Conservation Education Division

Region One Public Information Plan Evaluation: Fisheries Management Study, Phase I - 1992[1]

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[1]The author thanks all Region One FWP Fisheries staff for their assistance with and support of this study. Other Region One staff were very helpful, particularly John Fraley, Information Officer, but also Betty Johnson, Kristy Hall and Noemi Sand. I also thank FWP employees at Bozeman: Rob Brooks, Responsive Management Unit, and Bob McFarland, Fisheries, for their technical expertise and assistance.

MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS

REPORT HIGHLIGHTS
Region One Public Information Plan Evaluation:
Fisheries Management Study, Phase I - 1992

* A mail-back survey was conducted by the Region One (R-1) of the Montana Department of Fish, Wildlife and Parks (MDFWP) in March - May, 1992. A total of 1,638 questionnaires were mailed, 1,529 were delivered, and 678 returned for a 44.3% response rate. Of those, 90 were determined to be unusable, resulting in a final sample size of 588 questionnaires for a 38.5% effective return rate.

* Approximately two-thirds of anglers who purchased licenses in R-1 and fished there are older than 40 years of age; 12 percent are under 25 years old. Half of the anglers surveyed (51%) have over 15 years of fishing experience; under a quarter (23%) have less than five years experience. Many anglers consult license agents (68%), newspapers (47%) and other people (word-of-mouth, 38%) for specific information on department programs.

* Anglers believed that the factors that most affect fish size and numbers were: lakes -- competition from rough fish species/a lack of stocked fish (39% each); and rivers -- habitat quality (39%), man degraded habitat (38%). More than 39% of R-1 rivers were thought to receive hatchery plants by 28% of anglers. Over 40% of anglers thought that the MDFWP planted northern pike in R-1 waters. The agency should manage for native species according to 65% of anglers. MDFWP involvement in mitigation programs at: Cabinet Gorge was known by one percent, Noxon by 2%, and Bigfork by 11%. Less than half of the respondents knew that a management plan existed for the Flathead Lake and River System.

* Thirty percent of anglers surveyed felt that they were not fully informed of fisheries management options in R-1. Public surveys, public meetings and sports club meetings were all identified as public participation techniques used by the MDFWP. The first two of these and written comments were their preferred participation techniques. Only 11% of anglers were satisfied with R-1 opportunities available for public participation; 40% didn't know or have an opinion. R-1 fisheries staff do poorly at involving the public according to 24% of anglers; 16% felt the job was done well.

* Anglers believed that biological, economic, social and then political factors should influence management decisions the most in that order respectively. Satisfied anglers constituted 27% of those surveyed with respect to the availability of fishing opportunities; 23% were dissatisfied. Dissatisfied anglers comprised 28% of respondents as far as R-1 fisheries staff ability to manage programs; 18% were satisfied. Fisheries staff were thought to be knowledgeable and professional by 33% of anglers; 16% disagreed. Finally, anglers were divided regarding the quality of fisheries programs: 24% thought they were good, 27% thought they were poor. The most contributing factor was a lack of resources.

* Anglers were about equally divided between whether they were satisfied or dissatisfied for how mitigation programs were managed.

* The results of this survey show that a majority of licensed anglers are relatively uninformed about factors affecting fish populations and their management. This could be due to inadequate public education programs, a lack of interest on the part of anglers in this issue, or trust in professionals to address the more complex issues.

* There apparently is a need to more adequately address public satisfaction with the opportunities to participate in fisheries management programs since only a third of all anglers sampled had formed an opinion regarding their satisfaction with participation opportunities.

* This survey will constitute the baseline data for assessing the success of a Public Information Plan that addresses fisheries management in the region. In two years, a follow-up study will enable a comparison between the data then collected with the present data.

FOR MORE INFO: JOHN FRALEY, R-1 INFO OFFICER, (406) 752-5501.

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INTRODUCTION

In the past few years, several fisheries within Montana's most northwestern Fish, Wildlife and Park's administrative region have not fared well due to environmental and human factors. Thus, the fisheries management program in Region One is experiencing a period of public scrutiny and expressed angler dissatisfaction.

One potential explanation of the public's disenfranchisement with the fisheries management program is that for the most part, they do not recognize how limiting environmental factors can be, as do trained professional biologists. Additionally, the human dimensions that affect the success of the region's fisheries programs involve both the licensed angling population and the fisheries management staff. Each of these group's perceptions of the region's fisheries, the related range of opportunities available and the limitations of the aquatic ecosystem can be and often are separate.

A Public Information Plan (PIP) has been designed to help reduce the difference in how these two groups perceive and understand the fisheries and their management in Region One. This study was implemented in order to more accurately realize the range of angler awareness and knowledge regarding the region's waters, as well as their perceptions of both the success of management programs and the capabilities of the Fisheries staff. Phase I is designed to measure these items prior to the major initiation of the PIP, while Phase II will attempt to determine whether any success has been achieved as far as improved angler perceptions and understandings in two years time.

These questions were designed to address the Public Information Plan's objectives which are summarized below:

1. Educate the public about the nature and limitations of aquatic systems in northwestern Montana.

2. Inform the public of the Department's efforts to provide for a wide variety of quality fishing opportunities.

3. Inform the public of the positive aspects of fisheries mitigation plans and emphasize their importance in the Region's overall fisheries management program.

4. Educate the public about the Department's management program for the Flathead System (including Flathead and Whitefish Lake), the South Fork Flathead River, the Swan river system and the Kootenai River system.

5. Inform the public of the Department's efforts to involve the public in formulating management and mitigation plans, and involving the public in decision making; solicit more involvement.

6. Inform the public of the range of biological alternatives for important issues; explain the risks and potentials of choosing each alternative.

7. Educate the public about the organizational structure of the Department.

8. Inform the public about the individuals in the Region One Fisheries Program.

STUDY METHODS

Instrument Design

Through consultation with fisheries management staff in Region One, a series of questions was developed to measure the major target areas to be addressed by the PIP being planned by that region's Information Officer, John Fraley. Several questions were designed for each objective to be addressed in the PIP, resulting in the final instrument (Appendix A).

Sampling Procedure

The targeted audience for the PIP is the angling public that fishes Region One waters, so the sample frame for the survey (Phase I and II) was defined as individuals who purchased a fishing license within the region's approximate administrative boundary. Yet, relying on just the proportion of licenses sold to residents and nonresidents would not be an accurate representation of the angling pressure (i.e., number of angling days) experienced in the region.

The Montana Department of Fish, Wildlife and Parks' (MDFWP) 1989 Statewide Angling Use Survey (the most recent release available at the time of drawing the sample) revealed that Region One had a total of 413,362 angler days. Residents accounted for 75.4% (311,666 angler days) of the fishing pressure, while nonresidents comprised the balance -- 24.6% (101,696 angler days).

Nonresidents were defined as license buyers from the adjacent states of Washington and Idaho. Individuals who purchased licenses but resided in either North or South Dakota, or Wyoming were considered to be geographically too far away to constitute a significant proportion of nonresident license holders in Region One. Although Canadians were considered initially, the logistical problem of first sorting for Canadians from all international license buyers and then determining their province of origin in order to select for British Columbians and Albertans in appropriate proportions was too difficult to warrant their inclusion.

Two subgroups exist within the resident population -- the Senior/Youth/Disabled (SYD) and the Regular Season license holders. It is felt that the SYD licensees fish at a different level than do regular season license holders, thus they were separated in the sample selection process. Percentages for the two groups were based on licenses sold in the Kalispell and surrounding area since angling use estimates were not available. The SYD selection comprised 23.2% of the resident license holders sampled while the regular season license holders made up the remaining 76.8%.

In this manner, a random selection of Region One license holders' names, addresses and telephone numbers was obtained from the Sportsmen Database managed in MDFWP's Region Three office. Thus, a proportionate, stratified sample of 1,638 individuals was drawn.

Contact Procedures

Three sets of printed mailing address labels were used in the process of contacting the sample with up to three consecutive mail outs. These mail outs were:

1) the survey questionnaire with initial cover letter,
2) the post card reminder/thank you sent to the entire sample two weeks later, and
3) the final follow-up of a replacement questionnaire and cover letter sent to only those license holders who had not responded by four weeks after the initial questionnaire mail out.

Appendix B has examples of the post card as well as the cover letter sent with the replacement questionnaire.

In addition, records were kept of the nonrespondents so that a response bias check could be initiated after the cut off date for the receipt of questionnaires eligible to be included in the data analysis. A target of 50 completed telephone interviews was set, a subsample of approximately three percent of the original sample.

Study Limitations and Data Reliability

Individuals were informed that their participation was completely voluntary, and that their personal data would remain confidential and anonymous. Not all respondents answered every question -- many chose not to answer a majority of questions due to a lack of knowledge -- and some questions may also have been incorrectly answered.

Missing data are the result of any unanswered questions and cause the number in the sample to vary from question to question. For example, Figure 1 shows that 580 respondents replied out of the 588 questionnaires received. Those questions answered incorrectly may be due to carelessness, misinterpreting the question or its directions, and so forth. Such occurrences are treated as reporting errors and result in small data inconsistencies.

The degree of reliability achieved for each question's results depends on accepted minimal statistical standards. A minimum sample size of 30 is recommended to meet the reliability threshold. Managers should use caution whenever the sample size approaches or falls below 30, as data reliability may be questionable and decisions made on such results will be tenuous at best. Figures presented in this report for those questions with fewer than 30 respondents have had the label "CAUTION" added within the graph/table to identify the data as potentially unreliable.

RESULTS

A total of 1,638 questionnaires were mailed, 1,529 were delivered, and 678 returned for a 44.3% response rate. Of those, 90 were determined to be unusable, resulting in a final sample size of 588 questionnaires for a 38.5% effective return rate.

PROFILES OF LICENSED ANGLERS

Several characteristics were considered to be important for the purposes of this study. These include angler age, years of fishing in Region One, type of water fished (i.e., lake and/or river), preferred species, membership in a conservation or recreation organization and sources of MDFWP fishing information/regulations.

Age

Figure 1 shows that a sizable proportion of respondents were 41 to 60 years of age (41%). Twenty-five percent of anglers sampled were over 60 years of age, and a similar amount were 26 to 40 years of age (26%). Only 11% were under the age of 26.

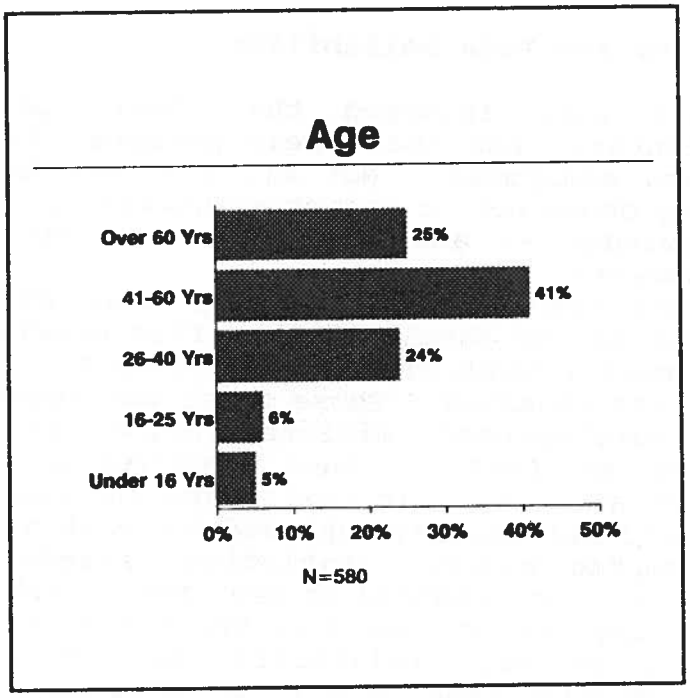

Figure 1

Years of Fishing in Region One

Almost a third of anglers (31%) had fished in Region One over 25 years as seen in Figure 2. One-fifth of the sample had fished between 16-25 years (20%); while just over a fourth (27%) had done so for 6-15 years. Five percent of those replying indicated that this was their first year for fishing Region One waters. Those who had fished for 2 to 5 years comprised 18% of the sample.

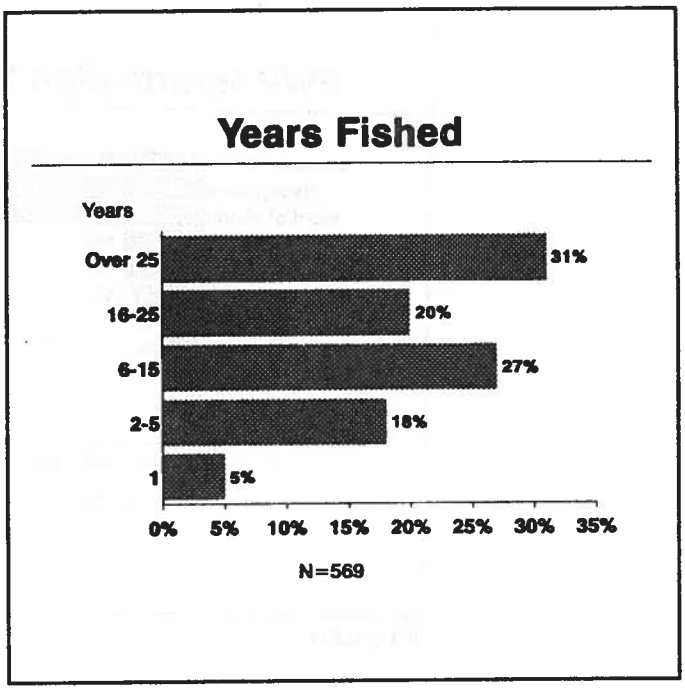

Figure 2

Type of Water Fished

Rivers/streams were fished less often (40%) than lakes (60%).

