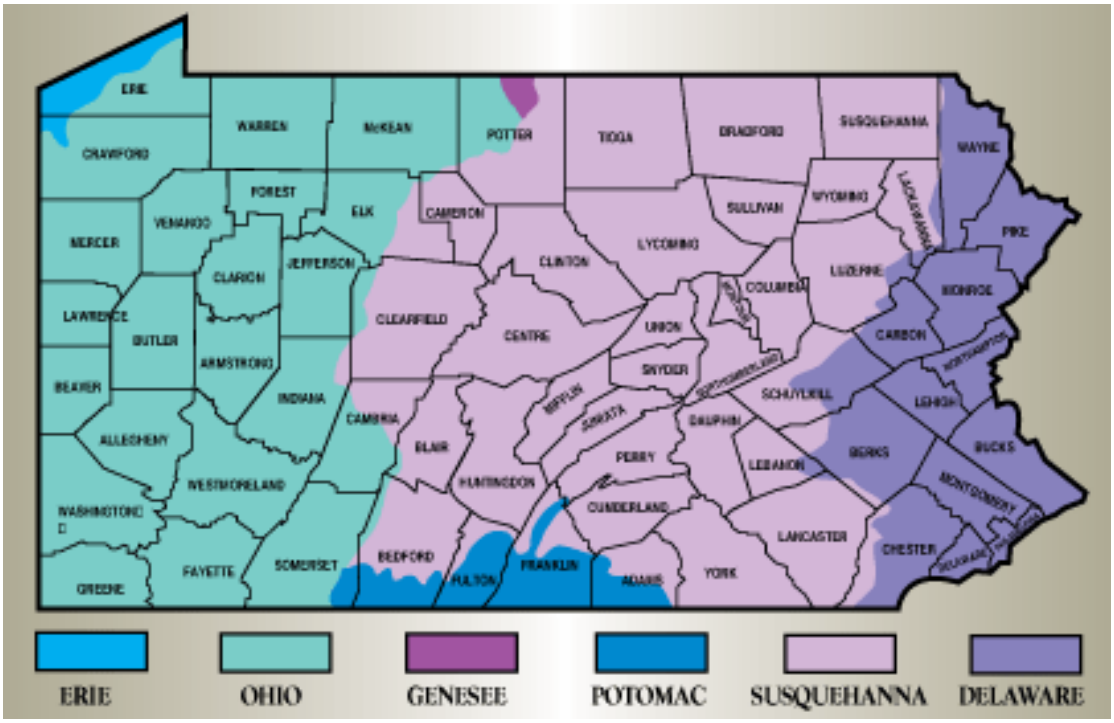
Chapter 1:

Introduction to PA Watersheds



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What is a watershed?

A. Watersheds

Definition:
A watershed is an area or ridge of land that separates waters flowing to different rivers, basins, or seas. Watersheds can best be described using an imaginary line, when rain falls on either side of that line the water drains to a different body of water. This imaginary line is known as a watershed divide.

Pennsylvania recognizes 6 major watersheds that each have a different river basin (listed in the table below). Smaller watersheds are comprised within each major watershed however, these smaller watersheds all drain to the river basin within the major watershed. Pennsylvania's major watersheds are named after the corresponding river basin.

Watersheds serve an important function when it comes to the management of Pennsylvania's aquatic resources. Conservation planning almost always begins with delineating the watershed before any action takes place. Having a firm understanding of the watershed you are conducting your PATIC program within provides a great foundation for you to begin planning your lessons. Pennsylvania is fortunate to have vast water resource comprised of more than 86,000 miles of streams and rivers, along with 4,000 inland lakes and ponds covering 160,000 acres, plus 470,000 acres of Lake Erie.

Pennsylvania Water Resources

Major Watersheds:	
1. Erie Watershed	511 square miles within Pennsylvania
2. Ohio Watershed	15,614 square miles within Pennsylvania
3. Genesee Watershed	94 square miles within Pennsylvania
4. Susquehanna Watershed	27,510 square miles within Pennsylvania
5. Potomac Watershed	1,584 square miles within Pennsylvania
6. Delaware Watershed	6,422 square miles within Pennsylvania
Miles of Rivers and Streams (approx.)	86,000 miles
Number of Lakes, Reservoirs and Ponds (approx.)	4,000
Estuaries, Harbors and Bays (Delaware and Presque Isle)	23 square miles
Freshwater Wetlands (approx.)	404,000 acres
Amount of Groundwater (approx.)	80 trillion gallons

