Angler Satisfaction, Demographic, and Creel Surveys- Upper Madison River, 2015 - 2017

Report to NorthWestern Energy

Montana Fish, Wildlife & Parks

Region-3 Fisheries, Bozeman, MT 59718
Travis Horton, David Moser, Cheryl Morris, Andrew Puls, and Travis Lohrenz

Human Dimensions Unit, Helena MT 50620
Mike Lewis

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Introduction

Throughout its length, the Madison River provides diverse recreational opportunities for many types of users in a relatively pristine, natural setting, that is rich in historical significance. Not surprisingly, the Madison is very popular with resident and non-residents alike. The river is also very important to local economies, providing jobs related to tourism, including a significant amount of commercial angling outfitting on the river itself.

The upper Madison River is an iconic fishing destination for trout anglers worldwide (Figure1). The popularity of this fishery can be documented through Montana Fish, Wildlife & Parks estimates on angling pressure, which indicate that the Madison River is frequently one of the most heavily fished rivers in Montana. Due to the heavy use, there have been many efforts to reduce angler conflicts and crowding on the Upper Madison River over the last 59 years:

- 1959: Float fishing closure from Hebgen Dam to Varney Bridge
- 1967: Float fishing closure rotated between two reaches of river each year.
- 1975 and 1976: Snoball and Pine Butte Reaches closed to angling and harvest, respectively, for mortality study.
- 1980: 1-year moratorium on new outfitters.
- 1983: Angler satisfaction survey initiated due to wade and boat angling conflicts.
- 1988 to present: Fishing from a vessel only allowed from Lyons Bridge to Ennis Bridge on the upper Madison River.
- 2006: FWP and partners met with landowners concerned with Madison River recreation conflict.
- 2007: FWP and the Bureau of Land Management (BLM) entered into agreement to implement Madison River Special Recreation Permits (SRP).
- 2008: FWP conducted survey of resident anglers concerning the Madison River.

- 2008: FWP surveyed Madison River Valley property owners about river recreation concerns.
- 2009: FWP conducted Madison River on-site visitor survey.
- 2011: FWP Began process of Madison River recreation management planning.
- 2012: FWP initiated scoping process, including four public meetings and online survey.
- 2012: Madison Citizen Advisory Committee (MCAC) formed.
- 2013: MCAC recommendations presented to FWP Commission and distributed for public comment.
- 2014: FWP halted Madison River recreation management planning process due to agency-wide funding concerns.
- 2016: FWP reinitiated public engagement in management planning process through three listening sessions and mail-in survey of resident and non-resident anglers.
- 2017: FWP initiated year-long on-site angler survey.
- 2018: FWP presented an Environmental Assessment and draft Madison River Recreation Management Plan and proposed administrative rules to the Fish and Wildlife Commission.
- 2018: FWP Commission denies release of EA/Plan and proposed rules for public comment.
- 2018: FWP Commission directs the department to initiate negotiated rule making process to address Madison River recreation issues.

In spring 2012, Montana Fish, Wildlife & Parks (FWP) initiated an online survey that allowed the public to comment on recreation conditions and management strategies on the Madison River. Open-ended questions allowed participants to respond freely to what they liked most about recreation on the Madison River, what they liked least, and what management changes FWP should make to address issues on the Madison River. Montana Fish, Wildlife and Parks received approximately 915 complete and partially complete surveys, of which 71% were submitted by Montana residents. Crowding on the Madison River was specifically addressed by 306 survey participants, 88% of which felt it was a problem. Similarly, crowding at access sites was addressed by 143 participants, 96% of which felt it was a problem. Ninety-two respondents specifically addressed commercial use of the Madison River, 86% of which felt there was too much commercial use and 74% said commercial use should be limited. Overall, 505 respondents specifically addressed changes in management, 60% of which indicated changes were needed.

Dissatisfaction with social conditions on the upper Madison River has risen concomitantly with steadily increasing angler days. FWP estimates angler days every odd year through phone surveys. These data show the upper Madison River, from Hebgen Dam to Ennis Reservoir has shown a steep and linear increase in angler days over the last seven years (Figure 2). Multiple studies commencing in 2015 and ending in 2017 aimed to more accurately quantify angler demographics, river use, and perceptions of anglers by demographic. From 2015 to 2017, a remote sensing camera was used to count the number of watercrafts passing by a fixed point on the upper Madison River. In 2016, a mail survey was initiated to census anglers that had reported fishing the upper Madison River during biennial pressure surveys. In 2017, a creel survey was undertaken to identify and describe the current angling population, their perceptions, as well as catch rates by species and location. The lower Madison River was not included in these surveys – the lower Madison is wholly different from the upper Madison in almost every category; including, timing of use, intensity of use, ecological properties, and access. FWP seeks to manage the upper Madison River for a diversity of anglers and recreationists in perpetuity for future generations. Three primary questions were addressed in

this report. 1) What are the perceptions and satisfaction levels of anglers of varying experience (years fished) on the upper Madison River? 2) What are the perceptions, satisfaction levels, demographics, and catch statistics of anglers currently fishing the Madison River? 3) In comparing an inclusive mail survey and stratified creel survey, are there trends in use that can guide management of the Madison River into the future?

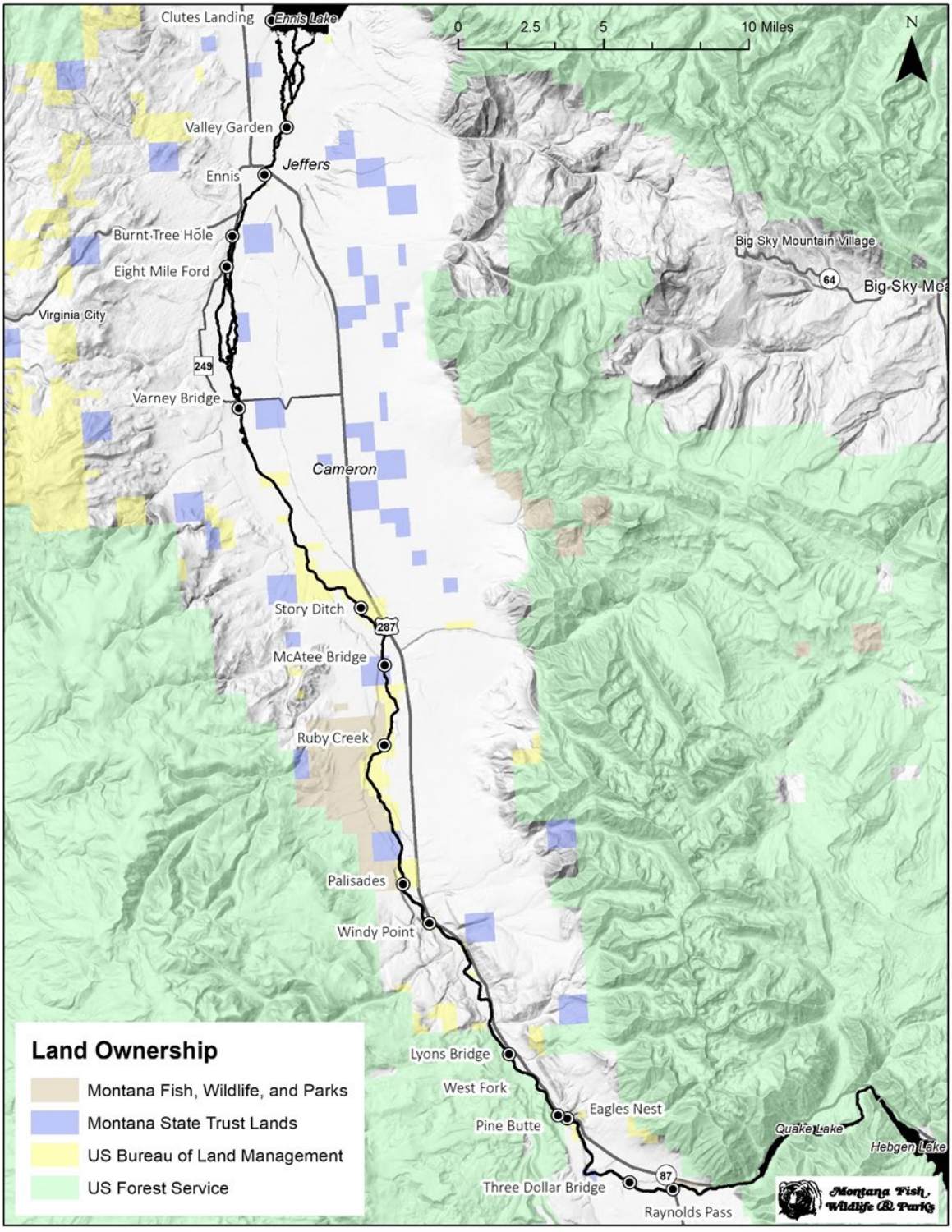


Figure 1. Upper Madison River Fishing Access/Creel locations, public lands, and highways.

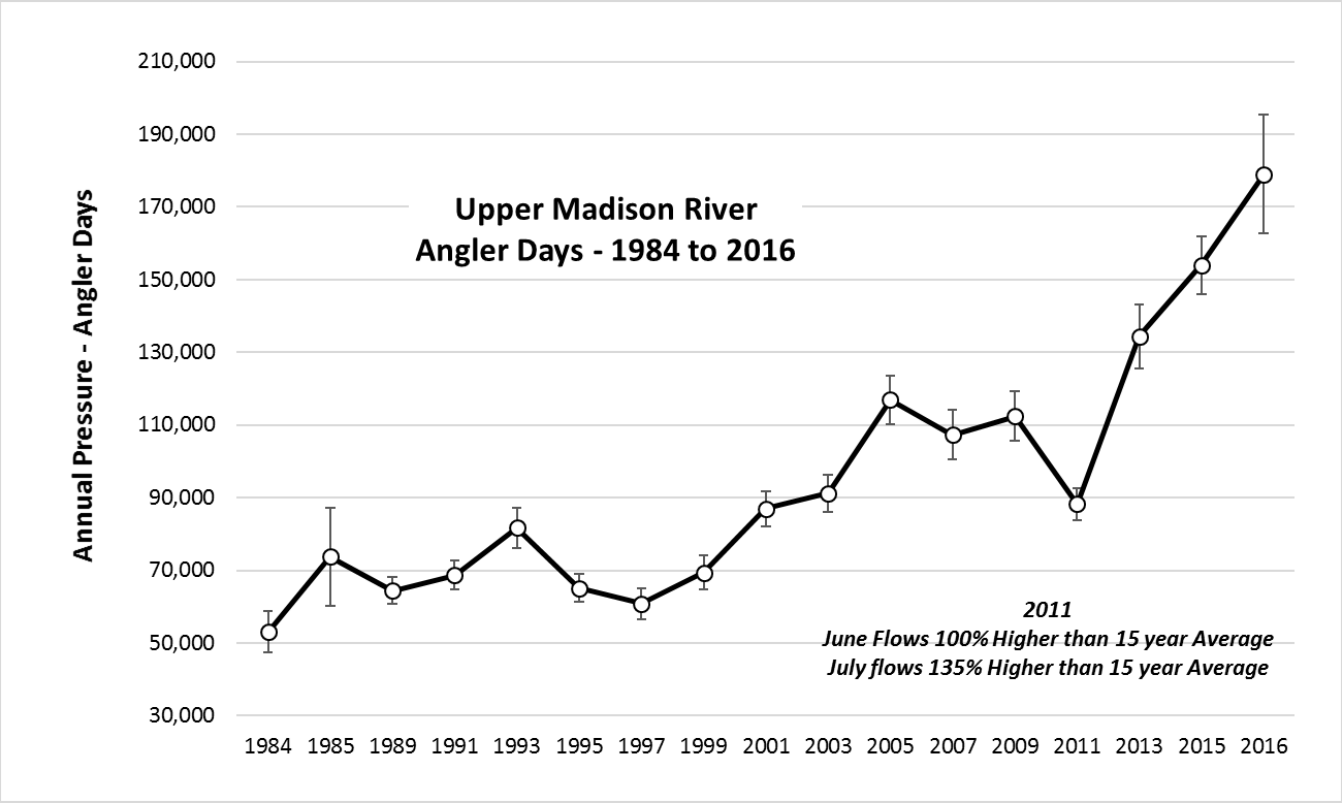


Figure 2. Angler days per year gleaned from mail-in surveys collected on odd years. Vertical bars represent standard error/confidence intervals. The 2016 data point was estimated using a correlation analysis between reported outfitted trips and total angling pressure.

Study Area

The Madison River originates in Yellowstone National Park (YNP) at the confluence of the Firehole and Gibbon rivers. From its headwaters, the river flows northward for 132 miles where it joins the Jefferson and Gallatin rivers near Three Forks, Montana to form the Missouri River. Along its way, the Madison is impounded by two dams, Hebgen and Ennis, as well as Quake Lake, a 4.5-mile long natural lake formed by a landslide that resulted from a major earthquake in 1959.

From its source in YNP through Hebgen and Quake lakes, the Madison River flows through high altitude conifer-forested plateaus administered by the National Park Service and the United States Forest Service (USFS). Below Quake Lake the section commonly referred to as the upper Madison River begins. The upper five miles of this section are characterized by steep whitewater that gradually gives way to boulder-strewn pocket water. From there the Madison levels out into a consistent riffle for the next 36 miles to Varney Bridge. This stretch, which is dominated by willows and grasslands, is predominantly private land interspersed with Bureau of Land Management (BLM), USFS, and state-owned parcels. The lower 13-mile section of the upper Madison from Varney Bridge to Ennis Lake becomes more braided and is lined by late stage cottonwood stands (Figure 1).

Three miles north of Ennis, the Madison empties into Ennis Lake, which is the dividing line between the upper and lower Madison River. Below Ennis Dam the river cuts through Bear Trap Canyon, a deep, rugged, 9.5-mile long wilderness section administered by the BLM. The river emerges at Warm Springs Recreation Area into a broad, low-gradient river valley lined with cottonwoods, willows, and productive pastureland, and a long section of 100-foot tall grey cliffs. Here the river flows through private, BLM, and state lands for about 30 miles before joining the Jefferson and Gallatin rivers near Three Forks, Montana.

Methods

Remote Sensing

From 2015 through 2017, FWP seasonally deployed a remote sensing camera near Lyons Bridge Fishing Access Site (FAS; Figure 2). The camera utilized was a PlotWatcher Pro™ with a telephoto lens that took pictures every three seconds. The telephoto lens and camera placement allowed view of the full width of the river channel. In 2015, the camera was in operation from June 13 to September 23. In 2016, the camera was in operation from May 10 to October 1. In 2017, the camera was in operation between June 1 to October 4. The camera provided a precise and complete daily count of all boats passing the location downstream of Lyons Bridge. Madison River Special Recreation Permit (SRP) data were then used to determine the number of commercial trips passing Lyons FAS.

2016 Mail-in Survey

In the Fall of 2016, FWP conducted a survey of upper Madison River anglers (Appendix A). The goal of this survey was to learn more from river anglers regarding their perceptions and satisfaction with fishing conditions, congestion and crowding, and the quality of the visitor experience on the Upper Madison River from Hebgen Dam downstream to Ennis Reservoir. Surveys were successfully delivered to 5,792 of 5,999 Madison River anglers selected for study from a list of anglers identified as having previously fished the Madison River Drainage. Respondents were gleaned from FWP's Biennial Angler Pressure Use Survey conducted between 2001 and 2015. Survey mailings included an initial mailing of the survey, followed-up by a replacement survey sent out to all survey non-respondents.

For analysis the river was split into two reaches, Hebgen Dam to Lyons Bridge (wade only) and from Lyons Bridge to Ennis Lake (primarily a float section with wade angling downstream of Ennis Bridge). Post hoc comparisons included differences between attitudes during spring, summer, and winter time periods, differences between resident and non-resident angler's attitudes, and differences between three groups of anglers: one through three years of Madison River fishing experience, four through ten years, and 11 and greater years of experience. Various types of rating scales have been developed to display/describe attitudes of individuals who are aware they are being censused. The most widely used and accepted is the Likert scale (Likert 1932). In this survey, choices ranged on a 5-point scale from Very Unacceptable – Unacceptable – Neutral – Acceptable – Very Acceptable. Peak season for fishing the upper Madison River for the mail-in report was identified as the period June 15 to

September 30; this differs slightly from the peak season described for the creel survey, June 1 to September 1.