Preferred Fish Species

Cold water species (e.g., trout, salmon) were favored as a preferred fish species by 83% of respondents; 17% of anglers fished the majority of their time for warm water species.

Group Membership Status

Twenty-two percent of the anglers sampled belonged to an organized conservation or sportsmen/women group; 78% were thus not members.

Sources of FWP Fishing Information/Regulations

A variety of information and/or regulation sources were used by anglers. Figure 3 shows that the most commonly consulted information sources were license agents (68%), newspapers (47%), and word-of-mouth (38%). The fourth most consulted information source (i.e., FWP staff) was used by a substantially smaller portion of participating anglers (16%). The least used identifiable source of information was public meetings at 1%.

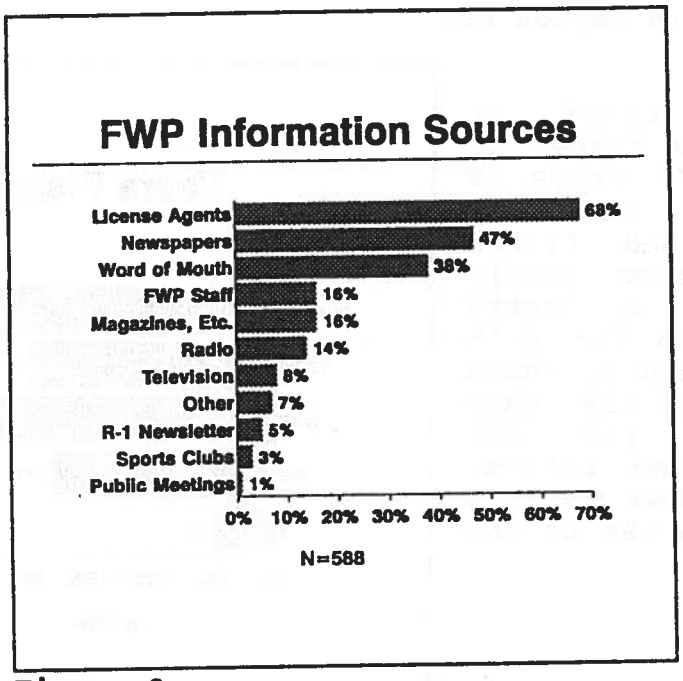

Figure 3

KNOWLEDGE OF REGION ONE'S AQUATIC ECOSYSTEM

Factors that limit fish size and numbers

The factors that were perceived by anglers as those most affecting fish size and numbers in lakes were competition from rough fish species (39%) and the lack of stocked fish (also 39%). Figure 4 shows that three other factors were also considered to be significant in limiting fish. These factors included poor management (32%), habitat quality (31%) and man degraded habitat (28%). Water temperature (11%), poaching (12%) and nutrient levels (15%) were seen as factors having the least impact.

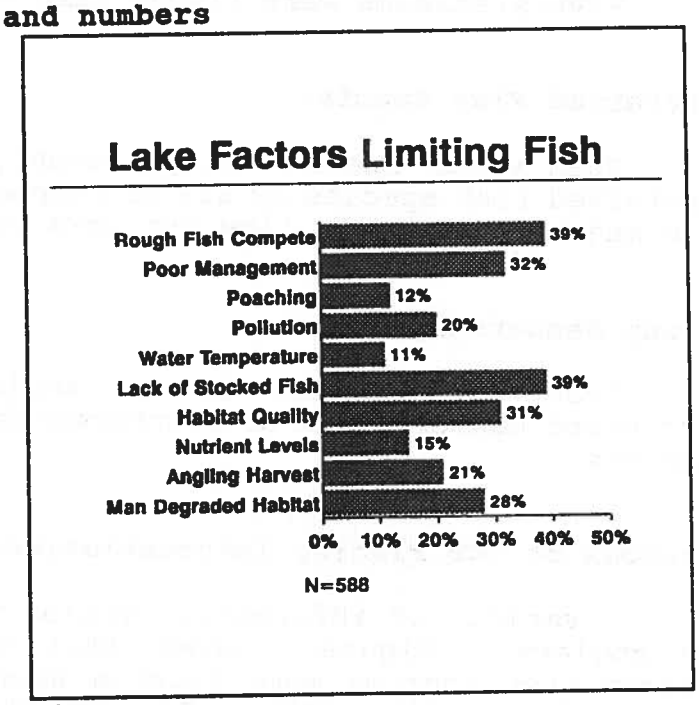

Figure 4

Figure 5 shows the factors that anglers felt most limited the size and numbers of fish in rivers/ streams to be habitat quality (39%) and man degraded habitat (38%). The lack of stocked fish (32%), competition from rough fish species (30%) and poor management (30%) were perceived by anglers as the third through fifth most limiting factors. Similar to the response for lakes, anglers felt that nutrient levels (11%), water temperature (11%) and poaching (13%) were the factors that had the least impact on limiting fish size and numbers.

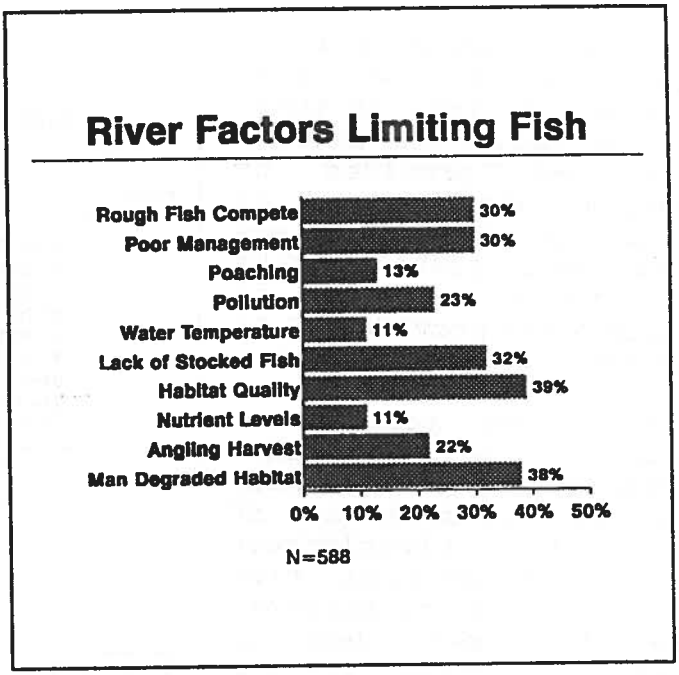

Figure 5

Proportion of angling provided through hatchery plants

Over a fifth of anglers (22%) felt that lakes had 41 to 50 percent of their fishing supplied by MDFWP hatcheries (see Figure 6). Similarly, another 22% of anglers felt that 10 percent or less of their fishing at lakes was provided by hatchery plants. Close to one-third of respondents felt that hatchery plants provided for over 50 percent of lake fishing in the region. It is also evident that many of the anglers who returned questionnaires either didn't know, had no opinion or did not answer either this question or the next, since the sample sizes for both were under 100.

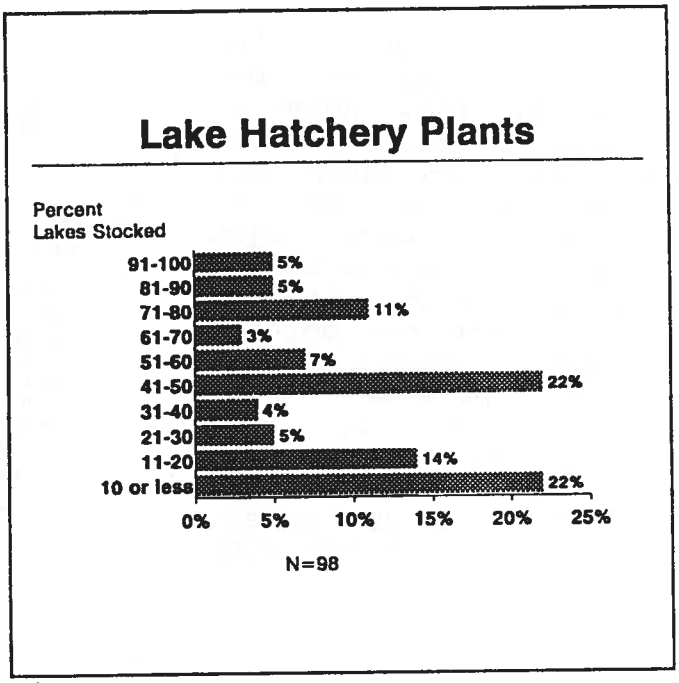

Figure 6

Figure 7 shows that 37 percent of anglers felt that ten percent or less of their fishing at Region One rivers/ streams was provided by hatchery plants. Almost an additional quarter of anglers who responded (23%) thought that hatchery plants in rivers/streams provided 41 to 50 percent of their fishing.

Only five percent of respondents indicated that they believed that hatchery plants provided more than 50 percent of river/stream fishing. In addition, nine percent felt that no hatchery planted fish were used to provide river/stream fishing in Region One.

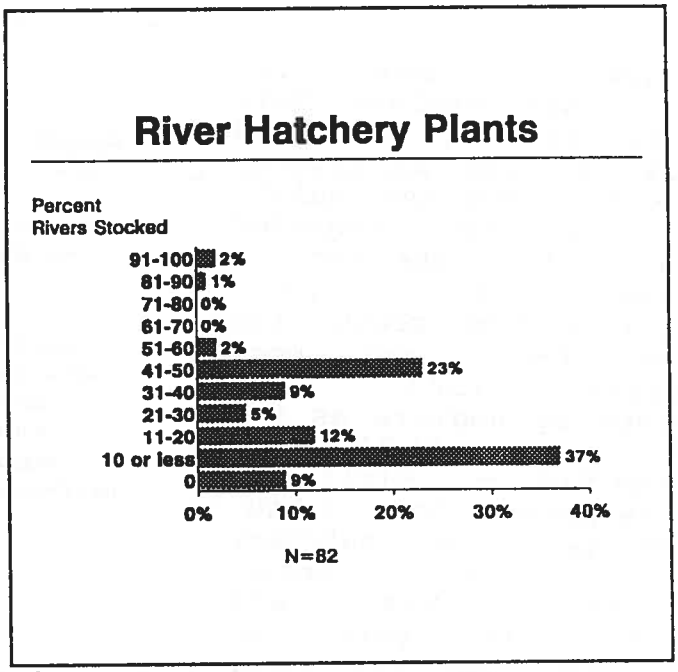

Figure 7

Proportion of waters with FWP planted northern pike

As seen in Figure 8, the majority of anglers who responded to this question (59%) were of the accurate opinion that the MDFWP did not plant any of the 61 Region One waters with northern pike. A quarter of the respondents thought that between one and ten percent of these waters were purposely planted with northern pike by the Department. Fourteen percent thought that more than ten percent of Region One waters were purposely planted with northern pike.

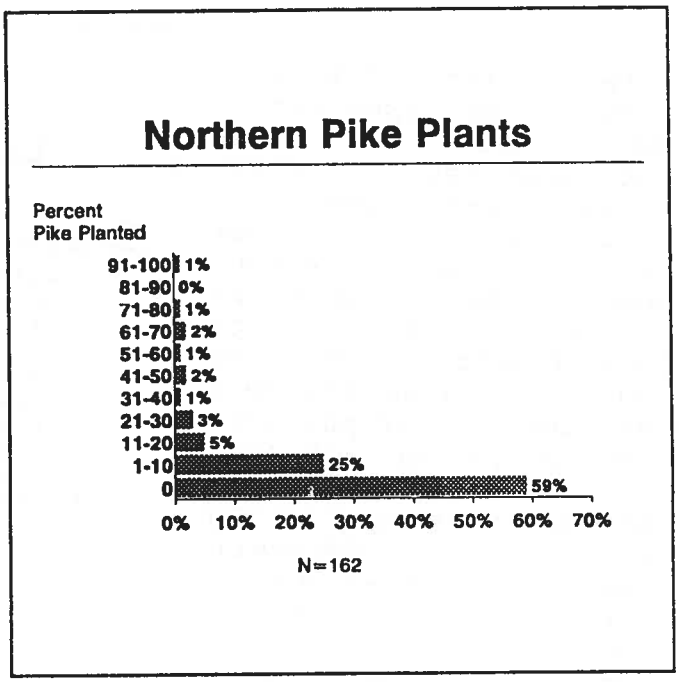

Figure 8

KNOWLEDGE OF REGION ONE'S FISHERIES MANAGEMENT CONTEXT

Proportion of waters more restrictive than general district

One-quarter of anglers who responded felt that more than 30 percent of Region One waters are under more restrictive regulations than those of the general western district (see Figure 9). Thirty-one percent felt that between 11 and 30 percent of Region One waters were also more restricted. Forty percent indicated that one to ten percent of these waters had more restrictive regulations. A total of 485 anglers did not respond to this question, i.e., either didn't know, or chose not to reply at all.

