NEVADA DEPARTMENT OF WILDLIFE
STATEWIDE FISHERIES MANAGEMENT

FEDERAL AID JOB PROGRESS REPORTS

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2013

WALL CANYON RESERVOIR
WESTERN 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: *Wall Canyon Reservoir*
Period Covered: *January 1, 2013 through December 31, 2013*

SUMMARY

A total of 3 volunteer angler surveys from the drop-box were received from Wall Canyon Reservoir in 2013. During the months when surveys were received, 3 anglers had fished for 16 hrs and caught 19 fish consisting of 5 rainbow trout, 2 brown trout, 1 bowcutt trout, 10 smallmouth bass, and one unidentified "other" fish. Resulting catch rates for all fish caught were 6.33 fish per angler and 1.19 fish per hour.

The Mail-in Angler Questionnaire Survey estimated use at 305 anglers that fished 566 days in 2012. Total catch was 2,184 fish and the success rate was 3.86 fish per angler day. Although number of anglers and fish per angler day are near the 33-year (1980 – 2012) average for the reservoir, both angler days and number of fish are half of the previous year and well below average.

Wall Canyon Reservoir was stocked on three occasions in 2013. From March through September, the reservoir received 1,999 triploid strain and an additional 2,015 Tahoe strain catchable rainbow trout.

A gill net survey was conducted in September. A total of 51 fish were captured in the three gill nets consisting of 32 brown trout, 11 rainbow trout, 6 smallmouth bass, and 2 green sunfish. Total catch rate for the gill netting effort was 0.78 fish per net hour. Numbers, size, species ratio, and body condition of fish captured in the gill net survey are on par with previous surveys of the reservoir.

Although water conditions have not remained ideal in the face of two consecutive years of drought, Wall Canyon Reservoir has maintained water levels for the persistence of its fishery.

BACKGROUND

Wall Canyon Reservoir is located 60 mi north of Gerlach off Nevada State Route 447 in a sagebrush-steppe habitat type. The dam consists of earth-fill and has a crest length of 822 ft. The reservoir covers 133 SA, can store up to 2,200 acre-ft of water, and has a maximum depth of approximately 55 ft.

The dam was constructed in 1960 by Lewis Cockrell. As the reservoir filled, it was realized that a portion of the reservoir was on private land while the remaining was situated on land administered by the Bureau of Land Management (BLM). The storage on BLM land necessitated a storage permit and led to an agreement between Mr.

Cockrell and the Nevada Department of Wildlife (NDOW). The agreement stated, in part, that NDOW would manage the fishery in the reservoir. In 1992, R.C. Roberts purchased Wall Canyon Reservoir and the ranch downstream. In 1998, Sam Jaksick purchased this property. Water stored in Wall Canyon Reservoir is used for agricultural irrigation downstream at Duck Lake Ranch, which is also owned by the Jaksick family.

In 2008, the Bureau of Land Management acquired lands adjacent to Wall Canyon Reservoir and Wall Canyon Creek as part of the "Granites" SNPLMA (Southern Nevada Public Lands Management Act) Land Acquisition Proposal (Round 5). However, the associated water rights for a minimum pool were not included in the final proposal and were still held by Duck Lake Ranch. This acquisition may prove to be a positive change for the management of Wall Canyon Reservoir and its surrounding lands.

The Wall Canyon Reservoir fishery is comprised of hatchery-maintained populations of rainbow and bowcutt trout and wild, self-sustaining populations of brown trout, smallmouth bass, and green sunfish. Wall Canyon Creek, the only tributary to Wall Canyon Reservoir, supports a wild population of introduced brown trout and wild, endemic population of Wall Canyon suckers and speckled dace. The reservoir is managed under coldwater and warmwater General Fishery Management Concepts, which establishes an objective for angler success rates of 0.25-0.75 fish per hour and 1.0-2.0 fish per angler day.

OBJECTIVES

General Management Objectives:

- Conduct a general 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 onsite.
- Set gill nets for 2-4 net nights in the fall.

PROCEDURES

Conduct a general assessment of angler use, success and harvest through opportunistic angler contacts, the angler drop box and mail-in angler questionnaire data. Opportunistic angler contacts are made concurrent to other scheduled fieldwork. Angler information on harvest, effort, and origin are recorded. Harvested fish are measured to fork length in millimeters.

