Fisheries Division
Federal Aid Job Progress Report

Montana Statewide Fisheries Management

Federal Aid Project Number: F-113-R-6

July 1, 2022 – June 30, 2023

Project Title: Montana Statewide Fisheries Management

Job Title: Havre Area Coldwater Fisheries Management

Abstract:

The cool water fisheries in Hill, Blaine, and Phillips Counties experienced low summer flows and receding water levels in 2021/2022. Severe drought conditions continued to impact the area and have persisted into 2023. Partial fish kills were observed during the late summer and continued through the winter. Kills were observed at North Faber, North Polly, King, PR 018, and Hump. Several algal blooms were observed at multiple reservoirs by August and September, a trend that continues to become more common. Stocked rainbow trout survival and recruitment in Beaver Creek Reservoir has been poor the past few years, likely due to predation shortly after stocking. Rainbow trout densities and growth in Bearpaw Lake have been stable but white sucker densities continue to remain high. Beaver Creek Reservoir, Bearpaw Lake and select ponds and reservoirs in Hill, Blaine, and Phillips Counties were monitored in 2022 and results and management recommendations for all these waters are presented.

OBJECTIVES AND DEGREE OF ATTAINMENT

Survey and Inventory: Objective is to survey and monitor the characteristics and trends of fish populations, angler harvest and preference, and to assess habitat conditions in selected waters. Objective accomplished, data presented.

Fish Population Management: Objective is to implement fish stocking programs and/or fish eradication actions to maintain fish populations at levels consistent with habitat conditions and other limiting factors. Objective accomplished, data presented.

Technical Guidance: To review projects by federal, state and local government agencies and private parties that has the potential to affect fisheries resources, and to provide technical advice or decisions to mitigate impacts on these resources. Provide landowners and other private parties with technical advice and information to sustain and enhance fisheries resources. Objective accomplished: (5) 310 and (7) 124 projects were reviewed along with floodplain review with local agencies; attended three walleye unlimited meetings, one Chinook Rod and Gun Club meeting, and helped with three school programs and fishing events related to the “Hooked on Fishing” program.

METHODS

Various sampling gears and methods were used to obtain the fisheries information presented in this report (Appendix 1). Whenever possible, captured fish were sorted by species, counted, and measured for total length (TL: inches (in.)) and weighed to the nearest 0.01 pound (lbs.).

RESULTS AND DISCUSSION

Beaver Creek Reservoir

Beaver Creek Reservoir, located south of Havre, is a 185-acre reservoir with a maximum depth of 70 feet. Its proximity to the city of Havre makes this reservoir a valuable local resource and it has been managed intensively for a variety of species. The statewide fishing pressure survey for 2019/2020 indicated it received 930 (± 562) angler days (MTFWP Fisheries Bureau 2020). Annual drawdowns have ranged from 8-15 feet since 2017 and harmful algal blooms have occurred annually in August/September.

Currently this reservoir receives annual plants of catchable size Arlee and Arlee x Erwin rainbow trout, as well as 10,000 fingerling and 5,000 advanced fingerling walleye.

Population Status of Adult Fishes

Water levels in September 2022 were down approximately 8 feet during our sampling effort, with a moderate algal bloom occurring. Water levels continued to decrease throughout the fall.

Rainbow Trout

Historically, rainbow trout densities have exhibited high annual variation. This variability can be attributed to rainbow trout stocking densities, predation, and flushing during high water events.

In 2017 and 2019, sampling took place at the same time as the fall rainbow trout plant. This was unintentional and resulted in inflated rainbow trout relative abundance and reduced average length (Figure 1). Rainbow relative abundance observed since 2018 are some of the lowest ever documented and fell below one trout/net (Figure 1). Stocking densities increased in 2020 and larger trout were stocked in 2021 and 2022 (Table 1). Walleye densities remain high and recent stomach analysis on walleye and pike indicate increasing predation on stocked rainbow trout as well.

Figure 1. Relative abundance (fish/net) and average total length of rainbow trout collected in fall gillnetting surveys in Beaver Creek Reservoir, 2013-2022.

