

The Great Round-table Debate

Objectives

Students will be able to:

1. Give examples of how to protect watersheds for the benefit of humans, wildlife, and oceans; and
2. Evaluate lifestyle changes to minimize damaging effects of human activities on ocean health.

Method

Students role-play a round-table discussion about human use of a local watershed.

Background

A watershed is any area of land that drains into a particular body of water. It guides all rain, melted ice and snow, and run-off (from streams, ponds, wetlands, and lakes) into a specific river system. All watersheds run into drainage basins, which, in turn, flow into the ocean. All the world's inhabitants live in watersheds.

Left alone, watersheds exist in natural balance with their environment. Rivers erode the highlands around them in a gradual process that helps maintain a natural dynamic balance. Human settlements, on the other hand, tend to accelerate erosion while further impacting on watersheds through land clearing, dam building, farming, and industry. For a more detailed discussion of these and other problems pertinent to this role-play, see the resource sheet entitled [Why Should You Make Waves for Oceans?](#)

An important thing to remember about watersheds is that they're single units, which are connected to other watersheds as they flow downstream. Anything that affects an upstream watershed eventually affects other sites downstream. A town that gets its drinking water directly from a river, for example, is acutely aware of upstream activities affecting its water quality, such as another town that's discharging effluents.

Watershed contamination is a serious problem for humans and wildlife. Aquatic species are often the first to suffer from contaminated water. Slight increases in acidity can destroy the natural balance of water. A single instance of contamination, such as the spillage of industrial waste, can damage an aquatic food web for decades.

In this simulation, students view an imperiled watershed and coastal area as a microcosm for environmental concerns involved in management decisions. They struggle with overlapping and conflicting uses of land and water. This predicament encourages them to pursue ways in which their responsible actions can protect and restore the environmental integrity of watersheds and coasts for the good of people, wildlife, and oceans. When students reach a consensus about local issues, the activity shifts to the impacts of their decisions on the ocean as a whole. The activity ends in contemplation of the idea that the Earth is one vast watershed whose waterways drain into the ocean.

Scenario for Students

The Blue River watershed begins in an agricultural heartland. It flows through a forested area affected by the pulp and paper industry, mining, and hydroelectric development. It is also the ancestral land of the Blue River First Nation.

As it nears the coast, the Blue River becomes an estuary. Several logging companies have timber rights to forested ridges alongside tributaries to the Blue River estuary. A large port city is located by the inland reaches of the estuary. It is the hub of shipping for this part of the country. Nearer to the coast, the shoreline is dotted with fishing villages and fish-processing plants.

Coastal industries include a lucrative mussel fishery as well as a commercial fishery that's fallen on hard times in recent years. This decline affects both local fishers and those of a neighbouring country sharing in continental shelf fish stocks. A potential offshore oil development is also planned.

The Blue River Watershed Task Force has invited local residents to present their views and priorities on how the watershed and surrounding coastal areas should be managed to improve ocean quality. The task force intends to launch an action plan to clean up the watershed and coastal areas. But different stakeholders have opposing views on the best use of these areas.

The task force decides to use a round-table discussion to resolve conflicting interests. This strategy involves bringing stakeholders together and allowing each an equal opportunity to express her or his own priorities. The main idea is to develop a plan supported by all stakeholders present. They should arrive at a consensus on how the watershed and coastal areas can be managed to protect ocean health. They should also help prepare a management strategy addressing all their concerns.

Watershed Map

Procedure

1. Explain the activity and the round-table concept. Tell students they'll be responsible for managing land and water use around the Blue River watershed and surrounding coastal areas in a way that protects ocean health as much as possible.
2. Divide the class into groups of two or three, with each group representing a stakeholder. Each group develops a case for its particular interest, which it will later present during the round-table discussion. Provide the role cards to get students started. If further roles seem appropriate, supply additional cards.
3. Photocopy and distribute any pages from this activity as background material for students. Allow time for groups to research and develop their cases.
4. Invite an individual from each group to sit in a round-table discussion and represent his or her group's point of view. Once all their cases have been put forward, guide the discussion so the round table can consider the pros and cons of each side. Here's an example of the form this discussion could take:

	Pros	Cons
Farms	<ul style="list-style-type: none">• produce food• have economic value• provide jobs	<ul style="list-style-type: none">• use herbicides and insecticides, which may damage the environment• sometimes drain wetlands to create more farm land• use chemical fertilizers that can damage

		aquatic ecosystems
Industries	<ul style="list-style-type: none"> • promote economic growth • create jobs 	<ul style="list-style-type: none"> • produce hazardous waste and sewage • may contaminate water

5. Point out that shutting down plants and businesses will likely harm local economies. Abandoning farms will diminish food supplies and employment. Draining wetlands will ruin wildlife habitat. Contaminants will reduce the productivity of salt marshes and local fisheries. Pollution will likely have a negative impact on biodiversity.

6. Ask students to re-examine their cases in light of the pros and cons of the numerous land and water uses. Allow them to regroup, brainstorming for what they believe will be the best possible land and water use plan under the circumstances. If they regard any of the other uses as inherently bad, have them consider how responsible individuals might — however imperfectly — minimize damage to the watershed and coastal area.

7. Reconvene the round-table discussion and ask students to present their revised land and water use plans.

8. Ask all students to list things they personally could do to reduce the potentially damaging effects of their lifestyles on "downstream" habitats. Use the ocean projects in this electronic unit to assist students in brainstorming for positive local actions they could take to improve ocean health.

