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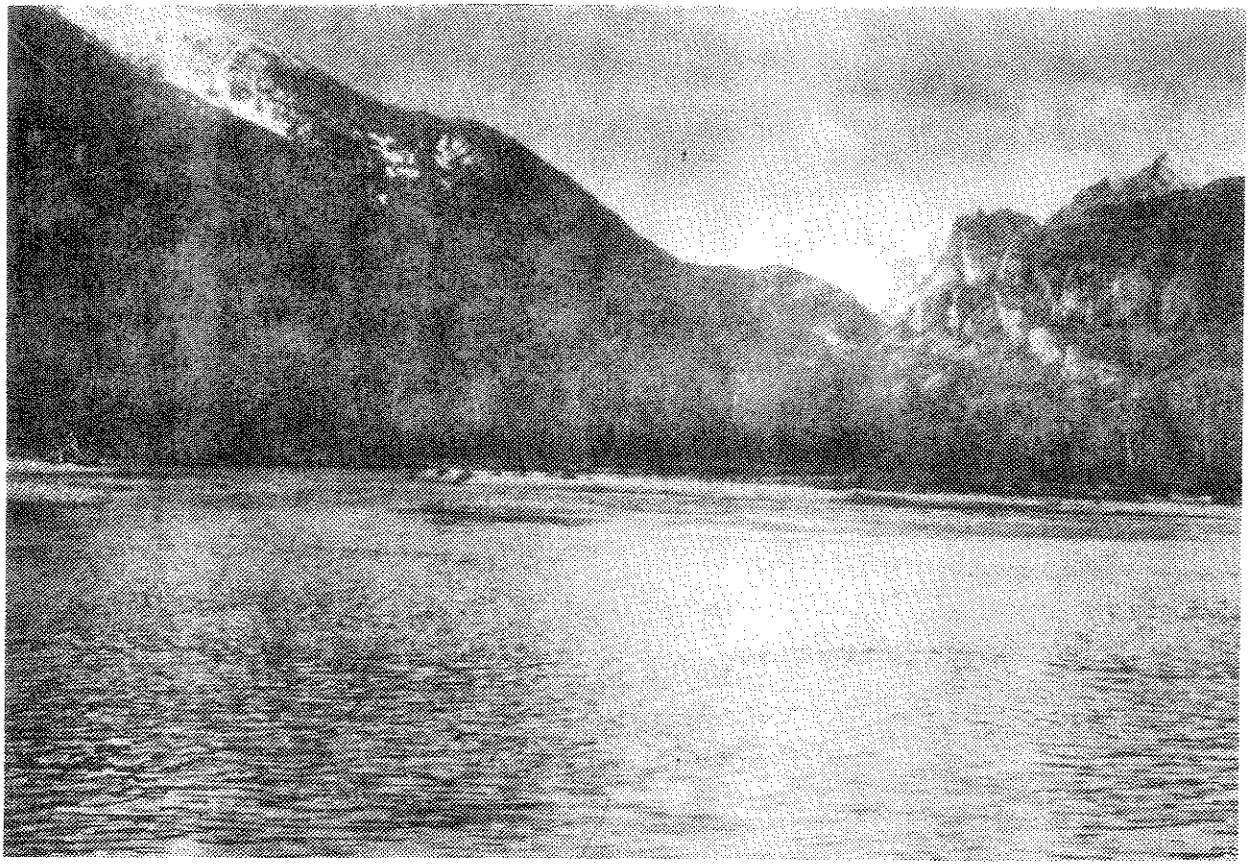
STILLWATER RIVER

FISHERIES MANAGEMENT PLAN



1990 THROUGH 1994

Montana Department of
Fish, Wildlife & Parks

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of
Fish, Wildlife & Parks

STILLWATER RIVER MANAGEMENT PLAN

1990 through 1994

Developed by:

Montana Department of Fish, Wildlife & Parks

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JANUARY 1, 1990

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SUMMARY

The Stillwater River, its tributaries and drainage areas provide excellent wild trout fishing and many other year-round recreational opportunities (Figure 1). The abundance of productive fishery habitats produces rainbow, brown, other trout species and mountain whitefish.

With rapidly increasing use of varied resources in the Stillwater area, maintaining a high-quality fishery requires thoughtful management, supported by public interest and cooperation. This Draft Stillwater River Management Plan incorporates public opinion surveys, creel censuses, comments from public meetings and personal contacts.

Primarily due to drought conditions for several years prior to 1989, numbers of brown and rainbow trout -- particularly the larger fish of older age classes -- have been declining in the upper reaches of the Stillwater system. Brown and rainbow trout numbers have been increasing in the lower reaches of the system where deeper water occurs.

Anglers generally have adequate access to the Stillwater and its tributaries, except on the West Fork of the Stillwater River. The combination of easy access and excellent fisheries causes moderate to heavy fishing pressure. Under low-flow conditions, overharvest may impede spawning success of the spring-running rainbow trout. Currently there is little conflict between competing forms of outdoor recreation in the Stillwater drainage, although diminishing solitude is now more frequently mentioned in surveys.

The five-year goal of this Stillwater River Management Plan is to meet public demand for sustained high-quality recreation and wild trout fishing while maximizing opportunities to catch trout longer than 13 inches. The brown and rainbow trout population management objectives are to provide trout numbers which are slightly higher than the average spring and fall population densities of 1984 through 1987. Strategies for achieving the objectives include monitoring fish and recreationist activities, enforcing existing laws designed to protect fish habitat, adopting fishing regulations somewhat more conservative than in pre-drought years, and increasing educational programs.

Legend

- ◎ Towns and Villages
- ▲ State Fishing Access Sites (FAS)
  - Fireman's Point
  - Swinging Bridge
  - Whitebird
  - Absarokee
  - Cliff Swallow
  - Castle Rock
  - Moraine
  - Buffalo Jump
  - Rosebud Isle
  - * Old Nye Picnic Site
- ⛺ U.S. Forest Service Campgrounds (FS)
  - Woodbine
  - Emerald Lake
  - East Rosebud Lake
  - Pine Grove
  - Jimmy Joe
  - Sand Dunes
- SMC Mining Area

Permanent Fish Sampling Sections

- ① U.S. Forest Service Section
- ② Moraine Section
- ③ Whitebird Section

- National Forest Boundary
- County Boundary
- State Border
- * No Overnight Camping

