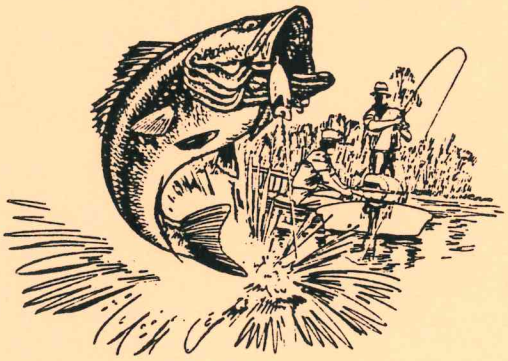
Montana Statewide Angling Pressure 1991



Montana

Statewide Angling Pressure

Mail Survey

1991

Prepared by:

Robert C. McFarland
Janet E. Hughes

Montana Department of Fish, Wildlife and Parks

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INTRODUCTION

The Montana Department of Fish, Wildlife and Parks has conducted statewide angling mail surveys in the past. Bishop (1959, 1960 & 1961) conducted the first recorded mail survey of fishing pressure on a statewide basis for Montana. He found that residents fished 1,323,129 angler days, nonresident season license holders fished 60,632 angler days, and nonresident 6-day permit holders fished 40,933 angler days for the 1958 season. In 1959 residents fished 1,345,000 angler days, nonresident season license holders fished 54,000 angler days, and nonresident 6-day permit holders fished 121,000 angler days. In 1960 the third annual survey was conducted and residents fished 1,356,000 angler days, nonresident season license holders fished 53,000 angler days, and nonresident 7-day permit holders fished 112,000 angler days.

In 1968 the statewide angling pressure mail survey was again initiated by Holton (1970). He found residents had fished 1,519,126 angler days, nonresident season license holders fished 69,653 angler days, and nonresident 6-day permit holders fished 161,772 angler days. Holton (1971) conducted another statewide survey for the 1969 license year. No results were reported because it was felt they were too high due to sampling problems.

In 1975, Gaffney (unpublished data) conducted a statewide survey of angling pressure by mail. He found residents fished a total of 2,314,030 angler days and nonresidents 508,034 angler days for a statewide total of 2,822,093 angler days. An attempt was made to continue that statewide survey in 1976 using the 1975 mailing lists. This did not provide adequate samples for nonresidents, so only resident pressure was obtained.

Holton (1974) stated,

> "The lack of up-to-date fishing pressure information on individual waters has been a handicap in fisheries management. It is recommended that (the) evaluation of (a) mail survey to fill this need be accomplished as soon as feasible."

The surveys were started again in 1982 and run for four consecutive years (McFarland, 1989). The statewide angling pressure ranged from 2,197,402 to 2,723,713 angler days. In 1986 the surveys were again cancelled for lack of funding.

In 1989, the Montana Legislature approved funding for an "Enhanced Survey of Angling Pressure". The funding was such that the survey was to be conducted every other year. In March, 1989, the statewide angling use mail survey was again re-initiated. The statewide angling pressure was estimated at 2,336,085 angler days (McFarland, 1991).

METHODS

The 1991 statewide angling mail pressure survey began in March of 1991 and was conducted for the license year ending in February, 1992.

Samples were drawn from the Department's Sportsman's Database. There are six types of fishing licenses available to residents: a season license, a combo license, a sportsman's license, a "senior" license, a "youth" license and a disabled license. A season license is required for those resident anglers between the ages of 15 and 61 inclusive (a conservation license is required as a prerequisite to purchasing any fishing license). Residents between the ages of 12 and 14 inclusive, are required to purchase a conservation license to fish. These were determined by using the date of birth on the Conservation license and were classified as "youth" license holders. The combo license combines a season fishing license and a conservation license. A sportsman's license provides a deer "A" tag, elk tag, bear tag, conservation license, a game bird stamp and a fishing license. Residents 62 years of age and older are entitled to fish by purchasing a conservation license. These were determined by using the date of birth on the Conservation license and were classified as "senior" license holders. Residents who are certified as permanently and substantially disabled may purchase a "Disabled Persons Conservation License". The "senior", "youth", and "disabled" licenses were combined for the "SYD" population.

Nonresidents 15 years of age and older must have a valid Montana fishing license to fish. Those nonresidents under the age of 15 may fish by buying a nonresident license or by being in the company of an adult with a valid Montana fishing license. If the latter, the combined limit may not exceed the limit for one adult. Nonresidents have four types of licenses available for fishing in Montana; a combo license, a seasonal license, a two-day permit, and the big game combo. A nonresident conservation license is required as a prerequisite to purchaasing any nonresident fishing license. The combo license combines a nonresident conservation license and seasonal fishing license. The big game license includes a conservation license, an elk tag, a deer "A" tag, a black bear tag, a fishing license and an upland game bird license. A two-day permit enables the nonresident angler to fish for two consecutive days of their choice. Anglers may purchase as many two-day permits as they want.

A computer program was written in PASCAL to create three populations of anglers from which to draw samples. A resident population, a nonresident population and a "SYD" population were created each month. The resident population comprised the following license types: combo, season, and sportsman. The nonresident population comprised the following license types: nonresident combo and nonresident season. The "SYD" population consisted of the following license types: senior (62 years of age and older), youth (between 12 and 14 years of age inclusive), and disabled.

Gaffney (1982) sampled the 17,000 nonresident big game license holders in 1980 and found that 29.6% had fished while in Montana. They averaged 3.9 days fishing per person which would account for nearly 20,000 man days of use. This is less than 1% of the total pressure in the state. Due to budgetary constraints and the small amount of pressure, the big game license holders were not included in the nonresident sampling for 1991.

A PASCAL computer program was used to pull a random sample from each population. The amount pulled from each population was proportionally allocated to the angling pressure each population exerted from previous surveys. This proportion remained constant throughout all sampling periods.

The sample from each population was copied into a dBASE format structure and wave information and sequential serial numbers added. Mailing labels were produced and affixed to each questionnaire. The questionnaire, and a return envelope were stuffed into window envelopes and mailed (see appendix for examples). All questionnaires were mailed bulk rate.

Sampling was done on a stratified basis. Strata (waves) were monthly for the resident, seasonal nonresident, and SYD populations (Table 1).

Nonresident 2-day license holders could not be sampled directly, so nonresident conservation license holders were sampled and questions asked to ascertain if they were valid 2-day permit holders. These questionnaires were sent out in February since less than 1% (1,031) of the 2-day permits are remitted after this date. The questionnaire asked about their fishing in Montana for the entire license year.

Table 1. Period of time covered for waves for the 1991 statewide angling survey.

Wave	Time Period covered
1	March '91
2	April
3	May
4	June
5	July
6	August
7	September
8	October
9	November
10	December
11	January '92
12	February
99	Nonresident 2-day

Authorized private dealers sell fishing licenses throughout the state. In addition the seven regional headquarters and the Helena office sell licenses. All licenses are to be remitted to the licensing bureau in Helena by the 10th of the following month of the sale. Each license is a five-part form. The original remains with the angler, the first copy was sent to Bozeman for use in the surveys, the second copy was retained in Helena, the third copy was sent to the area warden and the fourth copy was retained by the license dealer. The licenses usually arrived in Bozeman one week after they were remitted to Helena. Samples for the previous month were then pulled and the questionnaires mailed around the 20th of the following month. For example, samples for August would be pulled and sent around the 20th of September.

Table 2. Number of questionnaires sent for each wave by residency for 1991

Wave	Mailed Res	Nonres	Useable Res	Nonres	Returns Res	Nonres
1	325	25	319	25	218	19
2	4635	365	4295	319	2869	228
3	9270	730	8444	641	5155	441
4	9270	730	8375	625	5043	406
5	9270	730	8266	630	4857	419
6	9270	730	8254	643	4889	431
7	9270	730	8289	658	5170	476
8	9270	730	8241	637	5401	442
9	4635	365	4188	313	2993	235
10	4635	365	4135	323	2975	241
11	4635	365	4086	325	3034	233
12	4635	365	4125	310	2780	224
99		10000		8756		4969

Past surveys indicated that residents provide approximately 80% of the pressure (Gaffney 1975, McFarland 1989, McFarland 1991), therefore sampling was done on a 80/20 split between residents and nonresidents (i.e. proportional allocation). Actual numbers sent varied slightly from wave to wave (Table 2). Proportional allocation was used for determining sample sizes from wave to wave. For the "summer" waves 10,000 residents and nonresidents were sampled. In the "winter" the rate dropped to 5,000 residents and nonresidents. Since waves 1 and 2 had fewer license holders from which to sample, these two waves were sampled at a less intense level.

Two survey questionnaires were used, one for residents and season nonresidents and the other for 2-day nonresidents. The resident/nonresident questionnaire (see appendix A for examples), included questions on: what water was fished; nearest landmark , town, or county; section of stream or river fished (taken from map on back of questionnaire); date fishing occurred; and number of days fished; and whether the fishing was primarily from shore, boat or ice. The 2-day questionnaire was the same basic design but included questions to ascertain if the respondent was a valid 2-day fishing permit holder and how many permits they bought. The survey also asked about their entire year of fishing versus a single month.

To ease the sorting process different colored forms were used for each wave and also for initial and remail mailings.

Remail questionnaires were mailed, to those individuals who had not yet responded, from two to four weeks after the initial mailing. Returns for each wave were monitored and when they slowed down to a few each day the remail was sent. Included in the remail was an explanation, (see appendix A for examples), a duplicate questionnaire and a return envelope. Returns were grouped and counted according to type of license, wave and mailing (initial or remail).

Phone surveys were made to resident anglers who had not responded in either the initial or remail mail survey. The phoning began with wave 2 (April) and continued through wave 12 (February). The phoning

was not done during March since phone numbers were not included in the sample for this wave. Data from this survey was used to modify each wave for the nonresponse bias. The formula used was:

$$A_{ij}=R_{ij}+\frac{P_{ij}}{M_{ij}}[1-R_{ij}]$$

where A_{ij} = Adjustment factor for nonresponse for the ith wave and jth residency

R_{ij} = Response rate for mail survey for ith wave and jth residency (response rate is the total number of returns divided by the total number of surveys mailed out minus the number of nondeliverable surveys)

P_{ij} = Phone rate of days fished per respondent for ith wave and jth residency

M_{ij} = Mail rate of days fished per respondent for ith wave and jth residency

Since no significant difference (P=.40, paired t-test=.91) was found in response rates between mail and phone respondents the adjustment factors were all set to 1.0.

After all questionnaires were received those that had fished in Montana during the period in question were separated from those who said "no". The "yes" respondents were then hand coded and assigned a numeric code for each water fished. They were visually edited for accuracy and completeness.

All data were then keypunched with each day of fishing recorded as a single record. Edits were run to correct invalid water codes. FORTRAN computer programs were written to analyze the data and calculate fishing pressure and standard errors.

Estimates were made for individual waters based upon the formula:

$$P_j=\sum_{i=1}^{n}\left[\frac{E_{ij}*D_{ij}}{R_{ij}}\right]*A_{ij}$$

where P_j = Pressure for an individual water by the jth residency

E_{ij} = Number of eligible anglers for the ith wave and jth residency

D_{ij} = Days fished that particular water for the ith wave and jth wave

R_{ij} = Number of respondents from the survey for the ith wave and jth residency

A_{ij} = Adjustment factor for nonresponse for the ith wave and jth residency

n = number of waves in the estimate year or season
j = number of residency types (resident, nonresident, or total)

the variance was then calculated using

$$VAR(P_j) = \sum_{i=1}^{n} \left[\frac{E_{ij}^2 * VAR(D_{ij})}{R_{ij}} \right] * A_{ij}^2$$

Where P_j, E_{ij}, R_{ij}, D_{ij}, and A_{ij} are the save as above.

Pressure estimates between waves and residency were assumed to be independent so variances were summed to obtain total variances. The square root of the variance was taken and this number was reported as the error for fishing pressure.

RESULTS

1991 ANNUAL

Licensed anglers fishing on Montana waters exerted 2,300,880 angler days of pressure for the 1991 license year. Residents accounted for 1,807,448 angler days (78.6%) and nonresidents made up the remaining 493,432 angler days (21.4%). Individual water estimates sorted alphabetically are given in a separate report "Montana Statewide Angling Pressure 1991".

The pressure distributed between Fish, Wildlife and Parks regions (Figure 1) emphasizes the cold water fishery (Chart 1). Region 3 received the most angling pressure with 582,014 angler days (25.3%). Regions 4 and 1 were next in order with 490,129 angler days (21.3%) and 405,705 (17.6%) angler days respectively. Region 2 had 333,708 angler days (14.5%) while region 5 had 278,088 angler days of use (12.1%). The warm water regions of 6 and 7 were the lowest in pressure with 121,461 (5.3%) and 71,769 (3.1%) angler days respectively.

Angling in Montana in 1991 was directed toward trout. Salmonid waters accounted for 86.7% (1,996,209 angler days) of the statewide pressure while nonsalmonid waters accounted for 9.1% (208,350 angler days) of the pressure and undesignated waters accounted for 4.2% (96,321 angler days) of the pressure (Chart 2). An undesignated water is one that did not have a unique code to assign, and therefore water type could not be determined. This water was assigned a generic code based on drainage and county so angling pressure could be estimated.

Within salmonid waters, the streams received slightly more pressure than the lakes, 56.0% versus 44.0%. The nonsalmonid lakes received more pressure than the nonsalmonid streams, 57.9% versus 42.1% respectively.

Salmonid angling dominated the pressure in regions 1, 2, 3, 4, and 5. Regions 6 and 7 were predominately nonsalmonid angling (Chart 3, Table 4).

Table 4. Angling pressure in angler days by region by water type for the 1991 angling year.

REG	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NON-RESIDENTS PRESSURE	NON-RESIDENTS TRIPS
1							
	SALMONID STREAM	118962.	3363.	91318.	2386.	27644.	977.
	SALMONID LAKE	256549.	7167.	199421.	5167.	57128.	2000.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	18044.	443.	17548.	423.	496.	20.
	UNDESIG STRM MGMT	3423.	106.	2342.	65.	1081.	41.
	UNDESIG LAKE MGMT	8727.	230.	6328.	156.	2399.	74.
	REGIONAL PRESSURE ESTIMATES:	405705.	11309.	316957.	8197.	88748.	3112.
2							
	SALMONID STREAM	224549.	6379.	175281.	4709.	49268.	1670.
	SALMONID LAKE	96166.	2496.	83850.	2114.	12316.	382.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	7809.	213.	6411.	178.	1398.	35.
	UNDESIG LAKE MGMT	5184.	144.	4389.	117.	795.	27.
	REGIONAL PRESSURE ESTIMATES:	333708.	9232.	269931.	7118.	63777.	2114.
3							
	SALMONID STREAM	392939.	11441.	239252.	6414.	153687.	5027.
	SALMONID LAKE	177804.	4886.	126702.	3392.	51102.	1494.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	6312.	200.	4261.	125.	2051.	75.
	UNDESIG LAKE MGMT	4959.	151.	3976.	114.	983.	37.
	REGIONAL PRESSURE ESTIMATES:	582014.	16678.	374191.	10045.	207823.	6633.
4							
	SALMONID STREAM	180515.	5011.	157900.	4253.	22615.	758.
	SALMONID LAKE	254701.	7080.	238476.	6529.	16225.	551.
	NONSALMONID STREAM	10777.	307.	10411.	293.	366.	14.
	NONSALMONID LAKE	22096.	616.	21430.	591.	666.	25.
	UNDESIG STRM MGMT	5724.	162.	5184.	142.	540.	20.
	UNDESIG LAKE MGMT	16316.	461.	15697.	440.	619.	21.
	REGIONAL PRESSURE ESTIMATES:	490129.	13637.	449098.	12248.	41031.	1389.
5							
	SALMONID STREAM	187859.	5348.	135729.	3469.	52130.	1879.
	SALMONID LAKE	66370.	1949.	57660.	1641.	8710.	308.
	NONSALMONID STREAM	12465.	315.	11668.	289.	797.	26.
	NONSALMONID LAKE	1659.	22.	1659.	22.	0.	0.
	UNDESIG STRM MGMT	3460.	94.	2650.	65.	810.	29.
	UNDESIG LAKE MGMT	6275.	164.	4699.	119.	1576.	45.
	REGIONAL PRESSURE ESTIMATES:	278088.	7892.	214065.	5605.	64023.	2287.

Table 4. Angling pressure in angler days by region by water type for the 1991 angling year (continued).