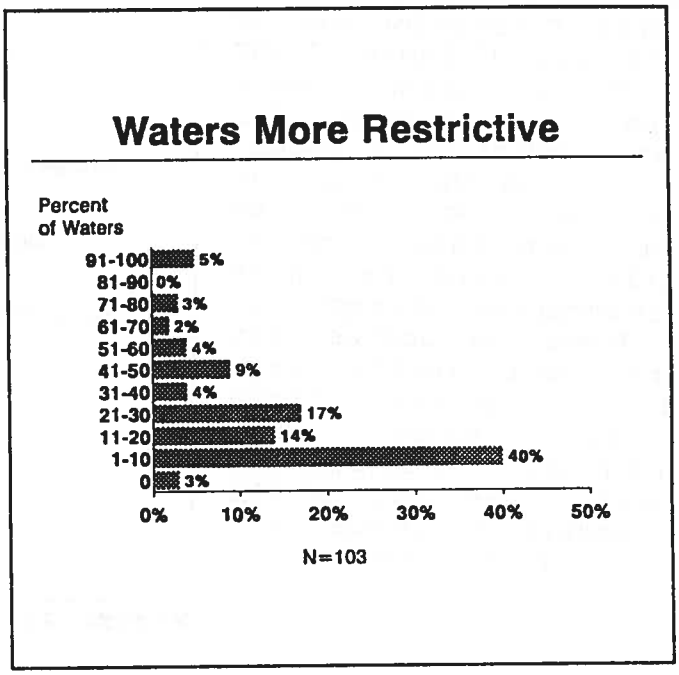

Figure 9

Support for native species management

Two-thirds of anglers (65%) were in favor of managing Montana's sport fisheries for native species of fish. Twenty percent did not favor managing for indigenous species, and 14 percent were undecided (see Figure 10). Most of those contacted in the overall sample chose to respond to this particular question (572 of the 588 respondents).

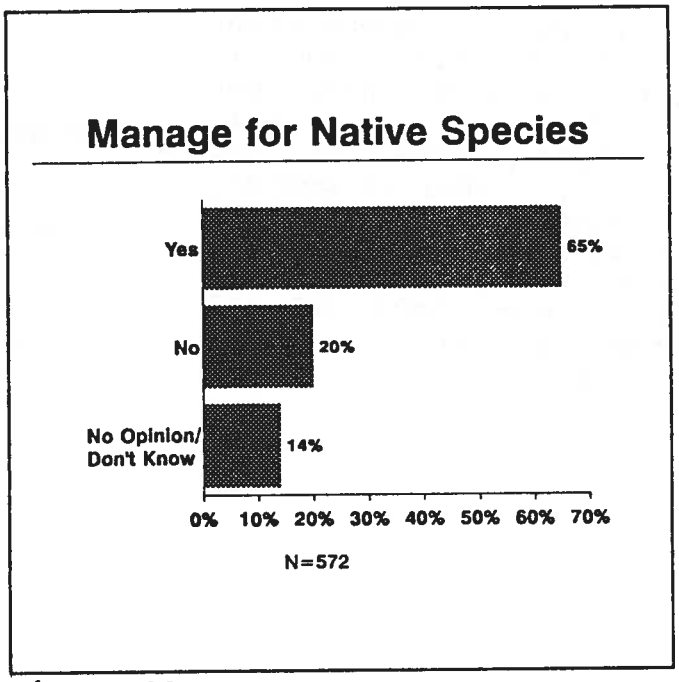

Figure 10

Identification of a final decision maker on regulations

Although 63 percent of anglers responding knew that the MDFWP Commission and/or the Confederated Kootenai and Salish Tribal Council were the final decision-makers for fishing regulation changes, Figure 11 shows that 38 percent were not able to correctly name them. Some of the others named may have been inaccurate attempts to recall these two bodies, but were not sufficiently clear enough to warrant their inclusion under the appropriate response categories. Over half of the total sample collected did respond to this question.

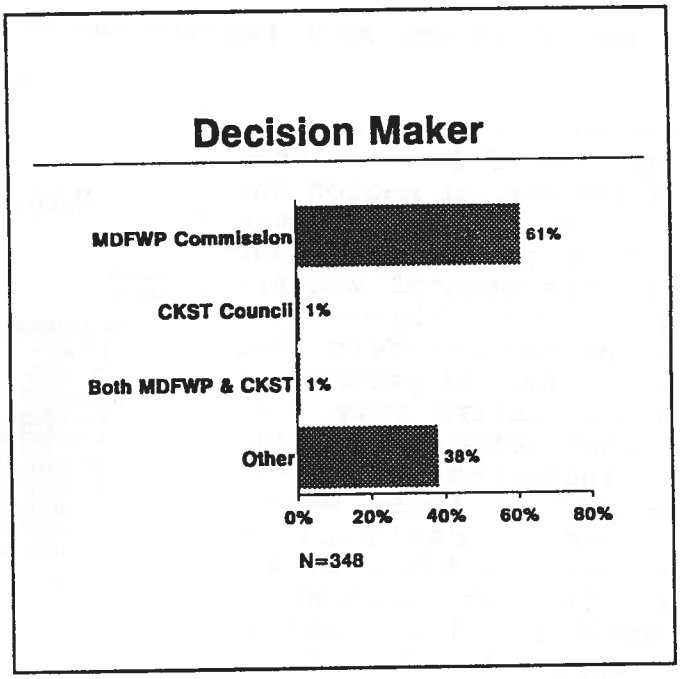

Figure 11

KNOWLEDGE OF REGION ONE'S MITIGATION AND MANAGEMENT PROGRAMS

Identification of dams impacting fisheries

Figure 12 demonstrates that of the five dams in Montana that could have been named, two were quite well known (Hungry Horse, 53%; and Kerr, 33%). Only 11 percent named Bigfork and a total of three percent or less named Noxon or Cabinet Gorge dams. Slightly over half of all respondents chose to answer this question.

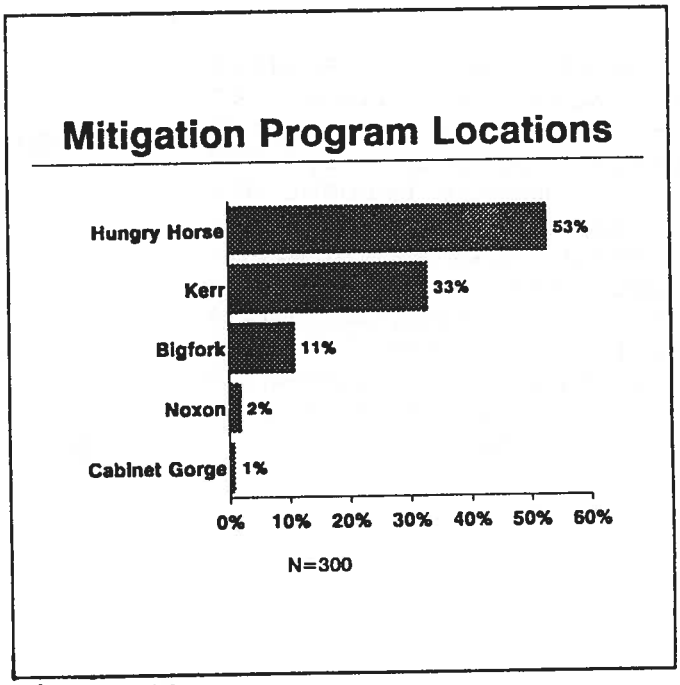

Figure 12

Identification of fisheries improvement program partners

Figure 13 shows that of the six partners that the MDFWP works with to offset the impacts of dams, the ones most well known include Montana Power Company (MPC) at 29 percent and the Pacific Power and Light Company at 26 percent. Those least known are the Confederated Salish and Kootenai Tribes (7%), and the U. S. Bureau of Reclamation (10%).

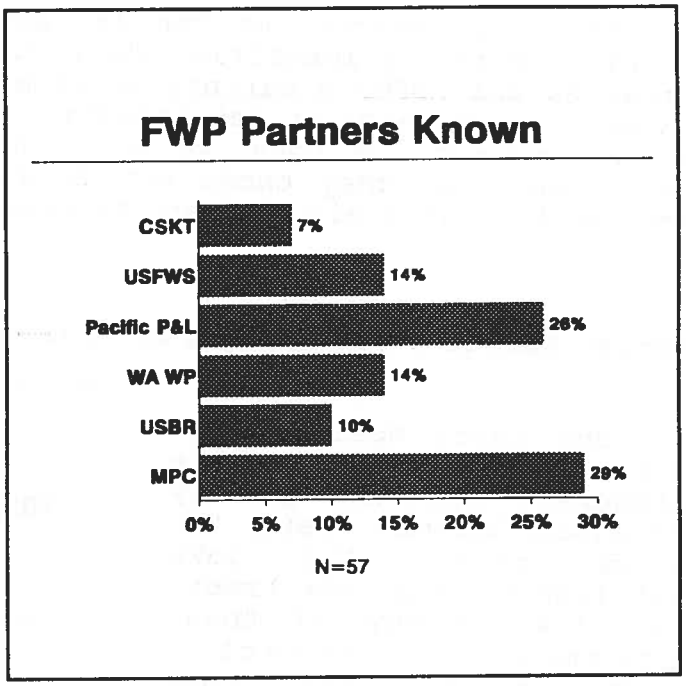

Figure 13

Identification of waters with management plans

Nine different Region One waters have management plans either developed or being developed. Results shown in Figure 14 that two of these waters with management plans were correctly identified by over 40% percent of respondents (a management plan for Kootenai River/Lake Koocanusa, 48%; and for the Flathead Lake/ River, 42%). The water that had the lowest proportion of respondents identify that it had a management plan was the Thompson River at 12 percent. It is surprising that more anglers did not identify the Flathead Lake/River as having a management plan, since one of the survey questions referred to that water's management plan.

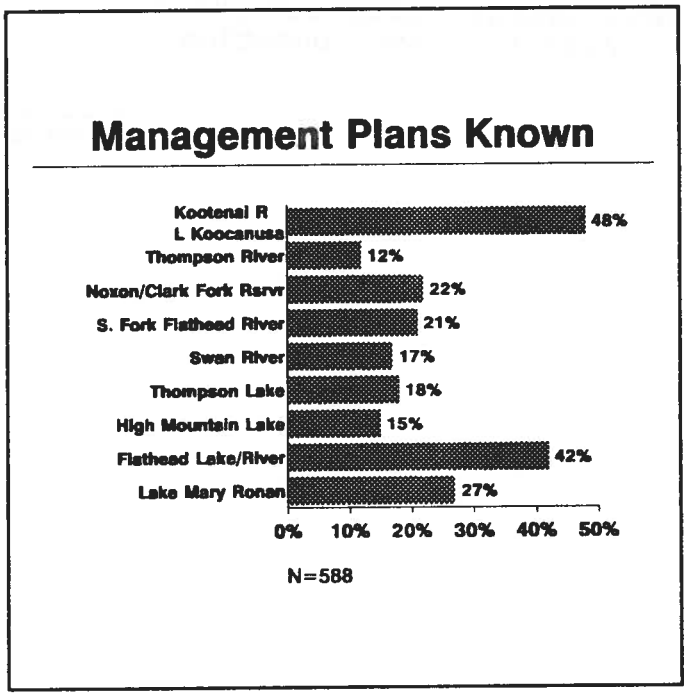

Figure 14

Identification of FWP's partner on the Flathead Lake/River

Forty-six percent of the 166 anglers who responded to this question correctly identified the Confederated Kootenai and Salish Tribes as the MDFWP's partner in managing the Flathead Lake/River system. The balance of respondents (54%) did name some other body as the partner. A total of 422 individuals were missing which could mean that they chose not to respond because they did not know, or they just did not want to answer that particular question.

Species targeted for harvest by Flathead fisheries management plan

The three species that were targeted by the management plan for greatly increased harvest were the yellow perch, the lake whitefish and the lake trout. Sixty-five percent of those responding correctly identified the lake trout (see Figure 15). Less than half that many anglers (29%) successfully identified the yellow perch and only five percent were correct in identifying the whitefish. Approximately half of the total sample collected chose to respond to this question.

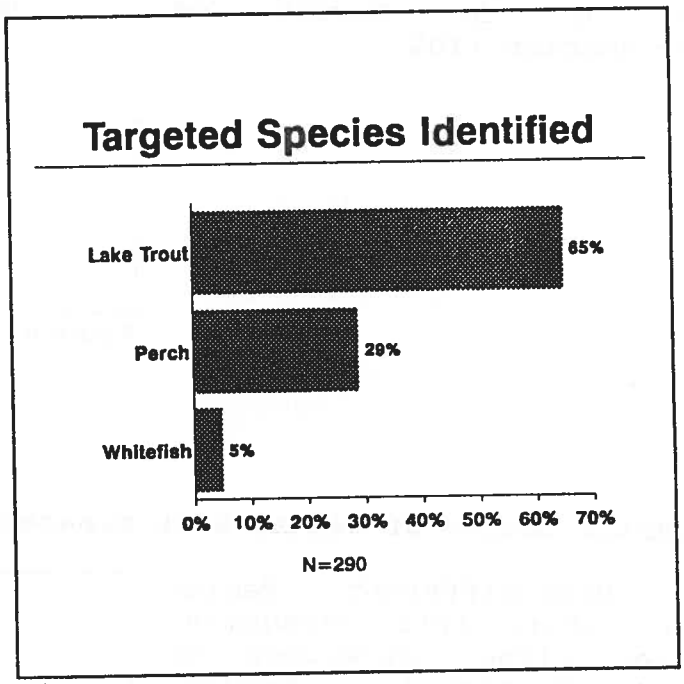

Figure 15

Satisfaction with mitigation program management

Figure 16 shows that over a quarter of the respondents either had no opinion or did not know about how the MDFWP manages mitigation programs and thus did not wish to rate their satisfaction as to the Department's performance. Almost as many anglers (26%) were neutral about the performance of the Department. The remaining respondents were almost evenly divided between whether they were dissatisfied to very dissatisfied (25%) or satisfied to very satisfied (21%). Although these results show that the Department is not now in serious jeopardy with the management of its mitigation programs, the possibility exists that one factor might sway the neutral and uncommitted either way.

