

CHARACTERISTICS AND ATTITUDES OF SOME KLAMATH RIVER ANGLERS¹

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Klamath River anglers were surveyed in the fall of 1979 to determine attitudes toward various aspects of a fishing experience. A questionnaire containing various items relating to personal characteristics and preference in an angling experience was administered to 257 anglers.

Seven factors or reasons for a fishing trip were identified involving sensory feelings, act of fishing, escape, water closeness, catching fish, food source, and fishing alone.

Results from the analysis of the identifying variables versus the factors indicated that anglers over 45 showed a preference for keeping fish for food and enjoyed the act of fishing. They showed little interest in being close to the water. People under 45 showed more interest in being near the water, but indicated little interest in the act of fishing and keeping fish as food.

Eighty-five percent of the anglers surveyed were males. Males showed a great deal of interest toward the act of fishing, being close to water, and fishing alone. Females indicated that nature-related aspects were the most important in a fishing experience.

Seventy-two percent of the anglers used spinning rods and reels, 23% used fly rods and fly reels, and 5% used open face casting reels and casting rods. Fly fishermen were interested in being close to the water while spin fishermen showed the most interest toward keeping fish as a food source.

Results from the regulation questions indicated users of spinning and conventional tackle did not support reduced bag limits while fly fishermen indicated support for reduced harvest. A "flies-only" designation to some waters of the Klamath was supported by fly fishermen, while spin fishermen reacted negatively to the proposal. Removal of jet boats from Weitchpec to Happy Camp was supported by 72% of all anglers.

INTRODUCTION

Fisheries managers have long been concerned with methods of increasing fish populations as the most effective way to satisfy the recreational fishermen. Recent studies have shown, however, that other factors may play a more important role in a successful sport fishing experience. Bryan (1974) found the "escapism-relaxation" and "out of doors" aspects of fishing were most important to salt water anglers. Moeller and Engelken (1972) found that elements of the natural environment such as water quality, natural beauty, and privacy while fishing were more important than size or numbers of fish caught to New York fishermen. Hampton and Lackey (1976) found that fishery managers' attitude, water quality, natural beauty, and companionship with family and friends were the most important concerns to pond anglers in Virginia.

The Klamath River is one of the major recreational fisheries in California. Coots (1952) estimated 100,296 angler hours were expended for steelhead, *Salmo gairdneri*, during a period from September 1949, to 31 August 1950. More recently (1980), anglers expended a total of 104,294 angler hours fishing on the

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lower Klamath River alone (L. B. Boydstun, Sr. Fishery Biologist, California Department of Fish and Game, pers. commun.).

Identification of the factors most responsible for a successful fishing experience could aid resource managers in making decisions that will improve a Klamath River sport fishing experience.

A large river such as the Klamath presents some logistical problems in administering a questionnaire. Mail-in questionnaires allow a large group of people to be surveyed, but response rate can be disappointing (Phillips 1966). Duttweiler (1976) found that mail surveys provide access to a large group of anglers and felt that response rate was less of a problem if follow-up letters were sent to questionnaire recipients.

Direct census of a survey group such as anglers allows the researcher to personally contact the survey population; questions arising from the questionnaire can be clarified by the researcher and a higher response rate is usually achieved (Babbie 1973). However, each interview takes a relatively large amount of time and this may be a factor when a large group is surveyed (Phillips 1966).

A questionnaire was developed to identify angler attitudes and preferences of Klamath River fishermen. Objectives of the questionnaire were:

- (i) To describe angler attitudes toward their fishing experience on the Klamath River;
- (ii) To describe relationships between angler characteristics and angler attitudes;
- (iii) To identify and evaluate current regulation issues concerning the fishery and measure angler response to those issues.

STUDY SITE

The Klamath River originates from Lake Ewauna in south central Oregon and flows southwesterly for approximately 421 km to the mouth at Requa, California.

