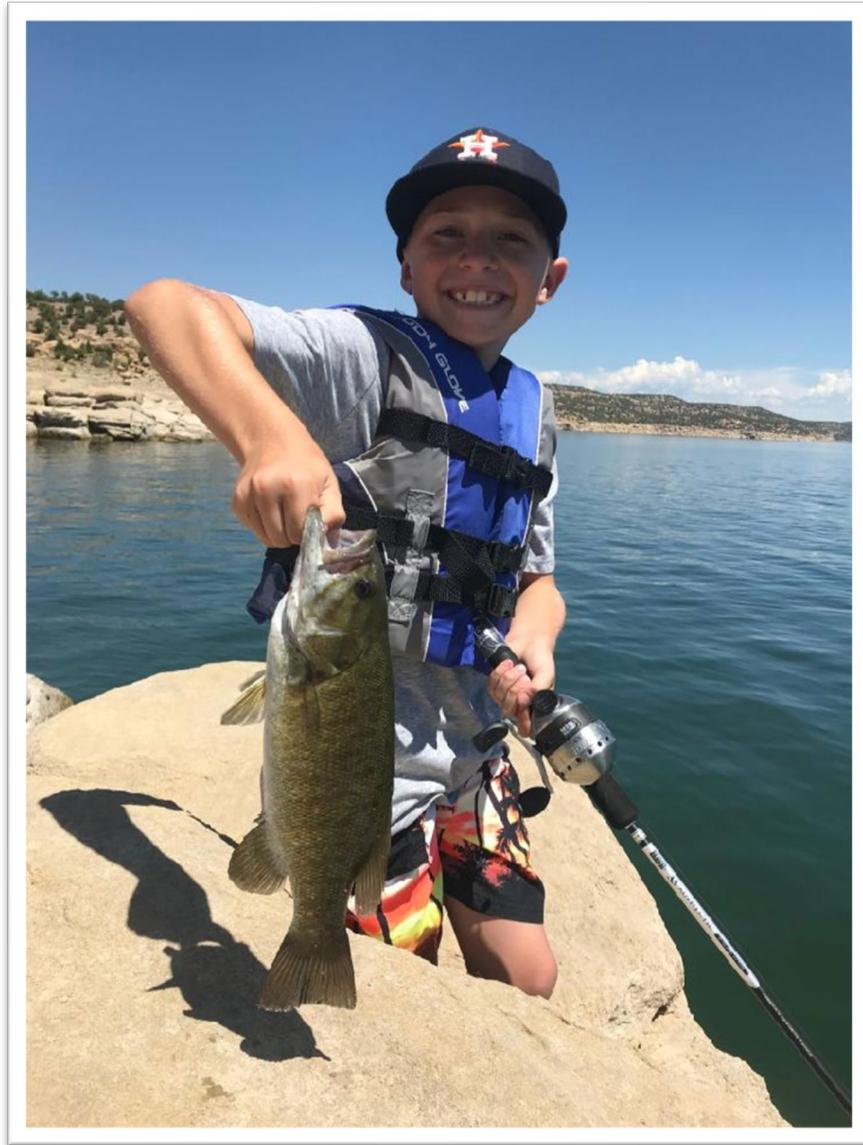# New Mexico Angler Satisfaction Report
2020-2021 License Year

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

Cover photo
Ty Rector with a smallmouth bass from Navajo Reservoir by Jason Rector

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Introduction

The New Mexico Department of Game and Fish uses angler satisfaction as one of its measurable objectives for management success. Traditionally the Department has been tasked with maintaining an overall angler satisfaction rate of 80% regarding angler opportunity, fishing experiences, and management of sport fishing issues. Since the 1990's the Department has been conducting some type of polling survey to measure angler satisfaction rate and determine if the objective was met. In addition to measuring angler satisfaction the survey also researches trends in angler needs, seek input on emerging issues, and provides direction for future management decisions. Information and knowledge gained through this survey is vital to effectively manage the State's aquatic resources. This report summarizes the method used and results from the 2021 survey.

Methods

The survey was conducted using web-based survey software (Snap Surveys LTD). This method involves sending an email invitation to a random sample of licensed anglers. The email contains a uniform resource locator (URL) link to a questionnaire hosted on a Department owned web-server. Once participants complete the survey data is collected and compiled on the web-server.

The survey was conducted April 29 to June 15, 2021 (n_{days}=48). An email invitation was sent to 15,000 anglers that purchased a fishing license in the 2020-21 license year (April 1, 2020 to March 31, 2021). This was a 5,000 increase in invitations from previous surveys in attempt to increase survey responses. During the 2020-21 license year 272,367 fishing licenses were sold, but only 160,760 customers provided an email address when purchasing a license. The survey sample was a stratified subsample representing the different fishing license types and the percentage sold of each license type (Table 1). The sample comprised of about 78.2% resident anglers and 21.8% non-resident anglers. This was a 7% increase in resident anglers compared to the previous year, and likely due to travel restrictions associated with the COVID-19 pandemic. Microsoft Excel was used to get a random representative sample of each license type.

Table 1. Fishing license types showing percentage of total sold in the 2020-21 license year and target sample size of each license type including resident and non-resident.

License type	% of total sold	*n* resident for sample	*n* non-resident for sample
One Day Fishing	11.9%	571	1,219
Five Day Fishing	7.7%	51	1,111
Annual Fishing	41.2%	5,446	731
Disabled Vet Hunting and Fishing	0.9%	129	n/a
Game Hunting and Fishing	17.4%	2,608	n/a
Handicapped Fishing	1.2%	179	n/a
Handicapped Hunting and Fishing	0.5%	68	n/a
Junior Fishing	8.0%	985	214
Junior Hunting and Fishing	2.0%	304	n/a
Senior 70 and Over Fishing	5.3%	795	n/a
Senior Fishing	2.7%	403	n/a
Senior Hunting and Fishing	1.2%	184	n/a
Totals	**100%**	**11,724**	**3,276**

The survey included 24 questions (19 fishing and 5 demographic related) most of which have been included in past surveys. Five new questions were added related to trout size, appearance, and quality to guide trout hatchery product. Anglers may have been asked all or only a few questions depending on their answers to expedite the survey (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 867 licensed anglers resulting in an overall 5.8% response rate. Residents and non-residents demonstrated different response rates with 6.2% and 4.3%, respectively. During the 2021 survey data was collected from incomplete or partial surveys (i.e., someone that started the survey but didn't finish) to gauge if participants were losing interest from the surveying taking too long to complete. Collecting data on partial surveys is important and provides additional insight for questions answered by participants. Most (86.2%) participants completed the survey once started. About 56.6% of the responses were received within 48 hours of the initial and reminder invitation and response rates significantly declined post 72 hours of the invitations. Average time spent completing the survey by participants was 6 minutes 41 seconds.

