

OCCURRENCES OF THE LOST RIVER SUCKER, *DELTISTES LUXATUS* (COPE), AND SHORTNOSE SUCKER, *CHASMISTES BREVIROSTRIS* COPE, IN NORTHERN CALIFORNIA¹

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The Lost River sucker and the shortnose sucker are added to the freshwater fish fauna of California. Their distribution, a brief discussion of habits, and meristic data are included.

Recent captures of the Lost River sucker and the shortnose sucker represent additions to the freshwater fish fauna of California (Shapovalov, Dill, and Cordone, 1959). The ranges of these suckers (family *Catostomidae*) previously were given as the Klamath Lakes drainage in Oregon (Schultz, 1936; Eddy, 1957). Gilbert (1898) stated that *Deltistes* apparently were resident during most of the year in the deeper waters of Upper Klamath Lake and Tule Lakes (Figure 1).

On May 15, 1955, Ned Dollahite, California Department of Fish and Game, collected a mature shortnose sucker from Boles Creek, Modoc County, near Steele Swamp Ranch. I saw additional specimens in the same vicinity on May 10, 1960, which were swimming upstream in an apparent spawning migration. Boles Creek is an intermittent tributary of Willow Creek, the principal stream entering Clear Lake Reservoir. Lost River originates from Clear Lake Reservoir, flows northward into Oregon, eventually re-enters California, and discharges into Tule Lake, its natural terminus. Lost River is now connected to the Klamath River by the Lost River Diversion Canal.

Specimens of the shortnose and Lost River suckers were first collected from Copco Lake, Siskiyou County, on November 20, 1956. Both species were noted in a routine beach seine haul. Copco Lake is a storage reservoir on the Klamath River near the Oregon border. The collection site was a gently sloping beach with a maximum depth of about 6 feet. The bottom consisted of silt and coarse gravel, interspersed with submerged logs. Three Lost River suckers were 19.3 to 27.4 inches long (fork length) and weighed 4.7 to 11.1 pounds. Four shortnose suckers were 17.3 to 20.1 inches fork length and weighed 2.6 to 3.1 pounds. Later sampling at the same locality, with beach seines and gill nets, usually revealed both species, particularly in the fall, but I have never seen young or evidence of spawning activity by these peculiar suckers in Copco Lake.

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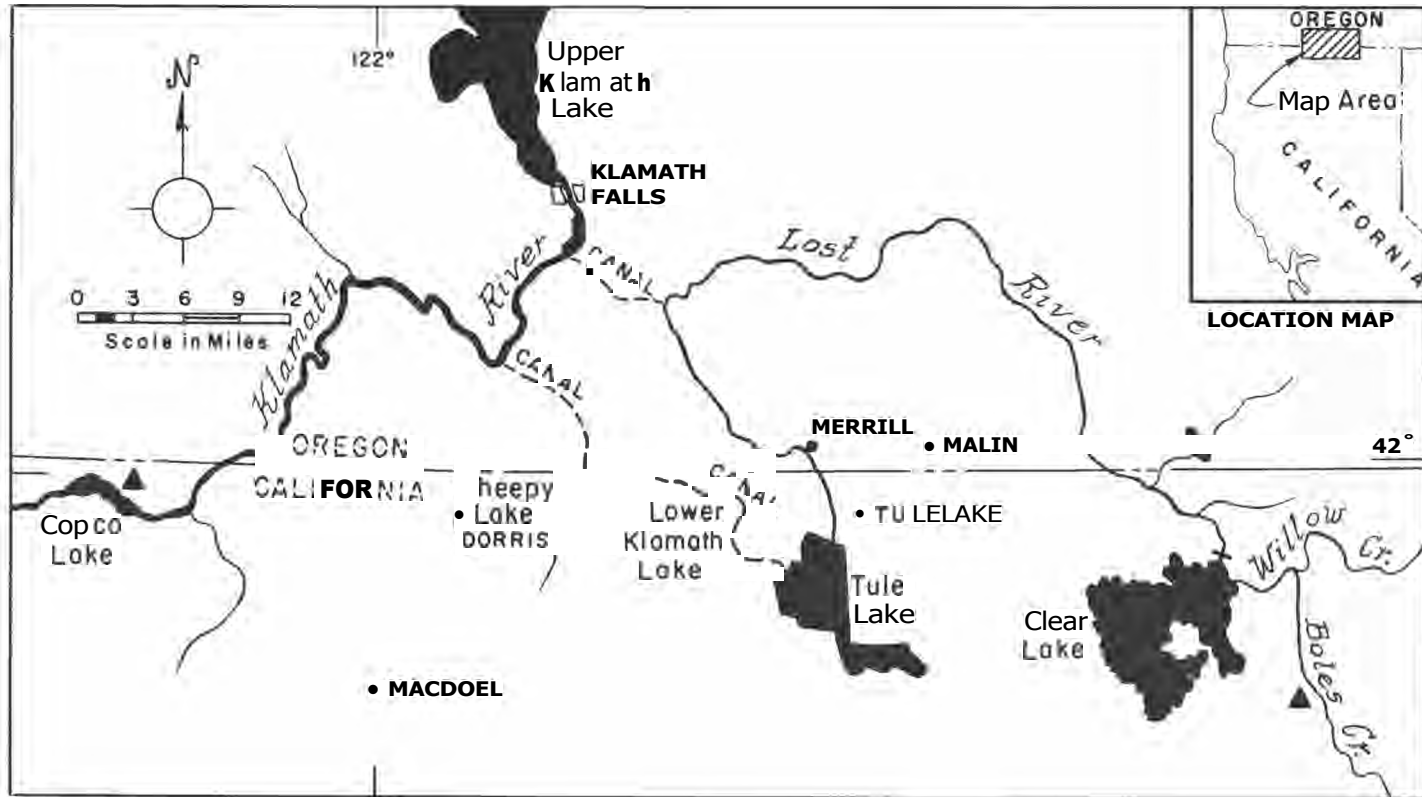


