

ENDNOTES

Abbreviations:

CSKT	Confederated Salish and Kootenai Tribes
SPCC	Salish-Pend d'Oreille Culture Committee, Confederated Salish and Kootenai Tribes. Access to SPCC archives, generally reserved for CSKT tribal members only, is obtained only through permission of Director, SPCC, P.O. Box 550, St. Ignatius, MT 59865.
SPCC tape _____	Audio recorded oral histories by tribal elders in collections of SPCC
SPCC video _____	Video recorded oral histories by tribal elders in collections of SPCC
SPCC wi _____	Noted but generally not recorded information by tribal elders in collections of SPCC

Introduction

1. Mitch Smallsalmon, SPCC tape 178, side 1 (1977). All passages from SPCC transcripts are used with permission of Director, Salish-Pend d'Oreille Culture Committee, Confederated Salish and Kootenai Tribes. These transcripts are the product of decades of painstaking work by elders and culture committee staff members in creating a priceless tribal oral history archive, including interviewing, translating, transcribing, computerizing, and indexing. Tapes were translated by numerous past and present SPCC staff members, including Dolly Linsebigler, Tony Incashola, Felicite McDonald, Clarence Woodcock, Johnny Arlee, Shirley Trahan, Josephine Quequesah, Chauncey Beaverhead, Jeanette Conko, Peter Finley, and Lucy Vanderburg. Bilingual transcripts by Shirley Trahan, Tony Incashola, Chauncey Beaverhead, Lucy Vanderburg, and Clarence Woodcock, with final review and approval by Mr. Incashola and Ms. Trahan. Computerization and indexing of the transcripts also required years of effort by many staff members. Without the hard work of all these dedicated SPCC staff members, the generous sharing of the stories by the Salish-Pend d'Oreille elders themselves, and the years of steady support from the Tribal Council of the Confederated Salish and Kootenai Tribes, none of this information would be available.

2. *Aay* (written by some linguists as *ʔí*) is a truncated form of the full Salish word *aaycčst* (or *ʔícčst*); in common usage, many Salish speakers use a shorter form of many words, with longer versions reserved for use in special contexts such as ceremonies or formal speech -- or, in some cases, placenames. As noted later in this essay, the name for the confluence of the Clark Fork and Blackfoot Rivers (the area of present-day Bonner, Montana) is *Nʔaycčstm* (*Nʔícčstm*)-- Place of the (Large) Bull Trout.

Chapter 1: The Tribal World of the Northern Rockies

3. There are many published collections of Salish-Pend d'Oreille creation stories and Coyote stories, including:

Ellen Big Sam, "A Flathead Indian Tale," interpreted by Joe Big Sam, as told to George Weisel, *Journal of American Folklore* 65, no. 4 (Oct.-Dec. 1952): 359-360.

_____, "Ten Animal Myths of the Flathead Indians," interpreted by Joe Big Sam, as told to George Weisel, *Anthropology and Sociology Papers* 18 (Missoula: Montana State University (now University of Montana), 1959).

Ella E. Clark, *Indian Legends from the Northern Rockies*, 4th ed. (Norman: University of Oklahoma Press, 1977).

W.J. Hoffman, "Selish Myths," *Bulletin of the Essex Institute* 15 (1883): 23-40.

Louisa McDermott, "Ethnology and Folklore, Selish Proper," M.Sc. Thesis, University of California - Berkeley, 1904.

_____, "Folk-Lore of the Flathead Indians of Idaho: Adventures of Coyote," *Journal of American Folk-Lore* 14, no. 55 (Oct.-Dec. 1901): 240-251.

Duncan McDonald, "Indian Legend: How Missoula Got Its Name," *Bitterroot Journal* (Victor, MT) 4, no. 1 (Jan. 1978): 25.

W.H. McDonald, *Creation Tales from the Salish* (Billings, MT: Montana Indian Publication Fund, 1973).

Pierre Pichette, *Coyote Tales of the Montana Salish*, as told to Harriet Miller and Elizabeth Harrison, Exhibition of U.S. Department of the Interior, Indian Arts and Crafts Board (Rapid City, S.D.: The Tipi Shop, 1974).

Eneas Pierre, Agnes Vanderburg, and Sophie Adams, *Salish Folk Tales*, as told to Kathryn Law, interpreted by Agnes Vanderburg (Billings, MT: Montana Indian Publications, 1972).

Michel Revais, "Pend d'Oreille Tales," as told to James A. Teit, *Memoirs of the American Folk-Lore Society* 11 (1917): 114-118.

Agnes Vanderburg, Ignace Pierre, Jerome Lumpry, and Adele Adams, *Tales from the Bitterroot Valley, and Other Salish Folk Stories*, as told to Kathryn Law, interpreted by Agnes Vanderburg (Billings, MT: Montana Indian Publications, 1971).

4. Some examples of Coyote stories that may be in part a collective memory of the ice age or the distant past include Pete Beaverhead, "Origin of seasons: Q^w oxmine? and Stolem^wq^w," SPCC Tape 3, side 1 and side 2 (1975), and "White Beaver, Wolf Brothers, and Wild Horse Island," SPCC tape 42, side 2 (1975); "Coyote Whips the Cold Man," in McDermott, *Ethnology*, 47-48; "South Wind and the Cold," in McDermott, *Ethnology*, 51-53; "Coyote Whips the Wind," in McDermott, *Ethnology*, 54; "Bluejay Brings the Chinook Wind," in Clark, *Indian Legends*, 112-114, and "Thunderbird, North Wind, Bluejay, Origin of Chinook Wind, and Today's Seasons," in McDonald, *Creation Tales*; Eneas Pierre, "World destroyed by great flood," SPCC tape 13, side 2 (1975); "Coyote and the Dam on the Columbia," in McDermott, *Ethnology*, 18-19, and also mentioned in numerous other

stories, including “Coyote and the Black Clam Women,” McDonald, *Creation Tales*, as well as Duncan McDonald, “Coyote Brings the Salmon Up the Streams,” *Bitterroot Journal* (Victor, MT) 4, no. 1 (Jan. 1978): 25; Lucullus McWhorter, “The Great Flood in the Flathead Country,” in Clark, *Indian Legends*. Other stories may contain more metaphorical or less literal references to features of the end of the ice age, such as the location of terminal moraines or the southernmost limit of the glaciers, such as the story of the “swallowing monster” in the Jocko Valley and the starving animals living within its immense body (this story appears in many sources, including Vanderburg et al, *Tales from the Bitterroot*, and Pichette, *Coyote Tales*).

5. Several archaeological sites within traditional Salish-Pend d’Oreille territories on both sides of the Continental Divide have been dated to the period around the end of the ice age. On the east side, these include the Anzick site along Flathead Creek near Wilsall, Montana, dated to about 10,500 years before present, and the McHaffie site south of Helena near Montana City, about 9,500 B.P. (before present). In the Northern Rockies and in sites west of the Divide, points have been found that suggest use of the mountains 8,000 to 10,000 B.P., and an excavated site in Powell County has been dated to over 9,000 B.P. Near Helmville, Montana, in the Blackfoot River drainage, materials have been found in layers beneath a discreet deposit of volcanic ash dated to about 6,750 B.P. The absence of even earlier archaeological sites in western Montana may be due to not only the effects of the last ice age, but also to more complicated geological structures with less stable sedimentary deposits. Some of the traditional stories seem to suggest that Salish-Pend d’Oreille ancestors were already here when the ice age began. Archaeological information courtesy personal communication from Stan Wilmoth, Montana State Historic Preservation Office, October 17, 2007. See also George C. Frison, *Prehistoric Hunters of the High Plains*, 2nd ed. (San Diego and London: Academic Press (Elsevier), 1991), and David Alt, *Glacial Lake Missoula and Its Humongous Floods* (Missoula, MT: Mountain Press Publishing Co., 2001).

6. SPCC oral history archives, and the notes and published writings of ethnographers such as James Teit, Claude Schaeffer, and Carling Malouf, provide a nearly unanimous sense that the Salish and Pend d’Oreille bear a direct connection to the earliest human inhabitants of the region. They also agree on the tribes having no traditions of having originated elsewhere.

Other sources, generally less authoritative but still important, do suggest an ancient migration into western Montana, although even they do not tell of other people having preceded the Salish or Pend d’Oreille. The most interesting example is the account gathered by the WPA writer Bon Whealdon, in which Whealdon reports Pend d’Oreille elders as saying in the 1920s, “We know only the story our old men told our men down from the beginning: the first Salish were driven down from the country of the big ice mountains, where there were strange animals. Fierce people who were not Salish drove them south. So in our stories our people have said, ‘The river of life, for us, heads in the north.’” Clark, *Indian Legends*, 92-93. Whealdon’s work is important; he interviewed a number of people in the Salish and Pend d’Oreille communities of the early to mid-twentieth century, including Alex Beaverhead, Eneas Conko, John Delaware, Louise Finley, David Finley, Joseph and Tom McDonald, Mose Michel, Blind Michel, Charley Michel, Dominic Michel, Antoine Morigeau, Philip Pierre,

Quequesah, Lassaw Redhorn, Francois Skyema, and Mrs. Allen Sloan. It also true that he was not a trained ethnographer, and the phrasing suggests Whealdon may have employed some artistic license. His translators are listed by Ella Clark as having been Harry Burland and Thomas Eulopson. Tribal elders alive today say Burland was not to their knowledge a fluent speaker, so he may have served as a transcriber. Eulopson is listed in the 1926 tribal census as a full blood married to Lucy Kickinghorse, with a child born in 1920. By the 1933 census neither the wife nor the child is mentioned, so they might have died in the interim.

By contrast, the work of the Boasian ethnographer James Teit indicates that elders in the early twentieth century made no mention to him of tribal migration into the region. “The Pend d’Oreille,” Teit wrote, “appear to have been in their late habitat a long time...The Pend d’Oreille consider the Flathead to be the head or parent tribe of the Flathead group and next to the Kalispel their nearest relations. I heard of no migrations of the tribe.” Teit reported the same for the Salish. Teit was fluent in Thompson, the Salishan language spoken by his wife, and he worked closely with Michel Revais, the preferred translator of the Salish head chief, Charlo (and his son, Martin Charlo). While Whealdon rarely if ever recorded any terms in Salish, Teit’s written representations of Salish words are so accurate as to be almost always recognizable today to both fluent elders and Salishan linguists. Teit also carried out the most thorough and wide-ranging anthropological investigation of tribal origins and territories in the Northern Rockies and surrounding regions, interviewing numerous elders from many of the tribes. In the course of that work, he apparently heard no stories of the Salish or Pend d’Oreille moving into Montana from other places. James Teit correspondence within Franz Boas papers, American Philosophical Society, Philadelphia, PA (Collection B B61), folder: Tribal territories and boundaries, p. 54/20, also 53/19 and 55/21.

7. The accounts of the elders, including several recordings by Pete Beaverhead, tell us that this huge dispersion was a “downstream” or westward movement, that Montana was the homeland of the original Salish Nation. Some anthropologists and linguists, drawing in part from ethnobotanical and ethnozoological evidence, have argued that the Salish originated closer to the Pacific Coast, and migrated inland. See, for example, M. Dale Kinkade, “Prehistory of Salishan Languages,” in *Papers for the 25th International Conference on Salish and Neighboring Languages*, 197-208 (Vancouver: University of British Columbia, 1990). Kinkade concludes that the weight of evidence suggests an origin in the Fraser River valley. However, there are numerous unanswered questions in Dr. Kinkade’s article; he reconstructs proto-Salish words for some species that only occur on the coast, but also for some that only occur in the interior. And other scholarly work is in general agreement with what the elders have recounted, including the ethnographic research of James Teit (see FN 6) and Claude Schaeffer, who conducted extensive work on the Flathead Reservation during the 1930s. Elders of Salishan tribes in Washington State told Teit, for example, that the Montana Salish spoke “the proper or purest dialect” and both they and the Pend d’Oreille regarded the Salish as “the head or parent tribe.” American Philosophical Society, Philadelphia, manuscript collections #2446 (Teit, James A., “Notes to maps of the Pacific northwest” [1910-1913]) and #3207 (Teit, James A., “Salish tribal names and distributions” [1907-1910]), and James Teit correspondence within Franz Boas papers, Collection B B61, folder: Tribal territories and boundaries, p. 54/20 and 55/21.

8. Steve Egesdal, Ph.D. (Salishan linguist), personal communication, 2001, and M. Dale Kinkade, personal communication to Prof. Sarah Thomason, 2002. Thomason recalls Kinkade estimating to her that Salish language diffusion occurred about four thousand years ago. Paul D. Kroeber has written that “There are enough Salish languages that it should be possible to reconstruct in detail a protolanguage of fairly considerable time depth -- while Swadesh’s (1950) glottochronological estimate of 6000 years as the age of the family is certainly too great, 3000 years at the very least would be a reasonable guess on the basis of the morphological diversity displayed by the present-day Salish languages.” From *The Salish Language Family: Reconstructing Syntax* (Lincoln and London: The University of Nebraska Press, 1999), 1.

9. For an overview of tribes and tribal cultures of the region, see Deward E. Walker, Jr., ed., *Vol. 12: Plateau*, Handbook of North American Indians, ed. William Sturtevant (Washington, D.C.: Smithsonian Institution, 1998). The sections focusing on the Salish and Pend d’Oreille are “Flathead and Pend d’Oreille,” by Carling I. Malouf, 297-305, and “History,” by Thompson R. Smith, 305-312. See also Smith, “The Salish (*Séliš* or ‘Flathead’) and Pend d’Oreille (*Qlispé*): History of Relations with Non-Indians,” author’s final submission (pre-edited), 1997, for Walker, Jr., ed., *Vol. 12: Plateau*.

10. Deward E. Walker, Jr. has noted that “chiefs depended strongly on public opinion and their own persuasive abilities.” *Conflict and Schism in Nez Perce Acculturation* (Pullman: Washington State University Press, 1968), 18. The early fur trader Alexander Ross wrote, “in all ordinary matters the chief is not more conspicuous than any other individual, and he seldom interferes in...the ordinary routine of daily occurrences.” Ross, *Adventures of the First Settlers on the Oregon or Columbia River* (London: Smith, Elder, and Co., 1849; reprinted, ed. Milton Milo Quaipe, Chicago: Lakeside Press, R.R. Donnelly & Sons Co., 1923) (page references are to the 1923 edition), 227.

11. A seminal economic analysis of tribal hunter-gatherers is Marshall Sahlins, “The Original Affluent Society,” in his *Stone Age Economics* (New York: Aldine Publishing Co., 1972), 1-39, which overturned much of the previous scholarship by asserting, on the basis of extensive fieldwork among the !Kung people of the Kalahari desert, that the !Kung -- contrary to the usual depiction of hunter-gatherers as engaged in a constant struggle for survival -- in fact quite easily met their food and material needs, and had a great deal more leisure time, on average, than people in western industrialized societies.

