Montana Fish, Wildlife & Parks

Fisheries Division Federal Aid Job Progress Report
Federal Aid Project Number F-113-R10
State Project Number: 3430
Project Title: Montana Statewide Fisheries Management

Great Falls Management Area
Fisheries Progress Report

2009 Annual Report

by

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April 2010

ABSTRACT

Rainbow trout and brown trout estimated in the Craig section of the Missouri River were 117% and 100% of the long-term average in 2009, respectively. Eighteen inch rainbow trout comprised 24% of the population in the Craig section. In the Cascade section, rainbow trout and brown trout estimates were 105% and 170% of the long-term average, respectively. Water temperature in the Missouri River reached a maximum of 66^{o}F on August 23 and remained relatively mild throughout the remained of the year. The mean discharge of the Missouri River below Holter Dam was 5,415 cfs which was 100% of the 63 year mean. Peak flow was 11,600 cfs May 29.

High and turbid water in the Missouri River, Little Prickly Pear Creek, Wolf Creek and Lyons Creek precluded peak spawn estimates for rainbows. Brown trout redds totaled 2,723 in 61.2 miles of river and stream.

Hoop net catch rate for burbot in the Craig and Huber/Ulm sections was 43 which was slightly below the average of 46.

Seining backwaters and creek mouths of the Missouri River downstream of Cascade revealed some preference for creek mouths for rearing young of the year walleye. Crappie and spiny soft shell turtles were also sampled.

In the Eagle Creek section of the Smith River the estimated number of $\geq$8 inch rainbow trout was 371 per mile and brown trout was 270 per mile. Maximum water temperature of the upper Smith River was 69^{o}F which occurred on July 24. The mean monthly discharge in the Smith river was 229 cfs which was 107% of the long term average. Maximum discharge was 1,050 cfs on May 20.

Attempts to calculate an estimate of the trout population in the Sun River at Hwy 287 were frustrated by unseasonably high water flow during the recapture run. Nevertheless rainbow and brown trout > 6 inches were estimated at 152 per mile.

Trout and whitefish > 8 inches long in the Sluice Boxes section of Belt Creek were estimated at 290 rainbows, 162 browns and 117 mountain whitefish. Average angler use for Belt Creek over the past 25 years was 7,103 per year.

Medicine Rock Creek was evaluated as a candidate stream for westslope cutthroat trout introduction. Brook trout were estimated at 86 per 100 feet and mottled sculpin were estimated at 144 per 100 feet. Flow in the mainstem Medicine Rock Creek was 0.98 cfs.

Yellow perch dominated the catch in Wadsworth Pond with 2.7 fish per net, followed by walleye with 3.7 fish per net. The average size of perch and walleye decreased slightly from previous years.

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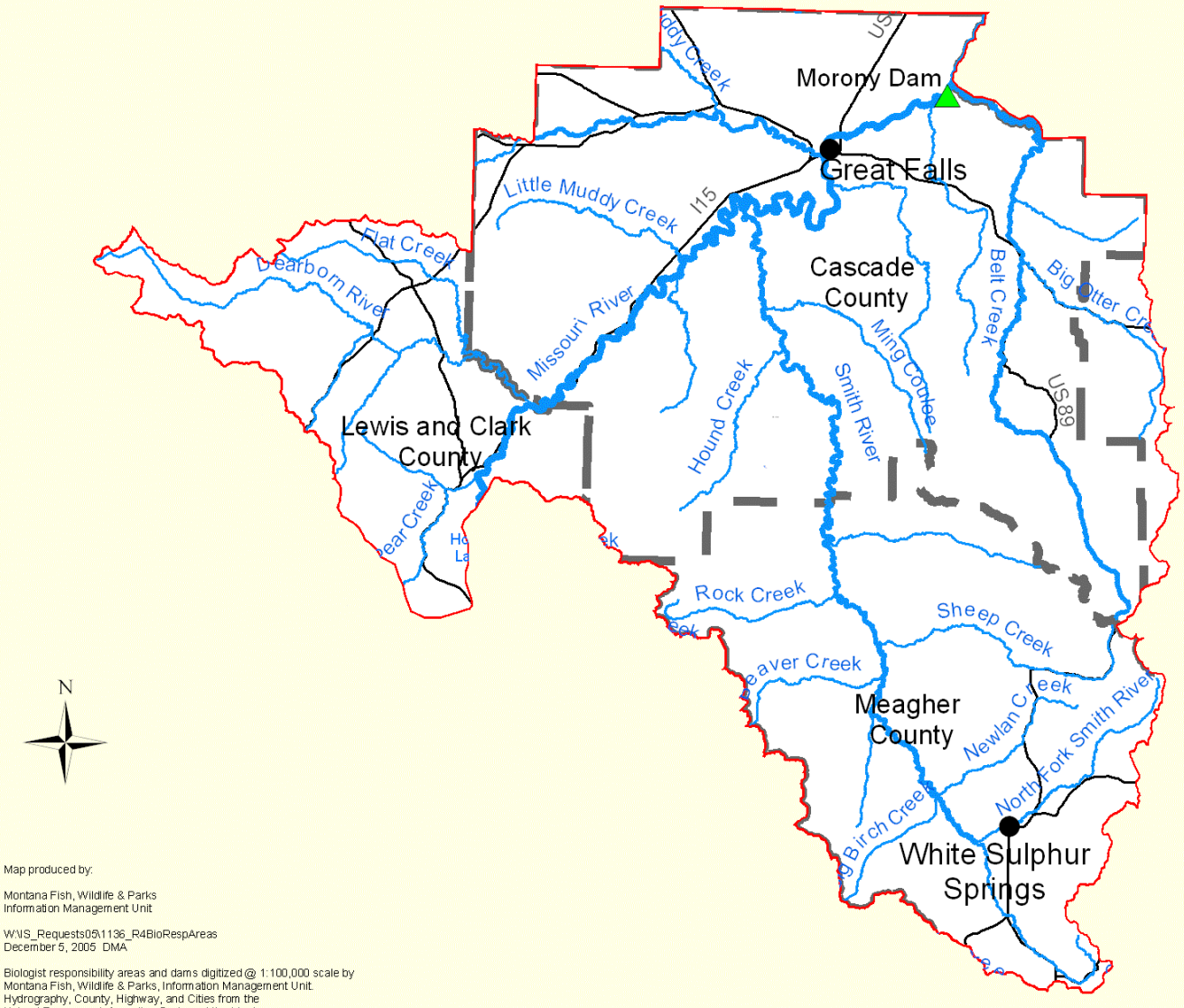

Biologist Responsibility Area
County
Stream
Lake
City
Highway
Dams

N

5 2.5 0 5 10 15 20
Miles

Map produced by:

Montana Fish, Wildlife & Parks
Information Management Unit

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December 5, 2005 DMA

Biologist responsibility areas and dams digitized @ 1:100,000 scale by Montana Fish, Wildlife & Parks, Information Management Unit.
Hydrography, County, Highway, and Cities from the Natural Resources Information System at the Montana State Library, Helena, Montana; digitized at 1:100,000 scale.
Biologist responsibility areas last reviewed by Montana Fish, Wildlife & Parks Fisheries Managers in 2004.

OBJECTIVES

The purpose of this project is to implement the Fisheries Program in the Great Falls Management Area in Northcentral Montana. Major watersheds include the Missouri, Little Prickly Pear, Dearborn, Smith, and Belt Creek drainages.

The mission of the Fisheries Division of the Montana Fish, Wildlife & Parks (MFWP) is to preserve and enhance aquatic species and their ecosystems to meet the public's demand for recreational opportunities while assuring stewardship of aquatic life. The Fisheries Program is divided into four major elements, with objectives and outcomes as follows:

The **Fisheries Management** element of the fisheries program has 21 objectives and the following desired outcomes:

1. A healthy aquatic resource, including native-species fisheries and sport fisheries.
2. Public satisfaction with available angling opportunities.
3. Public support for ongoing efforts to restore, maintain, and protect the state's aquatic resources.

The **Habitat** element of the fisheries program has 15 objectives and the following desired outcomes:

1. Diverse, high-quality aquatic ecosystems that support healthy fish populations and provide fishing opportunities.
2. Public participation in efforts (MFWP's as well as other state and federal agencies) to conserve and improve fish habitat through formation of watershed protection groups and partnerships for the protection and restoration of habitat.

The **Fishing Access** element of the fisheries program has 16 objectives and the following desired outcomes:

1. Provide a diversity of fishing opportunities throughout the state that might otherwise be unavailable.
2. Provide the public with a variety of incidental, non-angling recreational activities by maintaining access to Montana's waters through the fishing access site program.

