

MT. MASSIVE LAKES, INC.

Annual Report

May 1, 2013 to April 30, 2014

INTRODUCTION

The drought of 2012 continued through late summer of 2013. This event resulted in the loss of 25% of the replacement fish for stocking in 2014. As the summer progressed into late August, precipitation increased dramatically which saved the balance of the 2014 fish. The increase in precipitation also stabilized water flows for the winter and allowed for good survival of the all remaining fish including the 2015 and 2016 year classes. Although drought conditions caused severe impacts, March and April 2013 snowfall allowed the filling of all lakes left dry in 2012 (#1, #2, #3, #4, #5, #12, #16, #17, #18, #19).

FISHERIES MANAGEMENT

Fishing pressure declined to an all time low of 12,772 hours in 2013 (Table 1). This decline coupled with a smaller than average rainbow size (another effect of the drought) resulted in the average cost/pond of fish produced to dramatically increase to \$7.54 (Table 2).

MANAGEMENT PROGRAMS:

Put and Take: Catchable rainbow trout size decreased to 25.8 ounces. This size was well below the target size of 28 ounces. Unfortunately, these small sizes will become the norm for 2014 and 2015. The size decrease in 2014 fish is due to effects of the prolonged drought. The small 2015 fish are Hofer rainbow trout. This experimental lot of fish did not perform as expected. However, the change back to the more reliable triploid rainbow has already been implemented. These rainbows will be stocked in 2016 and should approach the 28 ounce standard.

Unique: Unique populations include brook trout in Lakes #2, #3, #4, #13, #20 and #21 and cutthroats in Lakes #3, #4, #5, #12, #15, #20. All of these lakes contain healthy populations of brook trout (>12") or cutthroat trout (>12").

Arctic char continue to show great potential and provide excellent fishing in Cokely (#8) and Spring (#15). To take advantage of this species potential in these two environments arctic char have been stocked in 2010, 2011, 2012 and 2013. The 2010 plants should be approximately 17" in size this summer.

Tiger trout, our most unique fish, continue to thrive in Lower Granite (#10), Spring (#15), Kara (#21) and Jess (#26). This species is also used to control brook trout numbers and create unique and trophy fisheries.

Table 1. Creel census results 1983 through 2013.

Year	Hours Fished	CPMH	KPMH	RB Plants	Harvest	Total Harvest by Species			
						RB	BK	BN	CT
2013	12,772	2.47	0.58	15,646	7,354	7,081	232	31	12
2012	14,873	2.34	0.58	13,415	8,635	8,439	135	43	16
2011	15,473	2.65	0.55	16,473	8,571	8,289	216	48	21
2010	17,597	2.75	0.61	18,329	10,673	10,356	189	110	21
2009	18,323	2.73	0.53	17,699	9,705	9,300	289	97	30
2008	16,628	2.30	0.52	16,564	8,668	8,203	248	163	64
2007	18,754	2.52	0.59	17,757	11,059	10,503	352	114	90
2006	14,110	2.29	0.60	17,560	8,428	7,904	389	101	36
2005	13,908	2.29	0.54	15,989	7,542	7,099	295	127	28
2004	14,204	2.20	0.60	15,498	8,469	7,827	456	64	131
2003	14,735	2.37	0.53	15,771	7,836	7,330	425	60	23
2002	14,252	2.36	0.70	14,656	10,017	9,376	424	147	70
2001	15,576	2.44	0.70	15,883	10,872	9,896	733	129	115
2000	13,122	2.81	0.68	16,105	8,915	8,164	492	133	126
1999	15,078	2.60	0.68	16,450	10,289	9,683	355	126	125
1998	16,212	2.40	0.66	17,322	10,637	10,028	392	93	124
1997	17,637	2.47	0.76	18,030	13,322	12,333	696	101	192
1996	17,761	2.41	0.79	17,967	14,059	13,314	332	106	307
1995	16,084	2.64	0.79	16,447	12,641	11,926	287	88	340
1994	17,010	2.59	0.83	18,883	14,159	13,366	316	107	370
1993	13,912	2.77	0.91	19,964	12,610	11,941	289	99	281
1992	14,993	2.64	0.96	18,326	14,408	13,414	437	142	417
1991	16,044	2.53	1.08	22,845	17,286	16,047	417	159	40
1990	15,167	1.97	1.00	18,440	15,183	13,770	688	185	540
1989	16,614	1.60	0.97	16,200	16,135	14,409	852	364	510
1988	13,675	1.88	1.07	16,750	14,408	13,049	794	274	291
1987	16,347	1.73	1.12	17,486	18,355	16,617	636	355	747
1986	13,494	2.07	1.32	17,257	17,828	15,705	823	516	784
1985	15,351	N/A	1.40	18,774	21,524	18,660	1,353	407	1,104
1984	14,581	N/A	1.28	14,724	18,731	15,874	2,062	348	447
1983	13,209	N/A	1.42	17,250	18,775	14,146	3,877	580	172

