2003 FWP ANNUAL PROGRESS REPORT
- WATER LEASING STUDY -

Submitted to:

Montana Environmental Quality Council
Montana Department of Natural Resources and Conservation
and
Montana Fish, Wildlife & Parks Commission

Submitted by:

Montana Fish, Wildlife and Parks
Fisheries Division

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I. INTRODUCTION

According to 85-2-436(3)(a), MCA, the Department of Fish, Wildlife, and Parks must complete and submit to the Department of Natural Resources and Conservation (DNRC), the Fish and Wildlife Commission (Commission), and the Environmental Quality Council (EQC) an annual water leasing study progress report. The report must include specific information for each lease including:

- **(i) the length of the stream reach and how it is determined;**
- **(ii) technical methods and data used to determine critical streamflow or volume needed to preserve fisheries;**
- **(iii) legal standards and technical data used to determine and substantiate the amount of water available for instream flows through leasing of existing rights;**
- **(iv) contractual parameters, conditions, and other steps taken to ensure that each lease in no way harms other appropriators, particularly if the stream is one that experiences natural dewatering; and**
- **(v) methods and technical means used to monitor use of water under each lease.** (85-2-436(1)(a), MCA)

One new FWP lease agreement was signed in 2003 - on Cedar Creek in the upper Yellowstone River basin. The DNRC Change Authorization for this is expected in January 2004. An agreement for two additional leases (both on Trail Creek in the Clearwater basin) is close to being finalized.

The progress report must also contain a summary of stream reaches designated by DNRC for study (pursuant to 85-2-437), and a summary of leasing activity on all designated streams. If no new leases have been obtained in the reporting year, FWP must "provide compelling justification for that fact" in the report. The remainder of this report has been divided into six sections and associated appendices, described as follows:

Section II -- background on the creation of the leasing program;
Section III – our review of the 2003 leasing year, including new lease agreements, and general issues and opportunities noticed or arising in 2003.
Section IV – additional detail on the 2003 leasing activity, including the statutorily-required reporting elements for each;
Section V – the statutorily-required reporting on the streams designated, so far, for study and potential leasing under FWP's leasing program; and
Section VI – a selection of program goals for 2004.

Appendix A lists our leasing objectives, which is what we currently use to evaluate leasing offers, as well as actively seek additional lease opportunities.
Appendix B provides a sample FWP lease evaluation, showing what information FWP needs and uses to evaluate lease offers under the criteria provided in Appendix A.
Appendix C is a copy of a media story on FWP's instream flow lease on Locke Creek (finalized in 2002).
Appendix D contains copies of FWP's 2003 input to NRCS as we were discussing with them the incorporation of an instream flow leasing element to their 2003 EQIP (Farm Bill program) implementation.
Appendix E provides monitoring information for FWP's existing leases/conversions.

with willing lessors, in streams where dewatering issues significantly limit priority fisheries. These leases have rewatered streams that traditionally had gone dry due to depletions, with most of these streams now making major contributions to area fisheries.

FWP's temporary instream flow leasing statutes, having been tweaked and extended over the years, were set to expire in 1989. The statutes required the preparation by FWP of a "Final" Report of the leasing program. That report was to be adopted by the FWP Commission and DNRC and submitted to the EQC, for their (EQC's) "completion" by December 1, 1998. Recognizing the role envisioned in the statutes for the EQC in the evaluation of 10 years of the leasing program, the EQC's Water Policy Subcommittee included a review of the program and related statutes in its 1997-98 Interim. The Subcommittee conducted public review of the progress and acceptance of the program, and considered various potential changes to the statutes, to be proposed to the 1999 Legislature. The legislation eventually proposed by the EQC renewed the FWP leasing statutes for 10 years, increased the "cap" on the number of streams from which FWP could lease, increased the maximum lease period for certain leases, required another "Final" Report in 2008, and allowed other leasing programs to lease salvaged (i.e., "conserved") water. Though the EQC received encouragement to be more aggressive in the changes it proposed (i.e., making the program permanent, removing the DNRC study stream approval requirement, etc.), it was the strategy of the Council to propose the minimum necessary bill, to ensure that the whole program wasn't "lost" (i.e., allowed to terminate) because of a too-aggressive starting point. The EQC encouraged others during the 1999 Legislative Session "to use the legislative committee hearing and amendment process to further test the waters on additional changes to the DFWP's water leasing statutes" (EQC, 1998). The bill, as drafted, received overwhelming support in both houses, and was signed by the Governor on March 19, 1999. The EQC deserves credit for its long-term support of this program.

III. A REVIEW OF THE 2003 LEASING YEAR

Drought conditions continued in much of Montana in 2003. In drought years, FWP water program staff must spend much of their time managing FWP's instream flow water rights and reservations, and participating in the FWP's drought response reporting and coordination, rather than pursuing additional instream flow water leases – the program, and FWP's fisheries biologists, shift into "emergency" mode under drought conditions, unfortunately.

2003 reminded Montanans that the leases we had in place were critical in times like these and that leasing and other water quantity planning tools continued to be critical for our state's valuable fisheries. A summary of FWP's leasing history is provided in Figure 1. Notable elements of the 2003 leasing year are described following the graphic.

Figure 1 (cont.). FWP Instream Flow Leasing History, as of November 2003

SOURCE	LESSOR	LEASE TERM/EXP.	PRIORITY OF RIGHT	QUANTITY LEASED	PERIOD OF USE	COST
Big Creek	Private ranch	10 years May 1, 2009	June 30, 1873 (1st right on stream)	10.0 cfs	May 1 - November 1	$8,000 per year
Rock Creek	Private ranch	20 years	March 23, 1881; May 15, 1881; June 1, 1892; May 1, 1898; September 29, 1904; May 10, 1907	5.0 - 27.22 cfs	April 15 - October 31	$138,346 - one-time payment
Locke Creek	Private ranch	30 years; December 14, 2031	March 6, 1915	7.5 cfs	April 20 – October 24	$45,000 – one-time payment
Cedar Creek	Private ranch	30 years: June 9, 2033	May 29, 1894 (4th right on stream; other high-priority rights already leased by FWP); June 11, 1971 (high water right); April 7, 1972 (high water right)	3.25 cfs 3.76 cfs (high water)	April 1 – November 4	$40,000 – one-time payment

[1]Lessor pays for water commissioner and the installation of measuring devices on all on-farm turnouts from the pipeline.
[2]These rights are used to maintain a flow of 1.3 cfs at the mouth of Cedar Creek, eliminating effects on other water users.
[3]FWP converted its own water rights to instream flow under 85-2-439, MCA.
[4]Ranches transferred their rights to the Montana Land Reliance, who is the lessor.

Jefferson River – FWP contributed funds for a reapplication and additional focused sealing of the largest irrigation supply canal on the Jefferson River; a similar treatment last year saved approximately 6 cfs. Reapplication is expected to save at least the same amount of water this year and help refine techniques for use of the sealant.
Sun River – FWP contributed funds to another canal sealing project, along 1 mile of one of the two major water supply canals from Gibson Reservoir. Between the two long canals, they are estimated to lose 400 cfs. This will be a test case that will hopefully result in water conserved in Gibson Reservoir, and subsequent additional interest and commitments to canal sealing in the area.
Blackfoot River – FWP contributed funds to assist in replacing the Blackfoot as a stockwater source with a well for fall livestock watering.
North Fridley Creek – FWP contributed funds to help reconnect Fridley Creek (interrupted by the Park Branch Canal and affected by dewatering) to the Yellowstone River. The project involves building a culvert under the Canal and enhancing streamflow by replacing a surface diversion with a well. Staff of Trout Unlimited are helping the water right holder with a water right conversion of saved water to instream flow.

