

NEVADA DEPARTMENT OF WILDLIFE
STATEWIDE FISHERIES MANAGEMENT



FEDERAL AID JOB PROGRESS REPORTS

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2018

WASHOE LAKE
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: *Washoe Lake*
Period Covered: *January 1, 2018 through December 31, 2018*

SUMMARY

Washoe Lake remained at or near capacity during 2018. This enabled fisheries personnel to continue stocking warmwater species in the lake in an effort to rebuild a fishery that was eliminated during drought years from 2014 to 2016. A total of 658,281 warmwater game fish were stocked into Washoe and Little Washoe lakes in 2018.

The expanded mail-in, angler questionnaire data for 2017 found 290 anglers fished Washoe Lake for 386 days to catch 54 fish.

Fish composition surveys were carried out throughout the 2018 field season on both Washoe and Little Washoe lakes and revealed an abundance of forage species as well as a small number of game fish. The capture of numerous stocked species was a positive indicator that the stocking of warmwater game fish in 2017 and 2018 was successful.

BACKGROUND

Washoe Lake is a eutrophic, shallow body of water located in western Nevada between Reno and Carson City. It covers an area of 5,800 acres at spillway stage and consists of Big Washoe Lake, Little Washoe Lake, and the marshy area connecting the two. The shallowness of the big lake (maximum 12 ft deep) coupled with high winds occurring nearly every day in Washoe Valley account for its high turbidity.

Drought cycles and resulting low water conditions negatively influence the fishery. Recent droughts have occurred during 1976 and 1977, 1987 to 1994, 2000 to 2004, and 2012 to 2015. The fishery did not fare well during these droughts and populations either have been dramatically reduced or nearly eliminated. The big lake usually experiences total desiccation during multiyear droughts leaving the small lake to accommodate fish. Two fish eradication projects, occurring in 1960 and 1991, targeted primarily nongame species, common carp and tui chub, but also yellow perch and bullhead. Neither of these projects was successful and, with the exception of yellow perch, all species still occur in both lakes.

The current fishery at Washoe Lake is comprised of common carp, bullhead, tui chub, Sacramento perch, white bass, largemouth bass, white crappie, and channel catfish. These species reproduce in the lake and populations are self-sustaining under favorable environmental conditions. Due to fluctuating water levels and subsequent declines in fish populations, white bass and channel catfish are supplemented routinely

with either hatchery-produced fish or wild fish collected from local waters in order to boost the fishery.

OBJECTIVES

- Conduct a general assessment of angler use, success, and harvest through mail-in angler questionnaire data.
- Conduct a general habitat assessment through visual observations of water quantity (lake level) when onsite.
- Conduct an electroshocking survey of Little Washoe Lake in the fall to determine species composition and abundance.
- Augment the reservoir with channel catfish, white bass, and white crappie.
- Collect five samples of each captured species during electroshocking for mercury analysis.

PROCEDURES

Conduct a general assessment of angler use, success, and harvest through opportunistic angler contacts and mail-in angler questionnaire data. Angler use and success was assessed through the statewide Mail-in Angler Questionnaire Survey. Angler questionnaire data was derived from a survey mailed to 30,000 license purchasers at the end of 2017.

Conduct a general habitat assessment through visual observations of water quantity (lake level) when onsite and using USGS gage data. A general assessment of habitat conditions was completed through visual surveys at Big and Little Washoe lakes throughout the year.

Conduct an electroshocking survey of Little Washoe Lake in the fall to determine species composition and abundance. On October 11, 2018, a Smith-Root Electrofishing Boat was used to sample four transects on Little Washoe Lake. All species captured were measured to fork length and released. A similar electroshocking survey was also performed on Washoe Lake on April 17, 2018.

Augment the reservoir with channel catfish, white bass, and white crappie if funding and source stock is available. Washoe and Little Washoe lakes were stocked a total of eight times during 2018. Washoe Lake received white bass, channel catfish, and white crappie while Little Washoe Lake received channel catfish and white bass.

