

SPAWNING OF THE RETICULATE SCULPIN

by Ray Katula, Amity, Oregon

In a previous AMERICAN CURRENTS article ("The Good, the Bad, and the Very Ugly Sculpins," March/April/May/June 88), I discussed several sculpin species especially amenable to captivity. Since sculpins typically reside in clear, cold, flowing, oxygen-rich streams, they are not exactly recommended for every native-fish enthusiast.

The Reticulate Sculpin (Cottus perplexus) closely resembles the sculpins described in the previous article in many ways; however, it is quite adaptable, often found in warm rivers and swamplike conditions within the state of Oregon. Perhaps due to these adaptive qualities, I had the good fortune to have some breeding activity by a pair in the spring of 1990.

The Reticulate Sculpin ranges within Western Oregon from the Rogue River northward to the Columbia River, and then somewhat discontinuously. Further north, it inhabits some Puget Sound streams of Washington State. This range coincides with the western forest, greatly different from the more arid, desert conditions of eastern Oregon.

The habitat of Reticulates is highly variable, though the species is most often caught in pools of slower-moving water. In a swamp stream where I've collected these sculpins, their co-inhabitants are Carp, Pumpkinseeds, and Largemouth Bass. Six months of the year, this particular stream has thick growths of duckweed and milfoil--not exactly typical sculpin habitat! In more typical streams, they are captured in pools with mud, sand, or gravel bottoms, often with an abundance of submerged logs and leaves. In springtime spawning, conditioned fish seek out areas near logs along the banks of swollen rivers. Torrent Sculpins (Cottus rhotheus) often occupy the same rivers as Reticulates, but are encountered in deeper and faster-flowing portions of the river.

In a normal western Oregon stream setting, the Reticulate Sculpin's co-inhabitants would be Northern & Umpqua Squawfish, Redside Minnows, the local sucker species, Sandrollers, and the resident Rhinichthys species. Although Reticulate Sculpins are often caught among submerged aquatic vegetation, there does not seem to be a decided preference for such areas. Juveniles frequent shallower areas, while adults occupy deeper areas.

Reticulates have been synonymized with Riffle Sculpins (Cottus gulosus) in the past by several workers. There is a slight resemblance, though live specimens are easily differentiated: Riffle Sculpins tend to have an orange cast on their fins and body, and the clincher is that the

Reticulate has a much more continuous dorsal fin. There are other, subtler differences, but they aren't reliable given the general variability within species of the family Cottidae.

My first specimens of Reticulates came up in a dip net from the North Fork of the Yamhill River near Carlton, Oregon. Only two fish were retained on this mid-fall collecting trip. Judging from their size--about 1½"--they were probably young-of-the-year. I would find out at spawning time that one was a male and one was a female.

Young Reticulates like these exhibit a rough checkerboard pattern on their sides which is faded on adults. Adults do have a more attractive dorsal-fin pattern, a myriad of wavy lines. The orange outer edge found on dorsal fins of many sculpin species is not especially pronounced in this one. Spawning males become very dark on their face and anterior dorsal body areas. Females at spawning time appear unchanged in color or body pattern.

The other Reticulates I collected were rotund, ripe females in mid-February. They were found in areas of submerged logs in somewhat shallow water. Three specimens were retained this time. They joined the others in a ten-gallon aquarium set up with with assorted rock caves and generous aeration.

The sculpins were supplied with a diet of live brine shrimp, live tubifex, and earthworms. One thing that surprised me a bit was their reluctance to consume small, live, culled Southern Redbelly Dace fry. Some Piute Sculpins (Cottus beldingi) had acted the very same way--they simply would not eat them.

Other than that, the Reticulates grew fatter and evidently happier. In early March, I noticed the most rotund female approaching the single male's cave, only to be chased away. As time went on, the female became ever more persistent, until finally, on March 13, they started spawning. On initial observation, only the female was inverted, depositing eggs on the cave ceiling. At other times, the male was inverted, though, as far as I could discern, only one adult was inverted at a time. A flashlight was needed for observation, and care had to be taken not to disrupt the spawning pair. The water temperature was 53°F and pH was 7.8.

Spawning started in the late morning and ended about mid-afternoon. After spawning, the male chased the female away. In the ensuing days, no other females appeared to have spawned. A rough count determined that about 75 slightly greenish eggs had been laid. The male diligently protected them.

On the second day post-spawning, I attempted to remove all other fish from the aquarium for fear that they would eat eggs or larval fry. This proved very difficult, and required a second attempt the third day. I succeeded in removing the fish; however, the disturbances may have been fatal. On the fourth morning, I could not find the eggs--just an obviously overfed male who apparently had eaten them.

With hindsight, I could have removed the eggs readily and hatched them separately. There seemed little reason to do so at the time.

Parenting behavior would be very interesting to observe. Further attempts did not succeed, but there is always next year. Anybody else who works with sculpins is certainly encouraged to write about them, so that other NANFA members can gain knowledge on the captive maintenance of this fascinating, yet little known group of North American fishes.

References

Lee, D.S., C.R. Gilbert, C.H. Hocutt, R.E. Jenkins, D.E. McAllister, and J.R. Stauffer, Jr., 1980 et seq. Atlas of North American Freshwater Fishes. N.C. State Mus. Nat. Hist., Raleigh.

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