During the course of other duties throughout the year, a volunteer angler survey drop-box at Wall Canyon Reservoir was periodically maintained and restocked.

Angler use and success at Wall Canyon Reservoir was also assessed through the Department's Mail-in Angler Questionnaire Survey data. Angler questionnaire data

is derived from a survey that is mailed to about 10% of license purchasers from the previous year.

Conduct a general habitat assessment through visual observations of water quantity (lake level) and water quality (clarity) when onsite. General habitat conditions were documented during four trips to Wall Canyon Reservoir from June through September. Habitat assessment was based strictly on visual observations of lake level and clarity.

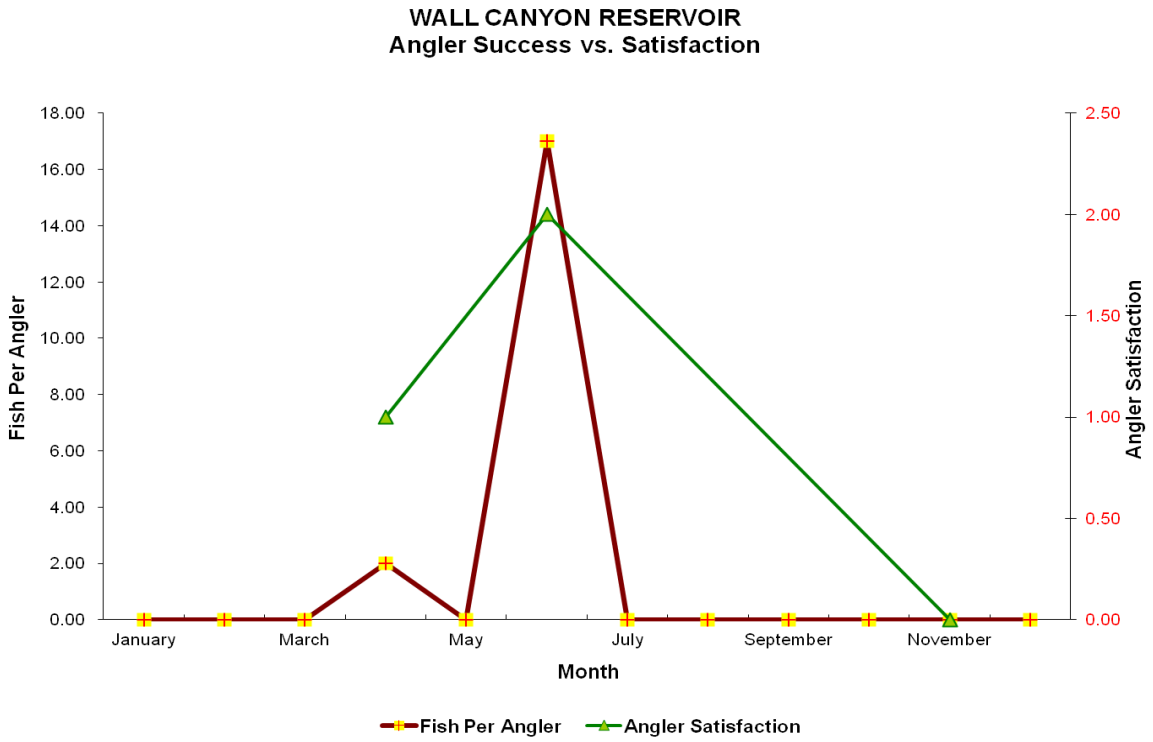
Set gill nets for 2-4 net nights in the fall. Three 150 ft x 6 ft experimental gill nets were set at 1420, 1430, and 1440 hrs on September 17. These nets consist of five panels of 1/2, 3/4, 1, 11/2, and 2 in mesh. One net (Set 1) was set along the north shoreline at the southwest end of the reservoir near the dam at a depth of approximately 24 ft (7.3 m). Another net (Set 2) was set along the south shoreline at the southwest end of the reservoir near the dam in water approximately 25 ft (7.6 m) deep. The third pelagic net (Set 3) was set in the center of the northeast end of the reservoir near the Wall Canyon Creek inflow running northeast to southwest at a depth of 11 ft (3.4 m). The nets were pulled at 1140, 1230, and 1250 hrs respectively on September 18. All fish captured were identified, measured (salmonids to fork length and total length for other species), and weighed with a hand-type spring scale. Live fish were returned to the reservoir after processing.