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 purchased a fishing license but did not fish. It also expedited the survey for anglers that did not fish. Of the 867 anglers 14.4% indicated that they did not fish during the past 12 months. This is an increase from previous years and the highest percentage since the 2014-15 license year (Figure 1).
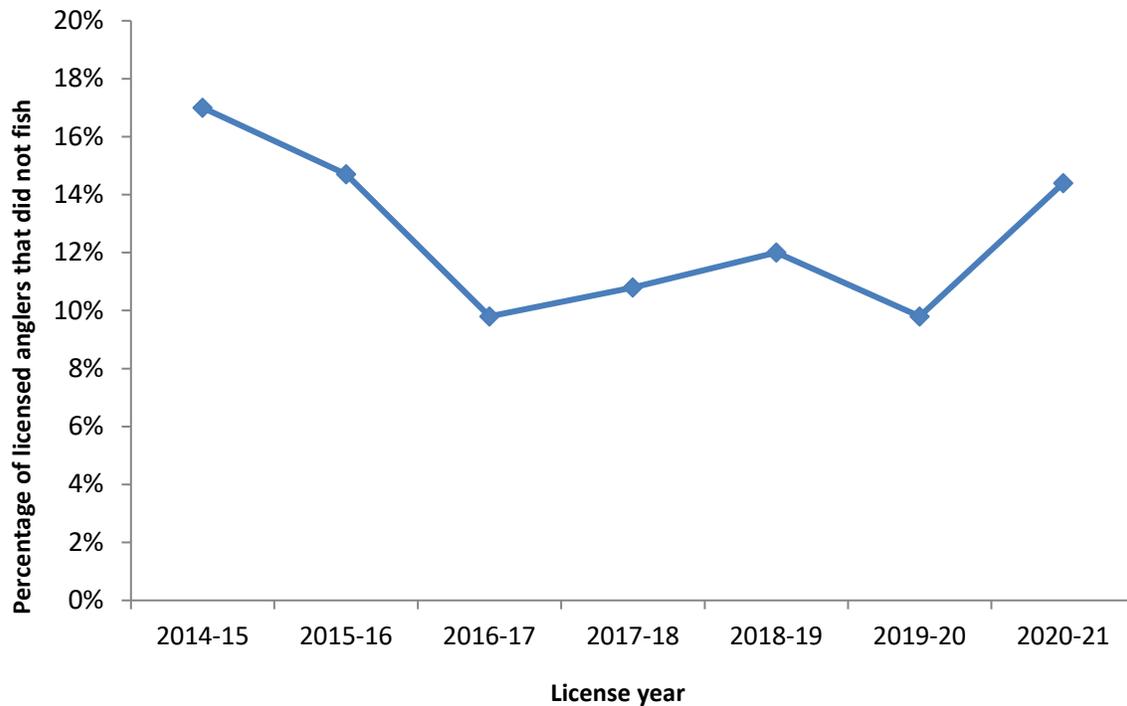
Figure 1. Percentage of licensed anglers that reported they did not fish during the 2014-15 to 2020-21 license years.

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

When only including the anglers that indicated they fished during the past 12 months (n=733) results showed a wide range of days fished from 1 to 200 with a mean of 17.1 (±1.2) days and a median of 10 days. This is almost identical to the 2020 survey with a mean of 17.2 (±1.2) and a median of 10 days. If including anglers that fished zero days the mean was 14.5 (±1.1) days and the median was 6 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 2). Similar to past surveys, most (67.3%) non-resident anglers fished 5 days or less; whereas most (59.9%) resident anglers fished 6 days or more. However, there was a 5.0% increase in non-resident anglers indicating they fished 6-10 days compared to previous years.
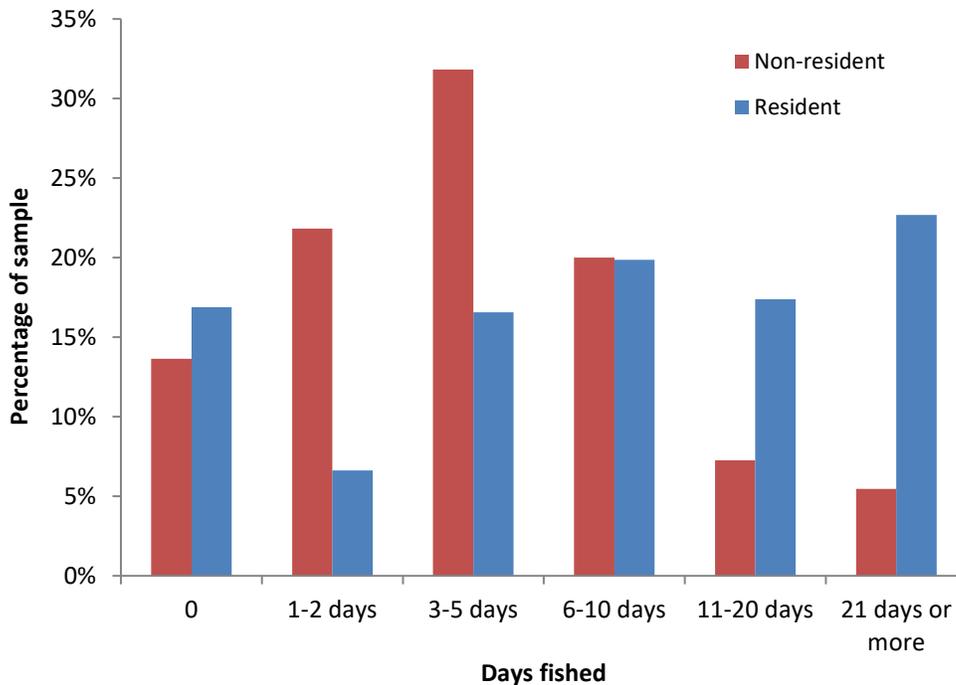
Figure 2. Number of days fished during the 2020-21 license year separated into resident and non-resident license types.