We can see some indication of the influence of the work of Sahlins and others, as well as the rising voice of native people in telling their own history, in reframing the understanding of the earlier periods of the Native American past, in the essay on “Archaic Indians” by David Hurst Thomas of the Smithsonian’s American Museum of Natural History, published in Frederick E. Hoxie, ed., *Encyclopedia of North American Indians* (New York: Houghton Mifflin Co., 1996), 35-37. Thomas’s essay engages with close consideration of the ramifications of archaeological discoveries such as Poverty Point in Louisiana, and concludes with the sweeping statement that the “nonspecialized economies” of hunter-gatherer-fishers “have a demonstrated longevity and a degree of cultural stability and survival unknown in today’s world.”

But Sahlins' essay, and similar challenges to older anthropological orthodoxies, have not always received support from researchers. For a largely oppositional view, see Ernest S. Burch, Jr. and Linda J. Ellana, eds., *Key Issues in Hunter-Gatherer Research* (Oxford, U.K.: Berg, 1994). Three papers in this collection -- by David Yesner, Victor Shnirelman, and Nicholas Blurton Jones, Kristen Hawkes, and Patricia Draper -- challenge Sahlins' conclusions about hunter-gatherer "affluence," arguing to the contrary, on the basis of examination of a number of nonagricultural groups, that "'affluence' in any useful sense of the term is not characteristic of many hunter-gatherer societies." Burch, Jr. and Ellana, eds., 149.

For a collection of essays generally supportive of Sahlins, see John Gowdy, ed., *Limited Wants, Unlimited Means: A Reader on Hunter-Gatherer Economics and the Environment* (Washington, D.C.: Island Press, 1998). Gowdy notes that the study of hunter-gatherers in the earth's most extreme environments -- such as the Kalahari and the Arctic -- have helped reinforce certain assumptions about "a precarious hunting subsistence base," and that this mode of subsistence was considerably easier in more temperate regions. Gowdy advocates "a shift in focus away from the dramatic and unusual cases, and toward a consideration of hunting and gathering as a persistent and well-adapted way of life." Gowdy, ed., 61.

See also Peter Rowley-Conwy, "Time, Change, and the Archaeology of Hunter-Gatherers," in Catherine Painter-Brick, Robert H. Layton, and Peter Rowley-Conwy, eds., *Hunter-Gatherers: An Interdisciplinary Perspective*, Biosocial Society Symposium Series (Cambridge, U.K. and New York: Cambridge University Press, 2001). Rowley-Conwy concludes that "the flexibility, mobility, and social equality of the Original Affluent Society may be the most remarkable and specialised social form that humans have ever evolved." Painter-Brick, Layton, and Rowley-Conwy, eds., 65.

One of the most nuanced, deeply historicized, and systemic examinations of tribal economies, and issues of culturally defined poverty and abundance, is William Cronon's *Changes in the Land: Indians, Colonists, and the Ecology of New England* (New York: Hill and Wang, 1984). See especially chapter 3, "Seasons of Want and Plenty," and chapter 4, "Bounding the Land."

12. The anthropologist Angelo Anastasio reached the conclusion that there was virtually no "similarity between...white 'commercial' exchange...[and] the giving and exchange of gifts" in the tradition of Plateau tribes. Anastasio saw fundamentally differing logics governing gift-giving traditions (and even barter trade within the tribal context) and market exchange, in which participants are self-interested competitors vying for advantage and profit. Anastasio, "The Southern Plateau: An Ecological Analysis of Intergroup Relations," *Northwest Anthropological Research Notes*, University of Idaho Laboratory of Anthropology, 6 (Fall 1972), 170. William Cronon has noted that in colonial New England, "More than anything else, it was the treatment of land and property as commodities traded at market that distinguished English conceptions of ownership from Indian ones." *Changes in the Land*, 75.

13. Deward E. Walker, Jr. has concluded that tribes of the region had "weakly developed...notions of territoriality and trespass." *Mutual Cross-Utilization of Economic Resources in the Plateau*, Washington State University Laboratory of Anthropology Report of Investigations no. 41 (Pullman: Washington State University, 1967), 39. Salish-Pend d'Oreille elders have stated that in general they were on friendly terms with tribes to the west.

Nevertheless, there are also records of occasional inter-tribal conflict between tribes based west of the Continental Divide, particularly between tribes lacking a linguistic connection. The field notes of anthropologist Claude Schaeffer, who interviewed many Salish, Pend d'Oreille, and Kootenai elders in the 1930s during fieldwork on the Flathead Reservation, include numerous references to such occasional conflicts; see also Anastasio, 147 and 151. As with inter-tribal conflict in many parts of the Americas prior to the disruptions of the last 200 to 500 years, these battles tended to have a highly symbolic quality and relatively low mortality. For example, in 1826, the naturalist David Douglas observed a highly ritualized inter-tribal conflict near the confluence of the Snake and the Columbia rivers, in which "an old quarrel" flared up and members of the two tribes faced each other dressed in full regalia, "painted....some red, black, white, and yellow." After a "whole day spent in clamour and haranguing....Peace was signed and sealed by an exchange of presents." According to Douglas, this was for tribal people "the usual way." David Douglas, *Journal Kept by David Douglas During His Travels in North America*, ed. W. Wilks (London: William Wesley & Sons, 1914), 206 and 201.

The incident Douglas observed -- a conflict ending in gift-giving -- illustrates how symbolic confrontations ultimately served the inter-tribal economic and cultural system of the region. Both a general state of peace, and also dispersed tribal territories, were necessary for the proper functioning of the inter-tribal economic system. Without the maintenance of localized tribal or band identities, the system of exchanging regional surpluses of locally abundant resources would have broken down. Among other things, these skirmishes reinforced tribal identity and tribal territoriality, and preserved the dispersed nature of tribal population in the Northern Rockies and the Plateau, spread across the varying ecological sub-regions of the Plateau.

See also Theodore Stern, "Columbia River Trade Network," in Walker, Jr., ed., *Vol. 12: Plateau*, 641-652. Stern notes that "Flatheads valued the watertight bags and tasty roots of the Nez Perce, who in turn found superior the dried meat and dressed deerskins produced by the Flathead." Stern goes on to detail an account of Salish-Nez Perce exchange from Harry Holbert Turney-High's ethnography of the Salish, but that work is on the whole regarded by most Salish scholars and elders as the least reliable of the anthropological texts about the tribe. "The Flathead Indians of Montana," *Memoirs of the American Anthropology Association*, 48 (Menasha, WI: American Anthropology Association, 1937).

14. See Tom E. Roll and Steven Hackenberger, "Prehistory of the Eastern Plateau," in Walker, Jr., ed. *Vol. 12, Handbook of North American Indians: Plateau*, 120-137. We have a long way to go before arriving at a more truly historicized understanding of older periods of tribal history. Perhaps this is reflected in the persistent use, mainly by anthropologists, of inherently nonsensical terms such as "proto-history" and "prehistory" -- not for periods before there was a human presence on the land, but merely before there were Europeans or European influences.

15. See Walker, Jr., *Mutual Cross-Utilization*. David Hurst Thomas has written, "While always retaining an essential 'Indianness,' Native American cultures adapted over many centuries to regional extremes of temperature and climate, to the mountains, the deserts, the woodlands, and the prairies of the North American continent." Hoxie, ed., *Encyclopedia*, 35.

Chapter 2: The Importance of Bull Trout and Fishing in the Tribal Way of Life

16. See Walker, Jr., ed., *Vol. 12, Handbook of North American Indian: Plateau*, 298. This territorial description includes the Kalispels, sometimes referred to as the lower Pend d'Oreille.

17. Roll and Hackenberger note that “anadromous fish represent the only significant food resource for which a presence/absence contrast exists between the two regions of the Eastern Plateau,” in reference to those distinct areas above and below major falls on the various rivers that blocked further upstream movement of salmon. “Prehistory of the Eastern Plateau,” in Walker, Jr., ed. *Vol. 12, Handbook of North American Indians: Plateau*, 120. The Northern Rockies’ lack of megafauna could arguably be extended to the eastern Plateau, whose tribes, interestingly, were so closely tied to the Salish and Pend d'Oreille in the region’s intertribal economy and culture. For although salmon reached the territories of the Kalispel, Spokanes, Colvilles, and others, by the time they got there, they were of rather poor quality. Richard White has noted that a salmon caught by the Nez Perce near the Snake River contained only 52 percent of the caloric value it had when it began its journey at the mouth of the Columbia. *The Organic Machine* (New York: Hill and Wang, 1995), 17. Bull trout, incidentally, probably did not suffer nearly as great a degradation in caloric value as they swam upstream to spawn. Although there appear to be no studies as yet documenting this issue for bull trout (a reflection of the paucity of research funds dedicated to bull trout as compared to salmon), bull trout swam far shorter distances to spawning beds than did most salmon, and unlike salmon, they did not expend all their energy in the process. Indeed, fluvial and adfluvial bull trout, once they reached adulthood, spawned every year in food-rich river systems, and every other year in less abundant environments.

18. For an illuminating exploration of the dynamic environmental history surrounding the decimation of American bison and native peoples, see Andrew C. Isenberg, *The Destruction of the Bison: An Environmental History, 1750-1920* (New York: Cambridge University Press, 2000). Isenberg traces the history of increasing native dependence on bison, partly in response to the major transformations of the eighteenth century – particularly the introduction of horses and non-native diseases such as smallpox. Isenberg reveals how the increasing dependence of Plains tribes on bison made both more vulnerable, particularly as the market forces of the nineteenth century intensified the demand for hides and meat. Those historical trends certainly also apply to the Salish and Pend d'Oreille (and other more westerly tribes) – but to a lesser extent. That difference of degree, which had significant implications for the well-being of the tribes, was in part due to the greater abundance of fish and other food resources west of the Continental Divide.

For an indication of the extent of climate change in the region in the millennia following the end of the ice age, see also Mark E. Lyford, Julio L. Betancourt, and Stephen T. Jackson, “Holocene Vegetation and Climate History of the Northern Bighorn Basin, Southern Montana,” *Quaternary Research* 58 (2002), 171–181. The authors found that there was significant climatic cooling between 4400 and 2700 years B.P., with marked changes in the occurrence of juniper species in the area they examined. See also William W. Locke, “Late

Pleistocene glaciers and climate of western Montana,” *Arctic and Alpine Research*, vol. 22 (1990), 1-13. Geologists date the current epoch, the Holocene, as beginning about 11,700 B.P., around the time the ice age ended in western Montana. Within the Holocene, some scientists define “chronozones,” including the Preboreal (10,000-9,000 B.P.), Boreal (9,000-8,000), Atlantic (8,000-5,000), Subboreal (5,000-2,500) and Subatlantic (2,500-present). Even within the Subatlantic chronozone, it is probable that there were also significant climate events of smaller duration of similar magnitude to the “year without summer” in 1816, following the eruption of Mt. Tambora in Indonesia in 1815. Stratovolcanoes of comparable violence exploded in 969 A.D. (Baekdu Mountain on the Korean-Chinese border) and c. 186 A.D. (Lake Taupo, in New Zealand).

19. Salish elders told James Teit in the early twentieth century that “although buffalo were very plentiful in their territory they were difficult to hunt, and as other game was also very plentiful buffalo was not the all important food & animal for food, and clothing that if afterwards became[.]” (Strikethrough in original.) James Teit correspondence within Franz Boas papers, collection B61, folder “Tribal territories and boundaries,” American Philosophical Society, Philadelphia, PA. As late as the 1830s, the fur trader William Ferris observed bison along the upper Clark Fork River. Ferris, *Life in the Rocky Mountains: A Diary of Wanderings on the sources of the Rivers Missouri, Columbia, and Colorado, 1830-1835*, ed. Leroy R. Hafen and with a biography of Ferris by Paul C. Phillips (Denver: the Old West Publishing Company, 1983), 233.

20. In the SPCC archives, tribal elders have related many stories of going west for salmon, and early ethnographers also referred at numerous points to this part of the subsistence strategy. Some accounts describe fishing in places such as the Clearwater River drainage in Idaho, while others describe traveling to major fishing sites such as Kettle Falls, where people fished for *sm̓i* (general term for salmon), *ntk̓^wus* (sockeye), and *x^wméne?* (steelhead). Reports of Salish and Pend d’Oreille people going west for salmon also turn up in many government records. During hearings of the Indian Claims Commission in Missoula, Montana in 1952, Salish elder Ellen Bigsam spoke to the court of the Salmon River country in central Idaho, saying, “I know everything over in that country.... We go over there hunt deer, white tail deer, black tail deer and salmon; fish salmon.” One of the expert witnesses who testified before the commission, E.O. Fuller, noted frequent Salish visits to Nez Perce territory, for which “probably the principal motive” was fishing for salmon. George Tunison, *Depositions Filed Before the Indian Claims Commission* (Docket 61: Confederated Salish and Kootenai Tribes of the Flathead Reservation, Montana, Petitioner, vs. the United States of America, Defendant, taken at Missoula County Courthouse, Missoula, MT: October 27-31, 1952), Vol. 2., pp. 8-9, and Vol. 1, pp. 331-332.

21. I.I. Stevens, *Report of Explorations for a Route for the Pacific Railroad near the Forty-seventh and Forty-ninth Parallels of North Latitude, from St. Paul to Puget Sound*, 33rd Congress, 2nd sess., House Executive Doc. No. 91, serial 791 (Washington, D.C.: 1855), Vol. 1, 326 and 321.

22. Stevens, *Report of Explorations*, 328. The citations in this and the previous endnote are only typical examples of the seemingly contradictory observations of abundance and scarcity that appear throughout the Stevens reports. For observations of abundance, see also pp. 262, 263, 264, 278, 305-306, 308, 310, 312, 327, 332, 333, 339, 340, 342, 343, 348, 349, 520, 521, 526, 530. For observations of scarcity, see also pp. 262, 303, 304, 311, 312, 313, 314, 316, 327, 328, and 337.

23. See Salish-Pend d'Oreille Culture Committee and Elders Advisory Council, Confederated Salish and Kootenai Tribes, *The Salish People and the Lewis and Clark Expedition* (Lincoln: The University of Nebraska Press, 2005), 91-108.

24. Suttles' landmark essay, "Coping with Abundance: Subsistence on the Northwest Coast," appeared in the influential anthology *Man the Hunter*, ed. Richard Lee and Irvin DeVore (Chicago: Aldine, 1968), 56-68.

