Montana Fish, Wildlife & Parks

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FISHING NEWSLETTER

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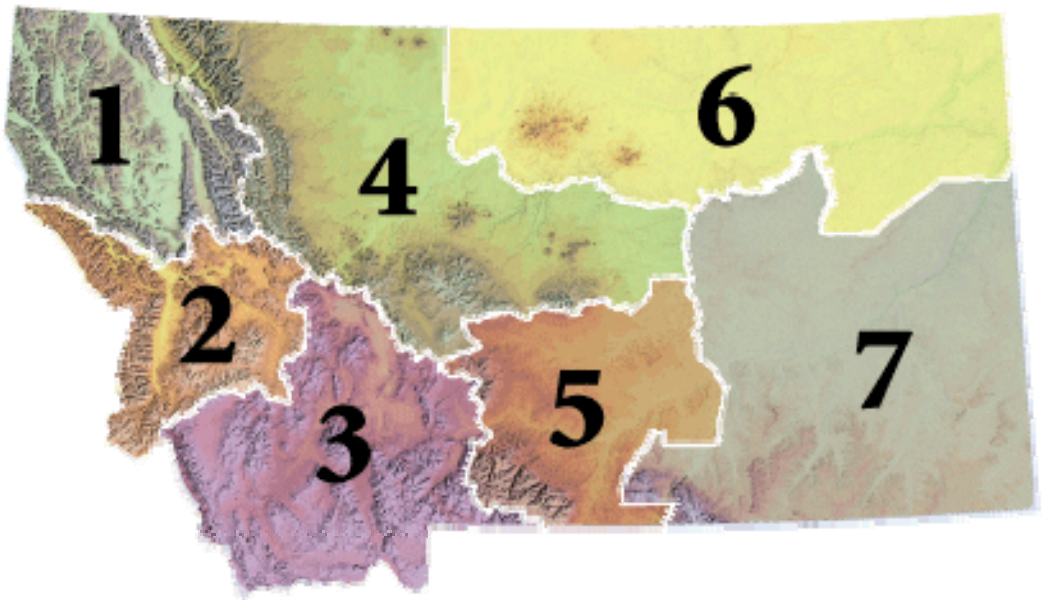
INTRODUCTION

Montana has over 59,000 miles of flowing streams and rivers, and hundreds of thousands of acres of lakes, reservoirs and ponds. These are home to more than 90 species of fish, of which 56 are native species. Montana's fisheries are extremely diverse, ranging from wild rainbow trout, cutthroat trout and Arctic grayling that reside in western Montana's cold rivers and streams, to paddlefish, sturgeon, and sauger that reside in eastern Montana's large prairie rivers. Rainbow trout, yellow perch, bass, walleye, and lake trout are among the fish found in different lakes and ponds throughout the state. These diverse and ever-changing fisheries require continuous monitoring to keep track of different populations, to evaluate the effectiveness of regulations, and to monitor the impacts of illegal fish introductions, whirling disease and other aquatic nuisance species.

Management of these diverse fisheries requires information from a variety of sources, including from anglers themselves. Montana maintains a Fishing Log program where anglers voluntarily keep track throughout the year of where they fish, how often, and what they catch. These data are provided to Montana Fish Wildlife & Parks (FWP), and are put into a long-term database that biologists can use to supplement more formal monitoring and data collection efforts. This newsletter was originally developed to provide information to Fishing Log holders about the status of Montana's fisheries, and was titled the Fishing Log Newsletter. We recently changed the name and look, but the newsletter is still the same interesting publication it has always been. We hope you like it and thank you for supporting Montana's world-famous fisheries. And we are also always looking for more anglers willing to keep a log of their fishing activities and catch!



REGION 1

Slightly above average precipitation for northwest Montana in 2006 made fish biologists very happy. That tells you how hard drought has hit the state the past 5 years. However, that precipitation came in roller coaster cycles that had everyone on edge. Winter started with good snowfall, then the storms stalled. Late season snows brought snowpacks up, and then rains started in late April. Rain-on-snow events produced some real gully washers in parts of the region, especially around Hungry Horse Reservoir where the main westside road was washed out in several places. **Lake Koocanusa** is supposed to be managed under a variable outflow regime but the Army Corps, which manages Libby Dam, gambled by holding reservoir levels higher to provide sturgeon and salmon flows downstream. The rains brought out runoff in a rush, forcing spill over the dam for 19 days. Water spilling over the dam carried air into the depths, forcing nitrogen gas into the water. The nitrogen in turn was absorbed by fish, causing gas bubble disease similar to the bends suffered by divers. By the time spill ended, nearly all the fish downstream from the dam showed gas bubble disease. Little direct mortality was observed but biologists won't know if fish numbers were affected until population estimates are completed next spring. The spill also caused millions of dollars of flood damage downstream. The variable flow regime (known as VARQ) would have avoided spill and Montana is pushing hard to see it is followed in the future. The summer was fairly dry but groundwater maintained reasonable stream flows and held off any drought related fishing closures. Fall brought more torrential rains that washed out a number of areas including parts of the Going to the Sun Road in Glacier Park and a section of **Libby Creek** that had newly-installed stream habitat structures. All that stream damage had agencies and private landowners hopping to do repairs and kept fish biologists and conservation districts busy reviewing and approving streambed permits.

The high flows in some streams left trees piled like jackstraws, blew out culverts and bridges, moved stream channels and built huge gravel bars. However, high flows also cleaned out fine sediments that had built up in spawning and rearing gravels during drought years. Fish like bull trout are resilient and they took advantage of higher flows and clean gravel to spawn in record numbers in some places. Fishery crews counted bull trout spawning beds or redds in most of the **South Fork Flathead** tributaries and found record high numbers. **Wounded Buck Creek**, which has held only single-digit redds in the past few years, was one of the streams most heavily damaged by flooding yet it produced an incredible 47 redds. High redd counts also indicate the past two years of recreational bull trout fishing in **Hungry Horse Reservoir** and the South Fork Flathead have not impacted the fishery.

The **Swan drainage** also produced very high bull trout redd counts although there are clouds on the horizon for that fishery. Lake trout showed up illegally in the Swan a number of years ago. Expanded netting this fall turned up

nearly 200 lake trout from 10 inches to 16 inches so it looks like the lakers are poised to take off. Similar introductions in other waters have had drastic impacts on bull trout, kokanee and other fish. A multi-agency working group, and a graduate student project, are evaluating whether the lake trout can be controlled.

for **Lake Koocanusa**, had a record high 2,300 redds which represents as many as 6,000 adult bulls. The high count is particularly good news since a landslide nearly blocked the Wigwam last year and produced low redd counts. The Koocanusa bull trout fishery is one of the largest in the U.S and has produced a very popular fishery the last two years.

Bull Trout redd counts in the **Middle and North Fork Flathead** tributaries jumped more than 50 percent. **Morrison Creek** in the Middle Fork was blocked partway up by a beaver dam complex. Low flows have allowed beavers to block many spawning tributaries during drought years. Morrison counts were down but it looks like many of those fish may have spawned in adjacent tributaries. **Coal Creek** in the North Fork has shown few or no redds in the past few years but produced 17 redds this year. Keeping a broad distribution across their range is key to long-term species survival.

Most Kootenai tributaries had average or below average redd counts but the **Wigwam River** in Canada, the primary spawning stream

2006 produced a number of record fish in Region 1. Josh Emmert started the trend with a 14-3/8 inch, 2.39 pound yellow perch from **Lower Stillwater Lake** in February. In case you wonder what it takes to produce a perch that big, the fish was aged at 11 years old. It had two 2-1/2 inch crayfish and one 6-inch perch in its stomach along with an estimated 120,000 eggs. Ten year old Nathan Bache of Libby caught the next whopper, a 9.5 inch, .96 pound pumpkinseed from Upper Thompson Lake in July. Nathan was fishing for bass with a green-headed jig when the sunfish hit. "I casted over by some weeds and the fish bit hard" he said. "It fought like a two pound bass." I never saw a sunfish that big," said Nathan who had the fish weighed on a certified scale. "I was happy when I found out it was a record." Nathan plans to have the fish mounted. **Flathead Lake** kicked out two records in August with a 1.12-pound peamouth caught by Stacy Ross and a 10.46-pound lake whitefish caught by

Tom McDonald. The big whitefish capped off a very good whitefish season that saw anglers catch thousands of fish from late July to early September.

All that good fishing makes you wonder why some people persist in illegally moving fish around Smallmouth bass showed up in a number of waters in rapid succession including **Echo, Flathead, Dickey, and Marl Lakes** and the Eureka Kids Pond. A largemouth bass was caught in **Little Bitterroot Lake**. Illegal crappie were removed from a private pond in the Swan with the pond owner paying $500 in costs. A lake trout was caught, and unfortunately released, in the **Kootenai River** downstream from Libby Dam. All those introductions pose great risks to existing fisheries. Fish crews spent a lot of time and money to remove illegal fish from Blue and Kilbrennan lakes this year to restore fisheries. In a related move, the **South Fork Flathead Westslope Cutthroat Conservation Project** received final approval this year. The project proposes to remove nonnative rainbow and Yellowstone cutthroat from 21 lakes in the drainage over the next 10 to 15 years and replace them with pure westslope cutthroat. The South Fork contains nearly 10 % of the pure westslope in Montana and represents half of the big interconnected westslope fisheries in the state so maintaining genetic purity is essential. The nonnative fish were planted legally nearly 50 years ago before species management was a concern. They are slowly dribbling down toward the main drainage and removal of nonnative trout will help preserve one of the largest intact native fisheries in the state. The project will be preceded by a great deal of public involvement hosted by the Region 1 FWP Citizen Advisory Committee before work starts next fall (2007).

In other native fish news, **Flathead Lake** is co-managed by FWP and the Confederated Salish and Kootenai Tribes. The state and the tribe produced a Flathead Fishery Co-management Plan in 2000 with the goal to reduce lake trout through sport fishing to enhance bull and cutthroat trout while maintaining recreational fishing opportunities. A lake trout boom fueled by Mysis shrimp in the 1980's crashed kokanee and reduced native fish. After a 5-year review, in 2006 the daily lake trout limit was increased to 50 fish and an increased emphasis was placed on fishing events that provide incentives to anglers to harvest smaller lake trout. 2006 also saw a lot of work by Avista Corporation on **Cabinet Gorge Dam** and PPL Montana on **Thompson Falls Dam** to build fish passageways for bull trout and other fish.

Not all the news was native fish. After 7-years of environmental reviews tiger muskies were approved and introduced into **Horseshoe Lake** near Happy's Inn to control suckers and northern pikeminnows. Ironically, a recent outbreak of viral hemorrhagic septicemia (VHS), a particularly nasty fish virus that affects almost all species, resulted in a ban on importing all fish from the midwest, including tiger muskies. Tiger muskies produce popular fisheries in all western states so fish and hatchery managers will work to identify a new source.

Rapid population growth continues to put a crunch on fishing access in

northwest Montana. FWP obtained a permanent easement on DNRC land on **Echo Lake** and started construction of a fishing access site, which should be ready by spring, 2007. This will be the only access to this popular warmwater fishery. To illustrate how quickly access can change, the private boat ramp on **Crystal Lake** where public use had long been allowed changed hands, and was quickly closed to the public. FWP has land on the lake and is scrambling to provide access but boat anglers will likely be shut out in 2007.

Fishery biologists are closely watching several mining proposals. The Revett Mine in the **lower Clark Fork** has been working through the permitting process for a number of years. Fisheries concerns are whether mine shafts under the Cabinet Wilderness would dewater several mountain lakes and potential impacts downstream on **Rock Creek**, one of the few bull trout spawning tributaries to **Cabinet Gorge Reservoir**. There are several proposals to mine coal, extract coalbed methane and mine gold in the headwaters of the North Fork of the Flathead in British Columbia. Impacts to water quality and fish habitat could reach all the way down to **Flathead Lake**. A state task force is pushing for more baseline data to better assess the potential impacts of these proposals.

REGION 2

Lakes in Region 2 are surveyed to provide information essential for effective management. The surveys are accomplished on lakes ranging in size from a few acres, such as **Harper's Lake and Beavertail Pond,** to lakes as large as **Georgetown Lake**, which is several thousand acres in size. Gill netting of these lakes provides managers with information on species composition and average size, size ranges and condition factors of important fish species. Fish are inspected for symptoms of disease, injuries and the potential presence of parasites. Individually numbered tags are inserted in many important sport fish. Retrieval of these tagged fish in subsequent surveys or by anglers provides managers with critical information on fish harvest rates, growth rates and movements.

In the **Clearwater River** drainage an unwanted illegal introduction of northern pike occurred in the late 1980's or early 1990's. By the mid 1990's northern pike population expansion in the drainage began to have serious negative impacts on the fishery, severely reducing densities of other desirable sport fish species such as

Coopers Lake in the Blackfoot River drainage.

kokanee, westslope cutthroat, brown and bull trout, largemouth bass, and yellow perch. Impacts on bull trout are of particular concern since they are listed as an endangered species. Lakes impacted by this introduction include **Inez, Seeley, and Salmon**. These lakes account for 52 percent of the lake surface area in the Clearwater drainage. In response to this introduction, FWP implemented liberal fishing regulations to encourage harvest of northern pike. We are attempting to maintain a diverse fishery in the impacted lakes by encouraging removal of pike by anglers along with low-density hatchery supplementation of kokanee and westslope cutthroat trout. Monitoring of these lakes by gill netting and angler contacts provides information on effectiveness of our management strategies.

For many years fish population trends on **Georgetown Lake** were monitored by angler creel surveys without any netting or direct population surveys by biologists. A few years ago, FWP began to have some concerns about the blue ribbon fishery of Georgetown Lake. The renowned trophy brook trout population in Georgetown Lake was in severe decline and kokanee were also decreasing in numbers. In addition, FWP received several reports of an unwanted northern pike introduction in Georgetown Lake. For these reasons, FWP decided to propose conducting a gill netting survey of Georgetown Lake. Without good baseline data we felt effective management decisions could not be made.

This decision was met with some opposition by the angling public. Some didn't see the need for the surveys at all. Others expressed fears of too many fish being killed during the surveys. Meetings by managers with concerned lakeside homeowners and sportsmen's groups began to alleviate concerns and limited gill netting surveys were initiated in 2004. Surveys that year revealed northern pike were not present in Georgetown Lake and a baseline was established for relative densities and size compositions of desirable species including kokanee, rainbow and brook trout. Our survey that year removed less than one-tenth of one percent of the fish, which are stocked annually by FWP in Georgetown Lake. Based upon this low impact and the perceived usefulness of the information, anglers and homeowners encouraged FWP to conduct additional surveys in future years. Subsequent surveys have provided information on recovery of the brook trout population, which is being aided by FWP hatchery supplementation. Surveys indicate kokanee populations have stabilized and average size of kokanee is now significantly better than historic averages. Public

Gill netting survey of Silver Lake near Anaconda

support of our management strategies is greatly appreciated by FWP.

Streamside setbacks are important to protecting fish and wildlife habitat. In the Bitterroot Valley, there has been an effort to delineate buffer zones and setbacks for structures along the **Bitterroot River** and tributaries. Development too close to streams impacts fish and wildlife habitat and well as water quality. Some homes are close enough that stream processes have caused property damage. The effort has not been without controversy,

but hopefully setbacks and buffer zones will be delineated to give some measure of protection for wildlife and fish habitat along streams.

Fishing in the Bitterroot River was good this year, although low stream flows late in the summer made floating on some sections difficult. Whirling disease appears to be the cause of declines in rainbow trout populations in the East Fork of the Bitterroot River. At this time, the populations of trout in the West Fork and main Bitterroot River are stable. The populations of cutthroat and bull trout on Bitterroot National Forest streams seems to be stable. These streams are excellent places to fish, particularly for young anglers. The fish are almost always biting and eager to reward a reasonably presented fly, lure or bait.

Clearwater River Drainage
(Ladd Knotek)

The Clearwater Drainage is the largest tributary within the Blackfoot River watershed. This is a unique system with many high quality trout streams interspersed with a series of lakes along the main stem. Prior to 2005, little was known about the streams and fish populations outside the 8 major lakes. Last year, FWP began a series of studies examining fish species composition and distribution through the tributary network, a bull trout telemetry project aimed at identifying problems associated with the decline of these fish and a fisheries graduate project evaluating the impacts of several major dams along the main stem. Results of these projects will help direct future fisheries management within the watershed and form one basis for ongoing land use planning that emphasizes habitat protection.

Preliminary results indicate that the Clearwater Drainage remains a

Bull Trout

stronghold for native trout species, but rapid human population growth and development, as well as continued illegal fish introductions (including northern pike, brook stickleback, and central mudminnow) pose additional threats. Initial bull trout telemetry work affirmed and emphasized the importance of Morrell Creek as a migratory bull trout spawning tributary. This stream, along with the main stem Clearwater River, act as critical habitats and migration corridors for lake-dwelling bull trout populations in the lower drainage. Work beginning in 2007 will focus on populations in the upper Clearwater watershed.

