

CODES Spring 2024

Stream Discovery with Illinois RiverWatch

The RiverWatch / NGRREC Vision

- Rediscovering our Stream Discovery Program
 - Was a version of RiverWatch for classrooms
 - Re-envisioned as a simpler RiverWatch
 - For classrooms
 - For those new to our program
 - Stepping stone into full RiverWatch

Steps to Making it Happen

- Review the existing materials
- Finalize new program methods
- Generate training materials
 - E-learning materials
 - Live workshop materials

E-learning

- Edpuzzle modules
 - **Community Science & NGRREC**
 - **Watersheds & Streams**
 - **Biomonitoring & Bugs**
 - Site Selection & Paperwork
 - **Site Setup & Sketches**
 - **Flow Measurement**

- Habitat Survey
- Bug Collecting & Sorting
- **Bug Identification & Calculations**
- Entering Your Data
- **What To Do With Your Findings**

RiverWatch Manual and other resources

- [RiverWatch Stream Monitoring Manual.pdf](#)
- [2023 RiverWatch Training Presentation.pptx](#)

Community Science and NGRREC

What is community science and who is NGRREC

Welcome to the National Great Rivers Research and Education Center

This module covers:

- What is NGRREC
- What is community science
- NGRREC 3 pillars
- How community science relates to the 3 pillars

Module 1 Topic 1- Video - what is NGRREC

Pop up:

- Video from the ngrrec website about what is ngrrec
- <https://vimeo.com/122144006>

What is NGRREC - Module 1 Topic 1

- National Great Rivers Research and Education Center
- Located in Alton, IL
- NGRREC prioritizes taking real science done in their labs and helping present it to the public

Show a picture/ drone footage of NGRREC

Video clip on Module 1 Topic 3 - community science

- <https://vimeo.com/752638157>

Introduction to Community Science

- What is community science?
- Who can do community science?
- Why is community science important?



The 3 Pillars of NGRREC

- Research
- Outreach
- Education
- What do these mean to NGRREC

Module 1 Topic 2

What are the 3 pillars of NGRREC

- A. Research, Education, and Outreach
- B. Education, Talking, and Outreach
- C. Research, Photography, and Speaking
- D. Outreach, Education, and Politics

How does community science relate to NGRREC'S 3 pillars

- Research
 - Education
 - Outreach
- Additional content

Module 1 Summary

- The National Great Rivers Research and Education Center, also known as NGRREC is located in Alton Illinois and dedicated to continuing research on environmental issues and helping communicate it to the public
- Community science is when we get together to solve larger issues, it can be done focused on anything and including anyone.
- Community science

Module 1 Summary - Quiz

What are the 3 pillars of NGRREC

- A. Research, Education, and Outreach
- B. Education, Talking, and Outreach
- C. Research, Photography, and Speaking
- D. Outreach, Education, and Politics

Why is community science important

- A. It allows researchers to expand the scope of their researchers
- B. It gives the local communities an opportunity to learn more about the world around them
- C. It gives community members
- D. all of the above

Who can do community science

- A. Only people with masters degrees
- B. Only people with bachelor degrees
- C. Only people with lab coats
- D. Everyone!!!

Watersheds and Streams

A beginners guide

Module 1

This module covers:

- What is a watershed
- Why are watersheds important
- What is a stream
- Why are streams important
- How does the health of our watersheds/streams affect us?

Module 1 Topic 1

Watersheds - are a ridge of land that separates water flowing to different rivers, lakes or other bodies of water.

Why are watersheds important?

- Watersheds are crucial for human and environmental well-being.
- Provide clean drinking water for communities.
- Support agricultural activities through irrigation.
- Facilitate industrial processes by supplying water resources.
- Enable recreational activities like canoeing and fishing.
- Offer habitats for diverse plant and animal species, contributing to biodiversity.

How does the health of our watersheds affect us?

-
- Clean watersheds ensure access to safe drinking water, promoting public health.
- Biodiversity within watersheds supports ecological balance and resilience.
- Watersheds play a role in climate regulation by influencing local climate patterns.
- Human activities such as urbanization, deforestation, and pollution can degrade watershed health, impacting water quality and ecosystem stability.

- Pretty picture



Influence of health

Module 1 Topic 1

Pop up:

- If you would like more information on [module subtopic], visit [link to website] or view [link to video].

Please ensure that all links and external videos are reliable sources that will likely be around for several years.



