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Town Meeting

Northwest Center for Sustainable Resources (NCSR)
Chemeketa Community College, Salem, Oregon
DUE #0435576

Funding provided by the National Science Foundation
opinions expressed are those of the authors and not
necessarily those of the foundation



Town Meeting: an Approach to Exploring Environmental Issues

NCSR curriculum modules are designed as comprehensive instructions for students and supporting materials for faculty. The student instructions are structured in a "generic format" designed to facilitate adaptation in a variety of settings. Where appropriate, the generic version is augmented by a specific instructional module taught in the Pacific Northwest. The purpose of these specific versions is to provide those who are adapting modules greater insight into how the materials are used in a teaching/learning environment. In addition to the instructional materials for students, the modules contain separate supporting information in the "Notes to Instructors" section. The modules may also contain other sections which contain additional supporting information.

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Acknowledgements:

We thank Tom Robertson of Portland Community College in Portland, Oregon for his thoughtful review. His comments and suggestions greatly improved the quality of this module.

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Town Meeting: an Approach to Exploring Environmental Issues - Module Description

This module introduces the “town meeting” format as a new teaching method for evaluation of a complex environmental issue. The case study that is used to illustrate the method is the Klamath Basin, Oregon situation where dwindling water supplies, drought, and endangered species management have resulted in impacts on the local agricultural community. Any local, regional or international issue could be examined in the same manner. Various stakeholders in the issue are identified and students are asked to research and represent the viewpoints of their chosen stakeholder at a “town meeting” that is moderated by the instructor.

Module Procedure

The following presents the approach to structuring and teaching this module.

Objectives

Upon successful completion of this module, students should be able to:

1. Access information on a complex environmental issue
2. Present the viewpoints of a stakeholder in a “town meeting” format
3. Propose and evaluate solutions to contentious environmental issues
4. Understand the importance of compromise to the resolution of contentious environmental issues.

Introduction

Students in natural resource and environmental science programs should learn to appreciate the complex nature of contentious environmental issues. For well-publicized issues such as the spotted owl controversy in the Pacific Northwest or water quality in Chesapeake Bay, students will likely be aware of some aspects of the issue, but will probably lack the comprehensive understanding that allows them to formulate opinions based on complete and unbiased information. This activity attempts to familiarize students with the ecological, economic and social aspects of a complex environmental issue by placing them in the controversy. In this role they have a particular stake in the issue with a vested interest in the outcome.

The town meeting format was selected for this activity because it represents a common mechanism for the airing of viewpoints on a controversial issue at the local community level. Town meetings are generally held at a public location and anyone with an interest in the issue at hand is invited to attend. Those who wish to do so are given the opportunity to express their viewpoint in an allocated time period. Open discussion is also a frequent component. The objective of the meeting is usually to gather information rather than to make a decision about

how to resolve the issue. Decision-making is often deferred to a group with official authority (e.g., planning board, city council) at a later date and with input from the town meeting.

Procedure

Some preparation on the part of the instructor and the students is required to maximize the benefit of the activity. The instructor will first need to select an issue that students will find interesting and hopefully one for which they have at least a superficial familiarity. Selection should center on “mature” environmental issues that have had the time to develop some history and reasonably well-defined “factions”. The following issues come to mind and instructors will certainly be able to identify others that are most appropriate for their area and their students.

1. Gray wolf introduction (western U.S.)
2. Everglades restoration (south Florida)
3. Atlantic groundfish management (New England and southeast Canada)
4. Chesapeake Bay water quality
5. Land use planning in California
6. Pacific salmon management (Pacific Northwest)
7. Wetland mitigation (U.S.)
8. Fuel economy standards on vehicles (U.S.)

Once a topic has been selected, the instructor should conduct some research to determine the stakeholders in the issue. Sources of information should be identified and students directed to them. Also, a handout should be prepared for students that provides an overview and some background on the issue. The instructor should also prepare a number of questions for each stakeholder group. The questions should be carefully crafted to bring out the most significant facts in the issue as well as the viewpoints of each of the stakeholder groups. This requires a significant effort but will be rewarded with a meeting that remains focused and accomplishes the task at hand.

