

## **The Yakama Nation and the Environment**

### **Introduction**

Historically, as well as pre-historically, Native Americans have defined their culture largely dependent upon the natural resources that occurred within their geographic region and environmental features found within their ancestral homelands. During the lessons that follow, students will be provided with a worldview very different from their own. They will learn about the role of native people in the environment. Students will be introduced to the concept of Traditional Ecological Knowledge (TEK) and through exposure to TEK, will come to appreciate the complex scientific study that Native Americans practiced long before the current and universally accepted scientific methodology developed. Students will examine impacts to the environment and what the Yakama Nation's response has been.

**Subject Areas** *To be defined following completion of all lesson activities*

**Skills:** *To be defined following completion of all lesson activities*

### **Learning Objectives**

After completing the lessons in this Environmental Series, students will be able to:

Identify the Tribes and/or ancestral homelands of the Yakama Nation and to describe the cultural role that the environment has to these Tribes. Students will be able to define key ecosystem terms and demonstrate an understanding of ecosystem components. Students will be able to critically examine the impact that humans have had on the environment, as well as to consider possible solutions to minimize those impacts. Students will be encouraged to consider the responsibility of individuals, communities and society as a whole, to other species, other cultures and to future generations yet to come.

### **Suggested Activities:**

*If at all possible, invite a tribal member from the Yakama Nation to come and speak to the class during Lesson 3 below, to discuss the interactions of the environment and native people from the Yakama Nation's cultural perspective. Contact the Yakama Nation at <http://www.yakamamuseum.com/showpage.php?pageid=3ca9634c> for contact information, or at <http://host119.yakama.com/> for the fisheries management contact information. Other resources for possible guests include the Columbia River Inter-Tribal Fish Commission, <http://www.critfc.org/> (again, for fisheries information), Turtle Island Storytellers <http://www.turtleislandstorytellers.net/>, and Northwest Spirit Quest, Inc., [Elaine.nwspiritquest@dishmail.net](mailto:Elaine.nwspiritquest@dishmail.net).*

## Lesson 1: Introduction to Relationships Between Humans and the Environment.

In preparation for this lesson you will need:

1. Wisdom of the Elders Radio: Series Three – Program 4, Yakama CD (transcript can be found at [http://www.wisdomoftheelders.org/prog304/transcript\\_sl.htm](http://www.wisdomoftheelders.org/prog304/transcript_sl.htm) where there is also a link to the audio should you not have access to the CD).
2. 3x5 post-it notes, enough for each student to have 3-4 post-its.

As an introduction to this Environmental Series, tell the students the following (which you may either read verbatim or as best gets your particular class' attention).

“The following study unit will focus on both history and science. We will be studying Native American people and the Environment. We will be focusing on the Yakama Nation which is located in southern Washington. *{You may wish to talk about why you chose this particular study unit.}* Over the next few weeks we will be comparing scientific methodology to Native American practices. Remember that each Native American tribe has their own belief system, so things that we are going to learn about the Yakama Nation are not necessarily true for any other Tribe. And, while we will be learning about the Yakama Nation, just as all citizens of the United States do not believe in all of the cultural beliefs of the United States, all members of the Yakama Nation do not necessarily follow all of the cultural beliefs of their Tribe. In just a few minutes we will be listening to an excerpt from a CD which was produced by the Wisdom of the Elders and based upon interviews that were conducted with tribal elders from the Yakama Nation. We will only be listening to the segment called “Sacred Landscapes”. This segment discusses several environmental issues that the Yakama Nation are concerned with because of the interference with and/or disruption of cultural lifeways.”

**Activity:** Prepare to listen to the Sacred Landscape segment. Tell the students to very carefully listen and take notes on what issues seem to be important to the Yakama Nation. Reinforce the idea that there are multiple issues that can be interpreted in various ways - Encourage original thoughts. This is a very short segment with a lot of information; ask the class if they would like to listen to it again.

Give the students 10 minutes to write about their initial response to what they have just listened to; allow them writing free of grammar and rules that might otherwise prohibit free expression. Have the students keep their papers until after the next activity is completed.

To assess the knowledge of the class, pose some questions to the classroom, such as:

- ◇ Who are the Yakama Nation?
- ◇ Where are they located?
- ◇ What are cultural natural resources?
- ◇ What is an ecosystem?