Readers interested in details of FFI projects are referred to the FFI portion of FWP's Website - http://fwp.state.mt.us/habitat/futurefisheries/content.asp.

- **Potential future FWP leases.** Word is getting out about FWP's instream flow leasing program. We received many inquiries in 2003, yielding several excellent lease opportunities. We continue to investigate leasing opportunities on Little Prickly Pear and Tenmile creeks (Middle Missouri basin), Bear Creek (Madison basin), Mill Creek (Upper Yellowstone), Rock Creek (Middle Clark Fork), and several others that are in the early stages. We hope to report next year on leasing success in these and other areas, provided drought conditions subside, and staff can dedicate additional time to such projects.

- **Two Mill Creek leases allowed to lapse while other instream water sought.** Both nostalgic, disappointing, but also symbolic of program success was FWP's decision to allow two leases to expire on Mill Creek (upper Yellowstone) while we looked for more water at less cost for the Creek. One of these leases was the first ever obtained by FWP and we are exceedingly appreciative of the water right holder, who, in the early 90's, stepped forward to be the first lessor of instream water in Montana. Prior to the expiration, FWP held three leases on Mill Creek, two for minimum base flows, and one for an annual flushing flow. The base flow leases were hoped to be sufficient to keep water in the lower reaches of the creek for incubation and emergence of fry; we knew they were not sufficient to provide passage flow to the Yellowstone River for rearing and maturation. The flushing flow was intended to "flush" the Mill Creek fry to the River. The combined leases (See Figure 1) cost over $25,000 per year and near that amount in annual monitoring. The results of the monitoring (see past FWP annual lease reports for monitoring of expired leases) showed that fry production (and therefore recruitment to the Yellowstone) was good in high-flow years but poor in low flow years. The poor showing was a combination of commissioner difficulty in keeping the instream water flowing, the need for additional water to create a margin of safety above the absolute minimum flow, and the nature of administering water in that flows can fall below the lease level, but (even with quick action) the time to get flow restored to the lower river can prove lethal to eggs and fry. With good production in high-flow years (when the leases didn't need to be enforced) and low-production in low-flow years, it became clear

program (Surface and Groundwater conservation). So, in 2003, certain applicants to NRCS for federal EQIP cost-share funds could get extra points in the rating if they obtained a commitment from a leasing entity to secure the saved water for instream use. They could not expand acreage, and the period of the instream commitment was the life of the project. These applicants could get 40 extra points for streams on FWP's Dewatered Streams List, and 30 points for other streams. In addition to the points, successful applicants can receive an "incentive payment" for $7,550 to cover the costs of the water right and hydrological work required to navigate the Change process at DNRC.

FWP is hopeful this program element will be continued in 2004, and we look forward to continuing to work with NRCS and the leasing entities on its refinement. NRCS should be congratulated for a unique and proactive effort, which, as we understand, is unique in the nation. (See Appendix D for the FWP correspondence related to this work.)

- **Getting the word out...** We have developed several versatile sets of informational tools that can easily be transferred and adapted to a variety of informational events and situations. Our "Water for Fish+" display has hit the road often, and the associated "fishpads" ("Water for Fish+" – by species – notepads) are a popular token of FWP's appreciation to our cooperators. Water Program staff developed a PowerPoint program, which includes a primer on water rights and a discussion of water quantity planning tools (including leasing) available to Montana communities. This presentation has been modified and presented to watershed groups, universities, non-profits, and agency- or association-sponsored training sessions. Information on instream leasing and conversions has been incorporated into the DNRC "Water Rights in Montana" booklets and DNRC-sponsored water commissioner trainings. All these informational resources, developed in the last four years, have built FWP's capacity to inform and publicize the opportunities associated with instream flow protection and enhancement, whether through leasing with FWP or otherwise.

- **Improved coordination with other agencies and groups.** Whereas in the past, FWP pursued its leasing opportunities relatively independently, we are working more broadly with other agencies and programs (e.g., Natural Resources Conservation Service (NRCS), U.S. Fish and Wildlife Service "Partners" program, Montana Land Reliance, Conservation Districts, the newly-created Montana Water Trust, Trout Unlimited, etc.). The result is greater collaboration and a broader spectrum of entities contributing to Montana's water conservation goals.

- **Supporting leasing/conversion by others.** FWP continues to assist water right holders interested in leasing to other parties, or converting their rights to instream flow. Such assistance includes potential funding throught our Future Fisheries Improvement grant program, technical assistance with project planning, and information on water rights and the conversion process. FWP staff have also assisted applicants and DNRC with documentation that a conversion will benefit the fishery (required by statute).

- **FWP leases and water reservations available on the Web.** FWP GIS staff have loaded all of FWP's instream flow information into the Montana Fisheries Information System

Another possible argument in favor of the opportunity to acquire/dedicate rights in perpetuity is that some callers have reported concerns that tax benefits are not available to them for water right dedications, unless the dedication is in perpetuity. FWP staff are not accountants, and have not researched this issue, but it has been mentioned more than once.

It is also likely that larger amounts of funding would be available for acquisitions in perpetuity, allowing Montana water users to more successfully diversify their incomes while the state moves forward in solving (not merely deferring) dewatering problems. Such a change would help to satisfy the increasing economic (and intrinsic) demand for flowing streams and the values they provide. Other states (e.g., Washington, Oregon, Wyoming, Colorado, etc.) have enacted such authority and could be contacted for information regarding how it has worked. (For Washington, see http://www.ecy.wa.gov/programs/wr/instream-flows/wacq.html; for Colorado, see http://www.cwcb.state.co.us/isf/Programs/donate.htm.)

These suggestions are not intended to diminish the importance of our present leasing authority FWP now has, nor the creative approaches the Legislature has invoked to address instream flow needs in Montana. We are merely communicating that this question has been repeatedly and increasingly asked over the last few years.

- **Need to accommodate increasing concerns about "salvage" projects into the leasing program.** As reported here in 2002, one of the attractive means to generate leasable water is for FWP to assist a landowner with a water conservation project. Such projects allow for a 30-year lease of water (otherwise 10 years is the maximum on the initial term), can convert water use levels to as little as 10% of the formerly diverted flow amount. Such projects enhance crop production, reduce labor requirements, and result in less pollutants being washed into surface or subsurface water sources. In theory, a landowner could even put more acres under irrigation (allowed under 85-2-419, MCA), and still have flow left over to dedicate to the stream.

  Such projects have been implemented in Montana, many which dedicate the saved water to additional acres under the "salvage" law. That law requires additional acreage to be approved by DNRC. We are not familiar with the criteria used by DNRC to evaluate salvage proposals, but it has recently come to FWP's attention that straight cfs-for-cfs calculations associated with salvage projects may oversimplify the situation, and not account for changes that could be detrimental to downstream water users (and streamflows in general). For example, an irrigator has a right for 7 cfs that has traditionally been used for flood irrigation on 100 acres. By converting to sprinklers, the same 100 acres could be irrigated using, say, 1 cfs. So, traditional interpretation of the salvage law has been that the irrigator can then add acreage to the point that the additional 6 cfs can be put to use. We have been told that many water users add acreage without applying for approval from DNRC.

