

Wisconsin Envirothon 2007 Water Resources

Question 1. (3 Points)

What Act of Congress established the basic structure for regulating discharges of pollutants into waters? Clean Water Act

What year did the act take affect? 1972

What federal entity was charged with pollution control programs as a result? EPA

Question 2. (2 Points)

Which of the following is not a way to use oceans to produce electricity?

- A. Tidal Turbines
- B. Wave Cropping**
- C. Sea Dams
- D. Tide Mills

Question 3. (3 Points) Name three advantages of hydropower.

Clean-no carbon produced
Domestically produced
Renewable

Impoundments provide recreation
Power available as needed
Flood Control

Question 4. (2 Points)

What two nutrients are typically blamed for eutrophication of water bodies?

Phosphorus

Nitrogen

Question 5. Identify the following aquatic insects. Use the generally accepted common name. Choose from the choices below. There is only one answer for each. (2 Points Each)

Mayfly, Stonefly, Caddisfly, Cranefly, Sowbug/Isopod, Scud/Amphipod, Riffle Beetle, Dragonfly, Damselfly, Giant Water Bug, Water Scorpion, Water Boatman, Back Swimmer.

Insect No. 1 **Stone fly** _____

Insect No. 2 **Dobson fly** _____

Insect No. 3 **Dragon fly** _____

Insect No. 4 **Caddis fly** _____

Insect No. 5 **May fly** _____

Question 6. Match the word or phrase with a definition below (13 Points)

F Xeriscaping

J Wastewater

B Thermoelectric Power Water Use

L Primary wastewater treatment

E Secondary wastewater treatment

A Tertiary wastewater treatment

I Lentic Water

C Lotic Water

O Benthos

G Effluent

D Potable water

N Geothermal Energy

K Watershed

- A. This may involve ozone or ultraviolet radiation to remove organic and inorganic substances.
- B. Power plants that burn coal and oil are examples.
- C. Streams or rivers (flowing).
- D. Suitable for drinking.
- E. Activated sludge and trickling filters are two of the most common means of this.
- F. Uses plants that are well adapted to the local area and are drought resistant.
- G. Flows from a sewage treatment plant after being treated.
- H. The science of farming organisms that live in water, such as fish, shellfish, and algae.
- I. Ponds or lakes (standing).
- J. Water used in homes, industries and businesses that is not for reuse unless it is treated.
- K. The land area draining to a surface water.
- L. Mechanical methods used such as filters and scrapers.
- M. Water that contains more than 35,000 milligrams per liter of dissolved solids.
- N. Heat derived from the earth.
- O. The organisms living in or on the bottom of a lake or stream.

Question 7. (2 Points)

Which of the following States is not one of the top producers of hydroelectric power in the U.S.?

- A. Washington
- B. **Colorado**
- C. Oregon
- D. California
- E. New York

Question 8. (2 Points)

What two factors determine how much electricity a hydropower plant can make?

How far water falls
Amount of water falling

Question 9. (2 Points) Surface water quality is typically measured using which of the following? **Circle the best choice(s).**

- A. **Physical Characteristics**
- B. **Chemical Characteristics**
- C. **Biological Characteristics**
- D. Aesthetic Characteristics
- E. All of the above

Question 10. (2 Points Each)

False The primary use of groundwater in the United States is for drinking water.

False Built in 1966, the largest tidal power station in the world is in China.

True Hydropower is the most efficient way to generate electricity and the country's largest renewable energy source.

True The porosity and permeability of an aquifer define its ability to yield water to wells in productive amounts.

False Most dams in the United States were constructed for electricity production.

True In Wisconsin, we get most of our drinking water from groundwater.

Question 11. (2 points)

What are two negative affects on aquatic life from hydropower facilities unrelated to the actual construction of the dam?

Fish Entrapment

Lack of movement of aquatic life

Impounded water/Eutrophication

Peaking

Erosion

Toxic Sediments

Question 12. (3 points)

Name at least three water related problems that result from the burning of coal for electricity production?

Mercury deposition/fish consumption advisory

Fish entrapment (water intake)
Thermal pollution

Water loss due to heating

Question 13. (2 Points)

Circle the two groups of organisms that have been impacted **most** by dams and hydro facilities?

Fish

Shorebirds

Plankton/Algae

Furbearers (beaver/muskrat)

Mussels

Question 14. (2 Points)

Name two of the three water bodies in Wisconsin that are used as sources for drinking water?

Lake Michigan

Lake Winnebago

Lake Superior

Question 15. (2 Points Each) The table has equipment and devices for monitoring and evaluating water quality conditions in surface water. Please identify the piece of equipment and tell what it does? Be as specific as possible.

1. _Kemmerer – Water Sampler
- 2 Zooplankton tow – plankton net
3. Secchi disk – measure water clarity
4. d-frame net – bug sampler

Question 16. (10 points) On the table is a container of water with some biota from a nearby stream. Using the provided Biotic Index poster, follow the directions to come up with a Biotic Index score (numeric) and ranking (excellent – poor).

Score: 2.6 – 3.5 (5 pts)

How Healthy: Good (5 pts)