In an effort to monitor the establishment of stocked white bass, a beach seining survey was performed at Washoe Lake on August 6, 2018. A 100-foot purse seine was used to capture all fish adjacent to the beaches at seven locations around the lake. Typical net-pull lengths at each location included two pulls along 200 feet of shoreline each. All fish captured were measured to fork length and released.

Collect five samples of each captured species during electroshocking for mercury analysis. During the different surveys at Washoe and Little Washoe lakes

during 2018, it was determined that too few fish of sufficient size were captured at any one time to sacrifice fish for mercury testing. This objective will be carried forward into 2019.

FINDINGS

Conduct a general assessment of angler use, success, and harvest through mail-in angler questionnaire data. Expanded mail-in, angler questionnaire data for 2017 found 290 anglers fished Washoe Lake for 386 days to catch 54 fish. Resulting angler success was 0.1 fish per day. The low success rates observed at Washoe Lake were expected as the lake filled during the winter of 2016/2017 and fish densities were extremely low. The number of anglers and angler days were the highest seen at the lake since 2013. Washoe Lake water level was maintained at capacity for all of 2017. The only opportunity for anglers to catch fish in the big lake in 2017 was through the dispersal of fish from Little Washoe Lake and two small stocking events of channel catfish and white crappie. There was no reported angler questionnaire data for Little Washoe Lake in 2017. It is probable that most anglers consider Little Washoe Lake and Washoe Lake the same fishery and therefore submit data as Washoe Lake.

Conduct a general habitat assessment through visual observations of water quantity (lake level) when onsite and using USGS gage data. Visual assessment of water levels was made at Washoe Lake on almost a weekly basis during 2018. The water level was maintained at or near capacity for most of 2018 with it slightly receding in the later months. At the end of 2018, the lake was estimated to be approximately 80 percent full.

Conduct an electroshocking survey of Little Washoe Lake in the fall to determine species composition and abundance. On October 11, 2018, a Smith-Root Electrofishing Boat was used to sample four transects on Little Washoe Lake. The results of this electroshocking survey are presented in Table 1. The game fish species sampled during the survey consisted of Sacramento perch, green sunfish, largemouth bass, white crappie, channel catfish, and bullhead catfish. The nongame assemblage was comprised of fathead minnows and carp and was not included in tables or catch rate estimates. The most abundant fish during the survey were Sacramento perch, which appeared to have had extremely successful spawns and recruitment in the absence of predators since the drought that was experienced from 2013 to 2017. The presence of numerous gamefish is encouraging, and with an ample supply of forage fish, this fishery should be productive in years to come provided there is average annual precipitation.

During the spring of 2018, Washoe Lake was also sampled for species abundance. The results of this survey were similar to those seen in fall surveys at Little Washoe Lake, with expectedly fewer species of game fish. Washoe Lake stood completely dry from 2015 to 2016 and all species were lost because of this. Rebuilding of the fishery began in 2017 with stocking events, but it is expected that it will take several years to establish a viable fishery once again. The results of this survey are presented in Table 2.

Table 1. Little Washoe Lake Electroshocking Results.

	Avg Length (mm)	LW1	LW2	LW3	LW4	Total	Fish/Min
Sac Perch	106	52	88	81	47	268	4.47
Sunfish	87	0	1	1	0	2	0.03
Fathead	52	15	0	1	1	17	0.28
Largemouth Bass	263	0	1	4	0	5	0.08
White Crappie	324	0	1	0	0	1	0.02
Channel Catfish	444	0	1	0	0	1	0.02
Bullhead	141	0	3	7	3	13	0.22
Total Fish						307	

Table 2. Washoe Lake Electroshocking Results.

	Average Length (mm)	WL1	WL2	WL3	Total	Fish/Min
Sac Perch	77	27	92	190	309	5.31
Sunfish	58	0	0	4	4	0.07
Fathead	56	7	9	60	46	0.79
Bullhead	147	0	3	1	4	0.07
Total Fish					363	

Augment the reservoir with channel catfish, white bass, and white crappie if funding and source stock is available. Washoe and Little Washoe lakes were stocked a total of eight times during 2018. Juvenile white bass and channel catfish were acquired from commercial fish production facilities, while white crappie were captured from several area waters and transported to Washoe Lake. The white bass stocking was also augmented with fish captured in Lahontan Reservoir on several occasions in 2018. Washoe Lake received white bass, channel catfish, and white crappie, while Little Washoe Lake received channel catfish and white bass (Table 3). Due to Washoe Lake being at or near capacity for most of 2018 and, therefore, connected to Little Washoe Lake, stocking data is presented for both Washoe and Little Washoe lakes.