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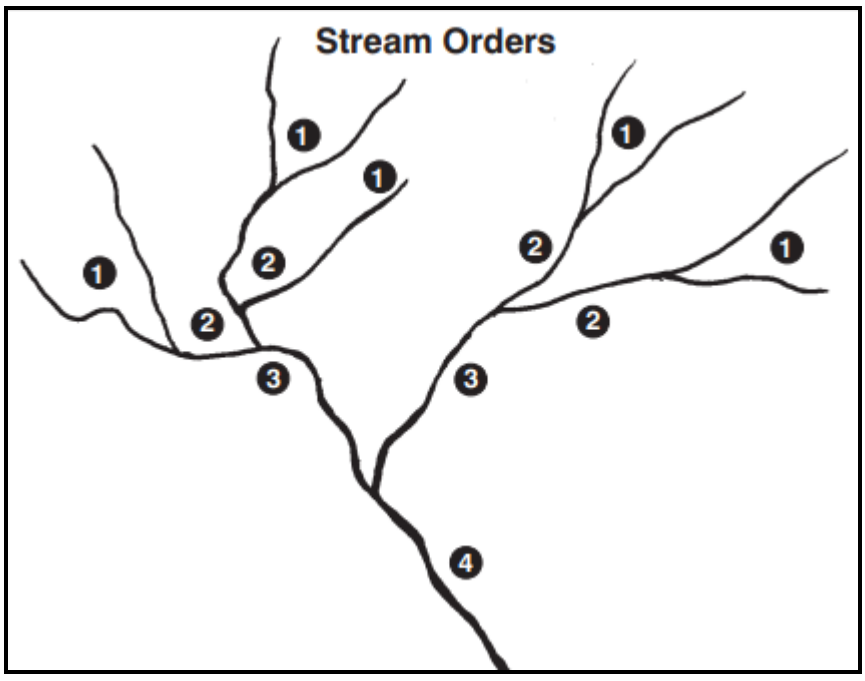
Stream Order

B. Stream Order

Definition:
A method used to categorize streams and rivers based on size and location within a watershed. Calculating stream order provides a rough indication of stream size and helps to compare one watershed to another.

A first order stream is defined as having no tributaries. A tributary is defined as a small stream that flows into a larger stream or river. A second order stream must have at least two first order streams flowing into it. A third order stream must have at least two second order streams flowing into it and so forth.

Categorizing moving waters into stream orders provides a foundation for "starting to think like a scientist." Many characteristics associated with streams can be inferred simply by knowing the stream order. The diagram below can help you to get started with properly calculating the order of the stream you might be studying (and eventually releasing into) with your PATIC program.



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River Continuum Concept

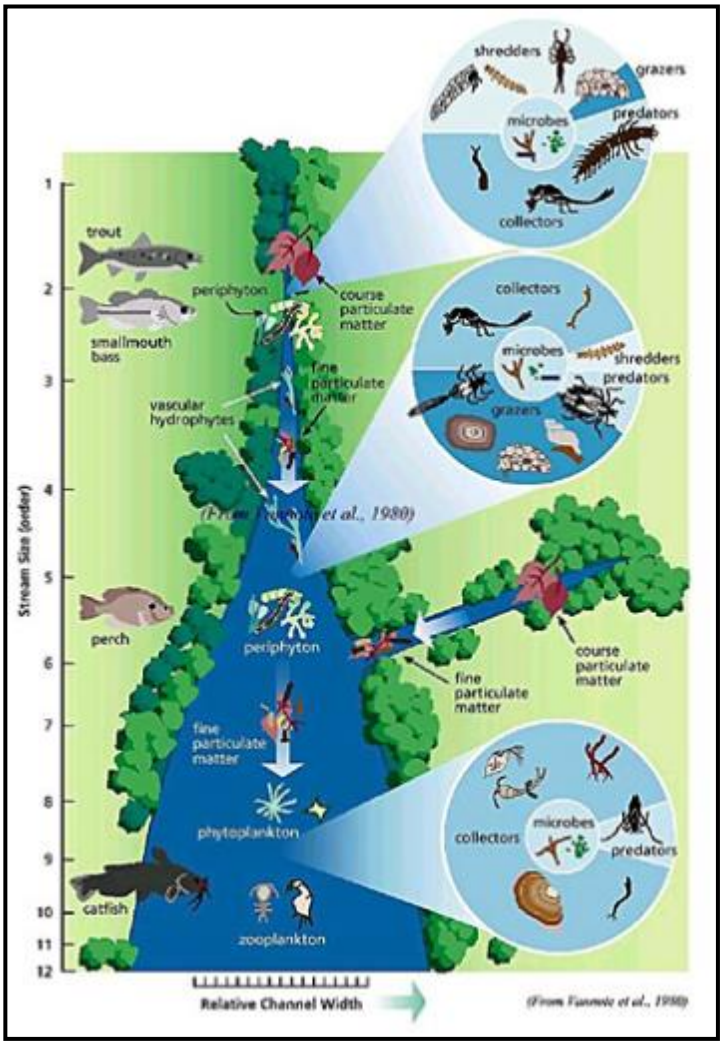
C. The River Continuum Concept (RCC)

Definition:
A hypothesis developed by Stroud Research Center scientist Robin Vannote and other Stroud staff that describes how streams and their watersheds work. Essentially, the concept predicts what the structure of the biological communities will be downstream based on what is influencing the system upstream. The concept emphasizes that just as a river or stream changes as it moves downstream through stream order, so do the biological and chemical processes.

The RCC provides a great way to tie in watersheds, stream order, biodiversity and energy flow through a system.

To learn more about the RCC and how you can incorporate it into your PATIC program lesson plan you can visit the following page:

https://stroudcenter.org/continuum/



Source: Stream Corridor Restoration: Principals, Processes and Practices, 10/98, By the Federal Interageny Stream Restoration Working Group (FISRWG)

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