

NEVADA DEPARTMENT OF WILDLIFE
STATEWIDE FISHERIES MANAGEMENT



FEDERAL AID JOB PROGRESS REPORTS

F-20-49
2013

RYE PATCH 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: *Rye Patch Reservoir*
Period Covered: *January 1, 2013 through December 31, 2013*

SUMMARY

Rye Patch Reservoir had low water levels throughout all of 2013. Due to the below average snowpack from the 2012/2013 winter, Rye Patch Reservoir water level started off very low and dropped significantly during early summer. The Pershing County Water Conservation District (PCWCD) released water and monitored water releases to meet irrigation needs downstream in Lovelock Valley. The reservoir was accessible to anglers and boaters throughout 2013 by way of the main boat ramp and a temporary boat ramp, however, Pitt-Taylor boat ramp was not accessible.

Rainbow trout, wipers, and walleye fry were stocked during 2013. Angler success was gauged through opportunistic angler contacts and mail-in angler questionnaire data. Anglers were contacted in May, June, July, August, and September of 2013. Mail-in angler questionnaire data for 2012 indicated near average angler success.

Bureau of Reclamation (BOR) had a weak positive sample for quagga mussel veligers during their routine monthly monitoring program in August 2011. Subsequent monitoring by Nevada Department of Wildlife (NDOW) and BOR since 2011 were all negative for quagga mussels.

Nevada Carp Corporation continued commercial fishing operations to harvest Sacramento blackfish in the late winter and early spring of 2013. Records of their daily catch were submitted for time spent commercially fishing.

BACKGROUND

Rye Patch Reservoir, located on the Humboldt River east of Lovelock, NV in Pershing County, covers 10,280 SA and stores 213,000 acre-ft at a maximum depth of 61 feet. The water in the reservoir is owned by the PCWCD for irrigation use downstream in Lovelock Valley. The reservoir is located within the Rye Patch State Recreation Area, which is managed by the Nevada Division of State Parks.

Reservoir levels have historically fluctuated as irrigation demands changed and, in recent years, below normal precipitation failed to fill the reservoir. The reservoir fluctuations have affected angler use and success in the past. Rye Patch Reservoir is currently managed as a general warmwater fishery. It supports one of the few walleye fisheries in the state, but other popular game fish include wiper, crappie, catfish, white

bass, largemouth bass, smallmouth bass, spotted bass, bluegill, yellow perch, and rainbow trout. Commercial fishing operations also target Sacramento blackfish.

OBJECTIVES

- Conduct a general fisheries assessment through opportunistic angler contacts and mail-in angler questionnaire data.
- Monitor species composition and size classes of sport fish from four net-nights of gillnetting.
- Monitor species composition and size classes of sport fish with two nights of electroshocking.
- Stock approximately one million walleye fry and 3,000 juvenile wipers.
- Coordinate with Bureau of Reclamation to conduct quagga mussel veliger sampling through plankton tows at established transects at least three times per year.
- Monitor for the presence of quagga mussels by conducting tactile surveys around boat docks and reservoir substrates when on-site.

PROCEDURES

Conduct a general fisheries assessment through opportunistic angler contacts and mail-in angler questionnaire data. Anglers fishing Rye Patch Reservoir were contacted around the boat ramp, at the lower campgrounds, or below the dam in the Humboldt River. During angler contacts, data was collected to determine angler success, which was measured as fish per angler and fish per hour. Other information includes species of fish caught and the size of fish caught. A total of 9 days of angler contacts were completed in May, June, July, August, and September 2013.

Angler questionnaires were sent to about 10% of anglers purchasing a Nevada fishing license. Information returned to the Department of Wildlife was entered into a database and analyzed for use in assessing Rye Patch Reservoir.

Nevada Carp commercially fished for Sacramento blackfish in the winter and early spring of 2013. They used a 1,000 ft purse seine with 3.5 in mesh. All sport fish species were released back into Rye Patch Reservoir. As a condition of their permit, Nevada Carp submits their monthly fishing records to the Department, which summarizes number and poundage of Sacramento blackfish caught as well as number of non-target fish species caught and released.

Monitor species composition and size classes of sport fish from four net-nights of gillnetting. A total of four net-nights using 140 ft long and 6 ft tall monofilament, experimental gillnets was completed from June 17-19, 2013. The experimental gillnets are divided into 7 different 20 ft long panels with mesh sizes ranging from 0.5 to 2 in. Four net-nights using fyke-type frame nets with two 25 ft wings and one 50 ft lead was also completed on June 17-19, 2013. Nets were anchored on

shore and set perpendicular to the shoreline using a boat. Boating buoys were used to mark gill nets and frame nets.

