

NEVADA DEPARTMENT OF WILDLIFE
STATEWIDE FISHERIES MANAGEMENT



FEDERAL AID JOB PROGRESS REPORTS

F-20-53

2017

EAST FORK AND MAIN STEM CARSON RIVER
WESTERN REGION



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

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

State: *Nevada*
Project Title: *Statewide Fisheries Program*
Job Title: *East Fork and Main Stem Carson Rivers*
Period Covered: *January 1, 2017 through December 31, 2017*

SUMMARY

The snow-water equivalent for the Carson River Basin was 28% of average for the 2014 water year, 60% for 2015, 107% for 2016, and 208% for 2017. For the second year in a row, above average precipitation was observed according to the Natural Resource Conservation Service SNOTEL site suggesting drought conditions have subsided.

In the summer and fall, rainbow trout was stocked in the main stem and upper east fork of the Carson River. Trout stocking occurred well into November resulting from the flooding and high flows observed throughout most of the summer.

Mail-in angler questionnaire data from 2016 for the main stem Carson River estimated that 328 anglers spent 1,035 days to catch 2,884 for an average of 2.79 fish per angler-day. For the East Carson River, it was estimated that 1,107 anglers spent 4,066 days to catch 21,617 fish for an average catch rate of 5.32 fish per angler-day. There were nine anglers interviewed during June through August that spent 18 hrs to catch 15 fish for a catch rate of 0.83 fish per hour. Of the fish observed, six were rainbow trout that averaged 303 mm (11.92 in) and two were brown trout averaging 235 mm (9.25 in).

BACKGROUND

The Carson River headwaters originate in Alpine County, California, however approximately 85% of the watershed lies in Nevada. The East Fork begins near Sonora Pass and the West Fork begins below Carson Pass where several small streams merge. The confluence of the east and west forks occurs in Carson Valley and from there the main stem travels northeast through Carson City and Dayton Valley until impounded by Lahontan Reservoir. Flows from the reservoir are controlled for downstream irrigation of Lahontan Valley and for Stillwater Wildlife Management Area. The river terminates in the Carson Sink. The predominant use of water is for agriculture, however, urban development in Minden, Gardnerville, Carson City, and Dayton contributes to the river's use.

The Carson River is relatively wide, shallow, and lacks a riparian canopy. The fishery experiences high spring runoff, high-suspended solids during runoff events, and low summer flows resulting in high water temperatures. Limiting factors for the trout

fishery include warm summer water temperatures, lack of vegetative cover, lack of high quality pools, and lack of reproductive habitat.

NDOW manages the East Carson River and the main stem Carson River as a put-and-take fishery, which is directed toward creating fishing opportunities where it normally does not exist. Fishing regulations are consistent along the entire length of the east fork and main stem of the Carson River and anglers are allowed 5 trout, 10 mountain whitefish, and 15 warmwater game fish of which not more than five may be walleye and five may be black bass.

Trout stocking plays a vital role in creating and maintaining this fishery, especially the east fork, as carryover trout are only observed during years with average or above average winter snowpack. Stocking usually occurs in spring and fall. During the summer, temperatures are generally too high for trout survival, particularly in the main stem below Carson City. In these areas, warmwater species including smallmouth bass, green sunfish, and carp provide the most angling opportunity.

OBJECTIVES

- Conduct a general fisheries assessment through opportunistic angler contacts and mail-in, angler questionnaire data.
- Conduct a pre-stocking evaluation of road conditions, water flows, and turbidity.

PROCEDURES

Conduct a general fishery assessment through opportunistic angler contacts and mail in, angler questionnaire data. Roving creel surveys were conducted three days during June, July, and August. Information collected included number of fish caught, hours spent fishing, size of fish caught, and location of angler.

Mail-in angler questionnaires were sent out at the end of 2016 to 30,000 anglers purchasing a Nevada fishing license. Data was summarized and estimated the number of anglers, days spent fishing, and number of fish caught. Since the Carson River flows through four counties, data reported for a specific county were entered into the database for that county. However, if no county was specified by the angler, a general Carson River water code was assigned. All data from the different counties were then combined and used in calculating the total for the Carson River.

Conduct a pre-stocking evaluation of road conditions, water flows, and turbidity. A pre-stocking evaluation of road conditions was conducted during the spring to ensure that access would be adequate for fish trucks to reach stocking sites. A general observation of trout habitat suitability (flow, turbidity, and temperature) determined if stocking was appropriate.

FINDINGS

Conduct a general fishery assessment through opportunistic angler contacts and mail in, angler questionnaire data. There were nine anglers interviewed that spent 18 hrs to catch 15 fish for a catch rate of 0.83 fish per hour. Of the fish observed, six were rainbow trout that averaged 303 mm (11.9 in) and two were brown trout that averaged 235 mm (9.25 in). By comparison, in 2016, seven anglers spent 21 hrs to catch 13 fish for a catch rate of 0.65 fish per hour. Of the fish observed, nine were rainbow trout that averaged 241 mm (9.49 in) and two were brown trout that averaged 321 mm (12.65 in). Angler creel information suggests this is the fourth year in which angler use, success, size of fish, and number of fish have been low. The drop in angler use and success is most likely due to persistent drought conditions in the Carson Basin followed by a 208% snowpack year, which resulted in very high flows throughout most of the summer.

