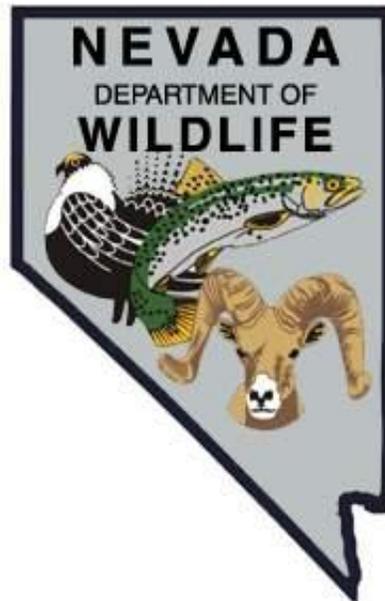


NEVADA DEPARTMENT OF WILDLIFE
STATEWIDE FISHERIES MANAGEMENT



FEDERAL AID JOB PROGRESS REPORTS

F-20-48
2012

RYE PATCH RESERVOIR
WESTERN REGION



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

Table of Contents

<u>Contents</u>	<u>Page</u>
SUMMARY	1
BACKGROUND	1
OBJECTIVES AND APPROACHES.....	2
PROCEDURES	2
FINDINGS	3
GENERAL MANAGEMENT REVIEW	8
RECOMMENDATIONS	10

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

List of Tables

<u>Number</u>	<u>Title</u>	<u>Page</u>
1	Rye Patch Reservoir Opportunistic Angler Surveys.....	4
2	Length Frequency and Species Composition Data.....	4
3	Rye Patch Reservoir Angler Questionnaire Results 2000-2012	4
4	Rye Patch Reservoir Commercial Fishing Summary for 2012	6
5	Rye Patch Reservoir Water Storage 2000-2012.....	7
6	Rye Patch Reservoir Fish Stocking Records 2001-2012	9

List of Figures

<u>Number</u>	<u>Title</u>	<u>Page</u>
1	Sacramento Blackfish Length Frequency	5
2	Common Carp Length Frequency.....	5
3	Rye Patch Reservoir Monthly Storage 2012	7

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, 2012 through December 31, 2012*

SUMMARY

Rye Patch Reservoir was accessible to anglers and boaters throughout 2012, including the Pitt-Taylor boat ramp that was accessible from March through October. There was a moderate water level early in the season. Due to the below average snowpack from the 2011/2012 winter, the water level dropped significantly during summer. The Pershing County Water Conservation District (PCWCD) released water and monitored water releases to meet irrigation needs downstream in Lovelock Valley.

Rainbow trout, wipers, and walleye fry were stocked in 2012. Angler success was gauged through opportunistic angler contacts and mail-in angler questionnaire data. Anglers were contacted at the reservoir in March, June and July. Mail-in angler questionnaire data for 2011 indicated below average angler success.

Bureau of Reclamation (BOR) had a weak positive detection during quagga mussel veliger sampling in August 2011. Subsequent monitoring by Nevada Department of Wildlife (NDOW) and BOR have been negative.

Nevada Carp Corporation continued commercial fishing operations to harvest Sacramento blackfish. Records for catch were submitted for time spent commercially fishing in 2012.

BACKGROUND

Rye Patch Reservoir, located on the Humboldt River east of Lovelock, NV in Pershing County, covers 10,280 surface acres and stores 213,000 acre-ft with a maximum depth of 61 ft when full. The water in the reservoir is owned by the Pershing County Water Conservation District (PCWCD) and is used for irrigating lands downstream in Lovelock Valley. The reservoir is located within the Rye Patch State Recreation Area, managed by Nevada Division of State Parks.

Reservoir levels historically fluctuate as irrigation demands change and below normal precipitation fails to fill the reservoir. These fluctuations affect angler use and success. NDOW manages Rye Patch Reservoir as a general warmwater fishery and supports one of the few walleye fisheries in the state. Other popular game fish include wiper, white crappie, catfish, white bass, largemouth bass, smallmouth bass, spotted bass, bluegill, yellow perch, and rainbow trout. Commercial fishing operations are also present and targeting Sacramento blackfish and carp.

OBJECTIVES AND APPROACHES

General Management Objective:

To administer an annual fisheries program that assesses general fish population dynamics, angler use and success, annual stocking programs, habitat conditions, and maintains contact with necessary land management entities.