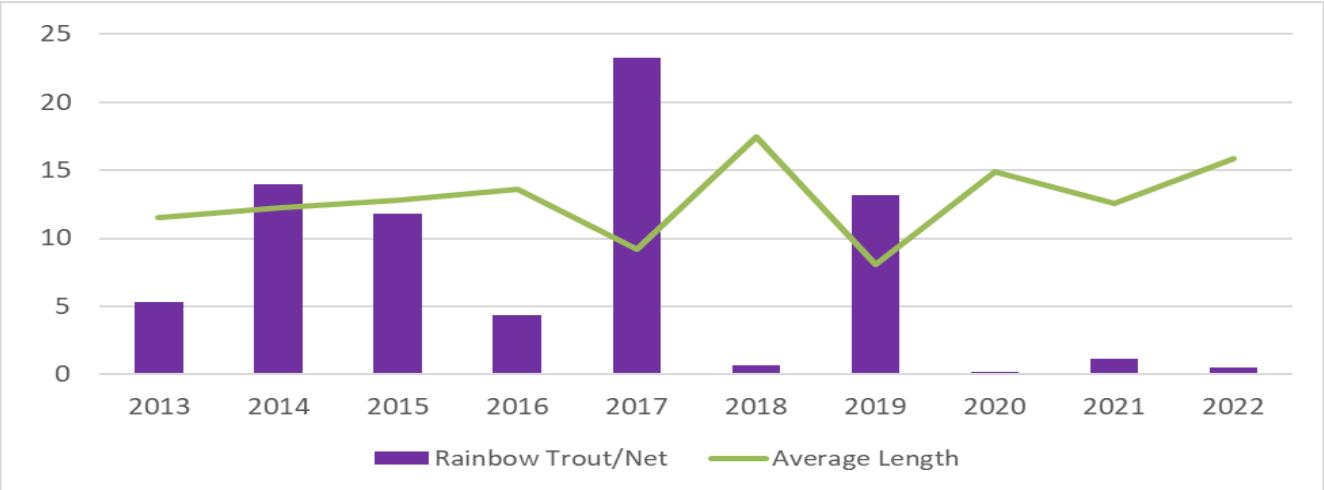


Table 1. Rainbow trout historic stocking rates as it relates to numbers stocked, strain, length, and month on Beaver Creek Reservoir, 2012-2022. Strains include A-Arlee I- Eagle Lake R- Arlee x Erwin G-Gerrard.

Year	# Stocked	Strain	Length (Inches)	Month Stocked
2012	30,124	A	8.6	September
2013	20,120	AxI	7.2	April
2013	30,000	A	6.2	September
2014	50,362	A, R	5.9	April/September
2015	36,160	A, R	7-8.2	April/September
2016	20,137	R	6.0-7.0	April
2017	41,424	A, R	7.0-8.5	April/September
2018	24,020	A, R	7.1	May/September
2019	22,483	A, R	7.5	April/September
2020	20,740	G	5.3	October
2020	82,709	A, R	3.7	July
2020	20,500	R	6.8	April
2021	40,134	A, R	7.4-8.0	May/October
2022	64,891	A	3.3-7.3	May/September

Bearpaw Lake

Bearpaw Lake is a very popular 45 surface-acre reservoir located on Beaver Creek in the Bearpaw Mountains and received 9,390 (± 2,986) angler days in 2019/2020 (MTFWP Fisheries Bureau 2020). Bearpaw Lake has been managed as a trout fishery since 1960 and is currently maintained with annual plants of 15,000 catchable Arlee, 10,000 Gerrard and 5,000 Eagle Lake rainbow trout (Table 2). Wild brook trout migrating out of Beaver Creek are also found in the reservoir.

Bearpaw Lake and Beaver Creek also sustain a very robust population of white suckers, which negatively impacts the rainbow trout fishery (Leslie 2007). To limit white sucker abundance, FWP introduced smallmouth bass and they have been naturally reproducing within the reservoir since 1998. Walleye were illegally introduced in the 1990s and were then used as a control measure for white suckers with periodic stockings from 1992 to 1997. In 2006, a supplemental plant of 5,000 advanced fingerlings occurred to replenish the aging walleye population however. Following a chemical rehabilitation of Bearpaw Lake conducted in 1983, a manual sucker control program was initiated in 1989 to reduce food competition between trout and white suckers and improve growth and survival of rainbow trout.

