

The habits and life histories of coast trout

by John McMillan

“Thoroughly sound information on the habits and life histories of coast trout (winter steelhead) is extremely scarce.....and rivers present a fairly wide diversity of conditions, and it is not unreasonable to suppose that the habits of the fish vary more or less proportionately. Eventually....detailed information about each major watershed will be available....and some fortunate being will be able to sit down at his desk and work out the complete picture.” Roderick Haig-Brown – The Western Angler 1946

The sun finally emerged after eleven consecutive days of rain. Its splintered rays sliced through a series of small holes along a bank of dark grey clouds. It was early March and a brisk wind swept across the surface of a small rainforest river as I waded upstream in search of steelhead whose spawning I had been following for three months. The continual hard rains had given way to showers four days earlier. The rivers had receded enough to warrant hope that the water clarity would allow a continuance of weekly observations. On a hunch I headed to a series of shallow riffles where I had observed a sentinel male steelhead holding near a redd in mid-January, waiting for his next female to arrive. I approached the stream through a bramble of salmonberry and quietly sunk down behind a mossy boulder I had come to consider my base camp. I was several miles up from the river mouth, just below a tributary junction, far from where most people were spending their Sunday afternoon.

Peeking over the boulder, four steelhead were visible in the shallow water holding over a patch of gravel about five feet upstream. One was the old, dark, redd-striped sentinel male of about 19lbs flanking the side of a fresh bright 15lb female. Two smaller males held about two feet below the pair. I watched as the female excavated her redd area infrequently. Then the large male moved alongside the female and performed a series of shudders near her lateral line. Within a few minutes the female sank into the redd pit, arched her back, and opened her mouth. Simultaneously the large male dropped into the redd. Just as he stiffened, mouth agape, the two trailing males surged forward pushing a wake of water and filled the redd with milt. The white cloud floated downstream and quickly dissipated. This took place another couple of times over the course of the next hour.

During my first year on the Olympic Peninsula I returned to this location several times each month, inspired by the solitude and innocent observations of wild steelhead spawning in a little visited watershed. As I ate lunch in early July, several months after starting my visits to this small river, I reflected on one profound moment earlier in the spawning season – the time when I began to understand the complexity of the great fish we call *Oncorhynchus mykiss*. It was the second week in April. Spring sunshine had warmed the previous winter flows to 54F during the middle of the day. I again sat behind the mossy boulder watching steelhead in clear water that was barely deep enough to cover their backs. Once again there was a female steelhead with one large male steelhead flanking her side. Three smaller males finned directly below them. The large male then chased yet another smaller male steelhead and returned to the female’s side; then he suddenly darted towards something else. Despite the clear water I could not see another fish.

As I wondered, I finally saw it: a small fish sitting in plain view about five feet in front of me. It was a rainbow trout, a relatively large one about 16". Before I could collect my thoughts the water boiled as all the male steelhead and the rainbow trout swarmed the female's sides and flooded the redd with milt. Carpe diem. I wondered which fish fertilized the female. Was it a single fish, the proverbial lucky Joe? Or was it a conglomerate of all the males, a fertile shake of evolutionarily determined life histories that produced a super mykiss prepared to survive winter rainforest floods and summer droughts? Then I thought about the trout. Was this an anomaly, or typical? Or somewhere between?

Subsequently I have been fortunate enough to observe numerous matings between female steelhead and male trout. While I have not arrived at many answers, I now understand the reproductive line between steelhead and rainbow trout is grey, not black and white. As evening arrived that night, I sat along the riverbank and listened to the fading chatter of a water ouzel. A nearby gallery of alder trees swayed in unison with a slight, but steady breeze, and I thought: how amazing the river creatures are and the gift of lessons that rainforest rivers provide. With many stream's headwaters in pristine condition protected within the Olympic National Park, the result is relatively healthy salmon populations. There is no better place to study salmon in the lower 48. Since that first observation eight years ago, I have logged thousands of hours snorkeling, observing, and counting salmon in these wild rivers as a biologist with the Wild Salmon Center. I have come to believe these fish and their rivers, with their relative health in numbers and abundance of exceptional habitat, live outside the proverbial box science has sometimes created around salmonids. We still have a long way to go to understand the diverse relationships between life histories and habitats Haig-Brown identified as being a primary limiting factor to understanding coastal trout in 1946. This will continue to be true for all salmonids until science puts more emphasis on classic field observations, and less on science that is isolated from the natural ecology of the animal studied. I also believe that when a more complete picture of *O. mykiss* is eventually developed, part of that picture will come from these rainforest rivers. The peninsula is, as described by Norman Mclean, "a world still wet with dew."

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