The **Aquatic Education** element of the fisheries program has 11 objectives and the following desired outcomes:

1. Opportunities for the public, youth and adults, to learn about the state's aquatic ecosystems and their importance.
2. Fishing and water-safety skills for program participants.
3. Enhanced public understanding of Montana's natural and cultural resources.
3. An educated public able to make informed decisions about using and preserving Montana's aquatic resources.

Procedures

In 2009, two sections of the Missouri River downstream from Holter Dam [Craig section (rm 2.5 to 8.1) and the Pelican Point section (rm 24.2 to 28.3)] were electrofished at night using aluminum jet boats. Boats were equipped with headlights and fixed booms with stainless steel droppers suspended from each boom. Electricity from 240-VAC generators was converted to smooth DC using Coffelt or Smith-Root rectifying units. Brown trout estimates were conducted in each section in April-May each year and two jet boats were used in the Craig section, but only one boat was used in the Cascade section. Rainbow trout estimates were conducted in October and two boats were used in each section. Burbot were monitored in two sections of the Missouri River. The Craig section is a 10.9 mile reach where one net is set on each side of the river at nine locations within this section. The Huber/Ulm section is a 9.9 mile reach between Ulm and Great Falls. Catch for the 18 nets in each monitoring section are pooled.

During the report period fish populations were sampled in the Eagle Creek section of the Smith River using a drift boat equipped with a mobile anode, a 240-VAC generator, and a Smith-Root VVP-15B rectifying unit was used to produce smooth DC. Fish sampling was not conducted in the Deep Creek section of the Smith River since 2006 because access to the river was not permitted to FWP through private land.

The same procedures used to estimate the smith River trout population was used in July to estimate rainbow trout, brown trout and mountain whitefish in the Sluice Boxes section of Belt Creek.

Rainbow trout and brown trout redds were counted in Little Prickly Pear, Lyons, Wolf and Sheep creeks by walking upstream during the spawning period. Brown trout redds were counted in the Missouri River using a Bell OH-58 (Bell 206b) helicopter with two people in the back seat counting from each side of the aircraft with the doors removed.

Trout behavior was monitored in the Missouri River and its tributaries using radio telemetry. Lotek model MCFT 3A, SR-11-18, SR-11-25 and SR-11-35 frequency modulating transmitters operating in the 148 MHz band at 1 pulse per 5 seconds were surgically implanted in adult trout. The longevity of the transmitters ranged from 388 to 1160d depending on programming options. Passive monitoring was conducted using fixed base ground stations consisting of Lotek model SRX 400 W7 and W31 code-logging receivers with two directional 4 element Yagi antennae. Remote logging passive ground stations were installed at the mouth of LPP Creek, Craig Bridge, mouth of Dearborn River, mouth of Sheep Creek, mouth of Smith River, mouth of Sun River, Smith River at Eden Bridge and smith River at Camp Baker. Antennae transects were situated to record transmitted radio signals from both the river and respective tributary at each site. Active monitoring was conducted using a Lotek W5 receiver and a boat, truck and airplane. A Piper PA-18 Super Cub, fitted with a rigid 4 element Yagi antenna, was used to track fish from the air.

Young of the year walleye were monitored using a 4 foot tall by 25 foot long by ¼ inch mesh common sense minnow seine. Sampling involved conducting four tows at each site.

Water flow was monitored at five USGS stations that report daily flow and long-term flow statistics. Water temperature was monitored using a combination of USGS data collected from

five stations and Onset temperature data loggers installed at strategic locations in each of the principle waters within the management area.

Several lakes, reservoirs and ponds throughout the management area are routinely sampled using gill nets and traps nets. Unless otherwise stated, the standard gill netting procedure involves using an equal number of 125-foot nylon experimental sinking gill nets and 125-foot multifilament experimental floating gill nets in proportion to the size of the water being sampled. Data from these catches are averaged as CPUE. It is understood that sinking or floating gill nets will be selective for certain species of fish, but using multiple gear types maximizes probability of capture of all species in most of the waters that are gill netted. Gill net sets are generally standardized as overnight sets. Some sampling on ponds and reservoirs is conducted using 4 foot diameter trap nets. All sampled fish are identified, counted, measured to the nearest 0.1 inch, and weighed to the nearest 0.01 pound.

Coldwater Stream Ecosystems

Missouri River

The Missouri River-Holter Dam tailwater fishery requires the majority of the management attention in the Great Falls management area. Angler use statistics over the past 14 years show that the Missouri River has been the number one fishery in Region 4 in all but one year and consistently ranks in the top 4 fisheries in the state; having an average of 99,680 angler days per year (Table 1) (MFWP 1995-2007). Average annual angler use is approximately 65% resident and 35% non-resident.

Table 1. Angler use statistics for Missouri River (section 9) Holter tail water fishery (Montana statewide angler pressure MFWP 1995-2007).

year	Angler days	State rank	Reg rank	%Res	%Non Res	No. 1 fishery	Angler days
2007	78,468	4	2	68	32	Madison R. (sec 2)	106,330
2005	93,229	2	1	64	36	Madison R. (sec 2)	116,345
2003	106,447	2	1	61	39	Madison R. (sec 2)	115,342
2001	123,427	1	1	69	31	---	---
1999	111,203	3	1	79	21	Canyon Ferry Res.	119,886
1997	88,576	4	1	75	25	Fort Peck Lake	108,562
1995	75,201	2	1	75	25	Canyon Ferry Res.	94,731

In 2009, Rainbow trout (> 10 inches) in the Missouri River Craig section were estimated at 3,458 per mile, which was 117% of the long-term average for this species in this section (Figure 1). Brown trout (> 10 inches) in this section were estimated at 584 per mile, which was 100% of the long term average. In the Cascade section rainbows were estimated at 1,577 per mile which was 105% of the long term average and browns were estimated at 611 per mile which is 170% of the long term average (Figure 2).

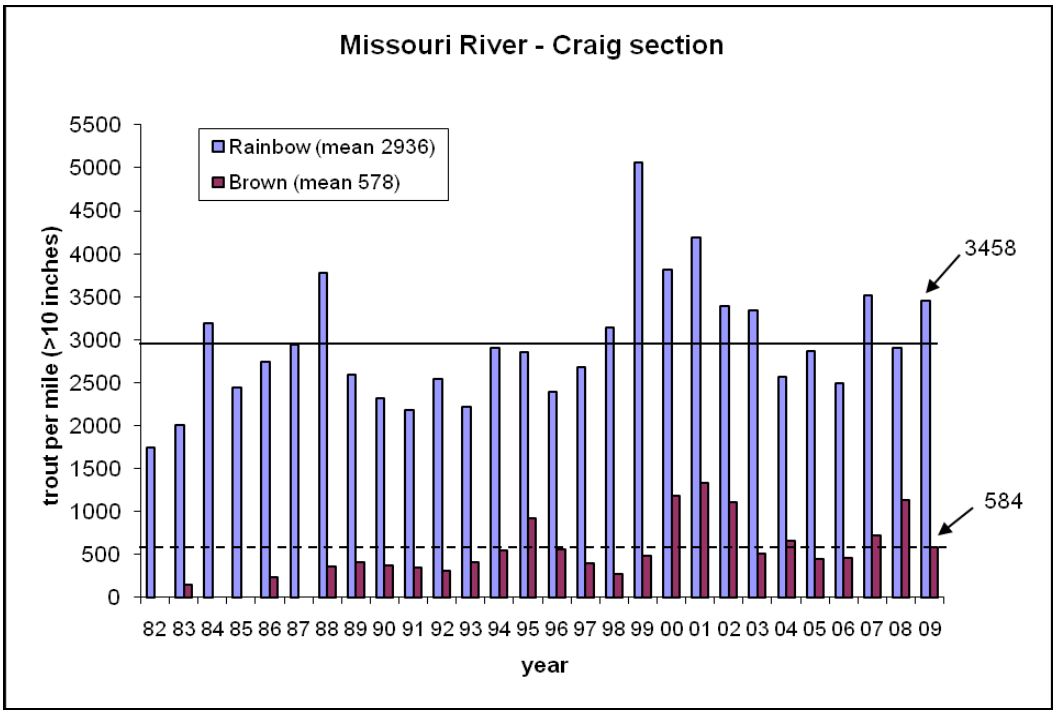

Figure 1. Estimated number of rainbow and brown trout greater than 10 inches per mile in the Craig section of the Missouri River 1982-2009 (solid line is long-term rainbow mean, dashed line is long-term brown mean).