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 (82.9%) anglers indicated being neutral to very satisfied with their fishing experience giving a rating of 3, 4, or 5; whereas 17.1% indicated being dissatisfied giving a rating of 1 or 2. This was a significant increase from the 2020 survey that had a dissatisfaction rate of 7.1%. About 60.6% of anglers indicated they are satisfied giving a rating of 4 or 5. This was the lowest satisfaction since the 2014-15 license year and highest dissatisfaction rate since the 2012-13 license year (Figure 3). Non-residents continue to be more satisfied. About 73.4% of non-resident anglers gave a rating of 4 or 5; whereas only 59.8% of resident anglers gave the same rating. Also, dissatisfaction rate for non-resident and resident anglers was 13.8% and 17.8%, respectively (Figure 4).
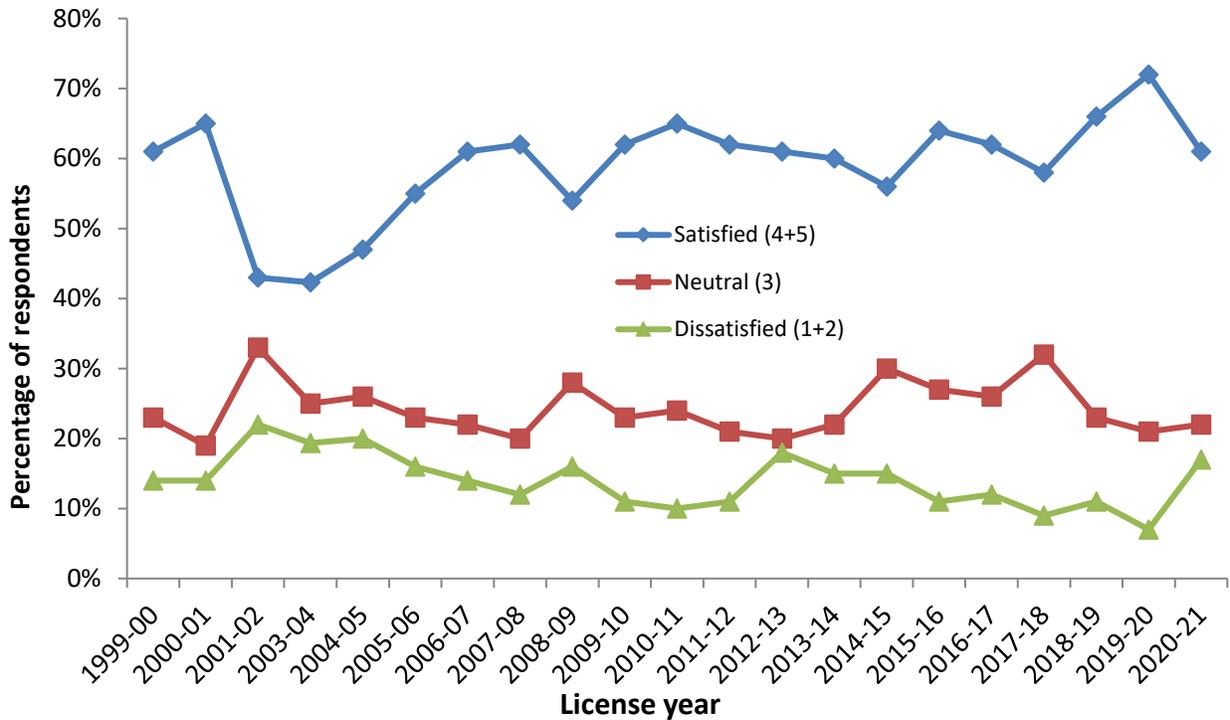
Figure 3. Overall satisfaction rating of anglers surveyed from the 1999-00 to 2020-21 license years.
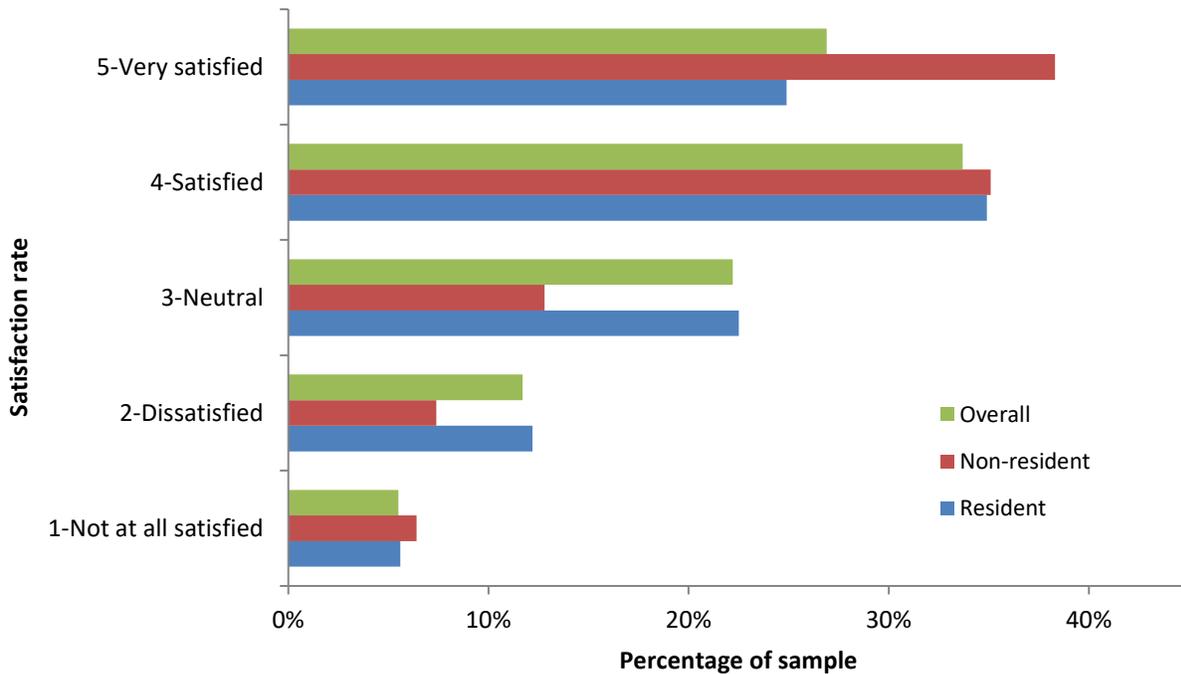

Figure 4. Satisfaction rate of resident and non-resident anglers during the 2020-21 license year.

Question 4. Why do you feel this way?
This was a follow up to Question 3 to identify key reasons related to satisfaction or dissatisfaction. This question was optional to answer, but 89.2% of anglers provided an answer. Even though

anglers provided a wide range of reasons to support their satisfaction rate, most of the answers fit into 24 categories. "COVID-19 related closures and issues" and "poor catch rates" were the primary reason for dissatisfaction. Alternatively, "good catch rates" was the primary reasons for satisfaction (Table 2). COVID-19 related issues were mentioned 110 times or by 14.4% of the survey participants in their reason supporting the rating given. Interestingly, even anglers that indicated they are "satisfied" to "very satisfied" mentioned COVID-19 related issues 6.8% of the time.

Table 2. Categorized reasons for satisfaction rating given by surveyed anglers and percentage of frequency by rating for the 2020-21 license year. Note: Sum of each category equals 100% since the percentages are totaled by grouped rating. **Bolded** percentages are the highest for each grouped rating.

Reason for satisfaction rating	Rating		
	Dissatisfied (1-2)	Neutral (3)	Satisfied (4-5)
Good catch rates		0.5%	**25.3%**
Poor Catch rates	23.1%	**20.6%**	4.3%
Large fish caught			1.4%
Fish too small	3.5%	5.8%	1.7%
Good water levels, conditions, flow			1.9%
Poor water levels, conditions, flow	9.8%	10.6%	3.7%
Too crowded	4.9%	11.1%	2.3%
Good opportunity or access			10.6%
Poor opportunity or access	7.0%	7.4%	1.2%
Facilities good or clean			3.1%
Facilities poor or trashy	4.9%	4.2%	2.5%
Good stocking			3.3%
Poor stocking	7.7%	9.5%	1.4%
Regulations good/enforcement adequate			0.4%
Regulations poor/not enough enforcement	2.8%	1.6%	0.8%
Beautiful location			4.1%
Enjoyable experience/just like to fish		1.1%	15.7%
Weather			1.2%
Good fisheries management			1.7%
Poor fisheries management	3.5%	2.6%	1.0%
Others not following rules	1.4%	2.6%	0.8%
License cost good			0.2%
License cost too high		1.1%	
COVID-19 related closures and issues	**30.8%**	17.5%	6.8%
Other	0.7%	3.7%	4.3%

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 (52.8%) indicated they preferred to fish for "cold water" species such as trout and salmon. About 36.7% of anglers indicated they preferred to fish for both "cold water" and "warm water" species. Overall, this percentage has not changed significantly

