

Shored Up Issue Analysis Lesson Plan

BRIEF SUMMARY OF THE LESSON

Students will view the video of *Shored Up* and then analyze the issues involved in the controversy. Positions and beliefs of each of the players will be identified and used as a basis for developing solutions.

GRADE LEVEL

Post-secondary (although may be easily adapted for any age group)

DURATION

Five 50 minute class periods (250 minutes including viewing of *Shored Up*). May be adapted for class periods of other durations.

GROUP SIZE

Typically a single class

SETTING

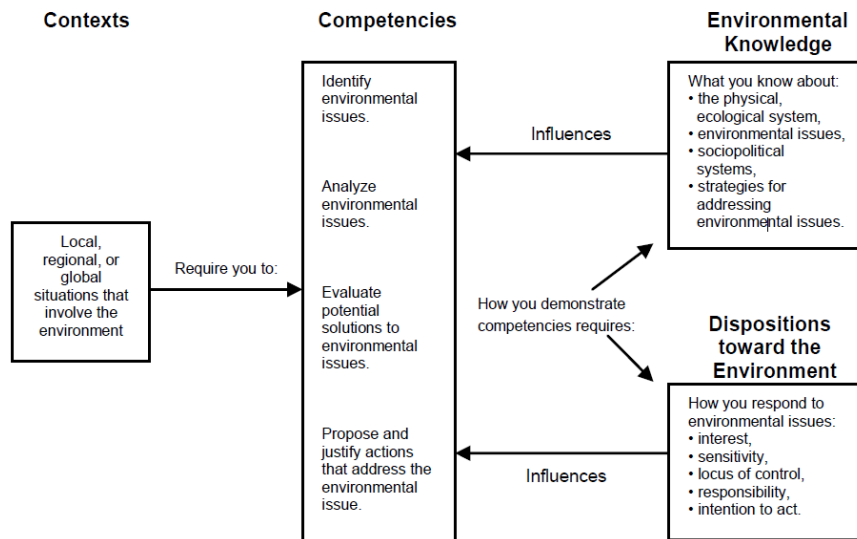
Open

CITATION FOR LESSON

Issue analysis process:

Hungerford, H. R., Litherland, R. A., Peyton, R. B., Ramsey, J. M., & Volk, T. L. (1992). *Investigating and evaluating environmental issues and actions: Skill development modules*. Champaign, IL: Stipes Publishing Co.

Conceptual model:



Hollweg., K. S., Taylor, J., Bybee, R. W., Marchinkowski, T. J., McBeth, W. C., & Zoido, P. (2011). *Developing a framework for assessing environmental literacy:*

Executive summary. Washington, DC: North American Association for Environmental Education.

DATE DEVELOPED OR REVISED

2014

INSTRUCTIONAL GOAL

Students will understand the various perspectives on coastal development issues and develop action strategies for creating solutions to these issues.

INSTRUCTIONAL OBJECTIVES

1. Students will understand fundamental coastal biophysical processes.
2. Students will identify and analyze the roles, values, and perspectives of individuals, organizations, and agencies involved in coastal issues.
3. Students will develop action strategies for identifying and resolving conflicts between individuals, organizations, and agencies involved in coastal issues.
4. Students will be able to apply conflict identification and resolution strategies in new situations.

LESSON CONTENT

- MATERIALS
 - Shored Up DVD
 - Television or video projector
 - Paper and pencil/pen
 - Chalkboard, whiteboard, or poster paper
- BACKGROUND INFORMATION
 - Ecological
 - Coastal biophysical processes and human responses
<http://www.learnnc.org/lp/people/1447>
In this series of lessons from LEARN NC, notably those referenced below, students are provided with an excellent introduction to, and overview of, biophysical changes to the coastal environment and the issues associated with coastal development.
 - Human responses to eroding shorelines.
<http://www.learnnc.org/lp/editions/coastal-processes/7446>
This lesson provides students with the opportunity to examine various methods used to prevent shoreline erosion, including hardened structures. The cause and effect relationship between shoreline stabilization and the effects upon coastal ecosystems is detailed.
 - Sea-level change and coastal dynamics
<http://www.learnnc.org/lp/editions/coastal-processes/7433>
In this lesson, changes to the sea level over geologic time are examined. Students utilize historic sea level data and to project sea level changes into the future, and predict how these changes will affect both coastal ecosystems and human populations.

