



**Fisheries Bulletin
of the Kentucky
Department
of Fish and
Wildlife Resources**

**Environmental Attitude Survey
on
Wildlife in Kentucky: 1982.**

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ABSTRACT

A survey of the attitudes of Kentucky sportsmen regarding wildlife and environmental matters was conducted in 1982. A mail questionnaire was distributed to 1,357 randomly selected Kentuckians. A follow-up questionnaire was sent all people not responding to the first mailing. Twenty-six percent of the sample responded to the survey. Most Kentucky sportsmen both fished and hunted, were not very familiar with the Kentucky Department of Fish and Wildlife Resources and their policies, enjoyed fish and wildlife and the out-of-doors, and did not belong to sportsmen organizations. Most people felt the survey was a good idea and welcomed the opportunity to express their opinions. Forty percent of the sample respondents chose to write comments detailing their personal feelings.

INTRODUCTION

A thorough understanding of the feelings and opinions of sportsmen as well as the biology and requirements of fish and wildlife populations are now essential for effective fish and wildlife management. The use of attitude surveys and censuses of public opinion are becoming more common among federal and state agencies in program planning. The Kentucky Department of Fish and Wildlife Resources is likewise interested in incorporating public opinion into its program plans and consequently has developed a series of sportsmen attitude surveys.

The objectives of this project were to design and distribute a questionnaire to selected Kentuckians having purchased a 1980 fishing, hunting, or combined fishing and hunting license and to analyze the returns.

PROCEDURES

Questions used in the survey document were provided by the Division of Wildlife, Kentucky Department of Fish and Wildlife Resources (KDFWR) (Appendix A). Each question was numbered with each possible response assigned a smaller computer number set off in parenthetical brackets. The physical outlay of the questions and artwork of the questionnaire were set up by the Graphics Art Department of Western Kentucky University (WKU). The cover design for the questionnaire was provided by the KDFWR. Printing of the questionnaire was by the WKU Print Shop.

Participants in the study were selected from fishing, hunting, and combination hunting-fishing license receipts for 1980. Only resident Kentucky license holders were selected. The size of the sample population was determined on the basis of the percent error desired in the results. Based upon a desired sample error of five percent and a total of 676,450 licenses sold in 1980, a sample size of 1,300 was selected of which 400 returns were expected. The number of individuals selected from each Kentucky county was proportional to the number of each license type purchased in that county, based upon the 1,300 sample size. Individual license holders were selected by random computer draw. Since Kentucky license booklets were not completely sold during a calendar year, the average number of licenses sold from each county booklet was established by dividing the total number of licenses sold in each county by the number of license booklets issued to that county. Once this average was determined, the individuals to receive the survey were identified as to license booklet and page number by the random computer draw. All computer programming was accomplished by the Academic Computer Research Center at WKU.

The names and addresses of the sample population were transcribed onto punch card transcription forms by personnel of KDFWR according to the computer draw. Information recorded included name, address, age, sex, and county of license purchase. In those cases in which a partial license book did not have sufficient pages to meet the random draw instructions, the next book was chosen. In those books in which the designated page was voided or not readable, the next page was selected until a valid name and address was realized.

The names and addresses of the sample population were punched on to computer punch cards by personnel of the Office of Institutional Research at WKU. Once punched, the sample list was entered on to a computer tape and a sample list and two sets of address labels produced. Each individual in the sample was assigned a computer number and this same number was printed on the address label and stamped inside the survey document.

Questionnaires and a size 24, metered first class, addressed return envelope were inserted into a size 20 envelope bearing the computer address label of the sample participant. Each outgoing envelope bore the logo of KDFWR, Division of Wildlife, with the words "Sportsmen Attitude Survey" in bold type on the face of the envelope. All questionnaires were sent by metered third class mail. Return

envelopes were addressed to the mid-western District Fishery Biologist's Office in Bowling Green. Pre-survey publicity included news-releases by the KDFWR to all statewide newspapers and the Kentucky Radio Network. An additional news program, subsequent to the KDFWR release, was distributed by WKU to all newspapers in the counties of south and western Kentucky.

The first mailing of the questionnaire was sent out October 1-6, 1982. As completed surveys were returned, the number of each questionnaire was recorded and any comments written on the document transcribed. After five weeks, all members of the sample population not having returned the first questionnaire were mailed a second. After a second five week return period, the data choices designated on all completed forms were transcribed on computer forms and punched on data cards.

The survey information was first sorted by the computer and the frequency of responses to each question tabulated. These data were sent to KDFWR for their suggestions as to analysis and cross referencing. Following this second frequency of response analysis, a third set of analysis was developed by the project director. All survey questionnaires containing specific questions for KDFWR were identified, the address of the individual placed on the questionnaire, and sent to KDFWR for their response. All general comments recorded from the surveys were collated into categories, the frequencies of each statement identified, and appended in this report.

In analyzing the survey responses, percentage differences of 10 percent or greater for each answer were considered statistically different, based upon the five percent error adopted for the survey.

For regional comparisons, the state was divided into three geographic areas by personnel of the Kentucky Department of Fish and Wildlife Resources. The areas and the counties they include are shown in Figure 1.

