

Permit No: 21-7355

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STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

DEPARTMENT OF
WATER RESOURCES

A. GENERAL INFORMATION

Permit No: 21-7355

Exam Date: 10/7/2004

1. Current Owner: STATE OF IDAHO
IDAHO WATER RESOURCE BOARD
STATEHOUSE MAIL
PO BOX 83720
BOISE ID 83720-0098
(208)327-7900

2. Accompanied by: NONE
Phone No:
Address:
Relationship to Permit Holder:

3. SOURCE
WARM RIVER

TRIBUTARY
HENRYS FORK

B. OVERLAP REVIEW

1. Other water rights with the same place of use: NONE
2. Other water rights with the same point of diversion: NONE

C. DIVERSION AND DELIVERY SYSTEM

1. LOCATION OF POINT(S) OF DIVERSION:

WARM RIVER	SW1/4SE1/4
FREMONT County	(Ending of Reach)
WARM RIVER	NW1/4SW1/4
FREMONT County	(Beginning of Reach)

Sec. 12, Twp 09N, Rge 43E, B.M.

Sec. 10, Twp 10N, Rge 44E, B.M.

Method of Determination:

2. minimum stream flow
Bill Graham listed as contact person

Method of Determination:

3. ☐ Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.
- ☒ Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.
- ☐ Aerial Photo Attached (required for irrigation of 10+ acres).
- ☐ Photo of Diversion and System Attached

4.

<u>Well or Diversion ID No.*</u>	<u>Motor Make</u>	<u>Hp</u>	<u>Motor Serial No.</u>	<u>Pump Make</u>	<u>Pump Serial No. or Discharge Size</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

*Code to correspond with No. on map and aerial photo

D. FLOW MEASUREMENTS

1.

<u>Measurement Equipment</u>	<u>Type</u>	<u>Make</u>	<u>Model No.</u>	<u>Serial No.</u>	<u>Size</u>	<u>Calib. Date</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

2. Measurements:

E. FLOW CALCULATIONS☐ Additional Computation Sheets Attached

Measured Method:

Minimum stream flow

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) =$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 =$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} =$$

2. Volume Calculations for Other Uses:

Minimum stream flow

G. NARRATIVE/REMARKS/COMMENTS

minimum stream flow right. Bill Graham is the contact person on the proof of Ben use.

Have conditions of permit approval been met? ☒ Yes ☐ No

H. RECOMMENDATIONS

1. Recommended Amounts

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
MINIMUM STREAM FLOW	1/01 to 12/31	141.000 CFS	
<u>Totals:</u>		141.000 CFS	