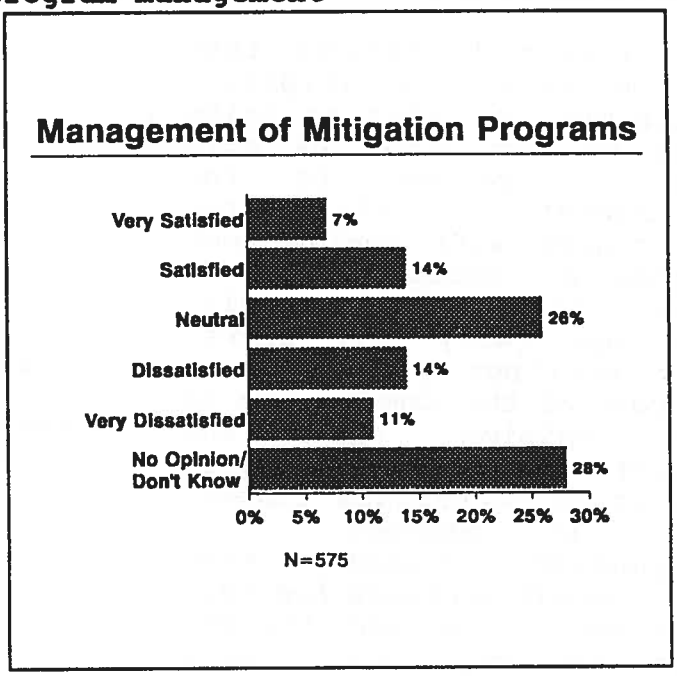

Figure 16

PERCEPTION OF REGION ONE'S OPPORTUNITIES FOR PUBLIC PARTICIPATION

Public awareness of feasible fisheries management options

Thirty percent of the anglers responded that they either disagreed or strongly disagreed that they were informed of the full range of feasible fisheries management options for region One waters (Figure 17). Only 15 percent of anglers indicated that they agreed or strongly agreed that they were fully informed. Almost a third of anglers (30%) had either no opinion or did not know and a quarter of anglers (24%) neither agreed nor disagreed.

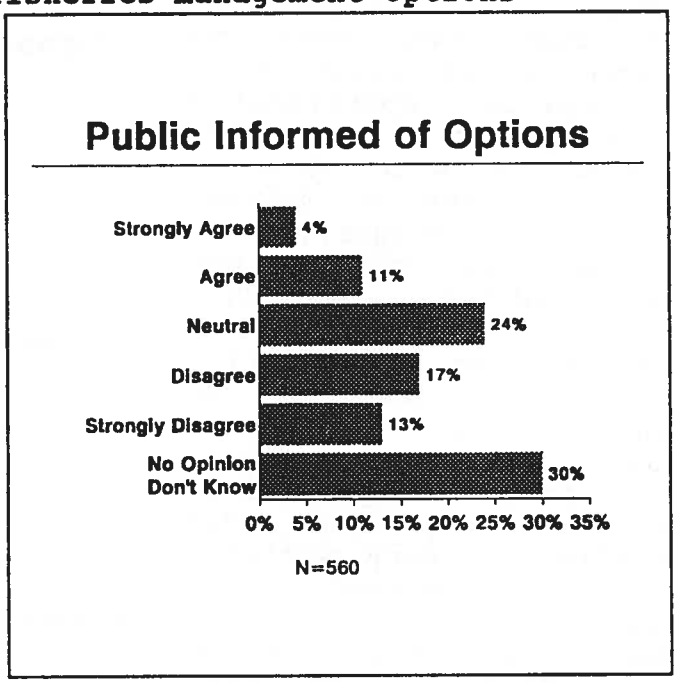

Figure 17

Identification of techniques used

Figure 18 depicts that no one public participation technique was seen as being used by the MDFWP by more than 50 percent of the respondents. The three techniques with the highest degree of recognition were public surveys (48%), public meetings (45%) and sports club meetings (45%). Five percent of the sample were of the opinion that the Department did not use any of the eight techniques listed. Only 10 percent of respondents thought that small group meetings had been used and 13 percent thought that advisory groups were used by the Department to involve the public.

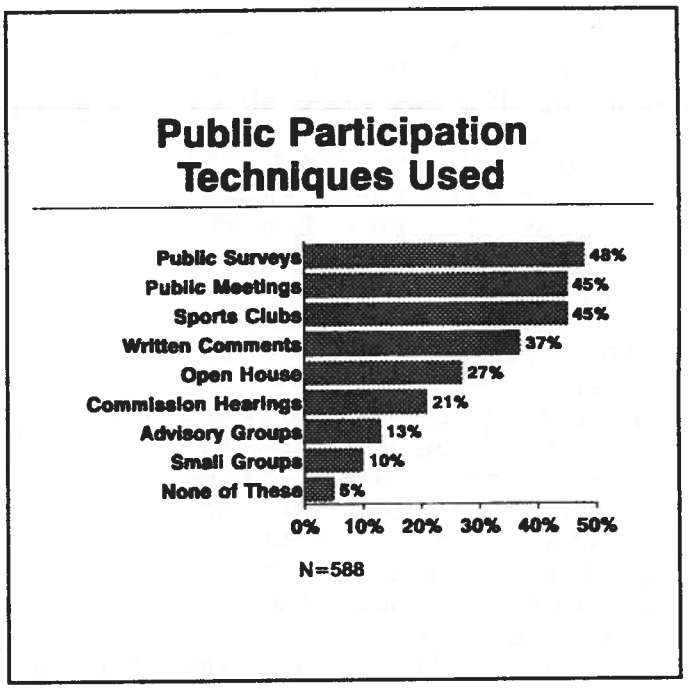

Figure 18

Satisfaction with public participation opportunities

By the angler responses indicated in Figure 19, it is evident that a large number felt that they were not informed enough about public participation opportunities in the region to rate their satisfaction with them (40 percent in the No opinion/ Don't know category). In addition, one quarter more were neutral in their satisfaction ratings, neither satisfied nor dissatisfied. For those anglers who actually did rate the provision of public participation opportunities (34%), 13 percent were satisfied to very satisfied and 21 percent were dissatisfied to very dissatisfied. Thus, although only a third of the sample for this question had a definite opinion formed, there apparently is a need to more adequately address public satisfaction with the opportunities to participate in fisheries management programs.

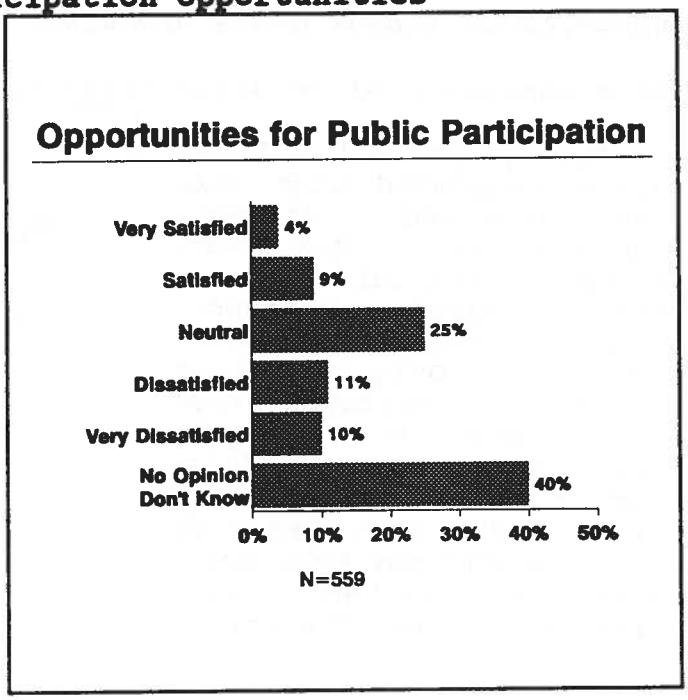

Figure 19

Preferred public participation techniques

Figure 20 shows that of the eight public participation techniques listed in the questionnaire, the two techniques preferred by the largest proportion of anglers were public meetings (45%) and public surveys (40%). One percent thought that none of these techniques should be employed by the Department -- however, it is not known (if they did have another preferred method) what that might have been. Advisory groups (11%), Commission hearings (11%) and small working groups (7%) had the lowest proportionate support.

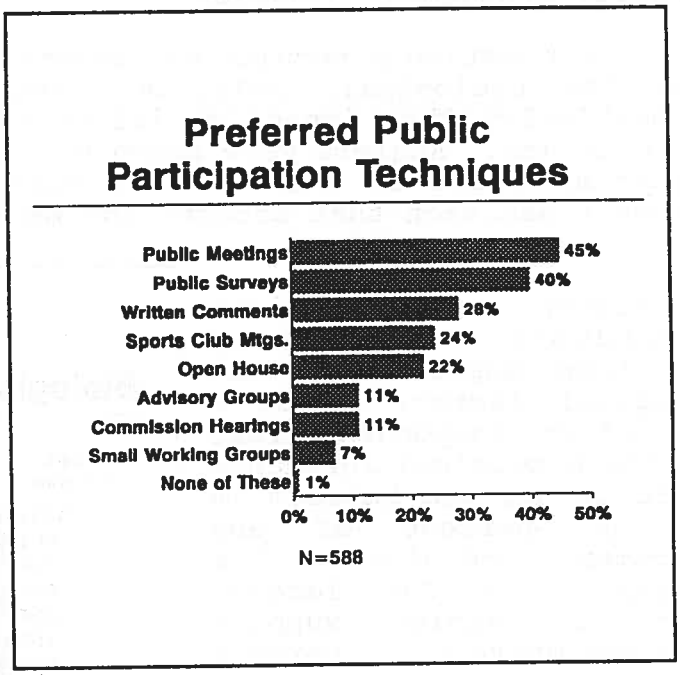

Figure 20

Staff effectiveness at involving the public in fisheries management

Sixteen percent of anglers felt that the Fisheries staff in Region One did a good to very good job of involving the public in the management process (Figure 21). Twenty-four percent were of the opinion that the staff did a poor to very poor job of involving them in fisheries management. Almost two-fifths (39%) of responding anglers had no opinion or didn't know about staff efforts to involve the public in managing fisheries, and 21 percent felt that an adequate job was being done.

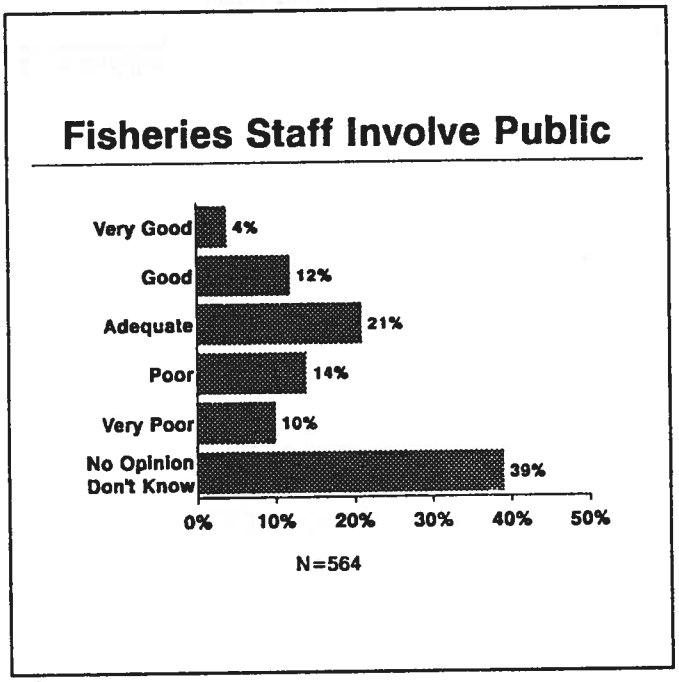

Figure 21

Preferred emphasis of decision-making influences that impact fisheries management programs

This question's results are summarized in Figures 22-25 which cover the biological, political, economic and social factors (respectively) that impact decisions affecting fisheries management programs. Anglers were asked to specify what their preferred allocation would be for each of these factors when the MDFWP reaches a decision that affects the management of fisheries.

Figure 22 depicts respondents' preferred allocation emphasis on the biological factor. Over a third of the respondents felt that the biological influence should constitute between 70 and 100 percent of any management decision. The category with the largest amount of angler support (29%) was where 41-50 percent of any management decision should be based on the biological factor. Less than one-fourth of the respondents thought that 40 percent or less of the decision should be based on the biological factor.

