



Scaffold for A-frame net fishing. Karok man placing net into water. Ca. 1900. After Kroeber and Barrett (1962:Plate 2). Courtesy of the Lowie Museum of Anthropology, University of California, Berkeley.

Ritual Management of Salmonid Fish Resources in California

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ETHNOGRAPHERS at times are more concerned with reporting data than interpreting them. As a result, ethnographies often have the appearance of being little more than collections of facts organized by a generally standardized topical outline. Synoptic surveys may result from an effort to synthesize a particular trait, custom, or complex, and from these there often results a deeper insight into the function and purpose of what, in unanalyzed form, seem to be cultural practices which are illogical or meaningless. We attempt here to review native ritual, belief, and ceremony connected with anadromous fish in the northern part of the state in the effort to determine what logical and functional significance these had in terms of Native California life and survival.

The importance of anadromous fish resources to aboriginal societies inhabiting the major freshwater river drainages of Northern California is well-documented in the ethnographic literature. Hewes (1942, 1947), Rostlund (1952), and Kroeber and Barrett (1960) have summarized these data in studies aimed at defining the cultural and geographic distribution of material subsistence techniques applied to the seasonal movements of important migratory fish species. Devices and techniques which allowed for efficient harvest of anadromous fish runs included fish weirs, basketry traps, dip, thrust, arc, and A-frame

nets, toggle harpoons, and application of botanical fish poisons.

Whereas the material aspects of fishery technology form a basic and informative part of the ethnographic record, the potential importance of specialized ritual procedures undertaken at the inception of anadromous fish runs has generally been overlooked. Through much of Northern California, ritual injunctions and social control mechanisms were instituted by specific "ritual specialists" (formulists, shamans, and moiety chiefs) at the outset of the first major seasonal migrations of salmon. In Northwestern California, ritual specialists also directed the construction and use of large, fixed weirs designed to intercept the upstream movements of fish.

A synthesis of ethnographic accounts of first salmon ritual reveals a remarkable similarity of form and function throughout Native California, particularly with respect to the seasonal occurrence of these rites and the central regulatory role assumed by various ritually empowered personalities.¹

The present study entails a brief examination of the functional interaction between ritual and certain ecological aspects of anadromous fisheries, including seasonality, periodicity of migratory fish behavior, and harvest potential. The data can be topically divided into two broad categories:

(1) *The anadromous fish resource in abo-*

original California: What major anadromous fish species were important to aboriginal economies? When did the seasonal influx of important fish species occur? In what freshwater systems did fish annually run in sufficient quantity and regularity to exist as a major food resource? What distinctive characteristics of the annual spawning runs made them an important "ecological event" to aboriginal resource economies and allowed them to be efficiently harvested with aboriginal technology?

(2) *Ritual regulation of fishing activities:* What was the basic form of the "first salmon" or other anadromous fish ritual in Native California and at what time of the year was it observed? How was this rite culturally and geographically distributed? What was the role of specific ritualists in initiating and supervising "first salmon" observances? What aspects of these ritual functions were overtly managerial, conservational, or organizational in effect? Did these prescribed ritual behaviors encourage efficient harvest and maintenance of anadromous fish resources?

The hypothesis that successful adaptation of aboriginal populations to riverine resources in California, in this case the seasonal spawning runs, may have included not only technological strategies but ritual procedures designed to manage and organize the harvest of the resource remains largely theoretical due to the qualitative nature of the ethnographic information. However, the widespread occurrence and basic similarity of large-scale fish rituals indicates similar cultural responses to environmental pressures presented by the major anadromous fisheries in aboriginal California.

THE ANADROMOUS FISH RESOURCES IN ABORIGINAL CALIFORNIA

As a seasonally concentrated and annually available food resource, freshwater anadromous fish were an important part of aboriginal

subsistence economies in northern Native California. Of the five species of Pacific salmon in the genus *Oncorhynchus*, only two are abundant in the freshwater systems of Northern California, and these species undoubtedly dominated aboriginal fish harvests. The king or chinook salmon, *Oncorhynchus tshawytscha*, and the silver or coho salmon, *O. kisutch*, regularly migrate and spawn in California rivers at distinct seasonal intervals.² *O. tshawytscha* is normally more prevalent in larger rivers, while *O. kisutch* does not migrate as far upstream and frequents smaller streams (Shapalov and Taft 1954:57, 264). In addition to these salmon species, large spawning populations of steelhead or rainbow trout, *Salmo gairdnerii*, are seasonally common in nearly all coastal streams of California. Except in those areas near large freshwater lakes, the greater part of the aboriginal fishing effort was directed toward these three anadromous taxa.

Various environmental factors and species characteristics determine the distribution, seasonal behavior, and potential availability of salmon and steelhead in California. The anadromous adaptation involves the migration of maturing adults from the sea to freshwater streams and their smaller tributaries. After migration upstream to the spawning grounds at the headwaters of the larger streams, eggs are deposited in suitable shallow gravel beds. The mature salmon then die. The eggs hatch during the following months and the "fry" remain in freshwater for a variable length of time and then migrate to the sea where they develop to maturity over a period of several years. Upon maturation the adults return to the freshwater systems (often the same "parent streams") where they spawn and die, thus completing the migratory cycle. The natural maintenance of this cycle depends upon free access to both freshwater spawning grounds and the sea (determined by stream depth and flow volume), lowered headwater temperatures suitable for spawning and early development, and clean, unobstructed gravel beds

which provide a free flow of clear, well-aerated water for incubation (Davidson and Hutchinson 1933:673; Rostlund 1952:15). Across California, these conditions normally occur in the early fall. However, in several river systems, notably the Smith, Klamath, and Sacramento-San Joaquin, headwaters sufficiently cold for spawning activity occur not only during the normal autumnal temperature drop, but also during the spring, when early snowmelt from surrounding mountain ranges creates headwater temperatures and stream level appropriate for spawning activity of the king salmon (Rostlund 1952:19-20). Thus, in aboriginal California, the king and silver salmon both entered larger stream systems in the latter half of the year, and the king salmon also entered in the early spring, creating an important spring-fall cycle of runs.

Oncorhynchus tshawytscha originally ranged as an important resource as far south as Monterey Bay on the coast and the San Joaquin River and its main tributaries inland, with individual fish found as far south as the Ventura River (Evermann and Clark 1931:48). It entered the Smith, Klamath, Trinity, and Sacramento-San Joaquin systems (including the major eastern tributaries of the Sacramento and San Joaquin on the Sierran slope) in large numbers during the spring, between the months of March and June (Rutter 1907:150; Clark 1929:27-46; Snyder 1931:9, 18-32; Baumhoff 1963:174).³ Of the spring salmon run in the Sacramento River, L. Stone noted that the king salmon remained scarce until the first of March,

...when they pour up the river in great numbers. This flood of salmon lasts through March, April, and May, making these months the harvest months of the river fishermen, both because the salmon are plentiful and in good condition [1873:180-181].

A similar spring influx of king salmon is noted for the Klamath by R.D. Hume:

In 1850 in this river during the running season, salmon were so plentiful, according to the reports of the early settlers, that in fording the stream it was with difficulty that they could induce their horses to make the attempt, on account of the river being alive with the finny tribe [quoted by Snyder 1931:19].

Stephen Powers reported:

There are two runs of salmon in the Klamath: one in the spring and one in the autumn, of which the former is the better, the fish being then smaller and sweeter [1872:533].