  This issue is complex because sprinkler irrigation is more efficient, resulting in crops being better able to put water to use in terms of crop usage, but less of what is applied returns as surface flow or groundwater recharge. Sprinklers also provide more even coverage of the crop area than typical flood irrigation, thus more individual plants are able to benefit and at

As noted above, the upper Yellowstone River, a highly valued sport fishery, supports brown, rainbow and Yellowstone cutthroat trout. Several small tributaries to the Yellowstone River are the only documented spawning sites for the river population of Yellowstone cutthroat trout – a Species of Special Concern. Dewatering of the lower segments of these tributaries during the irrigation season adversely affects the reproductive success of the Yellowstone cutthroat trout and limits recruitment to the river fishery. Studies by FWP and others show that tributary dewatering is a major factor regulating numbers of adult cutthroat in the Yellowstone River.

Cedar Creek is one of the better cutthroat spawning tributaries to the Yellowstone River. Cutthroat begin entering Cedar Creek in late June, spawning in early July. Cutthroat eggs incubate in the spawning gravel for about 30 days before emerging as fry. Fry begin to out-migrate to the Yellowstone River shortly after emerging. By the end of August, most fry have entered the main river. Some fry remain in Cedar Creek throughout the winter.

Prior to 1996, a series of four private irrigation diversions in the lower ½ mile of Cedar Creek took much of the flow during the summer irrigation season, thus limiting the capacity of the Creek to produce cutthroat. Since 1996, when FWP's existing Cedar Creek instream lease was initiated, up to 26,000 out-migrating fry have been sampled annually. Additional water (and the cessation of active use of the ditch) will further enhance spawning and rearing opportunities, particularly during dry years, and will also resolve other fishery- and water-related issues on the Creek. Slip and Slide Creek already has two reservoirs in place and does not support native fish. This new diversion will not significantly impact Slip and Slide Creek's, or the Yellowstone River's, aquatic resources.

V. DESIGNATED STUDY STREAMS

Montana statutes require FWP to obtain approval of the commission and DNRC to study a stream for leasing (and thereby lease from it). Figure 2 lists the study streams approved to date, their relevant basins, the status of the approval, and the status of leasing on them. Statutory revisions in 1999 increased the allowed number of study streams from 20 to 40.

Figure 3. Status of Designated Study Streams and Leasing

Study Stream	Basin	Status of Request	Status of Leasing in Reach
1. Swamp Creek	Big Hole River	Final approval 3/5/90	No lease; FWP and right holder could not reach agreement on price for lease
2. Big Creek	Yellowstone River	Final approval 3/5/90	Two leases finalized in 1999
3. Mill Creek	Yellowstone River	Final approval 11/9/90	Three leases; two expired, with potential for renewal
4. Cedar Creek	Yellowstone River	Final approval 1/6/92	One lease in place; additional lease agreement finalized in 2003
5. Blanchard Creek	Blackfoot River	Final approval 9/25/92	Lease
6. Hells Canyon Creek	Jefferson River	Final approval 9/25/92	Lease
7. Tin Cup Creek	Bitterroot River	Final approval 10/30/92	Lease; renewal finalized in 2000
8. Rattlesnake Creek	Clark Fork	Final approval 5/25/95	No lease; negotiations on hold
9. Mol Heron Creek	Yellowstone River	Final approval 11/28/95	Lease
10. Rock Creek	Blackfoot River	Final approval 11/28/95	TU lease negotiations on hold, past FWP negotiation information being used in efforts by Trout Unlimited
11. Chamberlain Creek	Blackfoot River	Final approval 1/3/96	Lease
12. Pearson Creek	Blackfoot River	Final approval 1/3/96	Lease
13. Rock Creek, near Garrison	Clark Fork River	Final approval 7/15/98	Lease
14. Locke Creek	Yellowstone River	Final approval 6/18/02	Lease

VI. GOALS FOR 2004

In looking forward to 2004, we hope Montana experiences at least normal precipitation and climatic conditions, such that this dry trend can be reversed, and the emphasis on emergency flow-related actions can shift back to long-term flow protection and enhancement efforts. In addition, we have specific and continued goals we hope to achieve in 2004, described below. Our ability to achieve these goals, again, will depend on whether climatic conditions keep us in "emergency response" mode or not.

- **A better FWP "pricing" mechanism.** FWP currently uses the criteria listed in Appendix A as the basis for our evaluation of leasing offers. We conduct a detailed review and evaluation of attractive offers within the framework of these criteria (see Appendix B), with very few offers scoring incredibly well in all areas. We are often asked what we pay "per cfs or acre foot" of water, when what we are truly evaluating is the potential for increased priority fish species production vs. the cost in time and resources (financial and staff time, both to secure the lease and in the long run) for a given likelihood that a certain amount of water can actually be kept instream. As the matrix included in Figure 1 gets wider and wider distribution, we find potential lessors focusing on the maximums we have previously paid as their starting point for negotiation. We are attempting to expand the matrix to include descriptions of how well the leases met FWP's criteria, and seeing if the dollar values we have paid can be used to back-calculate a better pricing structure for FWP leases. We look forward to reporting on our potential success in this area. We feel such effort could also assist others that are entering or increasing their activity in Montana's fledgling "water for fish" market.

APPENDICES

Appendix A. FWP Instream Flow Lease Objectives
(a.k.a. "maximizing the 4 'A's")

- **Advantageous** to the fishery

  Attractive leasing opportunities are those that address a stream flow problem that significantly limits potential fishery values.

- **Actual** water dedicated to instream flows

  Leases must involve valid water rights, and quantities leased should be large enough to benefit the stream.

- **Administrable** by the Department or other appropriate entity

  Leases should involve a reasonable combination of water right seniority and advantageous location so that the instream flow contribution can be ensured and defended through the lease period. Decreed streams and/or an existing water commissioner are an added plus.

- **Affordable**

  Do the benefits to the fishery justify the cost of the lease or the project creating the leasing opportunity?

For more information on instream flow leasing, contact Bill Schenk 406-444-3364 (for waters in FWP Regions 1, 2, 4 and 6) or Kathleen Williams 406-994-6824 (for waters in FWP regions 3, 5, and 7). See http://www.fwp.state.mt.us/hunting/plan/chooseRegion.asp for FWP Regions.

Appendix B – A Sample Lease Evaluation

Review of Potential Water Lease

Little Prickly Pear Creek -- Lewis and Clark County

Prepared for: [redacted]
December, 1999

The following is a preliminary review of an instream flow lease proposal. It includes 1) a description of the proposal; 2) the results of a cursory review of the associated water rights, their relation to other rights in the watershed, and available information on water flow patterns; 3) a description of the fishery; and 4) a preliminary evaluation of the lease offer according to FWP's informal lease evaluation criteria.

Additional information, insights, and/or corrections to this preliminary review are welcome and can be incorporated into a revised review.

Background on Proposal

According to our recent conversation, the rights you are interested in leasing are the potential salvaged portions of the rights listed below.

Right Number (Diversion Point)	Purpose	Quantified Flow (cfs)/ Acres/ Volume	Priority Date	Relative Priority on Source (of 70)	Claims Senior to Offered Rights
41QJ-W- 097583 NWNENW20T13NR4W	Irrigation	none/ 8 acres/ 32 AF	5/18/1877	28th	100.09 cfs (all upstream)
41QJ-W-097581 NENENE25T13NR5W	Irrigation	12.00 cfs/ 50 acres/ 200 AF	4/1/1882	34th	additional 17.76 cfs
41QJ-W-097582 NWSWNE19T13NR4W	Irrigation	25.00 cfs/ 58 acres/ 232 AF	3/15/1902	61st	additional 110+ cfs
Total		**35+ cfs/ 116 acres/ 464 AF**			

You are proposing to convert from two informal diversions (and associated lengthy ditches for flood irrigation) to one diversion point for a sprinkler system to irrigate close to the same acreage. One diversion point is shared with another right. The diversion point for your most senior right (without quantified flow) appears to be near the access road to your home, near the approximate location of your proposed pump house.

