AQUATIC FOOD WEB REPORT

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Figure 1.1- This graph shows the average percentage of hydrilla remaining in the tank after the four days.

Figure 1.2- This graph shows of the average percentage of snail biomass remaining in the tank after four days.

Figure 1.3- This graph shows the comparison of the biomass of hydrilla to the biomass of the remaining snail biomass. The x-axis are the different treatments starting with 1= direct belostomatid, 2= indirect belostomatid, 3= no belostomatid, and 4= control. As snail biomass increases, the hydrilla biomass decreases.

ANOVA Results

|  |  |  |
| --- | --- | --- |
|  | Hydrilla biomass remaining: | Snail biomass remaining: |
| SSB | 2.46367763 | 0.083696873 |
| D | 895.02% | 1195.79% |
| SST | 385.68% | 15.39% |
| SSW | 139.31% | 7.02% |
| k | 4 | 3 |
| DFB | 3 | 2 |
| DFW | 12 | 9 |
| MSB | 0.821225877 | 0.041848437 |
| MSW | 0.116091927 | 0.007797064 |
| Fstat | 7.07392751 | 5.367204224 |

2.1- This table are the ANOVA test results based on our data collected.

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |

Tukey Results

|  |  |  |  |
| --- | --- | --- | --- |
| **Mswithin** | **DF within** | **k** | **q critical** |
| 0.11609193 | 12 | 4 | **4.2** |

|  |  |  |  |
| --- | --- | --- | --- |
| **Mswithin** | **DF within** | **k** | **q critical** |
| 0.00779706 | 9 | 3 | **3.95** |

|  |  |  |
| --- | --- | --- |
| **Calculate q values:** | **q** | **is q >qcrit?** |
| P - V | 0.2920 | No |
| P - A | 0.6901 | No |
| P - C | 4.9618 | Yes |
| V - A | 0.3981 | No |
| V - C | 5.2539 | Yes |
| A - C | 5.6519 | Yes |

|  |  |  |
| --- | --- | --- |
| **Calculate q values:** | **q** | **is q >qcrit?** |
| P - V | 3.5317 | No |
| P - A | 3.4155 | No |
| V - A | 0.1162 | No |

If your calculated q is > q critical, there is a significant difference between those two things.

P value < 0.05% to reject the null hypothesis

In the ANOVA results we can see under the SST that the remaining hydrilla biomass is very high when the remaining snail biomass is low. We can see similar results for SSB and SSW. This observation can also be illustrated by Figure 1.3, where you can see when snail biomass increases the hydrilla biomass decreased. This would be logical since more snails would require more hydrilla to consume. Based on Figure 1.2 we can also concluded that when water bugs are visible, the snails still continue to consume hydrilla at almost the same rate as when water bugs are not in the tank.

There are many reasons on why this experiment would not be applicable in the real world. Firstly there are many variables, especially in aquatic systems, which would cause the fluctuation of hydrilla biomass including multiple herbivores and multiple predators. Secondly, the tank environment was high quality water, where the hydrilla could flourish, but there are some environments where the pollution will cause the hydrilla to grow at a slower rate. And thirdly, in rea world situations hydrillas ae competing with other plants for nutrients and space, there by making their overall growth rate decline.

An uncontrolled field study will help shed more light on this experiment. It will give us results on how hydrillas behave n the wild and we can compare those results with the results observed in the lab.