Approaches:

- Conduct a general fisheries assessment through opportunistic angler contacts and mail-in angler questionnaire data.
- Conduct a general habitat assessment by monitoring reservoir storage, presence/absence of adult quagga mussels, and water quality when on site.
- 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 with one million walleye fry and 5,000 juvenile wipers.

PROCEDURES

General Management Objective

Conduct a general fisheries assessment through opportunistic angler contacts and mail-in angler questionnaire data.

Opportunistic angler contacts were made at Rye Patch Reservoir, below the Rye Patch dam in the Humboldt River, and those camped around the boat ramp or lower campgrounds. Callahan Bridge on the Humboldt River upstream of Rye Patch Reservoir was also visited. Data was collected to examine angler success measured as fish per angler and fish per hour, along with the species of fish caught and the size of fish caught. Anglers were checked for 21 days during March, June, and July.

The 2011 mail-in angler questionnaire data was summarized. The questionnaire was randomly mailed to about 10% of the fishing license holders to estimate angler use and success.

Nevada Carp Corporation commercially fish for Sacramento blackfish in the fall and winter of 2012. To catch fish Nevada Carp used a 1,000 ft. purse seine with 3.5 inch mesh. All sport fish species were released back into Rye Patch Reservoir. Nevada Carp submitted their fishing records for 2012 at Rye Patch Reservoir.

Conduct a general habitat assessment by monitoring reservoir storage, presence/absence of adult quagga mussels, and water quality when on site.

Data on reservoir storage was provided by Pershing County Water Conservation District (PCWCD). PCWCD measures the water stored in Rye Patch Reservoir at the beginning of each month.

While on site, visual observations were made around the boat ramp, boat dock, dam, and rocky shoreline between the dam and boat ramp for live or dead quagga mussel shells. Bureau of Reclamation (BOR) and NDOW separately sampled for veligers from Rye Patch Reservoir in June, July, and August. Sampling methods followed the protocol outlined in Bureau of Reclamation's Plankton Sampled Collection Protocols for Dreissenid Veliger Early Detection Monitoring. NDOW sampled with a plankton net having a mesh size 80 µm. Samples were shipped to the BOR laboratory and EcoAnalysts for analysis.

Monitor species composition and size classes of sport fish from four net-nights of gillnetting.

Gillnetting did not occur due to a change and personnel and emerging priority projects.

Monitor species composition and size classes of sport fish with two nights of electroshocking.

Electroshocking did not occur due to a change and personnel and emerging priority projects.

Stock with one million walleye fry and 5,000 juvenile wipers.

Walleye fry were provided by Gavin's Point National Fish Hatchery in Yankton, South Dakota. Juvenile wipers were purchased from Colorado Catch in Sanford, Colorado. Rainbow trout were also stocked from the Mason Valley Hatchery.

FINDINGS

General Management Objective

Conduct a general fisheries assessment through opportunistic angler contacts and mail-in angler questionnaire data.

Angler success during the fishing season was analyzed through opportunistic angler contacts made monthly from February through October, with the exception of June. The unseasonably cool spring resulted in poor fishing success and low angler utilization. A total of 13 survey days were completed and 54 anglers were contacted. Angler success averaged 0.6 fish per angler and 0.3 fish per hour. Table 1 summarizes the opportunistic angler survey data.

Table 1. Rye Patch Reservoir Opportunistic Angler Surveys 2012

Month	Survey Days	Anglers	Angler Hours	Fish	Fish/Angler	Fish/Hour
March	1	2	2	0	0	0
June	4	7	8	0	0	0
July	16	17	43	8	0.5	0.2
Summary	21	24	48	8	0.3	0.2

There were 8 fish harvested and measured while completing opportunistic angler contacts. Length frequency and species composition are presented in Table 2.

Table 2. Length Frequency and Species Composition Data 2012

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	2	0	0	2	0	0	0	0	0
Smallmouth bass	1	0	1	2	0	0	0	0	0
Walleye	2	0	1	0	0	0	0	0	1
Wiper	3	0	0	0	0	1	0	0	2

Anglers participated in the 2011 mail-in angler questionnaire, which showed a lower than average catch rate in 2011 (Table 3). Angler success for 2011 was 0.55 fish per day and 1.96 fish per angler.

