

Name _____ Group name _____

Date _____ Lake _____

1. Draw a map of the site. Label inflows, outflows, and shoreline features.

2. Physical observations of the water:

Clear Cloudy Litter/debris Algal bloom

Do you have any other observations?

3. Wildlife:

___ Fish ___ Birds ___ Insects ___ Amphibians

___ Turtles ___ Domestic animals

Did you observe any other wildlife?

4. Water quality

Parameter	Sampling Location		
	Inflow	Outflow	Shoreline
Water Temperature			
Conductivity			
pH			
Phosphate			
Ammonia			
Nitrate			
Total Inorganic Nitrogen			

Interpreting Results

1. How does the conductivity compare to other freshwater ecosystems?

Conductivity ($\mu\text{S}/\text{cm}$)	Assessment
0 - 200	Pristine
200 - 1,000	"Normal" for most major rivers
1,000 - 10,000	Saline/impacted condition

Swan Lake:

Mirror Lake:

2. Does the pH support freshwater aquatic life? See next page.

Swan Lake:

Mirror Lake:

TABLE 2: The Effects of pH on Freshwater Aquatic Life*

More harmful		Less harmful			Beneficial		Less harmful		More harmful			
3.0	3.5	4.0	4.5	5.0	5.5	6.5	8.2	9.0	10.5	11.0	11.5	
pH level												
ACIDIC				NEUTRAL				ALKALINE				
Few, if any, fish can survive for more than a few hours. Some plants and invertebrates can live at this level.	Lethal to salmonids (salmon and trout).	Few fish, frogs or insects can survive.	Most fish eggs will not hatch.	Balancing bacteria – those that decompose organic material – begin to die. Leaf litter and detritus accumulate, backing up nutrients. Parton disappears, and there are few snails and clams. Mass of tungy rotacea bacteria. Metals such as aluminum and lead are released in forms toxic to aquatic life.	Most fish and plant life survive.	Optimal for most organisms.	Not directly harmful to most fish, but some chemicals, such as ammonia, become more toxic at higher pH levels.	Harmful to salmonids and perch.	Lethal to salmonids; harmful to carp and perch.	Rapidly lethal to all species of fish.		

* Because sea water is pH-steady, this chart does not include marine life.

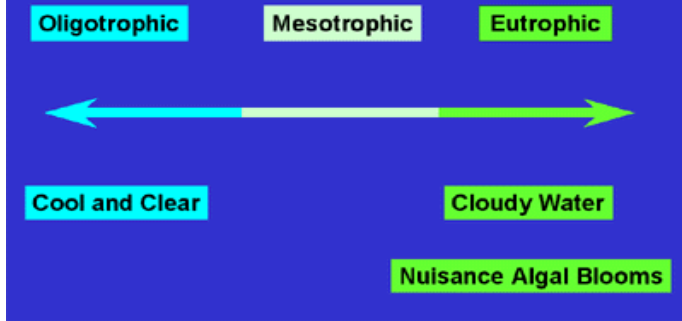
3. What is the “trophic state” of each lake?

Swan Lake:

Mirror Lake:

Trophic State	Nutrient concentrations	
Oligotrophic	Phosphorus	0 - 0.01 ppm
	Nitrogen	0 - 0.2 ppm
Mesotrophic	Phosphorus	0.01 - 0.03 ppm
	Nitrogen	0.2 - 0.6 ppm
Eutrophic	Phosphorus	0.03 - 0.05 ppm
	Nitrogen	0.6 - 1.0 ppm
Hypereutrophic	Phosphorus	> 0.05 ppm
	Nitrogen	> 1 ppm

Trophic Classification



4. Does one of the lakes have better water quality than the other?
Why?