

Big Creek instream flow lease

FUTURE FISHERIES IMPROVEMENT PROGRAM GRANT APPLICATION

Please fill in the highlighted areas
all sections (IA, IB, IC, etc.) must be addressed or the application will be considered invalid

I. APPLICANT INFORMATION

A. Applicant Name: Montana Fish, Wildlife & Parks - Water Program

B. Mailing Address: PO Box 200701

C. City: Helena State: MT Zip: 59620-0701

Telephone: E-mail:

D. Contact Person: Andy Brummond

Address if different from Applicant: PO Box 938

City: Lewistown State: MT Zip: 59457

Telephone: 406-538-2445 ext. 224 E-mail: abrummond@mt.gov

E. Landowner and/or Lessee Name (if other than Applicant): John L. Lake, Jr., Yellowstone Stage Stop Estates Water User's and Homeowner's Association, Mountain Sky Guest Ranch

Mailing Address:

City: State: Zip:

Telephone: E-mail:

II. PROJECT INFORMATION*

A. Project Name: Big Creek Instream Flow Water Lease Renewal

River, stream, or lake: Big Creek, Tributary to the Yellowstone River

Location: Township: 6 South Range: 7 East Section: 22 & 23

Latitude: 45.30642 Longitude: -110.85159 *within project (decimal degrees)*

County: Park

B. Purpose of Project:

The purpose of the project is to renew two existing instream flow water leases on Big Creek.

Big Creek instream flow lease

C. Brief Project Description:

The objective of this project is to preserve the status quo regarding stream flow and Yellowstone Cutthroat Trout recruitment from Big Creek. The current instream flow water leases have been in place for 20 years and expire prior to the 2019 irrigation season. Initially two water leases and were put in place, one for 10 cfs and the other for a range of flows from 1 to 16 cfs, with a total of 11 cfs being enforced against junior water users during periods of low flow.

At the time of its inception, the water right providing the 10 cfs instream flow was owned by one party. The 10 cfs instream was derived from water savings due to changes in irrigation practices, primarily the change from flood to sprinkler irrigation on a large part of the irrigated area. The land irrigated by the water right was split into two ownerships prior to the 2009 lease renewal so two separate renewals were negotiated for the jointly owned water right. Recently the water right was split into the two ownerships, with each owner having their own water right. The total water leased for instream use is 10 cfs with 2.8 cfs leased from John L. Lake, Jr. and Yellowstone Stage Stop Estates Water User's and Homeowner's Association and 7.2 cfs leased from Mountain Sky Guest Ranch.

Consistent with the current agreement with Mountain Sky, FWP has agreed not to exercise 1.26 cfs of the 7.2 cfs leased after August 26th, allowing Mountain Sky to slightly increase the use of more junior water rights. Fry trapping data shows that fry emerge by that date and slightly less water in Big Creek would not result in exposure of unhatched eggs while still providing sufficient flow for fry emigration to the Yellowstone.

The proposal would renew the 2.8 cfs leased from Mr. Lake and the Homeowners for 10 years, the maximum period allowed under present law. The 7.2 cfs leased from Mountain Sky would be renewed for up to 5 years, but funding for only 1 year is being requested at this time.

Mountain Sky is requesting changes to its irrigation rights to accommodate changes to their irrigated place of use and currently has a water right change application pending before DNRC. As a result of DNRC now requiring the replacement of lost return flow when the means of irrigation is converted from flood to sprinkler irrigation, most if not all the water FWP has been leasing will in the future be required to be left instream in Big Creek by Mountain Sky to replace lost return flow. DNRC will most likely not have the requested change approved by the 2019 irrigation season. For that reason, the current temporary change to instream flow is being renewed to protect instream flow until such time DNRC approves the pending change application. While the renewal agreement allows for up to five years, only one year of funding is being requested at this time as one additional year should provide DNRC adequate time to evaluate and approve the pending change application.

The lease with the Montana Land Reliance for 1 to 16 cfs is also being renewed for ten years.

The attached memorandum provides information regarding the importance of these water rights to in-stream flow and the fishery along with an explanation of the how the lease cost was determined.

The attached map shows the project location.

D. Length of stream or size of lake that will be treated:

1.4 miles from mouth to main diversion

Big Creek instream flow lease

E. Project Budget:

Grant Request (Dollars): \$ 51,150

Contribution by Applicant (Dollars): \$ 38,850 In-kind \$
(salaries of government employees are not considered as matching contributions)

Contribution from other Sources (Dollars): \$ 0 In-kind \$ 12,300
(attach verification - See page 2 budget template)

Total Project Cost: \$ 102,300

F. Attach itemized (line item) budget – see template

Attach **specific project plans, detailed sketches, plan views, photographs, maps, evidence of landowner consent, evidence of public support and fish biologist support, and/or other information necessary to evaluate the merits of the project. If project involves water leasing or water salvage complete a *supplemental questionnaire*** (fwp.mt.gov/habitat/futurefisheries/supplement2.doc).

H. **Attach land management & maintenance plans that will ensure protection of the reclaimed area.**

III. **PROJECT BENEFITS***

A. What species of fish will benefit from this project?:

Yellowstone Cutthroat Trout is the focus species of the project. Mountain Whitefish and Mottled Sculpin, both native species are also present. These species as well as Rainbow and Brown Trout may also benefit although benefits to Rainbow Trout if any are expected to be minimal.

B. How will the project protect or enhance wild fish habitat?:

This project would allow FWP to continue to protect priority Yellowstone Cutthroat spawning and rearing habitat by maintaining an instream flow in lower Big Creek. This maintains adequate water cover over more than 95% of the redds allowing for successful emergence and outmigration to the Yellowstone River.

C. Will the project improve fish populations and/or fishing? To what extent?:

The project is intended to protect existing Yellowstone Cutthroat populations in both Big Creek and the Yellowstone River. The benefits to the fishery have already been realized through the existing water right leases and are expected to be maintained if the leases are renewed.

D. Will the project increase public fishing opportunity for wild fish and, if so, how?:

Big Creek instream flow lease

Through maintaining existing Yellowstone Cutthroat populations, the project would protect existing public fishing opportunities in Big Creek and the Yellowstone River. The Yellowstone River in the area of Big Creek has multiple Fishing Access Sites and the Sunny Brook Fishing Access Site is located on Big Creek approximately 1.5 miles upstream of the water lease reach.

Continuing declines in Yellowstone Cutthroat populations throughout its range could ultimately limit angling opportunities due to Endangered Species Act considerations. Maintaining the Yellowstone Cutthroat strongholds in places like the upper Yellowstone not only provides for tremendous public fishing opportunities but also is critical in thwarting the potential for listing under the Endangered Species Act. The continued protection of instream flow in Big Creek serves this purpose.

- E. The project agreement includes a 20-year maintenance commitment. Please discuss your ability to meet this commitment.

Maintenance of the project would involve ongoing biological and hydrological monitoring. FWP is committed to this ongoing monitoring both to ensure a return on the investment as well as to monitor the trends in Yellowstone cutthroat recruitment. The term of the renewal is limited to 10 years by §85-2-436(3)(e) MCA.

- F. What was the cause of habitat degradation in the area of this project and how will the project correct the cause?:

Yellowstone cutthroat spawning, rearing and fry out migration to the Yellowstone River was historically limited by irrigation water diversions causing dewatering of the stream. This habitat degradation has been corrected through the existing leases. This project would serve to ensure that the habitat degradation is corrected for at least the next 10 years. This project also serves to mitigate hydrologic changes associated with climate change.

- G. What public benefits will be realized from this project?:

The public benefits realized from this project will be the continuation of angling opportunities on the upper Yellowstone River that may otherwise be threatened over the long-term. It will help ensure the persistence of a Yellowstone Cutthroat.

- H. Will the project interfere with water or property rights of adjacent landowners? (explain):
-

Big Creek instream flow lease

The existing water leases have been in place for 20 years and has not resulted in any injury to existing water rights. If necessary, during periods of low flow usage of junior water rights may be curtailed to provide instream water under the more senior water rights being leased. This impact to junior rights existed prior to the leases. The implementation of conservation measures have reduced the demand for irrigation water under the senior water rights.

During this lease renewal process DNRC notifies water users that may be potentially adversely affect by the continuation of the lease and gives them the opportunity to provide evidence of adverse effects that has not been previously considered. If new evidence is provided a new temporary change application for instream flow must be filed with DNRC and FWP must prove that other water users will not be adversely affected. It has not been necessary to request that a water commissioner distribute water.

- I. Will the project result in the development of commercial recreational use on the site?: (explain):

As the project will preserve the status quo it is not anticipated that it would influence new development of recreation use on the upper Yellowstone River or Big Creek.

- J. Is this project associated with the reclamation of past mining activity?:

No

Each approved project applicant must enter into a written agreement with Montana Fish, Wildlife & Parks specifying terms and duration of the project. The applicant must obtain all applicable permits prior to project construction. A competitive bid process must be followed when using State funds.

IV. AUTHORIZING STATEMENT

I (we) hereby declare that the information and all statements to this application are true, complete, and accurate to the best of my (our) knowledge and that the project or activity complies with rules of the Future Fisheries Improvement Program.

Applicant Signature:



Date:

11-27-18

Sponsor (if applicable):

