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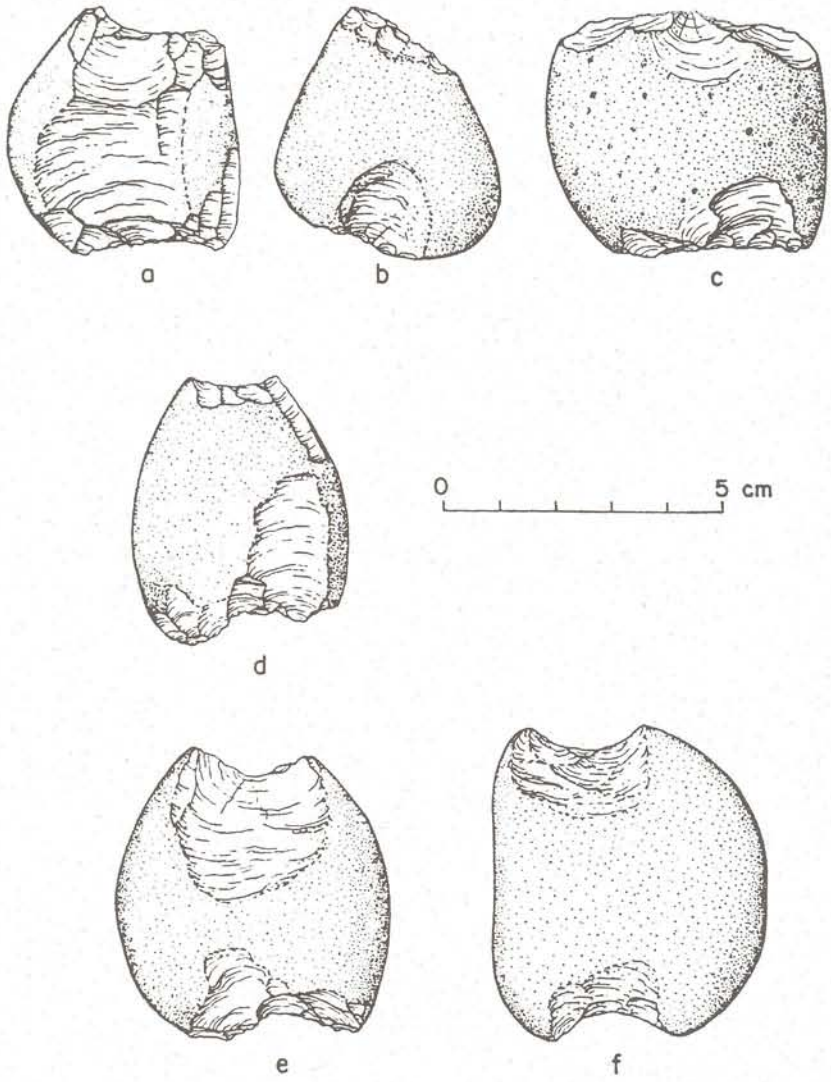

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Cover: Ahsahka Phase Net Sinkers (from Sappington 1991)

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PREHISTORIC FISH PROCUREMENT IN THE CLEARWATER RIVER REGION, NORTH CENTRAL IDAHO

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INTRODUCTION

According to many well-documented accounts, in the nineteenth century there were numerous hunter-gatherers in the Columbia Plateau who exploited diverse and rich environments to obtain a variety of resources. All known Plateau groups based their subsistence on a combination of mammal, plant, and fish resources to varying degrees depending on seasonal availability, local conditions, and band preferences. These groups developed similar strategies to cope with seasonal variations in abundance and intermittent shortages and they have been characterized as logistically organized collectors (Binford 1980:10). As tribes became more logistically organized, they developed social mechanisms necessary for intensification of certain resources in favor of others but this generalization has been difficult for archaeologists to quantify (Ames 1985).

Plateau archaeologists have focused most of their attention on the hunting aspect of subsistence, probably due to the relatively high recovery of both faunal remains and procurement and processing tools, most of which are lithic. The importance of plant resources has recently become better documented by the recognition and dating of oven features (Thoms 1989). During the past two decades there has also been a growing awareness of the importance of fish in ecological terms (Schalk 1977), and archaeologists are now beginning to examine the broader aspects of fishing with regard to social factors (Cannon 1996; Gould and Plew 1996; Plew 1996).

Numerous historic and ethnographic sources indicate that fish were the most important subsistence resource for Native American groups in the Plateau (Hewes 1947; Moulton 1988; Walker 1967). Despite this apparent significance, documentation of fish procurement in the archaeological record has been nearly impossible. This phenomenon has been attributed to numerous factors including: (1) fish bones preserve poorly; (2) much of the procurement technology was manufactured from organic material and thus it has disappeared from the archaeological record; and, (3) cultural practices involved the deliberate destruction or deposition of fish remains in contexts where they would not be preserved and thus the data cannot be recovered.

Many studies in the Plateau have been based on the results from one site or project and the results have often been summarized as a "view from" perspective. However, there has been an increasing awareness among archaeologists that the focus of investigations should be at the regional level. The regional perspective overcomes the vagaries of sampling individual sites and permits examination of evidence from a variety of settings so that settlement and subsistence patterns can be better examined. The following study examines all available technological and faunal data pertaining to prehistoric fishing from the recently defined Clearwater River region in the southern Columbia Plateau (Sappington 1994a).

THE CLEARWATER RIVER REGION

The Clearwater River drains approximately 27,000 km^2 in north central Idaho (Figure 1). The western edge of the drainage is the confluence with the Snake River at Lewiston, Idaho, at an elevation of ca. 225 m (740 ft.) above sea level (asl). The eastern boundary follows the headwaters on the western slope of the Bitterroots along the Montana border at elevations of ca. 2685 m (8800 ft.) asl; the less distinct northern and southern boundaries are defined by tributary streams.

The Clearwater River drainage is distinctive enough in terms of its natural features that it can be considered a unique region. Overall, this is an extremely rugged and diverse region with semiarid grasslands, steep slopes, wet meadows, and large expanses with numerous vegetation zones and habitat types (Asherin and Orme 1978; Daubenmire and Daubenmire 1968; Davis 1952). While grasslands dominate along the lower Clearwater and portions of the middle and south forks (Tisdale 1985:Figure 1), the uppermost areas include forests of whitebark pine (*Pinus albicaulis*) and alpine fir (*Abies lasiocarpa*) which are similar to alpine timberline (Daubenmire and Daubenmire 1968:48; Finklin 1983:7).

The Clearwater River historically supported large runs of anadromous fish including chinook salmon (*Oncorhynchus tshawytscha*), sockeye or blueback salmon (*O. nerka*), silver or coho salmon (*O. kisutch*), steelhead trout (*Salmo gairdneri*), and lamprey "eels" (*Entosphenus tridentatus*) (Mattson et al. 1983:11). In addition, portions of the drainage supported populations of cutthroat trout (*Salmo clarki*), rainbow trout (*Salmo gairdneri*), Dolly Varden trout (*Salvelinus malma*), and mountain whitefish (*Prosopium williamsoni*). Sturgeon (*Acipenser transmontanus*), northern squawfish (*Ptychocheilus oregonensis*), mountain suckers (*Catostomus platyrhynchus*), and chiselmouth (*Acrocheilus alutaceus*)

Figure 1. The Plateau Culture Area and the Clearwater River Region (from Sappington 1994:Figure 2.1).

were present also, as were fresh water clams, commonly known as mussels (*Margaretifera sp.*) (Keating and Murphy 1957:3-4; Mattson et al. 1983:11; Simpson and Wallace 1982).

Native Groups in the Clearwater River Region

According to the consensus of numerous ethnographic and historic accounts, the Clearwater River region is located well within the territory of the Nez Perce Indians. Nez Perce country covered some 71,000 km^2 (27,000 mi.^{2}) and included all of north central Idaho as far east as the Bitterroot Range as well as adjacent parts of southeastern Washington and northeastern Oregon (Chalfant 1974a; Curtis 1911; Fletcher 1891; Josephy 1965; Marshall 1977; Schwede 1966, 1970; Slickpoo and Walker 1973; Spinden 1908; Teit 1930; Walker 1978, 1985).

All but the extreme eastern portion of the Clearwater drainage was included within the original 1855 boundaries of the Nez Perce Indian Reservation (Haines 1955:162) and all of the present reservation is within the Clearwater River drainage. Nez Perce country extended well beyond the Clearwater River region to the west where it blended into that of related Sahaptian groups such as the Palus (Walker 1978:Figure 3). Nez Perce territory continued south to the vicinity of the Salmon River where it was contested by Numic groups (Slickpoo and Walker 1973) and it extended north beyond the Clearwater drainage where it overlapped with that of the Salishan speaking Coeur d'Alene (Chalfant 1974b).