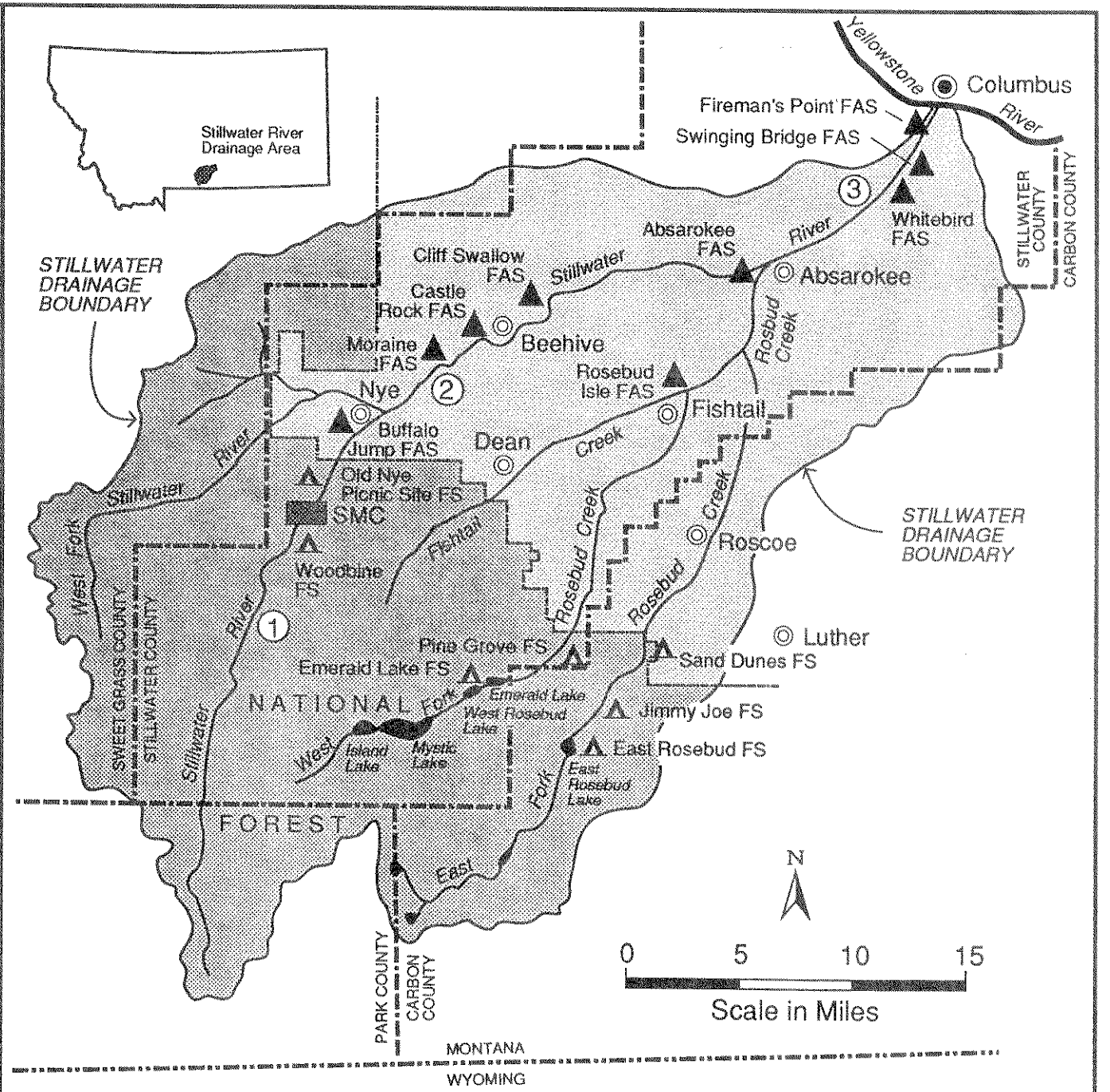

FIGURE 1

INTRODUCTION

For years anglers have referred to the Stillwater River fishery as "the best kept secret in south-central Montana". The recent population boom in the Stillwater area from increased mining activities in the Absaroka-Beartooth Mountains has contributed to this "secret" being shared by increasing numbers of people.

To sustain this very popular fishery for brown and rainbow trout, and establish fisheries and recreational objectives and strategies, the Montana Department of Fish, Wildlife and Parks (MDFWP) has prepared this five-year Stillwater River Management Plan. This plan includes descriptions of the fish and fish habitat found in the drainage. Human population growth in the Stillwater locale with its attendant rise in fishing pressure and other recreational uses is discussed.

The goals, objectives and strategies presented in this plan incorporate comments from many interested persons. Sources included angler creel censuses, opinion surveys, public meetings, personal contacts and public review of the Draft Plan.

THE WATERSHED

The Stillwater begins at lofty elevations ranging to 12,799 feet at Granite Peak, Montana's highest point, and drops over 9,000 feet in its 96-mile journey to the Yellowstone River. The Stillwater River cascades steeply through conifer forests to the national forest boundary just inside the mountain front. There its valley gradually widens and the river murmurs through mixed-tree forests, willows and grasslands. Outside the mountain front, the Stillwater's valley broadens into a wide, fertile flood plain, where it picks up the waters of the West Fork Stillwater River. Meandering out of foothill country onto rolling plains, it is joined by the waters of Rosebud Creek and rolls on through meadows and mixed-species forested bottom lands to join the Yellowstone at Columbus.

The 1,057 square-mile Stillwater River system watershed is 71.5 percent in Stillwater County, 25.4 percent in Carbon County, 1.4 percent in Park County and 1.7 percent in Sweet Grass County. Average annual precipitation varies from 70 inches in the high mountains, much of which falls as snow, to 12-14 inches at the Yellowstone River elevation. Snow accumulations have been measured to depths exceeding 20 feet in the mountains, but the normal is 10-12 feet on the Beartooth Plateau. Snowpack melting during late spring and early summer contributes to the high volume of runoff in late May, June and early July.

The Stillwater River is a torrential-type stream, flowing large amounts of clear, cold, high-quality water. The average annual flow from 1953 through 1988 measured near Absarokee was slightly above 953 cubic-feet-per-second. Its gradient varies from .6 - 1.0 feet-per-100-feet with water velocities in the 5-6 feet-per-second range. Mean gradient for the Stillwater River is 20 precent with a range from 1-76 percent. Rain on mountain snowpack creates periodic flooding. The immense forest fires of 1988 burned an estimated 21 percent of the Stillwater drainage above Nye, causing a predicted runoff increase of 3-4 percent. Recorded flood events in the 20-to-100-year range occurred in 1937, 1943, 1944, 1948, 1967, 1970, 1972, 1974, 1975 and possibly 1983. Scouring, associated with flood water velocities and volumes, causes serious channel changing problems when ice or debris jams form in the main channel. Ponding from jams frequently causes water levels to exceed the 100-year flood level and inundates some recreational and permanent homes. The opposite extreme of flooding is the drought of 1987 and 1988.

The occurrence of flood and drought inevitably changes the fish population cycles of the Stillwater. During average runoff years, flows and and water quality are adequate for fisheries productivity, irrigation and other water uses.

The West Fork Stillwater River is a smaller replica of the upper Stillwater River. Leaving the mountain front, the West Fork flows onto an alluvial fan. Its flood plain width exceeds a mile at its confluence with the Stillwater near Nye. Nye is built on one of the West Fork overflow channels.

