MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS
FISHERIES DIVISION
JOB PROGRESS REPORT

STATE: Montana PROJECT NO. F-46-R-4
PROJECT TITLE: Statewide Fisheries Investigations JOB NO. II-e
STUDY TITLE: Survey and Inventory of Coldwater Lakes
JOB TITLE: Northcentral Montana Coldwater Lakes Investigations

PERIOD COVERED: July 1, 1990 through June 30, 1991

ABSTRACT

Rainbow trout strain evaluations were conducted in several waters. Arlee rainbow survival was good in Bean Lake but poor in Eureka, Nilan and Willow Creek Reservoirs. AXE rainbow exhibited the same pattern in Bean Lake, Eureka and Willow Creek Reservoirs. Growth of the two strains was nearly equal and AXE displayed somewhat better longevity. A strong year class of yearling kokanee salmon developed in Pishkun Reservoir. Lake trout numbers in Tiber Reservoir are increasing but are under utilized. The Eagle Lake strain showed higher survival than Arlee rainbow trout in Ackley Lake. Good survival was found among Eagle Lake planted in Bair Reservoir. Big Casino Creek Reservoir was drained to eliminate the sucker population and then was restocked with catchable-sized rainbow trout. Brown trout growth rates in East Fork Spring Creek Reservoir improved from the last reporting period. Survival continued to be high among all plants of rainbow and Yellowstone cutthroat trout in Martinsdale Reservoir. Gill net catches in Newlan Creek Reservoir were much lower than last year. Yellow Water Reservoir continued to produce trophy-sized rainbow trout. Survival of rainbow trout was documented in several small ponds stocked following a series of drought years. Several small ponds winter or summerkilled. A summer creel survey of 5 central Montana reservoirs found over 70% of anglers were from Yellowstone, Fergus, Cascade, and Meagher counties. Highest catch rates were found at Martinsdale Reservoir and more than 90% of anglers on all reservoirs were satisfied with current species management.

OBJECTIVES AND DEGREE OF ATTAINMENT

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 a 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 11-20 inch trout in Martinsdale and Eureka Reservoirs and Fitzpatrick Lake.

6. To reduce rough fish populations for maintenance of 11-20 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).**

Progress was made on all federally funded objectives and data are included in this report. Data for some state objectives are included to provide current information for regional waters.

PROCEDURES

Netting surveys were conducted using standard 125 x 6 foot experimental gill nets with 25 foot sections of 0.75, 1.0, 1.25, 1.5 and 2.0 inch square mesh and 300 x 8 foot gill nets with 100 foot sections of 2.5, 3.0 and 3.5 inch square mesh. Nets were of nylon or monofilament twine and were fished sinking or floating. Some small ponds were sampled by angling. Captured fish were measured to the nearest tenth of an inch and weighed to the nearest hundredth of a pound. Rainbow trout were marked with fin clips and tetracycline to differentiate between various strains. Kokanee salmon stocked in Pishkun Reservoir were scattered by boat to obtain better distribution.

FINDINGS

Rainbow Trout Strain Evaluations

Evaluation of various rainbow trout strains continued on several regional waters. Strains being evaluated include DeSmet, Arlee, Eagle Lake and AXE (Arlee x Eagle Lake hybrid).

Eagle Lake rainbows are currently being evaluated in Ackley, Bair and East Fork Spring Creek reservoirs. This strain is apparently well suited to productive waters where it typically grows to a large size, displays good catchability, and will feed on chubs. All three Region 4 reservoirs have dense sucker populations and it was hoped that Eagle Lake rainbows would utilize this potential food source.

DeSmet rainbow were planted in Smith River Reservoir (Lake Sutherlin) in 1986-87 and 1989-90. We made these plants in an attempt to establish a naturally reproducing population in the reservoir that would use two available spawning streams. The DeSmet is a wild strain that reproduces well in some areas, has relatively slow growth and good longevity, fair catchability, and feeds on zooplankton and macroinvertebrates.

A hybrid cross between Arlee and Eagle Lake rainbow trout strains, which will be referred to in this report by the term AXE, has been planted in Willow Creek Reservoir annually since 1984. AXE rainbow were stocked in Bean Lake in 1988 and in Eureka Reservoir in 1989. This hybrid reportedly displays similar or better growth and catchability than the Arlee strain and better ability to overwinter successfully.

BEAN LAKE

Equal numbers (20,000 each) of Arlee and AXE rainbow trout have been stocked annually in Bean Lake since 1988. Sampling in 1988 found that AXE rainbow outnumbered Arlee by three to one (Hill et al. 1989); in 1989, AXE represented 60 percent of the sample (Hill et al. 1990). The 1990 gill net survey produced similar results (Table 1). AXE rainbow represented 62.3 percent of the 1990 plant and 62.5 percent of the 1989 plant. Growth of the two strains is nearly identical. The 1990 netting also indicated carryover of AXE stocked in 1988 but no Arlee. This suggests that AXE may have better longevity. First year survival is rated as good for both strains (Table 2).

