

General Stream Related Questions (Watershed)

1. Topographic maps help determine watershed boundaries. What watershed drainage basin are you in today using the map provided on the resource table?

- A. Portage
- B. Scioto
- C. Wabash
- D. Maumee

2. Riparian corridors provide habitat for terrestrial animals. What do riffles and substrate in a stream/river water column do for aquatic macroinvertebrates?

- A. Increase dissolved oxygen levels and provide habitat
- B. Provides invasive species population growth and adds to oxygen levels
- C. Cause erosion and sedimentation covering egg beds
- D. Provide nurseries beds and depleted oxygen levels

3. What is Total Maximum Daily Load (TMDL)?

- A. A calculation of the maximum amount of a pollutant that a water body can receive and still safely meet water quality standards
- B. A calculation of the minimum amount of a pollutant that a water body can receive and still safely meet water quality standards
- C. A calculation of the equal amount of a pollutant that a water body can receive and still safely meet water quality standards
- D. A calculation of the average amount of a pollutant that a water body can receive and still safely meet water quality standards

4. Sedimentation in watersheds can be generated by rill, gully and what other type of erosion?

- A. Sheet
- B. Blanket
- C. Cover
- D. Organic

5. Stream substrate is?

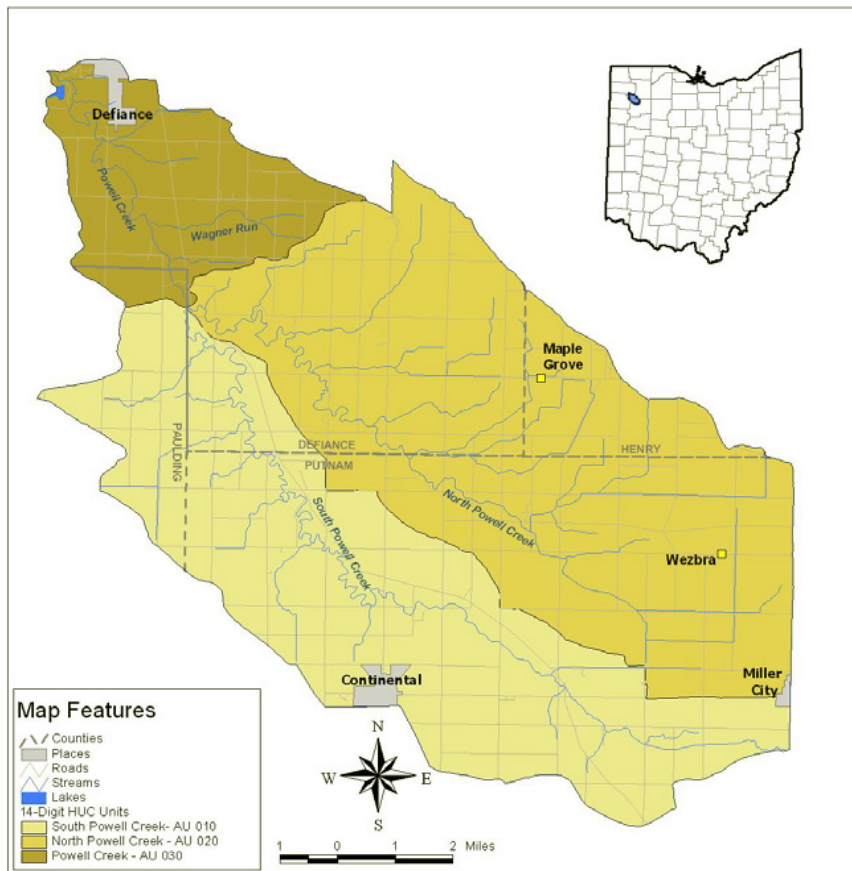
- A. Inorganic and organic particles on the stream bed (e.g., cobbles, sand, silt)
- B. The area of land that drains into a stream
- C. The portion of storm water or snowmelt that enters a stream
- D. Downward entry of water into the soil

6. Another name for leaf material released into a stream is called?

- A. Riparian matter
- B. Microscopic matter
- C. Allochthonous matter
- D. Biological matter

7. Stream order has been called the “hierarchy “or the way scientists classify streams by size from 1st order (smallest stream) to 12th order (largest stream.) Headwater streams are usually first through third order streams and it is estimated that over 80% of the worlds streams are headwater streams. North Powell and South Powell Creek are tributaries of Powell Creek that empties into the Auglaize River. What would be the stream order of Powell Creek?

- A. First order
- B. Fourth order
- C. Second order
- D. Third order



8. Nonpoint source pollution is the leading cause of water quality impairment in Ohio. It is caused by rain or snowmelt moving over and through the ground, picking up natural and human-made pollutants and depositing them in lakes, rivers, wetlands, and other waterways. What effect, if any, does Nonpoint source pollution have on aquatic organisms in Ohio's headwater streams?

- A. No affect on aquatic organisms
- B. Causes aquatic organisms to thrive and populations slow
- C. Causes aquatic organisms to show evidence of lower populations/growth
- D. Increases invasive plant species depleting oxygen levels

9. If Nonpoint source pollution is the leading cause of water quality impairment in Ohio. What scenario below best describes Point source pollution?