FINDINGS

Conduct a general assessment of angler use, success and harvest through opportunistic angler contacts, an angler drop box and mail-in angler questionnaire data. Although four trips were made to Wall Canyon Reservoir in 2013, no opportunistic angler contacts were made.

A total of 3 volunteer angler surveys from the drop-box were received from Wall Canyon Reservoir in 2013. During the months when surveys were received, 3 anglers had fished for 16 hrs and caught 19 fish consisting of 5 rainbow trout, 2 brown trout, 1 bowcutt trout, 10 smallmouth bass, and one unidentified “other” fish. Resulting catch rates for all fish caught were 6.33 fish per angler and 1.19 fish per hour. Of the 19 fish reported, 9 were harvested, while the remaining 10 (2 rainbow trout, 6 smallmouth bass, and one other fish) were released. All three anglers fished from shore. Two anglers used bait while the remaining angler used lures. Angler satisfaction in 2013 was rated on a scale of -2 to +2 with -2 being unsatisfied and +2 representing satisfaction. Ratings were all positive at 1.00 for total fishing experience, 0.50 for size of fish, and 1.00 for number of fish. A rough relationship can be made between angler success and satisfaction (Figure 1). This means that an increase in angling success generally led to an increase in angler satisfaction and vice versa.

Figure 1.



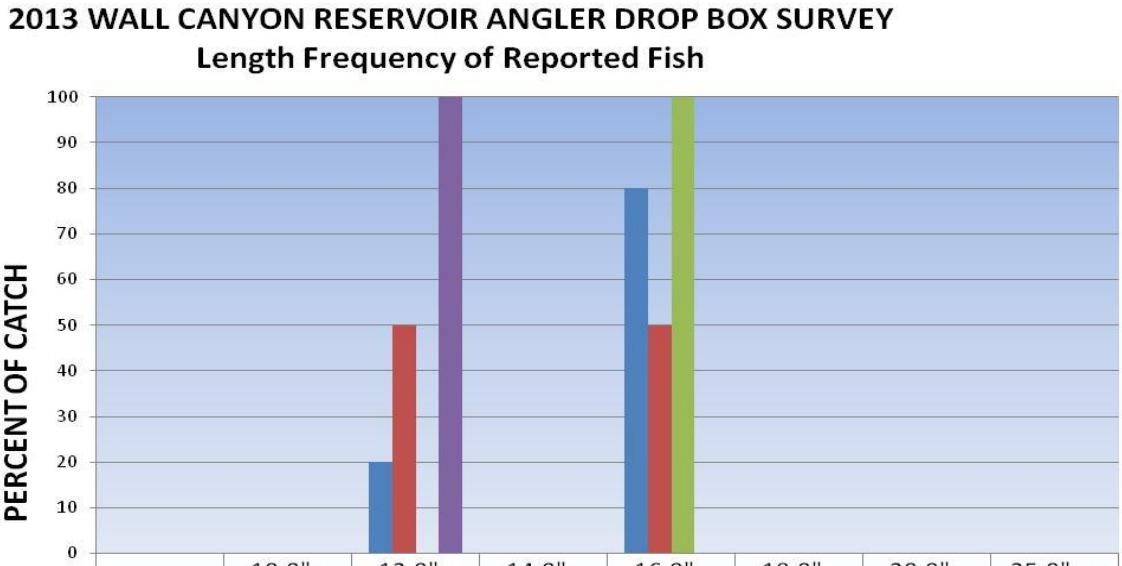
All fish were reported to inhabit just two size brackets; 12.0-13.9 in and 16.0-17.9 in (Figure 2). Brown trout were split evenly between the two size brackets while 80% of rainbow trout were represented in the larger of the two brackets. The lone bowcutt was in the 16.0-17.9 in size bracket while all 10 bass were in the 12.0-13.9 bracket. Representation of a majority of bowcutt and rainbow trout in the larger size bracket provides evidence of carryover from previous years.

