MONTANA FISH, WILDLIFE & PARKS
FINAL PROJECT PERFORMANCE REPORT

GRANT TITLE: **Statewide Fish Hatchery Operations and Maintenance**
AGREEMENT: **F - 51 - D - 21**
PERIOD COVERED: **July 1, 2009 through June 31, 2010**

OBJECTIVES

To operate and maintain eight state fish hatcheries to produce approximately 45 million sport fish annually for the maintenance and restoration of sport fish in approximately 836 lakes and approximately 23 river, streams or tributary systems throughout Montana.

LOCATION

Statewide at nine state hatcheries.

ACCOMPLISHMENTS

The nine Montana Fish, Wildlife and Parks hatcheries covered by this grant manage broodstocks and provide eggs and fish to meet the fish management goals established for the waters of Montana supported wholly or in part by stocking. The specific hatchery production and stocking goals of each hatchery are determined through an annual hatchery allocation process that considers hatchery capabilities, species availability, hatchery suitability, relative location of hatchery to waters stocked, and other factors. The result of this process is FWP's 2010 6-Year Stocking Plan (*Appendix A*).

Annual hatchery production is recorded in an FWP-maintained database. The annual Stocking Report is compiled each January. The 2009 Stocking Report is attached (*Appendix B*). FWP stocking activities are reported on a calendar year basis in FWP's annual Stocking Report rather than a fiscal year basis. Thus the stocking activities of the first half of the current grant period and the last half of the previous grant period are contained in the 2008 Stocking Report. Previous and subsequent annual stocking reports, therefore, are required to account for stocking activities across a grant period.

The 2010 6-Year Stocking Plan and 2009 Stocking Report contained in the appendices include data for the eight hatcheries funded by this grant and the two state-operated hatcheries not covered by this grant. The 2010 6-Year Stocking Plan and 2009 Stocking Report demonstrate how this grant relates to the non-grant hatchery projects and documents this grant's support of Montana's statewide hatchery program.

1. Flathead Lake Salmon Hatchery (Somers)

The primary function of the Flathead Lake Salmon Hatchery (FLSH) is to capture wild spawning adult kokanee salmon and collect, incubate, and hatch 1,600,000 eggs for this hatchery's annual stocking program in Montana. To meet all in-state requests for kokanee salmon production, a minimum of 2,800,000 fertilized green kokanee salmon eggs must be collected annually. The hatchery also collects, incubates and distributes grayling, Westslope Cutthroat trout, and Ashley Lake rainbow-cutthroat trout hybrids. This project is also responsible for developing and operating two remote satellite facilities at Rose Creek and Sekokini Springs.

A total of 2,600,000 fertilized green kokanee eggs were collected from two lake sources (Lake Mary Ronan and Bitterroot Lake). Surplus kokanee eggs totaling 428,736 were shipped to Idaho Fish and Game for eventual distribution in Idaho waters.

Staff spawned and collected 210,000 Arctic Grayling eggs from Rogers Lake and another 180,000 eggs from the Red Rocks River, a portion of the Red Rocks eggs were incubated onsite the remaining hatched at Rose Creek Hatchery.

Staff spawned 30,000 eggs from Ashley Lake rainbow X cutthroat hybrids.

FLSH incubated, hatched and reared 110,000 westslope cutthroat trout for backcountry lakes planting and regional research projects.

A total of 1,422,000 kokanee (3,160 pounds), 115,000 grayling (4.6 pounds) and 28,000 rainbow-cutthroat trout hybrids (18 pounds) were stocked into 27 waters in Montana. 110,000 Westslope Cutthroat were stocked by personnel via helicopter into 38 high mountain lakes in the Whitefish, and Swan ranges.

Work to further develop the Rose Creek satellite facility continued. Work accomplished included preliminary design of a hatchery building in coordination with MTFW&P Design and Construction Bureau and contracted architect. Construction is slated for fall of 2010.

Coordinated with regional fisheries staff to further develop of the Sekokini Springs site. Fish from genetic donor populations from 5 1A streams were held and reared at this site. The males from these fish were used to infuse genes into the captive broodstock at Washoe Park. Sekokini Springs also served as home to wild Danaher River fish to serve as brood for wild fish reintroductions in the South Fork Flathead River headwater lakes.

