Channel / Bel Aqua

Bird Cedar

Aquatic Ecology Report (Bird Team Member)

Fontenelle, Dallas

09/16/20

I did not include the Bird Cedar River in our data for pH, conductivity, and alkalinity because we did not record at the Bird Cedar for these measurements. It was included in our testing of the four Unknowns, but we never confirmed in class which was the Unknown from the Bird Cedar. Therefore, it is difficult to determine the water source without these measurements, but it would assume that the Bird Cedar River is more groundwater driven because it should have a high amount of organic matter and the limestone at the bottom of the river releases calcium carbonate, which should result in a high conductivity and alkalinity. Bogs only get water from rain which explains why the pH for bogs is much more acidic than marshes, in this case, the pH was 6.15. This also explains why the bog had a conductivity of 0 microS. From the data recovered at the River Lake Marsh, we can infer that the water source is groundwater because it has a relatively high conductivity (microS), and a high alkalinity of 200 mg/L.

The bottom waters yielded different values from the upper waters in each pond because more respiration occurs at the bottom of the ponds while more photosynthesis occurs at the upper waters. The increasing respiration at the bottom dissolves more calcium carbonate, resulting in higher alkalinity levels at the bottom of the ponds, and a higher conductivity at the bottom of the pond as Pond 4. The pH levels decreased in both Pond 3 and Pond 4 at the bottom of the pond compared to the upper waters possibly because respiration at the bottom of the ponds makes more carbon dioxide which results in the formation of carbonic acid to decrease the pH.

The differences in depths in Pond 4 for pH, conductivity, and alkalinity were more drastic than in Pond 3 more likely because Pond 4 contained life while Pond 3 did not. This can result in greater levels of respiration at the bottom of Pond 4 due to these species, and greater photosynthesis rates near the top because the aquatic species eat the algae. These heightened levels of photosynthesis and respiration result in greater differences than in Pond 3 where there is no aquatic life.