2017 Creel Survey

A creel/angler satisfaction survey was conducted from March 13 to December 11, 2017. Interviews were stratified spatially and temporally to ensure capture of anglers during early and late seasons (March – May and October – December) and early and late in the day. Three weekdays and one day during each weekend was randomly selected from predetermined sites of river access (Figure 1). On holiday weekends an additional day was sampled. During the ice gorge season, the sampling pool included all sites other than Ennis FAS. As soon as gorged sites were available they were included in the survey reach. During the shoulder season (prior to June 1 and after September 1), start times were randomly selected from two, three, or four hours after sunrise. Survey start times during the peak season (June 1 – September 1) were split between morning or evening, with evening sampling ending at sunset. Morning shifts were initiated either two or three hours after sunrise to ensure early morning anglers had fished for at least an hour. During evening sampling, start times were back-calculated to include four two-hour stints that ended at sunset. Back-calculating from sunset allowed sampling of evening anglers. Throughout the entire survey, sampling direction was determined to be either upstream or downstream from a randomly selected starting point. A minimum of four sampling units (FAS's) per day were required. If sampling began in a downstream or upstream direction and the survey was halted by the end of the survey reach (Hebgen-Mile, Quake Lake, or Valley Garden), the surveyor traveled to the randomly selected starting point for that day and continued in the opposite direction. Sighted wade anglers or boats, if easily accessed by road, were interviewed during travel. Anglers were only surveyed if they had fished for at least one hour.

Anecdotal reports of overharvest on the one-mile reach between Hebgen Dam and Quake Lake (Hebgen-Mile) prompted the hire of additional surveyor to collect data on angler effort (instantaneous counts) for an estimation of harvest. This additional creel surveyor focused solely on the one-mile reach between Hebgen Dam and Quake Lake between June 1 and September 15. In addition to angler demographics, number of fish caught by species, and angling satisfaction; harvest data was collected and counts of anglers actively fishing recorded three times a day. Counts were either on foot or from highway vantage points nearer to Hebgen Dam. Harvest was calculated by multiplying estimated angler effort from counts by angler harvest rate determined through interviews. Questions asked during interviews included, angler demographics, number of fish caught by species, and angling satisfaction (Appendix B).

Catch and release mortality has been a subject of study since the advent of its use as a management tool (i.e. Taylor and White 1992; Brobbel et al. 1996; Boyd et al. 2010). Given the intensity of angling on the upper Madison River, we used catch rate data, previous estimates of natural mortality (Vincent 1980), and stream temperature data to estimate catch and release mortality for trout and Whitefish on the upper Madison River.

Results

Remote Sensing

Boat counts were highest in July with approximately 100 boats passing the camera per day (Table 1). Guided use as a percent of total use was highest in August and September at 68 and 71 percent, respectively (Table 2). May and October were the only months with less than 50% commercial boat traffic. Figure 3 displays guided use by day for the years 2015 through 2017 during survey periods (June 13 to September 23, 2015. May 10 to October 1, 2016. June 1 to October 4, 2017. Average percent commercial for all months sampled in 2015 was 64%, and 63% in 2016 and 2017

Table 1. Boat counts downstream of Lyons Bridge FAS, 2015 – 2017.

Year	May	Jun	Jul	Aug	Sep	Oct
2015		28	90		45	
2016	12	23	79	74	48	16
2017		50	109	49	47	12
Average by Month	12	34	93	62	47	14

Table 2. Percent guided boat use, downstream of Lyons Bridge FAS, 2015 - 2017.

Year	May	Jun	Jul	Aug	Sep	Oct
2015		58%	56%		77%	
2016	35%	77%	67%	70%	75%	51%
2017		63%	59%	66%	64%	63%
Average by Month	35%	61%	61%	68%	71%	53%

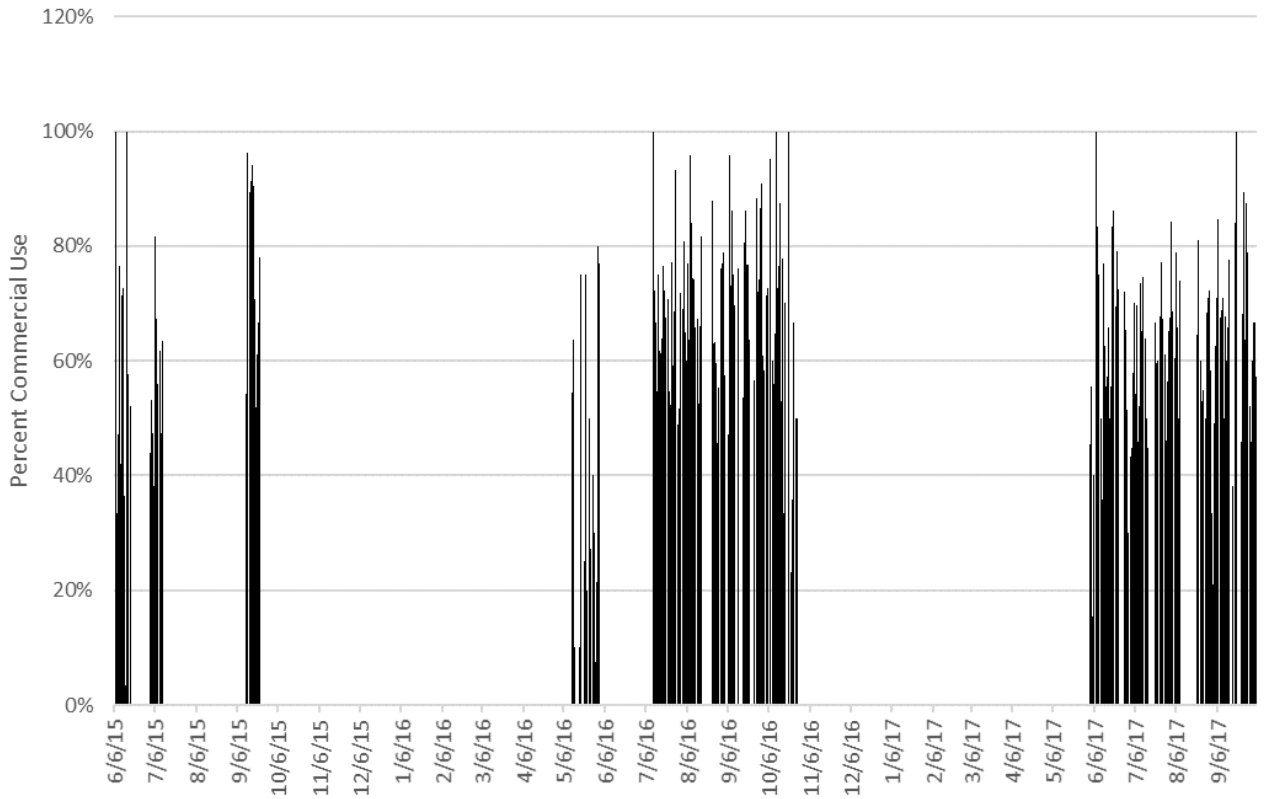


Figure 3. Percent guided boat use, downstream of Lyons Bridge FAS, 2015 - 2017.

2016 Mail-in Survey

Tabular comparisons of survey results are presented in Appendix C in the same format as the original questionnaire. Survey participants were asked to rate a series of satisfaction related questions for the spring season (March 1 – June 14), summer season (June 15 – September 30), and for the fall/winter season (October 1 – February 28). This report focuses on responses to summer conditions, currently the peak season for angler use, and period with highest levels of angler dissatisfaction. In total, there were 2,921 respondents to the mail-in survey resulting in a 50.4 percent survey response rate. Nearly 73 percent of the survey respondents indicated they had fished the upper Madison River between Hebgen Dam and Ennis Reservoir. Survey results represent the intended survey population at the 95 percent confidence level with no more than plus/minus five percent sampling error. Appendix D displays data with comparisons of responses from resident and non-resident anglers. Appendix E displays data with comparisons of responses from anglers with 1 - 3 years, 4 – 8 years, and 11 or more years of upper Madison River experience.

Figure 4 displays perceptions of resident anglers from Hebgen Dam to Lyons Bridge. One question specific to this reach is: “How do you rate the acceptability of the number of people using boats to access the river to BANK/WADE fish in sections of the river that are closed to fishing from boats?” The combined Unacceptable and Very Unacceptable score was 43.5% for

residents and 25.7% for non-residents. Residents responses across questions score higher Unacceptable and Very Unacceptable in every category except for the “number of people BANK/WADE fishing the river.” The combined Unacceptable and Very Unacceptable score for the numbers of people (and their) vehicles at river access points scored a combined 59.8% for residents and 36% for non-residents.

Similar questions were asked of anglers, resident and non-resident, downstream of Lyons Bridge (Figure 5). This reach of river includes a wade section from Ennis Highway downstream to the outlet at Ennis Reservoir. One question specific to this reach was: “How acceptable or unacceptable is the number of people FLOAT fishing the river? “Combined Unacceptable and Very Unacceptable scores were 53.7% for residents and 29.7% for non-residents. The number of people at access points was also viewed as Unacceptable and Very Unacceptable a total of 54.5% for residents and 30% for non-residents.

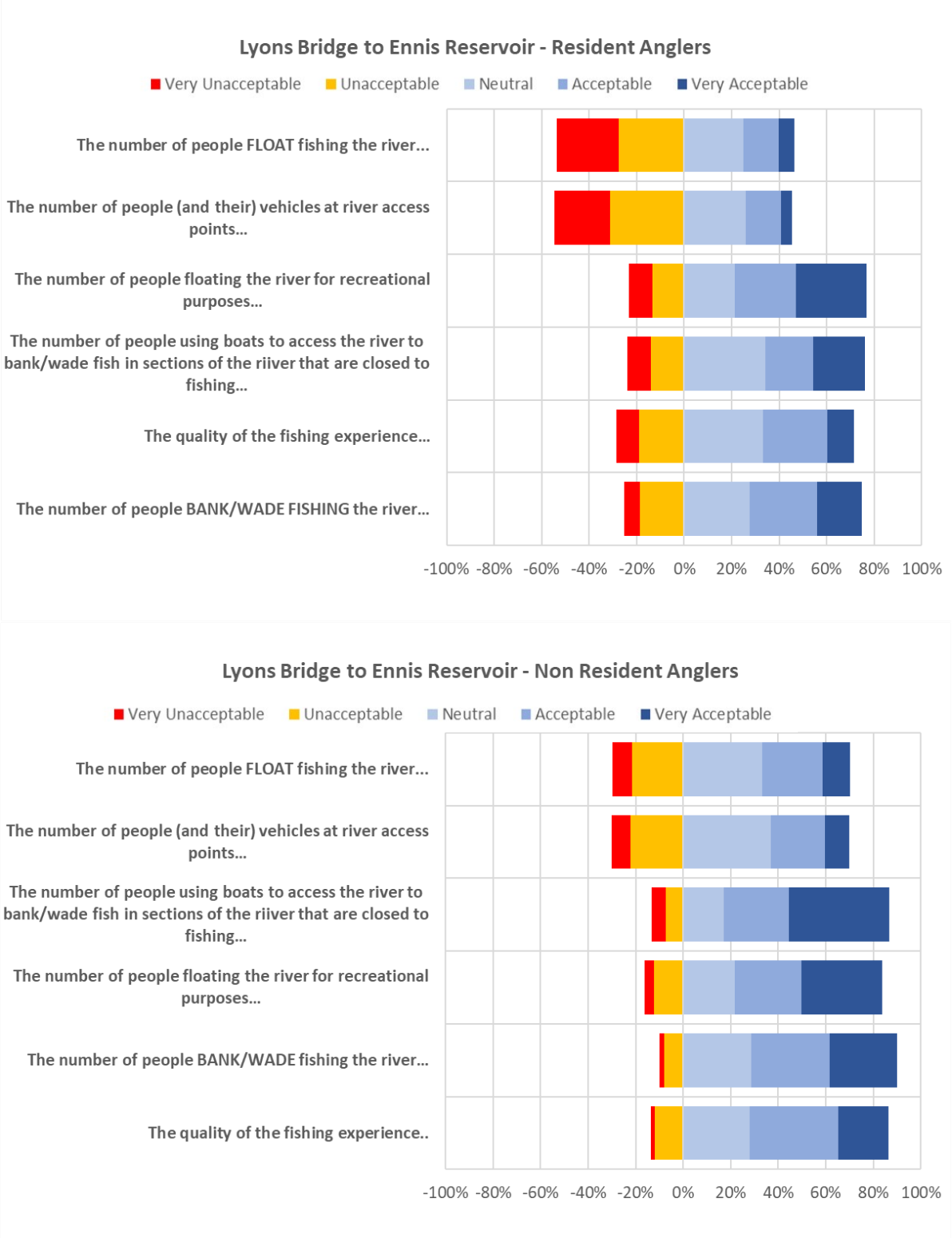
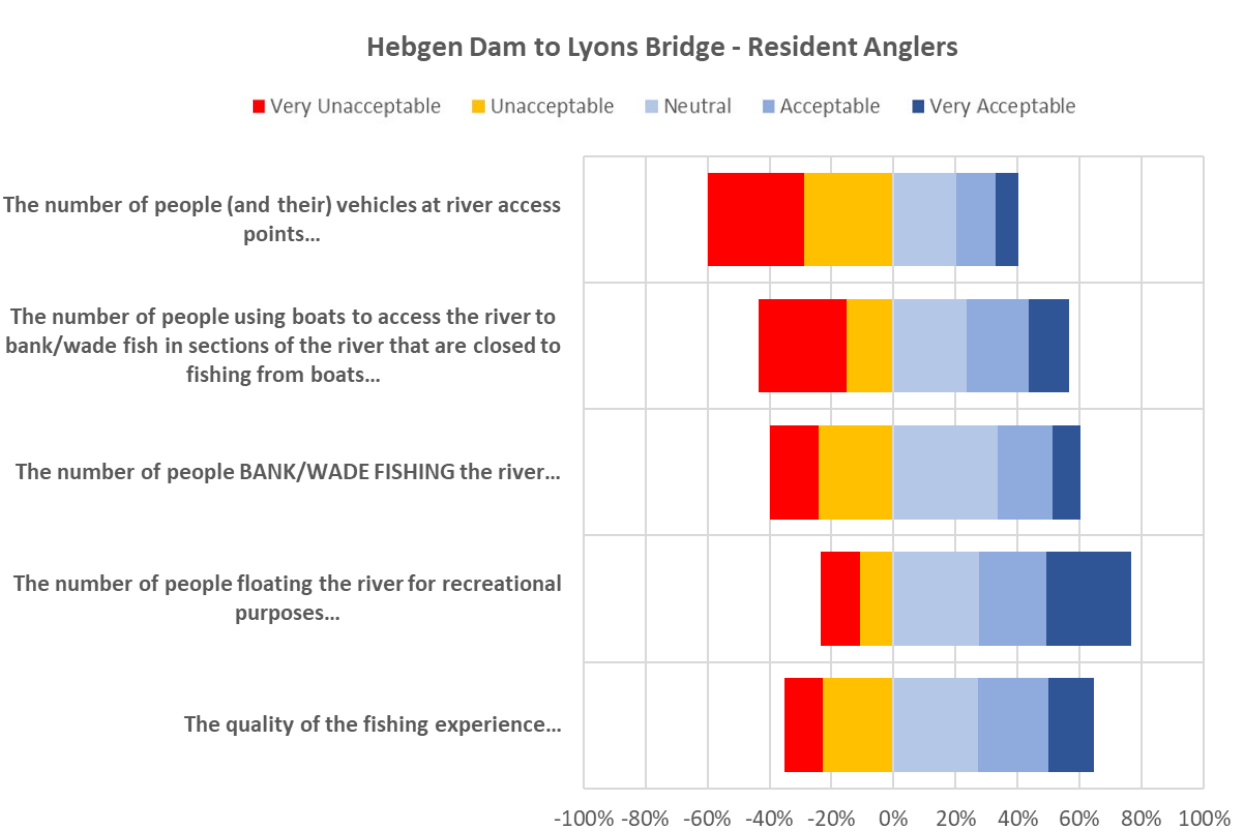


Figure 4. Subjective ratings of variables tied to fishing Hebgen Dam downstream to Lyons Bridge, upper Madison River (June 1 – September 30, 2016). Ratings are sorted from highest to lowest on the "Very Unacceptable" category.