since the 2014-15 license year; however, there was a slight increase in the percentage of anglers indicating they prefer to fish for "cold water" species in 2021 (Figure 5). When combining anglers that indicated they preferred to fish for "cold water" species and "both" it appears that 89.5% of anglers fish for cold water species compared to 47.2% for warm water species.
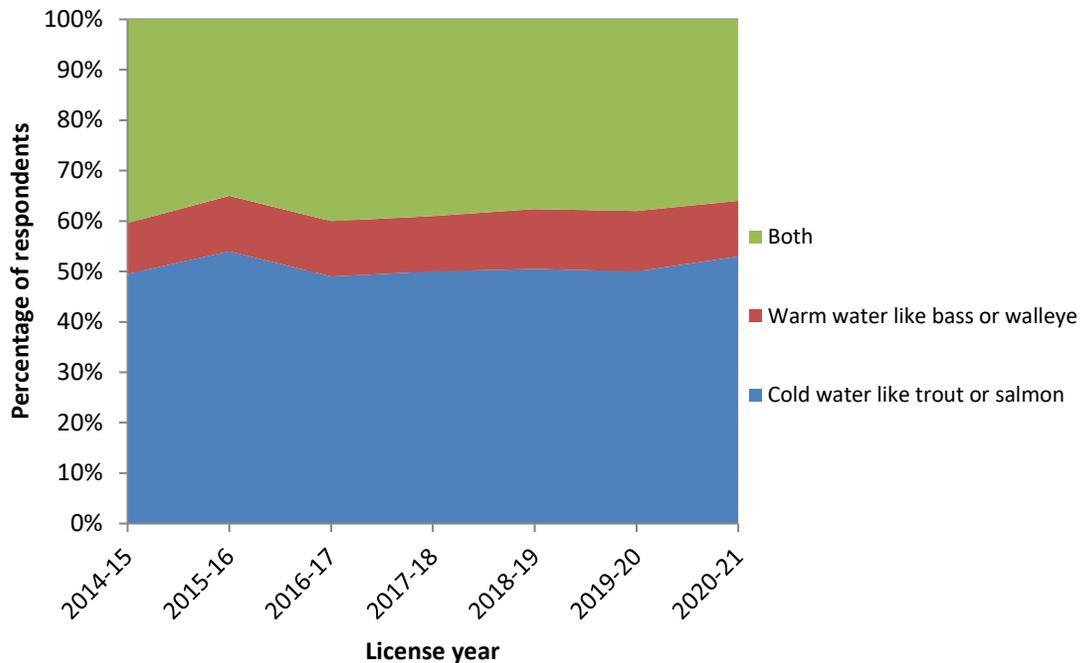

Figure 5. Fishing preference to fish for "cold water", "warm water", or "both" species of surveyed anglers during from the 2014-15 to 2020-21 license years.

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 continue to be the cold water species most preferred (Table 3). Overall the other percentages and order of preference were similar to past surveys.

Table 3. Cold water species in order of preference by anglers during the 2020-21 license year.

Species	Percent preferred[*]
Rainbow trout	86.4%
Brown trout	64.7%
Cutthroat trout	35.9%
Brook trout	22.3%
Lake trout	23.7%
Kokanee salmon	15.3%
Gila trout	9.5%

*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 fished for "cold water" species or "both". The purpose of this question was to identify if anglers chose their fishing location where they expected to catch stocked fish or wild fish. The percentage of anglers indicating they chose their fishing location where they expected to catch wild fish (53.8%) was higher than those indicating they chose their fishing location where they expected to catch stocked fish (46.2%). These percentages haven't changed significantly since the 2016-17 license year (Figure 6).
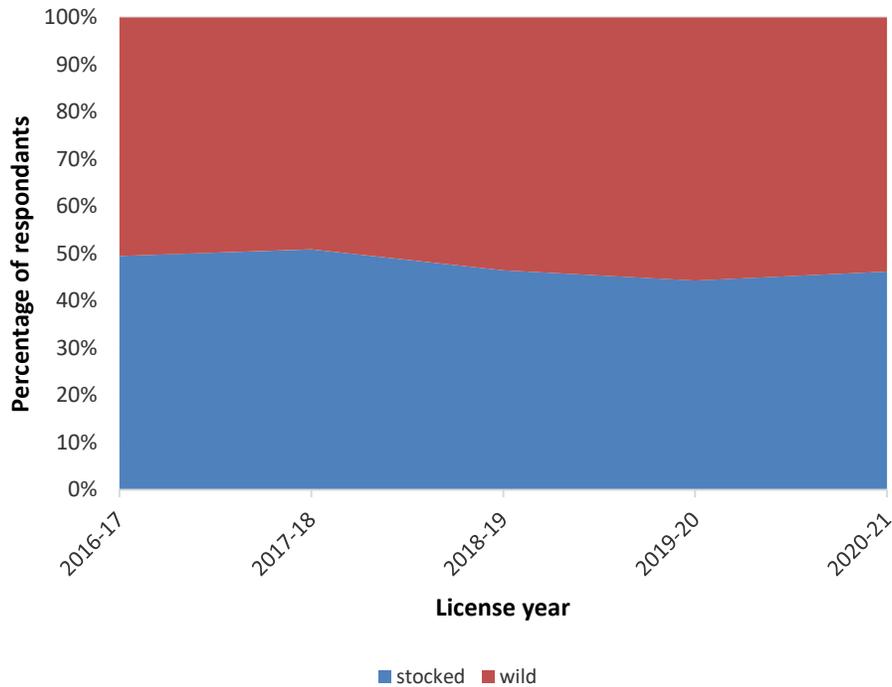

Figure 6. Percentage of cold water anglers that indicated they chose their fishing location where they expect to catch wild fish versus stocked fish from the 2016-17 to 2020-21 license years.

Question 8. What is the most important to you when catching a trout?

This question was asked if anglers indicated they fished for "cold water" species or "both". This was a new question and the purpose was to identify trout characteristics important to anglers to help guide hatchery product quality. Trout "length" was the most important characteristic to anglers followed by "appearance". Trout "weight" was the least important to anglers (Figure 7). Survey participants were also given the opportunity to provide "other" characteristics. About 29.5% of the participants provided "other" characteristics; however, the answers were highly variable and very little pattern could be determined. A few of the more consistent characteristics provided included; trout health (6.2%), fight/vigor while catching (2.3%), and taste/flavor of the trout (1.4%).
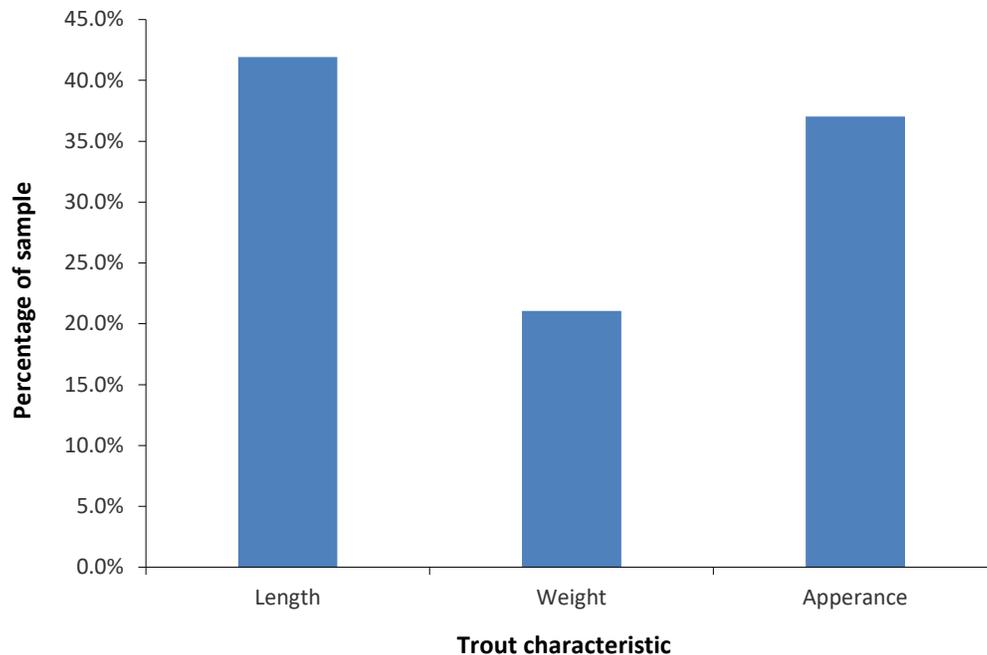
45.0%

40.0%

35.0%

30.0%

25.0%

20.0%

15.0%

10.0%

5.0%

0.0%

Percentage of sample

Length   Weight   Apperance

Trout characteristic

Figure 7. Percentage of characteristics that are important to anglers when catching trout during the 2020-21 license year.