Although several other Native American groups visited the Clearwater River drainage historically, the Nez Perce are the only known residents and no other groups have ever claimed this region. Nez Perce migration stories are minimal (Sappington and Carley 1995:11) and there are no ethnographic reports that the Nez Perce have ever lived anywhere but within their historic territory. While linguistically related languages are spoken in central Oregon and northern California, historical relationships are difficult to determine and the origins of the numerous "Penutian" groups remains unknown (Rigsby 1965).

While prehistoric groups were dynamic societies and cultural boundaries undoubtedly shifted to varying degrees, the traditional core of Nez Perce culture is within the Clearwater River drainage and groups in this area would have been the least likely to have been directly influenced by external factors. Thus, it is assumed that ethnographic data for the Nez Perce in the Clearwater River region can be employed as analogs for the interpretation of the protohistoric, late prehistoric, and perhaps even earlier periods. The corollary is that portions of the archaeological record may in turn be applied toward a better understanding of the ancestors of the Nez Perce.

Traditional Nez Perce Resource Use

The natural diversity of the Clearwater drainage provided the Nez Perce people with a great variety of potential resources, many of which were exploited to varying degrees as individual preference and circumstances warranted. The Nez Perce traditionally used at least 71 species of plants, 10 species of mammals, 4 species of birds, and 13 species of fish (Marshall 1977:Appendix B).

As mentioned above, fishing was a major subsistence activity for all aboriginal groups across the Columbia Plateau. Estimates vary but an annual average of 136 kg (300 lbs.) of fish per person for the Nez Perce was considered a minimum (Walker 1967:9). According to Marshall (1977:37), fish were the most important Nez Perce resource and approximately 50% of their traditional diet was based on anadromous and other fish. Species used include chinook salmon, blueback salmon, silver salmon, steelhead trout, cutthroat trout, Dolly Varden, whitefish, sturgeon, lamprey, chiselmouth, and several types of suckers (Marshall 1977:193).

Although the Nez Perce fished throughout the year, the most important seasons were late spring and fall and the most significant species were the anadromous salmonids, especially chinook salmon, blueback salmon, and steelhead. Steelhead average about 2.7 kg (6 lbs.) and were the earliest large salmonid available in the study area; they "ran" twice annually, first during high water in early spring and then again in the fall. Blueback salmon average about 2.3 kg (5 lbs.) in weight, and they appeared in the Clearwater River about July. Chinook salmon were in some ways the most important species in that they were the largest of the salmonids, averaging 9 kg (20 lbs.). They reached their spawning grounds in late August and September. Other anadromous fish of lesser importance include lampreys, which appeared about the same time as the blueback salmon, and sea run suckers (Marshall 1977).

In late winter and early spring, non-anadromous fish were highly prized, especially when supplies of stored salmon had disappeared. Whitefish, trout, and squawfish were considered supplemental foods, rather than staples, and were caught for immediate consumption (Chalfant 1974a:80). Like salmon, resident fish were most vulnerable when they congregated to spawn. Whitefish converge on sandbars in late January and February. Chiselmouth run up tributaries of major rivers in February and March, and they are followed by suckers which enter the lower parts of streams to reproduce. Both cutthroat and Dolly Varden trout were taken when they ascended higher streams during spring runoff (Marshall 1977:40). The third sort of fish were those not spawning in concentrations, such as sturgeon, and these were only occasional additions to the diet (Marshall 1977:42).

Nez Perce Fishing Technology

The Nez Perce employed a diversity of techniques for procuring fish and many of the early historic and ethnographic accounts provide useful descriptions. Specific methods for capturing fish varied between seasons, streams, and with individual preference. When Lewis and Clark's Corps of Discovery entered the Clearwater drainage in September 1805, one of their first observations concerned the presence of native fishing weirs on the Lochsa River near present-day Powell (Moulton 1988:205). As the expedition continued down the Clearwater River its members noted numerous fishing sites and Clark's maps clearly demonstrate the importance of fishing during the fall (Moulton 1982, 1991). Nez Perce fishing techniques were different in the spring and a fish dam on a tributary of Little Canyon Creek ("Musquetoe Creek") was described by Clark in detail on 8 May 1806 (Moulton 1991:230-231).

Nez Perce settlement patterns were influenced by the availability of fish and camps and villages often were situated near favored fishing stations. At several of Fletcher's 78 village sites recorded in 1891 fish were taken with scoops and thrown nets (Fletcher 1891:28, 33-35, 53; Sappington et al. 1995). The *Tuk-ae-tack'poo* (or *Tuhkaytahs'peh*) site (10-IH-1009) on the Middle Fork of the Clearwater was referred to as a good place to throw nets, and the village on the opposite side of the river, *Kam'-nak-ka* (10-IH-820) derived its name from the fiber out of which fish nets were made (Fletcher 1891:61). Fish dams were built along the lower Clearwater (Fletcher 1891:50) and sites along the North Fork included Salmon Creek, Isabella Creek, and Bruces Eddy (Osmundson and Hulse 1962:13-14, 18).

Aboriginal Plateau fishing tools have been grouped into four categories based on different techniques (Johnston 1987). These categories can be represented archaeologically by implements identified as sinkers, knives, harpoons, spears, hooks, and gorges (Johnston 1987:15). Fish were speared, hooked, netted, and trapped (Spinden 1908:208). Methods varied according to species, season, and type of stream.

Harvesting refers to a technique whereby nets anchored with sinkers or weights were used to gather fish (Johnston 1987:15). Net sinkers were elongated or rounded pebbles or small cobbles which were modified by notches, perforations, or grooves and varied in weight from 20 to 1200 g. Nets provided the means to harvest a great number of fish in a short time. Due to the unlikelihood of a net being preserved, the best means for determining the use of nets is by the recovery of the stone sinkers (Johnston 1985:15, 28-29). Ethnographically, the Nez Perce used various types of nets depending on the types of fish sought. Dip nets were used to catch both lampreys and salmon (Spinden 1908:210-211). Seine nets also were employed by the Nez Perce. These were ca. 15 m (50 ft.) long by 4.5 m (15 ft.) deep. One or more small logs served as floats while grooved cobble were employed as sinkers (Spinden 1908:211). Throw nets were used in confined areas not easily fished otherwise (Fletcher 1891:33). There is some archaeological evidence that harvesting was conducted by women because net sinkers have only been recovered in burials of women (Johnston 1987:94).

Catching is a technique whereby fish are caught individually using a line and baited hook. These implements are represented archaeologically by bone or wooden tools identified as hooks or gorges. Hooks consisted of two parts, a stone or wooden shank with a bottom groove into which the second part, the hook or barb, was set. A gorge consisted of a single bipointed piece of bone or wood which was secured in the center with a piece of braided string (Johnston 1987:16, 24-25, 30-32).

Hunting involves the spearing of individual fish by employing bone or wooden harpoon heads, barbed or toggling leisters, and foreshafts. Harpoons had detachable heads with either lateral barbs or were composite weapons with a point and two side valves. Spears had nondetachable heads with a central section made of bone flanked by two serrated arms with barbed ends (Johnston 1987:16, 25-26, 30-32). The Nez Perce employed both spears and harpoons (Spinden 1908:208-210, Figure 5). Spears, which were not thrown, were used with canoes and torches for night fishing; harpoons were thrown from the bank or at a riffle and also from rock ledges or constructed platforms located just above brush dams that constricted small channels at the heads of riffles (Spinden 1908:208-210, Figure 5).

Processing involved the use of lithic knives to cut and dismember fish. Knives usually were cobble spalls, flakes, or microliths. Processing tools associated with fishing are rare along the lower Snake and Clearwater Rivers (Johnston 1987:15, 22-23, 29-30).

Freshwater mussels also have been reported as a supplementary food resource in the Plateau (Post 1938:29; Ray 1933:107, 1942:135). Mussel shells generally are in very fragmentary condition when they are encountered archaeologically so that species identification has been problematical.

The Nez Perce also employed fish for at least one industrial purpose. The glue used in attaching sinew to sinew-backed bows was obtained by scraping steelhead skin or from sturgeon blood (Spinden 1908:212).

Archaeological evidence of prehistoric fishing at sites along the Clearwater River can be determined from two sources: (1) identification of faunal remains, and (2) recovery of fish procurement artifacts. Probably due to their fragile nature fish elements rarely have been recovered in archaeological contexts. While preservation has certainly been a factor, cultural processes also are likely to have played an important role. To insure the return of the salmon, the Sinkaietk kept all salmon bones on drying racks to prevent wild animals from eating them (Mandelbaum 1938:109-110) while the Nez Perce traditionally returned salmon bones to the river (Allen V. Pinkham, Sr., personal communication 1997). Both practices would account for the scarcity of fish bones in the archaeological record.

