MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS

FISHERIES DIVISION

JOB PROGRESS REPORT

State: Montana

Project Number: F-46-R-4
Job Number: I-f

Project Title: Statewide Fisheries Investigations
Study Title: Survey and Inventory of Cold Water Streams
Job Title: Southwest Montana Major River Fisheries Investigation

Period Covered: July 1, 1990 through June 30, 1991

OBJECTIVES

Madison River

1. Maintain a minimum flow ≥700 cfs at the Kirby gage below Quake Lake and ≥1100 cfs downstream from Ennis Dam.

Worked with the Montana Power Company using SCS snow survey information to insure stream flows at both gage sites remain at or above the 700 and 1100 cfs levels, respectively. Steps were initiated to formalize minimum flow agreements in the upcoming FERC renewal.

2. Maintain wild trout population ≥3000 age II and older trout/mile below Ennis Dam and determine effects of water temperatures on catch rates.

Annual spring population estimate were made in the Norris section. The 1990 estimate was 2890 Age II+ brown trout per mile. Worked with MSU Geoff McMichael on study to analyze relationship between catch rate and water temperature; culminating in publication of M.S. thesis and a paper in the North American Journal of Fisheries Management. Additional data will be presented in a future report.

3. Maintain channel and streambanks in present or improved conditions.

Inspected two 310 projects on the Madison River and oversaw a major bridge construction project on Highway 287 at Norris.

4. Maintain aesthetic quality of upper Madison River fishing experience (State Project).

No work was done on this objective at this time as the Scenic Easement Committee was not reactivated.

5. Maintain densities of wild trout ≥13 inches at 1200/mile between Quake Lake and McAtee Bridge (catch-and-release section).

Annual fall electrofishing of the Pine Butte section was completed to monitor population levels in catch/release section. Fall 1990 estimate was 1190 trout per mile of fish 13 inches long and longer. Data included in future report.

6. Maintain densities of wild trout ≥13 inches at 1200/mile between Varney Bridge and Ennis Lake with the opportunity of catching large size (≥18+ inches) brown trout.

The annual fall fish population estimate was made on the Varney section. The fall 1990 estimate was 716 brown and 202 rainbow trout per mile over 13 inches (918 total) with 117 brown trout per mile over 18 inches. Data will be included in a future report.

7. Attempt to disperse angler use in the Quake Lake to Ennis Lake reach. Continue to provide spatial segregation for bank and boat anglers, where possible (State Project).

The float fishing ban on the Quake Lake to Lyon's Bridge was continued with a public education program to discourage abuse of this regulation.

Yellowstone River

1. Reduce magnitude of irrigation season dewatering in spring

tributaries during cutthroat trout spawning and incubation periods.

Graduate student study was set up to determine cutthroat trout spawning and recruitment requirements in the various spawning tributaries.

2. Maintain channel and streambanks in present or improved condition.

Numerous 310 projects were inspected to insure maintenance of river's fisheries habitat.

3. Maintain water quality and aesthetics of river.

A cooperative study with Yellowstone National Park was initiated to determine the location and causes of sediment input into the Yellowstone River during summer rain events.

4. Maintain a catch rate of 0.5 fish/hour with trout population densities $\geq$1000 fish greater than 9 inches/mile and 50 cutthroat trout over 12 inches/miles.

Four wild trout population sections were electrofished during 1987-88 period. Data will be included in a future report.

5. Increase cutthroat trout numbers in Yellowstone River.

A catch and release angling regulation was adopted for the Yellowstone River to reduce the annual mortality of cutthroat. Results of regulation will be included in a future report.

6. Provide increased opportunity to catch large trout in a reach of the Yellowstone River.

A special angling regulation was installed on the section of the river between the Emigrant Bridge and the Pine Creek Bridge (5 trout of which four can be below 13 inches and only one can exceed 22 inches) to provide more large trout.
Results to be included in a future report.

7. Acquire a suitable fishing access site between Highway 89 and Springdale (State Project).

No work was done on this objective.

Big Hole River

1. Insure, within hydrologic constraints, that flow do not fall below minimum of 300 cfs in reach 1, 200 cfs in reach 2 and 100 cfs in reach 3 of the Big Hole River.

Instream flows reservations filings are being prepared for future filing.

2. Maintain channel and streambanks of the Big Hole River in present or improved state of stability.

Numerous 310 projects were inspected to insure stream stability. A multiagency stream project to stabilize stream gradient was completed on the Big Hole River near Melrose.

3. Maintain instream sediment levels and flow regime at average current levels.

Reviewed those U.S.Forest Service timber sale and road plans which affected flows and water quality.

4. Maintain fluvial grayling populations at a minimum of 40 age II and older fish per mile upstream from Pintlar Creek.

Electrofished the Big Hole River between Wisdom and Wise River to define characteristics of Grayling spawning run and to determine the amount of Grayling habitat which presently exists. Work with the Grayling study committee to formulate a Grayling recovery plan. Data to be included in future report.

5. Maintain brown trout populations in lower river (Glen Access to mouth) at densities $\geq$1000 age II and older fish/mile with limited numbers of rainbow trout.

Data was collected and will be included in a future report.

6. Maintain brown trout population in lower, mid-river (Divide to Glen Access) at densities $\geq$750 age II and older fish/mile and rainbow trout densities $\geq$1000 I and older fish/mile.

Spring and fall brown and rainbow trout population estimates were made in the Maiden Rock section to determine their densities with data to be included in a future report.

7. Maintain rainbow trout populations in upper mid-river (Pintlar Creek to Divide) at densities ≥1300 age I and older fish/mile and brown trout densities at ≥200 age II and older fish/mile with limited numbers of fluvial grayling and brook trout.

