



MONTANA FISH, WILDLIFE & PARKS

SUMMARY OF THE 2021 RECREATIONAL USE SURVEY FOR THE MADISON RIVER

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Executive Summary

A total of 1,604 interviews of recreational users were conducted on the Madison River between May 24-September 29, 2021, at 27 developed access sites between Reynolds' Pass Fishing Access Site (FAS) and the Headwaters FAS. Interviews collected information on user demographics, areas of use, purpose for visiting the Madison, and opinions regarding crowding and acceptability of numbers of wade anglers and boats. Most users (73.9%) were nonresidents in the "upper river" (above Ennis Dam), contrasted to the "lower river" (below Ennis Dam) where most users (66.1%) were residents. Percentage of first-time users was slightly higher on the upper river (27.1%) as compared to the lower river (21.4%). Boat fishing (guided and private) and private wade fishing were the dominant activities on the upper river, with 93.3% of users holding a Montanan fishing license. Slightly less than half of lower river users had a Montana fishing license (49.8%), where tubing and non-angling floating were the dominant activities. Most floaters (61.1%) on the upper river reported using a guide, while on the lower only 8.4% of floaters used a guide. On the upper river, Lyon's Bridge-Palisades was the busiest point-to-point float trip, followed by Lyon's Bridge-Ruby Creek. On the lower river, the Warm Springs-Black's Ford route was by far the busiest, followed by California Corner-Black's Ford. Users were asked to rank on a scale of 1 to 5 (1 being very unacceptable or very crowded and 5 being very acceptable or very uncrowded), their opinion regarding how crowded or acceptable was the number of boats or wade anglers on the river or people and vehicles at access sites. Results generally showed much higher levels of acceptability than unacceptability and much higher levels of feeling uncrowded than crowded throughout the entire river corridor. Even so, the sections of the river from Quake Lake-Ennis had 14.6-20.8% who viewed the river as very crowded or crowded. The feeling of being crowded was lower for first-time users than for those with previous experience on the river. These results were compared with previous recent surveys of Madison River users, and recommendations for future surveys are provided.

Background

In December 2020, the Montana Fish and Wildlife Commission adopted a set of Administrative Rules (ARM 12.11.6701—12.11.6715) governing recreational use on the Madison River. They included a commercial use cap on the number of trips taken by fishing outfitters, a walk/wade and rest/rotation system from Reynolds' Pass Fishing Access Site (FAS) to Palisades Day Use Area (DUA), and a prohibition on the development of Fish, Wildlife and Parks (FWP) access sites with boat ramps on the river below Greycliff FAS. The rules also specified that FWP would collect information on recreational activities on the river. The specific nature or purpose of the information was not prescribed in the rules, but FWP believes that at this time the critical needs are: 1) measure levels of recreational use at access sites and on the river prior to new rule implementation; 2) gauge user satisfaction especially as it relates to existing and future recreational restrictions; and 3) develop standard survey techniques and protocols that can be used repeatedly in the future to measure changes in usage and satisfaction. Given that the walk/wade and rest/rotation rules were scheduled to go into effect in January 2022, it was felt that these surveys needed to be initiated in 2021. The 2021 surveys included face-to-face interviews of river users at developed access sites and cameras at seven locations on the river to provide a census of the numbers of boats. This report summarizes the access site interviews; the camera imagery will be summarized and presented in a separate report.

Survey Design

Two university student interns were hired to conduct interviews of Madison River recreational users in 2021. One student was restricted to 16 FWP, Bureau of Land Management (BLM) and U.S. Forest Service (USFS) access sites upstream of the Madison River Dam ("upper Madison"), while the other student was restricted to 11 FWP and BLM sites downstream of the Bear Trap Canyon ("lower Madison") (Figure 1). Interviews were restricted to the parking lot/boat ramp areas of each site, with three exceptions where anglers and other water recreationists were more dispersed. The entire area between Reynolds' Pass Fishing Access Site (FAS) and Three Dollar Bridge FAS is heavily used and interviews were conducted along the north bank of the river in this 1.6-mile section of river (see Figures 2 and 3 for photos of the upstream and downstream end of the trail running along the north bank). The second exception was the 1.9-mile area between the Eagle's Nest Day Use Area (USFS) and the West Fork Bridge, on the Madison River just above the confluence with the West Fork (Figures 4 and 5). Recreationists were interviewed as encountered in parking areas or on the river as accessed by a road along the west side of the river. Anglers accessing the east side of the river were interviewed at parking areas on U.S. 287 highway pullouts (called Pine Butte) adjacent to and on the opposite side of the river from the Eagle's Nest DUA. The last exception was the 1.6-mile area along the river between the Ennis Lake outlet and the parking area immediately below Madison Dam, and recreationists were interviewed as encountered anywhere along the road except for the USFS Trail Creek trailhead parking area, where most users were headed into the mountains away from the water (Figures 6 and 7). The Madison Dam parking area was about 0.5 miles

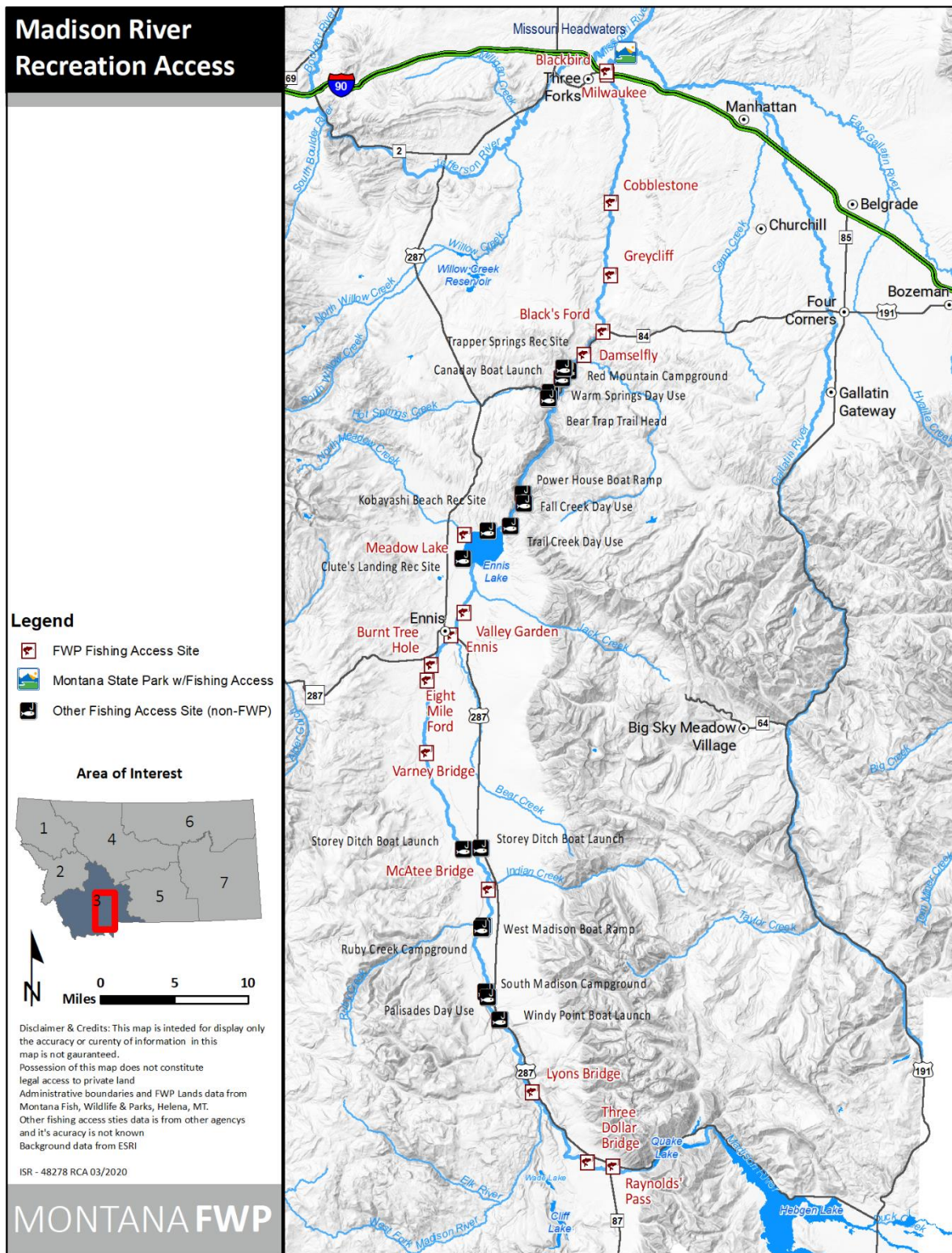


Figure 1. Map of the Madison River showing developed access sites.



Figures 2 and 3. Photos looking upstream from Three Dollar Bridge (left) and downstream from Reynolds’ Pass FAS (right), showing trail used by intern to count water recreationists.



Figures 4 and 5. Photos looking downstream to the West Fork Bridge (left) and upstream to the Eagle’s Nest DUA (right).



Figures 6 and 7. Photos looking upstream from the parking area just below Madison Dam (left) and upstream to the Ennis Lake outlet where bridge crosses (right).

above the boat launch for the Wild and Scenic section of the river and because it was the lower end of the survey section, it served to exclude most Wild and Scenic section users from the interviews. At the beginning of each shift that included any one of these three areas, the intern would drive or walk the entire length and record the number of wade anglers seen. Restricting these counts to wade anglers excluded very few people in the upper two sections, but in the Bear Trap Canyon the restriction prevented counts of casual visitors and non-recreationists that were judged to be plentiful in this area.

Interns interviewed all access site users, except for commercial outfitters/guides and those obviously not recreating (e.g., stopping to use the restrooms). Hard-copy survey forms were used to record responses from May 25 to July 20; after this date surveys were entered onto digital notebooks, using an electronic version of the survey built for FWP by Zerion Software. For sampling purposes, the river was divided into eight sections, which were distinguished by different recreation restrictions either currently in place or to go into effect in the future per the ARM rules. All users were asked a set of 14 questions, which were common to both the upper and lower river (Appendix A and B) and if the user was already engaged in or had completed their recreational activity for the day, they were asked a series of additional questions related to that section of river.

A stratified random sampling design was used to construct the work schedules for interviewers, with two objectives in mind: 1) obtain a sample of recreational use on the Madison that is representative of the entire recreational use, and 2) to allow for unbiased comparisons of activity at individual access sites. Variables expected to contribute to bias, and which were accounted for in the schedule included overall effort at each site, month of the year, time of day, and time of week when sites were visited. This design entailed a work schedule for both interviewers of four 10-hour shifts per week, with three shifts being during the work week (Monday-Friday) and one shift always reserved for a weekend day. On the upper river the objective was to have every site visited once per week which was accomplished by organizing the access sites into four groups: 1) Reynolds' Pass/Three Dollar Bridge, Eagle's Nest/West Fork and Lyon's Bridge; 2) Windy Point, Palisades, Ruby Creek, and McAtee Bridge; 3) Storey Ditch, Varney Bridge, Eight Mile Ford, and Burnt Tree Hole; and 4) Ennis, Valley Garden, Clute's, and Madison Dam/Powerhouse. Each shift included visits to one of these groups, with two hours spent at each site (the exception to this was the Reynolds' Pass FAS and the Three Dollar Bridge FAS which was always treated as a single site and surveyed with a four-hour stint). Each week, three groups were randomly chosen to visit for random weekdays (M-F), while the fourth group was randomly assigned to a weekend day. Within each group, the site that was visited first during each shift was rotated sequentially in a downstream direction on successive shifts so that no one site would be visited earlier or later than the others. The start time for each shift was randomly selected from the choices of 7 a.m., 9 a.m. or 11 a.m.

On the lower river, a sampling approach was taken to ensure that all 11 sites would get visited within each consecutive 11-day block of workdays. For each block of time, each site was randomly assigned to one of the 11 days, and this would be the first site visited on that day.

The remaining three sites for that day would be adjacent to the first, in either an upstream or downstream direction, also chosen randomly. Daily start times were assigned randomly as indicated for the upper river.

Survey Implementation

Personal issues for both interns did arise as the summer progressed requiring various adjustments, and the final schedules can be seen in Appendix C and D. Another alteration to the schedule resulted from “hoot owl” angling restrictions implemented by FWP. Administrative Rule 12.5.507 allows the Fish and Wildlife Commission to close waters to fishing after 2 p.m. dependent on temperature, flow, angling pressure and other restrictions and closures in place elsewhere; this is done in order to protect trout from stress related to angling. On the lower river, because water temperatures exceed the angling restriction criteria nearly every year, hoot owl restrictions are implemented automatically every year but were extended this year resulting in angling restrictions from June 25-August 17. On the upper river, water temperatures are always lower, and restrictions are implemented infrequently. In 2021, a hoot owl restriction was in place from July 21-August 17. Since the upper river is mainly used by anglers, daily shifts for the interns that began at 11 a.m. would result in much time spent at access sites after the anglers were off the river and gone. For this reason, the shifts originally designed to begin at 11 a.m. were changed to either 7 a.m. or 9 a.m. during the hoot owl restriction period to improve the chances of encountering anglers at the access sites. On the lower river, most recreationists are not anglers, especially in late summer, and the hoot owl restrictions would have no influence on their use patterns on the river. Therefore, no adjustment was made to the lower river schedule during the hoot owl restrictions.

The distribution of sampling effort across time of day and time of week for access sites in the upper and lower river is shown in Table 1. Because of the different start time for shifts each day (7, 9 or 11 a.m.), the time interval of 11 a.m. - 3 p.m. received survey coverage every day. On the upper river, 70 shifts were worked during the study, and these are reflected in the shift numbers shown for the 11 a.m. – 3 p.m. time interval. Late afternoon received somewhat more effort (54 and 28 shifts from 3 – 5 p.m. and 5 - 7 p.m. respectively) than did the early morning hours (16 and 41 shifts from 7-9 a.m. and 9-11 a.m. respectively). On the lower river, 54 shifts were worked during the study, and the number of early morning and late afternoon shifts were very close to each other: 20 and 33 shifts from 7-9 and 9-11 a.m. respectively compared to 33 and 19 shifts from 3-5 p.m. and 5-7 p.m. respectively. When the survey effort is viewed in two-week blocks, most blocks received coverage on 6 weekdays and 2 weekend days. However, a few deviations were seen on both the upper and lower river, primarily by having fewer weekend days surveyed than originally scheduled.