***Highlighted boxes will automatically expand.**

Big Creek instream flow lease

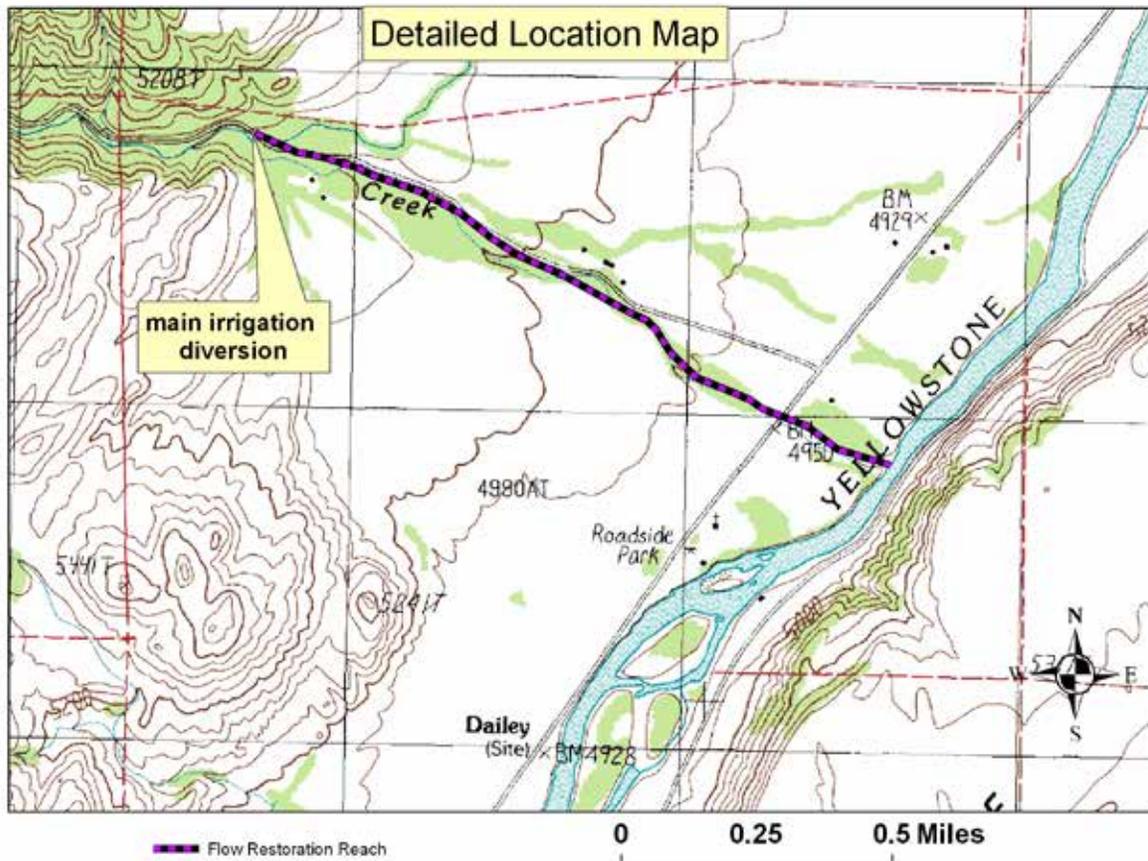
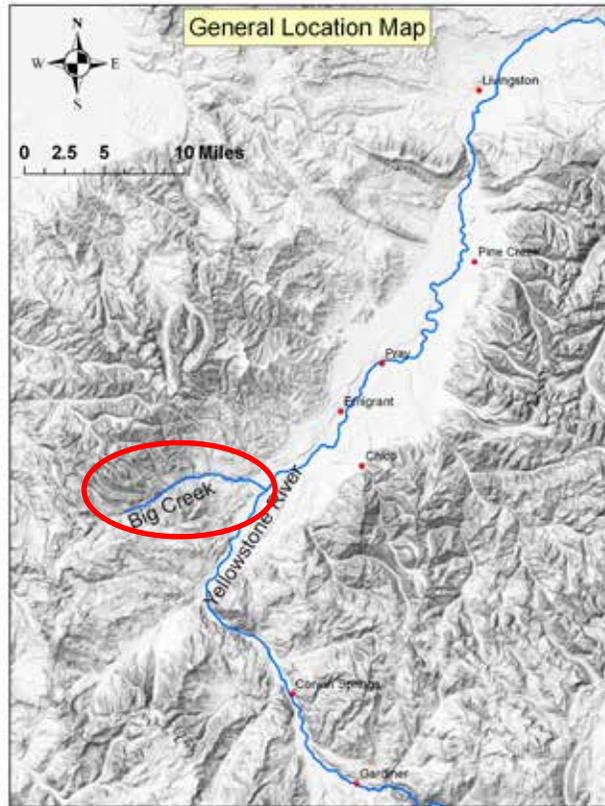
Mail To: Montana Fish, Wildlife & Parks
Fisheries Division
PO Box 200701
Helena, MT 59620-0701

E-mail To: Michelle McGree
mmcgree@mt.gov
(electronic submissions MUST be signed)

Incomplete or late applications will be rejected and returned to applicant.
Applications may be rejected if this form is modified.

*****Applications must be signed and *received* by the Future Fisheries Program Officer in Helena before December 1 and June 1 of each year to be considered for the subsequent funding period.*****

Big Creek instream flow lease





MEMORANDUM

To: FFIP Application – Big Creek Instream Water Right Lease Renewal

From: Andy Brummond, FWP Water Conservationist
Scott Opitz, Livingston Area Fisheries Biologist

Date: November 20, 2018

Subject: Benefits of Big Creek Instream Water Right Leases

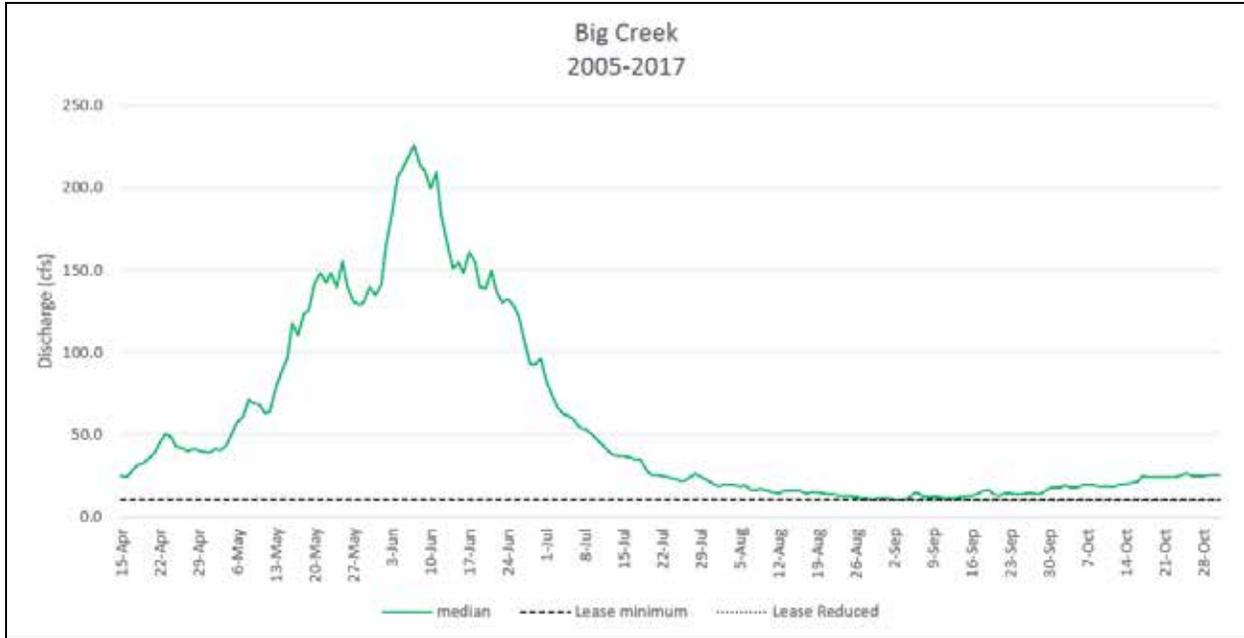
The upper Yellowstone River in the Paradise Valley remains a stronghold for Yellowstone Cutthroat Trout (YCT). Big Creek, a tributary to the Yellowstone south of Emigrant, provides critical YCT spawning for this portion of the Yellowstone River. YCT adults migrate into Big Creek to spawn on the falling limb of the hydrograph with fry emerging in August and emigrating to Yellowstone River.

FWP negotiated instream flow water leases on Big Creek first instituted in 1999 and are now due for renewal. These leases provide a minimum of 11 cfs to protect Yellowstone Cutthroat Trout redds from being de-watered during late summer and to provide for sufficient flow for fry to emigrate to the Yellowstone River. Prior to the water leases, Big Creek went dry in the lower reaches dewatering redds and preventing migration of fry. A flow 10-11 cfs protects approximately over 95% of the redds from dewatering (Byorth 1990).

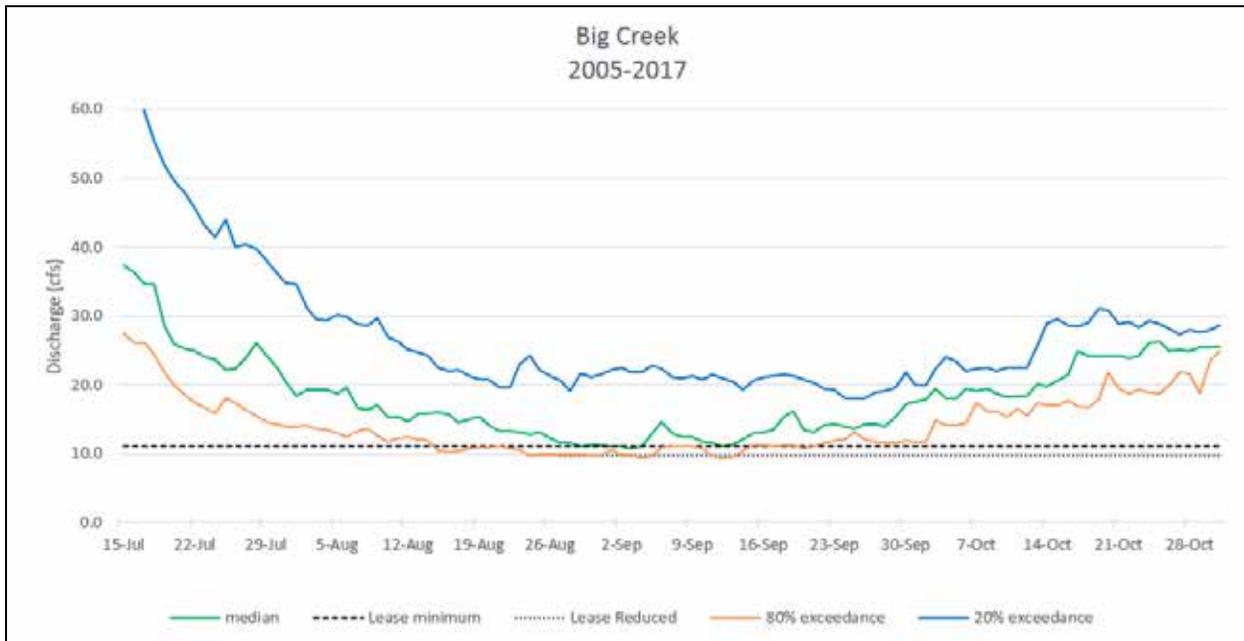
The importance of Big Creek as a spawning tributary has been recognized since the early 1970s (Berg 1975), and subsequent investigations found Big Creek to be among the most heavily used spawning tributaries in the upper Yellowstone River (Clancy 1988, DeRito 2004). With the water leases in place, Big Creek is a major contributor of YCT fry to the Yellowstone River (Roulson 2002). These factors make Big Creek a highly valuable stream in YCT conservation.

Since 2005 FWP has collected continuous flow data below the main irrigation diversion in the historically dewatered reach. The following hydrograph shows the (median) daily flow for the 13 years of record in comparison to the 11 cfs combined minimum flow in the present water leases. The water leases have met their objective.

