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Recovering Salmon: Zooarchaeology and Oral Tradition in the Documentation of Extirpated Cultural Keystone Species in the Upper Klamath Basin

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As this special issue attests, Dr. Virginia Butler and her students have made significant and lasting contributions to the study of human-environment relationships over deep time in the Pacific Northwest. Beyond this, their contributions suggest the potential of archaeological research to engage the public and to address pressing natural resource issues of our time. Their investigations of Pacific salmon harvests in the Klamath River Basin are an important case in point. Applying the methods of zooarchaeology to the study of anadromous fish in the Upper Klamath Basin, Butler and her students provide clear corroboration of Tribal oral tradition. In turn, their research has helped support restoration of fish passage on the Klamath River—historically the third most productive salmon-producing river in the United States.

While salmonids are well documented as biological and cultural keystone species in rivers throughout the Northwest, the study of Klamath River salmon presents unique challenges (Garibaldi and Turner 2004). The Klamath Basin is vast, at some 15,751 square miles (40,790 square km) (Figure 1). Yet, near its midpoint the river passes through a geological bottleneck. Here, the river descends through the steep and deeply incised Klamath River Canyon as it makes its way through the northern Californian Cascade Range toward the sea. A private energy conglomerate, the California Oregon Power Company (COPCO), constructed the first COPCO hydroelectric dam on the lower end of this canyon between 1912

and 1916, without facilities allowing for fish passage. Three other dams followed as part of the Klamath Hydroelectric Project on the river's main stem: COPCO 2, Iron Gate, and J.C. Boyle, compounding obstacles to fish passage. While the biota of the upper and lower river were always somewhat distinct, the conditions of the upper river changed dramatically over a century ago. Reconstructing precontact conditions above the dam, in particular, requires the interdisciplinary study of past environments.

All researchers have accepted that the comparatively arid Upper Klamath Basin abounds with lake, marsh, and stream habitat suitable for desert fish like minnows (*Cyprinidae*) and suckers (*Catostomidae*). Yet, some academic sources have questioned whether the Upper Klamath Basin ever had harvestable quantities of Pacific salmon due to the geological obstacles presented by the Klamath Canyon. Anthropologists Alfred Kroeber (1925: 325) and Gordon Hewes (1947) even suggested that the Upper Klamath Basin was devoid of anadromous fish, apparently extrapolating fish distribution from the much-eroded habitat conditions at the time of their writing. In turn, these accounts hampered proposed salmon habitat restoration in the Upper Klamath Basin in recent times, and gave leverage to organizations and political figures citing the purported lack of Upper Klamath Basin salmon in their cases against dam removal and river restoration. These claims prompted a number of detailed historical investigations