25. See the award-winning interactive DVD *Fire on the Land*, by the Confederated Salish and Kootenai Tribes (Lincoln: distributed by the University of Nebraska Press, 2007) for scientific material on the ecology of fire, cultural information on the tribal conception of fire, and a series of forty historical essays, by the author of this essay, on the tribal use of fire and its repression over the past two centuries.

26. Donald Hardesty has noted that for hunter-gatherers, "a large quantity of starchy roots may not be nearly as important as...a small quantity of high-quality protein." He adds that "a food available only in small quantity and ordinarily ignored may be the one that at critical moments prevents starvation." *Ecological Anthropology* (New York: John Wiley & Sons, 1977), 112 and 115. See also Loren Cordain, Janette Brand Miller, S. Boyd Eaton, Neil Mann, Susanne H.A. Holt, and John D. Speth, "Plant-animal subsistence ratios and macronutrient energy estimations in worldwide hunter-gatherer diets," *American Journal of Clinical Nutrition*, vol. 71 (2000), 682-692. This study is by its very nature broad and generalized, but the authors do note that "whenever and wherever it was ecologically possible, hunter-gatherers consumed high amounts (45-65% of energy) of animal food," with protein constituting 19 to 35% of food energy consumed, carbohydrates 22 to 40%, and fats 28 to 58%. By comparison, the authors say, the average percentages in the contemporary U.S. diet are 15.5% from protein, 49% from carbohydrates, and 34% from fat. The authors also cite "anthropologic and medical studies of hunter-gatherer societies" indicating "that these people were relatively free of many of the chronic degenerative diseases and disease symptoms that plague modern societies and that this freedom from disease was attributable in part to their diet." For an illuminating consideration of the parallels of native fishing practices in a different area (in this case, California), see Arthur F. McEvoy, chapter 2, "Aboriginal fishery management," in *The Fisherman's Problem: Ecology and Law in the California Fisheries, 1850-1980* (New York: Cambridge University Press, 1986).

27. Eneas Pierre, SPCC tape 13, side 2 (1975). On tape 39, side 2 (1975), Mr. Pierre states of the Stevensville winter camp, "A creek on the other side is where they spend their winters, because there were many fish there. That's where they would spend their winters."

28. U.S. Fish and Wildlife Service (USFWS), *Bull trout (Salvelinus confluentus) draft recovery plan*, Chapter 3, Clark Fork River Recovery Unit, Montana, Idaho, and Washington (Portland, Oregon: U.S. Fish and Wildlife Service, 2002) (hereinafter USFWS Clark Fork Recovery), 10: “The Bitterroot River is formed at the junction of the East Fork and West Fork Bitterroot Rivers near the town of Conner, Montana, and from there, the mainstem flows north...approximately 137 kilometers (85 miles) to the Clark Fork River near Missoula...The Bitterroot River has 27 major tributaries on the west side and 12 on the east side, many of which today contain resident bull trout populations. It is speculated, though not documented, that many of these populations historically had a strong migratory component.”

29. Gordon W. Hewes, “The Rubric ‘Fishing and Fisheries’,” *American Anthropologist*, vol. 50, no. 2 (April-June 1948), 244. His essay was part of his Ph.D. dissertation, “Aboriginal Use of Fishery Resources in Northwestern North America” (University of California, Berkeley, 1947). Hewes interestingly noted that “In the ratio of weight to nutritional efficiency (measured in calories) dried salmon is superior to the cereals...The increased volume of food which intensive agriculture makes possible does not necessarily mean that the individual diets have improved in quality. The reverse is more likely.”

30. James A. Teit, “The Salishan Tribes of the Western Plateaus,” ed. Franz Boas, *Annual Report of the Bureau of American Ethnology*, no. 45 (1927-28), 348. Virtually all subsequent scholars studying the Salish and Pend d’Oreille repeated Teit’s basic message of fish having almost no importance to the Salish, but somewhat greater importance to the Pend d’Oreille. None of the researchers went much farther than that; none developed a more sophisticated understanding of fish within the tribal modes of subsistence and tribal history.

A quarter century later, George Weisel almost repeated Teit verbatim: “Although fish were extensively used for food by the Flathead, fishing contributed much less to their livelihood than hunting.” Like Teit, Weisel did make the point that in comparison to the Salish, the Pend d’Oreille, Kalispel, and Spokane “were much more dependent on fisheries.” Weisel, “Ethnozoology of the Flathead Indians,” *Journal of the Washington Academy of Sciences*, Vol. 42, no. 11, Nov. 1952, 346. Weisel also seems to have been simply incorrect in regard to both the extent of the native fishery and the relationship between fish as a food resource and the Salish mode of subsistence: “There were no large runs of fish in their streams that could be relied on to furnish ample provender at certain times of year.” Weisel’s erroneous statement regarding the fishery is surprising, given his authoritative knowledge of ichthyology in Montana -- among other things, he was the author of *Fish Guide for Intermountain Montana* (Missoula: Montana State University Press, 1957).

In his deposition before the Indian Claims Commission in 1952, the University of Montana anthropologist Carling Malouf presented a similar picture, but provided more detail in his description of Pend d’Oreille fishing practices: “Of the three tribes in the petition,” he stated, “the Pend d’Oreille did more fishing. They had fish weirs, as David Thompson mentions in his book, at the mouths of many of these side streams, some of which we can specifically name near Thompson Falls.... We also have informant data that substantiates this. They also fished in Lake Pend d’Oreille, that is, they would go down there on occasion, and in Flathead Lake there was some fishing, but mainly in the streams. The Kootenai also fished for a good part of

their subsistence. The Flatheads did some fishing, but not to the extent of the other two groups.” Tunison, *Depositions*, Vol. 1, p. 160.

Gordon Hewes, in his chapter on “Fishing” in Vol. 12 of the Smithsonian *Handbook of North American Indians*, gives similarly thin analysis to fishing among the Salish and Pend d’Oreille, even as he detailed the numerous methods employed by the tribes. Walker, Jr. ed., *Vol. 12: Plateau*, 631. Hewes looks in greater depth at Kootenai fishing, arguing that the “systematic” emphasis they gave to fishing “set them off from their Plains neighbors” and suggested a mode of subsistence more typical of Plateau cultures.

31. *Salvelinus* -- also known as char -- is the genus to which bull trout belongs within the *salmonidae* family of fish. Other members of the char or *Salvelinus* genus include *Salvelinus alpinus* (Arctic char), *Salvelinus malma* (Dolly Varden trout), and *Salvelinus fontinalis* (eastern brook trout).

32. Of those original populations, the McCloud River bull trout is now extinct, and many other populations have been reduced to the stream resident form, with the adfluvial and fluvial forms virtually eliminated by the construction of dams on mainstem rivers. Information and sources in this and the following three paragraphs provided by David Rockwell and Craig Barfoot, emails to author, Dec. and Jan. 2009.

33. For the adfluvial form of bull trout, Canadian scientists sometimes use the longer term “lacustrine-adfluvial.” In the Puget Sound-Strait of Georgia region of the Pacific Northwest, Canadian researchers have found “slim” evidence for the existence of anadromous bull trout -- fish that, like ocean-going salmon, spawn in freshwater streams and grow into large adults in the sea. See J.D. McPhail and J. S. Baxter, “A review of bull trout (*Salvelinus confluentus*) life-history and habitat use in relation to compensation and improvement opportunities” (Vancouver, B.C.: Fisheries Management Report No. 104, Department of Zoology, University of British Columbia, 1996). McPhail and Baxter note that bull trout “has had a confused taxonomic history, and its specific distinction from the Dolly Varden (*Salvelinus malma*) is still in doubt. In the areas where the two nominal species overlap there is evidence of hybridization and even introgression.” S.G. Cannings and J. Ptolemy, in “Rare Freshwater Fish of British Columbia” (Victoria, B.C.: Ministry of Environment, Lands, and Parks, 1998), say that “cytological and genetic studies suggest that a) these two char species are not sister taxa and b) that Dolly Varden are more closely related to Arctic char (*S. alpinus*) while bull trout are more closely related to the white spotted char (*S. leucomaenis*) of Asia.” See also Montana Bull Trout Restoration Team, “Restoration plan for bull trout in the Clark Fork River basin and Kootenai River basin, Montana” (Helena, MT: Montana Department of Fish, Wildlife and Parks, June 2000); Montana Field Guide, Bull Trout — *Salvelinus confluentus*, retrieved 18 Jan. 2009, from http://FieldGuide.mt.gov/detail_AFCHA05020.aspx; and Montana Fish, Wildlife, and Parks webpage on bull trout, retrieved 18 Jan. 2009, from <http://fwp.mt.gov/wildthings/tande/bulltrout.html>.

34. Perhaps the majority of bull trout, if considered over their entire range, spawn every year. However, there are great variations in spawning frequency between populations inhabiting different river systems. One study in the Clearwater River of Alberta found that only

27% of tagged adult bull trout returned to spawn the next year. By contrast, a study in Flathead Lake suggests that an average year of about 60% of the adult bull trout in that system spawn every year. The oldest bull trout recorded to date was 24 years old, found in the upper North Thompson River of the Fraser system in British Columbia. David Rockwell, email to author, 18 Jan. 2009.

35. Females arrive at spawning sites -- called redds -- between August and November. There, the female swims onto her side and vigorously sweeps her caudal fin across the streambed to clean it of sediments, working to create a pit or nest. She then deposits her eggs, and an awaiting male covers the redd with a cloud of milt, after which the female covers the eggs with gravel. While the water must be very cold, it also must not freeze, so females often choose to create their redds in areas of streams where there are upwellings of groundwater that keep the temperature consistent. Successful redds also require sediment-free gravels and cobbles, and a constant flow of well-oxygenated water flowing over the buried, incubating eggs. Females therefore often locate their redds where a pool transitions to a riffle. There, the change in depth forces aerated water downward into the gravels and over the eggs. The remarkable process of redd construction is considerably more complicated and nuanced than is reflected in this very brief summary. For an excellent exposition of bull trout spawning, see the interactive DVD/website for which this essay was written, *Explore the River: Bull Trout, Tribal People, and the Jocko River* (Pablo, Montana: Confederated Salish and Kootenai Tribes, forthcoming 2011, to be distributed by the University of Nebraska Press). See also Montana Fish, Wildlife, and Parks webpage on bull trout, retrieved 18 Jan. 2009, from <http://fwp.mt.gov/wildthings/tande/bulltrout.html>.

36. See John J. Fraley and Bradley B. Shepard, "Life History, Ecology and Population Status of Migratory Bull Trout (*Salvelinus confluentus*) in the Flathead Lake and River System, Montana," *Northwest Science*, Vol. 63, No. 4, 1989, 133-143. Scientists are now conducting genetic studies of bull trout in the Clark Fork River that may help determine, among other things, whether there were populations that covered the far greater distance from Lake Pend Oreille to the Clark Fork's headwaters near present-day Butte -- a total of over 560 kilometers (over 350 miles). This is certainly indicated by information from Salish-Pend d'Oreille elders, including the placename for Butte -- *Sntapqey*, meaning Place Where Something was Shot in the Head, in reference to the harvesting of bull trout in Silver Bow Creek using bows and arrows.

37. Joe Eneas, SPCC videotape, 20 Jan. 1993.

38. Joe Eneas, interview for video documentary *The Place of the Falling Waters* (Salish Kootenai College Media Center and Native Voices Public Television Workshop, 1991) (hereinafter SKC Falling Waters project), videotape #1011 (14 Jun. 1989). Videotapes from this project are archived at the Salish Kootenai College Media Center, Pablo, MT.

39. Harriet Whitworth, interviewed with Felicite McDonald, 5 Oct. 1999 (transcript at SPCC).

40. Joe Cullooyah, SPCC wi, 26 Mar. 1998.

41. Louie Adams and John Peter Paul, SPCC wi, 21 Apr. 1997. Mr. Adams also recalled that his father said he would watch for a school of $x^w y^u$ (mountain whitefish) swimming by, and when he would see that, he would throw in a baited hook right behind the whitefish -- and most of the time, he would reel in a bull trout. Louie Adams, SPCC wi, 15 Jan. 2009.

42. Keith Basso, in his landmark study *Wisdom Sits in Places*, notes the power of Western Apache placenames as windows into tribal history and culture: “The people’s sense of place, their sense of their tribal past, and their vibrant sense of themselves are inseparably intertwined.” Basso saw that placenames are, for the Western Apache, living history in the most literal sense: “the country of the past -- and with it Apache history -- is never more than a narrated place-world away.” When Western Apache name their places, the narrator -- the “place-maker” -- has as his or her “main objective to speak the past into being, to summon it with words and give it dramatic form, they produce experience by forging ancestral worlds in which others can participate and readily lose themselves...thus performed and dramatized, Western Apache place-making becomes a form of narrative art, a type of historical theater in which the ‘pastness’ of the past is summarily stripped away and long-elapsed events are made to unfold as if before one’s eyes. It is history given largely in the active present tense (‘Now we are arriving...’).” *Wisdom Sits in Places: Landscape and Language among the Western Apache* (Albuquerque: University of New Mexico Press, 1996), 35, 32, 33.

43. This is the indication of preliminary data issuing from the Salish-Pend d’Oreille Culture Committee’s Ethnogeography Project. Final information will be presented in the culture committee’s forthcoming tribal atlas, *Names Upon the Land – Sk^wsk^wstúlex^ws: A Geography of the Salish and Pend d’Oreille People*.

44. Ellen Big Sam told George Weisel that at this site, bull trout (Weisel uses the term “dolly varden”), “trout were caught with a baited hook and a line of woven horsehair, or snagged with bone hooks. Ellen Big Sam demonstrated how the bone hooks were manufactured from the scapula of deer. This thin, flat bone, when fresh, was fractured easily and the slivers fashioned into a barbed point, which was then fastened with sinews to a straight piece of bone or to a small stick.” Weisel, “Ethnozoology,” 347. In 1891, U.S. Fish Commission biologist Barton W. Evermann seined the creek and caught six bull trout “6 ½ to 10 inches long,” even though the creek, and its suitability for bull trout, was already heavily impacted by upstream logging and the floating of logs downstream. Barton W. Evermann, “A Reconnaissance of the Streams and Lakes of Western Montana and Northwestern Wyoming,” in *Bulletin of the U.S. Fish Commission*, XI (Washington, D.C.: U.S. Government Printing Office, 1892, 3-60), 50.

45. The commonly used Salish placename for the Missoula area, *Ntʔay* (Place of the Small Bull Trout), employs the short form of the word for a stream-resident bull trout -- *aay*. The commonly used name for the Bonner area, *Nʔaycčstm* (Place of the Large Bull Trout), employs the long form of the word for an adult fluvial or adfluvial bull trout, *aaycčst*.

46. Allan Smith, deposition material for Kalispel case before U.S. Indian Court of Claims, p. 561, VII 2 E 1 - 37.01 (366). Steve Egesdal, draft for Kalispel Cultural Program, 2005-12-26. MS in possession of SPCC.