Big Creek instream flow lease



The following hydrograph focusses on the critical summer period showing the 80th, 50th and 20th percentile exceedance flows in relation to the 11 cfs instream flow level as well as the 9.74 cfs reduced instream flow level after August 26th.



The following photographs show pre-lease conditions with the first photo showing typical late summer conditions with Big Creek being totally dewatered. The second photo shows post-irrigation conditions similar to those now seen due to the water leases with the bed of Big Creek covered by water.

Big Creek instream flow lease



Big Creek looking downstream from U.S. Highway 89 bridge.

9-18-1990



Big Creek looking downstream from U.S. Highway 89 bridge flowing ~10 cfs.

10-18-1990

Big Creek instream flow lease

Big Creek Redd Counts

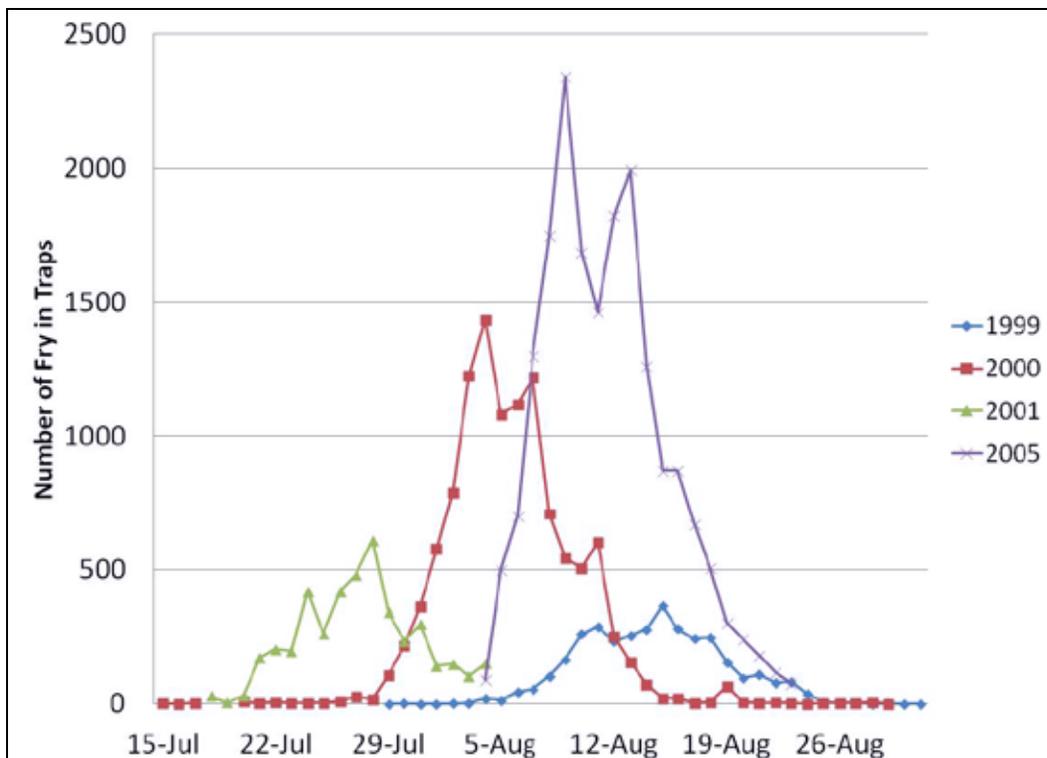
Reach	2017	2016	2015
Mouth to 89 Bridge	33	54	45
89 Bridge to 1 st Diversion	39	67	44
1 st Diversion to Mutual Diversion	18	14	16
Totals	90	135	105



Big Creek instream flow lease

Year	Spawning Adults	Redds	Fry
1988	5 (season-long)	27 (all-season)	0
1989		27 (all-season)	
1999	57 (season-long)		3,429
2000			11,202
2001			4,249
2004		142 (one day, near peak spawning)	
2005		88	18,756
2015		105 (one day, post peak spawning)	
2016	3	135 (one day, post spawning)	
2017	2	90 (one day, late post spawning)	Many on redds

Comparison of pre-lease conditions (1988 & 1989) and post-lease conditions (1999-2017)



Big Creek fry trapping data.

Relationship to Other Future Fisheries Projects

The Future Fisheries Improvement Program has also invested \$32,450 in a fish screen for the main irrigation canal diversion on Big Creek, which serves to eliminate nearly all fish entrainment on Big Creek. The other main irrigation pipeline diversion makes use of an infiltration gallery, so fish already are not entrained by this other major diversion. Without sufficient flow in Big Creek to bypass the main irrigation canal diversion the new fish screen would not function and would need to be removed causing entrainment to continue as it has in the past.



Fish screen being placed in position.



Fish screen in operation

Cost of Leases

Going forward the 11 cfs protected instream during summer low-flow periods consists of three water leased as outlined in the following table:

Flow	Lessor	Cost / year
7.2 cfs	Mountain Sky Guest Ranch	\$27,300 ^a
2.8 cfs	John L. Lake, Jr. and Yellowstone Stage Stop Estates Water User's and Homeowner's Association	\$7,500
1.0 ^b cfs	Montana Land Reliance	\$100

a. This is planned to be a 1-year cost only.

b. Flow ranges from 1 to 16 cfs with 1 cfs protected during low-flow period.

Based on the previous (2009) annual lease payment to Mountain Sky Guest Ranch of \$3,203 per cfs leased adjusted to \$3792 for inflation using the Consumer Price Index (CPI) Inflation Calculator from the U.S. Bureau of Labor Statistics, the total lease value is \$27,300 for 7.2 cfs. Mountain Sky has agreed to forego payment of the \$12,300 difference between the total lease value and the \$15,000 lease payment recognizing the importance of the water lease to the health of Big Creek. This is expected to be paid only in 2019, as pending changes to Mountain Sky's water rights will provide instream flow as DNRC-required return flow mitigation in future years.

Big Creek instream flow lease

The cost negotiated for the 2.8 cfs leased from Lake and the Homeowners is \$2,679 per cfs, which is lower than the current and previous rate paid Mountain Sky.

The total 10-year cost, excluding the Montana Land Reliance lease which is not being funded through this Future Fisheries application, is expected to be \$102,600 considering only one payment to Mountain Sky occurring in 2019. This is considerably less than the \$255,000 10-year cost associated with the renewals in 2009.

Literature Cited

Berg, R. 1975. Fish and game planning, upper Yellowstone and Shields River drainages. Montana Department of Fish and Game. Environment and Information Division. Federal Aid to Fish and Wildlife Restoration Project.

Byorth, P. 1990. An evaluation of Yellowstone cutthroat trout production in three tributaries of the Yellowstone River, Montana. Master's Thesis, Montana State University, Bozeman, Montana.

Clancey, C. 1998. Effects of dewatering on spawning by Yellowstone cutthroat trout in tributaries to the Yellowstone River, Montana. American Fisheries Society Symposium 4:37-41.

DeRito, J. N. 2004. Assessment of reproductive isolation between Yellowstone cutthroat trout and rainbow trout in the Yellowstone River, Montana. Master's Thesis, Montana State University, Bozeman, Montana.

Roulson, L. H. 2002. Water leases and Yellowstone cutthroat trout fry outmigration from four tributaries of the upper Yellowstone river, project year 2001. Report prepared for Montana Fish, Wildlife & Parks. Garcia and Associates, Bozeman, Montana.

BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS

Both tables must be completed or the application will be returned

WORK ITEMS (ITEMIZE BY CATEGORY)	NUMBER OF UNITS	UNIT DESCRIPTION*	COST/UNIT	TOTAL COST	CONTRIBUTIONS			
					FUTURE FISHERIES REQUEST	IN-KIND SERVICES**	IN-KIND CASH	TOTAL
Personnel***								
Survey				\$ -				\$ -
Design				\$ -				\$ -
Engineering				\$ -				\$ -
Permitting				\$ -				\$ -
Oversight				\$ -				\$ -
				\$ -				\$ -
			Sub-Total	\$ -	\$ -	\$ -	\$ -	\$ -
Travel								
Mileage				\$ -				\$ -
Per diem				\$ -				\$ -
			Sub-Total	\$ -	\$ -	\$ -	\$ -	\$ -
Construction Materials****								
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
			Sub-Total	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment and Labor								
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
Water Lease								
	1		\$75,000.00	\$ 75,000.00	37,500.00		37,500.00	\$ 75,000.00
	1		\$27,300.00	\$ 27,300.00	13,650.00		13,650.00	\$ 27,300.00
			Sub-Total	\$ 102,300.00	\$ 51,150.00	\$ -	\$ 51,150.00	\$ 102,300.00
Mobilization								
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
			Sub-Total	\$ -	\$ -	\$ -	\$ -	\$ -
TOTALS				\$ 102,300.00	\$ 51,150.00	\$ -	\$ 51,150.00	\$ 102,300.00

FUTURE FISHERIES IMPROVEMENT PROGRAM

SUPPLEMENTAL INFORMATION SHEET FOR WATER LEASING OR WATER SALVAGE PROJECTS

The following additional information is requested to supplement the Future Fisheries Application for projects associated with water leasing or water salvage. Please complete this supplemental form and submit it as part of the Future Fisheries Grant Application.

- 1. Please complete the following table describing the water right(s) associated with the proposed project.** Note: Much of this information can be obtained either from your own water rights records or online at <http://www.dnrc.state.mt.us/wrd/home.htm> (choose “water rights” and then select an index to look up applicable claims)

RIGHT NUMBER; WATER SOURCE	POINT OF DIVERSION	QUANTIFIED FLOW (CFS)/ VOLUME (AF)/ IRRIGATED ACRES	PRIORITY DATE; PERIOD OF USE	RELATIVE PRIORITY ON WATER SOURCE	PURPOSE OF WATER RIGHT	OTHER CLAIMED ON THE STREAM SENIOR TO YOUR LISTED CLAIMS
43B 30110715 Big Creek	SW NW NE Sec. 22 T6S, R7E Primary Diversion	3.5 cfs 792.9 ac-ft 72 acres	June 30, 1873 May 1 to November 1	1st priority	Fishery Irrigation	0 cfs senior to this right
43B 195265 00 Big Creek	SW NW NE Sec. 22 T6S, R7E Primary Diversion	9.0 cfs 2037.6 ac-ft 261 acres	June 30, 1873 May 1 to November 1	1st priority	Fishery Irrigation	0 cfs senior to this right

The change to instream flow of 10 cfs of the 12.5 cfs total for the water rights was approved by DNRC in 1999 under Authorization to Change 43B 195265-99. The ownership and the right itself were subsequently been split into two water rights reflected in the table above. The leased amount was proportionally split to 2.8 cfs and 7.2 cfs respectively. The proposed project is to renew the lease/change to instream flow for the 2.8 cfs portion for a period of 10 years and the 7.2 cfs for a period of up to 5 years but with only 1 year of funding being requested.

