

Montana Statewide Angling Pressure 2015

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Montana Statewide Angling Pressure 2015

Summary Report

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TABLE OF CONTENTS

1.0 INTRODUCTION	5
2.0 METHODS	7
2.1 MAIL SURVEYS	7
3.0 RESULTS	11
3.1 ANGLER PRESSURE ESTIMATES ANNUAL (MARCH 2015-FEBRUARY 2016)	11
3.2 ANGLER PRESSURE ESTIMATES SUMMER (MAY-SEPTEMBER)	23
3.3 ANGLER PRESSURE ESTIMATES WINTER (OCTOBER-APRIL)	29
3.4 PRIMARY SPECIES FISHED FOR	37
3.5 FISHING ACCESS SITE USE	49
4.0 DISCUSSION AND ANALYSIS	50
4.1 SCOPE OF ANGLING PRESSURE	50
4.2 ACCURACY	50
4.2.1 Sampling	50
4.2.2 Pressure	50
4.3 RETURN RATES	53
4.4 NUMBER OF LICENSED ANGLERS VS PRESSURE	54
5.0 LITERATURE CITED	57
6.0 EXAMPLES OF QUESTIONNAIRES	60
7.0 BOUNDARIES OF WATERS BROKEN INTO SECTIONS	64

1.0 INTRODUCTION

Montana Fish, Wildlife and Parks has conducted statewide angling mail surveys for more than 50 years. Bishop (1959, 1960, 1961) conducted the first recorded mail survey of fishing pressure on a statewide basis for Montana from 1958-1960. In 1968 Holton (1970) again initiated the statewide angling pressure mail survey. 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 In 1975, Gaffney (unpublished data) conducted a statewide survey of angling pressure by mail. 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. The surveys were started again in 1982 and run for four consecutive years (McFarland, 1989). In 1986 the surveys were again canceled for lack of funding. In March 1989, the statewide angling use mail survey was again re-initiated, and has been conducted on a biennial basis since that time.

The number of questionnaires in the survey has varied over the years. Between 1989 and 2011, the number has been in the range of 89,000-97,000 for all but two surveys (68,505 in 2001 and 80,125 in 2005). In 2013, the effort was scaled back to 67,603 questionnaires, a drop of 25 % from 2011. The 2015 survey effort was 67,600 questionnaires, the same as 2013. The consequence of this change is that it increases error measurements for waters, and decreases the number of waters for which a pressure estimate can be calculated.

In the current survey there have been changes made to the maps that accompany the questionnaire, and this is worthy of mention because it has the potential to influence the angler response, and ultimately angler pressure estimates. The Missouri River, the Yellowstone River, and the Clark Fork River maps underwent changes in an effort to show more detail.

- 1) Missouri River: On the back 2015 map page, the Missouri River map included section 8 from the Cascade Bridge to the North Dakota border. The Missouri River on the 2013 map ended at Fort Peck Lake. The 2015 map added section 1A from the North Dakota border to the Poplar River, section 1B from the Poplar River to the Milk River, section 5 from the Milk River to the Fort Peck Dredge Cuts, and the Fort Peck Reservoir to section 6A.

In order to create space for these additional sections, the upper Missouri above section 8 was printed on the front of the questionnaire (referenced on the back page map with “see inset map on other side”). This larger map facilitated the display of the FAS locations, the FAS logo and FAS name in addition to the small sections of 10A and 10B between the dams and the reservoirs.

Possible unintended consequences: Although there were a couple of notes directing anglers to the front maps and the map page on the reverse side, anglers might have limited their focus and attention to the larger upper Missouri River map limiting their activity to section 9 when in fact they might have been in section 8 further down river which was only shown on the back page map. Or conversely, they may have looked at the

map on the back page and attributed their activity to section 8 when they might have actually been in section 9.

- 2) Yellowstone River: On the back 2015 map page, the Yellowstone River map included sections 2 and section 1 to the North Dakota border. The Yellowstone River on the 2013 map ended with section 3 at the Bighorn River. The 2015 map added section 2 from the Bighorn River to the Powder River and section 1 from the Powder River to the North Dakota border.

In order to create space for these additional sections, the upper Yellowstone above section 7B was printed on the front of the questionnaire (referenced on the back page map with “see inset map on other side”). This larger map facilitated the display of the FAS locations, the FAS logo and FAS name in addition to the sections 8, 9A, 9B and 10 to the Yellowstone National Park boundary.

Possible unintended consequences: The 2013 map didn’t show Miles City because it is in section 2. As the largest town east of Billings and possibly the most notable landmark, anglers might have attributed activity in 2013 to section 3 thinking that that was their only option as the nearest town. This might also result in more activity in section 2 and section 1 (and less in section 3) in 2015.

- 3) Clark Fork River: Several of the dams and reservoirs in the lower Clark Fork River were shown on the 2015 map. In order to fit this in the space available, the river was displayed in 2 maps. In the past the map ended the Clark Fork River at Thompson Falls. Because the reservoirs were labeled on the 2015 map, there might have been more activity identified with these reservoirs than in the past.

Contents of the questionnaire changed in 2015. Questions regarding outfitter angling were dropped, and questions regarding Fishing Access Site (FAS) use were added. The primary purpose of these questions was to quantify the percentage of anglers who use FASs to access waterbodies.

2.0 METHODS

2.1 MAIL SURVEYS

The 2015 statewide angling mail pressure survey was conducted during the license year beginning March, 2015 and ending February, 2016. The methods used by R. McFarland for surveys conducted from 1989 through 2009 provided the framework for the 2015 survey.

Samples were drawn from the Department's Automated Licensing System (ALS) on the first day of each month. All anglers who purchased a two or ten day license valid for use in the previous month as well as all anglers who purchased or held a season fishing license valid for use in the previous month were included in the eligible angler population. A computer program was written in ORACLE to create five populations of anglers from which to draw samples. A resident season population, a resident 2-day population, a nonresident season population, a nonresident 2-day population and a nonresident 10-day population were created each month. The licenses that comprise these five populations of anglers are:

1. NonResident 2-day license: enables the nonresident angler to fish for two consecutive days of their choice. Anglers may purchase as many two-day licenses as they want.
2. NonResident 10-day license: enables the nonresident angler to fish for 10 consecutive days of fishing. Anglers may purchase as many ten-day licenses as they want.
3. NonResident Season license includes:
 - combo license - combines a nonresident conservation license and seasonal fishing license.
 - seasonal license
 - deer combo license - includes a deer tag and a fishing license.
 - big game combo - includes a conservation license, an elk tag, a deer "A" tag, a black bear tag, a fishing license and an upland game bird license.
4. Resident 2-day license: valid for 2 consecutive days at a reduced cost.
5. Resident Season license includes:
 - season license
 - combo license - combines a season fishing license and a conservation license
 - sportsman's license - provides a deer "A" tag, elk tag, optional bear tag, conservation license, a game bird stamp and a fishing license
 - "senior" license - 62 years of age and older
 - "youth" license - ages 12 and 14
 - disabled license - certified as permanently and substantially disabled

An ACCESS table was used to pull a random sample from each population. Sampling was done on a monthly-stratified basis (Table 1). The number pulled from each population was proportionally derived from the angling pressure each population exerted based on previous surveys. This proportion remained constant throughout all sampling periods for the past several surveys.

The individual samples from each population (by month) were assigned to a wave (Table 1) and given sequential serial numbers. The database of names and addresses were run through a software program (a service provided by Print & Mail Service in Helena) to validate addresses and assign correct 4 digit zip code extensions. Only addresses that passed the mail validation were included in the final sample. This helped reduce the number of non-deliverable surveys. An ACCESS report was written to export the monthly sample data into a spreadsheet for mail merging with the survey WORD document. The merged file contained a single page for each angler included in the sample. This merged file and a separate map file were sent to Print & Mail Services (State of Montana) in Helena, MT where the survey was printed (two-sided), stuffed into envelopes and mailed via first class mail.

Table 1. Period of time covered for waves for the 2015-2016 Statewide angling survey.		
Wave	Time Period Covered	Season Designation
1	March 2015	Winter
2	April	Winter
3	May	Summer
4	June	Summer
5	July	Summer
6	August	Summer
7	September	Summer
8	October	Winter
9	November	Winter
10	December	Winter
11	January 2016	Winter
12	February	Winter

The 2007 Statewide Angling Use Survey (McFarland, 2009) indicated that residents provide approximately 75% of angling pressure, therefore sampling was done on a 75/25 split between residents and nonresidents (i.e. proportional allocation). The sample size for the 2015 survey was the same as for the 2013 survey. Actual numbers of questionnaires sent varied slightly from wave to wave (Table 2). For the "summer" waves (3 through 7), 8,400 residents and nonresidents were sampled each month. In the "winter" waves (8 through 12), the rate dropped to 4,200 residents and nonresidents. Because waves 1 and 2 had fewer license holders from which to sample, these two waves were sampled at a less intense level.

A single questionnaire was used for all groups. The questionnaire (see Section 6.0 for an example), included questions on: what water was fished; nearest landmark or town; section of stream or river fished (taken from maps on the front survey page and the map page on the back of the survey); number of days fished; number of days fished at an FAS and the name(s) of the FAS; the one fish species they were primarily fishing for. The question on FAS use was new for 2015 and replaced outfitter and bait questions included in the 2013 survey.

To ease the sorting process different colored forms were used for each wave and also for initial and remail mailings. Surveys were mailed "first class pre-sort" for all the waves.

Table 2. Number of questionnaires sent for each wave by residency for 2015.

Wave	Mailed		Useable (mailed minus undeliverable)		Returns (initial and remail)		Return Rate Percentage	
	Res	Nonres	Res	Nonres	Res	Nonres	Res	Nonres
01	300	100	283	95	151	37	53.36%	38.95%
02	3150	1050	2925	950	1392	426	47.59%	44.84%
03	6300	2100	5752	1873	2443	780	42.47%	41.64%
04	6301	2099	5720	1886	2408	841	42.10%	44.59%
05	6300	2100	6022	2009	2455	831	40.77%	41.36%
06	6301	2099	5933	1989	2417	812	40.74%	40.82%
07	6304	2096	5744	1984	2384	890	41.50%	44.86%
08	3153	1047	2991	998	1291	484	43.16%	48.50%
09	3152	1048	2941	990	1374	451	46.72%	45.56%
10	3151	1049	2995	974	1422	399	47.48%	40.97%
11	3150	1050	3019	992	1415	382	46.87%	38.51%
12	3151	1049	2989	995	1239	377	41.45%	37.89%

Remail questionnaires were mailed to those individuals who had not yet responded, from four to five 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 on the remail survey was a note explaining that we hadn't received their survey yet but if they had sent one in and our mail crossed paths, to please disregard this second request (see Section 6.0 for survey examples), a duplicate questionnaire and a return envelope. Returns were grouped and counted according to type of license (residency), wave and mailing (initial or remail). Surveys returned as undeliverable were subtracted from the sample size.

Returned questionnaires were sorted into those that had fished in Montana during the period in question and those that had not. The "yes" respondents were keyed into an Access database using forms and lookup fields. A record was entered for each stream or lake fished. Both the stream or lake name and the nearest town or landmark was entered for each record. These data were used to identify a specific watercode for each record. Edits were run to correct invalid water codes and data out of normal ranges.

Phone surveys have been used in the past for the purpose of determining nonresponse bias associated with the mail surveys and making adjustments to pressure estimates accordingly. The most recent phone survey was conducted in 1997. It showed no statistically significant difference in response rate between the phone and mail surveys. No phone surveys were conducted in 2015, so it was assumed that there was no nonresponse bias and no adjustment necessary.

Fishing pressure 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 j^{th} residency

E_{ij} = Number of eligible anglers for the i^{th} wave and j^{th} residency

D_{ij} = Days fished that particular water for the i^{th} wave and j^{th} residency

R_{ij} = Number of respondents from the survey for the i^{th} wave and j^{th} residency

A_{ij} = Adjustment factor for non-response for the i^{th} wave and j^{th} 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 same 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.

3.0 RESULTS

3.1 ANGLER PRESSURE ESTIMATES ANNUAL (MARCH 2015-FEBRUARY 2016)

Licensed anglers fishing on Montana waters were estimated to have exerted 3,340,800 angler days of pressure for the 2015 license year (Table 3). Residents accounted for 2,136,507 angler days (64%) and nonresidents made up the remaining 1,204,294 angler days (36%). Estimates for individual waters were sorted alphabetically are presented in Appendix A of this report.

The distribution of angler pressure among Fish, Wildlife and Parks regions (Figure 1) is heavily skewed toward the western and central portions of the state (Chart 1). Region 3 received the most angling pressure with 863,132 angler days (25.8%), followed closely by Region 4 with 732,486 angler days (21.9%). Regions 2, 5 and 1 were next in order and close to each other, with 492,929 (14.75%), 445,404 (13.33%), and 445,135 (13.32%) angler days respectively. The easternmost regions of 6 and 7 were the lowest in pressure with 232,543 (6.96%) and 121,052 (3.6%) angler days respectively.

Residents (Chart 1) exerted the majority of angling pressure in 2015 in all regions but Region 3. The percent of angling pressure by residents for each region was: Region 1 – 75.5%, Region 2 – 60.1%, Region 3 – 47.2%, Region 4 – 78.8%, Region 5 – 52.2%, Region 6 – 81.5%, and Region 7 – 76%. July (wave 5) was, overall, the peak fishing period, while March (wave 1) was the least fished period during the year (Table 4). Residents fished the most in June (wave 4) and nonresidents fished the most during July (wave 5). Residents fished least in December (wave 10) while nonresidents fished least in March (wave 1).

Angling on lotic waters (streams/rivers) accounted for 63.7% (2,112,923 angler days) of the statewide pressure while lentic waters (lakes/ponds/reservoirs) accounted for 36.3% (1,204,283 angler days) of the pressure (Table 3).

Regions 1 and 6 were the two regions in which lake angling pressure exceeded stream pressure (64.6% and 76.9%, respectively from lakes), although the lake pressure in Region 6 was due primarily to angling on one water (Fort Peck Reservoir) (Table 3, Chart 2). Regions 4 and 7 were relatively balanced between stream and lake angling, although the lake angling pressure in Region 4 was the greatest for any region of the state (354,517 angler days). Regions 2, 3 and 5 were dominated by stream anglers, and while Region 3 had the highest number of stream anglers for any region (719,674 angler days), Region 5 had the highest percentage (84.8%) of anglers that were stream anglers.

