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THE IMPACT OF THE "ENVIRONMENTAL MOVEMENT" UPON HUNTING AND FISHING

by
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ABSTRACT

Data available in the four national surveys of fishing and hunting (1955, 1960, 1965, 1970) were used to identify how participation in fishing and hunting has changed during the recent environmental movement. Participation in fishing has increased in nearly all segments of the population while participation in hunting has remained the same or may have decreased slightly. Participation in small game hunting decreased while participation in big game and waterfowl hunting increased. A decrease in participation in hunting was most notable in rural areas among farmers and farm laborers. The data in the national surveys did not indicate that an increased environmental awareness has influenced participation in fishing or hunting any substantial degree.

INTRODUCTION

When North America was first settled, wild game and fish were abundant throughout the land. Hunting and fishing were often necessary activities for survival and contributed to the early economy. With frew exceptions, hunting and fishing were not pursued as sport or recreation.

As time went on man's influence over the land intensified because of the expanding population and increased living standards. The seemingly inexhaustable supply of game became depleted first in the east and then this depletion extended westward across the prairie into the mountains. Rivers and streams became polluted by man's activities.

By the mid-19th century a few individuals began to voice concern over the uncontrolled exploitation of natural resources. George Marsh was one of the early leaders advocating a new land ethic. In his book *Man and Nature,* written in 1864, he expressed the concern that to disturb the balance of nature without knowledge of the consequences was to invite disaster. A new movement in American history gathered momentum which was aimed at protection through preservation and regulation.

During this first wave of the conservation movement, areas of public domain were set aside for the public interest. Theodore Roosevelt recognized the need for new concepts of resource management and used the power of the federal government to protect the land and its wildlife. The passage of the Lacy Act in 1900 was the first of several laws which provided protection through regulation.

The wildlife resources were at a low ebb at the turn of the century. Population a major game species such as deer, wild turkey, bear, elk and antelope were but a fraction of their original level. Small game fared a little better but was beginning to decrease

because of the continued exploitation. But the public was beginning to grasp the magnitude to the problem. The states began to accept their role and started passing laws aimed at regulating the harvest of game and fish.

The philosophy of protection left its impact and served a useful purpose. However the need to manage fish and wildlife was not fully recognized until the late 1920's. The formulation of a game policy in 1930 set the guidelines for wildlife conservation action. The formation of cooperative wildlife research units and passage of Pittman-Robertson Federal Aid in Wildlife Restoration Act provided a means to achieve management objectives. Franklin Roosevelt used conservation as an instrument of economic recovery during the 1930's. This second wave of conservation had a tremendous impact on fish and wildlife and many of the benefits are still being realized.

By the 1950's it became apparent that the traditional policies of conservation were inadequate to meet the needs of the country. Rachel Carson exposed the dangers of technological development in her controversial book, *Silent Spring,* and set the stage for the third wave, or the environmental wave, of the conservation movement. The narrow viewpoint of conservation of single resources gave way to a new concept that all resources are interdependent and they need to be considered as a whole. The public had come to understand that it is impossible to develop one resource without impinging upon others.

The need to preserve and develop a quality environment in which to live has gained wide public acceptance. Whereas the first two conservation movements occurred in the midst of public apathy, the third or environmental movement has gained wide public support. The environment movement has made an impact on the philosphy, goals and objectives of wildlife and fisheries management. Sport hunting and fishing has been the traditional focus of wildlife and fishery management. Recognition that management involves not only land and wildlife, but also human aspects, has led to significant changes. The public has become more aware that fisheries and wildlife programs must be relevant to human needs and statisfactions. The trends—toward more emphasis on the nonconsumptive aspects of wildlife and fish, toward including more non game management, toward urban wildlife—have become evident in management programs.

The third wave or environmental movement also made the public more aware of fish and wildlife values and focused attention on its role of hunting and fishing. Television, magazine articles and publicity by preservation organizations have popularized ethical and philosophical arguments against hunting. The growing antihunting sentiment has become a political force threatening the future of sport hunting (Klein 1973).

What effect the antihunting sentiment has had on participation in sport hunting has not been well understood. Much of the publicity on the status of hunting has been based on assumptions not empirically demonstrated. Since the rise in antihunting sentiment has occurred during the time when an emphasis has been placed on environmental awareness, it should be profitable to take a look at how participation in hunting and fishing has changed since the mid-1950's.

