

**FINAL REPORT**

**RESEARCH AND SURVEYS**



**FEDERAL AID GRANT NO. F-50-R**

**FISH RESEARCH FOR OKLAHOMA WATERS**

**PROJECT NO. 10**

**ANGLER POSTAL SURVEY**

**NOVEMBER 10, 1997 through FEBRUARY 28, 1999**

## FINAL REPORT

State: Oklahoma

Grant Number: F-50-R

Grant Title: Fish Research for Oklahoma Waters

Project Number: 10

Project Title: Angler Postal Survey

Period Covered: From: November 10, 1997 To: February 28, 1999

### **I. Project Objectives:**

To determine if using the ODWC's license renewal notification protocol by randomly sampling 5000 renewal notices is an adequate and cost effective method of collecting fisheries human dimension data.

### **II. Background:**

In recent years, conflict over the use and development of natural resources have made it necessary for administrators and managers to determine and define the scope of recreational fishing. In determining the value of fishing in Oklahoma, the people who participate in this leisure-time activity are important, both ecologically and economically. Because the fishing public bear the majority of the cost of maintaining and enhancing fishing, their needs are important to the Oklahoma Department of Wildlife Conservation (ODWC). Additionally, the aquatic resources of Oklahoma are important to the state's economy. Therefore, the economic impacts of fishing are a function of these public needs.

A questionnaire or interview survey can be a useful tool for fishery resource managers. Since the late 1960's angler opinion surveys have been conducted in

Oklahoma. Previous Oklahoma surveys consisted of both mail questionnaire (Moser 1975, Mense 1978 and Summers 1986) and telephone interviews (Summers 1990, 1997). It has been suggested that telephone interviews obtain more complete and accurate information (Duttweiler 1974). However investigators are continually looking for alternative ways to collect reliable information at reduced costs.

### **III. Procedures:**

In 1997, the ODWC decided to evaluate the use of a license renewal notice in order to bolster license sales. With over 400,000 fishing, hunting and combination licenses issued annually, an abbreviated random sample of 5000 license holders were sent renewal notices. Attached to the renewal notice was a short fishing questionnaire. This study was designed to determine if this renewal notice could be a viable means of obtaining fishery human dimension information, if the renewal notice program proved effective and continued.

Renewal notices, with attached fisheries questionnaires, were mailed to 3550 fishing license holders, 800 hunting license holders and 650 combination fishing/hunting license holders from 1997. These proportions were derived from the proportion of these three license sales in Oklahoma during 1997. Additionally, renewal notices were proportioned by urban and rural holders as they appeared in the 1997 sales (Fishing=38.5% urban, Combo=28.5% urban and Hunting=29.5% urban). No other stratification (such as county, sex, etc.) were used in the sampling scheme. Renewal notices were mailed at first class postal rates in order to receive confirmation of undeliverable pieces. This information would aid in determining the utility of the renewal notice as the sampling tool and would also be useful in future mail surveys in assessing sample size.

The survey consisted of four questions:

1. Did you fish in 1997?
2. If so, how many days?
3. Which fishing method do you use most often? (Select only one)

- Rod and reel
- Trotline
- Jugline
- Limblime/throwline
- Cane pole
- Noodling
- Other

4. How would you rate your fishing experience in 1997?

(On a scale of 1 to 9, where 1 is not enjoyable and 9 is very enjoyable)

Questions were purposely short and minimal so as not to interfere with the decision to renew a license.

#### **IV. Results**

Of the 5000 renewal notices/questionnaires mailed, 666 (13.3%) were not delivered. Of these, 101 (2.0%) were returned with forwarding addresses that had expired but could be remailed with additional postage, 329 (6.6%) were undeliverable because of an inadequate/improper address, and 236 (4.7%) were returned because resident had moved and left no forwarding address.

Of the 4334 delivered surveys, only 395 (9.1%) were returned completed. Fishing license buyers returned 10.1%, combination buyers returned 12.2% and hunting licenses buyers returned 4.6% of the survey forms. It should be noted that only 27 surveys forms, for all three license types, were returned without renewing a license.