Archaeological Investigations in the Clearwater River Region

Although archaeological investigations began in the Clearwater River region in the 1890s, professional excavations were minimal until the early 1960s. Over the past 35 years numerous projects have been conducted by federal, state, and local agencies in response to the construction of highways, hatcheries, and other impacts. I have proposed elsewhere that the geography and prehistory of the Clearwater River drainage system are distinctive enough that it should be viewed as a unique region (Sappington 1994). This cultural chronology is based on nearly 150 radiocarbon dates from over 20 excavated sites (Figure 2).

As with many parts of North America, the initial settlers in the Clearwater River region are unknown and there are no definite indications of pre-Clovis or Clovis occupations although a single Clovis point has been reported from the Lapwai area (Potter and Aageson 1974; Titmus and Woods 1991). The earliest distinct evidence of human settlement in the study area is represented by the Windust phase dated ca. 10,000-8000 B.P. (Rice 1972). All available information indicates that Windust occupations in the Clearwater River region were similar to those reported elsewhere from the lower Snake River region and elsewhere in the Plateau (Leonhardy and Rice 1970, 1980; Rice 1972). Although this

phase has only been radiocarbon dated at the Hatwai site (Ames et al. 1981; Sanders 1982), Windust culture was apparently quite widespread as indicated by the recovery of the characteristic stemmed, lanceolate projectile points at numerous sites. Windust phase occupations appear oriented toward the maintenance and curation of durable toolkits. These groups were small bands of highly mobile hunters and gatherers who foraged across broad areas acquiring what they needed at numerous sites which they occupied for brief intervals.

Windust and Cascade phase artifacts [dated ca. 8000-4500 B.P. (Bense 1972; Leonhardy and Rice 1970, 1980)] co-occur at many sites in the Clearwater River region suggesting continuity as proposed previously for the lower Snake River region and elsewhere in the Plateau. The distribution of distinctive Cascade and large side-notched points indicates settlement across the Clearwater River region. It appears that Cascade phase groups also moved in small bands across large areas and obtained resources at numerous sites without leaving large traces at any location. Projectile points and edge-ground cobbles indicate an especially dense settlement along the North Fork and perhaps the Lochsa River, suggesting a focus on streamside settings in the upper portions of the region. Many aspects concerning the termination of the Cascade phase are unknown but it appears to be unrelated to subsequent occupations.

By ca. 6000 B.P., there are enough significant differences from the lower Snake River region sequence to warrant the proposal of three distinct phases for the Clearwater River region. These phase names are derived from ethnographic Nez Perce village sites that have been investigated archaeologically (Sappington 1994).

The middle prehistoric period in the Clearwater River region is represented by the Hatwai phase (dated ca. 6000-3000 B.P.) which has been identified at ten sites. The first semisubterranean house in this region appeared shortly after 6000 B.P. For the next 3000 years, house pits are few in number, and they have been identified only at the Hatwai site. Two house styles, rectangular and circular, were constructed initially (Ames et al. 1981). Although the first housepit appears to have been a prototype or unsuccessful experiment, by 4800 B.P. the presence of multiple houses indicates that village life was being adopted.

Associated with this settlement change was intensification in the use of select resources which could be collected in large quantity and stored for later use (Ames and Marshall 1981). This shift in subsistence toward an emphasis on roots and fish is demonstrated by the presence of storage features in later houses and by processing and procurement tools rather than by the recovery of organic remains. Faunal remains suggest a marked emphasis on hunting deer; other species were apparently supplemental sources of food.

The late prehistoric Ahsahka phase (dated ca. 3000-500 B.P.) has been identified at more than 20 sites. Similar houses were constructed across the region and all known structures are oval to round in outline. Ahsahka phase and later occupations show onsite manufacture of arrowpoints with a shift toward easily replaceable and reliable systems. Preferred raw materials were local or semi-local cryptocrystalline silicas and the heat treatment of chert, jasper, and chalcedony has been identified in most collections. Cores of higher quality material are rarely recovered and it appears that raw material entered sites in the form of blanks and preforms which were then modified as needed.

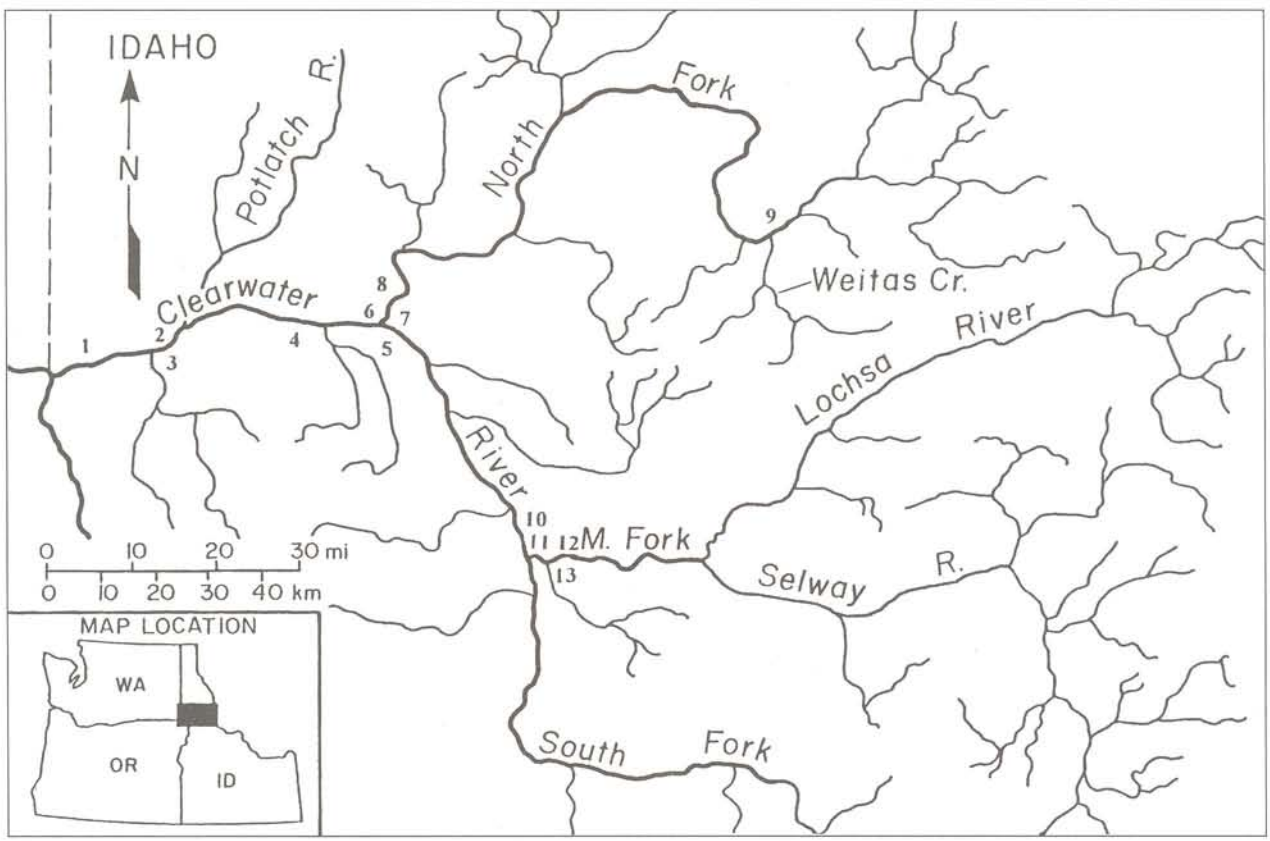

Figure 2. Archaeological Sites in the Clearwater River Region Where Dated Evidence of Prehistoric Fishing Has Been Recovered: 1, Hatwai (10-NP-143); 2, Arrow Beach (10-NP-102); 3, Spalding (10-NP-108); 4, Lenore (10-NP-105); 5, Canoe Camp (10-CW-25); 6, Clearwater Fish Hatchery (10-CW-4); 7, Sportsmen's Access (10-CW-5); 8, Ash (10-CW-39); 9, Weitas Creek (10-CW-30); 10, East Kamiah Waterline (10-IH-1948); 11, Kooskia Bridge (10-IH-1395); 12, *Tuhkaytahs'peh* (10-IH-1009); 13, Kooskia Fish Hatchery (10-IH-820).

Overall, the Ahsahka phase appears to have been a successful period for the occupants of the Clearwater River region. Growing regional stability is inferred from the increased number of housepit sites. Hunting focused on deer and elk, although other species were procured when circumstances permitted. Bison were obtained along the lower Clearwater while bear and elk were more important to groups living along the Middle Fork and the Lochsa River. Intensification in the use of plant resources, presumably roots such as camas (*Camassia quamash*) and cous (*Lomatium cous*), seems widespread based on the recovery of plant processing tools. Fishing was also increasingly important. These adaptations are clear forerunners of the ethnographic pattern for the region.

