Cedar Box

Teaching Toolkit

Created by the Muckleshoot Traditional Foods Program
with funding from the First Nations Development Institute
& the Northwest Portland Area Indian Health Board

First Nations Development Institute

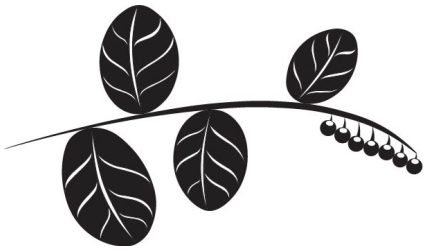
Muckleshoot Indian Tribe

NPAIHB
Indian Leadership for Indian Health

CREATIVE COMMONS NOTICE - 2017 materials

This resource is available through Northwest Portland Area Indian Health Board. Posters and the Feeding 7 Generations Recipe Book are also available through www.chatwinbooks.com

Table of Contents



About the Cedar Box Teaching Toolkit

This Toolkit is an educational resource featuring important native foods in Salish Country and the rich cultural traditions that surround them. The foods were selected because of their high nutritional value, cultural significance, and reasonable availability. The toolkit includes:

- A cedar bentwood box, cooking tongs, cooking rocks, display containers, teaching cards and preserved samples of 13 native foods.
- Videos about foods and food traditions that feature native storytellers.
- A curriculum including Salish food descriptions, recipes, stories and activities.
- A Feeding 7 Generations poster.
- A Feeding 7 Generations recipe book.

Educators can use the cedar box toolkit in a variety of settings including classrooms, community workshops and other educational events. Possible presentation formats include a "show and tell" overview of Salish foods, an exhibit, or a complete curriculum for teaching in depth classes on individual foods.

The information in this curriculum only scratches the surface of the vast cultural knowledge for each food. We hope that you can add your own community knowledge, stories, artwork, preserved foods and language to your toolkit over time.

How to Use This Curriculum

Chapters on specific foods can be used as handouts. Recipes, activities and stories provide a culturally based learning style. Short videos about several of the foods in this book can be accessed at https://vimeo.com/cedarboxstories. They include traditional Salish stories and people sharing their knowledge about the foods. Educators may want to show them as part of a classroom activity.

It is our hope that educating people about the significance of these foods will encourage them to preserve and promote them. This toolkit may inspire hands-on stewardship, restoration, or political action related to native foods that are becoming scarce.

For example, we can plant native berries and wild greens in home gardens and public landscapes; and we can work to restore the health of our waters and wild spaces.

Harvest ethics are an integral part of this curriculum. Wise gatherers, hunters and fishers teach us to take only what the land can handle and leave enough so that plant or animal communities continue to thrive. Likewise, it is essential to give back to the land so it will not become depleted. For example, we can return shells to beaches and compost to the soil. Teaching people about appropriate harvest and land management techniques will preserve these precious foods for future generations. Tribal elders, knowledge keepers and tribal natural resource managers can be additional sources for understanding harvest ethics.

Have fun! We hope this curriculum builds your knowledge and inspires you to engage with native foods. Getting out there to harvest berries, dig camas, or fish for salmon not only feeds our bodies, it also nurtures our relationship to place, builds community and connects us to cultural traditions.

Introduction

The Salish Sea region was one of the most densely populated and richest food places on the planet before Euro-American colonization. Stories passed down through generations tell us that many types of berries, roots, bulbs, nuts, and seeds were eaten as part of a well-balanced diet. These nutritious foods contributed to the excellent health and rich cultural traditions of Northwest Coastal Native Peoples. These foods include:

- **Fish:** salmon, smelt, trout, minnows, halibut, codfish, pollock, hake, rockfish, sculpin, perch, eel, flounder, sole, skates, anchovy, sturgeon
- **Shellfish**: clams, oysters, muscles, barnacles, scallops, limpets, snails, chitons, crabs, shrimp, sea urchins, octopus, squid
- **Mammals from the water**: whale, porpoise, seal,
- **Mammals from the land**: deer, elk, bear, mountain goat, cougar, Bobcat, rabbit, mountain beaver
- **Birds**: swans, geese, ducks, grouse, quail, pelicans, hawks, gulls, doves, pigeons
- **Greens**: nettle, spring beauty, miner's lettuce, cattail, fiddlehead ferns, horsetail fertile shoots, salmonberry and thimbleberry sprouts, purslane, evergreen tree tips from Douglas fir, true fir, hemlock and spruce, violet leaves and flowers
- **Roots**: camas, wapato, wild onion, yampah, bracken fern, chocolate lily, rice root, glacier lily, spring beauty, silverweed, spring bank clover, biscuit root
- **Fruits**: huckleberries, salmonberry, thimbleberry, blackcap raspberry, cranberry, salal, serviceberries, soapberry, wild strawberries, blackberry, elderberries, crabapple, wild cherry, currants, gooseberries, Indian plum, wild roses
- **Nuts**: Hazelnut, acorn

Many Tribal elders agree that their happiest times were those spent gathering and preparing native foods with their friends and family. These were unifying moments when people worked together over a common purpose. Stories and laughter were shared while hands processed fish, berries, and nuts. As author Dr. Rudolph Ryser, Chair of the Center for World Indigenous Studies says, "For me, the kitchen table was a place where cultural knowledge was passed from one generation to the next."

Despite ruptures to native food systems and the introduction of Euro-American industrialized foods, many Native People continue to harvest, hunt, gather and grow the native foods that have nourished their ancestors for countless generations. These foods and the traditions that surround them provide people with top-quality nutrition, physical activity, a connection to the land and the seasons, as well as strong ties to family and community.

The story of our relationship to the earth is written more truthfully on the land than on the page. It lasts there. The land remembers what we said and did. Stories are among the most potent tools for restoring the land as well as our relationship to the land. We need t unearth the old stories that live in a place and begin to create new ones, for we are storymakers, not just storytellers. All stories are connected, new ones woven from the threads of the old.

-Robin Wall Kimmerer, Braiding Sweetgrass

From White Cap to White Cap

From the deep waters of the Pacific Ocean to the snow capped peaks of the Cascade Mountains, the land and waters of the Coastal Pacific Northwest are teaming with wild foods. Within this land thrives a great diversity of ecosystems, from open grasslands to wetlands to dense forests. This abundance of food and diversity of landscapes is directly linked to active management by Native People. As we look into the past to see how native foods were harvested, processed and maintained, it becomes clear that our ancestors had an advanced understanding of their food systems. Special techniques including burning, weeding, aerating the soil, pruning and modifying waterways and beaches have all been utilized to increase the bounty of foods, which is mutually beneficial for many non-human species. Without these techniques, many important foods may well have disappeared from the this region long ago. Examples include:

Camas Prairies – Prairies naturally formed in the Puget Sound region about 14,000 years ago, after glaciers retreated. Many foods including edible bulbs, roots, nuts and berries thrive in this open landscape. Burning the prairies releases nutrients into the soil and prevents trees from taking over. Open meadows are attractive to deer, elk, and other animals that graze on prairie plants. Through selective harvest and pruning, you can increase the bounty of edible plants.

Mountain Huckleberry Meadows – Shrouded in snow most of the year, these highlands are only accessible in summer and early autumn. The growing season is short, but very productive. Mountain huckleberry, alpine lilies and many other foods, as well as basketry plants and medicines thrive in these meadows, which have been traditionally maintained through burning, specialized harvesting techniques and weeding out unwanted species. Many Native People still maintain that it is well worth making the journey to harvest huckleberries and other mountain foods and medicines in late summer.

Lowland Forests – Like a broad green belt between the rocky summits and watery seas, ancient forests carpet the majority of the land. Beneath the shady canopy of giant cedar, hemlock, spruce, and fir trees are many types of foods and medicines including salal, lowland huckleberries and nettles. The forest is home to a variety of wild game. Forest edges and sunny openings are especially productive food areas that can be maintained for diversity and abundance.

Wetlands – Wetlands include the margins of lakes and ponds, shallow freshwater marshes and peat bogs. Food plants specially adapted to these wet conditions include cattail, wapato and bog cranberry. Many basketry plants including cattail, tule, sedges and willows are harvested from wetlands. Birds including ducks and geese rely on these areas for feeding and nesting grounds.

Saltwater Beaches – Tribal elders say that when the tide is out, the table is set. Beaches provided a rich abundance and wide variety of foods. Clams thrive in sandy and gravelly beaches, while seaweed and other shellfish flourish on rocky shores. Tidepools are hiding places for octopus and crabs. Because of the mild climate, food can be harvested from saltwater beaches all year round. Through modifying beaches and creating "clam gardens" you can increase the number of clams and other ocean species.

Feeding 7 Generations

Food is a gift. Salish Elders remind us that true wealth is having access to native foods along with the knowledge of how to gather, prepare and serve them. Our values and food traditions are a living legacy that links us to past, present and future generations. Several times a day, we encounter opportunities to reflect on what we eat and how our choices change our world. When we harvest native foods and incorporate them in to our modern lifestyle, we strengthen our cultural identity, our relationship to the land and tribal sovereignty. It will take all of us to feed the next seven generations.

Live with the Seasons. From spring camas prairies to summer huckleberry meadows to autumn fish runs, seasonal foods connect us with the rhythm of the land. For thousands of years we have organized our lives to gather what is in season. In return, we receive peak nutrients that keep us healthy all year long.

Diversify Your Diet. Our ancestors ate a wide variety of foods just a few generations ago. Today, most Americans eat only 12-20 foods on a regular basis, limiting their consumption of minerals, vitamins and other nutrients. When we eat many types of foods, we receive the nourishment we need to stay strong. We also promote the diversity and health of the land.

Eat More Plants. All health advocates agree that we need to eat more plants. Plant foods help us maintain a healthy weight and prevent chronic diseases including heart disease, diabetes and cancer. Eating more plants also reduces climate change and environmental destruction.

Traditional Foods are Whole Foods. Imagine walking through the grocery store with your great grandparents. What would they recognize as food? Our ancestors thrived on whole foods that weren't industrialized, genetically modified, refined, packed with sugar or blended with additives, dyes or chemicals. Whole foods feed the wholeness within us.

Gather Wild Foods. There is a store outside your door. Wild foods are the most nutritious and flavorful foods we can find. Free and accessible, they thrive all around us from forests to fields to back yards. Tasting wild foods connects us to the gifts of the land and attunes us to the seasons.

Cook and Eat with Good Intention. Cooking is a time to offer respect to the plants and animals that gave their lives to nourish us. It is also an opportunity to honor our culture and the people with whom we share food. If we eat while on the go, we miss the pleasure of eating, and do not have sufficient time to savor and digest. Harvesting, preparing, serving and consuming food with good intention feeds our bodies and spirits.

Give Back to the Land. When we harvest and grow food in a way that supports plant and animal communities, we express native values of generosity. Generosity includes both giving and receiving. Organic and sustainable practices return basic life materials to the soil. Through caring for the land, we continue the ancient practices of our ancestors and pass down a world that supports generations to come.

The Impacts of Colonization on Native Foods Access

Native food has always been an integral part of Coast Salish culture, yet peoples' ability to access food traditions has rapidly declined in the last few generations. Starting in the mid to late 19th century, most Native communities were moved from their homeland onto small reservations by Territorial and Federal governments trying to make room for American farmers and industrialists. These governments then outlawed many traditional management practices and forced Native People to farm in the European style where land is cleared, plowed, and planted with cereal grains. Children were sent to boarding schools in an attempt to assimilate them into the American society and strip them of their culture. They were given English names and were prohibited from speaking their language. Practicing many cultural traditions, including food traditions, became illegal.

The health of Coast Salish people has also suffered from the loss of ancestral food traditions, which were replaced with commodity foods that are high in carbohydrates, sugar, dairy and poor quality fats. This is vastly different from a traditional diet with food rich in vitamins, minerals, good quality fats and antioxidants. As people became more sedentary and adopted new European-style foods, diabetes began to appear. Diabetes was virtually non-existent among Northwest Coastal Indian people about 125 years ago, and now it is at epidemic levels. Studies also link trauma from colonization directly to diabetes and other diseases.

Despite treaties that guaranteed harvesting rights, access to native foods has steadily declined in the last 150 years as private property, corporate interests, and preservationist priorities have grown to dominate the public discourse regarding land management at the local, state and federal levels. The ancestral economy of Coast Salish people has been exploited and the health of the land reflects the health of the people. Environmental toxins in wild foods deter people from hunting, fishing and gathering in some areas. Elders from many communities grieve that they can no longer harvest and prepare the foods they grew up eating. New generations have had little exposure to traditional foods and their teachings, making it hard for them to incorporate these foods into their modern lifestyles. The implications of this are vast. As the availability of these foods decreases, the stories, songs and language connected to them also fall silent.

In the face of these great obstacles, it is incredible that Northwest Coastal People have continued to hold on to their food traditions... and yet they have. The current resurgence of cultural traditions is nothing short of a renaissance: Elders are gathering to remember and to teach; families and communities are picking up the digging stick and basket and restoring harvest areas; gardens are being planted; land partnerships and food policy initiatives are shaping programs; and partnerships with local, state and federal governmental bodies are emerging to address these issues. Native foods are being embraced as a powerful organizing tool to fight modern chronic diseases. They are reconnecting people to the seasons, the land, and their community.

Traditional Food Harvesting, Cooking & Preservation

Native American Harvesters

In most cases the right for Native Americans to harvest food and ceremonial items is protected by either Federal treaty or the Constitution which both exceed regulations imposed by the multitude of land managers below. For more information, Native American harvesters can check with the Natural Resources office of the Tribe that they are registered. In Western Washington the treaties guaranteed Native Americans an "exclusive right" to all resources within the boundaries of the reservations and an "in common" right to off-reservation fishing, hunting and gathering of roots and berries, at all “usual and accustomed grounds and stations.” The Boldt decision further clarified the Native American right to harvest shellfish and finfish stating that Native Americans have rights to 50 percent of the harvestable surplus (http://nwifc.org/about-us/shellfish/treaty-rights-faq/). Non-native harvesters would do well to recognize that Native Americans were the original stewards of many of the natural resources enjoyed by everyone today.

Harvest Ethics

Those harvesting wild plants and animals have an ethical responsibility to ensure that they do not exceed the capacity of a particular ecosystem to both replenish itself, and provide for other organisms. Please respect the organisms that you harvest and the land that supports them by not overharvesting and leaving as little trace as possible.

Below are some general guidelines for harvesting different types of plant and fungal resources. (Plants guidelines from Nature’s Garden by Samuel Thayer)

- Annual weeds: are plants that produce seed and then die within one growing season. These plants reproduce prolifically and are usually only restricted in abundance by the available habitat. They can generally be harvested with little restraint.
- Biennials: are typically tap rooted plants that produce seeds the second year and then die. Harvesting the roots destroys the plant but they usually produce an abundance of seed and the soil disturbance that results from harvesting the plants is an ideal germination environment for future plants. Harvest no more than half of the plants in a particular colony.
- Perennial greens: are plants that die back to a root that persists year to year (like stinging nettles). Harvesting the leaves does not significantly damage the plant unless they are picked repeatedly over the course of a season. Take less than a third of the available foliage.
- Perennial shoots: are stems that die back to a root that persists year to year (like cattail). They are more sensitive than greens because the entire above ground portion of the plant is often removed. Take less than a third of a particular colony in a given year.
- Fruits, Seeds, Nuts, and Berries: are gifts from the plant to us. While they are important to the reproduction of a particular plant, taking them does not harm the plant in any way. Overharvesting of berries is almost impossible, but think of needs of wildlife and other harvesters, and be a good steward by planting a few seeds after you are done picking.

- Multiple Underground Storage Organs: are things like tubers and some rhizomes from plants that grow in communities (cattails). They can be harvested in moderation from healthy patches, but leave at least half to continue growing. The remaining plants will often benefit from soil that was loosened during your harvest.
- Single Underground Storage Organs: are things like tubers, bulbs, and taproots. They are the most prone to overharvesting as the removal of the bulb results in the loss of the entire organism. Space your harvesting out so that you don't remove an entire clump. Only remove a small percentage of the entire population and replant the smallest and the largest of the roots that you dig up. The largest roots usually produce the most seeds and will help replenish the population.

For information on rare plants and animals that should not be harvested, see the Washington Natural Heritage Program website.

Safety

The things we put in our mouths have the capacity to damage us and wild foods are no exception. Poisoning from misidentification, improper harvest season, inadequate preparation, or contamination, as well as allergies, all threaten wild food harvesters. Fortunately, these hazards are easily avoided with knowledge, experience, and a few simple guidelines.

1. Do not rely solely on a wild food book for identifying plants. These books are best used in combination with expert help and field guides that are specifically designed for identification.
2. Never eat something the first time you identify it.
3. Never eat something unless you have total confidence in your identification.
4. Be sure you understand the proper season for collecting edible parts and process them according to instructions from a reputable source.
5. Just try a little bit the first time. Never serve new foods to other people if you don't have experience eating them yourself.
6. Let others know when you serve them wild foods in case they have never tried a particular food before. Advise them to start by only trying a little bit.
7. Avoid harvesting plants near busy roadways or areas were contamination is suspected.

Aleta Poste harvesting nettles

Digging gear:

Only a few light tools are needed for harvesting and managing the hidden food treasures buried beneath the earth. With nothing more than a stout digging stick, a harvesting basket, and a strong back, a feast of clams or roots can reward the knowledgeable and persistent. Throughout the Pacific Northwest, two different styles of digging sticks are traditionally used by those tending root and clam gardens. “T” handled diggers are most commonly used for unearthing roots in hard ground. Securely fastened to a sharpened vertical piece is a horizontal handle, which provides a comfortable surface to exert the necessary force to break through dry or rocky soils. These digging sticks are usually round and unshaped in cross section and fairly straight to slightly “J” shaped from tip to handle. Softer soil sites and clam gardens are traditionally cultivated with a digging stick made out of a single piece of wood that is often more substantially carved with broadly sharpened head, narrow shaft, and rounded or squared handle.

Digging sticks are made from the hardest and toughest material available. Historically Indigenous People west of the Cascades preferred yew or oceanspray wood, while those living east of the Cascades preferred serviceberry, hawthorn, mock orange, and oak. The tips of all wooden digging sticks are carefully sharpened, fire hardened, and rubbed with tallow to form resilient, waterproof points. Digging sticks are usually three to four feet long, or roughly the length of the root gardener’s leg. Top handles are made either of the same wood, or occasionally of antler. Today, steel digging sticks are often forged.

Traditional gardeners use digging sticks in a similar manner to short-handled shovels or potato forks. The tip of the digging stick is driven into the ground near the target root or clam and the handle pushed downward, prying the food from the ground. Hard, uncultivated ground must usually be dug from several different angles. Digging sticks are the perfect tool for their designed task and allow traditional gardeners to remove undamaged roots and clams from even the driest and rockiest soils.

After a quick dusting to remove the largest clumps of sediment, the gardener places the root or clam in an open-work basket. This basket is never far from the digger and more roots or clams are harvested until the basket is full. The open weave of the basket allows dirt and sand to fall freely, and in some instances, the basket is submerged partially in water and shaken, like a colander, to rinse off any remaining dirt. Thus cleaned, the roots or clams are ready to be cooked or dried.

Berry Picking Gear

The Pacific Northwest bursts with a bounty of berries. From the spring’s first salmonberry to the winter’s last cranberry, our region boasts a delicious diversity in the dozens. Nearly every ecosystem from coastal fringe to mountain meadow has berries to

offer, and the ready picker must not only know when and where to find each fruit, but have the proper gear to pluck, stow and clean their crop.

A handful of our fruit and nut bearing plants are either too tall or too short to comfortably get our hands on. Shrubs such as chokecherry, crabapple, elderberry, hazelnut, and serviceberry all have long flexible limbs that suspend the majority of their fruit just beyond the reach of the unaided arm. To this evolutionary problem, the berry hook is an ergonomic solution. Functionally no more than a long stick with a branch-catching barb on one end, the berry hook nullifies the need to climb anything (thus sparing our own limbs from damage) by bending the fruit to the level of the picker. For those seeking a leg-up on the competition, tying a foot loop on the bottom end of the berry hook will free both hands for picking.

Berry hooks are often made on the spot from materials at hand. The long straight shoots of oceanspray, hazelnut, and serviceberry are just a few of the preferred woods. The hooked end is usually part of an attached low-angle crotch.

Bog cranberries and Cascade blueberries present the opposite problem. They are so low that a stiff back from constant stooping is the primary hazard. Once removed, berries are placed in a small berry picking basket that is tied around the waist. This basket has a wide enough weave for unripe berries, insects, and small debris to fall through, but narrow enough to retain the desirable fruit. Traditional berry baskets hold about 1-3 gallons. When the front basket is full, it is emptied into a large burden basket that is placed in a central location, or worn on the back with a tumpline. Some tribes also employ a third, intermediate sized basket. Today, many people pick berries into ½-1 gallon ice cream containers, which are nearly as fun to empty as they are to fill. Whatever container is used, picking speed increases dramatically when the container is tied to your waste as both hands are then free to pluck fruit.

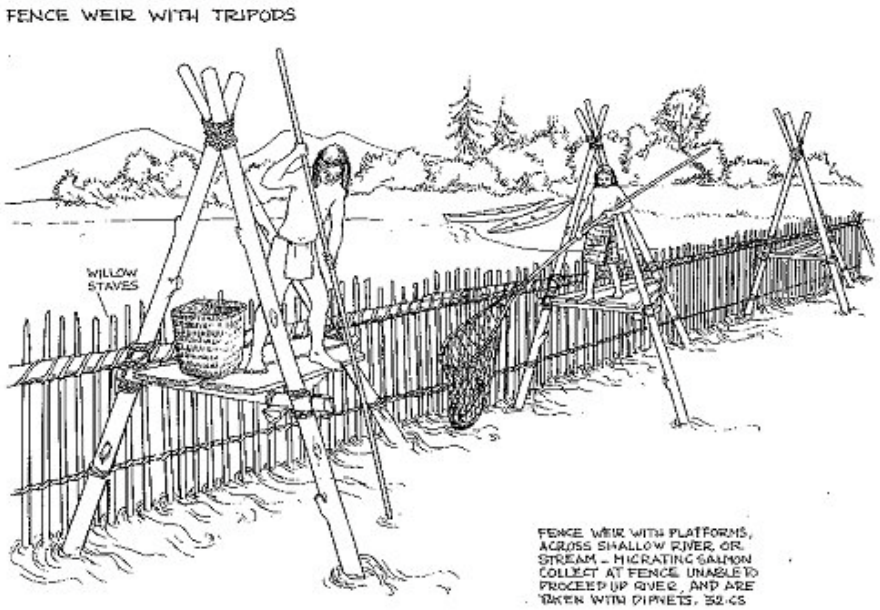
Back home, the berries must be cleaned to remove leaves, undesirable berries, and other debris. The age-old technique of rolling berries down a wet board still works as well today as it has for countless generations. The flat leaves and squishy over-ripe berries stick to the board while the ripe berries roll to the bottom. Be sure and use a wide board with a gentle slope and leave plenty of room at the bottom of the ramp to catch your berries. A variation of the same technique makes use of a dry towel on the board, which is nice if you are going to freeze your berries because they stay dry. Berries can also be cleaned in a more dynamic process by placing them on a damp bed sheet with the four corners spread tight. The fruit is then tossed in the air and finally rolled off into a container while the debris sticks to the sheet. Whichever method is used, some degree of hand sorting is usually needed to remove under-ripe fruit before the berries are ready to be cooked, dried, or eaten.

Fishing Gear

Any fisher will tell you that having the proper gear is vital to a successful catch. Scores of species swim through our coastal, intertidal, and river waters, and many require a unique selection of tackle, making fishing one of the most sophisticated categories of tools and

technologies among Indigenous societies in the Pacific Northwest. Broadly, most fishing gear can be broken down into three basic methods: trapping (with weirs, nets, or traps), stabbing (with gaffs, spears, or rakes), and hooking (with lines and hooks), but each of these techniques (and the associated tools) are specifically tailored to a particular species at a particular life-history stage. For example, a fisher may troll a hook for salmon in salt water, but pursue the same species a few months later with a gaff in a stream. Some tools, however, have more general utility across fish species, such as canoes, fish clubs, and fish cutting knives.

