

**2002 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  
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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 lease was received final authorization from DNRC in 2002 - on Locke Creek in the Yellowstone River basin, east of Livingston. Another lease (on Cedar Creek in the upper Yellowstone basin) was funded through FWP's Future Fisheries Improvement program in 2002, but has not yet been finalized. Information on both leases is included in the body of this report.

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 2002 leasing year, including the new and renewed leases, and general issues and opportunities noticed or arising in 2002;

**Section IV** -- additional detail on the 2001 new and renewed leases, 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 2002.

**Appendix A** is a matrix summarizing characteristics of all current FWP leases and water conversions.

**Appendix B** lists our leasing objectives, which is what we currently use to evaluate leasing offers, as well as actively seek additional lease opportunities.

**Appendix C** provides two sample FWP lease evaluations, showing what information FWP needs and uses to evaluate lease offer under the criteria provided in Appendix B.

**Appendix D** is a copy of a media story on FWP's instream flow lease on Locke Creek

**Appendix E** provides monitoring information for FWP's 15 existing leases/conversions

**Appendix F** provides a November 2002 interpretation from DNRC of the potential implications of the 9/24/02 Montana Supreme Court decision regarding instream water rights (commonly referred to as "Bean Lake III")

## II. WATER RIGHTS AND THE FWP WATER LEASING PROGRAM

Traditional water law in Montana focuses on the rights and procedures associated with removing water from streams and lakes (appropriating) and putting that water to a beneficial use (e.g., irrigation, fish and wildlife, domestic, mining, etc.) away from the source. Persons who appropriate water from a stream must have a right or permit to do so. A right or permit specifies how much water can be diverted, for what purpose, during what time period, at what point on the stream, the location of the use of the water, and has a “priority date” assigned to it. The priority date determines who gets the water first; if there isn’t enough to go around, the earliest date has the first claim (hence, the “first in time, first in right” maxim).

Except in basins that are closed to new appropriation, Montana’s water law allows the Department of Natural Resources and Conservation (DNRC) to issue new permits to divert water if the applicant can show (among other things) that water is reasonably available for the use proposed and that there is a means to ensure persons with senior rights can get the water to which they are entitled. Montana’s Water Use Act encourages “*the water resources of the state ... be protected and conserved to assure adequate supplies for public recreational purposes and for the conservation of wildlife and aquatic life*” (85-1-1-1(5), MCA). It also seeks to “*provide for the wise utilization, development, and conservation of the waters of the state for the maximum benefit of its people with the least possible degradation of the natural aquatic ecosystems*” 85-2-101(3), MCA. However, the Act also requires the DNRC to issue water use permits if certain criteria are met. There is no flow level where new appropriations are no longer granted, nor does it specifically matter the extent to which there are other rights on the stream. If water can reasonably be expected to be available (even 1 in 10 years or less), a permit can be issued. The historic system, then, encourages maximum diversion and use of water from Montana’s streams.

In the 1970s and 1980s, tools began to be developed to address public goals for retaining some water in certain streams to benefit the fishery. FWP was authorized to apply for instream “reservations” to support fishery values, and some instream flow rights were granted on streams then designated as blue-ribbon trout streams. FWP pursued the authority to reserve water, and was granted a series of reservations in the Yellowstone basin (1978 priority date), the Missouri River basin above and below Ft. Peck (1985 priority date), and the Little Missouri basin (1989 priority date). Although the reservations are a valuable management tool, they do not provide much assistance in drought conditions, due to their very junior priority status.

In 1988, areas of Montana suffered severe drought conditions, under which the level of diversion typically done in a normal year exacted severe tolls on several fisheries. Photos of fish kills due to stream dewatering hit the front pages of many Montana newspapers. These conditions spurred the 1989 Legislature to consider additional tools and incentives for water users to protect fishery values. The idea of allowing FWP on a temporary basis, to investigate the potential to lease formerly diverted water from a willing seller, to dedicate to instream flows under certain conditions, created a public policy controversy seldom seen in the halls of the Capitol. The concept was narrowly enacted, and since then FWP has pursued attractive leasing opportunities with willing lessors, in streams where dewatering issues significantly limit priority fisheries.

These leases have rewatered many 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. We thank the EQC for its long-term support of this program. (Note: Copies of the 1998 Final Report are available both from EQC and FWP staff, upon request.)

### III. A REVIEW OF THE 2002 LEASING YEAR

Drought conditions continued in much of Montana in 2002. 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.

2002 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. Notable elements of the 2002 leasing year are described below.

- **One new water lease finalized.** FWP received final DNRC authorization for a lease with a private ranch where FWP contributed \$45,000 towards the costs associated with the construction and operation of a groundwater well to replace irrigation water use from Locke Creek. In return, the rancher leased his irrigation surface water rights to FWP for 30 years. The ranch could formerly divert up to 9.5 cfs from Locke Creek under these rights, which were the only quantified irrigation rights drawing from the source. The funds were provided

from a special drought-related Future Fisheries Improvement Program funding window, reserved for streamflow-related projects that would provide long-term benefits. The window was created between the normal grant deadlines of January 1<sup>st</sup> and July 1<sup>st</sup>, to allow for projects that were not ready for the January deadline, but for which July approval would be too late to assist with current drought conditions. As a condition for FWP to provide the special funding window, DNRC agreed to expedite any water permitting that was necessary to get funded projects implemented and providing benefits during the low-flow period. DNRC granted the ranch an Interim permit to appropriate water, such that the well was drilled and groundwater used for irrigation in 2001. DNRC's Change Authorization for the lease (final step in the process) was issued June 4, 2002.

- **One new water lease approved for funding.** Water Program staff brought a lease request to FWP's Future Fisheries Improvement (FFI) Program in July. The request for \$40,000 to lease supplemental instream water in Cedar Creek (upper Yellowstone) was approved, and we are now working on the other procedural requirements related to this additional water in a stream where we already hold a lease. This project will replace Cedar Creek as an irrigation source by helping to fund the construction of a small water storage reservoir on an alternate creek with minimal fishery values. In exchange a one-mile ditch will be moth-balled, and all of this ranch's water rights (up to 4.01 cfs) would be dedicated to instream flow for a period of 30 years (maximum period allowed by statute). The current lease on Cedar Creek is benefiting the Yellowstone fishery; this additional water will ease current water administration issues on the Creek, provide more reliable flows for Yellowstone cutthroat spawning and rearing, allow for better fish ascent of a degraded culvert structure, and eliminate entrainment problems associated with the associated ditch.
- **Nine additional water conservation projects approved through Future Fisheries program.** In 2001 and 2002 funding cycles (January and July, with a drought-related special streamflow-only application window in April in both years), nine water conservation projects were funded through FWP's Future Fisheries Improvement program. (FFI projects that have resulted in leases described elsewhere in this report, are not included in the list below.)

  - Chicken Creek** – FWP provided funds to reconstruct diversion facilities to keep a canal from frequently capturing all of the flow of Chicken Creek, and important tributary to the Shields River. The project allows the water user to better comply with water law, improves their ability to manage their water, and provides additional flow downstream.
  - Jefferson River** – FWP contributed funding for a pilot project to use a temporary ditch sealant on two lengthy ditches along this popular river. Water users were pleased with the results, users at the end of the ditches received water more reliably than in the past, and less water had to be diverted from the Jefferson to meet irrigation needs. Documentation of specific water savings is still being prepared.
  - Trail Creek** – FWP provided funds for replacement of a headgate/ditch with an infiltration gallery/pipeline diversion and conveyance structure on this tributary to the Clearwater River. The project will reduce maintenance needs for the water user (while allowing them to irrigate as needed), reduce the potential for bull trout entrainment, leave more water in the Creek, potentially resolve a water right dispute, and may result in the lease of portions of both the disputing parties water rights for instream flow.
  - Blackfoot River** – FWP provided funding for replacing a surface water diversion with a well, resulting in improved flows in the Blackfoot River. This was a relatively small project, where a lease would have been difficult to administer, so FWP provided funding, but left the decision with the water user on whether to "secure" (i.e. lease to another party or "convert") the saved



water.

**South Fork Dearborn** – This irrigation efficiency improvement will improve agricultural production, reduce water diversion rates, eliminate fish entrainment in a ditch, improve flows in the South Fork, and reduce irrigation maintenance needs. FWP analyses for the project will incorporate recent issues associated with “salvage” water projects (see discussion in latter portion of this section). The salvaged water after accounting for increased crop consumption and evaporation will then be secured (FWP lease or water right holder conversion) for instream use. The Dearborn is critical to the Missouri River fishery, as it is one of the few tributaries that remains free of whirling-disease.

**Poorman Creek** – FWP also funded a project on this tributary to the Blackfoot River that will improve fish passage, provide off-stream water, and improve streamflow. The improved streamflow will be secured via a lease with FWP or a water right holder conversion of the salvaged water to instream flow.

**Pintlar Creek** – FWP funded the installation of wells, pipelines and off-stream watering tanks that will assist in flow enhancement in a section of the Big Hole River in which chronic dewatering limits the recovery of the last naturally-occurring population of stream-dwelling arctic grayling in the continental US.

**Big Hole and Blackfoot Rivers** – FWP provided funding for experimental use of soil moisture probes by major irrigators, to see if better information about irrigation effects would reduce irrigation use. At least 18 irrigators enrolled in the program, which is being managed by the National Center for Appropriate Technology. Use of probes has resulted in more efficient water use in some cases.

FWP staff are currently evaluating which, if any, of the streamflow-generation projects will potentially become FWP leases. In some cases, FWP has offered to grant the funding if the lease is held by another party (where others could better administer the lease), or FWP has provided funding and encouraged the applicant to “convert” the saved water to instream flow (via 85-2-408, MCA). In this manner, FWP can assist financially with water conservation projects, but retains options to recommend who might be best to administer the water, depending on the relative risk to the saved water, and its level of contribution to priority fisheries. 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 2002, yielding several excellent lease opportunities. We continue to investigate leasing opportunities on Little Prickly Pear, and Tenmile creeks (Middle Missouri basin), Trail Creek (Clearwater basin), Therriault Creek (Tobacco River basin), 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, staff can dedicate additional time to such projects, or additional staff are provided.
- **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 several times this year, and the associated “fishpads” (“Water for Fish+” – by species – notepads) are a popular token of FWP’s appreciation to our cooperators. A standardized Power Point presentation has been developed for the FWP Water Resources 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 three 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 broader inter-agency relationships for us, and also helps those agencies and entities provide multiple offerings to their cooperators.
- **Supporting leasing/conversion by others.** FWP continues to assist others interested in leasing to other parties, or converting their rights to instream flow. Such assistance is through funding consideration in our Future Fisheries Improvement grant program, technical assistance in project planning, provision of information on water rights and the conversion process, memos to right holders regarding the potential benefit of conversions on the fishery resource (required by statute), and general encouragement of the use and promotion of all types of instream flow protection/enhancement tools.
- **FWP leases and water reservations available on the Web.** FWP GIS staff loaded all of FWP’s instream flow information into the Water Information System, managed by the Natural Resource Information System (NRIS) at the State Library. It is included in a feature entitled the Montana Rivers Information System, and provides a searchable database of leases and reservations. The user can search for instream flow protection statewide, or by county, waterway, or otherwise, and map the results if desired. The site can be accessed at the following link: <http://nr.is.state.mt.us/scripts/esrimap.dll?name=MRIS2&Cmd=INST>. This has proven extremely helpful to our field staff who must answer questions about water rights, as well as the public interested in where FWP has instream rights or reservations.
- **Continued water administration problems on two leases.** FWP continues to have water administration problems on two of our 14 leases - on Tin Cup Creek (Bitterroot basin) and Mill Creek (Yellowstone basin). Despite there being water commissioners on both streams, our leases were not fully fulfilled in 2002. The commissioners just cannot keep the water there, or cannot react quickly enough to upstream (legal or illegal) diversion modifications, at major and critical periods in the emergence, rearing, or outmigrating seasons to not endanger the improvements brought about by the lease. Some of this is due to the nature of the water admeasuring and distributing business, some due to the fact that lease amounts do not have much of a margin of safety (if any) to account for delayed or brief periods of flows below lease level, and much is due to both streams going through a series of new commissioners in recent years that must learn the ropes on contentious streams with extreme competition for water. In some years we feel fortunate to even find a person willing to serve in such a

difficult and challenging position.

