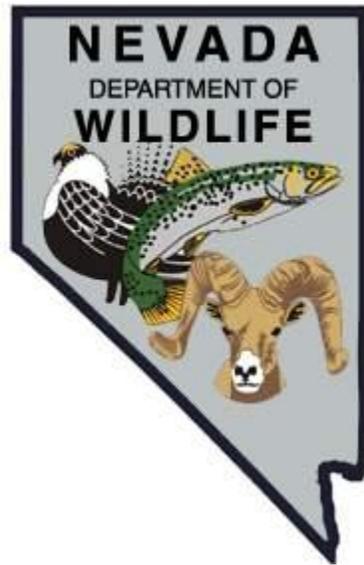


NEVADA DEPARTMENT OF WILDLIFE  
STATEWIDE FISHERIES MANAGEMENT



FEDERAL AID JOB PROGRESS REPORTS  
F-20-48  
2012

WHITE PINE COUNTY  
Small Lakes and Reservoirs  
Eastern Region



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

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

**State:** *Nevada*  
**Project Title:** *Statewide Fisheries Program*  
**Job Title:** *White Pine County Small Lakes and Reservoirs*  
**Period Covered:** *January 1, 2012 through December 31, 2012*

**SUMMARY**

Minimal creel survey work was conducted at Cave Lake during 2012. However, two events provided some data on the trout population in Cave Lake. During two fishing derbies, the Kid's Free Fishing Day Fishing Derby and the Ely Rotary Club's Annual Ice Fishing Derby, a total of 336 trout were measured. Rainbow trout comprised 96% of the trout measured, while brown trout made up the remaining 4%. The 227 rainbow trout ranged in length from 6.6 in (168 mm) to 12.9 in (327 mm), with an average fork length of 9.7 in (245 mm). The nine brown trout ranged from 6.9 in (175 mm) to 15.8 in (400 mm), with an average fork length of 10.0 in (255 mm).

During five separate occasions, there was a total 26,605 hatchery-reared rainbow trout stocked into Cave Lake.

Cold Creek Reservoir gill net survey captured a total of 235 fish, consisting of 32 rainbow trout, 29 bowcutt trout, 1 largemouth bass, and 173 tui chubs. Rainbow trout made up 13.6% of the catch, bowcutt trout accounted for 12.3%, and largemouth bass comprised 0.4%. The remaining 73.6% of the catch was represented by tui chub. In contrast, the fall electroshocking survey captured only 55 fish. Tui chub still made up the majority of the fish caught and there were no largemouth bass captured. Due to the time of the year electroshocking took place, there is a good chance largemouth bass and most of tui chub moved to deeper waters, out of reach for shocking. Therefore, an account of biologically controlling tui chub in the reservoir at this point is unclear.

A total of 4,152 hatchery-reared rainbow trout were stocked at Cold Creek Reservoir in 2012, which is consistent with current recommendations. In late October, there were 1,560 Marlette strain bowcutt trout stocked.

During the months when angler drop-box surveys were received, 76 anglers fished for 334.5 hrs and caught 680 fish, consisting of 630 rainbow trout and 50 brown trout. Resulting catch rates (all fish) were 8.9 fish per angler and 1.88 fish per hour. From April through September, Illipah Reservoir was stocked with 15,360 hatchery-reared rainbow trout on four separate occasions, which met the recommendation for the year.

Twelve volunteer angler surveys were completed at the Silver Creek Reservoir drop-box in 2012. A total of 12 anglers fished for 26 hrs to catch 179 fish. Of the fish caught, 96% were rainbow trout and the remaining 4% were brown trout. Catch rates

were 14.9 fish per angler and 6.88 fish per hour. Catch rates for 2012 doubled from the six-year average for fish per hour and fish per angler (7.05 and 3.27, respectively). All 12 anglers reported fishing from the shore. In four attempts at creel surveying at Silver Creek Reservoir, no anglers were contacted.

## **BACKGROUND**

### Cave Lake

Cave Lake has been managed as a high use recreational fishery supporting some 20,000 angler use days per year on 32 surface acres of water. It was purchased in 1971 by the Nevada Department of Fish and Game and is currently managed as a State Recreation Area under a cooperative agreement between NDOW and Nevada Division of State Parks (NDSP). The combination of a put-and-take rainbow trout fishery and quality visitor facilities attracts year around use. Cave Lake also holds a self-sustaining population of brown trout, although not common in the creel. The state record brown trout was set in 1984 from Cave Lake at 27 lbs and 5 oz.

### Cold Creek Reservoir

Cold Creek Reservoir is a small spring fed fishery located in Newark Valley in the northwest corner of White Pine County. It is made up of three distinct ponds, which contain a self-sustaining rainbow trout population that is augmented annually with hatchery reared trout. The uppermost spring pond and outflow are currently closed to fishing to protect spawning rainbow trout and the ranch's domestic water supply. The largest of the three, the lowermost and main pond, is located on private property and is routinely drawn down in summer by private landowner for irrigation. Cold Creek Reservoir was eradicated in 1972 and 1984 to remove tui chubs that had reached nuisance levels in relation to the maintenance of the trout fishery. In 1990 a single chub was captured in a gill net survey. Chub numbers rapidly increased and have again reached nuisance levels in recent years.

### Bassett Lake

Bassett Lake is situated in Steptoe Valley approximately five miles northwest of McGill, Nevada. Kennecott Copper Corporation constructed it in 1942 to serve as a final desilting reservoir for mill tailings from its McGill copper operation. At current operating capacity, Bassett Lake covers 77 surface acres and stores 385 acre-ft of water at an average depth of five feet. Although it receives flow from many springs and streams, its primary water source is Tailings Creek, which provides a constant source of water. In cooperation with Kennecott Minerals Company, NDOW has managed the reservoir as a public fishery since 1947. It was one of the top fisheries in White Pine County throughout much of the 1960s and 1970s. In recent years, however, nuisance populations of northern pike and carp coupled with a change in water usage have rendered the area undesirable to most anglers.

### Illipah Reservoir

Illipah Reservoir is a privately owned irrigation reservoir managed as a public fishery under an agreement signed in 1981 between NDOW and the owner, Robert E. Dickenson. As a result of this agreement, the State of Nevada built a new dam, enlarging the reservoir's capacity and providing for a minimum pool of 160 acre-ft. At capacity, the reservoir is 72 surface acres with a storage capacity of 1,300 acre-ft. Due to irrigation needs by the adjacent Moorman Ranch, water level at Illipah Reservoir is highly dependent upon winter precipitation and fluctuates greatly.

### Silver Creek Reservoir

Silver Creek Reservoir is a small, privately owned irrigation reservoir managed by NDOW as a put-and-take trout fishery. The reservoir was dredged in 1993, restoring some of its lost capacity and reestablishing a non-withdrawable minimum pool. It is managed as a public fishery under an informal agreement with the owner, Baker Ranches.

## **OBJECTIVES and APPROACHES**

### Cave Lake

Objective: General Sport Fisheries Management

Approaches:

- Conduct a general fisheries assessment through opportunistic angler contacts.
- Visually assess water quantity (lake level, inflow/outflow) and quality (clarity) for coordinating trout stocking.
- Set experimental gill nets for two net-nights in the spring.

### Cold Creek Reservoir

Objective: General Sport Fisheries Management

Approaches:

- Maintain and check return of volunteer angler drop-box surveys during the course of other duties.
- Visually assess water quantity (lake level, inflow/outflow) and quality (clarity) for coordinating trout stocking.
- Conduct a general fisheries assessment through opportunistic angler contacts.

Objective: Evaluate the health of the fishery and determine the success of largemouth bass at controlling tui chub.

Approaches:

- Examine carryover of sport fish, body condition, size structure, and relative abundance by setting experimental mesh gill nets for two net-nights in the spring.
- Electroshock one established transect during one night in the fall to assess largemouth bass recruitment and tui chub abundance and size structure.
- If necessary, augment the largemouth bass population with various sizes from nearby waters.

