

NEVADA DEPARTMENT OF WILDLIFE
STATEWIDE FISHERIES MANAGEMENT



FEDERAL AID JOB PROGRESS REPORTS

F-20-54
2018

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, 2018 through December 31, 2018*

SUMMARY

The 2017/2018 average snow pack for the upper Humboldt River was 73% and the lower Humboldt River was 60%. Rye Patch Reservoir received a fair amount of water in 2018. The water level started out good in January at 163,795 AF and increased steadily until May (maximum 188,350 AF) when it began to level off and then decline due to downstream irrigation demands. The reservoir a minimum of 79,350 AF occurred in December. The main boat ramp as well as the Pitt Taylor boat ramp were accessible to anglers all year.

Based on mail-in angler questionnaire data from 2017, angler success had finally rebounded since the 2015 fish die-off. Catch rates went from 0.43 fish/d in 2016 to 2.47 fish/d in 2017, which was above the five-year average of 2.05 fish/d. In 2018, opportunistic angler contacts resulted in catch rates of 0.96 fish/angler and 0.39 fish/hr. This was close to the management objective. Walleye, wiper, channel catfish, white bass, and rainbow trout were stocked into Rye Patch Reservoir during 2018. Nevada Carp Corporation was able to harvest Sacramento blackfish in October, November, and December.

The catch rate of warmwater sportfish during the 2018 gill netting survey was 17.0 fish/net-night, which was a sharp increase from the 1.67 observed in 2017. This abundance of fish suggests that the fishery is well on its way to recovering after the 2015 fish die-off.

BACKGROUND

Rye Patch Reservoir, located on the Humboldt River east of Lovelock, Nevada in Pershing County, covers 10,280 SA, stores 196,000 AF, and has a maximum depth of 61 ft when full. It is located within the Rye Patch State Recreation Area managed by Nevada Division of State Parks. Reservoir water is controlled by Pershing County Water Conservation District (PCWCD) for irrigating crops downstream in Lovelock Valley.

Reservoir levels have historically fluctuated as irrigation demands have changed. Recently there has been below normal precipitation that has failed to fill the reservoir and this greatly influences angler use and success. Rye Patch Reservoir is currently managed as a general warmwater fishery, supporting one of the few walleye fisheries in the state. Other popular game fish include wiper, crappie, catfish, largemouth bass,

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

Rye Patch Reservoir is managed as a two-tier fishery, first, as a warmwater general fishery. A Warmwater General Fisheries Concept applies to waterbodies that produce average sized fish year after year. Special regulations are usually not imposed, although at times, there might be a size restriction. Populations are usually self-supporting, but periodic stocking may be required to supplement existing populations due to inadequate spawning habitat or following low water levels, usually associated with drought. Angler catch rates should range between 0.25 and 0.75 fish per hour and 1.0 and 2.0 fish per angler day. With largemouth bass that average 12 in and walleye that average 18 in. White crappie, black crappie, walleye, channel catfish, yellow perch, small mouth bass, and largemouth bass in Rye Patch Reservoir are managed under this concept.

Secondly, as a Warmwater Trophy Fishery Concept for wiper. This concept is applicable for waterbodies with fish having exceptional growth capabilities, and fish provide a memorable angling experience based on larger than average sizes and at above average catch rates. Trophy warmwater fish usually consist of top predators such as largemouth bass, smallmouth bass, spotted bass, wiper (white bass x striper hybrid), walleye, striper, channel catfish, and tiger muskie (muskellunge x northern pike hybrid). To be considered a "Trophy" fishery, a significant percentage of the population should reach the minimum size established for the Nevada Department of Wildlife Trophy Fish Program, which is 20 in, or 5.0 lbs for wipers. A minimum size has not been established for tiger muskie. Angler success rates should range between 0.50 and 1.75 fish per hour and zero to 1.0 fish per angler day. Special angler regulations including reduced harvest limits, harvest size restrictions, catch and release angling, or tackle restrictions are commonly prescribed. At Rye Patch Reservoir, fishing is open year-round. The limit is 15 gamefish of which, not more than 5 may be black bass, 5 may be walleye, 2 may be wiper. The minimum length for wiper is 15.0 in.

OBJECTIVES

- 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 fish species and body condition (relative weight) by conducting 2 net-nights of gill netting, 2 net-nights of frame netting, 10 electroshocking transects, and 5 beach seining transects.
- Stock approximately one million walleye fry, 3,000 walleye, 2,000 channel catfish, 5,000 white bass, 2,000 crappie, 2,000 yellow perch, and 3,000 wipers.
- Coordinate with the Bureau of Reclamation for quagga mussel veliger sampling using 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 angler contacts and mail-in angler questionnaire data. Opportunistic angler contacts were conducted in May, June, August, and September, and success was measured as fish per angler and fish per hour. Fish were identified species and all were measured.

