Coastal Dynamics Lab Report

Instructions: In the Coastal Dynamics Lab, you explored the effects of the intertidal zone on two species of snails, and how an adaptation can aid in an organism's survival. Record your observations from the lab in the lab report below. You will submit your completed report.

(30 points possible)

Name and Title *(1 point)*

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Coastal Dynamics Lab

October 8th, 2021

Objective(s) *(2 points)*

The purpose of this lab was to understand the adaptations in species, and their effects.

Hypothesis *(2 points)*

Part One: Which species will survive better in an intertidal zone? Write your hypothesis here:

> **Since it seems that they do a good job of grouping together to protect each other, I think that the Periwinkle snails will do better in terms of survival.**

Part Two: Will a different type of shell aid the green turban snail's survival? Specify which adaptation you chose and state your hypothesis here:

> **Given what I already know about them, I think the hinged shell would be equally better (compared to the other two shells).**

Procedure

In Part One, use the quadrat sampling method to collect data on two species of snails, the periwinkle, and the green turban snail, at different points in a 24-hour period. In Part Two, choose one shell adaptation to apply to the green turban snail and collect data to monitor the snail's population size.

Data and Analysis *(15 points)*

Part One—Who Will Survive?

*****I did my best to count as accurately as I could**

Periwinkle Snail Data	0 hours	6 hours	12 hours	18 hours	24 hours
Tide Level	High Tide	Ebbing	Low Tide	Flooding	High Tide
Quadrat A	32	27	26	25	26
Quadrat B	27	28	25	27	27
Quadrat C	27	31	29	28	28

Green turban Snail Data	0 hours	6 hours	12 hours	18 hours	24 hours
Tide Level	High Tide	Ebbing	Low Tide	Flooding	High Tide
Quadrat X	20	17	10	5	0
Quadrat Y	15	13	7	4	0
Quadrat Z	23	20	12	6	1

Part Two—Design a Survivor (Hinged Shell)

*****I did my best to count as accurately as I could**

Green Turban Snail Data	0 hours	6 hours	12 hours	18 hours	24 hours
Tide Level	High Tide	Ebbing	Low Tide	Flooding	High Tide
Quadrat X	20	20	21	20	19
Quadrat Y	15	15	15	14	13
Quadrat Z	22	22	21	20	18

Note: For this lab, you only need to test one of the adaptations: the hinged shell, the thicker shell, or the flexible shell. If you tested more than one, you are welcome to add additional data tables, but it is not required.

Conclusion *(10 points)*

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

1. 1. Why is the quadrat method useful for estimating snail populations? Explain why the same method would not be useful for counting fish populations.

   This method is useful for snail populations because in this instance we were counting in a contained area. The method is useful for that. However, when it comes to fish populations, that is an entirely different story. Fish are all over the place, and not as confined as snails are.

2. 2. Why do researchers need a lot of data to monitor a specie population? What trends can you see in the data that you would have missed otherwise?

   They need a lot of data because since the population of a species can be very big and spread out all over the place. Because of that, they need all that data to monitor their statistics and the effects of those statistics on other species as well.

3. 3. Which snail species had a higher population in part 1? What adaptations aided in their survival?

   The Periwinkle, by a landslide, had the higher population. I believe that their grouping is what helped in their survival. This grouping helps the snails protect each other all together.

4. 4. Which shell adaptation did you choose for part 2 and why? Discuss the results and the effectiveness of the adaptation.

   For Part 2, I chose the Hinged Shell. For the most part, according to the data I collected, it looks like the population numbers stayed pretty consistent with each other throughout the entire time. I think the shell is good because it is not too weak, and not too strong/heavy. Since snails have to carry these shells on them, they have a limit on what they can use. I think this shell fits well right in the middle.

5. 5. The intertidal zone can be a difficult place to live. Looking at your data, how did the tide affect each species of snail?

   Different tides do different things to the habitats. Some of the tides can remove the snails from their habitat. Other tides can bring them in. When it comes to my data specifically, the low tides seemed to do the most damage (for both species). On the other side, high tide seemed to help a bit (the numbers either went up a bit or stayed the same).