

NEVADA DEPARTMENT OF WILDLIFE  
STATEWIDE FISHERIES MANAGEMENT



FEDERAL AID JOB PROGRESS REPORTS

F-20-54  
2018

Mason Valley Wildlife Management Area Ponds

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:** *Mason Valley Wildlife Management Area Ponds*  
**Period Covered:** *January 1, 2018 through December 31, 2018*

**SUMMARY**

Hinkson Slough remained near or at full capacity throughout the year. Triploid grass carp has been effective in reducing aquatic vegetation since its introduction. Since summertime water temperatures and turbidity (partly due to common carp) have increased during recent years, survival of stocked rainbow trout has been low. Largemouth bass fishing improved and a couple have been entered into the agency's Trophy Fish Program in 2018. Hinkson Slough received the most angling pressure within Mason Valley Wildlife Area (MVWMA). Only a couple of complaints about vegetation interfering with angling were received during 2018 suggesting grass carp have been effective.

During 2018 at North Pond, angling use decreased and fewer largemouth were reported. Drop-box information found fewer fish reported and satisfaction for fish size fell compared to last year. Aquatic vegetation can cause serious angling access issues and coordination with management area staff is important in finding a balanced for not only a productive water body for waterfowl, but for reducing the density of aquatic vegetation. Channel catfish angling has increased and anglers have caught several larger than 18 in.

Fort Churchill Cooling Pond (FCCP) has increased in angler use and catch rates since 2015. The power plant that historically warmed the pond in winter no longer operates consistently and ice coverage to become significant (>50%). Rainbow trout were stocked, but only a few were caught this year. Largemouth bass catch rates and sizes from the drop-box survey this year exceeded results from before the power plant was shutdown. It is unknown whether this reflected an increasing largemouth bass population or that angling pressure (and reporting) increased. A few anglers reported catching as high as 20 largemouth per day and sizes up to 3.0 lbs. Anglers targeting channel catfish continued to be successful during 2018 and accounted for 23% of all fish reported.

**BACKGROUND**

Nevada Department of Wildlife (NDOW) has management responsibilities for Mason Valley Wildlife Management Area (MVWMA), which is located within the Walker River Basin and is owned by Nevada Division of State Lands. There are numerous ponds throughout the area, and with the completion of Mason Valley Hatchery (MVH) in 1990, all ponds within the first series (i.e., Hinkson Slough and Bass, Crappie, and North Ponds) receive hatchery effluent. Many other ponds receive water from the Walker River, via

Joggles Ditch. The first series ponds (called the Fishing Series Ponds) are managed primarily for sport fish along with waterfowl. The Eastside Waterfowl Series Ponds are managed primarily for waterfowl; however, some fishing does occur late in the season.

Anglers can possess up to 15 warmwater fishes (e.g., bluegill, crappie, and catfish) with a maximum of two largemouth bass, minimum size of 14 in. Rainbow trout are stocked to provide early season fishing in some waters, while they provide angling throughout the entire season in Hinkson Slough. The harvest limit for trout is five, however, in Hinkson Slough, there is a two trout limit with a minimum total length of 16 in and only artificial lures are allowed. The angling season begins the second Saturday in February and ends September 30 in the Fishing Series Ponds, while the season occurs from August 16 to September 30 in the Eastside Waterfowl Series Ponds.

## OBJECTIVES

- Conduct a general fisheries assessment through opportunistic angler contacts, angler drop-box surveys, and mail-in angler questionnaire data.
- Monitor lake level and clarity of all Fishing Series Ponds when on-site.
- Stock 1,000 channel catfish in North Pond and 1,000 in FCCP.
- Monitor fish in Hinkson Slough and North Pond through electroshocking at four established transects per water during one night after the close of the fishing season.
- Evaluate the need for aquatic vegetation management in North Pond and Hinkson Slough.

