

APPLICATIONS FOR NEAR REAL-TIME AND INTERACTIVE DATA ASSESSMENT IN THE DELAWARE RIVER BASIN

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ABSTRACT

Advances in data processing scripting languages (such as R) allow us to do more with the data we already collect. In recent years the Delaware River Basin Commission has been developing a series of applications to make the most of basin water quality and flow data. This poster session will highlight interactive examples, such as the Delaware Estuary Water Quality Explorer and AEMR Explorer, and near real time assessments including the DRBC flow and water quality dashboards. These applications provide real up-to-date understanding about the conditions of the Delaware River Basin and allow users to intuitively tailor visualizations to their individual needs. This poster will include an interactive electronic screen to allow conference attendees to use the applications, and will provide background on the data sets, scripts, and work flows behind the applications.

BACKGROUND

In the past, our utilization of data typically involved performing static assessments summarized in written reports. This approach had two significant deficiencies:

- Assessments described flow and water quality conditions that were no longer current. By the time we realized that a water quality event had occurred, the opportunity to respond or investigate was long over;
- The Audience for the assessment could only engage with the visualizations and assessments developed by the author, rather than exploring their own questions about the data.

Over the past several years, the proliferation of web-hosted data and statistical programming languages (such as R) have allowed us to overcome these limitations and develop more engaging, current, and informative data products. Interactive assessment apps, such as the Delaware Estuary Water Quality Explorer, allow users to explore the time and space structure of data and better understand the Delaware Estuary. Near real-time assessments show how current conditions are meeting criteria and thresholds. Modern data hosting and processing allows a direct and instantaneous linkage between measurement in the field, and understanding and decision making.

OBJECTIVES

Objectives of this work included:

- Developing real-time awareness of Delaware River flow and water quality conditions;
- Enhancing stakeholder interactions with high-value data sets;
- Expanding DRBC's data processing and interpretation capabilities.

ACKNOWLEDGMENTS

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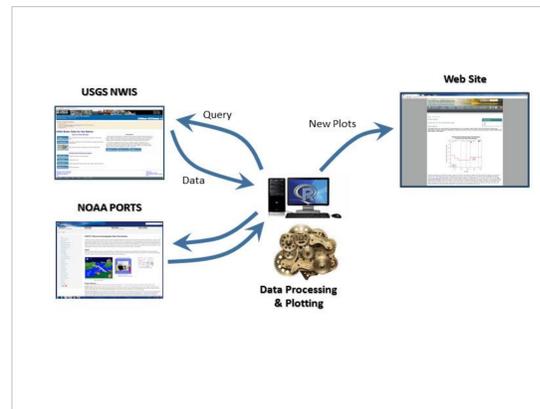
METHODS