East Fork Rosebud Creek and West Fork Rosebud Creek begin in the Beartooth Mountains and flow generally northeast to a point two and one-half miles south of Absarokee, forming Rosebud Creek. Rosebud Creek flows north three miles, through Absarokee, and into the Stillwater River, doubling the river's water flow. In 1927 Montana Power Company completed Mystic Dam on upper West Fork Rosebud Creek. In 1978 a re-regulating dam was completed below the powerhouse to reduce flow fluctuations in West Fork Rosebud Creek when Mystic Dam is operating as a power peaking facility. This re-regulating dam formed West Rosebud Lake.

The Stillwater drainage produces abundant wildlife. Fishing, hunting, picnicing, bird watching, hiking, mountain climbing, camping, horseback riding, photography and stream floating are among the diverse forms of recreational activities common in the drainage.

THE GROWTH

Prior to the early 1800's, Indian tribes occupied the Stillwater area. After Lewis and Clark's expedition, a gradual influx of adventurers and settlers began spreading westward into the Stillwater area.

Mineral prospecting in the upper Stillwater region began in the 1860's. By 1887 a copper/nickel mine and smelter was established and the original town of Nye was home to 300-400 inhabitants. Because the area was then part of the Crow Reservation, settlers in the camp and mine were ordered to vacate by the federal government. In 1892 the area was opened to settlement and prospecting resumed. Cattle and hay raising became principal activities in the drainage. According to the "Stillwater Sun Souvenir 75th" publication (dated July 21, 1988), when Stillwater County was formed March 24, 1913, it had 5,000 residents with 53 registered cars. It said there were 7,630 county residents in 1929. In 1988 Stillwater County had 6,700 residents and 11,000 registered vehicles, not including trucks and pickups. (The re-design of State Route 78 from Columbus to just south of Absorakee is nearing completion. The subsequent upgrading of some 22 miles of highway will improve safety and ease of travel along the lower Stillwater River). In 1989 Stillwater County may surpass its peak population of 60 years ago. The number of registered vehicles suggests highly mobile residents.

There was little large-scale mining until World War II, when the Benbow and Mouat-Mountain View Mines were opened for chromium production. The war ended just as development was completed. The mountain mining camps became ghost towns. In 1952 the Korean War caused a resurgence of chromium interest and mining resumed in 1953, concluding in 1961-62.

The demand and price for platinum-palladium group metals rose in the late 1960's, causing a succession of intensive, continuing exploration efforts throughout the Stillwater Complex mineral formation. In 1985 the Stillwater Mining Company (SMC), now a joint venture of Chevron U.S.A., Inc. and Manville Products Corporation, began a hardrock mine on the west side of the Stillwater. The mine resulted in a new influx of 830 people into the area. A precious metals smelter is proposed within the SMC permit area or near the town of Columbus. In early 1989 a plan of operation was approved for mining in the east adit directly across the river from the west adit.

The Chrome Corporation of America (CCA) conceptually proposes to file an operations plan to build and operate a chromite mine and mill near SMC. CCA is investigating the feasibility of re-opening the Mountain View Mine and estimates a work force of 250-300 people at the mine and mill. Approximately 290,000 tons-per-year of concentrate will be transported from the mine site to a ferrochrome refinery conceptually proposed near Huntley, Montana. Historic hardrock claims and mine workings north of Cooke City perch at the uppermost headwaters of the Still-water River. Exploration activities proceed on some of the properties. Other mineral-related activities include some oil and gas development in the East Fork Rosebud Creek part of the watershed.

The entire Stillwater drainage outside the national forest boundary is dotted with homes and subdivisions of varying densities. Many permanent and recreational houses and structures are located within the 100-year flood plain of the Stillwater and its tributaries. Houses near the stream banks are periodically flooded. Accelerating use of the many resources of the watershed and attendant population increases expand the use of fisheries and other recreational resources. Heavier pressure brings keener competition among user groups, creating potential conflicts. Public, private and agency concerns center on how the interests of the many resource user groups interacting in the watershed can be served and still maintain the fisheries and other outdoor amenities characterizing the Stillwater.

THE HABITAT

The Stillwater River System:

Ecosystems are dynamic, continuously in motion physically and biologically, over time. The appearance of stability results from counter-balancing and absorbing innumerable large and small events happening by the second, the season and longer. Fisheries habitat condition at any given time is a complex part of the dynamics.

The system composed of the Stillwater River, the West Fork Stillwater River, West and East Forks of Rosebud Creek, Rosebud Creek and all their tributaries altogether provide a wide diversity of fisheries habitats. The Yellowstone River is the source of habitat required by some fish in the Stillwater system. Trout numbers are directly dependent on habitat quality. Essential fish habitat components are water flow, water temperature and quality, suitable bottom materials, bank and bottom stability, and an adequate food source. MDFWP has instream flow reservations on the Stillwater River, West Fork Stillwater River, East and West Forks of Rosebud Creek, Rosebud Creek, Pickett Pin and Castle Creeks to help maintain minimum flows in the system to protect the basic fisheries.

The general suitability of the Stillwater system fisheries habitat is periodically reduced by irrigation diversions, bottom scouring during exceptional runoff events, natural and man-induced siltation, drought cycles and, at times, elevated levels of heavy metals and trace elements harmful to fish. The latter occur from natural geological sources and historic mining activity in the drainage. Septic system infiltration into groundwater moving into surface water can increase nitrogen and phosphorus levels. Runoff from improper use of herbicides and pesticides is a threat to fish and fish habitat.

Stillwater River:

The habitat upstream from Woodbine is steep, rocky and has cold water temperatures. The Stillwater River above Woodbine has combinations of plunges, pools and riffles in a spectacular alpine setting very different from the pastoral setting of the lower river.

From the Woodbine Campground area (just above the Beartooth Ranch) downstream to the Beehive area, the river offers a finer substrate, with gravels suitable for spawning. The success of fish egg and fry development is very dependent upon these clean, sediment-free gravels. The nature of the clean gravel substrate, shallow side channels, stable flow, generally good water quality, and moderate stream gradient provide excellent spawning and rearing habitat for game fish from the Stillwater and Yellowstone Rivers.

Between the Woodbine Campground and Old Nye Picnic Site is an area of old mine tailings which causes periodic water quality problems. Dust blowing off the tailings into the river increases nickel levels. Attempts to vegetate and stablize the tailings show promise. SMC operating permit stipulations include specific facility designs to prevent or minimize adverse impacts to fisheries habitat. SMC is required to monitor water quality.

The large-cobble habitat is found from the Beehive area below Nye downstream to the mouth. The lower part of the river below the confluence with Rosebud Creek provides deeper water than the rest of the system, which is important for the larger fish during winter and other seasons during drought years. Areas with channel, bank and flood plain degradations cause increased turbidity and sedimentation, degrading fisheries habitat quality. Several miles of stream channel have been modified to re-direct flows into diversion headgates, and change the flow direction to accommodate road and bridge construction. Water diversions directly reduce fisheries habitat. Due to stream dynamics, many diversion-related channel alterations are done annually. A hydropower generation diversion is pending about six miles upstream from the mouth of the Stillwater River. Mitigation stipulations to the license include screening the diversion entrance to prevent fish entry and addressing minimum stream flows.