FWP staff have been working for several years to try to remedy these situations, and have made some progress, but not enough to see these two leases fully fulfilled in 2002. DNRC's recent reinitiating of their annual Water Commissioner training sessions (and FWP's role in them) has helped. The Chief Water judge has likely also helped by discussing the topic in his annual meetings with District Judges. And some revision to the DNRC Commissioner Handbook might also help, but that booklet has not yet been scheduled for republication.

We have also tried to work on these issues directly within the basins that they occur, through negotiating more responsibility for flow monitoring into lease renewals, making payment contingent upon water delivery (and enforcing that), recruiting volunteers to check flows and report problems, and closer communication with Water Commissioners and other Court staff.

We may, however not renew these leases when they expire next year, due to these problems. This is a disappointment to all that worked on both the planning, permitting and implementation, but the fiscal outlay is not justified by recent poor fishery production. The money could be better used elsewhere, where, like more recent leases, the lease basically administers itself, due to limited competition from other water users.

The option to file a complaint with the district judge regarding the commissioner's lack of performance has never been pursued due to the time necessary for the judge to act on such a complaint. Also, we typically obtain short-term relief of below-lease flows from the commissioner when notified. Instream fishery flow rights are significantly different than other types of diversionary rights and uses; even 24 hours of below-lease-level flows can kill a large percentage of eggs or fry. It isn't enough to restore flows later – the flows must “be there”, for the purpose of the right to be fulfilled.

Based on the above problems, we are keenly aware that leases on high-use streams may not be easily administrable, even with a water commissioner, which we find disappointing. The good news, however, is that there are other lease opportunities that may be easier to administer and therefore be a better “buy” for the angler dollars spent on these projects. And, we hope, further commissioner education will continue to provide incremental improvements. We will not dismiss lease opportunities on high-use streams, but we will continue to carefully review past commissioners' success, and the general level of support for instream flow rights, as part of our review process. We continue to actively encourage potentially interested individuals to become knowledgeable in water admeasuring by attending the commissioner training, to increase the pool of qualified commissioners in the state. This is a difficult and stressful task, and the more persons qualified and interested in doing it, the better.

- **Questions/Limitations posed by temporary nature of leases.** An interesting element of the 2002 leasing year was the proportion of inquiries related to potential permanent dedication of water to instream flow. A ranch manager in the Bitterroot drainage is interested in permanently acquiring the flow we currently lease in Tin Cup, to both ensure that water

will be flowing in the stream for ecological purposes, as well as help with the administration issues associated with the instream right and the related impact on a diversionary right the ranch holds. (The FWP lease has been renewed once, the maximum allowed under statute, and will expire in 2005. The lessors are interested in selling the right, which could result in an upstream diversionary use and subsequent total dewatering of the stream adjacent to the ranch and inability of the ranch's (junior) permit to be satisfied. If the ranch purchased the right, they could ensure more reliable enforcement and use and they could potentially change a portion of it to supplement their small junior right.) In this case, both parties appear to be interested in a permanent exchange of the water right. A permanent exchange can be done, but the water could not be used for instream flow on a long-term basis under current statutory limitations. For this reason, the worth of the water to the noted rancher is much lower than it would be to a diverter who could use it on a long-term basis, thereby automatically biasing a potential transaction in favor of diversionary use.

Another interesting limitation of the temporary nature of water leases arises in state or federal (Superfund) reclamation areas. Both state and federal programs, as well as the related Montana's Natural Resource Damage program in the Upper Clark Fork, rely on long-term repair of harmed or destroyed resource values. It has been questioned more than once whether the temporary nature of Montana's instream flow restoration options are consistent with, and/or fundable under, these long-term restoration programs. The question is very real and very pertinent, as instream flow enhancement opportunities exist in both the Tenmile Creek watershed (EPA Superfund site) and the Upper Clark Fork (Montana Natural Resource Damage program). Both locations and their status under these programs avail to potential water transactions significant funding assistance. FWP feels it might behoove the potential success of these programs for Legislators to consider a narrow revision to state law that would allow for permanent instream flow dedications/purchases in areas associated with reclamation programs. Our efforts in these two basins have not yet hit the "wall" of being told that short-term flow enhancement projects are ineligible for financial assistance under these programs, but the risk exists, and program staff have expressed concern in both basins. It would be helpful to address this statutory inconsistency before a water right holder hopeful for financial assistance in exchange for dedication of his/her water right is told "no" after a lengthy planning process where many will be involved.

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, so the concern must be either valid, widespread, or both.

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 and thereby helping to satisfy the increasing economic (and intrinsic) demand for flowing streams and the values they provide. There are other states (e.g., Washington, Oregon, Wyoming, Colorado, etc.) that 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/water\\_acquisition.html](http://www.ecy.wa.gov/programs/wr/instream-flows/water_acquisition.html); for Colorado, see <http://www.cwcb.state.co.us/isf/Programs/donate.htm>.)

These suggestions are in no way meant to discount the leasing authority FWP now has, nor the creative approaches the Legislature has invoked to address fish flow needs in Montana. We merely felt that if the purpose of this report is to communicate issues and opportunities related to instream flow leasing that were pertinent over the last year, that this question has been repeatedly asked in 2002, and the audience for this report deserved to know that.

- **First attempt to use volunteers to check streamflow.** 2002 was the first year FWP attempted to use volunteers to assist with lease administration. As noted above, contract funding for lease monitoring in the Upper Yellowstone ended in 2001. Because there is only one person in the Water Program (serving statewide), and field biologists are already stretched extremely thin, especially in low-flow years, we looked for another way to help monitor the four leases in the Upper Yellowstone. The local Trout Unlimited chapter expressed interest in finding volunteers among their membership that would be willing to check flows at least once every two weeks (and more frequently, if possible). Both their and FWP's efforts to enlist one such volunteer for our four Paradise Valley leases yielded only one volunteer, but, fortunately, he was interested in helping on Mill Creek – where we needed help the most. FWP staff instructed him on how to read a staff gauge and provided a recording sheet and rating curve for the gauge. We got him started rather late in the season, but he did note that flows fell below our rights quite soon after he began his observations. He was diligent, capable and engaged. However, our experience with this was that it only worked in one of the four areas we attempted it – good for that area, but not for the others. As with commissioner training, this may be something that we can build on in the future, working further with local conservation/angler groups, but it will take some time, and volunteers can only be expected to (at the most) observe a staff gauge, not anything more complex that would require additional hydrologic or fisheries biology expertise. Luckily, the three leases where we were unable to recruit volunteers are substantially self-administering (i.e., the water is usually there due to careful selection of streams and projects).
- **Inquiries related to flow protection rather than enhancement.** An interesting element of the 2002 leasing year, which arose in 2001 as well, was several inquiries/requests for FWP funds to compensate a water right holder for leaving water where it already was. In one case, the applicant wanted to be paid to not divert what he could have diverted under the historic right of the previous owner. This type of project could be considered flow “protection”, but, given that we typically fund flow “enhancement” projects (i.e., those that put water back into severely dewatered streams), it was a challenge to determine where it should fit in FWP's priorities. The request generated some murmurings of “extortion”, but was a valid request under the law, and further depletions of this stream would have been undesirable. The Future Fisheries Citizens Committee recommended approval of the project with conditions, but the applicant found the conditions unacceptable. We expect these types of requests to recur, and will be discussing how to address them. In the case of this project, FWP determined that it would not hold the lease (high use stream with many nearby juniors and senior users, requiring local and frequent checking), we felt it was one that could serve as the first lease

under the new Montana Water Trust, which is headquartered near the lease location. FWP staff had already done some review of the water rights, a \$20,000 FWP payment in return for the flow protection had been approved (irrespective of who held the lease), and there was substantial existing documentation on the project, all to the potential benefit of the Trust. Unfortunately, the applicant's rejection of FWP's approval conditions eliminated this possibility. The question remains, however, for all leasing entities in the state, how offers for flow "protection" (in contrast to "enhancement") should compete for limited funds and staff resources in the future.

- **Need to accommodate increasing concerns about "salvage" projects into the leasing program.** 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, while allowing for enhanced crop production, reduced labor requirements, less contaminants being washed into surface or subsurface water sources. In theory, a landowner could even add more acres to their water right's place of use (allowed under 85-2-419, MCA), producing even more, and still have flow left over to dedicate to the stream.

Sound like a winner? 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. It is unknown 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.

The reason the math may be more complex than considered in the past is that sprinkler irrigation is more efficient, resulting in crops being better able to put water to use, thereby consuming more water with less of what is applied returning as surface flow, or recharging subsurface layers. Sprinklers also provide more even coverage of the crop area than typical flood irrigation, thus more individual plants are able to benefit and at an optimum rate – also potentially consuming more water overall. When acres are added to those historically irrigated, the potential effects are compounded. Sprinklers also typically operate continuously, where flood irrigation is intermittent (albeit at a higher diversion rate). In addition, they spray water into the air in droplets with extensive surface area which results in increased evaporation of water that under flood irrigation.

FWP has only recently begun to consider these potential additional complications associated with leasing salvaged water. Many public programs have encouraged these increased efficiency projects, and they definitely provide a variety of benefits. In response to the

concerns that are beginning to be expressed, and being sensitive to our responsibility to plan and implement the best flow enhancement projects possible, FWP are experimenting with analytical tools that will help us better evaluate the tradeoffs of leasing “salvaged” water, and how to better quantify the flow and volume that may truly be available for lease after the above factors are considered. We will be especially careful with projects that wish to add acreage when converting from flood to sprinkler, and feel we can help others with similar questions as soon as we refine our methods to respond to these concerns.

- **Bean Lake III.** The 2002 leasing year ended with a bang of a “bang” when the Supreme Court issued its decision in the case FWP brought to it, asking for clarification of the Water Court treatment of FWP’s instream flow claims where diversions (i.e. instream “capture” or flow modification) of water were involved. The Court went beyond the simple question FWP was attempting to clarify, and issued a decision that any instream claim for fish, wildlife or recreation (whether it had a diversion or not) was valid enough to continue through the statewide adjudication process. The decision created a flurry of misinformation and doomsday predictions of the demise of the prior appropriation doctrine. Although (as with many judicial decisions) all the implications are still being sorted out (and likely will continue to be long into the future), the panic seems to be fading somewhat, as further information is provided on the number, type, and priority date of water claims that could be affected by the decision. See Appendix F of this report for an excellent DNRC review of the predicted implications of this decision as of the date of this writing. We hope there will be focused and informed discussion of this decision, rather than furor that could put a “chill” on potential instream flow transaction. We are confident in the latter, and are actively distributing related information and participating in the Water Court rule revision that will attempt to accommodate this decision.

#### IV. 2002 NEW LEASES

FWP and lessors finalized one new lease in 2002, and initiated 2 others, which are described below. Two additional FFI-funded water projects may become either FWP leases or conversions to instream flow (with FWP staff involvement). If these become leases they will be reported in the next FWP Annual Lease Report.

