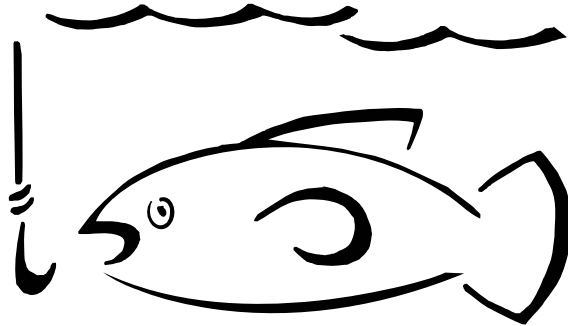


# **Fishing in Minnesota: A Study of Angler Participation and Activities**



## **Final Report Regional Differences**

A cooperative study conducted by:

Minnesota Cooperative Fish and Wildlife Research Unit  
Minnesota Department of Natural Resources

# Fishing in Minnesota: A Study of Angler Participation and Activities

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## **Executive Summary**

This study was conducted to provide longitudinal data on Minnesota residents' fishing participation and experiences. To do this, we examined fishing involvement, motivations for fishing, and constraints to fishing. We also queried anglers' participation in fishing tournaments, expenditures on fishing-related equipment and activities, and consumption of fish.

A survey was distributed to 4,900 Minnesotans, including 800 from each of five regions and 900 women from throughout the state. After adjusting for undeliverable surveys and invalid respondents, the response rate was 52%.

### ***Recent Minnesota Fishing***

Respondents reported consistently purchasing fishing licenses. Respondents had purchased licenses in an average of over 8 of the past 10 years. About two-thirds of respondents had purchased licenses in each of the previous 10 years. Age, proportion of life lived in Minnesota and income were all positively correlated with the number of years of buying a license. Education was negatively correlated.

Respondents fished an average of 29 days during the 2003 season. Age, income and education were all negatively correlated with the number of days of fishing during the season. Respondents from the northwest region fished the most days per year on average, while metro respondents fished the least number of days. Just over 10% of respondents reported participating in a fishing tournament during the season.

About 70% of the respondents were satisfied with their overall fishing experience during 2003. About 60% were satisfied with the facilities. About 50% were satisfied with size and number of fish they caught.

### ***Minnesota Fisheries Management***

Overall, respondents felt that the quality of fishing in Minnesota had declined slightly over the past 10 years. In general, older respondents felt quality had declined more than younger respondents felt it had.

Respondents' attitudes about fisheries management varied with the issue. Agreement with a variety of fisheries management issues is shown in Figure S-1. Respondents agreed that fishing pressure was affecting fish size and number. They felt that the DNR should be able to use beneficial management practices even if the public did not agree, and that private landowners should not be able to alter the shoreline any way they wanted. Respondents agreed that aquatic plants were important, but they disagreed with restrictions on use of new fisheries technologies like underwater video cameras.

Survey recipients responded to 12 items addressing their values related to fisheries resources. These items were broken down into ecocentric/recreational, utilitarian, and anthropocentric values. Respondents generally agreed more with the ecocentric/recreational than the utilitarian or anthropocentric values as shown in Figure S-2. .

Figure S-1: Agreement with fisheries management issues.

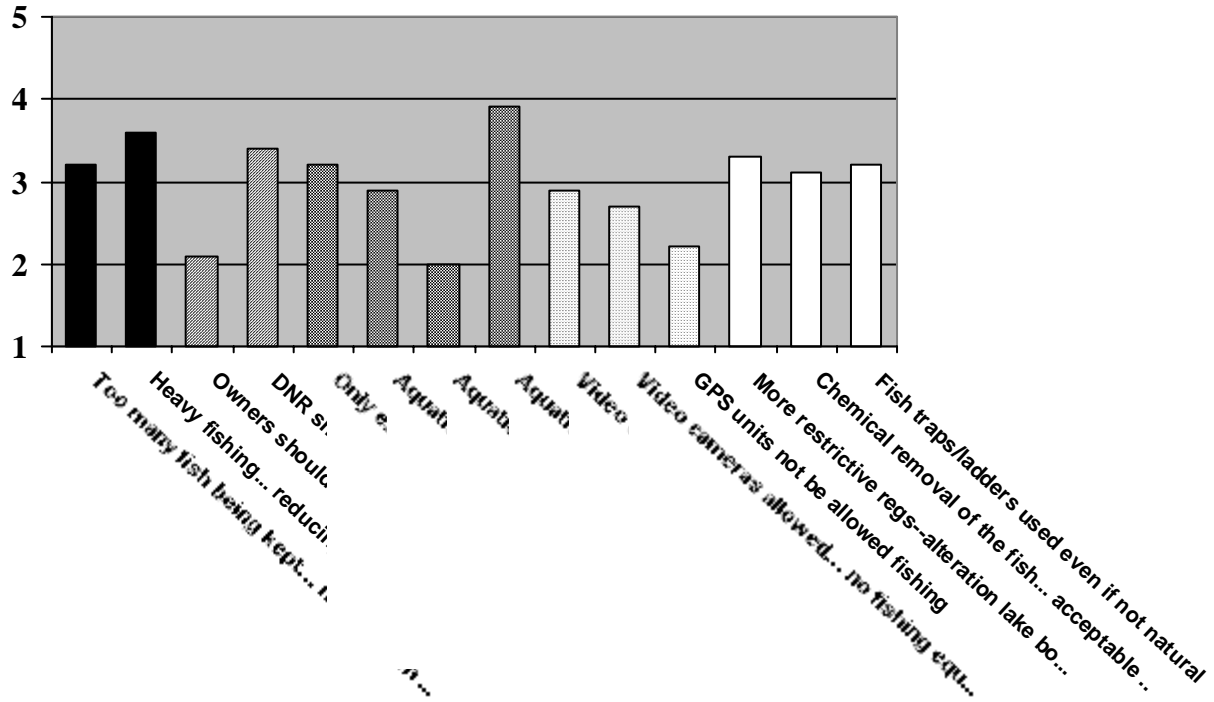
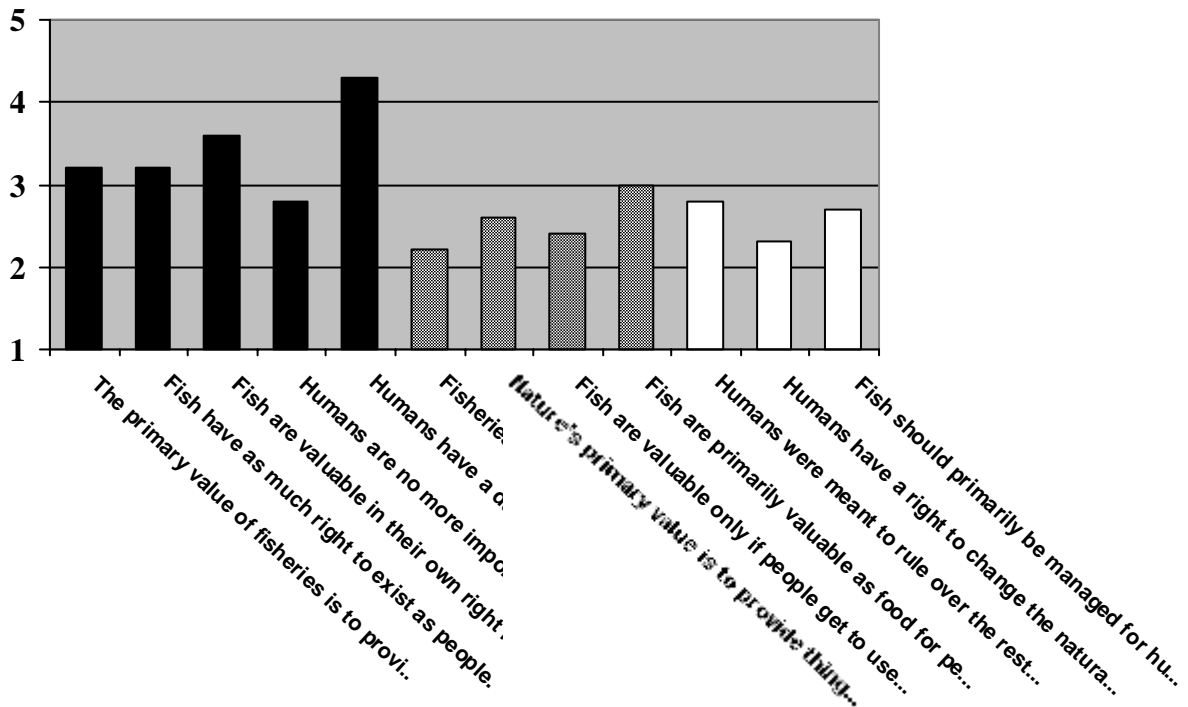
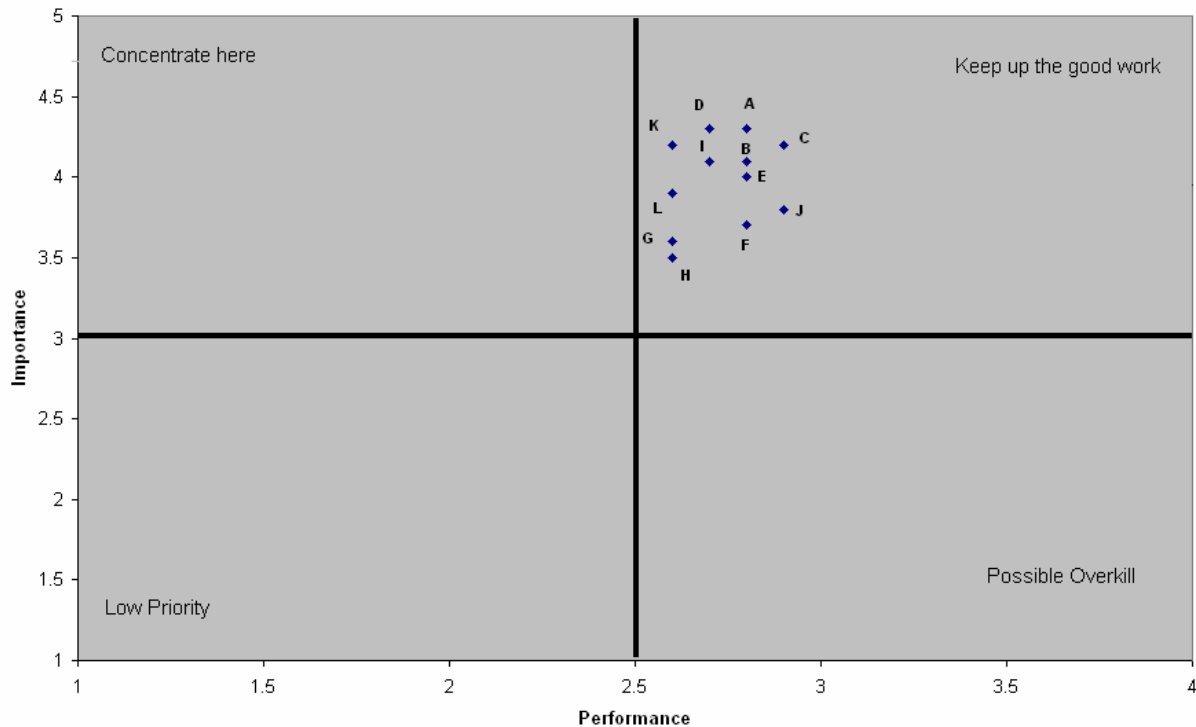


Figure S-2: Agreement with fisheries value items.



This study examined the perceived importance of various fisheries management activities and the performance of the DNR. Respondents, on average, reported a moderately high level of trust in the Minnesota Department of Natural Resources. They also felt that the DNR spent public money effectively. Results of an importance-performance analysis found that DNR performance was in line with public perceptions of the importance of listed activities as shown in Figure S-3.

S-3: Relative importance and DNR performance on fisheries management activities



- A= Educating people on how they can help protect lakes and streams.
- B= Developing effective regulations to improve fishing.
- C= Developing understandable fishing regulations.
- D= Improving lake and stream habitat.
- E= Stocking fish into lakes and streams.
- F= Providing information to people so that they can decide where to fish.
- G= Restoring fish such as sturgeon to lakes and streams where they once lived.
- H= Purchasing land or easements to provide more places to fish.
- I= Protecting the land surrounding lakes and streams.
- J= Providing a good value for a fishing license.
- K= Educating people on ethical conduct and sportsmanship.
- L= Educating people on the biology and conservation of fish.

Survey recipients were asked about fishing tournaments in Minnesota. About one in six respondents indicated that a tournament had interfered with their fishing experience. Respondents were generally supportive of suggested actions for managing fishing tournaments.

### ***Fish Consumption***

Nearly 90% of survey respondents had eaten fish caught in Minnesota in the past year. On average, respondents had eaten 34 Minnesota-caught fish during the past year. Respondents with higher levels of education reported consuming less fish, and respondents who had lived greater proportions of their lives

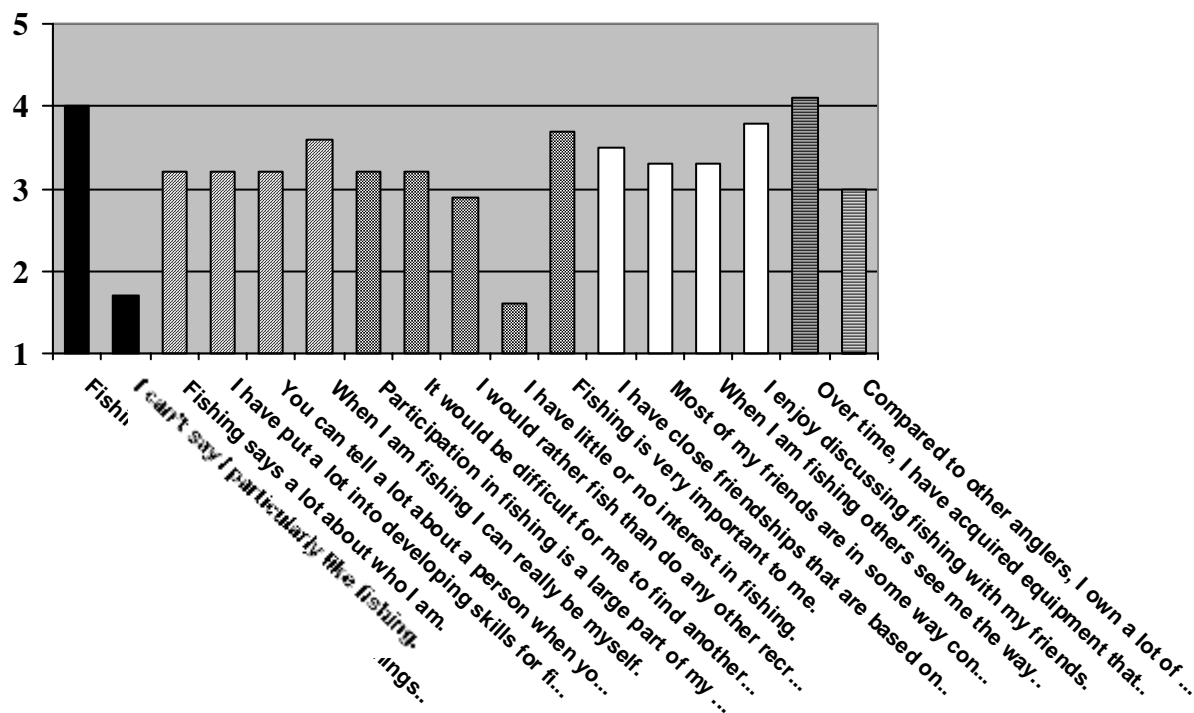
in Minnesota reported eating more fish. About half of the respondents had heard of the Minnesota Fish Consumption Advisory. Older respondents and those with higher levels of income and education were more likely to be aware of the advisory.

Respondents were asked about their commercial fish consumption. On average, respondents consumed one to two meals per month each of (a) store-bought fish or seafood, (b) fish or seafood at a restaurant, and (c) canned tuna. Respondents consumed an average of less than one meal per month of shark, swordfish, and halibut.

**Investment in Fishing**

Survey recipients responded to 17 items addressing the importance of fishing in their lives. The items related to how enjoyable fishing was, how much people identified with activity, how primary fishing is in their life, social connections related to fishing, and investment in fishing equipment. Results are shown in Figure S-4. .

**Figure S-4: Importance of fishing.**



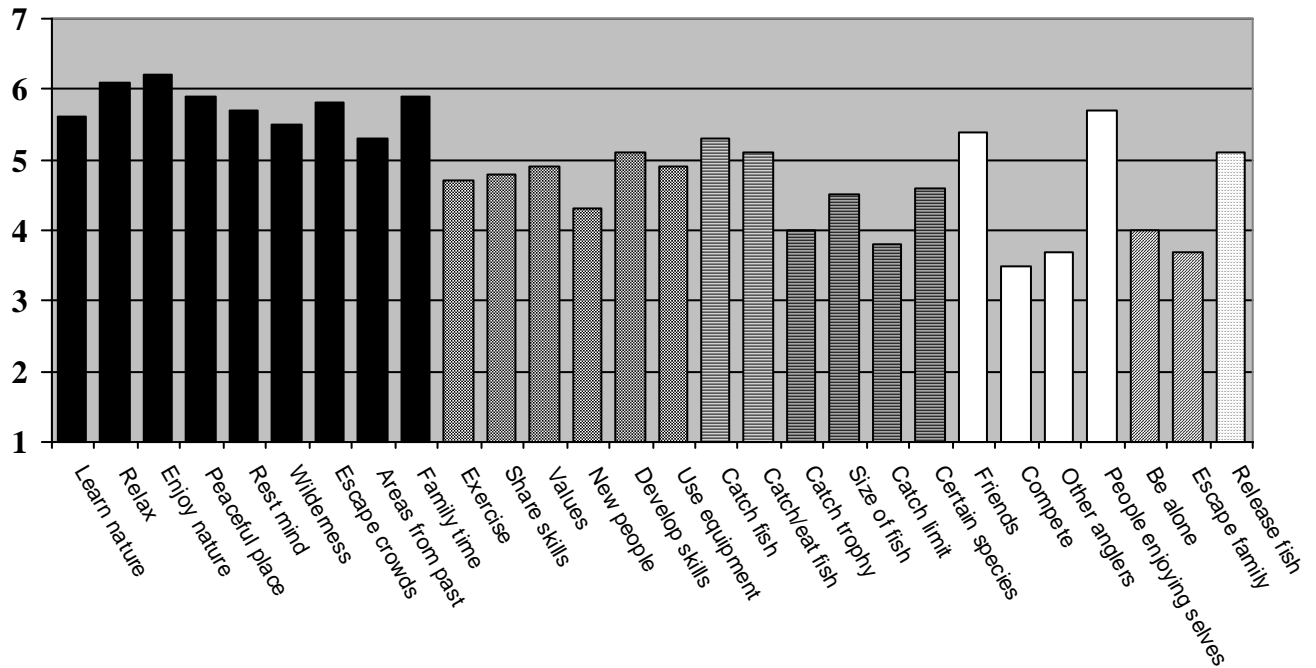
Respondents were asked if they could not go fishing if there were other recreation activities that would give them the same satisfaction and enjoyment that they get from fishing. About 60% of respondents said they had adequate substitutes for fishing. Older respondents and respondents who had lived a greater proportion of their lives in Minnesota were less likely to report adequate substitutes for fishing. Respondents with higher incomes and educational attainment were more likely to report adequate substitutes. Hunting and related activities were listed most frequently as substitutes for fishing. Other popular substitutes were golf, ATV riding, and snowmobiling.

Respondents owned an average of about \$8,500 in fishing equipment, and they spent about \$1,000 per year on average for fishing activities. The average respondent owned eight fishing rods. More than 25% owned a GPS unit used for fishing and about 10% owned an underwater video camera. More than one-fourth had purchased a license in a state other than Minnesota in the past year.

***Motivations for Fishing***

Survey recipients responded to 28 items addressing motivations for fishing. A factor analysis of these results produced 6 factors underlying the items including: (a) relaxing and enjoying nature, (b) using and developing skills, (c) catching fish, (d) enjoying other people, (e) getting away from other people, and (f) releasing fish. Fishing motivations are shown in Figure S-5.

**Figure S-5: Fishing motivations.**

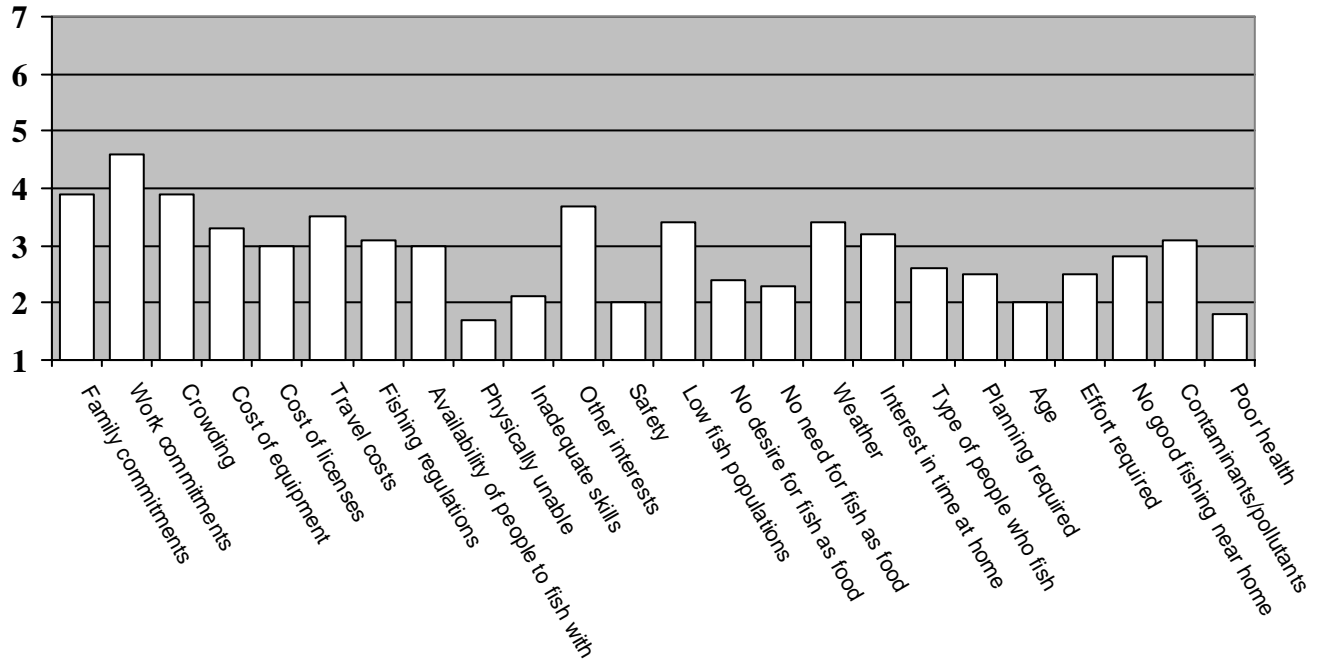


***Constraints to Fishing***

About half of the respondents reported that their fishing was constrained in some way. Of these, about 90% said that they could not fish as often as they would like. Survey participants responded to 24 specific constraint items. Work commitments most strongly limited respondents' fishing activity. Fishing constraints are shown in Figure S-6.



**Figure S-6: Fishing constraints.**



***Regional Differences***

Most regional differences were observed between respondents from the Twin Cities metropolitan region and the four outlying regions. Respondents from the metro area reported fishing fewer days and consuming fewer fish than respondents from the other regions did. The metro respondents held less utilitarian values related to fisheries resources, and they also viewed fishing as a less important activity in their lives. Metro respondents rated the motivation of ‘fishing in a wilderness setting’ higher and the motivation of ‘catching fish to eat’ lower than the respondents from the other regions did. A greater proportion of metro respondents reported being constrained in their fishing participation. They were more constrained by family commitments, lack of fishing opportunities near their home, and lack of people to go fishing with. Compared to the other regions, a greater proportion of metro respondents reported purchasing a fishing license in a state other than Minnesota.

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## **Introduction**

Minnesota is home to over nearly 1.5 million sportspeople, including 1,345,000 anglers (U.S. Department of the Interior, Fish and Wildlife Service, 2002). Approximately 36% of Minnesota residents fish, with 13% participating in both hunting and fishing (U.S. Department of the Interior, Fish and Wildlife Service, 2002).

Between 1991 and 2001, the number of state resident anglers increased 21%; the angling-related expenditures by in-state anglers increased 32%, and the angling days in the state increased 66% (U.S. Department of the Interior, Fish and Wildlife Service, 2002). Minnesota anglers spent nearly \$800 million dollars on angling trip-related expenses, and a combined \$1.24 million on trips and equipment in 2001 (U.S. Department of the Interior, Fish and Wildlife Service, 2002).

## **Study Purpose and Objectives**

The purpose of this study was to follow up on previous statewide surveys of anglers conducted in \_\_\_\_\_. We wanted to provide longitudinal data on Minnesota residents' fishing participation and experiences. To do this, we examined fishing involvement, motivations for fishing, and constraints to fishing. We also queried anglers' participation in fishing tournaments, expenditures on fishing-related equipment and activities, and consumption of fish.

The questions used to address the study purpose are provided in the survey instrument (Appendix A) and discussed in more detail in the subsequent sections. This report details regional responses to the survey. Survey recipients were selected based on five regions of residence, which were derived from the Minnesota Department of Natural Resources regions: (a) northwest region, (b) northeast region, (c) southern region, (d) central region, and (e) seven-county Twin Cities metropolitan region. Statewide estimates are weighted to reflect the actual proportion of people from each region who purchased fishing licenses for the 2003 fishing season.

## **Methods**

### ***Sampling***

The population of interest in this study included Minnesota residents who purchased any type of resident fishing license for the 2003 fishing season, which ran from March 1, 2003 through February 29, 2004. The survey sample was drawn from the Minnesota Department of Natural Resources' (DNR) electronic licensing system (ELS). The sample was stratified by region of residence. A random sample of 800 names was selected from each of five regions (northwest, northeast, central, south, and metropolitan) using county of residence to define region boundaries. An additional sample of 900 women statewide was selected. The target sample size was  $n = 400$  for each region ( $n = 2,400$  statewide).

### ***Data Collection***

Data were collected using a mail-back survey following the process outlined by Dillman (2000) to enhance response rates. We constructed a relatively straightforward questionnaire, created personalized cover letters, and made multiple contacts with the targeted respondents. Potential study respondents were contacted five times between December 2004 and April 2005. In the initial contact, a cover letter, survey questionnaire, and business-reply envelope were mailed to all potential study participants. The personalized cover letter explained the purpose of the study and made an appeal for respondents to

complete and return the survey. Approximately 7 days later, a postcard was sent to all potential participants reminding them of the survey and encouraging them to reply. Approximately three weeks after the first mailing, a third mailing that included a personalized cover letter and replacement questionnaire with business-reply envelope was sent to all individuals with valid addresses who had not yet replied. Approximately 6 weeks after the first mailing, a fourth mailing that included another cover letter and replacement questionnaire with another business-reply envelope was sent to all individuals with valid addresses who had not yet replied. Finally, about 8 weeks later, a one-page follow-up survey was sent to people who had not responded. Returned surveys were collected through April 29, 2005.

### ***Survey Instrument***

The data collection instrument was a 16-page self-administered survey with 14 pages of questions (Appendix A). The questionnaire included the following sections:

- Part 1: Minnesota fishing background;
- Part 2: How important fishing is to you;
- Part 3: The quality of fishing in Minnesota;
- Part 4: Motivations for fishing;
- Part 5: Constraints to your fishing activity;
- Part 6: Eating fish from Minnesota lakes and rivers;
- Part 7: Commercial fish consumptions;
- Part 8: Fishing equipment and organizations;
- Part 9: Fisheries management issues;
- Part 10: The Department of Natural Resources management of fisheries;
- Part 11: Fishing tournaments;
- Part 12: Fishing-related equipment and activities;
- Part 13: Fishing activities during the 2003 fishing season;
- Part 14: Sociodemographics.

### ***Data Entry and Analysis***

Data were professionally keypunched and analyzed on a personal computer using the Statistical Program for the Social Sciences (SPSS for Windows 12.0). We computed basic descriptive statistics and frequencies for the statewide results. Comparative results by region and gender were compared using one-way analysis of variance and cross-tabulations.

### ***Survey Response Rate***

Of the 4,900 questionnaires mailed, 454 were undeliverable, 9 were sent to a deceased person, and 69 were sent to people who had moved out of the region or state. Of the remaining 4,368 surveys, a total of 2,276 full-length surveys were returned, resulting in an overall response rate of 52.1%. Response rates for each region are summarized in Table I-1. In order to examine nonresponse bias, shortened follow-up surveys were sent to the 1,938 individuals who had not responded to the first four mailings. We received 260 responses to the follow-up survey for a response rate of 12.32%. Differences between early and late responses are described in Section 7.

Based on the unique ID numbers in the Minnesota Department of Natural Resources' (DNR) Electronic Licensing System (ELS), we drew a random sample of 4,900 individuals who had purchased a fishing license for the 2003 fishing season. This sample was stratified to obtain 300 each from the following six strata: northwest region, northeast region, central region, southern region, metro region, and female strata. We received 18 surveys with the ID numbers

**Table I-1: Response rates for each strata**

	Initial sample size	Number invalid	Valid sample size	Number completed and returned	Response rate %	Number of respondents to follow-up	Response rate to follow-up survey
Northwest region	800	77	723	365	50.48%	46	12.85%
Northeast region	800	92	708	389	54.94%	45	14.11%
Central region	800	75	725	389	53.66%	45	13.39%
Southern region	800	80	720	378	52.50%	35	10.23%
Metro region	800	69	731	366	50.07%	42	11.51%
Female strata	900	139	761	371	48.75%	47	12.05%
Full sample	4,900	532	4,368	2,258	51.69%	260	12.32%

## Population Estimates

### *Statewide Estimates*

The study sample was drawn using a stratified random sample with region of residence and gender defining the six study cohorts. For this reason the data had to be weighted to reflect the proportion of the population in each region when making statewide estimates. Table I-2 summarizes the statewide population proportions for each region.

### *Regional Estimates*

For these estimates, the data were not weighted.

**Table I-2: Proportion of state fishing-license purchasers and state residents by region.**

Regions	Proportion of anglers in each region (2003 season)	
	Frequency <sup>1</sup>	Proportion
Northwest region	125,691	10.32%
Northeast region	90,833	7.46%
Central region	480,026	39.40%
Southern region	160,801	13.20%
Metro region	361,050	29.63%
Statewide	1,218,401	100.00%

Notes:

<sup>1</sup> Source: DNR license database

<sup>2</sup> Source: www.lmic.state.mn.us

## Section 1: Recent Minnesota Fishing

### **Findings:**

#### ***Number of Years of Past 10 Bought Minnesota Fishing License***

##### *Statewide*

Respondents reported the number of years of the past 10 years that they purchased a Minnesota fishing license. On average, respondents had purchased a license in 8.3 of the past 10 years (Table 1-1). The number of years ranged from 0 to 10. Because people less than 16 years of age are not required to purchase a Minnesota fishing license, we calculated the proportion years buying a fishing license of the years in which a license was required. Respondents purchased licenses in an average of 85.9% of the previous 10 years.

Age was positively correlated with the proportion of years that respondents had purchased a fishing license. In other words older respondents had purchased licenses in a greater proportion of years during the past 10 years than younger respondents had ( $r=0.231$ ,  $p<0.001$ ). Likewise the proportion of years lived in Minnesota was positively correlated with the percent of years purchasing a fishing license ( $r=0.227$ ,  $p<0.001$ ). Income was also positively correlated with the proportion of years purchasing a fishing license ( $r=0.086$ ,  $p<0.001$ ). Education was negatively correlated with the percent of years purchasing a fishing license ( $r=-0.054$ ,  $p<0.01$ ).

##### *Regional*

The average number of years of the past 10 years that respondents purchased a Minnesota fishing license did not differ significantly by region ( $F=0.649$ , n.s.) (Table 1-1).

#### ***Changes in Fishing Participation in the Past Five Years***

##### *Statewide*

Respondents reported if the number of days per year that they fished in Minnesota in the past five years had decreased, increased, or stayed the same. Nearly half (46%) of respondents reported that their fishing had stayed the same, while 31% said it had decreased and 23% said it had increased (Table 1-2).

Age was negatively correlated with the trend in fishing participation; in other words older respondents were more likely to report declining participation in fishing in the past five year ( $r=-0.154$ ,  $p<0.001$ ). People with higher levels of education were more likely to report increasing participation in fishing ( $r=0.059$ ,  $p<0.01$ ). Proportion of years living in Minnesota and income were not related to trends in fishing participation.

##### *Regional*

Reported changes in fishing participation did not differ by region ( $\chi^2=7.928$ , n.s.) (Table 1-2).

## **Section 1: Recent Minnesota Fishing**

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### ***Number of Days Fishing During 2003 Season***

#### *Statewide*

Respondents indicated that they had fished an average of 29 days during the 2003 fishing season (Table 1-3). The number of days fished during the season ranged from 0 to 300. The median (i.e. the value above and below which half of the cases fall, the 50<sup>th</sup> percentile) and mode (i.e. most frequent value) were both 20 days.

Age was negatively correlated with the number days spent fishing during the 2003 fishing season, in other words older respondents had fished fewer days ( $r=-0.038$ ,  $p<0.05$ ). Income ( $r=-0.055$ ,  $p<0.05$ ) and education ( $r=-0.162$ ,  $p<0.001$ ) were also negatively correlated with the number of days of fishing during 2003. There was no correlation between proportion of life in Minnesota and number of days fishing during the previous season.

#### *Regional*

On average, respondents from the northwest region fished more days ( $\bar{x} = 36$  days) and respondents from the metropolitan region fished fewer days ( $\bar{x} = 23$  days) during the 2003 fishing season ( $F=5.007$ ,  $p\leq 0.001$ ,  $\eta=0.121$ ) (Table 1-3). Respondents from the other three regions fished about 30 days during the season.

### ***Number of Lakes and Rivers/Streams Fished During 2003 Season***

#### *Statewide*

Respondents indicated that they had fished an average of six lakes (Table 1-4) and one river or stream (Table 1-5) during the 2003 fishing season.

Age was negatively correlated with the number of lakes ( $r=-0.144$ ,  $p<0.001$ ) and streams ( $r=-0.085$ ,  $p<0.001$ ) fished during 2003. Education ( $r=-0.105$ ,  $p<0.001$ ) was also negatively correlated with the number of lakes fished during 2003.

#### *Regional*

Respondents from the central region fished at nearly seven different lakes during the 2003 fishing season, compared to only five for respondents in the southern region ( $F=3.577$ ,  $p\leq 0.01$ ,  $\eta=0.103$ ) (Table 1-4). On average, respondents from the northeast and southern regions had fished a greater number of different streams than respondents from other regions ( $F=3.144$ ,  $p\leq 0.05$ ,  $\eta=0.097$ ) (Table 1-5).

### ***Number of Competitive Tournaments Fished During 2003 Season***

#### *Statewide*

Nearly 90% of respondents indicated that they had not participated in any competitive fishing tournaments during the 2003 fishing season; 10% reported fishing in between one and three tournaments; less than 2% of respondents reported participating in four or more tournaments. (Table 1-6). Age was negatively correlated with the number of competitive tournaments fished during the 2003 season ( $r=-0.139$ ,  $p<0.001$ ). Proportion of life in Minnesota, education, and income were not related to participation in tournament angling.

## **Section 1: Recent Minnesota Fishing**

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### *Regional*

Fewer respondents from the northwest region reported *not* participating in fishing tournaments (84%) compared to respondents from other regions (~90%) ( $\chi^2=21.097$ ,  $p\leq 0.05$ , Cramer's  $V=0.072$ ) (Table 1-6).

### ***Number of Days Fishing for Particular Species During 2003 Season***

#### *Statewide*

The average number of days fishing for certain fish ranged from 5.3 for brook trout to 19.2 for 'whatever is biting.' Respondents reported fishing more days during the season for popular game fish like walleye (16.2 days), northern pike (14.4 days), crappie (13.8 days), and sunfish (13.2 days). Respondents reported fishing fewer days for carp (5.8 days) and various types of trout including brook (5.3 days), rainbow (6.3 days), Lake Superior (6.3 days), and brown (6.6 days) (Tables 1-7 to 1-24).

#### *Regional*

There were no significant differences between regions in the number of days fishing for: (a) whatever is biting, (b) northern pike, (c) muskellunge, (d) yellow perch, (e) crappie, (f) smallmouth bass, (g) white bass, (h) carp, (i) bullhead, (j) catfish, (k) Lake Superior salmon/trout, (l) rainbow trout, (m) brook trout, or (n) brown trout. There were significant differences between regions in the number of days fishing for: (a) walleye, (b) sauger, (c) sunfish, and (d) largemouth bass. In general, where there were differences, the respondents from the metro and central regions fished fewer days. For walleye, respondents from the metro region fished an average of 13 days during the season; this compares to 15 days for the central region, 17 days for the northeast region, 20 days for the southern region, and 25 days for the northwest region ( $F=8.072$ ,  $p\leq 0.001$ ,  $\eta=0.177$ ) (Table 1-8). For sauger, respondents from the metro and central regions fished an average of 7 days during the season; this compares to 11 days for the northeast region, 13 days for the northwest region, and 19 days for the southern region ( $F=4.135$ ,  $p\leq 0.01$ ,  $\eta=0.264$ ) (Table 1-9). Respondents from the northwest region fished an average of 19 days during 2003 for sunfish, compared to respondents from the other regions who reported fishing between 11 and 15 days ( $F=2.614$ ,  $p\leq 0.05$ ,  $\eta=0.123$ ) (Table 1-14). Respondents from the northeast and northwest regions fished for largemouth bass an average of 16 to 18 days during 2003; respondents from the other regions targeted largemouth bass 8 to 13 days ( $F=3.107$ ,  $p\leq 0.05$ ,  $\eta=0.172$ ) (Table 1-16).

### ***Satisfaction with Fishing During the 2003 Season***

#### *Statewide*

Respondents were asked to report how satisfied they were with various aspects of their fishing experience in Minnesota during 2003, using the scale 1 (very dissatisfied) to 5 (very satisfied). About 70% of respondents reported being satisfied (or very satisfied) with the overall fishing experience in Minnesota during 2003 ( $\bar{x} = 3.7$ ) (Table 1-25). Nearly half of respondents were satisfied with (a) the size of fish they caught (48.7%) ( $\bar{x} = 3.3$ ) (Table 1-26), (b) the number of fish they caught (46.9%) ( $\bar{x} = 3.2$ ) (Table 1-27), and (c) the behavior of other anglers (47.7%) ( $\bar{x} = 3.3$ ) (Table 1-28). Only 39% of respondents reported being satisfied with the behavior of nonanglers; many respondents (44.1%) felt neutral about the behavior of nonanglers ( $\bar{x} = 3.2$ ) (Table 1-29). About two-thirds of respondents (67.9%) were satisfied with access at lakes and streams ( $\bar{x} = 3.7$ ) (Table 1-30), and nearly 59.2% were satisfied with facilities ( $\bar{x} = 3.5$ ) (Table 1-31). On average, respondents were most satisfied with their overall fishing experience



## Section 1: Recent Minnesota Fishing

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and with access at lakes and streams, and they were least satisfied with the number of fish they caught and the behavior of nonanglers ( $F=130.483$ ;  $p\leq 0.001$ ;  $\eta^2=0.077$ ).

