**Part I – Measuring Salinity**

The devices in the black cases are known as **salinity refractometers**. This instrument works on the principle that the refractive index of seawater (basically how much light is bent as it passes into or out of the water) depends on the **salinity** of the water.

Use your refractometer to measure the salinity (**right-hand scale**; in parts per thousand, ‰) of the seawater.

1. Take out the refractometer and make sure the lens is clean. Look through the eyepiece and rotate the lens until you see the scale in good focus.
2. Using your dropper, put several drops of your sample on the slide. Make sure you don’t have any bubbles when you press down on the cover slip!
3. Read off your salinity number and record below (don’t forget your units).
4. Wipe off the lens with a Kimwipe, and repeat at least twice with each sample.
5. When finished, be sure to rinse off the front of the unit only (near lens & cover slip) with fresh water, and dry completely with a Kimwipe before putting away.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sample | Trial 1 | Trial 2 | Trial 3 | Average |
| A |  |  |  |  |
| B |  |  |  |  |

1. What do these numbers mean? For example, how much salt (in grams) would be in 1 kilogram (or 1000 grams) of seawater? **Note:** if you have a very simple answer to this question, then you’re on the right track. Also, one gram equals about the weight of a paper clip.
2. Consider the salinity of each sample. Which would you expect to sink? Why?
3. Compare your water samples to the average surface ocean salinities shown on the World Ocean Atlas map (or figure 5.23 in your book). Name a location where you find an equal salinity. Be sure to state the ocean basin and the approximate coordinates (latitude and longitude).
4. Think about where you see the saltiest water on the map. Why is this water more saline than average?