

State of California  
California Department of Fish and Wildlife  
North Central Region

New Spicer Meadow Reservoir (Alpine and Tuolumne Counties)

2015–2016, and 2018 Angler Survey Box Analysis



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## Introduction

New Spicer Meadow Reservoir (Spicer) is located in eastern Tuolumne County and western Alpine County, California, 39 miles south of South Lake Tahoe (Figure 1). Spicer is formed by the New Spicer Dam on Highland, Hobart, and Wilderness Creeks, with additional water diverted from the North Fork Stanislaus River (NCPA 2012).

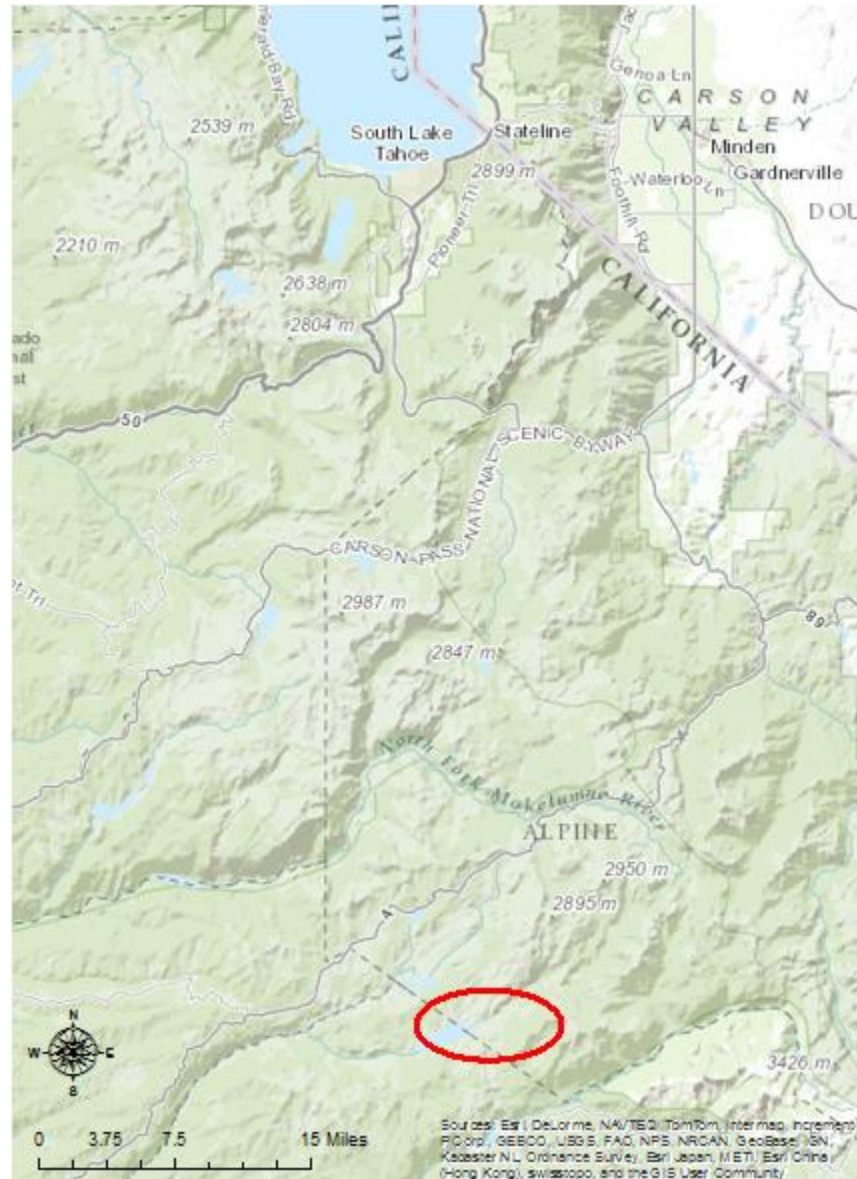


Figure 1. New Spicer Meadow Reservoir (Alpine and Tuolumne Counties).

Spicer is owned by Calaveras County Water District (CCWD), operated by Northern California Power Agency (NCPA) and permitted by the United States Department of Agriculture

(USDA) and United States Forest Service (USFS). Spicer operates under Federal Energy Regulatory Commission (FERC) Project 2409, with water used for electric power and recreation. Spicer drains into Highland Creek, which flows into the North Fork Stanislaus River watershed.