Milltown Dam Removal Monitoring

(David Schmetterling)

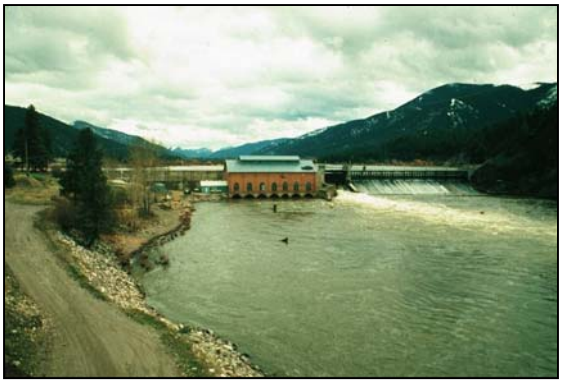
Milltown Dam was built in 1907 at the confluence of the Blackfoot and Clark Fork rivers in western Montana, and is a unique part of Montana history. The hydroelectric dam was built to power a mill in Bonner that cut timber for mines in Butte and for smelting operations in Anaconda. Over the last century, sediments laden with heavy metals from hard rock mining upstream in the Clark Fork drainage have accumulated in the reservoir impounded by Milltown Dam. These sediments threaten human health, and have serious consequences for fish health. Aquatic organisms, including fish, are severely affected by the metals in the water (in particular, copper). However, it is not just sediments in the reservoir or in the Clark Fork River that threaten many fish- the dam itself and the reservoir have affected fish in the area. Milltown Dam will be removed in the next few years and the watershed will once again regain connectivity, but before that happens, we will be monitoring the effects of removing the dam on fish health and survival.

One of the 15 cages with juvenile fish that are used as one component of monitoring the removal of Milltown Dam.

Historically, fish native to the Clark Fork watershed like bull trout and westslope cutthroat trout used large, connected, ecologically and geographically distinct habitats spanning hundreds of miles to express different stages of their life histories. The dam has not allowed upstream fish passage, has limited downstream fish movements and created a reservoir that has fostered a population of exotic northern pike. Recent studies show the dam's continued affect on an enormous geographic scale. Milltown Dam annually impedes migrations of tens of thousands of fish, and data suggest that fish that migrate to the dam do not spawn once their migration is impeded, and many die.

In the spring 2006 initial work began toward removing Milltown Dam and the contaminated sediments that have accumulated behind the dam in the reservoir. This is a big project, in cost, scale, and it is really big for the benefits it will provide to fish and

wildlife in the area. However, with any big project in the river, the removal activities could have deleterious consequences for fish in the area through sediment releases. This study will closely follow the health, condition and mortality of fish downstream of the dam and compare these trends to fish in other rivers (up and downstream from the dam). By using data at all these locations, we will be able to tell what type of effect the dam removal activities are having. This monitoring will take into account results from caged fish studies targeting the condition of juvenile trout, radio telemetry to asses the movements and mortality of adult wild fish, and fish population monitoring that will tell us how all the changes translate into changes in different reaches of river with different species and ages of fish.



Milltown Dam

In 2006, the first stage of the dam removal process saw the elimination of the reservoir because of a drawdown. However, this drawdown lead to mortality of caged fish and free roaming wild adult fish implanted with radio transmitters. The cause of the mortality was likely the result of the cumulative effects of several stresses brought on by the drawdown and sediment that was scoured from the reservoir. Although this was a setback, and stopped the drawdown of the reservoir for several months, it is unclear what effect the mortalities we documented had on fish populations in the area. In spring 2007, our monitoring work will help answer these questions.

Blackfoot River
(Ron Pierce)

The story of the Blackfoot River continues as one of restoration and renewal, thanks to the hard work of river conservationists. At the very headwaters of the Blackfoot River, is the proposed clean-up of the toxic Mike Horse Mine tailing dam. During a rainstorm in 1975, the dam partially breached, contaminated the upper River and caused the collapse of the local cutthroat trout population. Although clean up has yet to begin, momentum is building at the local, state and federal levels. At the lower end of the basin is Milltown dam located at the junction of the Blackfoot and Clark Fork Rivers. This run-of-the-river dam has prevented the upstream movement of Blackfoot River fish for 100 years. The early phases of Milltown dam removal are proceeding with the drawdown of the reservoir and the renaturalization of the confluence area now underway.

During 2006, trout populations in the lower Blackfoot River (below the Clearwater River) have held up well despite seven-years of continued drought, with densities (fish> 6.0") ranging from 800-900 per mile. The lower Blackfoot River supports a low infection of whirling disease and a higher number of suitable spawning streams. Unfortunately, this is not the

case in the Blackfoot River upstream of the Clearwater where densities of fish have declined 30-50% compared to the pre-drought period. Densities are as low as 60-70/mile in some reaches of the middle Blackfoot River near Nevada Creek. With these low densities as a barometer of river health, habitat work is also continuing throughout the tributaries of the middle and upper the Blackfoot River. This restoration endeavor involves conservation groups and agencies working with willing landowners. With 80 - 90% of tributaries identified as fisheries-impaired, there is plenty of restoration work ahead.

Before (top) and after (bottom) photo of a tributary restoration project on a Blackfoot River tributary.

REGION 3

Arctic Grayling Recovery Program

(Jim Magee)

In 2006 conservation efforts for Montana grayling included implementing one of the largest conservation programs on private lands in the country. The Big Hole Candidate Conservation Agreement with Assurances Program (CCAA) goal is to secure and enhance the population of fluvial (river-dwelling) Arctic grayling within the upper reaches of the Big Hole River drainage. Montana fluvial Arctic grayling were historically distributed in the upper Missouri River drainage but have been reduced to one population in the Big Hole River, approximately 4% of their native range. Arctic grayling are currently classified as a Candidate Endangered Species Act (ESA) Species and the USFWS has been asked to make a decision whether to list grayling as a threatened or endangered species by April 16, 2007.

The CCAA is an agreement between FWP, the U.S. Fish and Wildlife Service (USFWS) and any non-federal landowner who voluntarily agree to manage their lands or waters to remove threats to grayling. The landowners receive assurances against additional regulatory requirements and incidental take authority should grayling be subsequently listed under the ESA. Enrollment currently includes 20 private landowners and approximately 73,485 acres of state and private land. Under the CCAA, FWP holds an ESA Section 10(a)(1)(A) Enhancement of Survival Permit issued by the USFWS which authorizes the incidental take of

grayling should it be listed under the ESA. Landowners can be included in this Permit through Certificates of Inclusion. The conservation goals of the program are achieved by working with each landowner to develop a conservation plan for their land that identifies specific actions that can protect and provide benefit to grayling. These site-specific plans will be developed with each landowner by an interdisciplinary technical team made up of individuals representing FWP, USFWS, Natural Resource and Conservation Service (NRCS), and Montana Department of Natural Resource and Conservation (DNRC). Conservation measures under the agreement will: 1) Improve streamflow, 2) Improve and protect the function of streams and riparian habitats, 3) Identify and reduce or eliminate entrainment threats for grayling, and 4) Remove barriers to grayling migration. This collaborative effort has developed partnerships with private landowners, The Big Hole Watershed Committee, the Big Hole River Foundation, The Nature Conservancy, Trout Unlimited and federal and state agencies.

Installing riparian fence along Rock Creek

Habitat restoration projects associated with the CCAA that address-limiting factors for grayling have expanded dramatically. In 2006, habitat improvement included projects that; 1) enhance riparian protection through fencing (6 miles), implementing grazing plans, developing a willow brood stock that will be used to enhance degraded riparian areas, and installing stock water wells, 2) Improve connectivity to important seasonal habitats by reconnecting Rock Creek an important tributary to the Big Hole River, installing fish ladders, and developing fish friendly diversions, 3) Improving instream flows by replacing non-functioning irrigation systems, developing supplemental flow agreements, and installing stock water systems. Additional work planned for 2007 includes installing fish screens to prevent grayling from moving into irrigation diversions, installing riparian fence, planting willows to improve riparian health and continued improvement of irrigation infrastructure.

Restoring connectivity with the Big Hole River and enhancing fish habitat in Rock Creek.

In addition to the efforts in the Big Hole, restoration work continues to establish a grayling

population in the Upper Ruby River. Remote site incubators were used to develop fry under natural selection mechanisms of the Ruby River. These efforts have been encouraging and have produced multiple age classes since 2004. These efforts will continue in 2007 with the goal of producing a stable age structure that will naturally reproduce and establish a self-sustaining population.

In 2006 habitat enhancement projects include 1.4 miles of channel reconstruction on Willow Creek, construction of spawning habitats on small spring creeks, and the design to improve instream flow, spawning and rearing habitats on Lazyman Creek and develop high quality pools while reducing sediment on a section of the upper Ruby River. These projects are a collaborative effort among FWP, private landowners, the Ruby Watershed Council, and the US Forest Service. On the ground work for this project will start this year.

For an update on grayling recovery efforts please visit the Arctic Grayling Recovery Programs (AGRP) website www.graylingrecovery.org

Remote Site Incubators (RSIs) are used in the upper Ruby River to hatch grayling eggs under natural conditions.

Westslope Cutthroat Trout Recovery Near Butte

(Ron Spoon)

Angling opportunities in the Upper Clark Fork Basin near Butte have been limited for decades due to water quality problems stemming from historic mining. Three fishery projects implemented in recent years have attempted to promote the recovery of native fish near the mining city. Extensive removal of mine waste along Silver Bow Creek, westslope cutthroat trout (WCT) enhancement in Norton Creek, and expansion of the range of WCT in Basin Creek have all shown positive effects for fish in recent years.

Restoration of Silver Bow Creek.

Montana FWP monitors fish response to Silver Bow Creek Restoration each year and biologists are beginning to find fish in areas that were devoid of fish in recent years. Monitoring has found that the first species to recover after removal of mine wastes are non-game fish like suckers and sculpins. In 2006, FWP

observed a trout near German Gulch during the fall, which is the first time biologists have documented trout surviving in the this reach of Silver Bow Creek outside of the spring run-off period.

Collecting westslope cutthroat trout for Basin Creek

The future supply of trout to live in Silver Bow Creek depends on healthy populations of fish migrating downstream from "clean" tributaries. Two tributaries of Silver Bow Creek have experienced increased numbers of native cutthroat trout due to management activities. Over 200 cutthroat trout were moved over a natural barrier in Basin Creek to a fishless reach of stream in 2005 and 2006. This project will result in about 2 additional miles of stream for cutthroat trout to live and thrive. In another nearby tributary, Norton Creek, cutthroat trout were losing ground to an expanding population of non-native brook trout. Brook trout population control from 2003 to 2006 resulted in a dramatic increase in cutthroat trout abundance. In 2003, a three-mile reach of Norton Creek only contained 303 cutthroat trout. The cutthroat trout population increased to 2160 individuals in 2006 due to annual removals of brook trout.

Habitat improvement and fishery management in the Upper Clark Fork Basin is intended to provide improved water quality in Silver Bow Creek and healthy tributaries of native trout to supply fish in the restored stream. Annual fishery monitoring by FWP from 2003 to 2006 indicates that positive things are beginning to happen.

Shields River

(Scott Opitz)

The upper Yellowstone River has continued to fair well in spite of the continued drought. Two sections of the Yellowstone River were surveyed in 2006. These were the Springdale Section and the Corwin Springs Section. Abundance estimates were not done in these sections, but numbers of fish and condition appear to be on par with previous years. Survey of all four long-term monitoring sections in the Yellowstone is scheduled for spring 2007. We began tagging Yellowstone cutthroat trout in order to monitor movement within the Yellowstone River and spawning tributaries. If you capture a fish with a tag, please record and report to a FWP office the tag number,

species, length, and location that the fish was caught. Tagging of Yellowstone cutthroat will continue in 2007.

Tom Miner Mine Basin

Fish populations in the Shields River also appear to be doing well. In 2006, we surveyed three monitoring sections of the river. Abundance of brown trout in the Convict Grade section appears to have increased and is above the long-term average. Brown trout in the Todd Section have increased slightly, and remain above the long-term average. Overall condition of fish in the Shields River appears good. Survey of three sections in the spring and one additional section in the fall are scheduled for 2007. We will continue tagging Yellowstone cutthroat to get a better understanding for movement of these fish in the river and tributaries that they use for spawning. If you capture a fish with a tag, please record and report to FWP office the tag number, species, length, and location that the fish was caught. We are currently in the process of acquiring our first public fishing access site on the Shields River.

Ennis Dam Bypass Studies
(Pat Clancey)

A remote radio telemetry monitoring system was installed in the Bypass Reach of the Madison River between Ennis Dam and Madison Powerhouse in 2002 to assess fish movement seasonally and in response to changes in flow, and to determine if spawning gravel should be placed in the Bypass. Radio telemetry receivers were located at two sites to allow monitoring at the upstream and downstream ends of the Bypass. Two antennae were wired into each receiver.

To implant the transmitter, fish were anesthetized to facilitate handling during the implant procedure. After the fish is anesthetized, it was placed ventral side up in a tray containing river water and its head and gills submersed. A small incision was made on the ventral side of the fish anterior to the pelvic girdle, and the skin behind the pelvic girdle was broken with the scalpel. A grooved director was inserted into the body cavity through the incision and fed posteriorly around the pelvic girdle. It was used to capture the tip of a catheter needle inserted behind the pelvic girdle and directed anteriorly. This method prevents the sharp tip of the catheter needle from injuring the internal organs of the fish. The transmitter

antenna was inserted into the catheter tip and fed posteriorly until the transmitter was inserted into the body cavity. The grooved director and catheter needle were removed from the fish and the incision closed with surgical staples or sutures. The actual implant procedure, from placement of the fish into the surgical tray to release into the recovery cage, lasted approximately one minute. Fish were held in a live cage until fully recovered. Prior to being released, the incision was examined to insure the closure was secure.

Catheter needle and grooved director being set in place to implant a radio transmitter in a rainbow trout in the By-Pass Reach of the Madison River.

From July 2002 through March 2005, 141 fish were captured in the Bypass section and implanted with radio transmitters. During the 3½ years the remote telemetry system was in the Bypass, the only obvious reason that transmittered fish departed the Bypass was related to seasonal movements, probably related to spawning. There was no relationship between a fish's departure from the Bypass and river discharge, water temperature, or being implanted with a transmitter. None of the implanted fish attempted to move upstream past Ennis Dam, though some rainbow trout were observed futilely jumping at the base of the dam in April 2003 and 2004. It is unknown if these fish moved upstream from below the Bypass. Most fish implanted with a transmitter remained in the Bypass during the life of their transmitter, but 37 of 75 rainbow trout, 15 of 53 brown trout, and 6 of 13 whitefish were documented to have departed the Bypass, including 19 (13 rainbow, 6 brown) of the 42 fish implanted with transmitters in March 2005.

Radio transmitter being placed in a rainbow trout. Note the transmitter antenna exiting the body cavity and trailing behind the pelvic fins.

Stapled incision on a rainbow trout after implantation of a radio transmitter in the Bypass Reach of the Madison River.

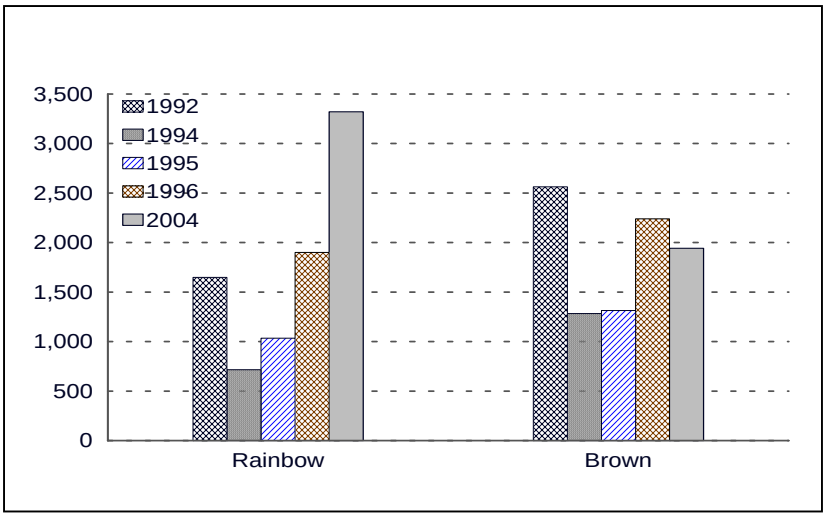
Of the 58 transmittered fish that

departed the Bypass in 2002 – 2005, only 11 departed in summer or winter. Thirty-one of the 35 rainbow trout that departed did so in later winter or spring. Rainbow trout are a spring spawning fish, so these movements out of the Bypass likely indicate spawning movements. Brown trout did not exhibit a clear emigration pattern, such as rainbow trout exhibited during their spawning season. Six of the 15 departing brown trout, a fall spawner, departed in spring, and eight departed in summer or fall. All six whitefish that departed the Bypass did so in the fall. Whitefish are a fall spawner, and 3 of the 6 emigrants moved about 34 river miles downstream of the Bypass while the other 3 remained within about 8 miles of the Bypass.

For rainbow trout, the number of days between the implant date and departure date ranged from 5 – 255, and for brown trout ranged from 5 – 279 days. All six of the whitefish that departed the Bypass did so within 11 days of being implanted, the soonest departure was 4 days post implant.