Fall population estimates were made on the Jerry Creek study section in 1988 and 1989 with data to be included in a future report.

8. Maintain native, fluvial grayling populations at a minimum of 40 age II and older/mile in upper river (Headwaters to Pintlar Creek) and densities of age II and older brook trout at ≥400 per mile.

Data will be included in a future report.

9. Maintain numbers of larger, brown trout (≥18 inches) at densities ≥100/mile and large rainbow trout (≥15") at densities ≥100/mile in special regulation section (Divide to Melrose).

Special angling regulations which allows only a 5 trout limit of which only one can exceed 22 inches and catch and release only fishing for trout between 13 inches and 22 inches was evaluated using spring and fall population estimates from the Maiden Rock study section. Data will be included in a future report.

10. Collect information on fishing pressure, harvest, catch rates, angler attitudes and preferences to assist in responsible management.
No work was accomplished on this objective.

11. Provide increase user access to Big Hole River between the notch and Pennington Bridge (State Project).

No work on this objective during this period.

12. Provide increased acreage of public land in Big Hole River Corridor.

Continued discussion with the BLM to locate additional public river frontage.

13. Keep Big Hole River management current with angler needs and expanding recreational demand.

Compliance with the Big Hole River management plan.

14. Mitigate or eliminate deleterious effects of planned developments in the fishery of the Big Hole River including water quality and quantity and aesthetic values.

Was involved in various USFS and BLM planning processes.

Beaverhead River

1. Within hydrologic constraints, seek to obtain minimum non-irrigation season releases of 250 cfs from Clark Canyon Dam and maintain minimum flows of 150 cfs in the river downstream from Barretts. Maintain stable, spawning season flow releases.

Worked with the U.S. Bureau of Reclamation to insure the best possible flows from Clark Canyon Dam for sections of the river above and below Barretts Diversion.

2. Eliminate gas bubble trauma in Beaverhead River trout population.

No work done on this objective during this period due to lack time.

3. Insure that operation of proposed hydroelectric generator does not alter flow regimes or temperatures of discharges and utilize hydro generation to eliminate gas supersaturation problems.

No additional work was necessary from previous year's work.

4. Maintain densities of $\geq$250 brown trout 18" and larger/mile and $\geq$150 rainbow trout 18" and larger/mile above Henneberry. Maintain densities of $\geq$1000 age II and older brown trout and

≥600 age I and older rainbow trout per mile above Henneberry.

Spring and fall population estimates were made for the Hildreth and Pipe Organ sections of the river above Barretts Diversion for the spring and fall of 1989. Data will be included in a future report.

5. Collect population information for lower Beaverhead River (downstream from Barretts) to assist in management decisions (State Project).

Spring brown trout estimates were made for the Fish and Game, Low Flow, and Twin Bridges study sections. Data will be included in a future report.

6. Maintain or increase numbers of rainbow trout in river upstream from Barretts.

Spring and fall rainbow population estimates were made for two sections of the river above Barretts Diversion with rainbow trout numbers being estimated. Data will be included in future report.

7. Collect information on fishing pressure, harvest, catch rates, angler preferences and attitudes to assist in managing for high quality angling experiences (1991).

Creel census and angler survey was initiated in spring 1989 with data to be included in a future report.

8. Increase angler use of Beaverhead River downstream from Barretts in an effort to decrease use of upper river (State Project).

No work done on this objective at this time.

9. Keep Beaverhead River management current with angler needs and expanding recreational demand.

No work on this objective at this time.

10. Maintain channel and streambanks in present or improved state of stability.
Data to be included in a future report.

Gallatin River

1. Maintain channel and streambanks in present or improved stability.

Numerous 310 inspections were made to insure present or improved stream stability.

2. Mitigate and reduce irrigation season dewatering in Gallatin River.

Actively promoted the irrigators to petition a ditch rider to be appointed by the water judge to insure water reaching all portions of the river.

3. Decrease magnitude of sediment and turbidity from Taylor Fork and Sage Creek.

A study of the Taylor Fork sediment condition is being sponsored by the USFS in conjunction with MSU and the Dept will work cooperatively with this venture.

4. Maintain wild trout populations of $\geq$2500 age II and older fish per mile upstream from Gallatin Gateway.

No monitoring during this report period. A 1989 estimate for the Jack Smith Bridge section was over 5000 Age II+ trout per mile.

5. Determine potential of establishing large trout management area between mouth of canyon and Gallatin Gateway (State Project).

No population work was done during 1990, but a 1989 population estimate indicated no need to establish a special angling regulation for this section of the river.

Jefferson River

1. Insure, within hydrologic constraints, that flows do not drop below 550 cfs at the Three Forks gage.

Monitored stream discharge at the USGS gage with data to be presented in future report.

2. Maintain channel and streambanks in present improved state of stability.

Numerous 310 inspections were made to insure river is maintained at present or improved state of stability.

3. Increase numbers of rainbow trout to ≥200 age I and older/mile.

Worked on tributary enhancement projects with no population work on any section during the report period.

4. Maintain densities of ≥450 age II and older brown trout/mile from mouth to Boulder River and ≥600 age II and older brown trout/mile between the Boulder river and the head of the river.

No work was done during the report period due to lack of time.

5. Increase recreational use of Jefferson River (State Project).

No work done on this objective.

6. Acquire additional access sites at Kountz bridge and Waterloo bridge.

Inquires were made to obtain a site at the Waterloo Bridge.

7. Elevate public awareness of values of fishery (State Project).

No work was done on this objective.

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