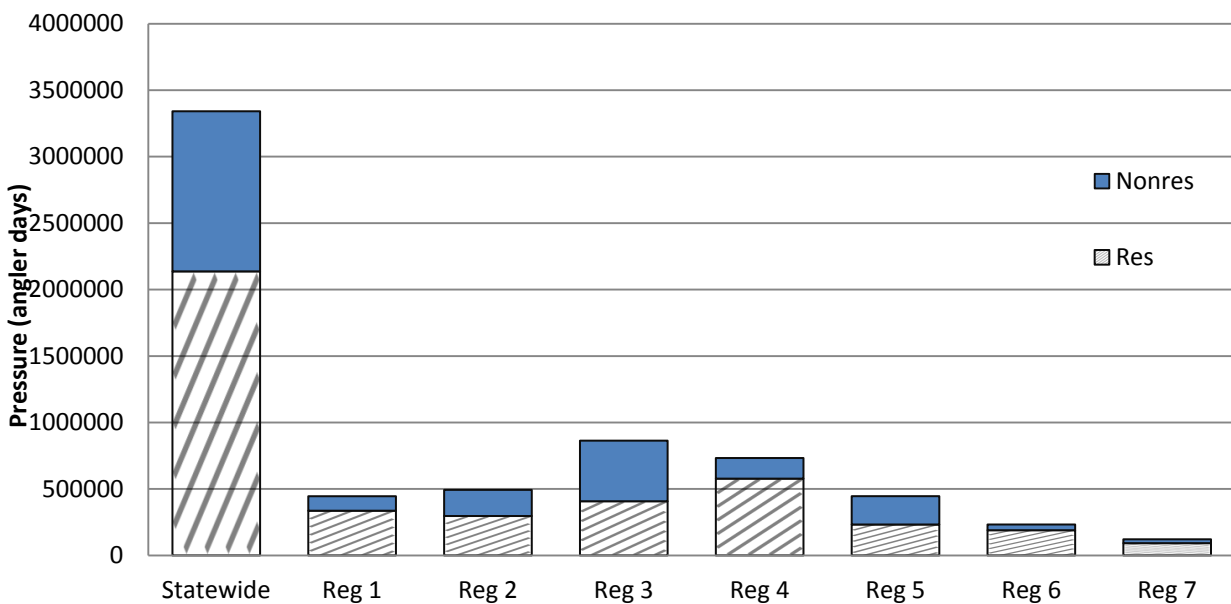
Table 3. Angling Pressure in angler days by Region by Lake or Stream for License year 2015. Trips = Number of days respondents to the mail survey fished on the waterbody.

	----- Totals -----		----- Resident -----		----- Non-Resident -----	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
Region 1						
Undesig	2,586	30	1,218	14	1,369	16
Lake	285,704	2,752	227,589	2,226	58,116	526
Stream	156,844	1,528	107,507	1,064	49,337	464
Total:	445,135	4,310	336,314	3,304	108,822	1,006
Region 2						
Undesig	2,840	23	1,379	12	1,461	11
Lake	134,268	1,226	101,799	960	32,468	266
Stream	355,821	3,377	193,130	1,823	162,691	1,554
Total:	492,929	4,626	296,308	2,795	196,620	1,831
Region 3						
Undesig	2,772	32	1,822	23	950	9
Lake	140,686	1,264	76,412	700	64,274	564
Stream	719,674	6,893	329,138	3,205	390,536	3,688
Total:	863,133	8,189	407,372	3,928	455,760	4,261
Region 4						
Undesig	2,869	30	2,620	27	249	3
Lake	354,517	3,401	334,007	3,203	20,510	198
Stream	375,099	3,675	240,908	2,306	134,192	1,369
Total:	732,486	7,106	577,535	5,536	154,951	1,570
Region 5						
Undesig	1,420	13	1,420	13		
Lake	67,312	666	53,820	536	13,493	130
Stream	376,672	3,429	177,195	1,547	199,477	1,882
Total:	445,404	4,108	232,435	2,096	212,970	2,012
Region 6						
Undesig	2,128	17	1,281	10	847	7
Lake	177,295	1,679	140,783	1,398	36,512	281
Stream	53,121	530	47,402	479	5,719	51
Total:	232,543	2,226	189,466	1,887	43,078	339
Region 7						
Undesig	1,311	13	1,147	12	165	1
Lake	44,049	413	27,197	282	16,852	131
Stream	75,692	710	63,702	589	11,990	121
Total:	121,052	1,136	92,046	883	29,007	253

Statewide Pressure Estimates by Survey License 2015

	----- Totals -----		----- Resident -----		----- Non-Resident -----	
	Pressure	Trips	Pressure	Trips		
Undesig	23,595	238	15,550	162	8,045	76
Lake	1,204,283	11,406	961,975	9,309	242,308	2,097
Stream	2,112,923	20,142	1,158,982	11,013	953,941	9,129
Statewide Total	3,340,800	31,786	2,136,507	20,484	1,204,294	11,302

**Chart 1. Statewide Angling Pressure Comparing
Region and Residency
2015-16**



**Chart 2. Statewide Angling Pressure Comparing
Region and Water Type
2015-16**

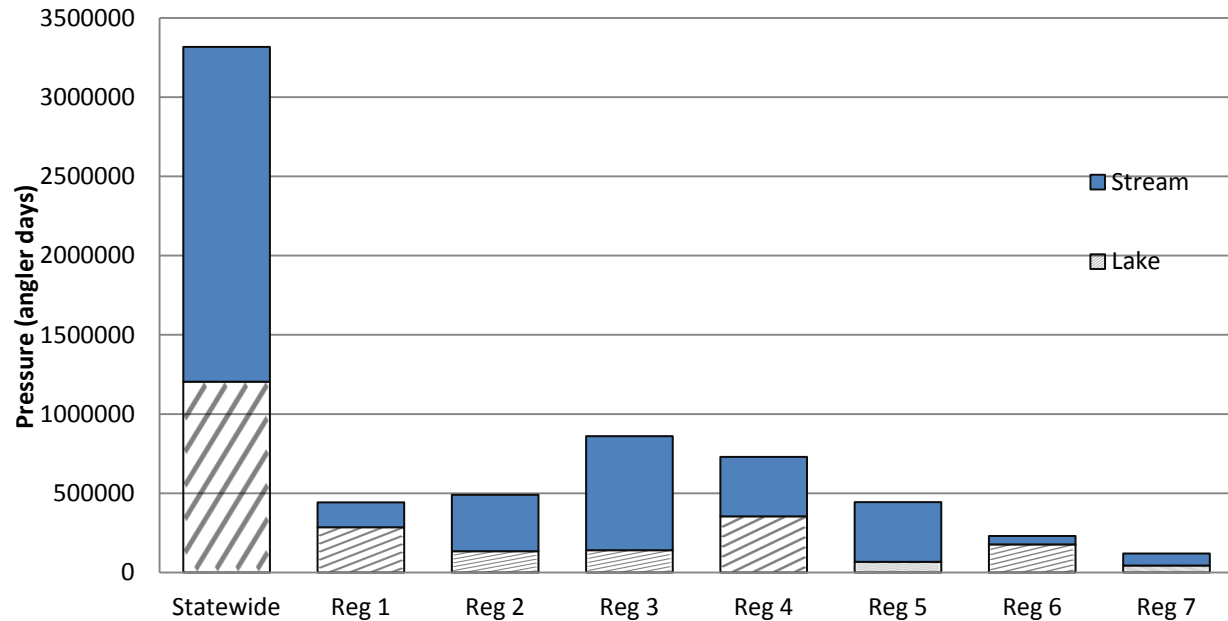


Table 4. Pressure in angler days by wave for the 2015 survey license year.

wave	Month	Total	Resident	Nonresident
01	March	94,433	76,838	17,595
02	April	177,860	123,291	54,570
03	May	324,017	244,747	79,270
04	June	500,722	369,475	131,247
05	July	587,897	369,223	218,673
06	August	498,931	297,198	201,732
07	September	396,467	239,865	156,602
08	October	231,918	113,302	118,616
09	November	116,099	50,480	65,619
10	December	97,902	50,075	47,826
11	January	147,720	95,798	51,922
12	February	166,834	106,213	60,621

Angling pressure was summarized by the 40 major drainages within the state as identified in the 2013 Statewide Fisheries Management Plan (Figure 1, Table 5). The pressure by drainage ranged from a high of 354,753 angler days for the Upper Yellowstone River drainage to a low of 94 angler days for the Little Missouri River drainage. The drainages with the highest percentage of resident anglers were the Little Missouri and the Powder River (both at 100%) but based on very low sample size (1 and 12 trips, respectively), while the Bighorn River had the lowest percentage of resident anglers (25.9%). The Fort Peck Reservoir drainage had the highest percentage of lake anglers (91%), mainly due to the influence of Fort Peck Reservoir, while the Beaverhead River had the lowest percentage of lake anglers (1.6%).

Figure 1: Statewide Management Plan Drainages

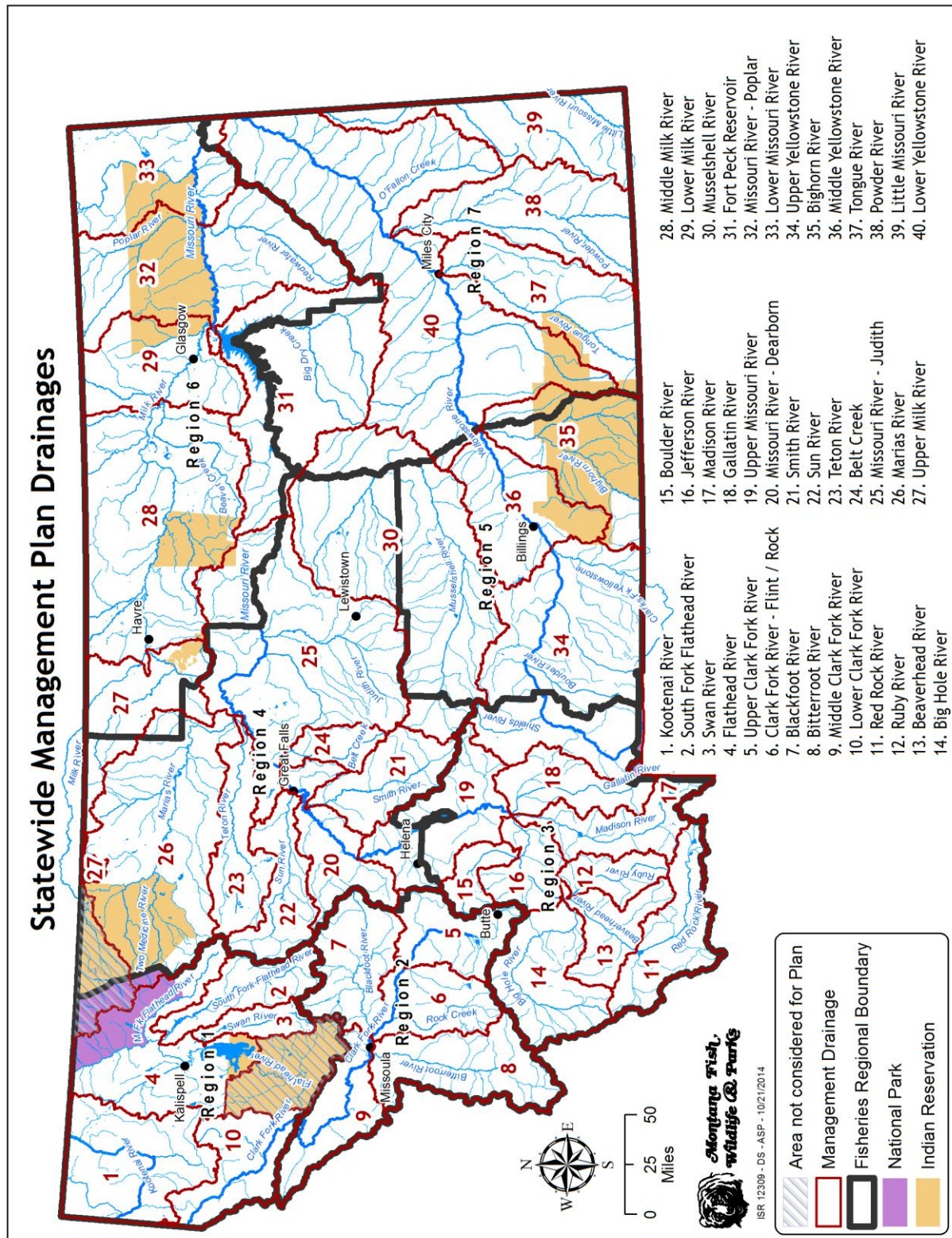


Table 5. Angling Pressure in angler days by Drainage by Lake or Stream for the 2015 survey license year. Trips = Number of days respondents to the mail survey fished on the waterbody.

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
Beaverhead River						
Lake	632	6	284	3	348	3
Stream	38,647	361	19,011	167	19,637	194
Total:	39,280	367	19,295	170	19,985	197
Belt Creek						
Stream	7,240	69	6,342	60	898	9
Total:	7,240	69	6,342	60	898	9
Big Hole River						
Lake	8,078	82	6,667	71	1,411	11
Stream	85,400	874	41,391	435	44,009	439
Total:	93,478	956	48,058	506	45,420	450
Bighorn River						
Lake	10,831	108	8,688	83	2,143	25
Stream	192,978	1,752	44,210	344	148,768	1,408
Total:	203,809	1,860	52,898	427	150,911	1,433
Bitterroot River						
Lake	8,230	84	4,592	50	3,638	34
Stream	114,314	1,015	69,360	579	44,954	436
Total:	122,544	1,099	73,952	629	48,592	470
Blackfoot River						
Lake	50,154	456	43,535	402	6,620	54
Stream	69,980	706	35,824	382	34,157	324
Total:	120,135	1,162	79,359	784	40,777	378
Boulder River						
Stream	4,891	48	4,428	44	463	4
Total:	4,891	48	4,428	44	463	4
Clark Fork River - Flint / Rock						
Lake	66,614	595	47,143	441	19,471	154
Stream	83,210	807	31,110	314	52,101	493
Total:	149,824	1,402	78,253	755	71,572	647
Flathead River						
Lake	137,255	1,299	109,293	1,049	27,962	250
Stream	61,357	616	42,392	434	18,965	182
Total:	198,612	1,915	151,685	1,483	46,927	432

Table 5. Angling Pressure in angler days by Drainage by Lake or Stream for the 2015 license year (continued).

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
Fort Peck Reservoir						
Lake	115,075	1,091	84,905	857	30,169	234
Stream	11,581	126	10,870	119	711	7
Total:	126,656	1,217	95,775	976	30,880	241
Gallatin River						
Lake	23,495	172	19,817	139	3,679	33
Stream	148,451	1,370	74,909	716	73,542	654
Total:	171,947	1,542	94,726	855	77,221	687
Jefferson River						
Lake	5,474	51	4,698	44	776	7
Stream	11,639	118	6,062	61	5,578	57
Total:	17,113	169	10,760	105	6,354	64
Kootenai River						
Lake	52,371	506	38,861	381	13,510	125
Stream	36,994	357	24,242	239	12,752	118
Total:	89,365	863	63,103	620	26,262	243
Little Missouri River						
Stream	94	1	94	1		
Total:	94	1	94	1		
Lower Clark Fork River						
Lake	64,042	612	51,763	500	12,279	112
Stream	35,726	340	26,639	254	9,087	86
Total:	99,768	952	78,402	754	21,366	198
Lower Milk River						
Lake	704	6	704	6		
Stream	3,352	40	3,269	39	83	1
Total:	4,056	46	3,973	45	83	1
Lower Missouri River						
Lake	3,798	43	3,490	41	309	2
Stream	1,866	22	1,687	20	179	2
Total:	5,664	65	5,177	61	488	4
Lower Yellowstone River						
Lake	9,742	92	9,285	88	457	4
Stream	57,698	523	52,116	459	5,581	64
Total:	67,439	615	61,401	547	6,038	68

Table 5. Angling Pressure in angler days by Drainage by Lake or Stream for the 2015 license year (continued).