1. Overnight gill netting results in coldwater lakes and reservoirs in Region Four during 1990.

ater name ate surveyed)	Surface acres	No. of[1] nets	Mean hours fished/net	Species, strain[2] & year planted	No. of fish	Length(in) Range	Length(in) Mean	Weight(pounds) Range	Weight(pounds) Mean	Condition Factor Range	Condition Factor Mean
kley Res. 0/24/90)	240	1F,1S	15.0	Rb-A-1990	19	8.7-10.6	(9.9)	0.23-0.49	(0.39)	34.9-47.0	(40.4)
				Rb-A-1989	6	15.6-16.4	(16.1)	1.40-1.62	(1.50)	34.0-38.6	(36.4)
				Rb-I-1990	28	6.6- 8.9	(7.8)	0.11-0.27	(0.18)	22.7-49.0	(37.8)
				Rb-I-1989	25	13.4-17.1	(14.5)	0.80-1.78	(1.07)	31.5-40.5	(34.8)
				Rb-I-1988	2	15.9-16.3	(16.1)	1.34-1.46	(1.40)	33.3-33.7	(33.5)
				LL	5	15.1-20.4	(17.6)	1.14-4.03	(2.42)	33.1-47.5	(41.8)
				LnSu	21	13.6-16.8	(15.2)	1.11-2.06	(1.49)	38.7-47.1	(42.4)
				WSu	25	6.5-16.5	(11.4)	0.10-2.23	(0.83)	36.4-51.7	(44.0)
;ir Reservoir 10/18/90)	272	1F,1S	18.25	Rb-I-1990	23	7.9- 9.2	(8.6)	0.19-0.33	(0.26)	34.9-50.8	(41.3)
				Rb-I-1989	15	11.4-13.8	(12.9)	0.49-0.90	(0.74)	31.4-38.6	(34.1)
				YCt-1989	2	13.9-15.1	(14.5)	0.90-1.35	(1.12)	33.5-39.2	(36.4)
				EB	4	8.7- 9.8	(9.2)	0.22-0.41	(0.33)	33.4-51.6	(41.7)
				WSu	49	6.4-12.4	(8.4)	0.12-0.80	(0.26)	35.8-53.1	(42.1)
ean Lake 10/10/90)	200	2S	24.0	Rb-A-1990	20	7.8-11.9	(9.8)	0.21-0.77	(0.41)	-	-
				Rb-A-1989	6	14.4-16.3	(15.3)	1.10-1.66	(1.40)	-	-
				Rb-AXE-1990	33	8.1-11.3	(10.1)	0.22-0.55	(0.42)	-	-
				Rb-AXE-1989	10	14.9-16.2	(15.4)	1.30-1.60	(1.40)	-	-
				Rb-AXE-1988	5	14.5-18.1	(16.8)	1.14-2.16	(1.72)	-	-
ig Casino Creek esevoir 10/18/90)	17	1F,1S	18.2	Wsu	373	6.7-16.1					
ast Fk Spring reek Res. 7/18/90)	100	1F,1S	16.9	Rb-I-1987	7	11.5-14.2	(12.5)	0.49-1.09	(0.69)	32.2-38.1	(34.4)
				LL-1990	2	8.8-10.6	(9.7)	0.26-0.47	(0.36)	38.2-39.5	(38.8)
				LL-1989	4	12.4-14.2	(13.5)	0.69-1.36	(1.04)	36.2-51.7	(41.5)
				LL-1988	4	15.8-19.9	(17.1)	1.62-2.82	(2.13)	35.8-49.6	(42.7)
				YP	2	7.9- 8.2	(8.1)	0.26-0.29	(0.28)	52.6-52.7	(52.7)
				LnSu	13	7.0-12.0	(9.5)	0.12-0.62	(0.32)	31.2-40.8	(34.6)
				WSu	224	6.7- 9.8	(8.1)	0.12-0.36	(0.21)	33.4-45.2	(39.5)
Smith River Res. (10/18/90)	327	1F,1S	18.8	Rb-A-1990	6	8.1-11.4	(9.6)	0.22-0.64	(0.42)	41.4-47.2	(44.6)
				Rb-A-1989	4	13.5-15.1	(14.2)	1.02-1.48	(1.17)	38.3-43.0	(40.8)
				Rb-D-1987	1	-	(16.0)	-	(1.53)	-	(37.4)
				EB	1	-	(7.8)	-	(0.16)	-	(33.7)
				LnSu	42	10.5-17.5	(14.1)	0.42-2.10	(1.10)	32.6-46.5	(38.3)
				WSu	8	6.3-15.1	(9.0)	0.12-1.52	(0.42)	38.5-48.0	(43.2)
				Burbot	1	-	(18.4)	-	(1.32)	-	(21.2)
Eureka Reservoir (7/6/90)	375	3F	19.0	Rb-A-1989	2	14.7-16.5	(15.6)	1.53-1.80	(1.67)	-	-
				Rb-AXE-1989	9	13.5-16.1	(15.1)	0.96-1.77	(1.39)	-	-
(10/12/90)	225	2F	20.5	No Trout		-		-		-	-
				WSu	2	-		-		-	-
Holter Reservoir	Not netted										
Martinsdale Res. (10/18/90)	1000	1F,1S	15.8	Rb-A-1990	31	9.4-11.8	(10.9)	0.34-0.82	(0.60)	40.1-51.4	(47.1)
				Rb-A-1989	32	14.9-17.3	(15.7)	1.32-2.07	(1.52)	34.7-45.0	(39.6)
				YCt-1990	2	10.4-12.6	(11.5)	0.49-0.71	(0.60)	35.5-43.6	(39.5)
				YCt-1989	12	14.3-16.5	(15.4)	1.16-1.72	(1.40)	34.3-44.4	(38.2)
				LL	1	-	(14.2)	-	(1.43)	-	(49.9)
				MW	1		(14.7)		(1.66)		
				WSu	124	6.4-17.4	(12.9)	0.10-2.40	(0.98)	-	(43.0)
				LnSu	1	-	(16.8)	-	(1.70)	-	(35.8)

1-Standard experimental gill nets (nylon and monofilament); F=Floating; S=Sinking
2-Species abbreviations: Rb=Rainbow trout; LL=Brown trout; YCt=Yellowstone cutthroat trout; BT= Brook trout; KOK=Kokanee salmon; LT=Lake Trout; NP=Northern pike; YP=Yellow perch; WSu=White sucker; LuSu=Longnose sucker
Strain abbreviations: A=Arlee; AXE=Arlee x Eagle Lake Hybrid; D=DeSmet; I=Eagle Lake

ble 1. (continued).