The Klamath has a number of access points. U.S. Highway 101 crosses the Klamath north of Eureka at the town of Klamath River, California. Interstate 5 crosses the Klamath approximately 18 km above Yreka, California, where it provides access to California Highway 96. Highway 96 is the major access route to the river and follows the river from Interstate 5 to Weitchpec, California. Highway 96 can also be reached from California Highway 299 at Willow Creek, California.

The study section included the area from Weitchpec to Presidio Bar fishermen's access (Figure 1). Major sampling points included public camping areas and various fishermen's access points within the area.

MATERIALS AND METHODS

The Fisheries

The steelhead trout and chinook salmon, *Onchorynchus tshawytscha*, provide important sport fisheries on the Klamath River (Kesner 1969). Two separate runs of chinook salmon occur in the main river: a spring run fishery, which begins in March and lasts until mid-June (U.S. Fish and Wildlife Service 1960). Because spring flows are usually high and turbid, few people fish for these fish. A fall run

begins in early August and lasts until mid-October. Most effort is concentrated in the lower 10 km of the river. Salmon fishing in the study section is minimal and directed to a few specific locations.

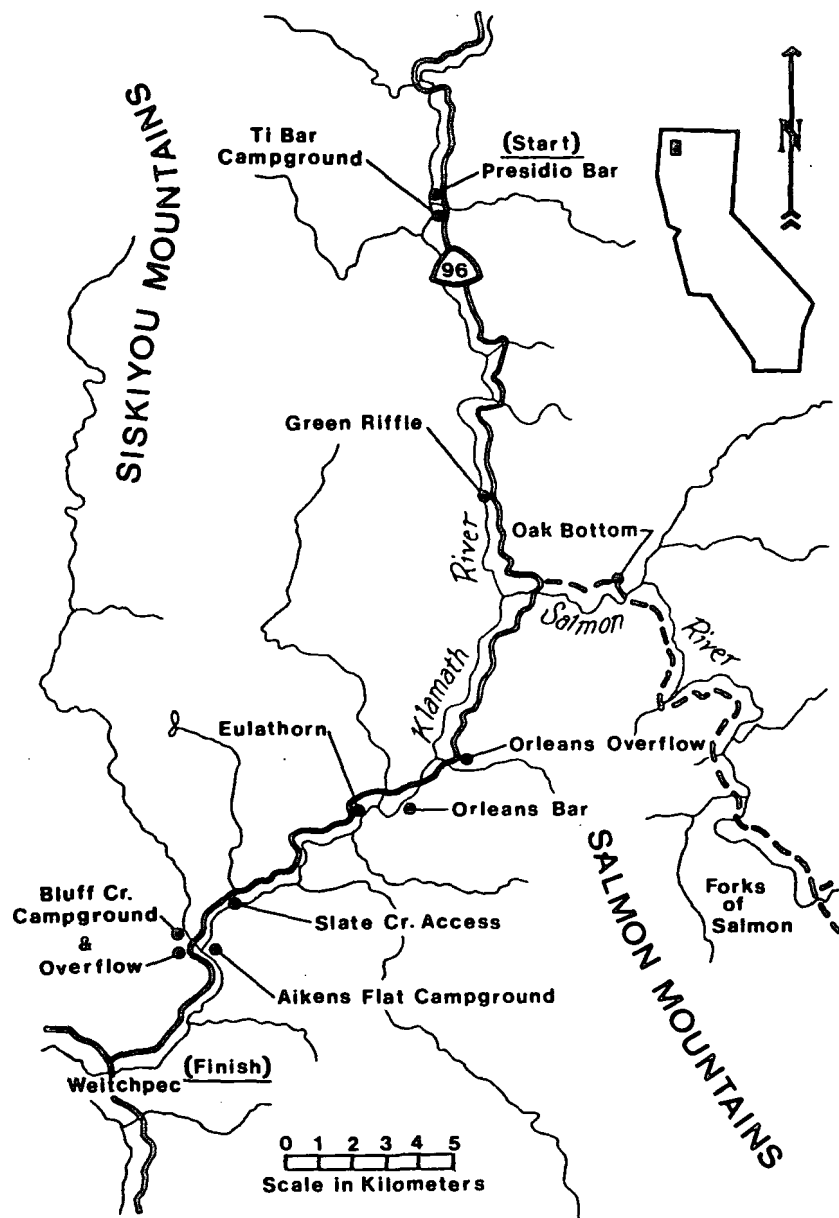


FIGURE 1. Map of the study area. Black dots and accompanying names are major sampling points.

