United States Department of the Interior
FISH AND WILDLIFE SERVICE

MAILING ADDRESS:
Post Office Box 25486
Denver Federal Center
Denver, Colorado 80225

STREET LOCATION:
134 Union Blvd.
Lakewood, Colorado 80228

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
FA/MT

JUN 21 1991

Bobbi Balaz
Federal Aid Coordinator
Montana Department of Fish,
Wildlife and Parks
1420 East 6th Avenue
Helena, Montana 59620

Dear Bobbi:

Enclosed is your approved copy of:

XX Application for Federal Assistance F-46-R Am.# 5

_____ Amendment to Application for Federal Assistance

XX Project Agreement F-46-R-5

_____ Amendment to Project Agreement

_____ Please note approved effective date

_____ Please note conditional statement

_____ Please note information statement

Sincerely,

Jerry J. Blackard
Deputy Assistant Regional Director
For Federal Aid
Fisheries and Federal Aid

Enclosure

STATE COPY

OMB Approval No. 0348-0043

APPLICATION FOR FEDERAL ASSISTANCE

2. DATE SUBMITTED	Applicant Identifier
June 19, 1991	
3. DATE RECEIVED BY STATE	State Application Identifier: MT910528-721-X
4. DATE RECEIVED BY FEDERAL AGENCY	Federal Identifier: F-46-R

1. TYPE OF SUBMISSION:

Application	Preapplication
☐ Construction	☐ Construction
☒ Non-Construction	☐ Non-Construction

5. APPLICANT INFORMATION

Legal Name: Montana Dept. of Fish, Wildlife and Parks

Organizational Unit: Fisheries Division

Address (give city, county, state, and zip code):
1420 East 6th Avenue
Helena, MT 59620
Lewis & Clark County

Name and telephone number of the person to be contacted on matters involving this application (give area code):
Larry Peterman, Division Administrator
406-444-2449

6. EMPLOYER IDENTIFICATION NUMBER (EIN): 81-0302402

7. TYPE OF APPLICANT: (enter appropriate letter in box) [A]

A State — H Independent School Dist.
B County — I. State Controlled Institution of Higher Learning
C. Municipal — J Private University
D. Township — K. Indian Tribe
E. Interstate — L Individual
F Intermunicipal — M Profit Organization
G Special District — N. Other (Specify) _____

8. TYPE OF APPLICATION:

☐ New ☐ Continuation ☒ Revision

If Revision, enter appropriate letter(s) in box(es): [A] [ ]

A Increase Award B. Decrease Award C Increase Duration
D Decrease Duration Other (specify):

Revise scope of work

9. NAME OF FEDERAL AGENCY:
U.S. Department of the Interior
U.S. Fish & Wildlife Service, Federal Aid

10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER: 15.605

TITLE: Federal Aid in Sport Fish Restoration D-J

11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT:

Statewide Fisheries Investigations

Amendment #5: To increase funding and revise scope of work

12. AREAS AFFECTED BY PROJECT (cities, counties, states, etc.)

Statewide

13. PROPOSED PROJECT		14. CONGRESSIONAL DISTRICTS OF:	
Start Date	Ending Date	a. Applicant	b. Project
07-01-87	06-30-92	1 - Western	1 & 2 - Western & Eastern

15. ESTIMATED FUNDING:

a. Federal	$ 7,794,780 .00
b. Applicant	$ .00
c. State	$ 26 2,598,870 .00
d. Local	$ .00
e. Other	$ .00
f. Program Income	$ .00
g. TOTAL	$ 10,393,040 .00

16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS?

a. YES THIS PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON
DATE May 28, 1991

b. NO ☐ PROGRAM IS NOT COVERED BY E.O. 12372

☐ OR PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW

17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT?

☐ Yes If "Yes," attach an explanation. ☒ No

18. TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL DATA IN THIS APPLICATION/PREAPPLICATION ARE TRUE AND CORRECT. THE DOCUMENT HAS BEEN DULY AUTHORIZED BY THE GOVERNING BODY OF THE APPLICANT AND THE APPLICANT WILL COMPLY WITH THE ATTACHED ASSURANCES IF THE ASSISTANCE IS AWARDED

a. Typed Name of Authorized Representative	b. Title	c. Telephone number
K. L. Cool	Director	406-444-3186

d. Signature of Authorized Representative: K. L. Cool

e. Date Signed: 6-14-91

Previous Editions Not Usable

Standard Form 424 (REV 3-88)
Prescribed by OMB Circular A-102

JUN 21 1991

Authorized for Local Reproduction

Jerry J. Blackard

Deputy Assistant Regional Director for [illegible]

Approved Directive

OMB Approval No. 1018-0049 Expires 07/31/1991

UNITED STATES DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
Division of Federal Aid

PROJECT AGREEMENT

DOCUMENT CONTROL	
60659	19130
ORGANIZATION CODE	DOCUMENT NO.

STATE: Montana

PROJECT NO.	SEGMENT NO.
F-46-R	5

PROJECT TITLE
Statewide Fisheries Investigations

AGREEMENT PERIOD
From: July 1, 1991
To: June 30, 1992

PROJECT COST DISTRIBUTION

	Total Cost	State Share	Federal Share
[XX] Federal Aid in Sport Fish Restoration Act (16 U.S.C. 777-777k) 50 CFR Part 80	2,937,123.71	734,280.93	2,202,842.78
[ ] Federal Aid in Wildlife Restoration Act (16 U.S.C. 669-669i) 50 CFR Part 80			
[ ] Other (specify) _____			
TOTAL	2,937,123.71	734,280.93	2,202,842.78

OTHER PROJECT PROVISIONS
Includes indirect costs at the approved rate of 17.8 percent.

Direct costs = $2,493,314

The State agrees to execute the project in accordance with the Acts checked above, and the pertinent rules and regulations of the Secretary of the Interior contained in Title 50 of the Code of Federal Regulations; the U.S. Fish and Wildlife Service Federal Aid Manual; and the previously approved Application for Federal Assistance to the extent encompassed by this Agreement, including the Assurances attached thereto.

STATE AGENCY (Name and Address)
Dept. of Fish, Wildlife and Parks
1420 East 6th Avenue
Helena, MT 59620

SIGNATURE	TITLE	DATE
Roberta J. Balos	Federal Aid Coordinator	June 18, 1991

SPECIAL PROJECT CONDITIONS

APPROVED FOR THE SECRETARY OF THE INTERIOR

SIGNATURE	TITLE	DATE
Henry J. Blackend	Deputy Assistant Regional Director for Federal Aid	JUN 21 1991

Form 3-1552
(Revised Mar. 1983)

OMB Approval No. 1018-0049 Expires 07/31/1991

UNITED STATES DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
Division of Federal Aid

PROJECT AGREEMENT

DOCUMENT CONTROL	
ORGANIZATION CODE	DOCUMENT NO.
STATE: Montana	
PROJECT NO.: F-46-R	SEGMENT NO.: 5

PROJECT TITLE
Statewide Fisheries Investigations

AGREEMENT PERIOD
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Dept. of Fish, Wildlife and Parks
1420 East 6th Avenue
Helena, MT 59620

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Roberta J. Bale	Federal Aid Coordinator	June 18, 1991

SPECIAL PROJECT CONDITIONS

APPROVED FOR THE SECRETARY OF THE INTERIOR

SIGNATURE	TITLE	DATE

Form 3-1552
(Revised Mar. 1983)

STATEWIDE FISHERIES INVESTIGATIONS
MONTANA PROJECT F-46-R-5: FY 1992

JOB #	REGION	JOB TITLE		
I-a	1	Northwest coldwater streams	$	81,691
b	2	West central coldwater streams		68,911
c	2	Upper Clark Fork trout restoration		35,967
d	2	Clark Fork/Blackfoot invest.		73,663
e	3	Southwest coldwater streams		42,016
f	3	Southwest major rivers		104,391
g	4	North central coldwater streams		79,764
h	5	Upper Bighorn River		41,130
i	5	Mid-Yellowstone drainage		58,537
j	2	Bitterroot Forest inventory		31,569
k	3	Big Hole Grayling study		31,464
l	3	Missouri River Headwaters		7,790
m	3	Gallatin Forest inventory		24,262
n	3	Electrofishing Safety Study		20,248
o	2	Upper Clark Fork EPP		51,049
p	2	Blackfoot River restoration		16,704
q	2	Bitterroot River Creel Census		28,217
r	5	Bighorn River Ranger		10,304
s	5	Bighorn Walleye Egg Collection		3,789
		Subtotal	$	811,466
II-a	1	Northwest coldwater lakes		92,543
b	2	West central coldwater lakes		17,570
c	3	Southwest coldwater lakes		27,206
d	3	Southwest major reservoirs		56,299
e	4	North central coldwater lakes		29,444
f	4	Mid-Missouri reservoirs study		89,394
g	8	Canyon Ferry Reservoir		12,796
		Subtotal	$	325,252
III-a	4	North Central warmwater streams		7,390
b	7	Southeast warmwater streams		33,042
c	7	Yellowstone River paddlefish		25,633
d	4	Missouri River pallid sturgeon		44,123
e	7	Paddlefish Roe project		19,061
		Subtotal	$	129,249
IV-a	1	Northwest warmwater lakes		20,455
b	4	North Central warmwater lakes		42,157
c	6	Fort Peck Reservoir		96,574
d	7	Southeastern warmwater lakes		28,209
e	7	Tongue River Reservoir		7,502
f	4	Tiber Reservoir Creel Census		19,772
		Subtotal	$	214,669

V-a	1	Flathead Lake/River system	75,354
b	5	South Central coldwater ecosystem	35,948
c	5	South Central warmwater ecosystem	32,672
d	6	Northeast coldwater ecosystem	13,817
e	6	Northeast warmwater ecosystem	55,189
f	5	Bighorn Lake Creel Census	8,788
g	6	Bearpaw Mountains Creel Census	6,744
		Subtotal	$ 228,512
VI-a	8	Stream protection coordination	44,591
b	8	Statistical Services	85,018
c	8	General Population Fishing Survey	12,087
d	8	Streambank permitting and surveys	41,000
e	8	Alternative irrigation structures	15,867
f	8	Fishing Access Site coordination	33,653
f	8	Fishing Access Site coordination	11,879
g	8	Statewide Angler Survey	81,896
h	8	Fishing access engineering	34,822
i	8	Bearpaw Dam Engineering Study	100,000
j	8	Evaluation of Fish Introductions	75,000
k	8	Evaluation of Fish Populations	13,922
l	1	MT Rivers Information System Support	14,531
		Subtotal	$ 564,266
VII-a	8	Fisheries Special Assignments	13,078
b	8	Missouri Reservation EIS	166,826
c	8	Water Leasing Fund	0
d	8	Water Leasing Study	40,000
		Subtotal	$ 219,904
		SUBTOTAL DIRECT COSTS	**$2,493,314**
		SUBTOTAL INCLUDING INDIRECT COSTS AT 17.8%	**$2,937,124**

75% of costs are federal; 25% is state

$2,202,843 $734,281

Regional locations include:

R-1	Kalispell	R-5	Billings
R-2	Missoula	R-6	Glasgow
R-3	Bozeman	R-7	Miles City
R-4	Great Falls	R-8	Helena
		R-9	Helena

June 17, 1991

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: I S&I - Coldwater Streams
Job No.: A (3111) NW MT Coldwater Streams
Location:

The project area is located in northwest Montana and includes all of Flathead, Lake, Lincoln, and Sanders counties and portions of Missoula and Powell counties. The region encompasses all of the Montana portions of the Flathead and Kootenai river drainages and the lower portion of the Clark Fork of the Columbia River drainage.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 81494 Federal Share: 75% State Share: 25%

Principal Investigator:

Joe E. Huston Kalispell 752-5501

Job Objectives:

Objectives:

1. Determine and maintain, within legal limits, the flows necessary to maintain or enhance existing fish populations (state funded).
2. Maintain streambanks and channels in present or improved condition (state funded).
3. Maintain water quality at or above present levels as measured by the state Water Quality Bureau and the U.S. Geological Service (state funded).
4. Maintain aquatic habitat and associated fish populations at or above present levels.
5. To maintain fish populations and harvest at acceptable levels to provide 163,300 angler days of use by 1992 and a catch rate of 0.5 fish/hour or greater.
6. To maintain a population of 1,300 rainbow trout per mile with 5 percent larger than 14 inches in the Kootenai River.
7. To maintain or expand populations or species of special concern (westslope cutthroat trout, bull trout, and inland rainbow trout).
8. Secure public access on currently used sites on private ground. Provide floating accesses 4-6 hours apart on major streams (state funded).
9. To communicate and coordinate management strategies and problems with the public and other resource agencies to maintain fish populations at or above present levels.
10. Increase angler compliance with existing laws (state funded).

