TITLE PAGE

PROPOSED TASK B WORK TITLE

"Expanding workplan to eliminate water wars for entire Sun River Watershed"

APPLICANT

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Technical Proposal

Eligibility of Applicant: The Sun River Watershed Group (SRWG) was formed in 1995 to address water quality, water quantity and noxious weed issues on the entire 1.4 million acres in the Sun River Watershed. In 1999 the SRWG became a legal corporation with the State of Montana and in 2004 was formally recognized as a non-profit organization by the U.S. Internal Revenue Service.

<u>Per eligibility requirements in Section III.A.</u> the Sun River Watershed is 1) located in western United States; 2) has significant water quality and quantity problems as identified through many public hearings; by the Montana Department of Environmental Quality on the state 303(d) impaired list for only partial or not supporting all uses caused by flow alterations, thermal modifications, siltation, suspended sediments, nutrients, habitat alterations, and salinity; by the Montana Fish, Wildlife & Parks on their Chronically Dewatered List; and actual water right wars through the Montana Water Court for the past 30 years and 3) has shown ability to promote sustainable use of water resources for the past 18 years finding win-win solutions through teamwork, resolving several complex water quality and quantity problems including the reduction of a top Montana nonpoint source pollution erosion problem on Muddy Creek by reducing sediment loads 80% from 200,000 tons of sediment annually to 27,000 tons annually and increasing winter flows from almost 0 to over 100 cfs coming close to meeting the minimum flow desired by the Montana Fish, Wildlife & Parks to meet fish and aquatic life needs.

<u>Per watershed group definition requirements in Section 1.B</u>. the SRWG is comprised of representatives from all stakeholders that may be affected by water from the Sun River Watershed including federal agencies, state agencies, local agencies, hydroelectric production, irrigated agriculture, farming, ranching, recreation, community drinking water, individual landowners and ANYONE else that wants to participate. On page 11 under ***Subcriterion No. A1—Watershed Group Diversity*** is a more complete list of groups that participate in SRWG activities. Not all agencies, groups or individuals participate in all SRWG activities each year but are involved to the degree that best fits their role in watershed issues. The SRWG for 18 years has worked as a grassroots, non-regulatory group that works through a consensus based process to reduce natural resource conflicts at all levels.

Goals: The <u>preliminary goal</u> of the SRWG is to "<u>Expand</u> SRWG workplan to eliminate water wars for entire Sun River Watershed". The <u>preliminary objectives</u> to meet the goal is: 1) Find enough water savings through water conservation projects to meet the minimum instream flow of 130 cfs in Sun River while meeting needs for all other water users in the watershed and 2) improve water quality of the Sun River to meet its intended beneficial uses as described in the Total Maximum Daily Load (TMDL) plan for the Sun River through voluntary Best Management Practices (BMPs).

Approach:

- *Information gathering* - The SRWG will expand its comprehensive library of past studies and reports by having the coordinator and partners comb through federal, state and local agency databases and libraries to find any study or report that may have any relevance for the continued efforts to improve water quality and/or water quantity for beneficial uses in the Sun River Watershed. To accomplish this task the SRWG coordinator will spend the 120 hours working with watershed partners during in September and October 2012 going through catalogs of information at the offices of Montana State Library, Bureau of Land Management, Bureau of Reclamation, Forest Service, Natural Resource Conservation Service, United States Geological Service, Montana Department of Environmental Quality, Montana Department of Natural Resource and Conservation, Montana Fish, Wildlife & Parks, Montana Department of Transportation, Cascade County, Lewis & Clark County, Teton County, Cascade Conservation District, Lewis & Clark Conservation District, Teton Conservation District, City of Great Falls, Montana Historical Society, Cascade County Historical Society, and any others that the research takes them.

- *Develop a mission statement, forming articles of incorporation, and hiring a coordinator*- The SRWG has already accomplished all of these items and will modify only if the partners feel there is a need.
- *Outreach* - The SRWG will ensure a true diversity of members continue to participate in the watershed effort by hosting a Know-Your-Watershed forum in January 2013 that will invite all existing watershed partners, reach out to other groups that may be interested, publicize the event in the local media and send out a notice to all landowners who live in the watershed. The Know-Your-Watershed forum will describe current and past efforts to resolve natural resource problems and ask for input on what future activities should be considered. To accomplish this task the SRWG coordinator will spend the 160 hours working with watershed partners from October 2012 through January 2013 to prepare and host the forum. Preparing data to present at the forum will be a key coordinator task.
- *Identify problems* - The SRWG will expand the current list of <u>known studies shown in attachment #3</u> and previously <u>identified problems as shown in attachment # 4</u> by accomplishing 1) a review of past studies and reports that identifies problems previously missed, 2) the Know-Your-Watershed forum allowing participants to identify problems not brought up during previous events, and 3) requesting watershed partners ask their constituents if there is anything the SRWG has missed. This compiled list of existing and new problems will be circulated to all interested parties to make sure the list captures all problems accurately. To accomplish this task the SRWG coordinator will spend the 160 hours working with watershed partners from October 2012 through February 2013 to compile a final list of known problems that will be used to create a plan to fix those problems.
- *Develop watershed restoration plan* - The SRWG will use the problems list compiled from above task to develop a watershed restoration plan. To accomplish this task the SRWG Water Quality and Water Management Workgroups will work from February through August 2013 to identify which problem items they are able to establish goals, objectives, and project tasks with clear outcomes. The workgroups will also establish a monitoring plan to ensure the desired outcomes of each project are achieved. The full SRWG will review and compile both workgroup plans into a single watershed plan. The SRWG coordinator will spend 420 hours during February through August 2013 assisting the Water Quality, Water Management Workgroups and full SRWG develop the

watershed restoration plan. The plan must identify true, realistic win-win solutions to each problem so the SRWG will be able to continue to meet its mission of resolving natural resource conflicts.

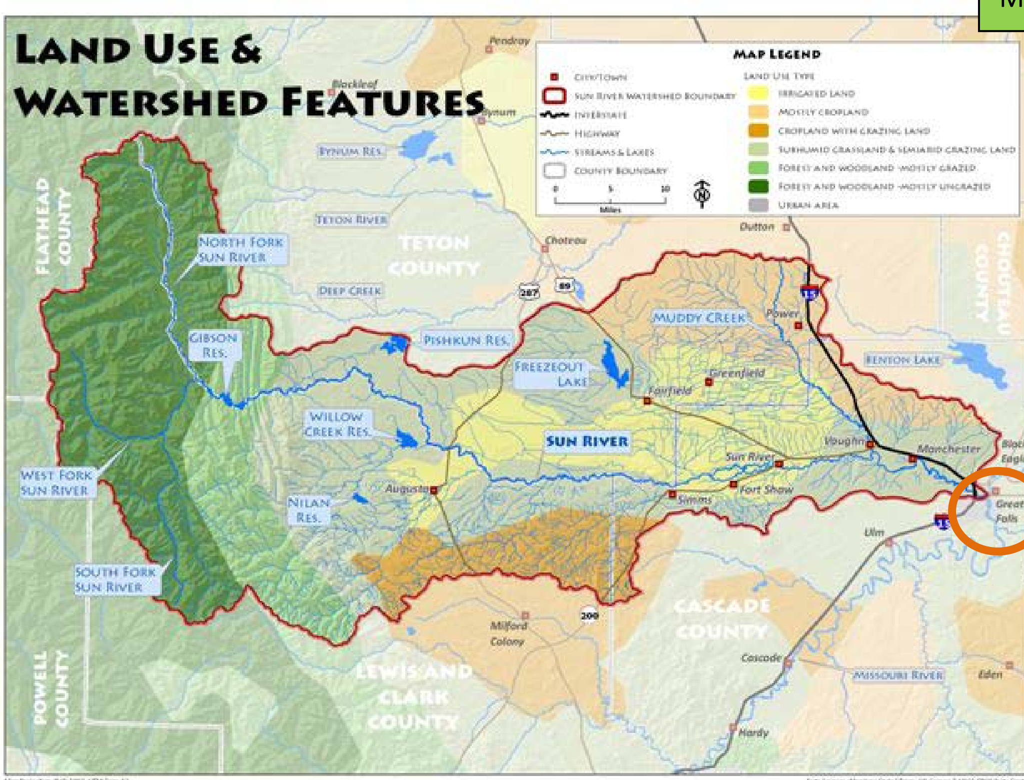
- *Create plan of action for implementation timing* - While working on the restoration plan the SRWG Water Quality and Water Management Workgroups will establish realistic timelines to implement projects developed from the watershed restoration planning process. The SRWG timeline table will be used at each watershed meeting to ensure real progress is being made and if not, why. The SRWG coordinator will spend 100 hours during February through August 2013 assisting the Water Quality, Water Management Workgroups and full SRWG develop the implementation timeline.
- *Develop final report* - The workgroups will assist the full SRWG from August through September 2013 create a final report for all partners to agree on as a tool to meet the true goal of resolving the water wars between all water user interests. The SRWG coordinator will spend 80 hours assisting writing the final report.

Length of Time and Completion date: This project will take approximately one year with a completion by September 30, 2013.

Technical Proposal: Background Data

Geographic location: Map #1 shows the Sun River Watershed boundary and key watershed features. The nearest large community is Great Falls at the far eastern edge of the watershed boundaries.

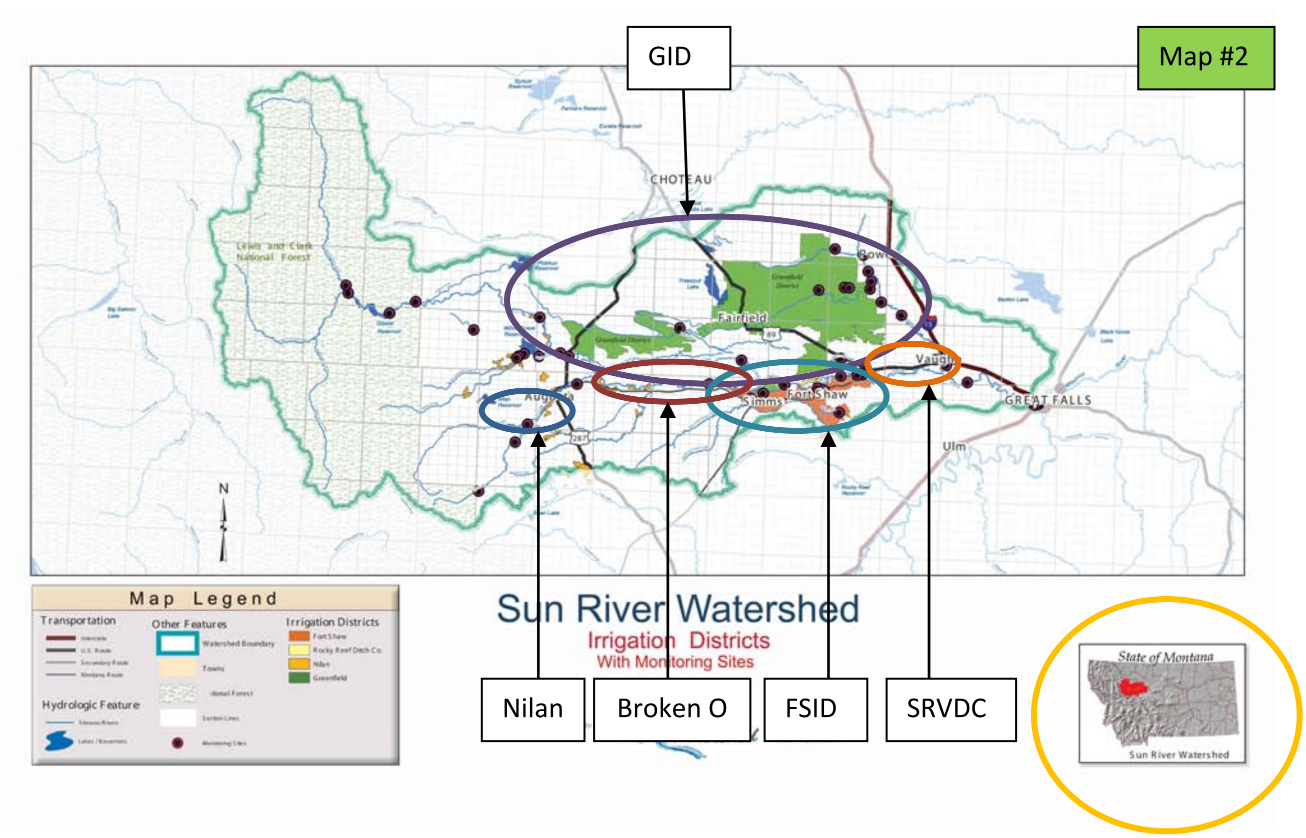
Map #1



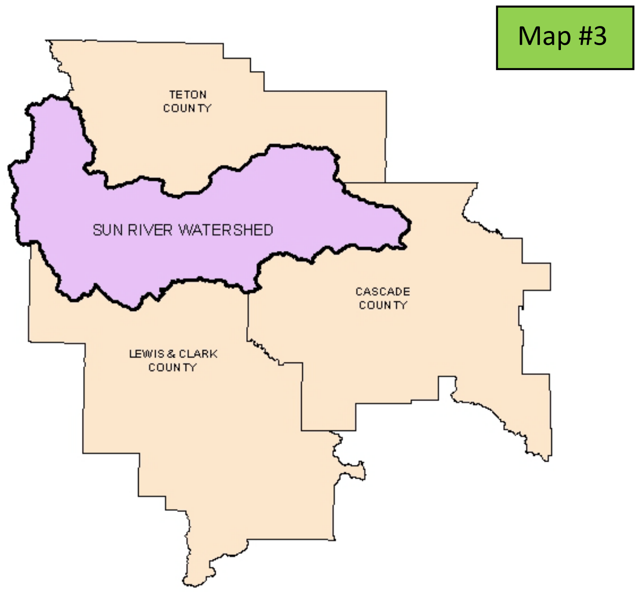
Land ownership and irrigated acreages in the Sun River Watershed (Acres)

US Forest Service	484,352
MT DNRC State lands	98,560
Reclamation lands............................	17,920
US BLM	5,120
US F&W	160
GID irrigated area	83,000
Broken O irrigated area	17,000
FSID irrigated area	12,000
Sun River Ditch Company irrigated area ..	3,200
Rocky Reef irrigated area	500
Urban	3,000
Other Private property	799,048

Geographic location: Map #2 shows the Sun River Watershed boundary, where it lies within the state map, the larger irrigation projects within the Sun River Watershed boundaries, and most communities.