Fish weirs are traditionally among the most efficient means of capturing food because they are designed to temporarily obstruct not just one, but entire schools of fish. Simple designs include crescent shaped stone walls placed along the beach that take advantage of tidal action to trap fish within the enclosure at low tide, and wooden lattice-work fences placed across streams and small rivers. Both designs build upon areas where fish are naturally forced to congregate, and further inhibit the mobility of the fish. The most desirable fish from those aggregated by the weir were then netted, gaffed, or forced into traps, while excess and undesirable fish were allowed to escape through an opening in the weir. The following illustration depicts a river-based salmon weir. Other specialized weir designs were also employed to catch eulachon and smelt in rivers, and salmon, ground fish, and herring in estuaries and along coastal beaches. The power of flowing water imposes a practical limit to the height of a weir, and most are used in water no more than about six feet deep.



Drawing of a First Nations fence weir with tripods. Image © Hilary Stewart.
Indian Fishing: Early Methods on the Northwest Coast. p. 104.

Early colonial settlers quickly adopted Indigenous weir techniques, but failed to allow an adequate number of fish to escape, leading to the eventual prohibition of weir-based fisheries.

Aggregations of fish in deep water are traditionally caught using other techniques such as reef netting. These nets were originally made of willow fiber and positioned along the salmon migration path in reefs that naturally concentrated the salmon. Two canoes held the mouth of the net open, and the bottom was anchored to the reef. Since salmon travel in schools that are destined for the same spawning grounds, an opening in the center of the trap allowed some of each school to escape to sustain each run.

Shoals of smaller fish, such as herring, could be "raked" with a specialized tool called a herring rake. This was made from a split cedar plank that was about 6 feet long with a long round handle and a narrow head that contained a row of sharp bone spikes. The rake was sliced through the water to impale herring, which were then removed from the spikes and used for bait or eaten.

Additional hand tools such as spears and gaffs were used to catch salmon and other river fish in shallow streams. Gaffs were made from a long pole with a detachable hooked head that was attached to a line. Many types of spears were used to catch fish in estuaries and rivers including those similar in construction to the seal spear, and others with two barbed prongs.

Hook and line fishing was as common in the past as it is today. Halibut were taken with bentwood hooks made from yew or hemlock and baited with octopus, and small bone hooks were used for catching salmon. Fishing line was usually made from the stipes of bull kelp or fiber from willow or stinging nettle.

Fish cutting knives were originally made from sharpened mussel shells or thin sheets of slate that were hafted on one side and ground sharp on the side opposite the handle.

Hunting Gear

Modifications on many of the same technologies used to catch fish were adapted to hunting other animals from the sea, land and sky. Traditional hunting gear including bow and arrows, nets, traps, harpoons, and spears were all used to capture quarry ranging from deep diving seals to high climbing mountain goats and fast flying ducks.

Bows and Arrows

Prior to guns, bows and arrows were the quintessential hunting tools of humans nearly everywhere. On the coast, bows were usually made from yew or vine maple, although ocean spray and yellow cedar were sometimes used as well. Yew and bighorn sheep horn were commonly used in the interior. Most bows were short with recurved tips and sinew backing. Bowstrings were made of sea lion gut, sinew, or plant fiber. The material selection and construction of a bow was a meticulous process requiring several weeks of dedicated work. Yew wood, though revered by bowyers around the world for its unique combination of dense hardwood and elastic sapwood, is often twisted and knotty. Much care was thus taken to select a stave from a straight trunk or branch. This piece was split in half to make a stave, which ranged in length from the distance between the archer's elbows when his fists were put together, to the span between his hands when his arms were stretched outwards. The heartwood was carved away until the stave was roughly 3 inches wide and a half-inch thick. Each limb was wrapped in seaweed and buried in sand near a hot fire until it was softened by the steam and could be bent into shape. The sapwood faced away from the archer and was usually covered with many layers of deer

sinew that was dried, pounded, and fastened with glue made from fish skins or sturgeon spinal cord. The best bowstrings came from sea lion gut, but it was not uncommon to use the gut, sinew, or leather from other animals as well as nettle, willow, and dogbane cordage.

Arrows were specially designed for each type of animal. On the coast the shafts were usually made from the long shoots of oceanspray or split from western red cedar wood. Fletching was made from eagle or cormorant feathers. Detachable foreshafts were commonly used and arrowheads were made from bone, wood, or stone. In the interior, arrow shafts were usually serviceberry with hawk or grouse fletching and arrowheads of stone, wood, or bone.

Nets and Traps

Fish weren't the only creatures captured by net. The Salish also used nets to snare ducks and even deer. Duck nets had a mesh coarse enough for small species such as teal to pass through, but fine enough to retain larger ducks, geese, and swans. Willow or nettle fiber nets were suspended between poles or trees at the mouth of narrow flyways in the evening when it was difficult for the birds to see. After several birds got stuck in the net, it was dropped to the ground so that the birds could be killed.

Nets were also used to force seals close to shore and keep them from diving, so they could be harpooned or clubbed. Deer were similarly corralled into narrow canyons and driven into stout willow fiber nets where they were easily speared or shot with a bow and arrow. More commonly, deer were killed with pit fall traps or deadfall traps. Dead fall traps were positioned across a deer trail in such a manner that when the deer stopped to go under a large log, the deer pushed a trigger that caused the log to fall and break the deer's neck.

Harpoons and Spears

Seals and other sea mammals were hunted with a large harpoon about 15 feet long. The main shaft was made of Douglas fir, and the foreshaft made of a hardwood, such as yew or oceanspray. The head was a composite of three pieces, the center point usually made of bone or hardwood and two barbs of elk horn. The pieces were lashed together with cherry bark and sealed with pitch. A line was tied to the head and once speared, the foreshaft would separate from the main shaft and twist the head sideways into the wound.

Ducks and geese were hunted with a pronged spear that was designed to catch in the feathers and not damage the meat. It was difficult to get close enough to the waterfowl to spear them, without a stealth and cunning technique. On a moonless night, a pair of hunters would canoe through a marsh—the person in the bow with a spear and the person in the stern with a pitch wood torch. Perceiving the flame to be farther off than it actually was, and blinded of the presence of the hunters by the torchlight, the waterfowl allowed the hunters to get within spearing distance.

Once available, guns quickly replaced the bow and arrow, harpoon, and spear. They also changed animal behavior. For example, ducks were said to be much more skittish after the introduction of firearms. During the early period of transition, some Native American hunters loaded pieces of stone arrowheads with each bullet, believing that the stone more effectively killed the animal than the bullet.

Cooking

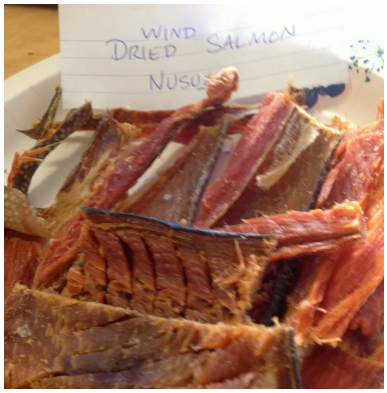
Northwest Coastal Ancestors used a variety of cooking techniques such as roasting or steaming in earthen pit ovens, spit roasting next to a fire, baking in or on hot coals, and boiling in tightly woven baskets or bentwood boxes with hot rocks. Deer, seal, and numerous root vegetables were sometimes cooked whole in underground roasting pits. For this, a large pit was dug and filled with volcanic rocks. Then a hot fire was kindled inside the pit and burned until the rocks were glowing hot. The coals were scraped out and the pit was lined with vegetation such as salal, sword fern, and skunk cabbage before the food was placed in the pit. The oven was then sealed with mats and soil and left to cook for several hours to as long as 3 days. A fire was usually lit on top of the pit for foods that required more than 1 day to cook. This technique varied considerably by food type. For example, clams could be placed directly on the hot rocks and only required seaweed—not earth—to be placed over the top; many root vegetables were steamed inside of earth ovens by adding water to the hot rocks. Typically, only large quantities of food were pit roasted, such as a year's supply of camas or clams, or enough meat for a feast.

Smaller portions of food such as fish, de-shelled clams, venison, and waterfowl were traditionally roasted on spits. Large fish were "butterflied" or split down the back and folded open along the belly. The fish was held open with small pieces of split cedar and mounted on an upright spit near the fire, where they were periodically turned. Upright spits of various sizes were used to roast many whole animals ranging in size from clams to marmots, as well as pieces of larger animals. Spit roasting or barbecuing is still a popular means of preparing these foods. Some foods were roasted directly on the hot coals, such as clams that were still in the shell, and the rhizomes of cattails and bracken fern. Small portions of other foods could be wrapped in skunk cabbage leaves and buried in the coals of a fire.

Family sized portions of food were also regularly boiled in watertight baskets. Special cooking stones, usually about the size of ping pong balls, were heated in a fire and dropped into the baskets using fire tongs. Crabs, fish, meat, and berries were all cooked in this manner, or water was simply heated for medicinal tea or used to soften dried foods such as hard smoked salmon and dried camas.

Preserving

Having food throughout the winter and a balanced diet throughout the year has always been a necessary part of life that is made possible in our region by preserving food. Not surprisingly, many of the same techniques used today were also used traditionally, including storing fresh food live, cold, wet, or frozen, and processing food by drying, smoking, or fermenting. Live storage was perhaps the simplest and most intuitive means of ensuring future meals. Some roots, such as springbank clover, were harvested in the fall, while dormant, and kept alive in damp soil near the house where they could easily be dug up during the winter. Those that wouldn't actually stay alive could be kept fresh in cool places. For example, blue elderberries were bundled with pine needles and cached in the snow where they could be retrieved later in the winter. Similarly, crabapples were stored in baskets in cool dry places or, more rarely, submerged in water. Water storage was more common for cooked red elderberries and acorns, which were packaged and buried near streams or swamps for a month or more. Bitter constituents could be leached out of these foods when stored in this manner, so this was also a form of passive processing.



Many foods required more complex processing such as dehydrating, smoking, and fermenting. Wind drying salmon and sun drying roots and berries were common in the upper river valleys and dry interior where wind and sun are more predictable. On the coast, where air humidity is higher, heat and smoke were often necessary elements to hasten the process and ward off bugs. For example, salal berries were dried on skunk cabbage leaves near a hot fire, and salmon and elk meat were usually smoked in a special smoke house or hung in a smoky part of the main house.

Most interesting were traditional methods of fermenting foods such as salmon: the fresh roe of Spring Salmon was buried in a deep hole that was lined with several layers of perforated bigleaf maple leaves, which allowed the oil to drain away as the eggs cured. The eggs were then covered with more leaves and soil, and then left to ferment. Whole salmon were sometimes buried for up to 10 days before they were boiled and eaten, and in some areas, sockeye were fermented and rendered for oil in the same manner as eulachon grease.

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Page 6, Grace Anne Byrd harvesting nettles at Nisqually

Art Credit:

Cover page art, table of contents salal and Introduction huckleberry hands, Joe Seymour. Feeding 7 Generations leaf circle, Roger Fernandes

Western Red Cedar

Cedar has made possible the rich culture and historic wealth of Salish People by providing for them from birth to death. It has been called Grandmother, Long Life Maker and Rich Woman Maker. Majestic longhouses, swift and rot-resistant canoes, durable clothing, watertight baskets, cordage, tools, art, medicine and many other things have been, and continue to be, fashioned from cedar.

Other names: *Thuja plicata*. Whulshootseed: *x̌əpayac*

Identifying Cedar: Cedar is a distinctive tall evergreen tree with a wide buttressing base, and a fibrous, fluted trunk with gray to cinnamon-red bark. Greenish-yellow leaves are flat with opposite scales. Branches are often J-shaped with upward pointed tips. Simple round flowers bloom in late summer and give the tree a yellowish appearance. They can rain a cloud of pollen in the spring that makes the air appear hazy, covering everything in fine golden dust. Cedar seed cones have 8-12 scales, are about ½ inch long, and are shaped like rosebuds. They are ingeniously engineered to funnel pollen grains into the small spaces between the scales, like wind turbines. The largest cedar trees are up to 19 feet in diameter and 200 feet tall, which is three fifths as long as a football field! Some of the oldest trees are thought to be as much as 1,000 years old.

Where it Grows: Cedar thrives in moist soils in lowlands, flats and mountain slopes. It prefers wet, misty forest, and is very common on the west side of the Cascade Mountains from Northern California up into S.E. Alaska, as well as the foothills on the west side of the Rockies in Montana and Idaho.

Season: Cedar bark is stripped in the late spring and early summer when the sap is running. Wood can be harvested any time of year. Leaves are harvested any time as well, but they are most aromatic in summer.

Harvesting and Processing Cedar: All parts of cedar are highly valued, including the wood, bark, roots, branches and leaves. Harvesting cedar bark takes a lot of expertise. You must understand when, where, and which trees to harvest from, along with how to cut and pull the bark, separate the inner bark from the outer bark, and dry it. It helps to have an elder or culture keeper take you out and show you several times! Bark is peeled from trees with straight trunks by making a single cut and pulling upward on the trunk. Strips can be as long as 30 feet, and are carefully separated into layers.

To harvest cedar leaves, carefully prune small fan-like branches here and there on the tree so you do not leave a visible impact. Leaves can be used fresh, or they can be dried by bundling several small branches with a rubber band and then hanging them, or placing them on baskets in a dry place with good ventilation. Keep them whole to retain the volatile oils, and then crush them just before you use them. Store in a paper bag or glass jar.

Traditional Technologies: Cedar bark is prized for its durability, flexibility and water resistance. Soft fibers have been used for clothing, mats, napkins and towels. Weavers create beautiful, ornate cedar baskets and hats from narrow strands of cedar bark. Long straight cedar roots are split and used in basket making. Branches have also been made into rope, fish traps, binding material and baskets.

Harvesting Cedar bark is a tradition that remains vibrant today. State and Federal Partnerships have made it possible for Native People to continue harvesting cedar bark even when trees are not found on their reservations. Along with traditional harvest methods, protocols for gathering during the correct season, and conventions of honoring the tree, are still practiced. When walking in the woods, you might notice missing strips of bark that can be new or very old. If done correctly, the tree continues to thrive. Older cedar trees are rare and should be protected resources for Native People since they are so significant to the culture.

Cedar wood is highly rot resistant and beautiful. Native carvers use it to make beautiful masts and welcome figures. Cedar is universally acclaimed for exterior applications such as, siding, fencing, and decks. The beautiful and aromatic wood is also prized for interior paneling and trim. If you travel through the Olympic rainforest from Aberdeen north to the Makah Reservation, you will see many old cedar shake (shingle) mills. Very few are still running, since most of the old forests have been logged.

Cedar Leaf Medicine: Cedar is a powerful antimicrobial. Reflect on where it lives: cool wet forests where fungi and molds thrive. When you scratch cedar leaves or cut the wood, strong essential oils are released. These oils are cedar's medicine to repel insects, molds, fungi, bacteria and viruses. Our ancestors discovered this long ago and used cedar's medicine in and on themselves to ward off external forces.

Cedar leaves have long been a popular internal and external medicine for painful joints among Coastal Native Peoples. They have also been infused for cough medicine, tuberculosis and fevers. The leaves make wonderful incense and are used in smudging for purification.

Cedar leaf is a useful anti-fungal for skin and nail fungus. The tincture, infused oil or salve can be used topically and should be applied 2-3 times a day until a week after the fungus disappears. Fungal infections are pernicious and need to be treated aggressively. You can also soak your feet in cedar tea by steeping a cup of dried cedar leaves in about 10 cups of hot water. Let the tea steep until it is warm, and then place it in a bowl or basin large enough for your feet. Soak your feet for 10-15 minutes – a nice activity when you are reading or watching television.

Cedar promotes immune function through helping white blood cells to work better. By stimulating our immune cells to fight infection, clean up debris and denature cancer cells, we are keeping our tissues healthy. Doing several cedar steams a day can

help to clear respiratory infections. You can also drink cedar tea by steeping a tablespoon of fresh or dried chopped cedar leaf per cup of water. Many herbalists prefer to steep cedar in cold water and let it sit for several hours or overnight. You only need to drink ¼ to ½ cup twice a day to get a medicinal effect.

Caution: Cedar contains strong volatile oils including thujone, a ketone that is known to be toxic in large quantities. Cedar should be used internally with care – the dosage is usually low and it is not used for long periods of time. It should not be used during pregnancy, breastfeeding or with kidney weakness.

Additional Resources:

The Teachings of the Tree People: The Work of Bruce Miller.
Teachings of the Tree People Curriculum: Curriculum for Engaged Learning through Film
https://www.newday.com/sites/default/files/resources/TeachingsCurriculum.pdf
Cedar by Hillary Stewart
People of Cascadia by Heidi Bohan
Northwest Native American Basket Weavers Association: http://www.nnaba.net

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Grandmother Cedar Tree

A Samish Story as told by Roger Fernandes, Lower Elwha S'Klallam Storyteller.

A long time ago there was a Grandma Cedar Tree. She was very big and very old.

One day a little tree began to grow next to her. It was her grandson. He was growing right next to her and she was very happy.

The little tree grew and grew.

One day a big windstorm came and the wind blew very hard. The wind was blowing on the little tree and he could not stand up to it. It was going to snap him and he would die. But Grandma Cedar Tree placed her arms, her branches, between him and the wind. She blocked the wind and protected her little grandson.

And he grew some more.

One summer day, the sun was very hot. It beat down upon the little tree and it was so hot it hurt him. He was drying out. But Grandma Cedar Tree put her branches over him and made shade. She protected him from the hot sun.

He grew some more.

One night deer came to the little tree. The deer liked to eat the fresh green branches of a growing little tree. But Grandma waved her arms at them and chased them away! She protected him from the deer.

He grew even more.

Sometimes the little tree was sad because there were no other little trees around to visit with. He was sometimes very lonely. Grandma used her spirit power to call the birds to the little tree. The birds flew around him and sat in his branches and sang and talked with him. So he did not feel so lonely.

So he grew and he grew. And now he was bigger that his grandma. He was a big cedar tree and he was taller than her.

Grandma was getting very old. She was very old now.

One day a windstorm came and began to push old Grandma Cedar Tree with its great wind power. She was too old to fight back and the wind was so strong it was going to break her and she would die. But Grandson Cedar Tree put his arm branches between her and the wind. He protected her from the strong wind.

One day during the summer, the hot sun beat down upon old Grandma. She was miserable in the heat and was too old to stand it any more. Her grandson put his arms over her and made shade, protecting her from the hot sun.

One night the deer came. They wanted to nibble the green branches of the old tree. But her grandson waved his arms at them and chased them away. He protected her from the deer.

Grandma was very old and all her old friends were gone. They had died many years before and she felt alone. Grandson used his power to call the birds to Grandma. They flew to her and landed in her branches and sang and talked to her. She did not feel so lonely.

She said, "Grandson, don't worry about me. I am old now. Take care of yourself. Do not worry about me any more."

But he said, "Grandma, when I was little you protected me. When the strong wind blew upon me, you blocked the wind with your arms. When it was so hot in the summertime, you made shade with your arms and protected me. When the deer came at night to eat my branches, you chased them away with your arms. And when I was lonely, you called the birds to me so I would not be alone. Grandma, you did all these things for me, and now I will do them for you."

And so Grandson Cedar Tree took care of his beloved Grandmother Cedar Tree.

And that is all.

The Girl Who Was I-I-Esh

A Yakima Story as told by Roger Fernandes

A long time ago...
On the other side of the mountains there lived a little girl.
Now this little girl didn't always listen or pay attention when the grown-ups were talking to her so she would always mess something up or lose something or break something. And the grown-ups would say to her, "Ooooh, you are so i-i-esh! You don't listen!"

And that little girl thought, "Maybe I am i-i-esh. Maybe I can't learn anything."

When she would play with the other children in the village, she didn't always listen or pay attention to what they were saying so she would make her team lose or mess up the game. And the other children would say, "You are so i-i-esh! You don't know anything!"

So after a while that little girl believed she was i-i-esh. She believed she couldn't learn anything. And because of this she would sit by herself watching the other children play. She wished she could play with them, but she knew they would laugh at her and call her i-i-esh. So she was always alone.

One day she was so sad and lonely, she left the village. She followed the trails and walked into the woods. She followed the trails a long ways and finally she sat down by a tree and she started to cry. She cried and cried and she woke up the tree. It was an old grandma cedar tree. Grandma Cedar Tree said, "Little girl, what are you crying for? You woke me up."

"Oh, I'm i-i-esh," said the little girl. "I can't learn anything."

The tree said, "Oh, little girl! I can teach you something if you want to learn."

The little girl said, "Yes! I want to learn! What can you teach me?"

The tree said, "I want you to very carefully dig up some of my roots and take off some of my bark. Then I want you to tear them into strips. Can you do that?"

"Yes!" said the little girl. And she dug up some roots, took off some bark and tore them into strips. She stood there holding the strips of bark and roots in her hand. "What do I do with them now?" she asked.

"Come sit by me and I will show you," said Grandma Cedar Tree. So the little girl sat by the tree and Grandma reached her branches down like hands and guided the little girl until she made...a little basket.

Now it was a crooked little basket and it had big holes all over it and there were several strands of bark and root hanging from it, but the little girl asked, "Did I make a good basket?"

The tree said, "The only way you will know is to take your basket down to the river and put it in and lift it out. If it holds water, you have made a good basket."

The little girl cried, "Do I have to? I don't want to go to the river! Can't you just look...."

"Little girl, this is how you will know you have made a good basket! Take it to the river and see if it holds water," said Grandma Cedar Tree.

The little girl sighed loudly and went down to the river. She dipped the basket into the water and all the water leaked out of the big holes. She carried the basket back up the hill to Grandma Cedar Tree. "All the water poured out. What do I do now?" she asked.

Grandma Cedar Tree said, "You must take it apart and weave it again."

"Do I have to?" cried the little girl in protest.

"Little girl, this is how you learn," said Grandma Cedar Tree.

The little girl groaned and she took the basket apart and wove it again. This time it didn't look so lopsided and this time there were hardly any holes in it at all. Only a few small ones. "Did I make a good basket this time?" the little girl asked.

Grandma said, "The only way you will know is to take it down to the river. Dip it into the water, lift it out, and see if it holds water. Then you will know."

The little girl cried, "Do I have to? Just look at it and tell me!"

"Little girl, this is how you learn. Take your basket to the river and see if it holds water," Grandma Cedar Tree explained.

"Oh, all right," snapped the little girl. She took her basket back down the hill to the river and dipped it in. She lifted it out and saw that it was holding water, but the water was leaking slowly out of those little holes. She rushed back to the cedar tree, but by the time she got there, all the water was gone. "Well, it was holding water," she said, "but all the water leaked out. What do I do now?"

"What you must do, is take it apart and weave it again," Grandma Cedar Tree explained.

The little girl cried, "My fingers are sore from weaving baskets all day! Can't you just look at it...."

Grandma Cedar Tree said, "This is how you learn, little girl. Take it apart and weave it again."

The little girl shrugged her shoulders, but she took the basket apart and wove it again. This time it didn't look crooked at all and when she held it to the light, she didn't see any holes. "Did I make a good basket now?" she asked.

Grandma Cedar Tree said, "The only way you will know is if you take it down to the river and see if it holds water."

Then the little girl cried, "Do I have to? I am getting tired going up and down the hill all day."

Cedar Tree said, "This is how you learn. Take it to the river and see if it holds water."

The Little Girl groaned, "Awwwww." Then took the basket down to the river. She dipped it in the river and this time, it held water. She ran back to the cedar tree, carrying the basket of water.

"Look. Look!" she said. "It's holding water!"

Grandma Cedar Tree said, "You did it little girl. It is a wonderful basket. It is a perfect basket. You did a very good job."

The little girl was so happy. She poured water around the roots of Grandma Cedar Tree as a way of saying thank you. She was so proud of her basket, she made it herself and it held water.

Then she noticed something. Her basket had no designs on it; there were no designs at all. It was naked. The little girl began to cry again. Grandma Cedar Tree said, "What are you crying for now little girl?"

