Montana Department of Fish, Wildlife and Parks
Fisheries Division

Job Progress Report

STATE: Montana **PROJECT: Statewide Fisheries Management**

TITLE: Eastern Region 6 Pond, Stream and River Sampling

JOB: Northeast Montana Warmwater Ponds and River Investigations

FEDERAL GRANT:

FISCAL YEAR: 2012 (July 1, 2011 through June 30, 2012)

REPORT PERIOD: April 1, 2012 through November 30, 2012

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ABSTRACT

Northeast Montana holds an exceptional diversity of sport fishing opportunities, ranging from iconic fisheries such as Fort Peck Reservoir and the Missouri River to small privately owned stock ponds. This report consists of the rivers, streams, small reservoirs and stock ponds within the eastern areas of FWP's Region 6 management zone. This management zone includes Valley, Daniels, Sheridan, Roosevelt and portions of Richland, McCone and Dawson Counties (Figure 1). This report does not include Fort Peck Reservoir, as it is a separate management entity. During 2012, FWP participated in a wide array of sampling events, from electrofishing sauger in the Milk River, to hoop netting channel catfish in both the Milk and Missouri Rivers. FWP implanted several rainbow and brown trout in the Missouri River downstream of Fort Peck Dam. This study will continue over the next several years in an attempt to locate spawning grounds, quantify the extent of salmonid habitat, and to evaluate density estimates. The Fort Peck Dredge Cuts were sampled in 2012 in a similar fashion to the past 20 plus years, which evaluates the relative abundance of sauger, walleye, northern pike and channel catfish, among other species. In addition, small ponds and reservoirs within the region were sampled, from Box Elder Creek Reservoir in Sheridan County, to several smaller impoundments within Valley and Daniels Counties.

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INTRODUCTION

The 2012 water year was much more “normal” than that of 2011. Area streams and rivers, including the Milk and Missouri Rivers had flows that were much closer to the long-term average, when compared to the extremely high flows of 2011 (Figures 2 and 3). However, while the Missouri River had similar spring time flows to past years, it had higher flows in 2012 summertime flows than were observed from 2006 to 2010 (Figure 3).

Still, since both the Milk and Missouri Rivers had closer to average flow conditions, data obtained in 2012 will likely be very useful in comparison to other more “normal” flow years. While data collected in 2011 was interesting, because of the extremely high flows and flooding, data collected during that period is difficult to compare to prior or following years since sampling gears are often greatly influenced by discharge.

Due to the relatively mild winter condition for the winter of 2011-2012, fewer area ponds were sampled. Many of the area ponds that had been sampled 2010 were also sampled in 2011 due to the extremely hard winter of 2010-11. Therefore, less effort was placed on prairie ponds within the region during 2012. Effort will be significantly increased in 2013.

This report summarizes FWP fisheries management work conducted in the east section of Region 6 for the 2012 season. Pallid sturgeon work done out of the Fort Peck office is summarized in three annual reports that are submitted to the United States Army Corps of Engineers. Those reports evaluate not only pallid sturgeon, but other native and non-native fishes residing in the Missouri River.

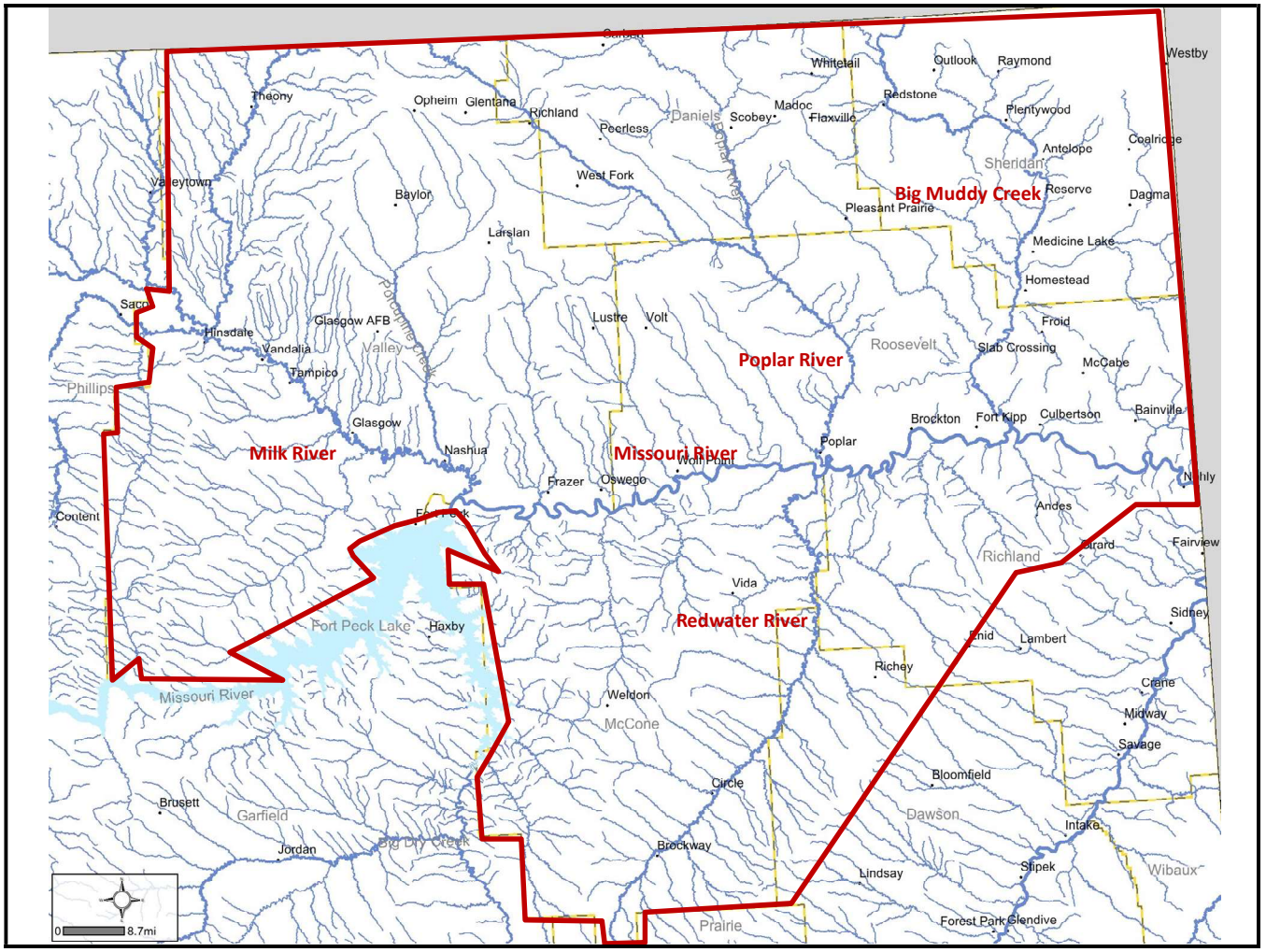

Figure 1. Map of the northeast Montana fisheries management district, including Valley, Daniels, Sheridan, Roosevelt, McCone and parts of Richland and Dawson Counties. Red line is approximate border of the management district.

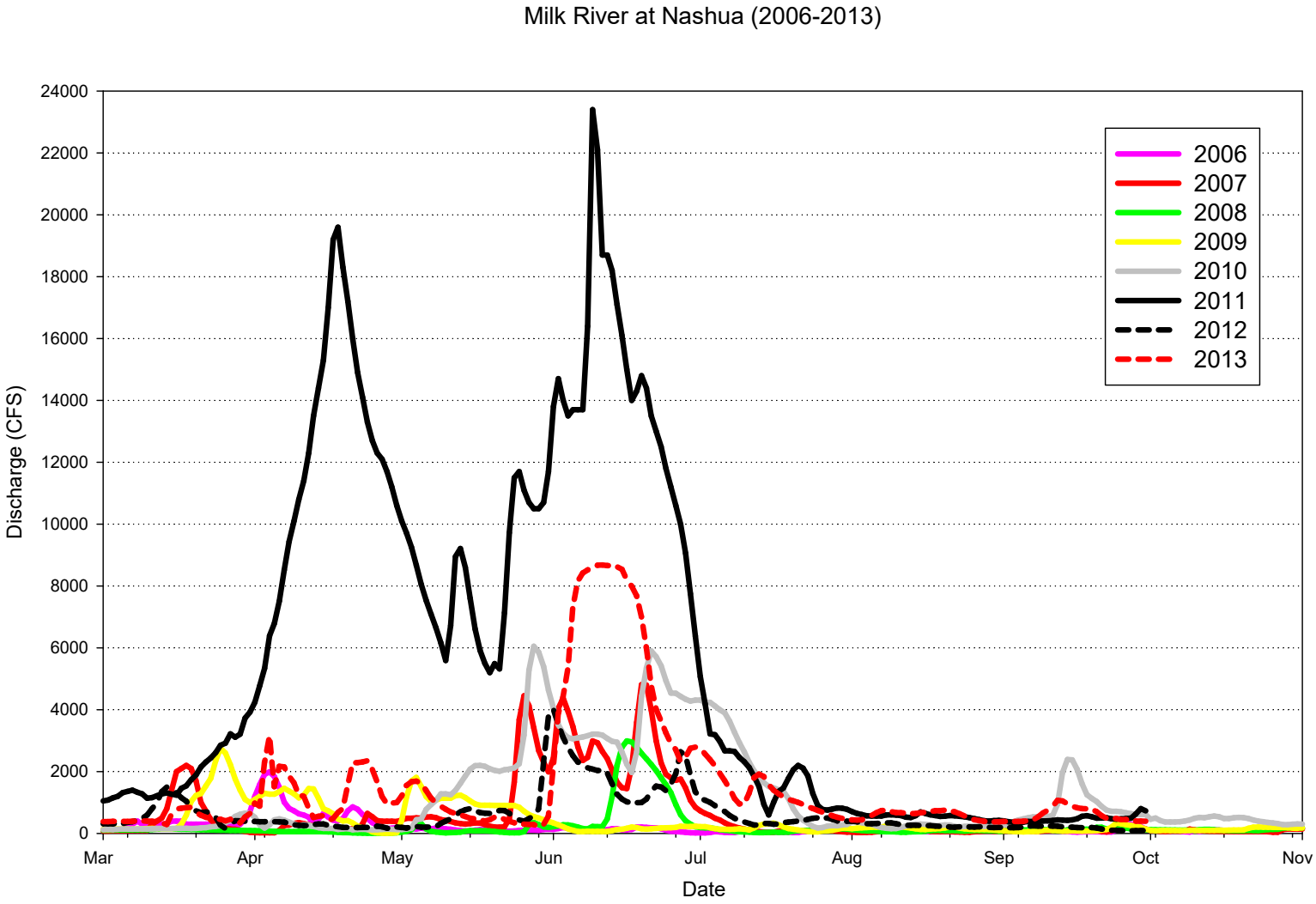

Figure 2. Hydrograph of the Milk River at Nashua, MT. March through November 2006-2011 and March through September for 2012 and 2013. Source USGS.

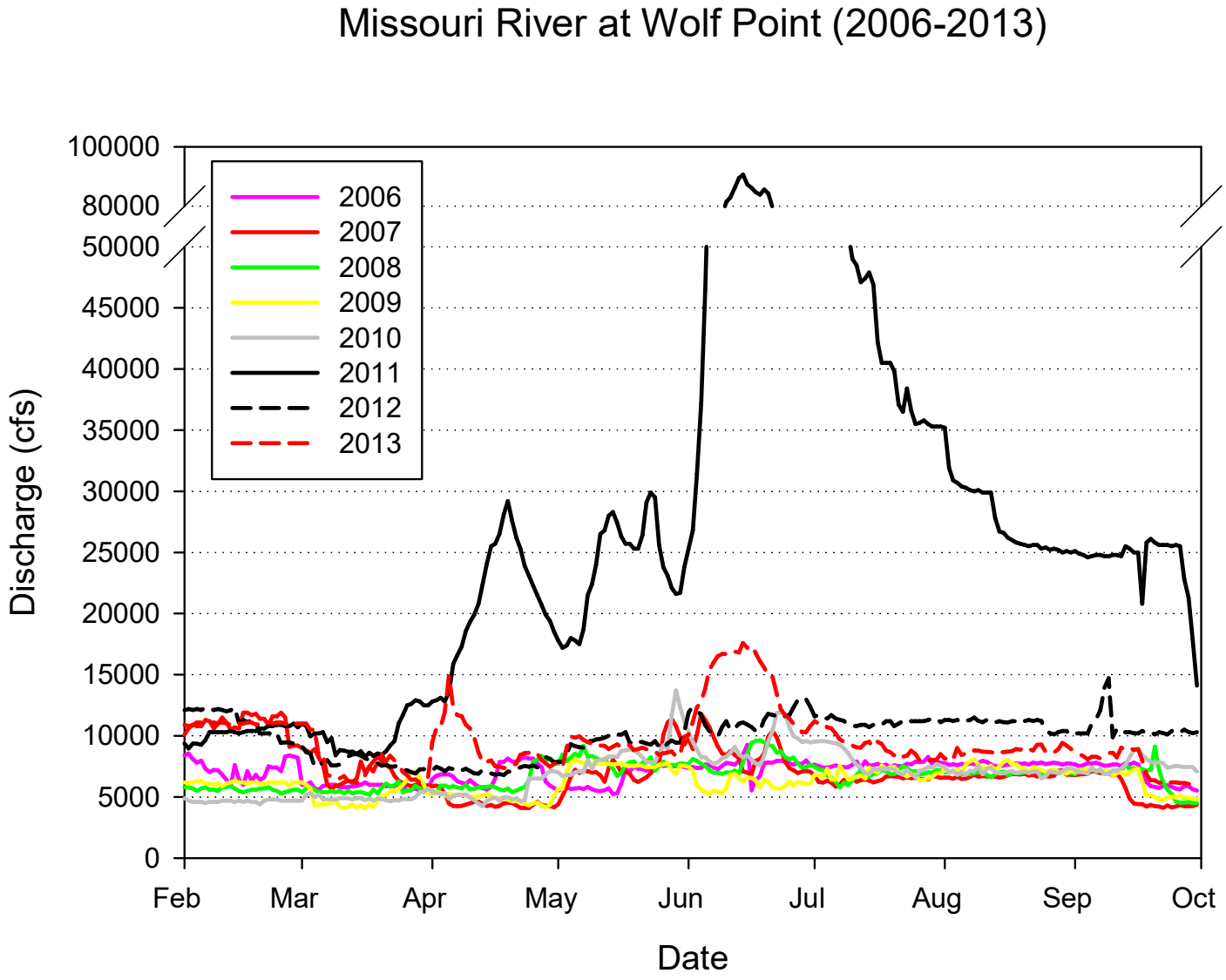

Figure 3. Missouri River hydrograph at Wolf Point, February through September, 2006-2013. Notice the break in the Y-axis from 50,000 to 80,000 cfs. Source USGS.

