

**RI Water Resources Virtual Forum Summary  
September 13<sup>th</sup>, 2021**

**Moderator: Vinka Oyanedel-Craver Director Rhode Island Water Resources Center**

**Paul Barlow, Associate Director of the Hydrologic Interpretive Program for the USGS New England Water Science Center** ([pbarlow@usgs.gov](mailto:pbarlow@usgs.gov))

Start time: 9:20 min      End time: 40:48 min

Start Q&A: 41:03 min

Finished Q&A: 53:15 min

Paul Barlow talked about what USGS does to keep track of the water quantity and quality in the New England region. He has shown the complete data set that the USGS has on its website, such as nitrogen (nitrate/nitrite) content, phosphate, streamflow conditions, etc. The bullet points below cover the topics he has talked about:

- All data available on the USGS website
- Streamflow Conditions
- Monitor Water levels
- pH, alkalinity, color, and turbidity
- Monitor nitrite/nitrate (Nitrogen content), Chloride, Phosphate, cations, anions, metals, nutrients, physical properties, bacteria in natural water.
- Water quality processes (PFAS, HABS)

The USGS monitors:

- Streamflow
- Specific conductance
- Chloride, Sodium

Goals:

- Determine the current groundwater nitrogen loading from septic-system
- Water-quality, sediment, and algal sampling.

Several Projects around New England:

- Groundwater discharge, travel times, and nitrogen loading (Simulation data)
- They monitor groundwater discharge to coastal streams (sampling is done)
- They want to monitor nitrogen loading from coastal groundwater streams.

Collaborations with new nitrate/nitrate sensors are welcome; since there is a proof of concept that the new sensor can be used.

**Meredith Brady, Associate Director, Rhode Island Department of Administration, Division of Statewide Planning** ([Meredith.Brady@doa.ri.gov](mailto:Meredith.Brady@doa.ri.gov))

**Kathleen Crawley, Acting General Manager, Rhode Island Water Resource Board**  
([Kathleen.Crawley@doa.ri.gov](mailto:Kathleen.Crawley@doa.ri.gov))

**Timothy Stagnitta, Programming Services Officer, Rhode Island Water Resources Board**  
([Timothy.Stagnitta@doa.ri.gov](mailto:Timothy.Stagnitta@doa.ri.gov))

Start time: 01:01:16 min      End time: 01:39:41 min

The Division of Statewide Planning (DSP) promotes and encourages best practices for the balanced growth and development of the State of Rhode Island. Committed to data driven decision-making, the DSP's goal is to ensure equitable, sustainable, and resilient development that meets the needs of the present without compromising the needs of the future.

The State Guide Plan is Rhode Island's centralized and integrated long-range planning document. The State Guide Plan is not a single document but a collection of plans that have been adopted over many years. It comprises many separately published elements (currently 18) covering a range of topics, including water ([Rhode Island Water 2030](#) and [Water Quality 2035: RI Water Quality Management Plan \(2016\)](#)). Research to support updates to the water elements of the State Guide Plan and data related to water infrastructure are priorities.

The Water Resources Board was created in 1964, has a 15-member board comprised of water agencies and stakeholders and has been housed in the Division of Statewide Planning since 2011. The Board's mission is to ensure that RI has enough fresh, clean water now and in the future. Water use and availability, drought monitoring and mitigation, water efficiency and protecting the raw water quality of drinking water sources are mission critical activities. Two research projects are underway related to water use. A third is assessing trout habitat in the 8400-acre Big River Management Area (land slated for a reservoir that is administered by the WRB).

Research areas that align with the Board's mission include:

- Quantifying water use
- Defining sustainable use
- Water availability in our resources and in our built supplies
- Drought management, planning, indices, regional research opportunities (Northeast)
- Drinking water source availability and protection
- Contaminants of concern
- Developing tools to increase awareness and understanding of water resources

Some research ideas include:

- Update water availability estimates
- Water use estimating and/or pilot water use projects
- Drought analysis: hydrologic vs. meteorologic, duration and intensity analysis, agricultural drought indices, opportunities for regional collaboration
- 7Q10 analysis
- Update groundwater models and perform scenario modeling
- Seasonal water use and precipitation analysis
- Spatial analysis of high-risk small water systems and private supplies to assess options
- Develop a framework to coordinate stormwater management groundwater recharge to support water supply
- Develop a framework to coordinate stormwater management and groundwater recharge to support water supply

Different needs that group 2 talked about:

- Conducting and monitoring an inventory
- What kinds of data are needed to assure clean water availability?
- Projects involving machine learning.

**Sue Kiernan, Deputy Administrator Office of Water Resources Rhode Island Department of Environmental Management** ([sue.kiernan@dem.ri.gov](mailto:sue.kiernan@dem.ri.gov))

Start time: 01:40:03 min      End time: 01:54:48 min

RIDEM is organized into two primary branches the environmental protection branch and the natural resources branch. They have broad authority; they have worked with many communities in the state. Regarding the water resources, they are responsible for implementing programs from the clean water act, the federal clean water act, and administering several state laws. Their goal is to protect water quality and to account for climate change.

**Challenges:**

- Nutrient, bacterial/toxins
- PFAS, biosolids generated by treatment systems
- Microplastics, plastics, fiber, litter (Any data collection on that would be interesting)
- Cyanobacteria blooms, algal blooms
- Change in climate (They need assistance in understanding its implications) – they have a small capacity for sampling, and more data in this area would be good.
- Technologies to mitigate the growth of the bloom.
- Stormwater runoff, stormwater management are a priority one of the priorities.
- Nitrogen – they would like to have systems that can operate at a reasonable cost and reduce nitrogen to lower levels.

**Zhengkai Li, Environmental Engineer IV, Center for Drinking Water Quality Rhode Island Department of Health** ([Zhengkai.Li@health.ri.gov](mailto:Zhengkai.Li@health.ri.gov))

Start time: 01:55:00 min      End time: 02:14:06 min

The mission of RIDOH is to prevent disease and promote the health of the people in RI. RIDOH's Division of Environmental health houses five different programs; among them is the Center for Drinking Water Quality program promoting water quality for the state. RIDOH's Academic Institute fosters collaborations between RIDOH and other State agencies and academic intuitions. They have state laboratories where different chemical and microbiological samples are tested, and they keep the capacity to the protection of the drinking water quality in public water systems and private wells. Within this organization's many roles, some are conducting sanitary surveys and developing and enforcing the RI State drinking water quality standards, policies and regulations.

**Challenges**

- Emerging concerns (PFAS, Cyanotoxins) – they have a sampling study on the PFAS issue from 2017-2019

- Simultaneous compliances (lead and copper, pathogens, disinfectant by products)
- Opportunistic pathogens (*Legionella*)
- Phosphate impacts and biostability of treated water
- Alternative disinfectants
- Disinfection for reuse purpose of greywater and wastewater after advanced treatment.