Table 1. Hourly distribution of number of shifts in which interviews were conducted on the Madison River in two week intervals, May 25-September 29, 2021

UPPER RIVER																							
Hour of day	May 25-June 7		June 8-21		June 22-July 5		July 6-19		July 20-Aug 2		Aug 3-16		Aug 17-30		Aug 31-Sept 13		Sept 14-27		Sept 28-29		Total May 25-Sept 2		Sum all shifts
	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	
7-8 A.M.			1	1	2		2	1			3	1			1	1	1	1			11	4	15
8-9 A.M.			1	1	2		2	1			3	1			1	1	1	1			11	4	15
9-10 A.M.	2		3	2	6	1	4	1	2		7	2	1		1	2	2	3	2		30	11	41
10-11 A.M.	2		3	2	6	1	4	1	2		7	2	1		1	2	2	3	2		30	11	41
11 A.M. - Noon	6	2	5	2	6	2	6	1	5	1	7	2	6	2	6	2	6	2	1		54	16	70
Noon-1 P.M.	6	2	5	2	6	2	6	1	5	1	7	2	6	2	6	2	6	2	1		54	16	70
1-2 P.M.	6	2	5	2	6	2	6	1	5	1	7	2	6	2	6	2	6	2	1		54	16	70
2-3 P.M.	6	2	5	2	6	2	6	1	5	1	7	2	6	2	6	2	6	2	1		54	16	70
3-4 P.M.	6	2	4	1	4	2	4		5	1	3	1	6	1	5	1	5	2	1		43	11	54
4-5 P.M.	6	2	4	1	4	2	4		5	1	3	1	6	1	5	1	5	2	1		43	11	54
5-6 P.M.	4	2	2			1	2		2	1			5	1	4		3		1		23	5	28
6-7 P.M.	4	2	2			1	2		2	1			5	1	4		3		1		23	5	28
Total shifts	6	2	5	2	6	2	6	1	5	1	7	2	6	2	6	2	6	2	1		54	16	70
LOWER RIVER																							
Hour of day	May 25-June 7		June 8-21		June 22-July 5		July 6-19		July 20-Aug 2		Aug 3-16		Aug 17-30		Aug 31-Sept 13						Total May 25-Sept 1		Sum all shifts
	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend			Weekday	Weekend			
7-8 A.M.	2	1	1		2	1	2	1	2	1	3	1	2			1					15	5	20
8-9 A.M.	2	1	1		2	1	2	1	2	1	3	1	2			1					15	5	20
9-10 A.M.	3	2	3	1	3	1	6	1	2	1	5	1	2	1		1					24	9	33
10-11 A.M.	3	2	3	1	3	1	6	1	2	1	5	1	2	1		1					24	9	33
11 A.M. - Noon	6	2	5	2	7	2	6	1	6	1	7	2	3	1		2					40	13	53
Noon-1 P.M.	6	2	5	2	7	2	6	1	6	1	7	2	3	1		2					40	13	53
1-2 P.M.	6	2	5	2	7	2	6	1	6	1	7	2	4	1		2					41	13	54
2-3 P.M.	6	2	5	2	7	2	6	1	6	1	7	2	4	1		2					41	13	54
3-4 P.M.	4	1	4	2	5	1	4		4		4	1	1	1		1					26	7	33
4-5 P.M.	4	1	4	2	5	1	4		4		4	1	1	1		1					26	7	33
5-6 P.M.	3		2	1	4	1			4		2	1				1					15	4	19
6-7 P.M.	3		2	1	4	1			4		2	1				1					15	4	19
Total shifts	6	2	5	2	7	2	6	1	6	1	7	2	4	1	0	2					41	13	54

Note: All data from July 25 on lower river lost due to computer malfunction

The distribution of shifts that occurred at each access site is shown in Table 2. For the upper river, the uppermost sites (Raynolds' Pass to McAtee) all had greater effort (18 shifts) than the sites from Storey Ditch and below (14-15 shifts). The Raynolds' Pass to Lyon's Bridge group had the most weekend shifts (5), while the Windy Point to Storey Ditch group had the least (3). Coverage of sites on the lower river was not as evenly distributed as on the upper river, ranging from a high of 24 shifts at Bear Trap Canyon to a low of 15 shifts at Greycliff. Weekend shifts were highest at Bear Trap Canyon (7) and lowest at Damselfly and Black's Ford (3).

Survey Findings and Discussion

A total of 945 interviews were conducted on the upper river and 659 on the lower river. Almost all people that were approached were willing to participate in the survey. This was only tracked closely on the lower river where 98.4% of people agreed to be interviewed. There was a small percent of interviews considered low quality because people either cut off the interview once it began (rarely) or more often gave little thought to questions to shorten the interview. While this was not rigorously recorded it is estimated to be less than 5% of those interviewed. Unless obviously erroneous, all interview responses are included in the data analysis presented below.

Access Site and Time of Day Usage. Quantification of access site usage was not an objective of this survey, but relative differences between sites can be seen by comparing the number of interviews conducted at each site. Because the number of shifts was different for most sites, the number of interviews/shift is the most accurate way of comparing site usage (Figure 8). The Raynolds' Pass/Three Dollar Bridge area and Lyon's Bridge stand out as the busiest in the upper river, and Warm Springs and Black's Ford dominate usage on the lower river. The difference between the busy and less busy sites is probably greater than what the graph suggests however, because the interviews were always from just one individual in each group of people, and the sections dominated by tubers (Warm Springs-Black's Ford) generally had larger group sizes than other access sites. Moreover, not all groups were interviewed, particularly at the busy times of day at the busiest sites.

Activity on the river throughout the day can be characterized by comparing the number of interviews in hourly blocks of time (Figure 9). As described above for the access sites, the number of shifts varied for most hourly increments, and so the number of interviews/shifts is the most accurate way to compare usage throughout the day. For both the upper and lower river, the number of interviews was highest during the 11 a.m. – 4 p.m. period (blue bars), but when corrected for effort, different patterns emerge (orange lines). Activity on the upper river was highest between 7-10 a.m. and dropped off considerably after 4 p.m. An opposite pattern emerged on the lower river, where peak activity was from 3-4 p.m. and was lowest from 7-11 a.m.; this is to be expected as most of the upper river users are anglers seeking cooler morning temperatures and most lower river users are tubers seeking warmer water temperatures in the

Table 2. Number of interview shifts per access site on a biweekly basis.

UPPER RIVER																							
Hour of day	May 25-June 7		June 8-21		June 22-July 6-19			July 20-Aug 2		Aug 3-16		Aug 17-30		Aug 31-Sept 13		Sept 14-27		Sept 28-29		Total May 25-Sept		Sum all shifts	
	Weekday	Weekend	Weekday	Weekend	Weekday	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend		
Raynold's Pass/Three Dollar Bridg	2			2	1	2		2		2	1	1		1	1	2				13	5	18	
Eagle's Nest/West Fork	2			2	1	2		2		2	1	1		1	1	2				13	5	18	
Lyon's Bridge	2			2	1	2		2		2	1	1		1	1	2				13	5	18	
Windy Point	1	1	2		1	3				1	2		1	1	3	2		1		15	3	18	
Palisades	1	1	2		1	3				1	2		1	1	3	2		1		15	3	18	
Ruby Creek	1	1	2		1	3				1	2		1	1	3	2		1		15	3	18	
McAtee Bridge	1	1	2		1	3				1	2		1	1	3	2		1		15	3	18	
Storey Ditch	1		2		1		1	2		2		2	1	1		1	1			11	4	15	
Varney Bridge	1		2		1		1	2		2		2	1	1		1	1			11	4	15	
Eight Mile Ford	1		2		1		1	2		2		2	1	1		1	1			11	4	15	
Burnt Tree Hole	1		2		1		1	1		2		2	1	1		1	1			10	4	14	
Ennis/Town	2	1	1		3	1		1		1	1	2		1	1	1	1			11	4	15	
Valley Garden	2	1	1		3	1		1		1	1	2		1	1	1	1			11	4	15	
Clute's/Ennis Lake	2	1	1		3	1		1		1	1	2		1	1	1	1			11	4	15	
Madison Dam/powerhouse	2	1	1		3	1		1		1	1	2		1	1	1	1			11	4	15	
LOWER RIVER																							
Hour of day	May 25-June 7		June 8-21		June 22-July 6-19			July 20-Aug 2		Aug 3-16		Aug 17-30		Aug 31-Sept 13						Total May 25-Sept		Sum all shifts	
	Weekday	Weekend	Weekday	Weekend	Weekday	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend			Weekday	Weekend				
Bear Trap Canyon	1	2	2		5	2	1	3		2	2	2			2					17	7	24	
Warm Springs	1	2	3		3	2	1	2		1	2	1	2		1					15	6	21	
California Corner	2	2	2		2	3				1	4	1	2							15	4	19	
Canaday/Red Mountain	4	1	2		1	5				1	3		2							15	4	19	
Damselfly	5		2	1	1	4		1		1	3		1							17	3	20	
Black's Ford	4		1	2	2	3		3		3		1								17	3	20	
High Bank	3		2	2	2	2		3		2		1		1						15	5	20	
Greycliff	1		1	2	1			3		3				1		1				9	6	15	
Cobblestone	1		1	1	3	1		3		2	1			1		2				11	6	17	
Milwaukee/I-90/Blackbird	1		2		3	1	1	3		2	1			1		2				12	6	18	
Headwaters	1	1	2		5	1	1	3		2	2	1								15	4	19	

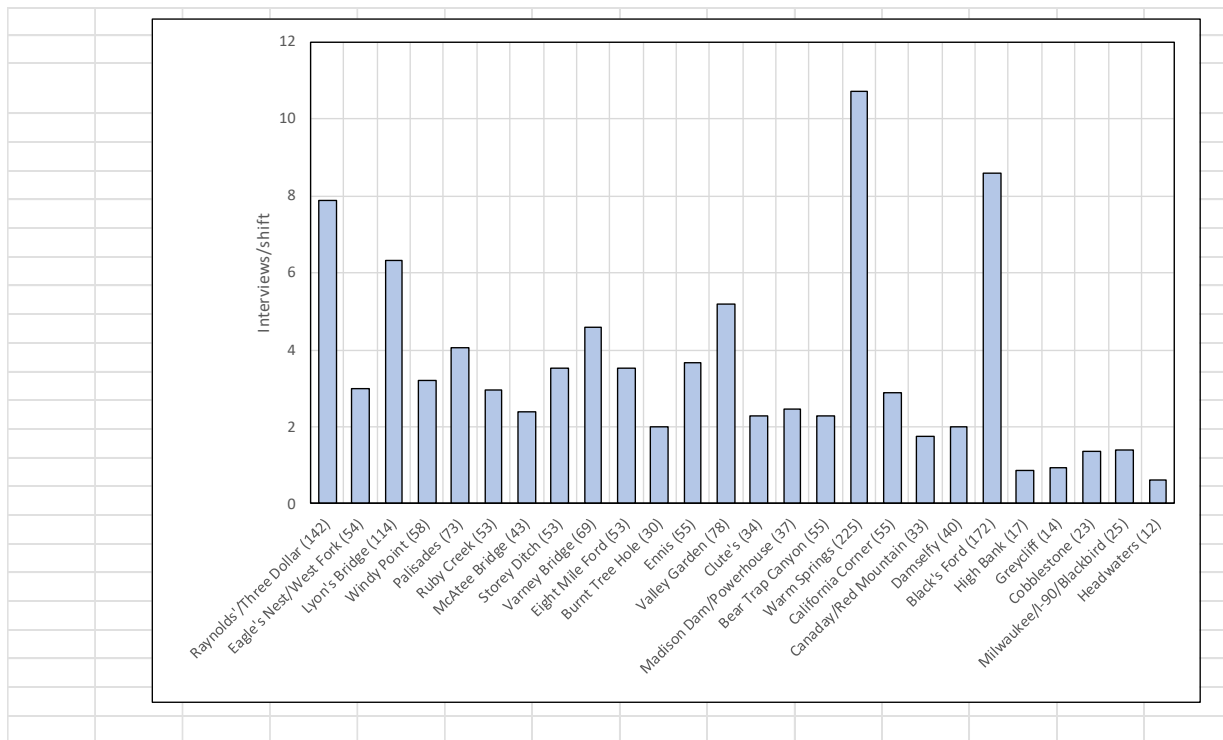


Figure 8. Interviews/shift and number of interviews (in parentheses) for access sites on the Madison River. Number of shifts for each site can be found in Table 2.

afternoon. These results also show that this survey over-represented the type of activity going on mid-day on both the upper and lower river, but under-represented activity on the upper river in the morning and the lower river in the afternoon. This type of mismatch could contribute to bias when summarizing how people feel about crowding or numbers of people on the river and is best avoided by matching survey effort with user activity. The lines in Figure 9 also suggest that significant activity was missed before 7 a.m. in the upper river (because activity was already high in the 7-8 a.m. timeframe) and after 7 p.m. in the lower river (because activity was still high in the 6-7 p.m. period). Considerations for future scheduling should take these shortcomings into account.

Residency. On the upper river, access site users were interviewed from 48 states (excepting Delaware and Rhode Island) and Washington, D.C. (Table 3). Residents of Montana accounted for 26.8% of respondents, while nonresidents made up 73.2% of respondents. California contributed the most nonresidents (11.6%), followed by Texas (4.3%), Colorado (4.0%), Pennsylvania and Arizona (3.9%), Florida (3.6%), Washington (3.4%) and Idaho (3.2%). All other states contributed less than 3% of users. On the lower river, 66.1% of users were from Montana, and 33.9% were nonresidents. California contributed the most nonresidents (5.2%), followed by Texas (2.9%) and Colorado (2.6%); all other states were less than 2% of users. For

Montana residents on the upper river, users came from 10 counties, with Gallatin (51.2%) and Madison (31.2%) making up the bulk. On the lower river, residents from 18 counties were interviewed, with the vast majority (85.3%) coming from Gallatin County, followed in distant second by Yellowstone County (5.3%). Due to COVID-19 travel restrictions on international travel, no people were interviewed from other countries. In the 2017 creel survey conducted by FWP on the upper river (Horton et al 2018), 1.7% of interviews were of international travelers.

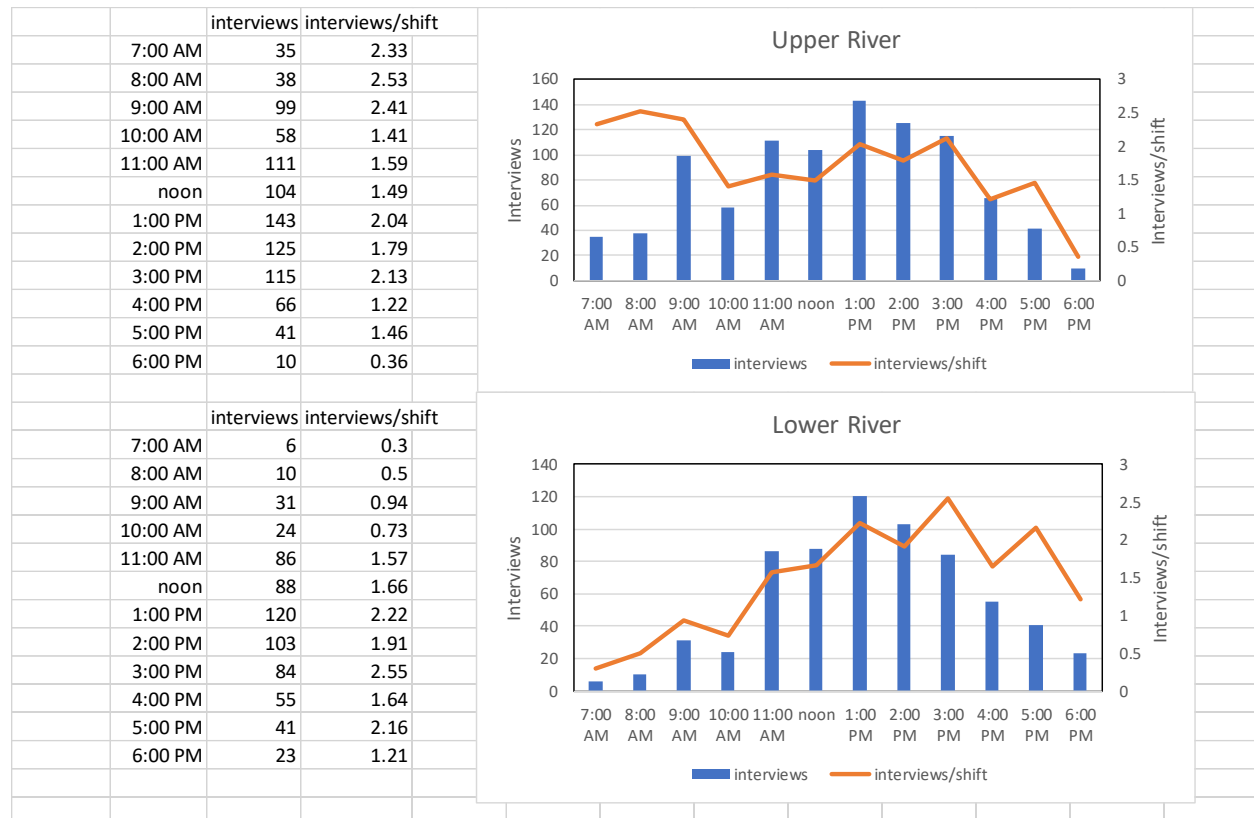


Figure 9. Activity at access sites, as measured by number of interviews and interviews/shift for hourly increments. Number of shifts for each hour increment can be found in Table 1.