The little girl said, "My basket needs designs, but I don't know any designs. I am i-i-esh. I do not know anything."

Grandma Cedar Tree said, "It is very simple little girl. All you have to do is go up into the mountains with your basket. Walk around and keep your eyes open. If you keep your eyes open the design will give itself to you."

The Little Girl cried, "Do I have to? I don't want to go up in the mountains, that is too far to go!"

Grandma Cedar Tree said, "This is how you'll find your design little girl. Take your basket up into the mountains."

The little girl took her basket up into the mountains. She carried her basket, keeping her eyes open, or so she thought. But she couldn't see any design and she thought, "No design will give itself to me because I am i-i-esh." Because of this she began to cry again. She cried so loud she woke up the Mountain. The Mountain said, "Little girl, what are you crying so loud for? You woke me up."

The Little Girl said, "I am looking for designs for my basket, like Cedar Tree said, but I can't find any because I am i-i-esh."

The Mountain said, "Little girl, look at me. Can you see that I am a design?"

The Little Girl said, "Yes, you look like a big triangle."

The Mountain said, "You can use that as a design for the bottom of your basket."

So the little girl wove what we call the mountain design, a triangle with steps going up the side. She thanked the mountain and kept walking around because she needed one more design for the rim of the basket. She walked around but she couldn't find another design. "I am so i-i-esh! I will never find another design!" said the Little Girl and she began to cry again.

She cried so loud she woke up a rattlesnake. Rattlesnake slithered from under the rocks and said, "Little Girl, why are you crying so loud? You woke me up."

The Little Girl said, "I need another design for my basket. Mountain gave me one, but I can't find another design because I am i-i-esh. I don't know anything."

The Rattlesnake said, "Little Girl, look at me, can you see a design on my back?"

The Little Girl said, "Yes it looks like diamonds hooked together." The Rattlesnake said, "Little girl you can use that for your basket."

And so she wove what we call the Rattlesnake design, diamonds linked together, around the rim of her basket. The Little Girl thanked the Rattlesnake and went back down the mountain. She went by the Cedar Tree, crossed the river and walked into her village. The people saw her coming, carrying something. They went up to her and said, "Little Girl, what is that?"

She said, "A basket." When they asked where she got it, she said, "I made it."

They said, "Where did you learn how to make a basket?"

She said, "Cedar tree showed me how to make it out of bark and roots. It holds water too."

The people said, "What are those designs on the basket Little Girl?"

She said, "This is the Mountain and this is the Rattlesnake."

Skeptically, they asked, "Where did you get those designs?"

She said, "Mountain and Rattlesnake gave them to me."

They said, "Little Girl, will you teach us how to make a basket like that?"

She said, "Yes I can."

They said, "Little girl can you teach us how to put designs on the basket like that?"

She said, "Yes I can."

And so the Little Girl taught her people how to make what is called the cedar coiled basket, made out of cedar bark and roots and so tightly woven it can hold water. And do you think the people called her i-i-esh anymore? That is all.

Making Cedar Oil

This deep-green aromatic oil smells just like the forest on a warm day. You can use it as a body oil, lamp oil, furniture polish and a topical healing remedy in healing salves and chest rubs.

1. Finely chop fresh cedar leaves and place them in a double boiler. If you do not have a double boiler you can create your own by adding a little water to a larger pot and then placing a smaller pot inside it. This helps to warm the oil gently so it does not overheat.
2. Place the cedar leaf in the smaller pot and just cover with extra virgin olive oil. You can use other rendered oils including coconut, grape seed, jojoba or even lard if you prefer.
3. Gently heat the oil so that it gets warm but does not boil. It may be necessary to turn the pot on and off several times throughout the day. Warm the oil like this for several days to a week so that the oil becomes dark green and smells strongly of cedar.
4. Strain the cedar oil with muslin cloth. Compost the pressed leaf and place the oil in a glass jar.
5. Label and store in a cool dark place. Cedar oil will usually last several years.

Cedar Facial Steam

You can use dried herbs or essential oil and will need a medium sized bowl and a towel. Place one handful of herbs like cedar leaf, fir needle, pine needle, eucalyptus leaf, rosemary, peppermint or lavender in the bowl. Cedar is a good medicine for coughs and colds because it helps to fight infection, increases circulation in the lungs and stimulates your immune system. Add **one to two** drops of essential oil if desired. Pour boiled water over the herbs until the bowl is about half full. Put your face over the steaming herbs at a comfortable distance and cover your head with a towel. Breath deep! Try to steam for at least 5 minutes. Pour more hot water in if necessary. For severe coughs or sinus congestion, do several steams a day.

Cedar Bentwood Box

From Abe Lloyd

With sides folded from a single slab of cedar, bentwood boxes are crafted into watertight canteens, cooking vessels and storage boxes. These containers are not found anywhere else in the world and are traditionally constructed from cedar planks that are split from standing trees or fallen logs with yew wood wedges. The plank is planed smooth, notched through most of the board's thickness where the corners will be, and steamed until the remaining wood is soft and supple. The sides are then bent around a solid base, and the joints (where the ends of the board come together) are fastened with pegs or sewn with spruce roots.

Cooking boxes and canteens were so tightly constructed that they hold water. Any leaks that form over time can be sealed with clay. Together with fire tongs and cooking rocks, a quick meal can be boiled or steamed inside a piece of wood! Many Salish people boiled food in baskets in the same manner as bentwood boxes.

Pete Peterson Sr. (Skokomish) and Alex McCarty (Makah) making cedar boxes at the Evergreen State College. Cooking in a bentwood box with Abe Lloyd and Northwest Indian Treatment Center patients.

Western Red Cedar

I am the heat of your hearth on the cold winter nights, the friendly shade screening you from summer sun, and the dancing bows that capture your imagination.
I am the beam that holds your house, the board of your table, and the roof that shelters you from rain.
I am the handle of your shovel, the bark of your basket, and the hull of your canoe.
I am the medicine that heals you, the incense that carries your prayers, and tea that is used to cleanse your home.
I am the wood of your cradle and the shell of your coffin.
I am the breath of kindness and the flower of beauty.
"Ye who pass by me, listen to my prayer: Harm me not."

"Prayer of the Woods," a Portuguese forest preservation prayer that has been used for more than 1,000 years. Author unknown, adapted by Elise Krohn

Water

Water is one of our most important spiritual medicines. The morning dew from the sword fern, the rain, and even the water we drink every day can purify and cleanse us. Water is precious and you have to ask for it's healing.

-Kimberly Miller, Skokomish Tribe

Water is life. Cultures around the world equate water with healing and energy. People travel great distances to drink or bath in water from mountains, wells and springs that are imbued with special energy. Many people believe that water has the ability to absorb prayers, cleanse unwanted energy and bestow good medicine.

Water is the most important thing we can drink. It makes up 60-85% of our body weight and plays many essential roles including carrying nutrients, removing waste, cooling us when we are overheated, digesting food and cushioning our organs and joints. When we are fully hydrated we feel more energized and experience less pain and hunger. In a time when sugary drinks are so prevalent, people drink less pure water. Drinking sweet beverages on a regular basis negatively impacts our health and reduces our ability to enjoy the subtle flavor of water.

Clean water is increasingly hard for people around the world to access, and many are standing up to protect it. If we do not drink water and understand how dependent our bodies and our planet are on water, we will not connect with it or fight to protect it.

Water is called the universal solvent. The hydrogen and oxygen bonds that make up water eagerly react with and bind almost everything on earth. Given time, water will corrode metal, dissolve rock and move mountains. Water is the perfect medium for extracting nutrients, medicinal properties, and flavors from plants. Healthy examples include:

- Flavored waters – Sliced fruit, vegetables and aromatic herbs add nutrients to your water. Examples include lemon, lime, orange, melon, cucumber, fresh or frozen berries, fir or spruce tips, mint, rosemary, lavender or lemon balm. Add fresh ingredients each day and feel free to eat the fruit after you drink the water!

- Tea – There are many ways to make tea including boiling plant parts in water (decoctions) and soaking herbs in water of varying temperatures (infusions). Tea can be drunk hot or cold and will last up to 3 days in the refrigerator.

- Broths – You can make vegetable and bone broth and add them as a base to soups or drink them as a nourishing beverage. Minerals from the vegetables or bones dissolve into the water and become readily available for us to digest.

- Smoothies – Smoothies make an excellent meal or snack. Use water, milk, nut milk or juice that is low in sugar as a base with fresh or frozen fruit, veggies and thicken with protein rich foods such as nut butters or yogurt. Spices like cinnamon, vanilla, ginger or cocoa powder can boost flavor and medicinal qualities.

Camas

Camas is one of the most important traditional foods in Salish country. The small bulb-like roots of two species are dug and roasted, eaten fresh or boiled, and can be dried for use as a winter food. Open grasslands, or "camas prairies," were traditionally maintained by families by aerating the soil with digging sticks, weeding out unwanted species including the poisonous death camas, and by periodically burning the entire prairie.

Other names: Quamash. Common camas: *Camassia quamash*. Giant camas: *Camassia leichtlinii*. Whulshootseed: *qʷəɬuʔəl*. Twana: *Qa'?w3b*. Lushootseed: *cabidac*. Klallam: *Ktoi*

Identifying Camas: Camas is a member of the lily family with beautiful six-petaled purple flowers and grass-like leaves. Camas bulbs grow four to eight inches beneath the ground surface and resemble small dense onions or lily bulbs.

Where it Grows: Common camas has symmetrical flowers and is found throughout the Pacific Northwest. Giant camas has asymmetric flowers that bloom a couple weeks later and twist together as they whither. It is more common west of the Cascades, in the San Juan Islands and in Southwestern British Columbia in places with deeper soil.

Season: Flowers bloom in April through June, depending on the season and elevation. This is the time they are harvested for food.

Harvesting and Processing Camas: Camas is dug in April through early June when the flowers or seed pods are visible. Using traditional harvesting techniques, you can increase the bounty of prairie foods like camas. Narrow T-shaped digging sticks that are made from hard wood, bone, antler or metal make it possible to selectively harvest bulbs without damaging those around them. When you dig bulbs, keep the larger ones and replant the smaller ones. Be careful not to split camas bulbs in half with your tool. This takes practice. Only keep bulbs that are attached to the flowering or seed stalks since the bulbs and leaves of death camas *(Toxicoscordion venenosum)* look almost identical.

To insure future harvests, leave some large flowering plants so they can go to seed. If camas has already gone to seed, you can sprinkle the seeds back on open soil. Harvesting camas actually aerates the soil and allows moisture pockets to form, making it easier for new seeds to sprout. Consider weeding invasive plants including Scotch broom and St. Johns wort. Many families return to

the same prairie areas year after year to carefully steward their family plot. Over time, they notice that traditionally harvested areas contain more camas plants with larger bulbs.

*CAUTION: Be sure to properly identify camas before eating it. The bulbs of death camas are deadly poisonous and look very similar to camas. Death camas (right photo) has white flowers with tighter flower clusters. They bloom a couple of weeks later than camas.

Eating Camas: To clean camas bulbs, pinch off the stem where it enters the bulb and where the small roots come out of the base of the bulb. The brown outer skin will peel off easily and you will be left with a white bulb that resembles an onion. Rinse remaining dirt from the bulbs. If you are pit-roasting camas, you can leave the outer skin and peel the bulbs once they are cooked.

Camas bulbs can be boiled, baked or slow roasted. When cooked for a shorter time, camas is fairly tasteless. When slow roasted for 24-48 hours, it becomes dark-colored and sweet. Before sugar was introduced, roasted camas was used to sweeten other foods. Cooked bulbs were made into cakes and dried for later use. Fresh bulbs can also be dried or frozen, and then used later in soups. Camas is considered an anti-diabetic food because it does not raise blood sugar. It also supports healthy flora in our gut.

Ecological Relationships: Many camas prairies in our region were originally shaped by massive glaciers about 14,000 years ago that altered the soil in such a way that made it difficult for evergreen trees to grow. These prairies were subsequently sustained by a warming climate and natural fires, and offered Native People an open landscape perfect for hunting game and harvesting edible plants such as camas and other edible lilies, bracken fern rhizomes, lomatium (biscuit root), acorns from oak trees, and several types of berries. Medicinal plants including yarrow, kinnikinnick, violet, wild rose and balsamroot flourish here too. The prairies are also home to many species of butterflies, birds and small land mammals.

Stories and cultural practices passed down through the generations teach us how prairies have been cultivated like gardens. Techniques including burning, weeding, pruning, selective harvesting, and aerating the soil enhance the growth of many nutritious prairie foods and medicinal plants. Without these practices, most of the prairies would have turned into dense forests thousands of years ago.

What we see today are tiny remnants of vast prairies that were common just a few generations ago. A Wasco elder recalls his grandfather telling stories of riding on horseback from the Willamette Valley near Portland, Oregon all the way to the land of Chief Sealth (present day Seattle, Washington) in open prairies that were managed by fire. European settlers made burning the prairies illegal because they saw fire as a destructive force rather than a life-giving one. In just a few generations, colonial land

management practices such as farming and grazing have reduced prairies to less than 5% of their former size.

Many tribes and other agencies are actively working to conserve and restore prairies and prairie foods. Camas is a main focus because it was a prized staple to many Salish People. In fact, for many communities, it was the second most traded food next to salmon. Camas continues to be an important cultural food that is celebrated in first foods feasts and other ceremonies. Digging the bulbs may be labor intensive compared to buying edible tubers at our local grocer, but elders remind us that when we eat the food that sustained our ancestors, it not only feeds our bodies, it also feeds our spirits.

Growing Tips: Camas can be easily started from seed. It thrives in well-drained sandy or pebbly soil with full sun. It is best to grow in trays in a greenhouse, as it closely resembles grass. Keep camas root gardens carefully weeded to avoid confusion with grass. Other companion plants include chocolate lily, violet, Idaho fescue (a bunch grass) and Columbia lily.

Additional Resources: Watch this video on cooking camas with Elizabeth Campbell: https://vimeo.com/163888029
Prairie Appreciation Day: http://www.prairieappreciationday.org
South Sound Prairies: http://www.southsoundprairies.org
Cascadia Prairie Oak Partnership: http://cascadiaprairieoak.org
Vascular Plants of the South Sound Prairies. Edited by Frederica Bowcutt and Sarah Hamman.

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Turner, Nancy. *The Earth's Blanket*. Seattle, The University of Washington Press, 2005.

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All photos from Elise Krohn except:
Prairie Burning photo from http://www.southsoundprairies.org/photos/prescribed-fire/

Camas: A Plateau Native Story

as told by Roger Fernandes, Lower Elwha S'Klallam

A long time ago in a village on the other side of the mountains, there was a time of great hunger. There was no food to be found - no game to hunt, no plants to gather. The People were very hungry. The elders and the children were crying from the hunger, but there was nothing to give them.

There was a grandmother who heard her grandchildren crying because they were hungry. She was so sad that she had nothing to give them. She was so sad she left the village and went up a hill nearby. She went to the top of the hill and sat down.

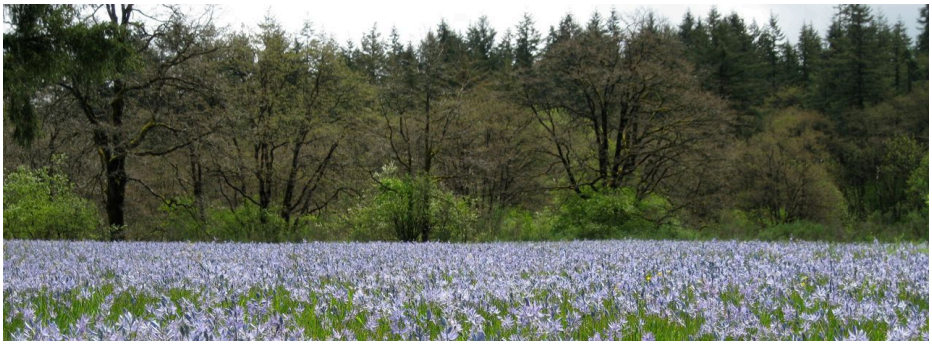
She began to cry. She cried and she cried for her grandchildren. As she cried, she began to sink into the ground. She kept crying and was sinking deeper into the earth. After a while she was gone. She was under the earth.

Her grandchildren, a boy and a girl, missed their grandmother. They wondered where she was. They began to look for her. They climbed the hill.

As they reached he top of the hill, the granddaughter said, "Grandma is under the ground! I can feel her!"

The children dug into the ground. They dug and dug and they found camas bulbs. Grandmother had become camas and now the children and the people had food to eat.

Camas is a main food of the Native people of the Plateau region. And that is all.



Baked Camas

Preheat oven to 275 degrees. Clean camas so you are left with white bulbs. Rinse and drain. Place in a baking pan and drizzle with a little bit of butter, olive oil or a traditional oil. Cover and bake until the camas is soft and tastes slightly sweet, usually about 1 hour. This method will produce a dish that is starchier tasting and less sweet than the slow roasting method.

Steamed Camas

Recipe and photo from Abe Lloyd, arcadianabe.blogspot.com

Place an expandable vegetable steamer inside a slow cooker and fill the slow cooker with water to just below the level of the steamer. Put the camas bulbs in the steamer and cover the slow cooker. Set the slow cooker at a moderate to high temperature and steam the bulbs for 36 hours (yes, you read that right). Check the water level every 2-4 hours and refill as necessary. The bulbs will begin to brown and smell like molasses after 12-24 hours. Cook until they are a very dark brown.

Spring Salish Soup

This delicious soup is packed with spring vitality. Nettles are incredibly dense in nutrients and salmon provides essential fatty acids and a good source of protein. White beans could be used as an alternative to the camas, and leafy greens like chard or kale could be used in place of nettles.

3 tablespoons olive oil
1 large onion, chopped
3 cloves garlic, minced
6 cups of water
3 cups fresh or frozen camas bulb or 2 cups dried camas bulbs
1 grocery bag full of fresh spring nettles
2 cups of baked, canned or smoked salmon
Salt and pepper to taste

In a soup pot on medium heat, cook the onions and garlic in olive oil until they become translucent, about 5 minutes. Add water and camas and then bring to a boil. Turn down heat, cover with a lid and simmer for about 20 minutes. While the soup is simmering, wash nettles in a colander then cut them into small pieces with scissors. Once the camas is tender, add the nettles. Cook an additional 5 minutes. Add the salmon and then season with salt and pepper. Enjoy!

Cook time: 40 minutes. Serves: 4-6

Cooking in an Earthen Oven (Steam Pit Cooking)

Northwest Coastal Ancestors used a variety of techniques for cooking such as roasting over a fire, baking food wrapped in skunk cabbage over hot coals, boiling in bentwood boxes or tightly woven baskets with hot rocks, and steaming foods with hot rocks in earthen pit ovens. The following instructions for cooking in a pit oven were taught to our Northwest Indian College Traditional Plants Staff by Abe Lloyd, a student of Kwaxsistalla, Chief Adam Dick.

You will need: Clippers for gathering plant foliage, large fire tongs, shovels, gloves, about 20-25 rocks that are unlikely to burst in a hot fire (volcanic rocks work best), firewood, matches, food for roasting, 2 quarts of water, 2 burlap sacks or a large piece of cotton canvas, sturdy salad tongs, and platters for cooked food.

1. Dig a pit that is about 2 feet deep and 3 feet across.
2. Collect 4 grocery bags full of foliage including salal branches, skunk cabbage leaves, sword fern or other fern fronds, and branches from alder, salmonberry or thimbleberry. If you are cooking in the sand, many people prefer to use seaweed.
3. Lay a single layer of firewood in a square in the bottom of the pit and then cover with rocks. Place rocks around the firewood, so that once the wood burns, the pit will be completely lined with rocks.
4. Light the fire and keep it going until the rocks are red hot – usually about an hour. You may need to fan the fire to help it burn hot.
5. Remove unburned wood and charcoal with a shovel and fire tongs, then spread a small amount of sand (if available) over the rocks.
6. Quickly lay down a layer of salal followed by sword fern and other vegetation.
7. Place food on the foliage and quickly place more foliage over the food.
8. Pour water into the center of the cooking pit.
9. Quickly lay down skunk cabbage leaves (if available) and cover the pit with burlap sacks or canvas.
10. Use a shovel to bury the entire pit with dirt or sand until no steam escapes.
11. Mark the pit so no one steps on it. Leave for 2 hours to 36 hours depending on what type of food you are cooking.
12. Carefully uncover the pit with a shovel and gloves. Remove food with tongs and place on platters… enjoy!

* A nice variation to this technique is to place one end of a 2 ft long hollow section of bull kelp into the center of the pit. Then pack the pit with vegetation, food, and more vegetation, taking care to route the stalk out the side or top of the pit. Don't add water until the pit is completely covered with tarps and buried with soil, at which point you can pour the water down the kelp stalk onto the hot rocks. Cork the kelp with a round stick to prevent steam from escaping.

Cooking Times for Pit Roasting

- Clams, shrimp, crab, fish wrapped in skunk cabbage: 2 hours
- Vegetables including carrots, onions, potatoes, yams, garlic: 3-4 hours
- Camas bulbs, black moss pudding: 24-36 hours







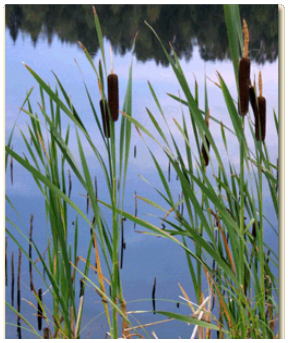






Thanks to Abe Lloyd and Nancy Turner for helping us to learn this cooking technique.

Cattail



Get out your waders or rubber boots! Cattails grow on the margins of ponds or in marshes and wetland areas. These incredibly useful plants have been used for many things including food, medicine, shelter, tools, fiber, clothing, insulation, diapers and dolls.

Other names: *Typha latifolia*. Whulshootseed: *?ulal*

Identifying Cattail: Cattails grow in colonies that are connected by underwater networks of rhizomes. Long, flat, spongy green leaves emerge in bundles and look like giant blades of grass. They are 1-2 inches wide and grow 3-10 feet tall. The base of the leaves feels spongy because they contain air-filled cellular tubes called aerenchyma, which carry oxygen down to the base of the plant. This adaptation helps cattail roots to live underwater. The flowers emerges from the center of the plant on a tall, round stem. The namesake "cattail" is actually a spike of thousands of tightly packed tiny female flowers with another spike of more loosely clustered male flowers on top. Once fertilized, the female flowers swell into the iconic brown sausage-looking spikes. These eventually turn to fluffy white plumes that are filled with seeds and are readily carried in the wind.

Where it Grows: Cattails grow in swamps, marshes, bogs, wetlands, and in moist ditches on the side of the road. They are found throughout North and South America, along with Europe, Africa and Asia. Cattail is native to all US states except Hawaii.

Season: Cattails offer something useful all year long. Leaf shoots are edible in early spring. Flowers and pollen are gathered in early summer. Leaves are harvested for basketry when fully formed in late summer. Underwater rhizomes are harvested in fall.

Harvesting Cattail: Harvest in clean, pristine areas. To avoid contamination, do not harvest near heavy agricultural areas, dairy fields or roadsides. Wash with boiling water before consuming. Leave the oldest plants and the ones on the edges. These are the soldiers that help to protect the plant community from invasive species like yellow flag iris and reed canary grass. As with all plant gathering, only take what you need, look after the future of the patch, and never remove more than 10% of a stand. Correctly identifying cattail is of utmost importance when it is not in flower. The toxic yellow flag iris leaf looks similar, but the stem is flattened with a prominent vein down the center, while cattail is round stemmed and spongy.

Eating Cattail: Cattails provide nutritious food throughout the year. In early spring, cut the base of the new shoots and remove the outer green leaves to reveal a tender white to light green stem that resembles a leek. These cattail hearts can be eaten fresh or lightly cooked and added to stir-fry.

In late spring to summer, immature flower spikes are ready for harvest. Peel the outer sheath back to reveal the spike, which looks like baby corn. This can be steamed, boiled or sautéed and has a pleasant flavor like artichoke. Gently nibble off the flower and leave behind the strong inner core.