- ◇ Why should we care about ecosystems?
- ◇ What is a salmon run?
- ◇ “I don’t even like salmon, so who cares”

Do not expect “correct” answers for all of these questions, but this will get the students thinking about the study unit at hand. This will also get the students ready for their next activity.

**Activity:** Break the students into small groups and allow them time to share their papers with each other. Within each group, have the students come up with 5 things they know or learned about the relationship between humans and the environment and 5 questions that they would like to know about this relationship. Have each piece of knowledge and each question written separately on a post-it note. Allow time for each group to share their lists with the class and make a place where their post-it notes can be placed within the classroom such as on a large piece of butcher paper. Help the students to create groups of common questions by moving the post-it notes into common groups and look at what theme(s) emerge as a result. As the themes emerge, invite students to choose which of the questions they would like to do research on and re-group the students in accordance with the question they wish to do research on.

Discuss the scientific model of observation, formulation of questions; creation of a hypothesis; prove/disprove hypothesis (experimentation and/or research based); re-examination of hypothesis; reporting findings. Give the students time to meet within their newly formed small group to write a hypothesis based upon their question, let them discuss research strategies and assignment of tasks within their group. Have each group summarize their research question and assignment of tasks. Have them turn this paper in to ensure each group is on the right track.

As time permits, or as a homework assignment, have each student make a Portfolio Cover with their 10-minute response paper placed in the Portfolio. Following your review of each group’s summarized research project; allow the students to photocopy the sheet so each student has a copy in their Portfolio.

## **Lesson 2: The Role of Species in Ecosystems**

### **Lesson 2 day 1**

The Wisdom of the Elders segment on Sacred Landscapes presented several environmental issues that the Tribe has. Prior to getting into the specifics of the Yakama Nation and the environment, a basic understanding of an ecosystem will be presented. This may be modified depending upon the level of exposure that the class has had with regard to ecosystem functions.

The basic components of an ecosystem include nutrients (found within in the earth), water, oxygen and the biological components. Energy (from the sun) is the vital component that fuels the ecosystem. From an ecological perspective, an ecosystem includes the biotic and abiotic (living and non-living) portions of a given community.

**Activity:** A very basic and easy to understand model of an ecosystem can be illustrated with a simple potted plant. Have the students think about the five components (nutrients, water, oxygen, living organisms, energy) and how they relate to the potted plant. Make 5 columns on

the chalkboard labeled with the five components. Have the students write the same information on a piece of paper labeled Ecosystem Energy Flow; upon completion have the Energy Flow placed into their Portfolio.

Ask: How do each of the other components relate to the potted plant?

Help the students to make the connections as illustrated in the following table.

Nutrients	Water	Oxygen	Living Organisms	Energy
X	X	X	Leaf	X
X	X		Roots	X
X			Decomposers (fungi and bacteria)	X
X		X	Chlorophyll (pigment in leaves)	X

Explain to the class that plants are autotrophs, meaning they produce their own food. The plant's leaf use the nutrients, water and carbon dioxide to make carbohydrates (a carbohydrate is stored chemical energy), while it is the chlorophyll that traps the energy for photosynthesis to occur. Photosynthesis is what converts the oxygen to carbon dioxide. The plant uses the nutrients to convert some of the carbohydrates into other necessary nutrients such as fats and proteins. Plants are the only autotrophs that exist and therefore the plants are a vital component of any ecosystem since this is the only way that energy enters into the ecosystem.

Ask: What would happen if there were only autotrophs in a given ecosystem?

By removing the decomposers from this simple model, autotrophs would eventually use all available nutrients and the plant kingdom would end. The decomposers break down the dead leaves and other plant materials and in doing so, return nutrients to the soil.

Ask: Where do the decomposers get their energy?

“Breaking down” the dead leaves essentially means eating the material (extracting necessary energy from plant material) and excreting the waste product (nutrients and minerals back into soil). In order for the decomposer to do anything, it must have energy. Energy must ultimately come from the sun. Decomposers get their energy from their food source; however, it takes energy to make energy.

Energy is the key to all ecosystems. Ultimately the sun is where all energy derives from. As living organisms eat food (just like the decomposer ate the dead leaves and other plant material) they gain the energy necessary to live. A calorie is simply a measurement of energy. The energy flow in an ecosystem is the flow of energy from one organism to the next. The Law of Conservation of Energy is the first law of thermodynamics and states that energy can neither be created nor destroyed; it can only be transformed from one form to another. The second law of thermodynamics states that when energy is transformed, some energy is lost. All organisms in an ecosystem are connected in a food chain or food web. There are several trophic levels; a trophic level describes how far an organism is from the initial energy source. The initial energy source is the plants.