Older respondents reported slightly lower levels of satisfaction with their overall fishing experience ( $r=-0.069$ ,  $p<0.05$ ) and slightly higher satisfaction with facilities at lakes and streams ( $r=0.058$ ,  $p<0.05$ ). Higher income respondents reported greater satisfaction with the (a) overall experience ( $r=0.069$ ,  $p<0.01$ ), (b) access ( $r=0.098$ ,  $p<0.001$ ), and (c) facilities ( $r=0.086$ ,  $p<0.01$ ). Respondents with higher levels of education reported less satisfaction with the size ( $r=-0.062$ ,  $p<0.05$ ) and number ( $r=-0.080$ ,  $p<0.01$ ) of fish they caught, but they reported higher satisfaction with access at lakes and streams ( $r=0.056$ ,  $p<0.05$ ).

### *Regional*

There were no substantive differences in satisfaction between regions.

## Section 1: Recent Minnesota Fishing

**Table 1-1: Number of years of the past 10 years that respondents purchased a Minnesota fishing license.**

Regions	Sample size (n)	Age started fishing
Statewide <sup>1</sup>	1,829	8.31
Central region	375	8.32
Metro region	353	8.22
Northeast region	374	8.47
Northwest region	355	8.43
Southern region	363	8.23
F=0.649 n.s., $\eta=0.038$		

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 1-2: Changes in Fishing Participation in the Past Five Years.**

Regions	N	Decreased number of fishing days per year	Same number of fishing days per year	Increased number of fishing days per year
		%	%	%
Statewide <sup>1</sup>	1896	31.1%	45.9%	23.0%
Central region	381	32.0%	44.6%	23.4%
Metro region	359	29.8%	47.4%	22.8%
Northeast region	381	29.7%	44.6%	25.5%
Northwest region	359	30.1%	48.7%	21.2%
Southern region	367	33.2%	44.7%	22.1%
Chi-square	4.080 n.s.			
Cramer's V	0.033 n.s.			

Notes:

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 1-3: Number of Days Fishing During 2003 Season.**

Region	N	Mean
Statewide <sup>1</sup>	1,342	29.15
Central region	272	31.08
Metro region	261	23.49
Northeast region	283	30.20
Northwest region	260	36.48
Southern region	266	29.87
F=5.007***, $\eta=0.121$		

Notes:

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 1: Recent Minnesota Fishing

**Table 1-4: Number of Lakes Fished During 2003 Season.**

Region	N	Mean
Statewide <sup>1</sup>	1,350	6.06
Central region	273	6.87
Metro region	264	5.35
Northeast region	286	5.86
Northwest region	262	6.45
Southern region	266	5.12
	F=3.577**, η=0.103	

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 1-5: Number of Rivers or Streams Fished During 2003 Season.**

Region	N	Mean
Statewide <sup>1</sup>	1,329	1.14
Central region	265	1.04
Metro region	262	1.11
Northeast region	283	1.50
Northwest region	259	0.92
Southern region	265	1.48
	F=3.144*, η=0.097	

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 1-6: Participation in Competitive Fishing Tournaments During 2003 Season.**

Regions	N	None	1 to 3	4 to 9	10+
		%	%	%	%
Statewide <sup>1</sup>		88.7%	10.0%	0.8%	0.5%
Central region	276	88.0%	10.5%	1.1%	0.4%
Metro region	266	89.5%	9.8%	0.4%	0.4%
Northeast region	286	89.9%	7.7%	0.7%	1.7%
Northwest region	261	84.3%	13.8%	1.9%	0.0%
Southern region	267	91.8%	7.1%	0.4%	0.7%
Chi-square	21.097*				
Cramer's V	0.072*				

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 1: Recent Minnesota Fishing

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**Table 1-7: Number of days fishing for whatever is biting.**

Regions	N	Number of days fishing for whatever
Statewide <sup>1</sup>	792	19.21
Central region	168	19.43
Metro region	157	16.79
Northeast region	143	19.55
Northwest region	129	25.76
Southern region	162	19.60
F=2.192 n.s., $\eta=0.107$		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 1-8: Number of days fishing for walleye.**

Regions	N	Number of days fishing for walleye
Statewide <sup>1</sup>	990	16.20
Central region	195	15.22
Metro region	196	12.60
Northeast region	219	16.74
Northwest region	195	24.79
Southern region	197	20.11
F=8.072***, $\eta=0.177$		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 1-9: Number of days fishing for sauger.**

Regions	N	Number of days fishing for sauger
Statewide <sup>1</sup>	208	9.72
Central region	35	6.51
Metro region	41	6.51
Northeast region	47	10.77
Northwest region	54	13.19
Southern region	48	19.10
F=4.135**, $\eta=0.264$		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 1: Recent Minnesota Fishing

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**Table 1-10: Number of days fishing for northern pike.**

Regions	N	Number of days fishing for northern pike
Statewide <sup>1</sup>	676	14.37
Central region	141	14.42
Metro region	125	11.78
Northeast region	136	15.51
Northwest region	126	19.18
Southern region	145	15.42
F=1.405 n.s., $\eta=0.091$		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 1-11: Number of days fishing for muskellunge.**

Regions	N	Number of days fishing for muskie
Statewide <sup>1</sup>	170	10.52
Central region	30	11.10
Metro region	46	10.83
Northeast region	26	6.35
Northwest region	30	8.20
Southern region	25	12.00
F=0.364 n.s., $\eta=0.097$		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 1-12: Number of days fishing for yellow perch.**

Regions	n	Number of days fishing for yellow perch
Statewide <sup>1</sup>	254	10.95
Central region	53	10.26
Metro region	37	7.68
Northeast region	53	11.79
Northwest region	56	12.91
Southern region	69	14.87
F=1.064 n.s., $\eta=0.126$		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 1-13: Number of days fishing for crappie.**

Regions	n	Number of days fishing for crappie
Statewide <sup>1</sup>	860	13.83
Central region	179	14.41
Metro region	170	11.38
Northeast region	169	13.64
Northwest region	147	16.52
Southern region	174	15.91
F=1.546 n.s., $\eta=0.086$		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 1-14: Number of days fishing for sunfish.**

Regions	n	Number of days fishing for sunfish
Statewide <sup>1</sup>	754	13.17
Central region	173	12.77
Metro region	145	11.12
Northeast region	101	13.90
Northwest region	128	18.89
Southern region	144	14.91
F=2.614*, $\eta=0.123$		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 1-15: Number of days fishing for smallmouth bass.**

Regions	n	Number of days fishing for smallmouth bass
Statewide <sup>1</sup>	338	11.55
Central region	68	13.50
Metro region	74	6.93
Northeast region	66	14.39
Northwest region	44	15.33
Southern region	70	13.89
F=1.871 n.s., $\eta=0.152$		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 1-16: Number of days fishing for largemouth bass.**

Regions	n	Number of days fishing for largemouth bass
Statewide <sup>1</sup>	449	11.08
Central region	93	10.95
Metro region	100	8.12
Northeast region	67	17.73
Northwest region	68	16.03
Southern region	86	13.30
		F=3.107*, $\eta=0.172$

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 1-17: Number of days fishing for white bass.**

Regions	n	Number of days fishing for white bass
Statewide <sup>1</sup>	36	8.83
Central region	5	8.00
Metro region	10	5.40
Northeast region	3	32.33
Northwest region	2	12.00
Southern region	13	12.31
		F=1.176 n.s., $\eta=0.379$

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 1-18: Number of days fishing for carp.**

Regions	N	Number of days fishing for carp
Statewide <sup>1</sup>	61	5.77
Central region	16	4.75
Metro region	11	6.82
Northeast region	3	2.00
Northwest region	4	1.50
Southern region	16	8.31
		F=0.640 n.s., $\eta=0.232$

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 1-19: Number of days fishing for bullhead.**

Regions	n	Number of days fishing for bullhead
Statewide <sup>1</sup>	50	7.21
Central region	7	8.31
Metro region	11	5.18
Northeast region	5	6.00
Northwest region	8	7.38
Southern region	21	8.33
F=0.172 n.s., $\eta=0.120$		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 1-20: Number of days fishing for catfish.**

Regions	n	Number of days fishing for catfish
Statewide <sup>1</sup>	118	8.04
Central region	25	10.08
Metro region	20	5.15
Northeast region	19	4.42
Northwest region	19	6.95
Southern region	34	9.32
F=1.288 n.s., $\eta=0.210$		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 1-21: Number of days fishing for Lake Superior salmon or trout.**

Regions	n	Number of days fishing for Lake Superior salmon or trout
Statewide <sup>1</sup>	83	6.26
Central region	14	5.57
Metro region	18	4.22
Northeast region	57	10.32
Northwest region	6	5.00
Southern region	5	3.00
F=1.128 n.s., $\eta=0.213$		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001



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**Table 1-22: Number of days fishing for rainbow trout.**

Regions	n	Number of days fishing for rainbow trout
Statewide <sup>1</sup>	139	6.29
Central region	24	7.46
Metro region	26	3.69
Northeast region	55	8.05
Northwest region	19	5.47
Southern region	33	7.24
		F=1.072 n.s., $\eta=0.166$

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 1-23: Number of days fishing for brook trout.**

Regions	n	Number of days fishing for brook trout
Statewide <sup>1</sup>	84	5.26
Central region	14	8.64
Metro region	20	4.25
Northeast region	31	4.61
Northwest region	3	3.33
Southern region	30	8.97
		F=0.822 n.s., $\eta=0.178$

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 1-24: Number of days fishing for brown trout.**

Regions	n	Number of days fishing for brown trout
Statewide <sup>1</sup>	91	6.61
Central region	14	8.64
Metro region	20	4.25
Northeast region	31	4.61
Northwest region	3	3.33
Southern region	30	8.97
		F=1.244 n.s., $\eta=0.225$

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 1-25: Satisfaction with the Overall Fishing Experience in Minnesota During the 2003 Season.**

Regions	n	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,342	1.7%	9.3%	19.7%	59.6%	9.7%	3.66
Central region	271	1.5%	8.9%	21.0%	60.5%	8.1%	3.65
Metro region	264	2.3%	9.8%	19.7%	57.2%	11.0%	3.65
Northeast region	283	0.7%	7.1%	19.8%	60.1%	12.4%	3.76
Northwest region	260	1.9%	10.4%	20.8%	56.9%	10.0%	3.63
Southern region	263	1.1%	10.3%	14.4%	64.3%	9.9%	3.71
$\chi^2=13.220$ n.s., Cramer's V=0.099							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.268 n.s.,  $\eta=0.062$ . Mean is based on the scale: 1 = very dissatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = very satisfied.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 1-26: Satisfaction with the Size of Fish Caught in Minnesota During the 2003 Season.**

Regions	n	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,344	2.3%	20.8%	28.3%	44.4%	4.3%	3.28
Central region	272	2.6%	21.0%	26.1%	46.7%	3.7%	3.28
Metro region	265	1.9%	20.4%	34.0%	39.6%	4.2%	3.24
Northeast region	284	2.5%	18.0%	26.8%	44.7%	8.1%	3.38
Northwest region	257	2.7%	20.2%	25.3%	47.9%	3.9%	3.30
Southern region	262	1.9%	23.3%	25.2%	45.4%	4.2%	3.27
$\chi^2=18.147$ n.s., Cramer's V=0.058							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.938 n.s.,  $\eta=0.053$ . Mean is based on the scale: 1 = very dissatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = very satisfied.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 1-27: Satisfaction with the Number of Fish Caught in Minnesota During the 2003 Season.**

Regions	N	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,339	4.0%	22.8%	26.3%	43.5%	3.4%	3.20
Central region	270	4.1%	17.4%	30.0%	46.3%	2.2%	3.25
Metro region	265	4.9%	26.8%	26.0%	38.9%	3.4%	3.09
Northeast region	282	2.5%	24.5%	23.0%	42.9%	7.1%	3.28
Northwest region	256	3.9%	28.5%	19.1%	43.4%	5.1%	3.17
Southern region	263	2.7%	24.0%	23.6%	46.4%	3.4%	3.24
$\chi^2=29.485^*$ , Cramer's V=0.074							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.608 n.s.,  $\eta=0.069$ . Mean is based on the scale: 1 = very dissatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = very satisfied.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 1-28: Satisfaction with the Behavior of Other Anglers in Minnesota During the 2003 Season.**

Regions	n	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,345	2.7%	12.9%	36.7%	44.5%	3.2%	3.33
Central region	273	2.2%	14.7%	36.3%	43.2%	3.7%	3.32
Metro region	265	3.0%	12.1%	38.5%	44.2%	2.3%	3.31
Northeast region	283	4.9%	11.0%	31.1%	48.1%	4.9%	3.37
Northwest region	257	2.3%	13.6%	37.7%	42.0%	4.3%	3.32
Southern region	262	2.3%	10.3%	36.3%	48.9%	2.3%	3.39
$\chi^2=17.002$ n.s., Cramer's V=0.056							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.475 n.s.,  $\eta=0.038$ . Mean is based on the scale: 1 = very dissatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = very satisfied.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 1-29: Satisfaction with the Behavior of Nonanglers in Minnesota During the 2003 Season.**

Regions	N	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,340	4.3%	12.7%	44.1%	36.2%	2.8%	3.20
Central region	272	4.0%	15.4%	41.2%	36.8%	2.6%	3.18
Metro region	264	4.9%	10.6%	48.1%	33.7%	2.7%	3.19
Northeast region	285	3.9%	9.8%	44.9%	37.2%	4.2%	3.28
Northwest region	255	4.3%	12.2%	43.9%	35.3%	4.3%	3.23
Southern region	259	3.9%	11.6%	42.9%	40.2%	1.5%	3.24
$\chi^2=12.887$ n.s., Cramer's V=0.049							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.626 n.s.,  $\eta=0.043$ . Mean is based on the scale: 1 = very dissatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = very satisfied.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 1-30: Satisfaction with Access at Lakes/Streams in Minnesota During the 2003 Season.**

Regions	n	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,338	1.9%	6.3%	23.0%	61.9%	7.0%	3.66
Central region	270	1.9%	5.9%	23.7%	61.5%	7.0%	3.66
Metro region	264	2.3%	6.1%	22.3%	61.7%	7.6%	3.66
Northeast region	285	1.8%	5.3%	19.3%	64.2%	9.5%	3.74
Northwest region	256	2.0%	9.0%	25.8%	57.0%	6.3%	3.57
Southern region	262	1.1%	6.5%	22.5%	65.6%	4.2%	3.65
$\chi^2=14.584$ , Cramer's V=0.052							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.773 n.s.,  $\eta=0.073$ . Mean is based on the scale: 1 = very dissatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = very satisfied.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 1-31: Satisfaction with Facilities at Lakes/Streams in Minnesota During the 2003 Season.**

Regions	N	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,341	1.3%	9.2%	30.3%	54.0%	5.2%	3.52
Central region	271	1.1%	10.0%	30.6%	53.5%	4.8%	3.51
Metro region	265	1.5%	8.7%	30.2%	54.3%	5.3%	3.53
Northeast region	285	0.7%	8.4%	27.7%	55.4%	7.7%	3.61
Northwest region	255	2.4%	9.0%	34.9%	49.4%	4.3%	3.44
Southern region	262	1.1%	8.8%	27.9%	57.3%	5.0%	3.56
$\chi^2=11.682$ n.s., Cramer's V=0.047							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.673 n.s.,  $\eta=0.071$ . Mean is based on the scale: 1 = very dissatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = very satisfied.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 1-32: Comparison of satisfaction levels.**

Satisfaction with...	Statewide mean <sup>1</sup>
Overall fishing experience in Minnesota	3.65
Size of fish you caught	3.27
Number of fish you caught	3.18
Behavior of other anglers	3.32
Behavior of non-anglers	3.20
Access at lakes/streams	3.64
Facilities at lakes/streams	3.51

**Notes:**

<sup>1</sup> F=130.483\*\*\*,  $\eta^2=0.077$ . Mean is based on the scale: 1 = very dissatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = very satisfied.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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### **Findings:**

#### *The Quality of Fishing in Minnesota*

##### *Statewide*

Respondents were asked to respond to nine items addressing whether the quality of fishing in Minnesota had improved, declined, or stayed the same. They were asked about the quality of fishing (a) at the Minnesota lakes and streams you regularly fish over the past 10 years, (b) at lakes and streams in Minnesota as a whole over the past 10 years, and (c) in the next 10 years. Responses for all questions were based on the scale 1 (greatly declined) to 5 (greatly improved). Average responses for all nine items fell between 2.5 and 3.0.

About half of respondents (48.2%) indicated that the quality of fishing at the Minnesota lakes and streams they regularly fished had stayed about the same over the past 10 years; about 40% said quality had declined, and less than 10% said quality had improved (Table 2-1). Nearly half (44.3%) of respondents felt that the size of fish at the Minnesota lakes and streams they regularly fished had declined; only 12% said the size of fish had improved (Table 2-2). About half of the respondents felt the quality of the environment at the Minnesota lakes and streams they regularly fished had stayed about the same with 37.3% saying it had declined (Table 2-3). On average, respondents felt that the quality of the environment had declined slightly less ( $\bar{x} = 2.7$ ) than the quality of fishing or the size of fish caught ( $\bar{x} = 2.6$ ) (at the lakes and streams they fished most often) ( $F=23.521$ ,  $p \leq 0.001$ ,  $\eta^2=0.011$ ). Older respondents felt that the quality of fishing ( $r=-0.127$ ,  $p < 0.001$ ) and of the size of fish caught ( $r=-0.139$ ,  $p < 0.001$ ) at lakes and streams that were regularly fished had declined more than younger respondents did. Respondents with higher levels of education felt that the quality of the environment at the lakes they frequented had declined more than respondents with less education did ( $r=-0.068$ ,  $p < 0.01$ ).

Nearly half of respondents (46.3%) indicated that the quality of fishing in Minnesota as a whole over the past 10 years had stayed about the same; 43.1% said that it had declined (Table 2-4). Nearly half of respondents (47.8%) thought the size of the fish caught in Minnesota a whole had declined, with 41.9% saying the size of fish had stayed the same (Table 2-5). Forty-five percent of respondents said that the quality of the environment in Minnesota as a whole had stayed the same, with 40% saying it had declined (Table 2-6). On average, respondents felt that the quality of the environment had declined slightly less ( $\bar{x} = 2.7$ ) than the quality of fishing or the size of fish caught ( $\bar{x} = 2.6$ ) (at Minnesota lakes and streams as a whole) ( $F=32.384$ ,  $p \leq 0.001$ ,  $\eta^2=0.015$ ). Similar to the results for the places where respondents usually fished, older respondents felt that the quality of fishing ( $r=-0.131$ ,  $p < 0.001$ ) and of the size of fish caught ( $r=-0.153$ ,  $p < 0.001$ ) at lakes and streams in Minnesota as a whole had declined more than younger respondents did. Respondents with higher levels of education again felt that the quality of the environment had declined more than respondents with less education did ( $r=-0.068$ ,  $p < 0.01$ ).

Looking into the future, 38.7% of respondents indicated that the quality of fishing at lakes and streams that they regularly fish will decline in the next 10 years, with 42.5% saying it will stay the same (Table 2-7). About an equal proportion of respondents (~40%) felt that the quality of fishing in Minnesota as a whole would decline as felt it would stay the same (Table 2-8). Over 40% of respondents felt that the quality of the environment in Minnesota would decline, compared to 36% who felt it would stay the same (Table 2-9). There was no significant difference in the average response to these three items. Older

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respondents felt that the quality of fishing at lakes regularly fished ( $r=-0.064$ ,  $p<0.01$ ) and in Minnesota as a whole ( $r=-0.074$ ,  $p<0.01$ ) would decline more in the next 10 years than younger respondents thought they would. Respondents with higher levels of education felt that the quality (a) of fishing at lakes regularly fished ( $r=-0.055$ ,  $p<0.05$ ), (b) of fishing in Minnesota as a whole ( $r=-0.067$ ,  $p<0.01$ ), and (c) the environment ( $r=-0.079$ ,  $p<0.001$ ) would decline more in the next 10 year than respondents with less education did.

### *Regional*

There were no substantive differences between regions in the perceived quality of Minnesota fishing (Tables 2-1 to 2-9).

### ***Fisheries Management Issues***

#### *Statewide*

Respondents were asked how much they agreed with a variety of fisheries management issues. Response was on a scale of 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), and 5 (strongly agree). The fisheries management issues dealt with topics related to fishing pressure (Tables 2-10, 2-11), private versus public control (Tables 2-12, 2-13), aquatic plants (Tables 2-14, 2-15, 2-16, 2-17), fishing technology (Tables 2-18, 2-19, 2-20), and specific forms of active fisheries management to create or protect fish habitat (Tables 2-21, 2-22, 2-23). Responses to the different items were significantly different and ranged from 2.0 for “aquatic plants are weeds and have no value to the lake” to 3.9 for “aquatic plants are important to the lake and should be managed like other natural resources” ( $F=638.983$ ;  $p<0.001$ ;  $\eta^2=0.236$ ) (Table 2-24).

Many respondents agreed that fishing pressure was affecting the quality of fishing. Nearly 40% of respondents agreed that “too many fish were being kept, which was making fish smaller” ( $\bar{x} = 3.2$ ) (Table 2-10). Nearly 60% of respondents agreed that “heavy fishing pressure was reducing the numbers of fish in lakes and streams” ( $\bar{x} = 3.6$ ) (Table 2-11). Age ( $r=0.070$ ,  $p<0.01$ ), income ( $r=0.047$ ,  $p<0.01$ ) and education ( $r=0.046$ ,  $p<0.01$ ) were positively correlated with agreement with this item.

Less than one-third of respondents (30.1%) feel that lakeshore landowners should have the right to alter the shoreline any way they want ( $\bar{x} = 2.1$ ) (Table 2-12). Age ( $r=-0.053$ ,  $p<0.05$ ), income ( $r=-0.053$ ,  $p<0.05$ ) and education ( $r=-0.092$ ,  $p<0.001$ ) were negatively correlated with agreement with this item. Nearly half of the respondents (47.2%) feel that the Minnesota Department of Natural Resources should use a management practice beneficial to fish, even if the public does not believe it would be beneficial ( $\bar{x} = 3.4$ ) (Table 2-13). Income ( $r=0.060$ ,  $p<0.01$ ) and education ( $r=0.143$ ,  $p<0.001$ ) were positively correlated with agreement with this item.

Respondents appear to recognize some value associated with aquatic plants. Forty-two percent of respondents agree that only exotic plant species, such as Eurasian Water Milfoil, should be removed from lakes ( $\bar{x} = 3.2$ ) (Table 2-14). However, over one-third of respondents (36.1%) disagree that aquatic plants are so important to lakes that they should be completely left alone ( $\bar{x} = 2.9$ ) (Table 2-15). But, only 4.1% of the respondents agree that aquatic plants are weeds and have no value to the lake ( $\bar{x} = 2.0$ ) (Table 2-16). Three-fourths of respondents (67.2%) agree that aquatic plants are important to the lake and should be managed like other natural resources ( $\bar{x} = 3.9$ ) (Table 2-17).

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Respondents appear to disagree with the restriction of new technologies for fishing. About one-third of the respondents (34.1%) disagreed that “underwater video cameras should not be allowed when fishing” ( $\bar{x} = 2.9$ ) (Table 2-18). Similarly, 42.4% of respondents disagreed that “underwater video cameras should only be allowed when there is no fishing equipment in the boat” ( $\bar{x} = 2.7$ ) (Table 2-19). Finally, 65.3% disagreed that “GPS Units (Global Positioning Systems) should not be allowed when fishing” ( $\bar{x} = 2.2$ ) (Table 2-20). Older respondents were more likely to agree that these technologies should be restricted.

Respondents appear to agree with several specific management actions to support fish habitat. Over one-third of respondents agreed that “regulations on the alteration of lake bottoms and banks to protect shoreline habitat should be more restrictive” ( $\bar{x} = 3.3$ ) (Table 2-21). Over 40% of respondents agreed that “chemical removal of the fish in a lake to replace them with other kinds of fish that people prefer to catch is acceptable as long as it’s done so that people are safe” ( $\bar{x} = 3.1$ ) (Table 2-22). Finally, 38.4% of respondents agreed that “permanent concrete or steel structures (such as fish traps and fish ladders built in streams to make fishing better) should be used even if they don’t look natural” ( $\bar{x} = 3.2$ ) (Table 2-23). Age, proportion of life in Minnesota, income and education tended to be positively correlated with the items about chemical control and habitat structures.

### *Regional*

There were no significant differences between regions in agreement with the majority of the listed fisheries management issues.

Respondents from the southern region were less likely to agree that “heavy fishing pressure is reducing the numbers of fish in lakes and streams” ( $\chi^2=32.556$ ,  $p\leq 0.01$ , Cramer’s  $V=0.067$ ;  $F=3.778$ ,  $p\leq 0.01$ ,  $\eta=0.091$ ) (Table 2-11).

There were significant differences by region in two items related to management of aquatic plants. Respondents from the central region were more likely to agree and respondents from the metro region were less likely to agree that “aquatic plants are weeds and have no value to the lake” ( $F=2.723$ ,  $p\leq 0.05$ ,  $\eta=0.078$ ) (Table 2-16). Similarly, respondents from the metro region were more likely to agree and respondents from the central region were less likely to agree that “aquatic plants are important to the lake, and should be managed like other natural resources” ( $\chi^2=27.255$ ,  $p\leq 0.05$ , Cramer’s  $V=0.061$ ;  $F=5.062$ ,  $p\leq 0.001$ ,  $\eta=0.105$ ) (Table 2-17).

There were significant differences by region in the two items related to underwater video cameras. Slightly more respondents from the metro and southern regions agreed that “underwater video cameras should not be allowed when fishing” ( $\chi^2=32.668$ ,  $p\leq 0.01$ , Cramer’s  $V=0.067$ ) (Table 2-18) and “underwater video cameras should only be allowed when there is no fishing equipment in the boat” ( $\chi^2=31.133$ ,  $p\leq 0.05$ , Cramer’s  $V=0.066$ ) (Table 2-19).

### *Effectiveness of Fisheries Management Techniques*

#### *Statewide*

Respondents were asked to rate the effectiveness of five fish management techniques in Minnesota using the scale 1 (very ineffective) to 5 (very effective). In general, respondents agreed that the techniques were effective. Nearly three-fourths of respondents agreed that stocking walleye in a lake to increase walleye populations was effective ( $\bar{x} = 3.9$ ) (Table 2-25). Nearly 80% of respondents felt that (a) using size limits to protect fish populations ( $\bar{x} = 3.9$ ) (Table 2-26) and (b) using conservation programs to reduce soil



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erosion to improve fishing were effective ( $\bar{x} = 4.0$ ) (Table 2-27). Over 80% of respondents (82.2%) felt that managing shoreline to protect fish spawning sites was effective ( $\bar{x} = 4.0$ ) (Table 2-28), and over 70% (72.5%) felt that controlling wetland drainage to improve fishing was effective ( $\bar{x} = 3.9$ ) (Table 2-29).

Age ( $r=0.058$ ,  $p<0.05$ ) and proportion of life in Minnesota ( $r=0.070$ ,  $p<0.01$ ) were both positively correlated with the perceived effectiveness of stocking walleye. Income ( $r=0.084$ ,  $p<0.01$ ) and education ( $r=0.065$ ,  $p<0.01$ ) were both positively correlated with the perceived effectiveness of using size limits to protect fish populations. Age, income and education were all positively correlated with the perceived effectiveness of (a) using conservation programs to reduce soil erosion and (b) controlling wetland drainage to improve fishing.

### *Regional*

There was no significant difference between regions in the perceived effectiveness of most of the listed management techniques. Respondents from the northwest region were more likely to feel that “stocking walleye in a lake to increase walleye populations” was effective ( $\chi^2=28.265$ ,  $p\leq 0.05$ , Cramer’s  $V=0.062$ ) (Table 2-25). Respondents from the two northern regions were less likely to feel that “controlling wetland drainage to improve fishing” was effective; people from the metro region were more likely to feel that this was effective ( $\chi^2=41.203$ ,  $p\leq 0.001$ , Cramer’s  $V=0.075$ ;  $F=5.078$ ,  $p\leq 0.001$ ,  $\eta=0.105$ ) (Table 2-29).

### *Value and Management of Fisheries Resources*

#### *Statewide*

Respondents were asked how much they agreed with 12 items related to the value of fisheries resources. Response was on a scale of 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), and 5 (strongly agree). The reliability for the 12-item scale was 0.804. A factor analysis was conducted to reveal underlying correlations among the items. Three underlying factors with Eigenvalues greater than 1.0 were identified. One factor appears to represent anthropocentric values, the second appears to represent utilitarian values, and the third appears to represent ecocentric/recreational values.

The anthropocentric factor included three items and had a Cronbach’s alpha of 0.745. These items held together well; if any item is deleted from the scale the alpha increases. The items included in this scale are: (a) humans were meant to rule over the rest of nature ( $\bar{x} = 2.8$ ) (Table 2-31), (b) humans have the right to change the natural world to suit their needs ( $\bar{x} = 2.3$ ) (Table 2-32), and (c) fish should primarily be managed for human benefit ( $\bar{x} = 2.7$ ) (Table 2-33). Over 40% of respondents disagreed with each of these items. Age was positively correlated with the anthropocentric factor ( $r=0.087$ ,  $p<0.001$ ).

The utilitarian factor included four items and had a Cronbach’s alpha of 0.696. The items included in this scale are: (a) fisheries are valuable only if they produce jobs and income for people ( $\bar{x} = 2.2$ ) (Table 2-34), (b) nature’s primary value is to provide things that are useful to people ( $\bar{x} = 2.6$ ) (Table 2-35), (c) fish are valuable only if people get to use them in some way ( $\bar{x} = 2.4$ ) (Table 2-36), and (d) fish are primarily valuable as food for people ( $\bar{x} = 3.0$ ) (Table 2-37). Over 50% of respondents disagreed with the first three listed items, and over 25% were neutral on the fourth item. Age was positively correlated with the utilitarian factor ( $r=0.077$ ,  $p<0.01$ ), and income ( $r=-0.188$ ,  $p<0.001$ ) and education ( $r=-0.188$ ,  $p<0.001$ ) were negatively correlated with this factor.

The ecocentric/recreational factor included five items and had a Cronbach’s alpha of 0.606. The items included in this scale are: (a) the primary value of fisheries is to provide recreation for people ( $\bar{x} = 3.2$ )

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(Table 2-38), (b) fish have as much right to exist as people ( $\bar{x} = 3.2$ ) (Table 2-39), (c) fish are valuable in their own right regardless of people ( $\bar{x} = 3.6$ ) (Table 2-40), (d) humans are no more important than other parts of nature ( $\bar{x} = 2.8$ ) (Table 2-41), and (e) humans have a duty to protect fish and other parts of nature ( $\bar{x} = 4.3$ ) (Table 2-42). Age ( $r=0.159$ ,  $p<0.001$ ), income ( $r=0.078$ ,  $p<0.01$ ) and education ( $r=0.054$ ,  $p<0.05$ ) were all positively correlated with this factor.

### *Regional*

There were no significant differences between regions for 9 of the 12 listed values associated with fisheries resources. For three items, respondents from the metro region reported somewhat lower anthropocentric values than respondents from the other regions. Metro respondents were less likely to report that (a) “nature’s primary value is to provide things that are useful to people” ( $F=3.262$ ,  $p\leq 0.05$ ,  $\eta=0.084$ ) (Table 2-35), (b) “fish are valuable only if people get to use them in some way” ( $\chi^2=27.225$ ,  $p\leq 0.05$ , Cramer’s  $V=0.061$ ;  $F=3.104$ ,  $p\leq 0.05$ ,  $\eta=0.082$ ) (Table 2-36), and (c) “fish are primarily valuable as food for people” ( $\chi^2=35.533$ ,  $p\leq 0.01$ , Cramer’s  $V=0.105$ ;  $F=5.053$ ,  $p\leq 0.001$ ,  $\eta=0.105$ ) (Table 2-37). A smaller proportion of metro respondents were neutral about the value statement “humans are no more important than other parts of nature” ( $\chi^2=38.128$ ,  $p\leq 0.001$ , Cramer’s  $V=0.072$ ) (Table 2-41).

### *Minnesota Department of Natural Resources Fisheries Management and Activities*

#### *Statewide*

*Minnesota Department of Natural Resources Management.* Respondents were asked how much they agreed with a variety of statements about the Minnesota Department of Natural Resources (DNR). Response was on a scale of 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), and 5 (strongly agree). The statements addressed (a) how the DNR should manage fisheries resources, (b) trust in the agency, and (c) agency funding (Tables 2-44 to 2-60). Responses to the different statements were significantly different and ranged from 2.7 for “the Minnesota DNR should manage lakes to have many fish though the average size would be smaller” to 4.0 for “the Minnesota DNR answers questions honestly” ( $F=434.508$ ;  $p\leq 0.001$ ;  $\eta^2=0.176$ ) (Table 2-61).

Few respondents (16.7%) thought the DNR should manage lakes to have many fish though the average size would be smaller ( $\bar{x} = 2.7$ ) (Table 2-44). Only a slightly larger proportion agreed that the DNR should either (a) manage lakes to have big fish, though the number of fish harvested would be less (23.9%) ( $\bar{x} = 2.9$ ) (Table 2-45) or (b) manage your favorite lake to have big fish, though the number of fish harvested would be less (22.5%) ( $\bar{x} = 2.8$ ) (Table 2-46). About half of the respondents (46.9%) thought that the DNR should manage lakes individually, although the regulations may become more complicated ( $\bar{x} = 3.3$ ) (Table 2-47). About one-third of the respondents (30.6%) agreed and about one-third disagreed (34.5%) that the DNR should continue stocking walleyes in lakes even where stocking has not increased walleye numbers ( $\bar{x} = 3.0$ ) (Table 2-48). About half of the respondents (49.0%) agreed that the DNR should allow greater angler participation in making fish management decisions ( $\bar{x} = 3.6$ ) (Table 2-49). Older respondents and those who had lived a greater proportion of their lives in Minnesota were slightly less likely, while respondents with higher levels of income and education were slightly more likely, to agree that lakes should be managed individually though the regulations might be more complicated. Respondents who were older, had higher incomes or had more education were slightly less likely to agree that the DNR should allow greater angler participation in fish management decisions.

Respondents appear to trust the Minnesota Department of Natural Resources fisheries staff. About three-fourths of respondents agreed that the DNR (a) answers questions honestly (72.6%) ( $\bar{x} = 4.0$ ) (Table 2-

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50) and (b) has staff that are well trained to do their jobs (72.2%) ( $\bar{x} = 3.9$ ) (Table 2-51). Well over half of respondents agreed that the DNR (a) listens (66.0%) ( $\bar{x} = 3.8$ ) (Table 2-52) and (b) responds (57.9%) ( $\bar{x} = 3.7$ ) (Table 2-53) to anglers' concerns, and (c) adequately manages Minnesota's fishing waters (56.1%) ( $\bar{x} = 3.6$ ) (Table 2-54). Respondents were largely neutral about three statements addressing trust in the DNR. Approximately half of respondents were neutral about whether the DNR (a) manages fisheries for special interests (45.2%) ( $\bar{x} = 2.9$ ) (Table 2-55), (b) listens to the concerns of people that don't fish (49.1%) ( $\bar{x} = 3.2$ ) (Table 2-56), and (c) responds to the concerns of people that don't fish (53.9%) ( $\bar{x} = 3.2$ ) (Table 2-57). Respondents with higher incomes and educational levels were slightly less likely to agree that the DNR responds to anglers' concerns and manages fisheries for special interests, but these respondents were slightly more likely to agree that the DNR listens and responds to the concerns of people that don't fish. Older respondents were less likely to agree that the DNR (a) manages fisheries for special interests ( $r = -0.207$ ,  $p < 0.001$ ), (b) adequately manages the state's fishing waters ( $r = -0.056$ ,  $p < 0.05$ ), and (c) responds to the concerns of people who don't fish ( $r = -0.047$ ,  $p < 0.05$ ).

About half (49.8%) of the respondents agreed that the DNR spends public money effectively ( $\bar{x} = 3.5$ ) (Table 2-58). Somewhat fewer respondents (41.7%) agreed that (a) the DNR needs more funding to do a better job ( $\bar{x} = 3.4$ ) (Table 2-59) or (b) the DNR needs more funding from general tax revenue (not fishing licenses) to do a better job (37.8%) ( $\bar{x} = 3.3$ ) (Table 2-60). Respondents with higher levels of income ( $r = 0.054$ ,  $p < 0.01$ ) and education ( $r = 0.070$ ,  $p < 0.001$ ) were slightly more likely to agree that the DNR needs more funding to do a better job. Respondents who had lived a greater proportion of their lives in Minnesota were slightly more likely to agree ( $r = 0.051$ ,  $p < 0.05$ ) that the DNR spends public money effectively.

*Minnesota Department of Natural Resources Activities: Importance and Performance.* Respondents were asked about the importance of a variety of Minnesota Department of Natural Resources (DNR) fisheries management activities including education, regulation, habitat protection, and fish stocking (Tables 2-62 to 2-74). They were also asked to indicate how they thought the DNR performed on those activities (Tables 2-75 to 2-87). Importance was measured on a scale of 1 (very unimportant), 2 (unimportant), 3 (neutral), 4 (important), and 5 (very important). Performance was measured on a 4-point scale of 1 (very poor), 2 (poor), 3 (good), and 4 (very good).

*Importance.* Respondents were asked about the importance of stocking and restoring fish. Over three-fourths of respondents (81%) felt that stocking fish into lakes and streams was important or very important ( $\bar{x} = 4.0$ ) (Table 2-62). Over half of respondents (55.6%) felt that restoring fish such as sturgeon to lakes and streams where they once lived was important or very important ( $\bar{x} = 3.6$ ) (Table 2-63). Older respondents ( $r = 0.069$ ,  $p < 0.01$ ) felt stocking was slightly more important, while respondents with higher levels of education ( $r = -0.070$ ,  $p < 0.001$ ) felt it was slightly less important. Older respondents ( $r = -0.136$ ,  $p < 0.001$ ) felt that restoring fish was less important.

Respondents were asked several items about regulations and licenses. Nearly 90% of respondents felt that developing effective regulations to improve fishing (87.5%) ( $\bar{x} = 4.1$ ) (Table 2-64) and developing understandable fishing regulations (89.4%) ( $\bar{x} = 4.2$ ) (Table 2-65) were important activities. About three-fourths of respondents (73.7%) thought that providing a good value for a fishing license was important ( $\bar{x} = 3.8$ ) (Table 2-66). Respondents with higher levels of income and education rated developing effective regulations slightly more important and providing a good value for a fishing license slightly less important.