Population Status of Adult Fishes

From 1989-2015, manual removal efforts of white suckers were attempted annually. Removal efforts involved setting five or more trap nets for one to two weeks during their peak spawning period (Appendix 1). Traps were checked daily, and white suckers were killed and returned to the lake or dumped at a landfill. Limited trap netting has occurred from 2016-2022 to remove adult white suckers (Table 3).

Rainbow Trout

Rainbow trout have been stocked in Bearpaw Lake since the 1960s and recently stocked at a rate of 30,000 catchables annually (Table 2). Stocking densities were reduced in 2018 and 2019 due to reduced hatchery budgets but increased in 2020 (Table 2).

The relative abundance of rainbow trout has varied greatly since their introduction (Table 4). The primary reasons for these fluctuations are stocking densities, fishing pressure, flow (flushing) over spillway, and competition with white suckers (Table 4). Rainbow and brook trout have had relatively poor growth rates in Bearpaw Lake. Relative weight and abundance of rainbow trout observed in 2022 were well below average (Table 4). Severe drought conditions and a growing white sucker population may be a few reasons for this trend.

White Sucker

The white sucker population has always thrived within the Beaver Creek watershed, specifically Bearpaw Lake (Table 3 and 4). Chemical rehabilitation was attempted in 1983 however white suckers quickly re-populated the lake from upstream sources in Beaver Creek.

White suckers have accounted for >80% of the total catch during fall surveys and densities have remained high since 2012 (Table 4). Removal efforts may have been able to slightly reduce the adult population of suckers from 2016-2022; however, in recent years (2008-2012), when significant declines in white sucker relative abundance occurred (Table 4), significant outflows from Bearpaw Lake were recorded. It appears flushing of suckers during high water events may have a greater influence on white sucker abundance than manual removal efforts. No significant water events have occurred on Bearpaw Lake since 2013.

Smallmouth Bass

Smallmouth bass were introduced legally in 1992 to assist with the control of YOY white suckers. Since 1998, smallmouth bass have been successfully reproducing and recruiting into the population. In addition to providing control of white suckers, smallmouth bass have become an important addition to the fishery. Anglers continue to report catching many smallmouth bass throughout the reservoir during the summer months.

Walleye

Since their introduction walleye exhibited slow growth and are now likely extirpated from Bearpaw Lake (Table 4).

Table 2. Stocking summary of rainbow trout in Bearpaw Lake, 2012-2022. Strains include A-Arlee I- Eagle Lake G- Gerrard.

Rainbow Trout

Date	# Stocked	Strain	Month	Size (inches)
2012	15,828	A	Sept./Nov.	8.7
2013	20,000	A	Sept./Nov.	6.9
2014	20,536	A	June/Sept.	6.7
2015	20,328	A and I	May/Sept.	7.5
2016	19,777	A and I	May/Sept.	6.4
2017	17,725	A and I	Sept./Oct.	8
2018	12,757	A and I	Sept./Oct.	7
2019	12,715	A and I	Sept./Oct.	7.3
2020	30,214	A and I	July/Sept.	3.3-7.3
2021	30,049	A, I and G	Oct.	5.0-8.0
2022	30,850	A, I and G	Sept.	4.7-7.3

Table 3. - Number of white suckers removed from Bearpaw Lake by trap netting and fall gill netting, 2012-2022. Totals incorporate data collected since 1989.

Year	Number Trap Netting	Number Gill netting	Total Number	Total Pounds
2012	409	36	445	547.35
2013	641	100	741	911.43
2014	1,560	77	1,637	2,013.51
2015	1,392	99	1,491	1,491.00
2016	--	159	159	196.00
2017	--	185	185	263.00
2018	--	182	182	263.00
2019	--	209	209	192.00
2020	383	372	755	385.05
2021	--	238	238	216.58
2022	--	438	438	420.48
Totals	143,136	91,062	151,860	73,568

Table 4.- Summary of relative abundance (catch per unit effort (CPUE)), total length (TL), and relative weights of fishes collected in fall gillnetting surveys in Bear Paw Lake since chemical rehabilitation in 1983.