REG	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NON-RESIDENTS PRESSURE	NON-RESIDENTS TRIPS
6							
	SALMONID STREAM	9237.	239.	8718.	221.	519.	18.
	SALMONID LAKE	25467.	739.	24701.	707.	766.	32.
	NONSALMONID STREAM	25400.	789.	24310.	749.	1090.	40.
	NONSALMONID LAKE	54728.	1497.	50798.	1370.	3930.	127.
	UNDESIG STRM MGMT	558.	21.	533.	20.	25.	1.
	UNDESIG LAKE MGMT	6071.	157.	5825.	147.	246.	10.
	REGIONAL PRESSURE ESTIMATES:						
		121461.	3442.	114885.	3214.	6576.	228.
7							
	SALMONID STREAM	3541.	96.	2524.	68.	1017.	28.
	SALMONID LAKE	1550.	47.	1500.	45.	50.	2.
	NONSALMONID STREAM	38970.	1133.	36323.	1045.	2647.	88.
	NONSALMONID LAKE	24211.	713.	14305.	445.	9906.	268.
	UNDESIG STRM MGMT	963.	15.	963.	15.	0.	0.
	UNDESIG LAKE MGMT	2534.	70.	2534.	70.	0.	0.
	REGIONAL PRESSURE ESTIMATES:						
		71769.	2074.	58149.	1688.	13620.	386.
TOTAL							
	SALMONID STREAM	1117602.	31877.	810722.	21520.	306880.	10357.
	SALMONID LAKE	878607.	24364.	732310.	19595.	146297.	4769.
	NONSALMONID STREAM	87612.	2544.	82712.	2376.	4900.	168.
	NONSALMONID LAKE	120738.	3291.	105740.	2851.	14998.	440.
	UNDESIG STRM MGMT	46255.	1318.	32516.	831.	13739.	487.
	UNDESIG LAKE MGMT	50066.	1377.	43448.	1163.	6618.	214.
	STATEWIDE PRESSURE ESTIMATES:						
		2300880.	64771.	1807448.	48336.	493432.	16435.

Region 3 had the largest angling pressure for salmonid streams (392,939 angler days) while region 1 had the largest angling pressure for salmonid lakes (256,549 angler days). Nonsalmonid stream fishing pressure was largest in region 7 (38,970 angler days), while the nonsalmonid lake angling pressure was largest in region 6 (54,728 angling days).

The majority of angling pressure in 1991 in all regions was exerted by residents (Chart 4). The percent of angling pressure by residents for each region was: region 1 - 78.1%, region 2 - 80.9%, region 3 - 64.3%, region 4 - 91.6%, region 5 - 77.0%, region 6 - 94.6%, and region 7 - 81.0%.

July (wave 5) was, overall, the peak fishing period, while November (wave 9) was the least fished period during the year (Table 5). Both residents and nonresidents preferred to fish during July while residents fished the least in November and nonresidents fished the least in March (wave 1). The majority of the nonresident pressure (52.6%) was exerted by the 2-day license holders. Since these anglers were sampled once at the end of the license year the pressure could not be classified into waves although it can logically be assigned to the summer season.

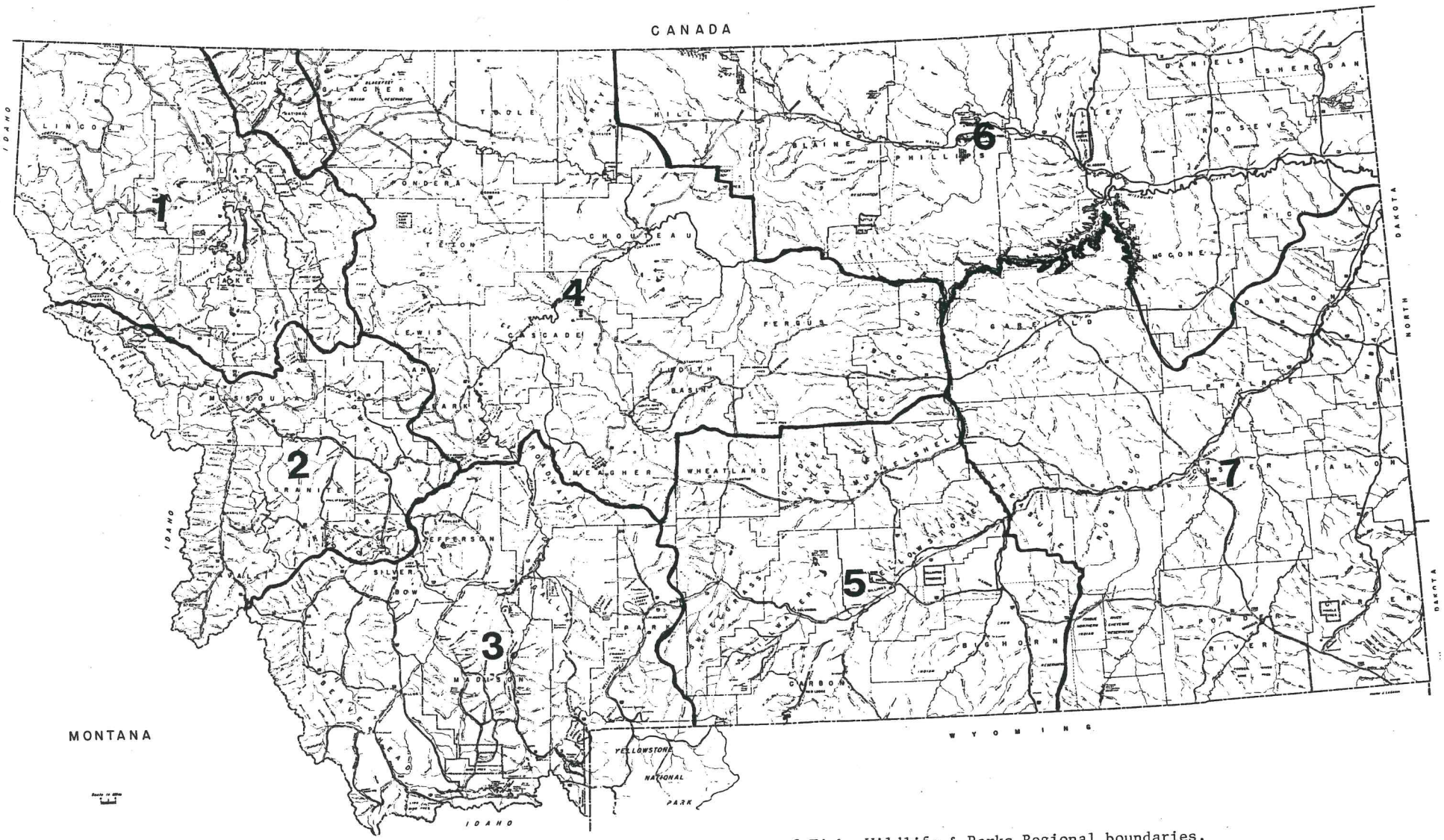

Figure 1. Map of the State of Montana showing the Department of Fish, Wildlife & Parks Regional boundaries.

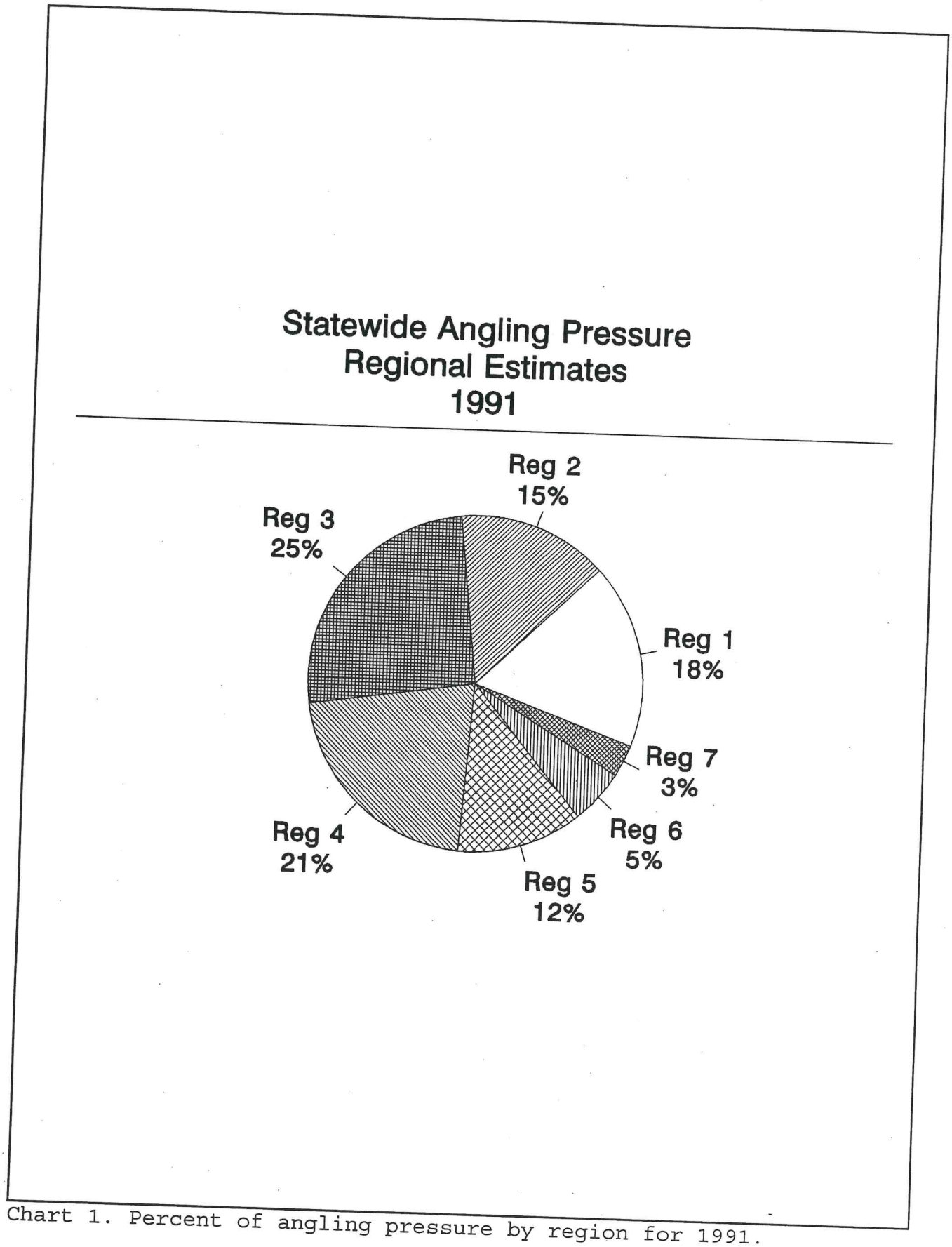

Chart 1. Percent of angling pressure by region for 1991.

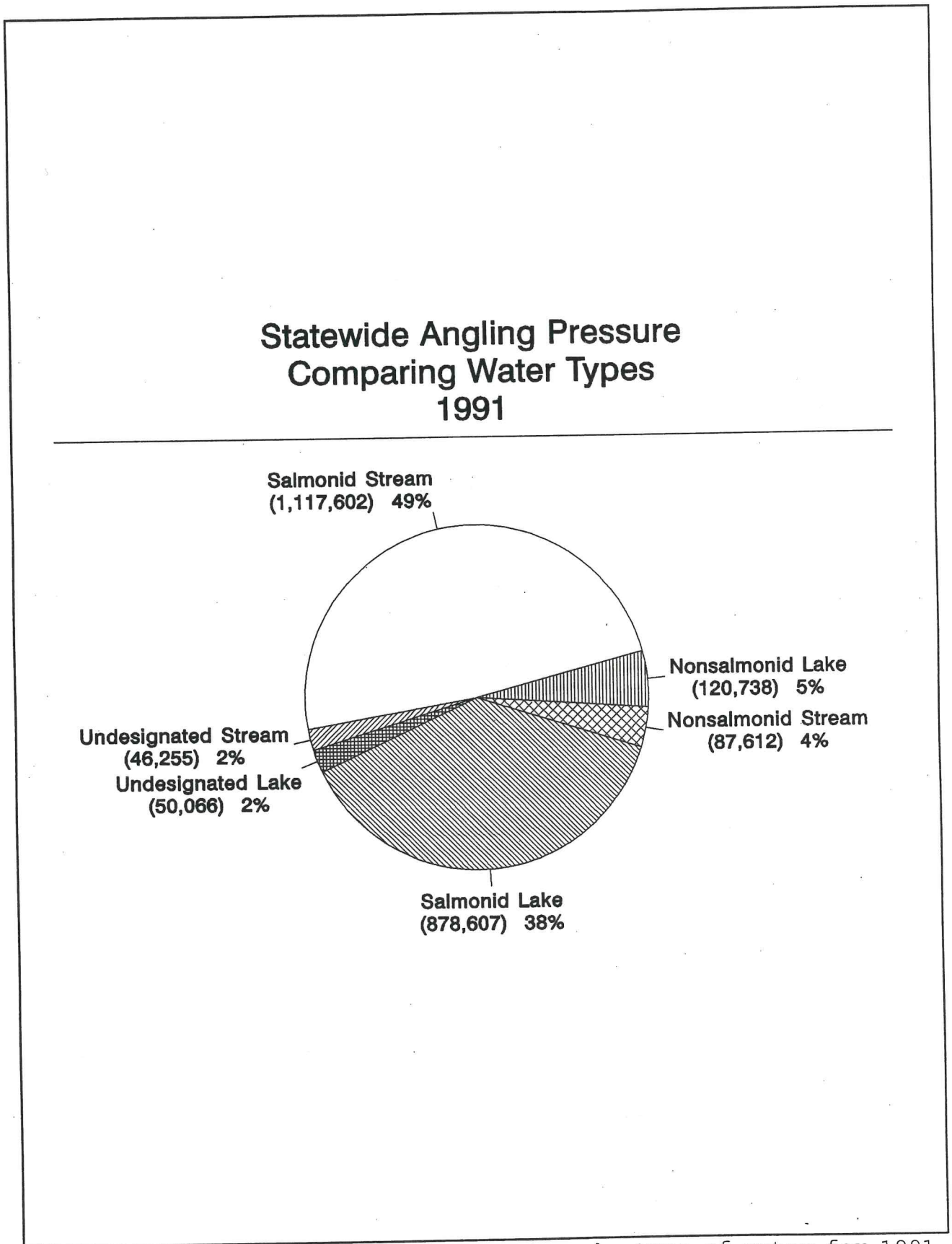

Chart 2. Angling pressure and percentage by type of water for 1991.

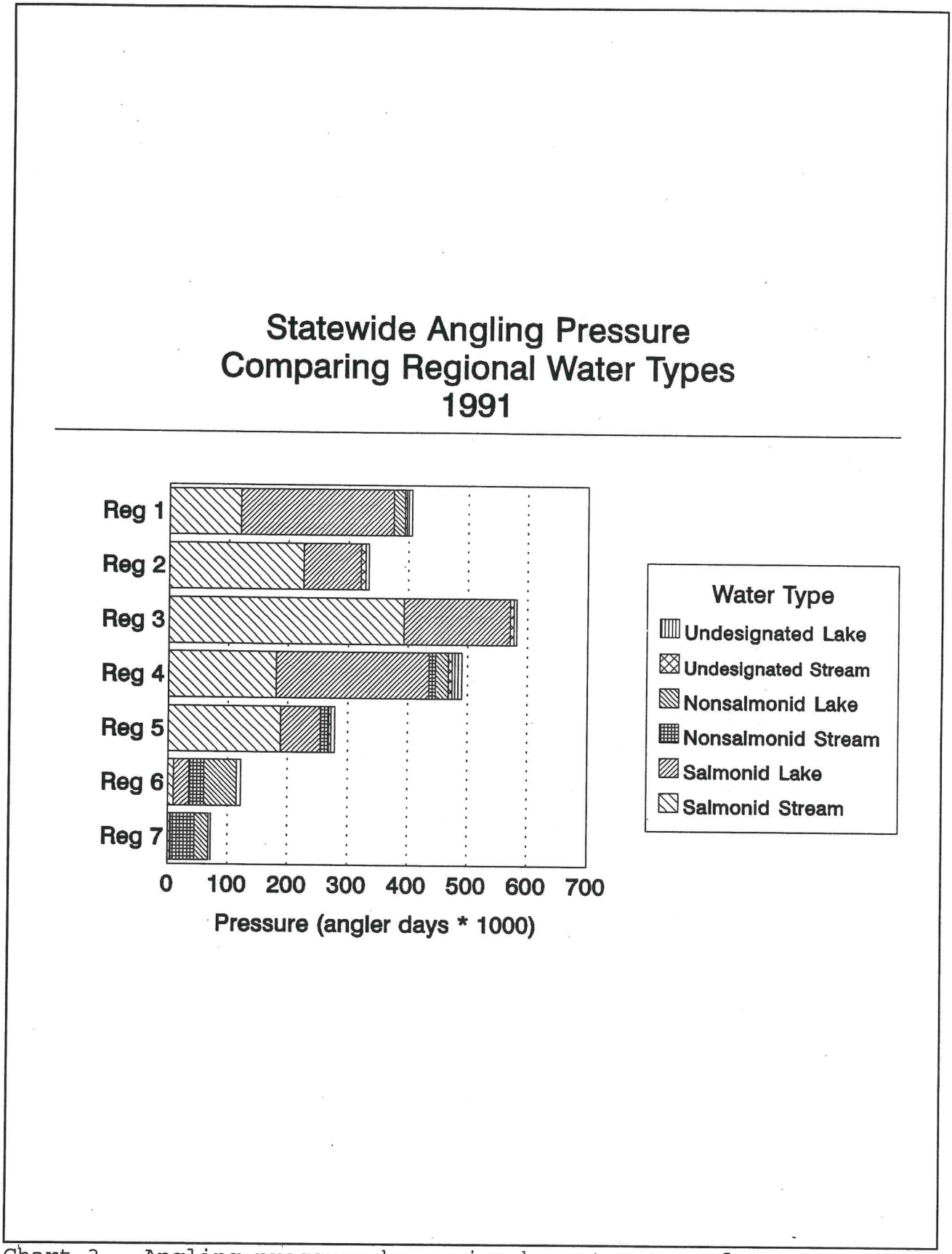

Chart 3. Angling pressure by region by water type for 1991.