### Bassett Lake

Objective: General Sport Fisheries Management

Approaches:

- Visually monitor seasonal water level fluctuations during the course of other duties.

### Illipah Reservoir

Objective: General Sport Fisheries Management

Approaches:

- Conduct a general fisheries assessment through opportunistic angler contacts.
- Maintain and check return of volunteer angler drop-box surveys during the course of other duties.
- Visually assess water quantity (lake level, inflow/outflow) and quality (clarity) for coordinating trout stocking.
- Collect 5 of each sport fish species for mercury analysis in cooperation with NDEP.
- Set experimental gill nets for two net nights in the spring(FY12)

## Silver Creek Reservoir

Objective: General Sport Fisheries Management

Approaches:

- Maintain and check return of volunteer angler drop-box surveys during the course of other duties.

### **PROCEDURES**

Scheduled visits were made to Cave Lake and Illipah Reservoir for collecting creel survey data during an expected time to contact the greatest number of anglers as possible. Information on angler harvest, effort, and origin were recorded. Harvested trout were measured to fork length in millimeters.

Prior to spring and fall stocking and during the course of other duties, trips were made to Cave Lake, Cold Creek Reservoir, Bassett Lake, Illipah Reservoir, and Silver Creek Reservoir to visually ascertain water levels and water temperatures for trout stocking.

Averaging 8.82 in (224.0 mm), 2,735 Bel Air strain rainbow trout (lot 09BSRB) were marked with an anal fin clip at Spring Creek Rearing Station on May 5, 2011 and subsequently stocked at Cave Lake on May 11, 2011. An additional 2,025 unmarked rainbow trout were stocked at the same time.

Two 150 ft x 6 ft experimental gill nets were set at 1510 and 1520 hrs on April 30, 2012 at Cold Creek Reservoir. These nets consist of five panels made of 1/2, 3/4, 1, 1 1/2, and 2 in mesh. The first net was set deep at the south end of the reservoir (lower pond) along the eastern shoreline at a depth of 8 ft. The second net was set shallow at the north end of the reservoir along the western shoreline in 6 ft of water. Nets were pulled at 1030 and 1130 hrs, respectively, on May 1, 2012. All trout (fork length) and bass (total length) captured were measured, while a representative sample of chubs were measured (total length). Live trout were returned to the reservoir and all chubs were discarded.

The Eastern Region Coffelt electroshocking barge was used to sample one established transect at Cold Creek Reservoir on the evening of October 22, 2012. The shocking unit was set up with the booms forward as the anode and the hull of the boat as the cathode. Voltage was set at 800 (DC) with an output of 4.5 amps. Pulse frequency was set at 60 Hz with a pulse width of 4 ms. Attempts were made to capture all fish stunned during the survey. When processed, all species of fish captured were measured and largemouth bass were weighed with a spring-type hand scale. Water temperature was taken with a standard bulb thermometer near the surface. Trout and bass captured were returned to the reservoir while tui chubs were disposed of properly.

Volunteer angler survey boxes at Cold Creek Reservoir, Illipah Reservoir, and Silver Creek Reservoir were periodically maintained and restocked.

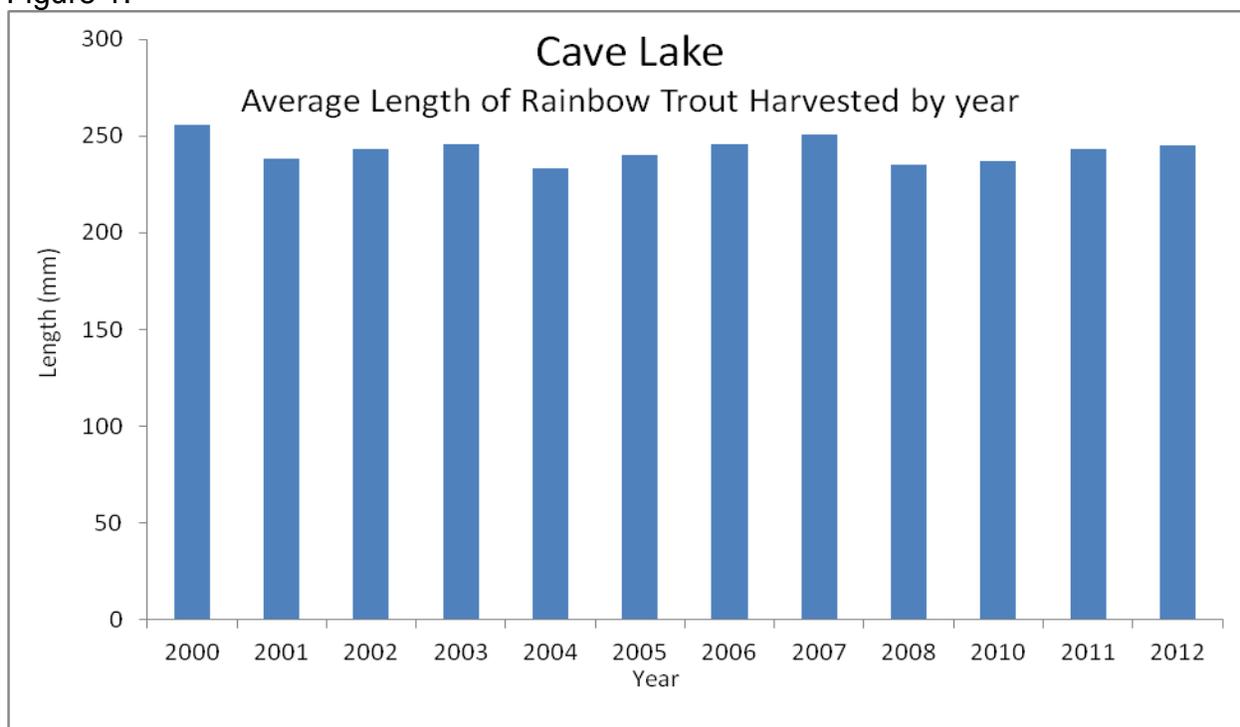
## FINDINGS

### Cave Lake

The fisheries biologist position was vacant during most of the field season during 2012, thus limiting the potential for contacting anglers. However, two events provided some data on the trout population in Cave Lake. During two fishing derbies, the Kid's Free Fishing Day Fishing Derby and the Ely Rotary Club's Annual Ice Fishing Derby, 336 trout were measured. Rainbow trout comprised 96% of the trout measured, while brown trout made up the remaining 4%. The 227 rainbow trout measured ranged from 6.6 in (168 mm) to 12.9 in (327 mm), with an average fork length of 9.7 in (245 mm). The nine brown trout ranged from 6.9 in (175 mm) to 15.8 in (400 mm), with an average of 10.0 in (255 mm).

Using the creel data from the two fishing derbies provided the average size of rainbow trout for the year. The standard deviation over a 13-year period (2002 -2012) was 0.26 in (6.66 mm) (Figure 1). The 13-year average for rainbow trout is 9.55 in (242.75 mm).

Figure 1.