- A. The Ohio Department of Transportation salting roads/bridges
- B. Trash littering the roadside ditches
- C. Oil on an impervious surface washing into a storm drain
- D. Effluent draining from a factory pipe resulting in a fish kill

General Macroinvertebrate/Wildlife Related Questions (Identification)

10. Feeding habits of macro invertebrates can be divided into four basic categories. Which categories below are correct?

- A. Shredders, collectors, grazers, and foragers
- B. Shredders, collectors, grazers, and swimmers
- C. Shredders, collectors, grazers, and predators
- D. Shredders, collectors, grazers, and carnivores

11. Identify the pollution tolerant macro invertebrates on the resource table labeled #1.

- A. Caddisfly larva/mayfly nymph
- B. Midge larva/gilled snails
- C. Crane fly larva/midge larva
- D. Leech/sowbug

12. What type of fish species would you potentially find doing well in a lake environment with lower than normal dissolved oxygen levels?

- A. Large Mouth Bass
- B. Trout
- C. Carp
- D. Bluegill

13. Ohio's Scenic Rivers Stream Quality Monitoring Assessment Form has three distinct sections for macroinvertebrate data collection. These sections are listed as Group 1 Taxa, Group 2 Taxa and Group 3 Taxa that classify sensitive to tolerant pollution macroinvertebrates. During a field collection I find black fly larvae, midge larvae and a pouch snail. What "group" would these macroinvertebrates be in?

- A. Group 2 Taxa
- B. Group 1 and 2 Taxa
- C. Group 3 Taxa
- D. Group 1 and 3 Taxa

14. Mayflies go through which type of metamorphosis?

- A. Complete
- B. Incomplete
- C. None at all
- D. Both complete and incomplete

15. Facing the lake you will notice a hillside with trees on your right. The trees are oak/hickory mix with a few black walnut and basswood species mixed in. Wildlife (squirrel, wild turkey, and deer) depend upon the oak acorns and hickory nuts for nutrition and survival. What is another name for the food these trees produce?

- A. Mess producing
- B. Mast producing
- C. Nutrition producing
- D. Micro producing

Chemical Parameter Related Questions (some site specific)

16. Dissolved oxygen is where water mixes with the atmosphere (e.g., wind blowing across a lake) and replenishes the oxygen in the water. Aquatic plants also create dissolved oxygen through photosynthesis. At night, usually when winds are calm and the sun isn't shining what can happen?

- A. Oxygen depletion
- B. Oxygen neutralization
- C. Oxygen oxidation
- D. Oxygen production

17. What pH range is desired for optimal aquatic life in streams?

- A. 5-7
- B. 0 - 14
- C. 6.5 – 8.5
- D. 7-9

18. pH is the measurement of hydrogen atoms in a substance. pH is measured on a scale from 0-14 with 0 being very acidic and 14 being basic. pH can be affected by precipitation, run-off, and/or ground water flow. You are monitoring a local stream and discover the pH measures 4.0-5.5, what happens to the aquatic species with this pH level reading?

- A. They reproduce at higher rates with no problems to the offspring
- B. They become lethargic and don't reproduce causing a population decrease
- C. Growths or lesions start to appear and food consumption decreases
- D. Both B and C

19. Using the pH Octet Compactor and the lake sample taken this morning labeled #6 on the resource table. What is the pH range of the lake test site today?

- A. 5.0-5.5
- B. 6.0-6.5
- C. 7.0-7.5
- D. 8.0-8.5

Lake and Stream Monitoring Related Questions (some site specific)

20. Lake water quality monitoring in Ohio is conducted on a yearly basis by the Ohio Lake Management Society (OLMS.) Currently, OLMS monitors Ohio lakes for turbidity. Identify the lake monitoring equipment on the resource table labeled #7 that OLMS uses for lake monitoring.

- A. Transparency tube
- B. Secchi disc
- C. Hester dandy
- D. Kick seine

21. Lake stratification is best defined as?

- A. Over excessive plant growth caused by photosynthesis
- B. Non-Point Source Pollution caused by acid mine drainage
- C. Seasonal change influenced by temperature and wind
- D. Excessive sedimentation mixing caused by non-native fish species

22. Rivers and streams are examples of lotic waters. What word below best defines lotic?

- A. Moving
- B. Stagnate
- C. Pooled
- D. Ox-bowed

23. Eutrophication is a natural aging process in lakes. Eutrophic lakes are nutrient rich- and produce a lot of organic material. Walk up and take a look at the lake at this site. What word below best characterizes the lake before you?

- A. Eutrophic
- B. Oligotrophic
- C. Stagnate
- D. Ephemeral

Estuary Questions

24. What is brackish water?

- A. Where ground water mixes with river water
- B. Where freshwater meets and mixes with salty ocean water
- C. Where estuaries form from tidal surges
- D. Where freshwater streams confluence with larger rivers

Law Questions

25. The *Clean Water Act* helped solve many of Ohio's traditional pollution problems. However, remaining problems, linked to nonpoint source pollution, are more challenging. Which of the following is not a way to reduce non-point source pollution?

- A. remove all woody vegetation from headwater tributaries
- B. manage nutrient application according to site specific risk assessment
- C. provide natural or artificial buffers to reduce run-off volume and delivery rate during rain and run-off events
- D. remove physical impoundments such as low-head dams from streams and rivers, in order to improve natural flow and stream ecology

26. A Total Maximum Daily Load (TMDL) is a cleanup plan to restore a watershed so it meets water quality goals. A TMDL quantifies water quality problems and their sources, specifies what amount of pollutants must be reduced to meet water quality goals, and provides a basis for taking actions to restore the watershed. TMDL's are part of what water federal government act?

- A. Clean Air
- B. Civil Conservation Corp
- C. Clean River Coalition
- D. Clean Water