The Mail-in Angler Questionnaire Survey estimated use at 305 anglers that fished 566 days in 2012. Total catch was 2,184 fish and the success rate was 3.86 fish per angler day. Although number of anglers and fish per angler day are near the 33-year (1980 – 2012) average for the reservoir, both angler days and number of fish are half of the previous year and well below average. This can likely be attributed to the fact that Wall Canyon Reservoir water level spent most of the year at half capacity or lower. Many anglers voiced frustration over difficulty in catching fish.

Stocking Program

Wall Canyon Reservoir was stocked on three occasions in 2013 (Table 1). From March through September, the reservoir received a total of 1,999 triploid and an additional 2,015 Tahoe strain catchable rainbow trout.

Figure 2.



	<10.0"	10.0" - 11.9"	12.0" - 13.9"	14.0" - 15.9"	16.0" - 17.9"	18.0" - 19.9"	20.0" - 24.9"	25.0" or greater
Rainbow Trout	0.00	0.00	20.00	0.00	80.00	0.00	0.00	0.00
Brown Trout	0.00	0.00	50.00	0.00	50.00	0.00	0.00	0.00
Bowcutt Trout	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Smallmouth Bass	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00

Table 1. Wall Canyon Reservoir Stocking Summary – 2013

Date	Species	Number	Size (in.)	Strain
3/18/13	Rainbow	1,000	9.8	Triploid
6/10/13	Rainbow	999	10.2	Triploid
9/23/13	Rainbow	2,015	9.9	Tahoe
Total (All Fish)		**4,014**		

Table 2. Wall Canyon Reservoir Stocking History 2008 – 2012

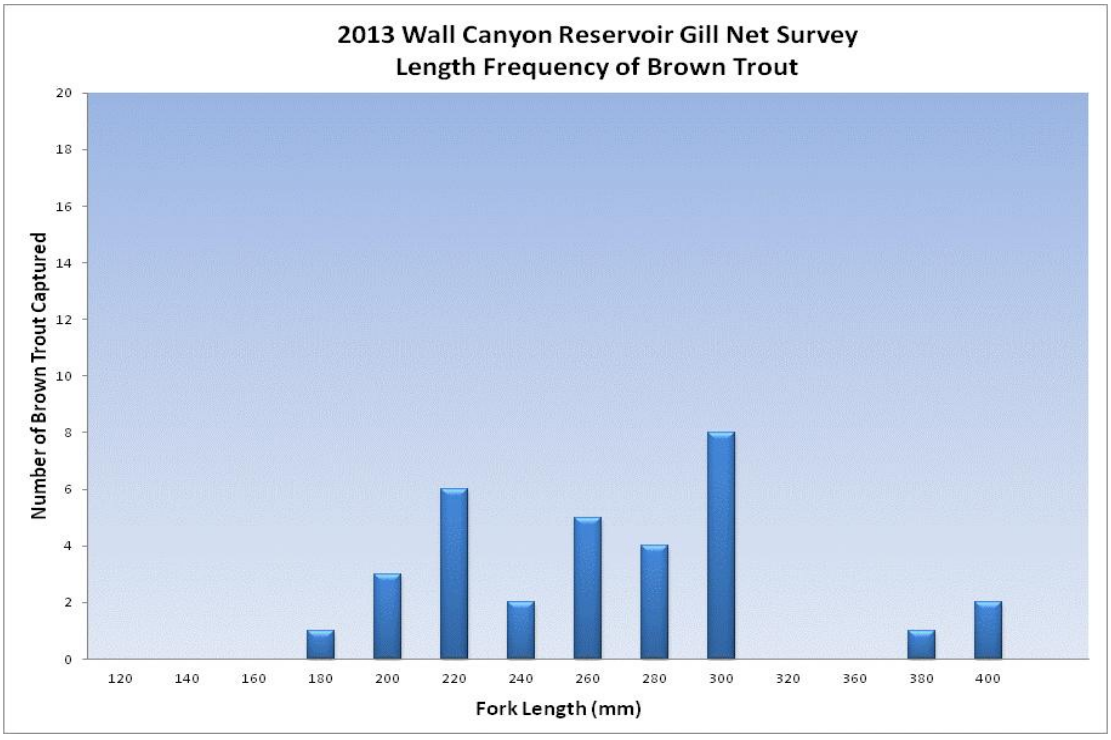
Year	Species	Number	Size Range (in.)
2008	Rainbow	5,485	8.3 – 11.7
2008 Total		**5,485**	
2009	Rainbow	2,644	9.5
	Bowcutt	2,074	9.6
2009 Total		**4,718**	
2010	Rainbow	1,999	9.4
	Bowcutt	2,001	9.7
2010 Total		**4,000**	
2011	Rainbow	2,495	9.5 – 10.3
	Bowcutt	2,000	9.6
2011 Total		**4,495**	
2012	Rainbow	2,000	9.2
2012 Total		**2,000**	
Total		**20,698**	