Respondents were asked to report the importance of DNR informational and educational efforts. About two-thirds of respondents (34.8%) felt that providing information to people so that they can decide where to fish was an important DNR activity ( $\bar{x} = 3.7$ ) (Table 2-67). Age ( $r = -0.074$ ,  $p < 0.01$ ) and proportion of

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life in Minnesota ( $r=-0.075$ ,  $p<0.01$ ) were negatively correlated with this item. About 90% of respondents (91.5%) felt that educating people on how they can help protect lakes and streams was important ( $\bar{x} = 4.3$ ) (Table 2-68). Proportion of life in Minnesota ( $r=-0.059$ ,  $p<0.05$ ) was negatively correlated with this item, while education ( $r=0.086$ ,  $p<0.001$ ) was positively correlated. About three-fourths felt that educating people on the biology and conservation of fish was important ( $\bar{x} = 3.9$ ) (Table 2-69), and 86.5% felt that educating people on ethical conduct and sportsmanship was important ( $\bar{x} = 4.2$ ) (Table 2-70). Income was positively correlated with the latter item, and education was positively correlated with both of these items.

Respondents also felt that habitat protection and management were important. Over three-fourths of respondents felt that improving lake and stream habitat (91.3%) ( $\bar{x} = 4.3$ ) (Table 2-71) and protecting the land surrounding lakes and streams were important activities (83.2%) ( $\bar{x} = 4.1$ ) (Table 2-72). Education was positively correlated with both of these items. Over half of the respondents (53.7%) felt that purchasing land or easements to provide more places to fish was important ( $\bar{x} = 3.5$ ) (Table 2-73). Age ( $r=-0.065$ ,  $p<0.01$ ) and proportion of life in Minnesota ( $r=-0.056$ ,  $p<0.05$ ) were negatively correlated with this item.

*Performance.* In general, respondents felt that the DNR performed well on the listed activities. For each item, over 60% of respondents rated DNR performance good or very good.

Approximately three-fourths of respondents (75.6%) felt that DNR performance stocking fish into lakes and streams was good or very good ( $\bar{x} = 2.8$ ) (Table 2-75). Age was positively correlated with this item ( $r=0.062$ ,  $p<0.01$ ), and education was negatively correlated ( $r=-0.053$ ,  $p<0.01$ ). Over half of respondents (60.6%) felt that DNR performance restoring fish such as sturgeon to lakes and streams where they once lived was good or very good ( $\bar{x} = 2.6$ ) (Table 2-76).

Approximately 80% of respondents felt that DNR performance developing effective regulations to improve fishing (78.9%) ( $\bar{x} = 2.8$ ) (Table 2-77), developing understandable fishing regulations (81.6%) ( $\bar{x} = 2.9$ ) (Table 2-78), and providing a good value for a fishing license (81.8%) ( $\bar{x} = 2.9$ ) (Table 2-79) was good or very good. Age was negatively correlated ( $r=-0.072$ ,  $p<0.01$ ) and education was positively correlated ( $r=0.041$ ,  $p<0.05$ ) with DNR performance on providing a good value for a fishing license.

About three-fourths of respondents felt that DNR performance was good or very good for providing information to people so that they can decide where to fish (76.8%) ( $\bar{x} = 2.8$ ) (Table 2-80) and educating people on how they can help protect lakes and streams was important (75.3%) ( $\bar{x} = 2.8$ ) (Table 2-81). Over 60% felt that DNR performance on educating people on the biology and conservation of fish (63.9%) ( $\bar{x} = 2.66$ ) (Table 2-82), and educating people on ethical conduct and sportsmanship (61.8%) ( $\bar{x} = 2.66$ ) (Table 2-83) was good or very good. Age was negatively correlated ( $r=-0.073$ ,  $p<0.01$ ) with perceived DNR performance on providing information so that people can decide where to fish. Income and education were negatively correlated with perceived DNR performance on educating people on how to protect lakes and streams and educating people on the biology and conservation of fish. Age was positively correlated ( $r=0.067$ ,  $p<0.01$ ) and education was negatively correlated ( $r=-0.065$ ,  $p<0.001$ ) with perceived DNR performance on educating people on ethical conduct and sportsmanship.

Respondents also felt that DNR performance on habitat protection and management was good. About 70% of respondents felt that the DNR performed well at improving lake and stream habitat (68.1%) ( $\bar{x} = 2.7$ ) (Table 2-84) and protecting the land surrounding lakes and streams (70.1%) ( $\bar{x} = 2.7$ ) (Table 2-85). Over 60% of the respondents (63.1%) felt that the DNR performed well purchasing land or easements to provide more places to fish ( $\bar{x} = 2.6$ ) (Table 2-86). Income ( $r=-0.074$ ,  $p<0.001$ ) and

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education ( $r=-0.112$ ,  $p<0.001$ ) were negatively correlated with perceived DNR performance on protecting the land surrounding lakes and streams.

*Comparing Importance and Performance.* The difference between importance and performance for each of the activities is detailed in Table 2-88 and Chart 2-89. Because importance was rated on a 5-point scale and performance was rated on a 4-point scale, the difference between them is based on mean proportion of the scale. For each activity, the relative importance is greater than the perceived performance. The perceived gap between importance and performance is for educating people on ethical conduct and sportsmanship (0.19) and improving stream habitat (0.19) (Table 2-88). On average, each activity was rated above the mean scale score for importance and for DNR performance. Therefore, each activity is found in the ‘keep up the good work’ quadrant of the importance-performance chart (2-89).

### *Regional*

There were no significant differences between regions for 13 of the 17 listed management statements. There were slight differences in agreement between regions for four items. Respondents from the northeast region were slightly less in agreement that “Minnesota DNR Fisheries should manage your favorite lake to have big fish, though the number of fish harvested would be less” ( $F=2.523$ ,  $p\leq 0.05$ ,  $\eta=0.074$ ) (Table 2-46). Respondents from the central and southern regions were slightly more likely to agree that “Minnesota DNR Fisheries adequately manages Minnesota’s fishing waters” ( $\chi^2=36.047$ ,  $p\leq 0.05$ , Cramer’s  $V=0.071$ ;  $F=2.377$ ,  $p\leq 0.05$ ,  $\eta=0.072$ ) (Table 2-55). Respondents from the southern region were somewhat less likely to agree that “Minnesota DNR Fisheries responds to the concerns of people that don’t fish” ( $\chi^2=27.693$ ,  $p\leq 0.05$ , Cramer’s  $V=0.062$ ) (Table 2-57). Finally, respondents from the metro and southern regions were more likely to agree, and respondents from the northwest regions were somewhat less likely to agree, that “Minnesota DNR Fisheries needs more funding to do a better job” ( $\chi^2=32.548$ ,  $p\leq 0.01$ , Cramer’s  $V=0.067$ ) (Table 2-59).

There were significant differences between regions for the importance of 5 of the 12 listed fisheries management activities. In general, where there were differences, the metro respondents thought the activity was more important than the non-metro respondents thought it was. Respondents from the two northern regions thought “providing information to people so that they can decide where to fish” was less important than other respondents thought it was ( $\chi^2=37.947$ ,  $p\leq 0.01$ , Cramer’s  $V=0.072$ ;  $F=3.509$ ,  $p\leq 0.05$ ,  $\eta=0.087$ ) (Table 2-64). Respondents from the metro region thought “educating people on how they can help protect lakes and streams” was slightly more important than other respondents thought it was ( $\chi^2=27.718$ ,  $p\leq 0.05$ , Cramer’s  $V=0.062$ ;  $F=3.218$ ,  $p\leq 0.05$ ,  $\eta=0.084$ ) (Table 2-65). The average importance of two activities, (a) “improving lake and stream habitat” ( $F=2.825$ ,  $p\leq 0.05$ ,  $\eta=0.079$ ) (Table 2-67) and (b) “restoring fish such as sturgeon to lakes and streams where they once lived” ( $F=3.958$ ,  $p\leq 0.05$ ,  $\eta=0.093$ ) (Table 2-68) were rated higher by respondents from the metro and northeast regions than by other respondents. Finally, metro and southern region respondents rated “protecting the land surrounding lakes and streams” slightly more important than other respondents did ( $F=3.142$ ,  $p\leq 0.05$ ,  $\eta=0.083$ ) (Table 2-70).

There were no significant differences between regions for the DNR’s performance on 11 of the 12 listed fishing management activities. There was a slight difference in performance appraisal between regions for the activity “educating people on ethical conduct and sportsmanship.” More respondents from the metro region rate DNR performance poor on this item ( $\chi^2=24.375$ ,  $p\leq 0.05$ , Cramer’s  $V=0.068$ ) (Table 2-75).

### *Fishing Tournaments*

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### *Statewide*

About one in six respondents (14.0%) reported that competitive fishing tournaments interfered with their fishing or other water recreation in the past 12 months (Table 2-90). Respondents who reported conflicts with tournaments were asked to report how the event interfered. Over three-fourths of those who reported tournament conflicts indicated that they found (a) increased congestion at access areas (80.3%), (b) increased congestion at fishing areas (79.0%), and (c) increased boat traffic (83.7%) (Table 2-91). Slightly less than half of respondents who had conflict with tournaments reported: (a) increased litter and pollution (46.4%), (b) rude behavior from tournament anglers (47.6%), (c) fish being harder to catch after the tournament (42.9%), and (d) concern that exotic plants and animals like Eurasian Water milfoil were being transported by tournament anglers (42.8%) (Table 2-91).

Respondents were also asked to indicate how the Minnesota Department of Natural Resources should manage competitive fishing tournaments. Respondents were asked to rate management alternatives using the scale 1 (strongly disagree) to 5 (strongly agree). Most respondents were noncommittal about limiting (a) the number of fishing tournaments ( $\bar{x} = 3.0$ ) (Table 2-92), (b) the number of anglers in each tournament ( $\bar{x} = 3.1$ ) (Table 2-93), or (c) the number of days in each tournament ( $\bar{x} = 3.2$ ) (Table 2-94). Respondents were more supportive of: (a) restricting off-site weigh-ins ( $\bar{x} = 3.9$ ) (Table 2-95), (b) only allowing catch-and-release tournaments ( $\bar{x} = 3.7$ ) (Table 2-96), or (c) only allowing catch, measure for length, and immediate release tournaments ( $\bar{x} = 3.5$ ) (Table 2-97). Age was positively correlated with all of the items addressing how the DNR might manage competitive fishing tournaments.

### *Regional*

There were significant differences between regions for the importance of 2 of the 6 listed items about managing fishing tournaments. Where there were differences, the metro respondents were more in agreement with the management strategy. Respondents from the metro region agreed more that “the Minnesota DNR should only allow catch-and-release tournaments” ( $\chi^2=28.716$ ,  $p\leq 0.05$ , Cramer’s  $V=0.063$ ;  $F=2.428$ ,  $p\leq 0.05$ ,  $\eta=0.073$ ) (Table 2-96). Metro respondents also agreed more that “the Minnesota DNR should only allow catch, measure for length, and immediate release tournaments” ( $\chi^2=30.828$ ,  $p\leq 0.05$ , Cramer’s  $V=0.065$ ) (Table 2-97).

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**Table 2-1: Quality of Fishing at Minnesota Lakes and Streams Regularly Fished.**

Regions	n	Greatly declined	Declined	About the same	Improved	Greatly improved	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,828	5.1%	37.1%	48.2%	9.4%	0.3%	2.63
Central region	376	5.1%	37.5%	48.4%	9.0%	0.0%	2.61
Metro region	349	4.9%	37.0%	48.4%	9.5%	0.3%	2.63
Northeast region	380	3.9%	37.1%	47.9%	9.7%	1.3%	2.67
Northwest region	355	7.9%	37.2%	44.2%	10.4%	0.3%	2.58
Southern region	365	4.4%	35.9%	50.1%	9.3%	0.3%	2.65
$\chi^2=17.545$ n.s., Cramer's V=0.049							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.843 n.s.,  $\eta=0.043$ . Mean is based on the scale: 1 = greatly declined, 2 = declined, 3 = same, 4 = improved, 5 = greatly improved.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-2: Quality of Size of Fish Caught at Minnesota Lakes and Streams Regularly Fished.**

Regions	n	Greatly declined	Declined	About the same	Improved	Greatly improved	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,826	4.9%	39.4%	34.3%	11.8%	0.6%	2.64
Central region	375	4.8%	41.1%	41.3%	12.0%	0.8%	2.63
Metro region	349	4.6%	41.8%	41.8%	11.2%	0.6%	2.61
Northeast region	380	3.9%	38.9%	44.7%	11.8%	0.5%	2.66
Northwest region	355	7.6%	35.5%	45.9%	10.7%	0.3%	2.61
Southern region	365	4.4%	32.6%	49.6%	13.2%	0.3%	2.72
$\chi^2= 17.949$ n.s., Cramer's V=0.050							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.395 n.s.,  $\eta=0.055$ . Mean is based on the scale: 1 = greatly declined, 2 = declined, 3 = same, 4 = improved, 5 = greatly improved.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-3: Quality of the Environment at Minnesota Lakes and Streams Regularly Fished.**

Regions	n	Greatly declined	Declined	About the same	Improved	Greatly improved	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,825	5.1%	32.2%	48.9%	13.2%	0.6%	2.72
Central region	374	6.1%	34.8%	46.0%	12.8%	0.3%	2.66
Metro region	350	4.3%	32.6%	48.3%	13.7%	1.1%	2.75
Northeast region	380	4.2%	29.5%	53.4%	12.1%	0.8%	2.76
Northwest region	354	5.4%	25.4%	52.5%	16.7%	0.0%	2.81
Southern region	365	3.8%	30.7%	53.4%	11.2%	0.8%	2.75
$\chi^2= 21.766$ n.s., Cramer's V=0.055							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.638 n.s.,  $\eta=0.060$ . Mean is based on the scale: 1 = greatly declined, 2 = declined, 3 = same, 4 = improved, 5 = greatly improved.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-4: Quality of Fishing at Minnesota Lakes and Streams as a Whole.**

Regions	n	Greatly declined	Declined	About the same	Improved	Greatly improved	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,828	3.8%	39.3%	46.3%	10.5%	0.2%	2.64
Central region	379	4.2%	40.1%	44.9%	10.8%	0.0%	2.62
Metro region	349	3.2%	39.8%	47.6%	9.2%	0.3%	2.64
Northeast region	373	4.8%	38.6%	44.5%	11.0%	1.1%	2.65
Northwest region	353	5.1%	41.1%	41.1%	12.7%	0.0%	2.61
Southern region	362	2.5%	34.5%	52.8%	10.2%	0.0%	2.71
$\chi^2= 26.674^*$ , Cramer's V=0.061							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.898 n.s.,  $\eta=0.044$ . Mean is based on the scale: 1 = greatly declined, 2 = declined, 3 = same, 4 = improved, 5 = greatly improved.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001



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**Table 2-5: Quality of Size of Fish Caught at Minnesota Lakes and Streams as a Whole.**

Regions	n	Greatly declined	Declined	About the same	Improved	Greatly improved	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,831	4.2%	43.6%	41.9%	10.2%	0.1%	2.59
Central region	380	5.3%	45.5%	40.0%	9.2%	0.0%	2.53
Metro region	350	2.9%	46.0%	40.3%	10.6%	0.3%	2.59
Northeast region	372	4.3%	43.3%	40.9%	10.8%	0.8%	2.60
Northwest region	354	5.1%	39.5%	45.2%	10.2%	0.0%	2.60
Southern region	361	3.0%	35.5%	49.6%	11.9%	0.0%	2.70
$\chi^2= 26.614^*$ , Cramer's V=0.061							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.574\*,  $\eta=0.075$ . Mean is based on the scale: 1 = greatly declined, 2 = declined, 3 = same, 4 = improved, 5 = greatly improved.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-6: Quality of the Environment at Minnesota Lakes and Streams as a Whole.**

Regions	n	Greatly declined	Declined	About the same	Improved	Greatly improved	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,829	4.4%	35.5%	45.5%	14.1%	0.5%	2.71
Central region	378	4.8%	37.8%	43.7%	13.5%	0.3%	2.67
Metro region	352	4.5%	36.4%	43.5%	14.8%	0.9%	2.71
Northeast region	372	4.8%	33.6%	47.8%	13.2%	0.5%	2.71
Northwest region	352	3.7%	30.4%	51.4%	14.5%	0.0%	2.77
Southern region	361	3.0%	31.9%	49.3%	15.0%	0.8%	2.79
$\chi^2= 14.459$ n.s., Cramer's V=0.045							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.445 n.s.,  $\eta=0.056$ . Mean is based on the scale: 1 = greatly declined, 2 = declined, 3 = same, 4 = improved, 5 = greatly improved.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-7: In the Next 10 Years, Quality of Fishing at Minnesota Lakes and Streams Regularly Fished will...**

Regions	n	Greatly decline	Decline	Stay about the same	Improve	Greatly improve	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,808	3.3%	35.4%	42.5%	18.2%	0.7%	2.78
Central region	369	3.3%	34.1%	43.6%	18.4%	0.5%	2.79
Metro region	350	3.1%	37.1%	42.3%	16.6%	0.9%	2.75
Northeast region	368	3.3%	34.2%	42.7%	19.3%	0.5%	2.80
Northwest region	351	4.3%	38.5%	38.5%	18.2%	0.6%	2.72
Southern region	363	2.8%	33.3%	42.4%	20.7%	0.8%	2.83
$\chi^2= 6.928$ n.s., Cramer's V=0.031							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.023 n.s.,  $\eta=0.048$ . Mean is based on the scale: 1 = greatly declined, 2 = declined, 3 = same, 4 = improved, 5 = greatly improved.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-8: In the Next 10 Years, Quality of Fishing in Minnesota as a Whole will...**

Regions	n	Greatly decline	Decline	Stay about the same	Improve	Greatly improve	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,808	3.3%	36.6%	38.7%	20.7%	0.7%	2.79
Central region	370	3.8%	36.5%	38.4%	20.8%	0.5%	2.78
Metro region	350	2.9%	38.0%	38.9%	19.4%	0.9%	2.77
Northeast region	366	3.0%	38.5%	36.6%	21.3%	0.5%	2.78
Northwest region	349	4.3%	38.7%	35.2%	21.2%	0.6%	2.75
Southern region	363	2.5%	30.9%	43.0%	22.3%	1.4%	2.89
$\chi^2= 12.981$ n.s., Cramer's V=0.042							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.615 n.s.,  $\eta=0.060$ . Mean is based on the scale: 1 = greatly declined, 2 = declined, 3 = same, 4 = improved, 5 = greatly improved.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-9: In the Next 10 Years, the Quality of the Environment will...**

Regions	n	Greatly decline	Decline	Stay about the same	Improve	Greatly improve	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,806	5.1%	36.7%	35.5%	21.3%	1.4%	2.77
Central region	370	6.5%	36.5%	34.6%	20.3%	2.2%	2.75
Metro region	348	4.9%	39.7%	33.9%	21.0%	0.6%	2.73
Northeast region	368	4.6%	37.8%	36.7%	20.7%	0.3%	2.74
Northwest region	349	4.0%	33.5%	39.0%	22.9%	0.6%	2.83
Southern region	363	2.5%	32.8%	38.3%	24.5%	1.9%	2.91
$\chi^2= 24.172$ n.s., Cramer's V=0.058							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.685\*,  $\eta=0.077$ . Mean is based on the scale: 1 = greatly declined, 2 = declined, 3 = same, 4 = improved, 5 = greatly improved.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-10: Too many fish are being kept which is making fish smaller.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,821	5.5%	19.6%	37.4%	27.6%	9.9%	3.17
Central region	371	5.9%	21.0%	37.7%	25.9%	9.4%	3.12
Metro region	354	4.5%	17.2%	39.8%	26.8%	11.6%	3.24
Northeast region	371	7.3%	19.9%	32.6%	31.0%	9.2%	3.15
Northwest region	354	6.2%	20.1%	32.5%	28.8%	12.4%	3.21
Southern region	363	4.7%	20.4%	37.7%	31.1%	6.1%	3.13
$\chi^2= 21.283$ n.s., Cramer's V=0.054							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.889 n.s.,  $\eta=0.044$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-11: Heavy fishing pressure is reducing the numbers of fish in lakes and streams.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,816	1.7%	10.8%	27.8%	46.3%	13.4%	3.59
Central region	371	1.3%	12.4%	28.8%	44.5%	12.9%	3.55
Metro region	351	1.1%	8.5%	26.5%	47.9%	16.0%	3.69
Northeast region	371	2.7%	11.6%	26.1%	46.6%	12.9%	3.56
Northwest region	354	3.7%	8.8%	22.6%	49.2%	15.8%	3.65
Southern region	363	1.9%	12.4%	32.5%	45.5%	7.7%	3.45
$\chi^2 = 32.556^{**}$ , Cramer's V=0.067							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=3.778\*\*,  $\eta=0.091$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-12: Lakeshore owners should have the right to alter the shoreline any way they want.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,824	38.8%	31.1%	17.8%	7.8%	4.5%	2.08
Central region	374	37.2%	29.7%	19.0%	8.8%	5.3%	2.16
Metro region	352	39.2%	32.1%	17.9%	7.4%	3.4%	2.04
Northeast region	370	38.1%	35.1%	15.9%	5.7%	5.1%	2.05
Northwest region	355	41.1%	32.7%	16.1%	7.0%	3.1%	1.98
Southern region	363	41.0%	29.8%	16.5%	7.7%	5.0%	2.06
$\chi^2 = 11.285$ n.s., Cramer's V=0.039							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.144 n.s.,  $\eta=0.050$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-13: The Minnesota DNR should use a management practice beneficial to fish, even if the public does not believe it would be beneficial.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,821	5.3%	12.8%	34.7%	34.2%	13.0%	3.37
Central region	372	7.0%	14.0%	36.8%	30.1%	12.1%	3.26
Metro region	354	3.1%	12.4%	31.6%	37.9%	15.0%	3.49
Northeast region	371	6.7%	12.9%	33.4%	34.2%	12.7%	3.33
Northwest region	354	5.4%	13.0%	34.7%	34.5%	12.4%	3.36
Southern region	361	4.2%	10.0%	35.7%	38.2%	11.9%	3.44
$\chi^2= 18.157$ n.s., Cramer's V=0.050							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.771\*,  $\eta=0.078$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-14: Only exotic plant species, such as Eurasian Water Milfoil, should be removed from lakes.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,824	6.5%	21.8%	29.5%	30.0%	12.2%	3.20
Central region	372	5.6%	22.3%	30.1%	29.3%	12.6%	3.21
Metro region	355	7.3%	23.1%	26.8%	31.5%	11.3%	3.16
Northeast region	371	7.8%	22.6%	29.6%	27.0%	12.9%	3.15
Northwest region	355	5.4%	17.2%	33.2%	32.1%	12.1%	3.28
Southern region	362	7.2%	20.2%	31.2%	28.7%	12.7%	3.20
$\chi^2= 12.031$ n.s., Cramer's V=0.041							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.844 n.s.,  $\eta=0.043$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-15: Aquatic plants are so important to lakes that they should be completely left alone.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,827	7.3%	28.8%	39.1%	19.2%	5.4%	2.87
Central region	374	8.0%	29.1%	38.8%	18.7%	5.3%	2.84
Metro region	355	7.9%	28.2%	38.3%	20.3%	5.4%	2.87
Northeast region	371	8.9%	29.9%	39.6%	15.4%	6.2%	2.80
Northwest region	355	4.8%	25.4%	42.8%	20.3%	6.8%	2.99
Southern region	360	5.0%	31.7%	38.9%	20.0%	4.4%	2.87
$\chi^2= 16.774$ n.s., Cramer's V=0.048							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.832 n.s.,  $\eta=0.064$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-16: Aquatic plants are weeds and have no value to the lake.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,810	35.6%	38.9%	21.4%	2.1%	2.0%	1.96
Central region	369	32.8%	37.7%	23.6%	2.7%	3.3%	2.06
Metro region	350	40.6%	38.3%	18.6%	1.4%	1.1%	1.84
Northeast region	371	35.0%	41.2%	20.8%	1.3%	1.6%	1.93
Northwest region	354	33.3%	41.2%	23.4%	1.1%	0.8%	1.95
Southern region	361	34.6%	40.7%	20.2%	2.8%	1.7%	1.96
$\chi^2= 20.249$ n.s., Cramer's V=0.053							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.723\*,  $\eta=0.078$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-17: Aquatic plants are important to the lake, and should be managed like other natural resources.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,830	1.1%	2.8%	23.9%	54.4%	17.8%	3.85
Central region	375	2.1%	3.2%	28.5%	51.5%	14.7%	3.73
Metro region	355	0.3%	2.5%	18.3%	57.7%	21.1%	3.97
Northeast region	371	0.8%	2.7%	23.2%	53.6%	19.7%	3.89
Northwest region	356	0.6%	2.5%	25.3%	55.1%	16.6%	3.85
Southern region	362	0.3%	2.5%	21.8%	55.8%	19.6%	3.92
$\chi^2=27.255^*$ , Cramer's V=0.061							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=5.062\*\*\*,  $\eta=0.105$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-18: Underwater video cameras should not be allowed when fishing.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,818	14.8%	19.3%	33.7%	17.9%	14.4%	2.98
Central region	373	19.8%	16.9%	34.0%	14.5%	14.7%	2.87
Metro region	352	10.2%	20.5%	34.1%	20.7%	14.5%	3.09
Northeast region	371	13.7%	22.4%	32.3%	15.6%	15.9%	2.98
Northwest region	349	15.2%	19.2%	33.5%	17.8%	14.3%	2.97
Southern region	361	10.2%	22.2%	32.4%	23.0%	12.2%	3.05
$\chi^2=32.668^{**}$ , Cramer's V=0.067							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.622 n.s.,  $\eta=0.060$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-19: Underwater video cameras should only be allowed when there is no fishing equipment in the boat.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,822	18.3%	24.1%	33.1%	15.5%	8.9%	2.73
Central region	372	23.4%	20.4%	33.6%	13.4%	9.1%	2.65
Metro region	354	14.7%	26.6%	32.2%	18.1%	8.5%	2.79
Northeast region	372	17.7%	26.6%	31.2%	15.1%	9.4%	2.72
Northwest region	354	18.4%	22.6%	36.2%	13.0%	9.9%	2.73
Southern region	362	11.9%	29.3%	32.3%	18.2%	8.3%	2.82
$\chi^2=31.133^*$ , Cramer's V=0.066							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.194 n.s.,  $\eta=0.051$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-20: GPS Units (Global Positioning Systems) should not be allowed when fishing.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,829	31.6%	33.7%	23.2%	6.3%	5.1%	2.19
Central region	374	34.2%	31.0%	23.0%	5.6%	6.1%	2.18
Metro region	355	30.7%	38.3%	21.7%	6.5%	2.8%	2.12
Northeast region	372	33.9%	32.3%	22.6%	5.9%	5.4%	2.17
Northwest region	354	28.5%	34.2%	23.7%	6.8%	6.8%	2.29
Southern region	364	27.2%	31.9%	27.5%	8.0%	5.5%	2.33
$\chi^2=19.341$ n.s., Cramer's V=0.052							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.170 n.s.,  $\eta=0.069$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001



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**Table 2-21: Regulations on the alteration of lake bottoms and banks to protect shoreline habitat should be more restrictive.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,822	4.5%	14.1%	43.8%	27.5%	10.1%	3.25
Central region	371	6.2%	14.6%	43.7%	25.6%	10.0%	3.19
Metro region	354	2.3%	13.6%	43.8%	28.8%	11.6%	3.34
Northeast region	372	6.2%	16.1%	40.1%	28.0%	9.7%	3.19
Northwest region	355	4.2%	14.1%	44.8%	26.2%	10.7%	3.25
Southern region	363	3.9%	12.9%	45.5%	30.6%	7.2%	3.24
$\chi^2=18.020$ n.s., Cramer's V=0.050							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.491 n.s.,  $\eta=0.057$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-22: Chemical removal of the fish in a lake to replace them with other kinds of fish that people prefer to catch is acceptable to me as long as it's done so that people are safe.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,826	12.0%	18.9%	26.4%	32.7%	10.0%	3.10
Central region	373	12.3%	16.1%	29.2%	33.2%	9.1%	3.11
Metro region	355	11.0%	21.4%	24.8%	30.7%	12.1%	3.12
Northeast region	372	16.7%	21.5%	22.6%	29.3%	9.9%	2.94
Northwest region	353	12.5%	19.5%	27.5%	33.1%	7.4%	3.03
Southern region	363	10.5%	19.3%	23.1%	36.9%	10.2%	3.17
$\chi^2= 23.400$ n.s., Cramer's V=0.057							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.009 n.s.,  $\eta=0.066$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-23: Permanent concrete or steel structures (such as fish traps and fish ladders built in streams to make fishing better) should be used even if they don't look natural.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,826	6.6%	17.1%	37.9%	31.8%	6.6%	3.15
Central region	373	6.7%	16.4%	40.8%	30.6%	5.6%	3.12
Metro region	355	6.8%	17.7%	37.7%	31.0%	6.8%	3.13
Northeast region	370	7.8%	17.8%	30.3%	34.3%	9.7%	3.20
Northwest region	355	5.1%	16.1%	37.5%	33.8%	7.6%	3.23
Southern region	363	6.3%	18.5%	34.4%	34.2%	6.6%	3.16
$\chi^2=15.882$ n.s., Cramer's V=0.047							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.737 n.s.,  $\eta^2=0.040$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-24: Comparison of fisheries management issues.**

	Statewide mean <sup>1</sup>
Too many fish are being kept which is making fish smaller.	3.17
Heavy fishing pressure is reducing the numbers of fish in lakes and streams.	3.59
Lakeshore owners should have the right to alter the shoreline any way they want.	2.07
The Minnesota DNR should use a management practice beneficial to fish, even if the public does not believe it would be beneficial.	3.40
Only exotic plant species, such as Eurasian Water Milfoil, should be removed from lakes.	3.20
Aquatic plants are so important to lakes that they should be completely left alone.	2.87
Aquatic plants are weeds and have no value to the lake.	1.96
Underwater video cameras should not be allowed when fishing.	3.00
Underwater video cameras should only be allowed when there is no fishing equipment in the boat.	2.75
GPS Units (Global Positioning Systems) should not be allowed when fishing.	2.21
Regulations on the alteration of lake bottoms and banks to protect shoreline habitat should be more restrictive.	3.26
Chemical removal of the fish in a lake to replace them with other kinds of fish that people prefer to catch is acceptable to me as long as it's done so that people are safe.	3.10
Permanent concrete or steel structures (such as fish traps and fish ladders built in streams to make fishing better) should be used even if they don't look natural.	3.15
Aquatic plants are important to the lake, and should be managed like other natural resources.	3.85

**Notes:**

<sup>1</sup> Grand mean=2.970. F=638.983\*\*\*,  $\eta^2=0.236$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-25: Effectiveness of fishing management techniques: Stocking walleye in a lake to increase walleye populations is...**

Regions	n	Very ineffective	Ineffective	Neutral	Effective	Very effective	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,831	1.1%	2.9%	12.7%	69.4%	13.9%	3.92
Central region	373	0.8%	1.9%	13.9%	68.4%	15.0%	3.95
Metro region	356	0.8%	4.5%	11.0%	72.5%	11.2%	3.89
Northeast region	377	0.5%	4.0%	13.3%	67.9%	14.3%	3.92
Northwest region	356	2.0%	3.1%	8.4%	70.2%	16.3%	3.96
Southern region	363	1.9%	1.7%	16.3%	65.8%	14.6%	3.89
$\chi^2=28.265^*$ , Cramer's V=0.062							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.752 n.s.,  $\eta=0.041$ . Mean is based on the scale: 1 = very ineffective, 2 = ineffective, 3 = neutral, 4 = effective, 5 = very effective.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-26: Effectiveness of fishing management techniques: Using size limits to protect fish populations is...**

Regions	n	Very ineffective	Ineffective	Neutral	Effective	Very effective	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,835	2.6%	4.8%	13.1%	64.0%	15.5%	3.85
Central region	374	3.5%	5.3%	16.0%	59.4%	15.8%	3.79
Metro region	357	2.0%	4.2%	9.5%	70.0%	14.3%	3.90
Northeast region	376	1.3%	5.6%	13.0%	60.6%	19.4%	3.91
Northwest region	356	2.2%	4.5%	14.0%	62.1%	17.1%	3.87
Southern region	365	2.7%	4.1%	11.8%	67.9%	13.4%	3.85
$\chi^2=22.558$ n.s., Cramer's V=0.056							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.418 n.s.,  $\eta=0.056$ . Mean is based on the scale: 1 = very ineffective, 2 = ineffective, 3 = neutral, 4 = effective, 5 = very effective.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-27: Effectiveness of fishing management techniques: Using conservation programs to reduce soil erosion to improve fishing is...**

Regions	n	Very ineffective	Ineffective	Neutral	Effective	Very effective	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,838	1.1%	2.0%	17.4%	58.7%	20.8%	3.96
Central region	376	1.6%	1.9%	18.9%	56.6%	21.0%	3.94
Metro region	357	0.8%	1.7%	16.5%	60.8%	20.2%	3.98
Northeast region	375	0.8%	2.4%	18.9%	60.8%	17.1%	3.91
Northwest region	356	0.6%	2.2%	16.3%	61.0%	19.9%	3.97
Southern region	363	1.1%	2.5%	14.6%	57.3%	24.5%	4.02
$\chi^2=12.379$ n.s., Cramer's V=0.041							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.146 n.s.,  $\eta=0.050$ . Mean is based on the scale: 1 = very ineffective, 2 = ineffective, 3 = neutral, 4 = effective, 5 = very effective.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-28: Effectiveness of fishing management techniques: Managing shoreline to protect fish spawning sites is...**

Regions	n	Very ineffective	Ineffective	Neutral	Effective	Very effective	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,831	1.0%	1.9%	14.8%	59.0%	23.2%	4.01
Central region	373	1.1%	1.3%	16.6%	55.8%	25.2%	4.03
Metro region	356	0.8%	2.2%	14.9%	60.4%	21.6%	4.00
Northeast region	376	0.5%	2.1%	16.0%	57.7%	23.7%	4.02
Northwest region	357	0.6%	2.0%	13.4%	60.8%	23.2%	4.04
Southern region	363	1.9%	2.8%	9.9%	65.0%	20.4%	3.99
$\chi^2=19.223$ n.s., Cramer's V=0.051							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.288 n.s.,  $\eta=0.025$ . Mean is based on the scale: 1 = very ineffective, 2 = ineffective, 3 = neutral, 4 = effective, 5 = very effective.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-29: Effectiveness of fishing management techniques: Controlling wetland drainage to improve fishing is...**

Regions	n	Very ineffective	Ineffective	Neutral	Effective	Very effective	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,830	1.4%	3.0%	23.2%	52.6%	19.9%	3.87
Central region	373	1.3%	2.9%	24.9%	49.1%	21.7%	3.87
Metro region	357	0.8%	1.7%	19.3%	59.1%	19.0%	3.94
Northeast region	375	1.1%	4.0%	32.8%	47.5%	14.7%	3.71
Northwest region	354	2.5%	5.1%	24.6%	50.3%	17.5%	3.75
Southern region	362	1.9%	3.6%	19.9%	53.3%	21.3%	3.88
$\chi^2= 41.203^{***}$ , Cramer's V=0.075							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=5.078\*\*\*,  $\eta=0.105$ . Mean is based on the scale: 1 = very ineffective, 2 = ineffective, 3 = neutral, 4 = effective, 5 = very effective.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-30: Comparison of effectiveness of fishing management techniques.**

	Statewide mean <sup>1</sup>
Stocking walleye in a lake to increase walleye populations is...	3.92
Using size limits to protect fish populations is...	3.85
Managing shoreline to protect fish spawning sites is...	4.02
Using conservation programs to reduce soil erosion to improve fishing is...	3.97
Controlling wetland drainage to improve fishing is...	3.88

**Notes:**

<sup>1</sup> Grand mean=3.927. F=27.719\*\*\*,  $\eta^2=0.013$ . Mean is based on the scale: 1 = very ineffective, 2 = ineffective, 3 = neutral, 4 = effective, 5 = very effective.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-31: Value and management of fish resources. Humans were meant to rule over the rest of nature.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,826	17.0%	25.8%	28.1%	20.7%	8.3%	2.78
Central region	373	18.0%	23.6%	29.0%	21.4%	8.0%	2.78
Metro region	355	18.3%	27.0%	26.2%	19.4%	9.0%	2.74
Northeast region	372	15.9%	31.7%	27.2%	17.7%	7.5%	2.69
Northwest region	354	13.0%	24.9%	29.1%	23.4%	9.6%	2.92
Southern region	362	14.9%	27.1%	29.6%	21.3%	7.2%	2.79
$\chi^2=15.788$ n.s., Cramer's V=0.047							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.818 n.s.,  $\eta=0.063$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-32: Value and management of fish resources. Humans have a right to change the natural world to suit their needs.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,832	23.3%	40.0%	24.2%	10.2%	2.4%	2.28
Central region	374	24.9%	41.7%	21.9%	8.6%	2.9%	2.23
Metro region	356	21.3%	37.9%	26.1%	12.4%	2.2%	2.36
Northeast region	375	25.1%	40.5%	22.4%	10.7%	1.3%	2.23
Northwest region	355	20.8%	40.8%	25.1%	10.4%	2.8%	2.34
Southern region	364	23.6%	38.7%	26.9%	9.6%	1.1%	2.26
$\chi^2=14.080$ n.s., Cramer's V=0.044							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.422 n.s.,  $\eta=0.056$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-33: Value and management of fish resources. Fish should primarily be managed for human benefit.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,832	11.2%	36.7%	29.2%	19.9%	2.9%	2.67
Central region	372	10.8%	35.5%	29.8%	20.7%	3.2%	2.70
Metro region	358	12.3%	37.7%	28.2%	19.3%	2.5%	2.62
Northeast region	375	13.3%	38.9%	23.7%	21.1%	2.9%	2.61
Northwest region	355	9.6%	34.6%	30.4%	20.6%	4.8%	2.76
Southern region	364	10.2%	38.5%	31.9%	17.9%	1.6%	2.62
$\chi^2=17.185$ n.s., Cramer's V=0.049							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.529 n.s.,  $\eta=0.058$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-34: Value and management of fish resources. Fisheries are valuable only if they produce jobs and income for people.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,836	16.5%	54.2%	23.7%	4.8%	0.8%	2.19
Central region	375	17.3%	50.9%	24.8%	6.4%	0.5%	2.22
Metro region	358	17.9%	55.3%	22.6%	3.4%	0.8%	2.14
Northeast region	376	16.8%	57.2%	20.7%	4.3%	1.1%	2.16
Northwest region	351	14.0%	59.3%	20.8%	4.6%	1.4%	2.20
Southern region	365	12.9%	55.9%	27.1%	3.6%	0.5%	2.23
$\chi^2=18.889$ n.s., Cramer's V=0.051							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.928 n.s.,  $\eta=0.045$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-35: Value and management of fish resources. Nature's primary value is to provide things that are useful to people.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,832	13.4%	37.9%	25.8%	20.0%	2.9%	2.61
Central region	375	14.4%	33.1%	27.5%	22.1%	2.9%	2.66
Metro region	356	14.0%	44.9%	23.0%	16.3%	1.7%	2.47
Northeast region	374	12.3%	40.1%	24.3%	19.3%	4.0%	2.63
Northwest region	352	9.9%	37.8%	27.0%	21.6%	3.7%	2.71
Southern region	364	12.4%	35.2%	26.9%	21.2%	4.4%	2.70
$\chi^2=22.789$ n.s., Cramer's V=0.056							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=3.262\*,  $\eta=0.084$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-36: Value and management of fish resources. Fish are valuable only if people get to use them in some way.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,832	17.0%	48.4%	19.4%	13.3%	1.9%	2.35
Central region	374	17.1%	46.0%	18.4%	16.3%	2.1%	2.40
Metro region	357	19.0%	50.4%	20.7%	8.7%	1.1%	2.22
Northeast region	375	16.0%	54.9%	14.4%	12.0%	2.7%	2.30
Northwest region	353	13.0%	48.7%	21.2%	14.4%	2.5%	2.45
Southern region	363	16.0%	46.6%	20.9%	14.9%	1.7%	2.40
$\chi^2=27.225^*$ , Cramer's V=0.061							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=3.104\*,  $\eta=0.082$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001