The protohistoric period was a time of rapid alteration in the lives of Native Americans across North America although these changes have been difficult to demonstrate archaeologically. An examination of cemeteries in the Upper Columbia region indicates that rapid and massive epidemics occurred in that part of the Plateau (Campbell 1989). There also appears to be a direct correlation between depopulation and the higher mobility provided by horses which was manifested by the occupation of fewer sites. Whether this is a perception or an actual fact remains to be demonstrated but many late protohistoric and ethnographic sites, such as Bruces Eddy (10-CW-1), seem to be associated with pastures or locations favorable to horse (Osmundson and Hulse 1962:14). The terrace at the Clearwater Fish Hatchery site (10-CW-4) reportedly also was used by the Nez Perce for grazing the horses left by Lewis and Clark (Swayne 1990).

A general shift to more portable or surface dwellings seems to have occurred during the protohistoric period across the Plateau. The late structures at *Wexpu'snime* on the lower Snake River were not recognized initially as houses because they were not situated in pits like those of the late prehistoric Harder phase (Frank C. Leonhardy, personal communication 1990). Lewis and Clark reported abandoned house pits at Kamiah in 1806 and noted that pit houses were no longer being constructed. Similarly, they did not observe pit houses elsewhere in the Clearwater River region nor along the Snake River. Greater aggregations of people in fewer locations seems to have become the rule by the late protohistoric/early historic interface. The use of larger structures also was common by the contact period.

The protohistoric period in the Clearwater River region is represented by the Kooskia phase (dated ca. 500-200 B.P.) which has been identified at 11 sites. Sometime during the Kooskia phase and prior to A.D. 1805, semisubterranean houses were abandoned and only shallow or surface structures were constructed. Seven sites were included within this phase based on radiocarbon dated features while four were included on the basis of early historic artifacts. Key features included a house at Ahsahka (Sappington et al. 1987), the possible house or other type of structure at the Big Spring site (Corliss and Gallagher 1972), and two burials at Bruces Eddy (Lynch et al. 1965).

With the exception of artifacts of European and Euroamerican origin, lithic and antler artifacts from the Kooskia phase are identical to those from the previous phase which suggests that technology and activities were similar. Small side-notched projectile points predominate in all dated contexts, but other styles co-occur within the same features. All net sinkers and pestles fall well within the metric and technological ranges of the preceding phase. Hunting seems to have been broad based but with a continued dependence on deer and elk.

Although few have been found, Kooskia phase burials such as those at Weippe (Sprague and Birkby 1970) and Bruces Eddy (Lynch et al. 1965) appear to have relatively higher amounts of grave goods. Despite the historic conflicts with the Shoshone, there are no burials containing skeletons with warfare-related traumas nor have any defensive structures been encountered in the study area. This situation may reflect the security provided by the isolation of the Clearwater River region and suggests that any conflicts probably occurred further afield. Many protohistoric sites correspond to ethnographic or historic Nez Perce sites demonstrating continuity in settlement from the prehistoric period into the nineteenth century.

EARLY PREHISTORIC PERIOD FISH PROCUREMENT (ca. 10,000-6000 B.P.)

Fishing Tools

While the recovery of fish remains dating to 11,000 B.P. at The Dalles suggests the early use of fish in the southern Plateau (Cressman et al. 1960), no tool forms associated with fishing technology have been recovered there or at any Windust phase sites (Leonhardy and Rice 1970; Rice 1972) and fishing tools are rare in Cascade components (Bense 1972). As indicated above, most documented fishing technology involved the use of organic materials, such as hemp for nets, which has not been preserved in the archaeological record, and thus the antiquity of fishing remains poorly documented.

The only evidence of fishing technology in the Clearwater River region during the early period is a net weight recovered from the initial Hatwai I occupation at the Hatwai site dated ca. 10,800-9800 B.P. (Ames et al. 1981). This unique item was regarded as "an oddly flaked cobble" and was not originally regarded as evidence of fishing (Sanders 1982:87, Figure 22). However, many similar items have since been recovered in later occupations throughout the Clearwater River region and I therefore consider it to be a net weight.

Fish Remains

Identified fish remains have been reported at the Hatwai site (Johnston 1987:146) and molluscan fauna were reported in the interim report (Lyman 198l:158-163). However, the temporal distribution of this material has not been published. It is unknown whether any fish remains from this site can be attributed to the early period.

The best evidence of fishing during the early period in the Clearwater River region is represented by fish remains from the Spalding site (Chance and Chance 1985b). Identified elements include vertebrae of: salmonids, either trout or salmon, (n=3); Catostomidae or suckers (n=2); and, Catostomidae/Cypridinidae or suckers/minnows (n=3), which were assumed to represent suckers (Chance and Chance 1985b:73, 168). One element was calcined and all were considered to represent food remains. The presence of these bones was inferred to represent a spring occupation (Chance and Chance 1985b:73, 75, 168).

FISH PROCUREMENT DURING THE HATWAI PHASE (ca. 6000-3000 B.P.)

Fishing Tools

Evidence of fishing is minimal for the middle prehistoric period in most regions of the Plateau. At Wells Reservoir, gorge hooks and probably spears appeared during the Indian Dan phase (ca. 4350-3700 B.P.) while valves for composite harpoon points were recovered from sites dating to the Chiliwist phase (ca. 3300-2200 B.P.) (Chatters 1986:204-207). Along the lower Snake River, net sinkers are very rare in the Cascade phase (Bense 1972:188-189) but they are characteristic of the Tucannon phase (ca. 4500-2500 B.P.) (Leonhardy and Rice 1970:11, 1980).

Fishing equipment has been recovered from several Hatwai phase sites in the Clearwater River region and it

clearly is more common and diverse than in the early period. Fishing gear was very rare at the Hatwai site (Ames 1982:7): only two net sinkers were reported and neither came from the Hatwai III occupation (Ames et al. 1981:87). However, all seven leister barbs and fragments, as well as both gorges, were recovered in Occupation III (Ames et al. 1981:92, Figure 12, Table 5).

Calibrated dates from the Ash site at Dworshak Reservoir averaged ca. 4300 B.P. (Sappington 1994:Table 6.1). Although not mentioned in the original report, the notes indicate "three flat-pebble, notched net weights (no longer in collection)" (Mattson et al. 1983:56) which suggest middle period fishing along this portion of the North Fork. Further upstream, fishing is represented by two net weights at the Weitas Creek site in Occupation III (Keeler 1973:79, Figures 12, 22). Thus, it is likely that spear, net, and probably line technology all were in use in the Clearwater River region during the Hatwai phase.

Fish Remains

On the upper Columbia, sucker and salmon were present in the Indian Dan phase and salmon were the most common of all faunal remains during the Chiliwist phase (Chatters 1986:205-207). Fish remains exhibit a steady increase and river mussels were important at this time (Chatters 1986:139, 141, 206-208). Fish also were prominent at Lake Rufus Woods during the Kartar and Hudnut phases. Indicative of the general foraging economy and encounter strategy of the Kartar phase, non-salmonids were more common than were salmonids although large numbers of salmonids were recovered in several Hudnut phase houses indicating a collector or search based economic strategy (Campbell 1985:491-499; Lohse and Sammons-Lohse 1986).

On the lower Snake, salmonids represented a new emphasis during the Cascade phase and two species of mussels (*Margaretifera falcata* and *Gonidea angulata*) were used (Leonhardy and Rice 1970:9). For the Tucannon phase, fish remains included a high percentage of salmonids while river mussels (*M. falcata*) were considered to be important for the only time in regional prehistory (Leonhardy and Rice 1970:14). Salmonid bones and shell fragments of both *M. falcata* and *G. angulata* were recovered from the floor of House 3 at *Hatiupuh* dated ca. 4100 B.P. (Brauner et al. 1990:79, Table 8).

Fish remains rarely have been recovered at middle prehistoric period sites along the Clearwater. Unspecified remains were present in the Hatwai III component (Ames 1982; Ames et al. 1981:139). Hinges of fresh water mussels (n=818, all of which were identified as *M. falcata* with the exception of one *G. angulata*) were represented but these were considered to be "of no importance in the diet" during the period between 4300 and 3100 B.P. (Ames et al. 1981:140).

Three fish vertebrae were recovered in Arrow Beach I, one of which was identified as sucker although no genus or species name was provided. Shell was present in nine excavation units during this period (Toups 1969:Charts 1, 2). No fish remains were recovered in Lenore II; one unidentified shell was reported below House A (Toups 1969:Chart 22). No fishing tools, fish remains, or mussel shells have been reported from any other Hatwai phase site.

FISH PROCUREMENT DURING THE AHSAHKA PHASE (ca. 3000-500 B.P.)