## PROCEDURES

**Conduct a general fisheries assessment through opportunistic angler contacts, angler drop-box surveys, and mail-in, angler questionnaire data.** Information obtained from anglers included total time fished and number, size, and species of fish caught. Location (pond), place of residence, and type of bait or lure used was also recorded. Drop-boxes were located at Hinkson Slough, North Pond, and Fort Churchill Cooling Pond (FCCP) and were maintained and checked throughout the year. Mail-in, angler questionnaires were mailed at the end of 2017 to 30,000 anglers purchasing a Nevada fishing license. Results was received and summarized for number of anglers, days spent fishing, and number of fish caught.

**Monitor water quantity (lake level) and water quality (clarity) when on-site.** Visual observations were made at all Fishing Series Ponds while on-site throughout 2018. Observations included estimating the current depth, percentage of open water, and type and amount of aquatic vegetation. During spring 2016, water level gauges were installed on all fishing series ponds and data has been received from management area personnel quarterly.

**Stock 1,000 channel catfish in North Pond and 1,000 in FCCP.** Channel catfish were purchased from Colorado Catch and on April 25, 2018 and 1,020 were planted each in North Pond and FCCP. Fish averaged 9.5 in.

**Monitor fish in Hinkson Slough through electroshocking at four established transects per water during one night in the fall after the close of the fishing season.** Electroshocking was completed at Hinkson Slough on July 11, 2018. Electroshocker settings were set at 60 V pulsed DC at 20-30% of range and sampling occurred at three transects totaling 51 min. Information collected included time electroshocked; species, length, number and health of fish caught; and electroshocker settings.

**Evaluate the need for aquatic vegetation management in North Pond and Hinkson Slough.** The percentage of rooted aquatic vegetation that covered each pond was estimated once during spring, summer, and fall. Areas typically used by boaters, float tubers, and kayakers were priority target areas. Pond level and general water quality (clarity and temperature) was also monitored.

### FINDINGS

**Conduct a general fisheries assessment through opportunistic angler contacts, angler drop-box surveys, and mail-in, angler questionnaire data.** During creel survey, 44 anglers were contacted during 2018 from all MVWMA ponds. Rainbow trout and largemouth bass comprised the majority of fish caught (Table 1). Anglers at Hinkson Slough caught 143 trout at a rate of 1.13 fish per hour, having an average size of 11.15 in and maximum size of 18 in. Anglers at FCCP spent 52 hrs to catch 85 largemouth bass that averaged 12.02. The catch rate was 1.63 fish per hour. Only one angler that caught one fish was contacted at North Pond.

**Table 1. Angler Contact Data.**

North Pond				
	2017		2018	
	Bass	Trout	Bass	Trout
Hours fished	36	0	0	6
Fish caught	34			1
Fish/Hr.	0.94			0.17
Ave size	11.5			7.5
Hinkson				
	2017		2018	
	Bass	Trout	Bass	Trout
Hours fished	0	53	41	127
Fish caught		63	52	143
Fish/Hr.		1.19	1.27	1.13
Ave size		11.64	13.67	11.15
Max size		17.5	19.5	18
FCCP				
	2017		2018	
	Bass	Catfish	Bass	Catfish
Hours fished	0	0	52	10
Fish caught			85	8
Fish/Hr.			1.63	0.8
Ave size			12.02	8
Max size			16	10