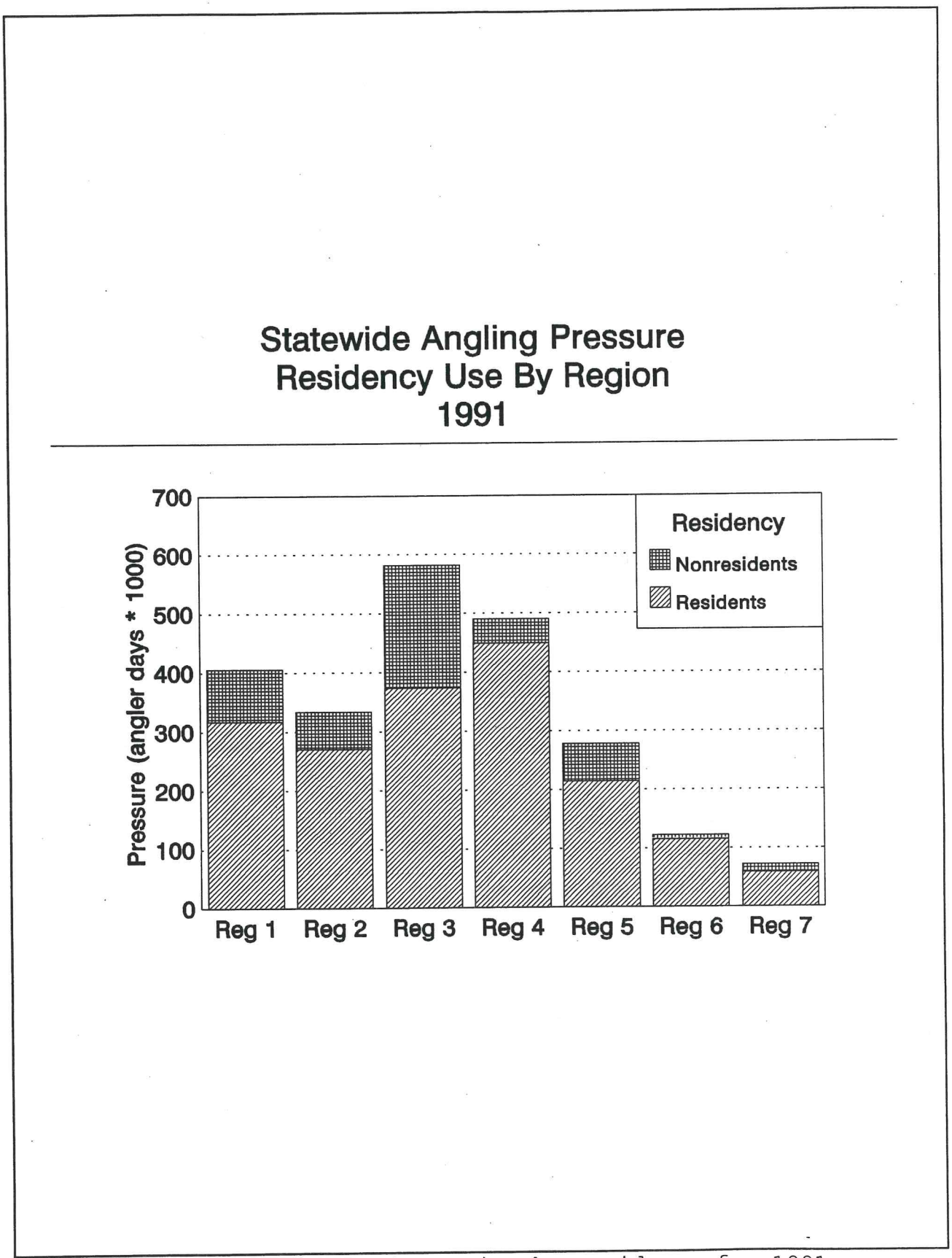

Chart 4. Angling pressure by region by residency for 1991.

Table 5. Pressure in angler days by wave for the 1991 survey year.

WAVE	TOTAL	RESIDENT	NONRESIDENT
1	76,175	73,418	2,757
2	108,243	102,443	5,800
3	191,736	178,047	13,689
4	318,958	285,756	33,202
5	418,463	348,250	70,213
6	352,227	307,768	44,459
7	203,217	173,209	30,008
8	99,777	83,352	16,425
9	41,359	36,879	4,480
10	69,033	63,227	5,806
11	79,603	76,729	2,874
12	82,409	78,367	4,042
99	259,713		259,713

Angling pressure was summarized by the 22 major drainages within the state (Table 6). The lower Clark Fork River drainage contains the angling pressure from all the streams and lakes below the Bitterroot River, excluding the pressure from those waters contained in other drainages listed (Flathead, Kootenai, and Bitterroot). The Upper Clark Fork River drainage, likewise, contains all the angling pressure for waters above the Bitterroot River drainage excluding the pressure for those drainages listed. The upper Flathead River drainage contains the South Fork Flathead River drainage and all waters above the confluence of the South Fork Flathead River. The lower Flathead River drainage includes those waters below the confluence of the South Fork Flathead River including Flathead Lake and those waters (where pressure was obtainable) on the Kootenai-Salish Indian reservation. The lower Missouri River drainage covers all waters below the confluence of the Marias River, while the upper Missouri River drainage incorporates the area above the Marias River, again excluding those drainages listed separately. The lower Yellowstone River drainage represents the area below the mouth of the Bighorn River while the upper Yellowstone River drainage covers the Bighorn River drainage and all waters above the confluence of the Bighorn River.

The pressure by drainage ranged from 420,279 angler days for the Upper Missouri River drainage to 848 angler days for the Little Missouri River drainage.

Table 6. Angling pressure in angler days by drainage by water type for the 1991 angling year Mar '91 through Feb '92

DRAIN / WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
BEAVERHEAD DR						
SALMONID STREAM	34967.	1041.	18374.	493.	16593.	548.
SALMONID LAKE	27637.	748.	16995.	415.	10642.	333.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	903.	29.	527.	17.	376.	12.
UNDESIG LAKE MGMT	864.	28.	676.	22.	188.	6.
DRAINAGE PRESSURE ESTIMATES:	64371.	1846.	36572.	947.	27799.	899.
BIG HOLE DR						
SALMONID STREAM	59125.	1726.	41493.	1143.	17632.	583.
SALMONID LAKE	6861.	192.	5986.	162.	875.	30.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	927.	29.	589.	17.	338.	12.
UNDESIG LAKE MGMT	911.	25.	797.	22.	114.	3.
DRAINAGE PRESSURE ESTIMATES:	67824.	1972.	48865.	1344.	18959.	628.
BITTERROOT DR						
SALMONID STREAM	71929.	2024.	55312.	1441.	16617.	583.
SALMONID LAKE	8727.	222.	7350.	178.	1377.	44.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	3804.	109.	3557.	99.	247.	10.
UNDESIG LAKE MGMT	2664.	71.	2392.	60.	272.	11.
DRAINAGE PRESSURE ESTIMATES:	87124.	2426.	68611.	1778.	18513.	648.
BLACKFOOT DR						
SALMONID STREAM	28152.	808.	25177.	702.	2975.	106.
SALMONID LAKE	31180.	818.	28832.	747.	2348.	71.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	853.	24.	853.	24.	0.	0.
UNDESIG LAKE MGMT	784.	22.	711.	20.	73.	2.
DRAINAGE PRESSURE ESTIMATES:	60969.	1672.	55573.	1493.	5396.	179.
LOWER CLARK FORK DR						
SALMONID STREAM	84885.	2418.	61041.	1611.	23844.	807.
SALMONID LAKE	26191.	713.	22714.	590.	3477.	123.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	2253.	58.	1077.	32.	1176.	26.
UNDESIG LAKE MGMT	729.	18.	505.	11.	224.	7.
DRAINAGE PRESSURE ESTIMATES:	114058.	3207.	85337.	2244.	28721.	963.

Table 6. Angling pressure in angler days by drainage by water type for the 1991 angling year Mar '91 through Feb '92 (continued)

DRAIN / WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
UPPER CLARK FORK DR						
SALMONID STREAM	65586.	1858.	52565.	1456.	13021.	402.
SALMONID LAKE	52955.	1355.	45909.	1140.	7046.	215.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	1594.	42.	1392.	36.	202.	6.
UNDESIG LAKE MGMT	1638.	48.	1286.	37.	352.	11.
DRAINAGE PRESSURE ESTIMATES:	121773.	3303.	101152.	2669.	20621.	634.
LOWER FLATHEAD DR						
SALMONID STREAM	41930.	1124.	34958.	883.	6972.	241.
SALMONID LAKE	153120.	4159.	128818.	3311.	24302.	848.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	15876.	388.	15549.	374.	327.	14.
UNDESIG STRM MGMT	1824.	57.	1306.	36.	518.	21.
UNDESIG LAKE MGMT	3190.	82.	2824.	68.	366.	14.
DRAINAGE PRESSURE ESTIMATES:	215940.	5810.	183455.	4672.	32485.	1138.
UPPER FLATHEAD DR						
SALMONID STREAM	12997.	380.	9955.	265.	3042.	115.
SALMONID LAKE	14176.	390.	12083.	317.	2093.	73.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	600.	18.	336.	9.	264.	9.
UNDESIG LAKE MGMT	1113.	34.	786.	21.	327.	13.
DRAINAGE PRESSURE ESTIMATES:	28886.	822.	23160.	612.	5726.	210.
GALLATIN DR						
SALMONID STREAM	73581.	2111.	50619.	1361.	22962.	750.
SALMONID LAKE	11963.	349.	8987.	249.	2976.	100.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	1099.	36.	566.	16.	533.	20.
UNDESIG LAKE MGMT	572.	20.	399.	13.	173.	7.
DRAINAGE PRESSURE ESTIMATES:	87215.	2516.	60571.	1639.	26644.	877.
JEFFERSON DR						
SALMONID STREAM	28550.	770.	24214.	639.	4336.	131.
SALMONID LAKE	8348.	207.	7828.	189.	520.	18.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	985.	27.	940.	26.	45.	1.
UNDESIG LAKE MGMT	742.	22.	692.	20.	50.	2.
DRAINAGE PRESSURE ESTIMATES:	38625.	1026.	33674.	874.	4951.	152.

Table 6. Angling pressure in angler days by drainage by water type for the 1991 angling year Mar '91 through Feb '92 (continued)

DRAIN WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
KOOTENAI DR						
SALMONID STREAM	38217.	1135.	27776.	742.	10441.	393.
SALMONID LAKE	66316.	2004.	37540.	997.	28776.	1007.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	2168.	55.	1999.	49.	169.	6.
UNDESIG STRM MGMT	730.	22.	555.	16.	175.	6.
UNDESIG LAKE MGMT	3793.	99.	2213.	56.	1580.	43.
DRAINAGE PRESSURE ESTIMATES:	111224.	3315.	70083.	1860.	41141.	1455.
LITTLE MISSOURI DR						
SALMONID STREAM	0.	0.	0.	0.	0.	0.
SALMONID LAKE	440.	16.	440.	16.	0.	0.
NONSALMONID STREAM	246.	7.	231.	6.	15.	1.
NONSALMONID LAKE	162.	6.	162.	6.	0.	0.
UNDESIG STRM MGMT	0.	0.	0.	0.	0.	0.
UNDESIG LAKE MGMT	0.	0.	0.	0.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	848.	29.	833.	28.	15.	1.
MADISON DR						
SALMONID STREAM	118454.	3586.	47048.	1293.	71406.	2293.
SALMONID LAKE	54524.	1493.	22101.	608.	32423.	885.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	533.	18.	360.	11.	173.	7.
UNDESIG LAKE MGMT	903.	31.	525.	16.	378.	15.
DRAINAGE PRESSURE ESTIMATES:	174414.	5128.	70034.	1928.	104380.	3200.
MARIAS DR						
SALMONID STREAM	7395.	207.	6864.	189.	531.	18.
SALMONID LAKE	32256.	871.	31429.	841.	827.	30.
NONSALMONID STREAM	267.	7.	267.	7.	0.	0.
NONSALMONID LAKE	18737.	520.	18166.	498.	571.	22.
UNDESIG STRM MGMT	691.	19.	541.	14.	150.	5.
UNDESIG LAKE MGMT	3580.	95.	3410.	90.	170.	5.
DRAINAGE PRESSURE ESTIMATES:	62926.	1719.	60677.	1639.	2249.	80.
MILK DR						
SALMONID STREAM	7039.	182.	6657.	169.	382.	13.
SALMONID LAKE	23095.	667.	22481.	640.	614.	27.
NONSALMONID STREAM	9188.	274.	9003.	266.	185.	8.
NONSALMONID LAKE	10145.	251.	10057.	247.	88.	4.
UNDESIG STRM MGMT	374.	14.	275.	10.	99.	4.
UNDESIG LAKE MGMT	5015.	123.	4865.	118.	150.	5.
DRAINAGE PRESSURE ESTIMATES:	54856.	1511.	53338.	1450.	1518.	61.

Table 6. Angling pressure in angler days by drainage by water type for the 1991 angling year Mar '91 through Feb '92 (continued)

DRAIN	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
LOWER MISSOURI DR							
	SALMONID STREAM	17308.	464.	15673.	406.	1635.	58.
	SALMONID LAKE	13132.	390.	12460.	368.	672.	22.
	NONSALMONID STREAM	22871.	700.	21748.	660.	1123.	40.
	NONSALMONID LAKE	45200.	1264.	41263.	1138.	3937.	126.
	UNDESIG STRM MGMT	1291.	41.	1192.	37.	99.	4.
	UNDESIG LAKE MGMT	4056.	113.	3884.	106.	172.	7.
	DRAINAGE PRESSURE ESTIMATES:	103858.	2972.	96220.	2715.	7638.	257.
UPPER MISSOURI DR							
	SALMONID STREAM	163013.	4488.	142049.	3786.	20964.	702.
	SALMONID LAKE	240819.	6695.	224377.	6139.	16442.	556.
	NONSALMONID STREAM	5240.	152.	5092.	146.	148.	6.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	3588.	101.	3222.	87.	366.	14.
	UNDESIG LAKE MGMT	7619.	224.	7296.	212.	323.	12.
	DRAINAGE PRESSURE ESTIMATES:	420279.	11660.	382036.	10370.	38243.	1290.
MUSSELSHELL DR							
	SALMONID STREAM	9405.	271.	7472.	212.	1933.	59.
	SALMONID LAKE	21691.	614.	21102.	597.	589.	17.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	2567.	74.	2567.	74.	0.	0.
	UNDESIG STRM MGMT	408.	12.	408.	12.	0.	0.
	UNDESIG LAKE MGMT	2503.	71.	2429.	68.	74.	3.
	DRAINAGE PRESSURE ESTIMATES:	36574.	1042.	33978.	963.	2596.	79.
ST MARY DR							
	SALMONID STREAM	49.	2.	0.	0.	49.	2.
	SALMONID LAKE	2509.	61.	2395.	57.	114.	4.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	67.	1.	67.	1.	0.	0.
	UNDESIG STRM MGMT	0.	0.	0.	0.	0.	0.
	UNDESIG LAKE MGMT	148.	6.	148.	6.	0.	0.
	DRAINAGE PRESSURE ESTIMATES:	2773.	70.	2610.	64.	163.	6.
SUN DR							
	SALMONID STREAM	9928.	278.	8379.	226.	1549.	52.
	SALMONID LAKE	17369.	489.	16594.	459.	775.	30.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	209.	6.	209.	6.	0.	0.
	UNDESIG STRM MGMT	578.	17.	578.	17.	0.	0.
	UNDESIG LAKE MGMT	1662.	48.	1637.	47.	25.	1.
	DRAINAGE PRESSURE ESTIMATES:	29746.	838.	27397.	755.	2349.	83.

