

NEVADA DEPARTMENT OF WILDLIFE STATEWIDE FISHERIES MANAGEMENT



FEDERAL AID JOB PROGRESS REPORTS

F-20-53
2017

BILK CREEK RESERVOIR WESTERN REGION



**NEVADA DEPARTMENT OF WILDLIFE, FISHERIES DIVISION
JOB PROGRESS REPORT**

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**NEVADA DEPARTMENT OF WILDLIFE, FISHERIES DIVISION
ANNUAL PROGRESS REPORT**

State: *Nevada*
Project Title: *Statewide Fisheries Program*
Job Title: *Bilk Creek Reservoir*
Period Covered: *January 1, 2017 through December 31, 2017*

SUMMARY

Bilk Creek Reservoir provided angling opportunities throughout 2017. Anglers reported catching rainbow trout, tiger trout, bluegill, and largemouth bass. Rainbow trout and tiger trout were stocked in the reservoir in 2017 to meet angling demands. Angler success rates were calculated from 2017 angler drop-box surveys and opportunistic angler surveys. Largemouth bass stomach samples were collected and analyzed. Water levels in Bilk Creek Reservoir varied throughout 2017 due to irrigation demands, but remained good from a fisheries aspect in 2017. The above average runoff in 2017 resulted in turbid water conditions in the spring and early summer.

BACKGROUND

Bilk Creek Reservoir is located on Bilk Creek at the base of the southern end of the Bilk Creek Mountains. The reservoir is almost entirely on private land that is owned and operated by the Quinn River Crossing Ranch, which uses water from the reservoir for irrigation. The reservoir covers 60 surface acres and stores 670 acre-feet of water with an average depth of 10 feet and maximum depth of 17 feet when full.

The reservoir is a popular destination for local residents of Quinn River Valley, Kings River Valley, Orovada, Denio, and Winnemucca. It currently supports rainbow trout, tiger trout, bluegill, and largemouth bass fisheries. In 2015 and 2016, bluegill was stocked in the reservoir. The trout fishery is composed of stocked rainbow trout and tiger trout. Bilk Creek Reservoir is managed as a general coldwater and warmwater fishery.

OBJECTIVES

- Conduct a general fisheries assessment through opportunistic angler contacts, angler drop-box surveys, and mail-in angler questionnaire data.
- Monitor fish populations during one night of electroshocking.
- Collect body condition data and conduct stomach content analysis on largemouth bass caught during electroshocking surveys to determine the forage that is being utilized.

PROCEDURES

Conduct a general fisheries assessment through opportunistic angler contacts, angler drop-box surveys, and mail-in, angler questionnaire data. Angler use, success, and harvest were assessed through angler contacts, angler drop-box surveys, and the Mail-in Angler Questionnaire Survey. Angler drop-box surveys collected basic creel information and assessed angler satisfaction. The survey asked participants to rate three aspects of their fishing day on a scale of -2.0 (highly dissatisfied) to +2.0 (highly satisfied). The drop-box was maintained and forms were replenished throughout the year. Mail-in angler questionnaire data is derived from a survey mailed to 30,000 license purchasers from the previous year.

Monitor fish populations during one night of electroshocking. Electroshocking was not conducted in 2017.

Collect body condition data and conduct stomach content analysis on largemouth bass caught during electrofishing surveys to determine the forage that is being utilized. Stomach samples were collected from largemouth bass, but body condition data was not collected on largemouth bass in 2017.

FINDINGS

Conduct a general fisheries assessment through opportunistic angler contacts, angler drop-box surveys, and mail-in, angler questionnaire data. Rainbow trout and tiger trout were stocked in Bilk Creek Reservoir in 2017. The total number of trout stocked in Bilk Creek Reservoir in 2017 was 6,353. The five-year stocking history from 2013 to 2017 is shown in Table 1.

Bilk Creek Reservoir is open year round to fishing and the angler drop-boxes are located at each end of the reservoir at main access locations. A total of 21 anglers participated in 2017 by completing survey forms. Table 2 summarizes the monthly use and success reported. Anglers caught 334 fish and 16.8% of those were harvested, which is comparable to a 14.9% harvest in 2016. Overall, angler satisfaction was positive for all categories. Table 3 summarizes length frequency of fish caught and shows that most species were less than 14 inches.

Mail-in angler questionnaire data for 2016 estimated 428 anglers fished for 823 days catching 4,939 fish. Angler success was 11.53 fish/angler and 6.0 fish/hour in 2016 (Figure 1 and 2). The angler success rates for 2016 are slightly below the 5-year average of 17.8 fish/angler and 6.49 fish/hour.