The greatest movement detected was by an 18.9-inch rainbow trout captured and implanted on February 4th, 2005 at the base of Ennis Dam. It departed the Bypass on May 21st and was relocated 1½ - 2 miles above the mouth of the Madison River on June 16th, a distance of approximately 38 river miles below the capture site. Another interesting movement was by a 15.1 inch female rainbow trout implanted on March 17, 2005, that departed the Bypass on April 4 and was relocated in Cherry Creek about 150 feet upstream of the Montana Highway 84 bridge on May 24. It was subsequently relocated back in the river near the Warm Springs FAS, about 3 miles upstream of Cherry Creek, on June 16, July 12, and October 14. The greatest downstream movement by implanted brown trout was into the section of river between Warm Springs and Blacks Ford fishing access sites.

Five transmitters were returned by anglers who harvested the fish or found the transmitter on the riverbank. Four of the transmitters were from brown trout, three of which were harvested in the Bypass. The harvest location of the fourth brown trout is unknown, but the telemetry data indicates



Population estimates (number/mile) of rainbow and brown trout in the Bypass section of the Madison River, spring estimates. Discharge (cfs) in the Bypass during estimates were: 1992, 1118-1685; 1994, 90; 1995, 355-560; 1996, 82-200; 2004, 100. 1992 estimate by PPL Montana personnel.

that it did not depart the Bypass. One transmitter, found by a fishing guide on the riverbank in Bear Trap Canyon, is from a rainbow trout that was implanted March 15, 2004, and departed the Bypass July 15, 2004. The transmitter was implanted in another rainbow trout in October 2004, but that particular fish did not depart the Bypass.

Rainbow and brown trout populations in the Bypass compare favorably with population levels in other sections of the Madison River. The preponderance of holding sites among the boulder and cobble substrate allows for a greater density of fish than other river sections. Whirling disease did not have a severe population impact on trout in the Bypass and Norris sections downstream of Ennis Reservoir, presumably due to the different temperature regime than that which exists in the upper river.

Inflatable raft set-up used to apply Fintrol to Cherry Lake

Based on the strong population of both rainbow and brown trout in the Bypass and the accessibility Bypass fish have to spawning habitat throughout the lower river as shown by radio tracking, placement of spawning gravel in the Bypass is not necessary.

Cherry Creek Native Fish Introduction Project

The Cherry Creek Native Fish Introduction Project was initiated in 2003. The project area is comprised of over 60 miles of stream habitat and the 7-acre, 105 acre-foot Cherry Lake, and includes all of the Cherry Creek Drainage upstream of a 25-foot waterfall approximately 8 miles upstream of the Madison River confluence. Species present in the project area are brook trout, rainbow trout, and Yellowstone cutthroat trout. The large size of the project area requires that the project be completed in phases. Each phase will be treated for at least two consecutive years.

An inflatable raft and outboard motor were used to distribute Fintrol throughout Cherry Lake. Two people occupied the raft, one steering the raft, the other periodically filling a 14-gallon container with a mixture of Fintrol and lake water. A battery powered pump was used to apply the Fintrol mixture to various depths of the lake through a nozzle system designed to disperse the Fintrol over a broad area. It dispersed the Fintrol/water mixture from the tank at a rate of approximately 1.3 gallons/minute.

Stream treatments were made using trickle application systems. The system consists of a 3½ gallon plastic bucket & lid, garden hose, a gate valve, and a commercially available automatic dog watering bowl. Applications are designed using a 7-hour application period, so the bucket must be refilled and the process repeated once at

each application point each day.

Stations were placed at selected points along the stream and started at predetermined times to coordinate application of the mixture with the other stations along the stream. Backpack sprayers were used each day to treat off-channel water and larger pools.

Eyed westslope cutthroat trout eggs collected from genetically pure populations were used in 2006 to begin seeding Phase 1 streams. Seeding with eggs will continue for 3 – 4 additional years. On September 25, 2006, Cherry Lake was stocked with 150 male westslope cutthroat trout. The average length of the fish stocked was 11.2 inches. Only a single gender was stocked to eliminate the possibility of spawning prior to seeding the lake with wild westslope cutthroat trout eggs in 2007 or 2008.

Region 4

Westslope Cutthroat Trout Restoration

In 2006, significant progress was made in protecting and restoring WCT in the upper Missouri River Drainage, where they are the only native trout. Several ongoing restoration projects and some new projects were part of a cooperative work program between United States Forest Service (USFS) and FWP. Genetically unaltered WCT remain in less than 3% of their historical habitat in the Upper Missouri River drainage. Most populations in northcentral Montana are hybrids (crosses between non-native rainbow trout and native WCT). Also, many populations have vanished because of competition with non-native brook trout. Active restoration efforts are key to preserving this rare legacy of Montana's past for the enjoyment of future generations.

Since its inception, the cooperative work program has protected genetically pure WCT populations in 23 miles of habitat in 10 streams by suppression/elimination of non-native trout species and construction of 7 fish barriers. In addition, genetically pure native WCT have been transplanted to establish 6 new populations in 8 miles of habitat above natural barrier waterfalls in 6 headwater streams.

In 2006, a barrier to non-native fishes was constructed on the South Fork Judith River after four years of grant-writing, design work, and environmental review. The new fish barrier on the South Fork will protect 25 miles of stream with nearly pure WCT from continued hybridization with rainbow trout. It will also help prevent displacement by non-native brook trout. Stream surveys as early as 2000 indicated hybridization was moving rapidly up the South Fork. Currently, most fish in the lower reaches are either pure rainbow trout or highly hybridized WCT. Over the next several years, non-native fish will be removed using backpack electrofishing equipment. The objective is to have a population of native WCT with genetic purity of 95% or better upstream of the new fish barrier. This project is unique in that it allows for movement of WCT populations between tributaries that join the South Fork above the barrier, while still protecting them from invasion of non-native fishes from down below.

Another project initiated in 2006 was the removal of hybridized WCT from

South Fork Judith River Fish Barrier

Crawford Creek in the Belt Creek Drainage using rotenone. In 2005, a concrete barrier was constructed on the lower end of Crawford Creek near the Belt Creek Ranger Station. The barrier protects about 1.5 miles of stream habitat from non-native brook trout, rainbow trout and hybridized WCT. In 2007, pure WCT will be transferred from one or two Belt Creek tributaries to the fishless habitat in Crawford Creek. This project adds significantly (4% increase) to the total miles of stream in the Belt Creek drainage that support pure WCT.

Middle Missouri River

Pallid Sturgeon Recovery

A small population of pallid sturgeon (an endangered species) exists in the 240-mile section of the Missouri River from Morony Dam (near Great Falls) to the Musselshell River near Fort Peck Reservoir. A stocking program was initiated in 1998 to preserve the gene pool and begin to repopulate the species in this recovery area. The goal is to build the population to about 1000 adult pallid sturgeon by 2025. This year the pallid sturgeon recovery program was fairly successful and we stocked a total of 4,634 yearling pallid sturgeon in this reach. Since 1998 we have stocked five year-classes, totaling to 47,123 hatchery pallid sturgeon. Survival success of the stocked pallids has been variable with the 1997 year-class having an exceptionally high survival rate of 45% after eight years in the wild. However, the survival assessment for the 2001 year-class indicates that this year-class was a total loss. The survival success of the other three year-classes is unknown at this time, but further monitoring will provide information in upcoming years. The growth rate of these juvenile pallid sturgeon has improved somewhat over last year, with the 9-year-old fish now averaging 25 inches fork-length and weighing 2.0 pounds. Unfortunately, the new 2006 year-class juvenile pallid sturgeon raised at U.S. Fish and Wildlife Technology Center in Bozeman came down with a viral infection and all these 5,000 fingerlings had to be destroyed. Hence it is unlikely that any yearling pallids will be stocked in this area of the river in 2007.

Sauger Status

Sauger have been receiving considerable attention by fisheries crews because of the sharp declines first reported during the late 1980's. The 2006 survey indicated that sauger numbers are very good from Coal Banks Landing and on downriver. Numbers in the Fort Benton area showed significant improvement and was 120% of the longstanding average here. Sauger numbers in the uppermost area near Morony remain exceptionally low. Since 2002 we have noted that sauger numbers are gradually improving in the mid to upper portions of the middle Missouri River. Sauger spawning success

appeared to be excellent both in 2005 and 2006 with several age-0 fingerlings sampled in downstream areas. Some of the juvenile sauger tend to slowly migrate to upriver areas from the lower river. Consequently, strong downstream populations should gradually enhance upper river populations.

Sauger/Walleye Competition Study

A two-year sauger study completed by Montana State University (MSU) student Brian Bellgraph assessed the competition potential between sauger and walleye in a 40-mile reach of the Missouri River between Fort Benton and Virgelle. It was suspected that walleye may be competing with sauger for resources since walleye abundance increased following the drought while sauger abundance remained low or decreased. Seasonal migrations, habitat use, and diets of both species were studied during 2003-05. Thirty-one sauger and 29 walleye were captured and were surgically implanted with radio transmitters in the fall so that their movement patterns and habitat use could be studied. It was found that 96% of saugers and 57% of walleyes migrated downstream as far as 164 miles to spawn. After spawning, both species returned to previously occupied river reaches and many fish returned to the exact areas they inhabited prior to their spawning migrations. Habitat use by sauger and walleye was similar, and both species preferred bluff pool habitat. Diet overlap was high between saugers and walleyes in the springtime, when they both consumed primarily emerald shiners and stonecats. Summer diet overlap was also high with both feeding heavily on stonecats (a small species of native catfish). Diet overlap during the fall was moderate with sauger concentrating on stonecats while walleye consumed a smorgasbord of stonecats, emerald shiners and western silvery minnows.

Sauger and walleye exhibited high overlap for seasonal migrations, habitat use, and diet in the middle Missouri River. This means there is high potential for competition between the two species if food or habitat resources are limiting. However, because both species occur in low numbers in the upper river reach, it is unlikely that walleye are currently excluding sauger recovery in that area.

Lewistown Area

Ackley Lake

Ackley Lake has been one of the most consistent producers of 1–2 pound trout in central Montana. However, in 2005, mean rainbow trout weight from gill nets was less than 7 ounces and trout were at near record low numbers. It was also the second year that trout were extremely thin. Biologists thought that the high population of suckers might be reducing trout growth. Therefore in 2006, 14,900 pounds (8.2 tons) of suckers were captured in trap nets and dispatched, with carcasses deposited in the reservoir. Circumstantial evidence indicates that sucker removals immediately benefited the rainbow trout. Rainbow trout catch rates in nets returned to near record highs and size and growth improved. Mean weight of fall-netted fish increased to 10 ounces and first year growth of rainbow trout increased from 4.2 inches in 2005 to 6.2 inches in 2006. Five brown trout up to 10 pounds (mean 4 pounds) were also

captured during 2006 sampling.

East Fork Reservoir

Yellow perch (mean weight 2 ounces) were captured at record highs (>100 per net) in fall gill nets on East Fork Reservoir, near Lewistown. The reservoir is producing northern pike in the 3-pound range. One northern pike captured during spring trapping weighed nearly 24 pounds. This fish was tagged in 1998 when it weighed about 10 lbs. In December 2006, biologists evaluated the suitability of stocking of several species to diversify the fishery. The assessment recommended stocking largemouth bass, which may be stocked in 2007 or 2008, pending public review and approval.

Big Casino Reservoir

Rainbow trout are not doing well in Big Casino Reservoir. They are smaller and appear to be less numerous than they were prior to the removal of 2.3 tons of suckers in 2001. Only three rainbow trout were captured in the four survey nets set in 2006. These trout were all less than 11 inches long and weighed less than 4 ounces on average. Spring nets captured record high numbers of yellow perch (212 per net) of 2-ounce perch. Perch were illegally introduced a few years ago and have destroyed what was previously a well-balanced fishery for trout and walleye. Despite high stocking rates, record low numbers of walleye (one fish in four nets) were captured. It seems likely that low retention time of water and surface discharge of Big Casino Reservoir flushes most of the stocked walleyes downstream. Due to the recent lack of success, FWP plans to discontinue walleye stocking in 2007. Biologists are currently evaluating options to improve the fishery in this reservoir.

Martinsdale Reservoir

Martinsdale Reservoir was drawn down to less than 10 acres in late summer 2006 for repairs, which resulted in a partial fish kill. A complete winterkill is likely at these low water levels. The repair was not completed and the reservoir is scheduled to be re-filled in 2007. It will be drawn down again starting in August 2007. Biologists plan to stock catchable rainbow trout in May 2007 to provide fishing next summer.

Petrolia Reservoir

Petrolia Reservoir, located south of Winnett, has been providing good walleye and northern pike fishing in recent years with good water levels. The reservoir produces walleye in the 3–10 pound range but most were around ¾ of a pound during fall netting. Northern pike up to about 14 pounds are found in the reservoir. Yellow perch are sparse and several hundred yellow perch (6.5 inch mean length) were moved from Jakes Reservoir to Petrolia in April to enhance spawning stock.

Big Spring Creek

Lewistown's premier trout stream, Big Spring Creek, continues to provide excellent fishing and trout numbers (>10 inches) in fall 2006 were similar to the long-term average. Numbers of juvenile rainbow trout were below the long-term average in all three sections sampled. Brown trout numbers have been increasing, and they now make up about 50% of the trout population in the creek upstream from Lewistown. Whirling disease infection levels are very high on the lower creek and the

infection is slowly spreading to areas of the creek upstream of Lewistown.

Prairie Fish Survey

A survey of 143 sites on 136 streams throughout Region 4 was conducted as part of the comprehensive Montana prairie stream inventory. This was the fourth year of the survey and the first time that most of these streams had ever been sampled. Of the 143 sites sampled, 77 (54%) had water present and 66 (46%) were dry. Fish were found in 73% of the sites that had water. Prairie fish have to be tough, and it doesn't take a lot of water to keep them going. A total of 17,669 fish consisting of 21 species (12 native and 9 introduced) and seven families were captured. Like the past three years, fathead minnows had the greatest distribution of prairie minnows in Region 4, occurring at 44 sites. Spottail shiners had the highest distribution of non-native species observed and Eastern brook trout were observed in transitional areas between mountain and prairie ecosystems. Most prairie streams surveyed were dominated by native species. Overall, less than 3% of the fish captured were nonnative, most of which were non-native trout. Similar to prior years, the documented range of native species such as brassy minnows, brook stickleback and northern redbelly dace x finescale dace hybrids was extended further westward in Region 4. Northern redbelly dace x finescale dace hybrids, a native species of concern, were identified at 13 sites within 6 major drainages. These observations were important because prior knowledge on the distribution and abundance of this special hybrid species has been limited. Eleven species of reptiles and amphibians were also recorded during the survey. The northern leopard frog was the most frequently observed amphibian, while the western rattlesnake was the most common reptile.

The male Northern redbelly dace, brightly colored during the summer.

The male Northern redbelly dace, brightly colored during the summer months, is one of Montana's native minnow species found in prairie streams.

Choteau Area

Tiber Reservoir

The stage was set in Tiber Reservoir for what biologists hoped would be an excellent production year for cisco during 2006. Back in 1997 and 1998, Fish, Wildlife & Parks introduced cisco (also known as lake herring) into Tiber to supplement the reservoir's forage base. Since their initial introduction, the only significant natural reproduction occurred in 2002, a year when there was minimal winter drawdown of the reservoir. Maintenance of the reservoir's water elevation throughout the winter is critical to hatching success, since spawning cisco deposit their eggs in relatively shallow water in shoreline

areas during late fall. Deposited eggs incubate all winter under the ice before hatching in early April. Reservoir drawdown during winter 2006 was minimal; Tiber's water elevation was lowered just 0.4 ft from December through March. Despite what looked like optimal conditions, vertical gill net surveys indicated very limited cisco production occurred in 2006. Biologists will continue to monitor this population and several habitat variables to gain a better understanding of factors that limit or promote production of this forage fish.

Limited cisco production occurred in Tiber Reservoir during 2006.

Anglers enjoyed another summer of excellent walleye fishing on Tiber during 2006. Weekend creel surveys indicated the average catch rate from May through August was 0.4 walleye per hour for all anglers, with the highest catch rates occurring during June and early July. The average size of harvested walleye declined slightly from 2005, but body condition of these fish improved from previous years. Anglers also reported better-than-average perch fishing, and several trophy-sized northern pike were caught. Growth rates of northern pike have improved dramatically since the introduction of cisco.

Fall gill net surveys indicated walleye numbers remain relatively stable in Tiber. However, there was noticeable improvement in walleye body condition, as was noted in the summer creel survey. A preliminary field check of walleye stomachs indicated they were feeding primarily on young-of-year yellow perch. Following a several year declining trend, abundance of larger yellow perch increased in fall 2006 gill nets, which confirmed what anglers reported during the summer months. Northern pike numbers remain relatively low in Tiber, but their body condition is exceptional. Pike offer a trophy component to the Tiber fishery, attributable to the abundance of cisco in the reservoir. Cisco dominate Tiber's fish community, accounting for 73% of the total catch in this past fall's gill net surveys. Unfortunately, adult cisco are still growing too large (about 9.5-inches) for Tiber's walleye to prey on. However, the reservoir's northern pike and lake trout are feeding heavily on the abundant cisco.

Lake Frances

Low water conditions again challenged anglers on Lake Frances during 2006. Similar to the past several years, a light snowpack resulted in minimal runoff.