Trophy: Fish 19"plus, (16"+ for brook trout) are considered trophy in our management programs. The best opportunities to catch fish of this size are Muskrat (#7), Cokely (#8), Lower Granite (#10), Deep (#14), Spring (#15) and Jess (#26). A variety of species grow this large in these lakes. These include brown trout in Lakes #7, #8, #10; brook trout in #14 and #15; cutthroat trout in #8; arctic char in #8 and #15; and tiger trout in #10 and #26.

Table 2. Mt. Massive Lakes economic summary 1986 through 2013.

Year	Fish Caught (kept & released)	Total Lbs. Caught	Operating Expenses	Cost/Lb. Caught	CPMH	Avg.Size ozs./fish
2013	31,495	49,896	\$376,144	\$7.54	2.47	25.3
2012	34,803	71,836	\$359,004	\$5.00	2.34	33.3
2011	40,941	79,499	\$372,569	\$4.69	2.65	30.8
2010	48,323	91,363	\$365,367	\$4.00	2.75	30.3
2009	50,224	79,193	\$337,923	\$4.26	2.73	25.4
2008	38,184	58,392	\$342,983	\$5.87	2.30	24.2
2007	47,260	90,591	\$321,645	\$3.55	2.52	30.8
2006	32,415	69,575	\$297,374	\$4.27	2.29	34.4
2005	31,993	51,934	\$289,802	\$5.58	2.29	25.9
2004	31,249	43,114	\$283,771	\$6.58	2.20	22.2
2003	34,946	56,577	\$282,168	\$4.98	2.37	26.1
2002	33,666	67,898	\$275,854	\$4.06	2.36	32.3
2001	38,005	74,874	\$267,991	\$3.58	2.44	31.6
2000	36,808	69,285	\$260,085	\$3.75	2.81	30.1
1999	39,144	64,489	\$231,830	\$3.53	2.60	26.4
1998	38,909	63,929	\$207,275	\$3.24	2.40	26.7
1997	43,533	79,505	\$193,168	\$2.42	2.47	29.2
1996	42,798	83,354	\$189,950	\$2.28	2.41	31.2
1995	42,438	82,292	\$178,381	\$2.17	2.64	31.0
1994	44,056	74,192	\$183,350	\$2.47	2.59	26.2
1993	38,573	55,486	\$166,919	\$3.00	2.77	23.2
1992	39,612	60,781	\$168,369	\$2.77	2.64	24.6
1991	40,652	48,438	\$168,661	\$3.48	2.53	19.3
1990	29,895	47,084	\$154,431	\$3.28	1.97	25.2
1989	26,582	42,181	\$150,150	\$3.56	1.60	25.4
1988	25,661	39,700	\$152,980	\$3.85	1.88	24.6
1987	28,278	38,706	\$128,884	\$3.33	1.73	21.9
1986	27,932	32,296	\$122,838	\$3.80	2.07	18.5