Table 3. Washoe Lake Fish Stocking, 2018.

Species	Number	Avg. Size (in)	Source	Stock Date	Notes
White Bass	11	8	Lahontan	5/17/2018	
White Bass	650,000	Fry	Keo Fish Farm	5/24/2018	100,000 in Little Washoe
White Bass	230	4	Lahontan	7/9/2018	
White Bass	150	4	Lahontan	7/10/2018	
White Crappie	20	5	Lahontan	7/10/2018	
White Crappie	200	3	Chimney	7/27/2018	
White Bass	170	4	Lahontan	8/23/2018	
Channel Catfish	7,500	6	Colorado Catch	10/18/2018	555 in Little Washoe
Total White Bass		650,561			
Total White Crappie		220			
Total Channel Catfish		7,500			

In an effort to monitor the establishment of stocked white bass, a beach seining survey was performed at Washoe Lake on August 6, 2018. A total of 22 white bass were

captured during this survey which was a positive indicator that stocking 650,000 white bass fry in May of 2018 was a success. On average, these fish were 52 mm in length and ranged from a high of 66 mm to a low of 41 mm. Fathead minnows ($n=69$), Sacramento perch ($n=4$), bullhead catfish ($n=2$), and carp were also captured.

Table 4. Washoe Lake Beach Seining, 2018.

Total Fathead		69
	Length (mm)	
Average		49
Range		
	High	68
	Low	23
Total Bullhead		2
	Length (mm)	
Average		128
Range		
	High	134
	Low	121
Total Sac Perch		4
	Length (mm)	
Average		93
Range		
	High	111
	Low	84
Total White Bass		22
	Length (mm)	
Average		52
Range		
	High	66
	Low	41

Collect five samples of each captured species during electroshocking for mercury analysis. During the different surveys at Washoe and Little Washoe lakes during 2018, it was determined that too few fish of sufficient size were captured at any one time to sacrifice fish for mercury testing. This objective will be carried forward into 2019.

MANAGEMENT REVIEW

The 2017 angler use and success rates estimated from the Mail-in Angler Questionnaire Survey for Washoe Lake fell below the standards set for the Warmwater, General Fishery Management Concept. This was expected in a fishery that was entirely desiccated in 2015 and 2016 and has only recently been stocked with sportfish. This fishery is in the second year of a rebuilding effort that will take numerous years to meet the management objectives. The utilization of source stock (white bass and crappie) from other area waters combined with the purchase of commercially raised fish (channel catfish and white bass) will help to speed up the process for reestablishing a viable warmwater sport fishery in Washoe Lake.

Electroshocking and seining surveys in Washoe Lake and Little Washoe Lake revealed an abundance of forage fish that will aid in the reestablishment of this fishery.

The Little Washoe Lake survey also identified a number of gamefish species that were thought to be eliminated from the lake (largemouth bass and white crappie). With the connection of the two lakes, it is assumed that fish from Little Washoe Lake will out-migrate to populate Washoe Lake. The capture of channel catfish and white bass in these surveys is also a positive indicator that stocking of warmwater species has been successful.

RECOMMENDATIONS

- Conduct a general assessment of angler use, success, and harvest through the Mail-in, Angler Questionnaire Survey.
- Conduct a general habitat assessment through visual observations of water quantity (lake level) when onsite.
- Conduct an electroshocking survey of Washoe Lake to monitor species composition and abundance.
- Augment the reservoir with channel catfish, white bass, and white crappie.
- Collect five samples of each captured species during electroshocking for mercury analysis.
- Conduct quagga mussel sampling once in the spring and as needed following the initial sampling.

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