CONGRESS AUTHORIZES THE BUILDING OF THE DAM WITH THE 1950 RIVERS AND HARBORS ACT

Overview
In Episode 4, students will respond to the impending construction of The Dalles Dam after passage of the Rivers and Harbors Act in 1950. Taking the roles of various stakeholders, students will debate the impact of the dam.

• Students will explain the River and Harbors Act of 1950 and its effect on Celilo.
• Students will identify the industries of the Columbia River.
• Students will evaluate the pros and cons of constructing The Dalles Dam and evaluate the different points of view about its construction.
• Students will defend a position on the construction of The Dalles Dam.

Materials
Texts:
• Excerpt from: “Celilo Falls” (from the Northwest Power and Conservation Council website at http://www.nwcouncil.org)
• Summary of the memo from William Brophy, Bureau of Indian Affairs Commissioner, regarding the building of the dam

Fact Sheets:
• Rivers and Harbors Act/The Dalles Dam
• Bonneville Power Administration
• Fish Ladders

Video:
• “The Mighty Columbia”

Reproducibles:
• Student Listening Worksheet (1 per student)
• Student Viewing Worksheet (1 per student)
• Answers for Listening Worksheet (for teacher)
• Answers for Viewing Worksheet (for teacher)
• Summary of the Pros and Cons About Dams Worksheet (1 per group)
• Discussion Stems Worksheet (1 per student)
• Glossary (1 per student)

Episode 4 Lesson Plan
Provide Background: Day 1
1. Use the Rivers and Harbors Act Fact Sheet as background reference information.

Students Research the Issue of The Dalles Dam: Days 1–2
2. To introduce some of the different points of view about the dam, read aloud the summary of William Brophy’s memo, which puts forth one view on why the dam should not be built. Also read aloud the extract from “Celilo Falls.”

You may want to give students the Listening Worksheet to record important points they want to remember as they listen to your reading. After reading, ask volunteers to share the main points they recorded.

3. Go to the OSPI website at http://www.delicious.com/ospi_indian_ed/celilo and click on “Internet Archive: Details: Mighty Columbia River, The” (a “Search” can help you find it quickly) to view a movie made in 1947 that provides the point of view of those in favor of dams along the Columbia River. Give students the Viewing Worksheet to record notes as they view the movie. You may wish to play it several times. After viewing, discuss the main ideas in the movie with students.

4. Also on the OSPI website is the text “Dams Harm to Rivers,” which presents the point of view of the Indians about the dams. You can project this for students to read and discuss. (Note: It is suggested that you control the viewing of the movie and the text. The OSPI website has many resources about the Columbia River and Celilo, which you and your students will find useful. However, you may want to filter the materials your students use if you want to prolong the discovery of what happened to Celilo.)

5. Give students the Fish Ladders Fact Sheet and have them discuss the problems and benefits of providing fish ladders.

6. Discuss with students what they have found out about why the government wanted to build the dam and the reasons people had for not wanting the dam built. Give students the Summary of the Pros and Cons About Dams Worksheet and ask partners or small groups to jot down their thoughts on the issue based on the reading and viewing they have been doing. Ask each of the Celilo groups—Business, Geography, Residential, Agricultural—to consider how the dam would affect them. Have them share their thoughts with the whole class.
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7. Ask students to work with a partner to write a summary of the information they have found on the pros and cons of building The Dalles Dam. Ask partners to share their summary with the whole class. Involve students in a discussion about the various issues concerning the dam. Post the summaries of their research around the frieze.

8. Students could use what they learned to make placards that Celilo residents might have used to protest the building of the dam. You may wish to show students pictures of placards at protests or political rallies and discuss their purpose before students make their own. Add students’ placards to the frieze.

Debate the Issue: Days 3–4

9. To help students think critically about the building of the dam, have them argue both sides of the issue. Set up an informal town hall meeting. Students will take the part of the audience and of speakers who have different interests in the dam. Students can represent:
   - the people of Celilo
   - a non-Tribal person whose family commercially fishes at Celilo
   - a farmer whose crops depend on water from the Columbia River
   - citizens of Washington and Oregon who will have low-cost electricity because of the hydropower the dam will provide
   - a representative from the BPA

Have the different representatives present their point of view to the audience. Encourage students, playing the parts of the speakers and the audience, to challenge and question each other. If time permits, have students change roles and repeat the town hall meeting, in order to experience the issue from other points of view. Provide students with the Discussion Stems Worksheet to help them respond to the issues.