- Storms and coastal erosion
<http://www.learnnc.org/lp/editions/coastal-processes/7435>
 Weather is a primary factor in the dynamic nature of coastal ecosystems, particularly storms. Through examination of the effects of storms on coastal ecosystems, this lesson helps students to understand the impact of weather on coastal ecosystems.
- Shoreline erosion
http://oceanservice.noaa.gov/education/classroom/lessons/09_coastmanag_erosion.pdf
 The Coastal Management Lesson Plan on shoreline erosion was originally developed by the National Oceanic and Atmospheric Administration for grades 9-12. Upon completing this lesson, students should understand the processes behind coastal erosion and how anthropogenic actions can exacerbate its risks. Students will learn to identify ways to reduce risks caused by coastal erosion, as well as advantages and disadvantages associated with these risks. A critical skills developed through this lesson is the ability for students to analyze and interpret beach elevation data and use these data to infer the potential vulnerability of beaches.
- Economic
 - The economic value of beaches
http://www.marloweco.com/images/Beaches_Produce_570_Billion_in_Federal_Tax_Revenues.pdf
 This document underscores the value that beaches have in the U.S. in generating tourism revenue. As approximately 85% of U.S. tourism-related revenue is generated by coastal states, the economic worth of beach renourishment is significant. This study can help students to realize the economic drivers behind beach renourishment projects.
- Political
 - Non-governmental organization responses: North Carolina Coastal Federation
<http://www.nccoast.org/m/article-list.aspx?t=b041c282-d3f7-43a0-b572-ae77fba9b5e5>
 The North Carolina Coastal Federation is a non-profit organization founded in 1982 and is the largest of its kind in North Carolina. The Coastal Federation focuses on habitat restoration and protection, environmental education, and the encouragement of sound environmental rules and regulations and their enforcement. Their mission is to provide people and groups with the assistance needed to take on an active role in the stewardship of North Carolina's coastal water quality and natural resources.
 - Local government case study on beach replenishment
<http://www.csc.noaa.gov/archived/beachnourishment/html/human/case.htm>
 An excellent case study from NOAA's website regarding a renourishment project by the U.S. Army Corps of Engineers on Long Island.

- Coastal erosion and the ban on hardened structures
<http://www.learnnc.org/lp/editions/nchist-recent/6374>
 This short, informative document provides definitions for different types of hardened structures, such as jetty, sea wall, and groin. It also discusses the controversy behind North Carolina's hard structures ban.
- Educational
 - Sea level rise viewer
<http://www.csc.noaa.gov/slr/viewer/>
 This site provides a method for visualizing sea level rise and coastal flooding. The data can be used at several scales to help users prioritize actions within different scenarios.
 - North Carolina coastal atlas
<http://www.nccoastalatlus.org/>
 The North Carolina Coastal Atlas permits access to coastal data in order to inform coastal managers, scientists, students and the interested public. Selected geospatial data, visualization tools, and thematic maps focused on coastal resources and hazards are given. The NC Coastal Atlas provides data on the entire coastal plain, including the 20 counties covered by the Coastal Area Management Act (CAMA), estuaries, rivers, and adjacent marine areas.
 - Living shoreline (VIMS)
http://ccrm.vims.edu/education/ls_design_class/index.html
 NOAA defines a living shoreline as a shoreline management practice that provides erosion control benefits. It protects, restores, or enhances natural shoreline habitat and maintains coastal processes through the strategic placement of plants, stone, sand fill, and other structural organic materials. These living shoreline learning modules are made to teach about them and their use in the Chesapeake Bay but can be applied to any shoreline. Three modules reflect the objectives; ecosystem services, site suitability, and design criteria.
 - Living shoreline (North Carolina Coastal Federation)
<http://www.nccoast.org/Content.aspx?key=76664726-1d0d-4f30-a6b0-c2702bf97ee3>
 The North Carolina Coastal Federation is a proponent of implementing living shorelines, as opposed to over traditional hardened structures. This site details why a living shoreline can be a beneficial alternative. Examples of federation-constructed living shorelines are provided.
- Stewardship
 - Coastal connections
<http://www.nccoast.org/uploads/documents/education/nccf-classroom-curriculum.pdf>
 This curriculum, developed through a partnership between the North Carolina Coastal Federation and the Chesapeake Bay Foundation, provides lessons on water quality, biodiversity and habitat, human/environment interactions, and coastal ecological issues. An extensive vocabulary list is provided, as are opportunities to engage in restoration or action projects.

- Teach ocean science
http://teachoceanscience.net/teaching_resources/education_modules/barrier_islands_and_sea_level_rise/get_started/

This site was developed as a central repository for ocean sciences educational resources. Scientists and educators have collaborated to create the rich set of learning tools contained within. This particular learning module focuses on barrier islands and sea level rise using the undeveloped Assateague Island as an example.

- INSTRUCTIONAL PROCEDURES

Note: Sessions below are based upon 50 minute class periods. The schedule can be adapted for different time frames.

CLASS SESSION	ACTIVITY	NOTES	TIME
1	Focusing Event	Show pictures or video clips of past hurricanes (e.g. Sandy or Katrina) Ask students to relate personal experiences with extreme weather events Discuss impacts that these events had on both people and the environment	15 min
	Background	Provide basic information on coastal processes	15 min
	Brainstorm	Discuss briefly how we, as a society, cope with changes in the coast (e.g. beach nourishment, hardened structures, retreat, rebuild, do nothing) Discuss briefly who might be invested, involved, or impacted by changes in the coast, and why	20 min
2	Film	Watch <i>Shored Up</i>	84 min
3	Film (conclusion)	Watch conclusion of <i>Shored Up</i>	
	Debrief/Reflection	Discuss what happened in the film, why it happened, and who was involved	15 min
4	Issue Analysis – Overview	Describe importance of issue analysis 1. A process used to understand values behind people’s perspective on issues 2. A tool we can use to develop solutions to problems and turn disagreements into agreements Define components of issue (in relation to film) 1. The interaction of humans and the environment 2. The different beliefs and values regarding the issue that lead to differing positions on the issue Define belief and value 3. Belief – an individual’s acceptance that something is true 4. Value – the importance, usefulness, or worth that an	25 min