Opportunistic angler contacts were made in May, June, and July 2017 (Table 4). Six anglers fished for 21 hours to catch 104 fish for a catch rate of 13.33 fish/angler and 3.82 fish/hour. Length frequency of fish from angler contacts is provided in Table 5.

Table 1. Bilk Creek Reservoir Five-Year Stocking History 2013 - 2017.

| Year | Species | Strain | Number of Fish | Pounds of Fish | Average Size (inches) | Annual Total | |
|------|---------------|------------|----------------|----------------|-----------------------|--------------|--------|
| | | | | | | Number | Pounds |
| 2013 | Rainbow trout | Eagle Lake | 3,999 | 1,550 | 9.9 | 6,308 | 2,262 |
| | Rainbow trout | Triploid | 666 | 187 | 8.4 | | |
| | Rainbow trout | Eagle Lake | 1,643 | 525 | 9.3 | | |
| 2014 | Rainbow trout | Triploid | 3,170 | 1,000 | 9.2 | 8,025 | 2,540 |
| | Tiger trout | - | 1,115 | 500 | 10.4 | | |
| | Rainbow trout | Tahoe | 3,740 | 1,040 | 9.0 | | |
| 2015 | Cuttbow trout | Cuttbow | 4,041 | 1,082 | 8.6 | 8,424 | 2,632 |
| | Rainbow trout | Triploid | 4,031 | 1,450 | 9.7 | | |
| | Tiger Trout | - | 314 | 100 | 9.3 | | |
| | Bluegill | - | 38 | - | 5.3 | | |
| 2016 | Rainbow trout | Eagle Lake | 4,018 | 1,400 | 9.6 | 7,033 | 2,207 |
| | Tiger trout | - | 499 | 160 | 9.3 | | |
| | Bluegill | - | 510 | - | 4.25 | | |
| | Rainbow trout | - | 2,006 | 647 | 9.3 | | |
| 2017 | Rainbow trout | Eagle Lake | 1,032 | 300 | 9 | 6,353 | 2,122 |
| | Rainbow trout | Kamloops | 2,289 | 700 | 9.1 | | |
| | Rainbow trout | Triploid | 1,998 | 732 | 9.7 | | |
| | Tiger Trout | -- | 1,034 | 390 | 9.8 | | |

Table 2. Monthly Angler Use and Success Data – Drop-Box 2017.

| Month | # of Anglers | # of Angler Hours | Angler Satisfaction | | | # of Fish Caught | # of Fish Harvested | Fish/Angler | Fish/Hour |
|--------------|--------------|-------------------|---------------------|--------------|-----------|------------------|---------------------|-------------|-----------|
| | | | Angling Experience | Size of Fish | # of Fish | | | | |
| January | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| April | 2 | 6.5 | 1 | 0.5 | 0.5 | 3 | 2 | 1 | 0.31 |
| May | 1 | 3 | 2 | 2 | 2 | 14 | 0 | 14 | 4.67 |
| June | 7 | 37 | 1.14 | 0.29 | 0.57 | 85 | 27 | 12.14 | 2.30 |
| July | 3 | 15 | 1.00 | -0.33 | 0.66 | 61 | 5 | 20.33 | 4.07 |
| August | 2 | 7 | 1 | -1 | 1.5 | 77 | 7 | 38.5 | 11.00 |
| September | 2 | 5 | 1.5 | 0 | 2 | 69 | 0 | 34.5 | 13.8 |
| October | 3 | 12 | 2 | 2 | 2 | 25 | 15 | 8.33 | 2.08 |
| Total | 21 | 86.5 | 1.33 | 0.43 | 1.15 | 334 | 56 | 14.31 | 4.25 |

Table 3. Length Frequency and Species Composition Data – Drop-Box 2017.

| Species | # Caught | Size Class | | | | | | | |
|-----------------|----------|------------|----------|----------|----------|----------|----------|--------|------|
| | | <10" | 10-11.9" | 12-13.9" | 14-15.9" | 16-17.9" | 18-19.9" | 20-22" | >22" |
| Largemouth bass | 102 | 73 | 26 | 3 | 0 | 0 | 0 | 0 | 0 |
| Rainbow trout | 143 | 110 | 21 | 12 | 0 | 0 | 0 | 0 | 0 |
| Tiger trout | 36 | 11 | 20 | 3 | 1 | 1 | 0 | 0 | 0 |
| Bluegill | 53 | 53 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