Map #3 shows how the Sun River Watershed lies within the three counties it overlaps.



Watershed Description:

The Sun River Watershed is located east of the continental divide and south of Glacier National Park. It covers an area of 2,200 square miles (1,408,000 acres), with approximately 356 square miles (228,096 acres) in northwest Cascade County, 1,089 square miles (696,960 acres) in east Lewis & Clark County, and 755 square miles (482,944 acres) in southern Teton County (approximate figures only). The Sun River starts in the Bob Marshall Wilderness area and meanders out of the mountains through rolling grass-covered foothills and farmland to its confluence with the Missouri River at the City of Great Falls. Along the way, the river passes through the communities of Augusta, Simms, Fort Shaw, Sun River, Vaughn, and Sun Prairie Village.

The headwaters of the Sun River watershed are mostly wilderness areas in National Forest Lands. As the river leaves the Rocky Mountain Front, land ownership changes to primarily private. The first large irrigator is the Broken O Ranch, which has one of the largest irrigation land bases of all the ranches in Montana. The Greenfields Irrigation District (GID) is the largest single irrigation entity in the watershed, followed by the Fort Shaw Irrigation District (FSID). Other irrigation districts and private irrigators also utilize Sun River water.

Most of the flow of the Sun River originates in the higher-elevation headwaters of the watershed in the Rocky Mountains west of Great Falls, Montana. The two primary tributaries are the North and the South Forks, which join to form the Sun River at the head of Gibson Reservoir on the Rocky Mountain Front. These two streams produce runoff and consistent base flow due to the significant amounts of precipitation and snow retention that occurs at these elevations in the mountains.

Gibson Reservoir provides storage of the combined flow of the North and the South Forks of the Sun River. It has a capacity of about 96,000 acre-feet and is operated and maintained by GID in accordance with their contract with Reclamation to store and release Sun River flow to meet irrigation demands on GID, while providing the water needed for senior irrigation water rights on the Sun River downstream. Water typically is stored in Gibson during two periods: following the irrigation season in the late fall and winter, and during the snowmelt-runoff period in the spring. Storage builds up slowly during the fall, winter and early spring, and quickly during snowmelt runoff in May and June.

The inflow to Gibson Reservoir from the North and South Fork Sun River is by far the largest source of water in the basin. For the period from 1930 through 2007 the average annual inflow was approximately 595,000 acre-feet. On average 85% of this water was produced during the April through September period, but a substantial amount of the winter inflow to Gibson Reservoir is stored for release during the following irrigation season. Elk Creek, the largest higher-elevation Sun River tributary, contributes about 5-to-10 percent of the total basin flow. Nilan Reservoir, a DNRC project with a capacity of about 10,000 acre-feet, stores and releases water from the Ford and Smith Creek tributaries for irrigation in the Elk Creek drainage.

During most of the irrigation season, there is much more water flowing into the basin from the higher elevations than leaves the basin at the mouth of the Sun River. This is because water is being stored in Gibson Reservoir at times and water is being used for irrigation by the Greenfields Irrigation District, Broken O Ranch, Fort Shaw Irrigation District, Nilan Water Users, Elk Creek water users, Rocky Reef Ditch users, and Sun River Valley Ditch Company water users. There are about 120,000 acres irrigated in the basin overall. During the fall and winter months, basin outflow generally exceeds basin inflow. This increase is due primarily to irrigation return flows coming back through the groundwater, delayed by the time it takes the water to flow through the aquifer systems.

Sun River Basin inflow volumes for the 2003-2007 period averaged about 440,000 acre-feet per year, while outflows averaged about 320,000 acre-feet per year. All but 13 percent of the water in the Sun River was diverted at least once for the purpose of irrigation. Most of the 57,000 acre-feet that wasn't diverted was flow during the fall, winter, and spring runoff that could not be captured and stored or diverted. Of the water diverted for irrigation, approximately 27 percent or about 117,000 acre-feet was consumed. This works out to almost one acre-foot of water consumed per acre of irrigated ground, assuming 120,000 acres irrigated as described above. The rest of the flow (60 percent or 266,000 acre-feet) was water that was diverted and not consumed that left the basin as return flow.

It is estimated that it would take about 450,000 acre-feet of controllable flow to meet all of the irrigation needs in the basin. This would assume that the overall efficiency of the irrigation would be about 40 percent. Having this volume available would allow irrigators to get enough water to their crops so that the plants could consume about the 1.5 acre-feet per acre (about 175,000 acre-feet total), which would provide near optimal crop production. <u>This volume of water for just irrigation purposes is not available during many years.</u>

The SRWG and its partners are engaged in several water conservation projects in an attempt to meet part of this annual shortfall. GID and FSID have water conservation plans that address their priorities. SRWG can provide GID and FSID plans if requested. The SRWG has recently completed a watershed assessment of potential water conservation projects that may also help fulfill some of these shortfalls. See attachment #5 - SRWG workplan current major projects map.

Montana Fish, Wildlife and Parks (FWP) manages the Sun River fisheries. FWP estimates that the main stem of the Sun River supports about 10,000 angler days per year. The primary game fish in the Sun River are rainbow and brown trout. Low-flow conditions in the river limit the trout populations to about 40-120 fish over 8 inches per mile. However, fish that do survive reach large sizes with over half of the fish being 15 inches or larger. A goal of the Sun River Watershed Group is to increase fish populations to 400 fish per mile. Doing so will require improving flow conditions in the river.

Table 1 contains FWP's recommended minimum and absolute minimum flows for the Sun River main stem. The recommended minimums are a guidelines, above which flows maintain food production at or near optimum levels for the aquatic community as well as other factors such as bank cover, spawning and rearing habitat; there is no water right to protect these flows. FWP does have a water right (a water reservation) for the absolute minimum flow recommended, which identifies the flow below which there is a rapidly declining level of aquatic habitat potential that provides for only a low fish population. However, these rights have a 1985 priority date and are junior to almost all irrigation water rights in the watershed.

Table 1. Recommended minimum and absolute minimum Sun River flows by river reach.

	Recommended Minimum CFS	Absolute Minimum CFS (Water Reservation)
Diversion Dam to Mouth of Elk Creek	220	100
Elk Creek to Mouth	220	130

In many years it has been difficult to consistently maintain the recommended minimum or even the absolute minimum flow in all reaches in the river year round. One persistent difficulty is during the winter period when Reclamation and GID are storing water in Gibson Reservoir for the upcoming irrigation season. Inflow to the reservoir typically is at its lowest during this time of the year, consequently little water is available to store or release to begin with. The operators are going into the winter with little knowledge of what snowpack and precipitation conditions will be in the spring. Reliable information on mountain snowpack will not be available until well into the winter. Because there is a predictable relationship between winter inflow to Gibson Reservoir and the inflow as soon as the snowpack starts to accumulate in the fall, what is known is the reservoir contents and the inflow. If the reservoir ended the previous irrigation season at a very low level and the projected inflow is low, then operators typically store water to reduce the risk of not filling the reservoir to full pool by the end of spring runoff.

Typically, an effort is made to maintain a minimum winter release from Gibson Reservoir of at least 100 cfs. After the February 1st water supply forecast, winter releases can be adjusted if necessary based on the forecast and reservoir levels at the time. However, if winter conditions are severe, ice scouring of the banks may prevent increasing flows. During years when reservoir storages and winter inflow is low, releases have been cut back to around 75 cfs. In extreme cases, the outflow has been reduced to the absolute winter minimum of 50 cfs. Because there typically is not a lot of irrigation return flow or tributary flow added to the river between the Sun River Diversion Dam and the mouth of Elk Creek, low winter releases result in less than desirable winter flows that limit fish populations in the river downstream of Elk Creek mouth.

During the irrigation season, the flow that goes over the Sun River Diversion Dam for senior irrigation water rights generally keeps the river flow above recommended minimums downstream to the Fort Shaw Diversion Dam. Below the Fort Shaw Diversion Dam, low water levels and high water temperatures often are a problem during the irrigation season. River managers attempt to maintain a minimum flow of 130 CFS at the Sun River at Simms gaging station, although flow has dropped below this level during recent years. Progressing downstream, the river flows steadily increase due to irrigation returns from GID, FSID, Broken O Ranch, and other irrigators.

The known water shortages that currently exist on an annual basis amount to approximately 30,000 acre/feet for irrigation and 5,000 acre/feet for the fisheries. All communities along the Sun River rely of ground water to fulfill municipal demands so no shortages have occurred yet.

Water quality information/description

Segment Name	Waterbody Number	Estimated Length or Area (miles) or (acres)	Probable Cause	Probable Source
Upper Sun River (Gibson Dam to Muddy Creek Confluence)	MT41K001_010	80.3	Phosphorus Thermal modification Dewatering Habitat alteration Bank erosion Riparian degradation Nutrients Flow alteration	Irrigated crop production Riparian pasture grazing Channelization Flow regulation/modification Agriculture Crop-related sources Grazing related sources Hydromodification
Lower Sun River (Muddy Creek Confluence to Mouth)	MT41K001_020	17.1	Nutrients Siltation Salinity/TDS/Sulfates Flow alteration Suspended solids Bank erosion Habitat alterations	Agriculture Irrigated crop land Riparian range grazing Channelization Crop-related sources Grazing related sources Hydromodification
Muddy Creek	MT41K002_010	31.8	No causes listed because of use classification	No sources listed because of use classification
Ford Creek (Lowest 2 Miles)	MT41K002_020	2.0	Siltation Bank erosion Channel incisement Riparian degradation Fish habitat alteration Habitat alteration	Riparian pasture grazing Hydromodification Agriculture Grazing related sources
Freezeout Lake	MT41K004_030	3500	Selenium Sulfates Nutrients Noxious aquatic plants Metals	Agriculture Irrigated crop production Crop-related sources
Gibson Reservoir	MT41K004_020		Did not meet SCD*.	
Willow Creek Reservoir	MT41K004_020		Did not meet SCD*.	

Sun River Watershed Group History:

Formed in 1994, the Sun River Watershed Group (SRWG) is the key to local involvement to resolve natural resource issues, which include weeds, water quality and water quantity. The mission of the SRWG is "The SRWG is a consensus driven, multi-stakeholder entity that strives to promote community based efforts that will preserve our quality of life and livelihoods while promoting and enhancing the natural resources of our watershed". In 1996 the SRWG officially formed and in 2004 became a recognized 501 © (3) nonprofit organization to access additional funds to work on natural resource projects.

Over many years, controversy was a way of life in the Sun River Basin, with battle lines drawn on the issues of water rights, erosion causes, water for fisheries and recreation, and water quality conditions. The tug-of-war began to change in 1994 when the Muddy Creek Task Force organized to fight status-quo into a team approach to resolve one of the worst non-point source pollution problems in Montana. The group discovered innovative ways to tackle a problem that had stalemated for more than 30 years. From the beginning they agreed, once the project had a good start they would enlarge the boundaries and participation to encompasses the entire Sun River watershed. In 1996, with the demonstration of the Muddy Creek success story, key leaders in the basin felt it was possible and time to attack the bigger area. Soon, many more success stories started to spring up across the basin. In the headwaters area on Elk Creek drainage where improving stream dynamics while improving irrigation diversions made everyone happy; the Willow Creek erosion control project that is slowing a major sediment contributor to Willow Creek reservoir; irrigation districts with help from many entities improved their infrastructure to ensure they remain viable for years to come; Mill Coulee stream work; and these are just a few. Teamwork was catching on.

Technical Proposal: Letters of Support for Expanding an Existing Watershed Group

See attachment #2 for letters of support and/or partnership letters for this project. The groups include:

Greenfields Irrigation District; Fort Shaw Irrigation District; Montana Department of Natural Resources and Conservation; Montana Fish, Wildlife & Parks; Montana Department of Environmental Quality; Forest Service; Medicine River Canoe Club; Trout Unlimited, TD&H Engineering; and landowner Michael Konen.

Other groups that are supportive of the project, including financial assistance, but were unable to send an organizational letter of support in time include:

Sun River Valley Ditch Company; Broken O Ranch; Bureau of Land Management; Missouri River FlyFishers; City of Great Falls; Fairfield Science Club; Cascade County; Teton County; Cascade Conservation District; Lewis & Clark Conservation District; Teton Conservation District; Montana Pacific Power & Light.

Technical Proposal: Evaluation Criteria

V.A.1. Evaluation Criteria A: Watershed Group Diversity and Geographic Scope (30 points).

Subcriterion No. A1—Watershed Group Diversity:

The entire list of active participants in the Sun River watershed effort varies from year-to-year depending upon the projects that are going on. Due to short turnaround of this grant, not all groups were able to able to be contacted. However, the SRWG consistently has involvement from the following: many individual landowners, Bureau of Reclamation, Forest Service, Bureau of Land Management, United States Geological Survey, Fish & Wildlife Service, Natural Resource Conservation Service, Montana Bureau of Mines and Geology, Montana Department of Agriculture, Montana Department of Natural Resource and Conservation, Montana Department of Environmental Quality, Montana Fish, Wildlife & Parks, Montana Department of Transportation, Natural Resource Information System, Greenfields Irrigation District, Fort Shaw Irrigation District, Nilan Water Users, Sun River Valley Ditch Company, Broken O Ranch, Power Water and Sewer District, Town of Fairfield, Fairfield Science Club, Town of Vaughn, City of Great Falls, Cascade County, Teton County, Cascade Conservation District, Lewis & Clark Conservation District, Teton Conservation District, Cascade County Weed District, Lewis & Clark Weed District, Teton County Weed District, Trout Unlimited, Missouri River FlyFishers, Medicine River Canoe Club, Lower Sun River Flood District, Great Falls Corvette Club, Steel Etc Recycling, Montana Pacific Power & Light, Northwestern Energy, 3 Rivers Electric, Montana State University Extension Service, Muddy Creek Task Force, Girl Scouts, and Malmstrom Air Force Base.

