

April 29, 2014

Area IV Envirothon  
Procter Camp and Conference Center  
11235 S.R. 38 SE  
London, Ohio 43140

## Aquatics

- 1. Management of harmful algal blooms is best accomplished in large bodies of water 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. Application of aquashade or other water dyes that inhibits photosynthesis and hence algae growth
  - c. Removal of wetlands and “green belts” that intercept nutrients before they reach the waterbody
  - d. Close monitoring of all agricultural activity, both livestock production and row crops, to assure that minimal nutrients are leaving these operations thus minimizing nutrient input into the water body
  - e. Ignoring programs that promote and advocate proper maintenance of sewage septic systems since these are minor sources of nutrients
  
- 2. Harmful algae blooms can have which of the following characteristics?**
  - a. Various colors including green, blue-green, brown, white, purple, red and black
  - b. Various textures looking like paint in the water, particles in the water, floating crusts, floating puffs or films, and even grass like filaments
  - c. Unsafe for humans but perfectly fine for pets to swim in and drink
  - d. Only A and B above
  - e. None of the above
  
- 3. Trees that grow adjacent to a body of water such as streams are called riparian buffers. These areas provide a variety of benefits to both aquatic and upland wildlife. Which of the following is a key to fish surviving and breeding in a stream system?**
  - a. The trees shade the stream to keep water temperatures cool and oxygen levels high.
  - b. The trees provide leaf litter that the fish utilize for nesting
  - c. Toxins given off by decaying leaves in the water provide food and nutrients for the fish
  - d. Leaves continue to photosynthesize under water providing oxygen for the fish

- 4. Harmful algae bloom exposure symptoms in humans includes the following except:**
- Dizziness and light headed feelings
  - Rash
  - Seeing spots of green, blue-green, brown, white, purple, red or black
  - Allergic reactions
  - Stomach ache
- 5. Harmful algae blooms in Grand Lake St. Marys may be controlled with implementation of which of the following livestock management practices?**
- Nutrient input from manure coming from farms must be managed and minimized by various practices
  - Nutrient management plans put forth by the Ohio Department of Natural resources must be followed for farms producing more than 100,000 gallons or 350 tons of manure annually.
  - Manure applications cannot be during a rain event and must be restricted to a portion of the year when ice, frozen ground or precipitation events are less likely to cause run-off of manure nutrients to Grand Lake St. Marys
  - All livestock will be required to be “toilet trained” with their manure being sent to a human sewage treatment plant for processing.
  - a, b, and c above
- 6. The management of a fish population in an established Ohio farm pond should begin with what procedure?**
- Keeping an angler diary
  - Assessing the fish population and species that may already be present
  - Stocking of new fish
  - Practicing selective harvest
- 7. Which of the following fish species is NOT a good candidate to stock in an Ohio farm pond?**
- Largemouth bass
  - Bluegills
  - Green sunfish
  - Channel catfish
- 8. One particular species of fish is especially good at removing excess snails from an Ohio farm pond. Which of the following species of fish is that excellent “snail eater”?**
- Largemouth bass
  - Channel catfish
  - Red-ear sunfish
  - Bluegill

9. **Some farmers have trouble with too much water, leading to puddling and difficulty working their fields in the spring. A solution to this is drainage pipe. What are some of the ways a farmer would change their farming practices after the drainage pipe was installed?**
- Cease deep tillage since they might hit the pipe
  - Apply fertilizers only when the soil is dry
  - Plant the least water tolerant crops over the drainage pipe
  - Use less soil amendments now that it is easier to work
10. **According to *Building Soils for Better Crops*, course, how rapid is the decomposition of SOM in course, well drained soils as compared to other soil types?**
- Decomposition is slower than other soil types
  - Decomposition is more rapid than other soil types
  - Decomposition is the same among soil types
  - Decomposition rates vary based on what crops are grown
11. **Habitat structures, fish shelter, or fish attractors can be used to concentrate fish in a specific area where they can be caught more easily in an Ohio Farm pond. All of the following fish shelter methods are viable for this purpose except for one listed method. Which of the following methods is NOT a good idea for creating a fish shelter?**
- Making piles of cinder blocks in a portion of the pond
  - Fertilizing a specific area to create a dense weed growth for fish to hide in
  - Stacking old tires in specific area to create shelter
  - Driving upright stakes into the pond bottom
  - Placing brush piles or Christmas trees, etc. on the ice in winter. Thereby later when the ice thaws the brush piles will sink and create scattered shelter areas.
12. **How many pounds/acre of fish does the typical Ohio farm pond support or produce per year?**
- 2, 500 lbs.
  - 500 lbs.
  - 250 lbs.
  - 100 lbs
  - 1,000 lbs.
13. **Most Ohio farm ponds are naturally supplied with adequate nutrients like Nitrogen, Phosphorus and potassium for aquatic plant and algae growth. However, some ponds, where the watershed is not very large, or where the pond is in low fertility, may benefit from some fertilization to increase productivity. Which fertilizer ratio is recommended for these select ponds?**
- 15-15-15 (N:P:K or nitrogen : phosphorus : potassium)
  - 0-30-0
  - 30-15-0
  - 10-34-0