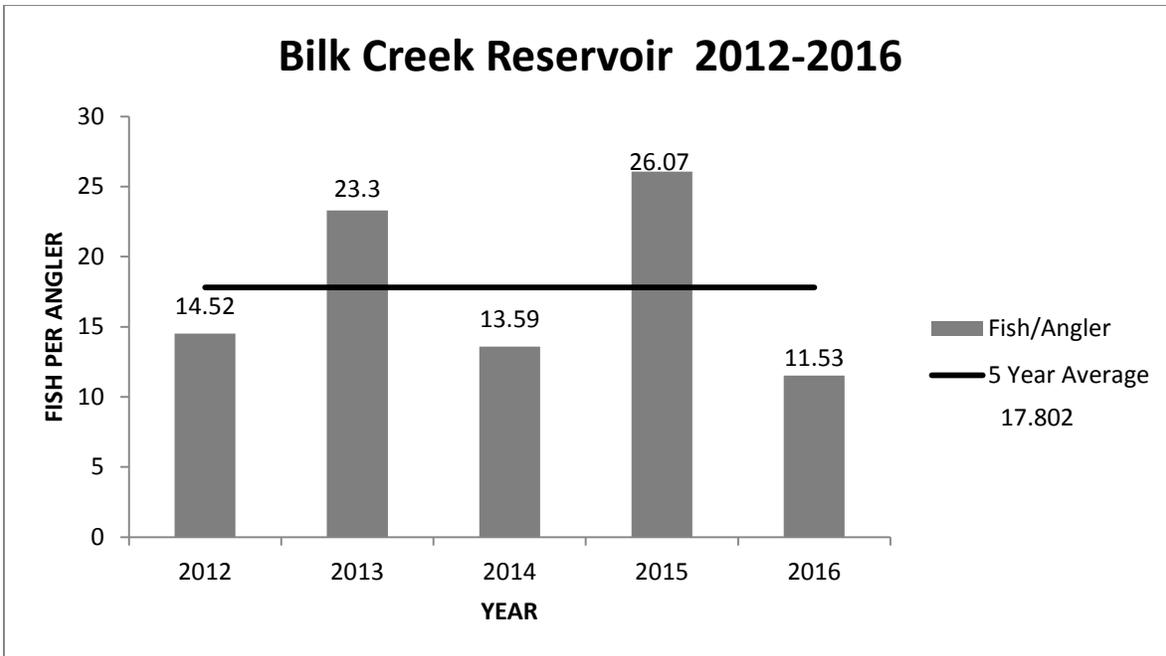


Figure 1. Bilk Creek Reservoir Angler Questionnaire fish/angler 2012 - 2016.

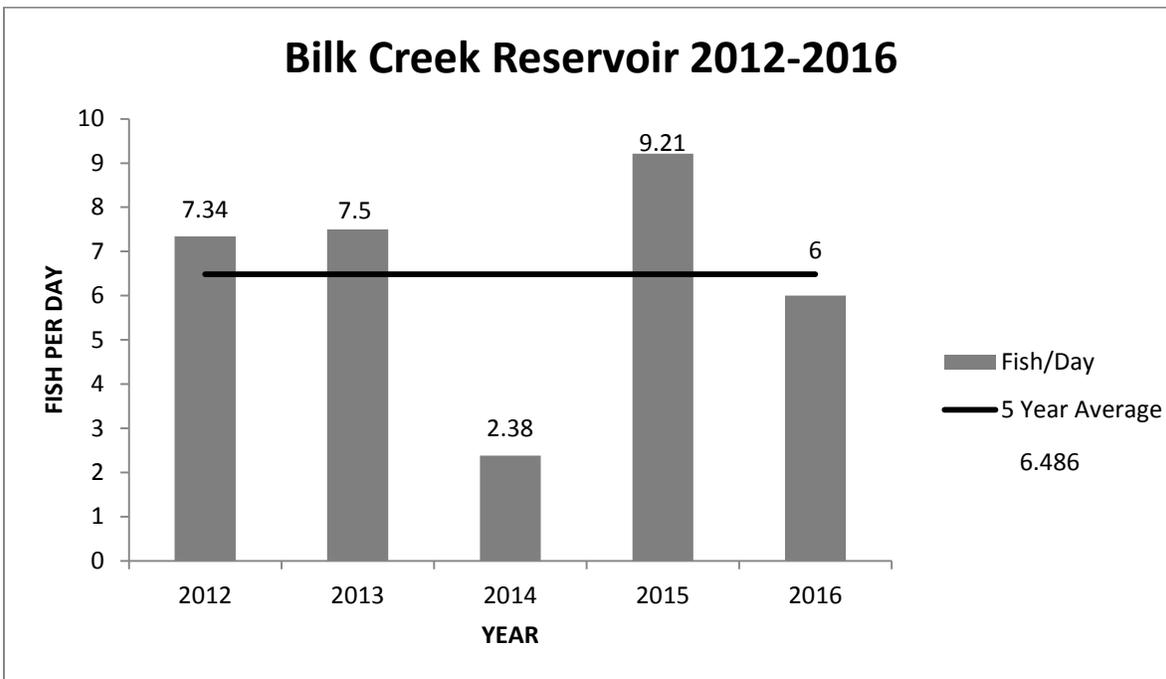


Figure 2. Bilk Creek Reservoir Angler Questionnaire fish/day 2012 - 2016.

