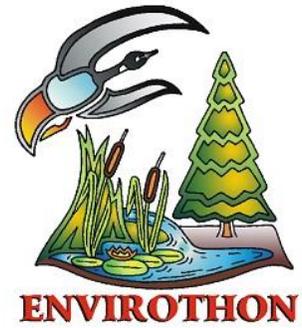


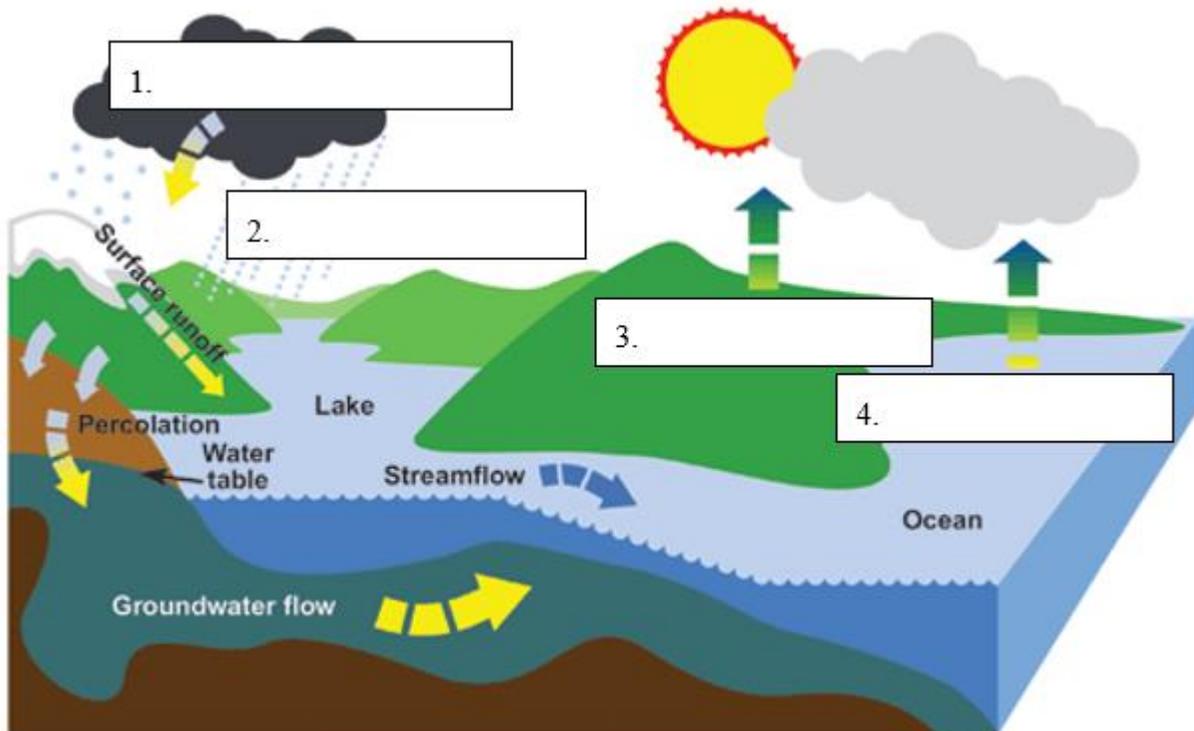
# NOVA SCOTIA ENVIROTHON

## *Sample Aquatic Ecology Test*

### *Questions*



ID the 4 phases of the water cycle:



Based on the descriptions below, identify the following phases of the water cycle:

-Water released from clouds in the form of rain, freezing rain, sleet, snow, or hail.  
The release of water from plant leaves.

-Responsible for the formation of clouds.

-Studies have shown that the oceans, seas, lakes, and rivers provide nearly 90 percent of the moisture in the atmosphere via this.

-A portion of the water that falls as rain and snow does this into the subsurface soil and rock.

-Over land flow

-The conversion between the solid and the gaseous phases of matter, with no intermediate liquid stage

What is the Provincial Fish for Nova Scotia? (give the 2 common names)

Identify each of the species displayed at this station by their common name.

Using the key, please identify the following aquatic organisms and their pollution tolerance.

If we found the following species in a wetland, would you predict this wetland would be polluted?

#1 Dobsonfly larvae, flatworm, water strider, water boatman, may fly larvae, aquatic snails

#2 Whirligig beetle larva, mosquito larvae, blackfly larvae, backswimmer, leech, aquatic worm

What is the animal in the picture? Would you expect the animal in the picture below to lay its eggs: Circle the correct answer.