47. Eneas Granjo, notes of interview apparently conducted by Carling Malouf, c. 1952, in University of Montana Archives, Paul Phillips papers, Box 4, File 4-17, Flathead Litigation, No. 61 – Miscellaneous.

48. I.I. Stevens, *Report of Explorations*, 553, and Isaac I. Stevens, *Narrative and Final Report of Explorations for a Route for a Pacific Railroad, near the Forty-Seventh and Forty-ninth Parallels of North Latitude, from St. Paul to Puget Sound*, 1855, in *Reports of Explorations and Surveys, to Ascertain the Most Practicable and Economical Route for a Railroad from the Mississippi River to the Pacific Ocean*, made under the Direction of the Secretary of War, in 1853-5, According to Acts of Congress of March 3, 1853, May 31, 1854, and August 5, 1854, Volume XII, Book 1 (Washington: Thomas H. Ford, Printer, 1860), 212.

As we note, when Mullan used the vernacular term “salmon trout” in describing fish in the Blackfoot drainage, Flathead Lake, and other waters of western Montana, he was almost certainly referring to bull trout. Mullan at times mentions “trout” or “mountain trout,” but at other times refers to “salmon trout,” an apparent way of distinguishing between westslope cutthroat trout (*Oncorhynchus clarki lewisi*) and bull trout (at least the larger fluvial and adfluvial forms of bull trout), the only two trout native to western Montana. Note in the next passage quoted in this essay, Mullan gives a vivid description of bull trout harvested by Pend d’Oreille people in Flathead Lake, and refers to the fish as “salmon trout.” His descriptions match those of bull trout.

Nevertheless, given the ambiguities of vernacular terms for fish or other plants and animals, it is worth tracing the term “salmon trout.” While the *Dictionary of American Regional English* notes that the term *salmon trout* has been applied to “any of var[ious] freshwater or anadromous fishes of the family Salmonidae,” it also notes the common application of the term in the Northwest to the “Dolly Varden” trout -- *Salvelinus malma*, a char formerly thought to be indistinct from bull trout. DARE further notes that according to Tabbert’s *Dictionary of Alaskan English* (1991, p. 139), “In North American English *salmon trout* has been long and widely used to name various large fishes, including the lake trout, the cutthroat trout, and the steelhead. In Alaskan writing *salmon trout* has frequently been applied to the Dolly Varden.” “Salmon trout,” in Vol. IV, P-Sk, Joan Houston Hall, Chief Ed. (Cambridge, MA and London: The Belknap Press of Harvard University Press, 2002), 707; see also “Dolly Varden,” in Vol. II, D-H, Frederic G. Cassidy, Chief Ed., Joan Houston Hall, Associate Ed. (Cambridge, MA and London: The Belknap Press of Harvard University Press, 1991), 126, and “bull trout,” in Vol. I, A-C, Frederic G. Cassidy, Chief Ed. (Cambridge, MA and London: The Belknap Press of Harvard University Press, 1985), 453.

The usual application of the term “salmon trout” to trout of larger size is further reflected in the definition offered by the *American Heritage Dictionary*, which defines it as “broadly, any of various salmonlike fish, such as the brown trout, the lake trout, or the steelhead” (1973, p. 1145). In the April 1843 edition of the *Boston Journal of Natural History*, William O. Ayers wrote of a 15-pound brook trout caught on Long Island: “It was called by many who saw it a salmon trout, *on account of its great size* or perhaps some peculiarity in the coloring, but

the most experienced fisherman who was engaged in taking it (it was caught with a seine) considered it only a very large individual of the common brook trout.” *Emphasis* added. Quoted in Nick Karas, *Brook Trout* (Guilford, CT: The Lyons Press, 1997), 11-12.

In the Columbia system, the term “salmon trout” was also often applied to steelhead trout (*Oncorhynchus mykiss*), the ocean-going variant of rainbow trout. Dennis D. Dauble states, “Most naturalists agree that Lewis and Clark’s salmon-trout was an upstream migrating adult steelhead rather than another species of salmon.” “Adventures in Ichthyology: Pacific Northwest Fish of the Lewis and Clark Expedition,” *Columbia Magazine*, vol. 19, no. 3 (fall 2005). J.B. Tyrrell noted that “A local Indian name for the [Spokane] river is Sen-a-hom-a-na, meaning ‘river of salmon trout.’” Tyrrell was undoubtedly attempting a phonetic rendering of the Salish placename *Snx^wméne?*, which refers to the Spokane people and originally to their territory. The ethnographer James A. Teit, noted *Snx^wméne?* was the term for the Upper or Little Spokane tribe, adding, “Some think the term may originally have been the name of a locality in their country where these fish were abundant.” Teit, “Salishan Tribes,” 298. *Snx^wméne?* literally means “place of the steelhead,” combining the lexical prefix *sn-* (indicating “place”) with *x^wméne?*, the name for steelhead trout.

However, steelhead and other anadromous salmonids did not occur in western Montana, and neither did Dolly Varden (*Salvelinus malma*), the landlocked species often called both “lake trout” and salmon trout, and only recently distinguished from bull trout by scientists. (*Salvelinus malma* was initially the scientific term for both Dolly Varden and bull trout; later, when the two fish became distinguished as separate species, *Salvelinus malma* was reserved for Dolly Varden, while *Salvelinus confluentus* was applied to bull trout.) The only salmonids native to western Montana were bull trout, westslope cutthroat trout, mountain whitefish, and pygmy whitefish. And bull trout, in its fluvial and adfluvial forms, was by far the largest of any of the native fish in the area.

In 1891, the U.S. Fish Commission sent biologist Barton W. Evermann to investigate fisheries in western Montana; Evermann mentions at numerous points in his report “salmon trout or bull trout,” elsewhere distinguishes “salmon trout” from “common trout” (obviously referring to westslope cutthroat trout), and finally, in the listing of fish at the end of report, identifies “*Salvelinus malma*” (the scientific term originally applied to both Dolly Varden and bull trout) as “the salmon trout or bull trout.” Evermann, “Reconnaissance,” 12, 13, 14, 18, 50-51. In 1894, Evermann and Charles H. Gilbert co-authored “A Report Upon Investigations in the Columbia River Basin with Descriptions of Four New Species of Fishes,” in *Bulletin of the United States Fish Commission*, XIV (Washington, D.C.: U.S. Government Printing Office, 1894, 169-208); the report (p. 201) says that “in Montana, from Flathead Lake to Missoula,” *Salvelinus malma* “is called ‘salmon trout’ or ‘bull trout.’”

We can therefore feel exhaustively certain in assuming that bull trout (*Salvelinus confluentus*) is indeed the fish referred to by Mullan, and many other early travelers in western Montana, as “salmon trout.”

49. Stevens, *Report of Explorations*, 519.

50. Teit, “Salishan Tribes,” 311.

51. Carling Malouf, "Historical and Archaeological Sites and Objects," in Leo K. Cummins, *Impact Assessment: Forest Land of the Confederated Salish and Kootenai Tribes of the Flathead Reservation*, Montana (unpublished ms, April 1974).

52. Fishing may have been an even more important part of the Kootenai mode of subsistence. Pierre-Jean De Smet describes in considerable detail a "grand fish festival" among the Kootenai people held in August 1845, in which the tribe gathered in a large "rush mat" lodge, made "a fire fifty feet long" to heat stones, were led by the chief in prayers of thanks, boiled bowls of fish with the stones, and then ate in careful, prayerful silence. While any ethnographic information from De Smet should be regarded critically, this vivid anecdote certainly seems to provide additional evidence of the importance of fish to tribal people in the region. Pierre-Jean De Smet, S.J., *Oregon Missions and Travels over the Rocky Mountains in 1845-46* (Fairfield, WA: Ye Galleon Press, 1978; reprint of 1878 edition published by E. Dunigan, New York), 119-120.

53. Pete Beaverhead, SPCC tape 2, side 2 (1975).

54. The Salish and Pend d'Oreille did not seem to have as much defined group specialization with fishing or other parts of their subsistence strategy as did some neighboring tribes such as the Bannock and Nez Perce. See Hewes, "Fishing," in Walker, Jr. ed., *Vol. 12: Plateau*, 620-640.

55. Stevens, *Narrative and Final Report*, 211.

56. Interview of "Mose Chotoe [Chouteh or Čxawte] (Blind Mose)", 7 Nov. 1956, St. Ignatius, Montana, by Robert C. Carriker and Thomas Connally, S.J. In audio collections of American Indian Research Project, University of South Dakota, Vermillion, South Dakota. Reporting on the same area of the lower Clark Fork system in the mid-nineteenth century, Isaac Stevens echoed Mr. Chouteh's account, noting, "In summer the Indians live principally on fish, which they catch not only by wiers [sic] and fish-traps, but by the hook and line and by spearing." Stevens, *Report of Explorations*, 296.

57. Pete Beaverhead, SPCC tape 69, side 2 (1975). Mr. Beaverhead said that the Pend d'Oreille also harvested the fish during the spring spawning runs. SPCC tape 46, side 1 (1975).

58. Pete Beaverhead, SPCC tape 3, side 2 (1975).

Chapter 3: Fishing, Bull Trout, and the Confidence of Tribal People

59. Pete Beaverhead, SPCC tape 49, side 1 (1975) and tape 75, side 1 (1975).

60. "Mengarini's Narrative of the Rockies: Memoirs of Old Oregon, 1841-1850, and St. Mary's Mission," ed. Albert J. Partoll (*Sources of Northwest History*, No. 25. Missoula, MT: Montana State University, n.d. Originally published in *Frontier and Midland*, 1938), p. 5. Saxa was born in 1822 and died at age 97 in 1919.

61. Pierre-Jean De Smet, S.J., *Oregon Missions and Travels*, 291.

62. *Life, Letters and Travels of Father Pierre-Jean De Smet, S.J. 1801-1873*, ed. by Hiram Martin Chittenden and Alfred Talbot Richardson (New York: Francis P. Harper, 1905; repr. New York: Kraus Reprint Co., 1969), vol. III, pp. 992-994.

63. Rev. Samuel Parker, *Journal of an Exploring Tour Beyond the Rocky Mountains*, 5th ed. (Auburn: J.C. Derby & Co., 1846), 302-304.

64. De Smet, *Oregon Missions and Travels*, 115-116.

65. De Smet, *Oregon Missions and Travels*, 115-116. Interestingly, Isaac Stevens felt a similar need to tamp down his account of the extraordinary Kootenai fishery with almost nonsensical assertions that their apparently easy way of life was undesirable. After noting that "the waters of the Kootenaie river afford them, at all seasons, a bountiful supply of the salmon-trout," and that all the Kootenais had to do was simply "enjoy the blessings and favors fortune has placed at their disposal," Stevens declared that this was a "sluggish and miserable independence." Stevens felt it unnecessary to explain how this "independence" was "miserable." We can only assume that it was because the Kootenai way of life did not involve enough hard work. Isaac I. Stevens, *Report of Explorations*, 523.

66. De Smet's seemingly conflicted feelings about the tribal mode of subsistence is also reflected in his comments on the plant foods of the Salish and Pend d'Oreille, which he noted included "the thorny bush which bears a sweet, pleasant, blackberry; the rose-buds, mountain cherry, cormier or service berry, various sorts of gooseberries and currants of excellent flavor; raspberries, the hawthorn berry, the wappato, (*sagitta-folia*), a very nourishing, bulbous root; the bitter root, whose appellation sufficiently denotes its peculiar quality, is however, very healthy; it grows in light, dry, sandy soil, as also the caious or biscuit root...the watery potatoe...the small onion; the sweet onion...strawberries are common and delicious... the camash root...is abundant, and, I may say, is the queen root of this clime...it is excellent, especially when boiled with meat; if kept dry, it can be preserved a long time." Yet the missionary emphasized that "To this catalogue I could add a number of detestable fruits and roots which serve as nutriment for the Indians, but at which a *civilized* stomach would revolt and nauseate." One of the staple plant foods for all tribes in the region is tree lichen or "moss," which grows in lodgepole pine forests and is baked in pits with camas and other foods. It is

regarded as a slightly sweet treat, a cherished food, by Salish, Pend d'Oreille, and Kootenai people. De Smet, however, viewed this as "a most miserable food" that "appears more suitable for mattresses, than for the sustenance of human life." So strong were De Smet's dietary prejudices that he assumed that Indian people only ate the baked lichen when "their hunger becomes so extreme, that they are reduced to subsist on moss." De Smet, *Oregon Missions and Travels*, 116-118.

67. See Timothy Weiskel, "The Terrain and Main Components of Debate," lecture for ENVR E-120: Environmental Ethics and Land Management, Harvard University Extension School, fall 2006. <http://ecojustice.net/2006-ENVRE120/Slides/20061012-Session-4.pdf>

68. Stevens, *Report of Explorations*, 311.

69. Stevens, *Narrative and Final Report*, 125.

70. Stevens, *Report of Explorations*, 311. Mullan said that the behavior of the Salish "contrast[ed] well with our Blackfeet friends, who had just left us, who made free with anything belonging to us, and who looked upon our table as their own." It might be worth investigating whether the different ecology and less diverse resources of Blackfeet territory contributed to a less secure attitude toward food.

71. *The Correspondence and Journals of Captain Nathaniel J. Wyeth, 1831-6*, Sources of the History of Oregon: v. 1, pts. 23-6 (Eugene, Ore.: University Press, 1899), 40. A more recent edition is *The Journals of Captain Nathaniel J. Wyeth's Expeditions to the Oregon Country, 1831-1836*, ed. Don Johnson (Fairfield, Washington: Ye Galleon Press, 1984).

72. Wyeth, p. 9.

73. De Smet, *Oregon Missions and Travels*, 218.

74. Stevens, *Report of Explorations*, 102.

75. Stevens, *Report of Explorations*, 262.

76. Stevens, *Narrative and Final Report*, 124.

77. Stevens, *Report of Explorations*, 526. Observed in May 1854.

78. Stevens, *Report of Explorations*, 523 and *Narrative and Final Report*, 179.

79. Stevens, *Report of Explorations*, 293.

80. Stevens, *Report of Explorations*, 296.

81. Stevens, *Report of Explorations*, 296. Suckley's statement may be one of the few examples where the importance of fish in the tribal mode of subsistence was somewhat overstated, but the importance of his remark here is that fish were available, and were harvested by Indian people in the region, at all times of year and by many different methods.