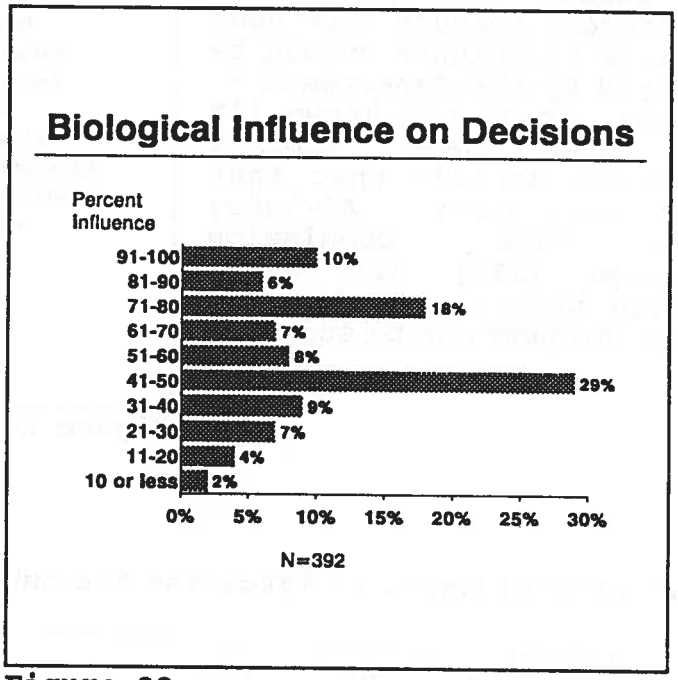

Figure 22

Figure 23 shows that over two-thirds (67%) of the respondents who considered the political influence on fisheries management decisions thought that the allocation should be between one and ten percent of the decision. Three percent of anglers did not want politics to play any role in the decision-making process. Twenty-nine percent of anglers thought that between 11 and 50 percent of any decision made regarding fisheries programs should be based on the political factor.

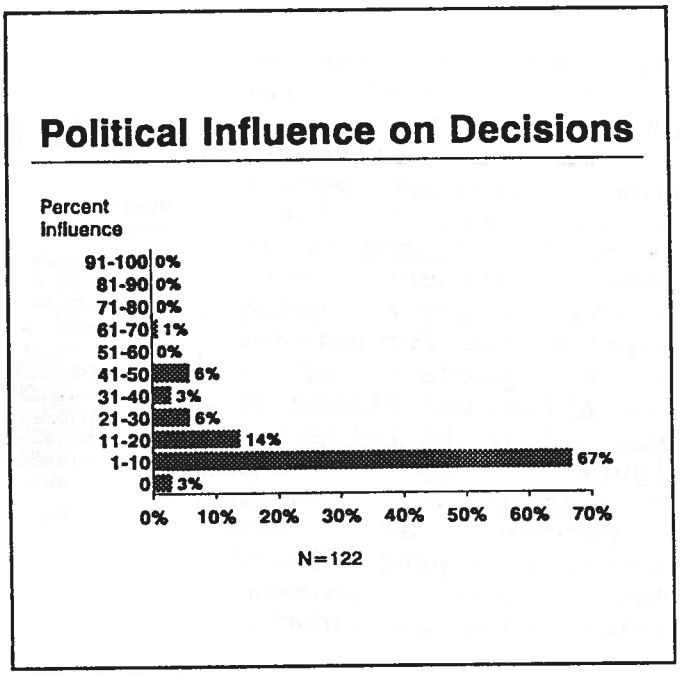

Figure 23

Figure 24 shows that the overwhelming majority of the angling public surveyed (75%) supports using the economic factor for between 1 and 30 percent of a decision affecting fisheries management programs. Twenty-seven percent alone feel that between 21 and 30 percent of a fisheries management decision should be based on the economic factor. In fact, 21 percent feel that between 31-50 percent of any decision should be predicated on economics. Only one percent felt that the economic factor should not play any role in a fisheries management decision.

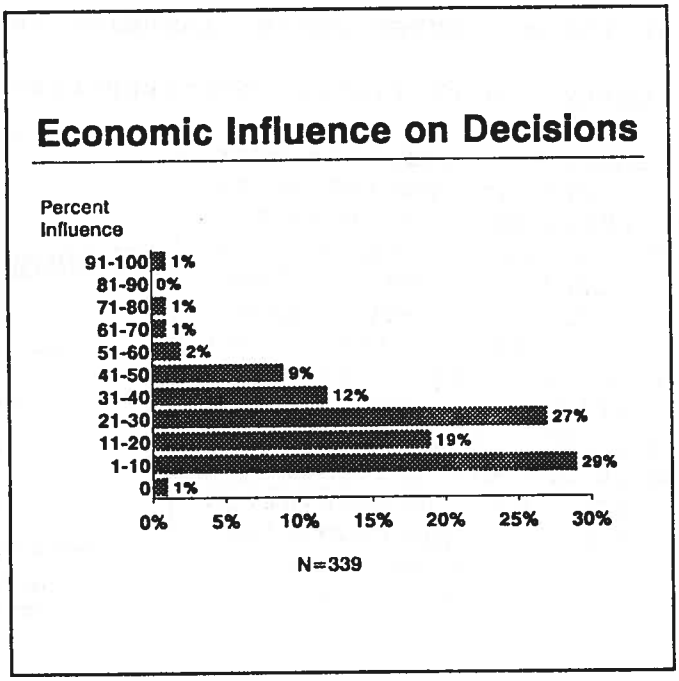

Figure 24

The surveyed angling public feels that the influence of the social factor on a fisheries management decision should not be as great as their preference for economics to influence decisions, even though 82% supported using the social factor for between 1 and 30 percent of a decision affecting fisheries programs. This is reflected in Figure 25 by the 43 percent support for between 1-10 percent and the corresponding support found in the higher percent categories being appreciably smaller.

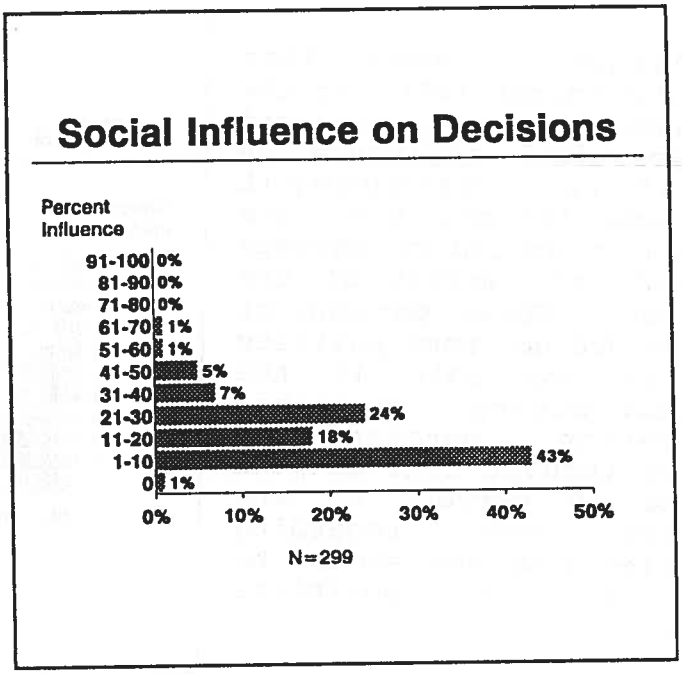

Figure 25

EVALUATION OF REGION ONE'S FISHERIES PROGRAMS AND STAFF

Satisfaction with fishing opportunities

There are slightly more anglers who are satisfied to very satisfied (27%) with the opportunities in Region One for fishing than those dissatisfied to very dissatisfied (23%), but the difference is neither substantive nor significant (Figure 26). Over a third of surveyed anglers felt neither satisfied nor dissatisfied with fishing opportunities, whereas 15 percent had no opinion or did not know.

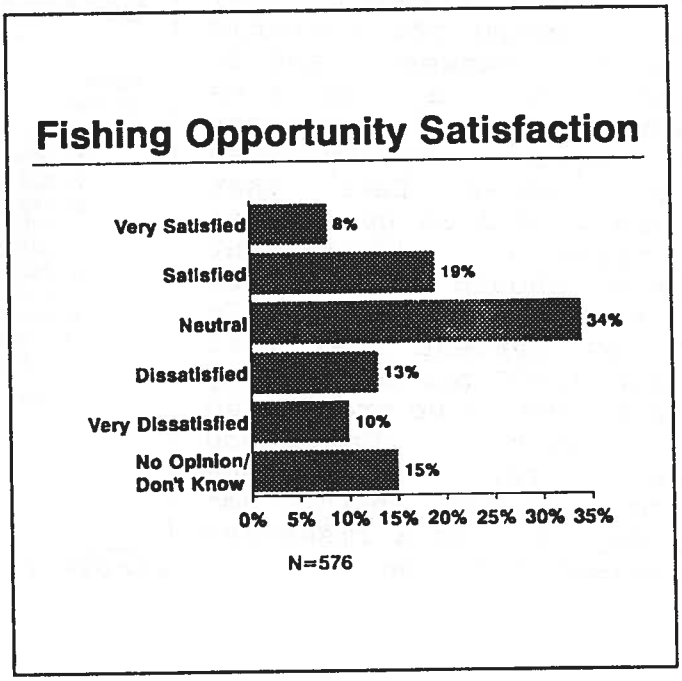

Figure 26

Satisfaction with the management of fisheries programs by staff

Figure 27 shows that 28 percent of the angling public surveyed were either dissatisfied or very dissatisfied with the Region One fisheries staff's ability to manage programs. Eighteen percent felt satisfied to very satisfied with the staff ability to manage programs. This difference is a substantive one and reflects that there is a limited but definite lack of confidence in Region One fisheries staff managerial abilities. Over 50 percent of the respondents were neutral about the staff's managerial ability or either had no opinion or did not know.

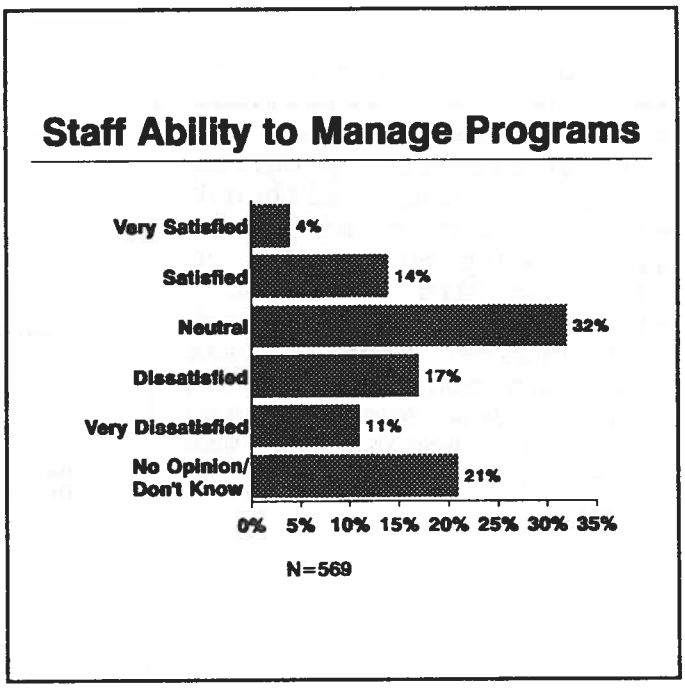

Figure 27

Perception of staff professionalism and knowledge

One third of the anglers sampled agreed or strongly agreed that Region One fisheries staff were knowledgeable and professional. Yet, Figure 28 also shows that almost as many (30%) said that they either had no opinion or did not know. Only 16 percent actually disagreed or strongly disagreed that the fisheries staff were knowledgeable and professional. Twenty percent were noncommittal.

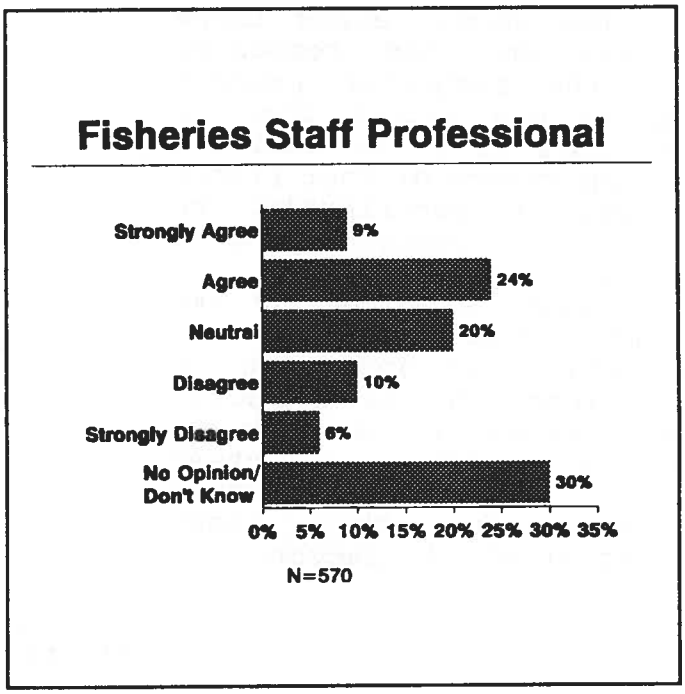

Figure 28

Quality of fisheries management programs

Figure 29 shows that there is a relatively balanced assessment of the quality of fisheries programs in Region One, although almost a quarter of those anglers sampled had no opinion or did not know. Twenty-seven percent thought the fisheries program was poor to very poor, 26 percent thought it was adequate and 24 percent thought it was good to very good.