In summer the male flower on top of the spike produces pollen to fertilize the female flower just below it. Pollen is harvested by placing a sack or wide-mouthed milk jug over the brown flowering spike and shaking it. Cattail pollen can be used similarly to bee pollen for energy and as a source of protein. It is delicious when added to biscuits, muffins or pancakes. You may need to use a fine sieve to separate out bugs. Freeze the pollen for long-term storage.

The rhizome is best harvested in the fall, but can be harvested throughout the year. Each rhizome has a starchy core surrounded by a spongy layer that must be peeled away. The fibrous cores can then be dried, pounded, and sifted to remove the starchy powder. You can also massage the fresh or dried cores in water to make a thick soup base. Cattail offers more edible starch per acre than potato, rice, taro or yams!



Cattail Medicine: Cattail is rich in beta-carotene, niacin, riboflavin, thiamin, potassium, phosphorus, protein, amino acids and vitamin C. Like aloe vera, cattail leaf contains gel that keeps the plant moist when water levels drop. It also has antimicrobial properties that protect the plant from insects and diseases. People apply cattail gel to their skin as a first aid remedy to sooth burns and to ward off infection.

Traditional Technologies: The versatile nature of cattail extends into the material culture as well. The long, straight, and fully mature leaves of cattail are used by people all over the world as a weaving material for making mats, baskets and cordage. Northwest Coast Native People have used cattail mats as screens, fans, seats, sleeping and kneeling mats, insulating wall covers, and covers for cooking pits and boxes. Because of its ability to both insulate and shed water, rain capes were also made out of cattail. A beautiful rain cape is on display at the Burke Museum of Natural History in Seattle, WA. Cattail has also been used to make quick containers and gathering baskets, as well as temporary walls for shelters in the summertime. The waterproof cattail leaves swell when wet, providing a tighter protective wall, and shrink a little when dry, allowing a gentle breeze in on hot days. Though not very durable, cattail mats are

Matt Warbis with a cattail needle, Lummi

easy to make. A needle made from ironwood was used to push through the leaves to sew them together, but it takes a lot of force. A creaser is used to hold the leaf in place and keep the edges of the needle hole from tearing out.

The fluffy winter seed heads are traditionally used for diapers, padding, insulation, pillows and mixed with wool to make yarn. If using the fluff for pillows, use thick fabric to seal in the cattail fluff because it can cause hives. The seeds can also be used as a thickening agent. Cattail stalk can be lit and used as a torch or a fire starter.

Ecological relationships: Wetlands, including the margins of lakes and ponds, shallow freshwater marshes and peat bogs are critical parts of both watersheds and food sheds. Edible plants specially adapted to these wet conditions include cattail, wapato and bog cranberry. Many basketry plants including cattail, tule and other bulrushes, sedges and willows are harvested from wetlands. Birds including ducks and geese rely on these areas for feeding and nesting grounds. Red winged blackbirds, herons, turtles, muskrats, frogs and fish are all at home in cattail ponds.

Many wetlands in the Pacific Northwest have been drained and developed into farmland or suburban areas. Join your local wetland restoration efforts to preserve native plants and wildlife habitat of this important cultural ecosystem.

In some native languages the term for plants translates to "those who take care of us." Through natural selection the cattails developed sophisticated adaptations that increase their survival in the marsh. The people were attentive students and borrowed solutions from the plants, which increased their likelihood of survival. The plants adapt, the people adopt. *-Robin Wall Kimmerer*

Additional Resources:

Braiding Sweetgrass by Robin Wall Kimmerer. Section entitled "Sitting in a Circle."
Pacific Northwest Foraging by Douglas Deur
The People of Cascadia by Heidi Bohan
The Foragers Harvest by Samuel Thayer
Keeping it Living by Douglas Deur and Nancy Turner

Photos by Elise Krohn except cattail in pond (istock) and cattail pollen (Abe Lloyd)

Cattail on the Cob

A delicious and simple way to enjoy cattail flower heads!

<u>You will need</u>:

- Young cattail flowers
- A pot with a tight fitting lid and a steamer basket
- 1 cup of water
- Butter and salt to taste

1. Harvest the male and female flowering heads in the spring to early summer by clipping with scissors or a knife. You will find the green flowering heads in the center of the cattail plant. Peel away the outer sheath. You will see the top male flower and the bottom female flower. They can both be used, however, the top male flower has more "meat" to it.
2. Bring water to boil.
3. Wash cattails.
4. Add steam basket full of cattail flower heads to boiling water. Turn heat down to low, cover and steam for 10-12 minutes.
5. Add butter and salt to your liking. Nibble stalk as if you were eating a tiny corn on the cob. The center of the stalk is tough, but the outer cattail flower is tender, nutritious and delicious!

Cattail Quinoa salad

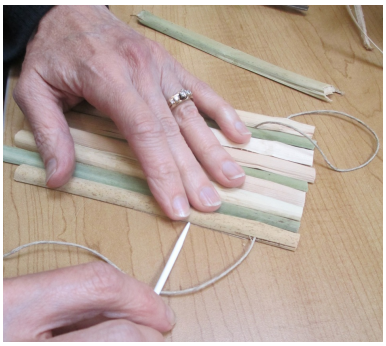
Quinoa is a nutty tasting grain that is high in protein and low in carbohydrates. This recipe can be adapted with a variety of seasonal vegetables and is delicious served hot or cold.

- 1 cup quinoa
- 2 cups water
- 2 tablespoons olive oil
- 2 cloves garlic, minced
- 3 carrots, diced
- 1 cup spring cattail shoots, rinsed in boiling water and chopped
- 2 tablespoons chopped wild onions or ½ cup green onions
- 1 cup smoked salmon, cubed
- 1 tablespoon lemon juice
- Salt and pepper to taste

Rinse quinoa. Boil water in a medium sized pan, add quinoa, then turn down to simmer and cover until cooked, about 15 minutes. Add olive oil to a medium sized sauté pan and heat on medium. Add onions, garlic and carrots, and sauté until onions are translucent. Add cattails and onion tops and sauté until tender. Add cooked quinoa, salmon, lemon juice, salt and pepper. Blend and serve.

Cook time: 40 minutes. Serves 4.

Making a Cattail Mat



Materials: Dried cattail leaves, furniture legs (barstool), poles in the ground, or other object to hold leaves in place, Ironwood needle or large upholstery needle, sewing fiber (could be sinew, nettle cordage, hemp or strong twine)
*Optional- mist bottle.

Harvesting cattail leaves for mats: you can weave or sew fresh leaves, but when they dry, you are left with a shrunken, loose mat. For a tightly woven mat, dry leaves first and then rehydrate them when you are ready to weave. Leaves can be dried in a well-ventilated area, in a single layer, on screens or a sheet for about 1-2 weeks. Take care to turn them over at least once a day to ensure even drying and to prevent mold. Drying leaves in the sun can damage the leaves and make them too brittle to work with. Once dried, the delicate leaves can be wrapped in paper or cardboard until you are ready to use them.

A Closer Look: Cut cross sections of a cattail leaf and notice the holes or tubes that run up the length of the leaf. Cattail is an excellent insulator because it traps air inside the leaf. Woven mats create a buffer that keeps cold outside of a house or tent during winter. During the summer months, the mats create a cool wicking layer for heat to escape.

Cattail Mat Making: Depending on how much material you have, your cattail mat can be as small as a coaster or larger. Smaller children can do an over and under simple weave instead of sewing the leaves together.
1. Begin with dry cattail leaves. Rehydrate leaves in a bucket or sink to make pliable.
2. If you are sewing the cattail leaves, cut the edges of the leaf length wise so they will be easier to sew and more uniform in width.
3. Cut the cattail leaves to the length of the mat you desire. Arrange the leaves in similar size, alternating wide end to narrow end. This will give your mat a nice uniform shape.
4. Tie cord to furniture legs or poles horizontally to desired length of mat. Place leaves along cord. Fold tops of leaves over cord and twist weave cordage around each leaf to secure in place.

5. Sew through the middle of each leaf every 3-6 inches down, depending on the size of your mat. You will need to gently press/hold the leaf as you sew to make sure the leaf doesn't break. Continue to sew through the leaves every 3-6 inches until you have reached the bottom.
6. Finish the bottom as you did the top by twist weaving the leaves over. Trim leaves for a nice even finish.

Additional Resources:
Visit YouTube for "how to make a cattail mat" tutorials.

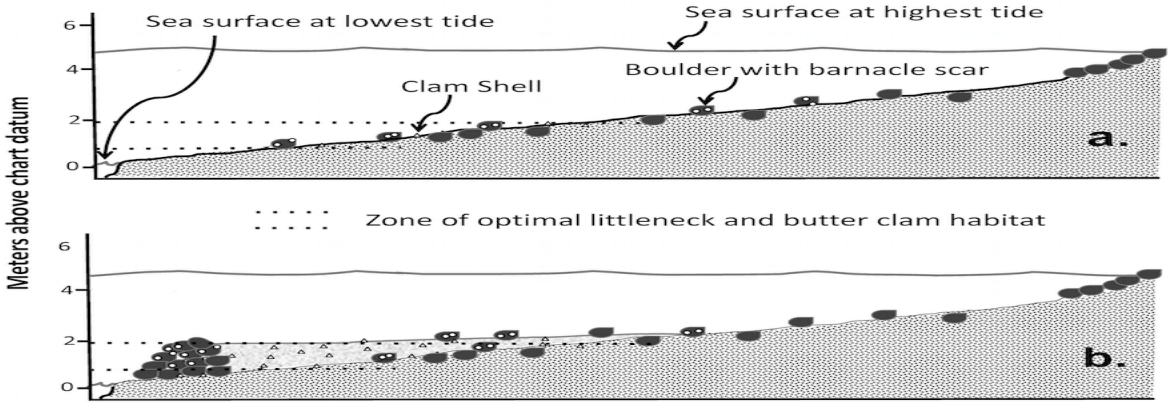
Clams, Mussels & Oysters

Bivalves are abundant along the Pacific Coast and the beaches of the Salish Sea. They are a staple to many Northwest Coastal Natives. Edible species include butter clams, horse clams, little neck (steamer clams), cockles, blue mussels, gooseneck barnacles, Pacific oysters and Olympia oysters. Most harvesting sites do not require a minus tide to gather these delectable seafoods. Families traditionally managed and were responsible for productive shellfish beaches that were often located near villages. Mussels, oysters and various clam species were dried and used as winter food. They are fondly considered the cornerstone of traditional feasts. Elders from throughout the Salish Sea share stories of digging clams, harvesting seaweed and building a hot fire to cook a meal right on the beach.

Other names: Bivalve, Mollusk, Shellfish

Identification: The bivalve family of sea species includes clams, geoduck, mussels, oysters and scallops. These are soft-bodied sea species with two hard shells of equal size as a layer of protection. They are related to other mollusks such as gastropods (one-shelled animals, think snails and limpets), and chitons that used to be eaten more commonly, but bivalves are a bigger and more consistent part of the traditional diet.
http://www.doh.wa.gov/Portals/1/Documents/4400/332-087-Shellfish-ID.pdf

Where they grow: These tasty beach findings can be found at saltwater beaches during middle to low tide zones.



Harvesting and processing bivalves:
Traditionally, the only tools used for clams were a basket, a keen eye and a digging stick made of ironwood (also known as oceanspray, *Holodiscus discolor*). Large amounts of shells from previously eaten bivalves are found throughout the Salish Sea, remnants of a feasting site. These are called "middens" and consist of bivalve shells. Middens are typically found at major harvest locations, sometimes piled up several feet thick, representing generations of harvest. When a shellfish bed was not close to a village, the bivalves were sometimes dug, removed from the shell, and smoked or dried before paddling back home with the food. Often, these shell heaps are also found near streams, where fresh water was used to clean the meat.

Clams can live a very long time. A clam off the coast of Iceland was found to be older than 500 years old and was the oldest living animal known on earth.

Above: Digging Stick, courtesy of Muckleshoot Preservation Dept

Food and Medicine*:*
Clams, mussels and oysters are perfect little packages of nutrition. Within their tiny bodies, they contain important nutrients like iron, magnesium, zinc, and Omega 3 fatty acids that help our bodies to build blood and maintain immunity. They are also low in calories, low in cholesterol, and are an outstanding source of protein. In fact, regularly consuming shellfish has been shown to help reduce cholesterol.

Oysters in particular, have a very long history of nourishing humans. Increasing archaeological evidence shows that early humans relied heavily on shellfish, and that without them we may not have survived as a species. Oysters have the highest concentration of zinc than any food, a nutrient that promotes good health for our body's immunity and specifically our reproductive system, proving the lore of its aphrodisiac nature. They are referred to as the "food of love" in many cultures.

Traditional Technologies – Clam Gardens:

Above: A photo of a clam garden in Canada. The line of rocks at the right is the terrace, and the people are standing in the clam bed held up by the terrace. Photo contributor: Maurice Major

It is important to highlight the dedication Coast Salish Ancestors had to the ancient shellfish beds we thrive on to this day, as well as the health of the waters. Bivalves are the filter system of the Salish Sea because each individual can clean out 15 to 20 gallons of water per day. Ensuring healthy production of shellfish meant clean water and food security. Stewardship was truly upheld through managing production on many levels. Historically, what we now call shellfish beds or beaches, were treated just like the gardens they truly are. While harvesting clams is nourishing and delicious, ancient gatherers were efficient multi-taskers. The shores of the Salish Sea can be shallow and quite narrow, therefore innovative Coast Salish Ancestors would build terraces using large rocks they would come across while harvesting, rolling them down the beach in to what would overtime become a stone wall, or a rock terrace, located beyond the usual high tides. Eventually the stonewall would accumulate with gravel, sediment and shell hash that clams prefer and would create a broader clam bed where there originally had been a steep drop-off into the sea. This would expand habitat and is an intentionally built "clam garden." These ancient clam gardens were sometimes built quickly and deliberately to invigorate clam production, especially butter clams. By removing rocks and increasing the amount of land at the tidal elevations preferred by clams, clam larvae have a safer and more

fertile place to take hold, and more clams can grow to adulthood. Acre for acre, a clam garden produces four times the protein as nearby beaches without the garden terraces. When the clams spawn, the next generation can drift to the next beach, making clam gardens nurseries for the whole area.

Like many traditional ways of managing lands, clam gardens represent a nudge to the natural system, rather than a replacement. There is no need for hatcheries, no need to add food or fertilizer, and machinery is not required. Clams can be dug with the traditional digging sticks that have been used since time immemorial—in fact, the removal of big rocks and the creation of nice clam beds makes the digging even easier. Harvesting a clam garden helps to maintain it.

Although many are not actively managed anymore, terrace walls will stand for centuries. Their nooks and crannies provide shelter and habitat to juvenile fish, octopus, gastropods, and other food species. Archaeologists have excavated a few, and used barnacle scars and clams that were accidentally buried by the walls to get radiocarbon dates. These show that some clam gardens have been in place for 2000 years! Further south in the Salish Sea, natural conditions are friendlier to clams without the need for constructed clam gardens. By the time you get to the southern inlets, tidal flats can be extensive and rich in clams without need for terraces, and therefore clam gardens are not found there.

For more information and informational videos please visit:
https://clamgarden.com
https://clamgarden.com/media-education/

Traditional Technologies – Oyster Reefs

Unlike clams, which burrow into the gravel and mud, oysters like to have a rocky bottom and also do not require digging. Their shells attach to the rocks as they sit at the bottom of the water, and become exposed to the air during lower tides. Just as they observed and knew the habitat requirements of clams, Northwest Coastal Natives recognized the needs of oysters and helped make additional habitat for these bivalves by creating oyster reefs. And as with clam gardens, they enhanced and increased habitat through slight adjustments to their own practices and to natural systems, not through massive alteration.

How did tribes create oyster habitat? The story begins with traditional cooking, in which rocks were heated up and used to steam, boil, and roast all sorts of foods. The rocks could be re-used for a while, but eventually they begin to crack and fall apart, becoming too small to be useful and potentially getting fragments into the food. Nobody wants sharp rocks underfoot and in the way, and in some places people tossed them onto the tidal flats, away from canoe landings. At T'Peeksin (Totten Inlet, in the far south Salish Sea), near the muddy upper end of the inlet, there is an entire peninsula of discarded cooking stone, colonized by oysters and barnacles in an area where these shellfish otherwise have no place to live.

Consuming Bivalves - Human Health concerns:

Washington has a reputation for safe, wholesome shellfish. Our state is the leading producer of farmed shellfish in the nation, and commercial product is shipped around the world. Miles of Puget Sound shoreline and Washington coastal beaches attract hundreds of thousands of recreational and Tribal harvesters each year.

The Washington State Department of Health (DOH) regularly tests both molluscan shellfish and the water where they grow to make sure the shellfish are safe to eat. The Tribes have signed a Consent Decree with DOH and the Federal government and agree to follow their regulation to insure that shellfish harvested and consumed by Tribal members are safe to eat.

Additionally, DOH licenses and inspects all Tribal commercial shellfish operations to make sure shellfish intended for markets and restaurants are harvested, handled, and shipped in a safe and sanitary manner. When environmental or operational conditions pose a threat to public health, tidelands are closed to all harvesting.

For more information visit: http://www.doh.wa.gov/CommunityandEnvironment/Shellfish

Conservation Efforts and Resources:

The Olympia oyster is the only oyster that is native to the Puget Sound. The Pacific oyster was actually transplanted from Asia. Olympia oysters are now on the threatened species list, and tribes in the southern Puget Sound region, including Squaxin and Skokomish, have programs centered on its preservation and recovery. Many tribes are maintaining bivalve beaches and are even planting them in areas where they have become scarce. Although erosion is taking its toll, numerous "middens" (heaps of discarded shells) throughout the Salish Sea region show how important shellfish have been for thousands of years; these and other features highlight how Salish Sea tribes managed shellfish sustainably. Numerous agencies and non-profits are studying and working to restore the near-shore habitats of Puget Sound and the Salish Sea. There is a wealth of information on the following websites:

Puget Sound Restoration Fund- Olympia Oyster Restoration:
http://www.restorationfund.org/projects/olympiaoyster

Puget Sound Marine Invasive species Identification Guide:
http://vmp.bioe.orst.edu/Documents/mism_ID_Cards5print.pdf

Health of the Salish Sea Ecosystem Report
https://www.epa.gov/salish-sea

The Puget Sound Ecosystem Monitoring Program
http://www.ecy.wa.gov/programs/WQ/psmonitoring/index.html
PSEMP is an integrated, coordinated monitoring and assessment program for Puget Sound is needed to provide credible and useful information about the Puget Sound ecosystem and guide the Puget Sound Partnership's, Ecology's, and others' monitoring efforts and improve our policy and management decisions.

The Puget Sound Nearshore Ecosystem Restoration Project
http://www.pugetsoundnearshore.org/
PSNERP is one of the largest habitat restoration and preservation programs ever undertaken in the United States. We are building a plan of action by answering the questions:

- How has the shoreline of Puget Sound changed?
- Where are the most problematic changes and why?

- What can we do to protect and manage the nearshore?
- What actions should we take and where?

Encyclopedia of Puget Sound
https://www.eopugetsound.org/terms/379

Puget Soundkeeper Alliance
http://www.pugetsoundkeeper.org/
Soundkeeper's mission is to protect and preserve the waters of Puget Sound. Founded in 1984 as the Puget Sound Alliance (PSA), PSA was the first grassroots citizens' organization to focus exclusively on protecting the marine environment of Puget Sound.

The Gossiping Clams

-A Suquamish Legend as told by Roger Fernandes

A long time ago, clams had feet. They walked everywhere. Wherever you went, there were clams. If you were getting out of bed in the morning, there would be a little clam standing there watching you. If you were cooking a meal, there would be a clam watching you. If you were washing your face, there would be a clam watching you. No matter where you were or what you were doing, there would be a clam watching you.

When the clams got together at night, they would tell each other what they saw people doing. They would talk and talk about everyone. And if the story they told was not exciting enough, they would make things up. They would exaggerate and lie about you. The clams would gossip.

One day Raven, that big black bird, was way out in the woods. He was doing something bad and he did not want anyone to see him. I don't know what he was doing, but it must have been bad because he was hiding. When he was done doing that bad thing, he turned around and there was a little clam watching him.

"Oh!" said Raven. "I didn't know anyone was watching me. Please promise me you won't tell anyone what I was doing. I don't want anyone to know."

"I promise, Raven. I won't tell anybody," said the little clam.

"I'm serious!" exclaimed Raven. "You must not tell anyone!"

"I promise Raven. I won't tell anyone," said the clam.

But when that little clam got home, what do you think he did? Of course, he told everyone. He told the story of what he saw Raven doing to all the clams. When Raven heard about this, he was very angry. He spread his black wings across the earth and gathered up all the clam people. He took them down to the beach. He would drop one clam onto the sand and with his foot push it beneath the sand. He did this to one and then another. He did it to all the clams until all of them were buried under the sand. Then he said to them, "Now if you want to talk about people, go ahead. But now when you gossip, water and sand will rush into your mouth!"

So now the clam people are under the sand. That is their punishment for gossiping, for talking about people behind their back. But do you think that has stopped the clam people? Of course not. Whenever you cross a muddy stretch of beach, you will see little spurts of water coming from under the sand. That is the clam people. They are still talking, and they are talking about you.

Elaine's Clam Fritters

For this delicious recipe, Elaine Grinnell recommends using clams that are fresh or frozen. Clams should be soaked overnight in a bucket of salt water, changing the water twice to ensure sand is out of the clams. Process immediately after to preserve the flavor.

1 lb. butter clams, fresh or recently frozen, chopped in a food processor
1 lb. geoduck, chopped fine in a food processor
1 medium-sized onion, chopped
4 celery sticks, chopped
2 eggs, plus 1 egg yolk
1 cup flour
1 teaspoon salt
Oil for frying (lard, coconut or palm oil)

Combine all ingredients. A spoon should stand straight up in the mixture. In a heavy frying pan, heat the oil. Spoon the mixture into the pan to make small cakes. Cook for five minutes on each side or until the fritter is brown around the edges. Serves 10-12 people.

References:

http://www.pugetsoundnearshore.org/technical_papers/shellfish.pdf

An Environmental and Historical Overview of the Puget Sound Ecosystem
[https://pubs.usgs.gov/sir/2010/5254/pdf/sir20105254_chap1.pdf]

[http://www.firstpeople.us/FP-Html-Legends/]

http://sciencenordic.com/new-record-world's-oldest-animal-507-years-old

Deer and Elk

"The definitive expression and full embodiment of the plant people are the four legged. For some, they are the most sought after creature of our lands. With certainty, every year the elk bugles from the mountaintops, singing to one another and calling out our hunting families- pressing them to pursue a living legacy."

-Valerie Segrest, Muckleshoot

Whulshootseed name: *sqigʷəc*

General Description: Deer are browsers mostly feeding on shrubs while elk are grazers feeding on grasses. Their diets are broad and diverse however, and can include almost any type of vegetation. Migratory behavior for both deer and elk is variable with some being long-range migrators of 30 miles or more, some moving only up in elevation, or not moving at all. They have chambered stomachs that ferment foods like grasses and plants, this process allows for more nutrients to be extracted than other grazers like horses and cows. Deer and elk are the most important terrestrial animal for many Coast Salish Natives because of their contribution as food and other valuable uses. Not only is the meat eaten but the hides, sinew, hooves, bones, and antlers furnish valuable materials for clothing, ornaments, and tools.

Deer: Columbian black-tailed deer are a sub-species of mule deer and are typically found west of the Cascade Crest. They inhabit dense forests and forest edges where they browse on a variety of plants. Black-tailed deer have small home ranges where they typically live that can be as small as 0.25 square miles. As their name implies, they have a large, wide, mostly black tail. Acute vision, hearing, and smell along with their inhabiting of densely vegetated environment can make hunting deer difficult.

Mule deer are found east of the Cascade Crest and are found in more open sagebrush habitats during winter and open forested stands in summer. Mule deer home ranges are larger, in part due to less productive habitat as well as more open habitat. Mule deer tend to be larger than black-tailed deer, have larger ears, and have a smaller mostly white tail with small black tip. Hunting mule deer in open habitats is easier with a rifle, but more difficult with traditional methods because they can see the hunter coming and thus takes more stalking skill. Males are distinctive with antlers that are lost every year.