Each fish caught was identified to species and the total length (mm) of all game fish was measured and recorded.

Monitor species composition and size classes of sport fish with two nights of electroshocking. Electroshocking did not occur in 2013 due mechanical issues with the electrofishing boat.

Stock with one million walleye fry and 5,000 juvenile wipers. Gavin's Point National Fish Hatchery in Yankton, South Dakota provided walleye fry. Wipers were purchased from Colorado Catch in Sanford, Colorado. Rainbow trout came from Mason Valley Fish Hatchery.

Coordinate with Bureau of Reclamation to conduct quagga mussel veliger sampling through plankton tows at established transects three times per year. Veliger sampling followed guidelines outlined in the *Bureau of Reclamation Sample Collection Protocols for Dreissenid Veliger Early Detection Monitoring* and was conducted on May 15 and June 19, 2013 at 2 sites. A sampling net with a mesh size of 80 µm and an opening of 29.5 cm was hauled vertically through the water column. Locations included 2 samples each from around the dam and the boat launch area. Samples were preserved and mailed to EcoAnalysts.

Monitor for the presence of quagga mussels by conducting tactile surveys around boat docks and reservoir substrates when on-site. Monitoring for the presence of adult quagga mussels, conducted by tactile surveys around boat docks and reservoir substrates, was completed monthly between May and September 2013.

FINDINGS

General Management Objectives

Conduct a general fisheries assessment through opportunistic angler contacts and mail-in angler questionnaire data. Angler success during the 2013 fishing season was analyzed through angler contacts. Angler contacts were made monthly from May through September. The unseasonably cool spring resulted in poor fishing success and low angler utilization. A total of 9 survey days was completed and 54 anglers were contacted. Angler success averaged 0.6 fish per angler and 0.3 fish per hour. Table 1 summarizes angler survey data.

Fish that anglers harvested were measured while completing angler contacts. A total of 70 fish were measured during the 2013 fishing season. The results of the length frequency and species composition of fish harvested are contained in Table 2.

Table 1. Rye Patch Reservoir Angler Surveys 2013

Month	Survey Days	Anglers	Angler Hours	Fish	Fish/Angler	Fish/Hour
May	4	28	38	25	0.89	0.65
June	2	21	39	17	0.81	0.44
July	1	11	19	10	0.91	0.53
August	1	3	12	15	5	1.25
September	1	0	0	0	0	0
Summary	9	63	108	67	1.06	0.62

Table 2. Length Frequency and Species Composition Data 2013

Species	# Caught	Size Class							
		<10"	10-11.9"	12-13.9"	14-15.9"	16-17.9"	18-19.9"	20-24.9"	>25"
Channel catfish	29	1	8	9	8	3	0	0	0
Smallmouth bass	2	1	0	0	1	0	0	0	0
Walleye	8	0	1	2	2	0	1	1	1
Wiper	25	1	0	6	0	12	4	0	2
White Crappie	1	1	0	0	0	0	0	0	0
Rainbow Trout	2	0	0	2	0	0	0	0	0
Carp	3	0	0	0	1	2	0	0	0

Anglers participating in the 2012 mail-in angler questionnaire had a success rate of 1.45 fish per day and 5.89 fish per angler, which was just under the 5-year average of 1.59 fish per day and 7.77 fish per angler. The mail-in angler questionnaire data is summarized in Table 3.

Table 3. Rye Patch Reservoir Angler Questionnaire Results 2008-2012

Year	Anglers	Days	Fish	Fish/Day	Fish/Angler	Days/Angler
2008	961	6,386	12,938	2.03	13.46	6.65
2009	3,058	13,614	31,684	2.33	10.36	4.45
2010	2,231	9,956	16,036	1.61	7.19	4.46
2011	1,621	5,776	3,173	0.55	1.96	3.56
2012	1,679	6,810	9,895	1.45	5.89	4.06
Average	1,910	8,508	14,745	1.59	7.77	4.64

Nevada Carp commercially fished Rye Patch Reservoir for Sacramento blackfish between 2/28/2013 and 3/30/2013. On March 13, a random sample of 31 Sacramento blackfish and 30 common carp was measured. The fish sample was collected near the dam where most of the commercial fishing activity was occurring. Figure 1 displays the length frequency of Sacramento blackfish sampled and Figure 2 displays the length frequency of common carp.

Figure 1. Sacramento Blackfish Length Frequency 2013.

