

A significant dependence upon salmon is the single feature that most of the aboriginal groups in the Columbia River Basin shared. Because of their high population densities, complex social organization, large villages, and other features ordinarily found only among agricultural people, the Northwest fishing societies have attracted the attention of anthropologists around the world. The economic importance of salmon is usually recognized as the key factor that accounts for the unusual characteristics of these cultures. Although salmon productivity varied greatly within the individual territories, some even void of salmon, inter-group trade made salmon available to virtually all inhabitants of the Columbia Basin.

For most of the Columbia Basin peoples, salmon were of considerable importance in non-economic ways as well. The annual salmon runs were accompanied by religious rituals and ceremonial rites such as the First Salmon Ceremony, believed to ensure the continued return of the salmon. The salmon also played an important role in Indian folklore, art, music, and mythology. The timing and distribution of the runs were major determinants of yearly patterns of group movement, the organization of households, the division of labor, the size of local groups, and the nature of social interactions among groups. Although the cultural value of the salmon to the Columbia Basin Indians cannot be quantified or adequately characterized, undoubtedly much of what is distinctive about the aboriginal cultures can be attributed to their relationship to the salmon.

The following section presents a brief chronology of salmonid use in the Columbia Basin over the last 10,000 years (Figure 4). The discussion begins with an overview of the archaeological evidence of fish use in the Columbia Basin and a cursory examination of the cultural changes that occurred immediately before and after Euroamerican contact. Following this discussion, anthropological data pertaining to aboriginal salmonid use is examined for seven major subbasins. Estimates of the total aboriginal catch in the early 19th century are then presented, followed by a final discussion and summary.

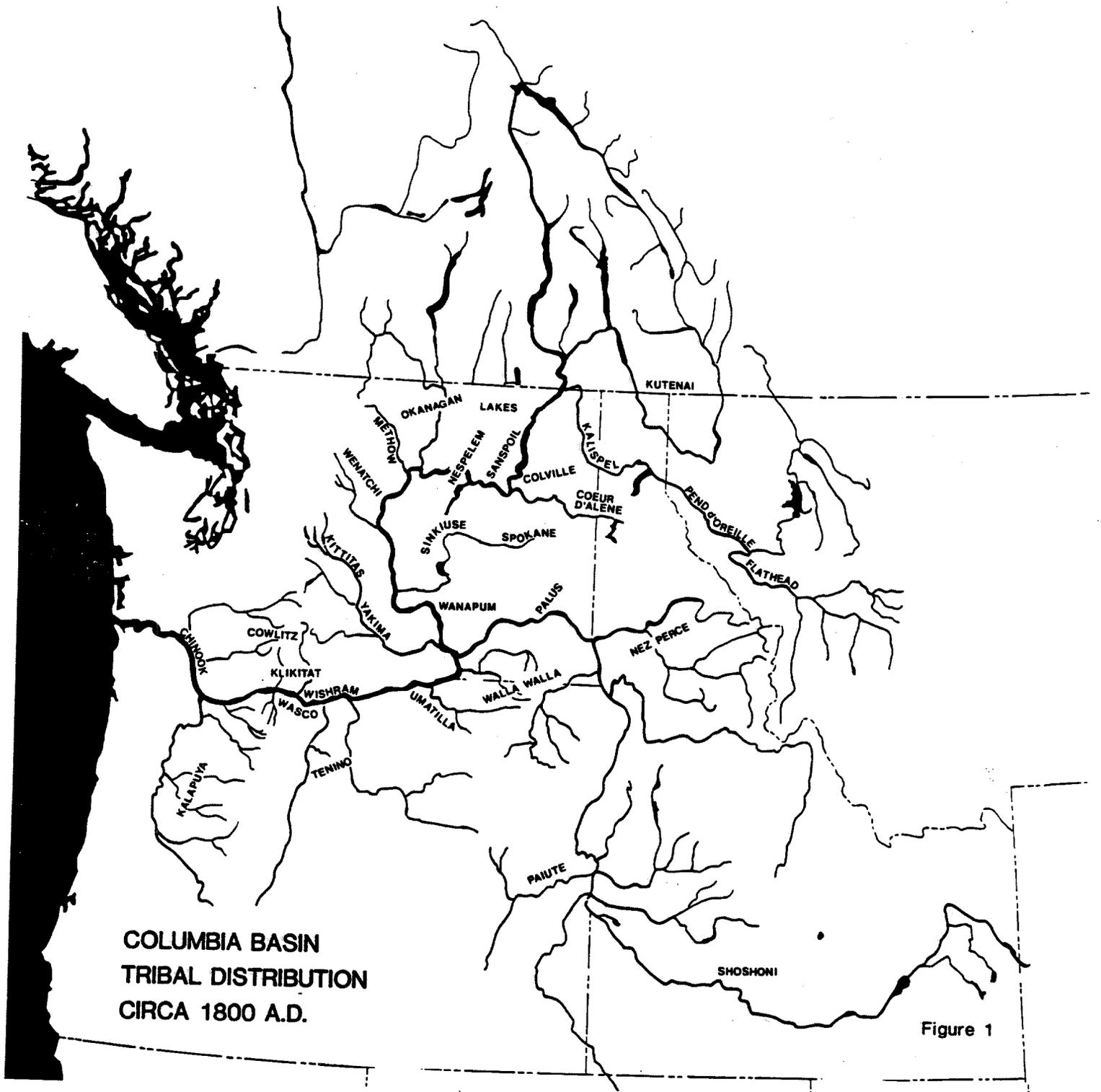


Figure 4. Approximate locations of the various tribal groups at the beginning of the 19th century.

3.3 ABORIGINAL USE OF FISH

The earliest evidence of human use of salmon in the Columbia drainage comes from the Roadcut site at the head of the Long Narrows of the Columbia near The Dalles (Cressman 1960). More than 125,000 salmon vertebrae were recovered from 10,000-year-old deposits. Found with these fish bones were large numbers of stone and bone tools and a wide variety of mammal and bird bones. Salmonid bones also have been recovered from deposits dating between 7,000 and 9,000 years of age at Kettle Falls on the Upper Columbia (David Chance, personal communication). Although preservation of fish bone in such old sites is not often good, several other sites in the Columbia drainage have produced salmonid bones dating between five and nine millenia in age. Salmonids were undoubtedly taken seasonally during this early period, but there is no evidence of drying and storage of these fish as a winter food supply.

Around 5,000 years ago, the first semisubterranean houses or "pithouses" appeared at various locations on the Upper Columbia and Snake rivers (Ames and Marshall 1981). These houses are thought to have been occupied for several months during the winter and, therefore, appear to represent a more sedentary lifestyle than that 5,000-10,000 years ago. The use of stored foods, especially salmon and roots, seems to account for a more settled existence. Food storage is particularly important to understanding the extent of salmon use because storage extends use from a few months to virtually the entire year.

While the relative importance of fish and roots as stored foods is not well understood for the interval between 5,000 and 3,000 years ago, there is strong evidence for increasing dependence upon salmonids beginning 3,000 years ago. Population growth, climatic change, and technological change have been proposed as causes for this growing dependence upon salmon over large areas of the Columbia drainage. It is clear, too, that these changes varied considerably from area to area within the Columbia Basin -- a reflection of the major environmental differences that exist within the region.

The arrival of Spanish horses in the Columbia Plateau during the early 1700s set in motion a number of changes that carried well into the 19th century. Horses had a profound effect on subsistence, trade, travel, and group size over large areas of the Columbia Basin. These effects were greatest in the eastern portion of the basin as habitat requirements of horses confined their distribution to areas that were not densely forested.