During spring and early summer, boat access was limited to the ramp on the east end of the reservoir near the outlet dam, which was often congested. By August, the reservoir had dropped enough that anglers were launching from the recently-constructed low-water ramp located on the island near Valier.

Angler catch rates of walleye were lower in 2006 relative to the previous two years, but average size of harvested walleye increased to about 16.5 inches. Yellow perch numbers rebounded somewhat, as was evident by the numbers reported by anglers in creel surveys. Many anglers reported smaller perch to be a nuisance while walleye fishing. Few northern pike were reported in the creel, but gill net surveys indicated a slight increase in their relative abundance compared to historic data. Fall gill net surveys indicated Lake Frances' walleye numbers were down significantly from the historic high net catches observed since 2002. Fish between 15- and 20-inches in length now dominate the walleye population. The lower abundance of walleye less than 15 inches in length may indicate reduced recruitment and/or survival of stocked walleye.

Pishkun Reservoir

FWP personnel again trapped and transplanted northern pike from Pishkun Reservoir into nearby Split Rock Lakes during spring 2006. This was the fourth year of these removal efforts, which are directed at reducing predation pressure in Pishkun to improve northern pike growth rates, enhance yellow perch survival, and promote the establishment of a rainbow trout fishery. A total of 1,041 pike were removed during 2006, which resulted in excellent pike fishing opportunities in Split Rock Lakes that many anglers took advantage of.

Despite these removal efforts (over 3,000 pike transplanted the past four years), survival of stocked rainbow trout in Pishkun continues to be poor. Relatively few rainbows are showing up in survey nets, although those that survive exhibit exceptional growth. Three-year old rainbow trout captured in trap nets during spring 2006 weighed four to five pounds, and anglers reported catching rainbows up to 11 pounds. Biologists will examine trap net data to determine if these removal efforts will continue, or if there are other strategies we might try to promote the establishment of a trophy rainbow trout fishery in Pishkun.

Other Rocky Mountain Front Waters

Low water conditions continue to plague several fisheries in the Choteau area. Bynum Reservoir, a once popular walleye and yellow perch fishery, has not recovered from several years of drought, despite the area receiving normal precipitation the past two years. Although water from the Teton River was diverted into Bynum Reservoir throughout the 2006 winter, at the start of irrigation season this reservoir contained just 13,500 acre-ft of its 72,000 acre-ft capacity (19%). Thus, after a very brief period of releases, the water elevation in Bynum was again reduced to dead storage by early July. No fish sampling was completed in Bynum during 2006, but biologists hope to assess the status of this fishery during 2007.

Bean Lake

Bean Lake lost another 1.5 ft of water elevation during 2006. Elevation of this natural pothole lake has been declining for several years and it now has a maximum depth of about 10 ft. Because of poor water quality and the declining water elevation, FWP did not stock rainbow trout into Bean Lake in 2006. The reach of Spring Creek that flows through Choteau remained completely dewatered throughout 2006. This small stream once provided excellent angling opportunities for local youths. Low water also continues to plague Eureka Reservoir, an off-stream irrigation storage reservoir in the Teton River drainage. By mid-July, water elevation in this reservoir was too low to launch boats and access was very limited to this popular rainbow trout fishery.

Nilan and Willow Creek Reservoirs

Nilan and Willow Creek reservoirs, located in the Sun River drainage, maintained good water levels throughout 2006 and provided excellent angling opportunities for rainbow trout. Both shore and boat angling are effective in these waters, and stocked rainbow trout commonly reach three pounds and larger in these productive reservoirs. Both reservoirs received an additional stocking of rainbow trout this past fall and should fish very well in 2007.

Sock, Renshaw, Wood, and Tunnel Lakes

Several lakes in the Choteau area are now being stocked with westslope cutthroat trout. Previously, these lakes received either Yellowstone cutthroat trout or rainbow trout. Sock, Renshaw, Wood and Tunnel lakes received plants of westslope cutthroats during 2006 from Washoe Park State Fish Hatchery in Anaconda. This change in management will provide anglers an opportunity to catch this special native fish.

Other Activities

Students and teachers from area schools are participating in the third year of the Sun River Adopt-a-Fish Program. This web-based program allows students to adopt and name a specific fish, and then follow its movements from their classrooms via the internet. This year's program was kicked off with an October fieldtrip to the Sun River Canyon. Classes from Choteau, Fairfield, Power, and Greenfields schools enjoyed learning about Gibson Dam and the Sun River Irrigation Project, electrofishing, and fish biology. Students also observed their adopted rainbow trout getting implanted with a radio transmitter. Twenty transmitters were implanted into trout in the section of Sun River between Gibson and Diversion dams. Information on the Sun River Adopt-a-Fish Program can be found on the web at: http://fwp.mt.gov/education/adoptafish/sunriver/default.html

Efforts to establish fluvial (stream dwelling) Arctic grayling in the upper Sun River drainage suffered a setback in 2006. This year was to be the second of a three-year effort to incubate grayling eggs onsite at remote locations in the Bob Marshall Wilderness. Egg incubators were installed in two tributaries of the North Fork Sun River, but hatchery personnel were unable to secure viable eggs from brood fish. Eye-up of fertilized eggs was less than 25%, which was not sufficient to warrant their placement

into incubators. Hatchery personnel were not sure why egg eye-up was so poor, but suspected it may have been attributable to the very warm weather that occurred during May. Grayling introduction efforts will continue in spring 2007 with two more years planned for the program.

The Fish, Wildlife & Parks Aquatic Education Program provided classroom aquariums to schools in the communities of Choteau, Bynum, and Dupuyer. These aquariums have proved to be very popular and are an excellent medium for students to learn about Montana's native fishes. Local school students now know more than just their trout! Brook stickleback, mottled sculpin, brassy minnow, longnose dace, and lake chub are just a few of the lesser-known native species they have become familiar with. The program highlight was when the classrooms received fingerling westslope cutthroat trout from Washoe Park State Fish Hatchery. Now, it is purported that everyone in the community of Bynum knows the story of *Oncorhynchus clarki lewisi!*

Bynum School students and teacher Mrs. Luinstra enjoy their native fish aquarium.

Helena Area

Canyon Ferry Reservoir

It was 10 years ago that an angler in Canyon Ferry Reservoir caught the first documented walleye. Since that point, walleye populations have flourished and the walleye fishery continues to grow in popularity.

Ten years later, biologists are curious about the changes that have taken place in the reservoir; namely, how have anglers responded to the species shift in Canyon Ferry? Rainbow trout and yellow perch established Canyon Ferry as one of the most popular fisheries in Montana for nearly 40 years. How has the shift from a yellow perch/rainbow trout to a walleye/rainbow trout fishery affected angler use and the popularity of the fishery?

Since 1982, FWP has monitored angler use on the majority of waters throughout the state. These estimates provide reliable data and a starting point for biologists to evaluate how fishermen are responding to the species shift in Canyon Ferry. The 2005 angler use estimates for Canyon Ferry was 80,248 days. This compares with the long-term average of 90,296 angler days. The 2005 estimate represents the sixth year of declining angler use on Canyon Ferry, which reached nearly 120,000 angler days in 1999. Other indicators of the shift are seen in the percentage of boat anglers compared to shore anglers. In 1988 when the fishery was dominated by rainbow trout and yellow perch, shore anglers made up 61% of all anglers. By comparison, shore anglers comprised only 17% in 2005 when walleye were the most sought after fish

in the reservoir. In 1988, 73% of all anglers were targeting rainbow trout while in 2005, 68% were targeting walleye. Nonresident anglers comprised 8% of the angling pressure in 1988 compared to less than 4% in 2005.

Declining angler use of Canyon Ferry can be attributed primarily to the crash of the immensely popular yellow perch fishery. Anglers targeting perch (predominantly during the winter) comprised approximately 30,000 days annually. Despite continued habitat enhancement by biologists since 1998 and a reduction in the daily perch limit to 15, populations continue to struggle. Perch remain an extremely important food item for walleye; even though perch can produce massive numbers of offspring, very few are living to age 4 (8 inch) because of heavy predation by walleye.

Biologists continue to evaluate hatchery rainbow trout strains (Eagle Lake vs. Arlee) and season of stocking (June vs. October) to determine what combination is the most cost effective. Rainbow fingerlings (fish less than 8") are no longer being stocked due to heavy predation by walleyes and the goal is to stock only 8-inch rainbow in areas where predation is minimized.

Population surveys show good survival of 8" rainbows that were stocked in fall 2005 and spring 2006, so rainbow fishing should improve as biologists learn more about which rainbow strains and seasons of stocking work best.

Hauser Reservoir

Do you want the good news first or the bad news? Lets start with the bad; angler catch rates for rainbow trout have been declining in recent years due to reduced rainbow stocking rates. Stocking rates were significantly reduced while the Lewistown hatchery completed the PCB cleanup project. The good news is that the Lewistown hatchery is back on line and Hauser received the full request of rainbow trout in 2006 (150,000). Historically, fingerling rainbow (5 inch) were stocked and survival was generally excellent. Walleye abundance began to increase in 1998, and stocked rainbow trout fingerlings have survived poorly since then due to heavy walleye predation. Several years of extensive fish marking and monitoring have established that 8-inch rainbow stocked in the late fall provide optimal survival. There is a two-fold benefit to this approach; fish are large enough that walleye predation is minimized, and predator metabolisms are slowing for the winter – meaning they eat less. Amazingly, the 8-inch fall-stocked rainbows will grow through the winter and reach 13-14 inches by the following May, which makes them even less vulnerable to walleye predation when the water warms up in the spring. Rainbow fishing should improve dramatically in 2007.

Walleye relative abundance hit a record high in the 2006 fall sampling

nets and angler catch rates were actually higher in Hauser than Holter. Catch rates for small walleye should be good in 2007. First-time walleye anglers have an excellent chance to catch a few "eyes" at the Causeway, which has excellent access for youth and handicapped anglers. Good numbers of walleye ranging from 12 to 18 inches can be found in Hauser as well as a few in the 24 to 28 inch range. Fishing is best during the April-May period and many anglers find success during the evening hours.

Two traps designed to monitor fish movement between Lake Helena and Hauser Reservoir were removed in 2006. The traps were installed under the Causeway Bridge in 2004 as part of the federal relicensing program for Hauser Dam. During the nearly two-years of operation: 99 rainbow and brown trout, 336 kokanee salmon, 24 yellow perch, 167 walleyes, 996 suckers, 32 carp and 2 ling were counted passing under the Causeway Bridge. All of the fish were released alive, and some were tagged. The information collected with these traps assisted biologists in determining sportfish harvest rates.

A study funded by PPL Montana to determine fish loss over and through Hauser Dam started in 2006. For the next several years this study will determine how many and what kind of fish are being lost from Hauser Reservoir. Additionally, it will determine when (time of year) the majority of fish are being lost, and results could be used to test ways to reduce losses, if warranted.

Holter Reservoir

Holter Reservoir rainbow fishing remained strong in 2006 even though the number of hatchery rainbow has been reduced by roughly 80% since the discovery and cleanup of PCB at the Lewistown Hatchery. Catch rates were again good from the boat ramps during April, providing an excellent opportunity for youth and handicapped anglers.

Biologists collected 236,000 eggs from Eagle Lake rainbow trout from Holter in the spring of 2006. These eggs were hatched and reared at the Lewistown hatchery and many come back to Holter as well as other waters in Region 4 (Great Falls Area). In 2006, the Lewistown hatchery was back in full production and Holter received 125,000 Eagle Lake and 125,000 fall release Arlee rainbows. Amazingly, the 7-8 inch Eagle Lake

rainbows released in July demonstrated excellent survival and were nearly 12-14 inches by October!

Walleye fishing slowed a bit in 2006 after several years of hot fishing. However, walleye relative abundance increased in 2006 with excellent numbers of small walleye and good numbers of quality and trophy sized fish in the slot and greater than 28 inches. Perch numbers collected in fall gillnets showed a slight increase but are still well below the management plan goal. Keep your fingers crossed that excellent perch production in 2002 leads to an improvement in the winter ice fishing.

Kokanee salmon continue to provide a surprising fishery given the small numbers that have been stocked in Holter in recent years. October produced some relatively good kokanee fishing with numerous fish in the 5-pound range. The majority of kokanee caught in recent years have been hatchery fish stocked in 2002. However, a few wild kokanee have been caught by anglers and in sampling nets indicating that some limited natural reproduction is occurring. Due to extremely poor survival of hatchery kokanee stocked in Hauser and Holter Reservoirs since 1997 (over 3.5 million eggs/fry/fingerlings and advanced fingerlings were stocked), the decision was made to discontinue this program in 2005. However, if surplus kokanee are available from the hatcheries, consideration will be given to stocking them in the Upper Missouri River Reservoirs.

Westslope Cutthroat Trout Restoration Projects

In 1998, a small stream that flows into the Helena Valley was identified as having an extremely rare population of 100% pure westslope cutthroat trout. In 2003 it was discovered that someone had illegally dumped white suckers into a pond on the creek. The sucker

population exploded and soon had out competed the cutthroats. In 2004 and 2005 biologists removed 46,000 suckers and estimated the number of cutthroats to be about 200. In the fall of 2005, as many cutthroats as possible were removed and relocated to another pond. The sucker-infested pond was then treated with a chemical to eliminate the remaining suckers. After the chemical had detoxified (about 3 weeks) the cutthroat were brought back to the pond. Sampling in 2006 found ZERO suckers and a bunch of very fat, happy westslope cutthroat trout.

Great Falls Area

A Long-Term Look at Missouri River Whirling Disease

Our biologists spent a fair amount of time over the past few months trying to get a clearer picture of what the long-term effects of whirling disease have been on trout populations in the Missouri River. The 35-mile section from Holter

Dam to Cascade has been the #1 or #2 most heavily fished water in Montana since 2000. The river has become famous for its high quality trout fishery and attracts fly fishermen and women from around the world.

FWP has gathered fish population information by electrofishing the 6-mile section between Wolf Creek Bridge and Craig every year since 1982. This extensive database (25 years and running…) is very valuable for determining long-term fish population trends. Trout populations are notoriously variable and can be heavily influenced by floods, drought, heat, cold, and other factors including water quality and changing patterns of human use. Long-term databases require dedication and commitment to compile, but are very useful for smoothing out the year-to-year variations and giving a clearer view of the "big picture".

So, what has happened to trout populations in the Missouri River over the past 25 years, particularly with regard to whirling disease? Well, a lot…. and not much. Little Prickly Pear Creek, a major supplier of young rainbows to the river in the Craig area, became heavily infected with the whirling disease parasite beginning in 1997. The parasite is very hard on young rainbows because they have little natural immunity and the parasite consumes cartilage in the young fish, causing deformities and often death. We expected the parasite to take a toll on young rainbows, and expected to see it reflected in numbers of yearling rainbows living in the river in the Craig area beginning in 1998. We compared yearling rainbow numbers in the river from 1982-1997 (pre-whirling disease) to the years 1998-2006 (post-whirling) and found the disease had indeed taken a toll. Post-whirling yearling rainbow numbers averaged only 66% of the pre-whirling years. In other words, this amounted to about a 1/3 reduction in production of young rainbows, which was not as bad as we expected.

One would expect a 33% reduction in production of young rainbows to eventually lead to a similar decline in numbers of adult rainbows, right? However, Mother Nature often surprises, and this is a pleasant one. According to our long-term data, numbers of all rainbows 10" and longer in the Craig section averaged a little higher (3500/mile) in the post-whirling years as compared to the pre-whirling years (2600/mile). Pre- and post-whirling numbers of the core population of adult rainbows (14 – 17 inches) were nearly identical at 1200/mile. Most surprisingly, numbers of "trophy" rainbows (17 inches and longer) were dramatically higher in the post-whirling years (1700/mile) as compared to only 500/mile in the pre-whirling years. To be honest, we are not entirely sure how the river's rainbow population is managing to hold on so well, but it is pleasing to see. Biological systems are very complex, and there is often more at play than meets the eye. There are many possible explanations, including improved survival due to lower density of young fish, improved growth, seasonal fish movements, development of immunity, better production from whirling disease-free areas, changes in fishing regulations and harvest, and others.

FWP has a second long-term trout population monitoring section on the

Missouri, located around the Pelican Point Fishing Access Site, about 6 miles upstream from the town of Cascade. Young rainbows produced for this section come mostly from the Dearborn River and Sheep Creek. The Dearborn first became heavily infected with whirling disease in 2004, while Sheep Creek has remained uninfected or only lightly infected over the years. Potentially, yearling rainbow numbers in the Pelican Point section should have been adversely affected by the Dearborn infection, and we should have noticed this in our 2005 and 2006 population estimates. It does appear yearling rainbow numbers have been down a bit the past two years, but they are still averaging 80% of the pre-whirling average, which is encouraging. It will take several more years of monitoring to get a clear picture of effects in the Pelican Point area.

Brown trout are also monitored in these two long-term fish population monitoring sections on the river. In general, brown trout numbers have historically been much lower than rainbows, and their populations do not appear to fluctuate as much. Brown trout are relatively immune to whirling disease because they co-evolved with the parasite in their native waters in Europe. Missouri River brown trout populations have been relatively stable over the years and do not appear to have been influenced one way or the other by whirling disease. The 2006 estimate for the Craig section was about 600 browns per mile 10 inches and longer, which was slightly higher than the long-term average. There were about 250 brown trout per mile in the Pelican Point section in 2006, which was slightly below the long-term average for that section.