West Fork Stillwater River:

The West Fork flows into the Stillwater River at Nye. From its headwaters, above 10,000 feet, it drops to approximately 5,500 feet at the mountain front. The lower quarter of the West Fork flows through rolling foothills. The West Fork has habitat similar to the mainstem Stillwater. The lower reaches provide combinations of rocky substrates interspersed with finer materials, including gravels suitable for spawning. The flood plain is well vegetated with grasslands and woodlands.

The West Fork has a northwesterly tributary system composed of Meyer, Picket Pin, Castle, Lodgepole and other creeks which ultimately gather and flow into West Fork Stillwater two miles above Nye. This unique tributary web is located in a drier ecosystem than the rest of the Stillwater drainage. Stream channel gradients range from 4 to 29 percent, averaging 12 percent. The lower average gradient and smaller bottom subtrates provide spawning, rearing and pool habitats used by resident and migrant fish. The mid-elevation headwaters of these small streams are not fed by heavy snowpacks. Since these small streams lack high volume flows to begin with, lower than average flows have immediate and severe impacts on fish habitat.

Rosebud Creek Drainage:

West Fork Rosebud Creek and its Fishtail Creek tributaries have two different ecosystems. Stream gradients in West Fork Rosebud Creek average 27 percent in its canyon, and only 15 percent in its Fishtail Creek tributary system. The Fishtail system is more productive, partly because limestone outcrops contribute to the substrate composition and land uses have had minimal impacts on the stream. The fragility of the general soil characteristics of the drainage makes the fisheries habitats vulnerable to siltation from land-use abuse. West Fork Rosebud Creek has combinations of gravel spawning areas, pools and riffles used by resident and migrant fish.

The Montana Power Company completed Mystic Dam in 1927, high on West Fork Rosebud Creek. A re-regulating dam was completed below the powerhouse in 1978 to reduce flow fluctuations. Bingham Engineering has proposed a hydropower

diversion on West Fork Rosebud Creek near Emerald Lake, about four and a half miles upstream from the national forest boundary. Mitigation stipulations include screening to prevent fish entry, and addressing minimum flows.

East Fork Rosebud Creek has fish habitat very similar to West Fork Rosebud Creek, and a similar-sized drainage. Stretches of pools, riffles and gravel spawning areas are used by resident and migrant fish. Watershed soils are fragile and susceptible to land-use abuse accelerating erosion and thereby increasing siltation. East Rosebud Lake lies at an elevation of 6,200 feet within this drainage and is accessible by car. Much of the shoreline is privately owned, although there is a USFS campground on the east side of the lake.

Rosebud Creek is three miles long, formed by the joining of West and East Forks of Rosebud Creek two-and-a-half miles south of Absorakee. Rosebud Creek flows through Absorakee, which is partially located on the flood plain, and enters the Stillwater one-half mile north of town. The fisheries habitat is generally a cobble bottom, with some gravels and a relatively low gradient. Though short, Rosebud Creek is productive, with well-vegetated banks. The combination of development within its flood plain and occasional flooding causes recurring problems affecting fish habitat.

THE FISH

The Stillwater River can be considered as four distinct reaches based on changes in habitat. Within three of these reaches, the MDFWP has established electrofishing sections to monitor changes in fish populations (Figure 1).

Headwaters:

The uppermost reach, from the headwaters to Woodbine Campground, supports brook and cutthroat trout. No electrofishing section has been established in this steep, boulder-strewn area. Several of the tributary streams and some alpine lakes have self-sustaining populations of cutthroat and/or brook trout. The MDFWP plants many lakes in the Absaroka-Beartooth Mountains with the McBride strain of Yellowstone cutthroat trout.

Woodbine to West Fork of the Stillwater River:

In the reach from Woodbine Campground to the Beehive Area, the gradient flattens and valuable spawning gravels are deposited. A 7,586 foot-long electrofishing section, known as the Forest Service Section, was established in 1981 to estimate fish population trends in this reach.

The most recent trout population trends in this reach have been downward. During 1981 and 1985, brown trout densities hovered between 400 and 500 per mile in spring and between 600 and 700 per mile in fall (Figure 2). (An influx of spawners to this excellent spawning area accounts for the higher fall estimates). Brown trout densities dropped sharply during spring 1986 to less than half the number of spring 1985.

Spring 1989 sampling in the Forest Service Section indicates the decline continues. Drought is the probable cause for the decline. Trout will seek downstream areas with more water during low flows, and spawning success is diminished when normally available gravels are high and dry. The fish are also more vulnerable to anglers when confined by the lack of water.