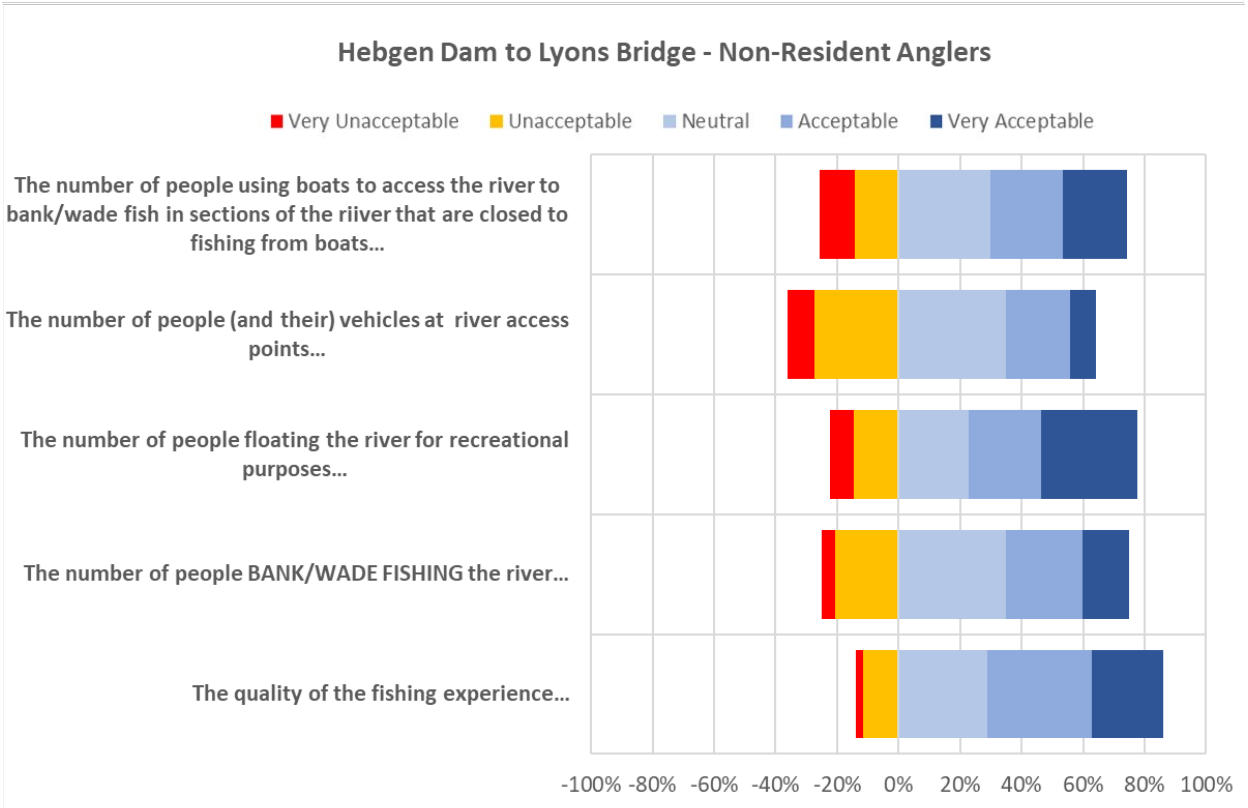


Figure 5. Subjective ratings of variables tied to fishing Lyons Bridge downstream to Ennis Reservoir, Madison River (June 1 – September 30, 2016). Ratings are sorted from highest to lowest on the "Very Unacceptable.

2017 Creel Survey

Between March 13 and December 11, 2017, 1,262 individual interviews were conducted. Results indicated that efforts to stratify temporally were successful. Table 3 displays interview times by month and time. More interviews were necessarily conducted during the peak season. During some one-hour census periods; primarily during early morning, late evening, early spring and fall, no anglers were encountered. The latest evening interview during the sampling period was 10:20 PM on May 28. The earliest survey occurred at 8:10 AM on July 1. A matrix of interview times for the Hebgen Dam to Quake Lake reach is presented in Table 4.

Table 3. Matrix of interview times by month, Hebgen Dam to Ennis Reservoir, 2017.

Time of Interview	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Totals
8 AM					2						2
9 AM			2	2	4	2	2	1			13
10 AM	2	1	9	3	15	3	8	3	1		45
11 AM	3	2	18	5	22	5	10	8	2		75
12 PM	10	10	17	4	19	10	32	11	2	5	120
1 PM	17	12	12	18	35	21	18	10	1	6	150
2 PM	10	9	13	20	35	35	22	6	2		152
3 PM	12	17	18	37	56	33	26	25	3		227
4 PM	7	17	18	34	48	30	35	28	2		219
5 PM	9	14	12	12	19	34	23	13	1		137
6 PM		3	10	7	17	15	8	11			71
7 PM			4	4	6	6	4	1			25
8 PM			1	7	3	1					12
9 PM			1	7	2						10
10 PM			1	2	1						4
Totals	70	85	136	162	284	195	188	117	14	11	1262

Table 4. Matrix of interview times by month, Hebgen Dam to Quake Lake (Hebgen-Mile), 2017.

Time of Interview	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Totals
7AM						1	2				3
8 AM						8	4				12
9 AM			1		7	10	9	1			28
10 AM	1	1	4	4	11	4	10	1			36
11 AM	1		4		1	3	4	1			14
12 PM				5	3	6	7	3	2	2	28
1 PM			6	3	5	4	7	1			26
2 PM	1	2	1	1	2	2	5	1			15
3 PM	6	2	3	1	2	2	1	5			22
4 PM				1	2	4		2			9
5 PM	1	1	1			5	2	3			13
6 PM					1	1	2	3			7
7 PM						1	1				2
9 PM				1							1
Totals	10	6	20	16	34	51	54	21	2	2	216

Creel Demographics

Of the 1,262 angler interviews during 2017, 68.9% were from other states and the District of Columbia. Twenty-nine percent of all anglers identified as residents, and 1.7% of anglers were international in origin. Of Montana residents, 18% identified as Gallatin County residents and 5.4% as Madison County residents. The top two states represented in the survey were, California and Utah, at 10.1% and 7.0% of angling use, respectively (Figure 6).

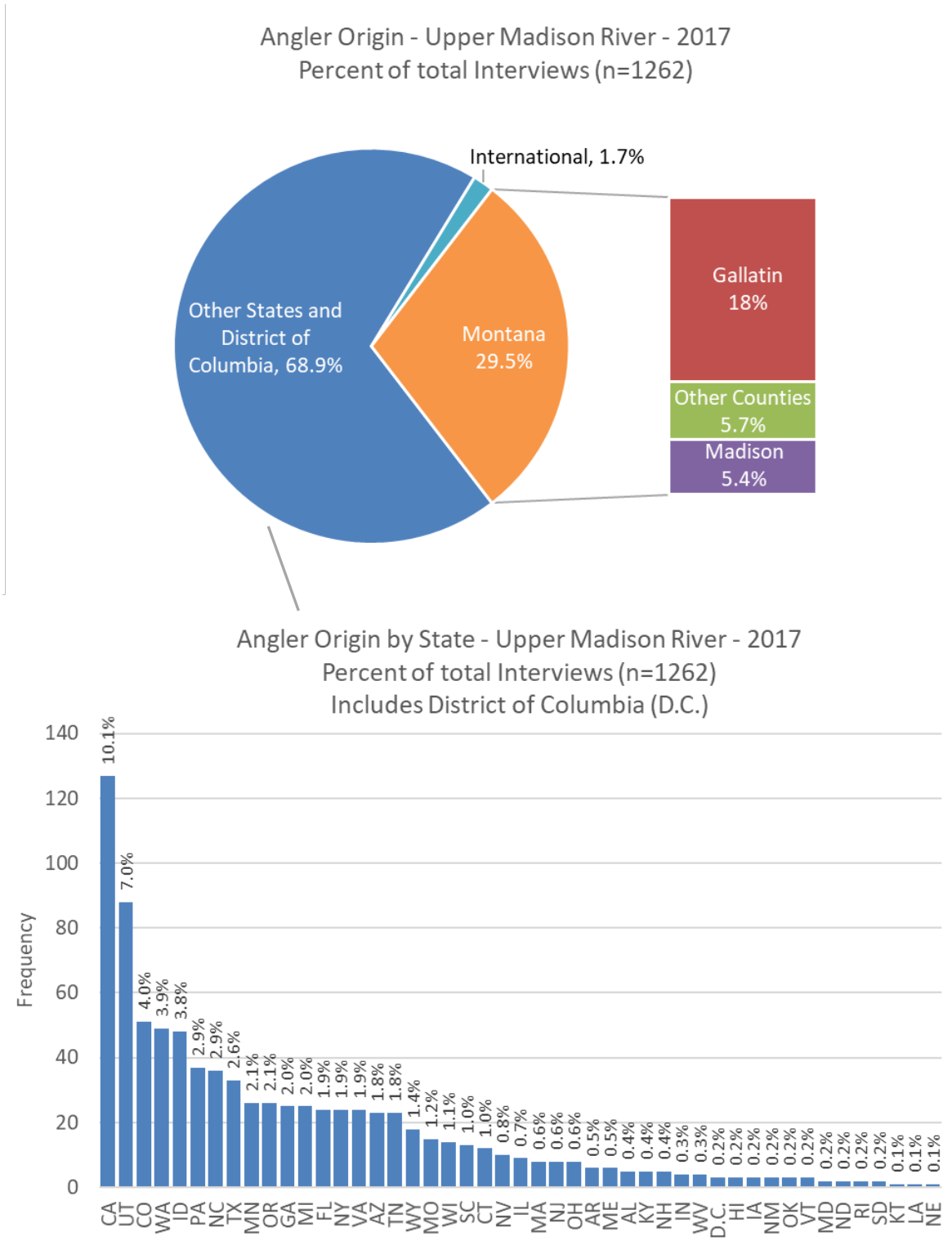


Figure 6. Angler origin by international, Montana county, out-of-state, and cumulative percentage of non-resident angler by State, upper Madison River, 2017.

Figure 7 displays a cumulative probability chart of anglers of varying upper Madison River experience. Twenty-five percent of anglers interviewed in 2017 identified as first-time upper Madison River anglers (represented as 0.5 years). Anglers with 6 years or less of angling experience represented approximately 50% of the total angling public. Comparatively, 16% of respondents of the 2016 mail survey identified as inexperienced (1 to 3 years) upper Madison River anglers.

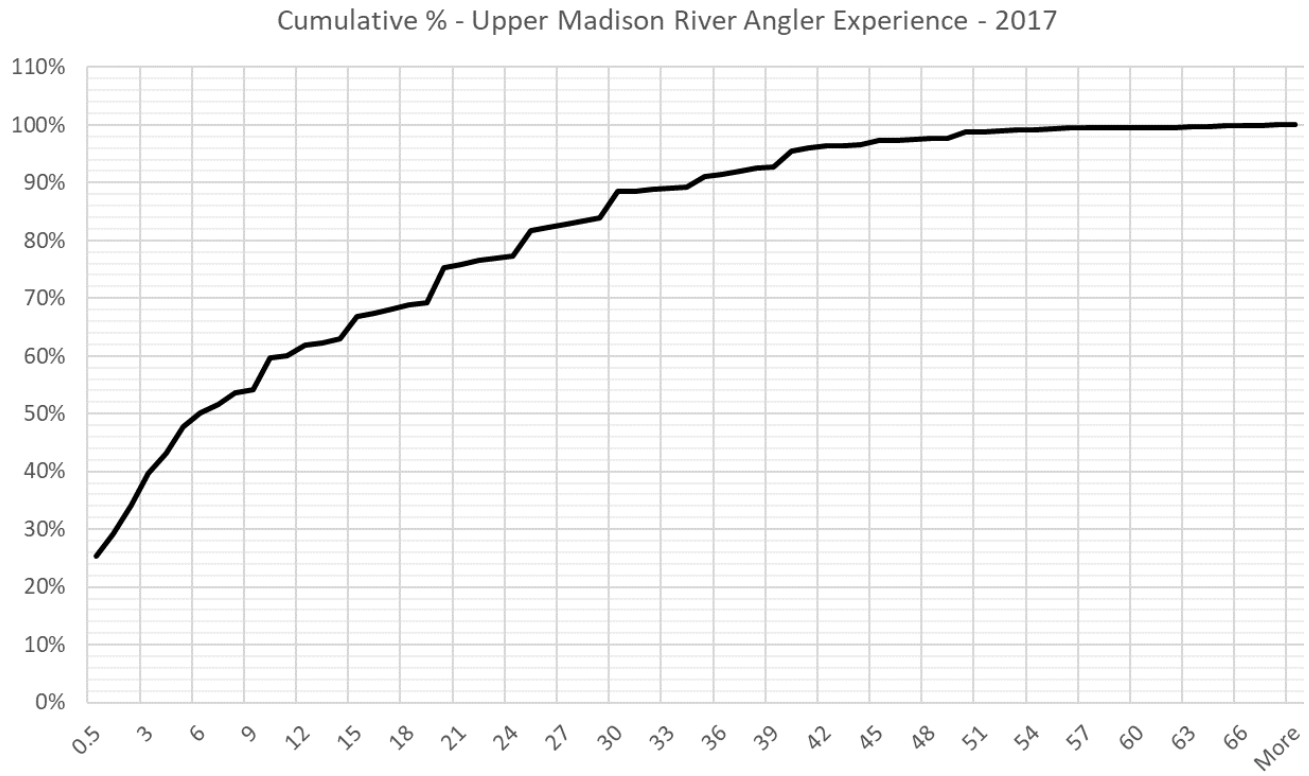


Figure 7. Cumulative probability plot of anglers' years of upper Madison River fishing experience, 2017. Anglers that were fishing for the first time are represented as" 0.5 years"

Figure 8, top chart, displays years of upper Madison River fishing experience. Repeat sampling of anglers on multiple day trips were very rare at less than 2%. Anglers ranged in experience from first time angling (recorded as 0.5) to 68 years. If we apply the proportion of first-time anglers interviewed in 2017 (25%) to 2016's estimated angler days on the upper Madison River (180,000), approximately 45,000 angler days were first time anglers. Figure 8, middle chart, indicates the majority of first-time anglers fished during the peak season (June 1 – September 1). The bottom plot splits angler encounters by guided and unguided. A little over 50% of first-time anglers were guided by a commercial outfitter.

The entire reach upstream of Lyons Bridge to Hebgen Dam is designated as wade fishing only by FWP. The law has been interpreted to mean that boats can access wade sections if anglers don't fish from a boat; a point of conflict between wade anglers and boat anglers that access by wading some distance. Predictably, the bulk of boat angling occurred downstream of Lyons

Bridge. However, twenty-five percent of anglers interviewed at the next wade FAS upstream, Pine Butte, were boat anglers. Also, at the Valley Garden FAS; a wade only section, 32% of those surveyed were identified as boat anglers. These anglers may or may not have used their boat to access wade areas downstream of the Ennis FAS.

The proportion of guided vs. unguided anglers is displayed by river access in Figure 8. Commercially guided angling predominated in most reaches between Lyons Bridge and Valley Garden FAS throughout the survey period. These proportions are similar to camera counts and SRP reporting discussed previously. The proportion of guided anglers at Lyons FAS was necessarily low because anglers initiating their float had not fished for one hour, thus were not censused.

Interview questions asked during the 2017 creel survey included a suite of characteristics that defined the quality of their experience (Appendix B). Forty-four percent of those censused indicated scenic values most determined satisfaction with their fishing experience. Fishing partners/company was second most important with 24% of anglers. Twenty-one percent of anglers identified catching a lot of fish as the important factor in their experience. Other factors were all selected as most important less than 5% of the time.