2. Recommended Amendments

☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☐ Other

I. AUTHENTICATION

Field Examiner's Name

DAVE CARLSON

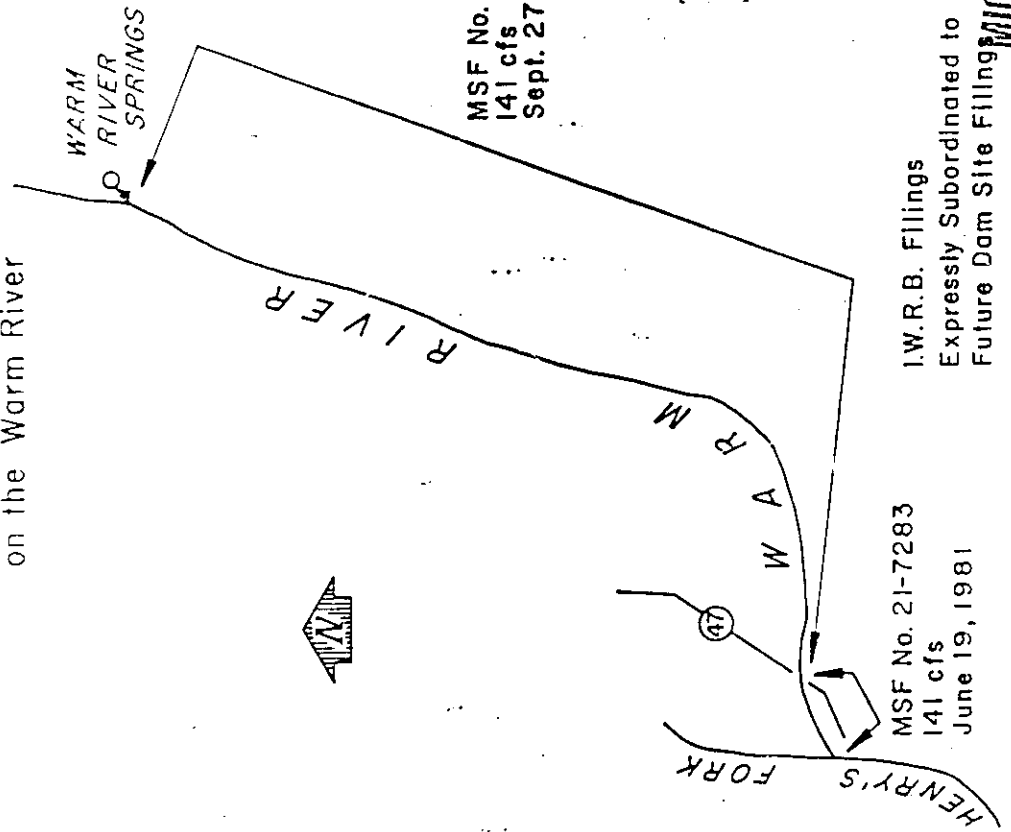
Date

10/7/2004

Reviewer

Date

Minimum Stream Flow Applications on the Warm River



MSF No. 21-7355
141 cfs
Sept. 27, 1984

MSF No. 21-7283
141 cfs
June 19, 1981

I.W.R.B. Filings
Expressly Subordinated to
Future Dam Site Filings

MICROFILMED

TDWE STAFF

JAN 06 1986

WARM RIVER
MINIMUM STREAMFLOW
FACT SHEET

Water Right No.: 21-7355

Source: Warm River

Applicant: Idaho Water Resource Board

Requesting Agency: Fish & Game

Date Application Filed: September 27, 1984

Rate of Flow: 141 cubic feet per second

Location of Spring: Located in the SW1/4SE1/4, Sec. 12, T4N, R43E, B.M., Fremont County, and extending upstream approximately eight (8) miles to a point where the flows from Warm River Springs discharge into Warm River, located within the NW1/4SW1/4, Sec. 10, T10N, R43E, B.M., Fremont County.

Purpose: To preserve fish and wildlife habitat and recreation

Hearing: November 20, 1985 in St. Anthony, Idaho

Attended by 29 people

Comments were mixed.

Leigh Chantrill opposed the application because it might prevent the water from being used for some future beneficial use.

Ted Sorenson opposed the project because the modeling was not representative of the entire river.

Permit: Order Adopting Proposed Decision dated December 23, 1988

Special Conditions: Studies modeling the minimum streamflow for the reach included in this permit must be submitted at the time proof of beneficial use is filed.

Retained jurisdiction for change. Proposed amendment must initially be submitted to the Board.

Subordinate to dam site identified in the State Water Plan.