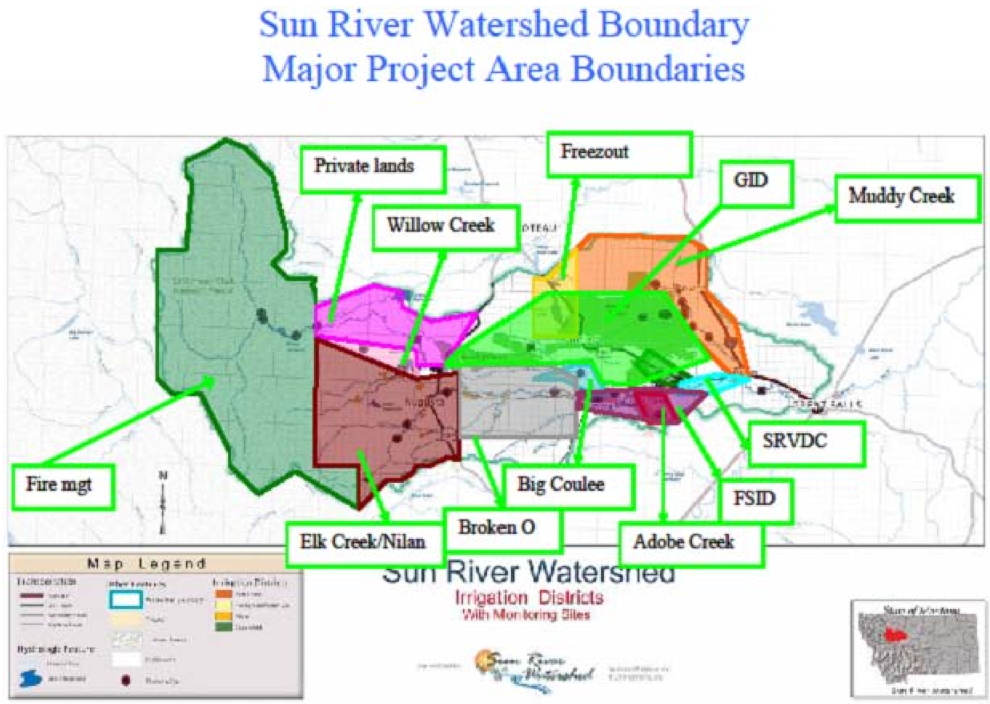
As part of this project the SRWG will reach out across the area to ensure anyone or any group who is interested in the Sun River Watershed is involved.

Subcriterion No. A2—Geographic Scope:

Under this subcriterion points will be made available for applicants based on the extent by which they plan to engage stakeholders across a given watershed.

The Sun River Watershed Group is engaged with water quality and water quantity projects on the entire 1,408,000 acres in the Sun River Watershed. The SRWG's over-arching goal is to take a holistic approach in solving natural resource issues. On water quality and quantity issues the SRWG is working on projects that address the entire 110 miles of the Sun River mainstem from the headwaters in the Bob Marshall Wilderness to its confluence with the Missouri River at the City of Great Falls, Montana. The SRWG is also involved with projects on all major tributaries that may have an impact on the Sun mainstem including Elk Creek, Big Coulee, Adobe Creek, Mill Coulee, and Muddy Creek. The SRWG's Water Quality Workgroup uses the Sun River TMDL as a tool to strive to improve the health of the Sun River and its tributaries to adequately support all beneficial uses. The SRWG's Water Management Workgroup looks at the entire Sun River water budget to meet the needs of fish, communities and agriculture.

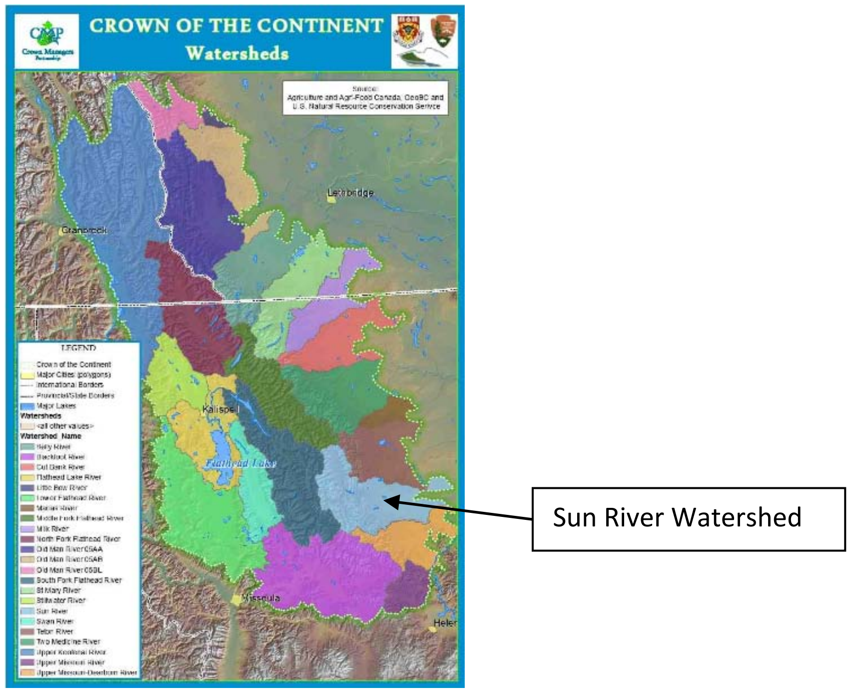
Map below shows major project boundaries within the Sun River Watershed.



Projects the SRWG is working on are many but major efforts include 1) Forest Service on forest management projects including controlled burns to reduce chances of catastrophic fires that have long-term impacts in spring runoff timing and quality, noxious weed control to improve the health of native vegetation and climate change monitoring to identify long-term ideas to deal with the timing in spring run-off; 2) Augusta area landowners on Elk Creek stream diversion projects allowing irrigators to obtain their legal water allocation while reducing time spent in repairing irrigation diversions; 3) Nilan Water Users on canal lining projects to conserve water so there is more water to go around during water short years; 4) Willow Creek erosion control to reduce sediment loads into Willow Creek reservoir; 5) Greenfields Irrigation District on water conservation projects to conserve water while reducing water runoff that causes water quality problems; 6) Fort Shaw Irrigation District on water conservation projects to conserve water while reducing water runoff that causes water quality problems; 7) Freezout Lake project that lined 5 miles of GID canals to reduce saline seep into a national renown waterfowl production area; 8) Broken O Ranch on water conservation projects to conserve water while reducing water runoff that causes water quality problems; 9) Big Coulee erosion control projects to reduce huge sediment loads form entering Sun River near Simms; 10) Adobe Creek water management projects to reduce large quantities of salinity from entering the Sun River; 11) Sun River Valley Ditch Company on water conservation projects to conserve water while reducing water runoff that causes water quality problems; 12) Muddy Creek erosion control to reduce sediment into the Sun River from one of the worst nonpoint source pollution problems in the state; and 13) lower Sun River replacing over 500 old cars with native vegetation.

The SRWG also works with groups on a larger scale when there is compatible benefit. One such area includes the Teton River Watershed Group on a water quality issue because Sun River irrigation water that drains into Freezout Lake is then drained into the Teton River.

A larger scale project is the Crown of the Continent because of the larger landscape effort to reduce noxious weeds while protecting one of the largest diversity of wildlife species in the lower 48 states. Map below show Crown boundaries and location of Sun River Watershed.



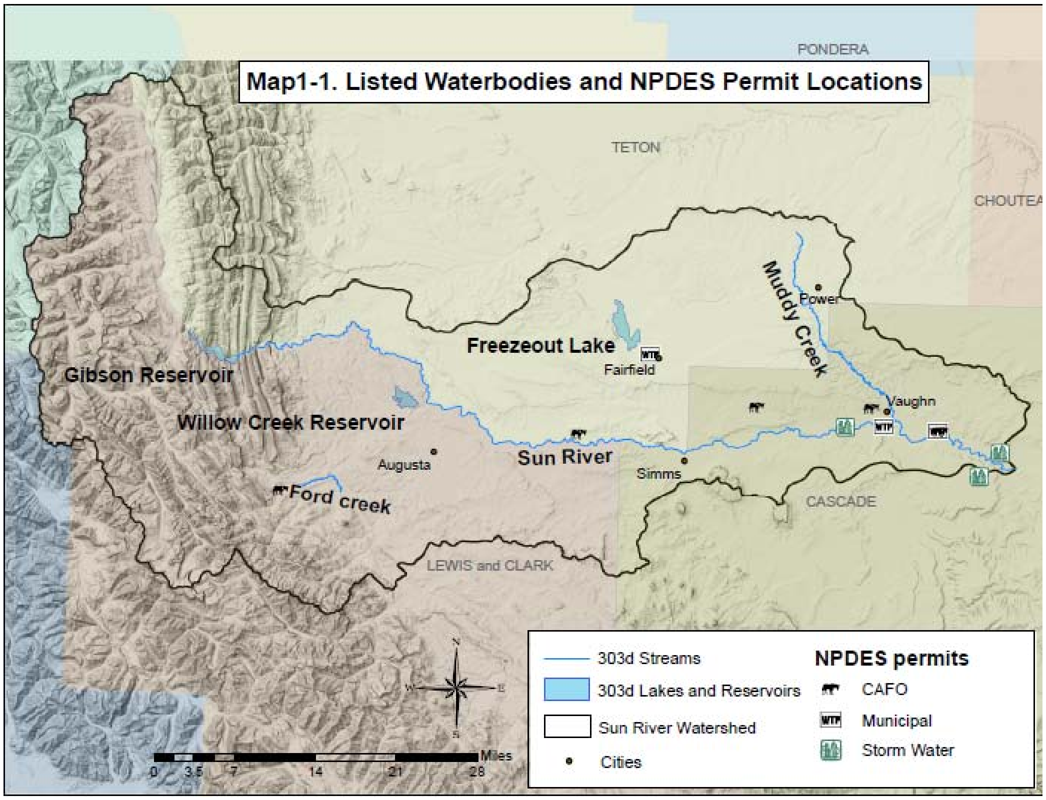
Subcriterion No. A3—Increasing/Establishing Diversity or Geographic Scope:
Existing Watershed Groups:

The SRWG will increase diversity of membership by hosting a Know-Your-Watershed forum in January 2013 that will invite all existing watershed partners, invite new groups that may now be interested in participating, publicize the event in the local media and send out a notice to all landowners who live in the watershed. The Know-Your-Watershed forum will describe current and past efforts to resolve natural resource problems and ask for input on what future activities should be considered. As means to keep people updated on watershed efforts the SRWG will continue to publish a newsletter and send email updates.

V.A.2. Evaluation Criteria B: Addressing Critical Watershed Needs (30 points).

Subcriterion No. B1—Critical Watershed Needs or Issues

Water Quality: The Montana Department of Environmental Quality on the state 303(d) impaired list the Sun River and tributaries for only partial or not supporting all uses caused by flow alterations, thermal modifications, siltation, suspended sediments, nutrients, habitat alterations, and salinity. See attached map for impaired Sun River watershed waterbodies.

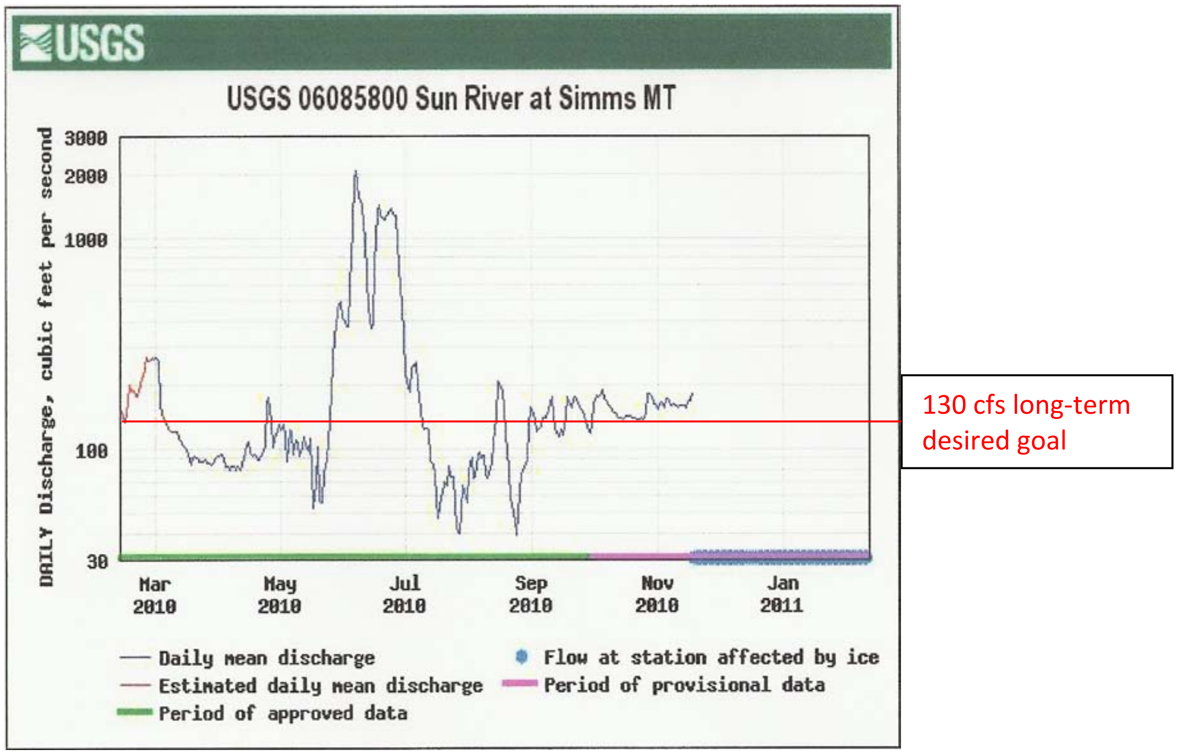


The TMDL for the Sun River Planning clearly states the water quality problems and proposed solutions to resolve the problems. The SRWG has also aggressively monitored water quality on the Sun River and all major tributaries enabling strategic use of resources to clean up all water quality problems. See attachment #6 for Montana State University water quality and quantity studies as examples of detailed monitoring.

Water Quantity: Irrigated crops experiences water shortages most years with approximately 30,000 acre-feet needed yearly to meet full irrigation needs. Also, the Montana Department of Environmental Quality on the state 303(d) impaired list the Sun River and tributaries and Montana Fish, Wildlife & Parks Chronically Dewatered Stream list both identify the Sun River having a major problems supporting a healthy fish population. This water shortage for fish is approximately 5,000 acre-feet per year. See below chart of actual vs. desired flows for fisheries.

Normal Sun River Flows and Fish Flow Shortages

USGS flow data in Sun River at Simms - tracks lower Sun River flows



Since 1996 the SRWG has aggressively worked on resolving water conflicts. There have been great strides made over the past 17 years resolving water quality problems but there is still a long ways to go to meeting all beneficial uses. The SRWG has also made some improvements with water quantity issues but resolving these problems will take lots more work. If the SRWG does not maintain a forward momentum on resolving the water quality and quantity issues in the near future it will not take very long before litigation is back on the front-burner as the only perceived solution to these complex issues. With litigation brings battles that find one winner and one loser that takes many years for the wounds to heal for effective communication to resume between all parties involved. So the SRWG needs to get these problems solved in the near future if everyone is going to all live in harmony for this and future generations.