The 2017 mail-in angler questionnaire data was summarized. The voluntary angler questionnaire is mailed to 30,000 of the fishing license holders for the year to estimate angler use and success for waters around the state.

Conduct a general habitat assessment by monitoring reservoir storage and water quality when on site. While on site at Rye Patch Reservoir, visual assessments were made regarding the general habitat condition, reservoir level, and storage.

Monitor fish species and body condition (relative weight) by conducting 2 net-nights of gill netting, 2 net-nights of frame netting, 10 electroshocking transects, and 5 beach seining transects. Fish populations were monitored during eight sampling events in June (see Table 1).

Table 1. Rye Patch Reservoir beach seine, gill net, and frame net locations, 2018.

Sample Number	Date	Sample Type	UTM (NAD 83)		Time		Soak Time/shock time
			Easting	Northing	Set	Pulled	
1	6/27	Gill Net	388650	4482541	1100	1100	1 net night
2	6/27	Gill Net	389158	4480850	1000	0900	1 net night
3	6/27	Gill Net	388820	4481547	1000	1000	1 net night
4	6/27	Frame Net	388574	4482244	1100	1100	1 net night
5	6/27	Frame Net	389367	4481596	900	900	1 net night
6	6/27	Frame Net	389208	4484818	930	930	1 net night
7	6/18	Electrofishing	Pitt	Taylor	-	-	5,475 seconds
8	6/19	Electrofishing	Near	Dam	-	-	6,253 seconds

Gill netting was conducted for three net-nights using 140 ft long and 6.0 ft tall monofilament experimental gillnets. Gill nets were divided into seven different 20 feet long panels with mesh sizes ranging from 0.5 in to 2.0 in. Frame net surveys were conducted for three net-nights using fyke-type frame nets with two 25-ft wings and one 50-ft lead. Nets were anchored to shore and set perpendicular to the shoreline. Electroshocking was completed for a total time of 11,728 s.

Stock approximately one million walleye fry, 3,000 walleye, 2,000 channel catfish, 5,000 white bass, 2,000 crappie, 2,000 yellow perch, and 3,000 wipers. Walleye, wiper, channel catfish, white bass, and rainbow trout were stocked into Rye Patch Reservoir this year.

Coordinate with the Bureau of Reclamation for quagga mussel veliger sampling using plankton tows at established transects at least three times per year. Veliger sampling was not conducted.

Monitor for the presence of quagga mussels by conducting tactile surveys around boat docks and reservoir substrates when on-site. Tactile and visual monitoring for the presence of adult quagga mussels around boat docks and reservoir substrates was completed throughout the year.

FINDINGS

Conduct a general fisheries assessment through opportunistic angler contacts and mail-in angler questionnaire data. Eleven anglers were contacted at Rye Patch Reservoir in 2018 while conducting other monitoring surveys. Angler success rates were 0.96 fish per angler and 0.39 fish per hour. Table 2 summarizes data by month and Table 3 summarizes fish length by species.

Table 2. Rye Patch Reservoir Opportunistic Angler Surveys, 2018.

Month	Survey Days	Anglers	Angler Hours	Fish	Fish/Angler	Fish/Hour
May	1	1	4	1	1.0	0.25
June	2	6	14.5	13	2.17	0.42
August	1	3	7	2	0.67	0.90
September	1	1	2	0	0	0
Summary	5	11	27.5	16	0.96	0.39

Table 3. Length Frequency and Species Composition Data, 2018.

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	3	0	0	2	1	0	0	0	0
Wiper	6	0	1	0	3	2	0	0	0
Yellow perch	1	1	0	0	0	0	0	0	0
Smallmouth Bass	6	2	2	2	0	0	0	0	0

Mail-in questionnaire data for 2017 (the latest information available) at Rye Patch Reservoir estimated that 973 anglers fished 2,147 days to catch 5,299 fish. The angler catch rate of 5.45 fish per angler was slightly below the five-year average of 7.64 fish per angler. The angler success rate of 2.47 fish per day, on the other hand, was just above the five-year average of 2.05 fish per day. Figures 1 and 2 summarize angler questionnaire data from the previous five years.

Conduct a general habitat assessment by monitoring reservoir storage and water quality when on site. During 2018, Rye Patch Reservoir received a fair amount of water from the Humboldt River. Reservoir water levels increased from January to May, leveled off, and then began declining from May to December. Figure 3 shows monthly water storage for Rye Patch Reservoir recorded by the Pershing County Water Conservation District.

