MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS

FISHERIES DIVISION
JOB PROGRESS REPORT

STATE: MONTANA **PROJECT TITLE:** STATEWIDE FISHERIES INVESTIGATION

PROJECT NO: F-78-R-2 **STUDY TITLE:** SURVEY AND INVENTORY OF COLDWATER RIVERS

JOB TITLE: CLARK FORK RIVER CREEL CENSUS: ROCK CREEK TO FLATHEAD RIVER

PROJECT PERIOD: JULY 1, 1995 THROUGH JUNE 30, 1996

ABSTRACT

The Clark Fork River in westcentral Montana between the confluence of Rock Creek and the Flathead River was surveyed for angler and non-angling floating use in 1995. We estimated 46,108 anglers and 31,953 non-angling floating users visited the Clark Fork River from April through November of 1995. Rainbow trout dominated the catch accounting for 81%, followed by cutthroat, brown and bull trout, respectively 14, 4 and 1%. Anglers caught an estimated 147,691 fish at a rate of 0.74 fish per hour. Anglers kept 11% of the total catch or 16,062 fish. Anglers caught and released 89% of the total catch. Artificial flies were used by 76% of floating anglers and 35% of walking anglers. Combinations of terminal gear were common, and these ranged from people either fishing with bait and flies simultaneously, to spending some of their time fly-fishing and other times using hardware.

Some early signs of discontentment with anglers over-all recreational experience were indicated by user responses to interview questions. However, overall satisfaction of anglers on the Clark Fork River is good to high.

OBJECTIVES

1. To determine the degree and distribution of fishing pressure as well as other aspects of fisherman catch, including hours fished, species and number of fish caught and type of tackle used.

2. To determine the extent and distribution of float fishing, to examine the degree of conflict between those float fishing and those fishing from the bank and/or wading.

3. To determine the degree and distribution of recreational boating pressure and to examine the degree of conflict between recreational boaters and anglers.

BACKGROUND

The Clark Fork River in westcentral Montana provides a significant wild trout fishery, recreational floating, and whitewater resources. The river bisects Missoula and several other towns on its way to the confluence with the Flathead River. Thus providing residents in the area fishing and recreational opportunities, literally, outside their doors. With other, more publicized, trout streams nearby, Blackfoot and Bitterroot Rivers and Rock Creek, the Clark Fork has been regarded as a "blue collar" trout river.

Despite trout populations below expected densities for a river the size of the Clark Fork angling pressure increased by over 13,000 anglers from 1991-1993 in the Statewide Angler Pressure Surveys (McFarland, 93 and 95). The fishing regulations limit angler harvest to a daily creel limit of five trout in any combination, only one of which may be over 16 inches with no terminal gear restrictions. In November of 1992, concerns over declining bull trout densities throughout it's native range prompted regulation changes requiring mandatory release for all bull trout caught in all of the Clark Fork basin in Region 2 of MTFW&P.

The Clark Fork is heavily used by anglers, and also by other water-based recreationalists. The section of river between Cyr and Forest Grove remains a haven for kayakers and rafters seeking white water in this limited access gorge with class III rapids. There is no regulated float fishing season, and the only limitations on motor boating is a Fish and Game Commission regulation that bans motor boating from St Johns FAS to the mouth of Fish Creek. In the last few years, on other portions of the Clark Fork, jet skis have made their appearance. The Clark Fork River in western Montana remains one of the few multiple use rivers in the region.

Montana Fish, Wildlife & Parks (MTFW&P) has begun hearing complaints of increased pressure due to boating anglers, out of state outfitters, power boat usage, and high numbers of non-angling floaters in the Alberton Gorge. This first creel survey seeks to acknowledge these issues and determine where conflicts may lie.

PROCEDURES

We used an instanteous count and personal interviews methodogy to sample fishing pressure and catch (Neuhold, J.M. and K. H. Lu 1957). Estimated instanteous counts were obtained using a small fixed-wing aircraft flown four times weekly; twice daily on a weekend day or holiday and twice during weekdays. The count required 70 to 80 minutes to obtain.

The creel clerk interviewed anglers on the stream bank from April through November, 1995. Interviews were obtained from anglers throughout the survey period and from all sections of the River (Figure 1). Completed and uncompleted trips were kept separate for trip length calculations.

A stratified random sampling design was used to estimate total fishing pressure. Count days were chosen randomly for each week and weekend. Holidays were included with the weekends. Time of the counts was randomly selected for each sample day during daylight hours.

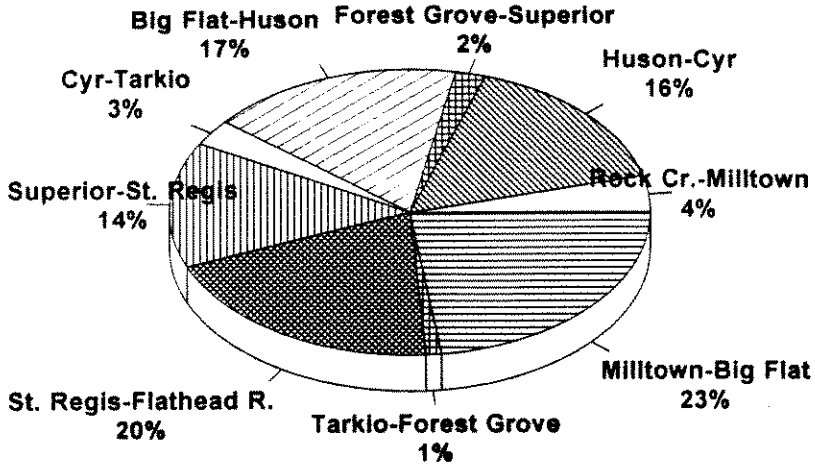

Figure 1. Geographic distribution of angler interviews conducted in the 1995 Clark Fork River creel census.

We entered, edited, stored and analyzed data on a personal computer using Dbase III+ programs and file structures.

Estimates of fishing pressure were made for each stratified period and river section. The river section and stratified periods were summed to obtain a total fishing pressure estimate and variance. Pressure estimates for each river section and stratified period was estimated by multipling the sampled days mean instanteous counts (in that strata and river section) times the total possible hours fishable within the strata. Period lengths were chosen to minimize sample variance. The variance of each river section-strata period was estimated by multiplying the variance of sampled counts by the total hours in the strata period. Use totals and variances for all strata periods-river sections were summed for the total season pressure and variance estimate. Recreational-day (angler-days) estimates were obtained by dividing mean hours per trip (from interview data) into the total pressure estimate.

The study area includes the Clark Fork River from the mouth of Rock Creek in Missoula County, to the confluence of the Flathead River near Paradise in Mineral County. The study area was divided into nine sections. The river sections and boundaries are described in Appendix A.

This questionnaire structure was based on models used on the Blackfoot River in 1994, and Rock Creek, 1993 (Appendix A-2 to A-4).

RESULTS

Angler Use and Catch

Angler user groups on the Clark Fork River were catagorized as either: (1) floating anglers, those anglers that used a boat or raft to fish from or access areas of the river; or (2) walking anglers, those anglers that accessed the river by walking or wading from the bank.

We estimated anglers fished 200,286 hours on the Clark Fork River between Rock Creek and the confluence of the Flathead River from April through November of 1995. The mean trip length for floating anglers was 5.42 hours and 2.97 hours for walking anglers. Total anglers estimated equaled 46,180±304 (95% CI) with 25,766 floating anglers and 20,414±121 walking anglers.