PROCEDURES

Northeast Montana Rivers and Streams

Milk River

Monitoring of the lower Milk River sauger population continued in 2012, with four runs occurring from April 4 to May 3, 2012. Discharge in the Milk River was much lower during the effort in 2012 when compared to 2011, which likely increased our efficiency. Electrofishing was conducted with booms on a jet boat using a Smith Root rectifying unit. Electrofishing runs were made in a downstream manner where current was significant and at times in an upstream direction in the mouths of tributaries where flow was minimal. For the Milk River sauger sampling, only sauger and walleye were dip netted, since the abundance of other river fishes would have overwhelmed dip netters. However, visual estimates of other species were recorded and those observations were input into the State of Montana's Fisheries Information System (Godzilla). Water conductivity was measured during all electrofishing efforts. All captured sauger and walleye were measured to total length, weighed and their reproductive state was visually assessed and recorded.

To evaluate the relative abundance, size structure and condition of lower Milk River channel catfish, hoop netting was initiated in 2012. A total of 15 hoop nets were set in the lower Milk River on September 4, 2012 and soaked for two nights. Hoop nets were baited with aged cheese. Hoop nets consisted of seven 3 foot diameter hoops, with a mesh of 1.0, 2.0 or 3.0 inch mesh. The location of all deployed hoop nets were recorded using a GPS. All fish captured were identified to species. At least 25 individuals of each species captured were measured and weighed, while over 25 were just enumerated.

Aging structures of channel catfish (pectoral fin and otolith) were removed from a subsample of all channel catfish captured in Milk, Missouri and Yellowstone Rivers in 2011 and 2012. The Yellowstone River samples were taken by the Glendive FWP biologist and sent to Fort Peck for analysis. During the winter of 2011 and 2012 all the samples were sectioned, mounted and aged using an optical imaging analysis machine. In the winter of 2013 measurements between annuli will be taken to back calculate length at age. This will be a separate report that may be published in a peer review journal.

Missouri River

Similar to the Milk River channel catfish hoop netting effort, hoop nets were also set in the Missouri River downstream of the Milk River confluence on August 6, 2012. Hoop nets were baited with aged cheese and fished for two nights. All other methods were identical to the Milk River effort.

Electrofishing for rainbow and brown trout in the Missouri River downstream of Fort Peck Dam commenced in 2012. This work is being done to gain an understanding of the extent of quality salmonid habitat throughout the river, evaluate temporal movements, identify spawning locations, and be the precursor work to estimate densities. Electrofishing occurred on September 12 and 13, 2013 from just downstream of Boy Scout Park boat Ramp to a few miles downstream of the Milk River confluence. All trout that were captured were anesthetized

in a tricaine methanesulfonate (MS-222) bath, measured (total length) and weighed. Trout large enough received a passive integrated transponder tag (PIT tag) (Biomark, 12mm length) in their dorsal musculature. In addition, trout that were large enough (transmitter didn't exceed 2.5% of body weight) were also implanted with a coded radio transmitter (Lotek MCFT2-3FM, Frequency 149.620, 11 mm diameter, 59 mm length, 11 g air weight), which have an estimated longevity of 1.4 to 3.9 years at a 5 sec burst rate. Radio transmitters were surgically implanted in the peritoneal cavity using scalpel and sewn up using nylon medical sutures. The location where trout were captured and tagged where recorded using a GPS unit. Several tracking runs took place from September 2012 to April 2013 to locate implanted fish, specific fish codes and their locations were recorded.

Northeast Montana Ponds

Several small impoundments in Valley and Daniels Counties were sampled using trap and gill nets during 2012. This is part of the routine sampling of the area's ponds. We like to get to each pond in eastern Region 6 on a three year basis, but with the extreme winter kill that took place in the winter of 2010-11, many ponds have been sampled more frequently over the past three years. Box Elder Creek Reservoir located in Sheridan County was sampled in 2012 using gill and trap nets, as well as nighttime boat electrofishing. Sampling occurred on October 29, 2012.

Northeast Montana Wild Fish Transfers

Wild fish transfers are performed in northeast Montana to start, restart, or supplement fisheries in local water bodies. Fish health and aquatic nuisance species testing is done prior to fish being moved on all donor waters. Fish health testing is performed by FWP staff and samples are sent to the USFWS at the Fish Technology Center in Bozeman, MT. Aquatic nuisance species testing is also performed by FWP staff. These measures are in place to reduce the risk of infecting "clean" water bodies with aquatic pathogens and nuisance species from already contaminated waters.

RESULTS AND DISCUSSION

Survey of Northeast Montana Rivers and Streams

Milk River- Electrofishing

Electrofishing in the lower Milk River (Figure 4) occurred on four occasions from April 4 to May 3, 2012. This sampling is being conducted to monitor sauger relative abundance, condition and the timing of the spawning run in the lower Milk River. Milk River discharge was much lower in 2012 when compared to the previous sampling season (Figure 2). Electrofishing occurred for a total of 8.8 hours over the four sampling occasions. In all, a total of 342 sauger, 44 walleye, 6 northern pike, 6 channel catfish and 1 burbot were netted. Total CPUE for sauger throughout the season was estimated at 38.9/hour, while walleye CPUE was significantly lower at 5.0/hour (Table 1). Hundreds of non-game fish such as smallmouth buffalo, bigmouth buffalo, river carpsuckers, longnose suckers, white suckers and goldeye were shocked, but not netted.

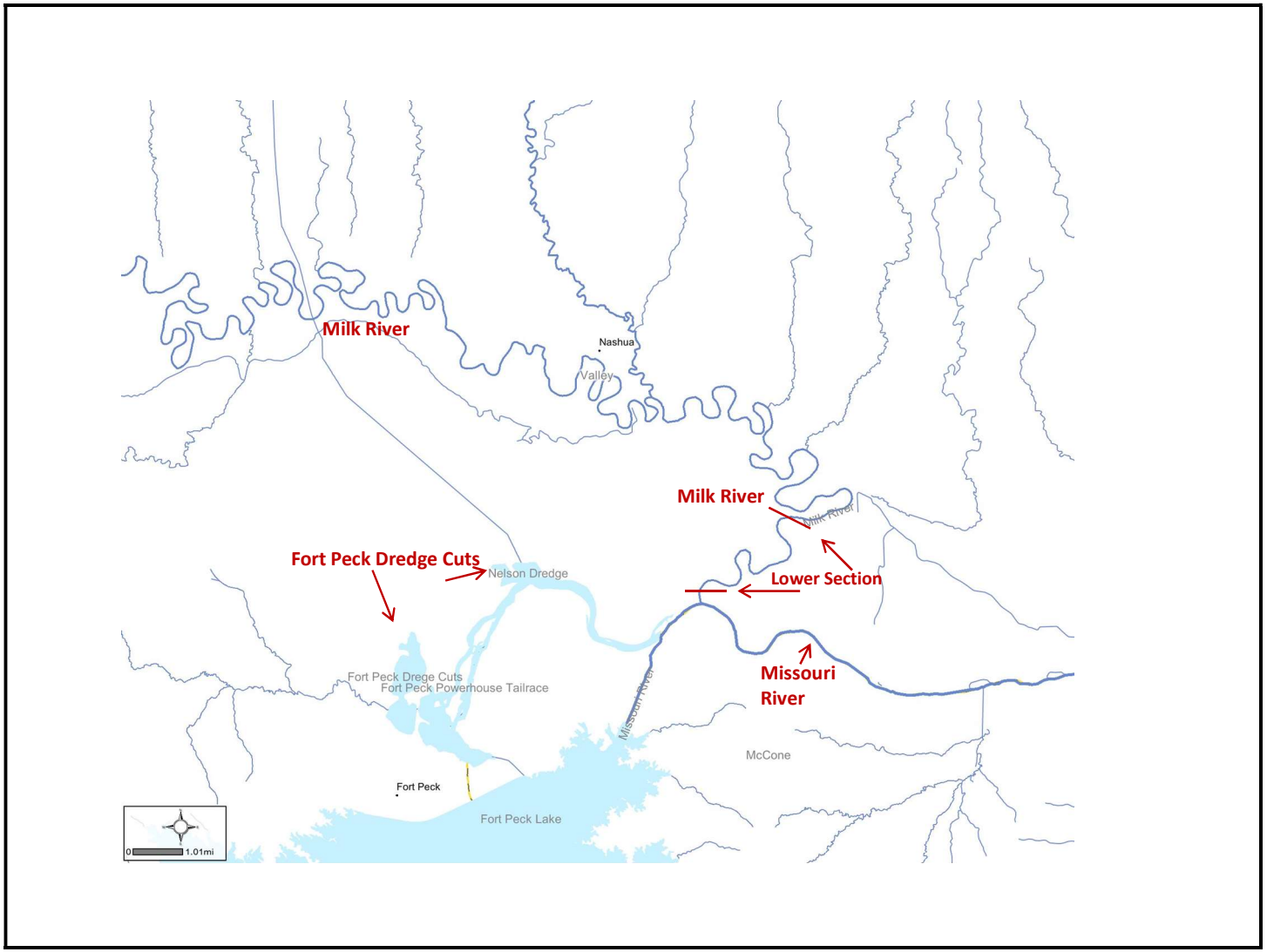

Figure 4. Map of the lower Milk River study section and the Fort Peck Dredge Cuts.

Sauger CPUE was higher in 2012 during all sample dates, when compared to all dates sampled in 2011 (Figure 5). The mean CPUE of sauger and walleye and the mean daily flows of the Milk River for both 2011 and 2012 are shown in Figure 5. While sauger and walleye CPUE was higher in 2012, when compared to 2011, flows were significantly lower. The lower flows could have made sampling efficiency higher in 2012, therefore direct comparisons between the two years is difficult. Future years of similar flows will allow for more direct comparisons between year to year relative abundance of sauger and walleye in the lower Milk River.

During 2012, sauger CPUE was highest on the April 19th sampling date with an estimate of 52.6 sauger/hour. This date may have been close to the peak of the spawning run (Figure 5). Walleye CPUE was highest in 2012 during the April 11th sampling effort, with an estimate of 5.3/hour, but was similar to other sampling dates.

Table 1. Electrofishing summary for the lower Milk River 2012. Tables represents the total catch during four separate sampling occasions from April 13 to May 3, 2012.

Species	# Sampled	Length Avg (in)	Min Length (in)	Max Length (in)	Weight Avg (lbs)	Relative Wt Avg	CPUE (fish/hour)
Channel Catfish	6	17.42	15.2	22	1.8	92.41	0.7
Burbot	1	24.4	24.4	24.4	2.28	61.77	0.1
Northern Pike	6	17.6	11.2	26.2	1.62	91.3	0.7
Sauger	342	14.64	9.6	21.7	0.9	75.21	38.9
Walleye	44	16.5	4.9	29.3	2.13	83.95	5.0

Sauger averaged 14.6 inches in total length and weighed an average of 0.9 lbs. Walleye were larger, averaging 16.5 inches in length and weighing on average 2.1 lbs. Sauger had a relatively high CPUE with an estimate of 38.9/hour, while walleye CPUE was significantly lessat 5/hour (Table 1). The relative weight of sauger was low with an average of 75.2. Although the average relative weight of walleye was higher, they only averaged 84. Channel catfish and northern pike had average relative weights over 90, although only six fish of each species were sampled. The size distribution of sauger and walleye sampled was similar between 2012 and 2011 (Figure 6).