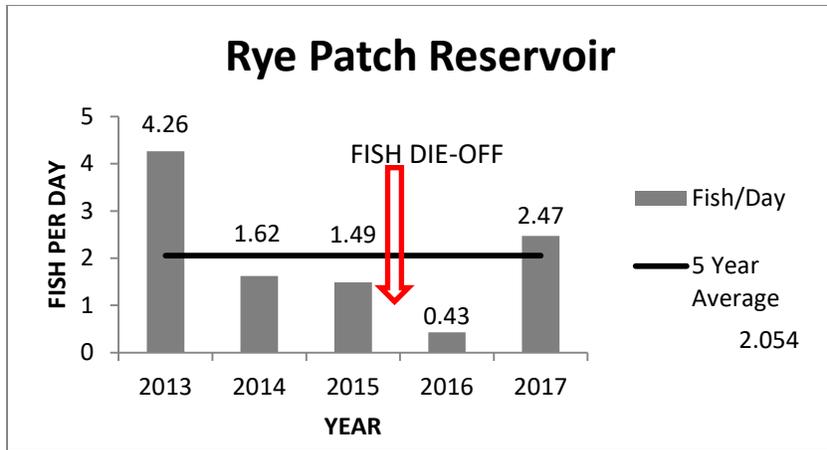


Figure 1. Rye Patch Reservoir Angler Questionnaire fish/day, 2013-2017.

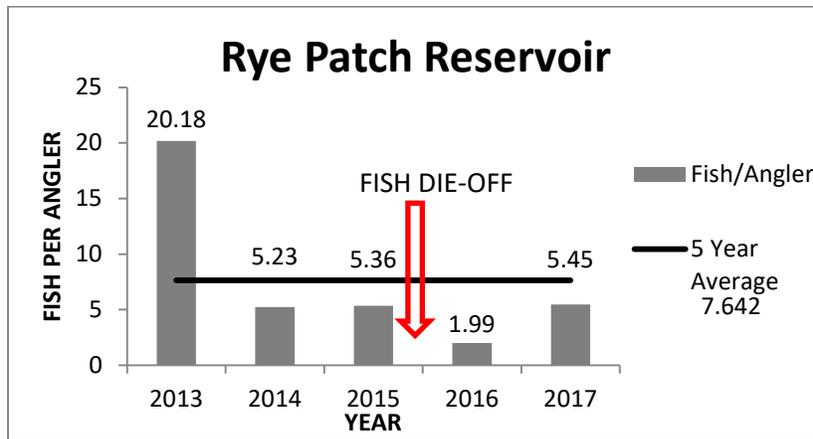


Figure 2. Rye Patch Reservoir Angler Questionnaire fish/angler, 2013-2017.

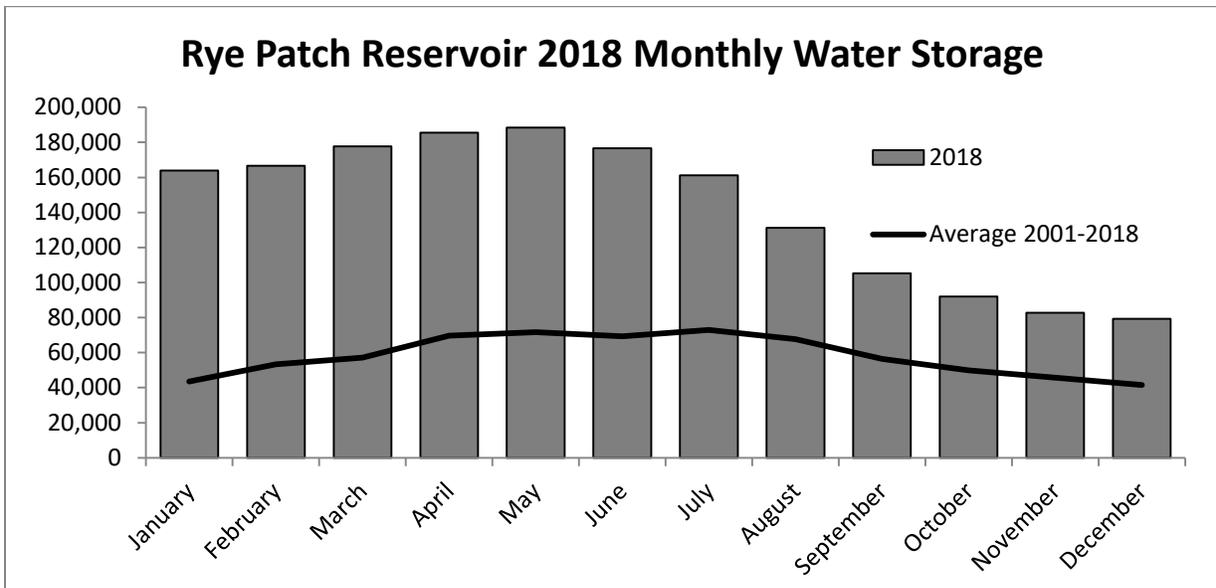


Figure 3. Monthly water storage at Rye Patch Reservoir, 2018.