- In the moss
- In a vernal pool
- Buried in a gravel stream bed



Name a fish species which is migratory?

Name a fish species which is considered to be “at risk”?

Name a fish species which is not native to Nova Scotia?

Name 5 animals (excluding fish) that have spent part of their life in freshwater in Nova Scotia. Common names will be accepted, be as specific as possible.

You have been hired to measure water quality in this tributary by the Town of Truro. You have been provided with a HydroLab Quanta, a Water Quality Sonde. This tool is used to measure water quality by measuring the following: temperature, dissolved oxygen, conductivity, pH, depth and turbidity. Please describe the following:

What is the Temperature?

Why would it be a problem if the Brook was very warm?

What is the Turbidity?

What is turbidity a measure of?

Why would you want to measure this in the Brook?

What is the pH?

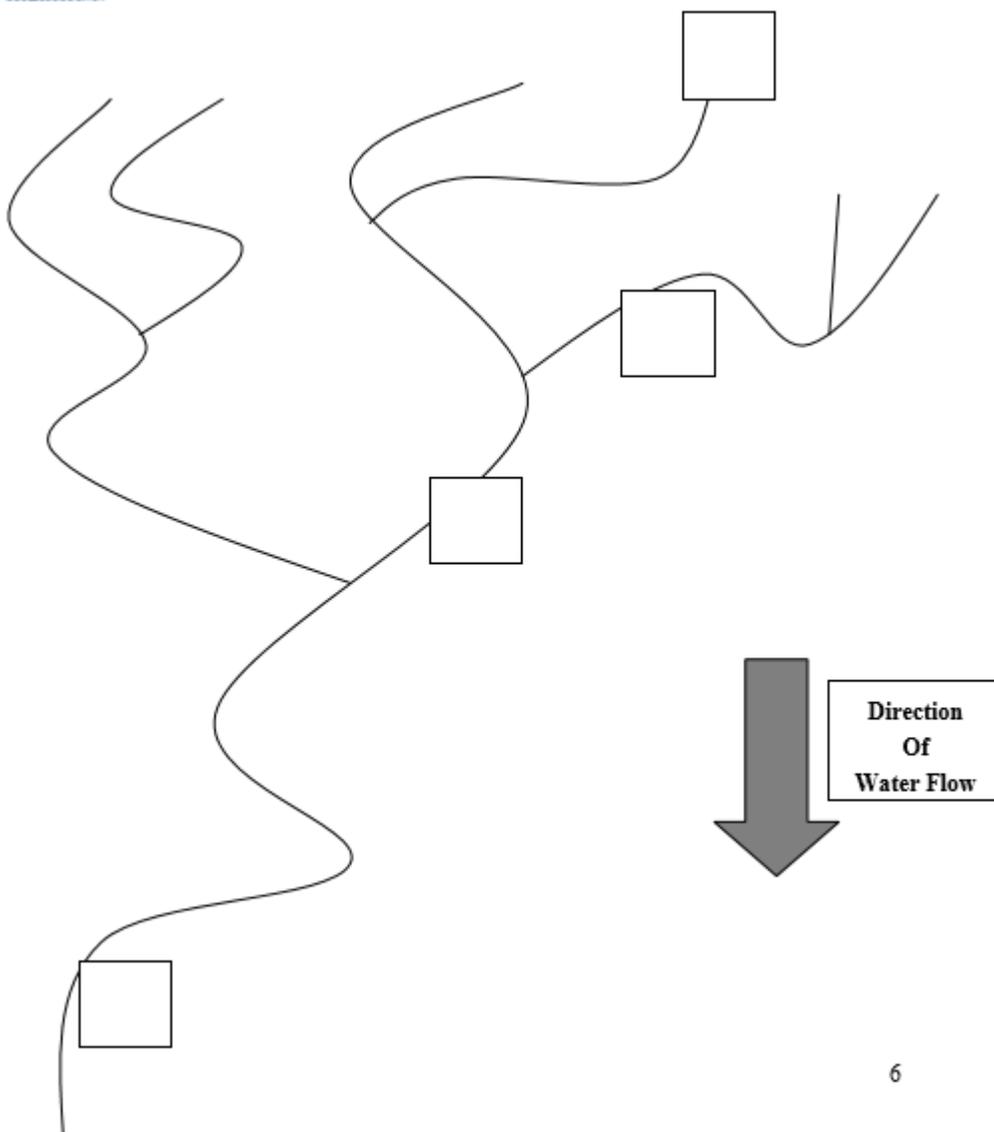
Based on this the water is neutral, basic, acetic?