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**Table 2-37: Value and management of fish resources. Fish are primarily valuable as food for people.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,836	6.1%	31.0%	27.7%	30.0%	5.2%	2.97
Central region	375	7.5%	26.4%	25.1%	34.7%	6.4%	3.06
Metro region	357	5.9%	37.0%	31.1%	23.0%	3.1%	2.80
Northeast region	375	5.1%	33.6%	28.5%	37.7%	5.1%	2.94
Northwest region	354	4.8%	25.7%	28.5%	34.7%	6.2%	3.12
Southern region	365	4.1%	34.0%	26.8%	29.3%	5.8%	2.99
$\chi^2=35.533^{**}$ , Cramer's V=0.070							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=5.053\*\*\*,  $\eta=0.105$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-38: Value and management of fish resources. The primary value of fisheries is to provide recreation for people.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,834	2.6%	24.1%	27.8%	40.3%	5.2%	3.21
Central region	376	3.5%	23.9%	29.8%	39.4%	3.5%	3.15
Metro region	356	1.4%	22.5%	27.0%	43.3%	5.9%	3.30
Northeast region	375	4.0%	29.1%	25.1%	34.7%	7.2%	3.12
Northwest region	350	3.7%	23.4%	24.6%	42.6%	5.7%	3.23
Southern region	364	1.4%	26.1%	27.7%	37.9%	6.9%	3.23
$\chi^2=25.280$ n.s., Cramer's V=0.059							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.895 n.s.,  $\eta=0.064$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-39: Value and management of fish resources. Fish have as much right to exist as people.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,817	10.9%	15.5%	29.2%	31.7%	12.7%	3.20
Central region	371	11.1%	14.6%	30.7%	30.7%	12.9%	3.20
Metro region	353	12.2%	17.0%	26.6%	29.7%	14.4%	3.17
Northeast region	373	9.7%	17.7%	28.2%	33.8%	10.7%	3.18
Northwest region	354	11.3%	16.4%	27.7%	34.7%	9.9%	3.16
Southern region	358	8.1%	12.6%	32.4%	35.5%	11.5%	3.30
$\chi^2=17.006$ n.s., Cramer's V=0.048							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.819 n.s.,  $\eta=0.043$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-40: Value and management of fish resources. Fish are valuable in their own right regardless of people.**

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,829	3.7%	8.0%	27.3%	48.6%	12.4%	3.58
Central region	373	4.0%	9.9%	27.6%	46.9%	11.5%	3.52
Metro region	355	3.9%	7.0%	25.1%	49.0%	14.9%	3.64
Northeast region	376	3.2%	7.2%	26.6%	51.6%	11.4%	3.61
Northwest region	355	4.5%	6.5%	31.3%	47.6%	10.1%	3.52
Southern region	364	2.2%	6.0%	28.6%	51.6%	11.5%	3.64
$\chi^2=15.945$ n.s., Cramer's V=0.047							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.598 n.s.,  $\eta=0.059$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-41: Value and management of fish resources. Humans are no more important than other parts of nature.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,832	17.5%	28.8%	23.1%	20.7%	9.9%	2.77
Central region	374	17.1%	30.5%	24.3%	18.2%	9.9%	2.73
Metro region	358	21.5%	27.7%	18.2%	20.9%	11.7%	2.74
Northeast region	375	14.7%	32.0%	21.1%	25.3%	6.9%	2.78
Northwest region	352	17.3%	25.9%	26.4%	22.2%	8.2%	2.78
Southern region	361	11.4%	26.6%	29.6%	23.5%	8.9%	2.92
$\chi^2=38.128^{***}$ , Cramer's V=0.072							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.412 n.s.,  $\eta=0.056$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-42: Value and management of fish resources. Humans have a duty to protect fish and other parts of nature.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,839	0.8%	1.2%	8.3%	48.6%	41.2%	4.28
Central region	376	0.8%	1.9%	8.5%	49.2%	39.6%	4.25
Metro region	358	0.3%	0.8%	7.8%	44.7%	46.4%	4.36
Northeast region	375	2.1%	0.3%	7.2%	50.1%	40.3%	4.26
Northwest region	355	0.8%	0.3%	9.3%	52.4%	37.2%	4.25
Southern region	364	0.8%	1.1%	8.5%	51.6%	37.9%	4.25
$\chi^2=22.980$ n.s., Cramer's V=0.056							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.613 n.s.,  $\eta=0.059$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-43: Comparison of values related to fish resources.**

	Statewide mean <sup>1</sup>
The primary value of fisheries is to provide recreation for people.	3.21
Fisheries are valuable only if they produce jobs and income for people.	2.19
Nature's primary value is to provide things that are useful to people.	2.61
Fish are valuable only if people get to use them in some way.	2.35
Fish have as much right to exist as people.	3.20
Fish are primarily valuable as food for people.	2.97
Fish are valuable in their own right regardless of people.	3.58
Humans are no more important than other parts of nature.	2.77
Humans were meant to rule over the rest of nature.	2.78
Humans have a right to change the natural world to suit their needs.	2.28
Fish should primarily be managed for human benefit.	2.67
Humans have a duty to protect fish and other parts of nature.	4.28

**Notes:**

<sup>1</sup> Grand mean=2.913.  $F=772.528^{***}$ ,  $\eta=0.268$ . Mean is based on the scale: 1 = 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \* $P \leq 0.05$ , \*\* $P \leq 0.01$ , \*\*\* $P \leq 0.001$

**Table 2-44: The Minnesota Department of Natural Resources: ...should manage lakes to have many fish though the average size would be smaller.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,833	3.6%	42.0%	37.8%	15.9%	0.8%	2.68
Central region	376	4.5%	44.1%	36.4%	14.1%	0.8%	2.62
Metro region	356	2.5%	39.3%	39.9%	17.7%	0.6%	2.74
Northeast region	374	5.1%	40.4%	36.6%	16.6%	1.3%	2.69
Northwest region	353	2.3%	41.6%	38.2%	16.7%	1.1%	2.73
Southern region	361	3.3%	42.7%	37.4%	16.1%	0.6%	2.68
$\chi^2 = 11.819$ n.s., Cramer's $V=0.040$							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup>  $F=1.208$  n.s.,  $\eta=0.052$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \* $P \leq 0.05$ , \*\* $P \leq 0.01$ , \*\*\* $P \leq 0.001$

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**Table 2-45: The Minnesota Department of Natural Resources: ...should manage lakes to have big fish, though the number of fish harvested would be less.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,832	2.1%	32.6%	41.3%	22.2%	1.7%	2.89
Central region	375	1.9%	30.7%	40.5%	25.1%	1.9%	2.94
Metro region	357	2.2%	33.3%	42.0%	20.4%	2.0%	2.87
Northeast region	374	2.7%	38.2%	38.0%	19.3%	1.9%	2.79
Northwest region	352	2.3%	33.5%	44.3%	18.2%	1.7%	2.84
Southern region	361	2.2%	32.4%	41.8%	22.7%	0.8%	2.88
$\chi^2=13.178$ n.s., Cramer's V=0.043							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.666 n.s.,  $\eta=0.060$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-46: The Minnesota Department of Natural Resources: ...should manage your favorite lake to have big fish, though the number of fish harvested would be less.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,828	2.9%	35.0%	39.6%	20.2%	2.3%	2.84
Central region	374	3.2%	32.4%	39.6%	22.7%	2.1%	2.88
Metro region	356	2.2%	35.7%	39.0%	19.9%	3.1%	2.86
Northeast region	373	3.8%	42.9%	34.9%	16.1%	2.4%	2.71
Northwest region	352	3.7%	34.7%	41.8%	18.2%	1.7%	2.80
Southern region	361	2.2%	37.1%	42.1%	17.5%	1.1%	2.78
$\chi^2=21.174$ n.s., Cramer's V=0.054							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.523\*,  $\eta=0.074$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-47: The Minnesota Department of Natural Resources: ...should manage lakes individually, though the regulations may become more complicated.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,826	3.7%	19.7%	29.7%	40.4%	6.5%	3.26
Central region	374	4.0%	21.4%	31.6%	36.9%	6.1%	3.20
Metro region	354	2.8%	18.4%	28.0%	41.8%	9.0%	3.36
Northeast region	372	5.4%	18.8%	26.3%	43.0%	6.5%	3.26
Northwest region	354	4.5%	18.9%	31.1%	42.4%	3.1%	3.21
Southern region	362	3.3%	19.1%	28.7%	44.8%	4.1%	3.27
$\chi^2=23.101$ n.s., Cramer's V=0.056							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.602 n.s.,  $\eta=0.059$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-48: The Minnesota Department of Natural Resources: ...should continue stocking walleyes in lakes even where stocking has not increased walleye numbers.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,829	4.3%	30.2%	34.9%	27.9%	2.7%	2.95
Central region	374	3.5%	31.8%	36.1%	26.2%	2.4%	2.92
Metro region	356	5.3%	29.8%	34.0%	28.4%	2.5%	2.93
Northeast region	373	5.6%	28.2%	34.3%	27.3%	4.6%	2.97
Northwest region	354	3.4%	27.1%	35.0%	31.6%	2.8%	3.03
Southern region	361	4.2%	29.6%	33.5%	29.6%	3.0%	2.98
$\chi^2= 11.477$ n.s., Cramer's V=0.040							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.816 n.s.,  $\eta=0.042$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-49: The Minnesota Department of Natural Resources: ...should allow greater angler participation in making fish management decisions.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,827	1.8%	7.4%	31.8%	48.4%	10.6%	3.59
Central region	374	1.3%	5.9%	29.7%	52.1%	11.0%	3.66
Metro region	356	2.5%	8.1%	34.8%	44.9%	9.6%	3.51
Northeast region	374	1.9%	10.7%	24.3%	50.0%	13.1%	3.62
Northwest region	353	1.7%	8.2%	32.9%	45.9%	11.3%	3.57
Southern region	358	1.7%	7.8%	34.6%	46.4%	9.5%	3.54
$\chi^2=21.854$ n.s., Cramer's V=0.055							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.712 n.s.,  $\eta=0.061$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-50: The Minnesota Department of Natural Resources: ...answers questions honestly.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,791	0.9%	2.8%	23.7%	43.9%	28.7%	3.97
Central region	366	0.8%	2.2%	24.0%	43.4%	29.5%	3.99
Metro region	349	0.6%	3.4%	27.5%	39.8%	28.7%	3.93
Northeast region	368	1.4%	3.0%	18.8%	45.7%	31.3%	4.02
Northwest region	344	1.7%	3.2%	19.2%	49.7%	26.2%	3.95
Southern region	354	0.6%	3.1%	20.9%	48.9%	26.8%	3.98
$\chi^2=20.809$ n.s., Cramer's V=0.054							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.686 n.s.,  $\eta=0.039$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-51: The Minnesota Department of Natural Resources: ...has staff that are well trained to do their jobs.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,823	0.4%	2.4%	25.0%	50.9%	21.3%	3.90
Central region	372	0.0%	3.2%	21.8%	51.3%	23.7%	3.95
Metro region	355	0.3%	1.7%	30.1%	48.5%	19.4%	3.85
Northeast region	373	1.6%	2.7%	21.7%	53.1%	20.9%	3.89
Northwest region	353	0.8%	2.8%	22.7%	55.2%	18.4%	3.88
Southern region	361	1.1%	1.1%	26.6%	50.4%	20.8%	3.89
$\chi^2=25.374$ n.s., Cramer's V=0.059							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.896 n.s.,  $\eta=0.044$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-52: The Minnesota Department of Natural Resources: ...listens to anglers' concerns.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,821	1.2%	6.5%	26.3%	46.9%	19.1%	3.76
Central region	372	1.1%	7.3%	23.1%	48.4%	20.2%	3.79
Metro region	353	0.8%	5.7%	31.4%	43.9%	18.1%	3.73
Northeast region	374	1.6%	5.1%	23.8%	50.3%	19.3%	3.80
Northwest region	353	2.3%	7.9%	23.2%	48.7%	17.8%	3.72
Southern region	362	1.4%	5.5%	27.9%	46.1%	19.1%	3.76
$\chi^2= 16.479$ n.s., Cramer's V=0.048							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.676 n.s.,  $\eta=0.039$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001



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**Table 2-53: The Minnesota Department of Natural Resources: ...responds to anglers' concerns.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,822	1.1%	7.6%	33.5%	40.6%	17.3%	3.65
Central region	374	0.8%	8.0%	32.1%	39.6%	19.5%	3.69
Metro region	352	0.9%	6.8%	36.4%	40.9%	15.1%	3.62
Northeast region	371	1.9%	7.3%	31.3%	42.0%	17.5%	3.66
Northwest region	353	2.3%	8.5%	30.3%	43.6%	15.3%	3.61
Southern region	361	0.8%	7.5%	34.9%	39.6%	17.2%	3.65
$\chi^2=12.773$ n.s., Cramer's V=0.042							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.424 n.s.,  $\eta=0.031$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-54: The Minnesota Department of Natural Resources: ...adequately manages Minnesota's fishing waters.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,815	1.3%	9.1%	33.6%	45.9%	10.2%	3.55
Central region	370	0.3%	9.5%	31.4%	45.4%	13.5%	3.62
Metro region	354	1.4%	10.5%	34.2%	46.3%	7.6%	3.48
Northeast region	372	3.2%	10.8%	32.8%	43.5%	9.7%	3.46
Northwest region	351	3.1%	6.6%	37.6%	43.9%	8.8%	3.49
Southern region	359	1.4%	5.6%	36.2%	49.6%	7.2%	3.56
$\chi^2= 36.047^{**}$ , Cramer's V=0.071							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.377\*,  $\eta=0.072$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-55: The Minnesota Department of Natural Resources: ...manages fisheries for special interests.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,820	8.8%	22.4%	45.2%	19.3%	4.3%	2.88
Central region	372	8.3%	20.4%	45.4%	21.5%	4.3%	2.93
Metro region	354	8.8%	22.0%	47.2%	17.5%	4.5%	2.87
Northeast region	371	11.3%	26.1%	41.5%	17.3%	3.8%	2.76
Northwest region	353	7.9%	25.8%	44.8%	17.0%	4.5%	2.84
Southern region	359	9.7%	24.2%	42.3%	20.1%	3.6%	2.84
$\chi^2=12.160$ n.s., Cramer's V=0.041							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.498 n.s.,  $\eta=0.058$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-56: The Minnesota Department of Natural Resources: ...listens to the concerns of people that don't fish.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,814	4.8%	9.7%	49.1%	31.5%	4.9%	3.22
Central region	371	5.7%	10.8%	46.9%	30.2%	6.5%	3.21
Metro region	352	4.3%	9.7%	51.4%	31.0%	3.7%	3.20
Northeast region	371	4.6%	7.3%	45.0%	37.2%	5.9%	3.33
Northwest region	350	4.0%	10.6%	50.9%	30.0%	4.6%	3.21
Southern region	360	3.9%	7.5%	51.7%	34.4%	2.5%	3.24
$\chi^2= 21.488$ n.s., Cramer's V=0.055							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.377 n.s.,  $\eta=0.055$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-57: The Minnesota Department of Natural Resources: ...responds to the concerns of people that don't fish.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,822	4.8%	9.1%	53.9%	27.7%	4.6%	3.18
Central region	374	5.3%	11.0%	50.5%	26.5%	6.7%	3.18
Metro region	353	4.5%	7.4%	56.9%	28.0%	3.1%	3.18
Northeast region	373	4.6%	7.5%	52.0%	30.8%	5.1%	3.24
Northwest region	353	3.7%	9.6%	52.7%	29.2%	4.8%	3.22
Southern region	358	5.0%	7.8%	58.9%	27.4%	0.8%	3.11
$\chi^2=27.693^*$ , Cramer's V=0.062							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.317 n.s.,  $\eta=0.054$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-58: The Minnesota Department of Natural Resources: ...spends public money effectively.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,825	2.3%	10.6%	37.2%	33.3%	16.5%	3.51
Central region	374	1.9%	9.4%	36.6%	34.0%	18.2%	3.57
Metro region	354	1.4%	13.0%	38.7%	31.6%	15.3%	3.46
Northeast region	373	4.8%	9.4%	38.6%	33.2%	13.9%	3.42
Northwest region	353	3.1%	10.5%	33.7%	37.4%	15.3%	3.51
Southern region	360	3.3%	10.0%	37.5%	32.2%	16.9%	3.49
$\chi^2= 18.441$ n.s., Cramer's V=0.050							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.243 n.s.,  $\eta=0.052$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-59: The Minnesota Department of Natural Resources: ...needs more funding to do a better job.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,823	3.0%	8.6%	46.6%	30.8%	10.9%	3.38
Central region	373	4.0%	7.2%	48.3%	30.6%	9.9%	3.35
Metro region	354	1.1%	8.2%	46.6%	31.6%	12.4%	3.46
Northeast region	373	3.8%	9.9%	41.8%	34.0%	10.5%	3.38
Northwest region	353	5.4%	13.6%	46.7%	25.8%	8.5%	3.18
Southern region	360	1.9%	8.6%	44.7%	31.9%	12.8%	3.45
$\chi^2= 32.542^{**}$ , Cramer's V=0.067							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=5.295\*\*\*,  $\eta=0.108$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-60: The Minnesota Department of Natural Resources: ...needs more funding from general tax revenue (not fishing licenses) to do a better job.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,825	5.1%	12.1%	45.0%	27.4%	10.4%	3.26
Central region	373	4.6%	10.5%	47.5%	27.3%	10.2%	3.28
Metro region	355	5.6%	11.5%	45.4%	26.2%	11.3%	3.26
Northeast region	373	5.9%	14.2%	38.9%	31.1%	9.9%	3.25
Northwest region	353	7.4%	16.7%	41.6%	25.8%	8.5%	3.11
Southern region	361	3.6%	13.3%	42.9%	29.1%	11.1%	3.31
$\chi^2= 19.813$ n.s., Cramer's V=0.052							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.078 n.s.,  $\eta=0.068$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-61: Comparison of statements about the Minnesota Department of Natural Resources.**

	Statewide mean <sup>1</sup>
Should manage lakes to have many fish though the average size would be smaller.	2.68
Should manage lakes to have big fish, though the number of fish harvested would be less.	2.89
Should manage your favorite lake to have big fish, though the number of fish harvested would be less.	2.84
Should manage lakes individually, though the regulations may become more complicated.	3.26
Should continue stocking walleyes in lakes even where stocking has not increased walleye numbers.	2.95
Should allow greater angler participation in making fish management decisions.	3.59
Answers questions honestly.	3.97
Has staff that are well trained to do their jobs.	3.90
Listens to anglers' concerns.	3.76
Responds to anglers' concerns.	3.65
Manages fisheries for special interests.	2.88
Adequately manages Minnesota's fishing waters.	3.55
Listens to the concerns of people that don't fish	3.22
Responds to the concerns of people that don't fish.	3.18
Spends public money effectively.	3.51
Needs more funding to do a better job.	3.38
Needs more funding from general tax revenue (not fishing licenses) to do a better job.	3.26

**Notes:**

<sup>1</sup> Grand mean=3.319. F=434.508\*\*\*,  $\eta^2=0.176$ . Mean is based on the scale: 1 = 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-62: Fishing-related activities performed by the Minnesota Department of Natural Resources: Stocking fish into lakes and streams is...**

Regions	n	Very unimportant	Unimportant	Neutral	Important	Very Important	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,842	1.3%	3.5%	14.2%	57.9%	23.1%	3.98
Central region	379	1.3%	3.2%	16.4%	56.7%	22.4%	3.96
Metro region	356	0.8%	4.2%	11.5%	59.6%	23.9%	4.01
Northeast region	373	1.1%	3.2%	14.7%	57.1%	23.9%	3.99
Northwest region	355	2.0%	2.8%	12.1%	62.5%	20.6%	3.97
Southern region	365	1.6%	3.8%	15.1%	54.5%	24.9%	3.97
$\chi^2= 11.952$ n.s., Cramer's V=0.040							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.292 n.s.,  $\eta=0.025$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = neutral, 4 = important, 5 = very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-63: Fishing-related activities performed by the Minnesota Department of Natural Resources: Restoring fish such as sturgeon to lakes and streams where they once lived is...**

Regions	n	Very unimportant	Unimportant	Neutral	Important	Very Important	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,844	1.7%	7.9%	34.7%	39.2%	16.4%	3.61
Central region	379	2.4%	8.2%	34.3%	40.1%	15.0%	3.57
Metro region	358	0.3%	7.3%	34.1%	38.8%	19.6%	3.70
Northeast region	374	2.4%	6.4%	34.2%	36.9%	20.1%	3.66
Northwest region	354	3.4%	9.0%	39.0%	36.4%	12.1%	3.45
Southern region	364	1.4%	8.5%	34.3%	41.2%	14.6%	3.59
$\chi^2= 25.937$ n.s., Cramer's V=0.060							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=3.950\*\*,  $\eta=0.093$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = neutral, 4 = important, 5 = very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-64: Fishing-related activities performed by the Minnesota Department of Natural Resources: Developing effective regulations to improve fishing is...**

Regions	n	Very unimportant	Unimportant	Neutral	Important	Very Important	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,839	1.1%	1.6%	9.9%	65.6%	21.9%	4.06
Central region	378	0.8%	1.1%	12.2%	65.6%	20.4%	4.04
Metro region	356	1.4%	2.0%	4.8%	67.1%	24.7%	4.12
Northeast region	374	1.6%	1.6%	10.2%	63.1%	23.5%	4.05
Northwest region	353	1.4%	2.0%	13.0%	64.9%	18.7%	3.97
Southern region	365	0.8%	1.9%	11.8%	63.8%	21.6%	4.04
$\chi^2= 22.449$ n.s., Cramer's V=0.055							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.881 n.s.,  $\eta=0.064$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = neutral, 4 = important, 5 = very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-65: Fishing-related activities performed by the Minnesota Department of Natural Resources: Developing understandable fishing regulations is...**

Regions	n	Very unimportant	Unimportant	Neutral	Important	Very Important	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,842	0.5%	0.9%	9.1%	61.3%	28.1%	4.16
Central region	378	0.5%	0.5%	9.8%	60.1%	29.1%	4.17
Metro region	358	0.3%	1.4%	8.4%	62.0%	27.9%	4.16
Northeast region	374	0.8%	0.8%	8.0%	59.9%	30.5%	4.18
Northwest region	353	0.8%	0.6%	8.5%	63.7%	26.3%	4.14
Southern region	364	0.8%	1.4%	9.9%	62.4%	25.5%	4.10
$\chi^2= 8.147$ n.s., Cramer's V=0.033							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.767 n.s.,  $\eta=0.041$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = neutral, 4 = important, 5 = very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-66: Fishing-related activities performed by the Minnesota Department of Natural Resources: Providing a good value for a fishing license is...**

Regions	n	Very unimportant	Unimportant	Neutral	Important	Very Important	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,844	1.1%	4.7%	20.4%	58.5%	15.2%	3.82
Central region	379	0.3%	3.7%	19.5%	61.5%	15.0%	3.87
Metro region	358	2.0%	6.4%	22.1%	55.0%	14.5%	3.74
Northeast region	374	1.1%	5.1%	17.4%	58.6%	17.9%	3.87
Northwest region	353	1.7%	3.1%	19.0%	59.2%	17.0%	3.87
Southern region	364	1.1%	4.9%	22.5%	57.1%	14.3%	3.79
$\chi^2= 17.734$ n.s., Cramer's V=0.049							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.257 n.s.,  $\eta=0.070$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = neutral, 4 = important, 5 = very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-67: Fishing-related activities performed by the Minnesota Department of Natural Resources: Providing information to people so that they can decide where to fish is...**

Regions	n	Very unimportant	Unimportant	Neutral	Important	Very Important	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,838	1.6%	6.6%	27.1%	52.8%	12.0%	3.67
Central region	376	0.8%	5.3%	29.3%	51.3%	13.3%	3.71
Metro region	358	1.7%	7.5%	24.3%	53.6%	12.8%	3.68
Northeast region	373	3.5%	9.1%	22.0%	55.8%	9.7%	3.59
Northwest region	354	3.1%	8.5%	32.8%	45.5%	10.2%	3.51
Southern region	364	1.4%	5.5%	25.3%	59.1%	8.8%	3.68
$\chi^2=37.947^{**}$ , Cramer's V=0.072							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=3.509\*\*,  $\eta=0.087$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = neutral, 4 = important, 5 = very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-68: Fishing-related activities performed by the Minnesota Department of Natural Resources: Educating people on how they can help protect lakes and streams is...**

Regions	n	Very unimportant	Unimportant	Neutral	Important	Very Important	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,840	0.8%	1.1%	6.6%	52.5%	39.0%	4.28
Central region	378	0.8%	1.9%	6.1%	53.2%	38.1%	4.26
Metro region	357	0.3%	0.3%	7.0%	47.9%	44.5%	4.36
Northeast region	373	1.6%	0.5%	4.0%	56.8%	37.0%	4.27
Northwest region	353	1.1%	1.1%	8.8%	56.9%	32.0%	4.18
Southern region	365	1.1%	0.8%	7.1%	55.1%	35.9%	4.24
$\chi^2=27.718^*$ , Cramer's V=0.062							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=3.218\*,  $\eta=0.084$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = neutral, 4 = important, 5 = very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001



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**Table 2-69: Fishing-related activities performed by the Minnesota Department of Natural Resources: Educating people on the biology and conservation of fish is...**

Regions	n	Very unimportant	Unimportant	Neutral	Important	Very Important	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,844	0.9%	3.5%	20.1%	55.3%	20.1%	3.90
Central region	379	1.3%	3.4%	18.7%	57.3%	19.3%	3.90
Metro region	358	0.3%	3.9%	21.5%	51.7%	22.6%	3.92
Northeast region	373	1.6%	3.2%	21.4%	52.3%	21.4%	3.89
Northwest region	354	1.1%	3.4%	20.3%	56.2%	18.9%	3.88
Southern region	364	0.5%	3.3%	19.8%	59.1%	17.3%	3.89
$\chi^2= 11.774$ n.s., Cramer's V=0.040							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.150 n.s.,  $\eta=0.018$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = neutral, 4 = important, 5 = very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-70: Fishing-related activities performed by the Minnesota Department of Natural Resources: Educating people on ethical conduct and sportsmanship is...**

Regions	n	Very unimportant	Unimportant	Neutral	Important	Very Important	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,840	0.9%	1.5%	11.2%	46.5%	40.0%	4.23
Central region	377	1.1%	1.3%	12.5%	44.8%	40.3%	4.22
Metro region	358	0.6%	1.4%	9.5%	45.5%	43.0%	4.29
Northeast region	373	1.3%	2.7%	9.9%	47.5%	38.6%	4.19
Northwest region	354	0.6%	1.1%	13.3%	49.2%	35.9%	4.19
Southern region	364	0.8%	1.6%	10.2%	51.4%	36.0%	4.20
$\chi^2= 14.584$ n.s., Cramer's V=0.045							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.083 n.s.,  $\eta=0.049$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = neutral, 4 = important, 5 = very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-71: Fishing-related activities performed by the Minnesota Department of Natural Resources: Improving lake and stream habitat is...**

Regions	n	Very unimportant	Unimportant	Neutral	Important	Very Important	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,837	0.7%	0.5%	7.5%	54.3%	37.0%	4.26
Central region	377	1.1%	0.5%	6.9%	55.7%	35.8%	4.25
Metro region	356	0.3%	0.3%	7.0%	50.3%	42.1%	4.34
Northeast region	372	0.5%	0.8%	5.6%	58.3%	34.7%	4.26
Northwest region	354	0.8%	0.3%	11.0%	56.8%	31.1%	4.17
Southern region	365	0.5%	0.5%	8.8%	55.1%	35.1%	4.24
$\chi^2= 20.224$ n.s., Cramer's V=0.053							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.825\*,  $\eta=0.079$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = neutral, 4 = important, 5 = very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-72: Fishing-related activities performed by the Minnesota Department of Natural Resources: Protecting the land surrounding lakes and streams is...**

Regions	n	Very unimportant	Unimportant	Neutral	Important	Very Important	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,842	1.0%	1.9%	14.0%	52.5%	30.7%	4.10
Central region	379	1.1%	2.9%	14.2%	53.0%	28.8%	4.06
Metro region	357	0.8%	0.8%	12.6%	50.7%	35.0%	4.18
Northeast region	374	0.8%	2.7%	19.0%	49.5%	28.1%	4.01
Northwest region	353	1.7%	1.4%	15.6%	53.3%	28.0%	4.05
Southern region	364	0.5%	0.8%	12.4%	56.0%	30.2%	4.15
$\chi^2= 24.332$ n.s., Cramer's V=0.058							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=3.142\*,  $\eta=0.083$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = neutral, 4 = important, 5 = very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-73: Fishing-related activities performed by the Minnesota Department of Natural Resources: Purchasing land or easements to provide more places to fish is...**

Regions	n	Very unimportant	Unimportant	Neutral	Important	Very Important	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,841	3.6%	10.0%	32.7%	37.5%	16.2%	3.53
Central region	378	4.2%	11.6%	30.7%	39.4%	14.0%	3.47
Metro region	358	2.8%	9.5%	33.8%	34.1%	19.8%	3.59
Northeast region	373	6.4%	10.2%	33.2%	34.6%	15.5%	3.43
Northwest region	353	2.5%	8.8%	34.0%	39.9%	14.7%	3.56
Southern region	364	2.7%	7.1%	34.9%	39.6%	15.7%	3.58
$\chi^2=23.953$ n.s., Cramer's V=0.057							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.911 n.s.,  $\eta=0.065$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = neutral, 4 = important, 5 = very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-74: Comparison of importance of activities performed by the Minnesota Department of Natural Resources.**

	Statewide mean <sup>1</sup>
Stocking fish into lakes and streams.	3.98
Developing effective regulations to improve fishing.	4.06
Providing information to people so that they can decide where to fish.	3.67
Educating people on how they can help protect lakes and streams.	4.28
Developing understandable fishing regulations.	4.16
Improving lake and stream habitat.	4.26
Restoring fish such as sturgeon to lakes and streams where they once lived.	3.61
Purchasing land or easements to provide more places to fish.	3.53
Protecting the land surrounding lakes and streams.	4.10
Providing a good value for a fishing license.	3.82
Educating people on the biology and conservation of fish.	3.90
Educating people on ethical conduct and sportsmanship.	4.23

**Notes:**

<sup>1</sup> Grand mean=3.966. F=357.114\*\*\*,  $\eta^2=0.143$ . Mean is based on the scale: 1 = 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-75: Minnesota Department of Natural Resources' performance on: Educating people on ethical conduct and sportsmanship.**

Regions	n	Very poor	Poor	Good	Very good	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,796	1.4%	22.9%	70.0%	5.6%	2.80
Central region	372	2.2%	19.4%	72.0%	6.5%	2.83
Metro region	344	0.9%	28.2%	66.0%	4.9%	2.75
Northeast region	362	2.2%	19.1%	71.0%	7.7%	2.84
Northwest region	348	0.9%	23.3%	72.1%	3.7%	2.79
Southern region	356	0.3%	23.9%	70.8%	5.1%	2.81
$\chi^2= 24.375^*$ , Cramer's V=0.068						

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.566 n.s.,  $\eta=0.059$ . Mean is based on the scale: 1 = very poor, 2 = poor, 3 = good, 4 = very good.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-76: Minnesota Department of Natural Resources' performance on: Restoring fish such as sturgeon to lakes and streams where they once lived.**

Regions	n	Very poor	Poor	Good	Very good	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,641	2.9%	36.5%	57.1%	3.5%	2.61
Central region	346	4.0%	37.3%	55.5%	3.2%	2.58
Metro region	298	2.0%	39.3%	54.0%	4.7%	2.61
Northeast region	338	3.0%	33.7%	59.2%	4.1%	2.64
Northwest region	327	1.2%	31.5%	63.9%	3.4%	2.69
Southern region	333	2.7%	33.9%	61.6%	1.8%	2.62
$\chi^2= 17.407$ n.s., Cramer's V=0.059						

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.729 n.s.,  $\eta=0.065$ . Mean is based on the scale: 1 = very poor, 2 = poor, 3 = good, 4 = very good.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-77: Minnesota Department of Natural Resources' performance on: Developing effective regulations to improve fishing.**

Regions	n	Very poor	Poor	Good	Very good	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,797	2.9%	18.1%	72.5%	6.4%	2.82
Central region	371	3.2%	16.7%	72.2%	7.8%	2.85
Metro region	345	2.9%	20.3%	71.0%	5.8%	2.80
Northeast region	362	2.5%	18.2%	72.4%	6.9%	2.84
Northwest region	348	3.2%	17.2%	74.7%	4.9%	2.81
Southern region	358	2.2%	18.2%	75.1%	4.5%	2.82
$\chi^2= 7.691$ n.s., Cramer's V=0.038						

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.423 n.s.,  $\eta=0.031$ . Mean is based on the scale: 1 = very poor, 2 = poor, 3 = good, 4 = very good.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-78: Minnesota Department of Natural Resources' performance on: Stocking fish into lakes and streams.**

Regions	n	Very poor	Poor	Good	Very good	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,757	1.3%	17.0%	73.8%	7.8%	2.88
Central region	364	1.6%	16.2%	74.2%	8.0%	2.88
Metro region	333	0.6%	19.2%	72.1%	8.1%	2.88
Northeast region	356	2.8%	15.7%	72.8%	8.7%	2.87
Northwest region	344	2.0%	16.9%	73.3%	7.8%	2.87
Southern region	352	0.6%	15.6%	77.8%	6.0%	2.89
$\chi^2= 13.036$ n.s., Cramer's V=0.050						

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.099 n.s.,  $\eta=0.015$ . Mean is based on the scale: 1 = very poor, 2 = poor, 3 = good, 4 = very good.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-79: Minnesota Department of Natural Resources' performance on: Providing a good value for a fishing license.**

Regions	n	Very poor	Poor	Good	Very good	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,776	2.0%	16.2%	72.9%	8.9%	2.89
Central region	367	1.1%	16.6%	73.8%	8.4%	2.90
Metro region	340	2.6%	15.3%	71.8%	10.3%	2.90
Northeast region	358	2.2%	17.6%	71.5%	8.7%	2.87
Northwest region	345	2.9%	19.1%	71.3%	6.7%	2.82
Southern region	354	2.3%	13.8%	74.6%	9.3%	2.91
$\chi^2= 9.913$ n.s., Cramer's V=0.043						

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.478 n.s.,  $\eta=0.058$ . Mean is based on the scale: 1 = very poor, 2 = poor, 3 = good, 4 = very good.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-80: Minnesota Department of Natural Resources' performance on: Developing understandable fishing regulations.**

Regions	n	Very poor	Poor	Good	Very good	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,789	2.0%	21.3%	69.5%	7.3%	2.82
Central region	369	2.2%	22.2%	66.7%	8.9%	2.82
Metro region	344	1.5%	19.2%	74.4%	4.9%	2.83
Northeast region	360	3.3%	21.7%	66.9%	8.1%	2.80
Northwest region	346	2.3%	23.1%	68.2%	6.4%	2.79
Southern region	357	1.7%	21.6%	69.2%	7.6%	2.83
$\chi^2= 11.573$ n.s., Cramer's V=0.047						

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.387 n.s.,  $\eta=0.030$ . Mean is based on the scale: 1 = very poor, 2 = poor, 3 = good, 4 = very good.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-81: Minnesota Department of Natural Resources' performance on: Improving lake and stream habitat.**

Regions	n	Very poor	Poor	Good	Very good	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,772	1.4%	23.3%	70.2%	5.1%	2.79
Central region	369	1.4%	22.2%	70.7%	5.7%	2.81
Metro region	335	1.2%	25.7%	68.7%	4.5%	2.76
Northeast region	358	1.7%	20.1%	70.9%	7.3%	2.84
Northwest region	345	2.3%	21.2%	72.8%	3.8%	2.78
Southern region	353	0.8%	25.2%	69.4%	4.5%	2.78
$\chi^2= 12.218$ n.s., Cramer's V=0.048						

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.045 n.s.,  $\eta=0.049$ . Mean is based on the scale: 1 = very poor, 2 = poor, 3 = good, 4 = very good.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-82: Minnesota Department of Natural Resources' performance on: Educating people on ethical conduct and sportsmanship.**

Regions	n	Very poor	Poor	Good	Very good	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,755	4.2%	32.0%	59.5%	4.4%	2.64
Central region	363	4.7%	30.9%	60.9%	3.6%	2.63
Metro region	334	4.5%	34.7%	57.2%	3.6%	2.60
Northeast region	357	2.8%	33.1%	56.9%	7.3%	2.69
Northwest region	342	4.7%	30.7%	59.1%	5.6%	2.65
Southern region	351	2.6%	29.6%	62.1%	5.7%	2.71
$\chi^2= 14.000$ n.s., Cramer's V=0.052						

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.607 n.s.,  $\eta=0.061$ . Mean is based on the scale: 1 = very poor, 2 = poor, 3 = good, 4 = very good.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-83: Minnesota Department of Natural Resources' performance on: Educating people on the biology and conservation of fish.**

Regions	n	Very poor	Poor	Good	Very good	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,753	2.9%	35.3%	58.1%	3.7%	2.63
Central region	361	3.3%	34.9%	58.2%	3.6%	2.62
Metro region	335	2.7%	37.0%	57.3%	3.0%	2.61
Northeast region	355	3.1%	31.8%	59.2%	5.9%	2.68
Northwest region	344	3.5%	35.2%	56.1%	5.2%	2.63
Southern region	351	1.4%	34.8%	60.7%	3.1%	2.66
$\chi^2= 11.363$ n.s., Cramer's V=0.047						

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.788 n.s.,  $\eta=0.043$ . Mean is based on the scale: 1 = very poor, 2 = poor, 3 = good, 4 = very good.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-84: Minnesota Department of Natural Resources' performance on: Providing information to people so that they can decide where to fish.**

Regions	n	Very poor	Poor	Good	Very good	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,760	1.6%	30.3%	62.8%	5.3%	2.72
Central region	361	1.4%	29.1%	65.1%	4.4%	2.73
Metro region	336	1.8%	33.0%	59.5%	5.7%	2.69
Northeast region	358	1.4%	24.3%	67.0%	7.3%	2.80
Northwest region	346	2.3%	31.2%	60.7%	5.8%	2.70
Southern region	356	1.7%	30.6%	62.4%	5.3%	2.71
$\chi^2= 11.155$ n.s., Cramer's V=0.046						

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.004 n.s.,  $\eta=0.067$ . Mean is based on the scale: 1 = very poor, 2 = poor, 3 = good, 4 = very good.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001



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**Table 2-85: Minnesota Department of Natural Resources' performance on: Protecting the land surrounding lakes and streams.**

Regions	n	Very poor	Poor	Good	Very good	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,732	3.1%	26.8%	65.1%	5.0%	2.72
Central region	356	2.8%	25.8%	66.9%	4.5%	2.73
Metro region	329	3.6%	30.1%	61.1%	5.2%	2.68
Northeast region	354	2.5%	23.2%	66.4%	7.9%	2.80
Northwest region	342	3.2%	24.6%	67.8%	4.4%	2.73
Southern region	350	2.9%	26.6%	66.0%	4.6%	2.72
$\chi^2= 11.629$ n.s., Cramer's V=0.047						

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.710 n.s.,  $\eta=0.063$ . Mean is based on the scale: 1 = very poor, 2 = poor, 3 = good, 4 = very good.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-86: Minnesota Department of Natural Resources' performance on: Purchasing land or easements to provide more places to fish.**

Regions	n	Very poor	Poor	Good	Very good	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,693	2.6%	34.2%	59.5%	3.6%	2.64
Central region	349	2.9%	33.5%	60.2%	3.4%	2.64
Metro region	318	2.5%	37.7%	55.0%	4.7%	2.62
Northeast region	348	2.6%	31.0%	63.2%	3.2%	2.67
Northwest region	331	2.4%	32.6%	62.2%	2.7%	2.65
Southern region	349	2.3%	32.1%	63.0%	2.6%	2.66
$\chi^2= 8.226$ n.s., Cramer's V=0.040						

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.348 n.s.,  $\eta=0.029$ . Mean is based on the scale: 1 = very poor, 2 = poor, 3 = good, 4 = very good.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-87: Comparison of performance of the Minnesota Department of Natural Resources on fisheries activities.**

	Statewide mean <sup>1</sup>
Stocking fish into lakes and streams.	2.80
Developing effective regulations to improve fishing.	2.82
Providing information to people so that they can decide where to fish.	2.82
Educating people on how they can help protect lakes and streams.	2.79
Developing understandable fishing regulations.	2.88
Improving lake and stream habitat.	2.72
Restoring fish such as sturgeon to lakes and streams where they once lived.	2.61
Purchasing land or easements to provide more places to fish.	2.64
Protecting the land surrounding lakes and streams.	2.72
Providing a good value for a fishing license.	2.89
Educating people on the biology and conservation of fish.	2.64
Educating people on ethical conduct and sportsmanship.	2.63

**Notes:**

<sup>1</sup> Grand mean=2.746. F=85.288\*\*\*,  $\eta^2=0.044$ . Mean is based on the scale: 1 = very poor, 2 = poor, 3 = good, 4 = very good.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-88: Comparison of DNR activities importance versus performance.**

Activity	Importance		Performance		Difference
	$\bar{x}$ <sup>1</sup>	% <sup>2</sup>	$\bar{x}$ <sup>3</sup>	% <sup>4</sup>	I%-P% <sup>5</sup>
Stocking fish into lakes and streams.	4.0	0.80	2.8	0.70	0.10
Developing effective regulations to improve fishing.	4.1	0.82	2.8	0.70	0.12
Providing information to people so that they can decide where to fish.	3.7	0.74	2.8	0.70	0.04
Educating people on how they can help protect lakes and streams.	4.3	0.86	2.8	0.70	0.16
Developing understandable fishing regulations.	4.2	0.84	2.9	0.73	0.11
Improving lake and stream habitat.	4.3	0.86	2.7	0.68	0.19
Restoring fish such as sturgeon to lakes and streams where they once lived.	3.6	0.72	2.6	0.65	0.07
Purchasing land or easements to provide more places to fish.	3.5	0.70	2.6	0.65	0.05
Protecting the land surrounding lakes and streams.	4.1	0.82	2.7	0.68	0.14
Providing a good value for a fishing license.	3.8	0.76	2.9	0.73	0.03
Educating people on the biology and conservation of fish.	3.9	0.78	2.6	0.65	0.13
Educating people on ethical conduct and sportsmanship.	4.2	0.84	2.6	0.65	0.19

**Notes:**

<sup>1</sup> Mean score based on scale: 1 = very unimportant, 2 = unimportant, 3 = neutral, 4 = important, 5 = very important.