Questions 9 to 11. What is the minimum length (inches) of trout you would harvest? What length (inches) would you consider a _quality_ sized trout? What length (inches) would you consider a _trophy_ sized trout?
These questions were asked if anglers indicated they fished for "cold water" species or "both". These were new questions for 2021. These three questions are related and were asked to determine anglers' opinions about trout lengths compared to regularly used management size categories. Mean lengths provided by anglers for minimum harvest, quality, and trophy trout were 11.6 (±0.4), 14.9 (±0.2), and 21.1 (±0.4) inches, respectively (Figure 8). Median lengths for the same categories were 12.0, 15.0, and 20.0 inches, respectively.
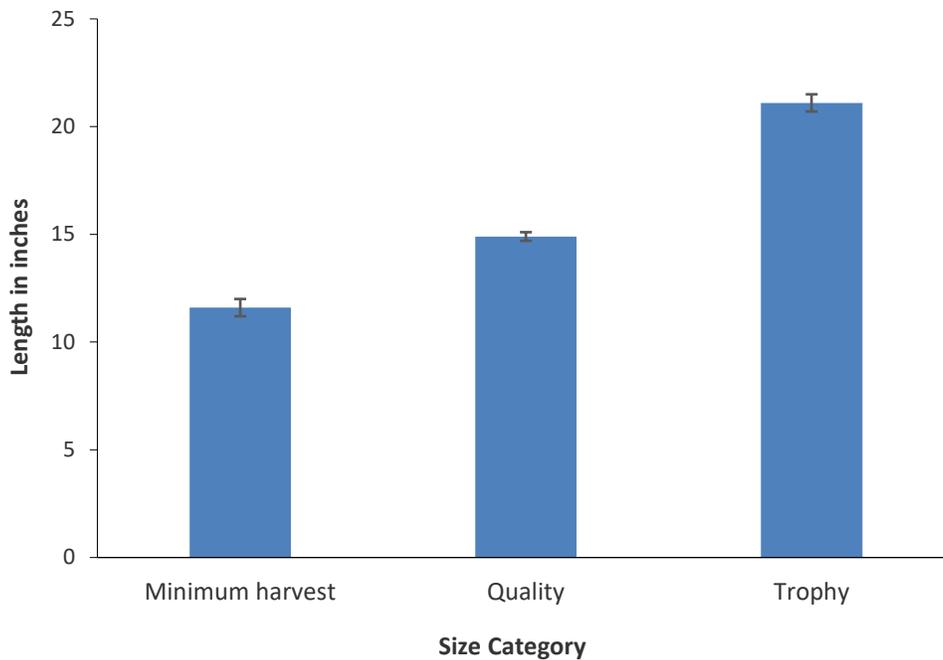
Figure 8. Mean lengths for minimum harvest, quality, and trophy trout categories provided by anglers during the 2020-21 license year.

Question 12. When considering appearance, what is the most important characteristic of a desired trout?
Anglers were asked this question if they indicated the fish for "cold water" species or "both". Similar to question 8, the purpose of this question was to identify trout characteristics important to anglers to help guide hatchery product quality. This was a "drag-and-drop" question type where survey participants were asked to arrange trout appearance characters in order of importance. "Skin and scale condition" and "vibrant color" were the characteristics selected as the most important; whereas, "eyes look normal" and "fin condition" were the least important to anglers (Figure 9). Survey participants were also given the opportunity to provide "other" appearance characteristics. About 10.4% of participants provided "other" appearance characteristics, but similar to Question 8 no discernable pattern could be determined on a specific characteristic. General "health" was provided 18.6% of the time and was the only consistent characteristic provided.
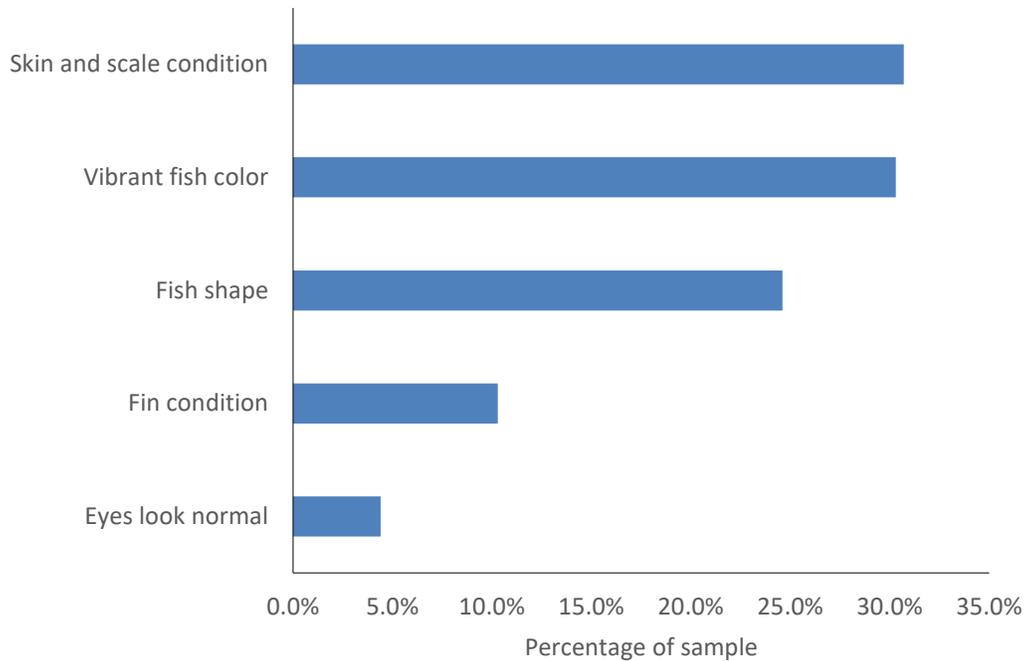
Figure 9. Trout appearance characteristics and percentage of time each was selected as the most important by anglers during the 2020-21 license year.

Question 13. 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". When comparing results to past surveys there were slight percentage changes for each species, but largemouth bass continues to be the most popular warm water species followed by smallmouth bass, walleye, and catfish. These four species have been the most preferred for multiple years and preference has change only slightly (Figure 10). Yellow perch and spotted bass continue to be the least popular warm water species (Table 4).
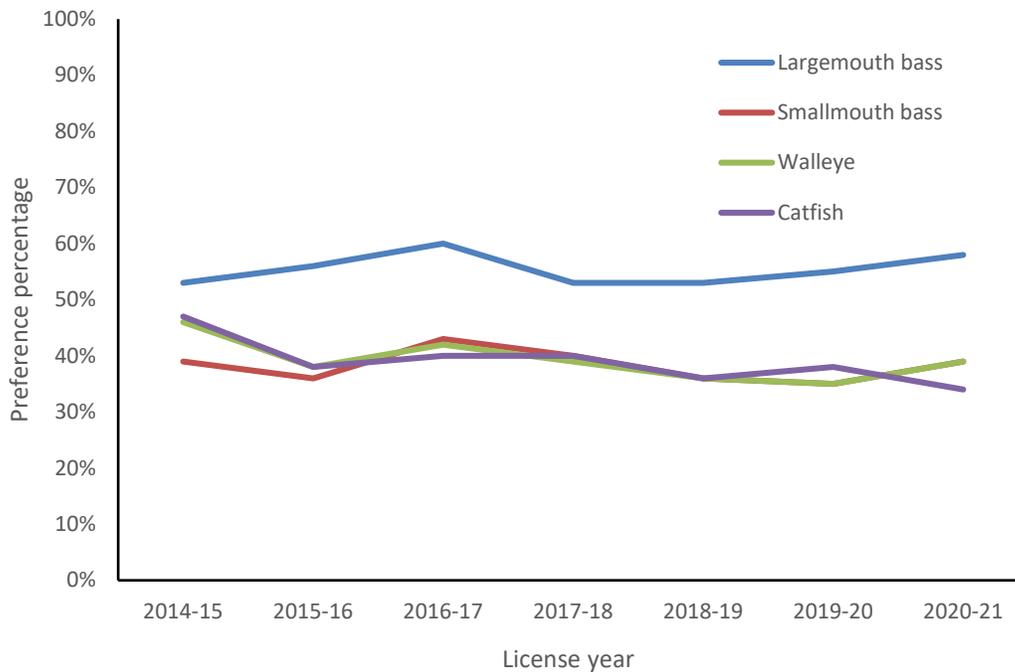
Figure 10. Four most preferred warm water fish species and preference percentage from the 2014-15 to 2020-21 license years.