##### **Locke Creek – New lease finalized in 2002**

Locke Creek originates in the northern foothills of the Absaroka Mountain range in southwest Montana and flows in a northerly direction for about 5.8 miles before entering the Yellowstone River near Springdale, Montana. For much of its length, Locke Creek passes through hilly grazing lands owned by a private ranch. The diversion of irrigation water has impacted the flow and fishery of the lower creek, which is used by Yellowstone cutthroat trout (a “species of special concern” in Montana) for spawning and the rearing of young.

The ranch controlled all irrigation rights on Locke Creek. Historically, water for flood irrigation

was diverted at two sites on the Creek; one diversion served about 113 acres and another served about 30 overlapping acres. Recently, water was also pumped to wheel lines from Locke Creek at a third diversion site further downstream, which augmented the flood irrigation from the upper two diversions.

By agreement with FWP, the lessor will divert none of his two irrigation rights (multiple diversion points) from Locke Creek. Under the 30-year agreement, lands formerly watered from Locke Creek will be served by a groundwater well that has been determined to not be hydrologically connected to Locke Creek nor the Yellowstone River in that vicinity. The new system includes a submersible pump and a wind-powered turbine that can be connected to the power grid and used to offset energy costs associated with the pump. In addition to leasing to FWP the only quantified diversionary rights on Locke Creek, the ranch is cooperating with FWP staff and volunteers to correct fish passage and habitat problems associated with the lower section of creek.

The upper Yellowstone River, a highly valued and popular sport fishery in Montana, supports self-sustaining populations of 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. Dewatering of the lower segments of these tributaries during the irrigation season adversely affects the reproductive success of Yellowstone cutthroat trout, and, consequently, limits the production of new recruits for the river fishery. Studies by FWP and others show tributary dewatering to be an important, if not the major, factor regulating numbers of adult cutthroat in the Yellowstone River.

Locke Creek is one of the spawning tributaries to the Yellowstone River. When flows are adequate, adult cutthroat typically ascend the Creek in June, spawn in late June to mid-July as runoff flows recede, then return to the river where they reside until the next spawning season. Cutthroat eggs incubate in the spawning gravel for about 30 days before hatching. The young (called "fry") begin to out-migrate to the Yellowstone River shortly after emerging from the gravel. By late September, most have entered the main river. Some fry remain in the creek one or more years before out-migrating.

Data collected for FWP from 1996 to 1998 suggest that cutthroat reproduction in Locke Creek is adversely impacted by seasonal irrigation withdrawals. In 1997, when the daily flow of Locke Creek averaged slightly more than 3 cfs during the summer, 1,844 out-migrating fry were collected in the creek. In contrast, only six fry were collected in 1998 when the daily flow averaged less than 1.5 cfs. In 1996, fry collection and associated flow were intermediate to those in 1997 and 1998. This relationship suggested that increasing summer flow in lower Locke Creek by as little as 1.5 cfs, could significantly increase recruitment to the Yellowstone River.

A diversion structure, located about 0.15 mile above the mouth acts as a barrier to the upstream movement of cutthroat spawners. Implementation of this multi-element project would result in the modification of this barrier, opening an additional 0.35 mile of spawning and rearing habitat. Seasonal livestock fencing, coordinated with the ranch, FWP staff, and potentially volunteers, completes the ability of the creek to make full use of the flow commitment provided by the



ranch. FWP staff predict these improvements will allow Locke Creek to annually recruit approximately 10,000 cutthroat fry to the Yellowstone River.

### **Cedar Creek – Supplemental Lease Initiated in 2002**

An irrigator who diverts water from Cedar Creek to irrigate approximately 53 acres will replace Cedar Creek as a water source with a small storage reservoir to be constructed on Slip and Slide Creek, a nearby tributary to the Yellowstone River. Stored water will be passed downstream to an existing reservoir on the creek and then carried in a gravity-flow pipeline to feed the existing sprinkler system that serves the irrigated acres. In addition, a new well will supplement the irrigation water supply in times of surface water shortage. Cedar Creek water will no longer be diverted by this irrigator; the headgate will be closed, the approximate one-mile-long ditch will be moth-balled; and all of this irrigator's Cedar Creek rights will be leased to FWP for instream flow for 30 years. One of the rights to be leased is the 4<sup>th</sup> priority right on the Creek. Based on flow monitoring since 1996, water should be in sufficient supply in the creek to satisfy the 4<sup>th</sup> priority right (and therefore make a contribution to instream flow) in all but extremely dry years (such as 2001).

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, due to shrinking distribution and declining numbers. Dewatering of the lower segments of these tributaries during the irrigation season adversely affects the reproductive success of the Yellowstone cutthroat trout and, limits the production of new recruits for the river fishery. Studies by FWP and others show tributary dewatering to be an important, if not the 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 through 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 recruits to the fishery of the Yellowstone. Since 1996, when FWP's existing instream flow lease was initiated, up to 26,000 out-migrating fry have been annually sampled in Cedar Creek. Supplemental water (and the cessation of active use of the ditch) would ensure spawning and rearing opportunities in dry years, and resolve other fishery- and water-related issues on the Creek. The stream to which some irrigation demand would be switched already has two reservoirs in place, and does not support native fish. The additional reservoir will not significantly impact Slip and Slide Creek's, or the Yellowstone River's, aquatic resources.

Figure 1. Specific Statutorily-Required Information for 2001 New FWP Instream Flow Lease (Locke Creek)

Statutorily-Required Reporting Element (abbreviated; see p. 1 for full text of reporting requirement)	Response
<b>length of stream reach and how determined</b>	<p><b>Locke Creek:</b> Locke Creek is 5.8 miles in length. With the flow contribution, habitat protection, and barrier removal that are part of the FFI-funded project, the benefiting reach is approximately 1.25 miles in length, which will produce an estimated 10,000 cutthroat fry to the Yellowstone. The distance is determined by the distance from the mouth to the uppermost former diversion structure.</p> <p><b>Cedar Creek:</b> Cedar Creek is approximately 8 miles in length. The flow contribution, and elimination of active and sustained use of the ditch, will most directly effect the lower ½ mile of stream, but benefit the stream in general, as fish that will now be able to ascend the creek can take full advantage of available and accessible habitat above the former diversion.</p>
<b>Technical methods and data used to determine fishery needs</b>	<p><b>Locke Creek:</b> A Masters student at MSU measured flow and fry production in Locke Creek in 1996-1998 as part of her thesis work. The data suggests that increasing summer flow in the lower Creek by as little as 1.5 cfs (the amount recently pumped for irrigation) could significantly increase requirement to the Yellowstone River.</p> <p><b>Cedar Creek:</b> According to redd studies in 1988, 1989, and 1996, the current lease level (1.3 cfs) is the <u>minimum</u> water required to cover approximately 95% of all redds surveyed in those years, which were affected by irrigation withdrawals. An increase in flow would likely increase redd abundance and success, leading to higher annual recruitment. An application of the wetted perimeter inflection point (WET-P) instream flow quantification method confirmed that additional water would be beneficial, documenting a recommended flow to appropriately support the Cedar Creek fishery of approximately 3 cfs. This supplemental lease would add up to 3.25 cfs to the underlying leased amount, thereby meeting and surpassing the WET-P-recommended threshold.</p>
<b>determining and substantiating the amount of water available for lease</b>	<p><b>Locke Creek:</b> The USGS provided monthly percentile flow estimates for Locke Creek based on a drainage-area ration adjustment applied to recorded flows for another upper Yellowstone tributary. Flow availability, related to historic and recent amounts diverted was discussed with the ranch owner. Also, since the ranch is the only diversionary right-holder on the mainstem, all of the water arriving at his diversion was considered available for lease, up to his combined diversionary rights of 9.5 cfs. The USGS calculations showed that 9.5 cfs was likely only available during the run-off period of May-July in most years, with later-season flows being less. The ranch owner noted that during past drought events, the 1.5-cfs-capacity pump was capable of completely dewatering the creek in some periods. The Masters thesis also provided flow information for the lower creek (below the ranch diversions) for 1996-1998.</p> <p><b>Cedar Creek:</b> As with Locke Creek, the USGS will be providing monthly percentile flow estimates for Cedar Creek, which will be used to supplement actual flow measurements taken since 1996. This information will be combined with other climatological and hydro-geologic information to quantify the amount available for leasing, and the historically-consumed portion that can realistically be protected downstream of the diversion. The refining of these numbers typically occurs in the Change Application phase of the leasing process, which we are just now initiating. Additional, more specific information on this topic will be provided in next year's Report, presuming further lease negotiations are successful.</p>
<b>ensuring no adverse impact to other appropriators</b>	<p><b>Locke Creek:</b> There are no downstream appropriators. Given the small number of upstream appropriators, we predict there will be very little concern about potential adverse effect. As the DNRC change Authorization process proceeds, anyone with such concerns can participate, and their concerns incorporated into the process. Because this process is not yet complete, we hope to report on the lack of adverse affect in next year's report to the EQC.</p> <p><b>Cedar Creek:</b> Again, this will be a topic addressed in the Change Application phase, including the opportunity for other water right holders to object to the proposed lease. However, FWP has forwarded notice of the project to nearby water right holders (via our Environmental Assessment), and comments appear to favor the project, with some concerns that likely can be dealt with as the proposal progresses. One of the downstream water users is the administrator of FWP's current lease on Cedar Creek; he administers all water below the diversion to be closed, and is in favor of the lease.</p>

Figure 1. Specific Statutorily-Required Information for 2001 New FWP Instream Flow Lease (Locke Creek)

Statutorily-Required Reporting Element (abbreviated, see p. 1 for full text of reporting requirement)	Response
monitoring water use under lease	<p><b>Locke Creek:</b> A staff gauge will be reactivated downstream of the former surface water diversion points. It will be a similar location to that used in previous studies of Locke Creek, thus results will be comparable to past flow monitoring.</p> <p><b>Cedar Creek:</b> A staff gauge is already installed in Cedar Creek to monitor FWP's current lease on the creek. The final "protectable" lease amount will be added to the 1.3 cfs that is currently tracked downstream with the change in amount likely being the only needed change in current administration and monitoring</p>

## 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.

<b>Figure 2. Status of Designated Study Streams and Leasing</b>			
<b>Study Stream</b>	<b>Basin</b>	<b>Status of Request</b>	<b>Status of Leasing in Reach</b>
<b>1. Swamp Creek</b>	Big Hole River	Final approval 3/5/90	No lease; FWP and right holder could not reach agreement on price for lease
<b>2. Big Creek</b>	Yellowstone River	Final approval 3/5/90	Two leases finalized in 1999
<b>3. Mill Creek</b>	Yellowstone River	Final approval 11/9/90	Three leases
<b>4. Cedar Creek</b>	Yellowstone River	Final approval 1/6/92	One lease in place; additional lease initiated in 2002.
<b>5. Blanchard Creek</b>	Blackfoot River	Final approval 9/25/92	Lease
<b>6. Hells Canyon Creek</b>	Jefferson River	Final approval 9/25/92	Lease
<b>7. Tin Cup Creek</b>	Bitterroot River	Final approval 10/30/92	Lease; renewal finalized in 2000
<b>8. Rattlesnake Creek</b>	Clark Fork	Final approval 5/25/95	No lease; negotiations on hold
<b>9. Mol Heron Creek</b>	Yellowstone River	Final approval 11/28/95	Lease
<b>10. Rock Creek</b>	Blackfoot River	Final approval 11/28/95	TU lease negotiations on hold, past FWP negotiation information being used in efforts by Trout Unlimited
<b>11. Chamberlain Creek</b>	Blackfoot River	Final approval 1/3/96	Lease
<b>12. Pearson Creek</b>	Blackfoot River	Final approval 1/3/96	Lease
<b>13. Rock Creek, near Garrison</b>	Clark Fork River	Final approval 7/15/98	Lease finalized in 2000
<b>14. Locke Creek</b>	Yellowstone River	Final approval 6/18/02	Lease

## VI. GOALS FOR 2003

In looking forward to 2003, 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 2003, described below. Our ability to achieve these goals, again, will depend on whether climatic conditions keep us in "emergency response" mode or not.

