

## Science Time

### Program Content for October 5, 2016

Read the article “WSU: Dams not carbon neutral” on page A1 of the Thursday, September 29, 2016 edition of The Seattle Times.

#### **Objectives**

- I can explain the role dams play in the release of the greenhouse gas methane.
- I can analyze the pros and cons of dams in the environment.

#### **Next Generation Science Standards (NGSS) connection**

- *Disciplinary Core Ideas*
  - ESS3.A: Natural Resources - All forms of energy production and other resource extraction have associated economic, social, environmental, and geopolitical costs and risks as well as benefits. New technologies and social regulations can change the balance of these factors. (HS-ESS3-2)
  - ESS3.D: Global Climate Change - Through computer simulations and other studies, important discoveries are still being made about how the ocean, the atmosphere, and the biosphere interact and are modified in response to human activities. (HS-ESS3-6)

**Pre-reading and Vocabulary:** Define each term and then use it in a sentence to demonstrate your understanding.

1. Reservoir
2. Methane
3. Emission
4. Reradiate

#### **Comprehension Questions**

1. What did Washington State University researchers determine to be an important source of methane?
2. How is methane gas produced underwater?
3. How does the amount of methane produced by reservoirs compared to the amount produced by natural lakes?
4. What are the two reasons for the answer you provided above?
5. What type of organisms are the direct source of methane gas underwater?
6. How much higher per acre did researchers find methane emissions were than previously understood on a given reservoir?
7. List at least two of the negative environmental impacts of dams.
8. What are greenhouse gases?
9. How do lower reservoir levels impact the amount of methane gas release from reservoirs?
10. What is unique about the paper about to be published by WSU researchers?

#### **Prompts and Extensions**

1. This article mainly focuses on some of the negative impacts of dams, however dams also have a number of benefits. Watch this [video](#) and while viewing, make a list of their pros and cons. When finished take a position on whether or not you think dams are beneficial and support your position with evidence from the video and the article you just read.
2. One of the pictures in the article shows a lake that has since disappeared due to a recent dam removal on the Elwha River. Watch this [documentary](#) about the process.

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3. Dams have significantly impacted the population of salmon. Watch this National Geographic [video](#) to learn more.

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