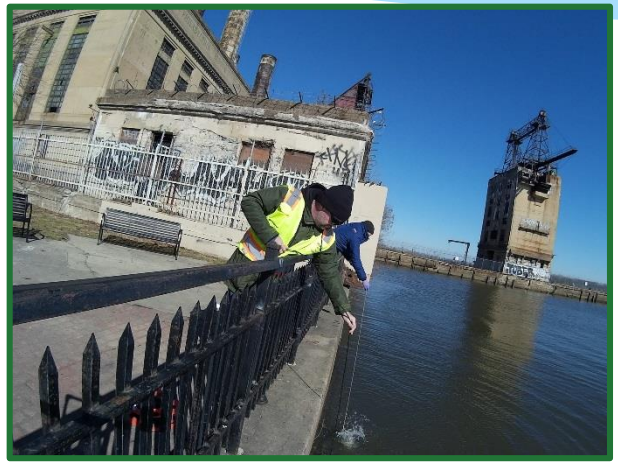
Delaware River Basin Commission

Water Quality Advisory Committee

November 14, 2019



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Engineering Evaluation & Cost Estimation Contract

Resolution 2017-4

https://www.nj.gov/drbc/library/documents/Res2017-04_EstuaryExistingUse.pdf

- Experts on modeling water quality and dissolved oxygen requirements of aquatic species
- Studies of the occurrence, spatial and temporal distribution of life stages of Delaware River Estuary fish species
- Input concerning DO and other water quality criteria to support Atlantic sturgeon
- Development and calibration of Delaware Estuary eutrophication model
- Nutrient loadings from point and non-point sources to support needed DO
- Capital and operating costs for achieving higher levels of DO
- Evaluation of factors affecting attainment of uses
- Report of findings and conclusions with input from WQAC and other stakeholders
- Coordination with USEPA and NMFS

Engineering Evaluation and Cost Estimation Update

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- Technical Memorandum on Generic Plant Capital Cost Estimates prepared by Kleinfelder sent to WQAC on October 25, 2019

Table 10: Generic Pure Oxygen Plant Summary of Capital Costs

Effluent Level	Capital Cost Estimate	$/gpd
NH_3-N = 10 mg/L	$80 million	1.0
NH_3-N = 5 mg/L	$105 million	1.3
NH_3-N = 1.5 mg/L	$134 million	1.6
TN = 4 mg/L	$336 million	4.0

- Other phases yet to happen
- Note $/gdp does not include any amortization
  - just an index

Kleinfelder's Approach to DRBC's Nitrogen Reduction Cost Estimation Study

Phase 1 – Develop Costs for Generic Plants

- Evaluate Existing Plants
- Develop Generic Plant Descriptions for each Plant Type
  - Conventional Activated Sludge
  - Pure Oxygen Activated Sludge
  - Fixed Film – Trickling Filter and Rotating Biological Contactor
- Develop Technology recommendations for NH3-N and TN Removal
- Finalize effluent levels for NH3-N and TN Removal
- Develop capital cost estimates for generic plants on a $/gpd basis for each level of treatment

Phase 2 – Develop Plant Specific Cost Estimates and Cost Curves

- Use generic plant $/gpd costs to establish "base capital cost" for each plant and level of treatment
- Add/Subtract costs based on plant specific performance, issues and constraints
- Develop Plant Specific O&M costs for each plant and level of treatment
  - Staffing, chemicals, energy, sludge processing and disposal, maintenance
- Prepare cost curves based on total present cost
  - Plant specific capital costs plus present worth of O&M costs
- Also develop cost curves based on annualized cost
  - Amortized plant specific capital costs plus annual O&M cost
- Prepare Draft and Final Summary Reports
- Conduct Meetings and Perform Project Administration Activities

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DO Early Action Workgroup

DO Early Action Workgroup Update

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8. Early actions to reduce oxygen depleting discharges. The Commission further directs the Executive Director to convene a workgroup consisting of state and federal coregulators to identify and encourage the implementation of practicable early actions that can be implemented by NPDES permittees in the near term to reduce the loading of ammonia and other oxygen depleting pollutants to the Estuary. The Commission recommends that the early action initiatives be led, coordinated, and managed by the appropriate state agencies and be supported through technical assistance provided by EPA and that this initiative commence without delay.

