

## STUDENT MASTER

# NERR and Far

The National Estuarine Research Reserve (NERR) System has 28 amazing estuaries (or Reserves) located around the United States. Maybe there's a Reserve in your home state that you can visit. Even if there isn't, you can take a virtual trip to the estuaries and get your feet wet collecting data on any Reserve site, near or far. So jump right in! The water's warm...in some places.

### Procedures

1. Use a computer to access the NERR System Interactive map. You will find it at <http://estuaries.noaa.gov> in the "Middle School Curriculum" section. Then select Activity 2: Seasonal Swings".
2. Use the map to find the Reserve that is closest to your school. Click on that Reserve's location on the map to see information on that Reserve.
3. Write down the Reserve name on the Student Master Data Sheet in the section labeled "Nearby."
4. Write down the Reserve's latitude, the annual maximum air temperature, the annual minimum air temperature, the annual maximum water temperature, and the annual minimum water temperature.
5. Calculate the annual air temperature range at this Reserve by subtracting the minimum annual air temperature from the maximum annual air temperature. Use the same method to calculate the annual water temperature range.
6. Now go back to the NERR System map. Find another Reserve on the map that is located at close to the same latitude as the first Reserve, but in a different time zone. Click on that Reserve's location on the map to see information on that Reserve. (NOTE: If you live in Alaska or Puerto Rico, you should choose the next closest Reserve.)
7. Write down this Reserve name on the Student Master Data Sheet in the section labeled "Along the Same Latitude Line."
8. Write down the Reserve's latitude, the annual maximum air temperature, the annual minimum air temperature, the annual maximum water temperature, and the annual minimum water temperature.
9. Calculate the annual air and water temperature ranges for this Reserve.
10. Again, go back to the NERR System map. Find another Reserve on the map that is located at a very different latitude (at least 20° north or south of the first two Reserves). The new Reserve may or may not be in the same time zone.
11. Write down this Reserve name on the Student Master Data Sheet in the row labeled "Far Away."
12. Write down the Reserve's latitude, the annual maximum air temperature, the annual minimum air temperature, the annual maximum water temperature, and the annual minimum water temperature.
13. Calculate the annual air and water temperature ranges for this Reserve.
14. Transfer data about the Reserves from the Student Master Data Sheet to the air temperature and water temperature data tables on your Student Master. Use the data in the data tables to answer the questions below.

## Data Tables

### Air Temperature

	Reserve Name	Latitude (°N)	Annual Maximum Air Temp. (°C)	Annual Minimum Air Temp. (°C)	Annual Air Temp. Range (°C)
Nearby					
Along the Same Latitude Line					
Far Away					

### Water Temperature

	Reserve Name	Latitude (°N)	Annual Maximum Water Temp. (°C)	Annual Minimum Water Temp. (°C)	Annual Water Temp. Range (°C)
Nearby					
Along the Same Latitude Line					
Far Away					

## Questions

- Which Reserve has the highest high water temperature? Which Reserve has the lowest low water temperature? Which Reserve has the largest range of water temperature?
- Are air temperatures at the two Reserves with the same or nearly the same latitude more or less similar to each other than they are to the “Far Away” reserve?
- Which Reserve has the largest range of air temperature? Is that Reserve closer to the equator (i.e., lower latitude) than the other Reserves or farther away (i.e., higher latitude)?

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## Reserves Data Sheet

Use this data sheet to record information about the Reserves you have chosen. When you are done, transfer information to the two data tables on the main part of the Student Master.

## Nearby Reserve

What is the name of the Reserve that is located closest to your school?

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What is the latitude of this Reserve?

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The maximum annual air temperature at this Reserve is \_\_\_\_\_ (°C)

The minimum annual air temperature at this Reserve is \_\_\_\_\_ (°C)

The annual air temperature range at this Reserve is \_\_\_\_\_ (°C)

The maximum annual water temperature at this Reserve is \_\_\_\_\_ (°C)

The minimum annual water temperature at this Reserve is \_\_\_\_\_ (°C)

The annual water temperature range at this Reserve is \_\_\_\_\_ (°C)

## Along the Same Latitude Line Reserve

What is the name of a Reserve located at approximately the same latitude as the “Nearby Reserve”?

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What is the latitude of this Reserve?

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The maximum annual air temperature at this Reserve is \_\_\_\_\_ (°C)

The minimum annual air temperature at this Reserve is \_\_\_\_\_ (°C)

The annual air temperature range at this Reserve is \_\_\_\_\_ (°C)

The maximum annual water temperature at this Reserve is \_\_\_\_\_ (°C)

The minimum annual water temperature at this Reserve is \_\_\_\_\_ (°C)

The annual water temperature range at this Reserve is \_\_\_\_\_ (°C)

## Far Away Reserve

What is the name of a Reserve located at latitude that is far from the latitude of the “Nearby Reserve”?

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What is the latitude of this Reserve?

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The maximum annual air temperature at this Reserve is \_\_\_\_\_(°C)

The minimum annual air temperature at this Reserve is \_\_\_\_\_(°C)

The annual air temperature range at this Reserve is \_\_\_\_\_(°C)

The maximum annual water temperature at this Reserve is \_\_\_\_\_(°C)

The minimum annual water temperature at this Reserve is \_\_\_\_\_(°C)

The annual water temperature range at this Reserve is \_\_\_\_\_(°C)