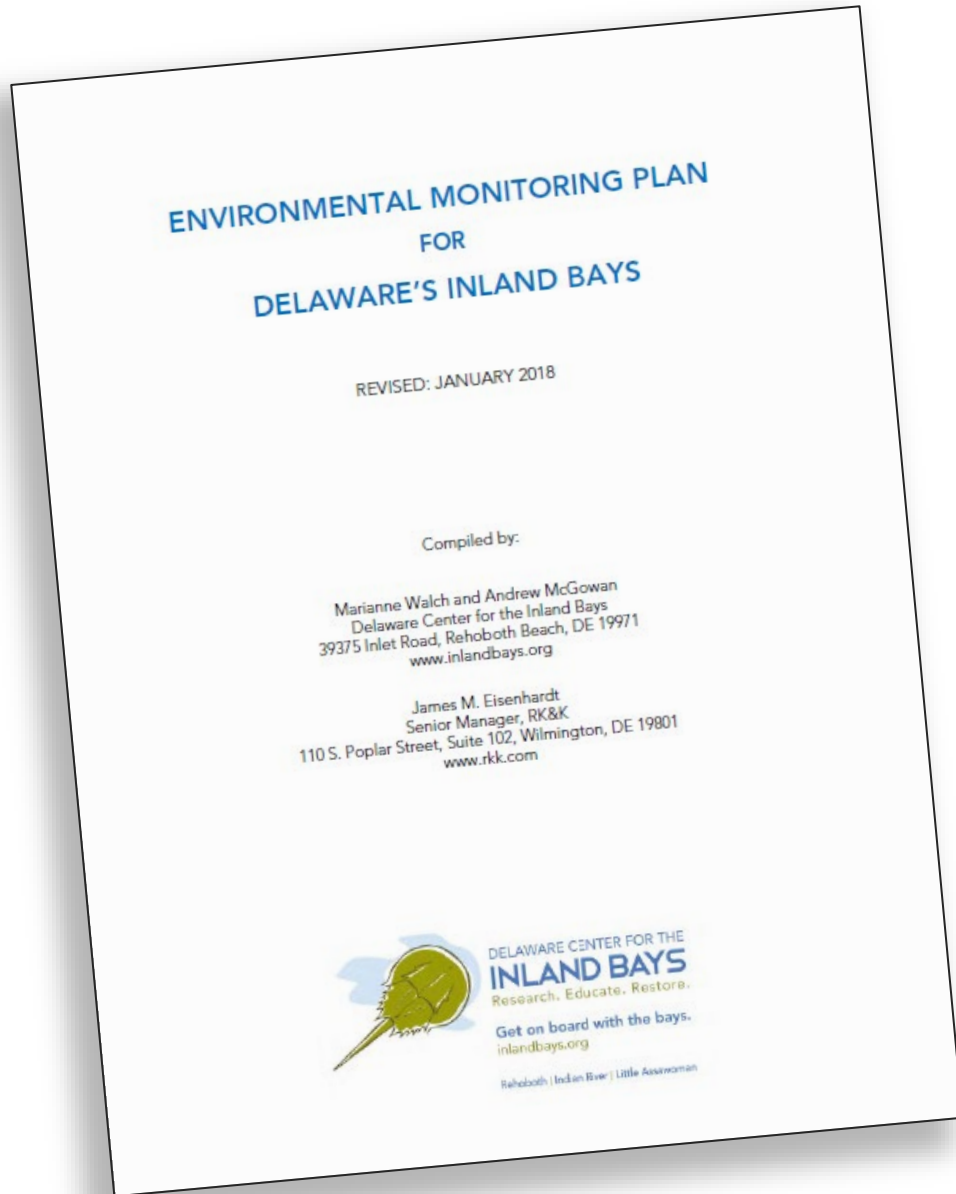


Environmental Monitoring Plan Update

STAC Meeting March 27, 2020



DELAWARE CENTER FOR THE
INLAND BAYS
Research. Educate. Restore.