REGION 5

Bighorn River

Drought was back in the picture on the Bighorn River in 2006. After being at or below the absolute minimum flow of 1,500 cfs for over 3.5 years, the Bighorn River flows were increased to the preferred minimum flow of 2,500 cfs in the spring of 2005. River flows remained at or above this level for the rest of 2005, and looked good going into 2006. At the annual March spring meeting with the Bureau of Reclamation (BOR), Wyoming Game and Fish, and other parties interested in water management on the Bighorn River and Bighorn Lake, forecasts looked great. Snow pack was around 80% and the Bighorn Lake water level was 30 feet higher than it had been at the same time in 2005. In 2005, the reservoir had filled while 2,500 cfs or higher was released down the Bighorn River. The "most probable forecast" from the BOR was to fill the reservoir while keeping flows in the river at or above 2,500 cfs again in 2006. Shortly after this meeting, drought returned to the Bighorn Drainage with a vengeance. Spring precipitation was

almost totally nonexistent in the Bighorn Drainage in 2006, and reservoir levels started to drop. River flows were reduced to 2,000 cfs at the end of June and back down to 1,500 cfs on July 14th. Flows are forecast to remain at 1,500 cfs at least until runoff begins next spring.

Despite this disappointing flow picture, anglers fishing the Bighorn River found some great fishing this year. The one-year of good flows experienced in 2005 occurred at just the right time to take advantage of some very strong year classes of younger rainbow and brown trout. Anglers hitting the Bighorn early in the spring reported some of the best fishing they had seen in a number of years, with much better catch rates than in the past several years.

Population estimates conducted on the upper river in June found brown trout numbers down some from 2005, but rainbow numbers were way up. There were many 13 to 18 inch rainbow and brown trout, which accounted for most of the anger success, and anglers also continued to report catching larger trout. Preliminary estimates indicated there were almost twice as many rainbows as brown trout in the upper river. Although trout numbers were still well below the long-term average, angler success and satisfaction remained high through the season.

With river flows dropping back down to 1,500 cfs, and good numbers of larger trout present in the Bighorn, the river fishery could be starting back in the same cycle experienced at the start of the drought in 2000 and 2001. Fall electrofishing near Mallards Landing FAS in late September captured low numbers of young-of-the-year rainbow and brown trout. It appeared that many of the small trout that hatched in the spring may have already become food for the larger trout in the river. Unless flows are increased back above the minimum flow of 1,500 cfs, total trout numbers in the Bighorn River will probably be down again next spring, with few small and medium sized trout, and improved growth and condition for the remaining larger trout.

A new player has emerged in the water scene on the Bighorn River. A group in Lovell, WY has organized with the expressed interest of improving lake levels in Bighorn Lake to increase recreational opportunities at Horseshoe Bend on the WY end of the lake. Despite the fact that we are in the middle of the most extensive drought since Yellowtail Dam was completed, and that over 22 feet of sediment has been deposited at Horseshoe Bend since the reservoir was formed, this group would like to sacrifice the fishery in the Bighorn River in hopes of increasing recreational use at Horseshoe Bend. Support from Bighorn River anglers could become very important as this water battle develops.

Boulder River Drainage

We initiated a Yellowstone cutthroat restoration project in Four Mile Creek in the Boulder River Drainage. Meatrack Creek, a tributary to Four Mile Creek, harbors an excellent population of Yellowstone cutthroat trout, while Four Mile Creek is populated by rainbow trout. Until recently, rainbow trout were not found in Meatrack Creek, but in the last 2-3 years rainbow trout have begun to show up in the population and

hybridize with the cutthroats. In 2006, we began to eradicate the rainbow trout from the Four Mile Creek drainage and replace them with Yellowstone cutthroat trout. Work in 2006 was focused on the 2 small lakes (Silver and Prospect) located at the headwaters of Four Mile Creek. To reduce impacts to the wilderness area, we are attempting to use mechanical means to remove fish. We intensively netted and electrofished spawning areas in the lakes to remove rainbow trout and netted the lakes continuously during the summer. To date, we have removed over 500 rainbow trout from each lake. As the work proceeds, plans are being developed to chemically remove the rainbows from Four Mile Creek and potentially construct a barrier near the confluence with the Boulder River. This project will ultimately secure 6 miles of habitat in Meatrack Creek from the threat of hybridization and add 9 miles of cutthroat habitat in Four Mile Creek.

Prospect Lake where Yellowstone cutthroat trout are being restored.

Whirling disease testing was expanded in the Boulder River system during the fall of 2005. Juvenile rainbow trout, which are most susceptible to the disease, were placed in cages at three locations in the river: near the mouth at Big Timber, at Beaver Meadows and upstream of the Natural Bridge on the Boulder River Ranch. The reason for the expanded testing was to determine whether the disease is spreading from the Yellowstone River at Big Timber, which has recently tested positive. The Boulder River is one of the most important spawning tributaries to the mid-Yellowstone River. The interchange of fish between the Yellowstone and Boulder rivers, and the importance of the Boulder as a spawning and rearing site, make the latter particularly vulnerable to being infected by whirling disease. Despite this vulnerability, no whirling disease was detected at any of the three sites sampled. This is good news for the Boulder and the Yellowstone rivers. It means that, at least for now, the Boulder will continue to support strong runs of rainbow trout from the Yellowstone. Monitoring for the disease will continue.

Stillwater River Drainage

Our spring population estimate for the Stillwater River near Moraine Fishing Access Site (FAS) suggests that the fish population is down somewhat from the estimate made 2 years ago, but still is in excellent shape. The estimate suggested that there are 4,400 fish per mile in the river at this location with an approximate 70:30 mix of rainbows to browns. Fish from the Yellowstone River use the Stillwater in the area of the Moraine FAS as a spawning ground. Therefore, the numbers of juvenile fish in this population monitoring section is often high, and the site serves as a good indicator of recruitment of juvenile

fish for the rest of the Stillwater and the Yellowstone River. Juvenile fish densities were high in 2006 for both brown and rainbow trout, which bodes well for fishing in the future. Whirling disease testing in this vicinity was also negative.

The Derby fire, the largest wildfire in Montana during 2006 and one of the largest in the nation, burned much of the Bad Canyon Creek drainage. A multi-year Yellowstone cutthroat restoration project was completed in the creek 3 years ago, and the fish have been thriving since. The fire burned hot enough in one area to heat the water and kill the fish. The rest of the creek and riparian area, however, faired much better. Despite extremely low flows, most of the fish survived the fire. The Forest Service performed emergency remediation actions to protect the stream from potential future erosion. The prognosis for Bad Canyon Creek is better than some other areas of the fire because, for the most part, the intensity of the fire was less than in other areas. There is the potential, however, for substantial erosion and ash to affect the water quality and habitat in the creek. The rate of re-establishment of vegetation and the intensity of rainfall in 2007 will greatly affect whether severe impacts to the fishery will be realized in Bad Canyon Creek.

Clarks Fork Yellowstone River

Electrofishing surveys we conducted in Rock Creek north of Red Lodge indicate that the population has declined somewhat from its all-time high observed in 2004. Although the fish population has declined, it is still greater than the long-term average. Rock Creek provides excellent fishing for brown and rainbow trout. The fish range in size from around 8-16 inches. Brown trout comprise approximately 75% of the trout population; rainbow trout, the other 25%. The occasional brook trout and mountain whitefish can also be caught. With brook and brown trout present, there is also the possibility of catching one of the rare, seldom-caught tiger trout, a cross between a brown and brook trout. A tiger trout can be recognized by the very distinct, worm-like pattern covering the sides of the fish. Normally this worm like pattern is found only on the dorsal side of an unhybridized brook trout. Another distinguishing characteristic of tiger trout is the lack of spots on the sides of the fish. Tiger trout are not capable of reproduction, but are known for fast growth. Rock Creek near Red Lodge is the only place that we have locally observed tiger trout in the wild.

Middle Yellowstone River

We electrofished two sections of the Yellowstone River in 2006. We completed an abbreviated section of our normal population monitoring reach at Big Timber. Although we sampled less than 1/3 of the normal length of the river, we captured more rainbow trout than ever before within the entire reach. Most of the increases were for fish between 8 and 12 inches. In the 1.5-mile section that we sampled at Columbus, we captured 1,931 rainbow trout. We haven't yet calculated population estimates for these two sections, but it is clear from this spring's sampling that the rainbow trout in the river are much greater than in the recent past. As part of our population sampling we have also been tagging all trout and ling over 12 inches long; to

date we have tagged more than 1,300 fish. Anglers catching the fish and turning in the tag number, size and location it was caught have been providing very valuable information about fish movements and growth. One good example of this was a very large brown trout tagged near Big Timber in 2004. The fish was originally tagged on October 26, 2004 and was over 25 inches long. The fish was caught and released in the exact same location in August of the following year by an angler. One month later an angler caught the same fish near Loch Leven FAS in the Paradise Valley, nearly 40 miles upstream. This was a fish of a lifetime for both anglers, and the information they provided to us is invaluable.

Yellowstone cutthroat trout restoration continued in 2006 in Soda Butte Creek near Cooke City. The chemical removal of brook trout that took place in 2004 in the headwaters appears to have been successful. Because of the healthy population of cutthroat in the lower creek, electrofishing is being used to selectively remove the brook trout and release the cutthroat back to the creek. During 2006, 225 brook trout were removed, which is substantially less than the year before when 667 brook trout were captured. Of significance, though, was the decrease in the number of age-0 fish captured. The number of this age class of fish has dropped precipitously since the inception of the project. In 2004, 103 age-0 fish were captured, and in 2005, 60 were captured, but in 2006 only 6 were caught. This decrease is encouraging because it means that very little spawning is now occurring. If adult brook trout can be removed before spawning, then it may be possible to completely remove them from the creek. Electrofishing removal will be evaluated each year, and efforts will likely continue for an additional 2 or 3 years.

Other creeks significantly impacted by the Derby Fire included Trout Creek, Bridger Creek, and Upper and Lower Deer creeks. Some of the most severely burned areas of the Derby Fire were in the Upper and Lower Deer creek drainages, which contain native Yellowstone cutthroat trout populations. The steep topography and the charred ground made the potential for significant erosion and ash entering the creeks very high. Working cooperatively with the US Forest Service, we developed a plan to salvage as many cutthroats as possible from the creeks and relocate them to unburned streams. We identified three streams west of Red Lodge as potential recipient streams because: they contained healthy trout populations, there were no rainbow trout present, and the habitat was in good shape. We began electrofishing in early November to move brown and brook trout from the recipient streams to areas farther downstream. Shortly thereafter, we captured and transported cutthroats from Lower and Upper Deer creeks to their new homes. We moved 518 cutthroats from Lower Deer Creek and only 28 from Upper Deer Creek. We anticipate moving fish back to the Deer creeks when the habitat conditions stabilize, which could take several years.

Lower Yellowstone River

Smallmouth bass have increased dramatically in the Yellowstone River in

response to the lower, more consistent flows associated with the ongoing drought. The smallmouth fishery started off early this spring in the river downstream from Huntley Dam and remained good throughout the summer. Anglers reported catching bass up to about 3 pounds, with many in the 1 to 2 pound range.

A native fish study that was originally started on the lower Yellowstone River in Region 7 was expanded into Region 5 this spring. A crew spent the spring and summer on the Yellowstone between Park City and the mouth of the Bighorn River using trap nets, drift nets and electrofishing to capture and put radio transmitters into burbot, channel catfish and sauger. They also trapped and installed transmitters on soft-shell turtles along this section of river. Initial tracking data provided some interesting movement information for both fish and turtles. Plans are to continue this study for at least two more years and extend it up into the Bighorn River. Crews will be out on the river as early this spring as the ice allows, setting traps for burbot. Anglers are asked to report any tagged fish they catch in the Yellowstone, as these data are important to the success of this study. Also anglers are asked to consider releasing any fish they catch that has a thin wire radio antenna extending from within the body cavity. It can take a lot of effort to purchase, implant, and track these radios out, and we hope to get as much data as possible from each fish. Some of these transmitters have a four-year battery life.

Musselshell River

Despite ongoing drought conditions in the Musselshell Drainage, flows held up fairly well in the Musselshell River in 2005 and 2006. Martinsdale Reservoir in Region 4 was mostly drained this past summer so work could be completed on the dam and outlet structure. This drawdown helped maintain flows in the lower Musselshell River all summer. The standard trout sampling section on the Musselshell River near Selkirk FAS above Two-Dot was not sampled this year, but the brown trout population in this section of river should be doing well with the improved flows. The only fish sampling completed on the Musselshell in Region 5 this year was seining and electrofishing at 12 sites along the river between Selkirk FAS and the Highway 12 Bridge downstream from the Town of Melstone. These were standardized sites sampled in the past to monitor population trends for native minnows and suckers in the drainage. The 2006 sampling captured 19 species of fish, including 15 native and 4 introduced species. The only game species collected were 3 brown trout at the uppermost site near Selkirk FAS, and 30 smallmouth bass captured at several locations from Lavina downstream. Neither of these species is native to Montana. Channel catfish are the main native game species found in this section of the Musselshell, but no catfish were captured during this sampling. The sampling crew also documented concentrations of soft-shell turtles at several sites along the Musselshell, and attached radio transmitters to four turtles so movement patterns could be monitored in the future.

Bighorn Lake

Lack of water has been the big issue impacting the Bighorn Lake fishery the past several years. The spring of 2005

was the first time Bighorn Lake filled since 1999. Despite minimum releases into the Bighorn River, the reservoir set new record lows each year between 2000 and 2003, ending up 67 feet below full pool in the spring of 2003. Lake levels started to recover in 2004, and finally reached full pool in June of 2005. Levels remained up through the recreational season in 2005, and looked good coming into the 2006 season. At the end of March 2006, the lake was 30 feet higher than at the same time in 2005. With the existing snow pack, it looked like, with even conservative spring precipitation, the lake would fill again in 2006. Then the precipitation stopped. Bighorn Lake rose to within 25 feet of full pool in mid-June then started to drop. Reducing discharges into the Bighorn River to the absolute minimum flow of 1,500 cfs helped keep Bighorn Lake levels from dropping below an elevation of 3598 feet. This elevation was 42 feet below full pool, but still 18 feet above the bottom of the boat ramps at Ok-A-Beh and Barry's Landing, so the lake remained open to recreational users.

Angler success was mixed for Bighorn Lake in 2006. Anglers started catching some real nice perch from Bighorn Lake in the fall of 2005, and these larger perch provided some good fishing this past spring. Anglers also found some nice crappie and channel catfish in the spring. (Catfish seem to have done fairly well in Bighorn Lake throughout the drought.) As soon as the water started to warm, the smallmouth bass fishery kicked off. Bass fishing remained excellent throughout the summer. A few nice walleyes were caught in the spring, but walleye fishing remained slow throughout the season.

Two nights of spring electrofishing near Ok-A-Beh only produced 11 walleyes. The largest was a 28.6-inch female full of eggs that weighed 10.8 pounds. Electrofishing did catch a large number of smallmouth bass that ranged from 2.9 to 15.8 inches long, the largest weighing 2.18 pounds. A majority of these bass were in the 11 to 12 inch range. Six gill net sets in the lower end of the reservoir in the spring captured 13 walleyes ranging from 7.7 to 18.9 inches. Most of these fish were 14 inches and longer. This net series also caught an 8.1 pound channel catfish. Six nets set in the spring in mid-reservoir around Barry's Landing only caught one walleye, but they captured 37 sauger from 6.4 to 9.9 inches, and 38 channel catfish from 8.2 to 18.8 inches long. These data indicated that both these native species were doing well in Bighorn Lake despite ongoing drought conditions. Both spring net series captured quite a few nice perch.

Fall netting in the lower end of the lake caught 13 walleyes in six nets, with the largest being 20 inches long. This same net series captured 11 sauger, most between 11 and 14 inches, but including one 19.3-inch fish. Sauger are usually quite rare in the lower end of the reservoir, so this catch provided more evidence that they are doing well in the reservoir. Fall nets set near Barry's Landing in late November produced the best sauger catch since FWP started netting Bighorn Lake in 1977. Six gill nets caught 103 sauger ranging from 10.1 to 20.6 inches. Most sauger were between 11 and 14 inches long, but there were some small fish and four sauger over 18 inches. This same net series captured 9 walleyes between 15.4 and 24.5 inches

long, the largest weighing 6.40 pounds. Most of these sauger and walleyes were in good condition with lots of body fat. Anglers fishing Bighorn Lake in the fall reported catching a few nice walleyes and many smaller sauger.

Seven channel catfish were netted in the lower reservoir in the fall, while the nets set near Barry's Landing captured 13 catfish. These catfish ranged from 8.8 to 31.8 inches, with 5 of them weighing over 11 pounds. Bighorn Lake is definitely a place to try if an angler is hoping to hook onto a trophy-sized channel catfish.