82. *Narrative and Final Report*, 205. It may be noted that David Thompson, traveling along the lower Clark Fork near Thompson Falls in early June, 1811, built a cedar canoe "on the banks of a small River [a tributary of the Clark Fork], where the Indians had a Weir for fish; on all the Streams that come from, or form [a] Lake, there are Weirs at which the Natives catch Mulletts, gray Carp, and small Trout; the gray Carp is a tolerable good [fish], much like the red Carp of Canada; but all the Streams that have no Lake are without fish." *David Thompson's Narrative of His Explorations in Western America, 1784-1812*, ed. J.B. Tyrrell (Toronto: The Champlain Society, 1916), 460-461.

83. Stevens, *Report of Explorations*, 277. Observed in October, 1853. We have already seen Lieutenant Mullan's report on his encounter with Pend d'Oreille people at Nčmqné (the outlet of Flathead Lake) in April 1854, where he remarked on how "this lake, and also the Clark's fork here [i.e., the lower Flathead River], abounds in excellent fish, the salmon-trout being the most abundant. These latter are caught from the lake, often measuring three feet long. It forms one of the chief articles of food for the Pend d'Oreilles at this season." Stevens, *Report of Explorations*, 519.

84. Stevens, *Report of Explorations*, 520. For discussion of term "salmon trout," see FN 48.

85. Stevens, *Report of Explorations*, 520. Mullan was probably observing the streams now known as Big Lodge, Forrey, and Stoner Creeks.

Chapter 4: Bull Trout and Fishing in a Narrowing World

86. Elizabeth A. Fenn examines the complicated interconnected histories of horses and smallpox in *Pox Americana: The Great Smallpox Epidemic of 1775-1782* (New York: Hill and Wang, 2001). See especially p. 222. A detailed accounting of the history of introduced diseases in the region is provided by Robert T. Boyd in “Demographic History until 1990,” in Walker, Jr., ed., *Handbook, Vol. 12: Plateau*, 467-483. Boyd wrote the best history of the impact of non-native diseases in the Pacific Northwest, *The Coming of the Spirit of Pestilence: Introduced Infectious Diseases and Population Decline among Northwest Coast Indians, 1774-1874* (Seattle and London: University of Washington Press, 1999), based on his Ph.D. dissertation, “The Introduction of Infectious Diseases among the Indians of the Pacific Northwest, 1774-1874” (University of Washington, Seattle, 1985). Sarah K. Campbell’s archaeological work has found that burial patterns indicated sudden disruptions in life in the Middle Columbia Plateau in the mid-sixteenth century -- perhaps evidence of a smallpox pandemic beginning in 1519. See Campbell, “Post-Columbian Culture History in the Northern Columbia Plateau: A.D. 1500-1900” (doctoral dissertation, University of Washington, Seattle, 1989). Cole Harris, “Voices of Disaster: Smallpox around the Strait of Georgia in 1782,” *Ethnohistory* 41 (4) (Fall 1994), 591-627, is also an important study of the impact of smallpox epidemics in the region prior to 1800. One of the earliest works to focus on the issue in this region was Leslie M. Scott, “Indian Diseases as Aids to Pacific Northwest Settlement,” *Oregon Historical Quarterly* 29 (2) (1928), 144-161.

There are also numerous anecdotal records of smallpox and other epidemics striking Salish-Pend d’Oreille communities. Early observations of non-Indian explorers, fur trappers, traders, and missionaries include the Lewis and Clark journals; Claude E. Schaeffer, *LeBlanc and LeGasse: Predecessors of David Thompson in the Columbia Plateau*, Studies in Plains Anthropology 3 (Browning, Montana: Museum of the Plains Indian, Indian Arts and Crafts Board, U.S. Department of the Interior, 1966); *David Thompson’s Journals Relating to Montana and Adjacent Regions, 1808-1812*, ed. and with an introduction by M. Catherine White (Missoula, Montana: Montana State University Press, 1950) and *David Thompson’s Narrative of His Explorations in Western America, 1784-1812*, ed. J.B. Tyrrell (Toronto: The Champlain Society, 1916), especially chapter XXI, “Small Pox Among the Indians,” which includes detailed accounts of the 1780 epidemic from Thompson’s first-hand observations and through the account of a Piegan elder; Alexander Ross, *Adventures of the First Settlers on the Oregon or Columbia River*, ed. Milo Milton Quaife (Chicago: Lakeside Press, R.R. Donnelly & Sons, Inc., 1923); *Fur Trade and Empire: George Simpson’s Journal*, ed. Frederick Merk (Cambridge, Mass.: The Belknap Press of Harvard University Press, 1968); Warren Ferris, *Life in the Rocky Mountains*, ed. Paul C. Phillips (Denver, CO: The Old West Publishing Company, 1940); Harry M. Majors, “John McClellan in the Montana Rockies 1807: The First Americans after Lewis and Clark,” *Northwest Discovery* 2 (19), 554-630; Gregory Mengarini, *Recollections of the Flathead Mission, Containing Brief Observations both Ancient and Contemporary Concerning this Particular Nation*, translated, edited, & with a biographical introduction by Gloria T. Lothrop (Glendale, CA: Arthur H. Clark Co., 1977); and Stevens, *Reports of Explorations*. In addition, numerous tribal accounts appear in the SPCC oral history archives as well as the ethnographic notes of James Teit, Claude Schaeffer, and Edward

Curtis. These include a story of smallpox striking a Plains Kootenai band and leaving only a single survivor. Fenn offers a good accounting of biological explanations for the extraordinary mortality rates of native people afflicted by smallpox (hemorrhagic smallpox, she notes, killed 97 to 100% of its indigenous victims) in *Pox Americana*, 253. See also “The Genetics of Vulnerability” in Charles C. Mann, *1491: New Revelations of the Americas Before Columbus* (New York: Vintage Books, 2005), 112-118.

This mounting body of scholarship and documentation has made it clear that by the early nineteenth century, epidemics had already been wreaking havoc among the Salish and Pend d’Oreille for at least decades and perhaps even for centuries.

87. Boyd found that figures gathered by James Teit yield “a minimal aboriginal Plateau culture area estimate of 87,000. Considering the usual mortality on ‘virgin soil,’ the number may be much higher.” In Walker, Jr., ed., *Handbook, Vol. 12: Plateau*, 472. James Teit estimated the pre-white population of the Salish and Pend d’Oreille at 15,000, basing his figure on rudimentary knowledge of the extent and impact of smallpox and other diseases before the arrival of Lewis and Clark. Teit, “Salishan Tribes,” 314.

Fenn and Boyd are part of a growing number of researchers contributing toward more advanced methods of population and disease analysis with a rigorous reexamination of archival sources to develop revised population estimates of native populations. Where earlier scholars tended to rely almost solely on the shaky head counts of early white visitors to tribal territories, historical demographers like Boyd have employed a far wider range of evidence, including analysis of shifting land use patterns as reflected in fire histories, records relating to the spread of horses and inter-tribal territories, and perhaps most importantly, tribal oral histories. Virtually all contemporary scholars have revised upward, in some cases dramatically, the first estimates of pre-Columbian native populations developed by anthropologists such as James Mooney, who wrote the influential *The Aboriginal Population of America North of Mexico*, ed. by J.S. Swanton (Washington, D.C.: Smithsonian Miscellaneous Collections LXXX, no. 7, 1928). However, there remain wide disparities in the scholarship. Some of the highest population estimates came from Henry Dobyns’ seminal work in the field, *Their Numbers Become Thinned: Native American Population Dynamics in Eastern North America* (Knoxville: University of Tennessee Press, 1983). Dobyns wrote that native populations throughout the Americas were radically reduced by the spread of smallpox in the sixteenth century after its introduction into Mexico by the Spanish conquistadors. Since Dobyns, most historians and anthropologists have arrived at lower figures, but still much higher than the early estimates of Mooney et. al. Other researchers have been less committal in estimating population numbers, but have at the same time argued for far-reaching impacts from these epidemics and extensive re-evaluation of early Native American history (e.g., Daniel T. Reff, *Disease, Depopulation, and Culture Change in Northwestern New Spain, 1518-1764* (Salt Lake City: University of Utah Press, 1991)). For a popular overview of the scholarly research and disagreements over this issue, see Mann, *1491*, particularly “Part One: Numbers from Nowhere?”

Our own estimates of combined Salish-Pend d’Oreille population -- a range of between 20,000 and 60,000 before the diseases struck, and between 2,000 and 8,000 by about 1800 -- are developed from a review of all these materials, and surveys of the resource base that sustained the tribes. These population estimates encompass bands and groups throughout

the vast pre-1700 original aboriginal territories of both tribes, ranging from the Musselshell country to the east to the Pend Oreille River in the west. We would emphasize that these are only informed estimates, and that more work needs to be done in this important area of research.

88. The change in tribal territories, and its causation, is documented in many sources, tribal and non-Indian. One of the earliest of the latter chroniclers, David Thompson described the high plains of Montana and southwestern Alberta, and remarked that “All these Plains, which are now the hunting grounds of the above Indians [Piegan, Blood, and Blackfeet], were formerly in full possession of the Kootanaes, northward; the next the Saleesh and their allies, and the most southern, the Snake Indians and their tribes.” *David Thompson’s Narrative*, 327-328. See also Teit, “Salishan Tribes.”

89. In April 1810, Thompson noted, “The Saleesh Indians during the winter [of 1809-1810] had traded upwards of twenty guns from me, with several hundreds of iron arrow heads, with which they thought themselves a fair match for the Peegan Indians in battle on the Plains.” Thompson went on to describe an armed conflict in July 1810 somewhere on Montana’s Rocky Mountain Front, in which 150 Salish (or Pend d’Oreille -- it is difficult to tell from Thompson’s text) warriors directly engaged, and bested, a somewhat larger Blackfeet force. “This was the first time the Peegans were in a manner defeated,” wrote Thompson, “and they determined to wreck [wreak] their vengeance on the white men who crossed the mountains to the west side; and furnished arms and ammunition to their Enemies.” *David Thompson’s Narrative*, 423-425.

90. See William E. Farr, “Going to Buffalo: Indian Hunting Migrations across the Rocky Mountains,” “Part 1: Making Meat and Taking Robes,” *Montana: The Magazine of Western History*, vol. 53, no. 4 (winter 2003), and “Part 2, Civilian Permits, Army Escorts,” *Montana: The Magazine of Western History*, vol. 54, no. 1 (spring 2004), 26-44. Farr also chronicles the fascinating period in which the U.S. Army traveled with and protected western tribes on their bison hunts -- a right guaranteed to them under the terms of the October 1855 Judith River treaty. Farr does not quite acknowledge that the plains bison hunting areas were older Salish-Pend d’Oreille territories, but this is overwhelmingly indicated by both ethnographic sources (Teit, Schaeffer, Malouf, Curtis) and tribal oral histories.

91. As Alexander Ross of Hudson’s Bay wrote, “men accustomed to an indolent and roving life [will not] submit to the drudgery of killing beavers. They spurned the idea of crawling about in search of furs...They were, moreover, insolent and independent.” Ross, *Adventures of the First Settlers*, 235-236. George Simpson, the Governor of Hudson’s Bay’s Northern Department, noted in 1824 that “the Indians cannot be prevailed upon to exert themselves in hunting.” *Fur Trade and Empire*, 54.

92. See Thompson Smith, “The Ecology of a Massacre: Indian-White Relations on the Columbia Plateau, 1805-1847” (senior essay, American Studies Program, Yale University, 1983), and Jennifer Ott, “‘Ruining’ the Rivers in the Snake Country: the Hudson’s Bay Company’s Fur Desert Policy,” *Oregon Historical Quarterly*, vol. 104, no. 2 (2003).

93. During this period Hudson's Bay removed over 35,000 beaver pelts from what they called "the Snake River country," with some 18,000 -- over half -- harvested under Ogden's command. See Ott, "'Ruining' the Rivers."

94. On the one hand, beaver dams may present barriers to spawning bull trout, and the construction of dams may increase sediment loads, at least temporarily, thereby increasing the mortality of incubating eggs. Ken Huston, an early resident of the Swan Valley, recalled how people in the early to mid-twentieth century would regularly remove beaver dams from places they knew were used by bull trout for spawning (interview by Suzanne Vernon, September 9, 1999, transcript at Swan Ecosystem Center). But on the other hand, the destruction of beaver dams also would increase sediment loads. And beaver ponds provided habitat for some bull trout populations for both wintering and for the development of young fish. (Mr. Huston also asserted that westslope cutthroat wintered in beaver ponds in the Swan Valley: "All the cutthroat wouldn't migrate back to the Flathead Lake. They'd come up these little creeks and get above beaver dams. And they would stay there year 'round. So we had good fishing in Swan River twelve months a year.") It must be considered, of course, that bull trout and beaver co-evolved in the Northern Rockies, and before the disturbances of the last two centuries, both were abundant -- particularly bull trout. Further research is warranted into the possibility that the Northern Rockies were less abundant in beaver than areas farther to the north, which might have been a factor in Hudson's Bay assessing their "fur desert" policy, under which they eliminated almost all beaver in the region in less than a decade, as both practically feasible and economically sensible. See D.M. Fairless, S.J. Herman, and P.J. Rhem, "Characteristics of bull trout (*Salvelinus confluentus*) spawning sites in five tributaries of the Upper Clearwater River, Alberta" (Rocky Mountain House, AB: Fish and Wildlife Services, Alberta Environmental Protection, 1994); D. Cross and L. Everest, "Fish habitat attributes of reference and managed watersheds, with special reference to the location of bull trout (*Salvelinus confluentus*) spawning sites in the upper Spokane River ecosystem, northern Idaho," in *Friends of the Bull Trout Conference Proceedings*, ed. W.C. Mackay, M.K. Brewin, and M. Monita, 381-386 (Calgary, AB: Bull Trout Task Force (Alberta), c/o Trout Unlimited Canada, 1997); R.A. Cunjak and G. Power, "Winter habitat utilization by stream resident brook trout (*Salvelinus fontinalis*) and brown trout (*Salmo trutta*)," *Canadian Journal of Fisheries Aquatic Sciences* 43(10) (1986), 1970-1981; and R.A. Cunjak and R.G. Randall, "In-stream movements of young Atlantic salmon (*Salmo salar Linnaeus*) during winter and early spring," in *Production of Juvenile Atlantic Salmon, Salmo salar, in Natural Waters*, ed. R.J. Gibson and R.E. Cutting, Canadian Special Publications in Fisheries and Aquatic Sciences 118 (1993), 43-51. Thanks to David Rockwell for these references and the overview of the relationship between beaver and bull trout.

95. *Fur Trade and Empire*, 108.

96. See Robert Bigart and Clarence Woodcock, eds., *In the Name of the Salish & Kootenai Nation: the 1855 Hell Gate Treaty and the Origin of the Flathead Indian Reservation* (Pablo, MT: Salish Kootenai College Press, 1996).