A summer or fall migration of king salmon occurs in the same rivers as the spring run, and there were runs into the smaller tributaries of the Klamath (such as the Salmon, Scott, and Shasta) and the coastal streams south of the Klamath, including the Mad, Eel, Bear, and Mattole rivers, and Redwood Creek. There is some historical evidence which suggests that an additional, winter run of king salmon may have occurred in the Sacramento River (Rostlund 1952:22).

A fall or winter run of *Oncorhynchus kisutch* occurs in most coastal streams north of Monterey Bay, but this species does not enter the interior Sacramento-San Joaquin system in significant numbers. The timing of the silver salmon run on the coast overlaps the fall run of king salmon in the North Coast Ranges, *O. kisutch* entering freshwater and moving upstream in September when early rains facilitate permanent opening of coastal streams to the sea. Spawning is usually completed between November and January, the young migrating to the sea the following year (Shapalov and Taft 1954:33-39, 73). The silver salmon do not ascend streams for distances greater than approximately 150 miles, even in the larger rivers (Shapalov and Taft 1954:57).

The sea-running steelhead trout enters nearly all coastal streams of California north of Ventura County to the Oregon border for

spawning purposes (Evermann and Clark 1931: 49). Unlike the native salmon, *Salmo gairdnerii* does not die after spawning. The surviving adults return to the sea after running in freshwater. In the larger rivers, such as the Klamath, Sacramento, and Eel, some steelhead enter nearly every month of the year, but the major migration occurs in the late autumn or winter when rising stream levels allow their upstream movement and spawning.⁴ The run lasts for several months during the winter, usually from December to March (Shapalov and Taft 1954:108-109).

In summary, an initial description of the aboriginal anadromous fish resource in Northern California may be based on the seasonal occurrence of spawning runs in streams across the northern half of the state. Although Baumhoff (1963:173-174) has utilized stream size in "fish-miles," species occurrence, and season of migration as indices of aboriginal salmon availability, the present discussion proposes *seasonality* as the single most important factor in determining aspects of the cultural impact of the anadromous fish resource. Based on this criterion and on the ethnographic and biological data available, there were essentially *two* types of anadromous fish streams in aboriginal California:

(1) *Biannual streams*; the larger river systems (or sections of these systems) such as the Smith, Klamath, Trinity, and Sacramento-San Joaquin in which an early *spring* run of king salmon as well as summer or fall runs of king and/or silver salmon, and a winter migration of steelhead occurred.

(2) *Annual streams*; the smaller streams, generally the north coastal streams south of the Klamath and the smaller tributaries of the Klamath and Sacramento, in which a spring run did *not* occur, but in which some mid-year migration of king salmon and/or fall run of silver salmon as well as a winter steelhead run did occur.

The foregoing distinction is of importance for several reasons. Those native populations

to whom anadromous fish were either the most important or a major staple in the food economy almost exclusively inhabited river drainages in which the spring salmon run occurred. The principal foci of major anadromous fisheries centered in Northwestern California (the Smith, Klamath, and Trinity rivers) and the Central Valley (the Sacramento-San Joaquin and their major tributaries) (Rostlund 1952:149-150, 207-208; Baumhoff 1963:169-170).⁵ With the exception of the coastal streams south of the Klamath, it appears that the most important and productive fishing areas in Native California were those which could rely upon an assured and abundant *early spring* run of king salmon.

The critical importance of the spring salmon run to native freshwater fishing economies has been noted by Gunther (1926:605; 1928:135) and Rostlund (1952:23). The spring runs provided abundant fresh salmon in the most excellent condition of the year (the late-season fish being of generally poor condition) at a time when stored provisions were dwindling or exhausted after a long winter of use. The spring salmon season may have been the most critical juncture in many native fishing economies, so great was the seasonal range from the previous fall abundance (which was largely dried and stored while the weather permitted) to the scarcity of good quality fish in the winter months. Powers makes note of the importance of the spring run on the Klamath in his ethnographic essay on the Yurok:

Then there is the vernal Salmon dance, which is something different from the formal and solemn ceremonial of the Cahrocs. We can well imagine with what great joy the villagers engage in this, when—after a dreary and desolate winter of rain, during which the wolf has been hardly kept away from their doors, and the housefather has gone down many and many a time to peer into the Klamath, if perchance he might see the black-backed finny rovers

shooting through the water, but in vain, and has turned on his heel and cursed with bitter cursing the White Man (the *waugheh*), who muddies the water so he can no longer see to spear his necessary meat—when, at last, as the ferns are greening on the mountain-side and the birds of spring are singing, the joyful cry resounds through the village, "*Maypoot, maypoot*" ("The salmon, the salmon!"). They are coming at last! [1872:536].

In addition to the importance of the spring run of king salmon and the postulated dependence of native fishing economies upon the successful harvest of this particular resource, the significance of the seasonal spawning runs to aboriginal populations may be established along two other lines of reasoning. The number of strictly fluvial, nonanadromous fish species (excluding the trouts) in the freshwater river systems of Northern California is small and not of high quality or quantity, consisting of perch, suckers, pike, chub, river perch, and several species of minnow (Snyder 1908:155; Rostlund 1952:15, 74; Kroeber and Barrett 1960:5). The comparative abundance of anadromous fish and the paucity of permanent freshwater fauna surely determined the emphasis placed upon the salmon harvest. Finally, the annual salmon runs were basically recurrent events, rarely failing entirely, and the long-term stability of productive fishing sites along major stream courses was generally assured in pre-contact times. Although significant migrations of salmon were seasonally concentrated and might last for only a variable period of weeks or months in the spring or fall (during which the quantity of fish fluctuated from abundance to scarcity), a well-organized fishing effort at the appropriate seasonal interval gave a comparatively great return:

The high concentrations of individuals in confined sections of a river, or massed in the surf, makes the effort expended by the fisherman extremely low in proportion to

the effort required to obtain equal amounts of other edible products, agricultural products not excepted. In exchange for a few hours of heavy muscular effort, a single fisherman, in many cases equipped with the simplest gear, may land several thousand pounds of fish, considerably more than he could consume in a year. Compared to the weeks or month of heavy labor required by a primitive farmer to produce a year's food supply, fishing is a highly efficient technique [Hewes 1947:34].

When native technology, ranging from the large-scale, communal building of a salmon weir to the efforts of a single individual with a salmon spear, was utilized at the seasonal maxima of the fish migrations, the effort/yield result was maximized to such an extent as to make salmon fishing perhaps the most efficient subsistence undertaking in Native California.

We have, up to this point, reviewed ecological and ethnographic data on fishing resources in aboriginal California in order to develop several basic premises concerning the adaptation of native cultures to anadromous fish resources. The salmon and steelhead resource was above all an abundant, but seasonally variable, source of food for aboriginal economies, and those native groups which inhabited the courses of the major, biannual salmon streams in Northern California relied upon these anadromous fish as a basic part of their diet. The spring immigration of king salmon into the major streams was the most important run of the entire fishing season in that it supplied critically needed fresh food when stored supplies from the previous year were apt to be nearly exhausted. Of final significance is the fact that a salmon run was essentially a locally predictable natural phenomenon which could be efficiently harvested year after year if a well organized fishing effort took place at the appropriate time interval, usually at the peak of the seasonal migration.

With these basic premises stated, the following section will review the ethnographic

evidence which indicates that the coordination of aboriginal fishing economies with the ecological contingencies of the spring or summer salmon run in California may have been accomplished through large-scale ritual organization and management of salmon fishing, and that specific ritual specialists played a central role in ritual procedures undertaken at the beginning of the fishing season.

