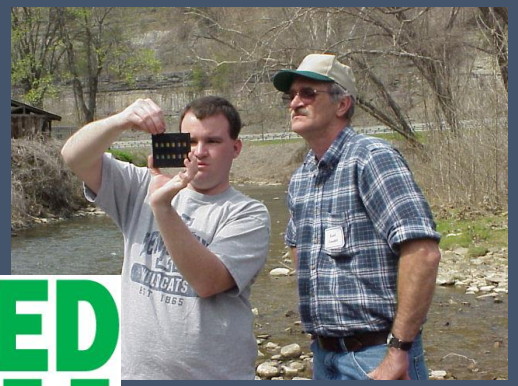


WATERSHED WATCH IN KENTUCKY

Maggie Morgan, Justin Smith, Chad Doughty

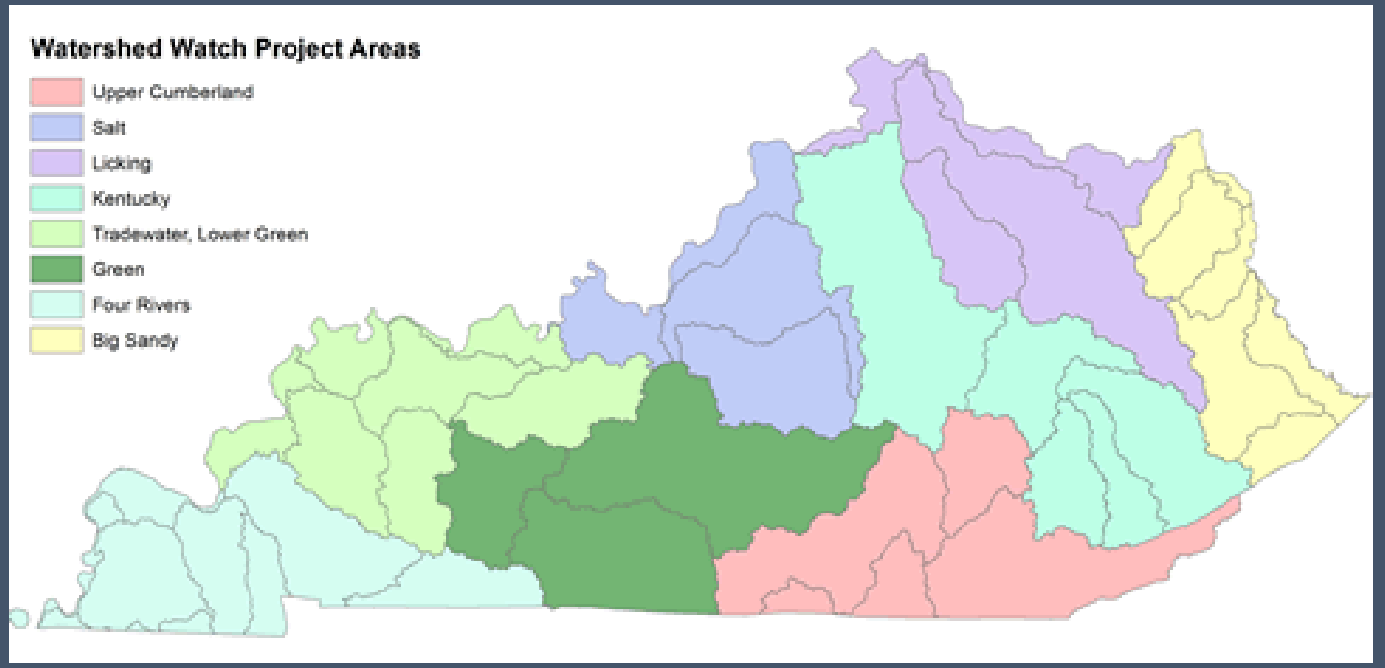
What is WWKY?

- **Mission:** support a citizens monitoring effort to improve and protect water quality by raising community awareness and supporting implementation of the goals of the Clean Water Act and other water quality initiatives
- **Purpose:** coordinate and advise the basin groups across the state, supporting citizen scientists by providing the necessary tools to collect and interpret their data
- Made up of representatives from each basin and from our three founding partners (Kentucky Division of Water, Kentucky Waterways Alliance, and Sierra Club)

WATERSHED WATCH IN KENTUCKY

What is WWKY?

Creates a common agenda for the 8 basin groups, setting the standards for engagement with volunteers across the state, and coordinating with partnering organizations that promote clean water in Kentucky



WATERSHED WATCH IN KENTUCKY

Goal: Get people into the real world to see first hand the condition of their streams.

