

Aquatics Station: 2018 Area IV Envirothon

By: Sarah Hippensteel Hall, Ph.D., Miami Conservancy District, Watershed Partnerships Manager

1) Which of the following best describes the definition of a watershed?

- a. The place where water and land meet.
- b. All the land that drains to a specific body of water.
- c. Boundary of the service area for a wastewater treatment plant.
- d. Porous land surface where water can soak into the ground.

2) Management of algal growth in bodies of water is best accomplished by which procedure?

- a. Application of nitrogen fertilizer to bring the nitrogen and phosphorus ratios back to a level that fosters green algae growth rather than blue-green algae growth
- b. Removal of wetlands and “green belts” that intercept nutrients before they reach the waterbody
- c. Management of livestock production and row crops so nutrients do not runoff these operations
- d. Ignoring programs that promote and advocate proper maintenance of sewage septic systems since these are minor sources of nutrients

3) Exposure to harmful algae blooms can cause symptoms in humans EXCEPT:

- a. Dizziness and light headed feelings
- b. Rash
- c. Seeing spots of green, blue-green, brown, white, purple, red or black
- d. Stomach ache

4) Which of the following group of tests would you perform to determine if a stream is being polluted with fertilizers?

- a. Dissolved Oxygen and Cryptosporidium
- b. Nitrogen and Phosphorus
- c. Ammonia and heavy metals
- d. Fecal coliform and Conductivity

5) Which of the following is a nonpoint source pollutant?

- a. Factory discharge
- b. Discharge from a boat
- c. Septic tank discharge
- d. Fertilizer runoff from residential yards and golf courses

6) What impact does water temperature have on stream water quality?

- a. Sediment stays in suspension longer in colder water
- b. High nutrient levels causes excessive algal blooms in colder water
- c. Warm water decreases fecal coliform levels
- d. Heat decreases the capability of water to hold dissolved oxygen

7) Which of the following group of tests would you perform to determine if a stream is being polluted with animal wastes?

- a. Phosphate and Cryptosporidium
- b. Nitrate and Turbidity
- c. Ammonia and heavy metals
- d. Fecal coliform and Conductivity

8) What keeps some streams full of water even during periods of drought?

- a. Leaking water lines
- b. Groundwater
- c. Discharge from dams
- d. Rainfall

9) The sampling equipment shown here is used to measure which of the following water characteristics?

- a. Turbidity
- b. Temperature
- c. pH
- d. Dissolved oxygen

10) The leading causes of unhealthy streams in Ohio are:

- a. Nutrients, sediment loads, and hydromodification
- b. Sediments, downed trees, and aquatic plants
- c. Wastewater treatment plants, septic tanks, and lawn runoff
- d. Invasive species, litter, and leaking oil tanks

11) Use the Hach testing kits provided to measure Nitrate-Nitrogen. Select the correct measurement.

- a. 0-0.2 mg/l
- b. 0.2-0.5 mg/l
- c. 0.5 - 0.8 mg/l
- d. > .08 mg/l

12) Which of the macroinvertebrates located on the table are considered Sensitive Species according to the pollution tolerance index (PTI)?

- a. Dobsonfly Larvae
- b. Crane fly larva
- c. Dragonfly nymph
- d. Blood midge

13) Storm water runoff from a construction site is filling a local stream with sediment and impacting aquatic life. What Best Management Practice (BMP) would you suggest?

- a. Capture the fish and move them to another healthier stream
- b. Dredge the affected section of the stream
- c. Install silt fences around the construction site
- d. Monitor water quality at the site

14) Which impact could make drinking water unsafe?

- a. Polluting waterways with sediment
- b. Excess groundwater extraction for irrigation
- c. Penetration of harmful UV-B radiation into water bodies
- d. Excess nutrient runoff causing harmful algal blooms

- 15) The Clean Water Act (CWA) is the cornerstone of surface water quality protection in the United States. The Act does NOT:**
- Protect fish, shellfish, and wildlife in and on the nations' waters
 - Govern the safe transport of drinking water to the home
 - Employ a variety of regulatory and non-regulatory tools to sharply reduce direct pollutant discharges into waterways
 - Protect the chemical, physical, and biological integrity of the nation's waters
- 16) Identify the organism on the picture card that is Level 3 – Tolerant of Pollution using the pollution tolerance index (PTI).**
- Crane fly larva
 - Dragonfly nymph
 - Black fly larva
 - Water Penny Larva
- 17) Use the Dichotomous Key provided to identify the macroinvertebrate.**
- Dragonfly nymph
 - Hellgrammite
 - Damselfly nymph
 - Crane fly larva
- 18) The riparian zone upstream is completely intact, but downstream the river is exposed to full sun. What differences would you expect between the two sites?**
- Section exposed to full sun would have higher nutrient levels and excessive algal blooms
 - Colder water in section upstream would cause fish kills when the temperature drops at night
 - Lack of cover in downstream section would increase turbidity levels
 - The water quality data for both sites would be very similar
- 19) Farm ponds provide habitat for wildlife, but they need to be maintained and managed. The most common cause of winter kill of fish in these ponds is:**
- unregulated ice fishing during winter months
 - lack of oxygen in the water because the water is nutrient-rich
 - failure to dredge debris from the pond during winter
 - bird predators that feed on the fish when their food supplies are low
- 20) Use the map to identify all of the sources of nonpoint source pollution. How many are there?**
- 0
 - 1-3
 - 4-5
 - >6
- 21) Conserving water can benefit the environment in many ways. Which is NOT a way you can personally conserve water?**
- Take shorter showers
 - Only run full machine loads of laundry or dishes
 - Pick up pet waste in your yard
 - Use a rain barrel to collect water for landscaping

22) Why are wetlands beneficial to water quality and environmental diversity?

- a. They filter and trap sediment from runoff resulting in clearer water
- b. They prevent flooding by letting water flow through them quickly
- c. They raise the water temperature which helps fish develop quicker
- d. They add nutrients to the water which helps aquatic algae grow healthier

23) Most fish species normally reproduce by means of:

- a. Larvae
- b. Eggs
- c. Glochidia
- d. The stork

24) Adult crane flies resemble large _____.

- a. Flies
- b. Mosquitos
- c. Birds
- d. Ants

25) An invasive species is a living organism not native to an ecosystem and causes harm. Which is NOT a potential impact of introducing an invasive fish species to this pond?

- a. The non-native invasive species out competes the native species for available food
- b. The non-native invasive species destroys the habitat where the native species lives
- c. The non-native invasive species eats the native species
- d. Interbreeding between native and non-native invasive species strengthens the native species