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2016 Utah Angler Periodic Survey: Project Summary Report

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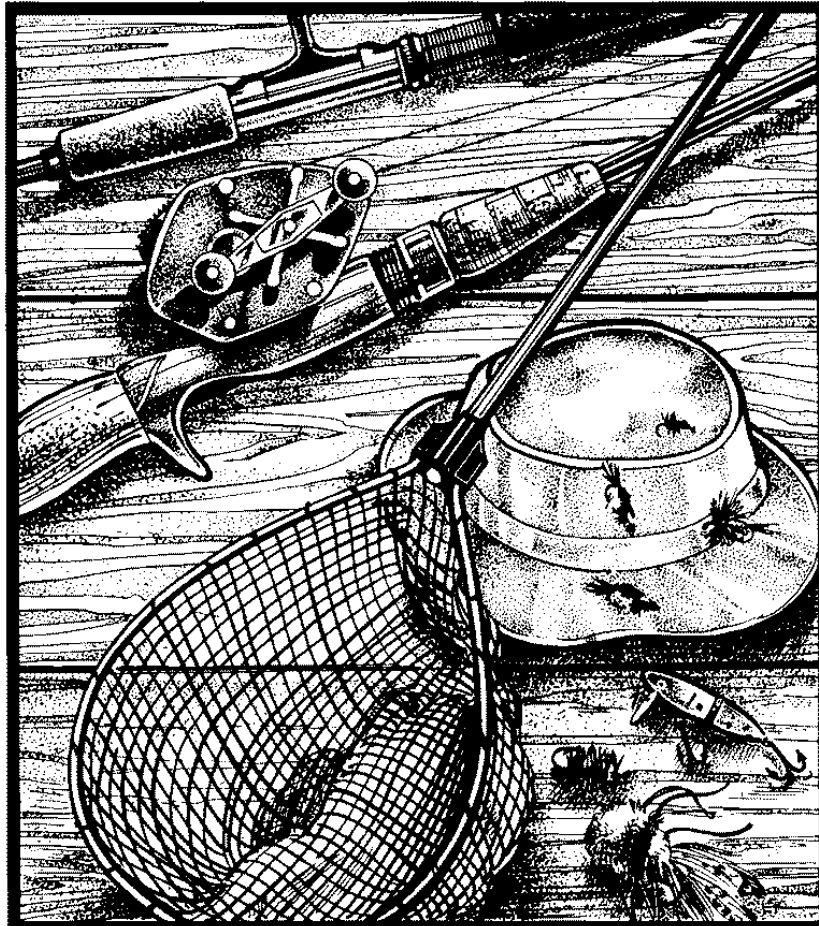
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2016 Utah Angler Periodic Survey

Project Summary Report



Prepared by

R.J. Lillieholm, J.M. Keating, and R.S. Krannich

Utah Division of Wildlife Resources
November 2017

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Executive Summary

This report presents results derived from an online random sample survey of Utah residents and non-residents who were licensed to fish in the State of Utah over the 2016 calendar year. The survey was designed to provide estimates of angling activity and fish caught/kept information across the State as a whole, and at specific key locations. Additional questions asked anglers about trip satisfaction, crowding, fishing methods, and boat access. Key methods and findings from this study include the following:

- Beginning in 1967, past Utah angler periodic surveys conducted by or on behalf of the Utah Division of Wildlife Resources (DWR) relied on postal survey procedures. Beginning in 2011-2012, the periodic survey used a web-based methodology in which license purchasers were contacted by email and asked to complete an on-line survey questionnaire. This method was continued and refined in 2016, and allowed us to contact a substantially larger sample of license holders than had been possible with prior postal surveys – indeed, a total of 60,000 individual license holders were sampled over the course of the 12-month study period reported here. The web-based methodology also made it possible to address concerns about respondent recall error by administering the survey across 12 one-month reporting periods, rather than the longer reporting periods used in past surveys. This 2016 methodology yielded a 31.5% overall response rate, the highest yet for any of DWR’s periodic angler surveys.
- During calendar year 2016, DWR issued 366,584 Utah resident and non-resident fishing or combination hunting and fishing licenses, a 27% decrease over the number of licenses sold during 2011-2012 – the last year in which a Statewide angler activity survey was conducted. The bulk of this decline was due to a decrease in the number of non-resident fishing licenses.
- Our data produced an estimated total of more than 4.3 million fishing trips by resident and non-resident anglers over the 2016 study period – an increase of 72% over 2011-2012 estimates – a year when adverse fishing conditions resulting from high snowpack levels and very heavy runoff negatively affected fishing conditions across much of Utah. The 2016 fishing activity level is more in line with pre-2011-2012 estimates. Statewide, trip numbers were highest during July and August, with over 650,000 trips estimated for each of those months. For the year-long study period, the highest number of trips occurred at waters located in DWR’s Central and Northern Regions, while the lowest number of trips occurred in the Southeast Region.
- Our data indicate that across the year-long study, period license holders averaged nearly 11 angling days, similar to levels reported in prior studies during the 1970s and 1980s but lower than what had been reported in studies conducted in 1995, 2000 and 2005. Overall, an estimated 6.2 million angler days of fishing activity occurred across the State during 2016. This is the highest ever recorded, but is largely consistent with the previous four studies, where angler days ranged from a low of 5.1 million, to a high of 5.9 million.

- During 2016, over 25 million fish were caught from Utah's waters by licensed anglers. That number is higher than the estimate of 17.8 million fish reported during 2011-2012 (a poor fishing year), but consistent with the ~25 million fish reported for the 2000 and 2005 statewide surveys. Approximately 42% of these fish were trout (and other cold water) species. Anglers reported that they kept approximately 36% of the fish they caught, with an estimated 6.8 million fish harvested over the study period.
- Survey participants reported high levels of satisfaction with their fishing trips during the 2016 study period. Overall, a strong majority of anglers reported that crowding did not reduce the quality of their fishing experiences. Anglers were also satisfied with boat launch sites and facilities, although some locations were identified as needing improved access and/or facilities.
- An open-ended survey question asked anglers what was the one thing that DWR could do to improve fishing in Utah. Among the nearly 8,000 comments received, the most-often cited concern was the steady erosion in access to public waters due to private property restrictions. Next important were concerns over trash and littering, as well as inconsiderate water use by other recreationists (e.g., tubers, fishing guides, and motor boaters). When it came to overall comments about DWR and its management activities, the overwhelming majority of respondents expressed strong support for the agency, its mission, and its staff.

Section 1: Introduction

Background and Justification

The Utah Division of Wildlife Resources (DWR) has conducted a year-long survey of anglers on approximately 4- to 6-year intervals since 1967. These periodic surveys, designed to provide both statewide and area-specific information by resident and non-resident licensees, have provided valuable information regarding angler use and fishing pressure on Utah's lakes, streams, and reservoirs. Over time, these periodic statewide surveys have expanded to include additional questions to assess angler satisfaction levels and fishing methods, as well as angler views regarding possible changes in fisheries management policies and regulations. Collectively, these data have been useful to the Division in planning, budgeting, and program assessment.

This report presents results from the most recent statewide periodic angler survey, designed to estimate fishing activity from January 1, 2016, through December 31, 2016. To ensure comparability with earlier studies, the 2016 periodic survey used a methodology and questions similar to those of previous surveys conducted by the Division. The 2016 methodology included 12 identical, month-long surveys, each of which asked survey respondents questions recalling their angling activity and experiences during the prior month. Findings from a related angler attitudinal survey conducted in October and November of 2016 focused primarily on anglers' attitudes and management preferences. The results of that effort are presented in a separate project report by Krannich et al. (2017).

Building on Past Angler Surveys

Statewide periodic angler surveys were previously conducted by the Division of Wildlife Resources in 1967, 1968, 1973, 1977, 1981, 1986, 1991, 1995, 2000, 2005, and 2011-2012.¹ Prior to 1991, DWR utilized a single year-end postal recall survey or “creel census,” with a response rate of only about 10%. Significant changes to the survey were implemented in 1991, when anglers were asked about their fishing activity for five discrete periods over the calendar year. The revised survey methodology roughly doubled response rates obtained in previous years, while reducing recall error and providing seasonal estimates of angler activity.

Changes implemented in 1995 included a simplification of the postal questionnaire, and sampling from current-year license purchasers rather than from lists of persons who had purchased a license in the preceding year. These changes resulted in an additional increase in response rates. In 2000 and 2005, the postal survey was further refined to include the use of a printed multi-page booklet questionnaire rather than the folded one-page pamphlet used previously. This change enhanced the appearance of the questionnaire while providing space for additional attitudinal questions.

In combination, these changes substantially improved the breadth and quality of data derived from the periodic surveys. Yet while asking anglers to recall details about fishing trips two or three months prior to receipt of the questionnaire was a big improvement over the single year-end postal survey, it still failed to alleviate concerns over recall error. Unfortunately, the logistics and costs of mailing multiple waves of surveys made it impractical to have more than five reporting periods over a calendar year. In addition, the general pattern of decline in mail

¹ The 2011-2012 angler survey covered the period from April 1, 2011 to March 31, 2012.

survey response rates observed by Fowler (2013) was reflected in stagnant response rates to DWR's postal surveys in 2000 and 2005 (see Lilieholm et al. 2006).

For these reasons, the 2011-2012 periodic survey adopted an internet-based approach using Survey Monkey (www.SurveyMonkey.com), where sampled license purchasers were contacted by email and asked to complete the survey online. This change, which reduced costs and automated data entry and analysis, allowed for a significant increase in both sample size and the number of reporting periods.

In 2016, we continued the online approach of 2011-2012 using the Qualtrics software platform (www.Qualtrics.com). Improvements over the previous survey methodology include: (1) 12 monthly periods covering a full calendar year beginning in January 1, 2016; (2) a larger sample size of 60,000 licensed anglers; (3) break-outs for Lake Powell's two main entry points; (4) greater species detail regarding angler catch/harvest data; and (5) questions about the quality of fishing access and boat launch facilities.

2016 Study Objectives

The primary objectives of the 2016 study were to:

- 1) Describe angler fishing activity, including fish catch and harvest data, for major angling-related license categories;
- 2) Assess angler use levels for specific lakes, streams, and reservoirs;
- 3) Assess trends in angler use and fish harvest where appropriate as determined by this and earlier surveys; and
- 4) Evaluate anglers' levels of satisfaction with their fishing experiences, access to waterways, and use of angling-related facilities such as docks and boat ramps.

Section 2:

Methodology

Survey Design and Sample Selection

The 2016 periodic angler survey utilized an internet-based questionnaire administered through Qualtrics – an online software analytics platform (www.Qualtrics.com). The survey included a core set of questions from previous periodic surveys to ensure comparability of results through time. Additional questions were developed in consult with DWR personnel. A copy of the 2016 survey questionnaire is included as Appendix A of this report.

In order to collect data measuring fishing activity over the course of an entire 12-month period, the study design involved distribution of email messages requesting survey participation to 12 independently-drawn random samples of license purchasers, spread across the 12-month data collection period. The process of sample selection and email contact with sampled license purchasers was designed to collect information for 12 one-month reporting periods beginning with January 2016 and ending in December 2016. When compared to the 10-period 2011-2012 survey and earlier two- to three-month reporting periods, the use of monthly reporting periods reduced the potential for recall bias.

Anglers chosen to participate in the survey were selected by DWR near the end of each one-month reporting period. Selection was based on the list of all individuals holding a currently-valid resident or non-resident fishing or combination hunting/fishing license, with the caveat being that anglers possessed an adult license and had provided DWR with an email address at the time of license purchase. Of all the people who had a valid license that allowed them to fish during June of 2016 – i.e., mid-year of the survey – 38.9% had an email address on

record with DWR and were therefore eligible to participate in the online survey.

DWR's comprehensive license database includes over 180 discrete license categories. To ensure a representative sample, these licenses were grouped into eight license categories (see Appendix B for a complete listing of DWR's angling-related license types and how they were assigned to eight broad license categories). These eight license categories, listed below, captured nearly all license types with the exception of limited categories where survey data collection was restricted under law (e.g., under age 18, mentally-ill, etc.). The aggregate license categories include:

1. Resident Combination Hunting and Fishing License
2. Non-resident Combination Hunting and Fishing License
3. Resident Combination Hunting and Fishing License, Age 65 and Over
4. Resident 365-day Fishing License
5. Resident Fishing License, Age 65 and Over
6. Resident Short-term Fishing License
7. Non-resident 365-day Fishing License
8. Non-resident Short-term Fishing License

Random samples of 5,000 license purchasers were proportionally selected from these eight license categories for each of the 12 one-month reporting periods, providing for an initial combined 12-month sample size of 60,000 individuals. After deletion of sampled cases for which the provided email address proved to be invalid or non-deliverable, the adjusted sample size for the full 12-month data collection period was 53,069.

Following guidelines for multiple-contact survey procedures popularized by Dillman

(2007), three sequential contacts were made with licensees selected for participation. For each reporting period, the full sample of 5,000 license purchasers received an email on the first business day of the month following each reporting period. This initial email contained a short pre-notification letter outlining the purpose of the study, an explanation of their inclusion in the random sample of anglers being asked to participate, and a link that would take them directly to the Qualtrics web page where they could login and complete the questionnaire.

One week later, anglers included in the sample who had not yet completed the survey received a second email message encouraging them to click on the embedded link to access the survey. A week after the reminder email, a third and final reminder email was sent to all individuals who still had not completed the survey. All respondents received an automatic thank you email upon completion of the questionnaire.

Response Rates

Table 2-1 shows monthly response rates for the 2016 survey. As shown in the Table, the overall rate of response for the year-long study period was 31.5%. Rates exhibited only limited variation across the 12 monthly reporting periods, ranging from a low of 28.7% for the October and November reporting periods, to a high of 34.0% for the month of April. For comparison, response rates obtained with the first application of the internet-based survey methodology in 2011-2012 averaged 20% – a rate similar to those obtained via mail survey procedures used in the 2000 and 2005 periodic angler surveys.

Since response rates in 2016 were significantly higher than those obtained using mail survey methods in the 2005 Utah angler survey, the end result was a substantially increased number of responses available for analysis (16,739 in 2016, compared to 3,039 in 2005). This

increase provides for considerable improvement in the levels of precision associated with sample-based estimates, especially in portions of the analysis where partitioning of responses across license categories, regions, reporting periods, or fishing locations might otherwise require that estimation be based on very limited numbers of cases.

Table 2-1. Survey Response Rates by Reporting Period, 2016.

	Angler Sample N	Undeliverable	Adjusted Sample N	Number of Responses	Response Rate (%)
January 2016	5,000	254	4,746	1,565	33.0%
February 2016	5,000	171	4,829	1,550	32.1%
March 2016	5,000	60	4,940	1,606	32.5%
April 2016	5,000	200	4,800	1,634	34.0%
May 2016	5,000	127	4,873	1,561	32.0%
June 2016	5,000	114	4,886	1,469	30.1%
July 2016	5,000	121	4,879	1,535	31.5%
August 2016	5,000	246	4,754	1,594	33.5%
September 2016	5,000	188	4,812	1,485	30.9%
October 2016	5,000	206	4,794	1,375	28.7%
November 2016	5,000	244	4,756	1,365	28.7%
December 2016	5,000	221	4,779	1,487	31.1%
Totals/Average:	60,000	1,931	53,069	16,739	31.5%

To assess the extent to which the characteristics of survey respondents reflect those of all fishing and combination hunting/fishing license purchasers, we compared survey data pertaining to gender, residency, and age against data on those same characteristics derived from the full DWR license purchaser files as of August 10, 2017. Results of those comparisons, summarized in Table 2-2, reveal that as a group, survey respondents were more likely to be men than was the case for all individuals who held a valid license (84.9% of respondents, vs. 77.0% for all licensees). In addition, the percentage of respondents who were Utah residents was lower than was the case for the full pool of license purchasers (81.8% of respondents, vs. 88.2% for all licensees). Finally, survey respondents were significantly older on average than was true for all license purchasers – 48.4 years for respondents, vs. 37.9 years for all licensees.

Table 2-2. Comparison of Survey Respondents and all Fishing/Combination License Purchasers on selected Socio-demographic Characteristics, 2016.

	Gender		Residency		Age
	Male	Female	Utah	Non- Utah	Mean
Survey Respondents	84.9%	15.1%	81.8%	18.2%	48.4 yrs
All License Purchasers	77.0%	23.0%	88.2%	11.8%	37.9 yrs

Overall, these comparisons suggest that data derived from the periodic survey of licensed anglers tend to be over-representative of men, non-Utah residents, and older license purchasers. As a result, the survey-based data utilized in this study may not be fully representative of all license purchasers, suggesting a need to exercise some caution when attempting to generalize the survey-based findings to all of those licensed to fish in Utah during the 2016 study period.

Data Analysis and Scaling

To ensure comparability with earlier periodic surveys, data collected during the 2016 study employed similar analysis techniques. Some data are described for the sample without any “scaling up” to represent all licensed anglers in aggregate. Examples include angler views regarding trip satisfaction, crowding, adequacy of boat ramps and other facilities, etc.

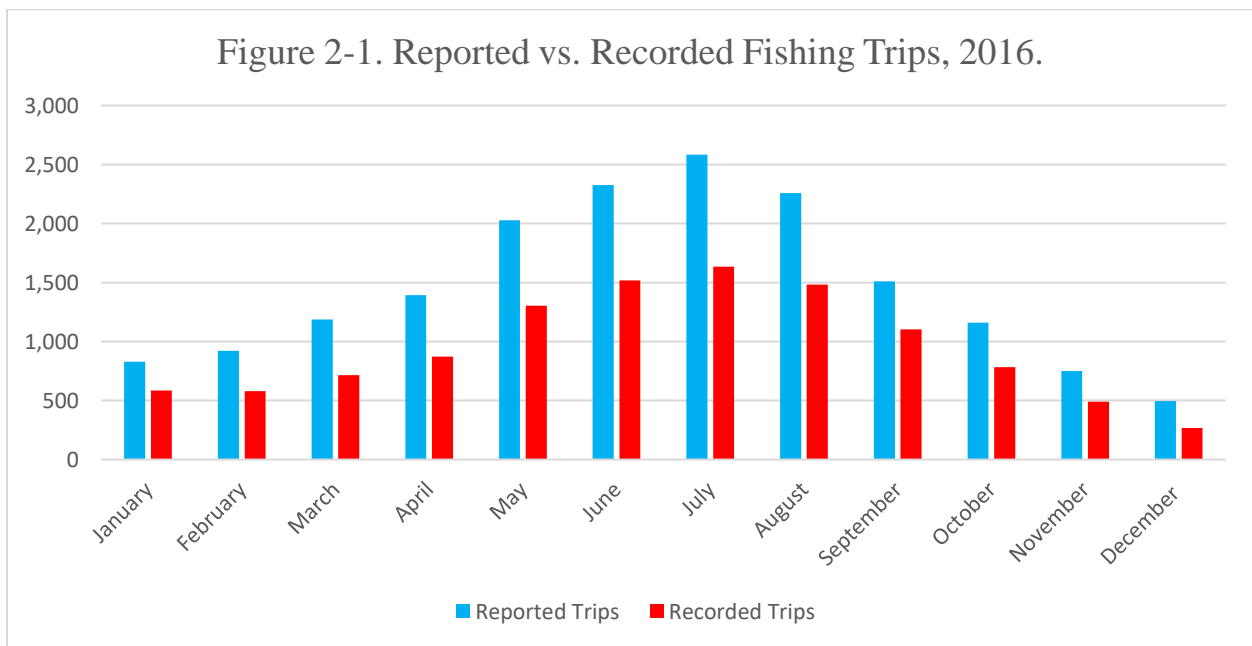
In contrast, data regarding the number of fishing trips, angler days, and fish catch and harvest data were scaled up or expanded to reflect aggregate estimates for all license holders. For instance, if 20% of survey respondents within a particular license category took a fishing trip in January, then 20% of all anglers within that license category were assumed to have taken a trip. Number of days fishing and catch and harvest data were similarly scaled.

Reported vs. Recorded Fishing Trips

The 2016 survey first asked anglers how many fishing trips they took during the reporting period – i.e., the previous month (see Question 2 in Appendix A). Then, beginning with survey Question 6, anglers were asked to recall specific information about each trip (e.g., number of days, fish caught and kept, etc.). For example, if an angler reported having taken five trips in

Question 2, then he or she would be expected to record information on each of those five trips beginning with survey Question 6. In practice, however, this did not occur.

Figure 2-1 shows the number of reported trips (i.e., Question 2) and recorded trips (i.e., Question 6) by month for all surveys received. As shown in the Figure, the number of recorded trips consistently fell below the number of reported trips, with a shortfall of roughly 35%. In response to this inconsistency, average per-license summary statistics were calculated using recorded trip data, but these data were then scaled up by the number of reported trips. Reported trips were used for scaling because it was assumed that the response to Question 2 – a simple question encountered early in the survey – was more likely to be accurate than the number of trips recorded (Question 6), which requested detailed information for each trip and likely lead to respondent fatigue and incomplete trip data.



Section 3: Angler Characteristics

Respondent Characteristics by Gender and Age

Figure 3-1 summarizes the gender distribution of the nearly 20,000 license holders that responded to our periodic surveys over the 2016 calendar year. These data, along with respondent age as described below, were collected at the time of license purchase and were thus already available in DWR’s license database. While Utah’s 2016 gender is evenly balanced (49.7% female, 50.3% female), respondents, like angler licensees overall, were heavily represented by males (85% male vs. 15% female). While women are less-likely to purchase fishing licenses, our 15% response from women represents a 50% increase from the 2011-12 survey, where females comprised just 10% of respondents.

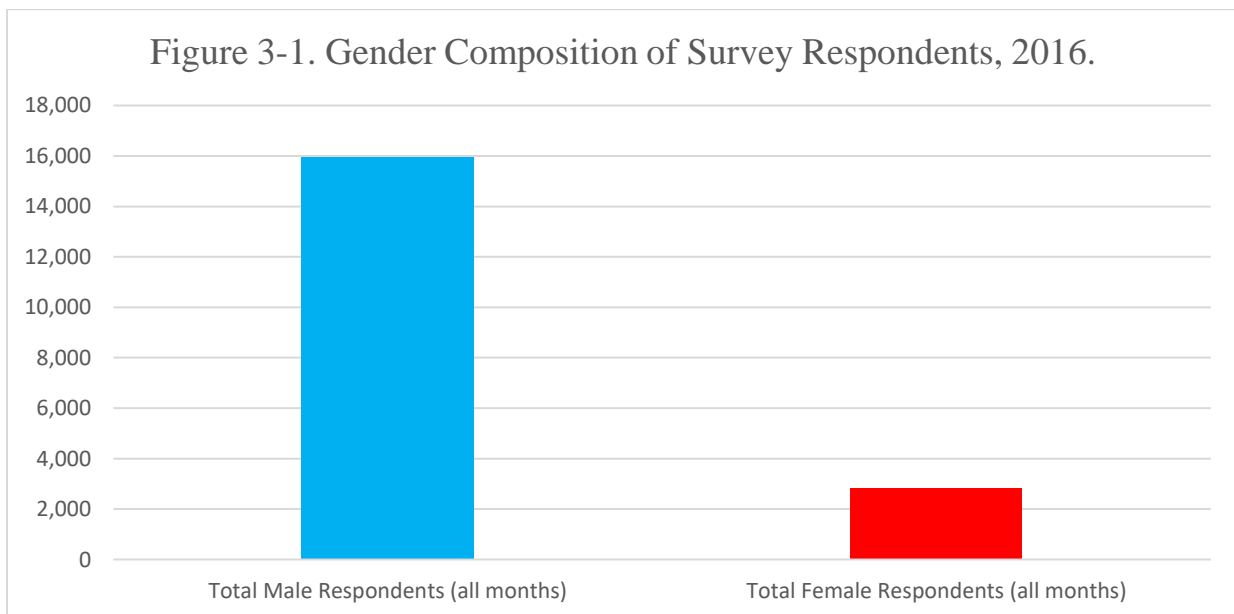


Figure 3-2 summarizes respondents by gender and license type. Within the individual license categories, the percentage of female respondents was noticeably highest in the Resident Fishing and Resident Combination license categories. Overall, respondents averaged 48.4 years in age, with a mode of 45 years. Males averaged 49.1, while females averaged 44.4 – a difference of roughly five years.

Figure 3-3 summarizes the number of respondents by gender within 5-year age brackets. The age distribution for both male and female respondents was bimodal, with peaks at age 35 to 39, and 55 to 59. The number of female respondents, while low, was fairly consistent across age brackets, and began to noticeably decrease beginning with age bracket 65 to 69. Interestingly, the greatest percentage of female respondents was recorded for the youngest age group of 18 to 24.

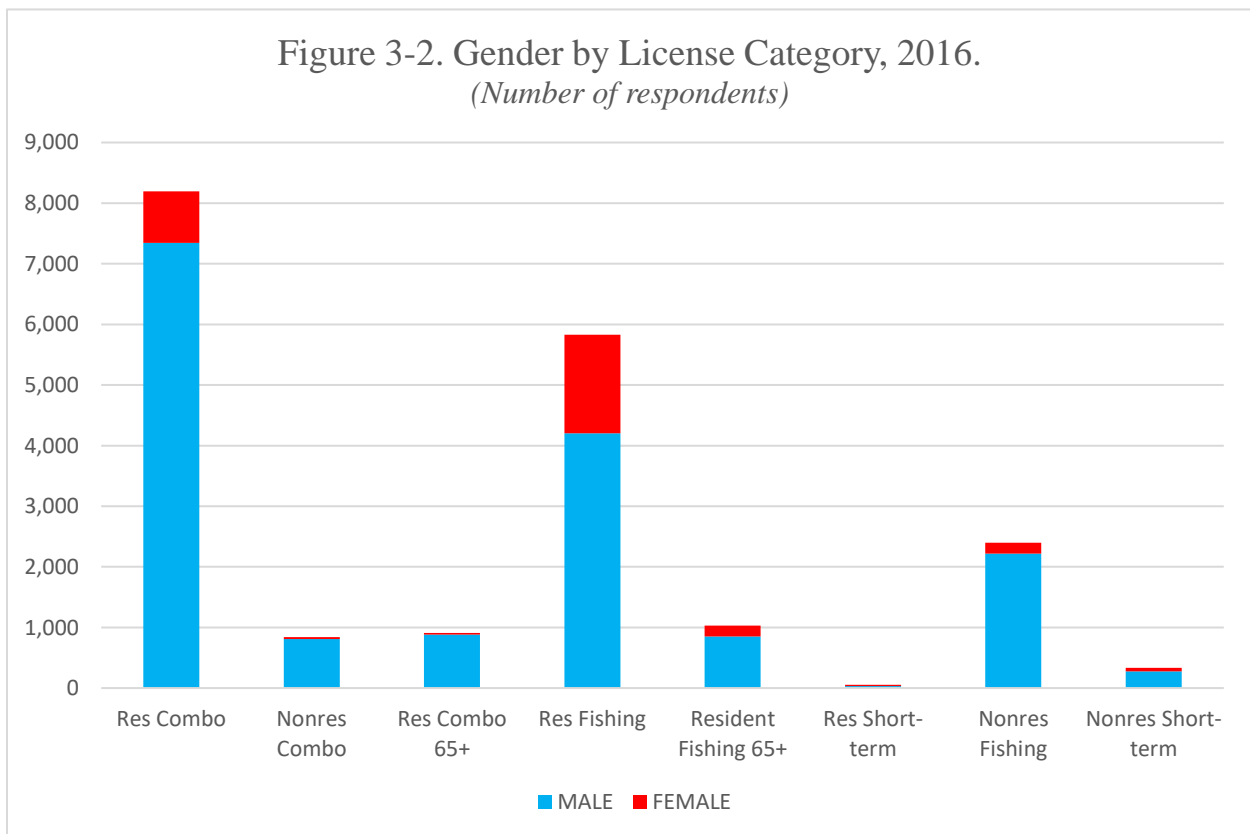
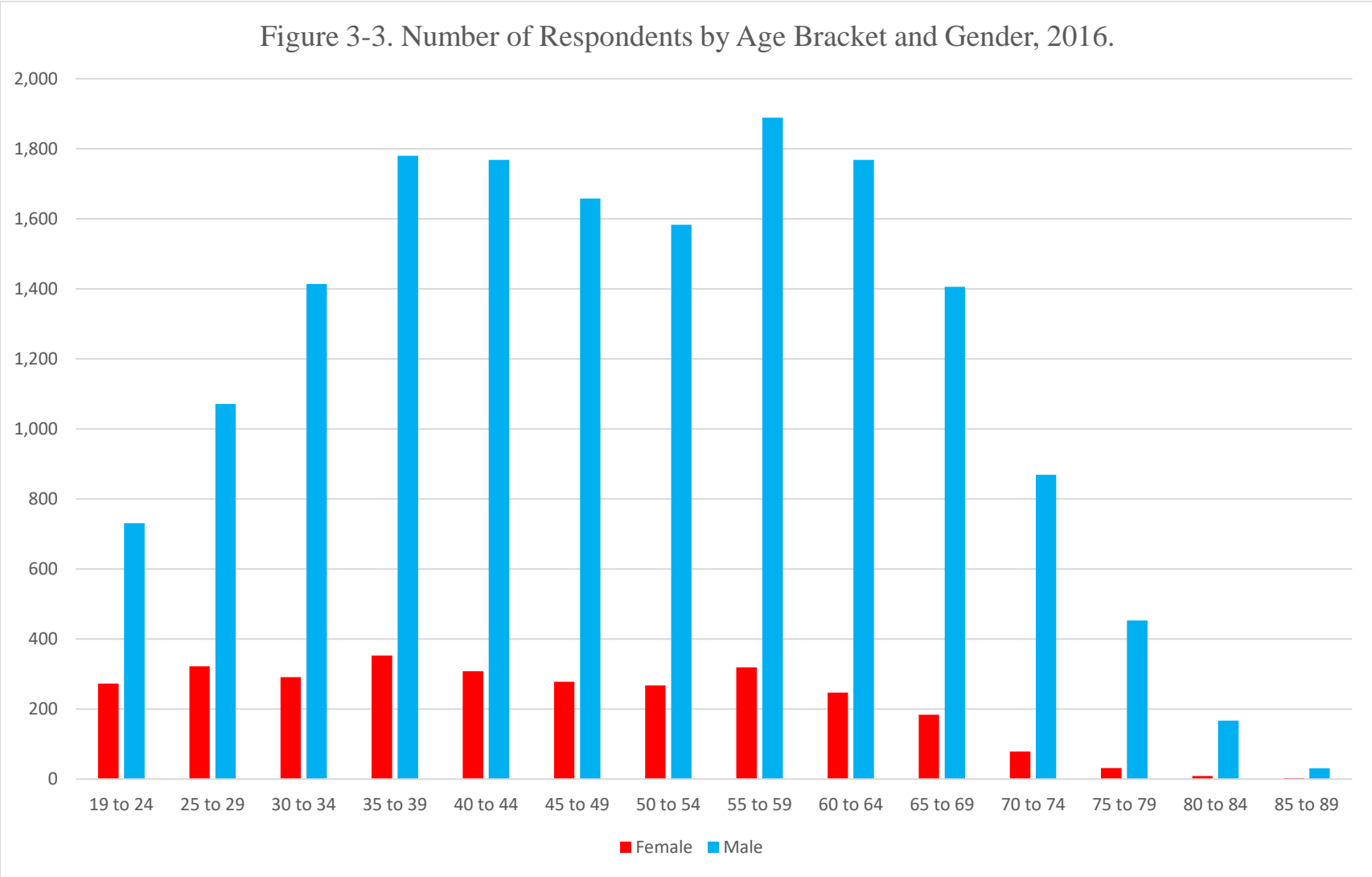
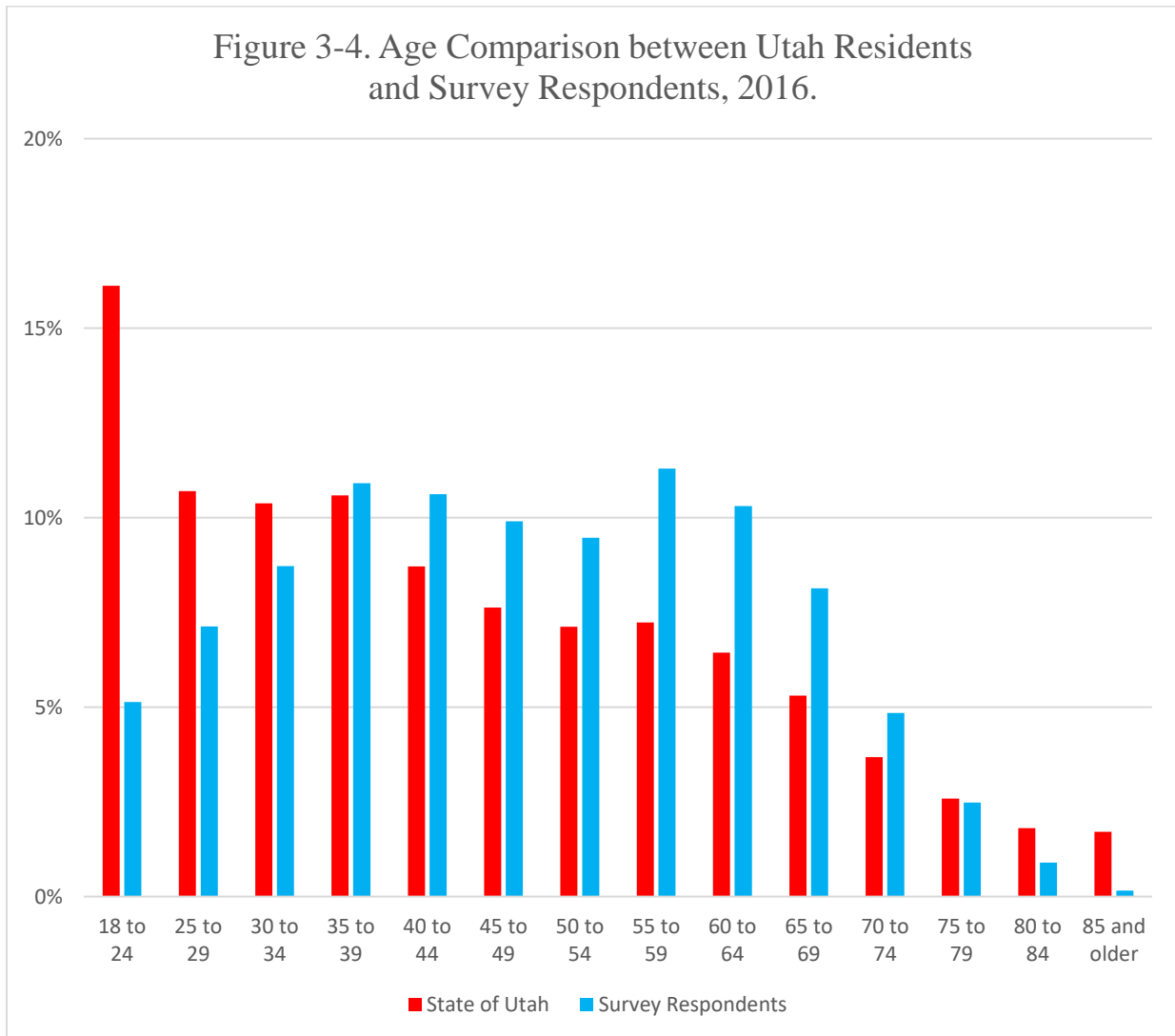


Figure 3-3. Number of Respondents by Age Bracket and Gender, 2016.



Utah’s total population was 3,051,217 in 2016, with a median age of 30.8 years (Figure 3-4) (U.S. Census 2016). The median age for all Utah workers over age 16 was 36.2 years in 2008. For comparison, our survey respondents median age was 45 – considerably older. The age distribution of Utah anglers relative to that of the statewide population reflects a substantial under-representation of younger individuals. Without future recruitment of new anglers in the younger age brackets, the potential for a continued decline in angler numbers over coming years is likely to continue.



Respondent Race/Ethnicity

When asked about race/ethnicity, the vast majority of survey respondents identified themselves as non-Hispanic White (Table 3-1). For the combined set of respondents across all license purchaser categories, 86.5% classified themselves as White/Caucasian, 0.3% as African American/Black, 2.4% as Hispanic/Latino/Latina (regardless of race), 1.2% as Asian, 0.4% as Pacific Islander, 1.0% as Native American/American Indian, and 0.4% as members of some other racial or ethnic group; 7.5% preferred not to answer the question (Table 3-1).

For comparison, 2016 estimates provided by the U.S. Census Bureau indicate that 82.8% of Utah residents were White/non-Hispanic, 11.5% were of Hispanic or Latino origin (regardless of race), 1.7% Asian, 0.8% Native American/American Indian, 0.7% Black, 0.9% Native Hawaiian/Pacific Islander, and 2.6% members of any other racial group (Figure 3-5). These differences indicate that survey respondents were considerably more likely to be non-Hispanic Whites, and considerably less likely to be of Hispanic or Latino origin, than is the case for the statewide population.

Within specific license type categories, the percentage of respondents classified as White/Caucasian was highest among those who held the Resident Age 65+ license (89% White), and lowest among those purchasing non-resident licenses, i.e., Non-resident Combo (82.6% White), Non-resident Fishing (82.0% White), and Non-resident Short-term (80.0% White) (Table 3-1 and Figure 3-6).

Table 3-1. Distribution of Survey Respondents by Race/Ethnicity, compared to Statewide Population Characteristics, 2016.

License Description	White/ Caucasian/ Anglo	African American/ Black	Hispanic/ Latino/ Latina	Asian	Pacific Islander	Native American/ American Indian	Other Racial or Ethnic Group	I Prefer Not to Answer	Total
Res Combo	88.4%	0.2%	1.7%	0.6%	0.2%	1.0%	0.3%	7.5%	100%
Nonres Combo	82.6%	0.4%	5.6%	1.0%	0.1%	1.9%	0.4%	8.0%	100%
Res Combo 65+	87.5%	0.5%	0.7%	0.6%	0.4%	0.5%	0.5%	9.4%	100%
Res Fishing	86.1%	0.5%	2.8%	2.1%	0.6%	0.8%	0.4%	6.6%	100%
Resident Fishing 65+	89.0%	0.2%	1.3%	1.0%	0.1%	0.4%	0.2%	7.8%	100%
Res Short- term	88.1%	0.0%	2.4%	4.8%	0.0%	0.0%	0.0%	4.8%	100%
Nonres Fishing	82.0%	0.5%	3.6%	1.0%	0.5%	1.4%	0.4%	10.6%	100%
Nonres Short-term	80.0%	0.7%	3.3%	1.7%	0.7%	1.7%	0.0%	12.0%	100%
	86.53%	0.34%	2.41%	1.17%	0.37%	0.97%	0.37%	7.84%	100%

Figure 3-5. Percent Comparison of Race/Ethnicity for Survey Respondents and the State of Utah, 2016.

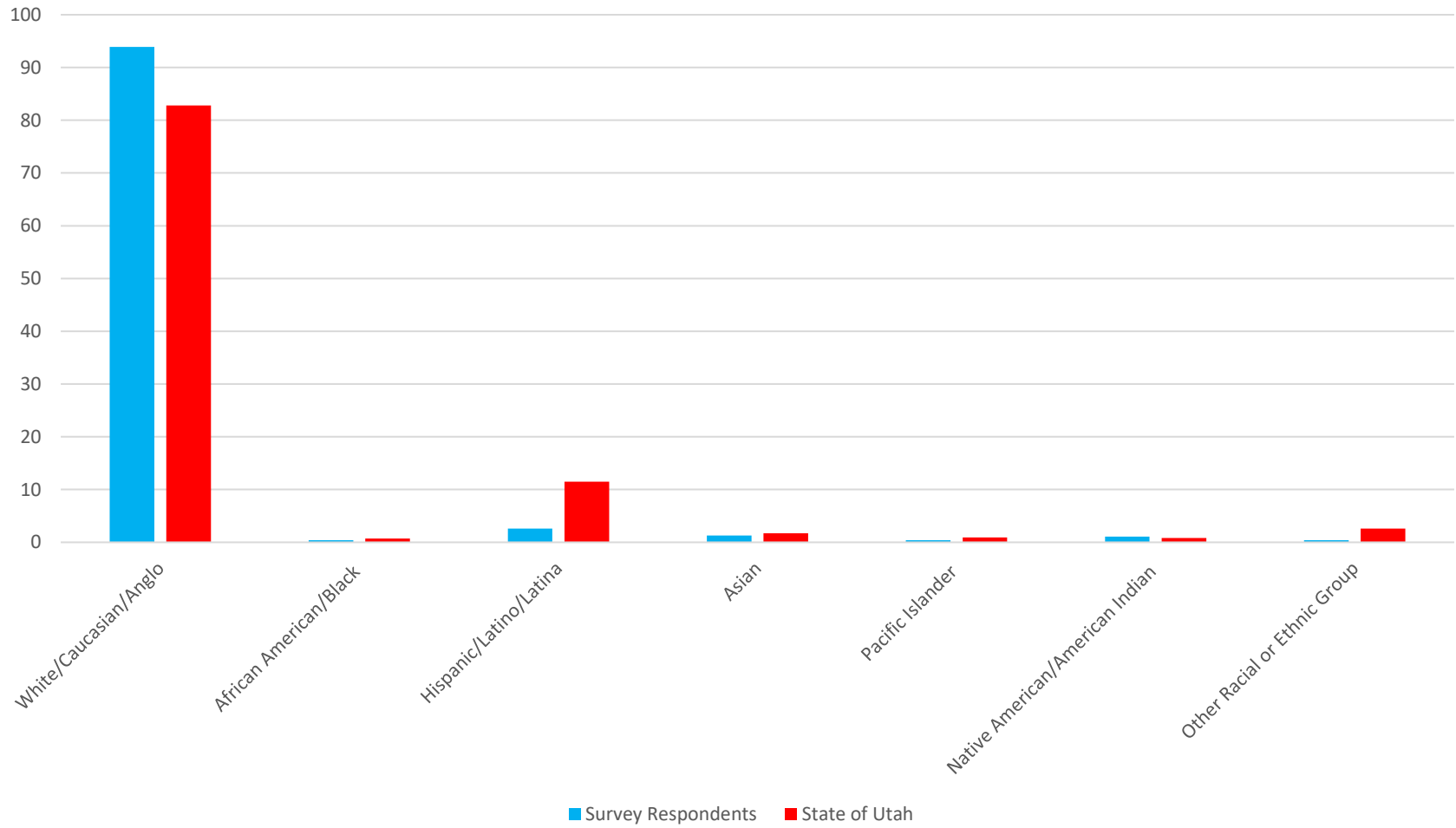
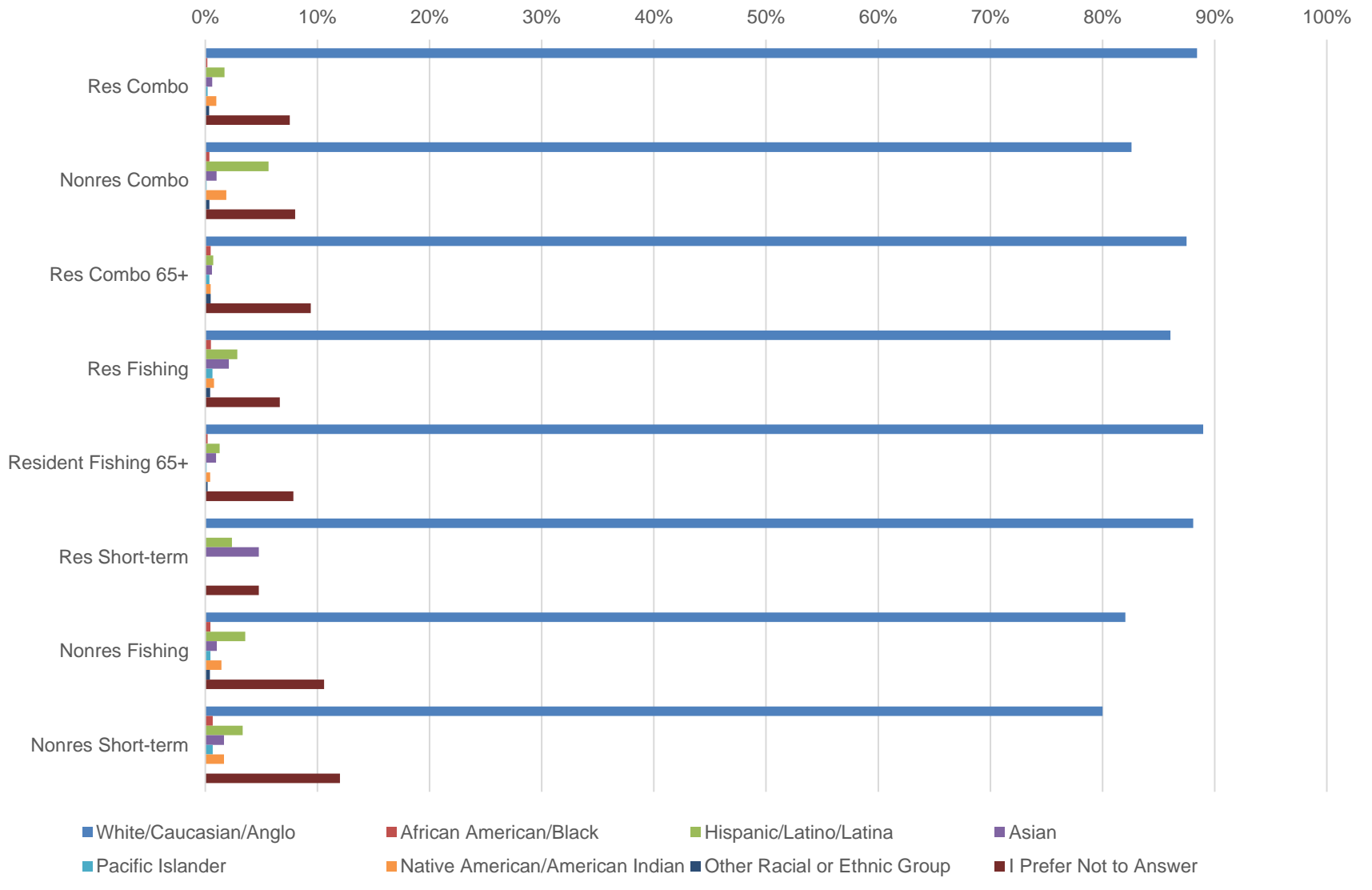


Figure 3-6. Respondent Race/Ethnicity by License Category, 2016.



Respondent Before-tax Household Income

Table 3-2 and Figure 3-7 describe respondents' annual before-tax household income. Data for all license purchasers indicate that just 4% (including non-residents) had annual household incomes under \$25,000, compared to 11.9% of the statewide population in 2016. At the other end of the income range, 17% of survey respondents (including non-residents) indicated incomes between \$100,000 and \$149,999 – an income level that matched the State overall. Fourteen percent indicated incomes exceeding \$150,000 – as compared with 10.9% overall for the State. This value, however, is inflated by the high incomes reported by non-resident anglers that participated in the study.

For intermediate incomes, the income brackets included in our survey did not match those gathered at the state level. Despite that, combining income categories between \$25,000 and \$74,999 reveals 31% of survey respondents fell within that broad income range, compared with 43.1% statewide (Table 3-2 and Figure 3-8). Collectively, these data suggest that survey respondents represent a relatively affluent cross-section of the population. As a result, respondents are under-representative of persons with household incomes in the lowest (under \$25,000) income bracket.

Figure 3-9 presents income bracket as a percent for all respondents within each license category. As shown in the Figure, the three non-resident license categories have a significantly higher percentage of respondents within the highest income bracket of \$150,000 and higher.