Your estimate of water need under your new system is 2 cfs, leaving the consumed (non-return-flow) portion of the remainder instream under a lease with FWP. The claims associated with these rights

would rank 10th in priority, and your 1902 right would rank 16th in priority for Canyon Creek water. Approximately 9.3 claimed Canyon Creek cfs are senior to your 1882 right and about 32 cfs are senior to your 1902 right. Although making a call for water can be a controversial move, we do consider your ability to do so in evaluating rights being considered for lease. A USGS gauge which operated on Canyon Creek in 1921-23 shows a peak flow of 270 cfs (1922) and a minimum summer flow (1921) around 10 cfs. Water use may have changed a good deal since then, but your rights have a much better seniority situation in Canyon Creek than in upper Little Prickly Pear.

Regarding downstream flows, U.S. Geological Survey (USGS) flow records are available for a 5-year period (from 1962-67) for a site just upstream of Clark Creek confluence. During this period, the minimum recorded flow was 6.2 cfs for four days in August of 1963. (At the gauge discussed below, flows were between 19 and 20 cfs on the same days.) Monthly minimums were not calculated for this review. A variety of miscellaneous flow measurements from this time period (conducted for a study of the effects of Interstate construction) also exist, but were not evaluated for this review.

Currently, there is one operating USGS real-time stream gauge on Little Prickly Pear Creek, located about ½ mile downstream from the confluence of Wolf Creek, just downstream of the I-15 access road bridge. This gauge has operated intermittently; from May 1962 to September 1967, and again from October 1991 to present. Streamflow information for this approximate 15-year period of record is provided below.

	Jan	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Monthly Average (cfs)	46.9	69.4	70.1	150	276	235	95.0	51.6	56.8	57.5	58.3	53.7
Monthly Minimum (cfs)	30.8	29.9	43.9	66.6	35.5	25.5	23.8	17.0	20.4	29.5	31.5	31.2

The lowest flow recorded at this gauge during the period of record is 9.9 cfs on August 13, 1992. In 1997 and 1998, the lowest flows at the gauge were in mid-January, with flows of 22 cfs and 25 cfs respectively. The lowest flow in the 1999 water year was 34 cfs in September (1 cfs lower than the minimum July and August flows for 1999). What this tells us is that, despite the number of claims upstream and the relative seniority of those claims, water is making it downstream, and the lower river (at the gauge) has not gone dry during the period of record, even in low flow years.

There are 10 junior mainstem water right claims (6 owners) downstream of your lowest diversion point. The closest downstream junior claims are two Sieben points of diversion (totaling 11.25 cfs), located just downstream of your access road. After Sieben, the next junior user is roughly 5 miles downstream (two small rights totaling 70 claimed gpm). Beginning roughly another 5 miles downstream of that is a series of two (Robert) Wirth diversions (totaling 13.5 claimed cfs), the town of Wolf Creek, then the of Sentinel/Lahti diversions (totaling 67.5 claimed cfs) just before the mouth.

In dry years, FWP staff have confirmed that a one-mile reach of the Creek (approximate) located immediately downstream of the Sieben diversion becomes severely dewatered. Groundwater inflows on the Sieben Ranch recharge the Creek before it enters the head of Wolf Creek Canyon. If water can be passed by the Sieben diversion, at least a portion of leased rights could provide benefits to this

Evaluation

Montana Fish, Wildlife & Parks uses the following general criteria to organize their evaluations of instream flow lease inquiries – we attempt to "maximize the 4 'A's", as described below. (These criteria continue to be evaluated and improved as more lease inquiries are reviewed – suggestions are welcome!)

1) Advantageous to the Fishery -- Does the leasing opportunity address a stream flow problem that significantly limits potential fishery values?

At this point, FWP Helena staff feel that a potential lease of the above rights would provide a **low to moderate** benefit to the fishery. Streamflow within this reach of Little Prickly Pear Creek does not appear to be a major limiting factor to the fishery. Our conclusions are base on:

- Severe and regular dewatering appears to be limited to the relatively short segment of stream from the Sieben diversion to the head of Wolf Creek canyon.
- Resident fish populations in stream reaches that remain relatively unaltered (with good riparian vegetation and natural meanders) appear healthy.
- Migrant brown trout spawners from the Missouri River likely are limited more by barriers created by beaver dams than low water. Rainbow trout, both residents and migrants, currently are severely limited by the presence of whirling disease. A potential lease would not resolve the impacts created by either beaver activity or whirling disease.

However, a lease potentially would provide water to the reach of stream between your diversion and the head of Wolf Creek Canyon and could supplement flows downstream. The salvage project would also eliminate the need to berm the stream channel to obtain water and eliminate the possible entrainment of fish in at least the middle diversion. The upper ditch likely would remain operational due to the shared water rights associated with the ditch.

2) Actual water dedicated to instream flows

The rate of streamflow potentially generated by the proposed salvage project could be substantial (possibly up to a maximum of 33 cfs, or 1,320 miners inches). However, with the rights as claimed and some rough calculations, the potential volume of salvaged water is relatively small (about 174 acre feet). As a result, the small volume potentially could severely limit the duration that salvaged water could be protected from other appropriators. Unless the claims are amended, we consider this a **significant limitation** associated with this leasing opportunity.

If the volume issue were made less constraining, and depending on the portions of the rights regularly used, this lease would likely add some streamflow to Little Prickly Pear in periods and in a location where dewatering is limiting to fish. The dewatered section of creek is relatively short (less than 2 miles?). Downstream, where complete dewatering is less frequent, added water would provide low-flow "insurance" to both the fishery and other water users, as well as enhance the likelihood that FWP's instream reservation would be regularly met.

We therefore recommend and can support a funding request to the Future Fisheries Program of $15,000. This amount assumes that: the volume restriction would be addressed so as to be less constraining on a potential lease; that additional secured funding sources would be documented in the Future Fisheries application; and that the project would include the lease elements as discussed herein.

Thank you for your interest in the program. Please contact Kathleen Williams, Water Resources Program Manager (406-444-3888), if you have questions or concerns about the information in this review.

INDEPENDENT RECORD
HELENA, MT 59604
DAILY, 13,390 SUN., 14,330

JUL 08 2001
SUPERIOR CLIPPING SERVICE
GLENDIVE, MT 406-365-6612

Pure cutthroats

Fish predicament spawns united effort between landowner, agency

LIVINGSTON (AP) — The creeks meandering through Charlie Pierson's ranch are teeming with fish.

But these aren't just any fish, scientists have excitedly discovered over the last 10 years. They are genetically pure cutthroat trout.

Somehow, rainbow trout, a nonnative fish which tends to dominate and interbreed with the Yellowstone River's native cutthroats, haven't found their way into Locke Creek, which crosses Pierson's property. The tiny tributary is a spawning haven for a fish species striving to keep a stronghold in its indigenous waters.

The discovery has led to a unique partnership between Pierson and the state Department of Fish, Wildlife and Parks. FWP fisheries biologist Brad Shepard said hopefully the project will encourage even more cutthroats to spawn in Locke Creek.

Pierson will get a better irrigation source. Cutthroats will get what might be a first-class spawning ground.

Pierson's ranch, the Highland Livestock Co., has long used Locke Creek to water about 600 acres by pump and flood irrigation. However, a study by a Montana State University graduate student found the lower the water levels on Locke Creek, the lower the numbers of cutthroat fingerlings making it to the Yellowstone.