Vocabulary: Day 4

10. Provide students with a copy of the Glossary for Episode 4. Students can add important words they want to remember to their Word Banks.

Fact Sheet: Rivers and Harbors Act/The Dalles Dam

- The Act was first passed in 1824 and concerned the Ohio and Mississippi Rivers.
- Act revisions between 1869 and 1930 allowed hundreds of projects along rivers in the United States.
- The 1950 Act allowed the construction of The Dalles Dam on the Columbia River. The Act states that “local cooperation specified in the Flood Control Act approved June 22, 1936, as amended shall be required.” (Section B (3) of the Columbia River Basin portion of the Act, p. 19) This means those affected by the flooding of the area must cooperate with the plans of the Army Corps of Engineers.
- People felt the dam was needed for many reasons:
  - to provide a source of low-cost power for people and industry along the Columbia River
  - to provide irrigation
  - to provide flood control
  - to provide transportation along the river
  - to provide recreation
- The volume of water at Celilo Falls made it an attractive site for a dam.
- An 1855 treaty between the Indians and the government guaranteed tribes the right of taking fish at all usual and accustomed places.
- The 1947 government hearings concluded that The Dalles Dam would not violate tribal fishing rights.
- Work began on The Dalles Dam in 1952 and was completed in 1957.
- The dam is administered by the Army Corps of Engineers and the power is marketed by the Bonneville Power Administration (BPA).
- The dam is 260 feet high and 8,875 feet long.
7. Ask students to work with a partner to write a summary of the information they have found on the pros and cons of building The Dalles Dam. Ask partners to share their summary with the whole class. Involve students in a discussion about the various issues concerning the dam. Post the summaries of their research around the frieze.

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Fact Sheet: Bonneville Power Administration (BPA)

• In a speech in Portland in 1932, Franklin Roosevelt promised that the next federal hydroelectric project would be built on the Columbia River.

• Construction on the Bonneville Dam began in 1934, and the dam opened in 1937. Construction of the Grand Coulee Dam began in 1933, and it opened in 1942. Power from these dams strengthened the Northwestern economy and brought electricity to rural areas that were not served by existing utilities.

• Congress created BPA in 1937 to deliver and sell the power produced from the Bonneville Dam.

• Today BPA markets power from thirty-one federal dams in the Northwest. About one-third of the power consumed in the Pacific Northwest comes from BPA. Northwestern utilities and a few large industries buy BPA power; utilities resell it to homes, businesses, and other consumers. BPA is required by law to give preference to Northwestern utilities. Surplus power is sold to utilities outside the region.

• BPA operates and owns one of the nation’s largest high-voltage transmission systems. The system includes more than 15,000 miles of lines that connect to Canada, eastern Montana, and California.

• BPA also coordinates operations on the Columbia River, such as transport, irrigation, and recreation.

• BPA does not receive money from Congress and recovers its costs from the sale of electricity.

• BPA provides funding for fish and wildlife projects such as reparation of spawning habitat, fish hatchery improvements, and habitat protection for wildlife. Over the last fifteen years, structural changes and other improvements have been made to dams to make the passage of salmon through the dams safer.

For more information about the BPA, see “The Columbia River System Inside Story” at http://www.bpa.gov/power/pg/columbia_river_inside_story.pdf.

Fact Sheet: Fish Ladders

What Is a Fish Ladder?
A fish ladder (or fish way) is a series of ascending pools of water, like a series of steps, that allows salmon to swim over or around a dam.

Why Are Fish Ladders Necessary?
Adult Pacific salmon mature in the ocean for several years before migrating inland along rivers to the place where they were hatched (spawning grounds). Once there, they lay their eggs (or spawn) and then die within a few days. The eggs hatch and the young salmon eventually make their way back along the same river to the ocean, where they mature. These adult salmon will one day make their way back to their spawning grounds and the life cycle continues.

