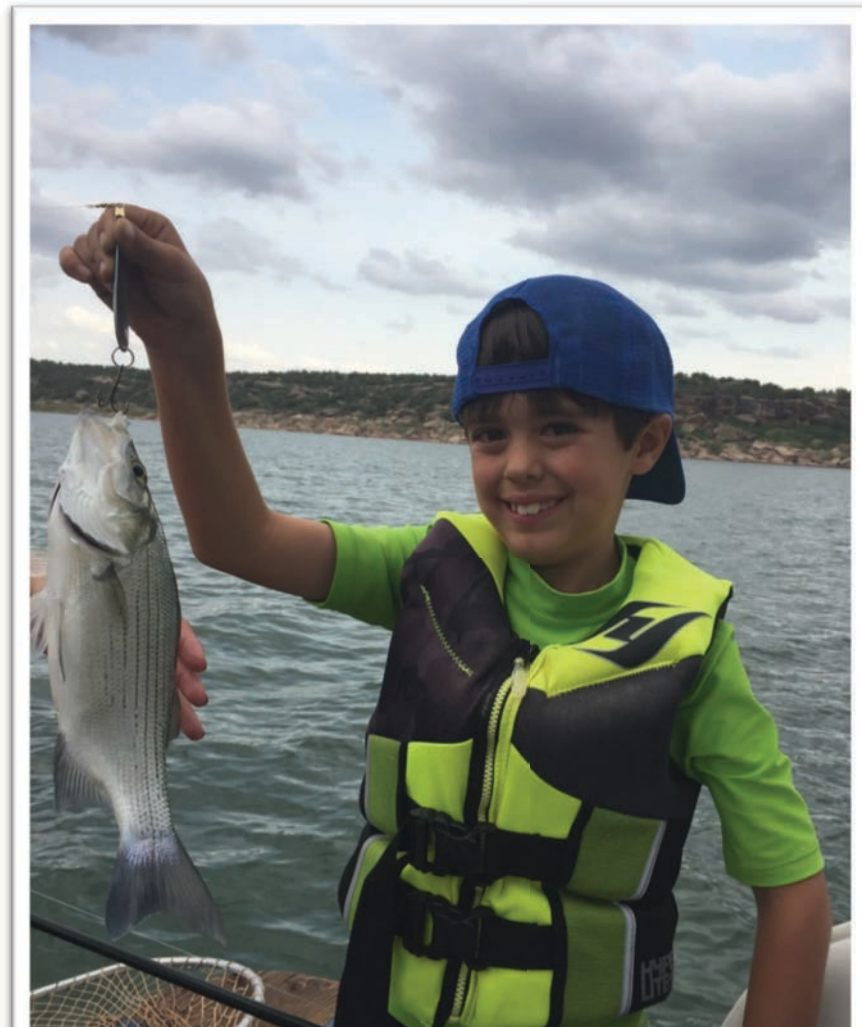


# New Mexico Angler Satisfaction Report 2016-2017 License Year



Completed by  
Fisheries Management Division  
New Mexico Department of Game and Fish



## **Introduction**

According to the New Mexico Department of Game and Fish Strategic Plan FY2012 through FY2018 one of the primary objectives for the Fisheries Management Division (FMD) is to “maintain an overall angler satisfaction rate of 80% regarding angler opportunity, fishing experiences, and the Department’s management of sport fishing issues through 2018”. To ensure the Department is meeting this objective a contractor was hired to conduct an angler satisfaction survey from 2005 to 2016. This survey has been conducted by a telephone interview method of a random sample of anglers ( $n \geq 400/\text{year}$ ).

In 2015 the Department explored alternative and contemporary methods to conduct the angler satisfaction survey. After considering several options a web based survey method was selected. The web based survey tool allows the Department to send a survey invitation to an extensive electronic mailing list of anglers. This method was used to conduct a survey in 2015, 2016, and again in 2017. This report summarizes the methods used and results from the 2017 survey.

## **Methods**

The web based angler satisfaction survey was conducted April 20 to May, 2017 ( $n_{\text{days}}=42$ ). An email invitation was sent to 10,060 anglers that purchased a fishing license in the 2016-17 license year. During the 2016-2017 license year 254,206 fishing licenses were sold, but only 118,649 customers provided an electronic mail address when purchasing a license. The survey sample was a stratified subsample representing 15 of the 18 different fishing licenses types and the percentage sold of each license type (Table 1). IBM SPSS Statistics was used to get a random representative sample of each license type. The sample comprised of about 72% resident anglers and 28% non-resident anglers which is consistent with percentages sold. Junior license types ( $n=3$ ) were removed since most of the email addresses provided for these customers are duplicated (i.e., same email address as parent).

Table 1. Fishing license types showing percentage of total sold (excluding junior license types) in the 2016-17 license year and target sample size of each license type including resident and non-resident.

<b>License type</b>	<b>% of total sold</b>	<b><i>n</i> resident for sample</b>	<b><i>n</i> non-resident for sample</b>
One Day Fishing	14.8%	353	932
Five Day Fishing	12.8%	45	1158
Annual Fishing	41.3%	2709	709
Disabled Vet Hunting and Fishing	0.8%	137	n/a
Game Hunting and Fishing	18.2%	3103	n/a
Handicapped Fishing	1.6%	77	n/a
Handicapped Hunting and Fishing	0.4%	78	n/a
I/A Free Hunting and Fishing	<0.1%	0	n/a
Military Hunting and Fishing	<0.1%	0	0
Resident Active Duty Temp Fishing	<0.1%	0	n/a
Senior 70 and Over Fishing	5.9%	388	n/a
Senior Fishing	2.9%	193	n/a
Senior Hunting and Fishing	1.2%	178	n/a
<b>Totals</b>	<b>100%</b>	<b>7,261</b>	<b>2,799</b>

The survey included 24 questions (18 fishing and 6 demographic related) most of which have been included in past surveys. Anglers may have been asked all or only a few questions depending on their answers (e.g., if they indicated they did not fish during the license year then they were only asked the demographic questions). Most of the fishing questions were set as “must answer” whereas the demographic questions had a “prefer not to answer” option.

Another email invitation was sent 15 days after the original invitation as a reminder to enhance the response rate.