<sup>2</sup> Mean proportion of the possible total importance (mean for item/5)

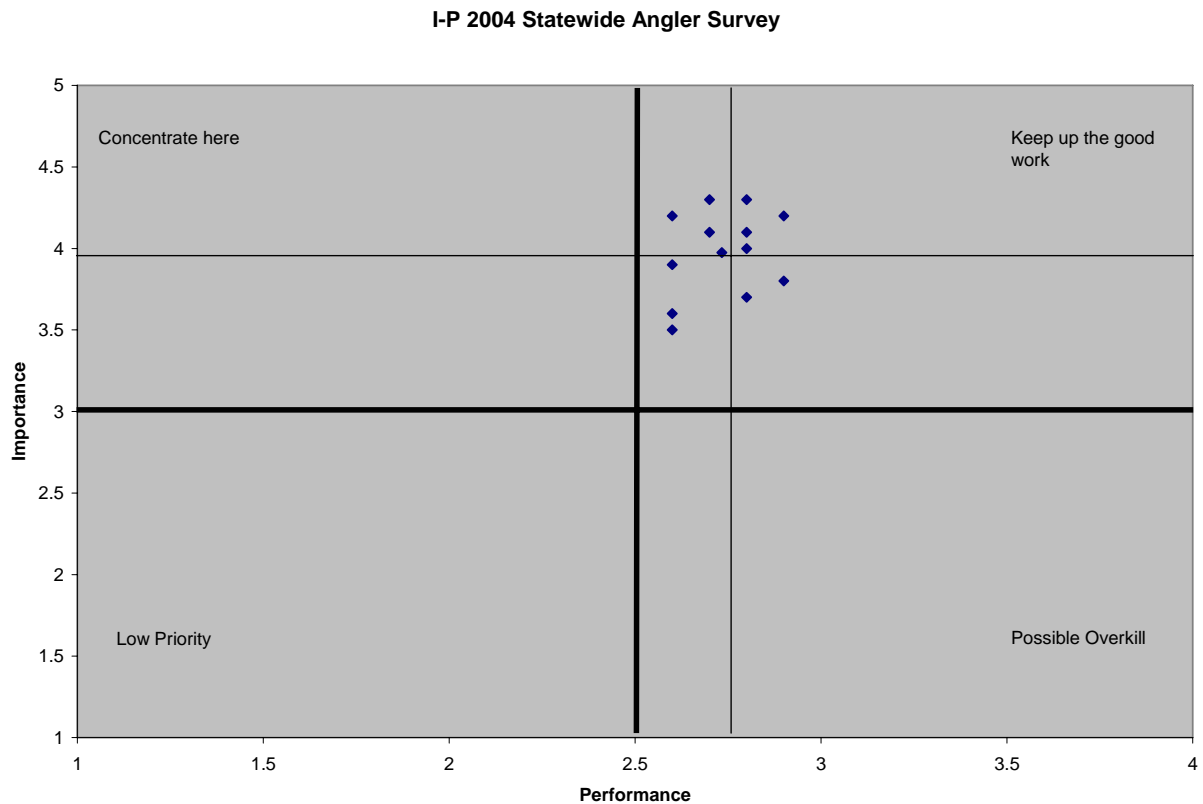
<sup>3</sup> Mean score based on scale: 1 = very poor, 2 = poor, 3 = good, 4 = very good.

<sup>4</sup> Mean proportion of the possible total performance (mean for item/4)

<sup>5</sup> Difference between mean proportion for importance and mean proportion for performance.

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**Table 2-89: Importance-Performance Chart for DNR Activities.**



**Table 2-90: Percent reporting that a competitive fishing tournament interfered with fishing or other water recreation in the past year.**

Regions	n	%
Statewide <sup>1</sup>	1,830	14.0%
Central region	372	15.9%
Metro region	357	11.5%
Northeast region	366	12.6%
Northwest region	358	15.1%
Southern region	366	13.9%
$\chi^2= 3.905$ n.s., Cramer's V=0.046		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-91: Of respondents reporting that a competitive fishing tournament interfered with fishing or other water recreation in the past year, percent who reported...**

Regions	Increased congestion at access areas	Increased congestion at fishing areas	Increased boat traffic	Increased litter & pollution	Rude behavior from tournament anglers	Fish harder to catch after event	Concern about exotic plants from event
Statewide <sup>1</sup>	80.3%	79.0%	83.7%	46.4%	47.6%	42.9%	42.8%
Central region	83.1%	74.6%	78.0%	46.6%	42.4%	44.8%	42.1%
Metro region	73.8%	83.3%	85.7%	48.8%	52.4%	36.6%	41.5%
Northeast region	77.8%	81.8%	89.1%	56.8%	43.2%	47.7%	44.2%
Northwest region	88.9%	87.0%	88.9%	54.7%	56.6%	51.9%	57.4%
Southern region	79.6%	74.0%	94.1%	32.7%	56.3%	42.9%	37.5%
	$\chi^2= 4.141$ n.s., Cramer's V= 0.129	$\chi^2= 4.250$ n.s., Cramer's V= 0.131	$\chi^2= 6.913$ n.s., Cramer's V= 0.166	$\chi^2= 7.008$ n.s., Cramer's V= 0.169	$\chi^2= 3.961$ n.s., Cramer's V= 0.127	$\chi^2= 2.402$ n.s., Cramer's V= 0.099	$\chi^2= 4.862$ n.s., Cramer's V= 0.141

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-92: Managing fishing tournaments: The Minnesota Department of Natural Resources: should not allow so many fishing tournaments.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,814	5.5%	19.2%	50.2%	15.8%	9.4%	3.04
Central region	371	6.7%	19.9%	49.9%	14.3%	9.2%	2.99
Metro region	352	3.7%	19.3%	50.6%	17.0%	9.4%	3.09
Northeast region	370	6.5%	21.9%	50.3%	11.4%	10.0%	2.96
Northwest region	353	5.9%	16.4%	46.5%	19.0%	12.2%	3.15
Southern region	359	4.7%	17.0%	52.9%	17.8%	7.5%	3.06
$\chi^2= 22.485$ n.s., Cramer's V=0.056							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.137 n.s., η=0.069. Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-93: Managing fishing tournaments: The Minnesota Department of Natural Resources: should allow fewer anglers in each tournament.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,814	4.8%	17.6%	52.8%	17.3%	7.5%	3.05
Central region	371	5.7%	17.8%	49.9%	19.1%	7.5%	3.05
Metro region	352	3.4%	17.3%	57.1%	14.5%	7.7%	3.06
Northeast region	370	5.4%	20.8%	53.2%	12.7%	7.8%	2.97
Northwest region	353	6.2%	16.7%	49.3%	18.1%	9.6%	3.08
Southern region	359	4.2%	16.2%	54.0%	20.6%	5.0%	3.06
$\chi^2= 23.766$ n.s., Cramer's V=0.057							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.843 n.s.,  $\eta=0.043$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-94: Managing fishing tournaments: The Minnesota Department of Natural Resources: should allow fewer days in each tournament.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,810	3.9%	13.5%	51.6%	22.2%	8.8%	3.18
Central region	370	4.9%	13.2%	51.1%	22.2%	8.6%	3.16
Metro region	351	2.0%	12.5%	55.0%	21.1%	9.4%	3.23
Northeast region	370	4.3%	18.1%	50.5%	18.4%	8.6%	3.09
Northwest region	352	5.4%	13.6%	46.3%	23.9%	10.8%	3.21
Southern region	359	3.6%	13.6%	50.7%	25.9%	6.1%	3.17
$\chi^2= 23.708$ n.s., Cramer's V=0.057							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.301 n.s.,  $\eta=0.054$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-95: Managing fishing tournaments: The Minnesota Department of Natural Resources: should not allow off-site weigh-ins.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,813	1.5%	4.2%	30.5%	34.2%	29.6%	3.86
Central region	372	2.2%	3.5%	30.6%	31.5%	32.3%	3.88
Metro region	351	0.6%	5.1%	31.9%	34.8%	27.6%	3.84
Northeast region	369	1.6%	5.7%	29.3%	35.5%	27.9%	3.82
Northwest region	354	2.8%	3.4%	25.4%	37.0%	31.4%	3.91
Southern region	357	0.8%	3.9%	31.7%	38.1%	25.5%	3.83
$\chi^2=21.104$ n.s., Cramer's V=0.054							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.513 n.s.,  $\eta=0.034$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-96: Managing fishing tournaments: The Minnesota Department of Natural Resources: should only allow catch-and-release tournaments.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,811	2.7%	9.8%	33.5%	28.5%	25.6%	3.65
Central region	370	3.2%	13.0%	34.3%	24.3%	25.1%	3.55
Metro region	353	1.1%	6.2%	34.0%	31.4%	27.2%	3.77
Northeast region	369	3.8%	11.1%	29.8%	32.8%	22.5%	3.59
Northwest region	351	4.3%	8.0%	31.1%	28.5%	28.2%	3.68
Southern region	357	2.5%	9.0%	33.9%	31.4%	23.2%	3.64
$\chi^2=28.716^*$ , Cramer's V=0.063							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.428\*,  $\eta=0.073$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 2-97: Managing fishing tournaments: The Minnesota Department of Natural Resources: should only allow catch, measure for length, and immediate release tournaments.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,813	3.0%	12.6%	38.3%	24.4%	21.8%	3.49
Central region	371	3.5%	16.2%	37.2%	22.9%	20.2%	3.40
Metro region	351	1.1%	9.1%	40.5%	25.6%	23.6%	3.62
Northeast region	370	4.3%	13.5%	33.8%	29.2%	19.2%	3.45
Northwest region	353	5.1%	10.8%	34.8%	25.8%	23.5%	3.52
Southern region	359	3.1%	10.9%	42.1%	21.7%	22.3%	3.49
$\chi^2=30.828^*$ , Cramer's V=0.065							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.019 n.s.,  $\eta=0.067$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 2-98: Comparison of possible actions to manage fishing tournaments.**

The Minnesota DNR should...	Statewide mean <sup>1</sup>
not allow so many fishing tournaments	3.04
allow fewer anglers in each tournament.	3.05
allow fewer days in each tournament.	3.18
not allow off-site weigh-ins (where fish are transported to another location for weighing)	3.86
only allow catch and release tournaments.	3.65
only allow catch, measure for length, and immediate release tournaments.	3.49

**Notes:**

<sup>1</sup> Grand mean=3.389. F=512.116\*\*\*,  $\eta=0.193$ . Mean is based on the scale: 1 = 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 3: Fish Consumption

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### ***Findings:***

#### ***Eating Fish From Minnesota Lakes and Rivers***

##### *Statewide*

Nearly 90% of respondents (88.5%) reported eating fish caught in Minnesota during the last year (Table 3-1). Respondents reported eating an average of 34 Minnesota-caught fish during the last year (Table 3-2). Proportion of life in Minnesota ( $r=0.107$ ,  $p<0.001$ ) was positively correlated and education ( $r=-0.142$ ,  $p<0.001$ ) was negatively correlated with the number of fish caught by angling and consumed in the past year.

##### *Regional*

A smaller proportion of respondents from the metro (84%) and southern regions (86%) reported that they had eaten Minnesota-caught fish ( $\chi^2=19.187$ ,  $p\leq 0.001$ , Cramer's  $V=0.102$ ) (Table 3-1). Respondents from the central region consumed the greatest number of Minnesota-caught fish in the last year ( $\bar{x}=44$  fish); respondents from the metro region consumed the fewest number of Minnesota-caught fish ( $\bar{x}=24$  fish) ( $F=8.31$ ,  $p\leq 0.001$ ,  $\eta=0.136$ ) (Table 3-2).

#### ***Minnesota Fish Consumption Advisory***

##### *Statewide*

Approximately half of the respondents (56%) had heard of the Minnesota Fish Consumption Advisory (Table 3-3). Of those respondents who had heard of the advisory, 22.4% had not fished a certain lake because of the advisory (Table 3-4) and 40.1% had not eaten or kept fish because of the advisory (Table 3-5). Awareness of the Minnesota Fish Consumption Advisory was related to age ( $r=0.088$ ,  $p<0.001$ ), income ( $\chi^2=37.296$ ,  $p\leq 0.001$ , Cramer's  $V=0.150$ ) and education ( $\chi^2=35.571$ ,  $p\leq 0.001$ , Cramer's  $V=0.139$ ).

##### *Regional*

About two-thirds of respondents from the northeastern region reported having heard of the Minnesota Fish Consumption Advisory compared to about 55% of respondents from each of the other four regions ( $\chi^2=16.874$ ,  $p\leq 0.01$ , Cramer's  $V=0.096$ ) (Table 3-3). Of respondents who had heard of the advisory, fewer from the northwestern and southern regions reported not fishing certain lakes because of the advisory ( $\chi^2=25.111$ ,  $p\leq 0.001$ , Cramer's  $V=0.155$ ) (Table 3-4). Similarly, of respondents who had heard of the advisory, fewer from the northwestern region reported not eating fish because of the advisory ( $\chi^2=32.007$ ,  $p\leq 0.001$ , Cramer's  $V=0.175$ ) (Table 3-5).

#### ***Commercial Fish Consumption***

##### *Statewide*



### **Section 3: Fish Consumption**

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Respondents reported eating an average of 1.7 meals of store-bought fish or shellfish (Table 3-6) and 1.2 meals of fish or shellfish at restaurants (Table 3-7) per month. Respondents ate an average of (a) 1.5 meals of canned tuna per month (Table 3-8), (b) 0.1 meals of shark or swordfish (Table 3-9), and (c) 0.4 meals of fresh or frozen tuna or halibut (Table 3-10) each month. Correlations indicate that respondents with higher incomes and education levels may eat somewhat more commercial fish.

#### *Regional*

Respondents from the central and northwestern regions ate fewer and respondents from the southern region ate more meals of store-bought fish or shellfish per month ( $F=3.955$ ,  $p\leq 0.01$ ,  $\eta=0.093$ ) (Table 3-6). There were no significant differences between regions in the monthly consumption of: (a) fish or shellfish at restaurants (Table 3-7), (b) canned tuna (Table 3-8), (c) shark or swordfish (Table 3-9), or (d) fresh or frozen tuna or halibut (Table 3-9).

## Section 3: Fish Consumption

**Table 3-1: Percent of respondents reporting that they had eaten fish caught in Minnesota.**

Regions	n	%
Statewide <sup>1</sup>	1,896	88.5%
Central region	377	91.8%
Metro region	356	84.0%
Northeast region	377	89.1%
Northwest region	357	92.2%
Southern region	366	85.5%
$\chi^2=19.187^{***}$ , Cramer's V=0.102		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 3-2: Average consumption of fish caught by angling in Minnesota.**

Regions	n	Number of fish
Statewide <sup>1</sup>	1,787	34.02
Central region	368	44.36
Metro region	342	24.85
Northeast region	365	27.11
Northwest region	349	33.55
Southern region	356	27.96
$F=8.317^{***}$ , $\eta=0.136$		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 3-3: Percent of respondents reporting that they had heard of the Minnesota Fish Consumption Advisory.**

Regions	N	%
Statewide <sup>1</sup>	1,896	56.0%
Central region	376	53.5%
Metro region	355	57.2%
Northeast region	371	66.6%
Northwest region	355	56.3%
Southern region	360	54.2%
$\chi^2=16.874^{**}$ , Cramer's V=0.096		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 3: Fish Consumption

**Table 3-4: Proportion of respondents that had not fished a lake because of the Minnesota Fish Consumption Advisory.**

Regions	N	%
Statewide <sup>1</sup>	1,025	22.4%
Central region	201	26.4%
Metro region	203	23.6%
Northeast region	247	24.7%
Northwest region	200	9.5%
Southern region	195	16.4%
	$\chi^2= 25.111^{***}$ , Cramer's V=0.155	

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 3-5: Proportion of respondents that had not kept or eaten fish because of the Minnesota Fish Consumption Advisory.**

Regions	N	%
Statewide <sup>1</sup>	1,025	40.1%
Central region	201	43.3%
Metro region	203	43.8%
Northeast region	247	40.5%
Northwest region	200	20.5%
Southern region	195	37.4%
	$\chi^2= 32.007^{***}$ , Cramer's V=0.175	

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 3-6: Average number of meals of store-bought fish or shellfish eaten at home per month.**

Regions	n	Number of meals
Statewide <sup>1</sup>	1,804	1.68
Central region	366	1.45
Metro region	351	1.88
Northeast region	373	1.65
Northwest region	350	1.45
Southern region	361	2.06
	F= 3.955**, $\eta=0.093$	

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 3: Fish Consumption

**Table 3-7: Average number of meals of fish or shellfish eaten at restaurants per month.**

Regions	n	Number of meals
Statewide <sup>1</sup>	1,818	1.21
Central region	371	1.21
Metro region	354	1.32
Northeast region	372	1.04
Northwest region	349	0.93
Southern region	362	1.27
F = 1.323 n.s., $\eta=0.054$		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 3-8: Average number of times eating canned tuna per month.**

Regions	n	Number of meals
Statewide <sup>1</sup>	1,818	1.48
Central region	370	1.56
Metro region	353	1.39
Northeast region	371	1.39
Northwest region	352	1.54
Southern region	365	1.43
F = 0.452 n.s., $\eta=0.032$		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 3-9: Average number of times eating shark or swordfish per month.**

Regions	n	Number of meals
Statewide <sup>1</sup>	1,796	0.10
Central region	363	0.18
Metro region	352	0.06
Northeast region	368	0.02
Northwest region	346	0.01
Southern region	362	0.05
F = 0.992 n.s., $\eta=0.047$		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

### Section 3: Fish Consumption

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**Table 3-10: Average number of times eating fresh or frozen tuna or halibut per month.**

Regions	n	Number of meals
Statewide <sup>1</sup>	1,803	0.39
Central region	364	0.48
Metro region	354	0.35
Northeast region	368	0.27
Northwest region	347	0.27
Southern region	364	0.42
	F= 1.015 n.s., $\eta=0.048$	

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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## Section 4: Investment in Fishing

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### **Findings:**

#### *Importance of Fishing*

##### *Statewide*

Respondents were asked how much they agreed with a series of statements about the importance of fishing in their lives. Response was on a scale of 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), and 5 (strongly agree). The statements included general statements about how much people enjoy fishing, how important it is to them, how much they personally identify as an angler, fishing-related social connections, and fishing equipment (Tables 4-1 to 4-17). Responses to the different statements were significantly different and ranged from 1.6 for “I have little or no interest in fishing” to 4.1 for “over time, I have acquired equipment that I would not use if I quit fishing” ( $F=1,427.359$ ;  $p\leq 0.001$ ;  $\eta^2=0.412$ ) (Table 4-18).

Respondents clearly enjoy angling. Nearly three-fourths of respondents (72.6%) agreed that fishing is one of the most enjoyable things they do ( $\bar{x} = 4.0$ ) (Table 4-1). Only 5.8% agreed with the statement “I can’t say I particularly like fishing” ( $\bar{x} = 1.7$ ) (Table 4-2). Age was positively correlated to both of these items. Proportion of life in Minnesota and income were negatively correlated to the latter item.

Four items related to how much respondents personally identify as anglers. Over one-third of respondents agreed that “fishing says a lot about who I am” (37.6%) ( $\bar{x} = 3.2$ ) (Table 4-3) and that “you can tell a lot about a person when you see them fishing” (35.5%) ( $\bar{x} = 3.2$ ) (Table 4-4). Approximately half of the respondents agreed that “I have put a lot into developing skills for fishing” (44.2%) ( $\bar{x} = 3.2$ ) (Table 4-5) and that “when I am fishing I can really be myself” (59.2%) ( $\bar{x} = 3.6$ ) (Table 4-6). Education was negatively correlated with all of these items. Age and proportion of life in Minnesota were both positively correlated with two of the four items.

Five items addressed the importance of fishing in people’s lives. About 60% of respondents agreed that fishing was very important to them (60.9%) ( $\bar{x} = 3.7$ ) (Table 4-7). About 40% of respondents agreed that “participation in fishing is a large part of my life” (40.5%) ( $\bar{x} = 3.2$ ) (Table 4-8) and “it would be difficult for me to find another recreational activity to replace fishing” (44.0%) ( $\bar{x} = 3.2$ ) (Table 4-9). Only 3.5% of respondents agreed that “I have little or no interest in fishing” ( $\bar{x} = 1.6$ ) (Table 4-10). Although respondents indicate that fishing is important to them, only about one-third (29.4%) said that they would rather fish than do any other recreational activity ( $\bar{x} = 2.9$ ) (Table 4-11). Fishing appears to be less important to respondents who have higher levels of education. Education was negatively correlated with three of the four items addressing the positive importance of fishing, and education was positively correlated with the item about no interest in fishing.

Four items addressed the importance of social aspects of fishing. About half of the respondents agreed that they had close friendships based on a common interest in fishing (56.6%) ( $\bar{x} = 3.5$ ) (Table 4-12) and that most of their friends were connected with fishing (49.4%) ( $\bar{x} = 3.3$ ) (Table 4-13). A smaller proportion of respondents (43.0%) agreed that “when I am fishing others see me the way I want them to see me” ( $\bar{x} = 3.3$ ) (Table 4-14). Finally, 72.75 of respondents agreed that they enjoyed discussing fishing with friends ( $\bar{x} = 3.8$ ) (Table 4-15). Proportion of life in Minnesota was positively correlated with three

## Section 4: Investment in Fishing

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of these four items. Age was positively correlated with two of the items and education was negatively correlated with two of the items.

Finally, two items addressing fishing equipment. Nearly 90% of respondents indicated that “over time, I have acquired equipment that I would not use if I quit fishing” (86.3%) ( $\bar{x} = 4.1$ ) (Table 4-16). About one-third (30.7%) agreed that compared to other anglers, they had a lot of fishing equipment ( $\bar{x} = 3.0$ ) (Table 4-17). Income was positively correlated with both of these items. Age and proportion of life in Minnesota were positively correlated and education was negatively correlated with the latter item.

Respondents were asked if they could not go fishing if there were any other recreation activities that would give them the same satisfaction and enjoyment that they get from fishing. About 60% of respondents said that they did have adequate substitutes for fishing (Table 4-19). Older respondents and respondents who had lived a greater proportion of their lives in Minnesota were less likely to report adequate substitutes for fishing; respondents with higher incomes and educational attainment were more likely to report adequate substitutes. Respondents who said that they had recreation substitutes were then asked to list up to three activities that they could substitute for fishing. Hunting (or related activities) was the activity listed most frequently as a substitute (Tables 4-20, 4-21, 4-22). Other popular substitutes were golf, ATV riding, snowmobiling, and self-propelled outdoor activities like hiking, biking, running, or walking.

### *Regional*

There were significant differences between regions for 3 of the 17 listed items addressing the importance of fishing. Where there were differences, the metro respondents generally rated importance lower than respondents from other regions. Respondents from the metro region agreed less that “most of my friends are in some way connected with fishing” ( $\chi^2=35.563$ ,  $p\leq 0.01$ , Cramer’s  $V=0.069$ ;  $F=4.856$ ,  $p\leq 0.001$ ,  $\eta=0.102$ ) (Table 4-9). Metro respondents also agreed less that “when I am fishing others see me the way I want them to see me” ( $\chi^2=36.075$ ,  $p\leq 0.01$ , Cramer’s  $V=0.070$ ;  $F=2.874$ ,  $p\leq 0.05$ ,  $\eta=0.079$ ) (Table 4-10). A greater proportion of respondents from the metro and northeast regions reported having recreation activities that give them the same satisfaction and enjoyment that they get from fishing ( $\chi^2=19.187$ ,  $p\leq 0.001$ , Cramer’s  $V=0.102$ ) (Table 4-19).

### *Fishing Equipment and Organizations*

#### *Statewide*

Over one-fourth of the respondents (28.1%) reported owning a GPS unit used for fishing (Table 4-23), and about 10% of respondents reported owning an underwater video camera used for fishing (Table 4-24). Age was negatively related to ownership of these items, while income and education were positively related. On average, respondents were members of 0.14 fishing organizations (Table 4-25). Income was positively correlated with membership in fishing organizations ( $r=0.040$ ,  $p<0.05$ ). Respondents had invested an average of \$8,553 in fishing equipment (Table 4-26), and they spent \$923 per year on fishing (trips, equipment, licenses, bait, etc.) (Table 4-27). Age and income were both positively correlated with the amount of money invested in equipment and spent on fishing. The average respondent owned 8 fishing rods (Table 4-28). The number of fishing rods was positively correlated with age and income. Over one-fourth of the respondents had purchased a fishing license in a state other than Minnesota in the past 12 months (Table 4-29). Income and education were positively related and proportion of life in Minnesota was negatively related to the likelihood of purchasing a fishing license in a state other than Minnesota.

## **Section 4: Investment in Fishing**

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### *Regional*

The only difference in ownership of fishing equipment between regions was that metro and northeast respondents reported owning fewer underwater video cameras than other respondents. A greater proportion of respondents from the northwest region reported owning these cameras ( $\chi^2=12.562$ ,  $p\leq 0.05$ , Cramer's  $V=0.083$ ) (Table 4-24). There was no significant difference between regions in: (a) ownership of GPS units for fishing, (b) the amount of money invested in fishing equipment, (c) the amount of money spent each year on fishing, or (d) the number of fishing rods owned. A greater proportion of respondents from the central and northeast regions and a smaller proportion of respondents from the metro region reported memberships in fishing clubs ( $F=2.817$ ,  $p\leq 0.05$ ,  $\eta=0.079$ ) (Table 4-25).

### ***Fishing Activities***

#### *Statewide*

In the past 12 months, about 90% of respondents had watched at least one fishing-related television show (87.3%) (Table 4-30) or read at least one fishing-related newspaper article (92.2%) (Table 4-31). About 80% had read at least one DNR publication about fishing (Table 4-32); about 75% had read at least one fishing-related magazine (Table 4-33), and about 70% has read at least one fishing-related book (Table 4-34). Education was negatively correlated with four of these five activities. Income and proportion of life in Minnesota were both positively correlate with three of the five activities. Age was not correlated with any of the activities.

#### *Regional*

A greater proportion of respondents from the metro region (33%) reported buying fishing licenses in states other than Minnesota in the past 12 months ( $\chi^2=10.260$ ,  $p\leq 0.05$ , Cramer's  $V=0.075$ ) (Table 4-29). There were no substantive differences between regions in the use of fishing related media outlets like fishing-related TV shows or fishing magazines.



## Section 4: Investment in Fishing

**Table 4-1: Importance of fishing: Fishing is one of the most enjoyable things I do.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,866	1.4%	5.1%	20.9%	40.2%	32.4%	3.97
Central region	383	1.0%	4.4%	22.7%	40.5%	31.3%	3.97
Metro region	360	1.7%	5.8%	20.0%	36.9%	35.6%	3.99
Northeast region	383	2.1%	3.7%	21.4%	39.9%	32.9%	3.98
Northwest region	360	1.1%	6.1%	18.9%	43.3%	30.6%	3.96
Southern region	371	1.3%	5.7%	18.9%	44.2%	29.9%	3.96
$\chi^2=12.493$ n.s., Cramer's V=0.041							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.075 n.s.,  $\eta=0.013$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 4-2: Importance of fishing: I can't say I particularly like fishing.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,854	53.4%	33.4%	7.4%	4.4%	1.4%	1.67
Central region	380	52.9%	33.2%	7.9%	4.5%	1.6%	1.69
Metro region	358	51.7%	36.0%	6.7%	4.2%	1.4%	1.68
Northeast region	380	54.5%	32.9%	8.2%	2.6%	1.8%	1.64
Northwest region	356	54.2%	30.9%	8.7%	5.1%	1.1%	1.68
Southern region	371	57.1%	30.7%	6.2%	4.9%	1.1%	1.62
$\chi^2=9.634$ n.s., Cramer's V=0.036							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.371 n.s.,  $\eta=0.028$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 4: Investment in Fishing

**Table 4-3: Importance of fishing: Fishing says a lot about who I am.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,840	5.5%	15.6%	41.3%	27.1%	10.5%	3.21
Central region	375	5.1%	14.7%	42.7%	26.7%	10.9%	3.24
Metro region	358	7.0%	18.4%	38.3%	24.9%	11.5%	3.15
Northeast region	380	6.6%	16.1%	40.0%	27.6%	9.7%	3.18
Northwest region	354	3.7%	12.4%	42.1%	31.9%	9.9%	3.32
Southern region	366	4.1%	14.2%	44.5%	29.5%	7.7%	3.22
$\chi^2=19.610$ n.s., Cramer's V=0.052							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.465 n.s.,  $\eta=0.057$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 4-4: Importance of fishing: You can tell a lot about a person when you see them fishing.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,855	4.6%	16.9%	43.0%	29.3%	6.2%	3.16
Central region	382	5.2%	15.7%	40.3%	31.7%	7.1%	3.20
Metro region	357	5.0%	19.6%	44.8%	24.9%	5.6%	3.06
Northeast region	381	3.4%	15.7%	49.6%	24.4%	6.8%	3.15
Northwest region	360	3.3%	15.8%	41.4%	32.5%	6.9%	3.24
Southern region	366	3.6%	15.6%	44.3%	32.8%	3.8%	3.18
$\chi^2=23.916$ n.s., Cramer's V=0.057							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.808 n.s.,  $\eta=0.063$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 4: Investment in Fishing

**Table 4-5: Importance of fishing: I have put a lot into developing skills for fishing.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,844	6.2%	19.1%	30.5%	32.9%	11.3%	3.24
Central region	378	5.8%	16.7%	33.1%	33.3%	11.1%	3.27
Metro region	356	6.7%	21.9%	29.2%	31.2%	11.0%	3.18
Northeast region	380	5.8%	22.9%	27.9%	29.7%	13.7%	3.23
Northwest region	356	4.5%	19.7%	26.7%	37.1%	12.1%	3.33
Southern region	366	7.9%	16.9%	30.6%	33.9%	10.7%	3.22
$\chi^2=18.355$ n.s., Cramer's V=0.050							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.964 n.s.,  $\eta=0.046$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 4-6: Importance of fishing: When I am fishing I can really be myself.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,854	2.0%	6.3%	32.5%	46.8%	12.4%	3.61
Central region	383	1.6%	5.7%	35.8%	43.9%	13.1%	3.61
Metro region	354	2.5%	7.1%	30.8%	48.0%	11.6%	3.59
Northeast region	382	2.4%	6.8%	33.5%	45.5%	11.8%	3.58
Northwest region	360	1.4%	4.4%	31.1%	50.6%	12.5%	3.68
Southern region	367	2.5%	7.1%	27.0%	50.7%	12.8%	3.64
$\chi^2=13.557$ n.s., Cramer's V=0.043							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.931 n.s.,  $\eta=0.045$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 4: Investment in Fishing

**Table 4-7: Importance of fishing: Fishing is very important to me.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,833	2.8%	8.3%	28.1%	38.9%	22.0%	3.69
Central region	378	2.6%	7.4%	29.6%	37.6%	22.8%	3.70
Metro region	351	3.7%	8.3%	27.9%	39.3%	20.8%	3.65
Northeast region	377	1.6%	11.7%	24.4%	38.2%	24.1%	3.72
Northwest region	355	2.0%	8.2%	29.3%	38.0%	22.5%	3.71
Southern region	364	2.7%	8.8%	25.0%	42.9%	20.6%	3.70
$\chi^2=14.697$ n.s., Cramer's V=0.045							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.231 n.s.,  $\eta=0.023$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 4-8: Importance of fishing: Participation in fishing is a large part of my life.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,853	6.0%	20.0%	33.5%	28.6%	11.9%	3.21
Central region	379	5.5%	15.8%	37.5%	28.8%	12.4%	3.27
Metro region	357	7.3%	24.1%	31.4%	25.8%	11.5%	3.10
Northeast region	383	5.2%	24.5%	28.2%	27.2%	14.9%	3.22
Northwest region	360	4.2%	23.3%	29.2%	31.4%	11.9%	3.24
Southern region	370	6.2%	17.6%	33.0%	33.5%	9.7%	3.23
$\chi^2=30.716^*$ , Cramer's V=0.064							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.258 n.s.,  $\eta=0.052$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 4: Investment in Fishing

**Table 4-9: Importance of fishing: It would be difficult for me to find another recreational activity to replace fishing.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,861	9.0%	24.4%	22.7%	28.6%	15.4%	3.17
Central region	382	7.3%	25.1%	23.3%	29.1%	15.2%	3.20
Metro region	358	11.5%	25.1%	21.2%	26.5%	15.6%	3.10
Northeast region	383	10.4%	25.1%	22.7%	25.1%	16.7%	3.13
Northwest region	360	7.5%	23.3%	22.5%	29.4%	17.2%	3.26
Southern region	371	8.6%	21.0%	24.0%	33.2%	13.2%	3.21
$\chi^2=15.389$ n.s., Cramer's V=0.046							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.032 n.s.,  $\eta=0.047$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 4-10: Importance of fishing: I have little or no interest in fishing.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,858	54.2%	33.2%	9.1%	2.1%	1.4%	1.63
Central region	381	54.1%	33.1%	10.0%	1.3%	1.6%	1.63
Metro region	360	54.4%	33.1%	9.2%	1.9%	1.4%	1.63
Northeast region	379	54.6%	32.7%	7.1%	4.2%	1.3%	1.65
Northwest region	358	53.1%	34.1%	9.2%	2.0%	1.7%	1.65
Southern region	369	54.5%	33.3%	7.6%	3.8%	0.8%	1.63
$\chi^2=13.208$ n.s., Cramer's V=0.042							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.059 n.s.,  $\eta=0.011$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 4: Investment in Fishing