During each visit to the reservoir, a general habitat assessment included measuring water temperature, water level, water clarity, and road conditions. Table 4 summarizes the assessments that occurred in 2018.

Table 4. General habitat assessments at Rye Patch Reservoir, 2018.

Date	Water Temperature (°F)	Water Level % Capacity	Water Clarity	Number of Anglers	Road Conditions
3/15/2018	49	90%	Clear, 3-4 ft visibility	0	Good
4/25/2018	58	95%	Clear, 3-4 ft visibility	0	Good
5/1/2018	56	96%	Clear, 3-4 ft visibility	0	Good
5/25/2018	62	96%	Cloudy	1	Good
6/18/2018	65	90%	Cloudy, 1-2 ft visibility	2	Good
6/19/2018	65	90%	Cloudy, 1-2 ft visibility	2	Good
6/27/2018	69	90%	Cloudy	2	Good
8/10/2018	72	67%	Cloudy	3	Good
10/18/2018	52	47%	Cloudy	0	Good

Monitor populations of fish species and body condition (relative weight) by conducting 2 net nights of gill netting, 2 net nights of frame netting, 10 electrofishing transects, and 5 beach seining transects. However, no beach seining surveys were conducted in 2018. The other population monitoring surveys resulted in capturing 203 fish comprised of 12 different species. Compare to seven species captured in 2017. White crappie, green sunfish, yellow perch, and smallmouth bass were the most common fish, while low numbers of channel catfish, walleye, bluegill, and Sacramento blackfish were encountered during the 2018 surveys. In 2018, the CPUE increased from 2017 results, except for green sunfish and Sacramento blackfish. The total number of each species caught and average sizes are summarized in Table 5 and Figure 4. Survey results based on methods are summarized in Table 6.

Table 5. Fish species captured and average length Rye Patch Reservoir, 2018.

<i>Species</i>	<i>Total caught</i>	<i>Average length (mm)</i>	<i>Composition (% of catch)</i>
White crappie	44	221	21.7
Green sunfish	30	110	14.8
Yellow perch	29	169	14.3
Smallmouth bass	28	233	13.8
Wiper	13	372	6.4
Black crappie	12	232	5.9
Rainbow	11	326	5.4
Brown bullhead catfish	9	161	4.4
Channel catfish	8	202	3.9
Walleye	7	232	3.4
Sacramento Blackfish	7	238	3.4
Bluegill	5	147	2.5
<i>Total</i>	203		

Table 6. Rye Patch Reservoir population survey results, 2017 and 2018.

<i>Survey Method</i>		<i>CPUE 2017</i>	<i>CPUE 2018</i>
<i>Electroshocking</i>			
	Smallmouth bass	0.67 fish/hour	7.06 fish/hour
	Green sunfish	16 fish/hour	8.29 fish/hour
	Walleye	0 fish/hour	0.92 fish/hour
	White crappie	0 fish/hour	5.53 fish/hour
	Black crappie	0 fish/hour	2.46 fish/hour
	Yellow perch	0 fish/hour	6.45 fish/hour
	Channel catfish	0 fish/hour	0.92 fish/hour
	Wiper	0 fish/hour	0.31 fish/hour
	Bluegill	0 fish/hour	0.31 fish/hour
	Brown bullhead catfish	0 fish/hour	2.46 fish/hour
	All fish	16.67 fish/hour	34.39 fish/hour
	Trophy sportfish*	0 fish/hour	0.31 fish/hour
	General warmwater sportfish**	16.67 fish/hour	34.38 fish/hour
<i>Gillnets</i>			
	Smallmouth bass	0.17 fish/net night	1.67 fish/net night
	Walleye	0 fish/net night	1.0 fish/net night
	White crappie	0 fish/net night	3.0 fish/net night
	Black crappie	0 fish/net night	1.0 fish/net night
	Yellow perch	0.17 fish/net night	2.33 fish/net night
	Channel catfish	0.83 fish/net night	1.33 fish/net night
	Wiper	0.50 fish/net night	3.67 fish/net night
	Bluegill	0 fish/net night	0.67 fish/net night
	Brown bullhead	0 fish/net night	0.33 fish/net night
	Sacramento blackfish	12 fish/net night	2.0 fish/net night
	Rainbow trout	0 fish/net night	3.67 fish/net night
	All fish	13.67 fish/net night	20.67 fish/net night
	Trophy sportfish*	0.5 fish/net night	3.67 fish/net night
	General warmwater sportfish**	1.67 fish/net night	17.0 fish/net night
<i>Frame nets</i>			
	White crappie	0.33 fish/net night	3.0 fish/net night
	Black crappie	0 fish/net night	0.33 fish/net night
	Green sunfish	0 fish/net night	1.0 fish/net night
	Smallmouth bass	0 fish/net night	0.33 fish net/night
	Bluegill	0 fish/net night	0.67 fish/net night
	Channel catfish	0.83 fish/net night	0 fish/net night
	All fish	1.17 fish/net night	5.33 fish/net night
	General warmwater sportfish**	1.17 fish/net night	5.33 fish/net night
<i>Beach seine</i>			
	Crappie	7.0 fish/100m	No Survey
	Walleye	2.5 fish/100m	No Survey
	Sacramento Blackfish	188.5 fish/100m	No Survey
	Green sunfish	50.0	No Survey
	All fish	248 fish/100m	No Survey
	General warmwater sportfish**	1.25 fish/100 m	No Survey