- **New leases.** We hope we can report to you on several more leases completed in 2003. It

should be noted that good lease opportunities are rare (from a water right perspective), and that FWP has found this tool to be most cost-effective for the re-watering of regularly dewatered streams that provide a major benefit to priority fisheries. Water typically offered is small, junior, and not currently being used. (See Appendix B for FWP's Leasing Criteria.)

- **More coordination.** We look forward to continued and enhanced coordination with NRCS, the U.S. Fish and Wildlife Service, Conservation Districts, Trout Unlimited, the new Montana Water Trust, and others to enhance understanding of the program state-wide, and the integration of this tool into planning and restoration efforts by others.
- **Support continued and additional independent effort by individuals and DNRC on addressing instream flow issues.** FWP leasing should not be considered the only mechanism to achieve the fishery and recreational goals of the Water Use Act (see discussion in the Introduction to this report). We strongly encourage the use of the "private party leasing/conversion" statutes as yet another tool, and we promote such tools (along with many others) whenever provided the opportunity. We know of at least three "conversions" of water to instream flow to benefit the fishery resource, and we continue to encourage these types of actions when leasing with FWP is not the appropriate tool for the water right holder or the Department. We are of the strong opinion that leasing, in and of itself, cannot address the full spectrum of fishery flow needs in Montana, nor should it be depended upon as the only appropriate tool for such purposes.
- **Continued public dialogue on the role of instream flow in Montana public policy.** FWP looks forward to continued dialogue on how Montana wishes to treat instream flow in Montana, including how to best achieve the related goals in parts 1 and 2 of the Water Use Act. There are many creative ideas at the state, local, and national level on how to balance the important values water provides to the economy and culture of Montana. It is our hope that such a dialogue can be productive and civil, with the results spurring additions to the water policy foresight and creativity for which Montana is known. We believe Montana's fish and wildlife values are playing an ever-increasing role in the health and diversification of Montana's economy; it will be a challenge for Montana's water policy to further adapt to match Montanans' desires related to these resources. As always, FWP staff look forward to being productive participants in this dialogue.
- **A better FWP "pricing" mechanism.** FWP currently uses the criteria listed in Appendix B 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 C), 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 Appendix A gets wider and wider distribution, we find potential lessors focusing on the maximums we have previously paid (e.g., Big Creek) as their starting point for negotiation. We are attempting to expand the matrix to include descriptions of how the leases rate according to 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.

- **Additional staff dedicated to leasing.** FWP has determined that leasing and other cooperative drought response tools are enough of a priority to convert a position to one that will assist with instream flow conversion inquiries. There are many, and we hope this shift in resources will help us better address issues described in this report, and move forward on the many inquiries we receive. We look forward to including the results of this shift in our report to you in 2003.

## **APPENDICES**





# Appendix A. Features of Montana Fish, Wildlife & Parks Instream Water Leases – December, 2002

SOURCE	LESSOR	LEASE TERM/EXP.	PRIORITY OF RIGHT	QUANTITY LEASED	PERIOD OF USE	COST
Mill Creek	Mill Creek Water and Sewer District	10 years Aug. 1, 2003	95 rights with various priorities	41.4 cfs	48-60 hours in Aug. Diversion shut off after 10-day notice from FWP	\$12,750 per year <sup>1</sup>
Mill Creek	Individual	10 years April 1, 2003	June 30, 1880; June 1, 1903	2.0 cfs (1880) and 4.13 cfs (1903) (salvaged water)	May 1 - October 4	\$7,500 per year
Blanchard Creek	Individual	10-year renewal June 20, 2009	May 11, 1913 (first right on stream)	3.0 cfs	April 15 - October 15	\$2,000 per year
Tin Cup Creek	Six individuals	5-year renewal March 28, 2005	August 1, 1883 (first right on stream)	2.28 cfs April 1-April 14 4.32 cfs April 15-April 30 4.72 cfs May 1-October 19	April 1 - November 4	\$6,260 per year
Cedar Creek	US Forest Service	10 years Sep. 20, 2005	April 1, 1890; April 1, 1893; April 1898; April 1, 1904; April 7, 1972 (high water rights only)	6.77 cfs May 1-July 15 <sup>2</sup> 6.39 cfs July 16-July 31 9.64 cfs August 1-August 31 6.39 cfs Sept 1 - October 15	May 1 - October 15	\$1.00 per year
Hells Canyon Creek	Three individuals	20 years Apr. 1, 2016	December 31, 1884 (first right on stream), August 23, 1889; August 29, 1912	1.12 cfs (salvaged water)	April 1 - November 4	\$45,000 - One-time payment
Mill Creek	Individual	10 years May 1, 2006	June 1, 1891	2.64 cfs (salvaged water)	May 1 - October 19	\$4,260 per year
Chamberlain Creek	Individual	10 years Apr. 1, 2007	October 10, 1911	½ the flow up to 25 cfs	April 1 - October 31	\$1.00 per year
Pearson Creek	Individual	10 years Apr. 1, 2007	October 10, 1911	Up to 8 cfs	April 1 - October 31	\$1.00 per year
Cottonwood Creek	FWP <sup>3</sup>	9 years June 30, 2005	May 1, 1884	14.0 cfs April 1 - June 30, 32.0 cfs July, 9.0 cfs August, 6.0 cfs Sept., 9.0 cfs Oct., 8.0 cfs November (salvaged water)	April 1 - November 4	None
Mad Heron Creek	Private ranch	20 years Dec. 31, 2018	July 15, 1884; May 7, 1885; June 15, 1893; January 1, 1900; March 2, 1903; June 5, 1905; August 5, 1920; April 15, 1967	5.0 cfs to 27.0 cfs	April 15 - October 19	\$100,000 - one-time payment
Big Creek	Two private ranches <sup>4</sup>	20 years April 15, 2020	March 12, 1883; June 30, 1901; May 31, 1909; May 15, 1910; May 15, 1910	1.0 - 16.0 cfs (rights dedicated to a land trust in perpetuity)	April 15 - October 15	\$228,640 - one-time payment
Big Creek	Private ranch	10 years May 1, 2009	June 30, 1873 (first 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 14th, 2031	March 6, 1915	7.5 cfs	April 20 - October 24	\$45,000 - one-time payment

<sup>1</sup> Lessor pays for water commissioner and the installation of measuring devices on all on-farm turnouts from the pipeline.

<sup>2</sup> These rights are used to maintain a flow of 1.3 cfs at the mouth of Cedar Creek, eliminating effects on other water users.

<sup>3</sup> FWP converted its own water rights to instream flow under 85-2-439, MCA.

<sup>4</sup> Rancher transferred their rights to the Montana Land Reliance.



## Appendix B. 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.

- **Aministrable** 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?

*Contact Montana Fish, Wildlife & Parks' (FWP) Water Resources Program Manager at 406-994-6824 or your local FWP Fish Biologist, for more information.*



## Appendix C – Sample Lease Evaluation #1

### 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
<b>41QJ-W- 097583</b> NWNENW20T13NR4W	Irrigation	none/ 8 acres/ 32 AF	5/18/1877	28 <sup>th</sup>	100.09 cfs (all upstream)
<b>41QJ-W-097581</b> NENENE25T13NR5W	Irrigation	12.00 cfs/ 50 acres/ 200 AF	4/1/1882	34 <sup>th</sup>	additional 17.76 cfs
<b>41QJ-W-097582</b> NWSWNE19T13NR4W	Irrigation	25.00 cfs/ 58 acres/ 232 AF	3/15/1902	61 <sup>st</sup>	additional 110+ cfs
<b>Total</b>		<b>35+ cfs/ 116 acres/ 464 AF</b>			

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

appear to presume an irrigation need of 4 acre feet (AF)/acre irrigated under the current regime, hence the total allowed volume listed above.

A sprinkler system will reduce both the flow and overall volume needed. Presuming a 70%-efficient sprinkler system in your climatic zone, a liberal estimate of overall irrigation need for grass hay is about 2.5 AF/acre, or 290 AF for the acreage you currently irrigate. Thus a rough estimate of salvage water generated would be a flow up to about 33 cfs, up to 174 AF in volume. This rate of flow, if run constantly, would reach this volume limit in about 2.5 days. A flow rate of 5 cfs would reach this limit in about 17.5 days. The quantity of flow in this calculation is attractive. However, the small relative volume may limit the duration this right could be enforced, if challenged. (There are examples of sprinkler systems using much less volume, so the 2.5 AF/acre figure may be high, but enough volume should be assured to meet crop needs.)

[REDACTED] noted that the creek downstream from your second diversion was dry this year from about August 4<sup>th</sup> to August 20<sup>th</sup>, until that diversion was shut off. There was also discussion that water shortages upstream spurred water users to hire a ditch rider, but that in most years some water reliably makes it to your upper two diversion points. Without further conversations with nearby water users, or reviewing aerial photos, we have limited additional information on the reliability of flows to and/or beyond your diversion points. Additional information of this type would be necessary to pursue lease negotiations and coordination with other users.

You are willing to administer the instream right (i.e. check measuring devices to ensure it stays instream), and are willing to lease the salvaged water for the maximum FWP lease period allowed under state law (30 years). The cost of the proposed improvements is \$86,000. You are interested in funding assistance for this project through the Future Fisheries Improvement program or otherwise. You suggested a wier for the shared diversion might address the split right issue, and a measuring device in the Seiben diversion could be incorporated into project design for improvements to that diversion.

### **The Rights and the Watershed**

As shown above, according to the state's water rights database, your quantified rights total 37 cfs. There are 27 claims senior to your highwater right; 6 more senior to your 1887 right; and another 27 senior to your 1902 right. There are 9 upstream rights on the mainstem of Little Prickly Pear Creek (adding to about 9 cfs) that are junior to your 1902 right. Information from the Montana Water Court indicates that no claims in your basin (#41QJ – Missouri River, from Holter to Sun River) have been examined in the state adjudication process, so the legitimacy of other listed claims is currently unknown. We are unaware of any prior decrees in your area.

Little Prickly Pear Creek is mapped on USGS maps as intermittent upstream of its confluence with Canyon Creek, then perennial from there to its terminus at the Missouri River. Your diversions are located near where Sheep Creek meets Little Prickly Pear Creek. There are seven tributary streams between your property and the town of Wolf Creek. Five of these tributaries are intermittent (go dry at some time in a typical year). The two others, Lyons Creek and Wolf Creek, are considered perennial.

Given that Canyon Creek may be a more reliable provider of flow to Little Prickly Pear in your area, we also looked into how your rights related to rights upstream on Canyon Creek. Interestingly, your high-water right is senior to all but 6 rights on Canyon Creek (totaling 7.9 senior cfs); your 1882 right

would rank 10<sup>th</sup> in priority, and your 1902 right would rank 16<sup>th</sup> 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.
<b>Monthly Average (cfs)</b>	46.9	69.4	70.1	150	276	235	95.0	51.6	56.8	57.5	58.3	53.7
<b>Monthly Minimum (cfs)</b>	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

section (potentially up to your middle diversion), and this water feasibly could be protect for about 10 miles downstream. However, the ability to realistically bypass water beyond the Sieben diversion remains unknown. (Although Sieben rights are junior to two of yours, it would be practical to analyze Sieben's water needs and use in relation to the amount of water typically in the stream.)

