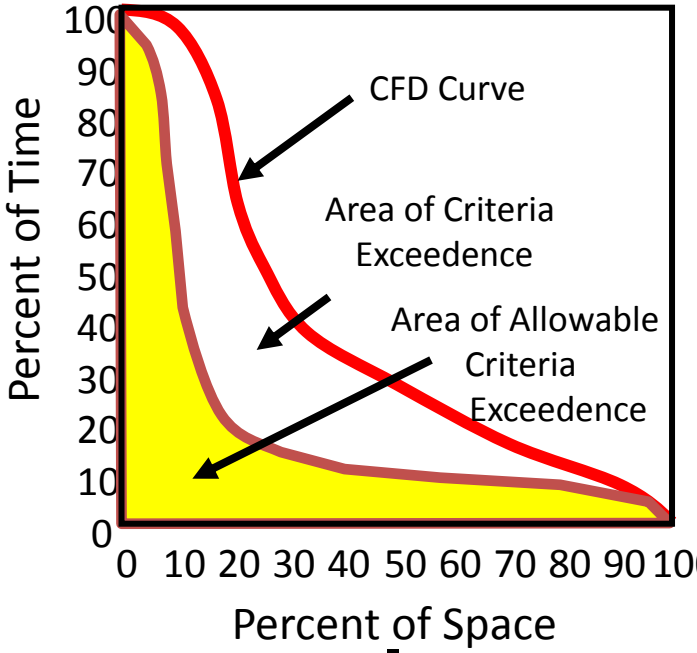
- **PHASE II: Approaches to Sustaining the Water Quality Networks (Report: due February 2015)**

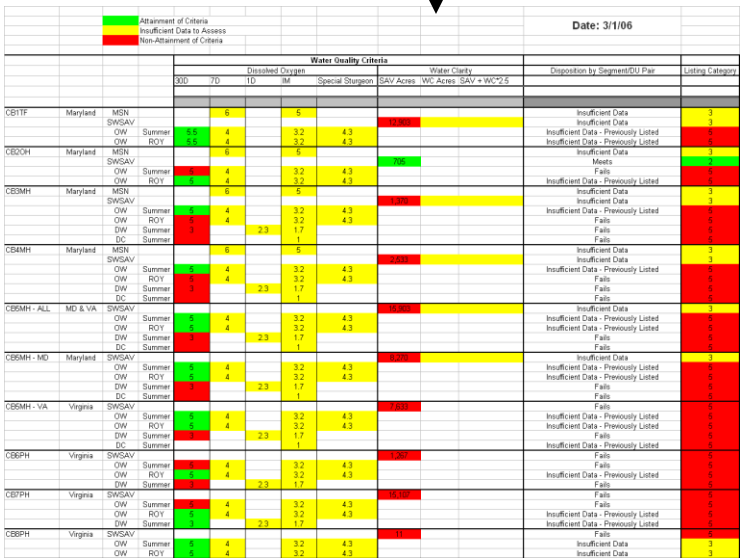
  - **CHALLENGE 1: Reducing Uncertainty in Measuring Attainment of Water Quality Standards in the Tidal Bay**
    - Key questions being considered:
      - **Applications of existing or new technologies**
      - **Monitoring network designs**
      - **Opportunities for improved monitoring efficiencies and cost savings.**

