# BITTERROOT RIVER FISHERIES MANAGEMENT PLAN

FOR THE PERIOD

SEPTEMBER 1991 TO SEPTEMBER 1996

ADOPTED BY THE

MONTANA FISH, WILDLIFE AND PARKS COMMISSION

ON AUGUST 7, 1991

PREPARED BY

MONTANA DEPARTMENT OF FISH, WILDLIFE & PARKS

REGION 2

WITH ASSISTANCE FROM

JOEL A. SHOUSE

CONSULTING SERVICES

BOZEMAN, MONTANA

# BITTERROOT RIVER FISHERIES MANAGEMENT PLAN

## TABLE OF CONTENTS

# I. SUMMARY OF MANAGEMENT PLAN

The major elements of this five year Fisheries Management Plan for the Bitterroot River are summarized under the following headings:

## FISHERIES MANAGEMENT

In order to develop long-term fish population data and to better understand population trends, the Department will continue to monitor the four established population study sections identified as Hannon, Darby, Bell Crossing and Stevensville, and will establish a new study section in the Hamilton area. In addition, the Department will continue to monitor recruitment of young trout from tributaries and their survival in both the tributaries and the river itself. This will allow the Department to evaluate and perhaps resolve management issues such as the following: a) Will catch and release fishing for cutthroats improve population levels; b) Are the special regulation areas accomplishing the goals for which they were established; c) Are more restrictive fishing regulations needed to improve the quality and quantity of fishing; and d) Are special management and regulations needed to protect spawning trout and spawning tributaries?

Beginning with the 1992-93 fishing season, March 1, 1992, the mainstem of the Bitterroot and the East Fork upstream to Martin Creek and the West Fork upstream to Painted Rocks Reservoir, the daily creel limit will be three rainbow or brown trout with only one over 14 inches, and the possession limit will be the daily limit. Catch and Release fishing for Cutthroat trout will be continued in the Mainstem and the West Fork upstream to Painted Rocks Reservoir and will be added in the East Fork upstream to Martin Creek. The area from one mile downstream of Darby Bridge to Como Bridge will continue as a Large Trout Management Area with Catch and Release fishing, artificial lures only. The area from Tucker to Florence Bridge is designated a Habitat Limited Area with Catch and Release fishing, artificial lures only. The Mainstem and the East and West Forks will continue the extended whitefish season and Catch and Release for trout open December 1st to the third Saturday in May with maggots, aquatic insects, and/or artificial lures only.

An additional change to the regulations in the area of the Bitterroot Valley between U.S. 93 and the East Side Highway between Hamilton and Buckhouse Bridge (ditches, canals and sloughs) will allow an extended whitefish season, northern pike, and Catch and Release fishing for trout open December 1st to the third Saturday in May with maggots, aquatic insects, and/or artificial lures only.

The Bitterroot fishing regulations will be reevaluated in two

years prior to the next regulating setting procedure which will begin in the Fall of 1993. Population data, conclusions drawn from the data, and recommendations by the Department will be presented to the public for consideration and comment at that time.

FISHERIES HABITAT

The Department will continue to direct its efforts towards mitigating the problems which limit the fisheries habitat. The most serious of these problems are the lack of water in the middle mainstem of the Bitterroot, the dewatering of the tributaries, and the loss of fish due to irrigation facilities and practices. The Department will continue to inform the public of the importance of fisheries habitat as a limiting factor in the numbers of trout found in the river. Fishing regulations alone cannot make up for the habitat problems of the Bitterroot.

Specifically, the Department will increase its efforts to permanently acquire the additional 10,000 AF of water from Painted Rocks Reservoir which the Department has been purchasing on an annual basis for the last several years. The public will be called upon to express their strong support for this purchase. The Department will continue to work closely with irrigators to improve efficiency and cooperation and to make them better aware of the needs of the fishery. The Department will call upon individuals and sportsmen groups for assistance to supplement the Department's staff limitations.

RIVER USERS

The Department anticipates that public use of the Bitterroot will continue to increase in the future and that the Department must develop good estimates of the numbers and types of users and a better understanding of the interactions between the various user groups and their effects on the resource. A comprehensive user census will begin in January 1992 and continue for one year.

Access needs will be addressed by the Department in accordance with the priorities identified in this Management Plan. The Department will work with the private firm which produces a floating guide for the Bitterroot to insure that the guide is as accurate as possible and, to the extent possible, all man-made hazards are identified on the guide. Where necessary, signs will be placed to advise floaters of these hazards.

The Department will continue to monitor the power boating issue and advise complaintants of procedural requirements and the need to document problems if they wish the Fish, Wildlife and Parks Commission to consider actions to regulate power boating in the

future.

CORRIDOR MANAGEMENT

On Federal lands within the corridor, the Department will work with the appropriate Federal management agency (National Forest, Fish and Wildlife Service, etc.).

For private lands, the Department will work with Ravalli and Missoula Counties. This will allow the Department's review of subdivisions and other land use proposals which are subject to the County Subdivision Regulations, Comprehensive Plans, or other local ordinances, so as to encourage that these land uses be compatible with the recreation goals of the stream corridor. Ravalli County also administers flood plain regulations which regulate the locations of structures and individual sewage disposal systems. Ravalli County has plans to update their Comprehensive Plan in the future and the Department will take an active role in this effort to encourage recognition, establishment, and preservation of a stream corridor.

The Department will work with the local Conservation Districts to assist in seeing that conservation is practiced on private lands within the stream corridor. The State Highway Department and County Road Offices will likewise be contacted regarding construction and maintenance within the corridor.

AGENCY MANAGEMENT

The Department has worked in the past with all agencies who have management responsibilities within the Bitterroot drainage and the Department will continue to work with these agencies in the future. In addition, the Department will continue to support funding for a cooperative biologist with the Bitterroot National Forest. The Department, as the recreation management agency for the State of Montana, will represent the interests of all recreationalists in any and all land use and/or development proposals, whether they be public or private.

## II. INTRODUCTION

The Bitterroot River is born in the high peaks of the Bitterroot and Sapphire Mountains in west central Montana. The East and West Forks join near the town of Conner and from there the main stem flows north through the Bitterroot Valley some 85 miles to where it enters the Clark Fork of the Columbia River near Missoula. (See the vicinity map on page 5.)

The Bitterroot has 27 major tributaries on the west side and 12 on the drier east side. In general, the west side contributes 40% of the stream discharge and the east side 24.5%. The headwaters areas contribute the remaining 35.5%.

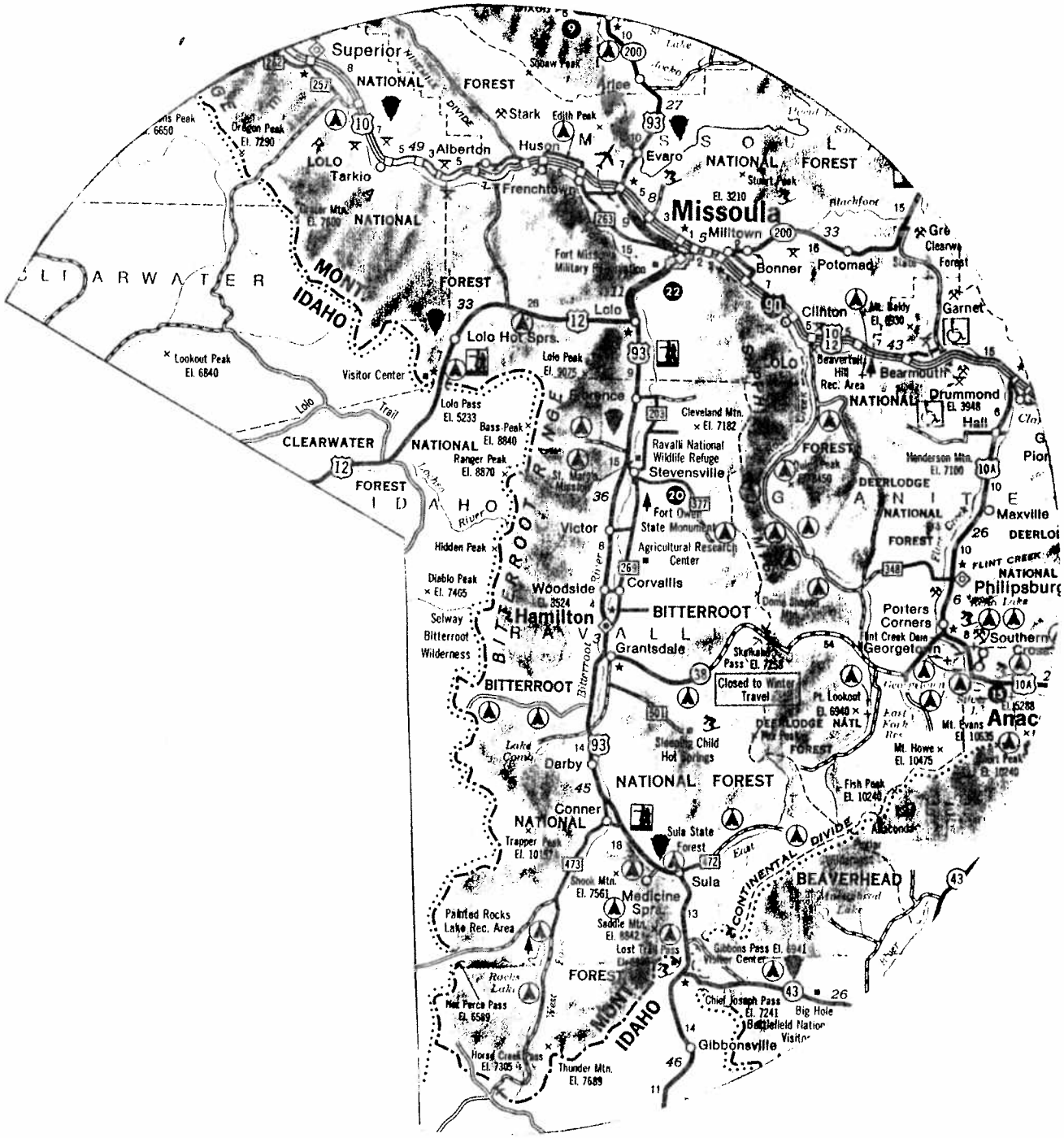
Vegetative types within the watershed range from alpine through ponderosa pine to cropland, pastureland, and riparian along the river course. Riparian vegetation consists of mixed stands of cottonwood and ponderosa pine overstory with an understory of snowberry, rose, willow, redosier dogwood, grasses, and forbs which occur along the stream corridor.

Wildlife of the corridor includes white-tailed deer, mink, muskrat, ruffed grouse, ring-necked pheasant, raptors, and a variety of small mammals, songbirds, and waterfowl. Among the game fishes of the river are mountain whitefish and a variety of trout -- rainbow, cutthroat, brook, brown, and bull trout, with rainbow and brown being the most abundant. In the lower reach largemouth bass and pumpkinseed sunfish occur. Peamouth, northern squawfish, longnose dace, redside shiner, and longnose and largescale sucker are also found in the river.

Climate within the watershed varies significantly with elevation. Frost-free period ranges from about 30 days at the higher elevations to as much as 120 days along the lower river. At Hamilton and Missoula, the 30-year average annual precipitation is 13 inches.

The Bitterroot Valley was the site of some of the earliest white settlements in Montana and the river has played a major role in the history of the area. Its waters were used for early day log drives, irrigation of farm ground, and the native westslope cutthroat, bull trout and mountain whitefish provided many a good meal of fish.

