

THE SACRAMENTO PERCH (*Archoplites interruptus*)--
California's Only Native Centrarchid, by Will Sears, Danville,
California

After reading Ray Katula's excellent article on the demise of some of California's native fishes ("Eulogy for the San Joaquin River," Winter, 1993), I thought I might try to continue the focus on California's finned fauna by highlighting one of the native species mentioned in that article, the Sacramento Perch. Some of the information presented here was gleaned from an ichthyology class I took at Cal State Hayward under the guidance of one of my favorite professors, Dr. Sam McGinnes. The dearth of native California species inhabiting state waterways is a sad testament to the tremendous adaptive success of the many introduced non-native fish species in the state. After about nine weeks of seining a wide range of aquatic habitats in central California, our class's nets brought up very few native species. Ray Katula isn't the only one with bad luck when it comes to fishing for California natives.

The Sacramento Perch is the only member of the family Centrarchidae that naturally occurs west of the Rocky Mountains. Evolving in isolation from the sunfish of the eastern United States, it kept the more primitive body form that closely resembles its fossilized forbears' body plans. In the California that existed before the Europeans arrived, these fish inhabited the sloughs, slow-water rivers, and small lakes of the Central Valley, as well as Clear Lake in Lake County and the Pajaro and Salinas Rivers. The Sacramento Perch evolved as one of the top piscivores (fish-eaters) in fish communities rich with prey, and in the past could be found in abundance throughout Central Valley Waterways. For native Californians, it served as a staple food fish, and, before game fish from the eastern United States were introduced into the state's waters in the late 1800's, the Sacramento Perch was a primary food fish for the early settlers. Variable water quality due to alternating periods of flooding and drought in California habitats selected for the ability of this fish to withstand extreme salinities, temperatures, and alkalinities that exclude other fish, including introduced centrarchids.

The Sacramento Perch is different in several ways from other centrarchids. It takes advantage of different food resources during its life cycle instead of specializing in one certain feeding niche. Feeding takes place at any time of the day, with peaks in the dusk and dawn hours. The adults are piscivorous, stalking their prey until they are close enough to inhale it by rapidly expanding their buccal cavities. They are most successful in habitats where they can take on the role of top predator. When stocked in small lakes and ponds, adults continue to feed on aquatic insects when small fish and

crustaceans are scarce. Nevertheless, Sacramento Perch will feed opportunistically when presented with an abundance of any type of food such as waterboatmen, aquatic beetles, or small fish. Young fish feed primarily on small bottom or plant-dwelling crustaceans and move to larger insect larvae as they grow. Extensive beds of emergent aquatic vegetation are important in providing food and cover for the young.

Sacramento Perch can be considered reproductive deviants in the centrarchid world. They become sexually mature by their second or third year and spawn during late May and early June when water conditions needed for egg development are at their best. The deviant part comes when the males don't ignore the standard pattern for eastern sunfish; they don't bother to build a nest for the female to lay the eggs in. Instead, several males converge near heavily vegetated shallow areas near favorable spawning sites. Then each male stakes out a chosen territory for a female to lay eggs in. During the spawning act, the females simply scatter eggs over the territory as the male fertilizes them. Some researchers have observed the Sacramento Perch vigorously guarding the eggs from potential predators, while others have noted little or no post-spawning care of the eggs. In the evolutionary absence of other, competing centrarchid species in California, the Sacramento Perch probably had no need to develop the complex nest-guarding behavior that sunfishes perform.

The introduction of eastern sunfish species into California has exposed the Sacramento Perch to the complex world of centrarchid competition. Eastern centrarchids generally build and vigorously guard a nest in a preferred spawning area. The female lays her eggs in the nest and is then chased away by the male, who guards the eggs from predators until they hatch and the fry are free-swimming. Since the Sacramento Perch scatters its eggs on the substrate and may provide little or no protection for the eggs, they are left open to predation by introduced catfish, carp, or other centrarchids.

Eastern species are also more aggressive in their site-selection. With the increase in the population of eastern species in many habitats in California, the Sacramento Perch is most certainly losing preferred spawning areas to the more aggressive Bluegill and other non-native centrarchids. In aquaria, it has been observed that eastern sunfish will actually chase Sacramento Perch away from preferred spawning areas.

Habitat destruction has also contributed to the decline of the Sacramento Perch in its native habitat. The filling of sloughs in the California Delta and the draining of lakes and general reduction of backwater areas have reduced the number of suitable spawning areas substantially.

Competition between the fry of the Sacramento Perch and several species of eastern centrarchids for food resources may be another factor in the decline of the species. Studies have indicated that all young centrarchids have similar food preferences, but the eastern centrarchids have evolved more aggressive feeding techniques than the Sacramento Perch, and have been observed chasing the latter from feeding areas.

Today, native Sacramento Perch populations are waning in their natural habitats, but are paradoxically flourishing in habitats into which they have been introduced. Despite the decline of the Sacramento Perch in its native range, it is not endangered, and is doing quite well in several locations outside its natural range. Due to its ability to withstand high alkalinity, it has been introduced into several alkaline lakes in Nevada, Colorado, Nebraska, and North and South Dakota, and is flourishing where most other centrarchid species cannot survive and reproduce. It has also become established in several California reservoirs where it has been planted or where young fish were transported through the California aqueduct system into holding reservoirs such as San Luis Reservoir and O'Neill Forebay. In addition, the California Department of Fish & Game has promoted the Sacramento Perch for introduction into Central Valley farm ponds. When other centrarchid species are introduced, they often reproductively out-compete the Sacramento Perch. When left alone in a pond, most centrarchids, Sacramento Perch included, will develop stunted populations due to overcrowding. These problems make it difficult to establish the Sacramento Perch in areas that also harbor other centrarchids, but with thriving populations of this fish in lakes outside California, the Sacramento Perch is far from lost.

References

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