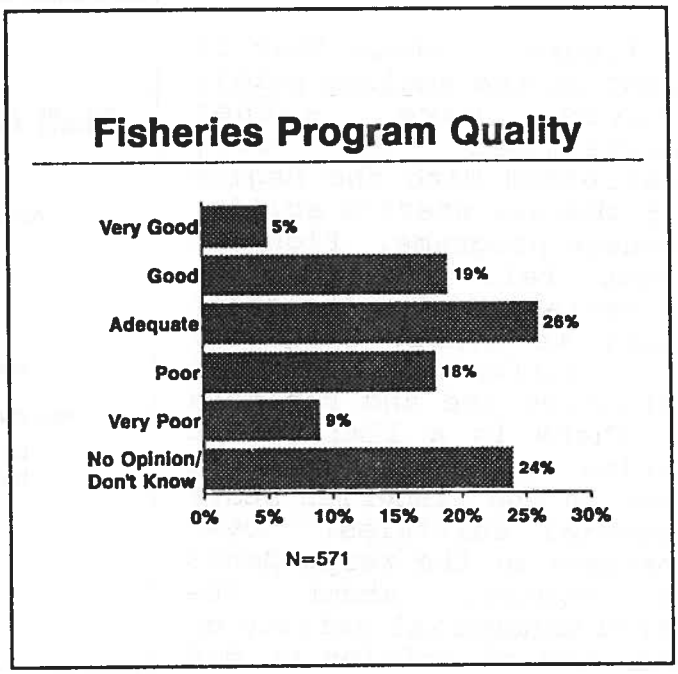

Figure 29

* Factors affecting program quality

The survey asked those anglers who had responded that the fisheries program quality was either poor or very poor (27%) to indicate the importance of four listed factors in contributing to the lack of fisheries program quality in Region One.

Figure 30 shows that 64% thought that a lack of resources was important to most important as a factor contributing to a lack of program quality. Eighteen percent thought that this factor was the least important of all factors.

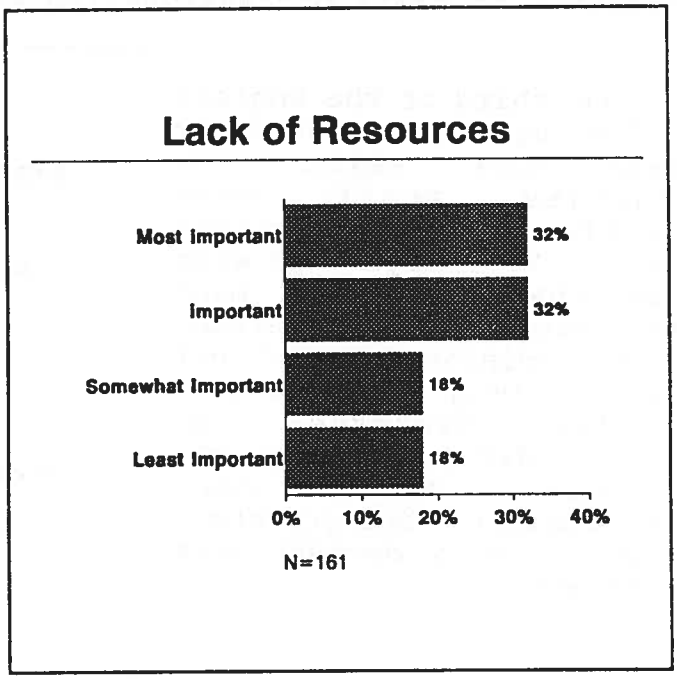

Figure 30

Figure 31 shows that 60% thought that the performance quality of staff was important to most important as a factor contributing to a lack of program quality. Sixteen percent thought that this factor was the least important of all factors.

Figure 31

Figure 32 shows that 60% thought that biological limitations were important to most important as a factor contributing to a lack of program quality. Eight percent thought that this factor was the least important of all factors.

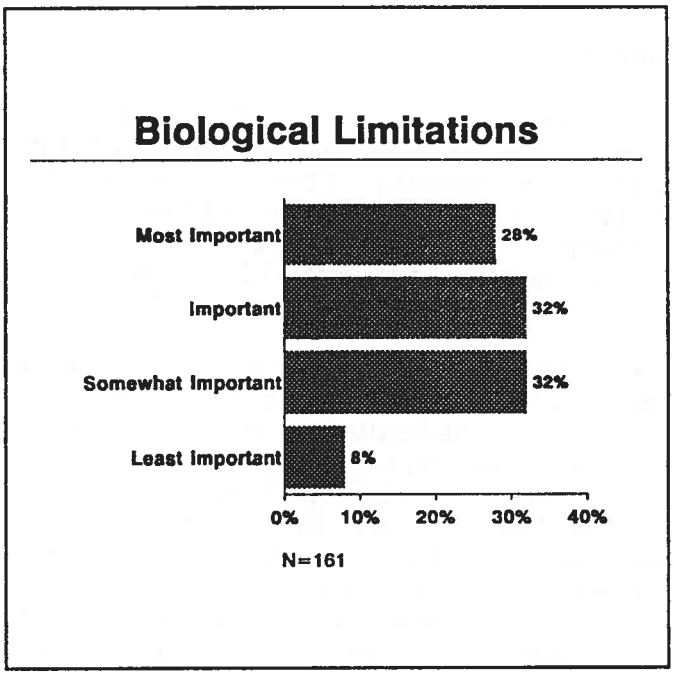

Figure 32

Figure 33 demonstrates that another factor played a role in how the angling public surveyed looked at program quality. Sixty-six percent thought that some other factor was important to most important as a factor contributing to program quality. This question's results are somewhat misleading if one examines the sample size in comparison with those for the prior three questions. Only about one third of those anglers who rated fisheries program quality as poor to very poor gave a response to the "other factor" reason for inadequate program quality, whereas almost all responded to the "lack of resources," "staff performance quality," and the "biological limitations" categories.

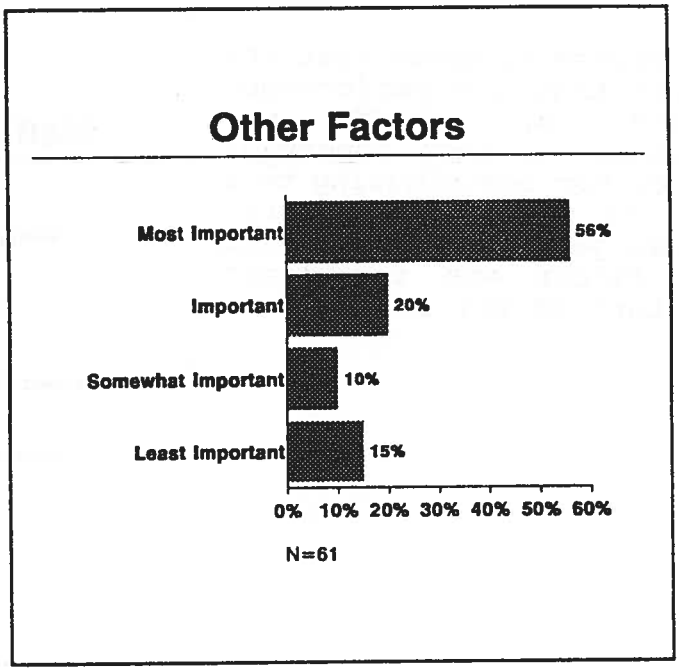

Figure 33

DISCUSSION AND CONCLUSIONS

DISCUSSION

The results of this survey show that the staff's view of how the public perceives Region One fisheries management is relatively accurate -- namely that a majority of licensed anglers are uninformed about factors affecting fish populations and their management. Yet, the staff are not as fully aware of what the public's range of perceptions and knowledge are with respect to agency programs and the limitations to successfully implementing them.

Why the angling public is not as well informed as it might be is open to interpretation and conjecture. Part of the reason may be due to inadequate public education programs on aquatic ecosystems, how fish use their habitats and how human interference affects the quality of these sport fisheries (i.e., fish and habitat alike). Part of it may also be due to the individual lack of interest in what (in their eyes) does not directly affect them.

Additionally, several respondents commented that it didn't matter if they knew the appropriate responses or not. In their view, agency professionals know the answers and since the Department manages the fisheries, there is no reason why individual anglers should even be concerned about knowing anything so complex.

A further conjecture is that some anglers just don't know or may be unsure, to the point they don't wish to venture guessing what factors or facts truly do impact and affect their fishing successes and experiences. This could be the case in many

questions where the number of anglers who respond is typically less than half the total number of returned questionnaires.

Profiles of licensed anglers

Demographically, 66 percent of the respondents were older than 40 years of age; 32 percent of all Montanans (1990 statewide population of 799,065) are 45 years or older according to the 1990 census (Bureau of the Census, 1992). There is an evident disproportionate number of older anglers, but it probably is an accurate representation of anglers in the population of Montana due to the random sample selection process.

A concern exists in that the older the respondent, perhaps the less aware he/she may be of some of the more recent developments in biological understandings gathered through fisheries research. If a problem exists, it may simply be one of communication failure, and/or an unwillingness of individuals to seek out or accept information updates, not currently available through their established information sources. (Regardless, in biological terms, the population growth curve depicted in Figure 1 from this sample does not bode well for maintaining a viable population of anglers in ten to 15 years.)

The individuals' levels of experience do not seem to have an extensive association with angler ages, but a recruitment level of five percent will not sufficiently address the upcoming exodus of participants from angling. In fact, with over 75 percent of the sampled anglers having at least six years experience, the high number of questions with don't know/no opinion responses is surprising.

With over 80 percent of sampled anglers indicating that they prefer to fish for cold water species, it may help to target messages and programs to meet this measured demand. In addition, knowing how many of those who fish for cold water species belong to an organized conservation or sportspersons' group may help to develop a way to disseminate information more productively.

Newspapers follow license agents as the most consulted source of information on FWP programs, etc. An increased emphasis on these two media channels may help reduce inaccurate word-of-mouth messages and encourage direct consultation of the regulations and agency sponsored fisheries information.

Knowledge of Region One's aquatic ecosystem

For both lakes and rivers/streams, respondents felt the least limiting factors were poaching, low nutrients and the water temperature. These beliefs in combination with the respondent perception that the lack of stocked fish in rivers contributes to fewer and smaller fish, shows that there is a definite gap in angler awareness and knowledge. Angler knowledge about how much planting from hatcheries is done for lakes and rivers demonstrates another area where a renewed effort at educating our angling publics is called for at once.

Further evidence to support this contention emerges when 41 percent of anglers thought that any (between one and 100 percent of) Region One waters were planted with northern pike.

Region One fisheries staff felt that regional waters were not more restrictive than the general western district, yet only three percent of anglers sampled agreed with their assessment. Granted, 40 percent of anglers thought that only one to ten percent of R-1 waters were more restrictive.

Fourteen percent of sampled anglers were unsure of whether the agency should manage R-1 waters for native species -- this, combined with 20 percent of anglers who disagreed with managing for native species, shows that over a third of R-1's angling public is currently not in favor of managing for indigenous species. Thus, care must be taken by fisheries staff to ensure that a blanket approach is not taken in the provision of angling opportunities.

Knowledge of Region one's fisheries management context

It is possible that some of the disenfranchisement felt by anglers with R-1 fisheries staff for not involving the public more in the decision making process for fisheries management programs is because 38 percent of sampled anglers did not know about the operating environment and organizational limitations encountered by regional staff when changes to fishing regulations are made.

Knowledge of Region One's mitigation and management programs

To improve the public image of the Department's involvement with mitigation programs on five fisheries in the state, the MDFWP will first need the angling publics' recognition of their existence. Since three locations of mitigation program locations were not well known (i.e., Bigfork, Noxon and Cabinet Gorge), an educational and media emphasis to increase the public awareness of these programs is necessary.

Few individuals responded to the question about the agency's partners in mitigation programs. Of those who did respond, it is somewhat of a surprise to see that the Confederated Salish and Kootenai Tribe and the Bureau of Reclamation were the least well known. Such response further points out the inadequacy of or lack of public information and education programs that deal with the management of dam mitigation efforts. Further corroboration is seen in the general lack of identification of which waters in the region have management plans either finished or under development. (For seven of the nine waters with management plans, 12 to 27 percent of the anglers sampled could identify them.)

Yet, certain facts do get through to a small number of anglers, in that 46 percent (approximately 80 respondents) were able to correctly identify the Confederated Salish and Kootenai Tribes as the MDFWP's partner on the Flathead system. As well, over a quarter of all respondents were able to correctly answer that lake trout were targeted for increased harvest in the Flathead fisheries management plan. Fewer were as knowledgeable about the perch and whitefish being targeted, so it may be that anglers are selective in their assimilation of information.

Anglers were generally uncommitted about the Department's management of its mitigation programs which may indicate that no one factor has predisposed public opinion. Prior to a negative factor swaying popular views, it would be advantageous to promote

the MDFWP's role and the benefits that will accrue from the work which is occurring.

Perception of Region One's opportunities for public participation

Part of the reason why the angling public surveyed may not have felt that they were informed of the full range of feasible fisheries management options for Region One waters is because they have not been -- at least their perception is that they have not. The other part may be that perhaps the fisheries staff have not realized that the reasons for rejecting nonviable options need to be explained as well as those for the viable ones that are presented to the public.

Recognition of the varied techniques used by Region One for public input into fisheries management decisions was not high in that less than 50 percent of the responding anglers identified any one technique. Why none of these techniques achieved a higher profile is puzzling, and the only alternative seems to be presenting a broader message about the role of public involvement in the provision and improvement of fisheries programs to targeted groups.

