

Citizen Science / Chapter-Based Monitoring to Guide National Restoration Efforts

May 4, 2024



**TROUT
UNLIMITED**



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www.tu.org


Citizen Science Opportunities Abound!



- 🐞 Entomology
- 🌊 Water Quality
- 🌡️ Temperature
- 🌪️ Stream Disturbances
- 🐟 Spawning



CITIZEN SCIENCE OPPORTUNITY



Lake Champlain basin anglers, contact USFWS to get involved: Kurt_heim@fws.gov

Data to collect and fill clip ID guide

The following are copies of the fields printed on the scale card envelopes. Each envelope has a folded piece of paper in it. Remove this piece of paper, place the scales in the folded area, then get back in the scale envelope.

Date: _____ Sample ID: _____

Location (circle one): Lake Champlain / Saranac R. / Ausable R. / Boquet R. / Missouan R. / Lamoille R. / Whitehall R. / Other Cr. / Other

Location details _____

What fins is clipped? (see diagram on back) _____

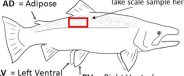
Length (in): _____ Weight (oz): _____

Fate kept / Released _____ Collector Name _____

Comments: _____

(Front of envelope)

AD = Adipose Take scale sample here



LV = Left Ventral RV = Right Ventral

Example fish to see if any fins are clipped and which ones. For example, if the LV is clipped, write "LV". If both AD and LV are clipped, write "LVAD". If no fins are clipped, write "No Clip".

(Back of envelope)

Entomology – Investigating Macroinvertebrate Density

- ✦ Certain watersheds have seen a decrease in springtime hatch activity over the last decade
- ✦ Literature suggests mayflies are disappearing
- ✦ Three main taxa comprise most drifting and hatching insects



- ✦ Ephemeroptera Mayflies
- ✦ Plecoptera Stoneflies
- ✦ Trichoptera Caddis



Entomology – Investigating Macroinvertebrate Density



- ✎ Ten-year study – collections take place in March prior to insects hatching
- ✎ Volunteers utilize Surber sampling collection methods
- ✎ Collect & count data from key taxa: EPT
- ✎ Input data into LTM dataset to be used as blueprint for all future TU Chapter based initiatives

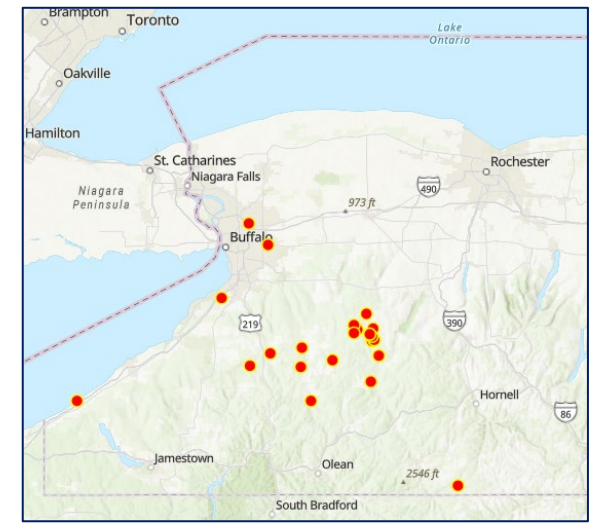
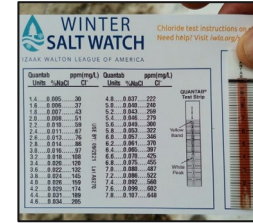