			Rainbow Trout			Brook Trout			Yellowstone Cutthoat Trout			White Sucker			Smallmouth Bass			Walleye		
Date		Nets	CPUE (fish/net)	Ave TL (in.)	Rel Wt	CPUE (fish/net)	Ave TL (in.)	Rel Wt	CPUE (fish/net)	Ave TL (in.)	Rel Wt	CPUE (fish/net)	Ave TL (in.)	Rel Wt	CPUE (fish/net)	Ave TL (in.)	Rel Wt	CPUE (fish/net)	Ave TL (in.)	Rel Wt
Sep-84	1984	2	0.00	--	--	0.00	--	--	15.50	10.13	86.34	13.50	8.00	--	--	--	--	--	--	--
Sep-85	1985	3	1.33	12.03	97.49	1.00	9.05	109.72	27.33	11.50	86.83	6.33	--	--	--	--	--	--	--	--
Sep-86	1986	3	0.00	--	--	3.33	10.41	106.78	16.67	11.01	86.45	94.33	6.40	--	--	--	--	--	--	--
Sep-87	1987	3	17.00	11.27	93.31	3.00	10.31	103.48	25.67	9.52	86.21	192.67	7.00	--	--	--	--	--	--	--
Aug-88	1988	3	9.33	10.66	83.05	1.33	10.48	100.24	9.00	7.60	90.08	210.33	11.67	93.74	--	--	--	--	--	--
Sep-89	1989	3	15.33	8.64	88.09	0.67	9.50	106.91	19.33	8.08	85.50	173.67	8.00	--	--	--	--	--	--	--
Aug-90	1990	3	9.00	9.95	81.94	0.33	7.20	86.56	22.33	8.71	77.85	277.67	8.00	--	--	--	--	--	--	--
Aug-91	1991	3	4.00	10.23	88.55	0.67	7.45	104.75	15.00	9.12	85.36	255.33	8.00	--	--	--	--	--	--	--
Sep-92	1992	3	17.00	9.83	90.97	0.33	10.10	90.14	58.67	8.79	77.22	212.00	8.00	--	--	--	--	0.33	13.90	97.61
Sep-93	1993	3	0.00	--	--	0.33	9.30	105.94	6.00	9.15	81.65	258.33	8.00	--	0.00	--	--	0.00	--	--
Sep-94	1994	3	6.33	10.59	101.87	0.00	--	--	13.67	9.09	79.87	208.67	8.00	--	0.00	--	--	0.00	--	--
Sep-95	1995	2	21.50	9.07	92.20	0.00	--	--	89.50	7.82	81.30	399.00	8.00	--	1.00	5.80	111.70	0.00	--	--
Sep-96	1996	3	1.67	10.36	102.97	0.33	8.40	90.25	60.67	8.94	85.64	146.00	8.80	--	0.67	6.80	96.44	1.33	8.73	81.46
Sep-97	1997	3	24.67	9.16	93.58	0.00	--	--	26.00	8.47	80.26	76.00	10.00	--	0.67	9.90	103.82	1.00	7.73	72.03
Sep-98	1998	3	10.00	9.34	86.71	0.00	--	--	3.67	8.84	72.68	44.33	12.02	84.89	0.33	6.00	90.19	1.33	8.43	80.59
Sep-99	1999	3	43.33	8.31	97.60	0.00	--	--	19.33	8.54	79.14	57.33	12.00	--	0.00	--	--	1.33	10.43	83.95
Sep-00	2000	2	46.00	11.36	97.54	1.50	9.67	98.77	20.00	10.81	80.53	14.00	12.00	--	6.00	9.76	103.09	3.50	11.30	88.39
Sep-01	2001	2	11.00	13.39	98.99	6.50	11.36	101.16	15.00	10.91	81.14	6.00	8.00	--	2.00	10.83	102.66	0.00	--	--
