

Envirothon . 2017
4. 26. '17

ANSWER KEY

2017 Aquatics Exam

80 Possible points

Fill in the blank... 8 points (2 each)

- Ocean acidification is a(n) decrease in pH, caused by absorption of CO₂.
- Oysters make their shells out of Calcium carbonate.
- The steelhead is the official state fish of Washington.
- Most of Earth's oxygen is produced by phytoplankton.
- What causes eutrophication in the Hood Canal? 4 points
 - Excess nitrogen
 - Minimal water circulation
 - Sunlight
 - All of the above**
- Which of these are invasive aquatic species in Washington? Circle all that apply... 2 points
 - European Green Crab**
 - Atlantic Salmon**
 - Coastal cut throat trout
 - Pygmy whitefish
- What kind of estuary is the Salish Sea? 5 points
 - A coastal plain estuary caused by rising sea levels after the last ice age.
 - A tectonic estuary created where land subsided.
 - A bar-built estuary formed by sand bars that built up along the coastline.
 - A fjord estuary cut deep by glaciers**
- Which of the following rivers does NOT empty into Puget Sound? 2 points
 - Skagit River
 - Columbia River**
 - Chehalis River**
 - Dungeness River

9. About how much water does an oyster filter daily? 4 points

- a. **40 gallons**
- b. 10 gallons
- c. 100 gallons
- d. 3 gallons
- e. Less than a gallon

10. Match the terms to their definitions... 14 points (2 each)

a.	4	Marsh	1	Sites occurring along flowing water courses, the water course itself, and the surrounding terrain and vegetation. Subject to flooding and sedimentation processes.
b.	5	Bog	2	A wetland dominated by woody plants.
c.	7	Fen	3	Water or soil with a pH greater than 7.4. Relatively high concentration of available base cations.
d.	2	Swamp	4	A wetland that has soft-stemmed plants adapted to grow in saturated soil conditions.
e.	6	Anaerobic	5	A peat moss wetland that gets most of its water from precipitation.
f.	3	Alkaline	6	Occurring in conditions devoid of oxygen.
g.	1	Fluvial	7	A peat moss wetland that receives water and nutrients from runoff or groundwater.

True or False

11. Excessive pumping of a well can reverse the natural flow of groundwater into a river, causing the water level to fall in the river. **True**

6 points (1 each)

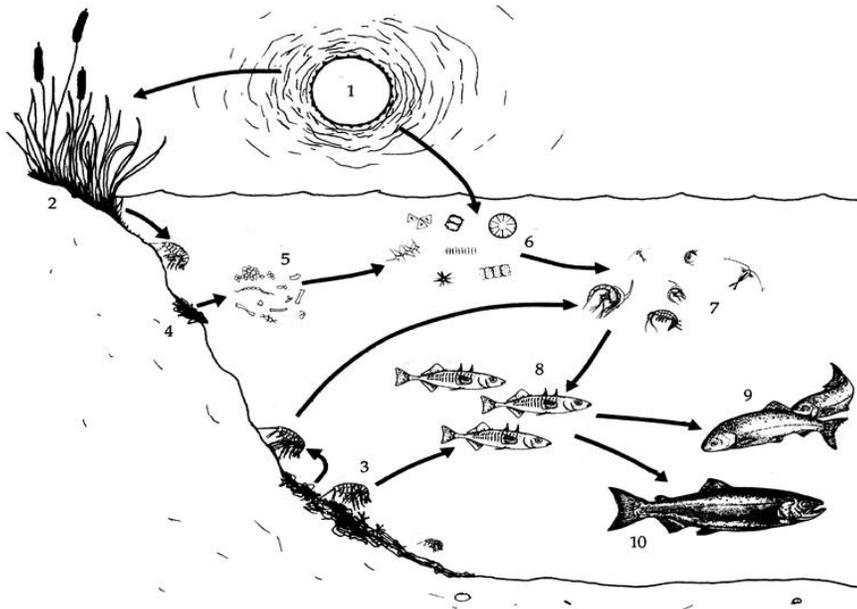
12. Surface water runoff is an example of nonpoint source pollution. **True**

13. 100% of chum salmon that hatch in Kennedy Creek return to spawn **False**

14. Salmon can use the Earth's magnetic field to navigate back to their home streams **True**

15. There are just as many species of Atlantic Salmon as there are Pacific Salmon **False**

16. Draining salt marshes leads to a reduction in mosquito populations **False**



6 points (2 each)

Estuary Food Web. (1) Sun; (2) Cattails; (3) Amphipods; (4) Detritus; (5) Bacteria; (6) Plant Plankton; (7) Animal Plankton; (8) Stickleback; (9) Immature Chinook; (10) Adult Chinook.

17.

a. Look at the estuary food web above and give one example of a primary consumer.

Zooplankton, bacteria, and amphipods are all possible answers.

b. Give one example of a secondary consumer.

Phytoplankton, zooplankton, sticklebacks, and amphipods are all possible answers.

c. Give one example of a tertiary consumer.

Zooplankton, sticklebacks, immature Chinook salmon, and adult Chinook salmon are all possible answers.

18. Match the terms with their definitions...

12 points (2 each)

a.	4	Floodplain	1	Any vegetation that offers protection and shading for the stream and its aquatic inhabitants.
b.	5	Riparian zone	2	Sections of the stream with a relatively low velocity that flow gently and smoothly with little or no turbulence at the surface of the water.
c.	2	Runs/Glides	3	The zone of the stream cross section that is usually submerged and totally aquatic.
d.	1	Streamside cover	4	The low area of land that surrounds a stream and holds the overflow of water during a flood.
e.	3	Channel	5	The area of natural vegetation extending outward from the edge of the stream bank.
f.	6	Riffles	6	Shallow, turbulent, but swiftly flowing stretches of water that flow over partially or totally submerged rocks.

19. Use the water quality testing kits on the bench to complete a dissolved oxygen test for sample A and sample B.

You should be performing these tests simultaneously to make sure you can complete the activity in time.

Results: Sample A-_____

5 points

Sample B-_____

- a. By analyzing your data, determine which sample is most likely taken from the Nisqually River? Why?

6 points

Sample A is from the river because of its higher dissolved oxygen content.

- b. By analyzing your data, which sample is most likely taken from the wetlands? Why?

6 points

Sample B is from the wetland because of its lower dissolved oxygen content.