

Section 2

Missouri River (Toston Dam to Canyon Ferry Reservoir)

Management History

Management efforts since 1991 have focused on rehabilitating degraded spawning and rearing habitat in tributaries entering both the river and Canyon Ferry Reservoir. Project funding has come from Broadwater Power Plant fisheries mitigation (Toston Dam), FWP Future Fisheries Improvement Program, and the Broadwater Stream and Lake Committee. These efforts have targeted both rainbow and brown trout populations. Monitoring of these tributaries for spawning use includes redd counts, juvenile fish trapping, and the operation of an adult fish trap at Deep Creek since 1993. As a general indicator of the extent of spawning use in system tributaries, the adult fish trap captured an average of 1,311 spawning rainbow trout from 1993 through 2008 (range from 176 to 2,386 rainbow trout per year). Fish management trends in the mainstem Missouri River are monitored through spring and fall electrofishing annually.

Management Goals and Limiting Factors

The goal for managing the Missouri River between Toston Dam and Canyon Ferry Reservoir is to provide naturally reproducing brown and rainbow trout populations for recreational fishing opportunities in the Missouri River and associated tributaries and to provide important spawning and rearing conditions for the Missouri River/Canyon Ferry system.

Quality spawning and rearing habitat is limited for sustaining a high-density brown trout or rainbow trout fishery in this reach of the Missouri River. In addition, high water temperatures (approaching 80 degrees) and low stream flow occasionally impact trout fisheries and the food base during drought years. High sediment loading also impacts the quality of habitat for trout and invertebrates. Although improvements to habitat and stream flow have been made on a number of tributaries in the system since 1991, the overall quality of available spawning and rearing streams remains relatively poor. Extreme drought conditions from 2000 through 2007 have further deteriorated habitat conditions in the river and tributaries.

Whirling disease has been documented in the system, and although rates of infections appear to be relatively steady at the present time, increased mortality of young rainbow trout rearing in tributaries can be expected as this disease persists. Increasing observations of physical deformities due to whirling disease at the Deep Creek fish trap are cause for concern for adult fish that were infected by the disease as juveniles. Long-term impacts will likely result in decreased numbers of juvenile rainbow trout and reduced recruitment of adults that were infected as juveniles.

Quality habitat for rearing trout, particularly along shoreline areas, is limited in this reach of river resulting in poor juvenile rearing for brown trout, particularly during drought years. This lack of structural habitat, including good cover and holding areas for protection, results in increased predation by birds and fish.

The development of a northern pike population above Toston Dam and within Canyon Ferry Reservoir further confounds fisheries management in this stretch of river. Northern pike are a highly predatory species and depending on population abundance, could further limit fish production in the river as well as Canyon Ferry Reservoir. Angler observations of walleye in the river from approximately York's Islands to the river mouth have also increased in recent years. Increased use of river habitats by both northern pike and walleye may result in increased predation losses for trout and forage fish in future years.

Missouri River (Toston Dam to Canyon Ferry Reservoir) Management Goals by Species

Rainbow Trout

Goals and Objectives:

Rely on rainbow trout to provide both a resident fishery throughout the year and a migratory fishery linked to Canyon Ferry that enters the river during the fall and spring.

- Maintain a stable trend of rainbow trout exceeding 1.0 rainbow trout per minute based on fall CPUE electrofishing sampling near Toston.

Rationale:

Through the late 1990s, the rainbow trout population increased to approximately 300 trout per mile because of seasonal migration of wild strains of rainbow stocked in Canyon Ferry Reservoir. In addition, the wild strains successfully reproduced, enhancing the wild, resident component of the rainbow fishery. Following drought conditions from 2000-2007, not enough rainbows were collected during fall sampling to calculate a viable population estimate; therefore current management goals are set on CPUE of 1.0 rainbow per minute of electrofishing. Sustaining this rainbow fishery will be a challenge and may be unrealistic if the walleye and northern pike populations in the Canyon Ferry and Missouri River expand. Water temperatures and flows may further limit trout abundance if low stream flow levels observed from 2000 to 2007 become more common. Fishing closures on primary spawning tributaries until June 15 helps protect fish during spawning runs.