Table 3. Rye Patch Reservoir Angler Questionnaire Results 2000-2011

Year	Anglers	Days	Fish	Fish/Day	Fish/Angler	Days/Angler
2000	3,240	13,272	34,772	2.62	10.73	4.10
2001	3,452	16,074	38,083	2.37	11.03	4.66
2002	2,303	9,869	13,916	1.41	6.04	4.29
2003	1,594	4,903	7,172	1.46	4.50	3.08
2004	1,274	4,969	5,416	1.09	4.25	3.90
2005	1,852	8,258	14,348	1.74	7.75	4.46
2006	2,194	10,236	17,537	1.71	7.99	4.67
2007	3,111	15,885	40,727	2.56	13.09	5.11
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
Average	2,241	9,933	19,650	2.0	8.2	4.45

In 2012, Nevada Carp Corporation commercially fishing Rye Patch Reservoir during October, November, and December. On November 11, 32 Sacramento blackfish and 31 common carp were randomly measured from their catch. Figure 1 displays the length frequency of Sacramento blackfish sampled. Figure 2 displays length frequency of common carp measured. These fish came from approximately three miles upstream from the dam.

Figure 1. Sacramento Blackfish Length Frequency 2012.

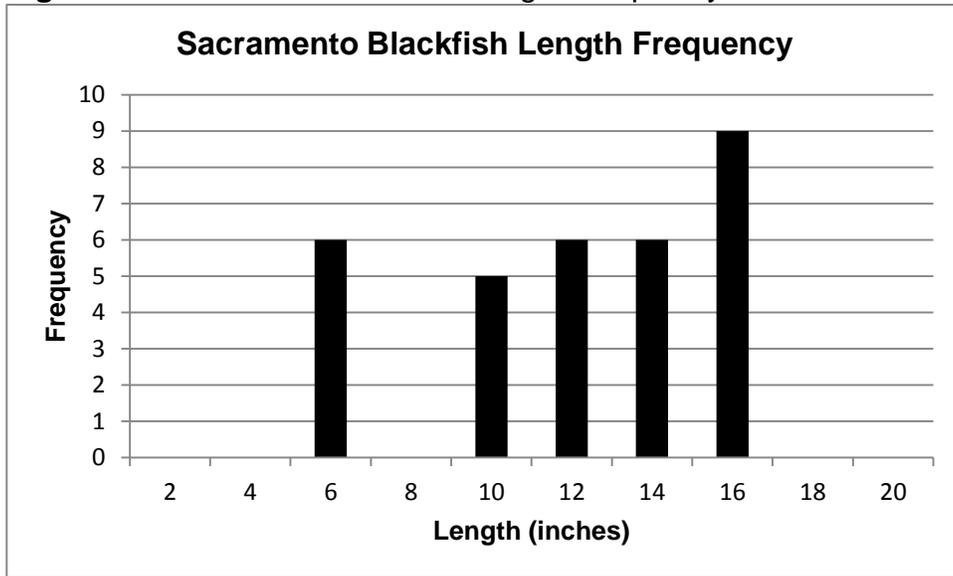
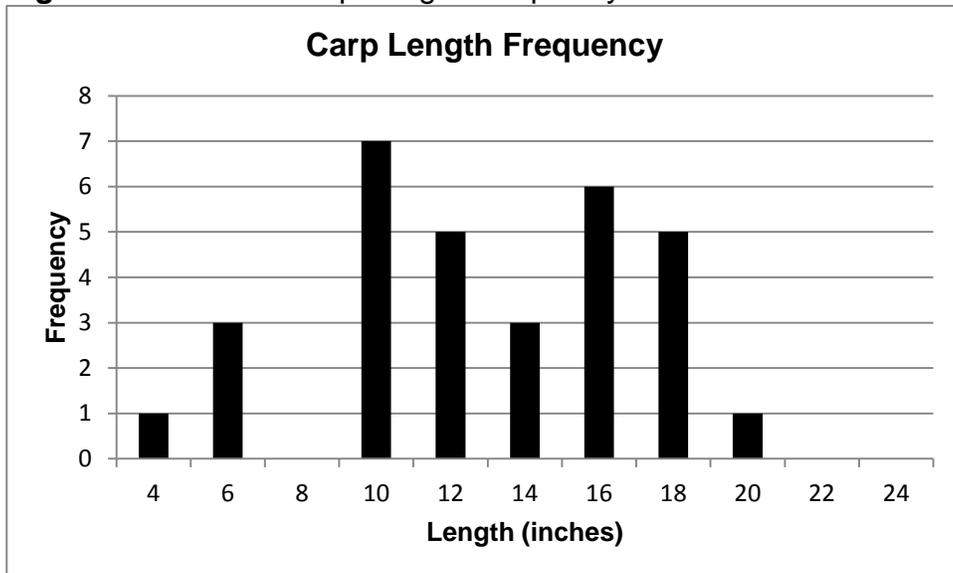


Figure 2. Common Carp Length Frequency 2012.