The fall run steelhead is an important sport fish on the upper Klamath River above Weitchpec. Two distinct groups of fish compose the fall steelhead run. The "half-pounder" is a small, immature steelhead ranging from 250–349 mm. These fish spend from 1 to 3 years in fresh water before beginning their seaward migration. After a few months in salt water, they return to enter the river from the first part of August until the end of October (Kesner 1969). Arrival at the study area usually occurs near the end of August and is most prevalent from mid-September to early November (John Grondalski, Fishery Biologist, Calif. Dept. of Fish and Game, pers. commun.).

The second component of the steelhead fishery is the sexually maturing adult fish that ascend the river from mid-July to early November. Adult fish arrive at the study section in late August and continue until December. The greatest numbers of adult fish are found in the study area from mid-September until mid-November; after mid-November most adults have migrated farther upriver.

A pilot questionnaire was developed and administered to anglers in the fall of 1978 to gather demographic information and assess their reasons for coming to the Klamath River. In addition, questions concerning various regulations were also included. Results from this questionnaire were used to develop a series of questions related to the reasons for a fishing trip. These items were used to build a preliminary questionnaire which contained 25 items on various aspects of a fishing trip. The preliminary questionnaire was administered to a group of Humboldt State University students. Results were analyzed to determine the clarity of the questions and whether recognizable groups of factors could be identified.

The final questionnaire was developed in the early summer of 1979 (Table 1). Identification variables included age, sex, number of years fishing, and the type of fishing gear. Informational questions on the length of fishing trip, number of trips per year, and the amounts of money spent per trip were also included. Items dealing with the reasons why people fished were generated from the results of the pilot and preliminary questionnaires.

Questionnaire Administration

Questionnaires were administered two consecutive days a week from 21 September to 7 November 1979. Sampling on 28 October was discontinued due to heavy rains and poor fishing conditions. Sampling days were alternated consecutively each week to minimize the bias that might develop from weekend sampling (large numbers of short-trip fishermen) or weekday sampling (large numbers of fishermen who may be there for extended periods of time). For example, if the sampling days were Monday and Tuesday of one week, they would be Wednesday and Thursday the following week.

Sampling was conducted by driving to the start of the study section (Figure 1) and administering the questionnaire to available fishermen. Available fishermen were those anglers who were not actively fishing. This could include fishermen at their cars, walking to or from fishing sites, or in camp relaxing. Sampling was conducted from approximately 1000 h to 1700 h. This period coincided with the slack period of fishing when most anglers were available at camp or not actively fishing.

TABLE 1. Final Questionnaire Completed By 257 Anglers.

KLAMATH RIVER ANGLER QUESTIONNAIRE

In recent years, fisheries managers have begun to study the interests and needs of fishermen relating to their favorite waters. Information from these studies is used to develop "people oriented" management for our fishing waters. When combined with sound biological management, the two form a more effective management system. This questionnaire attempts to survey your reasons for going fishing. We would appreciate your cooperation in completing this form.

Section I. General Information
(Please mark the appropriate response.)

Age _____

Sex (Circle One) 1. Male 2. Female

Number of years fishing (Check one)

- 1. 1-5 ()
- 2. 6-10 ()
- 3. 11-15 ()
- 4. over 15 ()

Length of present fishing trip _____ days

How much money do you spend on a trip on the Klamath? (Check one only)

- 1. Less than \$25 ()
- 2. \$25-50 ()
- 3. \$50-100 ()
- 4. \$100-250 ()
- 5. \$250-500 ()
- 6. over \$500 ()

How many trips do you make to the Klamath each year? (Check one)

- 1. 1-3 ()
- 2. 4-6 ()
- 3. 7-10 ()
- 4. More than 10 ()

What kind of tackle do you use most often? (Check one only)

- 1. Fly rod and fly reel ()
- 2. Spinning rod and spinning reel ()
- 3. Spinning rod and conventional reel ()

Would you be willing to support the following regulations?