Benefits:

Attainment of the objectives listed above is expected to accommodate an increase of 18,800 angler days to a total of 163,300 angler days by 1992 while maintaining existing trout stream populations. Stream flows, water quality, and aquatic habitat would remain at or near present levels. Populations of species of special concern would be maintained or expanded.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: I S&I - Coldwater Streams
Job No.: B (3211) W Ctrl. MT Coldwater Streams
Location:

The project is located in the Clark Fork River drainage area in west central Montana. It includes Mineral, Missoula, Ravalli, This Powell, Granite, Deer Lodge and part of Lewis and Clark

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 68911 Federal Share: 75% State Share: 25%

Principal Investigator:

Don Peters Missoula 542-5506
Wayne Hadley Deer Lodge 846-3270
Rod Berg Missoula 542-5520

Job Objectives:

Objectives:

1. Ensure within legal and hydrologic constraints that flows in trout streams do not fall below 1975-1985 averages.
2. Maintain existing trout populations at or above the current densities in 5 to 10 test streams.
3. Maintain 100% of the region's stream banks and channels in their present or better condition.
4. Maintain water quality at current or improved conditions as reported in the 1986 Montana 305(b) Water Quality Report to the U.S. Environmental Protection Agency.
5. Maintain fish populations and habitat in streams affected by resource development at levels at least as good as current status.
6. Implement the Bitterroot River/Painted Rocks water management plan and provide minimum instream flows at Bell Crossing consistent with the plan and water availability.
7. Maintain genetically pure WsCt populations with population structures at least as diverse as presently exists.
8. Develop a voluntary catch and release program for westslope cutthroat trout in rivers and streams to maintain genetically pure populations at least at current levels wherever they exist. (state funded)
9. Maintain bull trout populations at least at current levels.
10. Increase the number of trout over 14 inches long in the Rock Creek population to at least 200 per mile.
11. Determine if a problem exists between floating and walking anglers on Rock Creek--state funded.

12. Maintain the combined number of wild rainbow and brown trout 14 inches and larger in the Darby section of the Bitterroot River at 100 per mile and in the Tucker Section at 160 per mile. Maintain rainbow standing crop of 300, of all sizes, in the Poker Joe section downstream from Stevensville.
13. Determine extent of fry loss to irrigation ditches in key spawning tributaries in the Bitterroot. Determine time period during which ditches pose the greatest threat to migrating fry (state funded).
14. Increase the number of rainbows 12 inches and larger in the Johnsrud section of the Blackfoot River to at least 300 per mile.
15. Maintain trout populations at least at current levels in the Blackfoot River upstream from Johnsrud Park.
16. To develop in cooperation with the U.S. Forest Service a five-year management plan for Rock Creek.

Benefits:

Wild trout streams are the most important fisheries resource in the region. Stream habitat surveys, trout population surveys and angler interviews are providing information needed to solve problems with the fisheries which will help us meet our goal of providing anglers with increased opportunities to catch trout over 14 inches in total length. We have also set the goal of returning the westslope cutthroat trout and bull trout to their rightful places in the fisheries of the Big Blackfoot River and Bitterroot River thus providing improved and more diverse fishing.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: I S&I - Coldwater Streams
Job No.: C (3212) Upper Clark Fork Trout Restor.
Location:

LOCATION OF WORK:
The project is located in the Clark Fork River Basin upstream from the confluence of the Blackfoot River. It includes portions of Missoula, Granite, Powell, Deer Lodge and Silver Bow counties.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 35967 Federal Share: 75% State Share: 25%

Principal Investigator:

Wayne Hadley Deer Lodge 846-3270

Job Objectives:

Objectives:

1. Maintain instream flows at present conditions.
2. Determine why trout numbers are low and why the juvenile segment is absent from the trout population.
3. Use data collected in fish population studies and studies conducted by other agencies to direct cleanup efforts for maximum benefits to the river fishery.
4. Work with other agencies to see that data are collected which will supplement fisheries data--state funded.
5. Encourage citizen participation in river cleanup--state funded.

Benefits:

Identification of factors adversely affecting trout densities will provide the basis for developing remedial management strategies. Trout populations averaging 200 fish/mile should increase to 500 to 1000/mile for about 100 miles of the Clark Fork. Subsequent to increased opportunity, fishing pressure would increase significantly to 68,000 man`days from 20,865 man^day

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: I S&I - Coldwater Streams
Job No.: D (3213) Clark Fork/Blackfoot Invest.
Location:

Location of Work:

The project area includes the lower Clark Fork River drainage from Milltown Dam to Plains. It includes portions of Missoula, Mineral and Sanders Counties. Work will concentrate on the lower Clark Fork River and its major tributaries. Beginning in FY90 work will begin on tributaries of the Blackfoot River.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 73663 Federal Share: 75% State Share: 25%

Principal Investigator:

Rodney Berg Missoula 542-5500

Job Objectives:

Objectives:

1. Determine species distribution and abundance and relative condition of fish populations in the Clark Fork River and its tributaries.
2. Measure physical trout habitat parameters in the Clark Fork River and its tributaries and evaluate correlations with trout population characteristics.
3. Maintain trout populations and habitat conditions in the Clark Fork River and its major tributaries at levels at least as good as present status (state funded).
4. Monitor spawning migrations of rainbow, cutthroat, brown and bull trout in tributaries of the Clark Fork River.
5. Monitor outmigrations of juvenile trout from tributaries to the main stem of the Clark Fork River and determine the relative importance of various tributaries in providing recruitment to the trout population in the main river.
6. Evaluate whether recruitment is a limiting factor for trout populations in the Clark Fork River and identify factors which may contribute to the scarcity of a brown trout fishery in the Clark Fork River below Missoula.
7. Correlate parameters identified in water quality studies conducted by DFWP and other agencies with relative abundance of the fishery in the Clark Fork River (state funded).

8. Maintain water quality at or above 1984-86 average levels as measured at Montana Department of Health and Environmental Sciences water quality monitoring stations (state funded).
9. Determine and maintain adequate instream flow levels in the Clark Fork River and its major tributaries (state funded).
10. Define fish movement patterns and relative angler harvest and maintain a trout fishery on the Clark Fork River of at least 40,000 man-days per year with an average catch rate of 0.2 fish per hour.

Benefits:

Completion of this project is expected to result in a trout fishery sustaining 40,000 angler-days of use per year with a total catch rate of 0.2 fish per hour. Trout habitat and water quality and quantity will be maintained at levels at least as good as present status. Management recommendations will be made and implemented to enhance trout reproduction and recuritment to increase densities of catchable trout.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: I S&I - Coldwater Streams
Job No.: E (3311) SW MT Coldwater Streams
Location:

The project area located in southwestern Montana and encompassed FWP Region 3.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 42016 Federal Share: 75% State Share: 25%

Principal Investigator:

E. Richard Vincent, Regional Fisheries Manager
Wade Fredenberg, Fisheries Program Specialist
Brad Shepard, Fisheries and Wildlife Biologist III
Ron Spoon, Fisheries and Wildlife Biologist III
Dick Oswald, Fisheries and Wildlife Biologist III
Jeff Bagdanov, Fisheries Field Worker II

Job Objectives:

Objectives:

1. Insure within hydrologic constraints that flows do not fall below levels identified in the Yellowstone reservations and the Upper-Missouri Reservations application.
2. Maintain existing populations of native Yellowstone and west slope cutthroat at present or increasing levels.
3. Maintain fish populations and habitat in streams affected by resource development activity at levels no worse than present condition.
4. Encourage the USFS to redistribute grazing allotments to encourage recovery and stabilization of streambanks and riparian areas.
5. Document response of Bison Creek trout population to removal of granitic sands.
6. Collect baseline fisheries data on Deep Creek to assist in determining impacts of highway construction.
7. Maintain the region's streambanks and channels in their present or improved condition.
8. Maintain water quality levels as near to baseline as possible.
9. Maintain a wild trout fishery in the East Gallatin River that supports 20,000 angler days of use annually.
10. Maintain densities of at least 1000 age II and older brown

trout per mile in Ruby River downstream from Ruby Dam supporting 7500 angler days of use annually.
11. Maintain densities of at least 2500 age I and older brown trout per mile in Poindexter Spring Creek.
12. Improve habitat conditions in spring creeks of the region.
13. Maximize potential of unique small streams capable of producing large trout by utilizing special regulations on selected reaches subject to intense fishing pressure.
14. Gather population data on reaches of the upper Ruby and Red Rock Rivers and 16-Mile and Willow Creek.

Benefit:

Reaching the objective listed above is expected to result in 150,000 angler days of use. Angling opportunity and diversity should be increased which will increase angler satisfaction. Habitat conditions within the region should remain static or slightly improving. Populations of native cutthroat trout should remain static or show an upward trend.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: I S&I - Coldwater Streams
Job No.: F (3312) SW MT Major Rivers Invest.
Location:

Madison, Gallatin, Jefferson, Yellowstone, Big Hole and Beaverhead Rivers located in southwestern Montana.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 104391 Federal Share: 75% State Share: 25%

Principal Investigator:

E. Richard Vincent, Regional Fisheries Manager
Wade Fredenberg, Fisheries Program Specialist
Brad Shepard, Fisheries and Wildlife Biologist III
Ron Spoon, Fisheries and Wildlife Biologist III
Dick Oswald, Fisheries and Wildlife Biologist III
Jeff Bagdanov, Fisheries Field Worker II

Job Objectives:

Madison River Objectives

1. Maintain a minimum flow >700 cfs at the Kirby gage below Quake Lake and >1100 cfs downstream from Ennis Dam.
2. Maintain wild trout population >3000 age II and older trout/mile below Ennis Dam and determine effects of water temperature on catch rates.
3. Maintain channel and streambanks in present or improved conditions.
4. Maintain aesthetic quality of upper Madison River fishing experience.
5. Maintain densities of wild trout >13" at >1200/mile between Quake Lake and McAtee Bridge (catch and release section).
6. Maintain densities of wild trout >13" at 1200/mile between Varney Bridge and Ennis Lake with the opportunity of catching large size (>18") brown trout.
7. Attempt to disperse angler use in the Quake Lake to Ennis Lake reach. Continue to provide spatial segregation for bank and boat anglers, where possible.

Yellowstone River Objectives

1. Reduce magnitude of irrigation season dewatering in spawning tributaries during cutthroat trout spawning and incubation periods.
2. Maintain channel and streambanks in present or improved condition.

3. Maintain water quality and aesthetics of river.
4. Maintain a catch rate of 0.5 fish/hr. with trout population densities >1000 fish greater than 9"/mile and 50 cutthroat trout over 12"/mile.
5. Increase cutthroat trout numbers in Yellowstone River.
6. Provide increased opportunity to catch large trout in a reach of the Yellowstone River.
7. Acquire a suitable fishing access site between Highway 89 and Springdale.

Big Hole River Objectives

1. Insure, within hydrologic constraints, that flows do not fall below minimum of 300 cfs in reach I, 200 cfs in reach II, and 100 cfs in reach III of the Big Hole River.
2. Maintain channel and streambanks of the Big Hole River in present or improved state of stability.
3. Maintain instream sediment levels and flow regime at average current levels.
4. Maintain fluvial grayling populations at a minimum of 40 age II and older fish per mile upstream from Pintlar Creek.
5. Maintain brown trout populations in lower river (Glen Access to mouth) at densities >1000 age II and older fish/mile with limited numbers of rainbow trout.
6. Maintain bronw trout populations in lower, mid-river (Divide to Glen Access) at densities >750 age II and older fish/mile and rainbow trout densities >1000 age I and older fish/mile.
7. Maintain rainbow trout population in upper mid-river (Pintlar Creek to Divide) at densities >1300 age I and older fish/mile and brown trout densities at >200 age II and older fish/mile with limited numbers of fluvial grayling and brook trout.
8. Maintain native, fluvial grayling populations at a minimum of 40 age II and older/mile in upper river (Headwaters to Pintlar Creek) and densities of age II and older brook trout at >400 per mile.
9. Maintain numbers of large brown trout (>18") at densities >100/mile and large rainbow trout (>15") at densities >100/mi in special regulation section (Divide to Melrose).
10. Collect information on fishing pressure, harvest, catch rates, angler attitude and preference to assist in responsible management.
11. Provide increased user access to Big Hole River between the Notch and Pennington Bridge.
12. Provide increased acreage of public land in Big Hole River Corridor.
13. Keep Big Hole River management current with angler needs and expanding recreational demand.
14. Mitigate or eliminate deleterious effects of planned developments in the fishery of the Big Hole River including water quality and quantity and aesthetic values.