Table 4. Warm water species in order of preference by anglers during the 2020-21 license year.

Species	Percent preferred[*]
Largemouth bass	57.9%
Smallmouth bass	39.4%
Walleye	38.7%
Catfish	34.0%
Crappie	34.0%
White bass	21.5%
Northern pike	18.5%
Bluegill/sunfish	13.1%
Striped bass	10.4%
Tiger muskie	8.8%
Spotted bass	5.4%
Yellow perch	4.4%

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

Question 14. 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. During this survey most (64.9%) anglers indicated they prefer to release most of the fish they catch. This is similar to the previous years' survey, but a there's a slight increasing trend of anglers that release most of the fish they catch since the 2008-09 license year (Figure 11).
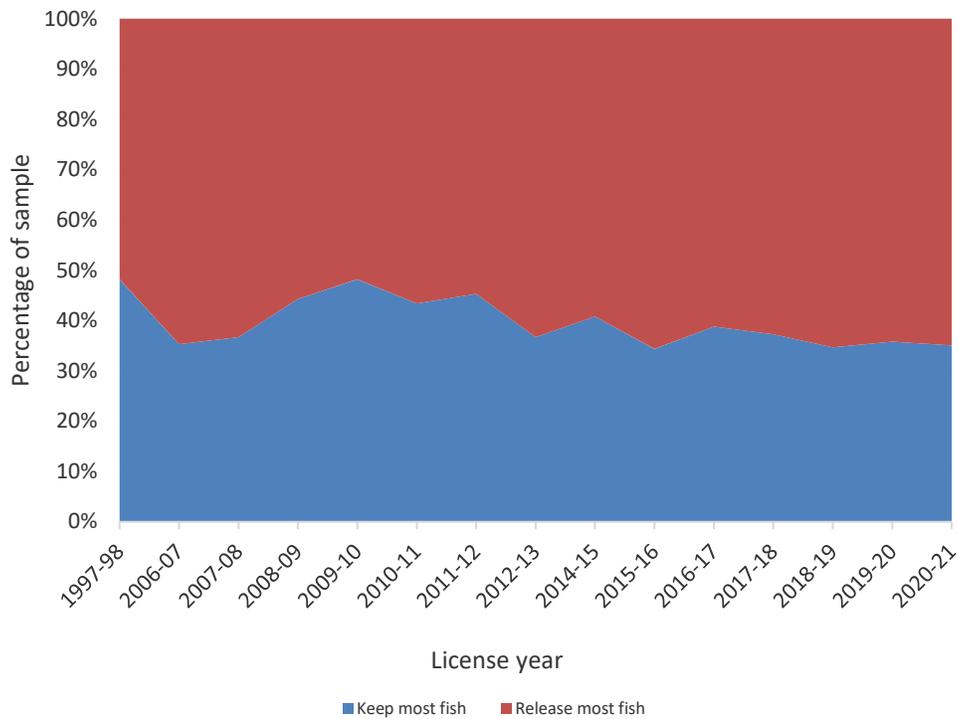
Figure 11. Percentage of anglers that indicated they keep most of the fish they catch versus release most of the fish they catch from 1997-98 to 2020-21 license years.

Question 15. 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 (59.4%) anglers indicated they chose their fishing location based on where they will "catch lots of fish". This percentage has not changed significantly from previous years; however, there is a slight increasing trend of anglers that choose their fishing location based upon where they will catch "one or two larger fish" (Figure 12).
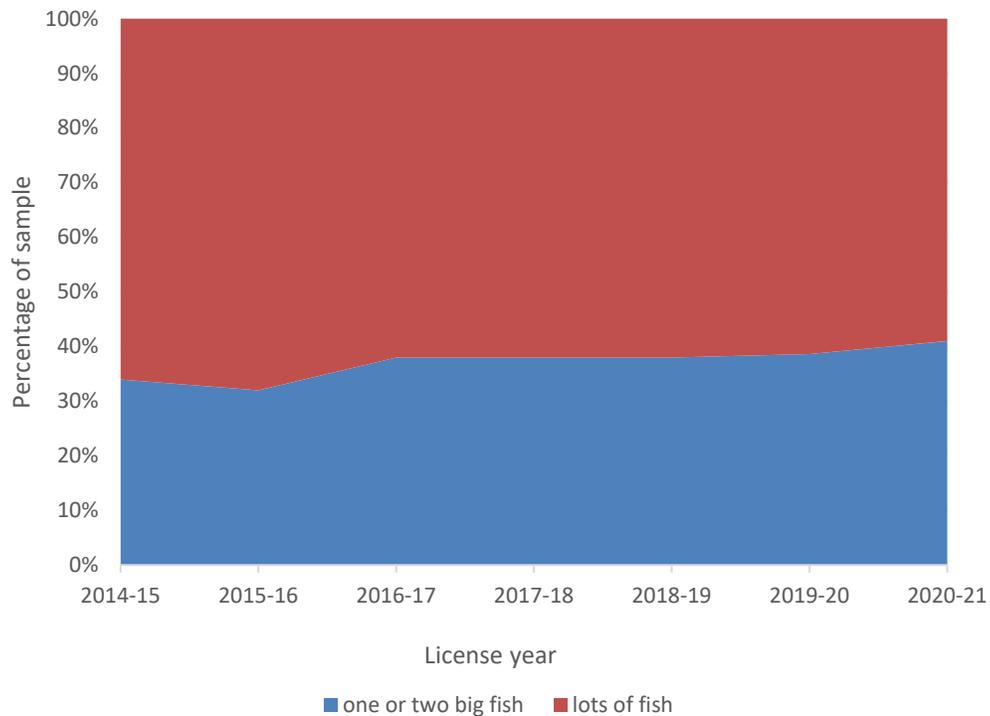
Figure 12. Fishing location preference by anglers based upon catching "lots of fish" or "one or two large fish" from the 2014-15 to 2020-21 license years.

Question 16. What type of tackle do you use most of the time while fishing?
The purpose of this question was to determine the percentage of anglers that use fly fishing versus spin fishing tackle. It was also used to determine the percentage of anglers that use bait versus artificial lures. Most anglers (67.7%) indicated they use spin fishing tackle compared to fly fishing tackle. About 34.3% of the anglers indicated they use bait while spin fishing which suggest most anglers use artificial flies or lures while fishing.