The satisfaction ratings for public participation opportunities reflect the fact that public awareness of how the MDFWP provides for imputing into management decisions needs to be improved in conjunction with a wider use of the opportunities available. Staff can play more of an effective role in involving the angling public in management processes by increasing their accessibility and presence in the communities of the region.

Of the four influences that affect fisheries management decisions, the biological and the economic influences were tops on anglers' lists. Perhaps the intent of asking this question was more of an information giver than as an information gatherer since almost half of the surveyed anglers chose not to respond at all. Regardless, it was apparent that although some recognize that political factors intervene in sound fisheries management, the bulk of respondents were supportive of a continued emphasis on the biological factor.

Evaluation of Region One's fisheries programs and staff

Just under half of the anglers surveyed had no opinion/did not know, or responded neutrally when asked if they were satisfied with fishing opportunities. Although those who were very satisfied or satisfied with fishing opportunities barely outnumbered those who were not, the potential exists for the MDFWP to rectify this situation quickly with a concentrated effort. Such a message would need to explain that opportunities are limited, why they are limited and what alternatives are available for different preferred experiences within the region given its limitations.

It may be difficult to accept the fact that in general fisheries staff are perceived as being professional and knowledgeable, yet their ability to satisfactorily manage programs questioned. Remember, not all the votes are in, approximately 50 percent in both these questions were either neutral or had no opinion. Focussing on the managerial capabilities of our fisheries

staff may be one way of combating this image; another would be to encourage staff participation in management training workshops.

It may be that the angling public questions the capability of our fisheries staff, but as far as the quality of the program offered, a slightly different scenario is set. No great discontent is evident in the public evaluation of the quality of the fisheries program. Thus it may be that greater media coverage of the positive aspects of the Department could go a long way to dispel what appear to be popular misconceptions. The areas where those who thought the fisheries program quality could be improved were biological limitations, lack of resources and then the quality of staff performance in that order.

CONCLUSIONS

The study results show that a very large proportion of Region One anglers sampled are either not knowledgeable/have yet to develop an opinion about fisheries management efforts or have not yet decided whether the fisheries staff and programs are adequately addressing their needs. While this is not encouraging, it does mean that there may yet be sufficient time to impact these anglers through a concentrated education and information effort prior to an unfortuitous fisheries event/issue that precipitates a negative reaction to the program and staff.

Generally, where anglers have chosen to evaluate the program and staff negatively, the variance between the two divergent opinions is not too large to reverse. In other words, all is not yet lost if actions are initiated in the near future to address the proliferation of bad press and persuasiveness of individuals who are critical of the fisheries program.

Steps have already been taken to engender a proactive attitude among fisheries staff and support administrative staff within the region. These can be continued and enhanced so that the public image exuding from our fisheries program and its staff is a positive, constructive force for the benefit of both the aquatic ecosystem and those who respectfully use it.

The results from this survey will constitute the baseline data for assessing the success of a Public Information Plan that addresses fisheries management within the region. In two years a follow-up study will be conducted to enable a comparison between the data then collected and that reported here.

Such an analysis may or may not show that some of the strategies implemented in the information plan are successful. The endeavors and dedication of Region One's fisheries staff and its Information Officer will determine the respective success of the fisheries program in soliciting public support and that of a series of coordinated information strategies targeted to educate and inform anglers throughout the region.

APPENDICES

APPENDIX A: Questionnaire and Initial Cover Letter

Montana Department of Fish, Wildlife & Parks

March, 1992

Dear Cooperator:

The Department of Fish, Wildlife and Parks has just completed a comprehensive strategic management plan designed to make our agency more responsive to the public. During this process, we have committed to improve our management programs and to better inform the public about them. As part of this effort, we are asking you to complete a survey about our fisheries program in Region One.

Please take a few minutes to complete the enclosed postage-paid questionnaire and return it to us. Your response is important to the success of this effort.

You were selected to participate in this survey from a list of 1991 fishing license holders to represent the current public perception about fisheries management in the region. After our new programs have been in place for one year, you may receive a post-survey.

Thank you for taking the time to complete the survey. We are confident that this process will improve management of the 500 lakes and 2,700 miles of stream that we manage in Region One.

Best regards,

Dan Vincent
Region One Supervisor

JF/nb

Ref:DV252.92

REGION ONE FISHERIES

Managing for the Future

Montana Department of
Fish, Wildlife & Parks

1. Circle three factors that most limit fish size and numbers in Region One waters. Please indicate three factors each for both lakes and for rivers/streams.

Lakes (circle 3)	Rivers/ Streams (circle 3)	Factors
1	1	- Rough fish species competition
2	2	- Poor management
3	3	- Poaching
4	4	- Pollution (e.g., sewage, heavy metals, etc.)
5	5	- Water temperature
6	6	- Lack of stocked fish
7	7	- Habitat quality (e.g., hiding cover, silt levels, lakeshore/streambed stability, spawning bed availability)
8	8	- Nutrient levels (e.g., phosphorus, nitrogen)
9	9	- Angling harvest
10	10	- Man-caused habitat degradation

2. What proportion of fishing in Region One is provided by hatchery plants for lakes and rivers/streams? Please write in the percent for both lakes and for rivers/streams.

____ % of hatchery plants for lakes OR ____ Don't know
____ % of hatchery plants for rivers/streams OR ____ Don't know

3. What proportion of Region One waters are under regulations more restrictive than the general western district regulations?

____ % of R-1 waters OR ____ Don't know

4. Sixty-one Region One waters have northern pike. How many of these waters did the MDFWP plant with northern pike?

____ Number of waters planted (best estimate) OR
____ Don't know

5. How satisfied or dissatisfied are you with the MDFWP's success in providing anglers with a wide range of fishing opportunities in Region One? (please circle one answer)

Very Satisfied 1 2 3 4 5 Very Dissatisfied
OR ____ No opinion/Don't know

6. In principle, should MDFWP fish management favor native species in waters where they coexist with non-native fish species?

____ Yes ____ No ____ No opinion/Don't know

7. How satisfied or dissatisfied are you with how the Montana Department of Fish, Wildlife and Parks manages fisheries improvement programs that offset the impact of dams located in Region One? (please circle one answer)

Very Satisfied 1 2 3 4 5 Very Dissatisfied
OR ____ No opinion/Don't know

8. The Montana Department of Fish, Wildlife and Parks has fisheries improvement programs in Region One to offset the damage to fisheries caused by what dam(s)? Please name the dam(s).

_____

9. Please name the partner organization(s) who work(s) with the Montana Department of Fish, Wildlife and Parks in Region One fisheries improvement programs to offset the damage to fisheries caused by dam(s).

_____

10. The Montana Department of Fish, Wildlife and Parks develops management plans for specific waters to set particular management objectives and programs based on public input. Which Region One waters either have had specific management plans developed or have them being developed?

1 Kootenai River/Lake Koocanusa
2 Thompson River
3 Clark Fork River/Noxon Rapids Reservoir
4 South Fork Flathead River
5 Swan River
6 Thompson Lakes
7 High Mountain Lakes
8 Flathead Lake/River
9 Lake Mary Ronan

11. Who is the Montana Department of Fish, Wildlife and Parks' partner in the Flathead Lake/River Fisheries Management Plan?

_____

12. Region One's Flathead Lake/River Fisheries Management Plan calls for specific management actions for several different species. Referring to the list below, please specify which three species are targeted for greatly increased harvest.

1. _____ 2. _____

3. _____

Species List:

large mouth bass	bull trout	perch
peamouth	mountain whitefish	kokanee
squawfish	lake whitefish	lake trout
Westslope cutthroat trout	redside shiners	northern pike
	sculpin	

13. How satisfied or dissatisfied are you with the public participation opportunities in Region One fisheries management programs?

Very Satisfied — Very Dissatisfied

1 2 3 4 5

OR ___ No opinion/Don't know

14. Which public participation techniques have been used by the Montana Department of Fish, Wildlife and Parks in Region One to address fisheries management issues? (Please circle all those that apply.)

1 Open House	4 Public Surveys
2 Written Comments	5 Small Working Group Sessions
3 Commission Hearings	6 Advisory Group
7 Sportsmen Club Meetings	8 Public Meetings
9 None of these	

15. Of the public participation techniques listed above, name the three which you would be most willing to attend/use if you were concerned about a fisheries management issue.

1. _____ 2. _____

3. _____

16. Where do you typically get your Fish, Wildlife and Parks information, regarding SPECIFIC hunting and fishing information and regulations, such as early closures, application deadlines, special seasons, changes, etc.? (circle up to 3)

1 License agents	7 Region One FWP newsletters
2 Newspaper articles/columns	8 Public meetings
3 Radio	9 Sports men/women club meetings
4 Television	10 FWP staff members/ R1 headquarters
5 Word of mouth	
6 Magazines & other printed material	

11 Other (please specify: _____)

17. How good or poor are Region One Fisheries staff at involving the public in managing fisheries? (please circle one)

Very Good — Very Poor

1 2 3 4 5

OR ___ No opinion/Don't know

18. Do you agree or disagree that the Montana Department of Fish, Wildlife and Parks informs the public of the full range of feasible fisheries management options for Region One waters?

Strongly Agree — Strongly Disagree

1 2 3 4 5

OR ___ No opinion/Don't know

19. Who is the final decision maker about fishing regulation changes for Region One waters? _____

Montana Department of Fish, Wildlife & Parks
1420 E. Sixth Ave.
Helena, Montana 59620

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ATTENTION: RESPONSIVE MANAGEMENT UNIT
1420 EAST SIXTH AVENUE
HELENA, MT 59601-9945

APPENDIX B: Follow-ups: Postcard and Replacement Questionnaire Cover Letter

REGION ONE FISHERIES

Managing for the Future

Montana Department of Fish, Wildlife & Parks

Montana Department of Fish, Wildlife & Parks

1420 EAST SIXTH AVENUE
HELENA, MONTANA 59620

Dear Cooperator:

Thank you for participating in our survey, "Region One Fisheries: Managing for the Future." We eagerly anticipate your reply.

If you have returned your questionnaire, thank you for your help. If not, please mail it at your earliest chance.

Remember, your opinions count--we, the staff of Region One Fish, Wildlife & Parks thank you for your cooperation!

Dan Vincent, Regional Supervisor
Montana Fish, Wildlife & Parks

Montana Department of Fish, Wildlife & Parks

April, 1992

Dear Cooperator:

To date, we have not received the fisheries management questionnaire that we asked you to complete. We have taken the liberty of including a replacement questionnaire in case you have misplaced the original.

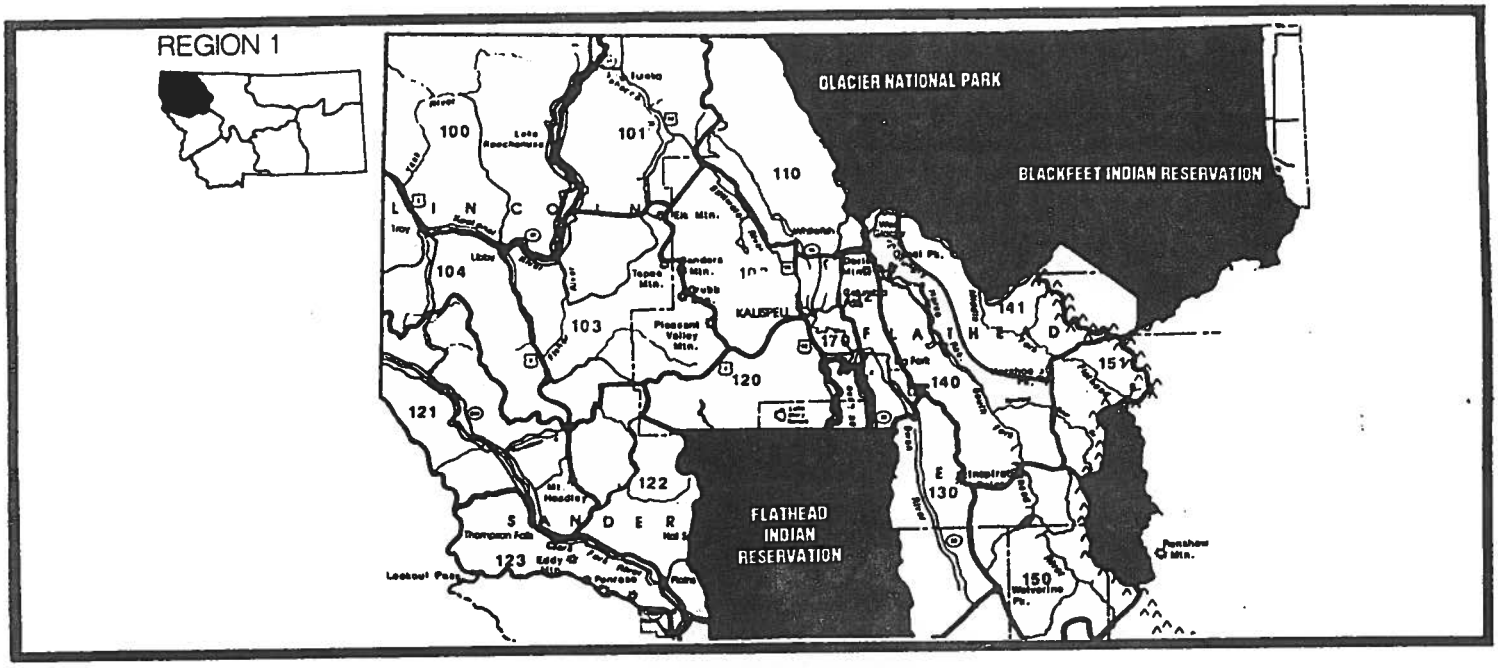
Your opinions help represent the public in Region One. Your input is very valuable, and we need it to help us make necessary improvements in our fisheries management programs.