FOREST SERVICE SECTION
TROUT NUMBERS PER MILE

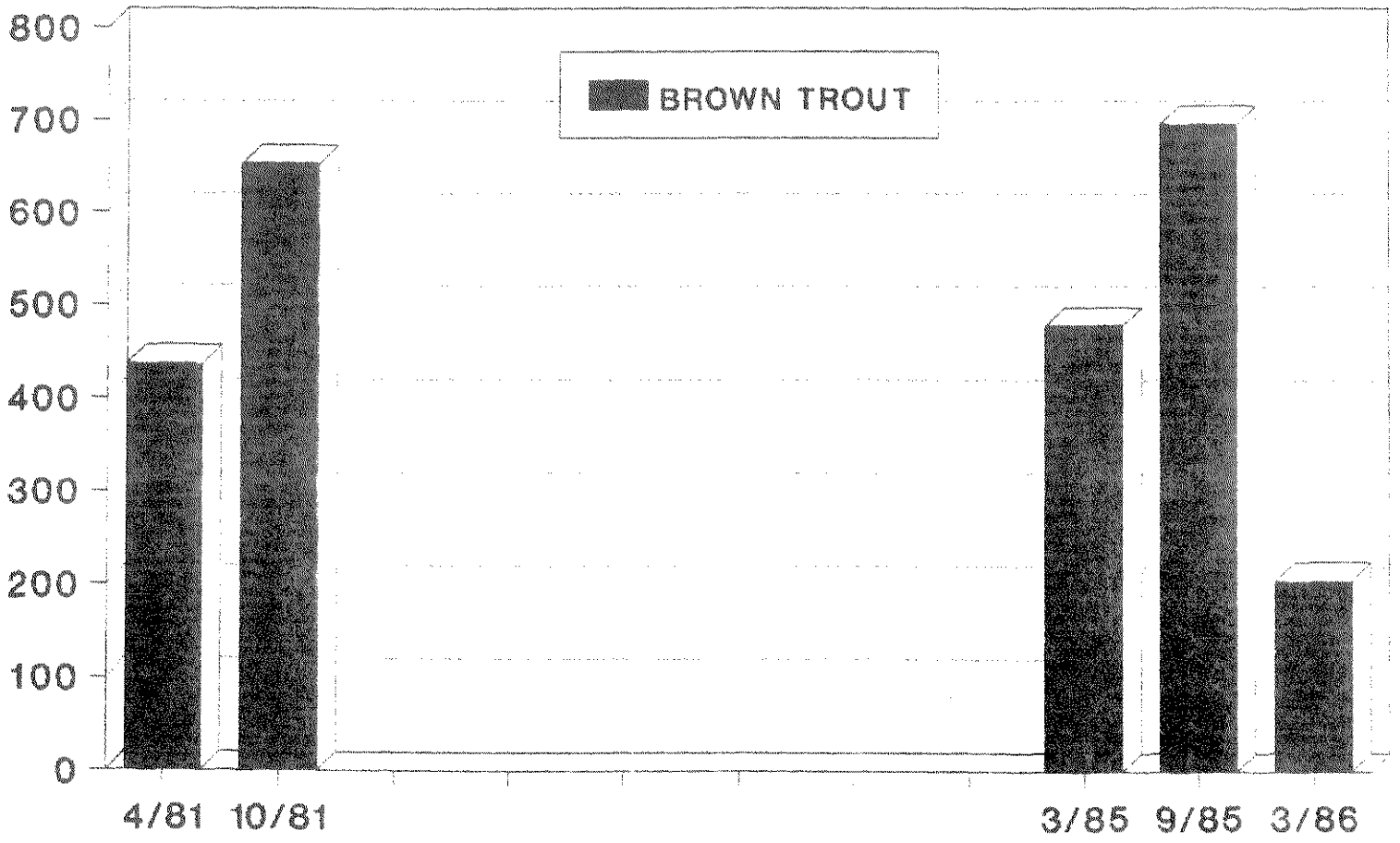

Figure 2

Rainbow trout occupy the reach between Woodbine Campground and the West Fork of the Stillwater River, but are too few or too transient to estimate. Tag returns show that rainbows from throughout the Stillwater River, its surrounding tributaries and the Yellowstone River use this important spawning area. A rainbow trout tagged at the Beartooth Ranch just below Woodbine was later recaptured 125 miles away in the Yellowstone River near Livingston.

Whitefish are abundant in the Woodbine-West Fork reach. A study from fall 1982 estimated that whitefish made up one-third of all game fish in the reach.

West Fork of the Stillwater River to Rosebud Creek:

Downstream from the West Fork of the Stillwater River, the gradient steepens again, and larger cobbles and boulders are the common substrate. A 3,300 foot-long electrofishing station was established near the Moraine Fishing Access Site, 2.7 miles downstream from the mouth of the West Fork. Sampled periodically in prior years, it was established as a permanent section in 1984.

Brown trout densities in the Moraine Section generally fluctuated between 1,500 and 2,500 per mile from spring 1981 through fall 1985 (Figure 3). A decline that was first noted in older fish in 1985 spread across all age classes by spring 1986. This trend continued into spring 1987 when just over 700 brown trout per mile were found, about one-third the fall 1985 estimate.

The section is used by larger spring-spawning rainbow passing through to the prime spawning gravels upstream and by younger rainbows (age 1 and 2) that leave prior to maturity. The larger rainbows are migrating during the sampling period and move out of the section after being tagged as part of mark-recapture estimates. Trout smaller than 3 inches are not effectively sampled by electrofishing. These two factors make rainbow estimates in the Moraine Section difficult to obtain, and the limited data available indicates the section's rainbow trout densities are declining. Whitefish represent about one-third of the game fish in the reach.

Lower than normal flows affecting trout emigration, spawning success and fish vulnerability to anglers are likely explanations for the decline in trout densities within the Beehive to Rosebud Creek reach.

Rosebud Creek to Stillwater River Mouth:

The steep gradient and large substrate of the West Fork Stillwater to Rosebud Creek reach continue to the mouth of the Stillwater River. The Rosebud Creek drainage changes the character of this reach by about doubling the total flow in the lower Stillwater River. The 16,900 foot-long Whitebird Section typifies this reach. Whitebird was established in 1985 and is four miles upstream from the Stillwater's mouth.

Electrofishing in the steep, swift, slippery Whitebird Section is very difficult, which made estimates from 1985 (when flows were relatively high) less accurate than the lower water years of 1986 and 1988 (Figure 4). The trout population trend in the Whitebird Section is increasing, while a decrease is exhibited in the upstream reaches. Since fall 1986, brown trout numbers have quadrupled and rainbow trout have increased by 300 per mile, with many more larger rainbows. Overall trout densities increased by more than 1,000 per mile. Whitefish make up approximately half of the total game fish found in the reach between Rosebud Creek and the mouth of the Stillwater River.

This lowest reach of the Stillwater River has fared better than the upstream reaches during the drought years. The infusion of flows from the Rosebud Creek drainage may have provided enough holding water for many resident trout escaping from drying