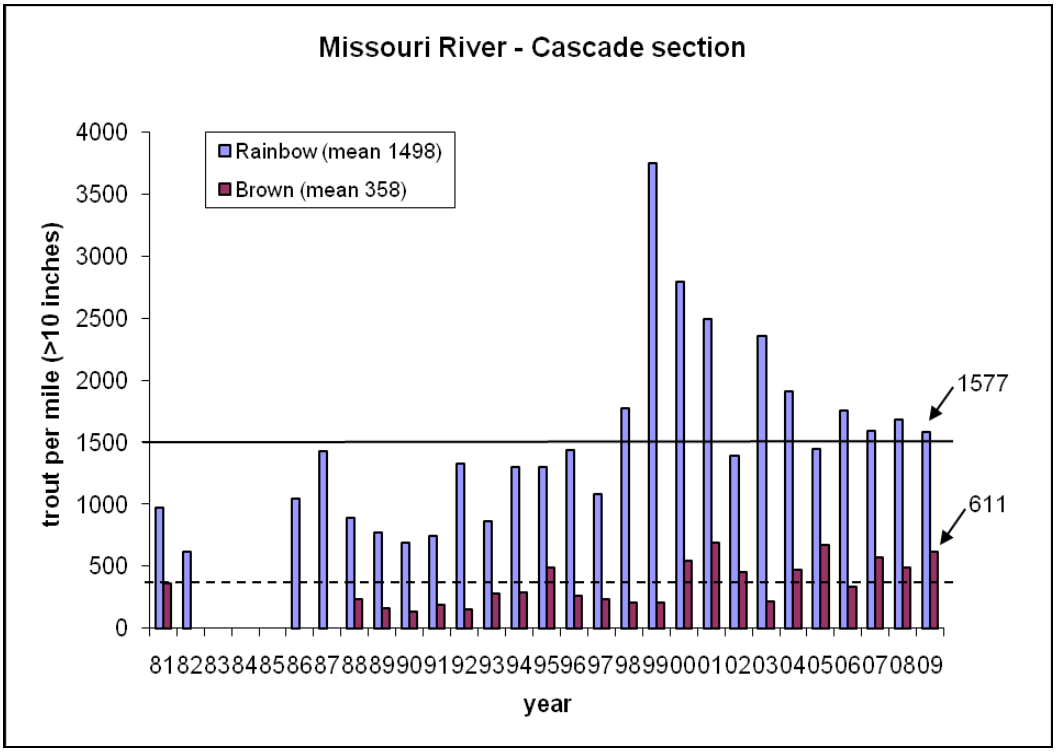

Figure 2. Estimated number of rainbow and brown trout greater than 10 inches per mile in the Cascade section of the Missouri River 1981-2009 (solid line is long-term rainbow mean, dashed line is long-term brown mean).

The proportion of rainbow to brown trout in both monitoring sections is consistent with recent years with rainbows representing 86% and browns representing 14% of the trout population in the Craig section. In the Cascade section rainbows represented 72% and browns represented 28% of the trout population.

In 2009 anglers reported exceptionally high quality angling for rainbows in the Craig section. Similar observations were made by field crews conducting the annual population estimate. Further analysis of the data confirmed both observations. Approximately 45% of the rainbow population was 18 inches and greater and 24% of the total population was comprised of 18 inch fish alone (Figure 3).

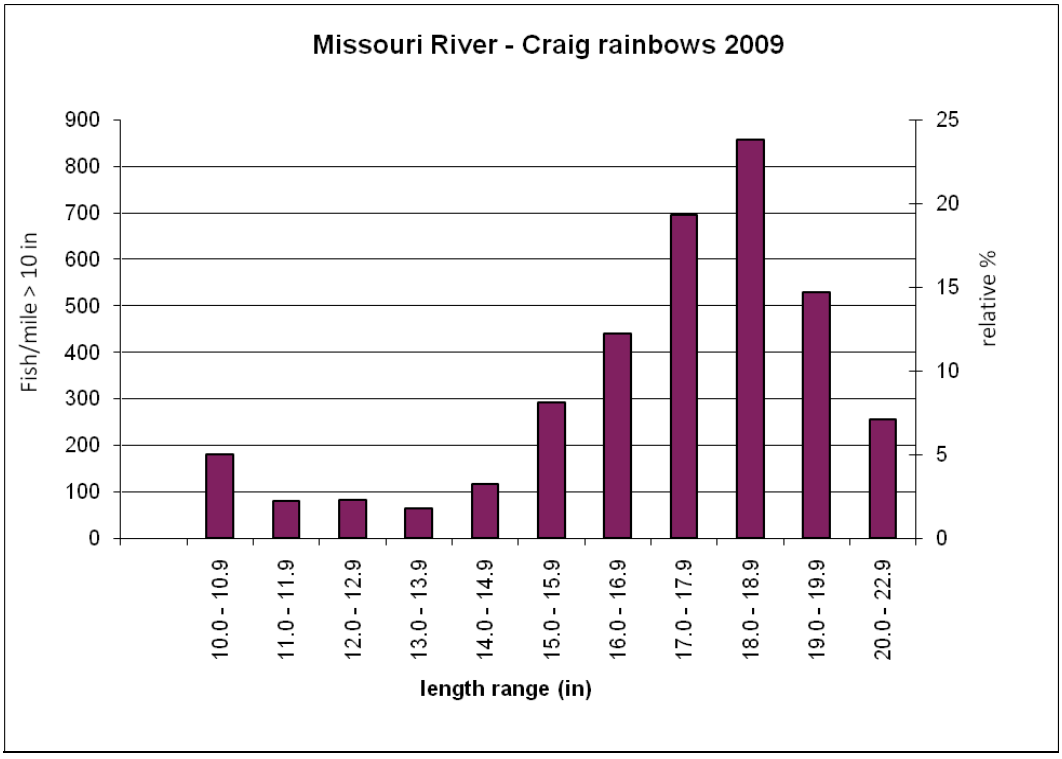

Figure 3. Number of fish per mile and relative percentage of rainbow trout estimated in the Missouri River Craig section, by one inch length groups, 2009.

In 1991 FWP implemented special harvest regulations on the Missouri River that allowed for the harvest of a single brown trout over 22 inches long. The purpose was to safeguard brown trout that were the most vulnerable component of the trout harvest, to help develop a trophy component to the brown trout fishery, and because it was acceptable to the public (MFWP 1990).

Analysis of brown trout sampled during the annual population estimate in the Craig section showed fish > 22 inches represented on average 0.88% of the total number handled (Appendix 1). In the Cascade section brown trout > 22 inches represented an average of 1.18% of the total number sampled since the regulation went into effect. On this basis, the legal number of brown trout available to anglers is <1% of the total number handled by fisheries personnel during the

annual electrofishing population estimates, with a slightly higher percentage occurring the in the Cascade section.

Whirling Disease Monitoring

The Missouri River trout fishery has been a high priority for the statewide whirling disease investigations over the past ten years. Typically sentinel cages are installed at strategic sites to measure the annual rise (mid May), peak (early June) and recession (mid June) of the infection, but high flows in May and June 2009 precluded installing cages in the Missouri River and its tributaries until October. At the time of this report, the results were not available.

Missouri River trout spawning study

In 2007, we initiated a comprehensive evaluation of trout spawning in the Missouri River that involved redd counts in the tributaries and Missouri proper, and radio telemetry tracking of adult rainbow and brown trout in the Missouri River. Redd count methods and index sections on the tributary streams were similar to those described by Grisak (1999). Data from weekly counts were used to determine peak spawning and when to conduct the basin wide redd count.
In Little Prickly Pear Creek, trout were not hindered from access to spawning areas by beaver dams as the high flows in 2008 washed out the 26 known dams on the first 13 miles of Little Prickly Pear Creek. Unfortunately, high flows in the spring of 2009 precluded conducting the rainbow trout redd survey (Table 2). Brown trout redd numbers in the tributary streams were higher than the previous year (Table 3). On November 5 we flew the Missouri and Dearborn Rivers with a helicopter and counted 1202 redds in the Missouri River and 169 redds in the Dearborn River. The number of redds in the Missouri River was nearly twice the 2008 count and the Dearborn River count was consistent with 2008. Based on the results of the Dearborn River counts, it appears as if this is not a primary spawning tributary for brown trout. At this time of year the river is near base flow and there is a general lack of cover for brown trout to hide in the first 19 miles of river. The only cover available is deep water pools, but during the flights in 2008-09 we observed tens of thousands of mountain whitefish in these pools, which likely displaces the brown trout and makes the Dearborn River less attractive to brown trout as a spawning tributary.