Table 3-2. Annual Pre-tax Household Income for Survey Respondents and the State of Utah, 2016. (Note difference in income brackets between \$25,000 and \$100,000 for survey respondents [A] and State of Utah [B].)

[A] Survey Respondent's License Category	Under \$25,000	\$25,000 to \$39,999	\$40,000 to \$59,999	\$60,000 to \$74,999	\$75,000 to \$99,999	\$100,000 to \$149,999	\$150,000 or Higher	I Prefer Not to Answer	Total
Res Combo	4%	8%	15%	14%	17%	16%	9%	17%	100%
Nonres Combo	1%	4%	9%	10%	15%	18%	22%	20%	100%
Res Combo 65+	3%	10%	20%	13%	15%	10%	7%	23%	100%
Res Fishing	6%	8%	14%	12%	16%	19%	11%	15%	100%
Resident Fishing 65+	4%	10%	17%	12%	14%	14%	6%	23%	100%
Res Short-term	5%	5%	17%	17%	14%	19%	7%	17%	100%
Nonres Fishing	2%	3%	9%	8%	15%	19%	22%	23%	100%
Nonres Short-term	2%	3%	7%	9%	15%	19%	26%	19%	100%
Average:	3%	6%	13%	12%	15%	17%	14%	19%	100%

[B] State of Utah	Under \$25,000	\$25,000 to \$34,999	\$35,000 to \$49,999	\$50,000 to \$74,999	\$75,000 to \$99,999	\$100,000 to \$149,999	\$150,000 or Higher
All Households	11.9%	7.9%	13.10%	22.10%	16.9	17.4%	10.7%

Figure 3-7. Pre-tax Household Income across All Respondents, 2016.

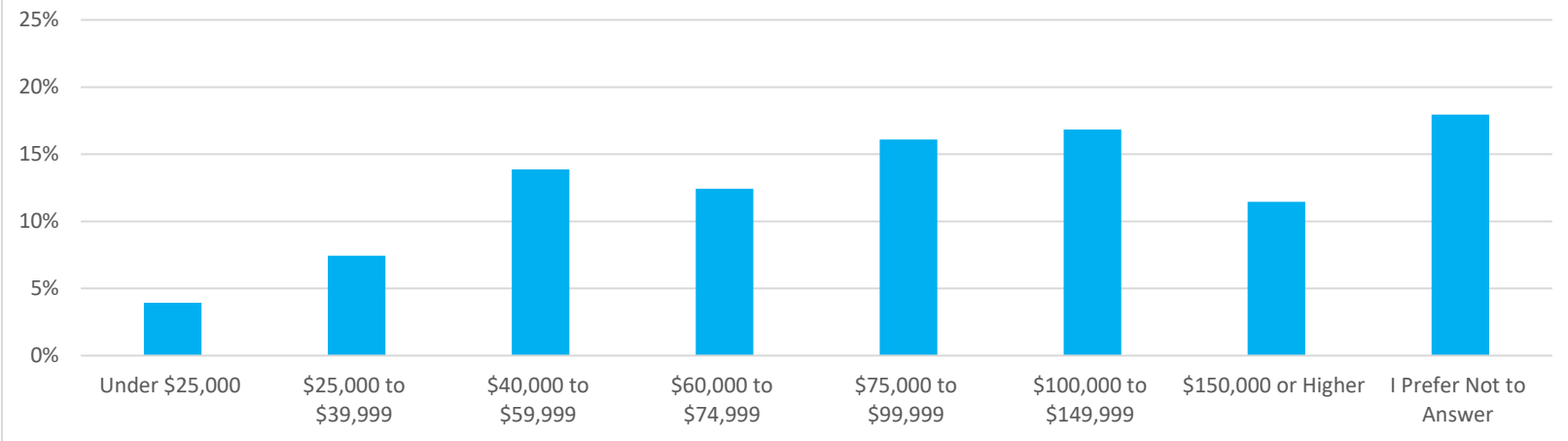


Figure 3-8. Pre-tax Household Income, Utah Residents, 2016.
(U.S. Census)

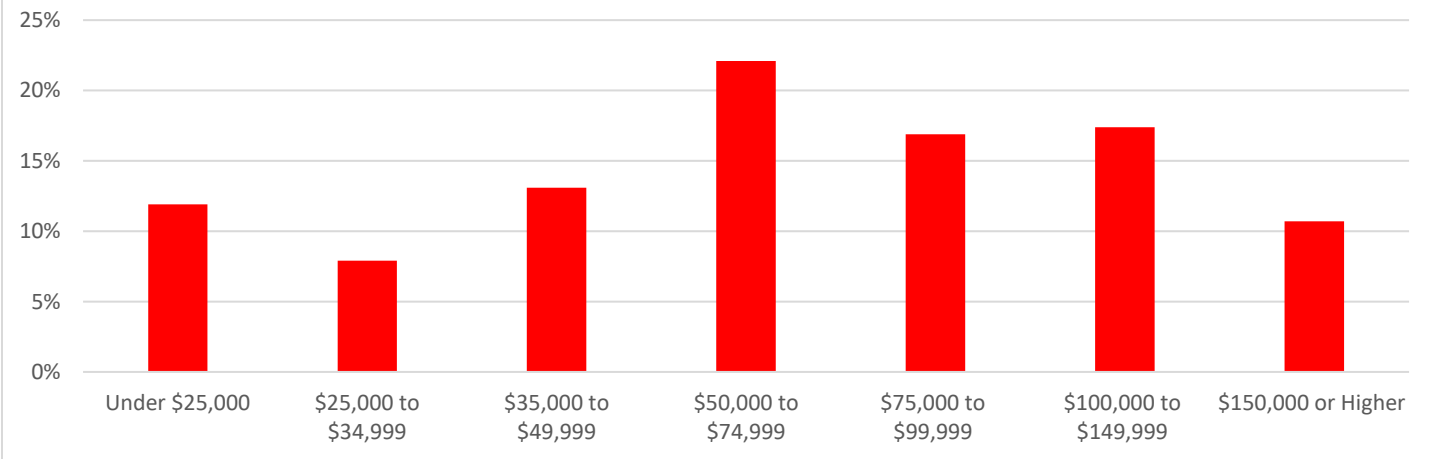
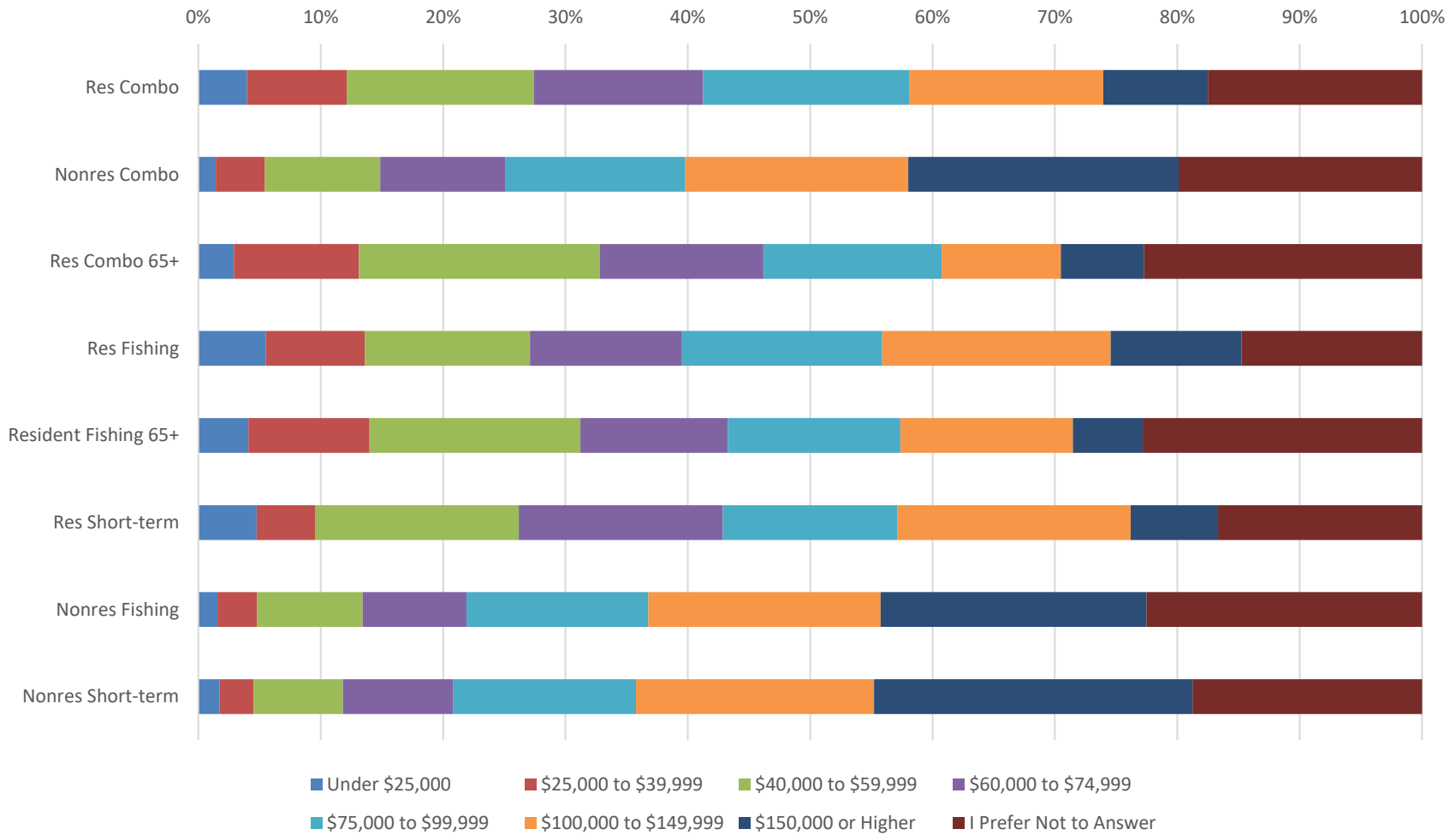


Figure 3-9. Pre-tax Household Income by License Category, 2016.



Section 4:

Angler Fishing Activity Data

Utah Angling-related License Sales²

Figure 4-1 presents Utah angling-related license sales for selected years beginning in 1977 and ending in 2016. In the Figure, data for years 2005 and earlier coincide with the dates of past angler surveys. During calendar year 2016, an average of 366,584 Utah resident and non-resident licenses were valid in the State. While this represents a 26% decline from the nearly 500,000 license sales reported in 2010 (Figure 4-1), most of the decline in license sales was due to a decrease in non-resident license purchases. For example, 2016 non-resident license sales declined 67% from 2010 levels (Figure 4-1) – a marked departure from earlier reported years where the proportion of non-resident sales was fairly constant. The decline in resident licenses was less severe at 12% over the six-year interval. Expressed on a statewide per-capita basis, license sales have declined even more. For example, in 1990, roughly 165 resident licenses were sold per 1,000 residents. In 2011-12, the measure was 127 licenses per 1,000 residences. Here, we see a continued but modest decline to 120 per 1,000 residents.

Figure 4-2 and Table 4-1 show active licenses by month for our eight license categories. These data show the dominance of license holders in the Resident Combination and Resident Fishing license categories. Figure 4-2 reveals the impact, although fairly minor, of short-term licenses of three or seven days duration over the summer months. Across the year, other license

² Supporting data on 2016 angling-related license sales used in Section 4 were provided by the Utah Division of Wildlife Resources.

categories are constant in representation, although relatively small in percentage when compared to the Resident Combination and Resident Fishing license categories.

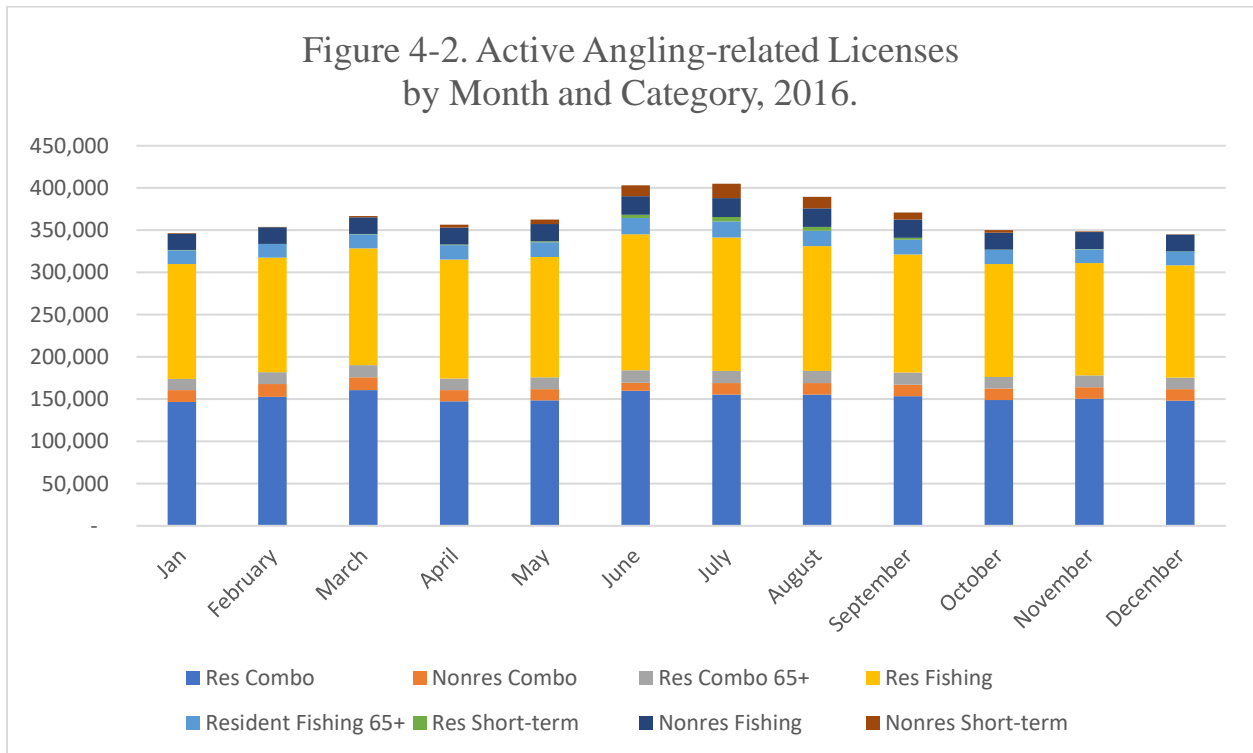
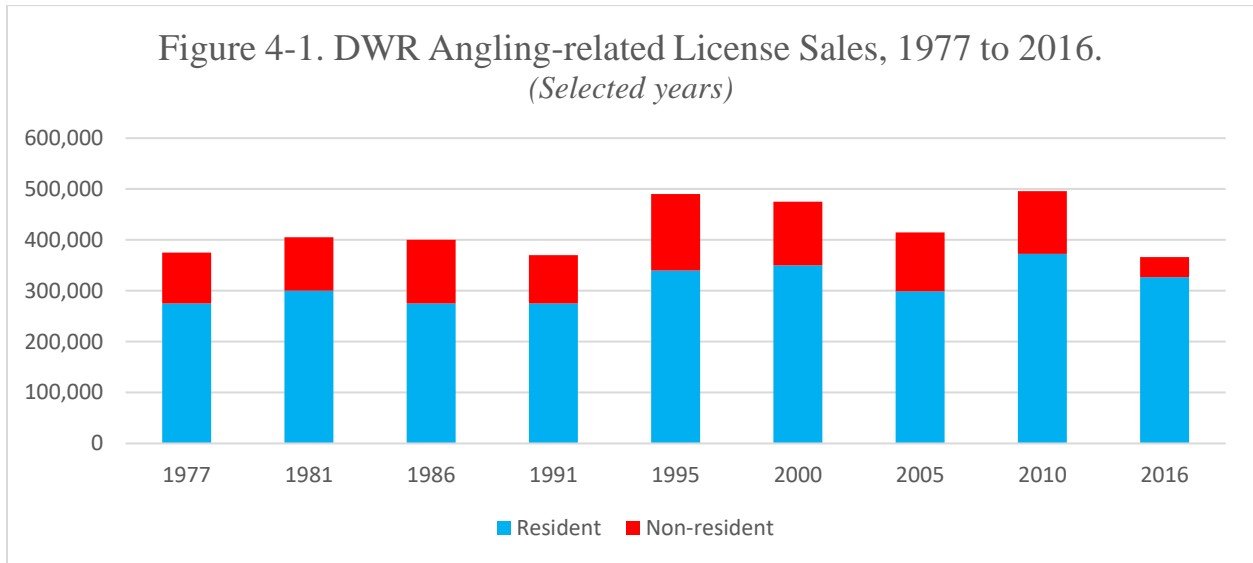


Table 4-1. Active Angling-related Licenses by Month and Category, 2016.

License Category	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Ave
Res Combo	146,638	152,841	160,795	147,307	148,621	159,754	155,348	155,318	153,391	148,985	150,424	148,105	152,294
Nonres Combo	14,139	15,140	15,025	13,274	13,327	9,564	13,725	13,778	13,713	13,619	13,579	13,643	13,544
Res Combo 65+	13,293	14,055	14,440	13,598	13,781	14,785	14,403	14,407	14,246	13,797	13,947	13,870	14,052
Res Fishing	135,914	135,486	138,456	141,140	142,704	160,977	157,860	147,557	140,007	133,623	133,083	132,842	141,637
Resident Fishing 65+	16,278	16,201	16,502	16,872	17,248	19,504	18,860	18,143	17,240	16,572	16,531	16,500	17,204
Res Short-term	302	268	419	775	1,111	3,802	5,581	4,894	2,524	542	336	66	1,718
Nonres Fishing	19,489	19,511	19,817	20,193	20,383	21,942	22,416	21,908	21,401	20,062	19,791	19,778	20,558
Nonres Short-term	529	510	1,509	3,273	5,288	12,803	16,858	13,659	8,503	2,917	961	106	5,576
Totals:	346,582	354,012	366,963	356,432	362,463	403,131	405,051	389,664	371,025	350,117	348,652	344,910	366,584

Angler Trips

The 2016 periodic angler survey first asked anglers to report the number of fishing trips they took during the month-long reporting period (see Appendix A, Question 2). Later in the survey, anglers were asked to record, for each trip, detailed information regarding trip location, number of days spent fishing, the number of fish caught and kept by species, etc. (see Appendix A, Question 6 and after). In this section, we report on “angler trips.” In the next section, we convert “angler trips” into “angler days” to account for the fact that many fishing trips exceed one day in duration. DWR has used angler days as a measure of angler activity since at least the mid-1960s.

Table 4-2 shows the percent of survey respondents that indicated that they took a fishing trip, broken down by month and license category. These data are graphically depicted in Figure 4-3. As expected, the percentage of anglers reporting that they took a trip was highest during the spring, summer, and fall months. The exception is Resident and Non-resident Short-term license holders, where in most months 90% to 100% of anglers took a fishing trip – especially non-residents. This high participation rate reflects the fact that individuals purchasing a short-term license, which is valid for just three or seven days, intend to fish in the immediate future, and have only a limited window of time in which to do so. Note, however, the anomaly in February for Resident Short-term license holders, where just 22% indicated that they actually took a trip. This may have been due to last-minute adverse weather conditions that may have altered fishing plans.

Table 4-2. Percentage of Anglers that Reported having Taken a Fishing Trip, 2016.

License Category	January	February	March	April	May	June	July	August	September	October	November	December
Res Combo	24.5	24.0	26.5	31.5	45.2	53.3	60.1	49.3	42.5	28.4	22.7	15.0
Nonres Combo	9.3	6.5	7.0	9.6	21.7	27.1	21.4	11.1	29.5	23.6	0.0	4.8
Res Combo 65+	25.0	26.2	23.0	26.2	51.4	35.1	43.9	26.3	45.7	31.9	22.7	13.9
Res Fishing	25.8	25.3	32.3	41.6	57.8	70.4	72.2	67.9	51.0	43.9	36.5	16.9
Resident Fishing 65+	13.9	22.4	27.0	25.0	41.5	56.4	63.9	65.4	47.9	44.2	24.2	11.5
Res Short-term	100.0	22.4	100.0	75.0	66.7	88.9	100.0	85.7	100.0	100.0	100.0	0.0
Nonres Fishing	3.3	7.4	10.5	18.9	27.8	28.7	29.9	25.9	23.7	22.5	13.3	8.0
Nonres Short-term	100.0	100.0	100.0	100.0	92.5	93.4	94.7	96.8	96.1	88.2	100.0	0.0

Figure 4-3. Percent of Anglers that Reported having Taken a Fishing Trip, 2016.

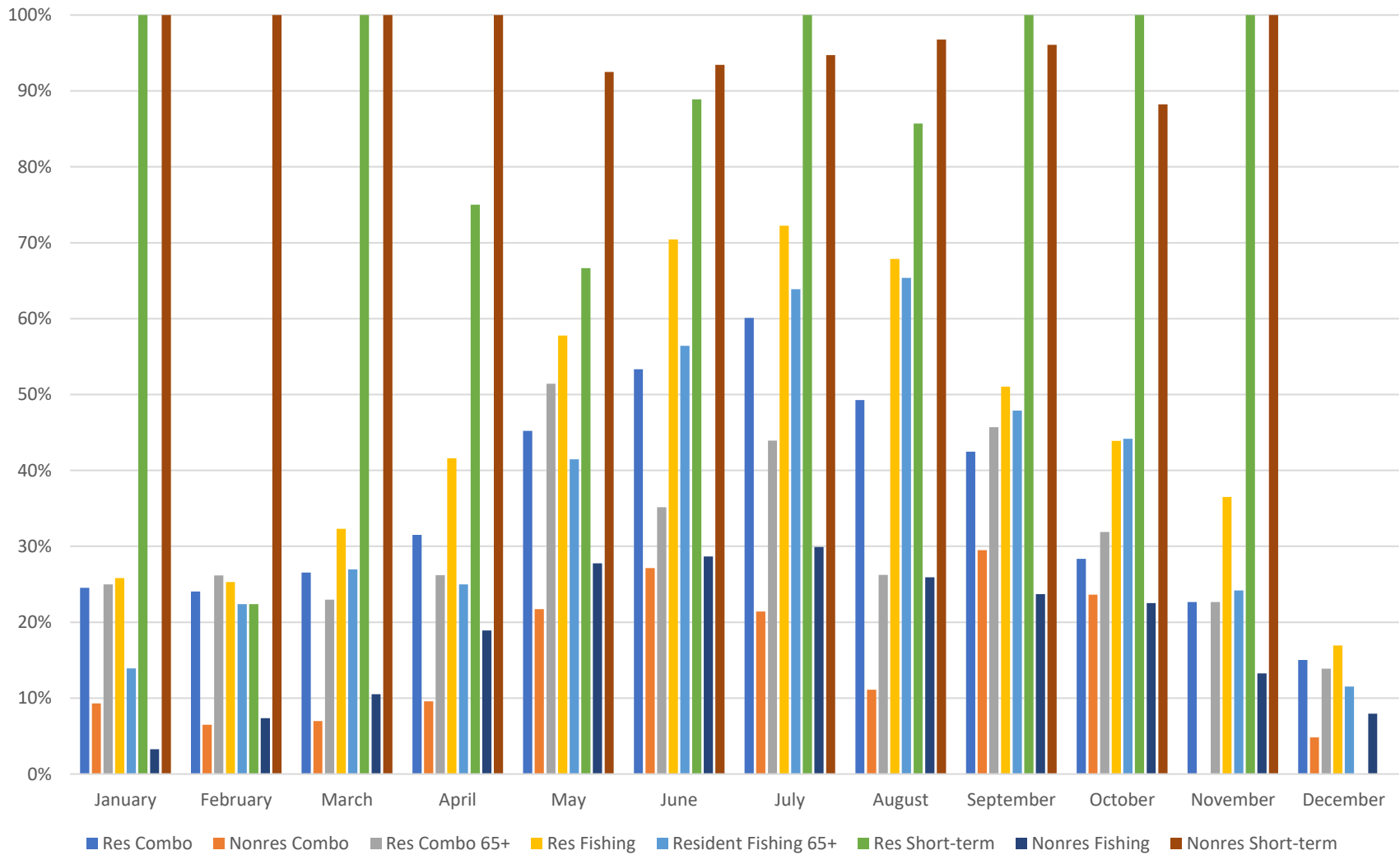


Figure 4-4 shows the average number of trips per month for respondents that reported fishing activity in 2016. Here, the vertical axis shows the number of trips indicated by each respondent. The number of trips range from none for some license categories in winter months (e.g., Non-resident Fishing licenses), to 3.5 trips for Resident Short-term license holders in May. As expected, the highest participation rates are exhibited by Resident Short-term and Non-resident Short-term license holders that purchase a temporary license specifically to go fishing. For this category, nearly all short-term license purchasers reported going fishing. Note, however, that the seasonal nature of short-term licenses (see Table 4-1 described earlier) means that while short-term license purchasers in winter months went fishing, the number of anglers actually engaging in fishing is quite low. For all other license categories, participation is greatest in non-winter months. Here, the highest overall participation rates across all months were reported by respondents holding Resident Fishing, Resident Combination, and Resident 65+ fishing licenses.

Figure 4-5 shows the average number of trips per month by license category for all anglers – not just survey respondents indicating that they had taken a trip (i.e., Figure 4-4). These numbers, as compared with Figure 4-4, are lower, reflecting the fact that not all anglers engaged in fishing each month or, in some cases, at all (i.e., Table 4-2). Once again, interpreting the aggregate number of trips across months must consider both the number of license holders and the limited participation rates for anglers in winter months (see Table 4-1).

Figure 4-4. Average Number of Trips/Month for Respondents that Reported Fishing Activity, 2016.

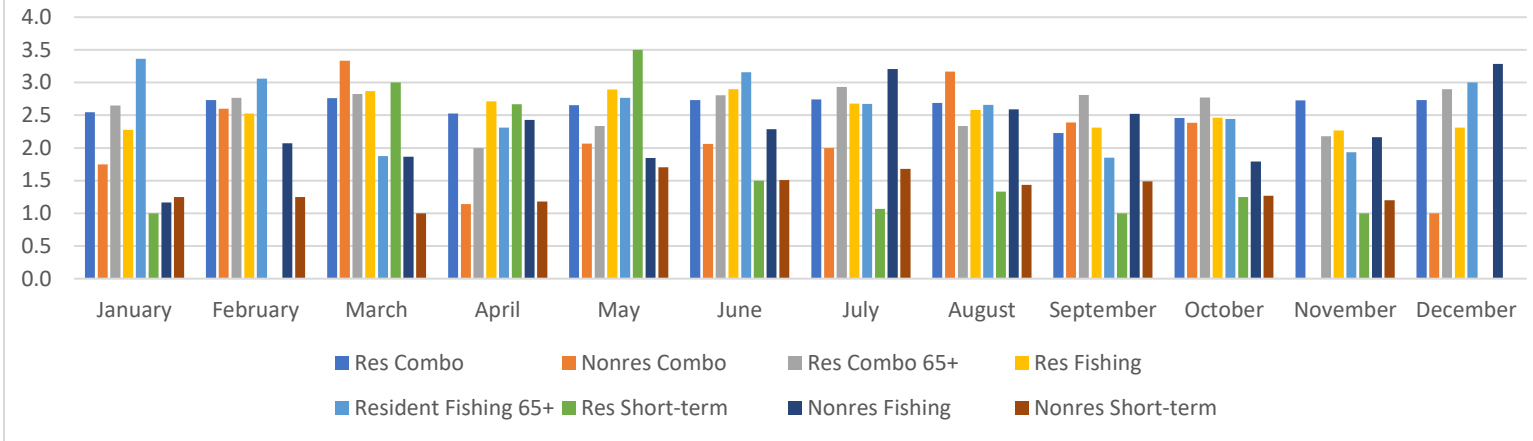
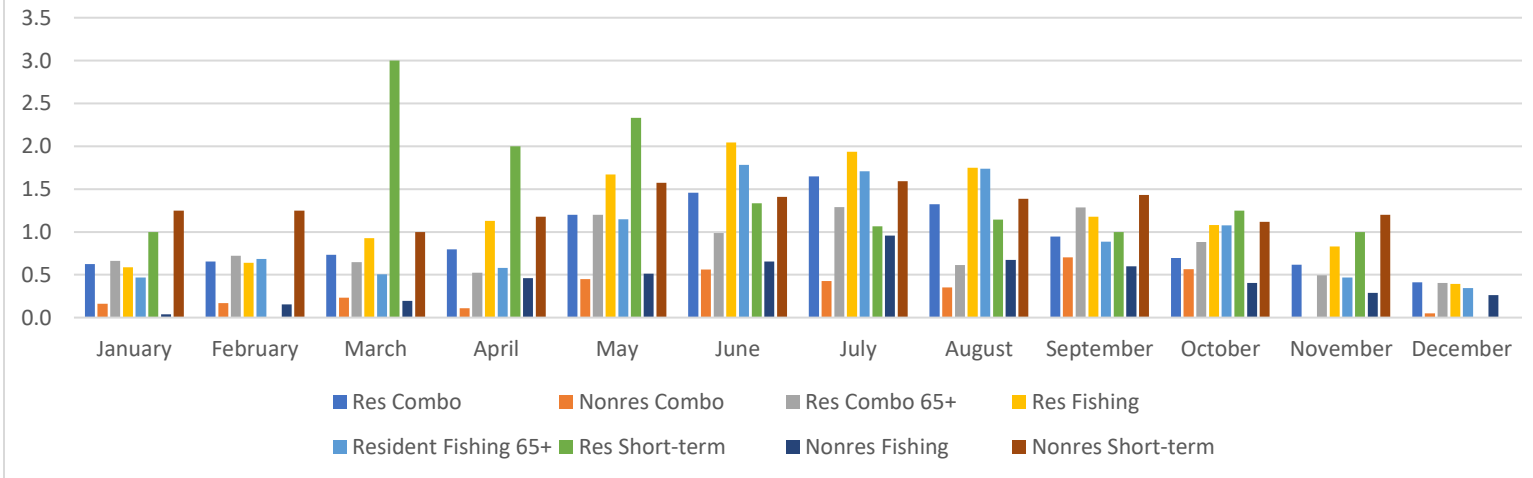


Figure 4-5. Average Trips per License Holder, by Month and License Type, 2016.



As shown earlier in Figure 3-1, 85% of respondents were male, with only 15% of anglers comprised of females. Figure 4-6 breaks down by gender the number of trips reported by respondents for each month. First, recall that for most anglers, “no trip” was the dominant response, except for the summer months where the number of reported trips increased. Thereafter, respondents indicated trips of one day or more, albeit with decreasing frequency as number of trips increased.

Next, we examined where anglers engaged in fishing. First, Figure 4-7 shows Utah’s 2010 population density, along with DWR’s five geographic Fishing Management Regions. Figure 4-8 shows the total number of anglers that recorded taking one or more fishing trip by DWR region. These values ranged from a low of 50,807 anglers that fished in the month of December, to a high of 256,929 in July. Note that DWR’s Central Region dominates as the region where anglers took their trips. This is likely due in part to the large number of people that reside in this region. The next-highest fishing destination is the Northern Region – another part of the State with a large population base.

Figure 4-6. Reported Fishing Trips by Gender and Month, 2016.

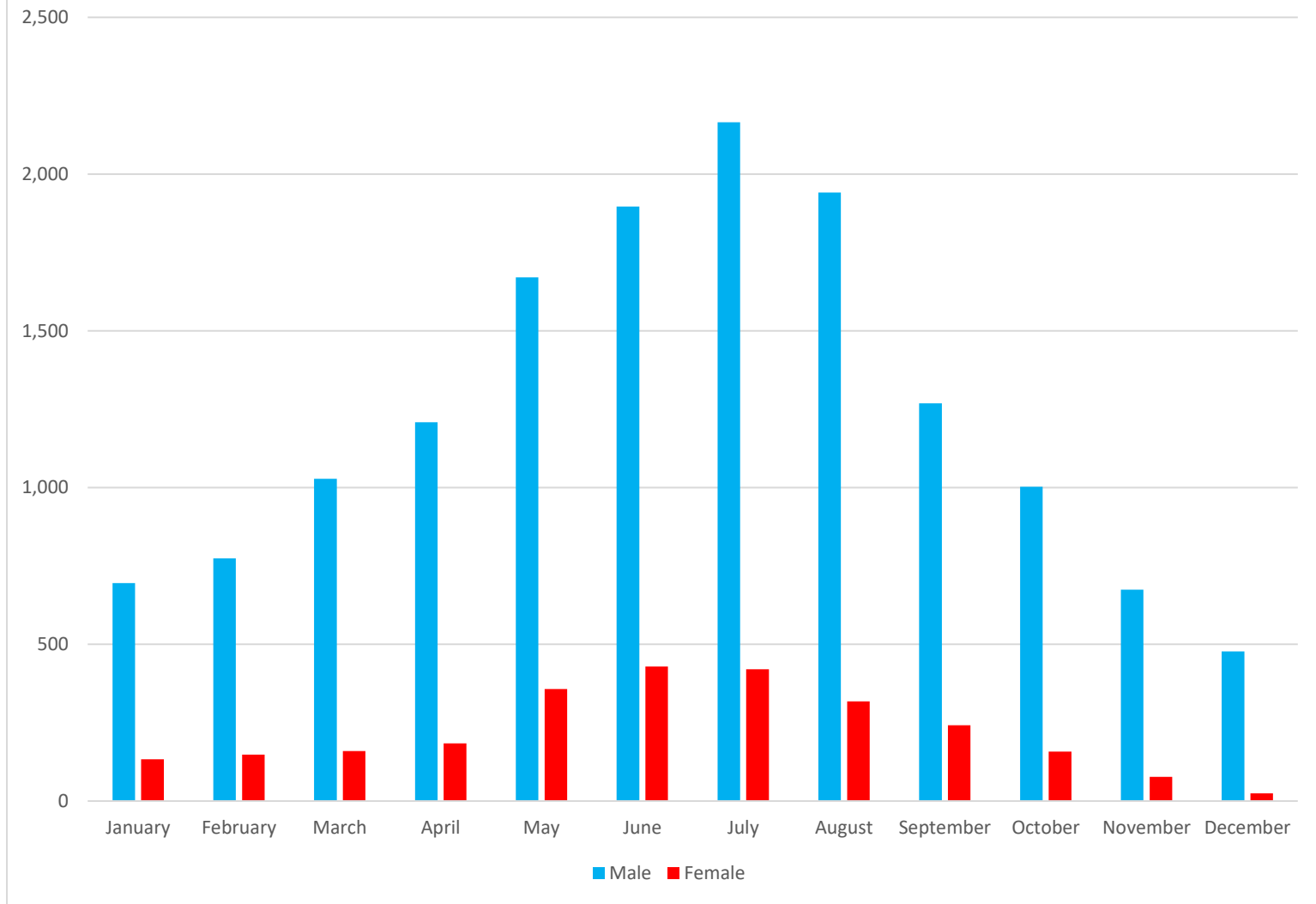


Figure 4-7. Utah Population Density and DWR Fishing Management Regions.

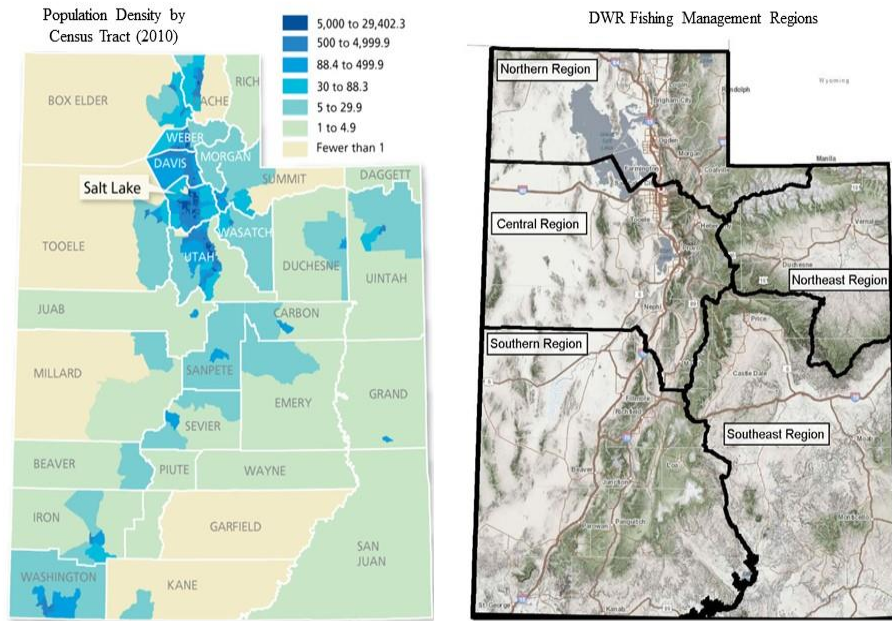
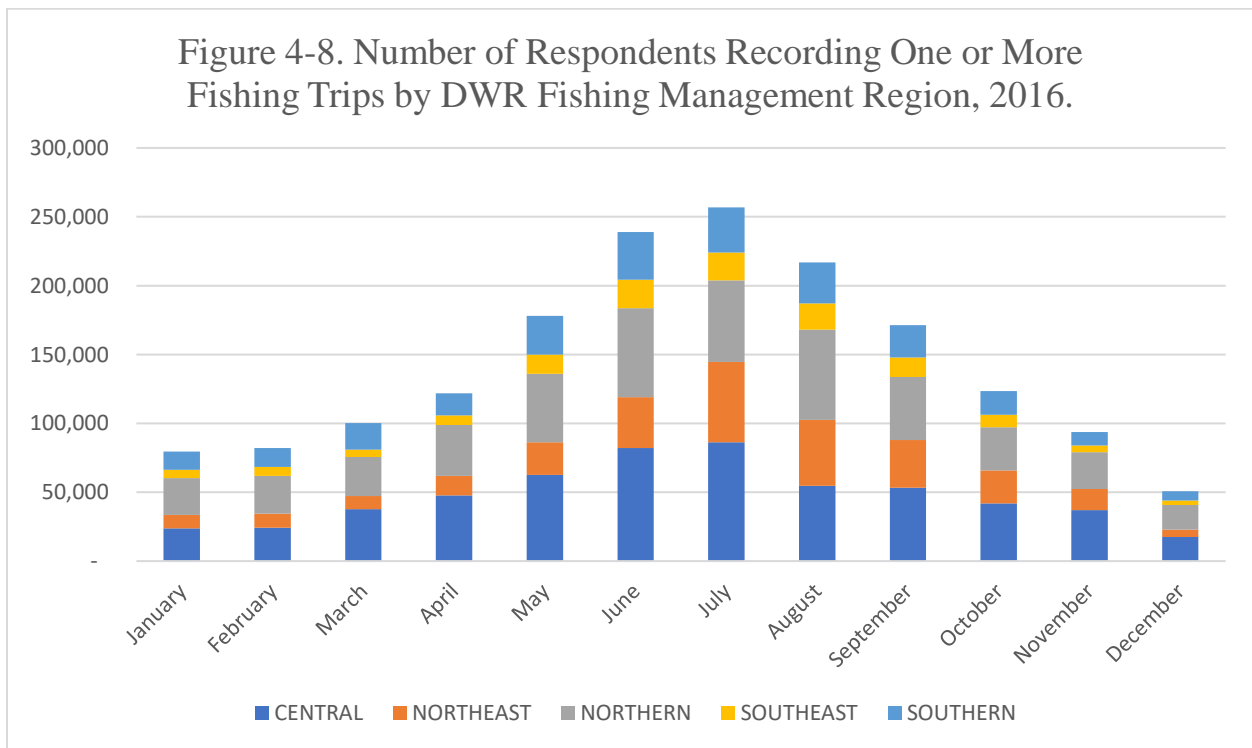


Figure 4-8. Number of Respondents Recording One or More Fishing Trips by DWR Fishing Management Region, 2016.



Finally, to arrive at total angler trips, respondent-level data reported above were scaled up to reflect the overall number of valid angler-related licenses in each category and month. For example, 25% of Resident Combo respondents indicated that they took one or more fishing trips in January (see Table 4-2). This percentage was then multiplied by the 146,638 Resident Combo license holders in January (Table 4-1) to arrive at the number of anglers in this license period and month that took one or more trips. Next, this number was multiplied by the average number of trips recorded (Figure 4-4) to arrive at an estimate of total angler trips by month and license category.

Table 4-3 shows that, when scaled up to the entire population of license holders, an estimated 4,379,077 fishing trips were taken by resident and non-resident anglers in 2016. This level is consistent with earlier angler surveys, with the exception of the 2011-2012 survey, where only 2,448,299 trips were reported. During that survey year, trip numbers were dampened by poor fishing conditions from record snowpack, severe runoff, high river and stream flows that reduced water access, and high levels of stream and reservoir turbidity.

Figure 4-9 shows the scaled up number of angler trips by month and license category. The distribution is similar to that of Figure 4-4, only greater in number indicating that many respondents reported taking multiple trips during a reporting period. For example, Utah-licensed anglers took roughly 650,000 fishing trips in the months of June and July. Even in January and February, roughly 200,000 fishing trips were taken. As shown in the Figure 4-9, the vast majority of trips were reported by Resident Fishing and Resident Combination license holders.

Table 4-3. Estimated Number of Angler Trips per Month by License Category and Reporting Period, 2016.

License Category	January	February	March	April	May	June	July	August	September	October	November	December	TOTAL
Res Combo	91,649	100,316	117,901	117,268	178,389	232,612	255,787	205,673	145,305	103,740	92,959	60,847	1,702,445
Nonres Combo	2,302	2,556	3,494	1,455	5,987	5,349	5,882	4,848	9,667	7,676	0	660	49,876
Res Combo 65+	8,797	10,163	9,366	7,123	16,537	14,585	18,549	8,824	18,316	12,197	6,881	5,587	136,926
Res Fishing	79,965	86,575	128,405	159,361	238,417	328,751	305,601	258,303	165,112	144,424	110,279	51,996	2,057,188
Resident Fishing 65+	7,624	11,085	8,344	9,754	19,772	34,757	32,219	31,543	15,297	17,863	7,732	5,712	201,702
Res Short-term	302	0	1,257	1,550	2,592	5,069	5,953	5,593	2,524	678	336	0	25,854
Nonres Fishing	745	2,978	3,888	9,278	10,435	14,395	21,492	14,721	12,796	8,088	5,686	5,169	109,672
Nonres Short-term	661	638	1,509	3,857	8,329	18,050	26,840	18,946	12,171	3,260	1,153	0	95,414
TOTAL:	192,045	214,310	274,164	309,646	480,459	653,569	672,322	548,452	381,189	297,926	225,026	129,971	4,379,077

Figure 4-9. Estimated Number of Angler Trips by Month and License Category, 2016.

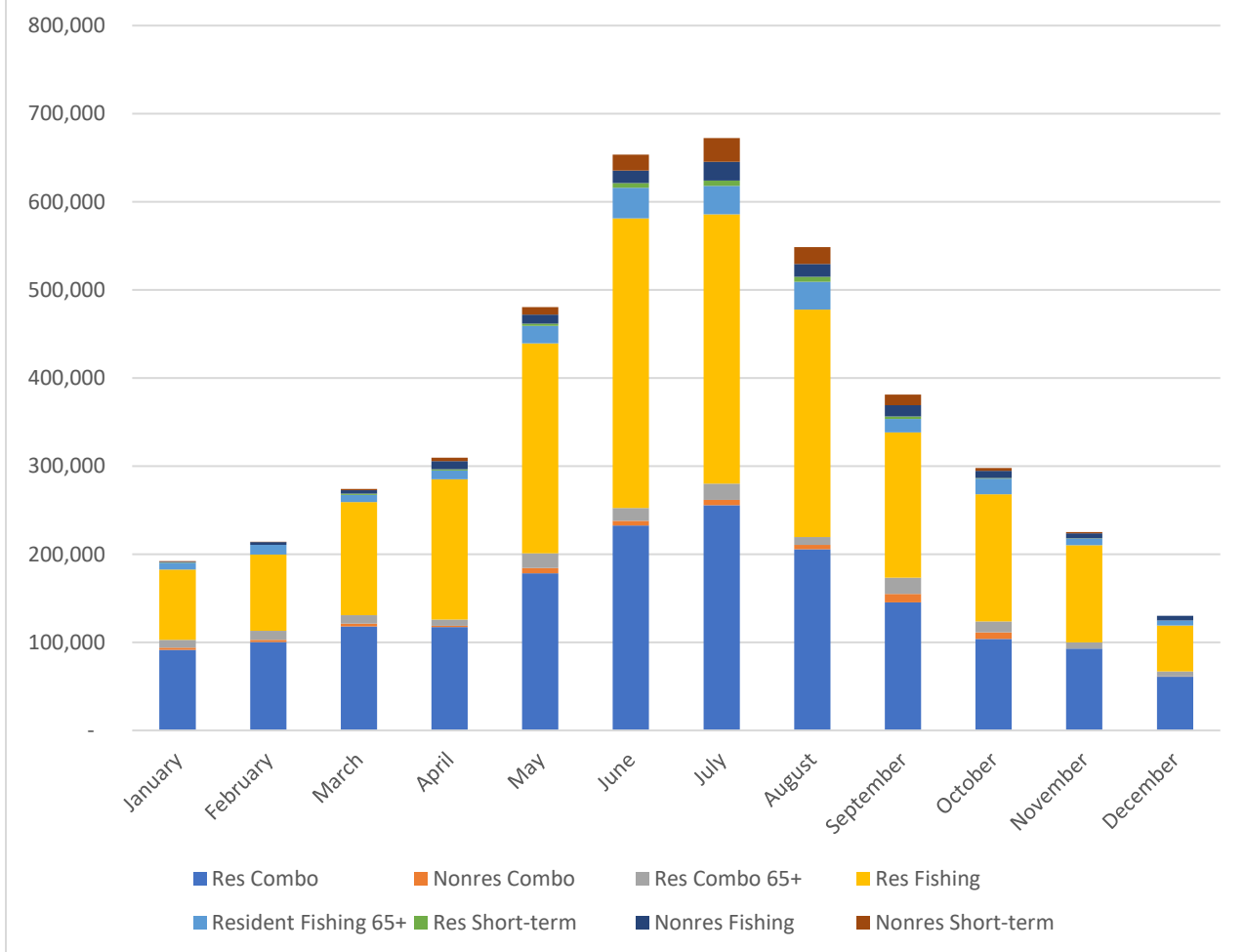


Figure 4-10 shows these same data broken down by DWR Management Region instead of license category. Here, we see that most trips were reported for the Central and Northern Regions – areas that coincide with Utah’s major population centers as shown in Figure 4-7. Fishing in the Northeast Region peaks in the summer months. This regions includes many fishing opportunities in the Unita Mountains – a high-elevation area that can typically be accessed only in the summer and fall months.

Figure 4-10. Estimated Number of Angler Trips by Month and Region, 2016.