Today the log drives have ceased and many of the farms and ranches have been subdivided for rural residences. However, the waters of the Bitterroot are still called upon to irrigate farm ground and to satisfy an ever increasing recreational demand. The major elements of this demand are sport fishing and recreational floating.




VICINITY MAP

Montana's outstanding outdoor recreation opportunities have long been treasured by residents of the State. They are also being increasingly used by nonresidents to where tourism and recreation have become Montana's number two industry. Fishing of our outstanding trout streams is a major element in this industry. Statistics compiled by the Department indicate that the Bitterroot River was the fifth most heavily fished river in Montana with approximately 56,000 angler days spent in 1986. Of this total, nonresident anglers were 27% of all fishermen.

In 1987 the Department released a study entitled "The Net Economic Value of Fishing in Montana" which was authored by John Duffield of the University of Montana, John Loomis of the University of California, Davis, and Rob Brooks of the Department. Results of this study show that the Total Recreational Value of the Bitterroot was estimated to be $3.9 million per year which ranks it as the eighth most valuable stream in Montana. The study also concludes that the annual aggregate value of Montana's stream and lake fishing is $122 million and $93 million, respectively. Angler expenditure data indicates a typical resident angler spent $48 per trip and a typical nonresident angler spent $360 per trip in Montana.

## III. BACKGROUND

In recent years the Department has recognized that the public is in general much more knowledgeable on resource issues and wants to be more involved in decision making regarding the management of fish and wildlife resources. The Department feels that it must get the public involved early in the planning process to help in selecting a management program rather than simply approving one after the fact. A major goal of the process is to give the public ownership in the management of the resource. As a result the Fisheries Division has prepared guideline documents to assist Regional Fisheries Managers in development of Management Plans. The Department has also identified the top ten fisheries in the State and has initiated a program to develop five year Fisheries Management Plans for these fisheries. The Bitterroot falls into this catagory.

The Management Plan process utilized by the Department involves several stages. The first of these is an in-house scoping phase to preliminarily identify the issues of concern. The second stage is the public scoping phase which results in a refined statement of issues. In the case of the Bitterroot, an Ad Hoc Advisory Committee was established to work closely with the Department. The public at large was informed by the media of the planning program and the means of inputing the process. The third stage in the process is the draft phase and involves the distribution to the public of a draft of the Management Plan and a series of public meetings for both informational and comment purposes. The last stage is the publication of the final Management Plan. The Management Plan may require action by the Fish and Game Commission and in some cases may call for the drafting of special legislation to be presented to the Legislature.

An extremely important element in the planning process is the involvement of other public land management agencies which have an interest in the stream. In the case of the Bitterroot, the Bitterroot National Forest manages a significant percentage (64%) of the lands within the river drainage. Most of the remaining private lands in the drainage are located in Ravalli County, and the County, through its various offices, is also heavily involved in land uses on private lands. Representatives of these agencies have been involved in all stages of development of this Management Plan.

## IV. U. S. FOREST SERVICE

The Bitterroot National Forest surrounds the Bitterroot Valley and includes the headwaters of the Bitterroot River. Of the 2,800 square mile drainage area of the Bitterroot River, approximatley 1,800 square miles are Bitterroot National Forest lands. This represents about 64% of the total drainage area.

The Overview of the Bitterroot National Forest Plan which was issued in September of 1987 describes the Forest as follows:

> "To the east of the Bitterroot Valley are the Sapphire Mountains, round-crested and mostly forested. In striking contrast, the Bitterroot Range on the west rises abruptly from the valley floor and is cut by steep rocky canyons, sawtoothed ridges, and impressive mountain peaks. Both ranges are visible from the valley, where 25,000 residents see this portion of the Forest daily. U.S. Highway 93 extends through the center of the valley and provides a view of the Forest to travelers. The beauty of these mountains gives credence to one of the major concerns, that of visual quality."
>
> "The Forest's appearance has been an issue for the past 20 years. Of the 586,000 acres outside wilderness and suitable for producing timber, 55 percent have moderately steep slopes, which, along with light-colored soils, make timber harvesting and road construction activities highly visible."
>
> "The valley population includes those engaged in farming, ranching, and timber production, recreation seekers, a retirement community, and those favoring a rural lifestyle within commuting distance of Missoula, the area's trade center. The population has increased 56 percent since 1970. About half of the Forest is now classified wilderness, one quarter is roadless including the Blue Joint and Sapphire Montana Wilderness Study Act areas, and about one quarter is roaded."

The Goals and Objectives of the Bitterroot National Forest Plan as they pertain to water and fish are as follows:

- Maintain sufficient instream flows to support quality fish habitat.
- Manage municipal watersheds to assure sustained yields of high quality water.
- Manage riparian areas to prevent adverse effects on channel stability and fish habitat.
- Maintain habitat to support current populations of catchable trout.

- Maintain or enhance fish habitat by: maintaining riparian habitat and its potential to replace woody debris, minimizing the miles of road needed for management, requiring high standards for road construction and maintenance, reducing sediment from existing roads, dispersing timber harvest and assuring vegetative recovery prior to re-entry.
- Cooperate with State Agencies and local organizations to determine the cumulative effects of public and private land management on the Bitterroot River.

In a recent Settlement Agreement between the Bitterroot National Forest and a group known as Friends of the Bitterroot relating to three specific proposed timber sales, the riparian management provisions in the agreement included the following stipulation:

> "...riparian areas will be managed as an ecosystem regardless of the presence or absence of fish or a defined stream channel. Any vegetation treatment within the riparian area will benefit water, fisheries, or wildlife resources. If an activity benefits only one resource, water quality for beneficial water uses, such as fisheries and irrigation, will be maintained. Water, fisheries, and wildlife objectives rather than timber management objectives will determine vegetation treatment activities".

As of June 1989, the Bitterroot National Forest and the Department are jointly supporting a fisheries biologist position. The biologist is located in the Forest Supervisor's Office in Hamilton and has responsibilities both on and off Forest lands within the Bitterroot drainage. The position was created to address fisheries issues of the two agencies and study the Bitterroot drainage as a complete unit free of Administative boundaries.

## V. LOCAL AGENCIES

It was previously stated that 64% of the Bitterroot drainage area are lands within the Bitterroot National Forest. The remaining 36% are mostly private lands, the vast majority of which are in Ravalli County. The balance of the private lands are in Missoula County. These lands include cities and towns, rural-suburban land uses, and agricultural land uses. These lands are mostly in small ownerships and are for the most part fairly actively used. As a result they have the potential to impact the river and its tributaries, principally in the form of habitat alteration or degradation. The most obvious forms are impacts on water quality, stream banks, and the stream bed.

Local Agencies which are involved in the review of private land uses include Cities and Towns, the Counties, and the Soil Conservation Districts.

## VI. AD HOC ADVISORY COMMITTEE

In the in-house scoping meetings at the start of the planning study for the Bitterroot, the Department began the process of identification of the special interest groups and members of the public who could bring a balanced perspective to the Ad Hoc Advisory Committee. This Committee would serve during the formulation of the Management Plan and would be a source of new ideas and would critically review issues, management alternatives and draft reports. Invitations to serve on the Committee were extended and the first meeting of the Committee was held in June of 1990 to begin the issues identification process. Members of the Committee and their affiliation, if any, are as follows:

Walter Dezell, Whitefisherman
Harold Maus, Whitefisherman
Ron Stirling, Ecologist
Jack Iman, Painted Rocks Water Users
Jack Pfau, Irrigators
Bob Crick, Chamber of Commerce
Ken Loucks, Ravalli River Runners
Merle Blight, Grassroots Multiple Use
Terry Bergren, Sportsman
Tracy Wood, Sportsman
Jim Olson, Ravalli Fish & Wildlife Assoc.
Art Callan, Trout Unlimited
Ira Holt, Ravalli Fish & Wildlife Assoc.
Richard Ormsbee, Bitterroot Conservation District
John Adza, Outfitter
John Ormiston, Audubon Society
Freida Klapwyk, Landowner
Alice Austin, Landowner
Brian Nelson, Outfitter
John Perry, FFOAM
Mike Nichols
Greg Lakes, Missoulian
Vern Woolsey, Water Commissioner
Gavin Anderson, Ravalli County Planner
Ravalli Republic, Media
Chuck Troxel, Bitterroot National Forest
Steve Powell, Ravalli County Commission
Terry Althaus, Warden for the Department
Mike Stermitz, Warden for the Department
Howard Johnson, Fisheries Bureau Chief for the Department
Dennis Workman, Regional Fisheries Manager for the Department
Chris Clancy, Bitterroot River Biologist for the Department
Joel Shouse, Planning Consultant for the Department

## VII. ISSUES

The Department initially identified possible issues in the in-house scoping sessions. The Department was able to do this because of frequent contact and communications with the public concerning the Bitterroot. Examples include attendance at sportsman clubs and organizations and periodic public meetings for input on fishing regulations, etc.

The issues identified through the in-house scoping sessions were then transmitted to the Ad Hoc Advisory Committee for their review. The issues were thoroughly discussed in meetings of the Committee held in June and August of 1990. From this process the following statement of issues was identified:

### Statement Of Issues

1. Fisheries and Fishing Regulations

- The lack of fish population data makes it difficult for the Department to know what trends, if any, are taking place with the fishery.
- Winter whitefisherman would like to be allowed to use hellgramites as bait as they believe that they have very little impact on the trout fishery.
- Some anglers question whether the current catch-and-release fishing regulation for Cutthroats will actually result in increased numbers of Cutthroats.
- Some anglers question whether the current large trout management reaches produce the results they were created for.
- Some anglers feel the variations in trout populations between reaches should perhaps be reflected in the regulations.
- Most anglers feel that the fishing quality of the Bitterroot has diminished, both in terms of size and numbers of fish, and many attribute this to float fishing and increased fishing pressure. Solutions offered by anglers include catch-and-release sections, restricting the use of bait in some sections, seasonal regulations, and no float sections.
- Some anglers feel regulations are needed to better protect spawning trout.
- Most anglers feel enforcement of the regulations should continue at or above present levels.

2. River Users

- Most anglers feel that angling pressure on the river has increased dramatically and the Department needs to develop means of measuring or estimating this pressure. The Department should perhaps do a major user census.
- Many anglers believe that float fishing has become excessive and is negatively affecting the fishery.
- Some anglers feel fishing access has become more difficult

for wade fisherman which is partially to blame for the increase in floating.

- Some anglers feel the Department needs to be able to limit the number of outfitters that use the river.
- The Department needs to consider the needs of all users, not just fisherman. These include recreational floaters, swimmers, waders, etc.
- Safety concerns of all floaters need to be addressed by the Department. These include hazardous dams, diversions and fences.
- The desirability of allowing power boating on the river needs to be addressed by the Department.

3. Water Quantity

- The Department needs to make permanent arrangements to purchase 15,000 acre feet of water per year from Painted Rocks Reservoir.
- The Painted Rocks water should be used, where possible, to take irrrigation pressure off important tributaries which are used by spawning trout from the river.
- The Department should seek to improve cooperation with irrigators to maintain stream flows in the tributaries.
- The Department should evaluate creating more water storage and/or rebuilding old dams.

4. Water Quality

- The Department should seek to minimize problems associated with sediment from forest land activities.
- The Department should seek to minimize problems associated with sediment from agricultural lands.
- The Department should determine if there is a problem associated with road sanding and salt along both the East and West Forks of the river.
- The Department should look into the possible problems associated with the construction of new dwellings in close proximity to the river which are using septic tanks and drainfields as a means of sewage disposal.
- The Department should determine if there is a possible problem of sediment associated with the reconstruction of the East Fork highway.