Batiuk: Criteria Assessment

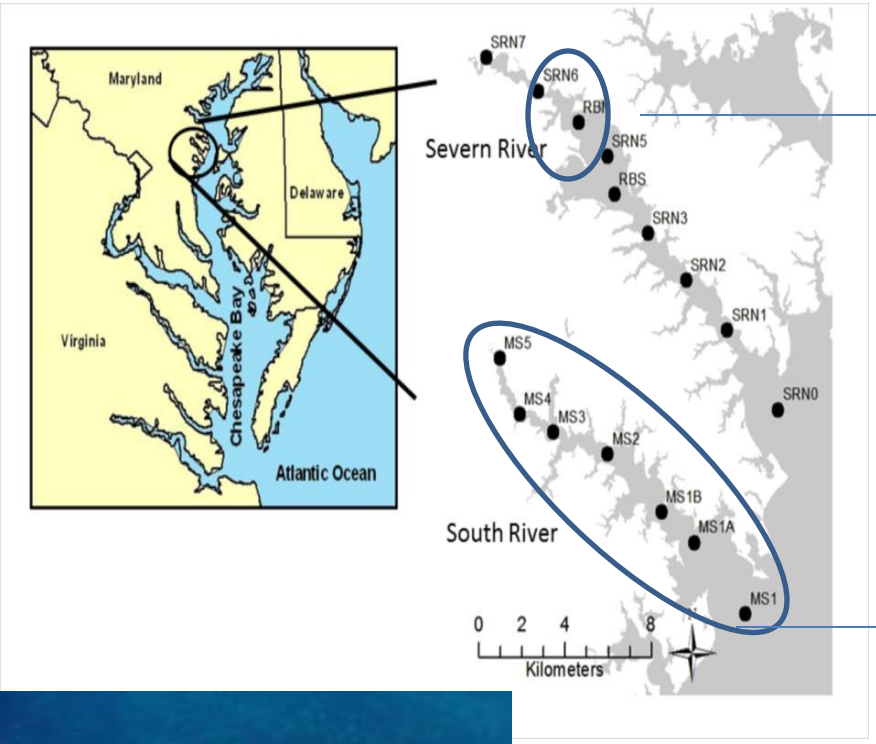


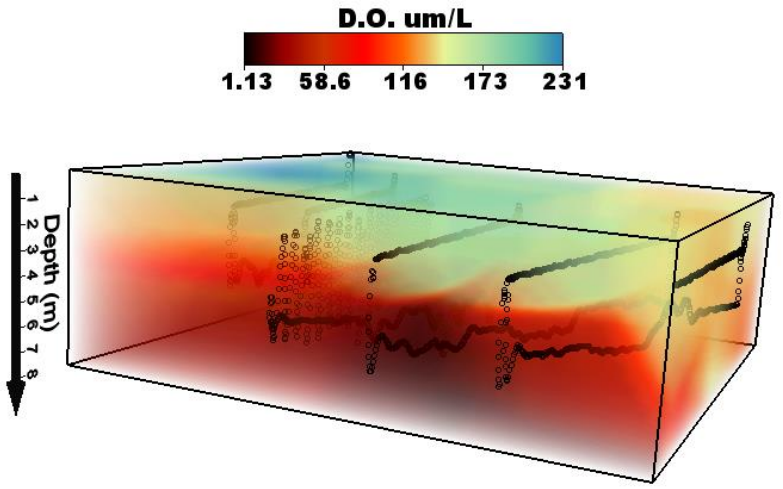




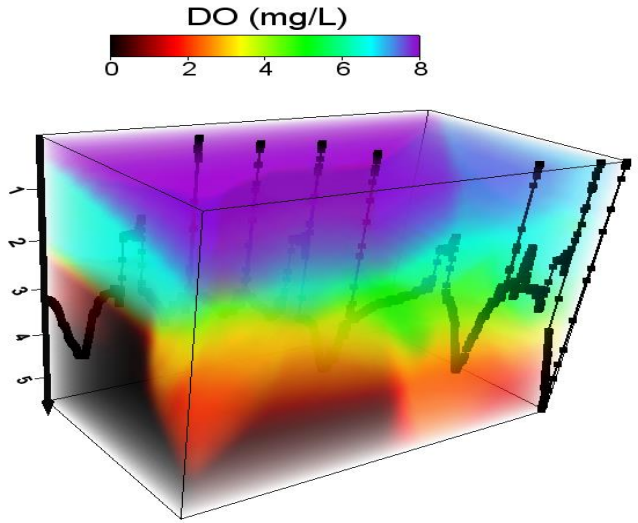


Muller: Applications of AUVs in Chesapeake Bay for documenting water quality
AUV Missions: Local hypoxia, local interests





Round Bay, Severn River hypoxia (Aug 13, 2010)