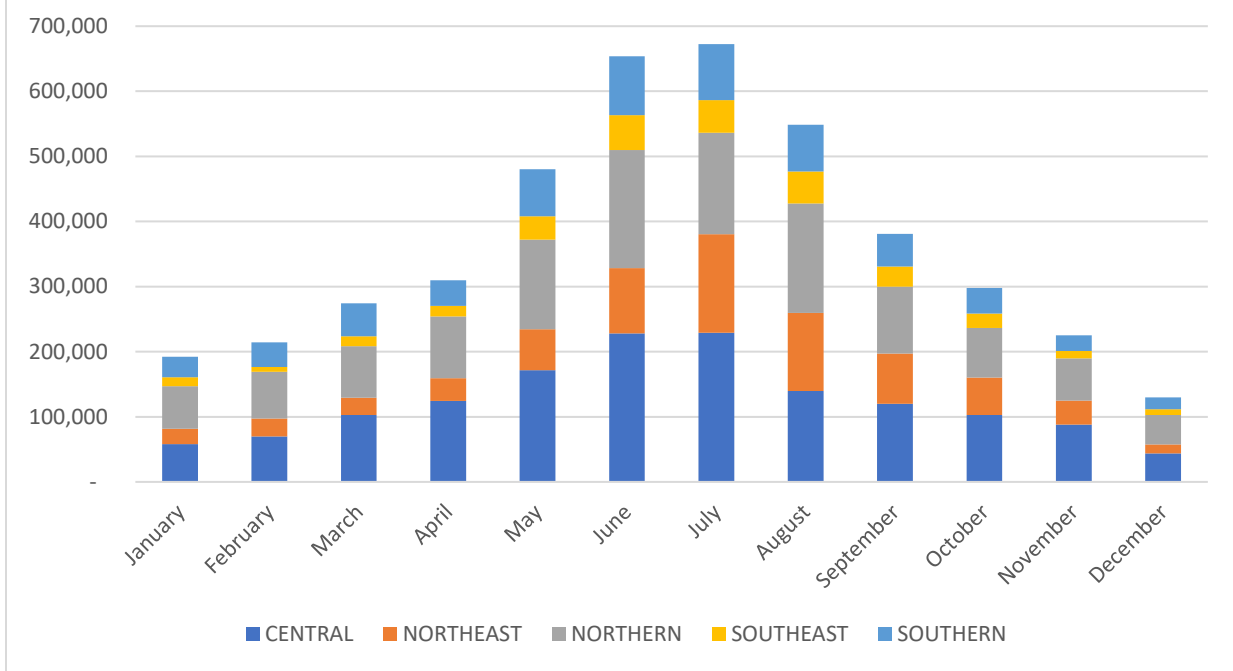


Table 4-4 combines trip data by respondents that went fishing, with overall license-holder numbers to arrive at an average participation level per license holder. As shown in the Figure, the number of trips for all non-short term license categories is highest in May, June, and July. The right-most column in Table 4-4 shows the total number of fishing trips per month for an “average” angler across the year. Here, resident anglers took roughly 10 to 15 trips in 2016, with resident anglers age 65 and over fishing less than other residents (i.e., 9.7 trips/year, versus 11.1 to 14.2 trips/year). Excluding short-term license holders, Non-residents fished the least, taking between 3.8 and 5.2 trips per year. Across all months and license categories, non-short term license holders took on average 9.22 fishing trips over the 2016 calendar year (Table 4-4).

Table 4-4. Average Number of Fishing Trips per Month by License Category, 2016 (excludes short-term licenses).

License Category	January	February	March	April	May	June	July	August	September	October	November	December	TOTAL
Res Combo	0.63	0.66	0.73	0.80	1.20	1.46	1.65	1.32	0.95	0.70	0.62	0.41	11.11
Nonres Combo	0.16	0.17	0.23	0.11	0.45	0.56	0.43	0.35	0.70	0.56	0.00	0.05	3.78
Res Combo 65+	0.66	0.72	0.65	0.52	1.20	0.99	1.29	0.61	1.29	0.88	0.49	0.40	9.71
Res Fishing	0.59	0.64	0.93	1.13	1.67	2.04	1.94	1.75	1.18	1.08	0.83	0.39	14.16
Resident Fishing 65+	0.47	0.68	0.51	0.58	1.15	1.78	1.71	1.74	0.89	1.08	0.47	0.35	11.39
Nonres Fishing	0.04	0.15	0.20	0.46	0.51	0.66	0.96	0.67	0.60	0.40	0.29	0.26	5.19
												Arithmetic Average:	9.22

Figure 4-11 depicts these same data on an annual basis where, unlike in Table 4-3, data for short-term license holders are shown as averages instead of sums for the year. This reflects a more accurate accounting of fishing trips by an “average” short-term licensee because unlike the other license categories, short-term licenses are only valid for three or seven days, and are unlikely to be held by the same individual throughout the year. Figure 4-12 further breaks down short-term licensee activity by resident and non-resident anglers across the 2016 angling year.

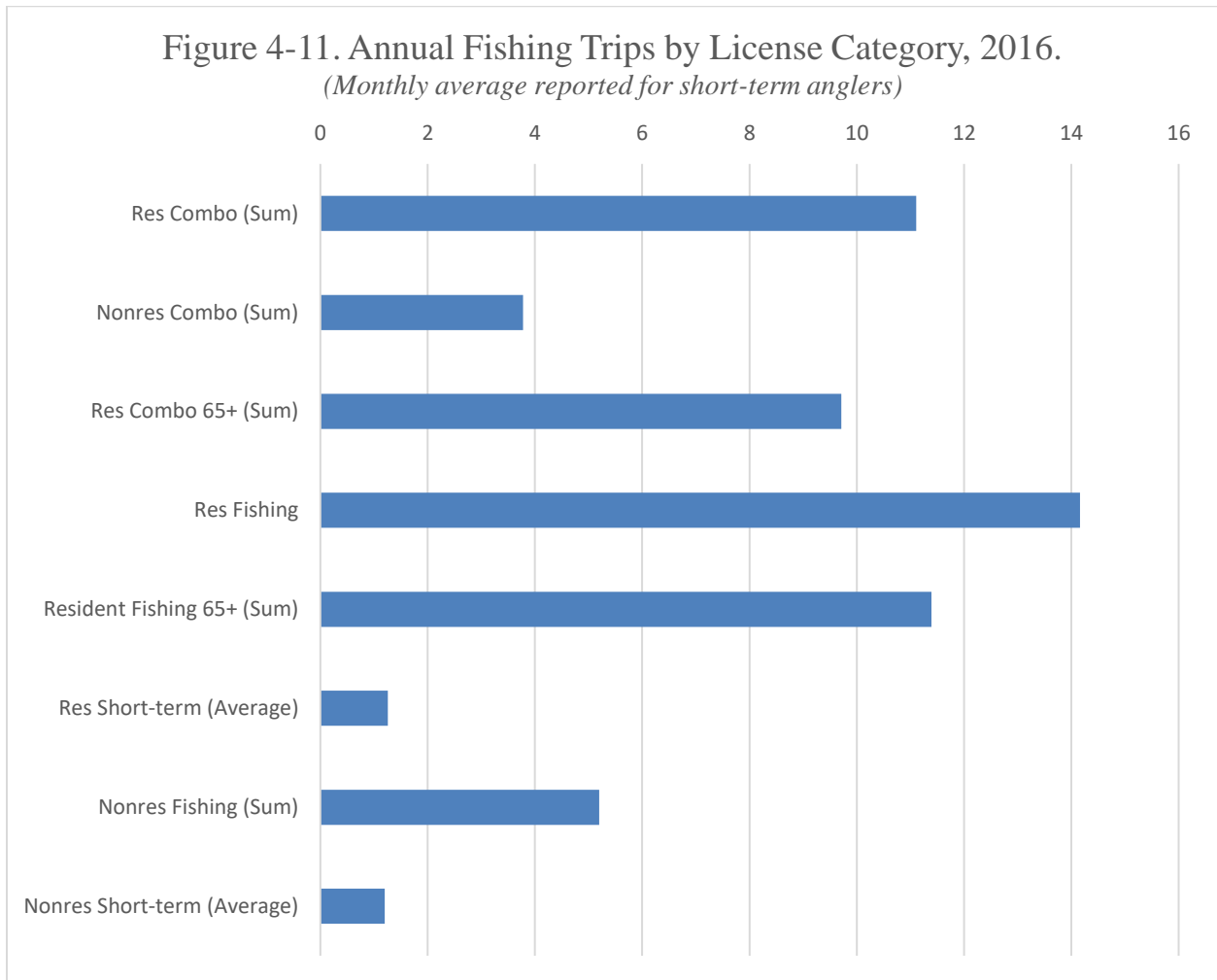


Figure 4-12. Average Number of Trips for Short-term Anglers, 2016.



Fishing Trip Characteristics: Group Size, Children, Number of Days, and Fishing Methods

For each recorded trip, survey respondents were asked to indicate: (1) How many other people fished with them on their trip?; (2) How many of the other anglers on the trip were children not required to have a fishing license (e.g., under 12 years of age)?; and (3) How many days long was the particular fishing trip? Figure 4-13 summarizes these responses by license category.

First, note that on average, the typical fishing trip included two or more people (including the respondent). The smallest average trip size was reported by Resident Fishing 65+ license holders (Figure 4-13). The largest – at more than 3.5 on average – was reported by Resident Short-term licensees. On average, these license-holders also had the greatest number of children

in their fishing party – on average about one child. All other license categories averaged approximately 0.5 children across all recorded trips. Finally, non-residents recorded the longest average trip length – roughly 1.75 to 2.1 days per trip. Resident trip length averaged about 1.5 days (Figure 4-13).

Finally, anglers were asked to indicate their method of fishing for each trip, broken down by time spent using bait, artificial flies, artificial lures, and/or other methods (e.g., spearfishing, archery, etc.). Figure 4-14 presents these data by license category. Baitfishing is the dominant method used by Utah residents – especially Short-term Resident license holders. Non-resident anglers showed a preference for artificial flies. The use of artificial lures was fairly consistent for most license categories at about 30%. Spearfishing and archery, while present, was used very infrequently.

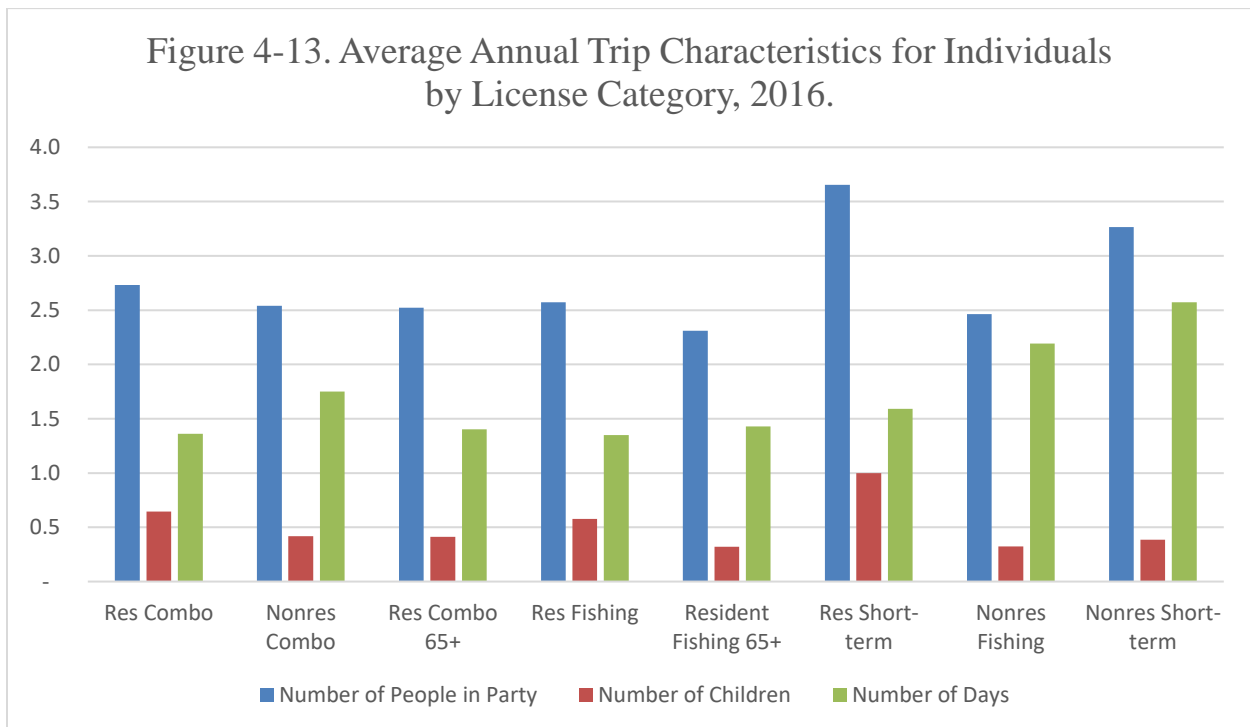
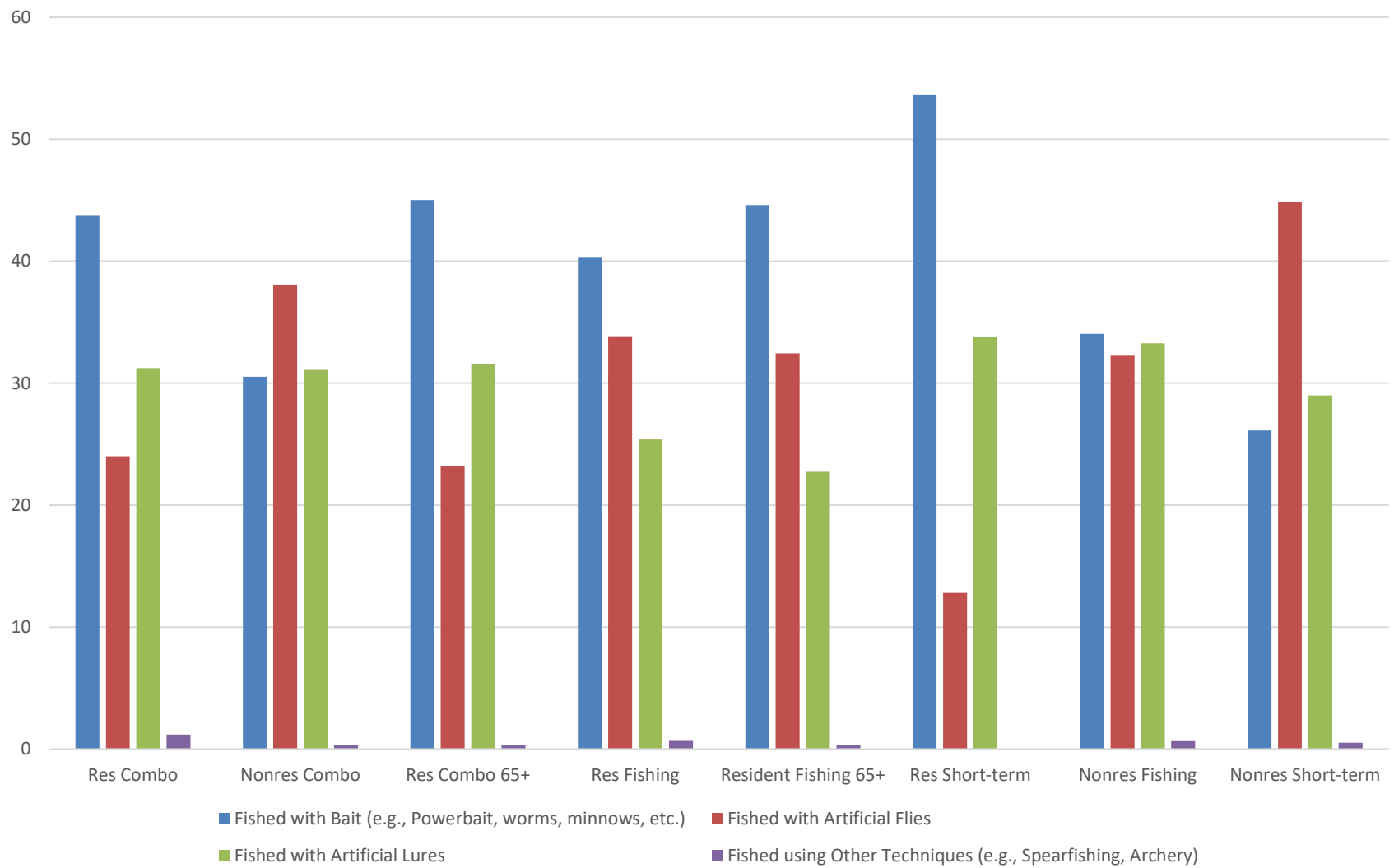


Figure 4-14. Average Annual Fishing Method by License Category, 2016.
(Percent)



Reasons for Not Fishing during a Reporting Period

Respondents that reported no fishing trips during a reporting period were asked why they had not fished that month (Figure 4-15). Options ranged from lack of interest, to other time commitments and weather and/or water conditions. As expected, adverse weather and limited seasonal interest limited fishing in the winter months. Throughout the year, work and non-work time commitments were significant barriers to participation, cited by 15% to 25% of respondents during each reporting period. Lack of interest in fishing overall (i.e., not seasonally-induced) was consistent across the year at 6% to 8%. Adverse water conditions were cited by 5% or less in all reporting periods.

Angler Days

The information above first described the number of anglers reporting a fishing trip, then the number of trips reported by respondents. These data were then scaled up to estimate the total trips for the entire licensed angling population. Here, we present data on the number of “angler days,” where any part of a day fishing is counted as an angler day. As noted above, because trip length can vary from one day to a week or more, anglers days – as opposed to angler trips – is a useful measure of fishing activity that DWR has tracked via periodic surveys since 1967.

Figure 4-14 shows the estimated number of angler days for 2016 in comparison with estimates from earlier DWR surveys. This total – 6.2 million angler days – is the highest yet recorded, although it is consistent with the estimates of 5.1 million to 5.9 million that have been reported beginning in 1995, when periodic survey methods were significantly improved.

Figure 4-15. Reasons for Not Fishing during a Reporting Period, 2016.



Figure 4-14. Angler Days, 1967 to 2016.
(Selected dates)

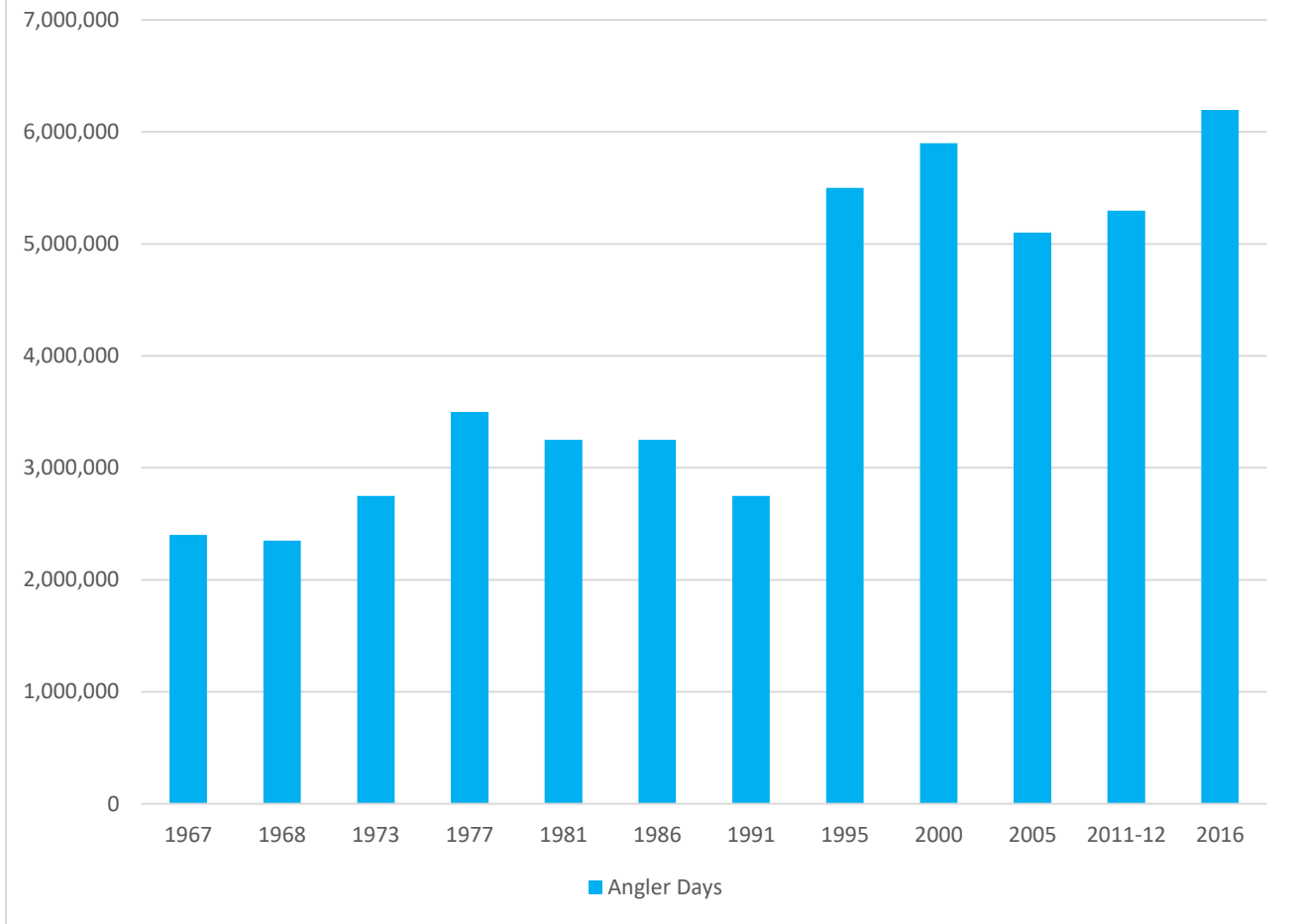


Figure 4-15 shows the distribution of angler days by month and license type. As expected, angler days are highly seasonal, with May signaling a rise and for many the beginning of the fishing season. Resident Fishing license holders comprise the largest license category when it comes to angler days, followed by Resident Combination license holders. Resident Fishing 65+ angler days are largely confined to May through October, and Non-resident Short-term fishing peaks in July and August.

Figure 4-15. Angler Days by Month and License Type, 2016.

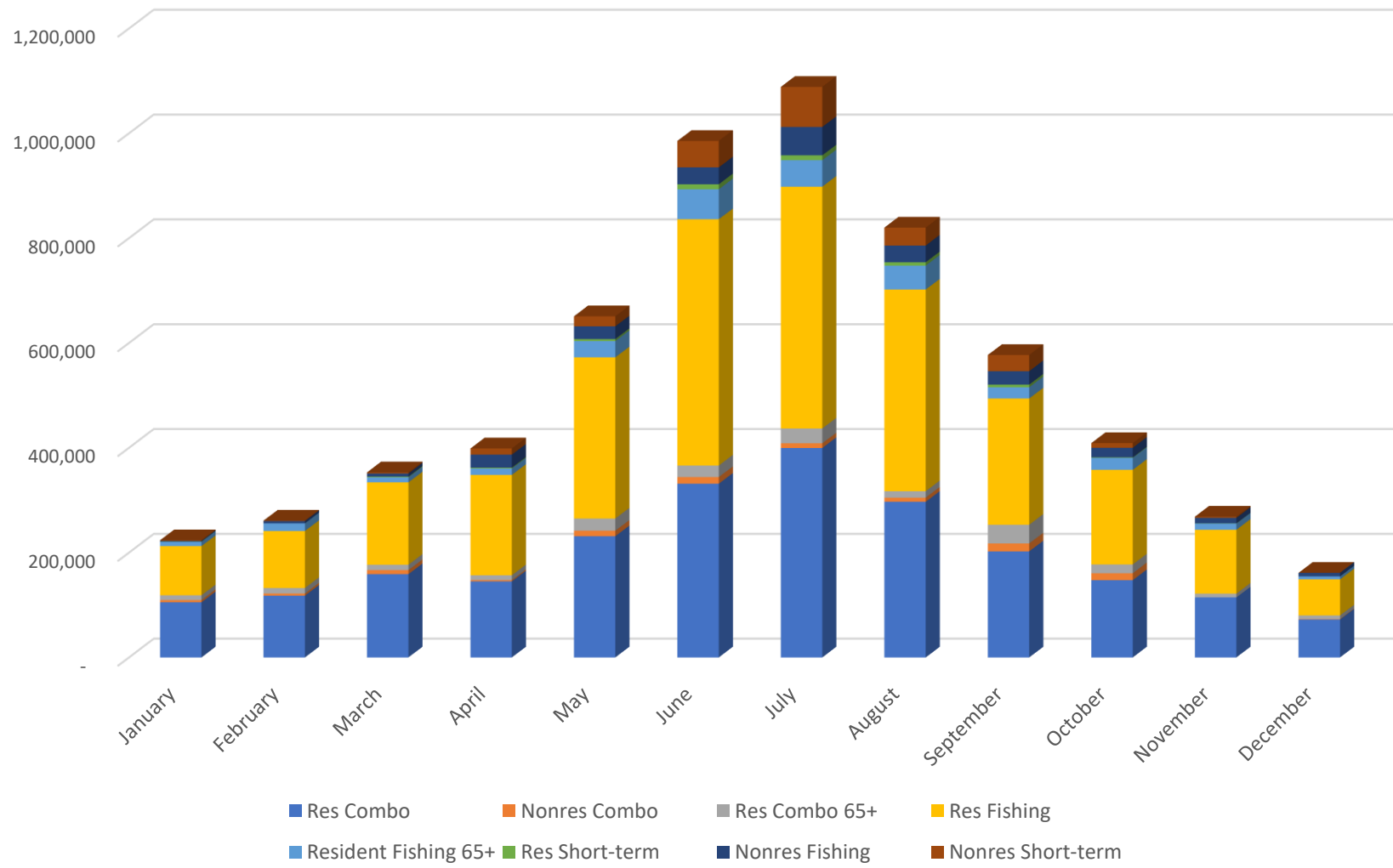


Figure 4-16 shows the distribution of angler days by month and DWR Fishing Management Region (see Figure 4-7 for a map of these Regions). For most reporting periods, the greatest number of trips occurred within the Central and Northern Regions, which include the Wasatch Front and Cache Valley – the most populous portions of the State. In all five regions, seasonal variation in fishing activity is evident, with peak months being May through August. Some regional variations are noteworthy. For example, the number of trips in the Northeast Region peak in July. This region includes the Uinta Mountains, which are largely inaccessible until the summer months due to heavy snows.

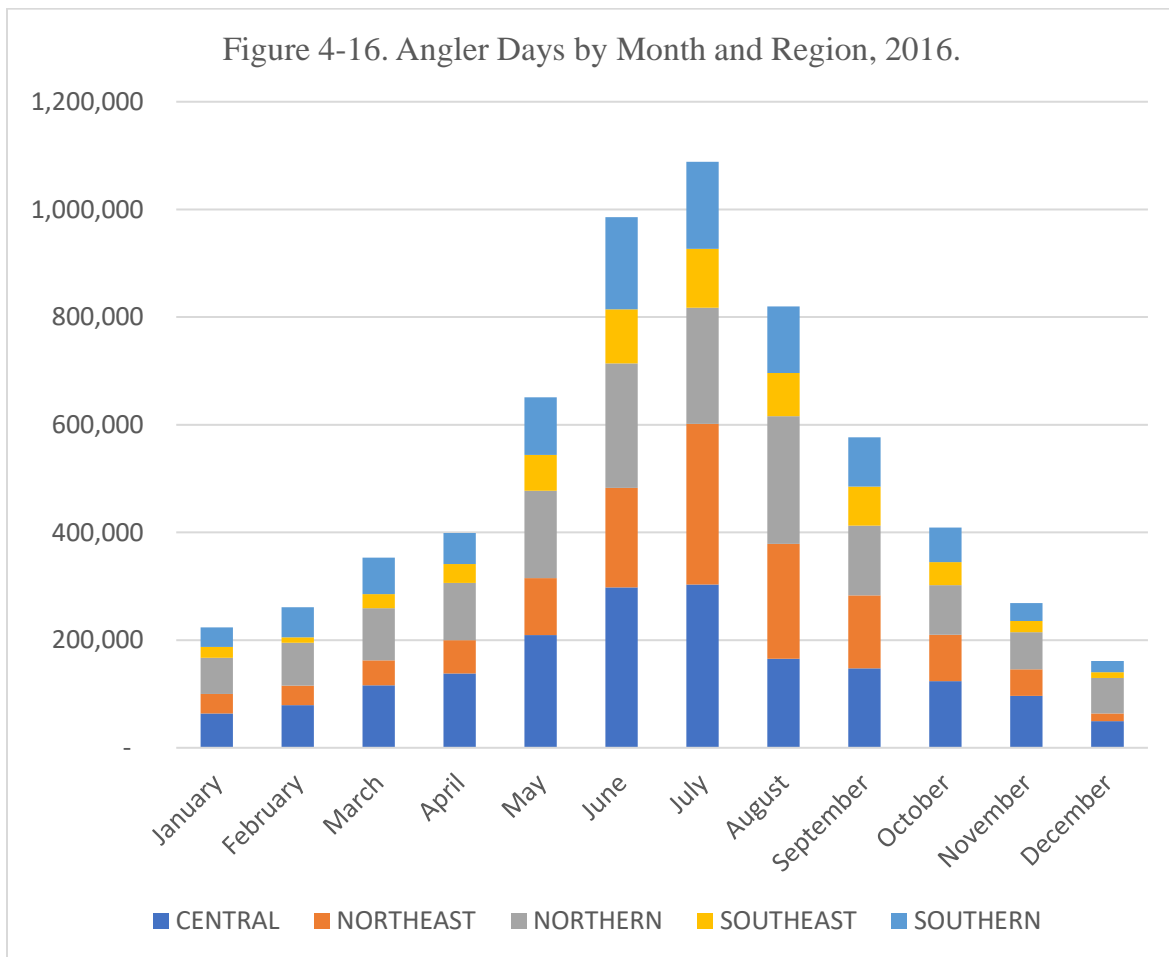


Figure 4-17 shows average angler days in 2016 as compared to earlier survey years, and Figure 4-18 shows the breakdown of angler days by license category and month.

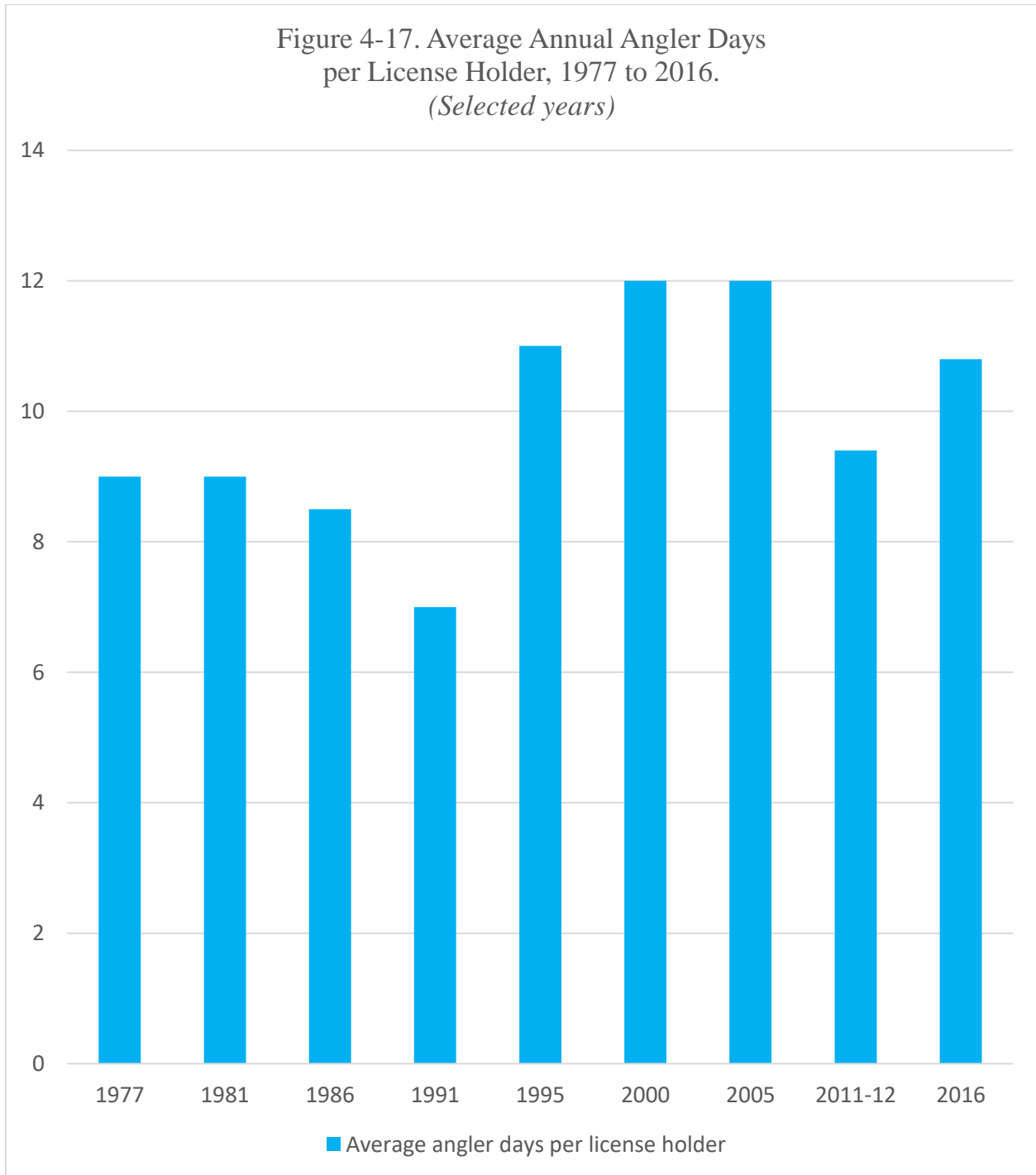
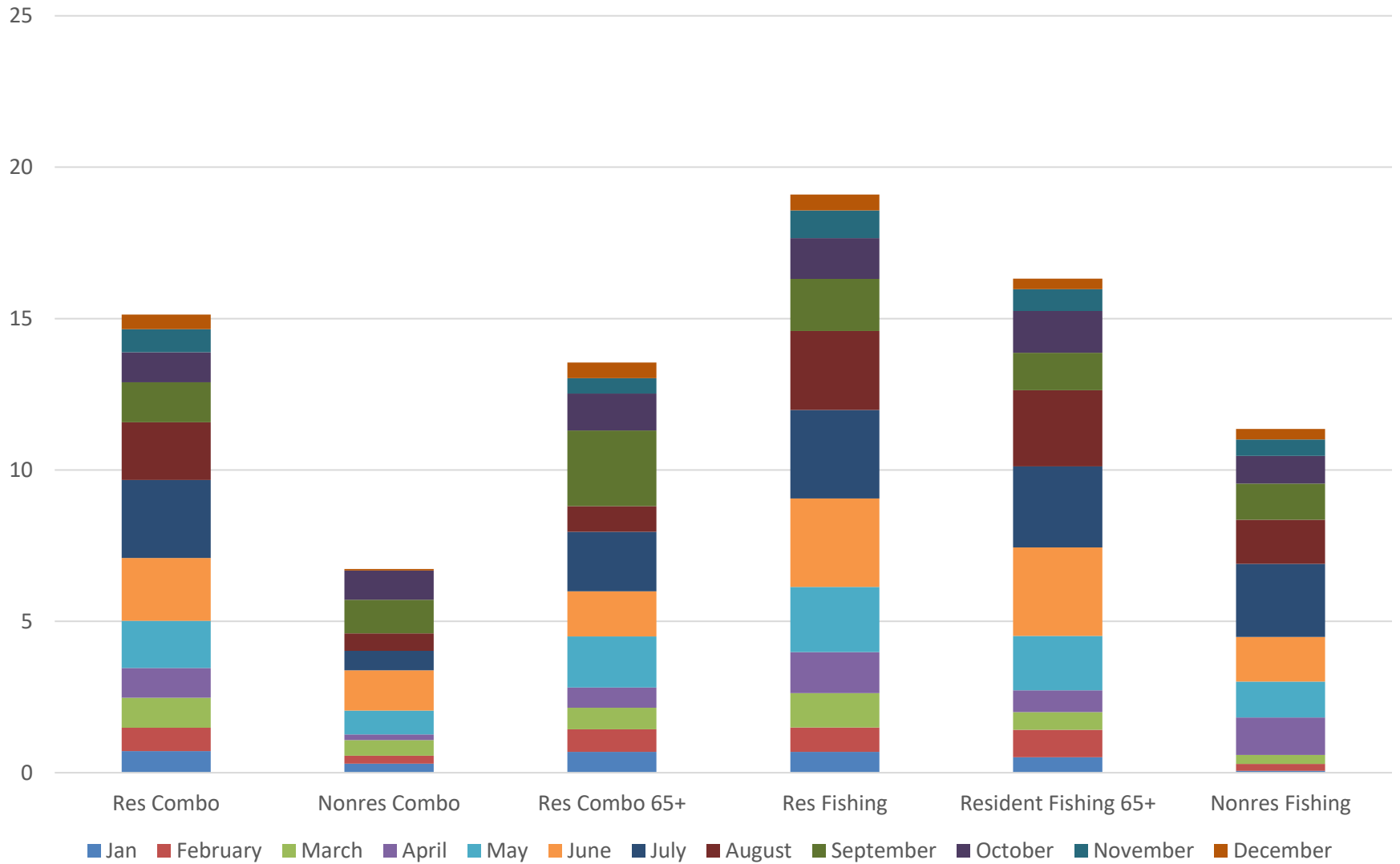


Figure 4-18. Cumulative Angler Days by License Category and Month, 2016.



Section 5:

Angler Catch and Harvest Data

Overview: Angler Catch and Harvest Data

Figure 5-1 shows the estimated number of fish caught and kept beginning with the 2000 Angler Survey. Note that these data have been scaled to estimate activity for all anglers fishing in Utah waters during 2016. (See “Section 2: Methods” for a description of scaling methodology.)

In 2016, anglers caught an estimated 25 million fish, and kept 6.8 million – or roughly one-third. Over the 16-year period shown in Figure 5-1, catch levels have remained fairly consistent at roughly 20 million fish/year. As described earlier, catch levels in 2011-2012 were noticeably lower due to adverse fishing conditions that affected much of the angling season. Also note that the number of fish kept has remained constant over this period. In an effort to maintain elevated catch rates while minimizing harvest, DWR has implemented restrictive regulations on some of its popular coldwater (i.e., trout) fisheries. Additionally, over the years the Division has encouraged “catch and release” practices among anglers, which has likely resulted in stable harvest in the presence of high catch rates.

Figure 5-1. Total Fish Caught and Kept, 2000 to 2016.
(Selected years)

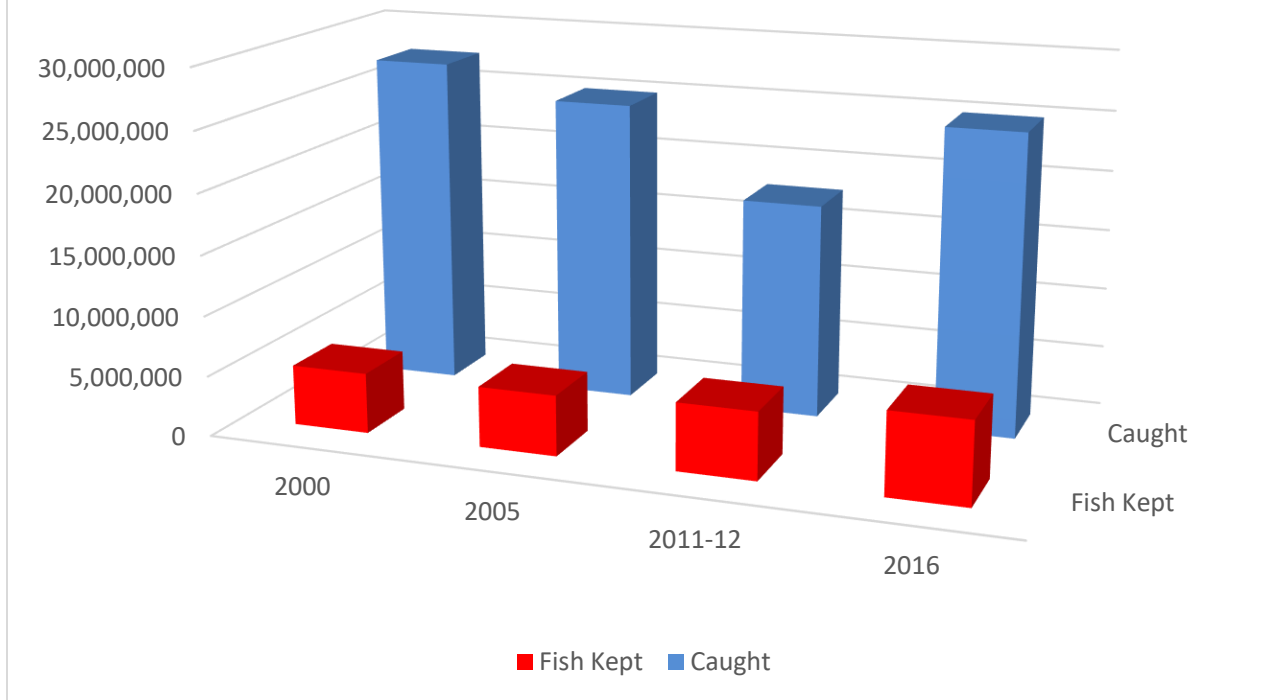


Figure 5-2 shows the total number of fish caught and kept by species group during the 2016 study period. As in past years, trout are by far the most commonly caught and kept species. Significant numbers of bass and panfish are also caught and kept, with lower numbers reported for whitefish, catfish, and pike species, respectively. Figure 5-3 breaks these data down into catch and harvest levels by reporting period (i.e., month). As expected, catch and harvest rates closely track overall angler activity, with more fish caught and kept in summer months when fishing pressure is greatest. Figure 5-4 shows fish catch levels across DWR's five Fishing Management Regions (see Figure 4-7). As with angler trips and angler days, most fish are caught in the Central and Northern Regions, with trout by far the most reported species.

Figure 5-2. Species Groups included in the Periodic Survey.

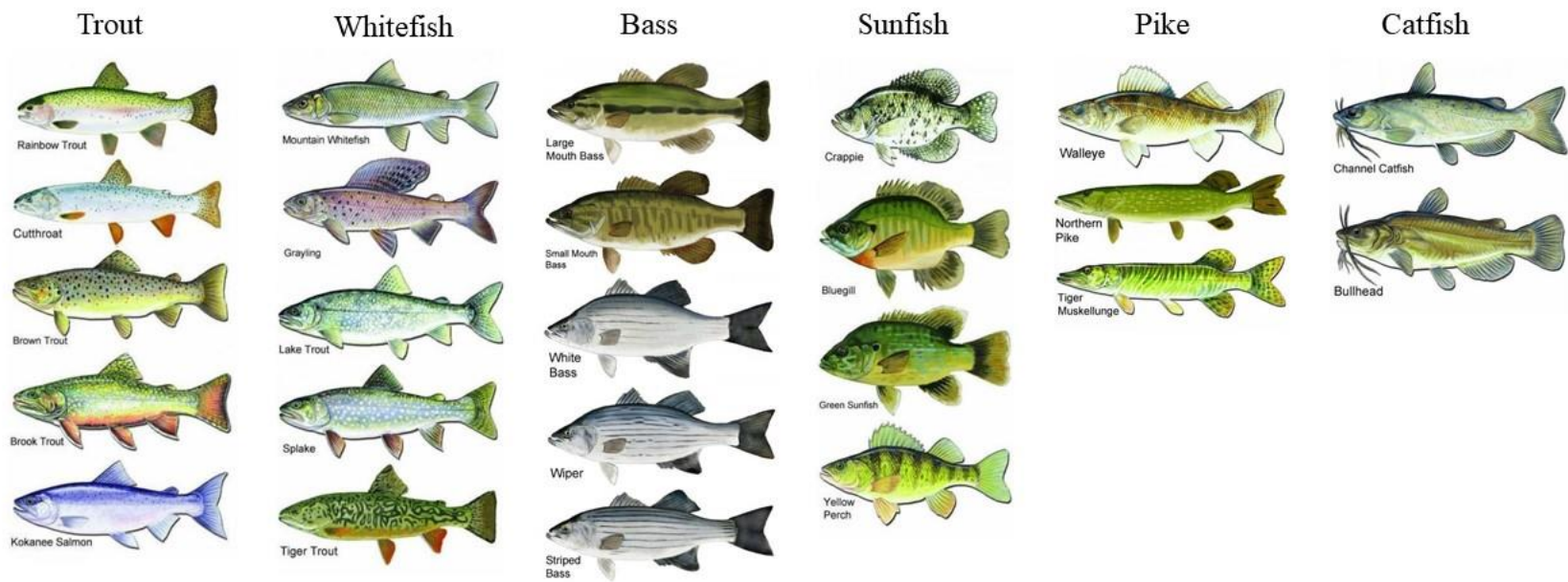


Figure 5-2. Total Fish Caught and Kept by Species Group, 2016.
(Scaled to estimate activity for all anglers)

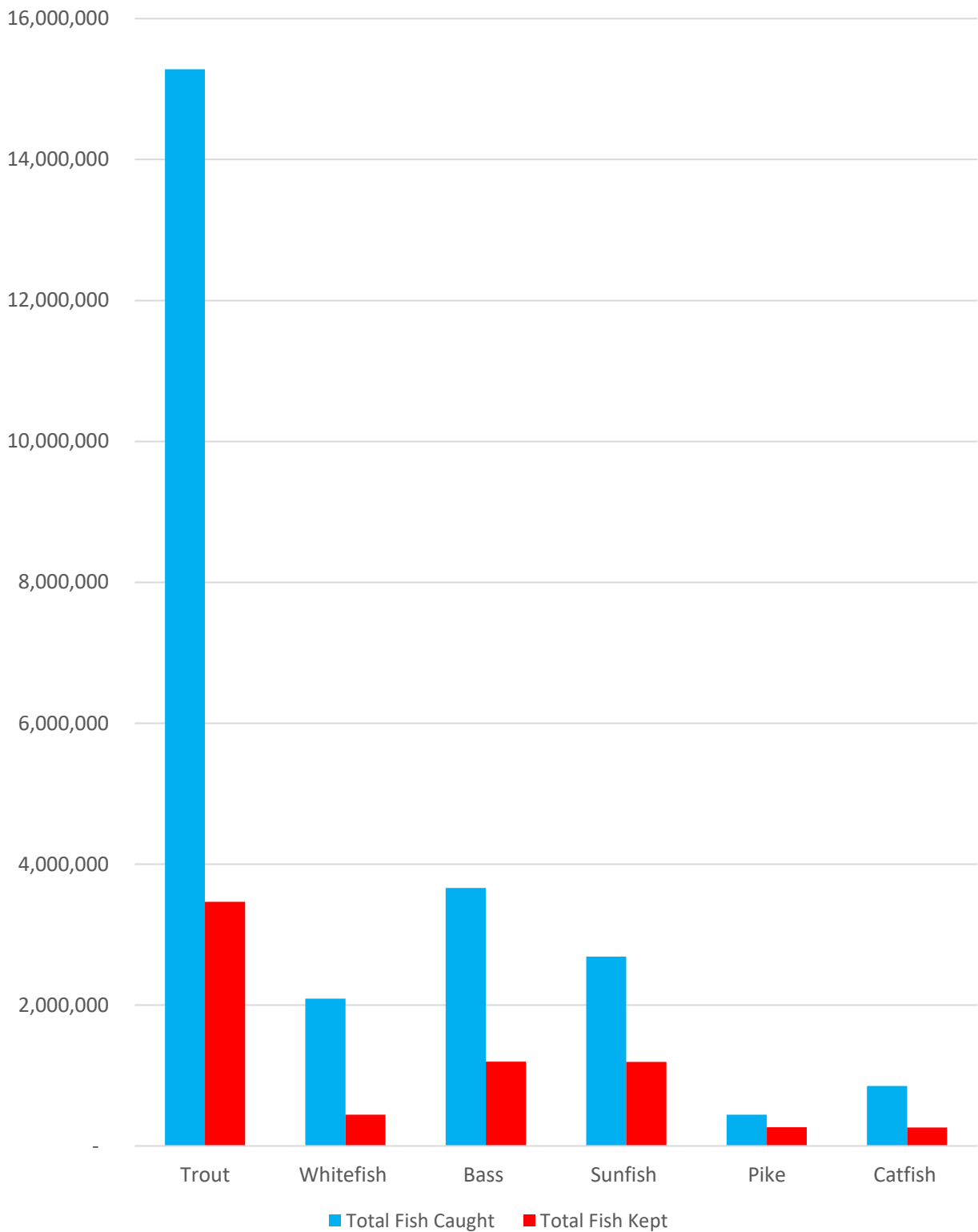
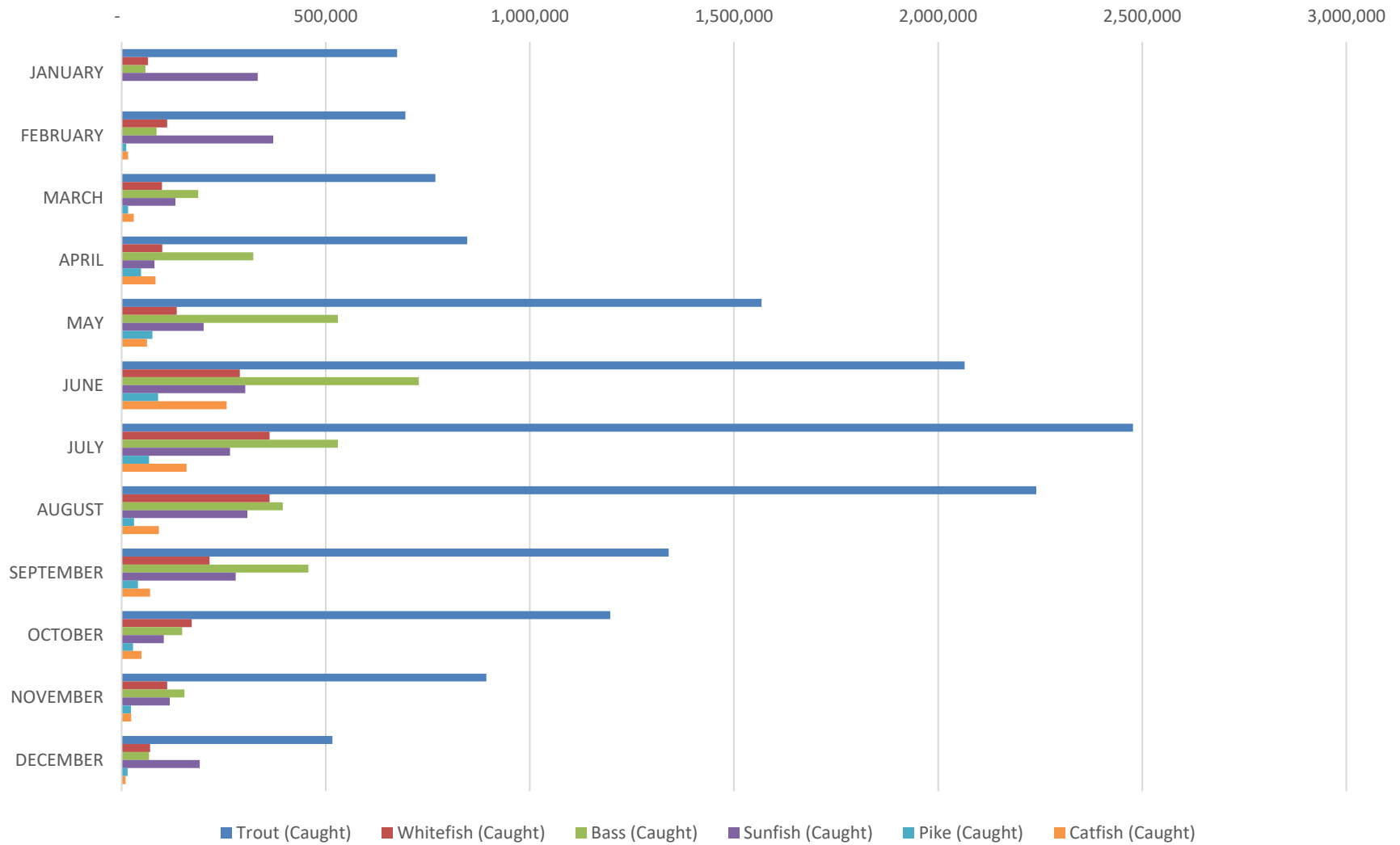


Figure 5-3. Total Fish Caught by Species Group and Month, 2016.
(Scaled to estimate activity for all anglers)



Tables 5-1 through 5-6 show fish caught/kept data by species group, species, and month. As described earlier, these data are scaled up to estimate catch and harvest data for all licensed anglers in 2016. Also note that all species-level data were further modified by apportioning aggregate species group data across within-group species based on angler responses.³

Across the six species groups, the highest keep rates were reported for Walleye (68%), Striped Bass (65%), Yellow Perch (59%), Kokanee Salmon (47%), Wiper (44%), Lake Trout (43%), and Crappie (42%). Among Trout (and excluding Kokanee Salmon), Rainbow Trout had the highest keep rates at 30%, followed by Brook Trout at 23%. For Catfish, Channel Catfish were preferred over Bullhead (35% and 23%, respectively). Species with the lowest keep rates were Mountain Whitefish (3%), Tiger Muskellunge (3%), and Brown Trout (9%).