Full Resolution at:
https://www.nj.gov/drbc/library/documents/Res2017-04_EstuaryExistingUse.pdf

DO Early Action Workgroup Participants

Organization	Name
NJDEP	Frank Klapinski
	Stan Cache
	Stephen Seeberger
PADEP	Pravin Patel
	Thomas Magge
DNREC	Anthony Hummel
	John Rebar
EPA	K.L. Lai
	Walter Higgins
DRBC (support)	John Yagecic
	Namsoo Suk

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DO Workgroup meeting with DO Partnership

- Met October 7, 2019 at DELCORA
- Tier 1 facilities asked to consider what early actions could be taken to reduce discharge of ammonia, other oxygen depleting pollutants, in the interim
  - As described in Resolution 2017-4
  - Critical period for estuary dissolved oxygen is July-August (maybe September)
- Requested to have DO Workgroup back to a future DO Partnership meeting (~ 6 months) to follow up
  - DRBC is willing to partner - grant applications - data

Follow up on Nutrient Criteria Plan Discussions from September 30, 2019

Current Status of Non-DO Nutrient Endpoint Report

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- Comments from Stroud & Riverkeeper provided to ANSDU
- Anticipate expanded scope
  - Marsh impacts
  - Higher level synthesis (i.e. San Francisco Bay and others)
- Comments (round 1) by December 2019

- DRBC anticipates a 2nd *draft*, with a 2nd opportunity for stakeholder review and comments

Possible WQAC feedback regarding Nutrient Criteria Approach

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1. Options for evaluation of nutrient criteria

2. Recommendations regarding nutrient criteria subcommittee

Options for Evaluation of Nutrient Criteria

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WQAC could recommend evaluation of nutrient criteria:

1. As part of eutrophication model, consistent with DO endpoint (2017 draft plan)
2. As part of eutrophication model, if chlorophyll-a response is indicated
3. After the revised DO criteria, after investigation by a reinstated nutrient criteria subcommittee (similar to 2013 plan)
4. After some level of DO recovery, when other nutrient impacts are no longer masked by DO sag
5. Withhold a recommendation until the expanded non-DO nutrient endpoint report is complete

6. Some combination of above

Chloride Follow-Up

Chloride follow-up
Last Discussion

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Next Steps

* Increases in chloride concentration and specific conductance is not just a Delaware River Basin problem, but a national issue;
  * Likely associated with road-salt application, but other sources/reasons should be assessed;
* What can be done about it?
  * A subcommittee could be formed to address the complex issues related to increasing chloride concentrations;
    * Address data gaps;
    * Generate discussion among groups and agencies;
    * Inspire research on the topic.

