EULOGY FOR THE SAN JOAQUIN RIVER

by Ray Katula, Cochrane, Wisconsin, formerly of Modesto, California

The majestic San Joaquin River drains such pristine areas as Yosemite Park, Kings Canyon National Park, and much of the southern Sierra Nevada wilderness. The river once provided prime spawning habitat for tens of thousands of salmon, including the now endangered winter run of the Chinook Salmon, not to mention the run of the non-endangered but still reduced Steelhead. With the rise of the Sierras, the San Joaquin contributed to the evolution of California's state fish, the Golden Trout. It offered a non-competitive haven where relatively primitive fish species could maintain their unhindered existence. The San Joaquin's flooded basin areas provided over two million acres of lush wetlands, ensuring ample food supply for the Pacific Flyway waterfowl population that makes its primary winter residence here.

Dam construction and ambitious irrigation projects have broken up and eliminated salmon spawning habitat. The San Joaquin's own creation, the Golden Trout, has been displaced and hybridized due to the introduction of non-native Rainbow and Cutthroat Trout. The Golden Trout still persist today through stocking by the Department of Fish and Game, which introduced the competing fish species in the first place. The once mighty winter run of Chinook Salmon now numbers less than 200 individuals.

Many of the primitive endemic Californian fish have now become extinct, endangered, or threatened, or else are headed in that direction. Indeed, a recent summary of a Desert Fishes Council seminar stated that at least 60 percent of California's fish species were either extinct, endangered, threatened, or of special concern. The report went on to state that entire fish faunas of the state are in trouble. The San Joaquin is one such troubled aquatic habitat. The lush, abundant wetlands have been drained to the point where a mere seven percent of the original area still exists, crowding waterfowl where disease and competition are compounded.

The San Joaquin River is a mere shadow of its former, natural self. Pollution is a major problem for the waterway, but two factors even more detrimental have been, first, the diversion of critical water via the federal Central Valley Water Project, and, second, a relatively unknown problem--the ill-advised, massive introduction of non-native fish species.

The previous five-year drought (perhaps still continuing) has decimated fish populations severely, but compounding the problem is the hoarding of water for agricultural purposes. Eighty-five percent of California's water goes to agribusiness; the other 15 percent goes to people and

industry. With long-term drought come long-term problems for fish. After construction of the Central Valley water-diversion project, 90 percent of the salmon have been wiped out. These anadromous fish (i.e., fishes that move inland from the sea to spawn in fresh water) become confused by diverted water flows, and end up in canals and aqueducts where there is little chance of finding suitable habitat to spawn, and no chance for their young to return to the ocean.

The answers to such problems are not easy, and we are quickly arriving at a critical point. Do we want to preserve what is left of our severely decimated fish populations or should we let more fish species fade into extinction? While some species may bounce back in the future, once a salmon run is gone it cannot be restored. Delta Smelt, primary food source for Striped Bass, must have ample water year after year to breed in. If a smelt fails to spawn at one year of age, it will very likely die before reaching its second spawning (typical life span is one year).

The Delta Smelt population has dropped from an estimated two million fish to one or two hundred thousand. Leading scientists conclude that the species needs protection; indeed, the Delta Smelt has been proposed for endangered-species status. [It has since been federally listed as Threatened--AC.]

With the grave danger to the winter run of Chinook Salmon and to the Delta Smelt, endangered-species laws could expedite needed changes in water discharges. Agricultural practices would have to change. Indeed, they should anyway.

Proposed legislation would, essentially, distribute water more fairly, but agriculture would receive funds to conserve water, prevent toxic drainage waste, and increase crop yields. These bills would allow greater flexibility to allow water for restoring the devastated, formerly rich fish and wildlife resources that California once knew.

Other practices could help. Much of the diverted water goes to irrigate cotton, which is best grown where ample water supplies exist. Drip irrigation could be implemented on many of California's crops and would save considerable water. I've heard from some farmers that such an idea is ridiculous; maybe so, but establishing a major growing industry in the middle of a desert is just as ridiculous, and we have to start taking responsible steps to conserve water now to protect the continued viability of California. The recent drought may seem like a fluke, but droughts are a natural phenomenon of arid regions, and we should utilize water as sparingly as possible. Change in both attitudes and methods of irrigation are sorely needed.

The other huge problem for fish is introduced, non-indigenous fish species. Bluegill, black bass, and silversides (to name but a few) have been introduced from east of the Rockies to enhance fishing. The success of those introductions is frightening. While black bass and Bluegill do provide good sport, the native Californian sunfish they displaced, the Sacramento Perch, also does. Like the bass, it attains large sizes, up to 2'. Likewise, as with the Bluegill, the Sacramento Perch can adapt to small ponds and reproduces well in such conditions. The primitive Sacramento Perch is relatively less aggressive, however, and unable to compete with its "foreign" neighbors. Thus, it is virtually unknown in its once extensive California range.

