

2018 Area 5 Envirothon Aquatics

- Which of the following characteristics best describe a stable and healthy riparian zone?
 - 75-foot wide zone with steep slopes, dense Honeysuckle, and undercut banks
 - 30-foot wide zone with gentle slopes, dense stands of Johnson grass, and a concrete retaining wall
 - 3-foot wide zone with gentle slope, intermittent large trees with grass underneath, and an aquatic vegetation edged stream bank
 - 30-foot wide zone with steep slopes, undisturbed and permeable soils, and dense native vegetation**
- Identify the phrase that best defines the hydrologic term, watershed.
 - Catchment or topographically delineated area drained by a stream system.**
 - A forest growing on a hillside.
 - A pond.
 - An area where people store water in the event of an emergency.
- You and your friends are working together to organize a canoe float in July. Unfortunately, a significant drought has hit the area and you don't know if there will be enough water flow in the river to have your canoe float. Which of the organizations listed below provide real - time water flow data for river systems in Ohio and across the United States?
 - United States Department of Agriculture
 - Ohio Department of Natural Resources
 - United States Geological Survey**
 - United States Environmental Protection Agency
- Nutrients are required for the growth of photosynthetic organisms in both aquatic and terrestrial ecosystems. Identify the nutrient that most limits the growth of photosynthetic organisms in freshwater ecosystems.
 - Nitrogen
 - Phosphorus**
 - Magnesium
 - Potassium
- If you observed a small stream with greenish, slimy-looking algal growth on the rocks, a likely issue this stream would be facing would be:
 - Nutrient enrichment**
 - Lack of aquatic life
 - Embedded substrate
 - Peak storm water runoff issues

6. In a temperature stratified lake, the layer representing the most rapid change is called the:
- A. **Thermocline**
 - B. Thermometer
 - C. Epilimnion
 - D. Hypolimnion
7. Total Maximum Daily Load (TMDL) refers to:
- A. The total volume of treated wastewater that any permitted facility is allowed to discharge in the stream in any twenty-four hour period.
 - B. The cumulative pollutant load designated for an impaired water body.
 - C. **The amount of a pollutant that a water body can receive daily without violating state water quality standards.**
 - D. The total pollutant load allowable in urban stormwater runoff.
8. The Qualitative Habitat Evaluation Index (QHEI) is used to score:
- A. The number and types of habitats in a whole stream
 - B. **The relative quality of habitat components in a stream reach**
 - C. The number of pools in a stream reach
 - D. The relative number of habitat units in a stream reach
9. What is typically the limiting factor in determining whether a headwater stream is conducive to brook trout reintroduction in northeast Ohio?
- A. The relative nitrogen loading of the stream
 - B. **Whether or not the stream sustains cold enough temperatures**
 - C. The amount of invasive species found within the streams riparian area
 - D. The streams proximity to an urbanized area
10. Dragonhunters (*Hagenius brevistylus*) are widely scattered throughout the state of Ohio and live in moist woodland habitats along streams or rivers such as this. It is Ohio's largest clubtail and they are very sensitive to pollution, thus requiring clean streams to survive. A large thorax and relative small head identify them. Clubtails are a part of what class of wildlife?
- A. **Dragonflies**
 - B. Beetles
 - C. Ants
 - D. Spiders
11. This turtle does not bask in the sun as often as other turtles, so there may be many more in the Wetland Pond than you realize!
- A. Common Musk Turtle
 - B. **Common Snapping Turtle**
 - C. Blanding's Turtle
 - D. Common Map Turtle

12. As spring becomes summer, the water in this Pond will stratify as a result of temperature differences. By the end of summer, which water layer will contain most of the aquatic wildlife?
- A. Benthic
 - B. Hypolimnion
 - C. **Epilimnion**
 - D. Pelagic
13. The ODNR Division of Wildlife uses instruments to sample the dissolved oxygen (D.O.) of Ohio lakes and streams. During summer months, many Ohio lakes and ponds will have a layer of water depleted of oxygen. Which of the following terms means “depleted of oxygen”?
- A. Hyperaerobic
 - B. Hypobaric
 - C. Aerobic
 - D. **Anoxic**
14. The sampling equipment shown here is used to measure which of the following water characteristics?
- A. **Turbidity**
 - B. Temperature
 - C. pH
 - D. Conductivity
15. This species of invasive Asian carp is known to jump at the sound of a boat motor?
- A. **Silver**
 - B. Black
 - C. Bighead
 - D. Common
16. What food source is commonly fed on by invasive silver and bighead carp and is also a food source for most juvenile fish?
- A. Macrophytes
 - B. Filamentous algae
 - C. **Phytoplankton**
 - D. Cattails
17. Which watershed are you currently standing in?
- A. Sunfish creek
 - B. Brush creek
 - C. White Oak creek
 - D. **Clear creek**

18. The Green Darner (*Anax junius*) can be found hunting insects in and around this pond and many other ponds, lakes, and wetlands in Ohio. What is a Green Darner?
- A. Frog
 - B. Insect**
 - C. Bird
 - D. Salamander
19. You are a biologist managing 3 ponds; each rectangular pond is 217.8ft. long and 200ft. wide. You need to stock the ponds with largemouth bass and bluegills. The rate you should stock is 100 bass and 500 bluegills per acre. Knowing that one acre equals 43,560 square feet, how many total largemouth bass and bluegills will you need?
- A. 50 bass, 250 bluegills
 - B. 100 bass, 500 bluegills
 - C. 200 bass, 1000 bluegills
 - D. 300 bass, 1500 bluegills**
20. The partially decomposed organic matter from items such as leaves and aquatic vegetation that can be found on the bottom of the pond is an important food source for many macroinvertebrates. What is this decomposed organic matter called?
- A. Detritus**
 - B. Sediment
 - C. Algae
 - D. Moss
21. Some agricultural practices can have a positive effect on both groundwater quality and wildlife habitat. Which of the following statements is true?
- A. Cover crops that are planted as part of a crop rotation can also be used as food and cover by wildlife.**
 - B. Increased insecticide uses on farmland results in a good source of food for wildlife in the form of dead insects.
 - C. An increased in herbicide use on row crops improves food and cover for wildlife because weeds have no values to wildlife.
 - D. When a fescue pasture is converted to a mixed stand of native prairie grasses and forbs the biodiversity of the field decreases.
22. Soil erosion increases the amount of sediment, nutrients, pesticides, and herbicides entering waterways, which can negatively impact fisheries. All the following are measures that can be taken to reduce soil erosion except:
- A. Protective cover crops
 - B. Grassed waterways
 - C. Conventional tillage**
 - D. Contour farming

23. The fish pictured here can be found in this watershed and belongs to what family of fish?

- A. **Sunfish (Centrarchidae)**
- B. Catfish (Ictaluridae)
- C. True Basses (Moronidae)
- D. Perch (Percidae)

24. Cattle having access to a stream is a common complaint received by conservation agencies. Designing and spacing water tanks can not only keep grazing animals away from the stream but will also increase grazing utilization of a pasture. When considering tank locations, it is important to know that cattle will do most of their grazing within _____ feet of a water source.

- A. **800**
- B. 500
- C. 350
- D. 200

25. There are four main forms of nonpoint source pollution: sediments, nutrients, toxic substances and

- A. **Pathogens**
- B. Algae
- C. Moss
- D. Detritus