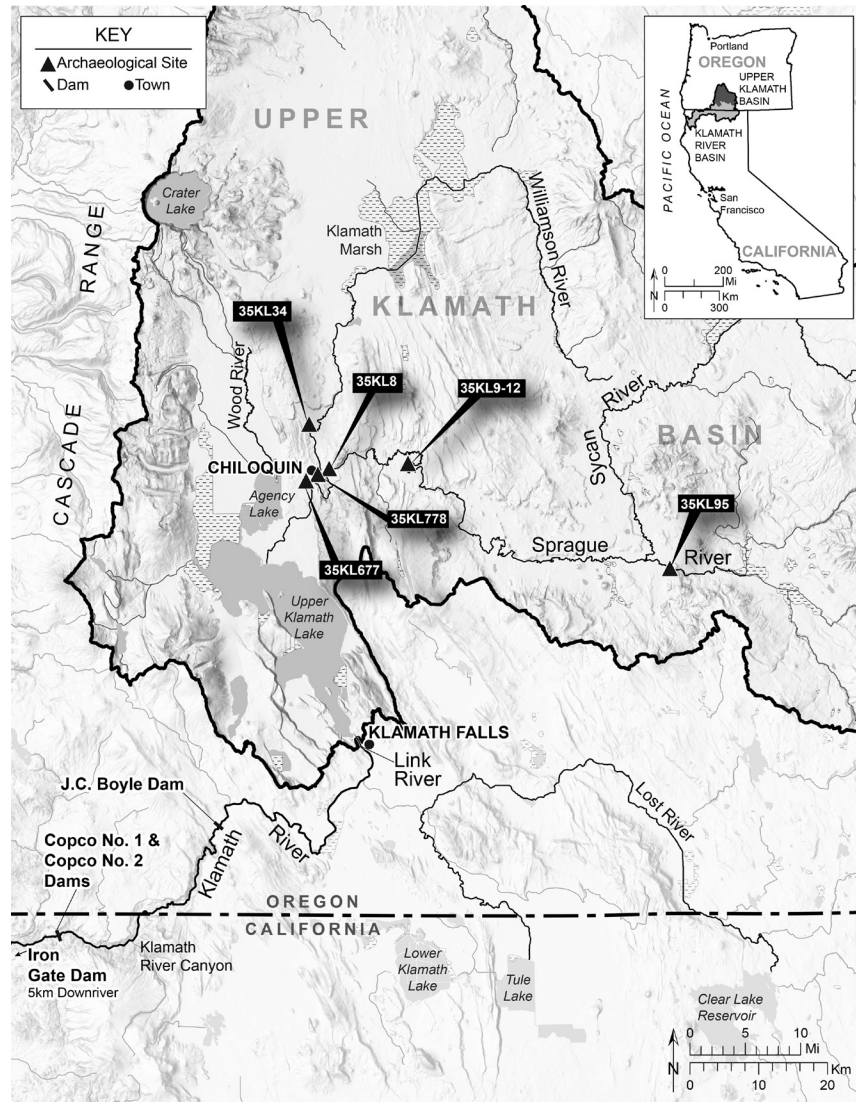


Figure 1. Map showing archaeological sites with verified Pacific salmon remains in the Upper Klamath Basin as documented in the works of Stevenson and Butler (2015) (Figure by Johonna Shea).

simply to substantiate the existence of the fish upstream from the canyon (Hamilton, Curtis, et al. 2005; Hamilton, Rondorf, et al. 2016).

The Klamath and Modoc people long knew better. Chinook salmon (*Oncorhynchus tshawytscha*) and anadromous steelhead (*Oncorhynchus mykiss*) served as a staple food, of keystone significance, traditionally greeted upon the fishes' return with reverence and ceremony. Geological obstacles and droughts may have temporarily impeded salmon passage to the upper basin, as oral tradition suggests,

but in time they would surely return. Prior to Euro-American contact, this pattern persisted for countless generations, a point suggested by early historical writings and classic ethnographic accounts (e.g., Spier 1930:145). Due to the dams, however, memories of salmonid fishing within the Upper Klamath Basin are embedded in the oral traditions of the Klamath Tribes rather than in the lived experience of any Tribal member. Klamath elders describe the loss of salmon as an apocalyptic moment—the loss of a cultural keystone species and a key dietary staple; they

report that the loss compounded growing food insecurity and brought myriad shocks to the health of families and traditional economies in the years that followed. Downstream from the dams, too, depressed fish numbers and impaired water quality were felt by all Klamath River Tribes.

On several occasions, Tribes attempted to seek redress, including unsuccessful 1930s federal litigation on behalf of the Klamath Tribes and a series of claims addressing both water and fishing rights by the Klamath and the Bureau of Indian Affairs into the late twentieth century (Lane and Lane, Associates 1981). Former salmon fishing stations still served as sites for harvesting locally secondary resources such as freshwater trout and suckers, as berrying and hunting camps, and as places of historical commemoration. In many cases, former salmon fishing stations became places where people go to “pray that the salmon will come back” (Deur 2003:45). To the extent that salmon fishing could persist within the Tribe after 1916, it occurred in abbreviated visits to traditional outlying fisheries alongside members of other Tribes, in such places as the Rogue River Basin, the lower Klamath River, and Celilo Falls.