Plants are **primary producers** (of energy) and are called autotrophs (this is the first trophic level).

The second trophic level are the **primary consumers** or the herbivores.

The third trophic level are the secondary consumers, these are the omnivores (eating plants and animals).

The fourth level are the carnivores.

The fifth level are the top carnivores (meaning the top of the food web, with no natural predator).

With each change in trophic level is a decreased amount of available energy. The farther away from the primary producers, the more food that must be consumed to maintain the necessary energy for the organism to live.

## **Lesson 2, Day 2: Salmon and the Ecosystem**

Have the students get into their Research Groups.

*Read the following quote: “The sacred salmon runs are in decline. It is the moral duty, therefore, of the Indian people of the Columbia River to see them restored. We have to take care of them so that they can take care of us. Entwined together inextricably, no less now than ever before, are the fates both of salmon and the Indian people. The quest for salmon recovery is about restoring what is its sacred place.”*

Ask: Based upon the Sacred Landscapes segment you listened to about the Yakama Nation, do you think that salmon recovery is one of the issues that the Yakama Nation might be interested in?

This quote was taken from Ted Strong, a member of the Yakama Nation. Recall that the traditional home of the Yakama Nation included the Cascade Mountains down to the Hanover Reach, a bend of the Columbia River. The Yakama River is a tributary of the Columbia River and according to the CD, there were no salmon at all in this river by the 1970s.

Allow them to use their 10-minute written response to what they listened to in the Wisdom of the Elders Sacred Landscapes segment.

Ask: What were some of the issues that were mentioned in the CD. Have the students volunteer answers and make a list of issues on the board.

Some of the issues from the CD include the following:

- ◇ Ancient and sacred sites damage, including petroglyphs
- ◇ Hanford Nuclear Reservation contamination
- ◇ Salmon Runs in decline
- ◇ U.S. Army Corps of Engineers desire to dig barge in Hanover Reach which would destroy salmon spawning grounds
- ◇ Pesticide and herbicide run-off
- ◇ Sustainable forestry practices
- ◇ Return of artifacts and human remains to Tribe
- ◇ Access and protection of cultural natural resources.

Have each Research Group share what their topic is. Tell the class that there are multiple issues that the Yakama Nation has to contend with. It would take all year to have an in-depth study of all of these issues. Each Research Group will be making oral presentations to the class, and some of these topics will be covered. For the purpose of understanding the impact of humans and the environment, with an emphasis on cultural differences, the issue of salmon will be studied in class. Remind the students of the diversity of the United States and the many cultures that exist within the larger culture of the U.S. The goal of this series of lessons is to give the students the tools to consider any environmental issue from multiple viewpoints.

The next two lessons will be devoted to Salmon and the Ecosystem, followed by a short history of the Yakama Nation.

**Salmon Lifehistory:** Within the rivers and their tributaries of Washington and Oregon, there are seven native salmon and trout (chinook, coho, chum, sockeye, pink salmon, steelhead and cutthroat trout). Watersheds affect all of these waters, from the smallest streams to the Pacific Ocean. A **watershed** is a geographic area of land, a watershed is also called a drainage basin and/or a hydrologic unit. A good working definition of a watershed is:

1. It is not the water it is the lands where the water travels;
2. It is defined by the area of land where precipitation (rain) lands and then travels through to ultimately end up in a common body of water;
3. Water runs downstream, the edges of a watershed are the mountain ranges and hills. A single drop of rain falls into a particular area of land, which ultimately will end up in some body of water, be it a small stream, pond or a larger river. The Columbia River basin is the major watershed affecting the salmon in the Pacific Northwest, though there are numerous smaller watersheds. Everything affects a watershed; pollution, pesticides, herbicides, fertilizers get into the watershed from farms, ranches, forestlands, towns, cities, etc.

Salmon and trout are **anadromous fish**. Anadromous fish are fish that are born in a stream or river and throughout their lifecycle, spend time in both fresh and saltwater (ocean). The majority of their life, salmon and trout live in the Pacific Ocean, however they migrate back to freshwater to the place they were born to lay their eggs before dying. Pacific salmon are in the scientific genus *Oncorhynchus*, which includes pink, sockeye, chum, Chinook, coho salmon, steelhead and rainbow trout.