In 1990, CCWD replaced Pacific Gas and Electric's (PG&E) old dam on Spicer with a new dam that increased reservoir volume. The new dam increased maximum pool in Spicer from 215 surface acres and 4,062 acre-feet to 2,000 surface acres and 189,000 acre-feet of water storage (NCPA 2012). Spicer currently sits at an elevation of approximately 6,614 feet above mean sea level.

California Department of Fish and Wildlife (CDFW) has stocked Spicer since 1953 for recreational fishing (CDFW 2013). Historically, Spicer was stocked with rainbow trout (*Oncorhynchus mykiss*; RT) and brook trout (*Salvelinus fontinalis*; BK). Currently, CDFW only stocks fingerling- size RT in Spicer, which is managed as a "put and grow" fishery. Spicer currently has a recreational fishery including BK, Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*; LCT), brown trout (*Salmo trutta*; BN) and RT (CDFW 2013) (Ewing 2014). Historically, Spicer had a brown bullhead (*Ameiurus nebulosus*; BBH) fishery (CDFW 1991). Spicer is open year-round with a five-trout bag limit with 10 in possession regulation.

This report covers Spicer's Angler Survey Box (ASB) for 2015 – 2016, and 2018. No report was made for 2017 due to tampering to the ASB, negating anglers from filling out a data sheet that year. CDFW uses the data to assess angler satisfaction, species composition, and general angler statistics at Spicer.

## Methods

In order to assess the fishery, CDFW installed an angler survey box (ASB) at the public launch ramp in 2015. Anglers were asked to complete a voluntary survey form related to their fishing experience. The survey asked anglers for information regarding hours fished, type of gear used, method of fishing used, and the number of landed fish. They were also asked the size and species of the fish landed and whether they kept or released their catch. Finally, anglers were asked three questions, and their answers were recorded on a scale of -2 to +2, with "+2" representing most satisfied and "-2" representing least satisfied. The questions pertained to satisfaction of overall angling experience, size, and number of fish. The back of the survey form was reserved for anglers who had any additional comments.

## Results

In 2018, 23 anglers responded to the survey, compared to 53 anglers in 2016 and four in 2015 (Ewing 2016 and 2018) (Table 1). Cumulatively, these anglers landed a total of 121 fish in 2018, 161 fish in 2016, and 23 fish in 2015. Anglers reported 102.00 angler hours in 2018, a

decrease from 211.75 in 2016, but an increase from 15.00 hours in 2015. Catch per hour in 2018 was 1.18, an increase from 0.76 in 2016, but a decrease from 1.53 in 2015. Catch per angler was 5.26 in 2018, an increase from 3.04 in 2016, but a decrease from 5.75 in 2015.

Table 1. Collection of average effort and catch statistics recorded from the Angler Survey Box (ASB) at New Spicer Meadow Reservoir in 2015, 2016, and 2018.

| Year    | Anglers | Hours Fished | Fish Landed | Catch per Angler | Catch per Hour | Hours per Angler |
|---------|---------|--------------|-------------|------------------|----------------|------------------|
| 2015    | 4       | 15.00        | 23          | 5.75             | 1.53           | 4.11             |
| 2016    | 53      | 211.75       | 161         | 3.04             | 0.76           | 4.00             |
| 2018    | 23      | 102.00       | 121         | 5.26             | 1.18           | 4.43             |
| Total   | 80      |              | 305         |                  |                |                  |
| Average | 27      | 110          | 102         | 4.68             | 1.16           | 4.18             |

Anglers used various gear combinations while fishing at Spicer (Table 2). In 2018, nine anglers (~39%) used bait and had the highest catch per angler average (9.33 catch per angler). Twelve anglers (~23%) used multiple gear types and had a 4.42 catch per angler average, which was the highest in 2016. Similar to 2018, bait anglers (~50%) also had the highest catch per angler average in 2015 (6.0 catch per angler).

Table 2. The number of anglers that used each angling method and their corresponding catch rates in 2015, 2016, and 2018.

| Angling method | 2015              |                  | 2016              |                  | 2018              |                  |
|----------------|-------------------|------------------|-------------------|------------------|-------------------|------------------|
|                | Number of Anglers | Catch per Angler | Number of Anglers | Catch per Angler | Number of Anglers | Catch per Angler |
| Bait           | 2                 | 6.0              | 25                | 2.32             | 9                 | 9.33             |
| Lure           | 0                 | NA               | 13                | 3.23             | 3                 | 3.67             |
| Fly            | 0                 | NA               | 1                 | 0.00             | 0                 | NA               |
| Multiple       | 2                 | 5.5              | 12                | 4.42             | 10                | 2.10             |
| Not Recorded   | 0                 | NA               | 2                 | 4.00             | 1                 | 5.00             |
| Total          | 4                 |                  | 53                |                  | 23                |                  |