Dams on the rivers prevent returning salmon from reaching their spawning grounds. If the salmon don’t make it back, there will be no new salmon returning to the ocean and the salmon will die out. Fish ladders are built to help salmon make it through the dams to their spawning grounds.

What Are Some Problems with Fish Ladders?
A fish ladder must allow for the passage of the adult salmon upstream to the spawning grounds as well as passage for the young salmon downstream to the ocean. For a long time, people believed that dams were not dangerous to young salmon. Eventually research proved that many young salmon were being injured or killed as they swam through a dam’s turbines. Newer fish way systems at dams now provide for both mature and young salmon.

Fish ladders often cause the salmon to concentrate together, which makes them easy prey for predators, such as seals, birds, and other fish.

It is sometimes difficult for salmon to find the entrance to the fish ladder. The fish ladder must contain enough water to attract the fish but not so much water that it deters the fish from using it.

The quality of the water at the backside of a dam may be affected. It might have high nitrogen levels which can kill the fish, or it might be too warm for young salmon, which can only survive in cool water.
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Are Fish Ladders Effective?

There is some disagreement on the effectiveness of fish ladders, and some people believe the cost of the construction is not worth it.

Research by the National Oceanic and Atmospheric Administration (NOAA) shows that survival of young fish through the eight dams of the lower Snake and Columbia Rivers is as good or better than it was before the Snake River dams were built.

Average Survival Probability Estimates for Chinook Salmon and Steelhead Between 2009 and 2011

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<thead>
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<td>Chinook salmon</td>
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Data is from NOAA: http://www.nwrc.noaa.gov

For more information about the survival of salmon and steelhead through the Federal Columbia River Power System, see http://www.nwrc.noaa.gov/Salmon-Hydropower/Columbia-Snake-Basin/FCRPS-fish-psg.cfm.

Excerpt from “Celilo Falls”

For Celilo Falls, the beginning of the end came with Congressional authorization of The Dalles Dam in 1950. The potential impact of the dam on Indian fishing and salmon raised some concern among the public. In January 1951, Herb Lundy, an editorial writer at The Oregonian newspaper in Portland, asked Samuel J. Hutchinson, acting regional director of the U.S. Fish and Wildlife Service, about the impact The Dalles Dam would have on salmon.

In a memo to his files, Hutchinson later wrote, “I stated that the beneficial effects would compensate for the detrimental conditions that exist there at present. In brief, it would be easier for the fish to go over a ladder in the dam than to fight their way over Celilo Falls. The dam would eliminate the historic Indian fishery, but more fish would reach the spawning grounds in better condition.”

Lundy’s editorial appeared the next day, January 17. He wrote that while the region and the nation needed new sources of electricity, it would be “tragic and self-defeating for Congress to force the Pacific Northwest to sacrifice other resources on the altar of power development when this is not necessary.”

Dams should be built “in the least harmful way” to fish, according to the editorial. At the time, the government was investigating construction of dams on the lower Snake River, as well, and Lundy opined that none should be built there until the government fulfilled its promises to Oregon and Washington “to build up the salmon populations of the lower Columbia tributaries.” Nonetheless, the newspaper supported construction of The Dalles Dam because “it would be the least damaging so far as salmon are concerned.”

Federal policy at the time supported the construction of dams and the replacement of fish losses through hatcheries—in the case of Columbia River salmon primarily through hatcheries on tributaries of the lower Columbia downstream of Bonneville Dam. In this paradigm, Celilo Falls was an impediment to both progress in the form of hydroelectric development and to the fish. By building hatcheries downriver, so the government assumed, fish losses at the dam would be mitigated and more fish would return to spawn naturally upstream. Only the falls would be lost;
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The irony in the paradigm was the focus on the survival of upstream-migrating adult fish at the falls, a natural impediment that salmon and steelhead successfully passed for tens of thousands of years, and not on fish passage at dams, where juvenile salmon and steelhead can be injured or killed by the spinning turbines and the tremendous water pressures they produce.