Table 4. Bilk Creek Reservoir - Angler Contacts 2017.

| Month | Survey Days | Anglers | Angler Hours | Fish | Fish/Angler | Fish/Hour |
|----------------|-------------|---------|--------------|------|-------------|-----------|
| May | 1 | 1 | 3 | 14 | 14 | 4.67 |
| June | 1 | 1 | 4 | 5 | 5 | 0.80 |
| July | 2 | 4 | 14 | 85 | 21 | 6.0 |
| Summary | 4 | 6 | 21 | 104 | 13.33 | 3.82 |

Table 5. Length Frequency and Species Composition Data – Angler Contacts

| Species | # Caught | Size Class | | | | | | | |
|-----------------|----------|------------|----------|----------|----------|----------|----------|----------|------|
| | | <10" | 10-11.9" | 12-13.9" | 14-15.9" | 16-17.9" | 18-19.9" | 20-24.9" | >25" |
| Largemouth bass | 77 | 64 | 12 | 1 | 0 | 0 | 0 | 0 | 0 |
| Rainbow trout | 23 | 20 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| Bluegill | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

The above average runoff in 2017 brought plenty of water into Bilk Creek Reservoir. Early spring water releases prevented the reservoir from spilling over the spillway during the spring of 2017. Water clarity at Bilk Creek Reservoir was poor throughout the spring and early summer 2017. As stream flows receded in June, the water clarity improved. During each site visit to Bilk Creek Reservoir a general habitat assessment was conducted at the reservoir that includes water temperature, water level, water clarity, and road conditions. Table 6 summarizes the assessments that occurred in 2017.

Table 6. General habitat assessments at Bilk Creek Reservoir 2017.

| Date | Water Temperature (°F) | Water Level | Water Clarity | Road Conditions | Comments |
|------------|------------------------|-------------|---------------|-----------------|----------|
| 4/11/2017 | 51 | 90% | Turbid | Good | |
| 5/10/2017 | 58 | 90% | Turbid | Good | |
| 6/13/2017 | 63 | 80% | Cloudy | Good | |
| 7/19/2017 | 70 | 75% | Clear | Good | |
| 10/11/2017 | 44 | 80% | Clear | Good | |

Monitor rainbow trout and largemouth bass populations during one night of electroshocking. Electroshocking did not occur in 2017 due to mechanical issues with the electroshocking boat.

Collect body condition data and conduct stomach content analysis on largemouth bass caught during electrofishing surveys to determine the forage that is being utilized. Stomach samples were collected from 21 largemouth bass on July 19, 2017. Stomach contents were obtained by using stomach tubes, which are made out of plastic or acrylic and have beveled or smooth ends so as not to harm the fish. The largemouth bass that were sampled ranged in length from 185 mm – 280 mm. The stomach contents were analyzed visually and percentage estimates of contents were then recorded. The stomach contents found in 2017 were beetles (56%), unidentified nymphs (16%), Chironomidae (14%), ants (9%), scuds (3%), and damselflies (2%)(Figure 3).

MANAGEMENT REVIEW

Angler success summarized from the drop-box survey, on-site angler survey, and mail-in questionnaire survey indicates that Bilk Creek Reservoir is exceeding the standards of a general coldwater and warmwater fishery. In addition, angler satisfaction ratings were positive. Angler success rates for the mail-in questionnaire in 2016 were

11.53 fish/angler and 6.0 fish/hour. The 2017 opportunistic angler surveys resulted in 13.33 fish/angler and 3.82 fish/hour. The 2017 angler drop-box surveys resulted in 14.31 fish/day and 4.25 fish/hour. These angler success rates are well above the standards set for the general coldwater and warmwater fisheries management concepts of 0.25 - 0.75 fish/hour and 1.0 - 2.0 fish/day.