**Results and Discussion**

Responses were received from 825 licensed anglers resulting in an overall 8.2% response rate. This response rate was a 2.8% decrease from 2016. Residents demonstrated a higher response rate of 8.8% compared to 6.8% from non-resident anglers. About 55.5% of the responses were received within 48 hours of the initial and reminder invitation (Figure 1) and response rates significantly declined post 72 hours of the invitations.

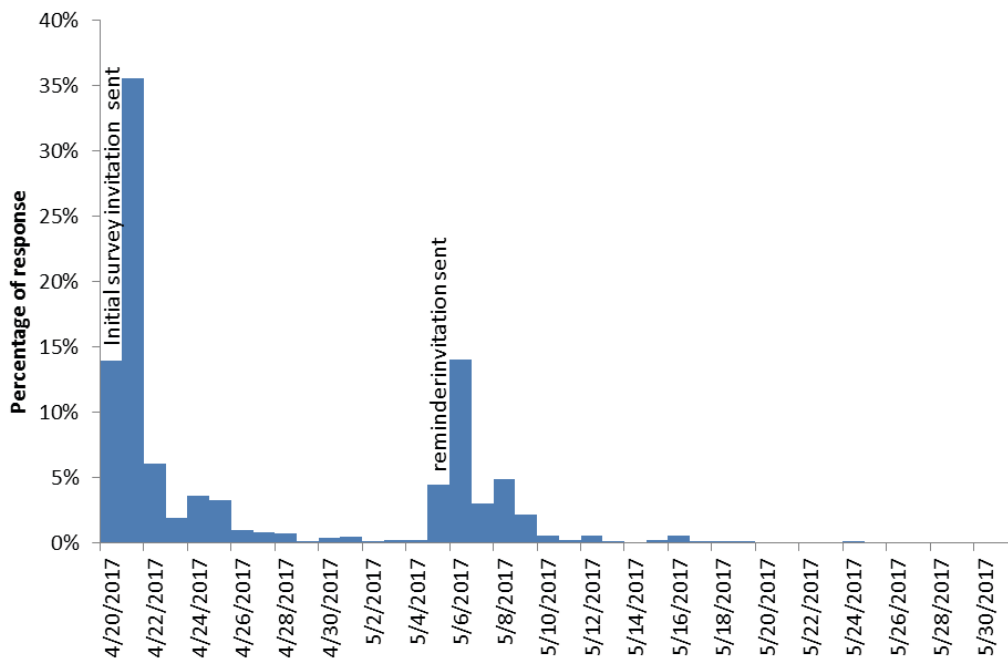


Figure 1. Relative frequency histogram of angler response rate and survey invitation by date.

The following is a list of the questions asked during the survey and results. All confidence intervals are presented as 80% unless otherwise noted.

**Question 1. Did you fish in New Mexico in the past 12 months?**

This question was asked to estimate the number of anglers that purchase a fishing license but did not fish. It also expedited the survey for anglers that did not fish. Of the 825 respondents 9.8%

indicated that they did not fish during the past 12 months. This continues a decreasing trend since the 2014-15 license year (Figure 2).

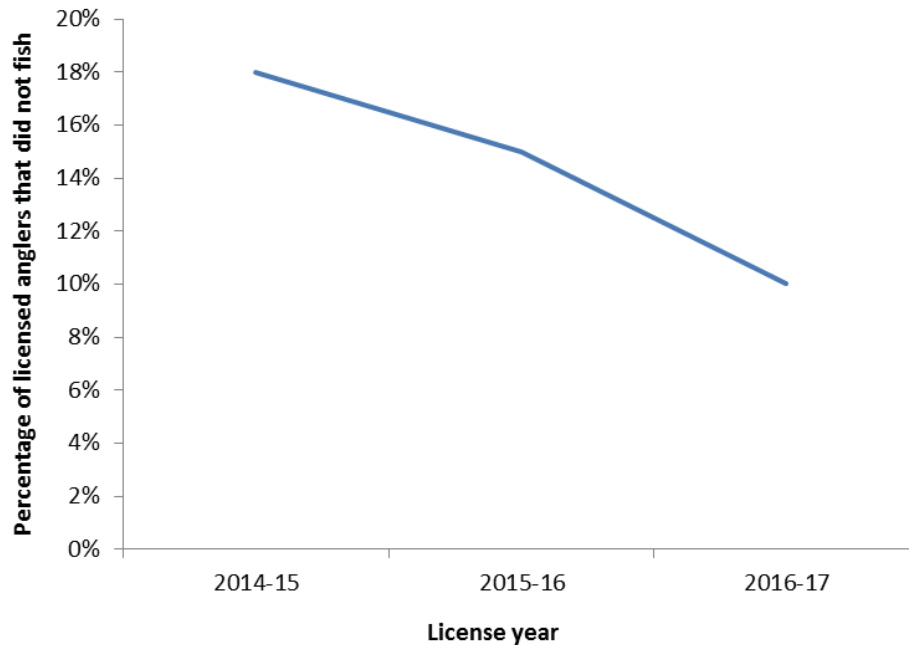


Figure 2. Percentage of licensed anglers that reported they did not fish during the 2014-15, 2015-16, and 2016-17 license years.

**Question 2. How many days of parts of days did you fish in New Mexico during the past 12 months?**

When only including the respondents that indicated they fished during the past 12 months ( $n=744$ ) results showed a wide range of days fished from 1 to 200 with a mean of 15.9 ( $\pm 1.1$ ) days and a median of 10 days. If including anglers that fished zero days the mean was 15.0 ( $\pm 1.0$ ) days and a median of 8 days. Responses were separated into six categories (0 days, 1-2 days, 3-5 days, 6-10 days, 11-20 days, and 21 days or more) and into resident and non-resident license type for analysis (Figure 3). Similar to past surveys, most (57.0%) non-resident anglers fished 5 days or less; whereas most (66.7%) resident anglers fished 6 days or more.