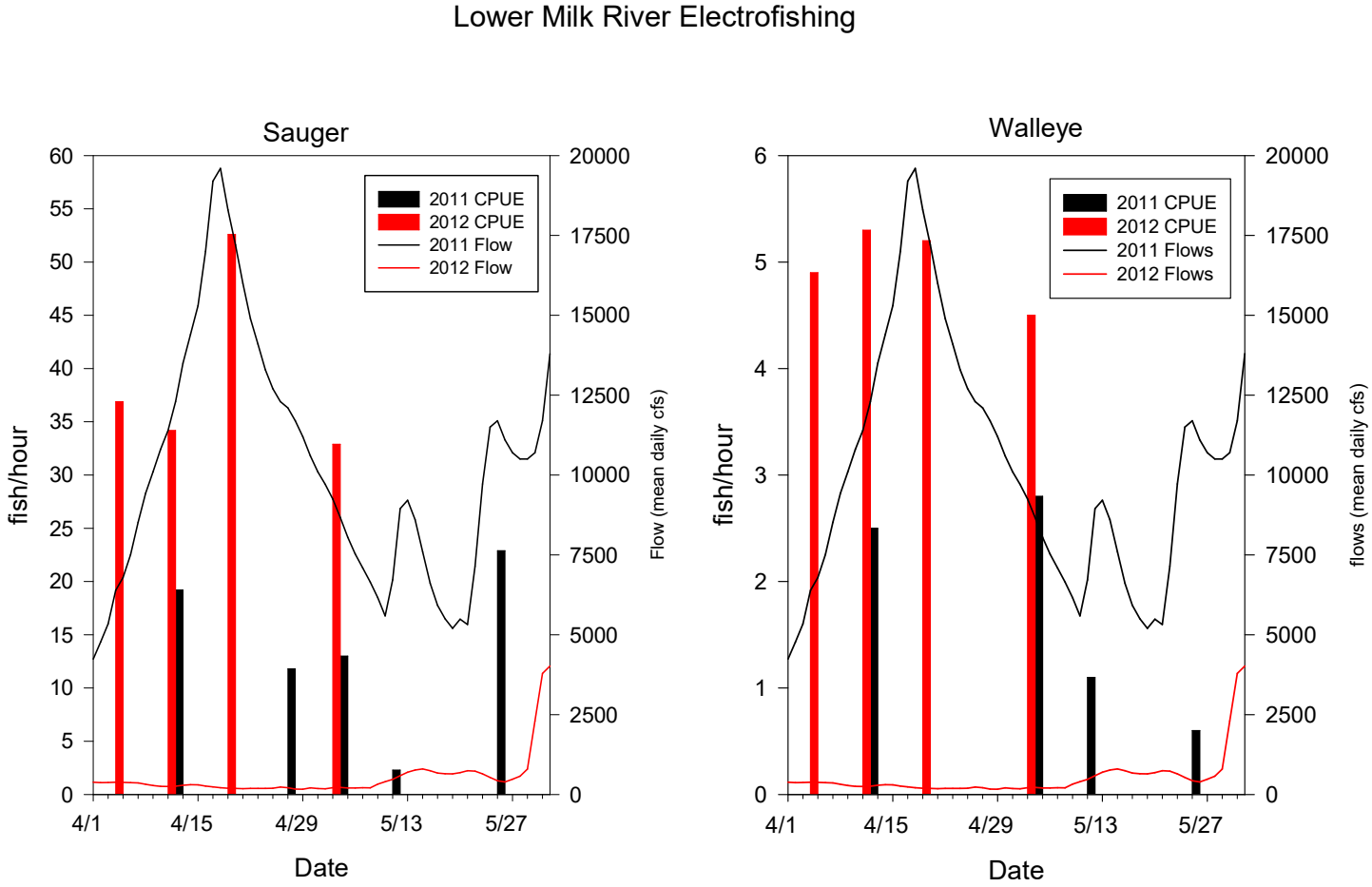

Figure 5. Electrofishing sauger and walleye CPUE and river discharge in the lower Milk River, 2011 and 2012. Note the difference in the Y-axis for the two panels.

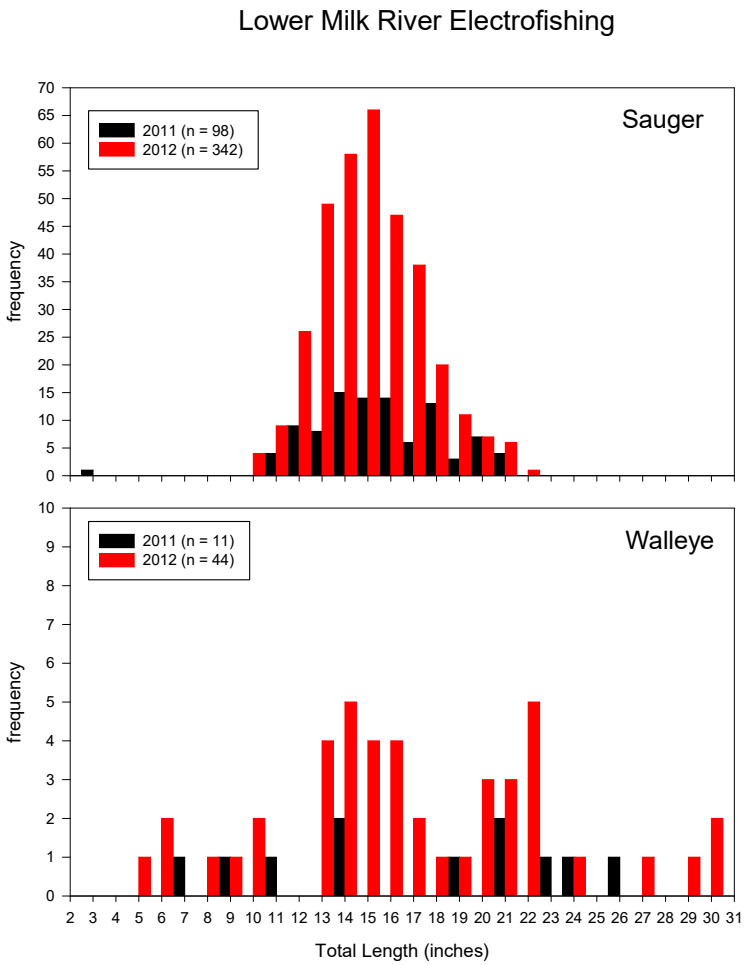

Figure 6. Length frequency histogram for sauger and walleye collected in the lower Milk River electrofishing effort, 2011 and 2012. Note the difference in the scale of the Y-axis.

Milk River- Hoop Netting

Cheese baited hoop nets were set in the lower Milk River (Figure 7) on September 4, 2012. This was the first year hoop nets were set to evaluate channel catfish relative abundance, size structure and condition factor. A total of 188 channel catfish were captured, which equated to a CPUE of 12.5 fish/net. Seven other species were captured, with the two most abundant being river carpsuckers (n=10) and sauger (n=6) (Table 2). Channel catfish averaged 15.3 inches in length and 1.0 lbs. Channel catfish ranged in length from 8.3 to 28.5 inches. The average relative weight of channel catfish was 80.1. The size distribution of channel catfish captured is shown in Figure 8.

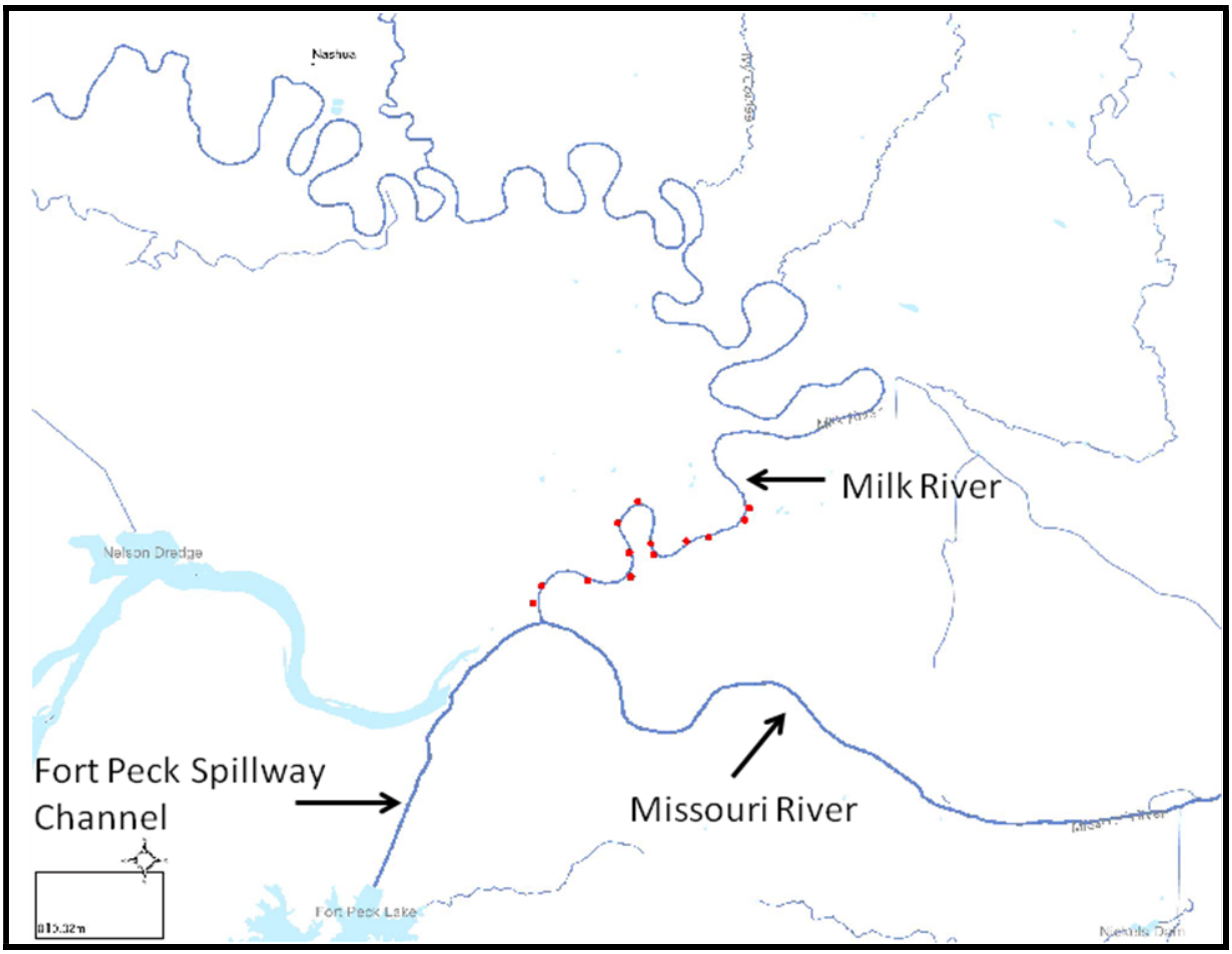

Figure 7. Location of hoop nets (red dots) set in the lower Milk River on September 4, 2012. A total of 15 hoop nets were set.

Table 2. Lower Milk River hoop netting catch statistics. A total of 15 hoop nets were set and soaked for two nights.

	n	Avg. length (inches)	Min Length (in)	Max Length (in)	Avg. Weight (lbs)	Relative Wt Avg.	CPUE Fish/Net
Channel Catfish	188	15.3	8.3	28.5	1	80.1	12.5
Common Carp	2	18.8	11.9	25.7	4.2	91.7	0.1
Northern Pike	2	24.9	21.9	27.9	3.5	88.2	0.1
River Carpsucker	10	17.4	15.1	22	2.7		0.7
Sauger	6	15.4	8.5	20.1	1.2	149.8	0.4
Smallmouth Buffalo	1	0	0	0	0		0.1
White Sucker	1	16.9	16.9	16.9	2.3	109.4	0.1
Walleye	1	17	17	17	3.1	165.7	0.1

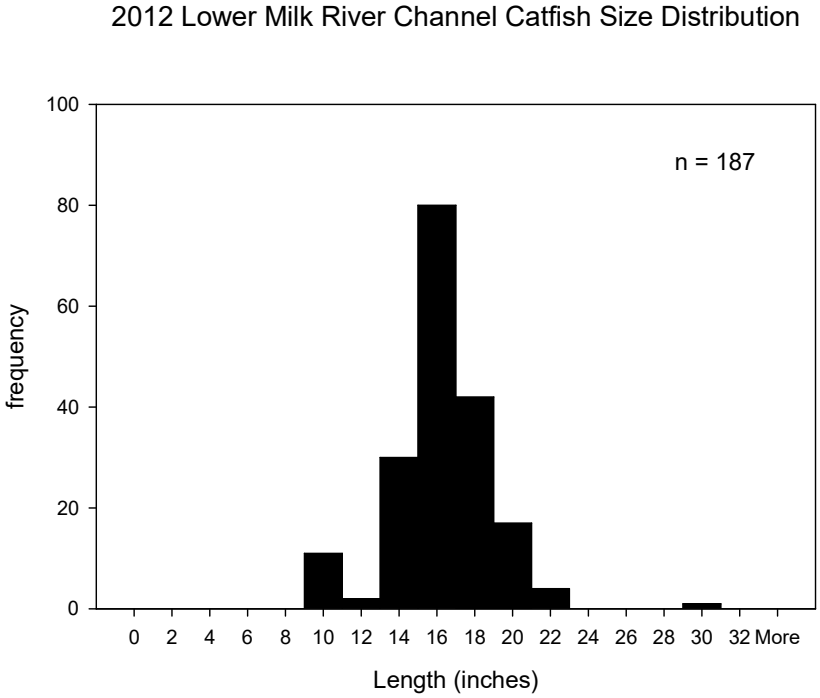

Figure 8. Size distribution of channel catfish sampled in hoop nets within the lower Milk River during 2012.