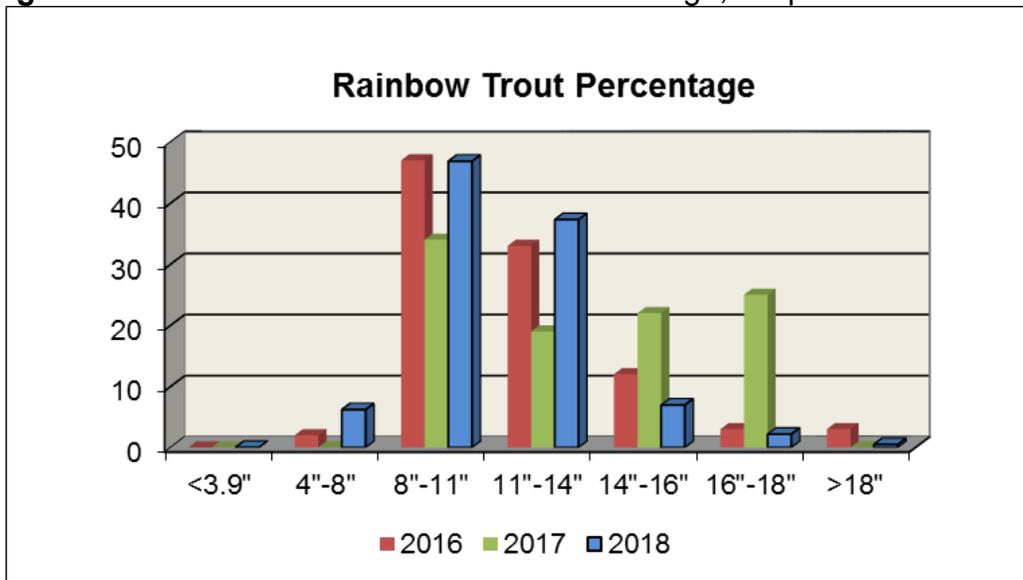
Drop-box surveys were filled out by 125 anglers (Table 2). The catch rate at North Pond was well below the 10-year average, however, FCCP was slightly above its 10-year average and Hinkson showed more than double the average. During February and March, an unusually high number of trout anglers contributed to the drop-box survey and 76% of all fish reported were 8.0 to 14.0 in rainbow trout, most likely the result of recent stocking events.

**Table 2.** Drop-Box Catch Rate Data.

	Fish/Day	Fish/Hour	No. Anglers
2018 Hinkson	26.54	5.06	50
10 yr average	11.37	2.16	50
2018 North Pond	1.67	0.62	18
10 yr average	3.89	1.05	16
2018 FCCP	6.23	1.37	57
10 yr average	4.36	1.06	30

The size of rainbow trout reported through angler drop-box surveys at Hinkson showed most rainbow trout were from 8.0 to 14.0 in, comprising 84% of the rainbow trout caught during 2018 (Figure 1). During 2018, an average number of anglers reported catching an above average number of trout.

**Figure 1.** Size of Rainbow Trout at Hinkson Slough, Drop-Box Results.



Sixty-nine largemouth bass were also reported in the 2018 drop-box survey at Hinkson Slough, which was near the ten year average of sixty four. Largemouth bass of all age classes (excluding young of the year) were represented for the third year in a row. However, most were reported from 4.0 to 11.0 in TL (57% of all bass), with only one larger than 16 in.

Anglers showed satisfaction of the fisheries at Hinkson Slough in 2018 (Table 3). Although satisfied, approval of the fishery declined at FCCP in 2018 (Table 3). Anglers at North Pond were more satisfied with the fishing experience and number of fish, but less satisfied with the size of fish. Satisfaction appears to correspond with catch rates observed during angler contacts, drop-box results, and mail-in angler questionnaire results.

**Table 3. MVWMA Ponds Angler Satisfaction Survey.**

2017 FCCP							2018 FCCP						
	-2	-1	0	1	2	Total Ave.		-2	-1	0	1	2	Total Ave.
Experience	2		3	15	17	1.22	Experience	1	4	8	29	15	0.93
Size of Fish			9	10	12	1.10	Size of Fish	2	2	15	26	7	0.65
No. of Fish	2	1	7	14	13	0.95	No. of Fish	4	3	9	21	14	0.75
2017 Hinkson							2018 Hinkson						
	-2	-1	0	1	2	Total Ave.		-2	-1	0	1	2	Total Ave.
Fishing exp.	4	2	4	6	5	0.29	Fishing exp.	2	1	4	11	31	1.39
Size of Fish			5	2	5	1.00	Size of Fish	1		12	12	22	1.15
No. of Fish	7	1	6	2	3	-0.37	No. of Fish	2		6	9	30	1.38
2017 North Pond							2018 North Pond						
	-2	-1	0	1	2	Total Ave.		-2	-1	0	1	2	Total Ave.
Fishing exp.	4		6	5	6	0.43	Fishing exp.	1		2	4	8	1.20
Size of Fish			4	2	6	1.17	Size of Fish	1		4	3	6	0.93
No. of Fish	2		9	4	4	0.42	No. of Fish	1	1	6	2	4	0.50