		<p>individual places on something</p> <p>Describe key elements of issue analysis</p> <ol style="list-style-type: none"> 1. Issue (a matter on which people or groups disagree) 2. Players (people or groups involved in the issue)* 3. Players' positions (how each player believes the issue should be resolved) 4. Players' beliefs (the beliefs on which each player's position is based) 5. Players' values (the values underlying each player's beliefs) 	
	Example Issue Analysis	<p>Show one or more sample selections from <i>Shored Up</i> and discuss the underlying issues for each and who the players might be:</p> <ul style="list-style-type: none"> ◆ Social impact ◆ Economic effects ◆ Coastal science <p>Brainstorm a detailed example from <i>Shored Up</i> (e.g. economic effects)</p> <ol style="list-style-type: none"> 1. Issue – Rebuilding homes in areas impacted by hurricanes. 2. Player – real estate developer 3. Player's position – support rebuilding through federal/state insurance risk pools 4. Player's beliefs – development is important economic activity, private property ownership and control is the core of the American system, other activities with inherent risk (e.g. driving) are insured 5. Player's values – economic, political, fairness <p>Discuss other possible players on this issue (e.g. coastal tourists, homeowners, town planners, etc.)</p>	25 min
5	Group Issue Analysis	<p>Develop in-depth issue analysis</p> <ol style="list-style-type: none"> 1. Break class into small groups and brainstorm issues from the film 2. Select one issue for analysis as a class 3. Perform issue analysis within groups: Players; players' positions; players' beliefs; players' values 4. Have each group write their analysis on the board or poster paper for display 5. Compare and contrast results from each group 6. On the board, compile a comprehensive analysis using the results from all groups 7. Returning to small groups, have each group brainstorm one solution to the issue which would be most acceptable to all the players identified 8. Provide a solution at the individual level, community level, state level, and federal level 9. List these solutions on the board and discuss the 	30 min

		feasibility of each <ul style="list-style-type: none"> ◆ Would it solve the issue? ◆ What would it take to make this happen? ◆ Would there be other consequences of this solution? 	
	Closing	Debrief lesson <ol style="list-style-type: none"> 1. Discuss what happened throughout the issue analysis process <ul style="list-style-type: none"> ◆ How did their group find these solutions? ◆ What were the group dynamics? ◆ Did you learn anything about people who hold beliefs and values that are different from their own? ◆ Did you learn anything about yourself? 2. Brainstorm other topics that the issue analysis process could be used to find solutions for 	20 min
Total:			250 min

EXTENSIONS

- 1) Role playing of different individuals and groups identified in issue analysis
 - a. Students break into groups, with each group representing a different player from the film.
 - b. Students brainstorm justifications for their perspectives on the issue and debate with the other groups about how to solve the issue.
- 2) Students will develop models of cities that are resilient to climate change and sea level rise. Examples:
 - a. Large metropolitan area, e.g. New York
 - b. Small, rural coastal city, e.g. Cedarville, NJ
 - c. Their hometown, e.g. Wilmington
- 3) Write a letter to their elected official or editor
 - a. Compose a letter for the City Council/County Commissioners/State Legislators/Congressional Senators and/or Representatives
 - b. Submit a letter to the editor for the local newspaper
- 4) Survey perceptions of the campus community
 - a. Develop a questionnaire as a class, focusing on any or all of the issues identified during the group issue analysis.
 - b. Have students walk around campus in pairs, asking questions to passersby. Or have students set up a table in the student union, or post the survey online for the campus community to answer.
 - c. Students can use the data from the questionnaire to determine attitudes and perspectives of the campus community.
 - d. Students can develop/hypothesize solutions to the coastal issue(s) based on the data from the questionnaire.
- 5) Public service activity, such as coastal vegetation planting
 - a. Team up with a local organization/school/park to perform a service learning activity related to coastal issues.
- 6) Video conference

- a. Students in other coastal cities
- b. Elected officials or coastal experts
- 7) Identify other environmental issues within your community
 - a. Stormwater runoff
 - b. Solid waste reduction and recycling
 - c. Other extreme weather events or natural disasters such as tornados, earthquakes, landslides, floods
- 8) Attend town/city/county planning meeting as a class to discuss coastal issues
 - a. Look up the schedule for the meetings. Most local government websites will list the schedule for the entire year.
 - b. Find out how to get on the agenda for the meeting.
 - c. Create a proposal with the solutions developed from the issue analysis, and present it at the meeting.

EVALUATION

Students will be able to effectively utilize the issue analysis process to examine other controversial topics such as same-sex marriage, gun control, immigration control, health care reform, etc. Students will choose a topic of interest related to the course, and write a research paper that analyzes the various perspectives of the issue and proposes solutions to the problem.

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