- Yes No
- 1. _____ 2. _____ Smaller bag limits.
 - 1. _____ 2. _____ Special flies only water on some areas of the Klamath.
 - 1. _____ 2. _____ Remove motor boats from Weitchpec to Happy Camp.

Do not write in this area.

1 2

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10 11 12

Section II.

The following statements may represent reasons why you go fishing. We ask you to identify your priorities. In other words, what do you want from your fishing experience? The response scale is divided into three categories. Choose the response that most accurately reflects your feeling on each statement. Please complete all items.

	High 9 8 7	Moderate 6 5 4	Low 3 2 1	Do not write in this area
Fishing Experience				
Fishing by myself	9 8 7	6 5 4	3 2 1	() 13
Getting away from my day-to-day responsibilities	9 8 7	6 5 4	3 2 1	() 14
Feeling the water rush past	9 8 7	6 5 4	3 2 1	() 15
Comparing fish stories.....	9 8 7	6 5 4	3 2 1	() 16
Enjoying the natural beauty around me	9 8 7	6 5 4	3 2 1	() 17
Doing something besides my normal routine	9 8 7	6 5 4	3 2 1	() 18
Concentrating on the movement of my line	9 8 7	6 5 4	3 2 1	() 19
Watching the sun go down on clear water	9 8 7	6 5 4	3 2 1	() 20
Getting my limit	9 8 7	6 5 4	3 2 1	() 21
Fishing a nice piece of water alone	9 8 7	6 5 4	3 2 1	() 22
Escaping the pressures of everyday life	9 8 7	6 5 4	3 2 1	() 23
Feeling my lure working through the water.....	9 8 7	6 5 4	3 2 1	() 24
Wading through heavy water	9 8 7	6 5 4	3 2 1	() 25
Catching a few fish	9 8 7	6 5 4	3 2 1	() 26
Casting with my favorite tackle.....	9 8 7	6 5 4	3 2 1	() 27
Sitting around the campfire after fishing.....	9 8 7	6 5 4	3 2 1	() 28
Observing a deer crossing the water	9 8 7	6 5 4	3 2 1	() 29
Fishing with close friends	9 8 7	6 5 4	3 2 1	() 30
Landing a big fish	9 8 7	6 5 4	3 2 1	() 31
Standing in the river current	9 8 7	6 5 4	3 2 1	() 32
Watching a steelhead jump	9 8 7	6 5 4	3 2 1	() 33
Getting my tackle ready for a fishing trip	9 8 7	6 5 4	3 2 1	() 34
Observing a good friend catching a steelhead	9 8 7	6 5 4	3 2 1	() 35
Feeling the afternoon breeze on the water	9 8 7	6 5 4	3 2 1	() 36
Eating the day's catch	9 8 7	6 5 4	3 2 1	() 37

78 79 80

CARD ID

Questionnaires were given to all anglers encountered during the survey day. Anglers were asked to complete the questionnaire and return it promptly. Respondents were very cooperative; only two anglers declined to fill out the form. However, respondents did not always complete all questions on their questionnaire.

When all available fishermen in one area were sampled, the survey moved to the next access point downstream. This process continued until the start of the evening fishing. Surveying on the second day began at the last survey point of the previous day and continued downstream to the end of the study section.

Questionnaire Analysis

Responses to the 25 items dealing with "Fishing Experience" were factor analyzed. Principal components were extracted and then varimax rotated to the final solution. A one-way Analysis of Variance and a Multiple Classification Analysis were performed between the identifying variables and the factor structure to examine differences in subgroups. A cross-tabulation was performed on the I.D. variables age, gear used, and years fished versus the regulation questions concerning bag limits and "flies only" water. A raw chi-square test was performed on these data.