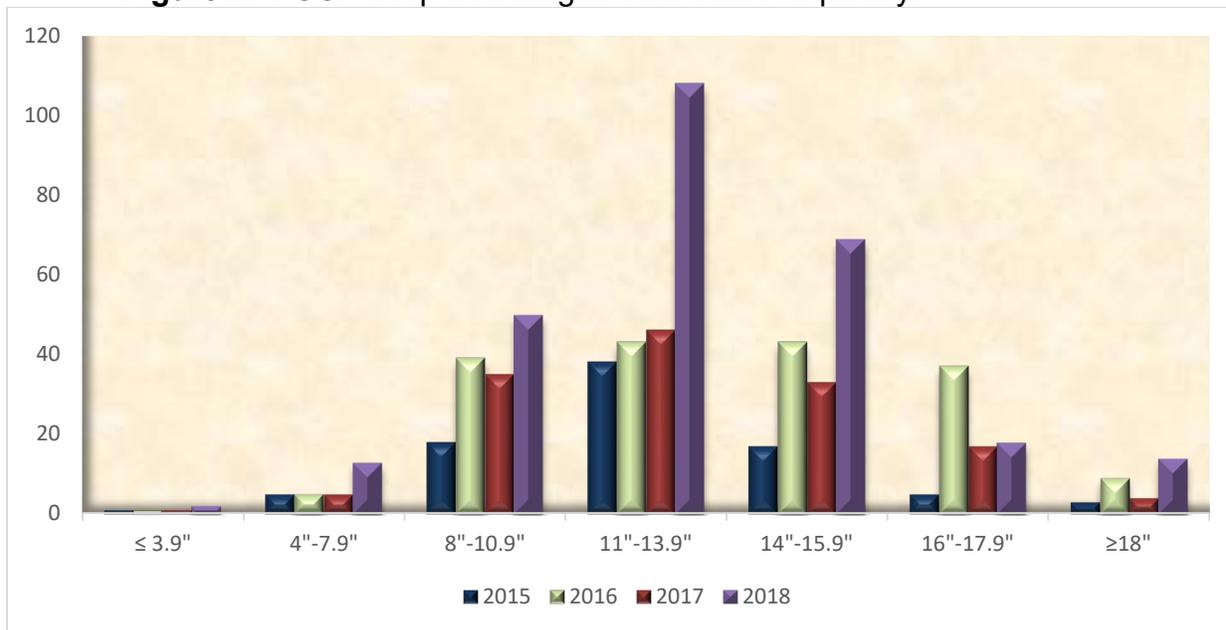
The annual Mail-in Angler Questionnaire Survey for 2017 showed there was an increase in the number of anglers at FCCP and it was above 10-year average. Conversely, North Pond, and Hinkson Slough were below average (Table 4). Catch rates declined at Hinkson Slough, increased at North Pond, and was similar at FCCP.

**Table 4. Mail-in, Angler Questionnaire Data.**

Fort Churchill Cooling Pond											
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	10 YR AVE
No. Anglers	152	176	221	93	285	66	222	196	306	220	194
Days	644	548	1,098	222	1,566	283	498	542	432	641	647
Days/Angler	4.24	3.13	4.97	2.39	5.49	4.3	2.25	2.76	1.41	2.91	3.39
No. Fish	2,769	1,160	2,170	239	19,383	412	1,660	1,148	741	1,098	3,078
Fish/Day	4.3	2.12	1.98	1.08	12.38	1.46	3.33	2.11	1.72	1.71	3.22
Fish/Angler	18.22	6.59	9.82	2.57	68.01	6.27	7.49	5.84	2.42	4.98	13.22
Hinkson Slough											
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	10 YR AVE
No. Anglers	181	255	461	61	363	165	128	307	347	101	237
Days	816	626	2,129	172	1,490	505	439	858	456	126	762
Days/Angler	4.51	2.45	4.62	2.82	4.1	3.06	3.43	2.79	1.32	1.25	3.04
No. Fish	6,153	1,344	9,740	926	7,490	3,027	3,568	1,931	1,941	439	3,656
Fish/Day	7.54	2.15	4.57	5.38	5.03	5.99	8.12	2.25	4.25	3.47	4.88
Fish/Angler	33.99	5.27	21.13	15.18	20.63	18.33	27.88	6.28	5.6	4.33	15.86
North Pond											
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	10 YR AVE
No. Anglers	62	109	168	28	82	215	111	117	284	77	125
Days	1,699	303	444	51	324	1005	511	777	376	190	568
Days/Angler	27.4	2.78	2.64	1.82	3.95	4.67	4.42	6.64	1.32	2.48	5.81
No. Fish	4,743	714	465	301	1,137	4,745	7,350	2,254	204	317	2,223
Fish/Day	2.79	2.36	1.05	5.9	3.51	4.72	14.38	2.9	0.54	1.67	3.98
Fish/Angler	76.5	6.55	2.77	10.75	13.87	22.04	65.95	19.23	0.72	4.13	22.25

