Ocean's Impact on Weather

Instructions: In the Ocean's Impact on Weather Lab, you explored the effects of restoring mangrove habitat compared to natural mangrove regrowth following a natural disaster. Record your observations in the lab report below. You will submit your completed report.

(30 points possible)

Name and Title *(1 point)*

Include your name, teacher's name, date, and name of lab.

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Ocean's Impact on Weather

Objective(s) *(2 points)*

In your own words, what was the purpose of this lab?

The purpose of this lab was to test if one way of restoration was better than the other.

Hypothesis *(2 points)*

Identify the independent and dependent variables in your investigations.

Independent Variable – The mangroves themselves (restoring them).

Dependent Variable – The coverage of the mangroves/number of species/height of trees.

State your hypothesis.

The North Beach will regrow faster, through manual replating, than the South Beach, through natural regrowing.

Procedure

At the north beach, your team will implement a project to replant three mangrove species and monitor their growth over five years. The growth of the replanted mangroves will be compared to the natural regrowth of mangroves in the south beach area. Mangrove growth in both beach areas will be monitored via satellite. You will record data for each location about the percentage of mangrove coverage, the number of species in the area, and the average mangrove height in order to assess the health of the beaches.

Data and Analysis *(16 points)*

Complete each table below by recording the collected data, and then create graphs to display the data.

Percentage of Mangrove Coverage

	North Beach	South Beach
Before hurricane	85%	100%
Immediately after hurricane damage	10%	15%
6 months post hurricane	25%	25%
1 year post hurricane	35%	35%
2 years post hurricane	50%	45%
3 years post hurricane	60%	60%
4 years post hurricane	70%	70%
5 years post hurricane	80%	85%

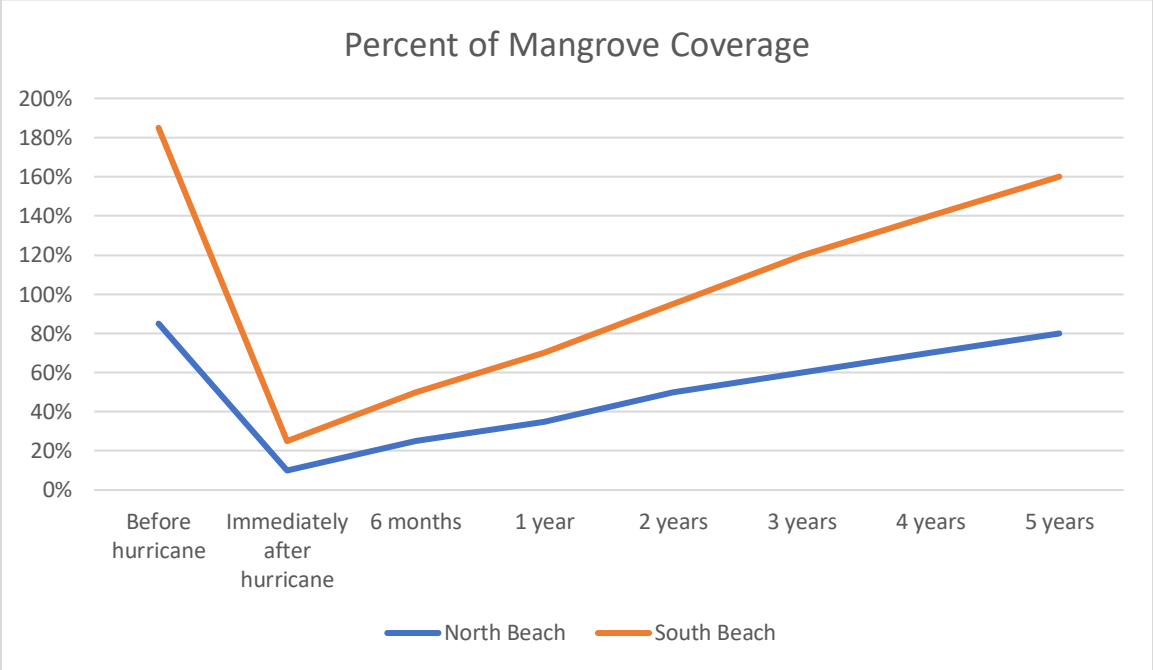
Number of Species

	North Beach	South Beach
Before hurricane	54	59
Immediately after hurricane damage	21	30
6 months post hurricane	25	34
1 year post hurricane	31	37
2 years post hurricane	36	42
3 years post hurricane	39	45
4 years post hurricane	44	49
5 years post hurricane	51	55

