Supporting the Respect the Shenandoah Campaign with Data

The Team

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Your Shenandoah Riverkeeper

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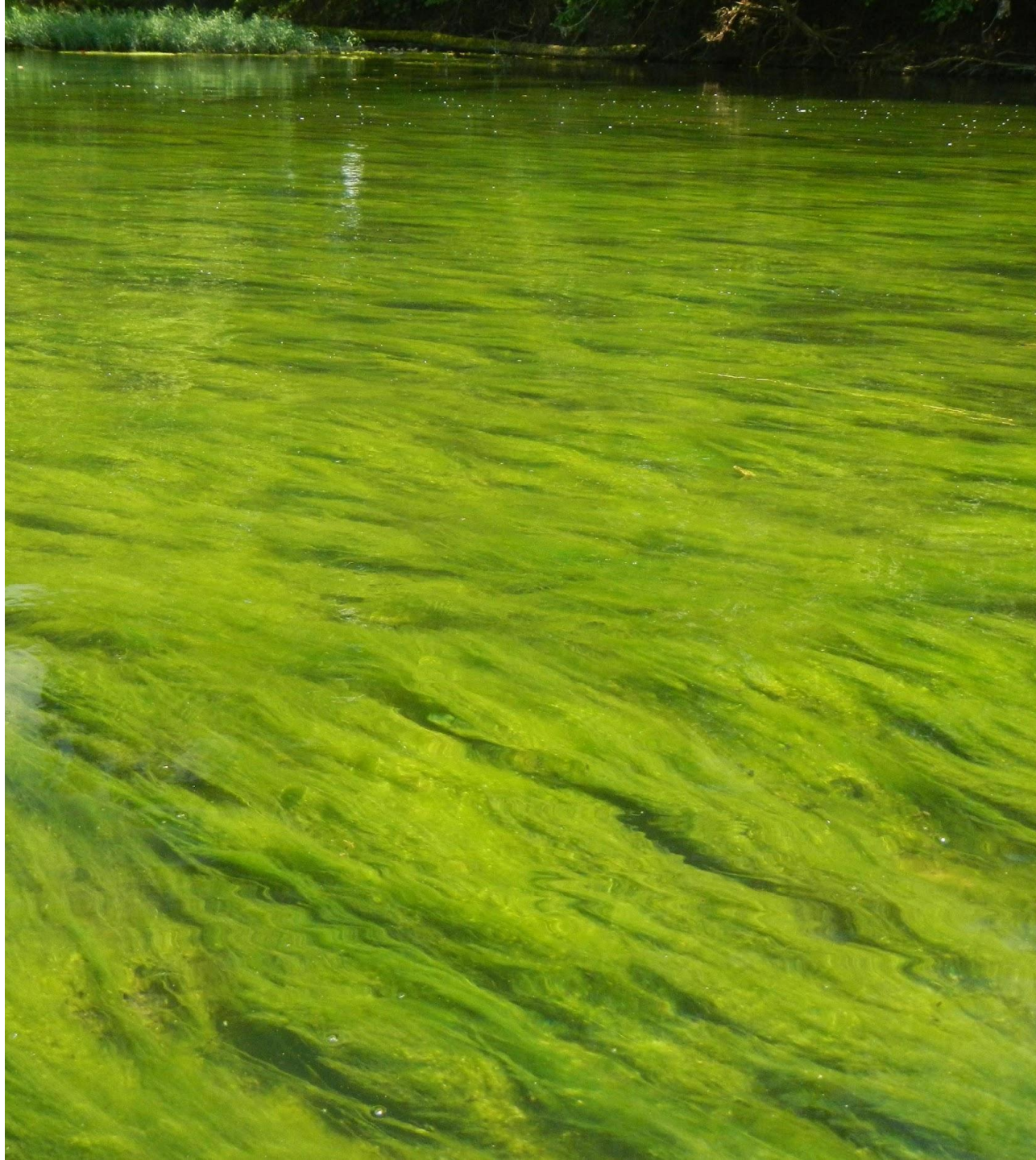
WATER REPORTER