Mountain Sky Guest Ranch, the owner of water right 43B 195265-00 (7.2 cfs portion of instream flow) is requesting changes to its irrigation rights to accommodate changes to their irrigated place of use and currently has a water right change application pending before DNRC. As a result of DNRC now requiring the replacement of lost return flow when the means of irrigation is converted from flood to sprinkler irrigation, most if not all the water FWP has been leasing will in the future be required to be left instream in Big Creek to replace lost return flow. There may be a small amount of additional water FWP may lease in the future, but the amount is unknown until DNRC approves the pending change. In the long run the benefits to Big Creek will accrue without having to lease most if not all of the

Big Creek instream flow lease

water currently under lease. However, in the short-term DNRC will most likely not have the requested change approved by the 2019 irrigation season. For that reason, the current temporary change to instream flow is being renewed to protect instream flow until such time DNRC approves the pending change application. While the renewal agreement allows for up to five years, only one year of funding is being requested at this time as one additional year should provide DNRC adequate time to evaluate and approve the pending change application.

2. In the last 10 years, has your full water right amount regularly been available at your point of diversion throughout your period of use?

Yes / No (Please circle one)

The full 12.5 cfs of the water rights has been regularly available.

Have you ever made “a call” on junior water users to obtain the water you needed (through a water commissioner or otherwise)?

Yes / No (Please circle one)

No formal call has been made since the original instream water lease began in 1999. However, through ongoing communication with the main water users the diversion of water was reduced at times in order to meet the instream flow requirements.

3. Please describe or include a summary of any measurements of the amount of water you have regularly diverted and how much typically flows by your diversion during different time periods.

Between 1999 and 2004 instream flow was monitored by FWP staff recording periodic water level readings and determining streamflow from a water level – streamflow rating table developed by USGS. From 1999 through 2016 and beginning again in 2018 FWP contracted with USGS to take several streamflow measurements and maintain a rating table for the Big Creek measurement site at the mouth.

Beginning in 2005, FWP staff installed a water level recording device and began taking more regular streamflow measurements. This data along with that collected by USGS was used to develop continuous streamflow data to monitor the effectiveness of the water lease. During the 2005-2017 period, daily average streamflow measurements show that flow in Big Creek rarely dropped below the lease minimum, and only for short periods when it did drop below the minimum. Big Creek has never approached being dry since the inception of the leases.

Big Creek instream flow lease

4. **Has your local FWP fish biologist confirmed that your leasing/salvage project addresses a stream flow problem that significantly limits the fishery?**

Yes / No (Please circle one)

5. **How much actual water (often different than just the remainder of your water rights) will be added to the stream through completion of your project?**

10 cfs Please fill in and circle one cfs / gpm / miners inches

10 cfs is the flow rate authorized by DNRC for the leases for which funding is being requested. A second temporary change to instream flow for a range of flows 1-16 cfs is also being renewed but funding is not being requested from the Future Fisheries Improvement Program.

What length of stream will benefit from this additional flow? (Note: Under certain circumstances, senior water can be protected legally from diversion by downstream junior users.)

1.4 miles (please fill in or describe)

6. **Is there a water commissioner on your stream? Yes / No (Please circle one)**

Presently there is not a water commissioner on Big Creek. However, the lease renewal agreement provides a mechanism by which to petition for the appointment of a water commissioner.

Are you willing to actively assist in monitoring and/or protecting the conserved water instream? Yes / No (Please circle one and describe)

FWP will continue to monitor the protected instream flow by taking regular (typically monthly) streamflow measurements, maintaining a water level – discharge relationship, and calculate continuous flow data. During late summer FWP staff increases the frequency of monitoring and has regular contact with the main water users to help insure that the instream flow is protected.

Past streamflow data for Big Creek in the protected stream reach is attached.

Big Creek instream flow lease

Big Creek at Kendall Bridge nr Emigrant

USGS Station No. 06191820

Location: Approx. 0.85 miles upstream of U.S. Highway 89

Lat. 45 18' 21" Long. 110 50' 51"

TWP 6S, RGE 7E, SEC 22, AAB

Average daily flow in cubic feet per second based on stage at 30-min. intervals.

Day	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
29-Mar								36.2 ^a	15.7				
30-Mar									16.6		41.8		
31-Mar									17.6		44.9		
1-Apr						19.3			20.4		45.8	21.2	
2-Apr						19.6			23.3		41.8	23.3	
3-Apr						19.2			26.1		38.6	28.0	
4-Apr						19.1			26.9		36.2	31.2	
5-Apr			17.1			19.0			29.5		34.7	32.8	
6-Apr		29.2	17.5			18.8			27.8		32.7	31.3	
7-Apr		29.3	17.2	15.9		18.9	20.8		26.6	11.3	30.9	34.3	
8-Apr		29.7	18.7	16.7		19.0	20.8		24.9	13.4	29.9	41.0	
9-Apr		33.6	21.0	17.3		18.8	20.6		20.5	18.3	28.7	50.9	
10-Apr		33.3	20.6	17.5	21.2	19.4	20.3		22.0	22.7	28.0	57.0	
11-Apr		30.3	19.8	17.8	23.7	19.2	20.6		23.1	27.5	29.5	51.4	
12-Apr		29.6	18.8	18.2	28.1	19.3	21.4		22.0	32.7	30.0	57.4	
13-Apr		37.4	19.2	20.6	30.9	20.0	21.3		22.6	26.5	29.6	67.8	
14-Apr		43.1	20.2	26.5	29.6	20.4	23.1		21.6	23.9	32.2	67.3	
15-Apr		45.0	20.8	32.3	26.9	21.0	23.2		20.7	22.6	35.1	55.1	
16-Apr		49.0	22.2	29.3	23.8	23.6	24.4	38.7 ^a	18.3	19.7	33.8	46.7	
17-Apr		47.0	25.5	28.0	24.2	28.9	28.8		17.7	19.1	33.6	42.2	
18-Apr		39.1	30.2	28.8	27.8	32.1	32.6		22.1	25.6	35.5	39.6	
19-Apr		34.9	30.3	30.6	32.6	37.6	29.0		19.8	33.5	37.3	38.0	
20-Apr		35.4	27.4	31.0	41.7	44.1	27.1		19.8	40.4	36.6	43.5	
21-Apr		40.1	26.1	30.5	55.3	53.4	26.8		19.2	46.5	39.3	58.9	37.9

Big Creek instream flow lease

22-Apr		49.4	24.9	29.1	69.0	67.1	25.3		18.7	60.2	45.2	75.6	37.4
23-Apr		55.7	24.2	28.2	75.1	73.1	24.7		18.0	68.7	50.8	87.2	40.0
24-Apr		48.7	24.6	27.1	62.1	60.5	25.4		19.0	53.8	51.5	90.0	41.3
25-Apr		41.3	26.1	26.1	53.4	53.5	27.9		20.1	47.2	54.0	78.1	42.5
26-Apr		38.3	29.5	25.6	46.5	43.6	28.8		23.1	48.8	49.3	68.5	42.0
27-Apr		33.7	31.4	26.8	41.5	39.6	28.1		30.8	48.1	45.4	58.2	44.1
28-Apr		26.6	38.1	32.7	38.4	42.6	28.4		41.2	44.2	45.5	50.4	42.2
29-Apr		26.6	57.2	48.4	35.3	37.2	28.8		43.2	39.0	53.6	44.8	40.3
30-Apr		39.2	69.5	62.4	32.4	34.5	28.0		36.7	34.7	71.4	42.1	40.0
1-May		50.7	79.0	51.0	31.4	33.0	27.8		32.1	39.1	76.6	39.2	41.3
2-May		57.7	96.5	43.9	32.6	30.9	29.2		28.8	60.9	83.0	38.8	41.6
3-May		49.9	108	40.6	36.6	29.3	35.5		30.0	86.0	81.8	45.2	40.5
4-May		42.7	76.3	44.2	43.7	28.1	40.3		31.7	97.7	84.7	66.9	42.9
5-May		40.6	68.1	49.8	48.9	26.5	42.8		34.3	94.6	94.4	98.5	64.3
6-May		44.4	57.6	64.9	53.9	26.4	52.6		44.5	96.3	103	128	104
7-May		47.9	50.9	72.7	55.0	25.6	60.4		57.8	83.2	94.2	137	135
8-May		52.2	50.8	71.7	49.9	25.4	81.0		69.7	71.3	79.6	162	145
9-May		47.9	62.6	69.7	45.9	26.5	79.0		76.2	68.8	69.1	187	133
10-May		41.0	79.9	63.6	43.1	27.3	73.8		79.8	68.2	60.2	144	119
11-May		38.1	101	61.6	42.1	27.6	66.2		85.7	62.8	55.2	115	132
12-May		41.1	128	63.9	43.3	27.3	71.3		92.6	57.4	61.4	97.4	161
13-May		55.9	165	62.6	42.5	27.7	93.3		123	50.7	78.1	94.6	194
14-May		72.8	176	65.8	42.7	30.5	113		148	46.1	88.1	95.1	169
15-May		96.9	158	75.5	44.0	34.0	111		154	52.5	94.6	98.9	139
16-May		130	145	91.3	47.3	40.5	125		136	76.4	126	88.6	117
17-May		173	146	131	60.2	55.8	110		141	106	134	78.2	109
18-May		211	151	168	93.1	79.5	96.7		132	142	123	85.1	96.5
19-May		234	156	205	140	93.3	87.6		125	140	110	117	85.7
20-May	154	261	160	223	177	98.5	86.4		132	129	97	152	79.1
21-May	173	300	152	224	145	83.2	159		134	130	94	188	75.5
22-May	178	268	126	186	133	72.8	152		126	165	101	179	79.7