5. Stream Corridor

- The Department should consider the problem of declining access for river users across private lands and the possible need for additional public access facilities.
- The Department should investigate the need for additional land use planning within the stream corridor to provide visual and aesthetic protection for recreational users.

6. Irrigation

- The Department should evaluate the problems associated with irrigation structures and practices.
- The Department should seek a solution to the problem of loss of fish into irrigation ditches.

7. Other Management Agencies
- The Department should identify the other management agencies which are involved with the river and explore the ways in which the Department can work with these agencies to achieve mutual goals.

## VIII. PUBLIC INFORMATION AND INVOLVEMENT PROCESS

The Department used two methods to inform and involve the public in the development of this Management Plan. The first was through the use of an Advisory Committee which has been previously described. Meetings of the Committee were held as follows:

Hamilton, June 27, 1990
Florence, August 22, 1990
Hamilton, November 27, 1990
Hamilton, January 30, 1991

Secondly, the general public was involved both prior to and through out the course of drafting the Management Plan. A number of press releases were made to announce the study, to provide periodic updates, to announce public informational meetings, and to detail the means for the public to provide input to the Plan.

The Draft Management Plan was announced to the public through the media in April of 1991 and copies were made available on request. Copies were also sent to members of the public who were on the study mailing list. Open house meetings on the draft were held as follows:

Darby, May 6, 1991
Missoula, May 7, 1991
Hamilton, May 8, 1991
Hamilton, June 12, 1991

The Final Management Plan was considered and adopted by the Fish, Wildlife and Parks Commission at their meeting of August 7, 1991, which was held in Helena. The statewide media published notice of this meeting and that the Management Plan was a scheduled agenda item.

The adopted Final Management Plan was announced to the public through the media and copies were made available on request. Copies were also sent to members of the public who were on the study mailing list.

## IX. FISHERIES MANAGEMENT

The trout populations of the various reaches of the Bitterroot River are determined by a combination of factors including natural chemical nutrients, amount and type of habitat available, food supply, length of growing season, spawning and rearing habitat (reproduction), and competition among the species that occupy a particular reach. These natural factors may of course be altered by man's effects on the trout populations. Unregulated harvest can keep the standing crop below the natural carrying capacity of the reach. Heavy angler harvest may severly reduce numbers or dramatically alter the age structure of a population as anglers concentrate their harvest on older larger fish. Man's activities may also reduce or alter populations through activities that degrade habitat, such as the sedimentation of spawning habitat, erosion of streambanks, and summer dewatering of the stream channel and spawning tributaries.

A serious limitation in the Department's management of the Bitterroot River fishery has been the lack of long-term fisheries population data. Three fisheries population study sections were established on the main stem of the Bitterroot in 1983 and data collected through 1986. They were part of a study initiated to develop a water management plan for the release of water purchased from Painted Rocks Reservoir. Results of this study were published in 1987 in a report titled "Evaluation of Management of Water Releases for Painted Rocks Reservoir, Bitterroot River, Montana". The study was performed and the report written by the Department with funding provided by the Bonneville Power Administration.

The three population study sections established as part of the Painted Rocks Study were the 5.82 mile Darby Section, which began near the bridge at Darby and extended downstream to the bridge at Como; the 5.54 mile Tucker Section, which began at Tucker Crossing and extended downstream to a point about a mile upstream from Bell Crossing; and the 5.23 mile Poker Joe Section, which began at the railroad trestle upstream from the Poker Joe Fishing Access Site and extended downstream to the Florence Bridge. In the last year of the study, 1986, data was gathered from a fourth area, the 2.85 mile Conner Section which was located in the lowest reach of the West Fork of the Bitterroot, just above the confluence with the East Fork. (See Figure 1 for study sections).

In 1989, the Department established four study sections which it intends to monitor on a long-term basis. The Hannon Section is immediately upstream of the old Darby Study Section. The old Darby Section was reestablished and is being monitored under the new program. These two sections have similar trout habitat and currently have similar trout populations. However, the Darby

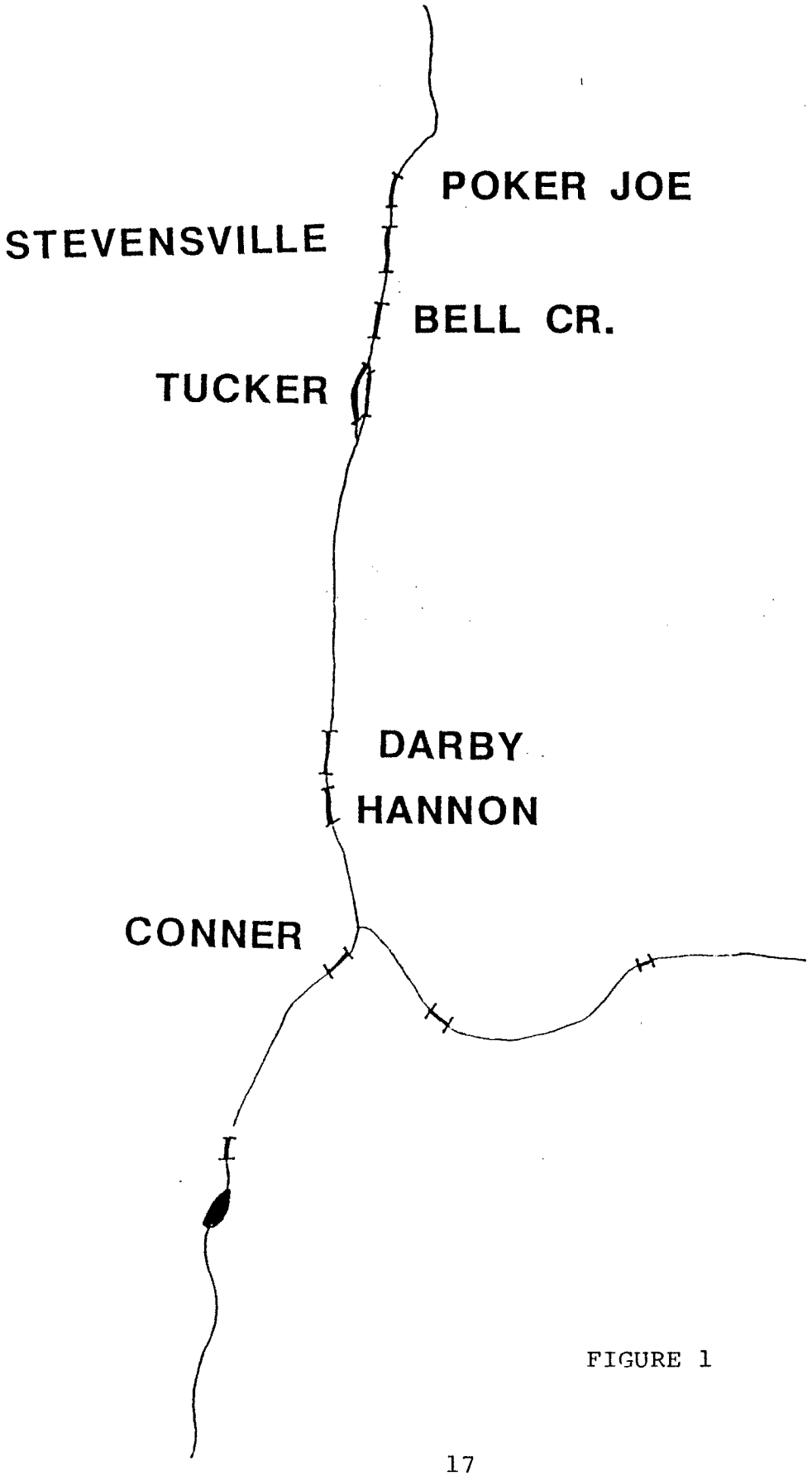



FIGURE 1

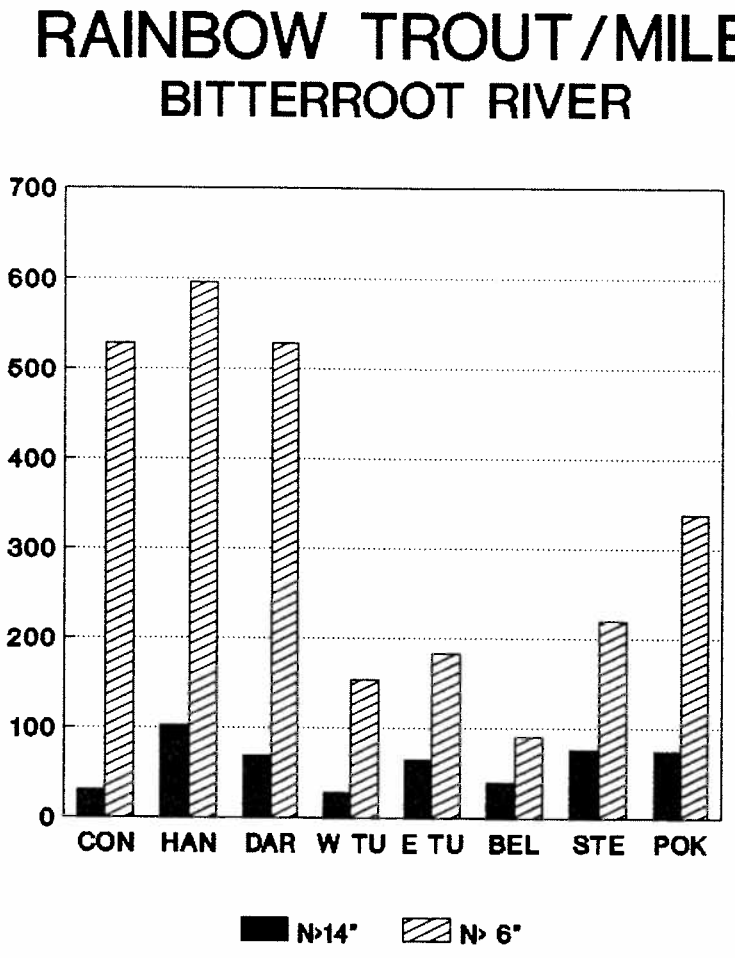
Section has been managed with more restrictive fishing regulations designed to promote large trout. The comparisons between these two sections over time will hopefully demonstrate the effects of the regulations. The Bell Crossing Section and the Stevensville Section are likewise paired in that they are adjacent to each other but the Bell Crossing Section is the most severely dewatered reach of the river. Water flows recover somewhat in the Stevensville Section and a comparison of these two sections will hopefully demonstrate the effects of dewatering. The Stevensville Section has also been managed with the same large trout management regulations as has the Darby Section.

The Department intends to add another population study section during 1991. It will be located within the approximate 30 mile reach of river lying between the lower end of the Darby Section and the upper end of the Bell Crossing Section, and most likely will be in the Hamilton area. In addition, the Department may sample on an every other year basis several of the current population study sections.

In an attempt to portray the relative trout populations of the eight previous study sections, the Department has averaged all population data for each section in Figure 2. This information should be viewed with caution because some sections have data for only the period 1983-1986 (E. Tucker, W. Tucker and Poker Joe), others for only the period 1989-1990 (Hannon, Bell Crossing and Stevensville), and yet others for both periods (Darby). The Conner Section has data for 1986 only. Rainbow trout numbers are the highest in the Conner, Hannon and Darby Sections with numbers ranging between 500 and 600 per mile. The numbers of rainbows diminish as one moves downstream to less than 100 fish per mile in the Bell Crossing Section. There is some recovery in the Stevensville and Poker Joe Sections.

