

Sustaining the Asúm: Yakama Nation & the Pacific Lamprey

Grades K-8

Knowledge Holder

This lesson was created Jennifer Smith (Muckleshoot, Yakama).



Materials

- Art supplies
- Poster board
- Access to a device that will record a video.

Standards

This lesson aligns with national Social Studies, Art, and Science frameworks by:

- Exploring how Yakama Nation Fisheries blends ancestral wisdom with modern engineering to protect First Foods.
- Investigating how climate change and rising water temperatures impact ancient aquatic species.
- Using creative media to challenge cultural stereotypes and advocate for the protection of our river relatives.

Objective

Students will explore the different ways the Yakama Nation Fisheries is actively protecting, restoring, and educating communities on the ecological and cultural wonders of the Pacific Lamprey (asúm). Through storytelling, hands-on design, and media creation, youth will build an introductory understanding of river conservation, Indigenous first foods, and ecosystem stewardship.

Survivance Message

There was a time when the lamprey was so abundant in our waters they looked like “hair on the rocks.” Traditional stories tell of rivers and waterways teaming with the dark, swirling motion of the lamprey. Elders remember a time when buckets could simply be dipped into the river and brought ashore with a full catch. Today, lamprey numbers are not what they once were. The Yakama Nation Fisheries is doing everything it can to save the lamprey while also raising vital awareness through community outreach and education.

- **A Sacred Responsibility to a First Food:** The lamprey (*asúm*) is a traditional First Food among the Yakama Nation. It is usually dried or smoked, carrying a rich, smoky, and oily taste similar to smoked canned sardines. Traditional teachings explain how all the species of fish eaten willingly sacrifice their lives to sustain the people. In turn, it is the sacred responsibility of the human community to protect and sustain the fish.
- **The Challenge of Modern Dams:** Yakama Nation Fisheries has observed that lampreys struggle to get through current fish ladder systems because those ladders were engineered strictly for salmon. In response, they have started installing specialized Lamprey Flume Systems. These large metal structures are similar to the heating and AC ducts in your homes and schools. They feature specialized entrances and specific water flows (velocities) that safely attract and guide the lamprey past the dams. In areas without these flumes, fisheries biologists will hand-dip net the fish directly out of the ladders and truck them around the concrete barriers to their migration points.
- **The Climate Threat to an Ancient Survivor:** Fossil records date the lamprey to 450 million years ago making them older than dinosaurs and a survivor of every single mass extinction on Earth. Go lampreys! But even these ancient survivors are facing a new danger: our rivers are getting warmer. Lampreys depend on the cold, clear water of our rivers to make their long journey from the ocean back to their spawning grounds. When the water gets too hot, it drains their energy and makes them weak, making it much harder for them to survive. By installing flumes, cooling streamside habitats, and keeping waters clean, the Yakama Nation is helping this ancient survivor weather modern climate changes.

Braiding Knowledge: Curriculum Standards

This lesson is part of a broader framework that weaves together the Next Generation Science Standards (NGSS) and Indigenous Traditional Ecological Knowledge (ITECK). We teach Western science through a localized, relational lens to honor the history and sovereignty of the land and its caretakers. For a detailed breakdown of how this lesson aligns with specific NGSS benchmarks, ITECK guidelines, and UNESCO climate action goals, please visit our [story map](#).

Yakama Vocabulary

Ichishkíin Sínwit- Yakama dialect of Sahaptin: [Yakama Nation Language Program](#)

asúm (pron. Ah-SOOM): eel, lamprey

spílya (pron. SPEE-lyah): coyote

waxpush (pron. Wahx-poosh): rattlesnake

wíwnu (pron. WEEW-noo): huckleberry

wána (pron. WAH-nah): river

núsux (pron. NOO-soohx): salmon (chinook)

tl'álk (pron. Tlah'lk): deer or elk

English Vocabulary

Invasive, native species, fish ladders, velocity, First Food, fossil

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Activities

15 Min: Feel! (Embodying the Lamprey) Introduce students to the unique biology of the lamprey by removing human filters and connecting to their unique physical traits.

"We are going to learn about a fish that is a true superhero of survival. A lamprey is a simple fish that lacks jaws and bones. Instead, they have a round, suction-cup mouth and neat breathing holes instead of standard fish gills. Close your eyes and imagine your world through the eyes of a lamprey. How would you move without a bony skeleton? How would you eat? How would it feel to glide through the water as a fish without any scales? Let's open our eyes and act out the life cycle phases of the lamprey to see how they grow from tiny larvae in the mud into mighty ocean travelers!"