Table I. Clark Fork River fishing pressure estimates by river section for 1995.

section	Total Ang Hrs	Bank Ang Hrs	Fl. Ang Hrs	Total Angs	Bank Angs	Fl. Angs	Angs/mile
Turah	10,237.130	4,408.544	5,828.589	2,559	1,484	1,075	147
Msla	27,574.260	18,347.520	9,226.746	7,880	6,178	1,702	418
Huson	36,081.800	8,041.543	28,040.260	7,881	2,708	5,173	472
Cyr	33,523.090	8,660.225	24,862.860	7,503	2,916	4,587	441
Tarkio	5,194.204	1,411.395	3,782.809	1,173	475	698	107
For	5,224.585	236.880	4,987.705	1,000	80	920	238
Supr	18,153.810	3,418.535	14,735.270	3,870	1,151	2,719	322
StReg	21,699.040	4,687.759	17,011.280	4,717	1,578	3,139	342
Flathd	42,601.980	11,417.960	31,184.020	9,598	3,844	5,754	373
Totals	200,286.900	60,630.350	139,656.500	46,186	20,414	25,766	338

The Huson section (Big Flat bridge to Huson, Appendix A-1) received the highest fishing pressure with 472 angler-days per mile (Table 1). The Cyr and Missoula sections, downstream and upstream respectively from the Huson section, were the second and third highest fishing pressure areas on the Clark Fork River. Floating anglers comprised 66% of the anglers in the Huson section. Floating anglers comprised 61 and 22% of the anglers respectively in the Cyr and Missoula sections.

The lowest fishing pressure occurred in the Tarkio and Turah sections respectively having 107 and 147 angler-days per mile.

Angler Residence

Montana residents comprise 60% of all anglers, Washington and Idaho anglers accounted for 25% (Figure 2). The "other" category accounts for 16 additional states none of which contributed more than one percent of the total anglers. The percentage of residents to non-residents is disproportional among the different river sections sampled (Figure 3).

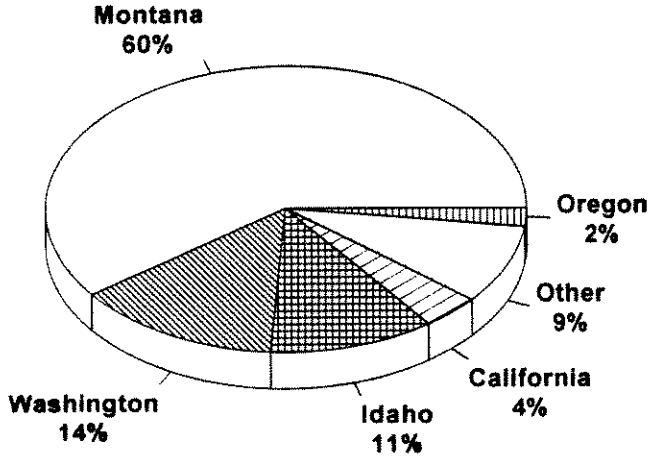

Figure 2. Residency of anglers checked in the 1995 Clark Fork River creel census.

In both the St. Regis and Flathead (Superior to the Flathead River) sections, Montana residents are outnumbered by 2 to 1. Huson, Cyr, and Flathead sections all had outfitter useage, only the Flathead section had out-of- state outfitters represented,

accounting for 37.5% of the use on the section. All of the non-resident outfitters were from Idaho. Of the total floating anglers surveyed on the Clark Fork River, 19% hired outfitters.

Angler's length of stay in the Clark Fork River corridor related to the angler's residence. In sections where non-resident use is high, longer average stays are more common (Figure 4). In the lower sections (Superior to Flathead River), the abundance of camping facilities also lends itself to longer trips.

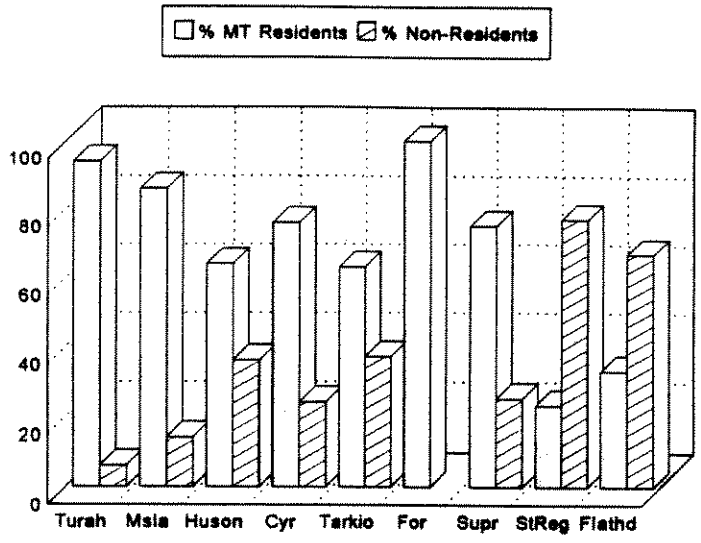

Figure 3. Residency of anglers fishing the Clark Fork River by river section in 1995.

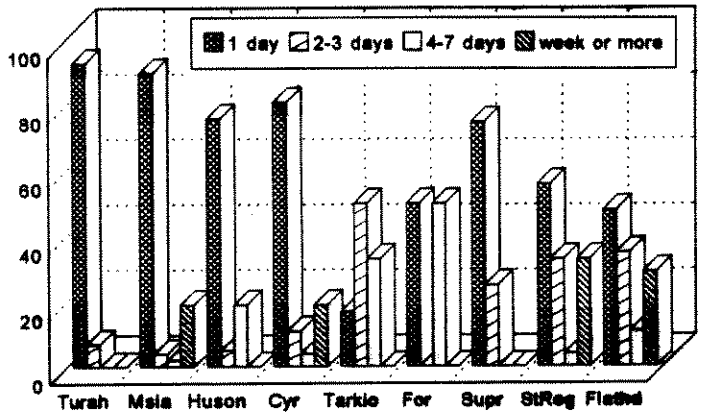

Figure 4. Duration of stay for Clark Fork River anglers by river section in 1995.

Creel Attributes

Overall, anglers caught an estimated 147,691 fish at a rate of .74 per hour (Tables 2 and 3). Of these fish, 11% or 16,062 were kept. The Huson section, Big Flat Bridge to Huson, had the highest catch rate at 1.19 fish per hour. This section also had the lowest percentage of fish kept, two percent.

Rainbow trout dominated the catch, accounting for 81%, with cutthroats next at 14%, brown trout 4%, and the remaining one percent were bull trout. These proportions do not vary much between sections except above Milltown Dam. The Turah section angler catch was distributed among brown trout with 28% of the total catch, rainbows 69%, and cutthroat 2%. Any trout showing red slashes below the jaw was considered a cutthroat trout.

Table II. Clark Fork River angler catch by river section for both kept and released fish in 1995.

	Rainbow	Brown	Cutthroat	Bull	Brook	Whitefish
Turah	4300	1740	205	0	0	6658
Mala	7732	772	1547	0	0	16237
Huson	35361	1082	6134	361	0	3608
Cyr	35534	684	2682	338	0	3687
Tarkio	3117	156	1091	0	0	1766
For	1723	0	0	0	0	0
Supr	3086	0	726	0	0	726
StReg	10850	217	3038	217	0	3689
Flathd	16319	426	5538	852	0	1784
Totals	120022	5334	20670	1766	0	33363

Table III. Clark Fork River angler catch rates by river section in 1995.