Sep-02	2002	2	19.50	12.58	98.57	0.00	--	--	6.50	11.31	83.45	3.00	13.52	99.67	0.00	--	--	2.00	19.50	82.57
Sep-03	2003	3	16.33	12.72	94.32	0.00	--	--	0.00	--	--	37.67	8.00	--	5.67	12.21	112.80	1.00	19.60	101.96
Sep-04	2004	3	13.33	11.11	--	0.00	--	--	0.00	--	--	36.67	12.60	--	0.33	14.50	--	0.67	20.45	--
Sep-05	2005	3	24.67	11.12	92.19	0.00	--	--	0.33	--	--	44.67	13.14	99.05	5.67	9.07	112.75	1.33	20.53	101.17
Sep-06	2006	3	32.00	10.62	98.00	0.00	--	--	0.67	9.35	96.10	28.00	15.31	108.20	9.00	9.84	109.80	0.33	15.40	104.20
Sep-07	2007	3	13.33	11.20	96.30	0.00	--	--	2.33	9.20	80.90	28.00	13.40	102.30	9.00	9.00	115.70	4.33	7.60	96.10
Sep-08	2008	3	30.33	9.73	94.58	0.00	--	--	7.67	9.03	84.95	14.00	14.12	108.86	5.67	10.94	147.97	5.00	8.07	97.96
Sep-09	2009	3	9.66	10.50	73.45	0.33	10.00	100.88	9.00	9.33	62.37	12.33	14.58	95.00	7.66	11.31	104.73	2.66	10.25	80.07
Sep-10	2010	3	14.33	10.90	104.35	0.33	10.00	111.49	0.00	--	--	7.67	13.80	104.10	1.67	8.94	117.20	6.00	10.62	98.00
Aug-11	2011	3	26.33	10.56	98.91	0.33	10.60	106.02	0.00	--	--	10.00	14.28	102.92	0.00	--	--	0.67	12.40	103.88
Sep-12	2012	3	34.67	11.15	99.37	1.33	9.73	99.80	0.00	--	--	12.00	12.26	103.03	0.66	10.80	106.63	1.66	14.90	102.83
Sep-13	2013	3	24.00	10.47	146.81	0.66	8.55	98.05	0.00	--	--	33.33	12.79	106.65	1.66	12.20	104.72	0.33	17.10	109.51
Sep-14	2014	3	52.30	10.46	97.25	4.00	10.05	90.72	0.00	--	--	25.70	13.01	98.94	0.33	12.90	106.22	0.00	--	--
Sep-15	2015	3	55.67	10.36	91.26	0.00	--	--	0.00	--	--	33.00	12.18	94.10	0.33	12.90	107.95	0.00	--	--
Sep-16	2016	3	22.30	9.83	90.11	0.00	--	--	0.00	--	--	53.00	14.00	95.10	0.00	--	--	0.00	--	--
Sep-17	2017	3	27.00	10.64	93.51	0.00	--	--	0.00	--	--	61.70	14.43	97.30	2.33	10.77	95.77	0.00	--	--
Sep-18	2018	3	28.00	11.31	88.00	0.33	10.30	82.45	0.00	--	--	60.70	11.97	93.55	2.67	14.49	108.22	0.00	--	--
Sep-19	2019	3	11.67	10.82	93.93	0.00	--	--	0.00	--	--	69.70	11.97	89.95	0.33	8.40	92.02	0.00	--	--
Sep-20	2020	3	31.33	11.13	98.87	0.00	--	--	0.00	--	--	124.00	12.32	92.75	4.33	12.28	103.43	0.00	--	--
Sep-21	2021	3	21.67	10.18	87.13	0.00	--	--	0.00	--	--	79.33	12.26	88.14	0.67	9.60	87.58	0.00	--	--
Sep-22	2022	3	7.67	9.54	82.64	0.00	--	--	0.00	--	--	146.00	13.12	87.17	2.33	13.77	96.87	0.00	--	--