The final question asked of interviewed anglers was open ended: “What do you think are the major problems (if any) with fishing on the Upper Madison River?” Twenty-five percent of censused anglers specified crowding was an issue – this differs from a survey completed in 1995 wherein 14% of those surveyed felt crowding was an issue (FWP 2002; n=904). Other comments tended to be highly diverse and much lower in frequency, some comments and their percent frequencies include, concerns about the dam and top releases (epilimnetic) due to repairs (3.4%), Idaho guides and guides in general (2.5%) and use of boats in wade sections (2%).

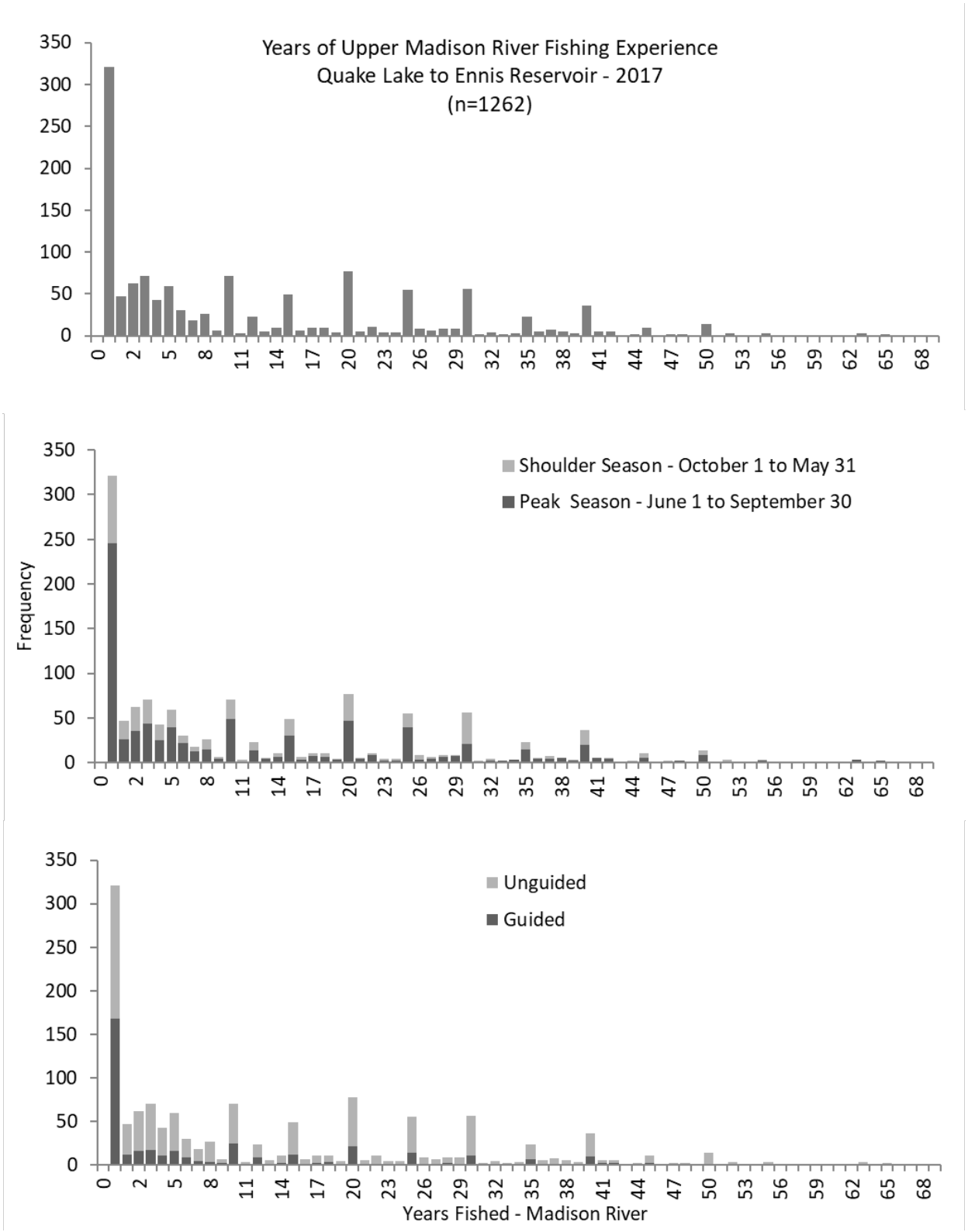


Figure 8. Relative frequency of anglers with varying years of experience fishing the upper Madison River (top chart). Relative frequency of varying years of experience fishing shoulder and peak seasons (middle chart). Relative frequency of anglers with varying years of experience and whether guided or unguided. First time anglers are indicated as fishing 0.5 years on all charts.

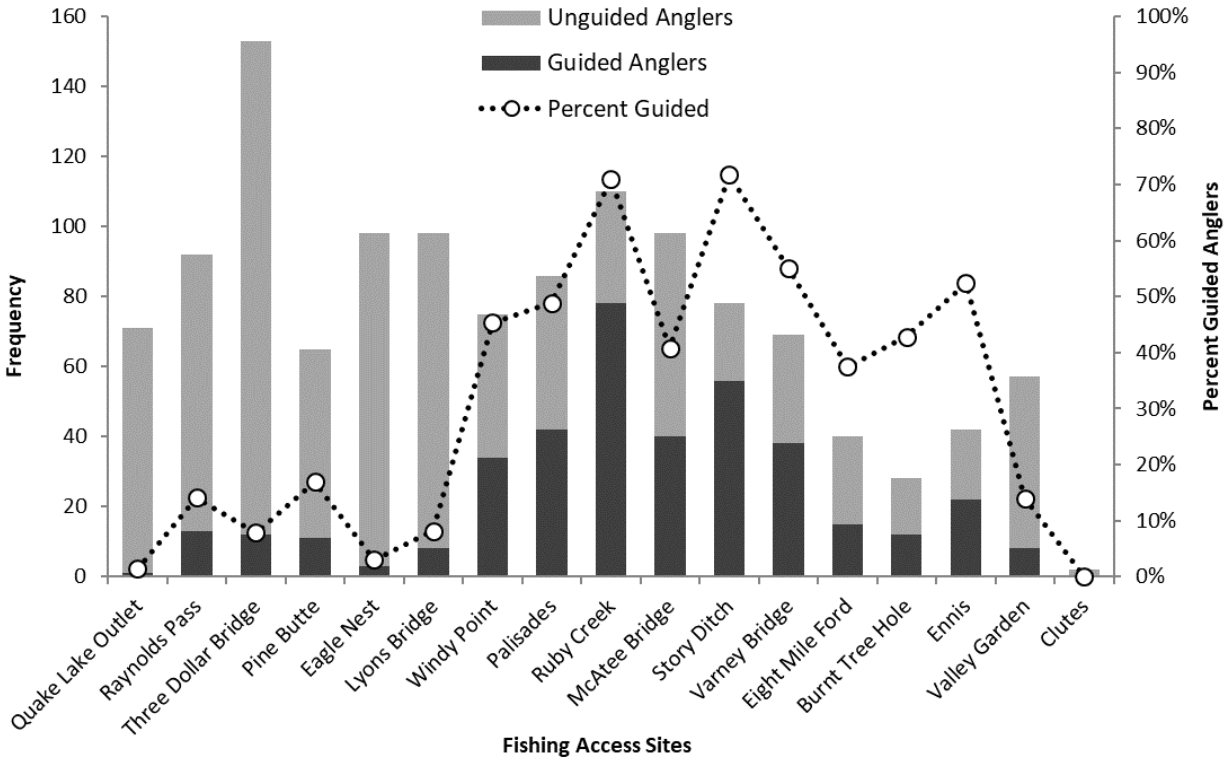


Figure 9. Relative frequency of interviews by river access point and whether guided or unguided – Hebgen Dam to Ennis Reservoir, 2017, (n=1262).

Creel Catch per Hour

Catch rates for the three species targeted on the upper Madison River were calculated for the upper Madison River between Quake Lake and Ennis Reservoir. Catch rate represents the average number of fish caught per hour (CPH). Overall in 2017, 0.62 Rainbow Trout, 0.38 Brown Trout, and 0.24 Whitefish were caught per hour (Figure 10; Table 5). CPH was also calculated for wade anglers, boat anglers, and guided vs. unguided (Figures 11 and 12; Table 5). Rainbow Trout catch rates peaked early and late in the fishing season at 1.3 Rainbow Trout per hour, March - April and November – December 2017; Figure 11. Catch rates during the peak season June – September were markedly lower at 0.52 Rainbow Trout caught per hour. Catch rates for Brown Trout were similar between all months censused (≈ 0.38 Brown Trout per hour). Brown Trout catch rates (0.64 per hour) peaked in November, likely because of spawning aggregations and targeting of spawning fish. Rainbow Trout catch per hour in spring and fall are likely the result of aggregation for spawning, targeting of spawning fish, and naïve spring fish. Catch rates for boat anglers were similar to wade anglers except for spring and fall where wade anglers appear to have an advantage in targeting early season Rainbow Trout (Figure 11 and Figure 12; Table 5). Increased catch rates during spring could be attributed to targeting of spawners, naivety of overwintered fish, or heavily feeding fish. Similar increases in catch rates of Rainbow Trout during fall is most likely due to a release from summer fishing pressure and the necessity of storing energy for overwinter survival. Catch rates were calculated for guided vs unguided anglers. Guided anglers, on average caught 8% more

Rainbow Trout, 9% more Brown Trout, and 13% more Whitefish than unguided anglers (Table 5). Catch rates calculated for the Pine Butte reach (≈ 4 miles; Pine Butte to Lyons Bridge) for 1977, 1985, 1995, and 2017 are displayed in Table 6 and Figure 13. Catch rates for Rainbow Trout in 2017 were similar to 1977 and 1981. In 1995, a significant decrease in catch rates for Rainbow Trout occurred due to whirling disease mortality. Brown Trout catch rates show an incremental increase from 1977 to 2017, 0.11 to 0.38 per hour, respectively (Table 6, Figure 13).

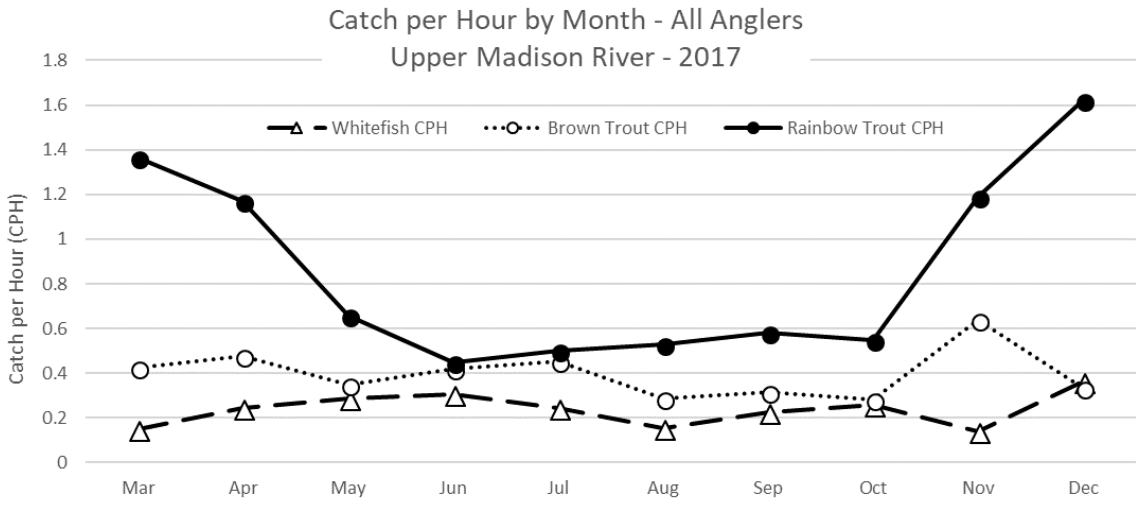


Figure 10. Catch per hour of Rainbow Trout, Brown Trout, and Whitefish by Month, all anglers, Quake Lake to Ennis Reservoir.

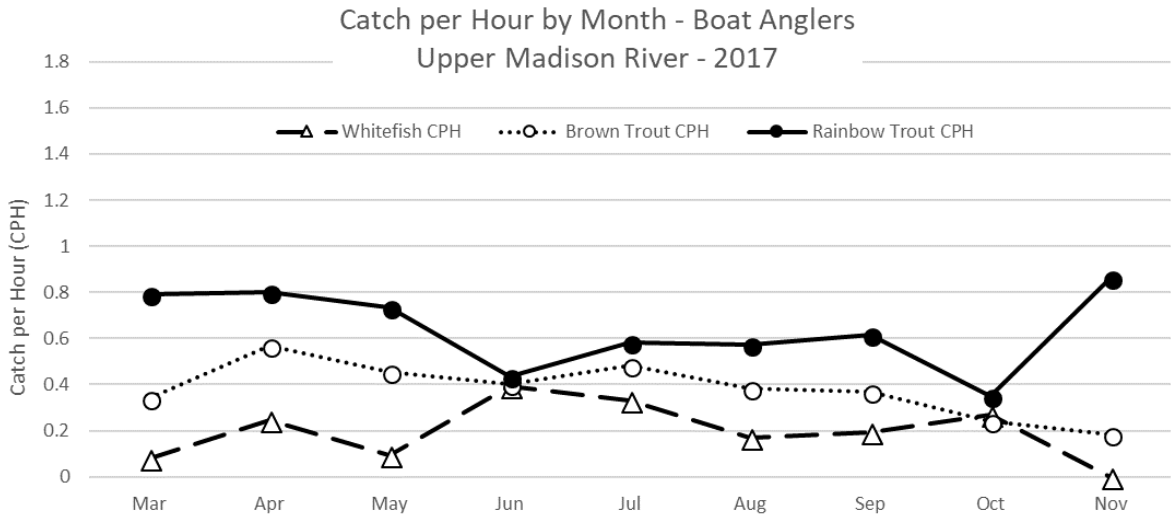


Figure 11. Catch per hour of Rainbow Trout, Brown Trout, and Whitefish by Month, boat anglers, Pine Butte to Ennis Reservoir.

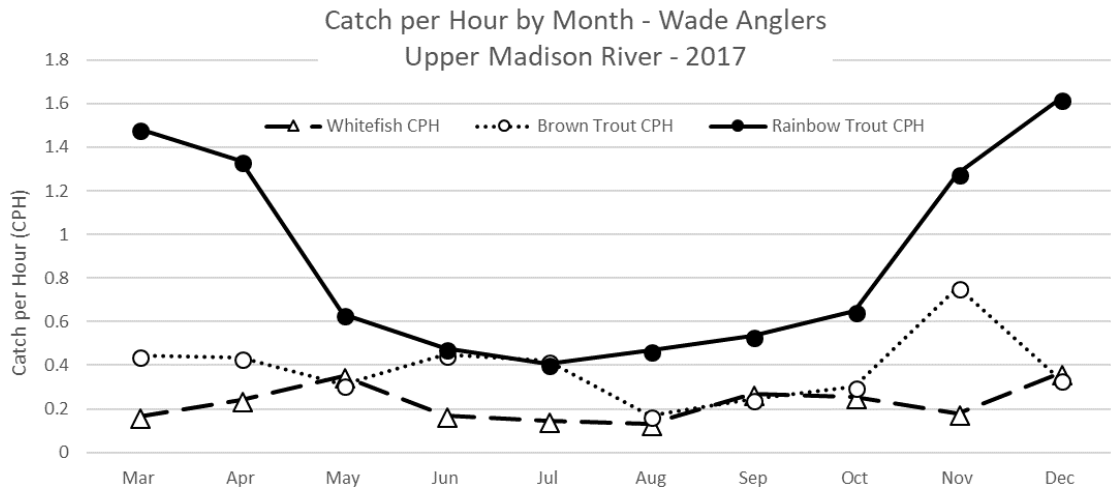


Figure 12. Catch per hour of Rainbow Trout, Brown Trout, and Whitefish by Month, wade anglers, Quake Lake to Ennis Reservoir.