Conduct a general habitat assessment through visual observations of water quantity (lake level) and water quality (clarity) when onsite. Water conditions at Wall Canyon Reservoir have declined in recent history due to a combination of factors. First, the agricultural operations downstream have expanded. During the above average precipitation year such as 2011, the reservoir was filled to 50% capacity by year's end. Additionally, years of below average precipitation such as in 2012 and 2013 have also not been beneficial to the Wall Canyon Reservoir fishery. In 2013, the reservoir was below 50% capacity during a visit in June and continued to drop throughout the remainder of the year.

Set gill nets for 2-4 net nights in the fall. A gill net survey was conducted in September. A total of 51 fish were captured in the three gill nets consisting of 32 brown trout, 11 rainbow trout, 6 smallmouth bass, and 2 green sunfish. Total catch rate for the gill netting effort was 0.78 fish per net hour. Although not enumerated, approximately 130 crayfish were also captured in the nets.

Brown trout accounted for 62.8% of the total catch and captured at a rate of 0.49 fish per net hour. The 32 brown trout captured ranged in size from 6.18 in (157 mm) to 14.57 in (370 mm) and averaged 9.40 in (239 mm) in length. Weight averaged 0.38 lbs (174 g) and ranged from 0.11 lbs (50 g) to 1.06 lbs (480 g). Using breakpoints 240 mm and 300 mm, length frequency analysis reveals at least three distinct age classes represented in the catch (Figure 3). Three brown trout captured that were all greater than 13.0 in (330 mm) and 1.0 lb (454 g) provide evidence of decent carry-over exhibited by the reservoir's self-sustaining population of brown trout.