WATERSHED WATCH IN KENTUCKY

WWKY Committees

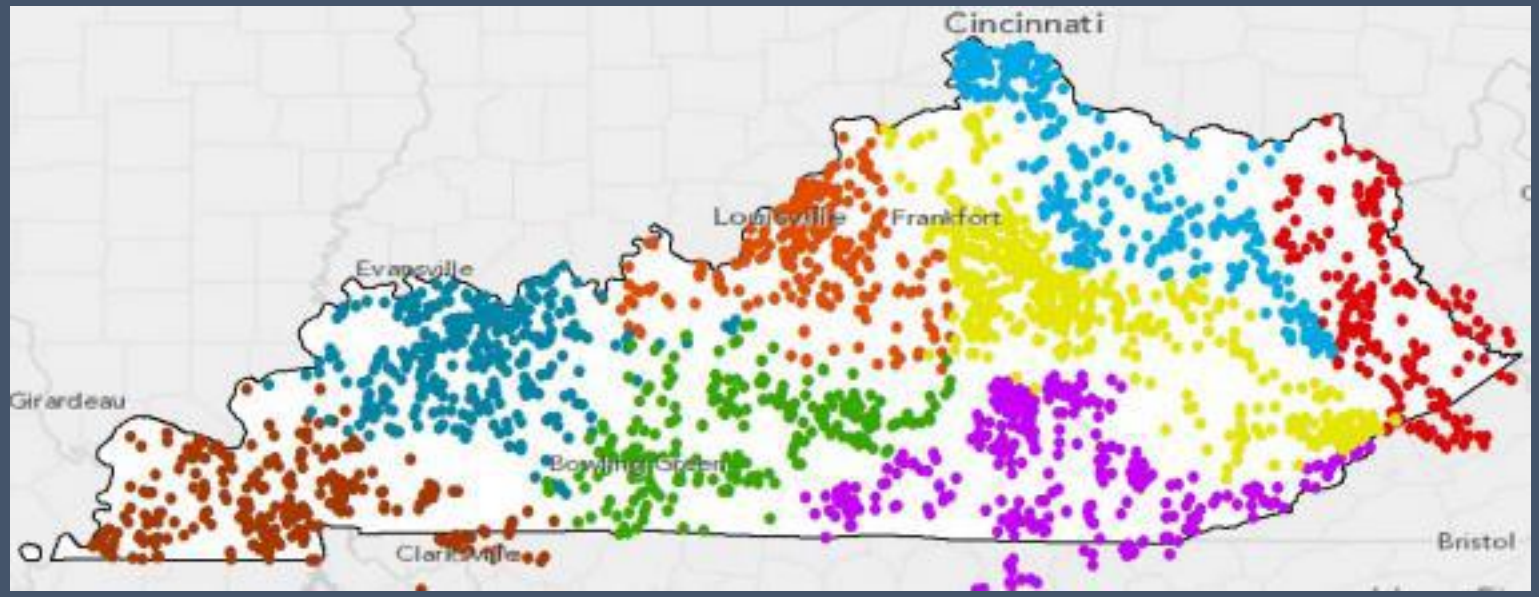
- Finance Committee
- Organizational Operations Committee
- Basin Support Committee
- Outreach Committee
- Citizen Action Committee
- Science Advisory Committee

We are always looking for representatives from each basin to serve on these committees!