Table 5. Catch per hour (CPH) of Rainbow Trout, Brown Trout and Whitefish, upper Madison River, Quake Lake to Valley Garden. Catch per Hour by demographic – boat, wade, guide, unguided.

Month	Rainbow Trout CPH	Brown Trout CPH	Whitefish CPH
Mar	1.37	0.43	0.15
Apr	1.17	0.48	0.24
May	0.66	0.35	0.29
Jun	0.45	0.42	0.31
Jul	0.50	0.45	0.24
Aug	0.53	0.29	0.15
Sep	0.58	0.31	0.23
Oct	0.55	0.28	0.26
Nov	1.19	0.64	0.14
Dec	1.62	0.33	0.36
Grand Total	0.64	0.38	0.24

Demographic	Rainbow Trout CPH	Brown Trout CPH	Whitefish CPH
All	0.64	0.38	0.24
Boat	0.57	0.41	0.26
Wade	0.70	0.35	0.22
Guided	0.70	0.44	0.33
Unguided	0.62	0.35	0.20

Table 6. Catch per hour by species and year Pine Butte (Pine Butte to Lyons Bridge, ≈4 miles).

Year	Rainbow Trout CPH	Brown Trout CPH	Whitefish CPH
1977	0.58	0.11	0.19
1981	0.63	0.23	
1995	0.18	0.33	0.24
2017	0.64	0.38	0.24

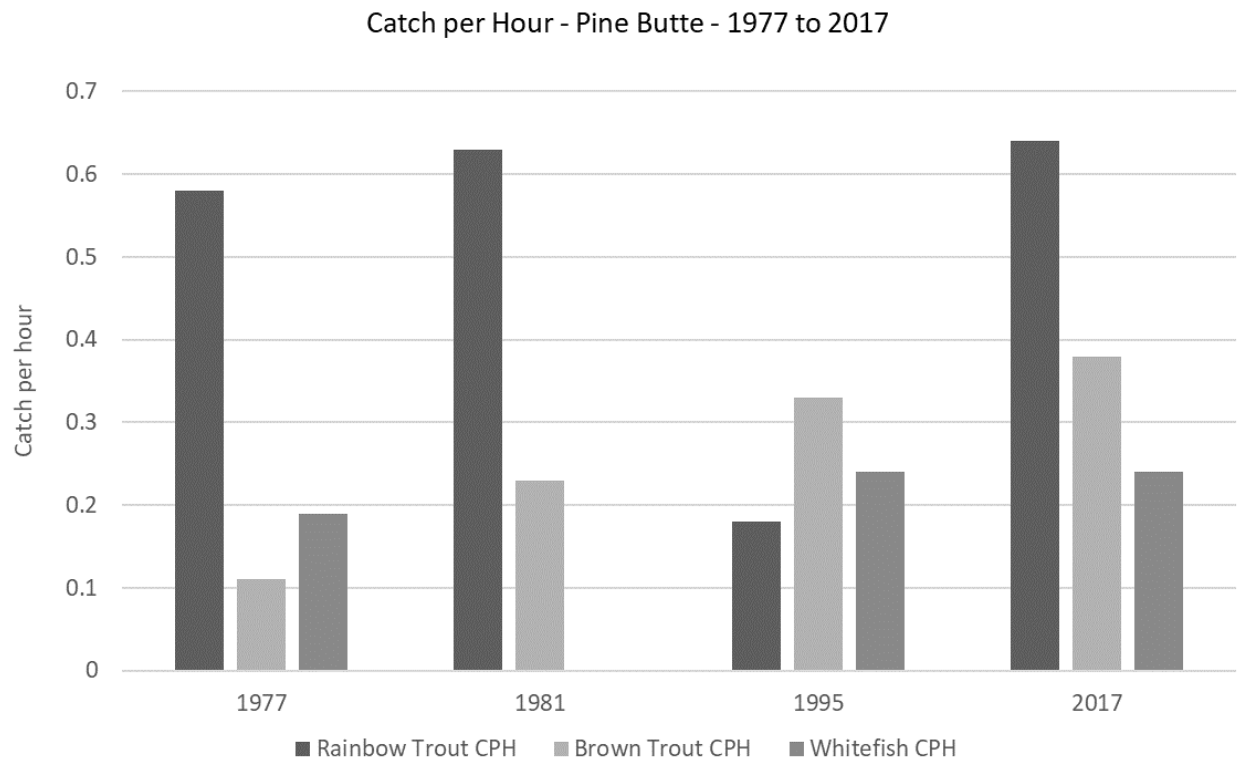


Figure 13. Catch per hour, 1977 to 2017, Pine Butte reach (4 miles). Whirling disease and its effects are represented in 1995 CPH data.

Catch and Release Mortality

The upper Madison River between Quake Lake and Ennis Reservoir sees very little harvest since "catch-and release" angling became the cultural norm (Stroud 1964). Catch and release mortality has been investigated by several authors (Taylor and White 1992; Brobbel et al. 1996; Boyd et al. 2010). In the absence of harvest by anglers, the high natural mortality rates (Pauly 1980) and among population variation in mortality (Lobón-Jerviá 2012) that most trout populations experience would normally far exceed any mortality associated with catch-and-release angling. Other than time of play, handling time, and exposure to air; water temperature

is widely accepted as being the most important factor in determining post release mortality of trout (Roth et al. 2018; Taylor and White 1992; Twardek et al. 2018)). Increased temperatures during summer and predicted climate change induced increases in seasonal maxima and period of warmth are of concern to fisheries managers in large western-montane trout fisheries (Wenger et al. 2011). The study by Boyd et al. (2010) is the most applicable to the upper Madison River. Boyd stratified angling mortality by three temperature regimes, cold, warm, and hot. Table 7 presents basic temperature regimes of the two study streams, the Smith and Gallatin rivers, monitored for catch and release fly-fishing mortality. Daily maximum water temperatures in the three treatments approximated <68 F in the cool treatment, 68–73.2 F in the warm treatment, and ≥ 73.2 F in the hot treatment. Post catch mortality of Rainbow trout, Brown Trout, and Whitefish were positively correlated with increased temperatures. In the Gallatin River and Smith River, Rainbow Trout post catch mortality was similar at 8% in the warm treatment for both rivers. The hot treatment revealed a 16% post catch mortality in the Gallatin River and 9% in the Smith River for Rainbow Trout, with Whitefish mortality at its highest at 28% in the Smith River. Trout and Whitefish in the Cold treatment showed no mortality in either study. Table 7 displays mean, minimum, and maximum temperatures for three sites on the upper Madison River - McAtee Bridge, Ennis Bridge, and near the outlet to Ennis Reservoir. Temperatures at all three sites roughly approximate temperatures in the warm treatment of the Boyd et al. (2010) study. Mortality in Boyd's study was much lower than previously reported in the literature (<30%) – possibly an artifact of cooler water temperatures between peaks, a period of metabolic recovery. We anticipate mortality during warm periods are roughly similar to the 2010 study, thus mortality rates were calculated at 8% for Rainbow Trout, 2% for Brown Trout, and 28% for Whitefish over the approximate peak period from June 1 to September 1 (4 months). The total number of a species caught was the product of: the average number of hours fished per day (5.43 hrs) x the average catch rate for each species; (RBT=0.64, BT=0.38, WF=0.24) x the estimated number of angler days (110,842) for the period June 1 to September 1, 2017. Peak season angler days (110,842) assumes an 18% increase in summer use from 2015 to 2017 minus an estimated 20% for the months of May and September. Mortality was calculated as the total number of a species caught x an estimated average mortality rate of Rainbow Trout, Brown Trout, and Whitefish, 8%, 2%, and 28%, respectively. These mortality rates are an approximation and minimum temperatures for upper Madison River sites was consistently lower than minimums in Boyd's study – providing additional metabolic recovery; however, mortality from fish caught multiple times or other cumulative and acute stressors such as poor handling and play times, disease load, and displacement from optimal feeding lanes, etc. are likely additional stressors over those encountered in Boyd's work.

Total catch and release mortality for Rainbow Trout is the average angler day (5.6 hrs) during the summer period x a CPH of 0.64 for Rainbow Trout = 3.6 Rainbow Trout caught per day. The product of 3.6 Rainbow Trout per day x 110,842 angler days is approximately 400,000 fish. Assuming 8% mortality for Rainbow Trout, the total calculated catch and release mortality would be approximately 32,000 individuals during the peak season. Brown Trout mortality would be predictably less at 4,700, and Whitefish approximately 40,400 mortalities. Long-term data sets of Madison River fish populations (Pine Butte, Varney, Snoball) have shown consistent population numbers bounded by predictable interannual and decadal fluctuations,

save the early 1990's when whirling disease severely impacted Rainbow Trout and Whitefish numbers (Moser and Lohrenz 2017).

Table 7. Temperature regimes from catch and release study completed on the Gallatin and Smith rivers, 2010. Temperature statistics from the Madison River June 1 – September 1, 2015. *From, Boyd, J. W., Guy, C. S., Horton, T. B., & Leathe, S. A. (2010). Effects of Catch-and-Release Angling on Salmonids at Elevated Water Temperatures. North American Journal of Fisheries Management, 30(4), 898-907.*

		Water Temperature		
		Min	Mean	Max
Gallatin River	Cool	41.72	50.36	66.20
	Warm	55.40	65.12	73.04
	Hot	60.62	68.18	76.64
Smith River	Cool	42.62	49.82	58.28
	Warm	54.14	64.04	73.22
	Hot	55.76	68.36	80.42
McAtee Bridge		39.40	57.45	74.50
Ennis FAS		40.06	59.25	74.68
Madison River Outlet		57.24	68.74	81.91

*Temperatures for the Madison River were analyzed from June 1 to September 1, 2017, roughly the peak season for angling.

Hebgen Dam to Quake Lake Creel

The one mile (Hebgen-Mile) of the upper Madison River between Hebgen Dam and Quake Lake has historically been popular with wade anglers. This reach is rarely accessed by boat because of short float length, river hazards, and lack of put-in and take-out sites. This reach of river is under the standard regulation of five trout and twenty Whitefish per day. The average instantaneous number of anglers actively fishing during weekends and during the week was 28 and 24, respectively. The full angling period was assumed to be 11 hours per day from June 1 to September 15. This equates to approximately 1,177 hours of angling effort. The average length of time anglers reported fishing was 1.87 hours. From interviews, 268 hours were recorded as fished, with a total harvest of four Rainbow Trout. The product of harvested fish (4 Rainbow Trout) x total possible hours of fishing (1,177) / (268) = approximately 17 Rainbow Trout harvested during the peak fishing season. No other harvest was observed during peak and shoulder seasons. Catch rates estimated for the peak season were lower than the remainder of the upper Madison River at 0.41 Rainbow Trout, 0.22 Brown Trout, and 0.15 Whitefish per hour.

Discussion

Based on findings from these three complementary studies, statewide angling pressure surveys, and annual fish population monitoring we address the three questions initially posed:

1) What are the perceptions and satisfaction levels of anglers of varying experience (years fished) on the upper Madison River?

During summer months, and increasingly during shoulder seasons, acceptability of various measures of crowding, including people at access points and number of float anglers, was considered poor for those past and present upper Madison anglers censused by mail. In some categories “Very Unacceptable” and “Unacceptable” ratings were greater than 50% of responses (e.g. the acceptability of the number of float anglers from Lyons downstream). The magnitude of acceptability clearly shows that less experienced and first-time anglers’ expectations are lower than older, more experienced anglers. It is unknown whether new anglers of today, given a hypothetical scenario of zero increased use, would change their opinions on crowding with age or increased experience.

2) What are the perceptions, satisfaction, demographics, and catch statistics of anglers currently fishing the Madison River?

An on-the-ground angler satisfaction/creel survey provided data on the current angling population stratified across the bulk of the fishing season (13 March 2017 to 11 December 2017) and the full fishing day. For those that commented, crowding was frequently identified as a problem on the upper Madison River. Twenty-five percent of all those censused on the upper Madison River in 2017 were comprised of first-time anglers. It is unknown what percentage of these first-time anglers will return in future years. Clearly some percentage of this angling demographic will return given good catch rates and expectations relative to the current conditions and their river experience. Shoulder seasons and early morning and late evening anglers are still able to avoid issues with crowding. FWP anticipates that given predicted increases in the angling population, more and more individuals will choose to fish during spring, fall, morning, and evening. Much of the current use of the upper Madison River is from non-residents. Given the iconic qualities of the Madison River, consistent fishing quality, a rapidly increasing Gallatin County population, and an ever-expanding pool of potential recreationists, crowding will continue to be a problem, especially for those with an historical perspective of conditions on the Madison River.

3) In comparing an inclusive mail survey and stratified creel survey, are there trends in use that can guide management of the Madison River into the future?

The number of anglers dissatisfied with their overall fishing experience is clearly dependent on perception of overcrowding relative to past experiences (Figure 14). Moreover, the disparity between overall satisfaction gleaned from the 2016 mail survey and the 2017 creel survey indicates many long-time upper Madison River anglers have likely left the fishery and were not censused during the 2017 creel survey. If catch rates are good, and new anglers increase in number and decrease in experience, we see no reason crowding would reverse or correct. The economy of Montana is surely benefitting from the resilience of the upper Madison River; the question is then – at what point will angler pressure impact the health of trout and whitefish populations in the upper Madison River.

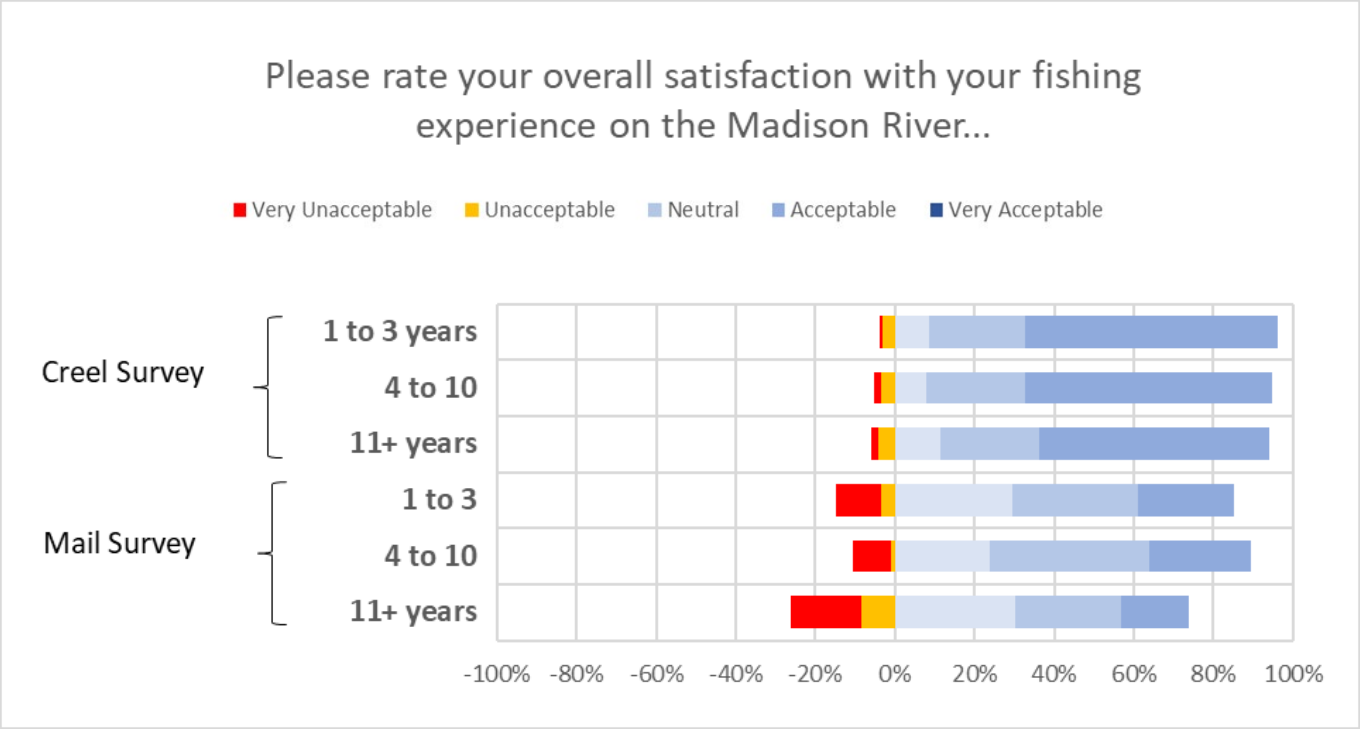


Figure 14. Overall satisfaction ratings by years of experience, 2016 mail survey and 2017 creel survey.