Beaverhead River Objectives

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

2. Eliminate gas bubble trauma in Beaverhead River trout populations.
3. Insure that operation of proposed hydroelectric generator does not alter flow regimes or temperatures of discharge and utilize hydro generation to eliminate gas supersaturation problems.
4. Maintain densities of >250 brown trout 18" and larger/mile and >150 rainbow trout 18" and larger/mile above Henneberry. Maintain densities of >1000 age II and older brown trout and >600 age I and older rainbow trout per mile above Henneberry.
5. Collect population information for lower Beaverhead River (downstream from Barretts) to assist in management decisions.
6. Maintain or increase numbers of rainbow trout in river upstream from Barretts.
7. Collect information on fishing pressure, harvest, catch rates, angler preferences and attitudes to assist in managing for high quality angling experience.
8. Increase angler use of Beaverhead River downstream from Barretts in an effort to decrease use of upper river.
9. Keep Beaverhead River management current with anglers needs and expanding recreational demand.
10. Maintain channel and streambanks in present or improved state of stability.

Gallatin River Objectives

1. Maintain channel and streambanks in present or improved condition.
2. Mitigate and reduce irrigation season dewatering in Gallatin River.
3. Decrease magnitude of sediment and turbidity from Taylor Fork and Sage Creek.
4. Maintain wild trout populations of >2500 age II and older fish per mile upstream from Gallatin Gateway.
5. Determine potential of establishing a large trout management area between the mouth of the Canyon and Gallatin Gateway.

Jefferson River Objectives

1. Insure, within hydrologic constraints, that flows do not drop below 550 cfs at the Three Forks gage.
2. Maintain channel and streambanks in present or improved state of stability.
3. Increase numbers of rainbow trout to >200 age I and older/mi.
4. Maintain densities of >450 age II and older brown trout/mile from mouth to Boulder River and >600 age II and older brown trout/mile between the Boulder River and the head of the river.
5. Increase recreational use of the Jefferson River.
6. Acquire additional access sites at Kountz Bridger and Waterloo Bridge.
7. Elevate public awareness of values of fishery.

Madison River

Fulfilling the objectives listed above is expected to result in a diverse wild trout fishery sustaining 125,000 angler days of use annually with catch tares >1.0 fish/hr. Angler satisfaction with the Madison River fishing experience is expected to increase with segregation of user types and protection of the scenic

corridor. Increased knowledge of the lower river fishery, including the impact of Ennis Dam on summer catch rates is expected to benefit management decisions. Increase angler contacts should result in fewer social conflicts and a better understanding of angler preferences. Habitat and flow protection efforts are expected to maintain existing conditions. The economic importance to Ennis, West Yellowstone and Bozeman due to the magnitude of nonresident fishermen is expected to increase.

Yellowstone River

Reaching the objectives listed above is expected to result in a wild trout fishery sustaining 70,000 angler days of use per year, with average catch rates of 0.5 fish/hr. Angler satisfaction can be expected to increase with increased numbers of cutthroat trout and maintenance of the larger trout management area. Establishment of a corridor management plan would provide long-term protection for water quality and preserve the aesthetic experience of floating the Yellowstone River. Habitat and flow protection efforts are expected to maintain existing conditions, commercially guided nonresident users of the fishery is expected to increase.

Big Hole River

Reaching the objectives listed above is expected to result in a wild trout fishery sustaining 60,000 angler days of use annually providing catch rates of >1.0 fish/hr. Angler satisfaction is expected to remain static or increase as diversity of opportunity is maintained or enhanced. The fluvial grayling population would remain or increase slightly if objectives are achieved. Opportunities to catch larger trout in the special management area would remain high and access to the lower river would improve. Habitat flow protection efforts are expected to retain existing conditions. The economic importance of this fishery to Dillon, Melrose, Wise River, and Wisdom is expected to increase with the growth of nonresident use and their reliance on commercially guided trips.

Beaverhead River

Reaching the objectives listed above is expected to result in a wild trout fishery sustaining 30,000 angler days/year with catch rates >1.0 fish/hr. Angler satisfaction is expected to increase if use can be spread out over more of the river. Habitat and flow protection efforts are expected to retain present conditions. The economic importance of this fishery to Dillon is expected to increase as greater numbers of nonresidents are attracted to this trophy fishery.

Gallatin River

Reaching the objectives listed above is expected to result in a wild trout fishery sustaining 70,000 angler days/year with a catch rate >1.0 fish/hr. Habitat and flow protection efforts should result in no further deterioration of present conditions. The economic importance of this fishery to Bozeman will increase with expanded use by residents and nonresidents.

Jefferson River

Reaching the objectives listed above is expected to provide a wild trout fishery supporting 25,000 angler days of use. Increasing numbers of rainbow trout in the Jefferson River should increase the angler satisfaction. Efforts in flow and habitat preservation should result in retaining present conditions. increasing angler use may relieve congestion on other more heavily used rivers in the area.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: I S&I - Coldwater Streams
Job No.: G (3411) N Ctrl. MT Coldwater Streams
Location:

Northcentral Montana

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 79764 Federal Share: 75% State Share: 25%

Principal Investigator:

George Liknes, Bill Hill

Job Objectives:

Objectives:

1. To establish viable trout fisheries in Marias River below Tiber Dam and in Sun River below Diversion Dam for recreational fishing.
2. To ensure, within hydrologic constraints, that flows in streams supporting trout populations do not fall below 1976-86 averages.
3. To maintain summer survival flow of at least 50 cfs in the Smith River at Camp Baker.
4. To maintain undisturbed riparian zones where they currently exist on Smith and Missouri rivers. (state funded)
5. To maintain undisturbed riparian zones where they currently exist on Smith and Missouri rivers. (state funded)
6. To maintain water quality at or above 1975-85 average levels as monitored at USGS stations.
7. To maintain habitat and species of special concern at present levels or better in streams affected by resource development activities. (state funded)
8. To ensure that mid-Missouri reservoir operations maintain a minimum flow of 4100 cfs 8 years out of 10 in the Missouri from Holter Dam to Ulm.
9. To evaluate contribution and influence of hatchery rainbow trout flushed from upstream reservoirs on wild trout fishery in Missouri River downstream of Holter Dam.
10. To increase rainbow and brown trout spawning habitat in three tributaries to the Missouri River from Holter Dam to Cascade. (state funded)
11. To maintain trout populations at or above 1984 levels in Tresch Section and 1978 levels in Burleigh Section of Big Spring Creek near Lewistown.
12. To provide 80,000 angler-days annually and average catch rate of 0.4 trout/hour in Missouri River between Holter Dam and Cascade.

13. To evaluate special slot-limit for trout on Smith River and modify regulations to balance angler harvest with population structure if warranted.
14. To maintain trout populations in regional streams at present levels or higher.
15. To allow harvest of one trout over 12" in USFS streams along Rocky Mountain Front if compatible with stream fishery resources. (state funded)
16. To obtain at least two fishing access sites on the Sun River between the towns of Augusta and Sun River, and on the lower Dearborn River and on the upper Smith River. (state funded)

Benefits:

The project is designed to maintain or improve the quality of an angler-day and maintain and improve angler access to streams and rivers. The goal is to preserve trout habitat for maintenance and improvement of wild trout populations that can sustain 248,000 angler-days of use.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: I S&I - Coldwater Streams
Job No.: H (3511) Upper Bighorn River Study
Location:

The project area is located in Big Horn County, southcentral Montana. The river reach involved in this project starts at the Yellowtail Afterbay Dam (located approximately 80 miles southeast of Billings) and flows north approximately 32 miles to Two Leggins FAS.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 41130 Federal Share: 75% State Share: 25%

Principal Investigator:

Kenneth J. Frazer, Billings, (406)252-4654

Job Objectives:

1. To maintain a year-round minimum flow in the upper Bighorn River of at least 2,000 cfs in eight out of 10 years and at least 2,500 cfs in five out of 10 years.

2. To eliminate gas bubble trauma as a significant cause of trout mortality.

3. To maintain average population densities of 5,000 to 7,000 age one and older brown trout and at least 500 18-inch and longer brown trout per mile in the Bighorn River upstream of Bighorn Fishing Access Site (FAS), and to maintain 1,500 to 2,500 age one and older brown trout per mile between Bighorn FAS and Two Leggins FAS.

4. To maintain average population densities of at least 1,000 age one and older rainbow trout and 150 18-inch and longer rainbow trout per mile in the Bighorn River upstream of Bighorn FAS and to maintain at least 500 age one and older rainbow trout per mile between Bighorn FAS and Two Leggins FAS.

5. To redistribute angler use to achieve use levels of no more than 3,000 angler-days per month above Bighorn FAS and at least 10,000 angler-days annually between Bighorn and Two Leggins FAS (state-funded).

6. To make at least 750 creel census contacts per year to assess angler success and opinions (state-funded).

Fullfilling the objectives listed above is expected to result in a wild trout fishery sustaining 30,000 to 40,000 angler-days of use per year, with total trout catch rates of 0.5 fish per hour and a trophy trout (> 18 inches) catch rate of 0.05 fish per hour. Angler satisfaction with the Bighorn River fishery is expected to increase as angler use is redistributed. Increased angler contacts should result in more public participation in fisheries management, better compliance with regulations and fewer social conflicts.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: I S&I - Coldwater Streams
Job No.: I (3512) Mid-Yellowstone Drainage
Location:

The mid-Yellowstone River drainage is located in Sweet Grass, Stillwater, Carbon, and Yellowstone counties of south central Montana.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 58537 Federal Share: 75% State Share: 25%

Principal Investigator:

Michiel D. Poore, Columbus, (406)322-4743

Job Objectives:

1. To maintain the region's streambanks and channels in their present or improved condition.

2. To ensure, within hydrologic constraints, that flows in streams supporting fisheries do not fall below minimums identified during the Yellowstone River instream reservation process.

3. To maintain water quality at or above 1975-85 average levels as measured at USGS water quality monitoring stations.

4. To maintain fish populations and habitat in streams affected by resource development activity at levels at least as good as present status.

5. To reduce impacts on river stability and fish habitat caused by yearly maintenance at headgate structures.

6. To maintain a minimum of 123,000 angler-days per year within the mid-Yellowstone drainage (state-funded).

7. To redistribute fishing pressure and minimize overcrowding through the purchase of additional access sites in key areas. (These areas include Rock Creek between Roberts and Joliet; Yellowstone River at Big Timber, between Columbus and Reedpoint, and between Columbus and Laurel; and on the East and West Rosebud drainages.)

8. To maintain riparian and floodplain areas in their natural condition.

9. To complete cutthroat trout inventory in one drainage of the mid-Yellowstone reach each year beginning in 1989 (state-funded).

10. To complete inventory of cutthroat trout in the Three Forks of the Boulder drainage, East Fork 1990, West Fork 1991, and Main Boulder 1992 (state-funded).

11. To increase public awareness of the diversity of opportunities and hazards of water-based recreation on mid-Yellowstone (state-funded).

12. To improve level of understanding among anglers regarding management policies and options, and encourage their participation in the decision-making process.

13. To protect and maintain rainbow spawning areas in the upper Stillwater River in their present condition.

14. To maintain cutthroat population numbers in Meatrack Creek at or above 1984 levels.

Fulfillment of the objectives listed above is expected to result in 123,000 angler-days of use for various fish species, including 51,000 angler-days in the mainstem mid-Yellowstone reach, 17,000 angler-days in the Clarks Fork drainage, 35,000 angler-days in the Stillwater drainage, and 20,000 angler-days in the Boulder drainage. Habitat for fish species should be preserved or potentially enhanced, and viable populations of species of special concern maintained. With the procurement of additional access sites, crowding and social conflicts should be reduced. More even distribution of fishing pressure and less potential for overharvest is expected. Increased angler contacts should result in better understanding of management problems and objectives, and lead to increased public participation in fisheries management.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: I S&I - Coldwater Streams
Job No.: J (3231) Bitterroot Forest Inventory
Location:

This project is located entirely in the Bitterroot River Drainage and is encompassed by Ravalli and a small portion of Missoula County.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 31569 Federal Share: 75% State Share: 25%

Principal Investigator:

Christorpher Clancy, Hamilton 363-3131

Job Objectives:

Objectives:
1. To develop a fish habitat monitoring program related to land management activities on the Bitterroot National Forest.
2. To develop a fish population monitoring program which will measure the fit of existing fish-habitat model and provide a means of updating model parameters.
3. To interprete fish population and fish habitat information to Bitterroot national Forest project staff.