RESULTS

Two hundred fifty-seven anglers completed the final questionnaire. One questionnaire was found unusable and discarded.

The first objective of the questionnaire was to describe angler attitudes toward their fishing experience on the Klamath River. Responses to the 25 items dealing with "Fishing Experience" were factor analyzed using the techniques described in the "Materials and Methods" section. A seven factor structure was used to express the results (Table 2). These included factors relating to sensory feelings, act of fishing, escape, water closeness, catching fish as a food and fishing alone.

Factor 1 (Sensory Feelings) The seven items included under this factor relate to the natural surroundings and some associated feelings about them.

Factor 2 (Act of Fishing) describes the physical act of fishing and associated activities such as gear preparation, and casting.

Factor 3 (Escape) relates a willingness to do something other than the normal routine.

Factor 4 (Water Closeness) relates to the feelings of being in the water and feeling it around you. Mean scale scores differ from the other factors in that they show a somewhat negative response to this factor.

Factor 5 (Catching Fish) is related directly to the capture of fish.

Factor 6 (Food Source) indicates a desire to use fish for food.

Factor 7 (Fishing Alone) relates a desire to fish apart from others.

Item 4 in the questionnaire (comparing fish stories) did not relate to any of the seven factors.

Responses from the "length of fishing trip" question were split into six separate categories. By far the largest category was the 4-to-7 day trip length. Forty-

seven percent of the anglers sampled were in this group. Forty-one percent of the anglers sampled had extended stays from 1 week to 3 months, while only 12% of the fishermen were "short trip" visitors (a trip length of 1 to 3 days).

Responses concerning the expenditures on a fishing trip were tabulated. The largest group of respondents belong to Group 4 (\$100-\$250) and make up 34% of the total. Money spent on a trip to the Klamath River includes expenditures for food, gas, and tackle, en route to the river and while on the river.

The overwhelming response (92%) to the "number of trips taken yearly" belongs to the 1-3 trip category. Responses to the other categories of this question were negligible.

The second objective of the questionnaire was to describe relationships between angler characteristics (I.D. variables) and angler attitudes (factor structure). All identifying variables were analyzed and results are discussed where significant differences occurred.

Age

Average age of the fishermen was 49 years. Sixty-three percent of the total sample was over 46 years of age.

Significant differences occurred among age groups and their attitudes toward the act of fishing, water closeness, and food source factors. People under 45 showed little interest in the act of fishing while people over 45 showed significant interest in this area. This same age group breakdown occurred in Factor 4, where people under 45 reacted favorably to being in the water while people over 45 indicated little interest in this factor.

Factor 6 dealt with using fish as a food source. Fishermen in the 14 to 25 and 56 to 82 age classes responded positively, indicating a preference for keeping fish for food. Fishing for food was of minor importance to fishermen in age class 26 to 55.

Sex

Eighty-five percent of the respondents were male. Significant differences were observed in the attitudes of males and females toward some factors.

Females showed a positive response to Factor 1 (Sensory Feelings), indicating that this was an important aspect of their fishing experience. Overall, males showed a much less positive response to this factor, which indicates that this aspect was of minor importance to their experience.

Males and females reacted significantly different to Factor 2 (Act of Fishing). Males responded positively to this factor, indicating that the mechanical aspects of fishing were an important part of their experience. Female response was negative, indicating that this was less important to their fishing enjoyment.

Females responded negatively to Factor 4 (Water Closeness), indicating little interest in this aspect of a fishing experience. Reaction of males to this factor was age specific.

Factor 7 (Fishing Alone) was of low interest to female anglers. Male anglers responded positively to this factor, indicating it was important to their fishing experience.

TABLE 2. Factor Structure of Responses Relating to Fishing Experience in the Final Questionnaire.