WATERSHED WATCH IN KENTUCKY

Sampling Sites and Volunteers

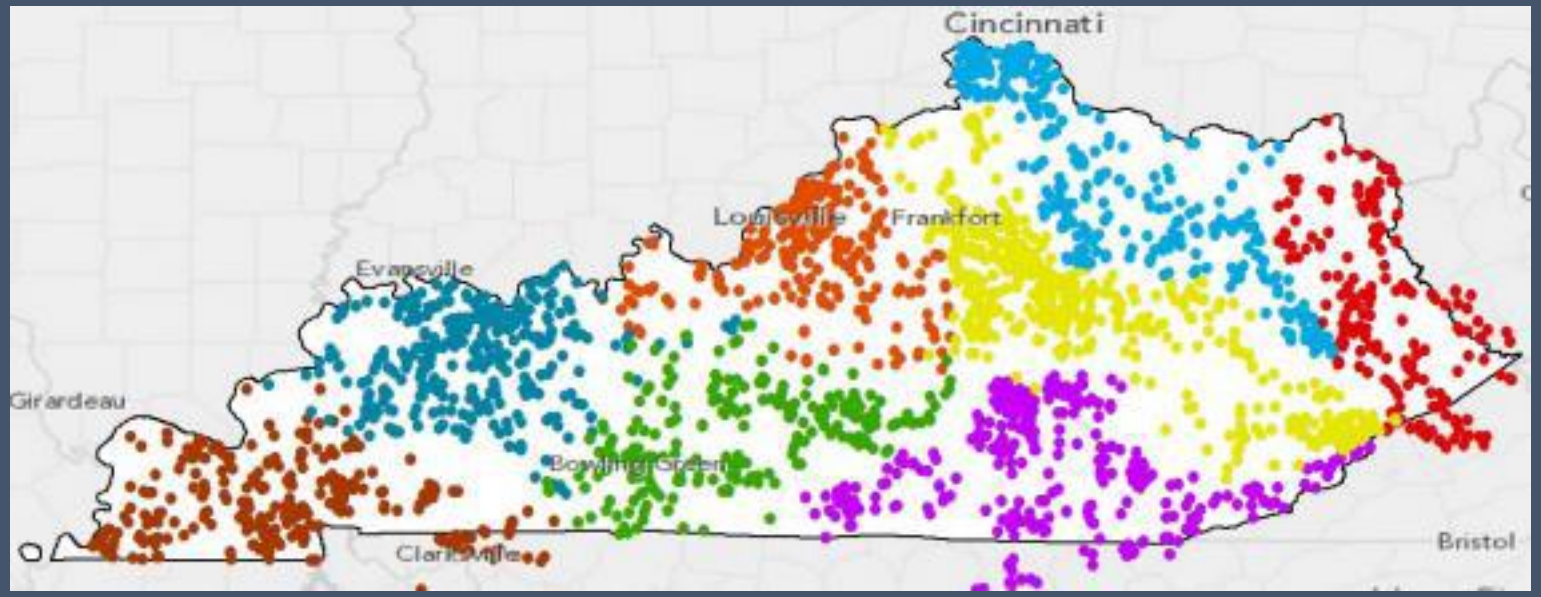
- Upper Cumberland
  - 76 active sites
  - 59 volunteers
- Salt
  - 96 active sites
  - 141 volunteers
- Licking
  - 149 active sites
  - 152 volunteers
- Kentucky
  - 358 active sites
  - 338 volunteers



WATERSHED WATCH IN KENTUCKY

Sampling Sites and Volunteers

- Tradewater, Lower Green
  - 115 active sites
  - 49 volunteers
- Green
  - 117 active sites
  - 85 volunteers
- Four Rivers
  - 96 active sites
  - 99 volunteers
- Big Sandy
  - 109 active sites
  - 102 volunteers



WATERSHED WATCH IN KENTUCKY

What We Do:

- 1. Train and certify volunteers
- 2. Conduct field assessments
- 3. Collect samples for lab analysis
- 4. Discuss and interpret results
- 5. Achieve citizen action

WATERSHED WATCH IN KENTUCKY

Core Monitoring Program

Phase 1 Training

- Field Chemistry Assessment
- Grab Sample Collection

Phase 2 Training

- Biological Assessment
- Habitat Assessment

WATERSHED WATCH IN KENTUCKY

- Volunteers collect field chemistry and E. coli samples three times per year (May, July, September)
- Some volunteers perform habitat and biological assessments in May

GRAB SAMPLE & FIELD CHEMISTRY

- Instantaneous water quality
- Quick process
- Specific Pollutant Analysis - E. coli
- Field Chemistry – dissolved oxygen, pH, temperature, conductivity

VS.