The size of largemouth bass reported during drop-box surveys at Forth Churchill Cooling Pond is shown in Figure 2. The frequency of fish reported in all size classes has increased since 2015, but was the highest during 2018 for most categories.

**Figure 2.** FCCP Drop-Box Largemouth Size Frequency.



Catch rates at FCCP fell within the range of the Warmwater General Fishery Management Concept, which states “Angler catch rates should range between 0.25 and 0.75 fish per hour and 1.0 and 2.0 fish per angler day” (see Tables 1, 2, and 4). The Fort Churchill power plant has operated intermittently over the past couple years and water temperatures have subsequently declined. The largemouth bass population was found to have several age classes that appeared to increase in the number over the past several years. Trout were first stocked in 2012, however, the 2014 drop-box survey was the first year anglers reported catching trout, two were reported during 2017, and only one during 2018.

In agreement with drop-box, mail-in angler questionnaire, and angler contact survey results, North Pond also met the objectives of the Warmwater General Fishery Management Concept (see Tables 1, 2, and 4). Channel catfish stocking resumed in 2016 (drought conditions led to no stocking during 2015) and has continued into this year. In 2018, three channel catfish were reported in the drop-box survey. Several largemouth bass anglers anecdotally reported catching over 30 fish per day from 2014 through 2017 with catch rates as high as 10 fish per hour, however, during 2018 there was no reporting of large numbers being caught. Angler use in North Pond was limited in 2010 and 2011 due to in excess of 70% coverage of submergent aquatic vegetation restricting access. An herbicide treatment in 2012 and 2013 reduced aquatic vegetation in several areas throughout North Pond. Angler use and success increased as a result and very little submergent aquatic vegetation was observed during 2016 and 2017. The pond remained

clear of vegetation in 2018, but the lack of cover may now affect recruitment, growth, and survival of largemouth bass.

Angler catch rates and size of fish reported through angler contacts, mail-in questionnaire, and drop-box surveys at Hinkson Slough suggest that the Coldwater Trophy Fishery Concept and the Warmwater Trophy Fishery Concept objectives were met during 2018, however, trout are feeling the pinch caused by the abundance of carp. Brown and cuttbow trout were stocked again in 2018 since these more aggressive fish may help by foraging on juvenile common carp. Fifty seven brown trout (5% of the trout caught) were reported, three of which were larger than 14 in. Due to the difficulty in determining the difference between cuttbow and rainbow trout by the average angler, they were combined on the drop-box survey and labeled only as “rainbow.”

**Monitor lake level and clarity when on-site.** The Habitat Division at Mason Valley Wildlife Management Area manages water movement throughout the area, including the Fishing Series Ponds. Water quality and clarity remained consistent for the majority of 2018, but since 2013, water clarity has been noticeably worse in Hinkson Slough and North Pond during the summer most likely due to increasing abundance of common carp. Water levels remained high during most of 2018 at North Pond, FCCP, and Hinkson Slough. Since water level monitoring was initiated in 2016, all pond levels typically increase from January through June and fluctuate throughout the fall when demand increases throughout the duck series ponds.

Due to high nutrient loading from hatchery effluent, submergent vegetation generally becomes an angling nuisance in many of the Fishing Series Ponds. Triploid grass carp were first introduced into Hinkson Slough in 2006, resulting in the improvement of channels previously choked by weeds. Triploid grass carp were additionally stocked in North Pond along with herbicide treatments to help control vegetation. During 2018, vegetation appeared not to be problematic and was even noticeably absent from North Pond. Therefore, no additional treatments occurred.