MORAINE SECTION
TROUT NUMBERS PER MILE

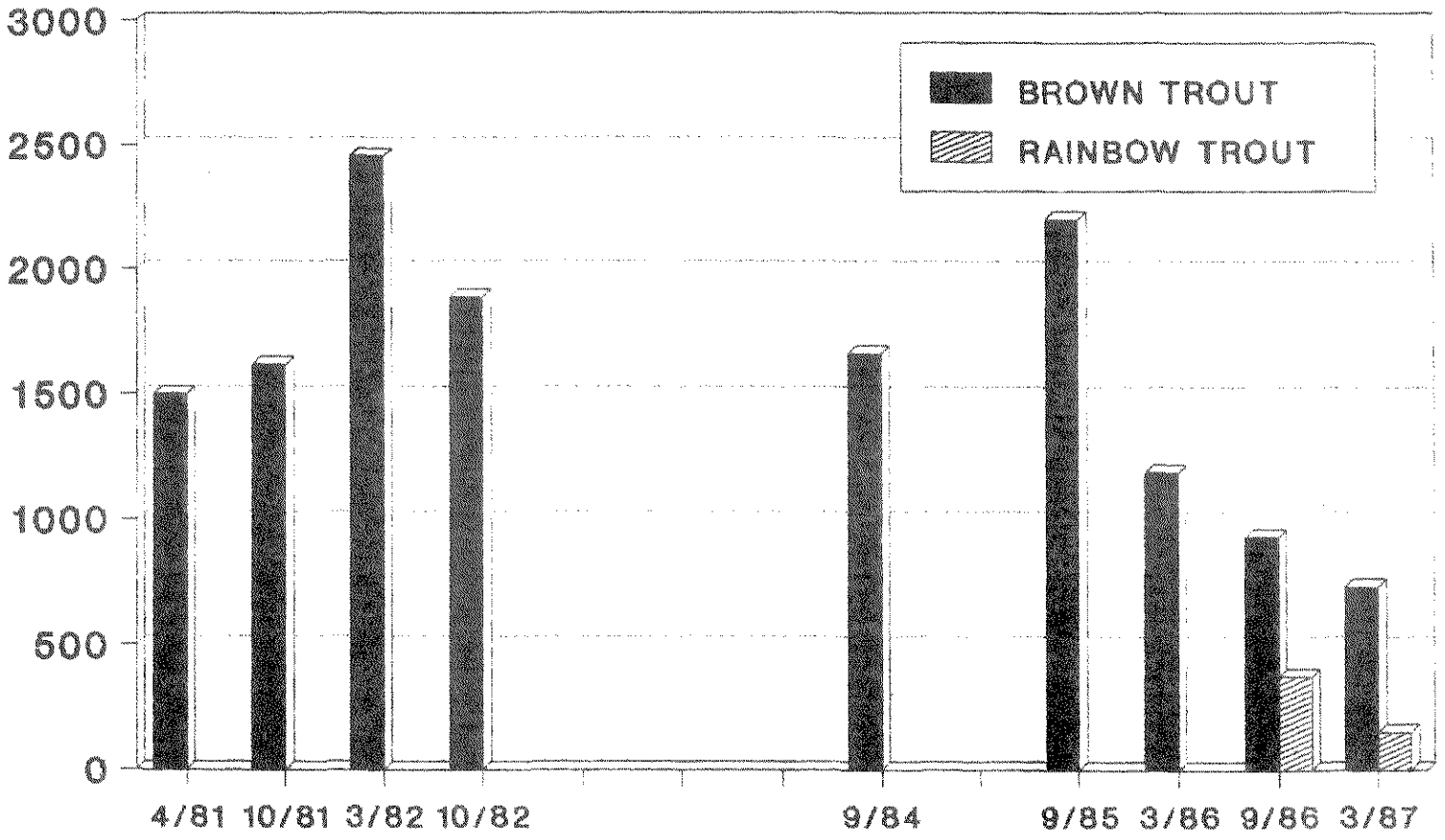

Figure 3

WHITEBIRD SECTION
TROUT NUMBERS PER MILE

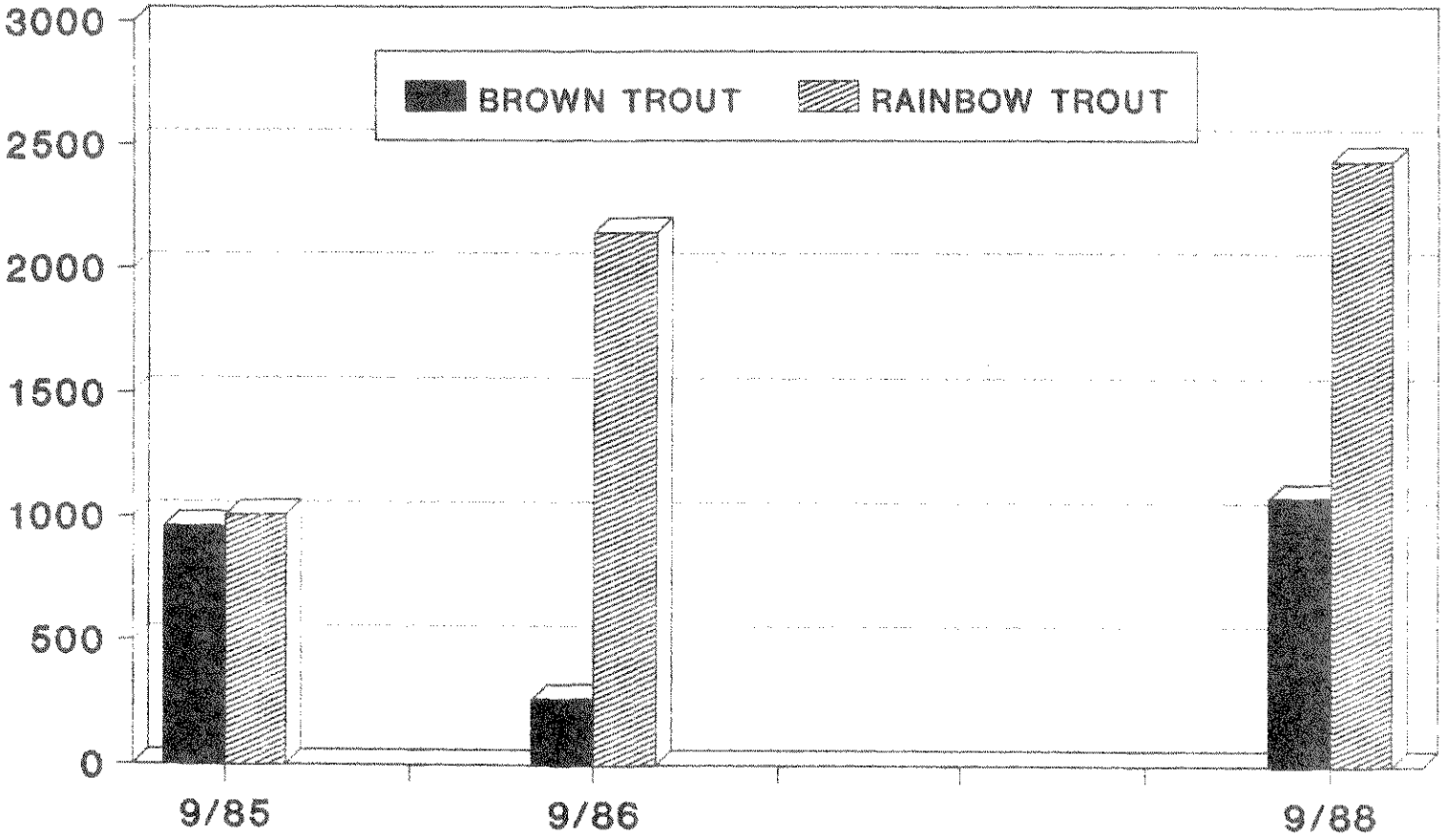

Figure 4

reaches upstream, and lessened trout vulnerability to anglers. Whether Yellowstone River fish took refuge in the lower Stillwater is unknown.

Tributaries:

Very little is known about the fish populations in the West Fork of the Stillwater River due to limited access.

In 1986 the West Fork of Rosebud Creek was sampled for 7,900 feet from Pine Grove Campground downstream into the McKay Ranch. Brown trout density was estimated at 947 per mile, with 6% measuring 13 inches or longer. Fishing pressure on spawning brown trout has been heavy at times in this stream. The spawning run declined noticeably during fall 1987, but rebounded slightly during fall 1988.

Recent efforts to establish a self-sustaining fishery for McBride cutthroat trout in West Rosebud Lake and Emerald Lake have not been successful. Resident brown trout are apparently out-competing (and preying upon) the cutthroat trout. Introduction of the DeSmet strain of rainbow trout is scheduled for 1990 in these lakes.

