Marshland Clues

Use sources from different times to investigate coastal change.

USG.P.2.3.A "Actively engage in asking and answering geographic questions by acquiring, organizing, and analyzing multiple sources of data and information about the world's past and present."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline each source the geographer uses, circle what each source reveals, and number two limits on what the sources can prove. Use your marks to separate evidence of change from possible explanations.

What Happened to the Marsh?

1 Along Louisiana's coast, marshes separate fishing towns from open water. Some have broken into smaller patches as water replaces land. A geographer asks, "Where has marsh disappeared near a town, and what evidence might explain the pattern?" To investigate, she needs information from different times and places, not just one dramatic storm story. She requests 1930s aerial photographs from a U.S. Geological Survey archive and recent satellite images from a NASA archive. She also finds water-level records from a nearby National Oceanic and Atmospheric Administration tide gauge. Each source records a different part of the story.

2 The aerial photographs show wide, connected stretches of marsh around several waterways in the study area. Recent satellite images of the same area show more open water and many separated marsh patches. The geographer matches recognizable channels in both sets of images before comparing them, because views taken from different positions can be misleading. She records where land appears to have become water, but does not treat every dark patch as proof of land loss. Shadows, tides, and seasons can change an image's appearance. A pair of images shows change between dates, not exactly when each patch disappeared.

3 The nearby tide gauge records water levels relative to the land holding the instrument. Its long record shows a rise in relative water level, which can result from rising seas, sinking land, or both. That record supports a possible explanation for marsh loss, but one gauge cannot measure the water level at every patch. Canals, storms, and changes in sediment supply may also affect marshes. The geographer organizes her notes by location, date, observation, and uncertainty. She then asks which patches changed most and seeks additional local records before claiming one cause explains every change.

2 ANSWER WITH EVIDENCE

Use the passage

1. What geographic question guides the investigation, and why does the geographer need sources from different times?

2. What change do the two image sources suggest? What feature does the geographer match to compare the images fairly?

3. How do the images and tide gauge record work together to suggest a possible explanation for marsh loss? Why is that explanation uncertain?

4. Why would the geographer seek additional local records before claiming that rising water caused every change?

3 YOUR TURN

Your own words

Choose a coastal place other than Louisiana and write a new geographic question about how it has changed. In four or five sentences, name two sources and where you would obtain them, explain what each could show, and describe one check you would make before drawing a conclusion.

ANSWER KEY

Marshland Clues

HIGH SCHOOL · USG.P.2.3.A

PART 1 · READ AND MARK

Underline each source the geographer uses, circle what each source reveals, and number two limits on what the sources can prove. Use your marks to separate evidence of change from possible explanations. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	What geographic question guides the investigation, and why does the geographer need sources from different times?	**She asks where marsh has disappeared near a town and what might explain the pattern. Sources from different times let her compare earlier and recent conditions.**
2	What change do the two image sources suggest? What feature does the geographer match to compare the images fairly?	**The earlier photographs show connected marsh, while recent images show more open water and separated patches. She matches recognizable channels.**
3	How do the images and tide gauge record work together to suggest a possible explanation for marsh loss? Why is that explanation uncertain?	**The images suggest marsh became open water, and the gauge records rising water levels relative to nearby land. The gauge does not measure every patch, and other factors could affect the marsh.**
4	Why would the geographer seek additional local records before claiming that rising water caused every change?	**The nearby gauge cannot establish conditions at every patch. Canals, storms, or changes in sediment supply may also have affected the marsh.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

How has the shoreline near Miami Beach changed since the 1930s? I would obtain dated aerial photographs from a U.S. Geological Survey archive to identify an earlier shoreline. I would use recent satellite images from a NASA archive to locate the shoreline today. I would compare the same stretch of coast using recognizable landmarks. Before concluding that the shoreline moved, I would check the image dates and tide conditions, since water levels can make a shoreline look different.

Accept reasonable paraphrases that distinguish observed change from a possible cause. For Part 3, accept other coastal places and credible sources if the student explains how the sources could be compared and identifies a relevant check.