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
Madison River						
Lake	65,983	642	27,064	278	38,919	364
Stream	232,842	2,278	67,734	683	165,108	1,595
Total:	298,825	2,920	94,798	961	204,027	1,959
Marias River						
Lake	42,118	421	38,895	393	3,223	28
Stream	5,775	60	3,105	33	2,670	27
Total:	47,893	481	42,000	426	5,893	55
Middle Clark Fork River						
Lake	6,193	61	5,070	51	1,122	10
Stream	68,298	640	42,519	395	25,779	245
Total:	74,490	701	47,589	446	26,901	255
Middle Milk River						
Undesig	847	7			847	7
Lake	33,762	299	28,507	263	5,256	36
Stream	17,106	152	15,592	137	1,514	15
Total:	51,716	458	44,099	400	7,617	58
Middle Yellowstone River						
Lake	9,904	95	9,672	93	232	2
Stream	30,355	301	27,117	274	3,239	27
Total:	40,260	396	36,789	367	3,471	29
Missouri River - Dearborn						
Lake	3,719	32	3,719	32		
Stream	207,728	2,059	113,504	1,095	94,224	964
Total:	211,447	2,091	117,223	1,127	94,224	964
Missouri River - Judith						
Lake	13,112	104	12,382	95	730	9
Stream	38,814	371	31,998	300	6,816	71
Total:	51,926	475	44,380	395	7,546	80
Missouri River - Poplar						
Lake	417	5	417	5		
Stream	11,899	120	10,049	107	1,850	13
Total:	12,316	125	10,466	112	1,850	13
Musselshell River						
Lake	23,249	212	21,123	196	2,125	16
Stream	6,330	68	5,052	55	1,278	13
Total:	29,579	280	26,175	251	3,403	29

Table 5. Angling Pressure in angler days by Drainage by Lake or Stream for the 2015 license year (continued).

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
NA						
Lake	4,429	48	3,645	42	784	6
Stream	2,235	12	2,122	11	113	1
Total:	6,664	60	5,767	53	897	7
NA - St. Mary and Belly Rivers						
Lake	1,787	20	1,724	19	63	1
Stream	232	2			232	2
Total:	2,019	22	1,724	19	295	3
Powder River						
Lake	431	4	431	4		
Stream	693	8	693	8		
Total:	1,124	12	1,124	12		
Red Rock River						
Lake	18,470	153	5,708	55	12,762	98
Stream	4,314	40	900	10	3,414	30
Total:	22,784	193	6,608	65	16,176	128
Ruby River						
Lake	7,314	60	6,250	51	1,064	9
Stream	20,223	186	7,134	63	13,089	123
Total:	27,538	246	13,384	114	14,153	132
Smith River						
Lake	6,539	64	5,624	55	915	9
Stream	33,215	365	22,127	242	11,088	123
Total:	39,754	429	27,751	297	12,003	132
South Fork Flathead River						
Lake	9,184	103	7,384	86	1,801	17
Stream	13,021	128	7,915	80	5,106	48
Total:	22,205	231	15,299	166	6,907	65
Sun River						
Lake	23,451	208	21,912	195	1,539	13
Stream	17,831	179	14,197	147	3,634	32
Total:	41,282	387	36,109	342	5,173	45
Swan River						
Lake	19,084	193	17,304	177	1,780	16
Stream	7,512	75	4,197	46	3,315	29
Total:	26,596	268	21,501	223	5,095	45

Table 5. Angling Pressure in angler days by Drainage by Lake or Stream for the 2015 license year (continued).

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
Teton River						
Lake	3,578	32	3,578	32		
Stream	4,396	30	3,492	23	903	7
Total:	7,974	62	7,070	55	903	7
Tongue River						
Lake	33,700	315	17,305	188	16,395	127
Stream	17,208	178	10,799	121	6,408	57
Total:	50,908	493	28,104	309	22,803	184
Undesignated R1						
Undesig	2,586	30	1,218	14	1,369	16
Total:	2,586	30	1,218	14	1,369	16
Undesignated R2						
Undesig	2,840	23	1,379	12	1,461	11
Total:	2,840	23	1,379	12	1,461	11
Undesignated R3						
Undesig	2,772	32	1,822	23	950	9
Total:	2,772	32	1,822	23	950	9
Undesignated R4						
Undesig	2,869	30	2,620	27	249	3
Total:	2,869	30	2,620	27	249	3
Undesignated R5						
Undesig	1,420	13	1,420	13		
Total:	1,420	13	1,420	13		
Undesignated R6						
Undesig	1,281	10	1,281	10		
Total:	1,281	10	1,281	10		
Undesignated R7						
Undesig	1,311	13	1,147	12	165	1
Total:	1,311	13	1,147	12	165	1
Undesignated Statewide						
Undesig	7,586	79	4,664	51	2,922	28
Lake	450	5	367	4	83	1
Total:	8,036	84	5,031	55	3,005	29
Undesignated Western District						
Undesig	83	1			83	1
Total:	83	1			83	1

Table 5. Angling Pressure in angler days by Drainage by Lake or Stream for the 2015 license year (continued).

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
Upper Clark Fork River						
Lake	2,933	28	1,315	14	1,618	14
Stream	20,018	209	14,317	153	5,701	56
Total:	22,951	237	15,632	167	7,319	70
Upper Milk River						
Lake	23,999	242	23,221	233	778	9
Stream	5,631	54	5,631	54		
Total:	29,630	296	28,852	287	778	9
Upper Missouri River						
Lake	244,078	2,376	230,942	2,244	13,136	132
Stream	76,986	693	60,320	534	16,665	159
Total:	321,064	3,069	291,262	2,778	29,801	291
Upper Yellowstone River						
Lake	49,900	481	34,689	349	15,211	132
Stream	304,843	2,789	194,511	1,775	110,332	1,014
Total:	354,743	3,270	229,200	2,124	125,543	1,146

3.2 ANGLER PRESSURE ESTIMATES SUMMER (MAY-SEPTEMBER)

The "summer" season for angling in Montana is considered that period of the year from the first of May through the end of September. In 2015, 2,308,034 (69%) days of angling pressure occurred during this period (Table 6). Residents accounted for 1,520,508 angler days (65.8%) and nonresidents made up the remaining 787,524 angler days (34.1%). Estimates for individual waters were sorted alphabetically are presented in Appendix B of this report. Monthly estimates for all waters are also provided in Appendix D.

The distribution of angler pressure among Fish, Wildlife and Parks regions during summer (Chart 3, Table 6) is heavily skewed toward the western and central portions of the state. Region 3 received the most angling pressure with 612,451 angler days (26.6%), followed closely by Region 4 with 491,406 angler days (21.3%). Regions 2, 1 and 5 were next in order and close to each other, with 346,597 (15.1%), 336,468 (14.6%), and 281,917 (12.2%) angler days respectively. The easternmost regions of 6 and 7 were the lowest in pressure with 154,243 (6.7%) and 78,359 (3.4%) angler days respectively.

Residents (Chart 3) exerted the majority of angling pressure during the summer season in 2015 in all regions but Region 3. The percent of angling pressure by residents for each region was: Region 1 – 76.4%, Region 2 – 60.3%, Region 3 – 49.5%, Region 4 – 80.1%, Region 5 – 54.3%, Region 6 – 89.5%, and Region 7 – 65.9%.

Angling on lotic waters (streams/rivers) accounted for 63.6% (1,455,840 angler days) of the statewide pressure during the summer season while lentic waters (lakes/ponds/reservoirs) accounted for 36.4% (834,325 angler days) of the pressure and undesignated waters accounted for less than 0.001% (367 angler days) of the pressure (Table 6).

Regions 1 and 6 were the two regions in which lake angling pressure exceeded stream pressure during the summer season (61.7% and 77.4%, respectively, from lakes), although the lake pressure in Region 6 was due primarily to angling on one water (Fort Peck Reservoir) (Table 6, Chart 4). Region 4 was relatively balanced between stream and lake angling (49.5 and 450.5%, respectively). Regions 2, 3, 5 and 7 were dominated by stream anglers, and Region 3 had both the highest number of stream anglers for any region (520,658 angler days) and the highest percentage (85.3%) of anglers that were stream anglers.

Angling pressure during the summer was summarized within the 40 major drainages (Figure 1, Table 7). The pressure by drainage ranged from a high of 259,725 angler days for the Upper Yellowstone River drainage to a low of 94 angler days for the Little Missouri River drainage. The drainages with the highest percentage of resident anglers were the Little Missouri and Powder River both at 100%, while the Madison had the lowest percentage of resident anglers (33.6%). Fort Peck Reservoir had the highest percentage of lake anglers (91.6%) followed closely by the Marias (89.6%), mainly due to the influence of Tiber Reservoir, while the Missouri River-Dearborn had the lowest percentage of lake anglers (1.8%).

Chart 3. Angling Pressure Comparing Region and Residency - Summer Months 2015

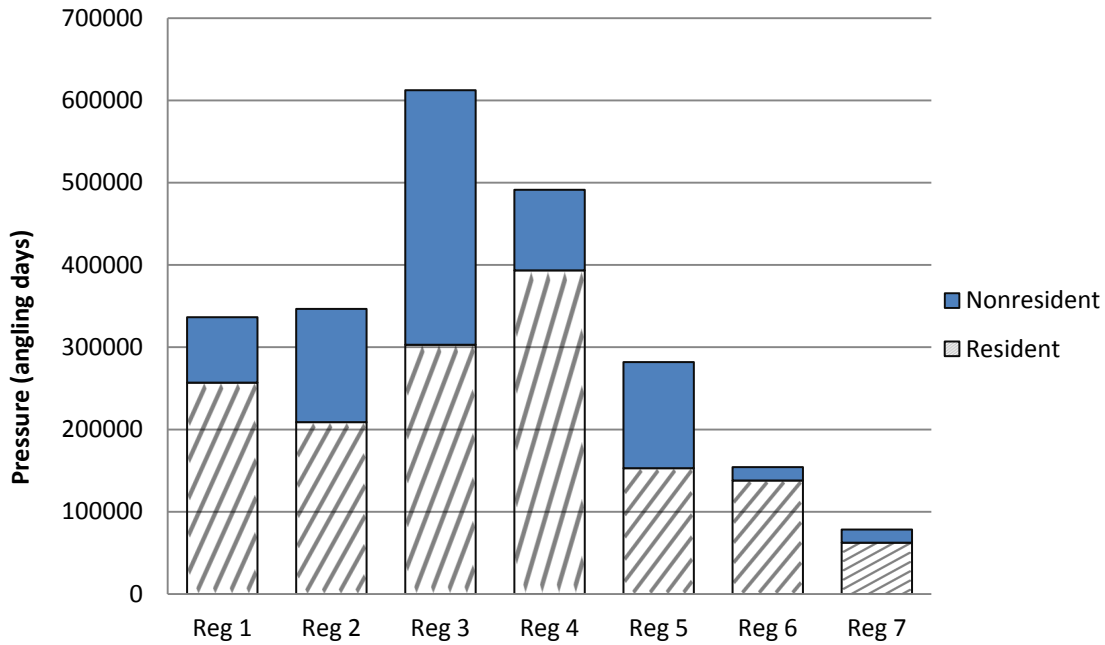


Chart 4. Angling Pressure Comparing Region and Water Type - Summer Months 2015

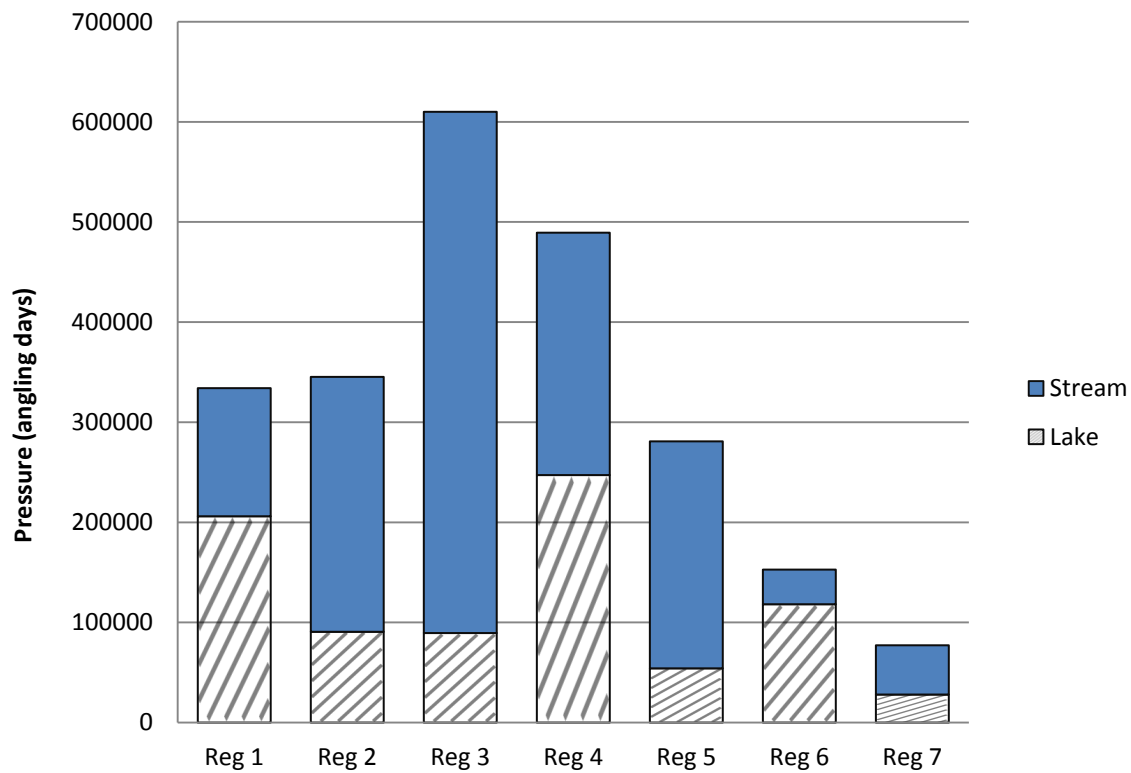


Table 7. Angling Pressure in angler days by Drainage by Lake or Stream for the Summer Season (May - September) for the 2015 Survey License Year. Trips = Number of days respondents to the mail survey fished on the waterbody.

