

DEPARTMENT of the INTERIOR

news release

FISH AND WILDLIFE SERVICE

WILDLIFE FEATURE

For Release On Receipt (prepared 5/2/74)

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SURVIVAL OF UNIQUE AND ENDANGERED CUI-UI FISH ENHANCED

The endangered cui-ui (pronounced kwee-wee) sucker, a unique fish found nowhere else in the world than in Pyramid Lake, Nevada, has been given a new lease on life with the awarding of a contract by the Interior Department to construct a fishway on the Truckee River.

Once completed, the fishway will allow the surviving post-glacial cui-ui to spawn on ancestral upriver grounds, an annual event that has all but ceased in the decades since 1905 when the Derby Dam was constructed on the river for irrigation.

The fishway is being built as part of a \$4.2 million Bureau of Reclamation project for construction of Marble Bluff Dam and Pyramid Lake Fishway. It is scheduled for completion in the summer of 1975. Cui-ui will swim up a 22 foot high fish ladder that extends 354 feet out from the dam on the lake side. At the dam level they will enter a six foot deep, nearly three mile long, concrete fishway. The fish trapping and evaluation facility will be situated at the end of the fishway where cui-ui can reenter the Truckee River.

The once-roiling river's mouth is now a silted-over, slow-flowing, shallow delta of rivulets and sandbars--hardly the kind of obstacle an egg-laden, six-pound cui-ui can traverse.

In proof of the hardiness of its species, the cui-ui adapted to the sudden cutoff from ancestral spawning grounds while other fish didn't. The cui-ui began laying its eggs near the river's mouth and at other locations along the lake shore where fresh water flowed into the lake. The beautiful Lahontan cutthroat trout, once a world renowned sportfish of Pyramid Lake, was not so resilient and by the late 1930's was extinct in Pyramid Lake.

The cui-ui is inexorably linked for survival with its habitat, Pyramid Lake, Nevada, a uniquely fascinating and enchanting lake in itself. The parent of Pyramid Lake--Lake Lahontan--probably was born about 70,000 years ago in the last days of the ice age.

As the climate changed, Lake Lahontan responded. When cooler, wetter periods settled in, the glaciers were extensive and the lake was high--often covering more than 8,000 square miles of present day Nevada and California. When warmer, drier periods arrived over the Great Basin, evaporation exceeded replenishment and geologists believe Lake Lahontan may have dried up completely over at least one long period.

During the last 10,000 years, Lake Lahontan remained at relatively low levels, and the deepest of the glacial puddles left behind was Pyramid Lake. Today this lake, located about 30 miles north of Reno, is about 25 miles long, four to 11 miles wide, and more than 300 feet deep.

The lake is the natural terminus of the Truckee River, which like all rivers in the Lahontan basin, has no outlet to the sea. The river begins in the High Sierras in California, enters Lake Tahoe, emerges at its northwestern rim, and flows into Nevada some 10 miles west of Reno. From there, the river flows through Reno to a point 30 miles east, where it turns north and enters Pyramid Lake.

Today, the level of the lake still depends on the inflow of the Truckee River, and it fluctuates with wet and dry years. The inflow to the lake now, however, is much smaller because of upstream water use for irrigation, cities, and towns. The level of the Pyramid Lake started to recede at an accelerated rate after settlers arrived and began to draw water from the river.

Chemically, Pyramid Lake water is typically saline and alkaline. The lake is literally a culture medium for various organisms in the food chain--temperatures are warm, nutrients are plentiful, and fish growth is rapid. Lahontan drainage fishes are abundant in Pyramid. Originally native Lahontan cutthroat trout and cui-ui suckers were the only food fishes found in the lake, and they existed in unbelievable numbers. With the extinction of the trout in the 1930's, only the cui-ui and the previously introduced Sacramento perch were left. In recent years, stocking with kokanee salmon has been successful, and reasonably good numbers of cutthroat trout have been reintroduced to the lake by stocking programs.

The cui-ui (Chasmistes cujus) is a distinct species of sucker within the family Catostomidae. This family of fish is noted for soft fin rays, extensible sucking mouths, and fleshy lips. There are 57 sucker species native to North America.

The cui-ui is a large, clumsy looking, heavy-bodied fish that commonly reaches six pounds in weight and two feet in length. It has thin smooth lips. During spawning, breeding male cui-ui have a brilliant red and brassy color on their sides. At other times of the year they are black and brown above, fading into flat white below. Females have a bluish-gray cast.

The original migrations of the cui-ui extended up the river as far as Reno, but since the dam was built they have only been able to spawn during years of high runoff. In spite of severely restricted access to their major spawning grounds the numbers of cui-ui remained high until 1966 when a drastic decline was noted. The Paiute Indian Tribe, which controls the lake, closed fishing for cui-ui to all but tribal members in 1969.

The cui-ui's annual migration begins about mid-April, depending on the condition of the river, and continues approximately one month. Spawning occurs in relatively shallow water where the flow is rapid, often at the head of a bar which turns or parts the current. At times the dorsal fins project above the surface, and in very shallow places where there is

much crowding the whole back is exposed. Two, three, or even five or more males attend a single female during the spawning act. Spawning appears to be more active at night or early morning than in the daytime.

Sometimes cui-ui appear in such great numbers and densely packed schools to spawn that many fish are crowded out of the water in shallow places, where they die. Cormorants, gulls, and pelicans in great numbers assemble for the attack during spawning runs.

As a food supply the cui-ui has been a palatable staple for Indians and white men alike in the Pyramid Lake area. They could only be hooked during the spawning season and they were taken from the mouth of the river in great numbers. Cui-ui will not take bait of any kind, but can be readily snagged with weighted treble hooks when the schools are concentrated.