Table 6. Angling pressure in angler days by drainage by water type for the 1991 angling year Mar '91 through Feb '92 (continued)

DRAIN	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
LOWER YELLOWSTONE DR							
	SALMONID STREAM	3541.	96.	2524.	68.	1017.	28.
	SALMONID LAKE	857.	23.	832.	22.	25.	1.
	NONSALMONID STREAM	37335.	1089.	34703.	1002.	2632.	87.
	NONSALMONID LAKE	24037.	707.	14131.	439.	9906.	268.
	UNDESIG STRM MGMT	515.	8.	515.	8.	0.	0.
	UNDESIG LAKE MGMT	2342.	64.	2342.	64.	0.	0.
	DRAINAGE PRESSURE ESTIMATES:	68627.	1987.	55047.	1603.	13580.	384.
UPPER YELLOWSTONE DR							
	SALMONID STREAM	241551.	6908.	172572.	4435.	68979.	2473.
	SALMONID LAKE	64441.	1888.	55057.	1553.	9384.	335.
	NONSALMONID STREAM	12465.	315.	11668.	289.	797.	26.
	NONSALMONID LAKE	1570.	19.	1570.	19.	0.	0.
	UNDESIG STRM MGMT	4699.	130.	3555.	86.	1144.	44.
	UNDESIG LAKE MGMT	5238.	133.	3631.	86.	1607.	47.
	DRAINAGE PRESSURE ESTIMATES:	329964.	9393.	248053.	6468.	81911.	2925.
TOTAL							
	SALMONID STREAM	1117602.	31877.	810722.	21520.	306880.	10357.
	SALMONID LAKE	878607.	24364.	732310.	19595.	146297.	4769.
	NONSALMONID STREAM	87612.	2544.	82712.	2376.	4900.	168.
	NONSALMONID LAKE	120738.	3291.	105740.	2851.	14998.	440.
	UNDESIG STRM MGMT	46255.	1318.	32516.	831.	13739.	487.
	UNDESIG LAKE MGMT	50066.	1377.	43448.	1163.	6618.	214.
	STATEWIDE PRESSURE ESTIMATES:	2300880.	64771.	1807448.	48336.	493432.	16435.

1991 SUMMER

The "summer" season for angling in Montana is considered as that period of the year between the first of May through the end of September. In 1991 1,744,272 (75.8%) days of angling pressure occurred during this period (Table 7). Percentages of angling pressure within the regions for the summer period was very similar to the entire year ranging from 72.9% for region 5 to 78.3% for region 2.

Residents accounted for 74.1% of the "summer" angling pressure (1,293,025 angling days). Within the regions the residents comprised anywhere from as high as 93.9% of the "summer" angling pressure in region 6 to as low as 58.1% of the pressure in region 3.

Table 7. Angling pressure in angler days by region by water type for the "summer" season of May '91 through September '91

REG	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NON-RESIDENTS PRESSURE	NON-RESIDENTS TRIPS
1							
	SALMONID STREAM	89627.	2717.	62679.	1776.	26948.	941.
	SALMONID LAKE	200903.	6146.	144305.	4162.	56598.	1984.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	11091.	323.	10637.	306.	454.	17.
	UNDESIG STRM MGMT	2906.	95.	1825.	54.	1081.	41.
	UNDESIG LAKE MGMT	6011.	178.	3612.	104.	2399.	74.
	REGIONAL PRESSURE ESTIMATES:	310538.	9459.	223058.	6402.	87480.	3057.
2							
	SALMONID STREAM	178564.	5415.	133812.	3866.	44752.	1549.
	SALMONID LAKE	71875.	2091.	60411.	1721.	11464.	370.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	6351.	186.	4953.	151.	1398.	35.
	UNDESIG LAKE MGMT	4475.	132.	3680.	105.	795.	27.
	REGIONAL PRESSURE ESTIMATES:	261265.	7824.	202856.	5843.	58409.	1981.
3							
	SALMONID STREAM	301758.	9518.	162398.	4784.	139360.	4734.
	SALMONID LAKE	132193.	3984.	88607.	2631.	43586.	1353.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	5663.	183.	3718.	110.	1945.	73.
	UNDESIG LAKE MGMT	4365.	139.	3382.	102.	983.	37.
	REGIONAL PRESSURE ESTIMATES:	443979.	13824.	258105.	7627.	185874.	6197.
4							
	SALMONID STREAM	130417.	3951.	109613.	3228.	20804.	723.
	SALMONID LAKE	196380.	5893.	180580.	5354.	15800.	539.
	NONSALMONID STREAM	7938.	246.	7572.	232.	366.	14.
	NONSALMONID LAKE	17991.	539.	17325.	514.	666.	25.
	UNDESIG STRM MGMT	5383.	156.	4843.	136.	540.	20.
	UNDESIG LAKE MGMT	11698.	371.	11079.	350.	619.	21.
	REGIONAL PRESSURE ESTIMATES:	369807.	11156.	331012.	9814.	38795.	1342.
5							
	SALMONID STREAM	132707.	4234.	86243.	2499.	46464.	1735.
	SALMONID LAKE	55841.	1690.	47382.	1394.	8459.	296.
	NONSALMONID STREAM	6916.	207.	6175.	185.	741.	22.
	NONSALMONID LAKE	442.	13.	442.	13.	0.	0.
	UNDESIG STRM MGMT	2400.	79.	1688.	51.	712.	28.
	UNDESIG LAKE MGMT	4303.	127.	2780.	83.	1523.	44.
	REGIONAL PRESSURE ESTIMATES:	202609.	6350.	144710.	4225.	57899.	2125.

Table 7. Angling pressure in angler days by region by water type for the "summer" season of May '91 through September '91 (continued)

REG	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NON-RESIDENTS PRESSURE	NON-RESIDENTS TRIPS
6							
	SALMONID STREAM	6201.	180.	5682.	162.	519.	18.
	SALMONID LAKE	19225.	589.	18652.	568.	573.	21.
	NONSALMONID STREAM	18704.	603.	17968.	569.	736.	34.
	NONSALMONID LAKE	41065.	1230.	37176.	1106.	3889.	124.
	UNDESIG STRM MGMT	533.	20.	508.	19.	25.	1.
	UNDESIG LAKE MGMT	3466.	107.	3220.	97.	246.	10.
	REGIONAL PRESSURE ESTIMATES:	89194.	2729.	83206.	2521.	5988.	208.
7							
	SALMONID STREAM	2596.	72.	1635.	48.	961.	24.
	SALMONID LAKE	1081.	37.	1031.	35.	50.	2.
	NONSALMONID STREAM	29774.	910.	27381.	828.	2393.	82.
	NONSALMONID LAKE	18453.	609.	12680.	406.	5773.	203.
	UNDESIG STRM MGMT	69.	2.	69.	2.	0.	0.
	UNDESIG LAKE MGMT	1693.	51.	1693.	51.	0.	0.
	REGIONAL PRESSURE ESTIMATES:	53666.	1681.	44489.	1370.	9177.	311.
TOTAL							
	SALMONID STREAM	841870.	26087.	562062.	16363.	279808.	9724.
	SALMONID LAKE	677498.	20430.	540968.	15865.	136530.	4565.
	NONSALMONID STREAM	63332.	1966.	59096.	1814.	4236.	152.
	NONSALMONID LAKE	89042.	2714.	78260.	2345.	10782.	369.
	UNDESIG STRM MGMT	36519.	1170.	23193.	688.	13326.	482.
	UNDESIG LAKE MGMT	36011.	1105.	29446.	892.	6565.	213.
	STATEWIDE PRESSURE ESTIMATES:	1744272.	53472.	1293025.	37967.	451247.	15505.

"Summer" angling pressure by drainage (Table 8) ranged from 308,885 angler days for the upper Missouri River drainage to 823 angler days for the Little Missouri River drainage.

Angling pressure for residents by drainage ranged from a low of 35.7% for the Madison River drainage to a high of 98.2% for the Little Missouri drainage.

Overall residents accounted for 74.1% of the "summer" angling use.

Table 8. Angling pressure in angler days by drainage by water type for the 1991 "summer" angling season May '91 through September '91

DRAIN	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
BEAVERHEAD DR							
	SALMONID STREAM	27477.	891.	12527.	374.	14950.	517.
	SALMONID LAKE	17760.	550.	8697.	261.	9063.	289.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	804.	25.	428.	13.	376.	12.
	UNDESIG LAKE MGMT	751.	25.	563.	19.	188.	6.
	DRAINAGE PRESSURE ESTIMATES:	46792.	1491.	22215.	667.	24577.	824.
BIG HOLE DR							
	SALMONID STREAM	51813.	1577.	34753.	1007.	17060.	570.
	SALMONID LAKE	6423.	182.	5548.	152.	875.	30.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	927.	29.	589.	17.	338.	12.
	UNDESIG LAKE MGMT	798.	22.	684.	19.	114.	3.
	DRAINAGE PRESSURE ESTIMATES:	59961.	1810.	41574.	1195.	18387.	615.
BITTERROOT DR							
	SALMONID STREAM	53841.	1669.	38032.	1102.	15809.	567.
	SALMONID LAKE	6068.	182.	4915.	140.	1153.	42.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	3133.	97.	2886.	87.	247.	10.
	UNDESIG LAKE MGMT	1955.	59.	1683.	48.	272.	11.
	DRAINAGE PRESSURE ESTIMATES:	64997.	2007.	47516.	1377.	17481.	630.
BLACKFOOT DR							
	SALMONID STREAM	24443.	723.	21683.	624.	2760.	99.
	SALMONID LAKE	23520.	682.	21589.	618.	1931.	64.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	853.	24.	853.	24.	0.	0.
	UNDESIG LAKE MGMT	784.	22.	711.	20.	73.	2.
	DRAINAGE PRESSURE ESTIMATES:	49600.	1451.	44836.	1286.	4764.	165.
LOWER CLARK FORK DR							
	SALMONID STREAM	68540.	2045.	47038.	1328.	21502.	717.
	SALMONID LAKE	19926.	606.	16463.	484.	3463.	122.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	1897.	50.	721.	24.	1176.	26.
	UNDESIG LAKE MGMT	463.	14.	239.	7.	224.	7.
	DRAINAGE PRESSURE ESTIMATES:	90826.	2715.	64461.	1843.	26365.	872.

Table 8. Angling pressure in angler days by drainage by water type for the 1991 "summer" angling season May '91 through September '91 (continued)

DRAIN	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
UPPER CLARK FORK DR							
	SALMONID STREAM	53562.	1608.	41990.	1227.	11572.	381.
	SALMONID LAKE	39117.	1130.	32268.	917.	6849.	213.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	1163.	35.	961.	29.	202.	6.
	UNDESIG LAKE MGMT	1638.	48.	1286.	37.	352.	11.
	DRAINAGE PRESSURE ESTIMATES:	95480.	2821.	76505.	2210.	18975.	611.
LOWER FLATHEAD DR							
	SALMONID STREAM	27169.	820.	20470.	593.	6699.	227.
	SALMONID LAKE	114416.	3456.	90591.	2623.	23825.	833.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	9563.	278.	9278.	267.	285.	11.
	UNDESIG STRM MGMT	1445.	50.	927.	29.	518.	21.
	UNDESIG LAKE MGMT	1879.	61.	1513.	47.	366.	14.
	DRAINAGE PRESSURE ESTIMATES:	154472.	4665.	122779.	3559.	31693.	1106.
UPPER FLATHEAD DR							
	SALMONID STREAM	12290.	364.	9248.	249.	3042.	115.
	SALMONID LAKE	11353.	337.	9260.	264.	2093.	73.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	600.	18.	336.	9.	264.	9.
	UNDESIG LAKE MGMT	959.	30.	632.	17.	327.	13.
	DRAINAGE PRESSURE ESTIMATES:	25202.	749.	19476.	539.	5726.	210.
GALLATIN DR							
	SALMONID STREAM	55879.	1720.	34631.	1008.	21248.	712.
	SALMONID LAKE	9995.	315.	7231.	219.	2764.	96.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	993.	34.	566.	16.	427.	18.
	UNDESIG LAKE MGMT	547.	19.	374.	12.	173.	7.
	DRAINAGE PRESSURE ESTIMATES:	67414.	2088.	42802.	1255.	24612.	833.
JEFFERSON DR							
	SALMONID STREAM	19271.	593.	15848.	479.	3423.	114.
	SALMONID LAKE	5088.	151.	4568.	133.	520.	18.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	755.	23.	710.	22.	45.	1.
	UNDESIG LAKE MGMT	651.	20.	601.	18.	50.	2.
	DRAINAGE PRESSURE ESTIMATES:	25765.	787.	21727.	652.	4038.	135.

Table 8. Angling pressure in angler days by drainage by water type for the 1991 "summer" angling season May '91 through September '91 (continued)

DRAIN	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
KOOTENAI DR							
	SALMONID STREAM	28531.	908.	18215.	524.	10316.	384.
	SALMONID LAKE	58353.	1843.	29630.	837.	28723.	1006.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	1528.	45.	1359.	39.	169.	6.
	UNDESIG STRM MGMT	592.	18.	417.	12.	175.	6.
	UNDESIG LAKE MGMT	2808.	76.	1228.	33.	1580.	43.
	DRAINAGE PRESSURE ESTIMATES:	91812.	2890.	50849.	1445.	40963.	1445.
LITTLE MISSOURI DR							
	SALMONID STREAM	0.	0.	0.	0.	0.	0.
	SALMONID LAKE	415.	15.	415.	15.	0.	0.
	NONSALMONID STREAM	246.	7.	231.	6.	15.	1.
	NONSALMONID LAKE	162.	6.	162.	6.	0.	0.
	UNDESIG STRM MGMT	0.	0.	0.	0.	0.	0.
	UNDESIG LAKE MGMT	0.	0.	0.	0.	0.	0.
	DRAINAGE PRESSURE ESTIMATES:	823.	28.	808.	27.	15.	1.
MADISON DR							
	SALMONID STREAM	95542.	3093.	31573.	938.	63969.	2155.
	SALMONID LAKE	45230.	1340.	18297.	541.	26933.	799.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	445.	15.	272.	8.	173.	7.
	UNDESIG LAKE MGMT	903.	31.	525.	16.	378.	15.
	DRAINAGE PRESSURE ESTIMATES:	142120.	4479.	50667.	1503.	91453.	2976.
MARIAS DR							
	SALMONID STREAM	4893.	155.	4468.	139.	425.	16.
	SALMONID LAKE	23602.	705.	22830.	679.	772.	26.
	NONSALMONID STREAM	267.	7.	267.	7.	0.	0.
	NONSALMONID LAKE	15380.	460.	14809.	438.	571.	22.
	UNDESIG STRM MGMT	653.	18.	503.	13.	150.	5.
	UNDESIG LAKE MGMT	2207.	75.	2037.	70.	170.	5.
	DRAINAGE PRESSURE ESTIMATES:	47002.	1420.	44914.	1346.	2088.	74.
MILK DR							
	SALMONID STREAM	5003.	143.	4621.	130.	382.	13.
	SALMONID LAKE	17306.	529.	16832.	512.	474.	17.
	NONSALMONID STREAM	6882.	206.	6739.	201.	143.	5.
	NONSALMONID LAKE	5800.	178.	5726.	175.	74.	3.
	UNDESIG STRM MGMT	349.	13.	250.	9.	99.	4.
	UNDESIG LAKE MGMT	2630.	81.	2480.	76.	150.	5.
	DRAINAGE PRESSURE ESTIMATES:	37970.	1150.	36648.	1103.	1322.	47.

Table 8. Angling pressure in angler days by drainage by water type for the 1991 "summer" angling season May '91 through September '91 (continued)

DRAIN / WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
LOWER MISSOURI DR						
SALMONID STREAM	13332.	397.	11801.	340.	1531.	57.
SALMONID LAKE	9984.	314.	9469.	294.	515.	20.
NONSALMONID STREAM	17019.	552.	16208.	515.	811.	37.
NONSALMONID LAKE	35756.	1067.	31846.	943.	3910.	124.
UNDESIG STRM MGMT	1291.	41.	1192.	37.	99.	4.
UNDESIG LAKE MGMT	2616.	82.	2444.	75.	172.	7.
DRAINAGE PRESSURE ESTIMATES:	79998.	2453.	72960.	2204.	7038.	249.
UPPER MISSOURI DR						
SALMONID STREAM	111828.	3411.	92635.	2747.	19193.	664.
SALMONID LAKE	184010.	5516.	168013.	4970.	15997.	546.
NONSALMONID STREAM	3788.	119.	3640.	113.	148.	6.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	3285.	96.	2919.	82.	366.	14.
UNDESIG LAKE MGMT	5974.	189.	5651.	177.	323.	12.
DRAINAGE PRESSURE ESTIMATES:	308885.	9331.	272858.	8089.	36027.	1242.
MUSSELSHELL DR						
SALMONID STREAM	8474.	244.	6608.	187.	1866.	57.
SALMONID LAKE	16170.	487.	15693.	472.	477.	15.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	2012.	61.	2012.	61.	0.	0.
UNDESIG STRM MGMT	332.	11.	332.	11.	0.	0.
UNDESIG LAKE MGMT	2025.	60.	1951.	57.	74.	3.
DRAINAGE PRESSURE ESTIMATES:	29013.	863.	26596.	788.	2417.	75.
ST MARY DR						
SALMONID STREAM	49.	2.	0.	0.	49.	2.
SALMONID LAKE	1397.	45.	1283.	41.	114.	4.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	0.	0.	0.	0.	0.	0.
UNDESIG LAKE MGMT	148.	6.	148.	6.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	1594.	53.	1431.	47.	163.	6.
SUN DR						
SALMONID STREAM	9040.	259.	7491.	207.	1549.	52.
SALMONID LAKE	12771.	391.	11996.	361.	775.	30.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	209.	6.	209.	6.	0.	0.
UNDESIG STRM MGMT	578.	17.	578.	17.	0.	0.
UNDESIG LAKE MGMT	1472.	42.	1447.	41.	25.	1.
DRAINAGE PRESSURE ESTIMATES:	24070.	715.	21721.	632.	2349.	83.