Big Creek instream flow lease

23-May	204	251	108	154	146	62.9	148	159 ^a	126	200	114	150	94.9
24-May	201	230	87.7	138	169	59.2	172		130	215	123	122	141
25-May	163	229	80.9	148	186	51.7	187		119	231	130	111	167
26-May	139	228	74.9	142	170	47.5	168		111	259	150	115	139
27-May	133	204	84.7	130	172	55.3	138		108	292	165	127	118
28-May	145	171	115	122	186	86.4	117		109	300	173	136	115
29-May	154	148	118	130	203	124	104		110	306	175	131	130
30-May	138	129	116	142	224	108	94.5		105	300	197	144	149
31-May	125	115	114	165	256	97.9	87.2		95.5	256	256	144	174
1-Jun	129	106	117	181	248	114	94.8		87.2	240	311	153	194
2-Jun	120	131	127	200	194	149	122		88.0	223	297	182	215
3-Jun	116	183	141	214	160	185	127		94.4	223	252	214	229
4-Jun	135	217	157	208	153	206	121		90.0	223	239	250	239
5-Jun	146	242	167	199	158	242	146		88.6	225	230	292	260
6-Jun	176	238	178	212	246	218	202	273	96.7	239	219	333	240
7-Jun	177	242	166	195	231	208	257	228	115	238	217	337	226
8-Jun	167	262	149	177	194	214	255	206	156	229	226	344	227
9-Jun	156	261	148	163	168	211	243	192	178	217	245	335	215
10-Jun	147	257	150	151	152	230	227	155	199	226	246	305	186
11-Jun	142	220	160	138	141	209	220	132	214	223	221	266	158
12-Jun	147	194	163	131	134	184	217	127	203	215	199	217	151
13-Jun	144	191	154	129	135	167	220	140	199	225	176	179	149
14-Jun	144	178	143	151	144	168	255	147	185	216	151	156	140
15-Jun	168	155	137	177	174	186	276	146	149	181	136	147	128
16-Jun	199	133	134	193	208	201	263	142	134	174	130	148	133
17-Jun	238	119	131	228	226	205	231	161	131	175	121	120	140
18-Jun	248	105	117	262	236	184	212	164	130	155	108	110	133
19-Jun	222	96.8	102	271	229	171	212	140	130	143	109	103	131
20-Jun	226	90.2	91.7	281	226	165	217	125	121	145	107	93.3	139
21-Jun	246	77.7	86.3	289	248	171	234	114	106	171	91.0	90.4	150
22-Jun	272	69.9	82.9	339	230	173	271	119	96.1	194	81.5	82.9	137

Big Creek instream flow lease

23-Jun	266	64.8	76.6	352	202	171	334	130	86.3	186	75.3	73.3	119
24-Jun	243	60.8	69.2	412	188	177	356	132	79.8	186	68.7	66.5	105
25-Jun	222	57.1	63.8	394	192	186	317	128	82.1	192	63.4	60.7	95.9
26-Jun	204	54.3	58.2	361	191	209	294	123	89.3	202	57.7	53.6	89.8
27-Jun	185	52.2	53.6	334	168	206	283	107	84.4	230	58.3	48.5	93.3
28-Jun	169	50.1	50.9	333	149	200	296	91.6	82.4	234	56.5	45.3	92.4
29-Jun	167	46.2	47.1	325	145	193	327	84.1	86.9	198	52.9	43.3	92.4
30-Jun	150	48.6	44.1	330	153	197	311	78.3	96.5	180	53.3	43.5	80.5
1-Jul	138	42.4	40.6	326	149	193	311	72.0	82.0	158	46.9	40.3	70.6
2-Jul	126	43.0	37.6	290	134	177	300	67.6	73.1	145	43.2	37.8	69.2
3-Jul	113	40.2	35.1	297	125	155	292	61.1	66.7	145	39.6	37.8	66.9
4-Jul	102	37.3	33.5	303	116	130	289	56.7	62.8	147	38.2	37.4	63.1
5-Jul	92.8	35.3	32.2	304	107	115	276	53.8	60.0	144	38.5	32.6	61.3
6-Jul	85.1	33.8	31.0	271	103	110	272	50.0	55.1	133	46.7	30.5	59.0
7-Jul	81.5	34.0	27.7	237	97.3	97.1	257	47.2	51.7	127	38.7	29.1	54.3
8-Jul	79.3	31.5	27.1	222	94.0	89.0	240	42.8	51.3	116	35.4	26.8	53.6
9-Jul	73.7	30.0	24.9	207	89.0	86.1	226	40.0	44.7	104	34.5	25.9	50.9
10-Jul	75.9	28.0	23.9	194	79.0	84.0	202	36.7	39.7	97.8	36.4	34.9	48.0
11-Jul	75.4	23.3	23.1	178	72.9	83.7	189	35.7	38.3	88.4	35.9	33.3	44.3
12-Jul	61.4	22.3	21.8	151	70.1	77.5	182	33.6	36.0	85.0	30.6	31.7	40.4
13-Jul	52.0	23.8	20.6	135	83.8	72.1	176	33.1	33.8	72.6	33.1	31.6	37.8
14-Jul	48.1	21.5	19.7	126	85.7	66.7	170	37.0	34.7	67.6	30.5	27.0	35.4
15-Jul	44.8	20.2	19.3	117	76.1	61.8	159	37.3	30.3	61.4	30.0	25.7	34.1
16-Jul	43.4	18.5	18.5	113	69.3	57.9	147	34.9	27.4	58.3	30.2	25.3	36.3
17-Jul	39.7	18.0	18.3	111	62.8	54.8	136	33.3	31.9	51.2	27.5	25.1	34.7
18-Jul	37.6	17.2	17.6	102	58.0	51.6	131	30.7	34.7	47.2	25.7	23.5	32.8
19-Jul	34.5	17.5	16.7	94.4	54.5	47.7	128	27.5	28.5	44.6	24.3	20.1	27.4
20-Jul	31.3	16.3	15.7	87.9	53.3	44.0	122	25.0	24.8	42.5	23.4	17.7	26.0
21-Jul	28.9	15.8	15.0	85.2	49.8	42.2	113	25.3	22.1	45.3	23.2	16.2	25.2
22-Jul	25.7	15.5	14.6	92.9	47.8	41.3	107	25.0	20.4	42.2	21.7	15.2	24.7
23-Jul	24.2	15.4	14.3	85.5	46.4	37.5	103	23.9	18.8	38.5	24.1	14.6	23.6

Big Creek instream flow lease

24-Jul	22.4	15.3	14.6	78.3	45.0	36.4	92.3	22.9	16.7	36.0	33.8	14.7	23.7
25-Jul	21.9	15.8	21.5	73.6	47.3	34.6	86.8	22.2	13.2	39.3	21.8	14.5	24.4
26-Jul	21.6	15.5	22.3	69.4	42.5	34.1	83.9	21.6	12.2	36.3	20.2	13.8	25.4
27-Jul	20.0	14.2	19.7	65.9	44.1	34.1	79.4	23.9	12.0	34.8	23.7	13.3	27.5
28-Jul	19.3	13.1	16.6	62.1	42.9	35.2	76.0	26.1	11.7	34.5	34.1	14.8	25.8
29-Jul	18.9	13.5	15.7	58.7	40.9	32.4	71.2	22.6	11.7	34.3	26.0	13.9	24.5
30-Jul	18.3	13.4	15.2	55.9	39.2	29.1	67.7	20.1	11.3	32.2	24.6	13.6	22.7
31-Jul	16.7	13.0	15.4	51.6	37.6	29.3	64.8	16.1	10.8	30.4	20.5	12.9	21.8
1-Aug	16.6	13.4	14.9	48.3	36.4	32.0	64.3	15.4	10.8	29.4	18.5	11.5	20.4
2-Aug	19.5	13.8	14.8	45.4	33.4	28.1	64.4	15.1	13.6	25.6	18.4	10.6	19.3
3-Aug	21.7	12.6	15.5	43.3	31.7	26.3	60.3	14.9	12.8	25.3	18.3	10.3	19.3
4-Aug	17.4	12.6	15.5	41.9	29.2	29.3	54.9	14.6	11.7	26.4	19.3	10.1	19.6
5-Aug	16.2	12.7	15.7	39.1	28.0	26.7	53.2	13.4	11.1	31.6	21.7	10.2	18.8
6-Aug	15.6	12.1	19.6	37.3	31.3	26.2	50.8	12.8	10.7	27.4	23.2	10.7	17.3
7-Aug	16.2	11.9	16.3	35.0	31.0	25.6	48.5	12.7	10.0	19.7	19.7	14.2	16.7
8-Aug	16.3	12.9	14.6	38.0	28.9	26.1	46.8	11.8	10.2	27.5	28.2	14.8	16.3
9-Aug	17.0	13.1	13.9	42.4	29.7	25.4	45.7	11.4	10.3	29.8	27.6	12.4	15.7
10-Aug	15.4	11.6	13.9	47.2	27.5	25.9	46.5	11.1	11.3	18.6	21.9	12.0	14.6
11-Aug	15.3	10.9	13.0	34.5	26.7	25.8	41.3	13.9	11.6	15.9	19.5	11.7	15.0
12-Aug	14.0	10.3	12.5	31.7	26.3	23.4	38.9	12.5	10.9	16.3	19.1	12.6	14.6
13-Aug	15.9	11.6	12.7	29.6	25.9	23.2	37.1	13.9	11.5	15.5	21.1	11.6	16.6
14-Aug	15.6	10.8	12.0	29.8	23.6	23.3	35.6	13.0	11.8	15.9	18.1	11.1	24.6
15-Aug	14.0	10.3	9.9	28.6	22.4	22.5	35.5	10.7	10.2	16.0	16.7	10.5	21.9
16-Aug	13.3	11.7	9.3	26.8	21.9	21.9	34.3	10.4	8.8	15.7	16.0	10.1	18.3
17-Aug	13.1	11.2	13.0	25.7	23.0	21.0	33.1	9.6	8.1	14.4	15.8	9.8	16.4
18-Aug	14.6	12.0	15.1	25.9	22.1	20.2	32.4	10.0	7.3	13.7	15.9	9.7	15.6
19-Aug	15.3	11.5	13.4	24.6	21.4	19.9	31.9	10.0	5.5	14.4	15.4	10.4	15.3
20-Aug	14.3	11.2	12.1	24.7	20.4	20.9	31.3	10.1	5.5	15.8	14.1	10.7	14.0
21-Aug	13.6	11.2	11.7	25.8	19.0	19.9	31.3	10.3	5.9	17.7	13.2	10.8	12.2
22-Aug	13.3	11.1	10.8	27.3	18.8	18.8	30.6	10.0	7.6	20.1	13.7	10.7	11.4
23-Aug	13.2	10.6	11.1	25.5	19.4	19.3	28.9	10.5	8.7	39.3	13.8	10.0	11.6