Table 2. Rainbow trout redds and redd density counted during the basin wide surveys in Missouri River tributaries, 1998, 2007-08.

stream	Distance	1998	2007	2008	2009
LPP Creek	13 miles	3939	2125	1461	b
Lyons Creek	7 miles	1391	847	897a	b
Wolf Creek	7.8 miles	1981	1289	678	b
Sheep Creek	2 miles	312	282	286	b

a-6.5 miles
b-high flows precluded redd counts

Table 3. Brown trout redds counted during the basin wide surveys in Missouri River and tributaries, 2001, 2007-2009.

Stream	Distance	2001	2007	2008	2009	
Missouri R.	26 miles	~	~	644	1202	46/mi
Dearborn R.	19 miles	~	~	137	169	9/mi
LPP Creek	13 miles	1456	1111	973	990	79/mi
Lyons Creek	3.3 miles	~	81	249	~	---
Wolf Creek	3.2 miles	~	390	269	362	113/mi
Sheep Creek	2 miles	~	114	129	~	---
total		1456	1696	1620	2723	

Flow

For the 2009 calendar year the Missouri River below Holter Dam had a mean discharge of 5415 cfs, which was 100% of the 63 year mean ($\bar{x}$ =5331 [3120-8493]) (Figure 4). The maximum discharge in 2009 was 11,600 cfs, which occurred on May 29 (Appendix 2). There were 100 days in 2009 (from April 9 to July 17) where the river discharge was sustained above 6000 cfs.

Flows during the spring of 2009 could be characterized as unusually high relative to the peak flow that occurred this year. During April, the flows were sustained near 6,500 cfs and reached a peak of 11,600 on May 29 (Figure 5). The flows dropped to 5,090 on June 16-17, but within seven days the flow more than doubled to 10,900 and sustained above 10,000 cfs for seven days. The flows slowly declined and sustained near 4,000 cfs for the remained of the year.

Temperature

When monitoring temperature data, regional personnel rely on the information provided from the USGS gauging stations as the 'first line' of notification. When temperature reaches the critical threshold of 70^{o}F, we switch to data monitored by several thermographs located at strategic locations in each the Missouri, Smith, Sun and Dearborn rivers. These thermographs are used in making management decisions that could include recommending to the regional Fish, Wildlife & Parks Commissioner the temporary closing of certain fisheries to reduce stress from angling on the trout populations. It is the policy of MFWP to request such closures when "…daily maximum water temperature reaches or exceeds 73° F (23° C) for at least some period of time during three consecutive days…"

In 2009 the USGS Wolf Creek Bridge site below Holter Dam recorded a maximum daily temperature of 66^{o}F for three days between August 23 and September 2 (Appendix 2). Fortunately, the relatively mild water temperatures in 2009 did not warrant recommending angling restrictions on this valuable fishery.

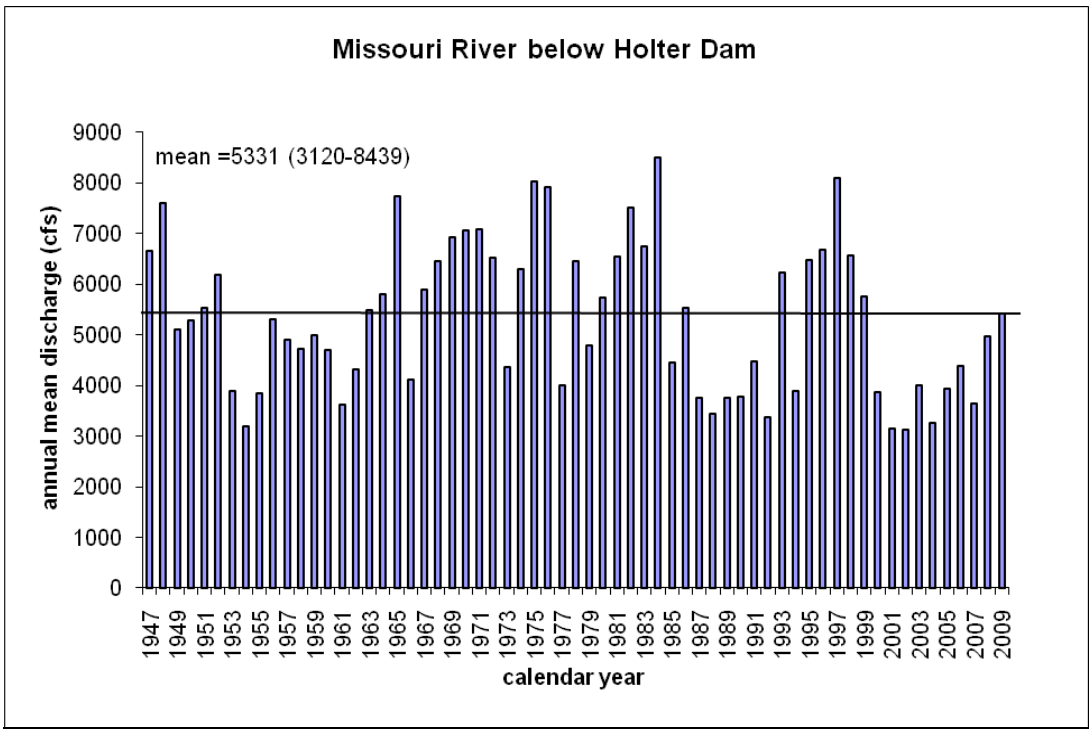

Figure 4. Mean annual flow for Missouri River below Holter Dam, 1947-2009.

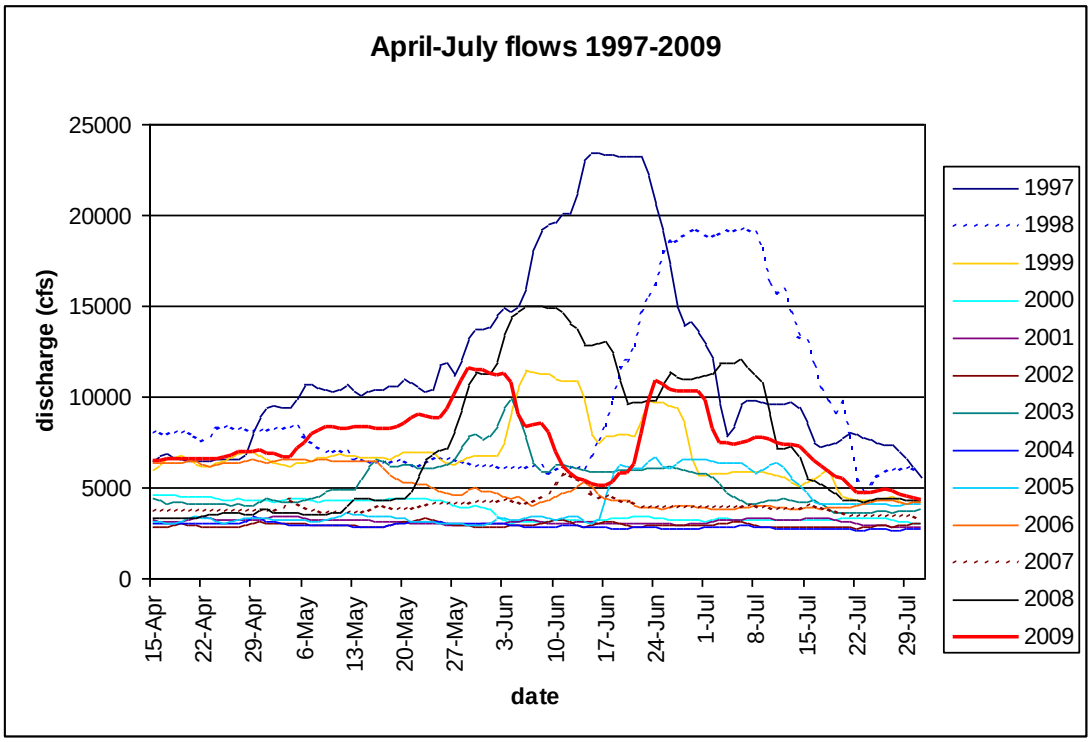

Figure 5. April to July flow for the Missouri River below Holter Dam 1997-2009.

Burbot monitoring

In 2005-06 a study was conducted on the burbot population in the Missouri River (Horton and Strainer 2006). In 2007 we adopted a monitoring strategy from that study and incorporated burbot monitoring into the area management program. A total of 43 burbot were sampled in both sections in 2009 (Figure 6) which is slightly lower than the five year average of 46. The largest burbot was 4.82 pounds and 29.4 inches long and was sampled at RM 0.5. The greatest number of burbot sampled in one net was six just upstream of Craig.