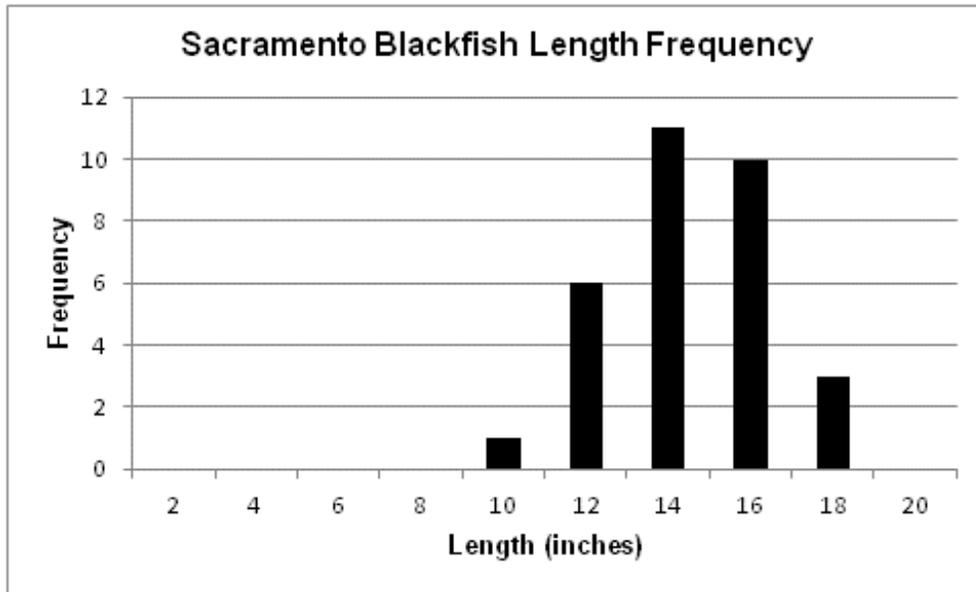
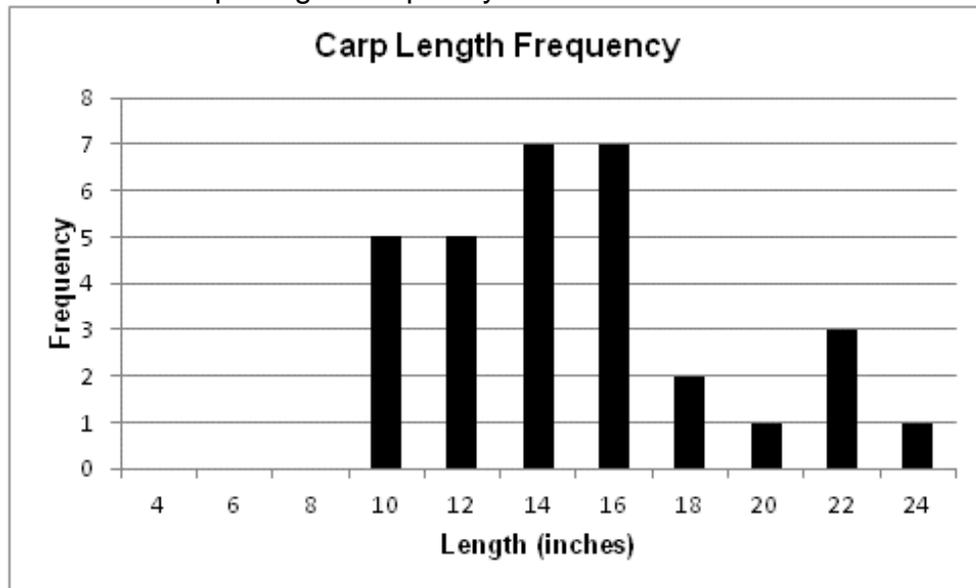


Figure 2. Common Carp Length Frequency 2013.



The average length of Sacramento blackfish sampled was 13.7 in, which is an increase from the 2012 average of 12.7 in. The average length of common carp was 15.6 in, which represents an increase from the 2012 average of 13.6 in.

Nevada Carp harvested 11,413 lbs of Sacramento blackfish from Rye Patch Reservoir during 2013, which is a decrease from the 12,998 pounds that was harvested in 2012. The commercial fishing records submitted by Nevada Carp are summarized in Table 4.