Table 1 shows the 2016 mail-in angler questionnaire data for the Carson River, which estimated anglers had an average catch rate of 2.79 fish per angler day. It was estimated that 328 anglers spent 1,035 days to catch 2,884 fish. For the East Carson River, anglers caught an average of 5.32 fish per angler day and it was estimated that 1,107 anglers spent 4,066 days to catch 21,617 fish. By comparison, the 2015 survey estimated anglers showed an average catch rate of 7.84 fish per angler day. It was estimated that 221 anglers spent 1,255 days to catch 9,834 fish. For the East Carson River in 2015, anglers had an average catch rate of 2.40 fish per angler day and it was estimated that 682 anglers spent 3,186 days to catch 7,635 fish. Under the current management as a put-and-take fishery, the angler success rate should range between 1.0 and 2.0 fish per angler day.

The 2013 through 2016 angler questionnaires suggest that angling goals were met for the east fork and main stem of the Carson River. Angler use was consistently down over the past few years, but with a few exceptions that are highlighted in Table 1. An overall reduction in angling pressure has been observed for several years and is likely due to persistent drought conditions followed by very high flows and flooding.

Conduct a pre-stocking evaluation of road conditions, water flows, and turbidity. A pre-stocking evaluation of flows and turbidity was conducted on the East Fork Carson River in June, July, and August. High flows (Figure 1) were observed well into July and no trout stocking occurred until late July, however, this allowed stocking to continue through November. No brown trout were stocked in 2015 due to lack of hatchery availability, however, during 2016 and 2017, brown trout were once again stocked in the upper East Carson.

The East Carson River near Ruhensroth Dam and the mainstem near Carson City were stocked with catchable trout from midsummer through early winter. Table 2 summarizes fish stocking in the Carson River during 2017. Table 3 summarizes historical stocking from 2013 to 2016.

Table 1. 2016 Carson River Angler Questionnaire Summary.

County		Anglers	Fishing Days	Fish Caught	Days/Angler	Fish/Angler	Fish/Day
Lyon	2013	184	1037	1927	5.65	10.5	1.86
	2014	77	305	305	3.97	4.0	1.00
	2015	80	571	1425	7.17	17.9	2.50
	2016	212	1126	4196	5.31	19.8	3.72
Douglas	2013	203	1852	2213	9.13	10.9	1.19
	2014	316	2023	4320	6.38	13.6	2.14
	2015	96	317	444	3.32	4.6	1.40
	2016	3	51	154	20.01	60.0	3.00
Churchill	2013	45	177	1094	3.92	24.2	6.18
	2014	34	65	73	1.88	2.1	1.12
	2015	50	666	6492	13.18	128.53	9.75
	2016	23	53	41	2.34	1.78	0.76
Carson	2013	206	1164	4426	5.65	21.49	3.8
	2014	316	2076	7666	6.57	24.26	3.69
	2015	163	556	3309	3.41	20.3	5.95
	2016	201	684	2356	3.41	11.73	3.44
Totals							
Main stem	2013	349	1817	6665	5.20	19.09	3.67
	2014	365	2178	7773	5.97	21.30	3.57
	2015	221	1255	9834	5.68	44.50	7.84
	2016	328	1035	2884	3.16	8.79	2.79
East fork	2013	821	5048	9301	6.15	11.34	1.84
	2014	814	3745	7282	4.60	8.95	1.94
	2015	682	3186	7635	4.67	11.20	2.40
	2016	1107	4066	21617	3.67	19.53	5.32

Flow never exceeded 1,000 cfs at any time during 2013 through 2015, with the highest flow of 969 cfs recorded in May 2013. During 2016, flows in the river were more representative of normal conditions, rising above 1,000 cfs in early May and peaking on May 15 at 1,470 cfs. During average flow years, the river remains above 1,000 cfs for several weeks during spring runoff. During 2017 however, flows remained well above average and peaked near 6,000 cfs during February (Figure 1). During 2014, a low flow of 29 cfs occurred on September 25 and, in 2015, a low flow of 25 cfs occurred on September 13. Low flows (less than 80 cfs) were observed during 2014 through 2016 beginning in July and lasting through December with only occasional spikes reaching above 80 cfs in response to storm events. During 2017, the lowest flow observed occurred in November, however, it was still above 100 cfs. The 2016 and 2017 flow patterns are shown in Figure 1, along with the 91-yr median daily average.

RECOMMENDATIONS

- Conduct a general fishery assessment through opportunistic angler contacts and mail in, angler questionnaire data.
- Conduct a pre-stocking evaluation of road conditions, water flows, and turbidity.