Black-tail and mule deer normally do not interbreed, but at the crest they may come together in summer and hybridization has occurred. Hunters sometime notice an animal the size of a mule deer but having a tail resembling black-tail with ears and antlers not being typical of the deer found on particular side of the Cascade Crest. These are often called bench-leg deer.

Elk: Elk are much larger than deer with distinctive white rumps and massive antlers. Male elk can breed 30 or more females who they group up and defend as a harem. Elk can live up to 22 years. Females live longer than males due to the stresses and injuries resulting from competition for mates during breeding season. They can have large home ranges, typically smaller in winter than in summer if migratory. They prefer meadows, wetlands, and open forests where they graze more on grasses and herbs than twigs.

Washington's ancestral elk, the Roosevelt elk, were hunted close to extinction in the late 1800's due to post-contact mismanagement of resources. Nowadays, the native Roosevelt elk occur only on the Olympic Peninsula. During the early 1900's Rocky Mountain elk from Yellowstone were transplanted to various locations along the western Cascade slopes and today most elk found east of Interstate-5 are of the Rocky Mountain variety. When they were introduced, they readily adapted and expanded from the foothills into the mountains as the forests were cut. Both archaeological evidence and oral tradition document that, prior to urban sprawl and industrial development, elk were found in areas such as the banks of Duwamish and the shores of Lake Washington. Elk have recolonized former areas and are now common on the Enumclaw Plateau and along the White and Green Rivers to Auburn and Sumner.

Hunting Techniques: Orcas and dolphins, wolves and red tailed hawks, eagles and humans are pack hunters. We have all learned that hunting cooperatively makes efficient use of time and resources. In order to really understand hunting techniques, one must be dedicated and willing to put the time in to learning through keen observation and patience. Skilled hunters shoot big game with bow and arrow, setting traps or driving animals in to large nets. Nowadays, many hunters use rifles and aim for a quick shot to the heart so that the animal does not suffer.

Processing: Once the animal is killed and located, the hunter will work fast to gut the animal, then in a cool area hang and skin the animal. At this time the animal is ready to be butchered and packaged. This entire process is necessary in order to have quality meat for consumption. Every part of deer and elk – from the bone marrow, to the hide, to the brains, to the eyes, tongue and antlers – was and is traditionally utilized. The head was even boiled and eaten as a stew.

Food and Medicine: Both deer and elk are higher in nutrients and lower in fat than beef, which makes them a better food for our health. Domestically raised animals contain antibiotics and/or hormones that can have negative effects on people, so game meat is healthier. Meat processed by butchers into sausages may contain nitrites, nitrates, salt, and maybe MSG, so consume these sparingly. It is preferable to learn how to process wild game meat into sausages so that the preparer can control the amount of spices and sodium, yielding a healthy version that the commercially available variety.

Wildlife Management:
Coast Salish Ancestors knew that high elevation open areas yielded productive deer and elk herds. They burned forested areas to promote open meadows that provided abundant nutritious forage for deer and elk. This not only enhanced deer and elk numbers, and produced fatter animals, but also made hunting easier by bringing animals to these focal areas. Burning also enhanced Berry production. Nowadays, tribes like Muckleshoot actively manage elk herds by studying habitat and managing predators of deer and elk.

Fun Fact: Deer typically have twins but elk rarely do. Twins allow for greater hunting opportunity and higher harvest. Black-tailed deer teeth show less tooth wear for the same age of animal than mule deer due to the foods they eat, so black-tails can live longer than mule deer because they have their teeth longer. When not hunted, both elk and deer mortality is mostly caused by predators.

Resources:
For more on dressing deer see the video at:
https://www.youtube.com/watch?v=_xUpUnG3lrE#t=19

If you are concerned about the food safety of the animal you kill and want to eat, consider reading Is This Safe To Eat? The publication contains valuable information about various diseases, parasites, and other afflictions encountered by hunters who kill wild game.
https://www.nwhc.usgs.gov/publications/disease_emergence/Chapter5.pdf

Vanessa's Pemmican

Pemmican is well known for it's high concentration of nutrients and it's long shelf life. This combination of fat, protein and carbohydrate will keep you energized all day. Traditionally dried meat like venison and elk would be pounded together with fat and dried berries. Pemmican makes an excellent snack and was utilized as a travel food.

1 cup dried venison, elk or beef jerky
1 cup dried berries (huckleberry, cranberry, salal or other)
1 cup raw hazelnuts, walnuts, sunflower seeds or almonds
1/3 cup nut butter (hazelnut, almond or peanut butter)
1 tablespoon honey

With a knife, chop meat into very small pieces. Add dried berries, nuts and nut butter in a food processor, blend well. Add the dried meat and blend well. Store in plastic bags or containers in a dark, cool place. This will keep for several months.

Recipe from Vanessa Cooper, Lummi

Seared Elk Roast

This easy recipe is a perfect solution to a busy schedule. You will be deeply satisfied with the results. Elk meat is low in fat and high in nutrients. When slowly cooked it falls apart and melts in your mouth.

2-3 pound elk roast
Salt (to season meat liberally)
Pepper (to season meat liberally)
Olive oil
4 medium-sized Ozette, red or yellow fin potatoes, cut in large pieces
1 large onion, cut in large pieces
3 carrots, chopped
2 celery stalks, chopped
3 cloves of garlic, peeled and chopped
1 teaspoon each – dried rosemary, sage and thyme
1 bay leaf
3 cups water or beef broth
Salt and pepper to taste

Rinse elk and pat dry. Salt and pepper all sides liberally. Heat a pan to medium high heat and sear the roast on all sides. This process locks in the juices and provides an extra savory flavor to the broth. In the bottom of a slow cooker or roast pan add vegetables, garlic and herbs then place the seared meat on top. Add broth, bring to a boil on high, and then turn down to low and let cook for 6-8 hours or until elk comes apart with a fork. Add salt and pepper to taste.

Cook time: 6-8 hours. Serves 6-8
Recipe from Valerie Segrest, Muckleshoot

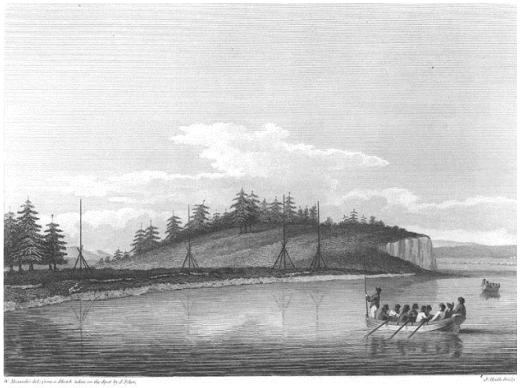
Duck

Many varieties of birds are traditionally eaten in the Pacific Northwest including the meat of upland birds like grouse, ptarmigan, and quail, the meat of shorebirds, the meat and eggs of gulls, and especially the meat and eggs of waterfowl such as swans, geese, and ducks. Our regions mountainous and coastal terrain not only affords a huge diversity of edible birdlife, but it is also located in the middle of the Pacific Flyway, one of North America's largest pathways for migratory birds.

Other name: Whulshootseed: *sq̓ʷalaš*

Where Ducks Live: Most of our ducks are seasonal visitors that spend summers further north and winters in our coastal and inland waters. Dabbling ducks such as Mallards, Widgeons, Pintail, and Teals inhabit ponds, marshes, and other shallow waters where they browse on shoreline vegetation, feed off the water's surface, or dip their heads underwater to reach for roots, fish, and invertebrates. Diving ducks such as Scaup, Canvasback, Goldeneye, Scoters, and Mergansers inhabit deeper areas such as lakes, channels, and bays where they frequently submerge themselves completely in pursuit of fish and invertebrates.

Hunting Duck: All ducks have excellent vision and require careful preparation, cunning, and skill to hunt. Specialized duck hunting equipment includes nets, traps, spears, clubs, arrows, and more recently, shotguns. The most efficient means of capturing these tasty waterfowl is a duck net, but such a net depends on the collaborative work of an entire family to manufacture and use. Duck nets are traditionally woven from the bark of willow or stinging nettle that is collected in the spring or fall and woven throughout the winter (much like reef nets). The mesh is sized so that only the larger duck species are captured and songbirds and small duck species can fly through. When completed, the entire net is died brown with hemlock tree bark so that it is camouflaged by the twilight sky. Duck nets are suspended between trees across narrow flyways such as rivers, or hung from poles that are erected in salt marshes. Just after sunset, duck hunters raise their net, sneak upstream, and then scare ducks towards the net. When the ducks strike the net, attendants quickly lower the net and club the ducks that they want to eat. In this manner, a family can efficiently kill dozens of ducks in one evening.

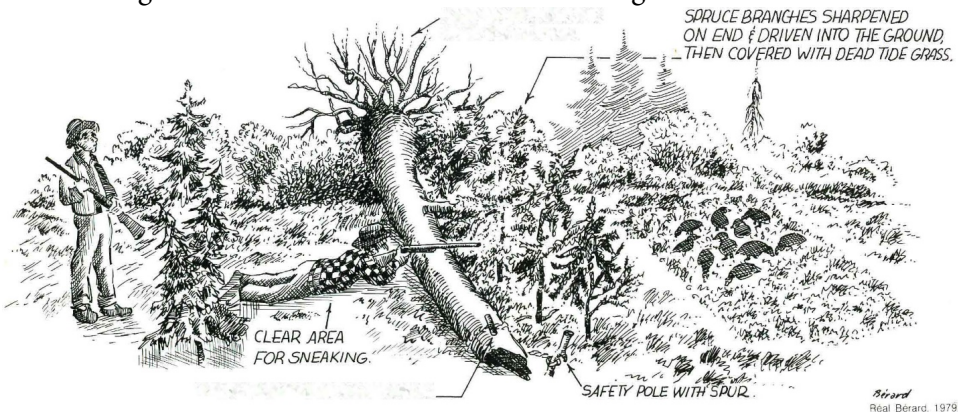


FOUR remarkable, supported POLES, in PORT TOWNSHEND, GULPH of GEORGIA.

Ducks were also trapped in smaller numbers using snares and baited hooks. Small leg loop nooses were hidden amongst the exposed soil of the salt marsh where ducks were likely to

ensnare their feet while foraging for roots. Lower in the estuary, two pointed hooks called throat gorges were baited with herring, tied in long lines and anchored to the mud flats while the tide was low. When the tide rose, ducks would dive for the herring, swallow the hook and drown.

Individual ducks were also taken by bow and arrow, spear, club, and hand net. Ducks have excellent vision and under most circumstances, it is difficult for hunters to get within range before they flush. However, a cunning technique called "pit lamping" confuses the ducks and allows the hunters to get very close. After dark, when depth perception is challenging, a team of two hunters would light a fire or torch at the front of their canoe. They could then paddle right up to a duck and kill it with an arrow, spear, club, or net. After European contact, mining lamps (pit lamps), and flashlights replaced torches and shotguns replaced projectiles. Duck blinds are another traditional technique that enables the hunter to get close to a duck. Blinds are constructed near duck feeding areas from sticks and limbs. The hunter then waits behind the screen of vegetation for a flock to land within shooting distance. This method is still used today.



Eating Duck: Roasted or stewed duck is a fatty and flavorful meal. Clean the duck by removing the head, guts, and feet and hanging the body upside-down for a day or two to allow the blood to drain. The feathers are removed by hand and any down or small feathers that remain are seared off over a fire, which adds a smoky flavor. Ducks are skewered and roasted horizontally over a bed of hot coals, or hung from a rope and slowly spun vertically beside a hot fire until a leg can be easily torn from the body. The meat can also be boiled with vegetables to make stew.

Flocks of Widgeons and Scoters historically numbered in the tens of thousands and provided a significant source of food to Aboriginal communities. Some groups, such as the *Kanasisi* of the lower Columbia River valley were even named for their reliance on waterfowl. *Kanasisi* means "People of the Scoter."

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Photo credits: Duck in water (Abe Lloyd), duck in flight (istock) duck soup (Elise Krohn)
Artwork of duck and cattail by Joe Seymour, duck blind (Edwards 1979)

Duck Soup

This fragrant and comforting soup is sure to warm your chilly bones in wintertime. Duck imparts a fatty savory medicine that speaks directly to our taste buds- ensuring satisfaction with every bite. Soups are a great way to get nourishment into your body. The simmering of wholesome ingredients like carrots, celery and good quality waterfowl protein make it easy for your body to obtain the medicine.

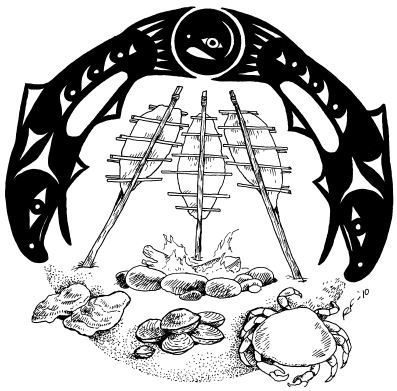
2 tablespoons olive oil
1 onion
1 pound red potatoes
2 carrots
3 celery stalks
2 cups diced duck meat
Pinch of sea salt
Pinch of fresh ground black pepper
2 quarts duck stock
*optional – 1 teaspoon juniper berries

In a large soup pot warm up the oil over medium heat. Add onion, potatoes, carrots, celery and meat. Add salt and pepper and sauté veggies until they turn translucent. Add stock and duck meat, then bring to a simmer, allowing to cook for 30 minutes. Add salt and pepper to taste and serve with bannock bread.

Cook time: 45 minutes. Serves 6
Recipe from Valerie Segrest, Muckleshoot Tribe

Leftovers

by Inez Bill, Tulalip Tribes



When I was a young girl, we did not refer to the foods that we ate as traditional foods. It was simply food that we were grateful to have, be it breakfast, lunch, or dinner. My family lived and continues to live a ceremonial way of life. Helping people and feeding people was something we did as needed without question. When we had a gathering, people would bring whatever they had or could for the table. When that particular occasion was over, we would send leftovers home with elders and visitors. This is what I remember the food at that time was: ducks, shellfish, fish, deer, elk, octopus, teas. Some families would share their home-canned berries and fruit, such as peaches, pears, cherries and plums. As a young person, I would help in the kitchen. We would feed the visitors, elders and locals. It was not until we fed everyone that we were able to eat. It was a real treat to have some home canned fruit or even fruit juice.

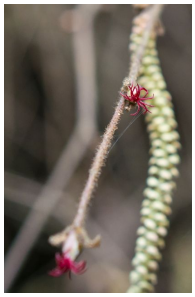
At the times when we would serve duck soup, if there were any leftovers, sometimes we felt lucky and excited to be able to take some home. Therefore, the next day my breakfast would be leftover duck soup before I went to school. We all know that it tastes better the next day. For the most part, our breakfast was not cheerios or corn flakes with milk, toast and orange juice. Our breakfast was whatever was available or leftover from the evening meals. That was a time when hunters hunted, fisherman fished, and families put food away. It really was a simpler, slower, natural way of life.

For a variety of reasons, in the past 40 plus years, we as a people have unfortunately drifted away from that way of life. We still gather, we still feed, we still pray and dance but the food has changed due to societal development, which has drastically changed our hunting and gathering sites. Today areas are polluted and toxic. Our current situation has changed our cultural continuity in regards to our health and spiritual wellbeing. We have always believed that to have a healthy people you must have a healthy environment.

Within the past few years, we are collectively, as a people, working towards stabilizing the natural resources by sharing our concerns with other tribes and state agencies. It is only now that we are referring to our natural foods as traditional foods, by remembering how to gather them, prepare them, cook them, and bring these memories to our tables.

Hazelnut

When the hazelnuts are ripe, trees are bustling with the sound of busy squirrels and birds. Their sweet meat is filling, flavorful and loaded with nutrients that give us lasting energy and strength.



Other names: Filberts, *Corylus cornuta*
Whulshootseed: *ɖaṗuǩʷ*

Identifying Hazelnut: Hazelnut trees grow 10 to 15 feet tall with multiple branches that radiate out from the same root. The appearance of male catkins and tiny ruby-colored female flowers are a sign of spring. One the female flowers are pollinated they grow into nuts, which are made up of a hard-shelled pod containing the fruit and seed. A long protruding husk wraps around each nut and looks like a long-beaked bird, giving this plant the name "beaked hazelnut." The nuts can grow alone, but are usually found in clusters of two or more toward the end of the branches. European hazelnuts have also are naturalized in the Pacific Northwest and are commonly called filberts. The nuts are slightly larger, have husks that don't completely cover the nut, and can be readily found in supermarkets. The Pacific Northwest is one of the few places that they are grown commercially in the world.

Where it grows: Hazelnuts grow in shady forests and forest edges. They are most productive when they are in partial to full sun.

Season: The nuts are harvested in mid to late summer, usually July through September depending on the season and elevation.

How to harvest: Hazelnuts are delicious but they require some effort to get to it. The nuts are wrapped in a hairy sheaf that can be difficult to take off. Make sure to harvest with gloves to avoid the irritating hairs. You can place the nuts in gunnysacks and let the husks rot off, or you can use heavy gloves to remove them manually. Cure hazelnuts by drying in a warm place right after harvest, and then store them in a cool dry place.

Eating Hazelnut: Hazelnuts are a late summer delicacy. The outer nut is cracked to reveal roundish sweet meat, which is high in protein and good quality fats. Hazelnuts are most nutritious when eaten raw and studies show that people who eat a few nuts a day significantly reduce their risk of heart disease, type 2 diabetes and dementia. Just a small handful of nuts is rich in balanced calories that will satiate hunger. They are a healthy and satisfying replacement for processed snack foods like chips or cookies.

Roasting hazelnuts brings out their distinct flavor. After the nuts are cracked and shelled, place them on a cookie sheet and bake them in the oven for about 10

minutes at about 300 degrees, until they are aromatic and just turning light brown. You can also dry sauté them in a pan on medium heat until they begin to turn brown. Hazelnuts are delicious when added to oatmeal, salads, baked goods, meatloaf and pesto. Lucky for us, many commercially available products are made from European hazelnuts. Hazelnut butter is expensive but is a delicious spread for sandwiches and toast. You can also find hazelnut flour in many markets. Hazelnut oil has a nutty flavor and is a healthy choice for salad dressing and baked goods.

Hazelnuts were an important late winter food for Northwest Coastal Native People. They were stored in bags buried in the mud or under water, then were dug up in the harshest months of winter when the spring greens are not yet up and the spring salmon have not yet returned. The protein and good quality fats in hazelnuts helped people survive.

In one Salish story, Raccoon could not stop eating the winter store of delicious hazelnuts his grandmother had carefully set aside in a pit near the plank house, and he used every trick he knew to steal those nuts. When Grandma finally caught him, she gave him the black stripes he wears to this day by beating him with a fire-charred stick.

Traditional technologies: Arrows and fish sticks were made from hazel sticks because they are straight and strong.

Ecological relationships: Hazelnuts are an important food for squirrels and birds. They also provide nesting habitat for birds.

Additional Resources:
Nature's Garden by Samuel Thayer

References:
Krohn, E. and Segrest, V. (2010) *Feeding the People, Feeding the Spirit*. Northwest Indian College
Thayer, S. (2010). *Nature's Garden*. Forager's Harvest
Turner, N. (1995). *Food Plants of Coastal Northwest Peoples*. UBC Press.

Photo credits: Hazelnut in husk (Heidi Bohan), hazelnut flower (Andrew McKee), hazelnut in husk, in shell, and leaves (T. Abe Lloyd).
Art by Joe Seymore

Hazelnut, Huckleberry, Salmon Soup

This Skokomish soup was traditionally made in winter with dried berry cakes and smoked, dried salmon. The first step to this recipe is to find acorns. Crack the nuts and cut them in smaller pieces, then soak them in water for three days to remove the strong tannins. The water should be changed three to four times a day. If you do not have acorns, you can replace them with extra hazelnuts.

2 cups traditionally smoked salmon, pulled apart into small pieces
6 cups water
½ cup acorns, ground
½ cup hazelnuts, ground
2 cups evergreen huckleberries
Salt and pepper to taste

In a crock-pot add salmon, water, acorns and hazelnuts. Cook on low overnight or for several hours. When the salmon is soft and the broth is flavorful, add the huckleberries and cook for an additional half an hour. Season to taste.

Cook time: 4-8 hours. Serves 6.
Recipe by Kimberly Miller, Skokomish

Salish Snack Mix

In order to stay strong and keep our energy high, we need foods that are rich in diverse nutrients including vitamins, minerals, protein, carbohydrates and good quality fats. This snack mix is similar to pemmican, a food that is eaten during physically demanding times including traveling, hunting or gathering. You don't need to eat much to feel satiated - about ¼ cup is a nice portion size. Many of these ingredients can be purchased in bulk, and you can cater the recipe to your own flavor preferences. Nuts are healthier when they are eaten raw, but their unique flavor comes out when they are roasted.

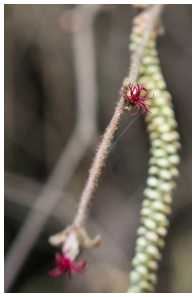
Dried Fruit: blueberries, cranberries, salal, currants, plums, raisins
Nuts: hazelnuts, walnuts, almonds
Seeds: pumpkin seeds, sunflower seeds

If you choose to roast your nuts, place them on a cookie sheet in the oven at 300 degrees. Watch them carefully and remove them once they start to brown and smell roasted. Blend all ingredients together. Store in a cool dry place. You can also sprinkle this mix on salad or add it to hot cereal.

Recipe by Vanessa Cooper, Lummi

Hazelnut

When the hazelnuts are ripe, trees are bustling with the sound of busy squirrels and birds. Their sweet meat is filling, flavorful and loaded with nutrients that give us lasting energy and strength.



Other names: Filberts, *Corylus cornuta*
Whulshootseed: *ɖaṗuǩʷ*

Identifying Hazelnut: Hazelnut trees grow 10 to 15 feet tall with multiple branches that radiate out from the same root. The appearance of male catkins and tiny ruby-colored female flowers are a sign of spring. One the female flowers are pollinated they grow into nuts, which are made up of a hard-shelled pod containing the fruit and seed. A long protruding husk wraps around each nut and looks like a long-beaked bird, giving this plant the name "beaked hazelnut." The nuts can grow alone, but are usually found in clusters of two or more toward the end of the branches. European hazelnuts have also are naturalized in the Pacific Northwest and are commonly called filberts. The nuts are slightly larger, have husks that don't completely cover the nut, and can be readily found in supermarkets. The Pacific Northwest is one of the few places that they are grown commercially in the world.

Where it grows: Hazelnuts grow in shady forests and forest edges. They are most productive when they are in partial to full sun.

Season: The nuts are harvested in mid to late summer, usually July through September depending on the season and elevation.

How to harvest: Hazelnuts are delicious but they require some effort to get to it. The nuts are wrapped in a hairy sheaf that can be difficult to take off. Make sure to harvest with gloves to avoid the irritating hairs. You can place the nuts in gunnysacks and let the husks rot off, or you can use heavy gloves to remove them manually. Cure hazelnuts by drying in a warm place right after harvest, and then store them in a cool dry place.

Eating Hazelnut: Hazelnuts are a late summer delicacy. The outer nut is cracked to reveal roundish sweet meat, which is high in protein and good quality fats. Hazelnuts are most nutritious when eaten raw and studies show that people who eat a few nuts a day significantly reduce their risk of heart disease, type 2 diabetes and dementia. Just a small handful of nuts is rich in balanced calories that will satiate hunger. They are a healthy and satisfying replacement for processed snack foods like chips or cookies.

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Recipe by Vanessa Cooper, Lummi

Huckleberry

What could be more rewarding than wandering through the woods and finding a bush covered in ripe huckleberries? In the Northwest, there are more than 12 species of this tasty berry, which range from the coast to the high mountains. Huckleberries are one of the most important traditional foods and also one of the healthiest.