FIGURE 1. Map of the Klamath and Lost Rivers in Oregon and California, showing collecting localities (black triangles) for suckers.

I mailed the head of a Lost River sucker and photographs of short-nose suckers from Copco Lake to Carl E. Bond, Oregon State University, who verified the identity of both species. I shipped three specimens of *Deltistes* and one of *Chasmistes* to the California Academy of Sciences, San Francisco ; and W. I. Follett, Curator of Fishes, and Merton Bali kindly provided meristic data on them (Tables 1 and 2).

TABLE 1
Counts and Measurements of the Three *Deltistes luxatus* From Copco Lake, Siskiyou County, California (California Academy of Sciences No. 26304)

	Adult female (skeletonized)	Adult (preserved)	Adult (preserved)
Total length (inches)	80½	28	26½
Standard length (mm)	663	585	575
Weight (pounds)	9*	0½	7
Dorsal rays	12	12	11
Anal rays	7	7	8
Pectoral rays	16-15	17-17	16-16
Pelvic rays	10-10	10-10	10-10
Principal caudal rays (branched rays +2)	9+ 9	9+ 9	9+ 9
Lateral-line pores	88-88	84-85	86-82
Gill rakers	32-32		
Vertebrae	29+22=51		

TABLE 2
Counts and Measurements of an Adult Female (Skeletonized) *Chasmistes brevirostris* From Copco Lake, Siskiyou County, California (California Academy of Sciences No. 26305)

Total length (inches)	17½
Standard length (mm)	374
Weight (pounds)	2½
Dorsal rays	11
Anal rays	7
Pectoral rays	17-17
Pelvic rays	10-10
Principal caudal rays	9+ 9
Lateral-line pores	79-78
Gill rakers (second arch left side)*	39
Vertebrae	27+19=46

* Gill rakers on right side had been removed for identification.

Deltistes is distinguished by its large size, reaching 3 feet as adults (Eddy, 1957). The head is long and slender with a slight hump on the upper surface of the snout. The mouth is terminal and oblique. The lips of several specimens from Copco Lake bore minute papillae. The gill rakers are triangular and their edges are generally unarmed and entire. The scales are large, as much as 12 mm at the widest diameter in the larger specimens.

The head of *Chasmistes* is comparatively small. The hump on the short snout formed by the premaxillary spines was prominent in some of the Copco Lake specimens, and to a lesser degree in others. The mouth is oblique with no papillae on the thin lips. The free margins of the triangular gill rakers are fringed with fine teeth. The body is more cylindrical than the Lost River sucker (Figure 2). The numbers of eggs in the ovaries of two *Chasmistes* from Copco Lake, calculated by the displacement method (Burrows, 1951), were 36,763 and 56,217. Both specimens measured 19.3 inches fork length.