An 8,200 foot-long section of East Rosebud Creek approximately two miles downstream from the Custer National Forest boundary was sampled in 1985. Brown trout density was estimated at 827 per mile, with 9% measuring 13 inches or longer. Too few rainbow trout were captured to make an estimate. McBride cutthroat planted in East Rosebud Lake are not successfully competing with the resident brown trout population. DeSmet rainbow trout are scheduled for this lake in 1990.

THE ANGLERS AND OTHER RECREATIONISTS

Anglers and other outdoor recreationists have eight MDFWP fishing access sites conveniently spaced along the Stillwater River from its mouth to Nye. USFS Woodbine Campground at the national forest boundary and the USFS Old Nye Picnic Site bring the access site total to ten. An MDFWP access site is at the confluence of West Fork Rosebud Creek and Fishtail Creek. There are two USFS campgrounds on West Fork Rosebud between the national forest boundary and Mystic Lake. East Fork Rosebud Creek has three USFS campgrounds accessible by road. When permission is requested, many private landowners within the Stillwater system allow recreational access. As recreational use, homesites and other flood plain activities increased in the last several years, access to streams flowing through private property has become more problematic. Vandalism and littering of public and private property are frequent annoyances. With the exception of the West Fork of the Stillwater River, there is generally good access to the fisheries throughout the Stillwater system.

A 1938 survey of the Stillwater system reported "300-odd anglers between Absarokee and Nye on a Sunday afternoon". Many complained that fishing was decidedly below par and not as good as in former years. The survey noted most of the "large" trout were caught by residents.

In 1965 slightly over 24,000 angler days were spent fishing the Stillwater system. Angler days increased from 31,741 in 1968-69 to 41,490 in 1975-76. In 1982-83 MDFWP estimated the Stillwater River had 32,424 angler days of use. East Fork Rosebud Creek and West Fork Rosebud Creek and the West Fork Stillwater River had another

9,458 angler days, making a system peak of 41,882 angler days. Angler days dropped slightly in 1983-84, again in 1984-85 and began a moderate increase in 1986-87.

From 1965 to 1976 angler-day distribution in the system hovered around 70 percent for the Stillwater River and 30 percent for its tributaries. In the 1980's the distribution has been about 80 percent for the Stillwater River and 20 percent for its tributaries. Over the years, East Fork Rosebud Creek and West Fork Rosebud Creek figures are roughly equal. The East Fork has usually been a little higher. The West Fork Stillwater River angler days have varied widely, from 2,013 in 1968-69 to a low of 361 in 1982-83, rising to 1,741 in 1984-85.

On some parts of the Stillwater River fishing pressure and harvest rates may be approaching the sustainable carrying capacity for some age classes of trout during low-flow years. Initiating extensive fisheries monitoring in the 1970's proved to be timely. Creel censuses, angler opinion and preference surveys, and reviews of current watershed resource uses were also timely. In 1988 MDFWP held five public meetings so Stillwater system anglers could conveniently express their observations, viewpoints and opinions. Meetings were held in Absarokee, Columbus, Laurel, Red Lodge and Billings.

The 449 angler responses to the "1986 Stillwater Creel and Angler Opinion Survey" indicated important factors in fishing the Stillwater River included the scenic quality, being outdoors, being with family and friends, and the quality of the fishery. Only 11 percent of the anglers said the Stillwater River was their very favorite fishing stream, but 64 percent said it was one of their favorite fishing streams. Over 80 percent preferred to catch trout, with preferences for browns and rainbows nearly even. Less than one percent preferred to catch whitefish, suggesting little appreciation that whitefish are game fighters and a source of tasty filets.

The anglers responding to the 1986 Stillwater survey fell into four categories, similar to anglers state-wide. The first group contained family oriented persons who focused on fishing as a family activity. The second group was younger and fished while socializing. The third and fourth groups, about equal in size, were serious, avid anglers. Of the avid anglers, one group released the caught fish and the other group ate theirs.

Anglers from Yellowstone and Carbon Counties made up 78 percent of the survey sample, while 14 percent lived farther away. Only eight percent were Stillwater County residents but they went fishing three times more often than non-residents and had twice the years of fishing experience. The mean age of those surveyed was a little over 34 years, while the average age of Stillwater County respondents was slightly under 40. People from outside Stillwater County averaged over seven trips a year and had five years fishing experience. Stillwater County residents averaged a little less than 21 fishing trips a year and had over nine years fishing experience.

Sixty-one percent of Stillwater anglers reported catching no fish. Those who caught fish averaged an hour longer fishing per trip than those who caught no fish. Fish-catchers went fishing two to three times more than those who struck out. Anglers using flies had 50 percent success; bait, 39 percent; lures, 27 percent; and combinations, 29 percent. Five percent of the anglers caught their limits, and 32 percent caught some trout.

Anglers who fish the Stillwater because of its fisheries qualities went fishing much more often than others. Avid anglers fished more years, fished more hours, and, not surprisingly, were the most successful.

Seventy-eight percent of the anglers rated the quality of the fisheries important and said it was important to catch at least one fish. Forty-five percent felt it important to catch many fish. Fifty-three percent thought it important to catch fish over 13 inches long. Catching fish over 18 inches long had importance to forty-four percent. Sixty-seven percent said they fished for food. Eighty-eight percent said they fished regardless of success.

A desire to catch trout over 13 inches long was most evident among avid anglers. Of all anglers expressing an opinion, 70 percent would support more restrictive regulations if that would produce more trout over 13 inches long. Opinions on reducing the limit to one or two fish were about evenly split. The idea to shorten the fishing season on the Stillwater River to coincide with the general season was favored by a little over half the respondents. Some thought it would protect rainbows during the spring spawning run and some thought it would raise anticipation for "opening day" and benefit area merchants. (Currently the Stillwater River is open all year and the other drainage streams are open the third Saturday in May until November 30). Around half the anglers supported reducing the creel limit to one fish over 13 inches long. About 72 percent supported a slot limit of three fish under 13 inches and one fish over 18 inches. Seventy percent supported a short catch-and-release experimental section between Absarokee and Nye in conjunction with a four-year study of its effects.

At public meetings anglers generally expressed concerns paralleling the opinion surveys but included additional subjects. Recurring complaints were heavy traffic, access site vandalism, littering, competition for favorite "fishing holes", interference from floaters, too few large fish, too liberal regulations, and habitat quality declines. Public meeting participants expressed more concerns about habitat, such as water quality and water flow, than did participants in opinion surveys.

Currently the Stillwater system is subject to special drought regulations which will be in effect through the 1989-90 season. For brown, rainbow and cutthroat trout the daily stream limit is two fish, only one of which may be over 13 inches long. For lakes the limit is 10 pounds and one fish, not to exceed 10 fish.

Prior to the current drought regulations, daily stream limits for brown, rainbow and cutthroat trout were five fish with only one over 18 inches. For lakes it was 10 pounds and one fish, not to exceed 10 fish.