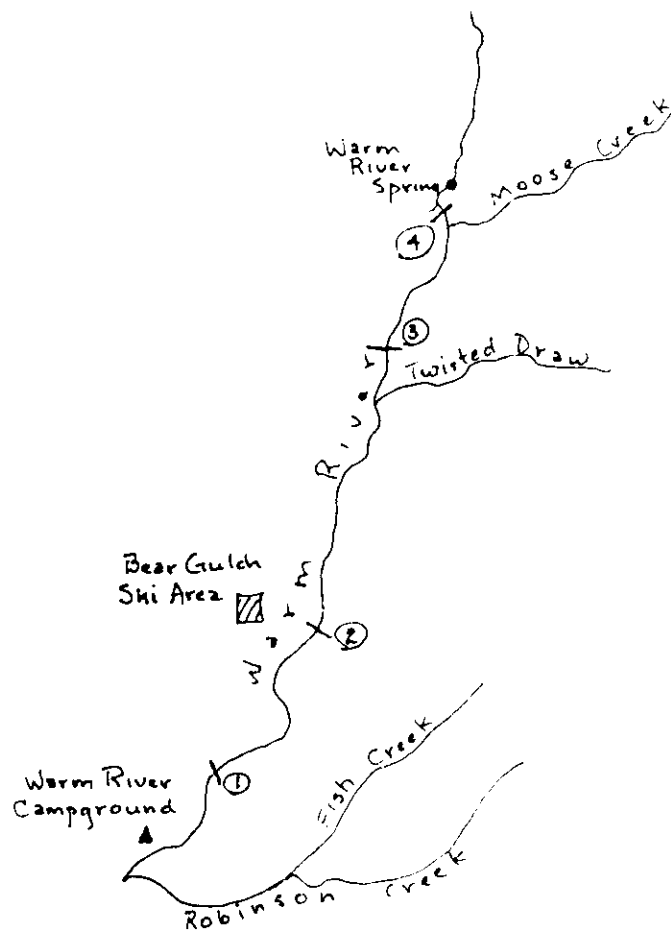


Figure 1. Location of study sites, Warm River, Idaho, August 1998. Study sites denoted by numbers. Map not to scale.

Table 1. Transect hydraulic data for study sites on Warm River, Idaho.

	<u>Site Number</u>			
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Transect width (ft)	88	71	95	95
Avg. velocity (fps)	1.95	1.62	1.82	1.65
Avg. Depth (ft)	1.61	2.07	1.44	1.60
Length (yds)	120	NS	90	75
Discharge (cfs)	309	282	273	257

Table 2. Water temperatures and cover components for study sites on Warm River, Idaho.

	<u>Site Number</u>			
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Overhanging veg.	N	ND	N	N
Undercut banks	N	ND	Y	Y
Large woody debris	Y	ND	Y	Y
Submerged veg.	Y	ND	Y	Y
Boulders	Y	ND	Y	Y
Temperature (°F)	61	60	57	53

Y= yes; N=no; ND= no data

Proof of Beneficial Use for Warm River (21-07355)

Idaho Department of Fish and Game conducted fish population and habitat assessment surveys on the Warm River, Idaho, during July and August, 1998. The eight mile stretch of river between Warm River Spring and the Warm River Campground was divided into approximately four equal-length reaches. With each reach, we selected a representative site, ranging in length from 75 to 120 yards (Figure 1). Data were collected on fish species composition; stream bed substrate composition; water velocity and depth; and water temperature and cover components.

Fish species identification and percent composition data were collected by snorkeling. Stream bed substrate composition and cover components were visually estimated. Water column depth and velocity were measured at a single transect within each site with a Swoffer model 2100 flow meter and handheld wading rod (Table 1). Water temperature was measured with a handheld thermometer at the time of the snorkeling survey. Site 2 was located in a high gradient, boulder/cascade habitat type that was too difficult and dangerous to snorkel. Only water depth and velocity data were obtained at this site.

We observed rainbow trout, brown trout, brook trout, mountain whitefish, and sculpin. Rainbow trout were observed throughout the entire study area, but were not the dominant species at any site. Mountain whitefish were observed only at site 1 and brook trout were found only at site 2 and the old Warm Springs Hatchery. Brown trout outnumbered rainbow trout at sites 1 and 3, but were not found at site 4 (Figure 2).

Cobble and boulder were the dominant substrate types at all sites (Figure 3). Hiding cover for fish consisted largely of boulders, submerged aquatic vegetation, and undercut banks. Overhanging vegetation provided only minimal cover. Water temperatures ranged from 53° F to 61° F (Table 2).

We used RHABSIM ver. 2.0 software to model fish habitat availability for a variety of flows. Rainbow and brown trout were selected as target species and simulated flow regimes ranged from 100 cfs to 350 cfs. The hydraulic data calibration data set was collected during August 1998, when river flows measured approximately 250 to 300 cfs. The results of the habitat simulation runs are displayed in figures 4 through 7. In most cases, the habitat/flow relationship is greatest at flows equal to or greater than 200 cfs. Flows of less than 200 cfs would provide the greatest habitat availability for rainbow trout juveniles and brown trout fry. One should keep in mind that the RHABSIM models used only account for the relationship between two physical habitat variables (velocity and depth) and flow. It does not take into account more dynamic and difficult to model biological variables, such as fish age class

variability, food production potential, or species interactions, such as competition and predation. These factors are not directly related to stream flow characteristics and thus cannot be incorporated into the RHABSIM models.

The current, licensed instream flow water right for 141 cfs only provides a marginally acceptable level of protection of the aquatic environment in this eight-mile reach of Warm River. Flows of 200 cfs or more would provide better protection for the aquatic resources, while the natural flow regime would be considered optimum.