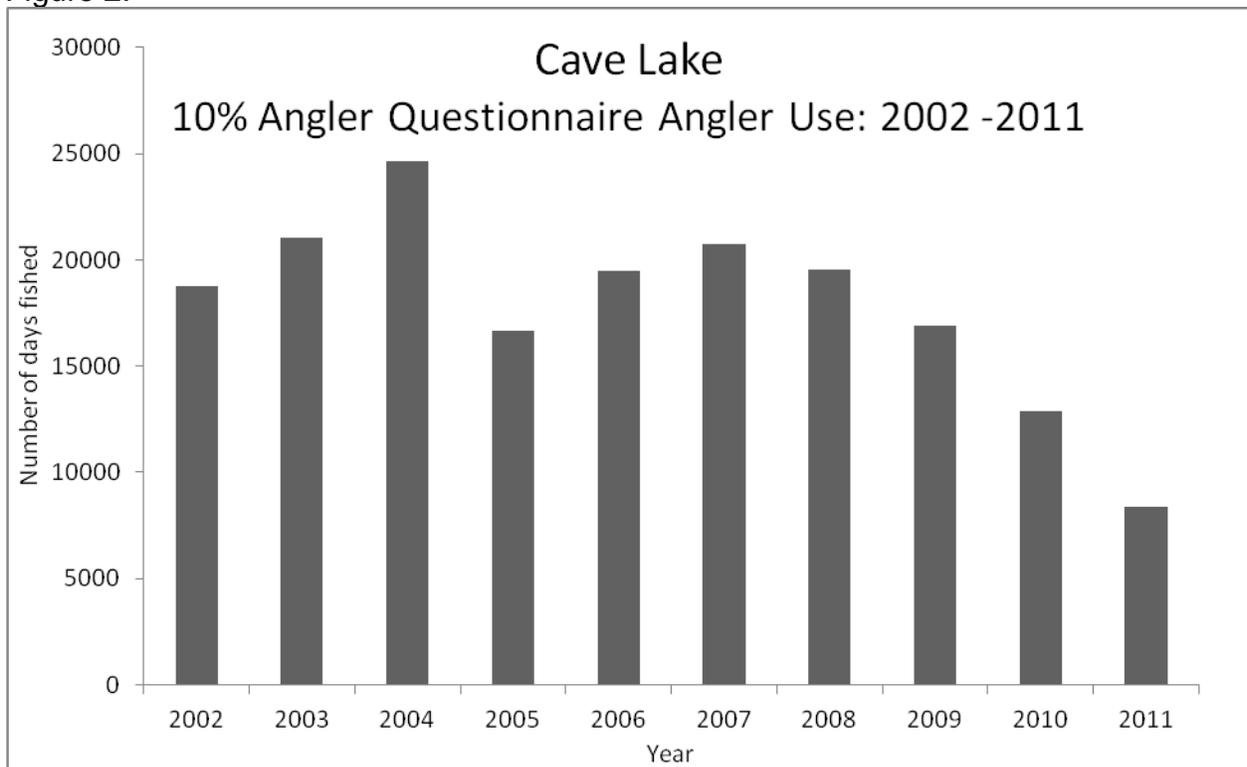


During four separate occasions, there were 21,880 hatchery-reared rainbow trout stocked into Cave Lake from April through September 2012. Due to an abnormally dry year, there was an additional 4,725 rainbow trout stocked that were initially meant to be

stocked in Silver Creek Reservoir. Therefore, there was a total 26,605 hatchery-reared rainbow trout stocked into Cave Lake. The additional rainbow trout added to Cave Lake exceeded the recommended stocking requirements; however, at this time it is difficult to tell what the result will be. It is important to consider that Cave Lake is a put and take fishery and that there is a high likelihood that the increased number will not affect the fishery at all.

The amount of angler days spent at Cave Lake has slowly descended to the lowest amount in the last decade (Figure 2). Anglers spent nearly three times as many days in 2004 fishing at Cave Lake than in 2011 (8,351). These numbers are based on information gathered using the annual Mail-in Angler Questionnaire Survey. Based on previous years, use of this fishery by southern Nevada residence corresponded similarly as total angler days at Cave Lake.

Figure 2.

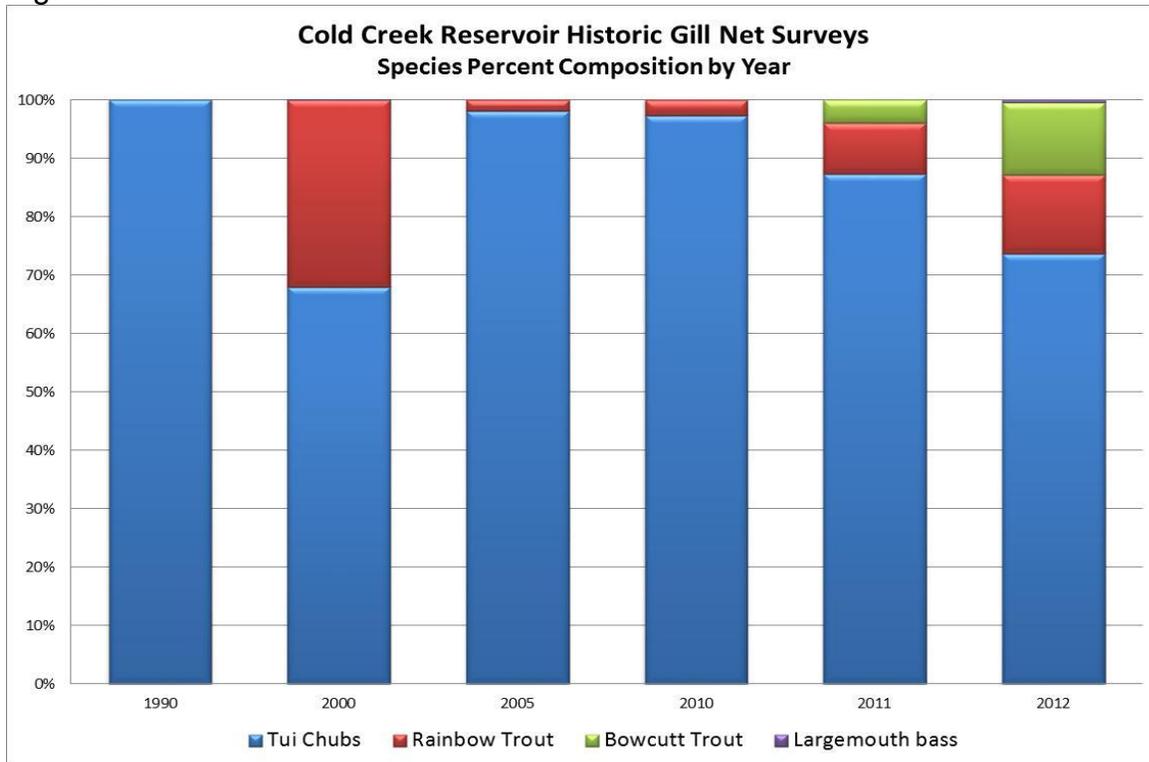


In 2013, two gill nets will be set for two net-nights to determine overwinter carryover of trout in Cave Lake. This should provide information that is more consistent with prior years. It should provide better information concerning the health of the population, unlike last year's gill net survey that resulted in fewest numbers of fish captured in a gill net at Cave Lake since 1979.

## Cold Creek Reservoir

During the gill net survey, 235 fish were captured, consisting of 32 rainbow trout, 29 bowcutt trout, 1 largemouth bass and 173 tui chubs. Rainbow trout made up 13.6% of the catch while bowcutt trout accounted for 12.3%, and largemouth bass comprised 0.4%. The remaining 73.6% of the catch was represented by tui chubs. Combined, trout accounted for 25.9% of this year's catch, which is the highest percentage of trout caught in a gill net survey since 2000 (Figure 3). Rainbow trout were captured at a rate of 0.81 fish per net hour, bowcutts were captured at a rate of 0.73 fish per hour, largemouth bass at a rate of 0.03 fish per net hour, and chubs were captured at a rate of 4.38 fish per net hour. Total catch rate for the gill netting effort was 5.95 fish per net hour. Both the number of chub captured and the catch rate for chub represent the lowest catch rates in a gill net survey since 1990, a period of more than 20 years.

Figure 3.