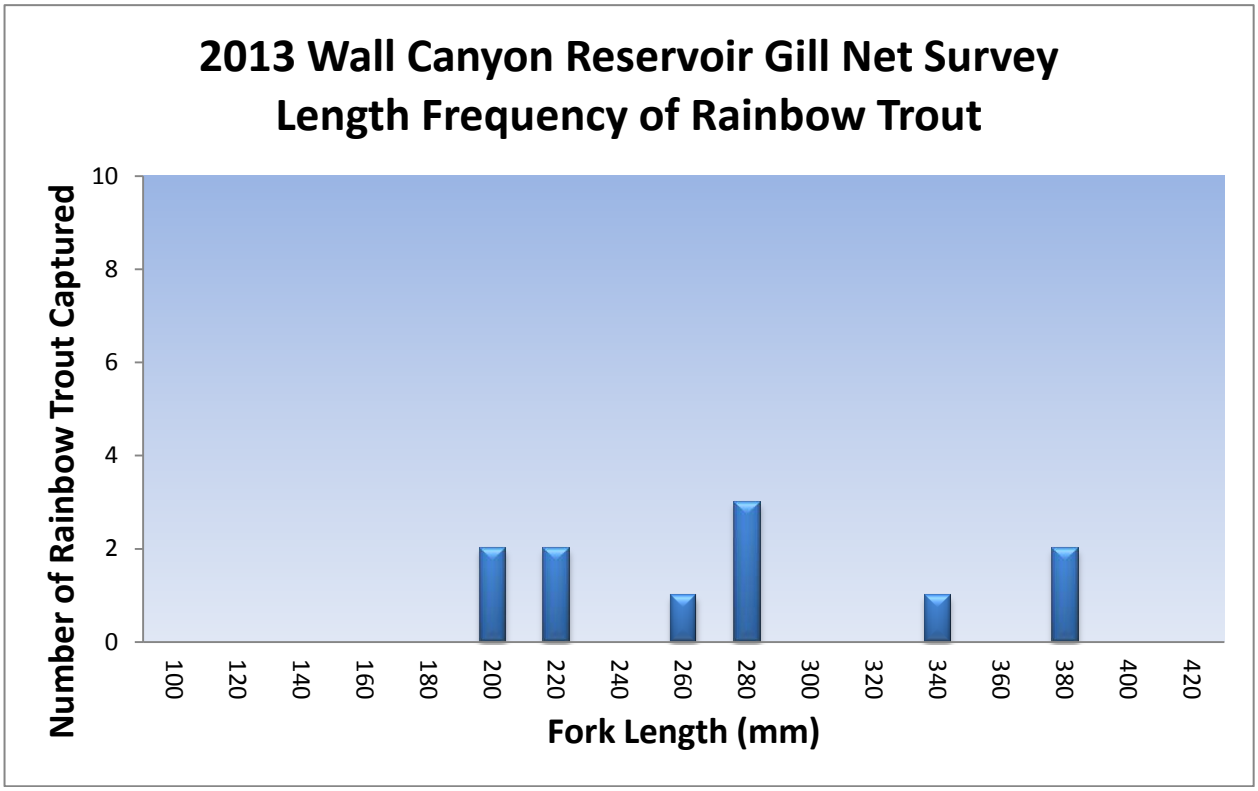
Figure 3.



Rainbow trout were captured at a rate of 0.17 fish per net hour and they accounted for 21.6% of the total catch. The 11 rainbow trout captured averaged 10.5 in (266 mm) in length and ranged in size from 7.2 in (184 mm) to 14.8 in (377 mm). Weight ranged from 0.13 lbs (60 g) to 1.15 lbs (520 g) and averaged 0.54 lbs (245 g) overall.

Length frequency analysis of the rainbow trout captured reveals four distinct age classes inhabiting the reservoir (Figure 4). Length breakpoints of 220 mm and 280 mm separate two loads of rainbow trout (1,000 fish each) that were stocked earlier this spring at lengths of 9.8 in (149 mm) and 10.2 in (259 mm), respectively, while the remaining two age classes (breakpoints of 340 mm and 380 mm) represent carryover fish that were stocked prior to 2013.

