

LEMHI SETTLEMENT GOALS AND OBJECTIVES

1. **SCR 137 Legislative Directive:** “Develop a comprehensive settlement that resolves current tensions and conflict that are the result of competing water supply demands in the Lemhi River Basin . . . consistent with past practices, future needs, and Idaho law.”
2. **Lemhi Basin Biological and Business Settlement Goals –** “Conserve, restore, and enhance sufficient habitat to sustain viable fish populations while protecting private property rights and preserving and enhancing the farming and ranching lifestyle and economy of the Lemhi River Basin.”
3. **Water Settlement Objectives:**
 - a. Resolve state and private objections to pending applications and permit 74-16187 in Big Timber, Little Timber, Mill, Big Eightmile and Eighteenmile basins.
 - b. Protect high flows throughout the Lemhi Basin consistent with the Lemhi Conservation Agreement.
 - c. Protect minimum flows and flushing flow in selected tributary streams consistent with the Lemhi Basin biological and business settlement goals and the Basin 74 separate streams general provision.
 - d. Provide for future development of new water rights consistent with objectives a. – c. above, and the Wild and Scenic subordination provisions.
 - e. Minimize ESA risk to water users to the extent practicable.
 - f. Develop recharge program

STRAWMAN SETTLEMENT PROPOSAL

1. Resolve all state and water user objections to water right applications 74-16186, 74-16188, 74-16187, 74-16190, 74-16205, 74-16185, 74-16191, 74-16192, 74-16193, 74-16196, 74-16204, 74-16189, 74-16194 and 74-16195; and resolve private objections to water right applications 74-16224, 74-16225, 74-16227 and Transfer No. 83870.
2. Convert IDWR SRBA high flow water right recommendations into protectable water rights. The applications elements would include the following:
 - a. Water rights will be licensed for a tributary basin.
 - b. Quantity will be the cumulative high flow diversion rates recommended by IDWR in the SRBA for the drainage.
 - c. Each base right and diversion ditch listed on the SRBA recommendations will be listed in the water right.
 - d. The season of use will be March 15 to July 31.
 - e. Each water right will be conditioned to prohibit diversion of the right for a negotiated period-of-time to provide a fish habitat flushing flow.
 - f. Ownership and nature of use (Needs Discussion).
3. Support legislation authorizing applications for minimum stream flow water rights on agreed upon creeks: (for discussion purposes focus on streams designated for reconnection and streams where PHABSIM studies exist: Big Timber, Big Eightmile, Canyon, Eighteenmile, Hayden, Bohannon, Hawley). Satisfaction of the minimum flow will be maintained through voluntary water right transaction in conformance with state law.
4. Establish a managed recharge program in the Lemhi Basin.
5. Identify, support, and carry out cloud seeding, and storage studies.
6. Install fish screens and measuring devices on agreed upon diversions.
7. Water rights established through settlement will be administered consistent with the Basin 74 separate stream administration general provision.
8. Establish processes for successful administration of the settlement.

LRBM: High Water Ditch Scenarios

Carter Borden, Ph.D.

