Montana Fish, Wildlife & Parks

2003 Holter Dam Tailwater Monitoring

A Report to PPL Montana

by

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Procedures

In 2003, two sections of the Missouri River downstream from Holter Dam [Craig section (rm 2.5 to 8.1); Pelican Point section (rm 24.2 to 28.3)] were electrofished at night using aluminum jet boats. Boats were equipped with headlights and fixed booms with stainless steel droppers suspended in front of the bow. Electricity from 240-volt portable generators was converted to pulsed or straight DC using Coffelt rectifying units. The only pulsed setting used was the Complex Pulse System (CPS). Population estimates for brown trout were conducted during the spring (April and May) and rainbow trout estimates were conducted in the fall (September and October). Rainbow trout *Oncorhynchus mykiss* and brown trout *Salmo trutta* populations from the Missouri River were estimated using the log-likelihood method (MR-5 program), which generates recapture efficiency curves for the estimate production (MFWP 1997). All sampled rainbow trout and brown trout were measured to the nearest 0.1-inch and weights (to the nearest 0.01 pound) were obtained on a maximum of 15 fish from each ½ inch group. A maximum of ten scale samples were collected from rainbow trout and brown trout from each ½ inch group for age analyses.

Results and Discussion

Although brown trout in the Craig section of the Missouri River precipitously declined from 2002 to 2003, the 2003 spring estimate was near the long-term average (Figure 1). For example in 2002, the estimated number of brown trout 10 inches and longer per mile was 1,104, compared to 503 per mile in 2003 (the long-term average is 547 per mile). The brown trout population in the Pelican Point section showed a similar trend where brown trout numbers declined from 447 fish 10 inches and longer per mile in 2002 to 219 in 2003 (Figure 2). Similarly, the 2003 estimate was near the long-term average of 299 per mile. Fall estimates for rainbow trout in the Craig section of the Missouri River did not change much between 2002 and 2003, but the size structure of the population did change. The estimated number of rainbow trout in 2002 was 3,385 fish 10 inch and longer per mile compared to 3,345 in the fall of 2003. In 2002, 68% of the 10-inch and longer rainbow trout population was comprised of fish 17 inches or longer. In 2003, the percentage of rainbow trout 17 inches and longer declined to 45% of the population (10 inches and longer). The 2003 decline in the number of large (17-inch and longer) rainbow trout was buffered by the recruitment of smaller (10- to 14-inch) rainbow trout. In the Pelican Point section, rainbow trout numbers increased from 1,393 fish 10 inch and longer per mile in 2002 to 2,358 per mile in 2003. This increase is attributed to high recruitment of rainbow trout from the Dearborn River in 2001 and 2002.

