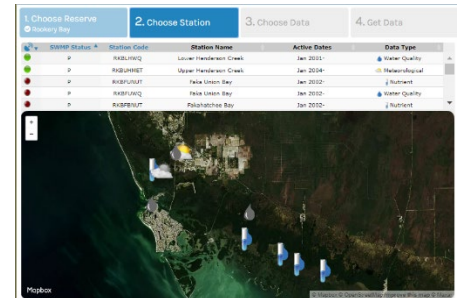
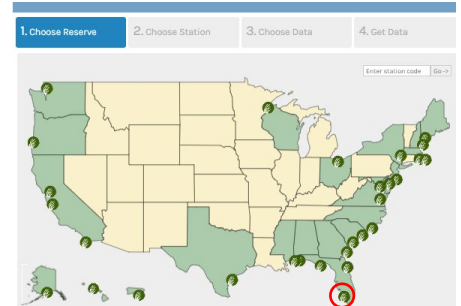


World of Water Quality Worksheet

The System Wide Monitoring Program, or SWMP (pronounced “swamp”), was developed on a national platform to coordinate long-term monitoring programs across all 29 National Estuarine Research Reserves. The Rookery Bay Research Reserve SWMP program measures water conditions, nutrients, and chlorophyll (an estimate of micro-algae) at five sites, with an additional weather monitoring station at our headquarters. Through an online database, the data collected through SWMP is accessible to students via an easy-to-use graphing application.

Getting Started Part 1:

- Go to <http://cdmo.baruch.sc.edu/dges/> to access the SWMP data. Select Rookery Bay NERR on the map of National Estuarine Research Reserves.
- Select one of the five water quality stations within the Reserve and list below:
Station: _____
- Once you’ve selected a station, click “Graph Data,” then select “salinity” as the parameter you want to measure, and enter the date range as 1/1/19 – 1/1/20, giving you one entire year of data. If you do not have access to our online graphing application, use the graph below to answer the following questions:

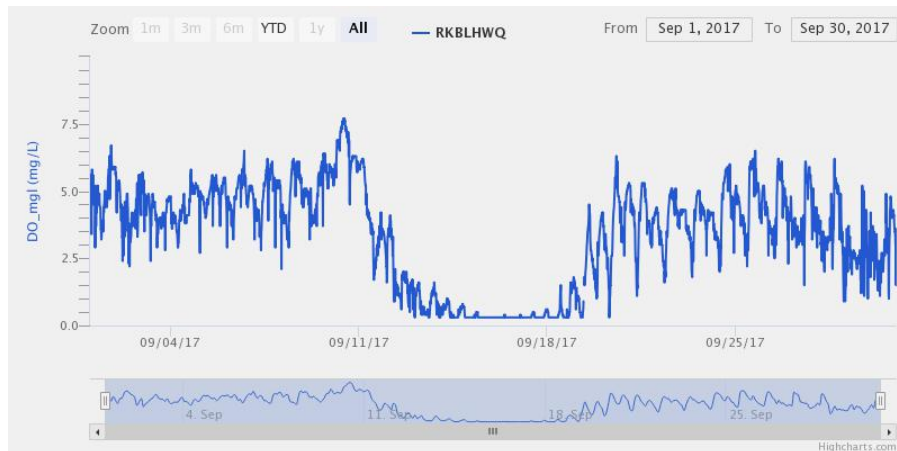


Questions:

1. **During what month of the year is salinity the highest? Approximately how high was it during that month?** (Salinity is measured with the unit PSU (practical salinity unit), or PPT (parts per thousand), which are the same, and measure how many parts of salt there are per thousand parts of water).
2. **During what month of the year is salinity the lowest?**
3. **What do you think causes annual fluctuations in salinity?**

Getting Started Part 2:

- Change your water quality station to Lower Henderson Creek. Enter “Dissolved Oxygen mg/L” as your parameter to measure and enter 9/1/17 – 9/30/17 as your date range. Use the graph below if you don't have access to the online graphing application.



Questions:

1. **What happened to DO levels in Lower Henderson Creek in the middle of September 2017?**
2. **Why do you think dissolved oxygen important to fish and invertebrate species?**
3. **What do you think happened to fish and invertebrate species living in the estuary during this event?**
4. **Either from research or from memory, explain what event caused this unusual drop in DO and come up with a theory about why exactly it would cause DO to drop?**

Getting Started Part 3:

- The estuaries of Rookery Bay Research Reserve provide important habitat for several different species of sharks, which use the estuaries during their juvenile stages to feed and find shelter. Young bull sharks are one of the most common species found in the Reserve due to their ability to swim into completely fresh water. They seem to prefer these fresh water areas compared to salt or brackish waters because there is less competition with other sharks, which cannot tolerate fresh water.
- For this next section, you are going to compare the salinity of three bays found within the Reserve and determine which one likely has the most bull sharks throughout the year. Select “Fakahatchee Bay WQ” as your station and salinity as your parameter to measure. Enter 1/1/19 – 1/1/20 as your date range and graph the data. Do the same for “Pumpkin Bay WQ” and “Faka Union Bay WQ,” or use the graphs below.

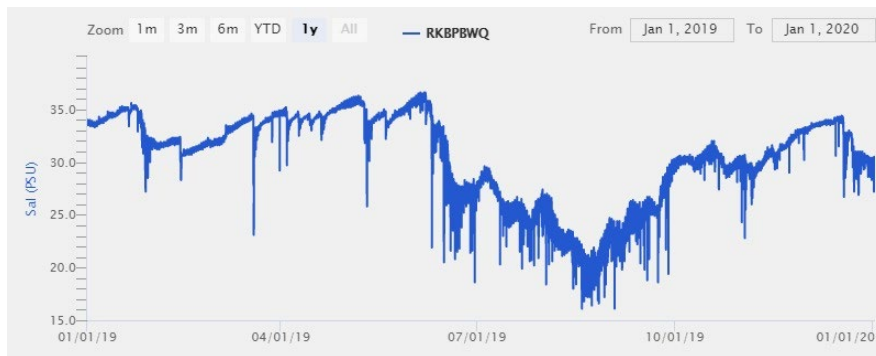


Figure 1: Pumpkin Bay WQ Station



Figure 2: Faka Union Bay WQ Station

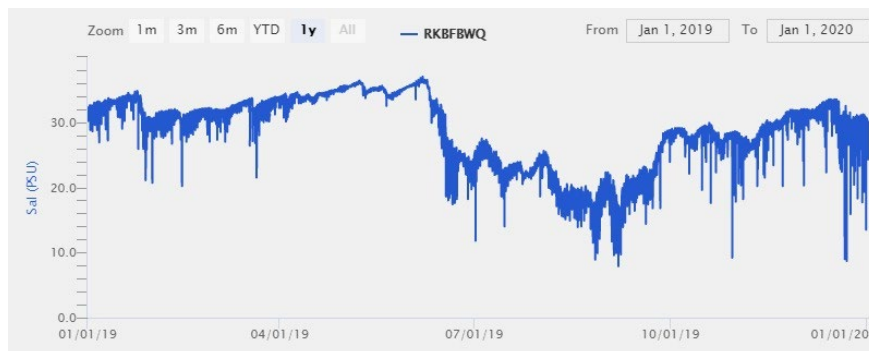


Figure 3: Fakahatchee Bay WQ Station

Questions:

1. What is the salinity range throughout the year for each bay?

a. Pumpkin Bay _____

b. Faka Union Bay _____

c. Fakahatchee Bay _____

2. Which bay has the highest salinity fluctuations throughout the year?

3. Which bay do you think has the most bull sharks in it and why?