Blaine County Ponds

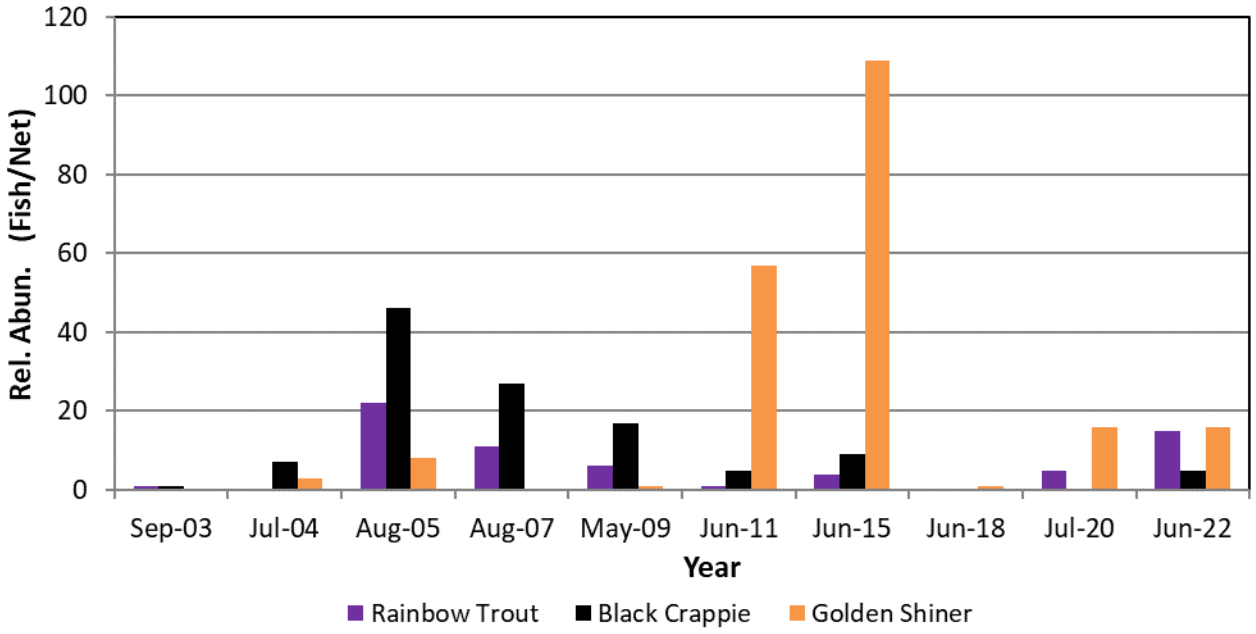
Choteau Reservoir

Choteau Reservoir is located in northcentral Blaine County and contains a rainbow trout and black crappie fishery. Choteau has a windmill aerator system to assist with over-winter survival of fish and receives annual plants of 2,000 fingerling Arlee rainbow trout.

In 2005, a voluntary creel box was erected to determine fishing pressure, angler success, and angler satisfaction, the creel box was maintained in 2022. Choteau Reservoir most likely winterkilled during 2017/2018. Dissolved oxygen levels on March 14, 2018, were <3.11 MG/L at mid-level depths and zero near the bottom. Dead adult black crappie were observed in late April following ice off.

In 2022 water levels were down seven feet in June and continued to decline into fall and winter. Netting indicated rainbow trout and black crappie abundances have started to slowly recover following the 2018 winterkill (Figure 2). Rainbow trout observed ranged from 6.7"-16.5" and black crappie from 7.5"-11.3". Two trap nets captured a total of one black crappie, 507 golden shiner and 3,500+ fathead minnows.

Figure 2. - Relative abundance of rainbow trout, black crappie, and golden shiner in Choteau Reservoir based on periodic gill net surveys, 2003 to 2022.



North Polly Reservoir

North Polly Reservoir is a 7 acre pond located on private lands in north central Blaine County. Historically, North Polly was stocked and managed by a private fishing club, FWP entered into an access agreement with the landowners through the Private Lands Fishing Access program, renewing this agreement in 2022. This reservoir was first sampled in 2011, with only fathead minnows being captured. In 2012, FWP stocked 2,000 fingerling rainbow trout and approximately 100 adult black crappie, the reservoir currently receives annual plants of 1,000 fingerling rainbow trout.

In 2022 water levels were down approximately 10 feet in June and this reservoir was a high risk for winterkill. Gill net surveys captured 29 rainbow trout ($\bar{x}$ TL=5.88") and 5 black crappie ($\bar{x}$ TL=7.6"). Trap net surveys captured an additional six rainbow trout and 41 black crappie, the majority of crappie observed were young fish, 2021 year-class. Only rainbow trout stocked in 2022 were observed and suggests a winterkill of trout likely occurred during the 2021/2022 winter

South Polly Reservoir

South Polly Reservoir is a 3.5 acre pond located on private lands in north central Blaine County. Historically, South Polly was stocked and managed by a private fishing club, FWP entered into an access agreement with the landowners through the Private Lands Fishing Access program, this agreement was renewed in 2022. This reservoir was first sampled in 2011, with no fish being captured. In 2012, FWP stocked 1,000 fingerling rainbow trout and the reservoir currently receives annual plants of 250 fingerling rainbow trout.

In 2022 water levels were down approximately 10 feet and the pond was high risk for winterkill in 2022. Gill net surveys captured 12 rainbow trout ranging from 5.5"-20.2" and consisted of at least three different year-classes of fish represented.