Subcriterion No. B2—Contributions that Address Watershed Needs or Issues:

The SRWG will positively contribute to the watershed needs by 1) gathering all existing facts and reports to make best decisions on how to resolve problems; 2) having all watershed players come up with next set of solutions to resolve problems which also ensures buy-in when implementing projects, and 3) then moving forward with water quality and quantity projects.

The SRWG and partners are already moving forward with small water conservation projects using Reclamation WaterSMART and state grants for FSID and GID; 319 Nonpoint Source Pollution grants to improve Muddy Creek water quality and individual landowner assistance for many other water conservation and water quality projects.

So the SRWG really needs this watershed grant to make that next gigantic step forward to enlarge partnership base and establish a realistic plan-of work for next phase of projects that look at the full watershed healthy waters picture.

V.A.3. Evaluation Criteria C: Implementation and Results (30 Points).

Subcriterion No. C1—Project Planning:
Does the project have a nexus to a State or regional watershed plan?

The SRWG has a watershed plan that addresses all major water quality and quantity problems affective the Sun River and its tributaries. It is broken into sections that follow the SRWG Workgroups that address each major problem area including Water Management and Water Quality. The SRWG Workplan includes projects that are identified in the Greenfields Irrigation District and Fort Shaw Irrigation District Water Management plans. The SRWG Workplan also extracts items of interest indentified in the aging State of Montana Water Plan that primarily addresses water conservation ideas, see attachment #7. The SRWG Workplan also extracts items of interest from the Montana TMDL for the Sun River Planning Area, see attachment #8. Copies of all the plans mentioned above are available upon request.

Subcriterion No. C2 —Readiness to Proceed:
For more details on the approach of this proposed project refer to pages 4 and 5.

- *Information gathering* - go through catalogs of information; September and October 2012; Total cost $9,500 with $5,500 match and $4,000 Reclamation grant.
- *Outreach* - advertise and compile data that will be presented at the Know-Your-Watershed forum; October 2012 through January 2013 with Forum held in January 2013; Total cost $14,100 with $9,500 match and $4,600 Reclamation grant.
- *Identify problems* - compile final list of known problems that will be used to create a plan; October 2012 through February 2013; Total cost $13,000 with $8,800 match and $4,200 Reclamation grant.
- *Develop watershed restoration plan* - identify which problem will be used to establish goals, objectives, and project tasks with clear outcomes; February through August 2013; Total cost $30,500 with $19,000 match and $11,500 Reclamation grant.
- *Create plan of action for implementation timing* - Water Quality, Water Management Workgroups and full SRWG develop implementation timeline; February through August 2013; Total cost $4,700 with $2,200 match and $2,500 Reclamation grant.
- *Develop final report* - create a final report to be used by all partners as a tool to resolve water wars between all water user interests; August through September 2013; Total cost $5,200 with $3,000 match and $2,200 Reclamation grant.
- Other Reclamation requirements of environmental review and grant reporting - Total cost $3,000 with $2,000 match and $1,000 Reclamation grant.

Previous work or activities (e.g., collaborative efforts, studies, or projects) that relate to the enlargement of watershed group, which will support the expansion of the watershed group.

1) 1996; Established first SRWG watershed-wide workplan
2) 2004; Completed Sun River TMDL to give direction on improving water quality
3) 2006; Major rewrite of workplan asking for public input on problems and solutions
4) 2006-2010; Montana State University studies on Muddy Creek return flow and sediment
5) 2008-2009; Montana State University studies on Big Coulee return flow and sediment
6) 2008; Montana State University study on Freezout return flow and water quality
7) 2011; Water Restoration Plan developed but did not tie all the pieces together
8) 2009-2012; Reclamation funding assistance to find ready to start water conservation projects. See attachment #5 for map of proposed projects.
9) Annually; water quality and quantity monitoring across the watershed. See attachment #9 for watershed monitoring map.

V.A.4. Evaluation Criteria D: Watershed Group/Landscape Conservation Cooperatives (LCC) Nexus (10 points).

Subcriterion No. D1—Active Participation in an LCC

The SRWG is working with several partners (Forest Service, Fish & Wildlife Service, and the Nature Conservancy) on the Great Northern Landscape Conservation Cooperative climate change initiative by providing scientific data that will used when establishing future projects and plans. The extensive flow and water quality monitoring programs is the key to providing useful data for finding real solutions to the complex climate change issue.

Please provide a map illustrating where the watershed group's activities are/will be focused in relation to LCCs. If a map cannot be provided, please provide a narrative response.

Map of the Great Northern Landscape Conservation Cooperative - Climate change initiative

Subcriterion No. D2—Direct Relationship to LCC Activities:

The Great Northern Landscape Conservation Cooperative's *collective vision is:* A legacy of land, water, and wildlife conservation and sustainable natural resource management through collaboration and coordination. Within that geographic area the key area of interest by the SRWG is the climate change study.

Subcriterion No. D3—Goals of Watershed Group Complementary to LCC Goals or Activities:

SRWG is working with the local LCC in the Great Northern area on the climate change issue.

Environmental and Regulatory Compliance

1) Will the proposed activities impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

This project if for administrative activities only so NO activities will impact the surrounding environment.

2) Are you aware of any endangered or threatened species in the work area? If so, would they be affected by any activities associated with the proposed work?

This project if for administrative activities only so NO activities will impact any endangered or threatened species. The species of concern that are considered when/if projects are accomplished are Grizzly bear, Lynx, Wolverine, and Spregues Pipit.

3) Are there wetlands inside the project boundaries? If so, please estimate how many acres of wetlands there are and describe any impact the proposed activities will have on the wetlands.

There are over 8,000 acres of wetlands in the watershed. This project if for administrative activities only so NO activities will impact any wetlands.

4) Are there any known archeological sites in the proposed work area?

There are many known archeological sites within the watershed boundaries. This project if for administrative activities only so NO activities will impact any of the known archeological sites.

5) Will the proposed activities result in any modification of, or effects to, individual features of a water delivery system (e.g., headgates, canals)?

This project if for administrative activities only so <u>NO</u> activities will impact any features of a water delivery system.

6) If you answered yes to the previous question: <u>Answered no to above question</u>

(a) State when those features were constructed and describe the nature and timing of any alterations or modifications to those features. N/A

(b) Are any buildings, structures, or features in the area of the proposed listed or eligible for listing on the National Register of Historic Places? The local State Historic Preservation Office can assist in answering this question. N/A

(c) Are there any known archeological sites in the area of the proposed project? Would they be affected by any activities associated with the planned work? The State Historic Preservation Office can assist in answering this question. N/A

Required Permits or Approvals

This project if for administrative activities only so NO permits or approvals will be required with this project.

Funding Plan

(1) Describes any funding that is being requested or has been received from other Federal partners. *Note: Other sources of Federal funding must be accounted for.*

There are no other federal funds being requested or received for this project.

(2) Identifies any monetary and/or in-kind contributions and source funds that will be contributed by the applicant (e.g., reserve account, tax revenue, and/or assessments).

The SRWG will contribute $12,000 monetary contribution towards the project. The source of these funds will be from our watershed partners including Greenfields Irrigation District, Fort Shaw Irrigation District; Cascade Conservation District, Lewis & Clark Conservation District and Teton Conservation District.

The SRWG through our watershed partners will contribute $40,000 in-kind services. This will be accomplished by all watershed partners contributing 1,000 hours for information gathering, outreach, problem identification, developing watershed restoration plan and final report.

(3) Describes any in-kind costs that have been incurred prior to the anticipated project start date, which you seek to include as project costs.

The SRWG will not include any in-kind costs incurred prior to project start date.
Including:

- **(a) What project expenses have been incurred** - N/A
- **(b) How they benefitted the project -** N/A
- **(c) The amount of the expense -** N/A
- **(d) The date of cost incurrence -** N/A

(4) Provides the identity and amount of funding that will be provided by funding partners. If letters of commitment are available, please provide them as part of your application package.

The SRWG will contribute $7,400 monetary contribution towards the project. The source of these funds will be the annual contribution our watershed partners donate to the SRWG for projects like this. The partners that will be contributing include Greenfields Irrigation District, Fort Shaw Irrigation District; Cascade Conservation District, Lewis & Clark Conservation District Teton Conservation District, and Cascade County.

Table 2: Summary of Non-Federal and Federal Funding Sources.

Funding Sources	Funding Amount
Non-Federal Entities	
1. Sun River Watershed Group - cash	$ 7,400
2. Sun River Watershed Group - in-kind	$42,600 *
Non-Federal Subtotal:	*$ 50,000*
Other Federal Entities	
- None	$ 0
Other Federal Subtotal:	*$ 0*
Requested Reclamation Funding:	*$ 30,000*
Total Project Funding:	**$ 80,000**

PROJECT BUDGET APPLICATION

Table 3. Budget Proposal

BUDGET ITEM DESCRIPTION	COMPUTATION		RECIPIENT FUNDING	RECLAMATION FUNDING	OTHER FEDERAL FUNDING	TOTAL COST
	$/Unit and Unit	Quantity				
SALARIES AND WAGES						
- partners in-kind	$40/hour	1,000	$40,000	0	0	$40,000
FRINGE BENEFITS - from above salary & wages	0	0	0	0	0	0
TRAVEL	$ .50/mile	12,000	$4,000	$2,000	0	$6,000
EQUIPMENT			0	0	0	0
SUPLIES/MATERIALS						
copies	$ .20 copy	25,000	$4,000	$1,000	0	$5,000
CONTRACTUAL						
- SRWG coordinator	$25/hour	1,040	0	$26,000	0	$26,000
ENVIRONMENTAL AND REGULATORY COMPLIANCE						
- SRWG coordinator	$25/hour	20	0	$500	0	$500
OTHER						
Reporting - SRWG coord	$25/hour	100	$2,000	$500	0	$2,500
TOTAL DIRECT COSTS			**$50,000**	**$30,000**		**$80,000**
INDIRECT COSTS - _0_%			0	0	0	0
TOTAL PROJECT COSTS			**$50,000**	**$30,000**		**$80,000**

Budget Narrative: See pages 4 and 5 for more details of each task.

- Salaries and Wages - The SRWG through our watershed partners will contribute $40,000 in-kind services. This will be accomplished by all watershed partners contributing 1,000 hours at approximately $40 per hour for all tasks. Tasks details below:

- *Information gathering* - The SRWG will expand its comprehensive library of past studies and reports by having the coordinator and partners comb through federal, state and local agency databases and libraries to find any study or report that may have any relevance for the continued efforts to improve water quality and/or water quantity in the Sun River Watershed. To accomplish this task the SRWG partners will spend the 100 hours working in September and October 2012.
  - Partners in-kind match - 100 hours @ $40/hour = $4,000
- *Outreach* - The SRWG will ensure a true diversity of members continue to participate in the watershed effort by hosting a Know-Your-Watershed forum in January 2013. To accomplish this task the SRWG partners will spend the 200 hours working with watershed partners from October 2012 through January 2013 to prepare and host the forum.
  - Partners in-kind match - 200 hours @ $40/hour = $8,000
- *Identify problems* - The SRWG will expand the current list of known problems as shown in attachment # 4 . To accomplish this task the SRWG partners will spend the 200 hours working with watershed partners from October 2012 through February 2013.
  - Partners in-kind match - 200 hours @ $40/hour = $8,000
- *Develop watershed restoration plan* - The SRWG will use the problems list compiled from above task to develop a watershed restoration plan. To accomplish this task the SRWG Water Quality and Water Management Workgroups will work from February through August 2013 to identify which problem items they are able to establish goals, objectives, and project tasks with clear outcomes. The SRWG partners will spend 400 hours during February through August 2013 assisting the Water Quality, Water Management Workgroups and full SRWG develop the watershed restoration plan.
  - Partners in-kind match - 400 hours @ $40/hour = $16,000
- *Create plan of action for implementation timing* - While working on the restoration plan the SRWG Water Quality and Water Management Workgroups will establish realistic timelines to implement projects developed from the watershed restoration planning process. The SRWG partners will spend 50 hours during February through August 2013 assisting the Water Quality, Water Management Workgroups and full SRWG develop the implementation timeline.
  - Partners in-kind match - 50 hours @ $40/hour = $2,000
- *Develop final report* - The workgroups will assist the full SRWG from August through September 2013 create a final report. The SRWG partners will spend 50 hours assisting writing the final report.
  - Partners in-kind match - 50 hours @ $40/hour = $2,000

- Fringe Benefits - Combined in the approximate wage calculation above

- Travel -

- *Information gathering* - The SRWG coordinator will travel to the partner's offices to find the information. No travel anticipated for partners.
  - SRWG cash match for SRWG coordinator - 1,000 miles @ $ .50/mile = $500
  - Reclamation watershed grant for SRWG coordinator 1,000 miles @ $ .50/mile = $500
- *Outreach* - The SRWG coordinator and partners will travel to the meetings to accomplish outreach and workshop.
  - SRWG partners in-kind match for staff - 1,000 miles @ $ .50/mile = $500
  - SRWG cash match for SRWG coordinator - 400 miles @ $ .50/mile = $200
  - Reclamation watershed grant for SRWG coordinator 1,000 miles @ $ .50/mile = $500
- *Identify problems* - The SRWG coordinator and partners will travel to meetings to work on problems list.
  - SRWG partners in-kind match for staff - 1,000 miles @ $ .50/mile = $500
  - SRWG cash match for SRWG coordinator - 200 miles @ $ .50/mile = $100
  - Reclamation watershed grant for SRWG coordinator 200 miles @ $ .50/mile = $100
- *Develop watershed restoration plan* - The SRWG coordinator and partners will travel to meetings to work on restoration plan.
  - SRWG partners in-kind match for staff - 3,000 miles @ $ .50/mile = $1,500
  - SRWG cash match for SRWG coordinator - 1,000 miles @ $ .50/mile = $500
  - Reclamation watershed grant for SRWG coordinator 1,600 miles @ $ .50/mile = $800
- *Create plan of action for implementation timing* - Everyone's travel for this task will be combined with their work on the Restoration Plan. No costs. $0
- *Develop final report* The SRWG coordinator and partners will travel to meetings to work on final report.
  - SRWG partners in-kind match for staff - 200 miles @ $ .50/mile = $100
  - SRWG cash match for SRWG coordinator - 200 miles @ $ .50/mile = $100
  - Reclamation watershed grant for SRWG coordinator 200 miles @ $ .50/mile = $100

