Do you enjoy outdoor activities? Become a community scientist. First Investigation of Stream Health (FISH) monitors changes to local streams and their habitats.

After restoring your stream side property, how can you measure the success of your efforts?

Are you Ready to Start?

1. Take the survey to join FISH and identify your monitoring location.

2. Use the FISH data entry form and the FISH reporting tool to record your observations.

Refer to the FISH protocol instructions for details on how to answer each question of the protocol.

Looking for an elementary-aged modification? Check out Brooke Meets a Stream Doctor

Read on if you need more information:

FISH is a simple, family-friendly activity that asks easy-to-answer questions about what you see around a stream. Keeping a record of stream health data with FISH helps you and others understand how the health of the stream habitat is changing over time.

FISH is designed for use at current or potential/future stream restoration sites (riparian buffer planting, stream bank fencing installation, live staking, etc.) There you will observe various stream health indicators like water clarity, growth of plants, and signs of wildlife that might change after your restoration project.

FISH observations are best when completed at least once a year in the spring, but additional data sampling in the summer and fall would also be valuable to you. FISH participants are asked to report observations for at least three years but are encouraged to monitor for up to ten years or more.

If you don’t want to monitor a stream over time, FISH can be used just once to guide your nature experience, to establish a baseline sense of stream health, or to teach others about visual stream health indicators.

We periodically schedule live webinars to review the FISH program in more detail.

How to Become a FISH User

Before you sign up, take a moment to review the FISH protocol instructions. For an easy to print version, click "Download" under the article title or use the link at the bottom of the page. These instructions will guide you through the observations you will make at your stream site. You can also review the recorded webinar that teaches all about using FISH.

Ready to Start Now? The first step is to complete this short form to become an official FISH user.

Then, you can participate in FISH using a printed copy of the FISH data entry form or use the FISH reporting tool.

Already a FISH User?

If you have been a FISH User in the past, your monitoring site should already be included in the FISH reporting tool. You can start making observations right away. You can create multiple monitoring sites. Fill out this form every time you would like to initiate a new monitoring site.

FISH Monitoring Locations

FISH Users are busy monitoring streams across Pennsylvania and beyond!
Frequently Asked Questions

First Time User

1. How do I sign up?

New users can use this form to register. Please answer all questions. Once you fill out the form, you will be registered as a user and have a monitoring site.

2. I've created a site, what now?

Once you have created a site, you can move on to filling out the FISH Site Visit Survey. Don't forget to refresh your memory on the sampling protocol instructions! You can also print out a paper datasheet, record your results using pen/pencil, and submit your results later.

3. Do I need an app?

No. However, the platform on which our new FISH Reporting Tool is hosted, Survey123, does have an app that you can use if you wish. Search "Survey123" in your device’s app store. Its icon is green with a white notebook and checkmark.

4. Do I need to fill out the Site Visit Survey on my device while I am at the stream?

No. If you prefer writing your results using pen and paper, you can print out a copy of the FISH protocol datasheet. The Site Visit Survey mirrors this datasheet. Once you have completed filling out the paper version, you can enter it into the Site Visit Survey whenever you would like.

5. Is the Fish Protocol specific to sites in Pennsylvania? Can I use the FISH protocol in other states?

The app is not limited to sites in Pennsylvania. The FISH protocol can be used in any state.

6. Do I have to be involved in a stream restoration project to make a report?

You do not have to be involved in a stream restoration project to make a report. We encourage you to capture "before" observations if a restoration project is planned or even just an idea you are considering.

If you don’t want to monitor a stream over time, FISH can be used just once to guide your nature experience, to establish a baseline sense of stream health, or to teach others about visual stream health indicators.

Sample Collection

6. What kind of stream should be reported?

Any stream in any location may be reported and monitored using FISH. FISH is neither limited to undisturbed streams nor streams with restoration projects. You may report on any stream that you want. FISH was designed for monitoring locations where a restoration project has taken place (tree planting, live staking, stream restoration, livestock exclusion fencing, etc.), but it can also capture "before" observations if a restoration project is planned. Choose a monitoring site where you can see positive change over time. It is not designed for rivers or larger bodies of water. Wildlife questions include common Pennsylvania wildlife and you might need to enter in "other" wildlife if you are located in another region.

7. What is my sampling station?

Fill out the survey to create a sampling station. This can be anywhere you are interested in making repeat monitoring reports. Please provide a unique name for your monitoring station that includes the name of the stream (if known) and another point of reference such as an intersecting road, public park or landmark, or similar distinguishing feature. You can view all sampling locations on this map.

8. Do we count the snags that are in the water or on land?

A snag is a standing dead tree. Count any trees that are dead but still upright/off the ground. Don’t count trees that are lying on the ground. Trees lying in the stream can be recorded as Large Woody Debris.

9. How frequently should the stream be monitored?

A sample of data at the stream should be collected at least once a year. We recommend taking a sample in different seasons, for example once in the spring and once in the fall each year. It works best if you commit to visiting and monitoring your site several times over a few years.

If you don’t want to monitor a stream over time, FISH can be used just once to guide your nature experience, to establish a baseline sense of stream health, or to teach others about visual stream health indicators.