Brown trout numbers are fairly low in the Conner Section which is the most upstream study section, then rise rapidly to peak at about 300 fish per mile in the Darby Section, and then steadily fall off as one moves downstream. Note that the number of rainbow and brown trout larger than 14 inches are more or less proportional to the total of all fish in each section. Cutthroat trout are more numerous in the upper river than the lower but their numbers are too low to allow population estimates to be made.

Figure 3 shows numbers of larger rainbows and browns for the four long-term population study sections as observed in 1989 and 1990. The Department is not comfortable with the 1990 rainbow estimate for the Hannon Section and feels that it probably overstates the actual number of large rainbows. Also in 1990, sample numbers of large browns in the Bell Crossing and Stevensville areas were too low to allow estimates to be made. However, these data basically


RAINBOW TROUT/MILE
BITTERROOT RIVER
700
600
500
400
300
200
100
0
CON
HAN
DAR
W TU
E TU
BEL
STE
POK
N>14"
N> 6"

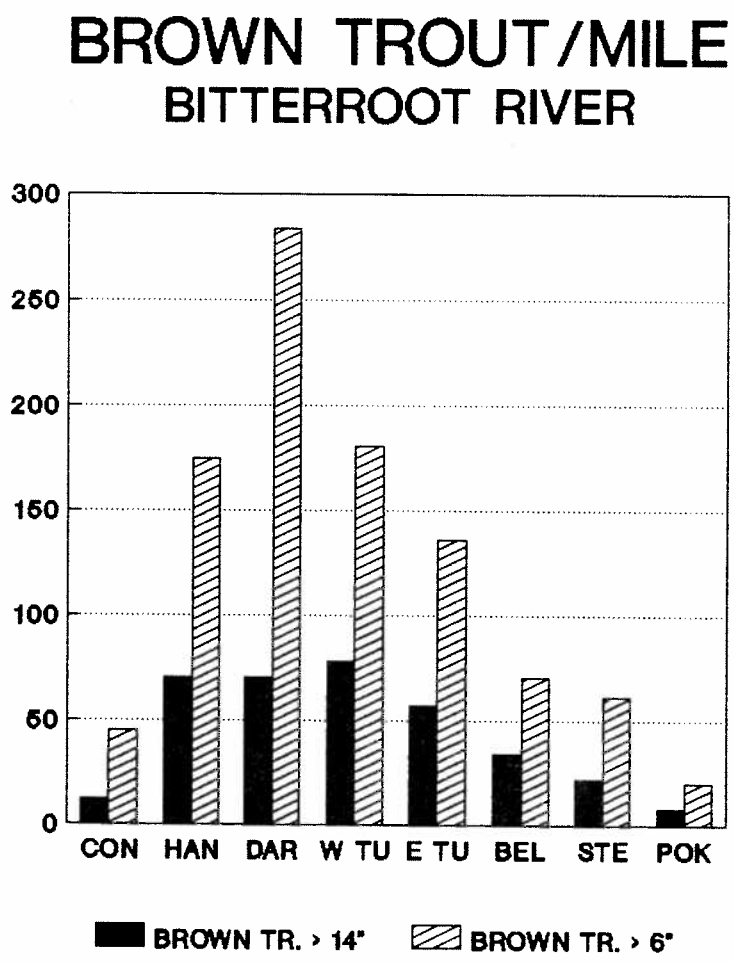
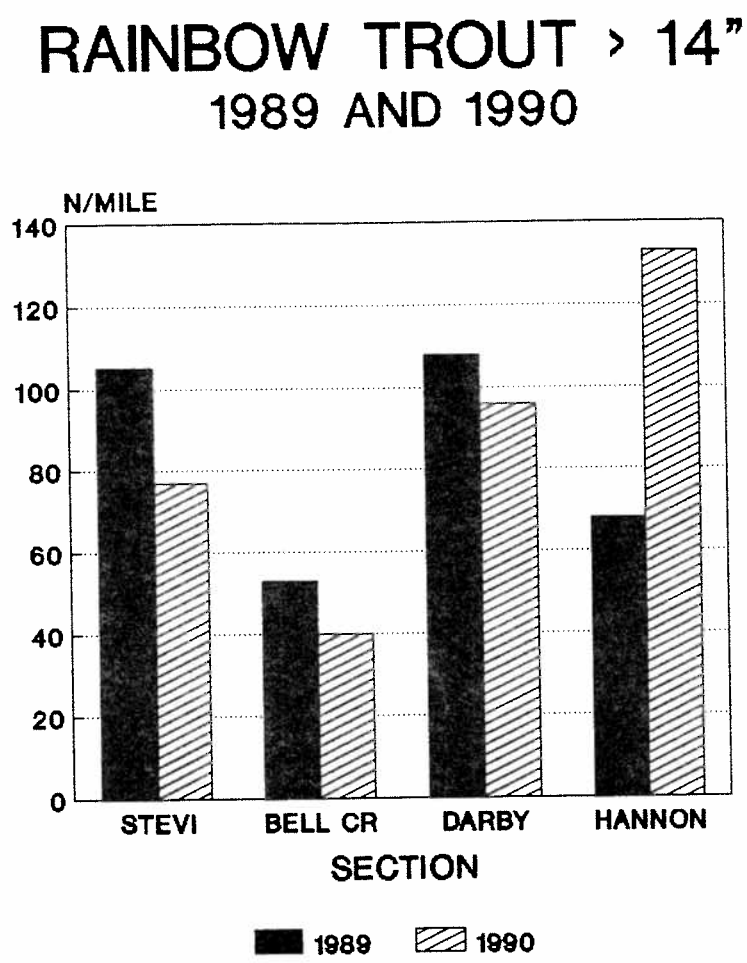

BROWN TROUT/MILE
BITTERROOT RIVER
300
250
200
150
100
50
0
CON
HAN
DAR
W TU
E TU
BEL
STE
POK
BROWN TR. > 14"
BROWN TR. > 6"

FIGURE 2


RAINBOW TROUT > 14"
1989 AND 1990
N/MILE
140
120
100
80
60
40
20
0
STEVI
BELL CR
DARBY
HANNON
SECTION
1989
1990

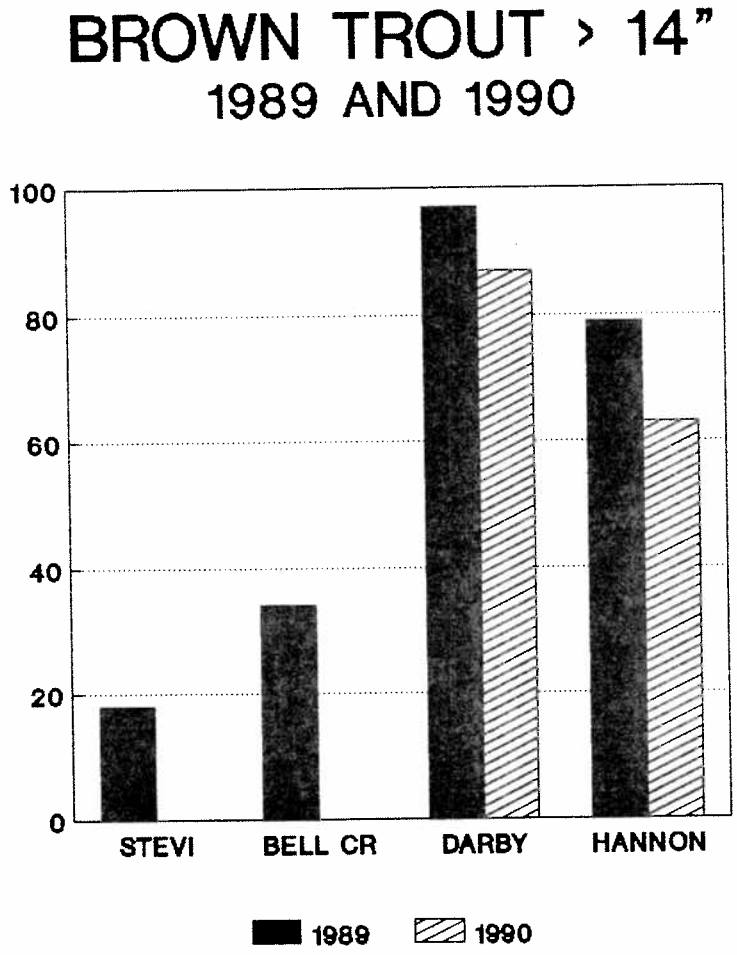
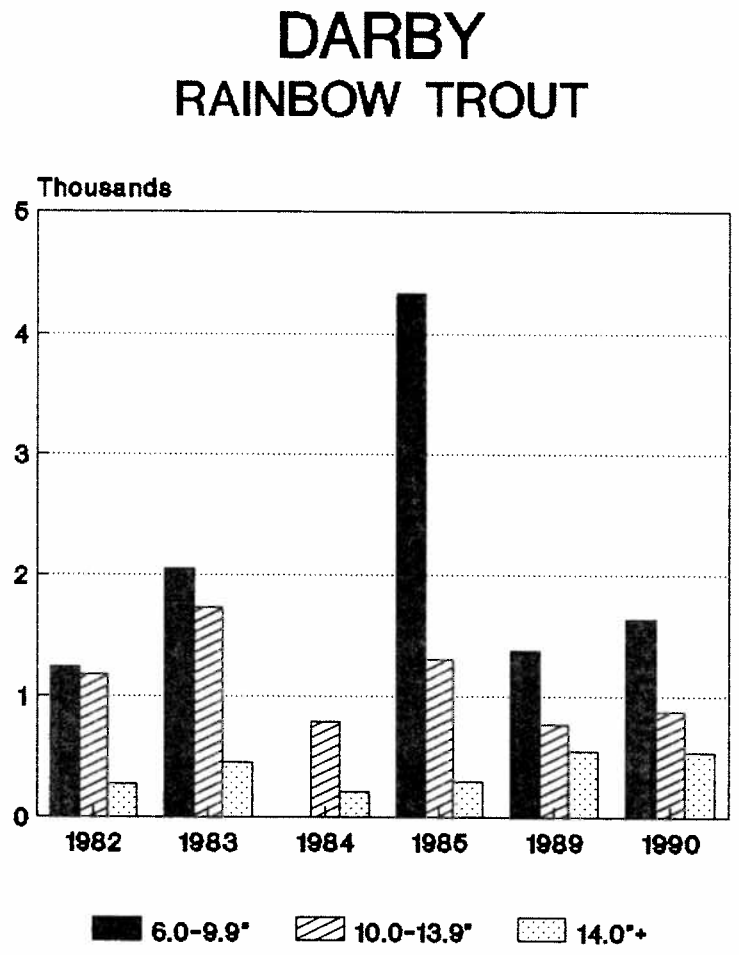

BROWN TROUT > 14"
1989 AND 1990
100
80
60
40
20
0
STEVI
BELL CR
DARBY
HANNON
1989
1990

FIGURE 3


DARBY
RAINBOW TROUT
Thousands
6
4
3
2
1
0
1982
1983
1984
1985
1989
1990
6.0-9.9"
10.0-13.9"
14.0"+