RITUAL REGULATION OF FISHING ACTIVITY IN CALIFORNIA: AN ETHNOGRAPHIC INTERPRETATION

Throughout much of Northern California in the pre-contact past (i.e., before 1848), the arrival of the salmon run in the spring was a time during which the "first-salmon" rite and associated ritual behavior took place. The intent of this observance was to recount the oral traditions concerning the origins and travels of the first salmon, and to encourage the immortal culture-hero to again ascend the rivers and streams. The salmon was thus ritually honored and induced to allow himself to be caught. If the first salmon was properly treated, he would act as the "leader" of the run to follow and supply an abundant catch.⁶

When the spring runs first began, procurement and casual consumption of fresh salmon was strictly forbidden. The first salmon was caught by, or given to, a ritualist who was knowledgeable as to the ceremonial details. The ritual preparation and eating of the first salmon followed, undertaken by the ritualist and his assistant or an assembled group. Upon completion of the ceremonial period, which lasted a variable number of days, the fishing season was "opened," and salmon fishing was allowed for the first time.

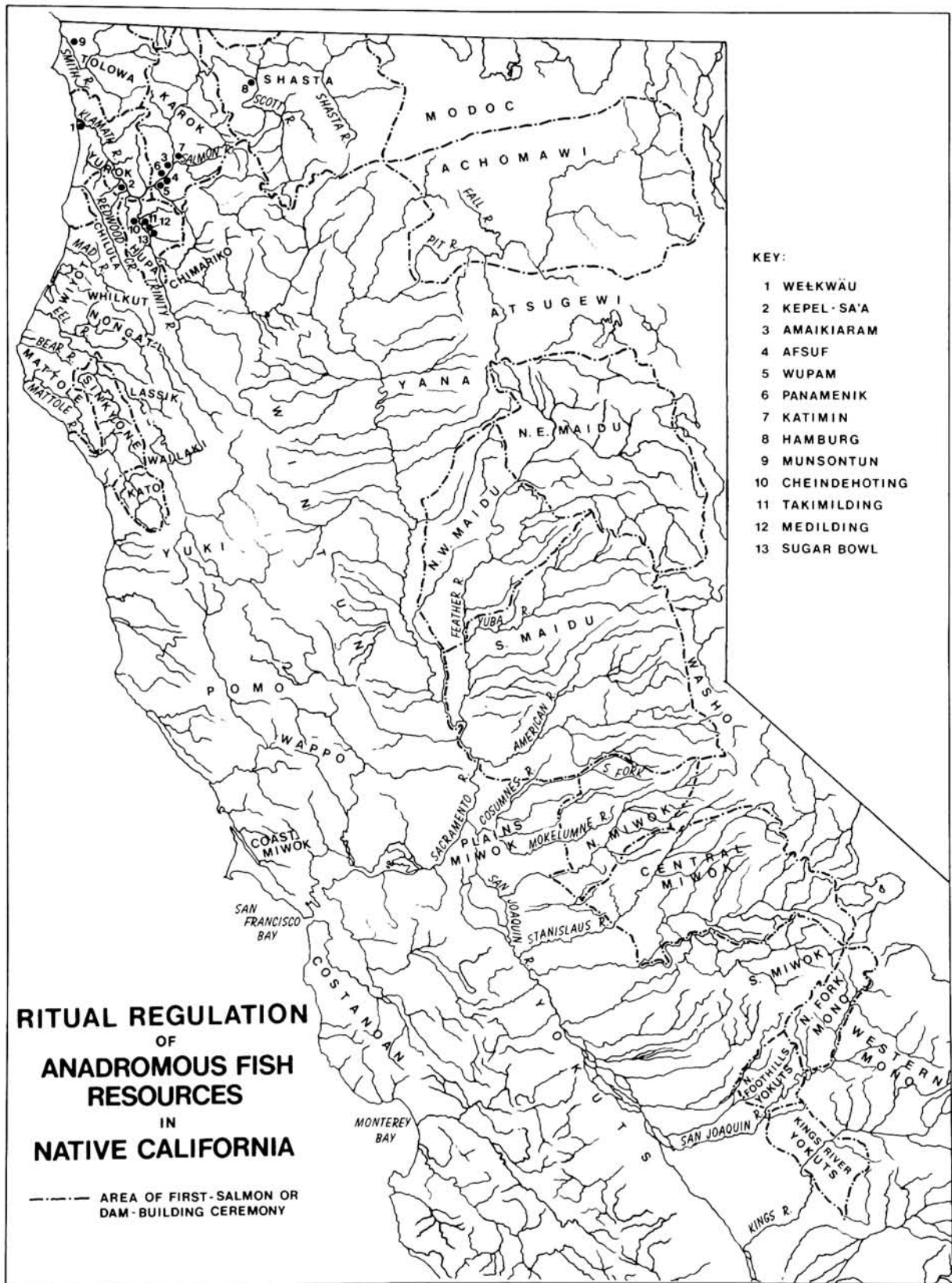
In the following analysis of ritual practices surrounding spring salmon fishing in Northern California, native tribes will be divided into two categories based on the ritual procedure and ceremonial specialist involved in the salmon rite, as follows:

(1) Those groups, inhabiting Northwestern California along the Smith, Klamath, and Trinity rivers, where formulistic ritual dependent upon special knowledge of mythic formulae by a priest or formulist was a basic feature. This is the region of greatest dependence upon the salmon resource (Rostlund 1952:149; Baumhoff 1963:169-171). The Yurok, Karok, Hupa, Shasta, and Tolowa will be considered as ethnographic examples.

(2) Those groups, living outside the Klamath-Trinity area, along the Eel River in the North Coast Ranges and in the Sacramento-San Joaquin drainage system, where first-fish ritual involving shamans and other ritualists is a basic feature. This is the region where salmon was a staple of equal importance to plant foods or game (Rostlund 1952:149-150, 207-208; Baumhoff 1963:169-171). The Maidu, Yokuts, Western Mono, Plains and Central Miwok, Achomawi, Sinkyone, and Kato comprise the ethnographic examples.

For reference purposes, details in the accompanying map indicate the freshwater river systems, localities, and ethnographic groups to be discussed.

The spring salmon run was most intensely ritualized in Northwestern California, where a central core of tribes (Yurok, Karok, and Hupa) practiced the formulistic first-salmon rite, each group undertaking one all-important spring ceremony at a specific site. Although superficially similar in initial procedure to the New Year, or World Renewal, celebrations held by these groups, the first-salmon ceremonies appear to have been held independently of these other public display dances (Kroeber and Gifford 1949:105). The salmon ritual among these three tribes incorporated several common features. The "first" salmon was always procured and ritually eaten by a priest or his assistant, who prayed, fasted and sweated for a prescribed length of time. Fresh salmon could not be consumed by any member of the community until the first spring salmon ritual took place. Supernaturally induced illness or