Shepard said the FWP therefore became interested in keeping water levels as high as possible in Locke Creek. Also, three cement head gates block fish access to the creek. The FWP wanted to remove them in hopes of giving cutthroat more room to spawn.

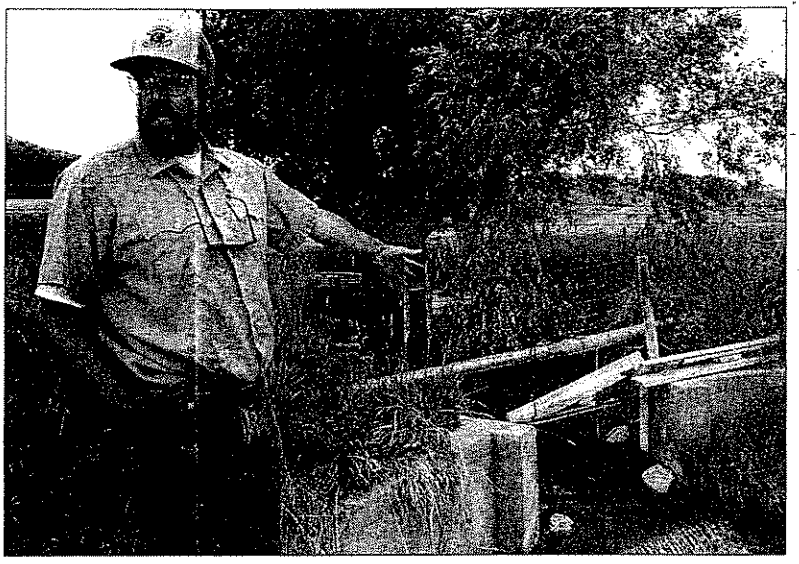
"Up until now, the fish have only been able to spawn in the lower part of the creek," Shepard said.

Pierson came up with an idea. "I thought maybe we can replace the water in Locke Creek with a well," he said.

FWP agreed. So the agency, through its Future Fisheries Program, will soon complete a 30-year lease on Pierson's water rights to Locke Creek.

In exchange, FWP will pay Pierson $45,000. The money goes toward drilling a well into the aquifer, buying a pump to get the water out and buying a windmill to power the ranch.

"I think this is good deal for everyone," Shepard said. "Charlie gets what he needs, we get what we want and hopefully the fish get what they want."



AP photo

STATE DEPARTMENT OF FISH WILDLIFE and Parks fisheries biologist Brad Shepard talks last month about one of the head gates located on Charlie Pierson's ranch east of Livingston, Mont. The agency will remove the gates to give the genetically pure cutthroat trout in Locke Creek more room to spawn.

water source. The well, installed in April, pumps 300 gallons a minute and is just 40 feet deep. "It's better because the creek may be dry before the summer is out," he said.

Installing the electricity-generating windmill was especially attractive to FWP, Shepard said. Electricity prices might rise drastically, but Pierson's ranch will be self-sufficient. Therefore, Highland Livestock Co. will still be able to afford the power to pump water and not revert to flood irrigation.

As for fish, they will have more room to spawn.

The MSU study found that in a good water year about 3,000 to 5,000 cutthroat fingerlings in Locke Creek, which translates into 400 to 500 adult fish. Shepard said he hopes the changes will mean 5,000 to 10,000 fingerlings, or 500 to 1,000 adult fish.

And cutthroats' tendency to return to their birthplace to spawn is extremely high, Shepard said. Those additional fish will likely use the tributary in the future.

The reason rainbows haven't invaded Locke Creek remains a mystery. But both men have their theories.

Pierson believes he trapped cutthroats in part of Locke Creek when he ago. The head gate presents a three-foot concrete barrier to fish.

Therefore, rainbows can't get up the creek. But high waters wash small cutthroats out and down to the Yellowstone.

FWP plans to keep in the upper head gate for now in case Pierson's theory proves true and rainbows begin using Locke Creek.

Shepard's theory relies on the water levels of the Yellowstone. He said cutthroats generally spawn earlier in the year than rainbows.

There is a culvert on Locke Creek beneath the railroad tracks, not far from the main river. Shepard thinks the Yellowstone is higher at the same time cutthroats want to spawn — high enough to get beyond the railroad culvert. But the culvert might be impassible by the time the rainbows want to spawn, which is often two to four weeks after the cutthroats.

Biologists will monitor the creek next year to determine if rainbows invade. All sides hope the project proves beneficial to cutthroats.

"We're really concerned about the possibility of rainbows moving in," Shepard said. "These are genetically

Appendix D – FWP Input to NRCS EQIP Leasing Element

- provide a straightforward program interface for applicants
- get real results

Leasing entities (FWP, MWT, TU):

- get real results (enhanced streamflow)
- maximize the effectiveness of leasing entity participation (i.e. best use of limited entity resources)
- foster incorporation of streamflow enhancement into Farm Bill programs
- create additional success stories of how agricultural productivity and healthy streams can exist together.

The suggestions in this letter are provided in the spirit of achieving these goals. If there are others that should be considered, please let me know.

Checklist

I would be interested in additional information regarding whether the project scale typically generates a similar level of water conservation as indicated by the point structure. Might points be better awarded by the percent (or percentage category?) of efficiency improvement? NRCS staff are the experts here, I'm merely curious what went into the proposed scheme for structural improvements.

I appreciate what appears to be incorporation of return flow issues into this Concern. FWP has been trying to incorporate these concerns into our leasing program and related Change Applications. We note that the term we have heard most often as to where these concerns are concentrated are "intermountain alluvial aquifers". Your reference to "high-mountain floodplains" is similar, but some of these problems occur in relatively low-lying areas (for Montana). I would be very interested to hear your proposals as to where you have defined these areas.

Bonus Point Wording

The wording in the 12/09 version implies that an applicant would get some type of commitment from a leasing entity in order to obtain the bonus points. We discussed our concern that leasing entities might not be able to generate a commitment in as timely a manner as an applicant would like. Also, with limited resources, FWP could likely only commit to a few per year, given informational and permitting requirements. Another issue is that, without a timeframe that applies to when the requests are made, leasing entities could "fill up" with less than optimal projects, and miss an opportunity for a great one that made contact later than the others. We also would be requesting information from each caller that could easily be provided in an application format, saving us significant time without an undue burden on the applicant.

As an alternative, as we discussed a bit at our meeting, incorporation of some flow enhancement information and evaluation in the EQIP process would work better. We suggest the following:

> Points will be awarded to an applicant who transfers all water conserved from an irrigation efficiency project to instream use as follows:
>
> a) 40 points for a project that will enhance streamflow on a stream listed in FWP's "dewatered streams list" (available on internet)
> b) 30 points for a project that will enhance streamflow on any other stream

willingness to do so, and to incorporate process information relevant to decisions made on the criteria and incentive payments.

The leasing entities have discussed their willingness to generate some sample answers to the questions posed above, for the benefit of applicants. We are also willing to contribute to or develop a fact sheet or other generalized handout or Web posting to assist potential applicants in understanding and applying for the streamflow bonus points.

Conclusion

We hope these suggestions are helpful in NRCS' further consideration of means to incorporate streamflow enhancement into the EQIP program, thereby providing your characteristic "leadership in a partnership effort to help people conserve maintain, and improve our natural resources and environment."

Please contact me, Laura or John with any questions you might have, or to get together again to discuss these proposals or needed refinements. Thank you for the opportunity to comment.