Fishing Tools

Evidence of late prehistoric fishing in the southern Plateau is generally restricted to the recovery of bifacially notched discoidal pebbles which are considered to be weights or sinkers for small nets or seines. Most have two notches on opposite sides or ends although some have four notches. Onsite manufacturing in the Clearwater River region has recently been observed by the recovery of incomplete items with breaks and incomplete rejects from several sites. Some pebbles have ground rather than flaked notches and small pebbles with a groove around their center have also been reported as net weights. Bone points for leister harpoons have not been reported from the late prehistoric period in this region.

No evidence of fishing was encountered in the uppermost Hatwai IV occupation (Ames et al. 1981:140-142). One net weight was reported from the *Init'* assemblage between houses 1 and 2 at Spalding but no description or illustration was provided (Chance and Chance 1985b:Table 9) and because this item is from a disturbed context, it is not included here.

While fishing may have begun earlier, it did not become important at Arrow Beach until ca. A.D. 500 or even later (Toups 1969:79) and all the net sinkers were attributed to the protohistoric period. The Lenore Village occupation at the Lenore site included a total of seven net sinkers (Toups 1969:Chart 34). Net sinkers were recovered in House A (n=2), House D (n=1), House E (n=1), and House H (n=3). None were described but two were illustrated (Toups 1969: Figure 16d, Plate XIXaa). Charcoal from Feature 5 in House H was calibrated at 2940 B.P. Toups considered this date important because it was associated with one of the very few net sinkers at the site (Idaho Archaeological Survey files). Examination of the collection as part of this research indicates that a large number of net sinkers were overlooked, mislabeled or recovered after Toups' study and were thus unreported. It is likely that these are from the late prehistoric occupation and they have been included here.

Fishing tools were recovered during the second phase of testing at the Clearwater Fish Hatchery site (10-CW-4). Four net sinkers from test pit R are assigned to the upper late prehistoric component (Brauner and Stricker 1990:37). All were bifacially notched on opposing ends. A fifth sinker from the upper stratum of test pit J (Brauner and Stricker 1990:37, 65) is considerably larger and has only one unifacially struck notch. This last item appears unfinished or rejected.

The most common type (n=16) of cobble tools at 10-CW-4 in 1990 were net sinkers (Sappington et al. 1991:Table 11). These items are flat discoidal pebbles which have been percussion flaked on one or both ends. Most were bifacially flaked on opposite ends or edges but one was flaked on four edges. Several were worked unifacially or only on one end and these are considered to be either unfinished or rejected. A cache (Feature 6) of five plus one found nearby may represent a disintegrated net (Figure 3). Most net sinkers (n=9 or 56.3%) are basalt; the remainder were manufactured from metamorphic (n=6 or 37.5%) and granitic materials (n=1 or 6.2%).

A single two-notched sinker (labeled "18 B & C, level unknown") is present in the 1967 collection from 10-CW-5 but it was not mentioned in the report nor in the *Tebiwa* article (Gaarder 1968). Projectile points suggested a late prehistoric date for the assemblage (Gaarder 1968:65) so this sinker is included here. Despite considerable excavation here in 1986-1987, no additional fishing tools were recovered (Sappington et al. 1987). The initial test at Canoe Camp resulted in the recovery of two associated net sinkers in the same 1 x 1 m unit which suggests they were once part of the same net (Sappington and Wegars 1988:21-23).

Fishing tools were reported at a number of sites along the North Fork prior to inundation by Dworshak Reservoir (Corliss and Gallagher 1972; Mattson et al. 1983) but in all cases, there are problems with provenience (Sappington

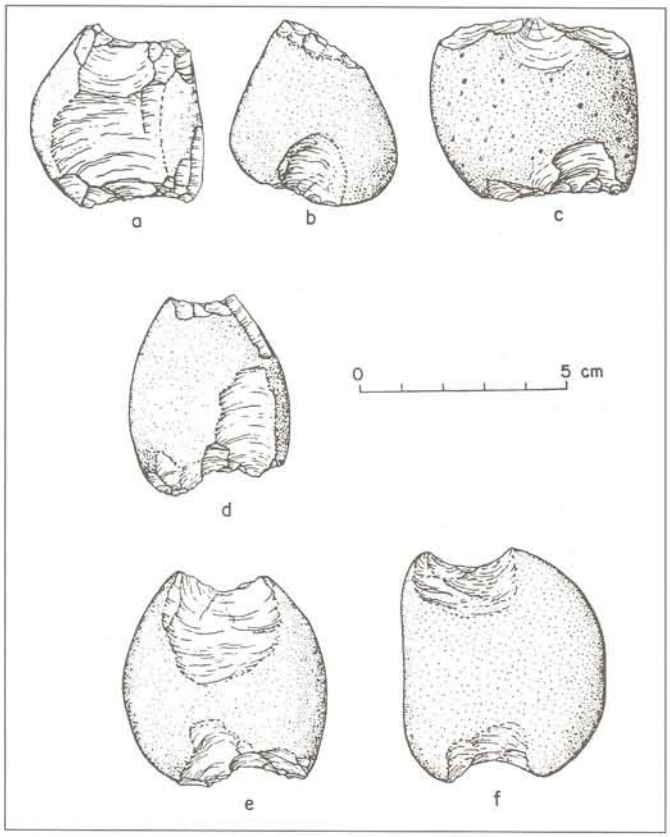

Figure 3. Ahsahka Phase Net Sinkers, Clearwater Fish Hatchery Site (from Sappington et al. 1991:Figure 27).

1994) and they are not included here. No net sinkers were reported from the first drawdown survey (Draper with Olson 1993). Further upstream, one net weight was recovered in the uppermost Occupation IV at the Weitas Creek site (Keeler 1973: Figures 12, 22) while two were reported in the previous occupation but the catalog is missing so these items cannot be correlated to their cultural periods. However, five scrapers from Occupation IV (Keeler 1973:56, Figure 31) were reclassified as net weights (Keeler 1975:58) and they are included here.

Three net sinkers were recovered in one 1 x 1 m test unit at the East Kamiah Waterline site and are associated with a hearth and general activity area (Feature 3). A nearby feature was dated with a calibrated age of 550 B.P. (Sappington 1991a:13, Figure 2).

Three fragmentary or aborted net sinkers were excavated during testing at *Tuhkaytahs'peh* and two additional fragments were collected from the lower terrace between the site and the river (Sappington 1991b:22, Table 3). All items indicate onsite manufacture, both within houses as well as "on the spot" where suitable pebbles are naturally available. No net sinkers have been recovered at any sites further upstream.

Faunal Remains

Although fishing tools were absent, both late prehistoric houses in the *Init'* component at Spalding included fish remains (Chance and Chance 1985b:Table 9). This component has a predominance of salmonid elements (n=33; no genus or species provided) followed by Catostomidae/Cyprinidae elements (n=5) which were assumed to be suckers (Chance and Chance 1985b:115, 169). The small numbers of suckers argued against a spring occupation while the salmonid bones appear to represent consumption of stored rather than fresh caught fish (Chance and Chance 1985b: 115).

Fish remains were recovered from six of the 12 excavation levels at the Arrow Beach site. However, in the uppermost components (Arrow Beach III and Arrow Beach IV combined into the Potlatch Creek phase) only unidentified fish (n=8) were present (Toups 1969:74, 75, Charts 2-A to 2-C).

Evidence of fishing was virtually absent at Lenore but the little data recovered was obtained from the late prehistoric occupation. A single unidentified fish vertebra was recovered near the surface in House D; no other fish remains were recovered from the site. Unspecified mussel shell (n=14) was present in the uppermost layers of five housepits and Block I (Toups 1969:96, Chart 22).

Faunal evidence for late prehistoric fishing at the Clearwater Fish Hatchery site is limited to mussel shell. During the first phase of testing, fragments (n=10) assumed to be *Margaretifera falcata* were recovered in the upper levels of four units in two areas (Sappington et al. 1988:Table 9). Similarly, during the second phase of testing, shell fragments (n=53) were recovered in four units but identification was impossible. This material was considered to represent exploitation of a local resource (Brauner and Stricker 1990:37, 42, Tables 4-17). Fragments of river mussel shell were occasionally found in the upper strata but only one was attributed to the late prehistoric period (Olson 1991: Table 22).

Faunal evidence related to fishing at Canoe Camp is limited to the recovery of mussel shell fragments (n=1) in 1988 (Sappington and Wegars 1988:36) and 1990 (n=10), four of which were from a house floor with a calibrated age of 666 B.P. (Sappington 1994).

A single fish bone was recovered in a surface level at the East Kamiah Waterline site but its condition suggested it was modern (Sappington 1991a:12) so it is not included here. Single fragments of freshwater mussel shell were recovered in three different units in late prehistoric contexts and these items probably represent *Margaretifera falcata* (Sappington 1991a:12).