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips		
Beaverhead River						
Lake	632	6	284	3	348	3
Stream	26,860	296	13,571	148	13,289	148
Total:	27,493	302	13,855	151	13,637	151
Belt Creek						
Stream	5,754	61	4,856	52	898	9
Total:	5,754	61	4,856	52	898	9
Big Hole River						
Lake	7,440	78	6,667	71	772	7
Stream	66,027	728	34,579	393	31,447	335
Total:	73,466	806	41,246	464	32,219	342
Bighorn River						
Lake	7,506	85	6,194	68	1,312	17
Stream	94,145	1,053	18,786	206	75,359	847
Total:	101,651	1,138	24,980	274	76,671	864
Bitterroot River						
Lake	6,940	72	3,933	44	3,007	28
Stream	69,840	754	38,561	432	31,279	322
Total:	76,780	826	42,494	476	34,286	350
Blackfoot River						
Lake	31,775	353	29,150	325	2,625	28
Stream	58,885	623	31,270	348	27,615	275
Total:	90,660	976	60,420	673	30,240	303
Boulder River						
Stream	4,160	44	3,842	41	318	3
Total:	4,160	44	3,842	41	318	3
Clark Fork River - Flint / Rock						
Lake	43,453	464	34,641	376	8,812	88
Stream	62,481	664	23,457	268	39,024	396
Total:	105,934	1,128	58,098	644	47,836	484
Flathead River						
Lake	96,425	1,053	79,615	878	16,810	175
Stream	53,934	562	36,738	393	17,196	169
Total:	150,359	1,615	116,353	1,271	34,006	344
Fort Peck Reservoir						
Lake	79,525	874	68,416	761	11,109	113
Stream	7,275	90	6,996	86	278	4
Total:	86,800	964	75,412	847	11,387	117

Table 7. Angling Pressure in angler days by Drainage by Lake or Stream for the Summer Season (May - September) for the 2015 Survey License Year (continued).

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips		
Gallatin River						
Lake	12,398	135	9,677	108	2,721	27
Stream	105,419	1,099	55,118	604	50,301	495
Total:	117,817	1,234	64,795	712	53,022	522
Jefferson River						
Lake	3,357	38	2,890	33	467	5
Stream	8,679	95	4,399	50	4,280	45
Total:	12,036	133	7,289	83	4,747	50
Kootenai River						
Lake	37,569	409	26,492	300	11,077	109
Stream	31,102	322	20,969	221	10,134	101
Total:	68,671	731	47,461	521	21,211	210
Little Missouri River						
Stream	94	1	94	1		
Total:	94	1	94	1		
Lower Clark Fork River						
Lake	43,183	477	37,300	405	5,883	72
Stream	25,136	273	19,042	208	6,094	65
Total:	68,319	750	56,342	613	11,977	137
Lower Milk River						
Lake	519	5	519	5		
Stream	2,871	36	2,788	35	83	1
Total:	3,390	41	3,307	40	83	1
Lower Missouri River						
Lake	2,737	33	2,737	33		
Stream	1,112	15	934	13	179	2
Total:	3,850	48	3,671	46	179	2
Lower Yellowstone River						
Lake	4,992	58	4,700	55	292	3
Stream	35,971	415	31,185	357	4,786	58
Total:	40,962	473	35,885	412	5,078	61
Madison River						
Lake	48,527	529	22,670	249	25,857	280
Stream	168,830	1,834	50,283	576	118,547	1,258
Total:	217,357	2,363	72,953	825	144,404	1,538
Marias River						
Lake	32,773	371	31,499	355	1,273	16
Stream	3,797	44	2,226	26	1,572	18
Total:	36,570	415	33,725	381	2,845	34

Table 7. Angling Pressure in angler days by Drainage by Lake or Stream for the Summer Season (May - September) for the 2015 Survey License Year (continued).

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips		
Middle Clark Fork River						
Lake	5,467	57	4,489	48	978	9
Stream	48,540	509	29,683	318	18,857	191
Total:	54,007	566	34,172	366	19,835	200
Middle Milk River						
Undesig	693	6			693	6
Lake	18,580	209	18,014	202	566	7
Stream	10,519	118	9,499	106	1,020	12
Total:	29,793	333	27,513	308	2,279	25
Middle Yellowstone River						
Lake	6,597	74	6,364	72	232	2
Stream	21,246	237	19,489	220	1,757	17
Total:	27,843	311	25,853	292	1,989	19
Missouri River - Dearborn						
Lake	2,392	25	2,392	25		
Stream	131,679	1,514	72,253	832	59,426	682
Total:	134,071	1,539	74,645	857	59,426	682
Missouri River - Judith						
Lake	6,510	75	5,947	67	563	8
Stream	23,924	274	18,764	217	5,160	57
Total:	30,434	349	24,711	284	5,723	65
Missouri River - Poplar						
Lake	417	5	417	5		
Stream	7,824	90	7,360	86	464	4
Total:	8,241	95	7,777	91	464	4
Musselshell River						
Lake	15,168	164	14,259	156	908	8
Stream	5,820	64	4,958	54	862	10
Total:	20,987	228	19,217	210	1,770	18
Powder River						
Lake	247	3	247	3		
Stream	693	8	693	8		
Total:	940	11	940	11		
Red Rock River						
Lake	7,267	82	3,557	42	3,710	40
Stream	3,095	31	900	10	2,194	21
Total:	10,361	113	4,457	52	5,904	61
Ruby River						
Lake	3,342	36	2,978	32	364	4
Stream	14,500	148	4,649	51	9,851	97
Total:	17,842	184	7,627	83	10,215	101
Smith River						
Lake	4,511	49	3,905	42	606	7
Stream	27,428	324	19,539	228	7,888	96
Total:	31,939	373	23,444	270	8,494	103

Table 7. Angling Pressure in angler days by Drainage by Lake or Stream for the Summer Season (May - September) for the 2015 Survey License Year (continued).

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips		
South Fork Flathead River						
Lake	9,184	103	7,384	86	1,801	17
Stream	11,740	120	6,779	73	4,961	47
Total:	20,925	223	14,163	159	6,762	64
Sun River						
Lake	12,088	138	11,840	135	248	3
Stream	14,256	154	11,199	126	3,057	28
Total:	26,343	292	23,039	261	3,305	31
Swan River						
Lake	16,587	176	15,116	162	1,471	14
Stream	5,855	63	3,704	42	2,151	21
Total:	22,442	239	18,820	204	3,622	35
Teton River						
Lake	1,616	18	1,616	18		
Stream	1,496	15	923	10	574	5
Total:	3,112	33	2,539	28	574	5
Tongue River						
Lake	22,615	245	15,888	180	6,727	65
Stream	12,426	140	8,257	97	4,169	43
Total:	35,041	385	24,145	277	10,896	108
Upper Clark Fork River						
Lake	2,933	28	1,315	14	1,618	14
Stream	14,864	167	11,475	131	3,389	36
Total:	17,797	195	12,790	145	5,007	50
Upper Milk River						
Lake	16,814	193	16,036	184	778	9
Stream	3,617	44	3,617	44		
Total:	20,431	237	19,653	228	778	9
Upper Missouri River						
Lake	175,651	1,967	167,346	1,873	8,305	94
Stream	44,409	498	35,247	396	9,163	102
Total:	220,060	2,465	202,593	2,269	17,468	196
Upper Yellowstone River						
Lake	40,617	422	29,534	315	11,083	107
Stream	219,108	2,279	137,375	1,470	81,734	809
Total:	259,725	2,701	166,909	1,785	92,817	916
Statewide Pressure Estimates for Summer months by Survey License Year						
Undesig	17,869	200	12,881	146	4,987	54
Lake	834,3259	,177	701,486	7,793	132,839	1,384
Stream	1,455,840	15,810	806,141	8,978	649,698	6,832
Statewide Total	2,308,034	25,187	1,520,508	16,917	787,524	8,270

3.3 ANGLER PRESSURE ESTIMATES **WINTER (OCTOBER-APRIL)**

The "winter" season for angling is from March through April and October through February of the following year. In 2015-2016, 1,032,766 angler days (31%) of the annual fishing pressure occurred during this period (Table 8). Residents accounted for 615,997 angler days (60%) and nonresidents made up the remaining 416,770 angler days (40%). Estimates for individual waters for the winter season sorted alphabetically are presented in Appendix C of this report. Monthly estimates for the winter months for waters sorted alphabetically are provided in Appendix E.

The distribution of angler pressure distributed among Fish, Wildlife and Parks regions during winter (Chart 5, Table 8) is heavily skewed toward the western and central portions of the state. Region 3 received the most angling pressure with 250,682 angler days (24.3%), followed closely by Region 4 with 241,080 angler days (23.3%). Regions 5, 2 and 1 were next in order and close to each other, with 163,486 (15.8%), 146,332 (14.2%), and 108,667 (10.5%) angler days respectively. The easternmost regions of 6 and 7 were the lowest in pressure with 78,300 (7.6%) and 42,693 (4.1%) angler days respectively.

Residents (Chart 5) exerted the majority of angling pressure during the winter season in 2015 in all regions but Regions 3 and 5. The percent of angling pressure by residents for each region was: Region 1 – 73.0%, Region 2 – 59.7%, Region 3 – 41.6%, Region 4 – 76.3%, Region 5 – 48.6%, Region 6 – 65.7%, and Region 7 – 69.5%.

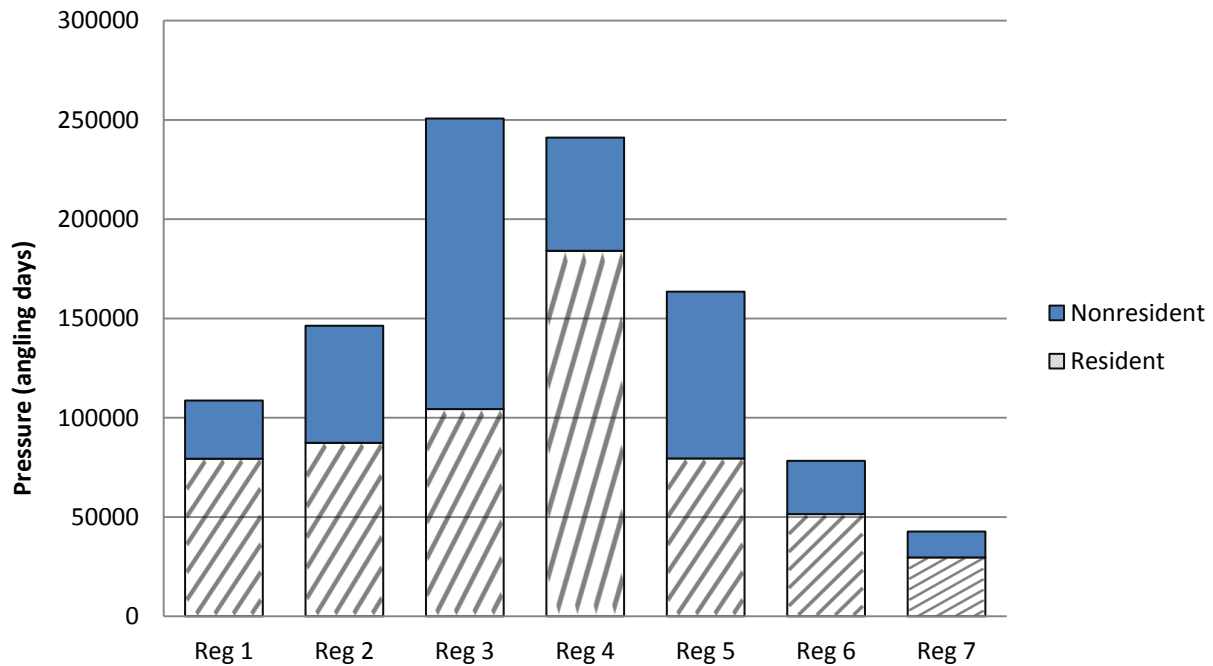
Angling on lotic waters (streams/rivers) accounted for 63.6% (657,083 angler days) of the statewide pressure during the winter season while lentic waters (lakes/ponds/reservoirs) accounted for 35.8% (369,957 angler days) of the pressure and undesignated waters accounted for less than 0.6% (5,726 angler days) of the pressure (Table 8).

Regions 1 and 6 were the two regions in which lake angling pressure exceeded stream pressure during the winter season (73.4% and 76.1%, respectively, from lakes), although Region 4 had the highest number of lake anglers (107,269) (Table 8, Chart 6). Region 4 was relatively balanced between stream and lake angling (55.4% and 44.6%, respectively). Regions 2, 3, 5 and 7 were dominated by stream anglers, and Region 3 had the highest number of stream anglers for any region (199,016 angler days) while Region 5 had the highest percentage (91.9%) of anglers that were stream anglers.

Angling pressure during winter was summarized within the 40 major drainages (Figure 1, Table 9). The pressure by drainage ranged from a high of 102,159 angler days for the Bighorn River drainage to a low of 183 angler days for the Powder River drainage. The drainages with the highest percentage of resident anglers were the Belt Creek, Lower Milk River, Powder River and Upper Milk River all at 100%, while the Bighorn and Red Rock River drainages had the lowest percentage of resident anglers (17.6% and 17.3%). The Powder River drainage had the highest percentage of lake anglers (100%), but based on only one trip; this was followed by the

Musselshell River drainage with 79.9%, mainly due to the influence of Deadmans Basin Reservoir. The Big Hole and Beaverhead drainages had the lowest percentage of lake anglers at 0%.

**Chart 4. Statewide Angling Pressure Comparing Region and Residency
- Winter Months 2015-16**



**Chart 5. Statewide Angling Pressure Comparing Region and Water Type
- Winter Months 2015-16**

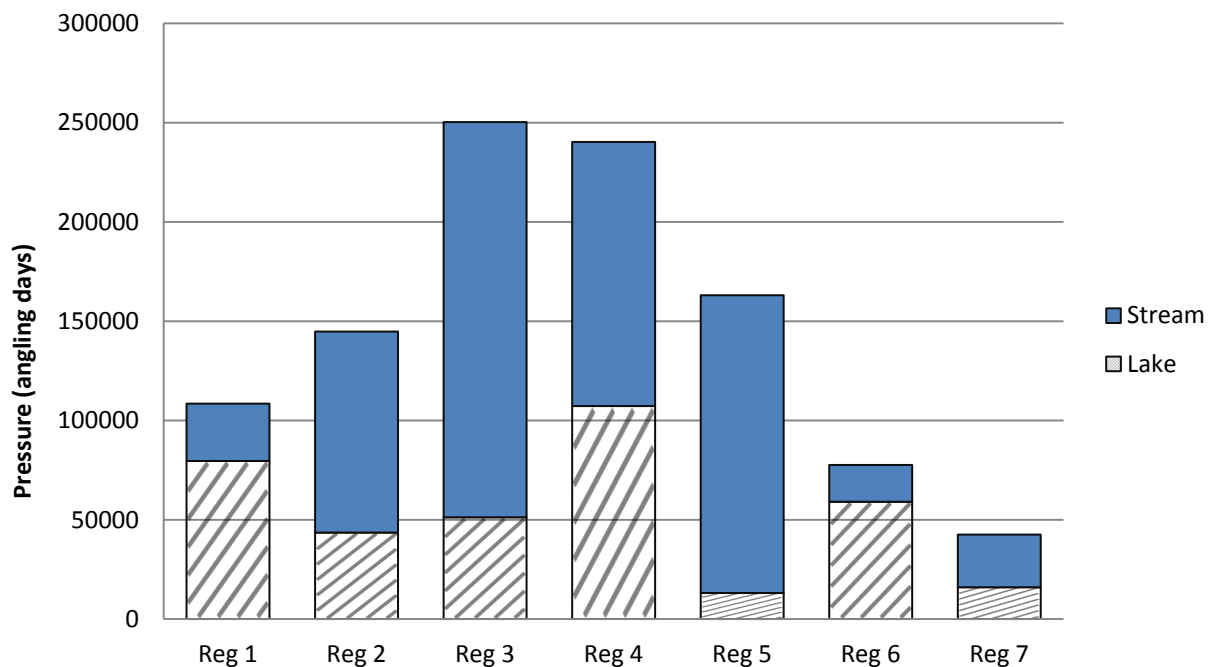


Table 8. Angling Pressure in angler days by Region by Lake or Stream for the winter season of October through February of the 2015 Survey License Year. Trips = Number of days respondents to the mail survey fished on the waterbody.