The purpose of this paper is to examine surveys taken by the U.S. Fish and Wildlife Service to identify changes in participation in sport hunting and fishing. The general assumption is made that an adverse effect of the recent environmental movement on participation in hunting and fishing should be evident in these surveys.

NATIONAL SURVEY OF FISHING AND HUNTING

Surveys have been taken at 5 year intervals since 1955 by the Fish and Wildlife Service to obtain information on sport fishing and hunting and their effect on the national economy. The International Association of Game, Fish and Conservation Commissioners, which represents the States and Canadian Provinces, requested these surveys.

A personal-interview method was used to obtain detailed information from a cross section of households throughout the United States. The findings of these interviews

were then projected by standard statistical procedures to the whole population.

The data in all four surveys are essentially but not entirely comparable. The major difference is that the 1965 and 1970 surveys include only the fishing and hunting activities of those persons considered as substantial participants. To be a substantial participant an individual must have hunted or fished any part of 3 different days or spent $5.00 or more ($7.50 in 1970). The 1955 and 1960 surveys included individuals who fished or hunted at least once during the calendar year. The procedures for identifying sportsmen in 1965 and 1970 differed from those in the 1955 and 1960 surveys in that the person himself indicated whether he fished or hunted. In the early surveys a responsible household member provided the information. Alaska and Hawaii were not included in the 1955 census, however, the effect of this is not of major significance.

PARTICIPATION IN FISHING AND HUNTING

The percent of persons 12 years of age and older who participated in hunting has decreased between 1966 and 1970 (Table 1). This decrease can be attributed to a decline in participation in small game hunting, since participation in big game and waterfowl hunting has increased slightly. If the recent environmental movement has affected hunter participation, a decrease in all types of hunting would be expected. The decrease in the participation in small hame hunting may be attributed to other factors such as declining small population or more restrictive access to private lands.

As previously pointed out, the 1965 and 1970 survey techniques were changed to include only those who participated substantially in fishing and hunting activities. This in itself would tend to lower the percent of participation in hunting and fishing in the 1965 and 1970 surveys. Thus, overall participation in hunting has not declined as much as the data indicate, in fact it may not have declined at all.

License sale data have often been used to indicate participation in hunting and fishing, however, this type of data must be interpreted with caution. The national surveys of fishing and hunting included both licensed and unlicensed hunters. These surveys indicate a trend toward more unlicensed hunters in the population (Table 2) which would indicate that a decline in license sales may not in itself reflect a decline in hunter participation. License sale data also has the disadvantage in that some hunters may have more than one hunting license.

Whereas participation in hunting has remained steady or declined slightly, participation in fishing has increased (Table 3). The increase has occurred in both freshwater and saltwater fishing. Much of the increase in participation in freshwater fishing has occurred on man made reservoirs and ponds (Table 4). The percent of persons utilizing lakes and ponds, rivers, and streams has decreased since 1960.

Geographical Areas

Participation data was available for nine geographical regions of the United States. In most areas participation in hunting increased between 1955 and 1960 and then decreased in 1965 and 1970 (Table 5). Exceptions were the New England and Middle Atlantic areas which showed a steady decline in participation in all four surveys and the West Central area which showed a slight increase in 1970 over the 1965 level. The more populated areas had a lower percent of participation in hunting than the less populated areas, however, there is little evidence that participation changed differently among the nine geographic areas.

Participation in fishing increased over the 15 year period between 1955 and 1970 in all geographical areas (Table 5). As with the data on hunting, there is little evidence that participation changed differently among the nine geographic areas.

Sex

Participation in both hunting and fishing is dominated by men, as might be expected (Table 6). A larger percent of women participate in fishing than in hunting. However, participation by men and women in fishing and hunting reflect similar patterns of change between 1955 and 1970.

Table 1. The percent of all persons 12 years of age and older that hunted during the census years.

Year	Total persons that hunted	Hunted big game	Hunted small game	Hunted waterfowl
1955	10.0	3.7	8.3	1.7
1960	11.2	4.8	9.2	1.5
1965	9.6	4.6	7.5	1.2
1970	9.2	5.0	7.5	1.9

Table 2. The percent of licensed and unlicensed hunters and fishermen.