BIOLOGICAL & HABITAT ASSESSMENT

- Water quality over time
- Takes more time
- Collective pollution indication

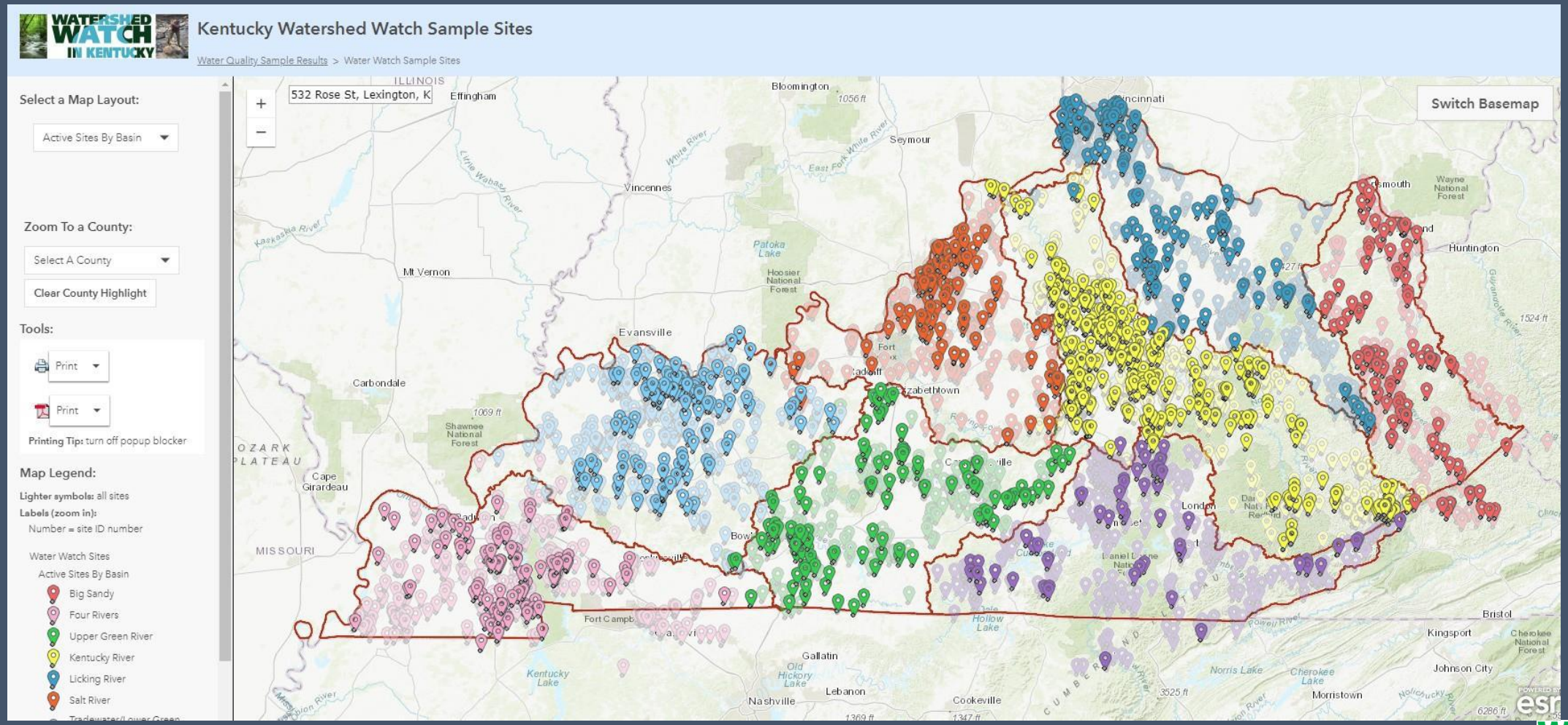
WATERSHED WATCH IN KENTUCKY

Lakes Monitoring Program

- New program started in 2017
- Allows volunteers to collect general observations (weather, rainfall and lake appearance) and a Secchi disk depth measurement
- Information used by Kentucky Division of Water to expand understanding of lake quality and potentially predict the presence of harmful algal blooms