Approximately one week prior to the "town meeting", students are asked to sign up for the viewpoint they wish to represent. A limited number of slots is made available for each stakeholder to avoid lopsided representation by any one group. Alternatively, students may be randomly assigned to stakeholder groups to encourage a greater depth of understanding of other opinions. Students then research their viewpoint using print and Internet sources and come prepared to express their views in the meeting. If desired, each group could create an "identifier" (poster, name-plate, costumes, etc.) for their group so that they can be easily identified at the town meeting. Alternatively, the instructor may provide an identifier for each group.

The town meeting is conducted in a manner similar to a real town meeting. The activity may take place in either lecture or laboratory and at least one hour should be allocated. The moderator poses questions to each of the stakeholder groups and “keeps the conversation going”. The moderator may also prepare visuals to present some information during the meeting. However, it is important that the meeting not turn into a presentation by the moderator and that the bulk of the meeting is comprised of responses from stakeholders. The moderator should be

well-versed in all aspects of the issue and be prepared to fill in voids or to correct misunderstandings as needed.

Assessment

Student evaluation is based upon their participation and how well they have researched the viewpoint of the stakeholder they have chosen. This evaluation may be conducted by the instructor or it may include input from students themselves. Assessment by students within stakeholder groups in particular, encourages participation by all members of the group.

Klamath Basin Irrigation: A Town Meeting - Module Description

The following pages provide a detailed description of the environmental issue town meeting activity using the Klamath Basin irrigation situation in southwest Oregon as a case study. I have chosen this topic for the following reasons:

- It illustrates the interconnected nature of several natural resources – water supply, endangered species, wildlife, agriculture, and commercial fishing
- It is a local natural resource issue that students may have experienced personally
- Native American interests play a prominent role in the controversy

Background

In the early 1900's the federal Bureau of Reclamation established the Klamath Reclamation Project in southern Oregon and northern California. The system of diversions, reservoirs and canals promised abundant water for farming and was used to lure homesteaders to the area. Under this project, water rights were issued to farmers; however, these water rights failed to acknowledge other previously existing treaties with Native American tribes. In the following years, thousands of acres of wetlands were drained and converted to irrigated agricultural land. Drought conditions in the Klamath Basin in winter and spring 2001 resulted in the shut off of nearly all irrigation water to 90% of farms in the area. Approximately 220,000 acres of farmland and two wildlife refuges within the Klamath Reclamation Project were affected. This action was taken to preserve the water supply for two species of endangered suckers that live in Upper Klamath Lake and endangered Coho salmon in the Klamath River. Irrigation head gates control the movement of water into 700 miles of irrigation ditches that provide water to grow potatoes, onions, alfalfa, oats, barley and other crops from high desert soils. National attention was drawn to the controversy during the summer of 2001 when protesters (farmers) forced opened irrigation gates three times. The gates were later closed by federal authorities and some protesters were arrested for trespassing.

In July 2001, U.S. Interior Secretary Gale Norton authorized the release of about 1/6 of the average water supply to farmers but this was generally considered to be "too little, too late" for most farmers.

A \$20 million aid package was approved by Congress in 2001. This provided \$90-110 per acre to 1100 farmers who did not get their usual water allotment that year. In addition, farmers were compensated for lost crops with returns from "crop insurance".

The 2002 Farm Bill was amended to address issues in the region. The bill guaranteed \$50 million to Klamath farmers and established a nine-agency task force that would develop a five-year plan for the Klamath Basin. All major stakeholders will be given an opportunity for input to the plan.

In March of 2002, the National Academy of Science released a study that found "no scientific justification" for the decision to withhold water from Klamath Basin irrigators in the summer of 2001. Despite warnings from biologists with the U.S. Fish and Wildlife Service, The National Marine Fisheries Service and the Yurok tribe that stream flows would be too low to protect salmon, the Bush administration decided to give farmers their full allotments of water in summer 2002.

In late September 2002, Coho and Chinook salmon began dying in the lower Klamath River as river flows declined and stream temperatures increased. Over several days more than 30,000 dead adult salmon were counted along the river banks.