Discussions of dam removal in recent decades made this an issue of pressing interest to many parties. Competing interests embraced the ambiguity in the available written record in opposing decommissioning and removal of the Klamath dams. This came to the fore in the early 2000s, when the Federal Energy Regulatory Commission license for the dams was due to expire, raising the question of whether the dams were to be relicensed or decommissioned. In response to these regulatory questions, the Klamath Tribes enlisted Deur to carry out systematic ethnographic interviews with Tribal members from 2001–2003, to see what they could recall relating to salmonid harvest and harvesting sites. Among our tasks was to identify fishing stations that might still warrant consideration as Traditional Cultural Properties (TCPs)—places of enduring cultural significance eligible for the

National Register of Historic Places (King 2003). We systematically interviewed no fewer than 40 elders, most of whom had little or no knowledge of the written ethnographic and archaeological record, but who were fluent in the oral tradition of the Klamath and Modoc people.

This research documented several key findings, including the identification of specific salmon fishing stations within the Upper Klamath Basin. Above the traditional fishing stations of Link River (modern-day Klamath Falls) interviewees consistently described these stations at certain points along the Sprague and Williamson rivers and their tributaries, with almost all of them corresponding to known archaeological sites (Deur 2003). Interviewees reported key salmon fishing stations at Bezuksewas Village near the Williamson-Sprague River confluence; at shallows along the Williamson River, including places in the vicinity of Collier State Park, at the Williamson River Bridge; and at places on the Sprague River, especially including Beatty Curve but also minor stations in the lower Sprague River, including shallows immediately east of modern Chiloquin. Elders identified a few other smaller and ephemeral sites too. Interviewees also reported salmon fishing at Kawumkan Springs on Sprague River, but did not identify it as a potential TCP because of private ownership and access issues precluding ongoing use of the site. We were able to demonstrate that the continued absence of fish passage still eroded cultural uses of these sites—each potentially eligible as a TCP—and these adverse effects were still admissible as evidence of the adverse effects of salmon extirpation. Still, doubts persisted among certain opponents of river restoration as to the presence or significance of salmonids in the Upper Klamath Basin.

A few years later, Butler and students, including Alexander Stevenson, carried out their own independent and systematic zooarchaeological assessment of available collections containing fish bones. They analyzed all sites with curated fish remains throughout the Upper Klamath Basin, seeking to identify

salmonid remains. They found diagnostic bones in abundance, including those of Chinook salmon and anadromous steelhead or “redband” trout. Butler et al. (2010) summarized the findings. Later, Stevenson completed a Master’s thesis (2011) fully substantiating these results with reference to mitochondrial DNA and geochemical analyses. Together, Stevenson and Butler (2015) published a groundbreaking article summarizing these findings in the *Journal of California and Great Basin Anthropology*.

Inadvertently, their findings provided impressive corroboration of veracity of Tribal oral tradition. The list of places with confirmed “salmon presence” presented by Stevenson and Butler (2015) based on fish bone samples produced an almost identical match with those sites reported by Tribal members on the basis of their oral tradition in the 2003 Deur study. This was true even though the salmonid remains were often of considerable antiquity, with the earliest salmon remains in their samples dating from ca. 5,300 years before present. Klamath Tribal members greeted these results with great pride and enthusiasm, as an affirmation of the wisdom of the elders and as testament to the enduring knowledge of Tribal members in spite of generations of forced displacement.

Specifically, Stevenson and Butler reported salmonid remains at the Bezuksewas Village (35KL778), Collier State Park (35KL34), Williamson River Bridge (35KL677), and Beatty Curve (35KL95) sites. They also recovered salmonid remains at Kawumkan Springs Midden (35KL9-12). And just east of Chiloquin on the Sprague River, Stevenson and Butler reported a single salmon bone found in a cave (35KL8) adjacent to an ethnographically reported fishing site. Though the cave itself was not reported as a fishing site, it was reported to Deur (2003) as a location related to first fish ceremonies.