Other names: Whulshootseed: (blue huckleberry) *wədaʔx̌,* (red huckleberry) *sṯix^{w}ib*

Identifying Huckleberry: Huckleberries come in many sizes. Dwarf whortleberry (*Vaccinium scoparium*) is a mere six inches tall and is covered in tiny red berries that would satisfy a mouse, while the bigger mountain blueberries and huckleberries are large enough for a bear to gorge on and get full. All huckleberry fruits have a circular "crown" on the opposite side from the stem. Berry colors range from orangey-red to purple to deep blue-black.

Red Huckleberry (*Vaccinium parvifolium*). You will find red huckleberry growing from nurse logs in shady forested areas on the west slope of the Cascades. It grows to 12 feet tall. Stems are angular and green, and the deciduous leaves are lime green with smooth edges. The leaves of young bushes remain on the bush throughout the winter. Greenish-white bell shaped flowers bloom in April through July. Pink to orange-red fruit is round and up to 1/2 inch in diameter. Berries are ripe in June to August and are usually harvested right off the bush.

Evergreen Huckleberry (*Vaccinium ovatum*). You will find evergreen huckleberry in gravelly or sandy soil in evergreen forests, open woodlands and clear cuts near the ocean. This bushy evergreen shrub grows to 8 feet tall. Leaves are leathery with toothed edges and a strong central vein. Flowers are white to pink and bell shaped. Berries are dark blue to black, about ¼ inch in diameter, and are ripe in August through November when most other berries have passed. They are sweetest after the first frost.

Many people cut whole branches of evergreen huckleberry that are covered with ripe berries. Evergreen huckleberry benefits from some pruning and the small berries are time-consuming to harvest, so many people prefer to do this at home. Make sure to take less than 20% of a plant, and act as if you are pruning it. Cut stems at an angle with sharp clean clippers. Proper pruning will help the plant to be more healthy and productive in the coming years!

Evergreen huckleberry takes well to cultivation in the home garden. These handsome bushes prefer partial to full sun, but are intolerant of the cold winters experienced in the mountains or east of the Cascades. Many nurseries carry evergreen huckleberry and they are becoming popular in native plant landscaping and restoration projects.

Huckleberry Medicine

Wherever you go in Indian country, people will tell you that *their* huckleberries are the best kind of all. This shows us how important huckleberries are to the culture. Many people look forward to summer as the time of berry picking. Huckleberries are not only one of the most important cultural foods to Salish People, they are also one of the healthiest. Blueberries and huckleberries do not raise blood sugar and are an important food for pre-diabetics and diabetics. They are high in antioxidants, which help protect the body from the effects of high blood sugar including diabetic retinopathies, kidney damage and poor tissue healing. Recent research studies suggest that blueberries and huckleberries also lower cholesterol, slow age-related dementia and reduce tumor formation. They are also excellent for heart health and can ease varicose veins and hemorrhoids.

Huckleberries and blueberries contain arbutin, a plant compound that helps to fight bacteria often associated with urinary tract and bladder infections. The berry juice or the leaf tea can be used as a preventative and a treatment.

If you cannot gather your own huckleberries or blueberries, you can buy them frozen in most stores throughout the year. They are relatively inexpensive to buy in bulk at food coops. If possible, buy wild harvested or organic berries. You can add them to hot cereal, sprinkle them on cold cereal, or mix them into dressings, sauces and desserts. Cooking them actually increases their antioxidant content. The recommended daily amount for health benefits is ½ cup a day. If you want to grow your own, Rubel blueberries are available at many plant nurseries, which are close to huckleberry in antioxidant content and flavor.

<u>Huckleberry leaf tea:</u> Huckleberry and blueberry leaves are as high in antioxidants as the berries, and they can help to lower blood sugar levels. Harvest the leaves in spring through summer when they are fully developed and still a vibrant green color. Prune a few branches off each bush, and then hang them in a warm dry place out of the sunlight. When the leaves are fully dry, strip them from the branches into a basket and then store them in paper bags or glass jars. Use 1 tablespoon per cup boiled water and steep 10-15 minutes. Drink 2-3 cups a day. The leaves will last about a year.

Big Huckleberry

"The berry to this day is considered by some to be worth its weight in gold. The nutritional value alone places this food gift in a very unique category, the medicinal properties which can address some really serious health issues among Native communities in the 21st century."

-Warren KingGeorge, Muckleshoot Indian Tribe

Identifying Big Huckleberry: Big huckleberry (*Vaccinium membranaceum)* is a deciduous shrub that is typically two to four feet tall. It has oval shaped, finely toothed, somewhat translucent greenish-yellow leaves that taper to a fine "drip tip." The urn-shaped blossoms are round, wider than long, and pinkish white. They bloom just after the snow melts, and are pollinated by long-nosed bumblebees. The fruits are shiny, about ¼-½" around and very dark purple.

Plant taxonomists recognize fourteen species of *Vaccinium* in the Pacific Northwest, some of which share the same habitat as big huckleberry. These include oval-leaf blueberry (*V. ovalifolium*), which has oval leaves with smooth margins, and a silvery "bloom" on the dark blue, rather tart berries; Cascade blueberry (*V. deliciosum*), which has steely blue berries, is very low growing and is typically found in colder areas and open subalpine meadows; and grouse whortleberry (*V. scoparium*), which is also low growing and an indicator of colder habitats, but has tiny red berries. All of these are tasty, but many berry enthusiasts will argue that none are as delicious or nutritious as big huckleberry.

Where it grows: As you climb in elevation from the lowlands and foothills on the west slopes of the Cascade Mountains to about 4000 feet, western hemlock and western red cedar give way to dense stands of Pacific silver-fir and mountain hemlock forests, which occasionally open out to beautiful meadows of big huckleberry. In the late summer when the air is tinged with the cool breezes of fall, the sweet, purple-black fruits can be prolific. In relatively open meadows, big huckleberry may produce up to 100 gallons per acre of delicious and highly nutritious fruit in a single season!

How to Harvest: Harvesting big huckleberry is not complicated if you know where to find them. All that is required is a container to gather them in, patience, and a friend who is generous enough to share the location of their favorite gathering place! Choose a container that you can hang around your neck to leave both hands free for gathering. If you are not lucky enough to have a woven gathering basket, a coffee can with rope attached, or a one-gallon plastic milk jug with a strap attached to the handle and an opening cut near the top of the jug opposite the handle will do.

Although some people use huckleberry rakes to harvest the berries more quickly, many elders believe that berry rakes damage the bushes by stripping the leaves and therefore should not be used. Walk carefully in berry patches to avoid breaking branches and damaging the plants, and be sure to move around and take just a few berries from any

one location. In that way, we ensure that we leave enough food for all of the other critters that rely on this tasty fruit. Finally, watch out for bears!

If you are lucky enough to have gathered enough huckleberries to preserve for later use, you may want to can or freeze them. Canning does not require the addition of any sugar or syrup, but heat processing does destroy some of huckleberry's vitamin C content. If you have enough room in your freezer, the easiest way to preserve berries is to freeze them on cookie sheets, then save them in airtight plastic bags.

Eating Big Huckleberry: Northwest Coast people have been journeying to the mountains for at least 6,000 years to harvest this delicious fruit. Many Native communities historically held a berry ceremony where an elder or community leader would determine when the berries were ripe, and the people would honor that food before it was harvested.

The berries were traditionally gathered in hard, coiled cedar-root baskets that were suspended from the neck, and then smoke-dried or dried in the sun on hides or smooth, flat rocks. Once dried, the people would pack the little raisin-like fruits in large baskets and cover them with leaves for the journey back to their winter villages. There they would be stored "as is," or reconstituted with a little water and formed into loaves and put away for the winter, when they would be eaten without further preparation or added to soups and stews. Each family may have harvested enough berries to put away as much as 10 gallons of the dried fruit in a given year. Big huckleberries are especially prized today for their health enhancing properties. Unlike many other fruits, this berry is loaded with antioxidants and does not raise blood sugar, so it is an excellent choice for diabetics.

While big huckleberry season is an important food gathering time, it is also an important social gathering time. In the past, people would stay in the mountains for three or four weeks at a time during huckleberry season. Particular places were well known and drew large groups of people from a wide area year after year. In this way, the berry meadows were places of ecological and cultural diversity where a variety of activities took place, including the making of marriage arrangements between families, trading, games of skill and chance, and horse racing.

Ecological Relationships: Big huckleberry needs sun in order to produce its fruit in abundance. It is tolerant of fire – in fact, it was one of the very first plants to return to the slopes of Mt. St. Helens after the mountain erupted in 1980! Northwest Coast people were well aware of big huckleberry's need for sunlight. Historically, they would burn the meadows where big huckleberry grows to prevent trees from encroaching on them.

For many plants and animals, big huckleberry meadows are an oasis of food and light in an otherwise densely forested landscape. Deer and elk, black and grizzly bear, mountain beaver, marmot, and other small mammals, as well as several species of resident and migratory birds, rely on the foliage and fruit of big huckleberry and the other plants that grow along with it. Northwest Coast people also hunted all of these animals

during their stay in huckleberry camp. Along with the big huckleberry, the people also gathered many other plants for food, medicine and basketry, some of which are found only in the mountains.

Additional Resources:
Wild Berries of Washington and Oregon by T. Abe Lloyd and Fiona Chambers. Lone Pine.
Huckleberry video: https://vimeo.com/190192508

Photos:
All photos by Elise Krohn
Artwork by Joe Seymour

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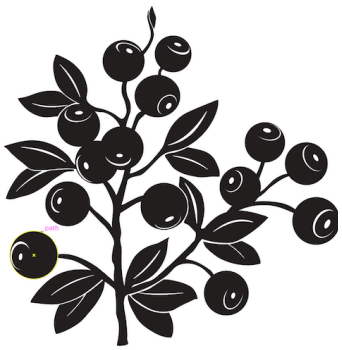
Huckleberry Medicine

A Coast Salish Story as told by Roger Fernandes, Lower Elwha Klallam Tribe



A long time ago a man had a daughter who became very sick. She was unable to eat and was in great pain. The family tried all the remedies they knew, but nothing worked. She became sicker every day. She was becoming weaker.

The family called for Indian doctors to come and treat her. They tried all their medicine, but nothing worked. She became sicker. The man was afraid she would die if a cure was not found.

One night, before he went to sleep, the man prayed to the spirits to please help his daughter.

A plant came to him in a dream that night. The plant taught him a song. The plant told the man to go up into the mountains the next morning, singing the song. When he knew it was time, he should stop singing and the medicine he needed would be there.

The man awoke and went into the mountains, singing that song. He went a long way, but finally knew he should stop singing. He looked down and there was the Huckleberry bush. The man picked the berries and took them back to the village. The girl was too weak to eat so he pressed the juice from them and had her drink the juice. She got a little better.

The next day he mashed the berries and feed them to her. Again, she felt better. Finally after several days she was able to eat the whole berry. She was well now.

The people asked what he had done and how she got better. He explained about the dream and the berries. The people did not believe him. They said it could not be from a simple berry.

That night the man had another dream and a voice spoke to him. It said that the juice of the huckleberry is the blood of the earth and the bush is the veins. The man then knew that huckleberry is a powerful medicine. He shared the dream with the people and they believed what the dream said.

And that is all.

Huckleberry Smoothie

Smoothies are a delicious way to get nutrients into your body. They are fast, fun, and easy to make for both adults and children.

1 banana
1 c. frozen huckleberries (Add 8 ice cubes if using fresh)
½ c. nut milk (vanilla almond is especially delicious)
¾ c. orange juice (or 1Tbsp. OJ concentrate +¾c. water)
½ c. yogurt (optional protein)
½ tsp. cinnamon (helps balance blood sugar)

Combine ingredients in blender. Blend until smooth. Pour into glasses and enjoy! Try adding ½-1 cup of greens to your smoothie, like kale, baby spinach or frozen nettle. Be sure to blend these first with some liquid to ensure smooth, even blending.

Prep time: 5 minutes. Serves 2
Recipe from Elizabeth Campbell, Spokane Tribe

Huckleberry Balsamic Vinaigrette

This simple and delicious dressing can be used on salads or as a sauce for wild game including deer and elk. Try drizzling a little on vanilla ice cream.

½ cup fresh, canned or frozen and thawed huckleberries or blueberries
¼ cup extra virgin olive oil or walnut oil
1 teaspoon honey
Pinch of salt and pepper

Blend all ingredients in a blender until smooth. This will dress a salad for 4-8 people.
Recipe from Valerie Segrest, Muckleshoot Tribe

Wild Berry Crisp

This tasty dessert boasts fillings of antioxidant rich fruit and is topped with heart-healthy oats and nuts. Just thinking of potential combinations of fruit filling is deliciously satisfying. Try making a double batch and storing half in the freezer for another wild berry crisp day. It can go straight from the freezer to the oven.

Filling:
6-8 cups of berries (strawberry, huckleberry, blackberry, blueberry or a combination)
½ cup of honey, maple syrup, xylitol or sugar as sweetener
2 tablespoons corn starch or ¼ cup all-purpose flour
1 teaspoon of lemon zest or two teaspoons of lemon juice

Topping:
½ cup all purpose flour or barley flour
1-½ cups rolled oats
½ cup chopped walnuts
½ cup chopped hazelnuts
2 tablespoons butter
½ cup honey, agave nectar or rice syrup
⅛ teaspoon sea salt
½ teaspoon cinnamon

Preheat oven to 375 degrees. Mix the filling ingredients and spread evenly in a 9 by 12 inch baking pan. Roast flour, oats and chopped nuts by stirring them in a dry skillet over medium heat until they are heated through and are just beginning to brown. Remove from heat and place in a bowl. Heat butter and honey, then pour over the dry mix. Add salt and cinnamon. Mix well and drop evenly over the berries. Bake for 30-40 minutes or until the berries bubble and the topping is crisp.

Cook time: 1 hour. Serves: 8-10
Recipe from Elise Krohn

Nettle

Nettles are valued as food, medicine and fiber. In springtime, the young shoots are cooked as a vegetable. A restorative and energizing tea is made from the leaves. Nettles are also used to make dye with shades ranging from yellow to deep green. The fibrous stalk is made into strong cordage for nets and rope.

Other names: stinging nettle, *Urtica dioica,*
Whulshootseed: *txʷəlšucid, sc̓əd̓ᶻx̌*

Identifying nettle: Stinging nettle is a native perennial herb with opposite deep green leaves with serrated edges and tiny greenish flowers. Stems are square. Plants grow 3-7 feet tall and the stalk and underside of leaves are covered with stinging hairs that rise from a gland containing formic acid.

Where it grows: Look for patches of nettle near streambeds, forests, farmlands and disturbed areas with rich wet soil throughout the Pacific Northwest. It grows from low elevations to montane forests. Do not gather nettles in agricultural or industrial areas because they may absorb inorganic nitrites and heavy metals.

Season: Food: February-April when they are young and tender (between four and 10 inches tall). Older nettle leaves become tough and the stalks get fibrous. Nettles may re-sprout in fall when the days are the same length as spring and can be harvested again. Tea or seasoning: early through late spring before they flower. Cordage: late summer to early fall.

Harvesting and Processing Nettles: Nettles do sting, but with the right tools, harvesting can be easy and pain free. You need either gloves or scissors and a basket or bag. Cut or pinch the leaves and place them into your container. Harvest sustainably by leaving a few leaves at the base of the plant so it can continue to grow. Leaving a few plants in each colony untouched will also hasten the recovery of the patch because the plants are connected by underground rhizomes. It is important to harvest nettles and other plants away from roads, agricultural spray or industrial sites because they can absorb harmful minerals and pollutants from the soil. If you do get a nettle sting, place a poultice of plantain or yellow dock, or rub the spores of sword fern over the area to ease irritation.

To preserve nettle leaves for tea or seasoning, gather on a dry day and choose plants that are clean since you will not be rinsing them (wet plants do not generally dry well). Cut the stock where the leaves are bright and healthy looking. Pick up the plants with scissors or gloved hands and place them in a large bag or basket. Bundle four to six stalks with a rubber band and hang them upside down in a dark dry place, or place them in a paper bag and rotate them every few

days until dry. Once nettles are completely dry and crunchy, use gloves and run your pinched fingers up the stem to strip the leaves. Store leaves whole or slightly crumbled in a dry place like a glass jar or a plastic bag out of direct sunlight.

To harvest nettle for cordage, cut the longest stalks in late summer through early fall when they are fully-grown and still strong. Strip the leaves off the stalk with gloved hands. By rubbing the stems, you can remove the stinging hairs. Bundle and dry in a well-ventilated area.

Eating Nettles: Nettles are called a "super food" because of their chlorophyll, vitamin, mineral, protein and amino acid content. Just eating nettles once or twice a week can add a significant amount of nutrients to your diet that will help to give you energy and strength. The whole young plant can be eaten, stems and all. Larger stems will get fibrous and should be removed. Rinse nettles in a colander before cooking. Methods for preparing nettles include:

- Boiling – boil nettles for 3-5 minutes. They can be eaten straight, added to dishes or frozen for later use. The water nettles are boiled in can then be drunk as a tea.
- Canning – follow general instructions for canning spinach.
- Freezing – either steam or boil nettles until just cooked, rinse in cold water, let drain and place in freezer bags for later use. You can prepare many batches in the same pot. Save the water for tea or to use as a soup base.
- Sautéing – Sauté until they look fully cooked, usually about 5-8 minutes.
- Steaming – place nettles in a colander and steam for 5-10 minutes.

The stinging substance in nettles (formic acid) is neutralized with heat and once it is dried. Cooked nettles can be eaten straight as a vegetable or added to quiches, casseroles, meat pies, egg scrambles, meat loaf, lasagna, etc. Dried nettles are used as a culinary seasoning and are a delicious addition to chicken soup, clam chowder and tomato sauce.

Nettle Medicine: Skokomish elder Bruce Miller taught that nettles are an important traditional spring food and medicine. After wintertime when Salish people traditionally ate more dried foods and less fresh plants, nettles were a source of powerful nutrients and cleansing medicine that helped people to enter the new season with vitality.

Nettles can help bring the body back to a state of balance. If someone is feeling debilitated or generally worn down, nettles are often recommended. They assist the kidneys in eliminating excess fluid, balance blood pH, and filter waste from the body including uric acid. They also support liver function, which includes breaking down waste products, digesting fats, storing minerals and building healthy blood and building blocks for rebuilding our body. Nettles are a traditional remedy for arthritis, gout, eczema and skin rashes. Many people find that nettles help to alleviate allergies.

Both in the Pacific Northwest and in Europe, people have intentionally stung themselves with nettles for many reasons including to stay awake and alert during battle or hunting, and to ease the pain of

injured or arthritic joints. Some native elders even soak their joints in cold water after stinging themselves. This makes good physiological sense. Compounds including histamine, acetylcholine and formic acid on nettles touch our skin and cause an awakening of cellular responses, lymph flow and nerve and capillary stimulation. Cold water reduces swelling and helps to remove stagnant blood from the joint, thereby easing pain and speeding healing. If you get stung unintentionally, you can make a poultice from plantain leaf, yellow dock or the underside of sword fern to heal more quickly. Nettle tea is also used as a hair rinse to make the hair glossy and stimulate growth.

Traditional Technologies: Nettle leaves and roots are used to make dye with shades ranging from yellow to deep green. The fiber makes strong cordage and has been used for making rope, fishing line and nets. Two thousand-year-old nettle clothing was found in China that was still intact.

Ecological relationships: Nettles grow in patches and will help to build fertile topsoil. When their leaves die back each autumn, they create mineral-rich compost that helps trees and other plants to thrive. Many insects and other forest creatures eat nettles, but they have done an excellent job of protecting themselves with their sting.

Growing tips: Nettles can be easily transplanted if you get a good portion of the root and soil from where it grows. Choose a planting spot with a similar amount of sun and soil moisture that is not a hazard for young children. They will thrive and spread in wet areas with rich soil. You may want to make a sign where you plant nettle that says something like "Be aware. Stinging nettles are growing here!"

Additional Resources:
Video on how to harvest and prepare nettles:
https://vimeo.com/108420031

How Nettles Saved the People

as told by Roger Fernandes of the Lower Elwha Tribe.
https://vimeo.com/90379255)

A long time ago, the First People of this land were always afraid. They were always frightened, and they hid in the shadows of the forests all the time. They were always looking behind themselves.

The thing they were afraid of, the thing they feared the most, was those big canoes that would come from the North filled with raiders, warriors from the Northern tribes. They would come from the North in surprise attacks, they would attack our villages and they would rob, they would hurt people, and they would kidnap them and take them to the North to be slaves. They would burn down villages. These people would come without warning, and without mercy, they would attack our villages.

There was a man in the village and he saw this, his people frightened, living lives of fear. He said, "This is not right, my people should not live lives of fear." So that night, he prayed before he went to sleep. He prayed to the spirits, he prayed to his ancestors for some kind of guidance to help his people.

While the man slept, he had a dream and a plant came to him. It was the Nettle plant. Nettle spoke to him and said, "When I am growing in the spring time, I want you to have your people gather my leaves and dry them, then make them into a tea. I want all of your people to drink that tea together. And as you all drink that tea, I want the people to say in one voice 'I will be strong for my ancestors, I will be strong for my people, I will be strong for the ones to come.'

The man woke up and told his people his dream, and the people followed the dream. They gathered the Nettle leaves, dried them, made it into a tea, and drank that tea together as they said those words: 'I will be strong for my people, I will be strong for my ancestors, I will be strong for the ones to come.' And the people felt a little stronger.

The man had another dream sometime later. Nettle came back to him and said, "I want your strongest men and women warriors to gather my whole body: my stalk, my branches, my leaves and I want them to whip themselves with me, to flog themselves with me, and as they feel my power enter their body, I want them to say the same words: 'I will be strong for my ancestors, I will be strong for my people, I will be strong for the ones to come.'

The man explained his dream again and the people followed the directions. The strongest men and women warriors gathered the plant and flogged themselves with, and as they felt the power enter their body as they said those words. And so the people felt stronger.

One day, word arrived that the canoes were coming from the North, big canoes filled with raiders and warriors! But instead of running away to hide in the forests or going to the mountains as the people had done before, they stood together, the whole village, and they formed one long line. And that one long line of people walked down to the beach - men, women, children, elders, everyone walked down in one long line to the beach. They stood together in one long line, shoulder to shoulder, looking out to the salt water. As those canoes approached, they came within view; the people began to sing a warrior song in one voice. The men in the canoes heard the people singing that song in one voice and they saw the people standing together. And those men in the canoes realized that the people could not be defeated, so they turned their canoes around and went back to the North, leaving our villages safe, leaving our people safe. And that is how Nettle saved the people.

Artwork by Roger Fernandes

Nettle Nutrients

Nettles are much higher in nutrients than other store bought greens like lettuce and spinach. Minerals are vital to bone strength along with balanced blood composition. Plants are excellent sources of minerals because they draw them from the soil and concentrate them in their own tissue. If the soil is depleted of minerals, plants will suffer through weak structure and a decreased resistance to disease. This is why wild plants are often higher in minerals compared to vegetables that are grown on farmland with depleted soil.

Minerals are categorized into two categories – major minerals and trace minerals. We use a larger amount of major minerals, although trace minerals are essential for health too. Major minerals include calcium, magnesium, phosphorous, potassium, sulfur, sodium and chloride. Trace Minerals include zinc, iron, manganese, copper, boron, silicon, molybdenum, vanadium, chromium, selenium and iodine.

- Calcium is the most abundant mineral in our body, comprising as much as 2% of our total body weight. Calcium is needed for bone formation, muscle contraction, heartbeat regulation and blood clotting, just to name a few. Low calcium levels can lead to muscle spasms, leg cramps, high blood pressure and osteoporosis.
- Magnesium activates many enzymes and maintains the electrical charge of cells, especially nerves and muscles. People with magnesium deficiency may have symptoms including mental confusion, irritability, weakness, heart disturbances, muscles cramps, headaches, insomnia and a predisposition to stress. Nettles are over 8 times higher in magnesium than spinach and 22 times higher than kale!