RESULTS

A total of 1,357 questionnaires was mailed on October 6, 1982 and 1,023 in a second mailing on November 10, 1982. Completed returns were accepted until December 16, 1982. A total of 351 questionnaires (26% of the total) was received, 266 (76%) from the first mailing and 85 (24%) from the second. Two questionnaires were returned without being completed. Only seven questionnaires were returned as non-deliverable by the postal service. Relative to their proportion in the sample population, an equal percentage of males (25%) and females (24%) completed the questionnaire (Table 1). Slightly more people in the western part of the state (28%) responded than their central (24%) and eastern (23%) counterparts. The 16-25 and 41+ year age groups (27% each) responded slightly more than the 26-40 year group (22%).

The respondent to the questionnaire was typically male (84%) and averaged 35 years of age. One-half (50%) of the respondents lived in the central part of the state with 20 percent living in the eastern part and 30 percent in the western part. Most of the people fished and hunted (71%) while 23 percent only fished and four percent only hunted. The sample population was not well informed about the KDFWR as indicated by 61 percent of the group not knowing KDFWR funds did not come from state general revenues.

Only 36 percent of the respondents made less than \$12,000 annually while 34 percent made over \$20,000. The majority (63%) of the people lived in a rural or small community setting with a population of less than 10,000 people. Only 15 percent lived in urban settings with a population of 100,000 or more.

Ninety-three percent of the respondents felt that fish and wildlife definitely made their lives more pleasant. The people's appreciation for fish and wildlife was divided between its use as food and sport (32%), their contribution to the balance of nature (30%), and just simply watching them (17%).

There was general consensus among the respondents as to the negative impact of certain practices upon fish and wildlife; 79 percent said coal mining was harmful as was swamp and wetland drainage (70%), herbicide and pesticide use (79%), forest clearing (76%), sewage (89%), and industrial wastes (98%). They were split over the effects of stream channelization and large scale farming practices. Likewise, there was somewhat of a split over the impact of road construction with 59 percent declaring it bad while 30 percent felt it had no harmful results. Fish and wildlife management practices were generally felt to be acceptable by 73 percent of the sample respondents.

TABLE 1

NUMBER OF RESPONDENTS AND NON-RESPONDENTS TO THE KDFWR 1982 ENVIRONMENTAL ATTITUDE SURVEY BY GEOGRAPHIC AREA, AGE GROUP, AND SEX

Numbers in parentheses indicate percentage for that category.

Geographic Area	Eastern	Central	Western (Figure 1)
Respondent	72 (23%)	171 (24%)	105 (28%)
Non-respondent	238 (77%)	528 (76%)	266 (72%)

Age Group	16-25	26-40	41+
Respondent	105 (27%)	124 (22%)	118 (27%)
Non-respondent	285 (73%)	431 (78%)	314 (73%)

Sex	Females	Males
Respondent	57 (24%)	291 (25%)
Non-respondent	179 (76%)	851 (75%)

While 99 percent of the people felt that KDFWR should be involved in investigating and prosecuting activities harmful to fish and wildlife, only 54 and 52 percent of the sample population knew that KDFWR had a team of biologists that investigated harmful activities and prosecuted fish kills, respectively. The respondents were split in their opinion of the status of fish and wildlife populations. Thirty-two percent felt populations were increasing, 39 percent said decreasing, and 17 percent felt they were staying the same. Of those who felt populations were decreasing, 38 percent blamed the decrease on land development while 27 percent cited pollution as the chief reason.

Activities considered by the respondent to be harmful to fish and wildlife and fish kills were reported as being observed by 74 and 68 percent of the sportsmen, respectively. Likewise, 64 percent of

the people reported their favorite fishing hole or hunting area had been damaged by human activity. A similar percentage of the sample (59%) would report incidents harmful to fish and wildlife and actively become involved while 22 percent would not and 19 percent were uncertain.

Most people (98%) felt that KDFWR should protect fish and wildlife resources and that the firm or individual responsible for damages to fish and wildlife was also responsible for correcting the problem (93%). Most people (58%) did not know that placing trees and dirt-fill in wetlands and streams was illegal, or potentially so. The costs of environmental protection were not familiar to most people (56%), while those who felt costs were about right or too low were similar, 18 and 22 percent, respectively.

Seventy-seven percent of the sample did not know about the nongame wildlife program of KDFWR. Fifty-three percent of the people who were aware of the program have or will contribute while 33 percent have not contributed and do not intend to in the future. However, 84 percent of the respondents agreed with spending KDFWR funds to protect and manage nongame fish and wildlife. Likewise, most people felt that species found only in Kentucky and endangered species should be actively protected, 97 and 98 percent, respectively.

Kentucky sportsmen felt strongly (97%) that relationships between KDFWR and landowners should be developed for the enhancement of fish and wildlife management on private lands. Toward this end, tax breaks were favored for landowners (73%) while cash payments were generally discouraged (43%).

Two-thirds of the people completing the survey favored slight license fee increases for the purchase of more public land for refuges, lakes, etc. Most people (78%) were familiar with existing KDFWR management areas and their non-consumptive use by non-sportsmen. Sixty-five percent of the people felt non-sportsmen should help pay for the cost of fish and wildlife programs. Most Kentucky sportsmen (77%) did not belong to any fish and wildlife organization.