Agenda

P1

Algal Blooms and the Shenandoah

History and current landscape of threats posed by algal blooms on the Shenandoah



P2

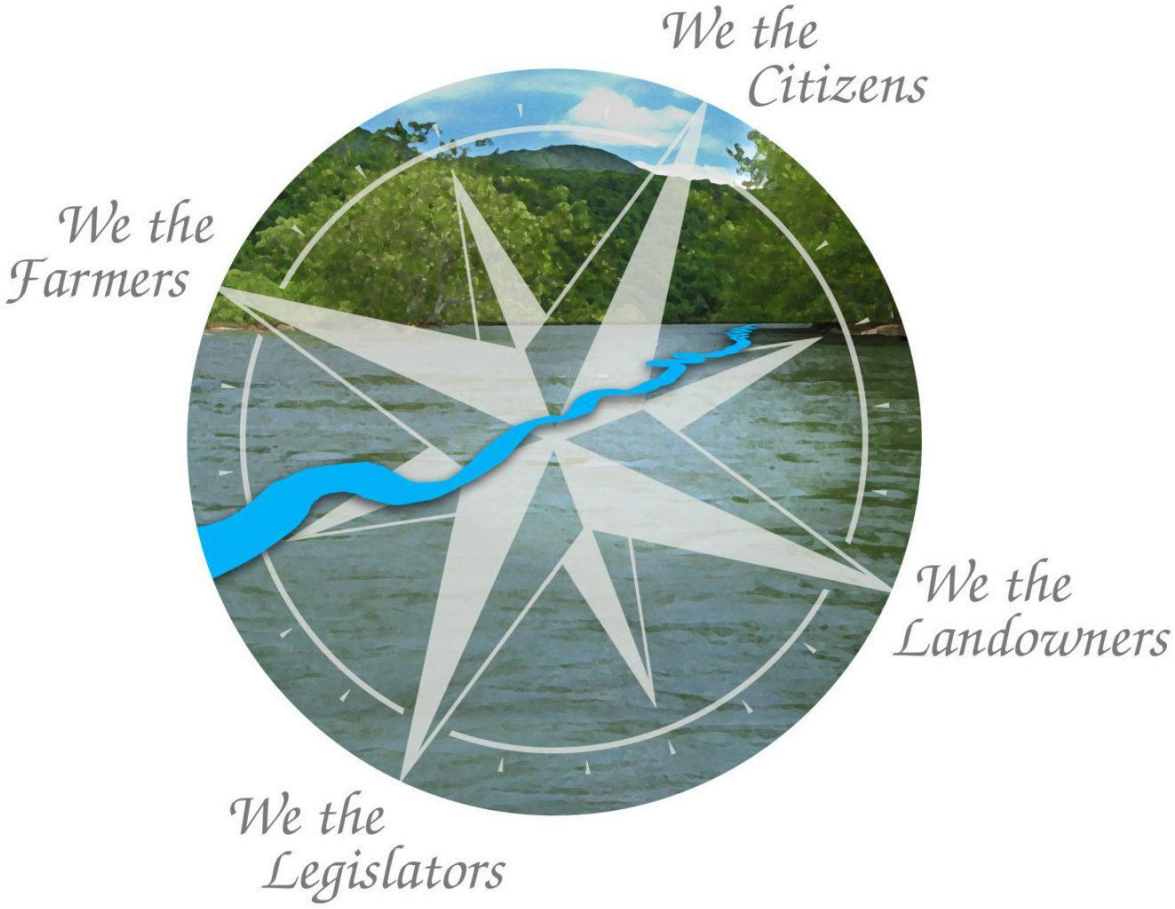
The Shenandoah Compact

Developing a roadmap and vision for a cleaner Shenandoah River

P3

Water Reporter's Role

Building trust, pressure, and political will with community observations and FAIR data



