



Issue Analysis & Decision Making

Adapted from BTNEP/LSU AgCenter: *Coastal Land Loss and Restoration*

Focus/Overview

Students will use their knowledge of causes and effects of wetlands loss and problems associated with potential restoration options to discuss the risks and benefits of a freshwater diversion project.

Learning Objectives

The learner will...

- research viable coastal restoration methods using published documents and the Internet.
- use issue analysis and conflict resolution methods to make a group decision about the merits of a freshwater/sediment diversion project.
- develop and act out a role-playing skit of a CWPPRA meeting to discuss a freshwater/sediment diversion project.

Louisiana Grade Level Expectations (Science)

7: GLE-39	Analyze the consequences of human activities on ecosystems (SE-M-A4).
8: GLE-20	Describe how human's actions and natural processes have modified coastal regions in Louisiana and other locations (ESS-M-A8).
HS Env Sci: GLE-21	Analyze the effect of common social, economic, technological, and political considerations on environmental policy (SE-H-C3).
HS Env Sci: GLE-22	Analyze the risk-benefit ratio for selected environmental situations (SE-H-C4).

Materials List

- Access to Internet (optional)
- Publications dealing with coastal restoration issues, including: Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA): A commitment to Louisiana Coastal Wetlands (published by the LSU AgCenter and Louisiana Sea Grant College Program)
- Overhead projection transparencies of 50-year and 100-year land loss projection maps (provided on pages 6 and 7 of this activity)
- Barataria-Terrebonne Satellite Image (available from BTNEP) or the Oil Spill Contingency Map of Louisiana (available from the Oil Spill Coordinator's Office at LSU)

Background Information

Restoring Louisiana's vanishing coastline is a complex problem with a variety of solutions. Coastal restoration actions researched in this activity include diversions, restoring natural water flow, vegetative plantings, barrier island and shoreline restoration and beneficial use of dredged material as in pipeline slurry. Stakeholder groups such as fisherman, oil and gas companies, and navigation and shipping industries all have a vested interest in these restoration techniques. Groups do not always agree on restoration actions. This activity is designed to allow students an opportunity to explore problems, state a position, and determine if the technique is acceptable.

BTNEP Connection

Habitat

Grade Level

7, 8, HS Env. Sci

Duration

3 days

Subject Area

science

Setting

classroom

Vocabulary

stakeholder

Original Source

"Issue Analysis/Decision Making" in BTNEP/LSU AgCenter: *Coastal Land Loss and Restoration*, Activity 6.



Advance Preparation

1. Make transparencies of the land loss maps (see maps, pages 6 & 7).

Procedure

1. Let's look at land loss on Louisiana's coastline. This USGS map, **100+ Years of Land Change for Coastal Louisiana Map (Blackline Master #3)** shows us what scientists at USGS predict the coastline will look like in by 2050 (within your lifetime). How will this change affect your lives and the lives of your children? How will life change as the marshes turn to open water?
2. Now look at the map that shows how the coast in the Barataria-Terrebonne National Estuary (**Southeast Louisiana Land Loss - Blackline Master #4**). You can see how the white areas are where the people live – along the ridges. There will be little solid land where the marshes are today. Only the ridges or higher elevation areas will remain. What will it mean to Louisiana citizens in the 2100's? How will their lives be different from ours because of this land loss?
3. These maps project what might happen if no action is taken to slow coastal erosion. Actually, scientists and engineers have developed methods that can effectively restore our coastal wetlands. [Distribute copies of CWPPRA's **A Commitment to Louisiana's Coastal Wetlands**]. This booklet explains the values of our coastal wetlands, the causes of coastal land loss, the future if we take no action, potential restoration plans and how they may affect the future. Find the heading "Future with Action." What are the four recommended restoration actions? (freshwater/sediment diversions, vegetative plantings, hydrologic restoration or natural water flow restoration, and barrier island/shoreline restoration). Each of these restoration actions is a big topic! We'll divide into four groups and each group will research one of the restoration actions and report back to the class what they have found out.
4. Have student groups prepare brief reports about each of the four restoration methods. Distribute **Restoration Action Options (Blackline Master #1)** to assist students in researching their option.
5. Some of the groups discovered that there is controversy associated with some of the restoration options. The most controversial option is freshwater and sediment diversion from the Mississippi River. We'll look at this option more closely and do an exercise in which you will study the issue and the conflicting opinions and come up with some solutions to the conflict. Then you will decide on a resolution to the conflict. For example, a conflict with freshwater diversion is that it will make the water in the lakes and marshes fresher and push fish and shrimp, which prefer salty water, farther out toward the Gulf of Mexico. Many fishermen say this will hurt their livelihood. There are also other conflicts. Your job is to find other conflicts and resolve the conflict in some way.
6. Finally, our class will create a mock CWPPRA meeting and role play the process of working through the conflict with different members of the community with different opinions. You will need to create the roles, such as a government official who is explaining the project and at least three people from the community (such as a shrimper, an oyster farmer, a wetlands expert, a business owner in town, an environmentally concerned citizen, a teacher, etc.). You can give each person in the role play a fun name, like "Iam Gump" for the shrimper. Pass out the **Restoration Actions Issue Analysis Worksheet (Blackline Master #2)** and go over it with the students. They can use this worksheet to work through the conflict resolution and then develop their role-playing skit of a CWPPRA meeting. Remember the important part of the role play is deciding how your character would feel about sediment and freshwater diversion and then figuring out what you'll say to support your position. The resolution at the meeting must reflect what your group came up with on your worksheet.