### **The Fishery**

The portion of Little Prickly Pear between Canyon Creek and Clark Creek supports resident brown trout, rainbow trout, brook trout, and mountain whitefish. According to studies done in the 1980s, brown trout were the most abundant salmonid species, comprising about 52% of the game fish population in this reach. Next most common were rainbow (36%), then brook trout (10%), and whitefish (2%). Longnose and white suckers were abundant in the slower portions of the stream, primarily in the meadow zones. The stream sections altered by man-caused activities supported fewer trout than the natural, unaltered sections.

Recent radio-tagging studies have revealed that rainbow trout from the Missouri River migrate to, and spawn in, the reach of Creek located upstream of the Sieben diversion. Although not documented, we assume that brown trout from the Missouri River also do the same. The extent of beaver dam development in the Creek greatly influences the ability of rainbow trout and brown trout to migrate upstream. Beaver dams commonly are found throughout the drainage, but are especially concentrated on the Sieben Ranch. Because of the low stream flows that commonly occur in the fall, beaver dams likely hinder movement by fall spawning brown trout more than movement by spring spawning rainbow trout.

Several brown trout redds (fish nests) were observed near the lower diversion during our recent site visit in November. It is unknown whether these spawners were resident fish or persistent migrants from the Missouri River that managed to make it through the beaver dam gauntlet.

Whirling disease has been documented to occur extensively in Little Prickly Pear Creek, including the reach of stream located above the Sieben diversion. Recent studies have revealed that the disease is causing major problems with rainbow trout reproduction in the Creek. Brown trout, however, are much less affected by the disease. Because of passage problems during the fall, a water lease in the upper drainage provides greater benefits to rainbow trout than to brown trout.

The Canyon Creek-Clark Creek section of Little Prickly Pear is bordered entirely by private land. The stretch is moderately popular with local anglers.

FWP requested and was granted a 22-cfs instream flow reservation on this section of Little Prickly Pear Creek. The request was based on the need to maintain the existing resident trout populations; to provide spawning and rearing habitat for rainbow and brown trout from the Missouri River; and to help protect the habitat of those wildlife species which depend upon the stream and its associated riparian zone for food, water, and shelter. The priority date for the reservation is 1985, and the period of use is year-round. The official reservation monitoring location for this reach is on Sieben Ranch near the confluence of Clark Creek. The slight amount of flow information we have for this area shows that this instream flow reservation is likely not always achieved, especially during summer/fall depletion periods.



## **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 based 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.

Field measurements (or additional engineering information), and discussions with nearby water users, would be necessary to further quantify the amount that could realistically be expected to be added (in comparison to recent use) to the stream. Calculations and/or measurements to address the volume limitation could also assist in further determining actual water that would be dedicated to instream flow.

**3) Administrable by the Department or other appropriate entity – Does the lease opportunity 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.)**

The water rights in questions are relatively senior to some upstream users, thus there is a mechanism (i.e. making a call on upstream juniors) to bring water downstream to meet irrigation and lease needs. In addition, the rights are relatively senior to users within about 10 miles downstream, but there is a major diversion just downstream from the proposed pumping location. We do not have sufficient information on the reliability of flows (and the related flow levels) to your diversions and beyond to determine how realistic the passing of water beyond the Sieben diversion might be. Only the 12 cfs claim (and the high-water right) is senior to Sieben; thus, only the historically “consumed” portion of this claim could legally be bypassed. The 25 cfs claim is junior to Sieben. It is likely that the installation of a measuring device in the Sieben diversion would be necessary to administer a lease. We do not know if Sieben would be amenable to such a device, nor do we currently know what level of investment would be necessary to install such a device.

The upper diversion (associated with 1882 offered right) is shared with another water user, eliminating the opportunity to “mothball” this diversion, and potentially requiring some oversight of the use of this diversion during the lease period.

FWP prefers leases that have a low potential that a call would be necessary to ensure flows to the leasing stretch, and we prefer situations where there are none or few downstream appropriators. Although you have offered to be actively involved in the administration of a potential lease, this lease offer is less than the “self-administering” situations we prefer. There is no decree, nor is there a water commissioner (or talk of one) assigned to this stream reach. Therefore, with what we know now, we consider this offer to be **moderately** administrable.

**4) Affordable – Do the benefits to the fishery justify the cost of the lease or the project creating the leasing opportunity?**

We do not feel the benefits to the fishery justify the requested FWP investment of \$86,000. However, there are potential benefits, and FWP is willing to be a partner in assisting towards achieving those benefits.

**Conclusion**

FWP greatly appreciates your approaching us with this lease offer. We feel that the project would provide fishery benefits, but that those benefits will be localized, species-specific, and address issues that are only somewhat limiting to the fishery of Little Prickly Pear Creek. We also feel there are several important unanswered questions associated with the water right and flows.

**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.



## Appendix C – Sample Lease Evaluation #2

### Review of Potential Water Lease Jefferson River/Slough – Jefferson County

Prepared for: [REDACTED]  
March 2001

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 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 a phone conversation and a follow-up meeting, the rights you are interested in leasing or converting include all of the irrigation right, and a portion of the mining right, listed below.

Right Number (Diversion Point)	Purpose	Quantified Flow (cfs)/ Acres/ Volume	Priority Date/ Period of Use	Relative Priority on Source (of 242)	Claimed Flow Senior to Potential Instream Rights (cfs)
41G-W-095774 NWSWNW28T1NR4W	Irrigation	7.58 cfs/ 200 acres/ 366 AF	7/18/1934  4/1-11/1	169 <sup>th</sup>	Undetermined, but a large amount
41G-W-095773 NWSWNW28T1NR4W	Mining (con- sumptive)	5.0 cfs/ NA/ 3,620 AF	7/18/1934  year-round	169 <sup>th</sup>	Undetermined, but a large amount

**Irrigation Right.** The irrigated acreage has been managed under contract, and water is diverted via a pump. The irrigated acreage will be temporarily retired or converted to dryland use, to provide the instream flow use associated with the irrigation right. Any return flow (either subsurface or surface) that historically returned to the stream from the use of this right would need to be subtracted from the right amount to obtain the final lease/conversion amount.

**Mining Right.** Because the mine will be entering the final reclamation phase of its operation, the only portion of the mining right that will be needed over the lease/conversion period is a small amount necessary for final reclamation activities at the mine site. No water returned to the source from the mining right, thus its use can be considered to have been 100% consumptive. The portion of the right needed for reclamation has not been finally quantified, but [REDACTED] staff believe that a minimum of 10 cfs between the two rights is an accurate estimate of the flows to be converted to instream use.

FWP staff conducted a site visit on August 8, 2000, and estimated approximately 5-10 cfs flowing in the slough portion of the River, above the proposed lease/conversion (near Mayflower Bridge). They also estimated approximately 5-7 cfs flowing at the mouth of the Slough (near Cardwell Bridge). FWP staff observed that the irrigation system was not operating at the time, thus water was not then being diverted under the irrigation right. We have not determined from mine staff whether the mining right was likely being diverted at the time, but will update this evaluation with that information when received.

██████ is interested in a minimum 5-year instream lease/conversion, with an option to renew for 10 years. Their desired return is negligible (\$1/year was discussed), with the major objective being securing the water to benefit the fishery in the short-term, for potential economic development use in the long term.

We discussed potential administration of the instream portion of the rights. There will be very few ██████ employees on site during the period the water would be used instream. An employee or contractor will be taking water samples, but likely only once a year. FWP staff expressed concern about the impact of administering a lease, as some can require significant attention over the term of the lease. The option for a conversion (no FWP administration, but assistance in the "change" process) was discussed, as was the potential for some type of automated monitoring of stream flows.

### **The Rights and the Watershed**

Water delivery and water rights in the project area are complicated. The rights being offered are diverted from the Jefferson Slough. However, the "source" of water is the Jefferson River. Water is diverted into a former channel of the Jefferson River near Parrott Castle Fishing Access site. The diversion structure into the old channel is very informal. Our understanding is that this "diversion" is a rock structure that has not been adequately maintained and is losing its ability to divert water down the channel/slough. There was a Jefferson River Stabilization Association formed in the mid-1980s to construct this diversion, but this association is not really involved formally any more. When water gets low, the Temple Ranch (with a water right near this structure) tends to be the applicant for a 310 permit to build a gravel berm to divert water for the low flow period. Other water users appear to be aware of these activities, but we do not know if there are other parties involved on a regular basis.

From the old channel, the water for the offered rights is then transferred again, into the Jefferson Slough. At this time, the conveyance structure between these two channels (if there is one) is unknown. Water rights in the slough in the vicinity of the final diversions of the offered rights are mixed between Slough rights and River rights. There is a large number of rights senior to the offered rights both on the River downstream of Parrot Castle, on the Slough, and on tributary streams in the area.

The water at the final diversion locations for the offered rights is likely a mix of Jefferson River water, Slough water, seepage from numerous wetland areas, as well as inputs from Whitetail Creek and Pipestone Creek. There is very little hydrologic information available for the area affected by the offered rights. Mine company staff reviewed their files for flow information for the slough area and reported to FWP staff that they found none. USGS historic data for the area is also limited and not very applicable.

A Temporary Preliminary Decree was issued for the Jefferson River Basin (Basin 41G) in 1989. According to DNRC, the state water right database and abstract information reflect the status of all claims as adjudicated to this point. There being a temporary decree is good in that there is something a water commissioner could use to admeasure water, if water users so petitioned the Water Court (i.e. to make the decree "enforceable"). Although there are not an unreasonable amount of junior and senior water users downstream of the offered rights, the upstream situation creates a very uncertain situation regarding FWP administration and enforcement of the offered rights. There are no current FWP leases where we are involved in the managing of primary and secondary diversions, including the potential need to modify river channels to do so. The co-mingling of waters from multiple sources, the lack of flow data, the sluggish nature of flow in the area, and the relative low seniority of the offered rights combine to create what would be a very challenging administrative responsibility. It is likely that we consider the administrative responsibilities of a FWP instream flow lease more carefully than a private instream right holder, and the process we must go through likely shines a brighter light of scrutiny on these roles than for a private water right holder.

### **Flows and The Fishery in Proximity to the Proposed Lease Location**

A field review was conducted on 3 August 2000 to estimate the available flow in Slaughterhouse Slough above and below the potential lease sites, to sample the fishery using a backpack shocker to determine species composition and to give a general indication of the importance of the side channel as a spawning/rearing area for trout, and to look for likely locations to monitor flow level.

FLOW: Stream flow was estimated to be approximately 5 to 10 cfs at the upper site above the proposed lease (near the Mayflower Bridge) and approximately 5 to 7 cfs near the mouth of the side channel/Slough (near the Cardwell Bridge). Obviously, this side channel (slough) carries some water despite the severe drought conditions experienced during the summer of 2000. According to mine staff, the irrigation right was not being used at the time FWP staff were in the area. Water was being diverted on that day under the mining right, at a rate of approximately 2245 gallons per minute (5 cfs). Mine staff note that they were not drawing at the full rate, due to only moderate water needs that day.

FISH SAMPLING: Two relatively short reaches of stream were sampled using a backpack shocker. We primarily sampled riffle areas that appeared to be desirable rearing habitat for juvenile trout. We did not sample deep pools in search of larger, adult fish. Due to the relatively low gradient of the side channel, the majority of the channel has low velocity (less than 1 fps) and the majority of the instream cover is aquatic vegetation. A one-pass survey of the riffle near Mayflower Bridge yielded a variety of minnow species in relatively large numbers. We shocked 727 seconds over an area of 60 meters long and 20 meters wide and observed no trout. The gradient of the side channel increases downstream of the Mayflower site, and a second section was sampled about 1.5 miles downstream of the Mayflower crossing in T3w R2n Section 4. We sampled a shallow riffle for 180 feet (18 feet width) for a duration of 677 seconds of shocking time and captured 8 young-of-the-year brown trout and 2 yearling brown trout. It is apparent that juvenile brown trout are common in this reach, and the gravel riffle areas obviously provide some spawning habitat for brown trout.