Question 17. Do you use live bait when fishing?
Most (64.5%) anglers indicated they do not use live bait when fishing, and this was almost identical to the 2018-19 and 2019-20 license years (Figure 13).
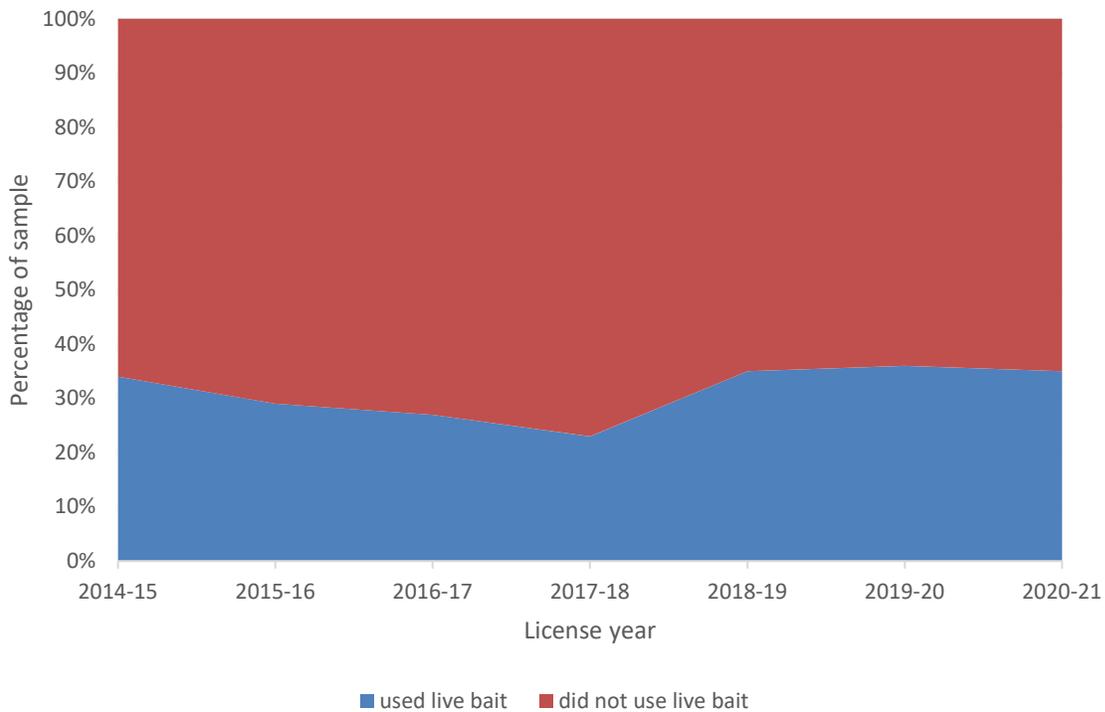
Figure 13. Percentage of anglers that indicated they use live bait while fishing from the 2014-15 to 2020-21 license years.

Question 18. What types of live bait do you use when fishing?
This was a follow up question to Question 17 for the 35.5% of anglers that indicated they use live bait when fishing. Similar to past surveys, "earthworms/night crawlers" were by far the most popular live bait used. "Water dogs/salamander larvae" continue be the least popular (Figure 14).
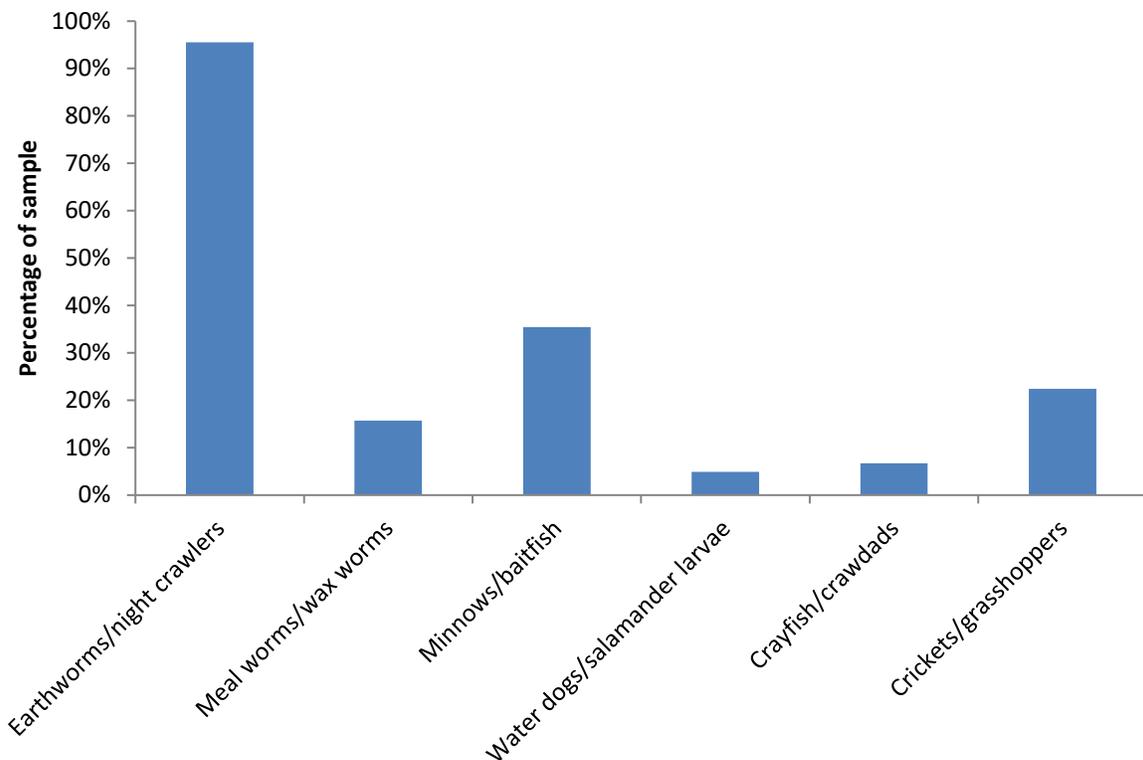
Figure 14. Types and percentage of live bait used by anglers during the 2020-21 license year. Note: percentages do not equal 100% since this is a multiple response question.

Question 19. In what major river drainage do you use live bait in when fishing?
The Rio Grande drainage continues to receive the most live bait use (61.6%) according to anglers surveyed. The Mimbres and Gila/San Francisco river drainages continued to receive the least amount of live bait use (Table 5). There were slight increases of live bait use in the Rio Grande and Pecos drainages, and slight decreases in the other four drainages compared to the 2019-20 license year.

Table 5. Live bait use by major river drainage and order of use by anglers during the 2020-21 license year in order of usage.

Major River Drainage	Percent preferred*
Rio Grande	61.6%
Pecos	33.5%
Canadian	15.6%
San Juan	14.3%
Gila and San Francisco	12.1%
Mimbres	1.8%

*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" continue to be the most utilized in all drainages, whereas

"waterdogs/salamander larvae" and "crayfish/crawdads" were consistently used the least in all drainages (Table 6).

Table 6. Types of live bait and percentage[*] of reported use by anglers in major river drainages during the 2020-21 license year.

Bait type	Rio Grande	Pecos	Gila and San Francisco	Canadian	San Juan	Mimbres
Earthworms/Night crawlers	58.7%	33.6%	10.8%	14.8%	14.8%	1.8%
Meal worms/wax worms	13.0%	6.3%	1.3%	2.7%	3.6%	0.0%
Minnows/baitfish	23.8%	12.6%	5.8%	9.0%	3.1%	0.0%
Water dogs/salamander larvae	3.6%	0.9%	0.0%	1.3%	0.9%	0.0%
Crayfish/crawdads	5.4%	2.7%	0.9%	0.9%	0.0%	0.4%
Crickets/grasshoppers	14.3%	10.8%	2.7%	4.5%	4.5%	0.4%

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

Questions 20 to 24 were related to demographics and were optional to answer by survey participants.