**Table 4-11: Importance of fishing: I would rather fish than do any other recreational activity.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,864	11.5%	27.9%	31.2%	20.0%	9.4%	2.88
Central region	384	10.2%	25.8%	32.3%	21.9%	9.9%	2.96
Metro region	358	13.7%	29.3%	30.2%	18.4%	8.4%	2.78
Northeast region	383	13.6%	29.0%	28.2%	19.1%	10.2%	2.83
Northwest region	360	11.1%	29.2%	31.1%	19.7%	8.9%	2.86
Southern region	370	9.5%	29.5%	32.4%	18.6%	10.0%	2.90
$\chi^2=10.105$ n.s., Cramer's V=0.037							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.217 n.s.,  $\eta=0.051$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 4-12: Importance of fishing: I have close friendships that are based on a common interest in fishing.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,862	6.2%	13.7%	23.5%	42.4%	14.2%	3.45
Central region	383	6.8%	13.1%	25.1%	42.6%	12.5%	3.41
Metro region	358	7.0%	15.4%	22.1%	40.8%	14.8%	3.41
Northeast region	383	4.7%	15.9%	23.2%	40.2%	15.9%	3.47
Northwest region	360	3.6%	13.9%	23.3%	43.3%	15.8%	3.54
Southern region	370	5.4%	10.5%	22.2%	46.5%	15.4%	3.56
$\chi^2=15.362$ n.s., Cramer's V=0.046							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.570 n.s.,  $\eta=0.058$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 4-13: Importance of fishing: Most of my friends are in some way connected with fishing.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,862	5.9%	20.3%	24.4%	40.8%	8.6%	3.26
Central region	384	5.2%	16.4%	23.7%	45.6%	9.1%	3.37
Metro region	357	7.0%	27.5%	24.1%	35.3%	6.2%	3.06
Northeast region	381	5.5%	20.7%	22.6%	38.3%	12.9%	3.32
Northwest region	360	4.7%	18.9%	25.6%	39.7%	11.1%	3.34
Southern region	370	7.0%	16.8%	27.0%	41.4%	7.8%	3.26
$\chi^2=35.562^{**}$ , Cramer's V=0.069							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=4.856\*\*\*,  $\eta=0.102$  Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 4-14: Importance of fishing: When I am fishing others see me the way I want them to see me.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,861	6.1%	11.6%	39.3%	34.8%	8.2%	3.27
Central region	383	4.7%	13.3%	37.9%	36.6%	7.6%	3.29
Metro region	357	9.5%	10.1%	42.0%	29.4%	9.0%	3.18
Northeast region	382	4.7%	12.6%	42.1%	30.1%	10.5%	3.29
Northwest region	359	3.1%	9.7%	37.3%	41.2%	8.6%	3.43
Southern region	371	5.9%	10.5%	37.7%	39.1%	6.7%	3.30
$\chi^2=36.075^{**}$ , Cramer's V=0.070							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.874\*,  $\eta=0.079$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 4-15: Importance of fishing: I enjoy discussing fishing with my friends.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,828	2.7%	5.5%	19.1%	57.7%	15.0%	3.77
Central region	374	3.2%	4.3%	19.8%	57.8%	15.0%	3.77
Metro region	353	2.8%	7.1%	18.7%	57.8%	13.6%	3.72
Northeast region	379	1.1%	6.6%	21.9%	54.1%	16.4%	3.78
Northwest region	354	1.1%	5.4%	17.5%	59.0%	16.9%	3.85
Southern region	363	2.8%	4.7%	17.6%	58.7%	16.3%	3.81
$\chi^2=16.007$ n.s., Cramer's V=0.047							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.151 n.s.,  $\eta=0.050$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 4-16: Importance of fishing: Over time, I have acquired equipment that I would not use if I quit fishing.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,864	1.9%	4.8%	6.9%	51.8%	34.5%	4.12
Central region	384	2.1%	4.4%	8.1%	52.1%	33.3%	4.10
Metro region	358	2.2%	4.5%	5.0%	52.2%	36.0%	4.15
Northeast region	383	1.8%	6.5%	5.5%	49.3%	36.8%	4.13
Northwest region	360	1.1%	5.3%	6.1%	52.8%	34.7%	4.15
Southern region	369	1.6%	5.1%	8.9%	50.9%	33.3%	4.09
$\chi^2=11.637$ n.s., Cramer's V=0.040							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.352 n.s.,  $\eta=0.028$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001



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**Table 4-17: Importance of fishing: Compared to other anglers, I own a lot of fishing equipment.**

Regions	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,860	7.7%	29.3%	32.4%	21.9%	8.8%	2.95
Central region	382	6.8%	28.8%	30.6%	25.1%	8.6%	3.00
Metro region	358	9.8%	29.1%	34.4%	20.1%	6.7%	2.85
Northeast region	382	6.8%	30.1%	34.0%	16.5%	12.6%	2.98
Northwest region	360	6.7%	29.7%	31.1%	21.4%	11.1%	3.01
Southern region	370	7.3%	30.3%	33.0%	19.7%	9.7%	2.94
$\chi^2=19.732$ n.s., Cramer's V=0.052							

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.256 n.s.,  $\eta^2=0.052$ . Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 4-18: Comparison of fishing investment items.**

	Statewide mean <sup>1</sup>
Fishing is one of the most enjoyable things I do.	3.97
I can't say I particularly like fishing.	1.67
Fishing says a lot about who I am.	3.21
Participation in fishing is a large part of my life.	3.21
I have put a lot into developing skills for fishing.	3.24
It would be difficult for me to find another recreational activity to replace fishing.	3.17
I would rather fish than do any other recreational activity.	2.88
I have close friendships that are based on a common interest in fishing.	3.45
Most of my friends are in some way connected with fishing.	3.26
When I am fishing others see me the way I want them to see me.	3.27
I have little or no interest in fishing.	1.63
Fishing is very important to me.	3.69
You can tell a lot about a person when you see them fishing.	3.16
When I am fishing I can really be myself.	3.61
I enjoy discussing fishing with my friends.	3.77
Over time, I have acquired equipment that I would not use if I quit fishing.	4.12
Compared to other anglers, I own a lot of fishing equipment.	2.95

**Notes:**

<sup>1</sup> Grand mean=3.186. F=1427.359\*\*\*,  $\eta^2=0.412$ . Mean is based on the scale: 1 = 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 4-19: Percent of respondents reporting that there are other recreational activities that give them the same satisfaction and enjoyment as fishing (recreation substitutes).**

Regions	n	%
Statewide <sup>1</sup>	1,783	62.8%
Central region	367	60.8%
Metro region	345	65.2%
Northeast region	365	66.0%
Northwest region	347	60.2%
Southern region	347	63.4%
$\chi^2=19.187^{***}$ , Cramer's V=0.102		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 4-20: First fishing substitute.**

	n	%
Motorsports (ATVs, snowmobiling)	121	10.3%
Motorized watersports (boating, waterskiing, jet skis)	75	6.4%
Hunting, shooting, archery, trapping	451	38.4%
Self-propelled outdoor activities (running, biking, walking, rollerblading, hiking, backpacking)	104	8.9%
Team sports	47	4.0%
Traveling, shopping, sightseeing	20	1.7%
Camping	56	4.7%
'Productive' hobbies (working on the car, woodworking, photography, music, sewing)	50	4.3%
Indoor games (cards, reading, bowling, dancing, gambling)	39	3.3%
Silent watersports (canoeing, kayaking, sailing)	26	2.2%
Golf	157	13.4%
Downhill or cross-country skiing, snowboarding	11	1.0%
Other (flying, skydiving, horseback riding, church, health club)	16	1.4%

**Notes:**

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**Table 4-21: Second fishing substitute.**

	n	%
Motorsports (ATVs, snowmobiling)	123	12.2%
Motorized watersports (boating, waterskiing, jet skis)	74	7.3%
Hunting, shooting, archery, trapping	170	16.8%
Self-propelled outdoor activities (running, biking, walking, rollerblading, hiking, backpacking)	128	12.6%
Team sports	72	7.1%
Traveling, shopping, sightseeing	55	5.4%
Camping	94	9.3%
'Productive' hobbies (working on the car, woodworking, photography, music, sewing)	80	7.9%
Indoor games (cards, reading, bowling, dancing, gambling)	81	8.0%
Silent watersports (canoeing, kayaking, sailing)	25	2.4%
Golf	56	5.5%
Downhill or cross-country skiing, snowboarding	29	2.9%
Other (flying, skydiving, horseback riding, church, health club)	26	2.5%

Notes:

**Table 4-22: Third fishing substitute.**

	n	%
Motorsports (ATVs, snowmobiling)	76	9.5%
Motorized watersports (boating, waterskiing, jet skis)	67	8.3%
Hunting, shooting, archery, trapping	114	14.3%
Self-propelled outdoor activities (running, biking, walking, rollerblading, hiking, backpacking)	118	14.7%
Team sports	38	4.7%
Traveling, shopping, sightseeing	51	6.4%
Camping	63	7.9%
'Productive' hobbies (working on the car, woodworking, photography, music, sewing)	90	11.2%
Indoor games (cards, reading, bowling, dancing, gambling)	89	11.1%
Silent watersports (canoeing, kayaking, sailing)	26	3.3%
Golf	29	3.6%
Downhill or cross-country skiing, snowboarding	15	1.8%
Other (flying, skydiving, horseback riding, church, health club)	25	3.1%

Notes:

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**Table 4-23: Percent of respondents reporting that their household owns a GPS unit used for fishing.**

Regions	n	%
Statewide <sup>1</sup>	1,840	28.1%
Central region	377	28.9%
Metro region	356	26.4%
Northeast region	373	31.9%
Northwest region	356	32.0%
Southern region	367	24.0%
$\chi^2=8.722$ n.s., Cramer's V=0.069		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 4-24: Percent of respondents reporting that their household owns an underwater video camera for fishing.**

Regions	n	%
Statewide <sup>1</sup>	1,842	9.9%
Central region	378	11.6%
Metro region	356	7.6%
Northeast region	375	6.7%
Northwest region	357	13.2%
Southern region	366	9.0%
$\chi^2=12.562^*$ , Cramer's V=0.083		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 4-25: Number of memberships in fishing clubs/organizations.**

Age Cohorts	Sample size (n)	Mean <sup>1</sup>
Statewide <sup>2</sup>	1,803	0.14
Central region	367	0.17
Metro region	352	0.09
Northeast region	366	0.19
Northwest region	347	0.13
Southern region	361	0.12
$F=2.817^*$ , $\eta=0.079$		

**Notes:**

<sup>1</sup> Mean is based on a scale of: 1=extremely unenjoyable, 2=moderately unenjoyable, 3=slightly unenjoyable, 4=neutral, 5=slightly enjoyable, 6=moderately enjoyable, 7=extremely enjoyable.

<sup>2</sup> A stratified sample based on age was drawn. Statewide data is weighted to reflect age proportions in the population.

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**Table 4-26: Amount of money invested in fishing equipment (including boats for fishing, fishing rods, fishing tackle, fly-tying equipment, waders, etc., but excluding general outdoor/camping equipment not used primarily for fishing).**

Regions	Sample size (n)	Mean <sup>1</sup>
Statewide <sup>2</sup>	1,730	\$8,553.61
Central region	356	\$8,630.65
Metro region	335	\$8,435.24
Northeast region	348	\$10,051.20
Northwest region	335	\$8,563.85
Southern region	341	\$7,687.75
F=1.624 n.s., $\eta$ =0.062		

**Notes:**

<sup>1</sup> Mean is based on a scale of: 1=extremely unenjoyable, 2=moderately unenjoyable, 3=slightly unenjoyable, 4=neutral, 5=slightly enjoyable, 6=moderately enjoyable, 7=extremely enjoyable.

<sup>2</sup> A stratified sample based on age was drawn. Statewide data is weighted to reflect age proportions in the population.

**Table 4-27: Amount of money spent each year on fishing (trips, equipment, licenses, bait, etc.).**

Regions	Sample size (n)	Mean <sup>1</sup>
Statewide <sup>2</sup>	1,752	\$923.73
Central region	362	\$821.46
Metro region	338	\$985.81
Northeast region	359	\$1,125.41
Northwest region	337	\$1,028.10
Southern region	343	\$888.48
F=1.645 n.s., $\eta$ =0.061		

**Notes:**

<sup>1</sup> Mean is based on a scale of: 1=extremely unenjoyable, 2=moderately unenjoyable, 3=slightly unenjoyable, 4=neutral, 5=slightly enjoyable, 6=moderately enjoyable, 7=extremely enjoyable.

<sup>2</sup> A stratified sample based on age was drawn. Statewide data is weighted to reflect age proportions in the population.

**Table 4-28: Number of fishing rods.**

Regions	Sample size (n)	Mean <sup>1</sup>
Statewide <sup>2</sup>	1,824	8.16
Central region	373	8.12
Metro region	351	7.87
Northeast region	373	8.46
Northwest region	356	8.76
Southern region	366	8.26
F=0.562 n.s., $\eta$ =0.035		

**Notes:**

<sup>1</sup> Mean is based on a scale of: 1=extremely unenjoyable, 2=moderately unenjoyable, 3=slightly unenjoyable, 4=neutral, 5=slightly enjoyable, 6=moderately enjoyable, 7=extremely enjoyable.

<sup>2</sup> A stratified sample based on age was drawn. Statewide data is weighted to reflect age proportions in the population.

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**Table 4-29: Percent of respondents reporting that they bought a fishing license in a state other than Minnesota in the past 12 months.**

Regions	n	%
Statewide <sup>1</sup>	1,843	27.8%
Central region	377	25.7%
Metro region	357	33.1%
Northeast region	375	26.1%
Northwest region	359	22.8%
Southern region	366	27.3%
$\chi^2=10.260^*$ , Cramer's V=0.075		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 4-30: Use of fishing-related media: Frequency of watching fishing-related TV shows.**

Regions	n	Never	1-5 times	6-10 times	11+ times	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,222	12.7%	38.2%	16.9%	32.3%	2.69
Central region	249	11.2%	37.3%	17.7%	33.7%	2.74
Metro region	243	14.0%	43.2%	13.2%	29.6%	2.58
Northeast region	258	12.0%	42.6%	19.0%	26.4%	2.60
Northwest region	230	13.0%	30.4%	26.1%	30.4%	2.74
Southern region	232	14.2%	31.9%	14.7%	39.2%	2.79
$\chi^2=30.472^{**}$ , Cramer's V=0.092						

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F= 1.890 n.s., η=0.079. Mean is based on the scale: 1 = never, 2 = 1-5 times, 3 = 6-10 times, 4 = 11+ times.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 4-31: Use of fishing-related media: Frequency of reading newspaper articles about fishing.**

Regions	n	Never	1-5 times	6-10 times	11+ times	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,219	7.8%	35.0%	24.0%	33.2%	2.83
Central region	249	6.4%	32.1%	26.1%	35.3%	2.90
Metro region	242	6.6%	38.0%	23.1%	32.2%	2.81
Northeast region	258	8.5%	36.8%	26.0%	28.7%	2.75
Northwest region	228	11.0%	34.6%	22.8%	31.6%	2.75
Southern region	232	12.1%	35.3%	19.4%	33.2%	2.74
$\chi^2=13.279$ n.s., Cramer's V=0.061						

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F= 1.211 n.s., η=0.063. Mean is based on the scale: 1 = never, 2 = 1-5 times, 3 = 6-10 times, 4 = 11+ times.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 4-32: Use of fishing-related media: Frequency of reading Minnesota DNR publications about fishing.**

Regions	n	Never	1-5 times	6-10 times	11+ times	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,218	19.7%	51.1%	17.7%	11.5%	2.21
Central region	248	18.1%	49.6%	19.0%	13.3%	2.27
Metro region	242	20.2%	55.0%	16.1%	8.7%	2.13
Northeast region	258	16.7%	53.9%	20.2%	9.3%	2.22
Northwest region	228	24.1%	48.2%	15.4%	12.3%	2.16
Southern region	232	21.6%	47.0%	18.1%	13.4%	2.23
$\chi^2=12.881$ n.s., Cramer's V=0.060						

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F= 1.018 n.s.,  $\eta=0.058$ . Mean is based on the scale: 1 = never, 2 = 1-5 times, 3 = 6-10 times, 4 = 11+ times.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 4-33: Use of fishing-related media: Frequency of reading fishing-related magazines.**

Regions	n	Never	1-5 times	6-10 times	11+ times	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,215	23.8%	34.2%	18.2%	23.8%	2.42
Central region	248	23.4%	32.7%	20.6%	23.4%	2.44
Metro region	240	25.4%	35.0%	15.4%	24.2%	2.38
Northeast region	258	22.5%	39.9%	21.3%	16.3%	2.31
Northwest region	229	22.7%	36.2%	16.2%	24.9%	2.43
Southern region	232	23.3%	31.5%	16.8%	28.4%	2.50
$\chi^2=16.016$ n.s., Cramer's V=0.067						

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F= 1.048 n.s.,  $\eta=0.059$ . Mean is based on the scale: 1 = never, 2 = 1-5 times, 3 = 6-10 times, 4 = 11+ times.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 4-34: Use of fishing-related media: Frequency of reading fishing-related books.**

Regions	n	Never	1-5 times	6-10 times	11+ times	Mean <sup>2</sup>
Statewide <sup>1</sup>	1,218	28.4%	44.5%	13.2%	13.8%	2.12
Central region	249	24.9%	47.0%	15.3%	12.9%	2.16
Metro region	241	32.4%	43.6%	12.0%	12.0%	2.04
Northeast region	258	30.6%	41.5%	15.1%	12.8%	2.10
Northwest region	229	26.6%	46.3%	11.4%	15.7%	2.16
Southern region	231	29.9%	39.8%	10.0%	20.3%	2.21
$\chi^2=16.954$ n.s., Cramer's V=0.068						

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F= 1.050 n.s.,  $\eta=0.059$ . Mean is based on the scale: 1 = never, 2 = 1-5 times, 3 = 6-10 times, 4 = 11+ times.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 4-35: Comparison of use of fishing-related media.**

	<b>Statewide mean<sup>1</sup></b>
Watched fishing-related television shows.	2.70
Read fishing-related books.	2.13
Read newspaper articles about fishing.	2.82
Read Minnesota DNR publications about fishing.	2.20
Read fishing magazines.	2.43

**Notes:**

<sup>1</sup> Grand mean=2.458.  $F=311.969^{***}$ ,  $\eta=0.179$ . Mean is based on the scale: 1 = never, 2 = 1-5 times, 3 = 6-10 times, 4 = 11+ times.

<sup>2</sup> A stratified sample based on age was drawn. Statewide data is weighted to reflect age proportions in the population.



## Section 5: Motivations for Fishing

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### **Findings:**

#### *Statewide*

Respondents were asked to report the importance of 28 possible outcomes of fishing using the scale 1 (very unimportant) to 7 (very important). The reliability for the 28-item scale was 0.895. A factor analysis was conducted to reveal underlying correlations among the items. Six underlying factors with Eigenvalues greater than 1.0 were identified. By examining which items loaded heavily ( $>0.500$ ) on each factor, we found that the factors reflected different underlying motivations including: (a) relaxing and enjoying nature, (b) using and developing skills, (c) catching fish, (d) enjoying other people, (e) getting away from other people, and (f) releasing fish.

The seven motivations that loaded on first factor related to relaxing and appreciating nature (Cronbach's alpha ( $\alpha$ ) = 0.864). The motivation items included in this scale are: (a) learning about nature ( $\bar{x}$  = 5.6) (Table 5-1), (b) relaxing ( $\bar{x}$  = 6.1) (Table 5-2), (c) enjoying nature and the outdoors ( $\bar{x}$  = 6.2) (Table 5-3), (d) being in a quiet and peaceful place ( $\bar{x}$  = 5.9) (Table 5-4), (e) giving your mind a rest ( $\bar{x}$  = 5.7) (Table 5-5), (f) fishing in a wilderness setting ( $\bar{x}$  = 5.5) (Table 5-6), (g) getting away from crowds of people ( $\bar{x}$  = 5.8) (Table 5-7). One additional item, which did not have a factor loading greater than 0.5, loaded most heavily on the first factor; it was 'visiting areas you've fished in the past' ( $\bar{x}$  = 5.3) (Table 5-8). Age was negatively correlated with four of these six motivations.

Five items generally related to using and developing skills loaded on the second factor ( $\alpha$ =0.785). The items included in this scale are: (a) getting exercise ( $\bar{x}$  = 4.7) (Table 5-9), (b) sharing your skills and knowledge with others ( $\bar{x}$  = 4.8) (Table 5-10), (c) thinking about your personal values ( $\bar{x}$  = 4.9) (Table 5-11), (d) meeting new people ( $\bar{x}$  = 4.3) (Table 5-12), and (e) developing your skills and abilities ( $\bar{x}$  = 5.1) (Table 5-13). Two additional items, which did not have factor loadings greater than 0.5, loaded most heavily on the second factor; they were 'using your fishing equipment' ( $\bar{x}$  = 4.9) (Table 5-14) and 'doing something with your family' ( $\bar{x}$  = 5.9) (Table 5-15). Education was negatively correlated with all but one of the skill motivations.

Six items related to catching fish loaded on the third factor ( $\alpha$ =0.815). The items included in this scale are: (a) catching fish ( $\bar{x}$  = 5.3) (Table 5-16), (b) catching some fish to eat ( $\bar{x}$  = 5.1) (Table 5-17), (c) catching a trophy ( $\bar{x}$  = 4.0) (Table 5-18), (d) the size of the fish you catch ( $\bar{x}$  = 4.5) (Table 5-19), (e) catching your limit ( $\bar{x}$  = 3.8) (Table 5-20) and (f) catching a particular species of fish ( $\bar{x}$  = 4.6) (Table 5-21). Age and education tended to be negatively correlated with motivations related to catching fish, while proportion of life in Minnesota tended to be positively correlated with these motivations.

Four social motivation items loaded on the fourth factor ( $\alpha$ =0.658). The items included in this scale are: (a) being with friends ( $\bar{x}$  = 5.4) (Table 5-22), (b) competing with friends who fish ( $\bar{x}$  = 3.5) (Table 5-23), (c) being around other anglers ( $\bar{x}$  = 3.7) (Table 5-24), and (d) being with people who are enjoying themselves ( $\bar{x}$  = 5.7) (Table 5-25).

Two items related to getting away from people loaded on the fifth factor ( $r$ =0.260). The items in this scale are: (a) being alone ( $\bar{x}$  = 4.0) (Table 5-26) and (b) getting away from family for awhile ( $\bar{x}$  = 3.7) (Table 5-

## Section 5: Motivations for Fishing

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27). Income and education were positively correlated with being alone and negatively correlated with getting away from family.

One item related to catch-and-release fishing loaded on the sixth factor. This item was ‘releasing fish’ ( $\bar{x} = 5.1$ ) (Table 5-27). This item was negatively correlated with age and positively correlated with income. The item, catching some fish to eat, loaded heavily negatively on this factor.

### *Regional*

There were significant differences by region in the importance of 5 of the 28 listed outcomes for fishing. Respondents from the metro region rated “fishing in a wilderness setting” more important and “getting exercise” less important, compared to respondents from the other regions ( $F=4.217$ ,  $p \leq 0.01$ ,  $\eta=0.095$ ) (Table 5-21) ( $\chi^2=39.252$ ,  $p \leq 0.05$ ,  $\eta=0.073$ ;  $F=2.651$ ,  $p \leq 0.05$ ,  $\eta=0.076$ ) (Table 5-10). Respondents from the metro and southern regions rated “catching some fish to eat” lower than respondents from other regions did ( $F=2.905$ ,  $p \leq 0.05$ ,  $\eta=0.079$ ) (Table 5-12). “Catching a trophy” was rated more important by respondents from the central and southern regions ( $\chi^2=49.276$ ,  $p \leq 0.01$ ,  $\eta=0.082$ ;  $F=3.556$ ,  $p \leq 0.01$ ,  $\eta=0.088$ ) (Table 5-24). There was a significant, but not substantive, difference in the distribution of responses for the motivation of “developing your skills and abilities” ( $\chi^2=40.036$ ,  $p \leq 0.05$ ,  $\eta=0.074$ ) (Table 5-19).

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**Table 5-1: Motivations for fishing: Importance of... learning about nature.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,843	0.8%	1.2%	2.6%	10.3%	24.6%	40.6%	19.9%	5.58
Central region	377	0.8%	1.3%	2.4%	9.8%	24.7%	40.6%	20.4%	5.60
Metro region	357	0.3%	0.6%	2.0%	12.0%	25.5%	40.3%	19.3%	5.60
Northeast region	377	1.3%	2.1%	2.7%	13.0%	21.5%	38.2%	21.2%	5.51
Northwest region	361	0.6%	2.5%	3.3%	9.4%	25.5%	40.7%	18.0%	5.51
Southern region	363	1.9%	0.8%	3.9%	6.9%	23.7%	42.4%	20.4%	5.58
$\chi^2=27.929$ n.s., Cramer's V=0.062									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.600 n.s.,  $\eta=0.036$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 5-2: Motivations for fishing: Importance of... relaxing.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
%	1,862	0.7%	0.4%	1.0%	1.9%	13.1%	44.1%	38.8%	6.14
Central region	382	0.8%	0.5%	1.0%	2.1%	15.2%	44.0%	36.4%	6.08
Metro region	360	0.0%	0.0%	0.8%	1.7%	13.1%	42.5%	41.9%	6.23
Northeast region%	380	1.3%	0.5%	1.1%	1.6%	11.6%	42.6%	41.3%	6.15
Northwest region	361	1.1%	1.1%	1.4%	2.5%	11.6%	44.3%	38.0%	6.07
Southern region	368	1.4%	0.0%	0.8%	1.6%	9.2%	48.6%	38.3%	6.17
$\chi^2=24.073$ n.s., Cramer's V=0.057									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.647 n.s.,  $\eta=0.060$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 5-3: Motivations for fishing: Importance of... enjoying nature and the outdoors.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,847	0.4%	0.3%	1.1%	1.4%	14.5%	40.5%	41.7%	6.18
Central region	377	0.3%	0.5%	1.3%	1.3%	14.6%	40.1%	41.9%	6.17
Metro region	359	0.0%	0.0%	0.6%	1.4%	15.9%	37.0%	45.1%	6.25
Northeast region	377	1.3%	0.3%	1.6%	0.8%	15.1%	40.1%	40.8%	6.12
Northwest region	361	0.8%	0.6%	1.4%	2.5%	13.6%	47.1%	34.1%	6.05
Southern region	365	1.1%	0.3%	0.8%	1.1%	11.8%	44.9%	40.0%	6.17
$\chi^2=29.581$ n.s., Cramer's V=0.063									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.147 n.s.,  $\eta=0.068$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 5-4: Motivations for fishing: Importance of... being in a quiet and peaceful place.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,857	0.5%	0.8%	1.5%	4.7%	21.2%	43.0%	28.2%	5.87
Central region	382	0.8%	0.3%	0.5%	5.5%	24.3%	42.4%	26.2%	5.84
Metro region	358	0.0%	1.1%	2.2%	3.9%	18.7%	44.1%	29.9%	5.92
Northeast region	379	0.8%	1.3%	1.6%	4.5%	18.7%	41.4%	31.7%	5.90
Northwest region	361	0.8%	1.1%	1.9%	4.7%	23.3%	41.0%	27.1%	5.80
Southern region	366	0.5%	1.1%	2.5%	3.8%	17.5%	45.1%	29.5%	5.90
$\chi^2=22.556$ n.s., Cramer's V=0.055									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.806 n.s.,  $\eta=0.042$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 5-5: Motivations for fishing: Importance of... giving your mind a rest.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,853	0.9%	1.5%	2.1%	8.7%	22.4%	39.5%	24.9%	5.68
Central region	381	0.5%	1.8%	1.8%	11.0%	23.1%	38.6%	23.1%	5.62
Metro region	359	0.8%	0.8%	2.5%	6.1%	20.9%	42.3%	26.5%	5.78
Northeast region	378	1.1%	1.3%	1.3%	10.8%	22.2%	36.2%	27.0%	5.69
Northwest region	359	1.7%	2.5%	1.4%	10.0%	23.4%	39.3%	21.7%	5.56
Southern region	363	1.1%	1.7%	3.0%	5.5%	22.9%	37.7%	28.1%	5.73
$\chi^2=28.716$ n.s., Cramer's V=0.062									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.982 n.s.,  $\eta=0.066$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 5-6: Motivations for fishing: Importance of... fishing in a wilderness setting.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,847	1.0%	3.2%	2.8%	12.5%	24.0%	33.4%	23.0%	5.47
Central region	379	1.3%	3.2%	2.9%	10.6%	25.6%	36.1%	20.3%	5.46
Metro region	357	0.6%	2.5%	1.7%	13.2%	20.7%	32.2%	29.1%	5.64
Northeast region	380	0.8%	3.7%	2.4%	13.2%	25.8%	30.3%	23.9%	5.46
Northwest region	357	1.4%	3.4%	3.6%	17.4%	25.2%	30.3%	18.8%	5.27
Southern region	365	1.1%	4.7%	4.4%	12.9%	24.9%	32.1%	20.0%	5.32
$\chi^2=33.066$ n.s., Cramer's V=0.067									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=4.217\*\*,  $\eta=0.095$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 5-7: Motivations for fishing: Importance of... getting away from crowds of people.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,858	0.9%	1.6%	2.4%	7.1%	18.9%	36.2%	32.9%	5.82
Central region	381	1.0%	1.3%	2.1%	8.4%	15.5%	39.6%	32.0%	5.83
Metro region	360	0.6%	1.7%	2.8%	5.6%	19.7%	35.3%	34.4%	5.86
Northeast region	380	0.5%	2.4%	1.8%	6.3%	22.1%	35.3%	31.6%	5.79
Northwest region	360	1.7%	0.8%	1.7%	7.2%	23.3%	31.1%	34.2%	5.80
Southern region	366	0.8%	2.7%	3.0%	7.1%	21.9%	32.8%	31.7%	5.72
$\chi^2=25.301$ n.s., Cramer's V=0.059									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.699 n.s.,  $\eta=0.039$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 5-8: Motivations for fishing: Importance of... visiting areas you've fished in the past.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,857	0.9%	1.8%	3.3%	13.9%	31.8%	36.3%	12.0%	5.31
Central region	381	1.0%	1.8%	3.1%	13.1%	31.8%	37.3%	11.8%	5.32
Metro region	360	0.6%	1.9%	3.3%	14.7%	33.6%	34.2%	11.7%	5.28
Northeast region	379	1.6%	1.3%	3.7%	12.4%	28.2%	38.3%	14.5%	5.37
Northwest region	360	1.4%	1.9%	1.9%	15.8%	32.5%	34.4%	11.9%	5.27
Southern region	366	0.5%	1.4%	4.6%	13.7%	29.2%	38.8%	11.7%	5.33
$\chi^2=16.209$ n.s., Cramer's V=0.047									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.445 n.s.,  $\eta=0.031$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 5-9: Motivations for fishing: Importance of... getting exercise.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,857	2.6%	7.2%	7.0%	23.3%	27.6%	23.3%	9.0%	4.72
Central region	382	1.3%	7.3%	7.1%	20.9%	30.1%	23.0%	10.2%	4.81
Metro region	359	3.9%	7.5%	8.9%	27.9%	22.8%	20.9%	8.1%	4.53
Northeast region	378	1.9%	7.7%	5.8%	23.0%	24.1%	25.7%	11.9%	4.84
Northwest region	360	3.6%	5.8%	5.6%	23.3%	27.8%	26.4%	7.5%	4.75
Southern region	366	3.3%	6.6%	4.6%	19.9%	32.5%	26.0%	7.1%	4.78
$\chi^2=39.252^*$ , Cramer's V=0.073									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.651\*,  $\eta=0.076$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = neutral, 4 = important, 5 = very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 5-10: Motivations for fishing: Importance of... sharing your skills and knowledge with others.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,856	2.4%	6.2%	6.9%	22.4%	29.6%	24.8%	7.7%	4.76
Central region	381	1.6%	6.6%	7.3%	21.5%	28.9%	26.5%	7.6%	4.80
Metro region	359	3.1%	5.8%	7.2%	22.0%	29.5%	24.2%	8.1%	4.74
Northeast region	380	3.4%	7.1%	6.3%	25.8%	27.9%	21.1%	8.4%	4.64
Northwest region	359	2.2%	7.0%	4.7%	26.2%	32.3%	21.4%	6.1%	4.68
Southern region	366	3.3%	4.6%	7.1%	20.8%	30.6%	26.0%	7.7%	4.79
$\chi^2=19.396$ n.s., Cramer's V=0.051									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.849 n.s.,  $\eta=0.043$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 5: Motivations for Fishing

**Table 5-11: Motivations for fishing: Importance of... thinking about your personal values.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,853	1.8%	4.5%	4.7%	23.8%	28.1%	26.2%	10.9%	4.94
Central region	382	1.8%	3.4%	4.2%	24.6%	31.4%	22.5%	12.0%	4.96
Metro region	357	1.7%	6.2%	5.0%	23.0%	25.8%	28.0%	10.4%	4.90
Northeast region	379	0.8%	4.2%	5.0%	22.7%	27.4%	26.4%	13.5%	5.05
Northwest region	360	1.9%	4.2%	3.9%	28.1%	24.4%	29.7%	7.8%	4.89
Southern region	364	2.5%	4.1%	5.8%	20.9%	26.6%	30.5%	9.6%	4.95
$\chi^2=28.852$ n.s., Cramer's V=0.063									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.775 n.s.,  $\eta=0.041$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 5-12: Motivations for fishing: Importance of... meeting new people.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,851	4.0%	10.0%	11.0%	29.9%	26.1%	15.3%	3.7%	4.25
Central region	381	2.4%	9.4%	11.3%	30.7%	26.8%	16.5%	2.9%	4.31
Metro region	357	5.6%	10.1%	12.6%	29.7%	26.3%	11.8%	3.9%	4.12
Northeast region	378	5.8%	11.1%	12.2%	26.7%	24.1%	15.1%	5.0%	4.17
Northwest region	359	3.9%	10.6%	8.4%	35.4%	22.3%	15.6%	3.9%	4.24
Southern region	365	4.1%	10.1%	8.2%	25.8%	27.9%	19.2%	4.7%	4.39
$\chi^2=32.656$ n.s., Cramer's V=0.067									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.067 n.s.,  $\eta=0.067$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001



## Section 5: Motivations for Fishing

**Table 5-13: Motivations for fishing: Importance of... developing your skills and abilities.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,858	1.3%	3.5%	4.6%	17.3%	33.8%	28.8%	10.7%	5.08
Central region	381	1.3%	1.8%	2.9%	18.6%	33.9%	31.5%	10.0%	5.16
Metro region	360	1.4%	5.3%	6.4%	15.3%	35.3%	25.6%	10.8%	4.98
Northeast region	380	0.5%	6.1%	3.9%	18.4%	29.2%	32.6%	9.2%	5.04
Northwest region	360	1.4%	3.1%	5.3%	20.3%	36.4%	22.5%	11.1%	4.99
Southern region	366	1.4%	3.6%	5.7%	14.8%	30.9%	30.9%	12.8%	5.14
$\chi^2=40.036^*$ , Cramer's V=0.074									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.636 n.s.,  $\eta=0.060$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 5-14: Motivations for fishing: Importance of... using your fishing equipment.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,844	2.7%	5.6%	6.9%	16.8%	28.6%	27.8%	11.6%	4.93
Central region	376	3.2%	3.7%	7.2%	16.5%	26.6%	30.6%	12.2%	5.00
Metro region	360	2.2%	6.4%	6.4%	18.9%	29.7%	25.6%	10.8%	4.88
Northeast region	373	2.7%	7.0%	7.2%	15.0%	30.3%	25.5%	12.3%	4.89
Northwest region	360	1.7%	7.2%	8.1%	16.7%	28.1%	26.7%	11.7%	4.89
Southern region	363	3.0%	7.2%	6.3%	14.0%	31.4%	27.3%	10.7%	4.88
$\chi^2=16.363$ n.s., Cramer's V=0.047									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.490 n.s.,  $\eta=0.033$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 5: Motivations for Fishing

**Table 5-15: Motivations for fishing: Importance of... doing something with your family.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,854	1.0%	1.2%	1.7%	6.8%	17.4%	41.0%	30.9%	5.85
Central region	381	0.5%	0.5%	1.8%	5.0%	19.2%	42.0%	31.0%	5.92
Metro region	358	1.4%	2.0%	1.7%	9.2%	16.2%	41.1%	28.5%	5.74
Northeast region	379	1.3%	1.3%	1.3%	7.4%	16.4%	38.5%	33.8%	5.87
Northwest region	358	0.6%	1.4%	1.7%	7.0%	18.4%	36.6%	34.4%	5.89
Southern region	367	1.6%	1.4%	1.4%	6.5%	14.7%	42.8%	31.6%	5.86
$\chi^2=19.669$ n.s., Cramer's V=0.052									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.195 n.s.,  $\eta=0.051$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 5-16: Motivations for fishing: Importance of... catching fish.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,858	0.9%	2.4%	5.4%	9.0%	37.8%	30.1%	14.4%	5.28
Central region	381	1.3%	1.3%	5.2%	8.1%	37.5%	30.2%	16.3%	5.35
Metro region	359	0.3%	1.7%	5.8%	9.5%	37.6%	33.1%	12.0%	5.30
Northeast region	380	1.1%	5.8%	6.1%	7.1%	37.6%	25.8%	16.6%	5.18
Northwest region	362	0.8%	3.3%	5.8%	11.6%	39.8%	25.1%	13.5%	5.16
Southern region	367	0.8%	4.4%	4.4%	9.8%	37.6%	29.4%	13.6%	5.22
$\chi^2=34.202$ n.s., Cramer's V=0.068									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.560 n.s.,  $\eta=0.058$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 5: Motivations for Fishing

**Table 5-17: Motivations for fishing: Importance of... catching some fish to eat.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,896	3.2%	4.7%	5.1%	10.8%	33.7%	29.0%	13.5%	5.08
Central region	381	4.2%	2.9%	3.9%	11.3%	29.9%	32.5%	15.2%	5.18
Metro region	360	2.2%	6.4%	6.4%	10.8%	38.1%	25.6%	10.6%	4.95
Northeast region	380	3.2%	5.0%	4.2%	7.1%	36.6%	26.8%	17.1%	5.18
Northwest region	361	2.2%	4.2%	5.3%	10.0%	34.6%	29.9%	13.9%	5.16
Southern region	368	3.5%	6.8%	6.0%	12.0%	32.6%	26.6%	12.5%	4.93
$\chi^2=35.330$ n.s., Cramer's V=0.069									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.905\*,  $\eta=0.079$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 5-18: Motivations for fishing: Importance of... catching a trophy.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,855	9.6%	15.6%	11.0%	21.6%	23.1%	11.5%	7.5%	3.98
Central region	380	8.4%	14.2%	9.2%	22.4%	20.3%	16.3%	9.2%	4.18
Metro region	360	10.3%	16.4%	12.5%	21.9%	26.1%	6.7%	6.1%	3.82
Northeast region	380	10.8%	20.8%	11.3%	19.7%	20.8%	7.9%	8.7%	3.77
Northwest region	360	10.6%	16.7%	10.3%	22.8%	26.4%	8.1%	5.3%	3.83
Southern region	365	9.9%	14.0%	13.4%	18.9%	23.8%	13.2%	6.8%	4.00
$\chi^2=49.276^{**}$ , Cramer's V=0.082									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=3.556\*\*,  $\eta=0.088$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 5: Motivations for Fishing