Item	Mean	Std. Dev.	Communality	Factor Loadings						
				1	2	3	4	5	6	7
FACTOR 1—SENSORY FEELINGS										
Enjoying the natural beauty around me.....	6.31	1.11	0.558	0.651	0.061	0.306	-0.142	-0.034	0.109	0.043
Watching the sun go down on clear water.....	5.89	2.40	0.631	0.579	0.361	-0.154	0.271	-0.241	0.071	0.080
Sitting around the campfire after fishing.....	6.60	2.22	0.504	0.638	-0.015	0.094	0.035	-0.147	0.255	0.020
Observing a deer crossing the water.....	6.42	2.36	0.605	0.735	0.061	-0.064	0.147	0.030	-0.157	0.099
Watching a steelhead jump.....	7.56	1.80	0.064	0.564	0.300	0.105	0.106	0.319	-0.264	0.052
Observing a good friend catching a steelhead.....	7.35	1.81	0.541	0.596	0.366	0.097	0.073	0.131	0.120	0.077
Feeling the afternoon breeze on the water.....	6.10	2.30	0.539	0.634	-0.276	0.102	-0.005	-0.050	0.166	-0.144
FACTOR 2—ACT OF FISHING										
Concentrating on the movement of my line.....	5.92	2.33	0.628	0.098	0.764	0.109	0.037	0.026	0.039	0.137
Feeling my lure work through the water.....	5.63	2.44	0.715	0.105	0.733	0.153	0.077	0.137	0.140	-0.054
Casting with my favorite tackle.....	6.27	2.24	0.681	0.121	0.671	0.073	0.098	0.370	-0.075	0.241
Getting my tackle ready for a fishing trip.....	5.29	2.40	0.546	0.259	0.595	0.015	0.295	-0.155	0.072	0.095
FACTOR 3—ESCAPE										
Getting away from my day-to-day responsibilities.....	6.87	2.59	0.805	0.017	0.027	0.884	0.057	0.061	-0.068	0.101
Doing something besides my normal routine.....	7.24	2.09	0.672	0.240	0.217	0.730	-0.088	-0.133	0.086	-0.039
Escaping the pressures of everyday life.....	7.06	2.26	0.763	-0.156	-0.110	0.842	0.019	0.133	-0.006	0.016
FACTOR 4—WATER CLOSENESS										
Feeling the water rush past.....	4.99	2.66	0.669	0.286	0.130	0.350	0.466	-0.233	-0.405	0.112
Wading through heavy water.....	3.38	2.23	0.781	0.014	0.126	-0.025	0.867	0.018	-0.025	0.108
Standing in the river current.....	4.54	2.46	0.833	-0.023	0.120	-0.022	0.895	-0.088	-0.047	0.056
FACTOR 5—CATCHING FISH										
Catching a few fish.....	6.54	2.00	0.581	-0.017	0.117	0.128	0.065	0.727	-0.006	0.132
Fishing with a few close friends.....	7.99	1.76	0.531	0.428	-0.037	0.055	0.131	0.533	0.193	-0.062
Landing a big fish.....	7.99	1.74	0.530	0.072	0.264	0.105	0.094	0.652	0.095	-0.028
FACTOR 6—FOOD SOURCE										
Getting my limit.....	5.07	2.78	0.665	0.040	0.185	0.091	-0.058	0.465	0.633	0.031
Eating the day's catch.....	5.37	2.89	0.655	0.298	0.061	0.008	-0.008	0.002	0.750	0.017
FACTOR 7—FISHING ALONE										
Fishing by myself.....	5.35	2.45	0.743	-0.013	0.093	-0.049	0.051	-0.025	-0.078	0.850
Fishing a nice piece of water alone.....	6.45	2.43	0.702	0.033	0.126	0.136	0.129	0.120	0.080	0.793
ITEMS THAT DID NOT LOAD ON ANY FACTOR										
Comparing fishing stories.....	4.79	2.70	0.415	0.111	0.349	0.269	0.236	0.108	0.369	-0.066

Gear Used

Seventy-two percent of the anglers were spin fishermen, 23% fly fishermen, and 5% used conventional tackle (open face casting reels with bait casting rods).