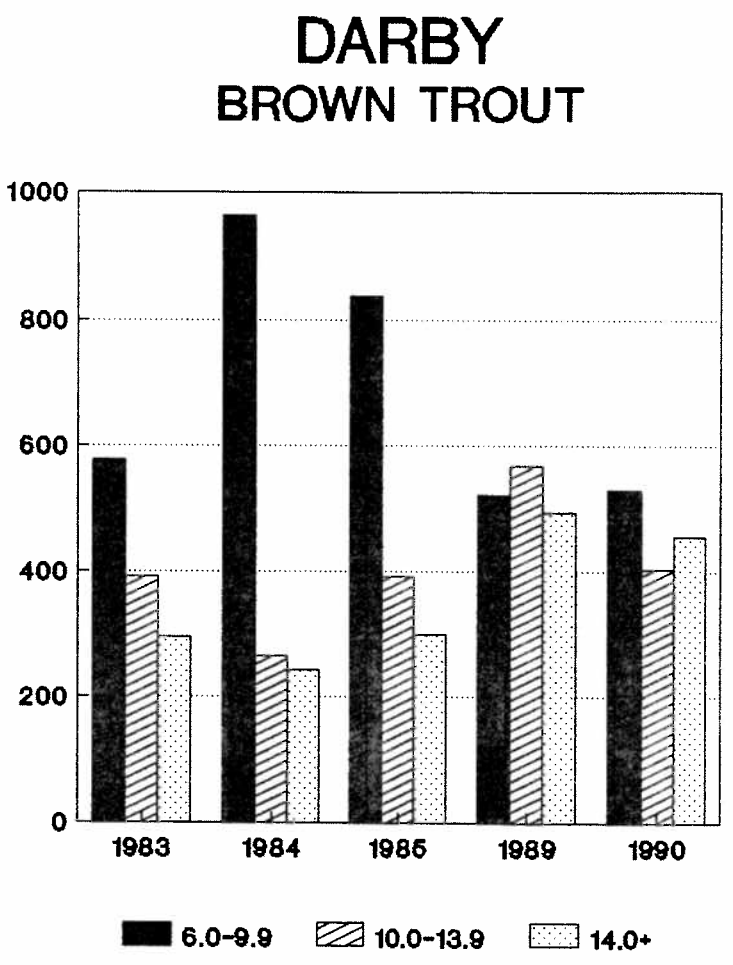

DARBY
BROWN TROUT
1000
800
600
400
200
0
1983
1984
1985
1989
1990
6.0-9.9
10.0-13.9
14.0+

FIGURE 4

depict the same population picture as does Figure 2.

The Darby Section has the best long-term population data on the river. These data are shown in Figure 4 and depicted for three different size classes of rainbows and browns. Note that numbers of small fish were at peaks in 1984 and 1985 and have fallen off in the last two years. However, the numbers of large trout are at their highest levels in 1989 and 1990. The Department is not concerned that a negative trend is occuring, but feels that it is simply a cyclic occurence that is quite often observed with brown trout populations and is probably also occuring with the rainbow population.

The Department feels that one of the major problems with the Bitterroot fishery in its lower reaches has to do with the numbers and survial of young fish. Figure 5 shows the results of a survey done in the mid-80's to determine the numbers of young-of-the-year found in the gravel margins of the main channel of the river. Note that numbers are lowest in the Tucker/Bell Crossing areas as was found with larger fish. However, a huge increase in numbers of rainbow young was found in the Stevensville Section, the reason for which the Department does not have an explanation.

To further understand the problem of survial of young trout, in 1990 and 1991 the Department did a study of rainbow trout redds in the tributaries of the river. Figure 6 illustrates the number of redds counted in the various tributaries. Kootenai and Big Creeks which have large numbers of redds enter the river in the Stevensville area where fair numbers of rainbows are found. However, Sweathouse, Bear North, Bear South, and Mill Creeks are all tributary to the West Tucker channel which has a very low population of rainbows even though significant numbers of redds are found in several of these streams.

The Department also did some trapping of small trout to observe whether they were getting to the river. They found that Kootenai and Big Creeks contribute large numbers of young trout into the main river. Department estimate for Kootenai is approximately 14,000 and for Big is approximately 7,000. With regard to the West Tucker tributaries, Sweathouse contributes about 500, Bear North around 8,500, Bear South about 5,000, and Mill Creek around 500. In the upper river, Tincup contributes an estimated 9,000 small rainbows into the river. The Department does not have an explanation at this time as to why better populations of rainbows are not being found in the West Tucker/Bell Crossing area based on the amount of young rainbows being supplied to the river by the tributaries.

Prior to 1982 the fishing regulations for the Bitterroot allowed a daily limit of 10 fish. In 1982 the regulations were changed to allow the keeping of 5 fish with only one being larger than 14

# BITTERROOT RIVER
## YOUNG-OF-YEAR

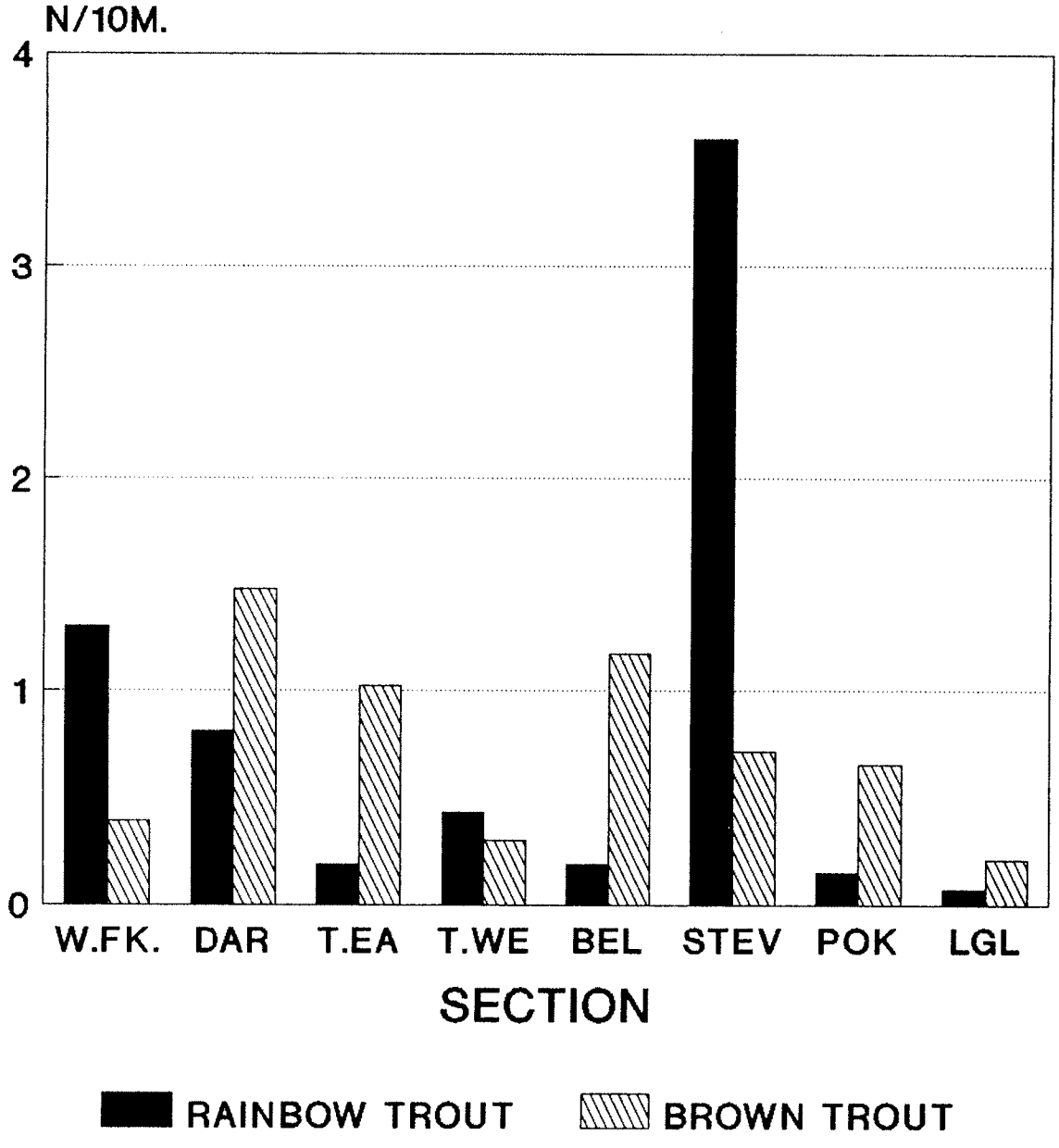



FIGURE 5

# RAINBOW REDDS
## NUMBER AND AREA

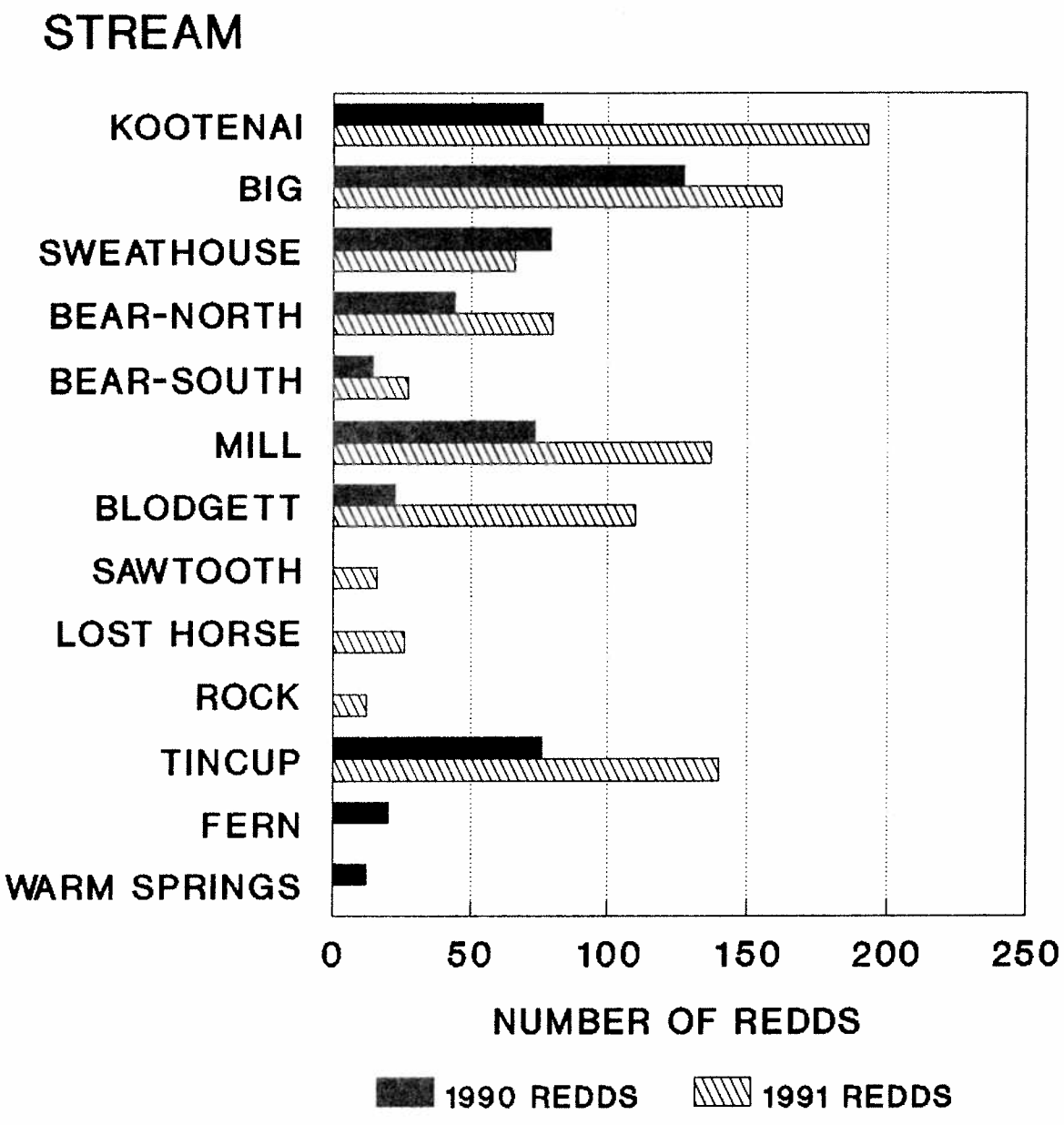



FIGURE 6

inches in size. The two large trout management areas (Darby and Stevensville) were also established in 1982 with a limit of 5 trout per day under 12 inches in size or 4 trout under 12 inches and one over 20 inches in size. In 1988 emergency drought regulations were imposed on the entire river which reduced the limit to 2 fish under 14 inches. In 1989 the regulations returned to what they had been except that catch and release fishing for cutthroat was required in the mainstem and the West Fork upstream to Painted Rocks Reservoir. The mainstem and the East and West Forks also have an extended whitefish season and catch-and-release fishing for trout from December 1st to the third Saturday in May with maggots and artificial lures only.

