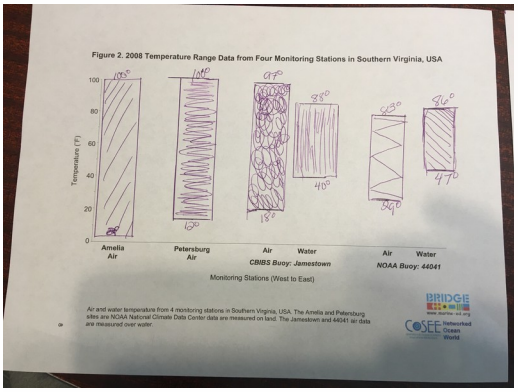
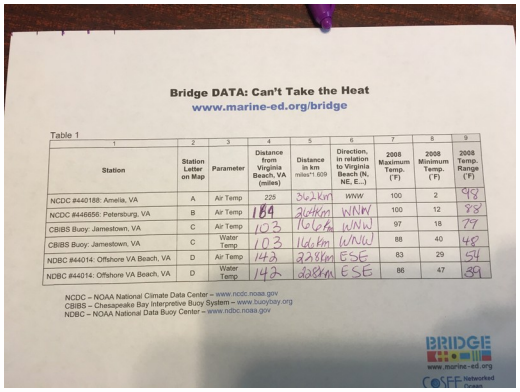
***Student Worksheet Pictures:***




### *C. Additional Analysis*

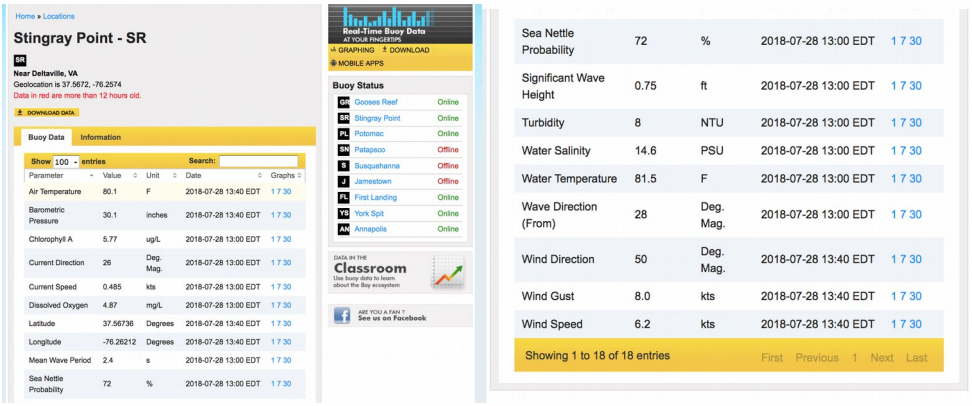
Answer the following questions after viewing **Figure 3**, air and water temperature from the Chesapeake Bay Interpretive Buoy System (CBIBS) buoy at Jamestown, VA from April 13-20, 2008.

- What is the range of the air temperature during this time period? 41-89 degrees difference of 48 degrees
- What is the range of the water temperature? Range 58-67 degrees difference of 9 degres