Following closely upon the heels of the horse came guns and epidemics of smallpox and other diseases. When the first such diseases arrived is not known, but they can be traced at least as far back as 1782 (Mooney 1928). Recent research suggests a date of around 1775 for the first smallpox epidemic (Boyd 1985). It is clear that after 1825 the decline in aboriginal populations was drastic.

The first Euroamericans to explore and describe this region were members of the Lewis and Clark expedition in 1805-6. By 1810, the fur trade began in the region and continued until 1840 when numerous white immigrants began to settle the area.

In short, most aboriginal cultures of the Columbia Basin were in the midst of dramatic cultural changes decades before changes were observed and described by Euroamericans. These facts in no way diminish the relevance of the anthropological records, but rather offer guidance as to their appropriate use.

3.3.1 The Cowlitz and Lewis River Basins

The basins of the Cowlitz, Lewis and Kalama rivers were occupied primarily by the Cowlitz Indians. Chinook groups occupied the lower few miles of each of these rivers prior to 1830, but since their focus was upon the mainstem of the Columbia they will be discussed below in the Lower Columbia Basin section. The territory of the Cowlitz expanded into these areas and gained frontage on the Columbia, itself, after severe Chinook casualties from smallpox and especially malaria.

The malaria began its devastation in the lower Columbia River Valley in 1830 (Cook 1955). At about the same time, areas previously held by the Cowlitz in the headwaters of the Cispus and Lewis rivers were taken over by

Klickitat from east of the Cascades (Ray 1966). Prior to 1830, the Cowlitz Indians did not occupy prime fishing locales. With the exception of those groups on the Cowlitz below Cowlitz Falls and on the Kalama River, dependence upon salmon was not great. According to Ray (1966):

The rivers of the Cowlitz were rather small and were relatively unproductive of salmon. The lower courses of the Lewis and Kalama rivers provided quite good fishing sites and the falls of the Cowlitz produced a good many salmon. However, the long course of the Cowlitz, which ran from source to mouth through Cowlitz territory, was one of the meagerest producers of salmon per mile of any comparable tributary of the Columbia. (Salmon were important to the Cowlitz, to the point that they bought many from other tribes, but they occupied a smaller place in their economy than, quite probably, for any other western Washington tribe.)

The Wilkes expedition (quoted in Ray 1966) reported Chinook Indians taking salmon to trade with the Cowlitz:

On our way [down the Cowlitz River] we met with many canoes passing up, loaded with salmon and trout, which had been taken at Willamette Falls, and which they were then carrying to trade with the [Cowlitz] Indians for the cammas-[sic] root.

Ray (1966) refers to the Cowlitz as a "prairie-oriented" people who, as highly mobile equestrians, were exceptional among the Indians of southwestern Washington. They depended primarily upon hunting, but also extensively used roots. The Wilkes Expedition was one of several early sources that commented on the limited productivity of the Cowlitz River salmon runs:

There are four different kinds of salmon, which frequent this river [the Columbia] in different months: the latest appears in October, and is the only kind that frequents the Cowlitz River. The finest sort is a dark silvery fish, of large size three or four feet long, and weighing forty or fifty pounds. (Wilkes 1852)

George Simpson (quoted in Ray 1966) lent further support to the preceding in his observation that the Cowlitz River had a fall run of salmon, but none in the spring.

A final indication that the runs of the Cowlitz may have been less productive or dependable relative to those of other rivers within the Lower Columbia is suggested by Commissioner of Indian Affairs M. T. Simmons in 1858 (quoted in Ray 1966):

The "Stick" Indians [those who live in the forested uplands, including the Upper Cowlitz and the Lewis River Cowlitz Taitnapams] ... do hunt and get deer, elk and bear in considerable quantities; they also plant more potatoes than the others. Roots and berries form an important item with them, and generally there are quantities of both; but when the salmon fail to run, as was the case last fall, the starvation is terrible.

Despite the apparent corroboration of the limited productivity of the Cowlitz in several different historical sources, the more recent historical data from fisheries biology reveals no such pattern (c.f. Fulton 1968; 1970). Why such a contradiction exists remains unexplainable.

3.3.2 The Willamette Basin

There were two aboriginal groupings that occupied the Willamette Basin in the early 19th century: 1) the Clackamas, below Willamette Falls at Oregon City, and 2) the Kalapuya, who occupied the entire basin above the falls. A third group, the Molala, apparently moved into this area between 1810 and 1820 from east of the Cascades (Ray 1938). Hewes (1947) states that "Salmon were undoubtedly the staple food on the Clackamas River, and possibly of the Tualatin."

As with the Chinook Indians of the Lower Columbia, the inhabitants of the Willamette Valley were devastated by disease in the early 1800s, particularly by the malaria outbreak of 1830-1833 (Cook 1955). Ethnographic data pertaining to the Clackamas and Kalapuyan subsistence are therefore scanty.

There are conflicting accounts about whether the Willamette Falls at Oregon City were barriers to fish migration. There are early statements that suggest salmonids were in fact blocked from the Willamette Valley. Alexander Henry, whose fur trading activities brought him to the falls in January of 1814, stated:

The salmon do not ascend these falls, the rocks being too high and the drop too steep. (Coues 1897)

Alexander Ross (1859) commented:

To this place and no farther the Salmon ascend, and during the summer months they are caught in great quantities. At this place, therefore, all the Indians throughout the surrounding country assemble, gamble, and gormandize for months together.

Ross' comments seem consistent with Alexander Henry's observations of the Indians above the Willamette Falls in 1814:

This [Kalapuyan] nation is numerous, extending up to the headwaters of the Willamette, and dividing into several distinct tribes. They are a wandering race, who have neither horses, tents, nor homes, but live in the open air in fine weather, and under the shelter of large spreading pines and cedars during foul weather. Their country is well adapted to such a roving life as they lead, and their wants are few; deer are numerous, but roots of various kinds, which abound, constitute their principal food. (Coues 1897)

The failure in this context to mention salmonids in particular, or fish in general, may be significant. However, Lewis and Clark, on April 9, 1806, noted that groups of Chinook Indians were moving up to fishing stations at the Willamette (Thwaites 1905). In May of 1841, Captain Wilkes described the fishery at the falls of the Willamette:

At the time of our visit to the falls of the Willamette, the salmon fishery was at its height, and was to us a novel as well as an amusing scene. The salmon leap the fall; and it would be inconceivable, if not actually witnessed, how they can force themselves up, and after a leap of from ten to twelve feet retain strength enough to stem the force of the water above. About one in ten of those who jumped, would succeed in getting by ... I never saw so many fish collected together before; and the Indians are constantly employed in taking them ... The mode of using the net is peculiar: they throw it into the foam as far up the stream as they can reach, and it being then quickly carried down, the fish who are running up in a contrary direction are caught. Sometimes twenty large fish are taken by a single person in an hour; and it is only surprising that twice as many should not be caught. (Wilkes 1852)

Further historical evidence for the existence of spring/early summer runs of salmon above the Willamette Falls is the fact that in 1829 the Hudson's Bay

Company established a facility at the falls because it was a major gathering place for the Indians. In 1841, 800 barrels of salmon are reported to have been purchased from the Indians by the Hudson's Bay Company (Craig and Hacker 1940).

Although the preceding passages seem contradictory, the matter can be reconciled. The vertical drop at Willamette Falls is almost certainly too great for fish to jump during stages of low water, which prevail during the late summer through winter. During the annual freshet, however, this vertical drop could be significantly reduced by a combination of the increased volume of water coming over the falls and higher water below. Salmonid runs, such as the spring chinook and steelhead runs, apparently passed the falls, but fall runs of chinook and coho did not.

The historical evidence indicates that the Willamette Falls were an important spring fishing site for the Clackamas Indians and probably other groups as well. The silence of the historical record regarding any fall fishery at the falls may be significant.