	Total Catch Rate	# Fish Caught	# Fish Kept	% Kept
Turah	0.61	6,245	410	7
Mala	0.4	10,308	3,866	37.5
Huson	1.19	42,938	1,083	2
Cyr	0.86	39,235	2,346	6
Tarkio	0.84	4,364	676	15
For	0.33	1,723	1,149	67
Supr	0.21	3,812	726	19
StReg	0.66	14,322	1,160	8
Flathd	0.59	25,136	5,112	20
Totals	0.74	147,691	16,062	11

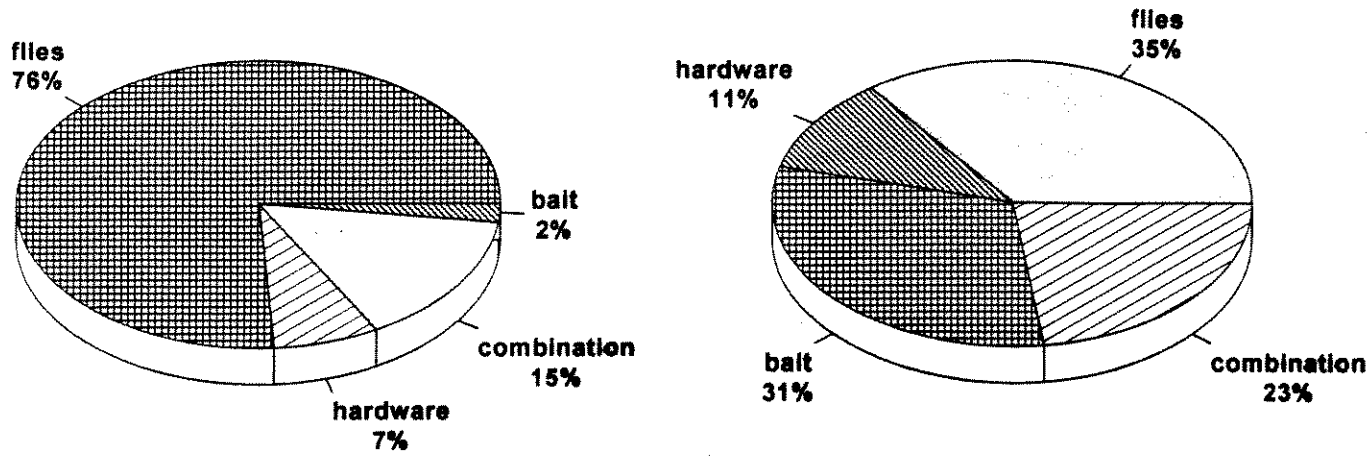

Figure 5. Floating and walking angler fishing methods on the Clark Fork River in 1995.

Artificial flies were used by 76% of floating anglers and 35% of walking anglers (Figure 5). Manufactured lures (hardware) were used by 11% of the walking anglers and 7% of the floaters. Useage of "combinations" of terminal gear were common, and these ranged from people either fishing with bait and flies simultaneously, to alternating methods between fly-fishing, hardware and/or bait. This method accounted for 15% of all floaters and 23% of walking anglers. Bait exclusively, was used by only two percent of floaters and 31% of walkers.

Fishing methods varied significantly by river section (Figure 6). Huson and St. Regis sections had a disproportionately high use of flies, nearly 80% each. The deep pool below Milltown dam is frequented by bait and combination method anglers. Tarkio and Forest Grove were fished exclusively with bait and combination angling methods.

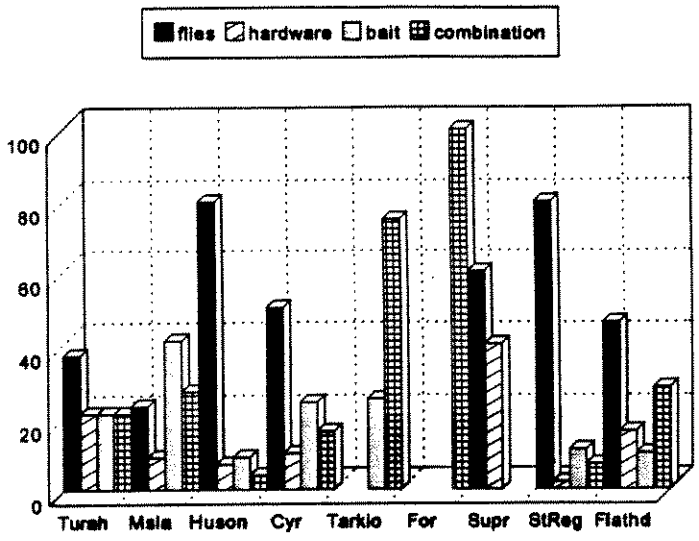

Figure 6. Fishing methods used by anglers on the Clark Fork River by river section in 1995.

User Group Interactions

Floating Anglers

Floating anglers both fished from the boat and wade fished on 82% of the interviewed trips (Figure 7). Only 16% fished exclusively from the boat. Two percent of floating anglers always stopped to fish, using the boat as a means of transportation between bank fishing sites.

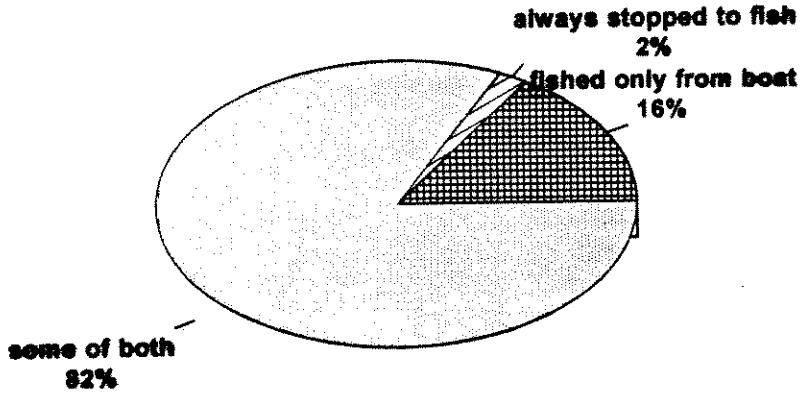

Figure 7. Fishing technique used by anglers using boats on the Clark Fork River in 1995.

The number of walking anglers encountered by floaters varied by river section (figure 8). Sections Tarkio and Forest Grove had the highest numbers of encounters and they usually centered around Fishing Access Sites (FAS). Floaters encountered an average of 6 walking anglers per day in the Forest Grove section and 5.0 in the

Tarkio section during their float trip. In the lower stretches of the river, the St. Regis and Flathead section floaters averaged 4.5 and 4.9 encounters per day with walking anglers.

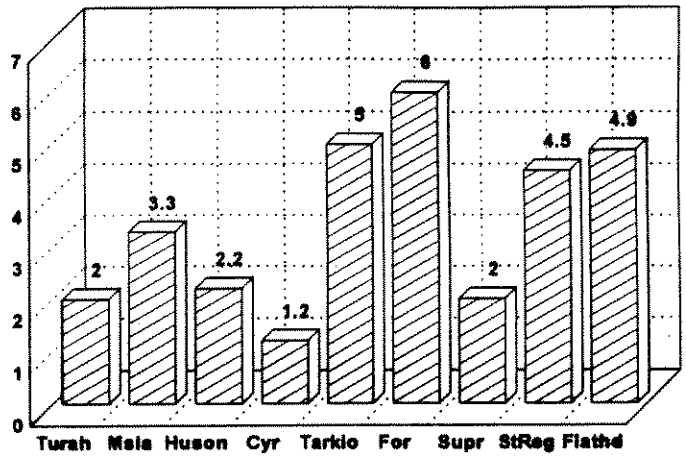

Figure 8. Walking angler's average encounters with boats per day on the Clark Fork River in 1995.