Sincerely,

Kathleen Williams
Water Resources Program Manager

c: L. Ziemer, Trout Unlimited
J. Ferguson, Montana Water Trust

- Install staff gauge, and take at least three streamflow measurements the first year to create rating curve for the staff gauge.
- Recalibrate staff gauge every 5 years, and make annual flow measurement check on staff gauge accuracy.

Estimated Hours: 66 (includes travel time)

4) Preparation of and filing fee for Change Application to be submitted to DNRC:
   - Filing Fee: $200
   - Preparation of Change Application

Estimated Hours: 30

Total Number of Hours– 151

TOTAL INCENTIVE PAYMENT - **$7,550** (assumes an average hourly consultant rate of $50)

The above outline is our estimate of the total hours necessary for converting conserved water to an instream water right and reflects the average conversion project. However, some conversions may be more complicated than others and would require substantially more hours to complete. Our initial approach is simple. However, if the NRCS is interested in structuring the incentive payment to more accurately reflect the costs to producers for converting conserved water to instream water rights, we would be more than happy to provide additional input on how to account for the easy, moderate, and difficult conversions.

We also suggest that the incentive payments be awarded only to those producers who are willing to convert the conserved water to instream use for the "expected life of project" or 30 years, whichever is less (statutory language). By awarding the incentive payments to these producers, the NRCS will ensure that its EQIP-funded irrigation efficiency projects result in long-term benefits to fisheries and reflect the investment necessary to achieve efficient water use.

As we discussed on the phone, I hope you will add "in critical low-flow periods" to the 40-point EQIP criterion. Conversion to instream use in high-flow periods (even on a stream that is on our Dewatered Streams list) would not be as helpful as during low flows. We are doing our 2003 update of our Dewatered Streams List and can provide you an updated version upon request. Also, we reiterate our willingness to assist the NRCS in developing and implementing a simple and efficient application and evaluation process for determining which applicants should receive the instream points under the ranking criteria.

We hope that the above outline is helpful in structuring an incentive payment to be awarded to successful applicants. Please contact us if you have questions. Thank you for the opportunity to comment.

Sincerely,

Kathleen Williams
Water Resources Program Manager

c: J. Ferguson – Montana Water Trust
L. Ziemer – TU's Western Water Project
K. McDonald – FWP, Helena

Appendix E. Monitoring Summary for FWP's Existing Leases/Conversions

The attached pages provide information on how FWP's leases are functioning, for those interested in the implementation phases of these agreements. The order of the attachments is as follows:

Blackfoot River Tributaries (Cottonwood (conversion), Pearson/Chamberlain)
Hell's Canyon (tributary to Jefferson River)
Locke Creek (Yellowstone tributary near Springdale)
Mill Creek (Upper Yellowstone)
Rock Creek (Upper Clark Fork, near Garrison)
Tin Cup Creek (tributary to Bitterroot River)
Other Upper Yellowstone basin leases – Big, Cedar, and Mol Heron

Notes:

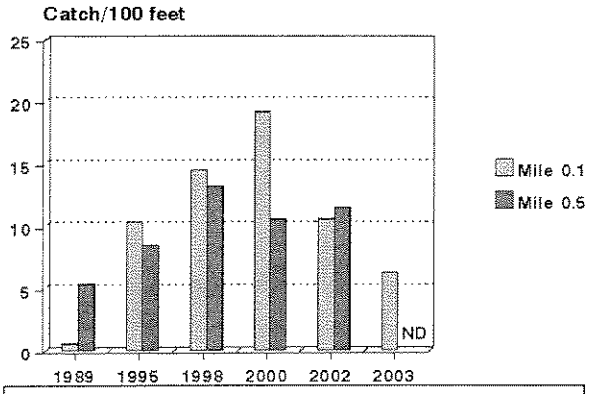
1. The newest Cedar Creek lease is still in the final stages of the Change Authorization process, so monitoring there does not yet include this additional lease.

Questions regarding the monitoring information may be directed to Kathleen Williams, Water Resources Program Manager, at 406-994-6824, or kawilliams@montana.edu.

Project Summary

Sections of lower Chamberlain Creek were severely altered, leading to historic declines in westslope cutthroat trout densities. Adverse changes to stream habitat included channelization, loss of instream wood, dewatering, excessive riparian livestock access, road encroachment and elevated instream sediment from road drainage. Other problems included fish losses to irrigation ditches and impaired fish passage.

Since 1990, Chamberlain Creek has been the focus of a comprehensive fisheries restoration effort. Projects include road drainage repairs, riparian livestock management changes, fish habitat restoration, irrigation upgrades (consolidate ditches, water conservation, eliminate fish losses to ditches, install a fish ladder on a diversion) and improved stream flows through water leasing. Restoration occurred throughout the drainage but focus mostly in the lower mile of stream.



CPUE for WSCT (fish>4.0") in two sections of lower Chamberlain Creek, 1989-2003.

Fish Populations

Chamberlain Creek supports a migration of fluvial WSCT from the Blackfoot River. Fluvial spawning occurs throughout the mainstem and extends into Pearson Creek and the East Fork of Chamberlain Creek. Beginning in 1997, we found low numbers of bull trout using the stream in areas affected by restoration.

In 2002-03, we continued to assess fish populations in the areas (two locations) influenced by water leasing (Figure 3). In 2003, we continued to sample Chamberlain Creek at stream mile 0.1 to assess population response to drought and whirling disease. These surveys indicate declining densities in the lower-most portion of Chamberlain.

Pearson Creek

Restoration objectives: restore the stream to its original channel; improve stream flows, access and condition of historical fluvial WSCT spawning site.

Project Summary

Pearson Creek is a small tributary to Chamberlain Creek with a base-flow of approximately one cfs. Pearson Creek has a history of channel alterations, adverse irrigation and riparian land management practices in its lower 2 miles of channel. The Pearson Creek restoration effort includes conservation easements, water leasing, channel reconstruction, riparian habitat restoration and improved riparian grazing management.

Fish Populations

In September 2002 and 2003, we re-sampled fish populations in a Pearson Creek section (mile 1.1). This sampling site is located in a stream reach influenced by a water lease and related riparian improvements (riparian fencing and habitat restoration). In part, we attribute lower densities of 2001-02 to drought and two years of excessive livestock access to the riparian area. In late 2002, the cooperating landowner addressed riparian grazing problems. In 2003, we

2003 Hells Canyon Creek – Water Lease Monitoring Report

The Hell's Canyon Creek water lease was monitored during 2003 to determine effectiveness and compliance of the lease agreement with landowners operating the Hell's Canyon Creek Gravity Pipeline. The pipeline was installed and the water lease implemented in 1996. Monitoring of pipeline withdrawal and stream flow from 1996 through 1999 did not observe problems with meeting guaranteed minimum flows in Hell's Canyon Creek because each of these years provided average or above average stream flow in the vicinity of Hell's Canyon Creek.