Currently the brook trout daily limit is 10 pounds, not to exceed 20 fish. For whitefish the daily limit is 100 fish, including any caught for sale.

THE FISHERIES MANAGEMENT GOAL

The fisheries management goal is to meet public demand for high quality recreation and wild trout fishing while maximizing the opportunity to catch trout longer than 13 inches.

OBJECTIVES

Brown and Rainbow Trout Densities:

1. Woodbine Campground to the mouth of the West Fork Stillwater:

   A. Brown Trout: Maintain average population densities of 400 to 800 age one and older brown trout per mile; and 50 to 100 13-inch and larger brown trout per mile.

   B. Rainbow Trout: Protect the larger rainbow trout during the spawning season.

2. West Fork Stillwater to the mouth of Rosebud Creek:

   A. Brown Trout: Maintain average population densities of 1,000 to 1,500 age one and older brown trout per mile; and 100 to 150 13-inch and larger brown trout per mile.

   B. Rainbow Trout: Maintain 200 to 400 age one and older rainbow trout per mile within this section. Protect the larger rainbow trout during spawning.

3. Mouth of Rosebud Creek to the Yellowstone River:

   A. Brown Trout: Maintain average population densities of 500 to 1,000 age one and older brown trout per mile; and 100 to 150 13-inch and larger brown trout per mile.

   B. Rainbow Trout: Maintain 2,000 to 2,500 age one and older rainbow trout per mile; and 150 to 200 13-inch and larger rainbow trout per mile in this section.

   (The brown and rainbow trout population management objectives are to provide trout numbers slightly higher than the average spring and fall population densities of 1984 through 1987).

Recreation and Resources:

4. Maintain or improve recreational opportunities while seeking to minimize conflicts among user groups and impacts upon resources within the Stillwater Drainage.

STRATEGIES

Fish Habitat:

Continue to:

1. Emphasize the need for quality fish habitat through education, cooperation and enforcement. Maintain or improve streambed and bank stability through education about the importance of riparian zones and the fragility of floodplains, and through enforcement of applicable laws and regulations.

2. Maintain stream flows in the Stillwater River and its tributaries by promoting water conservation and through the instream flow reservation process.

3. Maintain or improve present water quality by monitoring potential point and non-point sources of water pollution.

4. Encourage the use of alternative irrigation diversion structures and incremental shut-down procedures for water flow to irrigation ditches to minimize off-stream fish loss.

5. Evaluate the individual and cumulative effects of mining, highway and road construction, subdivisions and other development in the Stillwater drainage by the review of permit applications and participation in the preparation of environmental assessments and environmental impact statements. Encourage reclamation of older mine sites.

Fish Populations:

1. Continue monitoring fishing pressure and angler success through statewide creel survey, periodic drainage-wide surveys, and voluntary mine employee surveys.

2. Increase public information and education on the status of the Stillwater fishery. Encourage catch and release of trout during spawning and increase information to anglers on the least harmful methods of releasing fish.

3. Adopt and enforce regulations to protect spawning trout to achieve trout population objectives.

Angler and other Recreational Use:

1. Protect and develop existing fisheries access sites along the Stillwater River and its tributaries. Seek more recreational access.

2. Annually review the effectiveness of regulations to ensure trout harvest does not prevent attainment of trout population objectives.

3. Continue to conduct creel, recreation and angler opinion surveys to monitor fishing pressure and identify increasing conflicts among user groups.

RESPONSE TO THE DRAFT PLAN

During August, 1989, 300 copies of the Public Draft Stillwater River Management Plan were distributed. Comments were solicited through mailings, newspaper articles, radio and television interviews. A questionnaire attached to the draft plan asked for opinions regarding the goals, objectives and strategies proposed.

A total of 72 people responded (24%). Those responding had fished the Stillwater River an average of 17 years (averaging 12 times per year). The majority (61%) were from the Billings/Laurel area and 19% were from the Columbus/Absarokee area. Respondents opinions about goals and strategies are summarized below (all numbers are expressed as percentages).

Category	Disagree	Neutral	Agree	No Opinion
Fisheries management goal	10	3	86	1
Fish habitat strategies	7	4	88	1
Fish population strategies	19	8	69	3
Angler use strategies	11	7	78	4

Regulations:

Participants were also asked to rank the following six fishing regulation options from previous surveys:

a) Maintain the current drought regulations of two trout, only one over 13 inches.

b) Reduce the pre-drought size limit from five trout (only one over 18 inches) to five trout (only one over 13 inches).

c) Revert to a general season for the entire Stillwater drainage, which would close it to trout fishing from November 30 to the third Saturday in May.

d) Revert to a general season for the Stillwater River upstream from the mouth of Rosebud Creek (November 30 to the third Saturday in May).

e) Close the Stillwater River upstream from the mouth of Rosebud Creek during rainbow trout spawning (March 1 to the third Saturday in May).

f) Set up a four-year experimental section less than 10 miles long between Absarokee and Nye to evaluate catch/release restrictions or a slot limit.

The regulation options were intended to protect spawning trout and to achieve the trout population objectives listed in the draft plan.

Of the six fishing regulation options offered, option a), maintaining the current limit of two trout, only one over 13 inches, was preferred. This option rated highest in average rank and highest percent of first and second place rankings. Option f), which would establish an experimental section with special regulations, rated second. Option e), closing the upper river during rainbow trout spawning, was third.

Opinions about seasonal closures for the Stillwater River were strongly polarized. The option for a general season ranked fourth overall, but 30% considered it the best option, and 36% considered it the worst.

Other concerns emphasized by participants included the need for more enforcement of existing or future regulations, encouraging voluntary catch and release fishing, screening headgates and monitoring irrigation withdrawals, and respecting private property along the streams.

RECOMMENDATION TO THE MONTANA FISH AND GAME COMMISSION

Retaining the present drought limit of two trout, only one over 13 inches on the mainstem Stillwater received the strongest support of the participants. This option also provides some protection for spawning trout while continuing to allow some fishing during the off season -- clearly important to many anglers. Stillwater River tributaries would continue to be open during the general season only.

Commission Decision:

At their meeting held November 9, 1989, the Montana Fish and Game Commission formally adopted the recommended limit. The Commission also asked that public concerns about enforcement of fishing regulations be addressed. (The Stillwater River is now actively patrolled by one warden permanently stationed in Columbus and periodically by enforcement personnel from the Billings headquarters.)

Department Action:

The Region 5 Supervisor, Warden Captain and Fisheries Manager discussed the situation, and additonal enforcement activity was scheduled. Wardens trained and equipped in kayak use will patrol sections of the river difficult to reach on foot; a rubber raft may allow patrol of areas unsuitable for kayaks.

In addition, the Department continues to encourage persons observing violations to use the 1-800-TIP-MONT line to report them. This system has been very effective by concentrating enforcement efforts where they are most needed.