³ In order to streamline the survey and thus shorten response time, anglers were asked to first identify the individual species caught within our six species groups, and then provide an estimate of the number of fish by species group that were caught and kept (for Trout, see Questions 13A and 13B in Appendix A). This approach allowed us to gather species-level information while having respondents recall catch/harvest data for six species groups instead of 24 individual species. In cases where a single species was identified as being caught within a species group, all fish caught/kept in the species group were assigned to that individual species. If two or more species within a species group were caught, then the species group catch/kept data were equally apportioned across the species. While this tradeoff was made to increase response rates, most anglers reported catching just one or two species within a species group, thereby limiting the potential for error at the species level.

Table 5-1. TROUT: Fish Caught/Kept by Month, 2016.

Month	Brook Trout (Caught)	Brook Trout (Kept)	Brook Trout Percent Kept	Brown Trout (Caught)	Brown Trout (Kept)	Brown Trout Percent Kept	Colorado River Cutthroat (Caught)	Colorado River Cutthroat (Kept)	Colorado River Cutthroat Percent Kept	Rainbow Trout (Caught)	Rainbow Trout (Kept)	Rainbow Trout Percent Kept	Kokanee Salmon (Caught)	Kokanee Salmon (Kept)	Kokanee Salmon Percent Kept
JANUARY	4,596	699	15%	82,431	7,517	9%	144,094	19,393	13%	442,408	134,442	30%	1,151	192	17%
FEBRUARY	6,077	1,688	28%	174,793	9,492	5%	120,395	15,753	13%	393,172	111,587	28%	365	365	100%
MARCH	7,552	3,342	44%	300,244	17,352	6%	71,266	8,433	12%	385,523	87,717	23%	4,079	533	13%
APRIL	6,872	-	0%	330,474	19,225	6%	71,701	7,986	11%	427,987	92,449	22%	9,301	2,910	31%
MAY	51,291	12,188	24%	433,707	43,745	10%	187,498	29,520	16%	850,991	254,609	30%	43,979	23,883	54%
JUNE	147,055	40,402	27%	436,034	61,797	14%	260,885	61,419	24%	1,132,090	371,799	33%	88,958	44,202	50%
JULY	245,032	43,426	18%	513,389	51,555	10%	390,963	92,398	24%	1,198,364	411,271	34%	129,847	64,875	50%
AUGUST	254,725	66,902	26%	385,388	30,832	8%	418,790	65,975	16%	1,085,754	342,409	32%	95,830	57,432	60%
SEPTEMBER	96,644	19,065	20%	285,253	34,320	12%	195,803	37,653	19%	720,404	216,760	30%	42,206	10,916	26%
OCTOBER	62,850	8,414	13%	309,559	20,700	7%	194,013	18,853	10%	612,176	156,601	26%	18,323	2,379	13%
NOVEMBER	34,197	2,705	8%	260,984	14,148	5%	171,832	14,840	9%	420,981	110,342	26%	5,557	614	11%
DECEMBER	4,525	2,624	58%	130,921	6,160	5%	97,180	12,773	13%	281,693	63,809	23%	2,161	-	0%
ALL	921,416	201,453	22%	3,643,177	316,844	9%	2,324,419	384,995	17%	7,951,544	2,353,796	30%	441,758	208,300	47%

Table 5-2. WHITEFISH: Fish Caught/Kept by Month, 2016.

Month	Mountain Whitefish (Caught)	Mountain Whitefish (Kept)	Mountain Whitefish Percent Kept	Grayling (Caught)	Grayling (Kept)	Grayling Percent Kept	Lake Trout (Caught)	Lake Trout (Kept)	Lake Trout Percent Kept	Tiger Trout (Caught)	Tiger Trout (Kept)	Tiger Trout Percent Kept	Splake (Caught)	Splake (Kept)	Splake Percent Kept
JANUARY	8,814	-	0%	621	-	0%	12,923	2,903	22%	24,059	8,720	36%	18,484	6,620	36%
FEBRUARY	32,064	372	1%	2,111	844	40%	29,765	12,918	43%	11,451	4,698	41%	35,945	15,248	42%
MARCH	64,711	-	0%	-	-	0%	11,345	842	7%	15,745	4,125	26%	7,040	3,181	45%
APRIL	63,686	572	1%	-	-	0%	22,603	9,063	40%	11,635	2,098	18%	1,342	572	43%
MAY	40,749	2,623	6%	5,588	931	17%	36,956	8,050	22%	41,158	9,093	22%	10,514	3,356	32%
JUNE	46,704	1,055	2%	38,979	6,978	18%	79,959	44,974	56%	106,219	25,830	24%	17,543	2,711	15%
JULY	80,985	505	1%	53,144	3,092	6%	75,643	25,523	34%	142,275	39,441	28%	10,269	2,120	21%
AUGUST	64,851	355	1%	28,018	3,379	12%	47,997	26,148	54%	206,921	43,703	21%	14,507	5,016	35%
SEPTEMBER	32,810	644	2%	16,118	2,632	16%	60,031	42,394	71%	99,920	15,893	16%	6,652	1,530	23%
OCTOBER	56,420	7,212	13%	21,015	7,129	34%	24,485	3,929	16%	64,243	10,520	16%	5,372	2,100	39%
NOVEMBER	58,717	5,662	10%	-	-	0%	11,856	2,123	18%	39,926	7,044	18%	944	944	100%
DECEMBER	37,157	863	2%	1,676	745	44%	6,769	440	7%	16,500	4,378	27%	7,588	-	0%
ALL	587,666	19,865	3%	167,270	25,731	15%	420,331	179,307	43%	780,051	175,542	23%	136,199	43,398	32%

Table 5-3. BASS: Fish Caught/Kept by Month, 2016.

Month	Large Mouth Bass (Caught)	Large Mouth Bass (Kept)	Large Mouth Bass Percent Kept	Small Mouth Bass (Caught)	Small Mouth Bass (Kept)	Small Mouth Bass Percent Kept	White Bass (Caught)	White Bass (Kept)	White Bass Percent Kept	Wiper (Caught)	Wiper (Kept)	Wiper Percent Kept	Striped Bass (Caught)	Striped Bass (Kept)	Striped Bass Percent Kept
JANUARY	14,499	5,747	40%	7,912	4,506	57%	27,615	20,719	75%	-	-	#DIV/0!	8,545	8,412	98%
FEBRUARY	18,067	1,265	7%	12,009	1,781	15%	24,819	2,003	8%	844	844	100%	29,535	26,186	89%
MARCH	91,589	5,658	6%	34,014	17,298	51%	9,899	468	5%	14,070	3,997	28%	37,668	30,016	80%
APRIL	141,622	31,864	22%	53,789	21,853	41%	12,639	2,419	19%	53,062	25,555	48%	61,654	31,680	51%
MAY	151,441	36,257	24%	102,533	40,295	39%	99,907	39,689	40%	77,533	32,687	42%	98,532	56,767	58%
JUNE	209,535	29,088	14%	253,587	72,754	29%	64,190	23,384	36%	87,806	39,087	45%	112,891	73,088	65%
JULY	100,298	9,098	9%	267,977	29,406	11%	22,487	2,017	9%	32,767	15,777	48%	106,104	55,573	52%
AUGUST	84,900	17,230	20%	194,184	26,259	14%	14,082	1,598	11%	25,623	16,178	63%	75,759	59,965	79%
SEPTEMBER	149,095	13,863	9%	171,645	22,220	13%	10,415	3,300	32%	46,618	17,801	38%	79,929	51,481	64%
OCTOBER	39,410	20,082	51%	44,555	21,889	49%	3,565	1,258	35%	29,208	13,669	47%	31,443	20,889	66%
NOVEMBER	50,674	10,368	20%	49,716	18,477	37%	1,887	-	0%	9,183	2,199	24%	42,374	26,821	63%
DECEMBER	21,719	5,394	25%	9,819	6,473	66%	2,626	1,313	50%	13,130	4,202	32%	19,857	17,590	89%
ALL	1,072,850	185,917	17%	1,201,741	283,211	24%	294,132	98,168	33%	389,845	171,998	44%	704,292	458,469	65%

Table 5-4. SUNFISH: Fish Caught/Kept by Month, 2016.

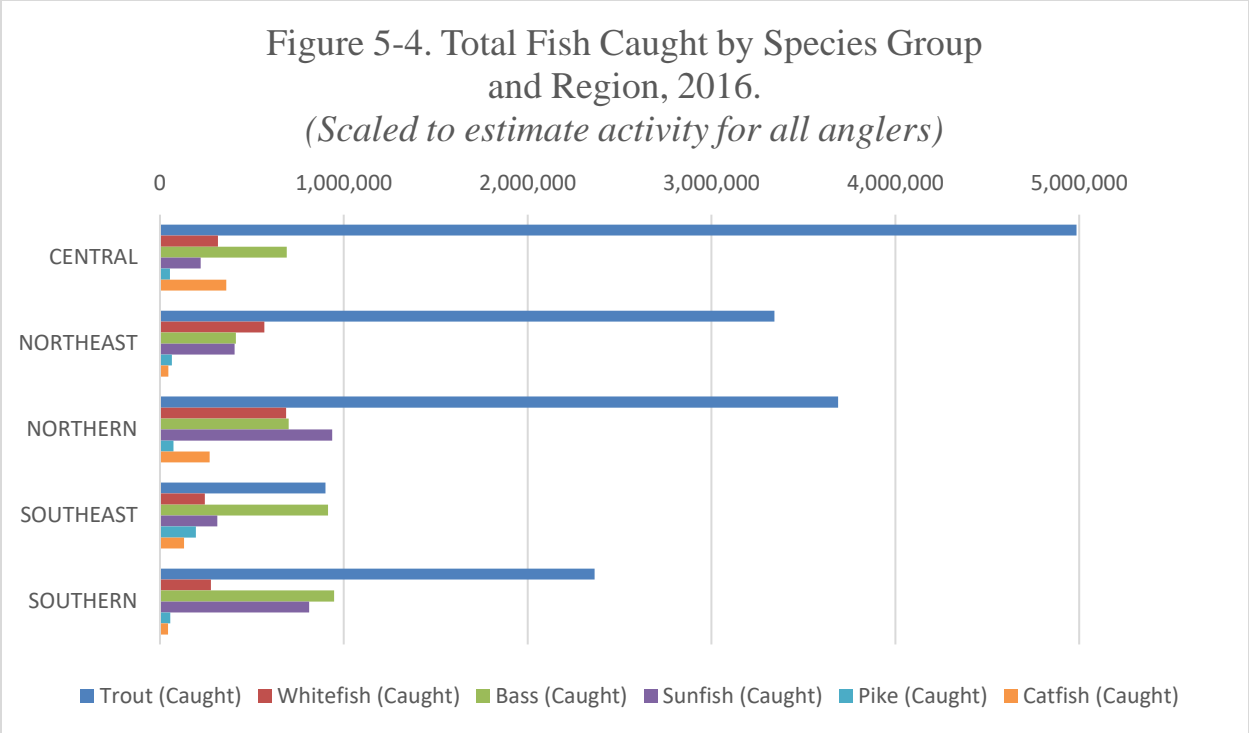
Month	Crappie (Caught)	Crappie (Kept)	Crappie Percent Kept	Bluegill (Caught)	Bluegill (Kept)	Bluegill Percent Kept	Green Sunfish (Caught)	Green Sunfish (Kept)	Green Sunfish Percent Kept	Yellow Perch (Caught)	Yellow Perch (Kept)	Yellow Perch Percent Kept
JANUARY	30,772	19,371	63%	26,540	10,467	39%	12,220	5,541	45%	263,617	156,966	60%
FEBRUARY	35,819	10,357	29%	52,888	27,930	53%	2,111	-	0%	280,670	223,682	80%
MARCH	20,843	8,272	40%	21,303	1,375	6%	2,013	-	0%	87,598	64,624	74%
APRIL	47,873	26,339	55%	20,495	1,020	5%	5,270	-	0%	7,032	4,290	61%
MAY	46,599	21,378	46%	103,600	13,801	13%	13,826	-	0%	36,689	27,008	74%
JUNE	50,044	15,563	31%	162,226	21,705	13%	25,858	7,885	30%	64,750	32,565	50%
JULY	37,415	7,015	19%	115,740	16,977	15%	12,967	2,043	16%	99,397	45,403	46%
AUGUST	41,227	7,745	19%	88,553	44,859	51%	15,508	8,052	52%	162,728	89,006	55%
SEPTEMBER	24,100	4,006	17%	88,844	10,553	12%	43,780	3,744	9%	122,675	35,062	29%
OCTOBER	20,431	14,326	70%	22,135	3,548	16%	4,947	2,085	42%	55,711	17,291	31%
NOVEMBER	63,635	38,634	61%	14,032	6,189	44%	3,932	-	0%	35,971	16,672	46%
DECEMBER	2,697	2,697	100%	51,369	30,208	59%	3,848	2,697	70%	133,660	84,831	63%
ALL	421,455	175,701	42%	767,725	188,632	25%	146,282	32,047	22%	1,350,498	797,402	59%

Table 5-5. PIKE: Fish Caught/Kept by Month, 2016.

Month	Walleye (Caught)	Walleye (Kept)	Walleye (Kept)	Northern Pike (Caught)	Northern Pike (Kept)	Northern Pike (Kept)	Tiger Muskellunge (Caught)	Tiger Muskellunge (Kept)	Tiger Muskellunge (Kept)
JANUARY	1,583	1,583	100%	-	-	0%	1,243	1,243	100%
FEBRUARY	10,665	7,262	68%	-	-	0%	507	-	0%
MARCH	13,430	8,114	60%	2,620	-	0%	-	-	0%
APRIL	44,956	32,061	71%	2,470	-	0%	-	-	0%
MAY	68,650	59,932	87%	3,830	2,352	61%	2,783	-	0%
JUNE	73,734	35,077	48%	9,437	549	6%	5,948	-	0%
JULY	49,705	28,241	57%	3,751	529	14%	13,557	-	0%
AUGUST	28,809	16,683	58%	533	533	100%	1,336	-	0%
SEPTEMBER	36,577	25,811	71%	-	-	0%	3,305	-	0%
OCTOBER	23,805	22,024	93%	1,610	1,073	67%	2,757	-	0%
NOVEMBER	16,483	12,190	74%	-	-	0%	6,125	-	0%
DECEMBER	12,454	11,666	94%	1,726	-	0%	647	-	0%
ALL	380,851	260,644	68%	25,977	5,036	19%	36,964	1,243	3%

Table 5-6. CATFISH: Fish Caught/Kept by Month, 2016.

Month	Bullhead (Caught)	Bullhead (Kept)	Bullhead Percent Kept	Channel Catfish (Caught)	Channel Catfish (Kept)	Channel Catfish Percent Kept
JANUARY	-	-	0%	528	528	100%
FEBRUARY	416	-	0%	15,339	11,055	72%
MARCH	7,533	1,629	22%	22,531	2,828	13%
APRIL	34,707	5,291	15%	48,530	13,092	27%
MAY	19,475	11,988	62%	42,465	23,491	55%
JUNE	81,716	26,370	32%	175,432	82,038	47%
JULY	35,543	6,262	18%	123,288	21,446	17%
AUGUST	33,858	3,552	10%	57,072	14,951	26%
SEPTEMBER	22,585	3,620	16%	47,345	11,418	24%
OCTOBER	15,316	2,546	17%	33,491	14,910	45%
NOVEMBER	13,331	-	0%	10,384	2,126	20%
DECEMBER	1,050	-	0%	8,387	4,100	49%
ALL	265,530	61,259	23%	584,792	201,983	35%



Angler Catch and Harvest Data by Species and Region

Figures 5-5 through 5-9 show total fish caught and kept by species and DWR Fishing Management Region. These data have been scaled up to estimate catch and release for all anglers fishing in Utah waters during 2016. (See “Section 2: Research Procedures” for a description of scaling methodology.)

In all Regions, trout species are by far the most caught species. The greatest harvest levels are reported by anglers in the Central and Northern Regions, followed by the Northeast, Southern, and Southeast Regions, respectively. Rainbow, Brown, and Colorado River Cutthroat Trout are the most frequently caught species, especially in the Central and two northern regions. In the Southeast and Southern Regions (Figures 5-8 and Figure 5-9, respectively), a significant proportion of catch were reported for warmwater species such as bass, perch and walleye.

Figure 5-5. Fish Species Caught and Kept, Central Region, 2016.
(Scaled to estimate activity for all anglers)

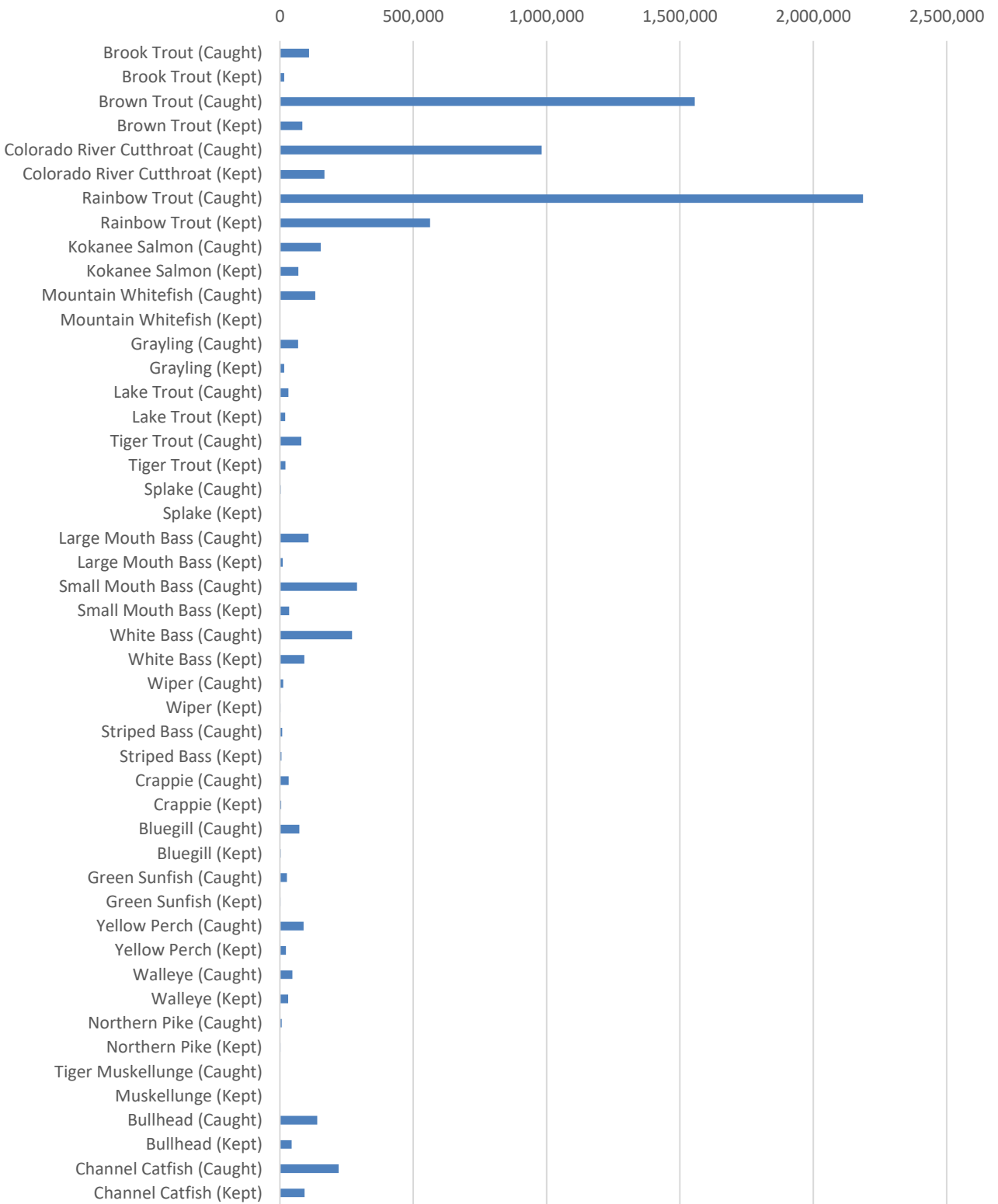


Figure 5-6. Fish Species Caught and Kept, Northeast Region, 2016.
(Scaled to estimate activity for all anglers)

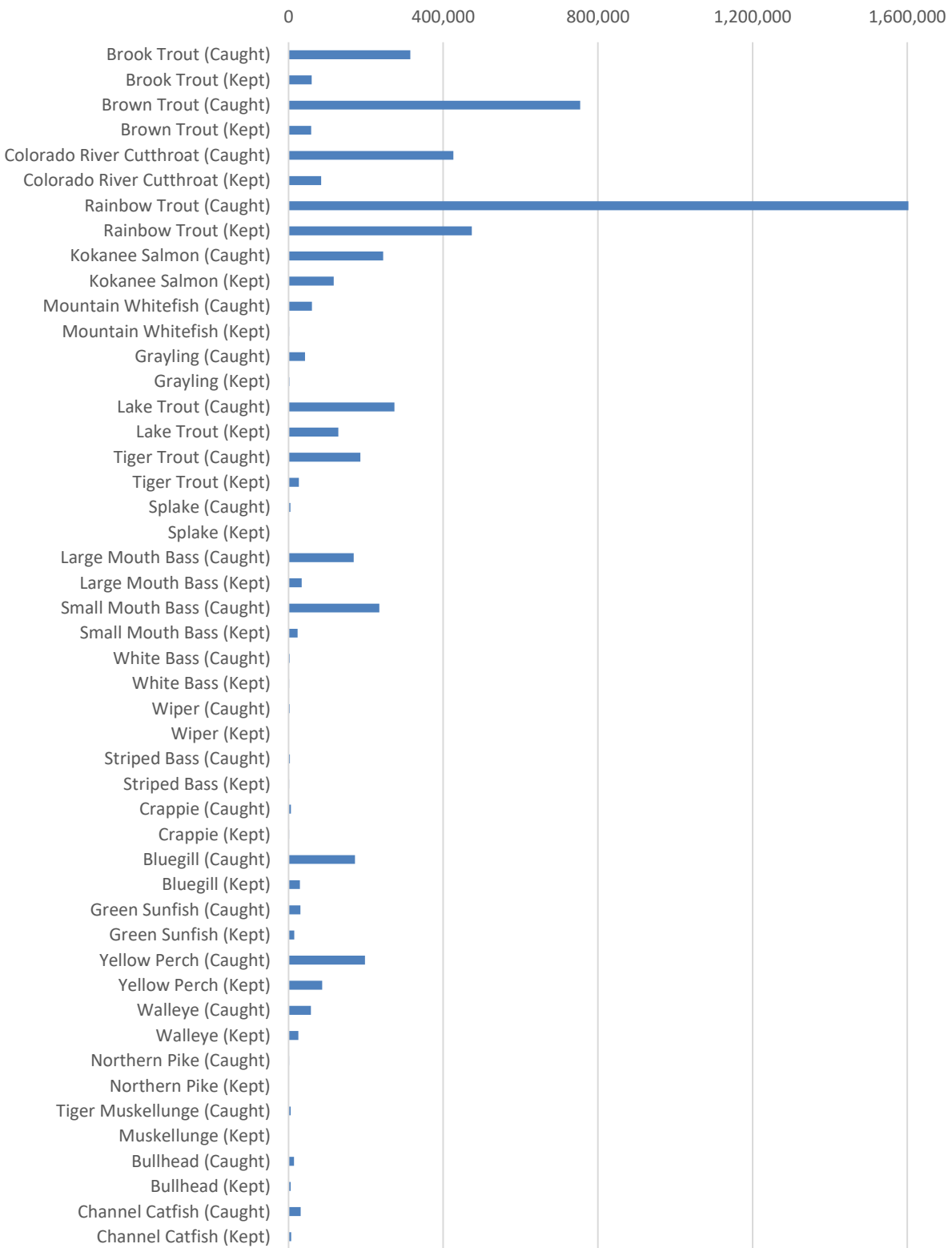


Figure 5-7. Fish Species Caught and Kept, Northern Region, 2016.
(Scaled to estimate activity for all anglers)

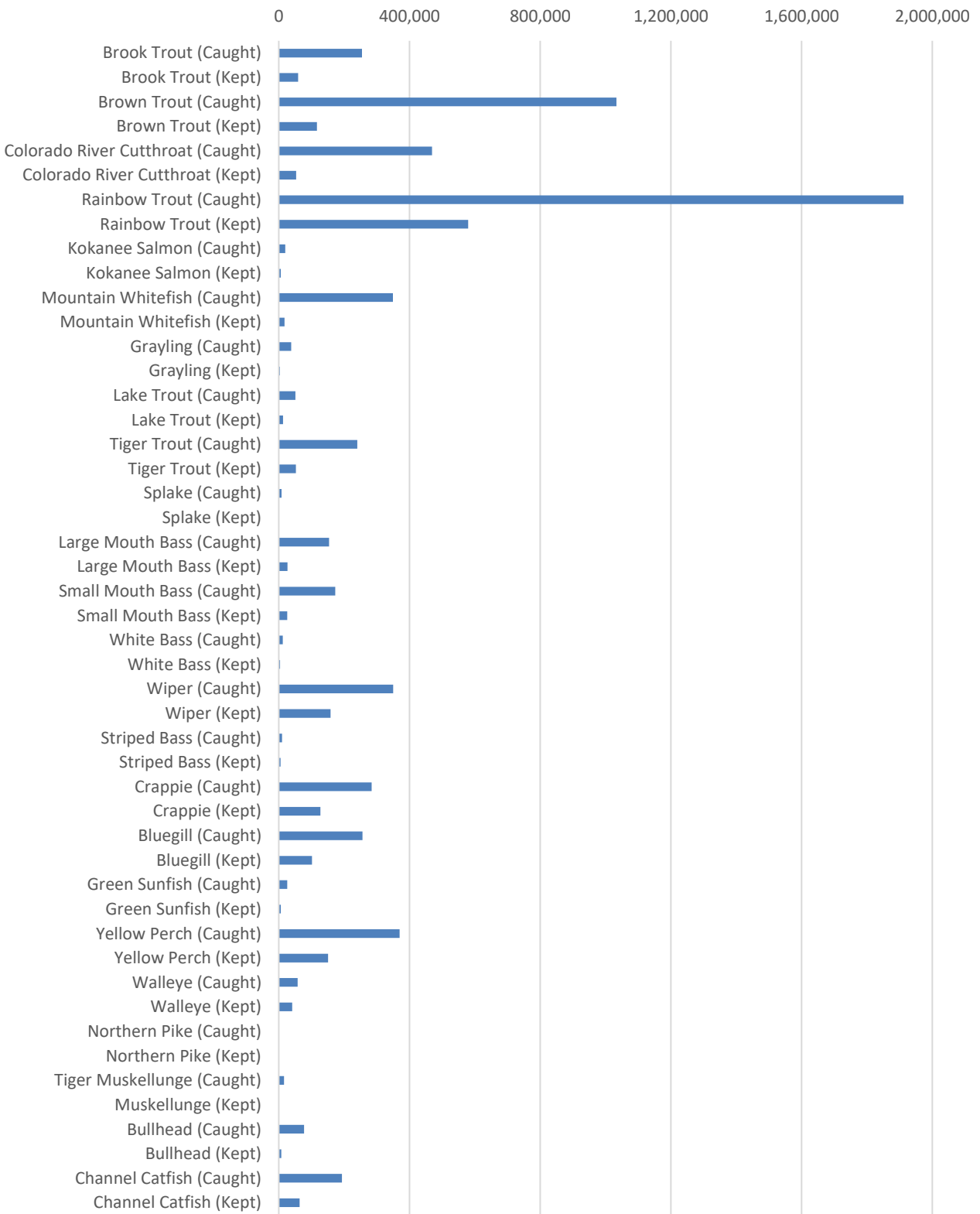


Figure 5-8. Fish Species Caught and Kept, Southeast Region, 2016.
(Scaled to estimate activity for all anglers)

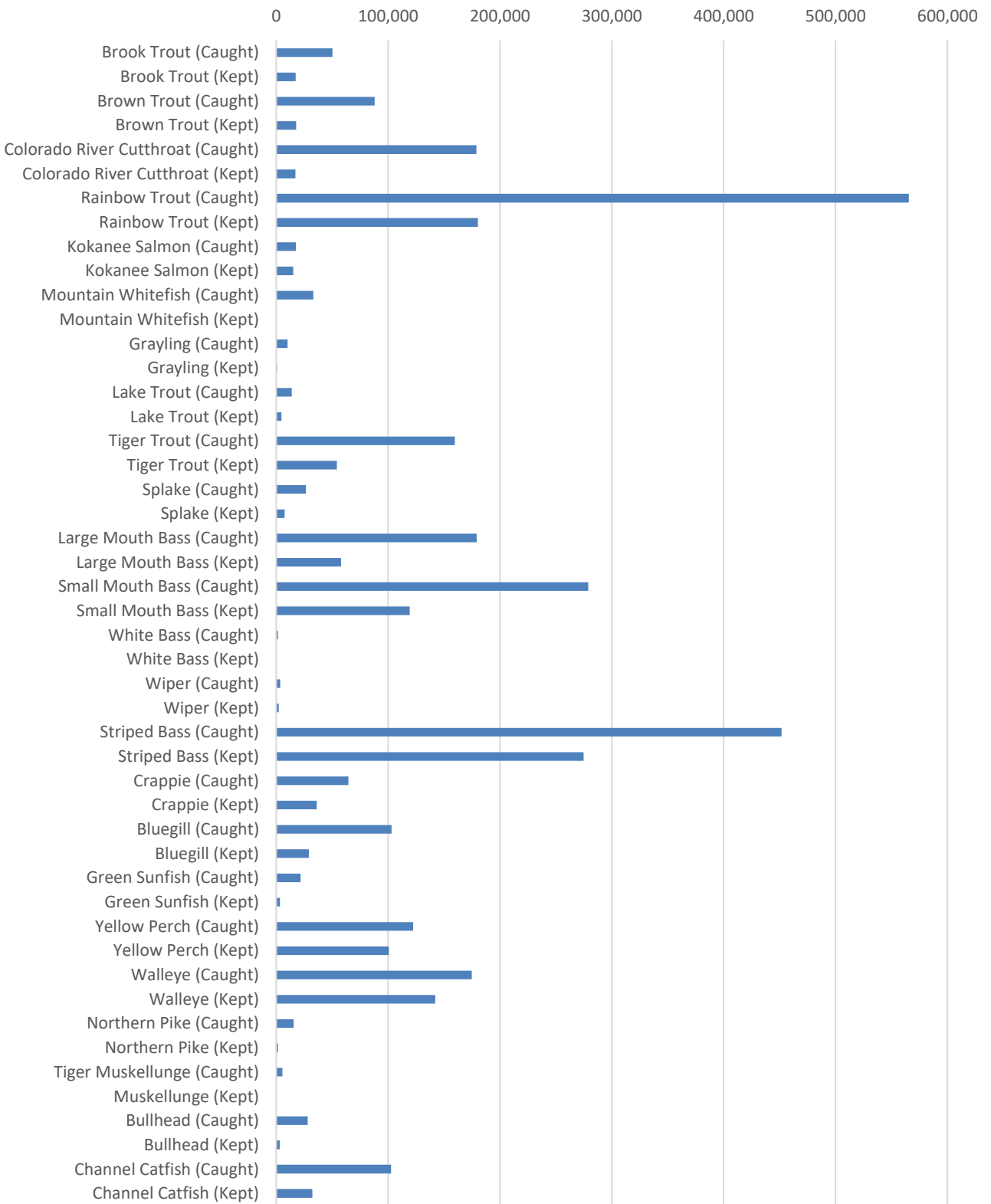
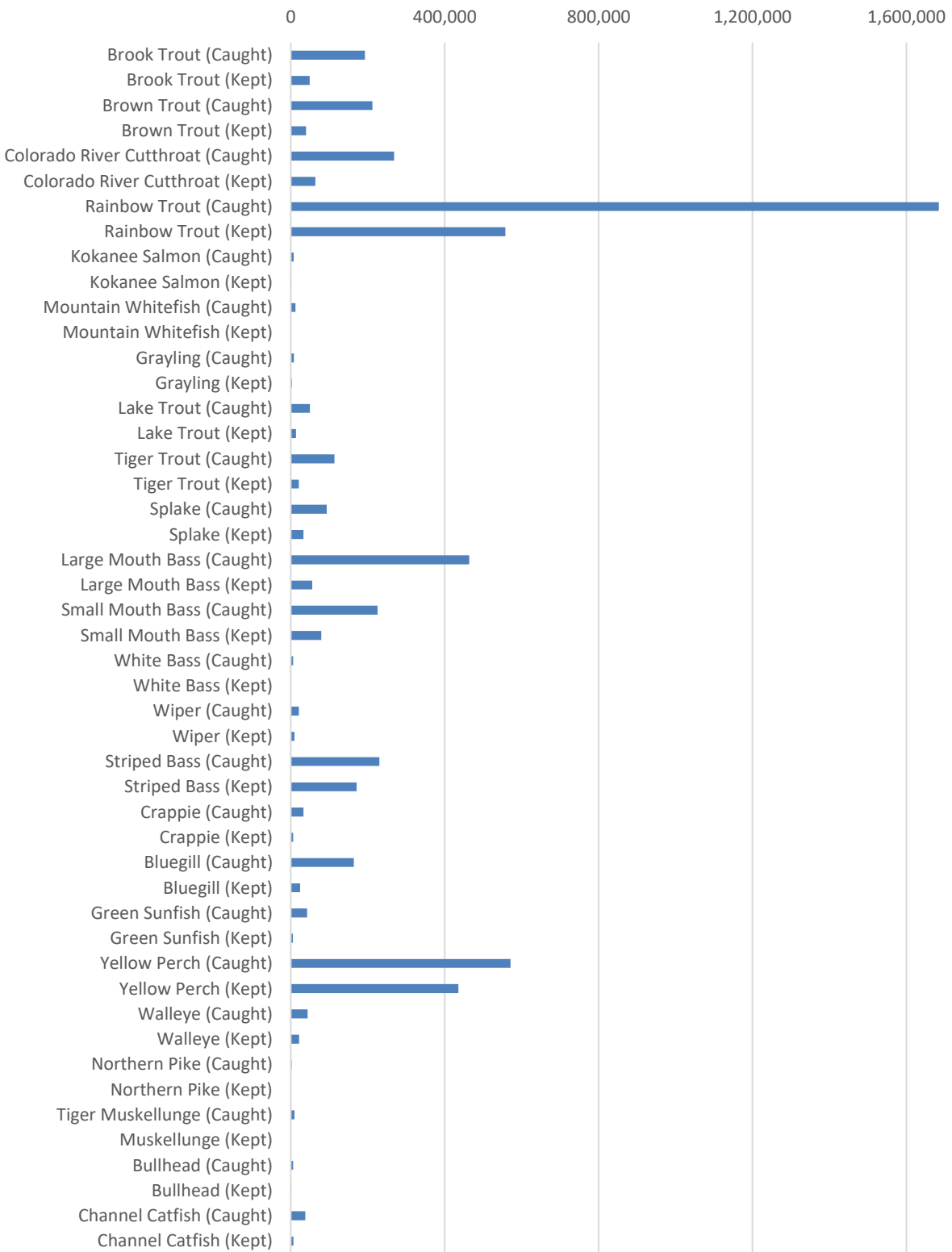


Figure 5-9. Fish Species Caught and Kept, Southern Region, 2016.
(Scaled to estimate activity for all anglers)



Angler Catch/Keep Data by Species Group and Waterbody

Figures 5-10 through 5-14 show scaled up fish catch levels by six broad species groups (see Figure 5-2 for individual fish species within each species group). In the Central Region, trout species are most-often caught, with major fishing waterways including Strawberry Reservoir, Middle and Lower Provo River, and “Other” (Figure 5-10). Utah Lake stands out as an important fishery for bass and catfish.

In the Northern Region, major trout fisheries include the High Uintas (south slope), Green River, Flaming Gorge, Strawberry River, Starvation Reservoir, and “Other” (Figure 5-11). At all these locations, trout are the dominant species caught. In this Region, important whitefish fisheries include Flaming Gorge, the High Uintas, and “Other.” Important warmwater fisheries include Pelican Lake and Starvation Reservoir.

In the Northeast Region, key trout fisheries include “Other,” the Weber River, and the High Uintas (North Slope) (Figure 5-12). Willard Bay is noteworthy for its bass and diversity of other species groups. In the Southeast Region, Lake Powell – as commonly accessed via Bullfrog, Hall’s Crossing, or Hite Marina – is by far the dominant fishery, with a wide diversity of species groups being caught (Figure 5-13). In the Southern Region, Fish Lake, Lake Powell (as accessed via Wahweap and Antelope Point), Otter Creek, and Panguitch Lake are important fishing locales (Figure 5-14). Lake Powell and Sand Hollow are important bass fisheries, as is Fish Lake for sunfish.

Angler Catch/Keep Data by Species and Waterbody

Tables 5-7 through 5-11 show angler catch and percent harvest by Region and waterbody. As in the previous section, these data have been scaled to estimate catch and harvest for all licensed anglers during 2016 (see footnote 3).