	RDA	Spinach	Kale	Nettle
Calcium	800	102	206	2900
Magnesium	300	96.8	37.4	860
Iron	18	2.96	1.8	41.8
Potassium	1875-5225	518	244	1750
Vitamin A	4,000 IU	8,920 IU	9,130 IU	15,700 IU
Vitamin C	60	56	102	83
Thiamine	1	.116	.11	.54
Riboflavin	1.2	.22	.2	.43
Niacin	13	.6	1.8	5.2
Chromium	.05-.20			3.9
Cobalt				13.2
Phosphorus	800			447
Zinc	15	.618	.78	4.7
Manganese	2.5-5	96.8	37.4	860
Selenium	.05-.2			2.2
Sodium	1100-3300	98	47	4.9
Protein	3.6%	5%	10.2%	16.5%

Numbers indicate milligrams per 100 grams (about 1 cup). Compiled by Rose Barlow based on USDA research in “The Composition of Foods” and “Nutritional Herbology.”

Basic Nettle Sauté

This is a standby in our house because it is quick, easy and delicious. You can easily modify it to your taste by adding different spices or toppings. Chard, kale or dandelion greens also work well in this recipe.

1 small bag of nettle
2 tablespoons olive oil
1 small onion, chopped
2 cloves garlic, chopped
2 tablespoons balsamic vinegar or lemon juice
Salt and pepper to taste
*Optional – ½ cup feta cheese

Gather fresh greens, wash and chop into small pieces with scissors. In a medium-sized sauté pan with a lid, sauté onions and garlic in olive oil until onions are translucent. Add nettles and vinegar or lemon juice. Cover for a couple of minutes then stir. Sauté until greens are tender – about 5 minutes. Add salt and pepper to taste. Sprinkle with fresh feta and serve.

Spring Nettle Soup

This savory spring soup will leave you feeling deeply nourished. Corn adds a natural sweetness while potatoes are filling and the nettle adds a rich broth flavor.

1 grocery bag full of fresh nettles
3 tablespoons olive oil or butter
2 large onions, diced
2 cloves of garlic, chopped
8-10 cups water
4 potatoes, peeled and diced
2 cups corn, fresh or frozen
Juice of 1 lemon
Salt and pepper to taste.

Wash nettles, cut finely with scissors and set aside. In a large soup pot sauté onions and garlic in olive oil for 3-5 minutes. Add water, potatoes, corn and nettles then bring to a boil. Simmer until potatoes are tender, about 10 minutes. Blend all or part of the ingredients in a blender or a food processor (optional). Add lemon juice, salt and pepper to taste.

Nettle Pesto

Try tossing this with pasta, potatoes or cooked vegetables. It can also be used on crackers or fresh vegetables as a snack.

1 small bag of fresh young nettles, rinsed
1 bunch basil, stems removed, washed and drained
½ cup Parmesan or Romano cheese, grated
⅓ cup walnuts or pine nuts
⅓ cup of extra virgin olive oil
I clove garlic, chopped
1 teaspoon lemon juice
Salt and pepper to taste

Boil nettles in water (blanch) for 2-3 minutes to remove the sting. Drain, let cool and roughly chop. Place all ingredients in a food processor or blender. Blend until smooth. Add salt and pepper to taste. Place the pesto in a clean jar and pour a little extra olive oil over the top. Cover with a lid. This will keep for 2-3 weeks in the refrigerator.

Nettle Mint Tea

Mix equal parts dried nettle leaf and peppermint

This refreshing and energizing tea is high in minerals that build strong bones, hair and nails. Nettles help with detoxification & allergies. Mint eases upset stomach and congestion. Use 1 tablespoon per cup, steep 20 minutes to several hours. Drink 1-3 cups a day.

Healthy Bones, Hair and Nails Tea

Mix equal parts nettle, horsetail, red clover and mint.

These herbs are high in minerals that build strong connective tissue. It is a favorite tea for menopausal women who are at risk for osteoporosis. Steep 20 minutes to several hours.

Making Nettle Cordage

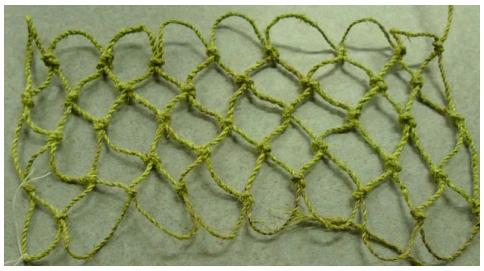
Nettle fiber is renowned for it's durability and has been used for making fishnets, ropes, clothing, and even bed linens. Fully-grown nettle stems are gathered for fiber in summer to early fall. Remember to wear gloves and cut stems at the base and strip the leaves and small branches from the main stem.

If you are working with fresh nettles, split the stems in half, cutting length-wise with a sharp knife. Take a rolling pin or round stick to flatten the half-stems. Carefully separate the outer fibers, trying to keep them long. Let these fibers dry in a basket or a paper bag before creating cordage because they will shrink considerably.

If you are working with dry nettles, you can beat them with a stick or a flat rock to help separate the outer fiber from the inner woody stem, or you can soak them and continue as above by splitting the stems, flattening them and carefully removing the fiber. The fiber can then be braided or twisted and made into strong cordage.

To make cordage, start in the middle of a long bunch of fiber. Twist the fiber tightly so it begins to buckle in the middle. Use this to start two strands that you will twist together. Either have someone hold tip of the cordage while you twist the strands or place the top of the cordage in your mouth to stabilize it. Keep twisting both strands in the same direction so that they naturally wrap around each other. You can make a bracelet by using one end of the cordage as a loop and tying a knot in the other end at the distance that wraps around your wrist.

To make long cordage, once you get about three inches from the end of your fiber strand, you will need to splice in new fiber to make your cordage longer. Split open the fibers of both strands and interweave and twist them together. Continue twisting the strands together. More fiber can be continuously added to the cordage to make long rope. You can practice making cordage by using raffia or twine.



Additional Resources:
See Youtube videos on making nettle

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Nettle black artwork Joe Seymour

Salal

Salal is a common understory plant in Northwest forests. Its shiny deep-green leaves remain beautiful throughout the year and are a valued addition to floral arrangements. Salal berries are loaded with energizing nutrients including vitamins, minerals, antioxidants and even good quality fats.

Other names: *Gaultheria shallon*. Whulshootseed: *ƛ̓aqa*

Identifying Salal: Salal is an evergreen shrub that grows in lush thickets. Plants grow to about five feet tall. Leaves are thick, egg shaped, dark green on top and waxy. Spring flowers look like little white bells and are slightly sticky and hairy. Berries are a dull blue-black color when ripe and are also slightly hairy. They have a 5-pointed star shape on the underside.

Where it grows: Salal thrives in shady conifer forests and in sunny areas with moisture and good drainage. They will grow from nurse logs and produce more berries when they have partial to full sun.

When and how to harvest: Gather berries in July-September when they are deep blue, plump and tasty. The easiest way to harvest is to pull the entire pink stem of ripe berries off the plant, place them in a bag or basket, and then process them all at once. Pop the berries off by pinching them with your thumb and pointer finder instead of trying to pull them off. Gently rinse in a colander if the berries are dusty.

Gather green healthy looking leaves in late spring to summer. Cut stems and bundle them with rubber bands. Hang in a dry warm place out of sunlight. When the leaves are crackly when crushed, strip them off the branches and store them in a glass jar or plastic bag for later use. Before making tea, crush or cut the leaves. Use about one heaping tablespoon per cup of hot water and infuse for 20 minutes.

Eating Salal Berries: Salal is one of our most common and overlooked berries. The flavor varies from delicious to bland and boring, depending on soil and sun conditions. Taste the berries before you gather them, and if they do not suit you, try traveling to a different area. Berries can be eaten fresh, frozen, canned, added to smoothies, pies, jam, fruit leather and baked desserts.

Salal berries are high in antioxidants, vitamins and minerals. The seeds even contain protein and Omega 3 fatty acids. While they have a thicker texture than many other types of wild berries, people feel satiated when they eat even a small amount.

Salal berries are highly prized among Coast Salish People. They were a staple food that could be mashed, dried into cakes and then stored and eaten in the winter months. The berries were mashed and sometimes cooked, then poured into wooden frames to make "berry cakes" on cedar boards or skunk cabbage leaves (also called Indian wax paper). These were dried near a fire and then stored in boxes for later use. According to Erna Gunther in *Ethnobotany of Western Washington*, the Lower Chinook People's salal loaves weighed as much as 10-15 pounds! Many people preferred to rehydrate the cakes in water or dip them into seal, whale or eulachon oil. Salal is still a beloved berry among many native families and is made into jam, fruit leather and desserts. Adding as little as 25% salal berries to fruit leather it will increase the shelf life.

Salal Leaf Medicine: Salal leaf has a long history as a medicine for healing wounds and easing coughs, colds and digestive problems. The Klallam, Bella Coola and Quileute People have chewed salal leaves and placed them on burns and sores. The Samish and Swinomish People have used the leaves in tea for coughs and tuberculosis, while the Quinault People have used them for diarrhea and flu-like symptoms. In his book *Medicinal Plants of the Pacific West*, herbalist Michael Moore says that, "The tea is astringent and anti-inflammatory, both locally to the throat and upper intestinal mucosa, and through the bloodstream, to the urinary tract, sinuses and lungs." Salal leaf is a common and easily accessible medicine that can be useful for many ailments.

Ecological relationships: Humans are not the only ones to enjoy salal berries. Many pickers say they are accustomed to sharing the harvest with bears, chipmunks, squirrels and birds.

Growing tips: Plant several salal starts to form a lush thicket. Once established, they will spread. Salal is easy to find in Northwest nurseries and is commonly planted as a shrub in city parks and on roadsides.

Additional Resources:
http://wildfoodsandmedicines.com/salal/
Wild Berries of Oregon and Washington by T. Abe Lloyd and Fiona Chambers

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Photos by Elise Krohn

Salal Berry Fruit Leather

I prefer to use about one-third to one-half salal berries to other types of tasty berries such as thimbleberry, strawberry, wild blackberry, huckleberry or blueberry. Salmonberries are too juicy to make fruit leather. Place berries in a blender and blend until smooth. Add honey to sweeten and a little squeeze of fresh lemon juice to bring out flavor. Fit wax paper over a cookie sheet with sides. Pour blended berries onto the sheet and use a spatula to smooth them out to an even consistency of about a quarter inch. The berries can be dried in the sun or in the oven.

Sun drying: If it is hot and dry, place the pan in the full sun, preferably in a windy spot. If there are flies or bugs, you can put cheesecloth over the berries. You can speed up the process by placing your pan on a car dash or in a greenhouse. After the berries are mostly dried turn them over. Carefully peel the old wax paper off and let the other side dry. It will probably take two to four days to dry completely, so bring the berries in at night to prevent them from gathering dew. When it is the consistency of fruit leather, cut the berry sheet into strips and store in plastic bags to prevent it from drying out completely.

You can also make beautiful little berry cakes in a traditional Salish manner by drying them on skunk cabbage leaves. Skunk cabbage is also called “Indian wax paper” and it does not impart its strong smell onto food at all.

Oven method: Place the berries in the oven on the lowest temperature (usually about 170 degrees) and leave the oven cracked so that water can evaporate off the berries. It will take 6-10 hours for the berries to dry. Flip the whole thing over when it is mostly dry. Carefully peel off the wax paper and continue drying until it reaches a dry, yet pliable consistency. If you have to leave, be sure to turn your oven off and place the fruit leather in a warm spot in the house with cheesecloth or a paper towel over it.

Variation: Some people choose to cook their berries gently on the stovetop until they are reduced to a thick paste. While this helps speed up the drying process, it also compromises nutrients like Vitamin C in the berries. However, this method is best if you are drying on skunk cabbage leaves.

Salmon

Salmon is the most honored traditional food in Salish Sea Country. For thousands of years the Chinook, Dog, Sockeye, Coho and Pink have held their rightful place as cultural keystones pillars of Northwest Coastal Natives. Archeologists date the use of Salmon back 10,000 years, but tribes affirm organizing our existence around the Salmon since time began. This is reaffirmed in many creation stories, which note Salmon as the first food to be given to the people.

A Brief Description of Northwest Salmon Species:

Chinook (King, Spring, *Oncorhynchus tshawytscha*)
Season: March, April, and August
Description: Largest of all the salmon species, our local Kings can weigh up to 40 pounds, and those in the Columbia use to exceed 100 pounds. The rich red flesh, high oil content and firm texture make them the most valuable and prized of the salmon for their rich flavor. Their spawning activity draws them hundreds of miles inland up large rivers and tributaries – and this vigorous act requires a strong fish with a large amount of fat reserves. While their fat content depends on location, time of year and the health of the habitat for the Kings food supply- they are generally the fattest of wild salmon. Steaks and fillets of the Kings are ideal for grilling and dry heat cooking methods. They are also delicious when poached, steamed or baked.

Sockeye (Red, Blueback, *Oncorhynchus nerka*)
Season: June
Description: Rarely topping six pounds, Sockeye are among the smaller varieties of the salmon family, but they pack a lot of flavor. They feast on zooplankton, crab larvae, shellfish and krill, which impart a distinguishing wild flavor and vivid flesh color. Some refer to them as "Blueback" as they are blue and silver in color while they journey the ocean waters. However, they are also called "Red Salmon" because of the crimson hue brought out in their skin during spawning, as well as the orange-red color of the meat. As juveniles, Sockeye thrive in freshwater until they are ready to migrate out into the ocean where they travel nearly 1,000 miles before they return to their birthplace to spawn. They make great steaks and fillets.

Coho (Silver, *Oncorhynchus kisutch*)
Season: July, August, and September
Description: Baring dark blue backs and silver underbellies, "Silvers" or Coho are similar to the King in size and flavor, so much so that it can be used as an alternative in recipes calling for King salmon. However, they differ from Kings as they mainly spawn in shorter coastal rivers. As juveniles, Coho spend up to two years in freshwater streams before they journey to ocean waters for up to three years. Some males will return to their nursery waters in just two years to spawn, baring the notable "hooked" nose of Coho. These are called "jacks." It is important to note that these species of salmon suffer from the loss of critical spawning habitat and are listed as a "species of concern" in

Washington's Puget Sound. They are on the endangered species list in Oregon and California.

Chum (Dog, Keta, *Oncorhynchus keta*)
Season: November to January
Description: The name "Chum" comes from the Chinook Jargon meaning "spotted" or "marked." They are the salmon species holding the largest range of all salmon, traveling nearly 2000 miles in ocean currents and typically spawning in small streams and intertidal zones. Chums are the last salmon run of the year, returning in the early winter season. Similar in size to Coho, they are the leanest of the salmon species, as their travel is longer and more rigorous than the others. Their late migration and lean flesh make them ideal for "hard smoking" and preserving for the winter months. Chums are on the endangered species list in the Hood Canal and Lower Columbia River.

Pink (Humpback, *Oncorhynchus gorbuscha*)
Season: June to October
Description: The smallest yet most abundant of all salmon species, Pinks or "Humpies" return every other year. Spawning grounds of Pinks include longer rivers, intertidal zones and coastal streams where freshwater is also found. They are relatively low in fat content and do not always pack the same delicious flavor as their close cousins. However, they do take on seasonings well and are best sautéed, steamed or baked.

Eating Salmon: Salmon has remained one of the most important staple foods to Salish People. Available fresh in spring through fall, it can be prepared with many cooking techniques and is easily preserved by drying and smoking. It is delicious both hot and cold, and can be eaten alone, or combined with other ingredients in endless possibilities of soups, sautés, casseroles, pies, dips, etc.

Narrowing down the method depends on the species as well as the materials the landscape provides. Below are a few traditional methods:

- ***Boiling salmon*** involves a cooking box or a waterproof basket set close to a fire where carefully chosen rocks are heated until they are glowing hot. Tongs are used to safely grip the rocks so that they can be quickly rinsed before they are placed in the water filled cooking receptacle. Adding rocks one by one eventually brings the water to a boil, at which time the fish and other ingredients like wild onion or seaweeds can be added. A lid is then placed on top for up to an hour until the soup is completely cooked.
- ***Roasting*** is an excellent way to cook fresh salmon. King or Sockeye are the best salmon for this method on account of their oily flesh. The Salmon should be "butterflied" (filleted down the back leaving the belly intact), fastened to a special roasting stick, and placed by an alder wood fire. Cooking sticks can be made from straight pieces of ironwood or maple that is split in half for much of its length, and sharpened on one end so that it can be driven into the ground. The fish is bound between tines of the cooking sticks with cedar splints to hold the fillet open. While this cooking process requires a lot of preparation, the juicy flavorful salmon steaks are well worth the wait.

- ***Steam pits and rock ovens*** are also employed for steaming or baking salmon fillets or whole gutted salmon. Fatty fish are best prepared in this way, as the process preserves the healthy Omega 3's – considerably the biggest nutritional value of salmon. These earthen ovens are a great way to efficiently cook large quantities of food.

Cleaning and Filleting: Once a fish is caught, it needs to be processed right away or it will quickly develop a fishy odor and rot. Many people prefer to clean salmon on site. If you choose to take it home, keep it chilled in a cooler. Fish cutting knives were originally made from sharpened mussel shells or thin sheets of slate that were ground sharp on one side. A sharp fillet knife makes the job a lot easier. Slit the belly from the anal area up, then spread the sides open and remove the innards. Be sure to scrape the blood out of the backbone. Cut the head off or just cut the gills out. Many people enjoy making fish head soup, which is delicious and extremely nutritious. Once your fish is cleaned, you can store it in the fridge, but cook it within a day. You can also freeze fish in a plastic freezer bag for about one year. For optimal freshness, many people like to add a little water to the freezer bag, which displaces any air.

Filleting fish is an art that becomes natural only after practice. Using a sharp knife, cut through the fish along the backbone from the tail to the head. Hold the blade almost flat and parallel with the body of the fish and cut along the backbone, allowing the knife to run over the rib bones. For best results, use clean even strokes, being careful not to leave knife marks in the flesh. Lift the fillet off in one piece, turn the fish over and remove the other fillet.



As Suquamish Tribal Member Rob Purser says, "Suquamish ancestors utilized every part of the fish." The fish heads can be made into fish head soup and you can make a delicious bone broth out of bones and remaining meat. It is traditional to return the carcasses to the water or bury them in the forest so they return nutrients to the land.

My uncle used to say that the thickness of the fish was very important. It had to be consistent so the fish would smoke evenly. He taught us to use sword ferns under the salmon while cutting them so they wouldn't slip. We were told to return the bones and carcasses back to the water. –Tleena Ives

Preserving Salmon: Methods for preserving salmon are as diverse as those for catching them and depend on the species, season, climate and the area of origination. Wind drying and smoking are the most common and have the same results: fish that can be stored for a long time without refrigeration. Upriver and interior Tribes carefully constructed open

wall racks in areas where the warm dry wind funnels through canyons and efficiently wind dries the salmon. Where the air is moist along the coast, fully enclosed cedar smokehouses were carefully built to smoke salmon with the right combination of heat and smoke. A popular modern preservation technique involves canning fish, which began in large metal pots on an outdoor fire, and now utilizes the conventional stove top method. This process preserves the fats and makes a salmon meal easy for travel!

Salmon Medicine: Cold-water fish, such as salmon, are valued for their high levels of Omega 3 fatty acids, or "healthy fats." Our body utilizes these particular fats to feed our large brains and nervous systems. Just four ounces of salmon can contain up to 2 grams of Omega 3's, more than the average North American diet offers over the course of several days. Researchers have found salmon to be very beneficial in preventing diseases such as heart disease, Alzheimer's and many forms of cancer. Salmon also contains special proteins that help support the strength of cartilage in our joints as well as our body's ability to utilize insulin in order to balance our blood sugar. Salmon is an excellent source of vitamin B12, vitamin D and selenium- all of these nutrients are involved in promoting both physical and mental energy. Many Tribal folks share testimony of feeling "fish hungry" and upon eating freshly cooked salmon off of an alder smoked fire, report having "fed their Indian," which is perhaps the most important medicine of all.

Fishing Technology: Years of accumulated knowledge and experience is necessary in order to understand the subtle nuances, ebbs and flows of salmon fisheries. This is apparent in the rich traditional technology of catching, processing, preserving and cooking fish. Traps, weirs, spears, harpoons, nets and time honed skill are integral to fishing the vast water system of the Salish Sea. The technique one might employ depends on the location of your village, or the plant materials available to you. Perhaps the most important component of success in fishing is your social network, which can give you access to more diverse fisheries, or perhaps relatives from other areas that might share their success in years where you have little.

Ecological Knowledge: Salmon play a central role in feeding our entire food ecosystem. They are born in rivers and then journey to the open waters of the Pacific where they feast on zooplankton and tiny fish for two to four years. When they are strong and mature, they navigate their way back to their ancestral waters, sometimes swimming four to five miles per day and eluding predators from orcas to seals to fishermen. Unfortunately, various human-made water diversions disrupt many salmon from laying eggs in their ancestral rivers, which threatens the entire lineage.

Without salmon's ceremonious return to the rivers, our environment would suffer. These precious fish nourish the land, animals, plants and people who dwell here. In witnessing the spawning salmon

committing such a charitable act, we are reminded of the important teaching of generosity in Salish culture. In order to honor the salmon for being such a powerful teacher, ceremonies such as the "first salmon ceremony" are conducted with reverence annually.

You need salmon to support everything else –the forest and the streams. They provide much more than just food, they provide nutrients to the forest. Without it, everything else falls apart.

–Rob Purser, Suquamish Tribal Member

Salmon Consumption Rate

"Revising our state's fish consumption standard is not just a Tribal issue. It's a public health issue that affects everyone who lives here." -

-Billy Frank Jr.

When it comes to Northwest Coastal Native traditional diets, salmon is a "cultural keystone species" of far greater importance to the diet than its caloric value. Salmon is a feast food, a first food, a ceremonial food, as well as a delicious food. Harvesting, processing, and eating salmon is also central to the identity of several Indigenous communities.

It is the inherent right for tribal communities to define their own diets and therefore shape their own food systems. That is what we call "Food Sovereignty." An important aspect in our traditional diet is the health of our environment.

For more than twenty years, tribes have worked with the Northwest Indian Fish Commission (NWIFC) to ensure that our waters and fish habitat are not polluted. Pollution standards are based on the current amount of fish tribal communities consume. This is called the "fish consumption rate." Given the same level of pollution, the people eating more fish would be at higher risk of absorbing those pollutants into their bodies. Ironically, NWIFC states that, "Washington uses one of the lowest fish consumption rates in the nation to set water pollution limits, but has some of the highest fish-consuming populations in the nation." They go on to report that the consumption rate is the basis for their efforts to pressure the Washington State to clean up the environment and tighten pollution prevention standards. NWIFC is an important organization making sure fish are safe to eat. You can stay up to date on this issue and make a public comment by taking opportunities provided to speak out to the Washington State Department of Ecology at *www.ecy.wa.gov/tox- ics/fish.html*.
(http://keepseafoodclean.org/wp/wp-content/uploads/2012/11/FCR-4-page-2012.pdf)

In early August, fishing Elliot Bay for Kings… this was always our favorite time because when you get out on the water you can smell the salmon. It is a spiritually uplifting moment, and God I just love it. The smell always reminds us to give thanks for the salmon, and for that, we always had a good season. It doesn't stink; it is just a special smell due to the oil of the fish. They are so oily and this is why they are the most beautiful to cook on a stick – just getting to watch the fat drop off of their beautiful meat."

-Georgiana "Peachie" Ungaro, Suquamish Ceremonial Fisherwoman.

Quick Salmon Chowder

This chowder is sure to be a crowd pleaser and can be made quickly with canned or smoked salmon.

3 slices of bacon, diced
½ medium yellow onion, diced
1 clove garlic, diced
3 green onions, chopped
3 red potatoes, diced
3-4 cups low sodium chicken stock
12-ounce jar canned sockeye salmon (can also use smoked salmon)
1 cob of corn, shucked (or substitute 1 cup frozen corn)

In a large soup pot, sauté bacon until just crisp, about three minutes. Add onions, garlic and green onions and continue cooking until onions turn translucent in color. Add in potatoes and chicken stock; bring to a boil for a few minutes. Lower the heat, keeping soup at a simmer for 10 minutes. Add salmon and corn and cook an additional 8-10 minutes. Serve hot.