Catch rates are similar or slightly higher than historically reported. Trout population estimates have fluctuated consistently on an interannual and decadal basis between 2,000 and 3,500 Rainbow Trout > than 6 inches and between 1,700 and 3,000 Brown Trout > 6 inches per mile since the inception of population index sites (Pine Butte 1981; Varney 1967). From approximately 1991 to 1998 Rainbow Trout densities decreased to less than 1,000 per mile from mortalities associated with whirling disease *(Myxobolis cerebralis)*. Over-winter mortality and habitat compression from frazil and anchor ice may rise if the magnitude of gorging increases or decrease if gorging and winter temperature is attenuated. We also anticipate mortality rates from catch and release angling will increase along with the number of angling days and as summers become longer, drier, and hotter (Wegener et al. 2018). Selection pressures from decades of intense fishing and behavioral adjustments because of angling pressure may also increase natural mortality (Jorgensen and Holt 1980) The future impact of currently carried disease pathogens and novel pathogens placed on top of already stressed fisheries is currently unknown but of concern. Assuming 2,250 Rainbow Trout per mile along 54 miles of the upper Madison River, the total population of Rainbow Trout > than 6" in length would approximate 121,500 individuals. In 1976, a study (Vincent 1980) was conducted to evaluate harvest mortality, catch and release mortality, and natural mortality on two sections of the upper Madison River. This investigation was prompted by concerns over efficiency of float fishing and increasing angler numbers on the upper Madison River. One section of the river was closed to harvest (Pine Butte) and one section was closed entirely (Snoball) for several years. Recruitment rates for Rainbow Trout during the study period approximated 50%. Density independent mortality was estimated to be between 20 and 25%. The annual induced mortality; density dependent mortality with the addition of harvest and catch and release mortality, was predicted to effect size structures at between 25 and 30%. Based on Vincent's recommendations and assuming recruitment and density dependent and independent

variables are similar today, no more than approximately 30,000 rainbow trout should be harvested (including catch and release mortality). In this study, the annual estimated losses of Rainbow Trout approximated 32,000 individuals. The accuracy of these estimates can be debated; however, the potential for continued increases in anglers in concert with predicted environmental challenges is of great concern to FWP. Finally, it is generally unknown if harvest or hooking mortality results is compensatory (subtracts from natural mortality) or is additive to natural mortality. If the latter is true, one could anticipate an increase in hooking mortality eventually causing a decline in population abundance in the upper Madison river.

Acknowledgements

We would like to recognize Coltan Pipinich and Emily Whalen for their outstanding work accurately and professionally collecting data for the creel surveys.

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Appendix A: Mail-in Survey Form

2016 Survey of Anglers Concerning the Madison River

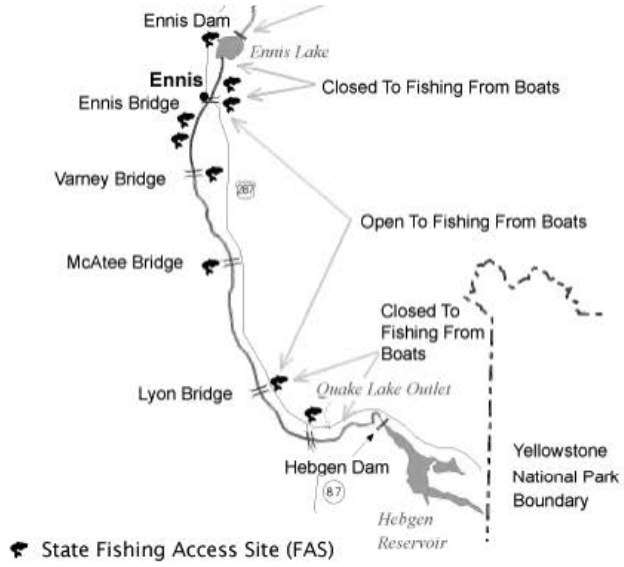
PLEASE FILL OUT THIS SURVEY EVEN IF YOU HAVE LITTLE OR NO EXPERIENCE FISHING THE MADISON RIVER

Montana Fish, Wildlife & Parks

Every year the Madison River is one of the top three most popular Blue Ribbon Fisheries in the State. Montana Fish, Wildlife & Parks, to provide for and maintain this quality fishery for the angling public, is collecting data to gain insight into current and future issues relevant to the angling public. Your help in providing answers to the following questions is vital to meeting current and future challenges.

The focus of this survey is on the stretch of the Madison River between Hebgen Dam and Three Forks, Montana. <u>Please think about this stretch of the river only when completing this survey.</u>

Map of the Upper Madison



1. Have you <u>ever</u> fished the stretch of the Madison River between Hebgen Dam and Three Forks, Montana? (**check only one**)

   [ ] NO.....**If no, please go to question 14**
   [ ] YES

2. In total, about how many **YEARS** have you fished the Madison River? _____ (years)

   Please circle all of the decades you fished the Upper Madison River.... 1970's 1980's 1990's 2000's 2010's

   Please rate the quality of the fishing (overall number or size of trout caught by decade) 1 Poor – 5 Excellent

1970's	1980's	1990's	2000's	2010's
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

   [ ] I currently fish similar reaches / time of day/ and season.... **If checked, please go to question 8**
   [ ] At a point in time I changed reaches / time of day /season that I fish....**If checked, please go to question 4**
   [ ] I quit fishing the Upper Madison River

3. What was your <u>PRIMARY REASON</u> for NOT fishing the Upper Madison River

   _____

(List your **PRIMARY REASON ONLY**….and please print legibly)

Check all boxes that apply

[ ] I fish early and late season
[ ] I fish very early or very late in the day
[ ] I fish wade only sections (accessed by boat)
[ ] I fish wade only sections (walk in)
[ ] I fish sections of river that see less pressure during July and August
[ ] I fish sections of river that see less pressure during July and August

4. In your opinion, how acceptable or unacceptable are the following conditions on the part of the Madison River between Hebgen Dam and Ennis Lake, Montana where you've spent the most time fishing in the past? **Circle only one number for each condition or check the "I don't know" box if you don't know.**

How acceptable or unacceptable is:	Very Unacceptable	Unacceptable	Neither	Acceptable	Very Acceptable	I Don't Know
The overall quality of the fishing experience	**1**	**2**	**3**	**4**	**5**	**[ ]**
The number of fish caught	**1**	**2**	**3**	**4**	**5**	**[ ]**
The size of fish caught	**1**	**2**	**3**	**4**	**5**	**[ ]**
The number of people float fishing	1	2	3	4	5	[ ]
The number of people float fishing in wade sections	1	2	3	4	5	[ ]
The number of people bank/wade fishing	1	2	3	4	5	[ ]

5. Please indicate how important each of the following would be to YOU in determining whether or not you are likely to fish the Madison River in the future? **Circle only one number for each item below.**

How important would the following be to you:	Very Unimportant	Unimportant	Neither	Important	Very Important
A Opportunity to see relatively few other people fishing the river	1	2	3	4	5
B Opportunity to see relatively few other people **float fishing** the river	1	2	3	4	5
C Opportunity to see relatively few other people **bank/wade fishing** the river	1	2	3	4	5
D Opportunity to see relatively few other people in general	1	2	3	4	5
E Opportunity to catch lots of fish	1	2	3	4	5
F Opportunity to catch some big fish	1	2	3	4	5
G Having enough time to go fishing	1	2	3	4	5
H Not having to travel too far from home to get to the river	1	2	3	4	5

I	Opportunity to see beautiful scenery	1	2	3	4	5

6. From the list above (A-I) in question 14, what would be the FIRST MOST IMPORTANT FACTOR in determining whether or not you are likely to fish the Madison River in the future? **(circle only one letter below)**

A **B** **C** **D** **E** **F** **G** **H** **I**

J …some other factor: _____
(please specify)

7. What is your current home zipcode? _____ (zipcode)

8. You are welcome to offer any additional comments regarding the Upper Madison River below.

(please print legibly)

THANK YOU FOR YOUR HELP!

Please return this questionnaire using the enclosed postage paid envelope.

Appendix B: Creel Survey Interview Form

Interview #: _____

Date: ____ / ____ / ____ **Time of Interview (military):** ____:____

Area Fished: Section: 1 2 3 4 5 6

	Launch Point	Takeout Point
Reynolds →		
3 Dollar		
Pine Butte		
Lyons		
Windy Point		
Palisades		
Ruby		
McAtee		
Storey Ditch		
Varney		
Eight Mile		
Burnt Tree		
Ennis		
Valley		
Clutes		

Type of Fishing: 1 – Boat 2 – Wade (wade fishing from boat? y/n)

Time Started Fishing (military): ____:____

Time Fishing Ended (military): ____:____ **or; still fishing** _____

Hours Fished: _____.____

Number in Fishing Party: _____

Guided Trip: 1 – Yes 2 – No

Angler Origin: MT County____ Non Res. State____ Foreign (i.e. Cuba) _____

How long have fished the Madison River? _____

How many fish and what kind did you land?

	#	Size (in.)
Rainbow Trout		
Brown Trout		
Whitefish		

Please rate your satisfaction with the number of fish you caught today (circle one): **1 2 3 4 5**
Very satisfied Very unsatisfied

Please rate your satisfaction with the size of fish you caught today (circle one): **1 2 3 4 5**
Very satisfied Very unsatisfied

Please rate your overall satisfaction with your fishing experience on the Madison River: **1 2 3 4 5**
Very satisfied Very unsatisfied

What factors most determined your satisfaction with your fishing experience? (answer should be unaided-)

- Caught a lot of fish
- Did not catch any fish
- Did not catch many fish
- Too many people/boats
- Scenic values
- Fishing partners/company
- Don't know/won't say
- Other (please specify)

Of these statements which comes closest to your personal view?

- I choose my fishing location/hour to catch the most fish
- I choose my fishing location/hour to catch one or two large fish
- I choose my fishing location/hour based on angler use (popularity)
- I choose my fishing location/hour based on scenic values
- All (do not read)
- None
- Other reasons (clarification/explanation)
- Don't know/won't say

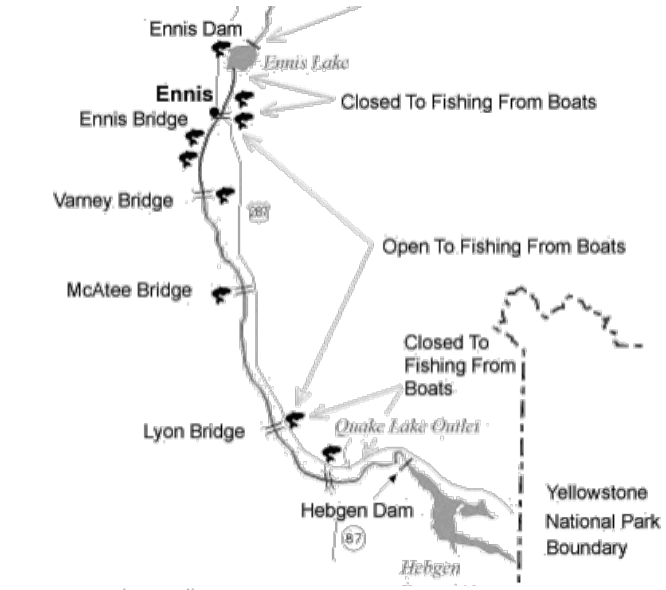
How does the fishing now compare with when you first fished the Madison? (circle one): **1 2 3 4 5**
Better Worse

What do you think are the major problems (if any) with fishing on the Upper Madison River?

RESULTS…ALL RESPONDENTS (N=2921)

The Madison River is one of the three most popular blue ribbon fisheries in the state of Montana. With its beautiful scenery and excellent fishing, a visit to the Madison River is a top priority for many anglers on a Montana fishing trip.

The focus of this 2016 survey is on the Upper Madison River between Hebgen Dam and Ennis Lake.



Upper Madison River

1. Have you <u>ever</u> fished the Upper Madison River between Hebgen Dam and Ennis Lake?

   27.2% NO..... **If no, please GO TO QUESTION 9**
   72.8% YES

2. On a scale from 1 (poor) to 5 (excellent), how would you rate the overall numbers and size of trout you've caught on the Upper Madison River in the past? **Circle only one number for each time period below or check the "N/A" box if you did not fish during a specified time period.**

	(1) Poor				(5) Excellent
The <u>overall numbers</u> of trout caught:					
In the 1970's	0.5%	3.7%	14.6%	32.9%	48.3%
In the 1980's	0.9%	3.7%	17.6%	41.1%	36.8%
In the 1990's	0.7%	5.5%	30.0%	43.5%	20.2%
In the 2000's	1.8%	8.2%	35.2%	40.0%	14.8%
In the 2010's	6.4%	13.1%	33.6%	32.3%	14.6%
The <u>size</u> of trout caught:					
In the 1970's	0.2%	2.9%	19.1%	36.8%	41.1%
In the 1980's	0.6%	3.2%	21.8%	40.9%	33.4%
In the 1990's	0.8%	5.5%	30.2%	43.7%	19.8%

In the 2000's	1.7%	9.2%	35.4%	39.6%	14.1%
In the 2010's	5.3%	12.5%	35.7%	32.1%	14.4%

3. Has your fishing use of the Upper Madison River changed any at all over time?

41.5% NO..... **If no, please GO TO QUESTION 5**
58.5% YES

4. This question has <u>two</u> parts:

   a. If your fishing use of the Upper Madison River has changed, in **WHAT WAYS** has it changed over time? (**check all that apply**)

   60.4% I now fish the Upper Madison River less frequently
   35.3% I now fish the Upper Madison River earlier and/or later in the season
   15.3% I now fish the Upper Madison River earlier and/or later in the day
   29.6% I now fish different stretches of the Upper Madison River

   7.5% Other

   b. What is the **NUMBER ONE REASON** why your use of the Upper Madison River has changed over time? (**check only one**)

   14.2% To increase the number and/or size of fish I catch
   62.1% To seek times/places where there are fewer other anglers and/or people using the river

   22.7% Other reason

For questions 5 and 6, please think about the stretch of the Upper Madison River where you MOST OFTEN fish now.

