Economic Value of Dissolved Oxygen Restoration: Delaware Riverkeeper Network Report

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Delaware Riverkeeper Network ("DRN") released a December 2020 report titled:

Economic Value of Dissolved Oxygen Restoration in the Delaware Estuary ("Report")

The *Report* is described as a collaboration between DRN and Key-Log Economics.

The *Report* assesses the effect of improved dissolved oxygen ("DO") in the Delaware Estuary. The assessment is stated to be both qualitative and quantitative. An ecosystem services assessment framework is utilized.

The *Report* discusses the extent of relationships between ecosystems and societal benefits. The analysis focuses on the population residing within two miles of the Delaware River and the tidal Schuylkill River.

DO is a measure of how much oxygen is dissolved in the water. Therefore, this is a measure of the amount of oxygen available to living aquatic organisms. The amount of dissolved oxygen in a waterbody is affected by temperature, movement of water, organic material (which consumes oxygen), and other factors.

DO is therefore typically a water quality parameter encompassed by state water quality standards adopted as required by Section 303 of the Clean Water Act. Water quality standards utilize water quality criteria (i.e., parameters) which are ambient water quality conditions deemed protective for the use established for a waterbody. The Clean Water Act requires states to adopt water quality criteria to protect designated uses.

Components of the *Report* include:

- Overview of the Delaware Estuary and Water Quality (including potential for further dissolved oxygen restoration)
- Method of Analysis – Ecosystem Services Framework
- Evaluating Means-Ends Diagrams Using the National Ecosystem Service Partnership Guidebook
- Spatial Analysis Connecting Sources, Sinks, and Benefit Areas
- Estimate Key Ecological and economic Outcomes
- Societal Benefits
- Fisheries
- Other Recreational Activities
- Property Value
- Estimating Current and Future Dissolved Oxygen Distributions

- Estimating Increased Juvenile Survival for Striped Bass, American Shad, and White Perch
- Conceptual Model of Ecosystem Response to Changes in BOD Loading
- Methods
- Water Quality Improvement Interviews

A copy of the Report can be downloaded here.