Recreational Activity

Recreational activity analysis was based upon the type of license purchased by the sportsmen: fishing only (F), hunting only (H), or combination fishing-hunting (C). More males fished only (85%) while more females than males (14%) hunted only. Combination license holders lived in smaller communities (46% rural) than fishermen only (18%) and hunters only (28%). The greatest number of license holders of each type (49-50%) resided in the central region followed distantly by the western region. More hunters (83%) and hunter/fishermen (74%) than fishermen (59%) felt swamp-wetland drainage and forest clearing (85% H and 79% C vs 75% F) to be most detrimental to fish and wildlife. More fishermen (82%) and hunter/fishermen (79%) than hunters (62%) felt herbicides and pesticides, and sewage (87% F and 91% C vs 75% H) were most

detrimental to the resources. Fewer hunters (31%) knew of the KDFWR pollution and fish kill investigating team than the other types of sportsmen (53% F and 55% C).

More hunters (50% H vs 35% C and 19% F) felt that fish and wildlife populations were increasing and were more aware (64%) of the fill-dirt tree dumping law than were fishermen (42% C and 38% F). Fewer hunters (43%) reported their favorite areas being damaged than the other license holders (69% C and 53% F). Likewise, more hunters (71%) would report pollution or harmful activity incidents than the other types of sportsmen (61% C and 49% F). More hunters (77%) were unsure of the cost of protecting fish and wildlife than were fishermen (59% F and 54% C). Hunters-only felt more strongly (79% vs 62% F and C) that government-state agencies and industries have a responsibility to protect and manage fish and wildlife resources and that higher fees should not be instituted for the purchase of additional lands (31% H vs 17% F and C). More hunters (50%) would not contribute to the nongame wildlife program than fishermen (31% F and 32% C). Hunters were more aware (92%) of the wildlife management areas and programs in Kentucky than were fishermen (71% and 78% C).

More fishermen (72%) reported observing fish kills than did hunters (54%). They also felt (64% F and 66% C vs 50% H) that non-sportsmen should help pay for fish and wildlife management expenses. More fishermen (88%) did not belong to organized clubs or organizations than hunters (73% C and 78% H).

Geographic Regions

The statewide sample was subdivided into three geographic zones: a western section (W), central part (C), and eastern part (E) (Figure 1). More middle-aged individuals 26-40 years resided in the central (38%) and eastern (39%) sections than the western (29%). The KDFWR investigating team was least known in the east (48%) and best known in the west (59%). Fish and wildlife populations were felt to be increasing by sportsmen in the central zone (36%) and decreasing in the east and west (43%).

More males lived in the eastern part of the state (90% E vs 81% W and 82% C). Eastern sportsmen would be more willing (75%) to pay more to lessen or eliminate damages to fish and wildlife than residents of the other sections (60% W and 59% C). More people in the east (44%) region knew about the source of KDFWR income (no money from the general fund - funded entirely from license sales and sportsmen fees) while only 34 percent of those in the central zone knew of it. While more people in the central region knew about the illegality of dumping trees and fill-dirt in wetlands and streams (46% C vs 36% E), fewer central people would get involved in reporting harmful activities (54% C vs 64% E). Fewer people in the western section lived in communities of less than 10,000 (55% W vs 66% C and 69% E), and felt road construction to be more harmful to fish and wildlife than those in other sections (67% W vs 54% C and 56% E). More people in west (61%), as compared to their counterparts (51% C and 46% E), will contribute to the nongame program in the future.

Age Groups

Three age groups were designated in the survey: 16-25 years (Y), 26-40 (M), and 41+ (E). The average age for each of the three age groups were 20, 32, and 50 years, respectively. More young people (75%) were willing to pay higher fish and wildlife fees to lessen or eliminate fish and wildlife damages (60% M and 55% E), favored tax breaks for landowners (81% Y vs 69% M and E), and believed that non-sportsmen should help pay for the costs of fish and wildlife management (78% Y vs 61% M and 59% E). More younger individuals (31%) belonged to sportsmen organizations than middle-aged individuals (17%).

Older individuals (70%) felt forest clearing to be less hazardous than the younger groups (81% Y and 79% M). More middle-aged sportsmen (58%) intend to contribute to the nongame wildlife program than the young age group (47%).

Income Categories

Annual income categories used in the study were: less than \$8,000, \$8-12,000, \$12-20,000, and \$20,000+. Sportsmen earned progressively less income from younger to older ages: most 16-25 year old individuals (37%) earned from \$12-20,000, 26-40 year olds (49%) earned from \$8-12,000, and 41+ year people (41%) earned less than \$8,000. Residents of the central region of the state had the highest percentage of both low (59%) and high (49%) category income earners. All categories of income earners resided more in rural areas.

Sportsmen earning from \$8-12,000 annually believed fish and wildlife populations to be decreasing more (47%) than the higher income category individuals (36% and 34%, respectively). Higher income sportsmen reported witnessing more human activities harmful to fish and wildlife (76% and 81%) than the lower income category people (63% and 68%). Lower income people (86% and 78%) did not feel that non-sportsmen should pay the costs of fish and wildlife activities, compared to 70 percent for the highest wage earners. The lowest income people had the least knowledge (30%) about the income source of KDFWR. The highest income earners felt herbicide and pesticide use (83%) and forest clearing (80%) to be most detrimental to fish and wildlife, were more willing to accept higher fees to protect fish and wildlife (72%), knew more about KDFWR management areas (54%), and belonged to sportsmens organizations (29%) more than their lower income counterparts.