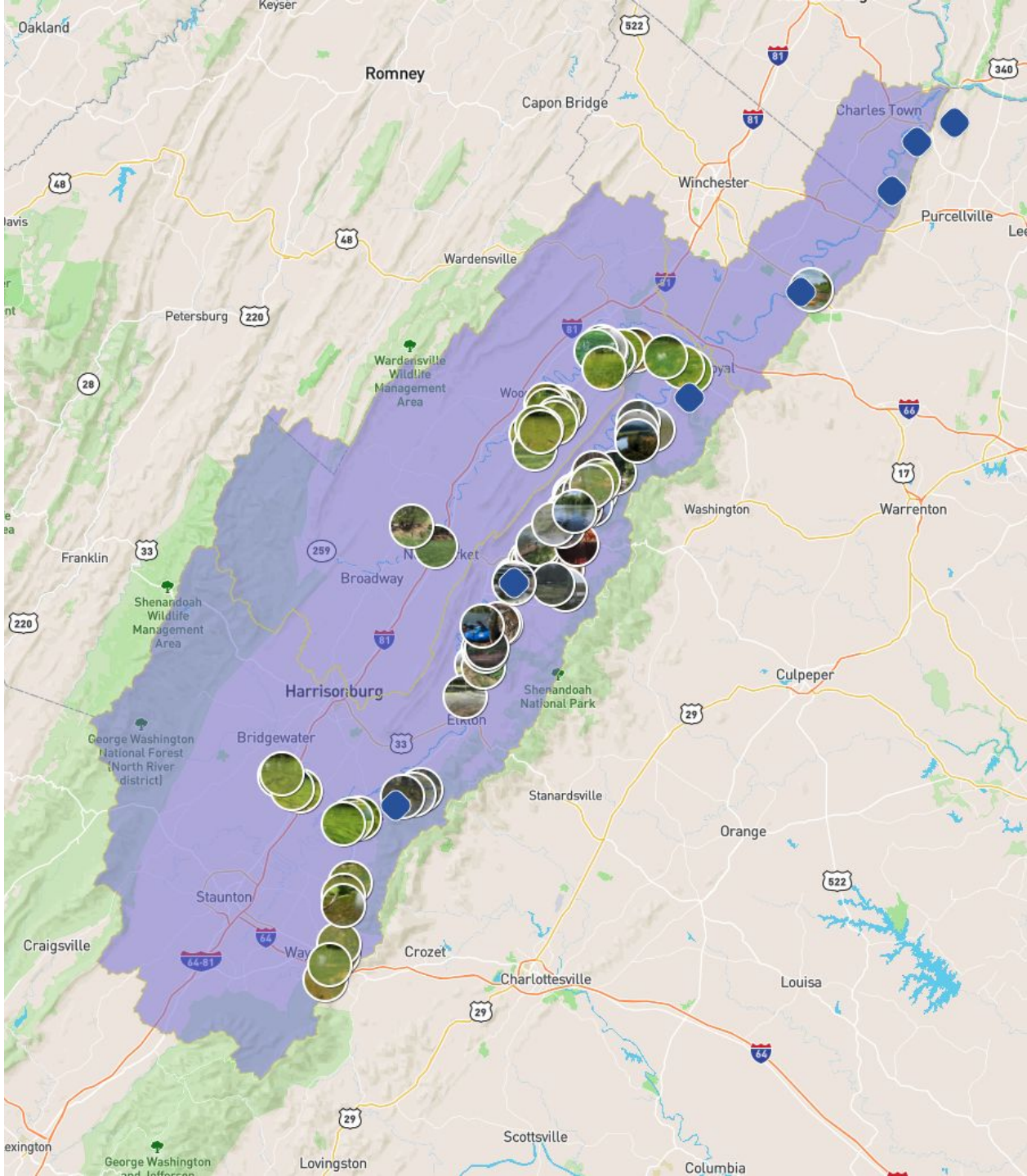
P4

Water Reporter Live Walkthrough

Examples of how PRKN is engaging staff and citizens in being the eyes and ears of the Shenandoah River Basin

P5

Questions/Discussion



Water Quality Issues in the S Shenandoah

Frank Filipy Oct 13

Approximately 12 cows in small tributary of N Fork Shenandoah as viewed from Senedo Rd. just west of Quicksburg V . #respectthesh nandoah

North Fork Shenandoah Watershed

Alan Lehman Aug 11

Algae is thick in the North River near Grottoes, Virginia, in mid-August 2021. #respecttheshenandoah

South Fork Shenandoah Watershed

Frank Filipy Aug 6

August 6, 2021. S Fork Shenandoah, Grove Hill Boat Launch. Trash, empty asphalt buckets, car seat, VCR, dumped here. Not but 5 miles from Page County Landfill. Picked up for proper disposal. #respecttheshenandoah

South Fork Shenandoah Watershed

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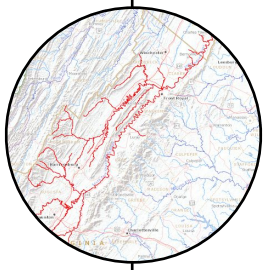
Timeline of Events

