THS Sci-O 2018-19 Water Quality Tryout Test
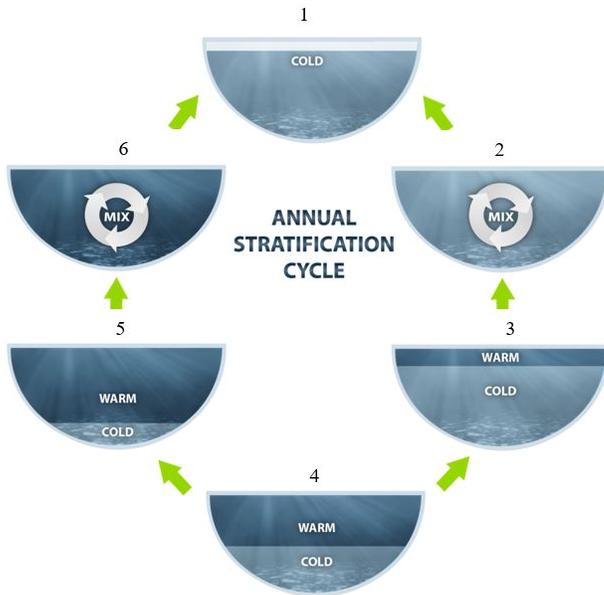
Partner 1: _____

Partner 2: _____

Total Score: _____/104

Part One:

1-6.   Label the times each part of the thermal stratification cycle occurs (ex: summer, spring turnover, etc.) (1 point each)

7.   What is the most common limiting nutrient in freshwater ecosystems? (1 point)
   a.   Nitrogen
   b.   Phosphorus
   c.   Sulfur
   d.   Potassium

8-11.   List the four major cations most commonly found in freshwater lakes: (1 point each)

12. List and describe four of the twelve principles of green chemistry. (2 points per principle)

13. Most of the organisms found in the benthic zone are _____. (2 points)

14. Most food chains have at most ___ tiers. (1 point)

15. What shape do aquatic pyramids of biomass tend to be? Why? (2 points)

16-19. List three common macrophytes that can be found in the littoral zone. (2 points each)

20. Describe the difference between phytoplankton and periphyton. (1 point)

21. Chlorophyll-a content and secchi depth are accepted techniques to determine the amount of what in lakes? (2 points)

22-24. (1 point each)
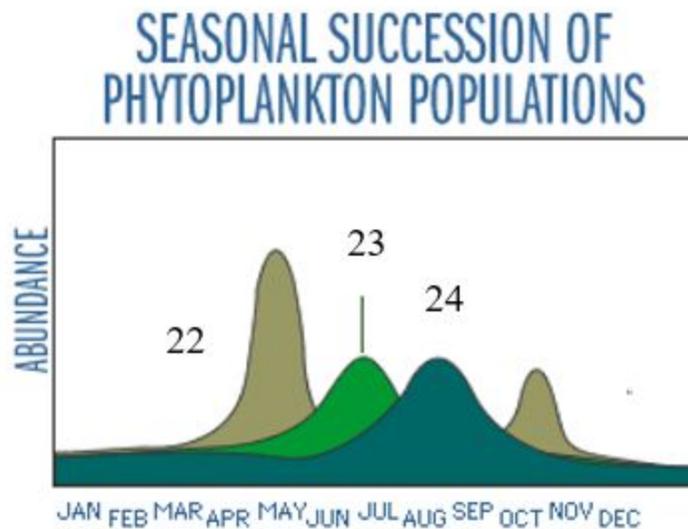
25. What are the three factors that regulate a lake's trophic status? (3 points)

26. List three different negative side effects of eutrophication. (3 points)

27. List the three major areas in the US that contain many natural lakes. (2 points each)

28. The study of lake sediments is called _____. (2 points)

29-30. The world's two largest freshwater lakes are _____ and _____. (1 point each)

31. What is annamox an abbreviation for? What does it mean? (1 point per question)

32-35. (1 point each)