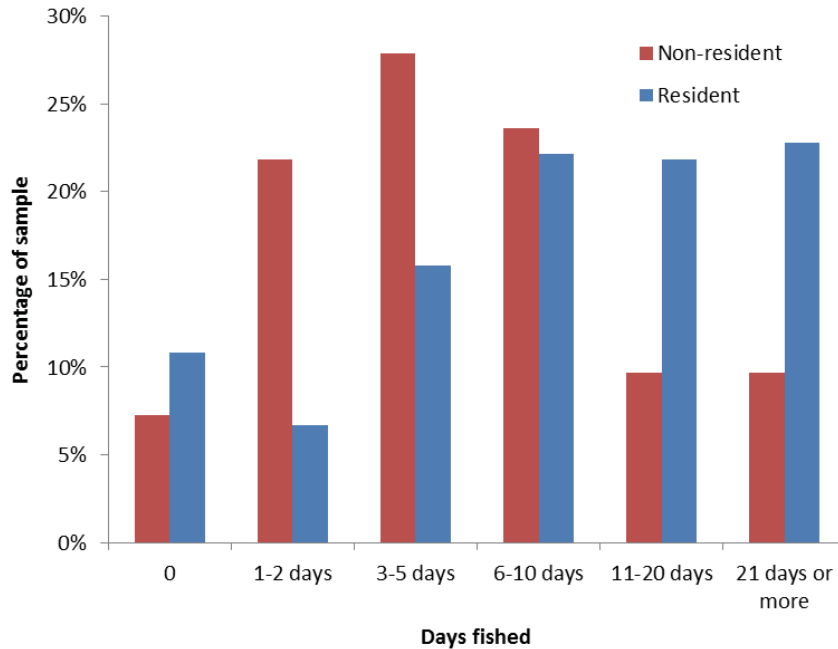


Figure 3. Number of days fished during the 2016-17 license year separated into resident and non-resident license types.

**Question 3. In general, how satisfied or dissatisfied were you with fishing in New Mexico during the past 12 months (Fishing Satisfaction Rate)?**

Anglers were asked to rate their fishing experience on a Likert scale of 1 to 5. A rating of 1 was “not at all satisfied” and a rating of 5 was “very satisfied”. Most (87.6%) respondents indicated being neutral to satisfied with their fishing experience giving a rating of 3, 4, or 5; where as 12.4% indicated being dissatisfied giving a rating of 1 or 2. The percentage of anglers that indicated they are satisfied decreased about 2.2% from the 2015-16 survey. About 61.7% of anglers indicated they are very satisfied giving a rating of 4 or 5. Similar to the past surveys non-residents appear to be more satisfied. About 75.2% of non-resident anglers gave a rating of 4 or 5; whereas only 58.8% of resident anglers gave the same rating. Also, dissatisfaction rate for non-resident and resident anglers was 4.6 % and 13.6%, respectively (Figure 4).

When comparing satisfaction rates to previous surveys the percentage (61.7%) of anglers that indicated a satisfaction rating of 4 or 5 in 2017 was slightly above the twelve year average (2005 to 2017) of 59.0%. Also, the percentage (12.4%) of anglers that indicated a satisfaction rate of 1 or 2 in 2017 was slightly below the twelve year average (2005 to 2017) of 14.0% (Figure 5).

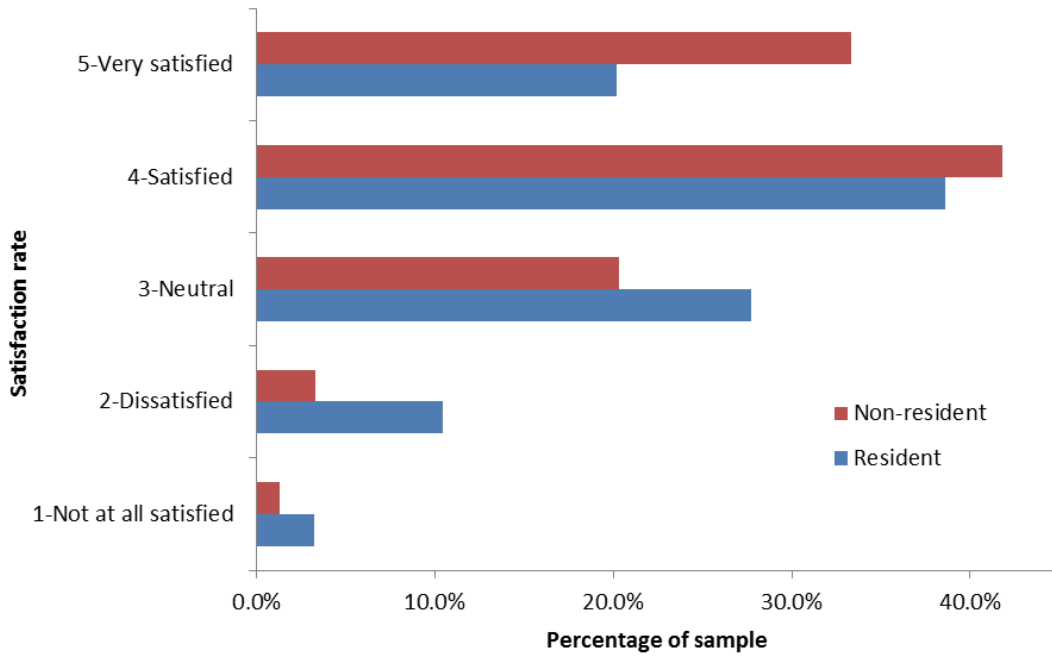


Figure 4. Satisfaction rate of resident and non-resident anglers during the 2016-17 license year.