2004 - 2005 Major Fish Kill on the Shenandoah

Eliminated roughly 90 percent of the bass and sunfish population. Harmful algal bloom or hypoxia suspected but never proven. Work begins to seriously look at the role of algal blooms in the Shenandoah watershed



2010 - 2016 SRK Gains Impaired Listing Status for three branches of the Shenandoah

Impaired for nutrient overload or excessive algae for the 2012, 2014 and 2016 Impaired Waters List cycle

2016 - 2018 VADEQ Stands up Shenandoah Algae Methodology Study

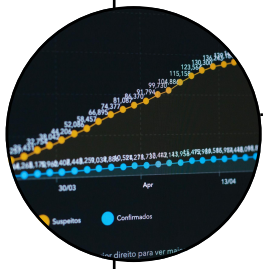
conducted testing in 2017 and 2018 at five Shenandoah River locations

2018 - 2029 SRK Begins work and publishes Shenandoah Compact

Shenandoah Watershed Compact published in early 2020 calling for ways in which various stakeholder communities could work to achieve the Compact's vision.

2020 HB 1422 passed into public law

Calls for all cattle herds in the Commonwealth to be removed from Virginia rivers and perennial streams by the end of 2025.
With the assistance of Downstream Project, SRK unveiled our Respect the Shenandoah campaign



Fall 2020 to 2021 DEQ Director Announces Numeric Standards for the Shenandoah

Spring 2021 DEQ announces this work will be done through Virginia's Triennial Review of WQ standards and that DEQ will use chlorophyll A as the nutrient metric and will focus on filamentous algae only for its impact on recreational impairment

July 7, 2021 SRK Issues Algae Bloom Complaint Using Data Obtained via Water Reporter

VDH announces a 23 July 2021 HAB advisory for the North Fork of the Shenandoah in the Strasburg area and then later (10 August) expands it to cover 52.5 miles of the North Fork from just downstream of Edinburg, VA to the confluence with the South Fork in Front Royal, Virginia

August 9, 2021 PRKN issues press release

Alerts DEQ that they must adopt criteria for HAB cyanotoxins into the state's water quality standards. The HAB outbreak in the Shenandoah is unfortunately a timely reminder that we are now dealing with both nuisance and harmful algal blooms in the river, and it would be prudent to make regulatory improvements to address both.

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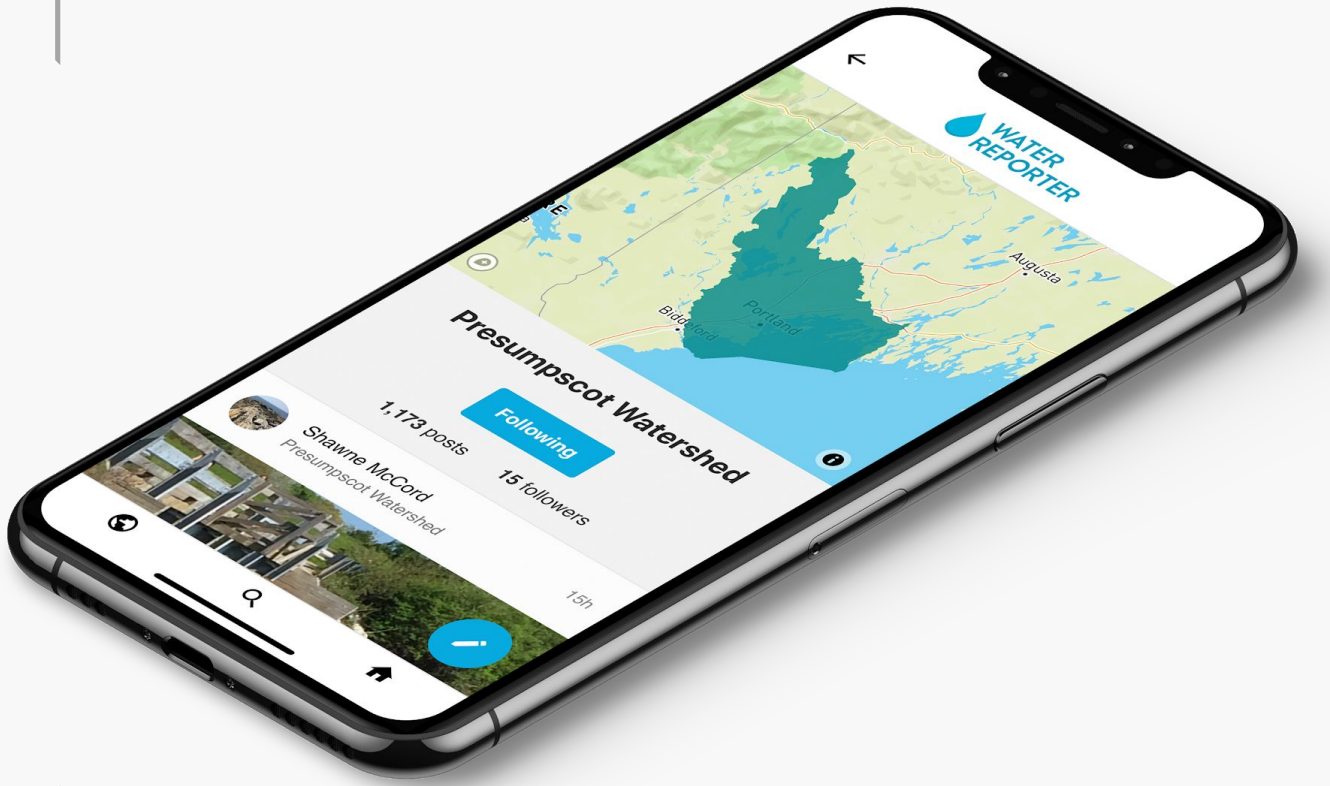
Platform elevates your Monitoring Programs