Big Creek instream flow lease

24-Aug	11.3	9.8	12.8	24.5	23.5	18.9	27.9	9.4	9.6	37.4	13.4	9.6	11.9
25-Aug	11.0	9.6	12.2	23.9	19.7	18.7	28.2	9.4	9.8	34.1	13.2	9.9	13.1
26-Aug	11.2	9.9	11.0	22.9	19.1	18.5	27.9	9.2	8.3	30.6	12.5	9.7	12.3
27-Aug	10.4	10.5	11.1	22.2	18.4	18.2	28.0	8.2	9.0	24.7	11.5	9.5	11.9
28-Aug	10.2	10.0	10.6	22.3	17.4	18.5	27.3	7.1	7.6	19.5	11.5	9.8	11.6
29-Aug	9.97	9.9	10.2	22.2	17.1	20.8	27.7	7.5	9.9	23.0	11.2	9.5	11.0
30-Aug	10.1	9.9	10.4	21.4	17.0	20.6	27.3	8.5	9.6	30.8	11.2	8.9	12.4
31-Aug	11.1	10.3	10.8	21.6	17.5	21.3	26.1	9.2	7.7	40.6	11.2	7.8	11.5
1-Sep	11.0	10.8	11.1	22.9	18.4	21.1	26.1	15.5	6.6	37.2	10.9	8.7	10.3
2-Sep	10.9	10.9	11.0	23.9	17.5	20.5	26.0	13.5	6.6	31.4	10.5	9.3	9.5
3-Sep	10.5	10.6	10.7	23.7	18.7	19.1	25.6	10.4	7.6	27.8	11.6	9.4	9.5
4-Sep	8.89	11.0	10.8	23.1	19.8	18.7	24.9	9.9	9.1	25.4	12.0	10.8	9.1
5-Sep	8.79	10.9	11.2	23.2	19.6	22.3	23.9	10.6	8.8	24.0	13.0	15.6	9.0
6-Sep	8.97	10.9	14.6	23.1	18.4	23.7	23.6	10.8	13.1	21.2	12.6	14.8	8.7
7-Sep	9.33	10.9	13.6	23.4	16.3	24.5	24.1	11.2	12.3	17.7	12.5	12.9	8.6
8-Sep	9.78	11.1	12.4	23.6	16.5	25.3	24.1	11.1	12.6	16.8	11.7	11.7	10.3
9-Sep	9.71	11.7	12.0	22.9	14.8	30.0	23.8	10.2	12.6	18.9	11.0	11.4	12.4
10-Sep	9.42	11.8	12.7	22.1	13.8	29.9	23.5	9.5	10.4	18.7	11.1	11.2	11.1
11-Sep	9.65	11.6	12.9	23.1	12.1	27.6	23.4	8.4	8.6	19.2	10.4	10.9	9.9
12-Sep	10.3	10.5	12.4	22.7	12.6	25.3	23.8	9.2	9.0	18.6	9.7	11.1	8.8
13-Sep	10.6	9.4	11.7	21.9	12.3	23.5	23.5	8.9	9.7	18.4	10.0	11.3	8.3
14-Sep	10.8	8.4	12.1	21.6	12.6	23.0	20.3	8.5	15.1	17.6	10.0	11.8	12.1
15-Sep	10.8	9.7	12.4	21.2	13.0	22.2	21.5	8.4	12.7	15.6	14.3	12.0	19.9
16-Sep	10.8	13.1	11.9	20.7	12.0	21.6	21.6	8.1	12.0	13.8	21.9	10.4	16.5
17-Sep	10.8	13.0	11.3	20.7	11.7	21.6	22.8	8.8	13.5	14.5	23.7	9.9	15.0
18-Sep	11.1	13.1	11.4	21.7	11.6	22.7	21.2	9.2	15.4	30.4	21.3	10.8	15.9
19-Sep	11.1	12.6	11.3	22.3	11.9	21.9	20.6	8.5	16.3	20.2	19.5	11.0	26.6
20-Sep	9.99	10.5	11.7	21.9	13.0	20.4	21.1	7.4	14.0	13.5	19.2	10.8	21.9
21-Sep	8.83	11.4	11.8	22.5	14.1	19.8	20.5	7.1	13.2	12.0	17.1	10.9	22.1
22-Sep	9.64	13.3	11.5	19.5	14.1	19.3	20.0	6.9	11.7	12.4	15.3	16.9	24.3
23-Sep	10.3	13.1	11.3	17.7	14.3	19.0	19.4	7.0	12.8	13.4	14.7	20.5	22.5

Big Creek instream flow lease

24-Sep	13.7	12.8	11.2	17.6	13.9	18.4	18.5	7.3	11.6	13.5	14.1	14.9	21.9
25-Sep	12.9	13.7	11.5	17.9	13.7	18.2	18.2	6.9	14.0	13.4	13.4	13.3	20.6
26-Sep	12.0	14.4	11.6	19.1	12.1	18.2	18.1	7.6	16.2	12.9	12.5	14.3	20.5
27-Sep	11.9	14.3	11.6	19.5	9.51	18.0	17.6	7.7	16.3	29.5	12.5	12.0	20.7
28-Sep	11.9	13.8	11.4	19.7	9.39	18.0	17.4	8.0	15.9	32.3	12.4	13.9	21.5
29-Sep	12.1	13.0	11.3	20.6	10.4	17.9	18.2	8.2	16.4	28.3	13.3	15.3	22.3
30-Sep	12.2	12.4	11.7	19.5	9.92	17.9	18.3	7.7	23.3	30.6	14.1	17.1	23.3
1-Oct	11.9	11.4	11.7	18.9	14.7	17.8	17.5	8.0	20.6	36.5	14.1	18.0	27.3
2-Oct	12.1	11.1	11.5	20.3	19.0	17.8	17.2	8.6	18.8	31.3	17.9	19.5	25.9
3-Oct	13.3	17.2	11.7	21.2	19.5	17.7	17.2	9.3	19.8	27.5	21.3	34.2	23.1
4-Oct	13.3	15.2	12.0	21.1	20.8	17.7	17.5	10.6	18.1	26.0	18.8	28.6	28.4
5-Oct	13.2	14.7	13.7	21.1	22.2	17.8	18.4	10.6	17.3	24.1	18.0	26.4	32.7
6-Oct	14.0	14.7	14.2	21.5	22.2	18.0	19.5	10.4	19.4	20.1	17.3	25.2	31.9
7-Oct	17.8	21.2	13.9	21.9	22.5	18.0	21.6	11.2	19.2	17.8	17.0	26.9	32.2
8-Oct	18.2	20.2	15.1	22.2	22.7	17.9	21.5	11.1	19.5	14.9	17.9	29.7	32.1
9-Oct	18.7	19.1	16.4	22.2	19.4	18.2	21.6	11.2	18.3	13.6	16.0	32.5	30.9
10-Oct	17.4	18.5	17.3	23.6	16.4	18.3	20.7	9.9	20.8	14.6	14.3	33.2	30.5
11-Oct	18.2	19.1	18.3	23.0	17.2	18.3	20.6	9.2	22.0	16.1	13.9	35.3	29.8
12-Oct	19.1	18.2	17.5	23.6	16.9	18.4	21.1	9.0	20.6	14.7	14.7	28.8	30.6
13-Oct	19.2	17.7	17.2	24.5	26.7	18.4	20.2	9.0	21.9	23.0	15.2	29.9	29.7
14-Oct	19.5	17.5	16.7	26.2	28.2	18.5	19.8	9.3	21.5	32.3	15.1	32.2	29.4
15-Oct	19.7	17.4	16.7	27.1	29.5	20.2	20.6	9.4	20.6	39.2	14.9	34.5	29.4
16-Oct	19.4	19.2	16.8	27.4	26.5	21.6	23.2	11.5	20.9	38.5	14.9	46.3	29.4
17-Oct	19.3	17.4	16.6	27.4	27.6	24.9	27.7	11.5	23.0	37.7	14.5	39.7	29.1
18-Oct	19.2	16.9	16.4	28.1	28.3	24.2	26.9	9.8	22.1	38.2	13.9	34.9	29.3
19-Oct	19.1	18.1	17.7	27.8	32.3	24.2	26.3	10.2	22.1	37.8	14.5	34.0	29.1
20-Oct	19.2	22.1	23.9	27.2	31.8	24.3	25.7	10.4	23.0	41.2	21.6	32.9	29.3
21-Oct	18.8	22.2	19.2	26.6	28.5	24.2	24.7	9.9	22.2	39.6	19.8	33.3	28.9
22-Oct	18.3	20.4	18.3	24.4	28.8	23.9	24.9	11.2	22.4	38.2	19.6	32.9	29.3
23-Oct	18.1	21.7	19.2	26.5	27.8	24.3	24.2	13.3	22.5	38.0	19.5	32.0	28.7
24-Oct	18.3		19.7	26.2	29.9	25.8	26.9	12.8	22.2	37.1	18.7	32.1	27.6

Big Creek instream flow lease

25-Oct	18.1		19.8	26.2	26.4	29.0	28.3	17.6	22.1	39.0	18.5	46.3	28.0
26-Oct	17.6		19.0	24.0	26.1	25.8	25.9	20.7	21.7	35.9	19.8	39.7	28.5
27-Oct			18.1	24.5	26.4	25.1	27.3	23.3	21.9	36.1	19.4	38.4	27.2
28-Oct			18.7	25.8	25.0	24.7	26.7	24.1	21.6	38.5	18.2	39.1	27.9
29-Oct			19.0	25.3	18.8	25.5	28.1	25.4	18.8	36.3	18.5		27.5
30-Oct			20.4	25.3	28.4	25.5	27.8	25.5	24.9	34.7	22.3		23.7
31-Oct			18.9	25.2	28.5	25.7	29.1	24.5	25.0	36.8	25.5		25.7
1-Nov			18.1	25.6	27.6	24.8	28.1	24.6	24.5	35.5	25.8		28.9
2-Nov				26.5	25.7		24.6	25.4		34.3	25.9		26.1
3-Nov				27.3			26.4						27.2
4-Nov				26.3									
5-Nov				24.5									
6-Nov				21.9									

a - single discharge measurements

WATER RIGHTS LEASE AGREEMENT

THIS AGREEMENT is made and entered into between MONTANA FISH, WILDLIFE & PARKS (FWP) and JOHN L. LAKE, JR. and YELLOWSTONE STAGE STOP ESTATES WATER USER'S AND HOMEOWNER'S ASSOCIATION (collectively "Lessors"), hereinafter collectively referred to as "the Parties."

WHEREAS, FWP desires to continue to lease water through this Water Rights Lease Agreement (Agreement) to maintain a continuous instream flow in the lower 1.4 miles of Big Creek, from a point 1.4 river-miles upstream from the mouth of Big Creek, to Big Creek's confluence with the Yellowstone River; and

WHEREAS, without the Agreement stream dewatering in this section of Big Creek limits the capacity of the creek to produce Yellowstone Cutthroat Trout recruits for the fishery of the mainstem Yellowstone River; and

WHEREAS, Yellowstone Cutthroat Trout are recognized as a species of special concern in Montana; and

WHEREAS, Lessors' portion of the current Temporary Authorization to Change 43B 19526599 is 2.80 cubic feet per second (cfs), or 28% of the original 10 cfs changed to instream flow; and

WHEREAS, FWP previously assisted the Lessors' in obtaining Provisional Permit 43B 30045005 to irrigate from the Yellowstone River instead of Big Creek; and

WHEREAS, the purpose of this Agreement is to provide a flow of up to 4.38 cfs necessary to help prevent fry losses of Yellowstone Cutthroat Trout caused by redd dewatering in Big Creek; and

WHEREAS, the Lessors own the water rights reflected in Statements of Claim 43B 30110714 and 43B 30110715 for irrigation from Big Creek and desire to lease these rights to FWP for instream flow purposes; and

WHEREAS, the Parties intend that this Agreement provides a mechanism to utilize the provisions of §85-2-436, MCA, to accomplish the renewal of the existing temporary change to instream flow and to temporarily change to instream flow the Lessors' the previously unchanged portions of Statements of Claim 43B 30110714 and 43B 30110715 to instream flow.