97. Bigart and Woodcock, eds. 142.

98. Stevens, *Report of Explorations*, 314.

99. Stevens, *Report of Explorations*, 520-521. The area remained devoid of game a half century later, as recorded by Morton J. Elrod in *A Biological Reconnaissance in the Vicinity of Flathead Lake*, University of Montana Bulletin No. 10, Biological Series No. 3 (Missoula: University of Montana, 1902), 152: "In former years an occasional moose is said to have reached this region, though none are now seen...Elk and black-tailed or mule deer were also formerly taken in this region. The former are no longer seen, and the latter only occasionally."

100. Stevens, *Report of Explorations*, 519. For discussion of term "salmon trout," see FN 48.

101. United States Department of the Interior, Office of Indian Affairs, *Annual Report of the Commissioner of Indian Affairs to the Secretary of the Interior, 1870* (Washington, D.C.: U.S. Government Printing Office, 1870), 196.

102. Ford is evidently referring to fluvial or adfluvial forms of bull trout in the Jocko. It is likely that those varieties, because of their larger size, were more desirable as a subsistence base for winter camps.

103. Ronan to Hauser, 5 Sept. 1883, Montana Historical Society, Samuel T. Hauser Papers, Manuscript Collection 37 (hereinafter MHS MC 37), Box 8, file 40.

104. Ronan to Hauser, 8 Oct. 1883, MHS MC 37, Box 8, file 40.

105. Ronan to Hauser, 18 Aug. 1884, MHS MC 37, Box 10, file 25.

106. National Archives, Washington, D.C., Record Group 75 (Bureau of Indian Affairs), Letters Received 1881-1907 (hereinafter NA BIA LR), document number 1887-5794.

107. Barton W. Evermann, "A Reconnaissance of the Streams and Lakes of Western Montana and Northwestern Wyoming" (in *Bulletin of the U.S. Fish Commission*, v. XI, "Fish-Cultural Investigations in Montana and Wyoming," 1892, 3-60), 6, 11-12.

108. Kalispell *Inter Lake*, 3 Jan. 1890, 27 May 1898, 3 Nov. 1899, 17 Apr. 1903, and 14 Apr. 1905. Excerpts from the *Inter Lake*, 1896-1906, were compiled as part of research for USFWS Clark Fork Recovery.

109. USFWS Clark Fork Recovery, 14, notes, "Lightning Creek is approximately 35 kilometers (22 miles) long and drains into the Clark Fork River 4 kilometers (2.5 miles) upstream of Lake Pend Oreille...Bull trout spawn in the upper mainstem of Lightning Creek below Quartz Creek, as well as in most major tributaries."

110. Pete Beaverhead, SPCC tape 8, side 2 (1975).

111. Agnes Vanderburg, SPCC tape 1, side 2 (1975).
112. Pete Beaverhead, SPCC tape 2, side 2; tape 12, side 1; and tape 36, side 1 (all 1975).
113. Pete Beaverhead, SPCC tape 69, side 2 (1975).
114. Pete Beaverhead, SPCC tape 46, side 2 (1975).
- 114b. Elrod, *A Biological Reconnoissance* [sic], 124, 111-112, 158, 162, and 138-139.
115. See *The Swan Massacre: A Story of the Pend d'Oreille People*, by the Salish-Pend d'Oreille Culture Committee and Elders Advisory Council, Confederated Salish and Kootenai Tribes (Lincoln: University of Nebraska Press, forthcoming 2012), and Dave Walter, "The Swan Valley Tragedy of 1908," in *Montana Campfire Tales: Fourteen Historical Narratives* (Helena: TwoDot Press, 1997), 125-140.
116. As Peter Ronan noted in 1889, "Each year finds the followers of the chase from this reservation decreasing." Ronan to Commissioner of Indian Affairs, 20 Nov. 1889, NA BIA LR, 1889-33895.
117. Ken Huston, interviewed by Suzanne Vernon, September 9, 1999. Ed Beck, interviewed by Gary MacLean and Cal Tassinari, Flathead National Forest, March 31, 1981. Transcripts from Swan Ecosystem Center, Condon, MT.
118. Ronan to Commissioner of Indian Affairs, 14 Oct. 1885, NA BIA LR, 1885-24767.
119. Ronan to Commissioner of Indian Affairs, 20 Nov. 1889, NA BIA LR, 1889-33895.
120. NA BIA LR, 1894-2446.
121. Sam Resurrection to Secretary of the Interior, 14 Nov. 1914, National Archives, Washington, D.C., Record Group 75 (Bureau of Indian Affairs), Central Classified Files (hereinafter NA BIA CCF), 62010-1914 Flathead-056. Resurrection also repeatedly raised the failure of authorities to prosecute anyone for the killing of tribal hunters in 1889 at Sun River and in the 1908 Swan Massacre. In this letter he states, "Thirty four years ago there was two women and two men killed by you white people for hunting and five years ago there were four Indians killed for hunting. We three tribes feel sorry for these four men killed."
122. NA BIA CCF, 62010-1914 Flathead-056.
123. Ibid.

Chapter 5: The Decimation of Bull Trout

124. Isaac F. Marcossou, *Anaconda* (New York: Dodd, Mead & Co., 1957), 27. For an extraordinary record of tribal opposition to the railroad -- and presience about its impacts upon the tribes and the reservation -- see Council Minutes, Negotiations for a Right-of-Way through the Flathead Indian Reservation for the Northern Pacific Railroad, August 30 - September 2, 1882, National Archives, Washington, D.C., Record Group 75 (Bureau Of Indian Affairs), Letters Received, 1881-1907, Special Case 55: Northern Pacific Railroad and Flathead Indian Reservation.

125. William G. Robbins has argued that understanding “the dynamics of change” in the American West requires “inquiries into political economy and systems of power and dependency...and with the all-embracing influence of capital as an agent of change. Those dynamics are part of the revolutionary world that is modern capitalism...The cluster of suppositions and motives to human action associated with capitalism provides the most coherent, the most useful, and the most productive strategy and framework for discussing change in the modern world.” *Colony and Empire: The Capitalist Transformation of the American West* (Lawrence: University Press of Kansas, 1994), ix-x.

For a fine history of the bison, see Andrew C. Isenberg, *The Destruction of the Bison: An Environmental History, 1750-1920* (New York: Cambridge University Press, 2000). See also footnote 18.

126. Anaconda’s smelters also created severe air pollution problems and precipitated bitter conflicts between the company and the farmers and ranchers of the Deer Lodge Valley, which played out in a fascinating series of legal battles. See Fred Quivik, “Smoke and Tailings: An Environmental History of Copper Smelting Technologies in Montana, 1880-1930” (Ph.D. Dissertation, University of Pennsylvania, 1998), and Donald MacMillan, *Smoke Wars: Anaconda Copper, Montana Air Pollution, and the Courts, 1890-1920* (Helena: Montana Historical Society Press, 2000).

127. Evermann, “Reconnaissance,” 15.

128. Evermann, “Reconnaissance,” 16 and 18. In the upper Clark Fork, Evermann also noted contamination of the Little Blackfoot River, which enters the Clark Fork at Garrison, at the north (downstream) end of the Deer Lodge valley. “Above Elliston the water is clear and pure, but below that place the stream is muddied by mining operations carried on along its banks.” *Ibid*, 35-36.

129. Marcossou, 54-55.

130. *Ibid.*, 55 and 152. Marcossou says that Anaconda owned 386,137 acres of timberlands. A vastly superior historian, K. Ross Toole, says that “by 1910, the Anaconda Company alone owned 1,166,000 acres of timberland.” *Twentieth-Century Montana: A State of Extremes* (Norman: University of Oklahoma Press, 1972), 5.

131. USFWS Clark Fork Recovery, 43, notes, “Many drainages in the Blackfoot River watershed have been extensively logged and have suffered damage from sedimentation. Silvicultural impairment to water quality has been noted in Belmont, Bear, Chamberlain, Deer, Dunham, Keno, Marcum, McElwain, and Richmond Creeks and in the North Fork Blackfoot and West Fork Clearwater Rivers.”

132. USFWS Clark Fork Recovery, 42 and 43.

133. Evermann, “Reconnaissance,” 13 and 14.

134. Marcossou, 152-153. Marcossou’s book was published in 1957, but he affixes no date to the 100,000,000 figure. The WPA Guide to Montana, first published in 1939, stated that the mill’s annual capacity was significantly higher -- 150,000,000 board feet. Federal Writers’ Project of the Works Progress Administration for the State of Montana, *Montana: A State Guide Book* (New York: Hastings House, 4th printing, 1955; copyright 1939 Department of Agriculture, Labor and Industry, State of Montana), 86.

135. Evermann, “Reconnaissance,” 14. Quoted (with erroneous citation) in USFWS Clark Fork Recovery, 42.

136. David Strohmaier of Historical Research Associates, Inc. in Missoula, MT has written an excellent and detailed account of the history of the Bonner Dam, in “Cultural Resources Report for Bonner Dam Removal Project,” submitted to U.S. Fish and Wildlife Service (Missoula, MT: Historical Research Associates, Inc., January 2005), 5-21. Hammond, Eddy, Bonner, and Daly established the mill under the aegis of their newly formed Montana Improvement Company, which held a contract with the Northern Pacific Railroad to supply all of the lumber needs for the railroad’s 925 miles between Walla Walla, WA and Miles City, MT. The dam by the mill was finished in November 1884, but was washed out in a spring flood the following June. It was rebuilt by the time the mill was fully operational in July 1886. The dam was initially built to corral the logs that were floated down the Blackfoot, but by 1891, it was also producing electric power. Most sources currently say that the first hydroelectric dam in Montana was the Black Eagle Dam in Great Falls, which was begun in 1889 and completed in 1890. The Bonner dam -- obviously much smaller -- may well have been operating before Black Eagle. Strohmaier quotes a report by Fred Quivik as saying, “Shortly after the Bonner mill went into operation, a generating plant was built there on the Blackfoot River. It originally served only the mill, generating electricity by means of both a steam-powered generator and a water-powered turbine. The power plant also delivered mechanical power directly to the mill by means of a rope drive.” Strohmaier says that “at least one photo taken around 1890 or 1891 clearly shows the completed facility.” Regardless of the exact date, it is fair to say that the Bonner dam stood at the leading edge of industrial technology for its time, since the very first use of hydropower in the United States dates from the 1880-82 period. See Fredric L. Quivik, “*Milltown Dam: A Determination of Eligibility for the National Register of Historic Places*,” report for Montana Power Company (Butte, MT: Renewable Technologies, Inc., 1984). Information also from Fred Quivik, emails to author, 9 Mar. 2009; David A. Schmetterling,

Montana Fish, Wildlife and Parks, email to author, 2 Mar. 2009. Peter Nielsen, Missoula City-County Health Department, email to author, 3 Mar. 2009. Mr. Nielsen wrote an excellent summary overview of the Bonner dam, "Bonner Dam Removal Project" (17 Oct. 2005: in possession of author).

See also three articles by Perry Backus in the *Missoulian*: "Let the Water Flow: Little-known Stimson Dam to Come Down as Part of Milltown Dam Removal," 6 Oct. 2005; "Removal of Bonner Dam complete," 22 Nov. 2005; and "Blackfoot River use has evolved through several generations," 27 Nov. 2005.

137. Quotation from Bitterroot Valley Historical Society, *Bitterroot Trails*, Volume 1 (Darby, MT: Bitter Root Valley Historical Society, 1982), 276.

"Giant powder" was a term for what is now more commonly called dynamite -- according to www.answers.com, "a blasting powder made of nitroglycerin, sodium nitrate, sulfur, and rosin, sometimes with kieselguhr." According to the California Office of Historic Preservation (http://ohp.parks.ca.gov/default.asp?page_id=21482), the first commercial manufacturing of dynamite in the U.S. began in 1868 when the Giant Powder Company secured an exclusive license from Alfred Nobel to produce his new explosive in America and built a factory in what is now Glen Canyon Park near San Francisco. The following year the entire facility was leveled by an explosion.

The excellent website "MeasuringWorth" (<http://www.measuringworth.com/uscompare/>) estimates that \$5.50 in 1890 would be the equivalent of over \$129 in 2007, using the Consumer Price Index. Commercial fishing in the Bitterroot was even more lucrative when we compare unskilled labor rates from the two eras; by that measure, \$5.50 in 1890 would be the equivalent of over \$651 in 2007.

138. *Bitterroot Trails*, 276.

139. U.S. Indian Agent Joseph Carter, Annual Report 1895, 189, quoted in Ronald Lloyd Trosper, "The Economic Impact of the Allotment Policy on the Flathead Indian Reservation" (Ph.D. dissertation, Harvard University, 1974), 177. Carter said virtually the same thing in his Annual Report of 1894.

140. Agnes Vanderburg quotation from SKC Falling Waters project, 1989, and quoted in Thompson Smith, "A Brief History of Kerr Dam and the Flathead Reservation," in *č'áqétk^w ntḡ^wétk^ws /'a kinmituk -- The Lower Flathead River, Flathead Indian Reservation, Montana: A Cultural, Historical, and Scientific Resource* (Pablo, Montana: Salish Kootenai College Tribal History Project, 2008), 26.

141. SKC Falling Waters project, 1989, and quoted in Thompson Smith, "A Brief History," 21.

142. See Johnny Arlee, *Over a Century of Moving to the Drum: Salish Indian Celebrations on the Flathead Reservation* (Pablo, MT: Salish Kootenai College Press, 1998).

143. Treaty of Hellgate, 16 Jul. 1855, ratified 8 Mar. 1859, 12 Stat. 975. Article 6 of the treaty reads: “The President may from time to time, at his discretion, cause the whole, or such portion of such reservation as he may think proper to be surveyed into lots, and assign the same to such individuals or families of the said confederated tribes as are willing to avail themselves of the privilege, and will locate on the same as a permanent home, on the same terms, and subject to the same regulations as are provided in the sixth article of the treaty with Omahas, so far as the same may be applicable.” It is unclear how much of Article 6 was understood by tribal leaders, considering the severe translation problems during the treaty negotiations (see p. 26 of this essay). In addition, the whole concept of land ownership and land parcels was profoundly alien and unfamiliar to tribal people. In any case, the treaty language clearly stipulates that allotted lands would be provided to “such individuals or families of the said confederated tribes as are willing to avail themselves of the privilege” -- obviously a requirement of consent, and a conceptualization of allotment not as an imposition upon the tribes, but as an opportunity proffered to individual tribal members. Nevertheless, in 1904, Montana Rep. Joseph Dixon ignored the overwhelming opposition of tribal members and pushed the Flathead Allotment Act through Congress. See Burton M. Smith, “The Politics of Allotment on the Flathead Indian Reservation,” *Pacific Northwest Quarterly*, vol. 70, no. 3 (July 1979), 131-140.

