

# Learning Cycle 7

## Salmon Stewards



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### About this Lesson

In this lesson, students will investigate different community actions that can be taken to enhance salmon habitat. As a culminating project for the unit, students decide on their own action project to complete or initiate a campaign to inform and persuade their community to participate in an action(s) to improve the local habitat for salmon. A host of references and resources are included in this lesson plan to support instruction and allow you to tailor this lesson to your students' specific interests and local watershed. We encourage you to adapt and implement this lesson in a way that best meets the needs of your students and the constraints of your classroom context.

### Materials, Resources, & Advance Preparation

Tools for student research (library, internet, or printed resources) are needed. Students may also require art supplies, computers, and/or video based on the action(s) they choose. Depending on students' projects, you may wish to collaborate with a community partner for additional resources and materials.

### Engage Phase

Begin by brainstorming:

- *Based on what you've learned so far, what are some problems that affect our local salmon?*
- *What are some ideas of things you think we can do to be better stewards of the salmon in our watershed?*

Emphasize that during brainstorming, coming up with as many different ideas and possibilities is important. You may have students brainstorm first in small groups or engage the whole class in brainstorming together.

### Exploration Phase

In this phase of the lesson, students will research one of the problem(s) they identified during brainstorming. You may identify a single problem the class wants to research and address or you can use the brainstorming list as a menu from which different student groups can choose research topics for possible action (Refer to the References and Related Resources). Graphic organizers such as a K-W-L chart can be useful here to guide students' research.

## Explanation Phase

In this part of the lesson, students consider what it means to be **salmon stewards**. You might consider GLAD strategies such as building a cognitive content dictionary or graphic organizers like a [Framer Model](#) to support academic language.

**Teacher Note:** “Stewardship” has many definitions– including religious/theological meanings that students might be familiar with. Stewards may have also heard of the job of a steward on a ship. They may come across these, and others, in a dictionary or web search for this term. When referring to the environment, definitions of stewardship often involve caretaking of *property* or *resources* in responsible and sustainably ways; it is important to note that these definitions can reflect a worldview in which humans are separate from the environment, and that the environment is a product for human use and consumption. Other definitions of stewardship embrace the notion of our relationship with environment as part of it, and our role as being reciprocal– caretaking of the environment in exchange for the gifts we receive from it.

**Option:** You can illustrate stewardship through examples as well, asking students to infer what stewardship means from these. One option would be to share “[The Original Salmon Stewards](#)” How the Winnemem Wintu Tribe Helped Return Endangered Chinook Salmon to the Homeland They Share. (Resource from NOAA).

Explain to students that they are going to decide how they can best be **salmon stewards** by addressing the problem(s) they researched through taking action themselves and/or by encouraging their community to take action.

## Extension Phase

In this phase of the lesson, students will investigate how others have taken action and/or encouraged stewardship of salmon. Pick one or more of the examples from the *References and Related Resources* to share with the class (you can assign a different one for each group and jigsaw if preferred). You may also identify examples on your own to showcase here.

Questions to consider for stewardship actions:

- What was the problem?
- What was the solution/why was it chosen?
- How did the actor(s) know whether it was successful or not?

Questions to consider for stewardship appeals:

- Who was the audience?
- What is the purpose/what did the author/creator want the audience to do?
- What strategies did the author/creator use? (e.g., big names, facts and figures, appeal to emotion, etc.)

As you debrief with the class, focus on what ideas/inspiration these provide to students for their own stewardship actions.

## Evaluation Phase

As a culminating “choice activity”, students will engage in a salmon stewardship activity and/or encourage their community to engage in salmon stewardship activit(ies).

**Teacher Tip:** *This is a perfect opportunity to practice other skills you are working on, such as writing persuasive arguments or using technology to communicate. Integrating this activity with other content areas will not only be a more efficient use of time, but will deepen student learning.*

Possible ways to communicate to the community:

1. Public Service Announcement/YouTube Video or Podcast
2. Powerpoint - Present to PTA
3. Book (for parents/kids)
4. Posters & artwork (display in local business partners)
5. Letter to the editor or elected official
6. Infographic/poster/brochure to distribute to community

The following [Choice Activity Checklist](#) can be used to support student evaluation and self-assessment.

- Identify the problem
- Propose a solution
- Provide evidence as to why the solution will work
- Present a persuasive argument as to why people should participate in the solution
- Argument is linked to evidence from their investigation and what they learned about healthy salmon habitats

## References & Related Resources

### Potential Problems and Solutions:

#### Car Gas Pollution:

<https://www.fuelwhatmatters.org/everyone-can-take-steps-to-reduce-vehicle-pollution/>  
<https://www.epa.gov/transportation-air-pollution-and-climate-change/what-you-can-do-reduce-pollution-vehicles-and>

#### Trash:

<https://kids.nationalgeographic.com/nature/article/reduce-your-waste>

#### Pollution Down Drain:

<https://www.onlyraindownthedrain.com/kids/>

#### Forest Fires :

<https://adcouncil-campaigns.brightspotcdn.com/32/bd/8b854cad4375aa281a0a08a25673/smokeycampfiresafetyguide.pdf>

#### Oil Spills:

<https://sciencing.com/oil-spill-information-kids-5444185.html>

#### Deforestation:

<http://goexplorenature.com/2013/04/7-ways-kids-can-help-save-trees.html>

The following list of articles is provided for your reference; depending on the reading level of students, these may not all be appropriate and/or additional scaffolds should be provided.