Sex

More younger males (32%) than females (21%) were present in the sample. Females averaged 37 years of age while males averaged less than 35. There were more males (22%) in the eastern section of the state than females (12%). Females had higher incomes than males, 80 percent earning \$12,000 or more compared to 70 percent of the males. Females had more fishing holes and hunting areas damaged (73% vs

62%), were more likely to report harmful fish and wildlife activities and get involved (75% vs 56%), and felt more strongly than males (78% vs 59%) that agencies, corporations, and industries should protect fish and wildlife.

Females also felt more strongly that fish or wildlife species found only in Kentucky (71% vs 62%) and endangered species (77% vs 66%) should be protected, that KDFWR-landowner relationships should be improved (77% vs 58%), and that tax breaks should be available to landowners (82% vs 71%). However, more females (55%) than males (40%) said "no" to cash payments to landowners and did not feel that non-sportsmen should pay the costs of fish and wildlife (31% vs 19%).

Males knew more about KDFWR investigating teams (55%) than females (45%) and felt that large scale farming operations were deleterious to fish and wildlife (46% vs 33%) more than females did.

Affiliation with Sportsmen Organizations

More people 16-25 years of age (42%) belonged to sportsmen organizations than those 26-40 years (26%) and 41+ years old (32%). Sportsmen not belonging to any fish and wildlife organization were less informed about the source of KDFWR income (67% vs 58%), lived mostly in rural-farm settings (41% vs 32%), and purchased mostly fishing only licenses (27% vs 12%).

Sportsmen belonging to fish and wildlife organizations purchased more combination fishing-hunting licenses (83% vs 67%), included more members earning \$20,000+ annually (43% vs 32%), and believed swamp-wetland drainage (84% vs 65%), forest clearing (86% vs 74%), and large scale farming operations (60% vs 40%) to be harmful to fish and wildlife. Organization members were also better informed about KDFWR attempts to lessen or eliminate fish and wildlife damages (64% vs 51%) and the fish kill investigating biologist team (75% vs 45%).

Members of sportsmen clubs were more likely to become involved in reporting activities harmful to fish and wildlife (75% vs 53%), supported KDFWR in prosecuting fish and game violators (92% vs 73%), and were more aware about the regulations prohibiting tree and fill-dirt dumping (56% vs 37%). Club members were more willing to pay more for fish and wildlife management (74% vs 59%), were more familiar with the KDFWR nongame program (26% vs 14%), and had contributed more to the program (30% vs 10%).

Club members were more in favor of developing relationships between KDFWR and landowners (80% vs 54%), were in support of cash payments to landowners to improve fish and wildlife management (48% vs 31%), and were more willing to pay more (26% vs 10%) for the purchase of additional public lands.

Organization members had observed more incidents harmful to fish and wildlife in the field (87% vs 70%), had their favorite fishing hole or hunting areas damaged more often (74% vs 60%), and felt more strongly that non-sportsmen should help pay for fish and wildlife costs (74% vs 63%).

Community Size

Communities were subdivided into five size categories; large urban (100,000+) (L), mid-urban (25 - 100,000) (M), small urban (10 - 25,000) (S), town (1 - 10,000) (T), and rural or farm (F).

Fewer fishermen only (11%) resided in rural communities while most, 34 and 33 percent, lived in small and large urban settings, respectively. More combination license holders resided in rural areas (85%) than all other size communities (57% to 66%).

In the central part of the state, more residents lived in rural areas (56%) while in the western section more resided in large urban areas (47%).

Herbicides and pesticides were felt to be worse for fish and wildlife by residents of large communities (94% L and 86% M vs 76% T and 74% F), while sewage was felt to be worse by rural residents (92% F vs 82% L). Large urban dwellers (68%) were better informed than rural sportsmen (50%) about KDFWR investigating teams and were more willing to get involved in reporting harmful activities (73% L and M vs 40% S and 56% T and F).

More rural people had observed their fishing holes and hunting areas being damaged (70% T and 67% F vs 56% L and M), and favored tax breaks for landowners to improve fish and wildlife management (81% F vs 67% L and 69% M). More urban residents (23%) had contributed to nongame programs (13% S, T, and F), while people in large urban centers (24%) were more willing to pay more to purchase more public lands than those in small and rural areas (11% T and 12% F).

Interrelated Questions

People who felt the cost of fish and wildlife protection was less than it should be felt more strongly that channelization (48% vs 37%), swamp-wetland drainage (81% vs 67%), and road construction (75% vs 56%) were bad for fish and wildlife. People who felt that costs were more than they should be believed that herbicide and pesticide use (47% vs 77%) and forest clearing (50% vs 74%) did not pose as great a hazard to fish and wildlife as those who felt costs were about right or were less than they should be.

By far, the majority (74%) of people favoring improved KDFWR-landowner relationships approved of tax breaks for fish and wildlife management practices on private land. Only 13 percent favoring improved relationships disapproved of the tax break proposal. Likewise, of those favoring improved landowner relationships, only 36 percent opposed cash payments for wildlife practices.

Eighty-five percent of the people reporting fish and wildlife resources to be important for the balance of nature and for watching it felt that non-sportsmen should help pay the costs.

People not willing to pay more to buy more refuge land were not

as strongly in favor of protecting endangered species (43%) as those willing to pay more (88%). They expressed the same lack of support for developing landowner relationships for fish and wildlife management practices (41% vs 84%, respectively).

Ninety-eight percent of the people believing agencies were responsible for protecting and managing wildlife were willing to pay more in taxes on products. Eighty-eight percent of the respondents who felt non-sportsmen should pay to support fish and wildlife management would also be willing to pay more to buy more land, etc.