Water name Date surveyed)	Surface acres	No. of[1] nets	Mean hours fished/net	Species, strain[2] & year planted	No. of fish	Length(in) Range	Length(in) Mean	Weight(pounds) Range	Weight(pounds) Mean	Condition Factor Range	Condition Factor Mean
ilan Reservior 10/11/90)	400	2F	19.0	Rb-A-1990	1		(11.1)		(0.56)	-	-
				Rb-A-1989	12	13.9-15.8	(14.5)	1.03-1.28	(1.13)	-	-
				LL	1		(18.7)		(2.63)	-	-
ewlan Creek Res. 10/18/90)	280	1F,1S	16.2	YCt	5	9.4-17.1	(14.8)	0.30-1.78	(1.31)	35.6-38.3	(36.6)
				Rb	3	15.2-16.7	(15.8)	1.35-1.82	(1.56)	38.4-39.5	(39.0)
				LnS	76	9.3-17.8	(13.9)	.35-2.26	(1.08)	32.7-43.9	(38.9)
ishkun Reservior 6/27/90)	1500	4S	20.0	KOK	10	6.7- 7.2	(7.0)	0.10-0.12	(0.11)	-	-
				KOK	1	-	(10.8)	-	(0.54)	-	-
				KOK	1	-	(16.7)	-	(1.78)	-	-
				YP	12	6.9-10.3	(7.9)	0.16-0.56	(0.27)	-	-
(7/25/90)	1400	4S	21.0	KOK	14	7.4- 8.9	(8.1)	0.14-0.25	(0.19)	-	-
				KOK	1		(11.8)		(0.60)	-	-
				Rb	1		(14.3)		(1.10)	-	-
				WSu	2	6.9-19.2	-	0.14-3.01	-	-	-
				YP	3		(5.7)		(0.10)	-	-
iber Reservoir											
7/12/90)	17700	4S	21.0	LT	8	20.4-25.1	(23.2)	2.54-4.88	(3.97)	-	-
10/30/90)	15000	3S	22.5	LT	30	20.9-26.0	(29.5)	3.00-5.63		-	-
				LT	3	28.2-31.0	-		-	-	-
				WE	4	12.4-14.3	(13.1)	0.52-0.99	(0.69)	-	-
				NP	1		(16.1)		(0.80)	-	-
				WSu	1		(10.7)		(0.47)	-	-
				Carp	1		(18.0)		(3.20)	-	-
low Creek servoir (10/10/90)	1450	2F	20.0	Rb-A-1990	1		(8.5)		(0.22)	-	-
				Rb-A-1989	5	14.7-16.5	(15.8)	1.07-1.53	(1.35)	-	-
				Rb-AXE-1990	3	8.8- 9.6	(9.2)	0.27-0.32	(0.29)	-	-
				Rb-AXE-1989	2	14.0-14.7	(14.4)	0.97-1.02	(1.00)	-	-
Yellow Water Reservoir (10/24/90)	193	1F,1S	18.0	Rb-A-1990	2	8.7-14.7	(11.7)	0.27-1.82	(1.05)	41.0-57.3	(49.2)
				Rb-A-1989	16	17.2-23.7	(19.8)	2.28-6.88	(3.69)	37.6-59.2	(46.1)
				Rb-A-All	18	8.7-23.7	(18.9)	0.27-6.88	(3.40)	8.7-23.7	(46.5)
				WSu	8	12.0-13.9	(12.8)	0.68-1.00	(0.84)	37.2-41.7	(39.4)

1-Standard experimental gill nets (nylon and monofilament); F=Floating; S=Sinking
2-Species abbreviations: Rb=Rainbow trout; LL=Brown trout; YCt=Yellowstone cutthroat trout; BT= Brook trout; KOK=Kokanee salmon; NP=Northern pike; YP=Yellow perch; WSu=White sucker; LuSu=Longnose sucker
Strain abbreviations: A=Arlee; AXE=Arlee x Eagle Lake Hybrid; D=DeSmet; I=Eagle Lake

Table 2. Survival of rainbow trout strains stocked in 1990 in four waters of Region 4.

Water	No. of nets	No.Fish/Net Arlee	No.Fish/Net AXE	Survival Rating* Arlee	Survival Rating* AXE
Bean Lake	2	10.0	16.5	good	good
Eureka Res.	5	0.0	0.0	poor	poor
Nilan Res.	2	0.5	N/A	poor	N/A
Willow Ck Res.	2	0.5	1.5	poor	poor

*Survival Rating: Good- >8.0 Fish/Net
Fair- 4.0-7.9 Fish/Net
Poor- 0.0-3.9 Fish/Net

EUREKA RESERVOIR

Eureka Reservoir was netted twice during 1990 (Table 1). The July netting produced 11 trout, most of which were AXE rainbow stocked in 1989. The October netting failed to collect any trout. October sampling results were undoubtedly affected by gale-force winds and reduced reservoir levels. Equal numbers of Arlee and AXE were planted in 1990 but survival appears poor (Table 2).

NILAN RESERVOIR

Arlee rainbow trout have been stocked in Nilan Reservoir for many years and good fishing generally results. Poor survival of Arlee stocked in 1990 is apparent. The October netting did capture 12 Arlee from the 1989 plant (Table 1).

WILLOW CREEK RESERVOIR

Gill nets fished during October in Willow Creek Reservoir caught few fish (Table 1). The 40,000 Arlee and 35,000 AXE rainbow trout stocked in 1990 in Willow Creek Reservoir had very poor survival. AXE rainbow have been providing a good fishery in recent years. Very high winds may have affected net effectiveness and reduced the catch, since floating nets were set.

ACKLEY LAKE

Equal numbers (approximately 20,000 of each strain) of Arlee and Eagle Lake strain rainbow trout have been planted in Ackley Lake since 1986. From 1986-87, Arlee rainbow trout were planted in mid-late April, while in 1988-89, plants occurred in mid-May or later.

The Arlee plant in 1990 was made in late May when the mean length of fish was 4.7 inches. The Eagle Lake plant was made in mid-July and the average length was similar to most other years (3.4 inches).

The gill netting survey in October 1990 provided survival information for the Arlee strain for the last 2 years and for Eagle Lake rainbow trout on plants dating back to 1988 (Table 1). Gill net catches were substantially higher for the Eagle Lake strain than for the Arlee plants for both the 1989 and 1990 plants. However, survival of Arlee rainbow trout from the 1989 plant would be considered fair. The difference in mean length between strains from the 1989 plant was 1.6 inches, the same difference in length as at the time of stocking. The difference increased to 2.1 inches for rainbow trout planted in 1990. The mean weight of Arlee was 0.43 lbs greater for the 1989 plants and 0.21 lbs for the trout planted in 1990. The principle item found in stomachs of both strains was plankton; remains of a fish was observed in 3 and 1 Arlee and Eagle Lake stomachs, respectively. Two brown trout stomachs contained fish.

OTHER LARGE RESERVOIRS

PISHKUN RESERVOIR

Gill nets were fished in Pishkun Reservoir to sample kokanee salmon. Ten yearlings were collected in June and another 14 were taken in July (Table 1). This is the first time in several years that any appreciable numbers of kokanee were taken. These fish should enter the fishery in 1991 as 10 - 12 inch fish.