Cooking time: 30 minutes. Serves 6
Contributed by Louie Ungaro, Muckleshoot Tribe

Northwest Summer Salad

This flavorful salad features important Salish traditional foods. It offers a satisfying and nutritious blend of protein, good quality fats and anti-oxidant-rich berries.

½ cup hazelnuts, roasted and cut in half
1 head lettuce – butter, green leaf or romaine
½ cup wood sorrel leaves (if available)
½ cup violet or pansy flower and leaf (if available)
½ cup smoked salmon (torn into small pieces, bones removed)
½ cup sliced strawberries

Dressing – Huckleberry Balsamic vinaigrette
½ cup fresh or frozen and thawed huckleberries or blueberries
¼ cup extra virgin olive oil or walnut oil
2 tablespoons Balsamic vinegar
1 teaspoons honey
pinch of salt and pepper

Place hazelnuts on a cookie sheet and roast in the oven at 300 degrees until they smell fragrant and begin to brown, about 15 minutes. Set aside to cool. Wash and drain lettuce, wood sorrel and violets. Tear salmon into bite sized pieces, making sure to remove bones. Slice strawberries. Cut hazelnuts in half. In a blender add all dressing ingredients and blend until smooth. Tear lettuce into bite sized pieces and place in a salad bowl. Place all other salad ingredients on top and dress with huckleberry dressing.

Salmon Huckleberry Dip

This tasty spread can be enjoyed on crackers, bread or veggies. It is packed with nutrients that promote physical strength and clear thinking.

4-6 cups of smoked salmon (or canned salmon)
1 cup of cream cheese
1 large onion or spring onions
3-4 stalks of celery
1 cup of yogurt
1-2 cups fresh berries (huckleberry, blueberry, raspberry, strawberry or blackberry)

Directions: In a food processor, mix onions, celery, cream cheese and ¾ of the salmon, then mix. Add yogurt and mix again. By hand, gently fold in the rest of the salmon and the berries. Place dip in a serving bowl and enjoy with crackers, bread or veggies.

If you are hand blending the dip, add ¾ of the salmon in a large bowl and break down and mash it with a fork. Add chopped onions, celery and cream cheese then mix well. Mix in yogurt then gently fold in huckleberries and remaining salmon.

Preparation time: 20 minutes. Serves 8-10.
Recipe from Pamela James

Additional Resources:

Books:

Hunt, Gather, Cook by Hank Shaw
Indian Fishing by Hillary Stuart
Pacific Feast by Jennifer Hahn
The People of Cascadia by Heidi Bohan
Renewing Salmon Nation's Food Traditions by Gary Paul Nabhan
Salish Country Cookbook by Rudolph Ryser (available as ebook)

Online Resources:

"Canning the Fish Catch" www.uaf.edu
"Smoking Fish at Home" www.uaf.edu
"Pickling Fish and Other Aquatic Foods for Home Use. http://cru.cahe.wsu.edu
Guide to Eating Fish Safely for Alaska Women and Children" www.epi.hss.state.ak.us

Videos:

Smoking Salmon with Gilbert KingGeorge
https://www.youtube.com/watch?v=ILxPOmmLVNs
Store Outside Your Door https://www.youtube.com/user/ANTHCStoreOutside
Salmon caviar https://www.youtube.com/watch?v=jY2SCXl_Kgw
Boiled salmon soup https://www.youtube.com/watch?v=vcDp9WR3svI
Salmon curry https://www.youtube.com/watch?v=XAzD50nwIn0
Northwest Indian Fisheries Commission http://nwifc.org/publications/video/
Salmon: More than Just a Food. https://vimeo.com/94704117

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Seaweed

Seaweeds are an important food and medicine to humans everywhere that they grow. They have been harvested by Salish People off the Pacific coast for countless generations and are used for thickening soups, seasoning foods, and for baking foods in cooking pits. Seaweeds are exceptionally high in minerals, trace elements and protein. They can be preserved through careful drying in the sun or near a fire.

Where they grow: In salt water at middle to low tidal zones. Each type of seaweed has a tidal zone habitat – from sea lettuce and bladder wrack that grow on rocks in upper tidal zones to bull whip kelp, which grows in deep waters.

Season: Like other edible greens, seaweeds are harvested in spring and early summer when they are most vital. In late summer and fall they get tough and begin to deteriorate.

How to Harvest: It is very important to harvest seaweeds from clean waters because they can absorb environmental toxins. The safest places are open waters of the Pacific with strong current flow, away from cities, towns or industrial runoff. Washington State allows us to harvest 10 pounds wet weight per day on public beaches and you need a shellfish/seaweed license to harvest.

The bottom of the seaweed or "hold-fast" anchors on to rocks while leaves grow upward toward the light like an undersea forest. Make sure you leave the holdfast and at least a quarter of the seaweed plant so it can grow back. Do not clear-cut any area so that the seaweed can continue to thrive. As wild foods forager Jennifer Hahn says, approach seaweed harvest as if you were trimming hair.

Harvest seaweed with blunt scissors and then rinse in seawater before placing in plastic bags. If you are harvesting on a warm day, bring a cooler to keep seaweed cold during transport, as they will quickly decompose. Once you get home, rinse seaweeds in fresh water, being careful to remove any sand. Delicate seaweeds can be stored for use in a refrigerator for up to three days, while thicker brown seaweeds will last up to 7 days. Seaweeds can also be frozen.

After gathering seaweed, most people dry it for long-term use. This can be a tricky because seaweeds have a great affinity for water. You can dry seaweeds outside in the full sun for 4-10 hours all in one day. Hanging them with close pins works best. If the seaweed is not dry by the time the sun goes down, it should be brought inside to prevent rehydration from dew. Seaweeds can also be dried inside at 80-100 degrees using small fans for air circulation. You can use a food dehydrator or an oven on the lowest setting. Place the seaweed in loose clumps on a cookie sheet covered with parchment paper. You may need to crack your oven door to release moisture.

When completely dry, seaweed will be crunchy and should be placed in airtight bags or containers. It readily reabsorbs water from the air and may need to be re-dried occasionally. Store in a dark place at a temperature below 70 degrees.

Eating Seaweed: Amazingly, there are no poisonous seaweeds in the Pacific Northwest. That does not mean that all are palatable. Some, like nori or kelp are delicious toasted or incorporated into dishes while others like acid kelp are so vile tasting that you would not put them in your mouth more than once.

Seaweeds are exceptionally high in minerals and have over 100 trace elements. Many seaweeds including kelp are higher in calcium, magnesium, copper, zinc, iron, boron, potassium and other nutrients than red meat, milk or eggs. Nori is especially high in Vitamins A and C, more in fact, than oranges. Seaweeds contain 10-35% protein and some have high quantities of essential fatty acids.

Seaweeds can be incorporated into the diet in a multitude of ways including soups, pies, seasoning, "chips", etc. You may need to consume seaweeds on a regular basis initially to build up sea vegetable digestive enzymes. Most people adapt in 4-6 weeks. Heavy antibiotic use can decrease a person's ability to digest seaweeds.

Seaweed Medicine: Slipping seaweeds in to your diet is an excellent way to improve health because they provide minerals and support detoxification. Seaweeds are up to 10 times higher in iodine, an important trace mineral, than any land plant. Iodine is an essential building block in the production of thyroid hormones. Our thyroid regulates metabolism and energy levels. China has used seaweed therapeutically to treat goiters (a low iodine condition) for over 5,000 years.

Ecological Relationships: All seaweeds create habitat for sea creatures to hide and make their homes. They are food for many species. Kelp is an integral part in the web of sea life. Giant kelp and bull kelp create underwater forests that provide a home and food to fish, sea otters, crabs, sea urchins and snails. When waves break apart bits of these seaweeds, they become food to tiny zooplankton, which become food for bigger zooplankton and up the food chain including small fish, salmon and whales. The Omega-3 fatty acid in salmon is from kelp! Because sea otters are declining, they are eaten fewer sea urchins, one of their major food sources. This had led to an explosion in sea urchin populations along the Pacific coast. Sea urchins heavily graze on kelp and have deteriorated the kelp forests, which are essential habitat for many sea creatures.

Other uses: Seaweeds are a useful garden amendment. They were traditionally used to replenish depleted soils. Clemons University in South Carolina experimented with sprays of seaweed extract diluted 1 to 100 in water and found that the treatment promoted vigorous plant growth, gave better insect and disease resistance, increased frost hardiness, extended the storage life of harvest crops and promoted better seed germination. Alginic acids in seaweed can bind to trace elements in the soil and increase their absorption by plants.

Bladderwrack

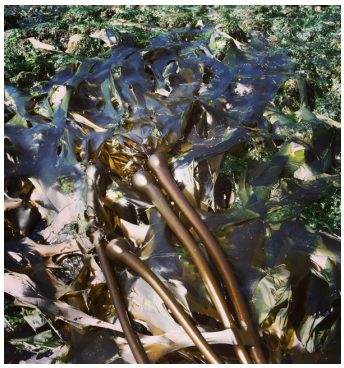
Bladderwrack (*Fucus* sp., rockweed) is a brown algae that grows on rocks in the middle tidal zone. It is the most common seaweed in northern hemisphere cold waters. Children love to pop the "bladders" because they make a satisfying explosive sound.

As a food, bladderwrack can be eaten raw, stir-fried fresh, simmered in soup, sauces, quiche or omelets. Janice Schofield recommends cooking it with clams, mussels or other seafood to improve their flavor. She also favors it as a tea and as a soup base. Bladderwrack can be laid on hot coals to barbeque fish.

Bladderwrack is used medicinally to increase the function of the thyroid and to elevate metabolism. Iodine in bladderwrack is in the form of di-iodotyrosine, an immediate precursor to the thyroid hormones T3 and T4. In *The Destruction of Women's Health: Thyroid Disease in Industrialized Countries*, Ryan Drum shares how he uses it as a substitute for thyroid hormones. Currently, a startling 11-25% of adult women have under-active thyroids. This may be a result of stress, dietary and environmental factors. Symptoms include fatigue, weight gain, mental fogginess, poor connective tissue growth and healing and low bone density. Bladderwrack may help alleviate these symptoms. Not surprisingly, its most popular use is for weight loss.

Bladderwrack can be made into a tea and used to soak sore feet and ankles, with reported muscle relaxing qualities. The smell is reminiscent of the sea, which can also be relaxing. For men's health, bladderwrack is the first seaweed that has been used to treat prostate inflammation. The dose is 5 grams per day or 2 "00"capsules 2-3 times a day for 2-3 months.

Bull kelp



Bullwhip kelp (*Nereocystis luetkeana*) is a brown seaweed with a distinctive large ball and a long hollow tail. Kelp grows in beds in semi-deep seawater. It is the fastest growing plant in the sea and can grow 12 inches a day, reaching a length of 60-90 feet!

The bullwhip kelp stipe, bulb and leaves can all be eaten in many ways. The leaves can be blanched in boiling water and then sliced into noodles for seaweed salad, or sliced thinly as a soup vegetable. You can also use it as a wrap for baking fish. You can cut the stipe into o's and the bulb into slices and make kelp pickles. They are cooked in vinegar and water with pickling spices. Once dried, kelp leaves can also be dried and eaten like chips - a salty snack that is incredibly high in minerals. The crumbled dried leaves can be added to food like a spice.

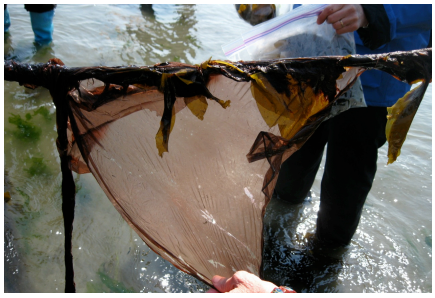
Bull kelp has many fascinating traditional uses in the Pacific Northwest. In *Earth's Blanket*, ethnobotanist Nancy Turner describes how the Kwakwaka'wakw buried a long hollow stalk of bull kelp in the dirt floor of the dance house at the time of winter ceremonials. One end of the stalk surfaced in the center of the fire pit in the middle of the

house, while the other end was exposed outside. Someone would crouch outside during spiritual dances and sing or shout into the long stalk, giving the impression that a spirit voice was coming from the fire. Rudy Ryser from the Center for World Indigenous Studies teaches that bull kelp was a perfect receptacle for storing eulachon grease. It could hold a large volume of oil and prevented spoilage because so little of the oil was exposed to air. In later years it was used to store molasses.

Sugar Kelp

Sugar kelp (*Laminaria latissima*, Kombu, sugar wrack) is a thick leaved giant seaweed that grows in the low intertidal zone. Leaves are palmate shaped, as wide as 3 feet and as long as 6 feet. Sugar kelp is high in glutamic acid – a food tenderizer and flavor-enhancer. It is cooked with beans to soften them and make them more digestible. After cooking them for about an hour and a half, the kelp disappears, but gives the beans a nice thick texture. It is also used added to stews to sweeten and soften root vegetables so they melt in your mouth. You can add a few large pieces when the stew is cooking, and remove them and cut them into julienne strips just before serving.

Nori



Nori (*Porphyra* spp.) is also called purple laver. It grows in upper tidal zones on rocks and other seaweeds. Nori is only one to two cells thick, making it a beautiful transparent yellow to purplish-brown.

The texture and taste of nori improves with drying, and it becomes sweeter, milder and earthier as it ages. It can be lightly toasted in a dry pan to make crunchy "nori chips" that even the most finicky eaters usually enjoy. Prepared in this manner it is often called "Indian popcorn" among many native communities from Alaska down the coast to Washington State and has remained a popular trade item for countless generations. It is historically cooked with fish. The Japanese have been farming Nori since the 1700's. It is now the largest of all aquacultural enterprises and constitutes a multi-million dollar industry. It is grown commercially in Japan and other countries.

Nori is high in vitamins, especially vitamins A and C, minerals and trace elements. It is used to prevent goiters. Sailors historically ate it to prevent scurvy. Herbalist Janice Schofield says that 100 grams of nori only has 280 calories, yet provides one-third our need for protein and vitamin C, more than half the required iron and niacin and all the vitamin A. It provides double the needed daily riboflavin.

Sea Lettuce

Sea lettuce *(Ulva sp.)* is also called green laver. It is the thin, brilliant green seaweed that grows in the upper intertidal zone. It is only 2 cell layers thick and has a beautiful transparency when held up to the light. This tasty seaweed can be eaten fresh or dried and used as a seasoning. It is best in early spring to early summer and becomes whitish when it is past its prime. Sea lettuce should be rinsed in cold water to remove sand and grit before drying.

Green Sea Salt

Are seaweeds high in sodium? Well of course, they thrive in salt water after all. Salt substitutes are easy to make and impart more flavor and nutrients to your meals. This recipe includes mineral-rich nettles and milk thistle seeds, which are excellent for liver health. Consider adding it to soups, beans, salads and savory dishes.

¼ cup powdered kelp
¼ cup nettles, powdered
½ cup milk thistle seeds, finely ground
3 tablespoons sea salt

Combine all ingredients and store in a glass jar. Sprinkle a small amount onto food or blend in dishes.

Recipe from Valerie Segrest, Muckleshoot Tribe

Detoxifying Sea Soak

This detoxifying body soak will relax your muscles and support skin health.

1 cup Epsom salts
½ cup sea salts
½ cup powdered kelp or dulse
½ cup powdered nettles

Combine all ingredients in a bowl. Use ½-1 cup per bath. If you do not enjoy loose powdered herbs in your bath, place the salts in a muslin bag. The salts will dissolve and the seaweed and herbs will infuse in the hot water like a big tea bag.

Recipe from Valerie Segrest, Muckleshoot Tribe

Bull Kelp Pickles

Bull kelp is thick and crunchy – making it a perfect match for pickling. You can embellish this recipe with your own flavor preferences including classic pickling spices or Asian flare with turmeric, ginger and grlic.

2 cups vinegar
1 cup water
1 tablespoon salt
2 cloves garlic
1 tablespoon pickling seasoning
5’ of bull kelp stalk

Gather bull kelp in spring through early summer by pulling it up from a boat or collect it fresh off the beach soon after a storm. One is usually plenty. If the outer skin is tough, remove it with a vegetable peeler. Chop up the stalk and bulb into ½-1” rounds. Place in a clean glass jar. Combine remaining ingredients and bring to a boil. Pour over the sliced kelp and cover with a lid. When cooled, refrigerate. Wait one week before eating.

Recipe from Jennifer Hahn

Additional Resources:
Discovering Wild Plants by Janice Schofield
Pacific Feast by Jennifer Hahn
Pacific Seaweeds by Louis Druehl
Ryan Drum's website with seaweed articles: http://www.ryandrum.com

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Photos by Elise Krohn
Page 1 photo of Zeke Serrano (Quinault), page 3 photo of Marilyn Jones (Suquamish)
Artwork kelp by Joe Seymour

Strawberry

Nothing is sweeter than a sun-ripened strawberry picked on a summer day. These delicious fruits are packed with flavor and nutrients. The mineral-rich leaves are made into a tea for tightening and cooling inflamed tissue, promoting healing and supporting women's health.

Other names: Whulshootseed: *ƛ̓iləq^w*
There are several kinds of wild strawberries in our area including woodland strawberry (*Fragaria vesca*), Virginia or blue–leafed strawberry (*Fragaria virginiana*) and coastal or beach strawberry (*Fragaria chiloensis*).

Identifying strawberry: Wild strawberries are creeping perennials that tend to grow in mats in open areas in woodlands, gravelly fields and on grassy beaches. Flowers are white with five petals and a yellow center with many stamens. They resemble small rose and thimbleberry flowers. Leaves are fan shaped with toothed edges, especially at the tip, and are divided in three leaflets. Leaves can be smooth and glossy or slightly hairy, and are fuzzy to wooly on the underside. They persist through the winter. The fruit is deliciously fragrant, oval, orange to red colored and about ½ inch across. Seeds are visible on the surface. Long pink runners crawl across the ground, root, and start new plants.

Where it grows: Coastal strawberry grows on the Pacific Coast on sand dunes and bluffs. The leaves are leathery and glossy and the fruit is large, but less flavorful than Virginia strawberry. The other two strawberries grow inland in open woodlands, fields and clearings. Virginia strawberry has depressed seeds and rounder fruit than the woodland strawberry, which has a pointed fruit tip and protruding seeds. Both are widespread across North America.

Season: Berries are ripe in early summer, mostly June and July. The leaves can be harvested in spring through late summer.

How to harvest: Harvesting a significant amount of strawberry is a labor of love, but the results are always worth it. The flavor of strawberry in winter is a sweet reminder of the deliciousness of summer. Look for patches in sunny locations with rich soil or a recent burn. Those who harvest are challenged by their juiciness, bright red color and irresistible scent, and they often end up in the mouth instead of the harvesting bucket. In an abundant patch, a dedicated picker can harvest a gallon an hour. Strawberries should be used soon after they are gathered as they have a short shelf life.

Strawberry leaves can be harvested any time between mid-spring, when they are fully developed, and late summer, when they are still vibrant looking. The leaves should be completely dried before using them in tea.

Eating strawberry: Wild strawberries may be only the size of the tip of your pinky finger, but they pack more flavor than the giant strawberries we can get in stores. Elders often complain about how store-bought strawberries just do not taste like they used to. In this time when our global food system values quantity over quality, these little strawberries remind us that some of the most sensational flavors can only be found in the wild.

Commercially grown strawberries are often picked before they are ripe to increase shelf life, but they do not ripen once picked, and the flavor and nutrients are compromised. In the book *Eating on the Wild Side*, author Jo Robinson says that, "Semi ripe strawberries are less nutritious than those that are fully ripe. They have less vitamin C, less quercetin, and only 6 percent as many anthocyanins. A shipping solution that works for the strawberry industry is shortchanging the sensory pleasure and the health of the American public." Strawberry is a celebratory food that teaches us to take in the ripeness of the moment. Northwest Coastal Native People traditionally ate them fresh in the field and considered them a party food. They can be eaten fresh, baked into desserts, turned into a syrup, infused in vinegar or alcohol, made into jam, sauce or fruit leather, or frozen for later use.

You could smell ripe strawberries before you saw them, the fragrance mingling with the smell of sun on damp ground. It was the smell of June, the last day of school, when we were set free… Even now, after more than fifty Strawberry Moons, finding a patch of wild strawberries still touches me with a sensation of surprise, a feeling of unworthiness and gratitude for the generosity and kindness that comes with an unexpected gift all wrapped in red and green.

-Robin Wall Kimmerer, *Braiding Sweetgrass*

Strawberry medicine: Strawberry leaves can be dried and made into a mineral-rich tea. They have a pleasant mild flavor and will act as an astringent to gently tighten inflamed tissue including swollen gums, sore throats, upset stomach, sore eyes, burns and diarrhea. The whole plant is thought to be cooling, strengthening and healing. The leaf contains vitamin C which helps to heal and strengthen tissue, Methyl salicylate which feels cooling and acts as an anti-inflammatory, and quercetin which stabilizes inflammation. Recent research has revealed that strawberry contains ellagic acid, which has antioxidant, anti-mutagen and anti-carcinogen properties. Many people value strawberry as a women's tonic to strengthening blood (it contains iron and other minerals), prevent miscarriage and ease morning sickness. Strawberry leaf is also nourishing to the skin and the berries have been used as a dentifrice in both Europe and America.

Ecological relationships: Strawberries are a favorite treat of birds, mice and squirrels. After a wild fire, strawberries will spread quickly and fruit abundantly. Native People recognized this and traditionally burned prairies to promote better strawberry harvests. In the garden, runners quickly spread to newly fertilized soil.

Growing tips: Strawberries are a great plant to grow in your garden because they come back year after year. A single plant will send out many "runners" capable of rooting and becoming new plants. They spread quickly and form a nice ground cover. Strawberries like rich soil and produces more berries when they get sunshine. They are best planted in early fall so they can develop strong roots throughout winter and produce berries in late spring. The berries are so sought after by animals that you might need to protect them with netting.

Additional Resources:
Braiding Sweetgrass by Robin Wall Kimmerer. Chapter on the Gift of Strawberries.
Wild Berries of Oregon and Washington by T. Abe Lloyd and Fiona Chambers
Nature's Garden by Samuel Thayer

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Photos by Elise Krohn
Artwork by Joe Seymour

Strawberry Sauce, for the Love of Summer

This delectable sauce captures the sweetness and warmth of summer. It can be enjoyed in countless ways including adding it to drinks like lemonade, mixing it into salad dressing, pouring it over pancakes and of course, and making the classic summer dessert - strawberry shortcake. Freeze or can a bit, and you have the perfect remedy for the winter doldrums.

3 cups wild strawberries
1 tablespoon lemon juice
½ cup honey, brown rice syrup or sugar
*Optional – 2 teaspoons rosewater, ¼ teaspoon vanilla

Place strawberries and lemon juice in a small pot and gently heat, mashing the berries with a spoon until they are soft. Add honey and blend thoroughly. Serve immediately or pour into a glass jar and store in the refrigerator for 1-2 weeks.

Wild Berry Tea

This antioxidant-rich tea is a delicious beverage for strengthening your heart and blood vessels. Huckleberry leaf also helps balance blood sugar. Rosehips, hibiscus and orange peel are high in Vitamin C, which supports immune function.

2 parts of each of the following dried herbs: strawberry leaf, huckleberry leaf, hawthorn leaf and flower, hawthorn berry, rose hips
1 part of each of the following dried herbs: hibiscus, orange peel

Use 1 tablespoon of tea per cup of hot water and steep for 20 minutes. Drink 1-3 cups daily as a tonic.

Strawberry Douglas Fir Gummy Treats

These delicious treats are high in protein and Vitamin C – a perfect high-energy snack for kids and adults alike. Douglas fir spring tips are traditionally eaten to ward off hunger and thirst when you are traveling or doing physical activity.

1 cup strawberries
⅓ cups lemon juice
½ cup Douglas fir or spruce tips
¼ cup natural beef gelatin

Purée strawberries, juice and needles in a blender. Heat gently on stovetop until just below boiling. Slowly and steadily pour in gelatin, constantly stirring with a whisk so it does not clump. When the gelatin is completely mixed, turn off heat, allow to cool for a few minutes and then pour into molds or an 8 by 8 pan.