Missouri River-Hoop Netting

Baited hoop nets were set in the Missouri River downstream of its confluence with the Milk River on August 6, 2012 and were set for two nights (Figure 9). A total of 496 channel catfish were captured, which equated to a CPUE of 33.1 fish/net (Table 3). However, 385 channel catfish were captured in one hoop net, just downstream of the mouth of the Milk River. The catch of channel catfish decreased downstream and nets that were set downstream of the plume of turbid water exiting the Milk River had no fish in them.

Channel catfish averaged 13.8 inches in length and weighed on average 1.6 pounds (Table 3). Channel catfish ranged in length from 13.8 to 22.4 inches. Similar to the Milk River hoop netting effort, the average relative weight of channel catfish in the Missouri River was 82.5. The size distribution of channel catfish sampled is shown in Figure

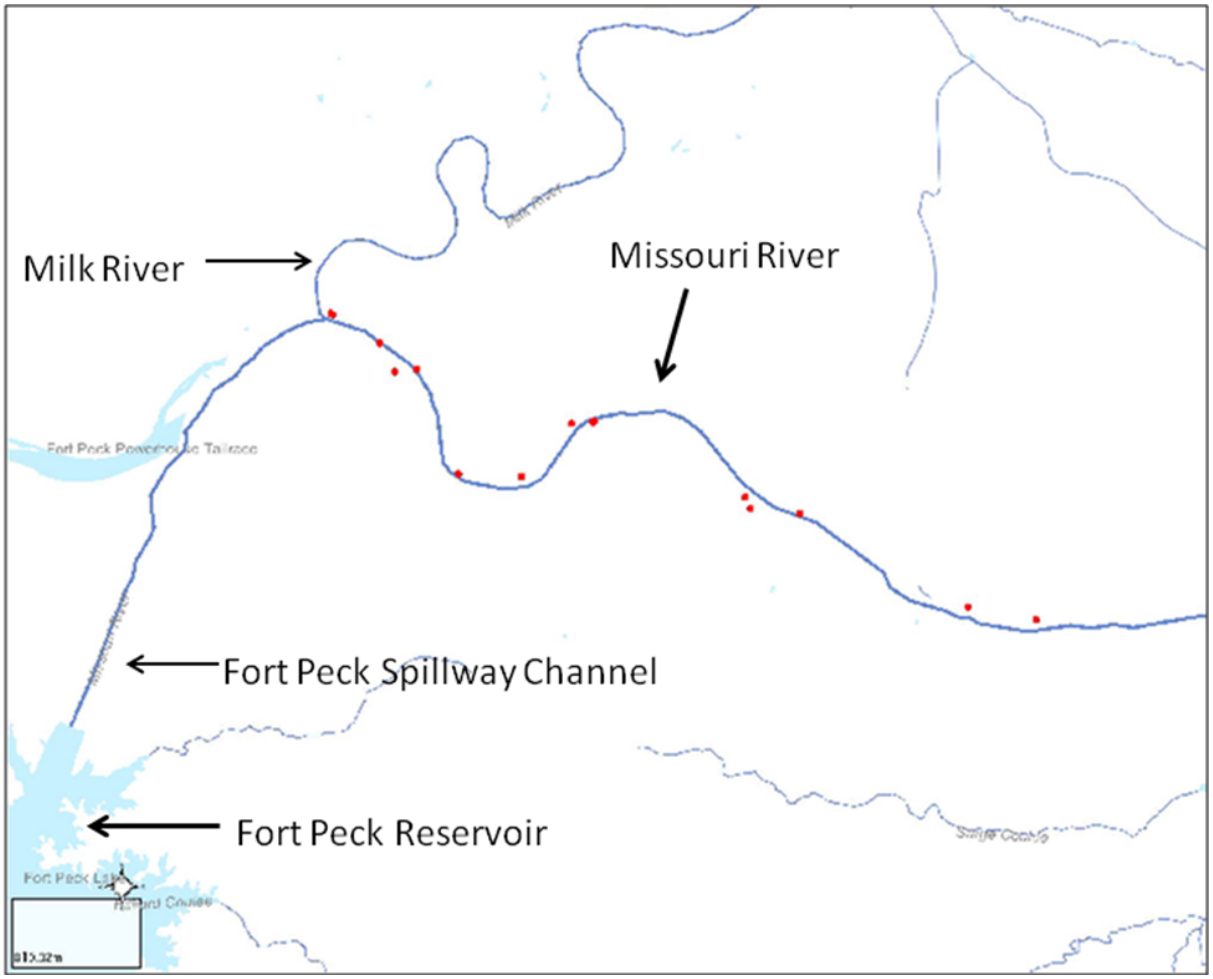

Figure 9. Location of hoop nets (red dots) set in the Missouri River on August 6, 2013. A total of 15 hoop nets were set.

Table 3.Missouri River hoop netting catch statistics for the August 6, 2012 sampling effort. A total of 15 hoop nets were set and soaked for two nights.

Species	# Sampled	Length Avg. (in)	Min Length (in)	Max Length (in)	Weight Avg. (lbs)	Relative Wt Avg.	CPUE (fish/net)
Channel Catfish	496	17.4	13.8	22.4	1.6	82.5	33.1
Northern Pike	1	30.9	30.9	30.9	8.9	120.0	0.1

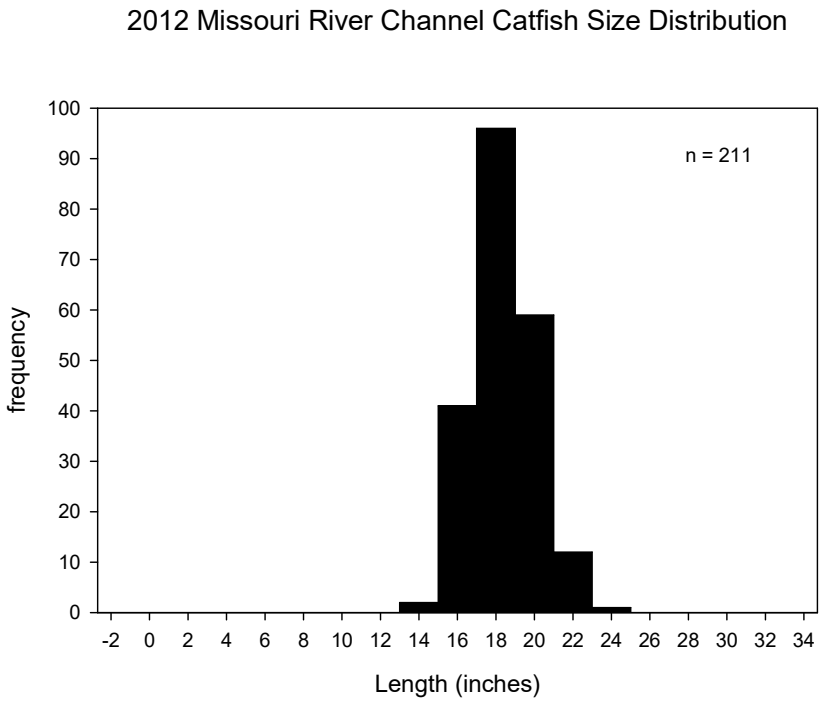

Figure 10. Length frequency of channel catfish sampled in the Missouri River during 2012 using hoop nets. A total of 15 hoop nets were set.

Missouri River-Trout Sampling

Electrofishing for rainbow and brown trout in the Missouri River downstream of Fort Peck Dam was conducted on September 12 and 13, 2012. Electrofishing was conducted to implant trout with both PIT tags and coded radio tags. Missouri River flows were higher throughout the summer in 2012 when compared to other years with "normal" operations at Fort Peck Dam, which may have negatively influenced capture efficiency. Nonetheless, nine rainbow trout and three brown trout were captured during the effort (Table 4). A total of seven rainbow trout and three brown trout received PIT tags. Coded radio tags were implanted in six rainbow trout and two brown trout. The location of captures of all rainbow and brown trout is shown in Figure 11.

Rainbow trout averaged 21.5 inches in length, although one 4.5 inch fish brought the average considerably lower. Not including the smallest fish, the average length of rainbow trout sampled was 23.6 inches. Brown trout averaged 23.2 inches, with the smallest measuring 18.5 inches and the largest 27.75. The largest rainbow weighed 6.75 pounds, while the largest brown weighed 9.75 pounds. The trout that were implanted with radio tags measured 24.8 inches on average and weighed an average of 6.2 pounds.

From September 2012 to April 10, 2013 five tracking runs were made up the Missouri River to locate radio tagged trout. Throughout the period, no obvious patterns were discerned and no congregations of fish were that may indicate spawning habitat were found. Tracking runs will

continue through the spring of 2013 and will be more frequent during the winter of 2013-14, to try and identify spawning locations. Although not obvious patterns of movement were found, both species did show a propensity to remain in a relatively small home range. Fish of both species were located on April 10, 2013 in relatively close proximity to where they were originally tagged in September (Figures 12 and 13). It will be interesting to see if this pattern holds true through an entire year.

Table 4. Summary statistics for rainbow and brown trout captured in the Missouri River on September 12 and 13, 2012. All PIT and radio tags were inserted on the day of capture. Radio tags have a frequency of 149.620.

Date	Species	Length (in)	Weight (lbs)	PIT Tag	Radio Transmitter Code	Fate
9/12/2012	Brown Trout	23.25	5.5	4868685208	108	Released
9/12/2012	Brown Trout	27.75	9.75	486562032E	101	Released
9/12/2012	Rainbow Trout	15.75	1.25	4868392B70		Released
9/12/2012	Rainbow Trout	23	5.5	4868693D2D	106	Released
9/12/2012	Rainbow Trout	23.5	5	48702F5414	107	Released
9/12/2012	Rainbow Trout	24	5.25	486A1A3D33	100	Released
9/12/2012	Rainbow Trout	24	6	4360084C79	114	Released
9/12/2012	Rainbow Trout	27	6.75	48704E6306	102	Released
9/13/2012	Brown Trout	18.5	2.625	4866363D29		Released
9/13/2012	Rainbow Trout	4.25				Released
9/13/2012	Rainbow Trout	25.75	5.75	48684D3453	113	Released
9/13/2012	Rainbow Trout	26	6.125			Mortality

Figure 11. Rainbow trout (Top Panel) and brown trout (Bottom Panel) capture locations (red dots) for electrofishing runs, September 12 and 13, 2012.

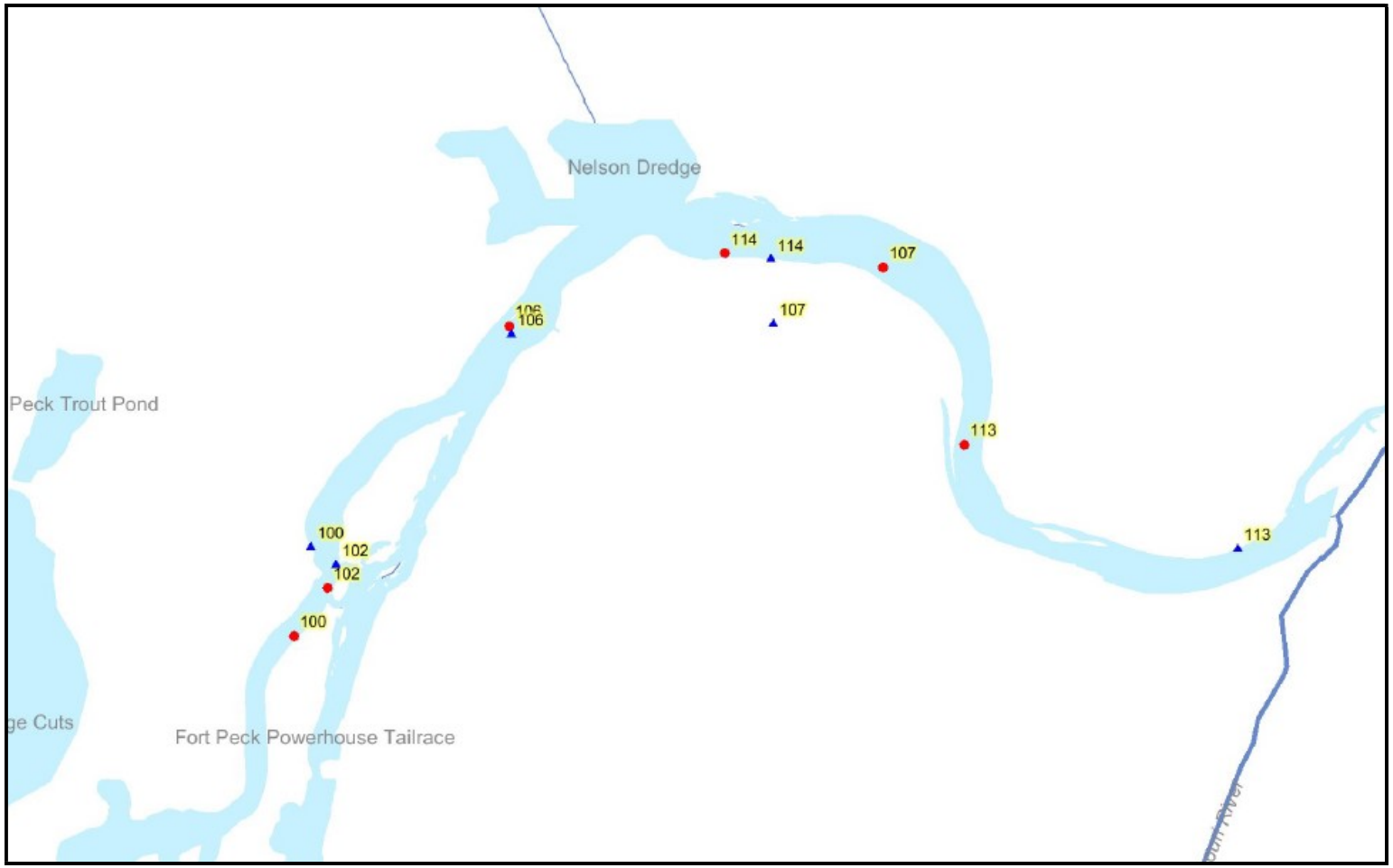

Figure 12. Initial capture and tagging locations (blue triangles) for rainbow trout sampled during September 2012 and relocations of rainbow trout (red circles) on April 10, 2013.