Forty-one percent of the people aware of the nongame program would not contribute in the future. Every person who believed the fish and wildlife department should be involved in cases of harmful activity felt that responsible individuals or groups should be accountable for their damage.

Eighty percent of the people knowing the source of KDFWR income felt some money should be spent for nongame support.

Those people not having observed their fishing hole or hunting area damaged by human activity felt less strongly than those who had about forest clearing (24% vs 14%), road construction (41% vs 25%), and large farming practices (48% vs 39%) harming fish and wildlife. These same people also felt fish and wildlife practices were less damaging to fish and wildlife populations (77% vs 67%).

Of the completed questionnaires, 142 (40%) had comments, suggestions, and questions written in. Prominent categories represented by comments were tax breaks and private land ownership, wildlife conservation, poaching and illegal activities, management suggestions, and general comments (Appendix B).

DISCUSSION

Some of the observations in the study were typical of sportsmen surveys such as most participants being male and most living in rural areas. An apparent lack of information on the part of the respondents regarding the KDFWR was evidenced by the majority of people not knowing the source of KDFWR income, the existence of a KDFWR investigating team, the potential illegality of dumping trees and dirt-fill in streams and wetlands, the costs of environmental protection, and the nongame program. This was further reinforced by only slightly more than one-half of the people being willing to report incidents of harmful activity and become involved and more than three-fourths of the people not belonging to any sportsmens organizations. These observations would appear to indicate the need for a public relations-publicity campaign on the part of KDFWR to educate the people regarding fish and wildlife programs.

Hunter and fishermen attitudes were biased according to their interests; hunters knowing more of and fearing swamp-wetland drainage and forest clearing while fishermen feared herbicide-pesticide use and sewage. Geographically, people in the eastern part of the state knew less of KDFWR, felt their fish and wildlife populations to be decreasing, and consequently were willing to pay more to get more.

Females were more sensitive about fish and wildlife and to harmful effects upon fish and wildlife and felt that responsible agencies should be held accountable for their actions. This sensitivity tended to make them less wary of circumstances relating to potential harmful activities and motivated them to be more likely to report and actively become involved in incidents harmful to fish and wildlife.

Exposure to fish and wildlife information, such as that available through sportsmens organizations, had a profound effect upon the opinions and attitudes of the respondents. Organization members had a distinctly more positive approach to KDFWR activities and were much better informed on the potential impacts of various human activities on fish and wildlife.

The people responding to the questionnaire were very interested in fish and wildlife as indicated by 40 percent of the questionnaires having comments written in. The topics presented were ideas and feelings that the public felt were not being considered by the KDFWR or were concerns or abuses by individuals at a local level. Many people seemed to imply that the KDFWR had become so large that it was inaccessible to the general public and that the judicial system was ineffective in enforcing fish and wildlife regulations.

The participation of only 26 percent of the sample in the survey was considered less than expected. The extent of wrong addresses, death of sample members, or any other reason leading to non-delivery of the questionnaire was not determined because of the Postal Service's refusal to return non-deliverable mailings. This might have resulted from the use of bulk-rate Third Class mail for outgoing

parcels. However, the Postal Service refuted this hypothesis claiming returns of all non-deliverable Third Class mail pieces. The survey document itself possibly contributed to lower than expected returns because of its length and complexity of questions. Question length, up to 35 words in length, and a multiplicity of different response choices may have been excessive and may have contributed to confusion on the part of the respondent.

CONCLUSIONS

- (1) Kentucky sportsmen view wildlife resources and their habitats from a more holistic perspective than originally thought. This is evidenced by their responses to questions regarding habitat protection, aesthetics, nongame wildlife, endangered and endemic species.
- (2) The historic generosity and caretaker philosophy of sportsmen is evidenced in Kentucky by relatively high affirmative responses to questions relating to increased fees for more and better management and the need for sportsmen to fund nongame and endangered species programs.
- (3) Efforts and programs that attempt to impart information about KDFWR and establish good public relations are apparently ineffective. This was evidenced by a general lack of knowledge of something as basic as the source of funding and the role KDFWR played in habitat protection and nongame wildlife management. Since this is a factor that can be affected by KDFWR, renewed and redirected efforts along these lines appear to be in order.
- (4) Environmental problems that are perceived to be damaging to wildlife resources and their habitats are apparently pervasive in scope and of concern to sportsmen. There also appears to be a plurality of sportsmen that are willing to get involved in such matters.
- (5) Perpetrators of activities that are damaging to wildlife resources and their habitats should be held responsible for their actions and be required to initiate steps to lessen or eliminate such damage to the resource.
- (6) Sportsmen are willing to embrace the non-consumptive users of wildlife since they were aware and largely in favor of their wildlife management lands being open for such uses. They also indicated, however, that such users had a responsibility to contribute to the programs that benefit them.
- (7) There is a lack of desire or opportunity for affiliation of sportsmen with clubs or organizations that are conservation oriented. No clues to the reasons for this are offered by the survey.
- (8) Sportsmen feel that KDFWR has a responsibility to foster relationships with landowners and encourage wildlife management on private lands.
- (9) Some people do buy hunting and/or fishing licenses not to hunt and fish but as a means of contributing to the management of wildlife in Kentucky.
- (10) The phenomenon of serving the needs and desires of an aging population of sportsmen became apparent in the survey. The age

of the average respondent was 35 years. Not only is the age factor important in a program sense, it sheds some light on the recruitment factor. Younger people are not participating as heavily in field oriented sports. Renewed public relations efforts should probably address this need.