Benefits:

This project will provide fisheries data for project planning and long term tracking of the effects of forest practices on the fisheries resource on the Bitterroot National Forest. Land management decision makers will have readily available information and interpretation of fishery resource data. The state of Montana will be able to maintain closer contact with the Bitterroot National Forest regarding land management planning and monitoring.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: I S&I - Coldwater Streams
Job No.: K (3324) Big Hole Grayling Study
Location:

The project is located on the Big Hole River with primary emphasis on the upper reach above Divide.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 31464 Federal Share: 75% State Share: 25%

Principal Investigator:

E. Richard Vincent, Regional Fisheries Manager
Vacant, Fisheries and Wildlife Biologist III
Dick Oswald, Fisheries and Wildlife Biologist III

Job Objectives:

Objectives:

1. Make population estimates of fluvial arctic grayling on the McDowell - Wisdom study sections during the spring (June) with the objective of maintaining arctic grayling populations of at least 40 II and older grayling per mile (Headwaters of Big Hole to Pintlar Creek).
2. Make a September population estimate of arctic grayling for the entire McDowell - Divide reach of the Big Hole River.
3. Determine spring spawning migration of adult grayling using a tagging and electrofishing survey.
4. Determine the Fall - Winter migration of grayling to winter habitat using fish tags, electrofishing and radio telemetry gear.
5. Capture and spawn 10-15 ripe female grayling to continue to stock in Axolotl lake to establish a wild brood stock of fluvial grayling. 6. Trap and spawn the fluvial arctic grayling established in Axolotl Lake taking eggs and sperm to hatchery for rearing a restocking in the Big Hole River study area. 7. Mark and evaluate the success of grayling stocked into the Big Hole River from grayling spawned from the Axolotl and hatchery brood of fluvial arctic grayling. 8. Map and inventory grayling habitat using aerial photography, orthoquads, physical and observational measurements. Habitat would include: 1) spawning areas, 2) rearing areas, 3) summer, and 4) wintering areas. 9. Determine thermal suitability using USGS gage at Wisdom and four thermographs placed downstream from Wisdom. 10. Monitor losses of young-of-the-year grayling to larger irrigation diversions upstream from Wisdom using electrofishing gear. 11. Conduct a hooking mortality study which

would monitor losses of angler released grayling held in live cars for a 24 hour period.

Benefits:

Maintaneance or enhancement of the fluvial arctic grayling to insure a longterm selfsustaining population and provide anglers the opportunity to catch the rare fluvial arctic grayling.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: I S&I - Coldwater Streams
Job No.: L (3912) Missouri River Headwaters
Location:

The project area is located in southwestern Montana including Broadwater county.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 7790 Federal Share: 75% State Share: 25%

Principal Investigator:

E. Richard Vincent, Regional Fisheries Manager
Ron Spoon, Fisheries and Wildlife Biologist III

Job Objectives:

Missouri River Objectives:

1. Insure, within hydological constraints, that flows do not fall below 1500 cfs above Canyon Ferry Reservoir.
2. Maintain channel and streambanks of the Missouri River in present or improved state of stability.
3. Enhance run of rainbow and brown trout out of Canyon Ferry Reservoir.
4. Increase reproduction of brown trout and rainbow trout (state funded).

Benefits:

Reaching the objectives listed above is expected to result in a wild trout fishery augmented with a fall wild brown trout and a spring wild rainbow trout spawning run that will provide 20,000 angler days of use annually. Maintainence of quality spawning runs should increase angler satisfaction. Efforts at flow and habitat preservation are expected to maintain present conditions.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: I S&I - Coldwater Streams
Job No.: M (3315) Gallatin Forest Inventory
Location:

Located in the Gallatin River and Hebgen Reservoir drainage.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 24262 Federal Share: 75% State Share: 25%

Principal Investigator:

E. Richard Vincent, Regional Fisheries Manager
Mike Hensler, Fisheries and Wildlife Biologist

Job Objectives:

Objectives:

1. Determine the degree of recruitment of rainbow trout into the Gallatin River from tributaries originating on the Gallatin National Forest.
2. Maintain the quality of existing spawning and rearing habitat for rainbow and westslope cutthroat trout in Gallatin River tributaries located on the Gallatin National Forest.
3. Maintain existing levels of salmonid fisheries in mountain lakes in the Gallatin National Forest in the Gallatin and Madison River drainages.
4. Determine the degree of recruitment of brown, cutthroat and rainbow trout into Hebgen Reservoir from tributaries located on the Gallatin National Forest.
5. Maintain the quality of existing spawning and rearing habitat for brown, cutthroat and brown trout in tributaries of Hebgen Reservoir originating on the Gallatin National Forest.
6. Maintain or improve present populations of westslope cutthroat trout in streams of the Gallatin and Madison River drainages on the Gallatin National Forest.

Benefits:

The west slope cutthroat trout will be protected for use by anglers. Tributary fisheries will be managed to provide a maintenance of existing Gallatin River and Hebgen Reservoir wild trout fisheries or to increase existing fisheries. High mountain lake salmonid fisheries would be maintained at present levels or increased, if objectives are fulfilled.

Last Update: 06/14/91 Printed on 06/14/91

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: I S&I - Coldwater Streams
Job No.: N (3316) Electrofishing Safety Study
Location:

Various waters throughout the State of Montana.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 20248 Federal Share: 75% State Share: 25%

Principal Investigator:

E. Richard Vincent, Regional Fisheries Manager
Wade Fredenberg, Fisheries Program Specialist

Job Objectives:

1. Review existing literature relating to electrofishing injury to fish electroshocked.

2. Test various types of electrofishing units by electrofishing rainbow trout with each unit under different water temperatures and conductivities and analyzing electroshocked fish via x-rays and autopsies.

3. Determine the effect of electrofishing on various species of fish, such as rainbow trout, brown trout, cutthroat trout, arctic grayling, sturgeon, walleye and mountain whitefish.

4. Determine if electrofishing has any long term effects on growth, survival, and reproduction of wild fish.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: I S&I - Coldwater Streams
Job No.: O (3232) Upper Clark Fork EPP
Location:

Clark Fork River Basin upstream from Missoula involving portions of Missoula, Granite, Powell, Deer Lodge, Lewis and Clark and Silver Bow Counties.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 51049 Federal Share: 75% State Share: 25%

Principal Investigator:

unknown

Job Objectives:

The Clark Fork River trout populations, upstream from Missoula, are below expected levels by at least a factor of 10 in most sections of the river. Consequently, over 100 miles of river supports only a fraction of the fishing pressure supported by its tributary streams. Correcting the problems and restoring the trout and whitefish populations would pay rather large dividends to the communities along the river as well as the state. In addition, angling pressure could be more evenly distributed across regional waters potentially involving the quality of fishing experiences on other waters as well as the upper Clark Fork.

Therefore, the objectives are to 1) collect, compile and analyze fish population and habitat data on the Clark Fork and its tributaries; 2) to assist in bringing the Natural Resource Damage Claim against Atlantic Richfield Company to a conclusion in favor of an improved trout fishery in the Clark Fork River.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: I S&I - Coldwater Streams
Job No.: P (3233) Blackfoot River Restoration
Location:

Blackfoot River Basin

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 16704 Federal Share: 75% State Share: 25%

Principal Investigator:

Don Peters
Ron Pierce

Job Objectives:

Objectives:

1. To develop and implement habitat restoration and improved land use projects in cooperation with landowners and other resource agencies.

2. To identify areas needing maintenance and improvement: streambanks, channels and spawning grounds in the Blackfoot River drainage.

3. To communicate and coordinate fish management strategies and problems with the public and other resource agencies.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: I S&I - Coldwater Streams
Job No.: Q (3234) Bitterroot River Creel Census
Location:

This project is located in the Bitterroot River Drainage and is encompassed by Ravalli and a small portion of Missoula counties.

Job Duration: December 1, 1991 through November 30, 1992

Cost: $ 28217 Federal Share: 75% State Share: 25%

Principal Investigator:

Christopher Clancy, Hamilton 363-3131

Job Objectives:

To provide statistically valid estimates of angler pressure, catch rates, and gamefish harvest for one complete year for the Bitterroot River from the confluence of the east and west forks to the river's mouth.

Last Update: 06/14/91 Printed on 06/14/91

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: I S&I - Coldwater Streams
Job No.: R (3513) Bighorn River Ranger
Location:

Bighorn River

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 10304 Federal Share: 75% State Share: 25%

Principal Investigator:

James E. Darling Billings 252-4654

Job Objectives:

1. To collect creel and angler attitude and opinion information during the peak-use season from April through November.

2. To encourage proper angler etiquette under crowded conditions.

3. To assist MDFWP biologists as necessary with annual sampling to determine fish population status.

Angler information would be used to update fisheries management plans, set fishing regulations, and develop strategies for regulating use on overcrowded sections of the Bighorn River. In the absence of a highly visible representative on the river, the Department would miss the opportunity to diffuse angler conflicts quickly, detect violations, and give accurate information about the fishery and its management.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: I S&I - Coldwater Streams
Job No.: S (3562) Bighorn Walleye Egg Collection
Location:

Bighorn Lake

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 3789 Federal Share: 75% State Share: 25%

Principal Investigator:

James E. Darling Billings 252-4654

Job Objectives:

To expand the walleye egg taking operations at Bighorn Lake to meet increased state demands for eggs.

Montana will become more self-sufficient in obtaining walleye eggs required to meet state demands and to fully utilize the hatching and rearing facilities provided by the remodeled Miles City hatchery. The increased interest in warm and cool-water fisheries that has increased demand for walleye stocking through Montana will be better met.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: II S&I - Coldwater Lakes
Job No.: A (3121) NW MT Coldwater Lakes
Location:

The project area is located in northwest Montana and includes all of Flathead, Lake, Lincoln, and Sanders counties and portions of Missoula and Powell counties. The region encompasses all of the Montana portions of the Flathead and Kootenai River drainages and the lower portion of the Clark Fork of the Columbia River drainage.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 92543 Federal Share: 75% State Share: 50%

Principal Investigator:

Joe E. Huston Kalispell 752-5501

Job Objectives:

Objectives:

1. Manage lake and reservoir water levels to minimize impacts on fish populations (state funded)
2. Maintain water quality at present levels as measured by the WQB (state funded)
3. Maintain aquatic habitat at a level capable of sustaining existing populations (state funded)
4. Increase the opportunity to catch larger trout (14" at 0.5 fish/hour) in specified lakes.
5. Provide lake fisheries to sustain an increase of 32,600 angler days by 1992 through natural reproduction and hatchery plants. Provide kokanee fisheries for 12"-14" fish at a catch rate of 1 fish/hour.
6. Provide a variety of trout sizes and species for angling and to predate on stunted salmon.
7. Manage regulations and stocking to protect or expand species of special concern (state funded)
8. Develop management plans to adapt to the introduction of Mysis and other unwanted species.
9. Coordinate with other agencies to maintain fisheries and water quality at or above present levels (state funded)
10. Encourage public participation in understanding the problems and strategies of resource management.
11. Increase angler compliance with existing fishing regulations (state funded).
12. Attempt to acquire sites and provide facilities on all lakes

and reservoirs capable of sustaining more than 300 mandays of fishing per year on a priority basis at the rate of one lake per year.

Benefits:

Attainment of the above objectives is expected to accommodate an increase of 32,600 angler days by 1992 to a total of 283,600 mandays while maintaining existing salmonid populations in lakes and reservoirs. Water quality and aquatic habitat would remain at or near present levels. Populations of species of special concern would be maintained or expanded. Fishermen would have a greater diversity of fishing opportunities with a greater chance of catching large trout or salmon in some waters (new species available) and increased access opportunities in the region.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: II S&I - Coldwater Lakes
Job No.: B (3221) W Ctrl. MT Coldwater Lakes
Location:

LOCATION OF WORK:
The project area is located in west central Montana, including the counties of: Silver Bow, Deer Lodge, Granite, Powell, Lewis and Clark, Mineral, Ravalli and Missoula.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 17570 Federal Share: 75% State Share: 25%

Principal Investigator:

Don Peters Missoula 542-5506
Wayne Hadley Deer Lodge 846-3270

Job Objectives:

Objectives:

1. Develop an average size rainbow trout in the Georgetown Lake winter creel to 14 inches.
2. Develop a current mountain lake data base on all mountain lakes in Region 2--state funded.
3. Develop mountain lake management plans for ecological units emphasizing wild trout.
4. Increase trout populations to produce overnight gill net catches of 5 fish per net and a mean size of 12 inches--state funded.
5. Increase yellow perch mean size to 9 inches--state funded.
6. Increase size of kokanee in the creel to 10 inches or greater in the Georgetown Lake winter fishery.