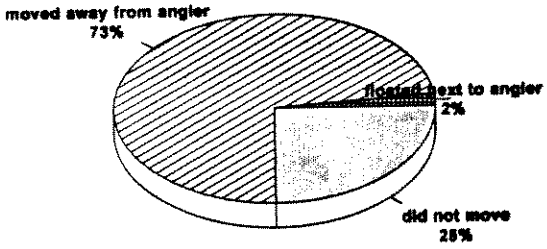

Figure 9. Floater navigational reactions to walking anglers on the Clark Fork River in 1995.

Seventy-three percent of floaters interviewed moved away from walking anglers (Figure 9). Twenty-five percent of floating anglers indicated they did not move away from walking anglers.

Sixty-two percent of floating anglers interviewed also indicated they stopped fishing when passing a walking angler (Figure 10). Thirty-eight percent indicated they either "fished the same area" or "through the same area" as the walking angler.

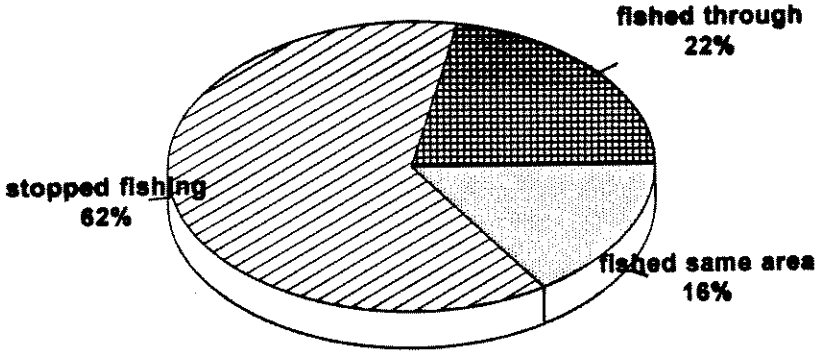

Figure 10. Floating angler's response to walking anglers on the Clark Fork River in 1995.

Floating anglers perception of the walking angler's response to them was evenly split between "no response" and a "friendly response" by the walking angler, respectively 50 and 45% (Figure 11).

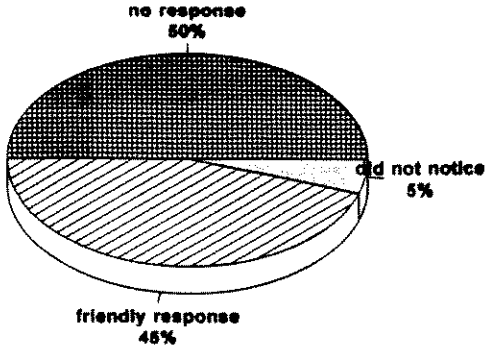

Figure 11. Floating angler's perception of walking angler's response to their presence on the Clark Fork River, 1995.

Floaters were asked to comment on any user group or individual that adversily affected their outing. Twelve percent of the floaters interviewed responded that they were affected by another group. Power water craft accounted for 78% of the feelings of adverse impact (Figure 12). Power craft included power boats and jet skis which respectively accounted for 62 and 16% of the adverse responses.

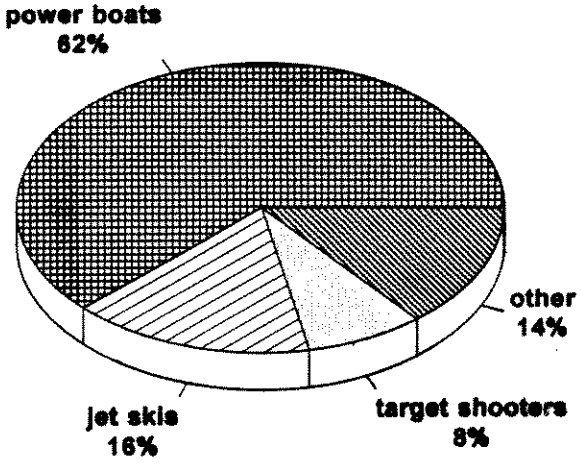

Figure 12. River user groups identified by anglers as adversily affecting their outdoor experience on the Clark Fork River in 1995.

Walking Anglers

The average number of boats encountered by walking anglers fishing the Clark Fork varied considerably by river section (Figure 13). It ranged from an average of 6.5 boats at the Forest Grove

section to .26 boats in the Missoula section. The walking anglers in the Superior section that we interviewed did not have any interactions with boats. The Forest Grove section's high use by recreational boating (kayakers, rafters, etc...) accounts for the high number of encounters.

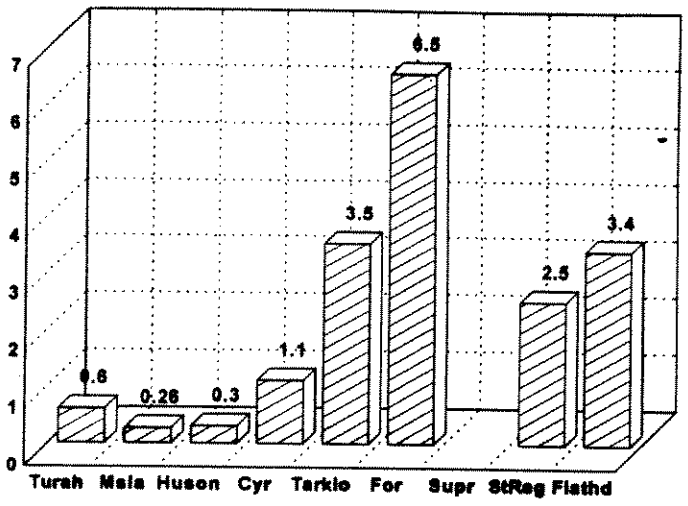

Figure 13. Mean number of boats encountered by walking anglers on the Clark Fork River in 1995.

Ninty percent of walking anglers felt boat traffic did not interfere with their fishing. Of the 10% that viewed boat traffic as an interference, 38% of the respondents said they were "forced to move", 24% felt the "fish quit biting" and 14% "had to stop fishing" (Figure 14). The Flathead and Superior sections accounted for a total of 61% of the "interference" responses (Figure 15).

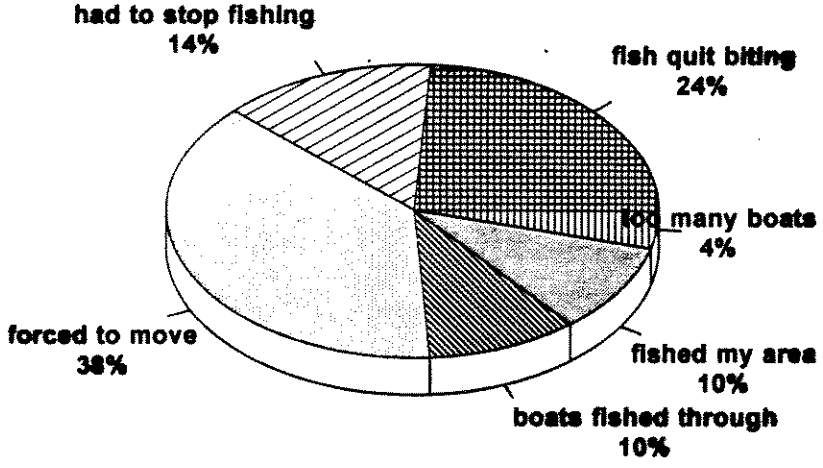

Figure 14. Walking angler's perception of boating interference on the Clark Fork River in 1995.