- Equipment - No special equipment will be used - $0

- Materials and Supplies

- *Information gathering* - Copying documents, many are color copies @ $ .20 each
  - SRWG cash match for copies - 5,000 pages at $ .20 per copy = $1,000
  - Reclamation watershed grant for copies - 2,500 pages at $ .20 per copy = $500
- *Outreach* - Copying documents
  - SRWG cash match for copies - 4,000 pages at $ .20 per copy = $800
  - Reclamation watershed grant for copies - 500 pages at $ .20 per copy = $100
- *Identify problems* - Copying documents
  - SRWG cash match for copies - 1,000 pages at $ .20 per copy = $200
  - Reclamation watershed grant for copies - 500 pages at $ .20 per copy = $100
- *Develop watershed restoration plan* - Copying documents
  - SRWG cash match for copies - 5,000 pages at $ .20 per copy = $1,000
  - Reclamation watershed grant for copies - 1,000 pages at $ .20 per copy = $200

- *Create plan of action for implementation timing* - Copying documents
  - SRWG cash match for copies - part of watershed plan
  - Reclamation watershed grant for copies - part of watershed plan
- *Develop final report* - Copying documents
  - SRWG cash match for copies - 5,000 pages at $ .20 per copy = $1,000
  - Reclamation watershed grant for copies - 500 pages at $ .20 per copy = $100

Contractual - The SRWG coordinator will accomplish all tasks totaling 1,040 hours at $25 per hour. Tasks details below:

- *Information gathering* - The SRWG will expand its comprehensive library of past studies and reports by having the coordinator and partners comb through federal, state and local agency databases and libraries to find any study or report that may have any relevance for the continued efforts to improve water quality and/or water quantity in the Sun River Watershed. To accomplish this task the SRWG coordinator will spend the 120 hours working with watershed partners during in September and October 2012.
  - Reclamation watershed grant - SRWG coordinator 120 hours @ $25/hour = $3,000
- O*utreach* - The SRWG will ensure a true diversity of members continue to participate in the watershed effort by hosting a Know-Your-Watershed forum in January 2013. To accomplish this task the SRWG coordinator will spend the 160 hours working with watershed partners from October 2012 through January 2013 to prepare and host the forum. Preparing data to present at the forum will be a key coordinator task.
  - Reclamation watershed grant - SRWG coordinator 160 hours @ $25/hour = $4,000
- *Identify problems* - The SRWG will expand the current list of known problems as shown in attachment # 4. To accomplish this task the SRWG coordinator will spend the 160 hours working with watershed partners from October 2012 through February 2013 to compile a final list of known problems that will be used to create a plan to fix those problems.
  - Reclamation watershed grant - SRWG coordinator 160 hours @ $25/hour = $4,000
- *Develop watershed restoration plan* - The SRWG will use the problems list compiled from above task to develop a watershed restoration plan. To accomplish this task the SRWG Water Quality and Water Management Workgroups will work to identify which problem items they are able to establish goals, objectives, and project tasks with clear outcomes. The SRWG coordinator will spend 420 hours during February through August 2013 assisting the Water Quality, Water Management Workgroups and full SRWG develop the watershed restoration plan.
  - Reclamation watershed grant - SRWG coordinator 420 hours @ $25/hour = $10,500
- *Create plan of action for implementation timing* - While working on the restoration plan the SRWG Water Quality and Water Management Workgroups will establish realistic timelines to implement projects developed from the watershed restoration planning process. The SRWG coordinator will spend 100 hours during February through August

2013 assisting the Water Quality, Water Management Workgroups and full SRWG develop the implementation timeline.
- Reclamation watershed grant - SRWG coordinator 100 hours @ $25/hour = $2,500

- *Develop final report* - The workgroups will assist the full SRWG from August through September 2013 create a final report. The SRWG coordinator will spend 80 hours assisting writing the final report.
  - Reclamation watershed grant - SRWG coordinator 80 hours @ $25/hour = $2,000

Environmental and Regulatory Compliance Costs - SRWG coordinator will work with Reclamation for environmental reviews prior to any task beginning
- Reclamation watershed grant - SRWG coordinator - 20 hours @ $25/hour = $500

Reporting - SRWG coordinator will work with on all reporting
- SRWG cash match for SRWG coordinator - 80 hours @ $25/hour = $2,000
- Reclamation watershed grant - SRWG coordinator - 20 hours @ $25/hour = $500

Other - No other costs - $0

Indirect Costs - No indirect costs - $0

Total Project Cost: $80,000
- SRWG in-kind match = $42,600
- SRWG cash match = $7,400
- Reclamation watershed grant = $30,000

SF-424 A Form - Non-Construction Program - See attached form

Attachment #1

Sun River Watershed Group Resolution
Executive Board

RESOLUTION

Sun River Watershed Group
Executive Committee
Great Falls, MT 59404

RESOLUTION SPONSORING
BUREAU OF RECLAMATION 2012 WATERSMART GRANT
COOPERTAIVE WATERSHED MANAGEMENT PROGRAM

WHEREAS, Sun River Watershed Group is the local non-profit authority formed to work collaborative with all interested groups on like issues in the Sun River Watershed, and

WHEREAS, Sun River watershed Group overall role is to find consensus to resolve natural resource issues in the Sun River Watershed, therefore

BE IT RESOLVED, the Sun River watershed Group 's Executive Committee has reviewed and authorizes the Alan Rollo, SRWG coordinator to be the key contact and to pursue a Bureau of Reclamation 2012 WaterSMART grant for Cooperative Watershed Management Program; and

BE IT FURTHER RESOLVED, the Sun River watershed Group's Executive Committee by the authority given to it by the State of Montana is committing the necessary resources and funds to complete the project by September 30, 2013.

Dated this 27th day of July, 2012.

Fay (?) Lesmeister
President

Attest: Stella Rollo

Michael M Koren

[illegible]

[illegible] Neuman

Mike Cobb

LETTERS of SUPORT/PARTNERSHIP LETTERS

GREENFIELDS IRRIGATION DISTRICT

105 West Central Avenue
P.O. Box 157
Fairfield, Montana 59436

Phone: (406) 467-2533
Fax: (406) 467-2705

June 25, 2012

Sun River Watershed Group
816 Grizzly Drive
Great Falls, MT 59404

To Whom It May Concern,

Greenfields Irrigation District would like to go on record supporting the Sun River Watershed Group's Bureau of Reclamation Cooperative Watershed Management Program grant application for their expansion of projects to improve water quality and quantity for the Sun River and all water users. Water is an irreplaceable resource that needs to be protected and conserved: therefore, pushing proper water conservation and management to the forefront of many entities' and groups' priority lists has been necessary. Water shortages and quality issues of the Sun River water has not gone unnoticed by those of us who rely on this water for the benefit of important issues such as irrigation, livestock, municipal use, wetland protection, waterfowl habitat, other wildlife habitat and recreation.

Improving water quality and quantity wherever possible is ideal and Sun River Watershed Group's desire to improve teamwork in this basin is crucial. This project will help bring all water users together who depend upon the Sun River for their livelihoods to find win-win solutions for complex natural resources issues. This project will not only directly benefit water users in the Sun River basin but will also benefit many other entities on the Missouri River below the confluence of the Sun River.

Therefore, Greenfields Irrigation District is in full support and will actively participate in this effort to improve the water quality and quantity in the Sun River for all water users.

Sincerely,

Bob Hardin

Bob Hardin, Manager
GID

Fort Shaw Irrigation District
P.O. Box 154
Fort Shaw, MT 59443
406-264-5751

June 28, 2012

Sun River Watershed Group
816 Grizzly Drive
Great Falls, MT 59404

To Whom It May Concern:

The Fort Shaw Irrigation District would like to go on record supporting the Sun River Watershed Group's Bureau of Reclamation Cooperative Watershed Management Program grant application for the expansion of projects to improve water quality and quantity for the Sun River and all users. Water is an irreplaceable resource that needs to be protected and conserved; therefore, pushing proper water conservation and management to the forefront of many entities' and groups' priority lists has been necessary. Water shortages and quality issues of the Sun River water has not gone unnoticed by those of us who rely on this water for the benefit of important issues such as irrigation, livestock, municipal use, wetland protection, waterfowl habitat, other wildlife habitat and recreation

Improving water quality and quantity wherever possible is ideal and Sun River Watershed Group's desire to improve teamwork in this basin is crucial. This project will help bring all the water users together who depend on the Sun River for their livelihoods to find win-win solutions for the complex natural resource issues. This project will not only directly benefit water users in the Sun River basin but will also benefit many other entities on the Missouri River below the confluence of the Sun River.

Therefore, the Fort Shaw Irrigation District is in full support and will actively participate in this effort to improve the water quality and quantity in the Sun River for all water users.

Sincerely,

Rich Boyle

Rich Boyle
Manager

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

WATER RESOURCES DIVISION • 910 Helena Avenue, Helena, MT 59601
(406) 444-0506 Telefax (406) 444-0569

BRIAN SCHWEITZER, GOVERNOR

STATE OF MONTANA

DIRECTOR'S OFFICE (406) 444-2074
FAX: (406) 444-2684

PO BOX 201601
HELENA, MONTANA 59620-1601

July 3, 2012

Sun River Watershed Group
816 Grizzly Drive
Great Falls, MT 59404

To Whom It May Concern:

I am writing this letter to express Montana DNRC's support for the Sun River Watershed Group's WaterSMART Cooperative Watershed Management Program grant application to the Bureau of Reclamation.

The Sun River Watershed Group is one of the most active groups in Montana and has been in existence since 1994. Although the group has achieved many successes in addressing water management and water quality issues in the watershed, there still is much work to do. As is the case for many of our streams, water demands from the Sun River often exceed the available water supply. Recently, the Sun River Watershed Group has been working with its diverse group of stakeholders to identify potential projects that could be implemented, by consensus, to enhance Sun River flows, reduce suspended sediments, and improve irrigation water management.

The group would like to start implementing some of these projects, but it can't do so without financial support and without the continued leadership of its coordinator. From our standpoint, the timing of this grant is good because it also will allow us to work with the Sun River Watershed Group to integrate its efforts into our ongoing State Water Planning Process. Please give the highest consideration to funding this grant application so that the Sun River Watershed Group can continue its efforts towards improving water management in the Sun River basin for all users.

Sincerely,

Tim Davis
Water Resources Division Administrator

Montana Fish, Wildlife & Parks

4600 Giant Springs Road
Great Falls, MT 59405-0901
July 5, 2012

Sun River Watershed Group
816 Grizzly Drive
Great Falls, MT 59404

To Whom It May Concern:

The Fisheries Bureau of Montana Fish Wildlife & Parks supports the Sun River Watershed Group's Bureau of Reclamation Cooperative Watershed Management Program grant application and efforts for expansion of projects designed to improve water quality and quantity for the Sun River and all water users. Water conservation and improved management must be brought to the forefront for all entities and groups to best serve the interests of all in the basin. Water shortages and quality issues of the Sun River water are keenly noticed by those who rely on this water for the benefit of important uses including fish and wildlife habitat, irrigation, livestock watering, municipal use, wetland protection and recreation.

Improving water quality and quantity wherever possible is crucial and the Sun River Watershed Group's desire to improve teamwork in this basin is the only venue to move this important work forward. This project is designed to bring all water users together who depend upon the Sun River for their livelihoods to find win-win solutions for complex natural resources issues. This project will not only directly benefit water users in the Sun River basin but will also benefit many other entities on the Missouri River below the confluence of the Sun River.

We are in full support of this effort and will actively participate in this effort to the full extent FWP resources will allow to improve the water quality and quantity in the Sun River for both water users and other interests in the drainage. Thank you for considering our comments.

Sincerely,

George Liknes

George Liknes
Region 4 Fisheries Manager

Laura Ziemer
Director, Montana Water Project

July 5, 2012

Alan Rollo, Coordinator
Sun River Watershed Group
816 Grizzly Drive
Great Falls, MT 59404

Sent via e-mail to: arollo7@msn.com

Re: TU Letter of Support for Cooperative Watershed Management Act

Dear Bureau of Reclamation:

Trout Unlimited has partnered with the Sun River Watershed Group since 1998, soon after its inception, to find solutions to difficult water scarcity problems in ways that work for both agriculture and conservation. Trout Unlimited believes that the most durable gains for conversation are achieved when solutions are forged through collaborative, creative work. The Sun River Watershed Group has put this idea into practice, and we are at the front end of making some important strides in restoring flows to the dewatered Sun River. The Sun River has incredible potential as a wild trout fishery, and the Sun River Watershed Group's success will be the key to unlocking this river's potential. A grant through the Cooperative Watershed Management Act would provide essential support for achieving flow restoration on the Sun River while maintaining a viable and engaged agricultural community.

Please don't hesitate to contact me at lziemer@tu.org or (406) 522-7291 ext 103 if I can answer any questions or otherwise help in your review of the Sun River Watershed Group's proposal.

Yours truly,

Laura Ziemer

Trout Unlimited: America's Leading Coldwater Fisheries Conservation Organization
321 East Main Street, Suite 411, Bozeman, MT 59715
(406) 522-7291 ext. 103 • Fax: (406) 522-7695 • email: lziemer@tu.org • www.tu.org

July 5, 2012

Sun River Watershed Group
816 Grizzly Drive
Great Falls, MT 59404

RE: SRWG application for Bureau of Reclamation, Cooperative Watershed Management Program grant.

Dear Application Review Committee:

The mission of the Montana Department of Environmental Quality (DEQ) is to protect, sustain, and improve a clean and healthful environment to benefit present and future generations. The DEQ, Watershed Protection Section (WPS) is charged with administering Montana's nonpoint source pollution prevention program. Based on my understanding of the Sun River Watershed Group's (SRWG) application for Bureau of Reclamation, Cooperative Watershed Management Program, grant funding, SRWG's proposed project will assist the SRWG in their efforts to improve Montana's environment and reduce nonpoint source sediment and thermal pollution. I support SRWG's application.