Year	Fishermen		Hunters	
	Licensed	Unlicensed	Licensed	Unlicensed
1955	66.0	34.0	84.4	15.6
1960	60.6	39.4	81.1	18.9
1965	59.3	40.7	83.7	16.3
1970	61.4	38.6	78.6	21.4

Table 3. The percent of all persons 12 years of age and older that fished during the census years.

Year	Total persons that fished	Fished in fresh water	Fished in salt water
1955	17.6	15.6	3.8
1960	19.3	16.5	4.8
1965	20.0	16.9	5.9
1970	21.4	18.9	6.1

Table 4. The percent of all freshwater fishermen 12 years of age and older by types of water fished in most often.

Year	Man Made		Natural lakes and ponds	Rivers and streams
	Reservoirs	Ponds		
1960	22.1	11.6	31.7	34.6
1965	24.5	10.8	30.0	34.7
1970	28.1	13.3	27.2	31.4

Table 5. Percent of persons 12 years of age and older that participated in hunting and fishing by geographical areas in which they live.

Georgraphical Areas	Fishermen				Hunters			
	1955	1960	1965	1970	1955	1960	1965	1970
New England	12.7	14.4	16.0	16.5	7.4	6.2	6.3	6.7
Middle Atlantic	11.3	9.7	10.1	14.4	6.5	6.5	6.0	6.1
East North Central	17.8	19.8	19.0	21.2	9.9	11.1	9.1	8.9
West North Central	25.5	28.1	27.6	27.7	16.7	16.8	13.9	13.8
South Atlantic	19.6	20.8	24.5	21.8	10.1	11.5	9.2	8.1
East South Central	20.9	23.8	22.8	25.0	12.4	16.3	13.4	11.8
West South Central	21.8	26.5	25.8	27.4	11.4	14.8	12.3	13.1
Mountain	24.6	26.3	25.1	31.3	17.6	21.4	19.6	17.3
Pacific	16.6	19.5	21.4	20.0	8.2	8.4	8.2	7.3

Table 6. Percent of persons 12 years of age and older participating in hunting and fishing by sex.

Sex	Fishermen				Hunters			
	1955	1960	1965	1970	1955	1960	1965	1970
Male	25.8	29.3	31.9	32.7	19.3	21.7	19.0	18.3
Female	8.7	10.1	9.9	11.1	0.8	1.5	1.0	1.1

Population Density

It is well known that participation in hunting and fishing is greater in rural areas than in urban areas and this is reflected in all four of the National Surveys of Fishing and Hunting (Table 7). However, the surveys reveal some interesting insights into how participation has changed since 1955 within areas of contrasting population densities.

Participation in hunting among big city residents has increased consistently since 1955. Thus it seems apparent that interest in hunting among those who live in big cities has not diminished during the time of the environmental movement of the sixties. A small decline in participation in hunting has occurred in the more rural areas.

Participation in fishing has increased in all areas of population density (Table 7).

Age

Hunting and fishing are actively enjoyed by persons of all ages. Results from the four national surveys on fishing and hunting do not reveal any major shift in participation in hunting between various age groups (Table 8). Hunting is a sport enjoyed almost equally by those between the ages of 12 and 45. Of significance is the fact that interest in hunting has not diminished in the youngest age group over the 15 year period between 1955 and 1970. A decline in participation in hunting is most evident in the 18-24 year olds and older age groups.

Participation in fishing among persons within all age groups has increased some since 1955 with the possible exception of those over 65 years of age (Table 8). The greatest increase in participation is in the youngest age group.

PARTICIPATION BY FISHERMEN AND HUNTERS

The national surveys of fishing and hunting also contain data on hunters and fishermen themselves. This type of data can offer an insight into hunters and fishermen as goups and allows for comparisons to be made on how certain characteristics have changed since the environmental movement began.

Occupation

Data by occupation groups has been collected since the 1960 survey. A decline in participation in hunting was noted in occupational groups at both the white and blue collar levels (Table 9). The most significant decrease in participation was noted in farmers and farm laborers. These results agree with those noted in the previous section on population density where the greatest decline in hunting participation was in rural areas. Participation in the other occupational groups has remained much the same or showed a slight decline. The data definitely does not indicate that participation in hunting has changed between the so called blue and white collar occupational groups.

Participation in fishing has increased for most occupational groups although some decline has occurred in the professional and technical groups and among farmers (Table 9). There is some indication that participation in fishing has increased more in the blue collar occupational groups than the white collar.