Discuss the lifecycle of a Chinook salmon. Salmon begin as eggs in a stream gravel (September-December). **Alevin** (the next phase following egg hatching) remain in stream gravel (January-April) when the **Fry** emerge (May-June), the juvenile fish live in fresh water from 2 months to 2 years. Fry are camouflaged with parr marks. As they grow, they become silver-colored and are called **smolts**. The smolt migrate to the ocean (April-August), when they reach the estuary (this is where the river meets the ocean) the smolt begin the adaptation which allows them to live in salt water (called smoltification). The fish mature in the ocean from 1-7 years depending upon the species. During these years, they travel thousands of miles in the ocean. At some point (again dependent upon the species) the salmon begin their migration as adults back to their **spawning grounds** (where they were born). On the migration back to their spawning grounds, salmon do not eat at all. Their color changes, muscles change and when they reach their spawning grounds, the female uses her tail to dig a nest to lay thousands of eggs; the male follows by milking the eggs to fertilize them. Most salmon die after spawning; leaving behind carcasses that provide nutrients to many organisms.

A salmon's life history includes time in freshwater, estuaries and the ocean. Throughout their lifecycle, salmon feed on a variety of prey and are prey for a variety of water and **terrestrial** (living on land) organisms. Juvenile salmon (the smolts) feed on dying/dead salmon, salmon eggs, and aquatic macroinvertebrates. Juvenile salmon are known to feed directly on salmon carcass flesh, salmon eggs, and **aquatic macroinvertebrates** (aquatic animals that lack an internal skeleton, are large enough to be seen by the unaided eye, and live on or among the

substrate). If you have classroom access to a computer, this site <http://www.xerces.org/CD-ROM%20for%20web/id/index.htm> lists hundreds of macroinvertebrates from flies to worms to mussels with photographs. Many different kinds of wildlife species prey upon salmon in varying developmental stages. As a seasonal resource, salmon directly affect the ecology of many aquatic and terrestrial consumers, and indirectly affect the entire food web.

Ask the students to think about wildlife that are dependent upon salmon, i.e. bears, eagles, river otters, whales and species salmon are dependent upon, i.e., herring, squid and crustaceans.

As a homework assignment, have each student create a food web for salmon, allow them to choose which phase within the life history they wish to make their food web. As background for the assignment, these are useful web resources:

<http://www.wdfw.wa.gov/outreach/fishing/salmon.htm>;

<http://www.streamnet.org/pub-ed.html>;

<http://www.critfc.org/>

### **Lesson 3: Traditional Ecological Knowledge**

Materials needed: Print out maps or have the map projected on a screen in the classroom. Go to [http://www.yakama-forest.com/yakama\\_nation.htm](http://www.yakama-forest.com/yakama_nation.htm).

To begin the lesson, allow students to share their food chain/web with the class. Ask the question, where do humans fit into the food web? Have the students add their food chain to their Portfolio.

Tying the lessons together: A primary difference in the worldview of Native people is that they believe they are one component in the food web. A common idea amongst non-native people is that the salmon are for use as a sport or as a food source. Native people often talk about their *responsibility* to the salmon. Re-read the quote by Ted Strong of the Yakama Nation, “The sacred salmon runs are in decline. It is the moral duty, therefore, of the Indian people of the Columbia River to see them restored. We have to take care of them so that they can take care of us. Entwined together inextricably, no less now than ever before, are the fates both of salmon and the Indian people. The quest for salmon recovery is about restoring what is its sacred place.”

Give the students 10 minutes to contemplate their food web, the quote by Ted Strong and write their thoughts on the food webs and native people. Have them add this page to their Portfolio.

Now introduce the concept of Traditional Ecological Knowledge (TEK). TEK has many definitions, essentially TEK can be understood by the students by familiarizing themselves with the Tribe(s) and their original homelands. Tribal entities pre-European contact had very defined area of lands that generation after generation lived upon and were dependent upon for survival. Much like current scientific methodology, native people:

1. Made observations on a given ecosystem;
2. Made hypothesis based upon these observations;
3. Through experimentation either proved or disproved the hypothesis;
4. Changed methods of gathering, harvesting, hunting, fishing, etc. based upon the results of their experiments;
5. Through their oral traditions reported the findings to the next generation. TEK is the sum of thousands of years of “scientific study”.