- 14. A one acre pond in Ohio should be situated in a large enough “watershed” to supply adequate year round water supply and prevent a water drop of less than 2 feet during drought years. What is the recommended watershed acreage for a one acre pond in Ohio?**
- 30 to 45
  - 20 to 35
  - 10 to 15
  - 1 to 5
- 15. Which of the following is an appropriate forage (feeder) fish for largemouth bass in an Ohio farm pond?**
- Gizzard shad
  - Green sunfish
  - Common carp
  - White crappies
  - Bluegill
- 16. Numerous strategies are being tested on Grand Lake St. Mary’s in order to reduce nutrient loading into the Lake, decrease harmful algae blooms, and decrease low dissolved oxygen levels. Which of the following is NOT a method being tried to correct Grand Lake St. Mary’s status as a distressed water system?**
- Regulation of farmers’ livestock operations to limit input of run-off manure
  - Installing shade cloth structures over canals in Grant Lake St. Mary’s to minimize light and algae growth
  - Application of alum to bind to and remove phosphorus, a primary nutrient for algae growth
  - Experimental application of hydrogen peroxide to decrease algae growth
  - Removing undesirable fish like carp and gizzard shad which are suspected of stirring up nutrients from the bottom
- 17. Deer populations often grow too large in urban areas where there are no natural predators and hunting is not permitted. This can result in damage to landscaping plants and to destruction of natural vegetation. In extreme cases of deer over population a browse line appears in wooded areas. The Ohio Division of Wildlife often recommends which method as a means of population control.**
- trap and relocate deer
  - deer birth control chemicals
  - special controlled hunts
  - wait for a natural die off
  - none of the above

**18 .Using the furnished Division of Wildlife Sport Fish of Ohio Identification guide identify the fish circled and marked with #22 on the Stream Ecosystem Poster**

- a. Walleye
- b. Smallmouth Bass
- c. Largemouth Bass
- d. Northern Pike
- e. Rock Bass

**19. Using the furnished Division of Wildlife Sport Fish of Ohio Identification guide identify the fish circled and marked with #23 on the Stream Ecosystem Poster**

- a. Long-ear sunfish
- b. Rock bass
- c. Largemouth Bass
- d. Red-ear Sunfish
- e. Walleye

**20. Using the furnished Division of Wildlife Sport Fish of Ohio Identification guide identify the fish circled and marked with #24 on the Upland Reservoir Ecosystem Poster**

- a. Rock bass
- b. Largemouth Bass
- c. Red-ear Sunfish
- d. Walleye
- e. White Bass

**21. Using the furnished Division of Wildlife Sport Fish of Ohio Identification guide identify the fish circled and marked with #25 on the Upland Reservoir Ecosystem Poster**

- a. Rock bass
- b. Largemouth Bass
- c. Red-ear Sunfish
- d. Walleye
- e. White Bass

**22. The device labelled number 26 before you on the table is used to measure what water quality parameter?**

- a. Turbidity
- b. Dissolved Oxygen
- c. Water Hardness

**23. A clean plastic or glass bottle labelled #27 would be used to collect what type of sample?**

- a. Oxygen sample
- b. Water sample
- c. Aquatic weed sample

**24. Rubber or vinyl gloves labeled #28 would be a good safety idea when collecting what type of sample?**

- a. Dissolved Oxygen
- b. Turbidity
- c. Water treatment plant water sample

**25. Soil quality plays an important role in maintaining and enhancing water quality as soil is the earth's natural water filter. What is soil quality?**

- a. How soil particles are arranged.
- b. The composition of sand, silt, and clay
- c. The "soil series" of an area.
- d. Capacity of a specific kind of soil function.