After careful study, biologists with the California Department of Fish and Game concluded that the fish kill was caused by low river flows resulting in impeded fish passage up river. Overcrowded conditions resulted in disease outbreaks that killed 33,000 salmon and other fish. Farmers claimed that the biologists were jumping to conclusions while the Yurok Tribal Council declared a "state of emergency".

The U.S. Fish and Wildlife Service conducted an independent investigation into the cause of the fish kill. Their report, released in November 2003, concluded that low river flows in the Klamath River resulted in large numbers of fish crowding in pools where they succumbed to disease.

In August of 2003, a federal judge ordered the release of 33,000 acre-feet of water into the Klamath River to prevent further fish kills. No fish kills occurred in summer 2003.

In April of 2006, the Pacific Fisheries Management Council implemented severe restrictions on the commercial harvest of Chinook salmon off the coast of California and Oregon. Over 700 miles of coastline were closed to protect Klamath River Chinook salmon whose populations are at an all-time low. Although many other populations of Chinook salmon are not in decline, populations intermingle in the ocean and it is impossible to catch individuals from one population without harming another. Chinook salmon generally return to spawn in their fourth year after hatching; therefore, the suspected reason for the low return this year is the fish kill that occurred in 2002. Dead salmon don't spawn.

Viewpoints of Interested Parties

Farmers want a stable supply of irrigation water to grow crops. Lack of water in 2001 resulted in an economic loss estimated at \$200 million. Farmers would like to see amendments to the Endangered Species Act which they say "put fish and wildlife ahead of people". Approximately 140 farmers (10% of farmers in the project area) are on the "brink of foreclosure".

Klamath Tribes want enough water in the system to support suckers. Adequate water is guaranteed to tribes by an 1864 treaty with the U.S. government. Klamath tribes depended on spring runs of suckers for sustenance for thousands of years before the government built the project. They are now limited to one catch per year for ceremonial purposes. Dams on the

Klamath River cut off spawning beds and algal blooms caused by agricultural runoff kill many others.

Coastal fishermen and other tribes (Yurok) want an abundant supply of clean water in the Klamath River to help restore dwindling Coho salmon runs which have been listed under the Endangered Species Act. Salmon runs are less than 1% of historic levels. Chum and pink salmon in the system have long since become extinct.

Environmentalists want to see an overtaxed ecosystem restored by reclaiming wetlands that were drained by early farmers in the region. They want to see farmland on National Wildlife Refuges converted back to natural wetlands. These wetlands have been leased to agriculture since the 1950's. Environmentalists claim that the system is compromised by erosion, shrinking wetlands, agricultural runoff, loss of streamside vegetation and declining species. Above all, they contend that there is not enough water in the system to meet all needs. Historically, demand has exceeded supply in 7 out of 10 years.

Wildlife Refuge Managers are responsible for the management of two national wildlife refuges in the area. These refuges receive much of their water from farm runoff and, therefore, were also affected by the dry conditions and water shut-off. The refuges are a vital stop over for waterfowl in the Pacific flyway, a major migratory route for birds on the West Coast. Approximately 1.6 million geese, ducks and other birds migrate through the refuge in October and November each year.

Potential Solutions

A number of solutions have been proposed by various stakeholders in the Klamath Basin situation. Several of these are listed below.

1. A federal buyout of land farmers who are willing to sell (but some farmers fear government intervention)
2. Create or expand reservoirs and tap more ground water to increase water storage and supply
3. Convert part of the Winema National Forest to reservation land for Klamath Tribes in return for giving up claims on Klamath water
4. Switch to more efficient irrigation systems and less water-intensive crops
5. Broad scale ecosystem restoration of the area
6. Clarify water rights in the area
7. Diversify the economy with government help for those who wish to transition into other industries
8. Reform the Endangered Species Act to better meet human needs
9. Establish a "water bank" for the buying and selling of water by irrigators

Student Instructions

A "town meeting" on the Klamath Basin irrigation issue will be held in class. This meeting will serve to air all viewpoints and discuss potential solutions.