Table 8. Angling pressure in angler days by drainage by water type for the 1991 "summer" angling season May '91 through September '91 (continued)

DRAIN	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
LOWER YELLOWSTONE DR							
	SALMONID STREAM	2596.	72.	1635.	48.	961.	24.
	SALMONID LAKE	413.	14.	388.	13.	25.	1.
	NONSALMONID STREAM	28214.	868.	25836.	787.	2378.	81.
	NONSALMONID LAKE	18254.	602.	12481.	399.	5773.	203.
	UNDESIG STRM MGMT	69.	2.	69.	2.	0.	0.
	UNDESIG LAKE MGMT	1501.	45.	1501.	45.	0.	0.
	DRAINAGE PRESSURE ESTIMATES:	51047.	1603.	41910.	1294.	9137.	309.
UPPER YELLOWSTONE DR							
	SALMONID STREAM	168297.	5393.	106795.	3112.	61502.	2281.
	SALMONID LAKE	54181.	1640.	44992.	1319.	9189.	321.
	NONSALMONID STREAM	6916.	207.	6175.	185.	741.	22.
	NONSALMONID LAKE	378.	11.	378.	11.	0.	0.
	UNDESIG STRM MGMT	3141.	105.	2095.	62.	1046.	43.
	UNDESIG LAKE MGMT	3302.	98.	1748.	52.	1554.	46.
	DRAINAGE PRESSURE ESTIMATES:	236215.	7454.	162183.	4741.	74032.	2713.
TOTAL							
	SALMONID STREAM	841870.	26087.	562062.	16363.	279808.	9724.
	SALMONID LAKE	677498.	20430.	540968.	15865.	136530.	4565.
	NONSALMONID STREAM	63332.	1966.	59096.	1814.	4236.	152.
	NONSALMONID LAKE	89042.	2714.	78260.	2345.	10782.	369.
	UNDESIG STRM MGMT	36519.	1170.	23193.	688.	13326.	482.
	UNDESIG LAKE MGMT	36011.	1105.	29446.	892.	6565.	213.
	STATEWIDE PRESSURE ESTIMATES:	1744272.	53472.	1293025.	37967.	451247.	15505.

1991 WINTER

The "winter" season for angling is from March through April and October through February of the following year. In 1991, 556,534 angler days (24.2%) of the annual fishing pressure occurred during this period (Table 9). Residents accounted for 92.4% of the total angling pressure for the "winter" season. Angling pressure was directed towards salmonid streams with 49.5% of the "winter" use. Salmonid lakes accounted for 36.1% of the use during this same time period.

The pressure from region to region ranged from a high of 138,041 angler days for Region 3 to a low of 18,100 angler days for Region 7. Angling pressure by residents for this period for each FWP region ranged from a low of 75.4% for region 7 to a high of 98.7% for region 1.

Winter angling pressure (Table 10) by drainage ranged from 111,399 angler days for the Upper Missouri River drainage to 25 angler days for the Little Missouri River drainage in Eastern Montana. Residents accounted for as low as 60% of the pressure in the Madison River drainage to a high of 100% of the pressure in the Little Missouri River, St. Mary River, upper Flathead River, and Sun River drainages.

Table 9. Angling pressure in angler days by region by water type for the "winter" season of October '91 through April '92

REG	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NON-RESIDENTS PRESSURE	NON-RESIDENTS TRIPS
1							
	SALMONID STREAM	29339.	646.	28643.	610.	696.	36.
	SALMONID LAKE	55642.	1021.	55113.	1005.	529.	16.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	6953.	120.	6911.	117.	42.	3.
	UNDESIG STRM MGMT	517.	11.	517.	11.	0.	0.
	UNDESIG LAKE MGMT	2718.	52.	2718.	52.	0.	0.
	REGIONAL PRESSURE ESTIMATES:	95169.	1850.	93902.	1795.	1267.	55.
2							
	SALMONID STREAM	45982.	964.	41466.	843.	4516.	121.
	SALMONID LAKE	24289.	405.	23436.	393.	853.	12.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	1457.	27.	1457.	27.	0.	0.
	UNDESIG LAKE MGMT	709.	12.	709.	12.	0.	0.
	REGIONAL PRESSURE ESTIMATES:	72437.	1408.	67068.	1275.	5369.	133.
3							
	SALMONID STREAM	91185.	1923.	76861.	1630.	14324.	293.
	SALMONID LAKE	45611.	902.	38095.	761.	7516.	141.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	649.	17.	543.	15.	106.	2.
	UNDESIG LAKE MGMT	596.	12.	596.	12.	0.	0.
	REGIONAL PRESSURE ESTIMATES:	138041.	2854.	116095.	2418.	21946.	436.
4							
	SALMONID STREAM	50099.	1060.	48287.	1025.	1812.	35.
	SALMONID LAKE	58318.	1187.	57891.	1175.	427.	12.
	NONSALMONID STREAM	2839.	61.	2839.	61.	0.	0.
	NONSALMONID LAKE	4105.	77.	4105.	77.	0.	0.
	UNDESIG STRM MGMT	341.	6.	341.	6.	0.	0.
	UNDESIG LAKE MGMT	4622.	90.	4622.	90.	0.	0.
	REGIONAL PRESSURE ESTIMATES:	120324.	2481.	118085.	2434.	2239.	47.
5							
	SALMONID STREAM	55152.	1114.	49487.	970.	5665.	144.
	SALMONID LAKE	10454.	258.	10203.	246.	251.	12.
	NONSALMONID STREAM	5550.	108.	5494.	104.	56.	4.
	NONSALMONID LAKE	1216.	9.	1216.	9.	0.	0.
	UNDESIG STRM MGMT	1060.	15.	962.	14.	98.	1.
	UNDESIG LAKE MGMT	1972.	37.	1919.	36.	53.	1.
	REGIONAL PRESSURE ESTIMATES:	75404.	1541.	69281.	1379.	6123.	162.

Table 9. Angling pressure in angler days by region by water type for the "winter" season of October '91 through April '92 (continued)

REG	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NON-RESIDENTS PRESSURE	NON-RESIDENTS TRIPS
6							
	SALMONID STREAM	3036.	59.	3036.	59.	0.	0.
	SALMONID LAKE	6242.	150.	6050.	139.	192.	11.
	NONSALMONID STREAM	6695.	186.	6340.	180.	355.	6.
	NONSALMONID LAKE	13663.	267.	13621.	264.	42.	3.
	UNDESIG STRM MGMT	25.	1.	25.	1.	0.	0.
	UNDESIG LAKE MGMT	2605.	50.	2605.	50.	0.	0.
	REGIONAL PRESSURE ESTIMATES:	32266.	713.	31677.	693.	589.	20.
7							
	SALMONID STREAM	944.	24.	888.	20.	56.	4.
	SALMONID LAKE	468.	10.	468.	10.	0.	0.
	NONSALMONID STREAM	9195.	223.	8941.	217.	254.	6.
	NONSALMONID LAKE	5756.	104.	1622.	39.	4134.	65.
	UNDESIG STRM MGMT	894.	13.	894.	13.	0.	0.
	UNDESIG LAKE MGMT	843.	19.	843.	19.	0.	0.
	REGIONAL PRESSURE ESTIMATES:	18100.	393.	13656.	318.	4444.	75.
TOTAL							
	SALMONID STREAM	275737.	5790.	248668.	5157.	27069.	633.
	SALMONID LAKE	201024.	3933.	191256.	3729.	9768.	204.
	NONSALMONID STREAM	24279.	578.	23614.	562.	665.	16.
	NONSALMONID LAKE	31693.	577.	27475.	506.	4218.	71.
	UNDESIG STRM MGMT	9736.	148.	9324.	143.	412.	5.
	UNDESIG LAKE MGMT	14065.	272.	14012.	271.	53.	1.
	STATEWIDE PRESSURE ESTIMATES:	556534.	11298.	514349.	10368.	42185.	930.

Table 10. Angling pressure in angler days by drainage by water type for the 1991 "winter" angling season October '91 through April '92

DRAIN	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
BEAVERHEAD DR							
	SALMONID STREAM	7490.	150.	5846.	119.	1644.	31.
	SALMONID LAKE	9878.	198.	8299.	154.	1579.	44.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	100.	4.	100.	4.	0.	0.
	UNDESIG LAKE MGMT	113.	3.	113.	3.	0.	0.
	DRAINAGE PRESSURE ESTIMATES:	17581.	355.	14358.	280.	3223.	75.

Table 10. Angling pressure in angler days by drainage by water type for the 1991 "winter" angling season October '91 through April '92 (continued)

DRAIN	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
BIG HOLE DR							
	SALMONID STREAM	7314.	149.	6742.	136.	572.	13.
	SALMONID LAKE	437.	10.	437.	10.	0.	0.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	0.	0.	0.	0.	0.	0.
	UNDESIG LAKE MGMT	113.	3.	113.	3.	0.	0.
	DRAINAGE PRESSURE ESTIMATES:	7864.	162.	7292.	149.	572.	13.
BITTERROOT DR							
	SALMONID STREAM	18087.	355.	17281.	339.	806.	16.
	SALMONID LAKE	2655.	40.	2430.	38.	225.	2.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	671.	12.	671.	12.	0.	0.
	UNDESIG LAKE MGMT	709.	12.	709.	12.	0.	0.
	DRAINAGE PRESSURE ESTIMATES:	22122.	419.	21091.	401.	1031.	18.
BLACKFOOT DR							
	SALMONID STREAM	3711.	85.	3496.	78.	215.	7.
	SALMONID LAKE	7661.	136.	7244.	129.	417.	7.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	0.	0.	0.	0.	0.	0.
	UNDESIG LAKE MGMT	0.	0.	0.	0.	0.	0.
	DRAINAGE PRESSURE ESTIMATES:	11372.	221.	10740.	207.	632.	14.
LOWER CLARK FORK DR							
	SALMONID STREAM	16343.	373.	14001.	283.	2342.	90.
	SALMONID LAKE	6266.	107.	6252.	106.	14.	1.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	355.	8.	355.	8.	0.	0.
	UNDESIG LAKE MGMT	266.	4.	266.	4.	0.	0.
	DRAINAGE PRESSURE ESTIMATES:	23230.	492.	20874.	401.	2356.	91.
UPPER CLARK FORK DR							
	SALMONID STREAM	12021.	250.	10570.	229.	1451.	21.
	SALMONID LAKE	13838.	225.	13641.	223.	197.	2.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	431.	7.	431.	7.	0.	0.
	UNDESIG LAKE MGMT	0.	0.	0.	0.	0.	0.
	DRAINAGE PRESSURE ESTIMATES:	26290.	482.	24642.	459.	1648.	23.

Table 10. Angling pressure in angler days by drainage by water type for the 1991 "winter" angling season October '91 through April '92 (continued)

DRAIN WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
LOWER FLATHEAD DR						
SALMONID STREAM	14765.	304.	14492.	290.	273.	14.
SALMONID LAKE	38704.	703.	38228.	688.	476.	15.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	6313.	110.	6271.	107.	42.	3.
UNDESIG STRM MGMT	379.	7.	379.	7.	0.	0.
UNDESIG LAKE MGMT	1311.	21.	1311.	21.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	61472.	1145.	60681.	1113.	791.	32.
UPPER FLATHEAD DR						
SALMONID STREAM	708.	16.	708.	16.	0.	0.
SALMONID LAKE	2823.	53.	2823.	53.	0.	0.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	0.	0.	0.	0.	0.	0.
UNDESIG LAKE MGMT	155.	4.	155.	4.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	3686.	73.	3686.	73.	0.	0.
GALLATIN DR						
SALMONID STREAM	17702.	391.	15988.	353.	1714.	38.
SALMONID LAKE	1966.	34.	1754.	30.	212.	4.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	106.	2.	0.	0.	106.	2.
UNDESIG LAKE MGMT	25.	1.	25.	1.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	19799.	428.	17767.	384.	2032.	44.
JEFFERSON DR						
SALMONID STREAM	9280.	177.	8367.	160.	913.	17.
SALMONID LAKE	3260.	56.	3260.	56.	0.	0.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	230.	4.	230.	4.	0.	0.
UNDESIG LAKE MGMT	92.	2.	92.	2.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	12862.	239.	11949.	222.	913.	17.
KOOTENAI DR						
SALMONID STREAM	9686.	227.	9561.	218.	125.	9.
SALMONID LAKE	7959.	161.	7906.	160.	53.	1.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	640.	10.	640.	10.	0.	0.
UNDESIG STRM MGMT	138.	4.	138.	4.	0.	0.
UNDESIG LAKE MGMT	986.	23.	986.	23.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	19409.	425.	19231.	415.	178.	10.

Table 10. Angling pressure in angler days by drainage by water type for the 1991 "winter" angling season October '91 through April '92

DRAIN	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
LITTLE MISSOURI DR							
	SALMONID STREAM	0.	0.	0.	0.	0.	0.
	SALMONID LAKE	25.	1.	25.	1.	0.	0.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	0.	0.	0.	0.	0.	0.
	UNDESIG LAKE MGMT	0.	0.	0.	0.	0.	0.
	DRAINAGE PRESSURE ESTIMATES:	25.	1.	25.	1.	0.	0.
MADISON DR							
	SALMONID STREAM	22911.	493.	15475.	355.	7436.	138.
	SALMONID LAKE	9296.	153.	3806.	67.	5490.	86.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	88.	3.	88.	3.	0.	0.
	UNDESIG LAKE MGMT	0.	0.	0.	0.	0.	0.
	DRAINAGE PRESSURE ESTIMATES:	32295.	649.	19369.	425.	12926.	224.
MARIAS DR							
	SALMONID STREAM	2501.	52.	2395.	50.	106.	2.
	SALMONID LAKE	8652.	166.	8596.	162.	56.	4.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	3357.	60.	3357.	60.	0.	0.
	UNDESIG STRM MGMT	38.	1.	38.	1.	0.	0.
	UNDESIG LAKE MGMT	1373.	20.	1373.	20.	0.	0.
	DRAINAGE PRESSURE ESTIMATES:	15921.	299.	15759.	293.	162.	6.
MILK DR							
	SALMONID STREAM	2036.	39.	2036.	39.	0.	0.
	SALMONID LAKE	5790.	138.	5651.	128.	139.	10.
	NONSALMONID STREAM	2305.	68.	2263.	65.	42.	3.
	NONSALMONID LAKE	4345.	73.	4331.	72.	14.	1.
	UNDESIG STRM MGMT	25.	1.	25.	1.	0.	0.
	UNDESIG LAKE MGMT	2386.	42.	2386.	42.	0.	0.
	DRAINAGE PRESSURE ESTIMATES:	16887.	361.	16692.	347.	195.	14.
LOWER MISSOURI DR							
	SALMONID STREAM	3976.	67.	3872.	66.	104.	1.
	SALMONID LAKE	3147.	76.	2990.	74.	157.	2.
	NONSALMONID STREAM	5852.	148.	5539.	145.	313.	3.
	NONSALMONID LAKE	9444.	197.	9416.	195.	28.	2.
	UNDESIG STRM MGMT	0.	0.	0.	0.	0.	0.
	UNDESIG LAKE MGMT	1439.	31.	1439.	31.	0.	0.
	DRAINAGE PRESSURE ESTIMATES:	23858.	519.	23256.	511.	602.	8.