What is the Dissolved Oxygen (DO)?

What could happen if the Dissolved Oxygen was very low?

List 4 ways water quality in this brook could be protected?

Identify (label) the stream order in the boxes provide.



What is a watershed?

Name four common types of wetlands.

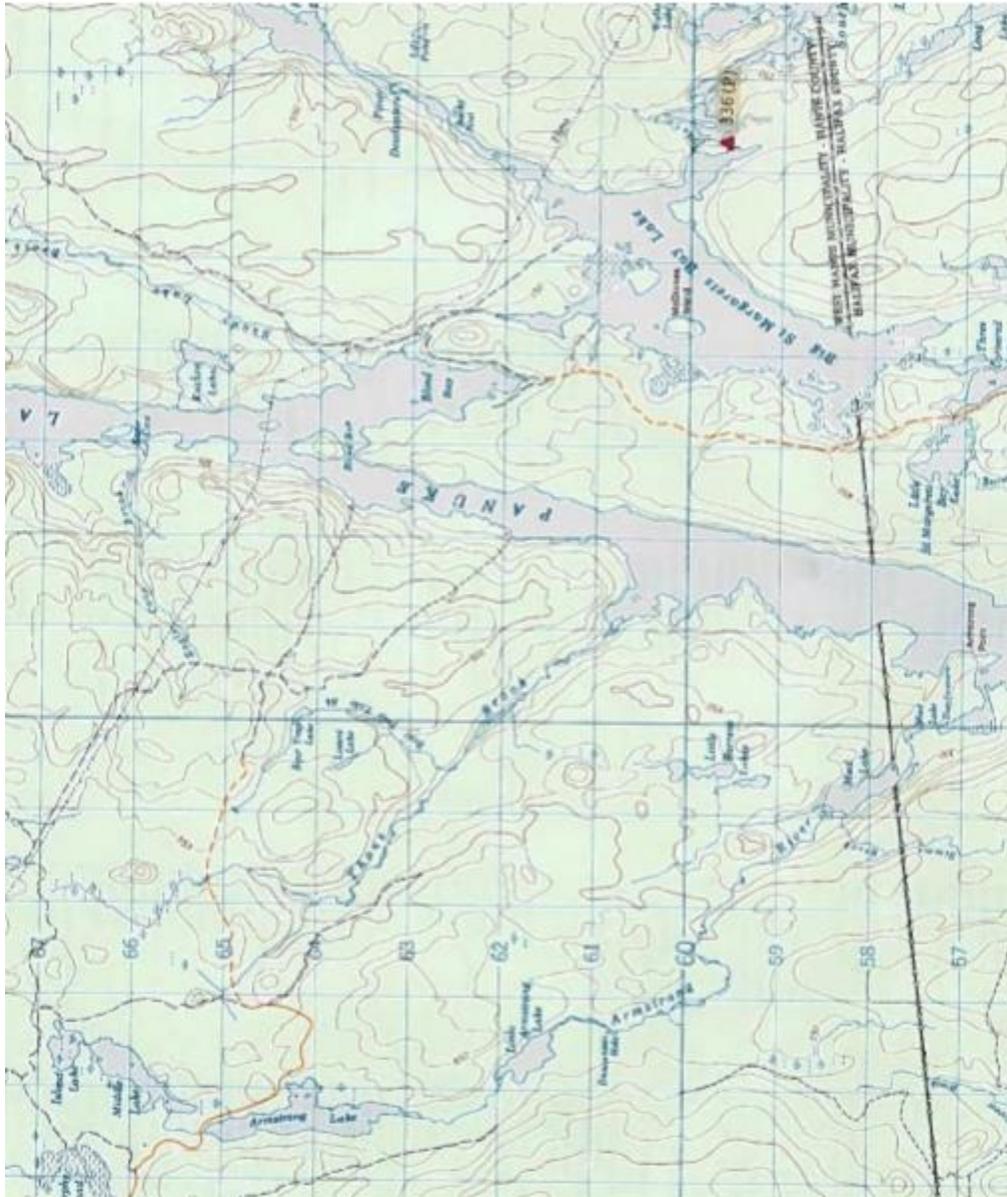
You are a government official with the State of Montana. A farmer has called you to request permission to drain a “nuisance” wetland on his rangeland. List three things you would say to him to convince him not to alter this wetland.

(Use Map Below): Draw the watershed for Lepper Brook (starting at or upstream from Point 497). Place the following on the map in the Lepper Brook Watershed: Water treatment plant and Wastewater treatment plant.