WATER TREATMENT PLANT
SURFACE WATER SUPPLY
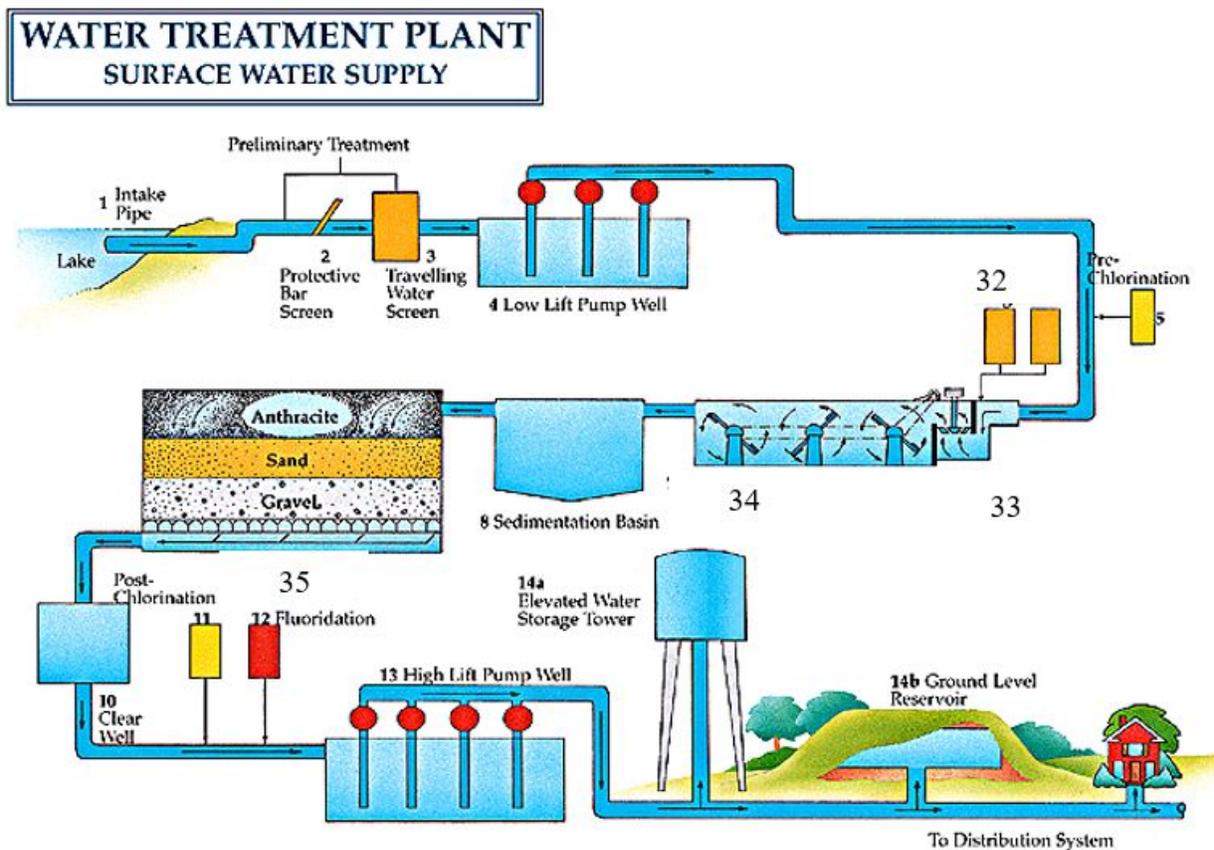
36. Rapidly growing algae or submerged aquatic plants remove CO2 from the water during photosynthesis, which increases pH. When photosynthesis occurs during the daylight hours, we can expect... (1 point)
    a. both dissolved oxygen and pH to increase
    b. both dissolved oxygen and pH to decrease
    c. during the non-daylight hours, these parameters increase
    d. dissolved oxygen increases and pH decreases
    e. Dissolved oxygen decreases and pH increases

37. What type of management is the most successful in terms of controlling non-native species? (1 point)
    a. Biological Management
    b. Mechanical Management
    c. Chemical Management
    d. Integrated Pest Management
    e. Case-Established Management

38. Define harvestable surplus. (1 point)

39. Write the equation for Verhulst's classical population equilibrium model. (1 point)

40. The Lotka-Volterra equations account for... (1 point)
    a. Predation
    b. Competition
    c. Mutualism
    d. Parasitism

41. The Environmental Protection Agency lists this as the most common pollutant in rivers, streams, lakes, and reservoirs... (1 point)
    a. Coliform
    b. Nitrates
    c. Sediment
    d. Phosphates

42. Invasive species cost an estimated damage of _____ annually. (1 point)
    a. 127 billion
    b. 137 billion
    c. 142 billion
    d. 147 billion

43. Which statement concerning the producers in the ocean ecosystem shown below is correct? (1 point)
   a. An increase in the types of producers will most likely decrease the available energy for the squid.