	----- Totals -----		----- Resident -----		----- Non-Resident -----	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
Region 1						
Undesig	188	2	188	2		
Lake	79,601	499	58,978	364	20,624	135
Stream	28,877	186	20,190	126	8,687	60
Total:	108,667	687	79,356	492	29,311	195
Region 2						
Undesig	1,564	10	554	3	1,010	7
Lake	43,556	250	28,128	151	15,428	99
Stream	101,212	660	58,685	326	42,528	334
Total:	146,332	920	87,367	480	58,966	440
Region 3						
Undesig	424	3	94	1	330	2
Lake	51,242	290	22,716	108	28,526	182
Stream	199,016	1,328	81,555	474	117,461	854
Total:	250,682	1,621	104,365	583	146,317	1,038
Region 4						
Undesig	813	6	647	4	166	2
Lake	107,269	629	98,096	562	9,173	67
Stream	132,998	904	85,327	519	47,671	385
Total:	241,080	1,539	184,070	1,085	57,010	454
Region 5						
Undesig	421	2	421	2		
Lake	13,119	89	11,375	75	1,744	14
Stream	149,946	985	67,707	358	82,239	627
Total:	163,486	1,076	79,503	435	83,983	641
Region 6						
Undesig	708	4	554	3	154	1
Lake	59,067	366	35,010	214	24,058	152
Stream	18,525	123	15,903	106	2,622	17
Total:	78,300	493	51,467	323	26,834	170
Region 7						
Undesig	165	1			165	1
Lake	16,019	105	6,186	42	9,833	63
Stream	26,509	146	23,474	126	3,035	20
Total:	42,693	252	29,660	168	13,033	84

Statewide Pressure Estimates for Winter months for the 2015 Survey License Year

	----- Totals -----		----- Resident -----		----- Non-Resident -----	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
Undesig	5,726	38	2,668	16	3,058	22
Lake	369,957	2,229	260,489	1,516	109,469	713
Stream	657,083	4,332	352,840	2,035	304,243	2,297
Statewide Total	1,032,766	6,599	615,997	3,567	416,770	3,032

Table 9. Angling Pressure in angler days by Drainage by Lake or Stream for the Winter season (March - April and October - February of the 2015 survey license year. Trips = Number of days respondents to the mail survey fished on the waterbody.

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
Beaverhead River						
Stream	11,787	65	5,440	19	6,348	46
Total:	11,787	65	5,440	19	6,348	46
Belt Creek						
Stream	1,485	8	1,485	8		
Total:	1,485	8	1,485	8		
Big Hole River						
Lake	639	4			639	4
Stream	19,373	146	6,811	42	12,562	104
Total:	20,012	150	6,811	42	13,201	108
Bighorn River						
Lake	3,325	23	2,494	15	831	8
Stream	98,833	699	25,424	138	73,409	561
Total:	102,159	722	27,918	153	74,240	569
Bitterroot River						
Lake	1,290	12	659	6	631	6
Stream	44,475	261	30,800	147	13,675	114
Total:	45,765	273	31,459	153	14,306	120
Blackfoot River						
Lake	18,379	103	14,385	77	3,994	26
Stream	11,096	83	4,554	34	6,542	49
Total:	29,475	186	18,939	111	10,536	75
Boulder River						
Stream	731	4	587	3	144	1
Total:	731	4	587	3	144	1
Clark Fork River - Flint / Rock						
Lake	23,161	131	12,503	65	10,658	66
Stream	20,730	143	7,653	46	13,077	97
Total:	43,891	274	20,156	111	23,735	163

Table 9. Angling Pressure in angler days by Drainage by Lake or Stream for the Winter season (March - April and October - February of the 2015 survey license year (continued).

	--- Totals Pressure	--- Trips	--- Resident Pressure	--- Trips	--- Non-Resident Pressure	--- Trips
Flathead River						
Lake	40,831	246	29,678	171	11,153	75
Stream	7,423	54	5,655	41	1,768	13
Total:	48,253	300	35,333	212	12,921	88
Fort Peck Reservoir						
Lake	35,549	217	16,489	96	19,060	121
Stream	4,306	36	3,873	33	433	3
Total:	39,855	253	20,362	129	19,493	124
Gallatin River						
Lake	11,097	37	10,140	31	957	6
Stream	43,033	271	19,791	112	23,241	159
Total:	54,130	308	29,931	143	24,198	165
Jefferson River						
Lake	2,117	13	1,808	11	309	2
Stream	2,960	23	1,663	11	1,297	12
Total:	5,077	36	3,471	22	1,606	14
Kootenai River						
Lake	14,802	97	12,369	81	2,433	16
Stream	5,892	35	3,274	18	2,618	17
Total:	20,694	132	15,643	99	5,051	33
Lower Clark Fork River						
Lake	20,859	135	14,464	95	6,396	40
Stream	10,590	67	7,597	46	2,992	21
Total:	31,449	202	22,061	141	9,388	61
Lower Milk River						
Lake	185	1	185	1		
Stream	481	4	481	4		
Total:	665	5	666	5		
Lower Missouri River						
Lake	1,061	10	752	8	309	2
Stream	753	7	753	7		
Total:	1,814	17	1,505	15	309	2
Lower Yellowstone River						
Lake	4,750	34	4,585	33	165	1
Stream	21,727	108	20,931	102	795	6
Total:	26,477	142	25,516	135	960	7
Madison River						
Lake	17,456	113	4,394	29	13,062	84
Stream	64,012	444	17,451	107	46,561	337
Total:	81,468	557	21,845	136	59,623	421

Table 9. Angling Pressure in angler days by Drainage by Lake or Stream for the Winter season (March - April and October - February of the 2015 survey license year (continued).

	--- Totals Pressure	--- Trips	--- Resident Pressure	--- Trips	--- Non-Resident Pressure	--- Trips
Marias River						
Lake	9,345	50	7,396	38	1,950	12
Stream	1,978	16	880	7	1,098	9
Total:	11,323	66	8,276	45	3,048	21
Middle Clark Fork River						
Lake	725	4	581	3	144	1
Stream	19,758	131	12,836	77	6,923	54
Total:	20,483	135	13,417	80	7,067	55
Middle Milk River						
Undesig	154	1			154	1
Lake	15,182	90	10,493	61	4,689	29
Stream	6,587	34	6,092	31	494	3
Total:	21,923	125	16,585	92	5,337	33
Middle Yellowstone River						
Lake	3,308	21	3,308	21		
Stream	9,109	64	7,627	54	1,482	10
Total:	12,417	85	10,935	75	1,482	10
Missouri River - Dearborn						
Lake	1,327	7	1,327	7		
Stream	76,049	545	41,251	263	34,798	282
Total:	77,376	552	42,578	270	34,798	282
Missouri River - Judith						
Lake	6,602	29	6,435	28	167	1
Stream	14,890	97	13,234	83	1,656	14
Total:	21,491	126	19,669	111	1,823	15
Missouri River - Poplar						
Stream	4,075	30	2,689	21	1,386	9
Total:	4,075	30	2,689	21	1,386	9
Musselshell River						
Lake	8,081	48	6,864	40	1,217	8
Stream	510	4	94	1	416	3
Total:	8,591	52	6,958	41	1,633	11
Powder River						
Lake	183	1	183	1		
Total:	183	1	183	1		
Red Rock River						
Lake	11,203	71	2,151	13	9,052	58
Stream	1,220	9			1,220	9
Total:	12,423	80	2,151	13	10,272	67

Table 9. Angling Pressure in angler days by Drainage by Lake or Stream for the Winter season (March - April and October - February of the 2015 survey license year (continued).

	--- Totals Pressure	--- Trips	--- Resident Pressure	--- Trips	--- Non-Resident Pressure	--- Trips
Ruby River						
Lake	3,972	24	3,272	19	700	5
Stream	5,724	38	2,485	12	3,239	26
Total:	9,696	62	5,757	31	3,939	31
Smith River						
Lake	2,028	15	1,719	13	309	2
Stream	5,788	41	2,587	14	3,200	27
Total:	7,815	56	4,306	27	3,509	29
South Fork Flathead River						
Stream	1,280	8	1,136	7	144	1
Total:	1,280	8	1,136	7	144	1
Sun River						
Lake	11,364	70	10,072	60	1,291	10
Stream	3,575	25	2,998	21	577	4
Total:	14,939	95	13,070	81	1,868	14
Swan River						
Lake	2,497	17	2,188	15	309	2
Stream	1,657	12	493	4	1,164	8
Total:	4,155	29	2,681	19	1,473	10
Teton River						
Lake	1,962	14	1,962	14		
Stream	2,900	15	2,570	13	330	2
Total:	4,862	29	4,532	27	330	2
Tongue River						
Lake	11,086	70	1,418	8	9,668	62
Stream	4,782	38	2,542	24	2,240	14
Total:	15,868	108	3,960	32	11,908	76
Upper Clark Fork River						
Stream	5,154	42	2,843	22	2,312	20
Total:	5,154	42	2,843	22	2,312	20
Upper Milk River						
Lake	7,185	49	7,185	49		
Stream	2,014	10	2,014	10		
Total:	9,199	59	9,199	59		
Upper Missouri River						
Lake	68,427	409	63,596	371	4,832	38
Stream	32,576	195	25,074	138	7,503	57
Total:	101,004	604	88,670	509	12,335	95

Table 9. Angling Pressure in angler days by Drainage by Lake or Stream for the Winter season (March - April and October - February of the 2015 survey license year (continued).

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
Upper Yellowstone River						
Lake	9,283	59	5,155	34	4,128	25
Stream	85,735	510	57,136	305	28,598	205
Total:	95,018	569	62,291	339	32,726	230

Statewide Pressure Estimates for Winter Months for the 2015 Survey License Year

	---- Totals -----		---- Resident -----		---- Non-Resident -----	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
Undesig	5,726	38	2,668	16	3,058	22
Lake	369,957	2,229	260,489	1,516	109,469	713
Stream	657,083	4,332	352,840	2,035	304,243	2,297
Statewide Total	1,032,766	6,599	615,997	3,567	416,770	3,032

3.4 PRIMARY SPECIES FISHED FOR

The mail questionnaire asked anglers to indicate the primary species they were fishing for. The answers to this question provide a good generalization regarding angler preferences and intentions, but are probably inaccurate on some waters because anglers often will intentionally fish for more than one species but can only indicate one on the questionnaire. Another innacuracy occurs in situations where anglers are fishing for one of many species of co-existing trout in a lake or stream. The angler may typically expect to catch a rainbow, cutthroat, brown, or brook trout depending on the situation. It is most likely for this reason that a common response to the survey, particularly in the trout-dominant rivers of southwestern Montana, was “trout.”

On a statewide basis, the most common response was “trout” (39.23%), followed by rainbow trout (14.42%), walleye (9.56%), brown trout (8.95%), cutthroat trout (4.40%), and northern pike (3.71%) (Table 10). Salmonids (trout, salmon, char, whitefish and grayling) collectively are indicated as the primary species by 72.25% of anglers.

Although salmonid fishing dominates on a statewide basis in terms of angler days, there are notable geographic differences (Table 11). Salmonid fishing comprises the majority of angling pressure in every drainage west of the Continental Divide except for the lower Clark Fork, which is heavily influenced by fishing on Noxon Rapids Reservoir for pike, walleye, bass and yellow perch. The salmonid-dominant drainages west of the divide have some notable differences. Lake trout are a very highly sought species in the Flathead River drainage (13.89%), primarily due to Flathead Lake. Cutthroat trout constitute the majority of angling interest in the South Fork Flathead drainage (54.98%), where FWP is actively working to eliminate the presence of any rainbow trout. Kokanee salmon are the dominant species of interest in the Kootenai River drainage, primarily due to fishing on Lake Koocanusa.

The Missouri headwater drainages in southwest Montana are dominated by trout fishing, primarily for rainbow and brown trout in the valley-bottom rivers. For these two species plus “trout”, the percentage ranges from 70.84% in the Boulder River drainage to 89.76% in the Beaverhead River drainage. Cutthroat and brook trout, where indicated as the primary species, are numerically low (typically below 10%), but are often the only game species in the mountain lakes and streams in these drainages.

The upper and middle Missouri River and its drainages in Region 4 represent a transition from salmonids to cool-water species. The Upper Missouri River drainage, which contains Canyon Ferry, Hauser and Holter reservoirs is dominated by “trout” and rainbow trout as a primary species (50.1%), although walleye represent a significant component (32.07%). Downstream in the Missouri-Dearborn drainage, “trout,” rainbow trout and brown trout are the overwhelming favorite species and make up close to 90% of the effort. Further downstream in the Missouri River-Judith drainage, “trout”/rainbow trout still comprise the majority of species being fished for, but cool-water species such as walleye (14.69%), northern pike (8.77%), and channel catfish (5.04%) are important to anglers. The Marias River drainage is the most notable tributary to the Missouri in Region 4, due to its high emphasis on walleye (74.01%) and northern pike (8.11%).

The lower Missouri River mainstem drainages within Region 6 are dominated by walleye and

northern pike fishing. Combined, these two species comprise 79.6% of angler preference in Fort Peck Reservoir, 81.6% in the Missouri River-Poplar, and 86.15% in the Lower Missouri drainage. Channel catfish are sought in all of the drainages within Region 6, but rise to their highest level in the Lower Milk River drainage (58.7%).

Species preferences within the Yellowstone River drainage show a longitudinal shift from salmonid fishing in the headwaters to cool-water species in eastern Montana. In the Upper Yellowstone drainage within Region 3, the combination of “trout,” rainbow trout, brown trout and cutthroat trout comprise 92.1% of angler preferences. Further downstream in Region 5, but still within the Upper Yellowstone drainage, these same species make up over 83% of preferences. The Middle Yellowstone River drainage still has a substantial component of anglers seeking trout (roughly 26% for “trout,” rainbow trout and brown trout), but cool-water species dominate, led by channel catfish (23.99%). The Lower Yellowstone River drainage is dominated by fishing for coolwater species, starting with channel catfish (39.02%) followed by paddlefish (11.87%), walleye (10.57%), sauger (7.8%) and bass (6.9%). Notable tributary drainages to the Yellowstone include the Bighorn River drainage (90.06% for “trout,” rainbow trout and brown trout), and the Tongue River drainage which has high levels for crappie (36.51%) and walleye (29.61%) based primarily on fishing in Tongue River reservoir.