Significant differences were apparent in two factors when compared to the type of tackle used. Fly fishermen responded positively to wading in the water (Water Closeness), indicating this was important to their fishing experience. Spin fishermen and fishermen with conventional gear showed a negative response, indicating that this was unimportant to their experience.

The Food Source factor concerns keeping fish as a food item. Spin and conventional fishermen reacted positively to the Food Source factor (keeping fish), while fly fishermen indicated this factor was of minor value.

Questions concerning regulations and regulation changes were generated in the formative stages of the study. Three main areas of interest were indicated: (i) changes in the bag limit, (ii) removal of jet boats, and (iii) special areas of the Klamath to be set aside as "flies only" water.

The question of smaller bag limits drew a negative response from 61% of the anglers. A chi-square test was performed on the variables age, years fished, and gear used versus the smaller bag limit variable. Systematic relationships occurred between the variables Age versus Bag Limits and Gear Used versus Bag Limits (Table 3). All age classes except the 25 to 35 group indicated a negative response toward decreased limits. Sixty percent of the 25 to 35 group indicated they would favor smaller limits. Users of spinning and conventional tackle indicated they would not favor smaller limits, while fly fishermen strongly supported smaller limits.

Respondents were asked if they would support special sections of "flies only" water on the Klamath River. Responses were divided between those not favoring special areas (51% or 120 anglers) and those favoring special areas (49% or 114 anglers). Significant relationships occurred between the variables Gear Used versus Fly Only water (Table 3). Fly fishermen were overwhelmingly in favor of the special designations while spin fishermen and conventional fishermen reacted negatively to this proposal.

The last regulation proposal involved removing motor boats from Weitchpec to Happy Camp. Seventy-two percent (177) of the respondents were in favor of removing jet boats while 28% (69) were opposed.

TABLE 3. Raw Chi-Square Values and Their Significance for Various Combinations of Variables.

Variable comparisons	Raw Chi-square	Significance
Age vs. fly only	5.92	0.314
Age vs. bag limit	12.48	0.029
Gear Used vs. years fished	4.90	0.557
Gear Used vs. bag limit	55.77	0.000
Years Fished vs. fly only	41.90	0.000
Years Fished vs. bag limit	2.72	0.437
Years Fished vs. fly only	3.21	0.361

* Significant at .01.

DISCUSSION

Sensory feelings toward the environment, escapism, being close to water, and solitude are by-products of a fishing experience; a fishing experience is a multi-dimensional activity. In fact, other researchers have reported that these peripheral factors may be the most important reasons for sport fishing.

Hampton and Lackey (1976) reported that a minimum expectation of catch is important to anglers. However, water quality, natural beauty, and companionship ranked above catching fish in the same survey of Virginia anglers.

Moeller and Engelken (1972) felt that factors other than those related to catch were equally important in a fishing experience. They recommended that the concept of fishery management be broadened to include environmental management as well.

Factors involving catching fish, using fish as a food source, and the act of fishing can be combined as a "fishing oriented" dimension of a fishing experience. This dimension represents the preparation for fishing, mechanical aspects of fishing, and the capture and use of fish for food. A sub-dimension has been identified by Bryan (1974) involving the "experience of the catch." He identifies this aspect of the sport as "embodying the sporting, skill, and pursuit objectives of sport fishing." Factor 2 (Act of Fishing) deals with these aspects of a fishing experience and was important to certain groups of anglers.

Sixty-two percent of the anglers are spending over \$100 per fishing trip. Much of this money is probably spent in the local area, but a breakdown was not available through the results of this questionnaire. The analysis of expenditures in this study provided little insight into the economic impact of anglers on the local community. Future studies on angler expenditures could provide useful information to local businesses and resource managers.

The age structure of the anglers had a significant effect on camping use and the reasons why people fish. The average age of the fishermen (49) and the percentage of anglers over 45 years (63%) would indicate the dominance of this group on the river. Seventy percent of this age group stayed over 1 week and 28% stayed from 30 days to 90 days.