5. This question has <u>three</u> parts:

   a. What stretch of the Upper Madison River do you MOST OFTEN fish now? If needed, please refer to the map located at the beginning of this survey. (**check only one**)

   48.9% Hebgen Dam to Lyon Bridge
   51.1% Lyon Bridge to Ennis Lake

   b. What time of year do you MOST OFTEN fish the stretch of the river from... ? (**check only one**)

   Hebgen Dam to Lyon Bridge:

   22.4% Spring (March 1 – June 14)
   58.9% Summer (June 15 – September 30)
   18.8% Fall/Winter (October 1 – February 28)

   Lyon Bridge to Ennis Dam:

20.9% Spring (March 1 – June 14)
68.0% Summer (June 15 – September 30)
11.1% Fall/Winter (October 1 – February 28)

c. On a scale from 1 (never) to 5 (always), how often do you participate in the following fishing activities on the stretch of the river from... ? (**circle only one number for each fishing activity listed below**)

Hebgen Dam to Lyon Bridge:

	(1) Never				(5) Always
Bank/wade fishing (parking and walking in to fish)	4.7%	5.4%	8.9%	21.7%	59.3%
Bank/wade fishing (using a boat to access the river)	55.3%	18.9%	13.2%	8.5%	4.2%

Lyon Bridge to Ennis Dam:

	(1) Never				(5) Always
Bank/wade fishing (parking and walking in to fish)	18.1%	21.9%	19.4%	16.8%	23.8%
Fishing from a boat (e.g., float fishing)	15.9%	12.8%	14.9%	28.1%	28.2%
Bank/wade fishing (using a boat to access the river)	37.6%	17.1%	18.5%	16.4%	10.5%

6. On a scale from 1 (very unacceptable) to 5 (very acceptable), how would you rate the acceptability of the following conditions on the stretch of the river from... ? **Circle only one number for each condition below.**

Hebgen Dam to Lyon Bridge:

How acceptable or unacceptable is:	(1) Very Unacceptable				(5) Very Acceptable
The quality of the fishing experience…					
During the spring (March 1 – June 14)	1.2%	6.4%	23.0%	37.1%	32.3%
During the summer (June 15 – September 30)	6.1%	14.9%	28.6%	30.2%	20.2%
During the fall/winter (October 1 – February 28)	0.2%	6.3%	20.9%	44.3%	28.3%
The number of people (and their vehicles) at river access points…					
During the spring (March 1 – June 14)	3.5%	12.5%	30.8%	31.8%	21.4%
During the summer (June 15 – September 30)	16.6%	27.9%	29.6%	17.9%	7.9%

During the fall/winter (October 1 – February 28)	2.1%	7.2%	25.2%	43.9%	21.5%
The number of people BANK/WADE FISHING the river …					
During the spring (March 1 – June 14)	3.0%	8.9%	29.8%	32.7%	25.6%
During the summer (June 15 – September 30)	8.5%	21.9%	34.4%	22.5%	12.7%
During the fall/winter (October 1 – February 28)	1.5%	6.5%	26.8%	39.7%	25.5%

Hebgen Dam to Lyon Bridge (continued):

How acceptable or unacceptable is:	(1) Very Unacceptable				(5) Very Acceptable
The number of people floating the river for recreational purposes other than fishing…					
During the spring (March 1 – June 14)	4.0%	5.0%	20.6%	25.1%	45.3%
During the summer (June 15 – September 30)	9.8%	13.0%	24.7%	22.8%	29.8%
During the fall/winter (October 1 – February 28)	3.9%	4.2%	14.8%	28.4%	48.7%
The number of people using boats to access the river to bank/wade fish in sections of the river that are closed to fishing from boats					
During the spring (March 1 – June 14)	12.9%	9.1%	26.1%	25.1%	26.6%
During the summer (June 15 – September 30)	17.5%	14.4%	27.8%	22.5%	17.8%
During the fall/winter (October 1 – February 28)	12.5%	8.7%	23.9%	27.2%	27.7%

Lyon Bridge to Ennis Dam:

How acceptable or unacceptable is:	(1) Very Unacceptable				(5) Very Acceptable
The quality of the fishing experience…					

During the spring (March 1 – June 14)	0.8%	4.4%	24.3%	40.8%	29.6%
During the summer (June 15 – September 30)	5.4%	15.3%	30.6%	32.5%	16.2%
During the fall/winter (October 1 – February 28)	0.9%	4.6%	21.7%	43.0%	29.7%
The number of people (and their vehicles) at river access points…					
During the spring (March 1 – June 14)	3.4%	11.1%	31.2%	33.8%	20.5%
During the summer (June 15 – September 30)	15.4%	26.7%	31.4%	18.9%	7.5%
During the fall/winter (October 1 – February 28)	1.4%	7.1%	26.9%	35.6%	29.0%
The number of people FLOAT FISHING the the river…					
During the spring (March 1 – June 14)	3.5%	12.1%	29.2%	31.9%	23.3%
During the summer (June 15 – September 30)	16.9%	24.3%	29.2%	20.4%	9.1%
During the fall/winter (October 1 – February 28)	3.3%	7.5%	25.1%	31.7%	32.4%

Lyon Bridge to Ennis Dam (continued):

How acceptable or unacceptable is:	(1) Very Unacceptable				(5) Very Acceptable
The number of people BANK/WADE FISHING the river …					
During the spring (March 1 – June 14)	1.3%	6.3%	23.1%	38.1%	31.2%
During the summer (June 15 – September 30)	4.2%	13.3%	28.1%	30.7%	23.6%
During the fall/winter (October 1 – February 28)	1.2%	5.4%	21.5%	36.1%	35.8%
The number of people floating the river for recreational purposes other than fishing…					
During the spring (March 1 – June 14)	4.4%	4.7%	15.4%	25.0%	50.5%
During the summer (June 15 – September 30)	6.9%	12.9%	21.5%	26.7%	31.9%
During the fall/winter (October 1 – February 28)	5.1%	3.3%	12.9%	26.1%	52.5%
The number of people using boats to access the river to bank/wade fish in sections of the river that are closed to fishing from boats					

During the spring (March 1 – June 14)	4.6%	5.8%	27.4%	30.8%	31.4%
During the summer (June 15 – September 30)	8.0%	12.5%	29.7%	25.5%	24.3%
During the fall/winter (October 1 – February 28)	4.8%	4.2%	24.2%	27.9%	38.8%

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7. In total, about how many YEARS have you fished the Upper Madison River?

   Mean 17.9 years
   Median 15.0 years

8. When was the <u>first time</u> you fished the Upper Madison River?

   11.5% Within the last 3 years 88.5% More than 3 years ago

9. On a scale from 1 (very unimportant) to 5 (very important), please indicate how important each of the following would be to you in determining whether or not you are likely to fish the Upper Madison River in the future? **Circle only one number for each item below.**

How important would the following be to you:	**(1) Very Unimportant**				**(5) Very Important**
A Opportunity to see relatively few other people fishing the river	7.2%	9.6%	34.0%	28.9%	20.3%
B Opportunity to see relatively few other people FLOAT FISHING the river	8.4%	11.6%	32.0%	27.4%	20.6%
C Opportunity to see relatively few other people BANK/ WADE FISHING the river	11.5%	16.9%	37.0%	21.8%	12.7%
D Opportunity to see relatively few other people in general	8.8%	12.9%	33.7%	27.1%	17.5%
E Opportunity to catch lots of fish	4.1%	7.8%	30.1%	30.4%	27.6%
F Opportunity to catch some big fish	3.2%	5.3%	21.1%	36.1%	34.3%
G Having enough time to go fishing	7.2%	4.7%	14.8%	26.5%	46.7%
H Not having to travel too far from home to get to the river	19.7%	15.4%	25.9%	20.1%	18.9%
I Opportunity to see beautiful scenery	3.4%	2.4%	10.0%	27.8%	56.4%

10. From the list above (**A- I**) in question 8, what would be the MOST IMPORTANT FACTOR in determining whether or not you are likely to fish the Upper Madison River in the future? (**circle only one letter below**)

A	B	C	D	E	F	G	H	I
8.5%	7.8%	2.5%	7.0%	19.7%	19.8%	11.7%	4.6%	12.2%

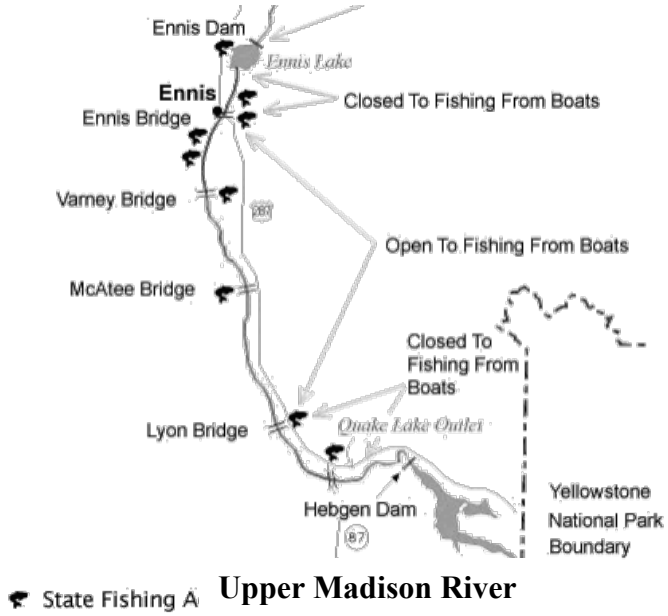
6.3% J ...some other factor

11. What is your current home zipcode? Residents 46.4% Nonresidents 53.6%

RESULTS...RESIDENT Respondents (N=1,335) compared to NONRESIDENT Respondents (N=1545)

The Madison River is one of the three most popular blue ribbon fisheries in the state of Montana. With its beautiful scenery and excellent fishing, a visit to the Madison River is a top priority for many anglers on a Montana fishing trip.

The focus of this 2016 survey is on the Upper Madison River between Hebgen Dam and Ennis Lake.



1. Have you <u>ever</u> fished the Upper Madison River between Hebgen Dam and Ennis Lake?

32.6%	21.9%	NO.....	**If no, please GO TO QUESTION 9**
67.4%	78.1%	YES	

2. On a scale from 1 (poor) to 5 (excellent), how would you rate the overall numbers and size of trout you've caught on the Upper Madison River in the past? **Circle only one number for each time period below or check the "N/A" box if you did not fish during a specified time period.**

	(1) Poor				(5) Excellent
The <u>overall numbers</u> of trout caught:					
In the 1970's.....	0.4%	3.5%	14.5%	38.2%	43.4%
	0.6%	3.9%	15.2%	26.4%	53.9%
In the 1980's.....	0.6%	4.9%	17.9%	41.9%	34.7%
	1.2%	2.1%	17.5%	40.2%	39.0%
In the 1990's.....	0.6%	7.2%	31.5%	42.9%	17.8%
	0.9%	4.1%	28.6%	44.1%	22.3%
In the 2000's.....	1.7%	9.7%	38.9%	39.0%	10.7%
	2.0%	7.1%	32.3%	40.6%	18.1%
In the 2010's.....	7.5%	12.7%	36.6%	32.9%	10.4%
	5.5%	13.5%	31.6%	31.9%	17.5%

2. (continued)

The size of trout caught:

In the 1970's	0.4%	2.6%	19.9%	36.4%	40.7%
	0.0%	3.3%	18.5%	37.0%	41.3%
In the 1980's	0.6%	2.9%	23.5%	41.8%	31.2%
	0.6%	3.7%	20.2%	39.6%	35.9%
In the 1990's	0.6%	6.6%	32.1%	42.5%	18.2%
	0.9%	4.5%	28.5%	44.9%	21.3%
In the 2000's	1.6%	10.6%	40.1%	35.6%	12.1%
	1.9%	8.0%	31.7%	42.6%	15.8%
In the 2010's	7.0%	14.0%	34.9%	32.9%	11.2%
	4.1%	11.6%	36.3%	31.4%	16.6%

3. Has your fishing use of the Upper Madison River changed any at all over time?

30.0% 50.0% NO..... **If no, please GO TO QUESTION 5**
70.0% 50.0% YES

4. This question has two parts:

   a. If your fishing use of the Upper Madison River has changed, in **WHAT WAYS** has it changed over time? (**check all that apply**)

   67.4% 53.3% I now fish the Upper Madison River less frequently
   38.6% 32.0% I now fish the Upper Madison River earlier and/or later in the season
   15.2% 15.4% I now fish the Upper Madison River earlier and/or later in the day
   26.3% 33.3% I now fish different stretches of the Upper Madison River

   8.3% 6.5% Other ways

   b. What is the **NUMBER ONE REASON** why your use of the Upper Madison River has changed over time? (**check only one**)

   8.5% 20.2% To increase the number and/or size of fish I catch
   68.9% 55.0% To seek times/places where there are fewer other anglers and/or people using the river

   22.6% 24.8% Other reasons (primarily... busy, lack of time, family obligations, getting older, moved away, distance to travel there)

For questions 5 and 6, please think about the stretch of the Upper Madison River where you MOST OFTEN fish now.

5. This question has three parts:

a. What stretch of the Upper Madison River do you MOST OFTEN fish now? If needed, please refer to the map located at the beginning of this survey. (**check only one**)

42.1% 53.7% Hebgen Dam to Lyon Bridge
57.9% 46.3% Lyon Bridge to Ennis Lake

b. What time of year do you MOST OFTEN fish the stretch of the river from... ? (**check only one**)

Hebgen Dam to Lyon Bridge:

32.3% 16.8% Spring (March 1 – June 14)
48.0% 64.8% Summer (June 15 – September 30)
19.8% 18.4% Fall/Winter (October 1 – February 28)

Lyon Bridge to Ennis Dam:

30.3% 12.5% Spring (March 1 – June 14)
59.7% 75.4% Summer (June 15 – September 30)
10.1% 12.1% Fall/Winter (October 1 – February 28)

c. On a scale from 1 (never) to 5 (always), how often do you participate in the following fishing activities on the stretch of the river from... ? (**circle only one number for each fishing activity listed below**)

Hebgen Dam to Lyon Bridge:

	(1) Never				(5) Always
Bank/wade fishing (parking and walking in to fish)	4.2% 4.9%	6.0% 4.8%	11.0% 7.8%	24.2% 20.1%	54.6% 62.4%
Bank/wade fishing (using a boat to access the river)	53.9% 56.5%	20.7% 17.8%	12.5% 13.5%	10.9% 7.0%	2.0% 5.2%

Lyon Bridge to Ennis Dam:

	(1) Never				(5) Always
Bank/wade fishing (parking and walking in to fish)	17.0% 19.0%	22.2% 21.7%	23.8% 15.0%	17.2% 16.5%	19.7% 27.8%
Fishing from a boat (e.g., float fishing)	15.0% 16.9%	13.4% 12.3%	16.3% 13.8%	30.6% 25.4%	24.7% 31.7%
Bank/wade fishing (using a boat to access the river)	31.9% 43.3%	19.3% 14.6%	22.9% 14.4%	16.9% 15.7%	8.9% 12.1%

6. On a scale from 1 (very unacceptable) to 5 (very acceptable), how would you rate the acceptability of the following conditions on the stretch of the river from... ? **Circle only one number for each condition below.**

Hebgen Dam to Lyon Bridge:

(1) **(5)**

How acceptable or unacceptable is:	Very Unacceptable				Very Acceptable
The quality of the fishing experience…					
During the spring (March 1 – June 14)	1.7%	9.2%	22.3%	38.7%	28.2%
	0.8%	3.7%	24.1%	34.9%	36.5%
During the summer (June 15 – September 30)	12.7%	21.3%	27.7%	23.2%	15.0%
	2.5%	11.5%	28.9%	34.0%	23.2%
During the fall/winter (October 1 – February 28)	0.5%	8.8%	22.2%	44.2%	24.4%
	0.0%	4.2%	20.0%	44.6%	31.3%

Hebgen Dam to Lyon Bridge (continued):

How acceptable or unacceptable is:	(1) Very Unacceptable				(5) Very Acceptable
The number of people (and their vehicles) at river access points…					
During the spring (March 1 – June 14)	4.5%	16.5%	30.5%	32.1%	16.5%
	2.5%	8.8%	31.7%	31.3%	25.8%
During the summer (June 15 – September 30)	31.0%	28.8%	20.3%	12.5%	7.4%
	8.7%	27.3%	34.9%	20.9%	8.3%
During the fall/winter (October 1 – February 28)	3.6%	6.3%	25.9%	46.4%	17.9%
	0.8%	8.3%	24.8%	41.7%	24.4%
The number of people BANK/WADE FISHING the river …					
During the spring (March 1 – June 14)	5.2%	8.3%	32.1%	32.5%	21.8%
	0.8%	9.7%	27.8%	32.1%	29.5%
During the summer (June 15 – September 30)	15.6%	24.2%	33.5%	17.8%	8.9%
	4.6%	20.5%	35.0%	24.9%	14.9%
During the fall/winter (October 1 – February 28)	3.1%	5.7%	29.3%	35.8%	26.2%
	4.6%	20.5%	35.0%	24.9%	14.9%
The number of people floating the river for recreational purposes other than fishing…					
During the spring (March 1 – June 14)	4.3%	3.4%	21.6%	23.1%	47.6%
	3.7%	6.8%	19.4%	27.2%	42.9%
During the summer (June 15 – September 30)	12.8%	10.7%	27.7%	21.5%	27.3%
	7.7%	14.6%	22.8%	23.5%	31.5%
During the fall/winter (October 1 – February 28)	3.5%	3.0%	16.2%	25.3%	52.0%
	4.3%	5.4%	13.6%	31.5%	45.1%