Jefferson Slough has a local reputation as having good fishing for brown trout, especially during the spring months. Aside from anecdotal information about fishing here, however, FWP have made no formal data collection on this side channel of the Jefferson River.

FWP was granted a 1,095-cfs instream flow reservation on the Jefferson River (mainstem). The request was based on the need to maintain the existing resident trout populations and to help protect the habitat of those wildlife species which depend upon the stream and its associated riparian zone for food, water, and shelter. The priority date for the reservation is 1985, and the period of use is year-round. The official reservation monitoring location for this reach is the USGS gauge #06036650 (Jefferson River, nr. Three Forks). Flow information for this gauge shows that this instream flow reservation is likely not always achieved, especially during summer/fall depletion periods.

**FLOW MONITORING SITES:** Placement of a staff gage near the Mayflower Bridge crossing would effectively determine available water upstream of the proposed lease and a staff gage at the Cardwell Bridge would effectively monitor the lower reach of the slough prior to entering the Jefferson River. The relatively low gradient and the instream vegetation, however, might make it difficult to establish a reliable rating curve.

In summary, we have no question the slough has significant fishery value for both recreational fishing and providing some spawning and rearing value for brown trout in the Jefferson River. There is currently adequate flow in the vicinity of the proposed lease/conversion to provide suitable rearing for brown trout during a severe drought year. Enhancement of flow via a water lease or conversion would certainly be beneficial to the fishery in this area. If logistics for dealing with junior and senior rights are manageable and if the price is right (including the price of preparing the lease), additional instream flow at this location could offer some benefit to the fishery.

## **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.

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

At this point, FWP staff feel that a potential lease of the above rights would provide a **moderate** benefit to the fishery. Streamflow within this reach of the Jefferson Slough does not appear to be a major limiting factor to the fishery, but additional flow would be beneficial.

### **2) Actual water dedicated to instream flows**

Mine staff state that they have always had sufficient water to serve the offered rights. The cessation of the use of these rights would provide a net gain to the slough, presuming historic water use patterns continued. However, the cumulative flow of Jefferson River and Jefferson Slough rights that are senior to the offered rights, and the fact that these rights have been legitimized in a Temporary Preliminary Decree, means that historic use is likely quite different than the water right scenario, and use could change (to the substantial detriment of these rights) without notice or water right holder input. As an example, a 25-cfs right just upstream of the mine was rarely used to its full amount in the past, but ownership has just changed and the right is quantified at that level in DNRC information. This one right represents more than double the flow of the slough when visited by FWP staff. This example is not provided to dissuade the pursuit of this offer, but only as an illustration of the risk involved when the offered rights are junior and water use may be quite different than the water right scenario. Due to



factors beyond the control of the owner of the water rights, we feel there is **high probability for actual water dedicated to the stream, but also some risk**. It may be that the prominent role the mine played in the local community added “clout” to the seniority of their right, which may be another reason for the mine to retain ownership of an instream right.

We are attempting to obtain additional information from mine staff to ensure the amount to be protected closely matched the right amount, or determine that a lesser amount will be the target of measurement.

**3) Administrable by the Department or other appropriate entity – Does the lease opportunity 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.)**

As discussed, one or more staff gauges could be installed in the portion of the Slough near the former diversion points. There may be some technical challenges with getting a reliable rating curve, but there is likely some way to reasonably measure flow in the Slough at least on an intermittent basis. The higher the technical difficulty, the more staff time and/or resources that would be required. Presuming 10 cfs is what would be the “protected” amount, if the gauge read less than 10 cfs, enforcement action would be justified. We are not sure whether junior users on the Slough could be the first subject of a call for water, or whether (because the instream water is “River” not “Slough” water) we would have to call upstream juniors on the Jefferson and/or request (of we don’t know whom) modification of the informal diversion structure from the River into the Slough. Needless to say, formal enforcement of this right would be difficult, and would likely result in the need to make instream structural modifications. Given that flows were between 5 and 10 cfs in the Slough during an extremely dry summer, when the irrigation right was not in use, it may be that flows will not likely fall below the protectable amount of the instream flow contribution. Although this is good from an implementation standpoint, it may be another argument for the mine to retain ownership of the instream dedication – even if the need for enforcement is low, we should only take on properties (including water) where the public interest can be enforced.

The offered rights are 169<sup>th</sup> in priority for River water. In the Slough and slightly upstream, there appear to be 74 different water rights, 57 of them are senior to the offered rights. There is only one upstream junior user in the Slough area that could be “called” for junior water, and only if it were acceptable to call for Slough water for a River water right. That user has a 1949 priority right for 292 gallons per minute (slightly more than 0.5 cfs), which is not much. So, it is likely that to call for water, we would have to call above the informal diversion that directs River water into the Slough.

Because of the low seniority (and subsequent lack of influence FWP as the owner of the instream right would have if others were to divert up to their full rights) and because there is only one nearby upstream junior water user in the Slough area that could be “called”, the ability to enforce this right we consider to be **low**. If enforcement were necessary, it might also put us in a somewhat conflict of interest, as actual enforcement could force instream channel work to modify the informal diversion into the old channel. For this modification to be considered “fish-friendly”, would require some significant additional investment at the site. We are unaware of any proposals to improve this feature at this time.

However, this may be yet another argument for a conversion – there is likely less public expectation of enforcement under a conversion. All the owner is expected to do is “measure” the right, which can be done via a staff gauge, AquaRod, or periodic metered measurements.

**4) Affordable – Do the benefits to the fishery justify the cost of the lease or the project creating the leasing opportunity?**

The water offered for lease is highly affordable in monetary terms (\$1). However, the concerns noted above bring potential processing and administrative costs to light. Given that FWP must include in its pursuit of leases (and its subsequent reporting to the Legislature) the “technical methods and data used to determine critical streamflow or volume needed to preserve fisheries”. It is likely the study necessary to prove this requirement would not be conclusive, and would not directly relate to the need to lease additional water. Because there is no requirement to prove this under the conversion statutes (only that water would “benefit” the fishery), this is yet another argument for a conversion rather than a lease.

Therefore, because of a higher statutory “bar” the FWP has for instream flow enhancements, we feel that a lease could get wrapped up in procedure in this situation, and that **FWP assisting with a conversion is the most affordable approach** for both parties.

**Conclusion**

FWP greatly appreciates your approaching us with this lease offer. We feel that the project would provide fishery benefits, but that a conversion would meet the mine’s objectives, be easier to process and support, and provide more flexibility in the long run for the mine. **We recommend a conversion (instead of a lease to FWP), and offer to assist with the processing, supporting that the conversion will benefit the fishery, and where practicable with long-term measurement of converted flows. We can supply an experienced contractor to get the process started upon your request.**

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.

# 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.

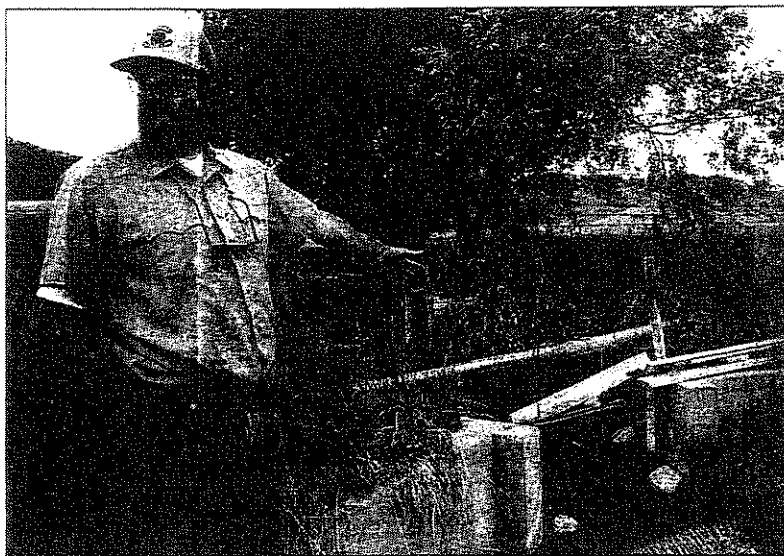
Pierson came up with an idea. "I thought maybe we can replace the water in Locke Creek with a well," he said.

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."

Pierson said he gets a more reliable



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 built his uppermost head gate 20 years

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 pure fish."



## **Appendix E. Monitoring Summary for FWP's 15 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 (Blanchard, Cottonwood (conversion),  
Pearson/Chamberlain)
- Hell's Canyon (tributary to Jefferson River)
- Locke Creek (Yellowstone tributary near Springdale)
- Upper Yellowstone basin leases – Mill, Big, Cedar, and Mol Heron
- Rock Creek (tributary to Upper Clark Fork River, near Garrison)
- Tin Cup Creek (tributary to Bitterroot River)

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

## 2002 Blackfoot River Tributaries – Water Lease Monitoring Report

### Blanchard Creek

*Restoration objectives:* improve access, spawning and rearing conditions for trout and increase recruitment of trout to the Blackfoot River.

### Project Summary

Blanchard Creek has a long history of adverse land management activities, riparian degradation and loss of fish habitat. These include changes to the hydrograph (12% above natural) related to timber harvest (DNRC unpublished data), side casting of road grade material to the channel for road maintenance purposes, excessive livestock access to riparian areas and dewatering through irrigation.

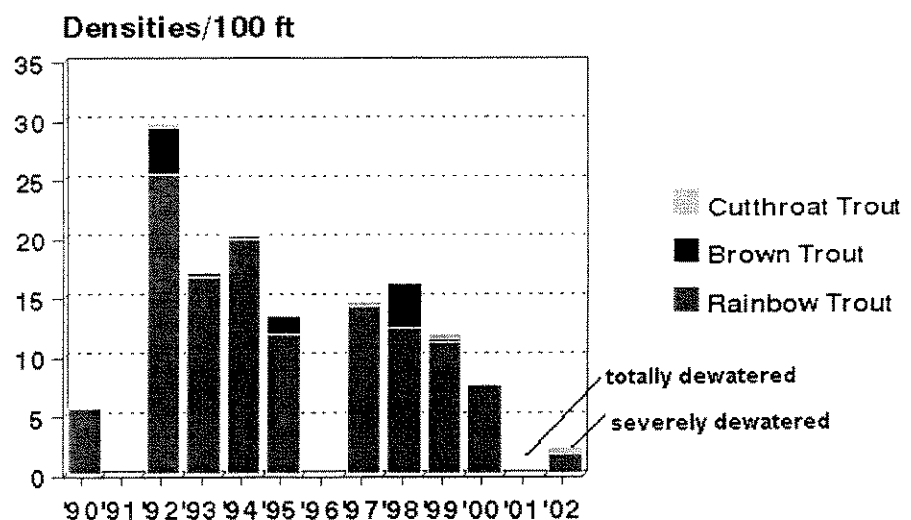
Blanchard Creek was historically dewatered in its lower one mile from irrigation, resulting in large fish population declines. In 1991, the irrigator began increasing flows, and then entered into a water lease in 1993. The water lease was to maintain a 3 cfs minimum instream flow during the irrigation season. In 2001-02, the water-rights holder terminated the water lease, which resulted in the complete dewatering of the lower 1.1 miles of Blanchard Creek for an extended period in 2001 and a brief period in July of 2002. During the period of the 1990's, the landowner continued to intensively graze cattle in the riparian area, which contributed to degradation of fish habitat and fish population declines.