Engagement and productivity tools with multi-platform functionality encompass collection, management, analysis, and sharing of all data types



Supported Data Types

FieldAlias	DataType	CollectionMethod
record_id	Integer	Machine Generated
latitude	Decimal	Pulled from device
longitude	Decimal	Pulled from device
comments	String	User entered
image	String	Captured via Camera
watershed-huc	Integer	Automated based on location
watershed-name	String	Automated based on location
report-owner-fn	Text	User entered
report-owner-ln	Text	User entered
collection-date	Date	User entered

Observational Monitoring

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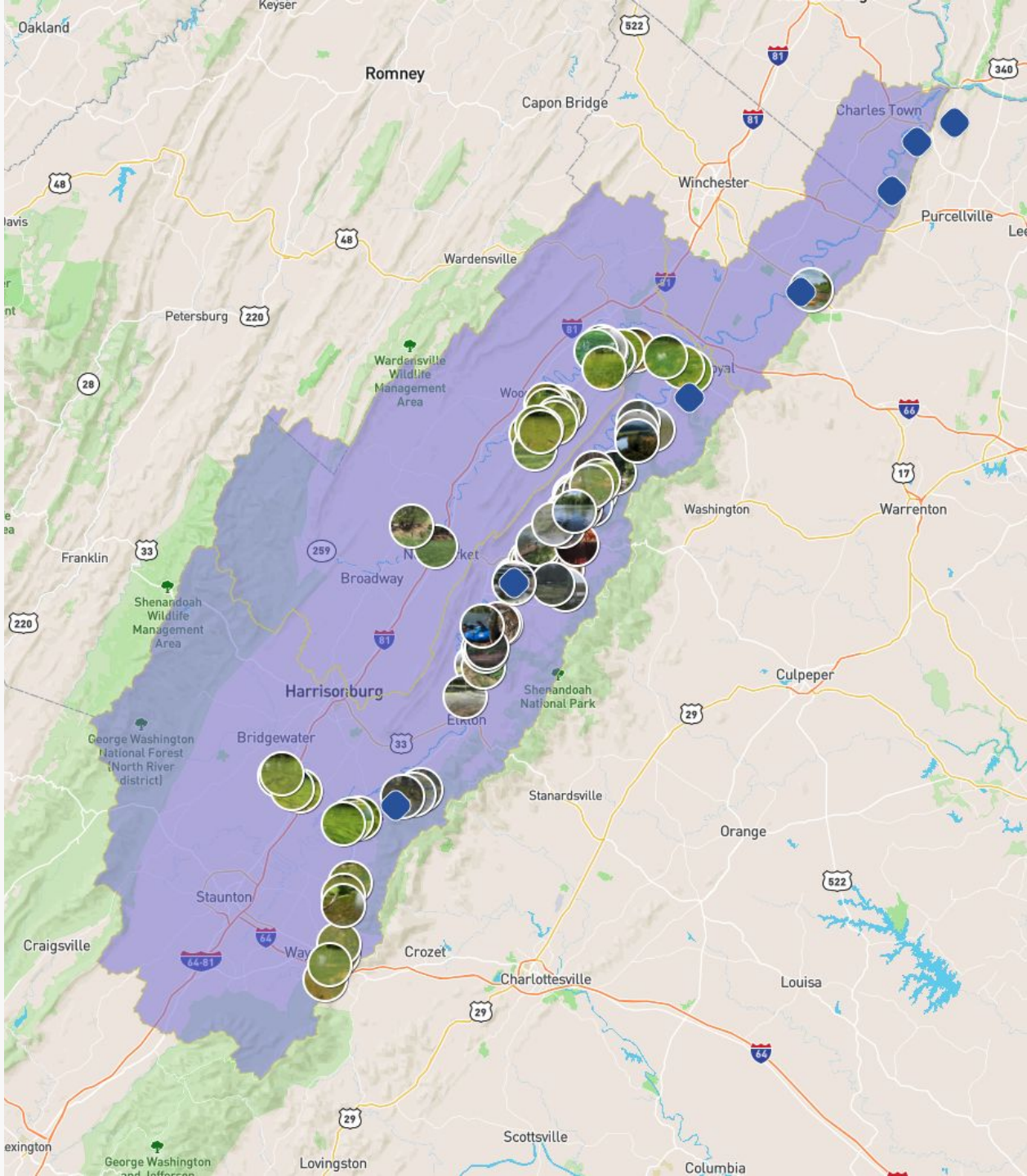
#respecttheshenandoah