Phillips County Ponds

Plutz Reservoir

Plutz is located on BLM land in south Phillips County and has been managed as a fishery since 1994. This reservoir receives annual plants of 1,000 fingerling rainbow trout and brown trout plants occurred in 2000 and 2001. There is currently no plan to continue stocking brown trout.

Since 2017, no rainbow trout have been observed in either the gill or trap nets and it appears the impacts to trout abundance likely occurred following the historic water event in 2011 (Table 5). Fathead minnows are still being observed and both white suckers and western silvery minnows were captured in the trap net in 2019 but weren't observed in 2022.

Water quality issues have been thought to be a limiting factor at Plutz, even though max depths approach 20 feet. Fisheries personnel has monitored dissolved oxygen readings at Plutz the last few years. Dissolved oxygen levels have remained very low from mid to bottom depths (8-14 feet D.O. ranged from 6.3-0.30 ppm) during both the summer and winter months. Continued water quality data will be collected throughout the year to determine the next steps needed to restore the fishery value at Plutz.

Table 5. Relative abundance, average length, and average weight of rainbow and brown trout sampled during periodic gill net surveys in Plutz Reservoir from 2002-2022.

	Rainbow Trout			Brown Trout	
Date	CPUE	Avg. Length	Avg. Weight	CPUE	Avg. Length
4/18/2002	5	8.5	0.25	3	9.6
7/19/2005	17	9.70	0.41	7	13.40
7/22/2009	49	7.10	0.17	0	0.00
7/16/2013	1	17.70	2.48	0	0.00
7/6/2017	--	--	--	--	--
7/17/2019	--	--	--	--	--
7/14/2021	--	--	--	--	--
7/14/2022	--	--	--	--	--

PR 022

PR 022 is a BLM pond located in northcentral Phillips County. The reservoir is currently stocked annually with 500 fingerling rainbow trout. No rainbow trout were captured in 2018 and five rainbow trout and 860 fathead minnows were captured in 2022.

Shallow Reservoir

Shallow reservoir is located on BLM land and has been managed as a rainbow trout fishery since 1994. The fishery is maintained with annual plants of 250 fingerling rainbow trout. Presence and survival of rainbow trout has been variable due to fluctuations in water levels. No rainbow trout have been observed during the last two surveys conducted in 2019 and 2022. Fathead minnows have been observed and their population densities are increasing. Given the current drought conditions, it's likely that overwinter conditions (reduced water levels and dissolved oxygen) are too harsh for survival of the stocked rainbow trout.

RECOMMENDATIONS

Beaver Creek Reservoir: Continue annual stocking of catchable size Arlee rainbow trout and consider changing the management direction as it relates to stocking trout. Continue to monitor fishery annually with the use of seining and gill netting at fixed sites. Continue to monitor the impacts to the fishery during extreme water years and impacts of flushing over the spillway.

Bearpaw Lake: Continue annual stocking of catchable size Arlee and Eagle Lake rainbow trout. Commercial bait collection will be allowed in Beaver Creek, upstream of Beaver Creek Reservoir in 2023. Continue to evaluate the various methods used to remove and manage adult suckers in this drainage. To date, stocking predators such as walleye and smallmouth bass hasn't worked. Manual removal using trap nets has yielded marginal results but is very time/labor intensive and white suckers quickly re-populate when these efforts cease. Continue to monitor fishery annually with the use of fall gill netting at fixed stations.

Blaine County Ponds: Monitor ponds every two to three years to assess survival and growth of stocked fish. Continue public education program alerting the public to the problems associated with the use of live bait (where illegal) and illegal dumping of fish into Montana waters. Continue to look for other ponds with suitable habitats to create new fisheries, work with the FWP access staff, area wardens, and landowners to help identify potential ponds. Work with BLM on identifying and implementing habitat enhancement projects at select ponds and reservoirs with the goal to increase pond productivity, reduce winterkills, and maintain fisheries value.

Phillips County Ponds: Monitor ponds every two to three years to assess survival and growth of stocked fish. Continue to look for other ponds with suitable habitats to create new fisheries, work with FWP access staff, area wardens, and landowners to help identify potential ponds. Include pond updates in periodic Region 6 Pond Fishing Guide. Work with BLM on identifying and implementing habitat enhancement projects at select ponds and reservoirs with the goal to increase pond productivity, reduce winterkills, and maintain fisheries value.