Benefits:

Fulfillment of the objectives listed above is expected to result in an increase in angler use from the current estimate of 161,000 man-days to approximately 166,000 man-days by 1992.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: II S&I - Coldwater Lakes
Job No.: C (3321) SW MT Coldwater Lakes
Location:

The project sites encompasses administrative Region 3 (Southwestern Montana)

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 27206 Federal Share: 75% State Share: 25%

Principal Investigator:

E. Richard Vincent, Regional Fisheries Manager
Wade Fredenberg, Fisheries Program Specialist
Brad Shepard, Fisheries and Wildlife Biologist III
Ron Spoon, Fisheries and Wildlife Biologist III
Dick Oswald, Fisheries and Wildlife Biologist III
Jeff Bagdanov, Fisheries Field Worker II

Job Objectives:

Objectives:
1. Increase late summer and fall reservoir pool in Ruby Reservoir (post irrigation levels) to provide greater amount of aquatic habitat.
2. Insure that land uses do not adversely affect lake water quality or tributary stream spawning habitat.
3. Collect necessary information to properly manage mountain lake fisheries as time and funding allows.
4. Maintain catch rates at an acceptable level for mountain lake cutthroat fisheries.
5. Maintain wild rainbow trout fishery in Hidden Lake sustaining 1000 angler days/yr. with catch rates of >0.5 fish/hr. Maintain densities reflected in average sample of >20 fish per 125 foot floating gill net set.
6. Maintain fishery of Elk Lake sustaining 4000 angler days/yr. with catch rates of 0.5 fish/hr. Maintain densities reflected in average sample of >18 cutthroat per 125 foot gill net set with opportunity to catch trophy grayling.
7. Maintain wild rainbow and brown trout fishery in Ruby Reservoir sustaining 4000 angler days/yr. with catch rates of 0.5 fish/hr. and rainbow densities reflected in average samples of >18 fish per gill net set.
8. Develop a consistent rainbow trout fishery with the opportunity to catch edible size yellow perch in Dailey Lake.
9. Introduce Eagle Lake strain rainbow trout to Haypress Lakes and

establish population as a brood source for further introductions.
10. Manage Culver Pond as a trophy brook trout fishery with the opportunity of catching brook trout >18 inches.
11. Manage McDonald Pond as a trophy rainbow trout fishery with the opportunity of catching rainbow trout >18 inches.
12. Provide opportunity for catching trophy size cutthroat trout in selected mountain lakes of the region.

Benefits:

Fulfilling the objectives listed above is expected to maintain a mountain lake and reservoir fishery program that will support 100,000 angler days of use. Increased data collection and survey work will increase management intensity and should result in increased angler satisfaction.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: II S&I - Coldwater Lakes
Job No.: D (3322) SW MT Major Reservoirs
Location:

The project area is located in southwestern Montana and includes Beaverhead, Madison, Gallatin and Broadwater Counties. Clark Canyon Reservoir is a 5427 acre impoundment of the Beaverhead River. Hebgen Reservoir is a 13,300 acre impoundment of the Madison River. Willow Creek Reservoir is a 600 acre impoundment of Willow Creek.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 56299 Federal Share: 75% State Share: 25%

Principal Investigator:

E. Richard Vincent, Region Fisheries Manager
Wade Fredenberg, Fisheries Program Specialist
Dick Oswald, Fisheries and Wildlife Biologist III
Jeff Bagdanov, Fisheries Field Worker II

Job Objectives:

Clark Canyon Reservoir Objectives

1. Maintain shoreline in a state of minimal development to satisfy access needs of recreationists and maintain shoreline integrity and water quality.

2. Maintain wild brown trout populations at intensities reflected by an average sample of >2.0 adult brown trout per surface 125 foot gill net set.

3. Maintain successful stocking program of Arlee rainbow trout to attain densities reflected by an average spring sample of 4.0 per 125 foot gill net set. Maintain growth rates that produce 15 inch rainbow trout at age I+.

4. Establish wild, spring spawning DeSmet strain of rainbow trout to augment the planting program of Arlee rainbow and provide a longer lived, reproducing segment to the rainbow fishery.

5. Evaluate the comparative success of the DeSmet and Arlee strains of rainbow regarding catchability, longevity,

survival, growth and recruitment to the Clark Canyon fishery.

6. Maintain a fishey for large (20-25") wild burbot sustaining a catch rate of 0.25 fish/hr.

Hebgen Reservoir Objectives

1. Maintain a shoreline in a state of minimal development while providing sufficient access for anglers. Protect spawning streams from impacts of development.

2. Establish wild, self-sustaining rainbow population at densities reflected in a sample of >10 adults per 125 foot surface gill net set in spring of year.

3. Maintain wild brown trout populations at densities reflected in a sample of >18 adults per 125 foot bottom gill net set in spring of year. Maintain averages of 16" in creel with opportunity of catching large, trophy brown trout (>3 lbs.).

4. Collect the information necessary to accurately assess fishing pressure, catch rates and harvest.

5. Provide rainbow and cutthroat to anglers without jeopardizing the establishment of self-sustaining populations.

Willow Creek Reservoir Objectives

1. Attempt to reduce magnitude of reservoir drawdown in fall of year.

2. Determine time of out-migration of rainbow trout fry from spawning streams.

3. Maintain a spawning run of at least 2500 adult wild rainbow trout in Willow Creek as the state brood stock of DeSmet rainbow.

Clark Canyon Reservoir

Reaching the objectives listed above is expected to produce fishery sustaining at least 60,000 fishermen days annually with catch rates of at least 0.3 fish/hr. and 0.05 fish/hr. for trophy trout (>3.0 lbs.). Establishing a wild rainbow component to the rainbow fishery is expected to provide a more consistent fishery and may eliminate or reduce the need for planting hatchery rainbow in the future. Maintaining a productive ice fishery for large burbot is expected to satisfy the increasing demand for burbot. Angler satisfaction with the Clark Canyon fishery is expected to increase with increased catch rates for rainbow trout and the maintenance of the opportunity to catch trophy size trout.

Hebgen Reservoir

Reaching the objective listed above is expected to dramatically increase catch rates for trout and maintain the opportunity of catching large, trophy size (>3.0 lbs) trout. The fishery can be

expected to support 70,000 fisherman days of use with catch rates averaging 0.3 fish/hr. Angler satisfaction can be expected to increase with the increase in diversity of species and increased catch rates for wild trout. The information collected in the complete creel census is expected to provide information necessary for more precise management of this fishery.

Willow Creek Reservoir

Reaching the objectives listed above will result in the protection and maintenance of this important wild rainbow population. This fishery will continue to support 20,000 fisherman days of use. Successful efforts at decreasing reservoir drawdowns can be expected to increase carrying capacity of reservoir.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: II S&I - Coldwater Lakes
Job No.: E (3421) N Ctrl. MT Coldwater Lakes
Location:

Northcentral Montana

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 29444 Federal Share: 75% State Share: 25%

Principal Investigator:

Bill Hill, George Liknes

Job Objectives:

OBJECTIVES:

1. To recommend acceptable water levels in irrigation reservoirs, within hydrologic constraints, for maintaining fishery values of last 10 years. (State funded)

2. To establish self-sustaining trout fishery in Smith River Reservoir that will support 5,000 angler-days annually with a catch rate of 0.4 fish per hour.

3. To provide longer-lived, larger trout with adequate growth rates in Willow Creek, Bair, Ackley, East Fork Dam and Newlan Creek reservoirs for 50,000 angler-days annually.

4. To provide 10,000 angler-days fishing in Bean Lake for 1-3 pound rainbow trout.

5. To provide 28,000 angler-days per year for 11- to 20-inch trout in Martinsdale and Eureka Reservoirs and Fitzpatrick Lake.

6. To reduce rough fish populations for maintenance of 11- to 20-inch trout in 5 lakes and ponds. (State funded)

7. To maintain (within hydrologic constraints) viable trout fisheries in 60 ponds and small reservoirs. (Partly State funded)

8. To improve the kokanee fishery in Pishkun Reservoir to satisfy 5,000 angler-days annually.

9. To provide 1,000 angler-days of fishing for mature salmon in the Helena Valley Regulating Reservoir.

10. To maintain current level of fishing opportunity on Bean, Ackley and Fitzpatrick lakes and Newlan Creek Reservoir. (State funded)

BENEFITS:

The project is designed to maintain or improve the quality and quantity of sport fishing opportunity and access to regional reservoirs, lakes and ponds. Anglers will have the opportunity to fish for salmonid species in over 90 lakes and reservoirs

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: II S&I - Coldwater Lakes
Job No.: F (3923) Mid-Missouri Reservoirs Study
Location:

Broadwater, Lewis and Clark and Cascade counties, Central Montana

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ ~~89393~~ 89394 Federal Share: 75% State Share: 25%

Principal Investigator:

Mark Lere Helena 444-4628

Job Objectives:

1. Provide for 140,000 angler days and a catch rate of 0.30 fish/hour for 12 to 17 inch rainbow trout and a winter catch rate of 2.0 yellow perch/hour in Canyon Ferry Reservoir.

2. Provide for 60,000 angler days and a catch rate of 0.40 fish/hour for 12 to 18 inch salmonids in Hauser Reservoir.

3. Provide for 100,000 angler days and a catch rate of 0.40 fish/hour for 12 to 18 inch salmonids and a winter catch rate of 2.0 yellow perch/hour in Holter Reservoir.

4. Provide for 12,000 angler days and a catch rate of 0.40 fish/hour for 12 to 22 inch trout in the Hauser section of the Missouri River.

Last Update: 06/14/91 Printed on 06/14/91

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: II S&I - Coldwater Lakes
Job No.: G (3922) Canyon Ferry Reservoir
Location:

The project area is located in southwestern Montana in Broadwater County. Canyon Ferry Reservoir is an 34,435 acre impoundment of the Missouri River.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 12796 Federal Share: 75% State Share: 25%

Principal Investigator:

Richard Vincent, Regional Fisheries Manager
Ron Spoon, Fisheries and Wildlife Biologist III

Job Objectives:

Job Objectives

1. Maintain densities of rainbow trout reflected in average samples of >15 yearling and older rainbow per 125" surface gill net set in the spring.

2. Identify spawning areas successfully used by trout in reservoir system tributaries.

3. Provide a consistent rainbow fishery with an annual average ccatch rate of >0.30 fish/hr.

4. Provide an average winter catch rate of at least 2.0 yellow perch per hour with an average size of 8.5" and an annual harvest of 300,000.

5. Minimize incidenece, magitude and duration of reservoir spill through radial gates at dam to minimize escapement of trout.

Benefits

Reaching the objectives listed above is expected to provide at least 140,000 fishermen days of use annually with rainbow trout catch rates averaging 0.30/hr. Establishing a wild component to the hatchery rainbow fishery will provide a more consistent fishery. Minimizing or eliminating downstream escapement is also expected to add to the consistency of the rainbow fishery. Maintaining the

yellow perch population in its present state is expected to provide an annual harvest of 300,000 fish.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: III S&I - Warmwater Streams
Job No.: A (3441) N Ctrl. MT Warmwater Streams
Location:

Northcentral Montana

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 7390 Federal Share: 75% State Share: 25%

Principal Investigator:

Bill Hill, George Liknes

Job Objectives:

Objectives:

1. To maintain a minimum flow of 500 cfs in the Marias River for habitat enhancement.
2. To ensure, within hydrologic constraints, that flows in streams supporting cool/warmwater gamefish do not fall below past ten year averages.
3. To maintain the regions' streambanks and channels in their present or improved condition. (state funded)
4. Maintain water quality at or above 1983 levels as measured at USGS water quality monitoring stations.
5. To assess existing sauger, walleye and freshwater drum populations to determine population densities in the Missouri River between Morony Dam and Marias River.
6. To maintain sauger populations in the Missouri River to provide 10,000 angler-days use annually.
7. To increase and diversify angling opportunity in the upper 50 miles of the Marias River and 10 miles of Cut Bank Creek. (state funded)
8. To determine walleye distribution and angler harvest on Missouri river between Holter Dam and Great Falls.
9. To evaluate need and develop fishing access sites on Missouri River downstream from Morony Dam. (state funded)
10. To acquire public fishing access site on lower Marias River. (state funded)

Benefits:

The project is designed to improve the quantity and quality of angler days. Fulfillment of the objectives is expected to provide

fishing opportunity for 34,700 angler-days use per year. Expansion of new populations of game fish in the upper Marias River will benefit fishermen in the northern portion of the region where stream fishing is limited. Improving river access and informing the public of fishing opportunity will provide increased angler satisfaction for warmwater fishing.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: III S&I - Warmwater Streams
Job No.: B (3741) SE MT Warmwater Streams
Location:

Southeastern Montana (Region 7)

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 33042 Federal Share: 75% State Share: 25%

Principal Investigator:

Phillip A. Stewart, Miles City, MT 59301 (406)232-4365

Job Objectives:

Federal Aid Objectives:

1. To collect up to 50 million walleye eggs each year with average survival to hatching of 60%.

2. To determine the effect of Yellowstone River low-head diversion dams on game fish distribution and abundance: provide for additional angler days for warmwater species at upstream locations.

3. To understand the significance to game fish of Yellowstone River non-game fish species.

4. To obtain a minimum flow on the Tongue River downstream of the T and Y diversion of 525 cfs for the period April 1 through May 10.

5. To ensure that legally mandated instream flows are met.

6. To maintain existing water quality and bank-channel condition. Work under objectives #5 and #6 will be funded with state money only.

Benefits include retaining the ability of the Yellowstone River downstream from the Big Horn River to provide 45,000 angler days per year and supplying approximately half of the walleye eggs needed statewide.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: III S&I - Warmwater Streams
Job No.: C (3742) Yellowstone River Paddlefish
Location:

Yellowstone River from Forsyth to North Dakota Border

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 25633 Federal Share: 75% State Share: 25%

Principal Investigator:

Phillip A. Stewart, Miles City, Mt 59301 (406)232-4365

Job Objectives:

Benefits include ensuring maintenance of a paddlefish population capable of supporting 5,000 angler days at Intake and avoiding over harvest of paddlefish. Project will also allow protection of spawning habitat in Yellowstone River.