Montana has normally stocked 4 million walleye fry and 200,000 fingerlings each year into Bighorn Lake. This stocking rate was maintained throughout the current drought. There has been concern that many of these planted walleyes are just serving as forage for the burgeoning smallmouth bass population in the lake. While fishing Bighorn Lake the day after walleye fingerlings were stocked this spring, one angler showed that smallmouth bass are not the only concern. He hooked a brown trout just over 18 inches long, and said he could see it spitting out small fish as he fought it. When he landed this fish and checked its stomach, it still had 53 walleyes in its gut. This fish obviously found a school of stocked walleyes, and was having a great time. In an attempt to overcome some of this predation, we increased the walleye fingerling plant in 2006 to 500,000 fish, and plan to continue this higher stocking rate in the future.

Wyoming Game and Fish is concerned with the potential of walleyes in Bighorn Lake to hybridize with their genetically pure sauger population. Montana is currently working to develop a source of sterile walleyes for stocking into the lake to help reduce these concerns.

Cooney Reservoir

The ongoing drought dramatically affected Cooney Reservoir during the summer of 2006. The reservoir was lower than it has been since it was last drained for work on the dam. The water was hundreds of feet from the ends of the boat ramps, and the Red Lodge Creek and Willow Creek arms of the lake were dry. Launching boats was nearly impossible from the middle of August to the end of October, unless done by hand. A few brave souls who attempted to launch boats became stuck in the mud. Despite very low reservoir levels, rainbow trout survival was much greater this year than in the past 3 years. In 2002, the number of rainbow trout gillnetted in the fall declined dramatically, and this trend continued through 2005, when 200,000 rainbows were stocked and only two rainbows were captured the following fall. This decline led to a change in management for rainbow trout; instead of 200,000 5-inch rainbows, 25,000 8-inch rainbows were stocked. This strategy appears to have increased survival, because fall gillnetting yielded 28 rainbow trout. Although slightly smaller than years past, the presence of more rainbow trout should bode well for ice fishing this winter.

The improved survival resulting from stocking larger rainbow trout suggested that, as we had previously suspected, walleyes were having a large impact on rainbow trout survival. The walleyes were initially stocked into the reservoir in

the early 1980's to help control the sucker population. They have done an excellent job at limiting sucker numbers and providing good and, at times, a trophy fishery for walleyes. Cooney Reservoir for more than 15 years provided an excellent two-story fishery with plentiful, fast-growing rainbows and good numbers of walleyes. This balance between rainbows and walleyes began to break down 4 years ago, and rainbow trout survival dramatically declined. Concurrent with the reduced rainbow survival, walleye growth, particularly the growth of fish larger than 24 inches, was substantially reduced, and some fish lost weight. Walleyes smaller than 24 inches are still growing, but there seems to be a critical size at which growth slows dramatically, indicating that the walleye population has outgrown its food source. Crayfish are now the primary food source for walleyes in the reservoir. The smaller walleyes can grow on the crustacean food source, but the larger fish must have a forage fish to prey upon to continue to grow. The primary food for the walleyes in the past has been juvenile suckers. While there are still many adult suckers larger than 14 inches available, small suckers have been practically nonexistent in the reservoir. Walleye stocking rates were cut in half in 2002, but since that time we have noted no decrease in smaller walleyes. We suspect that natural reproduction, which beforehand did not exist or was extremely limited, is occurring in the reservoir. To test for this, the normal plant of 50,000 walleye fingerlings was canceled in 2006. Fall gillnetting yielded more walleyes smaller than 10 inches than have ever been captured previously; however, it is unclear if these are age-0 fish or age-1 fish. Walleyes will not be stocked in 2007 or 2008 to determine definitively if there is natural reproduction in the reservoir. If natural reproduction is occurring, the continued stocking of walleyes in the reservoir will be adjusted depending on the survival of naturally produced fish. Walleyes play an important role in the fishery in Cooney, but our recent data suggest managing their numbers for good walleye growth and good rainbow survival may be more difficult than it has been in the past.

Deadmans Basin Reservoir

Deadmans Basin Reservoir started out the year almost 42% full and reached 59% full before irrigation demands started to draw it back down. The lake dropped to about 33% of full capacity by the end of August before starting to refill. Deadmans Basin Water Users were able to take advantage of the water being released from Martinsdale Reservoir to get a jump on refilling Deadmans for the winter. The main concrete ramp at Deadmans remained usable all summer.

Angling pressure has increased at Deadmans Basin in recent years, as anglers took advantage of improved trout and salmon fisheries resulting from the introduction of tiger muskies to control suckers. Many anglers are also going to Deadmans to fish for the tiger muskies. Anglers reported good fishing from the shore for larger rainbow trout in the spring, and shoreline and boat anglers did well for both trout and kokanee during the summer. There were also numerous reports of anglers catching tiger muskies. A new state record tiger muskie was caught in Deadmans during July. This fish was 46.0

inches long and weighed 28.87 pounds. There are probably bigger fish in the reservoir right now, and this record could be broken several more times in the near future.

Miles City Hatchery was successful in obtaining tiger muskie eggs from Wisconsin this spring, and raising the fish to a stockable size. Approximately 550 4-inch tiger muskies were stocked into Deadmans this summer to add another year class of smaller fish to the lake. If these fish found enough small forage in Deadmans Basin to give them a good start, they should be large enough to start feeding on the smaller suckers by next summer. Deadmans also received plants of 101,000 kokanee (3-inch) and 226,000 rainbows (4-inch) in 2006.

The long-term sampling protocol for Deadmans Basin Reservoir has been to set 4 sinking and 4 floating gill nets at standard locations around the lake during both the spring and fall. Netting results for 2006 supported the good fishing reports for the year and provided a good picture of the effects tiger muskies have had on the fishery. Eight nets set in mid-May caught 64 rainbow trout ranging from 10.4 to 17.0 inches, and 10 kokanee salmon. These larger rainbows were the fish anglers were catching from shore in the spring. A couple of the kokanee were over 15 inches, indicating there should be some nice-sized spawners by fall. Catch rates for both rainbows and kokanee really jumped in the fall nets due to capture of fish planted earlier in the year. Eight nets set in mid-October caught 177 rainbows and 335 kokanee. Most of the rainbows were 6 to 9 inch fish from the 2006 plant, but there was also a second group of 11 to 16 inch rainbows present. The mature kokanee captured in the fall ranged from about 11 to 16.5 inches. Many of the kokanee netted were 8 to 12 inch immature fish, but there were also many 6 to 7.5 inch kokanee from the spring plant. The largest brown trout netted in the spring weighed 5.8 pounds, with a 6.2-pound brown trout netted in the fall. Two tiger muskies were captured in the spring nets. One fish was 36.4 inches long and weighed 12.9 pounds; the second was 41.0 inches and 18.0 pounds. The only tiger muskie netted in the fall was one of the fish planted in mid-July at about 4 inches. This fish was already 12.0 inches long and weighed 0.35 pounds, providing a good indication that at least some of the 2006 plant survived and were growing well.

Netting results for white suckers are the best indicator of the impacts tiger muskies have had in Deadmans Basin. The average white sucker catch in 88 sinking gill nets set in Deadmans during the 10 year period before the tiger muskies were introduced was 43 white suckers per net. The 8 sinking gill nets set in the spring and fall of 2006 caught a total of 145 white suckers for an average catch rate of 18 white suckers per net. Most of these suckers were captured in the fall nets, and this catch was dominated by a strong year class of young suckers that were probably small enough to be of limited interest to the larger tiger muskies. Of 111 white suckers captured in the fall net set, only 23 were 8 inches long or longer, with the largest one measuring 13.9 inches. The rest of these suckers were between 6.6 and 8 inches long. Based on the growth rate of the one tiger muskie netted in the fall, those from the 2006 plant should be large enough to start feeding on this

strong year class of suckers by next summer. Overall, the future of the Deadmans fishery looks very promising.

Lake Elmo/Lake Josephine

Lake Elmo continued to provide a popular fishery for stocked rainbow trout, with most anglers catching fish if they were willing to put in some time. The lake received the normal requested plant of 9,600 catchable-sized rainbows in 2006, split between spring and fall plants. As an added bonus, Lake Elmo received about 550 larger brood rainbows from the Ennis National Fish Hatchery in the spring. These fish were not very pretty due to serious fin erosion from a lifetime in a hatchery, but they provided an opportunity for an angler to catch a large trout from Lake Elmo.

Channel catfish stocking was discontinued in Lake Elmo in 2006 because of genetic concerns. Catfish stocked in Montana in recent years have come from southern states like North Carolina. Catfish from Lake Elmo can potentially escape into the Yellowstone River where they could inter-breed with the native Montana catfish. A decision was made to discontinue planting these imported catfish, and start researching the possibilities of developing a local source.

The fishery in Lake Elmo could be in for a big change in the future. Tiger muskies finally became available for both Lake Elmo and Lake Josephine this summer, and were stocked at very low levels (one fish per acre) in both lakes in September. Lake Elmo received 65 6-inch tiger muskies, while Lake Josephine received 20. These muskies should start preying on the abundant sucker populations in both lakes by next summer. Suckers are the preferred forage for tiger muskies, and suckers also compete directly with trout and other game species for zooplankton. Hopefully, once sucker populations are reduced, the tiger muskies will also prey on the numerous small panfish in both lakes. Reducing suckers and stunted panfish numbers should improve size and growth rates on the remaining fish in these lakes. Plans are to continue stocking low numbers of tiger muskies into both lakes for a few more years before waiting to see what happens to these fisheries. Tiger muskies will also provide an opportunity for anglers to occasionally hook into a real trophy fish from both lakes in the future.

Broadview Pond

Broadview Pond, a state fishing access site near the town of Broadview has seen very little activity for several years. The pond has been essentially dry and fishless since 2000 due to ongoing drought conditions in the area. The lack of water at Broadview Pond did allow for the completion of an important habitat enhancement project that will greatly benefit this fishery when water conditions improve. The Billings Chapter of Montana Pikemasters was the driving force behind this project. They lined up support from a number of local construction and heavy equipment companies who donated services and equipment to the project. They also obtained $10,000 in grants from the Fish America Foundation, Top Line Manufacturing, and the Wal-Mart Foundation to help pay for fuel and transportation costs. Club members worked 7 days straight, from daylight

until dark in January 2003 to completely rebuild a 1,600-foot-long dike that separated the deep part of Broadview Pond from a shallow wetland area. Club members moved an estimated 12,000 cubic yards of dirt during this project. A breach in the old dike had allowed wind activity across the shallow wetland area to push large amounts of sediment into the deeper part of Broadview Reservoir. This wind-driven sediment was filling in the deeper part, and kept the water in the pond very turbid. Removing the carp and rebuilding the dike should create a very productive fishery when water returns to the area.

Broadview Pond started to refill this spring, and although it is far from full, it did hold enough water all summer to potentially support fish. In mid-July 4,000 1.6-inch largemouth bass were stocked in Broadview, and these fish were still alive and growing well late in the summer. Historically there have been springs in the bottom of Broadview Pond that have helped keep the fishery going through the winter. If these springs have recharged enough to keep bass alive through the winter, there should be some catchable-sized bass available next summer. It would be great to see a fishery reestablished to start taking advantage of all the hard work completed by the Billings Chapter of Pikemasters.

Absaroka-Beartooth Lakes

The summer of 2006 marked the last time Yellowstone cutthroat trout eggs will be collected at Goose Lake, north of Cooke City. This stock of fish will eventually replace or supplement the current stock from McBride Lake in Yellowstone National Park kept at the Big Timber Hatchery. In 2007, fish originally collected in 2003 will be spawned in the hatchery. The fish will be stocked into previously planted lakes throughout the Absaroka-Beartooth Mountains. FWP's high-mountain-lake fisheries crew sampled an additional 33 lakes over the summer within the Clarks Fork, Boulder, Stillwater, and West Rosebud drainages. The primary objective of the lake surveys is to monitor the fisheries in both self-sustaining and stocked lakes to determine fish health and to decide whether stocking rates should be modified. Interns form half of the four-person crew that surveys the lakes from July to the end of August, providing a great opportunity for college students interested in the fisheries field to gain valuable experience.

REGION 6

Havre Area
(Laura Leslie)

Bailey Reservoir

Bailey Reservoir historically has provided great angling opportunities for black crappie, northern pike, perch, and walleye. However, fish population levels have declined significantly since 2000 due to drought. Water levels improved in 2005, but reservoir is still not at full pool. In 2005, rainbow trout, walleye fingerlings and yellow perch were stocked into the reservoir to supplement the fishery. And in 2006, additional pre-spawn yellow perch were transplanted. Walleye and yellow perch stocking were successful and these fish have demonstrated good growth and survival rates. Late summer gill netting revealed

increasing abundances of northern pike, walleye, and yellow perch. Black crappie populations are very low. Recently, angler catch rates and satisfaction have been steadily increasing; with the highest catch rates occurring during winter months.

Beaver Creek Reservoir

Beaver Creek Reservoir is a favorite destination for summer and winter fishing and is currently ranked fifth in the region for fishing pressure. Beaver Creek Reservoir, sustained good water levels during the spring and yellow perch, northern pike, and spottail shiners have taken full advantage of the available flooded spawning substrate. Good catches of northern pike, walleye, perch and trout were made throughout most of the year. Fishermen are catching high quality walleye with regularity (total length (TL) > 25 inches.). Smallmouth bass are also providing a great deal of enjoyment. The northern pike population has been increasing in recent years and we routinely catch 24 to 40 inch northern pike during fall sampling. This reservoir usually draws huge crowds from around the state for the winter perch and trout fishing, however warm weather and poor ice conditions in 2004/2005 and 2005/2006 have prevented tournaments and other ice fishing activities.

Bear Paw Lake

The long-term sucker reduction program has increased the growth and condition of stocked rainbow and Yellowstone cutthroat trout and the lake is once again a final destination point for thousands of fishermen. Bear Paw Lake currently ranks number four in fishing pressure in Region Six. Increasing fishing pressure on this body of water required a reduction in the trout limit from 5 to 3, which went into affect in March of 2002. The reservoir is home to rainbow trout (9 to 16 inches), Yellowstone cutthroat trout (9 to 18 inches), brook trout, walleye (6 to 22 inches: illegally introduced in 1985), smallmouth bass (6 to 17 inches), and white suckers. The reservoir is currently full and many upgrades to this Fishing Access Site were done in the last year with more planned. In 2005, an overnight camping fee of $7 was enacted to assist with costs of future improvements.

Cow Creek Reservoir

Though travel to this reservoir requires a trek over approximately 50 miles of gravel roads, this reservoir is a wonderful destination to fish for some unique species. Those who have traveled the extra distance have reported catches of nine-pound channel catfish and 25 pound tiger muskie. Anglers also reported exceptional catch rates of walleye (1.43 fish/hour); good catch rates of tiger muskies (0.05 fish/hour), and channel catfish (0.05 fish/hour). Anglers also catch a few yellow perch, which were

illegally introduced, and the occasional black crappie, which are naturally reproducing within the reservoir.

Fishermen should note that the minimum legal size limit for muskies was increased to 40 inches. In addition, this is a privately owned reservoir and overnight camping is not permitted without permission from the landowner (Bill Cowan; Sand Creek Ranch, Chinook).

Dry Fork Reservoir

This reservoir went "bone dry" in 2001, however, the fishery is well on its way to recovery. Rainbow trout were introduced in 2002 to supplement the fishery and these trout are currently around four pounds. Additionally northern pike, black crappie, and yellow perch were reintroduced in 2002 and are doing very well. In 2005, when the reservoir was near full, there were numerous reports of 20 to 30-inch northern pike, 16 to 24 inch rainbow trout, and half-pound perch being caught. Walleye were reintroduced in 2004 and 2005 and many are already 18 inches in length. However, due to low precipitation, water levels in 2006 are at the second lowest levels on record and the fishery will have to be monitored to determine the effects of the low water levels on fish survivability. When water levels increase anglers will be able to enjoy a new road and boat ramp area installed by Blaine County.

Faber Reservoir

The condition of rainbow trout continues to be high after the reservoir was rehabilitated in 2000 to remove white suckers. There continue to be reports of high catch rates with many 13 to 15 inch rainbow trout and the occasional four-pound rainbow trout. Water levels within the reservoir are low but stable, and 10,000 three-inch rainbow trout are stocked annually into this reservoir. Spring and summer fishing for 2007 should be great.

Fresno Reservoir and Tailwater FAS

Spring and summer rains allowed reservoir elevations to increase and remain stable during spawning of various forage and sport fish within the reservoir, flooding shoreline vegetation. As a result, yellow perch, northern pike, and spottail shiners have pulled off successful spawns in 2004, 2005, and 2006. Spawning success can be attributed to the high abundance of flooded vegetation that provided excellent spawning conditions. Walleye spawning success remains low and 100,000 young of year walleye were stocked into the reservoir annually from 2003 to 2005, with 200,000 walleye stocked in 2006. Since 2003, the abundance of adult walleye has steadily increased and is currently at pre-drought levels. The high abundance of walleye in 2006, nearly 15 fish per net, indicates excellent survival and recruitment of stocked walleye, especially the 2005-year class. In 2006, 29.9% of the walleye were sub-stock (<10 inch.), 53.1% were stock size (10-14.9 inch), 7.9% were quality size (15-19.9 inch), and 4.5% were preferred size (>20 inch). In addition, walleye continue to exhibit high condition indices, which is attributable to a forage base that is adequate for the existing population levels of predators. However, due to the abundance of forage, anglers have a difficult time catching these walleye. The population of adult northern pike has significantly increased in 2006. The

population is currently well balanced with a high number of stock (14-20.9 inch) and sub-stock (<14 inch) fish as well as high numbers of quality (21-27.99 inch), preferred (28-33.99 inch), and memorable (>34 inch) size groups. Based on the young of the year (YOY) surveys in 2006, northern pike population will continue to increase in 2007 and the proportion of preferred and memorable size northern pike should continue to improve as the population ages. Rainbow trout, walleye and pike fishing below the dam at the Tailwater Fishing Access Site has been very good, however, fishermen should be aware that the Bureau of Reclamation has closed the favorite fishing area immediately below the dam due to security concerns. In addition, the handicap access is going to be improved and a fishing pier built over the next few years (2007-2008).