Demographics. All users were asked general personal questions and their history of use of the Madison. Users were predominantly male in the upper river (86.4%) but close to evenly split on the lower river (54.5% male) (Table 4). Upper river users were considerably older (mean age 52.0) than the lower river users (38.3), and most upper river users (93.3%) had a Montana fishing license, contrasting with the lower river where not quite half (49.8%) had a Montana license. When asked if this was their first visit to the Madison, 27.1% of those on the upper river said yes, somewhat higher than first time users on the lower river (21.4%). For the people who responded that they were not a first-time user of the Madison, those on the upper river indicated that they had been coming for a median and mean of 10 years and 15.7 years,

Table 3. Residency of interview respondents						
State	Upper River (N=935)	Lower River (N=660)		Montana County	Upper River (N=250)	Lower River (N=436)
Montana	26.8% (250)	66.1% (436)				
Alabama	6 (0.9%)			Beaverhead	3 (1.2%)	2 (0.5%)
Arizona	26 (3.9%)	8 (1.2%)		Bighorn		2 (0.5%)
Alaska	2 (0.3%)			Broadwater		1 (0.2%)
Arkansas	3 (0.3%)			Cascade	2 (0.8%)	1 (0.2%)
California	108 (11.6%)	34 (5.2%)		Deer Lodge		2 (0.5%)
Colorado	37 (4.0%)	17 (2.6%)		Fallon		1 (0.2%)
Connecticut	1 (0.1%)	2 (0.3%)		Fergus		2 (0.5%)
Florida	34 (3.6%)	9 (1.4%)		Flathead	5 (2.0%)	1 (0.2%)
Georgia	17 (1.8%)	7 (1.1%)		Gallatin	128 (51.2%)	372 (85.3%)
Hawaii	1 (0.1%)			Jefferson		1 (0.2%)
Idaho	30 (3.2%)	3 (0.5%)		Lewis and Clark	5 (2.0%)	7 (1.6%)
Illinois	12 (1.3%)	7 (1.1%)		Madison	78 (31.2%)	8 (1.8%)
Indiana	6 (0.6%)	3 (0.5%)		McCone		1 (0.2%)
Iowa	2 (0.3%)	3 (0.5%)		Missoula	9 (3.6%)	5 (1.1%)
Kansas	1 (0.1%)	1 (0.2%)		Park		4 (0.9%)
Kentucky	4 (0.4%)	3 (0.5%)		Phillips		1 (0.2%)
Louisiana	4 (0.4%)	2 (0.3%)		Powell	1 (0.1%)	
Maine	1 (0.1%)			Silver Bow	3 (1.2%)	9 (2.1%)
Maryland	5 (0.5%)	3 (0.5%)		Yellowstone	7 (2.8%)	23 (5.3%)
Massachusetts	4 (0.4%)	4 (0.6%)				
Michigan	11 (1.1%)	4 (0.6%)				
Minnesota	15 (1.6%)	6 (0.9%)				
Mississippi	6 (0.6%)	2 (0.3%)				
Missouri	4 (0.4%)	1 (0.2%)				
Nebraska	4 (0.4%)					
Nevada	17 (1.8%)	5 (0.8%)				
New Hampshire	3 (0.3%)					
New Jersey	2 (0.3%)	3 (0.5%)				
New Mexico	4 (0.4%)					
New York	21 (2.2%)	6 (0.9%)				
North Carolina	24 (2.5%)	6 (0.9%)				
North Dakota	1 (0.1%)	1 (0.2%)				
Ohio	12 (1.3%)	3 (0.5%)				
Oklahoma	1 (0.1%)					
Oregon	19 (2.0%)	7 (1.1%)				
Pennsylvania	36 (3.9%)	4 (0.6%)				
South Carolina	11 (1.1%)	2 (0.3%)				
South Dakota	5 (0.5%)	4 (0.6%)				
Tennessee	2 (2.6%)	5 (0.8%)				
Texas	40 (4.3%)	19 (2.9%)				
Utah	39 (4.2%)	8 (1.2%)				
Vermont	3 (0.3%)	4 (0.6%)				
Virginia	8 (0.9%)	2 (0.3%)				
Washington	32 (3.4%)	11 (1.7%)				
Washington, DC	3 (0.3%)					
West Virginia	5 (0.5%)					
Wisconsin	5 (0.5%)	2 (0.3%)				
Wyoming	14 (1.5%)	3 (0.5%)				

Table 4. Characteristics of interview respondents on the Madison River, 2021.						
		Upper River	Lower River			
Gender (N=936,660)*	Male (%)	86.4	54.5			
	Female (%)	13.6	45.5			
Age (N=936,659)	Mean	52.0	38.3			
	% 10-20	1.7	5.3			
	% 20-30	11.0	31.7			
	% 30-40	13.2	21.1			
	% 40-50	14.9	17.4			
	% 50-60	19.2	11.8			
	% 60-70	24.1	9.1			
	% 70-80	13.7	3.2			
	% 80+	2.1	0.3			
Do you have a MT fishing license? (N=936,659)	Yes (%)	93.3	49.8			
	No (%)	6.7	50.2			
Is this your first visit to the Madison? (N=940,659)	Yes (%)	27.1	21.4			
	No (%)	72.9	78.6			
If no to question above, how many years have you been coming to the Madison? (N=682,521)	Median	10.0	7			
	Mean	15.7	11.8			
If no to question above, how many times have you recreated on the Madison last year? (N=680,518)	Median	4.0	3			
	Mean	14.7	7.8			
How many people in your group? (N=939,660)	Adults	Median	2.0	2		
		Mean	2.4	4		
	Children	Median	0.0	0		
		Mean	0.2	0.8		
Are you floating on the river today? (N=940,659)	Yes (%)	55.7	83.3			
	No (%)	44.3	16.7			
Was recreating on the Madison the primary purpose of your trip to the area? (N=940,658)	Yes (%)	64.4	81.2			
	No (%)	35.6	18.8			

*N refers to upper, lower river sample size for calculations

respectively. On the lower river, people had been coming for roughly a third fewer years, with a median and mean of 7 and 11.8 years. In response to how many times they had recreated on the Madison in 2020, upper river users had visited 4 and 14.7 times (median and mean), somewhat more than lower river users (3 and 7.8 times). Group size was somewhat greater on the lower river (median and mean size of adults at 2 and 4.0) than upper river (2 and 2.4). Lower river users were also more often accompanied by children (mean of 0.8) versus 0.2 for the upper river. A considerable difference was seen between the upper and lower river regarding whether they were floating the river on the day of the interview: 55.7% were floating on the upper river compared to 83.3% on the lower river. Lastly, when asked if recreating on the Madison was the primary purpose of their trip to the area, more in the lower river responded with a “yes” (81.2%) than in the upper river (64.4%).

Figure 10 displays a cumulative probability chart of users (predominantly anglers) of varying experience on the Upper River, and first-time users (27.1%) are plotted at the 0.5-year mark for display purposes. Users with 5 years or less of experience represented approximately 50% of all users interviewed. These numbers are similar to the experience levels recorded in the 2017 creel survey by FWP (Horton and Lewis 2018), where first time users represented 25% of all anglers, and 6 years was the experience level at the 50th percentile. While the change from 2017 to 2021 is minor, it does show a slightly less experienced group of users in the current survey.

When the experience of resident users is compared to nonresidents, two different patterns emerge (Figure 11). For the nonresidents, over half had 4 or fewer years of experience visiting the Madison, and this proportion dropped by almost 80% for the 5–9 year category and 85% to the 10-14 year category. By contrast, only 23.5% of residents were in the inexperienced (0-4 year) category, with very little decrease to the 5-9 year category. The proportion of residents remained higher than non-residents for the next four categories up to 29 years of experience. This high resident retention rate begins with the first trip to the Madison, and only 3.2% of residents in 2021 were first-time users compared with 36.1% of non-residents. This shows that residents have a low level of “entry” to the Madison, but the high retention rate keeps the number of experienced users high, while the nonresidents have a high level of entry and low retention. As described later in this report, experience level does contribute to differences in opinion about river and access site crowding.

Recreational activities. Respondents were asked to select the activities they were engaged in from a list provided by the interviewer (Appendix A and B) and were then asked to identify their primary activity. Most people only identified one activity, which by default was the primary activity, although some who listed two or more activities declined to pick a primary activity. Thus, when summarizing activities at each site, all responses were included, but this led to total percentages at some sites adding up to over 100% (Table 5). Private wade fishing dominated the activities between Reynolds’ Pass FAS and the West Fork Bridge, and then guided boat fishing was the most frequent activity downstream to Ennis except for Burnt Tree Hole FAS which had slightly more private boat fishing. Private wade fishing was again dominant at Valley

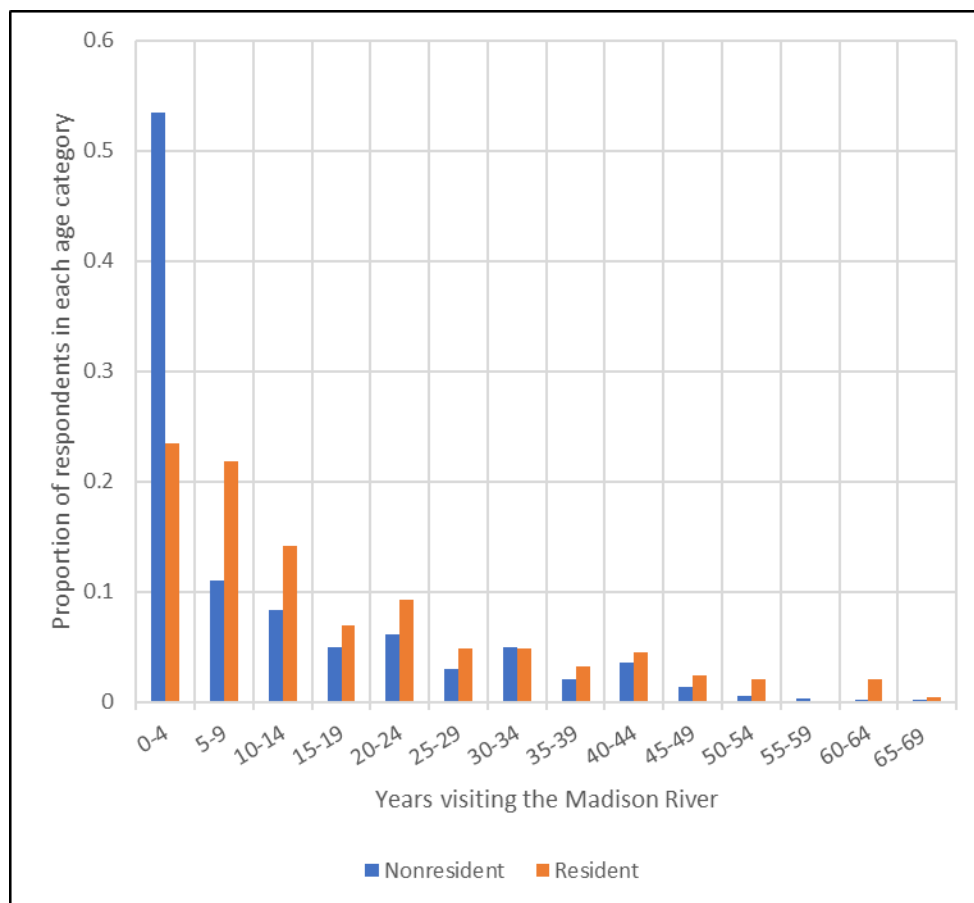
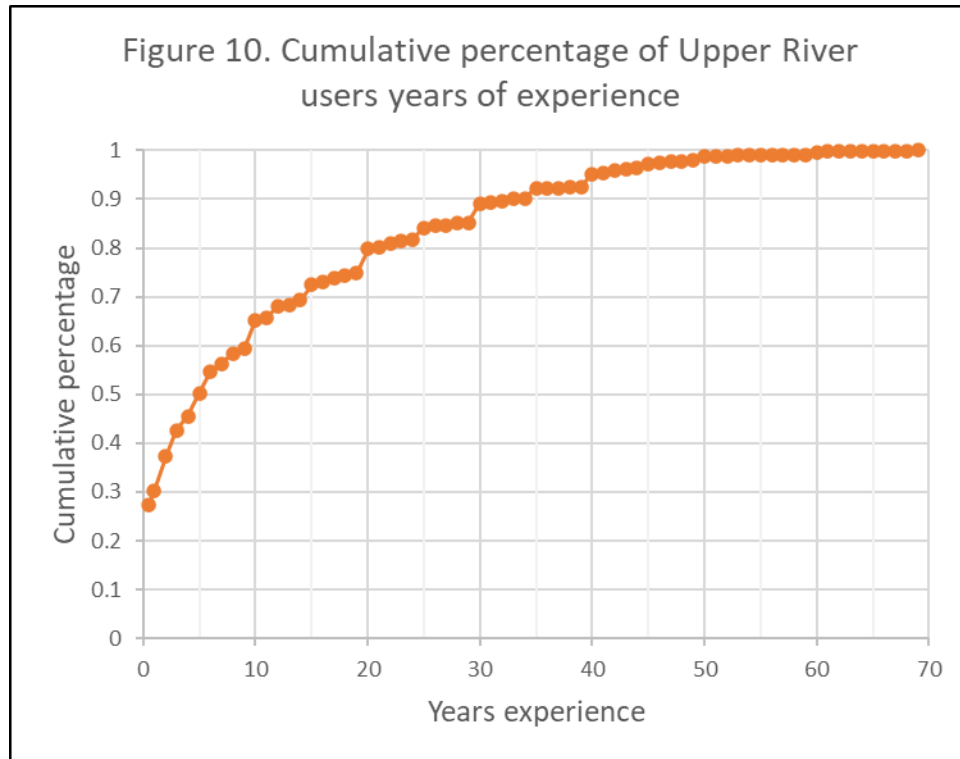


Figure 11. Proportion of resident and nonresident respondents in each experience category.

Table 5. List of primary activities identified by access sites users, and their percentage of total activity. For sites where individual activities don't add up to 100%, it indicates that several activities were indicated without priority.