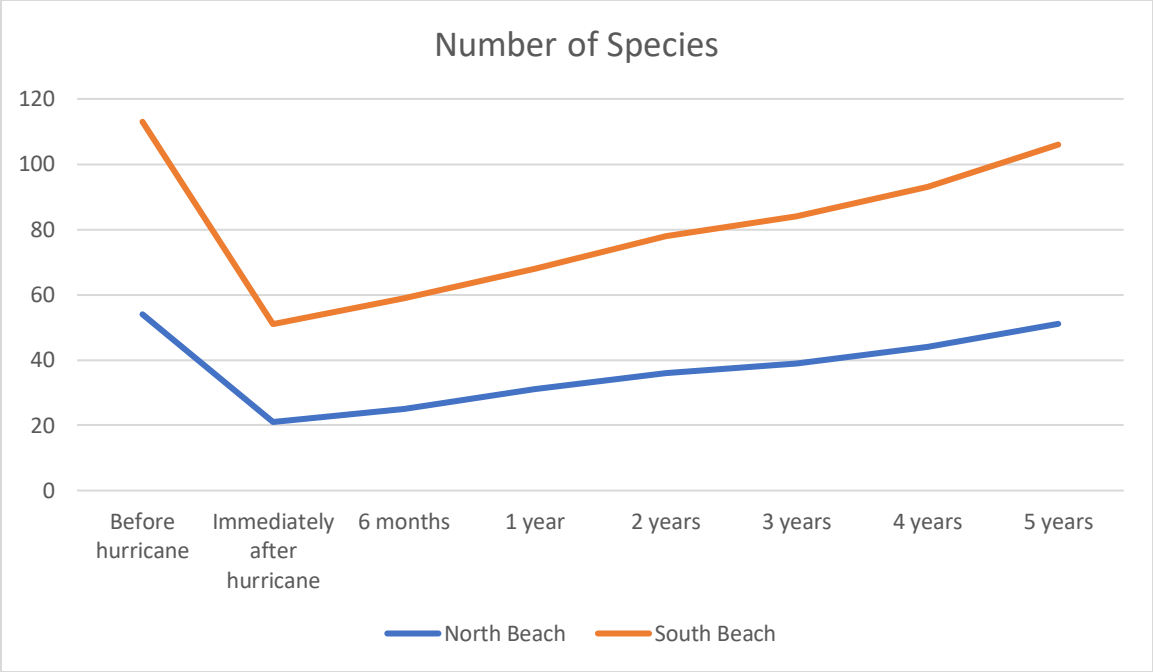
Average Mangrove Height After Five Years (in meters)

	North Beach	South Beach
Red Mangrove	4.2m	5.1m
Black Mangrove	3.7m	4.4m
White Mangrove	3m	3.7m

Create a graph to display the mangrove coverage from the first data table. It should be a line graph showing percent coverage over time and have two lines of data points on it, one for the north beach and one for the south beach. Title and label the graph. *(3 points)*



Create a graph to display the number of species from the second data table. It should be a line graph showing the number of species over time and have two lines of data points on it, one for the north beach and one for the south beach. Title and label the graph. *(3 points)*



Conclusion *(9 points)*

Your conclusion will include a summary of the lab results and an interpretation of the results. Please answer in complete sentences.

1. Was the restoration project effective? Explain why or why not, supporting your answer with information from your data tables and graphs.

   I believe that the restoration was effective. However, it seemed to be more effective at the beginning (with bigger increments), and less towards the end of it (with slower increments). According to the data, it looks that most of the area has been recovered (up to 80%). It may have taken some time, but most of the area has been recovered.

2. Why was counting the number of species in the area important? In your answer, consider the effect a mangrove habitat has on biodiversity.

   Counting the number of species was important because it shows another way how the hurricane affected the area, and its restoration. The mangroves are important to many of the animals in this area, as that is their habitat.

3. After five years, the average height of each mangrove species was also measured. Did this information help you better evaluate the success of the restoration project, or did it change your mind? Explain your reasoning.

   The different heights of each mangrove helped me to make my decision on whether I think this project was effective or not. Through the height measurements, it can be seen that the mangroves on the South Beach were growing much better than those on the North Beach. This goes to show that the growth on the North Beach was not the same as what I predicted in my hypothesis at the beginning.