During the extremely dry conditions experienced in 2003, however, the stream flow of Hell's Canyon Creek was critically low throughout the summer period, and the stream would have most certainly gone dry if the pipeline system and the associated water lease was not in place. Although the terms of the water lease were met during 2003, the low flows resulted in marginal conditions in the lower 2 miles of stream below the pipeline system. The guaranteed minimum flows for Hell's Canyon Creek established in the lease agreement were:

Time Period	Minimum Flow (cfs)	Purpose
April 1 – July 15	1.60 cfs	maintain rainbow trout egg incubation
July 16 – Nov. 4	0.25 cfs	provide fry migration to avoid stranding

As in previous years, discharge of Hell's Canyon Creek exceeded the minimum flow value of 1.60 cfs prior to 15 July 2003. On July 16 the flow had dropped to 2.1 cfs, which was relatively close to the minimum of 1.6 cfs. On July 18, the flow dropped to 1.6 cfs and streamflow remained at critically low levels for the remainder of the irrigation season. The stream flow of Hell's Canyon Creek was not substantially higher than the guaranteed minimum of 0.25 cfs between 16 July and September of 2003 (Table 1). Flow in Hell's Canyon Creek was frequently less than 2 cfs during the summer period, and reached a low of 0.18 cfs on 3 September and 16 September. Stream flow measured at the mouth of Hells Canyon was observed at slightly less than the guaranteed minimum of 0.25 cfs during late August and early September 2003. Although measurements were not taken at the headgate where water is returned to the stream to meet the 0.25 cfs lease requirement, it appeared that 0.25 cfs was provided by water users at the point of diversion and only 0.18 cfs was reaching the mouth of Hells Canyon Creek. Water users reduced their water use during the critical period of August and September and generally did not run the pipeline at capacity, only using 400 to 750 gpm of water during the period. When the pipeline was turned-off on 30 September, the flow at the mouth of Hells Canyon Creek was measured at 2.5 cfs.

Flow monitoring was supplemented by installing an Aqua-Rod near the mouth of Hells Canyon Creek during August of 2003. These data allow monitoring of stage at 1 hour intervals, and provide insight into the operation of the gravity pipeline system and

2003 Locke Creek – Water Lease Monitoring Report

Locke Creek was checked on fifteen occasions between April 13 and September 10, 2003 (see table). Recorded gage heights ranged from a low of 0.12 (August 27th and September 10th) to a high of 1.01 on May 26th when the river level was high enough to inundate the gage. A thermograph was deployed from 4/21 until 9/10 in the creek approximately 15 meters upstream of the railroad bridge.

The creek was accessible to fish from the first visit on 4/13 through the remainder of the year. On eight occasions, the creek was walked from the frontage road upstream to the reconstructed channel area. The creek was also checked downstream of the frontage road on several occasions. The water turbidity often obscured visibility of the entirety of the stream substrate on several occasions. One unidentified fish was observed, on 4/13. No other fish were seen. One potential redd was noted on 6/20 and 6/25. Based on later observations this feature was thought to have solely been created by stream hydraulics.

Some work to remove particularly problematic beaver-caused obstructions was completed last calendar year.

Summary of field notes for Locke Creek visits in 2003.

Date	Comment
4/13/2003	gh 0.35, mouth of creek is accessible to fish to at least above railroad bridge
4/21/2003	thermograph placed in creek
4/30/2003	gh 0.30 +/- 0.01, creek fully accessible to fish, has been for weeks, walked from mouth upto the second culvert, saw 1 fish (only saw a flash and unable to tell what it was) walked from frontage road upto the driveway of house, no fish or redds observed
5/14/2003	gh 0.30 +/- 0.02, creek is accessible
5/15/2003	walked from frontage road to the house, no fish seen
5/26/2003	gh 1.01 +/- 0.01 (river level is up above the concrete platform), creek above the railroad bridge is flowing about the same as last week, water slightly more turbid, walked creek from frontage road to the house, no fish seen
6/9/2003	gh 0.26, walked from frontage road upto diversion dam, water is more turbid (~ 1 foot visibility) than previous weeks, gravels are visible but deep pools are not, did not see any fish or redds
6/12/2003	gh 0.27, turbid (~6 inches visibility), walked from mouth to second culvert and then from frontage road to the constructed channel (with Brad), was able to see shallow gravels, no fish seen
6/20/2003	gh 0.24 +/- 0.01, walked from frontage road to the reconstructed channel project, no fish, one potential redd, water clarity better than last week but visibility limited by overcast sky
6/25/2003	gh 0.24, water color chalky, but better clarity than the past few weeks, no fish seen, maybe one potential redd (in field stretch), walked up to diversion dam
7/7/2003	gh 0.24 +/- 0.01, water fairly turbid, could see most gravels, walked in creek from frontage road to the constructed channel, no fish and no definite redds
7/19/2003	gh 0.20
8/1/2003	gh 0.18, good depth and flow past thermograph
8/27/2003	gh 0.12, thermograph still watered
9/10/2003	gh 0.12, sluggish flow past thermograph, some silt built up around pipe casing on downstream side, thermograph retrieved

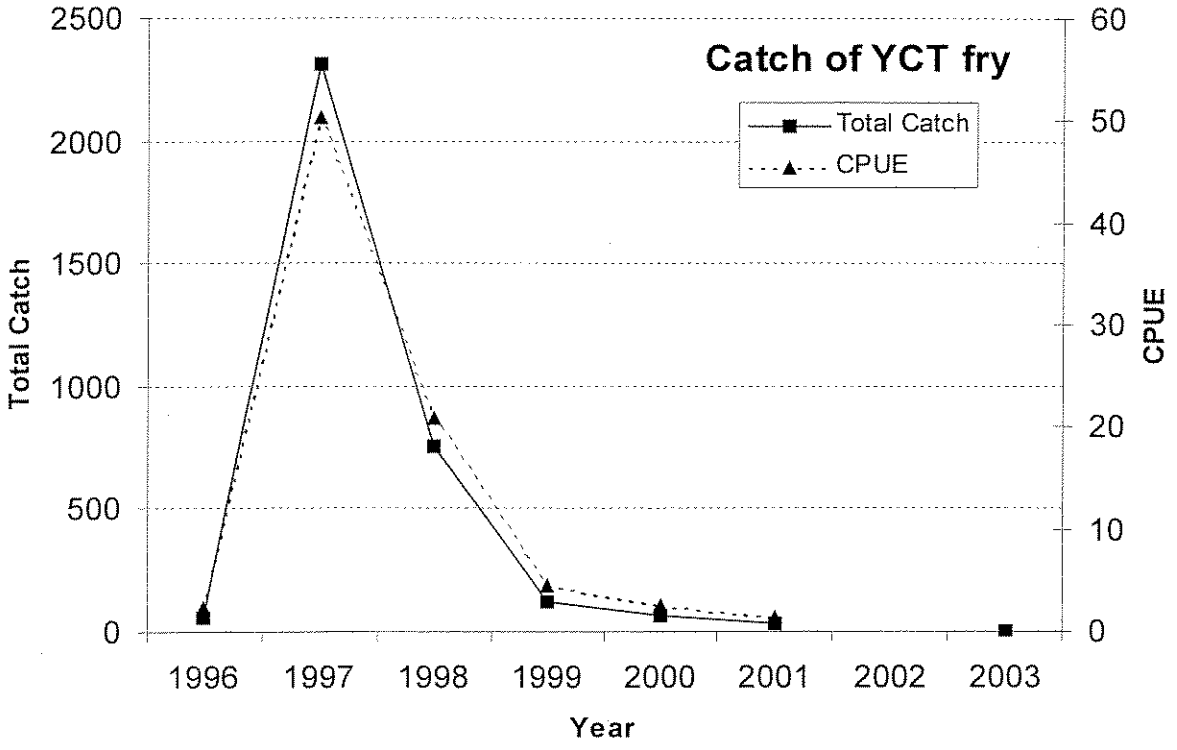
Specific Summer Fry Trapping Results

Total and relative catches (catch per trap day) of Yellowstone cutthroat trout fry in fry traps located in lower Mill Creek have steadily declined since 1997 (Hennessey 1998; Roulson 1998; 1999; 2001; 2002; and Joel Tohtz, personal communication, Montana FWP, Livingston, MT; Figure 3). The trapping location was moved about 300 m upstream from the time period 1998-2001 to 2002-2003; however, this location difference should not have unduly influenced trap catches.