- (11) Efforts at publicizing the nongame tax checkoff have been largely unsuccessful. Increased emphasis on program promotion through more effective media appears to be in order. Income potential appears to be much higher than that which has been historically realized.

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APPENDIX A

Questions and percent response for the Wildlife Environment Attitude Survey. Survey based on 348 respondents from 1300 sent out. Answers correct within five percentage points high or low.

6. Do you

- | | |
|---|------|
| (1) hunt only | 4.1 |
| (2) fish only | 23.0 |
| (3) hunt and fish | 71.4 |
| (4) do neither but still buy a hunting and/or fishing license | 1.5 |

7. Are you aware that your Department of Fish and Wildlife receives no money from Kentucky's general tax funds?

- | | |
|---------|------|
| (1) yes | 38.6 |
| (2) no | 61.4 |

Who taught you about hunting and/or fishing?

- | | |
|---|------|
| 8. a parent | 42.3 |
| 9. a relative | 22.1 |
| 10. a friend | 24.0 |
| 11. a teacher at school or at an organized camp | 3.3 |
| 12. all the above | 8.3 |

13. Please check the range of your annual income.

- | | |
|--------------------------|------|
| (1) less than \$8,000 | 21.6 |
| (2) \$8,000 to \$12,000 | 14.5 |
| (3) \$12,000 to \$20,000 | 29.3 |
| (4) more than \$20,000 | 34.6 |

14. In what type of environment do you live?

- | | |
|---|------|
| (1) urban (city with over 100,000 population) | 15.1 |
| (2) urban (city with population between 25,000 & 100,000) | 10.3 |
| (3) urban (population between 10,000 and 25,000) | 10.3 |
| (4) small town (pop. less than 10,000) | 25.4 |
| (5) rural (farm or acreage in the country) | 38.9 |

15. Do you feel that fish and wildlife resources

- | | |
|--|------|
| (1) make your life more pleasant | 93.3 |
| (2) have little or nothing to do with
how pleasant your life is | 2.9 |
| (3) don't know | 3.8 |

Fish and wildlife resources are most important to you because

- | | |
|--|------|
| 16. they contribute to the balance
of nature | 30.1 |
| 17. I enjoy catching fish and
harvesting game for food and
sport | 31.5 |
| 18. I enjoy catching fish and
harvesting game for food | 11.4 |
| 19. I enjoy catching fish and hunting
game for sport | 9.5 |
| 20. I enjoy watching them | 17.5 |

Do you feel that the following human activities can harm or damage fish and wildlife?

	Yes	No	Don't Know	Don't Care
21. surface coal mining	79.8	8.2	12.0	0.0
22. stream channelization	39.3	23.3	37.1	0.3
23. swamp or wetland drainage and filling	70.2	14.3	15.5	0.0
24. use of herbicides/ pesticides in farming operations	78.9	9.1	12.0	0.0
25. clearing of forests and plowing of hill land for farming	76.5	16.7	6.2	0.6
26. fish and wildlife management practices	9.9	73.5	16.6	0.0
27. road construction	58.6	29.8	11.0	0.6
28. human and/or animal sewage wastes entering our streams	89.4	5.3	5.3	0.0
29. "clean" and large scale farming operations	44.1	40.8	14.8	0.3
30. industrial wastes entering our streams	98.2	0.3	1.5	0.0

31. In your opinion, when fish and wildlife resources are being harmed by the types of activities listed, should your Department of Fish and Wildlife be involved?

- | | |
|----------------|------|
| (1) yes | 98.5 |
| (2) no | 1.5 |
| (3) don't care | 0.0 |

32. Are you aware that your Department of Fish and Wildlife has a team of biologists that monitor activities such as those listed and attempts to eliminate or lessen any damages to the fish and wildlife resource that may result from them.

(1) yes	53.8
(2) no	46.2

33. In general, do you feel that fish and wildlife populations in Kentucky are

(1) increasing	31.8
(2) decreasing	39.0
(3) remaining about the same	17.2
(4) don't know	12.0

If you checked decreasing, which two of the following do you feel to be most responsible?

34. conversion of land that supports wildlife to other uses (for example: building subdivisions, roads and clearing land).	37.8
35. climate and weather conditions	4.4
36. overharvesting of wildlife	8.0
37. poor management by the Department of Fish and Wildlife	8.0
38. harassment caused by people in general	14.7
39. land, water & air pollution	27.1

40. In your travels, have you ever witnessed human activities that you considered harmful to fish and wildlife resources?

(1) yes, and it mattered to you	74.0
(2) yes, but it didn't matter to you	0.6
(3) no	20.1
(4) don't know	5.3

41. Have you ever seen where pollution caused fish to die in a stream or lake?

(1) yes	68.2
(2) no	25.4
(3) don't know	6.4

42. Are you aware that your Department of Fish and Wildlife has a team of biologists that investigates and prosecutes fish kills?

(1) yes	51.9
(2) no	48.1

43. Has your favorite fishing hole or hunting area ever been obviously damaged by what you consider to be human activities?