This is merely one of the many examples of a common species nearly annihilated due to ill-advised or hasty introductions by agencies supposedly designed to protect fish. While we seek quick fixes to enhance the fish potential of a body of water, the above example (and more to follow) show that no matter how carefully one plans, the end effects of an exotic-species introduction on a natural ecosystem cannot be predicted. Most areas naturally possess good species to work with, and efforts should be implemented to enhance their native fauna. Once a species is injected into an unnatural ecosystem, it utilizes food and space that would have been used otherwise. Therefore, there are no predictable and really justifiable introductions.

Two species considered successful introductions are the Striped Bass and the American Shad. These species, however, are anadromous--they do most of their growing in the Pacific Ocean, where food, space, and other resources are much more available.

Now we will list some specific examples of detrimental results following introductions or the depletion of water.

CLEAR LAKE SPLITTAIL: Extinct

The Clear Lake Splittail was endemic to Clear Lake and its tributaries until its numbers severely declined due to competition from the introduced Bluegill. It still barely persisted until the 1967 introduction of the Inland Silverside. The silverside was introduced into other lakes as an experiment by the Department of Fish & Game, and a fisherman supposedly introduced it via bait bucket into Clear Lake. This dealt the final blow to the Clear Lake Splittail, which had similar feeding habits. No Clear Lake Splittails have been captured since the early 70s, and therefore they are presumed extinct.

THICKTAIL CHUB: Extinct

The Thicktail Chub lived in backwater, slough-type areas throughout the Central Valley, and was last seen in 1950.

Introduced predatory fish, channelization of the delta, and draining of preferred habitat are probable reasons for the demise of this species. It had been a staple food of the Patwin Indians; excavation sites produce more bones of this species than of any other type of fish.

SPLITTAIL: Proposed Endangered

The status of this species has not yet been determined. While this article was being written, Professor Peter Moyle of the University of California at Davis (author of Inland Fishes of California) stated that data was currently being examined to determine the status of this beautiful fish. Unlike its cousin the Clear Lake Splittail, this species ranged widely throughout the Central Valley and Delta. Ten years ago, it could be found fairly easily. It is now only found within the Delta, and there its numbers are dropping.

Professor Moyle stated that populations have fallen sharply due to the drought and the lack of spring runoff waters to provide adequate spawning habitat. Moyle absolved the introduced species that had done in the Clear Lake Splittail from responsibility for the plummeting numbers of the regular Splittail. The Splittail is not only elegant, with long, flowing fins, it also has the distinction of being the most primitive minnow.

DELTA SMELT: Endangered

As mentioned, this was the primary food source for the Striped Bass. Without substantial water flow for spawning, the Delta Smelt, which usually lives for only one year, could dwindle into extinction quite rapidly.

CHINOOK SALMON, winter run: Endangered

With only 200 fish still making the spawning run, the future of this fish is desperate indeed. Without adequate water, spawning habitat is not available. The eggs that are laid are exposed, and quickly fall to predation. Strong water flows in spring are the only solution for this highly endangered fish. Its extinction could strongly indicate things to come for California's other salmon stocks.

GOLDEN TROUT, misplaced California state fish

The Golden Trout is probably the most colorful of all California's freshwater fishes, but it is absent from most of its own native waters. Rainbow Trout, native in much of California, have been introduced into the Golden Trout's natural waters, where the two species hybridize and the original species is lost. Golden Trout are being produced in fish hatcheries and are being stocked in lakes and streams where they don't have to compete with the introduced

Brook Trout; however, it seems ironic that the state fish can only tentatively call home, home.

While I could go on with many more extinct and endangered species of California fish, the above should poignantly illustrate primary problems for California's native fish. The San Joaquin River is hardly natural; if the health of an ecosystem is defined by its naturalness, the San Joaquin is dead. After 12 years of collecting fish in the San Joaquin, I've yet to obtain a single California fish--minnow, sucker, game fish, or anything! What I have caught are plenty of introduced fish--silversides, Red Shiners, Green Sunfish, etc. All species collected were typical of what one would collect in a Texas stream.

California possesses--in some cases, possessed--a very distinctive fish fauna that needs to be preserved. Right now, the fastest remedies would be simple: release more water in spring to provide optimum spawning conditions, and cancel further introductions. Maybe with those measures, there's a slim chance we can preserve what is left of the natural California fish fauna.

###