*Trophy sportfish = Wiper

** General warmwater sportfish = Walleye, channel catfish, crappie, yellow perch, smallmouth bass, and green sunfish.

A large sample of white crappie, yellow perch, wiper, and smallmouth bass were captured to assess the length frequency of the species (Figure 4).

Four age/size classes of white crappie show class I ranged from 90 to 120 mm and comprised 12.90 percent of the sample. Age/size class II ranged from 190 to 200 mm and comprised 19.35 percent of the sample. Age/size class III ranged from 220 to 280 mm and comprised 61.29 percent of the sample. One large crappie of an unknown age/class comprised 3.23 percent of the sample. The only way to determine age from this fish would be through scale or otolith analysis.

Three age/size classes of yellow perch were sampled, with class I ranging from 110 to 180 mm and comprising 89.29 percent of the sample. Age class II was represented by one fish that measured 200 mm and comprised 3.57 percent of the sample. Age/size class III was represented by two fish at 270 mm and comprised 7.14 percent of the sample.

Three age/size classes of wiper were sampled, with class I ranging from 160 to 200 mm and comprising 25.0 percent of the sample. Age/size class II ranged from 340 mm to 370 mm and comprised 33.33 percent of the sample. Age/size class III ranged from 480 to 520 mm and comprised 41.67 percent of the sample.

Three age/size classes of smallmouth bass were sampled, showing class I from 130 to 150 mm and comprising 7.14 percent of the sample. Age/size class II ranged from 180 to 230 mm and comprised 71.43 percent of the sample. Age/size class III ranged from 270 to 280 mm and comprised 7.14 percent of the sample. Four larger smallmouth bass were sampled that were over 320 mm and comprising 14.29 percent of the sample. The only way to determine age of these

individuals would be through scale or otolith analysis.