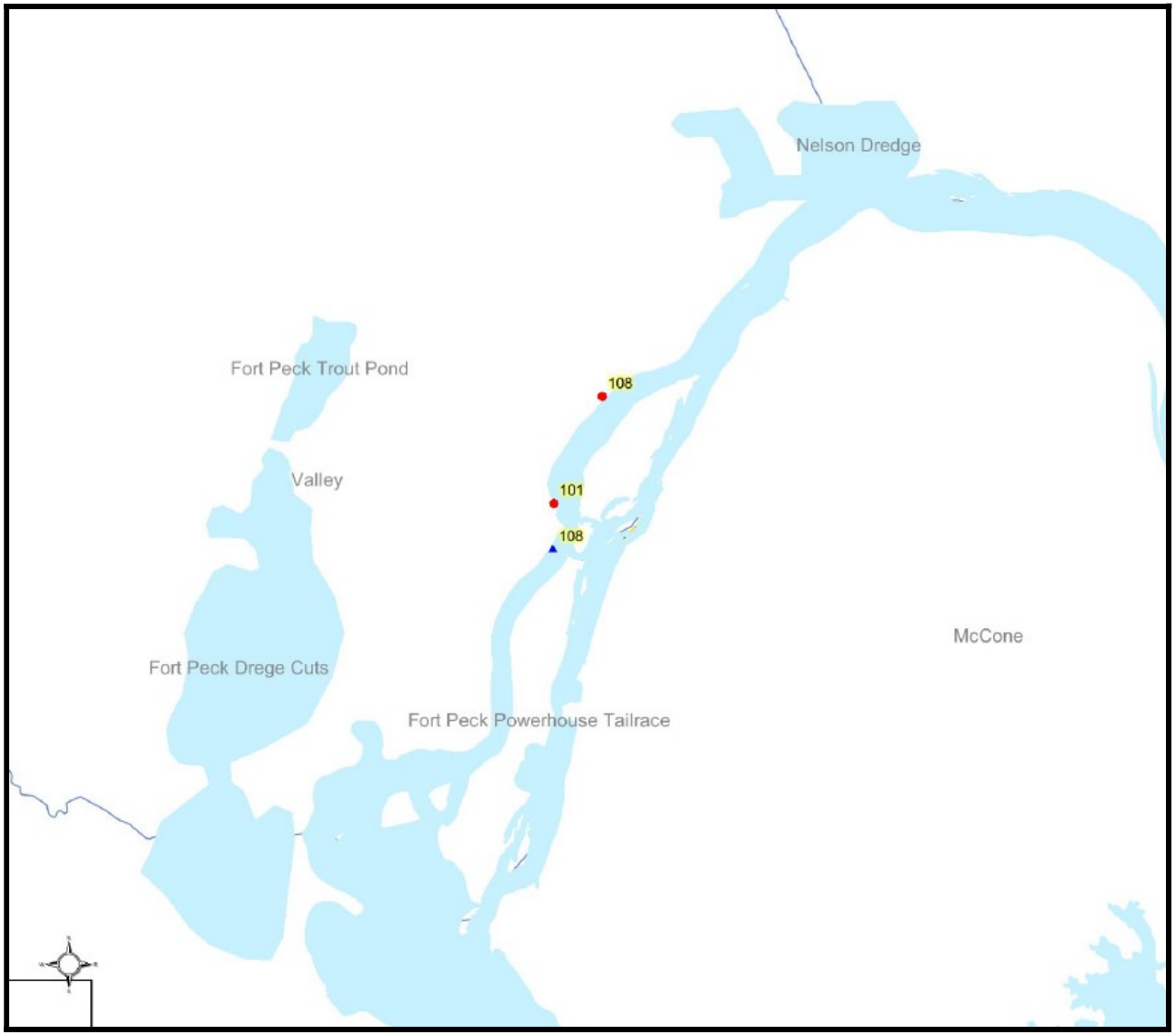

Figure 13. Initial capture and tagging locations (red circles) for brown trout sampled during September 2012 and relocations of brown trout (blue triangle) on April 10, 2013. Note that code 108 was not located on April 10.

2012 Survey of Northeast Montana Ponds

Although the fisheries of several impoundments were sampled in Northeast Montana during the 2012 year, fewer ponds were sampled than the previous two years. A mild winter in 2011-12 in conjunction with a lot of ponds being sampled in 2010 and 2011 was the reasoning behind less effort into the ponds program. The effort will be increased in 2013 providing weather permits.

Daniels County

Hatfield Reservoir

Hatfield Reservoir is a small private pond located near the town of Navajo, MT in Daniels County. The reservoir has a surface area of approximately 4.1 acres and a maximum depth of 12 ft. Rainbow trout are annually stocked into Hatfield Reservoir to provide a put and grow fishery. In 2012 Hatfield Reservoir was sampled on September 5 using one gill net and two trap nets (Table 5). The gill net captured 11 rainbow trout averaging 10.3 inches in length. The trap nets captured 3 rainbow trout and 3 brook stickleback.

Whitetail Reservoir

Whitetail Reservoir is an impoundment adjacent to the town of Whitetail Montana in Daniels County. The reservoir has an approximate surface area of 17.5 acres and a maximum depth of 10 ft. FWP has a fishing access site located at the reservoir. Whitetail Reservoir was sampled on August 16, 2012, this was the second year in a row the reservoir was sampled. Whitetail had a substantial fish kill during the winter of 2010-11. Subsequently, we stocked adult yellow perch, rainbow trout and channel catfish in the spring/summer of 2011. However, the hatchery records of the channel catfish stocking are lacking, therefore we are not sure if they were stocked.

Whitetail Reservoir was sampled using one gill net and three trap nets. The gill net captured a total of 17 northern pike, and one rainbow trout, while the trap net caught 550 fathead minnows, five northern pike and one yellow perch (Table 5). Northern pike averaged 19.5 inches in the gill net and weighed an average of 1.9 pounds. The one rainbow trout that was captured measured 18.1 inches in length and weighed 2.7 pounds. The rainbow trout was likely an overwinter survival from the 2011 stocking, since the rainbows that were planted on May 9 and 22, 2012 were only 2.7 and 7.0 inches in length, respectively. Furthermore, rainbow trout that were planted on June 13, averaged 7.8 inches. FWP is going to continue to stock rainbow trout in Whitetail Reservoir for a put and grow fishery at least until the yellow perch fishery comes back.

McCone County

No ponds were sampled in McCone County during 2012.

Richland County

No ponds were sampled in Richland County during 2012.

Table 5. Fish species sampled by gear for ponds sampled in northeast Montana during 2012 (numbers in parentheses next to gear represent the # of deployments).

County	Reservoir Name	Date	Maximum Depth (ft)	Gear	Species	Total Number Sampled	Mean Length (in)	Length Range (in)	Mean Weight (lbs)
Daniels	Hatfield Reservoir	9/5/2012	12	Gill (1)	Rainbow trout	11	10.31	7.2-14.8	0.73
				Trap (2)	Brook Stickleback	3			
					Rainbow trout	3	9.8	7.3-13.9	
Daniels	Whitetail Reservoir	8/16/2012	10	Gill (1)	NP	17	19.53	17.8-22.7	1.91
					RB	1	18.1		2.65
				Trap (3)	FH MN	550			
					NP	5	20.32	18-24.2	2.06
					YP	1	9.1		0.5
Valley	Glasgow Air Force Base Pond	8/14/2012	14	Gill (1)	Northern Pike	3	17.03	15.5-17.8	0.75
					Rainbow trout	17	12.69	9.2-17.1	1.21
					Yellow Perch	1	10.4		
				Trap (2)	Northern Pike	1	5.8		
Sheridan	Holtan Reservoir	9/5/2012		Gill (1)	No Fish				
				Trap (2)	Brook Stickleback	90			
					Fathead Minnow	271			

Table 5 continued.

County	Reservoir Name	Date	Maximum Depth (ft)	Gear	Species	Total Number Sampled	Mean Length (in)	Length Range (in)	Mean Weight (lbs)
Valley	Paulo Reservoir	8/14/2012	12	Gill (1)	Bluegill	14	5.0	3.5-5.9	
					Black Bullhead	2	9.4	7.7-11	
					Common Carp	12	14.3	13.3-16	
					Largemouth Bass	9	8.1	7.4-11.4	
				Trap (3)	Bluegill	146	4.4	0.9-7.3	
					Black Bullhead	19	7.2	2.1-11.4	
					Common Carp	6	13.6	12.1-14.3	
					Largemouth Bass	1	6.9		
					White Sucker	1	14.1		
Valley	VR009	8/14/2012		Gill (1)	Northern Pike	4	25.1	24.5-25.7	3.81
					Rainbow trout	16	12.2	8.9-14.7	0.73
				Trap (1)	Fathead Minnow	1,000			

Roosevelt County

No ponds were sampled in Roosevelt County during 2012. However, several ponds were stocked with rainbow trout in Roosevelt County during 2012.

Sheridan County

Box Elder Creek Reservoir

Box Elder Reservoir is the largest reservoir in northeastern part of Region 6 with approximately 74 surface acres. The reservoir has a maximum depth of approximately 30 ft. Box Elder Reservoir has been sampled five of the past seven years using a variety of netting and electrofishing techniques. The reservoir had been stocked with walleye on almost an annual basis since 1985 to 2010. The largest number of walleye stocked was in 2006, with just over 100,000 fish consisting of about half fingerlings and half fry.

The current management objective of Box Elder Reservoir is to bring back a sustainable yellow perch fishery. Over the past several decades the yellow perch fishery in Box Elder Reservoir has deteriorated from an excellent ice fishery to an almost non-existent fishery. In an attempt to bring back the perch fishery, walleye stocking has been eliminated for the short-term. Walleye stocking was reduced in 2010 to 25,000 walleye fry and no walleye were stocked in 2011 or 2012. In addition, adult yellow perch stockings have occurred over the past three years. In all, a total of approximately 10,700 adult perch have been stocked during the past three years. A daily bag limit of 25 yellow perch was implemented in 2012.

In 2012 Box Elder Creek Reservoir was sampled using boat electrofishing, gill nets and trap nets. The electrofishing took place on the evening into the night of October 29. Electrofishing was conducted for 0.85 hours, enough time to shock the perimeter of the reservoir. In addition, four gill nets and two trap nets were also set on October 29, 2012.

Nighttime electrofishing was conducted mainly to evaluate the catches observed in the gill and trap nets. Since common carp are often difficult to gill net, electrofishing throughout the perimeter of the reservoir might allow us to get a better sense of the extent of the carp population. However, only four common carp were collected (Table 6). Northern pike were the most abundant species sampled with 15 captured, followed by white suckers (n=12), walleye (n=7) and lastly yellow perch (n =1). Northern pike averaged 28.6 inches in length and 5.3 pounds. Walleye averaged 12.6 inches and weighed an average of 1.0 pound.

Interestingly, gill nets captured more common carp than electrofishing, with 15 sampled in 4 nets (Table 7). Common carp averaged 14.0 inches in length. Gill netting CPUE for common carp was estimated at 3.75 fish/net night, which is by far the greatest CPUE we've observed for common carp in Box Elder Reservoir over the past several years of sampling. While common carp CPUE was relatively high, only one walleye was captured in the four gill nets. This is in stark contrast to 2010 when four gill nets captured 201 walleye (Figure 14). In fact, a CPUE of 0.25 fish/net night was the lowest we've observed in the past five years of sampling.

During 2010 we sample a lot of 8 to 10 inch walleye (Figure 15), therefore by sampling so few walleye in both the electrofishing and gill netting in 2012 is reason to be concerned. Sampling

in 2013 will be necessary to better understand if that large year class that was observed in 2010 is still in the reservoir, or if they have perished.
As for yellow perch, our data do not support that the transplanting of over 10,000 adults in the past three years has made an impact on the fishery. During 2012, only one yellow perch was captured in the electrofishing effort, while none were found in gill or trap nets.

The two trap nets set captured only four white suckers. Since we've been stocking adult yellow perch, no young-of-the-year yellow perch have been captured in trap nets. There are many things that could be going on. Some of the options include but are likely not limited to, the adult perch that we've stocked could be getting predated on at a high level from northern pike and walleye. Secondly, yellow perch spawning habitat could be lacking. Additionally, yellow perch could be spawning, but either their eggs and or fry are being predated on by common carp and then predators such as walleye and northern pike. Lastly, water quality problems due to carp movements could be reducing the incubation success of perch eggs. More evaluations of the reservoir will be needed to try and better pinpoint why yellow perch are not successfully recruiting in the reservoir.