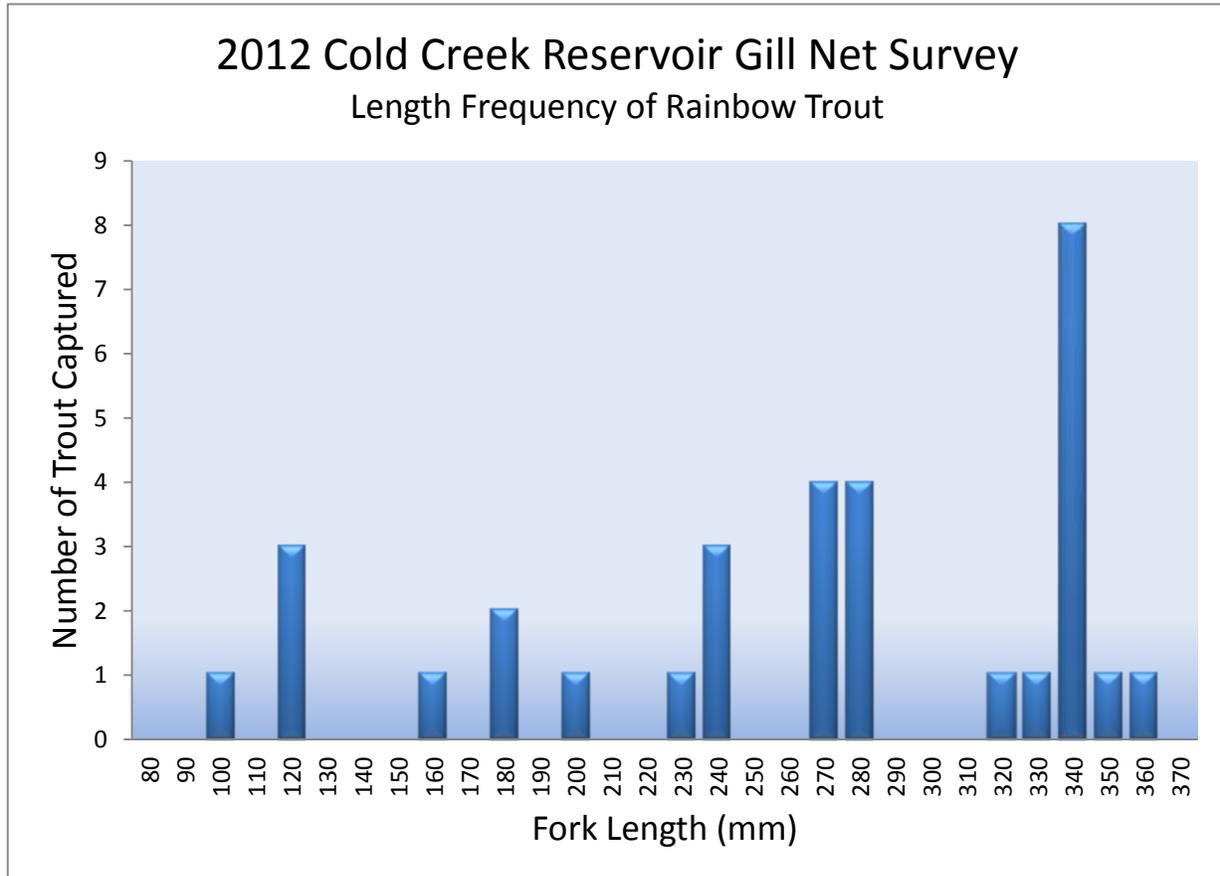


A single largemouth bass measuring 15.0 in (381 mm) was captured. Although not weighed, it appeared to be in excellent body condition, likely from preying upon tui chubs.

The average fork length of the 32 rainbow trout captured was 10.2 in (259 mm), with a range of 3.9 in (98 mm) to 13.9 in (352 mm). This is just 0.43 in shorter than the average length of rainbow trout found in 2011 and on par with fish caught during previous gill net surveys. Length frequency analysis of the rainbow trout captured reveals at least four age classes currently inhabiting the reservoir (Figure 4). A length breakpoint of 130 mm separates wild fish from natural reproduction in 2011.

Breakpoints of 210 mm and 250 mm separate fish stocked in the spring and fall of 2011, while a breakpoint of 290 mm separates fish stocked prior to 2011. There were six rainbow trout captured that were judged to be wild spawned fish. These include three fish hatched in 2011, one from 2010, and two that were larger, older fish.

Figure 4.

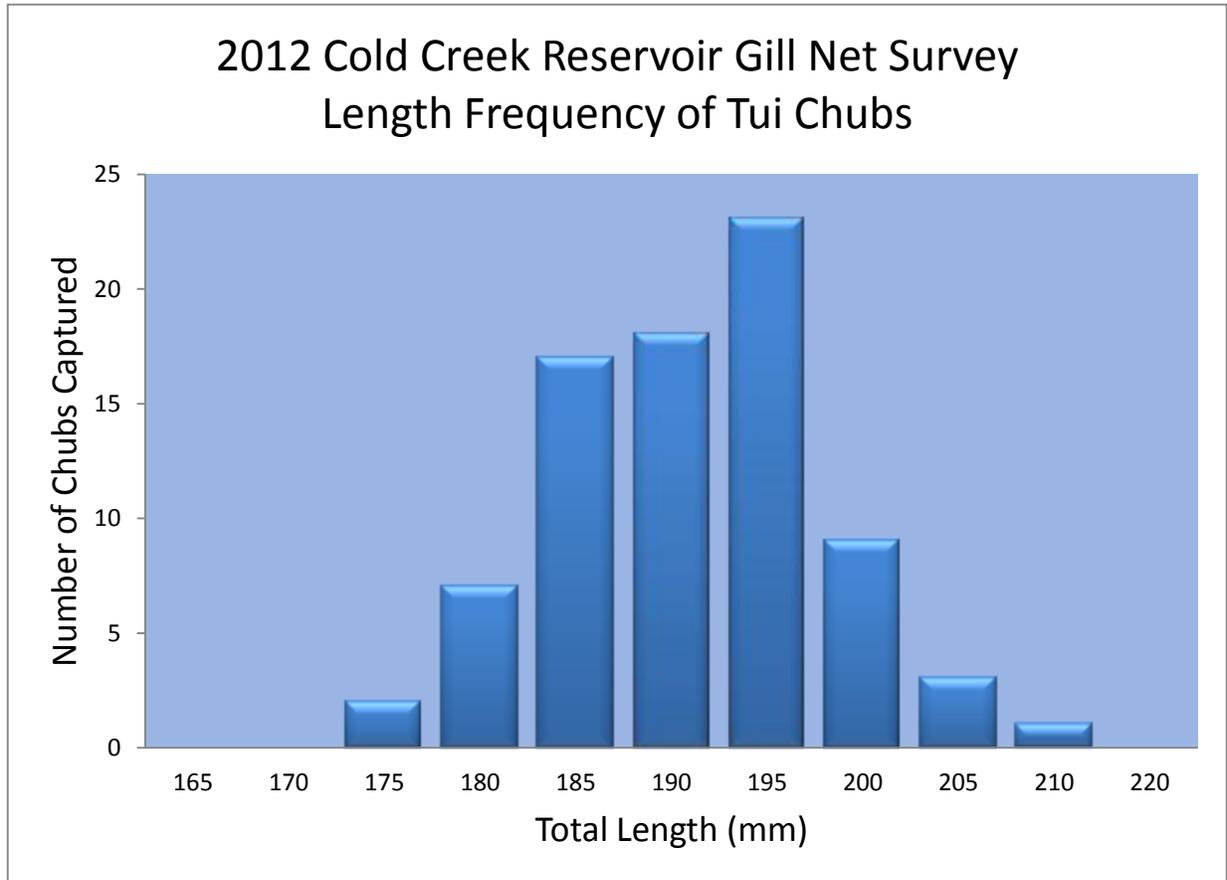


The average fork length of the 10 bowcutt trout captured was 11.1 in (282 mm), with a range of 8.1 in (206 mm) to 13.8 in (350 mm). Average length was nearly identical to the average of 11.3 in found in 2011. Although bowcutts have only been stocked twice at Cold Creek Reservoir (fall, 2010 and fall, 2011), initial returns seem promising. In 19 months, the 2010 stocking has shown an average length increase of 5.3 in. They were stocked at an average length of 8.2 in (208 mm) and they grew to 13.5 in (344 mm). As expected, length frequency analysis of bowcutts in Cold Creek Reservoir reveals two age classes.