It is difficult to reach in-depth conclusions regarding the Bitterroot fishery due to the limited population data available to the Department. It is clear that populations in the Tucker/Bell Crossings area are marginal and are related to de-watering problems and poor survival of young trout. Continued population data collection on the four long-term study sections (Hannon, Darby, Bell Crossing and Stevensville) and the new section in the Hamilton area will shed additional light on this problem area as well as other fisheries management issues. These include issues such as the following: a) Will catch and release fishing for cutthroats improve population levels?; b) Are the large trout management areas accomplishing the goals for which they were established?; c) Are more restrictive fishing regulations needed to improve the quality and quantity of fishing?; and d) Are special management and regulations needed to protect spawning trout and spawning tributaries? Angler surveys which are discussed elsewhere in this Management Plan might also assist in resolving or managing these issues.

The public has previously expressed dissatisfaction with the fishery in the lower Bitterroot and wants to see it improved. Some anglers have verbally expressed strong support for more restrictive regulations and for fishing closures during critical times, such as spawning season. Some have also expressed support for stocking the lower river on an experimental basis to determine if young fish survival can be improved in this dewatered section. Whitefishermen want the regulations changed to allow the use of "hellgrammites" during the extended whitefish season.

The Advisory Committee addressed six different issues associated with fisheries regulations in order to define where they stood. Their position was reflective of the opinions of only those members of the Advisory Committee who were present and may not have been representative of the position of all anglers. The consensus of the Advisory Committee was expressed as follows:

1. The Committee supports Catch and Release fishing as opposed to Slot Limits in problem or trouble areas.

2. The Committee supports allowing "hellgrammites" (aquatic insects) to be used during the extended whitefish season.

3. The Committee supports more restrictive regulations in the dewatered section from Bell Crossing to Stevensville.

4. The Committee supports site specific regulations to deal with problem areas as opposed to general regulations in order to simplify regulations.

5. The Committee supports reduction of general regulations limits to 2 trout.

6. The Committee supports retention of the upper large trout management area (Darby Section).

In response to the above described fisheries management situation and input from the Advisory Committee, the Department prepared and included in the Draft Management Plan the following alternative fishing regulations for public review and comment:

Alternative Fishing Regulations

1. Leave regulations as they presently are ...(5 trout with only 1 over 14 inches; two large trout management areas with limit of 5 trout under 12 inches or 4 under 12 inches and 1 over 20 inches, artificial lures only; catch and release fishing for Cutthroat trout in the Mainstem and West Fork upstream to Painted Rocks Reservoir; and Dec. 1st to 3rd Saturday in May, extended whitefish and catch and release trout fishing, artificial lures and maggots)...but add the use of aquatic insects during the extended winter fishing season.

Note: All of the following Alternatives proposed allowing the extended winter fishing season as detailed in Alternative 1 with the addition of the use of aquatic insects during this season.

2. Leave general regulations as they presently are but change the present upper large trout management area to Catch and Release fishing, artificial lures only, and lengthen the lower large trout management area so as to extend from Tucker to Florence, rename it a Habitat Limited Area, and change it to Catch and Release fishing, artificial lures only. THIS WAS THE DEPARTMENT'S PREFERRED ALTERNATIVE IN THE DRAFT MANAGEMENT PLAN.

3. Same as Alternative 2 except general regulation limit is reduced to 3 trout under 12 inches or 2 under 12 inches and 1 over 20 inches.

4. Same as Alternative 2 except general regulation limit is reduced to 2 trout under 12 inches or 1 under 12 inches and 1 over 20 inches.

## Public Input

The Department received a large amount of comments on fisheries management and more specifically on fishing regulations at the open houses and through written comments on the Draft Management Plan. Almost all of the comments were supportive of the Department's Preferred Alternative Fishing Regulations which proposed changing the upper large trout management area to Catch and Release fishing, artificial lures only; lengthening the lower large trout management area so as to extend from Tucker to Florence, renaming it to a Habitat Limited Area, and changing it to Catch and Release fishing, artificial lures only; adding the use of aquatic insects during the extended winter fishing season, and continuing Catch and Release fishing for Cutthroats in the Mainstem and West Fork upstream to Painted Rocks Reservoir. About 50% of those commenting agreed with leaving creel limits as they presently are while another 50% wanted creel limits reduced to either two or three fish. A number of respondants also asked to have the Catch and Release fishing for Cutthroat trout extended up the East Fork.

## Fisheries Management Statement

In order to develop long-term fish population data and to better understand population trends, the Department will continue to monitor the four established population study sections identified as Hannon, Darby, Bell Crossing and Stevensville, and will establish a new study section in the Hamilton area. In addition, the Department will continue to monitor recruitment of young trout from tributaries and their survival in both the tributaries and the river itself. This will allow the Department to evaluate and perhaps resolve management issues such as the following: a) Will catch and release fishing for cutthroats improve population levels; b) Are the special regulations areas accomplishing the goals for which they were established; c) Are more restrictive fishing regulations needed to improve the quality and quantity of fishing; and d) Are special management and regulations needed to protect spawning trout and spawning tributaries?

Beginning with the 1992-93 fishing season, March 1, 1992, the mainstem of the Bitterroot and the East Fork upstream to Martin Creek and the West Fork upstream to Painted Rocks Reservoir, the daily creel limit will be three rainbow or brown trout with only one over 14 inches, and the possession limit will be the daily limit. Catch and Release fishing for Cutthroat trout will be continued in the Mainstem and the West Fork upstream to Painted Rocks Reservoir and will be added in the East Fork upstream to Martin Creek. The area from one mile downstream of Darby Bridge to Como Bridge will continue as a Large Trout Management Area with Catch and Release fishing, artificial lures only. The area

from Tucker to Florence Bridge is designated a Habitat Limited Area with Catch and Release fishing, artificial lures only. The Mainstem and the East and West Forks will continue the extended whitefish season and Catch and Release for trout open December 1 to the third Saturday in May with maggots, aquatic insects, and/or artificial lures only.

An additional change to the regulations in the area of the Bitterroot Valley between U.S. 93 and the East Side Highway between Hamilton and Buckhouse Bridge (ditches, canals and sloughs) will allow an extended whitefish season, northern pike, and Catch and Release fishing for trout open December 1st to the third Saturday in May with maggots, aquatic insects, and/or artificial lures only.

The Bitterroot fishing regulations will be reevaluated in two years prior to the next regulating setting procedure which will begin in the Fall of 1993. Population data, conclusions drawn from the data, and recommendations by the Department will be presented to the public for consideration and comment at that time.

## X. FISHERIES HABITAT

The elements which make up fisheries habitat include the water of the stream (specifically it's quality and quantity), the stream bed, and the stream banks. The quality of a fishery can be directly related to the quality of the habitat. In the case of the Bitterroot, there are several habitat limitations worthy of note. The most serious is the dewatering of the mainstem in the Tucker/Bell Crossing areas and of some of the important spawning tributaries. Irrigation structures and practices are also problems in certain areas and sediment has some impacts in the river, primarily downstream of the Stevensville area.

Water shortages in the Bitterroot have been a persistent problem for both irrigators and recreational users. Five major diversions and numerous smaller canals remove substantial quantities of water from the river during the irrigation season. The river has historically suffered from reduced stream flows between the towns of Hamilton and Stevensville as a result of these withdrawls, and critical dewatering frequently occurs in the Tucker/Bell Crossing area.

The previously mentioned Painted Rocks Reservoir water management plan analyzed the effect of releasing 15,000 acre feet of water during summer periods from 1983 to 1986. These supplemental releases significantly enhanced summer flows upstream from Hamilton during all years, but were insufficient to maintain minimum flow recommendations in the dewatered section during years with low stream flow (1985 and 1986). Most released water failed to reach the dewatered section because of losses to irrigation withdrawls. Losses to irrigation systems were greatest when the river flows were lowest and large, gravel dikes were constructed to divert water. Irrigators were willing to cooperate in maintaining flows in the river, but efforts to do so were limited by the complexity and inefficiency of the canal network.

Of the 15,000 acre feet of supplemental water from Painted Rocks, the Department has a permanent arrangement with the Department of Natural Resources and Conservation (DNRC) for the purchase of 5,000 AF and is buying an additional 10,000 AF on an annual basis. The Department has been striving to permanently purchase the 10,000 AF and feels that it is absolutely essential that this purchase be accomplished. For the last three years the District Court has hired and the Department paid for a water commissioner to oversee the withdrawl of irrigation water from the river. The commissioner has been charged with insuring that at least 80% of the Painted Rocks water is delivered to Bell Crossing. He has been able to accomplish this by insuring that irrigators are in fact only taking water in accordance with their water rights.

The Department has looked into the possibility of increased water storage which might further enhance summer river flows. Currently there are a number of irrigation storage reservoirs on tributaries of the Bitterroot. These reservoirs are mostly on National Forest lands in the Bitterroot Mountain Range to the west of the river. Additionally, many of these reservoirs are within the boundaries of the Selway-Bitterroot Wilderness area. Many of these existing reservoirs are in poor condition and in need of significant repairs. The National Forest wilderness policy has been that these reservoirs can be repaired but not significantly changed and not at all enlarged. It appears that whatever funds might be made available for water storage would first be spent to repair the existing reservoirs and the likelihood of funds being available for new reservoirs appears to be remote. However, the Department will look at any off stream storage that would enhance stream flows.

A more feasible approach to increased summer flows in the dewatered areas is better management of current water supplies. This can partially be accomplished through the activites of the water commissioner. The Department can also investigate the feasibility of trade-offs with the Painted Rocks water. An example might be where an irrigator can utilize water taken from the mainstem of the river in lieu of drying up an important spawning tributary. The Department has also looked into the leasing of water to supplement instream flows. Water users on four streams have been approached about leasing without much success.

Other management options include working in a cooperative manner with irrigators to schedule their irrigation withdrawls around critical times for the fishery. A good example of a critical time is July when young-of-the-year trout are moving from the spawning redds in the tributaries to the main river. It is extremely important that there be adequate water in the tributary to allow this movement to occur. Likewise, it is very important that measures be taken to insure that these young do not end up moving down an irrigation ditch and ultimately being lost. A member of the Bitterroot Chapter of Trout Unlimited has experimented with the use of a perforated pipe on the bottom of the stream as a means of irrigation diversion and has had some success with this technique. The Department might also work with irrigators to improve the efficiency of their water use so that no water is wasted. The lining of ditches to prevent losses through infiltration should also be investigated.