Figure 5-10. Central Region: Fish Caught by Waterbody and Species Group, 2016.
(Scaled to estimate activity for all anglers)

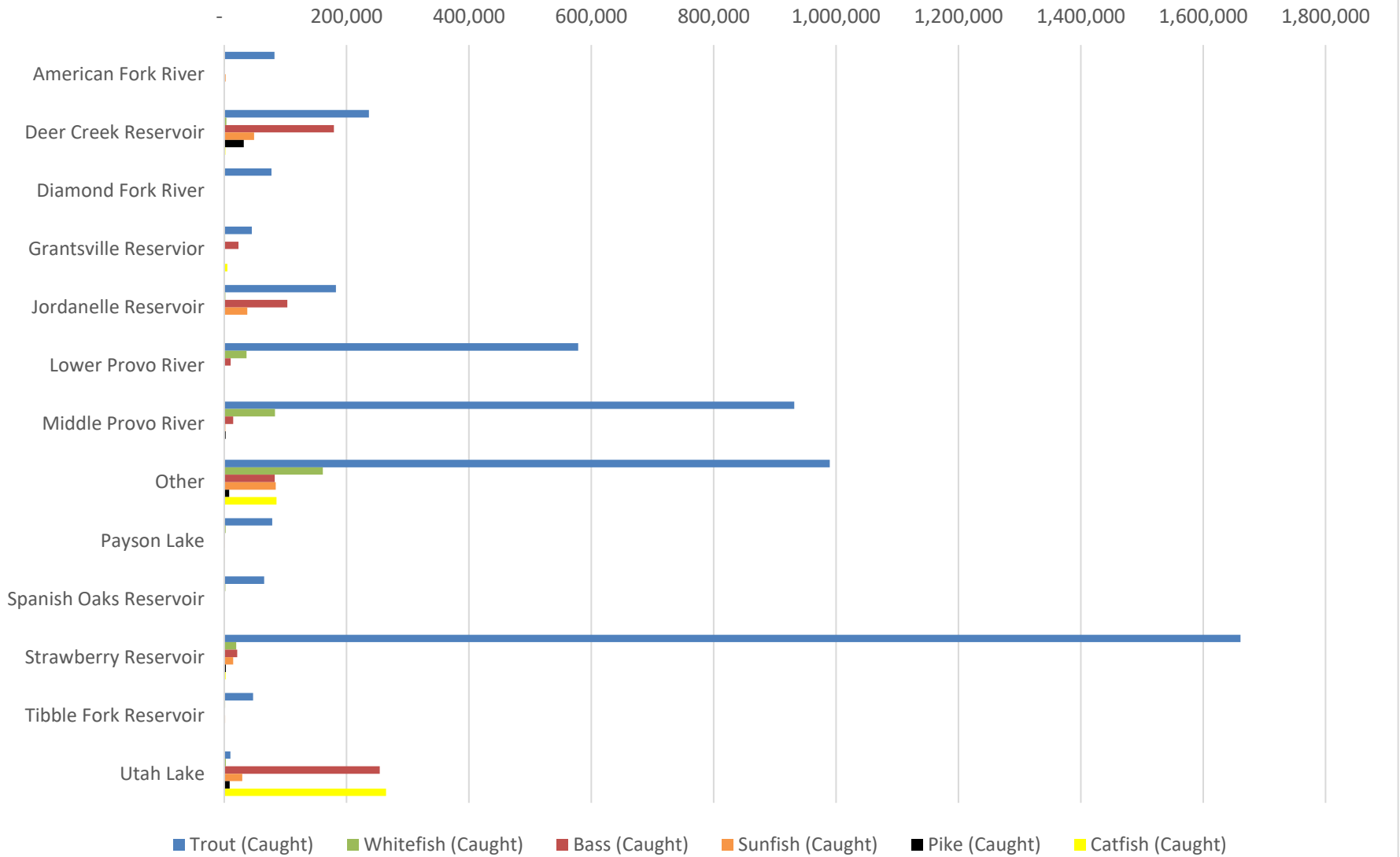


Figure 5-11. Northeast Region: Fish Caught by Waterbody and Species Group, 2016.
(Scaled to estimate activity for all anglers)

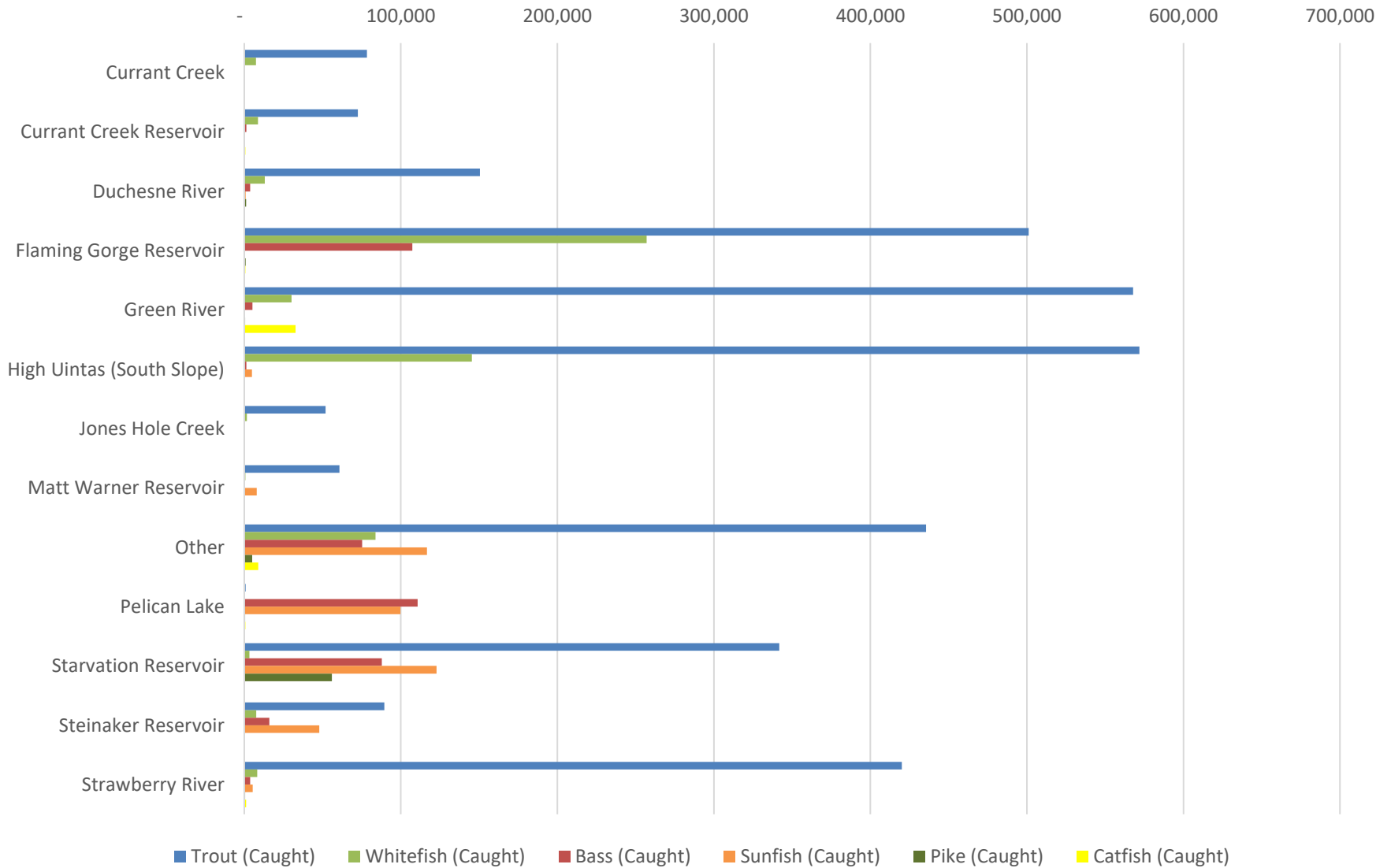


Figure 5-12. Northern Region: Fish Caught by Waterbody and Species Group, 2016.
(Scaled to estimate activity for all anglers)

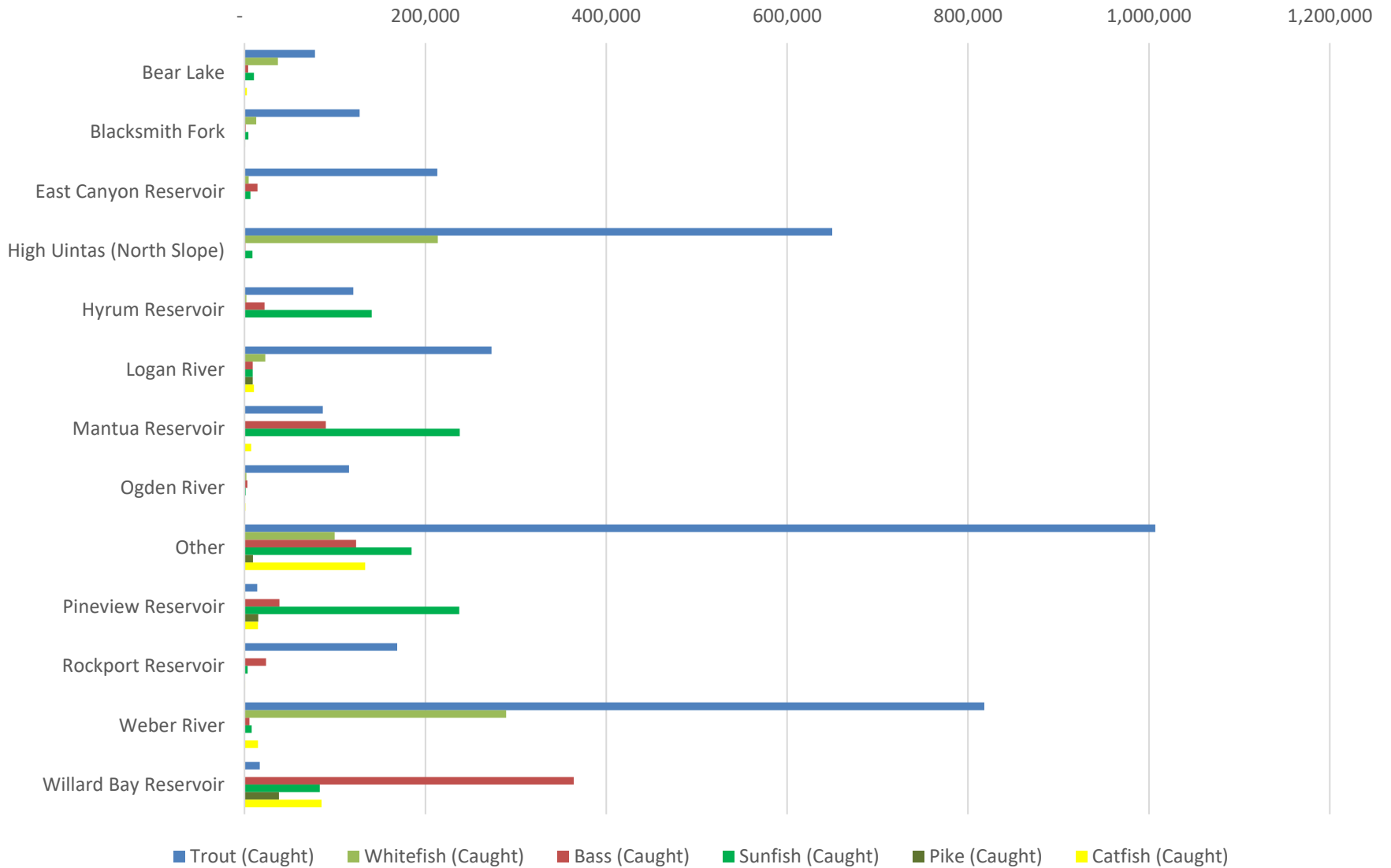


Figure 5-13. Southeast Region: Fish Caught by Waterbody and Species Group, 2016.
(Scaled to estimate activity for all anglers)

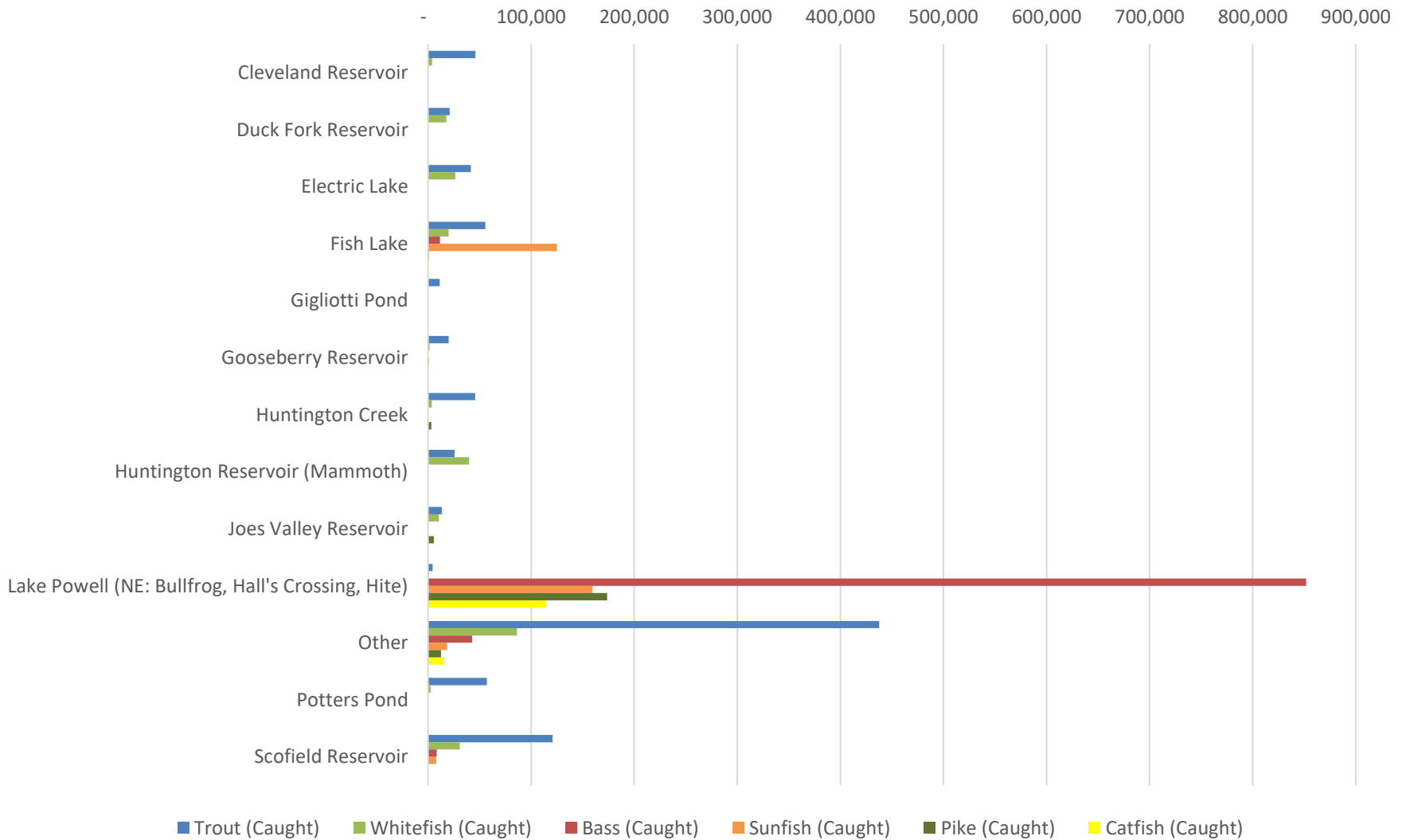


Figure 5-14. Southern Region: Fish Caught by Waterbody and Species Group, 2016.
(Scaled to estimate activity for all anglers)

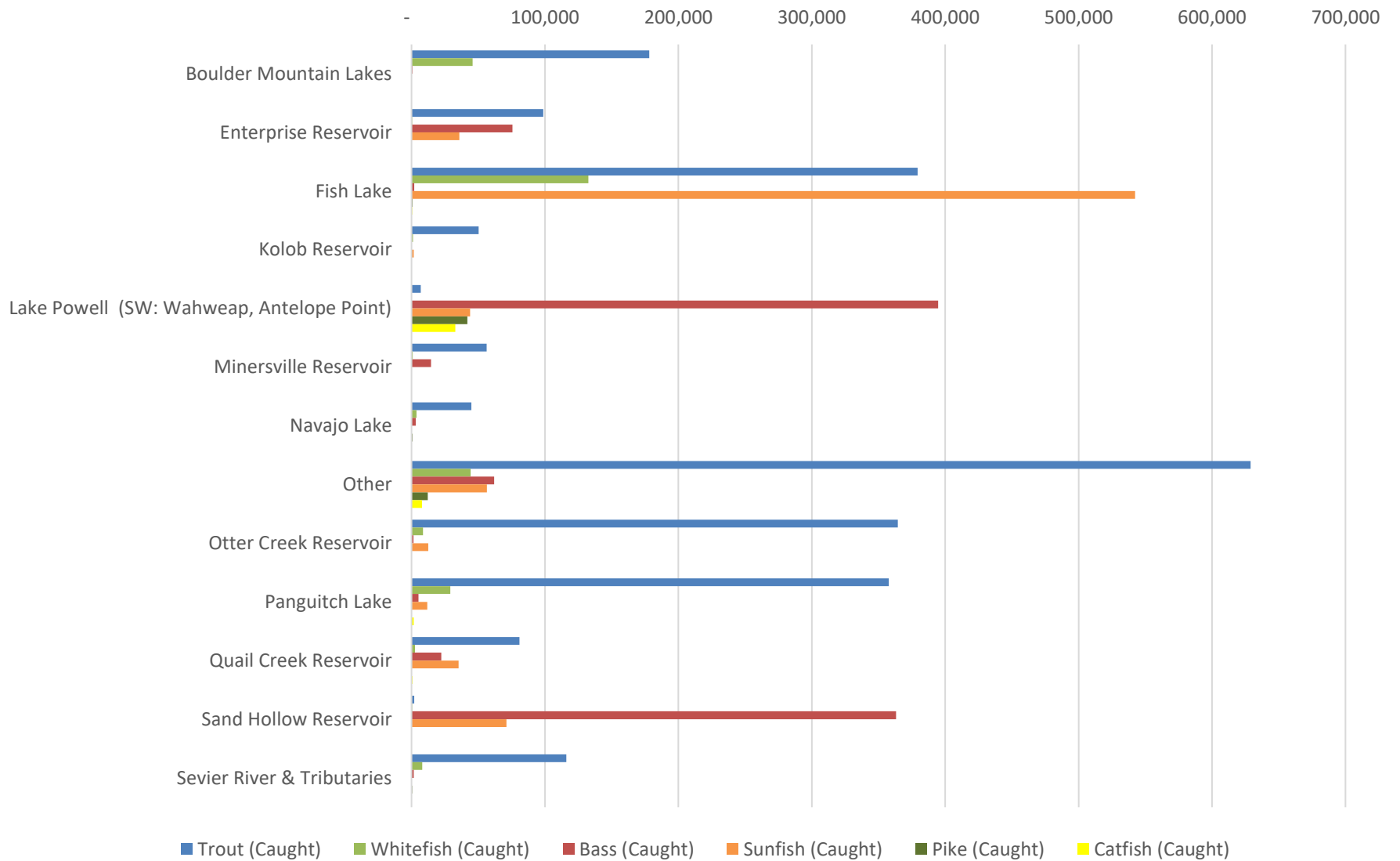


Table 5-7. CENTRAL REGION: Angler Catch and Percent Harvest by Species and Waterbody, 2016.

Waterbody	Brook Trout		Brown Trout		Colorado River Cutthroat		Rainbow Trout		Kokanee Salmon		Mountain Whitefish		Grayling		Lake Trout		Tiger Trout		Splake		Large Mouth Bass		Small Mouth Bass		White Bass			
	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept		
01 - CENTRAL																												
American Fork River	1,712	-	39,813	8	4,503	-	36,009	14	-	-	749	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Deer Creek Reservoir	1,410	13	18,470	44	7,722	40	206,910	37	2,005	-	1,055	-	-	-	1,530	42	-	-	891	100	41,687	3	135,314	6	2,066	23	-	-
Diamond Fork River	1,048	-	44,056	11	27,206	15	4,941	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grantsville Reservoir	-	-	7,786	33	3,271	39	34,037	42	-	-	-	-	-	-	710	100	621	100	-	-	-	-	21,272	63	1,948	100	-	-
Jordanelle Reservoir	3,680	13	34,534	16	9,913	41	133,720	34	528	-	-	-	931	100	756	100	-	-	-	-	1,970	-	101,007	3	-	-	-	-
Lower Provo River	5,939	-	412,996	4	5,067	-	154,437	3	-	-	29,628	-	-	-	531	-	6,189	11	-	-	-	-	1,319	-	9,287	-	-	-
Middle Provo River	13,725	6	728,561	2	18,703	5	170,264	3	525	-	78,327	1	-	-	-	-	4,174	-	572	-	-	-	3,023	73	11,641	100	-	-
Other	73,044	13	235,368	10	86,836	9	594,474	32	-	-	19,013	-	65,995	23	14,276	68	61,242	31	528	-	26,315	11	16,869	6	20,668	-	-	-
Payson Lake	5,224	42	1,804	100	4,149	100	67,226	43	-	-	-	-	669	100	1,010	-	-	-	669	100	-	-	468	100	468	100	-	-
Spanish Oaks Reservoir	-	-	710	-	-	-	64,471	20	-	-	-	-	-	-	1,998	-	-	-	-	-	-	-	-	-	-	-	-	-
Strawberry Reservoir	2,451	100	17,605	15	809,977	17	681,444	24	149,591	46	3,439	-	-	-	7,651	98	8,319	8	288	-	6,104	61	3,008	29	10,905	6	-	-
Tibble Fork Reservoir	1,235	41	11,263	31	1,513	62	33,241	39	-	-	-	-	1,055	-	572	-	-	-	-	-	-	-	-	-	-	-	-	-
Utah Lake	-	-	2,183	-	2,500	37	5,566	56	-	-	-	-	-	-	2,490	-	-	-	-	-	31,293	10	7,244	73	213,769	36	-	-
01 - CENTRAL Total	109,468	14	1,555,150	5	981,360	17	2,186,739	26	152,649	45	132,211	1	68,651	24	31,524	61	80,546	26	2,947	53	107,369	10	289,525	12	270,754	34	-	-

Waterbody	Wiper		Striped Bass		Crappie		Bluegill		Green Sunfish		Yellow Perch		Walleye		Northern Pike		Tiger Muskeg		Bullhead		Channel Catfish			
	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept		
01 - CENTRAL																								
American Fork River	-	-	-	-	-	-	2,288	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Deer Creek Reservoir	-	-	-	-	1,392	41	3,541	-	3,476	64	40,524	38	31,980	70	-	-	-	-	2,042	-	-	-	-	-
Diamond Fork River	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grantsville Reservoir	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	792	100	4,222	100	-	-
Jordanelle Reservoir	-	-	-	-	-	-	-	-	-	-	37,475	12	-	-	-	-	-	-	-	-	-	-	-	-
Lower Provo River	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	489	100
Middle Provo River	-	-	-	-	1,107	-	815	-	-	-	-	-	2,096	62	-	-	-	-	-	-	-	-	-	-
Other	11,279	11	7,207	55	12,123	10	51,666	3	20,277	-	-	-	3,108	73	4,912	-	-	-	38,787	16	46,436	31	-	-
Payson Lake	-	-	-	-	312	100	312	100	-	-	312	100	-	-	-	-	-	-	-	-	-	-	561	100
Spanish Oaks Reservoir	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strawberry Reservoir	975	68	-	-	4,919	-	4,919	-	-	-	4,730	53	788	-	1,863	100	-	-	1,863	100	590	-	-	-
Tibble Fork Reservoir	-	-	-	-	1,430	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utah Lake	-	-	1,803	100	11,859	21	9,447	12	2,205	10	6,102	4	9,036	56	-	-	-	-	96,845	36	167,601	44	-	-
01 - CENTRAL Total	12,254	15	9,009	64	33,142	14	72,989	4	25,958	9	89,142	26	47,008	66	6,775	27	-	-	140,328	31	219,900	42	-	-

Table 5-8. NORTHERN REGION: Angler Catch and Percent Harvest by Species and Waterbody, 2016.

Waterbody	Brook Trout		Brown Trout		Colorado River Cutthroat		Rainbow Trout		Kokanee Salmon		Mountain Whitefish		Grayling		Lake Trout		Tiger Trout		Splake		Large Mouth Bass		Small Mouth Bass		White Bass			
	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept		
O2 - NORTHEAST																												
Currant Creek	2,797	72	39,121	11	10,535	27	25,873	26	-	-	6,314	-	-	-	-	-	1,208	74	-	-	-	-	-	-	-	-	-	-
Currant Creek Reservoir	-	-	4,923	16	23,480	44	44,110	40	-	-	2,273	-	-	-	-	-	6,471	38	-	-	-	-	-	-	-	-	-	-
Duchesne River	10,358	8	84,233	10	24,876	16	30,130	10	906	-	8,791	-	1,666	20	906	-	1,798	19	-	-	-	-	-	-	2,702	31	-	-
Flaming Gorge Reservoir	1,593	-	18,157	19	22,547	34	244,043	30	214,852	50	1,843	-	-	-	252,203	45	671	-	2,356	30	4,877	24	101,199	4	664	-	-	-
Green River	6,001	-	285,332	2	26,702	4	249,879	2	-	-	28,081	-	-	-	-	-	2,146	-	-	-	-	-	-	-	5,223	45	-	-
High Uintas (South Slope)	201,459	20	63,211	10	74,454	24	232,557	29	177	-	5,378	23	22,436	8	3,861	-	113,080	14	644	-	491	-	-	-	805	-	-	-
Jones Hole Creek	2,242	-	22,395	2	4,472	-	22,869	2	-	-	-	-	-	-	-	-	1,585	-	-	-	-	-	-	-	-	-	-	-
Matt Warner Reservoir	11,660	5	2,190	27	-	-	46,933	32	-	-	-	-	-	-	-	-	644	100	-	-	-	-	-	-	-	-	-	-
Other	66,939	21	44,858	16	101,643	13	213,472	33	8,603	41	4,961	-	17,287	-	6,941	95	53,814	12	756	-	38,463	1	34,780	1	-	-	-	-
Pelican Lake	-	-	-	-	394	-	394	-	-	-	-	-	-	-	-	-	-	-	-	-	105,414	22	4,025	-	-	-	-	-
Starvation Reservoir	1,913	100	26,773	41	13,559	31	297,444	50	2,177	32	787	-	-	-	1,543	100	891	100	-	-	3,219	-	82,432	19	2,201	60	-	-
Steinaker Reservoir	3,024	13	12,350	31	1,037	100	73,134	50	-	-	-	-	-	-	7,676	100	-	-	-	-	14,172	63	1,866	-	-	-	-	-
Strawberry River	6,775	-	150,967	4	122,695	18	121,851	24	17,864	24	1,887	-	1,055	-	466	-	3,688	-	1,171	-	1,863	-	1,863	-	-	-	-	-
O2 - NORTHEAST Total	314,761	19	754,510	8	426,393	20	1,602,687	30	244,578	48	60,315	2	42,445	5	273,596	47	185,995	14	4,928	14	168,499	20	234,896	10	2,865	46	-	-

Waterbody	Wiper		Striped Bass		Crappie		Bluegill		Green Sunfish		Yellow Perch		Walleye		Northern Pike		Tiger Muske- lunge		Bullhead		Channel Catfish			
	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept		
O2 - NORTHEAST																								
Currant Creek	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Currant Creek Reservoir	-	-	1,263	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	758	100
Duchesne River	-	-	1,007	-	-	-	844	100	-	-	-	-	1,351	100	-	-	-	-	604	-	-	-	-	-
Flaming Gorge Reservoir	596	-	-	-	-	-	-	-	-	-	-	-	-	-	820	65	-	-	-	-	-	-	758	-
Green River	-	-	-	-	-	-	-	-	-	-	-	-	-	-	537	-	-	-	-	-	12,601	42	20,154	30
High Uintas (South Slope)	-	-	-	-	1,208	100	1,208	100	1,208	100	1,208	100	-	-	-	-	-	-	-	-	-	-	-	-
Jones Hole Creek	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Matt Warner Reservoir	-	-	-	-	-	-	7,915	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	1,995	-	-	-	-	-	37,135	-	815	-	78,791	25	533	-	-	-	4,506	-	489	-	-	-	8,467	-
Pelican Lake	-	-	1,319	-	3,143	-	72,660	19	23,941	37	-	-	-	-	-	-	549	-	-	-	-	-	708	-
Starvation Reservoir	-	-	-	-	2,021	-	4,440	100	114,348	58	55,981	42	-	-	-	-	-	-	-	-	-	-	-	-
Steinaker Reservoir	-	-	-	-	-	-	47,896	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strawberry River	-	-	-	-	-	-	1,863	-	-	-	3,457	-	528	100	-	-	-	-	-	-	833	-	349	-
O2 - NORTHEAST Total	2,591	-	3,589	35	6,372	19	171,542	17	30,404	47	197,804	44	57,549	44	1,356	39	5,659	-	13,922	38	31,194	22	-	-

Table 5-9. NORTHEAST REGION: Angler Catch and Percent Harvest by Species and Waterbody, 2016.

Waterbody	Brook Trout		Brown Trout		Colorado River Cutthroat		Rainbow Trout		Kokanee Salmon		Mountain Whitefish		Grayling		Lake Trout		Tiger Trout		Splake		Large Mouth Bass		Small Mouth Bass		White Bass			
	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept		
03- NORTHERN																												
Bear Lake	-	-	4,866	19	55,847	9	16,800	20	516	-	4,143	-	-	-	32,766	18	-	-	-	-	1,263	-	-	-	-	-	-	-
Blacksmith Fork	7,095	47	69,895	19	26,862	8	23,381	15	-	-	12,896	-	-	-	-	-	-	-	-	-	-	-	1,180	100	-	-	-	-
East Canyon Reservoir	891	-	10,449	42	10,242	49	191,504	47	-	-	1,450	44	-	-	1,886	100	1,287	44	-	-	-	-	9,620	32	-	-	-	-
High Uintas (North Slope)	175,083	26	37,099	38	91,223	23	343,883	32	2,642	6	9,666	-	19,928	10	7,395	34	169,895	25	6,950	-	-	-	888	-	-	-	-	-
Hyrum Reservoir	-	-	2,723	55	-	-	117,041	41	710	-	652	-	-	-	644	-	944	-	-	-	18,203	11	2,554	-	-	-	-	-
Logan River	7,604	14	113,745	16	71,160	2	80,636	18	-	-	22,959	22	-	-	-	-	-	-	-	-	8,943	100	-	-	-	-	-	-
Mantua Reservoir	-	-	3,645	29	2,589	17	80,269	27	-	-	-	-	-	-	-	-	705	-	-	-	69,083	10	18,582	36	-	-	-	-
Ogden River	1,714	10	71,215	6	8,078	5	34,672	14	-	-	1,815	20	-	-	-	-	-	-	-	-	1,787	-	468	-	-	-	-	-
Other	47,046	19	112,276	17	114,074	12	720,061	27	13,633	44	19,098	6	11,085	5	7,310	17	61,032	16	1,228	27	31,149	17	75,284	11	6,646	29	-	-
Pineview Reservoir	1,987	-	2,844	-	787	-	8,494	44	-	-	-	-	-	-	787	-	-	-	-	-	10,514	-	28,068	-	-	-	-	-
Rockport Reservoir	308	-	18,688	32	4,880	17	145,086	43	-	-	732	-	-	-	-	-	-	-	-	-	385	100	23,038	13	-	-	-	-
Weber River	12,913	7	583,121	5	80,860	1	139,229	11	1,781	-	276,232	4	6,741	15	355	100	6,020	-	-	-	1,332	53	1,332	53	1,332	53	-	-
Willard Bay Reservoir	-	-	2,748	136	2,747	56	11,056	29	283	-	-	-	-	-	-	-	-	-	-	-	11,256	21	11,997	24	4,614	32	-	-
03- NORTHERN Total	254,641	23	1,033,313	11	469,348	11	1,912,113	30	19,567	32	349,643	5	37,753	9	51,142	25	240,240	22	8,178	4	153,914	18	173,011	15	12,592	33	-	-

Waterbody	Wiper		Striped Bass		Crappie		Bluegill		Green Sunfish		Yellow Perch		Walleye		Northern Pike		Tiger Muske- lunge		Bullhead		Channel Catfish					
	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept				
03- NORTHERN																										
Bear Lake	2,822	-	-	-	2,359	100	3,524	67	881	100	3,622	65	529	100	-	-	-	-	2,021	-	698	-	-	-	-	-
Blacksmith Fork	-	-	-	-	-	-	-	-	-	-	4,206	28	-	-	-	-	604	-	-	-	-	-	-	-	-	-
East Canyon Reservoir	3,926	16	946	100	3,137	19	2,425	24	-	-	882	-	567	-	-	-	-	-	-	-	-	-	-	-	-	-
High Uintas (North Slope)	-	-	-	-	8,881	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hyrum Reservoir	1,484	60	-	-	-	-	14,241	83	-	-	126,583	46	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Logan River	-	-	-	-	8,943	100	-	-	-	-	-	-	8,943	100	-	-	-	-	-	-	-	-	10,443	108	-	-
Mantua Reservoir	-	-	2,145	-	18,519	36	123,925	54	8,538	43	87,035	55	-	-	-	-	-	-	-	-	-	-	7,480	46	-	-
Ogden River	888	-	-	-	414	-	312	-	312	-	312	-	-	-	-	-	-	-	281	-	810	-	-	-	-	-
Other	6,763	32	3,600	100	25,321	14	88,013	17	13,919	15	57,562	22	9,460	46	-	-	-	-	42,286	12	91,031	30	-	-	-	-
Pineview Reservoir	-	-	-	-	156,363	48	6,722	37	2,111	-	72,181	33	-	-	-	-	15,258	-	5,747	-	9,054	-	-	-	-	-
Rockport Reservoir	385	100	-	-	385	-	385	-	-	-	2,803	-	-	-	-	-	-	-	-	-	692	-	-	-	-	-
Weber River	1,332	53	-	-	805	-	5,745	-	-	-	1,507	-	-	-	-	-	-	-	9,468	6	5,344	-	-	-	-	-
Willard Bay Reservoir	332,850	46	3,271	31	59,374	50	10,793	28	-	-	13,052	41	38,149	71	-	-	-	-	17,399	12	67,847	32	-	-	-	-
03- NORTHERN Total	350,451	45	9,962	56	284,501	45	256,085	40	25,761	25	369,744	41	57,648	71	-	-	15,862	8	77,202	10	193,400	33	-	-	-	-

Table 5-10. SOUTHEAST REGION: Angler Catch and Percent Harvest by Species and Waterbody, 2016.

Waterbody	Brook Trout		Brown Trout		Colorado River Cutthroat		Rainbow Trout		Kokanee Salmon		Mountain Whitefish		Grayling		Lake Trout		Tiger Trout		Splake		Large Mouth Bass		Small Mouth Bass		White Bass			
	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept		
04 - SOUTHEAST																												
Cleveland Reservoir	507	225	2,079	94	6,676	26	36,564	59	-	-	-	-	-	-	3,033	46	944	100	-	-	-	-	-	-	-	-	-	-
Duck Fork Reservoir	223	-	1,481	14	16,970	1	2,238	9	-	-	-	-	-	-	-	-	17,780	19	-	-	-	-	-	-	-	-	-	-
Electric Lake	-	-	2,794	-	13,728	12	14,684	20	10,217	92	-	-	-	-	-	-	26,336	11	-	-	-	-	-	-	-	-	-	-
Fish Lake	2,672	100	2,930	27	-	-	42,699	33	7,277	78	-	-	1,702	-	2,594	43	2,563	9	13,086	28	4,721	52	2,267	-	-	-	-	-
Gigliotti Pond	-	-	-	-	-	-	11,326	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gooseberry Reservoir	-	-	-	-	4,263	8	15,695	35	-	-	-	-	-	-	744	-	-	-	744	-	-	-	-	-	-	-	-	-
Huntington Creek	1,940	-	23,222	3	10,992	-	9,664	10	-	-	-	-	-	-	-	-	3,563	-	-	-	-	-	-	-	-	-	-	-
Huntington Reservoir	3,598	79	-	-	4,416	-	17,724	52	-	-	594	-	594	-	594	-	37,467	43	594	-	-	-	-	-	-	-	-	-
Joes Valley Reservoir	799	-	715	100	3,317	32	8,604	66	-	-	-	-	-	-	-	-	3,302	47	7,081	22	-	-	-	-	-	-	-	-
Lake Powell (NE)	1,287	-	902	100	-	-	2,351	38	-	-	-	-	-	-	1,014	100	-	-	-	-	154,839	33	268,546	42	1,690	17	-	-
Other	38,185	26	49,698	23	47,403	16	302,385	32	-	-	9,385	-	7,816	9	5,970	18	57,826	44	5,126	45	19,573	19	3,879	63	-	-	-	-
Potters Pond	944	100	-	-	2,348	18	53,859	24	-	-	-	-	-	-	-	-	2,375	-	-	-	-	-	-	-	-	-	-	-
Scofield Reservoir	-	-	4,117	25	68,843	6	47,799	13	-	-	23,276	-	-	-	-	-	7,540	49	-	-	-	-	4,202	100	-	-	-	-
04 - SOUTHEAST Total	50,155	35	87,937	20	178,955	10	565,593	32	17,494	86	33,254	-	10,112	7	13,949	33	159,695	34	26,630	28	179,133	32	278,895	43	1,690	17	-	-

Waterbody	Wiper		Striped Bass		Crappie		Bluegill		Green Sunfish		Yellow Perch		Walleye		Northern Pike		Tiger Muskeg-lunge		Bullhead		Channel Catfish			
	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept		
04 - SOUTHEAST																								
Cleveland Reservoir	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Duck Fork Reservoir	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electric Lake	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fish Lake	-	-	4,721	52	1,113	-	14,078	79	-	-	109,951	84	785	100	-	-	-	-	-	-	-	-	785	100
Gigliotti Pond	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gooseberry Reservoir	-	-	-	-	930	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Huntington Creek	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,222	-	-	-	-	-	-	-	-	-
Huntington Reservoir	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Joes Valley Reservoir	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5,598	-	-	-	-	-	-	-
Lake Powell (NE)	2,354	45	424,594	59	62,026	57	71,196	21	21,742	15	4,569	-	173,739	81	-	-	-	-	27,541	11	87,092	33	-	-
Other	1,180	100	18,093	93	441	-	17,723	18	-	-	-	-	189	-	12,504	13	-	-	567	-	14,700	16	-	-
Potters Pond	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Scofield Reservoir	-	-	4,202	100	-	-	-	-	-	-	7,878	100	-	-	-	-	-	-	-	-	-	-	-	-
04 - SOUTHEAST Total	3,534	63	451,610	61	64,510	56	102,997	28	21,742	15	122,398	82	174,713	81	15,726	10	5,598	-	28,108	11	102,576	31	-	-

Table 5-11. SOUTHERN REGION: Angler Catch and Percent Harvest by Species and Waterbody, 2016.

Waterbody	Brook Trout		Brown Trout		Colorado River Cutthroat		Rainbow Trout		Kokanee Salmon		Mountain Whitefish		Grayling		Lake Trout		Tiger Trout		Splake		Large Mouth Bass		Small Mouth Bass		White Bass			
	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept		
05 - SOUTHERN																												
Boulder Mountain Lakes	84,533	22	8,550	25	39,254	15	45,867	32	-	-	-	-	6,117	27	-	-	34,635	27	5,038	33	-	-	-	-	777	100	-	-
Enterprise Reservoir	2,410	100	1,404	100	2,796	78	92,160	25	-	-	-	-	-	-	503	100	-	-	-	-	441	-	-	-	73,911	8	805	-
Fish Lake	12,548	5	25,419	32	7,813	51	327,369	34	6,247	23	-	-	-	-	35,789	13	13,938	23	82,891	34	-	-	-	-	2,086	-	-	-
Kolob Reservoir	-	-	1,304	25	15,217	16	33,560	10	299	-	-	-	-	-	668	-	417	100	-	-	-	-	-	-	-	-	-	-
Lake Powell (SW)	-	-	-	-	531	-	6,333	90	-	-	-	-	-	-	-	-	-	-	-	-	65,497	45	99,304	53	500	-	-	-
Minersville Reservoir	-	-	416	-	1,481	-	54,346	4	-	-	-	-	-	-	923	100	-	-	-	-	491	-	7,442	42	-	-	-	-
Navajo Lake	3,996	67	2,505	34	-	-	38,359	36	-	-	1,222	-	-	-	-	-	788	-	1,649	100	3,225	14	-	-	-	-	-	-
Other	63,691	33	104,130	14	55,600	16	404,639	24	923	-	1,010	-	-	-	2,615	73	38,304	9	2,357	36	33,235	13	17,779	55	-	-	-	-
Otter Creek Reservoir	838	44	10,320	51	13,018	79	340,316	47	-	-	-	-	2,192	58	5,160	71	-	-	1,228	100	491	100	-	-	-	-	-	-
Panguitch Lake	13,105	10	12,195	19	109,565	25	222,937	37	-	-	469	-	-	-	2,705	76	25,494	17	353	-	2,389	36	1,976	100	-	-	-	-
Quail Creek Reservoir	-	-	466	-	1,074	100	79,429	47	-	-	1,489	25	-	-	1,187	-	-	-	-	-	13,035	30	4,556	58	4,653	10	-	-
Sand Hollow Reservoir	489	100	489	100	-	-	1,011	192	-	-	-	-	-	-	572	-	-	-	-	-	344,046	5	17,310	15	-	-	-	-
Sevier River & Tributaries	10,780	20	45,068	9	22,014	4	38,086	14	-	-	8,051	-	-	-	-	-	-	-	-	-	1,087	-	272	-	-	-	272	-
05 - SOUTHERN Total	192,391	26	212,267	19	268,363	24	1,684,411	33	7,469	19	12,242	3	8,309	35	50,121	27	113,575	18	93,516	36	463,936	12	225,414	35	6,230	7	-	-

Waterbody	Wiper		Striped Bass		Crappie		Bluegill		Green Sunfish		Yellow Perch		Walleye		Northern Pike		Tiger Muske- lunge		Bullhead		Channel Catfish			
	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept	(Caught)	% Kept		
05 - SOUTHERN																								
Boulder Mountain Lakes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Enterprise Reservoir	441	-	-	-	-	-	22,721	47	13,192	-	-	-	-	-	-	-	-	-	-	-	-	-		
Fish Lake	-	-	-	-	1,890	41	266	100	-	-	540,132	76	-	-	-	-	647	-	537	-	-	-		
Kolob Reservoir	-	-	-	-	-	-	1,669	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Lake Powell (SW)	9,390	46	220,005	73	11,477	46	22,733	13	9,691	10	-	-	41,934	47	-	-	-	-	3,092	21	29,662	17		
Minersville Reservoir	6,698	63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Navajo Lake	-	-	-	-	-	-	-	-	-	-	-	-	711	38	-	-	-	-	-	-	-	-		
Other	2,747	23	8,264	100	1,319	-	32,172	-	14,071	-	8,899	91	1,289	100	1,631	66	9,197	-	1,825	35	6,092	24		
Otter Creek Reservoir	-	-	984	100	-	-	-	-	-	-	12,540	78	-	-	-	-	-	-	-	-	-	-		
Panguitch Lake	-	-	870	100	882	-	1,063	-	-	-	9,838	100	-	-	-	-	-	-	516	38	1,224	16		
Quail Creek Reservoir	-	-	-	-	815	54	30,040	35	4,350	100	-	-	-	-	-	-	-	-	-	-	744	-		
Sand Hollow Reservoir	1,739	-	-	-	16,546	-	53,448	-	1,113	-	-	-	-	-	-	-	-	-	-	-	-	-		
Sevier River & Tributaries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	489	-	-	-	-	-	-	-		
05 - SOUTHERN Total	21,015	44	230,122	74	32,930	20	164,112	15	42,417	12	571,409	76	43,933	49	2,120	50	9,845	-	5,970	25	37,722	18		

Section 6:

Angler Trip Satisfaction, Perceptions of Crowding, and Boat-related Use

Angler Fishing Trip Satisfaction by DWR Fishing Management Region

For each fishing trip, anglers were asked to assess their overall fishing experience (see survey Question 19 in Appendix A). Options ranged from a score of “1” for “Completely Dissatisfied,” to “5” for “Completely Satisfied.” Figures 6-1 through 6-5 show angler fishing trip satisfaction levels for specific waterbodies within each of DWR’s five Fishing Management Regions. In the Figures, the red horizontal bar shows the average response during the summer months of June, July, and August. The blue horizontal bar shows the average annual response, including the summer months.

In nearly all cases, anglers rated their trip satisfaction across all months (i.e., the blue bar) between 3.5 and 4.0 – indicating that they were “Mostly Satisfied” with their experience. Only a handful of waterbodies fell outside this narrow range. For example, in the Northeast Region, Jones Hole Creek exceeded the 4.0 threshold (Figure 6-2), as did Mantua and Pineview Reservoirs in the Northern Region (Figure 6-3), Gigliotti and Potters Ponds in the Southeast (Figure 6-4), and Enterprise Reservoir in the Southern (Figure 6-5). Duckfork Reservoir, in the Southeast Region, was the only waterbody to fall below the 3.5 annual threshold (Figure 6-4).

Focusing on the three summer months (i.e., the red bars in Figures 6-1 through 6-5), trip satisfaction varied considerably, ranging from greater satisfaction in the summer (e.g., Grantsville Reservoir in Figure 6-1, Jones Hole in Figure 6-2), to decreased satisfaction (e.g., Mantua Reservoir in Figure 6-3, Joes Valley Reservoir in Figure 6-4).

Figure 6-1. Overall Trip Satisfaction, Central Region, 2016.
 (1=Completely Dissatisfied, 5=Completely Satisfied)

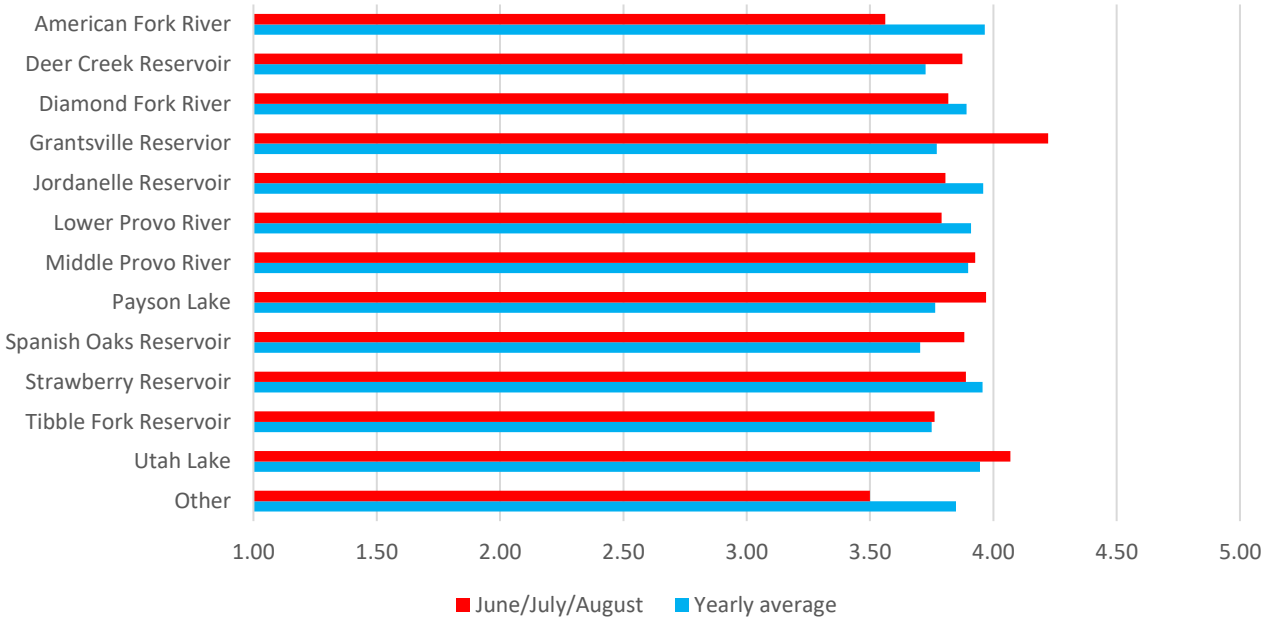


Figure 6-2. Overall Trip Satisfaction, Northeast Region, 2016.
 (1=Completely Dissatisfied, 5=Completely Satisfied)

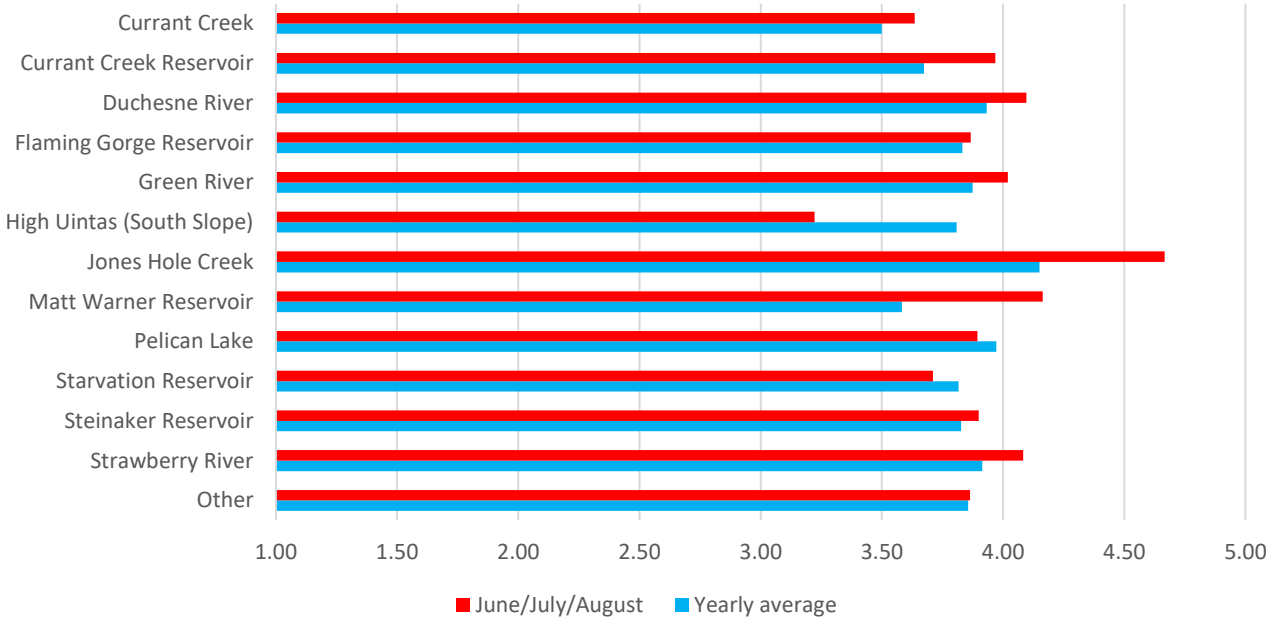


Figure 6-3. Overall Trip Satisfaction, Northern Region, 2016.
 (1=Completely Dissatisfied, 5=Completely Satisfied)

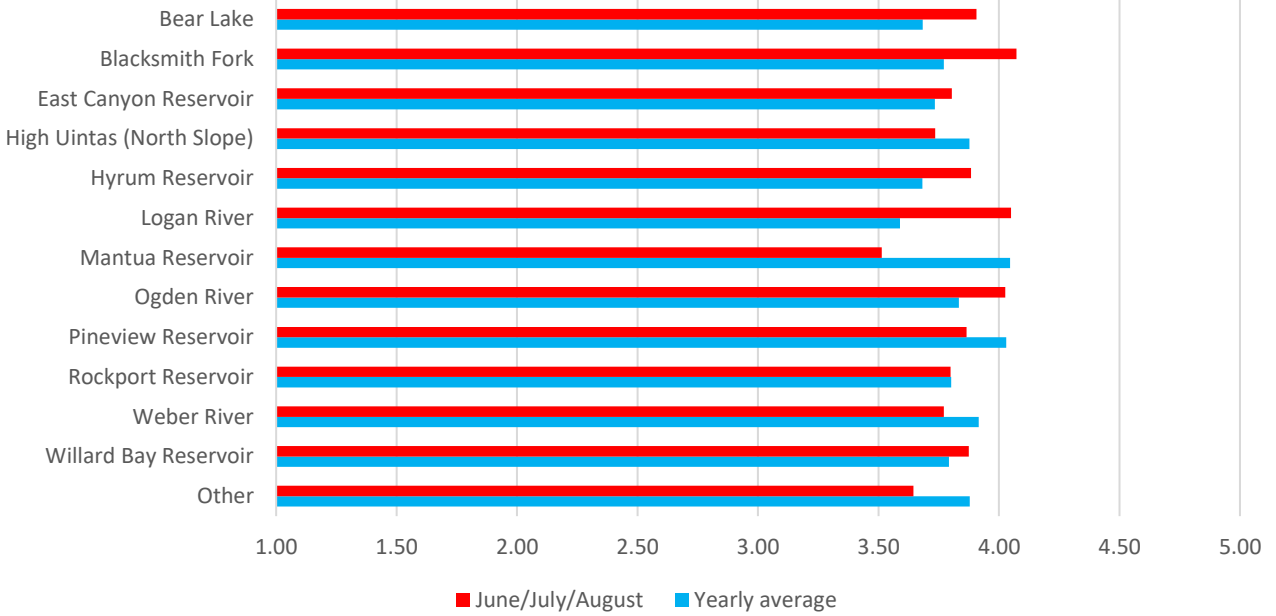


Figure 6-4. Overall Trip Satisfaction, Southeast Region, 2016.
 (1=Completely Dissatisfied, 5=Completely Satisfied)

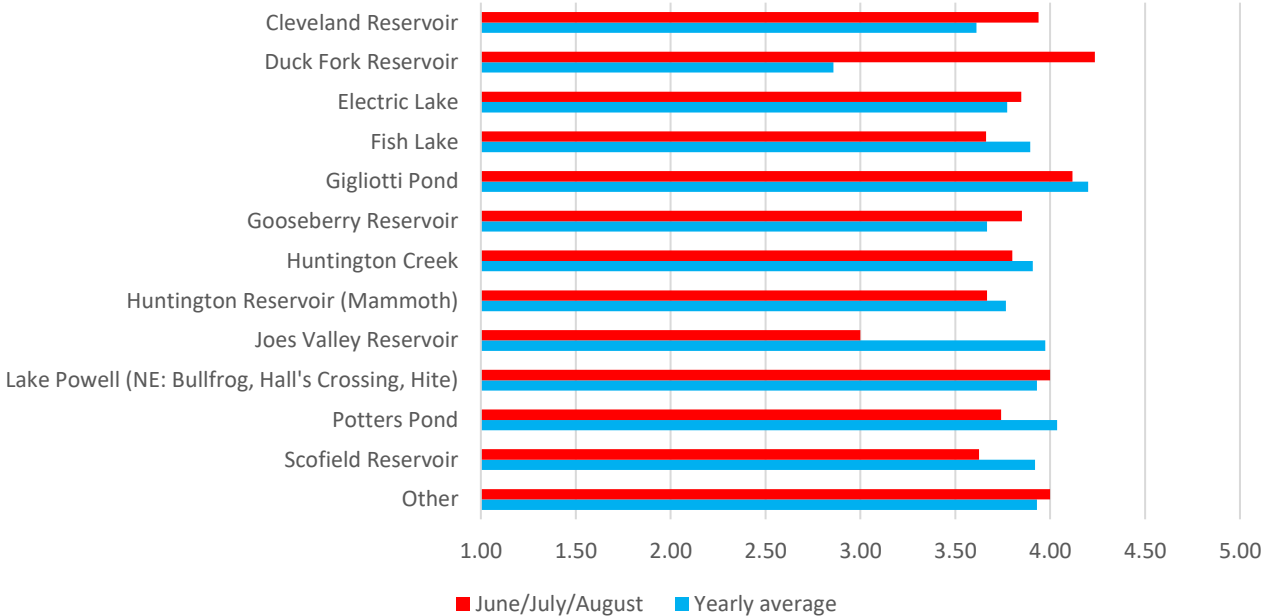
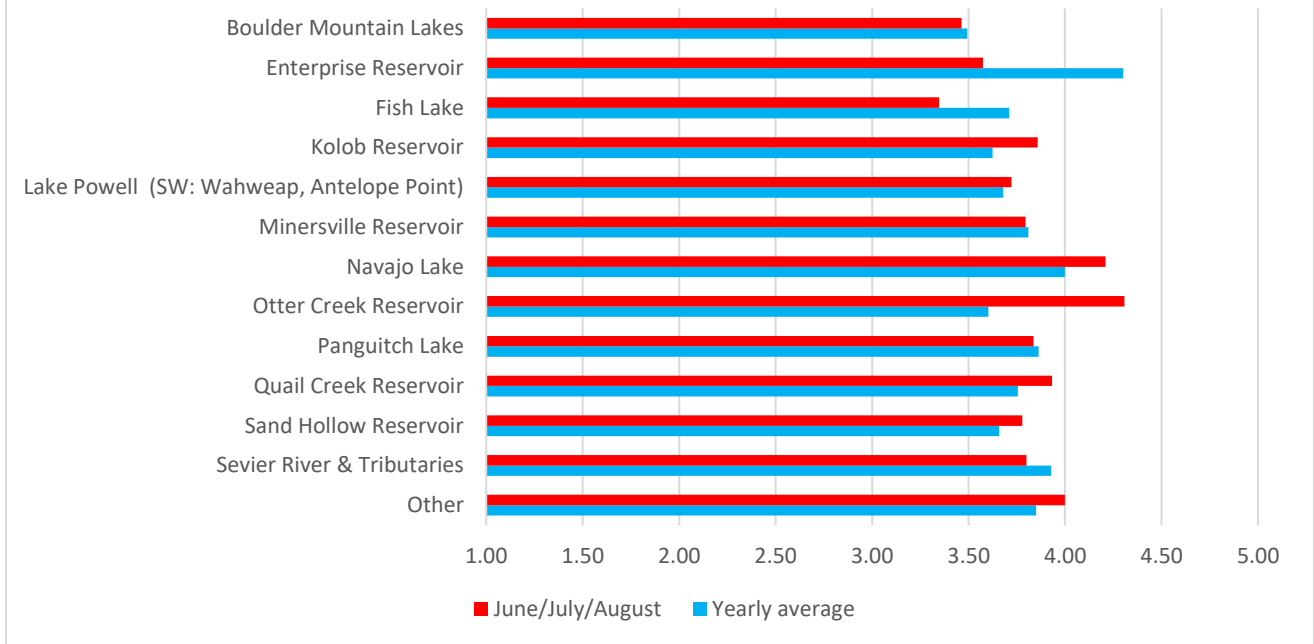


Figure 6-5. Overall Trip Satisfaction, Southern Region, 2016.
(1=Completely Dissatisfied, 5=Completely Satisfied)



Angler Perceptions of Crowding on Specific Waters within DWR’s Fishing Management Regions

Angler perceptions of crowding can reduce overall trip satisfaction and are always a potential concern for DWR, particularly if crowding persists on specific waters or during specific time periods. Question 20 asked anglers, for each trip, the extent to which crowding in the area where they fished reduced the quality of their fishing experience (see Appendix A, Question 20). Possible responses ranged from “1” indicating that “Crowding did not reduce quality of the experience at all,” to “4” or “Crowding substantially reduced the quality of the experience.”