Grasshopper Reservoir

Water levels are reduced in 2006 due to drought, however they are currently stable. Rainbow trout are thriving within the reservoir, and fisherman report catches of 5-pound rainbow trout, and 14 to 18 inch rainbow trout are common throughout the reservoir. Annual plants of 2,500 Arlee and 3,000 Eagle Lake rainbow trout will continue.

H.C. Kuhr Reservoir

In 2003 the drought all but dewatered this fine trout fishery and the opportunity was seized to kill off a remnant perch and sucker population, which would certainly inhibit trout growth in the future. The reservoir was restocked in 2003 and closed to fishing. The fishery reopened in 2004, and there have been reports of 3 to 4 pound rainbow trout being caught within the reservoir. Currently in 2006, the reservoir is near full and 3,000 3 to 4 inch rainbow trout will be stocked annually. H.C. Kuhr became part of the Private Lands Fishing Access program in 2005.

Little Warm Reservoir

The reservoir regained some volume in 2004 and 2005 however levels are still below full pool. Good catches of tiger muskies were reported this year. This reservoir receives annual plants of 10,000 walleye and alternate year plants of 2,500 tiger muskie. Fishermen should note that the minimum legal size limit for muskies has increase to 40 inches. To improve fishing access, FWP, with the help of landowner Steve Knudsen, installed a much needed boat ramp from a World War II Air Force landing mat in 2003 and a cattle guard was installed at the entrance in 2004.

Missouri River Paddlefish above Fort Peck

A valuable recreational snag fishery occurs each year for paddlefish above Fort Peck Reservoir in areas down river of the Fred Robinson Bridge. In recent years, harvest of Fort Peck paddlefish has varied considerably with annual river discharges, but on average approximately 1,000 fish are harvested annually. Historically, paddlefish anglers have caught numerous paddlefish over 100 pounds, however these fish are aging and being removed from the population. There has also been very limited recruitment of paddlefish over the last decade within this population due to drought, which has removed the cues necessary for spawning. In addition, younger paddlefish are not growing as large due to reduced

plankton productivity in Fort Peck Reservoir.

Due to poor recruitment and concerns over increasing harvest, regulations were changed for the 2007 paddlefish season to provide a sustainable recreational fishery while maintaining the historical size and age distribution of the population. Changes include the reduction of harvest to one paddlefish per person per year. Snaggers will now have to choose which areas they wish to fish in, there will be mandatory harvest and catch/release days, and snagging hours have been restricted. For complete details of the regulation changes, please refer to the 2007 fishing regulations, or the FWP web page.

FWP will continue to tag paddlefish and encourage anglers to return tags with information on location and size at harvest, to the Havre Area Resource Office. This information allows biologists to determine survival, harvest, and growth rates of paddlefish in the Missouri River. In 2006, FWP and the University of Idaho began installing radio transmitters in paddlefish to study how spawning locations and spawning success vary with differences in annual flows. They will also evaluate habitat use of adult migratory fish under different hydrological and ecological conditions to gauge the effects of annual environmental variability on paddlefish migratory behavior and eventual year-class strength. FWP asks snaggers harvesting any paddlefish implanted with radio transmitters that the tags be returned to the Havre Areas Resource Office so that they can be re-implanted.

Nelson Reservoir

Nelson Reservoir currently has 26 fish species and is managed primarily as a walleye fishery. Walleye reproduce naturally in Nelson; however walleye fingerlings are occasionally stocked to augment natural reproduction. Spawning shoals were constructed in 1993 at three locations within the reservoir to improve spawning conditions for walleye. Since 1997, drought has reduced the active conservation pool of Nelson and may be the limiting factor in the successful recruitment of walleye. To augment the population, walleye fry and/or fingerlings have been stocked periodically since 1986. In 2006, 200,000 fingerlings and 5,000 advanced fingerlings were stocked.

The fishery within Nelson Reservoir has benefited greatly from increased water levels for the past three years during spring spawning. Surveys in 2006 indicated that yellow perch numbers increased to their highest levels since 1991, at 16.4 fish/net. Adult yellow perch exhibit high condition factors and the size structure of yellow perch is well balanced, with 64.6% of the adults of stock size (5-7.9 inch) and 35.4% in the quality and preferred size groups (8 to 12 inches TL). Walleye numbers have also increased to 13.3 fish/net, with 56% of the walleye of stock size (10-14.9 inch), 37.6% in the quality size group (15-

19.9 inch), and 3.01% in the preferred size group (20-24.9 inch). The northern pike population also increased to 3.4 fish/net, with 14.7% in sub-stock (<14 inch), 29.4% in stock size (14-20.9 inch), 29.4% in quality size (21-27.9 inch), and 5.9% in memorable size (>34 inch). Lake whitefish have also been recovering since 2004, and the population currently consists of 25.6% stock size (6-10.9 inch), 25.6% quality size (11-13.9 inch), 2.3% preferred size (14-17.9%), and 20.9% memorable size fish (>18 inch). Finally, the black crappie population appears to be doing well, and is at the highest level on record.

Reser Reservoir

The low water and high productivity of this reservoir caused a winterkill in 2002-2003. Rainbow trout and bluegill were stocked in 2003 and two aerator windmills were installed in an attempt to increase dissolved oxygen, which seemed to be a limiting factor. In 2004, 2,000 two-inch bluegill sunfish were stocked and 3,000 five-inch rainbow trout were stocked. Fall gillnetting surveys show excellent growth and survival of rainbow trout. Water levels are currently high and the fishing should be good in 2007.

Ross Reservoir

This beautiful mountain cutthroat fishery was rehabilitated in 2000 to rid it of suckers. It was closed in 2001, to allow fish to grow to acceptable size. Fishermen were not disappointed when the pond was opened in May of 2002. Anglers enjoyed good catches of 13 to 15 inch cutthroat. Water levels were good in 2006, and 2,000 six to eight-inch Yellowstone Cutthroat trout were stocked. However, this pond is again plagued with white suckers, and a very low density of tiger muskies will be introduced in 2007, to assist in controlling the undesirable white sucker population.

Other Regional Reservoirs

There are well over 70 ponds and a variety of streams throughout the region that supply excellent rainbow trout, largemouth bass, northern pike, walleye, bluegill, and black crappie fishing. Water levels in most reservoirs and streams in the region are low going into the winter months. However fishing is projected to be good throughout the winter and into the spring. Please feel free to contact Havre Area Resource Office (406-265-6177) for information on the status and locations of these reservoirs before venturing long distances to fish.

Fort Peck Reservoir
(Heath Headley)

The drought persisted in 2006; however, it wasn't as severe as previous years, with the pool raising nearly five feet in early summer. The reservoir's peak elevation was reached on June 25, at 2206.3 feet msl. Snow pack in the mountains was better than average; however, the plains area received little snowfall once again. It is uncertain on the amount of snow pack that we will receive this winter, but Fort Peck is forecast to reach a new record low of 2197.4 by February 2007 if current conditions continue. Fortunately, there are still reservoir areas that are 150 feet deep, so cold-water habitat is still available for the salmon and lake trout program to continue. Shoreline vegetation was flooded in 2006, and was a much-needed change from

previous years when water levels did not reach shoreline vegetation. Ultimately, this flooded vegetation provides increased spawning habitat for forage fish and game fish, along with nutrients that increase overall lake productivity.

The walleye spawn continues to be plagued by low water levels making us continue to move further up the reservoir; however, we were still able to collect nearly 125 million eggs that would benefit various walleye waters throughout the state. As a result of the spawn, 35 million fry and 4.1 million fingerlings were stocked throughout Fort Peck in 2006. This was an increase from previous stocking efforts thanks to an increase in spring water levels and a successful year of production at both the new Fort Peck hatchery and Miles City hatchery. An enthusiastic volunteer program also facilitated this year's success. If anyone is interested in assisting with the walleye egg-take in April 2007, please call (406) 526-3471 to join the 100 other volunteers that participate annually. It's a great way to learn more about the walleye fishery, see large walleye, and be a part of the statewide egg-take that benefits other Montana walleye fisheries.

Annual gill net surveys conducted in 2006 indicate that strong populations of larger walleye still exist. In addition, surveys revealed a good year-class of walleyes in the 10-14-inch group moving into the current population. This is encouraging, as there has been somewhat of a lapse in this size class over the last couple of years. Walleye numbers also increased as we moved further up the reservoir during our adult annual sampling season. Pike populations continue to remain at constant minimal level as they have in previous years, with a majority of the population comprised of larger individuals. Yellow perch catch rates have increased, with some fish up to 10 inches in length.

Annual seining surveys indicated spottail and emerald shiners have maintained their populations, as they were comparatively similar to last year. In addition, with the increase in flooded vegetation, yellow perch recruitment has increased to levels that were seen in early 2000 as a result of available spawning structure and an increased number of adults in the population. Young-of-year crappie has decreased slightly from 5.2 per seine haul in 2005, to 3.1 per seine haul in 2006. These four species comprise a large portion of the shoreline forage for smaller predatory fish like walleye, northern pike, and smallmouth bass. Seine hauls for young-of-year smallmouth bass are slightly lower than those in 2005, and could be attributed to the rise in water level during their summer spawn.

Cisco young-of-year had a good year of reproduction with catches increasing from 84 cisco per net in 2005, to 137 cisco per net in 2006. Although the lake did not completely freeze over until February 24, 2006, it is possible that the surge in young-of-year cisco resulted from decreased competition from previous weak year-classes of cisco, or decreased wave action at the time of spawning and incubation, that may cause sediment to cover eggs. This is encouraging, since they are the predominant forage base for cold-water species like salmon and lake trout, but are also utilized by larger walleye and northern pike as well. The Chinook

salmon program continues to face minimal returns for anglers and annual egg-take for biologists. However, the salmon run for 2006 was better than expected compared to the past several years. As a result, salmon were spawned in 2006 yielding approximately 124,000 green eggs. In addition, North Dakota will be able to supply surplus eggs to supplement our stocking requirements for 2007 plants. It will be interesting next year to see how abundant adult returns will result from the 2004 year-class, as this was the first year that a larger fall stocked fish was released. This year, 180,000 chinook fingerlings were stocked into Fort Peck; 175,000 spring-stocked at three inches, and the remaining 5,000 were fall-stocked at 7 inches.

Despite declining reservoir levels and reduced spawning habitat, lake trout were not spawned in 2006. Currently, lake trout hatching and rearing space in hatcheries is non-existent and special accommodations will need to be made, if future stocking efforts are to occur. Surprisingly, numbers of lake trout captured during this year's annual gill net sampling were up. Lake trout tagging still continued, and anglers are encouraged to report tagged fish when taken. If you catch a lake trout or any other tagged fish in Fort Peck, please record location, size (length and weight if possible), date caught, tag number and color. After recording the information you may call (406) 526-3471 or send the information to us at Montana Fish, Wildlife and Parks, PO Box 167, Fort Peck, Montana 59223, or contact any regional office. Tag information is an important part of fisheries management, as it provides insight into movements, harvest rates, and growth.

Fort Peck Flow Modification Project

(Dave Fuller)

To comply with the Missouri River Biological Opinion developed by the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers proposes to modify operations of Fort Peck Dam to enhance environmental conditions for spawning and recruitment of pallid sturgeon in the lower Missouri River by releasing warm water over the spillway. This additional warm water would be released in the spring and would create a more natural hydrograph, which is a very important spawning cue for native lower Missouri River fish. Unfortunately the proposed flow modifications were not implemented in 2006 due to insufficient reservoir levels. Another thirty-five feet is needed in the reservoir before water can be released from the spillway. An above average snow pack and rainfall, along with more conservative dam operations are needed for a spillway release to occur.

To assess the biological changes of these flow alterations, the Fort Peck Flow Modification (FPFM) crew is researching several key life stages and events of not only pallid sturgeon but other native fish species as well.

First, how will these native species respond to changes in flows out of Fort Peck Reservoir? There are several adult blue suckers, shovelnose sturgeon, pallid sturgeon, and paddlefish that have been surgically implanted with transmitters. The Missouri River from Fort Peck Dam to Williston, N.D. (220 miles) and the Yellowstone River from its mouth

to Intake Diversion Dam (71 miles) have been flown and floated every week from April through July and every other week from August to November. These fish are leading us to key spawning areas and we are in the process of determining what flows and temperatures are needed to cue these fish to begin their spawning migrations.

Second, we know where the adults are going but are they reproducing? If so, when and to what extent? We have been looking at reproductive success through an intense larval fish-sampling scheme. There are six sites along the Missouri, Milk, and Yellowstone Rivers that are sampled twice per week from late May through early August.

Third, are these larvae growing and is it likely that they will survive? Sturgeon larvae drift at the mercy of the river for up to two weeks before they are able to resist the currents and settle into their preferred habitats. We have been using a beam trawl to capture the young-of-year sturgeon (1-4 inches) in the lower Yellowstone River and the lower reaches of the Missouri River above Lake Sakakawea from late July through early September. We hope to see primarily larger YOY's that have settled out before reaching the headwaters of Lake Sakakawea and that are going into winter at a robust size.

Finally, other FWP crews out of Fort Peck are trying to capture juveniles to see if the have recruited into the population. We are in the process of building a baseline data set to see how pallid sturgeon and other native fish behave in existing conditions. This is very important in order to determine whether the flow modifications are successful or not. When the spillway runs, will the adults move up the Missouri? Will they successfully reproduce? Will they come up far enough so that their larvae won't drift into the headwaters of Lake Sakakawea? Finally, will there be recruitment of these fish? Unfortunately those answers will have to wait until warm water releases from the Ft. Peck spillway occur.

In the meantime, the pallid sturgeon relies solely on a hatchery program to keep the species from becoming extirpated. During April and October, the FPFM crew, as well as other FWP pallid sturgeon study crews, and the U.S. Fish and Wildlife Service, combined efforts to capture adult pallid sturgeon for hatchery brood fish. During the spring 2006, four females and several males were captured and taken from the wild to the Miles City State Fish Hatchery and Garrison National Fish Hatchery. They were then spawned and their progeny released back into the Missouri and Yellowstone rivers. There were four females and two males taken to Gavins Point National Fish Hatchery this fall that will be spawned next spring.

Anglers should be aware that that these smaller fish are out there and they are

illegal to possess. Most of these fish have colored lines on the underside of their snout; however, anglers should release any sturgeon if they are uncertain of the species.

The Adopt-a-Fish program was a hit with school kids again this year. Researchers from the Yellowstone River added some new areas and new species to the list in 2006. This program allows students to adopt one or two of our radioed paddlefish, blue sucker, shovelnose sturgeon, pallid sturgeon, burbot, or channel catfish; name it; and track their weekly movements over the Internet. This is a cooperative effort with Montana Fish, Wildlife and Parks, U.S. Geological Survey, the Billings Gazette, and Pike Masters. For more information or to adopt your own fish look up www.pikemasters.com and click on the Missouri River Adopt-a-Fish icon.

Lower Missouri Pallid Sturgeon Population Assessment Project
(Cindy Sampson)

Battling deadlines, gnats, inclement weather and the occasional equipment malfunction, the Fort Peck Pallid Sturgeon Population Assessment crew's initial field season in 2006, went off without a hitch.

Biologists estimate there are roughly 150 adult pallid sturgeon remaining in the Missouri River between Fort Peck dam and the Yellowstone River confluence. These low numbers are believed to be a result of habitat loss from damming and channelization of the Missouri River. Juvenile hatchery-reared pallid sturgeon have been stocked in various reaches of the Missouri River over the past nine years. The U.S. Army Corps of Engineers has helped to develop and fund a comprehensive monitoring plan designed to assess survival rates, movement, distribution, habitat use, and physical characteristics of wild and hatchery-reared pallid sturgeon, as well as other Missouri River fishes, such as sauger, blue suckers, sturgeon chubs, and sicklefin chubs. The monitoring plan splits up sampling efforts into two seasons, the sturgeon season and the Fish Community season. The sturgeon season, which starts in April and ends in July, places sampling emphasis on the pallid sturgeon; the fish community season, which starts in July and ends in October, again places sampling emphasis on sturgeon as well as other native Missouri River species that use shallow water habitats.

The first sampling period, sturgeon season, started late due to hiring difficulties, yet the crew consisting of a biologist and 6 crew members completed all sampling within the given two month timeframe. By otter trawling and trammel netting twenty-five randomly selected river bends, the crew documented numerous species including 19 hatchery- reared pallid sturgeon, as well as sauger, blue suckers, northern pike, and shovelnose sturgeon. The occasional bison skull, boulder, and tree stump were also pulled from the depths of the Missouri.