Sincerely,

Robert Ray, Section Supervisor
DEQ, Watershed Protection Section
(406) 444-5319
rray@mt.gov

USDA United States Department of Agriculture | Forest Service | Lewis and Clark National Forest | 1101 15[th] Street North
P.O. Box 869
Great Falls, MT 59403-0869
406 791-7700
FAX 406 731-5302

File Code: 2520 | Date: July 6, 2012

Route To: Sun River Watershed Group
816 Grizzly Drive
Great Falls, MT 59404

Subject: Support Letter

To: To Whom It May Concern,

As the land managing agency of source water for the Sun River, the Lewis and Clark National Forest is always interested in studies that may result in better management of precious water resources. The Forest supports the Sun River Watershed Group's Bureau of Reclamation Cooperative Watershed Management Program and their grant application for projects to improve water quality and quantity for the Sun River. This grant will also be of importance for all water consumers within the Sun River Basin. Water quantity and quality issues of the Sun River Basin has not gone unnoticed by those who rely on water for irrigation, livestock, municipal use, wetland protection, waterfowl habitat, other wildlife habitat and recreation.

In the past, the Forest has worked closely with the Sun River Group on previous projects and is in full support in their effort to improve quality and quantity of water resources wherever possible. The Forest also supports their effort to improve cooperation and teamwork within the basin of all water users. This project will help bring together all who depend upon the Sun River for their livelihoods and will help provide solutions for complex natural resources issues. This project will directly benefit water users in the Sun River Basin and many entities on the Missouri River below the confluence of the Sun River.

Therefore, the Forest is in support of Sun River Watershed Group Grant application and will actively participate in this effort to improve the water quality and quantity in the Sun River Basin for all water users.

Sincerely,

John Kenney for

BILL AVEY
Forest Supervisor

America's Working Forests - Caring Every Day in Every Way

July 5, 2012

Sun River Watershed Group
816 Grizzly Drive
Great Falls, MT 59404

To Whom It May Concern,

The Medicine River Canoe Club would like to go on record supporting the Sun River Watershed Group's Bureau of Reclamation Cooperative Watershed Management Program grant application for their expansion of projects to improve water quality and quantity for the Sun River and all water users. Water is an irreplaceable resource that needs to be protected and conserved; therefore, pushing proper water conservation and management to the forefront of many entities' and groups' priority lists has been necessary. Water shortages and quality issues of the Sun River water has not gone unnoticed by those of us who rely on this water for the benefit of important issues such as irrigation, livestock, municipal use, wetland protection, waterfowl habitat, other wildlife habitat and recreation.

Improving water quality and quantity wherever possible is ideal and Sun River Watershed Group's desire to improve teamwork in this basin is crucial. This project will help bring all water users together who depend upon the Sun River for their livelihoods to find win-win solutions for complex natural resources issues. This project will not only directly benefit water users in the Sun River basin but will also benefit many other entities on the Missouri River below the confluence of the Sun River.

Therefore, the Medicine River Canoe Club is in full support and will actively participate in this effort to improve the water quality and quantity in the Sun River for all water users.

Sincerely,

Lynda R. Payne

Lynda R. Payne
President
Medicine River Canoe Club

TD&H
Engineering

June 28, 2012

Mr. Alan Rollo
Sun River Watershed Group
816 Grizzly Drive
Great Falls, MT 59404

To Whom It May Concern,

The staff and management of TD&H Engineering are proud to offer this letter of support for the Sun River Watershed Group's (SRWG) effort to secure grant assistance from the Bureau of Reclamation's Cooperative Watershed Management Program. We have worked alongside the SRWG for many years and are well aware of the positive impacts they have produced to improve water quality and enhance water management and conservation practices in the Sun River Basin. Their approach to public awareness and proactive problem solving has fostered a cooperative spirit among the major stakeholders that rely on the Sun River Watershed. This important grant would continue their on-going projects to improve water quality and quantity for the Sun River and all water users.

Water is an invaluable resource that needs to be protected and conserved. In the past, water conservation was absent and water quality was taken for granted. Recently, water shortages and quality issues related to the Sun River Watershed has gained more attention primarily due to the work of the SRWG. They have been instrumental in devising and executing watershed studies as well as implementing the results of those studies to make a positive difference. This is critical for those of us who rely on this water for the irrigation, livestock, municipal use, wetland protection, waterfowl habitat, other wildlife habitat and recreation. Since the Sun River discharges to the Missouri River, improving the Sun River Watershed has a positive result on the Missouri.

We realize that public dollars are limited and should be used cost effectively and prudently. Because of our knowledge of the SRWG, we know that this is also important to them. Therefore, we at TD&H Engineering are in full support of SRWG's grant application. I'm available to give specific examples of SRWG's impact to improve water quality and management if you desire.

Sincerely,

Thomas, Dean and Hoskins, Inc.

Erling A. Juel

Erling A. Juel, P. E.
President/CEO

Cc: Wade Deboo, TD&H

O:\LETTERS\JUEL\2012\Sun River WSG support letter 6-28-12.doc

1800 River Drive North • Great Falls, MT 59401 • (406) 761-3010 • FAX (406) 727-2872

550 7th Lane NE
Fairfield, MT 59436

June 30, 2012

Sun River Watershed Group
816 Grizzly Drive
Great Falls, MT 59404

To Whom It May Concern,

I would like to go on record supporting the Sun River Watershed Group's Bureau of Reclamation Cooperative Watershed Management Program grant application for their expansion of projects to improve water quality and quantity for the Sun River and all water users. Water is an irreplaceable resource that needs to be protected and conserved; therefore, pushing proper water conservation and management to the forefront of many entities' and groups' priority lists has been necessary. Water shortages and quality issues of the Sun River water has not gone unnoticed by those of us who rely on this water for the benefit of important issues such as irrigation, livestock, municipal use, wetland protection, waterfowl habitat, other wildlife habitat and recreation.

Improving water quality and quantity wherever possible is ideal and Sun River Watershed Group's desire to improve teamwork in this basin is crucial. This project will help bring all water users together who depend upon the Sun River for their livelihoods to find win-win solutions for complex natural resources issues. This project will not only directly benefit water users in the Sun River basin but will also benefit many other entities on the Missouri River below the confluence of the Sun River.

Therefore, I am in full support and will actively participate in this effort to improve the water quality and quantity in the Sun River for all water users.

Sincerely,

Michael Konen

Michael Konen
Agriculture producer and Sun River Watershed Group Executive Committee Member

Attachment #3

Listing of Key Water Management Studies

Sun River Watershed Group - February 1, 2010

Entry Number	Title	Major topic category	Sub category	Org prepared for	Author	Author Affiliation	year	filename	Brief Summary
1	Sun River Watershed Background Information	Watershed	topography, geology, geography, land use, climate, soils, socioeconomic	Unknown	Unknown	Unknown	Unknown	watershed information.doc	Document provides a brief description of the watershed in terms of watershed location (land area by county), topography and geology, land ownership and use, community population, historic info, climate, soils, and socioeconomic
2	Water Rights, Allocation, and Use	Water Rights	Sun River surface water rights, Sun River ground water rights	Unknown	Unknown	Unknown	Unknown	Sun River Water Rights Narrative 3-23-09.doc	Provides a summary of Montana Water Rights system and Sun River water rights under the Montana law. Describes Sun River users and uses, including the USBR and Greenfields and Fort Shaw Irrigation Districts. Includes discussion and table of reserved water rights, as well as a table of surface and ground water rights by use.
3	Sun River Water Supply and Demand	Hydrology	flow rates, hydrographs, water user demand	Unknown	Unknown	Unknown	Unknown	Sun River Water Supply and Demand 2003-2007.doc	Summarizes an analysis of Sun River flows at various points throughout the river system. Flow data for the period 2003 to 2007 were compared against long term (>1930) flow record Discussion of basin-wide water budget, and basin-wide delivery and field efficiencies. Data is summarized in a number of graphs (hydrographs) and an allocation chart.
4	Nilan Reservoir Overview	Reservoir	DNRC, Nilan Water Users	Unknown	Unknown	Unknown	Unknown	NilanOperation.doc	Provides an overview of Nilan Reservoir. Gives general ownership, location, age, dams, canals serviced, size (volume, area), source waters and conveyence features, flow rates, water users, operating strategy
5	Sun River Project Water Operations	Water Management	reservoir, reservoir operations, water rights, hydrology, weather/climate,	Greenfields Irrigation District	USBR - Montana Area Office	USBR	2008	Gibson Guide Apr08 public.pdf	Training document with information on three reservoirs (Gibson, Willow Creek, Pishkun) Includes general reservoir data (pool volume, dead storage, crest and bed elevations, age, and a timeline of major modifications) as well as summary of water rights associated with waters impounded by reservoir, as well as stream gage / hydromet stations. Brief discussion of inflow forecasting and precipitation / SNOTEL sites used in the forecast. Additionally, there is a brief discussion on filling and releasing procedures for the reservoirs.
6	Sun River Sub-basin -- 10030104	Conservation Practices	NRCS	General Information	NRCS	NRCS	2008	NRCS practices in Sun Basin.pdf	Table of NRCS Practices by year with Code, Practice Name, Applied Amount, Units, and Year Practices Applied
7	Proposed Non-irrigation Season Release Criteria for Gibson Dam Sun River Project	Reservoir	reservoir operations, hydrology, irrigation, drought	General Information	USBR - Great Plains Region	USBR	2007	Final - Sun River Non-irrigation Season Release Criteria 05 July '07.pdf	Provides background info about the Sun River Project. Study purpose is to determine a method or criteria to establish non-irrigation releases from Gibson to benefit environmental health of Sun River while still providing adequate protection for stored water in Gibson Reservoir. Hydrologic analyses resulted in a water balance method to address non-irrigation season flows, with consideration to potential ice jam issues. Generally, the approach uses October flows into Gibson as a predictor for November-March flows into Gibson, with verification and subsequent adjustments made by using November inflows as a predictor for December-Match flows. Includes discussion and provisions for filling requirements for Gibson Reservoir, dry year storage and irrigation demand.
8	Fort Shaw Irrigation District Water Management and Water Conservation Plan	Irrigation	FSID, water rights, conservation, irrigation supply, irrigation efficiency, water quality, education, funding,	Unknown	FSID - Alan Kinkaid	FSID	2009	2009 - FSID Water Mgt PLan - vs 3.doc	Provides summary of FSID from history, physical characteristics, farming details, water supply and rights, to water measurement. Also includes efficiency/waste analyses and previous water conservation measures. The document includes a substantial list of water management problems and opportunities (e.g. measurement, seepage, degraded infrastructure, watershed issues, etc.), as well as near-term (5-year) and long-term goals. Conservation measures are discussed, and a 6 year implementation schedule/budget is provided. Maps with project sites and flow records (by year) for the main canal are included in the document.

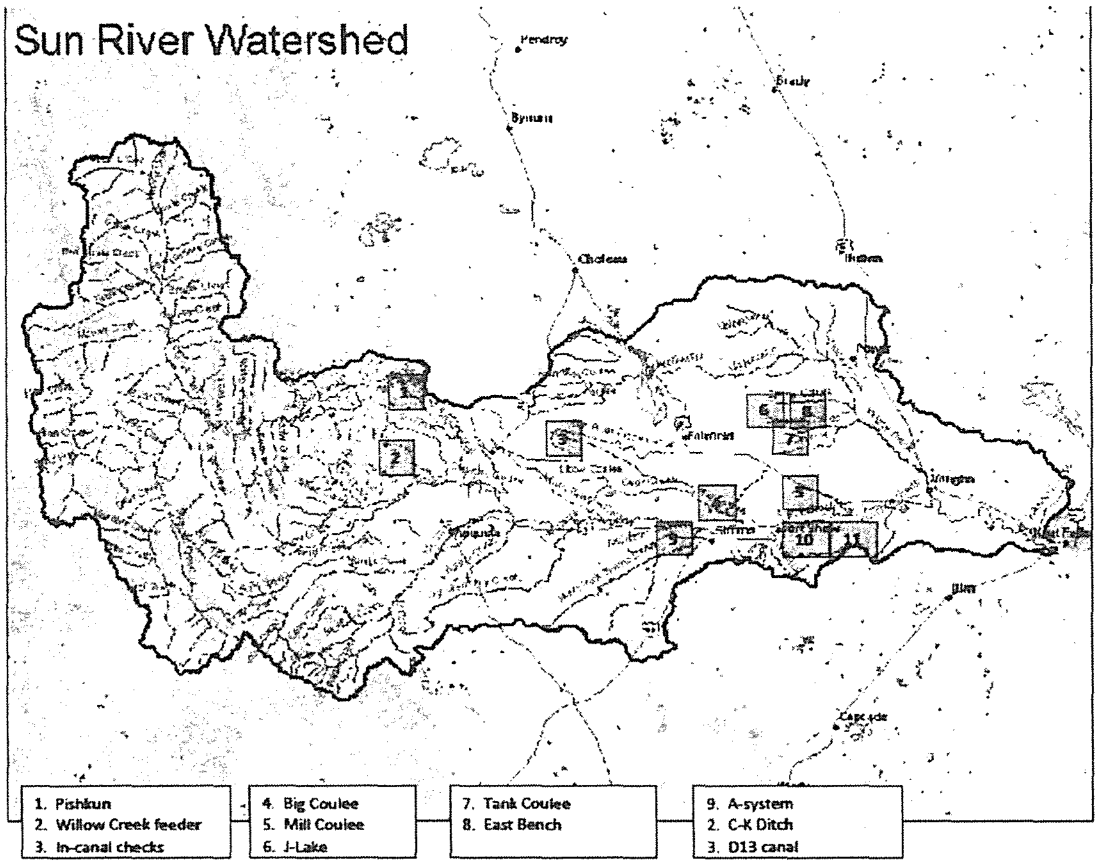
Attachment #4

List of Major Problems/Issues Previously Identified during Public Meetings and Workplan Review