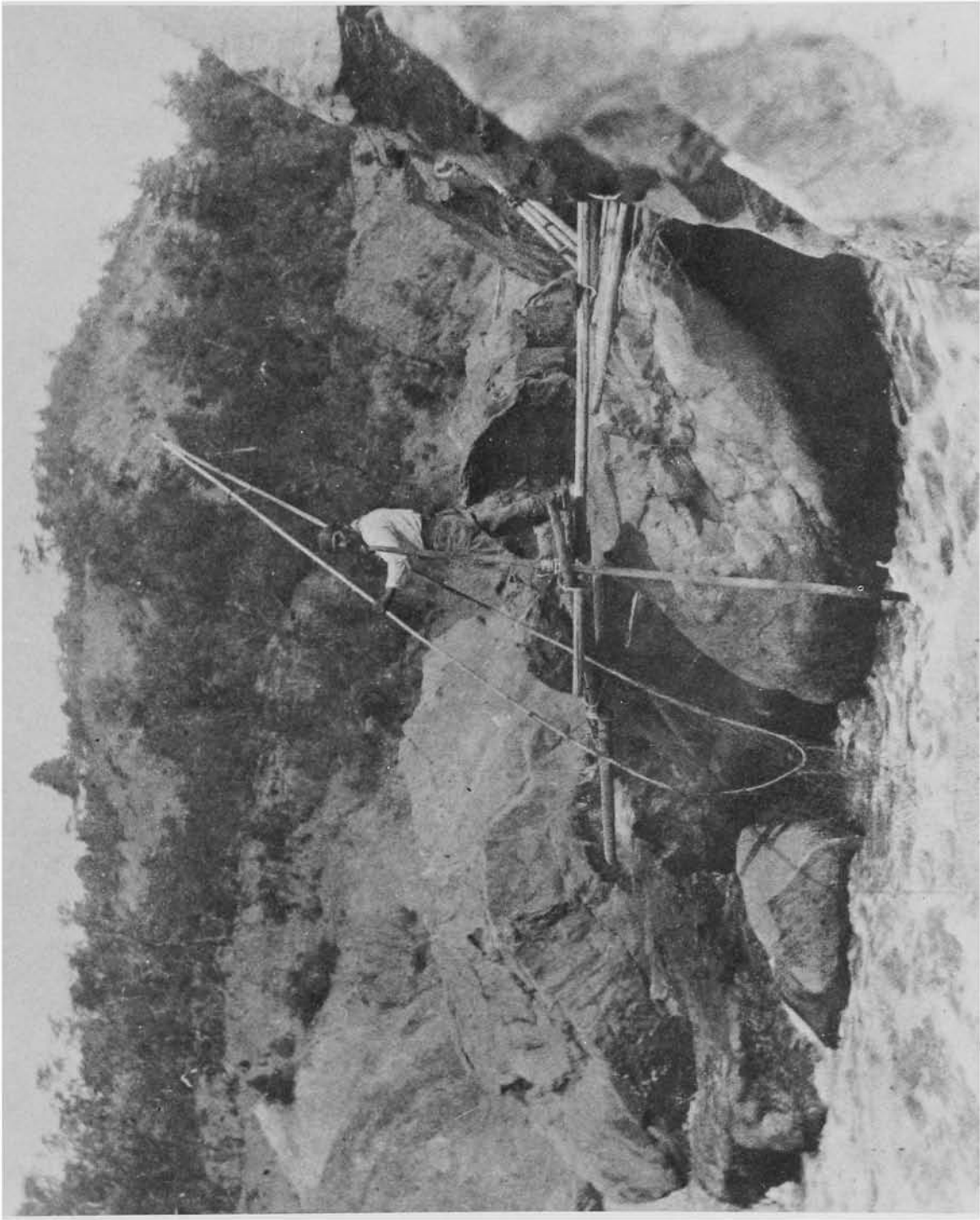
death would occur if the taboo surrounding the capture of salmon was broken. Throughout the period of days over which the ceremony was performed the oral delivery of esoteric formulae, or myths, intended to induce and renew an abundance of salmon, was the main responsibility of the formulist. The formulist's personal knowledge of the proper content and sequence of these narrative recitations, which were treated as private property and considered to be of supernaturally creative power, established his position of primary importance in the rite.

The Yurok first salmon ceremony was held annually in April at Welkwau, a small village at the mouth of the Klamath River. It was a smaller and less important village than Rekwoi which stood directly opposite on the north bank of the Klamath River. Some ancient event may have established Welkwau as the proper place to conduct this important ritual, and, once begun, tradition fixed it as the essential spot for the ceremony. Although mentioned by Kroeber (1925:60-81; Driver 1939:314, 380) and Kroeber and Gifford (1949:99-100), the rite is described in detail by a Yurok informant, Robert Spott, in *Yurok Narratives* (Spott and Kroeber 1942:171-179). An old formulist who lived in Welkwau performed the "*helku menekuni ne'pu*" ("the salmon spearing from shore"). Prior to the rite, no salmon caught at the mouth of the river could be eaten. The formulist prepared for seven days before the rite. He arranged for and instructed his ritual assistant (who was to perform the actual first eating of the salmon), and cleared a path from the ceremonial house to the mouth of the river. On the day before the ceremony, he prayed for the well-being of the world and an amplitude of food resources. On the day of the ceremony, the formulist told men fishing on the bank (for species other than salmon, such as sturgeon and lampreys) to watch for the "first salmon." The formulist was notified when the "first" salmon was seen. Reciting a formula, he feigned the act of

spearing a fish with his harpoon, and allowed the fish to pass up the river as the "*ne' po'wo kewononoro' apin*" ("the first salmon that goes up to the head of the river"). When the next salmon was seen, it was captured, a recitation ensued, and the fish was taken to the ceremonial house where it was cooked and ritually consumed. The assistant ate the cooked fish, and it was believed that if he could consume it in its entirety (presumably not including the bones) he would become wealthy. The formulist prayed the entire night in the sweathouse, and the next day officially sanctioned salmon fishing for all upstream Yurok villages.

The Karok first salmon rite (described by Powers 1872:427; Kroeber 1925:104-105; Harrington 1932:7; Roberts 1932a:426-440; Driver 1938:214, 380; Kroeber and Gifford 1949:35-47) was held in March or April at the village of Amaikiam on the west bank of the Klamath several miles below its confluence with the Salmon River. A formulist and his assistant, reciting formulae, kindled a sacred fire, and cooked the first salmon for ritual consumption. These activities were not to be witnessed by any other persons, and the community as a whole was obliged to leave the village and remain secluded in the surrounding hills. Roberts (1932a:430) mentions that salmon fishing might occur before completion of the rite, but any fish caught were saved and not consumed before the completion of the ceremony. When ritual eating of the salmon was accomplished, the people returned to the village, and all Karok were allowed to begin fishing for and eating fresh salmon.⁷

Each spring on the west side of the Trinity River, near the upstream end of Sugar Bowl Valley, a Hupa formulist would go to a selected site before anyone had engaged in fishing activities and there recite a formula over the first salmon procured (Goddard 1903:78-79, Driver 1938:314, 380; Kroeber and Gifford 1949:56-61). His formulae were narrations of the mythical creation and journey of the salmon down the river and back. Having



Karok plunge net fishing platform at Amaikiam. Ca. 1900. After Kroeber and Barrett (1962:127, Plate 27). Courtesy of the Lowie Museum of Anthropology, University of California, Berkeley.



Amits, assistant to Lo', the Kepel fish dam builder and formulist. He provided an account of his experiences at the Kepel dam construction (see Waterman and Kroeber 1938:62-67). Photo 1907. After Kroeber and Gifford (1949:154, Plate 7). Courtesy of the Lowie Museum of Anthropology, University of California, Berkeley.

cooked and eaten the first salmon, he prayed for an additional ten days, while he continued to catch salmon which were smoked and dried in preparation for a feast on the last day of the rite. A Hupa formulist's prayer is recorded by Driver:

May the fish come to Rekwoi; and may they think there is only one passage direct to "Sugar Bowl." May they not go up the Klamath beyond the junction of the Trinity. May they always hear the roar of the falls at Sugar Bowl [1939:380].

