

2008 Area 1-Northwest Ohio Envirothon

TEST—AQUATICS STATION

Aquatics General Questions:

- 1) Total Maximum Daily Load (TMDL) refers to:
 - A. The maximum amount of water that is delivered to a receiving water body by a stream in twenty-four hours.
 - B. The total amount of a pollutant a water body can receive and still meet water quality criteria.
 - C. The total pollutant load allowable in storm water runoff.
 - D. The total volume of treated wastewater released by a facility in twenty-four hours.

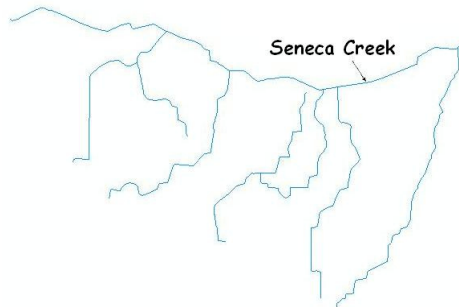
- 2) There has been recent interest to consider exporting fresh water from the Great Lakes to other areas where fresh water is limited. This has been controversial, and thus legislators in states adjacent to the Great Lakes have been working on legislation to address this issue entitled the *Great Lakes Water Resources Compact*, which has been discussed in the news media repeatedly. Which of the following is a goal of the *Great Lakes Water Resources Compact*?
 - A. To prohibit the export of Great Lakes water to Canada.
 - B. To prohibit the export of Great Lakes water to foreign nations.
 - C. To protect the Great Lakes through several practices, including a ban on diverting Great Lakes fresh water outside of the drainage basin.
 - D. To protect the Great Lakes through the cleanup of heavy metals in four Areas of Concern.

- 3) At what percentage of impervious surface cover do streams begin to show negative impacts within their watershed?
 - A. 10%
 - B. 30%
 - C. 51%
 - D. 75%

- 4) What is a combined sewer system?
 - A. A sewer system designed for primary and secondary waste treatment.
 - B. A sewer system that physically combines wastewater and storm water runoff.
 - C. A sewer system that serves both urban and rural homes.
 - D. A sewer system that uses two or more treatment technologies at once.

Aquatics General Questions (continued):

- 5) As recently as 13,000 years ago, this area was covered by great ice sheets nearly a mile thick. Very slowly (about 200 feet per year), glaciers carved and scoured the landscape with each advance southward. As they receded to the north, the glaciers did which of the following?
- A. Deposited glacial till, boulders, gravel, sand and other debris in ridges, or end moraines.
 - B. Created prehistoric lakes of melt water that later left fine clay silt beds across the landscape.
 - C. Created a flat landscape, with wide, long river systems.
 - D. All of the above
- 6) While sampling water quality in a stream, you find the following macroinvertebrates: Pouch Snail and Midge Larvae. Based on this information, what can you infer about the quality of the stream?
- A. It is most likely in "Excellent" condition.
 - B. It is most likely in "Good" condition.
 - C. It is most likely in "Fair" condition.
 - D. It is most likely in "Poor" condition.
- 7) Based on the map below, what order is the stream labeled Seneca Creek?
- A. First Order
 - B. Second Order
 - C. Third Order
 - D. Fourth Order



Aquatics General Questions (continued):

- 8) Which of the following fish species most likely has the highest level of mercury contamination, and thus should be eaten less frequently?
- A. Bluegill
 - B. Walleye
 - C. White Bass
 - D. Yellow Perch
- 9) Adequate levels of dissolved oxygen are critical to support aquatic life in streams. What is Ohio EPA's 24-hour dissolved oxygen minimum standard for a warm water stream?
- A. 2 g/l
 - B. 2 mg/l
 - C. 4 g/l
 - D. 4 mg/l
- 10) Microcystis is a blue green algae found in western Lake Erie. Why is there such a concern regarding Microcystis?
- A. It is ugly to look at and can damage boats.
 - B. People could get caught up in the algae and drown.
 - C. There is no concern about Microcystis.
 - D. When the algae decomposes, toxins are released.
- 11) Which form of Phosphorus is most available to aquatic plants?
- A. Dissolved reactive Phosphorus
 - B. Particulate Phosphorus
 - C. Precipitate Phosphorus
 - D. Soluble unreactive Phosphorus
- 12) What is the number one pollutant in Ohio's streams and rivers?
- A. Heavy metals
 - B. Sediment
 - C. Toxic waste
 - D. Woody debris
- 13) If a community places a 25 foot setback along a stream channel, which of the following is most likely true within that 25 foot setback?
- A. Any activity within the setback would be considered illegal.
 - B. Construction of buildings would not be allowed within the setback.
 - C. Only the removal of trees is controlled by most setbacks.
 - D. Setbacks do not impact the activities of a private landowner.