More and more so, TEK is becoming recognizable as a viable means with which environmental problems can be solved. Many Ph.D. candidates do research on environmental issues and within their results confirm what native people in a given area already knew via the large body of TEK that exists within a tribal group. Tribal groups and tribal elders are being called on and often participate with environmental groups, community action groups and scientific coalitions of experts whose goal is to improve habitat, save a given species and many other environmental issues. Tribal elders most often are not “scientific experts” and may have no formal education whatsoever; but they have vast knowledge in a given field.

Now introduce the Yakama Nation. Traditional Ecological Knowledge is based upon the original homelands where the native people lived generation after generation. The people who are now known as the Yakama Nation are composed of 14 tribal groups. Each group had its own government, its own language and its own distinct area of homelands. All 14 of these tribes belong to what is commonly referred to as the Columbia Basin Plateau Tribes; this designation describes similar cultures based upon the environmental features found within in the Columbia Basin Plateau.

Like many of the Columbia Basin Plateau Tribes, the ancestors of the Yakama Nation lived a semi-nomadic lifestyle. This means that the people did not live in one specific area. Instead, they moved to various areas during different seasons of the year. During the winter they lived in permanent houses. In the spring they would go to the rivers to fish, and to gathering areas where they would begin harvesting the first roots, fruits and other foods that were available. As the summer months began, they followed very well defined areas to gather foods, ending in the mountains in the late summer and early fall to gather berries (huckleberries were a favored food) and to hunt. In addition to foods, the people would gather everything that they needed to survive, as an example, basket weaving materials were gathered in various areas as they became available. The people did not roam the lands oblivious to their surroundings, rather they had very defined trails that they followed and gathering areas that were used on an annual basis. In addition, the people had sacred sites where they held ceremonies, trading areas where they would meet up with other tribes and trade goods that were not found in their own areas; tribal groups had natural resources that were abundant within their own homelands and other resources that they needed to acquire through trade. Celilo Falls was one such trade area. Tribes would meet up and hold gatherings where not only trade occurred, but other activities

such as competitions (games), social activities, political discussions and alliances occurred and a sharing of knowledge.

Pass out the map of the Yakama Reservation. Point out the ceded land area and tell the class that these were the lands that the 14 tribes lived in. The Yakama Reservation was established by the Treaty of 1855.

A treaty is a legal document signed between a *sovereign nation* and the United States. A sovereign nation is a government that is recognized as a country that has its own political system. As an example, although Canada and the United States share a common boundary, Canada is not part of the United States and the United States cannot enforce its laws in Canada. If the United States and Canada wanted to make an agreement about some issue, a Treaty would need to be negotiated, neither a Canadian law nor a U.S. law would not be enforceable, but both governments could agree through a treaty to do certain things. In the beginnings of the United States, the government recognized each tribe as a sovereign government independent of other tribes and independent from any other government. One of the main reasons for the Lewis and Clark Expedition was to open up a trade route and make “friends” with the tribes that they encountered. Very soon after this Expedition, people began traveling to the west wanting to make their homes in these new lands. Just like Canada and the United States can’t tell each other what to do, the United States could not tell the tribes what to do. The United States wanted to increase their landbase, the only way they could do this was by negotiating treaties with the tribes who lived in these lands.

The Treaty of 1855 was signed by leaders of all 14 tribes near what is now Walla Walla, Washington. The tribes ceded 10.8 million acres of homelands, in exchange for a 1.3 million acre Reservation. In addition to the establishment of a permanent Reservation, the Treaty had many other provisions including the right of the people to fish, hunt and gather natural resources in their “usual and accustomed” sites (this was limited to public lands not lands held by private landowners).

**Activity:** Break the students into 3 groups:

- ◇ Tribal Leaders signing the Treaty
- ◇ Government Representatives
- ◇ Chief Kamiakin and others who opposed signing the Treaty

Give the Chief Kamiakin group the following short Biography of Chief Kamiakin (information was taken from the Yakama Nation Museum’s website which can be found at <http://www.yakamamuseum.com/showpage.php?pageid=1c6771c7>).

“Kamiakin: was born in the Snake River region, later known as Washington Territory; he was born 5 years after arrival of Lewis and Clark; his father was from the Palouse tribe and his mother was Yakama; he had two brothers. Showaway and Skloom, both leaders; he raised horses and cattle in 1854; he was a gardener, enjoyed potatoes and other vegetables; he was one of the principal leaders of the Yakamas; he and others opposed the treaty; he and others opposed the

reservation; he refused to accept any supplies or payments from the United States; Kamiakin died at Rock Lake in 1877.”