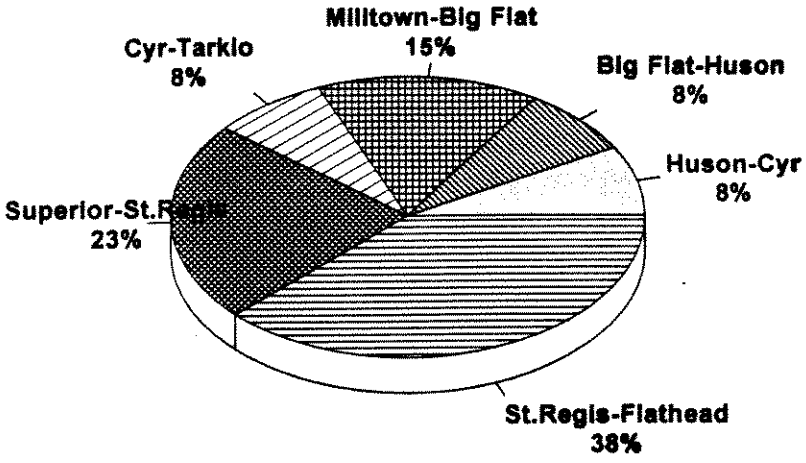

Figure 15. Percentage of walking anglers by Clark Fork River section that felt floaters interfered with fishing in 1995.

Walking anglers perception of floater behavior was 91% "friendly" or "neutral" (Figure 16). Nine percent of walking anglers thought floaters behaved in an "unfriendly" manner. Walking anglers reaction to floaters was 98% "friendly" or "no response" (Figure 17). Only two percent of walking anglers expressed a "nonverbal" angry rely to the floaters. None of the people surveyed said they responded to boaters with a "verbal angry response".

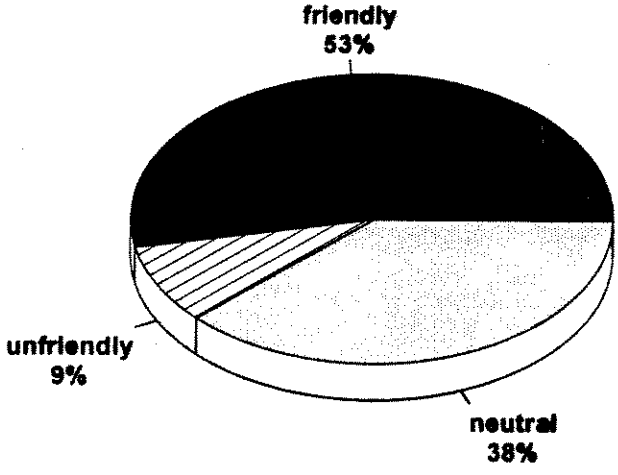

Figure 16. Walking angler's perception of floater response to their presence on the Clark Fork River in 1995.

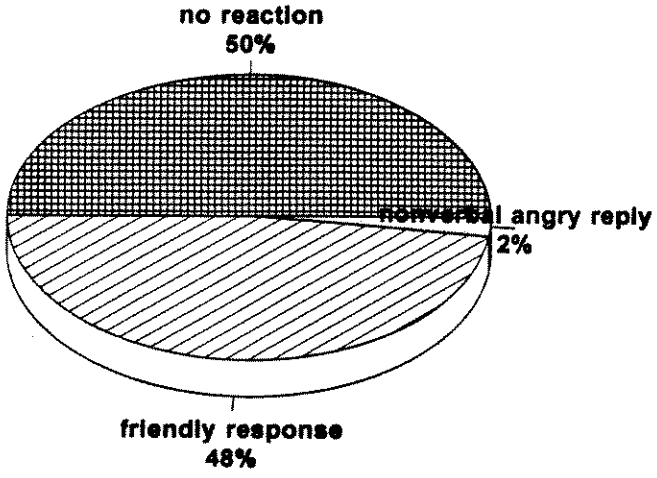

Figure 17. Walking angler's reaction to floaters on the Clark Fork River in 1995.

Eighty-nine percent of interviewed walking anglers felt that the regulations regarding floating should remain the same (Figure 18). Ten percent felt floating should be limited.

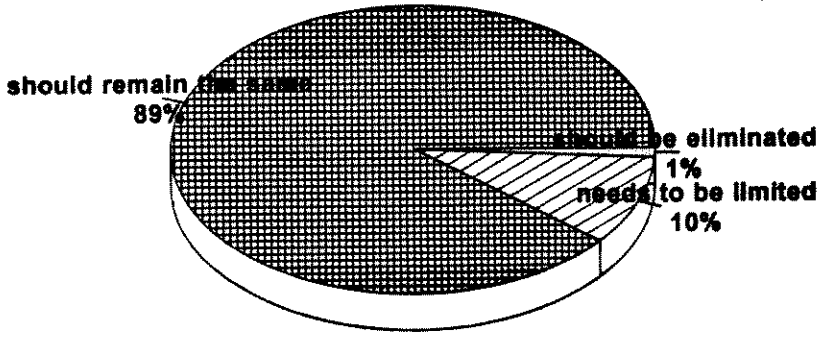

Figure 18. Walking angler's opinion on the need to regulate floating on the Clark Fork River.

The ten percent who felt floating should be limited considered limitations based upon: stream flow level, 37% of responses; number of floaters allowed per section per day, 32%; using a float season 16%; and having floating sections, 5% (Figure 19).

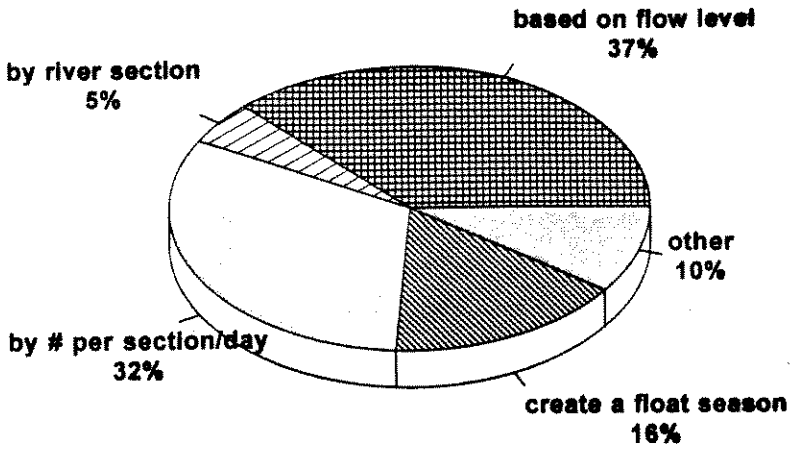

Figure 19. The percentage of responses on methods to limit floating by the 10 per cent of walking angler's that felt floating should be limited on the Clark Fork River.