Aquatics General Questions (continued):

- 14) Which of the following is a likely impact of riparian trees on a stream?
- A. Decrease in stream temperature.
 - B. Increase in benthic organic material.
 - C. Increase in bank stability.
 - D. All of the above.
- 15) Which of the following would make the best bait for catching smallmouth bass in a stream?
- A. Dobsonfly larvae
 - B. Stonefly larvae
 - C. Riffle Beetle adult
 - D. Water Penny larvae
- 16) A Least Bittern is a telltale sign that which type of aquatic habitat is near?
- A. Emergent marsh
 - B. Farm pond
 - C. Open lake
 - D. Small stream
- 17) Which of these is a tree that is native to Ohio and is most likely to be home to a marsh wren?
- A. Black Oak
 - B. American Crabapple
 - C. Pin Oak
 - D. White Spruce
- 18) Which type of stream habitat is characterized by the presence of shallow water and fast flows, and is critical spawning habitat for fish?
- A. Pool
 - B. Riffle
 - C. Run
 - D. None of the above.
- 19) Which of these species of fish is least likely to be tolerant of turbid waters?
- A. Bullhead
 - B. Green Sunfish
 - C. Longear Sunfish
 - D. White Sucker

Aquatics Site Specific Questions:

- 20) Too many geese can create a water quality problem in a small body of water, such as the pond at this site. Why are there likely few problems with geese on the pond (Labeled #20), especially when compared to a golf course?
- A. Geese use ponds like this one only in the fall.
 - B. The habitat around the pond is home to predators, unlike at a golf course, where the line of sight is long and clear.
 - C. There is a lot of hunting pressure at this site, and although it is mostly for deer, the presence of hunters scares the geese away.
 - D. Wood ducks use this pond and they harass geese and prevent them from nesting on the same water body.
- 21) What use designation would the pond (Labeled #21) on this site get from Ohio EPA?
- A. The pond would be considered a Limited Resource Water.
 - B. The pond would be considered a Modified Warmwater Habitat.
 - C. The pond would be considered a Warmwater Habitat.
 - D. The pond would not receive a use designation.
- 22) What impact does this wetland (Labeled #22) have on flooding in the area?
- A. It does not impact the potential for flooding downstream.
 - B. It increases downstream flooding because it holds water.
 - C. It reduces downstream flooding because it holds water.
 - D. Wetlands create upstream flooding by holding back water.
- 23) Dependence on foreign sources of fuel is a major political and national safety concern. Burning fossil fuels is also an environmental concern. The use of ethanol as a fuel source has had an impact on agriculture in Ohio, namely, a substantial increase in the production of corn. As more and more corn is grown, what impact will there be on this wetland (Labeled #23) and wetlands and streams across Ohio?
- A. Conversion of pastures and natural areas to corn fields could increase storm runoff and flooding.
 - B. Increased tillage due to a low acceptance of no-till corn versus no-till beans could increase soil erosion.
 - C. Use of higher levels of Phosphorus and Nitrogen to grow corn could result in greater runoff to streams.
 - D. All of the above are potential impacts.

Aquatics Site Specific Questions (continued):

- 24) Which of the following species is most likely to live in or near the pond, previously visited, rather than the wetland (Labeled #24)?
- A. Bald Eagle
 - B. Killdeer
 - C. Mallard
 - D. Northern Shoveler
- 25) Standing at the marker (Labeled #25), you are looking at a wetland. One of the primary indicators of wetlands is the species of plants. Which of the following plants is not a native Ohio species that indicates the presence of wetlands?
- A. Purple Loosestrife (*Lythrum salicaria*)
 - B. Rice Cutgrass (*Leersia oryzoides*)
 - C. Switchgrass (*Panicum virgatum*)
 - D. Water Foxtail (*Alopecurus geniculatus*)
- 26) Standing on the bridge (at marker labeled #26), you are overlooking the headwaters of Sugar Creek. Headwaters are like the capillaries in your body, they are small, but critically important to the health of the stream. What does Ohio EPA consider the maximum watershed area for a stream to be considered a headwater?
- A. One acre (1 ac)
 - B. One half acre (1/2 ac)
 - C. One half square mile (1/2 mi²)
 - D. One square mile (1 mi²)
- 27) Standing at the edge of the field, next to marker (Labeled #27), you are looking at several BMPs. Of the BMPs that have been implemented at this site, which will benefit both wildlife and water quality?
- A. Buffer strip
 - B. Contour farming
 - C. Windbreak
 - D. Both A and C
- 28) Miller Conservation Farm allows limited hunting, fishing, and hiking to the public. Which of the following types of recreation has caused an impact at this Aquatics Ecostation site (Labeled #28), including everything you have seen here today--the pond, the wetland, the prairie, and the windbreak areas?
- A. Fishing
 - B. Hunting
 - C. Nature Photography
 - D. All of the above

2008 Area 1-Northwest Ohio Envirothon ANSWER KEY—AQUATICS STATION

- 1) B
- 2) C
- 3) A
- 4) B
- 5) D
- 6) D
- 7) C
- 8) B
- 9) C
- 10) D
- 11) A
- 12) B
- 13) B
- 14) D
- 15) A
- 16) A
- 17) C
- 18) C
- 19) C
- 20) B
- 21) D
- 22) C
- 23) D
- 24) C
- 25) A
- 26) D
- 27) D
- 28) D