WATERSHED WATCH IN KENTUCKY

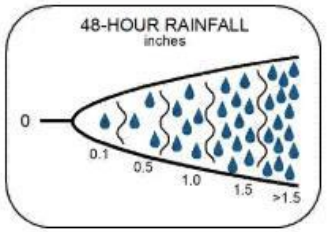
KGS Database



http://kgs.uky.edu/wwky

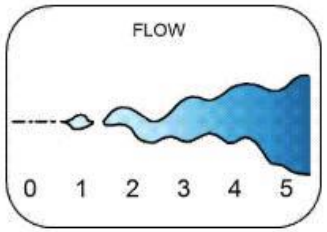
KGS Database

ESTIMATES



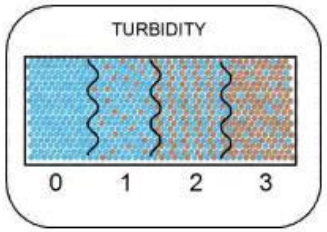
Rainfall Info

result: zero in



Stream Flow Info

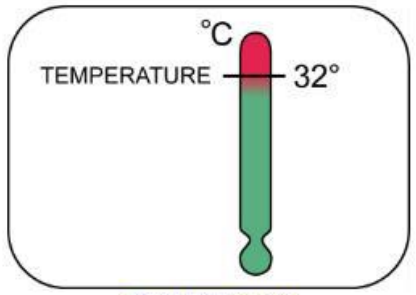
result: 2



Field Turbidity Info

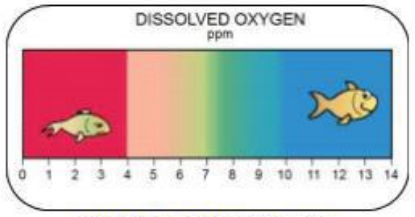
result: 0

MEASUREMENTS



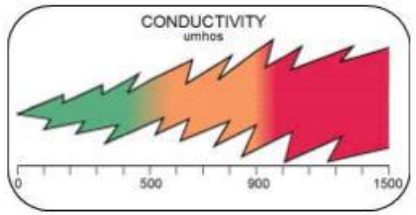
Temperature Info

result: 17.12 C°



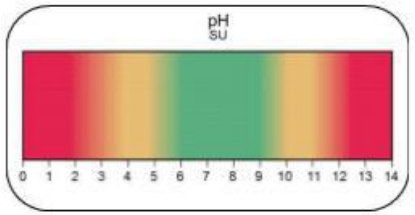
Dissolved Oxygen Info

result: 2.37 ppm



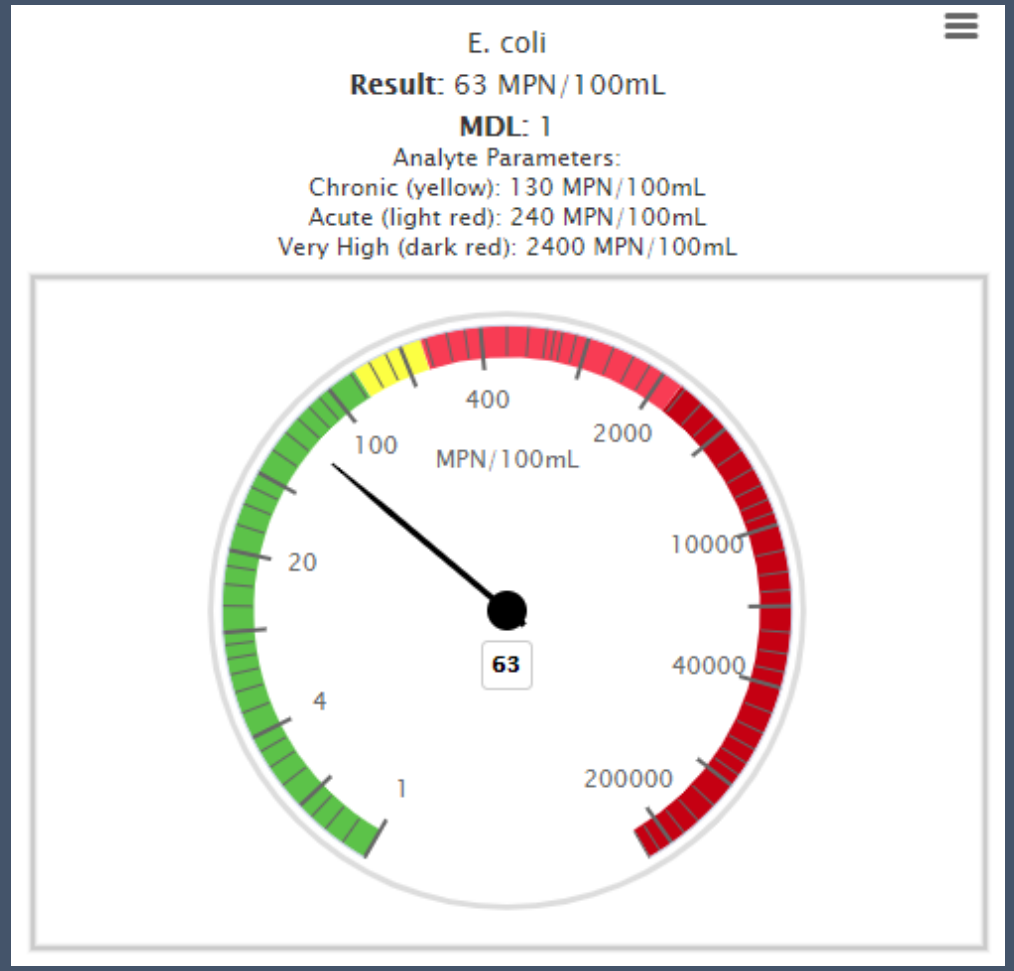
Conductivity Info

result: 697 umhos



pH Info

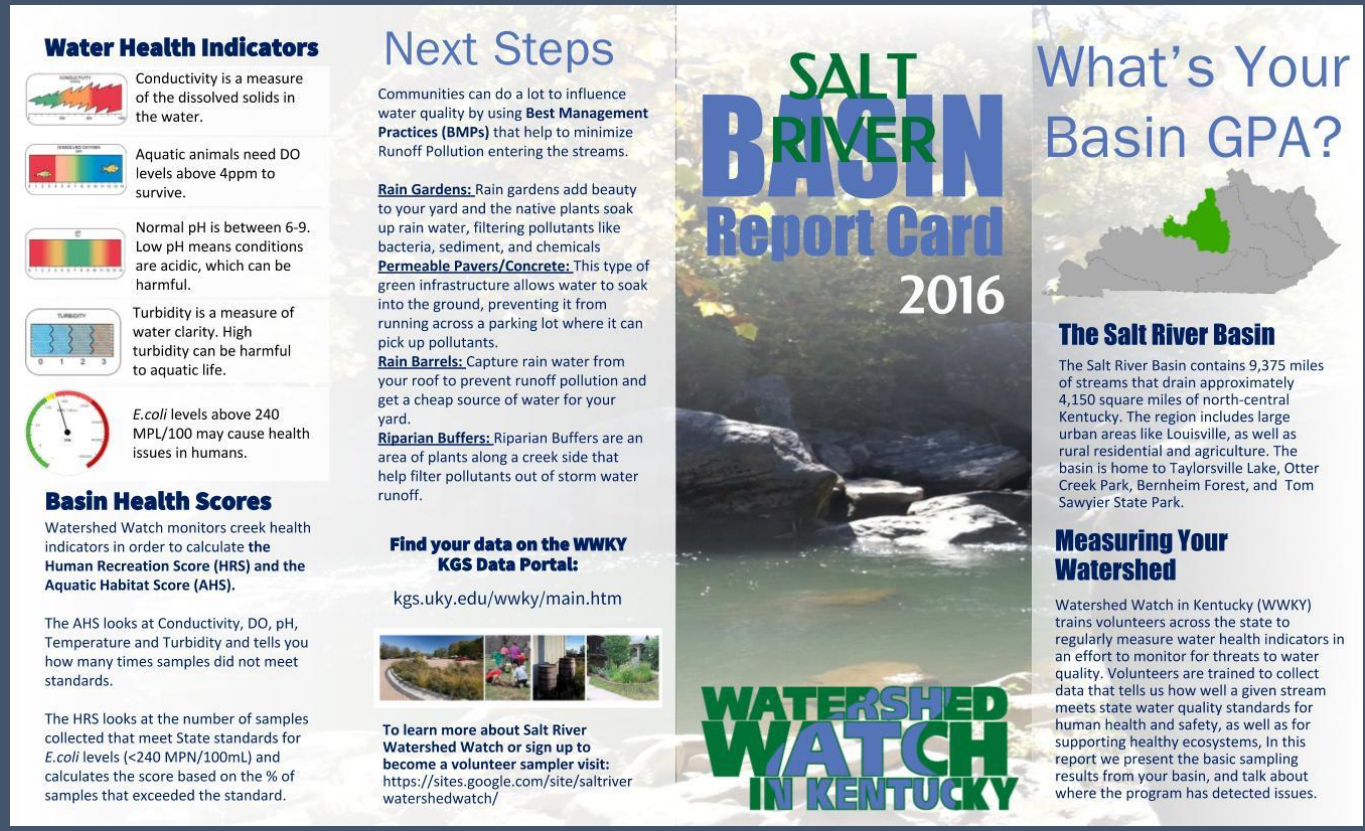
result: 7.01 SU



WATERSHED WATCH IN KENTUCKY

On the Horizon

- New habitat assessment protocol in our core monitoring program that can be used by MS4s
- Report cards for volunteers
- Youth Stream Team Program



Water Health Indicators

Conductivity is a measure of the dissolved solids in the water.

Aquatic animals need DO levels above 4ppm to survive.

Normal pH is between 6-9. Low pH means conditions are acidic, which can be harmful.

Turbidity is a measure of water clarity. High turbidity can be harmful to aquatic life.

E.coli levels above 240 MPL/100 may cause health issues in humans.

Basin Health Scores

Watershed Watch monitors creek health indicators in order to calculate **the Human Recreation Score (HRS) and the Aquatic Habitat Score (AHS).**

The AHS looks at Conductivity, DO, pH, Temperature and Turbidity and tells you how many times samples did not meet standards.