**Stock 1,000 channel catfish in North Pond and 1,000 in FCCP.** Table 5 shows fish stocking for MVWMA ponds during 2018 and Table 6 shows historical stocking. No channel catfish were stocked in 2015 due to ongoing drought conditions in northern Nevada, however, during 2016 channel catfish stocking resumed. Both anecdotally and from the angler drop-box survey, fish larger than 18.0 inches were caught. Smaller catfish were also reported suggesting that either there was natural reproduction or anglers are catching bullheads and mistaking them for channel catfish. Bullheads have been observed in the past, but recent survey efforts have not documented them.

**Monitor fish in Hinkson Slough through electroshocking at four established transects per water during one night in the fall after the close of the fishing season.** Sampling occurred at MVWMA ponds on July 11, 2018 in order to capture largemouth bass and bluegill to restock ponds in Dixie Valley. For every 10 min spent electroshocking, 23.7 largemouth bass were caught, which was near the 15 yr average of 24.7. Table 7 shows CPUE for largemouth bass from 2003 through 2018. When CPUE

was high for fish larger than 18.0 in, it was roughly traced back to elevated abundances of juvenile fish 5- to 6-yrs prior, suggesting that largemouth bass in Hinkson Slough require 6- to 7-yrs to grow 18.0 in. (approximately 4.0 lbs). Very few large trout have been caught during electroshocking surveys since 2014, however, anglers have reported catching fish larger than 18 in. Several avid trout anglers have kept detailed records of their effort and have reported approximately 5% of the trout they caught were larger than 18 in.

**Table 5. MVWMA Stocking 2018.**

<b>Fort Churchill Cooling Pond</b>				
Date	Species	Strain	Number	Size
4/25/2018	Channel catfish	Colorado Catch	1,020	9.5
2/13/2018	Rainbow	Eagle lake	1,846	9.6
2/8/2018	Rainbow	Eagle lake	2,107	9.4
		Rainbow Total	3,953	9.5
		Catfish Total	1,020	9.5
<b>Hinkson Slough</b>				
Date	Species	Strain	Number	Size
9/26/2018	Bowcutt	Marlette	963	9.7
9/26/2018	Rainbow	Eagle lake	705	10.2
6/13/2018	Brown	Sheep creek	2113	9
2/8/2018	Rainbow	Eagle lake	1199	10.5
2/8/2018	Brown	Sheep creek	964	10.1
2/8/2018	Rainbow	Eagle lake	409	9.1
		Rainbow Total	2,313	9.9
		Cuttbow	963	9.7
		Brown	3,077	9.6
<b>North Pond</b>				
Date	Species	Strain	Number	Size
4/25/2018	Channel catfish	Colorado catch	1020	9.5
2/7/2018	Rainbow	Eagle Lake	3010	9.4

**Evaluate the need for aquatic vegetation management in North Pond and Hinkson Slough.** Aquatic vegetation was not observed or reported to impede angler access or created issues for pond management during 2018. Therefore, no additional treatment to control vegetation was necessary.