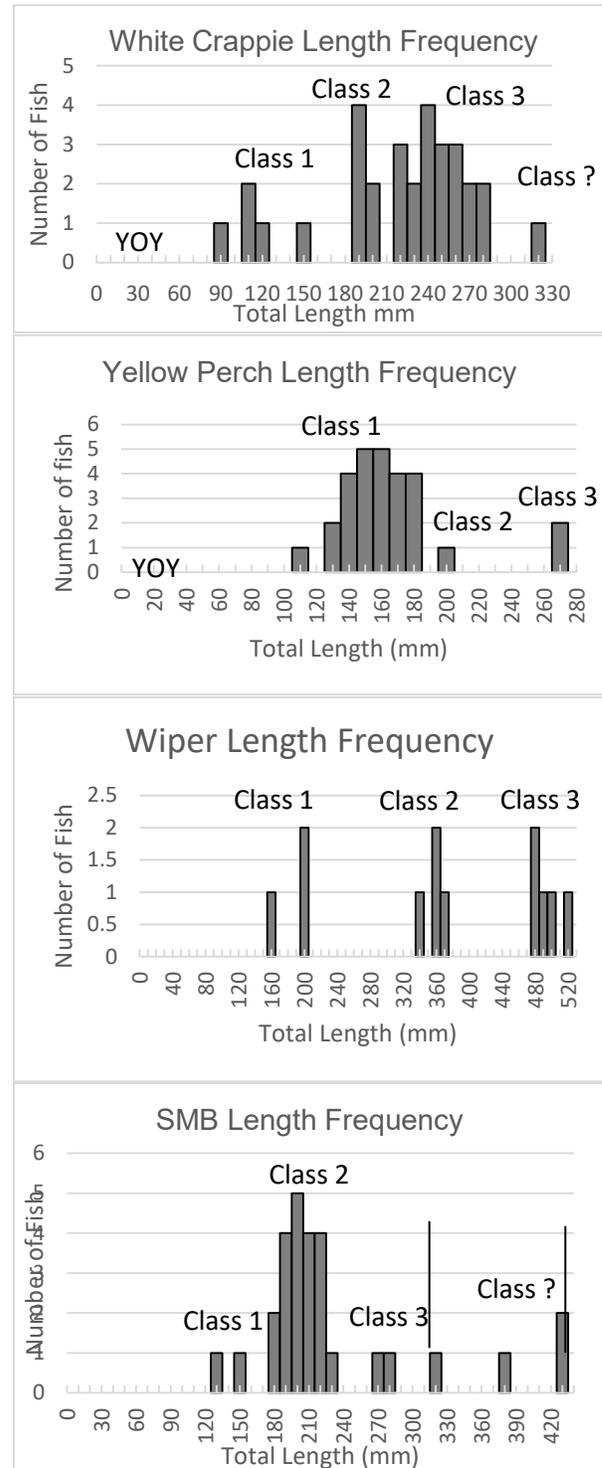


Figure 4. Length frequency showing age/size classes for white crappie, yellow perch, wiper and smallmouth bass.

Gillnetting is the only survey method that has been conducted consistently at Rye Patch Reservoir for the last five years. On average, channel catfish was the species most consistently caught. White crappie and wiper were at times abundant, but their presence was inconsistent. Figure 5 summarizes gillnetting results by species of gamefish over the last five years.

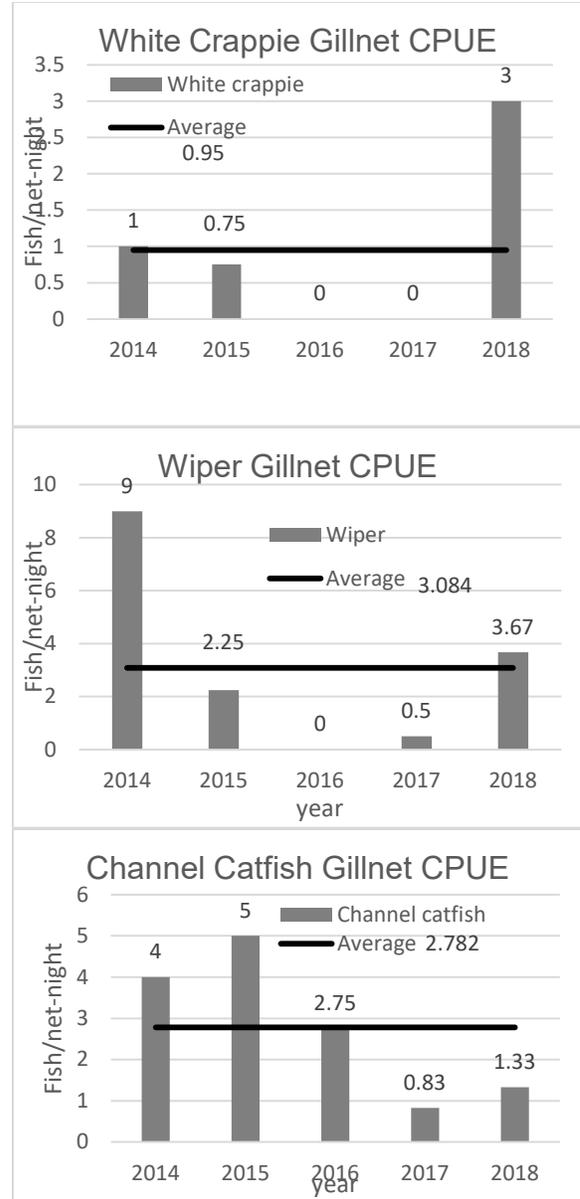
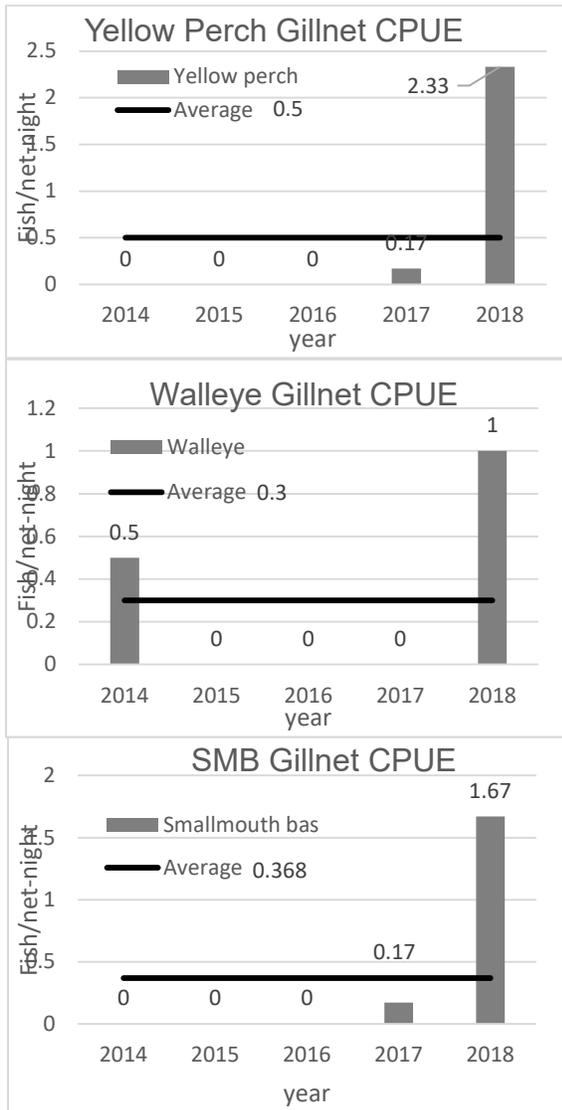


