2012 FINAL AQUATICS ~ AREA 2 Envirothon Questions –Answer KEY

1. This past year, many lakes across Ohio had harmful algal blooms, which caused many beach shut downs and contact advisories. What contributes to the severity and length of these algal blooms?

A. Influx of nutrients from the watershed
B. A hot summer with little or no clouds
C. Decreased flow into and out of a lake
D. All of the above

2. The removal of trees shrubs along stream banks will result in the stream's water temperature rising due to lack of shading from sunlight in the summer months. Such streams with little protection from sun rays:

A. Coupled with nutrients will cause large algae blooms
B. Will be less able to hold oxygen required for aquatic life
C. Will result in a shift in aquatic community from more desirable species to less desirable species that are more tolerant to elevated water temperatures.
D. All of the Above

3. The pH of an aquatic system is critical to supporting life. If it is higher or lower than need be, certain intolerant species can disappear. If a given system has a neutral pH of 7, what will happen to the pH if the water becomes more acidic?

A. The pH value will move closer to 8.
B. The pH value will move closer to 6.
C. The pH value will remain unchanged
D. None of the above

4. Which of these is NOT an example of a nonpoint source pollution?

A. Increased water temperatures coming from cooling a power plant
B. Urban runoff from a parking lot
C. Sedimentation from a degraded streambank
D. Excess runoff from a fertilized farm field

5. Which of these fish species is native to Ohio?

A. Steelhead trout
B. Common carp
C. Northern pike
D. Saugeye

6. Most ponds in Ohio should have no more than 20% of its bottom covered by aquatic vegetation. If a pond contains more than 20%, the excess vegetation could contribute to fish die-offs coming from what?

A. Too much oxygen in the pond coming from plant respiration
B. Too many places for fish to hide in the vegetation
C. A lack of oxygen due to dead plants decomposing on the bottom
D. A lack of habitat created by increased vegetation cover

7. Pond stocking recommendations in Ohio are usually simple in nature. What is stocked normally results in the formation of a simple food chain that will operate for many years if left undisturbed. Put these food chain levels in order (starting with the lowest level of the food chain) to accurate reflect how food chains operate in a simple pond environment.

A. Zooplankton, Phytoplankton, Nutrients, Bluegill, Largemouth Bass
B. Nutrients, Phytoplankton, Zooplankton, Bluegill, Largemouth Bass
C. Largemouth Bass, Bluegill, Zooplankton, Phytoplankton, Nutrients
D. Phytoplankton, Zooplankton, Nutrients, Bluegill, Largemouth Bass

8. Measuring certain environmental characteristics can show you the current condition of a system and how impaired it may be. Looking at this stream, what measurement below is the LEAST helpful in determining whether or not this stream has been modified?

A. Sinuosity
B. Depth
C. Riparian buffer depth
D. Sediment types / sizes

9. One way that to determine aquatic system "health" is to quantify the numbers of tolerant species present. Tolerant species can live in more degraded systems, so the more of these species present (and less intolerant species) indicates that a system is impaired. Which of these species are considered to be tolerant species?

A. Brown bullhead
B. Largemouth bass
C. Central stoneroller
D. Logperch

10. Viral hemorrhagic septicemia (VHS) is a fish virus that is affecting the Great Lakes Region. Just like other exotic species, this new disease cannot be controlled once it becomes introduced and established. What steps are being performed to ensure that VHS does not infect other aquatic systems in Ohio?

A. Broodstock eggs are being disinfected with iodine before entering a hatchery
B. Interstate transport of fish around the Great Lakes region is becoming highly regulated
C. Live fish may not be brought from Lake Erie district to other inland waters
D. All the above

11. Being a "good steward" can mean a variety of things, but the bottom line is that you are making conscious decisions to protect the quality of the environment. Which of these is NOT considered to be the actions of a "good steward"?

A. Recycling old fishing line
B. Putting fish from a public lake to a stream to increase biodiversity.
C. Apply the minimum amount of fertilizer possible in your yard
D. Attending a local planning meeting to hear about possible urban developments alongside a local stream

12. The zebra mussel is a perfect example of how an exotic, non-native species can influence native fauna. Their results are mostly detrimental, but some exotics can have beneficial results. Which of these fish species have benefited from the introduction of the zebra mussels?

A. Smallmouth bass
B. Channel catfish
C. Redear sunfish
D. Rainbow darter

13. Exotic species introductions are a problem that not only Ohio must face, but is a problem nationally as well. These introductions place animals and plants in places where they have not historically been found, and create problems for other organisms in that spot or the users who frequent it. Which of these is the most common vector for introducing exotic species into aquatic systems?

A. Microscopic life stages attaching to migratory birds
B. Exotic species swimming upstream to new locales
C. Pond owners stocking fish into private ponds
D. The large scale release of water (ballast, livewell, etc.) into the environment

14. A lake "turnover" event occurs when previously stratified water mixes suddenly and makes the water column the uniform temperature top to bottom. Given the situations below, when is a lake turnover likely to occur?

