Delaware River Basin Commission

Status Update:

Aquatic Life Designated Use Program

Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

Namsoo Suk, PhD., Director

Water Quality Advisory Committee
July 28, 2020

DRBC Resolution 2017-04
Studies Required Before Rulemaking

Fish/DO Studies

- 6(a). Input on the **dissolved oxygen requirements of aquatic species**
- 6(b). Field studies of the occurrence, spatial and temporal distribution of the life stages of Estuary fish species
- 6(c). Input from consultations pursuant to the **Endangered Species Act** ("ESA")

Modeling Studies

- 6(d). Development and calibration of a **eutrophication model** for the Delaware River Estuary and Bay;
- 6(e). Determination of the nutrient **loadings from point and non-point sources** necessary to support key aquatic species;

Cost/Feasibility Studies

- 6(f). Evaluation of the **capital and operating costs for treatment** capable of achieving higher levels of dissolved oxygen;
- 6(g). Evaluation of the physical, chemical, biological, **social and economic factors affecting the attainment of uses**,

6. "Analysis of Attainability"

6(h). Preparation of a **draft report and final report** containing findings and conclusions.

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Nutrients/ancillary Monitoring

- Two-year effluent monitoring from point source dischargers completed as of spring 2020 except one facility
- DRBC's intensive nutrient monitoring completed for model calibration period of 2018 and 2019
- Supplemental data collection efforts in 2020:
  - Estuary ambient monitoring – BoatRun
    - Nutrients / algal speciation
  - Light extinction special monitoring
  - Bi-weekly Trenton and Schuylkill monitoring
  - Monthly tributary monitoring

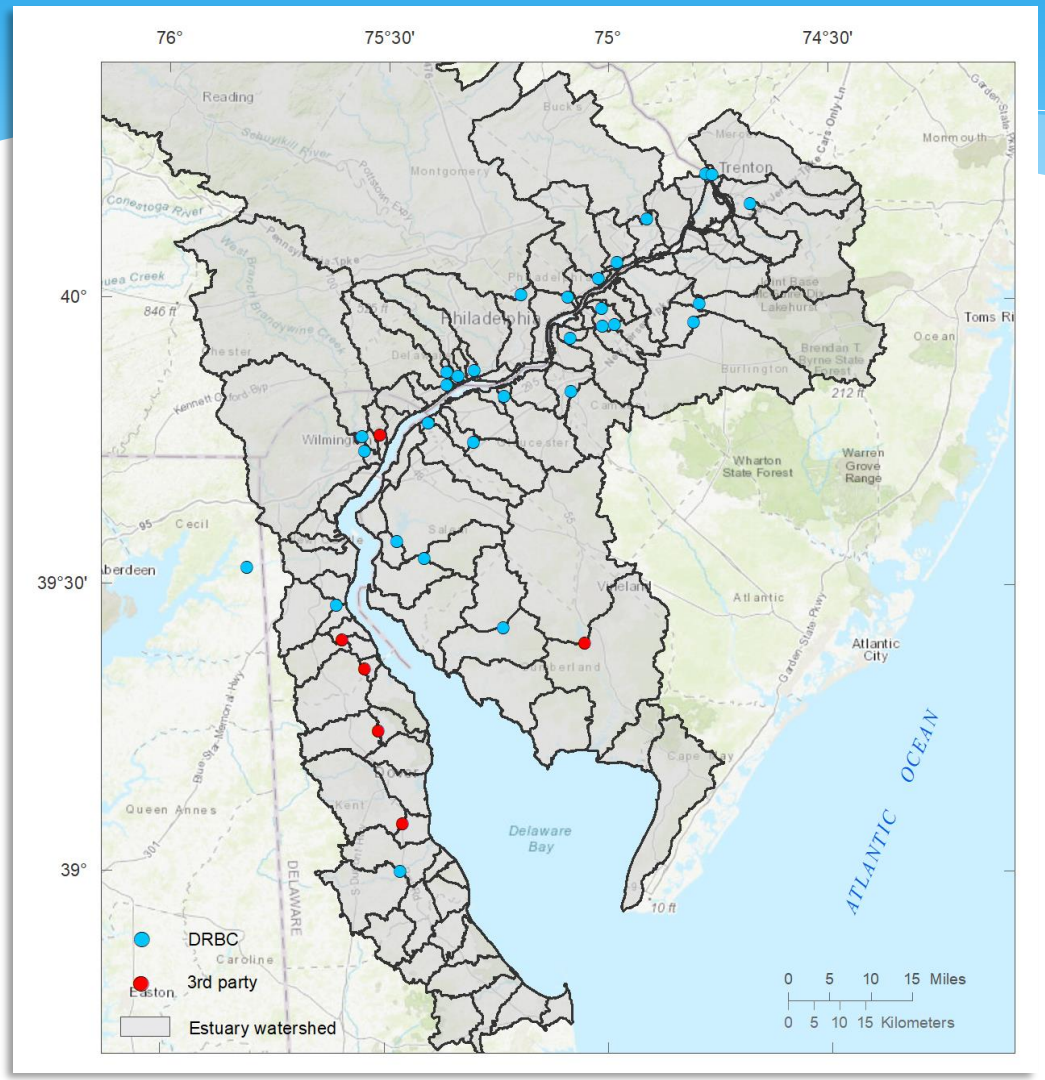
Modeling Studies

- Last face-to-face Model Expert Panel meeting was held on December 4-5, 2019. (https://www.nj.gov/drbc/library/documents/WQAC/120519/update_expert-panel_model-progress.pdf)
  - Next Steps:
    - Calculate loads for direct watershed contributions (NPS, MS4)
    - Assign CSO flows and concentrations (pending data from dischargers)
    - Replace calculated MS4 flows in CSO areas with CSOs
    - Assign wet and dry atmospheric deposition loads
    - QA/QC R-scripts used to implement state variable assignment methodology for tributaries and point sources

Water Quality Model Preparation

- NPDES Point source dischargers
  - DRBC received raw effluent data from Tier 1 & 2 and CSOs in May 2020
  - QA/QC has completed
  - Developed approach to calculate point source loads (concentrations) for 2018-2019 period
- Atmospheric deposition was estimated
- Sediment diagenesis model frame established

Water Quality Model Preparation (Cont.)



- Estuary watershed -- 124 sub watersheds
  - Each requires flow and WQ boundary or load assignment
- Multi-agency data collected at 87 stations by DRBC, USGS, DNREC, PA-DEP, NJ-DEP
- Data management and QA/QC
- Developed and applied regression methods for boundaries/loads
  - Regression models: 2000 to present

Interactions with Panel and LimnoTech

- Six, 2.5-hour remote meetings with partial or full panel members in March – May
  - Diagnostic simulations for required vertical resolutions for hydrodynamic model
  - Initial calibration of 2D and 3D hydrodynamic model
  - Optimization of EFDC-WASP linkage time steps
  - Formulation of light extinction
  - Formulation of re-aeration
  - Development of Pre- and Post- processors
  - Finalization of 18 -state variable calculation methods for point sources, NPS and ambient data
- Expect to have a Joint Meeting between WQAC and Expert Panel in Fall