In former times the spawning migration of the cui-ui was a great event, not only for the Pyramid Lake Indians, but also for other Paiute Tribes from far to the south, who sometimes reached the fishing grounds in such a starved condition that many were unable to survive the first feast. The fish were caught in large numbers and tons of them were dried for later use.

The major efforts to understand the cui-ui by Tom Trelease and Kay Johnson of the Nevada Fish and Game Commission were supplemented by Federal interest in the cui-ui after the passage of the Endangered Species Act in 1969.

The cui-ui was placed on the Secretary of the Interior's endangered list and research was begun to learn more about the species. With assistance from University of Nevada biologists and State personnel as well as keen interest in the cui-ui on the part of the Paiute Tribe a small research effort was begun. This evolved into the construction of a makeshift hatchery on a feeder creek to the lake.

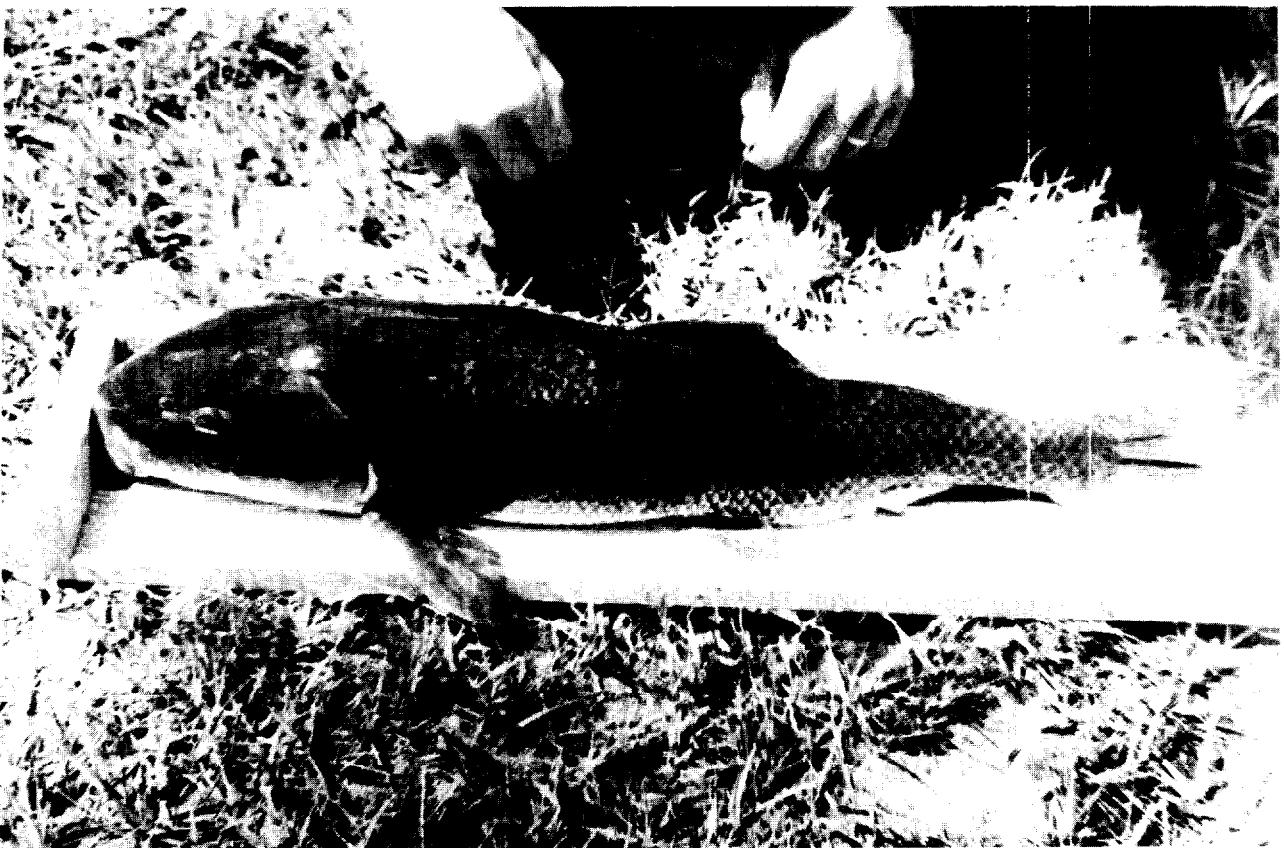
In 1973, Fish and Wildlife Service biologist Earl Pyle and others collected mature male and female cui-ui with gill nets when they appeared at the mouth of the Truckee River and hand-stripped them of eggs and sperm. The spent males and females were returned to the lake. This first year's attempt to culture cui-ui resulted in over three million fry being released into the lake.

Several interesting things were learned about cui-ui during this trial hatching process. They are very difficult to raise because they are shy fish. Some wouldn't ripen and they had to be given hormone shots to induce fertility. Fry were very difficult to raise as they preferred natural foods instead of prepared meal. Trout rearing methods and feed did not work and caused curvature of the spine. Also, it was discovered that the cui-ui does not mature sexually until seven or eight years of age; whereas, trout normally mature in two years.

The construction of the fishway should remove the basic obstacle to cui-ui spawning. Since the species is endangered, artificial propagation will continue. It has been better than 60 years since the Derby Dam was built, and the changes in the original streambed of the Truckee River are numerous. Overall, the outlook is bright that these fish can return to their ancestral spawning grounds.



U.S. FISH AND WILDLIFE SERVICE BIOLOGISTS MILK A CUI-UI



THE CUI-UI COMMONLY REACHES SIX POUNDS