Module 1 Topic 1

which statement is true

How does the health of our watersheds affect us?

- A) redo
- B) redo
- C) redo
- D) it contributes to climate regulation by absorbing carbon dioxide and influencing local climate patterns

Select all that apply

Why are watersheds important?

- A) They supply drinking water
- B) They support agriculture and manufacturing
- C)
- D) They serve as habitats for various plant and animal species

Module 1 Topic 2

- Definition of important term(s)

Streams- Natural flowing waterways that benefits people and habitats

Why are streams important? Streams and rivers function as the “arteries” of the watershed circulatory system.

Stream Order classification? Streams are often classified based on their size and volume of the water they carry.

Headwater streams- Streams that intersect with one another to form leaf like patterns called drainage networks.

- Additional content

[Stream order](#)

- Pretty picture



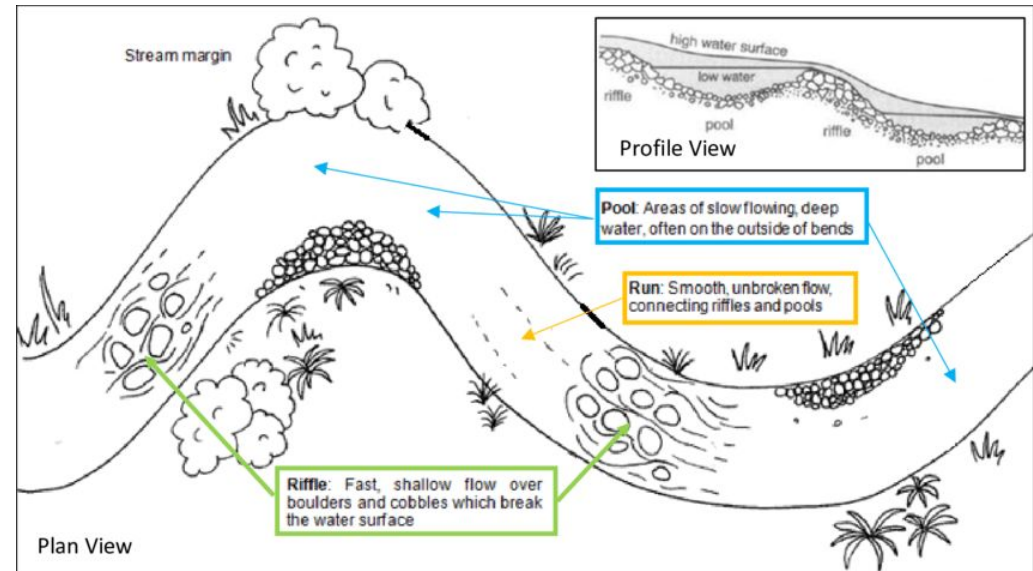
Module 1 Topic 2 Part 2

Rocky Bottom Reach- this includes three different but interrelated habitats known as riffles, pools, and runs