Table 7. Percent of persons 12 years of age and older living in areas of differing population densities that participated in fishing and hunting.

	Fishermen				Hunters			
Population density	1955	1960	1965	1970	1955	1960	1965	1970
Big cities a	9.5	9.8	12.0	12.3	2.3	2.9	3.4	3.7
Small cities b	15.8	16.0	19.1	19.8	5.9	6.2	6.8	6.4
Towns c	20.9	21.4			12.4	12.6		
			23.5d	25.5d			14.2d	13.3d
Rural areas c	21.4	24.6			15.9	17.4		

aPopulations of 500,000 or more

bSmall cities with populations over 2500 and suburbs in urbanized areas.

cSmall cities with populations over 2500 outside urbanized areas and all places with populations less than 2500.

dCategories were combined in 1965 and 1970 censuses.

Table 8. Percent of persons 12 years of age and older in different age groups that participated in fishing and hunting.

	Fishermen				Hunters			
Age groups	1955	1960	1965	1970	1955	1960	1965	1970
12 - 17	21.9	26.1	27.6	30.5	11.6	13.9	10.3	12.2
18 - 24	14.9	19.4	17.9	20.4	13.2	15.3	12.3	11.1
25 - 34	19.7	22.0	24.1	26.6	12.5	13.9	13.9	13.1
25 - 44	21.8	21.6	23.0	24.6	11.3	12.3	10.9	11.2
45 - 64	15.8	17.3	17.4	18.2	8.1	8.7	7.5	6.6
65 +	8.5	8.4	9.3	8.1	3.2	3.9	2.1	2.3

Table 9. Percent of hunters and fishermen in major occupation groups of the civilian labor force.*

	Fishermen			Hunters		
Major occupation groups	1960	1965	1970	1960	1965	1970
White collar workers:						
Professional and technical	25.7	23.1	23.7	11.5	11.1	9.8
Farmers	31.8	26.6	28.6	37.1	28.3	26.9
Managers and proprietors	28.6	28.4	29.5	18.0	14.8	16.1
Clerical	16.2	15.4	16.1	6.6	5.7	4.5
Sales	20.4	23.3	23.6	12.4	8.6	11.5
Blue collar workers:						
Craftsman	33.8	29.0	40.2	24.7	25.6	23.4
Operatives	23.9	27.3	27.3	19.4	19.1	16.5
Private household workers	10.3	10.0	9.6	1.9	1.0	1.1
Other service workers	13.5	16.9	17.2	7.3	6.6	5.7
Farm laborers	24.6	34.5	25.0	28.8	30.3	21.0
Other laborers	23.4	28.9	31.5	23.8	25.3	21.6

*1960 and 1965 data included all persons 14 years old and older, the 1970 data included all persons 12 years old and older.

Education

Educational data on fishermen and hunters have only been collected in the 1965 and 1970 censuses, thus trends in only a 5 year period can be compared. In the 1970 survey, participation in hunting was similar among groups with varying levels of educational attainment (Table 10). There has been a marked decline in participation in the groups with less than 8 years of elementary education, with 4 years of high school and those with 1 to 3 years of college during the 5 year period between 1965 and 1970. Since approximately only 1% of all hunters had less than 8 years of elementary education, a decline in participation in this group would be of little significance. Hunters with 4 years of high school and those with 1 to 3 years of college make up approximately 80% of all hunters in 1970, thus a decline in participation in these groups is significant.

Participation in fishing among the groups with differing educational levels shows much the same trends as participation in hunting (Table 10). Declines in participation in fishing have occurred at the same education levels as with hunting.

Since changes in participation in both hunting and fishing have shown similar trends at the different educational levels, it would seem highly unlikely that increased environmental awareness was a major factor. The fact that participation in both hunting and fishing increased among the better educated (those with 4 or more years of college) would seem to confirm this.

Income

Income data for fishermen and hunters have only been collected in the 1965 and 1970 surveys. A decline in participation in both hunting and fishing at the lower income levels is most evident. Whereas 32 percent of all hunters had incomes of $5,000 or less in 1965, only 15 percent of all those that hunted in 1970 had incomes of $5,000 or less (Table 11). Participation in fishing shows much the same trend, approximately 28 percent with incomes of less than $5,000 fished in 1965 while only 16 percent participated with similar incomes in 1970. Obviously incomes in 1965 are not entirely comparable to those in 1970 because of inflationary trends. The percent of persons in our population with incomes less than $5,000 has also decreased.