(1) yes, and it mattered to you	63.5
(2) yes, but it didn't matter to you	0.3
(3) no	28.6
(4) don't know	7.6

44. If you were witness to an incident of pollution or other activity that you felt damaged fish and wildlife resources, would you

(1) ignore it	0.3
(2) report it and get involved	58.8
(3) report it but not get involved	21.6
(4) don't know	19.3

45. Your Department of Fish and Wildlife should pursue reported incidents of pollution or environmental damage either to prosecute those responsible when appropriate or take steps to lessen or eliminate damages to fish and wildlife resources.

(1) strongly agree	77.6
(2) agree	20.1
(3) slightly agree	1.7
(4) slightly disagree	0.3
(5) disagree	0.3
(6) strongly disagree	0.0

46. Does the person, corporation or agency that is responsible for damage to fish and wildlife resources have a responsibility in reducing; or eliminating those damages?

(1) yes	93.7
(2) no	0.9
(3) don't know	6.4

47. Are you aware that placing trees, dirt and other fill material in most streams and all swamps or wetland areas can be illegal.

(1) yes	41.6
(2) no	58.4

48. If it were found to cost more money to lessen or eliminate damages to fish and wildlife resources, would you be willing to do your share by paying slightly higher taxes or prices for products?

(1) yes	62.6
(2) no	14.7
(3) don't know	21.5
(4) don't care	1.2

49. Are costs to provide environmental protection in all its varied forms

(1) about right	17.9
(2) less than they should be	21.7
(3) more than they should be	4.4
(4) don't know	56.0

50. Are you aware that your Department of Fish and Wildlife has a Nongame Wildlife Program where you can contribute a portion of your tax refund for nongame fish and wildlife management?

(1) yes	16.6
(2) yes, and I like the idea	6.7
(3) no	46.9
(4) no, but I like the idea	26.5
(5) no, and I don't like the idea	3.3

51. If yes, have you ever contributed?

(1) yes	14.5
(2) no, but I will in the future	53.0
(3) no, and I do not intend to in the future	32.5

52. Even though hunters and fishermen pay license fees to provide money for fish and game management, some of the money should be spent to protect and manage nongame fish and wildlife which are not harvested.

(1) strongly agree	29.6
(2) agree	40.2
(3) slightly agree	14.1
(4) slightly disagree	5.0
(5) disagree	8.5
(6) strongly disagree	2.6

53. Private industries, corporations and all government agencies have a responsibility to protect and manage wildlife.

(1) strongly agree	62.1
(2) agree	27.7
(3) slightly agree	5.2
(4) slightly disagree	0.6
(5) disagree	3.5
(6) strongly disagree	0.9

54. A fish or wildlife species that is known to live only in Kentucky should be given special protection and management consideration.

(1) strongly agree	63.3
(2) agree	30.0
(3) slightly agree	3.8
(4) slightly disagree	1.7
(5) disagree	0.8
(6) strongly disagree	0.3

55. Your Department of Fish and Wildlife should actively protect endangered species and the places where they live.

(1) strongly agree	67.4
(2) agree	28.8
(3) slightly agree	2.9
(4) slightly disagree	0.6
(5) disagree	0.3
(6) strongly disagree	0.0

56. Your Department of Fish and Wildlife should develop a relationship with private landowners to encourage them to manage fish and wildlife on their lands.

(1) strongly agree	60.9
(2) agree	30.3
(3) slightly agree	6.1
(4) slightly disagree	0.9
(5) disagree	1.8
(6) strongly disagree	0.0

57. Would you favor tax breaks for landowners who manage for fish and wildlife on their lands?

(1) yes	72.9
(2) no	14.3
(3) don't know	12.8

58. Would you favor direct payment of funds by your Department of Fish and Wildlife to landowners who manage for fish and wildlife on their lands?

(1) yes	35.5
(2) no	42.5
(3) don't know	22.0

59. Are you aware that your Department of Fish and Wildlife's management areas are open to the general public for birdwatching, hiking, nature study and other forms of outdoor recreation besides hunting and fishing?

(1) yes	50.3
(2) yes, and I like the idea	26.7
(3) yes, but I don't like the idea	1.2
(4) no	8.4
(5) no, but I like the idea	13.4
(6) no, and I don't like the idea	0.0

60. Even though you currently buy a hunting and/or fishing license for the right to hunt and fish, would you be willing to pay even more to buy refuges, hunting areas, lakes, and stream segments?

(1) yes, regardless of cost	14.6
(2) yes, if cost was minimal	67.3
(3) no	18.1

61. Do you feel that people who do not hunt or fish should help pay for fish and wildlife management?

(1) yes	65.5
(2) no	20.7
(3) don't know	13.5
(4) don't care	0.3

62. Are you a member of any organization(s) that you consider to be fish and wildlife conservation oriented?

(1) yes	22.8
(2) no	77.2

APPENDIX B

Comments submitted to the KDFWR Environmental Attitude Survey. The number in parenthesis depicts the frequency of the comment by respondents. Singular comments are not preceded by a number.

- (8) - Tax breaks to landowners must be evidenced by more open hunting and fishing on private lands.
- (2) - Add a small tax or license increase to buy more state management lands.
- (3) - Desperately need more state management or refuge lands for public hunting.
- (3) - Non-sportsmen are going to have to contribute to the costs of fish and wildlife maintenance, there is presently too much influence on the KDFWR.
 - Landowner subsidies will probably be abused by the affluent.
 - Establish more waterfowl areas in Kentucky, especially along the Ohio River in Jefferson County.
- (2) - Management Area deer hunts seem to be fixed - many never get drawn.
 - Absolutely do not increase fees to buy more refuge lands that people cannot get access to.
 - Under no circumstances should landowners get tax breaks.
- (3) - Economy presently too bad to consider increasing license fees or adding taxes.
 - KDFWR should seek general revenue funds to expand operations.
- (9) - Wildlife conservation education needed now more than ever.
 - Hunter ethics are decreasing - many more slobes each year.
- (13) - Enjoyed your survey - keep up the good work.
- (3) - Wildlife conservation is a responsibility of all people, not just sportsmen.
 - Good survey - do something with the results.
 - Survey should have included the non-sportsmen.
- (8) - Everyone is responsible for protecting fish and wildlife.