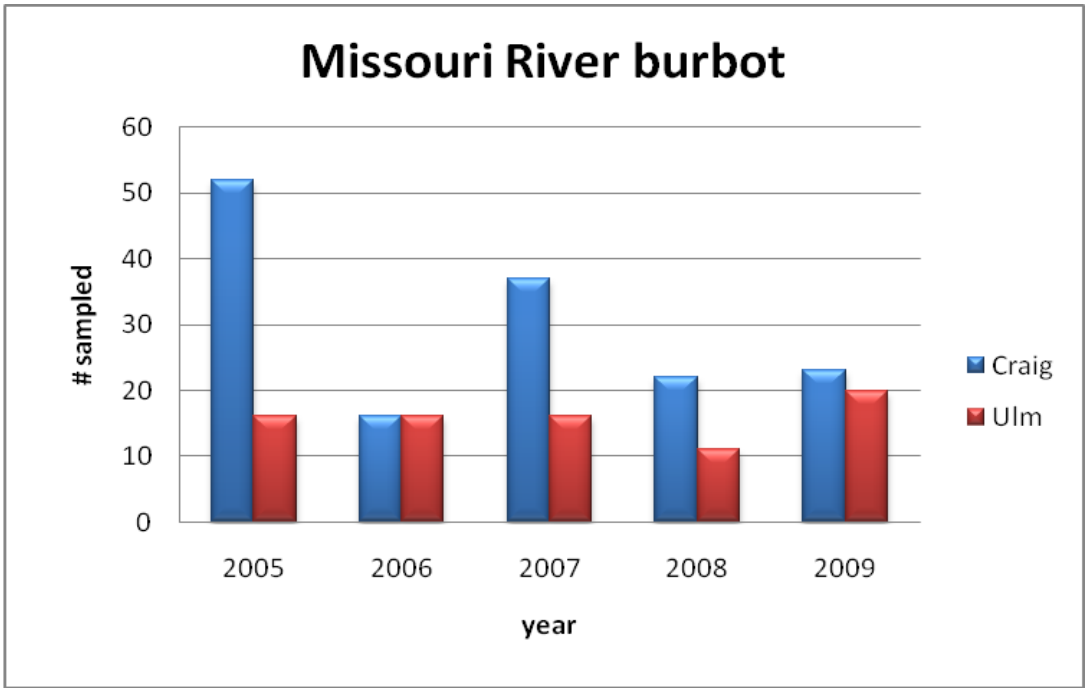

Figure 6. Burbot monitoring results for the Missouri River Craig and Ulm sections, 2005-09.

Missouri River YOY walleye survey

In 2009 we discovered a concentration of radio tagged walleye just upstream of the Cascade Bridge during the peak of the walleye spawning season (Grisak 2010). We believed these fish spawned in that area near the first week of May. In July we conducted survey for YOY walleye in backwaters and side channels between Cascade and the Big Bend FAS. We used a 4 foot tall by 25 foot long ¼ inch mesh common-sense minnow seine and conducted 4 hauls at each of 11 sites (Table 4). Five of the sites yielded no walleye and four had trace levels of walleye. Two sites; Bird Creek mouth and Little Muddy Creek mouth both had comparatively large numbers of YOY walleye. Black crappie and spiny softshell turtles were also found at these creek mouths. The presence of black crappie was an unusual find. Department records and testimony from long time past and current department employees indicate only a single known stock of crappie in Pelican Point pond #1 in the late 1970's. Surveys in Pelican Point pond #1 over the past 30 years show the population is barely viable with only trace levels detected on an irregular basis. It is unknown where the crappie found in the Missouri River originated from, or how they have been able to persist in this habitat. We sampled seven crappie ranging from 91 to 96 mm long at Little

Muddy Creek and 15 ranging from 93-96 mm long at the Bird Creek. Based on the numbers of YOY walleye sampled at these sites, it is clear they prefer the warm turbid backwaters over the clear backwaters and side channels that were sampled in 2009. We plan to institute an annual survey at 12 sites within this reach to measure the annual variation in YOY walleye numbers.

A number of interesting results from this survey include the first confirmed observation of spiny softshell turtles above the falls of the Missouri, and the presence of hundreds of juvenile leopard frogs in a small backwater channel on river right at RM 69.4 south of Woodland Estates and also at the mouth of Bird Creek. We sampled 40 young of the year perch near the mouth of the Smith River.

Table 4. Results of preliminary seining surveys in backwaters and side channels of the Missouri River between Cascade and Great Falls, 2009.

Site	River mile	walleye	Other species
1	35.5	2	Brown trout, white sucker, longnose dace, creek chub, yellow perch
2	36.6	0	0
3	36.9	4	Brown trout, white sucker, longnose dace, creek chub, yellow perch, fathead minnow, carp
4	39.5	0	0
5	41.4	85	White sucker, longnose dace, yellow perch, black crappie, pumpkinseed sunfish, softshell turtle
6	43.2	118	White sucker, yellow perch, black crappie, pumpkinseed sunfish, spottail shiner, fathead minnow, flathead chub, softshell turtle, painted turtle
7	0.5-S	2	White sucker, yellow perch, creek chub, pumpkinseed sunfish, carp, spottail shiner
8	59.1	0	0
9	61.6	0	0
10	69.4	0	White sucker, yellow perch, pumpkinseed sunfish, leopard frog
11	75.2	2	White sucker, longnose dace, brown trout

0.5-S is ½ mile into Smith River

Smith River

The Smith River requires the second most management attention in the region. Section 2 of the Smith River ranks in the top 88 fisheries in the state and is in the top 16 regionally. In 2009 it was the number 63 fishery in the state. It receives an average of 10,116 angler days per year (Table 5). Average use by resident anglers is 60% and average non-resident use is 40%. In 2009 there were 5,704 applications submitted to the department from floaters wishing to secure a float permit (Maas 2009). There were 4,311 floaters in 621 groups that used the Smith River in 2009 which is slightly higher than the long term average of 3,277 and 533, respectively.

Table 5. Angler use statistics for Smith River (section 2) (Montana statewide angler pressure MFWP 1995-2007).

year	Angler days	State rank	Reg rank	% Res	% Non Res
2007	8375	63	9	45	55
2005	14,188	51	8	59	41
2003	6,854	88	15	40	60
2001	9,088	64	10	70	30
1999	7,645	83	16	84	16
1997	13,391	47	9	62	38
1995	11,272	50	8	57	43

The Eagle Creek section of the Smith River has been sampled in 31 of the past 41 years (Figure 7). In 2009, the number of rainbow trout greater than 8 inches per mile was estimated at 371 per mile and the number of browns was 270 per mile. Compared to the long term average of rainbow and brown trout in this section (541 and 325 respectively), the 2009 rainbow numbers were 40% below the long term average whereas brown numbers were 13% above the long term average.

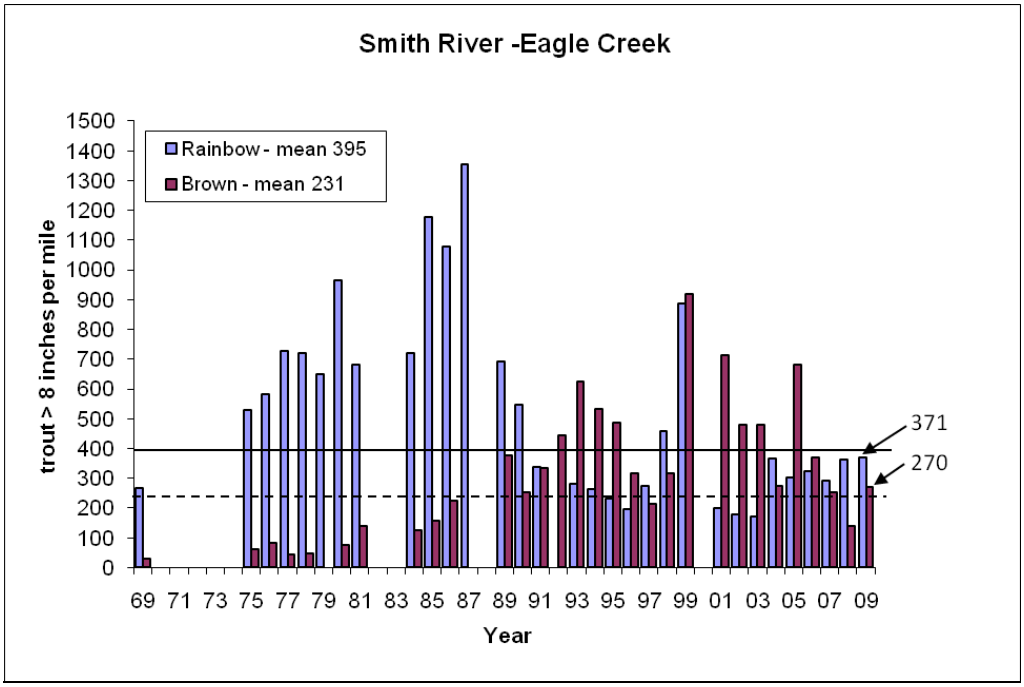

Figure 7. Estimated number of rainbow and brown trout greater than 8 inches per mile in the Eagle Creek section of the Smith River 1969-2007 (solid line is long-term rainbow mean, dashed line is long-term brown mean).