2. **Washoe Park Trout Hatchery (Anaconda)**

The primary mission of Washoe Park Trout Hatchery (WPTH) is to manage Montana's only westslope cutthroat broodstock. The founding population of today's broodstock was taken from tributaries of the Hungry Horse and the lower Clark Fork drainages in 1984 and 1985 along with continuing contributions from wild populations as necessary to ensure genetic diversity.

WPTH produced approximately 1,172,792 eyed westslope cutthroat trout eggs in 2010. Approximately 30,000 of these eggs were kept at the facility for future broodstock and 317,000 for production fish. A total of 826,000 westslope cutthroat trout eggs were shipped to two other state hatcheries and one federal hatchery in Montana for their production needs. A total of 139,079 westslope cutthroat trout totaling 5,510 pounds were stocked into seventy-seven waters in Montana in fiscal year 2010 using trucks, ATVs, helicopters, backpacks and horse packs .

The WPTH staff is working to expand the production of westslope cutthroat trout. Brood numbers are currently being expanded to keep up with increased fish and egg requests. Capacity for raising catchable-size fish has doubled and our production has increased respectively. We are expanding our efforts in triploid production to meet increasing demands from biologists for sterile westslope cutthroat trout.

Our facility continues to serve as an aquatic and natural resource education center. Our visitor center is a destination for SW Montana schools and youth groups. The staff from the Washoe Park Trout Hatchery frequently go into area classrooms to teach area students about our aquatic resources. This effort will continue as our visitor center expands.

3. **Jocko River Trout Hatchery (Arlee)**

Jocko River Trout Hatchery's (JRTH) primary function is to maintain Montana's domesticated Arlee rainbow broodstock and perform associated spawning activities. Egg production goals were met and all requests were filled. Approximately 5,402,596 green eggs were produced. 2,043,321 eyed eggs were shipped to state, federal, and private hatcheries, and 381,367 eyed eggs were kept at JRTH for production and future broodstock.

A total of 295,300 fish (31,109 lbs) were stocked out of Jocko River Hatchery. Of those, 266,617 were fingerlings, 26,738 were catchables, and 1,945 were brood.

JRTH expanded its triploidy induction program utilizing pressure-treating equipment. This program produced 671,479 eyed eggs. Planning on the flood protection berming project continued. Renovation to the exterior of the original four stall garage was partially completed.

4. **Giant Spring Trout Hatchery (Great Falls)**

The primary function of Giant Springs Trout Hatchery is the production and distribution of brook trout and four strains of rainbow trout for population maintenance and urban fisheries.

A total of 49,988 brook trout totaling 1,311 pounds were stocked into two reservoirs. Production goals were met for the brook trout. A total of 672,436 rainbow trout totaling 69,911 pounds were stocked into 1 river and 43 ponds and reservoirs. All rainbow trout production goals were met.

We continue to experience problems with coldwater disease at the hatchery. Manipulating rearing densities, disinfection of water supplies & packed columns, and treatments with all suitable drugs have had little or no effect on the number of outbreaks that occur. Outbreak that occurred this year was not treated with drugs which related to no greater mortality than in years with drug treatment.

The causative agent for whirling disease is immediately adjacent to the hatchery in the Missouri River. To reduce the likelihood of transmission of whirling disease to the hatchery's fish population, the public has been excluded from the area containing the eight outside production raceways while the outside show pond remains open to the public.

5. **Big Springs Trout Hatchery (Lewistown)**

The primary function of Big Springs Trout Hatchery is the production and stocking of trout and salmon for maintaining various instate fisheries. This year kokanee salmon, Chinook salmon, brown trout, and 4-5 strains of rainbow trout were produced.

Chinook salmon are new to Big Springs program. These fish (26,000 this year) will be stocked in the fall as catchables in Ft. Peck Reservoir. In previous years these fish were raised at Ft. Peck

Hatchery. Ft. Peck Hatchery started raising rainbow trout this year and has taken over Big Springs production and stocking of 4-8 inch rainbows in the northeast corner of Montana.

A total of 1,552,683 trout and salmon weighing 139,387 pounds were stocked in the following types of waters: 21 large reservoirs, 29 small reservoirs and ponds, 9 urban ponds, and 5 rivers/streams. Brown trout were stocked in 5 tribal waters and one pond on an Air Force base. Small surplus fish numbering 42,283 and weighing 184 pounds were delivered to Bluewater Springs Trout Hatchery as forage fish. In addition, 20,549 pallid sturgeon from Garrison NFH weighing 311.5 pounds were stocked at two locations on the upper Missouri River above Fort Peck Reservoir.