Big Creek instream flow lease

THEREFORE, the Parties agree as follows:

1. Lease of Water Rights: Under the terms of this Agreement, the Lessors lease to FWP for instream flow purposes 4.38 cfs, being the full amount of the following water rights for the period of use claimed, and agrees not to divert water from Big Creek for irrigation under these water rights during the term of the Agreement:

<u>Water Right No.</u>	<u>Priority Date</u>	<u>Flow Rate</u>
43B 30110715	6-30-1873	3.5 cfs
43B 30110714	6-30-1882	0.88 cfs

2. Term of Agreement. The term of this Agreement is from the date of execution through April 30, 2029 or the date on which temporary authorization to change the rights to instream flow expires, whichever is later, unless renewed upon expiration or terminated under the provisions of Paragraph 12, 14 or 15.

3. Lease Payment for Renewed Change Authorization. In consideration for the lease of the portion Statement of Claim 43B 30110715 for 2.80 cfs currently authorized under Temporary Authorization to Change 43B 19526599 FWP shall pay a sum of \$7,500 annually to the Jackson L. Lake, Jr. The first payment shall be made by May 31, 2019 or within 30 days of approval by the Department of Natural Resources and Conservation (DNRC) of the temporary authorization to change, whichever is later. Subsequent payments shall be made by May 1st of every year this Agreement is in effect for the entire irrigation season.

4. Lease Payment for Additional Change Authorization. In consideration for the lease of the Lessors' remaining portions of Statements of Claim 43B 30110714 and 43B 30110715 not presently temporarily changed to instream flow, FWP shall pay Jackson L. Lake, Jr. \$2,679 per cfs for the approved flow rate. The approved flow rate for the purpose of calculating the payment is the volume of water approved for instream flow by DNRC divided by the number of days of use approved. The first payment shall be made by May 31, 2019 or within 30 days of approval by DNRC of the temporary authorization to change, whichever is later. Subsequent payments shall be made by May 1st of every year this Agreement is in effect for the entire irrigation season.

5. Monitoring Plan. FWP will continue to implement the measuring and monitoring plan as required by §85-2-436, MCA and FWP shall pay all costs associated with the measuring and monitoring plan.

Big Creek instream flow lease

6. Administration of Leased Instream Flows. The Parties agree that upon execution of this Agreement FWP will rely on the informal water allocation system currently in effect among the Big Creek water users to deliver the leased water for instream use. However, if working within the existing system is not effective in insuring the delivery of the instream water and if a water commissioner is the only feasible way of insuring the delivery of the instream water, the parties agree to jointly petition the District Court for Appointment of a water commissioner for Big Creek. For this purpose, the Lessors and FWP agree to file a joint petition to the District Court for the appointment of a water commissioner when necessary to meet the terms of this Agreement. Upon appointment by the District Court, the water commissioner shall admeasure and distribute the water to water users on Big Creek in accordance with Title 85, Chapter 5, MCA. The Parties agree that the petition shall specifically request the Court to order the Water Commissioner to measure and distribute water leased by FWP under this Agreement. The expense of the water commissioner shall be paid in accordance with Title 85, Chapter 5, MCA.

7. Renewal of Temporary Authorization to Change. The Parties recognize that if another appropriator submits evidence of adverse effects that were not considered in the initial lease authorization, a new application for change of purpose and place of use must be filed with and approved by DNRC in order for the lease to be renewed. If required by DNRC, and upon agreement of both parties, a new application to change the purpose and place of use shall be submitted to DNRC by FWP, in consultation with the Lessors, pursuant to §85-2-436, MCA. The Parties agree to cooperate fully in the processing of this application. Any DNRC application fees shall be paid by FWP. If DNRC imposes conditions of approval unacceptable to the Lessors or FWP, this Agreement shall terminate, unless other provisions are mutually agreed to by both parties in writing to correct the unacceptable conditions. If a new application to change the purpose and place of use is required and either party does not agree to submit such an application, this Agreement shall terminate.

8. Additional Temporary Authorization to Change. The Parties recognize that changes in the purpose and place of use of the remaining portions of Statements of Claim 43B 30110714 and 43B 30110715 not presently temporarily changed to instream flow must be approved by the DNRC. The application for such changes shall be submitted by FWP pursuant to §85-2-436 MCA, and the Lessors appoint FWP as its agent for the purpose of submitting such application. The Parties agree to cooperate fully in preparing and submitting this application. Any

Big Creek instream flow lease

application fees and other expenses related to the temporary change to instream flow application submitted to DNRC shall be paid by FWP. The term of the temporary authorization change will be requested to coincide with the termination of the temporary authorization to change in Paragraph 7. If DNRC does not approve the application or imposes conditions of approval unacceptable to the Lessors or FWP, this Agreement shall terminate upon notice by the Party finding the conditions unacceptable unless other provisions are mutually agreed to by the Parties in writing to correct the unacceptable conditions or the Parties agree to continue only with the renewal of the existing temporary authorization to change for 2.8 cfs.

9. Return of Rights to Previous Use. Upon termination of this Agreement, FWP agrees to execute any and all documents required to change the place of use and purpose of use of the water rights leased to FWP and changed to instream flow to that which existed prior to being changed to instream flow.

10. Provisional Permit Extension of Time. Upon the request of the Lessors, FWP agrees to prepare and submit an application for extension of time for Provisional Permit 43B 30045005 if the permit has not been perfected by the December 31, 2022 deadline. FWP shall pay the application fee. FWP shall file the application no later than December 31, 2022. The Lessors agree to cooperate in preparing the application in a timely manner. FWP agrees not to place call on Provisional Permit 43B 30045005 at any time this Agreement is in force.

11. Contingencies.

a. The renewal of the water right lease is expressly conditioned upon satisfaction of the following conditions and contingencies, in addition to the other terms of this Agreement:

- i. The Montana Fish and Wildlife Commission must approve the Agreement.
- ii. FWP must secure funding for the Agreement through the Future Fisheries Improvement Program and/or other sources.

b. If the contingencies in Paragraphs 10(a)(i) and 10(a)(ii) are not satisfied by April 30, 2019, FWP or the Lessors may withdraw from this Agreement by sending written notice to the other party to that effect. Upon such withdrawal, FWP shall have no obligation or right to continue to lease the water rights, the Lessors shall have no obligation to continue to lease the water rights to FWP, this Agreement shall be of no further force and effect, and the Parties shall have any liability to the other Party under this Agreement. Alternatively, the time for satisfaction of the contingencies may be extended by written agreement of all Parties.

Big Creek instream flow lease

12. Termination Before April 30, 2019. The Lessors may terminate this Agreement in writing prior to April 30, 2019 upon which this Agreement shall be of no further force and effect; and neither party shall have any liability to the other party under this Agreement.

13. Renegotiation of Annual Payment. Upon written request, the Lessors may elect to renegotiate the annual payment after no less than 3 years. The request shall be made prior to October 15th of the year preceding the year in which the renegotiated payment would be in effect. If the parties cannot reach an agreement with regard to the amount of the annual payment or the funding for the additional payment cannot be secured by FWP, the water right lease shall terminate.

14. Early Termination. Upon written notice either Party may terminate the water right lease after no less than 3 years. The notice shall be made prior to April 1st. If an annual payment has already been made for that year, it shall be returned to FWP.

15. Renewal. This Agreement may be renewed by mutual agreement of the Parties in ten-year increments. If renewed, annual lease consideration may change, and other minor amendments to this Agreement may be incorporated by and through a lease renewal agreement.

16. Default. If either party fails to perform any obligations required by this Agreement, the other party may serve a written notice upon the failing party specifying the default. The defaulting party shall have thirty (30) days from the date on which written notice of default is given to correct the default if the default is correctable. If the default is not correctable, or if the default is not corrected within thirty (30) days of notice, or if the default cannot be remedied within the thirty (30) day period and the defaulting party has not initiated a remedy of the default within thirty (30) days and thereafter diligently and continuously pursued the remedy to completion then a non-defaulting party may terminate this Agreement and retake or return possession, if applicable, without additional notice.

17. Notice. Any notice to be given under this Agreement shall be in writing and shall either be served upon the party personally or served by registered or certified mail, return receipt requested, directed to the party to be served at the address of the party set forth in this paragraph. A party wishing to change its designated address shall do so by written notice to the other party. Notice served by mail shall be deemed complete when deposited in the United States mail. Rejection or other refusal to accept or the inability to deliver because of changed address for which no notice was given shall be deemed to be receipt of the notice.

Big Creek instream flow lease

FWP's liaison, mailing address, and phone is:

Andy Brummond, Water Conservationist
Montana Fish, Wildlife & Parks
205 W Aztec Drive
PO Box 938
Lewistown MT 59457
Telephone: (406) 538-2445 ext. 224

Lessors' liaison, address, and phone is:

John L. Lake, Jr.
PO Box 5375 #19
Salton City, CA 92275
Telephone: (251) 861-3160

18. Pending Adjudication. FWP leases the water rights subject to the Montana Water Court adjudication process.

19. No Abandonment of Leased Water Rights. Pursuant to §85-2-404(4), MCA, nothing in this Agreement shall be interpreted to work abandonment or to evidence intent to abandon the water rights leased in this Agreement.

20. Indemnification. FWP shall indemnify and hold harmless the Lessors against any claim or action by third parties challenging the use of the water leased under this Agreement by FWP for instream purposes or challenging the validity of the statues allowing the lease of water for instream purposes by FWP. FWP shall not indemnify the Lessors against any claim by third parties that arises out of or as a result of the negligent or willful conduct of the Lessors not authorized under this Agreement.

21. Binding Effect. The provisions of this lease Agreement shall be binding upon the heirs, assigns, personal representatives, administrators and successors of the parties in like manner as upon the original parties, except as provided by mutual written agreement.

22. Cooperation of the Parties. The Parties hereto agree to cooperate fully and to provide such assistance and information as may be necessary to implement this Agreement.

23. Venue, Interpretation and Attorney Fees. The venue for any court action arising under this agreement with the exception of petitioning for a water commissioner must be in the First Judicial District in and for Lewis and Clark County, Montana. This Agreement must be interpreted according to the laws of Montana. In the event an action is filed to enforce, interpret

Big Creek instream flow lease

or dispute this agreement, the prevailing party shall be entitled to recover reasonable attorneys fees from the other party in the suit.