Flow

In 2009 the Smith River below Eagle Creek had a mean monthly discharge of 229 (91-635) cfs, which was 107% of the 13 year mean ($\bar{x}$ = 214). The maximum discharge in 2009 was 1,050 cfs, which occurred on May 20 (Appendix 1).

Water temperature

In 2009 the maximum temperature recorded in the Smith River was 69^{o} F which occurred on July 24. Despite a history of dangerously high water temperatures in this river (2006, 2007) which warranted time of day fishing restrictions, mild water temperatures precluded implementing angling restrictions in 2009. Water temperature data for 2009 are summarized in Appendix 1.

Sun River

In 2009 we attempted a mark and recapture population estimate on the Hwy 287 section of the Sun River. On April 13 and 14 we marked 75 rainbow and brown trout. The discharge on these days was 255 cfs. During the recapture run on April 27 , the flows had increased to 295 cfs. A severe rain storm that evening caused the flows to raise to 421 cfs overnight which precluded the second recapture run. Nevertheless we calculated a 'loose' estimate of 152 trout per mile between 6 and 21 inches long. We met the recapture pool value of 4 for each species.

Belt Creek

In July 2009 we conducted the second ever mark and recapture population estimate for rainbow trout, brown trout and mountain whitefish on the Sluice Boxes section of Belt Creek. This year we estimated 290 rainbows per mile, 162 browns per mile and 117 mountain whitefish per mile (Figure 8). We sampled rainbows as small as 6 inches and browns as small as 8 inches and mountain whitefish as small as 10 inches.

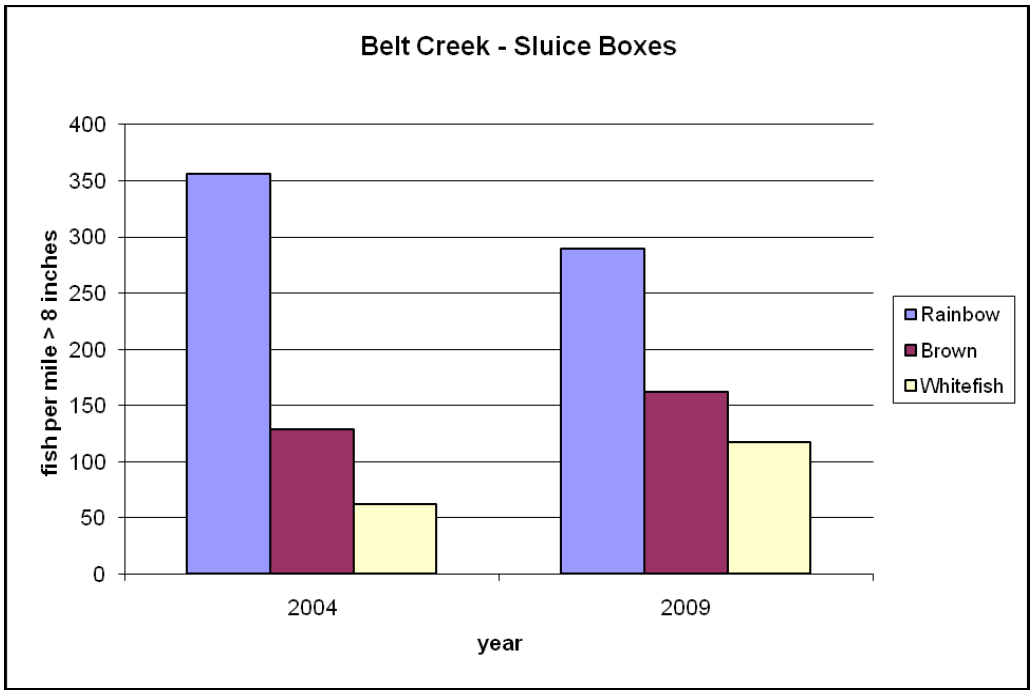

Figure 8. Estimates of rainbow trout, brown trout and mountain whitefish >8 inches per mile from the Sluice Boxes section, 2009.

Angler use statistics for Belt Creek were tabulated for 14 years on record over a 25 year period (Table 6). The average number of angler days for the 83 mile reach of Belt Creek form Carpenter Creek confluence to the mouth was 7,103 per year. Average rank for the Belt Creek fishery is 85 out of approximately 1200 fisheries monitored throughout the state.

Table 6. Angler use statistics for 83 miles of Belt Creek, 1982-2007.

year	Angler days	Standard error	State rank	Regional rank
2007	7620	1324	70	13
2005	4718	839	112	21
2003	3678	719	130	23
2001	3437	648	136	25
1999	10389	1458	70	13
1997	13424	1632	46	8
1995	10978	1841	51	9
1993	6768	1754	76	12
1991	5521	988	79	14
1989	3683	---	---	---
1985	8645	---	---	---
1984	6277	---	---	---
1983	10256	---	---	---
1982	7058	---	---	---
ave	7103	1244	85	15

Medicine Rock Creek

Medicine Rock Creek is a tributary to Little Prickly Pear Creek. There are approximately 8 miles of stream comprised of 5.5 miles in the mainstem and South Fork and 2.5 miles in the North Fork. The lower 2 miles of stream are located on BLM land and the lower third mile is located on DNRC land. The headwaters are on Sieben Ranch property. In 2008 fisheries personnel conducted a 124 permit inspection for a crossing improvement to a ford in section 32. Later that year we conducted some preliminary evaluations to determine it's potential as a westslope cutthroat trout recovery stream. Flow measurements were taken in July in the North and South forks near their confluence. The North fork was gaged at 0.75 cfs and the South Fork was 0.81 cfs. The main stem was gaged near the ford in section 32 and was 0.98 cfs. We conducted some experimental electrofishing near the ford in section 32 and found surprisingly high numbers of brook trout and mottled sculpin in roughly equal proportions. We electrofished sections in the North and South forks near their confluence and found mostly brook trout and few sculpins. We obtained permission from Sieben Ranch to access the headwaters through Sheep Creek and found adult brook trout in a few pools in section 35. Traveling downstream we encountered a long dry section of stream in section 36.

In August 2009 we conducted a removal depletion population estimate for brook trout and sculpin near the ford in section 32. The population estimate for all brook trout was 86 per 100 feet (SD 5.8) and for all sculpin was 144 per 100 feet (SD 16.9). Further evaluations in the lower reach showed the stream does not have a physical connection to Little Prickly Pear Creek but is isolated by a dewatered loosing reach in the lower 200 yards of the channel. Approximately 50 yards before entering the I-15 culvert crossing, this stream flows completely subsurface and there is no evidence of a stream channel.

Based on these evaluations, it appears as if Medicine Rock Creek could be a candidate stream for introduction of a genetically pure population of westslope cutthroat trout. Further investigations into a reliable barrier near the mouth and discussions with landowners will continue in the future.

Warmwater Lake Ecosystems

Wadsworth Pond

Each year this pond receives about 344 angler days per year (MFWP 2007). It has become a vital component of the fisheries program in Great Falls by generating interest in the sport of angling by area children. Each year area sporting groups such as Walleye Unlimited and Trout Unlimited sponsor the annual Kids Fishing Day at Wadsworth Pond, which attracts approximately 3,000 participants. In 2009, unseasonable cold weather and snow resulted in a low turnout.

In 2009 gillnets in Wadsworth Pond sampled 157 fish of which 96% were game species (Appendix 3). Of the three game species sampled, yellow perch dominated the catch (CPUE=6.7), followed by walleye (CPUE=3.7), then pumpkinseed sunfish (CPUE=1).

Coldwater Lake Ecosystems

Newlan Creek Reservoir and Smith River reservoir were not sampled during the report period. In late 2008 Smith River reservoir was drawn down approximately 20 feet for dam maintenance and the fishery was severely diminished. Stocking rainbow trout resumed in 2009 so sampling was not prudent or warranted.

Fishing Access

In 2009 Montana, Fish, Wildlife & Parks assumed the lease on 22 acres of state trust land on the Missouri River at the mouth of Little Muddy Creek. This site is used primarily by waterfowl hunters, carp archery shooters and bank anglers. There is a limited amount of hunting available for deer and upland birds. This site will be fenced and signed in early 2010 and will be open for public use by summer 2010.