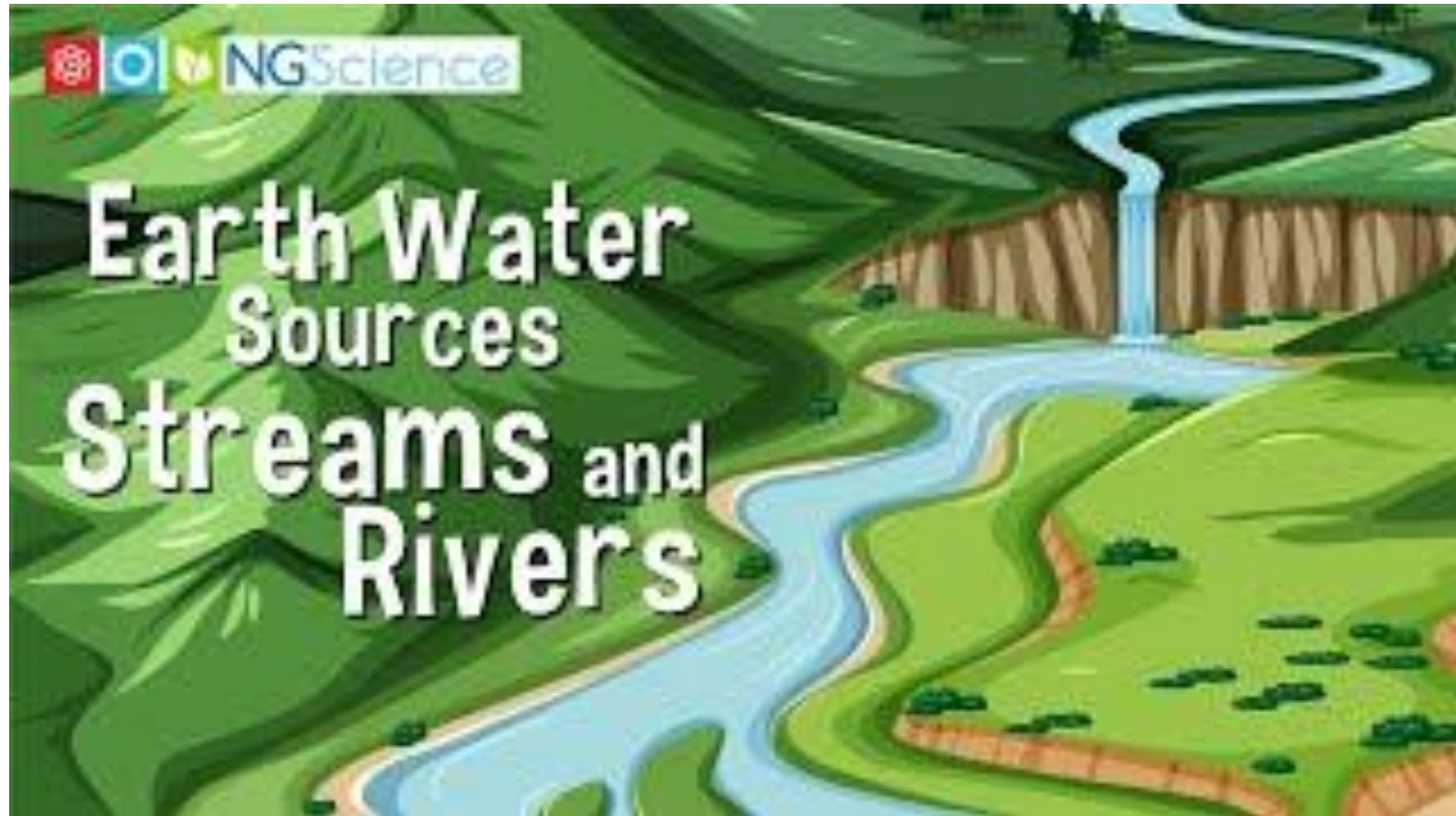
Riffles- Areas of turbulent water created by shallow water passing over and around stones or gravel.

Pools- Deeper parts of the stream with relatively slow-moving water.

Runs- Stretches of quiet water commonly found between riffles and pools in larger streams and rivers



Video clip on Module 1 Topic 2



Module 1 Topic 2

Pop up:

Which body part are streams compared to?

- A. Fingers
- B. Respiratory system
- C. Arteries
- D. Nerves

What pattern do stream orders create?

- A. Figure 8
- B. Leaf-like pattern
- C. Zig Zag pattern
- D. Camo Pattern

Please ensure that all links and external videos are reliable sources that will likely be around for several years.

Biomonitoring and Bugs

A Beginners Guide

Module 1

This module covers:

- What is biomonitoring
- Why is biomonitoring important
- How can bugs be used in biomonitoring
- Why are bugs used in biomonitoring
 - Easy to collect
 - easy to identify
 - They are in the water year round
 - generally there fore more than a year
 - different sensitivities to pollutants
- Why are bugs important to the ecosystem

What is Biomonitoring and Bugs?

What is biomonitoring?

- Biomonitoring is a way used to find indication about the health and level of contamination of an environment.

How is bugs involved in biomonitoring?

- Bugs are used as a way to be studied as biological indicators.

How are these bugs being used?

- Their reaction to environmental changes is used since they are sensitive to the slightest change.
- They are also used to monitor the different types of environmental toxins.



Section 1: What is biomonitoring?



Centers for Disease
Control and Prevention
National Center for
Environmental Health

Module 1 Summary Quiz

Which of the following **BEST** explain how bugs are used in biomonitoring?

- a) They are used to indicate how healthy the environment level is by monitoring them in their natural habitat
- b) They are used to find the different types of bugs and their health
- c) Their reaction to environmental changes is used due to their sensitivity to the slightest environmental change.

Module 1 Summary

Pop up:

- Quiz questions on Module 1

Please ensure that all links and external videos are reliable sources that will likely be around for several years.