Table 4. Rye Patch Reservoir Commercial Fishing Summary for 2013

Date	Number of Hauls	Harvested Fish (lbs)		Number of Game Fish (released)							
		Carp	Blackfish	Walleye	Crappie	Catfish	Wiper	White Bass	Rainbow Trout	Smallmouth Bass	Yellow Perch
2/28/2013	2	0	880	28	16	31	26	0	0	0	2
3/1/2013	2	0	1100	81	29	8	36	0	1	0	0
3/5/2013	2	0	850	65	12	15	21	0	0	0	0
3/7/2013	3	0	970	52	17	23	35	0	0	0	0
3/8/2013	3	0	1220	88	54	35	40	0	0	0	1
3/12/2013	3	0	860	68	41	15	36	0	0	0	0
3/13/2013	3	0	1038	91	32	25	19	0	0	0	0
3/14/2013	2	0	375	37	14	5	11	0	0	0	0
3/18/2013	3	0	625	27	13	25	14	2	0	0	0
3/19/2013	3	0	1170	28	16	5	10	0	0	0	0
3/24/2013	3	0	725	71	32	11	14	0	0	0	0
3/25/2013	2	0	510	53	42	8	26	0	0	0	0
3/29/2013	3	0	360	41	9	4	13	0	0	0	0
3/30/2013	3	0	730	52	17	13	8	0	0	0	1
Total	37	0	11,413	782	344	223	309	2	1	0	4

Monitor species composition and size classes of sport fish from four net-nights of gillnetting. Table 5 summarizes the net type, location, and soak time for each set.

Table 5. Gill Net and Frame Net Locations

Net Number	Date Set	Net Type	UTM (NAD 83)		Time		Soak Time (hours)
			Easting	Northing	Set	Pulled	
1	6/17/13	Gill net	388609	4483779	1200	930	21.5
2	6/17/13	Gill net	389082	4488085	1250	1000	21.2
3	6/17/13	Frame net	388244	4483370	1115	1030	23.25
4	6/17/13	Frame net	389256	4485756	1135	940	22.0
5	6/18/13	Gill net	388609	4483779	930	845	23.25
6	6/18/13	Gill net	389082	4488085	1011	920	23.2
7	6/18/13	Frame net	388244	4483370	1100	1000	23.0
8	6/18/13	Frame net	389256	4485756	1045	945	23.0

Frame and gill net sets captured a total of 91 walleye averaging 422 mm (16.5 in), 11 wiper averaging 468 mm (18.4 in), 31 crappie averaging 215 mm (8.5 in), 13 channel catfish averaging 268 mm (10.6 in), and 1 rainbow trout measuring 357 mm (14.1 in). Length frequencies and species composition for both gillnetting and frame netting are summarized in Figures 3 through 7.

Figure 3. Length frequencies of walleye captured in gill and frame nets 2013.