Thank you for taking the time to complete the survey. We are confident that this process will improve management of the 500 lakes and 2,700 miles of stream that we manage in Region One.

Please fold the questionnaire in half and then insert the questionnaire into the enclosed prepaid business reply envelope prior to mailing. Thank you.

Best regards

Dan Vincent
Region One Supervisor



Montana Department of Fish, Wildlife & Parks
1420 E. Sixth Ave.
Helena, Montana 59620

APPENDIX C: Response Bias Check: Questionnaire and Results

RESPONSE BIAS CHECK RESULTS

Purpose

Addressing the question of how representative the collected sample is of the entire identified sampling frame is important to test the validity of the data collected. If it can be shown that few differences exist between the respondent sample and the nonrespondent sample, then it may be assumed that the population is adequately represented in the results based upon the respondent data.

Methods

A random sample was taken from the balance of names remaining after all questionnaires had been received (defined as nonrespondents). Since approximately 1600 licensed anglers had been initially drawn for the sampling frame, it was deemed that a subsample of approximately five percent would be sufficient. Thus a target sample of 50 interviews with nonrespondents was sought.

Results

A total of 46 interviews were completed out of 53 contacts made with nonrespondents for a response rate of 87 percent. The refusal rate was 13 percent (seven refusals). Three of those who refused said that they had never received the original survey and the four others who refused said that either they had not fished Region One waters in the last year or had not fished anywhere in the last year (although all had purchased an angling license). A sample size of 46 is not a large and necessarily statistically relevant one, and the results may not and probably are not as representative as the total sample. Thus variances were expected and did occur.

Figures A through D show the results from four of the questions asked on the nonresponse bias check interview. These were chosen for presentation because their individual sample sizes were sufficiently large enough to meet the minimum requirements for statistical reliability. A visual comparison was undertaken to assess whether any substantive differences existed between the responses from the full dataset and the response bias dataset.

Figure A shows for three of the four experience levels of years fished (i.e., first year, 2-5 years and 6-15 years), that a very close approximation is evident. For the two experience categories that have the most years fished, there seems to be a reversal of the proportion of anglers. This means that the respondents from the response bias check did not tend to have quite as many years of experience of angling as did those in the full sample.

Although the discrepancies are substantive when compared one against the other, the overall effect is that approximately 50 percent of both samples have anglers with at least 16 years of experience fishing. Thus, while these could be ascribed to a major difference in who responded to the initial request and the second, it is evident that no direct managerial impact could be proven with

respect to the difference in proportionate number of years spent angling for those respondents with 16 or more years of experience.

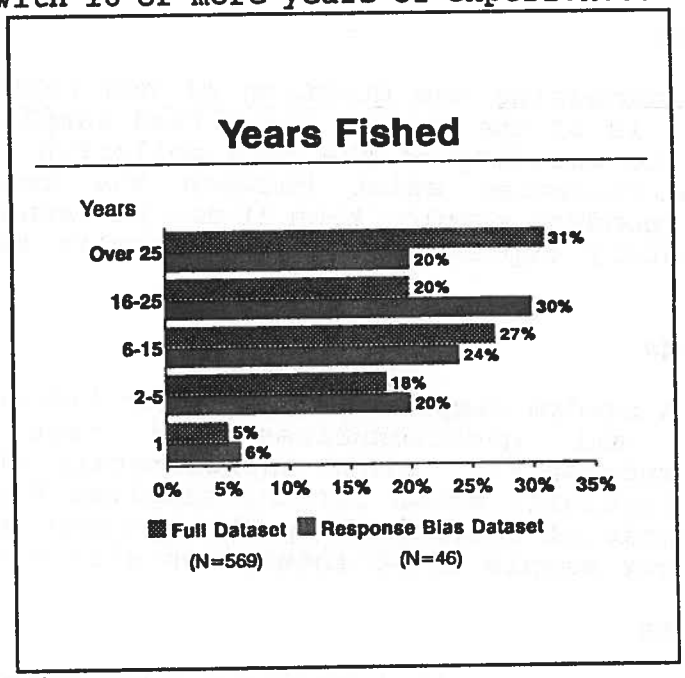


Figure A

Figure B shows that a difference also exists for angler use of lakes and rivers between the two datasets. Respondents in the response bias check have a much smaller proportion of lake angling participants (39%) than do respondents in the full dataset (60%). The potential for all of those anglers who responded that they fish both lakes and streams equally to have classed themselves all as lake anglers is slight, but if it was true, then the match between samples would be very close. It is more likely that they might be evenly distributed between the two categories, in which case there would still be a discrepancy in the way the two samples responded.

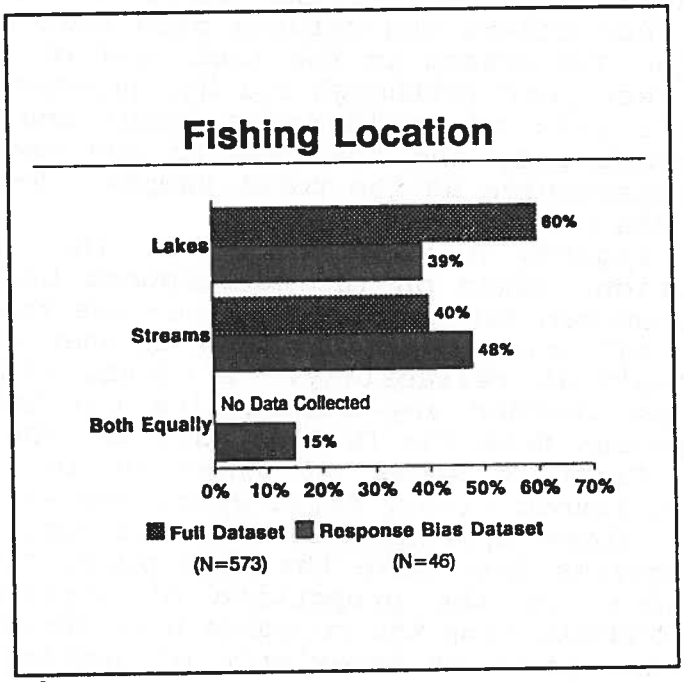


Figure B

This problem arose during the conduct of the response bias test in that some respondents chose to say they fished lakes and rivers equally as well as preferred to fish for both cold and warm

water species equally. Such responses were not permitted in the initial mail contact and were not supposed to be allowed in the telephone response bias check either, but ended up being coded in by the telephone interviewer.

Figure C depicts the preferred species (warm water versus cold water fishes) of both the full dataset and the response bias dataset. Here the same problem was experienced as far as a third category being coded by the telephone interviewer. A substantive difference does not appear to exist as far as their preferred species, if one assumed that the 6 percent under "both equally" were evenly divided between warm and cold water species.

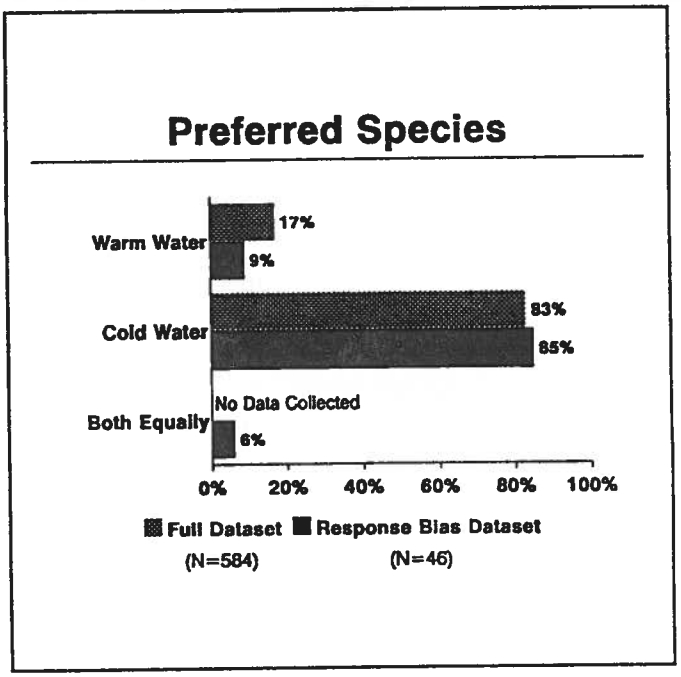


Figure C

The quality of the fisheries programs in Montana was more positively evaluated by those who responded to the response bias check than by the anglers contacted in the full dataset as shown in Figure D. Sixty-three percent of the response bias respondents rated the quality of the fisheries programs as good to very good, versus 25% of the full dataset. The quality of these programs was rated poor to very poor by 27 percent of the full dataset compared to six percent of the response bias dataset.

Part of the reason for this may be due to the low proportion of the most experienced anglers represented in the response bias interviewees. While this is of some concern, in that the quality of the Department's

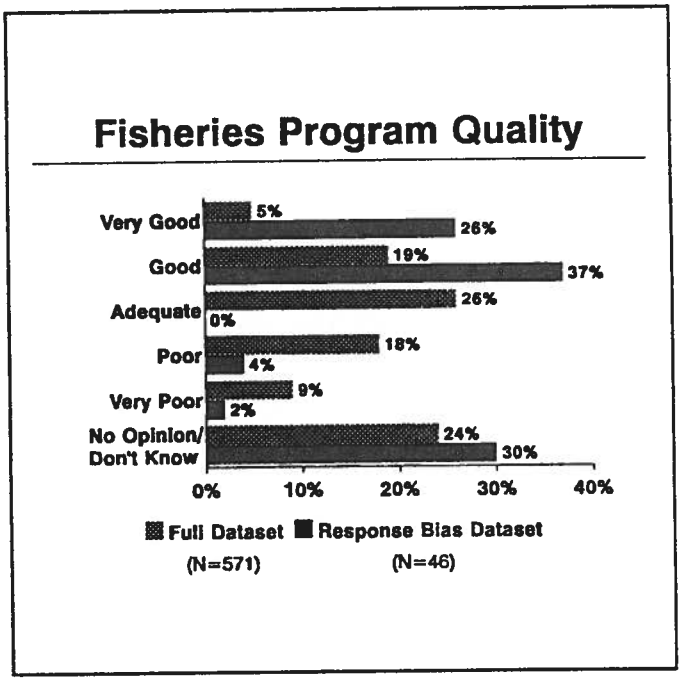


Figure D

programs may actually be perceived more negatively than they should be, it is also important that managers be especially responsive to their publics and the full range of support or lack thereof that is found among them, regardless of the length of time the individuals comprising those publics have been fishing in Region One.

Hello, my name is ... and I am calling you on behalf of the Montana Department of Fish, Wildlife & Parks regarding a survey questionnaire about Region One's fisheries management that was sent to you recently.

If possible, I'd appreciate knowing why you chose not to reply to this survey. It will only take a few minutes of your time right now. Are you able to help me?

IF NO, then: Thank you. Good Bye.

IF YES, then: Thank you. [Go to Question #1]

IF "NEVER RECEIVED A QUESTIONNAIRE", check here ____, then:

I'm sorry you didn't receive one. We are now past the data gathering stage, but if you'd like to receive a copy of the report summary, we'll gladly send it to you. (Explain purpose of study, if requested.)

IF INTERESTED: Verify their name and address on master list.
REGARDLESS OF INTEREST: Thank you for your time. Good bye.

1. Is there a particular reason you chose not to reply? If so, please describe. *(Write response on reverse.)*

Now I have just a few questions I'd like to ask you if you're willing. *(If yes, continue. If no,)* Thank you. Good bye.

2. What proportion of fishing in Region One is provided for by hatchery plants for:

Lakes? ___% OR ___ Don't know

Rivers ___% OR ___ Don't know

3.a) How would you rate Region One's fisheries management programs"

1) Very good?	___	4) Poor?	___
2) Good?	___	5) Very poor?	___
3) Neither good nor poor?	___	6) No opinion/don't know	___

3.b) If less than acceptable (ie., you said poor or very poor), please rank the following possible factors that might be attributed to such a rating. Please use either a 1 = most important factor, 2 = an important factor, 3 = a somewhat important factor, or 4 = the least important factor.

1) Lack of manpower/funding/resources	___
2) Biological limits of the aquatic ecosystem	___
3) Poor staff performance	___
4) Other (please specify: _____)	___

4. How many years have you fished Region One waters?

1) 1 year	3) 6 to 15 years	5) 26 years or more
2) 2 to 5 years	4) 16 to 25 years	

5. Do you generally fish the majority of your time at:

1) Lakes? OR 2) Streams?

6. Do you generally prefer to fish for:

1) Warm water species (e.g., bass, pike) OR 2) Cold water species (e.g., trout, salmon)

Thank you very much for assisting us! We will use this information in a comparison with those who did respond to test to see if our results are representative of Region One anglers.

Would you like to receive a copy of the report summary?
If YES: Will you please let me know if we have a correct current address? (Read address on contact list)

For all respondents:
Fish, Wildlife and Parks appreciates your support and we hope you enjoy your fishing in Montana this summer. Thank you. Good bye.