Site (N)	Guided boat fishing	Private boat fishing	Guided wade fishing	Private wade fishing	Guided non-fishing float trip	Private non-fishing float trip	Swimming	Tubing	Non-river use
UPPER RIVER									
Raynold's Bridge/Three Dollar Bridge (142)	0.0	2.1	10.6	81.7	0.0	0.0	0.0	0.0	5.6
Eagle's Nest/West Fork (54)	0.0	1.9	5.6	88.9	0.0	0.0	0.0	0.0	3.7
Lyon's Bridge (114)	55.2	26.3	0.0	11.4	0.9	3.5	0.0	0.0	3.5
Windy Point (58)	56.9	29.3	0.0	6.9	0.0	1.7	0.0	0.0	5.2
Palisades (73)	47.9	26.0	0.0	9.6	0.0	5.5	0.8	0.0	11.0
Ruby Creek (53)	66.0	24.5	0.0	5.7	0.0	1.9	1.9	0.0	0.0
McAtee Bridge (43)	44.2	14.0	0.0	34.9	0.0	2.3	0.0	0.0	4.7
Storey Ditch (52)	76.9	13.5	0.0	9.6	0.0	0.0	0.0	0.0	1.9
Varney Bridge (69)	59.4	27.5	0.0	10.1	0.0	4.3	0.0	0.0	0.0
Eight Mile Ford (53)	32.1	18.9	0.0	35.8	1.9	7.5	0.0	0.0	5.7
Burnt Tree Hole (30)	20.0	26.7	6.7	23.3	0.0	6.7	0.0	0.0	20.0
Ennis (55)	38.2	29.1	1.8	14.5	0.0	9.1	0.0	1.8	5.4
Valley Garden (78)	10.2	2.6	2.6	71.8	0.0	3.8	1.3	0.0	9.0
Clute's (34)	0.0	50.0	2.9	14.7	2.9	11.8	0.0	0.0	20.6
Madison Dam/Powerhouse (37)	0.0	0.0	0.0	48.6	0.0	10.8	13.5	0.0	27.0
LOWER RIVER									
Bear Trap Canyon (54)	0.0	0.0	0.0	68.5	0.0	0.0	3.7	0.0	27.8
Warm Springs (219)	2.3	10.0	0.0	1.3	3.7	15.1	0.0	68.0	0.5
California Corner (55)	9.1	3.6	0.0	3.6	0.0	10.9	0.0	67.3	7.3
Canaday/Red Mountain (33)	3.0	15.2	0.0	18.2	0.0	6.1	3.0	51.5	12.1
Damselgy (40)	5.0	30.0	0.0	2.5	0.0	37.5	2.5	30.0	2.5
Black's Ford (169)	9.5	8.3	0.0	1.2	1.8	13.6	0.6	65.7	1.2
High Bank (17)	0.0	11.8	0.0	17.6	0.0	11.8	0.0	41.2	17.6
Greycliff (14)	21.4	21.4	0.0	7.1	0.0	42.9	0.0	7.1	7.1
Cobblestone (22)	0.0	4.5	0.0	50.0	0.0	36.3	0.0	9.1	9.1
Milwaukee/I-90/Blackbird (24)	12.5	0.0	0.0	16.7	0.0	33.3	0.0	33.3	4.2
Headwaters (12)	0.0	25.0	0.0	0.0	0.0	50.0	0.0	25.0	16.7

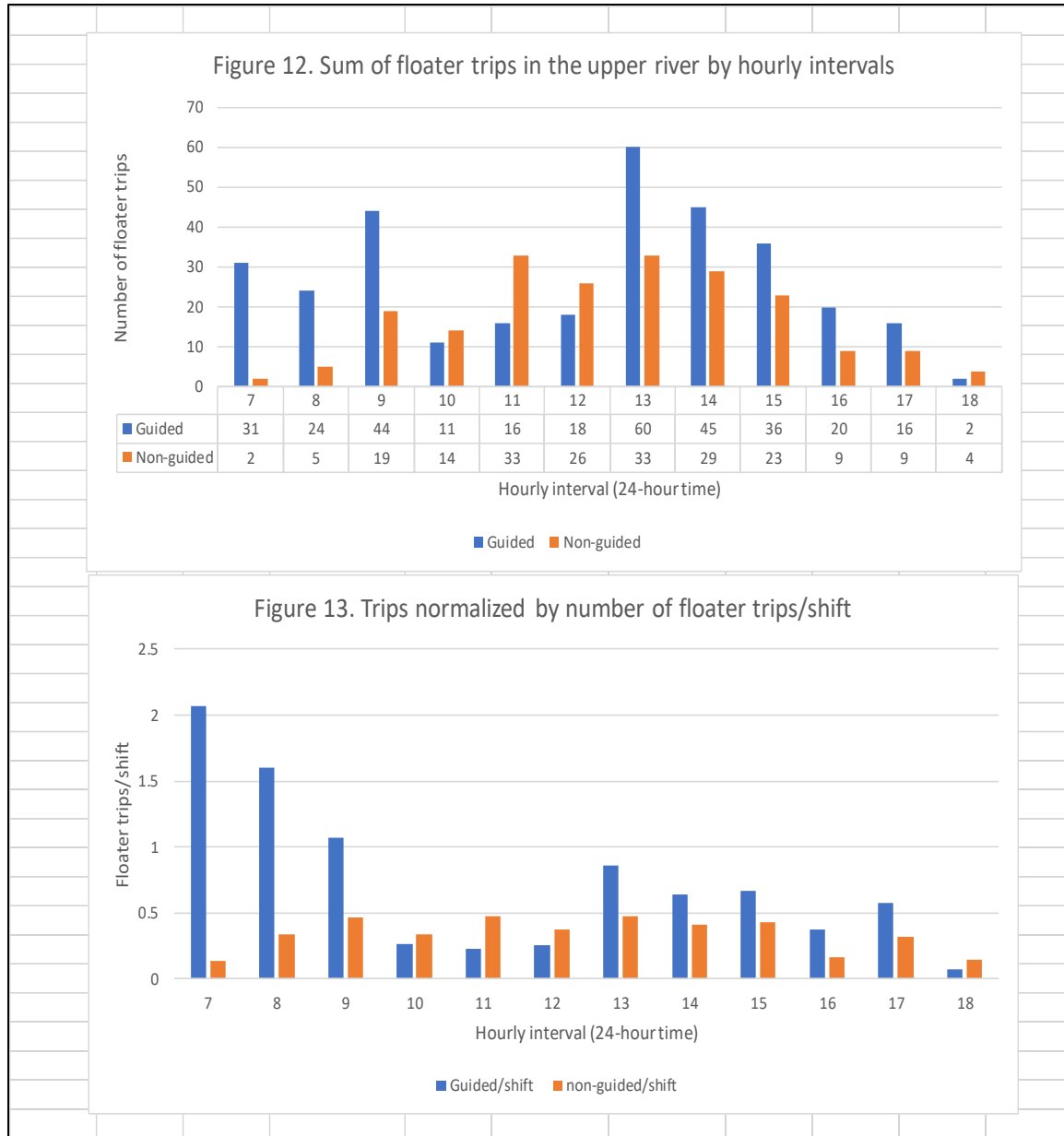
Garden FAS and the Madison Dam/Powerhouse area, with private boat fishing being dominant at Clute's DUA. Non-river use was never the majority use at any site but reached its highest levels at Clute's and the Madison Dam/Powerhouse area. Activities on the lower river were markedly different than the upper river. Tubing or private non-fishing float trips were the majority activity at all sites except for the Bear Trap Canyon and Cobblestone which had dominant use by private wade anglers. The most notable tubing sites were Warm Springs, California Corner and Black's Ford where tubing accounted for roughly two-thirds of all activity, (Table 5). Guided boat fishing reached its highest level (21.4%) at Greycliff, and private boat fishing was highest at Damsfly (30.0%). Non-river use was highest at the Bear Trap Canyon site (27.8%) with most of those people engaged in hiking.

Launch and takeout locations. Floaters were asked to identify their launch and takeout sites for the day. On the upper river, Lyon's Bridge was the busiest site for launches (166), while Palisades was the busiest site for take-outs (66 trips), and most of those floaters had come from Lyon's Bridge (Table 6). Other significant point-to-point routes on the river were Lyon's Bridge-Windy Point (35 trips), Lyon's Bridge-Ruby Creek (41 trips), Palisades-Storey Ditch (22 trips), McAtee Bridge-Varney Bridge (25 trips), and Varney Bridge-Ennis (33 trips). . On the lower river (Table 6), the Warm Springs-Black's Ford route was by far the busiest (288 trips). Other busy routes on the lower river were Warm Springs-Damsfly (34), California Corner-Black's Ford (63 trips), Canaday/Red Mountain-Black's Ford (24) and Milwaukee/I-90/Blackbird-Headwaters (26). The number of trips from this table cannot be used in a reliable way to determine the most heavily used sites, because some sites received more effort from interviewers than did others (see Table 2).

Guided vs unguided trips. Floaters were also asked if they were being guided, and on the upper river, 63-85% of floaters at river sites between Lyon's Bridge and Storey Ditch reported being guided (Table 6), with the remainder being primarily private boat anglers. From Varney downstream, the percent of guided floaters dropped off considerably. The overall average percentage of floaters who reported that they were guided in the upper river was 61.1%. On the lower river, sample size (and hence accuracy) was limited at many of the sites. Nonetheless the data suggest that percentages of guided trips were much less than the upper river, averaging 8.4%, and the Bear Trap Canyon had the highest percentage on the lower river at 40%.

These statistics show the sites where commercial outfitting is clearly concentrated, but the actual percentages are inaccurate because the interview times are heavily skewed toward midday while much of the guide activity begins early in the morning. The emphasis on midday sampling in the upper river is shown in Table 1, where only 15 interview shifts occurred in each of the 7 and 8 a.m. intervals which is less than one-quarter the number of interviews (70) that occurred between 11 a.m. and 3 p.m. The high number of guided trips in early morning can be seen in the hourly distribution of guided and non-guided float trips encountered by the interviewers on the upper river in Figure 12: high numbers of guided trips occurred in the 7-10

Table 6. Launch and take-out sites for floaters on the Madison River																
UPPER RIVER																
		Number of trips at each take-out site														
Launch site (number trips)	% guided	Lyon's Bridge	Pine Butte	Windy Point	Palisades	Ruby Creek	McAtee Bridge	Storey Ditch	Varney Bridge	Eight Mile Ford	Burnt Tree Hole	Ennis	Valley Garden	Clute's	Don't know	Private property
Three Dollar Bridge (1)	0.0%	1														
Pine Butte (1)	100.0%			1												
Lyon's Bridge (166)	63.8%			35	65	41	4	1							20	
Windy Point (41)	73.2%				1	10	10	15	1						4	
Palisades (35)	62.8%					4	7	22								
Ruby Creek (24)	79.2%						1	8	15							
McAtee Bridge (30)	73.3%							1	25						2	2
Storey Ditch (20)	85.0%								11	6	1		1		1	
Varney Bridge (69)	43.5%									15	9		33		3	1
Eight Mile Ford (23)	43.5%										1		15	3	2	
Burnt Tree Hole (7)	42.9%												4	2	1	
Ennis (10)	20.0%													3	3	4
Clute's (16)	0.0%														16	
LOWER RIVER																
		Number of trips at each take-out site														
Launch site (number trips)	% guided	Bear Trap Canyon	Warm Springs	California Corner	Canaday/Red Mountain	Damselfly	Black's Ford	High Bank	Greycliff	Cobblestone	Milwaukee	Headwaters				Don't know
Madison Dam (5)	40.0%		5													
Bear Trap Canyon (3)	33.3%						1		1				1			
Warm Springs (351)	7.7%		1	1	11	34	288	1	12	1					2	
California Corner (74)	9.5%				3	6	63		2							
Canaday/Red Mountain (30)	3.3%					3	24		2						1	
Damselfly (16)	0.0%						7	3	6							
Black's Ford (13)	0.0%							1	10	1	1					
High Bank (3)	0.0%								1	2						
Greycliff (9)	22.2%									5	4					
Cobblestone (5)	0.0%										4		1			
Milwaukee/I-90/Blackbird (26)	0.0%											26				



a.m. period, followed by a lull between 10 a.m. and noon, and then a peak for the day at 1 p.m. followed by a steady decline thereafter. Non-guided trips however were generally highest between 11 a.m. and 4 p.m. and tailed off in the hours before or after.

The bias from uneven effort through the day can be corrected by normalizing the dataset by dividing the number of trips in each hour interval by the number of interview-shifts during that same hour. These corrected numbers (Figure 13) show much greater guide activity in the 7-10 a.m. period with a lull until 1 p.m., presumably a reflection of the guide trips taking out. The non-guided activity shows generally consistent effort between 8 a.m. and 5 p.m. The corrected numbers have the effect of increasing the estimated percentage of guided trips on the upper

river during this interview period. Uncorrected (Figure 12) data estimate a guided level of 61.1% but corrected data provide an estimate of 68.1%. Even the “corrected” estimate has error associated with it that is difficult to quantify--primarily related to the small sample size of early- and late-hour intervals and the uneven level of coverage throughout the summer. If the percent of guided trips varied throughout the summer due to events like hoot-owl restrictions, fire-induced smokey skies, seasonality factors for families (e.g., when school gets out in spring or starts in fall), then the small sample size or uneven coverage would generate error.

Access site crowding. Everyone who was interviewed was asked the question: “On a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of people and their vehicles at this access site today?” Results were very similar among sites, with most users at all sites giving a score of 4 (acceptable) or 5 (very acceptable): on the upper river it ranged from 74.5% (Ruby Creek) to 93.9% (Madison Dam/Powerhouse) of users expressing acceptability, slightly lower than sites on the lower river which ranged from 87.1% (Bear Trap Canyon) to 100 % (Headwaters). On the negative side of the responses (1 very unacceptable or 2 unacceptable), sites on the upper river ranged from 0.0% at the Madison Dam/Powerhouse to 10.0% at the Burnt Tree Hole FAS. On the lower river, there were seven sites (Headwaters, Cobblestone, Greycliff, High Bank, Damsselfly, Canaday/Red Mountain, California Corner) where no users expressed any unacceptability, and Milwaukee/I-90/Blackbird had the highest level (3.8%) (Figure 14, Appendix E). Factors likely to influence a user score of acceptability at an access site include a combination of the number of people and/or vehicles at the site at the time of the interview plus capacity of the site to handle large numbers of people and vehicles. User numbers and vehicles at sites at the time of interviews were not recorded, precluding such an analysis. Car counter information showing numbers of vehicles using a site on a particular day might be a useful surrogate for crowding, but these data are collected by a Northwestern Energy contractor (Pinnacle Research) and are not available at this time.

River crowding and satisfaction. River users who were engaged in or had finished recreating for the day were asked a series of questions that differed slightly depending on which of the eight sections of river they were on. All users were first asked the same three questions—the first two beginning with the phrase “In this section, on a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable...” and the third beginning with “In this section, on a scale of 1 to 5, with 1 being very uncrowded and 5 being very crowded...”: 1) “...how acceptable was the number of boats you observed while using the river today?”; 2) “...how acceptable was the number of wade anglers you observed while using the river today?”; and 3) “...how crowded did you feel on the river today?” Additional questions were asked in the sections where existing or proposed recreational restrictions were relevant—Raynolds’ Pass-Lyon’s Bridge, Lyon’s Bridge-Palisades, Ennis-Ennis Lake, and Greycliff-Headwaters.

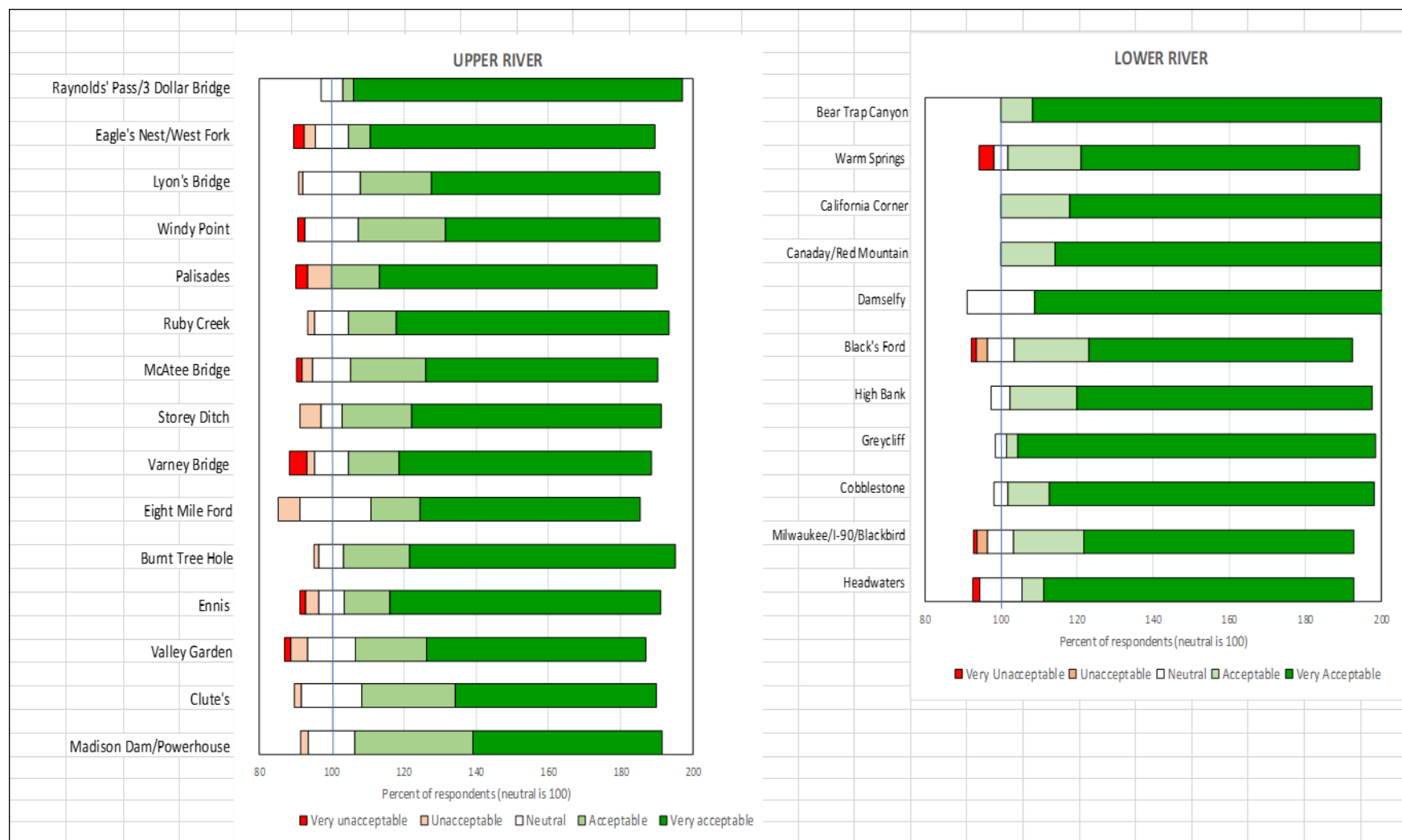


Figure 14. Graphic depiction of responses to the question “On a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of people and their vehicles at this access site today?” Numeric values can be found in Appendix E.