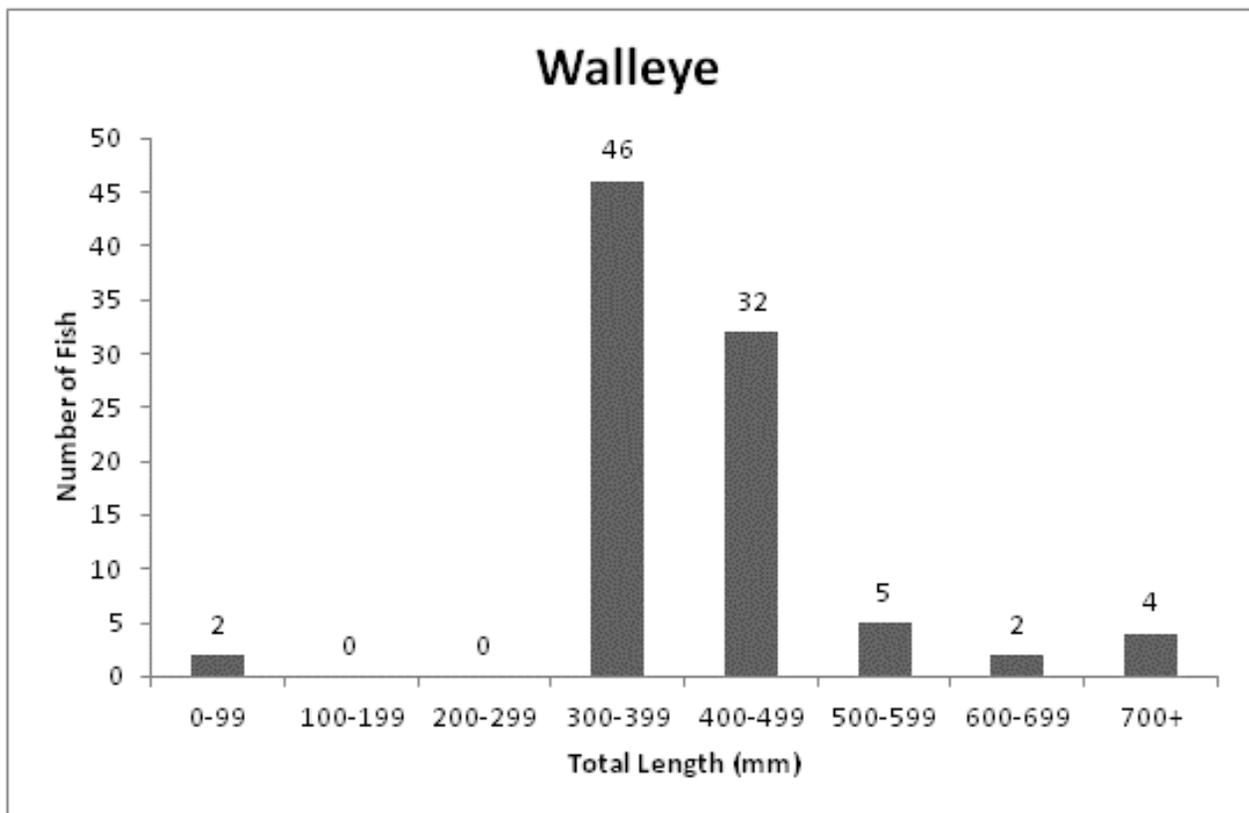


Figure 4. Length frequencies of wiper captured in gill and frame nets 2013.

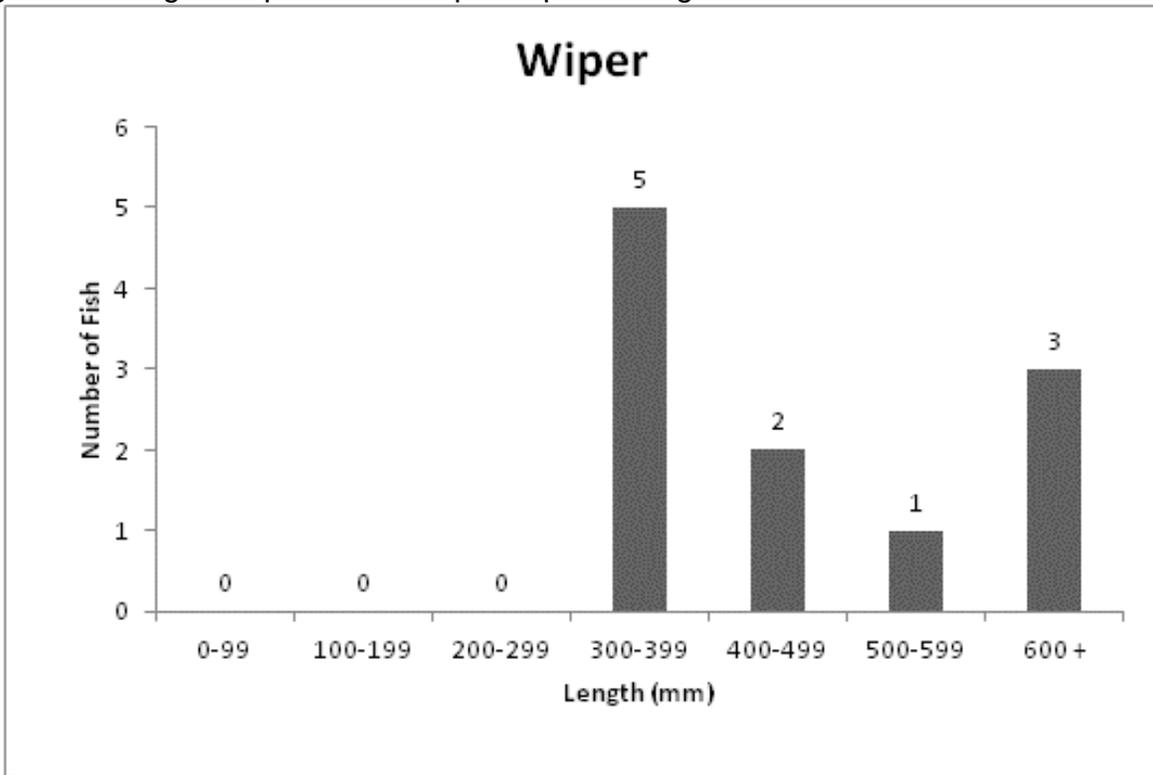


Figure 5. Length frequencies of crappie in Rye Patch Reservoir 2013.

