# Tampa Bay Tides *Handout part 1*

**INSTRUCTIONS:** Go to the website: www.Pinellas.WaterAtlas.org

1. Go to the bottom where it says New Near Real Time Data Mapping Application. Select the link. You are looking at the sites where live data are collected in Pinellas County.

2. On the left pane you will see options to filter the view of the Atlas data stations. Filter by atlas for "All Atlases". Click Filter. You should now see the entire state of Florida with many stations.

**ROOSEVELT CANAL PINELLAS COUNTY:**

1. Zoom in to the Tampa Bay area, specifically Tampa Bay itself so you see Pinellas County and Hillsborough County stations around the Tampa Bay shorelines. You will have to click and drag the map to center it.

2. Find I-275 as it heads into Pinellas County. Just to the left of it you will see a green bubble. When you hover the mouse over the bubble the station name, Roosevelt Canal, will appear. Click on the bubble, observe the data available to you (map of site, type of data recorded, links available, etc.) and answer the following questions:

   a. What data does this station record? _____

   b. How often are the data updated? _____

   c. What environmental occurrences make up the data (Elevation) at this station? In other words, what would make the elevation change? _____

   _____

3. Click on the 24-hour, 7-day, and 31-day graphs and answer the following questions:

   a. Has it rained in the last 7 days? _____

   b. If so, did it rain every day? _____

   c. If not, why is the elevation changing? In order to answer this question, you might want to close the station data box and zoom in to the station on the map. Think about where the station is and what kind of water it is measuring (saltwater or freshwater). _____

   _____

   _____

   d. In the last 30 days how many high tides have there been? How many low tides? What are the elevations of the highest and the lowest tides? _____

   _____

   _____

4. Based on this tidal data, what types of organisms would you expect to find in this environment? Why? _____

_____

_____

5. Why do we need this equipment that measures and records real-time data? Why is this information important and to whom? _____

_____

_____

_____

Name: Date:

# Tampa Bay Tides *Handout part 2*

**ALAFIA RIVER HILLSBOROUGH COUNTY:**

1. Now you will be learning about specific conductivity, salinity, and tides. Open the DataMapper application and zoom to the Tampa Bay area again showing filtering by "All Atlases". Look to the east side of Tampa Bay for Gibsonton. The station you'll observe is at the entrance to the Alafia River.
2. Click on the green bubble for Alafia River at Gibsonton. Observe the data available to you (map of site, type of data recorded, links available, etc.), and answer the following questions:

a. What data does this station record? _____
_____

b. What is specific conductance? (If you need help open a new internet tab and type in the address bar www.hillborough.wateratlas.org. Look under the search engine at the top right of the page click HELP, then select the link for Glossary and search for Specific Conductance)
_____
_____

c. In the glossary for Specific Conductance click the link "Salinity Learn More". Under the salinity heading, click the link "learn more about salinity". How does specific conductance relate to salinity? _____
_____
_____
_____

d. Are changes in specific conductance physical or chemical changes? Why? _____
_____

e. How do conductivity and salinity relate to the distribution of aquatic organisms?
_____
_____
_____

f. How often are the data updated? _____

g. When was the last time station data were recorded? _____

3. Click on the 24-hour, 7-day, and 31-day graphs and answer the following questions:

a. What are the high and low values on the 24-hour conductivity graph? _____
_____

b. Do you see a pattern in the 7-day graph for conductivity? What are the possible causes?
_____ _____
_____

c. Looking at the 7-day temperature graph, why do you think the temperature changes? (Hint the vertical lines in the graph are midnight temperatures) _____
_____

Name: Date:

# Tampa Bay Tides *Handout part 2 cont'd*

d. In the last 30 days how many high tides have there been? What are the elevations of the highest and lowest tides? _____

**LINKING CONDUCTIVITY TO TIDES:**

1. At high tide at this station, would there be a higher or lower flow of freshwater? _____

2. How would this impact salinity? _____
_____

3. What does this mean in terms of conductance? How does conductivity relate to tides?
_____
_____
_____

4. Explain how the wet season vs. the dry season would affect conductivity. _____
_____
_____

5. Using the space below, draw the position of the earth and moon during high and low tides.

6. Go back to the glossary page at www.hillborough.wateratlas.org. Search for Tides. Under the tide heading, click the link "learn more about tides". Explain the relationship between gravity and tidal cycle. _____
_____
_____
_____
_____

7. Who might use these data and why? _____
_____
_____

Name: Date:

# Tampa Bay Tides *Take Home Portion*

**COMPARE ROOSEVELT & ALAFIA STATIONS:**

1. Now that you are familiar with tides, salinity, and specific conductance you will compare data for 2 stations in Tampa Bay. Open the DataMapper application and zoom to the Tampa Bay area again showing filtering by "All Atlases". Find the Roosevelt Station and Alafia River at Gibsonton Station and click on the 7-day graph for each station. Compare the two by answering the following questions.

   a. What is the scale of the elevation graph for each of the stations? (Hint y-axis values)
   _____
   _____

   b. Why do you think they are not the same? _____
   _____
   _____

   c. Looking at the satellite or hybrid view (top right corner of the map) of each of the station locations on the map, what environmental aspects do you think affect the elevation at each station? You can zoom in to get a closer look at each stations area. _____
   _____
   _____

2. In the data box for each station view the last 24 hours of data recorded for elevation. In the data tab you want to click "show me the last 24 hours" option. Fill in the table below with values from each site. Answer the questions below.

| **Elevation Comparison Table** | | |
|---|---|---|
| Time | Roosevelt Canal Station Elevation (ft) | Alafia River Station Elevation (ft) |
| 8:00 am | | |
| 10:00 am | | |
| 12:00 pm | | |
| 2:00 pm | | |
| 4:00 pm | | |
| 6:00 pm | | |
| 8:00 pm | | |
| 10:00 pm | | |
| 12:00 am | | |

a. Based on the elevation data you recorded what time is high tide at the Alafia station? _____
b. What time is high tide at Roosevelt? _____
c. Are they different? If so, by how much time? _____
d. Describe the geography of both stations. What do you see? Why do you think the tides are different? _____
_____
_____
_____
e. How is this information useful and to whom? _____
_____
_____
_____

Name: Date: