

Bowker Creek

A Sustainable Environment



INTRODUCTION

In any given environment, there are certain requirements that need to be met in order to create a sustainable environment where all inhabitants will thrive. In a creek, there are many different molecular substances that need to present before it can truly begin to flourish with biodiversity. In this paper I will explain to you what requirements these are so you can have a better understanding of the necessities for a thriving environment.

Molecular Structure

In a creek, certain molecular substances are needed in order for the water to be a sustainable environment for its inhabitants. Some of these substances are dissolved oxygen, ammonia, nitrates, and phosphates, there must also be an appropriate pH balance. Certain aquatic inhabitants can handle different amounts of each of these substances and we need to have a proper balance to ensure that the Salmon could thrive in this creek.

Diving Deeper into the Substances

For the average person, I can understand how these molecular substances sound somewhat extravagant. In this section of my paper I will further explain these molecules/chemicals so you can have a better understanding of what we're really talking about.

1. Dissolved Oxygen

This one sounds confusing, because oxygen is a gas right? How could it possibly be dissolved, it isn't a solute. Well, get ready for this... it can! Oxygen can be dissolved into the water by direct absorption from the atmosphere. The temperature of the water and the volume of moving water can affect the amount of oxygen dissolved. Oxygen dissolves better in colder waters than it does warmer.

2. pH

pH is much more than just a lowercase 'p' and an uppercase 'H'. It actually stands for potentia hydrogenii. Basically, pH is the measure of hydrogen ion concentration in a solution. Solutions with high concentrations of hydrogen ions have a low pH level, and vice versa.

3. Ammonia

Ammonia is a type of nutrient containing hydrogen and nitrogen. Ammonia is one of the most common forms of Nitrogen found in aquatic systems. The nitrogen found in it helps the environment by controlling algal growth when other nutrients, such as phosphate, are abundant. Ammonia is put into the systems by animals excretion into the water.

4. Nitrates

Ammonia gets converted into nitrates through a process aided by bacteria. Algae and other plants use nitrates as a form of food, but when there is an excessive amount of Nitrates it can create water conditions that make it much more difficult for fish or aquatic insects to survive.

5. Phosphates

A phosphate is a salt-forming anion (negatively charged ion) of phosphoric acid. Too much of it in water could speed up a process called 'eutrophication' which is the reduction of dissolved oxygen in water. Rock and soil erosion is a major way that phosphates enter the environment.

Conclusion

Certain animals withstand certain amounts of all of the substances talked about today. That explains how different species of aquatic animals live in different areas of the world, as they all have different amounts of all of these substances. Some substances have effects on the environment that could not be beneficial, but other can substances counteract these toxic ones and help sustain the equitable environment necessary for a biodiverse creek. The substances we covered today are only some of the substances found in water. These are the main components in freshwater that aid the survival of the inhabitants, and the substances I will be focusing on to help further explain why the Salmon left Bowker Creek and what amounts of these substances are required to get the salmon back. I hope this paper helped you to better understand the molecular substances found in the creek, and will further your knowledge of freshwater sciences!