- Survey questions were too broad - were you interested in the view of the public?
- Your survey was oriented toward obtaining more money - Why?
- (4) - Stop poaching.
- (2) - Allow selected members of the public to serve as "deputy CO's".
- (5) - Stricter laws on poaching are demanded, especially deer.
- (8) - More and more effective game wardens are needed.
 - Stop trespassing - enforce the present laws against it.
- (2) - Kentucky does not have enough game wardens.
 - Written permission law for gun deer hunters is not being enforced.
 - Game and fish violation fines should be used to hire more CO's.
- (3) - Cannot get fish and game violators prosecuted in Kentucky courts.
 - During a recent Dewey Lake buck deer hunt, I saw dead does in the woods, yet I saw no KDFWR officials on the hunt.
 - We need a "hot line" number on our licenses to report fish and game violators.
 - I have never seen or met a KDFWR official in the field.
 - There are absolutely too many poachers in Kentucky.
- (3) - Too many hunters exceed the limits - can you stop this?
 - Consider increasing the pay of CO's to be able to hire better personnel.
 - Stiffer fines are required for wildlife violations.
- (2) - Boater regulations need to be enforced (Lake Beshear - Lake Malone).
 - Need enforcement on fish size regulations.
 - Stop litter by residents living around Kentucky lakes.
 - Barren County needs a last day doe day during gun deer season.

- (5) - Stock more fish and game in Kentucky (rabbit and quail in central Kentucky).
 - Duck season should start later and end later in Kentucky.
 - Provide additional spawning substrate for game fish in Kentucky lakes.
 - Close fishing during the spawn of game fish in Kentucky lakes.
 - Fluctuate creel limits annually based upon fish population size.
 - Remodel and add fish attractors at all Kentucky lakes.
- (2) - Increase wildlife habitat or reduce game seasons.
 - Stock Cumberland and Tennessee Rivers with black bass and rock fish.
 - Hooked fish should not be released to die, any size.
 - Bow deer season is too long - it injures too many deer.
- (4) - Stock Nolin Lake - Lake Beshear - Rockcastle River - North Fk Ky River - Kentucky Lake.
 - Deer hunting in Kentucky should be outlawed.
 - Increase efforts to establish turkey and enhance quail populations.
- (2) - Running fox hounds in counties having small deer herds (Magoffin) is bad for the deer - fox hunters should have a set season.
 - Close summer coon dog training. Restock quail and coon.
 - Appreciate your efforts to develop turkey and eagle populations.
 - Need more deer in Mercer County.
- (2) - Special wildlife regulations need to be developed for those counties having too much game (Ohio County and Blue Grass Mgmt. Area).
- (2) - Deer herd in many counties needs help now (Magoffin and Lincoln). KDFWR should encourage land owners to plant fast growing trees in response to the increased demand for firewood.
 - Set fishing seasons on game fish.

- (3) - Stray or wandering dogs cause untold damage to game in a state having too little as it is - amplify this problem on the news media or establish strict laws.
- Stock bluegill in the North Fork of Kentucky River.
- Stock coon in Lincoln and Casey counties.
- Increase hunting season and bag limits.
- Control the level of lakes better in the spring and fall.
- Open squirrel season September 15 to protect gestating adults.
- Management programs such as the hawk release program in Bracken County when rabbit and quail were at an all time low doesn't make sense - we can't see paying for ideas such as these.
- (3) - So much road building in Kentucky is harming our wildlife and fish.
- (2) - Stop pollution (Lake Linville).
 - Clean up the Tradewater River.
 - Coal severence tax money should be made available to KDFWR.
- (2) - Eastern Kentucky just has no fishing - mining is responsible.
- (2) - Industry - mostly oil and coal - produce many harmful effects we over-look until damages result - we should be more aggressive.
 - All industry must clean up pollution and pay for the complete restoration of fish and wildlife.
 - Clean up - North Fk Ky River - Waverly Lake - Yellow Ck in Bell County - Fishtrap Lake.
 - Stop mining and timbering in Daniel Boone Forest.
 - Stop illegal mining in Laurel County.
- (2) - Corps of Engineers lands should be open to the people of Kentucky.
 - Fishing should be done for relaxation - not for competition or prizes.
 - Too much patrolling of Kentucky lakes by State Police.

- It's easy to go fishing or hunting in Kentucky and not be successful.
- Boaters should pay for their use (abuse) of Kentucky lakes.
- (2) - Non-Kentucky resident fishing and hunting licenses are too low.
- Stop Sunday hunting in Kentucky.
- Farm and house cats eliminate quail.
- Develop special "game tags" for hunters.
- Why are Kentucky hatchery fish shipped out-of-state - use them to stock Kentucky waters.
- Trappers and commercial fishermen have no limits on their takes - Why?
- KDFWR should make a movie about Kentucky fish and wildlife.