144. 437 F.2d 458, 193 Ct. Cl. 801. Confederated Salish and Kootenai Tribes of the Flathead Indian Reservation, Montana v. The United States, no. 50233, Jan. 22, 1971. As Amended April 23, 1971, pp. 9 & 10.

145. Special thanks to Clayton Matt and the Natural Resource Department, Confederated Salish and Kootenai Tribes, for the exceptional, painstaking research that produced these figures on post-allotment land transfer within the Flathead Reservation.

146. Much of this history is detailed in the three-part video documentary *The Place of the Falling Waters*, by Roy Bigcrane and Thompson Smith (Pablo and Bozeman, MT: Salish Kootenai College Media Center and Native Voices Public Television Workshop, 1991), and in Thompson Smith, “A Brief History.”

147. Trosper, “Economic Impact,” 188.

148. Michael P. Malone, Richard B. Roeder, and William L. Lang, *Montana: A History of Two Centuries* (Seattle and London: University of Washington Press, rev. ed. 1991), 238.

149. Malone, Roeder, and Lang, Chapter 10: The Homestead Boom, 1900-1918, 218-253. The quote is from the late Dave Walter’s history quiz page on the Montana Historical Society website: <http://montanahistoricalsociety.org/education/questionsexam.asp>

On the Flathead Reservation, one of the biggest promoters of white settlement was William Smead, who after supporting passage of the Flathead Allotment Act as agent -- and then being dismissed from his post -- founded the Flathead Land and Information Agency in Missoula, where he used the inside information he had gained as agent to help settlers gain title to prime tracts on the reservation. Smead, in fact, was the author of one of the most famous tracts

for prospective settlers in western Montana, *Land of the Flatheads: a Sketch of the Flathead Reservation, Montana: Its Past and Present and Possibilities for the Future* (St. Paul, MN: Pioneer Press, 1905).

The Flathead was targeted by this kind of propaganda long before the reservation was even made available to non-Indian settlers. In 1894, for example, Portland's Oregonian newspaper published *The Oregonian's Handbook of the Pacific Northwest* (Portland: The Oregonian Publishing Co., 1894), which noted, "There is still a large area of vacant government land in the valley and when the government throws open the great Flathead Indian reservation thousands of acres additional, the finest land in the state, will be ready for occupancy. This reservation comprises an area of over 2,000,000 square miles." 533. In the Oregonian's fervid enthusiasm, not only was the opening of the reservation anticipated fully sixteen years ahead of time, but also the size of 1.2 million acre reservation was nearly doubled.

150. Supt. Theodore Sharp to Commissioner of Indian Affairs, 21 Jul. 1919, National Archives Rocky Mountain Regional Branch, Denver, CO, Flathead Agency records (hereinafter NARA-Denver Flathead), Subject Files, box 235, file: "Flathead Delegations to Wash. D.C., 1910-1920."

151. NARA-Denver Flathead, box 260 (1920-1955), Decimal Files 060-069, File 068 -- Adoptions. This record is one of the better examples of the disastrous state of BIA record organization; if tribal researchers had not been interested in examining a file on "adoptions," this rare document of tribal dissent regarding the Flathead Indian Irrigation Project and the importance of the native fishery would never have been found.

Even with well-filed records, however, it can be surprising where one will discover documents relating to the tribal valuation of fish. In files relating to the National Bison Range, for example, Supt. Coe refers to tribal members who refused to sell their allotments to the range primarily because "the Jocko River would be closed to fishing in the event these lands were acquired by the Geological Survey. The Jocko River is one of the best trout streams in western Montana and the lands desired by your Department covers [sic] one of the best stretches of river. The fishing means a great deal to the Indians, not only to the owners of the lands involved, but to many others who fish there." NARA-Denver Flathead, box 283 (1908-1953), Decimal Files 307-310, File 307.1 -- Parks, Bison Ranges, Game Preserves.

152. For background, see Donald Worster, *Rivers of Empire: Water, Aridity, and the Growth of the American West* (New York: Pantheon Books, 1985), and Mark Fiege, *Irrigated Eden: the Making of an Agricultural Landscape in the American West* (Seattle and London: University of Washington Press, 1999).

153. For an elegiac photographic history of the Columbia River and its transformation by dams, see William D. Layman, *Native River: The Columbia Remembered* (Pullman: Washington State University Press, 2002).

154. Thompson Smith, "Annotated List of Dams in the Columbia River Drainage System" (unpublished manuscript, Salish-Pend d'Oreille Culture Committee, 2007).

155. The Northern Idaho & Montana Power Company took over the Bigfork dam in 1909 and built a diversion dam that carried water from the Swan River in a flume to a penstock 105' above the turbine. Some old timers, however, recall that logs were floated down the Swan River, into Flathead Lake, and over to the Somers mill in the 1910s -- perhaps suggesting that the dam was destroyed sometime after its initial construction and then rebuilt, rather than simply raised in height, in the 1920s. Author interview with Butch Harmon, May 22, 2009. A fish ladder was added in the 1930s, and modified in the 1960s, but biologists have characterized it as "marginal."

See Fraley & Shepard, 135, and Raymond J. Zubik, John Fraley, and Fred Holm, "Determination of Fishery Losses in the Flathead System Resulting from the Construction of Hungry Horse Dam," Bonneville Power Administration, Division of Fish and Wildlife, U. S. Department of Energy (Project No. 1985-23, BPA Report DOE/BP-23638-1), January 1986, 24 and 26. See also http://www.yourmuseum.org/lb_book/bookCh3.htm

The Bigfork Dam presents a biological puzzle that scientists and researchers are still trying to sort out. The outlet of Swan Lake is just a few miles up the Swan River from Flathead Lake, and biologists suspect that bull trout may have been disinclined to push upstream into relatively warm outflows of lake water, as opposed to the colder water issuing from spawning streams. If the biologists' theory is correct, bull trout would migrate upstream *from* a lake, but not upstream *to* a lake. Thus, there would be relatively few fluvial or adfluvial bull trout moving upstream at three key places in the Flathead-Clark Fork system: through the Swan River rapids and into Swan Lake; through the staircase falls of the Flathead River and into Flathead Lake prior to the construction of Kerr Dam; and through Albeni Falls in the Pend Oreille River and into Lake Pend Oreille.

US Fish and Wildlife Service biologists acknowledge that "to date, only casual observation and genetic information support this hypothesis." They discuss the issue candidly in the bull trout recovery plan for the Clark Fork: "Bigfork Dam blocked the Swan River drainage from Flathead Lake, but the ramifications of this loss to either system are not well understood. Anecdotal evidence from newspaper accounts around 1900 indicates that the mouth of the Swan River (or Big Fork as it was called then) was a very popular fishing spot in the spring (April to May), with apparent concentrations of bull trout and westslope cutthroat, and again in the fall (November), for mountain whitefish (*Inter Lake, in litt.*, 1900). It is not clear whether those fish migrated up the Swan River, were simply drawn there because of proximity to the mouth of the Flathead River, or were drawn there for foraging opportunities or other reasons." USFWS Clark Fork Recovery, 17-18 and 37-38.

It will be interesting to see what further research turns up, for there are tantalizing indications that something else may be going on. In the USFWS's research in the Kalispell Daily *Inter Lake* for anecdotal observations of fish, there are reports of great numbers of bull trout before the Bigfork Dam was built in 1902 -- but not after. We may also recall that Joe Eneas described the area just below the falls of the Flathead River as a good fishing spot for bull trout -- before the construction of Kerr Dam. More research may reveal that this is incorrect, or that the decline of bull trout at these places occurred for reasons other than the elimination or reduction of migratory populations. However, it may also be that fluvial and adfluvial forms of bull trout are already so decimated, and the fish's historic range already so fragmented by dams, that it would be difficult to answer this question.

The reference to Montana's fish and game laws draws from a pamphlet generously provided to us by Mike Korn, Assistant Chief of Enforcement for Montana Fish, Wildlife and Parks: W.F. Scott, State Game and Fish Warden, *The Complete and Official 1907-08 Game and Fish Laws of the State of Montana* (Helena: Independent Publishing Company, 1907). On page 9, Section 15 of the pamphlet quotes Montana H.B. 123, S.L. 1897, p. 252: "There shall be constructed at all dams now existing or any of the streams of the state, a fish way or ladder..." The law goes on to specify the minimal dimensions and slope of fish ladder, and other specifications, and then proscribes, to "any persons or corporations who shall violate any of the provisions," a penalty of from \$50 to \$200, or imprisonment in the county jail for 30 to 90 days, or both.

156. USFWS Clark Fork Recovery, 31-32. See also the website for the Mountain Water Company, <http://mtnwater.com/history.htm>; and Darryl Gadbow, "Access," *Missoulian*, 24 May 2002, and Joe Nickell, "Ladder into the Wild," *Missoulian*, 21 May 2007.

157. Evermann, "Reconnaissance," 13.

158. Evermann appealed for government action on the problem of mining waste, saying "It is greatly to be regretted that something can not be done to prevent such destruction of these fishing streams." Evermann, "Reconnaissance," 15-16 and 19. See also Sherry Devlin, "History's Troubles," *Missoulian*, 27 Jan. 2002.

159. See USFWS Clark Fork Recovery, 30.

160. See USFWS Clark Fork Recovery, 32-33 and Smith, "Annotated List." Prior to the dam's construction, Thompson Falls was not an impediment to fish passage. According to the reports of early biologists, there were merely "some small rapids which are no more serious than are those in the Flathead River" below Polson. Charles H. Gilbert and Barton W. Evermann, "A Report Upon Investigations in the Columbia River Basin with Descriptions of Four New Species of Fishes," *Bulletin of the United States Fish Commission*, XIV (Washington, D.C.: U.S. Government Printing Office, 1894, 169-208), 180.

161. Joe Eneas, SKC Falling Waters project, J. Eneas tape #3 (1988).

162. Charlie McDonald, SPCC wi, 22 Jul. 1992.

163. Toole, *Twentieth-Century Montana*, 104.

164. See Thompson Smith, "A Brief History," passim.

165. Joe Eneas, SKC Falling Waters project, tape 1011, 14 Jun. 1989.

166. Gilbert and Evermann, 180. Quoted in USFWS Clark Fork Recovery, 38. In April 1854, John Mullan similarly described this section of the river as "a series of rapids and falls," but he noted that during the flood-stage waters of "this [spring] season, [one drop] was fifteen feet high." Mullan also remarked on the "salmon trout" caught there and how it was one of

“the principal articles of subsistence to the Indians of the country.” Stevens, *Narrative and Final Report*, 178.

167. Smith, “A Brief History,” 28.

167b. See Alec Lefthand’s remarks in *The Place of the Falling Waters*, Part II: The Road to the Dam.

168. USFWS Clark Fork Recovery, 38 and Smith, “Annotated List,” 59.

169. USFWS Clark Fork Recovery, 35. For the question of whether bull trout would migrate upstream *into* lakes (as opposed to *out of* lakes), see discussion of Bigfork Dam in FN 148.

170. USFWS Clark Fork Recovery, 18-19 and 39-40 and Smith, “Annotated List,” 61. See also Zubik, Fraley, and Holm, ii, 15, 19, and 22. While the USFWS says “little quantitative information exists about historical bull trout distribution and abundance in the South Fork Flathead River drainage” (p. 18), the Zubik, Fraley, and Holm report estimates that “potential habitat for about 2,100 adult bull trout” was blocked by the dam’s construction. I have used the less conclusive statement of the USFWS report on the assumption that, as a report issued sixteen years later, it represents more recent analysis of wildlife biologists. See also Fraley and Shepard, 135. For a summary of the Hungry Horse facility, see http://www.usbr.gov/projects/Powerplant.jsp?fac_Name=Hungry+Horse+Powerplant.

171. Smith, “Annotated List,” 61.

172. USFWS Clark Fork Recovery, 32-35.

173. Lukas P. Neraas and Paul Spruell, “Fragmentation of riverine systems: the genetic effects of dams on bull trout (*Salvelinus confluentus*) in the Clark Fork River system,” *Molecular Ecology*, Vol. 10, issue 5 (May 2001), 1153-1164.

The fish below the Cabinet Gorge Dam may also be harmed by the dam’s introduction of excessive gas levels in the water column; during high water, the dam may allow over 100,000 cubic feet per second to spill over the dam, entraining atmospheric gases in the water column “all the way down the Clark Fork River and across the northern end of Lake Pend Oreille” -- a potentially fatal situation for fish. USFWS Clark Fork Recovery, 34-35. In addition, the downstream environment is likely harmed by the operation of Cabinet Gorge as a “peak-loading” facility -- as Kerr Dam was operated until recently, when it was converted to a “base-load” supplier of electricity at the insistence of the Confederated Salish and Kootenai Tribes. Where peak-load dams are often required to open or shut gates very rapidly -- resulting in dramatic changes in downstream water levels -- base-load facilities operate in a much steadier way. This change has allowed Kerr Dam to be managed in a way that more closely replicates the natural fluctuations in water levels in the Flathead River that would occur over the course of the seasons.

174. Smith, “Annotated List,” 62.

175. Gilbert and Evermann, 180; quoted in USFWS Clark Fork Recovery, 35. See also the Army Corps of Engineers Albeni Falls website: <http://www.nws.usace.army.mil/PublicMenu/Menu.cfm?sitename=albeni&pagename=History>

176. USFWS Clark Fork Recovery, 35-37.

177. Smith, "Annotated List," 62.

178. USFWS Clark Fork Recovery, 33.

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179. Mose Chouteh, SPCC tape 430, side 1 (1986).

180. Joe Eneas, interview SKC Falling Waters project, 1989.

181. Another law, passed in 1903, required the owners or operators of coal mines adjacent to streams “containing fish...to so care for any coal slack or other refuse emanating from such coal mining operations as to prevent the same from mingling with the waters of such stream.” *The Complete and Official 1907-08 Game and Fish Laws of the State of Montana*, 32. It would appear this law was also generally not enforced.

182. Henry Avare, Warden, *Biennial Report of the State Game and Fish Warden and Montana State Fish Commission of the State of Montana, 1911-1912* (Helena: Independent Publishing Company, 1912), 31-32.

183. Montana Game and Fish Commission, *First Biennial Report [of the] Montana Game and Fish Commission, 1913-1914* (Helena: Independent Publishing Company, 1915), 3, 7 and 54. Commission Superintendent H.D. Dean further objected to the law that “permitted netting for this fish in the last two years, with the object of exterminating him from certain waters” -- because “I do not believe he can be exterminated without at the same time killing all the other fish in the same water.” Dean recommended that legislature “to forbid the use of nets, but to allow the sale of the legal catch at any time.” 54.

184. *Ibid.*, 7.