At the time, it was understood that dams killed juvenile fish, but the matter had not been studied thoroughly on the Columbia. That was changing. In 1947, biologist Harlan Holmes, who was employed by the U.S. Army Corps of Engineers to study fish passage at Bonneville Dam, described some turbines as “literal sausage grinders.” In 1952, Holmes estimated that Bonneville Dam killed 15 percent of all juvenile fish that passed through. In 1953, he advised the Corps’ acting regional supervisor in charge of river basin studies that planned reductions in river flows, which were controlled upriver at Grand Coulee Dam, should be coordinated with periods of reduced fishing at Celilo Falls, but that the Indians should not be told in advance. Otherwise, “the Indians may intensify their [fishing] efforts during the low flow period,” he advised.

Over time, the government’s primary source of funding for fisheries conservation on the Columbia, the Mitchell Act, focused fish production at hatcheries that were built downstream of Bonneville Dam. This was a blow to Indian people, who rightfully expected the government to live up to its promises to conserve their fish and fisheries, particularly the historic fishery at Celilo Falls. Hatcheries eventually were built in the Columbia Basin above Celilo Falls, but not until long after The Dalles Dam had inundated the falls and its fishery.

Summary of Memo from William Brophy to the Department of the Interior

On October 11, 1946, William Brophy, who was the Commissioner for the Bureau of Indian Affairs, sent a memo to the United States Department of the Interior concerning the construction of dams, including the proposed The Dalles Dam at Celilo Falls. Brophy was particularly concerned with the effect dams on the Columbia River were having on the salmon runs. He wrote that in the past eighty years since 1946, the wholesale value of the salmon industry in the area was over 500 million dollars. He pointed out, however, that the Grand Coulee Dam and the Bonneville Dam had either diminished or destroyed salmon runs on the river.

Brophy warned that construction of The Dalles Dam would destroy the salmon fishing at Celilo. He pointed out that salmon and steelhead caught at Celilo averaged about 2.5 million pounds a year, with a wholesale value of $375,000.

Brophy understood that the main reason for constructing the dam was to produce power for the area, but he felt that the development of the dam should be postponed until all other sources of low cost power had been fully developed. Regarding the argument that the dam would provide lower transportation costs, he wrote “lower transportation costs on a relatively small volume of bulk freight do not, in my opinion, justify the destruction of a natural resource as important to the Indians, the regional, and the national economy as the Columbia River salmon fisheries.”

In his memo, Brophy recommended that the construction of The Dalles Dam not be authorized and that construction work on the Lower Snake River dams be indefinitely postponed. He wrote, “It is obvious that the development of power and the supply of additional irrigation water should not be carried out at the expense of an existing most valuable natural resource.” He went on to say that if construction went ahead, amounts to compensate the states and the Indians for any losses of salmon runs should be included in construction costs.
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Over time, the government’s primary source of funding for fisheries conservation on the Columbia, the Mitchell Act, focused fish production at hatcheries that were built downstream of Bonneville Dam. This was a blow to Indian people, who rightfully expected the government to live up to its promises to conserve their fish and fisheries, particularly the historic fishery at Celilo Falls. Hatcheries eventually were built in the Columbia Basin above Celilo Falls, but not until long after The Dalles Dam had inundated the falls and its fishery.

Summary of Memo from William Brophy to the Department of the Interior

On October 11, 1946, William Brophy, who was the Commissioner for the Bureau of Indian Affairs, sent a memo to the United States Department of the Interior concerning the construction of dams, including the proposed The Dalles Dam at Celilo Falls. Brophy was particularly concerned with the effect dams on the Columbia River were having on the salmon runs. He wrote that in the past eighty years since 1946, the wholesale value of the salmon industry in the area was over 500 million dollars. He pointed out, however, that the Grand Coulee Dam and the Bonneville Dam had either diminished or destroyed salmon runs on the river.

Brophy warned that construction of The Dalles Dam would destroy the salmon fishing at Celilo. He pointed out that salmon and steelhead caught at Celilo averaged about 2.5 million pounds a year, with a wholesale value of $375,000.