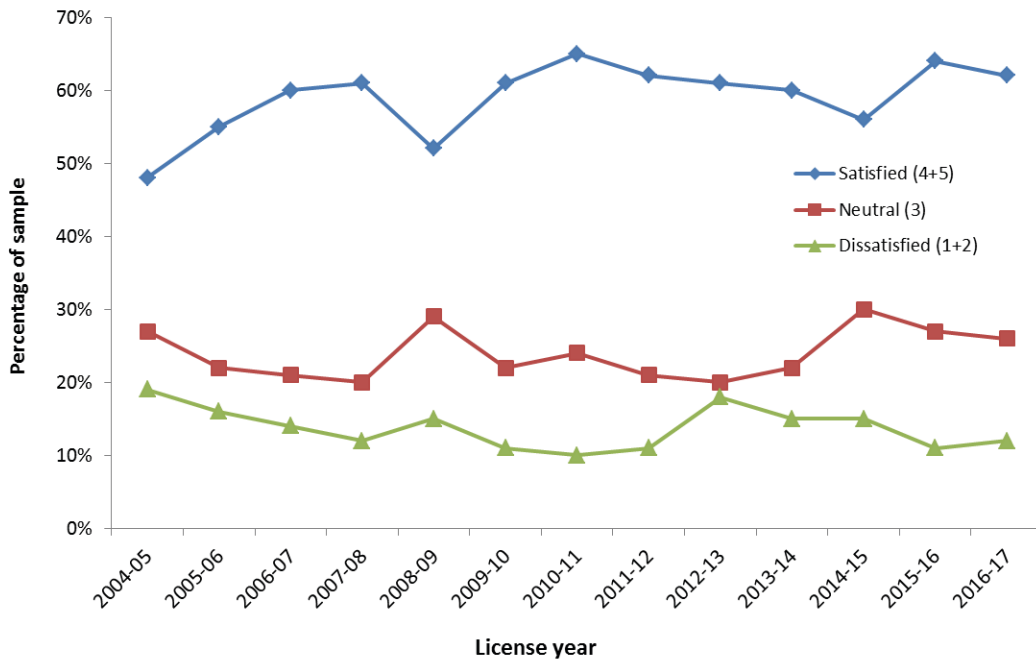


Figure 5. Overall satisfaction rating of anglers from the 2004-05 to 2016-17 license years. Note: Data presented for the 2004-05 to 2013-14 licenses years is from the telephone survey whereas data presented from the 2014-15 to 2016-17 license years is from the web-based survey.

**Question 4. Why do you feel this way?**

This was a follow up question to Question 3 to identify key reasons related to satisfaction or dissatisfaction. This question was optional to answer, but 90.0% of respondents provided an answer. Even though respondents provided a wide range of reasons to support their satisfaction rate, most of the answers fit into 17 categories. Similar to past surveys “poor catch rates”, “low or poor water conditions”, and “poor stocking” contributed to the primary reasons for dissatisfaction. Alternatively, “good catch rates” and “fishing is enjoyable experience” were the primary reasons for satisfaction.

**Question 5. Regarding your species preference, do you prefer to fish for cold water species like trout or salmon or do you prefer to fish for warm water species like bass or walleye?**

The largest percentage of the anglers indicated they preferred to fish for cold water species such as trout and salmon. About 39.7% of anglers indicated they preferred to fish for both cold and warm water species (Figure 6). This was a 4.1% increase from the 2015-16 survey. When combining anglers that indicated they preferred to fish for “cold water species” and “both” it appears that 88.7% of anglers fish for cold water species compared to 50.9% for warm water species.

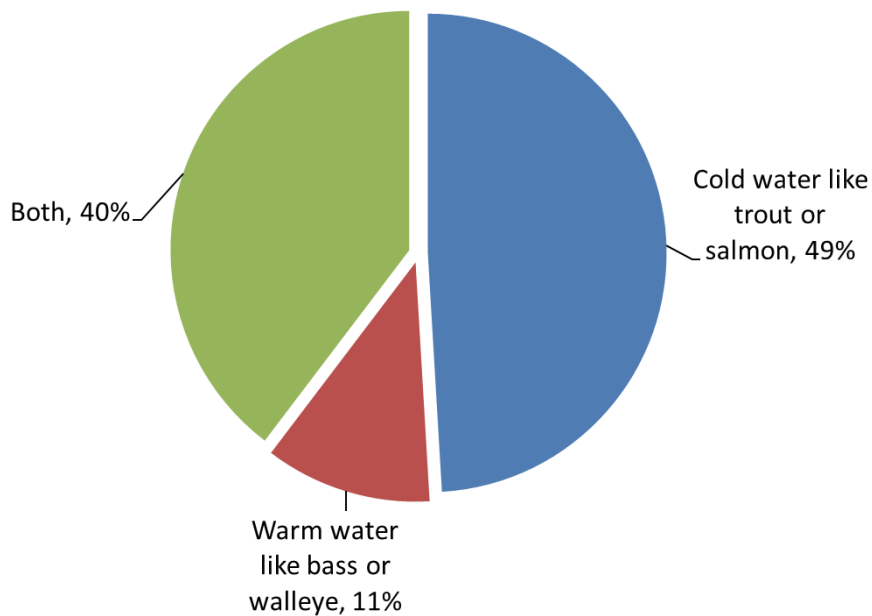


Figure 6. Fishing preference to fish for “cold water”, “warm water”, or “both” species of surveyed anglers during the 2016-17 license year.

**Question 6. Which cold water species do you prefer to fish for in New Mexico (May select up to 3)?**

Anglers were asked this question if they indicated they prefer to fish for cold water species or both. It appears that rainbow trout and brown trout are the cold water species most preferred. Gila trout was the cold water species least preferred (Table 2). Overall the percentages and order of preference were similar to past surveys.

Table 2. Cold water species in order of preference by anglers during the 2016-17 license year.

Species	Percent preferred*
Rainbow trout	85.8%
Brown trout	69.1%
Cutthroat trout	32.7%
Brook trout	22.3%
Kokanee salmon	20.2%
Lake trout	16.7%
Gila trout	5.8%

\*Percentages do not sum 100% since this is a multiple response question

**Question 7. Of the following statements which comes closest to your personal view when fishing for cold water species? (Stocked vs. wild fish)**

This question was asked if anglers indicated they prefer to fish for cold water species or both. The purpose of this question is to identify if anglers chose their fishing location where they expect to catch stocked fish or wild fish. This question was changed slightly in 2017 from past surveys by removing the “both” and “neither” answer options. Offering these options seemed to detract from the root of the question since most anglers were choosing “both”. This makes it difficult to identify trends in angler preference. Results from the 2017 survey show anglers are almost equally split with 49.5% indicating they chose their fishing location where they expect to catch stocked fish and 51.5% indicating they chose their fishing location where they expect to catch wild fish.