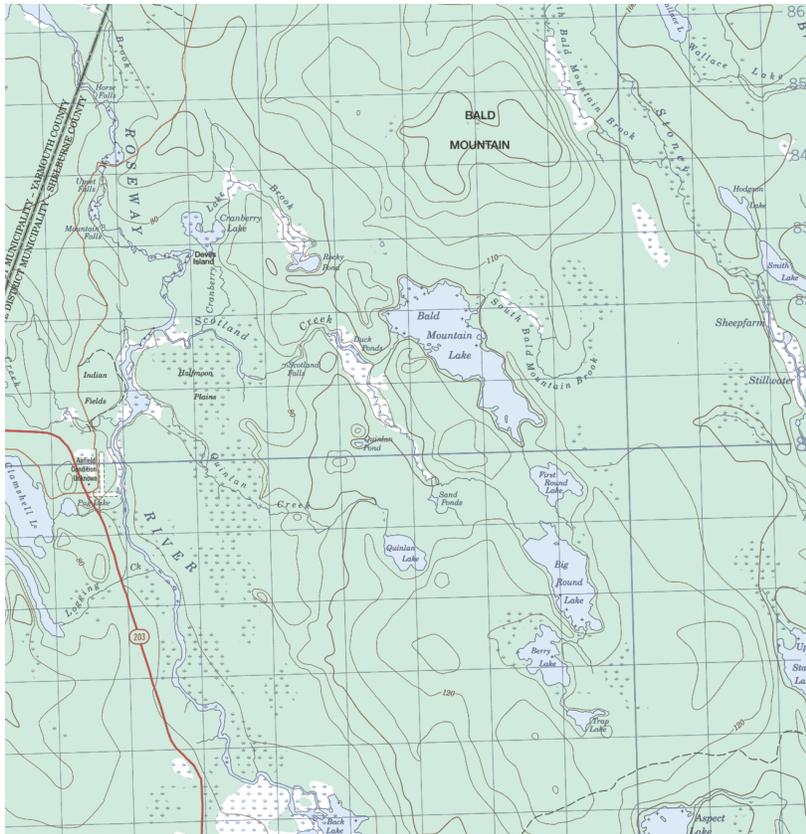
Name 3 risks to the water quality of Lepper Brook from Harmony Road and associated activities. How could the water quality in the Lepper Brook watershed be protected from these risks?



(Use map below) Draw the watershed for Thans Brook (From where it enters Panuke Lake) Place the following on the map in the Thans Brook Watershed:  
Water treatment plant and Wastewater treatment plant.



(Use map below) Draw the watershed for Scotland Creek (From where it enters the River):



What is a riparian zone? List 3 benefit of a Riparian Zone.

What are 5 threats to Groundwater in Nova Scotia?

Give 4 examples of ways groundwater can be protected (at least one must be regulatory)?

List 3 pros and 3 cons to a new hydroelectric development? How can these cons be mitigated?

As a government official you have been tasked with prioritizing water usage needs in a watershed. This watershed has a hydroelectric system that provides power to Grey Town, at times the Town is also supplied by the provincial power grid. There is a commercial Gaspereau Fishery in the river and the watershed is widely used by locals and visitors alike for recreation. The lake is also the water supply for Grey Town. Some local hobby farmers are using the river for irrigation and cattle. Below are some of the competing usages, please number them in order of priority (#1 being the highest or first and #8 being the lowest or last).

- Hydro electric
- Drinking Water supply
- Boating
- Commercial Fishing
- Swimming
- Agriculture Irrigation
- Recreational Fishing
- Agriculture Livestock

What land use practices could impact the water quality of this lake? Name 2 fish species you would expect to find based on your conclusions. Other factors may interfere with the survival of some species of fish in this lake other than water quality. Name two.

You have a riparian area running through a business/industrial park. Name 3 values of having a wooded riparian area along the brook? Give 3 regulations that you would put in place to protect this brook?

You are a developer building a subdivision and you have a 2 acre low wet area in the middle of the subdivision. How do you enhance this feature?

You are a municipal land use planner who is looking at the potential development around this lake. What issues would you take into consideration when determining the amount of development the lake could sustain?

List 3 pros and 3 cons to re-establishing underground or streams that have been forced into culverts (daylighting)?

List 5 ways that water can be conserved at school.

All living things need water. Most towns have trees scattered throughout the downtown urban core which has a high percentage of impermeable surface (eg. Concrete, pavement). How do you ensure the trees get water?

List 4 common contaminants in runoff that may impact urban tree health. Pick 2 and explain how to reduce the contaminant or the impact of it.