The average length of Sacramento blackfish sampled was 12.7 in, which is an increase from the 2011 average of 12.1 in. The average length of common carp was 13.6 in, which was a slight increase from the 2011 average of 13.0 in.

Nevada Carp harvested 12,998 lbs of Sacramento blackfish from Rye Patch Reservoir during 2012, which was a large increase from the 2,549 lbs harvested in 2011. Average CPUE was 351 lbs per net haul. This was much higher than the 2011 CPUE, which was 121 lbs per net haul. Commercial fishing records are summarized in Table 4.

Table 4. Rye Patch Reservoir Commercial Fishing Summary for 2012

Date	Number of Hauls	Harvested Fish (lbs)		CPUE* (lbs/haul)	Number of Game Fish (released)							
		Carp	Blackfish		Walleye	Crappie	Catfish	Wiper	White Bass	Rainbow Trout	Smallmouth Bass	Yellow Perch
10/25/2012	2	0	432	216	8	4	2	6	0	1	0	0
10/26/2012	3	0	495	165	13	6	7	12	0	0	1	0
10/27/2012	3	0	730	243	18	11	7	10	0	0	0	1
10/31/2012	2	0	957	478	24	20	17	15	0	2	0	0
11/1/2012	3	0	714	238	27	17	8	0	0	0	2	0
11/6/2012	3	0	850	283	15	6	5	10	0	0	0	3
11/7/2012	2	0	700	350	23	15	9	16	0	1	0	0
11/20/2012	2	0	600	300	15	10	15	16	0	0	0	0
11/23/2012	3	0	950	317	35	26	40	25	0	0	2	0
11/27/2012	3	0	800	267	45	13	31	15	0	0	0	0
11/28/2012	3	0	850	283	33	6	19	21	0	0	0	1
12/14/2012	3	0	1,170	390	400	30	25	15	0	2	0	0
12/15/2012	2	0	1,850	925	250	20	22	40	0	0	1	0
12/21/2012	3	0	1,900	633	550	20	5	100	0	0	0	1
Total	37	0	12,998	363	1,456	204	212	301	0	6	6	6

* Catch per Unit Effort (CPUE) only reflects harvested fish

Conduct a general habitat assessment by monitoring reservoir storage, presence/absence of adult quagga mussels, and water quality when on site.

Reservoir storage data was provided by PCWCD for the beginning of each month in 2012. In December 2012, Rye Patch Reservoir was at its lowest level of 17,000 acre-ft, but maximum storage was in April at 145,500 acre-ft. Figure 3 displays monthly storage in Rye Patch Reservoir for 2012, average storage was 83,352 acre-ft.

Monthly reservoir storage provided by PCWCD is displayed in Table 5. No data was available from PCWCD for January 2012. Storage peaked in April and steadily declined until the end of the irrigation season.

Figure 3. Rye Patch Reservoir Monthly Storage 2012.