**Table 6. MVWMA Historical Stocking.**

	Hinkson				North Pond				FCCP		
2017	Rainbow	2,494	9.2		Rainbow	3,527	8.8		Rainbow	4,400	9.7
	Cuttbow	1,492	8.8		Brown	507	9.7		Channel Catfish	1,000	7.0
	Brown	1,509	9.8		Channel Catfish	1,000	7.0				
2016	Rainbow	2,050	10.0		Rainbow	2,973	10.0		Channel Catfish	1,000	6.0
	Cuttbow	2,061	9.2		Channel Catfish	1,000	6.0		Rainbow	4,566	9.6
	Brown	1,066	9.1								
2015	<b>Species</b>	<b>Number</b>	<b>Size</b>		<b>Species</b>	<b>Number</b>	<b>Size</b>		<b>Species</b>	<b>Number</b>	<b>Size</b>
	Rainbow	4,303	9.4		Rainbow	3,032	9.1		Rainbow	3,509	9.2
	Cuttbow	787	10.1		0	-	0.0		0	-	0.0
2014	Rainbow	6,976	9.7		Rainbow	9,478	9.8		Rainbow	3,180	9.8
2013	<b>Species</b>	<b>Number</b>	<b>Size</b>		<b>Species</b>	<b>Number</b>	<b>Size</b>		<b>Species</b>	<b>Number</b>	<b>Size</b>
	Rainbow	4,552	10.1		Rainbow	19,147	4.9		Rainbow	2,088	9.9
	Rainbow	7,799	4.5		Catfish	2,000	4.0		Catfish	2,000	4.0
2012	Rainbow	2,501	10.1		Rainbow	3,269	10.2		Rainbow	2,088	9.9
2011	Rainbow	5,502	10.0		Bowcutt	20,061	3.4		Channel Catfish	1,630	6.0
					Channel Catfish	1,630	6.0				
					Rainbow	2,046	10.0				

**Table 7. Hinkson Slough CPUE (fish/10 min) Electrofishing Data – Largemouth bass.**

Year	<4.9"	5-5.9"	6-7.9"	8-9.9"	10-11.9"	12-13.9"	14-15.9"	16-17.9"	18-19.9"	>20"	Total CPUE	
2003	1.52	2.39	0.65								4.57	
2004	24.40	4.40	0.00	1.60	0.80	0.80					32.00	
2005	25.50	0.25	1.50	3.50	0.50						31.25	
2006	10.67	9.00	1.67	0.67		2.33	1.00	0.33			25.67	
2007	5.00	0.67	0.67	2.67	2.67	2.33	4.33	2.67			21.00	
2009	15.11	0.21	4.04	1.91	0.85	0.64	0.64	0.64	0.21		24.26	
2010	0.36	0.00	1.25	0.71	0.89	0.18	0.89			0.18	4.46	
2011	0.49	0.49	3.41	0.73	2.93	2.44	1.71	0.98	0.98		14.15	
2012	12.38	4.29	1.19	2.86	0.95	0.71	0.24	0.24			22.86	
2013	1.76	0.88	17.65	3.82	3.53	1.76	0.29				29.71	
2014	4.53	5.85	7.74	11.13	4.91	1.89	0.75	0.57	0.38	0.38	38.11	
2015	2.00	2.00	7.67	6.00	6.33	3.00		0.33		0.33	27.67	
2016	14.33	3.67	15.00	3.33	3.67	2.67	2.00	0.33	0.33	0.33	45.67	
2017	11.00	4.00	0.00	1.00	5.00	3.00	1.00	0.00	0.00	0.00	25.00	
2018	9.61	0.98	2.35	3.53	1.96	2.55	0.98	0.78	0.39	0.59	23.73	
	* 2017 data limited										AVE	24.67

### MANAGEMENT REVIEW

Several water management changes were implemented in 2008 and have since been adopted as regular practices. During 2016, staff gauges were placed in the Fishing Series Ponds, which enabled more precise, real-time input regarding pond levels. The most notable change in the previous 10 years has been the management of water through Hinkson Slough. Since 2009, water has been maintained in Hinkson Slough throughout

the summer, which has allowed for carryover of rainbow trout. Carryover of trout has been historically estimated to be near 10% of the trout stocked based on angler creel and drop-box data. However, in 2018, only 3% of trout reported were greater than 16.0 in and only 5% were reported by avid fly fishers as being greater than 16 inches. This decline in carryover trout was likely a result of increased turbidity and temperature and a decrease in aquatic invertebrates (scuds specifically) caused by an increase carp. Trout fishing at Hinkson Slough remained popular and even though catch rates for large trout (>16.0 in) were low, roughly 3.0 to 10% for the past three years, angler satisfaction ratings have increased.

There have been five consecutive, annual surveys completed at Hinkson Slough in which CPUE of juvenile largemouth bass has been greater than 12 fish per 10 min of electroshocking. Coincidentally, there have also been five annual surveys when largemouth bass greater than 20 in have been found. It appears to take six to seven years for largemouth to reach 18.0 in or greater. During 2016, CPUE of juvenile largemouth bass was higher than the previous five years, which suggests another strong age class of fish was present and will but may take another year to become catchable size.

