

FutureWater Exercise Option 2: Would climate change reduce groundwater recharge?

Below is an outline of how you can prepare for completing the worksheet.

1. Begin by individually writing down where you think your everyday water comes from.
2. Watch an informational video about groundwater and how it impacts the environment: https://youtu.be/oNWAerr_xEE
3. Come up with a definition for groundwater and how it might affect your everyday life.
4. Read about the definition and processes of aquifers and groundwater recharge: https://www.carleton.edu/departments/geol/links/alumcontributions/antinoro_03/mcwebsite/AquiferNRecharge.htm
5. Go to the [FutureWater](#) site and play around with the different features for a few minutes to get a feel for how the site works.
6. Follow the steps listed on the worksheet to begin answering the questions in Part A.
7. Write down your ideas about how the variations in groundwater recharge would affect your everyday life.
8. Complete Part B of the worksheet.

Student Worksheet

1. Define groundwater.
2. Discuss how groundwater is used in our everyday lives.
3. How does that relate to groundwater recharge?

A.

Step 1:

Go to <https://futurewater.indiana.edu>

Step 2:

Click on “Explore Model Forecasts”

Step 3:

Set **Variable** to Groundwater recharge and
Summary Period to annual

On the map, find and select the watershed that includes your town.
(At the upper-right corner, you can zoom in using your town’s zip code.)

Read the paragraph on the right side of the screen. Explain the difference between the two **Emissions Scenarios**. What does RCP stand for?

Look at the plot on the lower right-hand portion of the page. What do the different sets of colors represent?

Fill in the corresponding **% Change** for your watershed:

	2020s	2050s	2080s
RCP 4.5			
RCP 8.5			

How do the different emissions scenarios impact groundwater recharge?

Record a couple of ways that reductions in groundwater recharge would influence your everyday life.

B.

You have evaluated the annual data. Now, which months do you think would see the smallest and largest changes?

Using the **Ensemble Mean** from **2020s- RCP 4.5 data**, find the month with the smallest and largest percent change in Groundwater Recharge. Hint: You'll want to consider the absolute value of the numbers.

Smallest: _____

Largest: _____

Fill in the corresponding months you found and fill in their data over the next 7 decades:

		2020s	2050s	2080s
Smallest	February			
Largest	October			

How do these data compare to the annual summary period data from part **A**?

Explain why the smallest and largest changes in groundwater recharge occur in the months they do.