Regarding the question about the acceptability of the number of boats, those that found the level to be acceptable or very acceptable on the upper river ranged from 74.2% (Lyon's Bridge to Palisades) to 95.9% (Ennis-Ennis Lake). On the lower river, overall levels were higher, and ranged from 87.5% (Black's Ford-Greycliff) to 93.1% (Madison Dam-Black's Ford). Those feeling the numbers of boats were unacceptable or very unacceptable (1 or 2 rating) on the upper river ranged from 4.0% (Ennis-Ennis Lake) to 17.4% (Ennis Lake-Madison Dam). Percentages of unacceptability were somewhat lower on the lower river and ranged from 1.3% (Madison Dam-Black's Ford) to 6.2% (Black's Ford-Greycliff) (Figure 15, Appendix F).

Views about the acceptability of the number of wade anglers were similar to but slightly higher than the number of boats. On the upper river, percentages of acceptability or very acceptability (4 or 5 rating), ranged from 78.7% (Quake Lake-Lyon's Bridge) to 97.9% (Palisades-Ennis) (Figure 15, Appendix F). On the lower river, percentages were slightly higher than the upper river and ranged from 95.8% (Madison Dam-Black's Ford and Greycliff-Headwaters sections) to 99.9% (Black's Ford-Greycliff). Percentages of unacceptability (1 or 2 rating) on the upper river ranged from 1.0% (Palisades-Ennis) to 4.4% (Ennis Lake-Madison Dam), somewhat higher than the lower river where few respondents had unacceptable views of wade anglers, ranging from 0% at both Black's Ford-Greycliff and Greycliff-Headwaters sections to 2.3% in the Madison Dam-Black's Ford section.

With respect to the question about how crowded people felt on the river, percentages of not crowded (4 or 5) on the upper river ranged from 50.7% (Lyon's Bridge-Palisades) to 94.1% (Ennis Lake-Madison Dam), while on the lower river they ranged from 78.6% (Black's Ford-Greycliff) to 87.5% (Greycliff-Headwaters) (Figure 15, Appendix F). Percentages of crowded (1 or 2) on the upper river were highest in the upper three sections above Ennis (14.6-20.8%) than in sections downstream (0.0-10.3%). On the lower river percentages ranged from 0.0% between Greycliff-Headwaters to 7.1% (Black's Ford-Greycliff).

In most sections, more people felt crowded or very crowded than felt unacceptable or very unacceptable about the number of boats or wade anglers. The difference between the percent of respondents expressing acceptability (4 and 5) and unacceptability (1 and 2) for boats and wade anglers or crowding (1 and 2) and no crowding (4 and 5) is termed a "margin of acceptability" and is useful for comparing the conditions occurring in each section (Figure 16). These margins are remarkably consistent for boats and wade anglers in all eight sections of the river. Margin of acceptability for crowding shows a different trend however, with the upper three sections (above Ennis) having much lower margins than all other sections further downstream. The differences may mean that people view crowding as a combination of numbers of both wade anglers and boats. It could also reflect people's past experiences or some event that occurred during the day.

If experience was a factor in how people viewed crowding on the river, then there might be different views between those who had never been on the Madison before and those who had been in prior years; consistent with this, the number of years respondents had been recreating

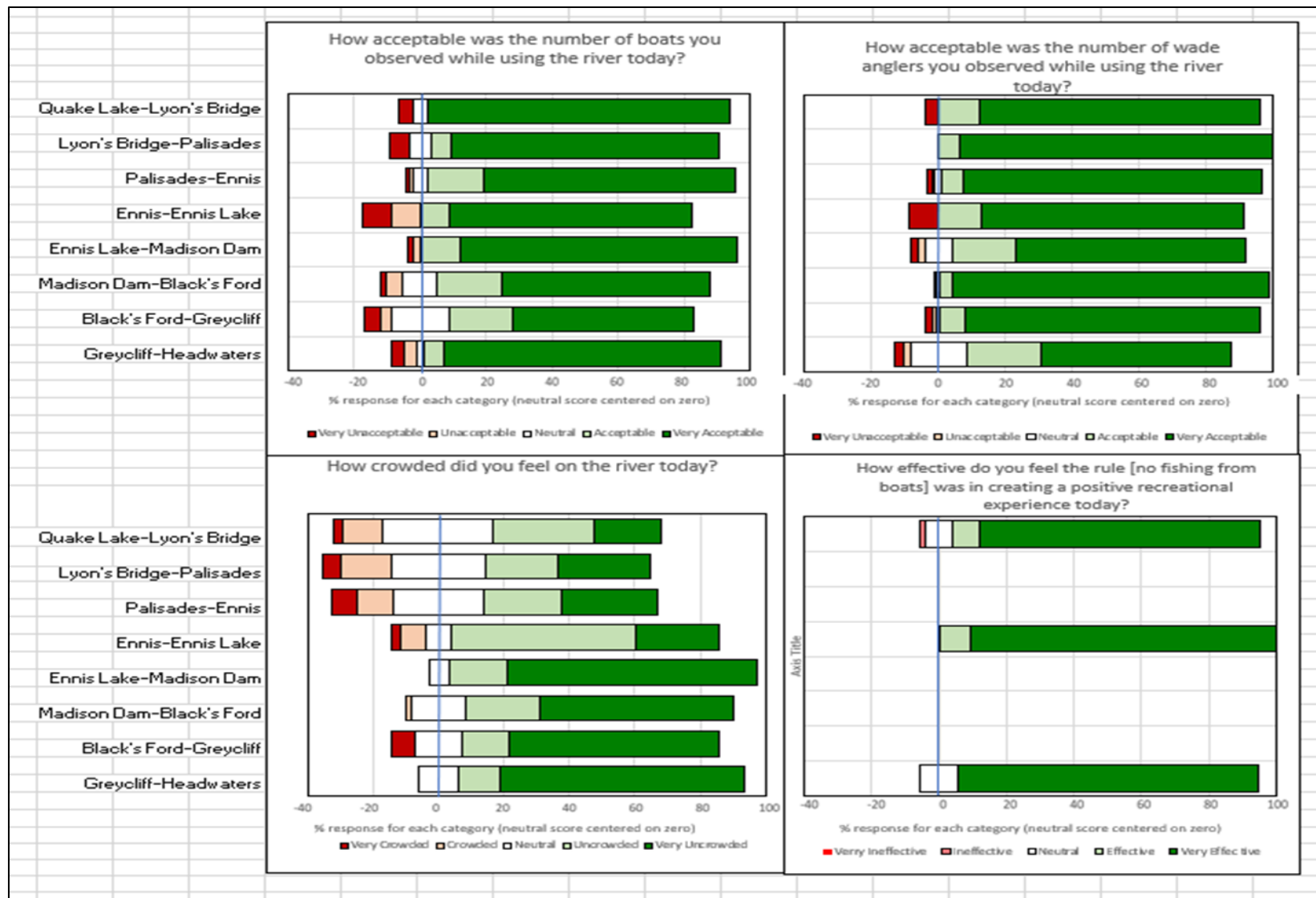


Figure 15. Graphic depiction of responses to questions regarding satisfaction and crowding in eight sections of the Madison River. Numerical values can be found in Appendix F.

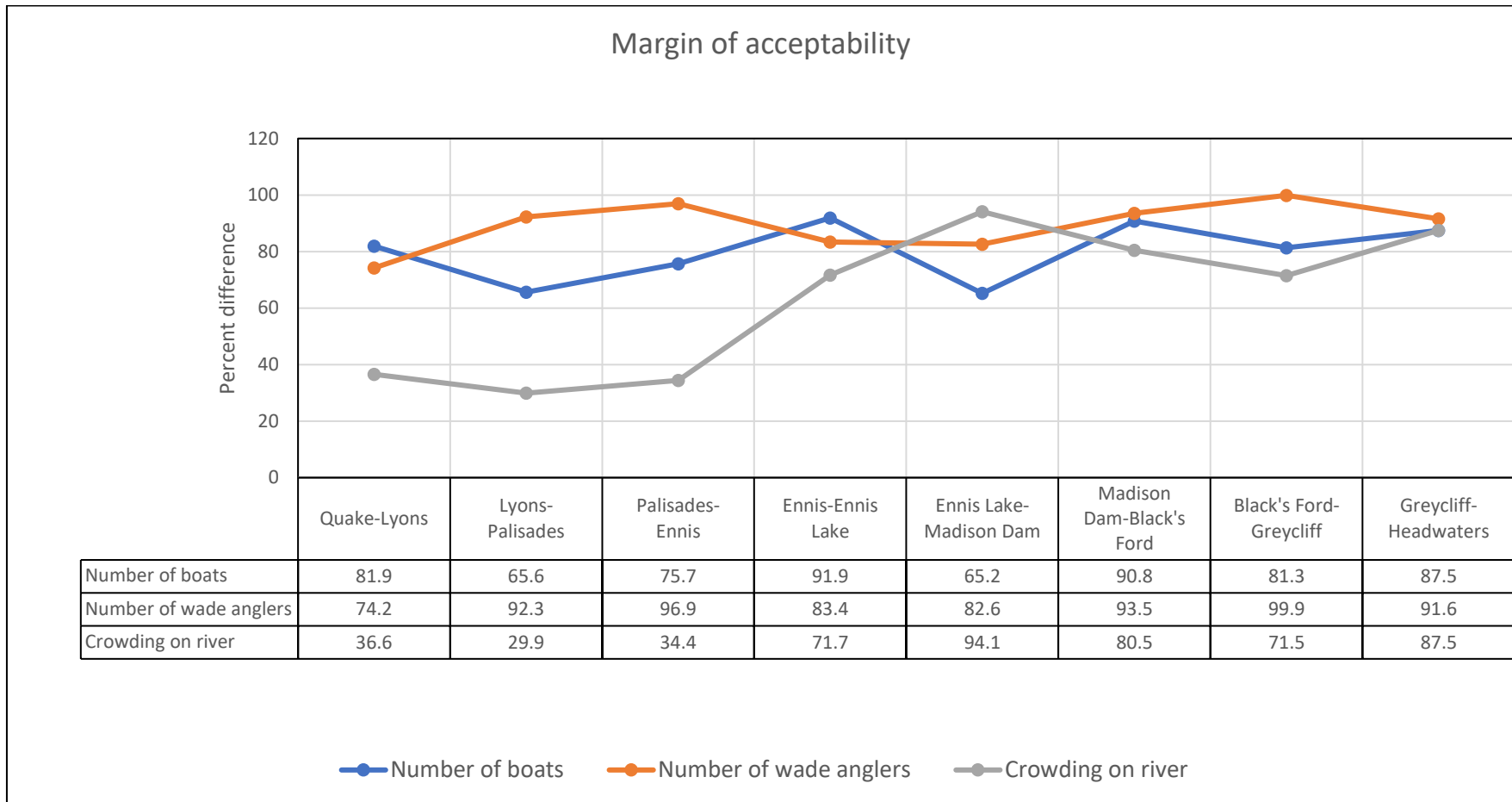


Figure 16. Margin of acceptability for eight sections of the Madison River. Margin is the difference between percentage of respondents providing a score of 4 or 5 minus the percentage providing a score of 1 or 2.

on the Madison might affect how they address the question of crowding. For all respondents in the upper three sections of the river, 32.1% of those who felt very uncrowded or uncrowded were first time users. For those who felt conditions were either crowded or very crowded, 23.2% were first-time users. For those viewing conditions as very uncrowded or uncrowded, the average length of time they had been coming to the Madison was 9.0 years, compared with 13.9 years for those viewing the river as crowded or very crowded.* These numbers suggest that prior experience played a role in the perception of crowding, but more in-depth questioning on future surveys might provide some clarification on the relative importance of this and other factors.

Section-specific questions. Respondents in the Quake Lake-Lyon's Bridge section were asked three section-specific questions. When asked if they were aware of the special restriction regarding float angling in this section, 57 of 110 or 51.8% answered "yes" (Table 7). When asked if this rule factored into them selecting this location to recreate in today, 19 of 60 or 31.7% said "yes." For those that said "yes," they were asked how it factored in, and 12 respondents said: "Attempt to avoid float angling traffic", 6 said: "Attempt to avoid crowded angling conditions, and 1 said they were: "using a boat to gain access to less accessible/pressured spots." Lastly, when asked to rate on a scale of 1 to 5, with 1 being very ineffective and 5 being very effective, how effective the rule was in creating a positive recreational experience today, 54 of 60 (90.0%) said effective or very effective (4 or 5), while only 1 person gave an ineffective score (2) (Table 7).

In the Lyon's Bridge-Palisades section, Palisades-Ennis section and Ennis Lake-Madison Dam section respondents were asked if they selected their location today because they had been displaced by other Madison River Recreation rules. In the Lyon's Bridge-Palisades and Ennis Lake-Madison Dam sections, not a single person responded "yes," while only 2 out of 200 responded "yes" in the Palisades-Ennis section.

A slightly higher percentage of people in the Ennis-Ennis Lake section were aware of the no fishing from boats regulation (64.1%) than in the upper wade section (51.8%). However, fewer people in the lower wade section (24.0%) said the rule factored into where they recreated that day, than did people in the upper wade section (31.7%). Various reasons were given for how that factored into their decision (Table 7).

In the Greycliff-Headwaters section, only 13.6% of respondents were aware of the rule regulating future FAS site development, while a slightly higher percentage (18.2%) acknowledged that this rule or the existing limited access played a contributing role in their decision to recreate there that day.

Counts of wade anglers were conducted in the Reynolds' Pass-Three Dollar Bridge, the Eagle's Nest/West Fork, and the Ennis Lake-Madison Dam areas, at the start of the interview shift.

*First time users were arbitrarily assigned an experience level of 0.5 years for the purpose of calculating an average value.

Table 7. Responses to section-specific questions. Number of responses are in parentheses.	
Lyon’s Bridge-Palisades, Palisades-Ennis and Ennis Lake-Madison Dam sections	
Question: <i>Did you select this location today because you have been displaced by other Madison River Recreation rules?</i>	
Section	% responding yes
Lyon’s Bridge-Palisades (92)	0.0%
Palisades-Ennis (200)	0.1%
Ennis Lake-Madison Dam (19)	0.0%
Quake Lake-Lyon’s Bridge and Ennis-Ennis Lake sections	
Question: <i>Are you aware of the special restriction regarding float angling in this section?</i>	
Quake Lake-Lyon’s Bridge (110)	51.8%
Ennis-Ennis Lake (39)	64.1%
Question: <i>Did this rule factor into your selecting this location to recreate today?</i>	
Quake Lake-Lyon’s Bridge (60)	31.7%
Ennis-Ennis Lake (25)	24.0%
If yes, How?	
Quake Lake-Lyon’s Bridge	12 respondents said, "Attempt to avoid float angling traffic", 6 said "Attempt to avoid crowded angling conditions, and 1 said they were "using a boat to gain access to less accessible/pressured spots
Ennis-Ennis Lake	2 respondents wanted to "Use a boat to gain access to less accessible/pressured spots;" 2 respondents wanted to "Attempt to avoid float angling traffic;" 1 respondent wanted to "Attempt to avoid crowded angling conditions" and "Attempt to avoid float angling traffic;" 1 respondent just "wanted to wade fish."
Question: <i>In this section, on a scale of 1-5, with 1 being very ineffective and 5 being very effective, how effective do you feel the rule was in creating a positive recreational experience today? (60)</i>	
Responses are found in Appendix F.	
Greycliff-Headwaters section	
Question: <i>Are you aware of the rule regarding future access site development in this section? (22)</i>	
	13.6%
Question: <i>Did this rule or the limited boat access in this section factor into your selecting this location to recreate today? (11)</i>	
	18.2%
If Yes, how? Select the answer from the list	1 respondent said, "To attempt to avoid float angling traffic;" another respondent said "Attempt to control crowded angling conditions."

