Name:\_\_\_\_\_\_\_ TEACHER SAMPLE \_\_\_\_\_\_\_\_

**“There’s something fishy about oyster reef saltmarsh and seagrass habitats”- Part 2: Reef restoration**

**Data-driven management: To restore a patch or fringing reef?**

Before you begin, briefly explain the difference between a fringing and a patch oyster reef:

A fringing reef is an oyster reef located off of marsh grass while a patch reef is a more isolated oyster reef located on its own in a sandy bottom area.

Open the document named “Oyster Data Raw”. Your task is to interpret these data. Use the data set to contrast the different types of oyster reefs (patch and fringing reefs) in the chart. The information below provides some helpful hints.

* The tab labeled “Quadrat Data” presents the number of various types of organisms contained in a quadrat sample. If you are not familiar with a particular organism, look it up on the internet.
	+ Yellow organisms represent predators of the Eastern Oyster.
	+ Blue organisms that represent competitors for space of the Eastern Oyster.
* The tab labeled “Oyster Reef Trap Data” presents the number of various types of fish collected in a trap. Look up the fish you have never seen before on the internet.
* Create a pie graph to help you compare the different percentages of organisms found in patch and fringing reefs.
* Create a bar graph to help you compare different types of fish and stone crabs found in patch and fringing reefs.

**Formula Sheet:**

\*A1 and B1 represent different data cells in a worksheet

|  |  |
| --- | --- |
| **Action** | **Formula** |
| Subtracting | =A1-B1 |
| Adding | =A1+B1 |
| Calculating a total | =SUM(A1:B1) |
| Calculating a percent | =A1/(A1+B1)\*100 |

**HINTS:**

Some calculations you might want to make are the sums (totals) for each number of organism, the total number of organisms and the percentage of each organism.

What information can you derive from the data set about the different types of oyster habitats?

You could learn information like fish diversity, amounts of fish, species and predators.

What information about the differences and/or similarities between patch and fringing reefs can you extract from the data set?

Compare the data sets for the two different reef types by establishing a list of factors (Do this in the chart provided). After you have determined the factors, rank the importance of each.

**Factor Comparison Chart**

|  |  |  |  |
| --- | --- | --- | --- |
| **Factors** | **Patch Reef** | **Fringe Reef** | **Importance** |
| Number of fish | ✓ |  |  |
| Number of Oysters | ✓ |  |  |
| Number of Fish Per Oyster | 0.9% | ✓ 8% |  |
| Diversity | ✓ |  |  |
| Number of Predators | ✓ |  |  |
| Percentages of Predators |  | ✓ |  |
| Number of Worms |  | ✓ |  |
| Total Number of Fish Species | 5 | 3 |  |
| Most Abundant Species | Ribbed Mussle | Worm |  |
| Sessile Organisms | ✓ |  |  |
| Mass of Fish |  | ✓ |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

If you had to choose one type of reef for a restoration project, which type of reef would you build, fringing or patch? Support your choice with data from your work, above.

Answers will vary based on what the students’ value as being important.

Example: “The data concludes that patch reefs have more fish therefore, provide more valuable habitat than fringe”. Their final product should describe where and why they would construct a new reef in a certain location on the map (provided at the beginning of the lesson).