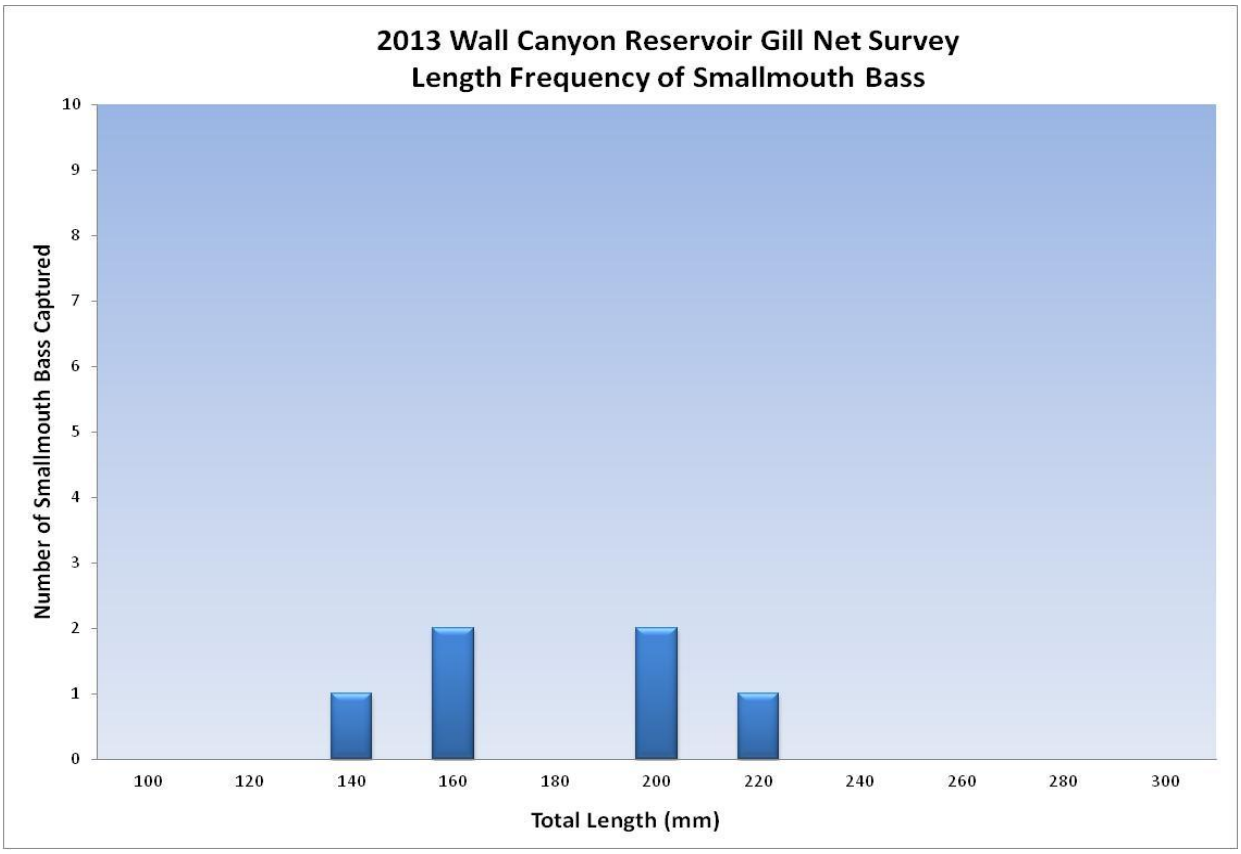
Figure 4.



Smallmouth bass were captured at a rate of 0.09 fish per net hour and accounted for 11.8% of the total catch. The 6 smallmouth bass captured ranged in size from 5.24 in (133 mm) to 8.03 in (204 mm) and averaged 6.73 in (171 mm) in total length. Weight averaged 0.16 lbs (71 g) and ranged from 0.08 lbs (35 g) to 0.22 lbs (100 g). Smallmouth bass captured in survey activities represent two distinct size classes (Figure 5). Fish shorter than 160 mm represent class II or younger fish. These smaller sized smallmouth bass provide positive evidence of continued reproduction and recruitment of the population at Wall Canyon Reservoir. Three fish larger than 7.87 in (200 mm) represent the remaining size classes. Along with evidence of continued

reproduction, larger-sized spawning adults captured provide positive indications for future recruitment at the reservoir.

Figure 5.



The remaining fish captured in the gill net survey were comprised of two green sunfish that measured 5.91 in (150 mm) and 6.30 in (160 mm) and weighed 0.15 lbs (70 g) and 0.22 lbs (100 g), respectively. These fish accounted for a combined 3.92% of the total catch and a combined catch rate of 0.03 fish per net hour. Although green sunfish are not common at Wall Canyon Reservoir, these two fish from the same age class are evidence of their continued persistence at the reservoir.

MANAGEMENT REVIEW

An angler success rate of 1.19 fish per hour documented in the Angler Drop-box Survey met the guidelines prescribed for a Coldwater General Fishery Management Concept, while the success rate of 4.47 fish per angler day from the mail-in questionnaire exceeded the rate of 2.0 to 3.5 fish per angler day prescribed.

Numbers, size, species ratio, and body condition of fish captured in the gill net survey are on par with previous surveys of the reservoir. Although water conditions have not remained ideal in the face of two consecutive years of drought, Wall Canyon Reservoir has maintained water levels for the persistence of its fishery. Due to

downstream irrigation demands and a third year of drought, it is suspected that the fishery may be in jeopardy. Adequate wintertime precipitation is crucially needed to maintain favorable fishing conditions in 2014.

RECOMMENDATIONS

General Management Objectives:

- Conduct a general 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 onsite.
- Conduct gill net surveys every two years to document the status and trend of the Wall Canyon Reservoir fishery.

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