

## “KNOW YOUR TROUT”

### REDBAND TROUT OF THE SACRAMENTO RIVER BASIN

#### Introduction

The redband subspecies of rainbow trout are indigenous to the northern Sacramento River Basin and evolved in the headwaters of the Sacramento River, the McCloud and Pit Rivers and the Feather River drainages in three prominent forms: the northern Sacramento redband trout (*Oncorhynchus mykiss stonei*), which includes the population commonly referred to as the McCloud River redband; the Eagle Lake rainbow trout (*Oncorhynchus mykiss aquilarum*); and the Sheepheaven Creek redband trout (*Oncorhynchus mykiss subspecies*), a unique redband found only in an isolated, small headwater tributary of the McCloud River. A discussion of the Eagle Lake Rainbow will be presented in a subsequent article of “Know Your Trout” because of its unique evolution and limited natural distribution. Also the two subspecies of Northern Great Basin redband trout found in California, the Goose Lake redband and the Warner Lakes redband, will be discussed in a future article.

#### Evolution

A look back in time suggests that redband trout first entered California in the second half of the Pleistocene Epoch, a period of repeated glaciations that spanned 2.5 million to 11,700 years ago. The most primitive living species of other trout linked to the redband are Gila, Apache and Mexican golden trout. Taxonomists believe these fish spread throughout the Sacramento-San Joaquin basin and began to differentiate into distinct populations, of which those of the upper McCloud River (McCloud River redband) and southern Kern River drainage (California golden trout) persist today.

#### Description

The McCloud River redband trout have olive/bronze coloration on their back and yellowish background colors on the sides of the body. The characteristic bright, brick red band flows along the lateral lines. Spotting patterns are different from the coastal rainbow trout. The characteristic black spots tend to be larger, sparser and confined to the area above the lateral line. The caudal (tail) fin is moderately forked, and the pelvic (bottom) fins and the anal (bottom) fin have white tips, while the dorsal (top) fin has an orange tint with a white tip. There is also a slight orange cutthroat mark below the jaw. In smaller streams both immature and adult fish present purplish colored, elliptical shaped parr marks along the lateral lines. As with most trout species, the coloration is most intense in mature males, particularly during spawning.

The Sheepheaven Creek redband trout has a more intense yellow coloration than the McCloud redband. There are fewer black spots above the lateral line, with almost no spots below. A red-orange band follows the lateral lines with distinctive dark parr marks in young and adult fish. All fins have an orange-yellowish coloration, and the dorsal, pelvic and anal fins have white tips.

#### Biology

All redband trout of the northern Sacramento basin, except the Eagle Lake rainbow, reside their entire lives in fresh water streams. As with all rainbow species, the redbands spawn in the spring from April to mid-June. While they occur mostly in

small streams, some McCloud redbands inhabit the upper Sacramento River, the lower McCloud River, including McCloud reservoir, and the Pit River, including the Fall River tributary. The fish in these larger waters are likely not as “pure” genetically when compared to fish found in the smaller isolated streams above the upper barrier waterfalls and north of the main McCloud River. These headwater streams include Trout, Swamp, Tate, Edson and Moosehead Creeks. The redbands in Trout and Swamp Creek may in fact be related to the Sheepheaven redband since fish from Sheepheaven Creek were transplanted into these streams in the 1970’s. Also, the historical introduction of hatchery trout into the main McCloud River, with a probable mixed genetic history, decreases the likelihood of “genetic purity” in these redbands. The size attained by resident redband trout is generally determined by the size of their environment and food availability. In small streams maximum size is about 12 inches and a weight of 12 ounces, while redband trout in larger rivers can reach 20 inches and weigh 2-3 pounds. Life span on average can be 3 to 7 years. The diet of the McCloud redbands is similar to most rainbow trout, consisting of small aquatic invertebrates, e.g. mayflies, caddisflies, midges, and terrestrial insects, e.g. grasshoppers, ants, beetles.

The Sheepheaven redband is only found in Sheepheaven Creek, and has been genetically isolated from other Sacramento River basin redbands for thousands of generations. Sheepheaven Creek arises from a series of small springs and flows for about one mile before it disappears into the streambed. The flow volume is only about 0.8 cfs (25-30 liters per sec). Because of this small stream environment, the Sheepheaven redband attains a size of only 6 to 8 inches and 3oz. in weight. The diet of these ancient, beautiful fish is primarily small aquatic invertebrates.

### Natural Distribution

Northern Sacramento redband trout are native to the upper Sacramento, the McCloud, the Pit and the Feather Rivers. Within this basin, there are a variety of different redband populations with a diverse ancestry. Because of the mixing among ancestral redband trout, and with coastal rainbow trout, no precise genetic boundaries can be drawn, except of course for the Sheepheaven redband. The upper McCloud River barrier waterfalls have long isolated the most distinctive redband trout above the falls from contact with the coastal rainbow trout below the falls. Finally, when hatchery trout were introduced below the upper falls, the genetic footprint for the lower McCloud redbands became even more complicated.

Sheepheaven Creek, isolated by waterfalls in the headwaters of the McCloud River drainage, contains the most distinctive form of a northern Sacramento River basin redband trout. The Sheepheaven redband trout is a pure subspecies of redband trout that probably represents the earliest ancestral migration that gave rise to all subsequent Sacramento basin redbands.

One final note: The McCloud River redband is one of the California native trout species included in the Department of Fish and Wildlife’s Heritage Trout Program. While the Sheepheaven redband is also considered a native, heritage trout, fishing in Sheepheaven Creek is not permitted under current DFW regulations.

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