**Question 8. Which warm water species do you prefer to fish for in New Mexico (May select up to 3)?**

Anglers were asked this question if they fished for warm water species or both. Similar to the past surveys largemouth bass, smallmouth bass, catfish, and walleye appeared to be the most popular warm water fish species sought. Crappie and white bass also seemed to be popular as 21.4 to 24.5% of anglers preferred to fish for one of these species. Yellow Perch and Spotted Bass continue to be the least popular warm water species (Table 3).



Table 3. Warm water species in order of preference by anglers during the 2016-17 license year.

Species	Percent preferred*
Largemouth bass	59.6%
Smallmouth bass	42.5%
Walleye	41.7%
Catfish	39.6%
White bass	24.5%
Crappie	21.4%
Striped bass	12.1%
Tiger muskie	11.9%
Northern pike	10.8%
Bluegill/sunfish	4.5%
Yellow perch	3.4%
Spotted bass	2.1%

\*Percentages do not sum 100% since this is a multiple response question

**Question 9. Of the following statements which comes closest to your personal view? (Catch-and-release vs. catch-and-keep)**

This question was to determine if anglers prefer to practice catch-and-release or keep most of the fish they catch. Similar to past surveys most (61.2%) anglers indicated they prefer to release most of the fish they catch.

**Question 10. Of the following statements which comes closest to your personal view? (Lots of fish vs. one or two large fish)**

This question was asked to determine if anglers chose fishing locations based upon where they will “catch lots of fish” or “one or two larger fish”. Most (61.6%) anglers indicated they chose their fishing location based on where they will “catch lots of fish” (Figure 6).

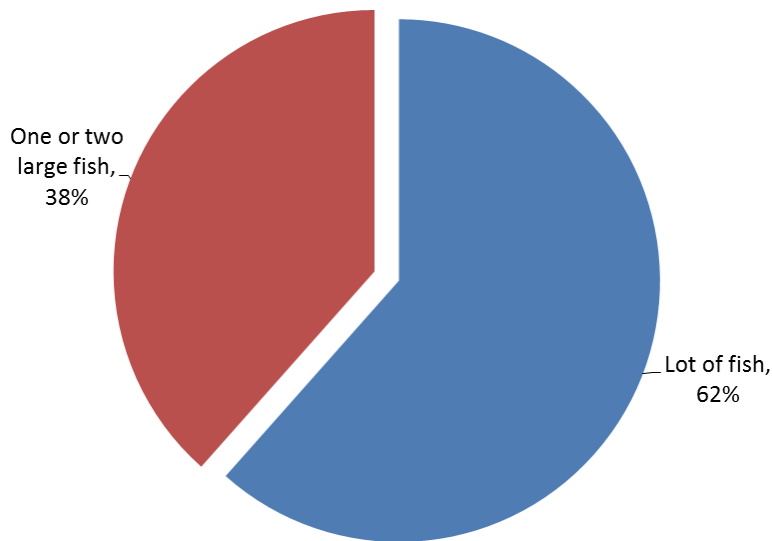


Figure 6. Fishing location preference by anglers based upon “catching lots of fish” or “catching one or two large fish” during 2016-17 license year.

**Question 11. Do you ever fish specifically for native trout?**

About 31.5% anglers indicated that do specifically fish for native trout. This is a slight decrease from the 2015-16 survey, but overall not different from past surveys.

**Question 12. What species of native trout do you fish for?**

This was a follow up question for anglers that answered yes to Question 11. The purpose of this question is to determine which native trout species anglers fished for and to understand anglers’ familiarity with the term “native trout”. This was an open ended question and survey participants’ response was volunteered. Some provided multiple species in their answer. Of the 235 anglers that indicated they fish specifically for native trout a large percentage (39.5%) indicated they fish for cutthroat trout or Gila trout, but several indicated they fish for brown trout (23.5%), brook trout (8.1%), or rainbow trout (6.7%). Based upon these responses more than half of the anglers do not fully understand the term “native trout” or are unfamiliar with which trout species are native to New Mexico (Figure 7).

# Brown Rainbow Cutthroat Brook Gila

Figure 7. Word cloud displaying “native trout species” anglers indicated they specifically fish for during the 2015-16 license year. Font size is related to the frequency a species was mentioned (i.e., the more times a species was mentioned the larger the font size).

**Question 13. Do you prefer to fish in streams and rivers or lakes and reservoirs?**

Most anglers indicated they prefer to fish in both streams/rivers and lakes/reservoirs, and more anglers indicated they prefer to fish in stream/rivers than lakes/reservoirs (Figure 8).

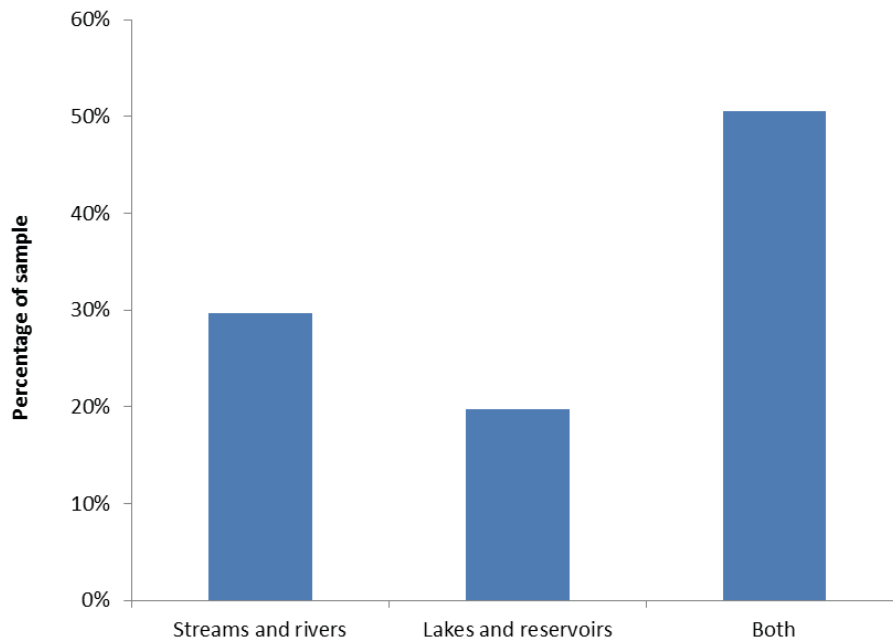


Figure 8. Fishing location preference by water type (streams, lakes, etc.) from anglers during the 2016-17 license year.