The departures between the ethnographic accounts of twenty-first century elders and the available zooarchaeological record were few. Certain ethnographic sites reported by Deur (2003) but not also reported by Stevenson and Butler

(2015) did not have zooarchaeological collections available for analysis, such as locations in the Wood River Basin. Also, interviewee accounts in Deur (2003) suggest dynamic intermittent salmon passage into unexpected places like the Lost River Basin and possibly Klamath Marsh—drainages only connected to the larger Klamath River drainage through geologically dynamic canyons or linked by ephemeral channels during high water events. These departures between ethnographic and archaeological data in atypical environments provide archaeologists with working hypotheses—each suggesting possibly underappreciated dynamism in the geographical extent of salmonid passage over millennia due to changes in riverine morphology and stream flows.

With a satisfying alignment of archaeological and ethnographic outcomes, these findings underscore the veracity and value of Native oral tradition in understanding environmental phenomena over time. The results also point to the opportunity for further inter- and intra-disciplinary cooperation in illuminating correlations between Native oral tradition and the archaeological record. Butler and her students have always been champions of such collaborations, illuminating our shared past while answering questions of enduring significance to the present and future of our region. Together, their studies have provided a deeper context to discussions of dam removal and environmental restoration proposals, in turn sustaining the long-term environmental and cultural integrity of the Pacific Northwest.

REFERENCES CITED

- Butler, Virginia, Alexander E. Stevenson, Jessica A. Miller, Donbya Y. Yang, Camilla F. Speller, and Nicole Misarti
2010 The Use of Archaeological Fish Remains to Establish Pre-development Salmonid Biogeography in the Upper Klamath Basin, Final Report. Report to National Marine Fisheries Service. Portland, OR: Portland State University Department of Anthropology.
- Deur, Douglas
2003 Traditional Cultural Properties and Sensitive Resource Study, Klamath Tribes. Klamath Hydroelectric Project FERC Relicensing Documentation. Report from the Klamath Tribes and the Oregon State Historic Preservation Office, Chiloquin and Salem, OR.
- Garibaldi, Ann, and Nancy J. Turner
2004 Cultural Keystone Species: Implications for Ecological Conservation and Restoration. *Ecology and Society*, 9(3):1.
- Hamilton, John B., Gary L. Curtis, Scott M. Snedaker, and David K. White
2005 Distribution of Anadromous Fishes in the Upper Klamath River Watershed Prior to Hydropower Dams: A Synthesis of the Historical Evidence. *Fisheries*, 30(4):10–20.
- Hamilton, John B., Dennis W. Rondorf, William R. Tinniswood, Ryan J. Leary, Tim Mayer, Charleen Gavette, and Lynne A. Casa
2016 The Persistence and Characteristics of Chinook Salmon Migrations to the Upper Klamath River Prior to Exclusion by Dams. *Oregon Historical Quarterly*, 117(3):326–377.
- Hewes, Gordon W.
1947 Aboriginal Use of Fishery Resources in Northwestern North America. Doctoral dissertation. Berkeley: Department of Anthropology, University of California.
- King, Thomas F.
2003 Places That Count: Traditional Cultural Properties in Cultural Resource Management. AltaMira Press, *Heritage Resource Management Series* No. 6. Walnut Creek, CA.
- Kroeber, Alfred L.
1925 Handbook of the Indians of California. Bureau of American Ethnology Bulletin No. 78. Washington, D.C.
- Lane and Lane, Associates
1981 The COPCO Dams and the Fisheries of the Klamath Tribes. Portland, OR: Bureau of Indian Affairs.
- Spier, Leslie
1930 Klamath Ethnography. University of California Publications in American Archaeology and Ethnology, Volume 30. Berkeley: University of California Press.
- Stevenson, Alexander E.
2011 Using Archaeological Fish Remains to Determine the Native Status of Anadromous Salmonids in the Upper Klamath Basin (Oregon, USA) Through mtDNA and Geochemical Analysis. Master's thesis. Portland, OR: Portland State University Department of Anthropology.
- Stevenson, Alexander E., and Virginia L. Butler
2015 The Holocene History of Fish and Fisheries of the Upper Klamath Basin, Oregon. *Journal of California and Great Basin Anthropology*, 35(2):169–188.