Table 10. Angling pressure in angler days by drainage by water type for the 1991 "winter" angling season October '91 through April '92

DRAIN	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
UPPER MISSOURI DR							
	SALMONID STREAM	51187.	1077.	49416.	1039.	1771.	38.
	SALMONID LAKE	56809.	1179.	56363.	1169.	446.	10.
	NONSALMONID STREAM	1452.	33.	1452.	33.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	303.	5.	303.	5.	0.	0.
	UNDESIG LAKE MGMT	1648.	35.	1648.	35.	0.	0.
	DRAINAGE PRESSURE ESTIMATES:	111399.	2329.	109182.	2281.	2217.	48.
MUSSELSHELL DR							
	SALMONID STREAM	929.	27.	862.	25.	67.	2.
	SALMONID LAKE	5521.	127.	5409.	125.	112.	2.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	555.	13.	555.	13.	0.	0.
	UNDESIG STRM MGMT	76.	1.	76.	1.	0.	0.
	UNDESIG LAKE MGMT	479.	11.	479.	11.	0.	0.
	DRAINAGE PRESSURE ESTIMATES:	7560.	179.	7381.	175.	179.	4.
ST MARY DR							
	SALMONID STREAM	0.	0.	0.	0.	0.	0.
	SALMONID LAKE	1111.	16.	1111.	16.	0.	0.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	67.	1.	67.	1.	0.	0.
	UNDESIG STRM MGMT	0.	0.	0.	0.	0.	0.
	UNDESIG LAKE MGMT	0.	0.	0.	0.	0.	0.
	DRAINAGE PRESSURE ESTIMATES:	1178.	17.	1178.	17.	0.	0.
SUN DR							
	SALMONID STREAM	889.	19.	889.	19.	0.	0.
	SALMONID LAKE	4598.	98.	4598.	98.	0.	0.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	0.	0.	0.	0.	0.	0.
	UNDESIG LAKE MGMT	192.	6.	192.	6.	0.	0.
	DRAINAGE PRESSURE ESTIMATES:	5679.	123.	5679.	123.	0.	0.
LOWER YELLOWSTONE DR							
	SALMONID STREAM	944.	24.	888.	20.	56.	4.
	SALMONID LAKE	443.	9.	443.	9.	0.	0.
	NONSALMONID STREAM	9120.	221.	8866.	215.	254.	6.
	NONSALMONID LAKE	5781.	105.	1647.	40.	4134.	65.
	UNDESIG STRM MGMT	446.	6.	446.	6.	0.	0.
	UNDESIG LAKE MGMT	843.	19.	843.	19.	0.	0.
	DRAINAGE PRESSURE ESTIMATES:	17577.	384.	13133.	309.	4444.	75.

Table 10. Angling pressure in angler days by drainage by water type for the 1991 "winter" angling season October '91 through April '92

DRAIN	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
UPPER YELLOWSTONE DR							
	SALMONID STREAM	73257.	1515.	65783.	1323.	7474.	192.
	SALMONID LAKE	10185.	247.	9990.	233.	195.	14.
	NONSALMONID STREAM	5550.	108.	5494.	104.	56.	4.
	NONSALMONID LAKE	1191.	8.	1191.	8.	0.	0.
	UNDESIG STRM MGMT	1557.	25.	1459.	24.	98.	1.
	UNDESIG LAKE MGMT	1935.	35.	1882.	34.	53.	1.
	DRAINAGE PRESSURE ESTIMATES:	93675.	1938.	85799.	1726.	7876.	212.
TOTAL							
	SALMONID STREAM	275737.	5790.	248668.	5157.	27069.	633.
	SALMONID LAKE	201024.	3933.	191256.	3729.	9768.	204.
	NONSALMONID STREAM	24279.	578.	23614.	562.	665.	16.
	NONSALMONID LAKE	31693.	577.	27475.	506.	4218.	71.
	UNDESIG STRM MGMT	9736.	148.	9324.	143.	412.	5.
	UNDESIG LAKE MGMT	14065.	272.	14012.	271.	53.	1.
	STATEWIDE PRESSURE ESTIMATES:	556534.	11298.	514349.	10368.	42185.	930.

DISCUSSION

SCOPE OF ANGLING PRESSURE

The statewide angling pressure survey was conducted from March, 1991 through February, 1992. Estimates of pressure by residents and nonresidents were for licensed anglers only. This would encompass anglers 12 years of age and older. Spence (1971) found that the unlicensed angler (ages 2- 14) comprised 9% of the pressure on Rock Creek near Missoula. Peterson (1970) found that the unlicensed angler accounted for 21% and 19% of the total number of anglers on Big Spring Creek near Lewistown during 1968 and 1969 respectively. On the Bighorn River near Hardin, Stevenson (1975) found that the unlicensed angler accounted for 14.2% and 15.8% of the total number of anglers during 1972 and 1973 respectively. Fredenberg (1984) found that 10% of the anglers on Bighorn Lake and 13% of the anglers on the Yellowtail Afterbay were unlicensed. The 1975 National Fishing and Hunting Survey showed that 23.8% of the anglers nationwide were between the ages of 9 and 17. It appears that the unlicensed angler makes up between 9% to 21% of the fishing pressure depending on the type of water being fished.

Some angling pressure was obtained on Indian reservations and National Parks within Montana. This pressure was incidental to other fishing trips and only included those anglers that had purchased a Montana fishing license. Since national parks and reservations require different licensing, a complete pressure estimate of waters within those regions was not obtained.

ACCURACY

SAMPLING

Samples were drawn and questionnaires sent to the selected anglers as soon as possible. This was usually 15-20 days after the wave being sampled had ended (see discussion under Methods for details). Since license dealers are not required to remit copies of licenses sold until the 10th of the following month, the samples may not contain all the eligible anglers for a given period. The months of April through September are most affected by this procedure, since license sales naturally curtail after September. This means of obtaining a sample may skew the pressure if license dealers from a given area don't remit their licenses in a timely manner. At the present time, there is no way to estimate the extent, if any, of this bias.

PRESSURE

No significant difference was found between the survey results and on-site creel census for rivers for the statewide angling mail surveys conducted from 1982 through 1985 (McFarland, 1989). When both surveys were conducted simultaneously on lakes and reservoirs, the results again agreed (McFarland, 1989). The same methodology was used in this survey as was used in those conducted from 1982 through 1985 and in 1989 (McFarland, 1991). At the time this report was written, no published results were availble for creel census conducted during the same time frame so no direct comparisons could be made.

RETURN RATES

Return rates (# of respondents / [# of surveys sent - nondeliverables] * 100) were calculated for every wave by residency. Return rates were calculated with and without the follow-up phone calls of resident nonrespondents (Table 11). The average total return rates for residents and nonresidents was 63.9% and 61.7% respectively. Nonresident return rates for season license holders was 69.6% and was less for 2-day license buyers at 56.7%. Without the telephone calls of nonrespondents the average return rate dropped to 61.6% for residents. Nonresidents remained the same since no telephone calls were made to nonresidents.

Table 11. Return rates by residency with and without phone follow-ups for the 1989 statewide angling survey.

	Total Return Rates		Return Rates w/o Phone	
WAVE	Resident	Nonresident	Resident	Nonresident*
1	68.3	76.0	68.3	76.0
2	66.8	71.5	63.9	71.5
3	61.0	68.8	58.2	68.8
4	60.2	65.0	58.9	65.0
5	58.8	66.5	58.5	66.5
6	59.2	67.0	58.8	67.0
7	62.4	72.3	60.9	72.3
8	65.5	69.4	64.3	69.4
9	71.5	75.1	66.3	75.1
10	71.9	74.6	68.0	74.6
11	74.3	71.7	66.8	71.7
12	67.4	72.3	63.6	72.3
99		56.7		56.7

* Nonresident nonrespondents were not telephoned.

NONRESPONSE BIAS

Telephone calls were made to a random sample of nonrespondents to ascertain if their fishing was different from those who responded to the mail survey. The average phone respondent was no more likely to have fished than than mail respondents (paired t-value= 0.91, 10 d.f. p-value = .4). The range, from wave to wave, was 5.2 times for July to .47 times as likely to fish for November. July and August were the only two months that were high (5.2 and 4.8 times more likely). This was in part attributed to the small sample sizes in phoning (19 and 37 respectively). For the months of April, May, June, July, August and January, the mail respondents were more likely to go fishing than the phone respondents. During the other months the reverse was true.

NUMBER OF LICENSED ANGLERS VS PRESSURE

The number of resident anglers has increased for the period 1982 to 1985 and then steadily decreased until 1990 (Table 12). The number of

resident anglers then increased for one year and began to decrease again the following year so that in 1991 the number was similiar to the 1989 number of resident anglers. The number of nonresident anglers during this same period decreased initially and then increased so that overall, the total number of anglers remained fairly static. In 1991 there was a 15.6% increase from the previous year in the number of nonresident anglers.

Table 12. Number of licensed anglers from 1982 through 1991 by residency.

Year	Resident Anglers	Nonresident Anglers
1982	216,689	119,293
1983	217,483	116,875
1984	232,485	102,843
1985	236,455	106,304
1986	235,403	100,456
1987	233,111	103,936
1988	219,299	108,471
1989	216,412	114,254
1990	220,181	119,611
1991	218,567	138,243

Comparing statewide angling use from the mail survey versus number of anglers shows little or no correlation for residents, while nonresidents seem to have some association between number of anglers and the amount of use exerted (Charts 5 & 6) with the exception of the last year. The number of nonresident anglers increased while the pressure exerted by nonresidents decreased.

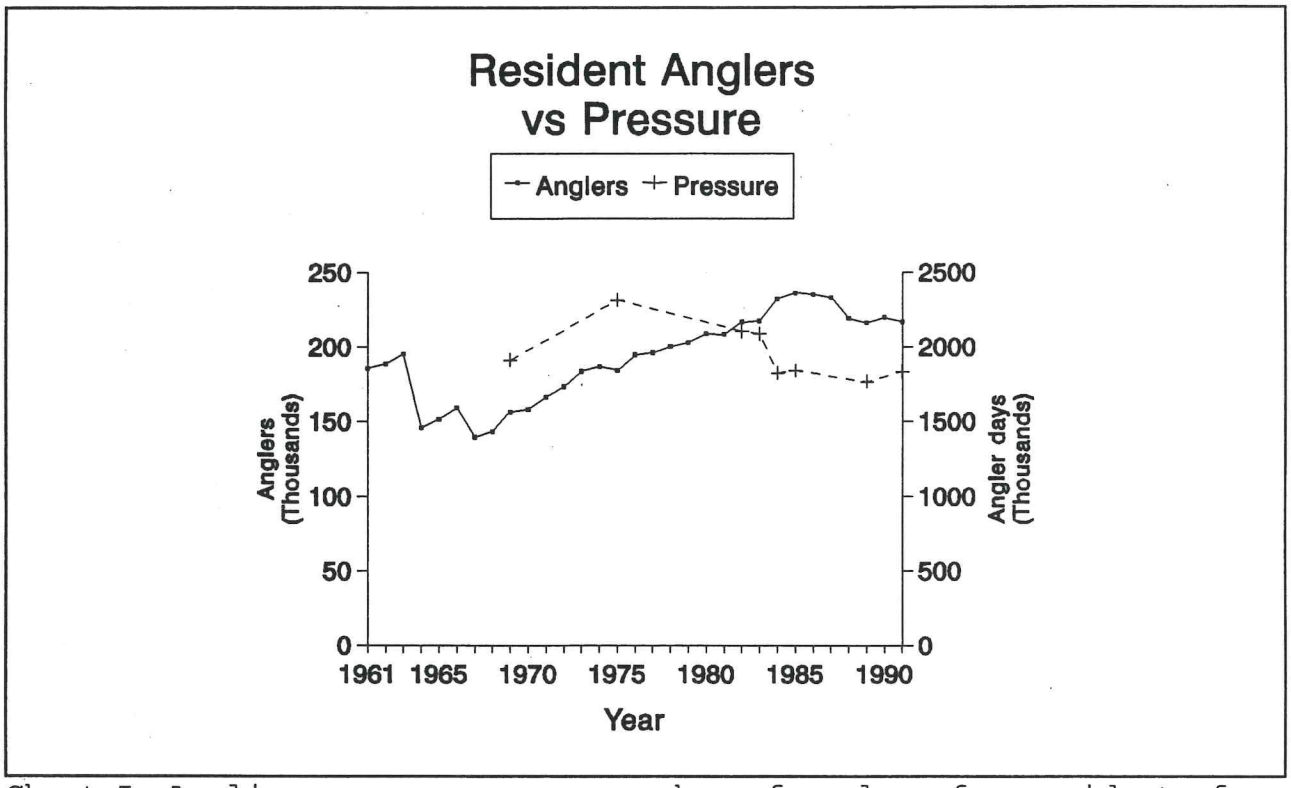

Chart 5. Angling pressure versus number of anglers for residents from 1961 to 1991.

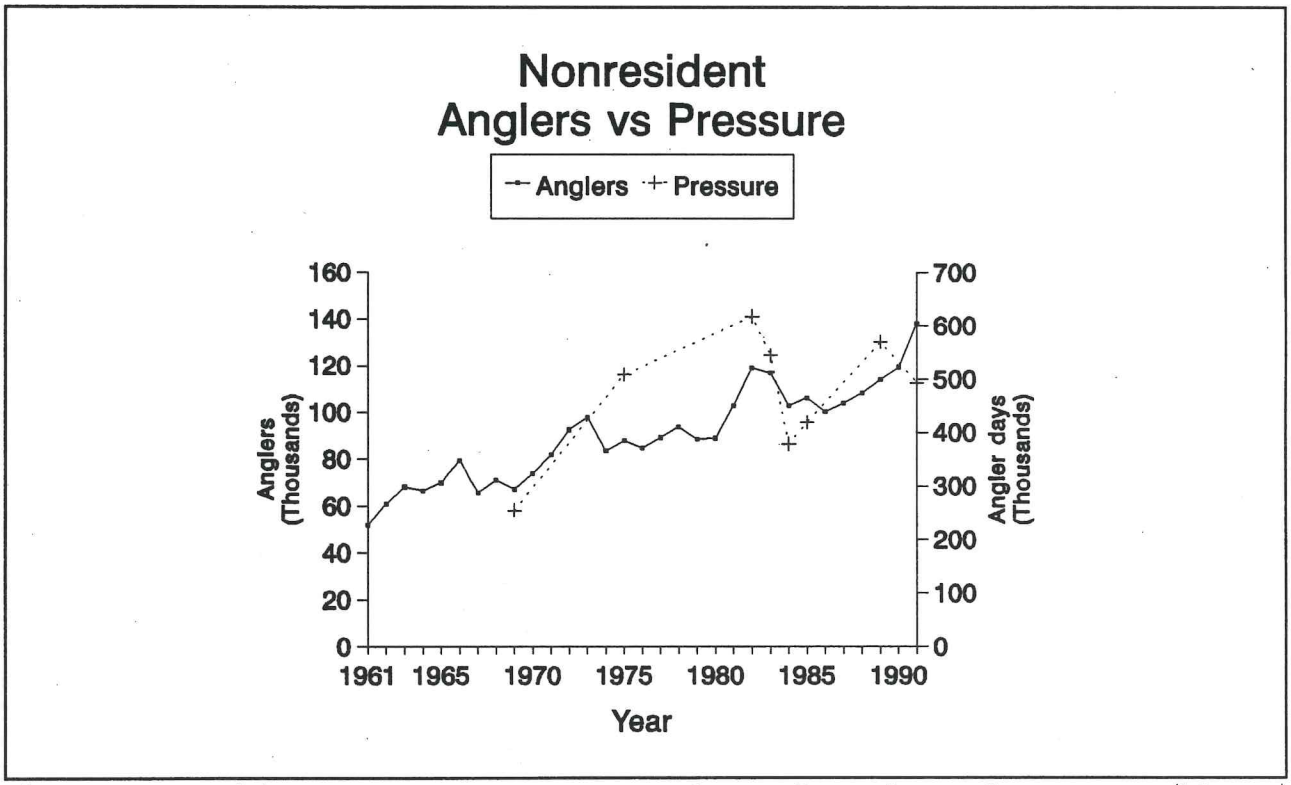

Chart 6. Angling pressure versus number of anglers for nonresidents from 1961 to 1991.

CONCLUSIONS AND RECOMMENDATIONS

The statewide angling pressure mail survey continues to provide invaluable data on individual bodies of water as well as statewide estimates.

If not cost prohibitive, future questionnaires should be sent so that the returns are anonymous. This could be done by bar-coding all outgoing questionnaires and making sure that the appropriate questionnaire goes in the correct envelope. This could help increase response rates and would also simplify the process of tracking all returns.

It is recommended that the survey continue to be conducted every other year. This will provide long term trend data.

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APPENDIX A

Examples of questionnaires

Montana Department of
Fish, Wildlife & Parks

Dear Angler,

We are conducting a monthly survey sent to a random sample of fishing license holders. This survey provides important data to help determine fishing pressure on the lakes and streams of Montana. By providing us with this vital information, you will be assisting us in properly managing Montana's fish population.

This survey requests only your fishing activities. Include all waters fished during the month of DECEMBER. If you fished one of the streams on the back of this form, please include the section number to aid us in identifying the portion of the stream. All information you provide will be held in strict confidence. We appreciate your continued cooperation in returning this survey at your earliest convenience.

EVEN IF YOU DID NOT FISH OR CATCH ANY FISH, PLEASE FILL OUT AND RETURN THIS QUESTIONNAIRE.

Did you fish in Montana during the month of December, 1991 ?

☐ Yes - If yes, total number of days fished _____?
Please continue below.

☐ No - If no, stop here and return form.