The HRS looks at the number of samples collected that meet State standards for *E.coli* levels (<240 MPN/100mL) and calculates the score based on the % of samples that exceeded the standard.

Next Steps

Communities can do a lot to influence water quality by using **Best Management Practices (BMPs)** that help to minimize Runoff Pollution entering the streams.

Rain Gardens: Rain gardens add beauty to your yard and the native plants soak up rain water, filtering pollutants like bacteria, sediment, and chemicals
Permeable Pavers/Concrete: This type of green infrastructure allows water to soak into the ground, preventing it from running across a parking lot where it can pick up pollutants.
Rain Barrels: Capture rain water from your roof to prevent runoff pollution and get a cheap source of water for your yard.
Riparian Buffers: Riparian Buffers are an area of plants along a creek side that help filter pollutants out of storm water runoff.

Find your data on the WWKY KGS Data Portal:

kgs.uky.edu/wwky/main.htm

To learn more about Salt River Watershed Watch or sign up to become a volunteer sampler visit:
https://sites.google.com/site/saltriverwatershedwatch/

SALT RIVER BASIN Report Card 2016

WATERSHED WATCH IN KENTUCKY

What's Your Basin GPA?

The Salt River Basin

The Salt River Basin contains 9,375 miles of streams that drain approximately 4,150 square miles of north-central Kentucky. The region includes large urban areas like Louisville, as well as rural residential and agriculture. The basin is home to Taylorsville Lake, Otter Creek Park, Bernheim Forest, and Tom Sawyier State Park.