All production goals were met this year with the following exceptions. Surplus fish stocked totaled 140,963 fish weighing 7,630 pounds. The breakdown for surplus includes: 67,137 fingerling Arlee rainbow; 500 catchable Arlee rainbow; 20 rainbow brood; 4,530 fingerling Eagle Lake rainbow; 14,437 catchable Eagle Lake rainbow; 4,998 catchable Arlee/Erwin rainbow; 7,812 fingerling brown trout; and 41,529 fingerling kokanee salmon. Shortages include 22,228 catchable Arlee rainbows and 1,536 catchable brown trout.

A new roof was installed on one of the hatchery houses using money from the hatchery budget. The following projects and items were paid for using money outside of the hatchery budget: a new Freightliner Class B truck, a new fish food bucket elevator for loading feed bins, new doors were installed on the main hatchery building and old hatchery building, and a new boiler was installed at one of the hatchery houses.

6. **Yellowstone River Trout Hatchery (Big Timber)**

The primary function of the Yellowstone River Trout Hatchery is to maintain and enhance the Yellowstone cutthroat trout and fluvial arctic grayling broodstocks. Recently, we have taken over wild spawning of golden trout at Sylvan Lake.

The broodstock improvement program is now finished. Over the last five years, we collected gametes from over 600 individuals from Goose Lake, north of Cooke City,MT. This year we spawned 757 individuals from the captive broodstock. The broodstock produced 482,000 eggs.

This is the fourth year the Yellowstone River Trout Hatchery managed the hatchery portion of the Montana grayling recovery program. Over 114,000 eggs were collected for future broodstock as well as all of the eggs needed for grayling recovery efforts.

Golden trout eggs were collected from Sylvan Lake. The spawn timing for these fish is usually July 1st and causes confusion in some of the numbers as they overlap with our fiscal years. For FY10, approximately 9,534 eggs were shipped to Wyoming to support that state's mountain lakes stocking program. From the previous years egg take, 6,850 fry were stocked into 4 Montana high mountain lakes.

Fifty-one waters were planted with 235,222 Yellowstone cutthroat, arctic grayling and golden trout weighing 5,720 pounds (includes grayling stocked as eggs). Rainbow trout were transported and stocked by our personnel, but were not raised at this hatchery. We also provided fish for research purposes to schools, the Bozeman Fish Tech Center and graduate students.

7. Bluewater Springs Trout Hatchery (Bridger)

The primary mission of the Bluewater Springs Trout Hatchery (BWH) is to rear and stock various species and strains of fish statewide as requested by regional fisheries managers. The majority of fish planted are used to maintain urban and sport fisheries. Three strains of rainbow trout including Arlee, Eagle Lake and Fish Lake were reared for distribution. The FWP smallmouth and largemouth bass broodstocks are maintained on station from September to May and transferred back to Miles City Fish hatchery (MCH) in the spring for summer spawning. Erwin and Arlee x Erwin hybrids were also reared to supply a constant feed source for the Bass.

The BWH budget also paid for the cost of rearing 50,000 four-inch rainbow trout at Ennis National Fish Hatchery for Hebgen Lake. Rearing these fish at Ennis NFH frees up hatchery space at state hatcheries for rearing other species.

BWH stocked 974,849 trout totaling 52,010 pounds into 28 waters located within the state. An additional 370,806 trout totaling 2,455 pounds were produced to meet the MCH region 7 air planting program, feed bass over wintered at Bluewater, and to supply forage to MCH for the Bass broodstock. Arlee rainbow trout production totaled 570,788 fish weighing 21,750 pounds. Eagle Lake rainbow trout production totaled 488,100 fish weighing 27,578 pounds. Fish Lake rainbow trout production totaled 153,241 fish weighing 4,245 pounds. Erwin rainbow trout production totaled 63,247 fish weighing 440 pounds. Arlee x Erwin hybrid trout production totaled 70,279 weighing 453 pounds.