The lack of fall runs partially explains why the aboriginal inhabitants of the Willamette Valley above the falls were not known for their reliance upon salmonids. The fall runs generally were preferred by native peoples of the Northwest for drying or smoking for the winter season (Schalk 1984). The spring/early summer runs are not only high in oil content, but their arrival coincides with the onset of the warmest months of the year. Both of these conditions are likely to have discouraged dependence upon spring run salmonids for storage purposes, although these fat fish would have been superior for fresh consumption.

The pre-1850s distribution of the salmonid resources within the Willamette Basin is not a subject on which the ethnographic literature is likely to shed much new light. From a biological perspective, it is likely that the eastern tributaries of the Willamette Valley would have provided suitable spawning for spring/early summer chinook. These rivers, in contrast to the valley's western streams, draw tribute from high elevation snowfields in the Cascades and have sufficient flow in late summer and fall. The

concentration of spring and summer chinook habitat in the upper portions of the Willamette Valley's east side drainage is clearly evident in Fulton's analysis of biological data (1968 Map 1). Kalapuyan use of salmon, however, was apparently not constrained to those runs that could ascend the Willamette Falls during the spring freshet. They are reported to have traded for salmon and lamprey at the falls (c.f. Henry 1898), but may also have had some villages located below the falls (Ross 1859).

Because the Clackamas River enters the Willamette below the falls, this drainage supported spring as well as fall runs of salmon. Information on the yearly economic cycle for the Clackamas Indians is scarce, but Woodward (1974; cited in Boyd 1985) reported that they concentrated at Willamette Falls and the mouth of the Clackamas for the spring chinook runs.

3.3.3 The Lower Columbia Basin

The Lower Columbia Basin consists of the mainstem Columbia from its mouth to the Columbia-Snake confluence, including all tributaries that enter along that reach except the Cowlitz, Lewis, and Willamette. So defined, this basin cross-cuts a major natural and cultural boundary between the dry sagebrush steppe of the Plateau and the dense forest downstream from The Dalles. Centered about the vicinity of The Dalles was the boundary between two major language families -- Chinookan and Sahaptin. The Chinook-speaking groups dominated both banks of the lower river and, from saltwater upstream to The Dalles, consisted of the Lower Chinook or Chinook proper tribe, the Kathlamet, the Clackamas, the Cascades, Hood River, White Salmon, Wishram and Wasco tribes. Adjoining the Lower Chinook were two Atabaskan groups -- the Owilapah, or Kwalhiokwa, and the Tlatskanai.

There are no details regarding the use of fish by these groups. For the Lower Chinook and the Wishram, there are ethnographic studies, but only the ethnohistoric accounts for the intermediate Chinookan groups. There can be little doubt that these intermediate groups depended heavily upon salmonids for their subsistence.

Moving upstream along the Columbia from The Dalles, the Sahaptin groups in this subbasin included the Tenino, Umatilla, Cayuse and Walla Walla Indians. Ethnographic materials for these groups are relatively scanty. Anastasio's (1972) analysis of intergroup relations for the Southern Columbia Plateau probably provides the single best overview of these groups. Because many groups had village sites and fishing stations along the Columbia mainstem, where they were frequently observed by river travelers, the ethnohistoric literature is rather extensive. The journals of Lewis and Clark along the Columbia (Thwaites 1905) are especially informative regarding the intensity of fishing along the Columbia that they observed in the fall of 1805 from the mouth of the Snake to the western boundary of Sahaptin country near The Dalles.

Although the Sahaptin groups had horses, their economy remained strongly oriented towards fishing. The influence of the horse probably increased the volume of dried fish traded to groups in other areas. This region is dominated by sagebrush steppe and is less productive for game and plant resources than other areas of the basin. People living in this area probably depended upon anadromous fish more than many groups in portions of the Columbia Basin where fish, game, and root resources were more evenly available.

The density of archaeological sites dating to the last 2,000 years along the Middle Columbia is high compared to upstream locations within the basin (Osborn 1957). The largest prehistoric village sites that have been documented in the Columbia Basin occur in this general area (Schalk 1984). The importance of salmonids in the subsistence of the prehistoric inhabitants of this area has been emphasized in archaeological studies of pithouse village sites (Osborne 1957; Schalk 1984).

3.3.3.1 The Lower Chinook Indians

Around 1800, the Lower Chinook occupied Willapa Bay and both banks of the Columbia from the mouth upriver for about 50 miles (Ray 1938). All five species of Pacific salmon were present within the Lower Chinook range. These people were primarily fishermen. In contrast to the salmon diet of people

east of the Cascades, non-salmonid freshwater fish and marine mammals, fish, and shellfish complemented salmonids in the Lower Chinook diet, rather than game and roots:

The salmon was by far the most important fish but other species figured very prominently. Sturgeon (Acipenser transmontanus), a much favored fish, was doubly important because a single catch provided a huge supply of food. The steelhead trout (Salmo gairdneri), classed with the salmon by the natives, was taken in large numbers. The candlefish or eulachon (Thaleichthys pacificus) and the smelt (Spirinchus thaleichthys) were in great demand for the oil they produced. The California herring (Clupea pallasii) and the California sardine (Sardinia caerulea), which were very abundant, were taken in great quantities with the herring rake. (Ray 1938)

On the Lower Columbia tributaries, spearing, dip-netting and weir fishing techniques were used. On the Columbia itself, hemp or spruce root seines were the most productive of the fishing techniques employed; these varied from 100 to 600 feet in length and 7 to 16 feet in width. Seining provided a means for taking salmonids in large numbers where no natural channel constrictions existed. The grooved stone net-weights that have eroded out of archaeological sites between Astoria, Oregon, and Bonneville Dam provide evidence of the former importance of seining on the Lower Columbia.

3.3.3.2 The Wishram and Wasco Indians

These two Chinookan-speaking groups centered around the major rapids at the head of the Columbia Gorge, or what has also been called The Long Narrows. The Wishram resided on the north side between White Salmon River and Ten-Mile Rapids. The Wasco occupied the south side between Ten-Mile Rapids and the mouth of the Deschutes River.

Owing to tremendous basalt bedrock constrictions of the Columbia's channel for several miles, this general area was one of the best fishing locations on the entire Columbia. Due to an ideal combination of proximity to the ocean and dry, windy climatic conditions that made fish-drying easy, the area from the Long Narrows to Celilo Falls may have also been the most productive aboriginal fishery in the world. During the early 19th century and probably for centuries before, this area was a great trade center where

Indians from other regions came to trade, gamble, and fish (Spier and Sapir 1930). Alexander Ross (1904) reported that 3,000 or more Indians would gather at the upper end of the Long Narrows during the fishing season, but that permanent residents numbered about 100.

Dip netting and spearing were exceptionally important fishing techniques at the Long Narrows. Two-man seines 100 feet long and 12 feet deep were used in some places (Spier and Sapir 1930). Basket traps and weirs were used as well.

Large quantities of dried salmon were pounded into "pemmican" for winter provisions and for trading with tribes to the east and west (Thwaites 1905). Farther down river at The Dalles, Clark observed 107 of these stacks of pounded fish estimated to contain "10,000 lb of neet fish" (Thwaites 1905). In the fall of 1805 at The Dalles, Lewis and Clark observed great numbers of fish-skin lined baskets of pounded fish cached on islands in the Columbia (Thwaites 1905). The pounded fish in these baskets were packed so hard that a single basket two feet long and a foot in diameter weighed between 90 and 100 pounds. According to their owners, these caches were destined for trade. Quantities of dried fish also occupied half the space inside of the Indian houses that were visited (Thwaites 1905). In late October, the fishing season was just coming to a close and large quantities of dried fish were everywhere. Using quantitative information provided by Lewis and Clark, Griswold (1953) estimated that 1 million pounds of pounded salmon were prepared at The Dalles just for trade in the early 1800s.