Measuring Your Watershed

Watershed Watch in Kentucky (WWKY) trains volunteers across the state to regularly measure water health indicators in an effort to monitor for threats to water quality. Volunteers are trained to collect data that tells us how well a given stream meets state water quality standards for human health and safety, as well as for supporting healthy ecosystems, In this report we present the basic sampling results from your basin, and talk about where the program has detected issues.

WATERSHED WATCH IN KENTUCKY

MS4 Connections

- Public education and outreach
  - Entire program is geared towards educating citizens and volunteers about water quality, runoff pollution and identifying if local water bodies have been impacted by pollution
- Public participation and involvement
  - Ready made group of active, involved volunteers to help with different MS4 related programs
- Illicit discharge detection and elimination
  - New habitat assessment protocol
- Pollution prevention and good housekeeping for municipal operations
  - Groups can help with BMP workshops

WATERSHED WATCH IN KENTUCKY

Additional MS4 Connections

- Volunteers can also help with the implementation of a small MS4 Monitoring Plan, as required in the new MS4 permit
  - Requires visual monitoring of all major outfalls for visual markers of pollution
- MS4s could suggest sites for volunteers to monitor and data would be share amongst all
  - Monitoring program is implemented
  - Community education
  - Building a group of interested citizens for future efforts

WATERSHED WATCH IN KENTUCKY

Example MS4 Partnerships

- City of Murray
  - Provides financial support to Four Rivers Watershed Watch
  - FRWW assists with educational programs including educational field days with local schools, educational workshops and stream cleanup events
  - City uses data collected to identify areas in need of further investigation – has led to focus studies

WATERSHED WATCH IN KENTUCKY

Example MS4 Partnerships

- Lexington-Fayette County Urban County Government
  - Developed a Watershed Focused Monitoring Program in 2016 to address a permit requirement to “begin to change its monitoring program to a watershed-focused monitoring program”
  - KRWW helps to implement parts of this program
    - KRWW provides samplers for water quality monitoring program (rotates by watershed)
    - LFUCG provides sampling equipment and some additional training
    - LFUCG contributes to KRWW organization for their assistance

WATERSHED WATCH IN KENTUCKY

Example MS4 Partnerships

- City of Bowling Green
  - The City of Bowling Green MS4 Program is a financial supporter of the Upper Green River Watershed Watch group, UGRWW.
  - Environmental Compliance staff for the City are active members of UGRWW.
    - Participating in Sampling Events
    - Members of the UGRWW Science Advisory Committee
    - Positions on the UGRWW Executive Committee
    - Members of the Steering Committee

WATERSHED WATCH IN KENTUCKY

City of Bowling Green & UGRWW Partnership

- MCM 1: Public Education and Outreach
  - Participating with UGRWW provides access to an engaged audience of citizens with an interest in water quality. UGRWW provides an opportunity to educate and inform citizen volunteers of the importance of stormwater quality and what the MS4 program is doing in the community.
  - UGRWW can be a resource by assisting with Public Education Events with knowledgeable volunteers.
  - Example: Drakes Creek Watershed Festival at Phil Moore Park in Alvaton, KY.

WATERSHED WATCH IN KENTUCKY

Drakes Creek Watershed Festival

- The event partners were Kentucky Division of Water, Warren County Stormwater Department, and the City of Bowling Green Environmental Compliance Division.
- The event consisted of a float from Romanza Johnson Park down Drakes Creek to Phil Moore Park with the Watershed Festival at the end of the float.
- Several organizations and local vendors participated in the event.
- UGRWW assisted with volunteers to help work the event and also were one of the tables in the education tent at the festival.

WATERSHED WATCH IN KENTUCKY

City of Bowling Green & UGRWW Partnership

- MCM 2: Public Involvement
  - The City of Bowling Green Environmental Compliance Division staff are active members of UGRWW. Participating and providing financial support to UGRWW provides the opportunity to engage with citizen volunteers that have an interest in water quality and want to participate in water quality efforts in the community.
  - UGRWW is an active organization in the community with water quality sampling events performed in May, July, and September. The sampling events are organized and performed by local citizen volunteers.
  - After all the sampling events are completed UGRWW hosts an annual conference meeting open to all volunteers to review the year's results, accomplishments, and training.
  - UGRWW produces an annual basin for inclusion in the MS4 annual report.