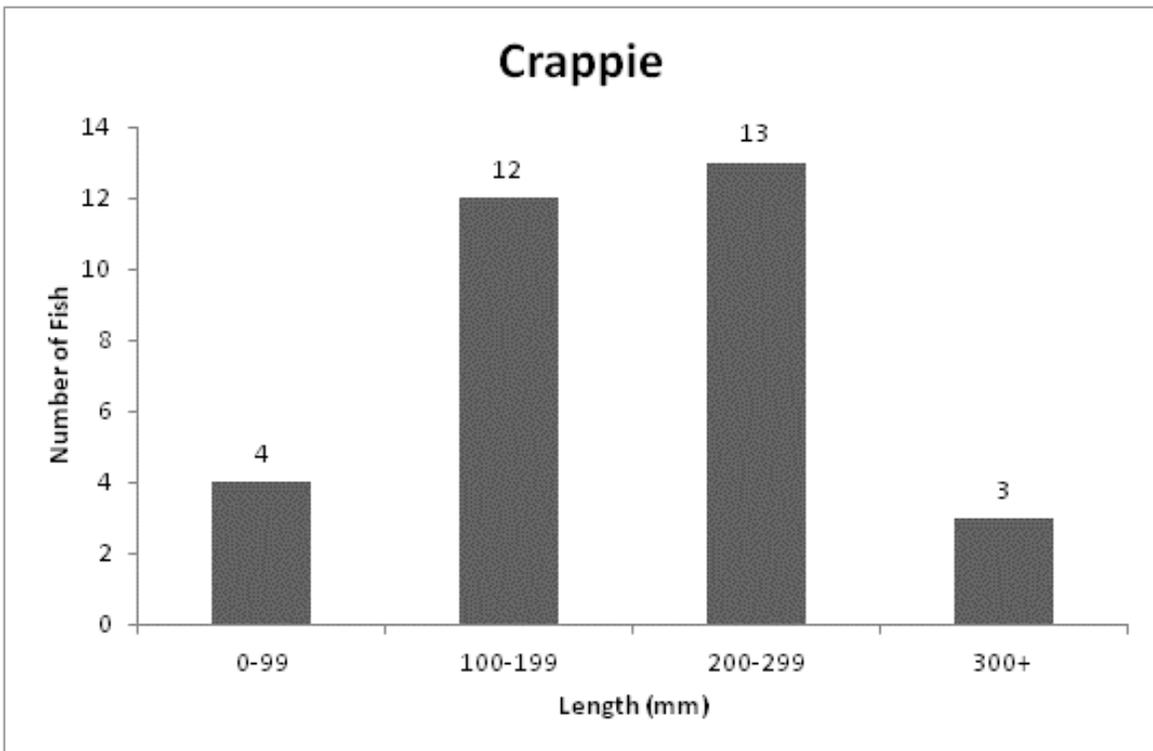


Figure 6. Length frequencies of channel catfish captured in gill and frame nets 2013.