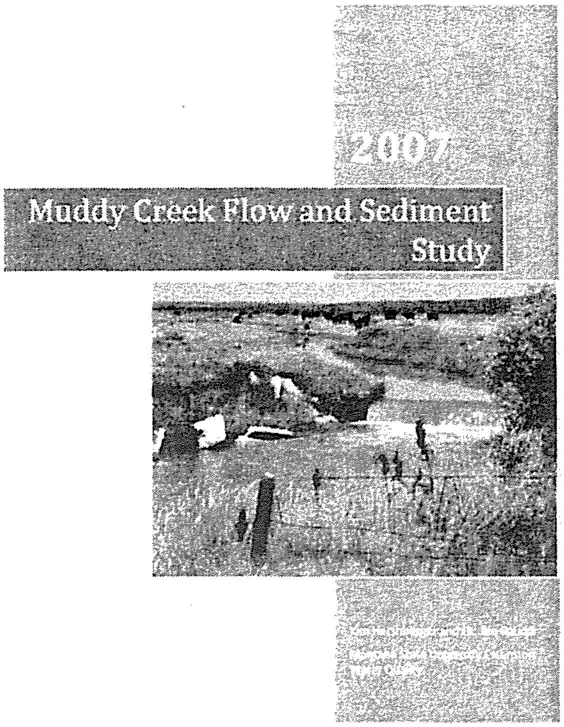
PROBLEMS/ISSUES	GENERAL STATUS	Go/ No/go
Groups not understanding real issues facing them	SRWG bringing groups together	OK
Potential for catastrophic fires on Forest Service lands	F.S. working on controlled fires	OK
Noxious weeds out of control	Some projects moving forward	OK
Climate change affecting runoff and land use	SRWG monitoring program	Starting
Wildlife issues	Not enough time and resources AND cannot find win-win solutions	No/go
Land use/growth regulations	Counties unwilling to discuss - need different approach	No/go
Fisheries - not enough water	Some projects moving forward	OK
Elk Creek water quality and quantity	Some projects moving forward	OK
Nilan Water Users - not enough water	Some projects moving forward	OK
Upper Sun River - diversions and stream modifications	Some projects moving forward	OK
Willow Creek erosion issue	Some projects moving forward	OK
Broken O Ranch - water management issues	Some projects moving forward	OK
Broken O Ranch - wastewater affecting streams	Some projects moving forward	OK
Middle Sun River - diversions and stream modifications	Some projects moving forward	OK
Pishkun Reservoir enlargement	Engineering study in-progress	OK
Greenfields Irrigation District - water management issues	Some projects moving forward	OK
Greenfields Irrigation District - wastewater affecting streams	Some projects moving forward	OK
Fort Shaw Irrigation District - water management issues	Some projects moving forward	OK
Fort Shaw Irrigation District - wastewater affecting streams	Some projects moving forward	OK
Freezout - water quality	Some projects moving forward	OK
Water quality entering Teton River	Some projects moving forward	OK
Big Coulee water quality and quantity	Some projects moving forward	OK
Simms Creek water quality and quantity	Some projects moving forward	OK
Adobe Creek water quality and quantity	Some projects moving forward	OK
Rocky Reef water users - water management issues	Some projects moving forward	OK
Town of Fairfield - sewage lagoon	Some projects moving forward	OK
Town of Fairfield - drinking water	Some projects moving forward	OK
Fairfield Bench - water quality and quantity	Some projects moving forward	OK
Mill Coulee water quality and quantity	Some projects moving forward	OK
Town of Power - drinking water	Some projects moving forward	OK
Upper Muddy Creek - Animal waste	Some projects moving forward	OK
Muddy Creek - water quality and quantity	Some projects moving forward	OK
Sun River Valley Ditch Company - water management issues	Some projects moving forward	OK
Sun River Valley Ditch Company - wastewater issues	Some projects moving forward	OK
Town of Vaughn - sewage lagoon	Engineer review	No/go
Town of Sun Prairie - drinking water problems	Engineer review	OK
Lower Sun River water quality and quantity	Some projects moving forward	OK
Lower Sun River - riparian health	Some projects moving forward	OK

Attachment #5

SRWG 2012 WORKPLAN
MAJOR WATER CONSERVATION PROJECTS SRWG PURSUING NOW

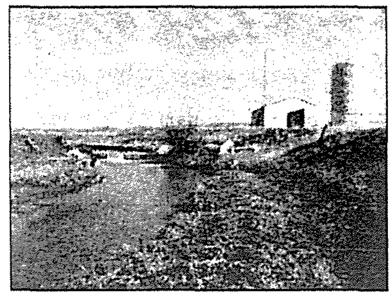


PREVIOUS STUDIES APPLICABLE TO THIS PROJECT


2007

Muddy Creek Flow and Sediment Study

Upper Muddy Creek
Water Quality Investigation 2010

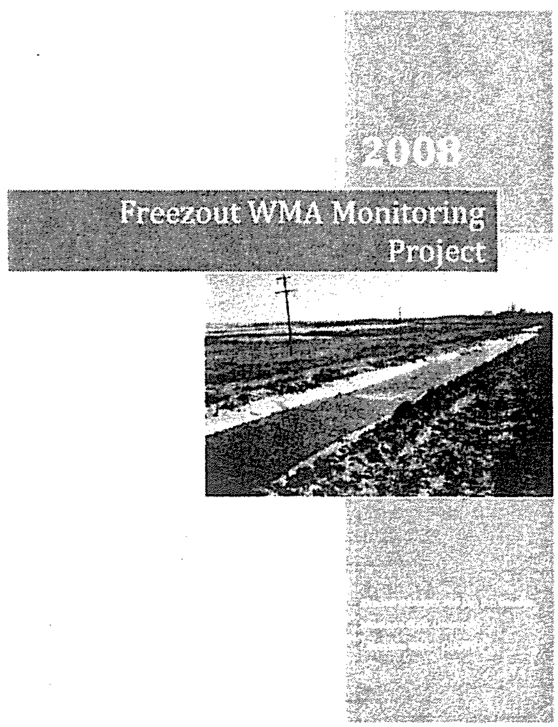


Measurements and reporting by Adam Sigler
Montana State University Extension Water Quality
January 2011

Big Coulee Flow and Sediment Study

2008

Kim Hershberger and Dr. Jim Bauder
Montana State University Extension Water Quality


2008

Freezout WMA Monitoring Project

EXAMPLE of ONE
Montana State University Flow and Sediment Studies Chart
Used for defining specific project needs

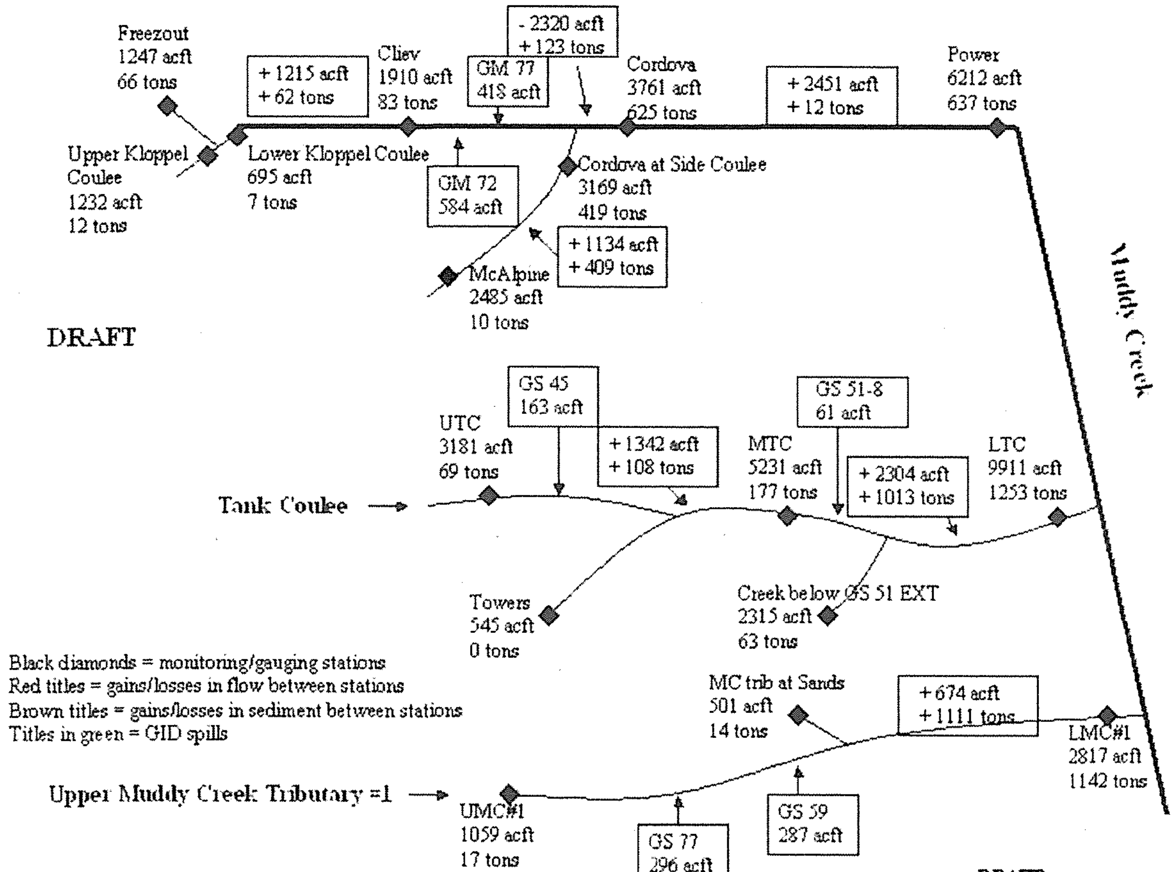


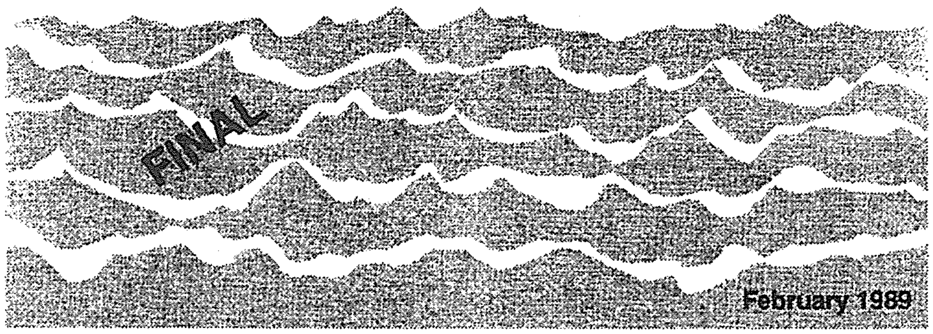
Figure 2. Flow and sediment calculations with GID spills and gains and losses in sediment and flows for Muddy Creek tributaries.

DRAFT

MONTANA STATE WATER PLAN

MONTANA WATER PLAN

Management Section



Subsection: Agricultural Water Use Efficiency

WATER RESOURCES DIVISION • DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION
1520 EAST SIXTH AVENUE • HELENA, MONTANA 59620 - 2301 • (406) 444-6637

INTRODUCTION

Agriculture is Montana's largest business, providing about one-third of the total state income from primary industries. Irrigation contributes roughly one-quarter of agricultural income and, importantly, stabilizes agricultural production during the all-too-frequent dry years. Satisfying agriculture's vital demand for irrigation water requires the development and extension of water supplies through a combination of management strategies, including water storage. Another method is to improve the efficiency with which water is used.

The benefits of improved agricultural water use efficiency are diverse and include:

1. Improved ability to withstand periods of drought.
2. Increased irrigated acreage through the use of saved water.
3. Improved performance of aging irrigation facilities.
4. Increased irrigators' profits when the benefits of more efficient water use (increased crop production and sometimes decreased operating costs) are greater than the investment cost.
5. Reduced soil erosion and improved water quality.
6. Help in meeting the needs of current water users once the prior reserved rights of Indian tribes and the federal government are quantified and put to use.

Along with these benefits, improving water use efficiency may be important in terms of interstate water allocation. The U.S. Supreme Court has indicated that state conservation efforts will be considered if it is called upon to divide the waters of interstate rivers. The Court could decide to award smaller shares to states making no effort to increase water use efficiency, reasoning that these states could meet their future needs by saving more water.

BACKGROUND

Any strategy to improve agricultural water use efficiency must reflect an appreciation of several difficulties. First, because each irrigation situation is different, improving water use efficiency requires a case-by-case consideration of a number of complex geologic, hydrologic, and economic factors. Second, irrigation efficiency improvements can be very expensive. Third, water uses within a basin can be extremely interdependent. One irrigator's return flows or recharge to ground water can be another irrigator's water supply. Therefore, improving the efficiency of one water user could adversely affect the water supply of others. Fourth, while Montana law protects water users from adverse effects caused by other people's changes in water use, the law does not clearly establish who owns the right to water saved without adverse effects to others.

A number of options are already available to overcome some of these problems. The Montana Cooperative Extension Service, local conservation districts, and a number of other state and federal agencies provide technical assistance and information on water conservation measures. The Montana University System also supports research to improve our understanding of the complex factors that affect irrigation efficiency. Research may also help develop improved irrigation practices and technologies.

Matching SRWG efforts

Funding assistance is available for irrigation efficiency improvements from a number of sources. These sources include the U. S. Agricultural Stabilization and Conservation Service, Farmers Home Administration, Soil Conservation Service, and the Montana Water Development Program administered by the Department of Natural Resources and Conservation (DNRC).

Given that one irrigator's water losses can be another irrigator's water supply, improvements in water use efficiency may adversely affect some water users. In light of this, the law provides potentially affected parties the right to object to certain changes in water use. Accordingly, the objective of increased water use efficiency is not to reduce the amount of water that is later reused. Rather, it is to decrease losses such as: (1) water used by weeds or other unwanted vegetation; (2) evaporation of standing water; (3) water that is not consumed but becomes inaccessible for reuse; or (4) water that becomes unusable because its quality has deteriorated.