Brophy understood that the main reason for constructing the dam was to produce power for the area, but he felt that the development of the dam should be postponed until all other sources of low cost power had been fully developed. Regarding the argument that the dam would provide lower transportation costs, he wrote “lower transportation costs on a relatively small volume of bulk freight do not, in my opinion, justify the destruction of a natural resource as important to the Indians, the regional, and the national economy as the Columbia River salmon fisheries.”

In his memo, Brophy recommended that the construction of The Dalles Dam not be authorized and that construction work on the Lower Snake River dams be indefinitely postponed. He wrote, “It is obvious that the development of power and the supply of additional irrigation water should not be carried out at the expense of an existing most valuable natural resource.” He went on to say that if construction went ahead, amounts to compensate the states and the Indians for any losses of salmon runs should be included in construction costs.

Vocabulary

detrimental
hatcheries
impediment
migrated
opened
paradigm

Biologist Harlan Holmes described some turbines as “literal sausage grinders.”
Answers for Listening Worksheet

Questions for Article

1. What did Samuel J. Hutchinson of the U.S. Fish and Wildlife Service believe would happen to the salmon if the dam were built?
   (It would be easier for the fish to go over a fish ladder than to go over Celilo Falls, so more fish would get to the spawning grounds.)

2. What was the problem with this belief?
   (Salmon had been successfully making their way over the Falls for tens of thousands of years. However, at current dams, juvenile salmon were being injured or killed by the turbines and water pressure at the dams.)

3. What was Herb Lundy’s view in an editorial he wrote for The Oregonian newspaper?
   (He felt that dams should be built in the least harmful way to salmon and that the government should first build up the salmon populations along the lower Columbia River tributaries. However, he believed what Hutchinson from the U.S. Fish and Wildlife Service said about The Dalles Dam being less damaging for the salmon than having them try to make it over the falls.)

Questions for Memo:

1. What did Brophy have to say about the salmon industry on the Columbia River?
   (They generated millions of dollars of revenue.)

2. What was his view on the dams along the Columbia?
   (They were destroying a valuable fishing industry.)

3. What was his recommendation concerning the construction of The Dalles Dam?
   (He felt it shouldn’t go ahead. He felt the production of low cost power was important, but the government should look to other sources of low cost power first that wouldn’t affect the salmon runs. He felt that the argument for navigation did not justify destroying the salmon runs.)

Answers for Viewing Worksheet

1. Where does the Columbia River start and end? How far does it flow?
   (Starts in Canada in the Rockies, enters the U.S. in the Northeastern corner of Washington, and flows over 1,200 miles to the Pacific Ocean)

2. What facts can you provide about the Grand Coulee Dam?
   (Five times the amount of water flows over the dam than over Niagara Falls—a million cubic feet every second; provides electricity, irrigation, flood control, and transportation)

3. How do farmers benefit from the dams on the Columbia River?
   (Dams provide irrigation for farmers’ wheat fields and then provide a way for farmers to ship their wheat to the mills in Portland; barges coming back upstream bring petroleum products)

4. How do other people benefit from the dams?
   (Businesses, towns, and cities get electricity plus a lake for recreation)

5. What is the point of view of this movie? Consider phrases from the film such as “to control the Columbia,” “supports towns and cities,” and “great dam.”
   (Dams have helped improve life for people along the Columbia River.)

6. Whose point of view is missing from this movie? Think about how the dams have changed the character of the Columbia River.
   (The views of Native Americans and of environmentalists are missing—dams have destroyed many people’s ways of life and have affected salmon runs.)
**Answers for Listening Worksheet**

**Questions for Article**

1. What did Samuel J. Hutchinson of the U.S. Fish and Wildlife Service believe would happen to the salmon if the dam were built? (It would be easier for the fish to go over a fish ladder than to go over Celilo Falls, so more fish would get to the spawning grounds.)

2. What was the problem with this belief? (Salmon had been successfully making their way over the Falls for tens of thousands of years. However, at current dams, juvenile salmon were being injured or killed by the turbines and water pressure at the dams.)

3. What was Herb Lundy’s view in an editorial he wrote for The Oregonian newspaper? (He felt that dams should be built in the least harmful way to salmon and that the government should first build up the salmon populations along the lower Columbia River tributaries. However, he believed what Hutchinson from the U.S. Fish and Wildlife Service said about The Dalles Dam being less damaging for the salmon than having them try to make it over the falls.)