During this ten-day period the formulistic restrictions to be observed in fishing were recited, and fishing was not permitted to the public. On the tenth and final day, a community feast was held and the salmon season was declared officially "open."⁸

After the performance of these spring rites, the ritually supervised construction of large fish weirs was undertaken along the Klamath and Trinity rivers, usually during the month of July, when stream levels were sufficiently low. Originally, these dams were built to harvest a new summer migration of king salmon, the beginning of which coincided with the waning period of the spring run (Snyder 1931:23). In each case a formulist directed the construction of these "fish dams" and supervised their use. Undoubtedly the best known of these communal dam-building efforts was that undertaken by the Yurok at the site of Kepel on the Klamath River. The elaborate 10-day ritual of building this fish dam is described by Thompson (1916:44-54; Kroeber 1925:58-60; Waterman and Kroeber 1938:49-80; Erikson 1943:277-282; Kroeber and Gifford 1949:81-85). The large dam structure consisted of a framework of poles, logs, and small stakes extending across the entire width of the Klamath at a relatively shallow even-bottomed section upstream from the village of Sa' or Sha'a where the formulist's sacred sweathouse was located (Kroeber and Barrett 1960:12). The cutting of the wood to build this frame-

work required the coordinated efforts of several hundred men from many Yurok villages along the Klamath. As many as seventy individuals were responsible for constructing the actual weir at the dam site (Waterman and Kroeber 1938:54-55). At various intervals along the downstream side of the dam, nine openings, each leading into a large enclosure or pen, were constructed. During the ten days of fish collecting at the site, large quantities of salmon were harvested and dried. The entire construction, use, and eventual dismantling of the dam was directed by a formulist, who supervised in every detail the work involved. The Kepel fish dam probably represents the largest mechanical enterprise undertaken in Northwestern California, and was clearly the Yurok's most extensively organized communal subsistence effort (Waterman and Kroeber 1938:78). The considerable amount of caloric energy derived from fish caught at Kepel is paralleled by the large amount of organized energy expended by the workers to build the dam.

The Hupa constructed a "sacred" fish dam under the direction of a formulist on the Trinity River at Chiendehoting (Kroeber and Gifford 1949:61). Built "about May" when "the thimbleberries were ripe" (Gifford speculates that it was probably built somewhat later in the year) the formulist procured the first materials for construction, and upon completion of the structure,

... the formulist walked across it and back, carrying a basket of water in his right hand, supported by the fingers as a waiter supports a serving tray. In his left hand he carried pebbles, which he scattered in the river, saying: "May as many fish jump."

Piers were built out on the downstream side of the dam for the fishermen to stand on as they scooped up the fish. The night after the formulist crossed the dam, he and his helper took the first fish with a dip net [Kroeber and Gifford 1949:61].

Another Hupa weir was also built, in alternating years at Takimilding and Medilding on the Trinity River, under the direction of a formulist who cut the first pole and directed the post driving and binding (Kroeber and Barrett 1960:18-19).

The Karok also constructed a salmon weir in July near Afsuf or Wupam (Red Cap) on the Klamath River. The formulist for the weir at Afsuf remained in the sweathouse at the upstream village of Panamenik for a period of five days. If the dam was built at Wupam, the formulist stayed in the sweathouse there for a period of five days (Kroeber and Barrett 1960:20). Further details of the ceremony surrounding these dams are not known.

Although not all fish weir construction on the Klamath and Trinity was attended by formulistic ritual, it is significant that the construction of many of the larger, communally built weirs was supervised by a formulist. The effectiveness of these structures as harvest tools and the ecological implications of their use were undoubtedly well understood by their makers. Gibbs (1853:146) and Wessells (1853:64) note that fish dams on the Klamath were effective in obstructing the salmon run and preventing passage of fish to tribes living upstream from these structures. This interference with the run was said to be a constant source of complaint and dissatisfaction among the upper Klamath River groups. The Kepel dam was deliberately torn down after ten days of use to allow the run to proceed to upriver tribes and prevent potential inter-group conflict over the critically needed salmon resource (Waterman and Kroeber 1938:50). According to Roberts (1932b:288), the abundant salmon at the height of the summer run endangered the stability of the Kepel dam by crowding against it, so the traps were opened after each day's fishing to allow the salmon to go through until the next morning. Lucy Thompson describes this procedure at Kepel:

In these traps, there get to be a mass of salmon, so full that they make the whole

structure of the fish dam quiver and tremble with their weight, by holding the water from passing through the lattice-work freely. After all have taken what they want of the salmon, which must be done in the early part of the day, Lock [the dam formulist] or Lock-nee [his assistant] opens the upper gates of the traps and lets the salmon pass on up the river, and at the same time great numbers are passing through the open gap left on the south side of the river. This is done so the Hoopas on up the Trinity River have a chance at the salmon catching. But they keep a close watch to see that there are enough left to effect the spawning, by which the supply is kept up for the following year [1916:135-136].

A similar practice is also mentioned by Powers:

The Whites along the [Klamath] river compel the Indians to open their weirs a certain number of days a week during the spring run, that they may participate in the catch [1872:533].

Karok weirs, when not actually in use, were also opened to allow fish to continue their migration upstream (Kroeber and Barrett 1960:20).

A final note about first-salmon ritual among the Klamath River tribes concerns the ceremonial practices and beliefs of the Klamath River Shasta. Geographically situated immediately upstream from the Karok, the Shasta believed

... that the first fish to ascend the streams annually brought the "salmon medicine" put on by the Indians at the mouth of the river. This first fish must therefore be allowed to pass unmolested. As soon as it passed, fish might be caught; but the first one taken from the water had to be split and hung up immediately to dry, and no salmon might be eaten till this salmon was completely dry and a portion eaten by all those fishing at that point [Dixon 1907:430-431].

When the spring salmon reached Shasta territory in April, the owners of small fish pools or "resting places" fished for several days with dip nets at these spots, then held feasts for invited guests on an appointed day. No one else ate or fished for salmon until after this ceremony (Holt 1946:310). However, the western Shasta also depended upon a first-salmon rite performed by a man in the down stream village of Hamburg on the Klamath.⁹ This man caught the "first salmon" in the spring and performed the necessary ritual, thus opening the season for catching of the spring salmon. Notwithstanding the performance at Hamburg, the Shasta did not eat fresh salmon or steelhead until the Karok performed the White Deerskin dance at Katimin, on the Klamath just above the mouth of the Salmon River. This World Renewal ceremony was held in August, and many Shasta attended it as spectators (Voegelin 1942:174-175). This appears to be the only formal example in Native California of one tribe regulating the consumption of fish based on the ceremonial calendar of another downstream group. Informally, of course, the building of the several weirs or dams by the Yurok and Karok must have materially delayed the arrival of the salmon run in Shasta territory.