### Fish Populations

Blanchard Creek, a tributary to the lower Clearwater River, is a spawning tributary for rainbow and cutthroat trout, and supports low densities of brown trout and brook trout. During the early years of the water lease, Blanchard Creek supported some of the highest rainbow trout densities found in tributaries of the Blackfoot River. However, since the early 1990s sampling of trout has recorded a downward trend in densities for fish >4.0" (Figure 1).

In 2001, there were no fish in the dewatered section of Blanchard Creek, compared to a total trout density estimated at 59 fish/100' in 2000. In

2002, late season flows were restored to Blanchard Creek and resulted in the downstream recruitment of fish to the dewatered section. Fish population surveys in September, 2002 recorded a density of 2.6 /100' of stream.



## Cottonwood Creek

*Restoration objectives:* improve degraded habitat; eliminate fish losses to irrigation ditches and restore migration corridors for native fish.

### Project Summary

Cottonwood Creek, a large tributary to the middle Blackfoot River, begins near Cottonwood Lakes and flows 16-miles to its junction with the Blackfoot River at river mile 43. Cottonwood Creek supports bull trout, WSCT, rainbow trout, brown trout and brook trout. Rainbow trout inhabit the lower mile of stream while brook trout and brown trout dominate middle stream reaches. WSCT and bull trout dominate the headwaters.

Impacts to fish populations and their habitats were present throughout the Cottonwood Creek drainage, although most of the major problems were addressed during the decade of the 1990s. Completed restoration measures include water conservation and water leasing, upgrading irrigation diversions with fish ladders, screening fish from all diversion points and implementation of riparian grazing systems along Cottonwood Creek. Cottonwood Creek also supports a high-grade whirling disease infection in the lower stream reaches.

### Project Monitoring

In 2002, we continued to monitor fish populations in Cottonwood Creek in the area (Dreyer Ranch) of a water lease. Before 1997 when the water lease took effect, Cottonwood Creek below the Dreyer diversion was completely dewatered during the irrigation season.

The Dreyer ditch diverts water from Cottonwood Creek at stream mile 12.1. The 2002 fish population data show densities of westslope cutthroat trout have stabilized at much higher densities (Figure 2).

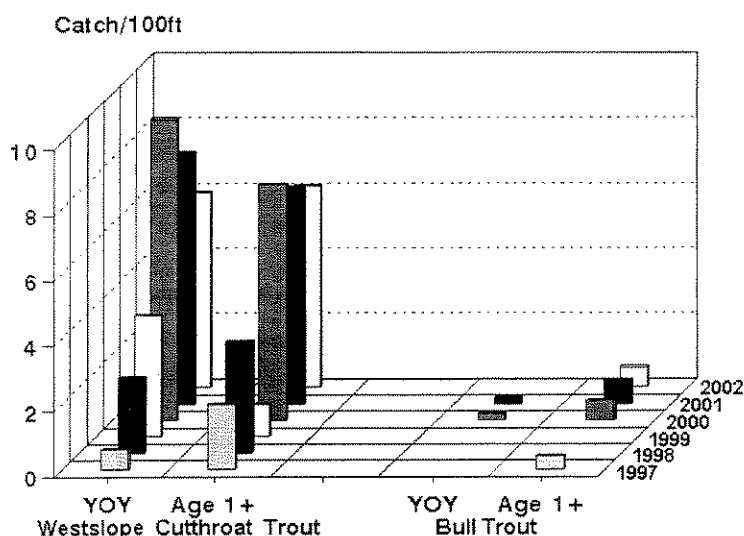


Figure 2. Electrofishing catch for native fish in Cottonwood Creek at mile 12.0, 1997-2002.

## Chamberlain Creek

*Restoration objectives:* improve access spawning and rearing conditions for westslope WSCT; improve recruitment of WSCT to the river; provide thermal refuge and rearing opportunities for fluvial bull trout.

### 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, poor riparian livestock management, road encroachment and excessive sediment from road drainage. Other problems included fish losses to irrigation ditches and poor fish passage. Chamberlain

Creek supported a 3.9 grade whirling disease infection in 2000.

Since 1990, Chamberlain Creek has been the focus of a comprehensive fisheries restoration effort. Projects include road drainage repairs, riparian livestock management upgrades, 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 focused mostly in the lower mile of stream.

### 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, we continued to assess fish populations in the area (two locations) affected by the water lease and other restoration measures (Figure 3). These surveys show improved densities of westslope cutthroat trout during the 1990s, however they also indicate a recent decline at mile 0.1. This decline coincides with drought and a high grade of whirling disease at this site.

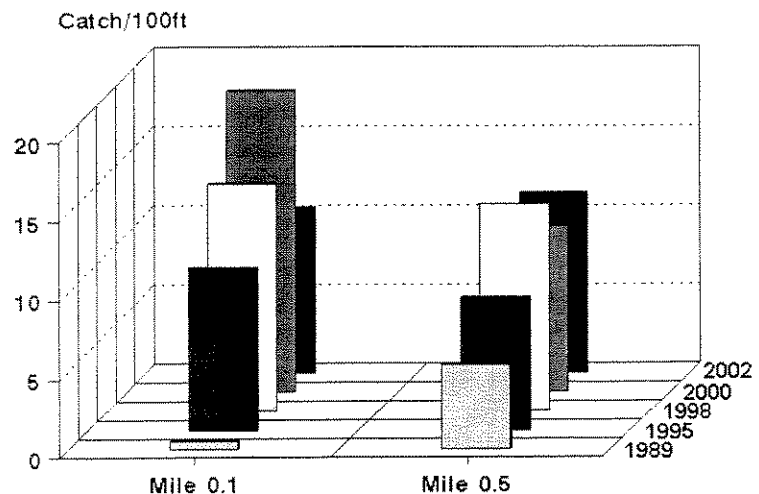


Figure 3. Electrofishing catch for westslope cutthroat trout (Fish >4.0'') in lower Chamberlain Creek at two locations, 1989, 1995, 1998, 2000 and 2002.

### **Pearson Creek**

*Restoration objectives:* restore the stream to its original channel; improve stream flows and access to historical spawning sites for fluvial WSCT.

### Project Summary

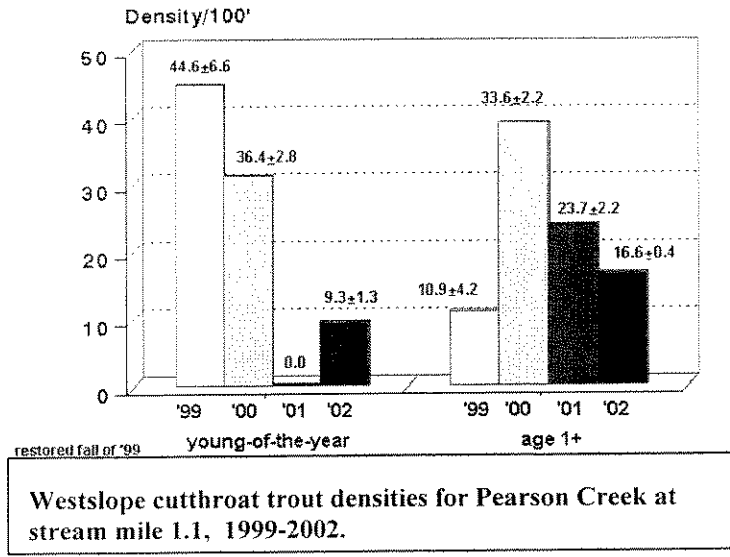
Pearson Creek is a small tributary to Chamberlain Creek with a base-flow of approximately one cfs. Pearson Creek has a history of channel alterations along with irrigation and riparian land management impacts in its lower 2 miles of channel. The Pearson Creek restoration effort includes conservation easements, water leasing, channel reconstruction, riparian habitat restoration and improved riparian grazing management. In 2002, we continued to monitor fish population response to the restoration project in the area of the water lease.



## Fish Populations

In September 2021, 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 2001, we found no YOY in the survey section, compared to a YOY density of  $31.1 \pm 2.5/100'$  in 2000. In 2002, our survey indicates successful reproduction in the project area. Age I+ WSCT densities continued to decline in the survey reach. These declines can be attributed to a combination of factors including 1)

the loss of the 2001 year class, 2) continued drought, and 3) excessive livestock access to the project area.



## EVALUATION OF THE HELL'S CANYON CREEK WATER LEASE DURING 2002

The Hell's Canyon Creek water lease was monitored during 2002 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 2002, 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 2002, 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 2002. On July 16 the flow had dropped to 2.0 cfs, which was relatively close to the minimum of 1.6 cfs. The stream flow of Hell's Canyon Creek was not substantially higher than the guaranteed minimum of 0.25 cfs between 16 July and 4 November of 2002 (Table 1). Flow in Hell's Canyon Creek was frequently less than 2 cfs during the summer period, and reached a low of 0.52 cfs on 3 August. Stream flow was not observed at less than the guaranteed minimum of 0.25 cfs during 2002.

Similar to the years 2000 and 2001, there is no question that Hell's Canyon Creek would have been completely dewatered downstream of the diversion during 2002 if the water lease was not in place. Several days during August experienced stream flow of less than 2 cfs ABOVE the point irrigation withdrawal. Considering that the combined water rights for Carroll, Allen and Humphrey summed to over 6 cfs prior to implementing the water lease, the benefits of the pipeline and lease is significant. Despite the low flows downstream of the diversion (frequently less than 1 cfs during July and August, the water remained relatively cool and hundreds of trout fry could be observed rearing in the leased waters of Hell's Canyon Creek below the diversion.

From 1996 through 2001, FWP and Alan and Dolly Carroll monitored trout fry migrations at the fish screen bypass to provide documentation of the effectiveness of the fish screen at the head of the gravity pipeline. In addition, the flow of the gravity pipeline was monitored several times per week to determine irrigation demands during summer months. This monitoring was not conducted during 2002 due to the tragic and premature death of Dolly Carroll. Monitoring of fish loss and the pipeline will resume in 2003.

**Table 1. Flow measurements taken by FWP and USGS near the mouth of Hell's Canyon Creek during 2002.**

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DATE	DISCHARGE	GAGE HEIGHT
4/24/02	1.67	1.70*
6/5/02	8.54	1.97
7/16/02	2.02	1.77
8/3/02	0.52	0.52
8/28/02	2.40	1.76
10/24/02	1.13	1.13*

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\* Note the unusually low flow during spring and fall measurements when irrigation withdrawals were minimal. Flow was so low during November 2002 that migrant brown trout did not enter Hell's Canyon Creek for spawning.

## **Annual Lease Report – Locke Creek**

Brad Shepard of FWP and Jim DeRito, a fisheries graduate student at MSU conducting a trout radio-tagging study in the Yellowstone River, observed Locke Creek throughout 2002. Locke Creek flowed to the Yellowstone River during the entire year, in spite of the drought conditions. Prior to the lease, this stream would have been totally dewatered in its lower reach.

In the summer of 2002, U.S. Geological Survey (USGS) staff relocated the Locke Creek staff gauge to a more reliable location (less affected by beaver activity), and took measurements to develop a new rating curve for the relocated gauge. Flow measurements taken by meter, or via the gauge, in 2002 by both USGS and FWP staff were consistently approximately 0.5 cfs. For a small creek in severe drought, this flow rate was satisfactory to provide fishery benefits.

During June through July Jim DeRito monitored use of Locke Creek by spawning Yellowstone cutthroat trout (YCT). While none of his radio-tagged adult YCT moved into Locke Creek, he observed several adult YCT in Locke Creek during the spawning season and these fish were assumed to have spawned in Locke Creek during 2002. Several of these fish had moved up over the lowermost diversion structure and were located in the portion of the stream above this structure.