TIBER RESERVOIR

Lake trout were sampled by sinking gill nets in July near the dam and on suspected spawning grounds in the Bootlegger Trail area in late October (Table 1). The lake trout population appears to be increasing. The largest fish taken in the fall sample was over 8.5 pounds. At the present time, this fishery is little utilized. Eighteen of the 33 lake trout taken in October were tagged and released to assist in determining harvest. Stomachs examined in July were all empty while 60 percent were empty in the October sample. The remaining stomachs contained shrimp, insects and unidentifiable fish remains (presumably spottail shiner).

BAIR RESERVOIR

Gill netting results showed good survival among both the 1989 and 1990 Eagle Lake rainbow trout plants (Table 1). Sampling also demonstrated the continued survival of at least small numbers of Yellowstone cutthroat trout.

BIG CASINO CREEK RESERVOIR

Big Casino Creek Reservoir was drained in late fall of 1990 to remove the stunted sucker population and was not refilled until early spring 1991. Gill netting in October 1990 verified the high number of white suckers present. In June 1991, 3,000 Arlee rainbow trout averaging 8.6 inches in length were planted; in following years, we will utilize fingerling plants.

EAST FORK SPRING CREEK RESERVOIR

Although survival of Eagle Lake rainbow trout from the 1987 plant was rated as fair, growth continued to be poor in East Fork Spring Creek Reservoir (Table 1). Brown trout showed improvement in growth rates but survival was poor to fair. We continued to find large numbers of stunted longnose and white suckers. A yellow perch was captured in the gill net and a largemouth bass was recently reported caught by an angler. Fish were found in the stomachs of four brown trout; none of the Eagle Lake rainbow trout stomachs contained fish. The growth of brown trout observed in 1990 sampling provides encouragement that a sport fishery may develop in East Fork that will also utilize a portion of the available forage base of stunted suckers. However, survival among brown trout needs to be increased.

SMITH RIVER RESERVOIR

Although no plants of rainbow trout were made in 1988, water levels in Smith River Reservoir increased enough in 1989 to justify resumption of plants. We continued to plant approximately 12,000 each of Arlee and Desmet rainbow trout. Survey work in October 1990 found fair survival from the 1990 and 1989 Arlee plants (Table 1). The only DeSmet strain rainbow trout netted was one planted in 1987.

MARTINSDALE RESERVOIR

The catch of Arlee rainbow trout planted in both 1989 and 1990 was good (Table 1). Also, good survival of Yellowstone cutthroat trout was observed based on the size of the plants in both 1989 and 1990.

Growth of both species was fairly good. Only one brown trout and one longnose sucker were caught, but substantial numbers of white suckers were netted.

NEWLAN CREEK RESERVOIR

Although the number of Yellowstone cutthroat trout sampled at Newlan Creek Reservoir in two gill nets was rated as fair, it was much lower than in previous years (Table 1). The number of naturally reproducing rainbow trout in the gill nets was considered poor, especially when compared to other years. The wild rainbow trout were longer, heavier, and had higher average condition factors than the cutthroat planted in Newlan Creek Reservoir.

YELLOW WATER RESERVOIR

Water levels in Yellow Water Reservoir have remained low but some stocked Arlee rainbow survived overwinter. A total of 18 rainbow trout were captured during fall,1990 survey work (Table 1). Survival appeared good from the 1989 plant and fish showed exceptional growth and high condition factors. The growth pattern of these fish shows that Yellow Water Reservoir has the capability to provide a trophy fishery. Stomach contents from the rainbow showed utilization of corixids, amphipods, and hemipterans.

Small Ponds, Lakes and Reservoirs

Choteau Area Waters

A number of ponds in the Choteau area have experienced very low water levels in recent years due to drought conditions. Improved moisture conditions allowed several waters to be stocked with rainbow trout in 1989. Ten ponds were sampled in 1990 with gill nets and/or hook and line surveys (Table 3). Based on limited sampling efforts and landowner reports, the following ponds are providing a fishery: Cameron, Ostle and Stewart Reservoirs and Henry, Loch #1, Myrvold Ponds, Lake Shel-oole, and Wood Lake. Forseth and Loch #2 Ponds apparently winterkilled. Two other ponds were surveyed for their ability to sustain fish. These ponds, Gummer and Buffington, both in Liberty County, were considered too shallow to support fish. Fitzpatrick Lake continues to plagued by low water levels and access problems.

Great Falls - Lewistown Area Waters

During the reporting period, we sampled Hassler and Hanson Creek Reservoirs, as well as Upper Carter Pond in the Lewistown area. Buffalo Wallow Reservoir, northeast of Roy, was also netted. Waters surveyed north of Great Falls included Courtnage #1 and Briggs Reservoir. One water south of Great Falls, Hound Creek Reservoir, was also gillnetted. In addition to these waters, Barta, Kingsbury, and Kovacich Ponds and Tunis Reservoir were visited but not netted. Reports were received of total or partial winterkills in Tunis Reservoir and Lower Carter Pond. Summerkill was reported among larger rainbow trout in Drag Creek Reservoir. Woodland Estates Pond and Lanning, Carpenter, and Van Horn

Table 3. Surveys of small ponds and lakes in the Choteau area of Region Four in 1990.

Water (date)	Max. depth (feet)	TDS (ppm)	Sampling[1] method	Mean hrs. fished	Species[2]	No. of fish	Length-inches range (mean)	Weight-lbs. range (mean)
Cameron Reservoir (6/19/90)	30	180	1S	3.0	Rb	2	13.8-15.5(14.7)	1.26-1.45(1.36)
			H/L	3.0	Rb	4	12.8-16.2(14.2)	1.00-1.89(1.31)
Forseth Pond (5/8/90)	6	-	1S	6.0	-	0	- -	- -
Henry Pond (6/19/90)	20	80	1S	3.5	-	0	- -	- -
			H/L	15.0	Rb	5	- (12.3)	- (0.76)
Lake Shel-oole (6/18/90)	20	560	1S	12.0	Rb	3	6.7- 7.3(7.0)	0.11-0.16(0.13)
					Rb	6	10.1-12.9(12.2)	0.38-0.88(0.71)
Loch Ponds #1 (6/21/90)	15	68	1S	3.5	Rb	1	- (14.5)	- (1.20)
Loch Pond #2 (6/21/90)	12	120	1S	3.0	-	0	- -	- -
Myrvold Pond (6/20/90)	12	100	1S	3.0	-	0	- -	- -
Ostle Reservoir (6/7/90)	7	-	1S	4.5	Rb	3	10.2-11.1(10.8)	0.32-0.41(0.39)
					Rb	1	- -	- (2.25)
					WSu	35	6.2-18.1 -	- -
Stewart Reservoir (6/20/90)	22	148	1S	3.5	-	0	- -	- -
			H/L	1.0	Rb	1	- (16.7)	- (1.68)
Wood Lake (7/26/90)	8	-	2S	3.0	Rb	6	7.6-9.9 (9.2)	0.21-0.44(0.37)
			H/L	2.0	Rb	8	6.6-9.5 (8.8)	0.15-0.38(0.32)