A representative sample of 80 tui chubs was processed while the remaining 93 were discarded. Average length (total) was 7.4 in (189 mm), and ranged from 6.8 in (173 mm) to 8.1 in (206 mm). Average length of chub captured was 1.2 in (31 mm) longer than what was found in the 2011 and represented the longest average length of tui chub found since 2000. In addition, both the shortest and longest chub measured were considerably longer than what was found in 2011. Length frequency analysis of

the 80 chub reveals just one age class of larger adult chubs currently inhabiting Cold Creek Reservoir (Figure 5). There was 1.3 in that separated the longest and shortest tui chub in the survey.

Figure 5.

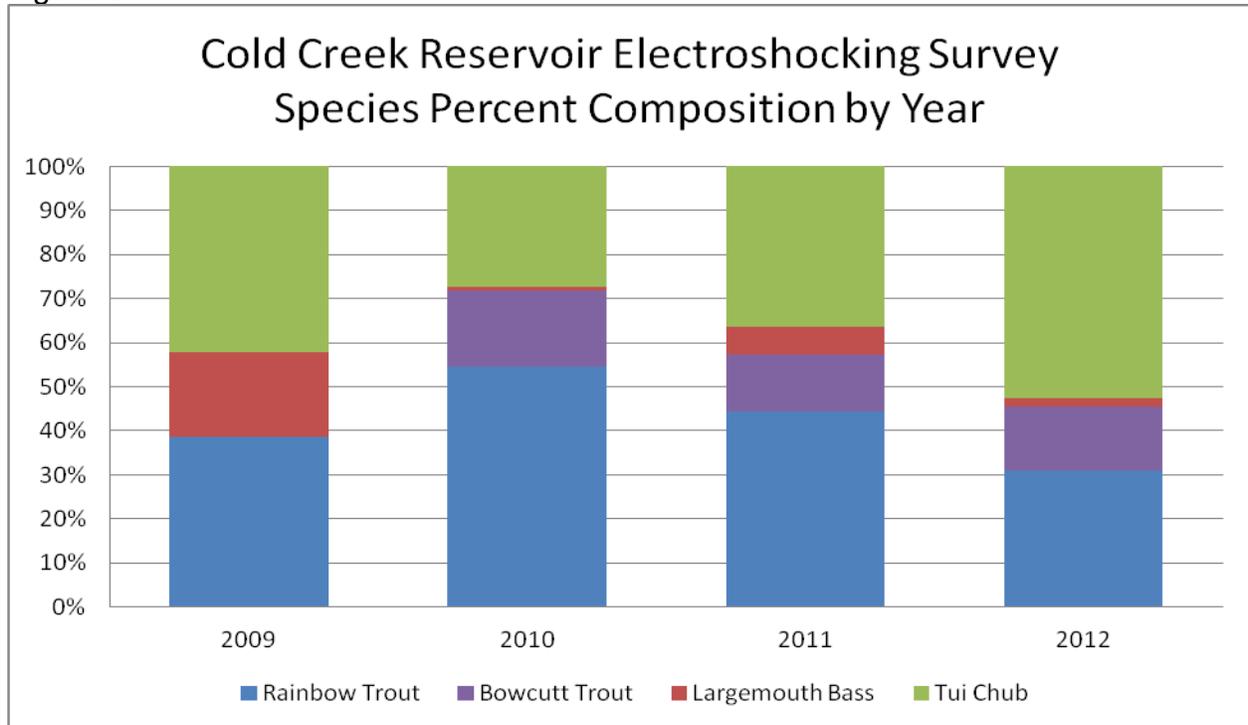


A number of factors suggest that the biological controls established at Cold Creek Reservoir, in an attempt to control the chub population, are working successfully. First, only 173 chubs were captured in the survey. Although chub densities are still relatively high, it must be taken into consideration that the previous two gill net surveys in 2010 and 2011, using identical survey methodologies, resulted in 520 and 225 chubs captured, respectively. Secondly, the capture rate for chub (fish per net hour) has been decreasing steadily since 2005, and this year's capture rate of 4.38 per net hour represents the lowest from a gill net survey since 2000. In addition, the average length of tui chubs captured has increased in each of the last four gill net surveys of the reservoir (Figure 5). Finally, a steady increasing in average size of a single cohort of chub captured may suggest that smaller chub are being utilized as food by largemouth bass and bowcutt trout.

A total of 55 fish were captured during the fall electroshocking survey, consisting of 17 rainbow trout, 8 bowcutt trout, 1 largemouth bass, and 29 tui chub. Rainbow trout made up 30.9% of the catch, bowcutt trout accounted for 14.5%, and largemouth bass

made up 1.8%. The remaining 52.7% of the catch was comprised of tui chub. Combined, trout accounted for 45.4% of this year's catch, which is consistent with historical electroshocking surveys (Figure 6).

Figure 6.

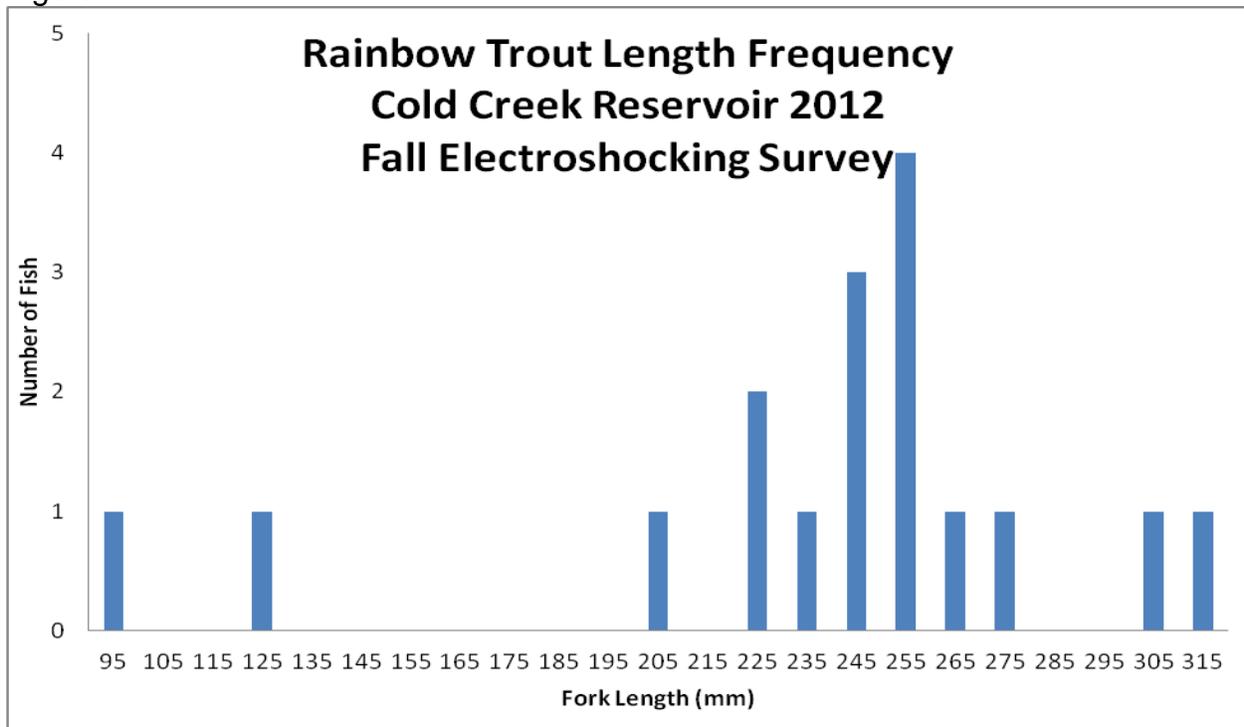


The average fork length of the 17 rainbow trout captured was 9.2 in (233 mm), with a range of 3.8 in (92 mm) to 12.3 in (312 mm). The average fork length from fall was comparable to the average fork length found in 2009 and 2010, at 9.9 and 9.2 in, respectively. Of the rainbow trout caught, 29% (5 fish), were wild trout. Hatchery rainbows were easily discerned from wild rainbows by the excessive fin wear. Body condition of wild rainbow trout was considered good, whereas body condition of hatchery reared rainbow trout was poor. Cold Creek Reservoir was last stocked with rainbow trout on June 6, 2012. This was four months prior to the electroshocking survey. Four months should be adequate time for hatchery trout to establish themselves and gain both weight and some length, which is contrary to the findings. It is unknown why these trout had such poor body condition, but it is surmised that poor water quality due to low water levels and increased water temperature could cause additional stress to both hatchery reared bowcutt and rainbow trout.