October 9, 2020



LRBM High Water Ditch Scenarios

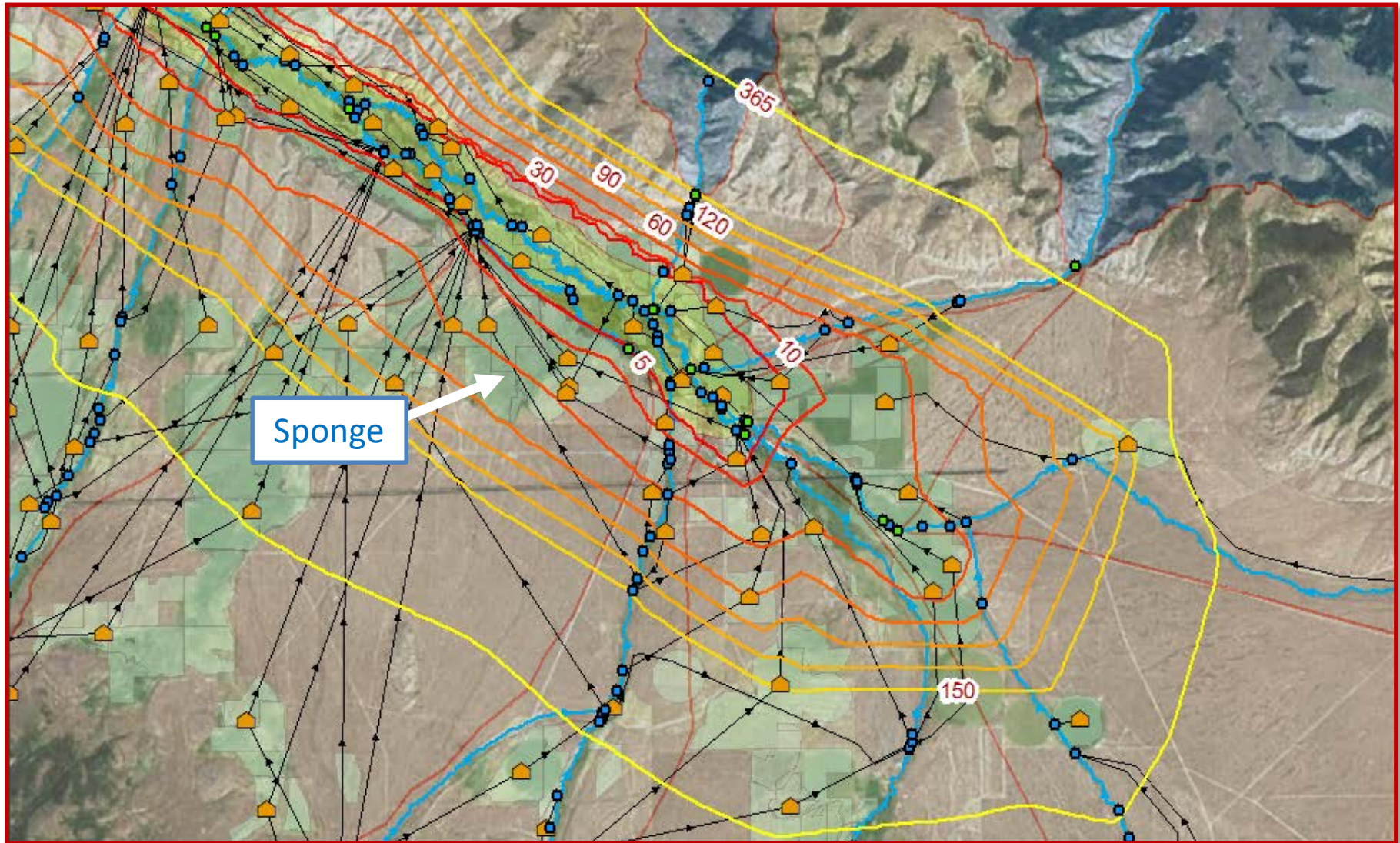
Questions: How does the high-water ditch (HWD) change:

1. BTC flows, upstream/downstream of the HWD
2. Big Springs flows?
3. Return flow lag change Big Springs flows?

Scenario	HWD Diversion Time Series	Return Flow Lag
Baseline	No changes in the model	No change in model
HWD + 10 Days	HWD introduced, uses developed water demand time series	10-day lag used
HWD + 20 Days	HWD introduced, uses developed water demand time series	20-day lag used
HWD + 40 Days	HWD introduced, uses developed water demand time series	40-day lag used