1-Standard Experimental Gill Nets (Nylon): S=Sinking H/L = Hook and Line
2-Species abbreviations: Rb = Rainbow trout; WSu = White sucker.

Reservoirs were added to the planting program. Data on the waters surveyed will be presented in the next annual report.

CENTRAL MONTANA RESERVOIRS SUMMER CREEL SURVEY

Weekend creel surveys were conducted on Ackley Lake, Bair, Martinsdale, Newlan Creek and Smith River reservoirs from 17 June - 9 September 1990. Anglers were also interviewed on Tuesday, June 12, 1990 at Ackley Lake and Bair Reservoirs. Ackley Lake is located south of Hobson in Judith Basin County. The other 4 reservoirs are located within 60 miles of White Sulphur Springs.

Five hundred and ninety-nine anglers were interviewed during 13 - 14 visits to each reservoir (Table 4). The creel survey was designed to maximize visitor contact; the reservoirs were surveyed in a non-random sequential manner, but at different times each weekend. Instantaneous counts of boats and shore anglers were completed at the beginning and end of each site visit on and after 23 June 1990. Seventy percent of the anglers were from Yellowstone, Fergus, Cascade, and Meagher Counties. Only 4% were non-residents. The majority of anglers in boats used lures, while the most shore anglers fished with bait. Catch rates and harvest rates were similar in most cases, however, in a few cases rainbow catch and harvest rates differed by 0.1 fish/hour. Overall catch and harvest rates for all reservoirs were similar for both boat and shore anglers. At all of the reservoirs at least 70% of the anglers were targeting trout, with almost everyone else seeking any fish. At Newlan Creek and Bair reservoirs 5 and 3% of the fishermen were trying to catch cutthroat trout (Table 4).

Ackley Lake

Ackley Lake is an off-stream storage reservoir from the Judith River, with a surface area of approximately 250 acres. During summer 1990, surface water temperature varied from 17.2-22.2°C (63-72°F) and bottom temperatures ranged from 15.6-18.9°C (60-66°F). Peak temperatures were found during mid August.

As mentioned before, both Eagle Lake and Arlee strain rainbow trout have been planted in Ackley Lake since 1986; all Eagle Lake have been fin clipped for identification. Boat angler and shore counts averaged 3.2 and 1.4. Although over 60% of the anglers were fishing from boats, the catch rate from shore was higher (0.4 fish/hour) than from boats (0.2 fish/hour). Overall catch rates were 0.3 fish/hr for rainbow trout. A single brown trout was the only non-rainbow seen during the creel (Table 4). Eagle Lake rainbow trout comprised 56% of the rainbow creel compared to 44% for the Arlee strain. As previously observed by the warden creel survey in 1989 (Hill et al. 1990), the summer 1990 creel survey showed the Arlee strain tends to be harvested within the first two years of stocking (Table 5). Eagle Lake rainbow trout harvest

tended to be delayed an additional year. Growth rates were similar for the two strains. Eagle Lake were about 95% of the length of Arlee for all age classes (Table 5).

Table 4. Summary of information gathered from central Montana reservoir creel survey, 1990

	ALL RESERVOIRS			ACKLEY			BAIR			MARTINSDALE			NEWLAN CREEK			SMITH RIVER		
	ALL	BOAT	SHORE	ALL	BOAT	SHORE	ALL	BOAT	SHORE	ALL	BOAT	SHORE	ALL	BOAT	SHORE	ALL	BOAT	SHORE
No. Interviewed	599	347	252	134	84	50	83	25	58	218	154	64	134	63	71	30	21	9
Ave. hrs/angler	2.7	2.6	2.7	2.5	2.4	2.6	2.4	1.9	2.7	2.9	2.8	3.0	2.5	2.4	2.6	3.0	3.7	1.4
Ave. party size	2.3	2.5	2.2	2.3	2.5	2.1	2.5	2.5	2.5	2.3	2.4	2.1	2.3	2.5	2.1	2.5	3.0	1.8
ANGLER ORIGIN (Percent)																		
Yellowstone	40.9			12.7			36.1			64.2			28.4			66.7		
Cascade	8.7			3.0			2.4			0.0			34.3			0.0		
Fergus	16.5			65.7			0.0			1.8			5.2			0.0		
Meagher	4.3			0.0			3.6			4.6			7.5			10.0		
Judith Basin	2.3			10.4			0.0			0.0			0.0			0.0		
Non resident	4.0			3.7			1.2			3.7			4.5			13.3		
FISH CAUGHT/HR																		
Rainbow Trout	0.3	0.3	0.2	0.3	0.2	0.4	0.1	0.1	0.1	0.4	0.5	0.2	0.0	0.1	0.0	0.2	0.2	0.0
Brown Trout	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cutthroat	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
E.Brook Trout	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FISH HARVESTED/HR																		
Rainbow Trout	0.2	0.3	0.2	0.2	0.2	0.3	0.1	0.1	0.1	0.3	0.4	0.2	0.0	0.0	0.0	0.2	0.2	0.0
Brown Trout	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cutthroat Trout	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
E.Brook Trout	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FISH CAUGHT																		
Rainbow Trout	433	310	123	101	49	52	28	4	24	274	231	43	15	11	4	15	15	0
Brown Trout	5	5	0	1	1	0	0	0	0	4	4	0	0	0	0	0	0	0
E.Brook Trout	2	1	1	0	0	0	1	0	1	0	0	0	1	1	0	0	0	0
Cutthroat Trout	42	17	25	0	0	0	17	1	16	1	1	0	24	15	9	0	0	0
Method																		
% Lures	49.2	77.2	10.7	49.3	77.4	2.0	39.8	84.0	20.7	61.9	85.1	6.2	32.8	58.7	9.9	56.7	66.7	33.3
% Flies	2.5	1.7	3.6	1.5	2.4	0.0	4.8	0.0	6.9	0.0	0.0	0.0	6.7	6.3	7.0	0.0	0.0	0.0
% Bait	38.7	9.2	79.2	37.3	3.6	94.0	47.0	8.0	63.8	33.9	11.0	89.1	47.0	11.1	78.9	20.0	14.3	33.3
% Combo	5.5	6.3	4.4	6.0	9.5	0.0	6.0	0.0	8.6	1.4	1.9	0.0	10.4	17.4	4.2	10.0	0.0	33.3
TARGET SPECIES																		
%Rainbow Trout	3.9	5.0	2.6	1.7	0.0	4.2	0.0	0.0	0.0	9.6	10.9	6.7	0.0	0.0	0.0	0.0	0.0	0.0
%Cutthroat Trout	1.6	0.7	2.6	0.0	0.0	0.0	3.0	0.0	4.3	0.0	0.0	0.0	5.1	4.0	5.9	0.0	0.0	0.0
%All Trout	79.7	84.3	74.1	79.3	79.4	79.2	81.8	100.0	73.9	81.9	82.9	80.0	74.6	84.0	67.6	83.3	100.0	60.0
%All Fish	11.3	6.4	17.2	19.0	20.6	16.7	15.2	0.0	21.7	2.1	0.0	6.7	15.3	8.0	20.6	16.7	0.0	40.0