Results from this are shown in Table 8 and show the highest number in the Reynolds’ Pass-Three Dollar Bridge area, nearly twice the number on average as in the Eagle’s Nest/West Fork area and four times as many as in the Ennis Lake outlet. Sample size for these counts was quite limited (N=11 to 18); daily counts at randomized times are probably necessary to establish reliable trend information.

Table 8. Summary of wade angler counts, 2021. Number of times counts were conducted are shown in parentheses.			
Area	Date range of counts	Minimum-maximum wade angler counts	Average number wade anglers
Reynolds’ Pass-Three Dollar Bridge (18)	5/26-9/21	0-35	12.4
Eagle’s Nest-West Fork (14)	5/26-9/21	0-15	6.9
Ennis Lake outlet-Madison Dam (11)	5/25-9/19	0-9	2.9

Comparison with Prior Surveys

There have been three recent FWP surveys (2009, 2016, 2019) that have collected information similar to the current survey. Because the methodology and the demographics of respondents were different for each of the surveys, collectively they present a more comprehensive portrayal of attitudes and opinions of recreationists on the river.

Lewis and Sperry (2009) Survey. FWP interviewed 570 visitors to Madison River public access sites between June 18-August 30, 2009. A total of 369 surveys were completed in the area between Quake Lake outlet and Ennis. Respondents were asked to rate the acceptability of a variety of conditions on the river, using the 1-5 scale as was done for the current survey. When asked about the acceptability of “the number of people (and vehicles) at river access sites,” 11.9 and 7.8% of respondents from Quake Lake-Lyon’s Bridge and Lyon’s Bridge-Ennis, respectively, felt it was very unacceptable or unacceptable (1 or 2 score). When asked about the acceptability of “the number of people floating the river” the percentages for the same two sections for a score of 1 or 2 was 9.1 and 5.0%. Lastly, when asked about “the number of people bank/wade fishing the river-no watercraft involved” the percentages for a score of 1 or 2 was 11.3 and 2.8%. These are very similar scores to the current survey, where the percentages for the same questions in the same sections were 10% or less.

The 2009 survey also found that in the Lyon’s Bridge -Ennis section, 89% of respondents reported that fishing was their primary activity, and 83% of these anglers were using a boat. Forty-two percent reported using a commercial guide or outfitter, and 75% of respondents were nonresidents. Most of these numbers are very similar to the findings from the current survey, where 73.2% were nonresidents, 90.2% reported fishing was their primary activity, and 77.9% of these were using a boat. However, the percent of anglers reporting the use of a

commercial guide at sites between Lyon's Bridge and Ennis was much lower than in the current survey (64.5%).

Horton et al (2018) Survey. In 2016, FWP conducted a mail survey focusing on angler satisfaction. Data were collected from 1,335 residents of Montana and 1,545 nonresidents. To be as comprehensive and non-biased as possible, the survey was sent to a sample of anglers that reported fishing the Madison River drainage from 2001 to 2015 through the Statewide Angler Surveys. The survey questioned both residents and nonresidents on several factors related to their overall angling experience in two reaches of the upper Madison River – Hebgen Dam to Lyon's Bridge and Lyon's Bridge to Ennis Reservoir.

In the Hebgen Dam-Lyon's Bridge and Lyon's Bridge-Ennis sections, 30.4% and 17.5% of the respondents, respectively, thought that the number of wade anglers was either unacceptable or very unacceptable during the summer season (June 15-September 15). These are much higher percentages of unacceptability as compared with the current survey where 4.5%, 3.3% and 1.0% felt the same way for the sections that covered nearly the same geographic area (Quake Lake-Lyon's Bridge, Lyon's Bridge-Palisades, and Palisades-Ennis) (Table 9). In the 2016 mail survey, people were also asked to judge the acceptability of "the number of people and their vehicles at access points", and 44.5% and 42.1% in the Hebgen Dam-Lyon's Bridge and Lyons Bridge-Ennis sections, respectively, were either unacceptable or very unacceptable. For the very same question in the current survey, the percentage of people saying it was unacceptable or very unacceptable averaged only 2.1% for the 13 access sites between Reynolds' Pass and Ennis Lake (Figure 14, Appendix E).

The questions in the two surveys regarding the acceptability of the number of boats on the river were not exactly the same but showed a similar pattern to the responses regarding wade anglers and access site crowding. In 2016 there were two questions regarding acceptability of boats in the Hebgen Dam-Lyon's Bridge section: "The number of people floating the river for recreational purposes other than fishing" and "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." For these two questions, 22.8% and 30.4% felt the numbers were unacceptable or very unacceptable, respectively. In the Lyon's Bridge-Ennis Dam section, the same two questions were asked plus a third: "The number of people float fishing the river." The percentages who felt it was unacceptable or very unacceptable was 19.5%, 20.5% and 41.2% respectively. In the current survey, the one question specific to boats was "How acceptable was the number of boats you observed while using the river today?" For the four sections of comparable geographic area to the 2016 survey (Quake-Lyon's, Lyon's-Palisades, Palisades-Ennis, and Ennis-Ennis Lake), the percentages were 7.7%, 8.6%, 6.9% and 4.0%, respectively.

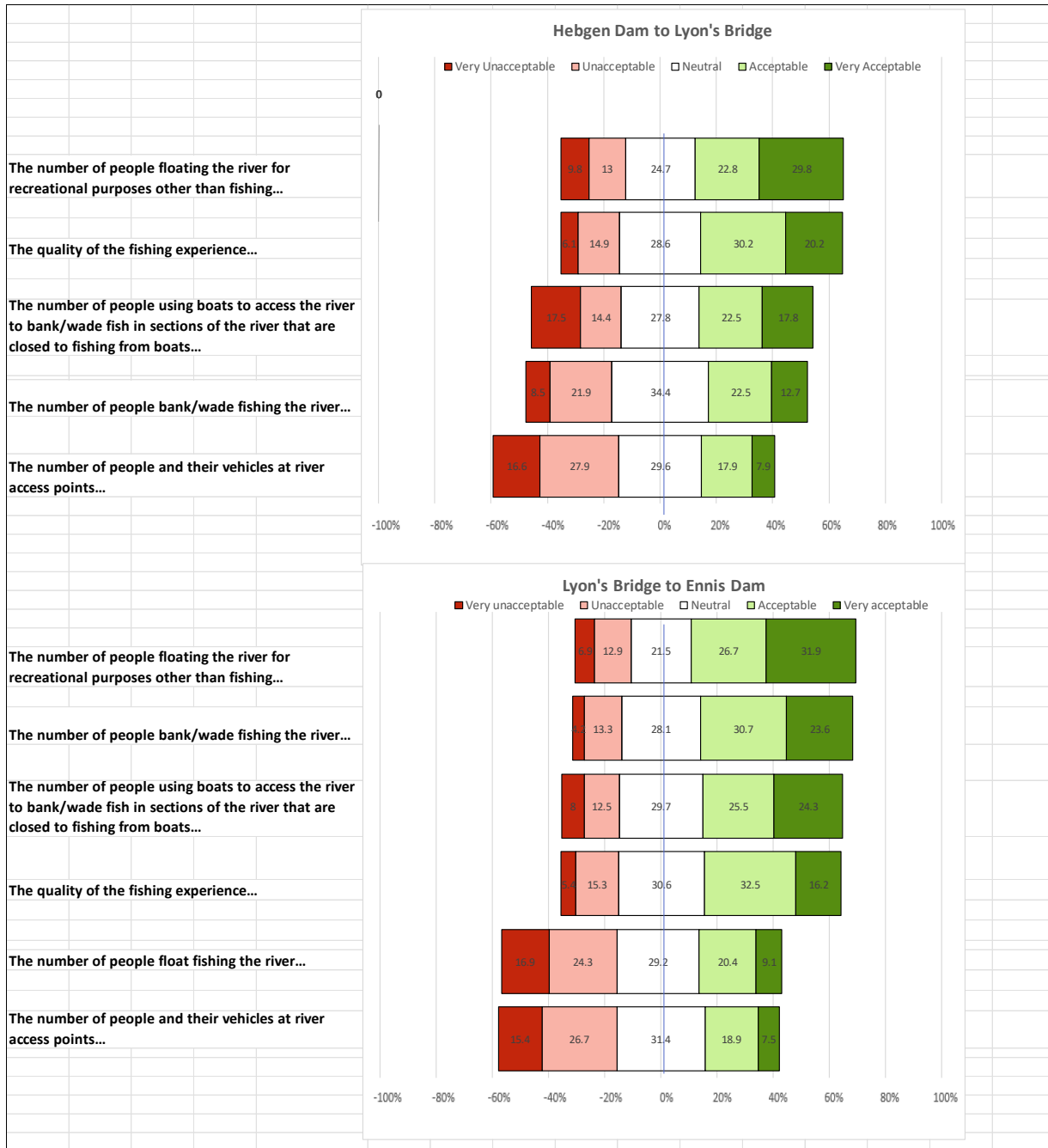


Table 9. Graphical depiction of results from Horton et al (2018) survey of anglers on the Madison River. Percentage of respondents in each category are included inside each cell.

There are several possible reasons for the difference in levels of unacceptability between the 2016 and current survey. One reason may be that conditions were actually more crowded for those years recalled by people in the 2016 survey than they were in 2021. This seems unlikely, since angler numbers on the upper river have been generally increasing since 2001 (the earliest period of time the 2016 respondents were known to have fished the Madison River). However, COVID-19 concerns, and objectionable smoke levels in late summer 2021 due to fires may have reduced angling pressure and deviated from the upward trend. The actual angler numbers will not be known until next year sometime for this question to be answered. Another possibility is that some of the people expressing unacceptability in numbers of people or boats have simply ceased to go fishing on the Madison. These people could well have been represented in the 2016 survey since it was a mail survey and people didn't need to be on the river to answer the questions. Support for this possibility comes from the 2019 scoping survey (see below) where the responses were markedly different for those who had stopped fishing the Madison than for those who have not stopped fishing.

FWP (2019) scoping survey. The Department conducted an online survey about Madison River recreation using Survey Monkey from November 26, 2019-January 6, 2020, and also provided an online mailbox for people to provide additional comments. A total of 7,605 people took the survey, and about 260 comments were provided to the online mailbox. In addition, there were 265 people who submitted a pre-printed postcard with specific recommendations. Approximately 69% of survey respondents were residents, and 31% were non-residents. Four hundred respondents identified themselves as commercial outfitters or guides, and 188 of these were also Madison River Special Recreation Permit (SRP) holders. The online survey asked for the public's opinion on recreation management within four broad topics: Commercial Fishing Outfitter Management, Social Conflict Management on the Upper River, Lower River Recreational Use Management, and Angler Use Management on the Upper River. Each of these topics proposed 4 or 5 alternatives for management, and the respondent was asked to grade each alternative on a scale from 1 to 5—very unacceptable ranging to very acceptable. The survey also proposed a Management Goal for the river, and asked respondents their opinion on three main components of the goal.

A few of the questions in the scoping survey were relevant to the current survey. All scoping survey respondents were asked the question: "Have you stopped fishing the Madison in recent years due to congestion and/or crowding on the river?" The number who took the survey that had stopped fishing (N=2,880) was very close in size to those who had not stopped fishing (N=2863). A summary of those results is shown in Table 10. The views of those who had not stopped fishing are probably similar to those who were encountered on the river during the current survey, while those who had stopped fishing were probably under-represented in the current survey. Those who had not stopped fishing were generally more tolerant of the status quo on the river and less inclined to want to enact restrictions on commercial or noncommercial activity than those who had stopped fishing. None of the social conflict management options had higher than a neutral score by the "had not stopped fishing" group,

while the rest-rotation and walk-wade options were heavily favored by those who had stopped fishing (Table 10). Those who had not stopped fishing were on average against no limits (“do nothing”) on angler numbers on the upper river, but they didn’t like any of the options presented to control numbers, such as caps on all anglers or non-residents. All of this suggests that the level of acceptability expressed in the current survey regarding numbers of boats, wade anglers or the sense of crowding, is probably higher than it would be if it included those who have quit fishing the Madison in recent years.

		Alternative Acceptability (average score)		Preferred Alternatives (percent)	
		Have Stopped fishing	Have NOT stopped fishing	Have Stopped fishing	Have NOT stopped fishing
COMPARISON OF RESPONDENTS BASED ON WHETHER OR NOT THEY HAD STOPPED FISHING THE MADISON RIVER IN THE PAST FIVE YEARS					
Proposed Management Goal	Healthy Fishery	4.49	4.5		
	Economic Viability	3.15	3.82		
	Diversity of angling experiences	3.78	3.76		
Commercial Fishing Outfitter Management	No Limits	1.89	2.16	2.2	16.1
	Cap # of outfitters at 2018 level	2.2	2.34	3.7	8.7
	Cap # of trips of outfitters at 2018 level	3.1	3.13	20.3	31.9
	Reduce number of trips below 2018	4	3.13	79.7	43.3
Social Conflict Management on Upper River	No restrictions	1.56	2.37	2.7	15.2
	Access Site social conflict mgt	2.32	2.86	5.1	18
	Rest-rotation	3.7	2.88	37.1	21.5
	Walk-wade	3.48	2.87	37.1	29.2
	Daily boat launch restrictions	3.06	2.67	18	16.2
Lower River Recreational Use Management	Status Quo	1.96	2.77	6.3	20.8
	Evaluate level of crowding and conflict	3.28	3.49	21.5	29.9
	Prohibit commercial use below Greycliff	3.41	2.58	30.1	14.9
	Preserve primitive nature below Greycliff	3.77	3.29	41.5	34.5
Angler Use Management on Upper River	No Limits	1.72	2.56	7.5	31.9
	Non-commercial use cap at 2018 level	2.53	2.47	12.9	25.1
	50:50 resident:non-resident cap	3.45	2.53	49.4	26.3
	Citizen's Day	3.18	2.3	30.2	16.6

Alternative acceptability (average score)

1 3 5
Very unacceptable Unacceptable Neutral Acceptable Very Acceptable

Preferred alternative (% chosen)

0 20-25 High value
Do not prefer No preference Prefer

Table 10. Average scores provided by respondents for different management alternatives on the Madison River from the FWP (2019) scoping survey.

Potential management implications and recommendations for future surveys

One of the challenges for an accurate opinion survey of Madison River users is the fact that more than 27% of users every year are new to the river, and their opinions lack a time perspective. This can be remedied several ways--by interviewing former users who no longer visit the river or placing more importance on the views of current users with a long history of use. Even though these adjustments could be made, the opinion surveys should be guided by management goals and objectives including an articulation of a desired condition for the river, e.g., numbers of boats or anglers, locations where commercial activity is allowed, or access site development and staffing. Management direction can hopefully be provided through a collaborative effort among FWP, the Madison River Workgroup and the Fish and Wildlife Commission.

Directly linking opinions about satisfaction and crowding with actual counts of boats on the river or vehicles in parking lots would be beneficial so that management actions can be customized to specific access sites where the problem is occurring. River users who are interviewed should also be asked to describe reasons why they felt crowded at access sites or on the river and these opinions should be summarized separately for each section of the river with different or unique recreational restrictions.