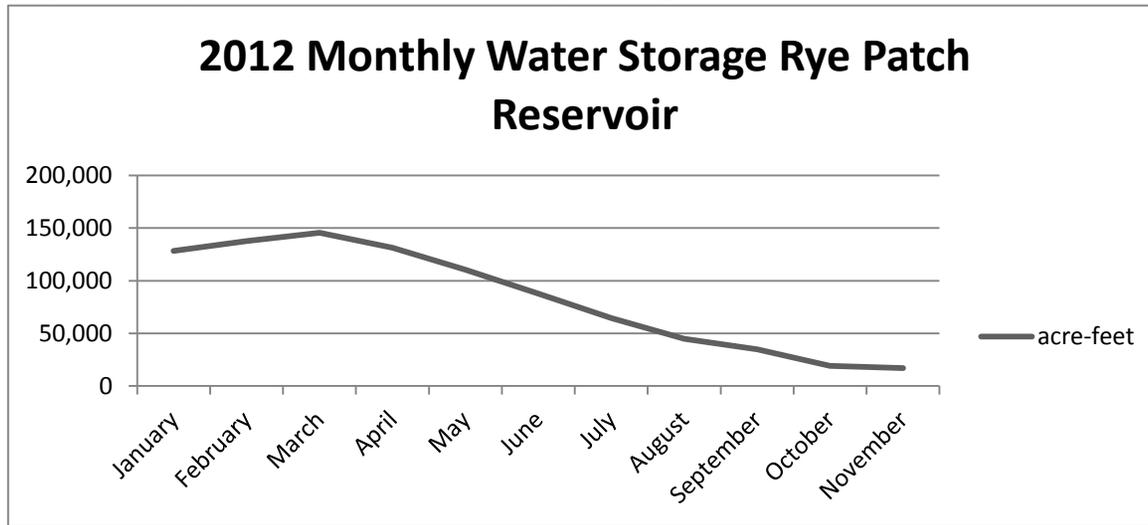


Table 5. Rye Patch Reservoir Water Storage 2000-2012

Month	Water Storage (acre-feet)												Monthly Average
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
January	57,790	17,000	12,424	12,500	15,831	169,395	137,600	57,280	8,548	13,150	15,600	*	47,011
February	61,600	19,800	14,901	14,750	20,200	170,500	144,200	60,500	9,431	*	26,150	128,200	60,930
March	65,570	27,800	19,240	17,600	30,180	166,685	153,300	63,800	14,472	15,831	39,290	137,600	62,614
April	70,960	26,400	25,100	31,700	51,320	204,060	162,620	64,980	23,500	22,000	56,260	145,500	73,700
May	63,250	29,040	28,280	31,320	65,570	178,905	152,000	51,320	32,480	31,320	68,250	131,200	71,911
June	47,150	27,120	19,960	24,400	109,480	183,590	144,200	47,150	25,800	28,660	76,000	110,400	70,326
July	34,040	26,150	16,165	18,200	180,700	178,905	123,200	32,290	39,700	30,940	103,700	87,830	72,652
August	24,400	11,850	15,044	15,660	185,970	153,300	102,900	27,550	33,650	36,420	146,800	64,390	68,161
September	14,472	9,904	13,060	11,000	170,750	136,500	79,350	11,520	16,500	17,200	142,100	44,900	55,605
October	13,150	10,096	10,480	8,300	148,100	126,200	66,160	7,974	11,104	14,600	140,900	34,820	49,324
November	13,150	10,384	10,480	10,000	137,600	130,200	57,280	7,126	11,800	12,085	126,200	19,240	45,462
December	13,775	11,633	10,896	12,650	139,800	137,600	58,160	7,658	11,800	12,085	*	17,000	39,369
Minimum	13,150	9,904	10,480	8,300	15,831	126,200	57,280	7,126	8,548	12,085	15,600	17,000	—
Maximum	70,960	29,040	28,280	31,700	185,970	204,060	162,620	64,980	39,700	36,420	146,800	145,500	—
Average	39,942	18,931	16,336	17,340	104,625	161,320	115,080	36,596	19,899	21,299	85,568	83,352	—

* No data available

Visual observations for quagga mussels did not reveal any adult quagga mussels. From June through August, the Bureau of Reclamation made plankton tows near the boat ramp, dam, and in the upper reservoir near the Pitt-Taylor Arm. The August 8 sample tested weak positive for quagga mussel veligers using microscopy analysis. All samples that NDOW collected where near the same locations as BOR samples, but all were negative for quagga mussels.

Monitor species composition and size classes of sport fish from four net-nights of gillnetting.

Gillnetting and frame netting were not completed due to a change in personnel and another high priority project.

Monitor species composition and size classes of sport fish with two nights of electroshocking.

The electroshocking survey was not completed due to a change in personnel and another high priority project.

Stock with one million walleye fry and 5,000 juvenile wipers.

On February 17, 501 Eagle Lake strain rainbow trout averaging 9.2 in were stocked into Rye Patch Reservoir. Walleye fry were shipped from Gavin's Point Hatchery and stocked on April 18 and 25. An estimated 90% of the walleye fry were still alive when stocked. On May 17, Colorado Catch delivered 3,700 wipers (white bass x striped bass hybrids) averaging 7-9 in. Walleye fry and wipers were stocked at the Pitt-Taylor boat ramp and rainbow trout were stocked at Rye Patch dam boat ramp. Table 6 summarizes fish stocking from 2001 through 2012.

GENERAL MANAGEMENT REVIEW

General Management Objective

Angler success was low throughout 2012, which was measured through monthly opportunistic angler contacts and the mail-in angler questionnaire survey.