The final difficulty stems from the fact that our water law is not clear on the question of who holds the right to salvaged water. In Montana, water rights are based on the amount of water historically put to beneficial use. If an irrigator decreases his use over time because of improved efficiencies, the legal status of the water no longer needed can be called into question. By one interpretation, this part of the water right would be considered abandoned and the water would go to the next junior user. Obviously, this would not encourage increased efficiency. Under a second interpretation, an irrigator who increases his efficiency retains the right to the salvaged water, so long as other water users would not be adversely affected by the change in water use. The irrigator may then have the option to expand

MONTANA TMDL for the SUN RIVER PLANNING AREA

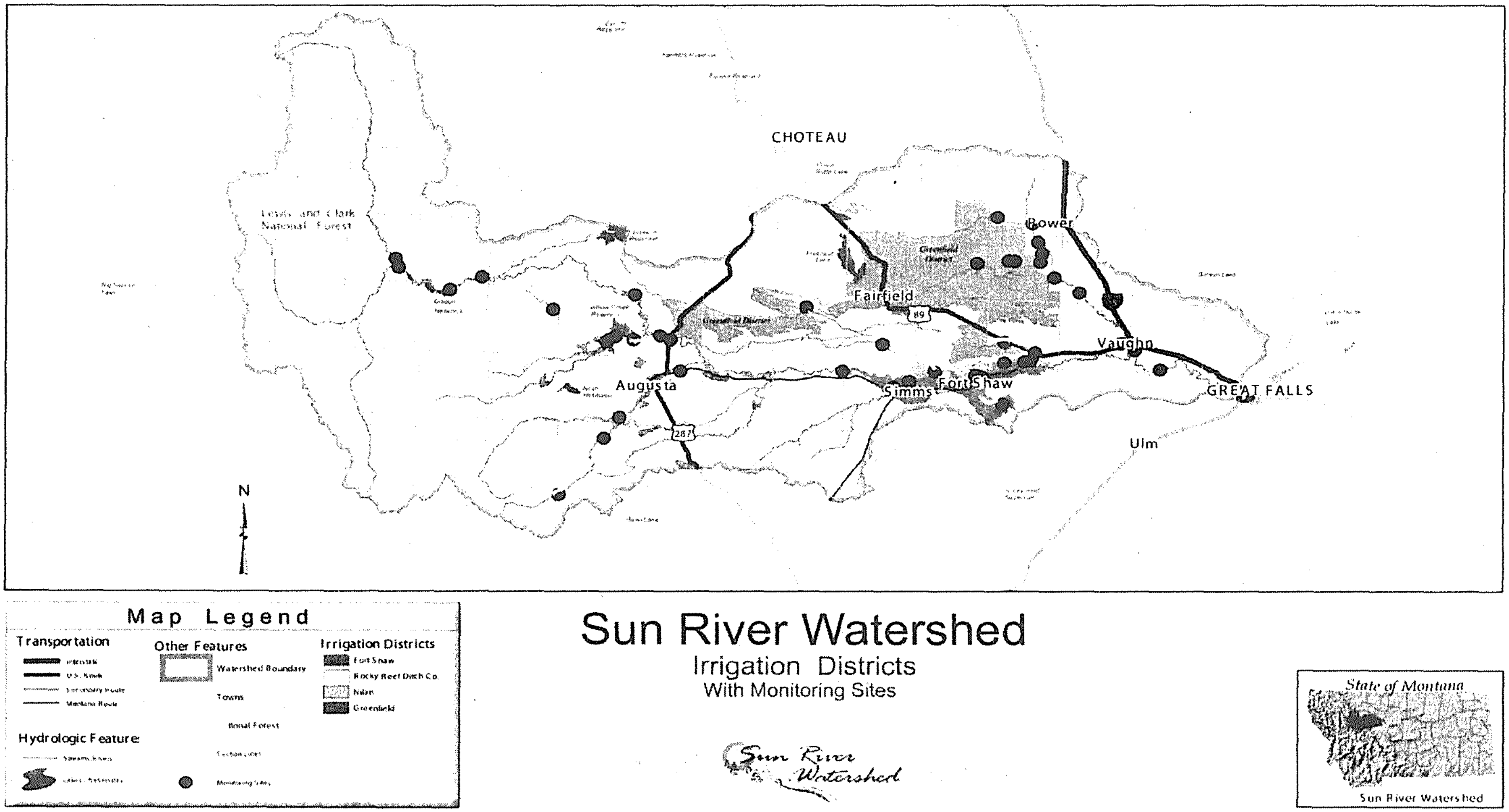
WATER QUALITY RESTORATION PLAN AND TOTAL MAXIMUM DAILY LOADS FOR THE SUN RIVER PLANNING AREA

DECEMBER, 2004

Montana Department of
ENVIRONMENTAL QUALITY

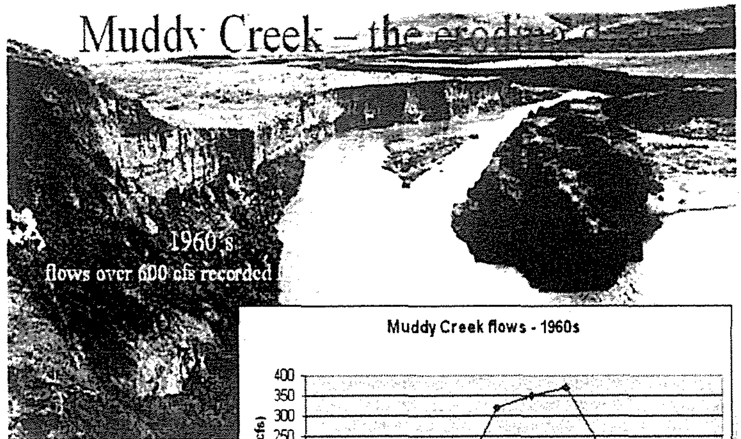
Attachment #9

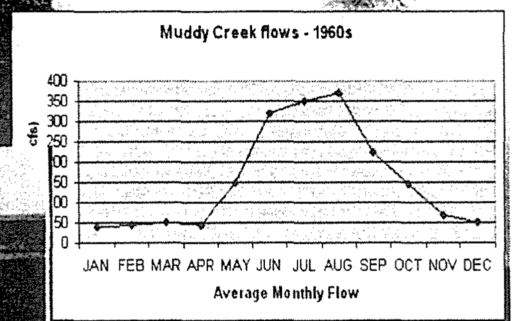
SUN RIVER WATERSHED MONITORING SITES

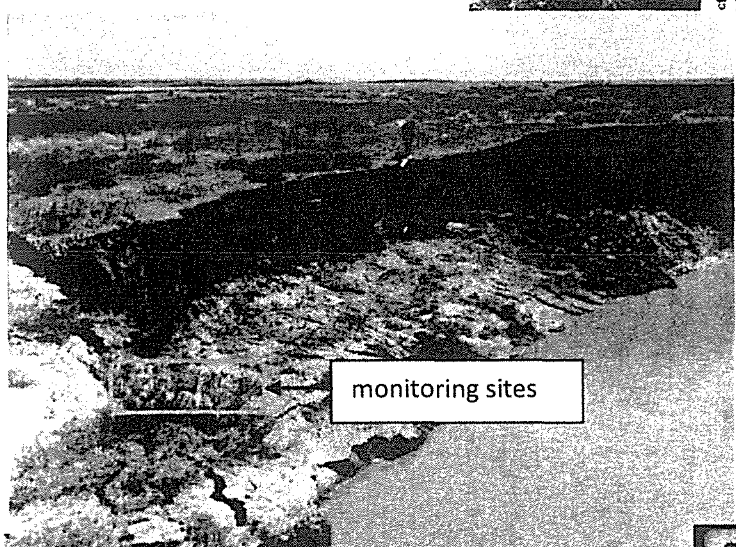


Attachment #10

SRWG SUCCESS STORIES





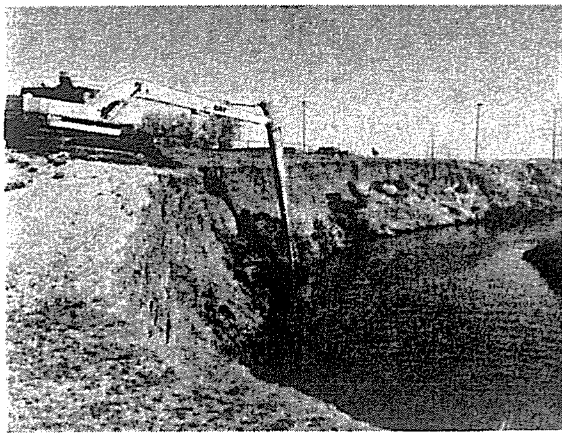


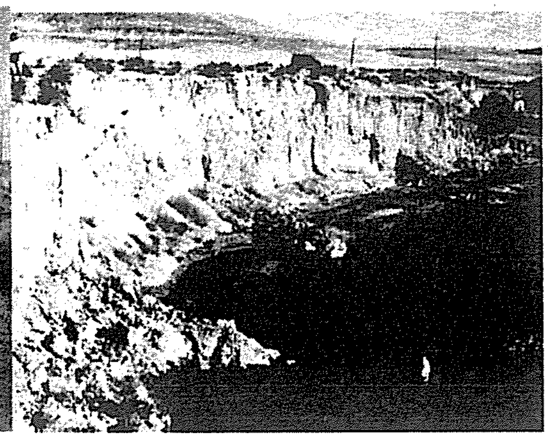
The ugly days of Muddy Creek

Muddy Creek entering Sun River

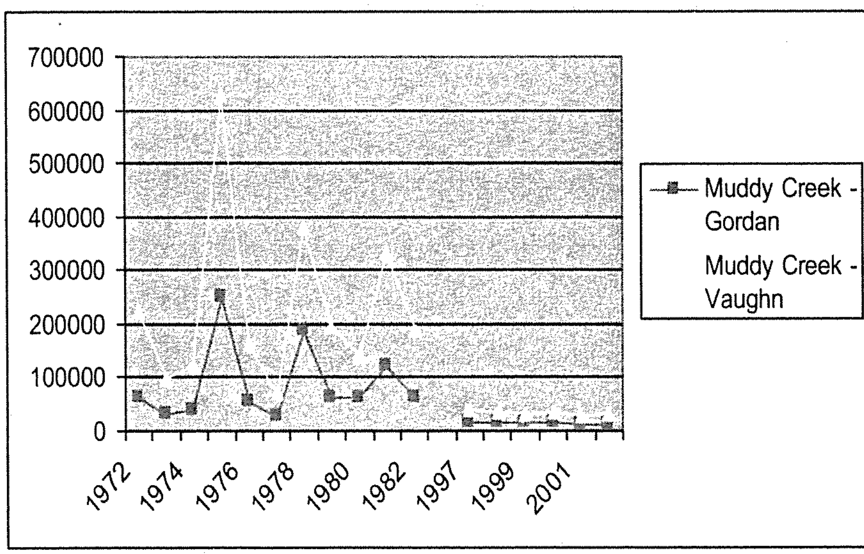
Sun River entering Missouri River at Great Falls

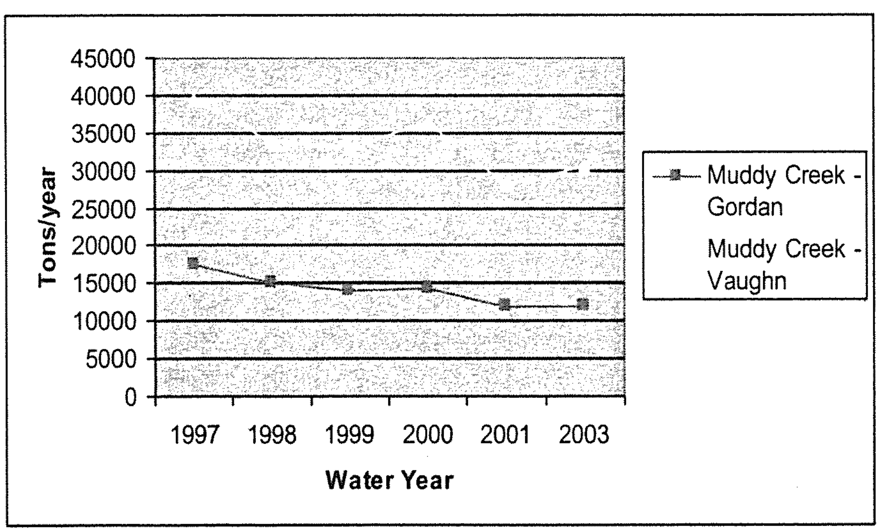
THE RESULTS of TEAMWORK on MUDDY CREEK


Installing rock barbs to slow erosion


Rock barbs working after first year

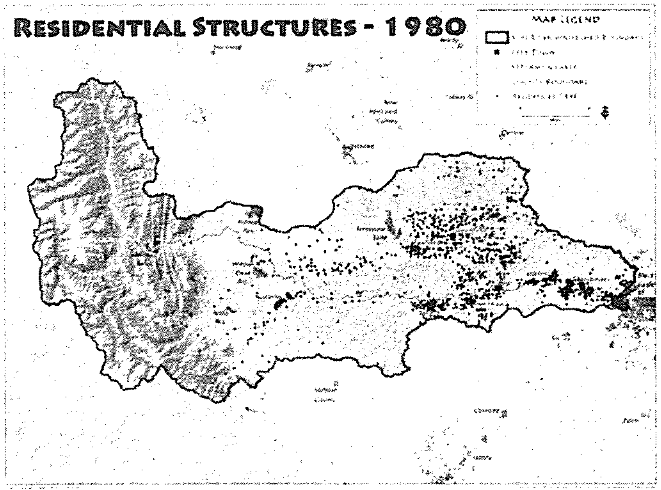
Sediment

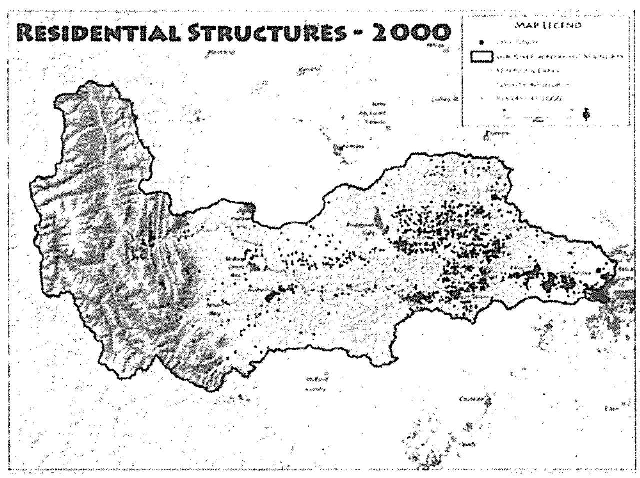


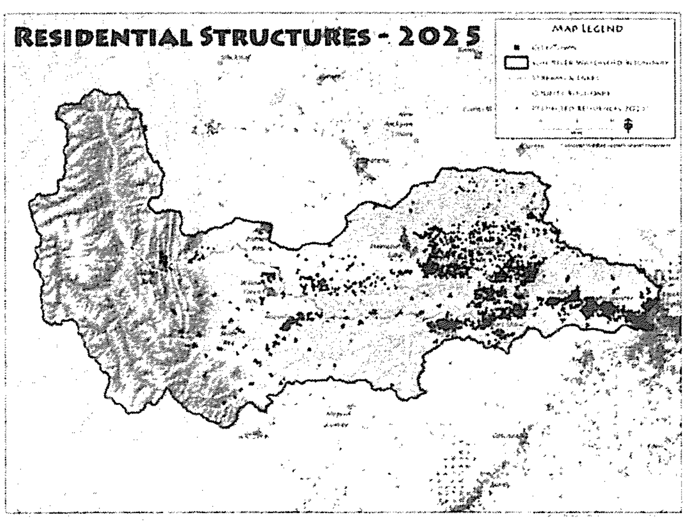


Attachment #11

Known and Planned Growth in Sun River Watershed
to be Proactive in Future Water Demands and Potential Conflicts







Attachment #12

Forest Service map tracking burned areas over time
Be Proactive in Where Next Major Fire Problems May be