Limited late prehistoric use of both fish and fresh water mussels was obtained at the Kooskia Bridge site (Sappington and Carley 1987:118-129, Table 14). House 1, dated ca. 700-500 B.P., included one salmonid vertebra as well as numerous mussel shell fragments (n=25), probably *Margaretifera falcata*, throughout the fill and associated rock on the rim. Feature 7, a probable house floor with a calibrated age of 650 B.P., included salmonid (n=1) and unidentified non-salmonid fish (n=1) vertebrae as well as probable *Margaretifera falcata* (n=13) shell fragments (Sappington and Carley 1987:127, 138). Two other non-salmonid vertebrae were recovered below Feature 7.

Excavations at *Tuhkaytahs'peh* from 1990 to 1993 resulted in the recovery of Cyprinidae vertebrae (n=2) and a fragment only identifiable as fish (Sappington with Olson 1994:22). No sites with fish remains are known further upstream despite the historic presence of anadromous fish in these streams and the ethnographic accounts of aboriginal fishing in this area.

FISH PROCUREMENT DURING THE KOOSKIA PHASE (ca. 500-200 B.P.)

Fishing Tools

Fishing tools are rare in Kooskia phase occupations but two types are represented, each from a different site. Three leister barbs or barb fragments used for fishing spears were recovered in the Hatwai IV component (Ames et al. 1981: Table 7, Figure 12). Within the region, these items are unique to this site but they represent a category of procurement tool known to have been employed ethnographically by the Nez Perce and other groups across the Plateau.

Net sinkers were absent in the three previous occupations at Arrow Beach but they are common (n=38) in the upper-

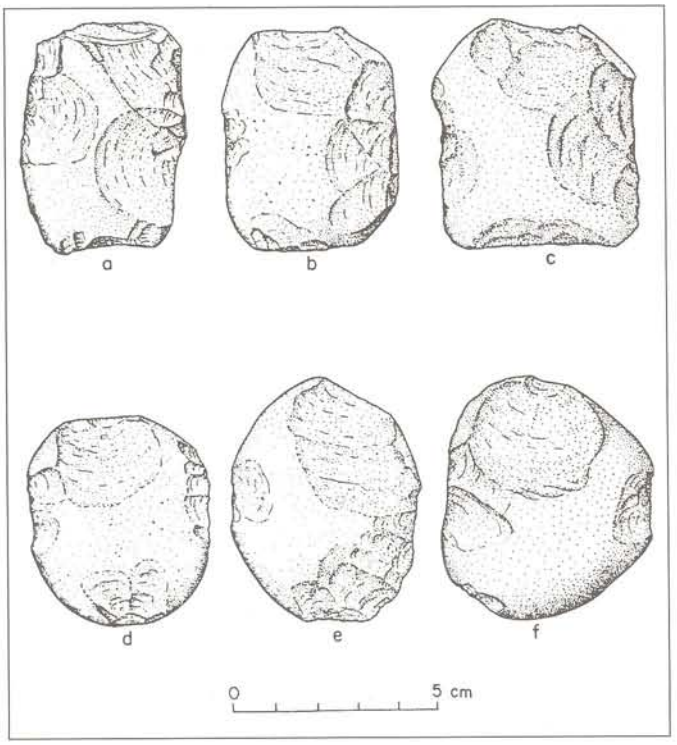

Figure 4. Kooskia Phase Net Sinkers, Arrow Beach IV Occupation, Arrow Beach site (from Sappington 1994:Figure 8.9).

most Arrow Beach IV occupation (Toups 1969:62, 77, Chart 16). All were reported as having two notches at opposite ends although none were described or illustrated and most net sinkers actually have four notches (Figure 4). In addition, Feature 25 was a cache of 12 unmodified pebbles considered to be net sinker blanks (Sappington 1994:361).

Five net sinkers were recovered at the multicomponent Kooskia Fish Hatchery site (Sappington et al. 1993:27, Figure 14a). One is in a disturbed context but the others are from the upper strata and represent the protohistoric period. One item had a single flake removed which indicates onsite testing and rejection.

Faunal Remains

Fish remains are minimal in the Kooskia phase and none have been recovered from dated features. Eight of the 17 fish elements from Arrow Beach are in the upper levels representing the late prehistoric and protohistoric periods. All eight are unidentified but it appears that three of these are from the uppermost Arrow Beach IV occupation (Toups 1969:Chart 2).

Mussel shell at Arrow Beach was not identified and reported only as present or absent; it was present in the upper levels of 11 units (Toups 1969:Chart 1) which suggests a widespread use of this resource during the Kooskia phase at this site. Mussel shell, identified as probably *Margaretifera falcata*, was present in the protohistoric portion of Feature 2 at the Ahsahka Sportsmen's Access site. Counts were not made but nearly 10 g were recovered (Tevebaugh 1987:Table 1). There is no other evidence of protohistoric fish or mollusc use in this region.

SUMMARY AND CONCLUSIONS

Fish were clearly one of the most important economic resources for Native American groups across the southern Plateau. Fish accounted for 50% of the traditional diet of the Nez Perce Indians and the Nez Perce historically employed a variety of methods to obtain a diversity of species, especially the anadromous salmonids available in the spring and fall. The only means of determining the importance of fish prior to A.D. 1805 is by investigating the archaeological record but this approach has limitations because (1) much of the technology was based on organic materials and (2) cultural and natural factors inhibit the preservation of actual fish remains.

The archaeological record for the Clearwater River region indicates that the use of fish began sometime prior to 6000 B.P. although data from the early period is limited. Technological evidence consists of one net sinker from the Hatwai site. Fish remains from Spalding indicate that both salmon and suckers were caught, probably in March in Lapwai Creek using nets or baskets, although they could have been caught by hand through the use of stone weirs or walls. While minimal, the evidence does indicate that several techniques were employed and thus fishing was probably more important during the early prehistoric period than can be documented.

There is better evidence of fish procurement during the Hatwai phase (ca. 6000-3000 B.P.) and it is available from several sites. Technology is represented by leister barbs and gorges at Hatwai and by net sinkers at the Ash and Weitas Creek sites. These bone and lithic artifacts indicate that at least three different fishing methods were employed during this time. Although actual remains are rare, fish vertebrae have been recovered from two sites along the lower Clearwater. No salmon have been reported and identification has been limited to one unspecified sucker. Contrary to contemporaneous Tucannon phase assemblages along the lower Snake River, the use of mussels during the Hatwai phase is minimal along the lower Clearwater and is unreported elsewhere in the region.

The Ahsahka phase (ca. 3000-500 B.P.) is the best known and most precisely dated prehistoric period in the Clearwater River region. Ahsahka phase occupations have been found directly above those of the Hatwai phase at several sites indicating cultural continuity. Net sinkers have been recovered from numerous components ranging from Spalding on the lower Clearwater to *Tuhkaytahs'peh* on the Middle Fork. Net sinkers have been found in association with dates of 2940 B.P. and 550 B.P. so their temporal use clearly spans the phase. Nearly all are bifacially notched, but several were worked unifacially. Most have two notches on opposite ends or sides, but several have four notches. Onsite manufacture is indicated by the recovery of broken examples at several sites.

Actual fish remains are rare, but they have also been recovered from several Ahsahka phase sites between Spalding and *Tuhkaytahs'peh* which suggests a widespread distribution. Species identification has been difficult, but salmon were common at Spalding and salmonids have been identified at the Kooskia Bridge site. Non-salmonids are more widely distributed and most appear to represent suckers.

The protohistoric Kooskia phase (ca. 500-200 B.P.) has been identified at 11 sites across the Clearwater River region. With the exception of artifacts of European and Euroamerican origin, Kooskia phase material culture is identical to that of the previous phase which suggests that technology and activities were similar. All net sinkers fall well within the metric and technological ranges of those of the preceding period. Many Kooskia phase sites correspond to ethnographic or historic Nez Perce villages which demonstrates continuity in settlement from the prehistoric period into the nineteenth century.

In conclusion, examination of the archaeological record for the Clearwater River region demonstrates that fish have been an important resource to the native people of this region for over 6000 years. At least three fishing techniques

were employed and a variety of both anadromous and non-anadromous species were obtained. Perhaps due to preservation, the use of nets appears to have been the predominant means for catching fish. The historic emphasis has been on salmon but non-salmonids were also important for prehistoric groups.

Despite its limitations, the archaeological evidence indicates that the historic importance of fish to the Nez Perce had its beginning well prior to the development of the ethnographic pattern. The increasing use of fish appears to have coincided with intensification of the use of plant resources and with a settlement shift toward the use of houses and eventually villages. The focus on fish procurement seems to have been a deliberate choice by local groups in order to increase food production and to allow for greater stability and social complexity. The emphasis on fishing does not seems to have been imposed by environmental stress or brought into the region by others. Fish are still a significant resource for the contemporary Nez Perce and salmon are critical to all tribal members who maintain ties to traditions that began in the Clearwater River region over 6000 years ago.