In 2018, 62.0% of fish landed were RT compared to 78.9% in 2016, and 69.6% in 2015 (Table 3). In 2018, 36.4% of fish landed were LCT compared to 16.8% in 2016, and 21.7% in 2015. In 2018, 0.8% of fish landed were BK compared to 3.7% in 2016. One unknown fish was landed, comprising 0.8% of the total catch in 2018. Unlike previous years, no BN were caught in 2018. The reported catch rates do not correspond with stocking records as only RT have been stocked in Spicer since 2001 by CDFW and there are no records of BN or LCT stockings.

Table 3. Kept and released trout and the corresponding modal size class (inches) at New Spicer Meadow Reservoir in 2015, 2016, and 2018.

| 2015    |      |          |              |                        |                  |                                 |
|---------|------|----------|--------------|------------------------|------------------|---------------------------------|
| Species | Kept | Released | Total Caught | Percent of Total Catch | Percent Released | Modal Size Class                |
| RT      | 10   | 6        | 16           | 69.6                   | 38.0             | 12.0 - 13.9" and 16.0 - 17.9"   |
| BN      | 1    | 1        | 2            | 8.7                    | 50.0             | 12.0" - 13.9"                   |
| LCT     | 4    | 1        | 5            | 21.7                   | 20.0             | 12.0" - 13.9" and 16.0" - 17.9" |
| Totals  | 15   | 8        | 23           |                        |                  |                                 |
| 2016    |      |          |              |                        |                  |                                 |
| Species | Kept | Released | Total Caught | Percent of Total Catch | Percent Released | Modal Size Class                |
| RT      | 92   | 35       | 127          | 78.9                   | 27.6             | 12.0" - 13.9"                   |
| BN      | 1    | 0        | 1            | 0.6                    | 0.0              | 12.0" - 13.9"                   |
| LCT     | 25   | 2        | 27           | 16.8                   | 7.4              | 14.0" -15.9"                    |
| BK      | 6    | 0        | 6            | 3.7                    | 0.0              | 12.0" - 13.9"                   |
| Totals  | 124  | 37       | 161          |                        |                  |                                 |
| 2018    |      |          |              |                        |                  |                                 |
| Species | Kept | Released | Total Caught | Percent of Total Catch | Percent Released | Modal Size Class                |
| RT      | 37   | 38       | 75           | 62.0                   | 50.7             | 12.0" - 13.9"                   |
| BK      | 1    | 0        | 1            | 0.8                    | 0.0              | 14.0" -15.9"                    |
| LCT     | 41   | 3        | 44           | 36.4                   | 6.8              | 12.0" - 13.9"                   |
| Unknown | 1    | 0        | 1            | 0.8                    | 0.0              | 12.0" - 13.9"                   |
| Totals  | 80   | 41       | 121          |                        |                  |                                 |

Approximately 90.9% (n = 110) of all landed fish in 2018 were less than 16 inches (in.) total length compared to 96.9% (n = 156) in 2016 and 73.9% (n = 17) in 2015 (Figure 2). Like 2016, the greatest number of RT were in the 12.0 – 13.9 in. length class in 2018 (Figure 2 and Table 3). The greatest number of LCT collected in 2018 was also the 12.0 – 13.9 in. length class, compared to the 14.0 – 15.9 in. length class in 2016. No BN were landed in 2018. The length-frequency class with the greatest overall number of fish was the 12.0 - 13.9 in. size class in 2018 for the third survey year in a row.