**Question 14. Do you use live bait when fishing?**

Similar to past surveys most (68.6%) of anglers indicated they did not use live bait when fishing.

**Question 15. What types of live bait do you use when fishing?**

This was a follow up question to Question 14 for the 31.3% of anglers that indicated they use live bait when fishing. Earthworms/night crawlers were by far the most popular live bait used, followed by minnows/bait fish, and crickets/grasshoppers. Water dogs/salamander larvae and meal worms/wax worms seemed to be the least popular (Figure 9).

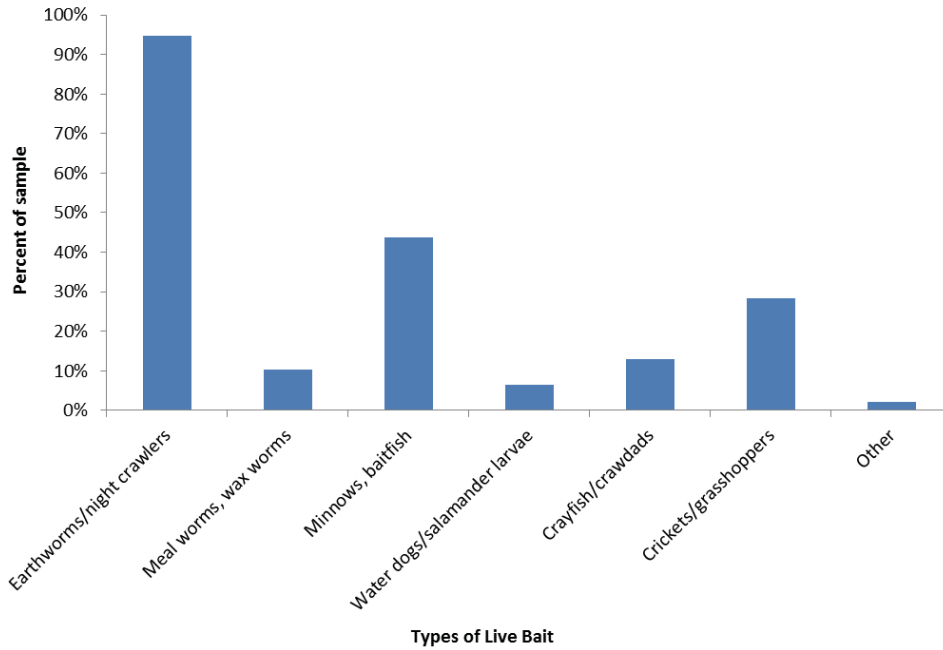


Figure 9. Types and percentage of live bait used by anglers during the 2016-17 license year. Note: percentages do not equal 100% since this is a multiple response question.

**Question 16. In what major river drainage do you use live bait in when fishing?**

Similar to past surveys more than half of the anglers indicated they use live bait in the Rio Grande. This major river drainage received the most live bait use according to survey results and live use about 6.7% compared to the 2015-16 survey. The Mimbres and Gila/San Francisco river drainages receive the least amount of live bait use (Table 3).

Table 3. Live bait use by major river drainage from anglers during the 2016-17 license year.

Major River Drainage	Percent preferred*
Rio Grande	62.7%
Pecos	30.9%
Gila and San Francisco	7.3%
Canadian	20.2%
San Juan	16.3%
Mimbres	4.3%

\*Percentages do not sum 100% since this is a multiple response question

When comparing types of live bait used and percentage of use by major river drainage earthworms/night crawlers were consistently used the most in all drainages. Waterdogs/salamander larvae and meal worms/wax worms were consistently use the least in all drainages (Table 4).

Table 4. Types of live bait and percentage\* of reported use by anglers in major river drainages during the 201-17 license year.

Bait type	Rio		Gila and San			
	Grande	Pecos	Francisco	Canadian	San Juan	Mimbres
Earthworms/Night crawlers	58.8%	29.2%	7.3%	18.0%	15.0%	4.3%
Meal worms/wax worms	7.7%	3.9%	0.9%	2.1%	4.7%	0%
Minnows/baitfish	30.0%	13.7%	3.0%	10.3%	4.7%	2.6%
Water dogs/salm. larvae	4.7%	3.0%	0.9%	1.7%	1.7%	0%
Crayfish/crawdads	9.4%	3.4%	2.1%	1.7%	1.7%	1.3%
Crickets/grasshoppers	20.6%	10.3%	1.3%	5.2%	5.2%	1.3%
Other	0.9%	1.3%	0.9%	0%	0%	0%

\*Percentages do not sum 100% since this is a multiple response question

**Question 17. Do you support reducing daily bag limits or restricting tackle in some waters, such as Special Trout Waters, to improve angling opportunities?**

Most (72.8%) anglers indicated they support reducing daily bag limits or restricting tackle to improve angling opportunities.

**Question 18. Did you fish in a Special Trout Water during the past 12 months?**

Even though most anglers support Special Trout Water regulations as shown in Question 17, only 37.2% indicated they fished in a Special Trout Water the past 12 months.

Questions 19 to 24 were related to demographics and were optional to answer by survey participants.

**Question 19. What is your gender?**

Most of the survey participants were male and females seemed to be under represented in the data (Figure 10).

