

Data Analysis Activity

Dr. Nash & Dr. Mueller gathered their data into the Eelgrass Data Google Sheets. They made one sheet on the seagrass shoot density, which shows how many seagrass shoots can be found in a square meter of mudflat. The second sheet shows how many leaves they found in each site that had lesions where *Labyrinthula zosterae* had damaged it. The upper sites were closer to the shore, where seagrasses spent more time at low tide exposed to the air. The lower sites were closer to the channel and spent less time exposed.

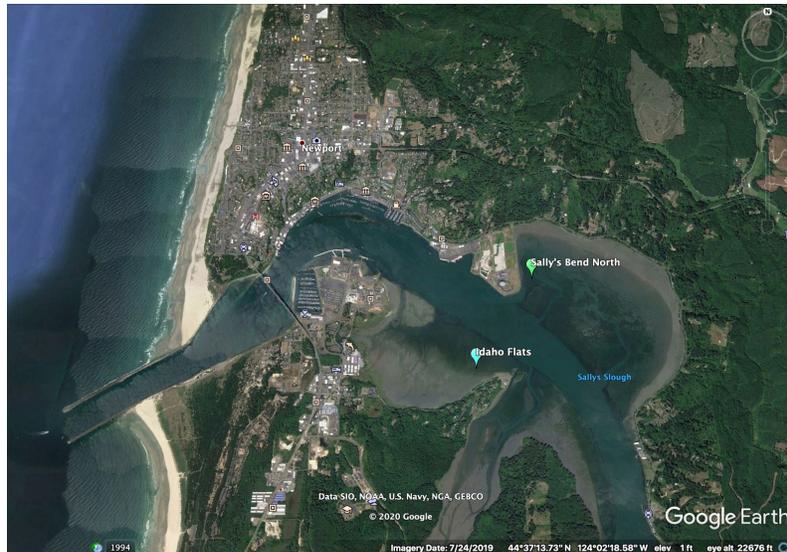


Figure 1: A map of the study sites.

Research Question: Which area has seagrass beds that are in the most danger of dying off?

Write a null hypothesis for Drs. Nash & Mueller.

Null Hypothesis:

Open the Google Sheets file “Eelgrass Data, Level 3”. You will use this file to make two graphs. The site & tidal height (i.e. Idaho Flats, Upper) will be the independent variable for each. The first graph will be made from the sheet labeled “Shoot Density” and have “Seagrass Density (Shoots/m²)” as the dependent variable. {Think: Is this data best represented by a column or line graph? Would the graph be easier to read if you graph each quadrat or just the averages?} The second graph will be made from the sheet labeled “Wasting Disease” and have “Number of Leaves with Wasting Disease” as your dependent variable.

Here are some videos if you need help:

How to calculate average & standard deviation: <https://youtu.be/wG9GjKblCg8>

How to make a column graph in Google Sheets: <https://youtu.be/8ZlJx-N4ULU>

Insert Graph #1: Seagrass Shoot Density Here

Figure 1: (write your figure legend here)

Insert Graph #2: Wasting Disease Presence Here

Figure 2: (write your figure legend here)

These graphs should give you an idea what the answer to the research question is. Of course, you can't reject a null hypothesis without statistics!

Here are some videos to help you with your statistics:

T-test video: <https://youtu.be/q619DNLskxo>

Remember: a t-test can only compare two sets of data

Chi-square video: <https://youtu.be/UNu6qgnina8>

Write a brief conclusion in the space below. Make sure you make a claim, give evidence (including your graphs and statistics) and support this with reasoning. Include how these findings apply to the world of science (Why are these results important? How could you apply these results to future field sites? etc.)

Conclusion