BIO 323: Introduction to Oceanography
Journal Article Analysis

Prepare an analysis (in bullet format) of each assigned article. Each analysis should be approximately one page, single-spaced.

1. Complete a 3-column table with the following information.
    a. In the first column, summarize two major claims (conclusions) made in the paper. Identify which is the main claim that seems to be the most important.
    b. In the second column, identify the evidence provided in the paper to support the claim or conclusion. Be specific – list the particular data in tables, figures, etc. or on particular pages where the relevant evidence is discussed in the text. Typically, claims will be supported by multiple lines of evidence (values in a table, a figure, explanation in the text, etc.). Be sure to identify ALL of the relevant evidence that supports your identified claim.
    c. In the third column, explain how the evidence supports the claim (this is the justification for the claim). In other words… explain what these numbers, or lines, or bars, etc. mean.

    Repeat in additional rows for the second claim. If there are multiple claims in the paper, identify just the two most important.
2. Provided a bulleted list of methodologies used in the paper. Be sure to look up any methods that may be unfamiliar and include any questions you might have about the methods used.

This assignment will be graded **CREDIT/NO CREDIT**. Credit will be awarded only if ***all*** of the following specifications are met:

- CLAIM: Accurately identifies the two most important claims
- EVIDENCE: Correctly identifies the multiple areas of relevant figures, tables, and text that support the claims (must identify at least 2 relevant pieces of evidence within the paper)
- JUSTIFICATION: Clear explanation of how the identified data (EVIDENCE) supports the claims
- METHODS: Major methods used in the paper are clearly identified with questions listed about those methods that are unfamiliar

Student Example:

Methods and Materials:

Collection:

Pteropods were pulled from Puget Sound, permits were obtained from Dept. of Fish and Game.
Ring nets were pulled behind boats at very slow speeds of 2-3 knots from twilight to evening.

Keeping/Experimenting:

Pteropods were transferred to 4.5L plastic jars and immediately connected to recirculating water.
Dissolved CO_2 was increased over 2 hours, simulating the rapid drop in pH as it is in their natural environment.
Proper feeding measures were not taken due to 'technical difficulties'
Figure 1 shows the type of mechanism used to experiment on the pteropods.
Samples were incubated for 7 days and then counted (dead and alive) and separated.
Shells were then analyzed and scored on 5 factors: shell transparency, brownness , scarred structures, number of perforations and shell corrosion. (the person scoring the shells was unaware of treatment conditions)
Salinity and dissolved gases were constantly measured.
Carbon chemistry and discrete water samples were tracked throughout the experiment.

Analysis:

Mixed-effects logistic regression was used to assess the change in shell condition with each treatment variable.
Linear scales were used for shell condition data and a logit model was used for survivability assessment.

Claim	*Evidence*	*Support*
Pteropods and other calcifying organisms experience shell corrosion and lower survival rates in water that is saturated with aragonite and CO2.	1) Table 1 shows the saturation levels, water conditions and number of shells surveyed per jar 2) Significant shell dissolution after one week of exposure to sea water with aragonite saturation. pH values were consistent across all jars in the experiment 3) Highest CO2 treatment, all pteropods died by day 3 Lowest CO2 treatment, almost all were alive on day 3 4) Figure 5	1) The info in table 1 gives evidence that things were fairly evenly surveyed and that the controlled variables were constant, and the only variables that were manipulated were those being studied (aragonite & CO2). 2) The fact that significant shell dissolution was noticed after only 1 week shows that there is correlation between the sensitivity to aragonite in sea water and shell condition. The pteropods in the less aragonite rich water were much more sensitive to the aragonite treatment and therefore had corroded shells more frequently than those who were used to higher levels aragonite in the water. this information could potentially skew the readers view because it seems almost subjective. 3) The CO2 and survival rate were important because they were another manipulated factor which resulted in corrosion of shells proving that CO2 exposure also plays a part in survivability of organisms in saturated waters. 4) Figure 5 also shows a correlation between aragonite saturation state and shell condition. It represents weakening shells with increased aragonite levels. -Pteropods with weakened shells would likely die in the wild due to this deficiency