It is often stated that hunting is becoming a rich man's sport and this is somewhat supported by the survey data, however, the same must be said about fishing. The significance of data on participation by income levels lies in the fact that similar trends are noted in both hunting and fishing. Income levels alone cannot account for the fact that participation in hunting has been steady or decreasing slightly.

Number of Trips.

The number of trips taken each year to hunt has not changed over the 15 year period between 1955 and 1960 (Fig. 1). The largest percentage of hunters make more than 15 trips a year. A similar pattern emerges for fishermen. It is evident that the pattern of hunting and fishing as indicated by the number of trips taken has not changed since 1955 although the hunters and fishermen themselves have changed as a group.

Distance Traveled

The trend toward a more urban society is a well established fact. From this it would seem logical that in order to hunt or fish, hunters and fishermen would have to travel a greater distance to enjoy their sport. The fact that fishermen and hunters as a group are traveling more miles, as documented in the four surveys, would appear to bear this out (1970 National Survey of Fishing and Hunting p. 93). However, figures on total mileage traveled can be misleading.

The percentage of hunters and fishermen who travel various distances to enjoy their sport has not changed markedly since 1955 (Fig. 2). In fact, there may be a trend for hunters to take shorter trips. The percentage of hunters traveling greater distances definitely has not increased and much the same pattern emerges for participation in fishing.

Table 10. Hunters and fishermen 25 years and older by years of school completed.

Education	Percent fished 1965	Percent fished 1970	Percent hunted 1965	Percent hunted 1970
Up to 7 years of elementary school	15.3	8.1	8.1	4.8
8 years of elementary school	13.3	16.9	7.2	8.8
1-3 years of high school	15.4	21.2	7.5	9.1
4 years of high school	24.0	21.3	10.9	8.7
1-3 years of college	21.6	20.7	10.0	8.4
4 or more years of college	20.1	22.1	8.0	8.5
Others		8.4		

Table 11. Percent of hunters and fishermen with family incomes below specified levels in 1965 and 1970.

Family Income Groups	Distribution of number of fishermen 1965	Distribution of number of fishermen 1970	Distribution of number of hunters 1965	Distribution of number of hunters 1970
0 - 999	2.0	0.7	2.2	0.6
1000 - 1999	6.2	3.0	6.9	2.5
2000 - 2999	11.6	5.9	12.9	5.7
3000 - 3999	18.8	10.6	21.2	9.9
4000 - 4999	27.9	15.9	32.1	15.0
5000 - 5999	39.8	23.3	44.5	24.2
6000 - 7499	56.1	36.8	60.9	38.5
7500 - 9999	73.1	56.5	77.3	59.5
10000 - 14999	88.1	82.9	90.2	85.0
15000 +	93.0	95.5	93.9	95.7
No. response	100.0	100.0	100.0	100.0

These results point out the danger of using total miles traveled by all hunters and fishermen since this reflects not only the distance traveled but also the total number of persons participating. When the percentage of persons participating in hunting and fishing is compared with trips and miles traveled, it is evident that neither has changed much since 1955.

Summary of Economic Data

One of the major purposes of taking the national surveys of fishing and hunting was to collect data to show their effect on the national economy. Although many types and catagories of economy data based on expenditures were collected, only the total expenditures for the average person fishing or hunting during the census years are included here. The value of the dollar changes each year in relation to purchasing power. To facilitate comparisons the data were adjusted to a 1967 consumer price index to show deflated values.

The average amount spent per person to hunt was approximately $80 in 1955, 1960 and 1965 but increased to approximately $150 in 1970 (Fig. 3). When deflated values are compared average spending actually decreased between 1955 and 1965 but increased in 1970.

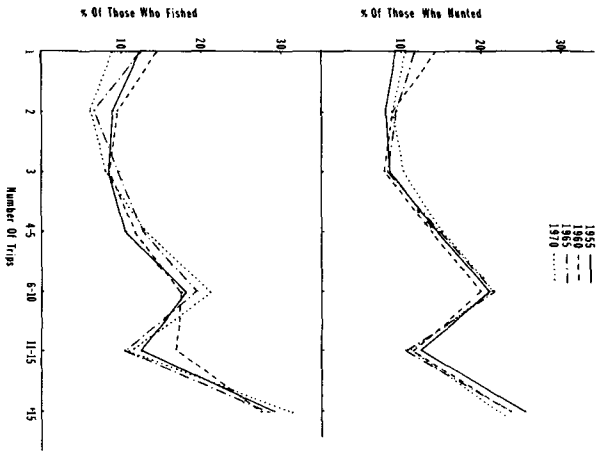

Figure 1. Percentage of hunters and fishermen 12 years and older taking various numbers of trips to hunt and fish each census year.