FISH CULTURE

Egg taking operations produced all the eggs, except rainbow trout, required for MML management programs (Table 3). Extra brook eggs were traded with CPW for brown trout eggs. Periodically, a new source of eggs has to be added to the existing population to enhance genetics. Without this new genetic material fish can become inbred which may cause slow growth, poor survival and poor egg production in future generations. The

last influx of new genetic material in MML brown trout was 1998-2000. MML also received cutbow (cutthroat/rainbow hybrid) eggs in this trade arrangement. Trades were also made with 5H Farms. MML will receive giant rainbows this summer for the brook trout eggs 5H Farms received in the fall of 2013.

Table 3. Mt. Massive Lakes egg production, 2013.

<u>Species</u>	<u>Source</u>	<u>Spawn</u>	<u>Egg Take</u>	<u>Egg Hatch</u>	<u>% Hatch</u>
Arctic char	Purchased	December	3,965	3,466	87
Brook*	Feral	October	33,898	N/A	N/A
Brown*	Trade CPW	October	14,607	12,770	87
Cutthroat	Feral	June	7,824	1,439	18
Rainbow	Purchased	September	37,234	36,980	95
Rainbow X CT	Trade CPW	October	10,426	9,884	94
Tiger	Feral	October	18,814	11,607	71

- Brook – traded 33,898 eggs to 5 H Farms for giant rainbows.
- Brook – traded approximately 30,000 eggs to CPW for brown trout eggs.
- Feral Brown – 11,687 dumped for CPW brown trout and cutbow eggs.

Fish production decreased to 25,444 pounds (Table 4). The decrease was attributed to lower numbers and smaller size of rainbow trout stocked. Fewer fish were stocked because of the loss of fish in the 2012 drought. These stocked fish were smaller also due to the effects of the 2012 drought. The production goal of 30,000 pounds was not achieved for the second consecutive year (Table 5).

MML fish production will decline again in 2014 as we recover from droughts of 2012 and 2013. The result will materialize in fewer fish stocked and smaller than usual fish size. The cost/pound of fish caught will increase for similar reasons. These numbers should improve in 2015, but will remain below normal. The experiment with whirling disease resistant Hofer rainbow trout, which will maintain fishing in 2015, proved unsatisfactory. These trout grew a much slower rate than expected resulting in a much smaller fish. 2016 should be the next year that the hatchery will attain normal production.

Another negative effect of the droughts was the loss of the super-catchable program. This program, which produces 2 lb. to 4 lb. fish, will take a number of years to rebuild. To provide fish for this program fish have to be held back (not stocked) an extra year. This can only be done if the stocked class of fish has extras. There will not be extra fish until 2016. Therefore the super-catchable program will not have fish until 2017.

Whirling Disease Management Plan (WDMP):

- Transplanted Tubifex worms exhibiting immunity to Whirling Disease (WD) from New Pond to Lake #10. Continue this project until all MML waters have been inoculated with immune worms.
- Required maintenance on all WD renovated rearing facilities.
- Disinfect both hatchery springs on a bi-annual basis.
- Remove rainbow trout from Muskrat Lake (#7).

- ~~Add Hofer rainbow trout as the strain reared for the catchable program.~~
- Continue to keep current on the following, WD management research which might enhance our ability to better manage WD spore production:
 - Tubifex worms
 - ~~Hofer rainbow trout~~

Table 4. Hatchery production, in pounds of fish, at Mt Massive Lakes, 2002-2013.