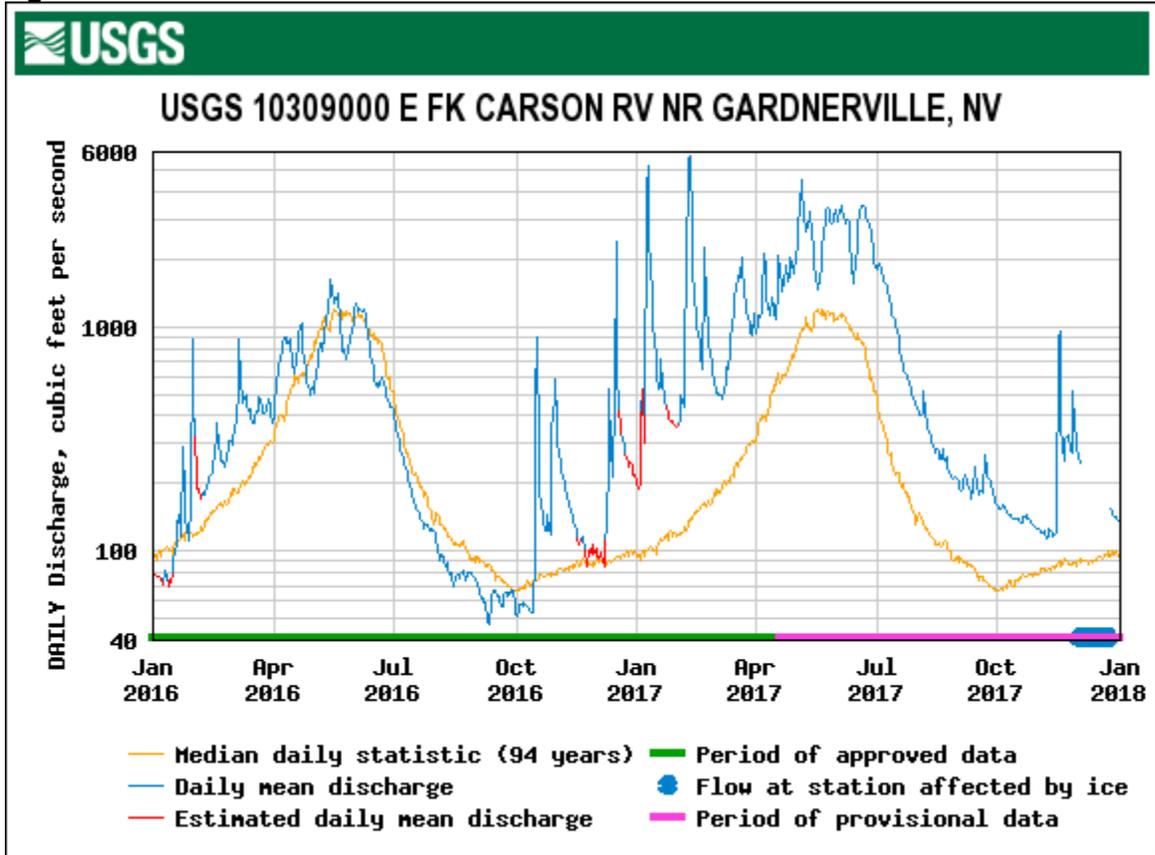
Table 2. 2017 Carson River Stocking Summary.

		Main Stem		
Date	Species	Strain	Number	Size
7/24/2017	Rainbow	Kamloop	915	9.4
10/23/2017	Rainbow	Tahoe	1246	10.1
11/6/2017	Rainbow	Tahoe	1512	10
10/23/2017	Rainbow	Tahoe	726	10.1
		Rainbow Total	4,399	9.9
		East Fork		
Date	Species	Strain	Number	Size
7/21/2017	Brown	Sheep Creek	1712	9.7
7/21/2017	Rainbow	Kamloop	533	9.4
7/24/2017	Rainbow	Kamloop	1678	9.4
11/3/2017	Rainbow	McConaughy	1480	9.8
11/13/2017	Rainbow	Tahoe	1139	10
11/13/2017	Rainbow	Tas, triploid	361	10.7
		Rainbow Total	5,191	9.9
		Brown Total	1,712	9.7

Table 3. Historical Carson River Stocking Summary.

	Main Stem			East Fork		
		Number	Size (in)		Number	Size
2016	Brown	2,139	9.70	Brown	754	9.10
	Rainbow	-	-	Brown	3,514	2.90
				Rainbow	8,262	9.2
2015	Rainbow	2,035	9.10	Rainbow	7,528	9.00
2014	Brown	3,993	9.20	Brown	2,415	9.70
	Rainbow	-	-	Brown	7,105	2.20
				Rainbow	12,730	9.6
2013	Brown	8,123	9.70	Brown	3,006	9.80
	Rainbow	5,503	10.30	Brown	14,170	2.30
				Rainbow	20,631	9.0

Figure 1. 2016-2017 East Fork Carson River Flow.



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