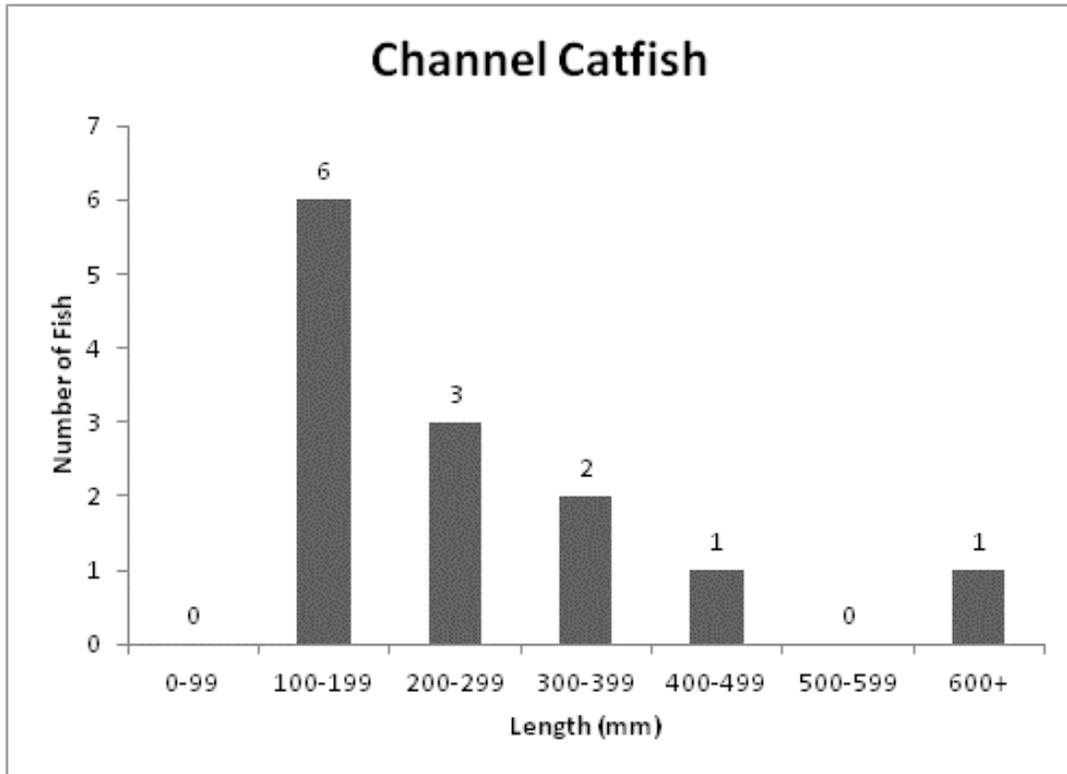
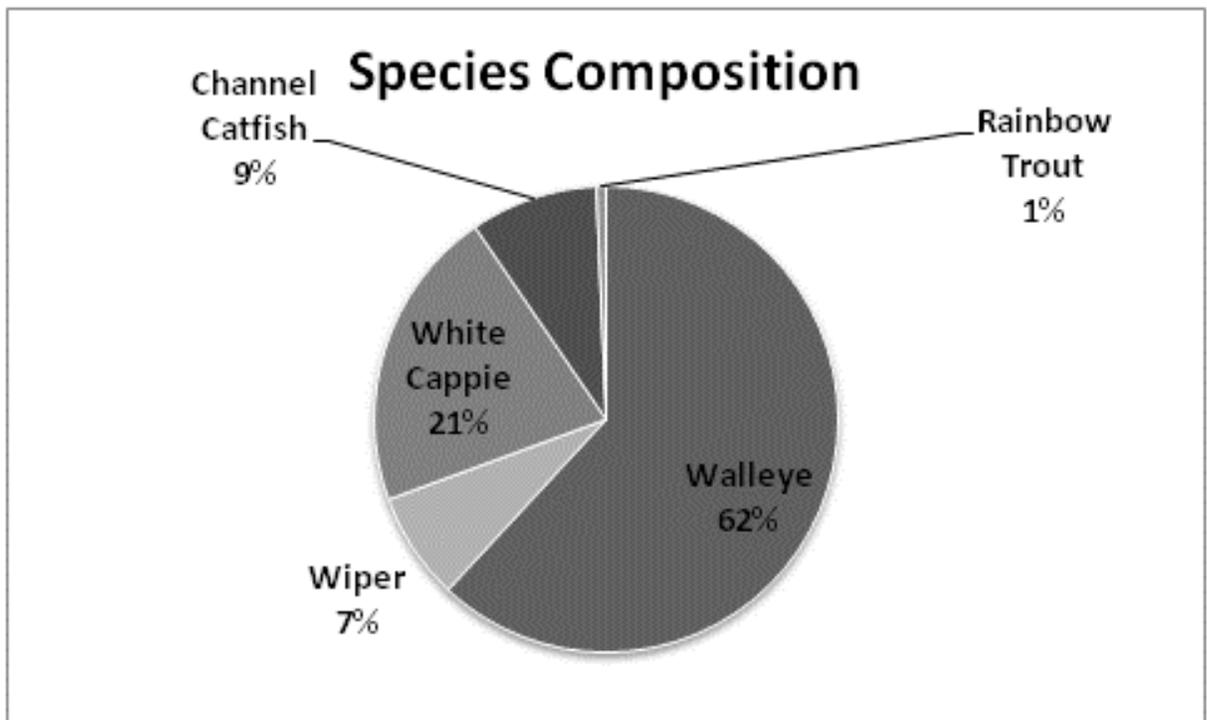


Figure 7. Gill net/frame net results for game fish species composition June 2013.



Monitor species composition and size classes of sport fish with two nights of electroshocking. The electroshocking surveys were not completed in 2013 due mechanical issues with the electroshocking boat.