Strategies:

- Continue stocking wild strains of rainbow trout in Canyon Ferry Reservoir to support the existing spawning runs in the system. Monitor movement and use of the river by domesticated strains of rainbow trout.
- Experiment with new strains of rainbow trout that may develop life history strategies conducive to the limiting conditions.
- Continue tributary enhancement (e.g., Deep Creek where Clean Water Act funds are used to enhance watershed health). Work with local water districts and irrigators to improve stream flows during critical periods.
- Maintain harvest regulations designed to protect spawning fish in tributaries and other important spawning areas.
- Identify additional limiting factors and consider management changes as needed.

Brown Trout

Goals and Objectives:

Rely on brown trout to provide a resident fishery throughout the year and a migratory population of large fish that enter the river during the fall.

- Attempt to increase the population to historic levels observed prior to drought conditions from 2000-2007. (Approximately 0.40 brown trout per minute based on CPUE sampling near Toston).

Rationale:

The main reason for the brown trout population decline is not known, although factors such as drought conditions during the early 1990s and early 2000s have been a major factor throughout southwest Montana. In addition, other factors may have contributed to the decline, including: the elevated rainbow trout population resulting in increased competition for limited spawning habitat; the 1989 Toston Dam hydropower retrofit; whirling disease; angler over-harvest during fall spawning periods; and others. One component of the Broadwater Power Project mitigation was to collect brown trout eggs in the wild, rear these fish in the hatchery, and imprint brown trout to the Missouri River and Deep Creek after habitat projects were completed. Approximately 400,000 brown trout were imprinted during 1992 to 1998, but return on these fish was very poor. In fact, the population continued to decline during the imprint process. It is possible that egg collection efforts impacted the natural spawning runs and the imprinting of juvenile brown trout was insignificant in offsetting the egg collection impacts.

There is potential for improved brown trout numbers as record drought conditions from 2000-2007 has broken, decreasing concerns over dewatering, lethal temperature thresholds, and competition for limited habitats.

Strategies:

- Continue to enhance spawning and rearing areas, particularly where groundwater and spring areas exist.
- Protect spawning-sized brown trout through modified bag limits.
 - Implement catch and release only regulations for brown trout. Children age 14 and under can possess one brown trout.
 - Recommend allowing harvest if brown trout abundance increases above management goals in the river and in the reservoir.
- Discontinue egg collection and imprint stocking. Based on results of past egg collection and imprint stocking, this strategy does not appear to provide enhanced recruitment in areas that lack quality spawning habitat.
- Identify additional limiting factors and consider management changes as needed.

Northern Pike

Goals and Objectives:

Monitor and manage the northern pike population in the river and reservoir to minimize impacts to the existing trout and forage species.

Rationale:

Canyon Ferry and the Missouri River between Toston and Canyon Ferry have long held a low-level northern pike population. In recent years, an abundance of northern pike have been discovered in the impoundment upstream of Toston Dam and reports of smaller-sized pike caught by anglers in Canyon Ferry became more numerous. In 2008, reproduction of northern pike in the reservoir was documented through the capture of young of the year pike during summer beach seining. Northern pike are highly piscivorous fish and the current forage base in the Missouri River and Canyon Ferry is likely incapable of supporting another voracious predator.

Strategies:

- Eliminate all angler bag limits for northern pike in the upper Missouri River reservoir system and in the Missouri River from Headwaters State Park to Toston Dam.
- Allow spear fishing for northern pike in the impoundment above Toston Dam.
- Identify critical spawning habitats in the river and reservoir and determine if habitat manipulations can suppress pike numbers and emigration through the system.
- Explore other opportunities or techniques to suppress pike numbers.
- Determine impacts of northern pike to existing forage.

Walleye**Goals and Objectives:**

Manage the walleye population to minimize impacts on existing trout and forage species and provide a low-level sport fishery.

Rationale:

Although trout are the primary sport fish sought by anglers in this river section, angler reports for walleye have increased in recent years. Continued expansion of walleye from the reservoir to the river could adversely affect rainbow and brown trout populations due to increased predation. Increased predation by walleye coupled with drought conditions could further limit the sport fishery from Toston to Canyon Ferry. Currently walleye in the river are migratory fish that move upstream from the reservoir seasonally. Resident populations in the river have remained relatively constant over the past ten years.

Strategies:

- Manage the river walleye population consistent with Canyon Ferry management goals and objectives.
 - Reduce bag limit to 10 fish daily, only one fish greater than 28-inches, and 20 in possession.
- Monitor migratory and resident walleye populations and determine impacts to wild trout populations in the river. Recommend additional management action as needed.