In summary, the 2012 data does not look good, since significantly more common carp and white suckers were captured than game fish. Further evaluation of our management efforts at Box Elder Reservoir needs to occur.

Table 6. Electrofishing summary data for Box Elder Creek Reservoir for October 29, 2012.

Species	# Sampled	Length Avg. (in)	Min Length (in)	Max Length (in)	Weight Avg. (lbs)	Relative Wt Avg.	CPUE (fish/hour)
Common Carp	4						3.4
Northern Pike	15	28.62	24.2	34.6	5.28	87.55	12.75
White Sucker	12	15.25	9.3	20.7	1.78	98.76	10.2
Walleye	7	12.56	9.5	18.5	1.01	111.66	5.95
Yellow Perch	1	7.3	7.3	7.3	0.22	114.54	0.85

Table 7. Summary of gill netting data for Box Elder Creek Reservoir October 29, 2012 (4 experimental gill nets).

Species	# Sampled	Length Avg. (in)	Min Length (in)	Max Length (in)	Relative Wt Avg	CPU (fish/net night)
Common Carp	15	14.03	12.3	24.6	98.13	3.75
Northern Pike	2	26.1	24.2	28	84.91	0.5
White Sucker	6	16.67	13	19.1	92.24	1.5
Walleye	1	9.3	9.3	9.3	105.91	0.25

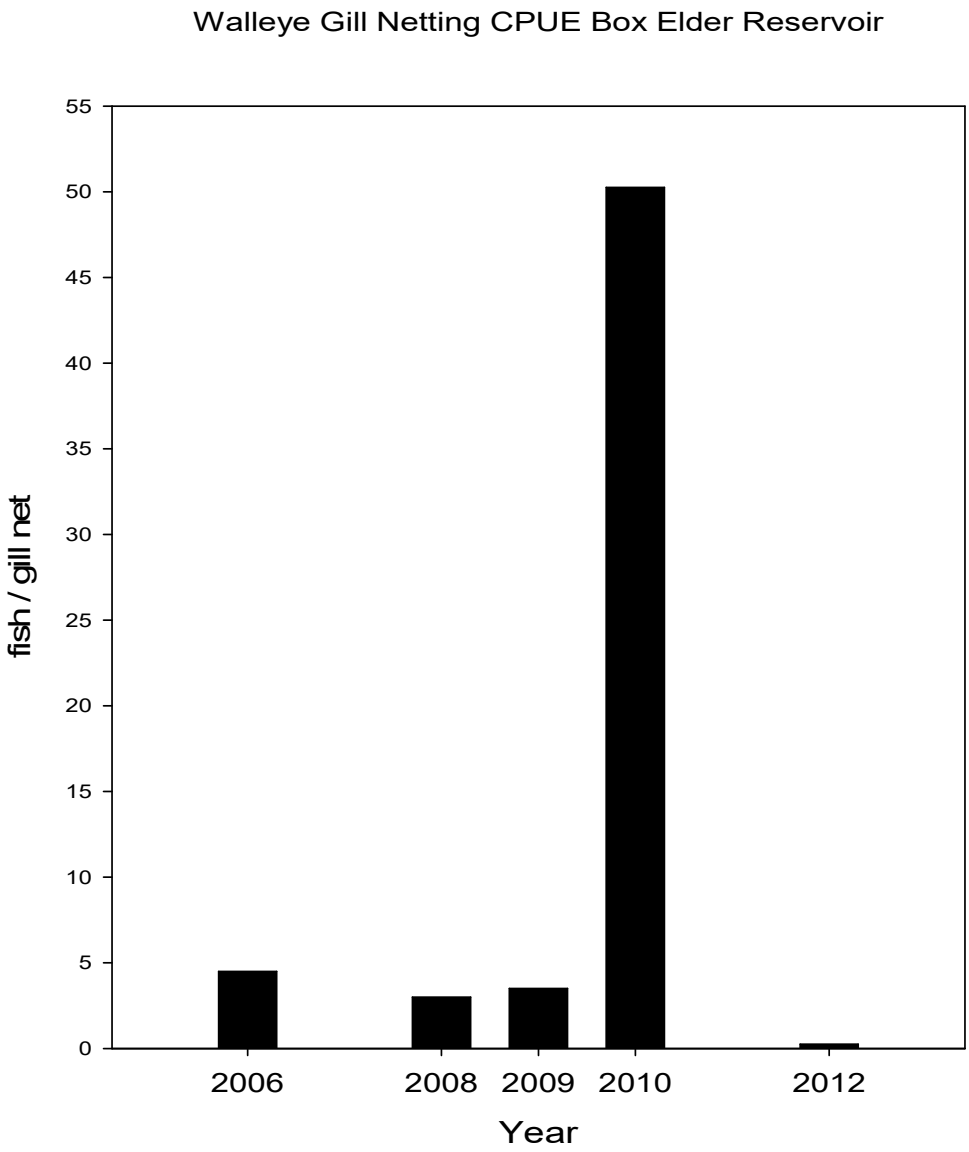

Figure 14. Box Elder Reservoir gill net walleye CPUE 2006-2012.

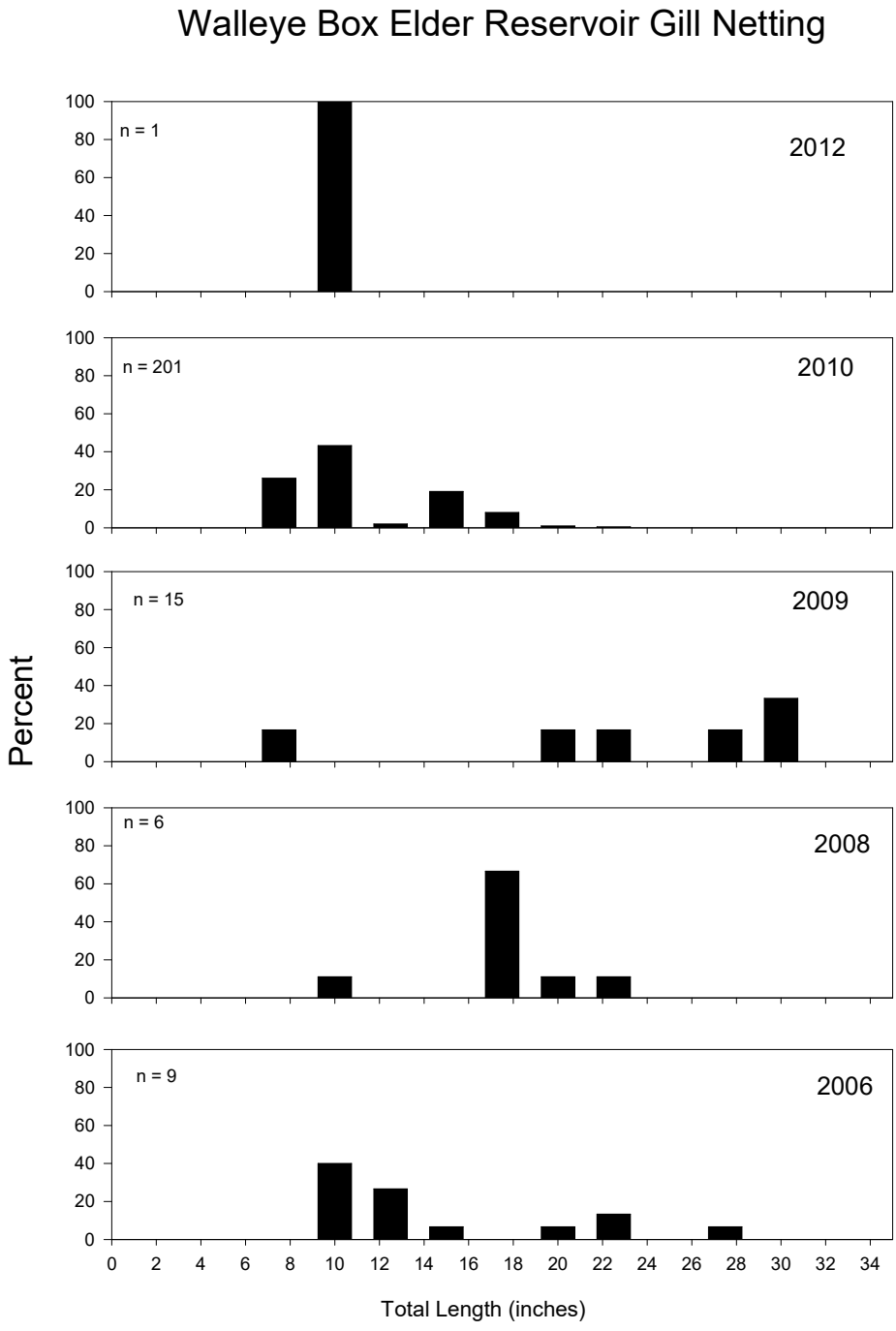

Figure 15. Length frequency histogram (percent of total catch) of walleye sampled using gill nets in Box Elder Reservoir 2006-2012.

Holtan Reservoir

Holtan Reservoir is a small impoundment located within Sheridan County, Montana. The reservoir has an approximate surface area of 3 acres. Rainbow trout are stocked annually. In 2012 Holtan Reservoir was sampled on September 5 with one gill net and two trap nets. The gill net failed to catch any fish, while the trap nets captured 271 fathead minnows and 90 brook stickleback (Table 5). Holtan Reservoir was stocked on May 9th with 1,000 rainbow trout averaging 2.7 inches in length and again on May 22nd with 1,005 rainbow trout averaging 7.0 inches. This is the second time in the past three years that we've sampled Holtan Reservoir in the fall after rainbow stockings and captured no rainbow trout. In 2013 we propose to sample immediately (1-2 weeks) after stocking, to see if the stocked rainbows are surviving at least into the summer.

Valley County

Missouri River Dredge Cuts

The Missouri River Dredge Cuts have been sampled annually using both experimental and smelt gill nets since 1979. The monitoring began as a tool to evaluate the fishery since a re-regulation dam downstream of Fort Peck Dam was being proposed. Until 2010 the dredge cuts and the Fort Peck Dam tailrace were sampled twice a year, once in June and once in September using 10-125 ft experimental mesh and 4-100 x 6 ft gill nets with ½ inch mesh nets (smelt nets). In 2010 the spring sampled was eliminated, given that an evaluation of the data showed redundancy. However, due to the spill that occurred from Fort Peck Reservoir during 2011, the spring sample event was conducted again in 2011 and 2012 to get a better understanding of how spill may affect the species composition and relative abundance in the Dredge Cuts.

Due to the hypolimnetic withdrawals from Fort Peck Dam the tailrace area can be characterized as a relatively stable area with cold summer water temperatures and warm winter temperatures as well as low productivity due to Fort Peck Reservoir acting as a nutrient sink. The Dredge Cuts are connected to the Missouri River, but a much higher retention time equates to warmer summer water temperatures and a more diverse littoral area. Both areas have become very popular recreation areas with anglers, boaters and water skiers.

In 2012 the Dredge Cuts were sampled on both June 26th and 27th and again on October 9th and 10th (Table 8). Ten experimental mesh gill nets and four smelt nets were used during both sampling events. A total of 21 species were captured during both sampling efforts, with 323 and 234 fish being captured during June and October, respectively. Channel catfish were the most abundant species captured during the June sampling with 79 caught, while goldeye were the most abundant species during October with 89 sampled (Table 8).

A pallid sturgeon was captured in the Fort Peck Dredge cut sampling in 2012. The pallid was captured outside of Nelson Dredge in Pickthorn Bay in a gill net during the October sampling effort. The fish measured 40.6 inches from snout to tail fork and weighed 9.9 pounds. The fish

did not have any visible or implanted tags, therefore a genetics sample was taken and sent to the USFWS fish genetics laboratory in Lamar, Pennsylvania. The results of the genetics analysis indicated it is from the 1997 year class of stocked pallid sturgeon, stocked in 1998. We don't have any information on where this fish was stocked. The fish received a PIT Tag (#48686C7324) and a coded radio tag with a frequency of 149.760, code of 64 after being captured.

Sauger and walleye gill net CPUE was higher during the spring than during the fall (Table 8). Walleye CPUE during the spring was estimated at 1.7 fish/net while sauger was 1.4 fish/net. Both walleye and sauger fall gill net CPUE was down in 2012 when compared to 2011 (Figure 16). Walleye CPUE took a drastic decrease from a long-term high in 2011 of 4.3 fish/net to 1.0 fish/net in 2012. Sauger CPUE was 0.7 fish/net, which was half of the 1.4 fish/net in the fall 2011 sampling.

In addition to lower fall CPUE's when compared to 2011, the average relative weight of both walleye and sauger decreased from 2011 to 2012. Overall auger relative weight averaged 69.4, which was the lowest recorded in the last 19 years of sampling (Figure 17). Similarly, average relative weight for walleye was at 82.4, which was the second lowest over the past 19 years (Figure 17). The substantially low relative weights of both walleye and sauger may be due to the fact of such a large influx of walleye from Fort Peck Lake during the spill event from the dam during 2011. Walleye CPUE was at an all time high in 2011 in the dredge cuts, which may have exceeded the carrying capacity of *Sander spp.* as food resources may have been in short supply. Interestingly, the abundance of walleye decreased significantly from 2011 to 2012, which may have been due to high harvest rates in the Dredge Cuts. More anglers were witnessed fishing in the dredge cuts during the winter of 2011-12 and through the spring and summer of 2012 than been for at least the past 10 years.