Table 10. Percent of Trips for each Primary Species Fished for - Statewide for License Year 2015.

<u>Primary Species Fished for</u>	<u>Percent of days for species</u>	<u>Primary Species Fished for</u>	<u>Percent of days for species</u>
Trout	39.23%	Bluegill	0.05%
Rainbow Trout	14.42%	Sunfish	0.03%
Walleye	9.56%	Golden Trout	0.03%
Brown Trout	8.95%	Minnow	0.02%
Cutthroat Trout	4.40%	Rainbow Smelt	0.02%
Nothern Pike	3.71%	Torrent Sculpin	0.02%
Yellow Perch	2.66%	Goldeye	0.01%
Bass	2.14%	Mountain Whitefish	0.01%
Channel Catfish	1.76%	Rainbow Trout X Cutthroat	0.01%
Brook Trout	1.46%	Sucker	0.01%
Lake Trout	1.20%	Chinook Salmon	<0.01%
Salmon	0.96%	Northern Pike Minnow	<0.01%
Kokanee salmon	0.83%	Bullhead	<0.01%
Smallmouth Bass	0.78%	Rock Bass	<0.01%
Crappie	0.68%	Black Bullhead	<0.01%
Whitefish	0.43%	Lake Whitefish	<0.01%
Paddlefish	0.36%		
Arctic Grayling	0.25%		
Largemouth Bass	0.24%		
Sauger	0.21%		
Common Carp	0.17%		
Burbot	0.13%		
Sturgeon	0.11%		
Bull Trout	0.07%		

Table 11. Percent of Trips for each Primary Species Fished for - by Region and Drainage for the 2015 Angler Survey License Year.

Drainage Primary Species Fished for Percent of days for species

Region: 1

Flathead River (44.43% of days fished in this Region.)

Trout	16.55%
Lake Trout	13.89%
Cutthroat Trout	13.52%
Yellow Perch	9.92%
Nothern Pike	9.77%
Rainbow Trout	7.57%
Bass	7.26%
Salmon	3.86%
Kokanee salmon	3.81%
Whitefish	2.45%
Smallmouth Bass	2.14%
Largemouth Bass	1.72%
Arctic Grayling	1.15%
Crappie	0.89%
Brook Trout	0.68%
Brown Trout	0.42%
Minnow	0.31%
Bull Trout	0.16%
Sunfish	0.10%
Walleye	0.05%
Northern Pike Minnow	0.05%
Lake Whitefish	0.05%

Kootenai River (20.02% of days fished in this Region.)

Rainbow Trout	26.07%
Trout	23.29%
Kokanee salmon	12.75%
Salmon	10.54%
Bass	4.75%
Yellow Perch	4.29%
Nothern Pike	3.71%
Cutthroat Trout	3.59%
Brook Trout	3.24%
Smallmouth Bass	0.81%
Burbot	0.58%
Channel Catfish	0.46%
Lake Trout	0.23%
Whitefish	0.12%
Bull Trout	0.12%

Lower Clark Fork River (22.09% of days fished in this Region.)

Bass	19.64%
Nothern Pike	18.91%
Yellow Perch	14.50%
Trout	12.92%
Walleye	5.25%
Smallmouth Bass	4.52%
Brown Trout	3.78%
Kokanee salmon	3.05%
Rainbow Trout	2.52%
Brook Trout	2.42%
Lake Trout	2.21%
Largemouth Bass	1.37%
Cutthroat Trout	1.16%
Salmon	0.95%
Bull Trout	0.32%

Table 11. Percent of Trips for each Primary Species Fished for - by Region and Drainage for the 2015 Angler Survey License Year (continued).

Drainage	Primary Species Fished for	Percent of days for species
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South Fork Flathead River (5.36% of days fished in this Region.)

Cutthroat Trout	54.98%
Trout	31.60%
Bull Trout	3.03%
Rainbow Trout	1.73%
Arctic Grayling	1.30%
Bass	0.43%
Whitefish	0.43%

Swan River (6.22% of days fished in this Region.)

Trout	28.73%
Nothorn Pike	25.37%
Rainbow Trout	14.93%
Bass	5.60%
Lake Trout	4.48%
Cutthroat Trout	4.48%
Yellow Perch	2.24%
Brook Trout	1.87%
Salmon	1.12%
Sunfish	0.75%
Golden Trout	0.75%
Crappie	0.75%
Walleye	0.37%

Region: 2

Bitterroot River (23.76% of days fished in this Region.)

Trout	57.32%
Cutthroat Trout	15.01%
Rainbow Trout	12.65%
Brown Trout	5.82%
Whitefish	1.55%
Brook Trout	1.27%
Nothorn Pike	0.73%
Rainbow Trout X Cutthroat Trout Hybrid	0.18%
Channel Catfish	0.18%
Bass	0.18%
Walleye	0.09%
Bull Trout	0.09%
Mountain Whitefish	0.09%

Blackfoot River (25.12% of days fished in this Region.)

Trout	37.78%
Rainbow Trout	19.02%
Cutthroat Trout	15.32%
Nothorn Pike	7.66%
Brown Trout	6.11%
Yellow Perch	2.93%
Bass	1.89%
Brook Trout	1.55%
Salmon	1.38%
Kokanee salmon	0.60%
Whitefish	0.34%
Lake Trout	0.26%
Smallmouth Bass	0.26%
Sunfish	0.17%
Arctic Grayling	0.09%

Table 11. Percent of Trips for each Primary Species Fished for - by Region and Drainage for the 2015 Angler Survey License Year (continued).

Drainage	Primary Species Fished for	Percent of days for species
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Clark Fork River - Flint / Rock (30.31% of days fished in this Region.)

Trout	48.50%
Rainbow Trout	19.83%
Brown Trout	9.84%
Cutthroat Trout	8.92%
Salmon	2.14%
Lake Trout	1.57%
Kokanee salmon	1.21%
Whitefish	0.78%
Brook Trout	0.43%
Arctic Grayling	0.43%
Yellow Perch	0.29%
Torrent Sculpin	0.21%
Bull Trout	0.14%
Bass	0.14%
Rainbow Smelt	0.07%

Middle Clark Fork River (15.15% of days fished in this Region.)

Trout	54.49%
Rainbow Trout	17.40%
Cutthroat Trout	6.85%
Nothorn Pike	5.28%
Brook Trout	2.85%
Brown Trout	2.43%
Yellow Perch	1.71%
Walleye	1.43%
Bass	1.00%
Whitefish	1.00%
Smallmouth Bass	0.71%
Mountain Whitefish	0.14%
Bull Trout	0.14%

Upper Clark Fork River (5.12% of days fished in this Region.)

Trout	43.46%
Brown Trout	19.83%
Rainbow Trout	8.44%
Brook Trout	7.59%
Bass	5.06%
Cutthroat Trout	5.06%
Whitefish	0.42%

Region: 3

Beaverhead River (4.65% of days fished in this Region.)

Brown Trout	47.51%
Trout	36.48%
Rainbow Trout	5.77%
Brook Trout	2.62%
Cutthroat Trout	0.79%
Common Carp	0.26%

Big Hole River (11.67% of days fished in this Region.)

Trout	45.82%
Brown Trout	24.37%
Rainbow Trout	10.56%
Brook Trout	7.32%
Arctic Grayling	2.72%
Cutthroat Trout	1.88%
Whitefish	0.63%
Walleye	0.52%

Table 11. Percent of Trips for each Primary Species Fished for - by Region and Drainage for the 2015 Angler Survey License Year (continued).

Drainage	Primary Species Fished for	Percent of days for species
Boulder River (0.59% of days fished in this Region.)		
	Trout	31.25%
	Rainbow Trout	22.92%
	Brown Trout	16.67%
	Brook Trout	14.58%
	Yellow Perch	4.17%
Gallatin River (18.83% of days fished in this Region.)		
	Trout	50.32%
	Rainbow Trout	25.88%
	Brown Trout	9.99%
	Cutthroat Trout	5.12%
	Brook Trout	0.97%
	Whitefish	0.78%
	Arctic Grayling	0.26%
	Yellow Perch	0.19%
	Golden Trout	0.13%
	Lake Trout	0.13%
	Bull Trout	0.13%
	Bass	0.06%
	Bluegill	0.06%
	Mountain Whitefish	0.06%
Jefferson River (2.06% of days fished in this Region.)		
	Trout	48.52%
	Brown Trout	20.71%
	Rainbow Trout	13.02%
	Cutthroat Trout	10.65%
	Brook Trout	1.18%
	Sucker	0.59%
	Rainbow Smelt	0.59%
Madison River (35.66% of days fished in this Region.)		
	Trout	58.08%
	Rainbow Trout	20.34%
	Brown Trout	16.68%
	Cutthroat Trout	0.96%
	Whitefish	0.31%
	Brook Trout	0.21%
	Bass	0.21%
	Bull Trout	0.10%
	Largemouth Bass	0.07%
	Salmon	0.07%
	Common Carp	0.07%
	Arctic Grayling	0.07%
Red Rock River (2.19% of days fished in this Region.)		
	Trout	33.52%
	Rainbow Trout	28.49%
	Brown Trout	10.61%
	Burbot	10.61%
	Cutthroat Trout	3.35%
	Arctic Grayling	2.79%
	Nothern Pike	1.68%
	Common Carp	1.12%
	Lake Trout	1.12%
	Brook Trout	1.12%

Table 11. Percent of Trips for each Primary Species Fished for - by Region and Drainage for the 2015 Angler Survey License Year (continued).

Drainage	Primary Species Fished for	Percent of days for species
Ruby River (3.00% of days fished in this Region.)		
	Trout	41.46%
	Brown Trout	30.49%
	Rainbow Trout	15.04%
	Cutthroat Trout	5.28%
	Brook Trout	1.22%
	Rainbow Smelt	1.22%
	Salmon	0.41%
	Whitefish	0.41%
Upper Missouri River (2.26% of days fished in this Region.)		
	Trout	44.86%
	Walleye	21.08%
	Brook Trout	10.27%
	Rainbow Trout	9.19%
	Arctic Grayling	4.86%
	Brown Trout	1.62%
	Common Carp	1.08%
	Cutthroat Trout	0.54%
	Nothorn Pike	0.54%
	Whitefish	0.54%
	Yellow Perch	0.54%
Upper Yellowstone River (18.70% of days fished in this Region.)		
	Trout	51.01%
	Brown Trout	23.06%
	Rainbow Trout	10.19%
	Cutthroat Trout	7.84%
	Walleye	1.11%
	Yellow Perch	0.52%
	Channel Catfish	0.46%
	Brook Trout	0.46%
	Whitefish	0.46%
	Common Carp	0.07%
Region:	4	
Belt Creek (0.97% of days fished in this Region.)		
	Trout	59.42%
	Brown Trout	18.84%
	Rainbow Trout	14.49%
	Cutthroat Trout	4.35%
Marias River (6.77% of days fished in this Region.)		
	Walleye	74.01%
	Nothorn Pike	8.11%
	Trout	6.24%
	Brown Trout	2.91%
	Rainbow Trout	2.08%
	Sturgeon	1.66%
	Channel Catfish	0.83%
	Common Carp	0.42%
	Yellow Perch	0.21%

Table 11. Percent of Trips for each Primary Species Fished for - by Region and Drainage for the 2015 Angler Survey License Year (continued).

Missouri River - Dearborn (29.43% of days fished in this Region.)

Trout	55.52%
Rainbow Trout	28.02%
Brown Trout	5.88%
Walleye	2.87%
Yellow Perch	1.53%
Brook Trout	0.48%
Smallmouth Bass	0.38%
Cutthroat Trout	0.29%
Common Carp	0.29%
Nothern Pike	0.24%
Crappie	0.14%
Burbot	0.10%
Bass	0.05%
Channel Catfish	0.05%

Missouri River - Judith (6.42% of days fished in this Region.)

Trout	42.98%
Walleye	14.69%
Nothern Pike	8.77%
Rainbow Trout	8.33%
Channel Catfish	5.04%
Brook Trout	3.73%
Brown Trout	3.07%
Paddlefish	1.32%
Yellow Perch	1.32%
Smallmouth Bass	0.88%
Bass	0.44%
Sauger	0.22%

Musselshell River (2.52% of days fished in this Region.)

Trout	39.11%
Rainbow Trout	24.58%
Bass	7.82%
Yellow Perch	5.03%
Walleye	5.03%
Brown Trout	3.35%
Common Carp	2.23%
Nothern Pike	1.68%
Brook Trout	1.68%
Channel Catfish	1.12%
Cutthroat Trout	0.56%
Largemouth Bass	0.56%

St. Mary and Belly Rivers (0.31% of days fished in this Region.)

Trout	59.09%
Rainbow Trout	40.91%

Smith River (6.04% of days fished in this Region.)

Trout	38.93%
Brown Trout	34.27%
Rainbow Trout	19.81%
Brook Trout	1.63%
Lake Trout	0.47%
Burbot	0.23%

Table 11. Percent of Trips for each Primary Species Fished for - by Region and Drainage for the 2015 Angler Survey License Year (continued).

Drainage	Primary Species Fished for	Percent of days for species
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Sun River (5.45% of days fished in this Region.)

Trout	54.78%
Rainbow Trout	19.12%
Cutthroat Trout	4.65%
Brown Trout	3.62%
Nothern Pike	3.10%
Yellow Perch	1.55%
Lake Trout	1.29%
Walleye	0.52%
Largemouth Bass	0.52%
Brook Trout	0.52%
Bass	0.26%

Teton River (0.87% of days fished in this Region.)

Trout	40.32%
Sturgeon	19.35%
Rainbow Trout	11.29%
Yellow Perch	9.68%
Nothern Pike	6.45%
Brown Trout	6.45%
Cutthroat Trout	3.23%
Common Carp	1.61%

Upper Milk River (0.13% of days fished in this Region.)

Rainbow Trout	44.44%
Trout	22.22%
Nothern Pike	22.22%
Brook Trout	11.11%

Upper Missouri River (40.59% of days fished in this Region.)

Trout	34.05%
Walleye	32.07%
Rainbow Trout	16.05%
Yellow Perch	10.26%
Brown Trout	1.01%
Salmon	0.73%
Common Carp	0.69%
Kokanee salmon	0.52%
Largemouth Bass	0.45%
Nothern Pike	0.38%
Smallmouth Bass	0.24%
Burbot	0.17%
Brook Trout	0.10%
Lake Trout	0.07%
Torrent Sculpin	0.07%
Bass	0.03%
Whitefish	0.03%

Region: 5

Bighorn River (45.28% of days fished in this Region.)