One way to evaluate the precision of the survey method (ie. surveying using the license renewal program) is to review the expected ratios and compare them with the ratios in the returns. In 1997, license sales by gender (Summers, unpublished data) varied among license types (Table 1). Response by license type (Table 1) varied in gender slightly but was not significant for any of the three license types ( $\chi^2$  p=0.1) nor were gender proportions significantly different when all three license types were pooled (Table 1).

Age of respondents was also compared to the known age proportions in the sales of different license types (Summers, unpublished data). Calculating the Kolmogorov-Smirnov statistic, no significant difference ( $p \leq 0.05$ ) was found in the age distribution of the returned surveys for fishing and combination buyers when compared to the age of 1997 license sales for those same license types. However, age of hunting license survey respondents did show a significant deviation from the age distribution of license buyers in 1997.

Survey results indicated that 91.4% of all survey returns went fishing during 1997. Since 90.6% of the respondents had either a fishing or hunting license, this would suggest that a number of hunting license holders are buying a separate fishing license to achieve the 91.4% participation rate.

Fishing license holders showed the highest fishing participation with 96.4% of the surveys returned indicating that they did fish in 1997. Combination license holders followed with 91.9% and hunting with 54.1%. Again hunting license holders actively fishing indicates that this group bought a separate fishing license to participate in 1997.

All respondents, regardless of license type, exhibited a mean number of days fished at  $29.4 \pm 1.9$ . This value is somewhat lower than the mean of 38.0 days reported by Summers (1997) from a telephone angler survey. Fishing license renewals in this survey reported a mean of  $29.7 \pm 2.3$  days, combo license renewals a mean of  $29.4 \pm 3.4$  and hunting license renewals a mean of  $25.7 \pm 7.2$ . Notice that the variability increases with a change in license type away from fishing. In examining the distribution of days fished by each license renewal type (Table 2), distribution of days were similar. However, distribution of days by each of the license renewal types was significantly different ( $p \leq 0.05$ ) than the distribution of days fished found in the 1996 telephone survey (Summers, 1997).

Commonly used fishing methods by license renewals (Table 3) were compared to the 1996 telephone survey (Summers 1997). Fishing license renewal methods were not significantly different from the telephone survey ( $p \leq 0.05$ ) but the combination and hunting license renewals did differ significantly ( $p = 0.37$ ).

Renewal respondents were also asked to rate their fishing experience in 1997 (Table 4). The scale used was 0 being the least enjoyable to 9 being the most enjoyable. All three renewal types were skewed more toward enjoyable with fishing license renewals reporting the most enjoyable experience. There was no significant difference between fishing and combination renewal ratings ( $p \leq 0.05$ ) but hunting license renewals exhibited a significantly different distribution ( $p = 0.28$ ) that rated the experience somewhat less enjoyable overall.

## V. Discussion and Conclusions:

The results of this survey shows promise. Although the sample size was not large enough to truly evaluate the opinions of Oklahoma anglers on these few questions, this research was designed to evaluate the potential of using a license renewal program for gathering this type of human dimension data.

There were several things that should be considered positive in evaluating this survey methodology. First there were some survey returns, albeit few, that were not associated with renewing a license. This means that the number of survey returns in a renewal notice program would most likely be slightly higher than the number of renewals.

The proportion of survey returns from fishing license renewal notices (70.6%) was virtually the same as the proportion of fishing license sales to the other two license types. This suggests that fishing license renewals are returning surveys in the same proportion to other license type and any weighting of the analysis with regard to license types would not be necessary.

Gender and age of survey responses from fishing license renewals also related directly to those same parameters in 1997 license sales. Again these parameters would not require any weighting if data were separated by these strata.

These survey responses also suggested that a fair number of hunting license holders fished in 1997. We are assuming that they are buying a separate fishing license and therefor have an equal chance in being picked for samples in future surveys. It is possible that some of them are fishing in the county of their residence, on a river or stream, with natural bait and would, therefor, not be required to have a resident fishing license. It would be interesting, and perhaps valuable, for future angler surveys to include a certain number of hunting license holders to determine if their preferences align with those of licensed anglers.