3.3.3.3 The Tenino Indians

The Tenino Indians occupied the Oregon side of the Columbia from Ten-Mile Rapids near The Dalles upstream beyond the mouth of the John Day River. They also occupied the lower reaches of the John Day and Deschutes rivers. There were four subdivisions of the Tenino: 1) the Tenino proper, who fished east of The Dalles; 2) the Wayam, who fished at Celilo Falls; 3) the John Day, who fished along the lower John Day River and the adjacent sections of the Columbia east to Arlington; and 4) the Tygh, who fished at Sherar's Bridge on

the Deschutes (Murdock 1938). Drawing upon unpublished ethnographic data collected by Murdock, Hewes states:

Tenino fishing is fairly well known from the work of Murdock. Fish were the basic food sources, bulking larger than either game or wild vegetable foods. Salmon was the staple, supplemented by steelhead, which were present the year round in the Columbia. Salmon runs began in late April, with a late summer run extending into October. During the salmon season, about half the Tenino were established in fishing camps. Despite the much greater productivity of the main river to the north [Columbia], both the John Day and Deschutes Rivers had salmon fisheries of considerable importance. The falls of the Deschutes at Sherar's Bridge about 35 miles above the Columbia were visited in 1826 by Ogden, who found a camp of twenty families fishing there for salmon, using dip-nets and single-toggle harpoons. In March there was a special mass fishing for steelhead in the lower John Day River. (Hewes 1947:104-5)

Celilo Falls, the principal fishing site of the Wayam subdivision of the Tenino, have been described as "by far the most productive inland fishing site in native North America" (Hewes 1947). Salmon were taken here from the beginning of May through the end of October (Thwaites 1905). This location was exceptionally important during the fall fishing season when low water exposed many excellent fishing sites. A member of the Astoria party related that as many as 500 fish might be caught per day by an experienced dip net fisherman (Writers Project 1940; cited in Hewes 1947). In addition to the dip nets and single-pronged spears used at places like Celilo, Tenino fishing equipment also included 30-foot-long nets used from canoes (Hewes 1947).

3.3.3.4 The Umatilla and Walla Walla Indians

Umatilla fishing areas extended along the Columbia from Alderdale, Washington, to the vicinity where the Oregon-Washington boundary intersects the Columbia River. There were also villages and fishing sites along the lower Umatilla River. The journals of Lewis and Clark (Thwaites 1905) provide accounts of the people and activities observed between the mouth of the Snake and The Dalles in the fall of 1805 and again in the spring of 1806. On the journey downriver, a total of 34 Indian villages were observed. People were "gigging" and drying salmon along this entire stretch. Use of

the spearing technique suggests the possibility that fall chinook were being taken while spawning on gravels in the Columbia itself. On the return trip upriver in the spring, only 11 villages were observed in this same stretch, but one near the mouth of the Umatilla River contained 700 people. These people were anxiously awaiting the arrival of the spring salmon runs, which were expected within a few days.

The Walla Walla or Walula Indians occupied the lower Walla Walla River and the Columbia from below the mouth of the Walla Walla to above the mouth of the Snake. Very large groups, in excess of a thousand, are described for this area in the early 19th century. They gathered at rendezvous locations at the mouths of the Walla Walla and Snake rivers. Combined camps of Walla Walla and Cayuse are mentioned frequently in early 19th century accounts. The area was also used by Yakima and Palus Indians (Ross 1859).

3.3.4 The Yakima Basin

Very little ethnographic information exists on the aboriginal occupants of the Yakima Basin in the early 19th century. The Sahaptin-speaking Yakima occupied areas between the mouth of the Yakima River and Kittitas Creek. Another Sahaptin group, the Kittitas, resided upstream from the Yakima within the basin.

The Kittitas are reported to have been primarily dependent upon salmon, despite their location at the headwaters of the Yakima River (Hewes 1947). This may be related partially to the fact that there were lakes that supported spawning populations of sockeye in this area (Fulton 1980). Ray (1936) reported that historically a "huge salmon trap was maintained" at the outlet to Cle Elum Lake and that during June and July as many as 1,000 people would gather there.

Curtis (1911) provides brief descriptions of the Yakima subsistence cycle:

In the early spring they repaired to the fisheries in the larger river, and fishing, hunting, and root-digging continued until midsummer, when they moved into the mountains to gather berries. As autumn approached they returned to the valley for the late fishing, which continued until cold weather forced them into winter quarters. (Curtis 1911)

The "larger river" referred to here could be either the Yakima or the Columbia in the vicinity of the Yakima and Snake confluences. Salmon and roots were listed as the "principal foods" for the Yakima (Curtis 1911). Hewes (1947) reported that salmon were the "chief food" of the Yakima, but that they "occupied a less favorable area for fishing;" he does not offer the basis for such a conclusion. Dried fish, according to Curtis (1911), were obtained through trade with Columbia River groups, and this may imply that demand exceeded supplies locally.

3.3.5 The Middle Columbia Basin

The Middle Columbia Basin is defined as the mainstem Columbia from the mouth of the Snake to Chief Joseph Dam, including all tributaries except for the Yakima River. As with the Lower Columbia Basin, the Middle Columbia Basin cross-cuts a major Indian language boundary near Priest Rapids -- the boundary between Sahaptin speakers to the south and Salish speakers to the north.

From the mouth of the Snake to Wenatchee, the Columbia passes through the driest part of the Columbia Basin. From Wenatchee north, the Columbia borders forest to the west and the steppe to the east. Upriver, the tribal groupings in the Middle Columbia Basin consisted of the Wanapam, Columbia, Wenatchi, Entiat, Chelan, Methow, and Okanagon. The early fur traders and explorers, while frequently passing through this area, provided few details about its aboriginal occupants (Ray 1974). Some of the groups (e.g., the Wanapam and Wenatchi) depended mainly on salmon fishing while others apparently made only limited use of salmon (e.g., the Chelan and Columbia).

3.3.5.1 The Columbia Indians

The territory of the Columbia tribe, like that of the Wanapam, included no salmon-producing tributaries to the Columbia River itself. In an in-depth analysis of the major historical sources on this group, Smith (1983) concluded that salmon were probably of limited importance to all but a small portion of this tribe. Instead of spending their summers along the Columbia River fishing, these groups moved away from the river and dispersed for root collecting (Smith 1983).

3.3.5.2 The Wenatchi and Entiat Indians

Also known as the Pisuows, the Wenatchi occupied the Wenatchee River Valley as well as the Columbia above and below the mouth of the Wenatchee River. Numerous fishing stations were reported on the Columbia and Wenatchee rivers (Ray 1974). Several hundred people gathered at the mouth of Icicle Creek (near Leavenworth, Washington), the Wenatchi's principal fishery, for the peak of the summer salmon fishing season. Salmon were dried here on communal racks prior to transport to winter villages.

Smith (1983) described the Wenatchi as being distinctly river-oriented compared to other Middle Columbia groups. Winter villages were located primarily along the Columbia, but a third of the Wenatchi population was said to have wintered on the Wenatchee River.

The Entiat Indians were located at the mouth of Entiat River and were often included with the Wenatchi. Ray (1974) stated that the Entiat was "a river of modest importance." Smith (1983) suggested that these people may have depended largely upon salmon fishing and that they lived on the Columbia River both summer and winter.

3.3.5.3 The Okanagon, Southern Okanagon or Sinkaietk Indians

The Okanagon territory included the entire drainage of the Okanagon and Similkameen rivers as well as the Upper Methow River. Teit (1930) distinguished two divisions of the Okanagon: 1) the upper Okanagon, who resided on Okanogan, Long, and Dog lakes; and 2) the lower Okanagon, who resided on the Okanogan River below. He estimated that there were about 18 winter villages of Okanagon "at one time" (Teit 1930). These people had only limited numbers of horses, which were introduced early in the 18th century (Teit 1930), but not until 1840 or so, according to Post (1938).