185. Montana State Fish and Game Commission, *Biennial Report of the Montana Fish and Game Commission, 1925-1926*, 31-33.

186. *Ibid.* Judge Bickford was a signer of Montana’s famously business-oriented 1889 state constitution and a Missoula lawyer from a firm specializing in the representation of large companies and corporations. His prominent role in shaping the Commission’s policies on bull trout, and the stark contrast with the 1913-14 report, may be a reflection of ongoing conflicts in Montana and American politics throughout the early twentieth century -- an ongoing, see-saw battle between the primacy of scientific inquiry championed by progressivism (for all its drawbacks) set against the continuing advocacy of laissez-faire capitalism and cronyism in government. He did, at the same time, assist the U.S. Fish Commission investigations conducted by Barton W. Evermann in 1891. Evermann, “Reconnaissance,” 5.

187. Environmental changes that affected bull trout that are not examined in this paper include, among other things, agricultural activities and the introduction of exotic species.

188. Montana Bull Trout Restoration Team, “Restoration plan for bull trout in the Clark Fork River basin and Kootenai River basin, Montana” (Helena, MT: Montana Department of Fish, Wildlife and Parks, June 2000).

189. Tribal Council, Confederated Salish and Kootenai Tribes, 1992, cited in Confederated Salish and Kootenai Tribes of the Flathead Reservation, “Lower Flathead River: Goals and Objectives” (Pablo, MT: 1993), 1.

190. W. Ladd Knotek, Mark Deleray, and Brian Marotz, Montana Department of Fish, Wildlife, and Parks, “Hungry Horse Dam Fisheries Mitigation Program: Fish Passage and Habitat Improvement in the Upper Flathead River Basin” (Portland, OR: U. S. Department of Energy, Bonneville Power Administration, Environment, Fish and Wildlife, Aug. 1997). Project Number 9 1-O 19-03, Contract Numbers 92BI60559.

191. “Trout Return to Once-Contaminated Creek,” *Montana Standard*, 18 Oct. 2007. Other information in paragraph from <http://www.doj.mt.gov/lands/naturalresource/resources/projects/silverbowcreekfactsheet.pdf>

See also CSKT ARCO-Settlement ID Team, “Wetland/Riparian Habitat and Bull Trout Restoration Plan” (Pablo, MT: Confederated Salish and Kootenai Tribes, August 2000); <http://www.doj.mt.gov/lands/naturalresource/default.asp>; <http://www.epa.gov/region8/superfund/mt/sbcbutte/buttefloodarcoCD1.pdf>; and Quivik, “Smoke and Tailings.”

192. USFWS Clark Fork Recovery, 35.

193. Vince Devlin, “Ladder to open upstream Clark Fork to fish,” *Missoulian*, 14 Apr. 2009.

194. John Fraley and Joe DosSantos, “A Dam Improvement: Bull River Watershed Protection Project,” *Montana Outdoors*, March–April 2006.

195. In the 1990s, Missoula County Commissioner Michael Kennedy was the first elected public official to call openly for the dam’s removal. As so often happens, he was initially a lone voice and was often attacked for his visionary stance. In time, virtually the entire community came around to the idea, and his erstwhile opponents not only hopped on the bandwagon but also accepted credit for the project.

In April 2003, the EPA issued its proposed plan for the Milltown Reservoir and Dam site. In December 2004, the EPA issued its official Record of Decision, which called for removing the dam and portions of the contaminated sediments behind the dam. In August 2005, federal, state and tribal governmental entities reached agreement on a settlement with ARCO and NorthWestern Corporation for the cleanup and restoration of the Milltown Reservoir area.

See <http://www.doj.mt.gov/lands/naturalresource/milltowndam.asp> and <http://www.epa.gov/region8/superfund/mt/milltown/mrsrod.html>

196. Data from powerpoint presentation, “The Transboundary Flathead River: Canadian Coalfield Development Threats and Research Needs in the North Fork of the Flathead,” prepared by Erin Sexton, research scientist at Flathead Lake Biological Station, University of Montana, 2008.

ILLUSTRATION CREDITS

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Unidentified Salish-Pend d'Oreille people fishing at Flathead Lake, c. 1915. Salish-Pend d'Oreille Culture Committee, Confederated Salish and Kootenai Tribes.

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John Mix Stanley lithograph. From Isaac Stevens, *Narrative and Final Report of Explorations for a Route for a Pacific Railroad, near the Forty-Seventh and Forty-ninth Parallels of North Latitude, from St. Paul to Puget Sound, 1855*, in *Reports of Explorations and Surveys, to Ascertain the Most Practicable and Economical Route for a Railroad from the Mississippi River to the Pacific Ocean*. Made under the Direction of the Secretary of War, in 1853-5, According to Acts of Congress of March 3, 1853, May 31, 1854, and August 5, 1854. Volume XII, Book 1. Washington: Thomas H. Ford, Printer, 1860.

Bull trout illustration courtesy Joseph R. Tomelleri. Used with permission.

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Territories of Plateau Tribes. From Deward E. Walker, Jr., ed., Vol. 12: *Plateau, Handbook of North American Indians*, ed. William Sturtevant (Washington, D.C.: Smithsonian Institution, 1998), ix. Used with permission.

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“Map of Washington Territory Showing the Indian Nations and Tribes,” by George Gibbs and Isaac Stevens, 1854. Courtesy Washington State Historical Society.

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Map of selected major rivers of Salish and Pend d'Oreille territories. Created by the author from Google maps.

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Kootenai fish trap and tipis at Tobacco Plains, 1861, by the Northwest Boundary Survey. Library of Congress (LC-USZC4-11437).

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Łq̄etm̄łš -- Stevensville, Montana. Oil painting by Tony Sandoval, 2003. Courtesy Salish-Pend d’Oreille Culture Committee.

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Spawning bull trout. Photo by Jim Cummins. Courtesy Jim Cummins and Washington Department of Fish & Wildlife.

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Bull trout populations & drainage systems. U.S. Fish and Wildlife Service. 2002. Chapter 1, Introduction, p. 3. In: *Bull Trout (Salvelinus confluentus) Draft Recovery Plan*. U.S. Fish and Wildlife Service, Portland, Oregon. 137 pps.

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Looking up the Clark Fork River toward Hellgate Canyon, c. 1900. “Photographs of farmland and scenery in the Bitter Root Valley, Montana,” Yale Collection of Western Americana, Beinecke Rare Book & Manuscript Library.

Nłʔay -- Rattlesnake Creek and Clark Fork River, Missoula, Montana. Oil painting by Tony Sandoval, 2003. Courtesy Salish-Pend d’Oreille Culture Committee.

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Sam Resurrection along Clark Fork River, c. 1915. 94-0172, photo by R.H. McKay, Archives & Special Collections, Maureen & Mike Mansfield Library, Univ. of Montana - Missoula.

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Flathead River, looking southeast toward Mission Mountains, 1853. Lithograph by John Mix Stanley from Stevens, *Narrative and Final Report of Explorations*.

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Valley of the Big Blackfoot River, 1853. Lithograph by John Mix Stanley, from Stevens, *Narrative and Final Report of Explorations*.

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Lake Pend Oreille, c. 1904. Library of Congress (LC-D4-9064).

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Kootenai fish harpoon collected by Claude Schaeffer on Flathead Reservation, 1935. Courtesy Division of Anthropology, American Museum of Natural History (AMNH 502_3850 Schaeffer).

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Salish, Pend d'Oreille, and Kalispel leaders with Pierre-Jean De Smet, S.J. during visit to Fort Vancouver, 1859. Jesuit Oregon Province Archives (802.21a).

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Lieutenant John Mullan. Umt10494, Archives and Special Collections, Maureen and Mike Mansfield Library, University of Montana - Missoula.

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Pend d'Oreille head chief Alexander (*Tmtxá'cín* - No Horses), 1855. Drawing by Gustavus Sohon. National Anthropological Archives, Smithsonian Institution (image 08501800).

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On west shore of Flathead Lake, looking southeast, 1853. Lithograph by John Mix Stanley, from Stevens, *Narrative and Final Report of Explorations*.

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Josephine Camille and her daughter Lucy, July 1906, Flathead Reservation. Courtesy Montana Historical Society Research Center (954-554).

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16th-century Aztec depiction of smallpox. From Bernardino de Sahagún, *Historia De Las Cosas de Nueva Espana* (1579), vol. 4, Book 12, Lam. cliii, plate 114.

Depictions of smallpox victims, 1779-1780 and 1780-1781, details from Lakota winter count by *Wapostangi* (Brown Hat, or Battiste Good). National Anthropological Archives, Smithsonian Institution (image 08746804). *Wapostangi*'s winter counts also note smallpox in 1735, 1801-1802, 1818-1819, 1850-1851, and depict epidemics of unspecified diseases in other years. Other Lakota winter counts, including those of American Horse and Cloud Shield, confirm the presence of smallpox in many of these years, as well as 1901-1902, the year of the last smallpox outbreak on the Flathead Reservation.

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British Tower .80-caliber musket dating to the 1770s. Smithsonian Institution (2004-26296.09), photo by Richard Strauss. Downloaded under Creative Commons license.

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Tipis at confluence of Thompson and Clark Fork Rivers, near *Sqeytk^wm*, 1884. Photograph by Francis Haines, courtesy Montana Historical Society Research Center (H-2023).

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Beaver pond in Glacier National Park. Photo by Joe Weydt. Used with permission.
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Tipis at St. Mary's Mission, *Lqetmłš* (Stevensville), 1884. Photograph by Francis Haines, courtesy Montana Historical Society Research Center (H-1328).
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Isaac Stevens. Courtesy University of Washington Library, Special Collections (UW-3436).
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Hellgate Treaty Negotiations, *Člmé* (Council Grove), July 1855. Drawing by Gustavus Sohon. National Anthropological Archives, Smithsonian Institution (image 08603100).
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Salish head chief Victor *X^wełxłcín* - Many Horses), 1855. Drawing by Gustavus Sohon. National Anthropological Archives, Smithsonian Institution (image 08502300).
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Agent Peter Ronan and family at Jocko Valley residence, 1884. Photograph by Francis Haines, courtesy Montana Historical Society Research Center (H-1333).
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Crow Creek, Flathead Reservation, 1884. Photograph by Francis Haines, courtesy Montana Historical Society Research Center (H-3213).
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Non-Indian visiting Salish men at fishing camp at *Ntʔay* (Place of Small Bull Trout -- Rattlesnake Creek near Confluence with Clark Fork), n.d., ca. 1900. UM 486-IX_69-15, photograph by Morton Elrod, Archives and Special Collections, Maureen and Mike Mansfield Library, University of Montana - Missoula.
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Sam Resurrection, c. 1915. 94-25, photograph by R. H. McKay, Archives and Special Collections, Maureen and Mike Mansfield Library, University of Montana - Missoula.

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NPRR's Marent Trestle near southern boundary of Flathead Reservation, 1884. Photograph by Francis Haines, courtesy Montana Historical Society Research Center (H-1067).

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Smelters at Anaconda, 1907. From a stereoscopic image. Library of Congress (LC-USZ62-113600).

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Logs in Blackfoot River, 1908. UM 76-6, Archives and Special Collections, Maureen and Mike Mansfield Library, University of Montana - Missoula.

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Dam by the Big Blackfoot mill, n.d., but before 1908. Photo by Morton J. Elrod, Archives & Special Collections, Maureen & Mike Mansfield Library, University of Mont. - Missoula.

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Railroad ties, Lolo Cr., c. 1900. "Photographs of farmland and scenery in the Bitter Root Valley, Montana," Yale Collection of Western Americana, Beinecke Rare Book & Manuscript Library.

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Opening of the Flathead Indian Reservation to homesteaders, April 1910. 950-741, courtesy Montana Historical Society Research Center.

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Construction of McDonald Lake dam, Flathead Indian Irrigation Project, 1919. Courtesy Rocky Mountain Federal Records Center (NARA).

Whispering Charlie Finley with other Salish-Pend d'Oreille people in a family garden, c. 1910. Courtesy Doug Allard.

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Construction of D Canal, Flathead Indian Irrigation Project, 1910. Courtesy Rocky Mountain Federal Records Center (NARA), Denver.

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Salish or Pend d'Oreille man fishing on lower Flathead River, c. 1900. 78-252, Archives & Special Collections, Maureen & Mike Mansfield Library, University of Mont. - Missoula.

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Milltown Dam, April 1909. Library of Congress (HAER MONT, 32-MILTO).

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Thompson Falls Dam under construction, 1914 and completed dam, 1915. Both images Library of Congress (PAN US GEOG - Montana no. 10 (E size) and PAN US GEOG - Montana no. 9 (E size)).

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Smelters at Anaconda, 1907. From a stereoscopic image. Library of Congress (LC-USZ62-113596).

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Mines at Butte, 1914. Library of Congress (LC-USZ62-133271).

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Stipmétk^w -- Place of the Falling Waters. 82-29, Archives and Special Collections, Maureen and Mike Mansfield Library, University of Montana - Missoula.

Kerr Dam under construction, 1937. Photograph by C. Owen Smithers, courtesy Smithers & Son Photography, Butte, MT.

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Plasí Cocowee working at Kerr Dam, 1937. Photograph by C. Owen Smithers, courtesy Smithers & Son Photography, Butte, MT.

Completed dam, 1938. Photograph by C. Owen Smithers, courtesy Smithers & Son Photography, Butte, MT.

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Hungry Horse Dam and Reservoir, photographed in 1970s by Mel Ruder. Courtesy Hungry Horse News.

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Cabinet Gorge, c. 1870-1890. Isaac G. Davidson photo. Denver Public Library, Western History Collection (z-6563).

Cabinet Gorge Dam, 2008. Thompson Smith photo.

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Albeni Falls Dam. U.S. Army Corps of Engineers.

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Noxon Rapids Dam and Reservoir, April 2009. Photo from Wikipedia Commons.

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Nk^wálex^wncú (Sam Resurrection) in Cabinet Gorge, c. 1915. 94-1884, photograph by R.H. McKay, Archives and Special Collections, Maureen and Mike Mansfield Library, University of Montana - Missoula.

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“A world transformed: Some major dams in the history of bull trout and the Salish and Pend d’Oreille people.” Map constructed by author from map by Erwin Raisz, “Landforms of the Northwestern States,” used with permission of Raisz Landform Maps.

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From Montana State Fish and Game Commission, *Biennial Report of the Montana Fish and Game Commission, 1925-1926*.

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Interior Secretary Bruce Babbitt announces listing of bull trout under Endangered Species Act, 1998. Photo by Suzanne Vernon. Used with permission.

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March 2008: Milltown dam is breached. Photo by Thompson Smith.

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Germaine White teaches reservation schoolchildren about the CSKT Jocko River restoration project, 2008. Photo by David Rockwell.

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