- Observation for Watershed Residents, Anglers, and those Recreating
  - Sign up for a Water Reporter account
  - Join Potomac Riverkeeper Network
  - Share geo-referenced and time-stamped images of HABs
- Data to Action
  - Pushed to a live map
  - Data are stored and backed by Water Reporter's API



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Data to Action

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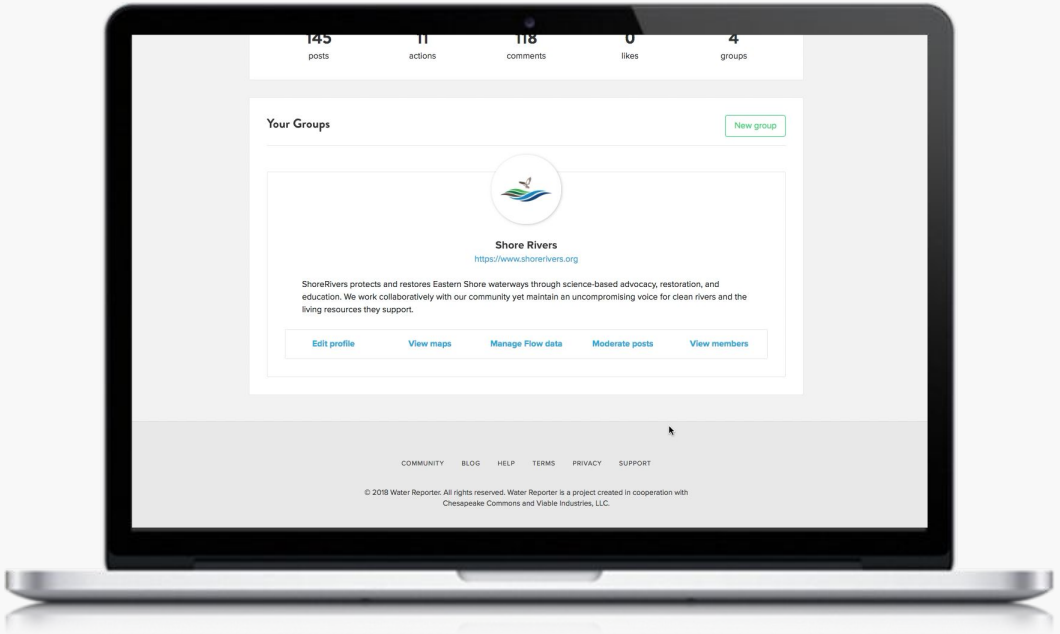
Water Reporter Data Sources

Manage WQ data

Add WQ station

Manage maps in your profile

Improve your website



Supported Data Types

FieldAlias	DataType	CollectionMethod
site_id	Integer	Machine Generated
latitude	Decimal	Pulled from Device
longitude	Decimal	Pulled from Device
watershed-huc	Integer	Automated Based on Location
watershed-name	String	Automated Based on Location
site-name	Text	User Entered
site-description	Text	User Entered