Some of the shortcomings with the current survey have been identified in the body of this report, but are summarized below along with potential remedies:

1. Future surveys should increase the frequency of wade angler counts in the areas where dispersed wade activity is occurring. In the current survey, Reynolds' Pass-Three Dollar Bridge was only counted 18 times, compared with 14 times at the Eagle's Nest/West Fork and 11 times at the Ennis Lake outlet-Madison Dam. A more reliable dataset would come from counting each of these three areas twice each week during the workweek (M-F) and one day each weekend.
2. If manpower is limited in future surveys (as it was for the current survey), create index sites that get interviewed every year with all sites being interviewed on a less frequent basis (e.g., every 5 years). Suggested index sites include Black's Ford, Palisades, and Ennis which are major take-out points for river use upstream. Other proposed index sites are Milwaukee (a major launch and take-out point for the lower river) and Reynolds' Pass (the most heavily used site for wade anglers). Index sites for cameras include the Lyons Bridge-Palisades and Warm Springs-Black's Ford stretches—the busiest point-to-point access sites on the upper and lower river, and Cobblestone which captures much of the lower river use below Greycliff.
3. Continue to track experience levels of Upper River anglers as portrayed in Figures 10 and 11. Significant changes over time may reflect changes in angler satisfaction, and hence may have implications for recreation management.
4. The need for “normalizing” or correcting for uneven effort at different sites can be minimized in the future through better scheduling or active adjustment of schedules as

the summer progresses and shifts are missed or changed for personal reasons. However, the uneven number of shifts/site was also a result of efforts to devise a schedule that was economical and efficient (minimizing distances and time spent driving each shift). The uneven number of shifts/time increment was unavoidable due to the 10-hour workdays and desire to visit four sites with each shift. This could be remedied by split shifts (working mornings and evenings on some days), or longer stints at fewer sites each day.

The cost of the current survey was approximately \$6,000/month in wages for two interns, and \$300/month in per diem and \$1,000/month in vehicle costs. FWP housing was available for the interns in West Yellowstone and Bozeman, but this should not be expected to always be available and should probably be provided as a matter of course for interns in the future to ensure the job attracts qualified applicants.

Acknowledgements

Many thanks to the diligent and conscientious efforts by the two interns Bryce Mahler and Kaitlyn Wiens who collected over 1,600 quality interviews on the Madison River in 2021. FWP Fisheries staff Travis Horton, Andrew Puls, Cheryl Morris and Chrissy Oschell assisted with the development of interview questions, scheduling and intern training. FWP Law Enforcement and Wildlife staff Adam Pankratz, Robbie Pohle, Julie Cunningham helped arrange lodging for interns. Eileen Ryce (Fisheries Division), Travis Horton, Andrew Puls, Cheryl Morris and Charlie Sperry (Parks and Outdoor Recreation Division) provided useful review of a draft of this report.

References

Montana Fish, Wildlife and Parks. 2019. *Madison River Recreation Scoping Survey Results*. 13 pp. Presented to Fish and Wildlife Commission, February 11, 2020.

Horton, T., D. Moser, C. Morris, A. Puls, T. Lohrenz and M. Lewis. 2018. *Angler Satisfaction, Demographic, and Creel Surveys-Upper Madison River, 2015-2017*. Report to Northwestern Energy. 52 pp. Montana Fish, Wildlife and Parks.

Lewis, M.S. and C. Sperry. 2009. *Select findings from a 2008 survey of resident anglers concerning the Madison River in Montana*. RMU Research Summary No. 26. Helena, MT Montana Fish, Wildlife and Parks.

Appendix A. Upper Madison River Visitor Use Survey (v. May 26)

NOTE: Interview only one person from each group. DO NOT interview outfitters/guides who are with a paying client. If you suspect that they are an outfitter, ask them and if they are then ask if you can interview one of their clients. Inform them that FWP will be surveying outfitters separately at year's end as part of the SRP reporting process. Also do not interview shuttle drivers or people who are shuttling their own vehicles but have not begun fishing/floating for the day.

Date _____ Time _____ Location _____ (from drop down list)

Hello, my name is _____ with FWP, I am conducting a recreational use study on the river.

1. May I ask you a series of quick questions? YES NO If no, check box and end survey
2. Has anyone else in your group been interviewed today? YES NO If yes, check box and end survey

It should only take a few minutes of your time and your participation is completely voluntary. All information collected will be compiled into a statistical database and no personal information will be retained. Thank you!

3. Are you a Montana resident? YES NO

4. I'm going to list off a number of activities and just tell me which ones you are participating in today. (circle all that apply)

Boat fishing (guided or private)
Wade fishing (guided or private)
Guided non-fishing float trip (list type watercraft):
Private non-fishing float trip (list type watercraft):
Swimming
Tubing
Non-River Use end survey after demographic portion @ 14
Other (list):

5. Which one was your primary activity (main purpose for being here)? _____ -

6. How many people are in your group today (including yourself)?

Adult (18 and older)	
Children	

7. What is your home zip code? _____

8. Do you have a MT fishing license? YES NO

9. What is your age? _____

10. What is your gender? (Observed) M F

11. Is this your first visit to the Madison River?

Yes	No
-----	----

If no, how many years have you been coming to the Madison River? _____

If no, about how many times did you recreate on the Madison River last year? _____

12. Are you floating on the river today? YES NO If yes, where did you launch/take-out?

Launch	Take-out	Survey Sites
Slide Inn/GNF area		
Raynold's Pass	Raynold's Pass	Raynold's Pass/Three Dollar (4 hr survey)
Three Dollar Bridge	Three Dollar Bridge	
Pine Butte/Eagle's Nest	Pine Butte/Eagle's Nest	
West Fork area	West Fork area	Eagle's Nest/West Fork
Lyon's Bridge	Lyon's Bridge	Lyon's Bridge
Windy Point	Windy Point	Windy Point
Palisades	Palisades	Palisades
Ruby Creek	Ruby Creek	Ruby Creek
McAtee Bridge	McAtee Bridge	McAtee Bridge
Storey Ditch	Storey Ditch	Storey Ditch
Varney Bridge	Varney Bridge	Varney Bridge
Eight Mile Ford	Eight Mile Ford	Eight Mile Ford
Burnt Tree Hole	Burnt Tree Hole	Burnt Tree Hole
Ennis/Town	Ennis/Town	Ennis/Town
Valley Garden	Valley Garden	Valley Garden
Clute's/Ennis Lake	Clute's/Ennis Lake	Clute's/Ennis Lake
Madison Dam/powerhouse	Madison Dam/powerhouse	Madison Dam/powerhouse
Private property	Private property	
Don't know	Don't know	

13. Was recreating on the Madison River the primary purpose of your trip to the area? YES NO
 If no, what was the primary reason for your trip to the area? (Circle from the following list: Vacation, Visiting Friends & Family, Pass-through, Business, Shopping, Other (list) _____)

14. On a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of people and their vehicles at this access site today?

1 2 3 4 5

NOTE: Questions below are to be asked only of people who have finished or have already begun their activity for the day.

IF RECREATING BETWEEN QUAKE LAKE OUTLET AND LYONS BRIDGE:

1. *IN THIS SECTION, on a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of boats you observed while using the river today?*

1 2 3 4 5

2. *IN THIS SECTION, on a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of wade anglers you observed while using the river today?*

1 2 3 4 5

3. *IN THIS SECTION, on a scale of 1-5, with 1 being not crowded and 5 being very crowded, how crowded did you feel on the river today?*

1 2 3 4 5

4. *Are you aware of the special restriction regarding float angling in this section?* YES NO
If no, **end this portion of survey.**

5. *Did this rule factor into your selecting this location to recreate today?* YES NO
If Yes, how? (Pick from list below)

- Attempt to avoid crowded angling conditions
- Attempt to avoid float angling traffic
- Use a boat to gain access to less accessible/pressured spots
- Other (list)

6. *IN THIS SECTION, on a scale of 1-5, with 1 being very ineffective and 5 being very effective, how effective do you feel the rule was in creating a positive recreational experience today?*

1 2 3 4 5

Wade angler count (Raynold's/Three Dollar)_____

Wade angler count (Eagle's Nest/West Fork)_____

IF RECREATING BETWEEN LYONS BRIDGES AND (INCLUDING) PALISADES DAY USE AREA:

1. *IN THIS SECTION, on a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of boats you observed while using the river today?*

1 2 3 4 5

2. *IN THIS SECTION, on a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of wade anglers you observed while using the river today?*

1 2 3 4 5

3. *IN THIS SECTION, on a scale of 1-5, with 1 being not crowded and 5 being very crowded, how crowded did you feel on the river today?*

1 2 3 4 5

4. *Did you select this location today because you have been displaced by other Madison River Recreation rules? YES NO*

If Yes, go to #5. If No **end this portion of survey.**

5. *What rule were you displaced by today?*

- No fishing from boats from Quake Lake to Lyons
- No fishing from boats from Ennis FAS to Ennis Lake

IF RECREATING FROM LOWER END OF PALISADES DAY USE AREA AND ENNIS BRIDGE:

1. *IN THIS SECTION, on a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of boats you observed while using the river today?*

1 2 3 4 5

2. *IN THIS SECTION, on a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of wade anglers you observed while using the river today?*

1 2 3 4 5

3. *IN THIS SECTION, on a scale of 1-5, with 1 being not crowded and 5 being very crowded, how crowded did you feel on the river today?*

1 2 3 4 5

4. *Did you select this location today because you have been displaced by other Madison River Recreation rules? YES NO*

If Yes, go to #5. If No **end this portion of survey.**

5. *What rule were you displaced by today?*

- No fishing from boats from Quake Lake to Lyons
- No fishing from boats from Ennis FAS to Ennis Lake

IF RECREATING BETWEEN ENNIS BRIDGE AND ENNIS LAKE:

1. *IN THIS SECTION, on a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of boats you observed while using the river today?*

1 2 3 4 5

2. *IN THIS SECTION, on a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of wade anglers you observed while using the river today?*

1 2 3 4 5

3. *IN THIS SECTION, on a scale of 1-5, with 1 being not crowded and 5 being very crowded, how crowded did you feel on the river today?*

1 2 3 4 5

4. *Are you aware of the special restriction regarding boat use in this section?* YES NO
 If no, **end this portion of survey.**

5. *Did this rule factor into your selecting this location to recreate today?* YES NO

If Yes, how? Circle all that apply

- Attempt to avoid crowded angling conditions
- Attempt to avoid float angling traffic
- Use a boat to gain access to less accessible spots
- Other (list)

6. *IN THIS SECTION, on a scale of 1-5, with 1 being very ineffective and 5 being very effective, how effective do you feel the rule was in creating a positive recreational experience today?*

1 2 3 4 5

IF RECREATING BETWEEN ENNIS LAKE OUTLET AND MADISON POWERHOUSE:

1. *IN THIS SECTION, on a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of boats you observed while using the river today?*

1 2 3 4 5

2. *IN THIS SECTION, on a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of wade anglers you observed while using the river today?*

1 2 3 4 5

3. *IN THIS SECTION, on a scale of 1-5, with 1 being not crowded and 5 being very crowded, how crowded did you feel on the river today?*

1 2 3 4 5

4. *Did you select this location today because you have been displaced by other Madison River Recreation rules?* YES NO

If Yes, go to #5. If No **end this portion of survey.**

5. *What rule were you displaced by today?*

- No fishing from boats from Quake Lake to Lyons

-No fishing from boats from Ennis FAS to Ennis Lake

Wade angler count Ennis Lake to powerhouse_____

Thank you for your time.

Interviewer comment section:

Appendix B.

Lower Madison River Visitor Use Survey (v. May 26)

NOTE: Interview only one person from each group. DO NOT interview outfitters/guides who are with a paying client. If you suspect that they are an outfitter, ask them and if they are then ask if you can interview one of their clients. Inform them that FWP will be surveying outfitters separately at year's end as part of the SRP reporting process. Also do not interview shuttle drivers or people who are shuttling their own vehicles but have not begun fishing/floating for the day.

Date _____ Time _____ Location _____ (from list on next page)

Hello, my name is _____ with FWP, I am conducting a recreational use study on the river.

1. May I ask you a series of quick questions? YES NO If no, check box and end survey
2. Has anyone else in your group been interviewed today? YES NO If yes, check box and end survey

It should only take a few minutes of your time and your participation is completely voluntary. All information collected will be compiled into a statistical database and no personal information will be retained. Thank you!

3. Are you a Montana resident? YES NO

4. I'm going to list off a number of activities and just tell me which ones you are participating in today. (circle all that apply)

Boat fishing (guided or private)
Wade fishing (guided or private)
Guided non-fishing float trip (list type watercraft):
Private non-fishing float trip (list type watercraft):
Swimming
Tubing
Non-River Use (end survey after demographic portion @ 14
Other (list):

5. Which one was your primary activity (main purpose for being here)? _____ -

6. How many people are in your group today (including yourself)?

Adult (18 and older)	
Children	

7. What is your home zip code? _____

8. Do you have a MT fishing license? YES NO

9. What is your age? _____

10. What is your gender? (Observed) M F

11. Is this your first visit to the Madison River?

Yes	No
-----	----

If no, how many years have you been coming to the Madison River? _____

If no, about how many times did you recreate on the Madison River last year? _____

12. Are you floating on the river today? YES NO If yes, where did you launch/take-out?

Launch	Take Out	Survey sites
Bear Trap Canyon		Bear Trap Canyon
Warm Springs	Warm Springs	Warm Springs
California Corner	California Corner	California Corner
Canaday/Red Mountain	Canaday/Red Mountain	Canaday/Red Mountain
Damselfly (Cherry Creek)	Damselfly (Cherry Creek)	Damselfly (Cherry Creek)
Black's Ford	Black's Ford	Black's Ford
High Bank	High Bank	High Bank
Greycliff	Greycliff	Greycliff
Cobblestone	Cobblestone	Cobblestone
Milwaukee/I-90/Blackbird	Milwaukee/I-90/Blackbird	Milwaukee/I-90/Blackbird
Headwaters	Headwaters	Headwaters

13. Was recreating on the Madison River the primary purpose of your trip to the area? YES NO
 If no, what was the primary reason for your trip to the area? (Circle from the following list:
 Vacation, Visiting Friends & Family, Pass-through, Business, Shopping, Other
 (list) _____)

14. On a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of people and their vehicles at this access site today?

1 2 3 4 5

NOTE: Questions below are to be asked only of people who have finished or have already begun their activity for the day.

IF RECREATING FROM MADISON DAM POWERHOUSE TO (AND INCLUDING) BLACK'S FORD FAS

1. *IN THIS SECTION, on a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of boats/tubes you observed while using the river today?*

1 2 3 4 5

2. *IN THIS SECTION, on a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of wade anglers you observed while using the river today?*

1 2 3 4 5

3. *IN THIS SECTION, on a scale of 1-5, with 1 being not crowded and 5 being very crowded, how crowded did you feel on the river today?*

1 2 3 4 5

IF RECREATING FROM LOWER END OF BLACK'S FORD FAS TO (AND INCLUDING) GREYCLIFF FAS

1. *IN THIS SECTION, on a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of boats/tubes you observed while using the river today?*

1 2 3 4 5

2. *IN THIS SECTION, on a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of wade anglers you observed while using the river today?*

1 2 3 4 5

3. *IN THIS SECTION, on a scale of 1-5, with 1 being not crowded and 5 being very crowded, how crowded did you feel on the river today?*

1 2 3 4 5

IF RECREATING FROM LOWER END OF GREYCLIFF FAS TO (AND INCLUDING) HEADWATERS STATE PARK

1. *IN THIS SECTION, on a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of boats/tubes you observed while using the river today?*

1 2 3 4 5

2. *IN THIS SECTION, on a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of wade anglers you observed while using the river today?*

1 2 3 4 5

3. *IN THIS SECTION, on a scale of 1-5, with 1 being not crowded and 5 being very crowded, how crowded did you feel on the river today?*

1 2 3 4 5

4. *Are you aware of the rule regarding future access site development in this section? YES NO*

5. *Did this rule or the limited boat access in this section factor into your selecting this location to recreate today?*

YES NO

If Yes, how? Circle the answer from the list

Attempt to avoid crowded angling conditions	Access to areas with less angling pressure
Attempt to avoid float angling traffic	Seeking solitude
Attempt to avoid non-angling float traffic	Other (describe):
Access to less accessible spots	

6. *IN THIS SECTION, on a scale of 1-5, with 1 being very ineffective and 5 being very effective, how effective do you feel the rule was in creating a positive recreational experience today?*

1 2 3 4 5

Thank you for your time.

Interviewer comment section:

Appendix C. Work schedule for upper river interviewer.

