Introduction

The purpose of this study was to compare the biodiversity of two aquatic systems, specifically the species richness and abundance of flagellate protists. The study was performed with the intention to predict and identify two naturally occurring habitats that have differences between their biodiversity. As living organisms, it is important we understand the effects of abiotic factors on biodiversity; it is already currently known that the evolution of every species of organism is affected by such factors.

Null Hypothesis: There will be no difference in biodiversity between Matheson Hammock and the Freshwater Lake at FIU.

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Anthropogenic Impact</th>
<th>Salinity</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIU Lake</td>
<td>Higher (28.5°C)</td>
<td>Lower</td>
</tr>
<tr>
<td>Matheson Hammock</td>
<td>Lower (27.1°C)</td>
<td>Higher</td>
</tr>
</tbody>
</table>

Table 1. Abiotic Factors for Sampling Locations

Methods

In order to compare the level of biodiversity of copepods, a total of six samples from each locality were taken, for a total of twelve replicates. The two habitats were sampled during a period of weeks.

Methods to obtain/analyze the samples:
1. Take a sample at five different 20 cm marks along a transect.
2. Collect a 6mL sample from each mark on the transect and place all samples from the transect in the same cup for a total of 30mL per sample cup.
3. Repeat this process in along three transects (sample areas) per habitat.
4. Use plastic dropper to place 2-3 drops per sample cup on a concavity slide.
5. Observe organisms under the microscope and record pool counts of a sample replicate on the same tally sheet.

Results

Mann Whitney U-Tests
- No significant difference in species richness
- No significant difference in flagellate protist species abundance

<table>
<thead>
<tr>
<th>Species Richness</th>
<th>Flagellate Protist Species Abundance</th>
</tr>
</thead>
<tbody>
<tr>
<td>alpha</td>
<td>0.05</td>
</tr>
<tr>
<td>U-value</td>
<td>11.5</td>
</tr>
<tr>
<td>Z-score</td>
<td>-0.96077</td>
</tr>
<tr>
<td>p-value</td>
<td>0.16853</td>
</tr>
</tbody>
</table>

Table 2. Mann Whitney U-Test Results: p-values > 0.05, no significant difference

Figure 1. Average Number of Species in FIU Lake Samples

Figure 2. Average Number of Species in Matheson Hammock Samples

Figure 3. Menhinick's Index: Overlap indicates no significant difference

Figure 4. Relative Flagellate Protist Abundance: Overlap indicates no significant difference

Conclusion

The very different environments of the FIU Freshwater Lake and Matheson Hammock seem to support similar levels of biodiversity as seen by similar species richness. This is true even though not all of the same species are present in both places. Variables that could have impacted species richness/abundance:
- Temperature
- Salinity
- Anthropogenic impact

More studies would be required to determine what abiotic factors have an impact on species richness or species abundance.

References

Acknowledgements

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