

**REX RESERVOIR  
2019 TREND NET SURVEY**

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**BACKGROUND:** Rex Reservoir is a small, off-channel impoundment filled by diversion from Lost Creek, located east of Salina. It is managed as a put-grow-and-take trout fishery and is maintained with the annual stocking of 4,000 fingerling triploid rainbow trout (RBT) (Table 1). Non native cutthroat trout (CTT) and brown trout (BRN) produced by natural recruitment in Lost Creek also enter the reservoir and CTT have often been the most abundant species present in trend net catches. Results of genetic testing done on these CTT in 2004 were similar to the old CTT sport fish brood (75% Yellowstone, 25% Colorado River). The Rex Reservoir fishery was monitored regularly during the 1980s and 1990s, but was not sampled between 1998 and 2011. The current Southern Region Sampling Strategy prescribes repeating trend net surveys at Rex Reservoir every 7-8 years.

**METHODS:** Two floating experimental gill nets were set in Rex Reservoir on May 15, 2019, and were allowed to fish overnight. Nets measured 6 ft x 80 ft, with eight panels of randomly arranged mesh size (1.5", 2.25", 1", 0.75", 2.5", 1.25", 2"). Net locations were consistent with historic surveys (Figure 1). Fish caught were removed from nets on the morning of May 16 and all sport fish were measured to the nearest mm (total length) and weighed to the nearest gram. Trout body condition was measured by the calculation of Fulton's  $K_{TL}$  (generated from total length [TL]):

$$K_{TL} = (Weight/Length^3) \times 100,000$$

**RESULTS:** A total of 57 trout was collected at Rex Reservoir on May 16, 2019, for a catch rate of 29 fish per net-night (Table 2). This rate was slightly lower than that observed in 2011 (Table 3, Fig. 2). CTT spanning at least three size classes (Fig. 3, 4) made up 42% of the total catch and averaged 307 mm (12.1 inches) in total length (TL), 318 g (0.7 lbs) in weight, with a mean condition ( $K_{TL}$ ) of 0.97 (Table 2). Mean length and weight were slightly higher than long-term means, while condition was slightly lower (Table 3). CTT ranged in size up to 413 mm (16.3 in) and 653 g (1.4 lbs). RBT were the next most abundant species and averaged 336 mm (13.2 in), 406 g (0.9 lbs), with a mean  $K_{TL}$  of 1.04. The RBT catch was split evenly between fish stocked in 2018 and older fish (Table 2). Mean size for both ages classes were slightly higher than long-term means, while condition was slightly lower (Table 3). RBT ranged up to 403 mm (15.9 in) in length and 679 g (1.5 lbs) in weight. The remaining catch was made up by BRN that averaged 451 mm (17.8 in), 920 g (2.0 lbs), with a mean condition of 0.97 (Fig. 5). Although BRN have been known to occur in the reservoir for many years, only one had previously been observed in a trend net survey, in 1998 (Fig. 2). Due to larger mean size, BRN made up 43% of the biomass sampled, despite being the least abundant species. BRN ranged in size up to 574 mm (22.6 in) and 1,780 g (3.9 lbs).

**DISCUSSION:** In most waters where they have been used, the gill nets recommended by the American Fisheries Society (AFS) have been observed to catch about 50% less trout than did the old style nets that DWR used for many years, though these numbers still provide a large enough sample size evaluate fisheries. The AFS nets have only been used twice at Rex Reservoir and have caught about 75% of the trout that the old nets caught (Fig. 2). Trend net catch rates of 29-34 trout per net-night are considered sufficient to provide satisfactory angling opportunity. Mean sizes (12-17 inches) of trout available to anglers should also be satisfactory, while maximum sizes (16-23 inches, 2-4 lbs) provide the chance to catch quality and trophy fish. Wild trout made up 65% of the total trout catch in 2019 and provide a valuable supplement to stocked fish. BRN

were much more abundant in the 2019 catch than has been previously observed. It is not certain whether this indicates an increase in BRN abundance in Lost Creek upstream of the reservoir, or simply a higher influx to the reservoir at some point during the last few years. Regardless of the origin, wild BRN provide a unique opportunity in Rex Reservoir not seen in many Utah still waters.

**RECOMMENDATIONS:**

1. Continue stocking 4,000 fingerling rainbow trout annually in Rex Reservoir. Both diploid and triploid fish are acceptable.
2. Conduct trend net surveys every 7-8 years to monitor trout population performance.







Figure 3. Rainbow (top) and cutthroat (bottom) trout collected at Rex Reservoir on May 16, 2019.



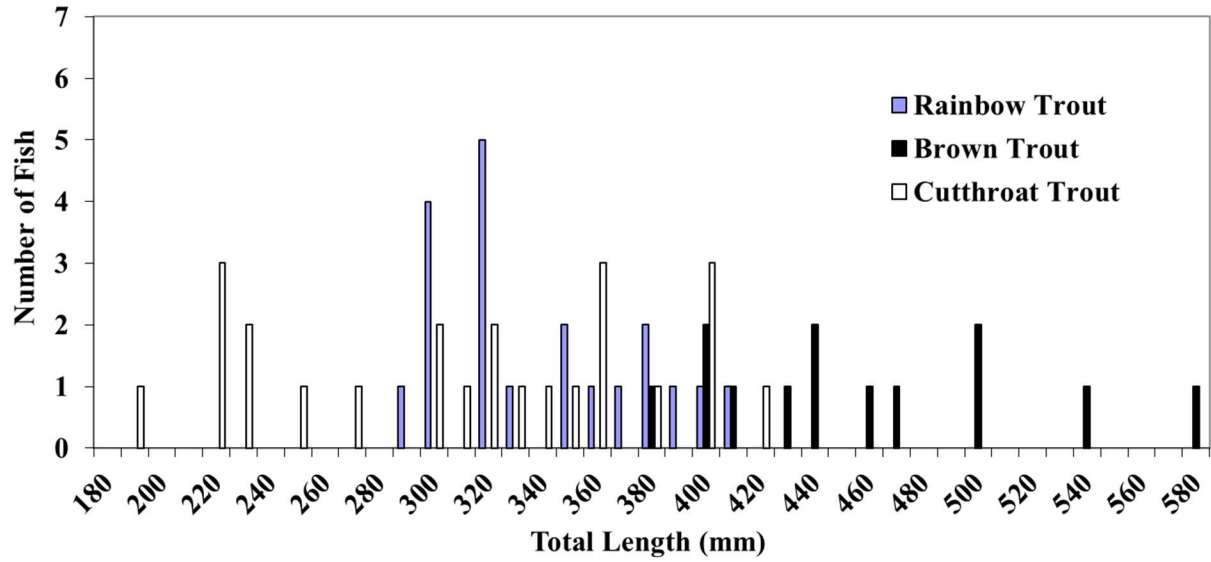


Figure 4. Length distribution of trout collected at Rex Reservoir on May 16, 2019.



Figure 5. Brown trout collected at Rex Reservoir on May 16, 2019.

Table 1. Record of rainbow trout stocking in Rex Reservoir for the five years prior to the 2019 trend netting.

<b><u>Year</u></b>	<b><u>Number</u></b>	<b><u>Size (in)</u></b>
2014	4,539	3.6
2015	4,207	3.7
2016	4,212	3.3
2017	4,032	4.4
2018	4,004	5.4
<i>2019</i> <i>Quota</i>	<i>4,000</i>	<i>3.0</i>