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SHORT CONTRIBUTIONS

ARCHAEOBOTANICAL REMAINS FROM NAHAS CAVE

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INTRODUCTION

This brief note describes archaeobotanical remains recovered from Nahas Cave (10-OE-1674) in the southcentral Owyhee Uplands in southwestern Idaho. Nahas Cave, located on Pole Creek, a secondary tributary to the Owyhee River, was excavated during the summers of 1979 and 1980 (Plew 1985). Excavations provided for a radiometric chronology of 6,000 years suggesting an intensive occupation of the Upland area during the late Archaic (Plew 1985). Investigations identified evidence of early fired clay technology (Plew and Woods 1980); the presence of steelhead trout, *Salmo gairdnerii*, (Plew 1980b), and an early appearance of arrow points in horizons dating to beyond 3,000 B.P. (Plew 1980). The remains reported here were identified after the publication of a descriptive report on the Nahas excavations (Plew 1986).

BACKGROUND

Nahas Cave is a small lava tube exposed by exfoliation along the west side of Pole Creek some 21/2 miles above its confluence with Deep Creek. It is presently located within the sagebrush-juniper zone in Owyhee Uplands at an elevation of c. 5700 feet above sea level. Its dimensions are approximately 12 X 3 meters with an interior height of three meters. Four 2 X 2 meter test units, a single 1 X 4 meter trench (S3-W1-2) and a 1 X 2 meter test unit were excavated using a grid system established from a permanent datum two meters east of the dripline. Excavation was conducted using arbitrary levels. Owing to excessive moisture in the deposits all material was screened using 1/4 inch hardware mesh. It was not possible to determine whether the moisture in the deposits represented a phenomenon extending over the history of the cave or whether it resulted from more recent events. If the sediments have been consistently wet during the past several thousand years it may well have effected preservation of materials including botanical remains. Soil and flotation samples were taken at irregular intervals throughout the excavation.

The depth of the deposit varied substantially from near two meters at the mouth of the cave to roughly sixty centimeters where the deposits narrow and taper toward the cave ceiling. The lower and earliest deposits are characterized by alluvial activity while the greater portion of the deposits are eolian deposition. Relatively small and angular rooffall was found throughout the deposit though larger fall is found in the early deposits. In addition, extensive organic material including vegetal fiber and charcoal is scattered throughout the deposits though relatively

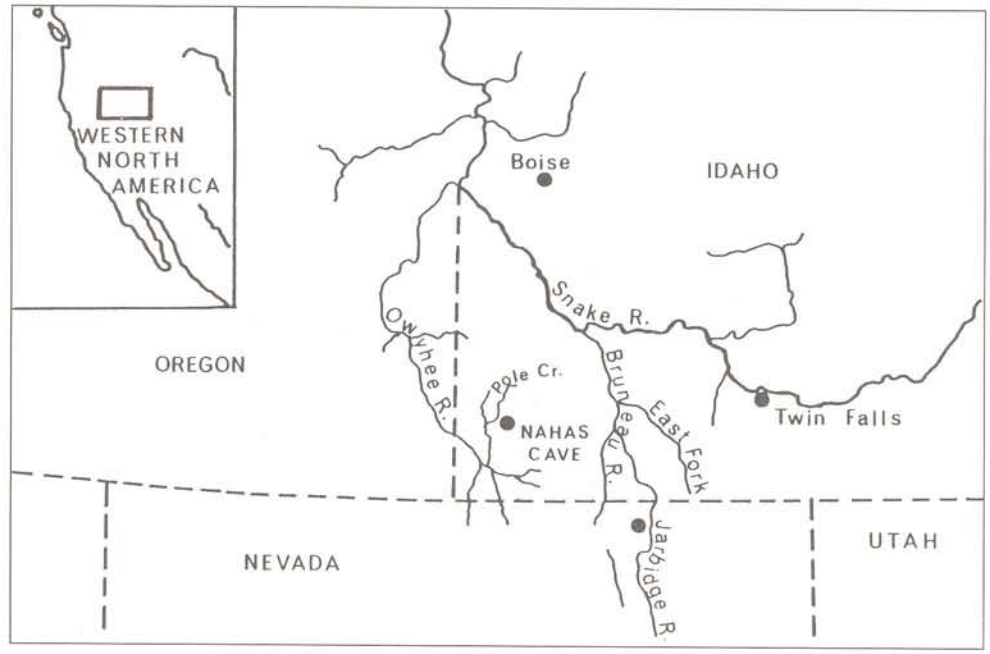

Figure 1. Map Showing General Location of Nahas Cave.

more common in recent levels. The deposits referred to as Zones I-IV from earliest to most recent are of variable thickness but generally definable throughout the deposits. The earliest of these strata, Zone I, rests on a basalt bedrock covered by large angular boulders which range up to one meter in diameter. Zone I is comprised of a tightly compacted sand interspersed with thin bands of lighter sand and clay with gravel sized bits of rooffall throughout. The zone averages between c. 1.5 meters to approximately 2.0 meters in thickness. Though no radiometric dates were obtained for the zone which contains considerable cultural remains, a date of 5900 +70 B.P. (TX 3644) from the lower levels of Zone II suggest a time frame in excess of 6,000 years.

Zone II is a relatively uniform dark brown silt containing thin bands or laminations of sand and small quantities of gravel sized rooffall. Charcoal stains are found throughout the deposit which averages in thickness between 25 and 35 centimeters. Cultural remains were found throughout the level which extends from c. 100-160 centimeters below datum. A radiometric date of 2920 +70 (TX 3637) establishes the most recent age of the zone which is general believed to date between 6,000 and 3,000 years B.P.

TABLE 1. RADIOMETRIC DATES FROM NAHAS CAVE

Level	Cultural Zone	Radiometric Date
1-10 cm	Zone IV	260+/-50 B.P. (TX 3636)
10-20 cm	Zone IV	350+/-70 B.P. (TX 3635)
20-30 cm	Zone III	400+/-70 B.P. (TX 3638)
30-40 cm	Zone III	1100+/-80 B.P. (TX 3642)
40-50 cm	Zone III	1410+/-200 B.P. (TX 3643)
50-60 cm	Zone II	2920+/-70 B.P. (TX 3637)
60-150 cm	Zone II	No Samples
150-160 cm	Zone II	5990+/-170 B.P. (TX 3644)

Zone III is a grey to light brown silt containing thin bands of calcium carbonate and subangular rooffall. The cultural zone which averages 40-50 centimeters in thickness ranges from 20-80 centimeters below surface according to the angle of the deposit. The zone contained substantial cultural remains associated with several large hearths. Three radiometric dates were obtained (see Table 1). Using the radiometric date from the uppermost portion of Zone II (2920 +70 B.P., TX 3637) and the most recent date from Zone III of 400 +70 B.P. (TX 3638) suggests a time range of 3,000 to 400 B.P. The most recent cultural zone, Zone IV, is a loosely compacted light greyish-brown silt containing extensively decayed non-cultural organic material extending to approximately 15 centimeters below surface. A strongly cemented 5-6 centimeter calcium carbonate level located just below the surface covers the entire surface of the cave's deposits. The use of the shelter by cattle most certainly accounts for the heavily cemented calcium carbonate level. Dates of 350 +70 B.P. (TX 3635) from the 10-20 centimeter level and 260 +50 B.P. (TX 3636) establish Zone IV as a more recent Late Archaic occupation. In general, the deposits appear relatively undisturbed and intact.

CULTURAL REMAINS

Nahas Cave produced a substantial record of human use documented by a wide range of material culture and features including fire hearths, processing areas and a storage pit. Of a total of 350 artifacts recovered, 258 (74%) are chipped stone. Collapsing the material culture into Winter's (1969) functional classification of artifact types, the assemblage consists of Weapons (N=30); General Purpose Tools (N=138); Fabricating Tools (N=25); Domestic Tools (N=13) and Recreation/Ceremonial Implements (N=23). The chipped stone implements indicate a marked preference for cryptocrystalline materials (62%) though this most probably reflects the large number of General Purpose Tools (53%) in the assemblage. The faunal assemblage reflects a riparian environment (see Plew 1985, 1986). In general the assemblage shows little variation over time though an increase in numbers of individual types in more recent Late Archaic time frames (1200-300 B.P.).

ARCHAEOBOTANICAL REMAINS

The recovered archaeobotanical remains were collected from flotation samples processed on site during the summers of 1979 and 1980. Flotation samples were taken irregularly and primarily from or near archaeological features. A total of 12 samples were collected and processed. Control samples to assess the probability of natural deposited materials were not taken. Samples were processed using a number 10 metal bucket with a 1 millimeter mesh screen bottom. Approximately one kilogram samples were processed by floating/washing the samples in nearby Pole Creek. Without the use of a filtering device the flotation bucket was held so that approximately one half of the bucket filled with water. Surface materials were recovered with a small sieve while the remainder of the sample was rotated left-right and vertically. Residues were dried and bagged by provenience and later sorted in the laboratory. Only a few archaeobotanical remains were recovered and were not submitted for identification at the time of the excavations.