Outside of the Klamath-Trinity River area, only one other coastal stream in Northwestern California, the Smith River, had a spring influx of king salmon. At the onset of the spring runs, the Tolowa of the Smith River held a first salmon rite (DuBois 1932:258-259; Barnett 1937:190, 193, 198; Drucker 1937:261; Driver 1938:324, 380). A formulist performed the "*ha' guCLi xa'c Renic*" ("salmon-go-out-to-catch") rite during which he entered the sacred sweathouse or "salmon's home" to fast for five days and recite prayers. On the last day of his fast, the formulist caught the first salmon, built a fire, and cooked the fish, placing it upon a basketry tray on which were represented examples of the roots, leaves, and fruit of all available plant foods. He then

began a long formulistic recital, requiring several hours to narrate, describing the origins of the world and the salmon's primeval journey up the Smith River. The "first foods" were divided by the formulist among the adult spectators and consumed: "After this, everyone could catch and eat the salmon; he opened the season" (Drucker 1937:261). In late spring at the village of Munsontun on the Smith River, a fish dam "boss" performed this formulistic rite over the first salmon taken in the weir there, and additional formulae accompanied the driving of the first two stakes of the weir (Drucker 1937:261; Barnett 1936:198).

In general, the procedures of the first salmon ritual in Northwestern California, and the control functions of the formulist in determining the proper time for the beginning of the fishing season, were an extension of the need for careful maintenance and harvest of this essential resource. However, among native groups outside the Northwestern culture-area, the ritual activities surrounding the spring salmon were of a different nature. The formulist and his oral recitations are absent, and in his place as the central ritualist is the shaman, who derives his power from special, personally acquired supernatural forces. Among the Yokuts, a ritually obligated moiety chief serves this function.

Northwestern foothill Maidu groups on the Feather River, mountain Nisenan (Southern Maidu) along the Yuba and American rivers, and Valley Maidu along the Sacramento River held first salmon ceremonies when the spring run arrived. In the northwestern foothills, where "salmon were caught in considerable quantities in the early days," the first salmon had to be caught by a shaman, and no one else could catch or eat salmon until a first salmon ceremony was performed (Dixon 1905:184, 198; Kroeber 1925:437; Voegelin 1942:57, 175). The shaman, after catching the first salmon, cooked it, and distributed morsels of the food to all persons in the community. This ritual "communion"

opened the fishing season for the year. The foothill and mountain Nisenan first-salmon rites were similarly structured, with a "dreamer or singing shaman" conducting the ceremony and opening the season on the Yuba River (Beals 1933:354; Voegelin 1942:57, 175). The Valley Maidu spring ceremony involved restrictions upon fishing and consumption until salmon were ritually eaten by secret society members in the assembly house (Voegelin 1942:57, 175).

Northern Foothills Yokuts on the San Joaquin River, Western Mono tribes on the North Fork of the San Joaquin, and Yokuts tribes on the lower Kings River held first salmon ceremonies (Aginsky 1943:398; Gayton 1948:165-166, 1946:256). An example of this rite was practiced among the Kechayi and Gashowu Yokuts on the San Joaquin River. "When the Pleiades were on the western horizon at dusk it was time to watch for the first salmon," and the chief of the Nutuwich moiety (the moiety totemically associated with salmon and ritually responsible for the fish harvest) sent "all Nutuwich men out to catch salmon." The first salmon was placed on a basketry tray, over which the Nutuwich chief spoke and prayed. A general salmon feast followed during which the moiety was allowed to partake of the salmon for the first time. Gayton (1946:256) states that the moiety chief himself speared, cooked, and ate the salmon, praying to the salmon spirit for an abundant supply of fish. Following the salmon feast the fishing season was officially opened.

Northern and Central Sierra Miwok groups on the Stanislaus, Mokelumne, and south fork of the Cosumnes rivers also held a first-salmon rite after which fishing was permitted for the first time. The first salmon was divided and eaten in a public ceremonial accompanied by dancing and offerings thrown in a fire (Aginsky 1943:398). Further details as to the structure of this ceremony are not recorded.

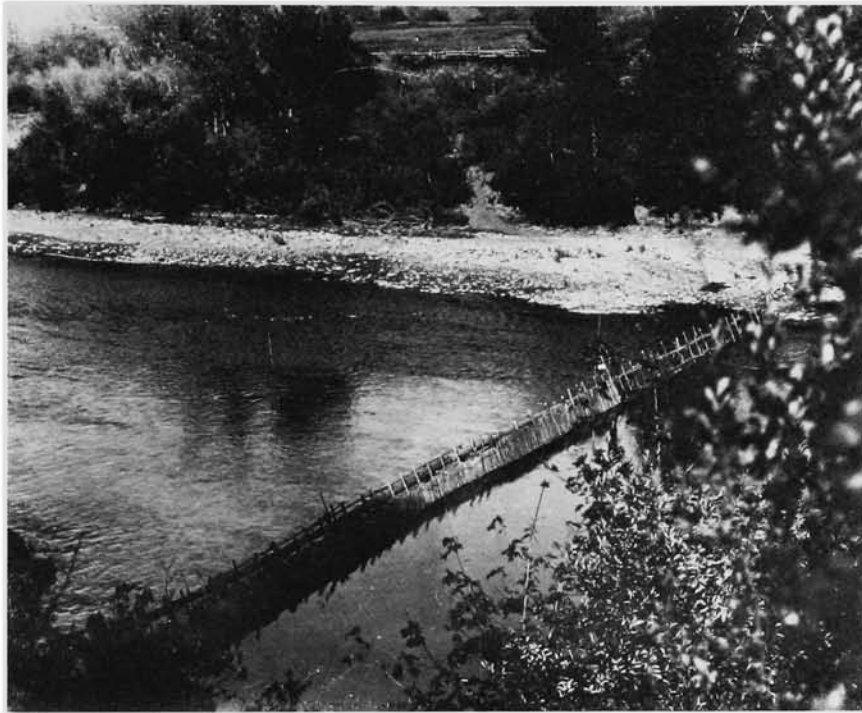
A brief description of first-salmon ritual

among the Achomawi on the Pit River is recounted by Powers:

After the vast crystal volume of Fall River enters and overcomes the swampiness of the snaky Pit and it begins to descend over rapids, there salmon are caught, although the Americans assert that salmon do not ascend above a certain tremendous cataract which is said to exist on the lower river. When the salmon season arrives, a band of aged priests or "medicines" abstain from fresh fish, flesh, or fowl for certain days, which they believe will induce a heavy run and a bountiful catch. Even the women and children at this time, if they wish to eat fresh salmon, must carry it back in the forest out of sight of the river. Like the Meidoos [Maidu], on the Sacramento, they call the salmon, by sitting in a circle on some overlooking promontory, while a venerable "medicine" stands in the midst and earnestly addresses the finny multitudes for two or three hours, urging them to ascend the river [1874:413].

Two final examples of the first-salmon ritual in Native California are offered. These are among the Athabascan Sinkyone and Kato of the Eel River. These ceremonies are of particular interest because they are the only salmon rites recorded for a river system which did *not* have a significant run of king salmon. They were probably associated with the mid-summer or fall run of king salmon into the Eel, this being the first salmon run of the year in north coastal streams south of the Klamath.