Upon completion of the length frequency analysis for rainbow trout, at least five age classes of rainbow trout currently inhabit the reservoir (Figure 7). Average size of rainbow trout stocked in spring 2011 was 8.6 in (218 mm), and spring 2012 rainbow trout average 9.2 in (233 mm). If fish grew an inch over the course of the year, they would represent most of the fish captured in this year's electroshocking survey. However, the two smallest fish captured (measuring 3.7 and 4.9 in, respectively) represent separate age classes. Additionally, these two trout represent two age classes

that are the result of natural reproduction of rainbow trout from the Cold Creek Reservoir inflowing tributary.

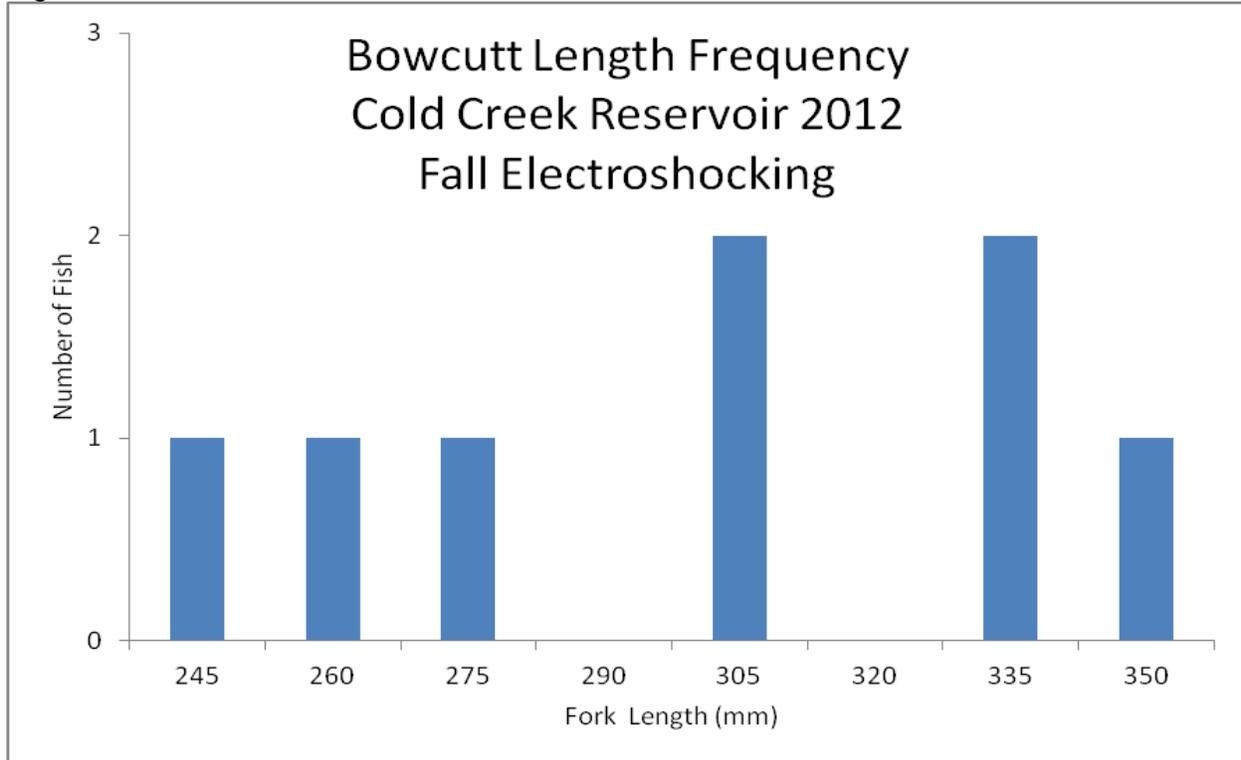
Figure 7.



The average fork length of the 8 bowcutt trout captured was 11.6 in (295 mm), and ranged from 9.6 in (245 mm) to 13.5 in (343 mm). Bowcutt trout captured were considered to be in fair body condition. There were twice as many bowcutt trout captured during shocking in the fall of 2011 than there was this fall. Not to be misleading, the numbers were not great for either shocking event. As stated above, there were 8 captured in the fall 2012 effort and 16 in the fall 2011 shocking survey. The bowcutt trout captured in the fall 2012 shocking survey represented trout stocked in 2010 and 2011. The smallest fish captured in the fall of 2012 was an inch longer than the average fish stocked in the fall of 2011. The largest bowcutt trout capture in 2012 was 13.5 in compared to the largest fish captured in 2011 at 13.8 in. Bowcutt trout have been stocked twice prior to this electroshocking survey, therefore, there are multiple age classes present within the reservoir (Figure 8). The week after the electroshocking survey was completed; Cold Creek Reservoir received an additional 1,560 bowcutt trout as an additional biological control of tui chub.

The length frequency analysis in Figure 8 shows the two age classes present in the reservoir. A break at 275 mm shows the upper reaches of fish stocked in 2011. Fish stocked in 2010 were ranging from 298 mm to 242 mm. More time and survey work will be necessary to determine if bowcutt trout are utilizing tui chub as a food source.

Figure 8.



There was only one largemouth bass captured during the electroshocking survey this fall. The length of the bass was 9.7 inches (246 mm) and weighed 0.44 pounds (200g). The K-factor for this particular largemouth bass was 5.22. Due to the late season timing of the 2012 electroshocking survey, it is believed that many of the largemouth bass present in the reservoir had moved to deeper water for the winter. This movement effectively removed them from the shocking field and limited our catch to only one fish. It is apparent that the 2012 fall electroshocking did not support or deny the concern that there is no natural reproduction occurring in the largemouth bass population. This issue should be addressed by conducting a late summer electroshocking survey, rather than late fall.

The slow response of tui chub to biological control by bowcutt trout and largemouth bass populations may indicate an issue with habitat quality for the predatory species. In theory, both species should establish well on the macroinvertebrate species present in the reservoir until they are large enough to start depredating on tui chub YOY. Thus, there should have been a serious change in tui chub population composition. However, data from the 2012 electroshocking survey suggests otherwise.