Post (1938) stated there were two main seasons in the yearly cycle of the Southern Okanagon -- the sedentary period from about mid-November to early April, during which stored fish and roots were consumed, and the rest of the year, during which the various resources were exploited from numerous camps.

Regarding the species of salmon present in the Okanogan, Post (1938) stated:

Of the five species of salmon frequenting the Northwest Coast, evidence was found in the Okanogan River of three: (1) Oncorhynchus tshawytscha, or Chinook salmon, which ran in May, June and July in the headwaters of the Columbia. They are by far the most abundant, now as formerly, and run for the longest period. [According to Koch (1976), however, sockeye was the major species in the Okanogan River.] They rarely went higher than Oroville. They begin spawning in the lower Okanogan in mid-September.... (2) O. nerka, the blueback or sockeye salmon, which run in July and August according to Cobb, in late May and June according to the local game warden. (3) O. kisutch, silver or white salmon, taken in November.

The steelhead trout, usually thought of as salmon, were fully as important as the last two species. They were taken when they ascended the rivers in March or April. After spawning, they descended the small streams to the Columbia River where by winter time they were fat enough to be worth catching.

In another context, however, Post states that the steelhead run that arrived in the spring (April) "was not so important." This apparently refers to quantity because fishing activity during spring was concentrated on suckers (Post 1938).

After collecting roots in late April and May, the Okanogon turned to the salmon runs, which began in June and extended through October (Post 1938). Plant foods were also collected during the fishing season. The end of the main fishing season in October was followed by deer hunting in late October and early November. Before settling into winter quarters, some families speared "dog salmon" at the confluence of the Okanogan and the Columbia (Post 1938). Post (1938) also alluded to "silver salmon" that apparently were taken in small numbers during winter and dried under the eaves of houses.

Major fishing weir sites were at Monse, a mile downstream from Malott, and a mile below Omak (Post 1938). Traps and spears were used in conjunction with weirs. Teit (1930) identified Okanogan Falls, along with Kettle Falls, as the "chief salmon fishing places" and largest trading centers on the entire upper Columbia.

There is some suggestion that the salmon runs were limited in this area. Spawned-out and dead salmon were collected to be dried for food:

They had to be eaten "from the pole:" if put away in bags as the fresh ones were when dry, they would be very bad. So they were left hanging all fall and winter, higher than the coyotes would be able to jump, or they would be roasted at once. They always smelled bad, but are said to have tasted good despite the smell. These salmon had no fat, and were very stringy. (Post 1938)

This practice might be interpreted as insurance against shortages in the typically difficult late winter/early spring season. Along these same lines, Teit (1930) observed:

Many Okanagon from Okanagan Lake and the upper part of Okanagan River, where salmon were scarce, went to fish salmon on the Lower Okanagan River. A few of the Similkameen people went to the Thompson and Nicola to fish.

3.3.6 The Upper Columbia Basin

The Upper Columbia Basin is defined as the entire Columbia watershed upstream from Chief Joseph Dam. Much of this area is forested and several of the major tributaries, such as the Spokane, Pend d'Oreille, and the Kootenai rivers, have falls that block the ascent of anadromous fish. Aboriginal groups within this basin are Salishan speakers except the Kutenai. Moving upstream in order, the tribes are the Nespelem, Sanpoil, Colville, Lakes, Kutenai, Spokane, Coeur d'Alene, Kalispel, Pend d'Oreille, and the Flathead. The groups of this basin were extraordinary in the degree of variation in their subsistence. Some, such as the Colville and Spokane, depended primarily upon salmon fishing while others, such as the Lower Kutenai, fished primarily for resident fish in large lakes. Bison hunting and root collecting, respectively, were the primary pursuits of the Flathead and some Kalispel groups.

3.3.6.1 The Sanpoil and Nespelem Indians

The Sanpoil and Nespelem occupied the Columbia River between Condon's Ferry and the mouth of the Spokane River. Their annual cycle of subsistence began in March, when they moved from their pithouses, which they occupied throughout winter, to collect small game and roots. Within two to three

weeks the population moved to root gathering grounds away from the river. In early May, summer fishing began with the appearance of salmon and trout. Traps were placed at the mouths of the Sanpoil, Spokane, and Kettle rivers, as well as other places. By the first of September, the summer fishing season came to a close. Some people placed their dried fish in temporary storage and traveled into the mountains to hunt and collect the fall roots. Other people moved to locations where fall run "silver and dog salmon" were seined or speared from canoes. Due to the drop in temperature, fish were dried indoors with the aid of fire (Ray 1933). In mid-October, the Sanpoil and Nespelem returned to their winter villages where they subsisted on stored foods.

Regarding the species and quantities of salmonids taken by the Sanpoil and Nespelem, Ray (1933) stated:

Salmon ... and steelhead trout ... were caught in large numbers each summer, a portion to be used as fresh food at the time but the greater percentage to be dried and stored for winter consumption. Of the five species of salmon which frequent the Columbia and its tributaries, all but one reach the portion of the river which flows through the Sanpoil country.

According to Ray (1933), the only species of the five indigenous to North America that did not occur in this region was the sockeye, which "is seldom found farther upstream than the mouth of the Okanogan River, which is below Sanpoil territory." Ray's statement, however, is contradicted by historical evidence for sockeye runs at least as far up the Columbia as Slocan and Arrow lakes in British Columbia (cf. Chapman 1943; Fulton 1970). The confusion on Ray's part regarding sockeye may stem from the behavioral differences between this species and chinook or steelhead. It appears that instead of jumping the falls like these other species, sockeye avoid the main current and move through eddies where they were neither seen nor caught in the basket traps (Washington Department of Fisheries, 1938). Other lakes such as Windermere, Columbia and Whatshan, which were near the very headwaters of the Upper Columbia, probably supported sockeye runs as well (Fulton 1970). The presence of pink salmon in this area of the Columbia is also questionable (Fulton 1970; Butler and Schalk 1984).

Ray's "dog salmon" may not be the chum salmon (Oncorhynchus keta), but fall chinook, which by their lack of oil and relatively poor condition are physically distinct from earlier chinook (Everman 1896; Schalk 1982). The fall chinook run spawned in the mainstem of the Columbia River in this area (Chapman 1943). The fact that Ray does not mention them lends support to the conclusion that "dog salmon" was a popular term for fall run chinook. Further support comes from Sahaptin speakers to the south, who referred to any spawned-out salmon with the same term they used for chum salmon (Hunn 1979). It can be conjectured that the reference to dog salmon simply alluded to the large canines and dog-like appearance of the mature fall chinook salmon or even to how certain fish might be used -- as dog food.

Ray (1933) described the timing of the individual runs:

Salmon is present in the ... Columbia from May until November. Some are still to be found even later in the winter, but the flesh is hardly edible, due to deterioration after spawning. Steelhead trout run from early March until July.... Following the steelheads is the summer or chinook run of salmon, occurring during May, June and July.... In the fall a double run occurs, bringing the silver and dog salmons. These species appear during the latter part of August or early in September and continue to run through November. The flesh of both remains edible throughout this period. Neither variety is large in size, the average weight for each being about six pounds. The humpback salmon, although present in this region, is present only in negligible quantities.

