

Nature Rules in the Great Flood of 1993



SUGGESTED GRADE LEVELS: MS

SUBJECTS: Social Science

SKILLS: research and analysis, comparative reasoning, problem solving, role playing, critical thinking, interpretation

CORRELATION TO ILLINOIS LEARNING STANDARDS:

Common Core State Standards for English Language Arts - Reading Standards for Literacy in History/Social Studies: Key Ideas and Details 1, 2; Writing Standards for Literacy in History/Social Studies: Text Types and Purposes 1a, 1b, 1c, 1d, 1e; Research to Build and Present Knowledge 7, 8, 9

Social Science – SS.IS.6.6-8.LC., SS.IS.6.6-8.MdC., SS.G.2.6-8.LC., SS.G.2.6-8.MdC., SS.G.2.6-8.MC, SS.G.3.6-8.LC.

Objectives

Students will realize the economic, social and ecological impacts of the Great Flood of 1993.

Method

Students will conduct a town meeting to debate the pros and cons of living in a flood plain.

Background

River flood plains occur on the relatively flat land that typically borders a river's channel. Some flood plains are broad (that is, the flood plains of the Mississippi and lower Illinois rivers). The width is due to the erosion of the river valley by the torrential flow of glacial melt-water down this path. This land was once part of the river's channel, and these rivers were huge. Today, the amount of water passing through the channel is much less, and the land along these rivers is only covered in water during flooding, when the channel of the river today cannot hold at once all of the water that needs to pass through it. Flood plains are usually excellent agricultural lands because they contain nutrient-rich sediments deposited by floods. Soil moisture is abundant due to a high water table and the close proximity of the river. Illinois has generally protected these agricultural interests by draining excess waters from the flood plain and building levees. This process is usually accomplished through a combination of public and private initiatives.

In the Great Flood of 1993, most of the flooding damage was confined to structures and farms that were within the Mississippi River's flood plain. An important policy issue debated on the state and federal levels is whether government should subsidize dry land agriculture in flood plains through price supports, disaster relief, maintenance and rebuilding of levees and pumping stations instead of focusing on aquaculture (cultivating aquatic plants and animals), flood-adapted fish and wildlife production or at least a more flood-adapted form of agriculture.

Flood frequency is a statistical term that attempts to explain how often certain floods are expected to occur on a long-term basis. For example, a 100-year flood has a one percent chance of occurring in any year, a 500-year flood has a two-tenths percent chance of occurring in any year, etc. The occurrence of the Great Flood of 1993 does not reduce the chance of another major flood in the next year. On a long-term basis, a flood of this magnitude will average once in 100 years. The public's misperception that a Great Flood of 1993 won't occur for another 100 years leads to a disregard for nature in regard to flooding and flood control. Floods have increased in frequency and will continue to increase due to channelization, levee construction, paving and other activities that increase stormwater runoff from the land and send it to artificial channels not intended to hold these volumes of water.

Great Flood of 1993 – Illinois Facts

The Great Flood of 1993 is considered the worst natural disaster in Illinois history. Before the 1993 flooding, floods similar in scope were recorded along the Illinois portion of the Mississippi River in 1903, 1965 and 1973. Past floods have strongly affected the terrain, course and capacity of stream channels and the sediments along rivers in this region.

Floods affect plant and animal life. One example of a plant species that floods endanger is the decurrent false aster (*Boltonia decurrens*), which grows mainly in the lowlands of the banks of the Illinois River. The plant grows well in clear water, but muddy flood waters prevent it from receiving the sunlight it needs to survive.

In 1993:

- 16,000 people moved because of the flooding.
- 6,000 homes were lost.
- 880,000 acres of crops were lost.
- 1,200 miles of state and local roads were closed.
- 150 miles of railroad lines were closed at 15 locations.
- 50 wastewater treatment plants were affected.
- 1,450 school children were displaced from their usual school building.
- 3,100 barges were stalled for weeks at a cost to barge companies of \$1 million to \$2 million dollars per day.
- 860 businesses closed due to flooding, with most incurring flood damage. As a result, 6,500 people were temporarily unemployed.
- A total of 19 Illinois levees failed, covering the landscape with water and killing animals that were unable to vacate to higher ground. After the waters receded, tons of sand from sandbagging efforts remained.
- Plant and animal populations increased in areas where the nutrient-rich water rose at a steady rate. Exotic invasive zebra mussels (*Dreissena polymorpha*) thrived in the flood environment, widely expanding their range.
- \$300 million in state and federal money was received for flood recovery efforts – the equivalent of \$25 for every person in the state of Illinois at that time.

Materials

podium; research materials

Procedure

1. Have students select an Illinois town that was flooded in the Great Flood of 1993. Provide them with basic facts from the background section and allow them to gather more specific information about how the flood affected the town. Have the students contact the city's officials for more information.
2. Using this information, conduct a town meeting regarding this issue: Should people in and around this town receive federal and state funds in the future for flood damage? One person should be selected as the moderator. Divide the remainder of the class into six groups. Groups should include the following people:
 - a. a farm family whose main source of income, currently and for the past 50 years, is the crops that they raise on the flood plain;
 - b. townspeople who live on the flood plain and whose homes and businesses are flooded occasionally;
 - c. U.S. Army Corps of Engineers staff members who are charged with maintaining river flow and operating the levee system;
 - d. people who do not live in the flood plain but come to the area to fill and place sandbags on the levees when high water threatens homes, crops and businesses;
 - e. biologists who work in the flood plain to monitor and manage the wildlife species that live there and migrate through the area;
 - f. state and federal government workers who must determine how much money to give people whose crops, homes and/or businesses are destroyed or damaged by the flood water.
3. Have students research their roles and prepare their arguments. Conduct a town meeting and discuss the meeting process and results.

Extension

1. Turn the classroom into a newsroom complete with editors, reporters and proofreaders. Divide the class into small groups and give each group a photograph from the Great Flood of 1993. Reporters should develop a one-page news story complete with headlines, damage estimates, quotes and information about what is happening in the picture. The editors review the story and make changes as they see fit. Proofreaders go over the copy again before it is finished. Share the stories with the class and see how each group interprets their photograph

Evaluations

1. Students should present their arguments in support of or against living and working in a flood plain.
2. Students should list three reasons why people live or work in a flood plain.
3. Students should list three reasons why it may be bad to live or work in a flood plain.
4. Students will answer the following question in one paragraph: Should people who live in a flood plain receive federal or state aid for flood damage to their homes and/or businesses?



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