

Quitobaquito Pupfish

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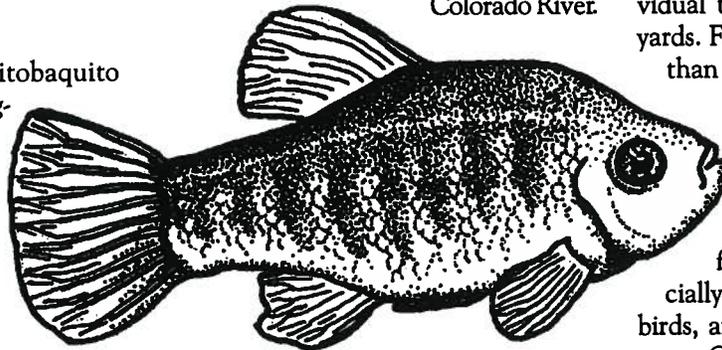
SCIENTIFIC NAME: *Cyprinodon macularius eremus*. From the Latin root *cyprin*, meaning a type of carp, and *macul*, meaning mottled. The subspecific epithet *eremus* is Latinized from the Greek *eremos*, meaning a lonely place, a reference to the one known locality of this subspecies.

DESCRIPTION: The Quitobaquito pupfish has long been recognized as a distinct form of the desert pupfish (*Cyprinodon macularius macularius*). Although the two forms share certain physical characteristics, Quitobaquito pupfish have broader, deeper bodies, and smaller pelvic fins. Adults of both subspecies are approximately 1.5 to 2 inches long, with deep, stout, dark silver to olive bodies. Males have deeper bodies than females. Mouth terminal does not extend to orbit of eye. Dorsal and anal fins rounded. The otherwise colorless dorsal fin often has a dusky blotch at posterior end. During the spring and early summer breeding season, the male's body turns iridescent blue and the caudal fin and its base turn yellow or orange. Females remain relatively drab and inconspicuous; their sides are silver, with six to nine dusky bars that may form an irregular lateral band.

HABITAT: Historically, the desert pupfish was found in marshes, springs, slow-flowing rivers, and river backwaters. However, the Quitobaquito form is known from, and persists only in, a single modified spring at Organ Pipe Cactus National Monument.

DISTRIBUTION: Although desert pupfish historically occupied much of the Gila River Basin below 5,000 feet eleva-

tion, and the lower Colorado River clear to its delta in Sonora and Baja California, the Quitobaquito form occurred naturally only in Quitobaquito Spring. The Quitobaquito population is isolated by the Pinacate lava flows, which separate the Sonoyta River Basin from the Colorado River.



Historical abundance of pupfish at Quitobaquito is unknown because that habitat has been modified by impoundment and diversion by humans for many years. The Quitobaquito habitat was probably relatively small under pristine conditions, and pupfish densities were likely fairly stable. The number of pupfish estimated to live there, and in the one-half acre Quitobaquito Pond, varies from about 5,000 to 10,000.

BIOLOGY: Although the pupfish has received substantial attention from behaviorists, systematists, physiological ecologists, and geneticists, much of its basic biology remains unstudied. Adults are opportunistic omnivores that feed on small invertebrates, such as mosquito larvae, and small bits of aquatic plants, algae, and detritus. Quitobaquito pupfish sometimes eat their own eggs and young; the males may differentially consume eggs that have been fertilized by other males intruding in their territories. In either respect, this behavior serves as a

mechanism for regulating the population.

Under suitable conditions, pupfish may become sexually mature by six weeks of age. Most will not breed until their second summer. Males are typically aggressive in the breeding season, when they establish, patrol, and defend individual territories of one-to-two square yards. Females may produce 50 to more than 800 eggs in a single season.

Quitobaquito pupfish grow to an average of one inch in their first year of life. By age three they average two inches. At this size, predation pressure from carnivorous insects (especially the giant water bug), piscivorous birds, and certain mammals can be intense. Quitobaquito pupfish generally do not live past their third year.

Pupfish have an amazing ability to withstand very high water temperatures (to 113° F), low dissolved oxygen concentrations, and high salt concentrations (twice that of seawater).

STATUS: This pupfish is included on the Department's 1988 list of *Threatened Native Wildlife in Arizona* as an endangered species. It is also listed by the U.S. Fish and Wildlife Service as endangered. Reasons for listing include habitat destruction and desiccation (including water table drawdown in Sonora, Mexico) and the potential for poisoning by wind-drifting pesticides.

MANAGEMENT NEEDS: Arizona's only known extinct fish is the Monkey Springs pupfish. If we are to prevent the Quitobaquito pupfish from joining it in extinction, Quitobaquito Spring must remain protected, and refugia populations must be established. Habitat monitoring and annual population surveys are also needed. ♣