Federal Aid Objectives:

1. Prevent overharvest of the paddlefish population during the spawning migration; limit harvest to 5,000 or fewer fish most years at Intake.

2. Determine acceptable angler harvest.

3. Locate and preserve paddlefish spawning habitat. Objective #3 will be funded with state money only.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: III S&I - Warmwater Streams
Job No.: D (3442) Missouri River Pallid Sturgeon
Location:

Northcentral Montana

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 44123 Federal Share: 75% State Share: 25%

Principal Investigator:

William Gardner Fort Benton, MT (406)622-5108

Job Objectives:

Objectives:

1. Determine current status (abundance and distribution) of pallid sturgeon in Missouri River upstream of Fort Peck Dam.
2. Enhance trout populations and trout fishing opportunity in Marias River immediately downstream from Tiber Dam.
3. Secure adequate instream flows in 20-30 streams in the mid-Missouri drainage.
4. Maintain streambanks and beds in a stable and near-natural condition in Choteau and Liberty counties. (state funded)

Benefits:

Results of pallid sturgeon study will be used to formulate a status report. This report will aid in devising a management plan and/or recovery plan designed to maintain or enhance population of this rare fish. Successful enhancement of trout populations in Marias River would substantially diversify and increase angling opportunity in the "Hi-line" area of northcentral Montana.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: III S&I - Warmwater Streams
Job No.: E (3743) Paddlefish Roe Project
Location:

Yellowstone River from Miles City to North Dakota border.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 19061 Federal Share: 60% State Share: 40%

Principal Investigator:

H. Watson, Miles City, MT 59301 (406)232-4365

Job Objectives:

1. Monitor Yellowstone River paddlefish run in lower Yellowstone River.

2. Locate paddlefish spawning areas.

3. Evaluate paddlefish spawning success.

4. Determine effect of commercial roe harvest, if any, on paddlefish population.

5. Report amount of roe harvested commercially. Objectives #4 and #5 will be funded with state money only.

This project will help maintain the Yellowstone River paddlefish population, in the face of a new demand on that population, so that paddlefishing opportunities can be maintained in the Yellowstone River. Determination of spawning areas and success will allow implementation of appropriate steps to protect paddlefish spawning.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: IV S&I - Warmwater Lakes
Job No.: A (3151) NW MT Warmwater Lakes
Location:

The project area is located in northwest Montana and includes all of Flathead, Lake, Lincoln, and Sanders counties and portions of Missoula and Powell counties. The region encompasses all of the Montana portions of the Flathead and Kootenai river drainages and the lower portion of the Clark Fork of the Columbia River drainage.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 20455 Federal Share: 75% State Share: 25%

Principal Investigator:

Scott Rumsey Kalispell 752-5501

Job Objectives:

Objectives:

1. Establish and maintain fishable populations (catch rate = 0.25 fish/hour) of smallmouth bass and burbot in Noxon and Cabinet Gorge reservoirs.
2. Identify populations with surplus fish that can be used for transplants (state funded).
3. Attempt to acquire and develop access sites on all lakes and reservoirs with the potential for more than 500 mandays of fishing annually. First priority should be given to Lake Blaine and those lakes with adjoining Champion International or Plum Creek Timberland property (state funded).
4. Minimize the impacts of land and water use on fisheries (state funded).
5. Define the impacts of fishermen use on specified fisheries and provide an increased opportunity to catch large bass (>12"-14") and northern pike (>28").
6. Address the demand for a new species introductions. Define the parameters of interspecific competition, participate in a walleye introduction EIS, halt the illegal spread of northern pike.
7. Enhance fish populations through the placement of artificial habitat.
8. Define the mechanisms of predator/prey relationships in area lakes. Reduce competition with gamefish and reduce overabundant populations of nongame fish.
9. Encourage increase in public knowledge and participation in

resource decisions.

Benefits:

Attainment of the above objectives is expected to accommodate an increase of 3,500 angler days of warmwater fishing to a total of 39,000 mandays by 1993. Existing populations would be maintained or enhanced. New populations and fishing opportunities would be created. Aquatic habitat and water quality would be maintained.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: IV S&I - Warmwater Lakes
Job No.: B (3451) N Ctrl. MT Warmwater Lakes
Location:

Northcentral Montana

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 42157 Federal Share: 75% State Share: 25%

Principal Investigator:

Bill Hill, George Liknes

Job Objectives:

Objectives:
1. To find a source of walleye eggs that can be used to satisfy management demand.
2. To improve spawning habitat to maintain natural sport fish and forage fish populations. (state funded)
3. To enhance over winter survival in Split Rock Lake for yellow perch and northern pike. (state funded)
4. To provide 2,000 angler-days use for yellow perch and 3-6 pound northern pike in Pishkun Reservoir.
5. To provide a walleye fishery in Bynum and Morony reservoirs to provide 6,000 angler-days for 2 pound fish.
6. To provide 25,000 angler-days for 2-4 pound walleye and 4-8 pound northern pike in Tiber Reservoir and Lake Frances.
7. To maintain current population levels of walleye in Holter and Hauser reservoirs. (state funded)
8. To develop a largemouth or smallmouth bass fishery in Lake Helena to provide 1,000 angler-days of use. (state funded)
9. To develop fishable populations of largemouth bass, crappie and yellow perch in 20 farm ponds to provide 5,000 angler-days of use.
10. To maintain forage fish species to sustain game fish population.
11. To evaluate need for new introductions of forage fish. (state funded)
12. To involve sportsman groups and general fishing public in management and planning process. (state funded)

Benefits:
This project is designed to maintain or improve the quantity, quality, and diversity of warmwater fishing opportunity. The project will provide 54,000 angler-days of fishing opportunity in reservoirs, lakes and ponds in Region 4. Fishing opportunity will increase in two large reservoirs for northern pike and

walleye. Fishing for various warmwater species will increase in six farm ponds. Anglers will be updated on fishing opportunity and current events.

Last Update: 06/11/91 Printed on 06/14/91

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: IV S&I - Warmwater Lakes
Job No.: C (3651) Fort Peck Reservoir Invest.
Location:

Fort Peck Reservoir

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 96574 Federal Share: 75% State Share: 25%

Principal Investigator:

William D. Wiedenheft, Fort Peck (406) 526-3471

Job Objectives:

The project is designed to improve the quality of fishing in Fort Peck Reservoir. Completion of the project will contribute to an expanded walleye egg supply and walleye stocking program, enhance fishing opportunities for a wide variety of species including lake trout and chinook salmon unique to eastern Montana, provide important information on the expansion of recently-introduced forage fish species, and assist in providing water level recommendations to the Corps of Engineers.

OJECTIVES:

(1) To acquire a greater and consistent walleye egg supply for artificial propagation of fry and fingerlings. (State Funded)
(2) To determine success of walleye fry versus fingerling plants to develop future stocking guidelines.
(3) To determine abundance of walleye in spring spawning runs in the Missouri River upstream from Fort Peck Reservoir and assess impacts of river spawning attributable to Yellowstone River walleye stocking.
(4) To encourage reservoir management practices to benefit the fishery as outlined in the water level management plan by coordinating needs with the Corps of Engineers and other states on the Natural Resources Committee. (State Funded)
(5) To improve aquatic habitat and spawning substrate by utilizing artificial structures. (State Funded)
(6) To determine effects of reservoir water levels on abundance, distribution, and reproduction of key sport and forage fish.
(7) To determine abundance and trends of spring spawning populations of walleye and northern pike.
(8) To determine the rate of harvest for key species and angler

preference for various species management.

(9) To determine status of crisco and spottail shiners as to abundance, distribution, spawning success, and utilization by predators.

(10) To determine which designated access sites will provide the most benefit to fishermen. (State Funded)

(11) To obtain greater public involvement by attending 10 public/ sportsmen's club meetings and providing 5 news releases per year. (State Funded)

(12) To collect and tabulate commercial fish harvest, prepare commercial regulations, and conduct field inspections to determine compliance and catch of non-target species. (State Funded)

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: IV S&I - Warmwater Lakes
Job No.: D (3751) SE MT Warmwater Lakes
Location:

11 Southeastern Montana counties

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ ~~28208~~ 28209 Federal Share: 60% State Share: 40%

Principal Investigator:

Phillip A. Stewart, Miles City, MT 59301 (406)232-4365

Job Objectives:

Federal Aid Objectives:

1. To maintain sport fishing for suitable species in the 84 small reservoirs presently under management, and in new reservoirs added.

2. To add 40 new reservoirs to the number of ponds supplying public fishing.

3. To keep the angling public informed of pond fishing opportunities. Work under this objectives will be funded with state money only.

Completion of the project will increase angler satisfaction and supply 30,000 angler days per year.

Last Update: 06/16/91 Printed on 06/16/91

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: IV S&I - Warmwater Lakes
Job No.: E (3752) Tongue River Reservoir Invest.
Location:

Big Horn County, Montana

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 7502 Federal Share: 60% State Share: 40%

Principal Investigator:

Phillip A. Stewart, Miles City, MT 59301 (406)232-4365

Job Objectives:

Federal Aid Objectives:

1. To increase the average size of crappie so that 10 percent of crappie in mid-summer gill net catches are at least 250 mm total length.

2. To increase mid-summer gill net catches of walleye to an average of at least 2.0 walleye per overnight experimental gill net set.

3. To increase mid-summer gill net catches of northern pike to an average of at least 2.0 northern pike per experimental gill net set. Work under this objective will be funded with state money only.

Project will result in less abundant but larger crappie and more abundant walleye and northern pike. As a result the reservoir will support use of over 15,000 angler days.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: IV S&I - Warmwater Lakes
Job No.: F (3452) Tiber Reservoir Creel Census
Location:

Northcentral Montana - Tiber Reservoir

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 19772 Federal Share: 75% State Share: 25%

Principal Investigator:

Bill Hill Choteau

Job Objectives:

Objectives:

1. Determine fishing pressure, harvest and angler characteristics for the high use portion of the fishing season (mid-April through mid-October).

2. Estimate relative fishing pressure and harvest during the ice fishing season (mid-October through April).

3. Determine food habits of walleye and northern pike.

Benefits:

The information will provide several benefits. It can be used in a comparative fashion to determine the accuracy of pressure and harvest estimates generated by the statewide mail survey. It will provide information critical to the determination of whether present fishing regulations are adequate for managing gamefish populations (particularly walleye) in Tiber. It will provide sound baseline information that can be used to determine the success of Department management activities such as the introduction of new forage species. It will also provide basic information needed to compile a future management plan.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: V S&I - Ecosystems
Job No.: A (3131) Flathead Lake-River System
Location:

The project area is located in Flathead and Lake counties in northwest Montana. The area includes all portions of Flathead Lake and Flathead River drainage above Kerr Dam that are used by adfluvial fish stocks from Flathead Lake.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 75354 Federal Share: 75% State Share: 25%

Principal Investigator:

Delano A. Hanzel Kalispell 752-5501

Job Objectives:

Objectives:

Flathead Lake:

1. Influence management of water levels in the lake to minimize impacts on fish populations (state funded).
2. Maintain water quality at present levels as measured by the WQB (state funded).
3. Maintain aquatic habitat at a level capable of sustaining existing fish populations (state funded).
4. Maintain trout and salmon populations at present levels in face of projected increases of 35,000 mandays by 1992. Utilize hatchery plants if necessary.
5. Maintain the opportunity to catch large bull trout (>8 lb.) and lake trout (>15 lb.) at a catch rate of 0.1 fish/hour.
6. Manage for a 12"-14" kokanee and a catch rate of 1 fish/hour.
7. Develop management strategies to compensate for the introduction of Mysis.
8. Encourage public participation in resource issues and decisions.
9. Increase angler compliance with existing laws (state funded).
10. Provide public access to popular use areas and develop more low water boat ramps.

Flathead River:

1. Maintain, within legal limits, instream flows sufficient to maintain or enhance existing fish populations (state funded).

2. Maintain spawning and incubation flow discharges from Hungry Horse Dam as calculated by Special Projects studies (state funded).
3. Maintain streambanks and channels in present or improved condition.
4. Maintain water quality at or above present levels as measured by WQB and USGS.
5. Maintain fish habitat at or above present levels.
6. Maintain fish populations that will provide use and harvest at present levels.
7. Provide river access sites 4-6 hours (floating time) apart. Secure public access on currently used private ground.
8. Increase public awareness of the unique nature and problems of the adfluvial fisheries.
9. Increase compliance with existing anglging regulations (state funded).

