SUMMARY AND RESULTS OF THE DELAWARE RIVER AND BAY PILOT STUDY OF THE NATIONAL MONITORING NETWORK FOR U.S. COASTAL WATERS AND THEIR TRIBUTARIES

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ABSTRACT

Delaware Bay was selected as one of three pilot studies to test and improve the concepts of the National Monitoring Network for U.S. Coastal Waters and Tributaries. The proposed Network is unique because it provides a national framework for an integrated, multidisciplinary approach to monitoring and addresses a broad range of water resources, from upland watersheds to offshore waters. A long history of successful integrated water management exists among the four states in the drainage basin through the Delaware River Basin Commission and coordinated estuary management through the three lower Basin states and EPA through the Delaware Estuary Program. Basin hydrologic features include: 216 tributaries within New York, Pennsylvania, New Jersey and Delaware: one of the world's largest freshwater tidal estuaries; more than 400,000 acres of wetlands; and the 782 square mile Delaware Bay.

Pilot study tasks included identification of management issues, inventory of current monitoring, identification of gaps, investigation of data comparability and data sharing issues, and estimation of costs of current and needed monitoring. The Delaware Bay inventory effort identified numerous major Federal, State, Interstate, private and academic monitoring programs and data management activities focused on very specific management issues related to: 1) freshwater inflow; 2) water use; 3) dissolved oxygen; 4) nutrients and biogeochemical processes; 5) contaminants; 6) estuarine sediments and marsh dynamics; 7) transportation and port security; and 8) impact of climate change on sea level rise, salinity, water temperature and dissolved oxygen. The estimated cost of existing monitoring within the Network design is $2.0 million and the estimated cost of to fill the monitoring data gaps in $2.5 million, for a total cost of $4.5 million to fully implement the Network design. This can be contrasted with an estimated $7.5 million annual cost of existing monitoring beyond the Network design to address local management issues.

Network refinement recommendations based on the pilot included the application of local expertise to add monitoring of tributary rivers not specifically mentioned in the Network design report, and implementation of Tiered framework for monitoring wetlands systems. The Pilot Study helped monitoring partners key on specific gaps related to numbers of sites, sampling frequency, the need for additional analytes, and the need for improvements to data management systems. Lastly, results of the Study are serving as a catalyst to grow regional observing, monitoring and data sharing capacity.

KEYWORDS:
Delaware Bay, Integrated Water Management, GAP Analysis, Data Comparability, Data Sharing Issues