To prepare for this meeting:

1. Select a stakeholder that you would like to represent at this meeting
2. Prior to the meeting, research the viewpoints of the stakeholder you have chosen
3. Be able to answer the following questions for your stakeholders:
 - *What is your position in this controversy?*
 - *What do you consider to be the best solution to the controversy?*
 - *What evidence supports your position?*

Questions from Moderator

Coastal Fishermen/Yurok Tribe

1. Your livelihood depends on catching what species of fish?
The Coho salmon fishery was once the 3rd most productive salmon fishery in the West. Chinook salmon are also harvested.
2. Where do you fish?
Klamath River and coastal areas
3. What is your connection to the Klamath Basin?
Klamath River levels and water quality (nitrate-laden runoff from agricultural lands contributing to poor water quality), spawning habitat in Klamath River
4. What impact did the water shutoff by the Bureau of Reclamation (BUREC) in 2001 have on you?
5. What was impact of fish kill of 2002?
Yurok tribe declared a "state of emergency"

Farmers

1. I assume you grow crops within Klamath Project Area. What crops?
Potatoes, onions, alfalfa, oats, barley, hay and cattle grazing
2. What impact did water shutoff by BUREC in 2001 have on your livelihood?
3. Were you compensated by government for your losses?
4. What is your understanding of WHY water was shut off in 2001? Do you feel that you are a victim of the Endangered Species Act?
5. What portion of your water allotment did you get in 2002?
6. I was surprised to see that farming and agricultural services contribute only 1% to the Klamath Co. economy. Should we farm a desert?
7. What responsibility do you assume for the summer 2002 fish kill in the Klamath River?
8. How are we able to farm this desert in the first place?

Environmentalists

1. Do you want to see the end of farming in the Klamath Basin? Why?

2. What in your view is the cause of the conflict here?
Over-allocation of water, resulting in an over-taxed, degraded ecosystems
3. Are Klamath Basin ecosystems degraded? How do we know?
Over 80% of the original wetlands have been drained, water quality compromised, declines in wildlife numbers and diversity
4. What caused the fish kill in summer 2002?
5. The National Academy of Science published a report in 2002 that found a lack of scientific evidence in the decision by BUREC to shut off water to farmers in 2001. What is your understanding of the impact of that report? How should we deal with scientific uncertainty? What is the “precautionary principle”?

Klamath Tribes

1. What is your interest in this conflict?
Suckers are found in Klamath Lake. Traditional use of suckers is limited by declining populations and, now, Endangered Species Act listing
2. Why are suckers important to the tribe?
Traditionally harvested in late winter to stave off starvation before other foods became available in spring
3. What are your treaty rights and are they being upheld?
No, despite the fact that a federal judge determined in March of 2002 that Klamath Tribes have senior water rights under Treaty of 1864 that supersede the rights of irrigators

Refuge Managers

1. Tell us about the refuges that you manage. What species occur there? What is the importance of these refuges in the Pacific Flyway? Is farming allowed on your refuge?
A 1964 act of Congress allows 25% of refuge land to be used for row crops and 75% for cereal grains and hay. Approximately 10% of the Klamath Reclamation Project is currently being farmed.
2. What is the source of water that feeds refuges?
Agricultural runoff from irrigated fields
3. What is the quality of water?
Like most agricultural runoff, runoff contains nitrates, pesticides, and a high sediment load
4. How did the closing of the irrigation gates in 2001 impact your refuge?
Reduced amount of water available to refuge and waterfowl habitat

5. Coho salmon and suckers have become endangered species and the migrating bird population has declined from 6 million in 1950 to only 1 million in 2001. What kind of a refuge are you running anyway?

Concerned Citizens

1. Did you follow the events of 2001 and 2002?
2. Who is to blame?
3. In recent years the Klamath Basin has experienced water shortages, drought, declining fish populations, crop failure, declining populations of migratory birds, and loss of water quality. What do these events suggest to you about the overall health of Klamath Basin ecosystems?