Based on available data for catch rates (of all species) and size of fish caught, Hinkson Slough met management objectives for 2018. Anglers participating in the drop-box survey, angler contact survey, and phone messages appeared to prefer a stronger trophy trout fishery as opposed to a largemouth bass fishery during 2017, however, during 2018, the public would like the largemouth bass angling improved. Fish survey results suggests the largemouth bass population (abundance and size structure) is near or above all-time highs, therefore more effort should be spent evaluating why these fish are not contributing into the average angler creel. Avid bass anglers have reported high numbers of fish caught and have occasionally caught very large ones (>8.0 lbs).

The other notable change from historical practices in water management has been the inactivity of Fort Churchill Power Plant. NV Energy uses FCCP for cooling the natural gas-fired power plant. The power plant experienced periods of inactivity from 2009 through 2018 and, subsequently, the average water temperature has fallen considerably. Ice can be observed covering more than 50% of the surface during the winter. This is vastly different from the previous 25 years of operation where winter and spring temperatures range from the mid-50s to the mid-80s at the north end of the pond. This change initially appeared to have a negative impact on the largemouth bass population, however, from 2015 through 2018, angler drop-box data suggested the population size exceeded the size found before 2009 (120 were reported during 2009, whereas 177 in 2016, 141 in 2017, and 274 in 2018). It is unclear whether this is attributed to a larger largemouth bass population or is a reflection of more angler participation in the drop-box survey. Trout were stocked to provide anglers with another opportunity to catch fish during the cooler spring months, which anglers reported catching for the first time in 2014. Since 2014, only one or two trout have been reported each year, but on the other hand, anecdotal reports indicated that trout fishing during spring was moderately successful. The FCCP management objectives should change from a "Quality Warmwater Fisheries

Management Objectives” to a “General Warmwater Fisheries Management Objectives” and harvest regulations should be consistent with the fishing series ponds.

Angling participation in the Drop-Box Survey at North Pond was near average this year. Satisfaction ratings for the size of fish fell from 1.17 during 2017 to 0.93 during 2018. Aquatic vegetation did not appear to impede access, however, an electroshocking survey in 2016 was not effective due to the abundance of submerged tree stumps, high conductivity, and low visibility. Lack of aquatic vegetation in North Pond for the past several years may be contributing to general decline in largemouth populations, coordination with Management area staff should be initiated to determine a suitable solution.

Common carp have been found in Hinkson Slough since 2011. During 2012, over 300 were observed and over 2,000 were estimated during 2013. Only 12 adults were found in 2014. During 2015 and 2016, again only a few adults were observed, however, visibility was reduced to only a few feet. Very few carp were caught electroshocking in 2017 and 2018, however, large groups of adults and schools of juveniles were observed. An investigation into the previous carp eradication project in 2001 revealed similar population numbers from the time they were first confirmed. Trout fishing (use and catch rates) dropped off during 2012 and 2013 fishing seasons. Although the 2015 trout-fishing season was well above average, angler use and catch rates in 2017 diminished. Trout catch rates during February and March 2018 were high, however, few fish over 16 inches were caught (approximately 3%) suggesting fish caught were recently stocked. Due to survey results from 2014 to 2018 showing an increasing largemouth bass abundance (2016 survey showed the highest CPUE for largemouth bass since their reintroduction 14 years ago) the eradication project was postponed. At this time, it would be best to stock trout that may be more inclined to thrive in the current pond conditions (tiger, bowcutt, brown).

## **RECOMMENDATIONS**

- Conduct a general fisheries assessment through opportunistic angler contacts, angler drop-box surveys, and mail-in, angler questionnaire data.
- Monitor lake level and water clarity when on site.
- Stock 1,000 channel catfish in North Pond and 1,000 in FCCP.
- Monitor fish in Hinkson Slough through electroshocking at four established transects per water during one night in the fall after the close of the fishing season.
- Evaluate the need for aquatic vegetation management in North Pond and Hinkson Slough.

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