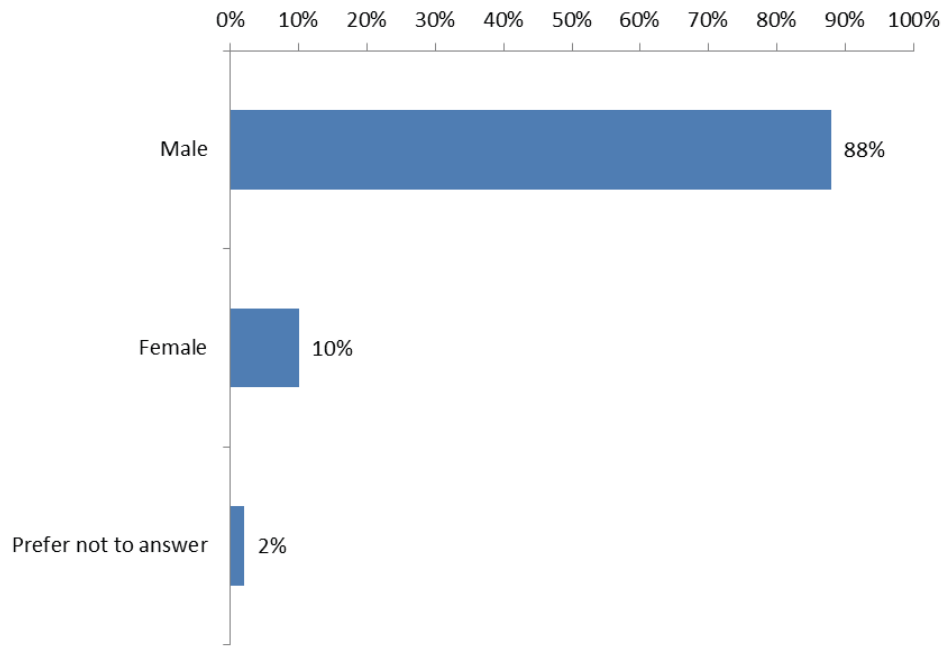


Figure 10. Gender of survey participants by percentage.

**Question 20. What is your age category?**

The largest age category was 50 to 64 years, representing 38% of the sample, followed by age category 35 to 49 years (Figure 11). Age distribution was similar to past surveys.

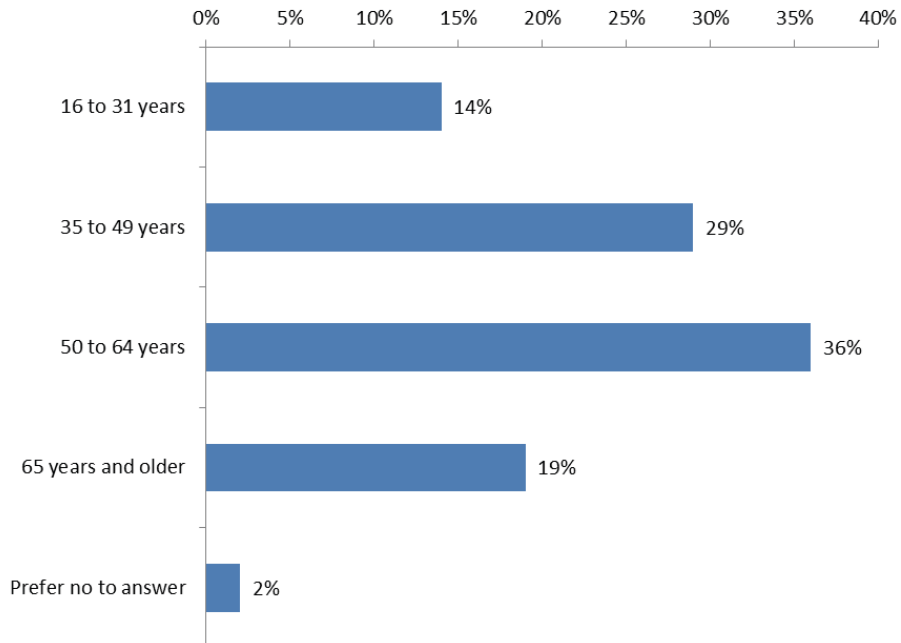


Figure 11. Age categories of survey participants by percentage.

**Question 21. Do you consider yourself to be:**

Most of the participants consider themselves Anglo/Caucasian or Hispanic representing about 85.5% of the sample combined (Figure 12).

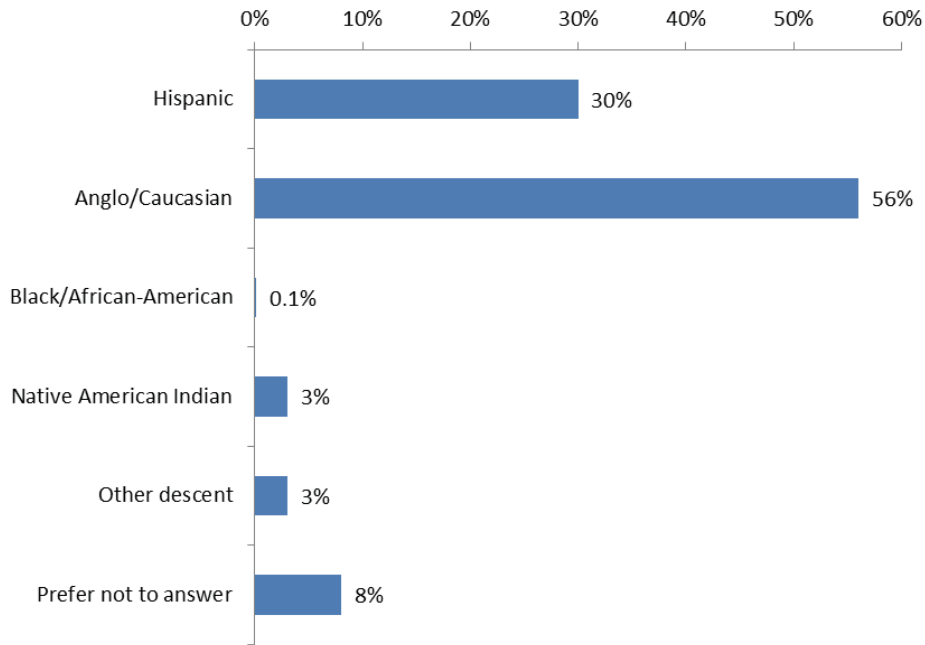


Figure 12. Descent of survey participants by percentage.

**Question 22. What is the highest level of education you have had the opportunity to complete?**

The largest participant percentage indicated completing some college/associates degree/vocational certificate. Participants that indicated being college graduates and completing graduate work were about equal. Participants that indicated some high school was the smallest percentage (Figure 13).