Give the students 10 minutes to discuss the motivation of their group with regard to the Treaty of 1855 and to prepare a presentation to share with the group.

To guide the students, have them look at the ceded lands compared to the Reservation lands. Give them a definition for cede from the Encarta Dictionary, “cede: to surrender or give up something, for example, land, rights, or power, to another country, group, or person”. Ask the students to consider the following questions in preparing their presentation:

1. What is your group going to gain out of signing the Treaty?
2. What is your group going to lose by not signing the Treaty?
3. What is the significance of allowing the tribes to continue using their usual and accustomed areas?
4. How did the groups communicate?
5. Do you think your group understood what was happening by signing the Treaty?
6. Do you think that your group planned to abide by the Treaty?
7. Would your group sign the Treaty today?

Have each group present their group’s perspective. Ask each group after their presentation what the most difficult part of this exercise was.

There are no “wrong” answers. This activity is designed specifically to get your students to think about what was really going on with the hundreds of treaties that were signed between the government and tribal groups across the country. A common difficulty expressed may well be their lack of background knowledge. This was a common problem. The tribes didn’t have an understanding of treaties nor did most tribes believe they “owned” their homelands. The Indian Agents who negotiated the treaties were acting on behalf of the U.S. government though there were many instances where a treaty was negotiated and signed by the tribal leaders and Indian Agents only to have the treaty rejected by Congress. This is called an unratified treaty. In cases where treaties were unratified, the lands that were ceded were given away or sold at very cheap prices to the new settlers who promptly built homes and made communities. When a treaty was rejected, the settlers did not give up their houses. New treaties were negotiated in these cases, though the tribes were left with few options. Most tribal leaders who signed the treaties did so because the hostilities and wars left their tribes in danger of extinction; settlers were already building houses, in the process destroying traditional gathering areas and displacing the animals that the people depended on for food. Tribal leaders were forced to watch their people die of starvation and from diseases that they had no cures for in addition to the deaths that occurred in the battles and wars from both the government and from the settlers.

Following decades of federal legislation aimed at totally eradicating tribal ways, a formal government was established in 1944; this Tribal Council is composed of 14 members (these 14 Tribal Council members are in remembrance of the original 14 tribal leaders who signed the Treaty of 1855). Much like the United States government, the Yakama Nation has the right to determine its citizens (tribal members) and to govern themselves and their lands within their Reservation as they deem most appropriate. The citizens (tribal members) elect their government officials (Tribal Council) who make laws that are enforceable much like laws of the United States. The Yakama Nation has created several departments to assist in this government, one of these is the Wildlife, Range, & Vegetation Resources Management Program <http://www.ynwildlife.org/index.htm>. The mission statement of this department is, "It shall be the mission of the Wildlife, Range, & Vegetation Resources Management Program for the Yakama Nation and its members to manage, protect, restore, and enhance the ecological cultural integrity of the Land & Natural Resources preserved since Time Immemorial and under the Treaty of 1855". Another department is the Fisheries Resource Management whose mission is, "To preserve, protect, enhance, and restore culturally important fish populations and their habitats throughout the Zone of Influence of the Yakama Nation and to protect the rights of Yakama Nation members to utilize these resources as reserved for them in the Treaty of 1855 (12 Stat 951)", from the website <http://host119.yakama.com/> which has a very comprehensive index of projects that the Tribe is working on.

An important concept for students to understand is that federally recognized tribes such as the Yakama Nation, deals with the federal government in a government-to-government relationship. As a result of this relationship, staff (under the direction of their Tribal Council) work with state and federal agencies to co-manage fisheries resources on the Yakama River, the Columbia River and its tributaries.

Break the students into their research groups. Allow them a few minutes to discuss amongst themselves Traditional Ecological Knowledge and the Yakama Nation. For a homework assignment, have each student write a one-page response to today's lesson. This may be added to their Portfolio after you have reviewed it.

*At this time let the students know that a guest speaker will be coming to the class and encourage the groups to think about questions that they may ask the speaker in preparation for their research project. Alternatively, let the students know that the next class period will be devoted to giving the students time in the library to do research; give each group time to do research on the internet including the Yakama Nation's Wildlife, Range, & Vegetation Resources Management Program <http://www.ynwildlife.org/index.htm>, the Yakama Nation's Fisheries Resource Management website at <http://host119.yakama.com/>, and the Columbia River Inter-Tribal Fish Commission <http://www.critfc.org/>. If any of the groups are researching Traditional Ecological Knowledge; good places to start include: <http://www.ser.org/iprn/tek.asp> Indigenous Peoples' Restoration Network homepage,*

<http://www.carc.org/pubs/v20no1/utility.htm> information on Traditional Ecological Knowledge (TEK), <http://www.ienearth.org/> Indigenous Environmental Network homepage.