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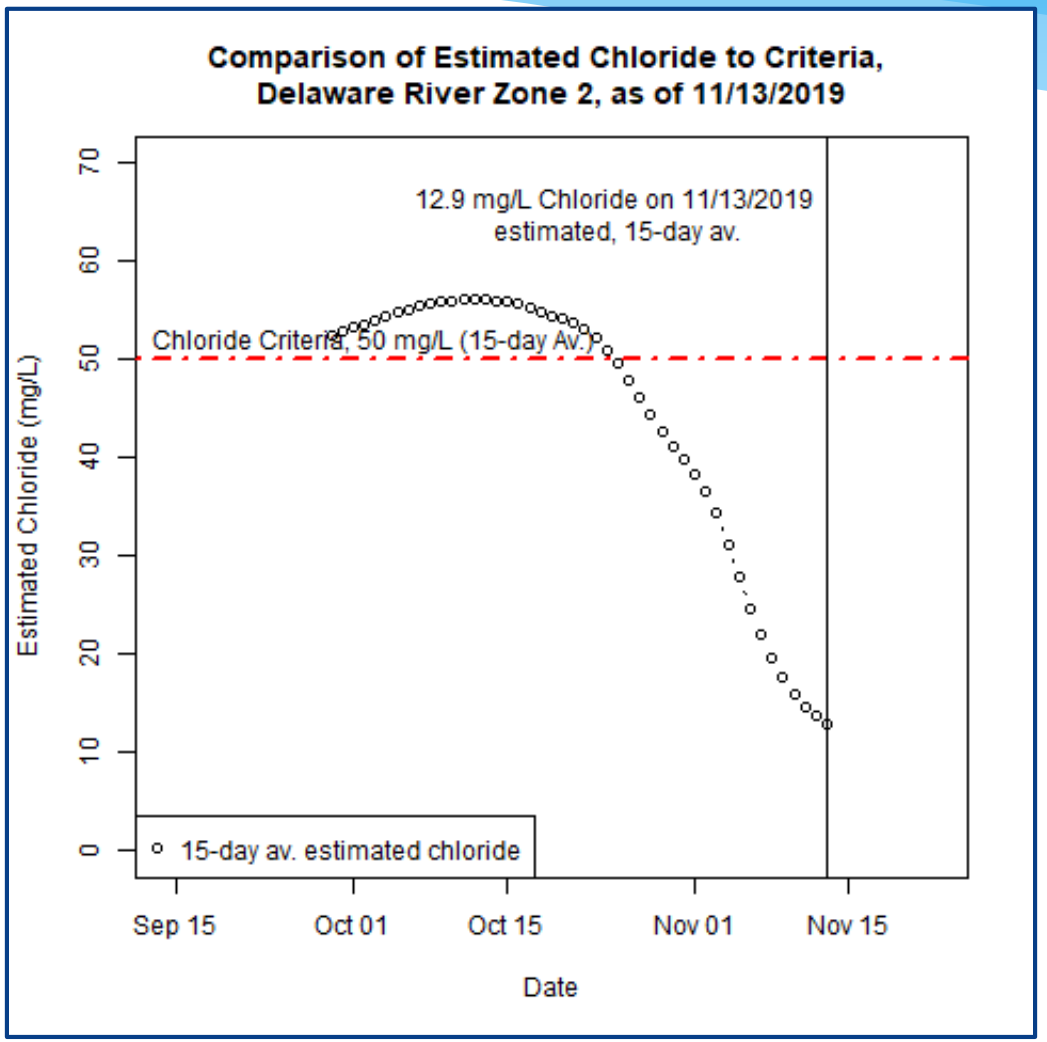
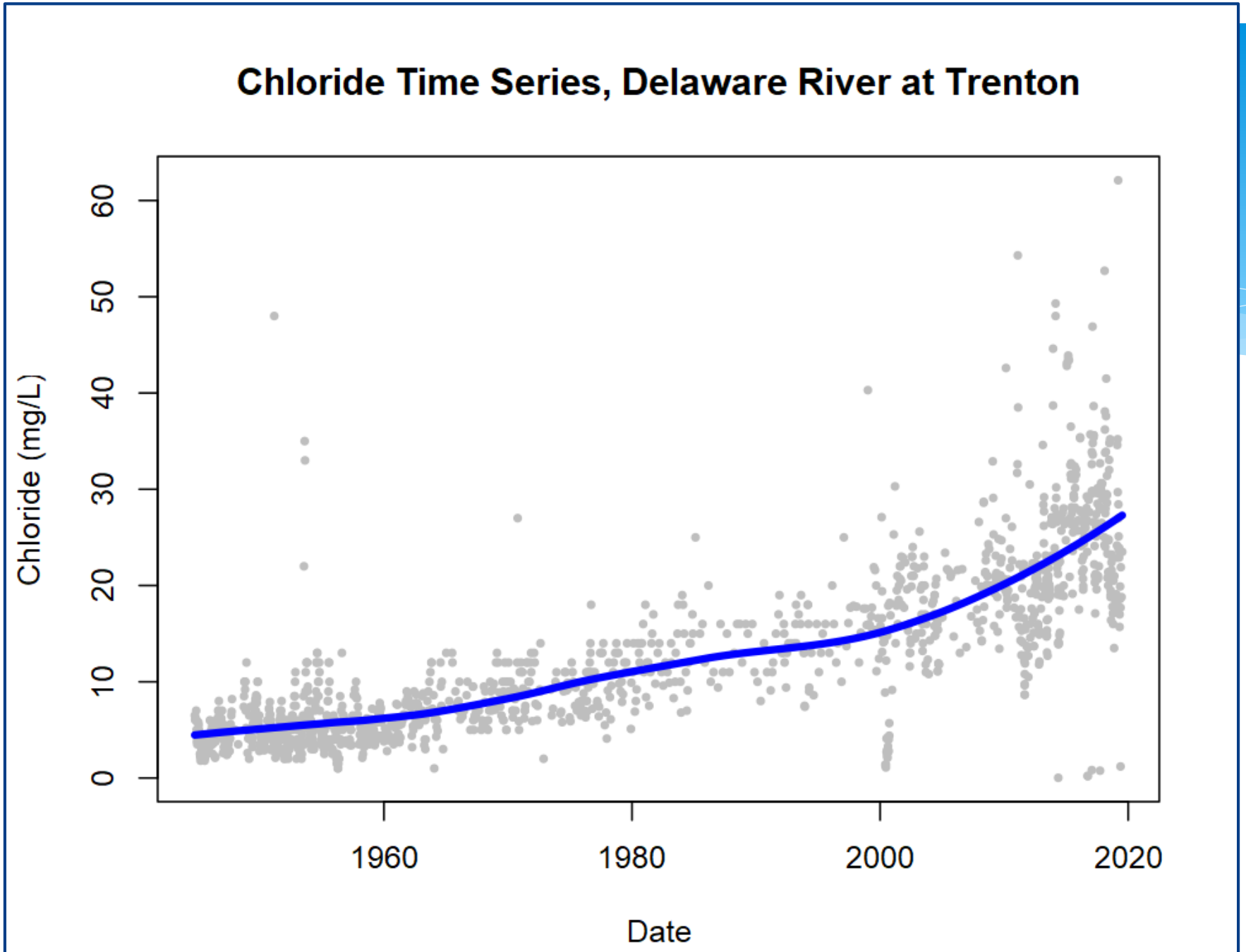
- March 2018 WQAC meeting
- States & DOTs conducting studies(?)

Current Status – Zone 2



DRBC Water Quality Dashboard
https://drbc.net/Sky/waterq.htm



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All available data in National Water Quality Data Portal
https://www.waterqualitydata.us/

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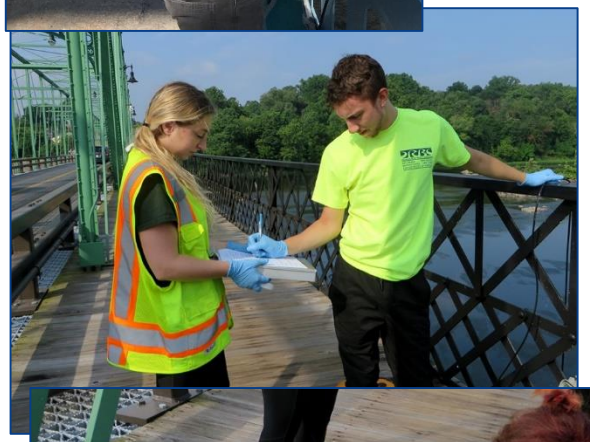

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