Figures 6-6 through 6-10 report angler crowding perceptions within major fishing locations by DWR Region. In the Figures, the red horizontal bar shows the average response during the summer months of June, July, and August. The blue bar shows the average annual response, including the summer months. As with trip satisfaction above, the responses to crowding varied considerably. Overall, (and as in past years), anglers reported that crowding had little or no effect on the quality of their fishing experiences. In fact, only three waterbodies surpassed the 2.0 threshold indicating that crowding slightly reduced the quality of their experience – Jones Hole Creek (Figure 6-7), Huntington Creek (Figure 6-9), and the Sevier River and its tributaries (Figure 6-10). This low perception of crowding, however, runs counter to many comments received in response to an open-ended question asking what DWR could do to improve fishing in the State (see Question 5 in Appendix A). These angler responses are described in Section 7.

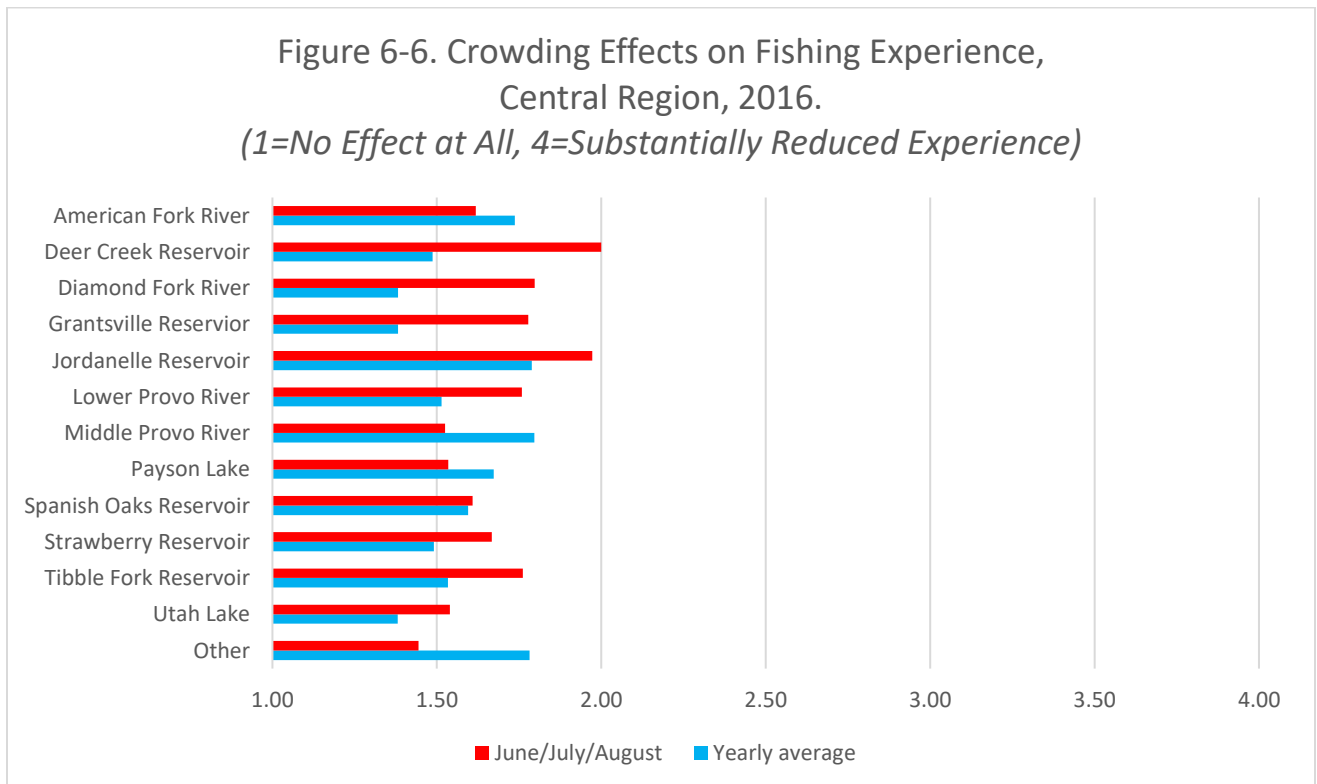


Figure 6-7. Crowding Effects on Fishing Experience, Northeast Region, 2016.
(1=No Effect at All, 4=Substantially Reduced Experience)

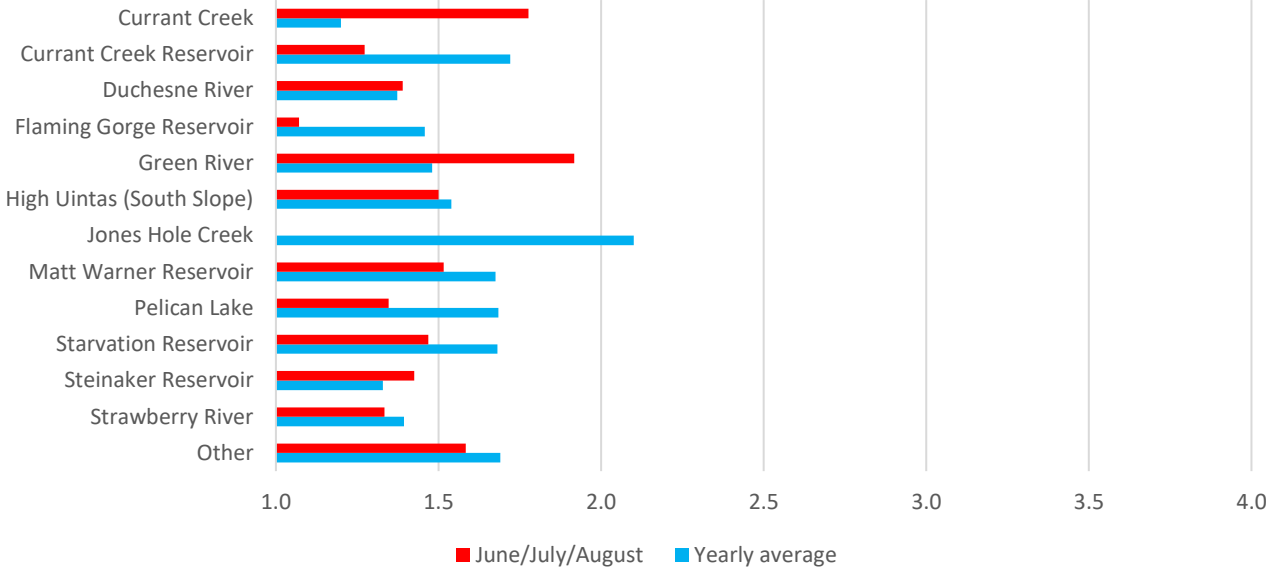


Figure 6-8. Crowding Effects on Fishing Experience, Northern Region, 2016.
(1=No Effect at All, 4=Substantially Reduced Experience)

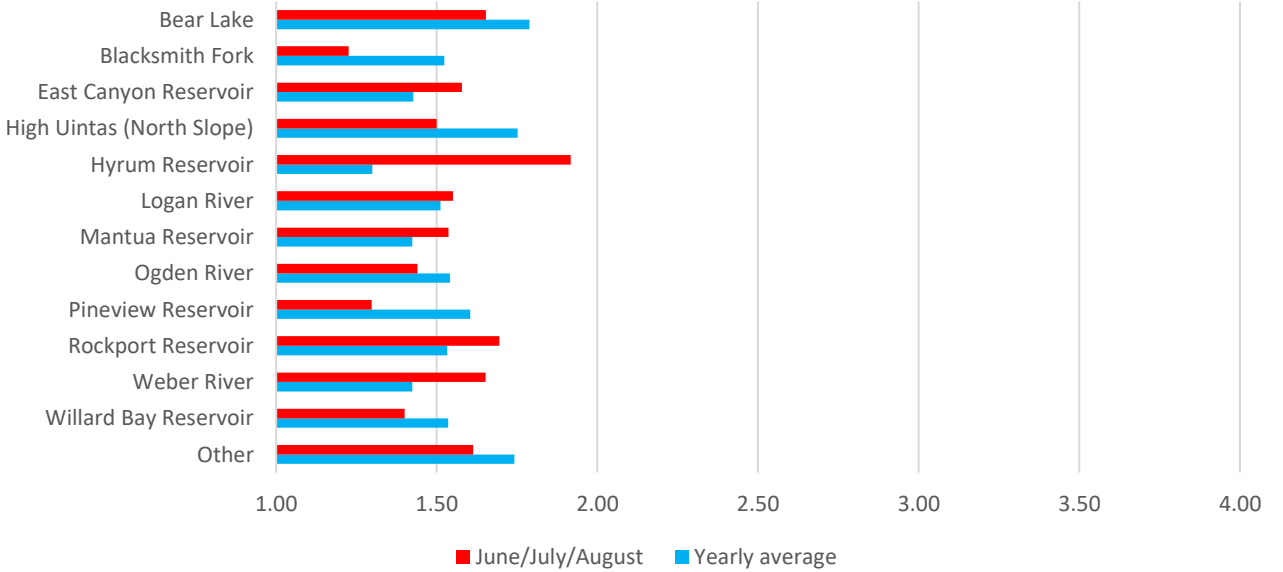


Figure 6-9. Crowding Effects on Fishing Experience, Southeast Region, 2016.
(1=No Effect at All, 4=Substantially Reduced Experience)

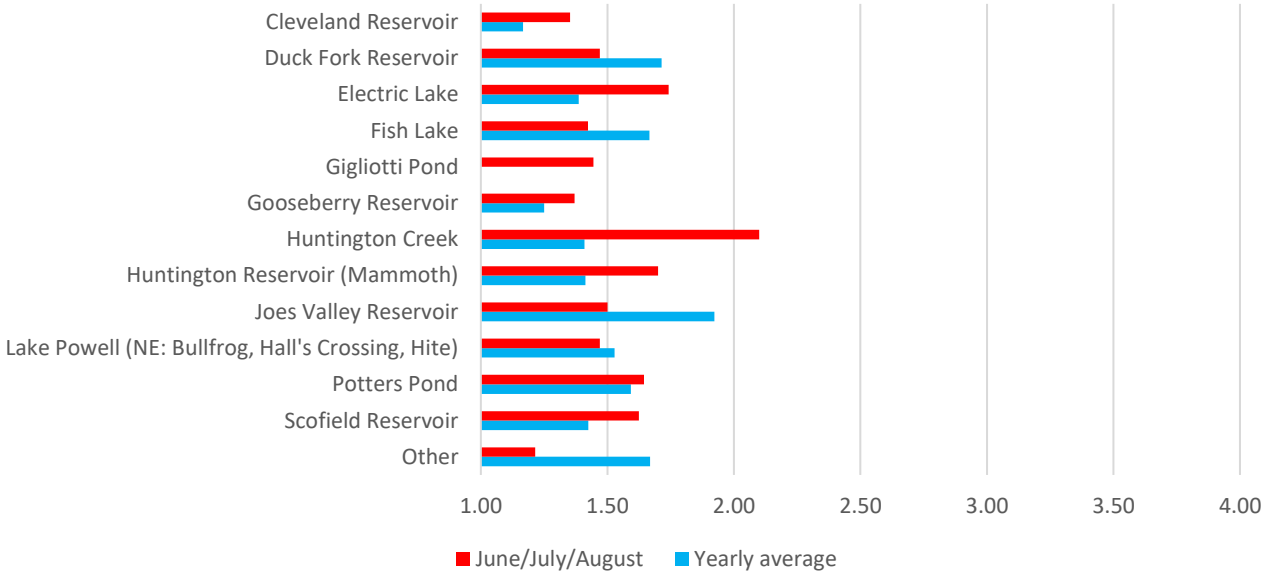
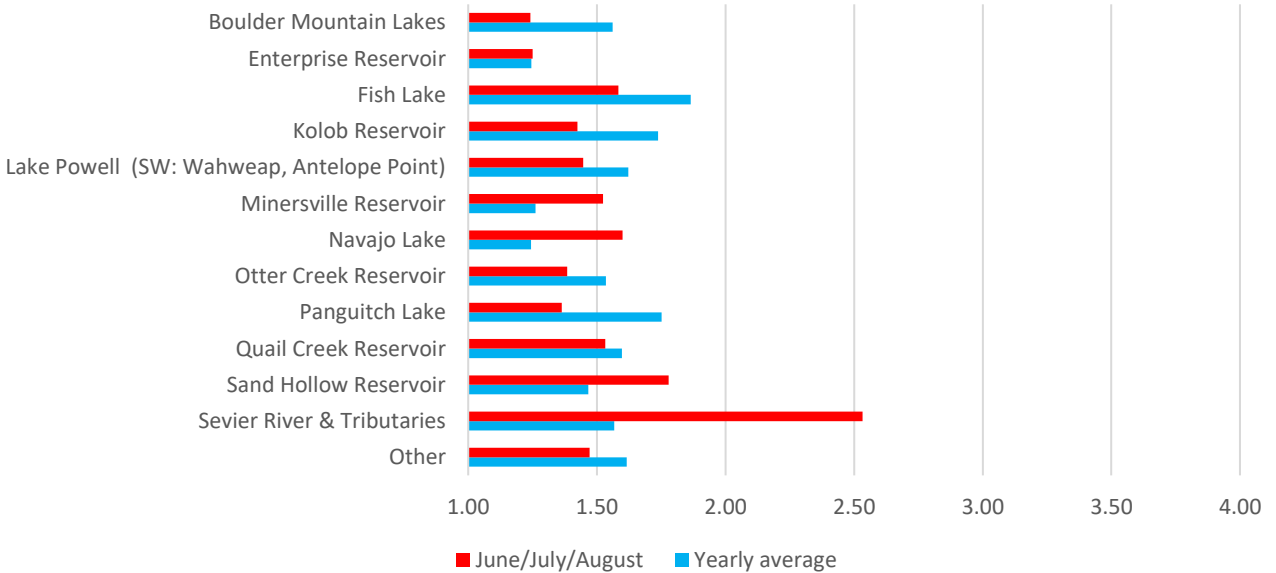


Figure 6-10. Crowding Effects on Fishing Experience, Southern Region, 2016.
(1=No Effect at All, 4=Substantially Reduced Experience)



Angler Access within DWR's Fishing Management Regions

Anglers use a variety of methods to access waterbodies when fishing. In the 2016 survey, Question 21 asked anglers to indicate how they accessed the water for each fishing trip (see Appendix A). Eight options were included, and anglers could check one or more methods for each trip. These options included: (1) from shore or a fishing pier/dock on a lake or reservoir; (2) from a boat on a lake or reservoir; (3) wading on a lake or reservoir; (4) from shore on a stream or river; (5) from a boat on a stream or river; (6) wading on a stream or river; (7) ice fishing; and (8) other method.

Figures 6-11 through 6-15 show the percentage of access responses for major waterbodies within each DWR Region. As expected, method of access varied largely in response to the type of water fished, with streams and rivers commonly accessed via wading or fishing from shore. In contrast, lakes and reservoir were accessed by boat, via wading, or from shore or a pier.

For example, in the Central Region, Spanish Oaks Reservoir, Payson Lake, and Grantsville Reservoir were accessed almost exclusively from shore or a pier (Figure 6-11). American Fork and the Provo River (upper and lower) were mostly accessed by wading. Deer Creek, Jordanelle, and Strawberry Reservoirs were most often accessed by boat.

Key ice-fishing locations were mostly in the Northern Region – e.g., Mantua, Hyrum and Rockport Reservoirs, along with Bear Lake (Figure 6-13). Across DWR's other Regions, important ice-fishing waters included Strawberry Reservoir, Pelican Lake, Steinaker Reservoir, Scofield Reservoir, and Fish Lake.

Figure 6-11. Fishing Access, Central Region, 2016.

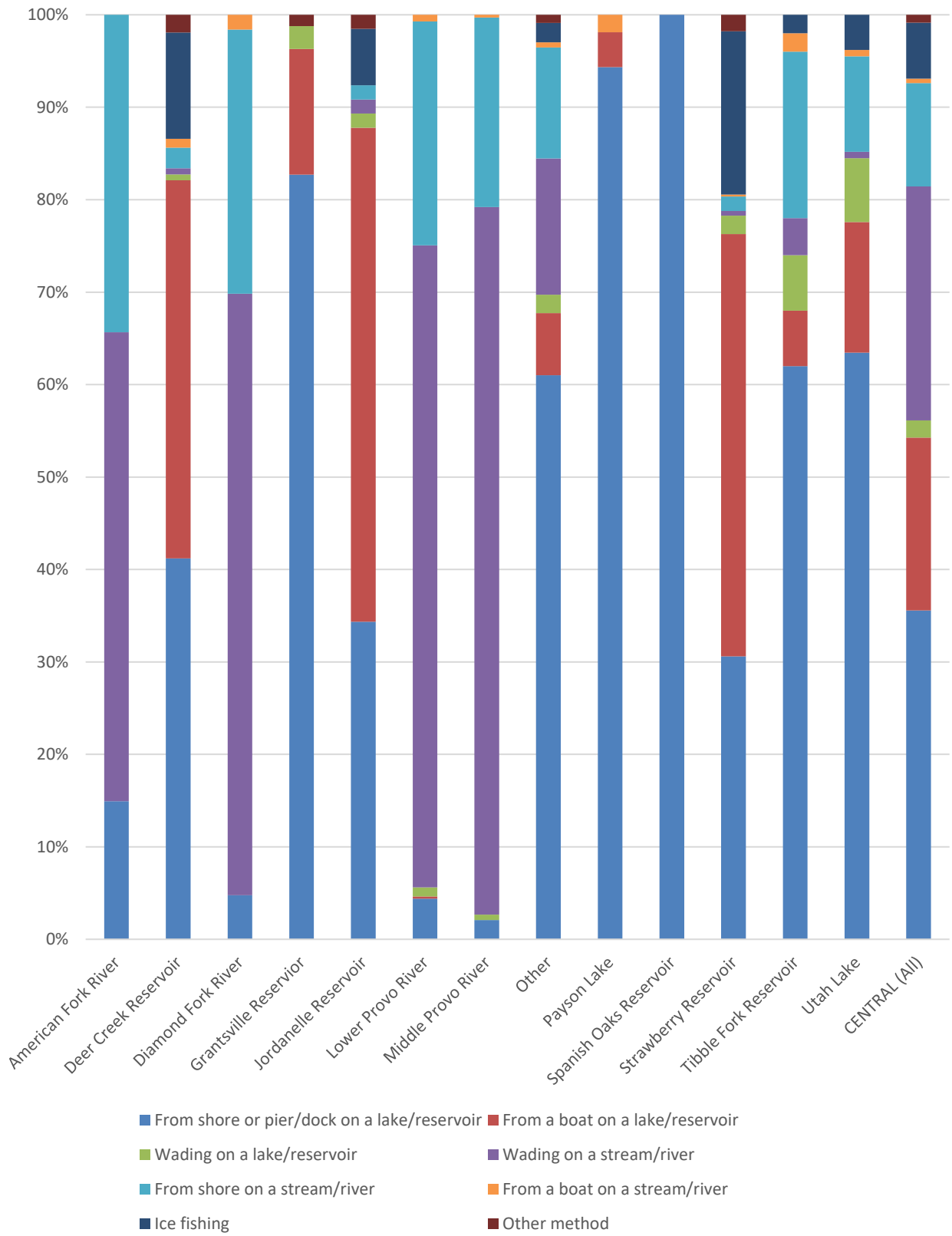


Figure 6-12. Fishing Access, Northeast Region, 2016.

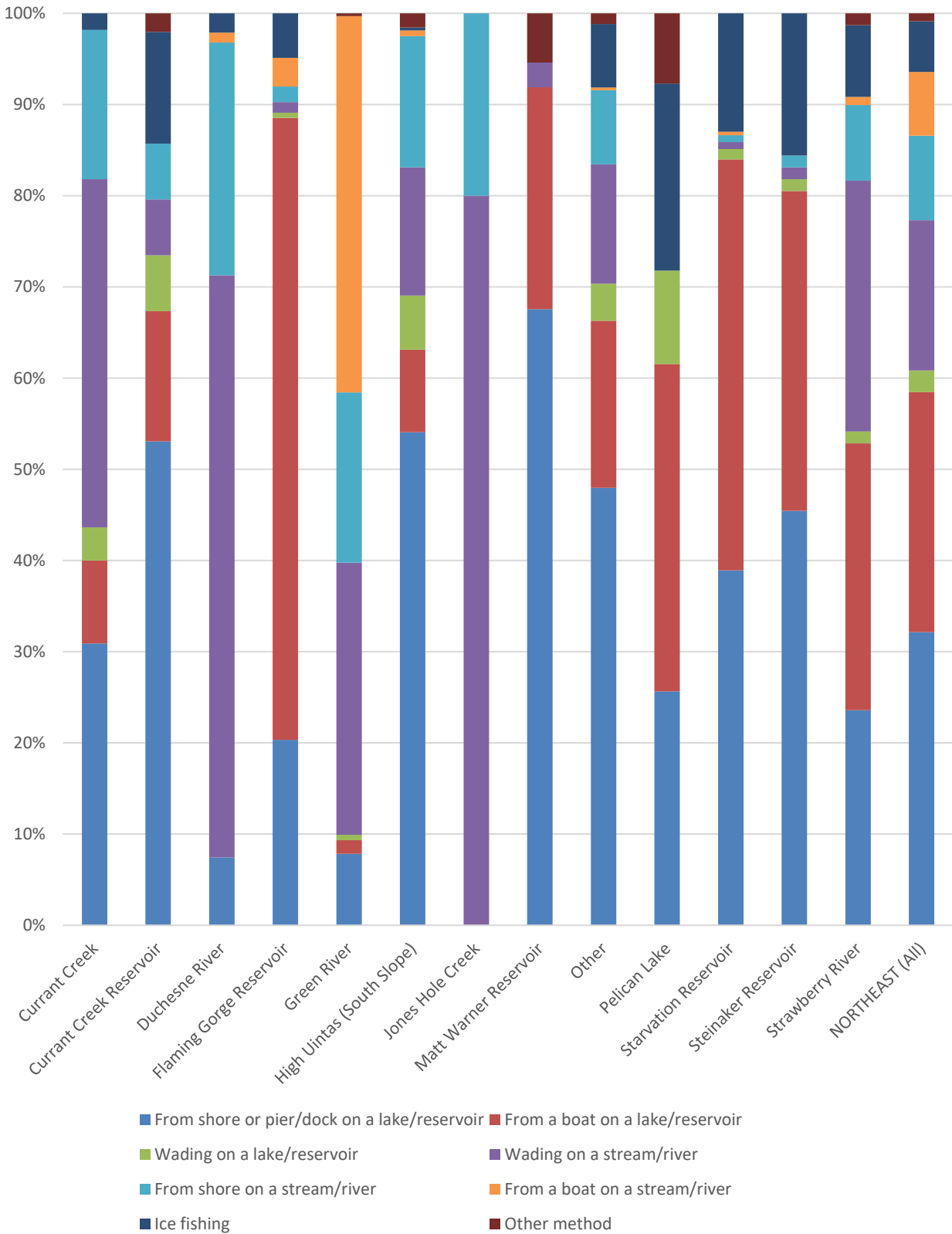


Figure 6-13. Fishing Access, Northern Region, 2016.

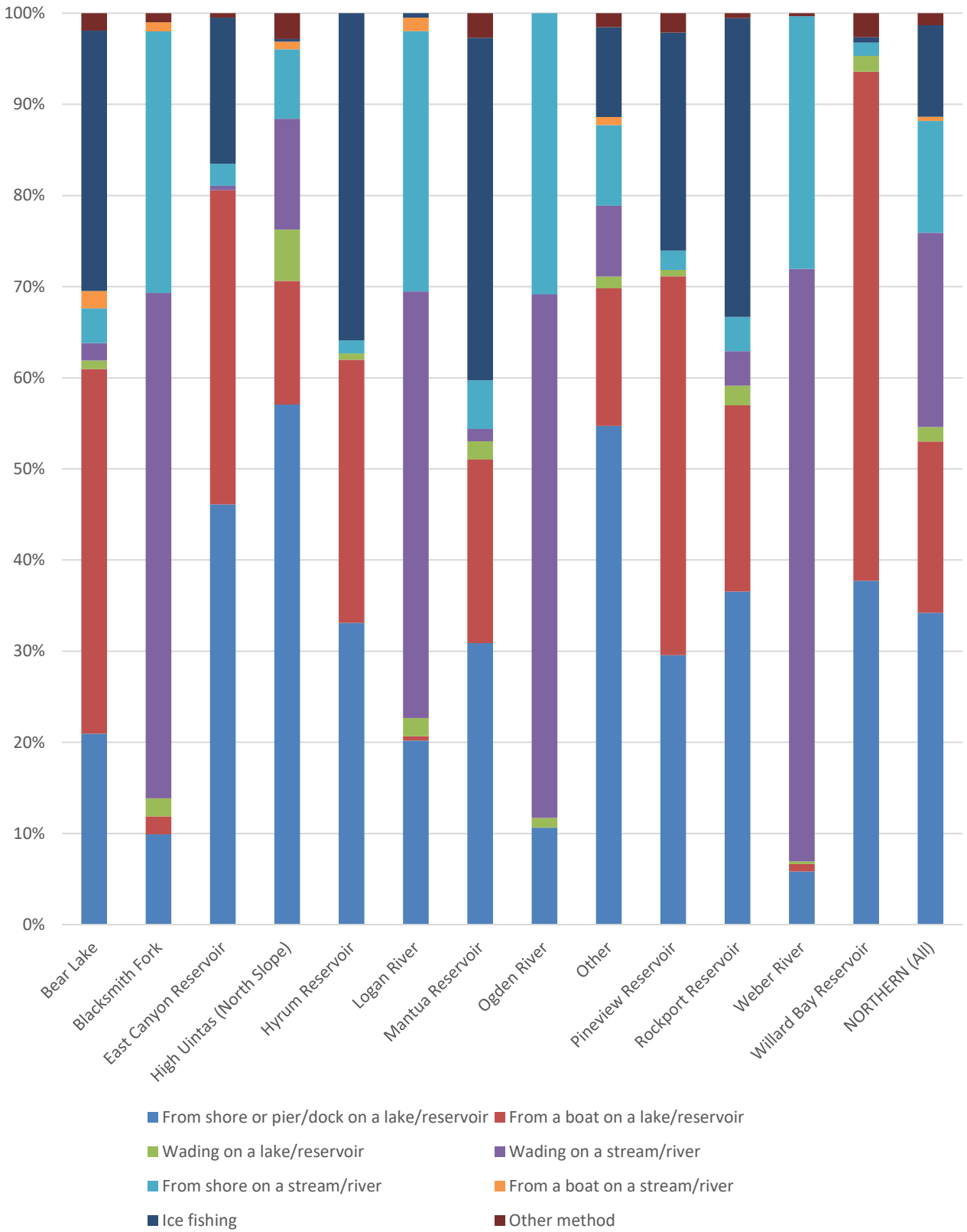


Figure 6-14. Fishing Access, Southeast Region, 2016.

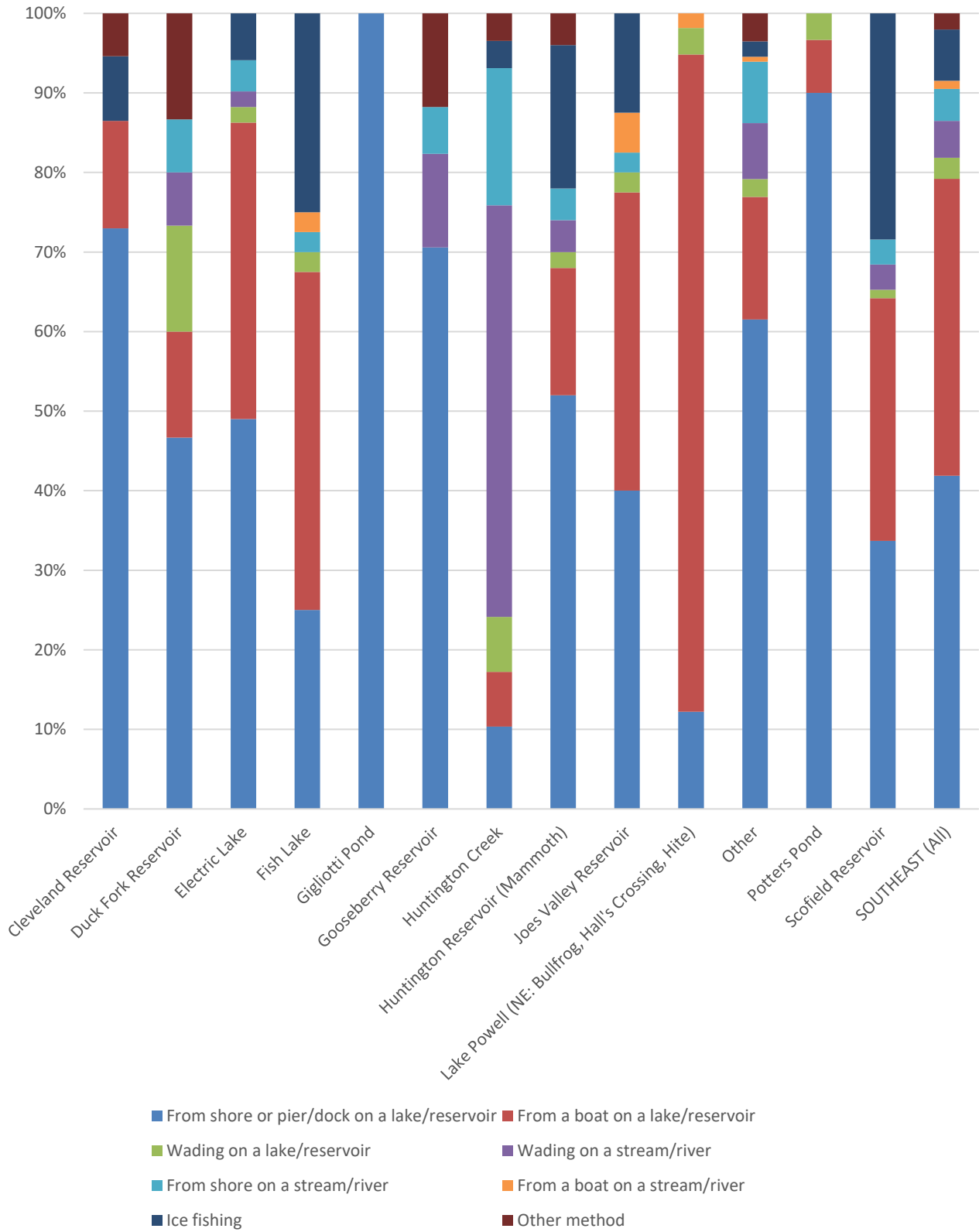
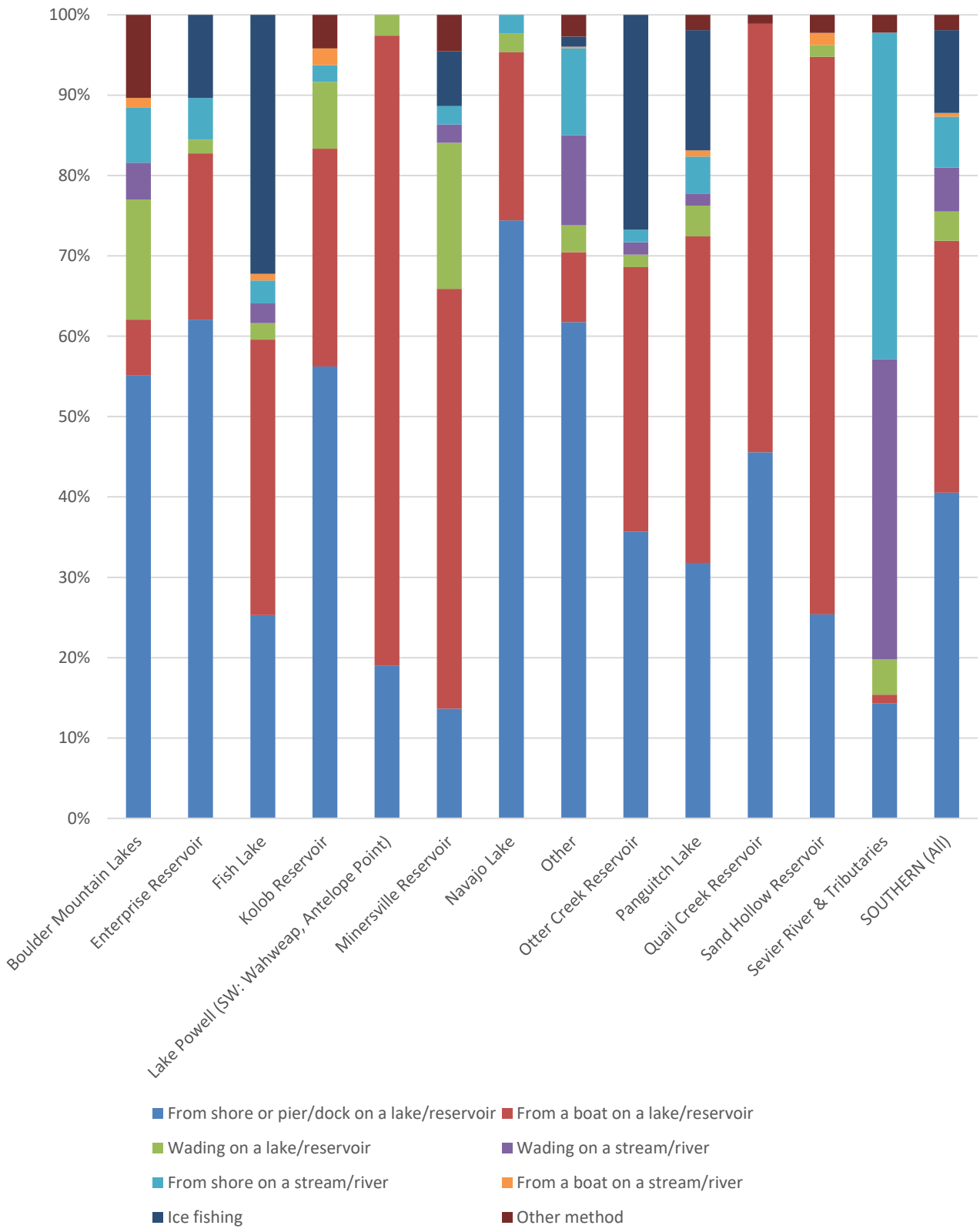


Figure 6-15. Fishing Access, Southern Region, 2016.



Angler Perceptions of the Availability and Quality of Boat Launching Sites on Specific Waters

DWR has long been concerned about the ability of anglers to launch boats on some of the State's waterways. Question 22 in the 2016 survey (see Appendix A) asked anglers that used a boat on a fishing trip to rate their level of satisfaction with the availability of boat launching sites. Possible responses ranged from "1" for "Completely satisfied," to "5" for "Completely dissatisfied." The next question, Question 23, then asked about the quality of these sites and/or facilities, with the same range of responses as in the previous question.

Figures 6-16 through 6-20 show these responses for major waterways within DWR's five Fishing Management Regions averaged across the year. Overall, anglers rated both availability and quality in the range of 4.0 – indicating that they were "mostly satisfied" with both the availability and quality of boat launching sites. For most sites, availability was rated slightly higher than quality.

Exceptions to these patterns were few. For example, in the Central Region, Payson Lake and Tibble Fork Reservoir stood out as being lower-ranked with respect to boat access and site quality. In the Northeast Region, Matt Warner Reservoir was low rated (Figure 6-17), as were Duck Fork Reservoir, Gigliotti Pond, and Huntington Creek in the Southeast Region (Figure 6-19). Top-ranked sites were Grantsville Reservoir in the Central Region (Figure 6-16), Jones Hole Creek in the Northeast Region (Figure 6-17), and Gooseberry Reservoir in the Southeast Region (Figure 6-19).

Sites with a large disparity between boat launch site availability and quality include Jones Hole Creek and Matt Warner Reservoir in the Northeast Region (Figure 6-17), and Gooseberry Reservoir in the Southeast Region (Figure 6-19). In each of these cases, site availability exceeded site quality, with the disparity the greatest for Gooseberry Reservoir.

Figure 6-16. Boating Access Site Availability & Quality,
Central Region, 2016.

(1=Completely Dissatisfied, 5=Completely Satisfied)

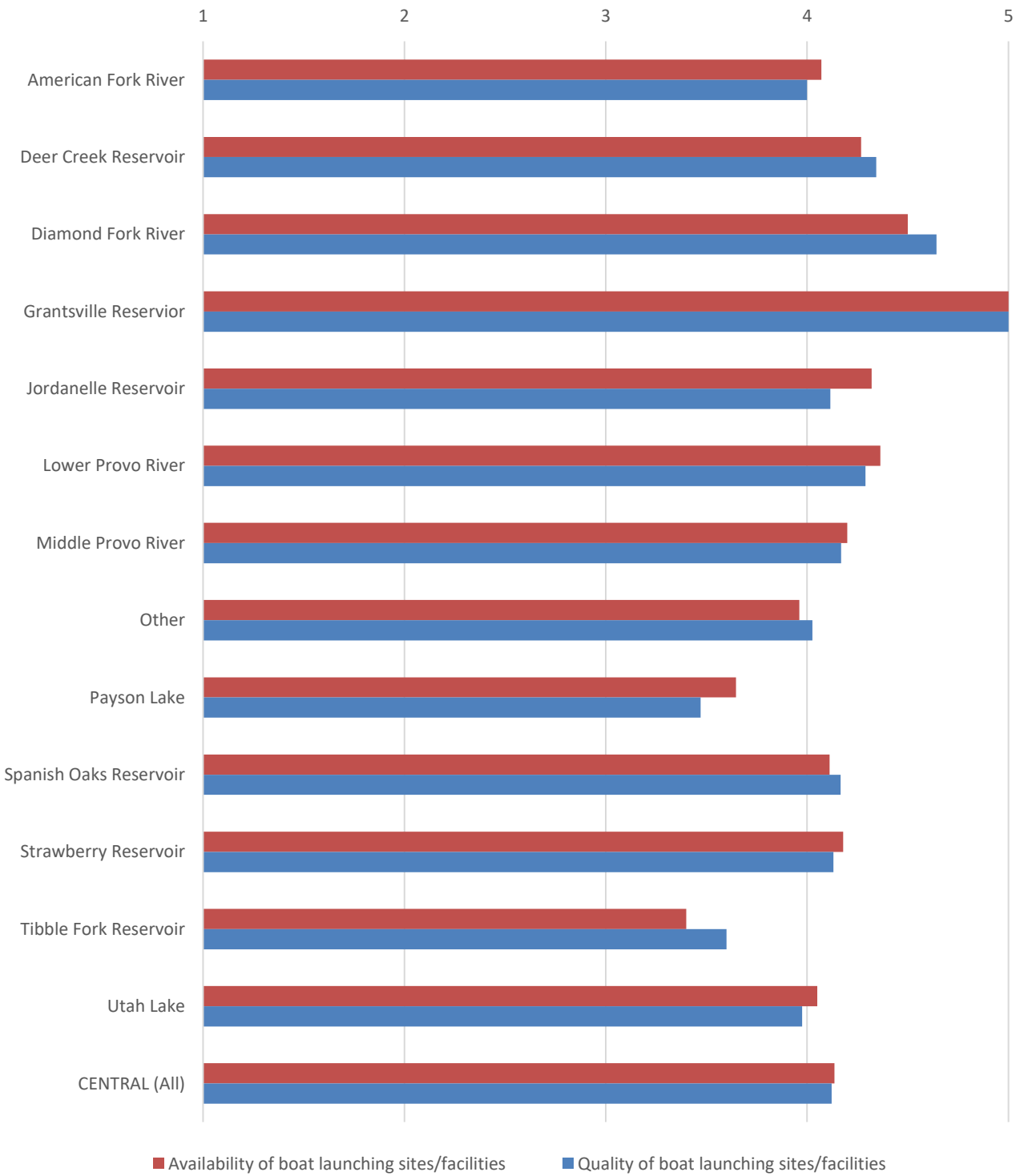


Figure 6-17. Boating Access Site Availability & Quality, Northeast Region, 2016.