Angler's Rating of the Clark Fork River Corridor

All anglers were asked to rate their recreational experience and river crowding on a scale of one to ten. Responses one through four were considered "worst", five though seven "satisfactory" and eight through ten were viewed as "best". Satisfaction overall on the Clark Fork River appears to be fairly high (Figure 20). The lowest ratings for recreational experience occurred in the Turah, Missoula, and St Regis sections. The highest ratings for recreational experience occurred in

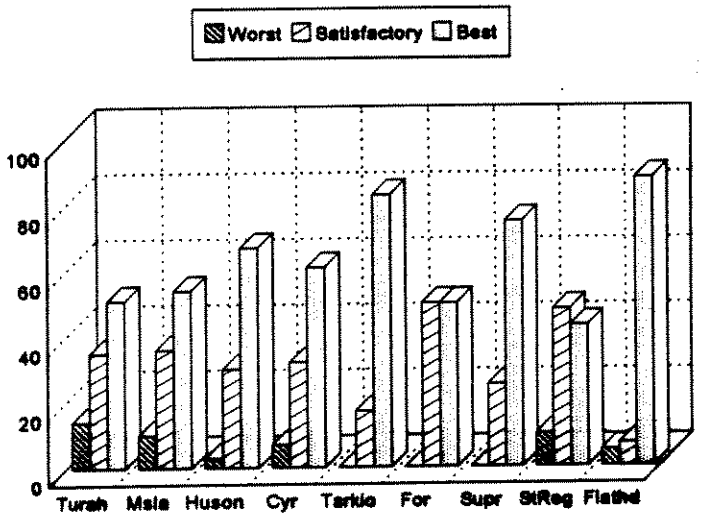

Figure 20. How anglers rated their recreational experience on the Clark Fork River by river section in 1995.

the Tarkio, Superior and Flathead sections.

In expressing angler's rating of river crowding, answers of one through four were considered "crowded", responses five through seven were satisfactory, and eight through ten considered "not crowded". Generally, anglers on the Clark Fork River did not feel the river was crowded (Figure 21). However the Huson, Tarkio, Forest Grove, and St Regis sections did receive 10 to 18% unsatisfactory "crowding" responses from interviewed anglers. Of the interviewed anglers that felt the river was crowded, the Missoula, St Regis, Forest Grove, and Turah sections were selected as the most "crowded" (Figure 22). These respondents selected the Missoula section as most "crowed" on 38% of the interviews and the St Regis section 21%.

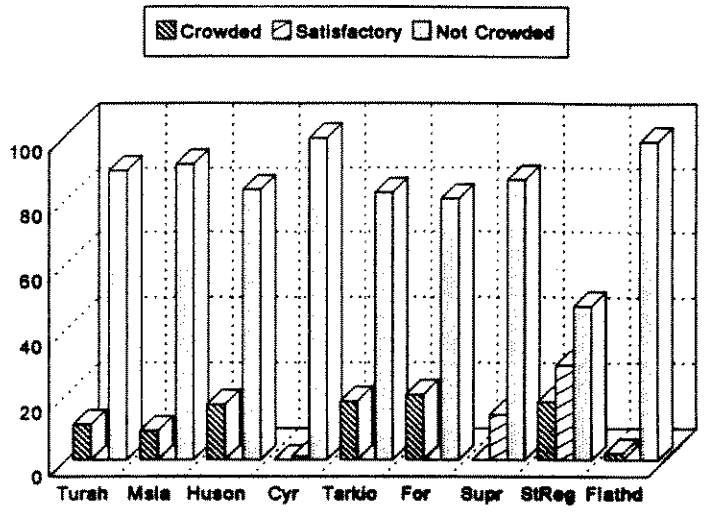

Figure 21. How anglers rated river crowding on the Clark Fork River by section in 1995.

We solicited angler's suggestions on management of the Clark Fork River. Most people interviewed had no comment. The few responses we received are outlined in Figure 23. The most frequent suggestion we received from anglers was to ban the use of motorized craft on the river. Many anglers feel that the Clark Fork

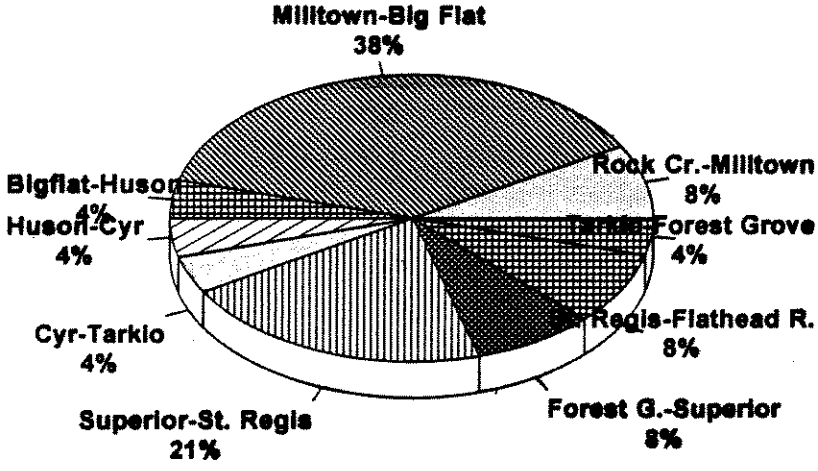

Figure 22. Sections of the Clark Fork River anglers felt were crowded in 1995.

River fishery would benefit from catch and release sections imposed on the river. Both walking and floating anglers alike, expressed a need for more access sites. In addition to development of new access sites, floating anglers would like to see better boating facilities at existing accesses. The comment "Stone Container concerns" addresses angler's concerns over the mill's affect on water quality and fish populations below Frenchtown.

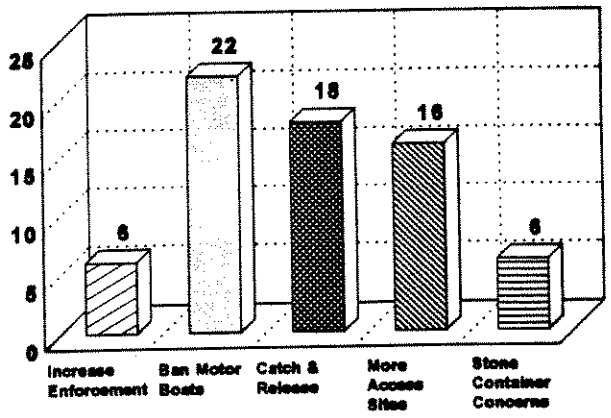

Figure 23. Percentage of total solicited comments received from anglers among 5 of the most frequently used comments on the Clark Fork River.

Non-angling Floating Useage

We estimated the total number of non-angling floating hours by river section on the Clark Fork; this user group spent 173,186 hours on the river. Assuming the same trip length as floating anglers, 31,953 non-angling recreationists floated the river in 10,845 boats (Table 4). The number of non-angling floaters was based on the average trip length of 5.42 hours the average length of trip of a floating angler.

The numbers of non-angling floaters varies significantly by section. The section with the heaviest pressure was the Tarkio section, Cyr to Tarkio, with 19,541 people in 5,148 boats or 1776 people/mile and 468 boats/mile. The area of least usage was between Forest Grove and Superior, with 458 individuals in 236 boats.

Table IV. Clark Fork River non-angling boat use by river section in 1995.