Bair Reservoir (Harris Lake)

Surface temperatures during summer 1990 in Bair Reservoir varied from 17.8-20.0°C (64-68°F); bottom temperatures ranged from 12.8-17.8°C (55-64°F). Bair Reservoir was nearly dry by the end of 1988, but water levels were adequate for stocking by May 1989. It was stocked with 20,000 Eagle Lake Rainbow Trout in 1989 and 1990, and with 10,000 6.8 inch catchable Yellowstone cutthroat trout in spring 1989.

Instantaneous counts averaged 1.2 for boat anglers and 1.0 for shore anglers. Both shore and boat catch rates were 0.1 fish/hour for rainbow trout (Table 4); shore anglers also reported catch rates of 0.1 cutthroat trout/hour. Fifty-four percent and 31% of the shore rainbow and cutthroat catch, respectively, was accounted for by two parties creeled on Tuesday, June 12, 1990 during a test run before initiating the weekend survey. Average length of the rainbow and cutthroat trout were 12.3 and 12.7 inches, respectively (Table 5).

Table 5. Species, strain and yearclass data for 1990 central Montana creel harvest based on size and marking data.

Reservoir	Species Strain	Year Planted	No. Caught	Percent Catch	Length Average	Length Range	Mark
Ackley	Rb-Arlee	1990	12	20.0	8.7	(7.4 - 9.2)	None
	Rb-Arlee	1989	11	18.3	14.2	(12.4 -16.0)	None
	Rb-Arlee	1988	3	5.0	16.7	(15.0 -19.0)	None
	Rb-Eagle Lk	1990	1	1.7	8.5	-	Adipose
	Rb-Eagle Lk	1989	23	38.3	13.8	(12.5 -15.8)	Adipose
	Rb-Eagle Lk	1988	8	13.3	15.9	(15.5 -17.0)	L.Pelvic
	Rb-Eagle Lk	1987	1	1.7	17.4	-	Adipose
	Brown Trout		1	1.7	17.3	-	None
Bair	Rb-Eagle Lk	1989	24	57.1	12.3	(10.9 -14.0)	None
	Y.Cutthroat	1989	17	40.5	12.7	(12.0 -13.8)	None
	E. Brook Trout		1	2.4	10.2	-	None
Martins-dale	Rb-Arlee	1990	63	31.5	9.5	(8.4 -10.5)	None
	Rb-Arlee	1989	132	66.0	14.9	(13.2 -15.9)	None
	Y.Cutthroat		1	0.5	11.4	-	None
	Brown Trout		4	2.0	14.4	(12.5 -17.0)	None
Newlan Creek	Rb		12	42.8	11.9	(8.1 -15.9)	None
	Y.Cutthroat		15	53.5	15.4	(12.5 -18.1)	None
	E.Brook Trout		1	3.5	17.0	-	None
Smith River	Rb-Arlee and DSmet		15	100.0	13.7	(13.2 -14.5)	Adipose & ?

Martinsdale Reservoir

Surface water temperature in Martinsdale Reservoir varied from 18.9-21.1°C (66-70°F). Bottom temperatures stayed near 13.9°C (57°F) until late July and increased to 17.8°C (64°F) by 9 September. One hundred thousand Arlee rainbow trout are stocked annually. In 1990, 1900 Yellowstone cutthroat trout which averaged 6.7 inches in length were also planted.

Two hundred and eighteen anglers were interviewed; boat and shore angler counts were 11.3 and 1.2. This suggests that Martinsdale Reservoir received the highest use of the 5 reservoirs surveyed during summer 1990. Boat anglers accounted for 71% of the people interviewed. Ninety-eight percent of the catch was rainbow trout, with catch rates of 0.5 rainbow/hr for boaters and 0.2 fish per hour for shore anglers (Table 4). The higher relative use at Martinsdale Reservoir may have been associated with the water providing the greatest overall catch rates during the creel survey. Average length of rainbows was 13.1 inches. Sixty-six percent of these rainbow were from the 1989 plant, while the rest were from the 1990 plant. Four brown trout and 1 Yellowstone cutthroat were the only other fish surveyed (Table 5).

Newlan Creek Reservoir

Newlan Creek Reservoir, formed by impounding Newlan Creek in 1976, is approximately 327 acres. Surface water temperature was 18.3°C (65°F) in late July and increased to 20.6°C (69°F) by early August. Temperature at the bottom of the reservoir varied from 7.8-11.1°C (46-52°F). Newlan Creek Reservoir is stocked with 40,000 Yellowstone cutthroat trout annually and contains a naturally reproducing rainbow trout population.