Interactive Apps

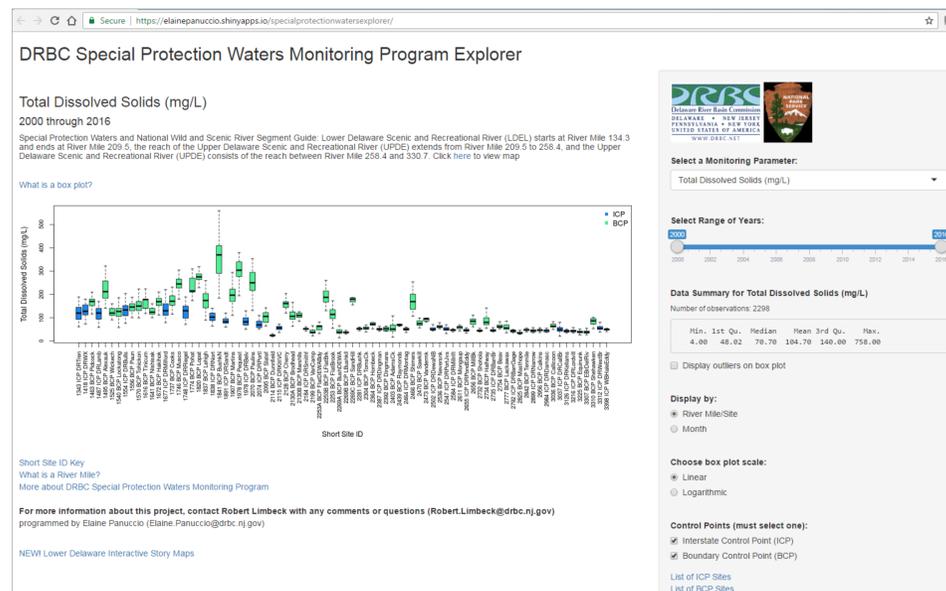
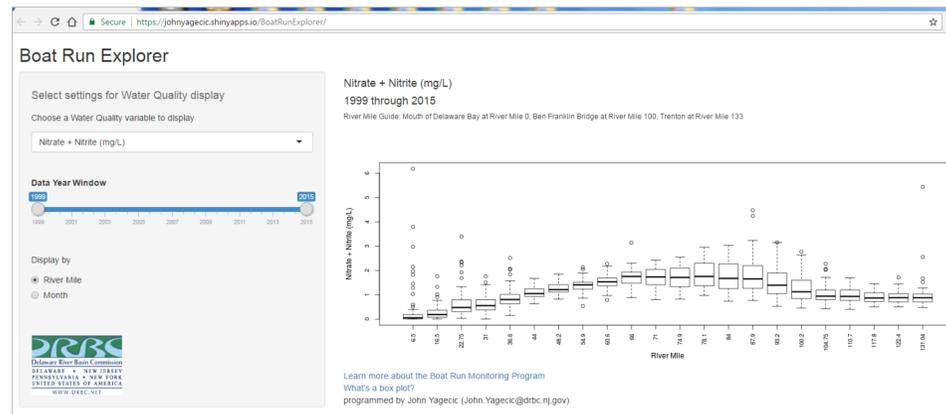
Interactive data exploration apps were created using the R Shiny platform. Apps generate new visualizations on the fly from user selected inputs.

Near Real-Time Assessments

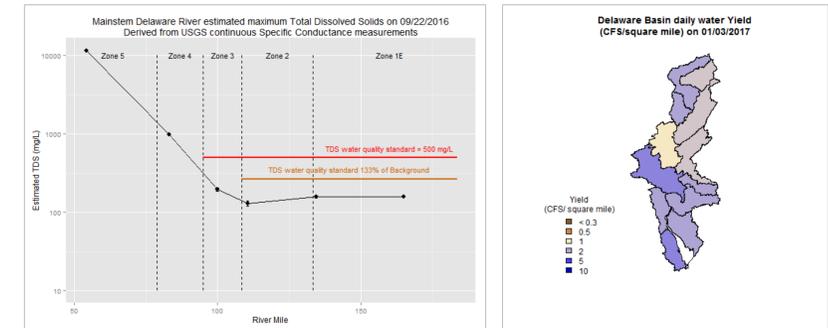
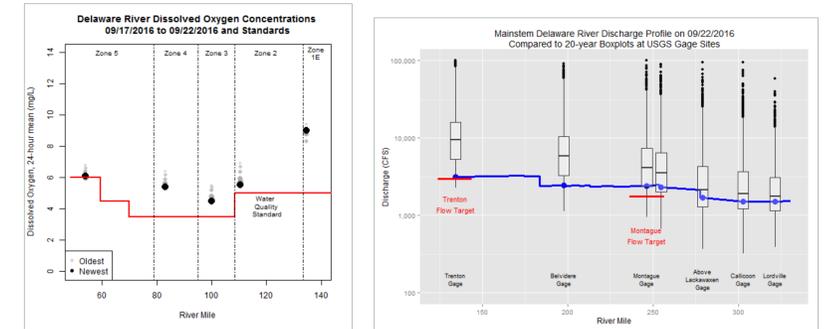
Automated scripts pull data from the internet overnight, every night. Scripts process the data into visualizations, updated and served out daily.



INTERACTIVE ASSESSMENT APPS



NEAR REAL-TIME PRODUCTS



ON DEMAND ASSESSMENT