### **Lesson 3, day 2**

#### **Guest Speaker or ask Tribe for appropriate video about the Tribe.**

Alternatively give students time for research in the library.

### **Lesson 4: Historic versus Contemporary Landscape**

#### **Lesson 4, day 1**

In preparation for this lesson go to [http://www.ecotrust.org/community/recalling\\_celilo.html](http://www.ecotrust.org/community/recalling_celilo.html); <http://www.ccrh.org/comm/river/celilo2.htm> and print out these pages for your students to read; it shows pictures of Celilo Falls pre-dam and is also a nice transition from the previous lesson on Traditional Ecological Knowledge. Also print out the page found on this website, [http://en.wikipedia.org/wiki/The\\_Dalles\\_Dam](http://en.wikipedia.org/wiki/The_Dalles_Dam) it gives an overview of the Dalles Dam and shows pictures of what was once Celilo Falls.

Give the students time to read these pages and write a short one-page response on their reaction to Celilo Falls and The Dalles Dam. Have the students add this page to their Portfolio after you have reviewed it.

No one could have foreseen the coming of the dams when the treaties were negotiated. The treaty right to fish in their “usual and accustomed” homelands was forever altered, as was their historical fishing sites. There were other dams, as well, that affected the fishing: the John Day Dam, McNary Dam and smaller projects on the Snake River are listed on the CTUIR web site. In addition the U.S. Army corps of engineers agreed to construct 400 acres of fishing access sites to replace the ones inundated. The commercial fisheries were also responsible for declining fish runs. In 1977, several Tribes aligned and created the Columbia River Inter-Tribal Fish Commission (CRITFC) to address issues that not only affected the salmon runs, but that jeopardized the treaty rights of these tribes: The Confederated Tribes of the Umatilla Indian Reservation; The Confederated Tribes of Warm Springs, the Confederated Bands of the Yakama Indian Reservation, and the Nez Perce Tribe of Idaho. “The Columbia River Inter-Tribal Fish Commission’s mission is to ensure a unified voice in the overall management of the fishery resources, and as managers, to protect reserved treaty rights through the exercise of the inherent sovereign powers of the tribes.” (from <http://www.critfc.org/text/work.html>). Prior to the CRITFC, there were traditional fishing authorities that governed the tribal communities use of the Columbia River (based upon the traditional ecological knowledge that existed). These traditional authorities served many purposes: spiritual and ceremonial protocol was enforced; fishing practices were limited by the numbers of salmon in a given year so that the continuity of salmon would be for all generations. Salmon Ceremonies and Feasts varied from tribe to tribe; however, a common theme was that no one could fish until the first salmon was taken in a ceremonious manner. These Ceremonies continue today and, at least for the native fishers, no

salmon are ever taken until ceremonial protocol has been followed. Adherence to these ceremonies are based upon thousands of years of reverence for the salmon, respect for their life cycle, reciprication, the belief that salmon take care of the people, and it is the duty of the people to take care of the salmon.

Another important aspect of Celilo Falls was its existence as a major trade center. All tribes had significant resources within their given homelands. For the people of the Columbia River, salmon was one of the most significant. Salmon was dried and processed for the people of the tribes; however, it was also a significant trade item. Other Tribes would come with their own trade items that were not readily available and salmon was traded, obsidian, wapato, acorns, etc. There existed a very sophisticated network of trade, and tribal people were quite dependent upon each other for their survival.

Give the students time to ask questions, and again for a homework assignment have them write a one-page response paper to add to their Portfolio.

## **Lesson 5: Responsibility of Society**

### **Lesson 5, Day 1**

In preparation for today's lesson, print out the list of endangered species at <http://www.nwr.noaa.gov/ESA-Salmon-Listings/Salmon-Populations/upload/1pgr06-06.pdf>; you will need one for each student.

Salmon populations are not even close to what their historic levels were. Over fishing, loss of habitat and poor ocean conditions are the primary cause. There are many anadromous fishes on the West Coast which are listed as endangered or threatened under the Federal Endangered Species Act. Pass out the list of salmon species you printed off of the The Northwest Region National Oceanic and Atmospheric Administration, Fisheries Services website.