The materials were subsequently analyzed by Elaine Joyal (personal communication), then a graduate student at Oregon State University in 1986. The archaeobotanical remains consist of five non-carbonized and five carbonized seeds distributed uniformly throughout the deposits (see Table 2). With the exception of a single unidentified seed fragment, the seeds consist of four representing western Juniper (*Juniperous occidentalis*) and four representing dogwood (*Cornus sp*).

TABLE 2. DISTRIBUTION OF ARCHAEOBOTANICAL REMAINS FROM NAHAS CAVE

Unit, Level, Feature	Non-Carbonized Seeds	Carbonized Seeds
S3W4, 0-10cm		1 cf. *Cornus sp.* (dogwood)
S3W4, 20-30 cm	1 *Juniperous occidentalis* 2 *Cornus sp.*	
S3W1-2, 20-30 cm	1 *Juniperous occidentalis*	
S3W4.5, 20-30 cm	1 *Juniperous occidentalis*	
S3W4.5, 50-60 cm		1 *Cornus sp.*
S2W2, 60-70 cm Feature No. 33, Hearth		1 *Juniperous occidentalis* (western Juniper)
S2W2, 90-100 cm Feature No. 36, Hearth		1 unidentifiable seed
S2W2, 100-110 cm		1 *Juniperous occidentalis*

CONCLUSIONS

Only two archaeobotanical specimen are associated with a cultural feature. A large fire hearth (80 x 20) in Unit S2W2, in the 60-70 cm level and a similarly configured fire hearth in Unit S2W2 in the 90-100 cm level. The presence of western juniper and dogwood throughout the deposits have both cultural and environmental implications. First, it suggests that the generalized "sagebrush-juniper" and localized riparian environments within the southcentral Owyhee Uplands have been present for at minimum the past 6,000 years. As a highly aqueous woody plant (see Burkhardt 1969), the western juniper proliferates and is redistributed rapidly with fluctuations in moisture. Its presence in the southcentral Owyhee Uplands suggests some degree of environmental constancy in the area during the past 6,000-7,000 years. This has important implications for human use of the area as there is a clear pattern of the utilization of the uplands, particularly during the Late Archaic (Plew 1985, 1986). Importantly, the presence of particular plant communities informs us about the distribution of fauna which may corroborate the existence of specific habitats.

Though no direct cultural correlation can be offered, the western juniper and dogwood served a variety of functions among aboriginal populations. Within the northern Great Basin area juniper was ethnographically used for, among other purposes, the manufacture of blankets, bows, leggings, water jug stoppers, house cover, knife handles and for cache linings and fuel (Couture 1978; Mahar 1953; Stewart 1942; see also King 1996: 225-226). The use of juniper for construction of knife handles and for bedding, has been archaeologically documented at Baker Cave III (Plew, Pavesic and Davis 1987). In addition to its use for construction materials and fuel, the use of the fruit of *Juniperous occidentalis* as a medicine is also extensively documented for a wide variety of disorders including kidney, heart and menstrual disorders, colds, venereal disease and rheumatism (Train, Henrichs and Archer 1941; Couture 1978; Couture, Ricks and Housely 1986). The leaves and twigs were used for coughs, cold/flu, boils, burns, sore throats, pneumonia, rheumatism, small pox, fever, sores, stomachache as well as a number of other maladies (Train et al. 1941; Mahar 1953). Aboriginal use of dogwood has not been ethnographically documented within the Owyhee Uplands, though its use for manufacture or construction of baskets, cradleboards, jugs, trays, fishtraps, seedbeaters among other items is known among the adjacent Harney Valley and Warm Springs Paiute (see Couture 1978; Mahar 1953; Whiting 1950; see also King 1996: 231-232). Additionally notable is the medicinal use of the root of dogwood (*Cornus canadensis*) to treat the eye (Mahar 1953:98-99).

Although critical to understanding diet breadths and past environmental diversity, the reporting of archaeobotanical remains from southern Idaho sites has been relatively rare (see Schaff 1984; Joyal 1987; and Lewarch 1989). While this undoubtedly reflects sampling and recovery strategies, it also suggests a failure to appreciate the value of combining archaeobotanical data with faunal data when considering environmental context and prehistoric resource availability and use. Though ethnographic descriptions and compilations of aboriginal plant use (Mahar 1953; Steward 1938, 1941; Stewart 1941; King 1996) are common, they only suggest resource use and ignore many important factors of environmental variability and optimal decision making by aboriginal peoples (see e.g. Simms 1985, 1987). Generally, archaeologists have inferred the use of plants on the basis of the presence of groundstone and by "broad" analogical use of relatively nonspecific ethnographic/historical records they have assumed constancy of environment and resource use over lengthy periods of time. Further, their assumptions have been based upon modern resource distributions and ethnographic use, which may not reflect localized environmental diversity and thereby multiple human responses. The continuing documentation of variation in the archaeological record suggests that cultural adaptations are substantially more complex.

Archaeobotanical remains provide need baseline data useful for drawing inferences regarding both paleoenvironmental and resource use. Recovery and analysis of even very limited archaeobotanical remains, such as those from Nahas Cave provide useful insights regarding individual sites and contexts but perhaps more importantly add to the baseline data that may eventually assist in describing prehistoric environments and human activities for the region.

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OBITUARY

JAMES L. HUNTLEY
1914-1996

With the passing of James L. Huntley on June 12, 1996, Idaho Archaeology lost one of its greatest supporters and contributors. James Huntley was born January 23, 1914 at Nampa, Idaho. His family was one of the pioneering families in Owyhee County having arrived by wagon train in the 1880's. Those ties were strengthened as his family lived near Guffey and at Givens Hot Springs and as he would later own a ranch near Reynolds Creek. Jim's pioneer heritage instilled early in his life an abiding interest in the history of the peoples and places of the region. These interests would result in his publication of a book on early ferry boats in Idaho (1979) and numerous papers on the history of Owyhee County and the early Native American tradition of the area.

Though his writings will remain as his most visible legacy, Jim was also prominent in helping to establish part of the infrastructure that will facilitate research and learning about the Owyhee past for many future generations of Idahoans. Jim was an ardent supporter of the Owyhee County Historical Society serving as its President and assisting with the development of the Owyhee County Museum Complex at Murphey, Idaho. Jim often provided lectures and field trips for local school children and others interested in local history and frequently contributed articles on local history for the museum's publication *Owyhee Outpost* including a comprehensive history of the Swan Falls Dam Project. In the early 1980's he served as editor and managing editor of the journal.

Among Jim's most important contributions is his role as one of the founding members of the Idaho Archaeological Society and of its journal the *Idaho Archaeologist*. Always committed to informing the public about its cultural heritage, Jim served the society as an officer and as good will ambassador in the many communities where he was known. He also served as a member of the Editorial Advisory Board of the *Idaho Archaeologist* between 1979-1983. Over the years Jim became one of the journal's most frequent contributors. Notably, Jim understood the need to do archaeology and to publish archaeological findings. During the 1970's and 1980's Jim would work on a number of archaeological projects and visit many others. Most memorable were the field seasons at Givens Hot Springs with staff from the Idaho State Historical Society. The opportunity to work on the excavation of an important archaeological site near "home" remained for Jim one of his most cherished memories. Jim not only contributed his time to other projects but worked diligently on many of his own, particularly those dealing with material culture. On many occasions he attended the Annual Meeting of the Idaho Archaeological Society to present the findings of his research.

Jim's scholarly contributions to the archaeology and history of the area are varied and numerous. As noted, Jim made important contributions to the documentation of the history of Owyhee County and Southwestern Idaho. Most significant in this regard was his work in documenting the history of ferry boats in Idaho. Jim captured with personal insight an important part of the early history of transportation in Idaho. His book *Ferry Boats in Idaho* published by Caxton remains the definitive study. In archaeology, much of his published work focused on the description of material culture; publishing papers on Paleo-Indian projectiles and on a range of other unusual artifacts. Perhaps his most insightful contribution toward an understanding of the archaeology of the Snake River Canyon was his recognition of the importance of the numerous shell middens and scatters along much of the Snake River. His interests culminated in the excavation of the Cromwell site (10-OE-2792) near Marsing, Idaho (Huntley 1988). His work strongly suggests seasonal settlement variability in the use of mussel in Archaic contexts and provides a basis for further scholarly investigation of the role of freshwater mussels in the diet of aboriginal peoples of the Snake River.

Over the past twenty-five years James Huntley provided important leadership to the archaeological community through his service to local and statewide historical and archaeological organizations and by his commitment to research and public education. He will be missed by those of us who had the opportunity to work with him over the years and long acknowledged by those who will benefit from his dedicated efforts.

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