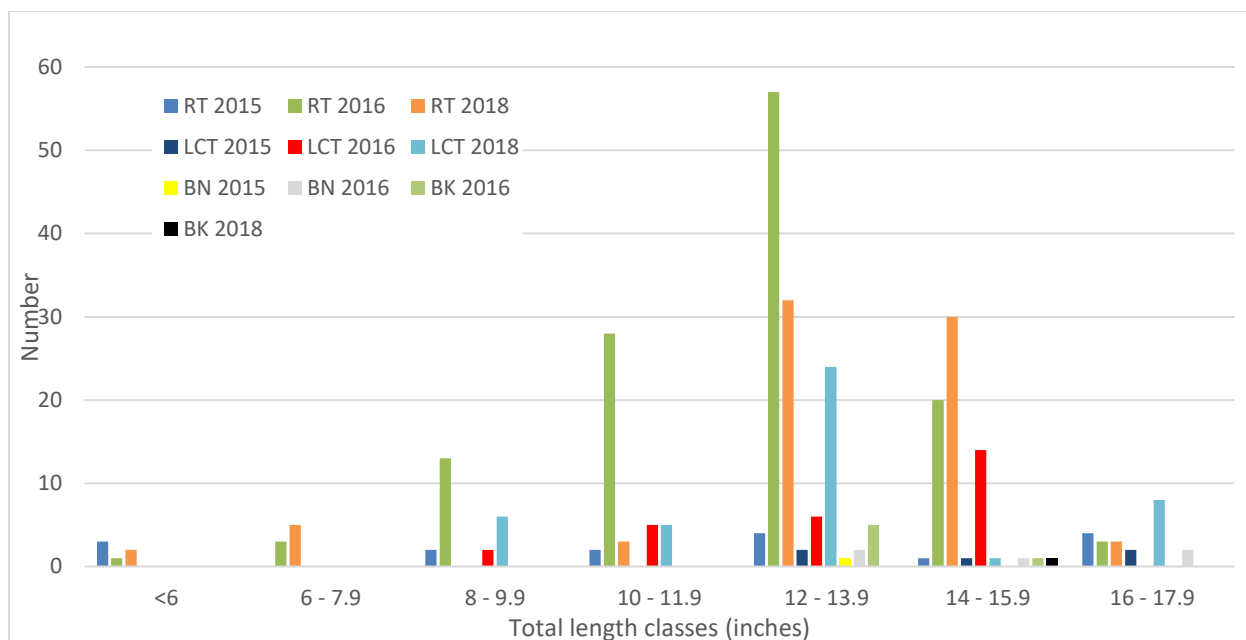


Figure 1. Frequency of trout (Rainbow trout, RT; Brook trout, BK; Brown trout, BN; and Lahontan cutthroat trout, LCT) in each size class (inches; in) that anglers reported landing at New Spicer Meadow Reservoir in 2015, 2016, and 2018. Two RT > 26 in. in 2016 and one unknown fish in the 12.0 – 13.9 in. class in 2018 were not included in the graph to aid in graph scaling and visibility.

In 2018, two anglers (8.7%) waded/shore fished, resulting in the highest catch per angler average (10.00) (Table 4). This average is an increase from 2016 when no wading/shore anglers caught any fish. Sixteen anglers (69.6%) fished from a boat in 2018, resulting in a 6.00 catch per angler average. This average is an increase from 2016 in which 11 boat anglers (20.8%) had a 3.45 catch per angler average.

Table 4. The number of anglers and catch per angler based on angling method at New Spicer Meadow Reservoir in 2016 and 2018.

| Method       | 2016                  |                  | 2018                  |                  |
|--------------|-----------------------|------------------|-----------------------|------------------|
|              | Number of Anglers (%) | Catch per Angler | Number of Anglers (%) | Catch per Angler |
| Boat         | 11(20.8%)             | 3.45             | 16 (69.6%)            | 6.00             |
| Float        |                       |                  |                       |                  |
| tube/kayak   | 1 (1.9%)              | 0.00             | 0 (0%)                | NA               |
| Shore/Wading | 1 (1.9%)              | 0.00             | 2 (8.7%)              | 10.00            |
| Not recorded | 40 (75.5%)            | 3.08             | 1 (4.3%)              | 5.00             |
| Multiple     | 0 (0%)                | NA               | 4 (17.4%)             | 0.00             |
| Total        | 53                    |                  | 23                    |                  |

Anglers had a positive average response with their overall fishing experience for a third consecutive monitoring year (2018 = 1.07; 2016 = 0.57; 2015 = 2.00) (Table 5). Anglers were also satisfied with the size of the fish caught (2018 = 1.29; 2016 = 0.75; 2015 = 1.33) and number of fish caught (2018 = 0.86; 2016 = 0.26; 2015 = 2.00) for a third consecutive monitoring year.

Table 5. Angler satisfaction response averages for New Spicer Meadow Reservoir, 2015, 2016, and 2018.

| Year | Overall Angling Experience | Size of Fish | Number of Fish |
|------|----------------------------|--------------|----------------|
| 2015 | 2.00                       | 1.33         | 2.00           |
| 2016 | 0.57                       | 0.75         | 0.26           |
| 2018 | 1.07                       | 1.29         | 0.86           |

## Discussion

Anglers continue to have high catch per angler averages at New Spicer for a third consecutive sampling season, which is very successful. Although the number of respondents in 2018 decreased from 2016, there was still a large enough number to gather useful information. The increase in respondents in 2016 and 2018 from 2015 may have provided CDFW with a more accurate assessment of the recreational fishery. When possible, CDFW should continue to notify anglers of the presence and location of the Spicer ASB, and how participation benefits fisheries management. Currently, many anglers are likely aware of the ASB at Spicer.