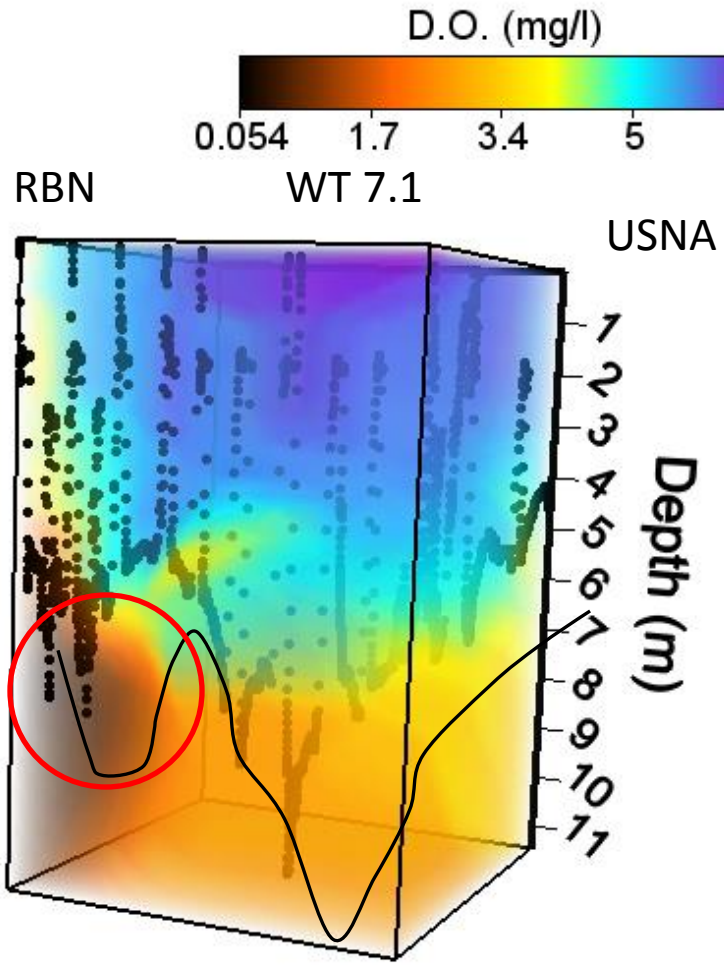


South River hypoxia (July 22, 2011)

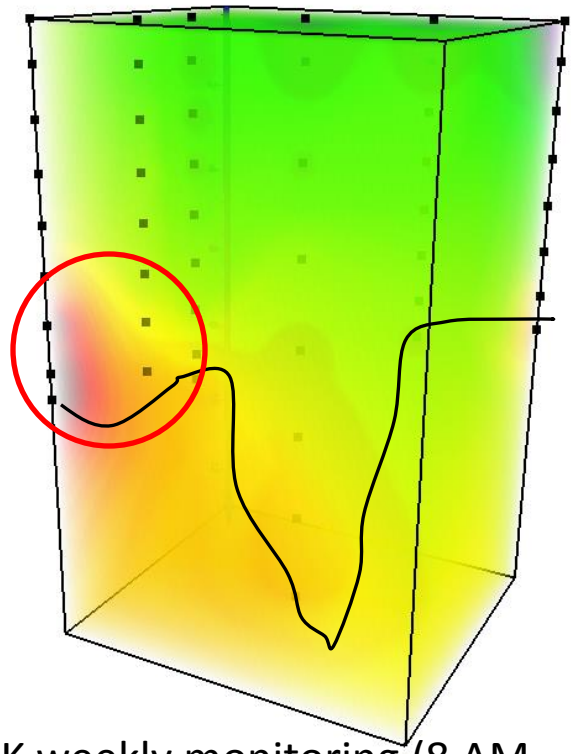
Muller and Muller: AUV vs. Citizen Science