While water supply from snow was nearly normal for the Yellowstone River basin above Livingston in 2003, the cumulative impacts from four years of drought conditions have likely reduced stream flows in Mill Creek. Precipitation during the summer was also much lower than normal which contributed to low flow conditions. In spite of these facts, it was clear that the termination of the two water leases (one of 6.13 cfs from an individual and the other 48 hour "flushing flow" from the MCWSD) in 2003 led to lower Mill Creek being dewatered earlier, for a longer time period, and over a longer reach of channel than when these leases were in effect. However, as Roulson (2002) pointed out it was extremely difficult to maintain leased flows at the lease quantification point even when these leases were in effect.

Overall Fry Production over the Terms of the Leases

The figure below provides a cumulative picture of documented fry production in Mill Creek since 1996. Production dropped severely in dry years.



Total catches and catch per unit effort (CPUE; number per trap day) of Yellowstone cutthroat trout fry captured in fry traps located in lower Mill Creek (River Road down to its mouth) from 1996 to 2003. Data for 1996 through 2001 provided by Hennessey (1998) and Roulson (1998; 1999; 2001; 2002; and data for 2002 provided by Joel Tohtz (personal communication, Montana FWP, Livingston, MT).

References

Hennessey, L. E. 1998. An evaluation of Yellowstone cutthroat trout fry recruitment related to water leases on four tributaries of the Yellowstone River. Master's Thesis, Montana State University, Bozeman, Montana.

Roulson, L.H. 1998. An evaluation of Yellowstone cutthroat trout fry outmigration from four tributaries of the upper Yellowstone River during a low water year. Montana Department of Fish, Wildlife and Parks, Bozeman.

2003 Rock Creek (Garrison) – Water Lease Monitoring Report

The Rock Creek (Garrison) Instream Flow and Habitat Improvement project was designed to improve fish and wildlife habitat and assist with riparian management on a degraded reach of Rock Creek. Rock Creek was dewatered, over-grazed, channelized, unstable and contained virtually no pool habitat within the lower 2.5 miles, reducing its potential as a spawning tributary and contributing excessive nutrients and sediment to the Clark Fork River. The project improved fisheries and wildlife habitat in both Rock Creek and the Clark Fork River through instream flow, nutrient and sediment reduction, habitat improvement, channel stabilization, and removal of fish passage barriers. It also provided spawning, rearing and overwintering salmonid habitat, increasing wild trout recruitment to the Clark Fork River. The Rock Creek project improved fish and wildlife habitat, while maintaining historical ranching traditions and building positive partnerships between landowners, government agencies and conservation groups.

The Rock Creek (Garrison) Instream Flow and Habitat Improvement project designed and installed an irrigation system to provide instream flows, as well as improved habitat, stabilized channel reaches and assisted with riparian management. The Project converted the ranch's flood irrigated pastures to sprinkler irrigation and all salvaged water was donated for instream flow (5-27 cfs). The lower 2.5 miles of Rock Creek had been annually dewatered for the past 35 years. In the 2 years of monitoring, instream flows were never recorded below 7 cfs, even through the drought years of 2000 and 2001. Although dewatering was the most significant cause of habitat loss in lower Rock Creek, the channel still lacked pool habitats. Less than one pool per 300 feet was suitable for overwintering habitat in the lower 7,820 feet of channel. Above this reach pool densities increase to approximately 3-7 pools per 300 feet. Channelization and removal of large woody debris have created insufficient habitat complexity. The project restored four meanders (bank stabilization and channel reconstruction), created 46 new pools and 16 new overhead cover areas. The habitat improvements, along with the instream flow water lease, generated new spawning opportunities for Clark Fork River trout and created excellent habitat for resident salmonids.

Fisheries investigations for the Rock Creek (Garrison) Instream Flow and Habitat Improvement Project included redd counts and electrofishing population estimates. In fall 2000, 2001 and 2002, brown trout redds were counted for the lower 2.5 miles of Rock Creek. Redds were counted three times with at least once week between counts. In 2000, the surveys found 4 definite redds, 9 probable redds and 4 test digs. In fall 2001, the number of redds increased to 16 definite and 4 probable. In fall 2002, the number of redds increased to 28 definite, 8 probable and 3 test digs.

Electrofishing estimates were conducted in fall 2001 and 2002. In 2001, the lower channel (historically dewatered reach), the survey found 29 brown trout per 100 yards and 46 brown trout per 100 yards in the upper project area (9 fish > 10" and
15 fish > 10", respectively). In 2002, the lower channel (historically dewatered reach), the survey found 30 brown trout per 100 yards and 71 brown trout per 100 yards in the upper project area (18 fish > 10" and 25 fish > 10", respectively). The number of adult brown trout has almost doubled since the 2001 sampling, many of which may be spawning adults from the Clark Fork River. Westslope cutthroat trout were also sampled in the upper reach, indicating that they may

2003 Tin Cup Creek – Water Lease Monitoring Report

This lease provides some instream flow in lower Tincup Creek during the summer and early fall seasons. Originally, the water was leased with the goal of providing out-migrating rainbow trout fry with passage water to the Bitterroot River. We later learned that fluvial westslope cutthroat were spawning in upper Tincup Creek and most likely also need additional summer instream flows for juvenile passage to the river.

This year FWP monitoring was focused on lease compliance. Staff generally measure flows in Tincup Creek as it recedes in mid-July and plot a curve to identify our target elevation (stage). This year, the lease stage was 1.58 feet on the staff gage. FWP staff are able to check the staff gage fairly regularly through the summer as they pass by the area often. By early fall, staff do not travel that way as often, therefore take fewer readings. The table below illustrates how well instream flows were sustained – basically a "mixed bag", similar to past years. The water commissioner was responsive to our calls for water and did a better job of keeping our water near the target elevation this year than in others.

Per the lease agreement, the lessor committed to check stage readings and contact local FWP staff with readings. The lessors complied with this lease element only three times over the late-June to mid-October period. We could have greatly benefited from increased diligence on their part, especially in September, as staff monitoring capability declined.

Tin Cup Lease Compliance Monitoring Results

Date Checked	Stage	Dates Monitoring Info provided by Lessors
24-Jul	1.54	
28-Jul	1.5	
30-Jul	1.54	
4-Aug	1.6	
6-Aug	1.62	
11-Aug	1.54	
14-Aug	1.56	
18-Aug	1.58	
20-Aug	1.59	
25-Aug	1.6	
27-Aug	1.6	c
28-Aug	1.58	
5-Sep	1.5	c
5-Sep	1.44	
9-Sep	1.6	
10-Sep	1.54	

2003 Mol Heron, Cedar and Big Creeks – Water Lease Monitoring Report

No specific compliance monitoring was conducted for these creeks in 2003, however visual surveys indicated flow was present on a regular basis in all three. With some program changes, we will likely be able to better monitor these leases in 2004. Additional observations and information regarding lease effectiveness/issues is provided below, by creek.

Mol Heron

Last year's fish passage problems created by modifications to an irrigation diversion have been partially resolved.

Cedar Creek

A highway upgrade of twin culverts at US 89 South/Cedar Creek crossing has not been completed yet. New design incorporates fish passage. Although the stream is not totally blocked now, the new culverts should improve fisheries benefits when the project is completed.

Big Creek

This stream is scheduled for adult fish trapping work this spring.