Among the Sinkyone, fishing was at least as important as hunting for supplying winter food, and during the seasonal salmon run the entire tribe camped near the streams for the duration of the run, usually lasting about two months. When the run began, anyone might catch the first salmon, but after it was captured, it was given to a shaman who prayed, danced, and ritually scaled and cleaned the fish with a special obsidian knife. After cooking the first salmon at the edge of the stream where it had been caught, the shaman ate the first



Upper: Hupa weir, 1906. After Kroeber and Barrett (1962:170, Plate 1). Lower: Salmon drying in rafters of Karok house, 1901. Both courtesy of the Lowie Museum of Anthropology, University of California, Berkeley.

morsel, then each person in attendance ate a piece of the flesh "to ensure the increase of salmon for the succeeding years as well as personal and tribal safety" (Nomland 1935: 153, 154). After the completion of the ceremony, a general feast of new salmon was held. It is suggested that the essential pattern of the Sinkyone first-salmon rite was an extension of the more prevalent first-acorn rite in Central California (Nomland 1935:154). The shaman's prayer "*Ensongkū' tsē ja*" ("Let us eat well") was the same as that spoken at the first-acorn rite, and perhaps indicates a transfer of acorn formulae to a more recently introduced salmon ceremony, the source of the salmon ritualization complex being undoubtedly the North-western core area to the north (Yurok, Karok, Hupa). Archaeologically there is no evidence which proves either that salmon-eating or acorn-eating are of the same antiquity. Where both acorns and salmon were eaten the two rituals may have borrowed from each other and by ethnographic times lost some of their earlier distinctiveness. The northern concentration of salmon rituals is detailed by Treide (1965).

When the first quantity of any food plant or animal was obtained in its season, the Kato celebrated a first-fruits ceremony in which several "old men" would sing over the produce and eat of it, after which all persons could eat the particular food. A salmon ceremony took place in the spring (summer?), apparently incorporating these elements (Driver 1939:314, 380).

This final section summarizes the variety of regional and cultural contexts in which a "first-salmon" rite was practiced in Native California. Two principal foci of this type of ritual activity emerge, one in Northwestern California (along the Klamath, Trinity, and Smith rivers), and the second in Central California (throughout the Sacramento-San Joaquin system and major tributaries). The rites differ in that among the Northwestern tribes (Yurok, Karok, Hupa, Shasta, and Tolowa) a formulist

or "priest" is the central pragmatist in an elaborate ritual performance. Outside of North-western California such formulistic ritual is absent, and the first-salmon ceremony is commonly performed by a shaman or moiety chief, apparently with less ceremonial elaboration. However, the basic operational features of the first-salmon rite appear consistent throughout Native California. With the exception of the Eel River Athabascans (where the first-salmon rite may have blended with elements from similar ritualization of the acorn harvest), the first salmon ceremony was held at the onset of the spring king salmon run, a fish migration of major importance to the aboriginal economy. At the beginning of the run, salmon fishing and/or consumption were strictly enjoined and a ritual specialist supervised this observance. Supernaturally induced illness, death, or loss of fishing luck would befall those persons who disregarded this ritual injunction. The "restraining effect" exerted by ritual restrictions concerning salmon fishing appears to have been a widespread phenomenon in aboriginal times, especially in Northwestern California (Roberts 1932b:290). After the period of restriction was lifted (following prayer and ceremonial behavior by the ritualist and/or a public rite in which the first salmon is eaten by all those present), the salmon fishing season was "opened" for the first time. All persons were then allowed to catch and consume salmon for the rest of the year.

The widespread structural similarity of salmon rites in the varied cultural contexts of Native California is sufficient cause for re-examining contentions that the first-salmon rite was "merely the local object of ritual" or an expression of a psychological "attitude of veneration" (Rostlund 1952:155; Gunther 1928: 136, 149). Alternatively, several levels of functional and adaptive importance may be assigned to the first-salmon rite in Native California, in addition to those of spiritual, psychological, or other origin:

(1) By overtly (also, it seems, covertly)

regulating the beginning of the salmon fishing season, first-salmon rituals may have served a distinct conservational or management purpose. In allowing the salmon to run freely during the initial period of ritual restriction (the duration and timing of which was controlled by the formulist, and generally appears to have lasted from several days to two weeks), riverine tribes maintained a productive inventory of *spawning* salmon each spring, which ensured successful reproduction and return of the king salmon runs in following years. Intensive salmon fishing *after* the period of ritual restriction, by large numbers of individuals initiating this subsistence effort at the same time, probably benefited the production of salmon by preventing over-crowding at the spawning beds (Rostlund 1952:16). The opening and/or purposeful dismantling of weirs built and operated under ritual supervision along the Klamath also allowed the summer run to proceed to upstream tribes (and eventually the spawning grounds), this run being of major importance for winter storage (Roberts 1932b:289). Potential inter-group conflict stemming from over-use or blockage of the salmon run by downstream tribes was thus prevented. The maintenance and conservation of the salmon subsistence base on a year to year basis was perhaps the most important function of the first-salmon observance, and there is no evidence that native populations ever seriously overfished the salmon runs (Rostlund 1952:17).

(2) Ritual observances called attention to the onset of the spring runs at a time when an efficient, organized fishing effort was crucial to the successful procurement of a spring food supply. The proper timing of individual fishing or communal dam-building (during periods of maximum availability of salmon) allowed the run to be harvested with less overall output of energy and greater total yield. Maximum community energies were directed toward the run by restrictions which "opened the season" for all individuals at the same time, and

premature harvest early in the season was prevented.

(3) Publicly-held first-salmon feasts, which often followed the lifting of ritual restrictions upon fishing activity, effectively decentralized the concentrated nature of the salmon run, facilitating distribution of fish resources to all members of the community. It is further possible that until the run was well underway there would not be enough fish to be caught by the numerous fishermen, and that the intense competition might lead to altercations which would be socially disruptive. Thus, "feed or fight" need not have been the only alternative if there was some ritually compulsive regulation or control for a sufficient period of time (usually not more than one or two weeks) until the fish run was abundant enough for everyone to partake of it.

We have proposed here that the "first-salmon" and fish dam-building ceremonies were essentially ritual activities arising from the need to carefully manage the anadromous fish resources and to regulate the fishing activities of large human populations which intensively utilized this resource on major Northern California streams during a limited seasonal interval. However, large-scale first-salmon rites are conspicuously lacking among native groups in the North Coast Ranges and south of San Francisco Bay. This apparent lack of ritual practices associated with the salmon run may be in part due to the paucity of ethnographic information available (especially concerning the Coast Miwok and Costanoans), non-availability of high yield, biannual salmon streams, prevalence of personal rites undertaken only by individual fishermen, or as proposed by Kroeber and Barrett (1960:148), greater emphasis placed upon ritualization and use of other food resources, particularly the acorn. Notwithstanding the absence of the first-salmon rite in these areas, the co-occurrence of the *spring* salmon run and some form of associated ritual activity which regulated and organized large-scale fishing activity at the

outset of this run, is a common relationship in the ethnographic record.