Spearing salmonids at narrow passages, natural or constructed, was a major fishing technique for the summer runs (Ray 1933). Spearing from canoes was used in the fall, "especially for the white or silver salmon" (Ray 1933). Traps were characterized as far more productive than other techniques used in this area. Ray (1933) reported that many Sanpoil camped at Kettle Falls in Colville, territory during the fishing season; he described this place as "probably the most important fishing site on the Columbia River above The Dalles" (Ray 1933). Weirs and a variety of traps were used by the Sanpoil and Nespelem. Seines were used in the fall when coho and fall chinook probably dominated the catch. "In the fall white salmon and dog salmon were

taken in considerable quantities" (Ray 1933). Seines, which apparently were used at night only, were described as being 30-40 feet in length and six feet deep (Ray 1933). Ray (1933) reported that "[a] successful night's seining netted from forty to a hundred salmon."

Salmon were air-dried in the summer, but dried indoors in the fall, where some smoking occurred incidentally. Dried fish were stored in tule bags, which averaged about 100 pounds (Ray 1933).

3.3.6.2 The Colville Indians

Kettle Falls on the Columbia River was one of the most productive and best known Indian fisheries of the Upper Columbia during the early 19th century. Teit (1930) is a primary ethnographic source on the Colville and he reported that the Colville "fished more salmon than any of the other inland tribes of this [the Okanagon] group" -- the Sanpoil, Nespelem, Lakes, and Southern Okanagon (1930). The Colville were accompanied at Kettle Falls by a number of other groups from surrounding areas such as the Lakes and Pend d'Oreille (Curtis 1911, Teit 1928). A substantial amount of fish was apparently prepared here for trade or sale to groups lacking a fishery or not having one of comparable productivity. Kettle Falls, along with Okanogan Falls, were considered the two major trading centers on the Upper Columbia (Teit 1930), even prior to the introduction of the horse (Teit 1930). Teit (1930) reported that the Colville:

...procured horses, painted bags and parfleches, buffalo robes, etc., from the Kalispel, in exchange for dried salmon, and some articles reaching them from the west and north, such as shells.

Unlike many of the mounted groups surrounding them, the Colville did not travel to trade because the trade came to them (Teit 1930).

Traps that were used at Kettle Falls were especially renowned for their effectiveness in taking salmon. In 1841, Captain Charles Wilkes (1852) described these basket traps and reported that the Indians frequently took 900 salmon in 24 hours. Assuming a 60-day run and 500 fish per day as an average catch, the annual catch at this one location would have been 600,000 pounds (Craig and Hacker 1940). Chance (1973) discusses a number of other

estimates for the catch here including one of 1,000-1,500 fish per day by Jacob Meyers (1912).

3.3.6.3 The Lakes Indians

The Lakes Indians occupied a large area that included the Arrow Lakes, Slocan Lake, and the Columbia Valley above Kettle Falls. Much of their country is forested and relatively moist, not suited for horses (Teit 1930). This fact, and the presence of large lakes, resulted in a primary reliance upon canoes for transportation. In the southern part of Lakes territory, however, a few Lakes people apparently used horses. The villages in the southerly portions of the Lakes territory were larger, but less frequent than in the northerly districts (Teit 1930). These contrasts within the Lakes area undoubtedly reflected variations in habitat (Teit 1930).

Teit (1930) mentioned that important salmon fishing sites existed on the east side of the lower end of Upper Arrow Lake; on a creek opposite Revelstoke; and "at the head of the bight [bend in the shoreline forming an open bay] in Upper Arrow Lake above Arrowhead." According to Teit (1930), the Lakes also fished at locations in the Colville territory; they "went down to near Marcus, Kettle Falls, and other places along the Columbia on the confines of the Columbia." Curtis (1911) stated that the Lakes shared the salmon fishery at Kettle Falls with the Colville from June until the fall.

Although Bonnington Falls on the Kootenai River blocked anadromous fish, Teit (1930) wrote that the confluence of the Slocan and the Kootenai was a "noted fishing place" and that "Salmon were formerly plentiful throughout the Slocan district, and many people lived at all the villages." This vicinity appeared to have been important to the Lower Kutenai, who came here to fish as well:

In early times some trade was carried on between the Lower Kutenai and the Lake tribe. Parties of the former frequently came to the mouth of the Slocan River, and occasionally to the mouth of the Kootenai, to buy salmon. They left their canoes above Bonnington Falls; and after living a couple of weeks with the Lake tribe, and eating plenty of fresh salmon, they departed, carrying their fish over the portage.... Trade between the Lake tribe and the Kutenai was not increased by introduction of the horse, but rather the reverse was the case. (Teit 1930)

The Lakes are reported to have been "decimated" by an epidemic of smallpox in 1800 and again in 1832. (Teit 1930)

3.3.6.4 The Kutenai Indians

The Kutenai territory comprised a sizeable area of the interior of British Columbia, a corner of northern Idaho, and northwestern Montana. The Kutenai occupied the Kootenai River Valley above Bonnington Falls, which is located a few kilometers downstream from the outlet to Kootenai Lake. They also occupied the headwaters of the Columbia upstream from the vicinity of Golden, British Columbia. Two major divisions were recognized: 1) the Lower Kutenai, who occupied the Kootenai River Basin below Kootenai Falls, and 2) the Upper Kutenai, who occupied the Kootenai River Valley above Kootenai Falls as well as the upper North Fork of the Flathead River.

During the 18th century, most of the Upper Kutenai had horses and depended significantly on bison hunting east of the Rockies (Schaeffer 1940; Turney-High 1941; Smith 1984). The introduction of firearms, encouragement from the fur traders to trap and hunt, and the arrival of the horse were factors that apparently shifted the Upper Kutenai economy from one based mainly upon fishing and hunting to one based more upon hunting (Schaeffer 1940).

The forested habitat of the Lower Kutenai was not suited for horses and these people continued to depend on hunting, fishing for non-anadromous species, and plant collecting. Anadromous fish were not able to ascend Bonnington Falls below Nelson, British Columbia (Turney-High 1941), so they were unavailable within the country of the Lower Kutenai. Although no details are provided, it was reported that the Lower Kutenai shared fishing sites with Lakes below Bonnington Falls near Nelson (Turney-High 1941). Salmon did migrate into Upper Kutenai territory near Columbia and Windermere lakes at the headwaters of the Columbia. The two Kutenai divisions were distinguished in subsistence partially by their relative dependence upon fishing:

Despite their more westerly habitat and greater dependence on fish, salmon played a smaller role in the economy of the Lower Kutenai than among the Upper bands. Both groups prized

the great Northwest fish equally, but neither looked upon it as the basic staple of life, as among more westerly tribes. The fact is that while the Lower Kutenai often took salmon at Nelson, they generally met the Upper bands fishing near Windermere.... At that spot the headwaters of the Kootenay [sic] and the Columbia rivers are separated only by a low divide of about two miles width. The salmon spawned in the marshes and sloughes from which this, the main thread of the Columbia, arises. (Turney-High 1941, emphasis added)

Among the Upper Kutenai, except for the spearing of salmon at Columbia Lakes, fishing was largely done to secure change in a diet that otherwise consisted predominately of animal flesh, or during seasons of scarcity, to eke out a scanty food supply. At Tobacco Plains the extent to this activity was a matter of preference among individual families, some of which spent several weeks in salmon fishing on the head waters of the Columbia. Others were content to take fish [non-anadromous] in small quantities irregularly throughout the year. (Schaeffer 1940, emphasis added)

Additional details regarding the timing and abundance of salmon at the source of the Columbia warrant quotation:

Salmon migrating from the Pacific Ocean to spawn in the headwaters of the Columbia River, provided an important source of food for some families in the Upper Kootenai region. Towards the close of summer certain families travelled northward from Tobacco Plains for the salmon season. The fish began to arrive in this region in August, the run, or runs, continuing until September or October. Often a few families would reach the upper Columbia at the beginning of the migration season and send news to Tobacco Plains on the size of the run. If there were prospects of an abundance of salmon, other groups would hasten north to take part in the catch.