Ask: Why do you think there are so many endangered species?

Ask for opinions on the availability of Atlantic farmed salmon. Make a list on the board for all to see.

Either read the following statement or print-out at <http://www.nwifc.wa.gov/recovery/statement.asp> for the class to read. This statement is from Billy Frank, Jr., Chairman for the Northwest Indian Fisheries Commission, and long-time activist. Billy Frank, Jr. was instrumental in bringing suit against the United States for violation of treaty rights in Washington; this resulted in the Boldt Decision which reaffirmed treaty rights in "usual and accustomed" places. Read the Boldt decision at [http://www.historylink.org/essays/output.cfm?file\\_id=5282](http://www.historylink.org/essays/output.cfm?file_id=5282)

"Salmon recovery begins and ends with the Big H - habitat.

Cutting harvest has been the major response to declining salmon runs for the past 20 years. We accept that burden year after year with the hope that some day habitat -- the Big H -- will be addressed with the same conviction that we have shown in reducing harvests.

We are not in this mess because of harvest. Our harvest management process works. We didn't cause the problems, but we will step up to protect the resource.

In Puget Sound we have made great strides in how the other Hs -- harvest and hatcheries -- affect wild salmon stocks. Through the Shared Strategy for Puget Sound, a bottoms-up cooperative conservation effort that is bringing together everyone with a stake in the salmon resource, we are integrating all of the Hs in a balanced approach to wild salmon recovery.

We have completed a recovery plan for threatened Puget Sound chinook that is now under review by the National Marine Fisheries Service, the federal agency in charge of implementing the Endangered Species Act.

What makes this plan different is that NMFS was an active participant in the development of the recovery plan. Now we must act to implement this solid plan.

Harvest and hatcheries are powerful management tools, but it's the Big H that brings salmon back year after year. If we lose sight of that on Puget Sound, like has happened on the Klamath and Columbia rivers, we will soon be looking at fishing closures in our back yard.

There is an acceptance, by leaders back east and even by some folks out here, that cutting harvest and watching salmon disappear is somehow OK.

As long as they can take water, cut down trees and build shopping malls, they're fine with salmon and fisherman becoming extinct.

I can't accept that fate. I don't understand how salmon can be less important than a new shopping mall or road.

The Big H is sitting here for us to take on in Western Washington. To save our region from the fate of Oregon and California, we must make sure the mistakes of the Klamath River aren't repeated here." (from <http://www.nwifc.wa.gov/recovery/statement.asp>).

Discuss reasons for the salmon decline:

### **“Components Of The Factors Causing Salmon Decline**

1. Loss of Streamside Vegetation and Functions
2. Pesticide Exposure
3. Industrial Pollutants Exposure
4. Increased Amount Of Sediment Entering Streams
5. Stream Straightening and Channelizing
6. Habitat Destruction

7. Decreased Amount Of Large Logs In Streams And Loss of Deep Pools and Channel Form
8. Filling of The Side Channels of Streams
9. Reduced Fresh Water Flow In Rivers and Streams
10. Exposure to Abnormal Temperatures
11. Habitat Area Loss
12. Lack of Screening of Water Diversion Canals to Keep Fish Out
13. Reduced Upwelling
14. Altered Ocean Currents and Flow
15. Decreased Food Abundance
16. Reduced Numbers of Adults Reaching Their Spawning Grounds
17. Reduced Numbers of Young Fish Making It To The Sea
18. Barriers Preventing Salmon From Migrating Upstream or Downstream
19. Loss of Genetic Integrity and Diversity
20. Competition Between Hatchery and Wild Fish
21. Forest Fragmentation
22. Estuary Degradation”

(from <http://www.psmfc.org/habitat/salmfct.html>)

Break the students into their research groups. Based upon their research topic, have each group choose one of the 22 reasons listed for declining salmon. Give them time to reach a solution for their chosen reason. As a group, have them write a one-page solution. Allow them to photocopy their one-page solution so they may each add to their Portfolio.

Day 2, 3, 4: Portfolios are turned in. Have each group present their findings to the class with a 30-minute time limit. Have each group include:

- Introduction of their subject and its connection to the Yakama Nation;
- Their Research topic and findings;
- Their combined food webs, encourage the students to creatively show their food web.
- One thing they will do to help the salmon (and how it will help them).

Wrap-up the Curriculum by re-listening to the Sacred landscape segment. Give time for students to express changes in what they have listened to.