	Non-Angling Boating hrs	# of Non-Anglers	# of Non-Angler Boats
Turah	4,423.700	816	396
Msla	14,971.710	2,762	1,568
Huson	4,113.394	759	361
Cyr	6,086.095	1,123	351
Tarkio	105,914.600	19,541	5,148
For	19,210.060	3,544	1,439
Supr	2,481.095	458	236
StReg	4,505.610	831	443
Flathd	11,481.550	2,118	903
Totals	173,186.800	31,953	10,845

based on an average trip length of 5.42 hours
average of 2.9 people in boat

SUMMARY AND CONCLUSIONS

Angler Use and Catch

Angler user groups on the Clark Fork River were catagorized as either: floating anglers, those anglers that used a boat or raft to fish from or access areas of the river; or walking anglers, those that either waded the river or fished from the bank.

We estimated anglers fished 200,286 hours on the Clark Fork River between Rock Creek and the confluence of the Flathead River from April through November of 1995. Total anglers estimated equaled 46,180±304 (95% CI) with 25,766 floating anglers and 20,414±121 walking anglers.

The Huson section (Big Flat bridge to Huson, Appendix A) received the highest fishing pressure with 472 angler-days per mile. The Cyr and Missoula sections, downstream and upstream respectively from the Huson section, were the second and third highest fishing pressure areas on the Clark Fork River. The lowest fishing pressure occurred in the Tarkio and Turah sections respectively having 107 and 147 angler-days per mile. The Statewide Pressure Estimates of 1993, based upon a mail survey, placed the Clark Fork River as the number one used river in Region 2 of Montana Fish, Wildlife and Parks with an entire year pressure estimate of 57,573 anglers in 1993. This figure encompasses five more months than in our study and in a slightly different sampling section. However the May through September fishing pressure of 44,379 anglers from the 1993 Statewide Pressure Survey, which closely approximates the timeframe of our 1995 effort, also is very close to our estimate of 46,180 anglers.

Some enviromental factors may have contributed to our lower pressure estimate. Spring run-off, a period of high, unfishable water, ran well into June of 1995. Although this was a return to a normal cycle, in recent drought years such run-off was absent. In addition, the summer of 1995 was unseasonably cool with a high amount of precipitation, keeping the waters high for a longer period of time.

The estimated 46,180 anglers on the Clark Fork caught 147,691 trout at a rate of 0.74 fish per hour. Catch rates varied considerably between sections, but did not show a significant difference between floating and walking anglers which commonly occurs on Rock Creek. In 1993 on Rock Creek, floating anglers experienced a 171% greater catch rate than did walking anglers. Similar to the Clark Fork, the Blackfoot River floating and walking anglers experienced similar catch rates in 1994. The overall catch rate of 0.74 fish per hour fell between the 1994 Blackfoot survey of .70 and the 1993 Rock Creek survey having a rate of .99 fish per hour. The highest catch rate on the river was in the Big Flat Bridge-Huson section, with a rate of 1.19 trout per hour. On the other end of the spectrum was the Forest Grove-Superior

section, with a catch rate of only 0.22 fish per hour.

Eighty-nine percent of the total fish caught on the Clark Fork were released. An estimated 16,062 fish were kept accounting for the 11% of the total catch. The percentage of fish kept varied by section. The Huson section, between Big Flat and Huson, the area of the highest catch rate, also had the lowest kept fish percentage of 2 or 1,083 fish. The Huson section recieved, the highest angling pressure with an estimated 472 angler-days per mile. The Forest Grove section, Tarkio to Forest Grove, had the highest percentage of fish kept with 67% or 1,149 fish. The highest harvest rate occurs in the Forest Grove section with 257 fish harvested per mile. The lowest harvest rate occurs in the Huson section with 63.7 fish per mile. Harvest in the Forest Grove section may be excessive for a population of rainbow trout estimated at 523 per mile in the Superior area or 268 for the St Regis area by Berg, Rodney K.,1990. However this section is only 4.2 miles long and does receive a disproportionate level of pressure due to easy angler access in the area.

The Clark Fork River appears to be the last bastion of fish harvesting anglers on the larger streams in west central Montana.

Montana residents comprised 60% of all anglers on the Clark Fork River. This 60/40 resident to non-resident ratio is comparable to Rock Creek's 61/39 distribution in 1993. Based on the Statewide Pressure Estimate from 1991, the percentage of non-resident usage is increasing. The Statewide survey in 1993, estimated 30% of anglers were non-residents. The distribution of non-resident pressure is not consistent among the nine river sections. On the lower two sections of river, out-of-state anglers out-numbered Montana resident usage by a ratio of 2 to 1. These sections are easily accessible for Washington and Idaho residents because of their proximity to those states. Idaho fishing guides frequently operate float fishing trips on these sections of river.

Rainbow trout dominated the catch, accounting for 81%, with cutthroats next at 14%, brown trout at four percent, and the remaining one percent were bull trout. By river section the proportions do not vary significantly except above Milltown Dam in the Turah section. The Turah section angler catch was distributed among brown trout with 28% of the total catch, and rainbows 69%, and cutthroat 2%. Any trout showing red slashes below the jaw was considered a cutthroat trout.

Artificial flies were used by 76% of floating anglers and 35% of walking fishermen. Manufactured lures (hardware) accounted for 11% of walker angler and 7% of the floaters terminal gear useage. Combinations of terminal gear were common, and these ranged from people either fishing with bait and flies simultaneously, to spending some of their time fly-fishing and other times using hardware. This method accounted for 15% of all floaters and 23% of walking anglers. Bait was used exclusively by only two percent of floaters and 31% of walkers.

Fishing methods varied significantly by river section. Huson

and St. Regis sections had a disproportionately high use of flies, nearly 80% each. The deep pool below Millton dam is frequented by bait and combination method anglers. Tarkio and Forest Grove were fished exclusively with bait and combination angling methods. Anglers used flies more often than any other one method. Thirty-five percent of walking anglers used flies, while 76% of floaters fly-fished. The highest concentrations of fly-fishing took place in the Big Flat Bridge to Huson section and the lower two sections from Superior to the Flathead River.

The highest floating pressure as well as high use by fly-fishing outfitters occurred on the Huson and St Regis sections. The Huson section is located near Missoula and offers excellent fishing access, providing anglers from Missoula a good number of fishing access opportunities. The area below Milltown Dam receives high concentrations of walking anglers.

User Group Interactions

Overall satisfaction of anglers on the Clark Fork River is good according to our survey results. "Crowding" a frequently considered negative factor to favorable angling experiences was not considered a problem among 8 of the 9 river sections. The St Regis section received a significant number of responses indicating "crowding" was unsatisfactory. This may have resulted from the combined problem of heavy non-resident use of facilities, including camping, for greater than one day trips and the concentration of facilities in this area.

Generally walking and floating anglers exhibited high tolerance of each other based upon favorable responses on several different questions. Floating anglers encountered between an average of 6 and 1.2 anglers depending on the sections they fished. Seventy-three percent of the floating anglers made a concerted effort to avoid walking anglers they encountered, by moving to the opposite side of the river. Another 25% of floaters said "they did not move" but this is probably a sign that they were not in the way of the angler. Most of time they elicited a friendly response or no response at all from the walking anglers.

Walking anglers encountered between an average of 6.5 and 0 boats, depending on the section of the Clark Fork they fished. The high number of encounters indicates total boats (recreationalists and anglers), not just floating anglers. In the course of these interactions, 91% of the walking anglers claimed the floater's behavior was either neutral or friendly. Only nine percent said the floaters responded in an unfriendly manner. Similarly, only two percent of walking anglers had a nonverbal angry reply for the floaters, and 98% of their responses were friendly or no reaction at all.