In 2009 Montana Fish, Wildlife & Parks acquired 179 acres of land on the Sun River known as Largent Bend (formerly Lewis property). The land is located 4.3 miles west of the town of Vaughn. The site is in the beginning stages of development for public recreation including boundary delineation, weed management, signing and river and pond access. The site was operated as an open pit gravel mine for many years. Three of the mining pits are flooded by ground water, which has created ponds. These ponds provide reasonably good habitat for fish and would likely provide sustainable angling opportunities.

In order to realize the full recreation potential of the site, FWP proposed to stock fish in the ponds to create a multi-tiered year-round fishery in ponds 2 and 3 that would provide at least 150 angler days per year. Surveys in 2008 show that pond 1 is fishless and given its small size and shallow depth would not likely sustain a population of game fish worthy of angling.

Data were collected in 2008 and lake bathymetry maps were completed for ponds 2 and 3 in 2009 (Figure 9, Figure 10). Pond 2 presently harbors a population of black bullheads. In 2009 one gill net captured 199 black bullheads with an average length of 6.07 inches (4.4-7.0) weighing an average of 0.09 pounds (0.01-0.16). No fish were captured in minnow traps in pond 2.

In 2009 one gill net set in pond 3 captured ten larval tiger salamanders and no fish. Numerous small fish were observed from the shore line. One minnow trap captured approximately 40 fathead minnows, and dipnetting captured fathead minnows and creek chubs.

FWP will conduct an environmental assessment in early 2010 to evaluate the stocking of fish in these ponds. Preliminary evaluations indicate crappie, largemouth bass, northern pike and/or trout would be suitable for these ponds.

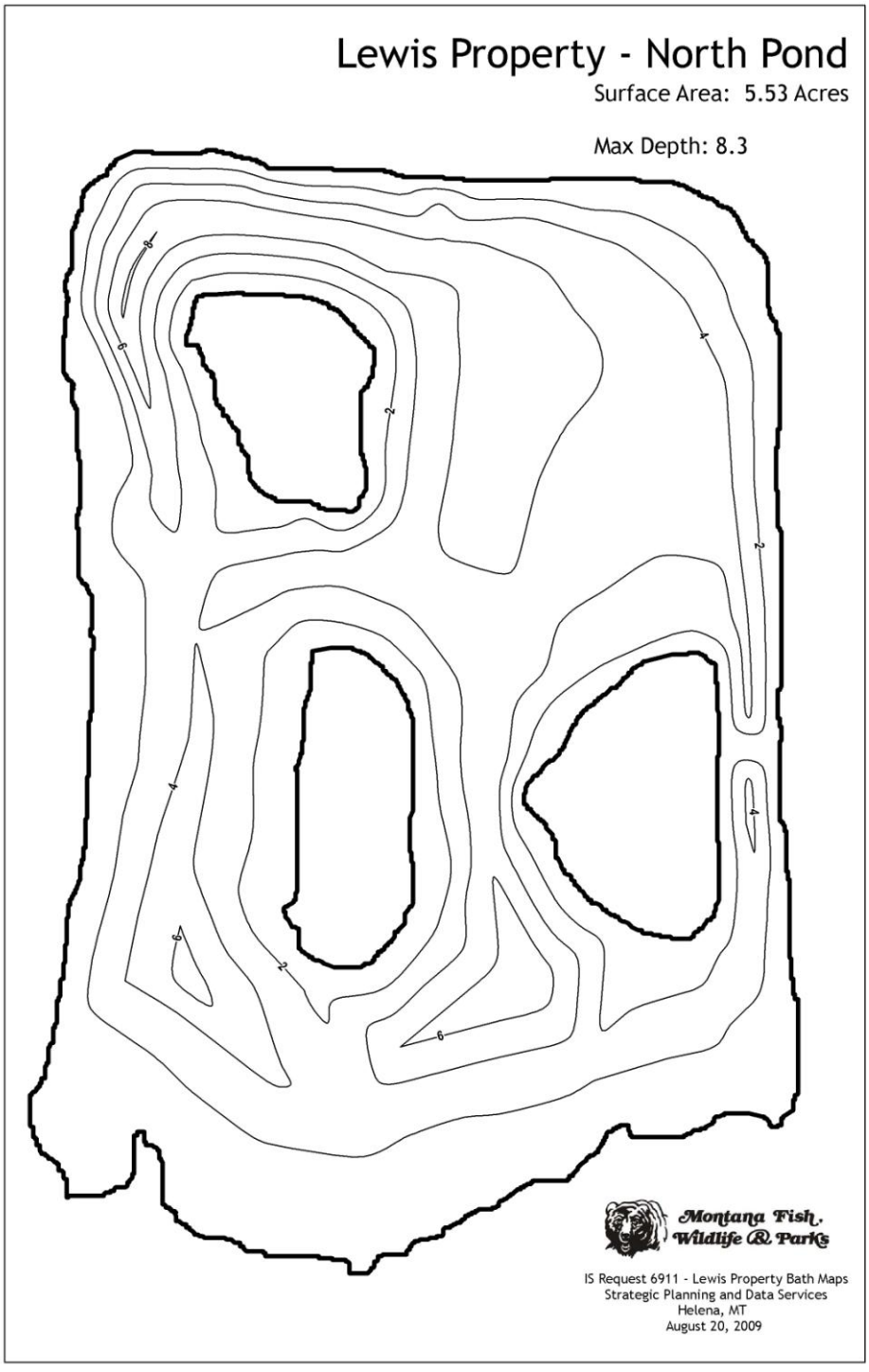

Figure 9. Bathymetric map of Largent Bend (Lewis property) pond #2.

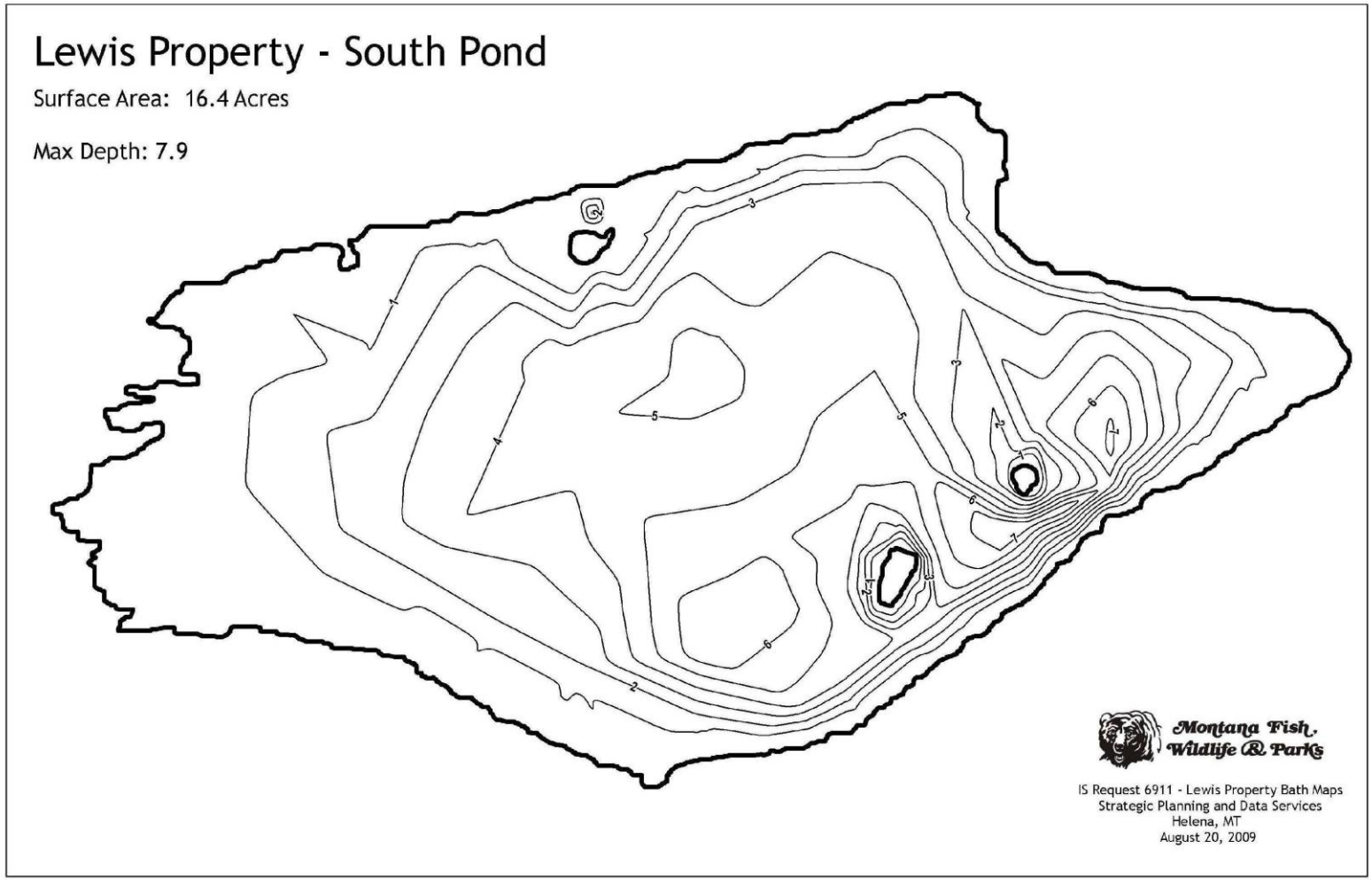

Figure 10. Bathymetric map of Largent Bend (Lewis property) pond #3.