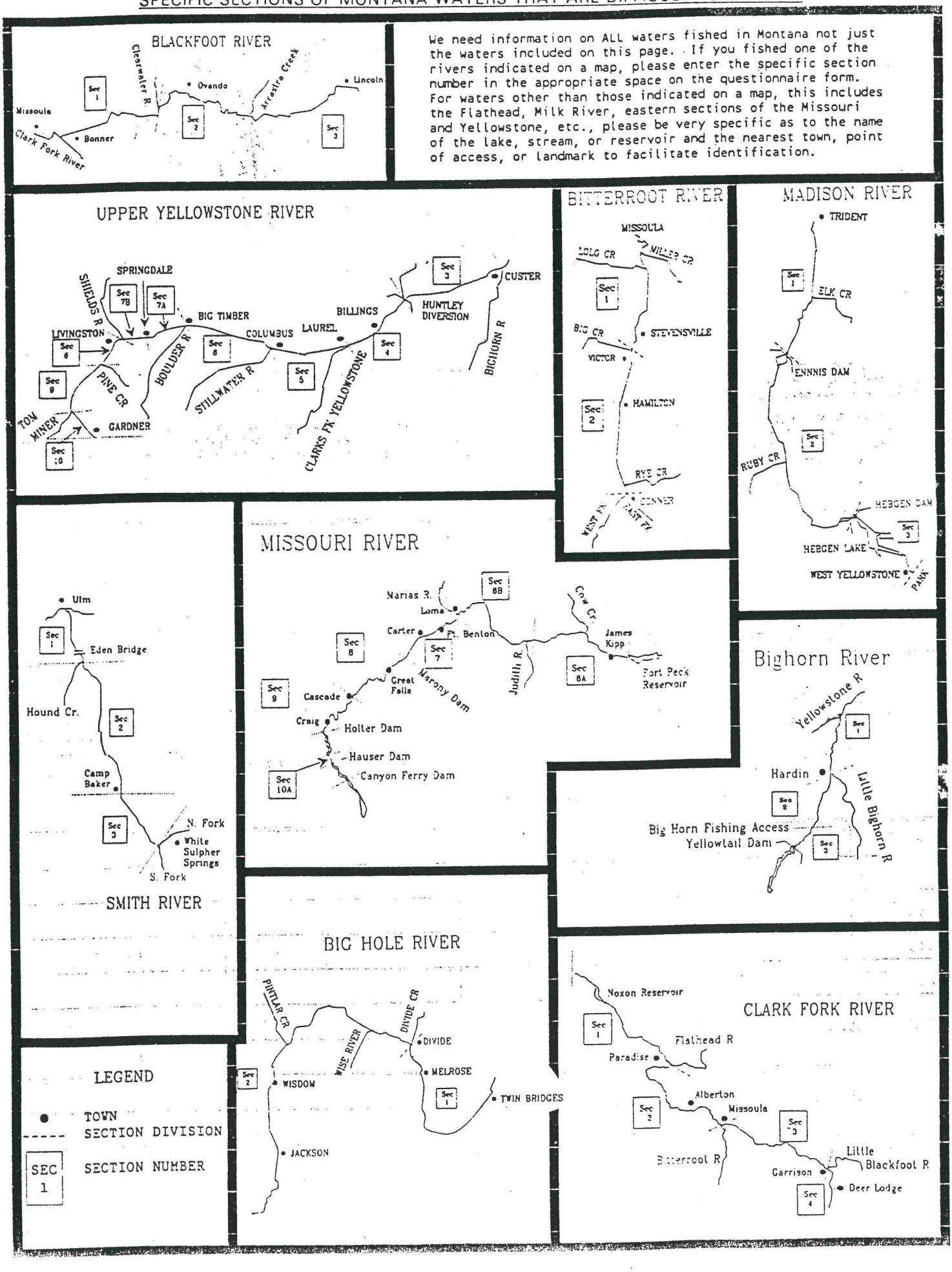
ENTER EACH WATER FISHED ON A SEPARATE LINE. (Your fishing only)

Date	Lake or stream fished	Section # (See back)	Nearest town or county	Days fished	MOSTLY BY: F=Float M=Motor Boat S=Shore
Dec.					
Dec.					
Dec.					
Dec.					
Dec.					
Dec.					
Dec.					
Dec.					
Dec.					
Dec.					
Dec.					

Thank you for your

WE NEED INFORMATIFON ON ALL WATERS FISHED IN MONTANA NOT JUST THE WATERS INCLUDED ON THIS PAGE.

SPECIFIC SECTIONS OF MONTANA WATERS THAT ARE DIFFICULT TO IDENTIFY



Montana Department of
Fish, Wildlife & Parks

Dear Angler,

We recently mailed you a request for information on your fishing in Montana. As you may recall, we are conducting a survey sent once a month to a random sample of fishing license holders. This survey provides important data to help determine fishing pressure on the lakes and streams of Montana. By providing us with this vital information, you will be assisting us in properly managing Montana's fish population.

This survey requests only your fishing activities. Include all waters fished during the month of MAY. If you fished one of the streams on the back of this form, please include the section number to aid us in identifying the portion of the stream. All information you provide will be held in strict confidence. We appreciate your continued cooperation in returning this survey at your earliest convenience.

EVEN IF YOU DID NOT FISH OR CATCH ANY FISH, PLEASE FILL OUT AND RETURN THIS QUESTIONNAIRE.

Did you fish in Montana during the month of May, 1991 ?

☐ Yes - If yes, total number of days fished _____?
Please continue below.

☐ No - If no, stop here and return form.

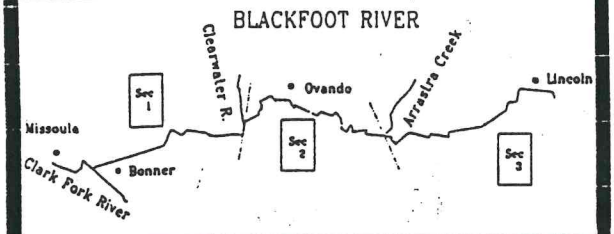
ENTER EACH WATER FISHED ON A SEPARATE LINE. (Your fishing only)

Date	Lake or stream fished	Section # (See back)	Nearest town or county	Days fished	MOSTLY BY: F=Float M=Motor Boat S=Shore
May					
May					
May					
May					
May					
May					
May					
May					
May					
May					
May					

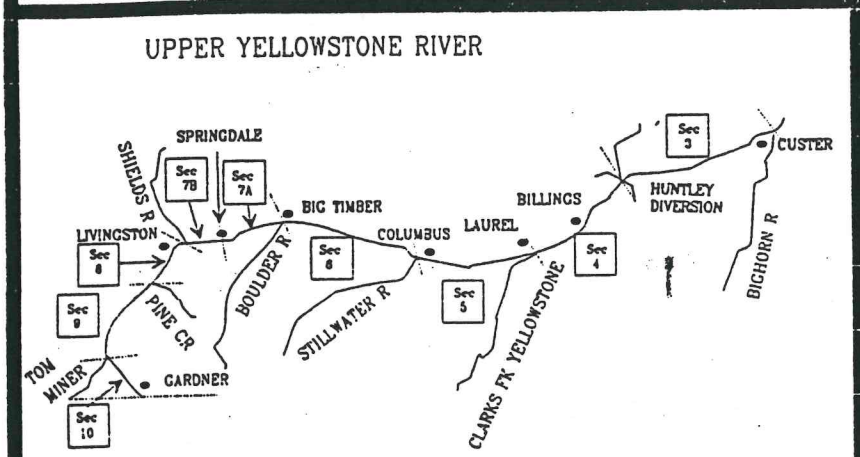
Thank you for your assistance.

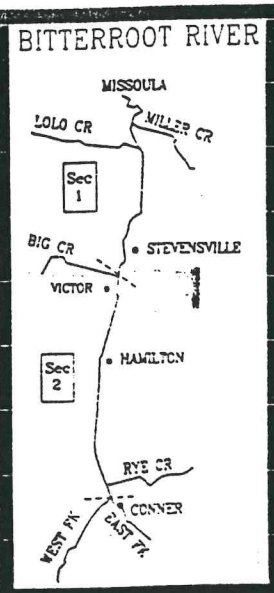
WE NEED INFORMATIFON ON ALL WATERS FISHED IN MONTANA NOT JUST THE WATERS INCLUDED ON THIS PAGE.

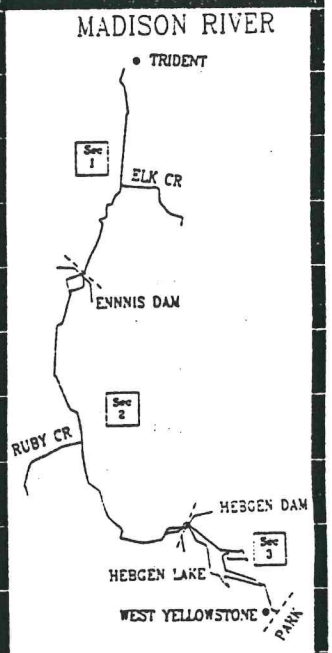
SPECIFIC SECTIONS OF MONTANA WATERS THAT ARE DIFFICULT TO IDENTIFY

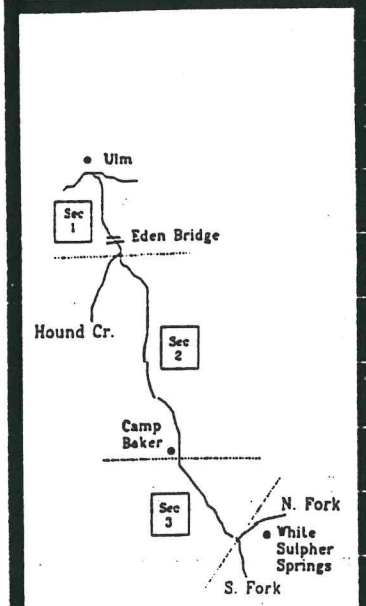


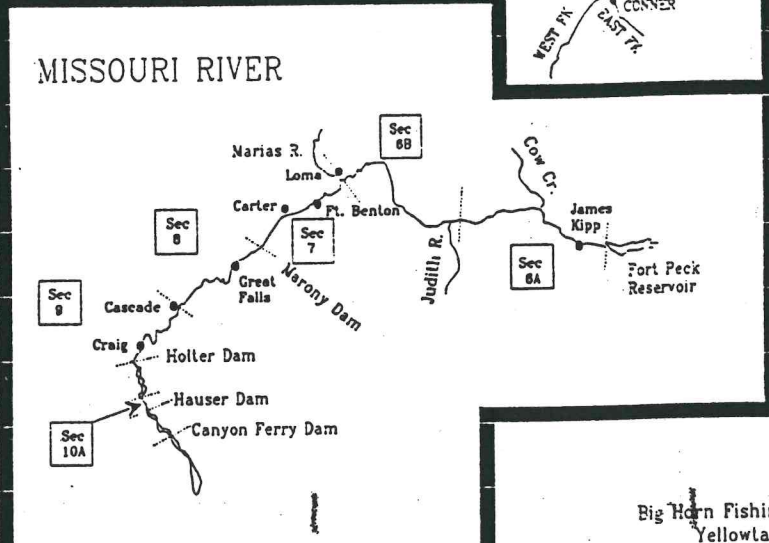
We need information on ALL waters fished in Montana not just the waters included on this page. If you fished one of the rivers indicated on a map, please enter the specific section number in the appropriate space on the questionnaire form. For waters other than those indicated on a map, this includes the Flathead, Milk River, eastern sections of the Missouri and Yellowstone, etc., please be very specific as to the name of the lake, stream, or reservoir and the nearest town, point of access, or landmark to facilitate identification.

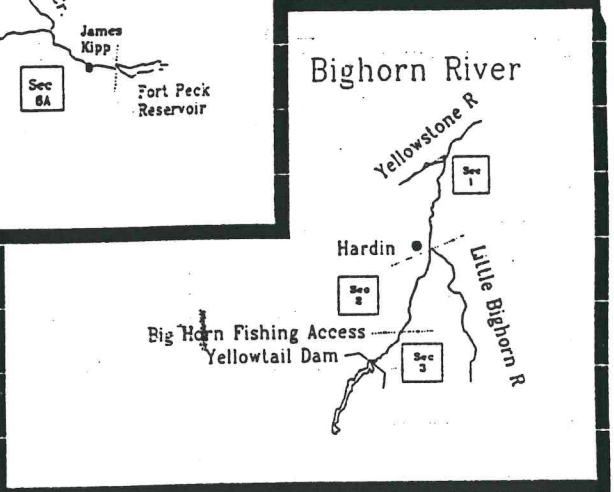


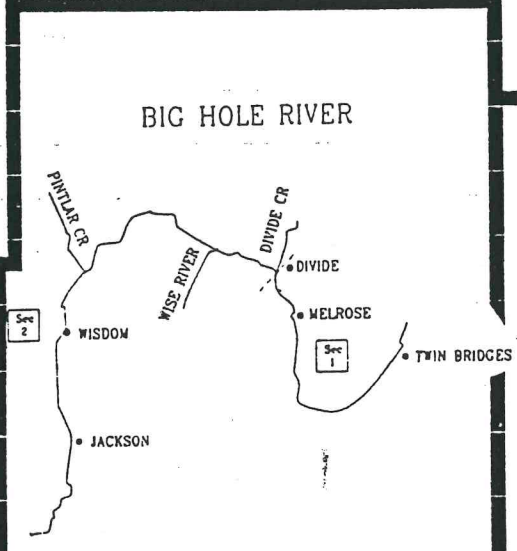


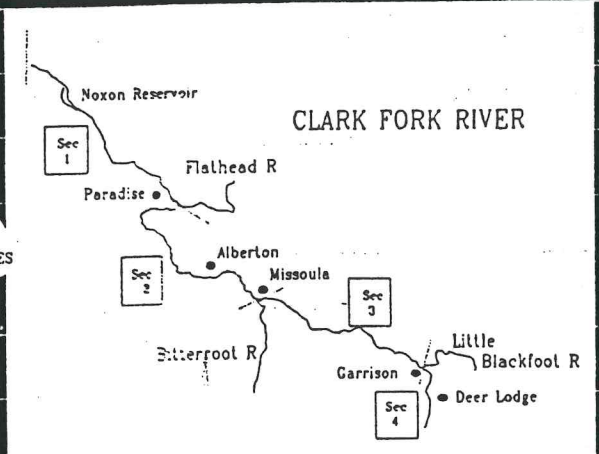


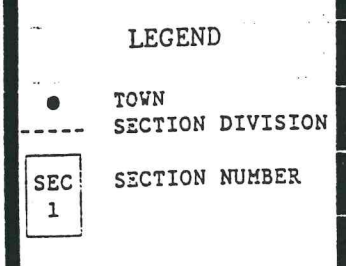












Montana Department of
Fish, Wildlife & Parks

Dear Angler,

We are conducting our annual survey sent to a random sample of fishing license holders. This survey provides important data to help determine fishing pressure on the lakes and streams of Montana. By providing us with this vital information, you will be assisting us in properly managing Montana's fish population.

This survey requests only your fishing activities. Include ALL waters fished for the time indicated. If you fished one of the streams on the back of this form, please include the section number to aid us in identifying the portion of the stream. All information you provide will be held in strict confidence. We appreciate your continued cooperation in returning this survey at your earliest convenience.

EVEN IF YOU DID NOT FISH OR CATCH ANY FISH, PLEASE FILL OUT AND RETURN THIS QUESTIONNAIRE.

Did you purchase a Montana fishing license between March 1991 and February 1992?

[ ] No - If no, stop here and return form.

[ ] Yes - If yes, total number of days fished _____?
Type of license purchased: [ ] Non-Resident Season
[ ] 2-day -- How many did you purchase for only your use___?

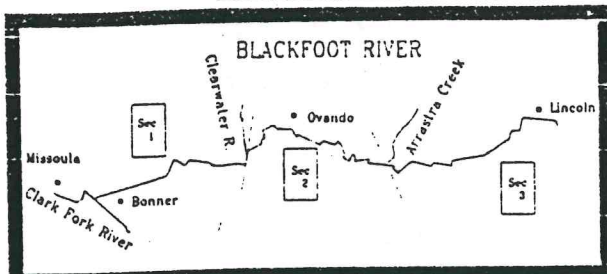
ENTER **EACH WATER FISHED** ON A SEPARATE LINE. (Your fishing only)

Date	Lake or stream.fished	Section # (See back)	Nearest town or county	Days fished	MOSTLY BY: F=Float M=Motor Boat S=Shore

Thank you for your assistance.

WE NEED INFORMATIFON ON ALL WATERS FISHED IN MONTANA NOT JUST THE WATERS INCLUDED ON THIS PAGE.