Trout	58.82%
Brown Trout	18.39%
Rainbow Trout	12.85%
Bass	2.37%
Smallmouth Bass	1.88%
Walleye	1.24%
Sauger	0.59%
Channel Catfish	0.48%
Brook Trout	0.11%
Cutthroat Trout	0.05%

Table 11. Percent of Trips for each Primary Species Fished for - by Region and Drainage for the 2015 Angler Survey License Year (continued).

Drainage Primary Species Fished for Percent of days for species

Middle Yellowstone River (9.64% of days fished in this Region.)

Channel Catfish	23.99%
Trout	22.47%
Bass	13.38%
Smallmouth Bass	9.85%
Common Carp	2.78%
Brown Trout	1.52%
Bluegill	1.01%
Rainbow Trout	1.01%
Walleye	1.01%
Whitefish	1.01%
Goldeye	0.76%
Sunfish	0.76%
Burbot	0.76%
Brook Trout	0.51%
Yellow Perch	0.51%
Black Bullhead	0.25%

Musselshell River (2.43% of days fished in this Region.)

Trout	20.00%
Channel Catfish	11.00%
Bass	10.00%
Salmon	10.00%
Kokanee salmon	9.00%
Brown Trout	8.00%
Brook Trout	7.00%
Rainbow Trout	4.00%
Nothorn Pike	2.00%
Sucker	1.00%

Upper Yellowstone River (42.33% of days fished in this Region.)

Trout	50.03%
Rainbow Trout	16.73%
Brown Trout	10.58%
Cutthroat Trout	5.75%
Brook Trout	5.41%
Walleye	3.57%
Bass	0.86%
Whitefish	0.35%
Golden Trout	0.29%
Smallmouth Bass	0.23%
Salmon	0.17%
Channel Catfish	0.17%
Sauger	0.12%
Arctic Grayling	0.06%
Burbot	0.06%

Region: 6

Fort Peck Reservoir (54.63% of days fished in this Region.)

Walleye	58.14%
Nothorn Pike	21.46%
Channel Catfish	5.43%
Lake Trout	3.54%
Paddlefish	2.88%
Salmon	2.38%
Bass	1.07%
Trout	0.99%
Smallmouth Bass	0.99%
Rainbow Trout	0.25%
Chinook Salmon	0.08%
Goldeye	0.08%

Table 11. Percent of Trips for each Primary Species Fished for - by Region and Drainage for the 2015 Angler Survey License Year (continued).

Drainage	Primary Species Fished for	Percent of days for species
Lower Milk River (2.07% of days fished in this Region.)		
	Channel Catfish	58.70%
	Walleye	10.87%
	Trout	10.87%
	Nothern Pike	8.70%
Lower Missouri River (2.92% of days fished in this Region.)		
	Nothern Pike	66.15%
	Walleye	20.00%
	Trout	3.08%
	Yellow Perch	1.54%
	Channel Catfish	1.54%
Middle Milk River (20.58% of days fished in this Region.)		
	Walleye	35.81%
	Trout	27.29%
	Rainbow Trout	7.86%
	Nothern Pike	7.42%
	Yellow Perch	6.55%
	Brook Trout	2.18%
	Bass	0.87%
	Crappie	0.44%
	Smallmouth Bass	0.22%
	Sunfish	0.22%
	Bullhead	0.22%
Missouri River - Judith (0.85% of days fished in this Region.)		
	Trout	57.89%
	Walleye	21.05%
	Rainbow Trout	10.53%
Missouri River - Poplar (5.62% of days fished in this Region.)		
	Walleye	57.60%
	Nothern Pike	24.00%
	Trout	7.20%
	Sauger	4.00%
	Bass	2.40%
	Salmon	2.40%
	Rainbow Trout	1.60%
Upper Milk River (12.89% of days fished in this Region.)		
	Walleye	76.66%
	Nothern Pike	12.54%
	Trout	8.71%
	Yellow Perch	1.74%
	Rainbow Trout	0.35%

Table 11. Percent of Trips for each Primary Species Fished for - by Region and Drainage for the 2015 Angler Survey License Year (continued).

Drainage Primary Species Fished for Percent of days for species

Region: 7

Little Missouri River (0.09% of days fished in this Region.)

Rock Bass	100.00%
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Lower Yellowstone River (54.14% of days fished in this Region.)

Channel Catfish	39.02%
Paddlefish	11.87%
Walleye	10.57%
Sauger	7.80%
Bass	6.99%
Smallmouth Bass	3.09%
Trout	2.60%
Notern Pike	2.44%
Sturgeon	2.44%
Crappie	1.95%
Bluegill	1.79%
Largemouth Bass	1.63%
Yellow Perch	1.30%
Burbot	0.81%
Rainbow Trout	0.65%

Musselshell River (0.09% of days fished in this Region.)

Rainbow Trout	100.00%
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Powder River (1.06% of days fished in this Region.)

Channel Catfish	66.67%
Trout	16.67%
Rainbow Trout	8.33%

Tongue River (43.40% of days fished in this Region.)

Crappie	36.51%
Walleye	29.61%
Channel Catfish	11.76%
Bass	5.07%
Notern Pike	4.46%
Smallmouth Bass	3.85%
Rainbow Trout	1.01%
Trout	0.81%
Common Carp	0.61%
Yellow Perch	0.41%
Brown Trout	0.20%
Bluegill	0.20%

3.5 FISHING ACCESS SITE USE

Anglers were asked to indicate if they used an FWP Fishing Access Site (FAS) to access the water they fished. If they answered in the affirmative, they were then asked to provide the name of the FAS. The FAS icon (a fish facing a hook and line) accompanied this question to try to make it clear which sites were FWP sites. The location of many FASs was increased on the maps on the 2015 survey relative to the 2013 survey, also to try to help the angler answer the question correctly.

In terms of angler days, 57.8% and 61.9% of residents and nonresidents, respectively, indicated that they used an FWP FAS. These numbers were determined to be inaccurate however, because when many of the anglers identified the access site, it was in fact an access site provided by other public agencies. In order to quantify this error, the names of access sites provided in a sub-set (3,561) of returned surveys were evaluated. Overall, 73.8% of resident angler days and 80.3% of non-resident angler days were attributed to an FWP site, while the remainder was attributed to sites owned by other agencies, access from bridge rights-of-way, or even private property. These “correction factors” were then used to estimate the actual percentage of angler days using FWP FASs, as follows:

Non-residents: $0.619 \times 0.803 = .497$ or 49.7% of non-resident angler days occurring through the use of a Montana FWP FAS

Residents: $0.578 \times 0.738 = 0.426$ or 42.6% of resident angler days occurring through the use of a Montana FWP FAS.

The initial question in this survey was similar to one that was asked as part of the 2007 statewide mail survey, where the angler was asked if they had used a bridge, fishing access site, or other means to gain access to the fishery. Overall, 5.1% of the access was from bridges, and 55.5% of the access was from fishing access sites. Respondents in the 2007 survey were not asked to identify the name of the access site, so there were undoubtedly a number of respondents that gained access at sites not provided by FWP.

4.0 DISCUSSION AND ANALYSIS

4.1 SCOPE OF ANGLING PRESSURE

The statewide angling pressure survey was conducted from March, 2015 through February, 2016. 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. It appears that the unlicensed angler makes up between 9% and 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.

4.2 ACCURACY

4.2.1 Sampling

Samples were drawn and questionnaires sent to the selected anglers as soon as possible. This was usually 1-2 days after the wave being sampled had ended (see discussion under Methods for details). The use of ALS allows for samples to be drawn right after the month has ended, which reduces memory

4.2.2 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).

Creel surveys were conducted on the Missouri River and Noxon/Cabinet Gorge reservoirs in 2015 and collected a variety of information that can be compared to the statewide angler survey. Such comparisons are valuable because they use independent data collection methods to derive some of the same statistics and concordance of the results increases confidence in the accuracy of both surveys. Creel surveys have an inherent advantage in that they rely on actual interviews or observations of anglers on the day they are fishing, which is usually more accurate than

relying on them to remember events from a month or more in the past as the mail survey does. Accuracy can also be enhanced with a creel survey if the sample size is larger than the statewide mail surveys. In the case of the Missouri River surveys, sample size was similar: 1,986 anglers were interviewed as part of the creel survey (Mullen and Shilz 2017) for anglers in Section 9 of the Missouri River (Holter Reservoir to Cascade), while 1,858 questionnaires were returned as part of the statewide mail survey. Conversely, sample size for the Clark Fork River reservoirs creel surveys was much larger than for the mail surveys: 1,324 and 228 angler interviews at Noxon Rapids and Cabinet Gorge reservoirs through the creel survey compared to 269 and 62 trips for Noxon Rapids and Cabinet Gorge in the mail survey.

Statistics compiled in both surveys for the Missouri River are compared in Table 12. The only metric showing substantial difference between the two surveys was angler pressure, where the estimate from the creel survey was only about half that estimated from the mail survey. Methodologies with both surveys might explain some of the difference. For the 2015 mail survey, a map of the upper Missouri River was provided on the front of the form where the angler writes down their information. The lowest (most downstream) extent of this map was Section 9, and it is possible that anglers fishing further downstream in section 8 might have simply written down “9” since they didn’t see any other number. If this occurred, it could have inflated the angler pressure estimate from the mail survey for section 9. The creel survey based angler counts on a roving clerk. Wade et al (1991) note that in these types of surveys, the probability of the clerk intercepting an angler is directly proportional to the length of the angler’s stay in the fishery, resulting in many anglers being unaccounted for. Therefore, the angler pressure from the creel survey may have been biased downward.

Table 12. Comparison of angler use characteristics for section 9 of the Missouri River in the 2015 fishing year as determined by the creel survey (Mullen and Shilz 2017) or statewide mail survey.		
Metric	Creel survey	Statewide Mail survey
Angler pressure (days)	97,644	183,479
Terminal tackle used	Artificial flies (70%), Bait (15%), Eggs (2%)	Artificial flies (64%), Bait (15%), Eggs (2%)*
Outfitter usage	21% guided	19.16% guided*
Type of access	Boat (49%), shore (48%), float tube (3%)	Boat (43.9%), Shore (37.5%), Both (18.15%)
Target species	Trout (80%), Anything (10%), Walleye (4%)	Trout (91.0%), walleye (2.5%), Yellow Perch (1.2%)
Resident status	Resident (58%), Non-resident (42%)	Resident (51%), Non-resident (49%)

*From the 2013 mail survey; this information was not acquired in 2015.

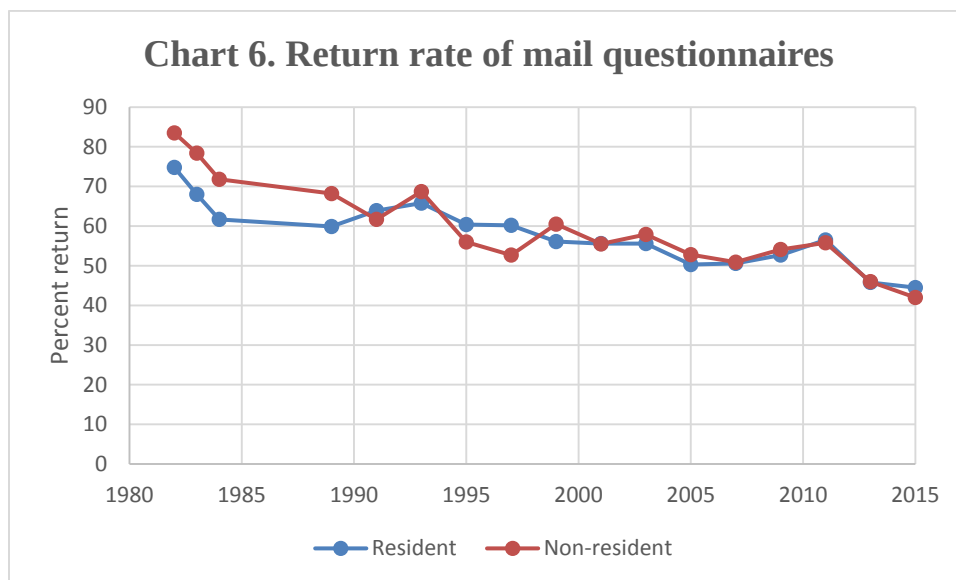
The Noxon and Cabinet Gorge creel surveys were conducted from April 1-November 30, 2015. Target species and the percentages showed considerable differences between the two surveys, and may have been partly due to the fact that the creel survey allowed anglers to list more than

one species of fish (Table 13). The creel survey was also run just during the April-November period, while the target species percentages from the mail survey were based on the entire year (March-February). Angler pressure estimates based on the creel surveys were only 36.6% of the estimate in the case of Cabinet Gorge, and 66.7% in the case of Noxon Rapids Reservoir. The bias noted above for roving creels when estimating angler pressure may have contributed to the disparity with the mail survey on these two reservoirs in the same way it potentially did on the Missouri River.

Table 13. Comparison of angler use statistics for Noxon Raids Reservoir and Cabinet Gorge Reservoir from April 1-November 30, 2015 as determined by the creel survey (Blakney et al 2017) or statewide mail survey.			
Waterbody	Metric	Creel survey	Statewide Mail survey
Cabinet Gorge	Target species	Northern Pike (40.5%), Smallmouth bass (19.9%), Yellow Perch (13.7%), Walleye (10.1%), Bass (7.4%), Trout spp. (4.2%), Largemouth bass (2.7%), Other (1.5%)	Northern Pike (64.9%) Walleye (19.2%) Bass (10.5%) Rainbow trout (1.8%) Trout spp (1.8%) Any (1.8%)
	Angler pressure (days)	2,513	6,848
Noxon Rapids	Target species	Northern Pike (25.0%), Smallmouth bass (19.1%), Yellow perch (18.4%), Walleye (10.1%), Largemouth bass (10.1%), Bass (9.2%), Pumpkinseed (4.6%), other (3.5%)	Bass (42.0%) Northern pike (24.5%) Yellow Perch (14.1%) Walleye (14.1%) Smallmouth Bass (2.2%) Any species (1.5%) Trout spp (1.1%) No response (0.04%)
	Angler pressure (days)	16,529	24,775

4.3 RETURN RATES

Return rates ($\# \text{ of respondents} / [\# \text{ of surveys sent} - \text{nondeliverables}] * 100$) were calculated for every wave by residency (Table 2). The weighted average total return rates for residents and nonresidents were 44.5% and 42% respectively. These are the lowest rates since the surveys first began in 1983, and also reflect a consistent downward trend over that time period (Chart 6). If this trend continues, it may be necessary to explore alternative approaches to reverse the trend. Low return rates do reduce the number of trips reported for individual waterbodies, and increase the associated error surrounding the pressure estimate. Even more problematic is the possibility that the lower return rates are leading to greater non-response bias, in which license holders with certain common traits are disproportionately choosing to not participate in the survey. If these non-respondents are more or less likely to be fishing than are the respondents, then it may be affecting the accuracy of the pressure estimates.