MAY 2021 (work downstream beginning with underlined site)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	24 TRAINING	25 <u>11:00</u> <u>Ennis, Valley,</u> <u>Clute's, Dam</u>	26 900 <u>Raynold's, West</u> <u>Fork, Lyons</u>	27	28	29 <u>11:00</u> <u>Windy,</u> <u>Palisades,</u> <u>Ruby, McAtee</u>
30	31 11:00 <u>Storey, Varney,</u> <u>Eight Mile,</u> <u>Burnt Tree</u>					

JUNE 2021						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 9:00 Raynold's, <u>West Fork</u> , Lyons	2	3 11:00 Windy, <u>Palisades</u> , Ruby, McAtee	4	5 11:00 Ennis, <u>Valley</u> , Clutes, Dam
6	7 11:00 Ennis, Valley, <u>Clutes</u> , Dam	8	9 7:00 Windy, Palisades, <u>Ruby</u> , McAtee	10	11 9:00 Storey, <u>Varney</u> , Eight Mile, Burnt Tree	12
13 9:00 Raynold's, West Fork, <u>Lyons</u>	14	15 9:00 Storey, Varney, <u>Eight Mile</u> , Burnt Tree	16 11:00 Ennis, Valley, Clutes, <u>Dam</u>	17	18 11:00 Windy, Palisades, Ruby, <u>McAtee</u>	19
20 7:00 <u>Raynold's</u> , West Fork, Lyons	21	22	23	24 9:00 <u>Ennis</u> , Valley, Clutes, Dam	25 9:00 Raynold's, <u>West Fork</u> , Lyons	26 11:00 <u>Eight Mile</u> Storey, Varney, Burnt Tree
27	28 7:00 Windy, <u>Palisades</u> , Ruby, McAtee	29	30			

JULY 2021						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 7:00 <u>Storey</u> , Varney, Eight Mile, Burnt Tree	2 9:00 Ennis, <u>Valley</u> , Clutes, Dam	3
4 9:00 Raynold's, West Fork, <u>Lyon's</u>	5 9:00 Ennis, Valley, <u>Clutes</u> , Dam	6	7 7:00 <u>Raynold's</u> , West Fork, Lyon's	8 9:00 Windy, Palisades, <u>Ruby</u> , McAtee	9	10
11	12	13	14 11:00 Ennis, Valley, Clutes, <u>Dam</u>	15 7:00 Windy, Palisades, Ruby, <u>McAtee</u>	16 9:00 Raynold's, <u>West</u> <u>Fork</u> , Lyon's	17
18 7:00 Storey, Varney, <u>Eight Mile</u> , Burnt Tree	19 11:00 <u>Windy</u> , Palisades, Ruby, McAtee	20 9:00 Raynold's, West Fork, <u>Lyon's</u>	21	22 9:00 Storey, Varney, Eight Mile, <u>Burnt</u> <u>Tree</u> (Burnt Tree	23	24
25	26 11:00 <u>Storey</u> , Varney, Eight Mile, Burnt Tree	27 11:00 Ennis, <u>Valley</u> , Clutes, Dam	28	29 9:00 <u>Raynold's</u> , West Fork, Lyon's	30	31 11:00 Windy, <u>Palisades</u> , Ruby, McAtee

AUGUST 2021						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	2	3 9:00 Ennis, Valley, <u>Clutes, Dam</u>	4 9:00 Windy, Palisades, <u>Ruby, McAtee</u>	5 7:00 Storey, <u>Varney</u> , Eight Mile, Burnt Tree	6	7 7:00 Raynold's, <u>West Fork</u> , <u>Lyon's</u>
8	9 7:00 Raynold's (9-12), West Fork (12-3), <u>Lyon's</u>	10 7:00 Windy, Palisades, Ruby, <u>McAtee</u>	11 9:00 Storey, Varney, <u>Eight Mile</u> , Burnt Tree	12	13	14
15 9:00 Ennis, Valley, Clutes, <u>Dam</u>	16 7:00 <u>Raynold's</u> , West Fork, <u>Lyon's</u>	17 11:00 <u>Windy</u> , Palisades, Ruby, McAtee	18	19	20 11:00 <u>Ennis</u> , Valley, Clutes, Dam	21
22 11:00 Storey, Varney, Eight Mile, <u>Burnt Tree</u>	23 9:00 Storey, Varney, Eight Mile, <u>Burnt Tree</u>	24	25	26 11:00 Raynold's, <u>West Fork</u> , Lyon's	27 11:00 Ennis, <u>Valley</u> , Clutes, Dam	28 7:00 Windy, <u>Palisades</u> , Ruby, McAtee
29	30 11:00 <u>Storey</u> , Varney, Eight Mile, Burnt Tree	31 7:00 Raynold's, West Fork, <u>Lyon's</u>				

SEPTEMBER 2021						
Sunday	Monday	Tuesday	Wednesda	Thursday	Friday	Saturday
			1 11:00 Windy, Palisades, <u>Ruby, McAtee</u>	2	3	4
5 7:00 Ennis, Valley, <u>Clutes,</u> Dam	6 11:00 <u>Windy,</u> Palisades, Ruby, McAtee	7 11:00 Storey, <u>Varney,</u> Eight Mile, Burnt Tree	8	9 11:00 Ennis, Valley, Clutes, <u>Dam</u>	10	11
12 9:00 <u>Raynold's, West</u> Fork, Lyon's	13 9:00 Windy, Palisades, <u>Ruby, McAtee</u>	14	15 9:00 Raynold's, <u>West</u> <u>Fork, Lyon's</u>	16	17 11:00 Storey, Varney, <u>Eight Mile,</u> Burnt Tree	18
19 9:00 <u>Ennis, Valley,</u> Clutes, Dam	20	21 11:00 Raynold's, West Fork, <u>Lyon's</u>	22 9:00 <u>Ennis, Valley,</u> Clutes, Dam	23	24 7:00 <u>Windy,</u> Palisades, Ruby, McAtee	25 9:00 Storey, Varney, Eight Mile, <u>Burnt</u> Tree
26	27 11:00 Windy, <u>Palisades,</u> Ruby, McAtee	28	29 11:00 <u>Storey, Varney,</u> Eight Mile, Burnt Tree	30		

Appendix D. Work schedule for lower river interviewer.

MAY 2021 (start at named site and move either up or downstream)

Sunday	Monday	Tuesday	Wednesda	Thursday	Friday	Saturday
	24	25	26	27	28	29
	TRAINING	9:00 Beartrap Upstream	7:00 Damselfly Upstream			7:00 California Corner Upstream
30	31					
	7:00 Highbank Upstream					

JUNE 2021						
Sunday	Monday	Tuesday	Wednesda	Thursday	Friday	Saturday
		1	2 11:00 Greycliff Upstream	3 11:00 Canaday Downstream	4	5 9:00 Headwaters Downstream
6	7 11:00 Blacks Ford Upstream	8	9 11:00 Warm Springs Upstream	10	11 7:00 Milwaukee Upstream	12
13 11:00 Cobblestone Upstream	14	15 9:00 Highbank Upstream	16 11:00 California Corner Upstream	17 9:00 WarmSprings Downstream	18	19 9:00 Greycliff Upstream
20	21	22 11:00 Milwaukee Downstream	23 7:00 Beartrap Upstream	24	25 11:00 Canaday Downstream	26
27 11:00 Damselfly Downstream	28 7:00 Cobblestone Downstream	29 11:00 Headwaters Downstream	30			

JULY 2021						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 9:00 Blacks Ford Downstream	2	3
4 7:00 Milwaukee Upstream	5 11:00 Headwaters Downstream	6	7 9:00 High Bank Upstream	8	9 7:00 Damsely Upstream	10 7:00 Warm Springs upstream
11	12 9:00 Beartrap Downstream	13	14 7:00 Canaday Downstream	15 9:00 California Corner downstream	16	17
18	19 9:00 Cobblestone Downstream	20 11:00 Greycliff Upstream	21 11:00 Black's Ford Downstream	22	23 11:00 Warm Springs Upstream	24
25 (computer malfunction this day)	26	27	28 11:00 Beartrap Upstream	29 7:00 Milwaukee Downstream	30 7:00 Black's Ford Downstream	31

AUGUST 2021						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 7:00 Damselfly Upstream	2	3 11:00 California Corner Downstream	4 7:00 Greycliff Upstream	5 9:00 Canaday Upstream	6	7 11:00 Headwaters Downstream
8	9 9:00 Greycliff Downstream	10 11:00 Black's Ford Upstream	11	12	13 9:00 High Bank Downstream	14
15 7:00 Beartrap Upstream	16 7:00 California Corner Upstream	17	18	19 7:00 Cobblestone Upstream (Cobblestone and Greycliff missed this day)	20 7:00 Canaday Upstream	21 9:00 Milwaukee Upstream
22	23	24	25 7:00 Headwaters Downstream	26 9:00 Warm Springs Downstream (Warm Springs and California Corner missed this day)	27	28
29	30	31				

SEPTEMBER 2021						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4 11:00 Cobblestone Downstream
5	6	7	8	9	10	11
12 7:00 Greycliff Downstream	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

Appendix E. Responses to question: "On a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of people and their vehicles at this access site today?"

Site	UPPER RIVER					Site	LOWER RIVER				
	Number (%) scoring 1	Number (%) scoring 2	Number (%) scoring 3	Number (%) scoring 4	Number (%) scoring 5		Number (%) scoring 1	Number (%) scoring 2	Number (%) scoring 3	Number (%) scoring 4	Number (%) scoring 5
Raynolds' Pass/Three Dollar Bridge (141)	0 (0)	3 (2.1)	18 (12.8)	46 (32.6)	74 (52.5)	Bear Trap Canyon (54)	1 (1.8)	0 (0)	6 (11.1)	3 (5.6)	44 (81.5)
Eagle's Nest/West Fork (54)	0 (0)	1 (1.9)	9 (16.7)	14 (25.9)	30 (55.6)	Warm Springs (216)	2 (0.9)	6 (2.8)	15 (6.9)	40 (18.5)	153 (70.8)
Lyon's Bridge (112)	2 (1.8)	5 (4.5)	15 (13.4)	22 (19.6)	68 (60.7)	California Corner (55)	0 (0)	0 (0)	2 (3.6)	6 (10.9)	47 (85.4)
Windy Point (56)	1 (1.7)	2 (3.6)	4 (7.1)	7 (12.5)	42 (75.0)	Canaday/Red Mountain (33)	0 (0)	0 (0)	1 (3.0)	1 (3.0)	31 (3.9)
Palisades (72)	0 (0)	1 (1.4)	5 (6.9)	13 (18.1)	53 (73.6)	Damselfy (40)	0 (0)	0 (0)	2 (5.0)	7 (17.5)	31 (77.5)
Ruby Creek (51)	0 (0)	3 (5.9)	10 (19.6)	7 (13.7)	31 (60.8)	Black's Ford (169)	2 (1.2)	5 (3.0)	12 (7.1)	33 (19.5)	117 (69.2)
McAtee Bridge (43)	2 (4.7)	1 (2.3)	4 (9.3)	6 (14.0)	30 (69.8)	High Bank (17)	0 (0)	0 (0)	3 (17.6)	0 (0)	16 (94.1)
Storey Ditch (52)	0 (0)	3 (5.8)	3 (5.8)	10 (19.2)	36 (69.2)	Greycliff (14)	0 (0)	0 (0)	0 (0)	2 (14.3)	12 (85.7)
Varney Bridge (67)	1 (1.5)	2 (3.0)	7 (10.4)	14 (20.9)	43 (64.2)	Cobblestone (22)	0 (0)	0 (0)	0 (0)	4 (18.2)	18 (81.8)
Eight Mile Ford (53)	0 (0)	1 (1.9)	5 (9.4)	7 (13.2)	40 (75.5)	Milwaukee/I-90/Blackbird (26)	1 (3.8)	0 (0)	1 (3.8)	5 (19.2)	19 (73.1)
Burnt Tree Hole (30)	1 (3.3)	2 (6.7)	0 (0)	4 (13.3)	23 (76.7)	Headwaters (12)	0 (0)	0 (0)	0 (0)	1 (8.3)	11 (91.7)
Ennis (54)	1 (1.9)	0 (0)	8 (14.8)	13 (24.1)	32 (59.3)						
Valley Garden (76)	0 (0)	1 (1.3)	12 (15.8)	15 (19.7)	48 (63.2)						
Clute's (33)	1 (3.0)	1 (3.0)	3 (9.1)	2 (6.1)	26 (78.8)						
Madison Dam/Powerhouse	0 (0)	0 (0)	2 (6.1)	1 (3.0)	30 (90.9)						

Appendix F. Number of respondents providing a score of 1-5 for the four following questions: 1) IN THIS SECTION, on a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of boats/tubes you observed while using the river today?; 2) IN THIS SECTION, on a scale of 1 to 5, with 1 being very unacceptable and 5 being very acceptable, how acceptable was the number of wade anglers you observed while using the river today?; 3) IN THIS SECTION, on a scale of 1-5, with 1 being not crowded and 5 being very crowded, how crowded did you feel on the river today?; and 4) IN THIS SECTION, on a scale of 1-5, with 1 being very ineffective and 5 being very effective, how effective do you feel the rule was in creating a positive recreational experience today?

Section	Question	# scoring 1	# scoring 2	# scoring 3	# scoring 4	# scoring 5
Quake Lake-Lyon's Bridge	1	5 (4.3)	4 (3.4)	3 (2.6)	7 (6.1)	96 (83.5)
	2	3 (2.7)	2 (1.8)	19 (16.8)	25 (22.1)	64 (56.6)
	3	17 (20.7)	25 (30.5)	28 (34.1)	10 (12.2)	2 (2.4)
	4	0 (0)	1 (1.7)	5 (8.3)	4 (7.7)	50 (83.3)
Lyon's Bridge-Palisades	1	5 (5.4)	3 (3.2)	16 (17.2)	18 (19.4)	51 (54.8)
	2	2 (2.2)	1 (1.1)	1 (1.1)	7 (7.6)	81 (88.0)
	3	22 (28.6)	17 (22.1)	22 (28.6)	12 (15.6)	4 (5.2)
Palisades-Ennis	1	4 (1.9)	10 (5.0)	21 (10.4)	39 (19.4)	127 (63.2)
	2	2 (1.0)	0 (0.0)	2 (1.0)	7 (3.4)	192 (94.5)
	3	44 (29.7)	35 (23.6)	41 (27.7)	16 (10.8)	12 (8.1)
Ennis-Ennis Lake	1	1 (2.0)	1 (2.0)	0 (0)	6 (12.2)	41 (83.7)
	2	1 (2.1)	1 (2.1)	4 (8.3)	9 (18.8)	33 (68.8)
	3	10 (25.6)	22 (56.4)	3 (7.7)	3 (7.7)	1 (2.6)
	4	0 (0)	0 (0)	0 (0)	2 (9.5)	19 (0.5)
Ennis Lake-Madison Dam	1	2 (8.7)	2 (8.7)	0 (0)	2 (8.7)	17 (73.9)
	2	2 (8.7)	0 (0)	0 (0)	3 (13.0)	18 (78.2)
	3	13 (76.5)	3 (17.6)	1 (5.9)	0 (0)	0 (0)
Madison Dam-Black's Ford	1	3 (1.4)	2 (0.9)	10 (4.6)	37 (17.1)	165 (76.0)
	2	3 (1.4)	2 (0.9)	4 (1.9)	14 (6.5)	193 (89.3)
	3	109 (58.9)	43 (23.2)	30 (16.2)	3 (1.6)	0 (0)
Black's Ford-Greycliff	1	1 (6.2)	0 (0)	1 (6.2)	1 (6.2)	13 (81.3)
	2	0 (0)	0 (0)	0 (0)	1 (6.2)	15 (93.7)
	3	9 (64.3)	2 (14.3)	2 (14.3)	0 (0)	1 (7.1)
Greycliff-Headwaters	1	1 (4.2)	0 (0)	1 (4.2)	0 (0)	22 (91.7)
	2	1 (4.2)	0 (0)	0 (0)	3 (12.5)	20 (83.3)
	3	12 (75.0)	2 (12.5)	2 (12.5)	0 (0)	0 (0)
	4	0 (0)	0 (0)	1 (11.1)	0 (0)	8 (88.9)