Follow-Up Questions

1. Revisit each group and ask which of the proposed solutions they would support and why.
2. All stakeholders appear to represent resources that are in short supply (water, wildlife, land, etc.). What does this suggest to you? In over-taxed ecosystems, when conditions are "less than ideal" (several drought years in this case), the ecosystems' function and services break down.
3. Can ecosystem management be implemented in this region? If so, what would it look like?
4. Which arguments did you find to be the most convincing?

Assessment

Students are evaluated at the meeting based upon their participation and how well they have researched the viewpoint of the stakeholder they have chosen. This evaluation may include input from the students themselves. I have found this activity to rate high on both the "student learning" and "student enjoyment" scales. Students are actively involved during the meeting and leave with a good understanding of a complex issue. After participating in the activity, students may be inspired to participate in an actual town meeting on a topic of their choosing.

Participants Sign-in Sheet

PLEASE SIGN YOUR NAME BELOW THE VIEWPOINT YOU WISH TO REPRESENT AT THE KLAMATH BASIN IRRIGATION TOWN MEETING. IF ALL SLOTS ARE TAKEN, PLEASE CHOOSE ANOTHER.

Farmers

- 1.
- 2.
- 3.
- 4.
- 5.

Environmentalists

- 1.
- 2.
- 3.
- 4.
- 5.

Coastal fishermen

- 1.
- 2.
- 3.
- 4.

Wildlife Refuge Managers

- 1.
- 2.
- 3.
- 4.

Concerned Citizen

- 1.
- 2.
- 3.
- 4.

Klamath Tribes

- 1.
- 2.
- 3.
- 4.

Notes to Instructors

The Klamath Basin irrigation scenario described in this exercise is an example of a complex environmental controversy over natural resource management that has been well publicized. It involves questions related to water supply, agricultural production, commercial and recreational fishing, Native American treaty rights and endangered species. Students select one of several viewpoints to represent at a "town meeting" that is moderated by the instructor. The purpose of this meeting is to air the different viewpoints represented in the controversy, to discuss potential solutions and to understand the importance of compromise.

Approximately one week prior to the "town meeting", students are introduced to the issue with a 30-minute video produced by the University of California Extension Service and some brief discussion. They are also asked to sign up for the viewpoint they wish to represent. A limited number of slots is available for each stakeholder to avoid lopsided representation by any one group. Students then research their viewpoint using print and Internet sources and come prepared to express their views in the meeting. Some instructors may wish to structure the meeting by requiring that each stakeholder group prepare and present a 5 minute summary (strictly timed) to summarize the position of that group. If desired, each group could create an "identifier" (poster, name-plate, costumes, etc.) for their group so that they can be easily identified at the town meeting. Alternatively, the instructor may provide an identifier for each group.

Resources

The following resources are made available to students to assist them in preparation for the town meeting:

www.klamathbasincrisis.org

This web site emphasizes the agricultural perspective with a collection of articles and links to other sites.

www.onrc.org/programs/klamath.html

The Oregon Natural Resources Council has an active involvement with the Klamath Basin situation. The environmental viewpoint is clearly described on this site and links to other perspectives are also provided.

www.klamathnwr.org

This site provides information on the management and species present on the Klamath National Wildlife Refuge.

Videotape: "Restoring a Treasure: The Klamath Basin"
University of California Extension
Center for Media and Independent Learning
Berkeley, CA 94720
510-642-0460

This 30-minute videotape produced by the University of California Extension Service is used to introduce the issue to students. It describes the history of the region, some basic ecology and the viewpoints of several stakeholders in the region.

The following document provides a comprehensive assessment of all aspects of the Klamath Basin controversy as of 2002. Periodic updates in the form of "briefs" can also be accessed from the web site. Instructors will find it to be a valuable resource.

Braunworth, Jr., W.S., T.Welch, and R. Hathaway (eds.). 2002. Water allocation in the Klamath Reclamation Project, 2001: an assessment of the natural resource, economic, social and institutional issues with a focus on the Upper Klamath Basin, SR 1037. Oregon State University and University of California Extension Service. 421 pp.

<http://extension.oregonstate.edu/catalog/html/sr/sr1037/>