10. Do I need to take several samples of the same stream to see benefits/successes of a conservation or restoration practice?

A few samples will need to be collected over a few years in order to see the results of a conservation or restoration practice. It is not intended for single use. Comparing observation over 3-5 years can demonstrate positive or negative changes in stream health.

11. My stream has different stream bottom conditions in different spots. How do I report this?

Try your best to make an average assessment across the stream section. Don’t focus on only the best or worst spots.

12. Do I need a license to look for macroinvertebrates?

FISH asks you to observe the macroinvertebrates you find in the water, under rocks, etc. You do not need a license to just observe. A license is needed if you collect or move macroinvertebrates.

13. Does it matter when you measure water clarity? Do you need to wait after an intense rainfall to measure water clarity?

Make sure water levels are safe before heading out to monitor. You can check water clarity any time you monitor your station. Always record the current weather conditions and previous rain events in your FISH report as this helps to
understand any dramatic changes in sample observations.

14. Any recommendations for where to purchase transparency tubes or how to make one?

These tubes are available from several types of retailers, including forestry supply companies, educational tools dealers, and scientific suppliers. When searching online, transparency tubes may sometimes be called turbidity tubes.

Here is a resource with instructions for constructing your own transparency tube.

For information on using and understanding your transparency tube, see Understanding Transparency Tube Measurements.

General FAQ

15. Can FISH be used with school students as a teaching tool?

FISH is a great teaching tool for groups of youth and adult students. If you need help creating a plan for teaching your whole group about FISH, contact us about training opportunities. When working with students who will only be reporting one time, you may want to create a single account that they all can log into, as opposed to having them create individual accounts that will not be used in an ongoing way.

16. How is the data being centrally compiled and how is it being used? Is the data being analyzed?

Observations are uploaded into a data platform and compiled onto the map. On the map, you can see your own observations and the observations that other FISH members have submitted. Beyond this data compilation, the data is not being analyzed at this time. Our goal is to be able to share cumulative stories with landowners to encourage them to adopt stream health projects in the future.

17. How long should we estimate a typical sample observation will take?

An observation can take anytime from 5 minutes to 30 minutes, depending on how many observations and details you choose to record at your site. You could spend more or less time taking observations if you would like, or you could split your observations into several visits.

18. Can I use FISH to record other information about my stream?

Yes. There is a notes/observations text box at the end of the survey where you can record other information about your stream (water temperature, pH, water chemistry, etc.).

Data Entry Platform

Overview

There is a new FISH Reporting Tool!

Step 1: Complete this survey to sign up and let us know which stream you are planning to monitor. If you are already a FISH user and your monitoring location was in the old Water Reporter app, your location should already be in the new FISH Reporting Tool. You can start recording data.

Step 2: Use the FISH Site Visit Survey to submit FISH protocol responses. Download the Survey 123 smartphone app to your phone or use this link on your computer (Tip: bookmark for future use).

Step 3: Use this map to view your site and others’. Keep an eye out for a map that will display site visit records in the future!

To be among the first to learn about the new platform, sign up for our free FISH webinar on Tuesday, July 30, 12:00-1:30 PM. Everyone who registers will receive an email with the webinar recording.

Additional Resources to help you with FISH

When making observations, it may be helpful to refer to some additional resources as a guide to identifying what you see. Here are some resources you might consider:

Interpreting Results

- Understanding Your Transparency Tube Measurements
- Embeddedness and Healthy Streams
- Bank Cover and Healthy Streams

Identifying Stream Bugs (Macroinvertebrates)

- Macroinvertebrates.org
- Stroud Water Research Center Macro Key

Identifying Fish, Reptiles, and Amphibians

- Common Reptiles and Amphibians of Pennsylvania
- Pennsylvania Frog and Toad Breeding Phenology
- PA Herps (reptiles and amphibians)
- Pennsylvania Fish and Boat Commission

FISH Protocol Training

- A new webinar training will be available soon.

Penn State Extension and the Penn State Agriculture & Environment Center developed the original FISH Protocol as a project of the Conewago Creek Initiative. Chesapeake Commons developed the website and mobile apps as part of the Greening the Lower Susquehanna project. The National Fish and Wildlife Foundation (NFWF) helped to fund both projects.
Authors

Jennifer R Fetter
Director, Center for Agriculture Conservation Assistance Training
jenn.fetter@psu.edu
717-921-8803

Kristen Koch
Program Manager, Penn State Agriculture & Environment Center
klk343@psu.edu
717-948-6609

Natalie Marioni
Extension Educator / Master Watershed Stewards Coordinator, Cumberland, Franklin, and Adams Counties
nkm5342@psu.edu
717-240-6500

extension.psu.edu

Penn State College of Agricultural Sciences research and extension programs are funded in part by Pennsylvania counties, the Commonwealth of Pennsylvania, and the U.S. Department of Agriculture.

Where trade names appear, no discrimination is intended, and no endorsement by Penn State Extension is implied.

This publication is available in alternative media on request.

Penn State is an equal opportunity, affirmative action employer, and is committed to providing employment opportunities to all qualified applicants without regard to race, color, religion, age, sex, sexual orientation, gender identity, national origin, disability, or protected veteran status.

© The Pennsylvania State University 2024

Code: ART-1964