**Table 5-19: Motivations for fishing: Importance of... the size of the fish you catch.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,845	4.4%	8.5%	10.3%	17.5%	38.2%	16.3%	4.9%	4.45
Central region	380	4.2%	8.2%	9.2%	18.2%	33.2%	21.1%	6.1%	4.55
Metro region	355	3.9%	7.9%	10.4%	15.8%	46.2%	11.3%	4.5%	4.44
Northeast region	379	6.1%	10.6%	11.3%	16.6%	37.2%	14.0%	4.2%	4.27
Northwest region	360	4.7%	9.4%	11.7%	20.6%	33.9%	15.6%	4.2%	4.33
Southern region	362	4.4%	8.8%	11.3%	17.4%	39.2%	15.2%	3.6%	4.38
$\chi^2=33.767$ n.s., Cramer's V=0.068									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.073 n.s.,  $\eta=0.067$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 5-20: Motivations for fishing: Importance of... catching your limit.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,855	8.3%	17.1%	13.4%	28.0%	21.6%	7.7%	3.9%	3.76
Central region	380	7.9%	15.8%	13.4%	27.4%	22.9%	8.2%	4.5%	3.84
Metro region	360	9.2%	15.3%	14.7%	29.4%	22.2%	6.4%	2.8%	3.71
Northeast region	377	8.2%	16.7%	11.9%	29.2%	22.3%	8.2%	3.4%	3.79
Northwest region	360	8.3%	20.6%	11.9%	28.6%	17.8%	8.3%	4.4%	3.70
Southern region	367	7.9%	22.6%	12.5%	25.3%	19.1%	8.2%	4.4%	3.67
$\chi^2=18.967$ n.s., Cramer's V=0.051									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.786 n.s.,  $\eta=0.041$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 5: Motivations for Fishing

**Table 5-21: Motivations for fishing: Importance of... catching a particular species of fish.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,859	3.6%	8.7%	8.4%	20.9%	28.9%	21.9%	7.6%	4.59
Central region	381	3.4%	8.4%	8.7%	24.1%	26.0%	22.0%	7.3%	4.56
Metro region	360	2.8%	6.1%	8.9%	20.3%	31.9%	21.9%	8.1%	4.71
Northeast region	379	6.9%	9.5%	8.2%	16.4%	28.8%	22.4%	7.9%	4.50
Northwest region	361	4.4%	10.5%	7.5%	16.9%	29.4%	23.0%	8.3%	4.58
Southern region	367	3.5%	13.4%	7.4%	18.8%	30.8%	19.9%	6.3%	4.45
$\chi^2=33.217$ n.s., Cramer's V=0.067%									

Notes: %

<sup>1</sup> A stratified %sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.480 n.s.,  $\eta^2=0.057$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = im%portant, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 5-22: Motivations for fishing: Importance of... being with friends.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,856	1.4%	3.5%	5.8%	7.1%	26.7%	35.3%	20.2%	5.41
Central region	380	0.8%	3.2%	6.6%	8.4%	28.7%	32.4%	20.0%	5.38
Metro region	360	1.1%	4.2%	4.2%	4.7%	26.7%	37.5%	21.7%	5.51
Northeast region	378	1.9%	4.2%	7.1%	8.2%	25.1%	32.3%	21.2%	5.32
Northwest region	362	2.8%	3.3%	8.0%	8.0%	21.8%	35.9%	20.2%	5.31
Southern region	366	2.5%	3.0%	4.9%	6.8%	25.4%	40.2%	17.2%	5.39
$\chi^2=28.576$ n.s., Cramer's V=0.062									

Notes:

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.158 n.s.,  $\eta^2=0.050$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 5: Motivations for Fishing

**Table 5-23: Motivations for fishing: Importance of... competing with friends who fish.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,845	8.0%	20.2%	11.9%	24.3%	22.9%	10.3%	2.3%	3.51
Central region	376	9.8%	25.3%	9.6%	23.1%	20.7%	9.3%	2.1%	3.56
Metro region	360	14.7%	19.7%	9.2%	22.8%	22.8%	8.1%	2.8%	3.54
Northeast region	379	12.1%	27.7%	7.1%	22.4%	19.3%	6.6%	4.7%	3.48
Northwest region	360	13.1%	27.8%	8.6%	26.1%	14.4%	6.7%	3.3%	3.34
Southern region	365	13.2%	24.7%	11.8%	19.7%	21.9%	7.1%	1.6%	3.41
$\chi^2=35.719$ n.s., Cramer's V=0.070									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.139 n.s.,  $\eta=0.050$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 5-24: Motivations for fishing: Importance of... being around other anglers.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,845	8.0%	20.2%	11.9%	24.3%	22.9%	10.3%	2.3%	3.74
Central region	377	6.6%	19.4%	12.2%	26.0%	25.5%	8.5%	1.9%	3.77
Metro region	359	9.7%	19.2%	11.4%	23.7%	21.7%	11.4%	2.8%	3.74
Northeast region	377	9.5%	25.5%	10.3%	21.0%	19.4%	10.9%	3.4%	3.62
Northwest region	360	7.8%	19.7%	11.9%	25.8%	20.8%	11.7%	2.2%	3.76
Southern region	363	7.7%	22.0%	13.2%	21.2%	21.8%	11.8%	2.2%	3.72
$\chi^2=21.655$ n.s., Cramer's V=0.054									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.584 n.s.,  $\eta=0.036$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 5: Motivations for Fishing

**Table 5-25: Motivations for fishing: Importance of... being with people who are enjoying themselves.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,855	1.0%	1.5%	1.6%	6.2%	26.0%	41.2%	22.5%	5.68
Central region	381	0.5%	1.6%	1.6%	5.5%	26.5%	42.3%	22.0%	5.71
Metro region	359	0.6%	1.4%	1.7%	7.2%	27.0%	39.6%	22.6%	5.68
Northeast region	379	2.4%	1.6%	1.6%	7.7%	27.2%	38.5%	21.1%	5.56
Northwest region	362	0.8%	1.4%	1.4%	6.9%	22.9%	42.5%	24.0%	5.73
Southern region	363	2.5%	1.4%	1.9%	4.7%	24.2%	42.1%	23.1%	5.66
$\chi^2=18.804$ n.s., Cramer's V=0.050									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.300 n.s.,  $\eta=0.053$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 5-26: Motivations for fishing: Importance of... being alone.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,842	7.7%	16.3%	11.0%	25.2%	22.1%	13.3%	4.3%	3.95
Central region	379	8.7%	17.2%	11.1%	26.1%	19.8%	13.2%	4.0%	3.87
Metro region	356	7.0%	15.2%	10.1%	27.0%	23.6%	12.4%	4.8%	4.01
Northeast region	375	5.9%	16.0%	12.8%	27.5%	19.2%	13.6%	5.1%	3.99
Northwest region	360	7.5%	16.4%	9.4%	20.3%	27.5%	14.2%	4.7%	4.05
Southern region	360	7.8%	16.7%	12.8%	21.1%	23.1%	15.0%	3.6%	3.94
$\chi^2=22.239$ n.s., Cramer's V=0.055									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.733 n.s.,  $\eta=0.040$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 5: Motivations for Fishing

**Table 5-27: Motivations for fishing: Importance of... getting away from family for awhile.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,857	8.9%	18.1%	10.6%	31.8%	18.6%	8.2%	3.8%	3.73
Central region	381	8.7%	18.1%	10.2%	32.0%	19.2%	8.4%	3.4%	3.74
Metro region	360	6.7%	17.8%	11.7%	31.9%	19.2%	8.3%	4.4%	3.82
Northeast region	377	11.4%	21.8%	7.7%	31.6%	16.2%	7.2%	4.2%	3.58
Northwest region	361	13.6%	16.9%	11.6%	30.5%	16.3%	7.8%	3.3%	3.56
Southern region	366	9.3%	17.8%	10.4%	32.0%	18.9%	7.9%	3.8%	3.72
$\chi^2=20.517$ n.s., Cramer's V=0.053									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.845 n.s.,  $\eta=0.063$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 5-28: Motivations for fishing: Importance of... releasing fish.**

Regions	n	Unimportant			Neutral	Important			Mean <sup>2</sup>
		Very		Somewhat		Somewhat		Very	
Statewide <sup>1</sup>	1,851	2.3%	4.3%	4.9%	20.4%	24.6%	26.3%	17.3%	5.09
Central region	381	2.4%	5.8%	5.5%	21.0%	22.0%	24.4%	18.9%	5.03
Metro region	359	1.7%	2.2%	3.9%	19.5%	27.9%	28.4%	16.4%	5.21
Northeast region	377	4.2%	5.0%	5.0%	21.0%	26.0%	23.9%	14.9%	4.90
Northwest region	358	2.8%	4.5%	3.9%	21.5%	23.7%	26.3%	17.3%	5.07
Southern region	362	1.9%	3.6%	6.1%	19.1%	24.6%	29.0%	15.7%	5.11
$\chi^2=23.954$ n.s., Cramer's V=0.057									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.107 n.s.,  $\eta=0.068$ . Mean is based on the scale: 1 = very unimportant, 2 = unimportant, 3 = somewhat unimportant, 4= neutral, 5 = somewhat important, 6 = important, 7=very important.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001



## Section 5: Motivations for Fishing

**Table 5-29: Comparison of fishing motivations.**

	Statewide mean <sup>1</sup>
Being with friends	5.41
Being alone	3.95
Competing with friends who fish	3.51
Being around other anglers	3.74
Using your fishing equipment	4.93
Being with people who are enjoying themselves	5.68
Learning about nature	5.58
Relaxing	6.14
Catching fish	5.28
Getting exercise	4.72
Enjoying nature and the outdoors	6.18
Catching some fish to eat	5.08
Sharing your skills and knowledge with others	4.76
Thinking about your personal values	4.94
Being in a quiet and peaceful place	5.87
Visiting areas you've fished in the past	5.31
Meeting new people	4.25
Doing something with your family	5.85
Developing your skills and abilities	5.08
Giving your mind a rest	5.68
Fishing in a wilderness setting	5.47
Getting away from crowds of people	5.82
Getting away from family for awhile	3.73
Catching a trophy	3.98
The size of the fish you catch	4.45
Releasing fish	5.09
Catching your limit	3.76
Catching a particular species of fish	4.59

**Notes:**

<sup>1</sup> Grand mean=4.967.  $F=924.286^{***}$ ,  $\eta=0.311$ . Mean is based on the scale: 1 = 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

n.s.=not significant, \* $P \leq 0.05$ , \*\* $P \leq 0.01$ , \*\*\* $P \leq 0.001$

## Section 6: Constraints to Fishing

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### **Findings:**

#### *How is Fishing Participation Constrained*

##### *Statewide*

Respondents were asked whether the amount of time they spend fishing, or the type of fishing they do, is constrained (restricted or inhibited) in any way. Fifty-two percent of respondents indicated that their fishing was constrained (Table 6-1). Younger respondents ( $r=-0.197$ ,  $p<0.001$ ) and respondents with higher incomes ( $\chi^2=40.175$ ,  $p\leq 0.001$ , Cramer's  $V=0.156$ ) and educational levels ( $\chi^2=41.069$ ,  $p\leq 0.001$ , Cramer's  $V=0.150$ ) were more likely to report that the amount of time they spend fishing is constrained.

We asked respondents who felt that their fishing was constrained to report how their fishing was constrained. Respondents were asked to check all of the statements that they felt applied to their fishing participation from a list of four items (Table 6-2). Nearly 90% of the respondents who reported that their fishing was constrained said that they cannot fish as often as they would like. About one-fourth of the constrained respondents reported that they have stopped fishing activities that they did in the past, although they would still like to do them, and about 15% of respondents indicated that there are types of fishing that they would like to start, but can't. Less than 10% reported that they do not enjoy fishing as much as I might otherwise.

##### *Regional*

More respondents from the metro region reported that they felt constrained in their fishing ( $\chi^2=16.138$ ,  $p\leq 0.01$ , Cramer's  $V=0.095$ ) (Table 6-2).

#### **Factors That Constrain Fishing Participation**

##### *Statewide*

Respondents were asked to rate 24 possible constraints to fishing on the scale 1 (not at all limiting) to 7 (very limiting). One constraint, work commitments, had a mean score greater than the midpoint on the scale (4.6). All other constraints had mean scores less than the midpoint on the scale. Twelve constraints had mean ratings between 3.0 and 4.0: (a) family commitments (3.9), (b) crowding at fishing areas (3.9), (c) interest in other activities (3.7), (d) travels costs (3.5), (e) fish populations too low (3.4), (f) weather conditions (3.4), (g) cost of equipment (3.3), (h) interest in free time at home (3.2), (i) fishing regulations (3.1), (j) concern about contaminants/pollutants in fish (3.1), (k) cost of licenses (3.0), and (l) availability of people to fish with (3.0) All other constraints were rated less than 3 on the 7-point scale (Tables 6-3 through 6-27).

Respondents with higher levels of income ( $r=0.153$ ,  $p<0.001$ ) and education ( $r=0.074$ ,  $p<0.001$ ) were more constrained by family commitments. Similarly, respondents with higher levels of income ( $r=0.134$ ,  $p<0.001$ ) and education ( $r=0.043$ ,  $p<0.05$ ) were more constrained by work commitments. Older

## Section 6: Constraints to Fishing

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respondents were less limited by work ( $r=-0.174$ ,  $p<0.001$ ) and family commitments ( $r=-0.407$ ,  $p<0.001$ ) than younger respondents.

Respondents with more income and education were less limited by the expense of fishing. Respondents with higher levels of income were less constrained by the (a) cost of equipment ( $r=-0.146$ ,  $p<0.001$ ), (b) cost of licenses ( $r=-0.182$ ,  $p<0.001$ ), and (c) travel costs ( $r=-0.123$ ,  $p<0.001$ ). Respondents with higher levels of education were also less constrained by the (a) cost of equipment ( $r=-0.073$ ,  $p<0.001$ ), (b) cost of licenses ( $r=-0.119$ ,  $p<0.001$ ), and (c) travel costs ( $r=-0.062$ ,  $p<0.001$ ).

Older respondents in general reported being more limited by perceived obstacles to their fishing experience like (a) fishing regulations ( $r=0.062$ ,  $p<0.05$ ), (b) safety concerns ( $r=0.173$ ,  $p<0.001$ ), (c) fish populations too low ( $r=0.119$ ,  $p<0.001$ ), (d) weather conditions ( $r=0.143$ ,  $p<0.001$ ), (e) the type of people who go fishing ( $r=0.066$ ,  $p<0.01$ ), and (f) concern about contaminants/pollutants in fish ( $r=0.128$ ,  $p<0.001$ ). Higher income respondents were less limited by obstacles like: (a) fishing regulations ( $r=-0.097$ ,  $p<0.001$ ), (b) safety concerns ( $r=-0.074$ ,  $p<0.001$ ), (c) fish populations too low ( $r=-0.052$ ,  $p<0.01$ ), (d) weather conditions ( $r=-0.060$ ,  $p<0.01$ ), and (e) concern about contaminants/pollutants in fish ( $r=-0.035$ ,  $p<0.05$ ). Similarly, respondents with higher levels of education were less limited by obstacles like: (a) fishing regulations ( $r=-0.071$ ,  $p<0.001$ ), (b) safety concerns ( $r=-0.049$ ,  $p<0.01$ ), and (c) fish populations too low ( $r=-0.038$ ,  $p<0.01$ ).

Older respondents were more limited by physical constraints and the effects of age, while respondents who had higher incomes and higher educational levels reported being less limited by these issues. Specifically, age was positively correlated with the following listed constraints: (a) physically unable to go fishing ( $r=0.288$ ,  $p<0.001$ ), (b) age ( $r=0.323$ ,  $p<0.001$ ), (c) poor health ( $r=0.320$ ,  $p<0.001$ ). Income was negatively correlated with the same constraints: (a) physically unable to go fishing ( $r=-0.094$ ,  $p<0.001$ ), (b) age ( $r=-0.081$ ,  $p<0.001$ ), and (c) poor health ( $r=-0.055$ ,  $p<0.01$ ). Similarly, education was negatively correlated with the constraints: (a) physically unable to go fishing ( $r=-0.073$ ,  $p<0.001$ ), (b) age ( $r=-0.055$ ,  $p<0.01$ ), and (c) poor health ( $r=-0.089$ ,  $p<0.001$ ).

### *Regional*

There were significant differences by region in how limiting 12 of the 24 constraints were perceived by respondents.

Respondents from the metro region felt more constrained by: (a) family commitments ( $F=3.399$ ,  $p\leq 0.01$ ,  $\eta=0.087$ ) (Table 6-3), (b) availability of people to fish with ( $F=4.590$ ,  $p\leq 0.001$ ,  $\eta=0.101$ ) (Table 6-10), and (c) no good fishing opportunities near my home ( $\chi^2=113.995$ ,  $p\leq 0.001$ , Cramer's  $V=0.127$ ;  $F=23.631$ ,  $p\leq 0.001$ ,  $\eta=0.225$ ) (Table 6-24). Metro respondents felt less constrained by poor health ( $F=2.400$ ,  $p\leq 0.05$ ,  $\eta=0.073$ ) (Table 6-26). Respondents from the metro and central regions felt more constrained by: (a) interest in other activities ( $\chi^2=40.205$ ,  $p\leq 0.05$ , Cramer's  $V=0.075$ ;  $F=3.093$ ,  $p\leq 0.05$ ,  $\eta=0.083$ ) (Table 6-13), (b) no desire to catch fish for food ( $\chi^2=52.871$ ,  $p\leq 0.01$ , Cramer's  $V=0.087$ ;  $F=3.499$ ,  $p\leq 0.01$ ,  $\eta=0.089$ ) (Table 6-16), and (c) concern about contaminants/pollutants in fish ( $\chi^2=60.131$ ,  $p\leq 0.001$ , Cramer's  $V=0.092$ ;  $F=6.872$ ,  $p\leq 0.001$ ,  $\eta=0.124$ ) (Table 6-25). Metro and southern region respondents felt less constrained by cost of licenses ( $\chi^2=46.047$ ,  $p\leq 0.01$ , Cramer's  $V=0.080$ ;  $F=4.348$ ,  $p\leq 0.001$ ,  $\eta=0.099$ ) (Table 6-7) and by fishing regulations ( $F=4.392$ ,  $p\leq 0.01$ ,  $\eta=0.099$ ) (Table 6-9). Metro and northeast respondents felt less constrained by cost of equipment ( $\chi^2=47.990$ ,  $p\leq 0.01$ , Cramer's  $V=0.082$ ;  $F=6.056$ ,  $p\leq 0.001$ ,  $\eta=0.116$ ) (Table 6-6).

Respondents from the northeast and northwest regions were more likely to rate work commitments 'not at all limiting' compared to respondents from the other regions ( $\chi^2=39.542$ ,  $p\leq 0.05$ , Cramer's  $V=0.075$ ;

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F=3.913,  $p \leq 0.01$ ,  $\eta = 0.093$ ) (Table 6-4). Respondents from the northeast regions were less likely to report crowding at fishing areas as a limiting ( $\chi^2 = 41.500$ ,  $p \leq 0.05$ , Cramer's V=0.077) (Table 6-5). Three items were rated as more limiting for older respondents than for younger respondents: (a) being physically unable to go fishing (F=13.234,  $p \leq 0.001$ ,  $\eta = 0.215$ ) (Table 6-13), (b) age (F=18.723,  $p \leq 0.001$ ,  $\eta = 0.254$ ) (Table 6-26), and (c) poor health (F=17.209,  $p \leq 0.001$ ,  $\eta = 0.244$ ) (Table 6-29).

## Section 6: Constraints to Fishing

**Table 6-1: Do you feel that the amount of time you spend fishing is constrained (restricted or inhibited) in any way?**

Regions	Sample size (n)	% Yes
Statewide <sup>1</sup>	1,819	52.4%
Central region	372	47.6%
Metro region	355	61.1%
Northeast region	366	50.5%
Northwest region	352	49.7%
Southern region	359	50.4%
	$\chi^2=16.138^{**}$ , Cramer's V=0.095	

**Notes:**

<sup>1</sup> A stratified sample based on age was drawn. Statewide data is weighted to reflect age proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 6-2: Of respondents reporting that their fishing participation was constrained, percent who reported...**

Regions	There are types of fishing that I would like to start, but can't.	I have stopped fishing activities that I did in the past, although I would still like to do them.	I cannot fish as often as I would like.	I do not enjoy fishing as much as I might otherwise.
Statewide <sup>1</sup>	14.4%	26.4%	89.5%	7.5%
Central region	13.1%	26.3%	88.7%	10.9%
Metro region	15.0%	26.2%	88.8%	6.5%
Northeast region	15.9%	26.8%	92.9%	6.0%
Northwest region	16.0%	31.4%	89.1%	5.1%
Southern region	13.9%	23.2%	91.7%	3.3%
	$\chi^2=0.889$ n.s., Cramer's V= 0.031	$\chi^2= 3.174$ n.s., Cramer's V= 0.058	$\chi^2= 3.070$ n.s., Cramer's V= 0.057	$\chi^2= 9.196$ n.s., Cramer's V= 0.100

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 6-3: How much family commitments limit fishing participation.**

Regions	n	Not at all limiting					Very limiting		Mean <sup>2</sup>
Statewide <sup>1</sup>	1,784	13.4%	9.4%	14.2%	23.1%	22.7%	11.9%	5.4%	3.89
Central region	365	12.6%	8.8%	15.9%	24.9%	20.8%	11.0%	6.0%	3.90
Metro region	345	12.5%	9.3%	13.3%	19.7%	24.6%	13.9%	6.7%	4.03
Northeast region	364	18.4%	11.3%	11.8%	23.4%	22.5%	9.3%	3.3%	3.62
Northwest region	348	16.4%	10.9%	12.9%	23.3%	21.6%	11.8%	3.2%	3.71
Southern region	354	12.7%	9.0%	13.3%	24.9%	24.6%	11.9%	3.7%	3.90
$\chi^2=28.086$ n.s., Cramer's V=0.063									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=3.399\*\*,  $\eta=0.087$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 6-4: How much work commitments limit fishing participation.**

Regions	n	Not at all limiting					Very limiting		Mean <sup>2</sup>
Statewide <sup>1</sup>	1,789	13.9%	6.1%	6.7%	12.7%	19.1%	25.6%	16.0%	4.58
Central region	366	12.8%	7.9%	7.1%	12.0%	18.3%	24.6%	17.2%	4.58
Metro region	347	12.7%	5.2%	6.3%	13.8%	19.9%	27.4%	14.7%	4.64
Northeast region	367	19.9%	6.0%	8.2%	10.9%	17.4%	20.4%	17.2%	4.30
Northwest region	347	19.0%	5.5%	8.1%	10.1%	20.2%	23.1%	14.1%	4.33
Southern region	354	12.1%	3.4%	4.5%	15.0%	19.5%	29.4%	16.1%	4.79
$\chi^2=39.542^*$ , Cramer's V=0.075									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=3.913\*\*,  $\eta=0.093$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 6-5: How much crowding at fishing areas limits fishing participation.**

Regions	n	Not at all limiting					Very limiting		Mean <sup>2</sup>
Statewide <sup>1</sup>	1,765	13.1%	12.1%	15.6%	20.8%	18.7%	13.7%	6.0%	3.85
Central region	358	13.7%	12.0%	12.0%	20.9%	18.7%	16.5%	6.1%	3.93
Metro region	346	11.0%	10.1%	20.2%	21.1%	20.5%	11.0%	6.1%	3.87
Northeast region	359	18.4%	15.9%	12.5%	16.2%	19.8%	11.7%	5.6%	3.60
Northwest region	343	15.5%	12.2%	15.5%	19.5%	16.0%	14.9%	6.4%	3.79
Southern region	351	11.1%	14.5%	17.9%	23.4%	16.0%	11.7%	5.4%	3.75
$\chi^2=41.500^*$ , Cramer's V=0.077									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.783 n.s.,  $\eta=0.064$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 6-6: How much the cost of equipment limits fishing participation.**

Regions	n	Not at all limiting					Very limiting		Mean <sup>2</sup>
Statewide <sup>1</sup>	1,780	18.2%	15.8%	18.4%	23.3%	14.7%	7.2%	2.4%	3.32
Central region	366	14.8%	13.1%	17.2%	24.0%	18.0%	9.3%	3.6%	3.60
Metro region	342	19.9%	19.9%	20.2%	22.2%	12.6%	4.7%	0.6%	3.04
Northeast region	363	22.9%	18.7%	14.9%	21.5%	12.9%	5.8%	3.3%	3.13
Northwest region	347	21.6%	13.8%	17.6%	22.5%	11.8%	8.6%	4.0%	3.31
Southern region	353	19.0%	14.4%	20.7%	25.5%	12.7%	6.2%	1.4%	3.23
$\chi^2=47.990^{**}$ , Cramer's V=0.082									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=6.056\*\*\*,  $\eta=0.116$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 6-7: How much the cost of licenses limits fishing participation.**

Regions	n	Not at all limiting					Very limiting		Mean <sup>2</sup>
Statewide <sup>1</sup>	1,783	16.7%	14.6%	16.4%	22.6%	16.9%	9.4%	3.3%	3.02
Central region	364	22.0%	12.1%	21.7%	23.9%	10.7%	5.5%	4.1%	3.22
Metro region	344	30.2%	19.8%	17.2%	19.8%	7.6%	3.8%	1.7%	2.73
Northeast region	368	25.3%	18.8%	16.0%	19.8%	10.3%	5.7%	4.1%	3.05
Northwest region	347	25.6%	15.0%	13.5%	24.5%	13.5%	6.3%	1.4%	3.10
Southern region	354	26.6%	19.2%	14.4%	23.7%	8.5%	3.7%	4.0%	2.95
$\chi^2=46.047^{**}$ , Cramer's V=0.080									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=4.348\*\*,  $\eta=0.099$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

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**Table 6-8: How much travel costs limit fishing participation.**

Regions	n	Not at all limiting					Very limiting		Mean <sup>2</sup>
Statewide <sup>1</sup>	1,783	16.7%	14.6%	16.4%	22.6%	16.9%	9.4%	3.3%	3.50
Central region	364	14.8%	12.6%	14.8%	25.8%	17.6%	9.6%	4.7%	3.66
Metro region	347	17.0%	17.3%	17.6%	21.0%	15.6%	9.8%	1.7%	3.37
Northeast region	365	21.9%	14.0%	15.9%	20.0%	16.4%	8.2%	3.6%	3.34
Northwest region	346	17.9%	15.3%	18.2%	18.2%	15.3%	11.8%	3.2%	3.46
Southern region	352	17.6%	14.5%	17.6%	21.3%	19.6%	6.5%	2.8%	3.42
$\chi^2=28.861$ n.s., Cramer's V=0.064									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.023 n.s.,  $\eta=0.067$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 6-9: How much fishing regulations limit fishing participation.**

Regions	N	Not at all limiting					Very limiting		Mean <sup>2</sup>
Statewide <sup>1</sup>	1,784	25.6%	18.7%	16.2%	19.1%	9.6%	6.5%	4.3%	3.05
Central region	365	21.4%	17.8%	15.1%	20.5%	12.6%	7.1%	5.5%	3.28
Metro region	345	28.7%	19.1%	17.7%	18.3%	7.8%	5.5%	2.9%	2.86
Northeast region	366	26.2%	20.5%	13.9%	15.8%	12.3%	6.3%	4.9%	3.06
Northwest region	348	27.0%	18.4%	16.7%	18.4%	7.2%	7.8%	4.6%	3.02
Southern region	353	30.0%	19.5%	17.3%	19.3%	5.1%	5.7%	3.1%	2.79
$\chi^2=34.992$ n.s., Cramer's V=0.070									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=4.392\*\*,  $\eta=0.099$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 6-10: How much availability of fishing partners limits fishing participation.**

Regions	n	Not at all limiting					Very limiting		Mean <sup>2</sup>
Statewide <sup>1</sup>	1,778	27.4%	17.0%	15.0%	19.9%	13.2%	5.9%	1.4%	2.98
Central region	364	28.0%	16.2%	14.6%	20.9%	13.7%	5.5%	1.1%	2.97
Metro region	345	22.9%	15.4%	15.9%	20.9%	15.7%	7.5%	1.7%	3.21
Northeast region	366	32.0%	18.3%	12.3%	18.9%	11.7%	5.5%	1.4%	2.82
Northwest region	346	30.9%	22.0%	14.7%	17.3%	8.1%	4.9%	2.0%	2.73
Southern region	348	30.2%	18.7%	16.4%	17.5%	11.2%	4.6%	1.4%	2.80
$\chi^2=29.707$ n.s., Cramer's V=0.065									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=4.590\*\*\*,  $\eta=0.101$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001



## Section 6: Constraints to Fishing

**Table 6-11: How much being physically unable to go fishing limits fishing participation.**

Regions	n	Not at all limiting					Very limiting			Mean <sup>2</sup>
%	1,776	70.3%	11.8%	6.2%	6.3%	2.8%	1.7%	1.0%	1.68	
Central region	364	69.5%	10.7%	6.3%	7.4%	3.6%	1.6%	0.8%	1.73	
Metro region	344	74.1%	10.5%	6.1%	5.5%	1.5%	1.5%	0.9%	1.58	
Northeast region%	363	71.9%	12.4%	5.0%	6.1%	1.9%	1.9%	0.8%	1.63	
Northwest region	346	63.6%	16.5%	6.1%	7.2%	3.5%	2.0%	1.2%	1.81	
Southern region	349	68.5%	13.8%	6.9%	4.3%	3.2%	2.0%	1.4%	1.72	
$\chi^2=212.030$ n.s., Cramer's V=0.055										

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.756 n.s.,  $\eta=0.063$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 6-12: How much inadequate fishing skills limit fishing participation.**

Regions	n	Not at all limiting					Very limiting			Mean <sup>2</sup>
Statewide <sup>1</sup>	1,779	49.5%	18.3%	11.9%	12.6%	5.5%	1.8%	0.5%	2.14	
Central region	364	46.7%	18.7%	12.6%	14.3%	5.8%	1.6%	0.3%	2.20	
Metro region	344	48.3%	20.3%	11.6%	11.3%	5.5%	2.0%	0.9%	2.15	
Northeast region	366	54.1%	16.7%	10.7%	11.7%	5.2%	1.4%	0.3%	2.02	
Northwest region	346	52.0%	18.5%	9.2%	14.7%	4.3%	0.9%	0.3%	2.05	
Southern region	352	55.7%	13.4%	13.1%	9.4%	5.4%	2.6%	0.6%	2.05	
$\chi^2=24.671$ n.s., Cramer's V=0.059										

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.037 n.s.,  $\eta=0.048$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 6-13: How much interest in other recreational activities limits fishing participation.**

Regions	n	Not at all limiting					Very limiting			Mean <sup>2</sup>
Statewide <sup>1</sup>	1,778	17.0%	10.6%	14.5%	24.7%	17.4%	12.8%	2.9%	3.65	
Central region	362	16.9%	10.8%	15.2%	27.1%	14.9%	13.0%	2.2%	3.60	
Metro region	346	13.6%	10.4%	13.3%	23.7%	19.4%	16.2%	3.5%	3.87	
Northeast region	365	22.2%	9.6%	15.6%	18.1%	18.6%	11.2%	4.7%	3.54	
Northwest region	346	20.2%	9.8%	12.1%	26.9%	19.4%	9.2%	2.3%	3.52	
Southern region	352	19.6%	11.9%	16.8%	21.9%	18.2%	8.5%	3.1%	3.45	
$\chi^2=40.205^*$ , Cramer's V=0.075										

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=3.093\*,  $\eta=0.083$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 6: Constraints to Fishing

**Table 6-14: How much safety concerns limit fishing participation.**

Regions	n	Not at all limiting					Very limiting			Mean <sup>2</sup>
Statewide <sup>1</sup>	1,780	51.9%	22.4%	9.3%	9.9%	3.8%	2.1%	0.6%	2.00	
Central region	363	47.7%	24.5%	9.6%	10.7%	4.4%	2.8%	0.3%	2.09	
Metro region	345	55.7%	22.0%	9.0%	8.4%	3.2%	1.2%	0.6%	1.87	
Northeast region	368	54.9%	20.4%	8.2%	8.4%	3.0%	3.5%	1.6%	2.01	
Northwest region	346	54.3%	18.2%	7.5%	11.6%	5.2%	2.0%	1.2%	2.06	
Southern region	353	52.1%	21.0%	11.3%	10.5%	3.1%	1.4%	0.6%	1.98	
$\chi^2=27.576$ n.s., Cramer's V=0.062										

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.296 n.s.,  $\eta=0.054$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 6-15: How much low fish populations limit fishing participation.**

Regions	n	Not at all limiting					Very limiting			Mean <sup>2</sup>
Statewide <sup>1</sup>	1,775	21.2%	13.1%	16.6%	22.7%	13.0%	9.0%	4.5%	3.38	
Central region	364	18.7%	12.4%	16.5%	24.5%	13.5%	9.1%	5.5%	3.51	
Metro region	344	22.1%	13.4%	16.0%	22.4%	14.2%	9.3%	2.6%	3.32	
Northeast region	366	24.3%	13.1%	16.4%	18.0%	12.0%	9.6%	6.6%	3.35	
Northwest region	344	22.4%	14.2%	15.4%	22.7%	9.9%	10.2%	5.2%	3.35	
Southern region	348	23.6%	13.8%	19.3%	21.0%	12.1%	6.6%	3.7%	3.19	
$\chi^2=22.469$ n.s., Cramer's V=0.056										

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.447 n.s.,  $\eta=0.057$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 6-16: How much low desire for fish for food limits fishing participation.**

%	n	Not at all limiting					Very limiting			Mean <sup>2</sup>
Statewide <sup>1</sup>	1,766	44.0%	16.2%	14.3%	17.4%	3.8%	2.6%	1.8%	2.36	
Central region	362	41.7%	14.1%	16.9%	19.9%	1.9%	2.5%	3.0%	2.46	
Metro region	339	42.2%	17.4%	11.8%	18.9%	6.2%	2.9%	0.6%	2.41	
Northeast region	365	51.0%	20.0%	10.1%	11.5%	3.8%	1.9%	1.6%	2.10	
Northwest region	346	47.4%	18.2%	11.3%	15.6%	4.3%	2.0%	1.2%	2.22	
Southern region	350	47.7%	15.7%	17.1%	11.4%	3.4%	3.1%	1.4%	2.22	
$\chi^2=52.871^{***}$ , Cramer's V=0.087										

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=3.499\*\*,  $\eta=0.089$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 6: Constraints to Fishing

**Table 6-17: How much low need for fish for food limits fishing participation.**

Regions	n	Not at all limiting					Very limiting			Mean <sup>2</sup>
Statewide <sup>1</sup>	1,764	46.2%	16.2%	12.3%	16.1%	3.5%	3.1%	2.6%	2.34	
Central region	361	42.7%	17.2%	14.7%	16.6%	2.5%	3.0%	3.3%	2.42	
Metro region	341	47.8%	15.0%	10.3%	17.3%	4.7%	3.5%	1.5%	2.33	
Northeast region	364	49.5%	18.4%	9.6%	13.5%	3.3%	3.0%	2.7%	2.23	
Northwest region	343	46.6%	16.6%	12.5%	16.3%	3.8%	1.7%	2.3%	2.29	
Southern region	349	51.0%	14.6%	10.9%	13.5%	3.4%	3.7%	2.9%	2.26	
$\chi^2=21.277$ n.s., Cramer's V=0.055										

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.726 n.s.,  $\eta=0.041$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 6-18: How much weather conditions limit fishing participation.**

Regions	n	Not at all limiting					Very limiting			Mean <sup>2</sup>
Statewide <sup>1</sup>	1,781	18.7%	14.2%	15.9%	26.8%	14.0%	7.5%	3.1%	3.38	
Central region	364	18.1%	14.6%	16.5%	26.4%	14.6%	7.1%	2.7%	3.37	
Metro region	345	18.0%	15.1%	15.9%	28.1%	13.9%	7.0%	2.0%	3.34	
Northeast region	365	19.5%	11.5%	15.1%	23.6%	15.3%	9.9%	5.2%	3.54	
Northwest region	347	19.9%	11.8%	12.1%	30.0%	10.7%	11.2%	4.3%	3.51	
Southern region	353	20.4%	14.4%	17.6%	24.4%	14.2%	5.1%	4.0%	3.29	
$\chi^2=31.510$ n.s., Cramer's V=0.067										

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.521 n.s.,  $\eta=0.059$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 6-19: How much interest in free time at home limits fishing participation.**

Regions	n	Not at all limiting					Very limiting			Mean <sup>2</sup>
Statewide <sup>1</sup>	1,772	22.1%	14.4%	18.1%	25.8%	12.5%	6.0%	1.2%	3.15	
Central region	361	20.8%	15.5%	19.4%	24.9%	13.3%	5.0%	1.1%	3.14	
Metro region	344	21.2%	11.6%	18.9%	27.6%	11.6%	7.6%	1.5%	3.25	
Northeast region	365	24.7%	16.7%	14.5%	25.2%	12.3%	4.1%	2.5%	3.06	
Northwest region	346	24.6%	17.1%	12.7%	27.7%	10.1%	7.2%	0.6%	3.06	
Southern region	351	24.2%	14.0%	18.8%	22.8%	14.0%	5.7%	0.6%	3.08	
$\chi^2=31.693$ n.s., Cramer's V=0.067										

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=0.933 n.s.,  $\eta=0.046$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 6: Constraints to Fishing

**Table 6-20: How much the type of people that fish limits fishing participation.**

Regions	n	Not at all limiting					Very limiting			Mean <sup>2</sup>
Statewide <sup>1</sup>	1,776	34.2	20.5	15.3	19.0	6.9	2.8	1.3	2.58	
Central region	363	32.2	21.2	14.6	19.3	8.5	2.8	1.4	2.64	
Metro region	344	33.4	19.8	16.3	18.0	7.6	3.2	1.7	2.63	
Northeast region	366	38.0	21.0	14.5	18.3	3.6	4.1	0.5	2.43	
Northwest region	345	35.4	21.2	14.8	19.7	5.8	2.3	0.9	2.50	
Southern region	351	38.5	19.4	16.0	19.9	3.7	1.7	0.9	2.40	
$\chi^2=24.162$ n.s., Cramer's V=0.058										

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.059 n.s.,  $\eta=0.068$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 6-21: How much the amount of planning required to go fishing limits fishing participation.**

Regions	n	Not at all limiting					Very limiting			Mean <sup>2</sup>
Statewide <sup>1</sup>	1,782	35.6%	21.9%	16.2%	17.1%	7.3%	1.3%	0.6%	2.45	
Central region	365	34.5%	20.3%	17.5%	18.1%	7.4%	1.4%	0.8%	2.51	
Metro region	345	32.8%	22.6%	17.4%	16.8%	8.7%	1.2%	0.6%	2.52	
Northeast region	366	41.5%	20.5%	12.3%	16.1%	6.8%	2.5%	0.3%	2.35	
Northwest region	344	39.5%	26.7%	12.5%	15.4%	4.7%	1.2%	0.0%	2.22	
Southern region	353	38.5%	22.1%	15.0%	16.7%	5.9%	1.1%	0.6%	2.35	
$\chi^2=27.322$ n.s., Cramer's V=0.062										

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.732 n.s.,  $\eta=0.078$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 6-22: How much age limits fishing participation.**