Severn River

June15, 2011- Round Bay to College Creek

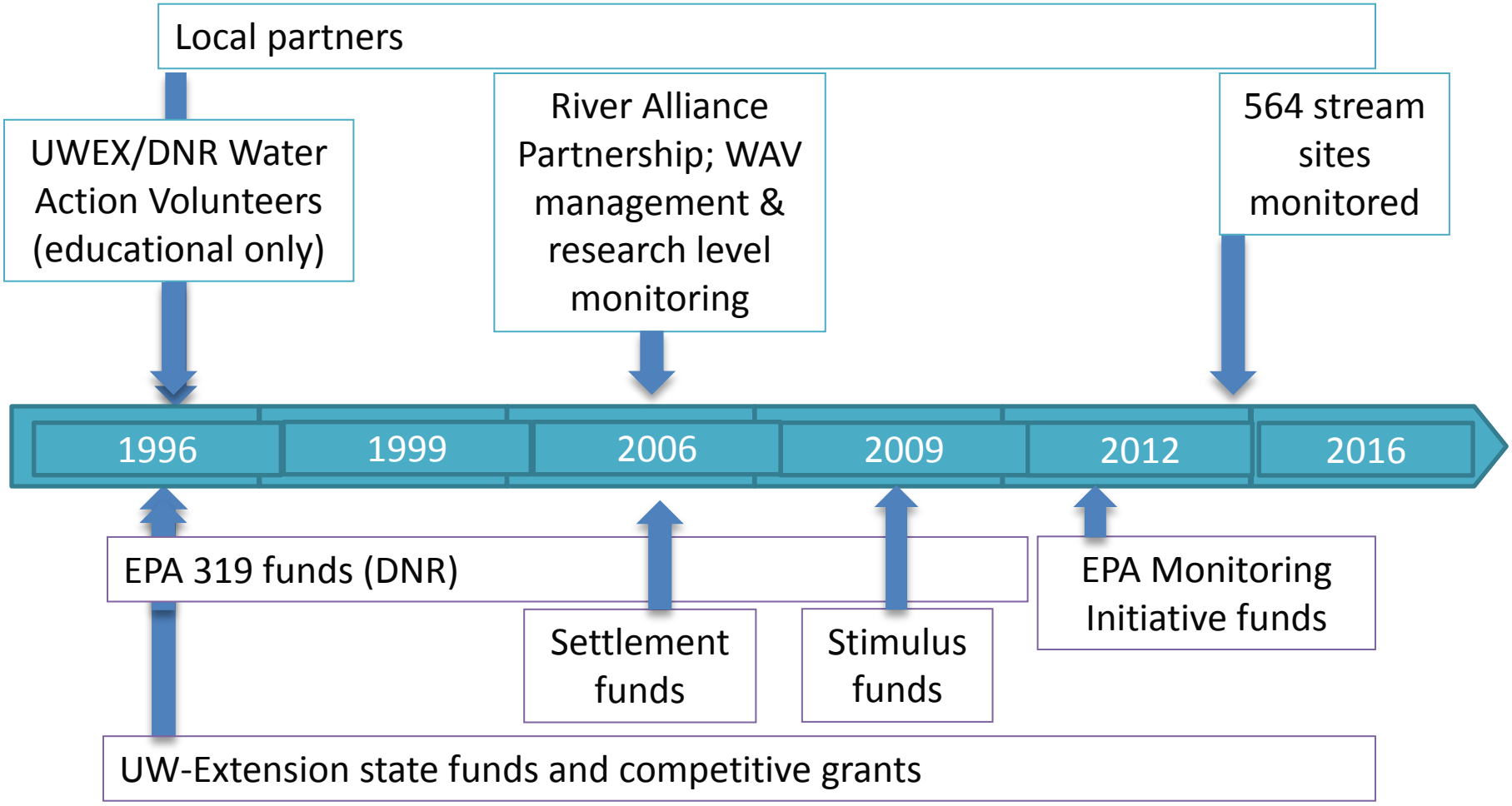


REMUS (6-8 AM)



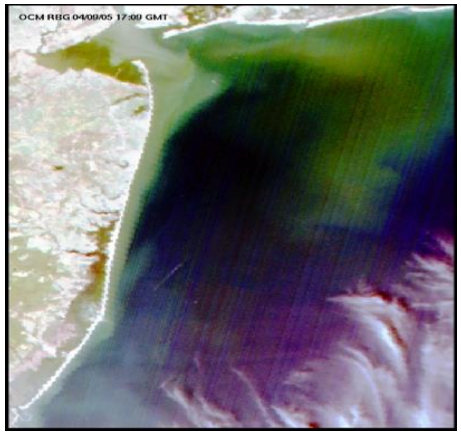
SRK weekly monitoring (8 AM – 2 PM)