During the fall of 2002 a collaborative stream restoration project between the landowner (Highland Livestock), the Greater Yellowstone Coalition (Scott Bosse), Montana organization of outfitters and guides (FOAM), and Montana FWP was initiated to provide easier fish passage over two diversion structures, add spawning gravel to the stream channel, and improve streambank condition and riparian cover. The channel work, a riparian fence to control livestock, and installation of a stock water tank of channel was completed by October 25. Riparian vegetation planting will occur early next spring. This work will improve spawning conditions in Locke Creek and allow spawners to access all of the lower creek. FWP plans to begin monitoring YCT fry out-migrating from Locke Creek in either 2004 or 2005 to compare out-migration numbers with previous out-migration information collected prior to the implementation of this lease.

## **2002 Upper Yellowstone Tributary Water Lease Monitoring Report**

### **General remarks:**

The upper Yellowstone system, like all stream fisheries, functions best when water is abundant compared to when it is not. Fishery benefits are directly related to flow, in the main channel of the Yellowstone River, but especially in tributary streams that support so much fish reproduction. In principle, the protections afforded by water leases should be most apparent in dry years when they support continuous stream flow under conditions that would otherwise cause streams to go dry.

In water year 2002, the Yellowstone system was still affected by drought: post-runoff flows all year were roughly half of their long term median value (sometimes called "normal") as determined from records compiled over the last 100 years or so. However, flows this year were also nearly double those recorded in 2001, greatly benefiting local fisheries. This benefit was especially evident in Mill Creek, where water leasing has been less successful protecting continuous stream flow in dry years compared to other water leases..

Remarks specific to four Paradise Valley streams with water leases are provided below:

### **Mol Heron Creek**

Mol Heron Creek is well known to contribute substantially to fish reproduction in the upper Yellowstone drainage. This stream in particular contributes large numbers of rainbow, brown, and cutthroat trout to the Yellowstone trout fishery each year. Late summer out-migration of trout is well documented in graduate student projects, and in recent fry trapping efforts.

To the best of our knowledge, Mol Heron Creek flowed continuously to the Yellowstone River throughout 2002. This connection facilitated fish movements between Mol Heron Creek and the Yellowstone River, including spawning runs into Mol Heron Creek, and subsequent successful fish reproduction. However, we did encounter a problem with the infiltration gallery of an irrigation system installed as part of the water lease agreement on this stream: At some point this summer, irrigators cut-off the upper four feet of the infiltration gallery and installed tarp dams to divert more water into their irrigation ditch. These actions disrupted fish passage past this point in the stream, and allowed fish to be trapped in the irrigation ditch where they subsequently died. So although the lease did protect continuous flow under drought conditions of 2002, unauthorized actions by the irrigators compromised some of the fisheries benefits that might

have otherwise been more fully realized. FWP is working with the irrigators to resolve this problem at this time.

### **Cedar Creek**

Like Mol Heron Creek, Cedar Creek has been recognized as an important trout spawning and rearing stream for many years. Its role sustaining cutthroat trout reproduction in particular is well documented in several graduate student projects, and more recently, in fry trap monitoring to assess fry movements from Cedar Creek into the main channel of the Yellowstone River. Without doubt, Cedar Creek contributes substantially to annual trout recruitment in the Yellowstone River.

To the best of our knowledge, Cedar Creek flowed continuously to the Yellowstone River throughout 2002, maintaining its fisheries benefits. In recent years, a twin culvert installation under US Highway 89 South has eroded and scoured to the point that fish passage past this point is becoming a concern. At present the culverts do not seem to be a complete passage barrier under most flow conditions. Montana Fish Wildlife and Parks is working now with the Montana Department of Highways (MDT) to restore unrestricted fish passage in conjunction with a proposed culvert replacement project.

### **Big Creek**

The Big Creek water lease is one of our most successful. Prior to the lease agreement, Big Creek regularly went dry in its lower reach. Dewatering disrupted fish exchange with the Yellowstone River, particularly in late summer and fall, when trout fry would normally move to the main river.

Since the water lease was implemented, we have not had this problem, even during recent, very low water years. Fry trapping in recent years has confirmed Big Creek's significant contribution of new fish to the Yellowstone fishery each year. To the best of our knowledge, Big Creek flowed continuously to the Yellowstone River throughout 2002.

### **Mill Creek**

The Mill Creek water lease is our most problematic. Unlike other streams with water leases in this area, the situation at Mill Creek is especially complicated, in part because the stream has many water users, some of whom do not support the concept that we might maintain stream flows simply to benefit wild resources. This disagreement concerning beneficial uses is exacerbated during drought when an already scarce resource is even less available to all water users.

In 2002, Mill Creek did not flow continuously to the Yellowstone River, although to our knowledge the water lease stipulations were met all year. This result

indicates that the total volume of water leased in Mill Creek is not adequate to maintain stream connectivity in all situations. In 2001, a much drier year than 2002, the lower reach of Mill Creek completely lacked surface water despite the lease agreement. This lack of water killed everything that could not escape dewatering in this portion of the stream. In 2002, flow stopped at the lower end, but small standing pools containing trout fry were maintained by water trickling through gravels near the stream's mouth. Although better in 2002, neither situation realizes the full benefits of continuous stream flow, a point we should consider in upcoming discussions about whether or not to renew the Mill Creek water lease.

The Mill Creek lease differs from other leases in this area also because of its provision for a two day "flushing flow". This flush usually occurs mid to late August each year. This flush has been shown to greatly benefit fish migration to the Yellowstone River: six times as many out-migrating trout fry are trapped during this flushing flow than are trapped before or after the event. The result clearly demonstrates the positive relationship between stream flow and fish recruitment to the Yellowstone River. In this respect, the Mill Creek lease has been beneficial in every year that trout fry were also available to move to the Yellowstone River. These fry are not available when adult fish can not access the stream for spawning, usually because the stream is dewatered at its mouth.

**Rock Creek (Garrison) Instream Flow and Habitat Improvement Project**  
**Final Report- Project Completed**  
**(November 2002)**

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 be pioneering the area of restored habitat. Prior to project completion, the channel had been dewatered for the past 35 years. The redd counts and population estimates indicate that brown trout and westslope cutthroat trout are using the restored reaches of Rock Creek.



## Appendix F



### **Montana Department of Natural Resources and Conservation (DNRC) Water Resources Division**

#### ***The Bean Lake III Decision: The Implications***

In recent weeks, a Montana Supreme Court decision has been much in the news and discussed in private and public forums. This decision, commonly called the *Bean Lake III* decision, has been critiqued for the far-reaching impact it is purported to have upon our existing water rights system. As the agency with state water rights responsibilities, the Department of Natural Resources and Conservation (DNRC) would like to help provide some context and clarify certain facts about the practical implications of the case.

The Court focused on whether the instream or inlake water rights for fish, wildlife or recreation that have already been filed could proceed in the ongoing Montana Water Court general water rights adjudication, or should they be dismissed because of the lack of a diversion, impoundment, or "capture" of the water. The issue was not whether such instream flow rights for fish and recreation are superior to all other water rights, or whether any such new "senior" rights should be established.

The Prior Appropriation Doctrine, which has been in place in Montana since 1865, continues to be the law in the adjudication and administration of water rights today. The Court's decision is based on this doctrine. The Prior Appropriation Doctrine is not a preference system, which provides that certain types of water uses are superior to others. The doctrine and the ruling are based simply on "first in time is first in right" regardless of the purpose of the use. Therefore, the ruling **did not** take away any existing water rights. Any instream or inlake rights that are ultimately recognized by the Water Court will carry a priority date, and will be administered according to that priority date just like any diversionary water right.

In the *Bean Lake III* decision the Court found that fish, wildlife and recreation claims with a diversion could be valid. It also found that claims where no diversion is physically necessary, such as fish, wildlife and recreation claims and stock watering claims, can also be valid "when the facts and circumstances indicate that notice of the appropriator's intent has been given."

The potential impacts that result from this decision are summarized below.

Claim Type	Total Claims
Total Claims	220, 000+
Purpose = Fish, Wildlife or Recreation	13, 415
Physical Means of Diversion or Impoundment	9,185
No Physical Means of Diversion or Impoundment	4,230
Direct From Source Wildlife	3,510
BLM	3,270
Other "Instream Flow"	720
Private	422
Federal	145
State	153
Board of Land Commissioners	2
DFWP	151
Murphy Rights	106
Other DFWP	45

Of the total 220,000+ claims that were filed statewide, 13,415 claimed some type of fish, wildlife, or recreational purpose. Of those, 9,185 identified some type of physical diversion, impoundment, or capture of the water, such as by dams or ditches or pipelines. Most of the remaining 4,230 claims have not yet been examined by the DNRC. Often, examination of these claims and further discussions with the claimants reveals that there was some physical manipulation of the water, such as a spring development, dam, or excavation that was not reported on the original claim form. Therefore, number of actual "instream flow" claims will eventually be less than 4,000.

In fact, 3,510 of those 4,230 claims identify wildlife drinking "directly from source" and may be overlapping with instream livestock watering rights. Most of these were filed by the U.S. Bureau of Land Management (BLM) in north central and northeastern Montana for water out of small pits and some natural potholes. That leaves a total of 720 claims that may be equated as "typical" for instream flows or inlake water levels. Four hundred twenty-two of the 720 real instream flow claims were filed by private parties, which are questionable because language in the statutes as well *Bean Lake III* decision appears to limit who could file these types of water right claims to the Montana Department of Fish, Wildlife and Parks (DFWP), and possibly federal agencies. That leaves 298 government instream and inlake claims, of which 106 are based on the "Murphy Rights" established by the legislature in the late 1960s.

If you recall, Murphy Rights are the water rights created by the Legislature with early-1970's priority dates to protect in-stream flows for fisheries on twelve of Montana's most pristine blue ribbon rivers. Those twelve streams being Big Spring and Rock

Creeks, the Blackfoot, Gallatin, Madison, Smith, Upper Missouri, Upper Yellowstone, and Flathead Rivers, and the North, South and Middle Forks of the Flathead. The remaining 192 claims may have been granted new life by the *Bean Lake III* decision. A quick review of 45 of those filed by the DFWP shows that three relatively large rivers are involved, including the Bighorn below Yellowtail Dam, the Beaverhead below Clark Canyon Dam, and the Bitterroot River. In the case of the Bighorn and Beaverhead, the rights may be associated with the creation of the federal dams and are therefore associated with "diversions." In other cases, the DFWP claims appear to be mostly associated with high mountain lakes, fish trap stations, lakes or springs on wildlife management areas, and most of the lakes in the Blackfoot and Clearwater River drainage. These all claim fairly recent priority dates, and therefore have little potential for affecting most senior water rights. Similarly, most of the claims filed by the federal government are for areas on Forest Service land upstream of private lands and diversions.

The *Bean Lake III* decision also requires the claimants to prove that these water rights met other requirements. It will not be enough to show that the water was used for fish, wildlife or recreation. The claimant will have to prove there was an actual **intent to develop a water right** for these purposes. It is a common requirement under the Prior Appropriation Doctrine that other water users would have been provided notice of the intent and the opportunity to seek legal recourse for adverse effects caused by the creation of new water rights. Proving this intent may not be easy.

There will be some instances where these instream flow claims will result in some reduction in the amount of water available for some junior water right holders.

The *Bean Lake III* decision also provides a very positive benefit for stockmen. For the first time since 1865, the Montana Supreme Court has made a clear statement that stock drinking from a stream establishes a water right without the need for a manmade diversion. Because the adjudication process exempts claims for existing rights for livestock based upon instream flow, the livestock water rights have not been forfeited as have all other unclaimed instream fish, wildlife and recreation uses.

The decision may also have implications to future water policy. But this decision does not pose the type of general, statewide threat to the ongoing statewide adjudication, or all existing water rights, as may be feared. We need to keep these facts in context as we attempt to deal with changing and increasing demands for historic, new and varied water uses.