Most production goals were met this year. However, production goals were not met for Georgetown Lake and Clark Canyon Reservoir due to high mortality in eggs hatching during a silt event in the water supply. BWH took back the Ruby Reservoir plant of 50,000 Eagle Lake's, which was stocked by Ennis NFH in the past. The hatchery also supplied surplus fish for Bighorn Lake, several urban fisheries in region 5 and several reservoirs in region 4.

Federal funds were used for maintenance projects around the hatchery facility. Major projects included covering head canals and packed columns, upgrading equipment on distribution vehicles, replacing bay doors on the shop building and updating three living quarters.

8. Miles City Fish Hatchery (Miles City)

The Miles City SFH's (MCSFH) primary goal is to produce warm and cool water fish for distribution throughout the State of Montana.

MCSFH is responsible for coordinating the distribution of rainbow trout in Region 7. All trout are planted by helicopter to reduce the time required to distribute the trout and to avoid weather-caused problems with the unimproved roads in the region. Because of the risk of infection with whirling disease due to its open water supply, the trout distributed by MCSFH are raised at Bluewater Springs Trout Hatchery.

This facility maintains FWP's largemouth and smallmouth brood stocks. These fish are paired using a 1-1 male /female ratio and put into rearing ponds once the water temperature reaches 62°F, where they spawn on natural substrate. Spawning success is primarily determined by environmental factors and predation. Osprey, Canada geese and their broods, continue to plague the spawning process of both species. The post-spawn largemouth and smallmouth brood fish are transported to the Bluewater Springs SFH for over-wintering because of the availability of suitable forage fish and to save the cost of heating water.

No tiger musky were raised again this year, due to concerns about importing VHS. MCSFH continues to search for a way to acquire tiger muskie eggs and keep them isolated until all fish health concerns are met.

Channel catfish (CCF) adults were collected from the Yellowstone River drainage. They were paired in a 1-1 male to female ratio and placed in a 1/2 half acre lined pond to spawn naturally. Successful spawning occurred, but due to a high parasite load the outside rearing pond was once again victim to mortality from parasites. The CCF fry that were reared inside were treated, which kept their mortality within acceptable limits. These fish were stocked in September 2008.

Approximately 85,090,000 walleye eggs were collected from Fort Peck Reservoir by the Region 7 Fisheries and Fort Peck Hatchery staffs. These eggs were split between Fort Peck Hatchery and MCSFH, with MCSFH incubating and hatching 32,200,00 eggs. Walleyes were stocked either as 3-4 day old fry, 1-2" fingerlings approximately 5-6 weeks later, or kept in outside production ponds for stocking as 4-6" advanced fingerlings.

Hatchery personnel are involved in the recovery of the endangered pallid sturgeon. They assist with the collection of adults at the Missouri-Yellowstone River confluence. Adult pallid sturgeon are then transported to MCSFH where they are held in a temperature-controlled environment to provide final pre-spawning environmental stimuli. Five males and 2 females were collected in April 2009 and spawned during the month of June. Egg maturation and hatching success was initially very good this year. Poor pallid sturgeon fry survival continues to plague all the facilities involved.

For the third year, MCSFH furnished the Garrison Dam NFH with shovelnose sturgeon eggs. They will be reared there and planted in the State of Wyoming this fall.

During FY09, MCSFH stocked a total of 10,838,913 fish weighing a total of 2458 pounds of 6 different species (walleye, pallid sturgeon, rainbow trout, channel catfish, smallmouth bass, and largemouth bass) into 86 state waters.

9. Fort Peck Hatchery (Fort Peck)

The Fort Peck State Fish Hatchery (FPSFH) is Montana Fish, Wildlife and Parks newest hatchery. Built by the Army Corp of Engineers at a cost of $22 million, the hatchery is a state of the art facility and went into production in January of 2006. Encompassing 100 acres of land, the hatchery is comprised of a 30,000 sq. ft office/rearing building, pump house, 40 ponds totaling 45 surface acres, and 8 80' raceways. The primary function of FPSFH is to provide fish to maintain sport fish and recreational opportunities to anglers in Northeastern Montana. Species raised at FPSFH are walleye, northern pike, chinook salmon, rainbow trout and pallid sturgeon.