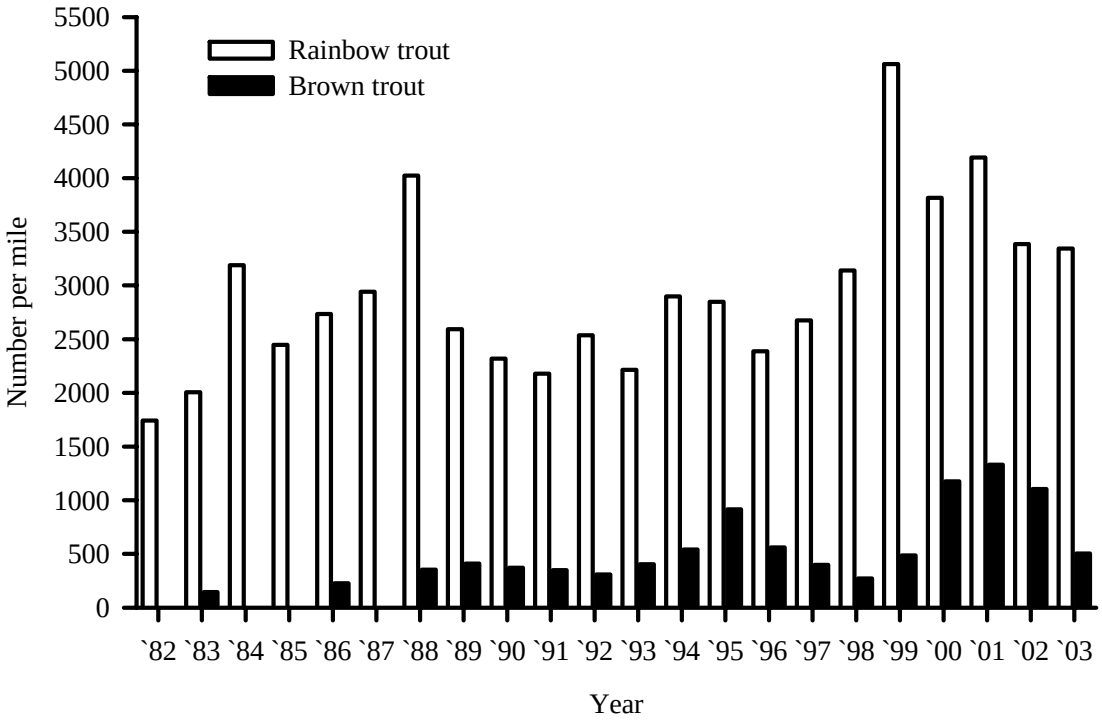

Figure 1. Number of rainbow trout and brown trout 10 inches and longer per mile in the Craig section of the Missouri River, from 1982 to 2003.

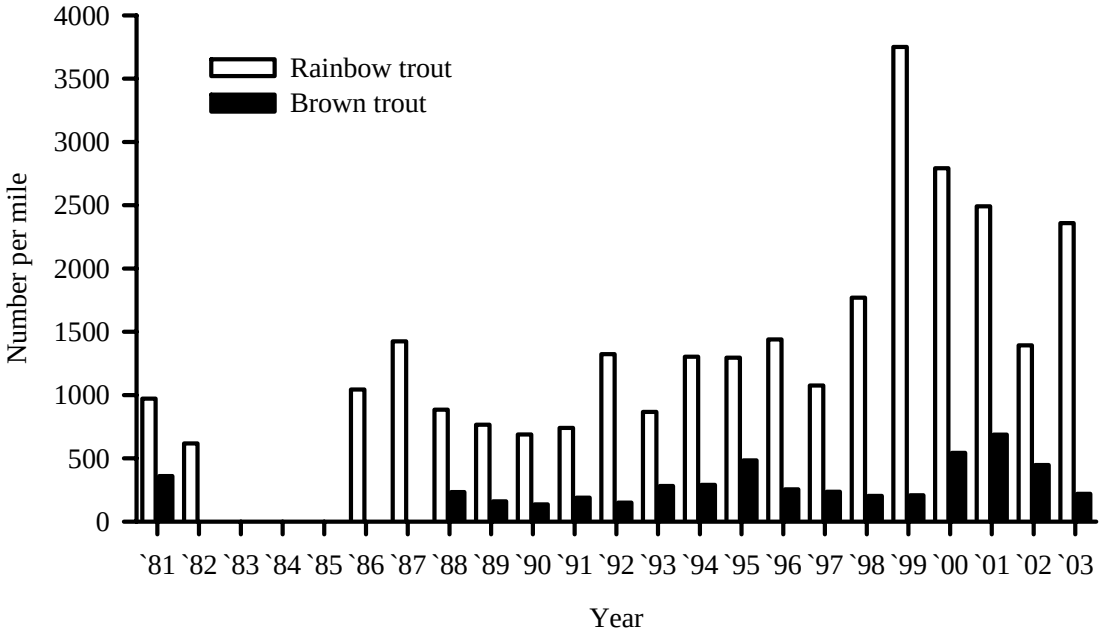

Figure 2. Number of rainbow trout and brown trout 10 inches and longer per mile in the Pelican Point section of the Missouri River, from 1981 to 2003.

References

Montana Fish, Wildlife and Parks. 1997. MarkRecapture Version 5.0. A software package for fishery population estimates. Montana Fish, Wildlife and Parks, Helena, Montana.