HABITAT PROTECTION

In 2009, FWP staff processed 56 Natural Streambed and Land Preservation Act (310) permits, 16 Stream Protection Act (124) permits and 18 permits (318) for Short-term Exemption of Surface Water Quality Standards (Table 7). Table 8 lists the 310 permits by county.

Table 7. Regulatory permits processed in the Great Falls management area, 2009.

	124 permit	310 permit	318 permit	total
2007	20	59	13	92
2008	8	55	20	83
2009	16	56	18	90

Table 8. Natural Streambed and Land Preservation Act (310) permits FWP processed for the Great Falls management area, by county, 2009.

	2007	2008	2009
Cascade	42	46	35
Lewis & Clark	5	3	12
Meagher	9	5	7
Judith Basin	1	1	2
Choteau	2	0	0
total	59	55	56

AQUATIC EDUCATION

In 2009 the regional fisheries staff conducted a demonstration of fish marking equipment for the continuing education seminar for Great Falls-area teachers. We assisted with several kids fishing day events, assisted at the FWP educational booth at the Montana State Fair, conducted several presentations at the annual Kids Fishing Day at Wadsworth Pond.

The regional staff gave presentations to the Pat Barnes Chapter of Trout Unlimited, Great Falls Walleyes Unlimited, Upper Missouri River Advisory Committee and the Smith River Outfitters. There were two newspaper articles in the Great Falls Tribune chronicling the results of trout population monitoring on the Missouri and Smith rivers.

ACKNOWLEDGMENTS

Thanks to: Kelly Smith, Randy Rodencal, Casey Jensen and Eli McCord for assistance with the Missouri River electrofishing estimates. A special thanks to numerous private landowners such as Josephine Lahti, Carl Taft, The Rocking C's Guest Ranch, Ron Burns from the Canyon

Ranch, Harold ‘Buck’ Juedeman from Canyon Cattle Ranch, The Dearborn Ranch, The Baucus family from Sieben Ranch and Scott Blackman from the Sterling Ranch.

Submitted by; Grant Grisak April 10, 2010

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CODE NUMBERS OF WATERS REFERRED TO IN THIS REPORT

17-4896	Missouri River section 9 (Cascade Bridge to Holter Dam)
17-4880	Missouri River section 8 (Morony Dam to Cascade Bridge)
17-6832	Smith River from Hound Creek to Camp Baker
17-9330	Newlan Creek Reservoir
17-9616	Smith River Reservoir (Sutherlin Reservoir)
17-0544	Belt Creek
17-4608	Medicine Rock Creek
20-8470	Wadsworth Pond
20-6100	Sun River (section 2)

Appendix 1. Number of brown trout handled, number >22 inches, and relative percentage of the total number of browns sampled during mark and recapture population estimates in the Craig section and Cascade section of the Missouri River, 1980-2009.

Year	Craig			Cascade			Combined		
	# LL handled	#>22 inch	%	# LL handled	#>22 inch	%	# LL handled	#>22 inch	%
2009	1676	16	0.95%	703	4	0.57%	2379	20	0.84%
2008	2422	19	0.78%	748	8	1.07%	3170	27	0.85%
2007	2195	28	1.28%	683	9	1.32%	2878	37	1.29%
2006	1451	22	1.52%	620	5	0.81%	2071	27	1.30%
2005	1110	28	2.52%	526	3	0.57%	1636	31	1.89%
2004	1589	11	0.69%	585	8	1.37%	2174	19	0.87%
2003	1661	5	0.30%	445	5	1.12%	2106	10	0.47%
2002	2582	13	0.50%	661	3	0.45%	3243	16	0.49%
2001	3300	21	0.64%	1072	17	1.59%	4372	38	0.87%
2000	2760	12	0.43%	896	10	1.12%	3656	22	0.60%
1999	1994	10	0.50%	541	11	2.03%	2535	21	0.83%
1998	1271	5	0.39%	409	9	2.20%	1680	14	0.83%
1997	1466	9	0.61%	452	7	1.55%	1918	16	0.83%
1996	1643	11	0.67%	456	17	3.73%	2099	28	1.33%
1995	2196	16	0.73%	536	24	4.48%	2732	40	1.46%
1994	1810	8	0.44%	397	11	2.77%	2207	19	0.86%
1993	1475	4	0.27%	473	9	1.90%	1948	13	0.67%
1992	1201	13	1.08%	548	4	0.73%	1749	17	0.97%
1991	1084	16	1.48%	276	6	2.17%	1360	22	1.62%
1990	1155	4	0.35%	301	7	2.33%	1456	11	0.76%
1989	716	4	0.56%	366	8	2.19%	1082	12	1.11%
1988	1063	2	0.19%	396	12	3.03%	1459	14	0.96%
1987	---	---	---	---	---	---	---	---	---
1986	791	10	1.26%	---	---	---	---	---	---
1985	---	---	---	---	---	---	---	---	---
1984	521	11	2.11%	501	28	5.59%	1022	39	3.82%
1983	496	21	4.23%	340	6	1.76%	836	27	3.23%
1982	---	---	---	---	---	---	---	---	---
1981	---	---	---	333	14	4.20%	---	---	---
1980	---	---	---	191	8	4.19%	---	---	---
Ave	1585	13	0.98%	518	10	2.11%	2157	23	1.20%

Appendix 2. River flow (cfs) and temperature (^{o}F) recorded at USGS station 06066500 (Missouri River below Holter Dam near Wolf Creek, Montana) and USGS station 06077200 (Smith River below Eagle Creek near Fort Logan, Montana) for the calendar year 2009.

		Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Missouri flow 2009	Mean	4634	4863	4387	6223	8601	8209	6313	4295	4128	3902	4213	5201
	Minimum	4250	4280	4140	5100	6640	5090	4330	3980	3990	3640	3710	4800
	Maximum	4860	5170	5130	7030	11600	11300	9810	4750	4440	4310	5450	5390
Missouri temp 2009	Mean	34	35	35	40	47	55	61	63	63	53	44	36
	Minimum	34	34	35	37	42	50	56	59	60	48	40	34
	Maximum	35	36	37	45	55	60	64	66	66	61	48	40

Smith flow 2009	Mean	101	99	161	356	635	560	246	118	99	141	145	91
	Minimum	55	80	80	151	320	368	136	87	88	99	115	60
	Maximum	180	120	403	618	1050	927	351	156	114	194	179	105
Smith temp 2009	Mean	32	32	33	40	48	55	62	63	57	39	34	32
	Minimum	32	32	32	35	41	45	32	56	49	33	32	32
	Maximum	32	32	37	46	55	64	69	68	65	45	40	32

Appendix 3. Number sampled (n), mean, minimum (min), and maximum (max) length, weight, and relative weight by species, in north central Montana warm water lakes sampled during 2009.

					Length (in)			Weight (lbs)			Relative Weight		
Water	Gear	Effort	Species	n	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Wadsworth Pond	(Sept- gill nets)												
		overnight set	Walleye	12	16.8	7.9	25.2	1.88	0.13	6.68	96.6	79.7	115.7
			RB	94	10.2	8.6	12.0	0.45	0.27	0.69	107.0	101.7	110.7
			WSu	3	14.2	14.0	14.5	1.23	1.14	1.38	96.8	---	---
			Carp	3	13.3	11.2	14.2	1.10	0.79	1.50	94.8	76.6	106.6
			YP	36	7.8	6.9	9.3	0.24	0.16	0.42	99.2	93.6	102.6
			Pump	8	3.9	3.7	4.1	0.05	---	---	---	---	---
			LMB	1	6.3	---	---	0.13	---	---	---	---	---

NA- no relative weight standards for this species
** standard for this water is 3 gill nets