A. A calm, sunny summer day with no rain or precipitation
B. A cloudy spring day after the ice comes off the lake.
C. A windy fall day after a cold front has cooled the upper section of the water column.
D. A hot summer day where there was a little rain on and off the entire day.

15. How aquatic systems are influenced by other factors can be attributed to the strength of its associated wetlands. What important roles do wetlands play in an aquatic ecosystem?

A. protect stream banks and shorelines from erosion
B. reduce severity of floods downstream
C. remove harmful impurities from groundwater
D. all of the above

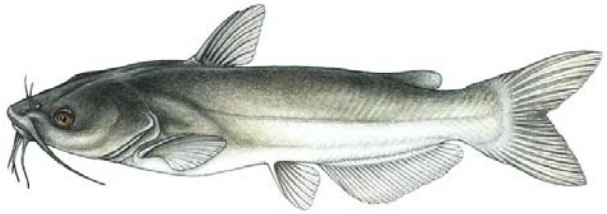
16. What is an example of a lentic system?

A. This stream
B. A pond
C. The Ohio River
D. A canal

17. What is the name given to the type of soils found in swamps and marshes?

A. Muck soils
B. Hydrophytic soils
C. Non-desoteric soils
D. Hydric soil

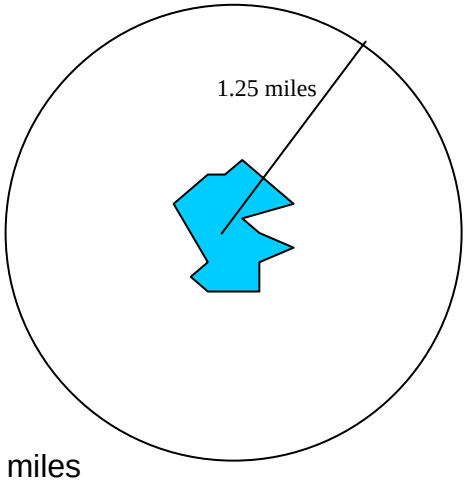
18. On a hot summer night, you head out with a dozen worms to your nearest fishing spot. After a few nibbles, you set the hook hard and land this:



It is primarily grey in color, has a forked tail, and a short anal fin. What is it?

A. Flathead catfish
B. Blue catfish
C. Brown bullhead
D. Channel catfish

19. A watershed is defined as being an area confined by topographic divides that drains a given stream or river. Watersheds can be larger (Lake Erie watershed vs. Ohio River watershed) or smaller (a pond's watershed). The pond below has a particularly unique watershed… it is a perfect circle. If the distance from the center of the pond to the highest topographical point around it is 1.25 miles, what is the total area of the pond's watershed?



A. 1.25 square miles
B. 3.9 square miles
C. 4.9 square miles
D. 10.1 square miles

20. Indicator species can be examined to see whether or not a given aquatic system is being affected by a given pollutant. Which one of these species groups would be the best indicator species to examine?

A. Fish since they breathe in the oxygen in the water
B. Aquatic macroinvertebrates since they go through several life cycles over the course of a season
C. Nutrient levels since they can be related to all pollutants
D. Predators since they must feed on the prey

21. Countershading in fish plays an important role in fish survival since it confuses predators. Which of these terms accurately describes how countershading works in fish?

A. Dark backs and light bellies make fish blend in with either the dark bottom (as viewed from above) or light above (in viewed underneath)
B. Alternating light/dark sports on the side of a fish make it camouflage
C. White mouths make prey fish appear larger than they really are
D. Fake “eye spots” on fish make predators attack non-vital areas on prey

22. The introduction of gizzard shad into Ohio’s waters has been a critical factor in how aquatic ecosystems operate. How does a gizzard shad influence the food chain in aquatic systems?

A. By eating detritus and subsequently serving as a nutrient pump from the sediment to the water column
B. By eating food items (phytoplankton and zooplankton) that other prey fish need to eat
C. By top predators feeding on them regularly
D. All of the above

23. In a lake where the oxygen is stratified, what is the zone where the oxygen levels change dramatically?

A. Dead zone
B. Anaerobic zone
C. Oxycline
D. Photic zone

24. Human disturbances play an important role in the biodiversity of an ecosystem and the disappearance of some species. All of the fish below have been stocked into Ohio’s waters over the past few years. Which one of these species introductions took place due to human disturbances causing a population decline?

A. Walleye
B. Saugeye
C. Brook trout
D. Blue catfish

25. Notice the wooded corridors along the stream banks at this station. They often flood and naturally are often dominated by large overhanging trees. What is the function of the stream side forest (riparian corridor)?

A. Provide wildlife habitat for multiple animals
B. Improve water quality and quantity by providing shade, filtering out nutrients and pesticides, reduce soil erosion by stabilizing banks, providing a buffer area for fine sediment in upland runoff to settle out, and providing wildlife corridors between larger woodlands.
C. Stream side forest take up valuable farm ground and should be cleared off to allow the farmers more ground to farm and produce larger amounts of crop yields.
D. All of Above

2012 Final Aquatics Test Answer Key