Western NY TU Efforts

Water Quality Monitoring

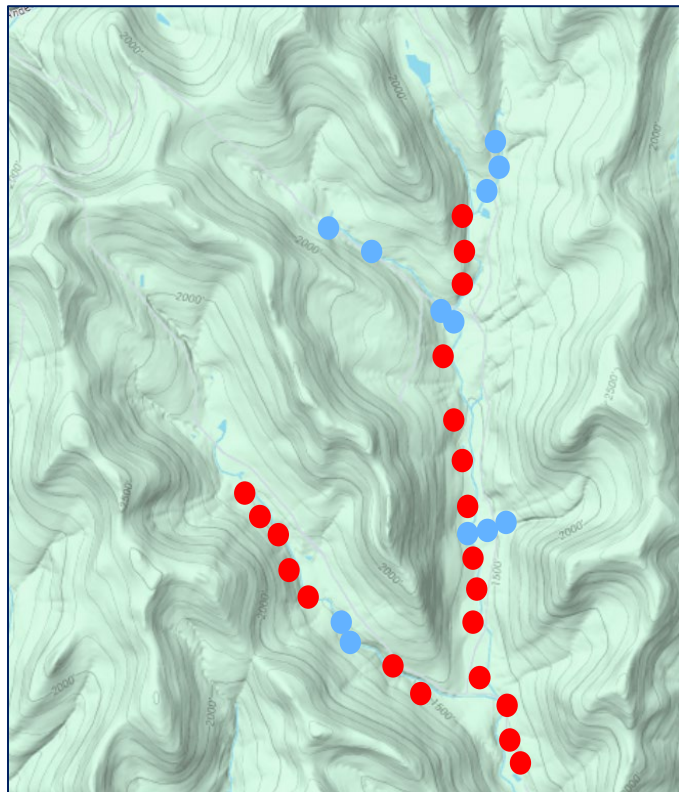


- Useful data for watersheds with agriculture and heavy road salt use
- Salt and nitrates impact sensitive macroinvertebrate taxa
- Kits available on the Izaak Walton League Website
- Volunteers collect field samples
- Website provides instructional video



Thermal Prioritization

- Stream temperature is variable and influenced by groundwater inputs or “spring seeps”
- Prioritizing chapter restoration initiatives and promote climate change resilience
- Use in the summer for there is the greatest variance in spring seep and ambient water temperatures
- Volunteers use free survey app and handheld thermometer
- Great for hot summer days when you can't trout fish!



Seasonal and/or Long-Term Temperature Monitoring



- HOBOWare loggers are relatively inexpensive
- Data can be used locally and have regional importance!



A screenshot of the EcoSHEDS Public Data Viewer interface. The interface is titled "EcoSHEDS Northeast Stream Temperature Database" and "Public Data Viewer". It features a "Station Map" showing a map of the Northeast United States and parts of Canada with various colored dots representing monitoring stations. A legend indicates the status of the stations: Active (blue), Inactive (green), Planned (orange), Unknown (grey), and Selected (red). The interface also includes filter options for "Watershed" and "Timespan" (Start Date and End Date).

Seasonal and/or Long-Term Temperature Monitoring



USGS
science for a changing world

ICE | STREAM TEMPERATURE AND BROOK TROUT OCCUPANCY IN THE NORTHEAST U.S.

EcoSHEDS

About | User Guide | Datasets | Download

RESOLUTION: Select dataset

STATES: 14 states selected

VARIABLE: Select variable

Welcome

Welcome to the Interactive Catchment Explorer (ICE), a web-based data visualization tool for **exploring** complex, multivariate environmental datasets and model results. It is designed to help researchers and resource managers **identify spatial patterns** in hydro-ecological conditions and to **prioritize locations** for restoration or further study.

This application contains the following datasets and models:

- **Northeast Catchment Delineation:** a custom, high resolution catchment delineation and basin characteristics dataset of the Northeast U.S.
- **Northeast Stream Temperature Model:** a hierarchical Bayesian model for predicting daily mean stream temperature using observed data from the [Northeast Stream Temperature Database](#).
- **Northeast Brook Trout Occupancy Model:** a logistic mixed-effects model for predicting the probability of Brook Trout occupancy based on predicted stream temperatures under historical and potential climate change scenarios.

More information about the datasets and models can be found by clicking the **Datasets** button on the upperleft toolbar.

Disclaimer: The models used in this project were designed to capture large-scale, regional patterns in stream temperature and brook trout occupancy. Although results can be viewed at the local catchment scale, the accuracy of these models can vary widely from catchment to catchment depending on the amount of available local data and other factors. Please use caution when interpreting the results at local spatial scales.