SPECIFIC SECTIONS OF MONTANA WATERS THAT ARE DIFFICULT TO IDENTIFY



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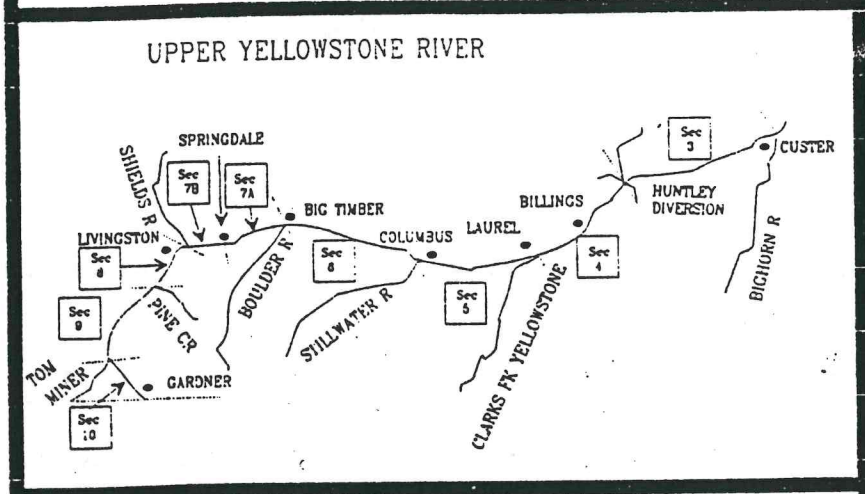

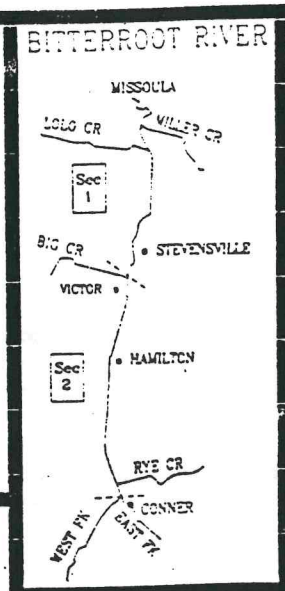

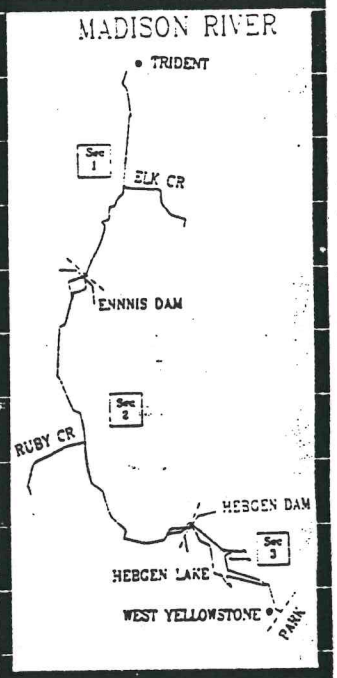

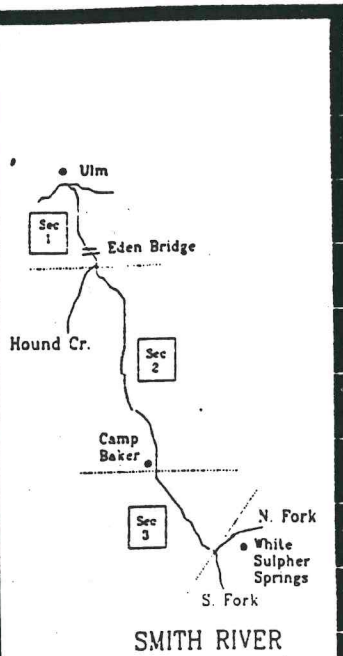

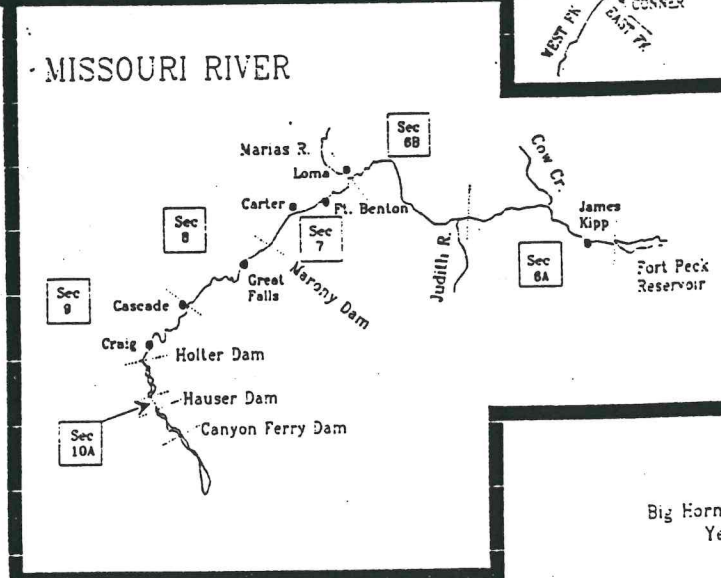

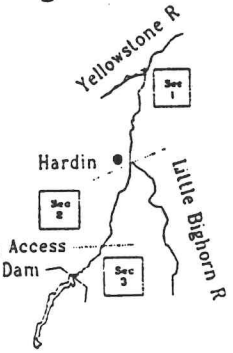

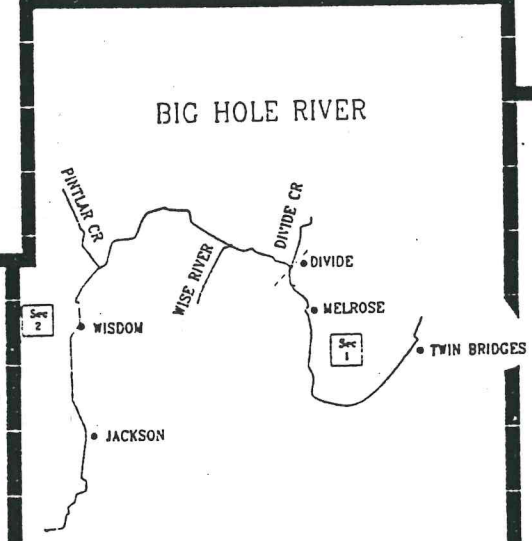

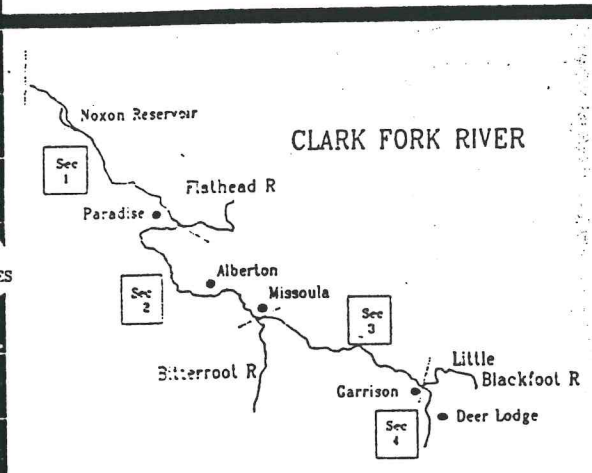

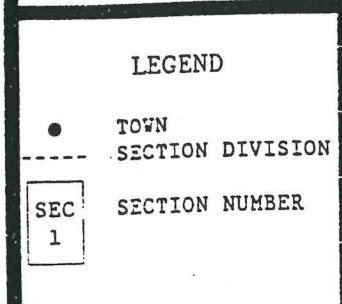

APPENDIX B
Boundaries of waters broken into sections

STREAM NAME		WATER CODE	BEGINNING POINT	ENDING POINT
BEAVER CREEK	SEC 01	15-0280	MOUTH	BEAVER CREEK RES.
	SEC 02	15-0320	BEAVER CREEK RES	BEAR PAW LAKE
	SEC 03	15-0340	BEAR PAW LAKE	ROCKY BOY INDIAN R
	SEC 04	15-0360	ROCKY BOY INDIAN RES	HEADWATERS
BIG HOLE R.	SEC 01	02-0425	MOUTH	DIVIDE CREEK
	SEC 02	02-0450	DIVIDE CREEK	PINTLAR CREEK
	SEC 03	02-0475	PINTLAR CREEK	HEADWATERS
BIG SPRING CR.	SEC 01	16-0301	JUDITH RIVER (MOUTH)	COTTONWOOD CREEK
	SEC 02	16-0310	COTTONWOOD CREEK	HEADWATERS
BIGHORN RIVER	SEC 01	22-0490	MOUTH	LITTLE BIGHORN RIVER
	SEC 02	22-0495	L.BIGHORN R	BIG HORN FAS(ACCESS CR)
	SEC 03	22-0496	(ACCESS CR.)BH-FAS	AFTERBAY
BITTERROOT R.	SEC 01	03-0475	MOUTH	BIG CREEK
	SEC 02	03-0500	BIG CREEK	HEADWATERS
BLACKFOOT R.	SEC 01	04-0600	MOUTH	CLEARWATER RIVER
	SEC 02	04-0630	CLEARWATER RIVER	ARRASTRA CREEK
	SEC 03	04-0660	ARRASTRA CREEK	HEADWATERS
BOULDER RIVER	SEC 01	22-0742	MOUTH	BOULDER FALLS(NAT BRDG)
	SEC 02	22-0756	NATURAL BRIDGE	HEADWATERS
	SEC 03	22-0770	BRIDGE CREEK	HEADWATERS
CLARK FORK R.	SEC 01	05-1440	IDAHO BORDER	FLATHEAD RIVER
	SEC 02	05-1456	FLATHEAD RIVER	BITTERROOT RIVER
	SEC 03	06-1121	BITTERROOT R	LITTLE BLACKFOOT R
	SEC 04	06-1140	LITTLE BLACKFOOT R	HEADWATERS

STREAM NAME		WATER CODE	BEGINNING POINT	ENDING POINT
CLARKS FK YELLOWSTONE				
	SEC 01	22-1162	MOUTH	BRIDGER
	SEC 02	22-1176	BRIDGER	WYOMING BORDER
	SEC 03	22-1190	WYOMING BORDER	HEADWATERS
CROW CREEK	SEC 01	07-1000	MOUTH	LOWER CROW RESERVOIR
	SEC 02	07-1020	LOWER CROW RESERVOIR	HEADWATERS
CUT BANK CREEK	SEC 01	14-1080	MOUTH	CUT BANK
	SEC 02	14-1120	CUT BANK	GLACIER PARK
FLATHEAD RIVER	SEC 01	07-1540	MOUTH	FLATHEAD LAKE
	SEC 02	07-1560	FLATHEAD LAKE	S FK FLATHEAD R
GALLATIN RIVER	SEC 01	09-2090	MOUTH	E GALLATIN RIVER
	SEC 02	09-6878	E GALLATIN RIVER	SPANISH CREEK
	SEC 03	09-6916	SPANISH CREEK	HEADWATERS
HYALITE CREEK	SEC 01	09-2546	MOUTH	HYALITE RESERVOIR
	SEC 02	09-6802	HYALITE RESERVOIR	HYALITE LAKE
JUDITH RIVER	SEC 01	16-1800	MOUTH	PLUM CREEK
	SEC 02	16-1820	PLUM CREEK	HEADWATERS
LITTLE BIGHORN RIVER				
	SEC 01	22-3654	MOUTH	LODGE GRASS CREEK
	SEC 02	22-3668	LODGE GRASS CREEK	HEADWATERS
LITTLE BLACKFOOT R				
	SEC 01	06-3772	MOUTH	ELLISTON
	SEC 02	06-3591	ELLISTON	HEADWATERS

STREAM NAME		WATER CODE	BEGINNING POINT	ENDING POINT
MADISON RIVER	SEC 01	13-3400	MOUTH	ENNIS LAKE
	SEC 02	13-3440	ENNIS LAKE	HEBGEN DAM
	SEC 03	13-3520	HEBGEN LAKE	YELLOWSTONE PARK
MARIAS RIVER	SEC 01	14-3240	MOUTH	TIBER DAM
	SEC 02	14-3280	LAKE ELWELL	CUT BANK CREEK
MILK RIVER	SEC 01	15-2680	MOUTH	HINSDALE
	SEC 02	15-2720	HINSDALE	MALTA
	SEC 03	15-2760	MALTA	HAVRE
	SEC 04	15-2800	HAVRE	FRESNO DAM
	SEC 05	15-2840	FRESNO RESERVOIR	CANADA
	SEC 06	15-2880	CANADA	MIDDLE & SOUTH FORKS
MISSOURI RIVER	SEC 01	16-2420	N DAKOTA BORDER	MILK RIVER
	SEC 05	16-2500	MILK RIVER	FORT PECK DAM
	SEC 06	16-2521	FT PECK RES	BLAIN/CHOUT CO LINE
	SEC 06B	16-2522	BLAIN/CHOUT CO LINE	MARIAS R
	SEC 07	17-4864	MARIAS RIVER	MORONY DAM
	SEC 08	17-4880	MORONY DAM	CASCADE BRIDGE
	SEC 09	17-4896	CASCADE BRIDGE	HOLTER DAM
	SEC 10A	17-4913	HOLTER LAKE	HAUSER DAM
	SEC 10B	17-4914	HAUSER LAKE	CANYON FERRY DAM
	SEC 11	17-4928	CANYON FERRY RES	TOSTON DAM
	SEC 12	17-4944	TOSTON DAM	HEADWATERS
MUSSELSHELL RIVER				
	SEC 01	18-4320	MOUTH	RT 3 BRIDGE NEAR LAVINA
	SEC 02	18-4350	RT 3 BRIDGE NEAR LAVINA	HEADWATERS
POPLAR RIVER	SEC 01	16-2820	MOUTH	E FK POPLAR RIVER
	SEC 02	16-2375	E FK POPLAR RIVER	CANADA
PRYOR CREEK	SEC 01	22-4802	MOUTH	PRYOR
	SEC 02	22-4816	PRYOR	HEADWATERS

STREAM NAME		WATER CODE	BEGINNING POINT	ENDING POINT
RED ROCK RIVER	SEC 01	01-6140	MOUTH	LIMA DAM
	SEC 02	01-6160	LIMA RESERVOIR	UPPER RED ROCK LK
ROCK CREEK	SEC 01	06-5263	MOUTH	HOGBACK CREEK
	SEC 02	06-5282	HOGBACK CREEK	HEADWATERS
ROCK CREEK	SEC 01	22-4928	MOUTH	W FK (CHROME CAMP)
	SEC 02	22-4956	W FK (CHROME CAMP)	HEADWATERS
RUBY RIVER	SEC 01	01-6360	MOUTH	RUBY RESERVOIR
	SEC 02	01-6380	RUBY RESERVOIR	HEADWATERS
SHIELDS RIVER	SEC 01	22-5334	MOUTH	CLYDE PARK
	SEC 02	22-5348	CLYDE PARK	WILSALL
	SEC 03	22-5362	WILSALL	HEADWATERS
SMITH RIVER	SEC 01	17-6816	MOUTH	HOUND CREEK
	SEC 02	17-6832	HOUND CREEK	CAMP BAKER
	SEC 03	17-6833	CAMP BAKER	HEADWATERS
STILLWATER R.	SEC 01	22-6104	MOUTH	NYE
	SEC 02	22-6118	W FK (NYE)	HEADWATERS
SUN RIVER	SEC 01	20-6050	MOUTH	MUDDY CREEK
	SEC 02	20-6100	MUDDY CREEK	GIBSON DAM
SWAN RIVER	SEC 01	07-4560	MOUTH	SWAN LAKE
	SEC 02	07-4580	SWAN LAKE	HEADWATERS
TETON RIVER	SEC 01	14-6000	MOUTH	CHOTEAU
	SEC 02	14-6040	CHOTEAU	HEADWATERS
THOMPSON RIVER	SEC 01	05-7248	MOUTH	BEND RANGER STATION
	SEC 02	05-7264	BEND RANGER STATION	HEADWATERS

STREAM NAME		WATER CODE	BEGINNING POINT	ENDING POINT
TONGUE RIVER	SEC 01	21-1150	MOUTH	BEAVER CREEK
	SEC 02	21-1200	BEAVER CREEK	TONGUE RIVER DAM
	SEC 03	21-1250	TONGUE RIVER RES	WYOMING BORDER
W FK STILLWATER R				
	SEC 01	22-6664	MOUTH	IRON CREEK
	SEC 02	22-6678	IRON CREEK	HEADWATERS
YAAK RIVER	SEC 01	11-7740	MOUTH	FALLS
	SEC 02	11-7760	FALLS	HEADWATERS
YELLOWSTONE R.	SEC 01	21-1350	N DAKOTA BORDER	POWDER RIVER
	SEC 02	21-1400	POWDER RIVER	BIGHORN RIVER
	SEC 03	22-7001	BIGHORN RIVER	HUNTLEY DIVERSION
	SEC 04A	22-7015	HUNTLEY DIVERSION	CLARKS FORK R
	SEC 05	22-7028	CLARKS FORK R	STILLWATER R
	SEC 06A	22-7043	STILLWATER R	BOULDER R
	SEC 07A	22-7057	BOULDER R	SPRINGDALE
	SEC 07B	22-7058	SPRINGDALE	SHIELDS R
	SEC 08A	22-7071	SHIELDS R	PINE CREEK
	SEC 08B	22-7072	PINE CREEK	TOM MINER CREEK
	SEC 09	22-7084	TOM MINER CREEK	GARDINER