Figure 5. Gillnet five-year CPUE for Rye Patch Reservoir 2014-2018.

Nine species of sportfish were measured and weighed during surveys to determine body condition. Relative weight is an index calculated as,

$$W_r = (W/W_s) * 100$$

Where W is the individual weight of a fish, W_s is the length-specific standard weight predicted from a weight-length regression developed to represent a species across a geographic range. W_s used in this analysis was obtained from Blackwell et al., 2000. The relative weight index uses 100 as a benchmark for the standard body condition of an individual. Measures over 100 are considered good and measures less than 100 indicate fish to be in poorer body condition with severity depending on the distance from the benchmark (Guy and Brown, 2007). In 2018, all species were healthy and over the benchmark except for yellow perch and rainbow trout (Table 7).

Table 7. Body condition indices for Rye Patch Reservoir gamefish, 2017 and 2018.

	2018			2017				
	n	Average W_r	Min W_r	Max W_r	n	Average W_r	Min W_r	Max W_r
White crappie	34	121.2	93.6	206.9	0	**	**	**
Black crappie	12	108.9	90.5	130.6	0	**	**	**
Yellow perch	28	91.1	45.6	156.25	0	**	**	**
Walleye	6	125.1	97.7	125.1	0	0	0	0
Channel catfish	6	185.8	71.8	274.0	3	142.8	141.4	144.7
Wiper	12	113.3	93.9	133.1	3	90.6	82.5	96.5
Smallmouth bass	29	113.9	54.8	164.8	0	**	**	**
Bluegill	5	108.8	57.9	181.5	0	**	**	**
Brown bullhead	5	116.3	82.7	174.7	0	**	**	**
Rainbow trout	11	87.4	79.7	103.9	0	**	**	**

Stock approximately one million walleye fry, 3,000 walleye, 2,000 channel catfish, 5,000 white bass, 2,000 crappie, 2,000 yellow perch, and 3,000 wipers. Rye Patch Reservoir received 907,500 walleye fry, 1,500 channel catfish, 6,730 juvenile wipers, 438 white bass of various sizes, 400,000 white bass fry, 2,500 juvenile walleye, and 2,992 rainbow trout in 2018. A five-year stocking history is summarized in Table 8.

Coordinate with the Bureau of Reclamation for quagga mussel veliger sampling using plankton tows at established transects at least three times per year. NDOW did not conduct sampling in 2018 and USBOR has turned over veliger sampling to the Pershing County Water Conservation District.

Monitor for the presence of quagga mussels by conducting tactile surveys around boat docks and reservoir substrates when on-site. The main boat dock near the dam, Pitt-Taylor boat launch, and several other areas with substrates that appeared suitable for adult quagga mussel attachment were surveyed visually and tactilely on different visits. All tactile and visual surveys were negative for quagga mussels.

Table 8. Rye Patch Reservoir Fish Stocking Records, 2014-2018.