Stock with one million walleye fry and 5,000 juvenile wipers. On March 29, 500 Eagle Lake strain rainbow trout averaging 10.4 in were stocked. About 300,000 walleye fry were shipped from Gavin's Point Hatchery and stocked on May 2. An estimated 90% of the walleye fry were still alive and stocked at the Pitt-Taylor boat ramp. On June 26, Colorado Catch delivered 20,000 wipers averaging 4 in. Rainbow trout and wiper were stocked at Rye Patch dam boat ramp. Table 8 summarizes the fish stocking for Rye Patch Reservoir from 2001 through 2013.

Coordinate with Bureau of Reclamation to conduct quagga mussel veliger sampling through plankton tows at established transects three times per year. Veliger sampling occurred on May 15 and June 19 that included 2 samples each from around the dam and the boat launch area. Samples were preserved and mailed to EcoAnalysts. The Bureau of Reclamation also conducted quagga mussel veliger sampling, which were sent to their lab for analysis. Results from all quagga mussel sampling were negative.

Monitor for the presence of quagga mussels by conducting tactile surveys around boat docks and reservoir substrates when on-site. Monitoring for the presence of quagga mussels around boat docks and reservoir substrates was completed between May and September. The main Rye Patch boat dock, Pitt-Taylor boat launch, and several areas with substrates suitable for adult quagga mussels were surveyed on 14 different visits to Rye Patch Reservoir. All tactile surveys were negative in 2013 for quagga mussels.

MANAGEMENT REVIEW

Angler success was average throughout 2013. Angler success and utilization were measured through monthly angler contacts and the Mail-in Angler Questionnaire Survey.

Reservoir storage data was provided by PCWCD for the beginning of each month. In 2013, Rye Patch Reservoir stored a maximum of 22,300 acre-ft, which is only 11.4% of capacity. Irrigation was shut down in July, leaving only 6,837 acre-ft in the reservoir, which is 3% of capacity. BOR and NDOW collected samples to monitor for the presence of quagga mussels. All samples collected for quagga mussels were negative in 2013. Visual observations of the boat ramp, dam, and hard substrates near the boat ramp did not reveal adult quagga mussels.

Nevada Carp harvested Sacramento blackfish in February and March. A total of 11,413 lbs of Sacramento blackfish was commercially harvested from Rye Patch Reservoir in 2013.

Table 8. Rye Patch Reservoir Fish Stocking Records 2009-2013

Year	Species	Strain	Source	Number of Fish	Pounds of Fish	Average Size (inches)	Annual Total	
							Number	Pounds
2009	Rainbow	Tasmanian	Mason Valley, NV	504	150.0	9.1	1,290,504	150.0
	Walleye	–	Garrison Dam, ND	1,290,000	–	1.0		
2010	Rainbow	Eagle Lake	Mason Valley, NV	506	175.0	9.5	900,751	175.0
	Walleye	–	Gavins Point NFH, SD	900,000	–	0.5		
	White Crappie	–	Chimney Reservoir, NV	217	–	–		
	Walleye	–	Chimney Reservoir, NV	28	–	15.5		
2011	Rainbow	Bel Air	Mason Valley, NV	524	200	9.8	304,274	1,137.0
	Walleye	--	Gavins Point NFH, SD	300,000	--	0.5		
	Wiper		Colorado Catch	3,750	937.0	8.0		
2012	Rainbow	Eagle Lake	Mason Valley, NV	501	157	9.2	754,201	1,082.0
	Walleye	–	Gavins Point NFH, SD	750,000	–	0.5		
	Wiper	–	Colorado Catch	3,700	925	8.0		
2013	Rainbow	Eagle Lake	Mason Valley	500	222	10.4	320,500	1,122.0
	Walleye	–	Gavins Point NFH, SD	300,000	–	0.5		
	Wiper	–	Colorado Catch	20,000	900	4		

– No data available

Fish species composition and length frequency monitoring of sport fish species was tracked through gillnetting, frame netting, and commercial fishing records from Nevada Carp. Walleye, wiper, crappie, yellow perch, white bass, channel catfish, and rainbow trout were all represented in Rye Patch Reservoir in 2013.

RECOMMENDATIONS

- Conduct a general fisheries assessment through opportunistic angler contacts and mail-in, angler questionnaire data.
- Conduct a general habitat assessment by monitoring reservoir storage and water quality when on site.
- Monitor population of fish species by conducting 2 net nights of gill netting, 2 net nights of frame netting, 10 electroshocking transects, and 5 beach seining transects.
- Stock approximately 1,000,000 walleye fry and 3,000 juvenile wipers.
- Coordinate with Bureau of Reclamation to conduct quagga mussel veliger sampling through plankton tows at established transects at least three times per year.
- Monitor for the presence of quagga mussels by conducting substrate sampling around boat docks and reservoir substrates when on-site.

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