Extensions

1. Infuse concerns about overfishing into the role-play by incorporating offshore activities.
2. Trace any stream or river system that passes through your community from its source to its point of entry into the ocean. List all the sites you can where water quality may suffer and suggest how to reverse the process.
3. Find out about zoning laws and land- and water-use regulations in your area.
4. As a follow-up to the role-play, have students write up a Blueprint for Ocean Action.

Role Cards

Farmer

You live in a dry area and rely on water diverted from the Blue River to irrigate your crops. You not only use fertilizer, you also dust crops with pesticides to combat grasshoppers.

Cattle rancher

Muddy Creek flows through your pastures on its way to the Blue River. Your cattle have free access to the creek for drinking water.

Owner of Inland Construction

You plan to drain Blue River Marsh to build a subdivision in Inland Suburb. The land could be re-zoned for urban use.

Conservationist

You worry that draining Blue River Marsh will destroy habitat for breeding waterfowl. You're also concerned about recent declines in the number of frogs living in the marsh.

Industrialist

You rely on cheap power for your plant and use water from the Blue River as a coolant in manufacturing. The water is about five degrees warmer when it returns to the river.

Head of Blue Lake Cottage Owners Association

Your association complains about weedy shorelines that clog boat propellers as well as the build-up of unsightly, smelly algae in Blue Lake.

Manager of Blue Falls Pulp and Paper Mill

Environmental enforcement officers inform you that dioxins discharged from your mill into the Blue River exceed legal limits. The cost of upgrading facilities to reduce emissions will likely mean cutting jobs at the mill, which is the only industry in this town of 3,000.

President of BlueNorth Metals

BlueNorth's mine has installed safeguards against air pollution but still discharges tailings (acid-producing wastes that remain after minerals are extracted from ores) into Deer Creek, a tributary of the Blue River.

President of hydro company

You want to build a hydroelectric dam along the Blue River. The dam will flood 4,000 square kilometres of land. You believe hydroelectricity is cheaper, cleaner, and safer than electricity generated from coal or nuclear power. The project will provide hundreds of new jobs and lower electricity costs.

Chief of the Blue River First Nation

Your band members make a living by trapping and guiding anglers on Silver Lake. They also rely on local fish for food. The new dam will flood trap lines and fishing areas near your village.

Chairperson of Pine Ridge Forestry Association

You represent logging companies that have cutting rights to timber in the Pine Ridge area, north of the mouth of the Blue River. Most companies practise clear-cutting, which they believe is a cost-effective way to harvest trees.

Fisheries biologist

You're worried that clear-cutting operations north of the Blue River are increasing soil erosion. Silt is damaging spawning grounds in several streams flowing into the river.

Port City Harbour Authority

You're concerned about costs to dredge Port City Harbour to make shipping safe from increasing siltation. You wonder if the Blue River is silting up more than usual.

Mayor of major coastal city

Department of Fisheries and Oceans officers have warned you that bacterial counts from sewage discharged from your city into the ocean exceed legal limits. You believe local residents will oppose a tax hike to upgrade treatment facilities.

Manager of Harbourview Hotels

You plan to build a new hotel to increase tourism along a quiet stretch of beach just outside Port City.

Member of Friends of Endangered Wildlife

You oppose the hotel development because it will be built on the nesting grounds of the endangered piping plover.

Member of Port City Chamber of Commerce

You manage Occanview Park, a harbour-front recreational site in Port City. Each year, you organize special exhibitions that draw about 50,000 tourists.

Coordinator of Clean Our Shores

You organize shoreline cleanups. You notice debris from ships along the shore despite trash retrieval campaigns directed at shipowners.

Mussel fisher

You're disturbed by periodic closures of the mussel fishery because of bacterial contamination from sewage. You're also worried about excessive siltation, which covers shellfish beds in Grassy Salt-marsh.

Estuarine biologist

You're concerned about the impact a large hydroelectric project upstream from the Blue River estuary could have on the biodiversity and ecological balance of Grassy Salt-marsh, which is located at the head of the estuary. This salt-marsh is a significant staging area for migrating shorebirds, which favour a particular species of crustacean found at this location.

Small-scale commercial fisher

Your family has fished in this area for generations. Fishing is part of the local culture. You're worried about declines in fish stocks. You think overfishing may be a problem, since you share the same stocks with fishers from a neighbouring country. Pollution might also be a factor.

Laid-off cannery worker

You used to process fish at Harbour Canneries, but lost your job because of declining fish stocks. You have a family and can't afford to move.

Offshore oil developer

You believe an area north of the Blue River estuary is an ideal site for an offshore oil rig development. It will boost local employment and attract business to the region. You admit that oil spills could result from blow-outs while drilling.

Fisheries manager

You've determined that fish stocks are very low. You believe a two-year moratorium will help the fishery by enhancing fish stocks and maintaining their genetic diversity. An environmental accident, however, could harm this year's hatch and have serious consequences on the fishery.

Fish management representative of a neighbouring country

You're concerned about declining fish stocks, which are shared between your country and its neighbour. You believe the sources of the problem are pollution and habitat degradation in the fish-spawning grounds of the Blue River estuary. But, the estuary lies within the jurisdiction of the other country.