(1=Completely Dissatisfied, 5=Completely Satisfied)

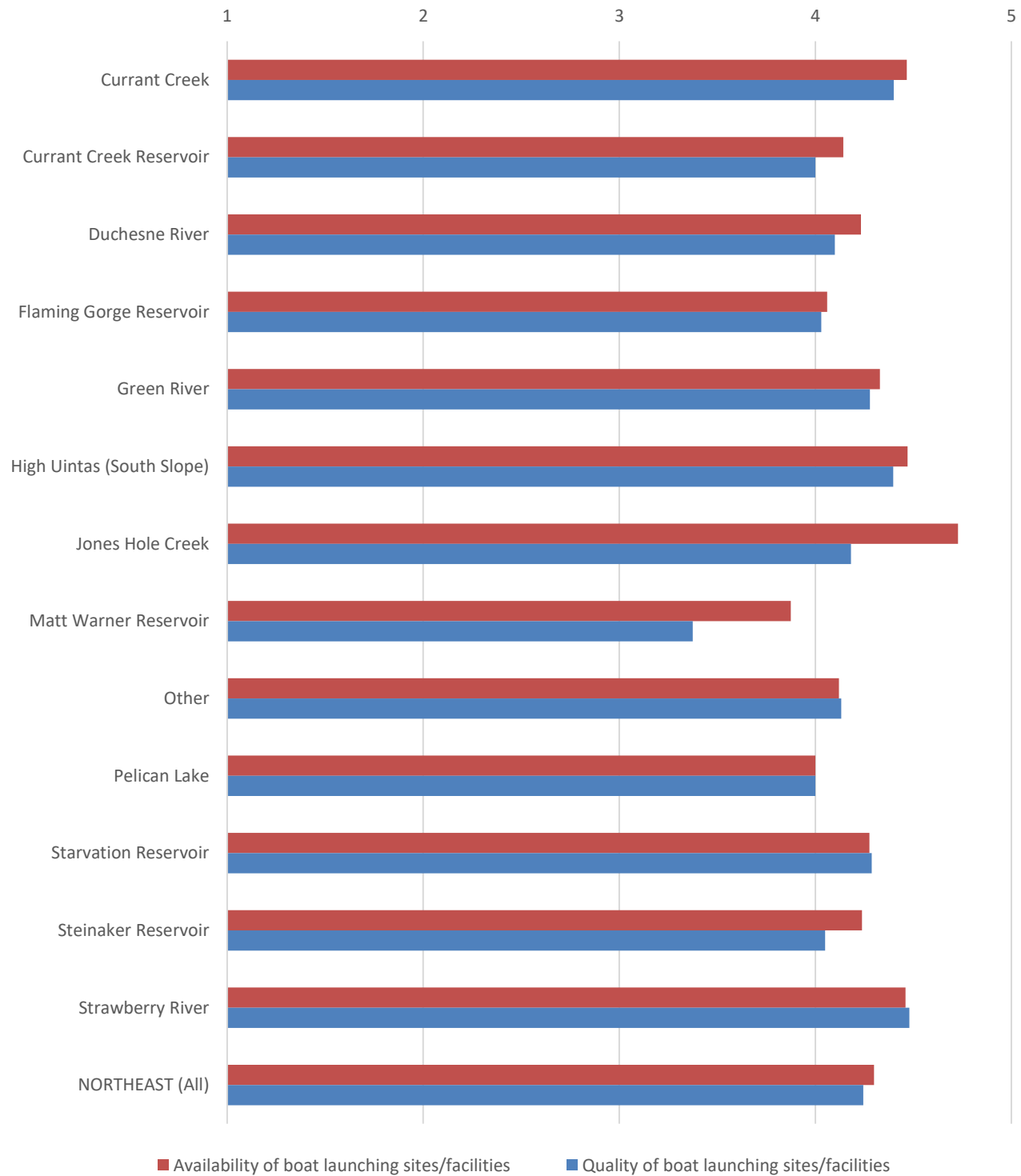


Figure 6-18. Boating Access Site Availability & Quality,
Northern Region, 2016.

(1=Completely Dissatisfied, 5=Completely Satisfied)

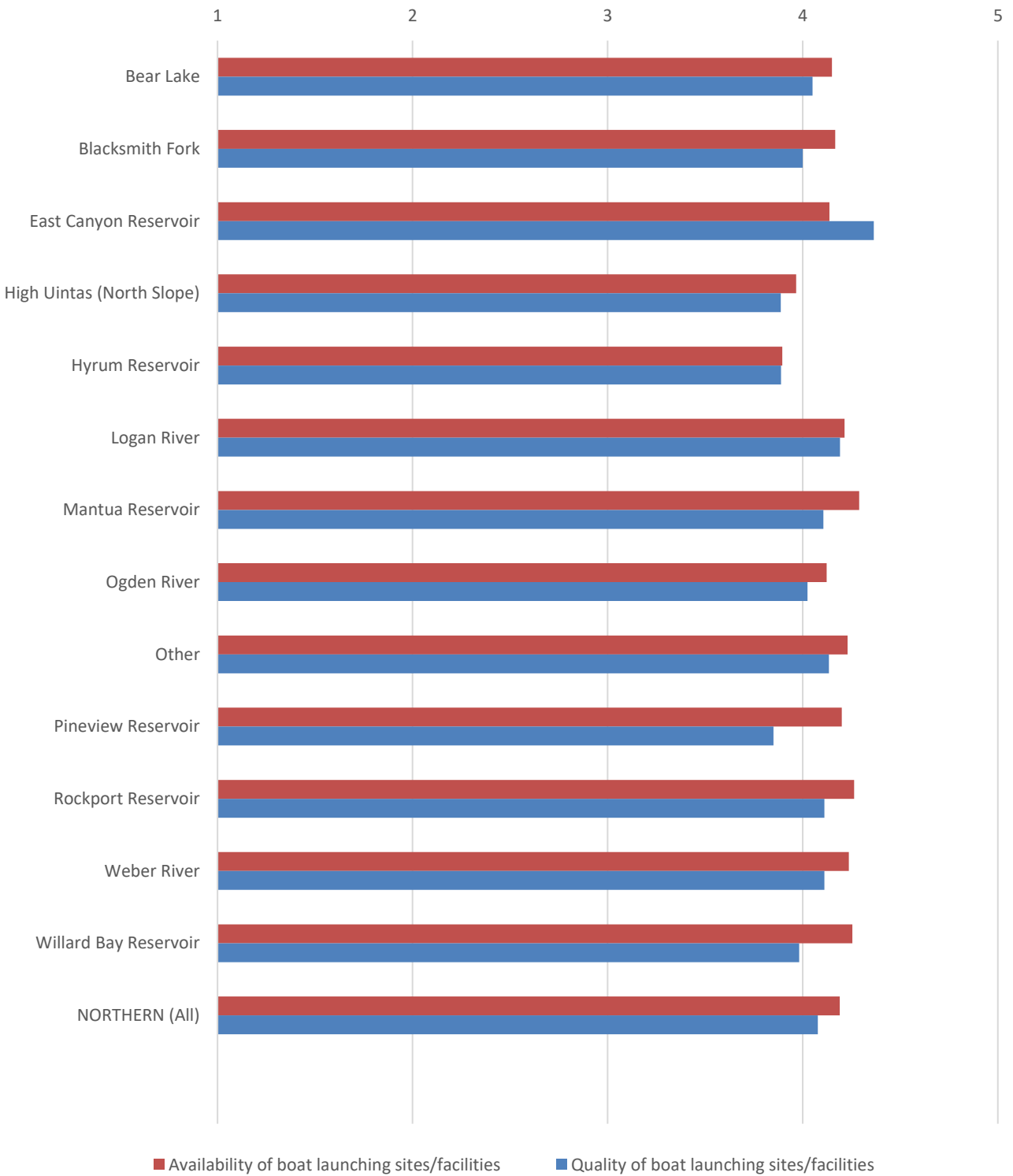


Figure 6-19. Boating Access Site Availability & Quality, Southeast Region, 2016.

(1=Completely Dissatisfied, 5=Completely Satisfied)

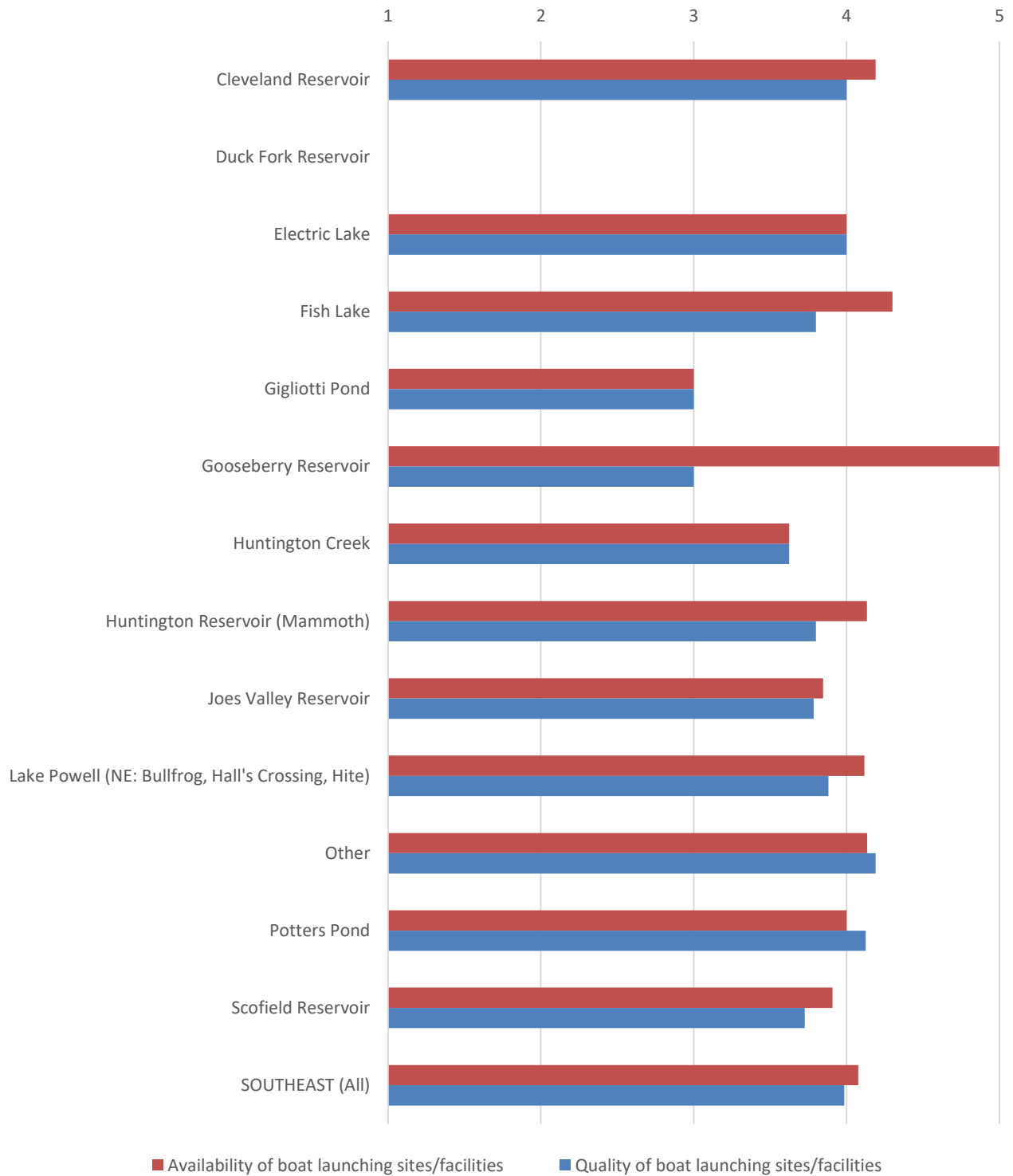
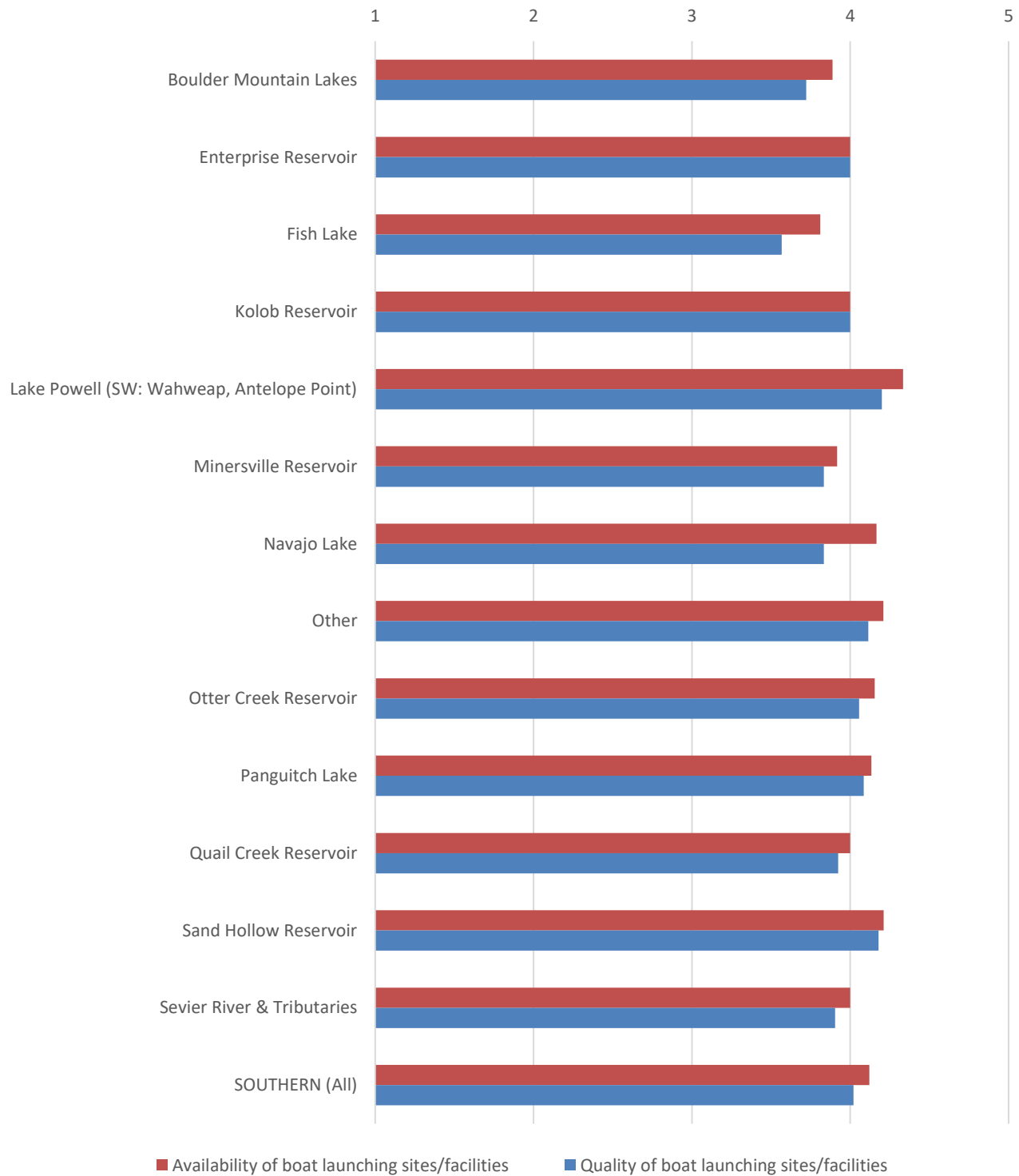


Figure 6-20. Boating Access Site Availability & Quality, Southern Region, 2016.

(1=Completely Dissatisfied, 5=Completely Satisfied)

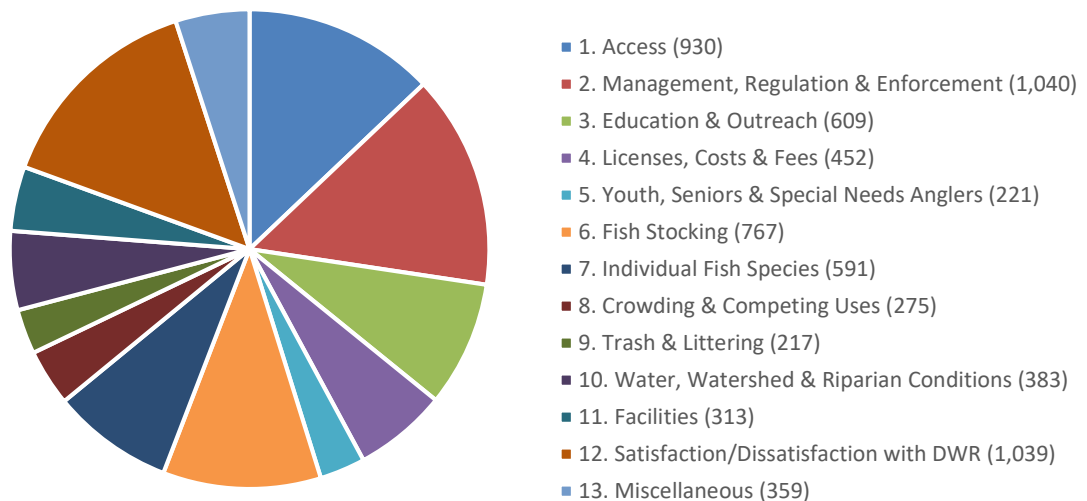


Section 7:

Qualitative Assessment of Angler Suggestions for how DWR could Improve Fishing

Question 5 asked anglers: “If the Utah Division of Wildlife Resources were to do just one thing that you think would be most effective in improving the quality of your fishing experiences in Utah, what would that be? (see Appendix A). Over the 12 reporting periods, we received over 7,000 open-ended responses. These responses were sorted into 12 content-specific categories shown below in Figure 7-1: (1) Access; (2) Management, Regulation, and Enforcement; (3) Education and Outreach; (4) Licenses, Costs, and Fees; (5) Youth, Seniors, and Special Needs Anglers; (6) Fish Stocking; (7) Comments regarding Individual Fish Species; (8) Crowding and Competing Uses; (9) Trash and Littering; (10) Water, Watershed and Riparian Conditions; (11) Facilities; (12) Overall Satisfaction/Dissatisfaction with DWR; and (13) Miscellaneous.

Figure 7-1. Number of Comments Received by Category.



	Topic	Overall Summary
1	Access	The need for better access was the number one issue of concern among anglers. Most comments lamented the trend toward decreased access to public lakes, streams and reservoirs due to private property restrictions.
2	Management, Regulation, and Enforcement	Angler comments regarding management, regulation, and enforcement were highly variable. Some called for more restrictions, other for less. Some wanted greater law enforcement, some less. Some wanted to see more emphasis on trophy fishing waters, others just wanted to catch and keep more fish. Many anglers expressed confusion over fishing regulations for particular waters. Overall, there are a lot of very useful comments under this topic.
3	Education and Outreach	Anglers gave a host of excellent recommendations for how DWR could improve fishing in the State through public education and outreach. Many comments cited improved and more-current fishing information on the DWR website. Specific items included more timely fishing reports, tips on effective fishing methods, etc. Anglers also wanted more information at fishing locations, including maps showing access points to waters. A significant number expressed interest in classes on various fishing techniques, include effective methods for releasing fish with minimal harm.
4	Licenses, Costs, and Fees	When it comes to licenses and fees, many anglers expressed high costs as a concern, especially non-residents. Also, the expense of having to pay State Park entrance fees in addition to the purchase of a fishing license was commonly noted.
5	Youth, Seniors, and Special Needs Anglers	Anglers expressed the need for more fishing opportunities for youth, including expanded/improved community fishing ponds, derbies, and free fishing days. Many anglers also voiced the need for improved facilities for handicapped and older anglers.

6	Fish Stocking	A very common suggestion was to stock more fish, and of larger sizes and diversities. Angler also wanted more information on when specific areas were stocked.
7	Comments regarding Individual Fish Species	Many anglers expressed concern – both pro and con – over efforts to boost native fish species. Lots of comments centered around anglers’ likes and dislikes of individual species.
8	Crowding and Competing Uses	Many comments expressed concern over crowding – an interesting occurrence given the lack of crowding concerns expressed in Figures 6-6 through 6-10. As for competing uses, tubers on popular rivers, fishing guides, and inconsiderate motor boaters were common concerns affecting fishing quality.
9	Trash and Littering	Many anglers expressed concerns over trash and littering. This was probably the second most-cited issue after water access restrictions due to private property.
10	Water, Watershed and Riparian Conditions	Many expressed concerns over low water levels and draw-downs during the summer. Bank conditions and upstream riparian/watershed conditions were also cited as needing improvement. Some anglers noted industrial pollution and its effect on fishing activity.
11	Facilities	Anglers gave many good suggestions for existing and possible future facilities, from fish cleaning stations and trash cans, to boat launch sites, bathrooms, and better parking.
12	Overall Satisfaction/Dissatisfaction with DWR	Anglers expressed very strong support for DWR, including its mission, personnel, programs & practices, and impact. Many non-resident anglers offered favorable comparisons between DWR and agencies in their home state.
13	Miscellaneous	Comments that fell outside the categories listed above were assigned as “Miscellaneous.” Included are comments about specific waterbodies that appeared to warrant specific action (e.g., poor fishing conditions at Scofield Reservoir).

Section 8:

Summary and Conclusions

The 2016 periodic survey of Utah anglers continues an effort begun nearly 50 years ago to monitor fishing conditions across the State. Over time, survey methods have improved from a single end-of-the-year recall survey, to the internet-based 2016 survey that sampled 60,000 anglers over a 12-month period to solicit fishing activity, locations, methods, access, species caught and kept, etc. The response rate for the 2016 survey was quite high – 30.5%. For comparison, earlier survey response rates were roughly 20% or lower. One potential drawback from our internet-based method, however, is that not all anglers have internet.

Since the last Statewide angler survey in 2011-2012, total sales of fishing licenses have declined. While the number of licenses sold in 2011 was 17% higher than in 2005, 2016 levels were 25% below 2011-2012. The biggest decline by far was in non-resident fishing licenses. Moreover, license sales have not kept pace with the growth of Utah’s population over time, leading to a decline in the number of licenses sold per capita. For example, in 1990 roughly 165 resident licenses were sold per 1,000 Utah residents. By 2016, that number had dropped to 120 licenses per 1,000 residents.

Our data indicate that statewide fishing activity involved nearly 4.3 million fishing trips and a total of 6.2 million angler days across the 2016 study period. This estimate is consistent with the four previous periodic surveys, where estimates ranged from 5.1 to 5.9 million angler days. This level of fishing activity is notable given the decline in license sales.

Consistent with the increase in angler days and fishing trips over the previous 2011-2012 periodic survey, we found an increase in the number of fish caught and kept – 25.0 and 6.8 million, respectively, or a 27% harvest rate. In contrast, the 2011-2012 angler survey estimated 17.8 million

fish were caught, and 5.6 million were kept. The 2016 estimates are consistent with those reported from both the 2000 and 2005 Statewide angler surveys (i.e., ~25 million fish).

Survey respondents reported high levels of satisfaction with their fishing experiences in the State. Crowding, a factor generally considered as having important negative effects on the quality of recreation experiences, was identified as an issue of concern by only a small percentage of Utah's anglers. Despite this, open-ended comments suggest that while physical crowding among anglers was not a problem, inconsiderate use of waters by tubers and powerboats negatively affected some anglers. Many anglers expressed concern over the steady decline in access to public waters due to private ownership of riparian areas. Another widespread concern was high levels of litter and trash along the shores of many of Utah's lakes and rivers.

On balance, results derived from the 2016 survey of Utah anglers indicate that despite an ongoing decline in license sales, angler activity levels – as well as the number of fish caught and kept, remains high and stable. The high levels of satisfaction expressed by anglers on Utah's waters indicates a well-managed fishery overall. This conclusion is supported by very high levels of support for DWR, its mission, and staff.

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Appendix A

Periodic Survey Instrument

2016 Periodic Survey Measurement Tool



2016 Utah Angler Survey

Your answers to these questions will help Utah's Division of Wildlife Resources (DWR) continue its work to provide high -quality, satisfying fishing experiences throughout the state. Completion of this on-line questionnaire usually takes less than 15 minutes. Please keep in mind that your answers are completely confidential. If you encounter a question you are unable or unwilling to answer, simply leave that question blank and continue with the next question. When you click on the arrow below you will see a letter that provides additional detail about this study. Once you've read the letter, just click on the arrow at the bottom of that page and you'll be taken to the first survey question. Thank you in advance for your time and help!

1.) First, we want to ask some questions focusing on fishing trips you may have taken in Utah during the month of _____.

2.) How many fishing trips did you take in _____?

- I did not fish in _____.
- 1 trip
- 2 trips
- 3 trips
- 4 trips
- 5 trips
- 6 trips
- 7 trips
- 8 trips
- 9 trips
- 10 trips
- More than 10 fishing trips

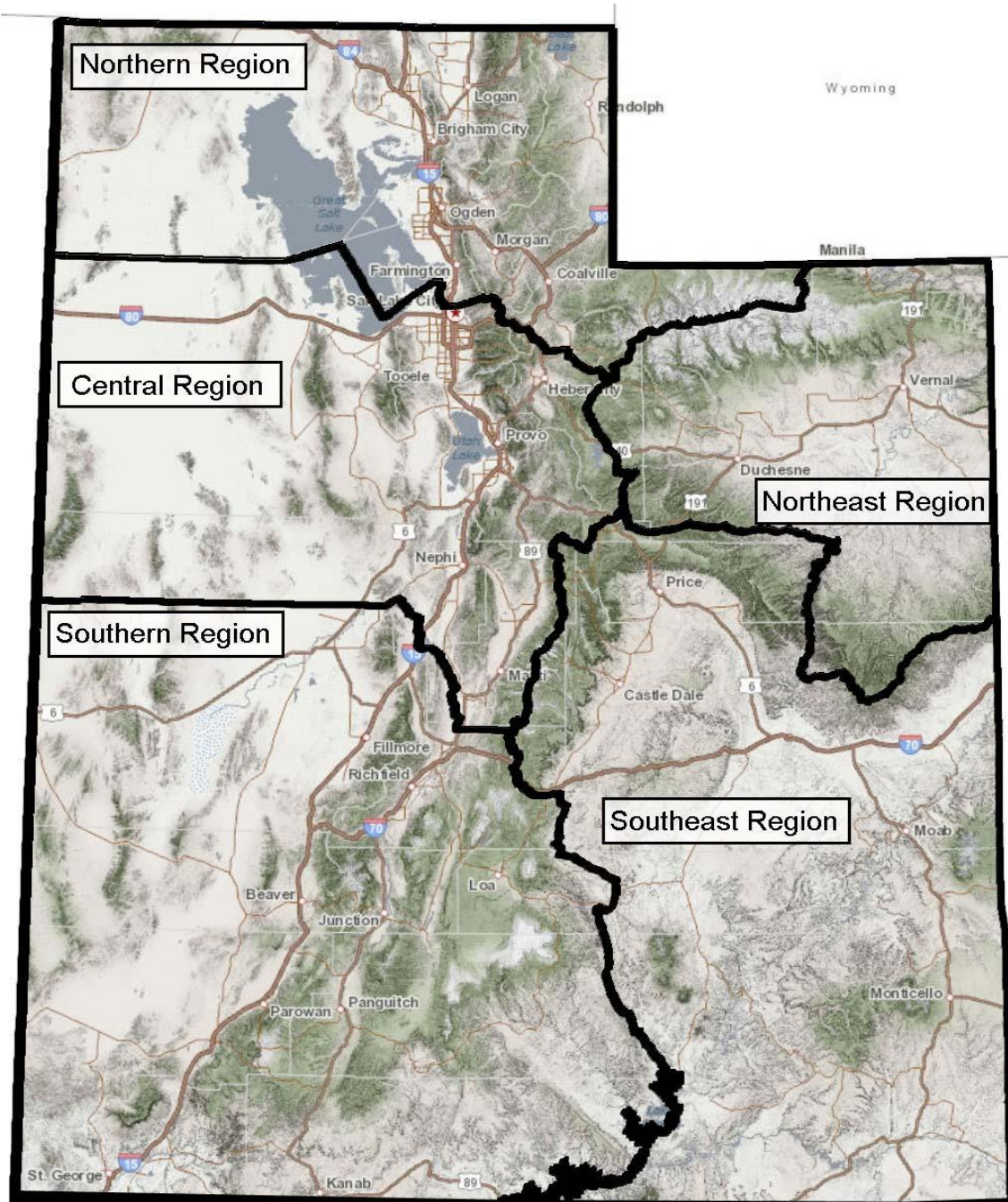
3.) Please think back to the first time you went fishing during the month of _____ as you answer the next few questions. If you've taken more than one fishing trip in _____, we'll ask you to answer questions about your other trips later in the questionnaire.

4.) To what extent did any of the following contribute to the fact that you did not take any fishing trips during the month of _____? (Please check ALL that apply):

- Limited interest in fishing overall
- Limited interest in fishing during this particular season or time of year
- Difficulty in scheduling time to be away from work
- Other demands on your schedule besides those involving employment
- Greater interest in and time spent pursuing other recreational activities
- The distance and time needed to travel to areas where you would prefer to fish
- Weather conditions that made you less interested in fishing
- Water conditions that made you less interested in fishing
- Other reasons (please specify): _____

5.) If the Utah Division of Wildlife Resources were to do just one thing that you think would be most effective in improving the quality of your fishing experiences in Utah, what would that be? Please use the space below to provide your suggestion:

6.) The map below shows the boundaries of the five regions DWR uses to manage fish and wildlife. In which of these regions did this particular fishing trip take place? If your trip involved fishing in more than one region, please click on the region where you spent most of your fishing time on this trip. Please click on only one region. Your choice will be highlighted in green.



7A.) Below is a list of some of the major fishing waters located within the Central Region. Please click on the name of the waterbody where you fished on this trip. If you fished in more than one waterbody, click on the area where you spent most of your time. Note: if you accidentally clicked on the wrong region, please click "back" until you get back to the regions page.

- Strawberry Reservoir
- Middle Provo River
- Deer Creek Reservoir
- Utah Lake
- Lower Provo River
- Jordanelle Reservoir
- Tibble Fork Reservoir
- Diamond Fork River
- Payson Lake
- Grantsville Reservoir
- Spanish Oaks Reservoir
- American Fork River
- Other (Please type your response in the text box below) _____

7B.) Below is a list of some of the major fishing waters located within the Northeast Region. Please click on the name of the waterbody where you fished on this trip. If you fished in more than one waterbody, click on the area where you spent most of your time. Note: if you accidentally clicked on the wrong region, please click "back" until you get back to the regions page.

- Flaming Gorge Reservoir
- Green River
- Starvation Reservoir
- High Uintas (South Slope)
- Strawberry River
- Matt Warner Reservoir
- Pelican Lake
- Currant Creek
- Currant Creek Reservoir
- Duchesne River
- Jones Hole Creek
- Steinaker Reservoir
- Other (Please type your response in the text box below) _____

7C.) Below is a list of some of the major fishing waters located within the Northern Region. Please click on the name of the waterbody where you fished on this trip. If you fished in more than one waterbody, click on the area where you spent most of your time. Note: if you accidentally clicked on the wrong region, please click "back" until you get back to the regions page.

- Weber River
- Rockport Reservoir
- Willard Bay Reservoir
- East Canyon Reservoir
- High Uintas (North Slope)
- Mantua Reservoir
- Logan River
- Pineview Reservoir
- Hyrum Reservoir
- Blacksmith Fork
- Bear Lake
- Ogden River
- Other (Please type your response in the text box below) _____

7D.) Below is a list of some of the major fishing waters located within the Southeast Region. Please click on the name of the waterbody where you fished on this trip. If you fished in more than one

waterbody, click on the area where you spent most of your time. Note: if you accidentally clicked on the wrong region, please click "back" until you get back to the regions page.

- Lake Powell (northeast portions, normally accessed from Bullfrog, Hall's Crossing or Hite marinas)
- Scofield Reservoir
- Electric Lake
- Huntington Creek
- Joes Valley Reservoir
- Huntington Reservoir (Mammoth)
- Potters Pond
- Duck Fork Reservoir
- Fish Lake
- Cleveland Reservoir
- Gigliotti Pond
- Gooseberry Reservoir
- Other (Please type your response in the text box below) _____

7E.) Below is a list of some of the major fishing waters located within the Southern Region. Please click on the name of the waterbody where you fished on this trip. If you fished in more than one waterbody, click on the area where you spent most of your time. Note: if you accidentally clicked on the wrong region, please click "back" until you get back to the regions page.

- Panguitch Lake
- Fish Lake
- Otter Creek Reservoir
- Lake Powell (southwest portions, normally accessed from Wahweap or Antelope Point marinas)
- Boulder Mountain Lakes
- Sand Hollow Reservoir
- Quail Creek Reservoir
- Kolob Reservoir
- Sevier River and tributaries
- Minersville Reservoir
- Navajo Lake
- Enterprise Reservoir
- Other _____

8.) Not including yourself, how many other people fished with you on this trip? (Do not count other people who accompanied you on the trip but did not fish)

- Nobody else fished with me on this trip
- One other person
- Two others
- Three others
- Four others
- Five or more others

9.) How many of the other anglers on the trip were children not required to have a fishing license (e.g. under 12 years of age)?

- None
- One
- Two
- Three
- Four
- Five or more

10.) How many days did you spend fishing on this trip? (count any part of a day as a full day)

- One day
- Two days
- Three days
- Four days
- Five days
- Six days
- Seven days or more

11.) Taken as a whole, about what percent of your time spent fishing on this trip involved using the following fishing methods? Please type the approximate percent of time you used the following methods of fishing. Total must equal 100%.

_____ Fish using bait (Powerbait, worms, minnows, etc.):

_____ Fish using artificial flies:

_____ Fish using artificial lures:

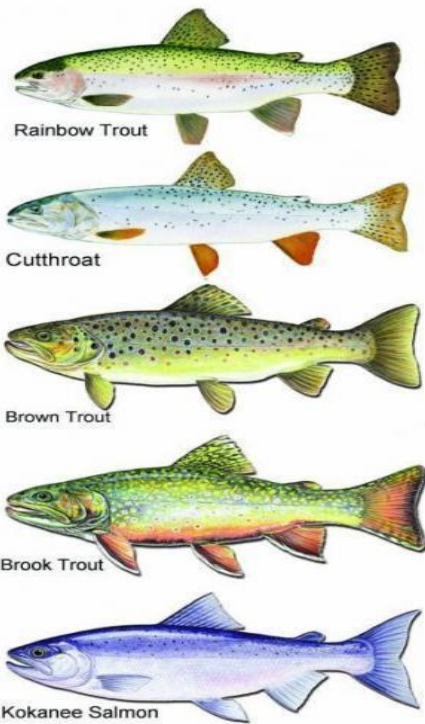
_____ Fish with other techniques (e.g., spearfishing, archery):

12.) Did you catch any fish (regardless of species) on this trip?

No

Yes

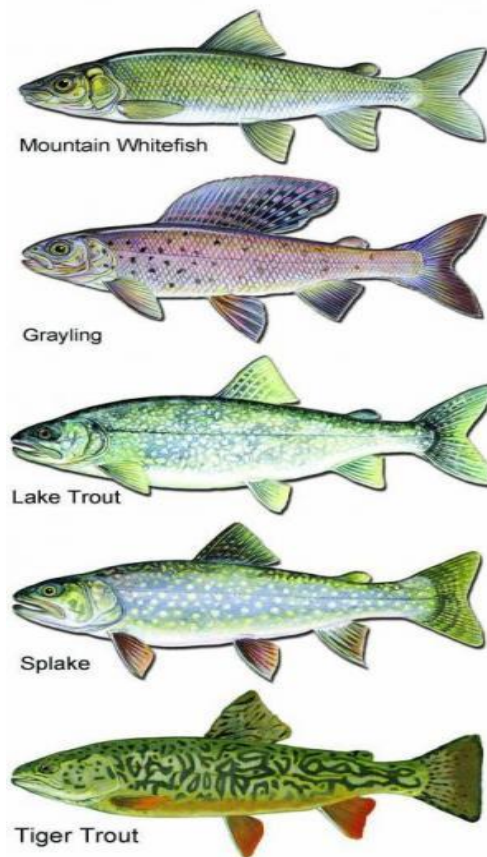
13A.) Did you catch any of the fish species below on this trip? Please click on each species you caught. Your choice will be highlighted in green. If you did not catch any of the species below click on the arrow at the bottom of the screen to move to the next question.



13B.) Think about how many total of the species below that you caught on this trip.

	None	1 to 3	4 to 5	6 to 10	More than 10
Of these species, in total how many fish did you catch?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Of that total, how many fish did you keep?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14A.) Did you catch any of the fish species below on this trip? Please click on each species you caught. Your choice will be highlighted in green. If you did not catch any of the species below click on the arrow at the bottom of the screen to move to the next question.



14B.) Think about how many total of the species below that you caught on this trip.

	None	1 to 3	4 to 5	6 to 10	More than 10
Of these species, in total how many fish did you catch?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Of that total, how many fish did you keep?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

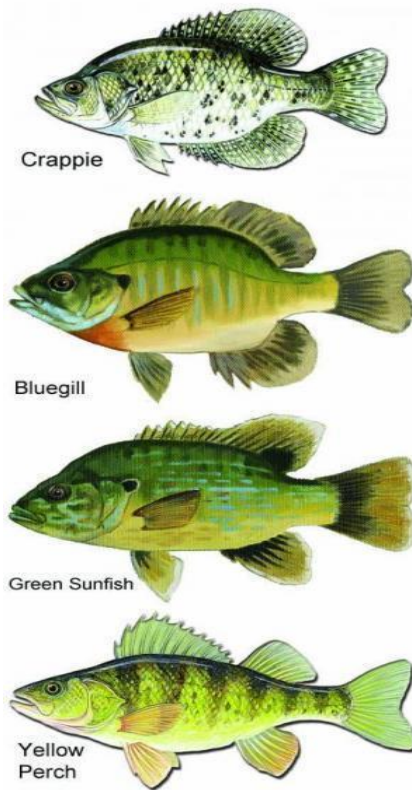
15A.) Did you catch any of the fish species below on this trip? Please click on each species you caught. Your choice will be highlighted in green. If you did not catch any of the species below click on the arrow at the bottom of the screen to move to the next question.



15B.) Think about how many total of the species below that you caught on this trip.

	None	1 to 5	6 to 10	11 to 20	More than 20
Of these species, in total how many fish did you catch?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Of that total, how many fish did you keep?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

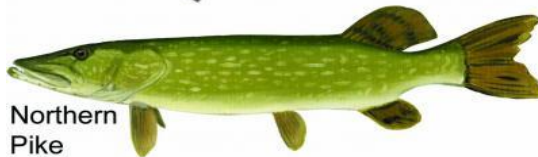
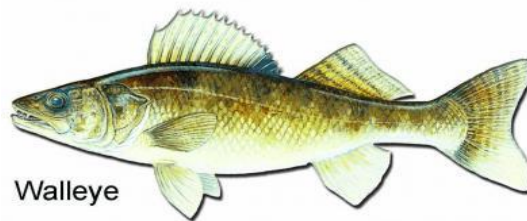
16A.) Did you catch any of the fish species below on this trip? Please click on each species you caught. Your choice will be highlighted in green. If you did not catch any of the species below click on the arrow at the bottom of the screen to move to the next question.



16B.) Think about how many total of the species below that you caught on this trip.

	None	1 to 5	6 to 10	11 to 20	More than 20
Of these species, in total how many fish did you catch?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Of that total, how many fish did you keep?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17A.) Did you catch any of the fish species below on this trip? Please click on each species you caught. Your choice will be highlighted in green. If you did not catch any of the species below click on the arrow at the bottom of the screen to move to the next question.



17B.) Think about how many total of the species below that you caught on this trip.

	None	1 to 2	3 to 5	6 to 10	11 to 20	More than 20
Of these species, in total how many fish did you catch?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Of that total, how many fish did you keep?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18A.) Did you catch any of the fish species below on this trip? Please click on each species you caught. Your choice will be highlighted in green. If you did not catch any of the species below click on the arrow at the bottom of the screen to move to the next question.



Channel Catfish



Bullhead

18B.) Think about how many total of the species below that you caught on this trip.

	None	1 to 2	3 to 5	6 to 10	11 to 20	More than 20
Of these species, in total how many fish did you catch?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Of that total, how many fish did you keep?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19.) Which of the following best represents your overall level of satisfaction with your experiences on this fishing trip?

- Completely satisfied
- Mostly satisfied
- Neutral
- Mostly dissatisfied
- Completely dissatisfied

20.) To what extent did crowding in the area where you fished on this trip reduce the quality of your fishing experience?

- Crowding did not reduce quality of the experience at all
- Crowding slightly reduced the quality of the experience
- Crowding moderately reduced the quality of the experience
- Crowding substantially reduced the quality of the experience

21.) How did you access the water you fished during this trip? (Please check all that apply)

- From shore or a fishing pier/dock on a lake or reservoir
- From a boat on a lake or reservoir
- Wading on a lake or reservoir
- From shore on a stream or river
- From a boat on a stream or river
- Wading on a stream or river
- Ice fishing
- Other method

22.) How would you rate your level of satisfaction with the availability of boat launching sites and facilities needed to access the area and use your boat on this trip?

- Completely satisfied
- Mostly satisfied
- Neutral
- Mostly dissatisfied
- Completely dissatisfied

23.) How would you rate your level of satisfaction with the quality of boat launching sites and facilities needed to access the area and use your boat on this trip?

- Completely satisfied
- Mostly satisfied
- Neutral
- Mostly dissatisfied
- Completely dissatisfied

24.) Did you take a second fishing trip during the month of _____?

- Yes
- No

25.) Please think back to the SECOND time you went fishing during the month of _____.

(Same set of trip questions repeated for ten trips)

Finally, we need to ask a few questions about you and your household. These questions allow us to compare the experiences of people who have similar and different characteristics. As with all other responses, your answers to these questions will remain strictly confidential and will be used only for group comparisons. If you prefer not to answer please check that response option.

26.) Which of the following best represents your racial or ethnic identity? (Feel free to check more than one category if appropriate).

- I prefer not to answer
- White/Caucasian/Anglo
- African American/Black
- Hispanic/Latino/Latina
- Asian
- Pacific Islander
- Native American/American Indian
- Other racial or ethnic group

27.) Which of the following best represents your pre-tax annual household income for the current year?

- I prefer not to answer
- Under \$25,000
- \$25,000 to \$39,999
- \$40,000 to \$59,999
- \$60,000 to \$74,999
- \$75,000 to \$99,999
- \$100,000 to \$149,999
- \$150,000 or higher

Thank you for your participation in the survey.