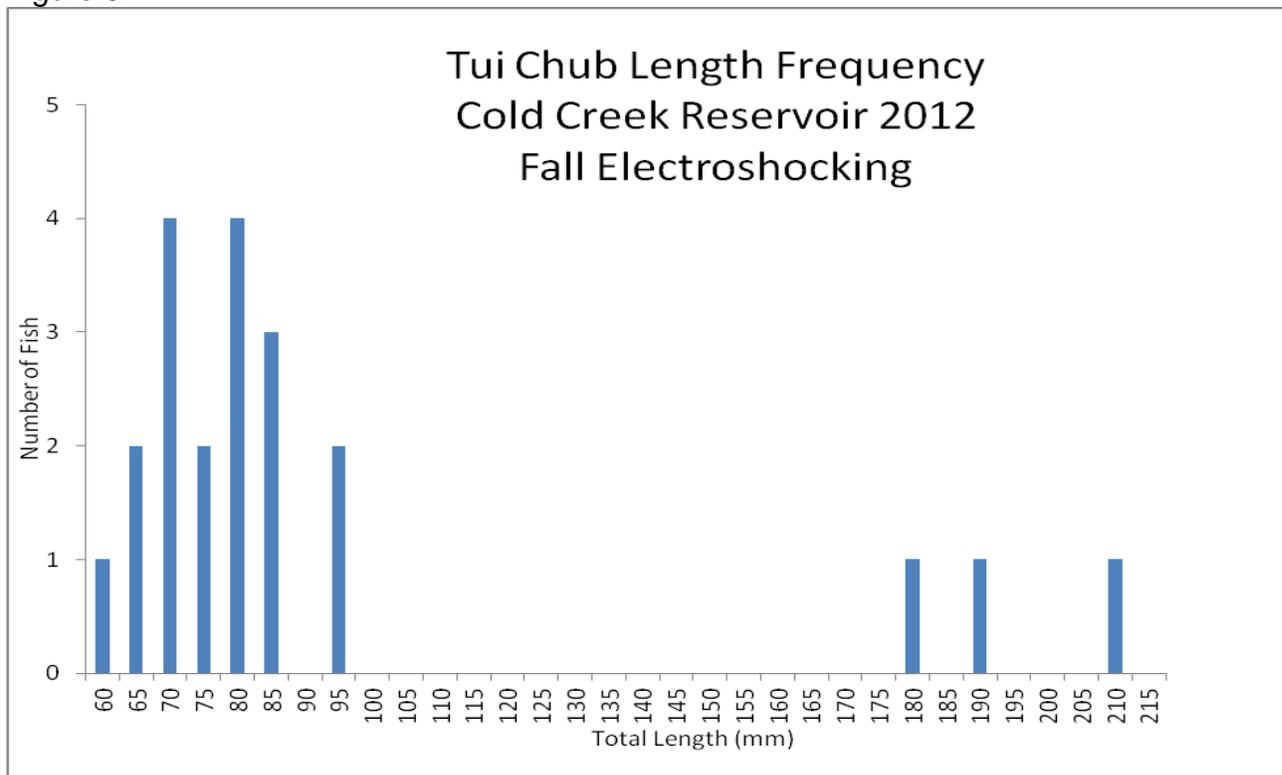
Like previous years, tui chub seem to be the predominant species present in the reservoir. The total length of 21 (an additional 8 fish were counted but not measured) tui chub captured ranged from 2.3 in (58 mm) to 8.3 in (210 mm), with an average of 3.6 in (92 mm). Using breakpoints at 70 mm, 100 mm, 190 mm, and 210 mm; there are four age classes distinguishable from the tui chub captured (Figure 9). The two oldest age

classes are represented by two or fewer fish. Similar to largemouth bass population, the adult tui chub could have moved into the deeper water, which would have resulted in a distorted age class representation.

As stated earlier, biological control by bowcutt trout and largemouth bass should have had a large impact on younger age classes of tui chub. However, there is a rather strong representation of young tui chub present in the reservoir (Figure 9). Three consecutive fall electroshocking surveys revealed a shift in age class strength within length frequency analyses (Figure 10). In 2010 and 2011, length frequency analyses showed tui chub ranged primarily between 155 mm and 180 mm. Currently, the population structure has shifted to a much younger population base indicating an increasing population.

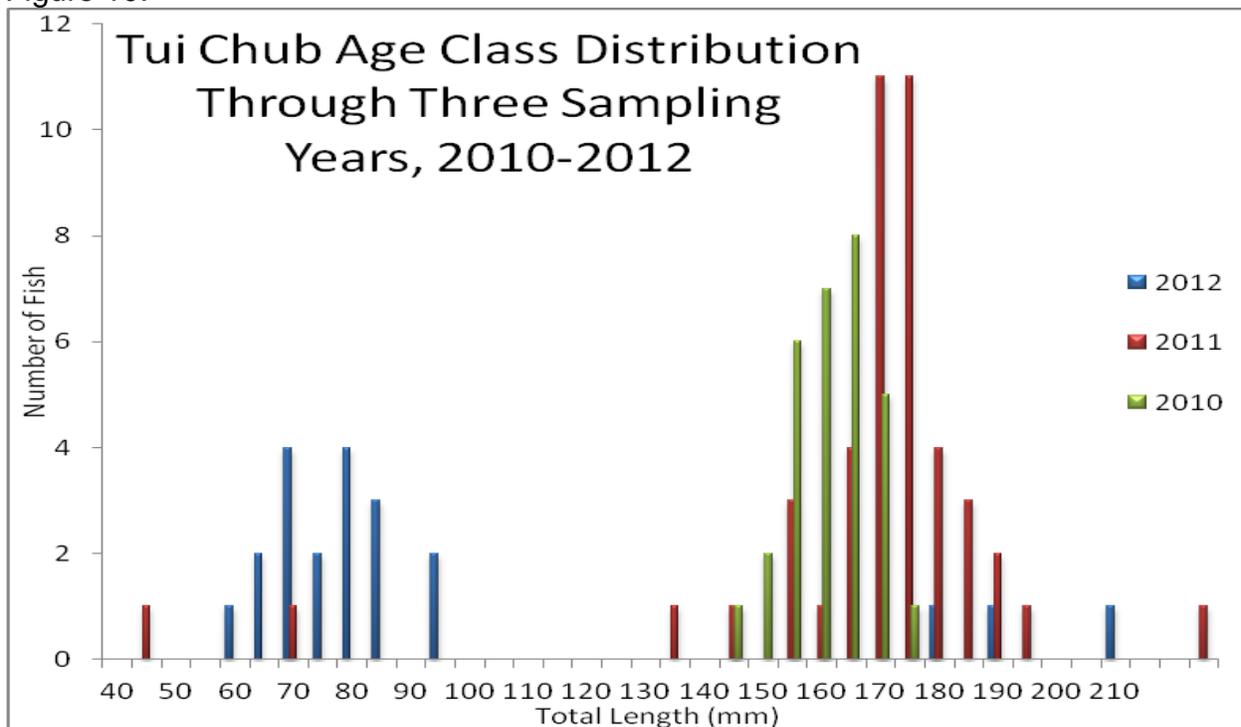
The most logical explanation for the large reduction in adult tui chub during 2012 is that they took refuge in deeper water from the middle of the reservoir. In the 2011 field trip report, it was made apparent that there were numerous YOY present in the reservoir that were not there in previous years. Prior to that, it was believed that biological controls were starting to adversely affect the tui chub population. That being, there were fewer age classes mainly comprised of older tui chub. However, recruitment from the 2011 spawning season was evident from this fall's electroshocking survey. In order to draw more sound conclusions on the effectiveness of largemouth bass and bowcutt trout in controlling chub, spring and fall surveys should be continued.

Figure 9.



A total of nine volunteer angler surveys from the drop-box were received from Cold Creek Reservoir in 2012. During the months when surveys were received, ten anglers fished for 21.5 hrs and caught 105 fish, all of which were rainbow trout. Resulting catch rates (all fish) were 10.5 fish per angler and 4.9 fish per hour. Of the 105 trout caught, 16 were harvested and the remaining 89 were released. All anglers reported fishing from shore. Angler satisfaction in 2012 was rated on a scale of 0 to 4 with 0 being unsatisfied and 4 representing satisfaction. Average ratings were 3.42 for total fishing experience and the number of fish caught, and 2.57 for the size of the fish caught.

Figure 10.



For rainbow trout, the size reported was relatively well distributed among the less than 9 in bracket, 9 to 10.9 in bracket, and 11 to 12.9 in bracket. Together, these three brackets comprised 79% of the all rainbow trout caught. The 13 to 14.9 in bracket retained 18% of the fish caught. The remaining 3% of trout caught ranged from 15 to 18.9 in.