Media Tool: [Pacific Lamprey Life Cycle Animation](#) (Have students physically mimic each stage of the life cycle text).

15 Min: Connect! (Storytelling and Re-Imagining) Dive into oral history and use creative drawing to explore how the lamprey came to be.

"Listen closely to the traditional story, 'How Lamprey Gambled Away His Bones.' This story teaches us about accountability, relationships, and how the lamprey adapted to look the way he does today. After hearing the story, I want you to look at your blank drawing paper. What do you think the lamprey may have originally looked like before he lost all his bones to Coyote (spílya) in the game? Let your imagination run wild—draw what you see in your mind and share your sketch with a friend!"

Story Text: [How Lamprey Lost His Bones \(OMSI Narrative Guide\)](#)

15 Min: Play! (The Hollywood Publicity Agent) Address the lamprey's public image by turning students into modern media advocates.

"Lampreys have a bit of an image problem! Because they look unique and don't have jaws, they are often compared to something out of a spooky horror movie. People overlook them for their bright, photogenic counterpart, the salmon (núsux). Today, you are being hired as a Hollywood Publicity Agent or a famous YouTuber! Your job is to design a YouTube video concept, a short documentary script, a poster, or a funny skit about the wonders of the lamprey. What can you teach an audience that will help people understand how fascinating and helpful they are to the river, and not scary at all?"

Reciprocity through Stewardship

Lampreys have withstood ice ages and asteroid impacts, but their biggest threat today comes from human choices. Much like salmon, lampreys are heavily threatened by human barriers (dams), habitat degradation, poor water quality, and rising climate temperatures.



Resources

[Anaku Iwacha Yakama Legends and Stories-](#)

[Educator Resources-Yakama Nation Fisheries](#)

[How Lamprey Lost His Bones-](#)

[Yakama Nation Fisheries Restoration Story Maps](#)

[Columbia River Inter-Tribal](#)

[Fish Commission-The Lost Fish](#)

[Fish of the Week- Podcast Episode ft. Jeremy](#)

[Lamprey Flume System](#)

[Pacific Lamprey Conservation Initiative](#)

[Pacific Lamprey Lifecycle Fortune](#)

[Yakama Nation Fisheries-Saving Asum](#)

[Yakama Nation Language Program](#)

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The lamprey has been a part of our landscape for millions of years, and now it is our turn to look after them. The Yakama Nation Fisheries is doing incredible work to teach everyone about these fish, including their COOL-EELS program—where schools can host a lamprey, learn from them, and eventually release them back into the river. You can show your own gratitude for the lamprey by being a guardian of our waterways:

- Host a stream cleanup at a local creek or park.
- Be mindful of what goes down the drain and dispose of hazardous household and chemical waste properly.
- Wash cars responsibly on grass or at a commercial wash instead of the driveway. Remember, all storm drains lead directly into local rivers and streams (*wána*).
- Become a certified lamprey expert! Teach your family, friends, and neighbors about why the Pacific Lamprey is a beautiful and vital anchor of our Pacific Northwest ecosystem.

Adaptations & Extensions

- Engineering a Lamprey Ladder: Because fish ladders were built with swift, rushing water velocities meant for powerful salmon tails, lampreys have to navigate them using a very tiring "suck and climb" motion with their mouths. Have students discuss this movement and then challenge them to build a new and improved, lamprey-friendly fish ladder model! Provide building supplies like Legos, blocks, or even food materials (pretzels, graham crackers, frosting for water flow, and gummy worms for lampreys). Ask students to present their designs: "What did you build, and how does your design make a lamprey's journey past a dam easier?"
- Native vs. Invasive Discussion: Teach students the difference between our native Pacific Lamprey and the Sea Lamprey of the East Coast. In the mid-1900s, Sea Lampreys traveled through human-made shipping canals into the Great Lakes. Because they are not native there, they became an invasive species that grew too abundant and harmed local fish, adding to the lamprey's negative reputation. Emphasize that our Pacific Lampreys belong right here in the Pacific Northwest. They are an essential part of the natural balance, and without them, many other creatures in our habitat would suffer.
- Connect Fossil Records to Resilience: Ask students to research how other ancient survivors in their own local area (like ferns, dragonflies, or specific types of local trees) have adapted to changing environments over millions of years. Shift the conversation from "climate change is a scary, unstoppable event" to "how do ancient relatives find ways to persist and adapt?"