Benefits:

Flathead Lake:

Attainment of the above objectives is expected to accommodate an increase of 35,000 angler days by 1992 to a total of 110,000 mandays of fishing. Fish populations would be sustained at present levels, maintaining the opportunity to catch large lake and bull trout and producing an average 12"-14" kokanee at a catch rate of 1 kokanee/hour. Water quality and habitat would remain at or near present levels. Populations of species of special concern would be maintained or expanded. Fishermen would enjoy improved access to the lake on a year round basis.

Flathead River:

Attainment of the above objectives will accommodate an increase of 12,000 angler days which will total 72,000 angler days by 1992. The objectives will provide for an annual harvest of 15,000 cutthroat, 3,500 bull trout, and 100,000 kokanee. Regulations will provide 165,000 post-harvest kokanee spawners and sufficient cutthroat and bull trout spawners to maintain these species of special concern.

Aquatic habitat and water quality and quantity will remain at or above present levels. Adequate access will be provided for increases in fishermen use.

In addition, the project provides coordination necessary to ensure reasonable mitigation for fisheries damaged by construction and operation of hydropower facilities in the upper Columbia system in Montana.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: V S&I - Ecosystems
Job No.: B (3531) S Ctrl. MT Coldwater Ecosystem
Location:

Work will occur in all eleven counties of southcentral Montana that comprise Fisheries Administrative Region 5.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 35948 Federal Share: 75% State Share: 25%

Principal Investigator:

Michiel D. Poore, Columbus, (406)322-4743
Kenneth J. Frazer, Billings, (406)252-4654

Job Objectives:

1. To ensure, within hydrologic constraints, that flows in streams supporting trout fisheries do not fall below 1975-85 averages.

2. To maintain the region's streambanks and channels in their present or improved condition.

3. To maintain water quality at or above current levels as measured at USGS water quality monitoring stations.

4. To maintain fish populations and habitat in streams affected by resource development activity at levels at least as good as present status.

5. To maintain a trout fishery of at least 4,200 angler-days per year with a catch rate of 0.5 fish per hour on the upper Musselshell River (state-funded).

6. To acquire a fishing access site on the Musselshell River between Selkirk Fishing Access Site (FAS) and Harlowton (state-funded).

7. Maintain 27,000 angler-days per year trout fishing in Cooney Reservoir while the walleye population develops.

8. Establish naturally reproducing populations of Yellowstone cutthroat trout in East and West Rosebud and Emerald lakes.

9. Maintain acceptable (0.25 fish/hour) fisheries in lakes and reservoirs where natural reproduction is inadequate

(state-funded).

10. Increase use of Yellowtail Afterbay to 10,000 or more angler-days/year and Lodge Grass Storage Reservoir to at least 5,000 angler-days/year (state-funded).

11. Maintain approximately 40,000 angler-days per year in Absaroka-Beartooth Wilderness lakes (state-funded).

12. Make at least 1,000 angler contacts per year on major coldwater lakes and reservoirs (state-funded).

Fulfillment of the objectives listed above is expected to result in 20,000 angler-days of use on streams for various trout species, including 4,200 angler-days on the upper Musselshell River and 121,000 angler-days on lakes and reservoirs. Specific projected use (angler-days) on lakes and reservoirs includes: Cooney Reservoir - 32,000, Deadman's Basin Reservoir - 23,000, Yellowtail Afterbay - 10,000, Lodge Grass Storage Reservoir - 5,000, subalpine lakes - 9,000, alpine lakes - 35,000, and put-and-take fisheries - 7,000. Trout habitat should remain in good condition, and viable populations of species of special concern should be maintained.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: V S&I - Ecosystems
Job No.: C (3561) S Ctrl. MT Warmwater Ecosystem
Location:

Work will occur in all eleven counties of southcentral Montana that comprise Fisheries Administrative Region 5.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 32672 Federal Share: 75% State Share: 25%

Principal Investigator:

Kenneth J. Frazer, Billings, (406)252-4654
Michiel D. Poore, Columbus, (406)322-4743

Job Objectives:

Objectives:

1. To provide optimum conditions for walleye forage production on Bighorn Lake by implementing water level control guidelines in cooperation with the Bureau of Reclamation.

2. To optimize water level conditions in area irrigation reservoirs in order to enhance production of warm and coolwater species by formalizing and adopting water level controls prior to the irrigation season on Lake Elmo and other waters (state-funded).

3. To improve habitat conditions for warm and coolwater species in area bass ponds by installing artificial habitat and enhancing natural cover.

4. To at least maintain the existing flow conditions in the Musselshell River by analyzing instream flow needs, and participating in the reservation process and pursuing other options which may supplement existing flows.

5. To maintain streambanks and channels in their present or improved conditions by administering existing laws.

6. To maintain water quality at or above current levels as measured at U.S. Geological Survey water quality monitoring stations.

7. To develop at least 30 producing bass ponds in the region that are open to public use, supporting at least 15,000 man-days of

angling per year by 1992.

8. To acquire two new access sites on the Yellowstone River downstream from Billings (state-funded).

9. To develop plans for construction of at least two new public fishing ponds in the region by 1992 (state-funded).

10. To intensify management of existing urban area pond fisheries (Lake Elmo, Josephine, Arapooish, Chief Joseph, Broadview) by developing artificial reef projects, fishing docks, etc. to maximize the productivity of these fisheries.

11. To convert marginal trout fisheries such as Glaston and Lebo Lakes into productive warm and coolwater fisheries and diversify the existing trout fishery at Cooney Reservoir by developing a two-story fishery supporting both walleye and trout.

12. To broaden and diversify existing warm and coolwater fishing opportunities by developing a yellow perch fishery in the area and exploring potential for new species introductions (state-funded).

13. To monitor developing warm and coolwater fisheries and make recommendations to enhance the forage base where necessary.

14. To create a smallmouth bass fishery in the lower Bighorn River capable of supporting 10,000 angler days of use per year.

15. To develop a walleye egg source in Bighorn Lake or Cooney Reservoir (state-funded).

16. To develop contingency plans for walleye and bass fingerling production ponds in the region (state-funded).

17. To determine the amount of fishing effort expended and success rates for warm and coolwater species in the region's mixed species fisheries by utilizing existing warden and Parks Division contacts in the field and supplementing with Fisheries Division follow-up where necessary (state-funded).

18. To increase public awareness of the availability of warm and coolwater fishing opportunity and the resource that provides them (state-funded).

Meeting the above objectives would result in up to 75,000 angler-days of use on regional warm- and coolwater fisheries split equally between lakes and streams. The current use is estimated at about 50,000 angler-days. In addition to increasing use, it would diversify opportunity in the region and improve public acceptance of the Region's overall fishery program. In addition, Billings anglers will be able to find more fishing closer to home, and this may help reduce heavy pressure from these anglers on the upper Bighorn River

and other cold-water resources.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: V S&I - Ecosystems
Job No.: D (3631) NE MT Coldwater Ecosystem
Location:

NE Montana, Region 6

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 13817 Federal Share: 75% State Share: 25%

Principal Investigator:

Kent W. Gilge, Chinook, (406) 357-2893
Robert G. Needham, Glasgow, (406) 228-9347

Job Objectives:

The project is designed to maintain or improve the quality and quantity of coldwater fisheries within the region. The goal is to provide a fishery of approximately 76,000 angler days with a suitable catch rate. The project will provide useful information on the suitability of special trout strains and provide the basis for implementing special regs on heavily fished waters. Information derived will provide a basis for developing annual planting programs, and contribute towards securing additional fishing access.

JOB OBJECTIVES (STREAMS):

(1) To ensure within hydrologic constraints that stream flows supporting trout fisheries do not fall below 1975-85 averages.
(2) To maintain all of the region's streambanks and channels in their present or improved condition. (State Funded)
(3) To maintain water water quality at or above 1975-85 average levels.
(4) To maintain fish populations and habitat in streams at present levels.
(5) To maintain at least 6,000 angler days per year and a trout catch of 0.5 fish per hour.
(6) To develop fishing access site acquisition and development plan for the region. (State Funded)
(7) To establish cooperative watershed management plans with federal agencies. (State Funded)
(8) To obtain greater public involvement by attending approximately 20 public/sportsmen's club meetings and initiating 2 news releases per year. (State Funded)

JOB OBJECTIVES (LAKES):

(1) To maintain 70,000 angler days per year and provide catch rates of 0.5 fish per hour or greater.

(2) To maintain acdeptable trout fishing in waters with nongame and/or predator species.

(3) To increase the number and distribution of public fishing waters by acquiring 2 reservoirs every 5 years.

(4) To obtain public input for management decisions by attending 20 sportsmen's club meetings and providing 3 news releases per year. (State Funded)

(5) To develop fishing access site acquisition and development plan for the region. (State Funded)

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: V S&I - Ecosystems
Job No.: E (3661) NE MT Warmwater Ecosystem
Location:

NE Montana, Region 6

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 55189 Federal Share: 75% State Share: 25%

Principal Investigator:

Robert G. Needham, Glasgow, (406) 228-9347
Kent W. Gilge, Chinook, (406) 357-2893

Job Objectives:

The project is designed to maintain or improve the quality and quantity of cool/warmwater fishing in Region 6. Completion of the project will assist in meeting the expanding need for additional fishing access and provide a wider variety of fish species for anglers. Project completion will contribute to securing a more dependable walleye egg supply. The project will provide information needed to evaluate harvest rates for walleye and paddlefish.

JOB OBJECTIVES (STREAMS):

(1) To ensure within hydrologic constraints, that streamflows do not fall below 1975-85 averages.
(2) To maintain all of the region's streambanks and channels in their present or improved condition. (State Funded)
(3) To develop seasonal flow recommendations to improve flows for walleye spawning in the Milk River.
(4) To ensure that the Fort Peck tailwater/dredge cut fish population is adequately protected from development related to hydropower expansion.
(5) To acquire maximum spring flows within hydrologic constraints through the International Joint Commission agreement. (State Funded)
(6) To maintain paddlefish populations and angler catch rates at existing levels.
(7) To acquire public fishing access through lease or purchase and develop a fishing access site acquisition and development plan for the region. (State Funded)

JOB OBJECTIVES (LAKES):

(1) To collect 20-30 million walleye eggs for fry and fingerling stocking from the Miles City hatchery. (State Funded)
(2) To develop 2 new fishing reservoirs and maintain 10 existing fisheries per year.
(3) To acquire public fishing access through lease or purchase and develop a fishing access site acquisition and development plan for the region. (State Funded)
(4) To acquire suitable water level and minimum pool for Fresno and Nelson Reservoirs.
(5) To maintain a variety of species combinations distributed geographically throughout the region in 45 small reservoirs. (State Funded)
(6) To provide 10,000 angler days and catch of 0.25 walleye per hour at Nelson Reservoir.
(7) To maintain a population balance of predators versus perch and crappie.
(8) To maintain or improve forage base for predator species in numerous reservoirs throughout the region.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: V S&I - Ecosystems
Job No.: F (3563) Bighorn Lake Creel Census
Location:

Bighorn Lake

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 8788 Federal Share: 75% State Share: 25%

Principal Investigator:

James E. Darling Billings 252-4654

Job Objectives:

1. To participate in a coordinated creel and angler preference survey with two other agencies, i.e., the National Park Service and Wyoming Game and Fish.

2. To determine angler preferences for fish species management and lay the groundwork for management plans.

3. To assess public opinion of issues such as reciprocal licensing.

4. To obtain relative fishing pressure estimates to help determine appropriate stocking levels and interstate fishing regulations.

A creel and angler preference survey conducted during 1992 will be a rare opportunity to efficiently and cost effectively coordinate the efforts of three agencies. The information gained will be the basis for future cooperative management of Bighorn Lake.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: V S&I - Ecosystems
Job No.: G (3652) Bearpaw Mountains Creel Census
Location:

Bear Paw Mountains, Region 6

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 6744 Federal Share: 75% State Share: 25%

Principal Investigator:

Kent W. Gilge, Chinook, (406) 357-2893

Job Objectives:

OBJECTIVES:

1) Determine angler use and harvest of all sport fish species at Beaver Creek Reservoir, Bear Paw Lake, and Faber Reservoir.

2) Determine relative suitability for managing with various trout strains and species.

3) Determine minimum acceptable size for trout and species preference for warm water species.

4) Determine impact of creel restrictions imposed on Bear Paw Lake.

BENEFITS:

1) Acquire baseline information to evaluate stocking rates and fishing regulations.

2) Acquire information needed for developing future management strategies.

3) Compare fishing pressure to statewide mail survey results.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: VI Statewide S&I
Job No.: A (3812) Stream Protection Coordination
Location:

statewide

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ ~~42941~~ 44591 Federal Share: 75% State Share: 25%

Principal Investigator:

Ken Chrest Helena 406-444-5667

Job Objectives:

Objectives:

1. To coordinate administration of the Stream Protection Act (SPA) and the Natural Streambed and Land Preservation Act (310) to ensure the preservation of Montana streams in their natural, existing state.

2. To provide recommendations as provided by Sec. 404 of the Clean Water Act to avoid impacts to wetlands contiguous to streams or project corridors.