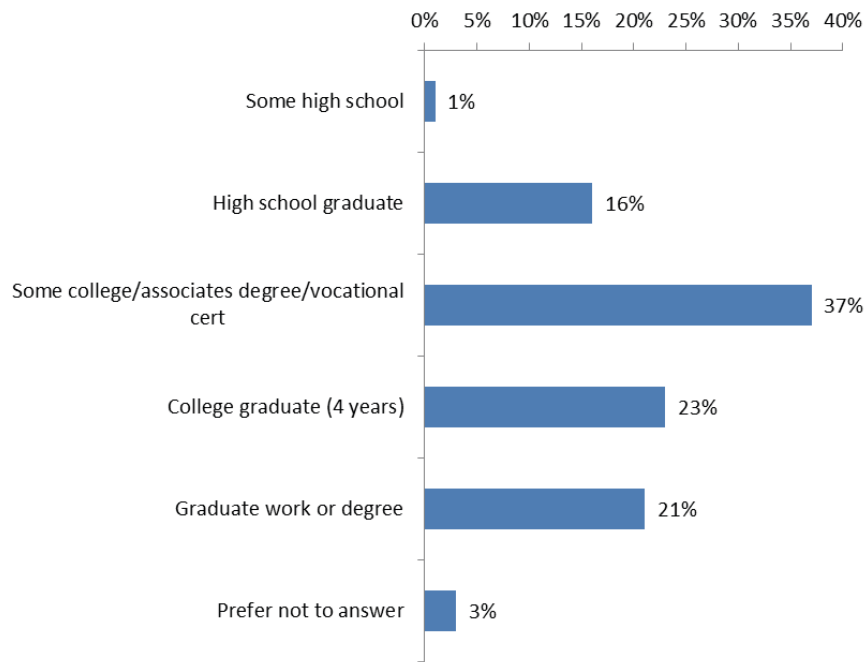


Figure 13. Highest education level of survey participants by percentage.

**Question 23. Do you own a boat or personal watercraft that you use for fishing?**

Most (62.4%) survey participants indicated they don't own a boat or personal watercraft (Figure 14).

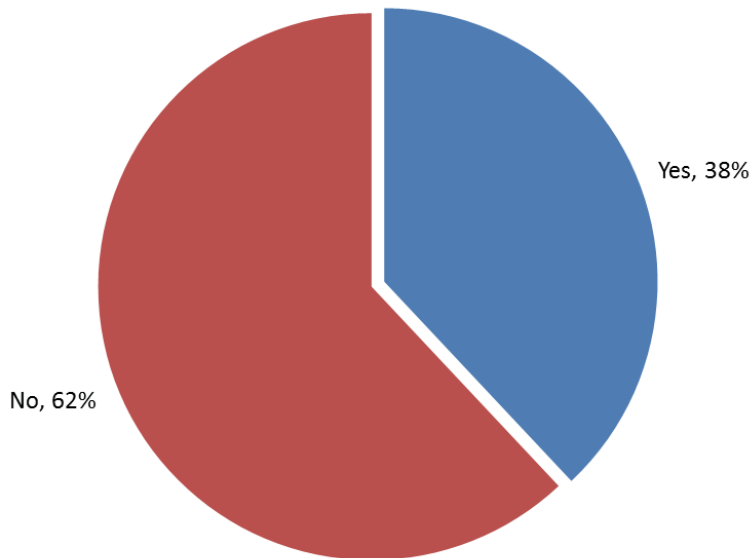


Figure 14. Percentage of survey participants that own a boat or personal water craft.



**Question 24. What is the zip code of your residence?**

Almost all survey participants provided a zip code of their residence. Survey participants represented 283 different zip codes and 23 different states. Most non-resident survey participants were located in the neighboring states surrounding New Mexico (Figure 15). In New Mexico participants represented 154 of the 282 (or 54.6%) zip codes.

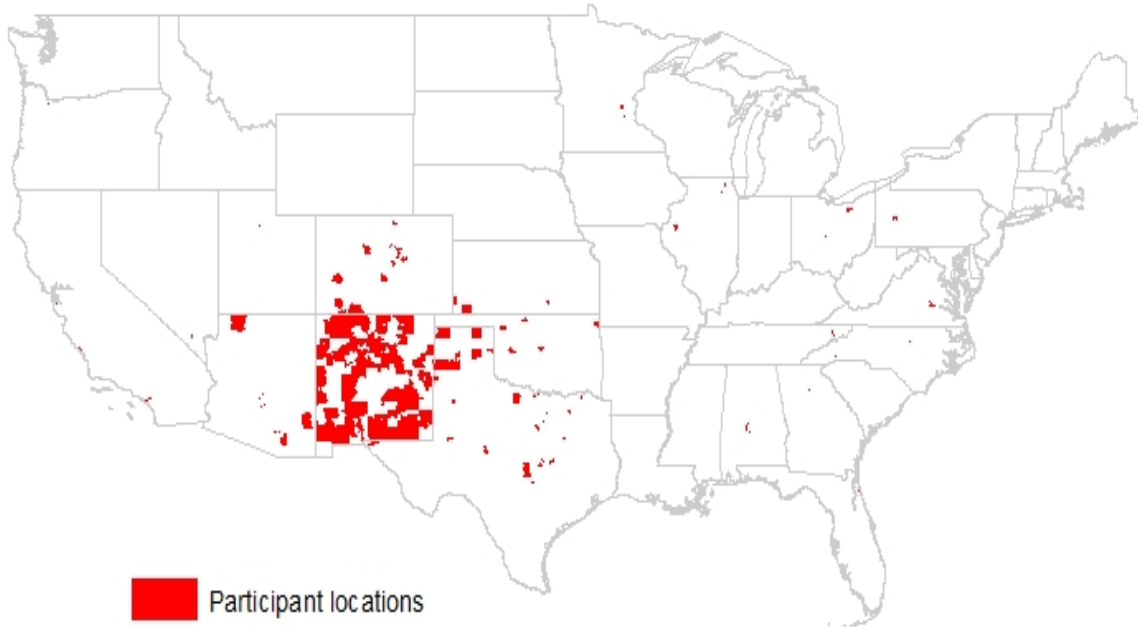


Figure 15. Location of survey participants based upon zip code.