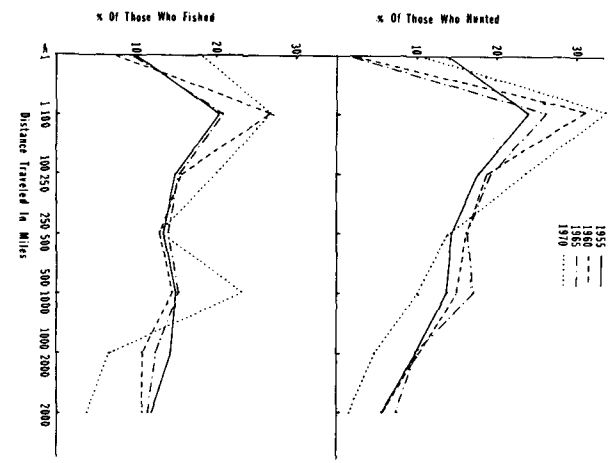

Figure 2. Percentage of hunters and fishermen 12 years and older traveling various distances to hunt or fish each census year.

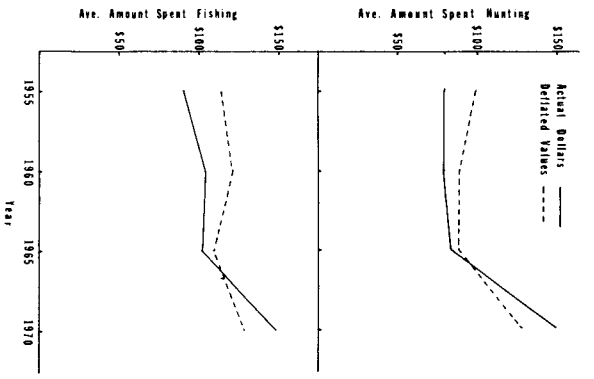

Figure 3. Average amount spent per hunter and fisherman 12 years and older during census year compared with deflated values based on 1967 consumer price index.

The average amount spent per person to fish increased between 1955 and 1960, decreased slightly in 1965 and then increased again in 1970 (Fig. 3). A similar pattern was evident when deflated values were used.

SUMMARY AND CONCLUSIONS

Information available in the four surveys of fishing and hunting (1955, 1960, 1965, 1970) provided an opportunity to follow trends showing how participation in hunting and fishing has changed during the time of increased environmental awareness by the public. In order to take into account demographic changes that have occurred in the population, only data showing the percentage of those participating were used.

Participation in fishing has increased in all geographic areas of the United States among nearly all segments of the population since 1955. The increase in participation was most evident in the younger age groups and among blue collar workers. A small decrease in participation was noted in several of the white collar occupational groups.

Participation in hunting has remained much the same or may have decreased slightly. A change in the criteria used to identify hunters for the 1965 and 1970 surveys leaves the picture somewhat unclear. Of major significance is the decline in hunting in rural areas due largely to a decrease in participation by farmers and farm laborers. Also of significance is the fact that the decline has been limited to small game hunting. This would indicate that the decline in hunting is most evident in areas where the opportunity to hunt is the greatest and involving game species which are the most numerous. Participation in hunting by the 12 to 17 year olds and urban segments of the population has increased.

Several similar trends were noted in fishing and hunting. The percent of fishermen and hunters in the lower income groups has decreased between 1965 and 1970. When hunters and fishermen were grouped by levles of educational attainment, similar

changes in participation were evident. These similarities suggest that certain socio-economic factors affect both fishing and hunting in much the same way. Fishermen and hunters as groups have participated in their sport in much the same way since the number of trips taken and miles traveled have changed little between 1955 and 1970.

Many factors of a socio-economic, ethical and moral nature combine to influence a decision whether to fish or hunt. However, the data in the national surveys of fishing and hunting do not indicate that an increased environmental awareness has influenced participation in fishing and hunting to any substantial degree.