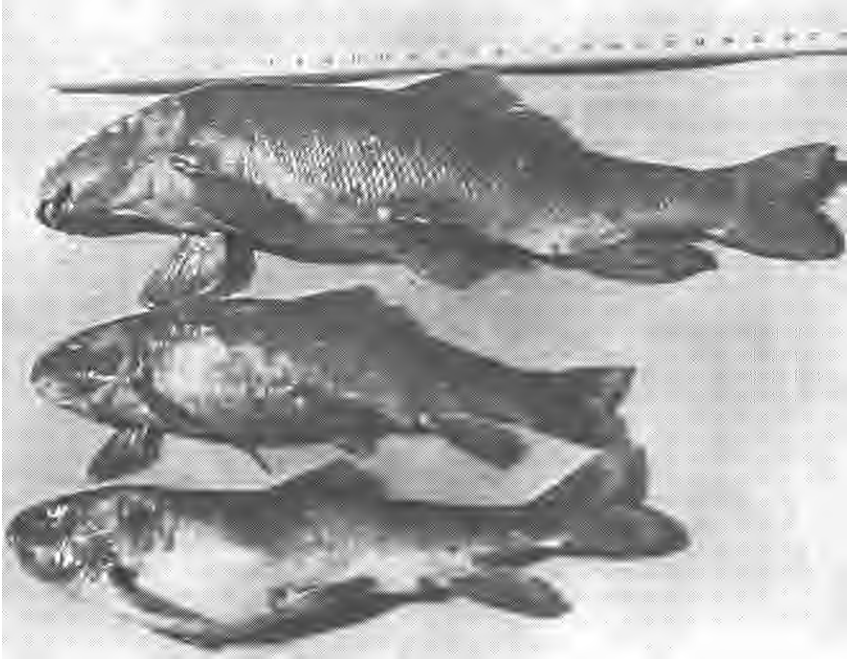


FIGURE 2. Lost River (upper) and shortnose suckers (center and lower) from Copco Lake, Siskiyou County. Photograph by Millard Coofs.

The shortnose suckers, reported by Cope (1879) as abundant in Upper Klamath Lake, Oregon, now might be less plentiful. Carl E. Bond (pers. commun., dated November 27, 1957) said he had difficulty obtaining specimens of *Chasmistes* from Upper Klamath Lake.

No definite conclusions on age could be drawn from scales of several specimens of both species from Copco Lake. The usual characters for determining annual growth such as "cutting over," packing of the circuli, and irregularities associated with changes of scale growth were confusing and variable. Some scales lacked bands of spaced circuli, and in others the peripheral area was so jumbled that interpretation was impossible. Distinct concentric bands on opercular bones, which could represent annual growth, usually showed no relationship to scales from the same specimens.

Suckers of the genus *Chasmistes* also occur in two remnant Pleistocene lakes of the Great Basin: the June sucker, *C. liorus*, of Utah Lake, Utah, in the Bonneville drainage, and the *mi-ni* sucker, *C. cujus*, of Pyramid Lake, Nevada, in the Lahontan drainage. The close relationship of various genera of fishes such as *Chasmistes* and *Siphateles* in the upper part of the Klamath drainage and the Great Basin suggest a past connection with the interior basin (Gilbert, 1898; Hubbs and Miller, 1948; Robins and Miller, 1957).

The nomenclature of the Lost River sucker, which has been mentioned as related to the genus *Chasmistes* (Hubbs and Miller, 1948), has changed since being first described by Cope (1879) as *Chasmistes*

luxatus. Eigenmann (1891) proposed the name *Catostomous rex* based on the characters of a 32-inch specimen. Based principally on a difference in the form of the gill rakers from *Chasmistes*, Seale (1896) described the fish as *Deltistes luxatus*. This species was recently designated *Catostomous luxatus* (Amer. Fish. Soc., 1960).

In his original descriptions of the Lost River and shortnose suckers, Cope (1879) mentioned that the Lost River sucker was taken and dried in large numbers by the Klamath and Modoc Indians. The Klamath Indians called the *Deltistes*, "Tswam," and the *Chasmistes*, "Xooptu." The Lost River sucker now provides a sport fishery in the spring, principally around the margins of Upper Klamath Lake, Oregon. The fish, locally called "mullet," are usually caught by snagging with grabhooks during their spawning runs in the vicinity of springs and the lower reaches of tributary streams. The flesh is somewhat coarse but has a pleasant flavor (Van Wormer, 1955).

Evidence that the Lost River sucker once populated both Tule Lake and Lower Klamath Lake in California is substantiated by statements from long-time residents in that vicinity. Lewis Foulke, a retired rancher from Yreka, Siskiyou County (pers. conversation on February 24, 1963) remarked that he observed large suckers and rainbow trout, *Salmo gairdnerii*, being taken from the mouth of Lost River about 1919. Set lines and snagging gear were used. On March 6, 1963, I discussed the status of sucker populations in Lower Klamath Lake with John McKay, who lives near Dorris, Siskiyou County. He stated that the Lost River sucker formerly populated Sheepy Lake and spawned in Sheepy Creek, a short spring-fed stream. Sheepy Lake, a western extension of Lower Klamath Lake, is in the Lower Klamath National Wildlife Refuge. According to McKay, local residents took large numbers of fish in the spring, especially from the "Sucker Hole" in the creek. They used chicken wire traps and snag gear. The catches were utilized for human consumption and hog feed. The fishery continued until sometime before 1924, when thousands of acres of lakes and marshland in the Lower Klamath-Tule Lake area were drained and converted to farmland. McKay stated the reclamation of Sheepy Lake resulted in a heavy mortality of fish, including the large suckers. After futile efforts to farm the lake beds, Lower Klamath Lake—including Sheepy Lake—was reflooded (Miller and Collins, 1953). On March 6, 1963, I questioned Joseph Allen, a former Siskiyou County Supervisor, whose ranch adjoins Sheepy Creek, on the fishes of Sheepy Creek. Based on his observations of a few large fish in the creek in the spring of 1960, he believes that a remnant population of Lost River suckers possibly spawns in Sheepy Creek.

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