The survey results from nine anglers likely do not provide an adequate sample size to properly assess the fishery, although returns this year are on par with long-term averages for the reservoir. From 2005 to 2011, less than eight surveys were received per year. Additionally, historical catch rates cannot be compared due to the survey form undergoing numerous changes. From 2005 through 2008, chub were included on the survey form, while only trout and bass were included on the form since 2009. Additionally, satisfaction levels cannot be compared to previous years because the rating scale on the survey form has changed a number of times. To gather more data, three attempts were made to collect creel survey data. However, there were only two

anglers checked. They fished a total of 4 hrs to harvest 2 fish, which were rainbow trout measuring 14.1 in (360 mm) and 13.9 in (354 mm).

A total of 4,152 hatchery-reared rainbow trout were stocked at Cold Creek Reservoir in 2012, which is on par with current recommendations. Once again, there were 1,560 Marlette strain bowcutt trout stocked in October.

### Illipah Reservoir

A total of 74 volunteer angler surveys from the drop-box were received from Illipah Reservoir in 2012, which was slightly higher than the seven-year average (2005-2011) of 83. Four were rejected for insufficient data. During the months when surveys were received, 76 anglers fished for 334.5 hrs and caught 680 fish, consisting of 630 rainbow trout and 50 brown trout. Resulting catch rates (all fish) were 8.9 fish per angler and 1.88 fish per hour. Catch rates in 2012 were slightly higher than what was found in 2011 and continued to stay constant with the long-term average. Of the 630 rainbow trout caught, 150 were harvested and the remaining 480 released. In addition, 20 brown trout were harvested, while an additional 30 were released. Harvest rates resulted in 2.24 fish per angler and 0.51 fish per hour. Shore anglers accounted for 92% of all anglers, while 5% fished from boats, and the remaining 3% fished from float tubes.

Volunteer angler survey data were analyzed and 94% of the trout ranged from less than 9 to 14.9 in (Table 1). The remaining 6% were larger fish that ranged from 15 to greater than 19 in.

Table 1.

	Rainbow Trout	Brown Trout
Less than 9 "	125 / 20	7 / 14
9" to 10.9"	173 / 27	4 / 8
11" to 12.9"	195 / 31	14 / 28
13" to 14.9"	103 / 16	18 / 36
15" to 16.9"	16 / 3	4 / 8
17" to 18.9"	18 / 3	2 / 4
19" or greater	0 / 0	1 / 2
Total	630 / 100	50 / 100

Angler satisfaction in 2012 was rated on a scale of 0 to 4 with 0 being unsatisfied and 4 representing satisfaction. Total fishing experience averaged 3.35, while number of fish averaged 3.05, and size of fish averaged 3.21. The averages for fishing experience and size of fish were nearly identical to 2011, however, the average for size of trout showed an improvement in each of the last two years. Therefore, average ratings in all three categories above 3 are a positive indicator of angler satisfaction at Illipah Reservoir this year.

From April through September, Illipah Reservoir was stocked with a total of 15,360 hatchery-reared rainbow trout on four separate occasions, which was 360 fish greater than the current recommendation. Current recommendations are adequate to pace angler demand at the reservoir.

### Silver Creek Reservoir

A total of 12 volunteer angler surveys were collected from the drop box at Silver Creek Reservoir in 2012. The surveys were even fewer this year than in 2011, at 14. In 2012, anglers fished for 26 hours, catching 179 fish. Of the fish caught, 96% were rainbow trout and the remaining 4% were brown trout. Catch rates at Silver Creek Reservoir were 14.9 fish per angler and 6.88 fish per hour. The catch rate for 2012 was double from the 6-year average for fish per hour and fish per angler (7.05 and 3.27, respectively). Correspondingly, harvest rates were also high at 3.8 fish per angler and 1.8 fish per hour. All 12 anglers reported fishing from the shore. Of the trout caught in 2012, 97% were 12.9 inches or smaller. The remaining 3% that were caught ranged from 13 inches to 16.9 inches (Table 2). In four attempts of collecting contact creel data at Silver Creek Reservoir, no anglers were contacted.

Table 2.

	Rainbow Trout	Brown Trout
Less than 9 "	61 / 35	6 / 86
9" to 10.9"	79 / 46	0 / 0
11" to 12.9"	28 / 16	0 / 0
13" to 14.9"	3 / 2	1 / 14
15" to 16.9"	1 / 1	0 / 0
17" to 18.9"	0 / 0	0 / 0
19" or greater	0 / 0	0 / 0
Total	172 / 100	7 / 100

Observed angler use showed 58% from White Pine County (up from 55% in 2011), none from southern Nevada (down from 9% in 2011), 42% from other areas in Nevada (up from 36% in 2011), and nonresidents remained at zero for the second consecutive year.

Silver Creek Reservoir was not stocked with the allotted 4,725 hatchery-reared rainbow trout due to an abnormally low water level. Even though the flow in Silver Creek well above the reservoir looked like it could provide adequate water to maintain the reservoir level, a significant amount of water was being diverted for livestock and agricultural purposes.

Angler satisfaction in 2012 was rated on a scale of 0 to 4 with 0 being unsatisfied and 4 representing satisfaction. Total fishing experience averaged 4.0, while number of fish averaged 2.92, and size of fish averaged 3.83. The reason for lower angler satisfaction in 2012 was due to low water and as a result there was no trout stocked into the reservoir.

## MANAGEMENT REVIEW

All approaches except the spring gill net survey were completed at Cave Lake in 2012. The gill net survey will be completed in the spring of 2013.

Five of the six approaches were completed in 2012 at Cold Creek Reservoir. It was felt unnecessary to augment the largemouth bass population in 2012. This year was the final year of a four year study to evaluate the health of the trout fishery and determine the success of largemouth bass for controlling tui chub. However, due to inconclusive data, the study has been extended an additional year (through FY14). This will provide another year of data to assist in determining the health of the trout fishery and largemouth bass at Cold Creek Reservoir.

The single approach for Bassett Lake was completed in 2012.

All four approaches for Illipah Reservoir were completed in 2012.

All four approaches for Silver Creek Reservoir were completed in 2012.

## RECOMMENDATIONS

### Cave Lake

- That gill net surveys be conducted in the future to assess population density and species composition of the Cave Lake trout fishery.
- That effort be expended to maximize the Cave Lake brown trout population.
- That current stocking levels at Cave Lake be maintained in an effort to meet angler demand.
- To conduct a general fisheries assessment through opportunistic angler contacts.
- To set experimental gill nets for two net-nights in the spring.
- To implement goals and objectives outlined in the *Cave Lake Fisheries Management Prescription*.

### Cold Creek Reservoir

- That electroshocking and gill net surveys continue in an effort to determine the success of the largemouth bass and bowcutt trout augmentations at Cold Creek Reservoir.

- To augment additional largemouth bass in Cold Creek Reservoir if deemed necessary.
- To continue a general fisheries assessment through opportunistic angler contacts periodically.
- To continue to maintain and check return of volunteer angler drop-box surveys.
- To continue to visually assess water quantity (lake level, inflow/outflow) and quality (clarity) for coordinating trout stocking.

### Bassett Lake

- To visually monitor seasonal water level fluctuations in the reservoir during the course of other duties.
- To conduct additional surveys in the Bassett Lake system to gain a proper understanding of flow patterns and identify possible problem spots prior to its eradication.

### Illipah Reservoir

- To conduct a general fisheries assessment through opportunistic angler contacts.
- To continue to maintain and check return of volunteer angler drop-box surveys.
- To continue to visually assess water quantity (lake level, inflow/outflow) and quality (clarity) for coordinating trout stocking.

### Silver Creek Reservoir

- Reduce stocking levels to mediate potential waste of hatchery-reared trout when Silver Creek is chemically treated in late summer.
- That gill net surveys be conducted periodically in the future to assess population density and species composition of the Silver Creek Reservoir trout fishery.
- To conduct a general fisheries assessment through opportunistic angler contacts in the 2015 calendar year.
- To set experimental gill nets for two net nights in the spring of 2015.

- To continue to maintain and check return of volunteer angler drop-box surveys.
- To continue to visually assess water quantity (lake level, inflow/outflow) and quality (clarity) for coordinating trout stocking.

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