The fishing parties made their first camp near Brisco in August, and after taking salmon there for a time, moved up the Columbia to the fishing site near Fairmont Springs. During August and September the run was usually of some size and of good quality but by October, the fish began to decline both in condition and numbers. The season was closed with a small catch made at the site near Althalmer. (Schaeffer 1940)

David Thompson's journal (1962) provides observations regarding salmon immediately below Windermere Lake. These observations, made in the fall of 1807, represent the earliest written accounts of salmon in this region:

At length the Salmon made their appearance, and for about three weeks we lived on them. At first they were in tolerable condition, although they had come upwards of twelve hundred miles from the sea, and several weighed twenty five pounds. But as the spawning went on upon a gravel bank a short distance above, they became poor and not eatable. We preferred horse meat.

In August of 1809, Thompson (1962) crossed from the headwaters of the Columbia to the headwaters of the Kootenai River and mentioned spearing "a few tolerably good salmon" in Windermere Lake.

Based upon experiences during his residence in the Canal Flats area in the 1880s, Baillie-Grohman (1907) provided the following account of salmon near the source of the Columbia:

Forty years ago the number of fish who reach these beds was so great that the receding waters [the freshets from the receding snows cause a considerable rise] would leave millions of dead salmon along the banks, emitting a stench that could be smelt miles off, and which never failed to attract great number of bears.

A final account of salmon in this area is that of Hector on September 17, 1859, of the Palliser Expedition (Spry 1968). Many dead salmon were observed from the mouth of the Blaeberry River up to Windermere and Columbia lakes. In the vicinity of these lakes, he saw two Kutenai families drying salmon taken in Columbia Lake.

Generally, salmon species were not identified in the ethnographic and historical sources pertaining to this area; salmon were referred to in a generic sense. Based upon historical accounts of the season of availability and size of individual fish, the chinook and sockeye salmon may have been represented.

Turney-High (1941) stated that the Kutenai relied entirely on spears for taking salmon. Spears were used from canoes, often by torchlight at night. Storage techniques involved partial sun-drying followed by fire drying; the Kutenai did not pulverize dried salmon (Turney-High 1941). According to Schaeffer (1940) the Kutenai used weirs and nets as well as spears.

Smith (1984) summarized three important characteristics of salmon to the Kutenai -- they were restricted to a small part of the Kutenai territory; they were available for a relatively brief interval of the year (late summer/early fall) compared to most other areas of the Columbia Basin; and they were important in the diet of some Upper Kutenai families. Historical sources suggest that the magnitude of the runs from year to year at the Columbia headwaters was subject to sizeable fluctuations.

3.3.6.5 The Spokane Indians

The Spokane were located on the Spokane River and its tributary, the Little Spokane. The southern portion of their territory extended southward as far as Cow Creek, tributary to the Palouse River (Teit 1930). The Spokane were commonly divided into three groups: 1) the Lower Spokane, on the lower river and around its confluence with the Columbia, 2) the Middle Spokane, who extended upstream to below the mouth of the Little Spokane, and 3) the Upper Spokane, who occupied the Little Spokane River Valley and the Spokane River below Spokane Falls (Ray 1936).

Teit (1930) described the yearly economic cycle of the Spokane as involving salmon fishing in the early summer and again in late summer/early fall with midsummer root digging. About eight to nine months of the year were spent moving between seasonal food gathering locations. Winter villages were occupied from December to March (Teit 1930), when subsistence depended upon stored fish, roots and winter hunting. Fishing technology included large nets, weirs, traps and spears (Teit 1930). In July of 1825, John Work observed Indians catching 700 to 800 fish per day at the Little Falls fishery site (Work 1830).

3.3.6.6 The Coeur D'Alene Indians

The Coeur d'Alene population occupied the Spokane River Valley from Spokane Falls to the headwaters, as well as portions of the North Fork of the Clearwater. Prior to adopting the horse as a form of transportation, the Coeur D'Alene consisted of four divisions that wintered at 16 permanent locations along the Spokane River Valley (Teit 1930). After acquiring horses, they began annual buffalo hunts to the Flathead country. The annual

hunts grew in size until virtually the whole group participated (Teit 1930). According to Teit (1930), the annual bison hunting expedition departed in August after preserving roots, berries and salmon; the hunters did not return until April.

Salmon apparently did not penetrate the Spokane Falls on the Spokane River. Teit stated that the Coeur d'Alene "had no salmon in their own country, but salmon came close to the borders of their territory in the Spokane River" (Teit 1930). Salmon were, nonetheless, obtained by buying dried salmon from the Spokan or Palus Indians or by fishing at Spokane Falls and below. The latter was apparently practiced by large numbers of the Coeur D'Alene (Teit 1930). At least prior to the introduction of the horse, salmon were also taken from the upper tributaries of the North Fork of the Clearwater (Teit 1930).

Teit (1930) suggested that:

Fishing and canoe travel were gradually forsaken for buffalo hunting and travel by horse. Since the forested country was not well adapted for horses, most of the tribe moved to the more open, grassy districts. This drew them away from the lakes and in great measure from fishing, canoes,...

The fishing alluded to here was probably for resident species. In general, Teit emphasized the profound change from many, relatively independent, sedentary bands to a large, unified tribe that moved constantly throughout the year. Teit's analysis, however, has been questioned for its inconsistency with historical evidence and for overstating the importance of bison hunting in Coeur D'Alene subsistence in the early 19th century (Anastasio 1972). These two viewpoints might be reconciled by suggesting that Teit may have been referring to the last half of the 18th century whereas Anastasio appeared to be referring to the first half of the 19th century. The bison, which had been plentiful west of the continental divide in Flathead country, apparently were hunted out by the early 1800s.

3.3.6.7 The Kalispel Indians

The Kalispel occupied the Pend d'Oreille and Clark Fork rivers from near the mouth of the Pend d'Oreille to Plains, Montana on the Clark Fork. The

Kalispel were sometimes referred to as the "Camas people" (Teit 1930), which may suggest the importance of this resource in their diet. Salmon were not available in the Pend d'Oreille River because of impassable falls, possibly Metaline Falls, in the lower river. Fulton (1968) suggested the blockage to fish migration was 32 kilometers upriver from the mouth. Salmon were harvested, however, in a small portion of Kalispel territory and beyond:

In the salmon season, some Kalispel went down the river to near the canyon [probably Box Canyon], then across country to the head of the Salmon River in British Columbia, which was the northeast corner of their tribal territory, and there fished salmon. The salmon at this place were generally spent and poor, and in some years there were not many. A few Kalispel joined the friendly Lake and Colville at their great fishery about Kettle Falls; but most of the tribe procured dried salmon in trade from the Colville and Spokane, probably chiefly from the former. (Teit 1930)

3.3.6.8 The Pend d'Oreille Indians

According to Teit (1930), Pend d'Oreille territory comprised:

...all the Flathead Lake and Flathead River country, the Little Bitterroot, the Pend d'Oreille River west to about Plains, the Fork and Missoula rivers to about Missoula. Northward they extended to about the British Columbia line.

The usual wintering area was in the vicinity of Flathead Lake (Teit 1930). Bison were primary in the subsistence of the Pend d'Oreille after the arrival of horses, although some bison may have been used prior to that time. This dependence upon bison, and the accompanying conflict with the Blackfoot, led to the amalgamation of several smaller bands into one large band that wintered together. Natural barriers prevented anadromous salmonids from reaching Pend d'Oreille territory. According to Teit (1930), the Pend d'Oreille were "seldom able to obtain much [dried salmon] in trade."