**Questions for Memo:**

1. What did Brophy have to say about the salmon industry on the Columbia River? (They generated millions of dollars of revenue.)

2. What was his view on the dams along the Columbia? (They were destroying a valuable fishing industry.)

3. What was his recommendation concerning the construction of The Dalles Dam? (He felt it shouldn't go ahead. He felt the production of low cost power was important, but the government should look to other sources of low cost power first that wouldn't affect the salmon runs. He felt that the argument for navigation did not just certify destroying the salmon runs.)

**Answers for Viewing Worksheet**

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### Listening Worksheet: Points of View about The Dalles Dam

**Name:** ___________________________ **Date:** ___________________________

**Directions:** Read the questions before you listen to your teacher read (or before you read) the article about Celilo Falls and the summary of the memo from William Brophy. Think about the questions as you listen and take notes.

**Questions for Article:**
1. What did Samuel J. Hutchinson of the U.S. Fish and Wildlife Service believe would happen to the salmon if the dam were built?
2. What was the problem with this belief?
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**Your thoughts/questions:**

**Questions for Memo:**
1. What did Brophy have to say about the salmon industry on the Columbia River?
2. What was his view on the dams along the Columbia?
3. What was his recommendation concerning the construction of The Dalles Dam?

**Your thoughts/questions:**

### Viewing Worksheet: The Columbia River

**Name:** ___________________________ **Date:** ___________________________

**Directions:** Use your listening and viewing skills to learn important information from the movie about the Columbia River. Read the questions below before viewing, and then take notes as you watch the movie.

1. Where does the Columbia River start and end? How far does it flow?
2. What facts can you provide about the Grand Coulee Dam?
3. How do farmers benefit from the dams on the Columbia River?
4. How do other people benefit from the dams?
5. What is the point of view of this movie? Consider phrases from the film such as “to control the Columbia,” “supports towns and cities,” and “great dam.”
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## Summary of the Pros and Cons About Dams

**Name:** ____________________________  **Date:** ____________________

**Directions:** Think about the reading and viewing you have done about dams, and the discussions you have had with your classmates. List the pros and cons for building The Dalles Dam and tell whose point of view each idea represents.

<table>
<thead>
<tr>
<th>Pro: Why the Dam Should Be Built</th>
<th>Con: Why the Dam Should NOT Be Built</th>
</tr>
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<tbody>
<tr>
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<td>Reason against</td>
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<td>Whose point of view?</td>
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**Discussion Stems**

**Directions:** Present your point of view thoughtfully and clearly. Listen respectfully to the point of view of others. If you agree with someone, tell why. Ask questions of other speakers to have them clarify their points and/or to ask them to justify their thinking. You can use these discussion starters to help you talk about ideas with your classmates.

**Telling**

- Based on my research, I think ______.
- An example is ______.
- My reason for thinking this is ______.
- The evidence I have to support my thinking is ______.

**Supporting**

- I agree with ______ because ______.
- I disagree with ______ because ______.
- I want to add to what (insert name) said about ______.
- What (insert name) said is the same as what (insert name) said because ______.

**Questioning/Clarifying**

- I am confused by ______.
- I don’t know what you mean by ______.
- A question I have is ______.
- I don’t agree because ______.
- Can you give more information about ______?
- Can you clarify what you mean about ______?
- What evidence do you have to support the idea that ______?
Summary of the Pros and Cons About Dams

Name: ___________________________________ Date: ____________________

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I am confused by _____.

I don’t know what you mean by _____.

A question I have is _____.

I don’t agree because _____.

Can you give more information about _____?

Can you clarify what you mean about _____?

What evidence do you have to support the idea that _____?
Glossary: Episode 4

detrimental: damaging, harmful

hatcheries: places where young fish are hatched and raised under artificial conditions

impediment: something that stands in the way or obstructs

mitigated: made less severe or harsh

opined: expressed an opinion

paradigm: an example serving as a model

turbines: engines powered by water, steam, wind, or gas that passes through the blades of a wheel, making it spin
**Glossary: Episode 4**

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