Blackline Masters

1. **Restoration Action Options**
2. **Restoration Action Issues Analysis Worksheet**
3. **Projected 50-year Land Loss Map**
4. **Projected 100-year Land Loss Map**

Assessment

- Prepare a rubric for (1) student participation in role play, (2) representation of assigned group's position, and (3) research into group's position.

Extensions

Language Arts:

Have students write a letter to the Governor, the State Legislature, Congress, or the President stating reasons for national support of wetland conservation issues. Include support of why some people consider Louisiana's wetland loss a national crisis.

Social Studies:

Use a GIS map comparison of wetland loss over the last 50 years and project loss over the next 50 years. Discuss how this loss will affect the culture and lifestyle of the people in those areas.

Resources

BTNEP Resources:

Portrait of an Estuary, publication by LSU AG and BTNEP

Websites:

United States Geological Survey National Wetlands Research Center - LA Coast website, **Louisiana Coastal Wetland Functions and Values**, accessed July 27, 2004, at <http://www.lacoast.gov/reports/rtc/1997/4.htm>

Bill Sipple, US Environmental Protection Agency, Office of Water - Watershed Academy Website, **Wetland Functions and Values**, accessed July 27, 2004, at <http://www.epa.gov/watertrain/wetlands/text.html>

Ramsar Convention on Wetlands, **Background Papers on Wetland Function and Values**. Accessed July 27, 2004, at http://www.ramsar.org/values_sediment_e.htm

Louisiana Department of Natural Resources, **Louisiana Coastal Facts**, accessed July 26, 2004, at <http://www.savelawetlands.org/site/webfactsheet.pdf>

CDs

Louisiana Wetland Functions and Values CD developed by LSU AgCenter's Extension Service in conjunction with the U.S. Geological Survey's National Wetlands Center and the Louisiana Department of Natural Resources (DNR). To receive a copy, contact DNR (800/ 267-4019) or order on the Internet at <http://www.lacoast.gov>.

References:

United States Geological Survey National Wetlands Research Center, **LA Coast website**, accessed July 27, 2004, at <http://www.lacoast.gov>

Kesselheim, A.S., Slattey, B. E., Higgins, S., Schilling, M. R. 1995. **Wow! The Wonders of Wetlands: An Educator's Guide**, Environmental Concern Publisher.

Student Name _____

Restoration Action Options

Restoration Action to be Researched

- freshwater/sediment diversions
- hydrologic or natural water flow restoration
- beneficial use of dredged material or pipeline slurry
- vegetative plantings
- barrier island/shoreline restoration

What coastal land loss problem does this action address?

Describe how this option works to achieve its goal.

Draw a diagram to help explain your description above.

Give an example of a CWPPRA project implementing this type of action. This information can be obtained from the CWPPRA home page, <http://www.lacoast.gov/cwppra/>.

Name of the CWPPRA project: _____

Location of the CWPPRA project: _____

Major land loss problem at this location: _____

How many acres of wetland will this project restore? _____

What is the cost of the project: _____

Is this project controversial in any way? Yes No If yes, what are the conflicts involved?

What actions can be taken to resolve the conflict (compensation, reduced water flow, etc.)?



Student Name _____



Freshwater diversion canal at Davis Pond.

Restoration Action Issues Analysis Worksheet

The plan for coastal restoration in Louisiana is complex and costly. People have different opinions about projects, depending on how they will be affected. Sediment diversion is a particularly controversial restoration action because of the diverse ways it affects groups living in south Louisiana.

1. Brainstorm the problems that may arise from a sediment/freshwater diversion project.
2. Decide on what group you will represent with regard to this problem. From the list in Question 1, choose the problems that will specifically affect your group.
3. Identify the position that your citizen group would take on sediment/freshwater diversion.
4. What are some acceptable ways of reducing the conflict?

Problems generated by a sediment/freshwater diversion project:	
Group you represent:	
Specific problems that sediment/freshwater diversion projects might cause your group:	
Position your group would take on sediment/freshwater diversion projects.	
Potentially acceptable ways of reducing the conflict for your group	

Print or project for students
the United States Geological Survey Map

"100 + Years of Land Change for Coastal Louisiana"

Prints to 11" X 17"