The primary species raised at FPSFH is walleye. The annual request of 80 million eggs was raised to 100 million eggs during the winter of 2010. The spawning is done remotely, due to low water levels, by the Region 6 Fort Peck Lake biologist and his staff and the FPSFH staff. Numbers of eggs collected is dependent on weather with some years exceeding the request and other falling short. In 2010, the egg take totaled 85,090,688 being split between FPSFH and the Miles City facility. FPSFH received 52,590,688 green eggs and the Miles City facility approximately 32.5 million green eggs. After incubation, walleyes are either stocked as fry (3-5 days old), 1-2" fingerlings (approx. 30 days old), or as advanced fingerlings (> 60 days). FPSFH is also responsible for the production of triploid walleye for the state of Montana. Triploid

production has been ongoing for 2 seasons, although still in the experimental stage, results have been more than promising so far. Currently, all efforts have been directed toward achieving 100% triploidly induction rates with very little effort towards production. In 2009, triploid induction rates were 99.17% and 93.68% for 2 different pressure durations with 19.81% pond survival. In 2010, triploid induction rates were 100% for all trials with 14.21% pond survival.

During 2009, FPSFH took over all northern pike production. Production goals vary from year to year based on management goals with maximum numbers as follows: fry release 410,000; fingerling release 10,500. Production goals could possibly increase in the future due to stocking of federal waters within the state to prevent the introduction diseases to state waters.

The FSFH is the only instate source of chinook salmon eggs. Production goals are for 150,000 spring release fingerlings and 50,000 fall release fingerling. Due to poor falls runs of returning adults, surplus eggs and fingerlings from neighboring states (North Dakota and South Dakota), that have been tested and certified as disease free, have been obtained to meet management goals. With the increase in water levels to Fort Peck Reservoir over the last few years, it is hoped that significant runs of salmon will return and management goals can be met without additional aid from outside sources.

Starting in 2010, FPSFH started rearing rainbow trout for stocking waters in northeastern Montana. This request was acquired from Big Springs SFH in Lewistown due to the fact that it would be more economically feasible for the FPSFH to rear and stock fish in the northeastern portion of Montana where the hatchery is located. In previous years, these stocking were not performed due to legislative restrictions which were lifted in 2009. Current production request vary from year to year, but on average approx. 110,000 fingerlings per year will be stocked.

During FY 2010, the last pallid sturgeon were raised at FPSFH. Due to changes in management strategies and funding, the propagation committee for the pallid sturgeon recovery group decided that FPSFH did not need to currently raise fish, but that there could be a need in the future.

During FY10, FPSFH stocked a total of 23,201,983 fish weighing a total of 16,449.32 pounds of 4 different species (walleye, pallid sturgeon, rainbow trout, and northern pike) into 73 state waters.

10. Specialty Equipment (statewide)

A 1-ton fish distribution truck was purchased for Big Springs Trout Hatchery.

VARIANCES

There were no major variances from project goals.

EXPENDITURE RECAP:

Proposed:

	Federal Share		Match		Total
Direct Costs	1,922,130		640,710		2,562,840
Indirect @ 19.05%	356,164		118,722		474,886
Total	$2,278,294	75.00%	$759,432	25.00%	$3,037,726

* Indirect not calculated for equipment

Actual:

	Federal Share		Match		Total
Direct Costs	$1,775,981		$704,001		$2,479,982
Indirect @ 19.56%	$336,439				$336,439
Total	$2,112,420	75.0%	$704,001	25.0%	$2,816,421

LOCATION:

Job	Location	Projected Costs	Actual Costs
1	Flathead Lake Salmon Hatchery	$167,944	$142,383
2	Washoe Park Trout Hatchery	$252,364	$259,595
3	Jocko River Trout Hatchery	$240,557	$243,753
4	Giant Springs Trout Hatchery	$298,928	$304,955
5	Big Springs Trout Hatchery	$591863	$445,663
6	Yellowstone River Trout Hatchery	$157,040	$156,606
7	Bluewater Springs Trout Hatchery	$271,500	$272,085
8	Miles City Fish Hatchery	$408,377	$443,174
9	Fort Peck Hatchery	$106,667	$138,164
10	Specialty Equipment	$70,000	$73,604
Total Direct Costs		**$2,564,340**	**$2,479,982**

Non-federal match was provided by FWP license dollars and Warm Water Stamp funding.

PROJECT PERSONNEL

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APPENDIX A

2009 STOCKING PLAN

APPENDIX B

2008 STOCKING REPORT