Some caution appears to be in order when gathering angler preference data using this license renewal program. The experimental design should note the high number of undeliverable surveys and adjust the sample sizes upward accordingly. The proportion of returns by license type were not consistent with the proportions sampled and a weighting factor for combination and hunting license renewal returns should be considered for the analysis. Additionally the number of days fished was

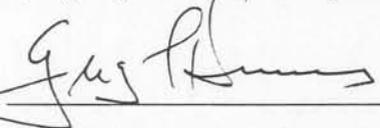
substantially lower than reported in past surveys for all license types. A larger sample size may improve estimates, but caution should be used when interpreting this type of return data when using this type of survey instrument. In fact, considering the overall results of these few survey returns, continued caution, when comparing these type of results to other surveys, would seem in order.

**VI. Recommendations:**

In collecting any type of Human Dimension data, one of the most significant considerations is cost. This license renewal program, if continued, offers a substantial cost savings in gathering angler preference information. If a survey was included on a license renewal notice to over 400,000 licenses holders, even the small percentage of respondents that were seen here would produce over 40,000 survey returns. The downside is that the amount of information gathered, when compared to other survey instruments, will most likely be abbreviated, so as not to discourage license buying. Additionally, caution should be exercised in design of survey and analysis of data because of the renewal programs somewhat unique response. However, most of the differences seen on this survey with others could be compensated for by weighting the results by known demographic ratios.

However considering the cost savings seen, these stated drawbacks do not appear to outweigh the overall advantages of using this type of survey methodology. It is therefor recommended that, if the ODWC continues to use the license renewal program, angler preference and opinion data could be gather along it.

**VII. Prepared by:**

  
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**VIII. Date:** 28 February 1999

**IX. Approved by:**

  
Dr. Harold Namminga, Federal Aid/Research Coordinator

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**Table 1.** Gender proportions of survey returns and of 1997 license sales, by license type.

<b>License Type</b>	<b>% males in survey</b>	<b>% females in survey</b>	<b>% males in sales</b>	<b>% females in sales</b>
Resident fishing	64.5	35.5	69.2	30.7
Resident combo	93.7	6.3	95.0	4.9
Resident hunting	91.9	8.1	94.2	5.7
All	72.9	27.1	76.2	23.8

**Table 2.** Proportional distribution of days fished by license renewal type.

<b>Days</b>	<b>% Fishing</b>	<b>% Combination</b>	<b>% Hunting</b>
0-10	40.2	32.0	45.0
11-20	18.6	23.6	10.0
21-30	17.8	16.7	25.0
31-40	4.1	6.9	5.0
41-50	4.5	5.6	5.0
51-60	4.5	8.3	0
61-70	0.4	0	0
71-80	1.9	0	0
>80	6.7	5.6	10.0

**Table 3.** Proportional distribution of fishing methods for license renewal.

<b>Fishing Type</b>	<b>% Fishing Renewals</b>	<b>%Combo Renewals</b>	<b>%Hunting Renewals</b>	<b>1996 Telephone Survey</b>
Rod and reel	95.9	100.0	90.0	96.0
Trotline	1.1	0	0	1.2
Jugline	1.1	0	5.0	0.6
Limblinethrow	0.4	0	0	0.3
Cane pole	0.4	0	0	0.5
Noodling	0.4	0	5.0	0.5
Other	0.7	0	0	0.9

**Table 4.** Rating of 1997 fishing experience by the three renewal license types (0=least enjoyable to 9=most enjoyable).

<b>Rating</b>	<b>% Fishing</b>	<b>% Combination</b>	<b>% Hunting</b>
0	2.2	0	0
1	0.4	1.4	0
2	1.1	0	5.0
3	4.1	1.4	0
4	3.7	5.6	5.0
5	9.3	13.9	10.0
6	9.3	9.7	25.0
7	17.8	18.1	20.0
8	12.3	12.5	10.0
9	39.8	37.5	25.0