3. To assist with interagency coordination with other state and federal agencies, agricultural, corporate and other private entities in an effort to promote stream habitat management.

Objective 1 will be accomplished with state funding.

Benefits:

By protecting habitat, reducing destructive stream alterations and helping to improve best management practices for stream riparian areas, stream fisheries will be enhanced. Loss of habitat equates directly with loss of fishing opportunity for resident and non-resident anglers.

Last Update: 05/07/91 Printed on 06/06/91

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: VI Statewide S&I
Job No.: B (3806) Statistical Services
Location:

Statewide with the majority of the tasks immanating from Bozeman

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 85018 Federal Share: 75% State Share: 25%

Principal Investigator:

Robert C. McFarland Bozeman (406) 994-6355

Job Objectives:

Objectives:

Maintain a computerized catalog of stream and lakes. Continue cooperative effort with federal agencies to computerize lake and stream survey information. Coordinate and develop programs to enable the electronic processing of data too voluminous or complex to compile by hand. Statistically analyze methods and data when requested. Coordinate the use of consulting statisticians and contract programmers when requested or needed. Gather trend information on catch rates by species through the use of volunteer fisherman log holders. Maintain a computerized list of fish plants and requests for plants.

Benefit:

This project provides a support service to the field personnel and Helena staff. It provides a means to have data collected in the field analyzed in a systematic and accurate manner. It retains past and present records of various attributes associated with streams and lakes. All this is done to maintain/enhance the quality and quantity of the fisheries now available to the sportsmen.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: VI Statewide S&I
Job No.: C (3808) Gen. Pop. Fishing Survey
Location:

Statewide

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 12087 Federal Share: 75% State Share: 25%

Principal Investigator:

Howard Johnson Helena 406-444-5686

Job Objectives:

Objectives:

To develop information about general population attitudes about sport fishing in Montana
and assess factors contributing to the quality of cold and warm water fishing. This information
will be used in federal, state, and department level planning.

Benefits:

The project will provide the department with information about general population attitudes about fishing
and hunting, along with information on angler preferences. The results will also provide information on anglers' attitudes concerning possible management issues. In addition, the aforementioned values will give the the department a base in their discussions with federal land management agencies concerning resource management decisions.

The survey of Montana residents concerning fishing will provide information on key socio-demographic characteristics as well as fishing related questions. This information will allow the Department to tailor their fisheries management programs so as to provide high quality fishing experiences to all segments of the population.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: VI Statewide S&I
Job No.: D (3818) Streambank Permitting & Surv.
Location:

Statewide

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 41000 Federal Share: 75% State Share: 25%

Principal Investigator:

Al Wipperman Helena 406-444-2445

Job Objectives:

Objectives:

1. To assist Regions 1-5 with contracts for streambank permitting activities.
2. To provide assistance to Conservation Districts for streambank inventories and stream corridor management.

Benefits:

By protecting habitat, reducing destructive stream alterations and helping to improve best management practices for stream riparian areas, stream fisheries will be protected and enhanced. This project is expected to save 0.40 FTE of fishery managers and biologists time in Regions 1-5 by contracting field inspections with private entities. This time savings will be put to use on other priority projectcs. Assisting conservation districts with streambank surveys and 310 projects will help establish closer working relationships which will ultimately preserve and enhance fish habitat.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: VI Statewide S&I
Job No.: E (3831) Alt. Irrigation Structures
Location:

Statewide

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 15867 Federal Share: 75% State Share: 25%

Principal Investigator:

Al Wipperman Helena (406)444-2445

Job Objectives:

Objectives:

1. To engineer and design irrigation diversion structures that will have minimal physical effects on stream channels and fish habitat (state funded).
2. To evaluate cost, maintenance, and effects on stream channel stability of diversion projects for demonstration purposes.

Benefits:

By protecting habitat, reducing destructive stream alterations and helping to improve management practices for stream corridors, stream fisheries will be protected and enhanced. Loss of habitat equates directly with loss of fishing opportunity for resident and non-resident anglers. Suitable projects will serve as education models for other landowners.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: VI Statewide S&I
Job No.: F (3832) FAS Coordination
Location:

The position will be located in Helena but be involved with projects statewide.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 33653 Federal Share: 75% State Share: 25%

Principal Investigator:

Bruce Rehwinkel

Job Objectives:

1. Coordinate fishing access site acquisition, development and maintenance statewide.

2. Coordinate Fisheries Division activities funded by Dingell-Johnson motorboat access funds.

3. Assist Fisheries Management Bureau Chief with management plans, fishing contest applications and other tasks as assigned.

Additional access and improved facilities will benefit all anglers and many non-angling recreationists. Better coordination of the FAS program will help achieve the fisheries program goal of 3,493,600 angler-days by 1993.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: VI Statewide S&I
Job No.: F (3833) FAS Coordination
Location:

The position will be located in Helena but be involved with projects statewide.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 11879 Federal Share: 75% State Share: 25%

Principal Investigator:

Bruce Rehwinkel Helena, MT 59620 (406)444-2449

Job Objectives:

Objectives:

1. Coordinate fishing access site acquisition, development and maintenance statewide.
2. Coordinate Fisheries Division activities funded by Dingell-Johnson motorboat access funds.
3. Assist Fisheries Management Bureau Chief with management plans, fishing contest applications and other tasks as assigned.

Benefits:

Additional access and improved facilities will benefit all anglers and many non-angling recreationists. Better coordination of the FAS program will help achieve the fisheries program goal of 3,493,600 angler-days by 1992.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: VI Statewide S&I
Job No.: G (3834) Statewide Angler Survey
Location:

Statewide

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 81896 Federal Share: 75% State Share: 25%

Principal Investigator:

Robert C. McFarland Bozeman (406)994-6355

Job Objectives:

Objectives:

To gather angler use, catch rate and fish harvest data on individual waters to measure whether project objectives are being met.

Benefits:

This project is the basis for setting the goals and objectives of the division and other projects within the fisheries division.

This project also provides for the start-up of the statewide angling survey which will be used to determine if goals and objectives are being met. All this is done to maintain the quality and quantity of the fisheries now available to the sportsmen.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: VI Statewide S&I
Job No.: H (2846) FAS Engineering
Location:

This project will involve engineering to increase boating and fishing opportunity across the entire state.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 34822 Federal Share: 75% State Share: 25%

Principal Investigator:

Richard Mayer, Helena, (406)444-3755
Bruce Rehwinkel, Helena, (406)444-2432

Job Objectives:

Fishing opportunity will increase by about 1%. User satisfaction will increase by 4%. Boating opportunity will be increased by similar percentages. Safety and health aspects associated with fishing and boating will be improved but it is impossible to put any sort of meaningful figures on these factors.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: VI Statewide S&I
Job No.: I (7601) Bearpaw Dam Engineering Study
Location:

Bearpaw Dam is located in Hill County, 15 miles south of Havre. It is located on a 185 acre site leased from the County, in Section 28, T30N, R16E.

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 100000 Federal Share: 75% State Share: 25%

Principal Investigator:

Howard Johnson	Fisheries Division	Helena	406-444-2449
Bob Needham	Fisheries Manager	Glasgow	228-9347
Richard Mayer	Design & Construction	Helena	444-3755

Job Objectives:

The objective of this project is to maintain angling opportunities at Bearpaw Lake, Beaver Creek and the Beaver Creek Reservoir and continue to provide at least 9,000 angler-days per year by 1995.

The desired benefit is to safeguard continued angler use of the area. The engineering study will determine whether repairs are needed to prevent dam failure. Failure, or substantial decreases in water level to avoid failure, woud cause loss of this important regional fishery. If the study concludes that repair is not necessary, DFWP is assured of the continuation of the fishery without expenditure for repair.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: VI Statewide S&I
Job No.: J (3836) Eval. of Fish Introductions
Location:

Statewide

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 75000 Federal Share: 75% State Share: 25%

Principal Investigator:

Howard Johnson

Job Objectives:

Objectives:

1. To prepare environmental reviews according to the rules of MEPA for each proposed introduction or transplant of fish to waters where they do not legally exist.

2. To conduct literature reviews and analysis of survey data to determine the potential impact of introducing specific fish species in specific waters of the state.

Benefits:

This program will provide documented rationale for decisions on the introduction of fish. The program will provide information to involved agencies and the public to ensure full understanding of proposed actions.

The environmental reviews will be important components of regional fisheries management plans.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: VI Statewide S&I
Job No.: K (3826) Eval. of Fish Populations
Location:

Statewide

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 13922 Federal Share: 75% State Share: 25%

Principal Investigator:

Howard Johnson Helena 444-5686

Job Objectives:

Objectives: Provide support as needed to collect angler harvest and use data on major Montana drainages.

Benefits: Angler surveys will provide a better basis for management decisions and the data will help to design management plans.

Last Update: 06/16/91 Printed on 06/16/91

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: VI Statewide S&I
Job No.: L (3174) Mt. Rivers Info. System Suppor
Location:

Statewide

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 14531 Federal Share: 75% State Share: 25%

Principal Investigator:

Janet Decker-Hess

Job Objectives:

Objectives:

1. Obtain updated fisheries data from regional sources.

2. Enter updated fisheries data on the computerized Montana Interagency Stream Fishery Data Base.

Benefits:

Accelerating the data input will increase the value of the data base for fisheries management, and public information.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: VII S&I - Warmwtr Reserv-Missouri
Job No.: A (3814) Fisheries Special Assignments
Location:

Statewide

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 13078 Federal Share: 75% State Share: 25%

Principal Investigator:

Chris Hunter

Job Objectives:

The general goal of this project is to initiate special assignments to solve specific research and management problems related to maintaining and/or improving fisheries and fisheries habitat in cold and cool/warmwater streams and lakes statewide.

The FY 92 specific objectives are to begin preparation of an instream flow reservation in the Kootenai River basin in NW Montana:

a. To compile existing biological and stream profile data to identify data needs;

b. To determine distribution, species composition and relative abundance of fish populations, where needed;

c. To collect stream profile data, as appropriate, on streams where fish populations assessments are, or will be, completed;

d. To summarize existing recreational data as may be available in the Kootenai River Basin and perform an economic analysis of recreational use;

e. To summarize the impacts of the reservation on other existing and potential water users in the Kootenai basin;

f. To help coordinate work in the Kootenai basin so that data acceptable for inclusion in an instream flow reservation application is collected, analyzed and compiled in a suitable and timely manner;

g. To respond to requests for additional information or clarification of information contained in the reservation

application for streams in the Kootenai basin.

h. To assemble instream flow write-ups on individual stream reaches for the reservation application;

i. To determine water availability on requested streams in the Kootenai basin.

Results of the project will be included in an application for an instream flow reservation in the Kootenai River Basin. There is no legal deadline for submitting this application. If the reservations requested are granted by the Board of Natural Resources and Conservation, there will be present and future assurances that instream flows are available to maintain fisheries in the Kootenai basin streams reserved. Such streamflows are obvious benefits
to fishermen, sportsmen and other recreationists using these streams both now and in the future.

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: VII S&I - Warmwtr Reserv-Missouri
Job No.: B (3817) Missouri Reservation EIS
Location:

Helena, MT

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ 166826 Federal Share: 75% State Share: 25%

Principal Investigator:

Liter Spence Helena 444-3888

Job Objectives:

Provide funding to the Department of Natural Resources and Conservation for completion of an EIS and public hearings. An approved EIS is required by state law in the reservations process. DFWP is required by law to pay its share of producing the EIS and holding contested case hearings. Completion of the EIS and other actions required to complete the reservations process will hopefully result in the granting of instream flows by the Board of Natural Resources and Conservation in the Lower and Little Missouri River basins. If reservations are granted, there will be present and future assurances that future instream flows are available to maintain fisheries in the basins requested streams. Such instream flows are an obvious benefit to fishermen, sportsmen, and other recreation-

JOB DESCRIPTION

STATE: MONTANA

Project No.: F-46-R-5 Statewide Fisheries Investigations
Subproject:
Study: VII S&I - Warmwtr Reserv-Missouri
Job No.: D (3823) Water Leasing Study
Location:

Statewide

Job Duration: July 1, 1991 through June 30, 1992

Cost: $ ~~40000~~ 40,000 Federal Share: 75% State Share: 25%

Principal Investigator:

Liter Spence Helena, MT 444-3888

Job Objectives:

The specific job objective is to implement the provisions of HB 707 of the 1989 Legislature which authorized a pilot water leasing study to test the feaibility of leasing existing diversionary water rights and to acquire water leases for instream flow enhancement purposes.

This is a pilot study under HB 707 to determine the feasibility of leasing water for instream flows. If the project is successful, it could lead to expansion of legislative authority to lease water and will establish criteria and identify the problems involved in the water leasing process. A successful leasing program will benefit fisheries in the long term by enhancing flows in dewatered streams.

Last Update: 06/17/91 Printed on 06/17/91