- Component of CCMP
- Current plan approved by EPA Jan. 2018
 - *Management questions & indicators*
 - *Inventory of existing LT programs*
 - *Recommendations*
- Requires review and update by STAC every two years



Existing Monitoring Programs

Info to Update (Last updated FY16)

- Description/objectives
- Responsible organization and contact
- Data collection cost
- Data use
- Record of collection
- Collection method
- Analysis methods
- Data location
- Management goals



Existing Monitoring Programs

Last updated FY16

Surface Water

- State Ambient WQ Program
- Citizen Monitoring Program
- Fecal coliform monitoring
- DGS/USGS stream & tide gaging
- State biological assessment of streams
- Toxics monitoring (Cu, Pb, Zn, As)



Existing Monitoring Programs

Groundwater

- DE groundwater monitoring network
- DE agricultural shallow groundwater network
- Public supply wells

Wastewater

- Point source wastewater discharges
- Land application of wastewater



Existing Monitoring Programs

Atmospheric Deposition

- Atmospheric deposition of nutrients

Wetlands

- DNREC wetlands assessment & monitoring
- Long-term Inland Bays salt marsh monitoring



Existing Monitoring Programs

Living Resources & Habitats

- National Aquatic Resource Surveys
- Statewide vegetation/land cover mapping
- Seaweed monitoring
- Coastal finfish assessment survey
- Volunteer shorezone fish/blue crab survey
- Recreational fishing surveys
- Hard clam surveys
- Volunteer horseshoe crab survey & tagging program
- Delaware breeding bird atlas
- Mid-winter waterfowl surveys
- Bald eagle/osprey nesting surveys



Monitoring Programs Inventory

- What new or existing long-term monitoring programs are missing?



Recommendations

- 12 new programs or enhancement of existing programs
- Objectives
- Data to be collected/contributions to other programs
- Responsible entity or entities
- How data to be shared/reported
- Funding needs and timeline
- Relative priority



Summary of Recommendations

1. Predictive hydrodynamic/WQ model
2. Upgrade of Citizen Monitoring Program database
3. Continuous WQ monitoring
4. Monitoring of SAV
5. Local indicators of sea level rise and flood potential
6. Indian River Inlet tidal prism
7. Monitoring of oyster distribution, recruitment and growth
8. Monitoring of shoreline condition and modification
9. Tidal marsh acreage/condition indicators
10. Estuary acidification
11. Recreational blue crab and clam harvests
12. Emerging contaminants



Predictive hydrodynamic/WQ model

- White paper developed by STAC on needs and recommended path forward
- DNREC DWS working w/ contractor on development of a DE Targeting and Planning Tool to model nutrient loads
- CIB contractor developing an RFI for hydrodynamic/WQ model providers
- Funding strategy, RFPs



Upgrade of Citizen Monitoring Program database

- Funding provided by EPA/CIB to Kevin Brinson, UD CEMA; working with Ed Whereat to achieve goal of online availability of data
- New database compatible with WQX/STORET system
- Current/future data – nutrients (12 stations), Chl (12), DO (50), bacteria (50)
- Pull data from STORET into Delaware WQ Portal



Continuous WQ monitoring Network

- CIB has YSI EXO2 sonde in upper Indian River; EXO3 sonde at oyster reef project in LAB
- DSU to deploy Epscor sonde at aquaculture plots in eastern Rehoboth Bay, YSI EXO sonde at Camp Arrowhead, third sonde at Delaware Cultured Seafood dock in Indian River
- Still need to develop plan and funding for LT network
- NEP competitive grant program



Monitoring of SAV

- CIB received Sea Grant award to map SAV this year to acquire data for State of the Bays indicator
- Drones, field verification of extent and species



Local indicators of sea level rise and flood potential

- CEMA conducted water level monitoring in IB beginning 2015



Indian River Inlet tidal prism

- Key driver of many aspects of bay health and condition in RB and IRB.
- Discussions with DNREC SWMS and USACE on funding to repeat acoustic Doppler measurements, but unsuccessful in identifying non-federal match.
- Looking at alternative ways to calculate prism volume from tide gauge data or modeling. CIB to follow up with UD researchers.



Other Recommendations

7. Monitoring of oyster distribution, recruitment and growth
8. Monitoring of shoreline condition and modification
9. Tidal marsh acreage/condition indicators
10. Estuary acidification
11. Recreational blue crab and clam harvests
12. Emerging contaminants



Copper TMDLs

- Draft 2020 303(d) list -- Iron Branch & Chapel Branch fail to meet their Cu criteria; all other IB segments to be delisted.
- Due date for Cu TMDL for segments remaining on 303(d) list is 2027.
- What is DNREC's intention for this?
- Has this impacted effluent limitations on other permits?