Department staff limitations has a real effect on the Department's ability to accomplish irrigation trade-offs, cooperation during critical fishery times, and irrigation efficiency. However, this appears to be an ideal area where sportsmen's organizations could become involved. A coalition of these groups working cooperatively with the Department could

become an effective tool in seeking better management of irrigation water so as to minimize detrimental impacts on the fishery. A good example of present assistance is the Trout Unlimited sponsored rescue of trout from ditches in the fall of the year after the irrigation diversions are shut down for the season.

In general, the water quality of the Bitterroot is quite good although there are problems. A review of the assessment contained in the Montana Waterbody Tracking System by the Water Quality Bureau, Montana Department of Health and Environmental Sciences, shows the following:

The West Fork of the Bitterroot is listed as moderately impaired by sediment from silviculture and placer mining. Habitat surveys noted temperature, turbidity, excessive siltation, logging practices, mining practices, overuse by stock and irrigation withdrawls as factors affecting the fishery. The periphytic community was found to be moderately stressed.

Habitat surveys of the East Fork of the Bitterroot noted excessive siltation, domestic stock, channel alterations (agriculture), bank encroachment (agriculture, stock trampling), overuse by stock, and irrigation withdrawls as factors affecting the fishery. However, periphyton samples analyzed in 1990 indicated no impairment.

From the junction of the East and West Forks to Skalkaho Creek the mainstem of the Bitterroot River has been least affected by human activities. Approximately 10% of the streambanks were altered and some severely eroding banks were noted. Overgrazing and cropping were mentioned as likely causes of bank destabilization.

The reach of the river from Skalkaho Creek to Eightmile Creek was found to have much more severe problems. Channel and streambank alterations comprised 20% of the reach. Siltation and eroding banks were observed and it was noted that logging had increased sedimentation rates. Severe dewatering was mentioned as was localized impacts from the discharge from the Hamilton waste water treatment plant. Temperature was detemined to be a cause of impairment but overall water quality was still judged to be excellent.

The lowest reach of the river, from Eight Mile Creek to the mouth (Clark Fork River), likewise was found to have 20-25% channel or streambank alterations and eroding banks. However, disolved oxygen levels occasionally fell below State standards some summers, suggesting problems from algae growth and nutrient enrichment. Contaminated ground water from septic tank systems has been identified as a source of nutrients to the Bitterroot.

The worst agricultural sediment problem on the Bitterroot is the Three Mile Creek drainage which enters the river several miles downstream of Stevensville. A stabilization plan has been prepared for the creek by the Hamilton Field Office of the Soil Conservation Service (SCS). A project team was organized to assist SCS in the studies leading to the preparation of the stabilization plan. Members of the project team in addition to SCS personnel included the Forest Service, Lee Metcalf National Wildlife Refuge, the Department of Fish, Wildlife and Parks, and private landowners.

The study found that lands adjacent to the creek are subject to soil erosion if the vegetative cover is removed and that the streambanks are damaged due to heavy livestock concentrations on small tracts of land. The study also determined that the health of the stream at the Forest Boundary was very good but steadily dropped as it passed through the privately owned lands, reaching its worst condition just below the Supply Ditch. The condition improves somewhat before the creek reaches the Lee Metcalf Refuge. SCS found that the highest transmission of sediments occurred just below the Supply Ditch spillway and in January of 1990 they measured over 22 tons of discharge daily at this site.

The study also found that the most erosive period occurs during the low elevation foothill snowmelt. It also discovered that two large irrigation districts use Three Mile Creek as wasteways for their canals during this period. One canal alone was found to collect snow melt from over 2,000 acres and direct its flow into the Creek which further compounds the problem.

The Lee Metcalf Refuge has suffered significant habitat loss and expense due to deposition of eroded sediments by Three Mile Creek. The Refuge has recently constructed a diking project to bypass use of the Creek water and re-create lost open water habitat. This solution, unfortunately, sends the sediment laden water from the Creek directly into the Bitterroot River.

The stabilization plan proposes to reduce the sediment load reaching the Creek and to stabilize the streambanks. Work is also planned with the irrigation districts to coordinate their use of the Creek as a wasteway such that their discharges do not coincide with the peak snow melt periods. Work on the project will hopefully be accomplished by early 1993.

The Department hopes that this stabilization plan will be successful in reducing erosion and resulting sedimentation of the Bitterroot and that it will serve as a demonstration project for future projects on other sediment sources.

Irrigation structures and practices can also impact fisheries habitat. Structures impede or block fish movement and can direct fish into irrigation ditches where they are often lost.

Temporary structures created by equipment with streambed materials also seriously impact habitat. Irrigation diversions also dewater, and in some cases dry up, the river and tributaries.

The Department can best solve the problems of irrigation by working closely with irrigators to communicate the needs of the fishery. General irrigation practices can be reviewed and developed and specific locational needs addressed. Here again the Department's staff limitations are a factor in how much of this work can be done. Volunteers from sportsmen's organizations can play a major role in assisting the Department in this regard.

Public Input

The public expressed strong support for the Department's efforts to get more water into the lower river and important tributaries. In particular, the public asked the Department to step up efforts to make permanent the purchase of the additional 10,000 AF of water from Painted Rocks Reservoir. They also expressed themselves strongly on the dewatering of the tributaries. Another major area of comment was the loss of fish in irrigation ditches as fish are migrating back to the main river from spawning areas.

Management Statement

The Department will continue to direct its efforts towards mitigating the problems which limit the fisheries habitat. The most serious of these problems are the lack of water in the middle mainstem of the Bitterroot, the dewatering of the tributaries, and the loss of fish due to irrigation facilities and practices. The Department will continue to inform the public of the importance of fisheries habitat as a limiting factor in the numbers of trout found in the river. Fishing regulations alone cannot make up for the habitat problems of the Bitterroot.

Specifically, the Department will increase its efforts to permanently acquire the additional 10,000 AF of water from Painted Rocks Reservoir which the Department has been purchasing on an annual basis for several years. The public will be called upon to express their strong support for this purchase. The Department will continue to work closely with irrigators to improve efficiency and cooperation and to make them better aware of the needs of the fishery. The Department will call upon individuals and sportsmen groups for assistance to supplement the Department's staff limitations.

## XI. RIVER USERS

In the Introduction it was pointed out that the Bitterroot was ranked as the eighth most valuable stream in Montana with an estimated Total Recreational Value of $3.9 million per year. This value was determined in the 1987 study entitled "The Net Economic Value of Fishing in Montana". Over 56,000 angler days were estimated for the Bitterroot from March 1, 1985 through February 28, 1986. A companion study entitled "Montana Bioeconomics Study: Results of the Trout Stream Angler Preference Survey" was prepared for the Department by Dr. Stewart Allen and published in 1988. This study surveyed anglers who fished the Bitterroot during the summer and fall of 1986. Results of this study are summarized in the following paragraphs.

A total of 160 residents and non-residents were mailed questionnaries and 132 were returned for a rate of response of 82%. Of those who responded, 73.5% were residents and 26.5% non-residents. The majority, about 75%, fished from the shore with the balance, 25%, in part using a boat. Only 3.8% of these anglers reported that they used a guide or outfitter. About 14% indicated that they fished solely with bait, 7% with lures, 41% with flies, and 38% with a combination of equipment. About 15% reported that they saw more anglers than they had expected and 22% reported that other anglers affected their fishing. Of those that were affected, about 26% said the reason was floating related with the next highest answer of 22% saying that it was a decrease of solitude. 54% of these anglers reported that the Bitterroot was either their favorite or one of their favorite fishing streams. When asked questions about management problems on the Bitterroot the most commonly checked was "too few fish" and the second most common was "water levels". When asked questions about management preferences, the most heavily noted option was "habitat protection" and the next most noted options were "stocking" and "special regulations". Top choices for ways to increase numbers of large trout were "slot limit" and "reduce total limit" and ways to increase total number of trout were "limit number", "gear restrictions" and "limit size kept".

From this study one might conclude that the majority of anglers on the Bitterroot are residents, fish from shore, and are fly fisherman. Very few use an outfitter or guide, the vast majority were not affected by other anglers, and most feel the Bitterroot is one of their favorite fishing streams. Most were fairly knowledgeable concerning the management problems of the Bitterroot and would support more restrictive fishing regulations.

During the Spring and Summer of 1990 the Department's biologists conducted interviews with anglers on the river. This was not an extensive survey as only 53 anglers were interviewed. In general

this is what they said:
1. Most felt trout limits are about right, with a small leaning toward too liberal.
2. A small majority thought the 14" size limit was about right, however, a significant number thought it should be higher.
3. A majority did not feel there were too many boats, but about a third thought there was.
4. Most thought whitefisherman should be able to use maggots and hellgrammites.
5. If trout are being overfished, catch and release and lower limits were preferred.
6. There was strong support for catch and release for cutthroat trout and a majority supported it for bull trout.
7. The most important problems facing the river are, in order, dewatering, physical habitat alteration, and liberal limits.
8. A majority supported fishing regulations that changed with the changing sections of the river.
9. Over a third did not know the trout regulations on the section of stream they were fishing.

A number of issues concerning users has been brought forth by the public which do not seem to be supported by these two very limited surveys. These include issues such as "too many anglers", "excessive float fishing" and "limiting outfitter use". Although the Department has estimates of total seasonal angler use it does not know details of where and when the use occurs. No estimates are available of floating use and the Department has not made any determinations as to the physical and social capacity for floating. Similar lack of detail pertains to the outfitter use. The Department feels that it simply does not have sufficient census data at the present time to address and resolve these issues and that a major user census will have to be accomplished to provide this information. The Department annually funds one or two census studies and currently has earmarked funds for calendar year 1992 to do the Bitterroot census.

The Department is aware that the Bitterroot is also used extensively by non-anglers. These include recreational boaters and floaters, waders, swimmers, etc. Again the Department has no estimates of numbers of these users and their special needs. The detailed user census will of necessity include non-angler users.

Recreational access and user facilities are relatively numerous on the Bitterroot. These access locations and brief comments on each are listed in the following:

<u>Main River Beginning At Mouth And Moving Upstream.</u>
-Blue Mountain Road, USFS walk in access.
-Lolo Sewage Treatment Plant, Department has looked at it but County would need to cooperate, Department has a parcel at Lolo but it won't work due to lack of access.

-Chief Looking Glass, Department boat access, normally open May 1st, some would like it open in April.
-Florence Bridge, Department boat access, good site.
-Poker Joe, Department walk in access, boat can be dragged in.
-Bass Creek, Walk in access on old road.
-Stevensville, Private, used heavily by public, boats frequently launched, lots of problems, needs Department attention.
-Bell Crossing, Department boat access.
-Victor Crossing, Walk in access from road.
-East and West Tucker, Department boat access.
-Woodside Crossing, Department boat access, good site, lots of swimmers.
-Blodgett Park, Hamilton Lions Club boat access.
-Silver Bridge, Walk in from road.
-Hamilton Sewage Treatment Plant, may be private walk in access, historically used, needs attention.
-Main Street Bridge, Walk in from road.
-Anglers Roost, Private, used by boats with permission.
-Charlos, Walk in.
-Como Bridge, Department boat access, good site.
-Darby Bridge, Private, good boat access.
-Hannon, Department boat access, good site.

West Fork, Moving Upstream From Forks
-Above Conner Bridge, Private, Boat access.
-Trapper Creek, USFS walk in.
-Several Walk Ins, USFS.
-Appleberry, USFS boat access.
-Below Nez Perce, Private, Boat Access
-Above Nez Perce, Number of sites on USFS which provide boat access.

East Fork, Moving Upstream From Forks
-Number of places for boat access from Highway.
-Warm Springs Campground, USFS boat access.
-Sula Store, Private, can get boat in.
-Mink Creek Bridge, Walk in access.
-Jennings Campground, USFS walk in access.