One hundred and thirty four people were interviewed and counts showed an average of 3.8 boat anglers and 2.4 shore anglers. However, only 15 rainbow and 24 cutthroat were seen during the creel survey. These fish were caught during 335 hours of fishing, resulting in catch rates of 0.1 cutthroat/hr for boat fishing and less than 0.1 fish/hr for other species and for shore fishermen (Table 4). The average length was 11.9 inches for rainbow trout, and 15.4 inches for Yellowstone cutthroat trout (Table 5).

Smith River Reservoir (Sutherlin Reservoir)

Smith River Reservoir, an irrigation reservoir of about 320 acres, located on the North Fork of the Smith River where 12,000 Arlee and DeSmet rainbow trout are planted each year. Due to low water levels this reservoir was not planted in 1988. However, portions of the 1987 Arlee and DeSmet plants successfully overwintered (Hill

et al. 1990). Surface temperatures on Smith River Reservoir during the creel survey were 18.3-20.6°C (65-69°F) while bottom temperatures varied from 12.2-15.6°C (54-60°F).

Smith River Reservoir appears to have been visited less than the other waters creeled during summer 1990. Only 30 people were interviewed and angler counts were 1.2 and 0.3 for boat and shore fishermen. No fish were caught from shore, but boat catch rates averaged 0.2 rainbow/hr (Table 4). Rainbow for the 1989 plant were the only fish caught and averaged 13.7 inches (Table 5). Seven of these fish were DeSmet, 2 were Arlee, and for 6 others it was impossible to determine the strain because they had their fins removed.

Angler Satisfaction

One of the main reasons for conducting the survey of anglers on Central Montana reservoirs was to determine satisfaction with MDFW&P fisheries management efforts. Angler demand for warm and coolwater species fishing opportunities has increased in recent years. In early 1990 we received a petition with more than 350 signatures requesting that trout stocking in Ackley Reservoir cease in favor of species like walleye, sunfish, crappie and bass. Consequently, each group of anglers interviewed during the creel survey was asked to rate their fishing success (number and size of fish caught) and if they were satisfied with the fish species present. Anglers not satisfied with current species management were asked what other species they would prefer. Anglers were also asked for comments on management in general.

Responses to angler satisfaction questions were obtained from 11-90 groups of anglers on each of the five reservoirs (Table 6). The actual number of anglers interviewed was higher since party size averaged around 2.4 anglers per group. Angler satisfaction with number of fish caught was generally consistent with catch rates determined from the creel survey (Table 6). Highest rate of satisfaction was found on Martinsdale Reservoir, where 28% of anglers rated number of fish caught as good or excellent. Average catch rates for trout on Martinsdale (0.44 fish per hour) were excellent compared to the other reservoirs surveyed and were very good in comparison to other Montana waters. It is interesting to note that even on the best fishing reservoir, less than one-third of anglers ranked the fishing as good to excellent. Satisfaction with catch rate was lowest on Newlan Creek Reservoir, which also had the lowest catch rate (0.12 trout per hour). Catch rate satisfaction on North Fork Smith Reservoir was higher than expected based on measured catch rate and may have been influenced by small sample size (only 11 parties interviewed).

Angler satisfaction with size of fish caught was similar between reservoirs with one exception (Table 6). The largest average size fish were caught in Newlan Creek Reservoir but only 15% of anglers

rated size as good or excellent. This result was probably affected by low catch rate; many anglers caught no fish hence had little choice other than to rate size as "poor". More than 90% of anglers were satisfied with fish species currently available in each reservoir.

Table 6. Angler satisfaction (by percent) on five reservoirs in central Montana.

	Ackley	Bair	Martinsdale	Newlan	NF Smith
Trout caught/hr.	0.30	0.23	0.44	0.12	0.17
Ave. size - trout	13.3"	12.4"	13.2"	14.0"	13.7"
No. parties	57	31	90	58	11
No. fish caught:					
Excellent	5%	6%	6%	2%	9%
Good	17%	7%	22%	5%	18%
Fair	11%	13%	30%	9%	18%
Poor	67%	74%	42%	84%	55%
Size of fish:					
Excellent	11%	0%	3%	3%	0%
Good	25%	23%	43%	12%	45%
Fair	16%	23%	22%	5%	0%
Poor	48%	54%	32%	80%	55%
Satisfied w/ species available?:					
Yes	96%	97%	93%	93%	100%
No	4%	3%	7%	7%	0%

Two groups of anglers on Ackley Reservoir were not satisfied with current species. One group favored bass, crappie and/or bluegill while the other preferred kokanee salmon. One group of anglers on Bair Reservoir was not satisfied with current species availability and wanted brown trout added. Six groups of anglers were not satisfied with current fish species in Martinsdale Reservoir. Three of these groups requested cutthroat trout or more cutthroats, two favored brown trout or more browns, and one group preferred walleye. Two of the four dissatisfied groups on Newlan Creek Reservoir favored rainbow trout or more rainbows, one preferred walleye, and one preferred yellow perch.

There were a number of general comments on the management of the five reservoirs. Many anglers were very pleased with overall management on Ackley Reservoir (12 comments). Four groups on Ackley mentioned water level problems, three complained about restrooms, and three believed garbage cans were needed. Most of the comments at Martinsdale Reservoir were complimentary (17 comments). Thirteen groups mentioned need for more trees and/or picnic tables, 11 mentioned restrooms were unsatisfactory or more were needed, and nine commented that suitable water levels need to be maintained. Several parties of anglers at Martinsdale commented that boat ramps were crowded and more were needed. Most of the comments from Newlan Creek anglers were positive and complimented current management (11 comments). Four groups mentioned a need for more campsites or level spots. Two groups at Newlan mentioned unsatisfactory restrooms wile two other groups commented that restrooms were clean.