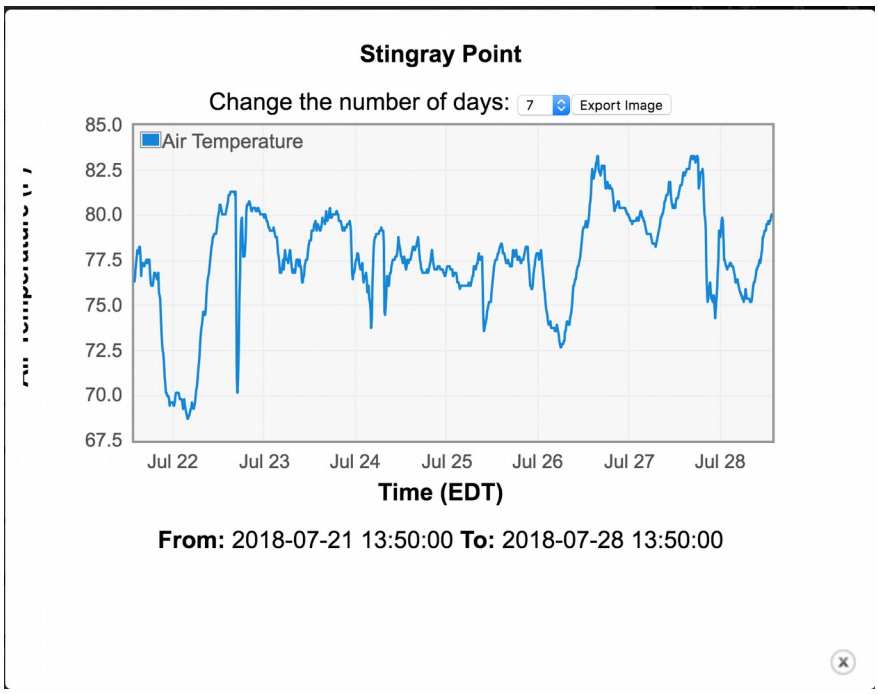
### *D. Real Time Data Analysis: www.buoybay.org*

Visit the **CBIBS website** and click on Get Data for one of the buoys. On the buoy page, click on Buoy Data to view the data.

- Which buoy was selected? Stingray Point
- Record the date and time of the most recent data. 7/28/2018 1:40 pm EST
- What are the air and water temperatures at this buoy? 80.1 and 81.5 degrees F
- What else is measured by this buoy?

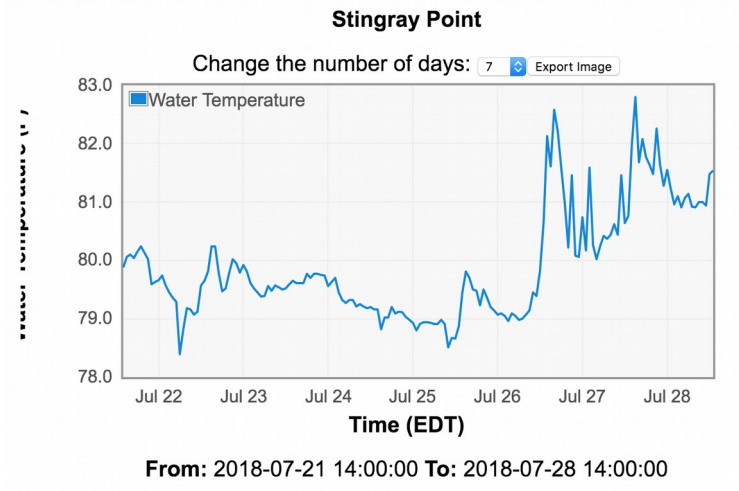


Now click on the air temperature data for the past seven days at this buoy ("7" in the Graphs column at far right).




- What are the dates these data were recorded? July 22 to July 28, 2018
- What is the air temperature range over the past 7 days? 68-83 degrees F

Repeat for water temperature data.




- What is the water temperature range over the past 7 days? 79-83 degrees F
- Are the two temperature ranges comparable or is there a large difference between them? Water temperature did not fluctuate as much.

***Discussion and Application Questions***

1. From Table 1 and either the graph students created (Figure 2) or the completed graph (Figure 2a), what is the trend in air temperatures moving from west to east?

2. From Table 1, Figure 2/Figure 2a and Figure 3, what is the trend in air temperature range versus water temperature range? Air temperature fluctuates a lot more than water almost twice as much.

3. In addition to the applications discussed in the introduction, how else can water's high heat capacity be used? It is important in biological systems to help keep homeostasis.

4. Discuss the implications of global climate change as it affects ocean water temperatures. How will ocean warming affect land? Land climate will be much warmer over time. Water temperatures provide a great buffer to the climate of land it surrounds.

5. Describe advantages and disadvantages of using buoys to record data. Located on the surface so they are more susceptible to fluctuations in data.