A BRIEF HISTORY – STREAMS PROGRAM

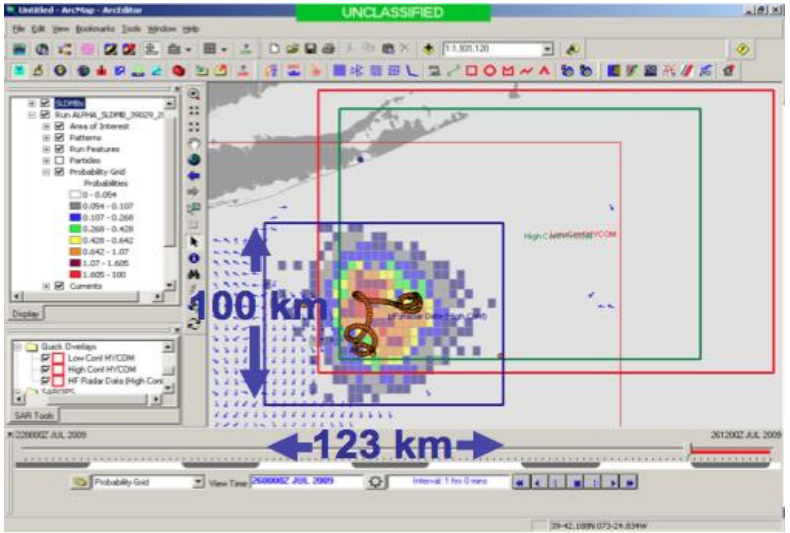


KUSKA: MARACOOS THEMES IN THE CHESAPEAKE

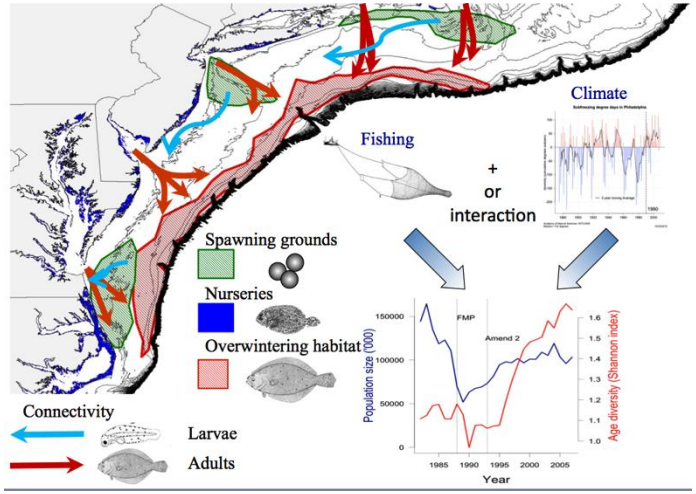
Water Quality



Maritime Safety and Resiliency



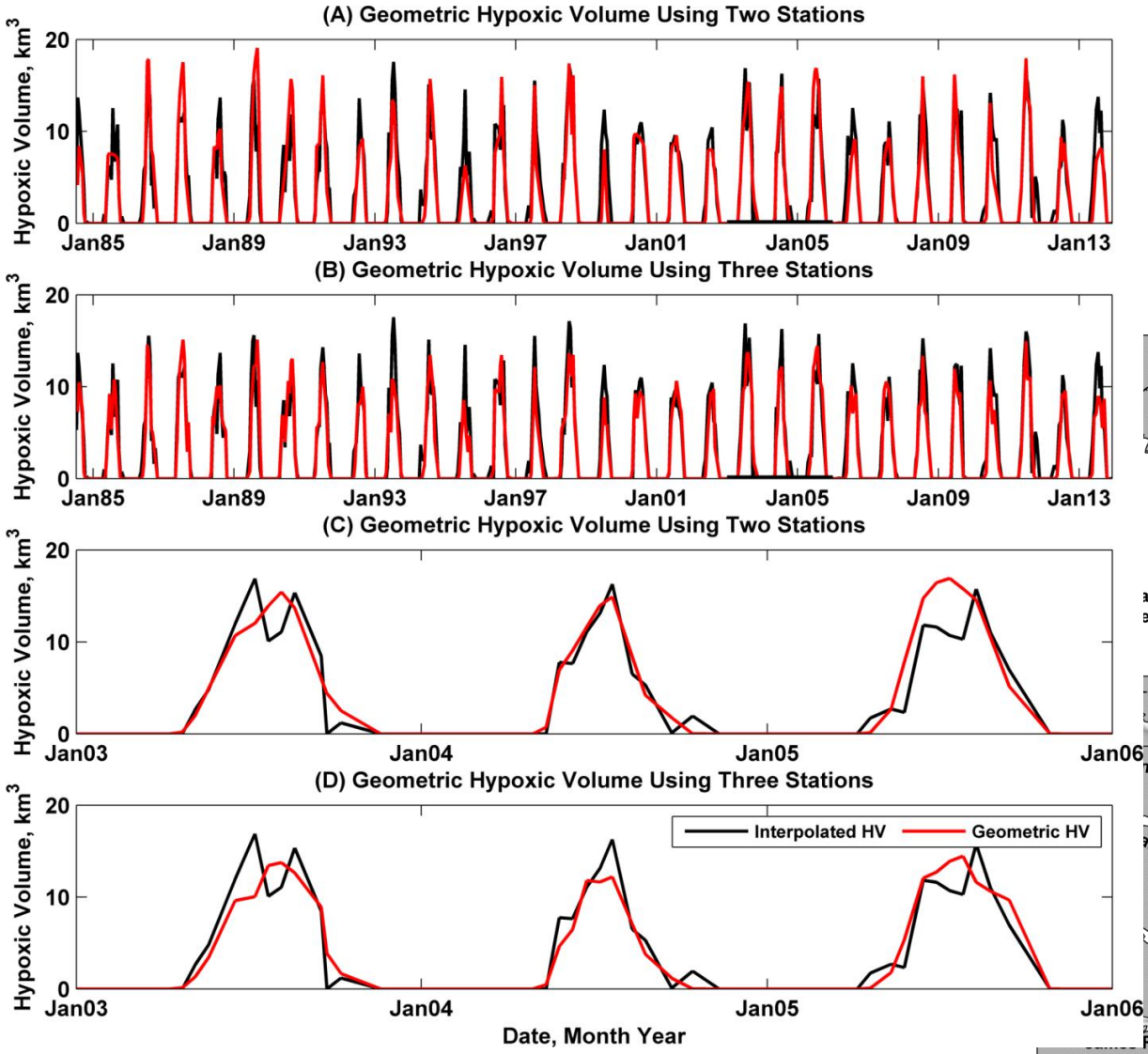