3.3.6.9 The Flathead Indians

The Flathead proper are one of several groups including the Pend d'Oreille, Kalispel, and Spokane, which Teit (1930) called the "Flathead Group." Salmon runs did not reach Flathead country because of barrier falls in Kalispel territory (tentatively identified above as Metaline Falls). Nonetheless, the Flathead procured salmon outside their own country:

By the time it reached the headwaters of the Idaho streams the salmon run was very weak indeed, but it was strong enough to cause an annual Flathead migration through the Lolo Pass into the boundaries of that modern state. The Indians say that they undertook this trip just as the streams swollen by the spring thaws began to fall. They say that they could expect salmon at that season and that they were succulent and fat.

Arriving at the Idaho salmon country, each small band separated and chose its own stream across which to throw a weir.... If each band would fish its own stream there would be plenty of fish for all. (Turney-High 1937)

Because the construction of a weir was a communal enterprise, the catch was shared among the families present:

The catch, once taken ashore, was gathered into a large pile under the chief's supervision. Bearers would then proceed from lodge-to-lodge around the circle while the chief counted aloud the number of each lodge. As the chief counted, a fish was laid before each lodge. It was considered a good day's work if the bearers made the rounds of a fair-sized camp as many as four times. (Turney-High 1937)

Any fish not consumed immediately were dried and pounded for winter consumption (Turney-High 1937). In addition to salmon that the Flathead procured themselves, Teit (1930) reported that the Flathead obtained dried salmon from the Lemhi Shoshone.

3.3.7 The Snake River Basin

The Snake River Basin consists of the entire Snake drainage, including all its tributaries above the Snake-Columbia confluence. Beginning at the mouth of the Snake, tribal groups were the Walla Walla (discussed in the Lower Columbia section), the Palus, the Nez Perce, Paiute, the Shoshoni and Bannock. There are minimal ethnographic data on the Palus, who occupied the Palouse River Valley and the vicinity of its confluence with the Snake. Palus salmon fishing would have been focused on the Snake because the Palouse drainage was blocked to fish migration by a high barrier falls. Data on Paiute use of salmon are also scarce. Better information is available on the other groups in the Snake Basin -- the Nez Perce, the Shoshoni, and the Bannock.

3.3.7.1 The Nez Perce Indians

The Nez Perce occupied the Snake River Valley from the mouth of the Tucannon River to the mouth of the Payette as well as most of the tributary valleys that enter along this reach. Included within this section is the entire Clearwater drainage, the lower Salmon River drainage, the Imnaha, and the lower Grande Ronde. Nez Perce winter villages extended along the rivers -- up the Salmon at least to Slate Creek and southward up the Snake to the Imnaha (Spinden 1909). Spinden (1909) listed 41 divisions or bands of Nez Perce totaling an estimated 6,000 people. Preferred locations for villages were near riffles, where salmon could be intercepted (Spinden 1909).

Spinden (1909) said of Nez Perce in general:

In common with other tribes of the arid Basin areas, the Nez Perces depended for food largely upon vegetal products: They were not, however, as restricted in this respect as the tribes to the south, since salmon was plentiful during certain periods of the year and game was fairly abundant.

Camas and kouse were the primary plant food staples with a variety of other vegetal resources of secondary importance (Spinden 1909).

Fish, along with game, were said to have constituted "a considerable part of the food supply of the Nez Perces ..." (Spinden 1909). Four species of anadromous salmonids were listed by Spinden as native to the Nez Perce country (1909):

1) Red fish, or blue-backed salmon (Oncorhynchus nerka Walb.). This fish, varying from three to eight pounds in weight, was the favorite fish for drying. It was caught about the first of July on Clearwater River, but was taken much earlier at Wallowa Lake and at the head waters of Salmon River. Only the last of the run spawned on the lower stretches of the rivers.

2) Quinnot, Chinook, or Tye salmon (O. tschawytscha Walb.). This salmon, averaging more than twenty pounds in weight, was caught somewhat later than the blue-backed salmon.

3) Steel-head salmon, "salmon trout" (Salmo gairdneri Richardson). This salmon was caught during fall and winter; it weighs usually about six pounds.

4) Cut-throat trout (S. mykiss Gibbsii Suckley).

Although Spinden listed a variety of other resident and non-salmonid species used by the Nez Perce, he stated that salmon were "by far the largest item." Salmon were both dried and smoked, but pemmican was not produced (Spinden 1909).

Fishing involved spears, nets, traps and hooks (Spinden 1909). With the trident or leister spear:

...large numbers of salmon were caught from platforms built out over the water or from jutting ledges of rock. The platforms were usually just above brush dams that almost closed the channel at the head of a riffle and which left only a small passage for the fish. Sometimes the fish were speared on riffles without the aid of the platform and the brush dam.

Salmon as well as eels were fished with several kinds of nets. Dip nets were used from platforms placed over natural or artificially created contractions in the channel. Weirs constructed of willow brush and stones were used in conjunction with platform fishing techniques. Seines that were 50 feet long and 15 feet deep were also used (Spinden 1909). According to Walker (1967), traps were built on smaller rivers, weirs on somewhat larger ones (e.g., the Middle and North forks of the Clearwater), and fish walls on channels too wide to span with weirs.

Walker (1967) presented evidence for the tremendous mobility of the Nez Perce in historic times. He has emphasized that Nez Perce fishing activities carried them to the major fisheries throughout the Columbia Basin -- Celilo Falls, Spokane Falls, Willamette Falls and others. Walker (1967), following Griswold (1953), has argued that a major factor contributing to salmon exploitation as far downstream as possible was the increased deterioration in the quality of salmon flesh with distance traveled inland. The extent of mobility suggested by Walker clearly depended upon horses.

Quantitative evidence for the productivity of the Nez Perce fisheries has been reviewed by Walker (1967) and is worthy of examination here. The missionary Henry Spalding, who settled among the Nez Perce in 1836, reported Nez Perce catches on a single day of 202 salmon with weights ranging between

10 and 25 pounds (Drury 1936 cited in Walker 1967). Spalding suggested that such catches may have been made simultaneously at 50 other locations within Nez Perce country. On July 25, 1839, and on July 27, 1839, Spalding reported Nez Percés in the Wallowa Valley making catches of 300 salmon and 600-700 respectively (Walker 1967). Numerous other examples were given of several hundred fish being taken in a day. Based on these observations, Walker (1967) suggested that:

...it is safe to conclude that the daily Nez Perce catch ranged some 300 to 700 salmon weighing from 10 to 40 pounds. My own research (Walker 1965-67), elaborated by Schwede (1966), indicates that Spalding's estimate of fifty fishing stations for Nez Perce territory also is a minimal figure. Taking the minimal 300 fish per day times the fifty fishing sites, one obtains a figure of 15,000 fish caught per day during the height of the season. Informants estimate that between June and October, there would be from 10 to 20 peak days when the catch would range from 300 to 700 salmon. Again taking their average weight as the minimal 10 lbs., the annual Nez Perce catch of salmon would be 1,500,000 lbs., or 300 lbs. per capita, precisely the figure given by Hewes for the Nez Percés....

3.3.7.2 The Shoshoni and Bannock Indians

The Shoshoni and Bannock groups of southern Idaho had highly varied subsistence systems. Some, such as the "Agaidika" or "salmon-eaters" of the Lemhi and Salmon rivers and the Fort Hall area, gained their primary subsistence from salmon fishing (Hultkrantz 1957). Others lived primarily on plants. Still others were equestrian bison hunters, little different in their basic economy from Plains tribes east of the continental divide. Through trade, dried salmon was a component of the diet of many Shoshoni and Bannock groups, whether or not runs actually reached group territories. In general, the groups most dependent upon fishing were those on the Snake below Shoshone Falls. The falls provided a rough boundary between the Eastern Shoshoni of southeastern Idaho, who were equestrians, and the Western Shoshoni of southwestern Idaho, who were largely unmounted. Mounted groups above the falls hunted bison and, in some cases, traveled to downstream fishing sites for fish.