Catch per angler for bait anglers was higher than any other form of gear used in 2018, which also had the highest catch per angler average in 2015. Nine of the 23 anglers were bait anglers in 2018, which may be an accurate representation of the angling population that year. Most fish caught were RT for a third consecutive sampling season, which is consistent with the stocking records. Although RT continue to be the greatest single specie caught, LCT made up 36.4% of the total catch in 2018. This indicates Spicer has a large, wild LCT population. To ensure anglers are properly identifying their catch, especially between RT and LCT, CDFW will install a species identification sign listing all fish possibly present in Spicer. The sign could include a few words explaining how Spicer is a diverse recreational fishery.

Although Spicer continues to have high catch rates, the great majority of fish caught continue to be under 16 in. This corresponds with stocking data, which show all fish stocked by CDFW have been less than 16 in. in recent years (Appendix 1). It is unknown why there have been so few trophy-size fish being caught. Salmonids are generally considered as opportunists (Hunt and Jones 1972) or generalists (Hynes 1970). New Spicer is a large reservoir with a large

population of baitfish, including golden shiner (*Notemigonus crysoleucas*) and speckled dace (*Rhinichthys osculus*) that would likely be a great forage base for trout. Although few-trophy-size fish have been reported, it is possible they are being caught and not being reported or present, but not being caught. Nonetheless, anglers were satisfied with the size and number of fish they were catching, as well as their overall fishing experience for a third consecutive sampling year. Spicer has a “put and grow” hatchery supplemented fishery and a wild trout component. Spicer has numerous tributaries where species like BN, LCT, and BK have created a self-sustaining population. Due to the drought in 2015, hatcheries were not able to stock Spicer in 2016. In 2017, a disease affected the RT allotted for Spicer, which also prevented any stocking of RT. It was possible that the wild trout component of Spicer was able to supplement the sport-fishery during the two years it did not receive a stocking. No stockings in the last two years may also explain the greater percentage of LCT caught compared to 2015 and 2016.

Anglers at Spicer have the opportunity to catch a variety of catchable-size salmonids that are in great physical shape and often fight with greater force than a “put and take” hatchery trout. CDFW will likely collect ASB data for another two years. This will likely provide CDFW with enough information to continue managing the fishery to satisfy the needs of anglers.

### **Recommendations**

- When possible, CDFW should continue to encourage anglers to fill out the ASB forms.
- CDFW should install a species identification board on or near the ASB at New Spicer Meadow Reservoir to minimize species misidentification by anglers.
- CDFW should gather at least two more years’ worth of data before removing the ASB at New Spicer Meadow Reservoir.

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Appendix 1. Stocking history at New Spicer Meadow Reservoir since 2001. (ELT = Eagle Lake rainbow trout, RT = Rainbow trout).

| Date      | Species | Number | Weight (lbs.) | Size-Class |
|-----------|---------|--------|---------------|------------|
| 6/18/2001 | ELT     | 51,000 | 150           | Fingerling |
| 7/9/2002  | RT      | 39,872 | 89            | Fingerling |
| 7/9/2002  | RT      | 34,668 | 107           | Fingerling |
| 7/29/2003 | ELT     | 50,224 | 584           | Fingerling |
| 6/21/2004 | RT      | 51,900 | 300           | Fingerling |
| 6/23/2005 | RT      | 50,000 | 93.3          | Fingerling |
| 8/8/2006  | RT      | 21,090 | 38            | Fingerling |
| 8/8/2006  | RT      | 28,959 | 49            | Fingerling |
| 8/13/2007 | RT      | 50,050 | 715           | Fingerling |
| 7/21/2008 | RT      | 50,000 | 133           | Fingerling |
| 6/17/2009 | RT      | 50,018 | 70.3          | Fingerling |
| 6/30/2010 | RT      | 50,336 | 121           | Fingerling |
| 7/8/2011  | RT      | 50,050 | 455           | Fingerling |
| 7/13/2012 | RT      | 41,646 | 631           | Fingerling |
| 6/4/2013  | RT      | 25,000 | 40.9          | Fingerling |
| 6/3/2014  | RT      | 25,000 | 250           | Fingerling |
| 7/6/2015  | RT      | 21,060 | 450           | Fingerling |