This age group had significantly different reasons for going fishing than did younger anglers. Preparation of tackle and the mechanical aspects of fishing were important to this group (excluding females). The sensory feelings toward nature were not significantly important to males, but were an important part of the females' experience. This is not consistent with results found by other researchers. Canadian salt water anglers indicated that nature-related aspects were highly important to their fishing experience (Bryan 1974).

Since most of the anglers in this group were spin or conventional gear fishermen, they are able to fish most of the water from the bank and have no need to wade. Many of these anglers did not have proper wading attire and expressed a fear of the river.

Anglers from 14 to 25 years and over 56 years considered fish as food an important aspect of their fishing experience. Findings for the younger age group are consistent with those described by Bryan (1974), but older anglers in Bryan's study indicated that the fish-oriented dimension of their experience was the least important. Many older Klamath River anglers were observed using the smoke-

house at Bluff Creek Campground. Anglers also had set up canning facilities in the campgrounds. Many people indicated that smoked and canned fish were an important food source throughout the rest of the year.

The escape factor has been identified by other researchers as important in a fishing experience. My conversations with anglers indicated that those who were not retired felt the need to get away from their normal routine and relax. This was important to their experience. On the other hand, many retired anglers felt no strong identification with the escape factor. Many felt that they had nothing to escape from and that responsibilities they once held were no longer important.

Females had different interests in a fishing experience than did males, indicating that the nature-related aspects of a fishing trip were the most important; that they showed little interest in other areas. Most of the women surveyed were accompanied by males and none was observed fishing alone.

Differences between spin fishermen and fly fishermen were apparent in regards to the wading factor and the food source factor. Spin fishermen on the Klamath are able to cover much of the fishable water from the bank. Fly fishermen usually are limited by the distance they can cast and must wade further to cover the fishable water. All fly fishermen observed on the river were actively wading. This familiarity with the river may be the reason fly fishermen rate wading so highly as part of their fishing experience. Fly fishermen were much younger as an age group and this also could account for the importance of this factor.

Responses concerning the factor "fish as food" and the regulation question on reducing the bag limits were different between spin and fly fishermen. Spin fishermen rated the food aspect of fishing as important to their experience and opposed lowering the bag limit. Fly fishermen rated fish as food low in importance and favored reduced bag limits. Philosophical differences between the two groups probably account for the disparity. The popularity of no-kill regulations and reduced bag limits has increased in recent years (Schwiebert 1979). Fly fishing publications and fly fishing clubs throughout the country have been active supporters of such regulations and recently supported legislation establishing no-kill waters in California (Fly Fisherman 1980). Information supporting reduced bag limits and no-kill regulations is made available to the public by the fly angling fraternity.

The intent of the reduced bag limit question was to determine how widespread the attitudes favoring reduced harvest were. Results in this study suggest that the majority of spin fishermen in this study did not support reduced bag limits.

The possibility does exist to establish certain stretches of water for limited or no-kill status. This may satisfy both groups of anglers, but would provide an enforcement problem for the California Department of Fish and Game. The same type of regulation could be provided for "flies only" water provided that enough support exists. This support was not evident in the spin fishing group, but was well supported by fly anglers.

Fisheries management encompasses three primary areas: the biology and life histories of fishes, the preservation and management of habitat, and management of anglers. Traditionally, fishery managers considered fish numbers in the

creel as the bottom line in management programs. This survey, as well as many similar studies, has shown that a variety of factors are involved in a successful fisheries program.

The fishing public is to a large degree responsible for the fiscal management of our resource agencies through tax revenues and license fees. Questionnaire surveys allow these anglers to voice their opinions on various management issues.

Issues that involve the management of a fishery, such as reducing the bag limit may be unpopular to certain groups of anglers, but may also be necessary to maintain a healthy fish population. By knowing public sentiment, managers can address these issues in public forums or by other means to help the public understand the reasons behind such regulations.

Questionnaires also provide a means to identify conflicts between various user groups. Spin fishermen and fly fisherman in this survey reflected different philosophies on a sport fishing experience. By recognizing differences between various user groups, fishery managers are better able to generate programs that meet the needs of each group.

LITERATURE CITED

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