

SO4 an Eagle River brown trout

On April 4, 2000 a brown trout was collected on the Eagle River at a sampling site just upstream of Two Elk Creek. The fish was 202 mm long Total length (TL), weighed 73 grams (g) and was injected with an elastomer tag identified with the code SO4 (Figure 1). This fish was just about three years of age based on a comparison with the length frequency distribution of all other brown trout collected at that site on that day. SO4 was released back into the water an hour or so later. SO4 resulted from the brown trout spawn of fall 1996. The fertilized egg developed over the winter and the fry emerged from the gravel in June or so of 1997.

SO4 was collected again in 2001, 2003, 2005 and 2009. In 2009 SO4 was 285 mm long. SO4 had only grown 82 mm (about three inches) in the intervening nine years. Actually the fish had only grown about 17 mm (0.64 inches) in the four years between 2005 and 2009. SO4 was 12 years old in 2009 and had yet to reach a length of 308 mm TL (one foot long).

A growth history for SO4 was determined (Figure 1) using the mean TL of one-year-old and two-year-old brown trout collected at this sampling location over a 18 year period of record. An assumed total length of 24 mm was also used for the fingerling brown trout that would be SO4 at time of emergence as a swim-up fry in 1997. SO4 had almost stopped growing by the age of four years. Perhaps most of the fish's energy had been put into spawning efforts since an age of three or four and little energy was expended on growth. Brown trout often stop growing once the fish starts spawning each fall.

The relative weight¹ (W_r) for SO4 had little variation from 2000 through 2009 (Figure 2). This brown trout weighed less than the mean W_r value (1.0) of all other brown trout of the same size each time SO4 was collected. SO4 is a skinny fish. The head of SO4 is much wider than the body of the fish when viewed from above in 2009. SO4 has always been collected at the same site, the Eagle River just downstream of the effluent from the treatment plant that removes metals from water emanating from the Eagle Mine Site. The mean W_r of all brown trout collected at this site is lower than expected in other Colorado Rivers. The metals remaining in the stream may account for the reduced weight of SO4 compared to all other brown trout of the same size. However, the fish appeared as fit as ever in 2009 and may survive yet another year.

An age of 12 is rather rare for river dwelling brown trout in Colorado. A length of less than 12 inches at an age of 12 is also rather rare. A longer length would be expected. No other tagged brown trout has survived this long in the Eagle River from Redcliff, Colorado to Avon, Colorado.

Prepared for the Eagle River Watershed Council, by John Woodling, April 6, 2009.

¹ The relative weight of a fish is a comparison of the actual weight of an organism compared to the standard weight of all fish of the same length of that species. A W_r of less than one means the fish in question has a weight less than the 75th percentile of all fish of that length of that species.

Figure 1

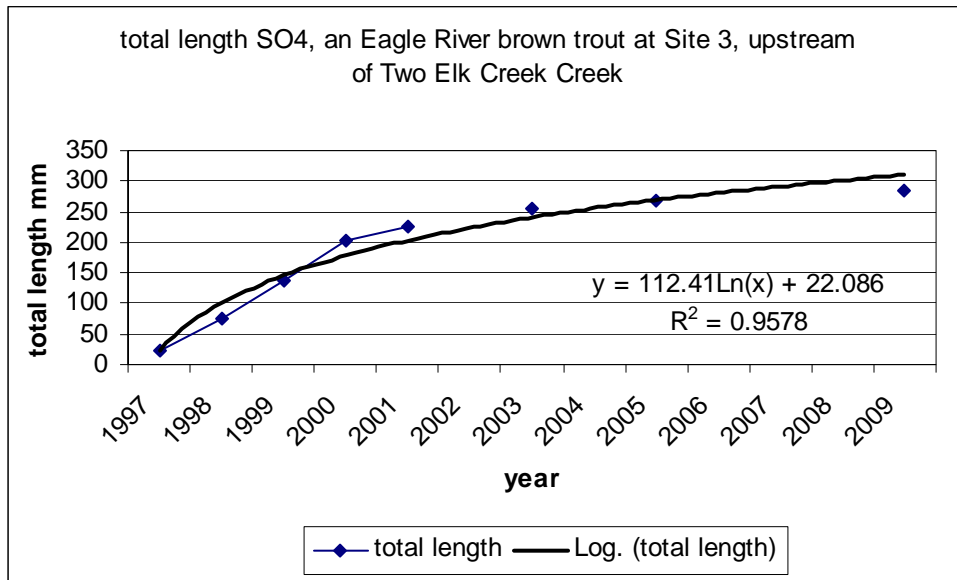


Figure 2