Ecological Decision Support



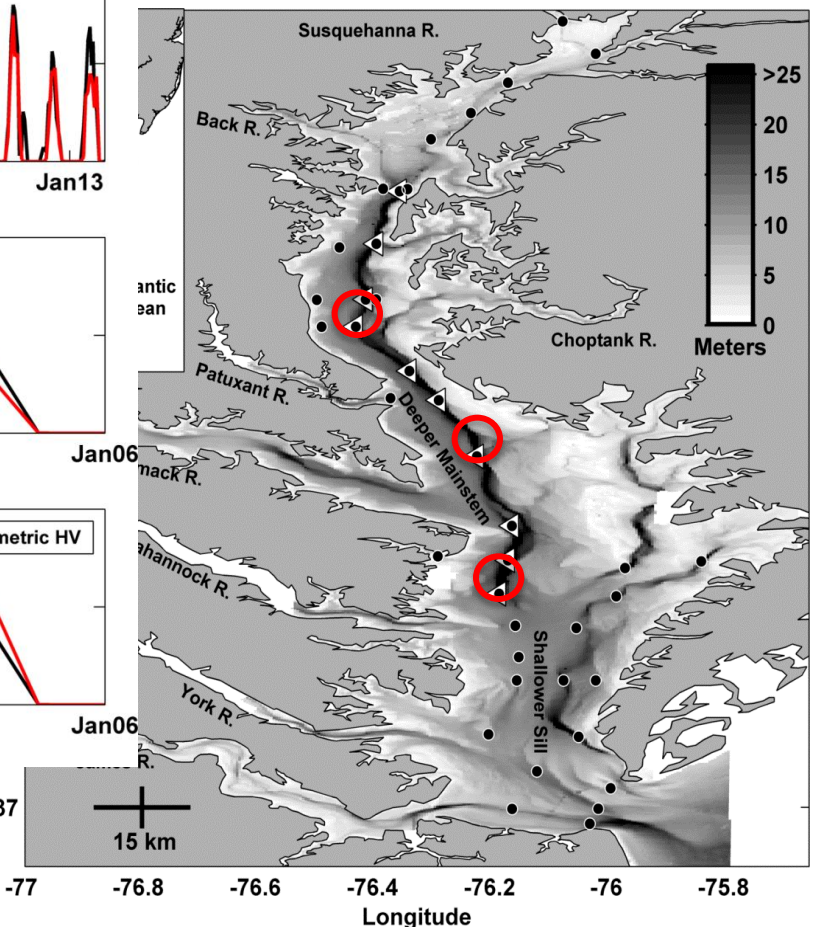
Coastal Inundation

➢ Results (1): Monitoring Cruise Data (every 2 to 4 weeks for 28 years)

Compare “Interpolated HV” (13 sites) to “Geometric HV” with **2 to 3 sites**:

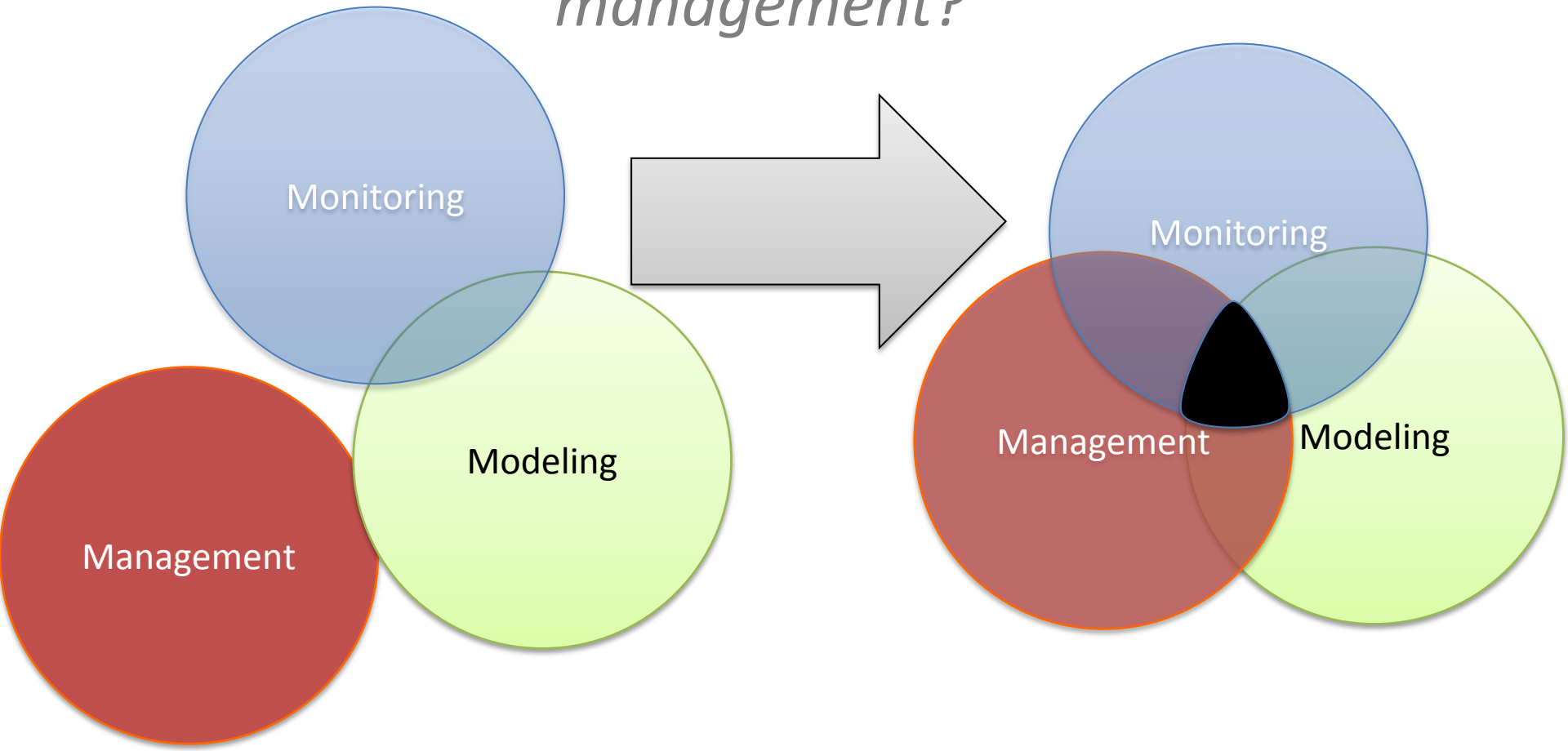


Bever, Friedrichs 2x: Assessment Options Support: Lessons From Model Assessments of Bay Monitoring Data



Bringing new hypotheses and models into CBP monitoring

how do we better tie monitoring, modeling and management?