However, access needs do exist. In particular, many wade anglers who in the past were able to cross private property to fish have found that ownership of these lands has changed and that these areas are no longer available to them. Many anglers believe that this is a major cause of the increase in float fishing. The user census will also assist in identifying access and facility needs. Locations where access is needed or where existing access needs to be improved and their priorities have been identified as follows:

Top Priorities

-Stevensville, On private land but used heavily by public.
-Anglers Roost, On private land and has been closed periodically in the past, critical location for floating, a suggested alternative is the State Land just above between the railroad and Highway.

Second Priority
-Hamilton Sewage Treatment Plant, The best location is on private land and there are questions of liability.

Other Needs
-Lolo
-Conner Bridge, Land may possibly be available.
-Above Conner Bridge on West Fork, Private land currently being used.
-Darby Bridge Area, Present road is private and Department feels it is not a good place to get involved.
-Various Walk In Locations, Department with assistance from volunteers needs to work out cooperative arrangements with landowners for walk in areas.

Various hazards exist for floating users of the Bitterroot. Most of these relate to irrigation diversion structures located within the river. These structures remove significant quantities of water which affects floating use below them, but more importantly a number of these structures pose real hazards to boats and other floating craft. The following diversions have been identified:

-Sleeping Child, Department should determine what the costs are to improve, also make people aware of the hazard by signing.
-Corvallis (in Hamilton), Department feels some improvement could be made.
-Supply Ditch (East Channel below Corvallis), Bad suck hole below.

Power boating has also been identified as a potential problem on the Bitterroot. Jet boats are used on the river between Hamilton and Missoula, but mostly in the lower river. However, they are seen infrequently and generally only during high water conditions. In the last several years the Department has received some complaints regarding the use of jet skis on the river.

Problems associated with power boat use are reported to be safety issues associated with swimmers, waders and unpowered floating craft, the disturbance to anglers and other users, disturbance of nesting waterfowl, and the erosive banks in the lower river which are impacted by wakes of the boats. Many feel the Bitterroot is too small a river for power boating, that power boats are not compatible with the non-motorized uses of the river, and that power boats should be banned from the river. Suggested

management of power boating has included closure of various sections of the river, seasonal limits and/or horsepower limits.

The Fish, Wildlife and Parks Commission has been granted authority to manage boating use on the Bitterroot River by means of MCA 87-1-303, Rules for use of lands and waters. Quoting from subsection (2),

> "The commission may adopt and enforce rules governing recreational uses of all public fishing reservoirs, public lakes, river, and streams which are legally accessible to the public..... These rules shall be adopted in the interest of public health, public safety, and protection of property in regulating swimming, hunting, fishing, trapping, boating, including but not limited to boating speed regulations, the operation of motor-driven boats, waterskiing, ....."

However, the Commission only uses their authority to regulate boating use after a thorough review and documentation of a problem.

Among new uses of the Bitterroot is the possibility of commercial crayfishing. A commercial operator was licensed in 1990 but no trapping was done. The request was denied in 1991 and probably will be denied in the future due to a strong expression by the public in opposition to commercial crayfishing.

Some of the conflicts between user groups on the river could be addressed through user education. The classic example is where a floater encounters a bank or wade fisherman. A way needs to be found to set forth fishing and floating etiquette so river users know how to deal with specific situations such as this. A tool which the Department has used in other locations in a user guide and map. This has proven to be an excellent way to communicate with users on such items as access, facility locations, public lands, hazard locations, fishing regulations, user education, floater etiquette, etc.

## Public Input

The comments which the Department received on river users were primarily related to the power boating issue and on access to the river. The vast majority of those commenting called for restrictions or the banning of power boats on the Bitterroot. Access was in general felt to be fairly good with only a few specific sites called out for improvement. Other comments related to the numbers of anglers, numbers of outfitters, and excessive float fishing.

Management Statement

The Department anticipates that public use of the Bitterroot will continue to increase in the future and that the Department must develop good estimates of the numbers and types of users and a better understanding of the interactions between the various user groups and their effects on the resource. A comprehensive user census will begin in January 1992 and continue for one year.

Access needs will be addressed by the Department in accordance with the priorities identified in this Management Plan. The Department will work with the private firm which produces a floating guide for the Bitterroot to insure that the guide is as accurate as possible and, to the extent possible, all man-made hazards are identified on the guide. Where necessary, signs will be placed to advise floaters of these hazards.

The Department will continue to monitor the power boating issue and advise complaintants of procedural requirements and the need to document problems if they wish the Fish and Game Commission to consider actions to regulate power boating in the future.

## XII. CORRIDOR MANAGEMENT

Land uses within the Bitterroot River drainage play an important role in influencing the quality of the fishery, the fisheries habitat, and opportunities and experiences available to the recreational user. This is even more true as it pertains to land uses in the areas immediately adjacent to the stream, or as it is know, the stream corridor.

Water quality is probably the most obvious element of fish habitat to be affected by land use, with sediment normally being the parameter most affected. Activities which a) remove vegetation (logging, concentration of livestock, etc.), b) alter the natural landscape (road construction, farming, etc.) and/or c) concentrate runoff (culverts, irrigation wasteways, etc.), can increase erosion and result in deposition of sediments in waterways which over time are transported to the river itself. Sediment has the negative effects of reducing the fishing opportunities (fish cannot see the fly or lure), reducing the overall aesthetics of the stream (muddy water is not as pleasing to look at as clear), and most importantly, it can severely impact fish reproduction. Sediment clogs spawning gravels and cuts off the oxygen supply to eggs which have been deposited in the gravels.

A number of other water quality parameters can be impacted by land use. Water chemistry is influenced by leachates from mine waste. Water temperature can be increased by removal of vegetation which furnishes shade to water. Nutrients and bacteria levels can be increased by livestock and human waste.

Water yield from a drainage basin is also influenced by land uses within the basin. An area covered with trees produces an entirely different yield than an area covered with grass. Likewise, the timing of the runoff can be similarly impacted. An area with heavy tree cover will generally produce a longer sustained runoff during the spring melt, whereas an area with little vegetation will have earlier and higher flows but of shorter duration.

There are many ramifications of land uses within the stream corridor. Vegetation removal on the banks can affect shelter and shade for fish, cause stable stream banks to become unstable, and affect the general aesthetics of the riparian zone. Heavy livestock concentrations along streams normally results in vegetation removal, the breaking down of stream banks, and a widening and flattening of the stream channel itself. Typically this eliminates holding water for trout. Roadways alongside streams can have some of these same results. Irrigation diversion structures, bridges, and culverts that are located within the stream also can impact water quality and the fishery.

With regard to the Bitterroot, the adjoining lands in the headwaters of the East and West Forks are principally public lands managed by the Bitterroot National Forest as are most of the uplands drained by tributaries on either side of the Bitterroot Valley. From the junction of the East and West Forks downstream through the Valley to the river's mouth the adjoining lands are almost exclusively private lands. Exceptions are the Lee Metcalf National Wildlife Refuge north of Stevensville and several sections of State lands.

The stream corridor is a very important part of the recreational setting and the Department is very much concerned that it be preserved and protected. In the Valley much of the river banks are lined with a heavy growth of cottonwood, willow, aspen, and other riparian vegetation. When floating or wading the river this vegetation helps screen land uses adjoining the corridor but allows views of the mountains in the backdrop. In recent years a significant amount ofland developement has taken place within the stream corridor and many new homes have been constructed.

Public Input

Public input on the Draft Management Plan showed that many river users are concerned about continuing development within the stream corridor. A number of respondents called for the development of a Comprehensive River Corridor Management Plan.

Management Statement

On Federal lands within the corridor, the Department will work with the appropriate Federal management agency (National Forest, Fish and Wildlife Service, etc.).

For private lands, the Department will work with Ravalli and Missoula Counties. This will allow the Department's review of subdivisions and other land use proposals which are subject to the County Subdivision Regulations, Comprehensive Plans, or other local ordinances, so as to encourage that these land uses be compatible with the recreation goals of the stream corridor. Ravalli County also administers flood plain regulations which regulate the locations of structures and individual sewage disposal systems. Ravalli County has plans to update their Comprehensive Plan in the future and the Department will take an active role in this effort to encourage recognition, establishment, and preservation of a stream corridor.

The Department will work with the local Conservation Districts to assist in seeing that conservation is practiced on private lands within the stream corridor. The State Highway Department and County Road Offices will likewise be contacted regarding construction and maintenance within the corridor.

## XIII. AGENCY MANAGEMENT

A variety of agencies have management responsibilities within the Bitterroot River drainage basin. The Department, as the recreational management agency for the State of Montana and as trustee for the water which flows in the Bitterroot River on behalf of the citizens of the State of Montana, must play a key role in future management of the river. This includes the fishery, the fisheries habitat, the river users, and the stream corridor.

The Bitterroot National Forest manages 64% of the lands within the drainage basin of the Bitterroot and therefore must play a major role in management of the water quality of the river. The Goals and Objectives of the Forest Plan as they pertain to water and fish deal with the maintenance of instream flows, management of water quality, management of riparian areas, maintenance or enchancement of fish habitat, and cooperation with State and Local Agencies. In addition, the Department and the Forest have entered into a cooperative agreement which has placed a Department Fisheries Biologist in the Forest Supervisors Office to monitor Forest activities and to act as a liason between the two agencies.

The U. S. Department of the Interior, Fish and Wildlife Service, manages the Lee Metcalf National Wildlife Refuge which consists of approximately 2,500 acres and is located on the Bitterroot River several miles north of Stevensville. The Department has worked cooperatively with the Refuge in the past and will continue to in the future.

The Montana Department of State Lands has certain responsibilities as regards the evaluation and permitting of mining within the Bitterroot drainage. There are also some School Trust Lands within the drainage which this agency manages.

The Montana Department of Health and Environmental Sciences, Water Quality Bureau, administers and enforces both State and Federal water quality regulations. Through the State Surface Water Quality Standards program the Bitterroot has been classified B-1 which is the next to highest classification in the Standards. B-1 stipulates that the water quality is suitable for drinking, culinary uses and food processing after conventional treatment, allows swimming, water-based recreational uses, and is suitable for the survival and reproduction of salmonoid fisheries. The Water Quality Bureau also administers Montana's Nonpoint Source Pollution Control Program which is working to establish minimum acceptable management practices (BMP's) for agriculture and forestry for lands in Montana.

The Montana Department of Natural Resources is involved in the adjudication and management of water rights within the Bitterroot River drainage.

The Montana Department of Highways operates and maintains state highways within the Bitterroot drainage.

Ravalli and Missoula Counties operate and maintain county roads within their respective jurisdictions and control subdivision development, administer zoning, administer flood plain regulations, and other local ordinances within the Bitterroot drainage.

The Bitterroot and Missoula Conservation Districts administer the Natural Streambed and Land Preservation Act (310) with assistance from the Department in their respective jurisdictions. This law relates to construction work on private property within the high water limits of perennial streams. The Conservation Districts also work with farmers and ranches on an individual basis to conserve soil and water resources.

## Public Input

Input received by the Department throughout the development of this Management Plan has been very supportive of the Department's involvement with the various agencies who have management responsibilities within the Bitterroot drainage to insure the protection and preservation of the river and its fishery.

## Management Statement

The Department has worked in the past with all agencies who have management responsibilities within the Bitterroot drainage and the Department will continue to work with these agencies in the future. In addition, the Department will continue to support funding for a cooperative biologist with the Bitterroot National Forest. The Department, as the recreation management agency for the State of Montana, will represent the interests of all recreationalists in any and all land use and/or development proposals, whether they be public or private.