

2024 Area 2 Envirothon : AQUATICS

1. Summer fish kills can usually be attributed to a loss of dissolved oxygen that results in total or partial death of the pond's fish population. Which one is not likely a cause of a summer fish kill?
 - A. Daytime oxygen production exceeds the nighttime oxygen use.
 - B. Shallow pond
 - C. Thermal inversions
 - D. Chemical applications

2. In a pond/lake the interface zone between the land and open water is called the:
 - A. Pelagic Zone
 - B. Littoral Zone
 - C. Limnetic Zone
 - D. Benthic Zone

3. When conducting a bioassessment of aquatic macro-invertebrates in a stream, which of the following aquatic macro-invertebrate assemblages are the most sensitive to pollution:
 - A. Blood midge, aquatic worm, crayfish.
 - B. Dragonfly nymph, damselfly nymph, crane fly larvae.
 - C. Pouch snails, leeches, beetle larvae.
 - D. Dobsonfly larvae, stonefly larvae, riffle beetle.

4. Which of the following has the distinction of being the smallest flowering plant in the world?
 - A. Watermeal.
 - B. Filamentous Algae.
 - C. Spatterdock.
 - D. Water Milfoil

5. You've been asked to help this landowner develop a strategy to protect and improve the riparian part of the park. Which of these options should be the highest priority?
 - A. Improve shade for game species
 - B. Invasive species removal and native planting
 - C. Bank stabilization and revegetation
 - D. Testing the paint on the bridge for heavy metals

6. Aerobic bacteria require which of the following:
 - A. Water.
 - B. Soil.
 - C. Carbon.
 - D. Oxygen.

7. The best example of a lotic habitat is:
- A. Bog.
 - B. Pond.
 - C. Lake.
 - D. Creek.
8. Which has more potential to permanently lower the water quality of streams?
- A. Erosion.
 - B. Urbanization.
 - C. Agriculture.
 - D. Timber harvesting.
9. The following members of the lamprey family *Petromyzontidae* are parasitic except?
- A. Sea Lamprey.
 - B. Least Brook Lamprey.
 - C. Silver Lamprey.
 - D. Ohio Lamprey.
10. You're camping here with your friends and they've never seen a dobsonfly larva before. Where should you look for one?
- A. Under a flat, slabby rock
 - B. In the shade under the bridge
 - C. In a pool
 - D. Buried in a sandbar
11. Mayflies belong to which order?
- A. Plecoptera.
 - B. Ephemeroptera.
 - C. Trichoptera.
 - D. Hemiptera.
12. Lake Erie has gained international attention for Harmful Algae Blooms (HABs) affecting drinking and recreational waters. Which of the following statements is true about HABS?
- A. HABs only occur in large bodies of water, such as Lake Erie or Grand Lake St Mary
 - B. HABs are caused by low oxygen conditions, usually as a result of fish kills
 - C. The presence and severity of a HAB in surface water depends on nutrient loading from the surrounding watershed.
 - D. Boiling fresh surface water will remove the HAB toxins and make it safe to drink or cook with.

13. Vegetation holds some rain during precipitation. This water evaporates into the atmosphere without touching the soil. This process is called:
- A. Interception.
 - B. Infiltration.
 - C. Evapotranspiration.
 - D. Percolation
14. Which aquatic macroinvertebrate is a primary consumer?
- A. Stonefly.
 - B. Crayfish.
 - C. Alderfly.
 - D. Caddisfly.
15. You are in the headwaters of Sugar Creek, which is part of the Muskingum River Watershed. Where is the mouth of the Muskingum River?
- A. Cleveland
 - B. Youngstown
 - C. Portsmouth
 - D. Marietta
16. You are developing a plan to improve water quality in a watershed that includes multiple land uses. Which of the following potential sources of pollution can NOT be addressed via a NPDES (National Pollutant Discharge Elimination Systems) permit?
- A. Confined Animal Feeding Facilities
 - B. Municipal sewage treatment
 - C. Urban stormwater
 - D. Bulk cargo vessels
 - E. Agricultural runoff
17. Which aquatic plant is not an example of an invasive species in Ohio?
- A. Curly-leaf Pondweed.
 - B. Common Reed.
 - C. Narrowleaf Cattail.
 - D. Spatterdock.
18. What type of pollutant adversely affects reproduction rates and life spans of aquatic organisms?
- A. Metals.
 - B. Sulfates
 - C. Radionuclides.
 - D. None of the above.

19. When identifying and classifying water pollution problems, one of the tools biologists uses is the Fish Index of Biological Integrity (IBI). There are several metrics that are used to determine the IBI. Which is not a metric used to determine the fish IBI?
- A. Number and identity of benthic insectivorous species.
 - B. The total suspended solids in the stream.
 - C. Proportion of with disease or anomalies.
 - D. Total Number of Fish.
20. Identify the organism provided. Is it: (water penny)
- A. Tolerant of pollution
 - B. Somewhat tolerant of pollution
 - C. Intolerant of pollution
 - D. Not a species we use to determine water quality
21. When using fish as biological indicators to determine if a stream is a cold-water stream, which of the following species would not be an indicator of a cold-water stream?
- A. Redside Dace.
 - B. Brook Stickleback.
 - C. Rainbow Darter.
 - D. Mottled Sculpin.
22. Decaying organic matter such as leaves in streams, ponds and lakes is known as:
- A. Detritus.
 - B. Periphyton.
 - C. Alluvial
 - D. Pigmentation.
23. When landowners are managing their floodplain forests along streams, rivers, wetlands, ponds and lakes it is important to leave trees (living or dead) with cavities (holes in the tree) because some birds nest in these tree cavities. All of the following are cavity nesting birds in floodplain forests except.
- A. Wood Ducks.
 - B. Belted Kingfisher.
 - C. Prothonotary Warblers.
 - D. Common Mergansers.

24. In headwater streams that are too small to support fish, salamanders are the key indicator species in these waters. Which of the following group of two salamanders would you most likely find living in these small headwater streams?
- A. Spotted salamander & marbled salamander.
 - B. Two-lined salamander & dusky salamander.**
 - C. Ravine salamander & red-backed salamander.
 - D. Hellbender salamander & mudpuppy salamander.
25. Using the provided section of topographic map/aerial photograph, if you saw a brown discoloration in the water here (location marked with a yellow star), where would you begin looking for a source?
- A. Livestock auction
 - B. Marked farm field B
 - C. Condominium development
 - D. Marked farm field D**
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😊 All DONE!

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