In 2012, Rye Patch Reservoir stored a maximum of 145,500 acre-ft, which was approximately 75% of capacity creating new habitat for sport fish species to utilize. BOR and NDOW collected samples to monitor presence of quagga mussels and in August, samples collected by BOR tested weak positive for quagga mussels. Follow-up monitoring by NDOW and BOR showed negative results for presence of quagga mussels. Visual observations of the boat ramp, dam, and hard substrates near the boat ramp did not reveal adult quagga mussels, but the effectiveness of visual observations was limited due to high reservoir levels.

Table 8. Rye Patch Reservoir Fish Stocking Records 2001-2012

Year	Species	Strain	Source	Number of Fish	Pounds of Fish	Average Size (inches)	Annual Total	
							Number	Pounds
2001	Rainbow	Tasmanian	Mason Valley, NV	437	16.5	10.0	850,937	292
	Walleye	—	Gavins Point NFH, SD	850,000	1.0	1.0		
	Rainbow	Eagle Lake	Mason Valley, NV	500	127.0	8.5		
2002	Rainbow	Tasmanian	Mason Valley, NV	505	121.0	8.5	599,388	481.1
	Walleye	—	Garrison Dam, ND	585,000	22.3	0.5		
	Wiper	—	Keo, AR	13,133	47.8	2.0		
	Rainbow	Tahoe	Mason Valley, NV	750	290.0	10.0		
2003	Walleye	—	Gavins Point NFH, SD	300,000	2.50	0.5	300,000	2.5
2004	Rainbow	Tasmanian	Mason Valley, NV	500	166.0	9.5	907,220	317.0
	Walleye	—	Gavins Point NFH, SD	900,000	100.0	0.5		
	Wiper	—	Keo, AR	6,720	51.0	2.0		
2005	Rainbow	Fish Lake	Mason Valley, NV	1,040	160.0	9.5	1,509,840	203.0
	Walleye	—	Garrison Dam, ND	1,504,000	37.2	0.5		
	Wiper	—	Keo, AR	4,800	6.00	2.0		
2006	Rainbow	Eagle Lake	Mason Valley, NV	500	191.0	9.8	914,999	383.0
	Walleye	—	Gavins Point NFH, SD	900,000	—	0.5		
	Wiper	—	Keo, AR	14,000	—	2.0		
	Rainbow	Tahoe	Mason Valley, NV	499	192.0	9.9		
2007	Rainbow	Eagle Lake	Mason Valley, NV	993	297	9.1	707,093	468.3
	Walleye	—	Gavins Point NFH, SD	700,000	50.3	0.6		
	Wiper	—	Keo, AR	6,100	121.0	2.0		
2008	Rainbow	Tasmanian	Mason Valley, NV	2,505	650	8.8	1,229,646	1,136.3
	Walleye	—	Gavins Point NFH, SD	1,200,000	1.0	0.5		
	Wiper	—	Keo, AR	26,600	350.0	2.0		
	White Bass	—	Lahontan Res, NV	541	135.3	7.0		
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	1,862.0
	Walleye	—	Gavins Point NFH, SD	750,000	—	0.5		
	Wiper	—	Colorado Catch	3,700	925	8.0		

— No data available

Nevada Carp harvested Sacramento blackfish in October, November, and December. An amended permit was issued in 2012 to Nevada Carp Corporation to allow harvest Sacramento blackfish and common carp from Rye Patch Reservoir. No fish could be transported live away from the reservoir.

Population monitoring of sport fish species was tracked through commercial fishing records from Nevada Carp Corporation. Walleye, wiper, white crappie, black crappie, walleye, yellow perch, catfish, and rainbow trout were all represented.

RECOMMENDATIONS

General Management Objective

Objective: To administer an annual fisheries program that assesses general fish population dynamics, angler use and success, annual stocking programs, habitat conditions, and maintains contact with necessary land management entities.

Approaches:

- Continue to monitor angler use, success, and satisfaction through opportunistic angler contacts and the mail-in, angler questionnaire survey data to examine the attainment of a general warmwater fishery.
- Conduct a general habitat assessment through monitoring water quantity (reservoir storage), water quality (clarity), and presence of aquatic invasive species.
- Coordinate with Bureau of Reclamation and Nevada Division of State Parks to ensure regular quagga mussel sampling is occurring and recreational vessels are being inspected.
- Monitor commercial fishing operations with the intention of developing parameters to regulate the commercial harvest of Sacramento blackfish, and the impact of Sacramento blackfish and carp on sport fish populations and recreational angler success.
- Stock walleye fry, juvenile wipers, and rainbow trout in the spring.

Prepared by: Brad Bauman
Fisheries Biologist
Western Region

Date: March 25, 2013