

Angling and Gut Analysis of an Adult Whitefish in the middle Green River

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Karrigan caught a 453 mm mountain whitefish just upstream from the Swallow Rapids on the Green River (RM 272). The whitefish took a size 14 flashback pheasant tail (strung in tandem with a San Juan worm), fished on 2 lb test tippet, as it drifted past a microeddy behind a mid-channel rock. The fish stayed deep in the water column, grinding along the bottom in an apparent effort to loose the fly from its fleshy lips. We kept the fish for dinner, which allowed us to do a thorough gut content analysis while cleaning the fish.



We assessed the whitefish's diet with an inspection of gut contents from the entire length of the alimentary canal. While green rock worms (*Hydropsyche* spp.), spiny crawler mayflies (Ephemeroptera), small minnow mayflies (*Baetis* spp.), and physid snails were found in the sample, the largest component (by number) of its diet was the New Zealand mudsnail (NZMS). This invasive species is a relatively new prey item for whitefish in the Green River, as it has only been documented in the system since 2001 (Vinson 2004).

The large abundance of NZMS could be a result of a higher likelihood of preservation during the digestive process. All of the shells found in the gut contents remained intact, likely a result of the whitefish's lack of feeding anatomy suitable for crushing this tiny snail. In a similar finding, Vinson et al. (2006) reported that only 15% of NZMS that passed through the intestinal tracts of trout were digested.

The gut content results may also represent a predilection in mountain whitefish toward feeding on the NZMS. This fish has shown a preference for NZMS in past studies, but this relationship was documented by comparing whitefish gut contents to the composition of the invertebrate drift (Vinson et al. 2006). Given the whitefish's benthic feeding habits, as suggested by its subterminal mouth, fleshy lips and foraging behavior (Moyle 2002), this preference may be a relict of the sampling method and not a true dietary preference. Further research will be necessary to discern the true relationship.

If the large abundance of NZMS in the gut contents is actually a result of preferential feeding, it may result in a lowered fitness for this species in the Green River.

The fish in the Vinson et al. (2006) study lost body mass due to the loss of nutritional value in undigested NZMS. The whitefish we studied was beginning to develop eggs for spawning in late fall, and the consequences of consumption of non-nutritive prey items to a gravid female may be particularly dire. A fitness study such as the one performed on trout should be conducted on whitefish in order to assess the true impact of NZMS.

References:

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