Question 20. What is your gender?
Most of the survey participants were male, representing 86.3% of the sample (Figure 15). Based on 2020-21 license purchasing data about 26.6% of fishing license buyers were female. Similar to past surveys, female license buyers seem to be under represented. In this survey only 11.7% of respondents identify themselves as female.
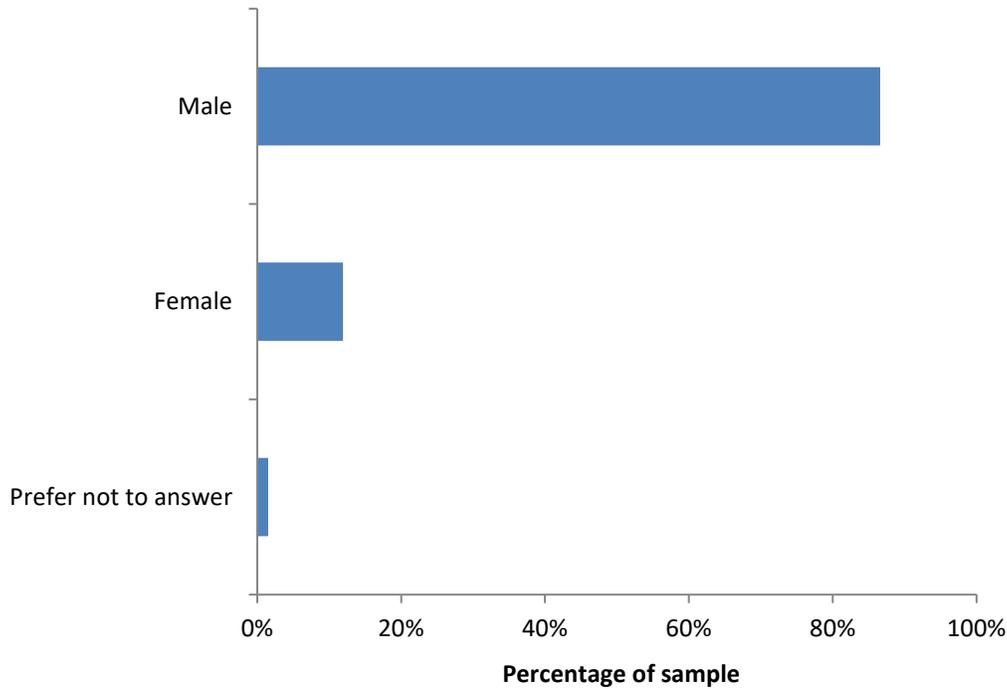

Figure 15. Gender of survey participants by percentage.

Question 21. What is your age category?
The largest age category was 50 to 64, representing 33.5% of the sample, followed by age category 65 years and older (Figure 16).
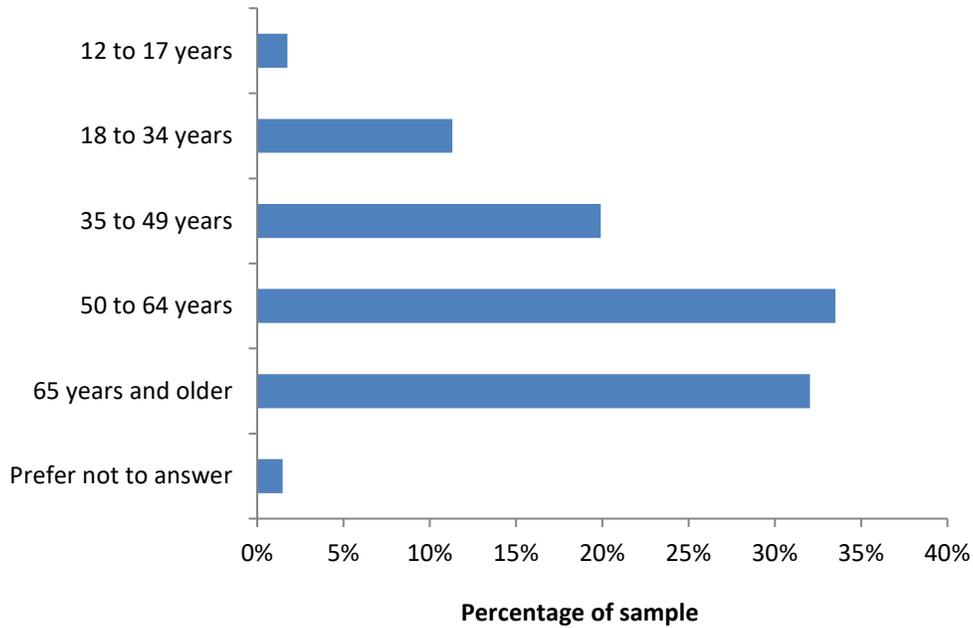

Figure 16. Age categories of survey participants by percentage.

Question 22. Do you consider yourself to be:
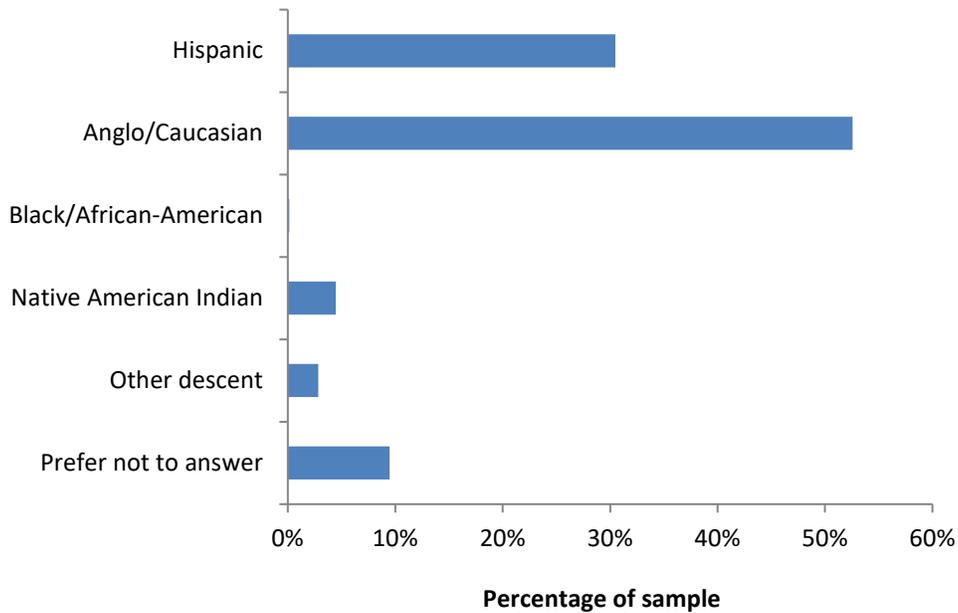Most of the participants consider themselves Anglo/Caucasian representing about 52.6% of the sample (Figure 17).

Figure 17. Ethnicity of survey participants by percentage.

Question 23. What is the highest level of education you have had the opportunity to complete?
The two largest percentages of participant indicated completing "some college/associates degree/vocational certificate" and "graduate work or degree". Participants that indicated "grade school" was the smallest percentage (Figure 18).

Figure 18. Highest education level of survey participants by percentage.

Question 24. What is the zip code of your residence?
Almost all (94.4%) survey participants provided a zip code of their residence. Survey participants represented 241 different zip codes and 21 different states (Figure 19). One hundred forty-six of the 359 (41.5%) New Mexico zip codes were represented.

Figure 19. Location of survey participants based upon zip code. Note: Alaska and Hawaii not displayed since there were no survey participants from these states.