When floaters were asked about their response to a walking angler, the majority responded by either moving away from the other

When floaters were asked about their response to a walking angler, the majority responded by either moving away from the other angler. A quarter of the floaters replied that they did not move. On a small stream, this may be viewed as a negative discourteous response, however on the Clark Fork River they may not have been in the way of the walker.

A surprisingly high percentage, 38% of floaters said they "fished the same area" or "fished through" the walking angler's water. This result may be influenced by the size of the Clark Fork River where this behavior may not adversily impact a walking anglers fishing opportunity as it might on a smaller sized stream.

Eighty-nine percent of walking anglers thought regulations governing floating on the Clark Fork should remain the same. One percent said it should be eliminated altogether, with the remaining ten percent thinking floating should be limited. The two most common means by which floating should be limited were based on flow level, and by number of boats per section, per day.

When asked for management suggestions for the Clark Fork River most interviewed anglers made no suggestions. However among the group that had suggestions, the single most common response was to ban the use of motorized boats from the river (22%). When floating anglers were asked if any user group adversely affected their outing, of the 15% that responded, 62% claimed power boats had, and another 16% said jet skies had a negative impact.

Non-angling Floating Use

We estimated non-angling floating usage at 173,186 hours in 1995. This user group is composed of, but not limited to kayakers, rafters, innertube floaters, jet boaters and jet skiers. Based on the average trip length for floating anglers, we estimated 31,953 non-angling users in 10,845 boats on the Clark Fork River.

The numbers of non-angling users varies significantly by section. The section with the heaviest pressure was the Tarkio section, Cyr to Tarkio, with 19,541 people in 5,148 boats. The area of least usage was between Forest Grove and Superior sections, with 458 individuals in 236 boats.

We did not interview non-angling users in this survey. Since this group of river users is a significant user group we feel future surveys need to address questions for this group and get interviews from all river users. Especially since a portion of the angler groups have some perception of being impacted by segments of the non-angling group.

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August, 1996

Waters referred to:
Clark Fork River
W/2/05-1456/01 & W/2/06-1121/01

Key Words:
creel census
user opinions
floating/walking angler conflict
catch rate
pressure estimate
catch and release
non-angling floating use

APPENDIX

RIVER SECTION	ABBREV.	LENGTH (MI)	BOUNDARIES
Rock Cr. - Milltown Dam	Turah	17.4	Mouth of Rock to Milltown Dam
Milltown Dam - Big Flat Bridge	Msla	19.0	Milltown Dam to Big Flat Bridge
Big Flat Bridge - Huson	Huson	16.7	Big Flat Bridge to railroad bridge in Huson
Huson - Cyr	Cyr	17.0	Railroad bridge to Natural Pier FAS
Cyr - Tarkio	Tarkio	11.0	Natural Pier FAS to Three bridges
Tarkio - Forest Grove	Forest Grove	4.2	Three bridges to bridge at Forest Grove
Forest Grove - Superior	Superior	12.0	Bridge at Forest Grove to bridge in Superior
Superior - St. Regis	St Regis	13.8	Bridge in Superior to St Regis River
St Regis - Flathead	Flathead	25.7	St Regis River to Flathead River

Clark Fork User Interview

(yr/mon/day) dow (day of week)
Date __ __ __ __ Name_____

Address _____State__Zip_____

State of Residence __ Time _____ Sex __ Location _____

1. Have you participated in the census this year? Y N Times____
2. Is this a completed fishing trip survey? Y N card # _____
3. Circle all of the activities a person plans to participate in while in the river corridor. (place an x over the circles of the two most important activities)
   1 picniking 2 swimming 3 rest, relax 4 bird,animal watch
   5 fishing 6 photography 7 canoeing 8 camping 9 rafting
   10 walking, hiking 11 kayaking 12 power boating
   13 other specify_____
4. Length of stay in the corridor
   1) 1 day; 2) 2-3 days; 3) 4-7days; 4) 7+ days
5. How many people in your group or boat?____
6. How many of them fished?____
7. Did you float or power boat today? Y N Put-in __ take-out__if "no" go to question 16)
8. Did you hire a commercial outfitter for your float? Y N
   If yes, outfitter's resident state__ Type_____
9. How many times have you floated/power boated the river this year?__
10. Did you fish
    1. only from the boat while floating
    2. always stopped to fish
    3. some of both
    4. did not fish
11. How many walking anglers did you pass? ____
12. Did you
    1. float by the angler next to the bank nearest the angler.
    2. move to side of stream opposite the walking angler.
    3. not move.
13. Did you
    1. continue fishing through area of walking angler
    2. stop fishing until your boat passed the walking angler
    3. stop floating and fish in same area of the angler

14. How did the walking angler respond?
    1. no response
    2. friendly response
    3. stopped fishing
    4. moved out of the water
    5. displayed anger
    6. I didn't notice

15. Did any other user group or individual adversely affect your outing today. If yes please explain:_____

_____

BANK ANGLERS

16. How many boats did you encounter on the water today? float__power_
17. Did boat traffic interfere with your fishing? _Y__N_
18. How did it interfere?
    1. fish quit biting
    2. had to stop fishing
    3. forced to move out of water
    4. boaters fished through my area
    5. boaters stopped and fished in my area
    6. too many boats
19. How would you describe the floaters behavior?
    1. courteous, friendly
    2. discourteous, unfriendly
    3. neutral
20. How did you react to the floaters?
    1. no response
    2. friendly response
    3. nonverbal angry response
    4. verbal angry response
21. Should floating be:
    1. allowed under current rules
    2. limited
    3. eliminated
22. If you answered "limited" how would you like that done?
    1. based on flow level
    2. by designated stream section
    3. limit number of boats per day per section
    4. establish float season dates (i.e. May 31 to July 31)
    5. other (explain)
23. Did any other user group or individual adversely affect your outing today? if yes please explain_____

_____

UNIVERSAL QUESTIONS

24. Which section(s) did you fish today?
    1. Rock Creek to Milltown
    2. Milltown to Big Flat Bridge
    3. Big Flat Bridge to Huson
    4. Huson to Cyr
    5. Cyr to Tarkio
    6. Tarkio to Forest Grove
    7. Forest Grove to Superior
    6. Superior to St Regis
    7. St. Regis to Flathead River

25. Type of Fishing
    1. flies
    2. hardware
    3. bait
    4. combination

26. Hours fished (to nearest 0.5hr.) ____

27. Number of RAINBOW TROUT kept ___ released ___ tag#_____

28. Number of BROWN TROUT kept ___ released ___ tag#_____

29. Number of CUTTHROAT TROUT kept ___ released ___ tag#_____

30. Number of BULL TROUT kept ___ released ___ tag#_____

31. Number of BROOK TROUT kept ___ released ___ tag#_____

32. Number of WHITEFISH kept ___ released ___ tag#_____

33. Number of _____ kept ___ released ___ tag#_____

34. How would you rate your recreational experience:

Worst				Satisfactory					Best
1	2	3	4	5	6	7	8	9	10

35. How would you rate river crowding?

Crowded				Satisfactory				Not crowded	
1	2	3	4	5	6	7	8	9	10

If you felt crowded, what section of river made you feel this way?

_____

36. Do you have any additional comments or suggestions on the management of the Clark Fork River?_____

_____

_____

THANK YOU FOR YOUR COMMENTS. YOUR OPINION COUNTS!