Of final, and perhaps more reflective, note is some mention of the ultimate ecological fate of the once prolific spring salmon run in Northern California. In the latter half of the nineteenth century, California was the scene of massive cultural and environmental devastation, principally at the hands of gold miners who overran the northern half of the state in the two decades following the discovery of gold in 1848. By the year 1873, the salmon-producing potential of the Yuba, Feather, and American rivers (the latter two formerly "prolific" salmon rivers) had been largely destroyed by the smothering effects of mining silt on the upstream spawning beds (Stone 1873:177, 178, 193). Similar destruction of spawning grounds due to mining activities occurred in other Sierran tributaries of the Sacramento and San Joaquin, as well as on the Klamath and Trinity rivers. In addition to the effects of mining, large-scale damming and diversion of water flow for irrigation and water supplies (which resulted in the cutting off of spawning beds, lowering of water levels, and raising of head-water temperatures in the summer when the spring king salmon require cooler waters for migration and spawning), as well as farmland and range erosion, soil runoff due to lumbering and deforestation, overfishing, and stream pollution from sawmills and other sources, effectively eliminated the spring run of salmon in California (Clark 1929:61; Snyder 1931:19; Davidson and Hutchinson 1938:673; Hewes 1947:233-236). Obliteration of the spawning beds of the Sacramento River system was nearly complete; of an estimated 5,500 miles of original spawning grounds, only 300 linear miles remained in 1929, constituting a reduction of 80% from original conditions (Clark 1929:61). These factors, operating simultaneously with the complete destruction of native lifeways, made ritual management of the spring salmon run a practice of the aboriginal past by the early twentieth century, when much of the

ethnographic data were collected in Northern California. Lucy Thompson provides the most prophetic insight into the encroachment of white civilization upon the salmon management practices of the Yurok:

The whites have often said that the Indians ought not to be allowed to put in the fish dam and thereby obstruct the run of salmon to their spawning ground, and it has been published in the papers that the fish dam ought to be torn out. One year it was published in the county papers that it had been torn out by the wardens; this was a false publication, as it was never torn out by the Indians or whites. On the other hand after the salmon cannery was established at Reck-woy, which is at the mouth of the river, the whites and the mixed bloods commenced to fish for the cannery; the whites have laws that no one is allowed to let a net extend more than two thirds the distance across the river, and the wardens are paid to see that the law is obeyed, yet the whites set one net up from one side two thirds across, and then just a few steps up another net from the other side, and which extends two thirds across in distance, and in a distance of sixty yards, there will be eight to ten nets making so complete a network that hardly a salmon can pass. *Will the whites preserve the salmon through all the ages, as the Klamath Indians have done, if they should survive so long?* [1916:136; emphasis added].

Today, the spring run of king salmon is of such little consequence in the major California salmon streams that it is considered of no commercial value to fishermen.

In conclusion, the anadromous fish resource in Native California was originally a seasonally abundant and renewable commodity which required intelligent and competent organization and control of fishing practices to ensure efficient harvest, especially during the spring migration of king salmon. Through the spring or summer salmon cere-

mony, ritual specialists directed and controlled fishing and dam building activities, regulated the opening of the salmon fishing season, and managed the use of the spawning runs, in many ways increasing the potential effectiveness with which native populations utilized the salmon resource. The anadromous fish resource was perhaps the most intensely managed and ecologically manipulated food resource among these aboriginal societies, and as a functional mechanism for the adaptation of native fishing economies to the movements of anadromous species, salmon ritual was an important cultural feature in Native California. It is further possible, we think, that the ethnographers from 1872 to 1940, in dealing not only with decimated native populations, but also at a time when environmental changes had occurred, may simply have not grasped the true importance of salmon as a basic dietary resource element. They thus failed to communicate in their reporting what we can at the present time only speculate about. What we have proposed here is a new interpretation, but it is at the same time ethnohistory through the back door.

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NOTES

1. The widespread functional similarity of first fruit, fish, and game observances, and the important regulatory position of ritualists in these rites in Native California has been previously discussed by Swezey (1975).

2. The three other species of Pacific salmon in the genus *Oncorhynchus*, *O. nerka* (the sockeye or red), *O. gorbuscha* (the pink or humpback), and *O. keta* (the chum or dog) are rare or uncommon in large numbers in Northern California. Distributional data for Pacific salmon in California and on the western coast of North America may be found in Jordon (1896:474-483; Davidson and Hutchinson 1938; Evermann and Clark 1931 [see especially the references therein]; Fry 1973:58-84).

Two other anadromous taxa of local importance in California streams were the sturgeon (*Acipenser transmontanum* and *A. medirostris*) and the "eel" or sea lamprey (*Entosphenous tridentatus*), both of which were freshwater resources of secondary importance to salmon (Kroeber and Barrett 1960:5; Baumhoff 1963:170; Fry 1973:24-31, 32-39) but, at the same time, much exploited.

3. Tributary streams on the western side of the Central Valley are generally less suitable for spawning due to greater aridity (Van Cleve 1945).

4. A distinct run of steelhead enters the Klamath with the summer run of king salmon in July (Snyder 1931:23).

5. Although ethnographic accounts have been generally used in assessing the importance of the salmon resource to native economies (see Rostlund 1952:207-208), attempts have been made to quantitatively estimate the original, pre-contact salmon resource in terms of potential catch weight, available stream length, and/or spawning grounds. Hewes (1947:228) cites tribal estimates that place the total yearly aboriginal consumption of salmon in California at over 15 million pounds. This compares with an average modern-day salmon catch (data from the years 1936-1960) of somewhat below 10 million pounds, most of this catch composed of king salmon produced in the Sacramento River, the populations of which have been increasing in recent years (Atkinson et. al. 1966:46, 76). Rostlund (1952:51) has estimated that 580 lbs./mi.² represents the average aboriginal yield of anadromous fishes in the Pacific salmon region, noting that this figure was undoubtedly higher among fishing tribes inhabiting the lower reaches and mouths of rivers. Few historical data are available which are specific as to the actual size of the aboriginal fish resource. However, Livingston Stone, who established the first federal salmon hatchery in California in 1872, states that 16,394 river salmon, weighing approximately 300,000 lbs. were sent from the lower Sacramento to San Francisco in one month of March, 1872, and that 10,000 fresh salmon *a week* were sent to San Francisco in August, 1872, from the San Joaquin and Sacramento Rivers "at a time when they are cheapest and most abundant" (1873:180, 197). That the Klamath River was also a productive source of

salmon to its native inhabitants is evinced by Stephen Powers' statement of the same year concerning the Yurok fish catch:

By all these methods they catch an enormous quantity of fish: William McGarvey says he has often seen a ton of dried salmon hanging in the smoky attic of a cabin[1872:533].

The fact that salmon in the large rivers of Northern California were originally a highly abundant and readily available resource cannot be doubted.

6. The general distribution and characteristics of the first-salmon rite in Native North America are discussed by Gunther (1926, 1928) and more briefly by Driver and Massey (1957:254, 256). The basic elements of the ceremony appear to have a wide distribution throughout those regions of western North America where salmon were available.

7. Powers (1872:427), in describing the "Dance for Salmon" of the "Cahroc," differs with this version of the Karok first-salmon restriction. He states: "No Indian may take salmon before this dance is held *nor for ten days thereafter, even if his family are starving*" (emphasis added).

8. The Hupa also performed a "first-eel" (lamprey) ceremony on the Trinity River:

The ceremony for first eels took place in March in Hoopa Canyon toward Weitspus. There was no special place for it, any satisfactory spot for eel fishing would do. The formulist sweated himself for ten days, drank no water, and ate alone. At the end of ten days he fished one night for eels, with the usual fine-mesh net. Whatever he caught he saved. He took the catch out and called it "one-hundred eels," a saxon, "one burden basket" full. If he caught fifty or more, he brought them home and invited people to come and eat. He could give away his catch. The woman who cooked, cut the eels for the people who came. All the eels were eaten fresh; none was dried. The night after that anyone could go eel fishing; the eels were for all to take. After that the formulist would go downstream, but he must not go upstream for five days. The reason for this prohibition was the fear that all the eels would follow him up-

stream. If the formulist stayed home, the eels would remain there (Kroeber and Gifford 1949:61).

9. It is unclear as to whether Hamburg was a Shasta or Karok village in aboriginal times, but this man was almost certainly a Shasta, belonging to the Kammatwa group. The territorial affiliation of the village remains in doubt (Voegelin 1942:174).

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