During the four-month long fish community season, crews otter trawled, trammel netted, beam trawled, seined, and set mini-fyke nets on over 36 river bends. Overcoming thousands of gnats and random hailstorms, crews captured tens of thousands of fish consisting of over 40 species. In one of the mini-fyke net sets, the crew counted a boiling

mass of over 17,500 fish, most of which were juvenile white suckers. Other fyke nets also contained burbot with rotund bellies resulting from gorging themselves on the night's catch. The crew caught an additional 46 hatchery-reared pallid sturgeon, most of which were stocked over the past two years.

The pallid sturgeon population assessment crew wrapped up their field season in November by participating in pallid sturgeon broodstock collection along with the Fish and Wildlife Service and MTFWP crews from Regions 4, 6, and 7. Combined efforts led to the capture of several adult pallid sturgeon, six of which were taken to Gavins Point National Fish hatchery to be spawned next spring.

Data collected from this project during this past year and in the future will help biologists more effectively evaluate the status of Missouri River pallid sturgeon and the pallid sturgeon artificial propagation program. In addition, knowledge gained on other Missouri River fishes will assist in effectively managing the sport fishery of the lower Missouri River.

REGION 7

Yellowstone River Paddlefish

Paddlefish fishing on the Yellowstone River was fast and furious during the 2006 season. Flows at the start of the May 15 opener were low enough that few paddlefish were to be found at the Intake fishing Access Site, but within a few days flows were on the rise and the fish showed up in great abundance. The harvest season was closed on May 27, just 13 days into the season to try and stay within the Montana's 1000 fish harvest target. The last day of the harvest saw over 325 paddlefish harvested. This was a new daily record for number of fish harvested and resulted in the harvest target being exceeded by several hundred fish. Catch-and-release fishing continued at the Intake Fishing Access Site to the end of the season with good numbers of paddlefish present well into June.

Some changes to the fishing regulations will be implemented for the 2007 paddlefish season to try and spread the harvest out over a longer period of time and slow the pace of harvest. The two major changes that paddlefish anglers will notice is that night time fishing will no longer be allowed and there will be three full days of catch-and-release only fishing per week. Paddlefish angling will be allowed between 6 a.m. and 9 p.m. and Thursday, Sunday and Monday will be catch-and-release days.

Other Yellowstone River Fishing Opportunities

The lower Yellowstone River is a warm-water anglers dream come true with a variety of game and non-game species. Channel catfish are abundant the entire length of the lower river. Five to ten pounds cats are common and fish up to 20 pounds are a possibility.

Sauger and walleye fishing is usually best in the spring and fall when water temperatures are cooler and the water is clear. Sauger numbers tend to increase as you move downstream. Smallmouth bass prefer the clearer water found above the mouth of Powder River and can be caught spring through fall.

Other fish available to the angler include shovelnose sturgeon, goldeye, fresh water drum and burbot. You never know for sure what you might find on the end of your line when fishing the lower Yellowstone River. It might even be a spiney soft-shell turtle.

Tongue River Reservoir

Some cool, rainy weather in May dampened angler enthusiasm and the crappie were a bit slow in getting active and moving into shallow water. During much of May only the skilled crappie fishermen were demonstrating high levels of success. By early June however, the bite was on and many limits of nine-inch crappie were being taken.

A creel survey was begun at Tongue River Reservoir in May of 2006 to measure angling pressure, harvest and preferences. Although the survey will not be completed until April of 2007 some early results are interesting. May and June are the months that attract the greatest number of fishermen and they are interested primarily in catching crappie. During May and June, over 45,000 crappie were harvested and more than 48,000 were caught and released. Bullheads, smallmouth bass and walleye are next in line but far behind crappie in numbers caught and in angler preference. Enough northern pike are present in the reservoir that they consistently show up in the angler catch. Ice fishermen reported good catches of crappie, walleye and channel catfish.

Southeastern Montana Ponds

There are over 100 ponds and reservoirs being managed for fish in Region 7's pond program. Many of these ponds are privately owned with the landowner allowing public fishing. As with access to all private lands, landowner permission is a must. The remaining ponds and reservoirs are on state or federal land.

The regional fish staff visits about one third of the ponds in the program annually to check on water conditions and the fishery status. A Region 7 Pond Fishing Guide is updated annually with the latest survey data and has maps to help locate the ponds. The booklet is free to the public and can be obtained by contacting the Region 7 office at (406) 234-0900.

Efforts to improve fish habitat were undertaken at two ponds in the region. In a cooperative effort with the Glendive Chapter of Walleyes Unlimited, Hollecker Pond, near Glendive, was drained to remove undesirable fish species. While drained, gravel was placed on the mud bottom near the shoreline to provide spawning habitat. As the pond refilled, old Christmas trees and tile pipe were sunk to provide cover and nesting habitat. Hollecker will be managed for largemouth bass and yellow perch.

A similar effort occurred at Spotted Eagle Pond near Miles City. Spotted Eagle is owned by the City of Miles City and is a popular recreation area. This pond has a variety of warm water fish species including crappie, yellow perch, largemouth bass, channel catfish and northern pike. It is a bowl shaped pond with very limited fish habitat. Habitat improvement efforts at Spotted Eagle include bundling and sinking used Christmas trees to form artificial reefs and adding rock piles and tile pipe for cover and spawning habitat.

Tiger Muskie were stocked in a Region 7 pond for the first time in 2006. Gartside Reservoir near Sidney was stocked with fingerling tiger muskie to help control stunted blue gill and hopefully provide an opportunity to catch trophy-sized fish in the future.

Montana Aquatic Nuisance Species Program

Aquatic nuisance species (ANS) are the cause of significant ecological and socio-economic problems throughout North America. Invasive species, such as zebra mussels, Eurasian watermilfoil, Asian carp, New Zealand mudsnails and whirling disease are being introduced into new locations at an alarming rate. After introduction, populations often grow quickly and spread rapidly due to lack of natural controls. Once established, they often displace native species, clog waterways, impact municipal and industrial irrigation and power systems, degrade ecosystems, reduce or threaten recreational and commercial fishing opportunities, and can cause wildlife and public health problems.

Montana has had an Aquatic Nuisance Species Management Plan since October 2002 and a full time ANS Coordinator since February 2004. The five key areas of the Montana Program are coordination, education, prevention and control, monitoring, and rapid response. Within coordination the goal is to coordinate with all other state, federal and private organizations that have a role in either aquatic nuisance species management or control, it is also the goal of the program to coordinate with all other surrounding states and the states within our geographic area and basins. Montana has a very active education program involving public outreach efforts in addition to targeted training for natural resource agencies. The main emphasis of the Montana program is on prevention; therefore, most of our efforts lie within the prevention and control area. To help prevent the further spread and introduction a boat inspection program is operated on major river, lake and reservoir access sites and on the border between Montana and North Dakota. The boat inspection program has been very helpful in preventing possible introductions in addition to acting as a public outreach and education tool. A comprehensive monitoring program allows for early detection and rapid response if and when necessary. All bodies of water are monitored for invasive invertebrates and plants in addition to a whirling disease monitoring program and continual monitoring of illegal fish introductions.

The species of highest concern within Montana are zebra mussels, Eurasian watermilfoil, Asian carp, New Zealand mudsnails, and Myxobolus cerebralis (the whirling disease parasite). Zebra mussels are the ANS of highest concern within the state, they are not yet present within the state; however, their range continues to expand towards us. Zebra mussels have caused profound ecological changes in the freshwater ecosystems of North America since their arrival in the mid-1980's, including losses of phytoplankton and microzooplankton, and local alterations of zoobenthos in and around zebra mussel beds. Another effect is the widespread mortality of native unionid clams caused by the zebra mussel invasion. In addition, this nuisance exotic has cost municipal and industrial water facilities millions of dollars to control. Most experts believe that in the absence of effective preventative measures, the spread of the zebra mussel throughout North America is inevitable. Zebra mussels if introduced into Montana are likely to survive, become established and cause significant environmental impacts.

Asian carp including grass, silver, bighead and black carp are of high concern within the state. They all have the potential for introduction, establishment and have the ability to cause significant environmental impacts. None of these species are currently found within Montana and it is illegal to import them into the state; however, large populations of grass, silver and bighead carp do exist in the Missouri river system. Grass carp have the potential to compete for food with native invertebrates and other herbivorous fish, they can cause significant changes to plant communities, interfere with the reproduction and decrease refugia for other fish, modification of preferred fish habitats, cause enrichment and eutrophication of lakes, and disruption of food webs and trophic structure. Bighead and silver carp are filter feeders and would compete with other filter feeding fish directly including paddlefish, bigmouth buffalo, juvenile fishes and native mussels. Silver carp are also known to injure boaters and other water recreators when they "fly" out of the water when startled by boat engines. Black carp feed on snails and mussels and could therefore severely impact native snail and mussel populations.

Eurasian watermilfoil similar to zebra mussels and Asian carp is not yet established within Montana although it is considered to be able to survive in Montana and has established populations in Idaho. Eurasian watermilfoil is considered one of the worst aquatic plant pests in North America. It was accidentally introduced to North America from Europe. Spread westward into inland lakes primarily by boats and water birds. A key factor in the plant's success is its ability to reproduce through stem fragmentation and runners. A single segment of stem and leaves can take

root and form a new colony. Fragments clinging to boats and trailers can spread the plant from lake to lake. Once the plant is established it is almost impossible to eradicate. Eurasian watermilfoil competes aggressively to displace and reduce the diversity of native aquatic plants and is of less value as a food source for waterfowl than the native plants it replaces.

The other two priority ANS in the region, New Zealand mudsnails and Myxobolus cerebralis (the whirling disease parasite), are both currently established within Montana. These species can be managed through actions that involve mitigation of impact, control of population size, and prevention of dispersal to other waterbodies. Whirling disease is caused by a parasite that infects cartilage tissue of most salmonid species. The whirling disease parasite was first introduced to the United States from Europe in the 1950s probably through trout infected in Europe. The disease is known to occur in over 20 states. Currently whirling disease has been found in over 167 bodies of water in Montana. The illegal stocking of fish ponds is thought to be one of the main vectors for the spread of the whirling disease parasite.

New Zealand mudsnails were discovered in North America in 1987 in the Snake River in south-central Idaho. They are established in several locations throughout Montana, however they have yet to be detected west of the divide within the state. New Zealand mudsnails have the potential to cause severe ecological impacts to aquatic ecosystems including competition with native invertebrates, and the associated changes in community diversity and ecosystem function. The reproductive biology of mudsnails suggests that they have the potential for rapid colonization. Asexual females develop eggs that can develop without fertilization and produce clones. Only one female can therefore start a new population.

The common trait that all these species possess is that once established they are very difficult, if not impossible, to eradicate. Even control measures, when possible, can be costly. The best management strategy for all Aquatic Nuisance Species is the prevention of spread and introduction.

MONTANA'S FISH RECORDS (as of August 30, 2006)

FISH	WEIGHT	SITE	ANGLER	DATE
Arctic Grayling	3.63 lbs.	Washtub Lake	Glenn Owens	6/28/03
Bigmouth Buffalo	57.75 lbs.	Nelson Reservoir	Craig D. Grassel	6/4/94
Black Bullhead	2.33 lbs.	Lower Flathead River	Darwin Zemple, Jr.	4/4/94
Black Crappie	3.13 lbs.	Tongue River Reservoir	Al Elser	1973
Bluegill	2.64 lbs.	Peterson's Stock Dam	Brent Fladmo	6/3/83
Blue Sucker	11.46 lbs.	Yellowstone River - Miles City	Doug Askin	10/7/89
Brook Trout	9.06 lbs.	Lower Two Medicine Lake	John R. Cook	1940
Brown Trout	29 lbs.	Wade Lake	E.H. "Peck" Bacon	1966
Bull Trout	25.63 lbs.		James Hyer	1916
Burbot	17.08 lbs.	Missouri River Wolf Point	Jeff Eugene Iwen	4/18/89
Channel Catfish	29.71 lbs	Nelson Reservoir	Eli Waters/Jim Jones	5/28/06
Chinook Salmon	31.13 lbs.	Fort Peck Reservoir - Face of Dam	Carl L. Niles	10/2/91
Cisco	1.75 lbs.	Below Ft Peck Powerhouse	Curt Zimmerman	5/19/01
Coho Salmon	4.88 lbs.	Fort Peck Reservoir - Face of Dam	Irven F. Stohl	5/29/73
Common Carp	40.2 lbs.	Nelson Reservoir	Jared S. Albus	5/24/98
Cutthroat Trout	16 lbs,	Red Eagle Lake	Wm. D. Sands	1955
Emerald Shiner	0.01 lbs	Park Grove Bridge	Ike Braaten	6/9/06
Flathead Chub	0.59 lbs.	Thornton Pond	Douglas Jordan	4/29/01
Freshwater Drum	21.59 lbs	Fort Peck – Ghost Coulee	Matt Washut	5/3/03
Golden Trout	5.43 lbs.	Cave Lake	Mike Malixi	7/16/00
Goldeye	3.18 lbs.	Nelson Reservoir	Don Nevrivy	7/4/00
Green Sunfish	0.56 lbs.	Castle Rock Reservoir	Roger Fliger	6/19/91
Kokanee Salmon	7.85 lbs	Hauser Lake	John Bomar	9/23/03
Lake Trout	42.69 lbs.	Flathead Lake	Ruth Barber	6/23/04
Lake Whitefish	10.46 lbs.	Flathead Lake	Swan McDonald V	8/26/06
Largemouth Bass	8.29 lbs.	Many Lakes	Adam Nelson	6/11/99
Largescale Sucker	5.06 lbs.	Kootenai River	Loren Kujawa	5/12/96
Longnose Sucker	3.27 lbs.	Marias River Loma	Ray Quigley	5/8/88
Mottled Sculpin	0.05 lbs.	Belt Creek (North of Neihart MT)	Brad Sullivan	7/30/01
Mountain Sucker	1.60 oz.	Beaver Creek Reservoir	Robert Garwood	4/23/01
Mountain Whitefish	5.09 lbs.	Kootenai River Below dam	Mervin Fenimore	9/15/87
Northern Pikeminnow	7.88 lbs.	Noxon Rapids Reservoir	Darrel Torgrimson	5/28/91
Paddlefish	142.5 lbs.	Missouri River Near Kipp Park	Larry Branstetter	5/20/73
Northern Pike	37.5 lbs.	Tongue River Reservoir	Lance Moyer	1972
Pallid Sturgeon	60 lbs.	Yellowstone River Near Sidney	Gene Sattler	5/13/79
Peamouth	1.12 lbs	Flathead Lake	Stacy Ross	8/20/06
Pygmy Whitefish	0.23 lbs.	Little Bitterroot Lake	Kevin Hadley/Troy Fraley	2/27/05
Pumpkinseed	0.96 lbs.	Upper Thompson Lake	Nathan Bache	7/30/06
Rainbow Trout	33.1 lbs.	Kootenai River David Thompson Brdg	Jack G. Housel, Jr.	8/11/97
Rainbow-Cutthroat Hybrid Trout	30.25 lbs.	Ashely Lake	Pat Kelley	5/16/82
Redside Shiner	0.10 lbs.	Lost Lake	Josh Ahles	8/21/01
River Carpsucker	6.42 lbs	Intake – Irrigation Canal	Bill Odenbach	5/22/00
Rock Bass	0.57 lbs.	Tongue River Reservoir	Don Holzheimer	6/1/89
Sauger	8.81 lbs.	Fort Peck Reservoir	Gene Moore	12/12/94
Saugeye	15.66lbs.	Fort Peck Reservoir - Squaw Creek	Myron Kibler	1/11/95
Shortnose Gar	7.02 lbs.	Fort Peck Dredge Cuts	Ron Gulbertson	12/22/03
Shorthead Redhorse	4.68 lbs.	Marias River - Near Loma	Ray Quigley	4/14/85
Shovelnose Sturgeon	13.72 bs.	Missouri River - Near Virgelle	Sidney Storm	4/19/86
Smallmouth Bass	6.66 lbs.	Fort Peck Reservoir	Mike Otten	7/30/02
Smallmouth Buffalo	32.63 lbs.	Nelson Reservoir	Richard Liesener	6/4/94
Stonecat	0.54 lbs.	Milk River	Dale Bjerga	6/16/96
Tiger Muskellunge	28.87 lbs.	Deadman's Basin Reservoir	Marty Storfa	7/10/06
Tiger Trout	4.04 lbs.	Bear Lake	Joe Sobczak	2/9/97
Utah Chub	1.81 lbs.	Canyon Ferry Reservoir	Eugene Bastian	2/5/92
Walleye	16.63 lbs.	Fort Peck Reservoir	Danny Spence	1/21/00
White Bass	2.25 lbs.	Missouri River - South of Bainville	Vernon Pacovsky	9/23/98
White Crappie	3.68 lbs.	Tongue River	Gene Bassett	5/10/96
White Sturgeon	96 lbs.	Kootenai River	Herb Stout	1968
White Sucker	5.33 lbs.	Nelson Reservoir	Fred Perry	2/10/83
Yellow Perch	2.39 lbs.	Lower Stillwater Lake	Josh Emmert	2/19/06
Yellow Bullhead	0.93 lbs.	Tongue River Reservoir	Carl Radonski	5/24/98

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