4.4 NUMBER OF LICENSED ANGLERS VS PRESSURE

The number of resident anglers showed steady increases from 1967 to 1985 (Chart 7, Table 14). Since 1985 when there were 236,455 licensed anglers, the number has remained within 10%, reaching a low of 216,412 in 1989 and a high of 258,846 in 2014 (numbers for 2015 were not available at the time of this writing). The notable decline from 2010 (238,942) to 2011 (228,589) may be theorized to be due to stormy weather in the early summer of 2011 that kept many people indoors. Nonresident licensed angler numbers showed strong growth between 1965 and peak numbers in 2002 (Chart 8), increasing from 51,798 to 220,946 during the period. Nonresident license sales then dropped markedly from 2002 and 2011, when 126,617 anglers purchased licenses, but has rebounded and increased every year since then.

Comparing statewide angling use from the mail survey versus number of anglers shows general agreement between the two variables, at least in terms of long-term trends. The relationship between angler use and number of anglers has remained remarkably consistent for resident anglers (Chart 7). The trend for non-resident anglers is much different. Number of licensed anglers peaked in 2002 and then declined to a 21-year low in 2011. Since then numbers of licensed anglers have increased every year. Conversely the angling pressure has increased by 70% since 2007 (Chart 8), and indicates a trend toward non-residents spending more days fishing in Montana.

Table 14. - Number of licensed anglers from 1982 through 2014 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	217,370	119,611
1991	221,723	138,243
1992	222,186	134,212
1993	226,992	151,192
1994	233,630	164,841
1995	227,849	153,887
1996	227,282	150,881
1997	222,442	151,244
1998	222,329	162,067
1999	228,419	162,572
2000	219,282	152,158
2001	216,858	164,470
2002	222,510	220,946
2003	227,562	200,647
2004	223,560	200,562
2005	233,295	185,689
2006	224,526	159,846
2007	228,415	163,088
2008	240,030	155,858
2009	248,945	159,032
2010	238,942	154,184
2011	228,589	126,617
2012	241,519	157,763
2013	254,473	170,415
2014	258,846	178,290

Chart 7. Resident Anglers vs Use

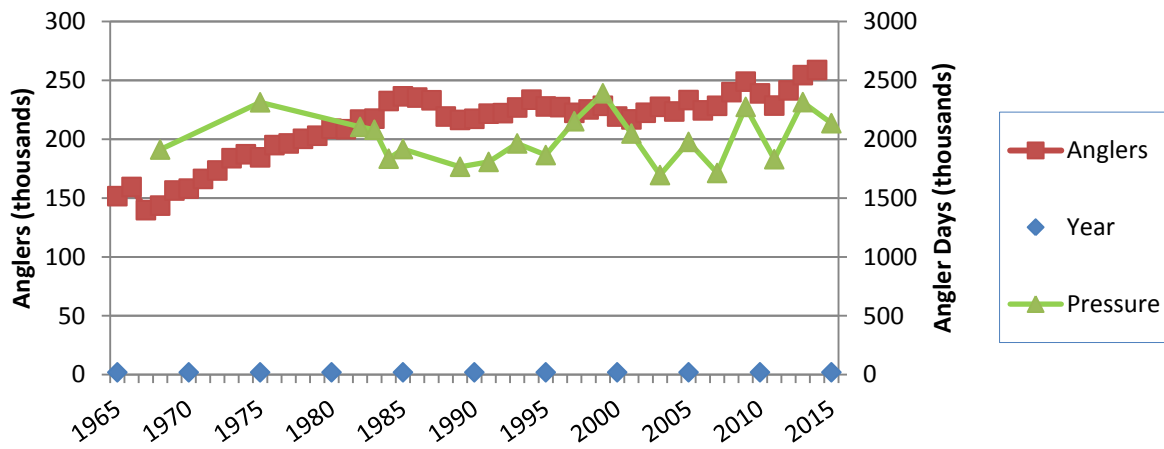


Chart 7. Angling pressure versus number of anglers for residents from 1965 to 2015.

Chart 8. Nonresident Anglers vs Use

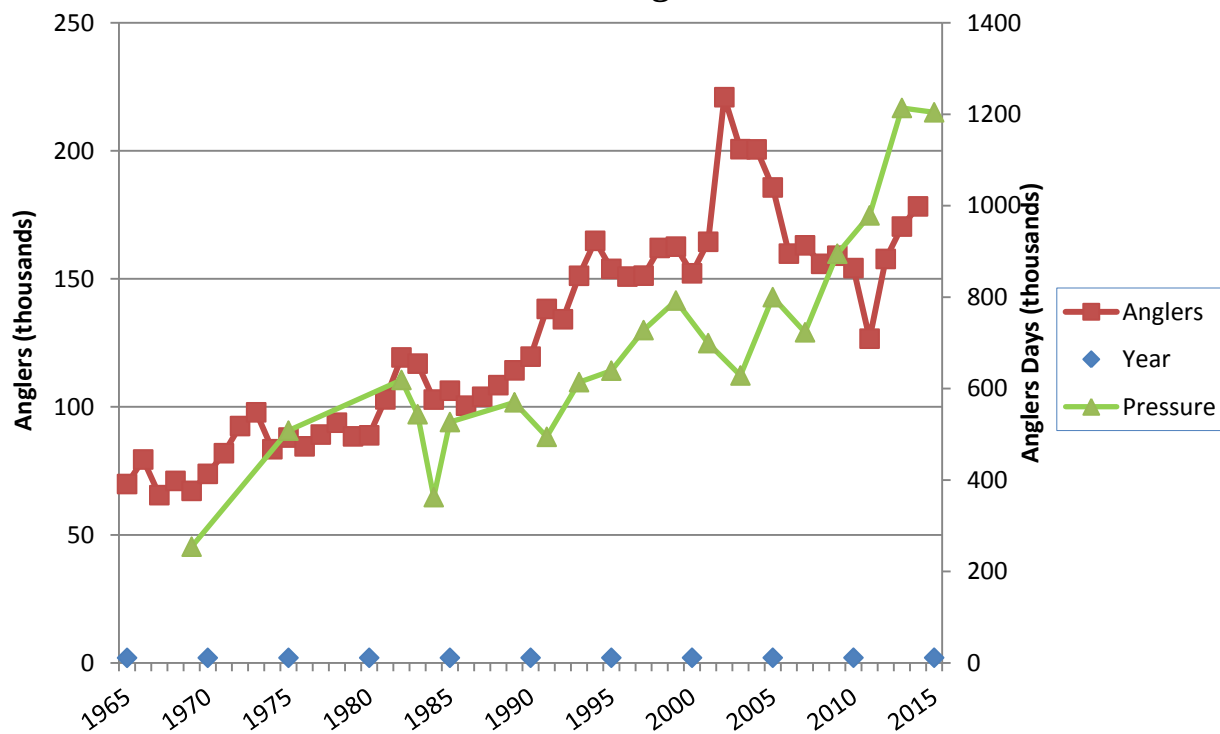


Chart 8. Angling pressure versus number of anglers for nonresidents from 1965 to 2015.

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6.0 EXAMPLES OF QUESTIONNAIRES

The August 2015 questionnaire is an example of an initial mail form, while the February 2016 questionnaire is an example of a re-mail form.



Angler Survey - August 2015

Dear Angler,

We are conducting a monthly survey of a random sample of fishing license holders and those with fishing privileges as part of their combination license. This survey provides important data to help determine fishing pressure on the lakes and streams of Montana.

This survey requests only **YOUR OWN** fishing activities on **ALL** waters fished, only in the month of **August 2015**. If you fished one of the rivers on provided maps, please include the section returning this survey even if you did not fish.

Prompt return is appreciated. We send reminders to those who have not returned this within a few weeks.

EVEN IF YOU DID NOT FISH OR CATCH ANY FISH, PLEASE COMPLETE THIS QUESTIONNAIRE

Did you fish in Montana during the month of August 2015:

☐ NO - Thank you – Please return the survey.

☐ YES - Total number of days fished only in August 2015. _____ days Please continue

List each individual waterbody (and section number if applicable) on a separate line below.

[illegible]

* Do not include information for access sites administered by other agencies, such as the US Forest Service, US Corps of Engineers, or Bureau of Land Management.



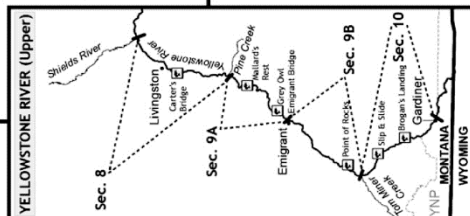
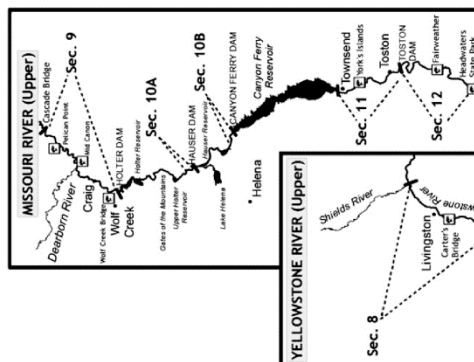
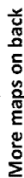
STOP AQUATIC HITCHHIKERS

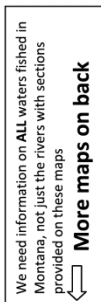
Did you know that motorists hauling or carrying any watercraft – boat, kayak, raft, jet ski, etc. – must stop at roadside Watercraft Inspection Stations? ☐ YES ☐ NO

06R 106R0001



We need information on ALL waters fished in Montana, not just the rivers with sections provided on these maps.





Angler Survey – February 2016

We recently mailed you a request for your February fishing in Montana. If you returned the survey and our mail crossed paths, thank you for participating in our survey and please disregard this second request. If you have not mailed in your survey, please complete this questionnaire and return it in the provided envelope. We appreciate your time!

Dear Angler,

As you may recall, we are conducting a monthly survey of a random sample of fishing license holders and those with fishing privileges as part of their combination license. This survey provides important data to help determine fishing pressure on the lakes and streams of Montana.

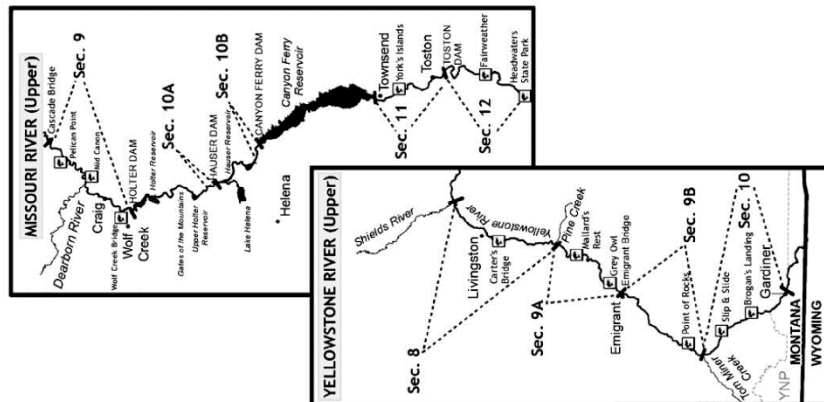
This survey requests only **YOUR OWN** fishing activities on **ALL** waters fished, only in the month of **February 2016**. If you fished one of the rivers on provided maps, please include the section number to aid us in identifying the portion of the river. We appreciate your cooperation in returning this survey even if you did not fish.

EVEN IF YOU DID NOT FISH OR CATCH ANY FISH, PLEASE COMPLETE THIS QUESTIONNAIRE

Did you fish in Montana during the month of February 2016:

- ☐ **NO - Thank you** – Please return the survey.
- ☐ **YES - Total number of days fished only in February 2016.** _____ days. Please continue below.

List each individual waterbody (and section number if applicable) on a separate line below.



* Do not include information for access sites administered by other agencies, such as the US Forest Service, US Corps of Engineers, or Bureau of Land Management.

STOP AQUATIC HITCHHIKERS



Did you know that motorists hauling or carrying any watercraft – boat, kayak, raft, jet ski, etc. – must stop at roadside Watercraft Inspection Stations? ☐ YES ☐ NO

R 12R 80

7.0 BOUNDARIES OF WATERS BROKEN INTO SECTIONS

<u>STREAM NAME</u>	<u>WATER CODE</u>	<u>DOWNSTREAM POINT</u>	<u>UPSTREAM POINT</u>
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	BIG HORN FAS (ACCESS CR)	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	N FK BLACKFOOT RIVER
	SEC 03 04-0645	N FK BLACKFOOT RIVER	ARRASTRA CREEK
	SEC 04 04-0660	ARRASTRA CREEK	HEADWATERS
BOULDER RIVER	SEC 01 22-0742	MOUTH	BOULDER FALLS (NAT BRDG)
	SEC 02 22-0756	BOULDER FALLS (NAT BRDG)	BRIDGE CREEK
	SEC 03 22-0770	BRIDGE CREEK	HEADWATERS
CLARK FORK R.	SEC 01 05-1440	THOMPSON RIVER	FLATHEAD RIVER
	SEC 02 05-1456	FLATHEAD RIVER	BITTERROOT RIVER
	SEC 03 06-1118	BITTERROOT RIVER	ROCK CREEK
	SEC 04 06-1121	ROCK CREEK	LITTLE BLACKFOOT R
	SEC 05 06-1140	LITTLE BLACKFOOT R	HEADWATERS
CLARKS FK YELLOWSTONE RIVER			
	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

STREAM NAME	WATER CODE	DOWNSTREAM POINT	UPSTREAM POINT
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
MADISON RIVER			
	SEC 01 13-3400	MOUTH	ENNIS DAM
	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 01A 16-2420	N DAKOTA BORDER	POPLAR RIVER
	SEC 01B 16-2421	POPLAR RIVER	MILK RIVER
	SEC 05 16-2500	MILK RIVER	FORT PECK DAM
	SEC 06A 16-2521	FT PECK RES	BLAIN/CHOUT CO LINE
	SEC 06B 16-2522	BLAIN/CHOUT CO LINE	MARIAS RIVER
	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	DOWNSTREAM POINT	UPSTREAM 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	WEST FORK (NYE)
	SEC 02 22-6118	WEST FORK (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
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 RIVER			
	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 RIVER			
	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 04 22-7015	HUNTLEY DIVERSION	CLARKS FORK RIVER
	SEC 05 22-7028	CLARKS FORK RIVER	STILLWATER RIVER

<u>STREAM NAME</u>	<u>WATER CODE</u>	<u>DOWNSTREAM POINT</u>	<u>UPSTREAM POINT</u>
YELLOWSTONE RIVER (con't)			
SEC 06A	22-7043	STILLWATER RIVER	REED POINT BRIDGE
SEC 06B	22-7044	REED POINT BRIDGE	BOULDER RIVER
SEC 07A	22-7057	BOULDER RIVER	SPRINGDALE
SEC 07B	22-7058	SPRINGDALE	SHIELDS RIVER
SEC 08	22-7071	SHIELDS RIVER	PINE CREEK
SEC 09A	22-7072	PINE CREEK	EMIGRANT BRIDGE
SEC 09B	22-7073	EMIGRANT BRIDGE	TOM MINER CREEK
SEC 10	22-7084	TOM MINER CREEK	GARDINER