

# Marine Populations Lab Report

Instructions: In the Marine Populations Lab, you helped gather data to evaluate Sebastian's Snorkel Spot's claim that a new factory is polluting the coral reef. Record your observations in the lab report below. You will submit your completed report.

*(30 points possible)*

---

## Name and Title *(1 point)*

**Brady Kondek**

**Mr. Scheibel**

**October 27<sup>th</sup>, 2021**

**Marine Populations Lab**

## Objective(s) *(2 points)*

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

**The purpose of this lab was to elaborate on the effects that pollution has on marine ecosystems.**

## Hypothesis *(2 points)*

Identify the independent and dependent variables in your investigations.

State your hypothesis.

**If pollution levels increase, then the health of the coral reef will decrease.**

**Independent variable** – The amount of pollution (abiotic factors)

**Dependent variable** – Damage to the marine ecosystems (biotic factors)

## Procedure

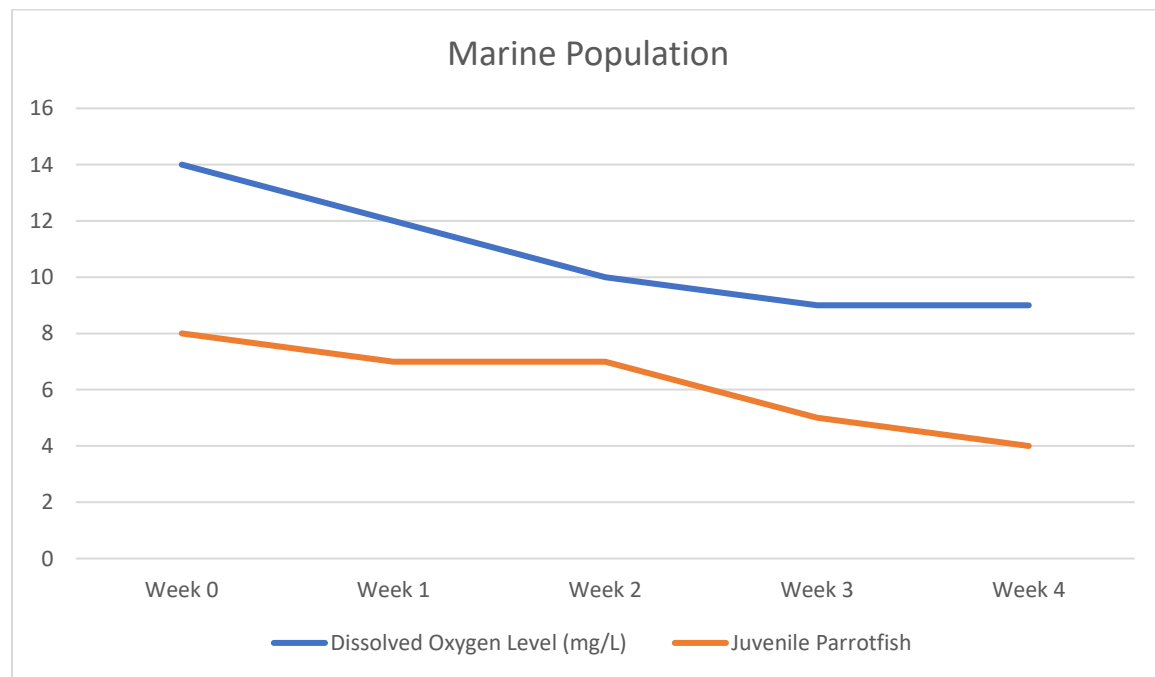
During the research phase, you found that the factory is not using nutrient-removal treatment on the water it releases. Excess nutrients in the water encourage algae growth, which can smother coral. To monitor the water quality and health of the coral reef, you will collect data on five factors: water clarity, dissolved oxygen levels, percentage of live coral coverage, number of juvenile parrot fish observed, and number of mature parrotfish observed.

## Data (10 points)

Week	Water Clarity (m)	Dissolved Oxygen Level (mg/L)	Percentage of Live Coral Coverage (%)	Number of Juvenile Parrotfish	Number of Mature Parrotfish
0	6	14	35	8	12
1	4	12	30	7	12
2	3	10	25	7	11
3	3	9	25	5	11
4	2	9	20	4	9

## Analysis (5 points)

Select one abiotic factor that was monitored, either water clarity or dissolved oxygen level, and create a line graph showing the measurement of the abiotic factor over time. Then select one biotic factor that was monitored, either coral coverage, juvenile parrotfish, or mature parrotfish, and create a line graph showing the measurement of the biotic factor over time.



## Conclusion (10 points)

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

1. Describe the overall trend for each of the five factors that were measured. (2 points)

**As each of the abiotic factors decreased, so did the biotic factors.**

2. What information do your graphs show? Describe the correlation between the two factors that you graphed. (2 points)

**My graph shows that as the levels of Dissolved Oxygen decreased, so did the population of Juvenile Parrotfish.**

3. How was this experiment different than an experiment conducted in a lab? (2 points)

**This experiment was different than that conducted in a lab because here I was observing trends and numbers, while in a lab I would actually be conducting experiments on "model ecosystems."**

4. Write a persuasive paragraph to be read at the next planning commission meeting. Describe the data collected and state your opinion on the effects of the factory's operations on the coral reef ecosystem. Include recommendations for the planning committee to help remediate the problem and preserve the reef. (4 points)

**As shown in the data that I collected, pollution is harming marine ecosystems. The more pollution there is, the more of this you are going to see. You will also see this occur in much larger numbers. As each abiotic factor decreased, so did the populations of the organisms. This goes to show that the factory is having significant effects on these ecosystems. To help preserve the reef and those who inhabit it, develop "greener" methods for the things you do. This will help to insure that the ecosystems who live in the waters can be protected, and don't have to suffer the consequences of what is being produced by the factory.**