Regions	n	Not at all limiting					Very limiting			Mean <sup>2</sup>
Statewide <sup>1</sup>	1,775	56.4%	16.9%	8.8%	10.1%	3.8%	2.6%	1.3%	2.01	
Central region	362	53.0%	17.7%	8.3%	13.0%	4.1%	2.2%	1.7%	2.11	
Metro region	345	60.9%	15.1%	9.9%	6.7%	3.8%	2.9%	0.9%	1.90	
Northeast region	364	57.4%	17.6%	8.2%	8.0%	4.4%	2.2%	2.2%	2.00	
Northwest region	345	53.9%	18.3%	8.4%	11.3%	2.3%	4.3%	1.4%	2.09	
Southern region	352	57.7%	17.6%	8.2%	9.9%	3.4%	2.3%	0.9%	1.94	
$\chi^2=23.856$ n.s., Cramer's V=0.058										

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.357 n.s.,  $\eta=0.055$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 6: Constraints to Fishing

**Table 6-23: How much the amount of effort required to go fishing limits fishing participation.**

Regions	n	Not at all limiting					Very limiting			Mean <sup>2</sup>
Statewide <sup>1</sup>	1,775	37.4%	19.8%	14.9%	15.1%	8.9%	3.6%	0.3%	2.50	
Central region	364	36.0%	21.4%	15.7%	15.9%	6.9%	4.1%	0.0%	2.49	
Metro region	342	34.8%	18.4%	16.1%	15.8%	11.7%	2.9%	0.3%	2.61	
Northeast region	364	41.2%	19.0%	14.8%	12.1%	7.4%	4.4%	1.1%	2.43	
Northwest region	346	42.2%	19.1%	10.4%	13.3%	10.1%	3.8%	1.2%	2.46	
Southern region	352	41.5%	18.8%	13.6%	14.5%	8.8%	2.8%	0.0%	2.39	
$\chi^2=30.534$ n.s., Cramer's V=0.066										

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=1.019 n.s.,  $\eta=0.048$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 6-24: How much limited fishing opportunities near home limits fishing participation.**

Regions	n	Not at all limiting					Very limiting			Mean <sup>2</sup>
Statewide <sup>1</sup>	1,781	36.8%	15.8%	12.6%	13.9%	11.9%	6.7%	2.4%	2.78	
Central region	364	41.2%	16.2%	12.4%	12.4%	11.3%	5.5%	1.1%	2.57	
Metro region	345	27.0%	13.6%	13.6%	15.9%	16.5%	10.1%	3.2%	3.25	
Northeast region	364	51.9%	17.6%	8.2%	11.5%	5.8%	3.8%	1.1%	2.18	
Northwest region	347	45.2%	16.7%	12.1%	13.5%	6.6%	4.0%	1.7%	2.39	
Southern region	353	29.7%	17.6%	13.9%	15.6%	11.0%	6.5%	5.7%	3.03	
$\chi^2=113.995^{***}$ , Cramer's V=0.127										

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=23.631\*\*\*,  $\eta=0.225$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 6-25: How much concern about contaminants/pollutants in fish limits fishing participation.**

Regions	n	Not at all limiting					Very limiting			Mean <sup>2</sup>
Statewide <sup>1</sup>	1,782	31.8%	16.3%	11.6%	14.7%	12.6%	7.5%	5.5%	3.05	
Central region	363	30.6%	14.9%	11.6%	16.5%	13.5%	5.5%	7.4%	3.14	
Metro region	345	27.5%	18.0%	11.6%	14.2%	14.2%	9.6%	4.9%	3.18	
Northeast region	363	36.4%	16.3%	9.6%	12.4%	11.6%	9.1%	4.7%	2.93	
Northwest region	346	44.8%	17.6%	9.8%	11.0%	5.2%	9.2%	2.3%	2.51	
Southern region	350	32.0%	15.7%	14.0%	14.9%	12.6%	6.6%	4.3%	2.97	
$\chi^2=60.131^{***}$ , Cramer's V=0.092										

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=6.872\*\*\*,  $\eta=0.124$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 6: Constraints to Fishing

**Table 6-26: How much poor health limits fishing participation.**

Regions	n	Not at all limiting					Very limiting		Mean <sup>2</sup>
Statewide <sup>1</sup>	1,782	67.0%	12.8%	5.7%	8.1%	2.5%	2.2%	1.6%	1.79
Central region	363	64.7%	12.7%	5.5%	9.4%	2.8%	3.0%	1.9%	1.90
Metro region	346	71.7%	12.1%	4.0%	7.8%	2.0%	1.2%	1.2%	1.64
Northeast region	366	64.8%	16.1%	6.0%	6.6%	2.7%	2.2%	1.6%	1.80
Northwest region	348	61.2%	15.5%	8.0%	7.5%	2.9%	2.3%	2.6%	1.93
Southern region	354	68.9%	10.7%	8.2%	6.8%	2.3%	2.3%	0.8%	1.73
$\chi^2=25.852$ n.s., Cramer's V=0.060									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

<sup>2</sup> F=2.400\*,  $\eta=0.073$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 6: Constraints to Fishing

**Table 6-27: Comparison of constraints to fishing.**

Constraint	Sample size (n)	Mean <sup>1</sup>
Work commitments	1789	4.58
Family commitments	1784	3.89
Crowding at fishing areas	1765	3.85
Interest in other activities	1778	3.65
Travel costs	1783	3.50
Fish populations too low	1775	3.38
Weather conditions	1781	3.38
Cost of equipment	1780	3.32
Interest in spending my free time at home	1772	3.15
Fishing regulations	1784	3.05
Concern about contaminants/pollutants in fish	1776	3.05
Cost of licenses	1781	3.02
Availability of people to fish with	1778	2.98
No good fishing opportunities near my home	1781	2.78
The type of people that go fishing	1776	2.58
Amount of effort required to go	1775	2.50
Amount of planning required to go	1782	2.45
No desire to catch fish for food	1766	2.36
No need to catch fish for food	1764	2.34
Inadequate fishing skills	1779	2.14
Age	1775	2.01
Safety concerns	1780	2.00
Poor health	1782	1.79
Physically unable to go fishing	1776	1.68

**Notes:**

<sup>1</sup> Grand mean=2.862.  $F=541.843^{***}$ ;  $\eta=0.222$ . Mean is based on the scale: 1 = not at all limiting, 7=very limiting.

n.s.=not significant, \* $P \leq 0.05$ , \*\* $P \leq 0.01$ , \*\*\* $P \leq 0.001$

<sup>2</sup> A stratified sample based on age was drawn. Statewide data is weighted to reflect age proportions in the population.

## Section 7: Demographic Information

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### ***Findings:***

#### ***Age***

##### *Statewide*

Respondents were asked to indicate the year they were born, and age was calculated. The average respondent age was calculated to be 47 years (Table 7-1). Respondents ranged in age from 15 to 92 years.

##### *Regional*

Respondents from the central and metro regions were somewhat younger than respondents from the other regions ( $F=3.408$ ,  $p\leq 0.01$ ,  $\eta=0.086$ ) (Table 7-1).

#### ***Percentage of Life Living in Minnesota***

##### *Statewide*

Respondents were asked to report the number of years they had lived in Minnesota. Using respondents' age and number of years living in Minnesota, we calculated the proportion of life spent living in the state. On average, respondents had lived in Minnesota for 88% of their lives (Table 7-2).

##### *Regional*

Respondents from the central region had lived a greater proportion and respondents from the metro region had lived a shorter proportion of their lives in Minnesota ( $F=4.714$ ,  $p\leq 0.001$ ,  $\eta=0.102$ ) (Table 7-2).

#### ***Gender***

##### *Statewide*

Eighty-seven percent of respondents were male (Table 7-3).

##### *Regional*

There was no significant difference between regions in the proportion of male and female respondents (Table 7-3).

#### ***Income***

##### *Statewide*

Respondents reported their income using 11 categories. About 4% of respondents reported incomes of less than \$10,000 per year, and about 15% of respondents reported an income of \$100,000 or more. (Table 7-4).



## **Section 7: Demographic Information**

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### *Regional*

More respondents from the metro region reported incomes of \$100,000 or more. Over 25% of respondents from the metro region reported these high incomes, less than 15% of respondents from each of the other regions reported incomes of \$100,000 or more ( $\chi^2=146.698$ ,  $p\leq 0.001$ , Cramer's  $V=0.148$ ) (Table 7-3).

### *Race*

#### *Statewide*

Nearly all respondents (97%) were White (Table 7-5). Less than 1% of respondents considered themselves Hispanic/Latino (Table 7-6).

#### *Regional*

There were significant differences by region in the proportion of White, Asian, and American Indian respondents. Nearly 3% of respondents in the metro region reported their race as Asian, compared to less than 1% of respondents from the other regions ( $\chi^2=22.236$ ,  $p\leq 0.001$ , Cramer's  $V=0.111$ ) (Table 7-5). Nearly 2% of respondents from the central region reported their race as American Indian, compared to less than 1% of respondents from other regions ( $\chi^2=9.961$ ,  $p\leq 0.05$ , Cramer's  $V=0.074$ ) (Table 7-5). The proportion of White respondents was lower in the central and metro regions than in the other three regions ( $\chi^2=18.269$ ,  $p\leq 0.001$ , Cramer's  $V=0.100$ ) (Table 7-5); however, White respondents comprise still over 95% of respondents from all regions. There was not a significant difference in Hispanic background by region (Table 7-6).

### *Education*

#### *Statewide*

Respondents were asked to select their highest level of education from a list of nine options including: (a) grade school, (b) some high school, (c) high school diploma or GED, (d) some vocational or technical school, (e) vocational or technical school (associate's) degree, (f) some college, (g) four-year college (bachelor's) degree, (h) some graduate school, and (i) graduate (master's or doctoral) degree. More than 75% of respondents had completed at least some college or vo-tech education (Table 7-7).

#### *Regional*

In general, respondents from the metro region had higher levels of education than respondents from the other regions ( $\chi^2=92.097$ ,  $p\leq 0.001$ , Cramer's  $V=0.112$ ) (Table 7-7).

### *Late Respondents*

People who responded to the follow-up survey (i.e. reluctant responders) were significantly younger ( $\bar{x}=40$  years) than the people who responded to the full survey ( $\bar{x}=47$  years) ( $t=19.830$ ,  $p<0.001$ ). The reluctant responders had lived a greater proportion of their lives (88.9%) in Minnesota than other respondents had (87.3%) ( $t=3.476$ ,  $p<0.01$ ). These late respondents had fished an average of 7.2 of the previous 10 years, compared to an average of 8.0 for early respondents ( $t=13.131$ ,  $p<0.001$ ). A greater

## Section 7: Demographic Information

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proportion of reluctant responders were women (31%), compared to the early responders (26%) ( $t=5.147$ ,  $p<0.001$ ). Late respondents had a somewhat lower average income ( $t=9.527$ ,  $p<0.001$ ) and educational level ( $t=9.664$ ,  $p<0.001$ ) than early respondents.

Reluctant respondents were less satisfied with the size ( $\bar{x}=3.1$  versus  $\bar{x}=3.3$ ) ( $t=8.204$ ,  $p<0.001$ ) and number of fish ( $\bar{x}=3.1$  versus  $\bar{x}=3.2$ ) ( $t=5.587$ ,  $p<0.001$ ) they caught in Minnesota in the previous 12 months. They were also less satisfied with the facilities at lakes and streams ( $\bar{x}=3.4$  versus  $\bar{x}=3.5$ ) ( $t=4.789$ ,  $p<0.001$ ). The reluctant responders, however, were more satisfied with the behavior of other anglers ( $\bar{x}=3.5$  versus  $\bar{x}=3.4$ ) ( $t=7.258$ ,  $p<0.001$ ) and non-anglers ( $\bar{x}=3.3$  versus  $\bar{x}=3.2$ ) ( $t=4.242$ ,  $p<0.001$ ).

## Section 7: Demographic Information

**Table 7-1: Year of birth.**

Regions	Sample size (n)	Year of birth	Age
Statewide <sup>1</sup>	1,831	1957.69	47.31
Central region	377	1958.79	46.21
Metro region	354	1957.91	47.09
Northeast region	373	1955.19	49.81
Northwest region	351	1955.59	49.41
Southern region	362	1957.06	47.94
F=3.408**, $\eta=0.086$			

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 7-2: Proportion of life living in Minnesota.**

Regions	Sample size (n)	Mean %
Statewide <sup>1</sup>	1,828	87.88%
Central region	377	90.82%
Metro region	353	84.64%
Northeast region	372	85.54%
Northwest region	350	87.35%
Southern region	362	88.16%
F=4.714***, $\eta=0.102$		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 7-3: Gender.**

Regions	Sample size (n)	Male	Female
Statewide <sup>1</sup>	1,843	86.8	13.2
Central region	380	87.9	12.1
Metro region	355	87.3	12.7
Northeast region	377	85.9	14.1
Northwest region	354	84.2	15.8
Southern region	364	84.9	15.1
$\chi^2=3.002$ n.s., Cramer's V=0.041			

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 7: Demographic Information

**Table 7-4: Annual household income before taxes in 2003.**

Regions	n	Percent of respondents whose income was...										
		<\$10K	\$10K-\$19,999	\$20K-\$29,999	\$30K-\$39,999	\$40K-\$49,999	\$50K-\$59,999	\$60K-\$69,999	\$70K-\$79,999	\$80K-\$89,999	\$90K-\$99,999	\$100K+
Statewide <sup>1</sup>	1,692	4.3%	6.3%	7.7%	12.1%	10.6%	11.6%	10.5%	9.4%	7.4%	4.9%	15.1%
Central region	346	3.5%	7.5%	6.9%	13.3%	11.6%	13.0%	10.7%	11.6%	8.1%	3.8%	10.1%
Metro region	328	4.6%	2.4%	5.8%	8.2%	8.2%	9.8%	10.4%	9.5%	7.0%	7.9%	26.2%
Northeast region	349	3.7%	9.7%	9.5%	12.6%	12.0%	15.8%	10.9%	7.2%	8.0%	2.0%	8.6%
Northwest region	327	9.5%	9.2%	12.5%	15.0%	8.9%	10.1%	10.4%	6.1%	4.9%	3.7%	9.8%
Southern region	335	2.7%	6.9%	9.3%	14.9%	13.7%	10.4%	10.1%	6.9%	8.1%	3.9%	13.1%
$\chi^2=146.698^{***}$ , Cramer's V=0.148												

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 7-5: Race.**

Regions	n	Caucasian/ White	African American/ Black	Asian	Pacific Islander	American Indian or Alaskan Native
Statewide <sup>1</sup>	1,833	97.3%	0.1%	1.1%	0.0%	1.0%
Central region	377	96.0%	0.3%	0.5%	0.0%	1.9%
Metro region	355	97.2%	0.0%	2.8%	0.0%	0.6%
Northeast region	371	99.7%	0.0%	0.0%	0.0%	0.0%
Northwest region	354	98.9%	0.3%	0.6%	0.0%	0.6%
Southern region	362	98.9%	0.0%	0.3%	0.0%	0.6%
		$\chi^2=18.269^{***}$ , Cramer's V=0.100	$\chi^2=2.985$ n.s., Cramer's V=0.041	$\chi^2=22.236^{***}$ , Cramer's V= 0.111		$\chi^2=9.961^*$ , Cramer's V= 0.074

**Notes:** %

<sup>1</sup> A stratified %sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

## Section 7: Demographic Information

**Table 7-6: Hispanic background.**

Regions	Sample size (n)	% Yes
Statewide <sup>1</sup>	1,777	0.5%
Central region	363	0.3%
Metro region	345	0.6%
Northeast region	365	0.5%
Northwest region	341	0.9%
Southern region	355	0.8%
$\chi^2=1.400$ n.s., Cramer's V=0.028		

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

**Table 7-7: Highest Level of Education.**

Regions	Percent of respondents whose highest level of education was...								
	Grade school	Some high school	High school diploma (or GED)	Some vocational or technical school	Associate's degree	Some college	4-year college degree	Some graduate school	Graduate degree
Statewide <sup>1</sup>	1.4%	4.1%	20.1%	12.0%	14.6%	18.3%	13.6%	3.7%	12.1%
Central region	1.8%	5.8%	25.1%	14.5%	16.6%	16.4%	10.3%	2.9%	6.6%
Metro region	0.8%	1.4%	12.4%	9.6%	13.2%	23.9%	18.3%	6.2%	14.3%
Northeast region	0.5%	3.5%	21.0%	10.9%	14.4%	18.9%	16.5%	3.5%	10.9%
Northwest region	1.7%	5.9%	23.4%	10.7%	13.8%	20.6%	13.0%	3.4%	7.3%
Southern region	2.2%	5.2%	23.9%	14.6%	15.9%	13.5%	14.6%	1.6%	8.5%
$\chi^2=92.097$ ***, Cramer's V=0.112									

**Notes:**

<sup>1</sup> A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.

n.s.=not significant, \*P ≤ 0.05, \*\*P ≤ 0.01, \*\*\*P ≤ 0.001

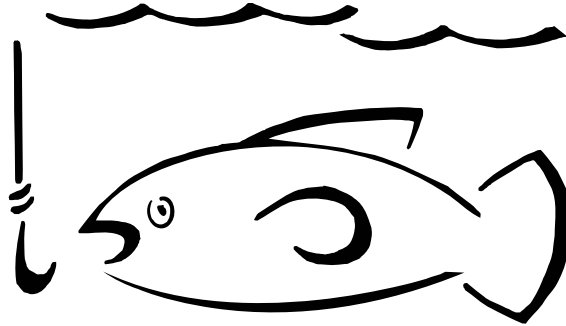
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## **Appendix 1: Survey Instrument**

# **FISHING IN MINNESOTA**

A study of angler participation and activities



**A cooperative study conducted by the University of Minnesota for the  
Minnesota Department of Natural Resources**

**Your help on this study is greatly appreciated!**

*Please return your completed questionnaire in the enclosed envelope. The envelope is self-addressed and no postage is required. Thanks!*

Minnesota Cooperative Fish and Wildlife Research Unit,  
Department of Fisheries, Wildlife and Conservation Biology  
University of Minnesota  
St. Paul, Minnesota 55108-6124



# Appendix A: Survey Instrument

## I. Minnesota Fishing Background

Q1. Over the past ten years, approximately how many years did you purchase a Minnesota fishing license?

\_\_\_\_\_ Years

Q2. During the past five years, would you say the number of days per year that you fish in Minnesota has:

- Decreased
- Stayed about the same
- Increased

## II. How Important Fishing is to You

Q3. Please indicate how much you agree or disagree with the following statements. (Circle one for each item.)

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Fishing is one of the most enjoyable things I do.	1	2	3	4	5
I can't say I particularly like fishing.	1	2	3	4	5
Fishing says a lot about who I am.	1	2	3	4	5
Participation in fishing is a large part of my life.	1	2	3	4	5
I have put a lot into developing skills for fishing.	1	2	3	4	5
It would be difficult for me to find another recreational activity to replace fishing.	1	2	3	4	5
I would rather fish than do any other recreational activity.	1	2	3	4	5
I have close friendships that are based on a common interest in fishing.	1	2	3	4	5
Most of my friends are in some way connected with fishing.	1	2	3	4	5
When I am fishing others see me the way I want them to see me.	1	2	3	4	5
I have little or no interest in fishing.	1	2	3	4	5
Fishing is very important to me.	1	2	3	4	5
You can tell a lot about a person when you see them fishing.	1	2	3	4	5
When I am fishing I can really be myself.	1	2	3	4	5
I enjoy discussing fishing with my friends.	1	2	3	4	5
Over time, I have acquired equipment that I would not use if I quit fishing.	1	2	3	4	5
Compared to other anglers, I own a lot of fishing equipment.	1	2	3	4	5

## Appendix A: Survey Instrument

**Q4. If you could not go fishing, are there any other recreation activities that would give you the same satisfaction and enjoyment you receive from going fishing?**

No → (If no, skip to Q6.)

Yes.

→ **Q5. Please list up to 3 activities you could substitute for fishing:**

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

### III. The Quality of Fishing in Minnesota

<b>Q6. For the Minnesota lakes and streams you regularly fish, over the past ten years,</b>	<b>Greatly declined</b>	<b>Declined</b>	<b>Stayed about the same</b>	<b>Improved</b>	<b>Greatly improved</b>
The quality of fishing has...	1	2	3	4	5
The size of fish caught has...	1	2	3	4	5
The quality of the environment has...	1	2	3	4	5

<b>Q7. For lakes and streams in Minnesota as a whole, over the past ten years,</b>	<b>Greatly declined</b>	<b>Declined</b>	<b>Stayed about the same</b>	<b>Improved</b>	<b>Greatly improved</b>
The quality of fishing has...	1	2	3	4	5
The size of fish caught has...	1	2	3	4	5
The quality of the environment has...	1	2	3	4	5

<b>Q8. In the next ten years,</b>	<b>Greatly decline</b>	<b>Decline</b>	<b>Stay about the same</b>	<b>Improve</b>	<b>Greatly improve</b>
The quality of fishing in the lakes and streams you regularly fish will...	1	2	3	4	5
The quality of fishing in Minnesota as a whole will...	1	2	3	4	5
The quality of the environment will...	1	2	3	4	5

## Appendix A: Survey Instrument

### IV. Motivations for Fishing

Q9. Please tell us how important each of the following experiences is to your fishing satisfaction.

	Very Unimportant	Unimportant	Somewhat Unimportant	Neither	Somewhat Important	Important	Very Important
Being with friends	1	2	3	4	5	6	7
Being alone	1	2	3	4	5	6	7
Competing with friends who fish	1	2	3	4	5	6	7
Being around other anglers	1	2	3	4	5	6	7
Using your fishing equipment	1	2	3	4	5	6	7
Being with people who are enjoying themselves	1	2	3	4	5	6	7
Learning about nature	1	2	3	4	5	6	7
Relaxing	1	2	3	4	5	6	7
Catching fish	1	2	3	4	5	6	7
Getting exercise	1	2	3	4	5	6	7
Enjoying nature and the outdoors	1	2	3	4	5	6	7
Catching some fish to eat	1	2	3	4	5	6	7
Sharing your skills and knowledge with others	1	2	3	4	5	6	7
Thinking about your personal values	1	2	3	4	5	6	7
Being in a quiet and peaceful place	1	2	3	4	5	6	7
Visiting areas you've fished in the past	1	2	3	4	5	6	7
Meeting new people	1	2	3	4	5	6	7
Doing something with your family	1	2	3	4	5	6	7
Developing your skills and abilities	1	2	3	4	5	6	7
Giving your mind a rest	1	2	3	4	5	6	7
Fishing in a wilderness setting	1	2	3	4	5	6	7
Getting away from crowds of people	1	2	3	4	5	6	7
Getting away from family for awhile	1	2	3	4	5	6	7
Catching a trophy	1	2	3	4	5	6	7
The size of the fish you catch	1	2	3	4	5	6	7
Releasing fish	1	2	3	4	5	6	7
Catching your limit	1	2	3	4	5	6	7
Catching a particular species of fish	1	2	3	4	5	6	7

## Appendix A: Survey Instrument

### V. Constraints to Your Fishing Activity

**Q10. Do you feel that the amount of time you spend fishing is constrained (restricted or inhibited) in any way?**

- No. → (If no, skip to Q12.)  
 Yes.

→ **Q11. If yes, check how you feel constrained in your fishing participation. (Check all that apply.)**

- There are types of fishing that I would like to start, but can't.  
 I have stopped fishing activities that I did in the past, although I would still like to do them.  
 I cannot fish as often as I would like.  
 I do not enjoy fishing as much as I might otherwise.

**Q12. Please circle the response that indicates how much the following factors limit the amount of fishing you do. Please circle one response for each:**

	Not at all limiting					Very limiting	
Family commitments	1	2	3	4	5	6	7
Work commitments	1	2	3	4	5	6	7
Crowding at fishing areas	1	2	3	4	5	6	7
Cost of equipment	1	2	3	4	5	6	7
Cost of licenses	1	2	3	4	5	6	7
Travel costs	1	2	3	4	5	6	7
Fishing regulations	1	2	3	4	5	6	7
Availability of people to fish with	1	2	3	4	5	6	7
Physically unable to go fishing	1	2	3	4	5	6	7
Inadequate fishing skills	1	2	3	4	5	6	7
Interest in other activities	1	2	3	4	5	6	7
Safety concerns	1	2	3	4	5	6	7
Fish populations too low	1	2	3	4	5	6	7
No desire to catch fish for food	1	2	3	4	5	6	7
No need to catch fish for food	1	2	3	4	5	6	7
Weather conditions	1	2	3	4	5	6	7
Interest in spending my free time at home	1	2	3	4	5	6	7
The type of people that go fishing	1	2	3	4	5	6	7
Amount of planning required to go	1	2	3	4	5	6	7
Age	1	2	3	4	5	6	7
Amount of effort required to go	1	2	3	4	5	6	7
No good fishing opportunities near my home	1	2	3	4	5	6	7
Concern about contaminants/pollutants in fish	1	2	3	4	5	6	7
Poor health	1	2	3	4	5	6	7

## Appendix A: Survey Instrument

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### VI. Eating Fish From Minnesota Lakes and Rivers

Q13. Have you eaten fish within the last year that you or somebody else caught while fishing in Minnesota?

- No.  
 Yes.

Q14. Please estimate the number of fish caught by angling in Minnesota that you have eaten in the last year.

\_\_\_\_\_ Fish

Q15. Prior to this survey, had you heard of the Minnesota Fish Consumption Advisory?

- No. ———▶(If no, skip to 18.)  
 Yes.

▶ Q16. Have you ever not fished at a lake because of the Minnesota Fish Consumption Advisory?

- No.  
 Yes.

Q17. Have you ever not eaten or not kept fish because of the Minnesota Fish Consumption Advisory?

- No.  
 Yes.

### VII. Commercial Fish Consumption

Q18. On average, how many meals of store-bought fish or shellfish do you eat at home per month?

\_\_\_\_\_ Meals

Q19. On average, how many times do you eat fish or shellfish at restaurants each month?

\_\_\_\_\_ Meals

Q20. On average, how many times do you eat canned tuna each month?

\_\_\_\_\_ Meals

Q21. On average, how many times do you eat shark or swordfish each month?

\_\_\_\_\_ Meals

Q22. On average, how many times do you eat fresh or frozen tuna or halibut each month?

\_\_\_\_\_ Meals

### VIII. Fishing Equipment and Organizations

Q23. Do you or a member of your household own a GPS unit that is used for fishing?

- No.  
 Yes.

Q24. Do you or a member of your household own an underwater video camera that is used for fishing?

- No.  
 Yes.

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**Q25. How many fishing clubs/organizations do you belong to?**

\_\_\_\_\_ Number of fishing clubs

### IX. Fisheries Management Issues

**Q26. Do you agree or disagree with the following statements about fisheries management issues in Minnesota?**

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Too many fish are being kept which is making fish smaller.	1	2	3	4	5
Heavy fishing pressure is reducing the numbers of fish in lakes and streams.	1	2	3	4	5
Lakeshore owners should have the right to alter the shoreline any way they want.	1	2	3	4	5
The Minnesota DNR should use a management practice beneficial to fish, even if the public does not believe it would be beneficial.	1	2	3	4	5
Only exotic plant species, such as Eurasian Water Milfoil, should be removed from lakes.	1	2	3	4	5
Aquatic plants are so important to lakes that they should be completely left alone.	1	2	3	4	5
Aquatic plants are weeds and have no value to the lake.	1	2	3	4	5
Underwater video cameras should not be allowed when fishing.	1	2	3	4	5
Underwater video cameras should only be allowed when there is no fishing equipment in the boat.	1	2	3	4	5
GPS Units (Global Positioning Systems) should not be allowed when fishing.	1	2	3	4	5
Regulations on the alteration of lake bottoms and banks to protect shoreline habitat should be more restrictive.	1	2	3	4	5
Chemical removal of the fish in a lake to replace them with other kinds of fish that people prefer to catch is acceptable to me as long as it's done so that people are safe.	1	2	3	4	5
Permanent concrete or steel structures (such as fish traps and fish ladders built in streams to make fishing better) should be used even if they don't look natural.	1	2	3	4	5
Aquatic plants are important to the lake, and should be managed like other natural resources.	1	2	3	4	5

**Q27. We are interested in your opinion about the effectiveness of fish management techniques in Minnesota. (Circle one response for each.)**

It is my understanding that:	Very ineffective	Ineffective	Neither effective nor ineffective	Effective	Very effective
Stocking walleye in a lake to increase walleye populations is...	1	2	3	4	5
Using size limits to protect fish populations is...	1	2	3	4	5
Managing shoreline to protect fish spawning sites is...	1	2	3	4	5
Using conservation programs to reduce soil erosion to improve fishing is...	1	2	3	4	5
Controlling wetland drainage to improve fishing is...	1	2	3	4	5

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**Q28.** Listed below are statements concerning the value and management of fish resources. For each statement, please indicate the degree to which you agree or disagree. *(Circle one response for each.)*

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The primary value of fisheries is to provide recreation for people.	1	2	3	4	5
Fisheries are valuable only if they produce jobs and income for people.	1	2	3	4	5
Nature's primary value is to provide things that are useful to people.	1	2	3	4	5
Fish are valuable only if people get to use them in some way.	1	2	3	4	5
Fish have as much right to exist as people.	1	2	3	4	5
Fish are primarily valuable as food for people.	1	2	3	4	5
Fish are valuable in their own right regardless of people.	1	2	3	4	5
Humans are no more important than other parts of nature.	1	2	3	4	5
Humans were meant to rule over the rest of nature.	1	2	3	4	5
Humans have a right to change the natural world to suit their needs.	1	2	3	4	5
Fish should primarily be managed for human benefit.	1	2	3	4	5
Humans have a duty to protect fish and other parts of nature.	1	2	3	4	5

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### X. The Department of Natural Resources (DNR)

Q29. Below are statements about the Minnesota Department of Natural Resources (DNR) Fisheries. Do you agree or disagree with the statements? (Circle one answer for each statement.)

Minnesota DNR Fisheries...	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Should manage lakes to have many fish though the average size would be smaller.	1	2	3	4	5
Should manage lakes to have big fish, though the number of fish harvested would be less.	1	2	3	4	5
Should manage your favorite lake to have big fish, though the number of fish harvested would be less.	1	2	3	4	5
Should manage lakes individually, though the regulations may become more complicated.	1	2	3	4	5
Should continue stocking walleyes in lakes even where stocking has not increased walleye numbers.	1	2	3	4	5
Should allow greater angler participation in making fish management decisions.	1	2	3	4	5
Answers questions honestly.	1	2	3	4	5
Has staff that are well trained to do their jobs.	1	2	3	4	5
Listens to anglers' concerns.	1	2	3	4	5
Responds to anglers' concerns.	1	2	3	4	5
Manages fisheries for special interests.	1	2	3	4	5
Adequately manages Minnesota's fishing waters.	1	2	3	4	5
Listens to the concerns of people that don't fish	1	2	3	4	5
Responds to the concerns of people that don't fish.	1	2	3	4	5
Spends public money effectively.	1	2	3	4	5
Needs more funding to do a better job.	1	2	3	4	5
Needs more funding from general tax revenue (not fishing licenses) to do a better job.	1	2	3	4	5



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**Q30. Listed below are fisheries-related activities that the Minnesota Department of Natural Resources performs. How important is each of these activities to you? (Circle one answer for each activity.)**

	Very unimportant	Unimportant	Neutral	Important	Very important
Stocking fish into lakes and streams.	1	2	3	4	5
Developing effective regulations to improve fishing.	1	2	3	4	5
Providing information to people so that they can decide where to fish.	1	2	3	4	5
Educating people on how they can help protect lakes and streams.	1	2	3	4	5
Developing understandable fishing regulations.	1	2	3	4	5
Improving lake and stream habitat.	1	2	3	4	5
Restoring fish such as sturgeon to lakes and streams where they once lived.	1	2	3	4	5
Purchasing land or easements to provide more places to fish.	1	2	3	4	5
Protecting the land surrounding lakes and streams.	1	2	3	4	5
Providing a good value for a fishing license.	1	2	3	4	5
Educating people on the biology and conservation of fish.	1	2	3	4	5
Educating people on ethical conduct and sportsmanship.	1	2	3	4	5

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**Q31. Now, for the same list of fisheries-related activities, please rate the performance of the Minnesota Department of Natural Resources in doing that activity. (Circle one answer for each activity.)**

	Very poor	Poor	Good	Very good
Educating people on how they can help protect lakes and streams.	1	2	3	4
Developing effective regulations to improve fishing.	1	2	3	4
Developing understandable fishing regulations.	1	2	3	4
Improving lake and stream habitat.	1	2	3	4
Stocking fish into lakes and streams.	1	2	3	4
Providing information to people so that they can decide where to fish.	1	2	3	4
Restoring fish such as sturgeon to lakes and streams where they once lived.	1	2	3	4
Purchasing land or easements to provide more places to fish.	1	2	3	4
Protecting the land surrounding lakes and streams.	1	2	3	4
Providing a good value for a fishing license.	1	2	3	4
Educating people on ethical conduct and sportsmanship.	1	2	3	4
Educating people on the biology and conservation of fish.	1	2	3	4

### XI. Fishing Tournaments

**Q32. Did a competitive fishing tournament interfere with your fishing or other water recreation in the past year?**

- No. —————→ (If no, skip to Q34.)
- Yes.

→ **Q33. How did the tournament interfere? (Check all that apply).**

- Increased congestion at access areas
- Increased congestion at fishing areas
- Increased boat traffic
- Increased litter and pollution
- Rude behavior from tournament anglers
- Fish are harder to catch after the tournament
- Concern that exotic plants and animals like Eurasian Water milfoil were being transported by tournament anglers.
- Other (Please describe: \_\_\_\_\_)

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**Q34. We are interested in your opinion about how the Minnesota Department of Natural Resources should manage competitive fishing tournaments in Minnesota. (Circle one answer for each statement.)**

The Minnesota DNR should...	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
not allow so many fishing tournaments	1	2	3	4	5
allow fewer anglers in each tournament.	1	2	3	4	5
allow fewer days in each tournament.	1	2	3	4	5
not allow off-site weigh-ins (where fish are transported to another location for weighing)	1	2	3	4	5
only allow catch and release tournaments.	1	2	3	4	5
only allow catch, measure for length, and immediate release tournaments.	1	2	3	4	5

### **XII. Fishing-Related Equipment and Activities**

**Q35. Please estimate how much money you have invested in fishing equipment (including boat(s) for fishing, fishing rods, fishing tackle, fly-tying equipment, waders, etc., but excluding general outdoor/camping equipment not used primarily for fishing).**

\_\_\_\_\_ Dollars

**Q36. Please estimate how much money you spend each year on fishing (trips, equipment, licenses, bait, etc.)**

\_\_\_\_\_ Dollars

**Q37. How many fishing rods do you own?**

\_\_\_\_\_ Rods

**Q38. Did you buy a fishing license in a state other than Minnesota in the past 12 months?**

- No.  
 Yes. (If yes, please indicate the number of other states: \_\_\_\_\_)

**Q39. Please indicate how many times in the last 12 months you did the following:**

	Never	1-5 times	6-10 times	11+ times
Watched fishing-related television shows.	1	2	3	4
Read fishing-related books.	1	2	3	4
Read newspaper articles about fishing.	1	2	3	4
Read Minnesota DNR publications about fishing.	1	2	3	4
Read fishing magazines.	1	2	3	4

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### **XIII. Fishing Activities During the 2003 Fishing Season**

You were selected for this survey because you purchased a fishing license for the 2003 fishing season, which ran from March 1, 2003 through February 29, 2004. Questions 40 through 45 specifically address your activities during that time period. *Please think back to the 2003 fishing season (March 1, 2003 through February 29, 2004) when responding to the questions in this section.*

**Q40.** About how many total days did you fish in Minnesota in the 12 months from March 1, 2003 through February 29, 2004?

\_\_\_\_\_ Days

**Q41.** How many lakes did you fish at in the 12 months from March 1, 2003 through February 29, 2004?

\_\_\_\_\_ Lakes

**Q42.** How many rivers or streams did you fish at in the 12 months from March 1, 2003 through February 29, 2004?

\_\_\_\_\_ Rivers/streams

**Q43.** How many times did you fish in competitive tournaments in the 12 months from March 1, 2003 through February 29, 2004?

- None
- 1 to 3 times
- 4 to 9 times
- 10 or more times

**Q44.** How satisfied or dissatisfied were you in the 12 months from March 1, 2003 through February 29, 2004 with:

	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
The overall fishing experience you had in Minnesota	1	2	3	4	5
The size of the fish you caught	1	2	3	4	5
The number of fish you caught	1	2	3	4	5
The behavior of other anglers	1	2	3	4	5
The behavior of non-anglers	1	2	3	4	5
Access at lakes/streams	1	2	3	4	5
Facilities at lakes/streams	1	2	3	4	5

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**Q45. We would like to know which fish are most popular with Minnesota anglers. How many days did you fish for each of these in Minnesota in the 12 months from March 1, 2003 through February 29, 2004?**

	Estimated Number of Days
Whatever is biting	_____
Walleye	_____
Sauger	_____
Northern pike	_____
Muskellunge	_____
Yellow Perch	_____
Crappie	_____
Sunfish	_____
Smallmouth bass	_____
Largemouth bass	_____
White bass	_____
Carp	_____
Bullhead	_____
Catfish	_____
Lake Superior salmon or trout	_____
Rainbow trout	_____
Brook trout	_____
Brown trout	_____
Other (SPECIFY) _____	_____

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### XIV. About You

Q46. In what year were you born?

\_\_\_\_\_ year

Q47. How many years have you lived in Minnesota?

\_\_\_\_\_ years

Q48. What is your gender?

- Male  
 Female

Q49. What was your annual household income from all sources, before taxes, in 2003?

<input type="checkbox"/> Less than \$10,000	<input type="checkbox"/> \$60,000 to \$69,999
<input type="checkbox"/> \$10,000 to \$19,999	<input type="checkbox"/> \$70,000 to \$79,999
<input type="checkbox"/> \$20,000 to \$29,999	<input type="checkbox"/> \$80,000 to \$89,999
<input type="checkbox"/> \$30,000 to \$39,999	<input type="checkbox"/> \$90,000 to \$99,999
<input type="checkbox"/> \$40,000 to \$49,999	<input type="checkbox"/> \$100,000 or more
<input type="checkbox"/> \$50,000 to \$59,999	

Q50. Which of the following best describes your race? (Check all that apply)

- African American/black  
 Asian  
 Pacific Islander  
 American Indian or Alaskan Native  
 Caucasian/white  
 Other

Q51. Do you consider yourself Hispanic/Latino/Spanish? (Check one)

- Yes  
 No

Q52. What is the highest level of education you have completed? (Check one)

- |   |   |
|---|---|
| <input type="checkbox"/> Grade school                                     | <input type="checkbox"/> Some college                           |
| <input type="checkbox"/> Some high school                                 | <input type="checkbox"/> Four-year college (bachelor's) degree  |
| <input type="checkbox"/> High school diploma or GED                       | <input type="checkbox"/> Some graduate school                   |
| <input type="checkbox"/> Some vocational or technical school              | <input type="checkbox"/> Graduate (master's or doctoral) degree |
| <input type="checkbox"/> Vocational/technical school (associate's) degree |   |

## **Appendix A: Survey Instrument**

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**Please make any additional comments you may have in the space below. Thanks!**

**THANK YOU FOR YOUR HELP!**  
*Please return the completed questionnaire in the*