DISCUSSION AND RECOMMENDATIONS

Evaluation of Arlee and AXE rainbow strains continued in Bean Lake, Eureka, Nilan and Willow Creek Reservoirs. Both strains had good survival in Bean Lake but AXE continue to outnumber Arlee. Growth of both strains in Bean lake is nearly identical but AXE show better longevity with some fish making it to the third summer. Poor survival of both strains was detected in Willow Creek Reservoir, but it should be noted that sampling was affected by very high winds. In recent years, AXE had good survival but survival of Arlee rainbow was poor. Nilan Reservoir generally has fair to good survival of Arlee rainbow but this was not the case in 1990. AXE are not planted in Nilan. The rainbow fishery in Eureka Reservoir continues to be poor although several carryover AXE from 1989 were taken during 1990 surveys. No Arlee or AXE from the 1990 planting were taken in October and may be related to high winds similar to those experienced at Willow Creek Reservoir. We recommend continued stocking of Arlee rainbow in Nilan Reservoir and both Arlee and AXE rainbow in Bean Lake, Willow Creek and Eureka Reservoirs. Rainbow stocking in these reservoirs is a total failure in some years for unknown reasons. Hopefully, one of the two strains will survive to provide a fishery in bad years. We also recommend introduction of DeSmet rainbows in Eureka Reservoir as discussed in an earlier report (Hill et al. 1990).

Pishkun Reservoir is being stocked with 300,000 kokanee salmon annually in an attempt to re-establish a salmon fishery. This schedule will extend through 1991 at which time a decision will be made whether or not to continue stocking kokanee. It appears that fair numbers of kokanee will be available to fishermen during 1991.

Lake trout populations are increasing in Tiber Reservoir. We recommend collection of additional data on lake trout in Tiber. Lake trout harvest should be quantified and it may be advisable to

inform anglers of the available resource.

Small lakes and ponds in the Choteau area should continue to be monitored for water level conditions and survival of stocked rainbow trout. Marginal ponds should be removed from the stocking program and new ponds should be added if able to sustain a fishery.

The survival of Arlee strain rainbow trout in Ackley Lake has improved substantially since the planting date was delayed until mid-May. We recommend continued stocking both the Arlee and Eagle Lake strains in hopes of providing a more stable fishery. Poor survival of one plant could possibly be dampened by successful plants of the other strain in a different year. Arlee plants should be scheduled for mid-May or later and when their mean length is 5.0 inches or greater.

We will continue to evaluate plants of piscivorous species that may utilize the large forage base of suckers in East Fork Reservoir. Brown trout will be continued to be stocked for several additional years to allow them to reach an adequate size to become effective piscivores. If brown trout survival can be increased, switching to another predator species may not be necessary. If brown trout are not successful, the reservoir may be drained periodically to eliminate the sucker population and then restocked with more desirable species. The effectiveness of this practice will be evaluated in nearby Big Casino Reservoir.

Smith River Reservoir should continue to be planted with both the Arlee and DeSmet strains of rainbow trout for at least another two years. During this time we will attempt to monitor the DeSmet population's use of tributaries for spawning. The 1987 DeSmet plants were made in May using fish averaging 7.6 inches in length. Survival from the 1989 DeSmet plant was fair, but low enough that we should consider increasing the number of fish planted and/or the average size of fish stocked or change the time of the release.

Survival of the Arlee rainbow trout plants from 1990 and 1989 was exceptional in Martinsdale Reservoir. Yellowstone cutthroat trout planted in both 1990 and 1989 also showed good survival. Yellowstone cutthroat trout will be added to the annual stocking schedule for Martinsdale in part because food habit information showed heavy use of sucker fry by the cutthroat.

If poor survival of Yellowstone cutthroat trout in Newlan Creek Reservoir continues, we should change planting strategies, including numbers, sizes, and perhaps even species. The inlet stream should be trapped in springtime to quantify the spawning run of rainbow and determine if cutthroat trout have also begun to reproduce.

The stocking program for Yellow Water Reservoir was modified so an plant of catchables is made early in the year as long as water

levels remain low. An additional plant of fingerling rainbow should also be made if water levels increase during the year to the point where overwinter survival is expected. Planting catchables early in the season will allow these fish to enter the fishery the same year and provide a more consistent fishery even in low water years. Fingerlings should be stocked exclusively if several good years of runoff occur and water levels in the reservoir improve to the point where overwinter survival is likely.

ACKNOWLEDGEMENTS

The authors wish to acknowledge several individuals for assistance in fulfilling the objectives of this project. Paul Hamlin, Rich Kummer and Kelly Smith assisted in all aspects of data collection and analysis. Bruce Chaney, Emerald Asmus, Bryce Christensen and Tim Hill helped in netting operations. Jim Peterson assisted in analysis of vertebra for tetracycline marks. Anne Tews typed the report and analyzed and wrote the central Montana reservoirs summer creel survey section of the report.

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Date: August 1991

Principal Fish Species Involved:
Rainbow trout, brown trout, lake trout, kokanee salmon, Yellowstone cutthroat trout.

Code Numbers of Waters Referred To In Report:

14-7001 Briggs Reservoir
14-7120 Cameron Reservoir
14-7320 Eureka Reservoir

14-7370	Fitzpatrick Lake
14-7620	Henry Pond
14-8060	Loch Pond #1 and #2
14-8250	Myrvold Pond
14-8420	Ostle Reservoir
14-8935	Lake Shel-oole
14-9091	Stewart Pond
14-9240	Tiber Reservoir
14-9380	Tunis Reservoir
14-9485	Van Horn Reservoir
16-1870	Lanning Reservoir
16-4300	Ackley Lake
16-4400	Barta's Pond
16-4610	Carpenter Reservoir
16-4620	Lower Carter Reservoir
16-4620	Upper Carter Reservoir
16-4628	Big Casino Creek Reservoir
16-4785	Courtnage Reservoir #1
16-4950	East Fork Spring Creek Reservoir
16-5535	Hanson's Reservoir
16-5720	Hasslers Reservoir
16-6260	Kingsbury Pond
17-8720	Bean Lake
17-9136	Holter Reservoir
17-9140	Hound Creek Reservoir
17-9330	Newlan Creek Reservoir
17-9616	Smith River Reservoir
17-9870	Woodland Estates Pond
18-7340	Buffalo Wallow Reservoir
18-7750	Bair Reservoir
18-8110	Kovacich Pond
18-7560	Drag Creek Reservoir
18-8380	Martinsdale Reservoir
18-9500	Yellow Water Lake
20-7270	Forseth Pond
20-7900	Nilan Reservoir
20-7950	Pishkun Reservoir
20-8500	Willow Creek Reservoir
20-8550	Wood Lake