Another factor that may be influencing the amount of forage available to both sauger and walleye is the relative abundance of northern pike in the Dredge Cuts. The 2012 fall gill net CPUE for northern pike was the highest witnessed in the past 19 years of sampling with an estimate of 1.9 fish/net (Figure 16). Interestingly, overall northern pike relative weights look good, with a fall average of 92.7, although slightly less than 20122 (Figure 17).

Channel catfish relative abundance during both the spring and fall were similar to past years of sampling (Table 8 and Figure 16). Fall channel catfish CPUE for gill nets was 3.5 fish/net. In addition, channel catfish relative weights were similar to past years at 87.6 (Figure 17). Channel catfish are an underutilized resource in the Dredge Cuts.

Table 8. Missouri River Dredge Cuts gill netting summary data, 2012.

	6/26 & 6/27 Gill Netting (10 experimental and 4 smelt nets)						10/9 & 10/10 Gill Netting (10 experimental and 4 smelt nets)					
Species	# Sampled	Length Avg. (in)	Min Length (in)	Max Length (in)	Weight Avg	Relative Wt Avg	# Sampled	Length Avg. (in)	Min Length (in)	Max Length (in)	Weight Avg	Relative Wt Avg
Channel Catfish	79	16.68	14.3	23.6	1.42	85.82	35	17.23	13.9	24.8	1.81	91.61
Common Carp	1	19	19	19	2.76	79.53	1	20	20	20	3.97	98.48
Cisco	44	11.33	7	15.7	0.48	0	45	12.04	9.4	15.2	0.6	
Chinook Salmon	1	5.5	5.5	5.5	0.05	62.15	1	30.7	30.7	30.7	14.33	121.43
Freshwater Drum	0						1	15	15	15	1.19	76.2
Shortnose Gar	0						3	21.33	21	21.6	1.3	
Goldeye	55	13.57	12.1	14.9	0.76	0	89	14.02	10.1	15.6	0.85	
Lake Whitefish	5	18.16	15.9	20	2.51	0	1	16.4	16.4	16.4	1.6	
Brown Trout	1	30.2	30.2	30.2	12.35	119.18	0					
Northern Pike	29	22.62	10.6	32.3	2.75	89.95	19	26.83	15.1	32.2	4.97	97.18
Paddlefish	1	33.5	33.5	33.5	18.08	76.15	0					
Pallid Sturgeon	0						1	40.6	40.6	40.6	9.92	
Rainbow Smelt	0						2	5.7	5.5	5.9	0	
River Carpsucker	18	16.87	15.3	21.6	2.24	0	2	19.7	17.7	21.7	3.45	
Shovelnose Sturgeon	40	24.6	20.5	27.8	2.3	96	4	24.65	21.9	26.4	3.42	136.05
Sauger	14	15.79	13.1	20.1	1.09	72.86	7	14.44	12.3	17.8	0.79	69.38
Shorthead Redhorse	0						1	17.9	17.9	17.9	2.75	
Smallmouth Buffalo	0						1	19.7	19.7	19.7	4.1	80.93
White Sucker	18	14.87	8.1	18.9	1.56	98.03	9	17.89	14.2	19.3	2.54	99.1
Walleye	17	18.28	12.6	29.1	2.32	80.9	10	18.54	9	30.7	3.74	82.38
Yellow Perch	0						2	7.55	5.6	9.5	0.27	101.28

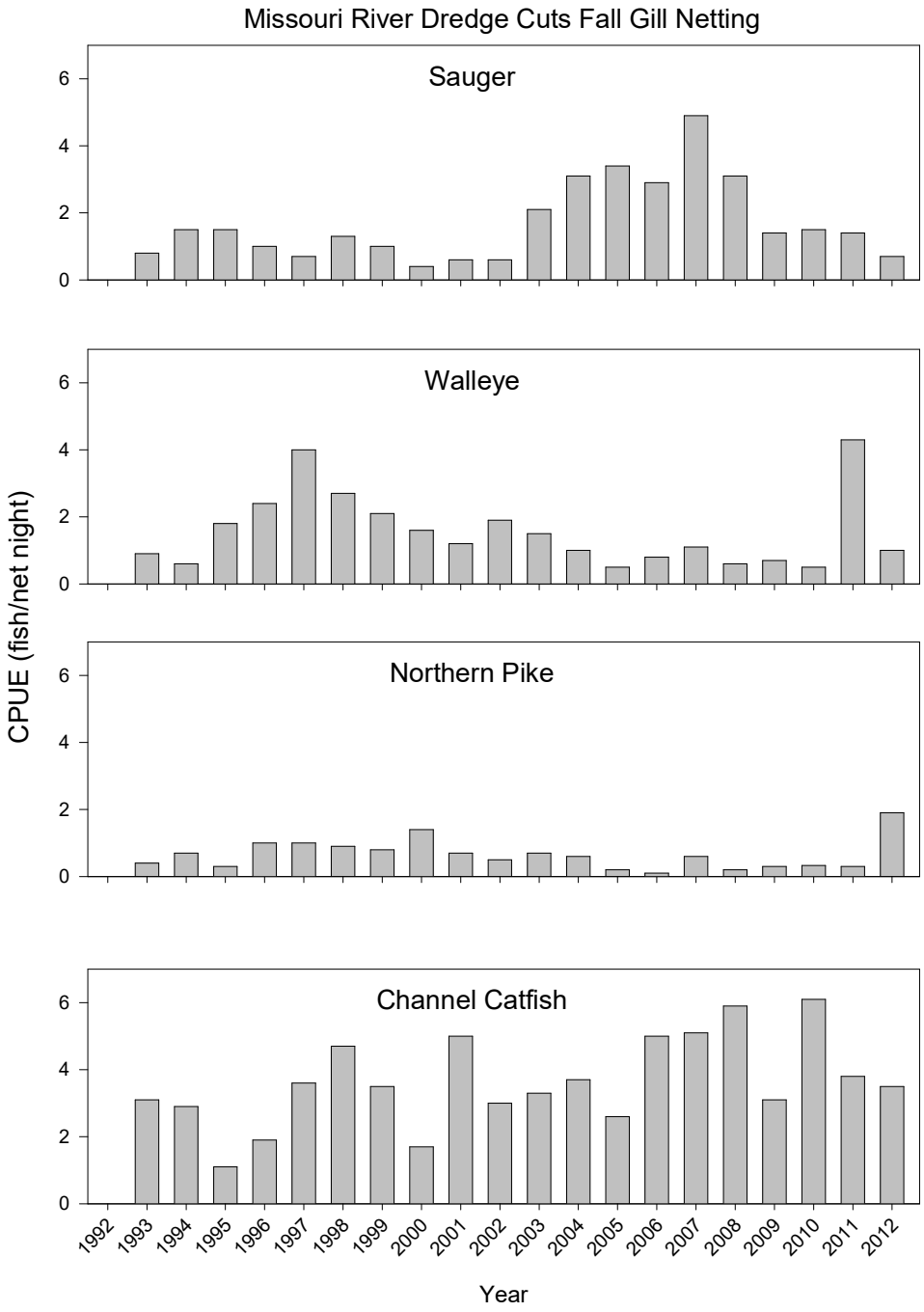

Figure 16. Fall gill netting CPUE of sauger, walleye, northern pike and channel catfish in the Missouri River Dredge cuts from 1993-2012.

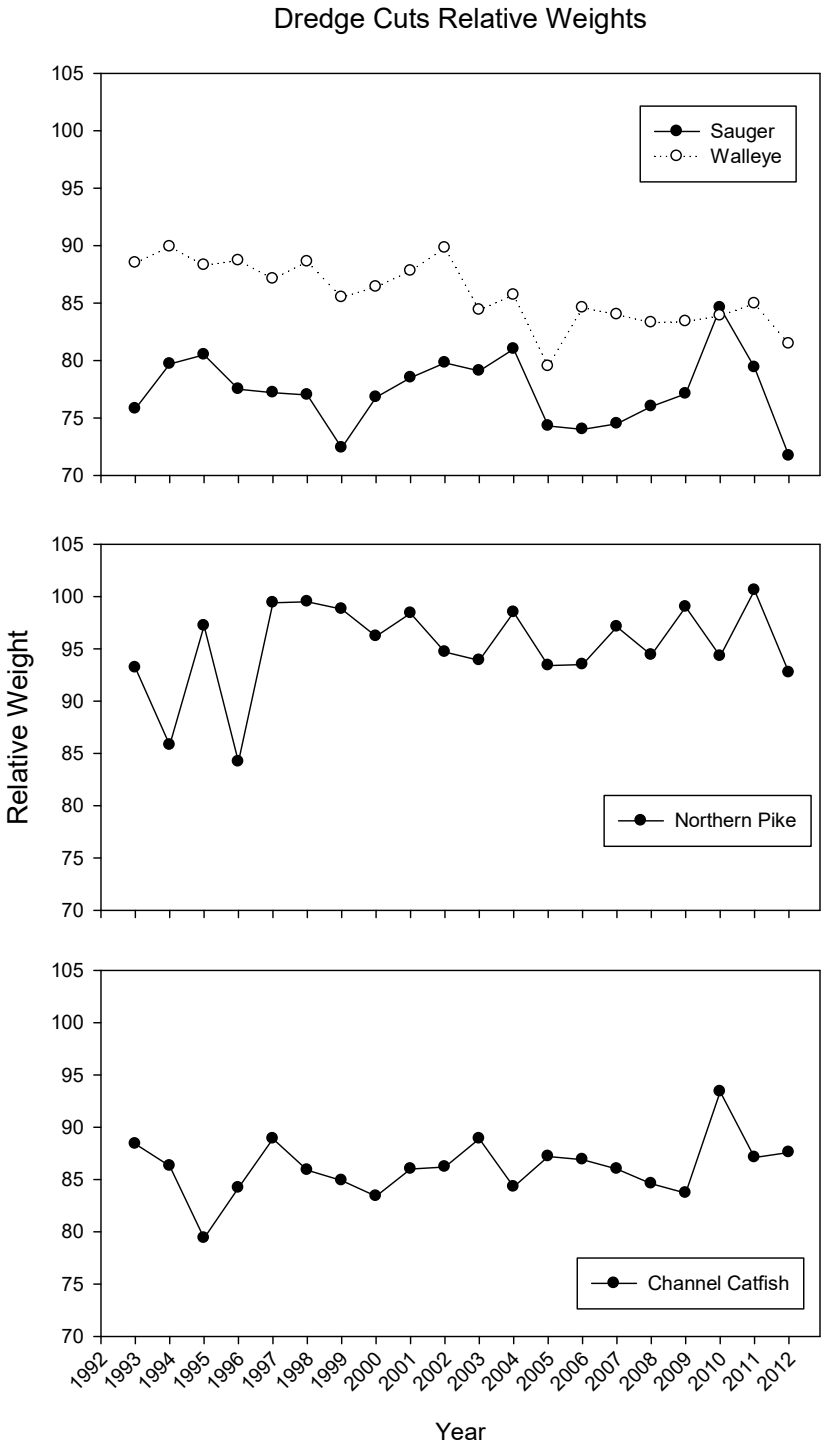

Figure 17. Relative weights of sauger and walleye (top panel), northern pike (middle panel) and channel catfish (bottom panel) captured in the Missouri River Dredge Cuts 1993-201. Fall and spring samples combined.

Glasgow Air Force Base Pond

Glasgow Air Force Base Pond is a small impoundment of approximately 4.7 surface acres located in Valley County. The pond has a maximum depth of approximately 15 feet. Glasgow Air Force Base Pond was sampled on August 14, 2012 with one gill net and two trap nets. A total of 17 rainbow trout averaging 12.7 inches in length were caught in the gill net. In addition, three northern pike averaging 17.3 inches and one yellow perch measuring 10.4 inches were captured in the gill net. The two trap nets only captured one northern pike measuring 5.8 inches.

Glasgow Air Force Base Pond was stocked with 1,000 7.2 inch rainbow trout on May 21.

Paulo Reservoir

Paulo Reservoir is a small (~7.3 acre) Bureau of Land Management (BLM) impoundment located in south Valley County, MT. Montana Fish, Wildlife & Parks (FWP) has managed the fishery in Paulo Reservoir since it was built in the early 1990's, with largemouth bass and bluegill sunfish being the target game fish species. Paulo is a popular fishery in Valley County due to its close proximity to the county seat of Glasgow. Recently, common have been detected and expanded their population to the point that they may be negatively affecting the fishery. In addition, Paulo is a relatively shallow reservoir, with a maximum depth of approximately 12 ft near the dam. The BLM and FWP propose to rehabilitate the reservoir by increasing the maximum depth and removing the current fish assemblage. Once the reservoir is drained and dried, an excavator will be used to remove soil to create greater depth throughout the pond. The reservoir will then be filled during the following spring and fish would be stocked.

Paulo Reservoir was sampled in 2012 on August 14 using one gill net and three trap nets (Table 5). The gill net captured a total of 37 fish of 4 different species. Bluegill were the most common fish sampled in the gill net with 14 sampled, averaging 5.0 inches in length. Common carp were the second most common species in the gill nets with 12 being sampled, averaging 14.3 inches in length. Nine largemouth bass were caught averaging 8.1 inches in length. The three trap nets captured three species, common carp, largemouth bass and white suckers (Table 5).