The number of people using boats to access the river to bank/wade fish in sections of the river that are closed to fishing from boats					
During the spring (March 1 – June 14)	15.9% 10.2%	9.7% 8.7%	27.7% 24.5%	23.1% 27.0%	23.6% 29.6%
During the summer (June 15 – September 30)	28.2% 11.6%	15.3% 14.1%	23.4% 30.0%	20.1% 23.5%	12.9% 20.8%
During the fall/winter (October 1 – February 28)	15.8% 11.6%	9.8% 14.1%	22.8% 30.0%	23.4% 23.5%	28.3% 20.8%

Lyon Bridge to Ennis Dam:

How acceptable or unacceptable is:	(1) Very Unacceptable				(5) Very Acceptable
The quality of the fishing experience…					
During the spring (March 1 – June 14)	0.3% 1.9%	4.8% 3.8%	23.3% 26.4%	43.5% 35.2%	28.1% 32.7%
During the summer (June 15 – September 30)	9.5% 1.6%	19.0% 11.9%	33.3% 27.9%	27.1% 37.5%	11.2% 21.1%
During the fall/winter (October 1 – February 28)	0.7% 1.3%	4.3% 5.1%	20.1% 24.8%	47.0% 35.7%	28.0% 33.1%
The number of people (and their vehicles) at river access points…					
During the spring (March 1 – June 14)	3.8% 2.6%	12.1% 8.5%	30.7% 32.0%	33.9% 34.0%	19.5% 22.9%
During the summer (June 15 – September 30)	23.2% 7.8%	31.3% 22.2%	25.8% 36.8%	14.9% 22.9%	4.7% 10.3%
During the fall/winter (October 1 – February 28)	1.4% 1.3%	6.1% 9.0%	27.2% 26.5%	37.6% 31.6%	27.6% 31.6%
The number of people FLOAT FISHING the the river…					
During the spring (March 1 – June 14)	4.3% 2.0%	12.2% 11.3%	29.7% 28.7%	31.0% 34.0%	22.8% 24.0%
During the summer (June 15 – September 30)	26.2% 8.3%	27.5% 21.4%	24.8% 33.3%	15.0% 25.5%	6.6% 11.5%
During the fall/winter (October 1 – February 28)	3.3% 3.3%	7.3% 7.9%	28.9% 18.4%	29.7% 35.5%	30.8% 34.9%
The number of people BANK/WADE FISHING the river …					
During the spring (March 1 – June 14)	1.3% 1.4%	7.3% 4.1%	25.2% 17.9%	35.8% 43.4%	30.4% 33.1%
During the summer (June 15 – September 30)	6.6% 1.9%	18.6% 8.0%	27.5% 28.5%	28.4% 33.1%	18.9% 28.5%
During the fall/winter (October 1 – February 28)	1.1% 1.3%	5.8% 4.7%	23.8% 16.8%	33.2% 41.6%	36.1% 35.6%

Lyon Bridge to Ennis Dam (continued):

How acceptable or unacceptable is:	(1) Very Unacceptable				(5) Very Acceptable
The number of people floating the river for recreational purposes other than fishing…					
During the spring (March 1 – June 14)	4.1% 5.2%	4.1% 6.0%	18.2% 9.0%	25.7% 23.9%	47.9% 56.0%
During the summer (June 15 – September 30)	9.9% 3.8%	13.3% 12.3%	21.4% 21.6%	25.5% 28.2%	29.9% 34.0%
During the fall/winter (October 1 – February 28)	4.2% 7.0%	3.0% 3.9%	14.8% 8.5%	26.5% 25.6%	51.5% 55.0%
The number of people using boats to access the river to bank/wade fish in sections of the river that are closed to fishing from boats					
During the spring (March 1 – June 14)	4.8% 4.3%	4.8% 8.5%	29.8% 21.3%	29.8% 33.0%	31.0% 33.0%
During the summer (June 15 – September 30)	9.8% 5.9%	14.1% 10.8%	34.1% 24.5%	20.3% 31.2%	21.6% 27.5%
During the fall/winter (October 1 – February 28)	4.5% 5.7%	2.7% 7.5%	27.8% 17.0%	27.8% 27.4%	37.2% 42.5%

7. In total, about how many YEARS have you fished the Upper Madison River?

Mean 21.0 15.7 years
Median 20.0 12.0 years

8. When was the first time you fished the Upper Madison River?

8.9% 13.4% Within the last 3 years 91.1% 86.6% More than 3 years ago

9. On a scale from 1 (very unimportant) to 5 (very important), please indicate how important each of the following would be to you in determining whether or not you are likely to fish the Upper Madison River in the future? **Circle only one number for each item below.**

How important would the following be to you:	**(1) Very Unimportant**				**(5) Very Important**
A Opportunity to see relatively few other people fishing the river	7.9%	9.4%	32.5%	26.4%	23.8%
	6.5%	9.9%	35.3%	31.2%	17.1%
B Opportunity to see relatively few other people FLOAT FISHING the river	9.2%	10.2%	29.7%	27.2%	23.7%
	7.7%	12.8%	34.0%	27.7%	17.8%
C Opportunity to see relatively few other people BANK/ WADE FISHING the river	12.6%	16.8%	37.2%	20.2%	13.2%
	10.4%	17.1%	37.0%	23.2%	12.3%
D Opportunity to see relatively few other people in general	9.5%	12.4%	31.9%	25.5%	20.7%
	8.0%	13.3%	35.2%	28.7%	14.8%
E Opportunity to catch lots of fish	5.3%	9.6%	34.6%	28.6%	21.8%
	3.0%	6.3%	26.2%	31.9%	32.6%
F Opportunity to catch some big fish	4.4%	7.0%	25.9%	34.4%	28.3%
	2.1%	3.8%	16.9%	37.5%	39.7%
G Having enough time to go fishing	8.3%	5.4%	15.2%	26.1%	45.1%
	6.2%	4.1%	14.4%	26.8%	48.5%
H Not having to travel too far from home to get to the river	11.6%	11.1%	28.3%	25.9%	23.2%
	26.8%	19.0%	23.8%	15.1%	15.3%
I Opportunity to see beautiful scenery	4.9%	3.6%	10.8%	27.8%	52.9%
	2.0%	1.5%	9.1%	27.8%	59.6%

10. From the list above (**A- I**) in question 8, what would be the MOST IMPORTANT FACTOR in determining whether or not you are likely to fish the Upper Madison River in the future? (**circle only one letter below**)

A	B	C	D	E	F	G	H	I
11.2%	11.2%	1.9%	10.6%	13.6%	13.9%	12.9%	6.5%	11.7%
6.0%	5.0%	3.1%	3.9%	25.0%	24.8%	10.8%	3.0%	12.3%

6.5% 6.1% J ...some other factor

RESULTS…ANGLERS WITH 1-3 YEARS EXPERIENCE (N=346) compared to ANGLERS WITH 4-10 YEARS EXPERIENCE (N=513) compared to ANGLERS WITH 11 OR MORE YEARS OF EXPERIENCE (N=1214) fishing the Upper Madison River

6. On a scale from 1 (very unacceptable) to 5 (very acceptable), how would you rate the acceptability of the following conditions on the stretch of the river from... ? **Circle only one number for each condition below.**

Hebgen Dam to Lyon Bridge:

How acceptable or unacceptable is:	(1) Very Unacceptable				(5) Very Acceptable
The quality of the fishing experience…					
During the spring (March 1 – June 14)	0.0%	3.0%	18.2%	45.4%	33.0%
	0.0%	6.5%	22.6%	35.5%	35.5%
	1.7%	6.9%	23.5%	37.2%	30.7%
During the summer (June 15 – September 30)	3.4%	11.4%	29.5%	31.8%	23.9%
	1.1%	9.4%	23.9%	40.0%	25.6%
	8.5%	17.6%	30.1%	26.6%	17.2%
During the fall/winter (October 1 – February 28)	0.0%	17.9%	21.4%	39.3%	21.4%
	0.0%	1.0%	16.5%	54.6%	27.8%
	0.3%	7.0%	22.0%	41.6%	29.1%
The number of people (and their vehicles) at river access points…					
During the spring (March 1 – June 14)	3.1%	9.4%	40.6%	25.0%	21.9%
	2.1%	10.5%	35.8%	35.8%	15.8%
	3.7%	13.1%	29.1%	32.2%	21.9%
During the summer (June 15 – September 30)	6.9%	21.8%	26.4%	35.6%	9.2%
	5.1%	22.5%	36.5%	25.8%	10.1%
	22.7%	30.8%	27.3%	12.2%	7.0%
During the fall/winter (October 1 – February 28)	0.0%	13.8%	20.7%	34.5%	31.0%
	1.0%	5.1%	21.2%	52.5%	20.2%
	2.7%	6.9%	27.0%	42.0%	21.3%
The number of people BANK/WADE FISHING the river …					
During the spring (March 1 – June 14)	3.3%	10.0%	43.3%	23.3%	20.0%
	2.1%	8.3%	32.3%	36.5%	20.8%
	3.4%	8.7%	28.1%	33.4%	26.4%
During the summer (June 15 – September 30)	7.0%	10.5%	30.2%	31.4%	20.9%
	3.4%	18.2%	39.8%	23.3%	15.3%
	10.4%	25.7%	32.8%	20.9%	10.2%
During the fall/winter (October 1 – February 28)	0.0%	10.3%	24.1%	37.9%	27.6%
	1.0%	2.0%	27.3%	50.5%	19.2%
	1.8%	7.1%	27.1%	36.6%	27.4%

Hebgen Dam to Lyon Bridge (continued):

How acceptable or unacceptable is:	(1) Very Unacceptable				(5) Very Acceptable
The number of people floating the river for recreational purposes other than fishing…					
During the spring (March 1 – June 14)	5.0%	10.0%	35.0%	20.0%	30.0%
	3.8%	0.0%	21.5%	25.3%	49.4%
	4.1%	5.5%	19.1%	25.9%	45.4%
During the summer (June 15 – September 30)	9.4%	9.4%	28.1%	18.8%	34.4%
	4.9%	14.7%	21.0%	27.3%	32.2%
	11.5%	13.0%	24.8%	22.1%	28.5%
During the fall/winter (October 1 – February 28)	8.7%	4.3%	21.7%	26.1%	39.1%
	5.1%	1.3%	16.7%	26.9%	50.0%
	3.3%	4.4%	13.5%	28.8%	50.0%
The number of people using boats to access the river to bank/wade fish in sections of the river that are closed to fishing from boats					
During the spring (March 1 – June 14)	0.0%	8.7%	30.4%	30.4%	30.4%
	1.4%	6.8%	28.8%	32.9%	30.1%
	17.3%	9.3%	24.6%	23.5%	25.3%
During the summer (June 15 – September 30)	3.9%	5.9%	29.4%	33.3%	27.5%
	6.1%	15.2%	30.3%	22.7%	25.8%
	23.0%	15.3%	26.3%	21.0%	14.3%
During the fall/winter (October 1 – February 28)	9.5%	14.3%	33.3%	14.3%	28.6%
	2.8%	5.6%	21.1%	38.0%	32.4%
	15.7%	8.2%	23.9%	25.0%	27.2%

6. On a scale from 1 (very unacceptable) to 5 (very acceptable), how would you rate the acceptability of the following conditions on the stretch of the river from... ? **Circle only one number for each condition below.**

Lyon Bridge to Ennis Dam: How acceptable or unacceptable is:	**(1) Very Unacceptable**				**(5) Very Acceptable**
The quality of the fishing experience…					
During the spring (March 1 – June 14)	2.4%	4.9%	22.0%	41.5%	29.3%
	1.0%	3.0%	21.8%	40.6%	33.7%
	0.6%	4.9%	25.6%	40.2%	28.7%
During the summer (June 15 – September 30)	4.6%	10.8%	28.5%	36.9%	19.2%
	3.8%	10.4%	27.5%	38.9%	19.4%
	6.2%	18.7%	31.9%	29.0%	14.2%
During the fall/winter (October 1 – February 28)	3.2%	9.7%	22.6%	32.3%	32.3%
	1.0%	3.1%	16.7%	53.1%	26.0%
	0.7%	4.6%	23.2%	40.5%	31.0%
The number of people (and their vehicles) at river access points…					
During the spring (March 1 – June 14)	0.0%	5.0%	35.0%	37.5%	22.5%
	3.0%	13.0%	26.0%	39.0%	19.0%
	4.0%	11.1%	31.6%	32.2%	21.1%
During the summer (June 15 – September 30)	2.3%	17.1%	39.5%	20.9%	20.2%
	9.6%	23.9%	36.8%	21.5%	8.1%
	20.9%	30.2%	27.3%	17.2%	4.3%
During the fall/winter (October 1 – February 28)	0.0%	10.0%	43.3%	16.7%	30.0%
	1.0%	7.2%	27.3%	45.4%	22.7%
	1.6%	6.9%	26.2%	34.4%	30.8%
The number of people FLOAT FISHING the the river…					
During the spring (March 1 – June 14)	0.0%	2.5%	42.5%	40.0%	15.0%
	2.1%	12.5%	24.0%	36.5%	25.0%
	4.4%	13.0%	29.4%	29.4%	23.7%
During the summer (June 15 – September 30)	4.0%	11.2%	34.4%	26.4%	24.0%
	7.3%	23.8%	35.4%	25.2%	8.3%
	16.9%	24.2%	29.3%	20.5%	9.1%
During the fall/winter (October 1 – February 28)	3.4%	10.3%	31.0%	31.0%	24.1%
	2.1%	8.5%	21.3%	40.4%	27.7%
	3.7%	7.0%	25.7%	29.3%	34.3%
The number of people BANK/WADE FISHING the river …					
During the spring (March 1 – June 14)	0.0%	2.8%	25.0%	52.8%	19.4%
	0.0%	7.3%	21.9%	37.5%	33.3%
	1.9%	6.5%	22.9%	36.8%	31.9%
During the summer (June 15 – September 30)	1.6%	6.6%	25.4%	33.6%	32.8%

	5.0%	9.9%	27.2%	32.7%	25.2%
	4.6%	16.2%	29.1%	29.3%	20.8%
During the fall/winter (October 1 – February 28)	0.0%	7.1%	35.7%	28.6%	28.6%
	0.0%	9.5%	13.7%	41.1%	35.8%
	1.7%	4.0%	22.3%	35.7%	36.3%

Lyon Bridge to Ennis Dam (continued):

How acceptable or unacceptable is:	(1) Very Unacceptable				(5) Very Acceptable
The number of people floating the river for recreational purposes other than fishing…					
During the spring (March 1 – June 14)	6.1%	9.1%	12.1%	24.2%	48.5%
	2.2%	4.4%	16.5%	24.2%	52.7%
	5.0%	4.3%	15.3%	25.2%	50.2%
During the summer (June 15 – September 30)	2.1%	9.5%	18.9%	22.1%	47.4%
	4.2%	15.2%	19.9%	28.8%	31.9%
	9.1%	12.2%	22.8%	27.2%	28.7%
During the fall/winter (October 1 – February 28)	0.0%	0.0%	19.0%	23.8%	57.1%
	3.5%	4.7%	11.6%	26.7%	53.5%
	6.0%	3.2%	12.7%	26.1%	52.1%
The number of people using boats to access the river to bank/wade fish in sections of the river that are closed to fishing from boats					
During the spring (March 1 – June 14)	0.0%	8.0%	32.0%	36.0%	24.0%
	4.6%	9.2%	23.1%	33.8%	29.2%
	5.1%	4.3%	28.3%	29.1%	33.1%
During the summer (June 15 – September 30)	1.5%	7.5%	28.4%	22.4%	40.3%
	5.4%	10.9%	29.5%	31.8%	22.5%
	10.2%	13.9%	29.7%	23.8%	22.5%
During the fall/winter (October 1 – February 28)	0.0%	0.0%	38.9%	16.7%	44.4%
	4.5%	6.1%	16.7%	36.4%	36.4%
	5.3%	4.1%	25.5%	25.9%	39.1%