Close

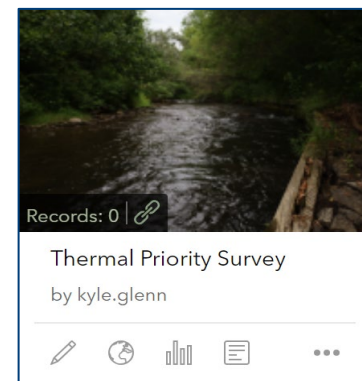
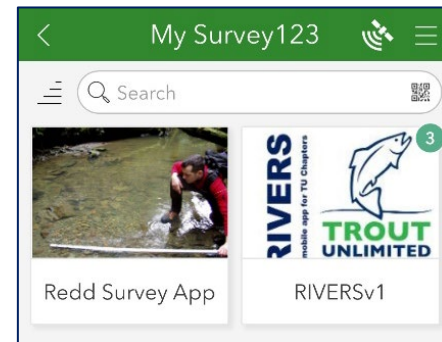
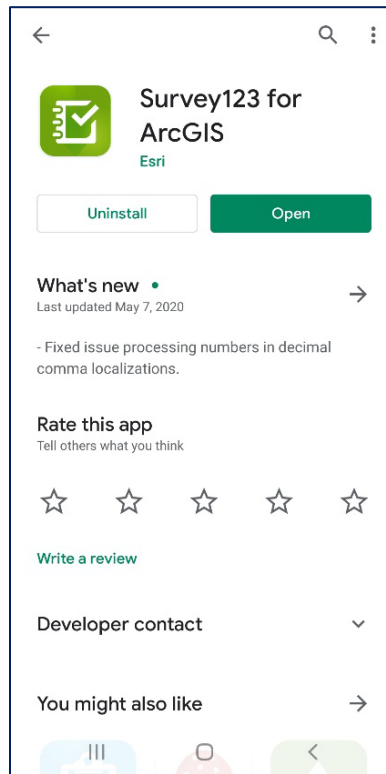
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ArcGIS Survey123



- Free mobile app – Survey123
- No account required
- Allows Citizen Scientists to easily share GPS locations, information, and photos with National Staff



👉 Rivers Inventory by Volunteers for Effective Restoration Strategies

👉 Import RIVERS survey to Survey123 app

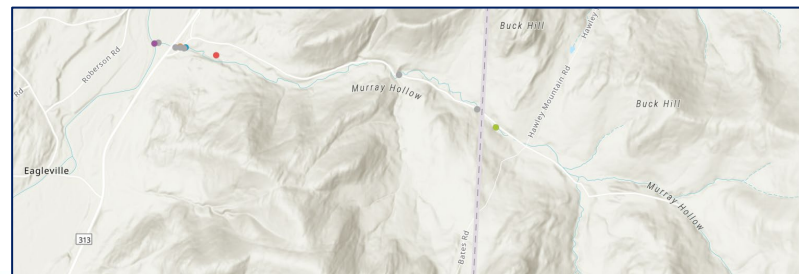
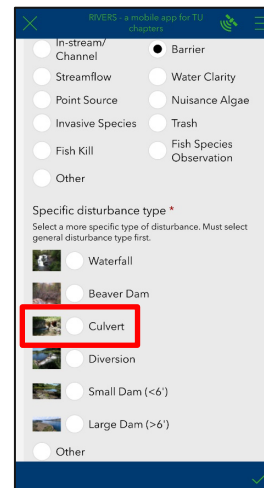
👉 Share stream condition data and impairments publicly



Scan QR code to download RIVERS

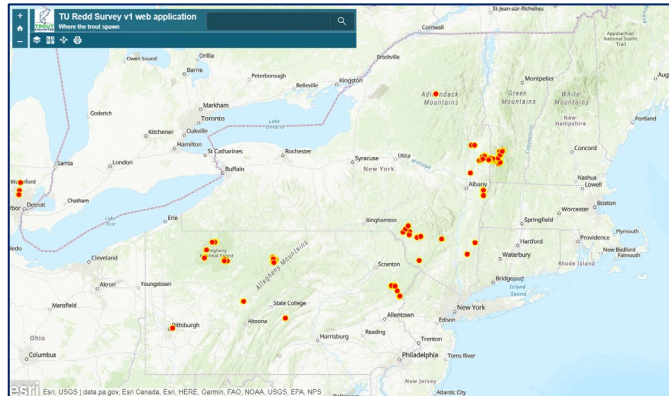
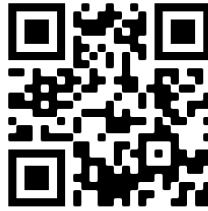
RIVERS disturbances

- Fish Species Observation
- Invasive Species
- Barrier
- In-stream/Channel
- Point Source
- Riparian Vegetation
- Fish Kill
- Nuisance Algae
- Streambank
- Trash
- Water Clarity
- Streamflow
- Other



Redds Survey

- Spawning survey for any salmonid!
- Import Redds survey to Survey123 app
- Monitor spawning activity throughout watersheds or focused stream segments



How can you utilize these tools?

- ✦ Baseline data
- ✦ Developing long-term datasets
- ✦ Exploring localized concerns
- ✦ Guiding restoration and/or management
- ✦ Engaging communities and understanding connection to the environment





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