FieldAlias	DataType	CollectionMethod
site_id	Integer	Machine Generated
reading_id	Integer	Machine Generated
collection-date	Date	User Entered
{Append *n* number of Parameter Names & Parameter Data Types}	Text, Date, Enumeration, Integer, Decimal, Document, Image	User Entered

Tier 3: Quantitative Sampling

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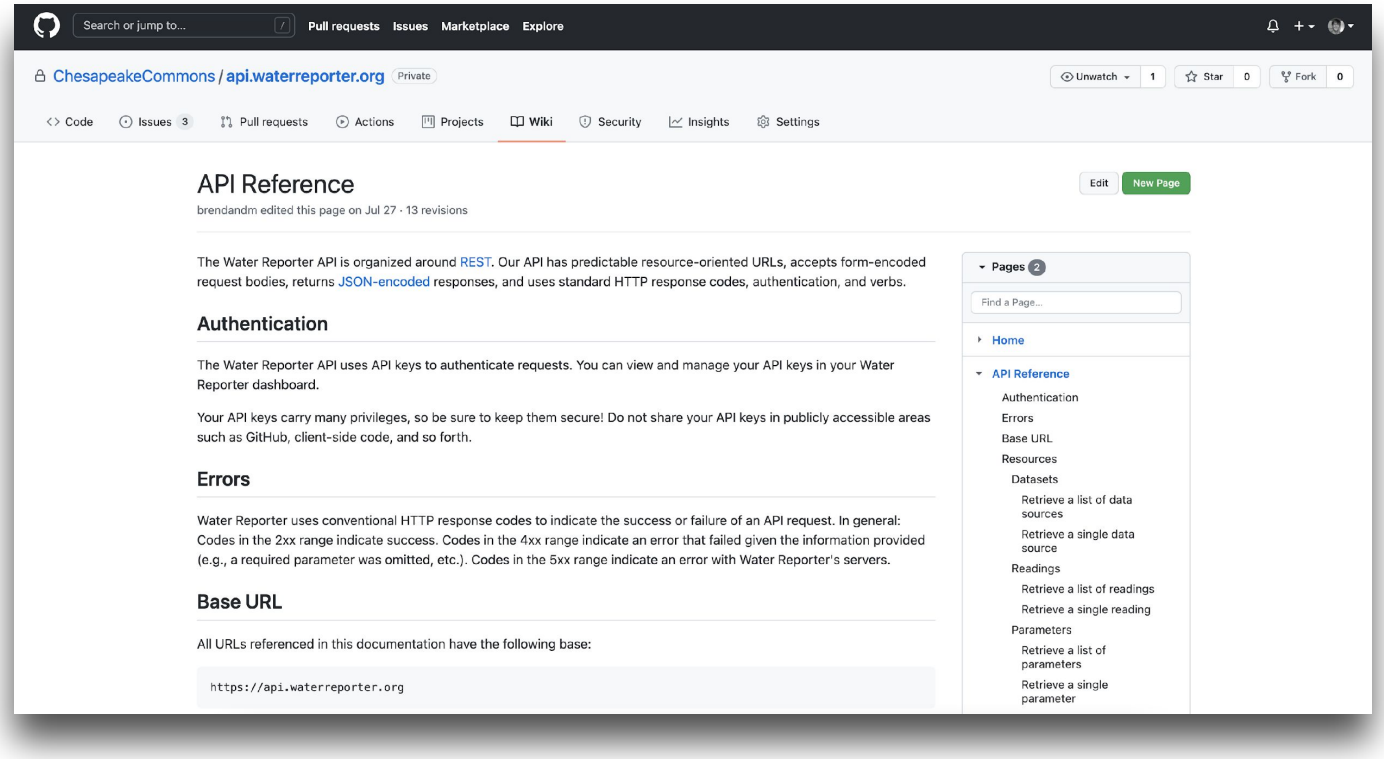
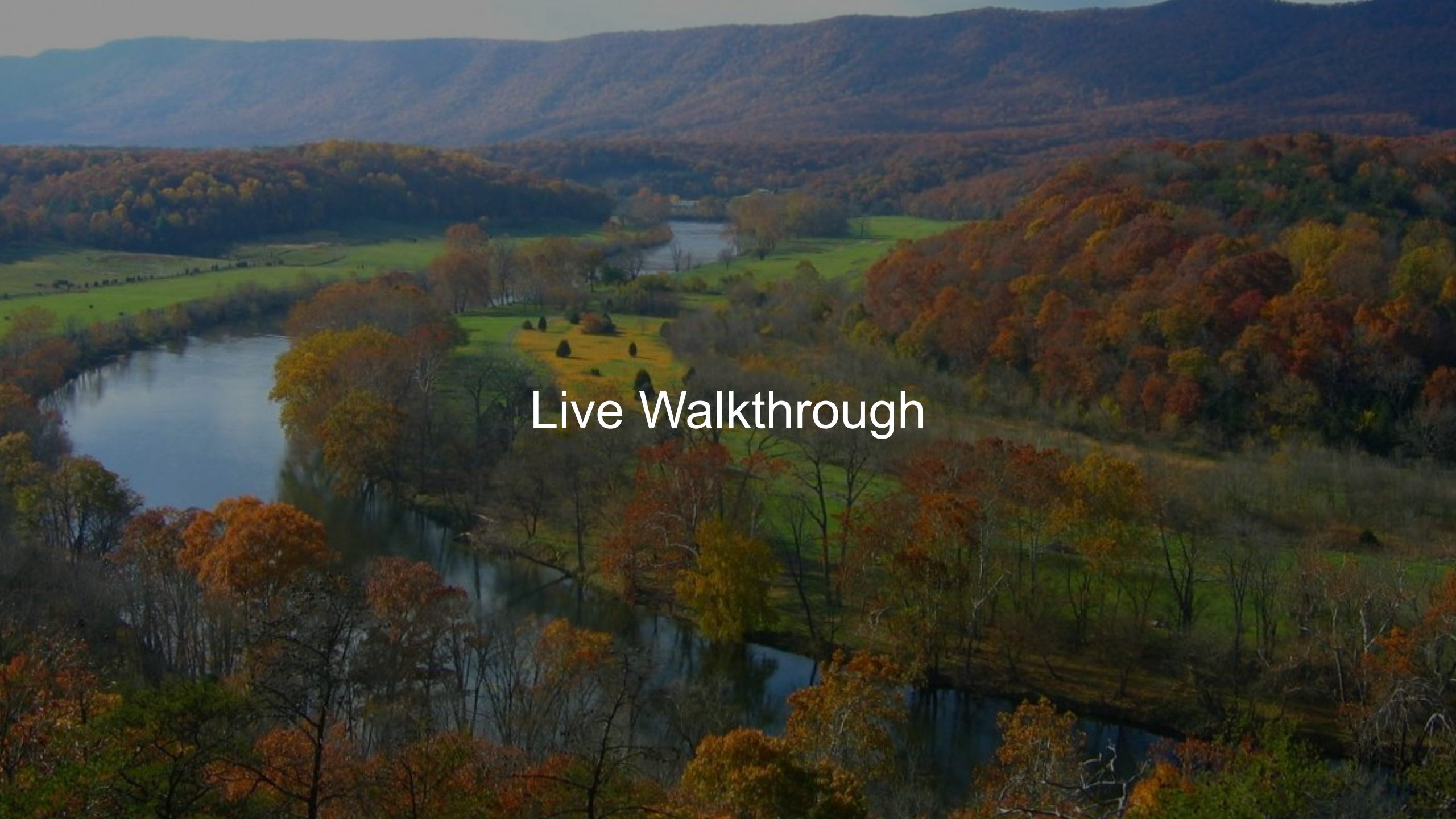
API Development and Station Cards

- Structured JSON API Allows for application development on data in Water Reporter
  - Fuels custom visualizations
  - Ensures flexibility and adaptability of the platform
  - Builds a developer community around Water Reporter




Live Walkthrough


FRIENDS OF THE SHENANDOAH RIVER
The following site is monitored by Friends of the Shenandoah River. Scan the QR code for the latest river conditions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REPORTER
Questions and
Discussion

History and Current Landscape of HAB Monitoring

- No Numeric Standard for HABs
  - PRKN has been monitoring since the 2000
  - HABs have become more frequent on the river
  - A non numeric standard makes listing a waterbody as impaired incredibly difficult
  - Advocated for both a narrative or a non numeric standard and was defeated on both fronts