Species	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002
Rainbow	25,269	27,781	32,368	34,744	28,061	26,737	34,930	40,190	26,948	22,359	26,593	32,069
Brown	55	18	40	22	44	12	26	31	24	656	35	10
Cutthroat	89	30	22	19	104	40	37	9	157	12	55	223
Tiger	19	8	16	7	11	12	14	3	1	9	2	2
Splake	0	0	0	0	0	0	0	0	2	50	25	4
Grayling	0	0	0	0	0	0	0	10	3	0	0	33
Arctic Char	12	0	21	7	0	0	0	0	0	59	341	0
Totals	25,444	27,847	32,466	34,799	28,220	26,801	35,007	40,243	27,135	23,145	27,051	32,341

Table 5. Hatchery production, in pounds of fish, at Mt. Massive Lakes, 1982-2013.

2013	25,444											
2012	27,847											
2011	32,466				2001	36,734			1991	33,338		
2010	34,799				2000	33,095			1990	33,638		
2009	28,220				1999	33,172			1989	27,852		
2008	26,801				1998	34,127			1988	26,974		
2007	35,007				1997	41,347			1987	24,512		
2006	40,243				1996	43,463			1986	22,674		
2005	27,134				1995	38,351			1985	26,019		
2004	23,145				1994	40,653			1984	9,941		
2003	27,051				1993	34,653			1983	13,783		
2002	32,341				1992	30,272			1982	3,420		

SPECIAL PROJECTS/RENOVATIONS

2013 COMPLETED PROJECTS:

1. Design and construct new fish transportation tank.
2. Construct access ramps in RBP and P1.
3. Continue construction of HP-P1 pipeline.
4. Complete renovation of HP.
5. Begin work on new rearing tank system.

2014 PROPOSED PROJECTS:

1. Continue work on new rearing tank system.
2. Continue construction of HP-P1 pipeline.
3. Continue construction of RBP pipeline.
4. Repair existing RBP pipeline.

WATER RIGHTS

1. Continue to monitor objection to Lake County case 11CW86.
2. Continue to monitored objection to Lake County case 98CW73.
3. Continue to monitored objection to Climax case 12CW124.
4. Monitor new water right proposals in the Arkansas River basin monthly.

RESEARCH AND DEVELOPMENT

1. Monitor arctic char program.
2. Evaluate Hofer rainbow trout as primary strain for catchable program.

CONCLUSION

2013 “Healing Waters” fishing project, with recovering active duty warriors, was a great success for its fourth season. Thanks to all the members who help make this a memorable event for our heroes. MML will continue this project in 2014. The fourth season activities are scheduled for **June 6, 2014**.

Ten lakes were empty to begin the 2013 season. By June 15th all these waters were full and had been stocked. Then we experienced above average temperatures and below normal precipitation from June 15th until the end of August. This resulted in the loss of 25% of the fish we purchased to replace the fish we lost in 2012. These events postponed recovery from the drought back into 2016. Fishing remained excellent throughout these tumultuous events. Average fish size was 25.3 ounces. 12,444 fishing hours produced a catch rate of 2.47 and a catch of 31,495 fish. Put and grow populations (arctic charr, brown, brook, cutthroat, and tiger) remain in excellent condition.

Effects of the drought will continue to be evident in 2014 and 2015. Rainbow trout will be smaller and less numerous in the 2014 and 2015 fishing seasons. The recovery of fishing to normal levels will recover only as fast as our production of rainbow trout recovers. The rainbow trout program will **not totally recover** before 2017. Therefore, expect fishing to be below MML standards (CPMH > 2.30; average fish size > 28 ounces; cost per pound of fish caught < \$5.00) until 2017.

Appendix A: “Adopt-A-Lake” program 2014.

<u>LAKE</u>	<u>NAME</u>	<u>Member</u>
2	Shelley	Tooth
3	Cutthroat	Cannon, Seeman
5	Alley	Modder
6	Jake	Perry
7	Muskrat	Watson
8	Cokely	Tims
12	Rainbow	Carnahan, Flanigan
15	Spring	Mulligan
16	Home	Poline
18	Kelsey	Green
19	Herendine	Lanier, Walters
20	High	Bruce, Jones, Downey

Please contact Greg for sign up and the details on areas that require clean up.