Appendix B
Angling-related DWR License Types used to
Develop License Categories

2016 License Categories		
(1) Res Combo		170,117
(2) Nonres Combo		17,364
(3) Res Combo 65+		15,663
(4) Res Fishing		137,291
(5) Resident Fishing 65+		16,395
(6) Res Short-term		458
(7) Nonres Fishing		19,870
(8) Nonres Short-term		913
	Total:	378,071
	Minus IRB Exempt:	(454)
	Total:	378,525

DWR Code	License Description	Count
B111	CWMU NRES BUCK DEER/SEASON FISHING	744
B111	RES BULL MOOSE - SPORTSMANS PERMIT	1
B141	CWMU NRES BUCK DEER PREMIUM/SEASON FISHING	13
B142	CWMU NRES BUCK DEER PREMIUM DUP/SEASON FISHING	3
B151	CWMU NRES ANY BULL ELK/SEASON FISHING	593
B181	CWMU NRES BUCK PRONGHORN/SEASON FISHING	43
B201	CWMU NRES BULL MOOSE/SEASON FISHING	25
C001	RES COMBINATION 12+	1
C001	RES COMBINATION AGE 18-64 (365 DAY)	143,565
C002	RES COMBINATION AGE 18-64 (365 DAY) DUP	1,817
C003	RES COMBINATION AGE 18-64 (365 DAY) DUP N/C	220
C003	RES COMBINATION AGE 18-64 (365 DAY) DUP/NC	3
C011	NRES COMBINATION AGE 18+ (365 DAY)	10,657
C012	NRES COMBINATION AGE 18+ (365 DAY) DUP	85
C013	NRES COMBINATION AGE 18+ (365 DAY) DUP N/C	19

C013	NRES COMBINATION AGE 18+ (365 DAY) DUP/NC	1
C021	RES COMBINATION AGE 14-17 (365 DAY)	2,316
C022	RES COMBINATION AGE 14-17 (365 DAY) DUP	53
C023	RES COMBINATION AGE 14-17 (365 DAY) DUP N/C	7
C031	NRES COMBINATION AGE 17 AND UNDER (365 DAY)	73
C032	NRES COMBINATION AGE 17 AND UNDER (365 DAY) DUP	1
C033	NRES COMBINATION AGE 17 AND UNDER (365 DAY)DUP N/C	1
C041	RES COMBINATION AGE 65+ (365 DAY)	13,665
C042	RES COMBINATION AGE 65+ (365 DAY) DUP	94
C043	RES COMBINATION AGE 65+ (365 DAY) DUP N/C	40
C321	RES COMBINATION AGE 18-64 (730 DAYS)	4,005
C322	RES COMBINATION AGE 18-64 (730 DAYS) DUP	64
C323	RES COMBINATION AGE 18-64 (730 DAYS) DUP N/C	5
C331	RES COMBINATION AGE 18-64 (1095 DAYS)	939
C332	RES COMBINATION AGE 18-64 (1095 DAYS) DUP	10
C333	RES COMBINATION AGE 18-64 (1095 DAYS) DUP N/C	4
C341	RES COMBINATION AGE 18-64 (1460 DAYS)	76
C351	RES COMBINATION AGE 18-64 (1825 DAYS)	2,993
C352	RES COMBINATION AGE 18-64 (1825 DAYS) DUP	76
C353	RES COMBINATION AGE 18-64 (1825 DAYS) DUP N/C	10
C411	RES COMBINATION AGE 18-64 (365 DAY EXTENSION)	8,462
C412	RES COMBINATION AGE 18-64 (365 DAY EXTENSION) DUP	108
C413	RES COMBINATION AGE 18-64 (365 DAY EXT) DUP N/C	14
C413	RES COMBINATION AGE 18-64 (365 DAY EXT) DUP/NC	1
C421	RES COMBINATION AGE 18-64 (730 DAY EXTENSION)	375
C422	RES COMBINATION AGE 18-64 (730 DAY EXT) DUP	4
C423	RES COMBINATION AGE 18-64 (730 DAY EXT) DUP N/C	1
C431	RES COMBINATION AGE 18-64 (1095 DAY EXTENSION)	95
C432	RES COMBINATION AGE 18-64 (1095 DAY EXT) DUP	2
C441	RES COMBINATION AGE 18-64 (1460 DAY EXTENSION)	8
C451	RES COMBINATION AGE 18-64 (1825 DAY EXTENSION)	316
C452	RES COMBINATION AGE 18-64 (1825 DAY EXT) DUP	10
C453	RES COMBINATION AGE 18-64 (1825 DAY EXT) DUP N/C	2
C521	RES COMBINATION AGE 65+ (730 DAYS)	628
C522	RES COMBINATION AGE 65+ (730 DAYS) DUP	14
C523	RES COMBINATION AGE 65+ (730 DAYS) DUP N/C	1
C531	RES COMBINATION AGE 65+ (1095 DAYS)	147

C532	RES COMBINATION AGE 65+ (1095 DAYS) DUP	1
C533	RES COMBINATION AGE 65+ (1095 DAYS) DUP N/C	1
C541	RES COMBINATION AGE 65+ (1460 DAYS)	21
C551	RES COMBINATION AGE 65+ (1825 DAYS)	291
C552	RES COMBINATION AGE 65+ (1825 DAYS) DUP	5
C553	RES COMBINATION AGE 65+ (1825 DAYS) DUP N/C	4
C611	RES COMBINATION AGE 65+ (365 DAY EXTENSION)	705
C612	RES COMBINATION AGE 65+ (365 DAY EXT) DUP	1
C613	RES COMBINATION AGE 65+ (365 DAY EXT) DUP N/C	2
C613	RES COMBINATION AGE 65+ (365 DAY EXT) DUP/NC	1
C621	RES COMBINATION AGE 65+ (730 DAY EXTENSION)	31
C631	RES COMBINATION AGE 65+ (1095 DAY EXTENSION)	4
C641	RES COMBINATION AGE 65+ (1460 DAY EXTENSION)	2
C651	RES COMBINATION AGE 65+ (1825 DAY EXTENSION)	5
C721	NRES COMBINATION AGE 18+ (730 DAYS)	119
C722	NRES COMBINATION AGE 18+ (730 DAYS) DUP	1
C723	NRES COMBINATION AGE 18+ (730 DAYS) DUP N/C	1
C731	NRES COMBINATION AGE 18+ (1095 DAYS)	22
C741	NRES COMBINATION AGE 18+ (1460 DAYS)	2
C751	NRES COMBINATION AGE 18+ (1825 DAYS)	51
C752	NRES COMBINATION AGE 18+ (1825 DAYS) DUP	1
C753	NRES COMBINATION AGE 18+ (1825 DAYS) DUP N/C	3
C811	NRES COMBINATION AGE 18+ (365 DAY EXTENSION)	479
C812	NRES COMBINATION AGE 18+ (365 DAY EXT) DUP	8
C821	NRES COMBINATION AGE 18+ (730 DAY EXTENSION)	19
C831	NRES COMBINATION AGE 18+ (1095 DAY EXTENSION)	2
C851	NRES COMBINATION AGE 18+ (1825 DAY EXTENSION)	7
C853	NRES COMBINATION AGE 18+ (1825 DAY E) DUP N/C	1
C901	RES COMBINATION AGE 18-64-NO SMALL GAME	1
C911	RES COMBINATION AGE 18-64-NO BIG GAME	2
D011	NRES BUCK DEER/SEASON FISHING	3,788
F001	RES FISHING AGE 18-64 (365 DAY)	129,479
F002	RES FISHING AGE 18-64 DUP	1,143
F003	RES FISHING AGE 18-64 DUP N/C	19
F007	SHOSHONE FISHING ANY AGE (365 DAY)	31
F011	RES FISHING ANY AGE (3 DAY)	437
F021	RES FISHING ANY AGE (7 DAY)	19
F023	RES FISHING ANY AGE (7 DAY) DUP/NC	2

F031	RES FISHING AGE 65+ (365 DAY)	14,921
F032	RES FISHING AGE 65+ DUP	74
F033	RES FISHING AGE 65+ DUP N/C	6
F100	NRES FISH ANY AGE (365 DAY) (FOR HUNT LIC)	7,661
F101	NRES FISHING AGE 18+ (365 DAY)	11,548
F102	NRES FISHING AGE 18+ DUP	106
F103	NRES FISHING AGE 18+ DUP N/C	27
F111	NRES FISHING ANY AGE (3 DAY)	877
F121	NRES FISHING ANY AGE (7 DAY)	36
F211	RES FISHING DISABLED VETERAN (365 DAY)	249
F212	RES FISHING DISABLED VETERAN DUP	1
F213	RES FISHING DISABLED VETERAN DUP N/C	2
F221	RES FISHING DISABLED VETERAN (730 DAYS)	70
F222	RES FISHING DISABLED VETERAN (730 DAYS) DUP	1
F223	RES FISHING DISABLED VETERAN (730 DAYS) DUP N/C	2
F231	RES FISHING DISABLED VETERAN (1095 DAYS)	20
F241	RES FISHING DISABLED VETERAN (1460 DAYS)	4
F251	RES FISHING DISABLED VETERAN (1825 DAYS)	95
F253	RES FISHING DISABLED VETERAN (1825 DAYS) DUP N/C	1
F261	RES FISHING DISABLED VETERAN (365 DAY EXTENSION)	5
F271	RES FISHING DISABLED VETERAN (730 DAYS EXTENSION)	1
F281	RES FISHING DISABLED VETERAN (1095 DAYS EXTENSION)	1
F301	RES FISHING DISABLED VETERAN (1825 DAYS EXTENSION)	2
F321	RES FISHING AGE 18-64 (730 DAYS)	2,086
F322	RES FISHING AGE 18-64 (730 DAYS) DUP	25
F323	RES FISHING AGE 18-64 (730 DAYS) DUP N/C	1
F331	RES FISHING AGE 18-64 (1095 DAYS)	428
F332	RES FISHING AGE 18-64 (1095 DAYS) DUP	8
F341	RES FISHING AGE 18-64 (1460 DAYS)	19
F351	RES FISHING AGE 18-64 (1825 DAYS)	690
F352	RES FISHING AGE 18-64 (1825 DAYS) DUP	8
F353	RES FISHING AGE 18-64 (1825 DAYS) DUP N/C	2
F411	RES FISHING AGE 18-64 (365 DAY EXTENSION)	3,142
F412	RES FISHING AGE 18-64 (365 DAY EXT) DUP	43
F421	RES FISHING AGE 18-64 (730 DAY EXTENSION)	93
F422	RES FISHING AGE 18-64 (730 DAY EXT) DUP	2
F423	RES FISHING AGE 18-64 (730 DAY E) DUP N/C	1
F431	RES FISHING AGE 18-64 (1095 DAY EXTENSION)	20

F451	RES FISHING AGE 18-64 (1825 DAY EXTENSION)	49
F452	RES FISHING AGE 18-64 (1825 DAY EXT) DUP	2
F521	RES FISHING AGE 65+ (730 DAYS)	409
F522	RES FISHING AGE 65+ (730 DAYS) DUP	11
F531	RES FISHING AGE 65+ (1095 DAYS)	64
F532	RES FISHING AGE 65+ (1095 DAYS) DUP	3
F541	RES FISHING AGE 65+ (1460 DAYS)	12
F551	RES FISHING AGE 65+ (1825 DAYS)	162
F552	RES FISHING AGE 65+ (1825 DAYS) DUP	3
F611	RES FISHING AGE 65+ (365 DAY EXTENSION)	685
F612	RES FISHING AGE 65+ (365 DAY EXT) DUP	7
F613	RES FISHING AGE 65+ (365 DAY EXT) DUP N/C	1
F621	RES FISHING AGE 65+ (730 DAY EXTENSION)	23
F631	RES FISHING AGE 65+ (1095 DAY EXTENSION)	4
F641	RES FISHING AGE 65+ (1460 DAY EXTENSION)	2
F651	RES FISHING AGE 65+ (1825 DAY EXTENSION)	8
F721	NRES FISHING AGE 18+ (730 DAYS)	91
F722	NRES FISHING AGE 18+ (730 DAYS) DUP	1
F731	NRES FISHING AGE 18+ (1095 DAYS)	14
F751	NRES FISHING AGE 18+ (1825 DAYS)	36
F811	NRES FISHING AGE 18+ (365 DAY EXTENSION)	367
F812	NRES FISHING AGE 18+ (365 DAY EXT) DUP	4
F821	NRES FISHING AGE 18+ (730 DAY EXTENSION)	10
F831	NRES FISHING AGE 18+ (1095 DAY EXTENSION)	2
F851	NRES FISHING AGE 18+ (1825 DAY EXTENSION)	2
F852	NRES FISHING AGE 18+ (1825 DAY EXT) DUP	1
K071	EXPO LE NRES BUCK DEER /SEASON FISHING	3
K111	EXPO LE NRES BUCK DEER PREMIUM/SEASON FISH	2
K131	EXPO LE NRES BULL ELK / SEASON FISHING	4
K151	EXPO LE NRES BUCK PRONGHORN/SEASON FISHING	1
K191	EXPO NRES DESERT BIGHORN SHEEP/FISHING	2
K231	EXPO NRES MOUNTAIN GOAT/SEASON FISHING	3
L001	LIFETIME HUNTING/FISHING LICENSE	4,551
W161	LE NRES BUCK DEER PREMIUM/SEASON FISHING	24
W169	CONSERVATION LE NRES BUCK DEER PREM/SEASON FISHING	6
W171	LE NRES BUCK DEER/SEASON FISHING	116
W179	CONSERVATION LE NRES BUCK DEER/SEASON FISHING	9
W201	NRES YOUTH ANY BULL ELK/SEASON FISHING	5

W211	LE NRES BULL ELK/SEASON FISHING	281
W219	CONSERVATION LE NRES BULL ELK/SEASON FISHING	24
W231	LE NRES BUCK PRONGHORN/SEASON FISHING	68
W239	CONSERVATION LE NRES BUCK PRONGHORN/SEASON FISHING	7
W251	NRES BULL MOOSE/SEASON FISHING	5
W271	NRES BISON/SEASON FISHING	5
W279	CONSERVATION NRES BISON HENRY MTNS/SEASON FISH	1
W291	NRES DESERT BIGHORN SHEEP/SEASON FISHING	3
W299	CONSERVATION NRES DESERT BIGHORN SHEEP/FISHING	4
W301	NRES RM BIGHORN SHEEP/SEASON FISHING	3
W309	CONSERVATION NRES RM BIGHORN SHEEP/SEASON FISH	2
W311	NRES MOUNTAIN GOAT/SEASON FISHING	10
W319	CONSERVATION NRES MOUNTAIN GOAT/SEASON FISHING	1
W351	LE NRES MULTISEASON BULL ELK/SEASON FISHING	3
W359	CONSERVATION NRES MULTISEASON BULL ELK/SEASON FISH	7
W391	LE NRES MANAGEMENT BUCK DEER/SEASON FISHING	3
	Total 2016 Licenses:	378,525

Appendix C

Advantages and Limitations of Internet-Based Surveys

As noted in this report, our transition to an internet-based survey produced a number of positive outcomes. First, it allowed for a very substantial increase in the combined sample size for the 12-month survey period, compared to the more modest sample sizes that were possible in earlier postal surveys of Utah anglers. Prior research has shown that internet surveys are far less costly per completed survey than is the case for mail surveys (Kaplowitz et al. 2004). That cost differential allowed the 2016 study to utilize a 12-month sample of 60,000 licensed anglers, compared to 16,700 license purchasers sampled for the last mail survey in 2005.

In addition, the automatic data entry and data set construction that occurs when survey participants respond to an online questionnaire eliminates the time, expense, and potential for error associated with manual coding of responses and manual data entry processes used with printed questionnaires. The internet-based Qualtrics platform used in 2016 provided almost-immediate availability of data as sampled individuals completed and submitted their responses online. This made it possible to conduct preliminary data analyses throughout the course of the study period. At the same time, the automated construction of the data set all but eliminated what

would otherwise have been be a lengthy lag period between the completion of data collection and the availability of coded and entered data, substantially shortening the time period needed to move from data collection to analysis and report preparation.

The use of an internet-based survey also allowed for a more complex survey design involving a number of “contingency” questions that had respondents proceed to alternative subsequent questions in the survey instrument, depending on how they had answered a particular item. While complex question-skipping protocols are difficult to design and tend to produce increased response errors when used with printed questionnaire formats, internet-based surveys such as that generated by Qualtrics allow “skip” patterns to occur automatically, without causing any confusion for respondents.

The choice of an internet-based survey was not without limitations. Foremost is the exclusion of a substantial number of license purchasers from possible survey participation due to the absence of an email address in DWR’s license purchaser records. Current estimates indicate that 87% of all American households now have access to the internet (Anderson and Perrin 2016), with Utah ranking among the highest of all states (Miniwatts Marketing Group 2017). Despite this, DWR’s license purchaser records for the 12-month period considered here revealed that only 39% of licensees had provided an email address at the time of purchase. As a result, the sampling frame used here excluded more than half of those who might otherwise have been eligible for study participation, simply because no email address was available for them.

This is a potential source of sample bias, since those not providing an email address may conceivably be different from those who have internet access and are also willing to provide an email address when purchasing a fishing license (e.g., age, income, education, concerns about privacy, etc.). While the percentage of license purchasers providing an email address can be

expected to increase over time as internet access becomes more widespread among the general population, DWR may find it useful to encourage provision of an email address more strongly at the time of license purchase in order to enhance the accuracy of data derived from future internet-based surveys.

In addition, internet-based surveys suffer from a tendency among some people to ignore or delete email messages used to request survey participation, especially if they are not carefully designed to make them appear legitimate and important rather than “spam” or “junk mail.” This concern was addressed in the 2016 study by sending all messages from an official Utah State University email account, and by formatting all messages using an image that included the official Utah State University logo.

Nevertheless, some emails were undeliverable due to the use of filtering devices by some recipients, and an unknown number of recipients undoubtedly deleted the messages without reading them when they did not recognize the sender or did not consider the subject line to be relevant to their interests. As is true with mail and other more traditional survey procedures, those using internet survey methods need to carefully explore survey design and implementation strategies that can at least partially overcome these and other obstacles which, if ignored, may lead to unacceptably low survey response rates.

Appendix D

“Other Waterbodies” Identified by Anglers as Fishing Destinations

REGION	OTHER WATERBODY	COUNT
CENTRAL		
	Alexander Lake	1
	American Fork River	2
	American Fork River, North Fork	1
	Andy Adams Reservoir	1
	Bartholemew Park Pond	11
	Bear Lake	1
	Bear River	1
	Beaver Creek	1
	Beaver Lake at Camp Aspen Lakes	1
	Bell Canyon Reservoir	4
	Berstons Pond	1
	Big Cottonwood	39
	Big Lake	1
	Blue Lake	6
	Boulger Reservoir	5
	Bountiful Lake	5
	Bountiful Pond	6
	Box Creek	1
	Burraston Ponds	17
	Chalk Creek	1
	Chicken Creek	1
	Cleveland Reservoir	1
	Clover Creek	1
	Community pond	9
	Cottonwood Creek	4
	Cove Pond, urban	1
	Crooked Creek	1

Currant Creek	5
Daybreak	5
Daybreak, Community Pond	1
Deep Creek Mountains	1
Deep Lake, Shingle Mill	1
Deer Creek	1
Deer Valley Ponds	1
Deseret Reservoir	2
Diamond Fork	1
Draper Pond	3
Dry Creek, near American Fork	1
Duchesne River, West Fork	1
Duck Fork	1
East Canyon	7
East Canyon Creek	1
East Canyon Reservoir	2
Electric Lake	3
Ephraim, small creek above town	1
Fairview Lakes	5
Fairview, small lake	1
Farmington Creek	1
Farmington Pond	3
Ferron Reservoir	1
Fish Creek, Lower	1
Fish Lake	1
Gooseberry	3
Gooseberry Creek	2
Gooseberry Reservoir	2
Gooseberry Reservoir	1
Great Salt Lake, nearby tributary	1
Gunnison Bend	1
Herriman Cove Pond	7
Highland Glen	15
Hobble Creek	23
Hobble Creek Reservoir	2
Hobble Creek, small streams nearby	1
Hobble Creek, Springville	2
Horseshoe Springs	1
Huntington Creek, Upper	1

Huntington Reservoir	1
Indian Farm Canyon	1
Jensen Nature Park Pond	1
Jordan Parkway Pond	1
Jordan River	40
Jordan River, local pond	1
Jordan River, Stansbury	1
Jordanelle Reservoir	1
Jordon, Community Pond	1
Lake Blanche	2
Lake Catherine	1
Lake Hill Reservoir	2
Lake Mary	2
Lake Powell	1
Ledgefork Reservoir	1
Little Cottonwood Canyon	4
Little Cottonwood Creek	5
Little Dell Reservoir	8
Lone Peak Pond	2
Lower Bell Canyon Reservoir	3
Lower Fish Creek	1
Mammoth Lake	1
Mango Canyon, lake on Skyline Drive	1
Manila Creek	4
Manila Pond	13
Manti Creek	1
Maple Lake	4
Mayfield, small ponds 12 miles from town	1
Midas Pond	1
Middle Weber River	1
Mill Creek	5
Mill Hollow Reservoir	11
Mill Race Pond	1
Mirror Lake	2
Mitchell Hollow	1
Moosehorn Lake	1
Mormon Flats	1
Mountains, small lakes	1
Mountains, small rivers and streams	1

Mountains, streams between Hobble and Strawberry	1
Mt. Pleasant Pond	1
Mt. Pleasant Reservoir	1
Murray Park Pond	7
Nephi Canyon, pond	1
Nephi, small mountain stream	1
Oquirrh Creek	1
Oquirrh Lake	7
Otter Creek Reservoir	2
Palisade Reservoir	26
Park City, pond	1
Pete's Hole	2
Pineview Reservoir	1
Pittsburg Lake	1
Pond, Highland/Pleasant Grove	1
Pond, local	1
Pond, Midway Golf Course	1
Potters Pond	4
Provo Deer Creek	1
Provo River, Lower	1
Provo River, South Fork	2
Provo River, South Fork, near Woodland	1
Provo River, Upper	14
Provo River, Upper, Rockcliff area	1
Redmond	1
Rex Reservoir	2
River Park, fishing ponds	1
Riverton Lake	1
Rockport Reservoir	20
Roy, Meadow Creek Pond	1
Salem Pond	30
Salina Reservoir	1
Salt Creek	5
Salt Lake City, canal systems	1
Salt Lake County, City Creek Canyon	4
Sandy Community Fishery	16
Sanpete County, pond	4
Santaquin Creek	3
Santaquin Fishery	3

Scofield Reservoir	6
Settlement Canyon Reservoir	29
Sevier Bridge Reservoir	1
Silver Lake	19
Silver Lake Flat Reservoir	26
Silver Lake, Brighton	2
Six-mile Ponds	5
Sixth Water Creek	2
Smith and Morehouse	7
Snow Lake	3
Soldier Creek	2
Soldier Creek Reservoir	2
South Jordan Pond	1
South Jordan, Kidney Pond	3
South Jordan, local ponds	1
South Jordan, ponds at the river bottom	1
Spanish Fork River	9
Spanish Oaks Reservoir	1
Spring Lake	10
Springville	2
Springville Pond	1
Springville Reservoir	8
Stansbury Park Reservoir	1
Starvation Reservoir	4
Strawberry	1
Strawberry Reservoir	1
Strawberry Reservoir, small lake nearby	1
Strawberry Reservoir, Soldier Creek	1
Strawberry River	3
Sunset Pond	1
The Cove	2
The Cove, Rose Canyon	1
Thistle Creek	8
Thistle/Nebo creek	1
Thousand Peaks Ranch	2
Timberlakes area, private lake	1
Tina Lake	1
Tooele City Dam	2
Tooele Reservoir	1

	Town Reservoir	1
	Trial Lake	2
	Twelve-Mile Canyon, Spring Hill Beaver Ponds	1
	Twin Lakes	1
	Uinta Mountains, Teapot Lake	3
	Uinta Mountains, various lakes	2
	Utah Lake	1
	Utah Lake, small tributary	1
	Vernal	1
	Vernon	10
	Vernon Creek Reservoir	22
	Vivian Park Pond	1
	Wall Lake	1
	Wasatch Mountain State Park Fishing Pond	6
	Washington Lake	1
	Weber River	17
	West Valley City Community Park	2
	Willard Bay	2
	Willow Pond Park	13
	Yearns Reservoir	9
	Yuma Lake Reservoir	33
	CENTRAL Total	845
NORTHEAST		
	Ashley Creek	1
	Bear River	1
	Bear River, East Fork	2
	Bear River, East Fork, campground pond	1
	Beaver Creek	1
	Big Sandwash	5
	Big Sandwash Reservoir	13
	Book Cliffs	1
	Book Cliffs Roadless Area, small creek	1
	Bridger Lake	2
	Brough Reservoir	3
	Browne Lake	3
	Brown's Draw	1
	Butterfly Lake	2
	Calder Reservoir	4

Chepeta Lake	1
Cottonwood	8
Cottonwood Reservoir	3
Current Creek Reservoir, tributaries	1
Deer Creek	4
Duchesne River, North Fork	3
Duchesne River, West Fork	5
East Canyon Creek	1
East Canyon Reservoir	2
East Park	6
East Park Reservoir	1
Electric Lake, stream	1
Granddaddy Basin	1
Granddaddy Lake	1
Haystack Lake	1
Hidden Lake, Uinta River	1
Hoop Lake	1
Huntington Reservoir	1
Jones Hole	1
Lake Canyon Lake	9
Lake Creek	1
LaPoint Reservoir	1
Lily Lake	4
Little Elk Lake	1
Little Montes Creek Reservoir	4
Long Park Reservoir	4
Marjorie Lake	1
Marsh Lake	3
Midview Lake	1
Mill Hollow	8
Mill Hollow Reservoir	3
Mirror Lake	3
Mirror Lake	1
Montes Creek	1
Montes Creek Reservoir	1
Moon Lake	8
Moose Pond	3
Moosehorn Lake	3
Oaks Park Reservoir	2

	Paradise	2
	Provo River, Upper Strawberry	1
	Rasmussen Lake Area, nearby lakes & creeks	1
	Red Creek Reservoir	3
	Red Fleet	3
	Red Fleet Reservoir	2
	Rock Creek	4
	Sandwash	2
	Sandwash Reservoir	2
	Six Lakes	2
	Six Lakes Resort	2
	Smith and Morehouse Reservoir	12
	Smith's Fork	1
	Soldier Creek	1
	Soldier Creek Reservoir	1
	Starvation Reservoir, river below dam	1
	Stillwater, Upper	1
	Strawberry	1
	Strawberry Reservoir	19
	Strawberry Reservoir, Haws Point	1
	Strawberry River, Pinnacles	1
	Uinta Mountains, north slope	3
	Uinta River	1
	Washington Lake	1
	Weber River	1
	White River	3
	Whiterocks River	5
	Whitney Reservoir	3
	Yellowstone Creek	12
	NORTHEAST Total	238
NORTHERN		
	21st Street Pond	3
	Ashley Creek, South Fork	1
	Basin Creek	2
	Bear Hollow	1
	Bear Lake, community pond	1
	Bear Lake, pond	1
	Bear River	30
	Bear River Migratory Bird Refuge	7

Beaver Creek	2
Benson	2
Benson Marina	6
Beus Pond, Ogden	1
Big Creek	3
Birch Creek	4
Birch Creek Reservoir	16
Blacksmith Fork	1
Bountiful	1
Bountiful Lake	7
Bountiful Pond	20
Brigham City, Pioneer Park Pond	1
Brough Reservoir	1
Causey Reservoir	28
Chalk Creek	1
Chesterfield Reservoir	1
Christmas Meadows	1
Cinnamon Creek	1
Clear Creek	1
Cliff Lake	1
Clinton Pond	3
Cold Springs Trout Farm	1
Community pond	8
Curtis Creek	1
Cutler	4
Cutler Dam	2
Cutler Marsh	1
Cutler Reservoir	2
Deer Creek	6
Deseret	1
Devil Creek	1
Duchesne	1
East Canyon Creek	5
East Canyon River	1
East Canyon, stream along Highway 66	1
Echo	23
Echo Lake	1
Echo Reservoir	21
Farmington Creek	1

Farmington Pond	32
Fish Lake	1
Flaming Gorge	4
Garden City, community pond	4
George Creek	1
Glassmans Pond	1
Grant White's Trout Ranch	1
Grantsville Reservoir	1
Green River	3
Hams Fork	1
Haystack Lake	1
Heiner Ranch	1
Henry's Fork	1
Hessie Lake	1
Hobbs Pond	1
Hobbs Reservoir	5
Holmes	2
Holmes Creek	4
Holmes Creek Reservoir	17
Honeyville Ponds	2
Hoop Lake	4
Howell	2
Huntsville Lake	1
Huntsville Pond	1
Hyrum	1
Jensen Nature Park Pond	15
Jordan River	1
Jordanelle	3
Kaysville	4
Kaysville Pond	20
Kings Nature Park	2
Lake Powell, Colorado River entry	1
Lake, private	2
Laketown Canyon	1
Laketown Pond	4
Laketown Reservoir	1
Lily Lake	1
Little Bear River	4
Little Bear River, below Porcupine Dam	1

Little Bear River, White's Ranch	1
Little Bear, East Fork	2
Little Bear, East Fork at Sportsman's Paradise	2
Little Creek	1
Little Creek Reservoir	5
Little Dell Reservoir	1
Locomotive Springs	3
Logan River, 1st Dam	3
Logan River, 3rd Dam	2
Lost Creek	57
Lost Creek Reservoir	36
Lost Creek, at Croydon	1
Lost Creek, near Morgan (private)	1
Lost Lake	3
Lyman Lake	1
Malad River	1
Mantua	1
Marsh Lake	4
Maybey Pond	3
Meadow Creek	4
Meadow Creek Pond	3
Meadows	1
Mill Creek	1
Mill Hollow	1
Mill Hollow Reservoir	1
Mill Pond	2
Millrace Pond	1
Mirror Lake	5
Moose Lake	2
Moosehorn Lake	1
Morgan, Hardscrabble, private	1
Morgan, nearby reservoir	1
Newton	2
Newton Dam	4
Newton Lake	1
Newton Reservoir	3
Ogden Bay	3
Ogden River, North Fork	1
Ogden River, South Fork	8

Pineview River, tributary	1
Pond, local	4
Pond, private	4
Pond, urban	1
Porcupine	7
Porcupine Reservoir	6
Provo	2
Provo River	3
Provo River, Middle	1
Provo River, near woodland	1
Provo River, North Fork	1
Provo River, Upper	7
Raft River Mountains	3
Raft River, Johnson Fork	1
Randolph River	1
Red Creek	8
Red Creek Reservoir	10
Red Pine Lake	1
Richmond, private pond	1
Rock Creek	3
Rock Creek, private	1
Roosevelt area, private pond	2
Roy City Pond	4
Sandwash	3
Sandwash Reservoir	2
Sandy Community Fishery	1
Sawmill Canyon	1
Scofield Reservoir	1
Sheep Creek	1
Sheep Creek Lake	1
Shepard Lake	1
Silver Lake	3
Silver Lake, Big Cottonwood Canyon	2
Smith and Morehouse	21
Smith and Morehouse Reservoir	5
Smithfield Canyon	1
Soldier Creek	2
Soldier Creek Reservoir	6
Sourdough	1

Spirit Lake	5
Starvation Reservoir	2
Stateline Reservoir	2
Steed Pond	15
Stillwater	1
Stillwater Fork	1
Stillwater Ponds	2
Strawberry	5
Strawberry Reservoir	20
Strawberry Reservoir, Soldier Creek side	1
Summit Creek	1
Sunridge	1
Syracuse, pond	3
Teapot Lake	1
Tony Grove	15
Trial Lake	8
Uinta Mountains	2
Uinta Mountains, Mirror Lake	3
Uinta Mountains, north slope	1
Uinta Mountains, Provo drainage	2
Uinta River	2
Uinta River, in Uinta Canyon	1
Utah State Botanical Garden Pond	2
Washington Lake	4
Weber River	2
Wellsville	9
Wellsville Dam	3
Wellsville Pond	2
Wellsville Reservoir	12
Wheeler Creek, Snow Basin	1
White Pine Lake	1
White's Ranch	1
Whitney Reservoir	1
Willard	1
Willard Bay	1
Willow Pond	7
Woodruff	5
Woodruff Creek	1
Woodruff Reservoir	4

	NORTHERN Total	832
SOUTHEAST		
Abajo Mountain		1
Baker Reservoir		1
Beaver Dam Reservoir		1
Beaver Pond		1
Beaver River		1
Benches Pond		1
Blanding, 3rd Reservoir		1
Blanding, 4th Reservoir		11
Blanding, Reservoirs		1
Blind		1
Blue Lake		1
Bob's Hole		1
Boulder Mountain		5
Boulger Reservoir		7
Calf Creek		2
Camp Jackson Lake		1
Cane Creek		1
Carbon County Community Fishing Pond		2
Carbon County Community Fishing Pond		4
Colorado River		2
Cove Lake		1
Deep Lake		2
Deer Creek		1
Electric Lake, small lake nearby		1
Ephraim Community Fishing Pond		2
Fairgrounds Pond		1
Fairview		1
Fairview Lakes		4
Fairview Reservoir		1
Ferron Reservoir		4
Ferron reservoir		10
Fish Bowl and Beaver Dams		1
Fish Creek		5
Fish Lake		1
Forsyth Reservoir		3
Fremont River		3
Got Lake		1

Grand Spa Pond	1
Grassy Lake	4
Grassy Lake, above Joes Valley Reservoir	1
Grassy Lake, Miller's Flat	1
Grassy Lake, Pete's Hole	1
Grassy Pond	1
Green Lake, Dixie National Forest	1
Green River	5
Henningson	1
Henningson Reservoir	1
Hidden Lake	1
Huntington Canyon Fly Fishing	1
Huntington Game Farm Pond	1
Huntington North Reservoir	4
Huntington State Park	1
Kens Lake	18
Knight-Ideal Community Fishing Pond	3
Kolob Reservoir, Yankee Meadows	2
La Sal Creek	1
La Sal Mountains	2
Lake Hill Reservoir	1
Lake Powell, Antelope Point	1
Lake Powell, Lone Rock	1
Lake Powell, south	1
Lake Powell, southeast portions	1
Lake Powell, state line	1
Lake Powell, Wahweep	1
Lake Powell, Wahweep to Warm Creek	1
LeBaron Reservoir	1
Little Reservoir	2
Lloyds Lake	3
Lower Fish Creek	3
Mammoth	2
Mammoth Reservoir	1
Mill Meadow	1
Mill Meadow Reservoir	2
Miller Flat Reservoir	21
Millsite Reservoir	10
Monticello Lake	10

Monticello, Foy Lake	4
Muddy Creek Drainage	1
New Canyon	1
North Huntington	1
Oowah Lake	3
Otter Creek	3
Palisade	4
Palisade Reservoir	1
Panguitch	3
Pete's Hole	8
Pine Creek	1
Potters Pond	1
Price	1
Price River	1
Puffer Lake	1
Rattlesnake Pond	1
Recapture	4
Recapture Reservoir	5
Rex Reservoir	2
Roosevelt River	1
Salina Creek	1
San Juan River	1
San Juan River, 4th Reservoir	1
Scofield, outlet river	1
Skutumpah Reservoir	1
Snow Lake	2
Soup Bowl Reservoir	1
Spinners Reservoir	2
Spring Lake	1
Straight Canyon	1
Strawberry River	1
Thousand Lake Mountain	1
Twelve-Mile Canyon	2
Twin Ponds	1
UM Creek	1
Warner Lake	1
Wellington Pond	1
Willow Lake	6
Wrigley Springs Reservoir	7

	Yearns Reservoir	3
	SOUTHEAST Total	286
SOUTHERN		
	Akers Reservoir	1
	Anderson Meadow Reservoir	3
	Antimony Creek	5
	Asay Creek	1
	Aspen Mirror Lake	9
	Baker Reservoir	14
	Beaver	1
	Beaver Canyon	1
	Beaver Mountains	5
	Beaver Mountains, Kents Lake	1
	Beaver Mountains, lakes	2
	Beaver Mountains, lakes (e.g., Kent's Lake)	1
	Beaver Mountains, streams	1
	Beaver River	8
	Beaver, lakes and streams	1
	Bicknell Bottoms	1
	Big Lake	2
	Blacks Canyon	1
	Blue Lake	1
	Blue Springs Lake, private	1
	Boulder Mountain, Boulder Creek	1
	Boulder Mountain, Deer Creek	1
	Box Creek	1
	Box Creek Reservoir, Upper	2
	Box Creek Reservoir, Upper and Lower	1
	Box Creek, Upper	3
	Brian Head Lake	1
	Brian Head Pond	2
	Calf Creek	1
	Cedar City Pond	2
	City Pond	2
	Clear Creek	1
	Cold Springs Lake	1
	Community pond	4
	Coral Ridge, nearby pond	1
	Dead Lake	3

Deer Creek Stream	2
DMAD Reservoir	3
Duck Creek	7
Duck Creek Lake	1
Duck Creek Pond	2
Duck Creek Stream	1
Duck Lake	1
Duck Pond	1
Elk Meadows	1
Farnsworth Lake	1
Fillmore Canyon	1
Flaming Gorge	1
Forebay Pond, Parowan	1
Forsyth Reservoir	4
Forsyth Reservoir, and outlet	1
Fremont River	9
Fremont River, Mill Meadow	1
Fremont River, Upper	2
Gates Lake	1
Gooseberry	1
Gooseberry, area lakes	1
Griffin Top (Barker Lakes Area)	1
Gunnison Bend	2
Hendrickson Lake	1
Hurricane	1
Indian Creek Reservoir	1
Iron County Community Fish Pond	3
Ivins Reservoir	6
Jackson Flat Reservoir	10
Joe Lay Reservoir	1
Johnson Reservoir	5
Kanab	1
Kents Lake	8
Kents Lake, Upper	1
Kolob Reservoir	1
Koosharem Reservoir	1
Lake at the Hill, Cedar City	1
Lake at the Hill, Cedar City, kid's pond	1
Lake at the Hills	3

Lake Powell	2
Lake Powell, northwest near Bullfrog	2
Languish	1
LeBaron Lake	1
Leeds Creek	1
Leigh Hill Pond	1
Little Reservoir	4
Lost Creek	1
Lower Bowns Reservoir	1
Lower Box Creek Reservoir	2
Lower Kents and South Fork	1
Lower Tawa Ponds	1
Mammoth Creek	17
Manderfield Reservoir	1
Manning Meadow Reservoir	5
Meeks Lake	1
Merchant Creek	1
Mill Hollow	1
Mill Meadow Reservoir	7
Monroe Community Fishing Pond	4
Monroe Mountain	1
Monroe Mountain, various lakes	1
Monrovia Rec Site	1
Neffs Reservoir	1
Newcastle Reservoir	28
Oak Creek	6
Palisade	1
Panguitch Creek	1
Panguitch, various streams	1
Paragonah (Red Creek) Reservoir	1
Parowan Pond	1
Pine Lake	10
Pine Valley NRA	13
Pleasant Creek	1
Pond, kid's fishing	2
Pond, local	1
Pond, near Highway 143	1
Pond, private	1
Posey Lake	2

Puffer Lake	8
Quail Creek Reservoir	1
Razor Ridge Community Pond	2
Red Creek	4
Red Creek Reservoir	4
Rex Reservoir	1
Salina Creek	1
Salina Pond	2
Salina Reservoir	2
Sand Cove	6
Sand Cove Lake	1
Sand Cove Reservoir	1
Sand Cove, Upper	2
Sand Cove, Upper Reservoir	4
Santa Clara River	3
Sevenmile Creek	3
Sevier River, East Fork	2
Skyline Pond	4
St. George, Tuweap Drive pond	1
St. George, urban ponds	1
Sullivan Park Pond	1
Tawa Ponds	3
Thousand Lake Mountain	1
Torrey, small lake nearby	1
Tropic Reservoir	9
Twin Ponds	2
UM Creek	5
Washington County Community Fish Pond	9
Washington, Razor Pond	1
Wide Hollow Reservoir	1
Yankee	2
Yankee Meadow	12
Yankee Meadow Reservoir	5
Yuba	2
Yuma Lake Reservoir	2
SOUTHERN Total	416
Grand Total	2617

Appendix E

Section Data Tables

Figures 5-5 through 5-9 with fish harvest rates.

	Trout Caught	Trout Kept	Percent Trout Kept	Whitefish Caught	Whitefish Kept	Percent Whitefish Kept	Bass Caught	Bass Kept	Percent Bass Kept	Sunfish Caught	Sunfish Kept	Percent Sunfish Kept	Pike Caught	Pike Kept	Percent Pike Kept	Catfish Caught	Catfish Kept	Percent Catfish Kept
CENTRAL REGION																		
American Fork River	82,036	8,515	10%	749	-	0%	-	-	-	2,288	-	0%	-	-	-	-	-	-
Deer Creek Reservoir	236,516	87,708	37%	3,476	1,535	44%	179,068	10,189	6%	48,933	18,283	37%	31,980	22,496	70%	2,042	-	0%
Diamond Fork River	77,251	9,222	12%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grantsville Reservoir	45,093	18,262	40%	1,332	1,332	100%	23,221	15,404	66%	-	-	-	-	-	-	5,013	5,013	100%
Jordanelle Reservoir	182,375	55,400	30%	1,688	1,688	100%	102,977	2,956	3%	37,475	4,548	12%	-	-	-	-	-	-
Lower Provo River	578,439	20,595	4%	36,348	652	2%	10,607	-	0%	-	-	-	-	-	-	489	489	100%
Middle Provo River	931,778	19,489	2%	83,073	923	1%	14,664	13,849	94%	1,922	-	0%	2,096	1,304	62%	-	-	-
Other	989,722	230,133	23%	161,054	43,547	27%	82,339	8,943	11%	84,065	2,975	4%	8,020	2,264	28%	85,223	20,626	24%
Payson Lake	78,403	37,067	47%	2,349	1,339	57%	936	936	100%	-	-	-	-	-	-	561	561	100%
Spanish Oaks Reservoir	65,181	13,131	20%	1,998	-	0%	-	-	-	-	-	-	-	-	-	-	-	-
Strawberry Reservoir	1,661,069	377,610	23%	19,696	8,210	42%	20,993	5,927	28%	14,568	2,483	17%	2,650	1,863	70%	2,453	1,863	76%
Tibble Fork Reservoir	47,252	17,794	38%	1,627	-	0%	-	-	-	1,430	-	0%	-	-	-	-	-	-
Utah Lake	10,250	4,061	40%	2,490	-	0%	254,109	86,980	34%	29,613	4,091	14%	9,036	5,038	56%	264,446	107,962	41%
CENTRAL Total:	4,985,366	898,986	18%	315,879	59,225	19%	688,912	145,183	21%	221,231	33,316	15%	53,783	32,965	61%	360,228	136,515	38%

	Trout Caught	Trout Kept	Percent Trout Kept	Whitefish Caught	Whitefish Kept	Percent Whitefish Kept	Bass Caught	Bass Kept	Percent Bass Kept	Sunfish Caught	Sunfish Kept	Percent Sunfish Kept	Pike Caught	Pike Kept	Percent Pike Kept	Catfish Caught	Catfish Kept	Percent Catfish Kept
NORTHEAST REGION																		
Current Creek	78,327	15,973	20%	7,522	891	12%	-	-	-	-	-	-	-	-	-	-	-	-
Current Creek Reservoir	72,513	28,592	39%	8,744	2,431	28%	1,263	1,263	100%	-	-	-	-	-	-	758	758	100%
Duchesne River	150,503	16,265	11%	13,162	676	5%	3,709	844	23%	844	844	100%	1,111	1,351	122%	-	-	-
Flaming Gorge Reservoir	501,191	192,300	38%	257,072	113,771	44%	107,336	5,295	5%	-	-	-	820	529	65%	758	-	0%
Green River	567,914	11,342	2%	30,226	-	0%	5,223	2,346	45%	-	-	-	537	-	0%	32,755	11,328	35%
High Uintas (South Slope)	571,858	133,138	23%	145,399	18,254	13%	1,296	-	0%	4,833	4,833	100%	-	-	-	-	-	-
Jones Hole Creek	51,977	931	2%	1,585	-	0%	-	-	-	-	-	-	-	-	-	-	-	-
Matt Warner Reservoir	60,783	16,302	27%	644	644	100%	-	-	-	7,915	-	0%	-	-	-	-	-	-
Other	435,514	107,167	25%	83,759	12,967	15%	75,238	805	1%	116,741	19,844	17%	5,039	-	0%	8,957	-	0%
Pelican Lake	787	-	0%	-	-	-	110,759	23,681	21%	99,744	22,236	22%	549	-	0%	708	-	0%
Starvation Reservoir	341,865	166,052	49%	3,221	2,434	76%	87,852	17,221	20%	122,830	70,264	57%	55,981	23,295	42%	-	-	-
Steinaker Reservoir	89,545	42,199	47%	7,676	7,676	100%	16,038	8,985	56%	47,896	14,134	30%	-	-	-	-	-	-
Strawberry River	420,153	62,601	15%	8,268	-	0%	3,725	-	0%	5,320	-	0%	528	528	100%	1,182	-	0%
NORTHEAST Total:	3,342,929	792,862	24%	567,278	159,744	28%	412,439	60,442	15%	406,122	132,154	33%	64,564	25,704	40%	45,116	12,085	27%

	Trout Caught	Trout Kept	Percent Trout Kept	Whitefish Caught	Whitefish Kept	Percent Whitefish Kept	Bass Caught	Bass Kept	Percent Bass Kept	Sunfish Caught	Sunfish Kept	Percent Sunfish Kept	Pike Caught	Pike Kept	Percent Pike Kept	Catfish Caught	Catfish Kept	Percent Catfish Kept
NORTHERN REGION																		
Bear Lake	78,029	9,203	12%	36,909	5,814	16%	4,085	-	0%	10,386	7,959	77%	529	529	100%	2,719	-	0%
Blacksmith Fork	127,233	21,848	17%	12,896	-	0%	1,180	1,180	100%	4,206	1,180	28%	604	-	0%	-	-	-
East Canyon Reservoir	213,086	99,746	47%	4,622	3,102	67%	14,492	4,693	32%	6,445	1,164	18%	567	-	0%	-	-	-
High Uintas (North Slope)	649,930	191,845	30%	213,833	46,393	22%	888	-	0%	8,881	-	0%	-	-	-	-	-	-
Hyrum Reservoir	120,474	49,527	41%	2,240	-	0%	22,242	2,889	13%	140,824	69,594	49%	-	1,243	-	-	-	-
Logan River	273,144	35,437	13%	22,959	6,166	27%	8,943	8,943	100%	8,943	8,943	100%	8,943	8,943	100%	11,287	11,287	100%
Mantua Reservoir	86,503	22,805	26%	705	-	0%	89,810	13,878	15%	238,017	125,378	53%	-	-	-	7,480	3,452	46%
Ogden River	115,679	9,879	9%	2,173	715	33%	3,143	-	0%	1,350	-	0%	-	-	-	1,091	-	0%
Other	1,007,092	245,387	24%	99,754	13,096	13%	123,442	21,423	17%	184,816	33,225	18%	9,460	4,344	46%	133,318	32,215	24%
Pineview Reservoir	14,112	3,701	26%	787	-	0%	38,582	-	0%	237,376	101,722	43%	15,258	-	0%	14,801	-	0%
Rockport Reservoir	168,961	69,239	41%	732	-	0%	23,807	3,763	16%	3,572	-	0%	-	-	-	692	-	0%
Weber River	817,905	47,549	6%	289,347	11,497	4%	5,328	2,842	53%	8,057	-	0%	-	-	-	14,813	561	4%
Willard Bay Reservoir	16,834	8,492	50%	-	-	-	363,989	161,641	44%	83,219	37,757	45%	38,149	27,116	71%	85,245	23,528	28%
NORTHERN Total:	3,688,983	814,658	22%	686,957	86,783	13%	699,931	221,252	32%	936,091	386,922	41%	73,510	42,174	57%	270,602	71,045	26%

	Trout Caught	Trout Kept	Percent Trout Kept	Whitefish Caught	Whitefish Kept	Percent Whitefish Kept	Bass Caught	Bass Kept	Percent Bass Kept	Sunfish Caught	Sunfish Kept	Percent Sunfish Kept	Pike Caught	Pike Kept	Percent Pike Kept	Catfish Caught	Catfish Kept	Percent Catfish Kept
SOUTHEAST REGION																		
Cleveland Reservoir	45,826	26,564	58%	3,976	2,337	59%	-	-	-	-	-	-	-	-	-	-	-	-
Duck Fork Reservoir	20,912	629	3%	17,780	3,305	19%	-	-	-	-	-	-	-	-	-	-	-	-
Electric Lake	41,423	13,962	34%	26,336	2,891	11%	-	-	-	-	-	-	-	-	-	-	-	-
Fish Lake	55,578	23,389	42%	19,946	4,977	25%	11,709	4,907	42%	125,142	103,953	83%	785	785	100%	785	785	100%
Gigliotti Pond	11,326	2,399	21%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gooseberry Reservoir	19,958	5,772	29%	1,488	-	0%	-	-	-	930	930	100%	-	-	-	-	-	-
Huntington Creek	45,817	1,631	4%	3,563	-	0%	-	-	-	-	-	-	3,222	-	0%	-	-	-
Huntington Reservoir (Mammoth)	25,739	12,136	47%	39,841	16,257	41%	-	-	-	-	-	-	-	-	-	-	-	-
Joes Valley Reservoir	13,436	7,473	56%	10,382	3,129	30%	-	-	-	-	-	-	5,598	-	0%	-	-	-
Lake Powell (NE: Bullfrog, Hall's Crossing, Hite)	4,540	1,803	40%	1,014	1,014	100%	852,024	417,016	49%	159,533	53,471	34%	173,739	141,257	81%	114,632	32,195	28%
Other	437,670	126,058	29%	86,122	29,383	34%	42,724	24,198	57%	18,164	3,130	17%	12,693	1,575	12%	15,267	2,399	16%
Potters Pond	57,151	14,115	25%	2,375	-	0%	-	-	-	-	-	-	-	-	-	-	-	-
Scofield Reservoir	120,759	11,682	10%	30,816	3,698	12%	8,405	8,405	100%	7,878	7,878	100%	-	-	-	-	-	-
SOUTHEAST Total:	900,135	247,616	28%	243,640	66,991	27%	914,862	454,526	50%	311,647	169,363	54%	196,037	143,617	73%	130,684	35,379	27%

	Trout Caught	Trout Kept	Percent Trout Kept	Whitefish Caught	Whitefish Kept	Percent Whitefish Kept	Bass Caught	Bass Kept	Percent Bass Kept	Sunfish Caught	Sunfish Kept	Percent Sunfish Kept	Pike Caught	Pike Kept	Percent Pike Kept	Catfish Caught	Catfish Kept	Percent Catfish Kept
SOUTHERN REGION																		
Boulder Mountain Lakes	178,204	40,878	23%	45,790	12,665	28%	777	777	100%	-	-	-	-	-	-	-	-	-
Enterprise Reservoir	98,771	28,712	29%	503	503	100%	75,598	5,821	8%	35,913	10,729	30%	-	-	-	-	-	-
Fish Lake	379,396	125,445	33%	132,618	35,763	27%	2,086	-	0%	542,288	408,947	75%	647	-	0%	537	-	0%
Kolob Reservoir	50,381	5,968	12%	1,085	417	38%	-	-	-	1,669	-	0%	-	-	-	-	-	-
Lake Powell (SW: Wahweap, Antelope Point)	6,864	5,689	83%	-	-	-	394,695	247,951	63%	43,901	9,275	21%	41,934	19,837	47%	32,753	5,751	18%
Minersville Reservoir	56,243	2,242	4%	923	923	100%	14,631	7,397	51%	-	-	-	-	-	-	-	-	-
Navajo Lake	44,859	17,279	39%	3,659	1,649	45%	3,225	444	14%	-	-	-	711	267	38%	-	-	-
Other	628,983	139,913	22%	44,285	6,250	14%	62,025	22,767	37%	56,461	8,055	14%	12,117	2,358	19%	7,918	2,080	26%
Otter Creek Reservoir	364,492	176,718	48%	8,580	6,136	72%	1,475	1,475	100%	12,540	9,838	78%	-	-	-	-	-	-
Panguitch Lake	357,802	114,638	32%	29,021	6,421	22%	5,235	3,716	71%	11,783	9,838	83%	-	-	-	1,740	387	22%
Quail Creek Reservoir	80,969	38,599	48%	2,676	372	14%	22,244	7,075	32%	35,204	15,345	44%	-	-	-	744	-	0%
Sand Hollow Reservoir	2,920	2,920	100%	572	-	0%	363,095	18,938	5%	71,108	-	0%	-	-	-	-	-	-
Sevier River & Tributaries	115,947	12,263	11%	8,051	-	0%	1,631	-	0%	-	-	-	489	-	0%	-	-	-
SOUTHERN Total:	2,364,900	711,266	30%	277,763	71,099	26%	946,717	316,360	33%	810,868	472,027	58%	55,898	22,462	40%	43,692	8,218	19%