IN WITNESS WHEREOF, the parties hereto execute this Agreement:

JOHN L. LAKE, JR.

MONTANA FISH, WILDLIFE & PARKS

John L Lake Jr. 6/22/18
Date

MAR WILL 8/22/18
Martha Williams
Director
Date

YELLOWSTONE STAGE STOP ESTATES
WATER USERS' AND HOMEOWNERS'
ASSOCIATION

Approved for Legal Content
Bill Schenk 8/22/18
Bill Schenk
FWP Legal Counsel
Date

John L Lake Jr. 6/22/18
John L. Lake, Jr. Date

Title: owner

WATER RIGHT LEASE RENEWAL AGREEMENT

THIS Agreement is made and entered into between MONTANA FISH, WILDLIFE & PARKS (FWP) and MOUNTAIN SKY GUEST RANCH (MOUNTAIN SKY), hereinafter collectively referred to as “the Parties.”

WHEREAS, FWP desires to continue to lease water through this Water Rights Lease Renewal Agreement (Agreement) to maintain a continuous instream flow in the lower 1.4 miles of Big Creek, from a point 1.4 river-miles from the mouth of Big Creek, to Big Creek’s confluence with the Yellowstone River; and

WHEREAS, without the Agreement stream dewatering in this section of Big Creek limits the capacity of the creek to produce Yellowstone Cutthroat Trout recruits for the fishery of the mainstem Yellowstone River; and

WHEREAS, Yellowstone Cutthroat Trout are recognized as a species of special concern in Montana; and

WHEREAS, the purpose of this Agreement is to provide a flow of up to 7.2 cubic feet per second (cfs) necessary to help prevent fry losses of Yellowstone Cutthroat Trout caused by dewatering in Big Creek; and

WHEREAS, MOUNTAIN SKY owns water right Statement of Claim 43B 195265 00 for irrigation from Big Creek and desires to continue to lease a portion of this right to FWP for instream flow purposes; and,

WHEREAS, Statement of Claim 43B 195265 00 was originally 12.5 cfs and was subsequently split in 2017 into two claims with the parent claim, 43B 195265 00, retained by Mountain Sky for 9.0 cfs, and split claim 43B 30110715 owned by Yellowstone Stage Stop Estates Water Users Assn and John L. Lake Jr. for 3.5 cfs; and,

WHEREAS, Statement of Claim 43B 195265 00 was subject to a temporary change authorization in 1999, which was renewed for ten additional years in 2009, for 10 cfs of 43B 195265 00’s original 12.5 cfs; and,

WHEREAS, of the 10 cfs authorized for instream flow under the 2009 temporary change authorization renewal, 7.2 cfs is from Mountain Sky’s 43B 195265 00, and 2.8 cfs is from split claim 43B 30110715; and,

Big Creek instream flow lease

WHEREAS, MOUNTAIN SKY has submitted Application to Change 43B 30114637 which includes requested changes to Statement of Claim 43B 195265 00 and other water rights that will result in water remaining in Big Creek to mitigate losses of return flows and serving to replace the water presently leased to FWP; and,

WHEREAS, the Parties intend that this Agreement provides a mechanism to utilize the provisions of §85-2-436, MCA, to accomplish the renewal of the existing water right lease, with the modifications set forth below, and continue to accomplish the instream flow purposes of the existing lease until such time that Application to Change 43B 30114637 and all related applications are approved.

THEREFORE, the Parties agree as follows:

1. Lease of Water Rights. Under the terms of this Agreement, MOUNTAIN SKY leases to FWP for instream flow purposes up to 7.2 cfs of water right Statement of Claim 43B 195265 00 for the entire period of use claimed.

2. Term of Agreement. The term of this Agreement is from the date of execution through April 30, 2024 or the date on which Application to Change 43B 30114637 is approved by DNRC, whichever occurs first.

3. Lease Payment. In consideration of the lease of 7.2 cfs of 43B 195265 00, FWP shall pay a sum of \$15,000 annually to MOUNTAIN SKY. The first payment shall be made by May 31, 2019 or within 30 days of approval of the temporary renewal of the 1999 change authorization to change the water rights to instream flow by DNRC, whichever is later. Subsequent payments shall be made by July 31st of every year the Agreement is in effect for the entire irrigation season.

4. Donative Value. Based on the previous (2009) annual lease payment of \$3,203 per cfs leased adjusted to \$3792 for inflation using the Consumer Price Index, the total lease value is \$27,300. The \$12,300 difference between the total lease value and the lease payment in Paragraph 3 may be used by FWP as in-kind value for purposes of securing funding for the lease.

5. Monitoring Plan. FWP will continue to implement the existing measuring and monitoring plan as required by §85-2-436, MCA and FWP shall pay all costs associated with the measuring and monitoring plan.

Big Creek instream flow lease

6. Administration of Leased Instream Flows. The Parties agree that upon execution of this Agreement FWP will rely on the informal water allocation system currently in effect among the Big Creek water users to deliver the leased water for instream use. However, if working within the existing system is not effective in ensuring the delivery of the instream water and if a water commissioner is the only feasible way of ensuring the delivery of the instream water, the parties agree to file a joint petition to the District Court for the appointment of a water commissioner for Big Creek when necessary to meet the terms of this Agreement. Upon appointment by the District Court, the water commissioner shall admeasure and distribute the water to water users on Big Creek in accordance with Title 85, Chapter 5, MCA. The Parties agree that the petition shall specifically request the Court to order the Water Commissioner to admeasure and distribute any water leased by FWP under this Agreement. The expense of the water commissioner shall be paid in accordance with Title 85, Chapter 5, MCA.

7. Subordination of Instream Flow: The portion of the water right being leased for instream flow purposes, 7.2 cfs, is subordinate in priority to that portion not being leased, 1.8 cfs.

8. Exercise of Junior Water Rights: At the verbal or written request of MOUNTAIN SKY, FWP agrees to not exercise 1.26 cfs of the 7.2 cfs being leased from 43B 195265 00 after August 26th of any year so that MOUNTAIN SKY can exercise junior water rights.

9. Approval of DNRC. This Agreement is subject to approval by DNRC of the renewal of the temporary change to instream flow. If DNRC does not approve the temporary change to instream flow, this Agreement shall terminate.

10. Contingencies.

a. The renewal of the water right lease is expressly conditioned upon satisfaction of the following conditions and contingencies, in addition to the other terms of this Agreement:

- i. The Montana Fish and Wildlife Commission must approve the Agreement.
- ii. FWP must secure funding for the Agreement through the Future Fisheries Improvement Program and/or other sources.

b. If the contingencies in Paragraphs 10(a)(i) and 10(a)(ii) are not satisfied by March 31, 2019, FWP or the Lessors may withdraw from this Agreement by sending written notice to the other party to that effect. Upon such withdrawal, FWP shall have no obligation or right to continue to lease the water rights, the Lessors shall have no obligation to continue to lease the

Big Creek instream flow lease

water rights to FWP, this Agreement shall be of no further force and effect, and the Parties shall have no liability to the other Party under this Agreement. Alternatively, the time for satisfaction of the contingencies may be extended by written agreement of all Parties.

11. Default. If either party fails to perform any obligations required by this Agreement, the other party may serve a written notice upon the failing party specifying the default. The defaulting party shall have thirty (30) days from the date on which written notice of default is given to correct the default if the default is correctable. If the default is not correctable, or if the default is not corrected within thirty (30) days of notice, or if the default cannot be remedied within the thirty (30) day period and the defaulting party has not initiated a remedy of the default within thirty (30) days and thereafter diligently and continuously pursued the remedy to completion, then a non-defaulting party may terminate this Agreement and retake or return possession, if applicable, without additional notice.

12. Notice. Any notice to be given under this Agreement shall be in writing and shall either be served upon the party personally or served by registered or certified mail, return receipt requested, directed to the party to be served at the address of the party set forth in this paragraph. A party wishing to change its designated address shall do so by written notice to the other party. Notice served by mail shall be deemed complete when deposited in the United States mail. Rejection or other refusal to accept or the inability to deliver because of changed address for which no notice was given shall be deemed to be receipt of the notice.

FWP's liaison, mailing address, and phone is:

Andy Brummond, Water Conservationist
Montana Fish, Wildlife & Parks
205 W Aztec Drive
PO Box 938
Lewistown MT 59457
Telephone: (406) 538-2445 ext. 224
Email: abrummond@mt.gov

Big Creek instream flow lease

MOUNTAIN SKY'S liaison, address, and phone is:

Yancey Arterburn
Mountain Sky Guest Ranch
P.O. Box 1219
Emigrant MT 59027
Telephone: (406) 333-4911
Email: YanceyA@mountainsky.com

13. Pending Adjudication. FWP leases the MOUNTAIN SKY's water right subject to the Montana Water Court adjudication process.

14. No Abandonment of Leased Water Rights. Pursuant to §85-2-404(4), MCA, nothing in this Agreement shall be interpreted to work abandonment or to evidence intent to abandon the water right leased in this Agreement.

15. Indemnification. FWP shall indemnify and hold harmless MOUNTAIN SKY against any claim or action by third parties challenging the use of the water leased under this Agreement by FWP for instream purposes, or challenging the validity of the statues allowing the lease of water for instream purposes by FWP. FWP shall not indemnify MOUNTAIN SKY against any claim by third parties that arises out of or as a result of the negligent or willful conduct of MOUNTAIN SKY not authorized under this Agreement.

16. Binding Effect. The provisions of this lease Agreement shall be binding upon the heirs, personal representatives, administrators and successors of the parties in like manner as upon the original parties, except as provided by mutual written agreement.

17. Cooperation of the Parties. The parties hereto agree to cooperate fully and to provide such assistance and information as may be necessary to implement this Agreement.

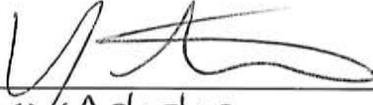
18. Venue, Interpretation and Attorney Fees. The venue for any court action arising under this agreement with the exception of petitioning for a water commissioner must be in the First Judicial District in and for Lewis and Clark County, Montana. This Agreement must be interpreted according to the laws of Montana. In the event an action is filed to enforce, interpret or dispute this agreement, the prevailing party shall be entitled to recover reasonable attorneys fees from the other party in the suit.

Big Creek instream flow lease

IN WITNESS WHEREOF, the parties hereto execute this Agreement:

MOUNTAIN SKY GUEST RANCH

MONTANA FISH, WILDLIFE & PARKS

By:  11/26/18
Vance Arterburn Date
Title: GENERAL MANAGER

By: _____
Martha Williams Date
Director

Approved for Legal Content

By: _____
Bill Schenk Date
Agency Counsel