VR009 (Lower Glasgow Air Force Base Pond)

Valley Reservoir #009 otherwise known as Lower Glasgow Air Force Base Pond is a small impoundment located just southwest of the upper Glasgow Air Force Base Pond. It has a surface area of approximately 4.8 acres and is relatively shallow, with a maximum depth under 9 feet. VR009 was sampled on August 14, 2011 using one gill net and one trap net. The gill net captured both rainbow trout (n = 16) and northern pike (n=4). Rainbow trout and northern

pike averaged 12.2 and 25.1 inches in length, respectively (Table 5). The trap net captured approximately 1,000 fathead minnows.

Northeast Montana Wild Fish Transfers

Several wild fish transfers were performed in Northeast Montana during 2012, all of which were the movement of yellow perch (Table 9). The Havre fish biologist helped with the trapping of yellow perch at both Bison Bone Reservoir and Kremlin Ponds. A truck equipped with a fish tank was used to transport these fish to their recipient waters. All fish health and aquatic nuisance species protocols were followed. The water in the fish transport tanks was taken from the Fort Peck Hatchery.

Table 9. Wild fish transfers for northeast Montana during 2012. The counties of donor and recipient waters are inside parentheses.

Species	Donor Water	Recipient Water	Date	# of fish	Average Size (inches)
Yellow Perch	Bison Bone (Phillips)	Box Elder Reservoir (Sheridan)	4/5/2012	2,200	5
Yellow Perch	Kremlin Ponds (Hill)	Valley Reservoir (Valley)	4/10/2012	300	4
Yellow Perch	Kremlin Ponds (Hill)	Home Run Pond (Valley)	4/10/2012	200	4
Yellow Perch	Kremlin Ponds (Hill)	Yeomen Pond (Valley)	4/10/2012	50	4
Yellow Perch	Kremlin Ponds (Hill)	Troika (Valley)	4/10/2012	450	4

Prepared by: Tyler M Haddix

Date: April 2012

Waters referred to:

Box Elder Creek Reservoir	16-4495
Dredge Cut Trout Pond	16-5145
Missouri River Section 05	16-00AK
Missouri River Dredge Cuts	
Milk River	

Keywords

Small ponds	Shovelnose sturgeon
Yellow Perch	Largemouth bass
Northern pike	Bluegill
Rainbow trout	Walleye
Black bullhead	Fathead minnow
Brook stickleback	

Appendix A. Fish species sampled by gear for ponds sampled in northeast Montana during 2011 (numbers in parentheses under gear represent the # of deployments).

County	Reservoir	Date	Gear	Species	Total Number Sampled	Mean Length (in)	Length Range (in)
Daniels	Buer Pond	6/28/2011	Trap (4)	Creek Chubs	18	4.9	4.8-5.0
				Yellow Perch	637	5.3	4.1-7.0
Daniels	Whitetail Reservoir	8/22/2011	Gill (2)	Northern Pike	13	17.5	9.7-20.9
				Rainbow Trout	7	10.1	9.1-11
			Trap (2)	Fathead Minnow	200	2.3	1.7-2.8
Sheridan	Holtan Reservoir	9/15/2011	Trap (2)	Brook Stickleback	300		
				Fathead Minnow	5,000		
Valley	Glasgow Airforce Base Pond	6/8/2011	Gill (1)	Yellow Perch	1	6.0	
			Trap (2)	No Fish			
Valley	Big Reservoir	6/21/2011	Gill (1)	No Fish			
			Trap (3)	No Fish			
Valley	Burke Pond	9/28/2011	Gill (1)	Yellow Perch	89	9.6	5.3-13.9
			Trap (2)	Fathead Minnow	340		
				Yellow Perch	23	10.2	7.3-13.1
Valley	Homerun Pond	5/26/2011	Seine	Black Bullhead	1	6.0	
				Fathead Minnow	161		
				Yellow Perch	2	5.0	
Valley	Hose Reservoir	9/8/2011	Gill (1)	No Fish			
			Trap (2)	Fathead Minnow	700		
Valley	Langen Reservoir	9/26/2011	Gill (1)	Largemouth Bass	4	5.3	5.1-5.5
			Trap (2)	Fathead Minnow	125	2.5	1.8-3.4
				Largemouth Bass	1	5.4	
Valley	McNabb Reservoir	8/17/2011	Gill (1)	No Fish			
			Trap (2)	Fathead Minnow	25,000		
Valley	O'Juel Reservoir	9/26/2011	Gill (1)	Rainbow Trout	10	7.8	6.2-10.0
				White Sucker	12	12.3	8.8-16.3

County	Reservoir	Date	Gear	Species	Total Number Sampled	Mean Length (in)	Length Range (in)
			Trap (2)	Brook Stickleback	100		
				Fathead Minnow	100		
				Rainbow Trout	60	7.4	5.8-9.2
				White Sucker	19	13.0	7.3-15.4
Valley	Paulo Reservoir	8/10/2011	Gill (1)	Bluegill	2	5.0	4.8-5.1
				Largemouth Bass	1	5.6	
			Trap (3)	Bluegill	148	3.4	1-6.5
				Black Bullhead	246	2.4	1.2-10.5
				Common Carp	4	9.4	8.1-10
				Fathead Minnow	1	2.7	
				Largemouth Bass	20	1.9	1.2-4.0
				White Sucker	1	9.5	
Valley	Troika Reservoir	6/28/2011	Trap (2)	Fathead Minnow	1,282		
Valley	Valley Reservoir	9/28/2011	Gill (1)	Yellow Perch	3	8.0	7.2-8.6
			Trap (2)	Fathead Minnow	1,500		
				Yellow Perch	3	7.7	6.9-8.7
Valley	VR009 (Lower Base Pond)	6/8/2011	Gill (1)	No Fish			
			Trap (2)	Fathead Minnow	4	2.2	2.0-2.4
Valley	Winter Harbor Pond	6/9/2011	Gill (1)	Bluegill	9	4.5	3.8-6.0
				Largemouth Bass	1	15.1	
				Yellow Perch	5	7.2	7.0-7.4
			Trap (3)	Bluegill	79	5.3	3.0-8.3
				Yellow Perch	2	7.1	6.5-7.7

Appendix B. Fish species sampled by gear for ponds sampled in northeast Montana during 2010 (numbers in parentheses under gear represent the # of deployments).

County	Reservoir Name	Date	Maximum Depth (ft)	Gear	Species	Total Number Sampled	Mean Length (in)	Length Range (in)	Mean Weight (lbs)
Daniels	Buer Pond	10/12/2010		Gill net (1)	Yellow Perch	22	6.0	5.2-7.5	
				Trap (2)	Yellow Perch	521	5.5	4.5-7.5	0.1
					Creek Chubs	19	4.9	4.1-5.4	
Daniels	Carney Pond #1	8/5/2010		Gill net (2)	White Sucker	236	7.2	6.0-9.5	0.2
				Trap (2)	White Sucker	50	7.2		
					Fathead Minnow	25	2.6		
					Brook Stickleback	35	1.8		
Daniels	Chabot Reservoir	10/12/2010	10	Gill net (1)	Rainbow Trout	42	9.6	8.5-11.5	0.48
				Trap net (1)	Rainbow Trout	5	9	8.3-9.6	
Daniels	Danelson Reservoir	8/6/2010	14	Gill net (1)	No Fish				
				Trap net (1)	Brook Stickleback	11	1.3	0.9-1.6	
Daniels	Hatfield Reservoir	10/14/2010	12	Gill net (1)	Rainbow Trout	50	9.5	7.5-11.5	0.46
				Trap net (2)	Rainbow Trout	11	9.1		0.49
					Brook Stickleback	126	1.7	1.2-3.0	
Daniels	Killenbeck Reservoir	8/5/2010	11	Gill net (2)	Rainbow Trout	105	9	5.0-11.5	0.3
				Trap (2)	No Fish				
Richland	Keuster	11/3/2010	7	Gill net (2)	Yellow Perch	2	8.6	8.5-8.6	0.35
				Trap (2)	Fathead Minnow	48	2.4		

Appendix B. continued.

County	Reservoir Name	Date	Maximum Depth (ft)	Gear	Species	Total Number Sampled	Mean Length (in)	Length Range (in)	Mean Weight (lbs)
Sheridan	Box Elder Reservoir	9/20/2010	25+	Gill net (4)	Walleye	201	9.8	7.1-20.9	1.02
					Northern Pike	24	17.3	13.3-38.0	1.78
					Yellow Perch	32	9.1	7.3-10.1	0.38
					White Sucker	14	17.3	16.0-19.2	2.25
					Black Bullhead	22	8.9	5.0-12.2	0.53
					Carp	5	4.7	4.1-4.9	0.03
				Trap net (2)	Walleye	1	7.3		
					Black Bullhead	858	3.8		
					Carp	222	2.9		
					White Sucker	4	13.3		
Sheridan	Raymond Dam	9/20/2010	15	Gill net (1)	Rainbow Trout	8	11	8.6-12.7	0.69
				Trap (1)	Fathead Minnow	346	2.3		
Valley	Atlas Reservoir	10/5/2010	12	Gill net (2)	No Fish				
				Trap net (2)	Fathead Minnow	1,400	2.2	1.8-2.7	
Valley	Big Reservoir	9/2/2010	14	Gill net (1)	No Fish				
				Trap (2)	Black Crappie	70	4.2	2.8-10.4	0.11
					Fathead Minnow	167	2.7		
Valley	Burke Reservoir	8/9/2010	9	Gill net (1)	Yellow Perch	93	7.5	0.8-12.0	0.3
				Trap (1)	Yellow Perch	28	4.6	3.0-7.1	
					Fathead Minnow	32	2.2		

Appendix B. continued.

County	Reservoir Name	Date	Maximum Depth (ft)	Gear	Species	Total Number Sampled	Mean Length (in)	Length Range (in)	Mean Weight (lbs)
Valley	Dredge Cuts Trout Pond	10/6/2010	20+	Gill Net (3)	Yellow Perch	52	6.6	0.07-8.1	0.13
					Northern Pike	6	22.2	19.2-32.0	3.23
					Bluegill	1	3.9		
					Carp	5	26.3		8.25
					White Sucker	1	17.4		
				Trap (2)	Bluegill	150	1.7	1.4-2.0	
Valley	Glasgow Air Force Base Pond	8/4/2010	14	Gill net (1)	Yellow Perch	19	6.6	5.9-7.0	
					Northern Pike	1	23.2		
					Rainbow Trout	2	10.7	10.2-11.2	
				Trap (1)	Northern Pike	1	16.1		
Valley	Langen Reservoir	9/3/2010		Gill net (2)	Largemouth Bass	9	10.7	9.5-12.9	0.83
				Trap net (2)	Fathead Minnow	562	2.4	2.2-2.9	

Appendix B. continued.

County	Reservoir Name	Date	Maximum Depth (ft)	Gear	Species	Total # Sampled	Mean Length (in)	Length Range (in)	Mean Weight (lbs)
Valley	Missouri River Dredge Cuts	9/1 & 9/2/2010	20+	Gill Nets (10)	Walleye	3	14.5	11.2-19.3	1.1
					Sauger	9	15.1	12.4-17.0	1
					Northern Pike	2	31.3	21.7-40.9	9.1
					Channel Catfish	61	16.3	13.0-22.6	1.4
					Shovelnose Sturgeon	8	24.4	22.6-26.1	2.1
					Yellow Perch	2	5.9	5.5-6.3	0.1
					Lake Whitefish	4	18.3	17.7-18.7	2.6
					Cisco	43	11.6	4.7-14.7	0.7
					River Carpsucker	12	16.9	15.0-18.1	2.3
					Carp	6	21.1	18.0-29.4	5.1
					Rainbow Smelt	2	6	5.9-6.0	0.07
					Goldeye	25	13.9	12.6-17.1	0.8
					White Sucker	59	15.3	6.4-18.5	1.9
					Spottail Shiner	1	4.1		
Valley	Paulo Reservoir	9/15/2010		Gill net (2)	Largemouth Bass	6	9.9	6.9-11.7	0.54
					Bluegill	9	5.8	4.0-7.2	0.18
					Black Bullhead	1	10		0.56
				Trap (2)	Largemouth Bass	2	2.6	1.7-3.5	
					Bluegill	94	4.4	1.1-7.2	0.12
					Black Bullhead	3	9.9	8.7-10.8	0.56

Appendix B continued.

County	Reservoir Name	Date	Maximum Depth (ft)	Gear	Species	Total Number Sampled	Mean Length (in)	Length Range (in)	Mean Weight (lbs)
Valley	Shoot Reservoir	9/3/2010		Gill net (1)	Rainbow Trout	5	8.6	8.4-9.3	
Valley	Troika Reservoir	10/6/2010	11	Gill net (2)	No Fish				
				Trap Net (2)	Fathead Minnow	3,500	2.7	2.1-3.1	
Valley	Valley Reservoir	8/9/2010	12	Gill net (1)	Yellow Perch	82	7.2	5.3-10.0	0.21
				Trap (1)	Yellow Perch	2			
				Trap (1)	Fathead Minnow	5	2.7		
Valley	VR 009	8/4/2010	< 5	Visual	Extremely low water				