WATERSHED WATCH IN KENTUCKY

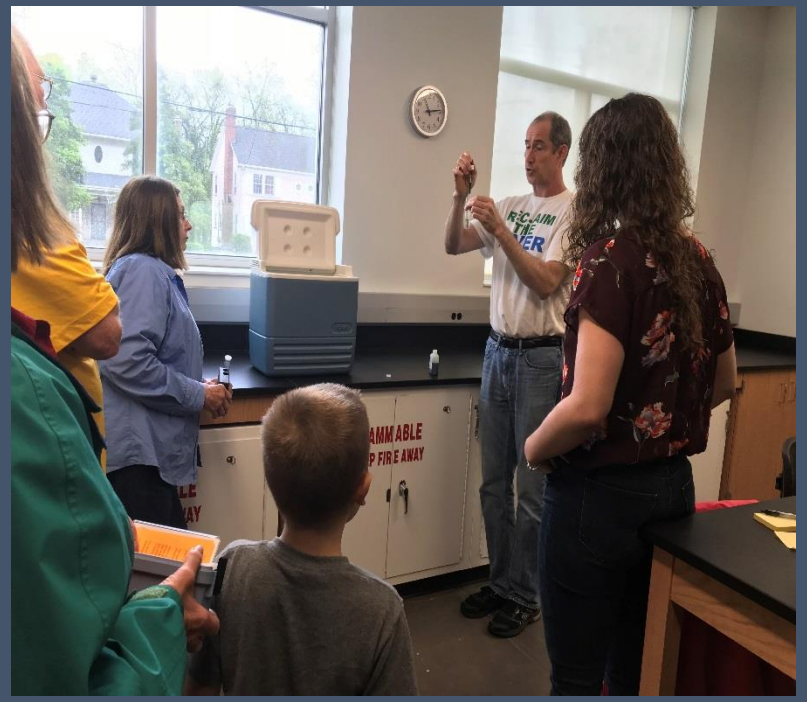
City of Bowling Green & UGRWW Partnership

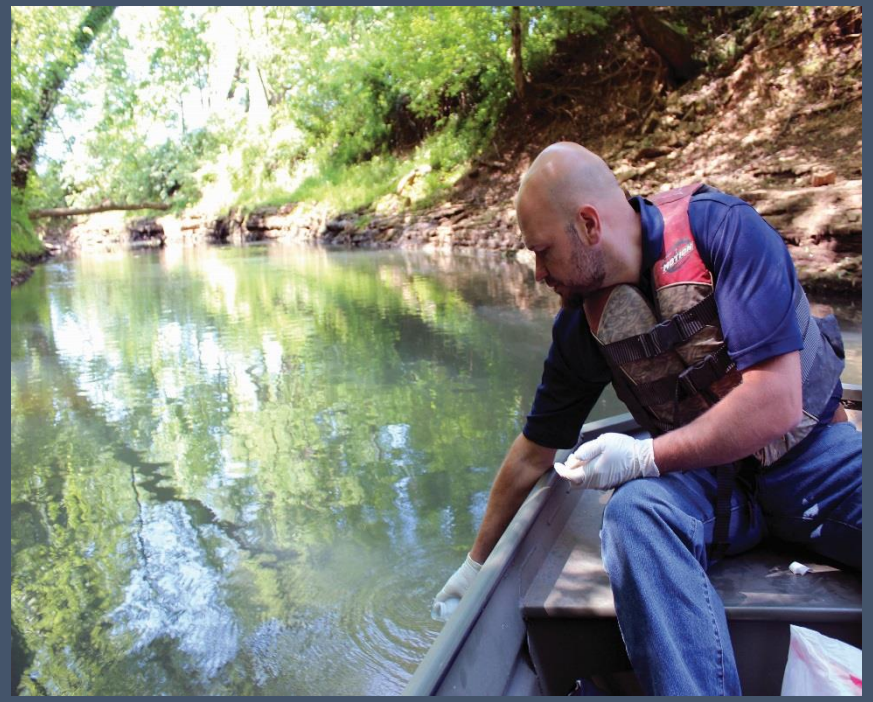
- MCM 3: Illicit Discharge Detection & Elimination
  - UGRWW volunteers sample from 40 to 70 sites in and around Bowling Green / Warren County. Samplers conduct field assessments and collect water quality sampling for lab analysis.
  - We are partnering with UGRWW on developing a new habitat/ stream assessment protocol with the Kentucky Watershed Watch.
    - The habitat/stream assessment will be a modified version of the Maryland Department of Natural Resources – Student Physical Assessment.
    - The MDNR – Physical Assessment will allow the sampler to visually assess the stream.
    - The modified habitat/stream assessment will include a basic illicit discharge visual monitoring field sheet.
    - Potentially resulting in 120 to 210 site inspections per year.

WATERSHED WATCH IN KENTUCKY

City of Bowling Green & UGRWW Partnership

- MCM 6: Good House Keeping
  - UGRWW provides training for volunteers for field assessments and collecting grab samples for lab analysis.
  - All City of Bowling Green Environmental Compliance staff have gone through and completed the Watershed Watch Phase 1 Training.





WATERSHED WATCH IN KENTUCKY