Part A: Smithsonian Ocean

1. What does the figure just below the "A More Acidic Ocean" figure illustrate? Please summarize the data in the figure (remember to account for all of the variables!) (2pts)

2. What does "ocean acidification" mean? (1pt)

3. How does the level of acidity in the ocean impact:

(a) A bivalve's shell development? (0.5pts)

(b) A coral's structure? (0.5pts)

4. Follow the links, and work to find the actual article on the research on black-finned clownfish which was described in the In the Lab section

(a) What is the name of the journal in which it was published, and what was the (print) publication date and year (0.25pts)?

(b) The study was novel because it showed that fish have the ability to respond to predator sounds when played underwater: TRUE or FALSE (circle one, 0.25pts)

Part B: Measuring Salinity in Estuaries

Level 3: Measuring Salinity in Estuaries

5. Question #5 from the activity: Which statement represents a valid conclusion based on the graph? Enter the correct letter and the statement (0.5pts)

C. A rainstorm on Oct 25 may have caused the decrease in salinity on Oct 27

6. What may have caused Delta Smelt to be found outside of their normal range? (0.5pts)

There was a signicant amount of rainfall during the times the salinity was higher than 2, and salinity also spiked when ever rainfail increased.

Level 4 - Research Question: Predicting the Return of the Atlantic Sturgeon

7. To get started, use the online Fact Sheet to select an estuary where Atlantic Sturgeon are found. Record the estuary name and location here: (0.5pts)

The locaiton we chose was Chesapeake Bay, MD.

8. Write your research question in the space below. (1pt)

How does dissolved oxygen and temperature change over

9. Complete the table (1pt)

Table 1: Caption

Location	Water Quality Parameter	Range of dates	Notes
Otter Point Creek	Temp, Salinity		

10. Can you identify a time period when the water temperature is within the range for the sturgeon to return? (0.5pts)

11. What is the range of the other water quality parameters during that time period? (0.5pts)

12. Can you identify a time period when all the conditions look right for the sturgeon to return to spawn? (0.5pts)

13. Do the same conditions occur around the same time, year after year? (0.5pts)

Level 5: Work as a team to develop your own investigation

14. Read through Level 5 on your own, and then work with your team to develop your research question. State your research question here: (1 pt)

15. State your hypothesis: (1 pt)

16. *Make a Plan:* Make a lis tbelow of the specific data you will need to answer the question (1 pt)

Table 2: Caption

Location	Water Quality Parameter	Range of dates	Notes

17. Other than the data listed above, what other information (if any) will you need to answer your question? (1 pt)

18. Insert figure here (1 pt)

19. *Interpret the data:* What does your data show? Be specific and descriptive. Does the data suppport your hypothesis? (1 pt)

20. *Draw a Conclusion:* What is the answer to your question? Use evidence and data to support your conclusion. (1 pt)

21. Give a specific example of why it would be biologically relevant to measure **temperature** in an aqautic envrionment. (1 point)

22. Give a specific example of why it would be biologically relevant to measure **dissolved oxygen** in an aqautic envrionment. (1 point)

23. Give a specific example of why it would be biologically relevant to measure **carbon dioxide** in an aqautic envrionment. (1 point)