### **Climate change and associated warming temperatures**

- [NOAA Fisheries Report](#)
- [US Forest Service Climate Change Resource Center Salmon and Trout](#)
- [Inside Climate News Article](#)
- [Smithsonian Magazine Article](#)

### **Riparian habitat loss and urbanization**

- [Seattle Times Article](#)
- [Science Daily Article](#)
- [Oregon State University Article](#)
- [Bellingham Buys Land to Protect Lake Whatcom Watershed](#)

### **Fish passage barriers preventing access to spawning grounds**

- [NOAA Fisheries Article](#)
- [US Fish and Wildlife Service Article](#)
- [Middle Fork Dam removal project](#)
- [Elwha River Restoration resources](#)

### **Fish Ladders- Do they Work?**

- [Chinook Salmon Use of Fish Ladders](#)
- [Successful Fish Passage Efforts](#)
- [Blocked Migration: Fish Ladders On U.S. Dams Are Not Effective](#)

### **COMMUNITY ACTION EXAMPLES**

- [Northwest Artists Against Extinction](#) provides templates to use art to communicate with elected officials on issues related to declining salmon populations.
- [Dog Doogity - Protect Puget Sound/ Pick up after your pet!](#)
- SeaDoc Society - [Resources to Protect Salmon](#)
- NOAA [I'm counting on you! Brochure](#) with threats to salmon and ways you can help.
- NOAA [Sea Stewards Handbook](#) includes possible actions for a variety of issues affecting ocean health and marine life.
- N-SEA [Salmon Discovery](#), [Stream Stewards](#) and [Nooksack River Stewards](#) Programs

### **SEE ALSO:**

- [Speak Up for Salmon](#) lesson from ClimeTime Resources
- [Salmon in the Schools](#)
- [Tips for Developing Persuasive Writing](#)

## **Connecting to Indigenous Knowledge and Since Time Immemorial (STI) Curriculum**

The [Native Knowledge 360](#) project has a lesson to help students learn more about why salmon are important to the Native people and Nations of the Pacific Northwest, including the [Lummi Nation](#).

Lummi Natural Resources created a [video series](#) that features Tribal Members' stories and voices, and showcases efforts by Lummi Nation to recover salmon.

The activities in this lesson are complementary and support those in the Since Time Immemorial Unit: [STI Elementary Unit 3 Washington State History: Salmon Recovery & the Boldt Decision](#). Specifically, this lesson connects to the importance of government [relationship with Tribes](#), and how people in Washington State can [empower elected officials](#) to work towards salmon recovery.

## Connecting to the Next Generation Science Standards

### Performance Expectation(s):

[5-ESS3-1.Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.](#)

### 3 Dimensions of Learning

### Activity Connections

#### Science and Engineering Practices

##### [Obtaining, Evaluating, and Communicating Information](#)

Obtaining, evaluating, and communicating information in 3–5 builds on K–2 experiences and progresses to evaluating the merit and accuracy of ideas and methods.

- Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem.

Students conduct their own research into problems salmon face in their community and possible solutions to those problems.

Students analyze & stewardship efforts of others.

Students communicate ways they, and/or their community, can be salmon stewards.

#### Disciplinary Core Ideas

##### [ESS3.C: Human Impacts on Earth Systems](#)

Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments.

Students investigate problems salmon face *and* actions individuals/communities are doing to protect salmon.

#### Crosscutting Concepts

##### [Cause and Effect](#)

Cause and effect relationships are routinely identified, tested, and used to explain change.

Students connect problems and solutions through cause/effect.

##### [Systems and System Models](#)

A system can be described in terms of its

Students consider the interactions between salmon/people and people/environment in

components and their interactions.

understanding problems and potential solutions.

## References & Related Resources

## Curriculum Connections/Options for Going Further

Salmon Pledge

Name \_\_\_\_\_

### **Conclusion**

Using the results from your investigation, write an argument that answers the question:

*Was the habitat you visited healthy for salmon?*

#### **Claim:**

(Write a sentence stating if the habitat was healthy or unhealthy.)

#### **Evidence:**

(Provide scientific data to support your claim. Use evidence from your investigation including water quality, macroinvertebrates, and native plants)

#### **Reasoning:**

(Explain why your evidence supports your claim. Describe what it means to have a healthy habitat and why your evidence allowed you to determine if the habitat you visited was healthy or unhealthy for salmon)



## Choice Activity

Students can choose which problem they want to address and then choose a way to communicate the solution.

Have students read about each of the options, students choose a problem from the options (that is applicable to their community) that they want to address. Students choose how to communicate the solution.

All students will read the information on stormwater pollution

<https://www.onlyraindownthedrain.com/about-us/stormwater-pollution/>

Go to <https://www.onlyraindownthedrain.com/> , go to the household on the top menu, click on any of the options on the page (this is the list of options we will give to students). This link has information for each group. You can print the information for each of these if there is no student access to the internet.

At the car wash

Fall leaves

Pool maintenance

Pooper scooper

“Green” yards

Motoring clean

Build a rain garden

Septic systems

Paint and solvents