Pete Kleinman and Kathy Bailey-Boomer

Targeted Monitoring Opportunity: Bay Water Quality Management

Considerations to Advancing Chesapeake Bay Monitoring Strategies

Monitoring Needs from a Manager's Perspective:

- Watershed Inputs
  - Practice outcomes
  - Tributary response
- Estuarine circulation
  - Mainstem vs Trib influence
- Estuarine restoration effects (underwater wetland bmp's?)
  - Oyster reefs
  - SAV restoration

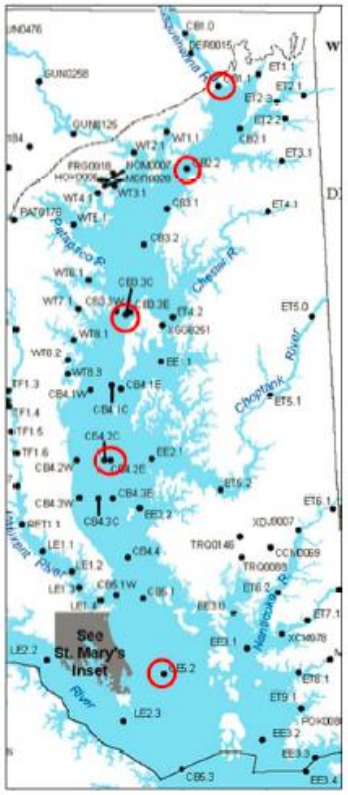
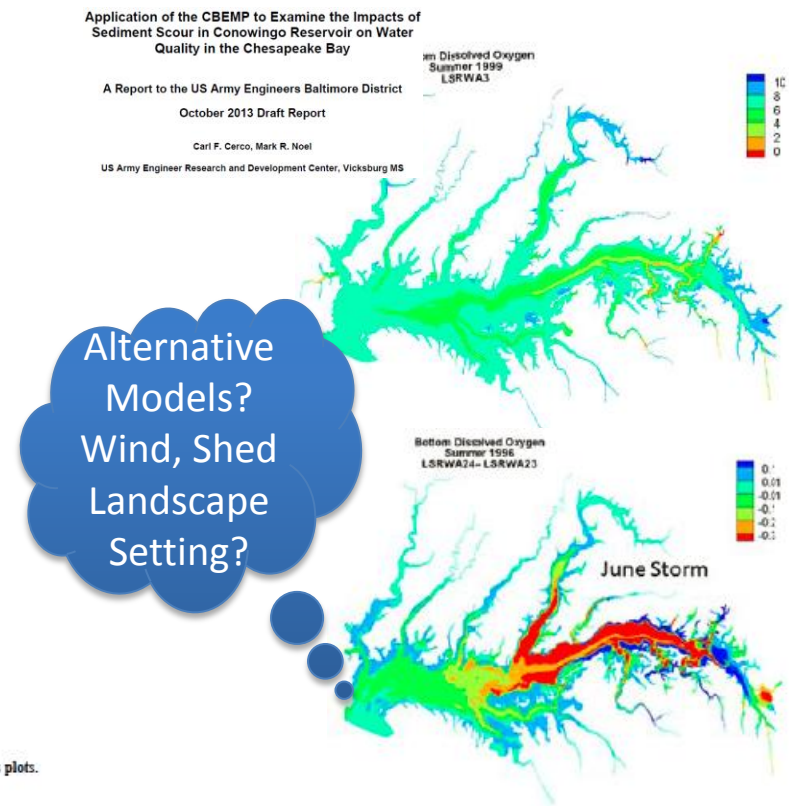


Figure 5-1. Stations (circled in red) selected for time series plots.

CBP Model Results:



Alternative Models? Wind, Shed Landscape Setting?