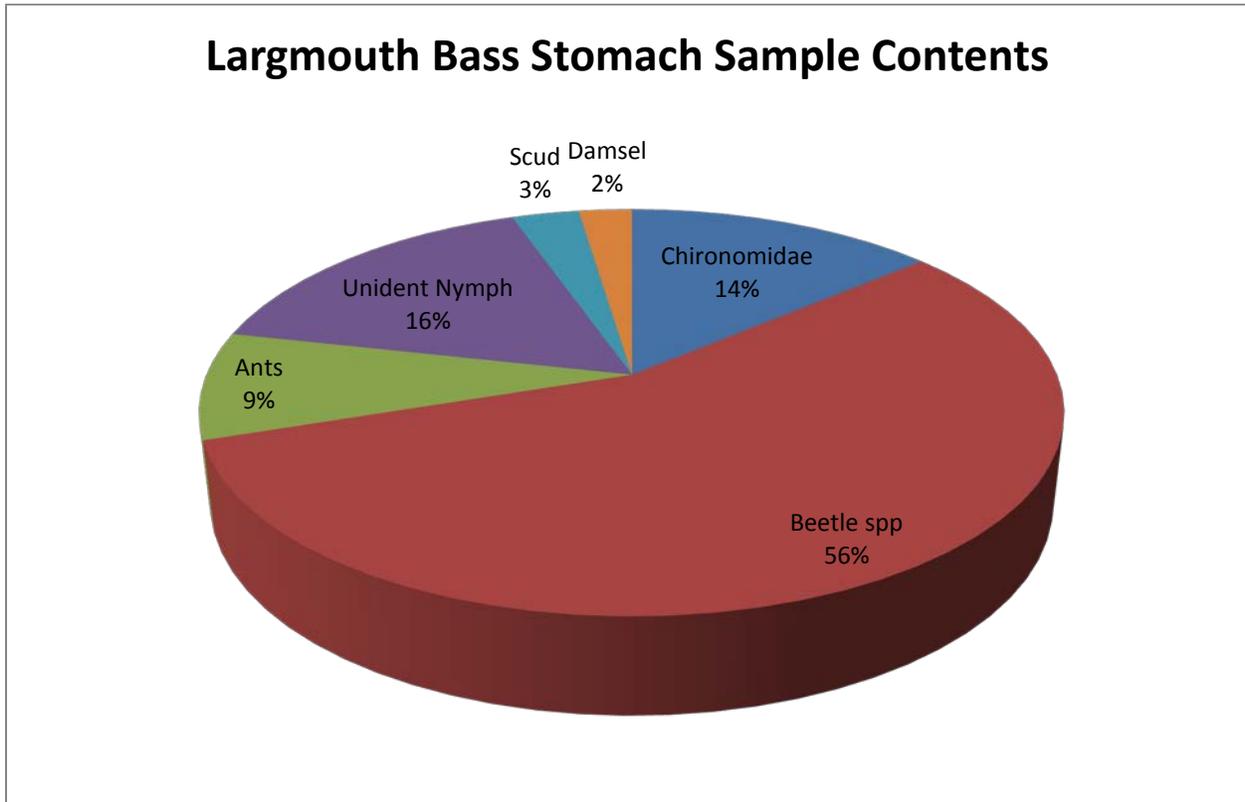


Figure 3. Largemouth bass stomach sample contents.

Electroshocking to monitor fish populations on the reservoir was not conducted for the second consecutive year due to mechanical issues with the electroshocking boat. The mechanical issues with the electroshocking boat have been resolved and fish monitoring should resume in 2018.

Since the introduction of largemouth bass in 2005 and an augmentation in 2008, largemouth bass are thriving in the reservoir. However, dominance of largemouth bass less than 12 inches indicates the population may be stunted. Aquatic invertebrates are the most abundant forage for largemouth bass as indicated by the stomach samples collected in 2017. The introduction of bluegill into the reservoir in 2015 and 2016 should improve forage conditions for largemouth bass as well as providing additional angling opportunity. No bluegill or other fish species or parts were observed in the stomach samples collected. Continued collection of stomach samples several times throughout the year over the next several years and will provide valuable information on foraging habits of largemouth bass in Bilk Creek Reservoir.

RECOMMENDATIONS

- Conduct a general fisheries assessment of angler use, success, and harvest through opportunistic angler contacts, return of angler drop-box surveys and mail-in, angler questionnaire data.
- Conduct a general habitat assessment through visual observations of water quantity (lake level) and water quality (clarity) when on site
- Monitor fish populations in Bilk Creek Reservoir by one night of electroshocking.
- Collect body condition data and conduct stomach content analysis on largemouth bass caught during electrofishing surveys to determine the forage that is being utilized.

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