Year	Species	Strain	Source	Number of Fish	Pounds of Fish	Average Size (inches)
2018	White bass	–	Lahontan Reservoir	438	–	6.0
	Rainbow trout	Eagle Lake	Mason Valley, NV	529	175	9.4
	Walleye	–	Gavins Point NFH, SD	907,500	–	0.25
	Wiper	–	Colorado Catch	3,330	172	5.1
	Rainbow trout	Triploid	Mason Valley, NV	1,950	650	9
	Rainbow trout	Triploid	Mason Valley, NV	513	225	10.3
	Channel catfish	–	Colorado Catch	1,500	135	6.0
	Walleye	–	Colorado Catch	2,500	200	7.0
	Wiper	–	Colorado Catch	3,400	170	4.0
White bass	–	Keo Fish Farm Inc	400,000	–	0.25	
2017	Rainbow	Eagle Lake	Mason Valley, NV	504	160	9.3
	Walleye	–	Gavins Point NFH, SD	1,300,000	–	–
	Channel Catfish	–	Colorado Catch	1,300	112	6
	Wiper	–	Colorado catch	2,383	294	7
	Bluegill	–	Andorno Pond	700	–	4
	Channel Catfish	–	Colorado Catch	2,000	200	7
	Wiper	–	Colorado Catch	4,375	175	5
	Walleye	–	Colorado Catch	3,000	250	6
	Rainbow	Tahoe	Mason Valley	504	200	10
Crappie	–	Willow Creek Res.	1,100	–	4	
2016	Walleye	–	Gavins Point NFH, SD	1,200,000	–	0.5
	Channel catfish	–	Colorado Catch	4,135	364	5
	Wiper	–	Colorado Catch	2,091	239	7
	Rainbow	Triploid	Mason Valley, NV	500	169	7.5
2015	Walleye	–	Gavins Point NFH	1,000,000	–	–
	Rainbow	Triploid	Mason Valley, NV	518	175	9.5
2014	–	–	–	–	–	–

– No fish were stocked in 2014 due to extreme drought conditions and low water

MANAGEMENT REVIEW

Analysis of mail-in angler questionnaire results from 2017 revealed that angler success finally rebounded from the 2015 fish die-off. Rates went from 0.43 fish/day in 2016 to nearly 2.5 fish per day in 2017, which was above the five-year average of 2.05 fish/day. This was most likely a direct result of intensive fish stocking that occurred starting in 2016 and continuing through 2018. In 2018, opportunistic angler survey results found anglers catching 0.96 fish/angler and 0.39 fish/hr, with wiper and smallmouth bass contributing the most. The General Warmwater Fishery Concept has an objective catch rate of 1.0 to 2.0 fish per day and 0.25 to 0.75 fish per hour. Based on all angler survey results, Rye Patch Reservoir exceeded angler catch rate objectives. This concept also suggests that walleye should average 18.0 in, however, its average was about half at 9.1 in.

The catch rate of warmwater sportfish from Rye Patch Reservoir during 2018 gill netting was 17.0 fish/net-night, which was a sharp increase from 1.67 observed in 2017.

CPUE for other general warmwater fisheries in the state range between 0.9 and 15.7 fish per net night. The 17.0 fish/net-night suggests that this fishery has begun to recover nicely from the 2015 fish die-off.

The presence of multiple year classes of a species generally suggests the population is healthy. Four age/size classes of white crappie were captured during surveys, three age/size classes of yellow perch, three age/size classes of wiper, and four for smallmouth bass. This is a positive indication that the fishery has improved since the 2015 fish die-off. The strong representation of smallmouth bass in 2018 was likely a result of above average spring runoff that occurred in 2017, flushing them down from the Upper Humboldt River and South Fork Reservoir. Smallmouth bass were not stocked in Rye Patch Reservoir after the 2015 die-off event.

Multiple fish species stocked in 2018 came from supplemental funding obtained through NDOW's Habitat Conservation Fee. This will help continue to restore various populations that are slowly rebuilding since the die-off.

All species of fish caught during population surveys were found to be above their standard relative weights except for yellow perch and rainbow trout. Several factors can influence body condition such as the time of year fish are sampled. This was the second year that fish were assessed and over time, standard weights will be developed specifically for the species in Rye Patch Reservoir. This will require sampling large numbers of fish at different times of the year, for example during pre- or post-spawning periods, for several years.

Finally, artificial fish habitat structures were purchased using Habitat Conservation Fee funding in order to provide additional escape cover for juvenile gamefish and baitfish in areas that lack protective cover and structure (see Field Trip Report for Artificial Habitat at Rye Patch Reservoir). Rye Patch Reservoir has a lack of escape cover for fish, especially during periods of low water. Complex aquatic habitat with various types and layers of structure promotes healthy, abundant populations of many fish species through protection from predation and production of an invertebrate food source. Available habitat also attracts larger fish and in turn increases angling opportunity and production.

RECOMMENDATIONS

- Summarize mail-in, angler questionnaire data from the previous year.
- Conduct a general habitat assessment by monitoring reservoir storage and water quality when on site.
- Conduct a general fisheries assessment by monitoring fish species and body condition (relative weight) by conducting 2 net-nights of gill netting, 2 net-nights of frame netting, 10 electroshocking transects, and 5 beach seining transects.
- Stock approximately one million walleye fry, 3,000 walleye, 2,000 channel catfish, and 3,000 wipers.
- Coordinate with Pershing County Water District for quagga mussel veliger sampling using plankton tows in April.

- Monitor for the presence of quagga mussels by conducting tactile surveys around boat docks and reservoir substrates when on-site.

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