b. A producer in this ecosystem is the zooplankton.
c. If all the producers in this ecosystem are destroyed, the number of heterotrophs will increase, but the ecosystem will reach a new equilibrium.
d. Since there is only one group of producers, their numbers must be large enough to supply the energy for the rest of the food web.
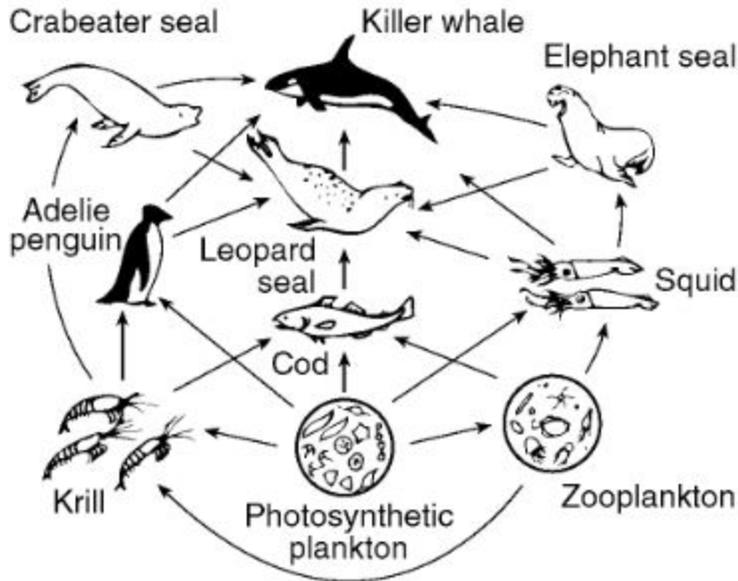
44. List two examples of lentic ecosystems. (1 point each)

45. What does TDS stand for? (1 pojnt)

46. List two adaptations of estuary organisms. (2 points per adapation)

Different life cycles of corals

47-48. (1 point each)

47 (hint: internal)

48 (hint: external)
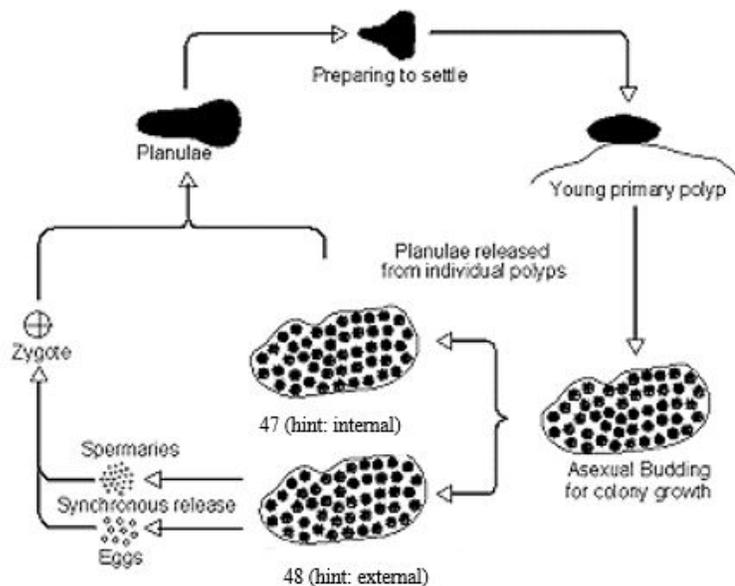
Part Two:

Station A: (1 point per question)

1. This is the larvae of what organism?

2. This organism is part of the EPT index with which two other specimen?

3. How long is the larval stage for this organism?

Station B: (1 point per question)

1. What is the common name of this organism?

2. Why is this organism important in stream ecosystems?

3. What organsisms rely on this species as prey?

Station C: (1 point per question)

1. What species is this?
2. What class of sensitivity does this organism fall under?

3. High numbers of this species indicates what?

4. True or False: This species can regenerate if cut into pieces?

Station D: (1 point per question)

1-2. Label the two organisms

3. True or Fale: Males of these species more commonly bite.

4. Why are these organisms a good indicator of water quality?

1   2
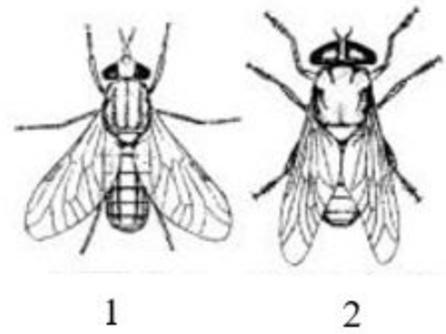
Station E: (1 point per question)

1. What is the name of this organism?

2. What class does this organism fall under?

3. True or False: This species's saliva is nontoxic
4. True or False: This organism swims upside down.

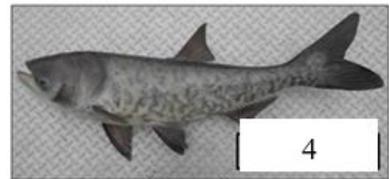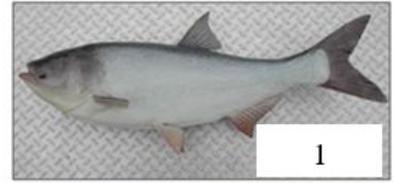**Station F: (1 point per question)**

1. What is this species?
2. True or False: This species can inhabit freshwater AND brackish water.
3. How does this species outcompete others?

Station G: (1 point per question)

1-4. Label each organism

5. True or False: These organisms can injure humans.

Station H: (1 point per question)

1. Name this organism.

2. True or False: These bugs are attracted to electric lights
3. How do these organisms indicate water quality?