Key Words or Fish Species:
Region 6; ponds; Hill County; Blaine County; Phillips County; Havre; Chinook; Malta; Arlee; Eagle Lake; Erwin; rainbow trout, brown trout; brook trout; mottled sculpin; longnose dace; mountain sucker; fathead minnow; lake chub; white sucker; white sucker control; smallmouth bass; walleye; northern pike; yellow perch; Beaver Creek Reservoir; Bearpaw Lake

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Prepared by: Cody J. Nagel
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Appendix 1. Sampling methods and equipment used to conduct fish monitoring activities at various regional waterbodies.

Waterbody	Gear Type	Mesh Size (Inches)	Net Dimensions (L X W)	Number of Nets Used	Time of Year (month)	Frequency	Purpose
Bearpaw Lake	Experimental Floating Gill Net	0.75"-2.0"	125' X 6'	2	September	Annually	Species trends and abundance
	Experimental sinking Gill Net	0.75"-2.0"	125' X 6'	1	September	Annually	Species trends and abundance
	Trap Net	0.25"	3' X 4'	Multiple	April-June	Periodic	White sucker removal
Beaver Creek Reservoir	Experimental Floating Gill Net	0.75"-2.0"	125' X 6'	3	September	Annually	Species trends and abundance
	Experimental sinking Gill Net	0.75"-2.0"	125' X 6'	3	September	Annually	Species trends and abundance
	Beach Seine	0.25"	75' X 10'	6 Hauls	August	Annually	Reproduction success and forage availability
Small Ponds (< 20 surface acres)	Experimental sinking Gill Net	0.75"-2.0"	125' X 6'	1	June/July	Variable	Species trends and abundance
	Trap Net	0.25"	2' X 3' and/or 3' X 4'	1-2	June/July	Variable	Species trends and abundance

Appendix 2. Arlee rainbow trout stocking from 2012-2022 on select ponds and reservoirs in Blaine and Phillips Counties. Table highlights year and month, as well as number and size of fish stocked. Note-Brookie Pond did receive several brook trout (EB) plants during the period of reference.

YEAR	Brookie Pond	Current Reservoir	Plutz Reservoir	Rebate Reservoir	Rotator Cup Reservoir	Sentinel Reservoir	Shallow Reservoir	Spanky Reservoir
2012 (May)	EB-1,500 (4.3")	3,000 (2.7")	--	--	--	6,000 (2.7")	--	--
2013 (June)	EB-1,500 (4.5")	3,000 (3.2")	2,000 (3.4")	1,000 (3.4")	--	6,000 (3.2")	1,000 (3.4")	1,000 (3.4")
2014 (April)	--	3,000 (2.1")	--	--	--	6,000 (2.1")	--	--
2015 (April)	EB-1,500 (4.9")	3,000 (1.9")	2,000 (1.9")	--	--	6,000 (1.9")	1,000 (1.9")	1,000 (1.9")
2016 (April)	--	3,000 (2.1")	--	1,000 (2.1")	1,000 (2.6")	6,000 (2.1")	--	--
2017 (April)	1,000 (2")	3,000 (2")	2,000 (2")	--	--	6,000 (2.6")	1,000 (2")	1,000 (2")
2018 (June)	1,000 (2.5")	3,000 (3.1")	1,000 (1.9")	1,000 (1.9")	1,000 (1.9")	6,000 (2.5")	1,000 (1.9")	--
2019 (May)	1,000 (2.7")	3,000 (2.7")	2,000 (2.7")	1,000 (2.7")	--	6,000 (2.7")	1,000 (2.7")	1,000 (2.7")
2020 (May)	500 (3.21")	3,000 (3.21")	1,000 (3.21")	250 (3.21")	1,000 (3.21")	6,105 (3.08")	250 (3.21")	250 (3.21")
2021 (May)	499 (3.1")	3,000 (3.12")	1,000 (3.12")	249 (3.12")	--	6,000 (3.12")	250 (3.12")	250 (3.12")
2022 (May)	500 (3.3")	3,000 (3.3")	1,000 (3.3")	250 (3.3")	1,000 (3.3")	6,000 (3.3")	250 (3.3")	250 (3.3")