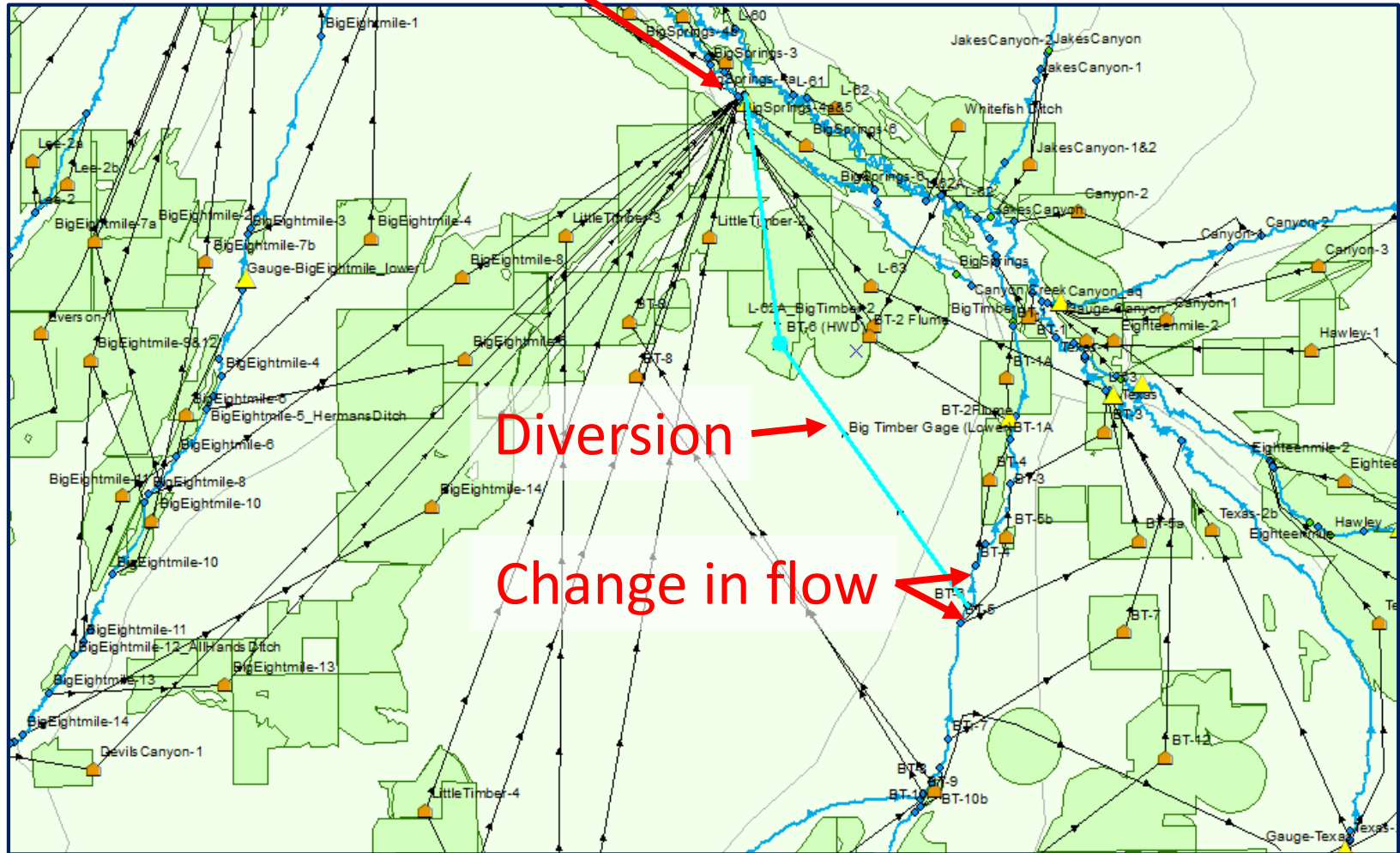


GW Analytical Solution: Time to Peak



HWD Scenario Evaluations

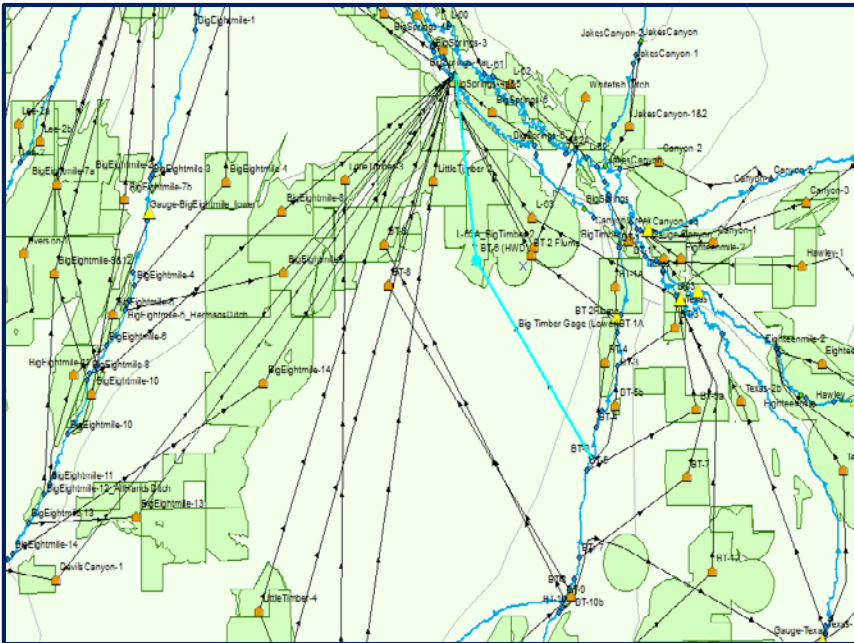
Change in flow



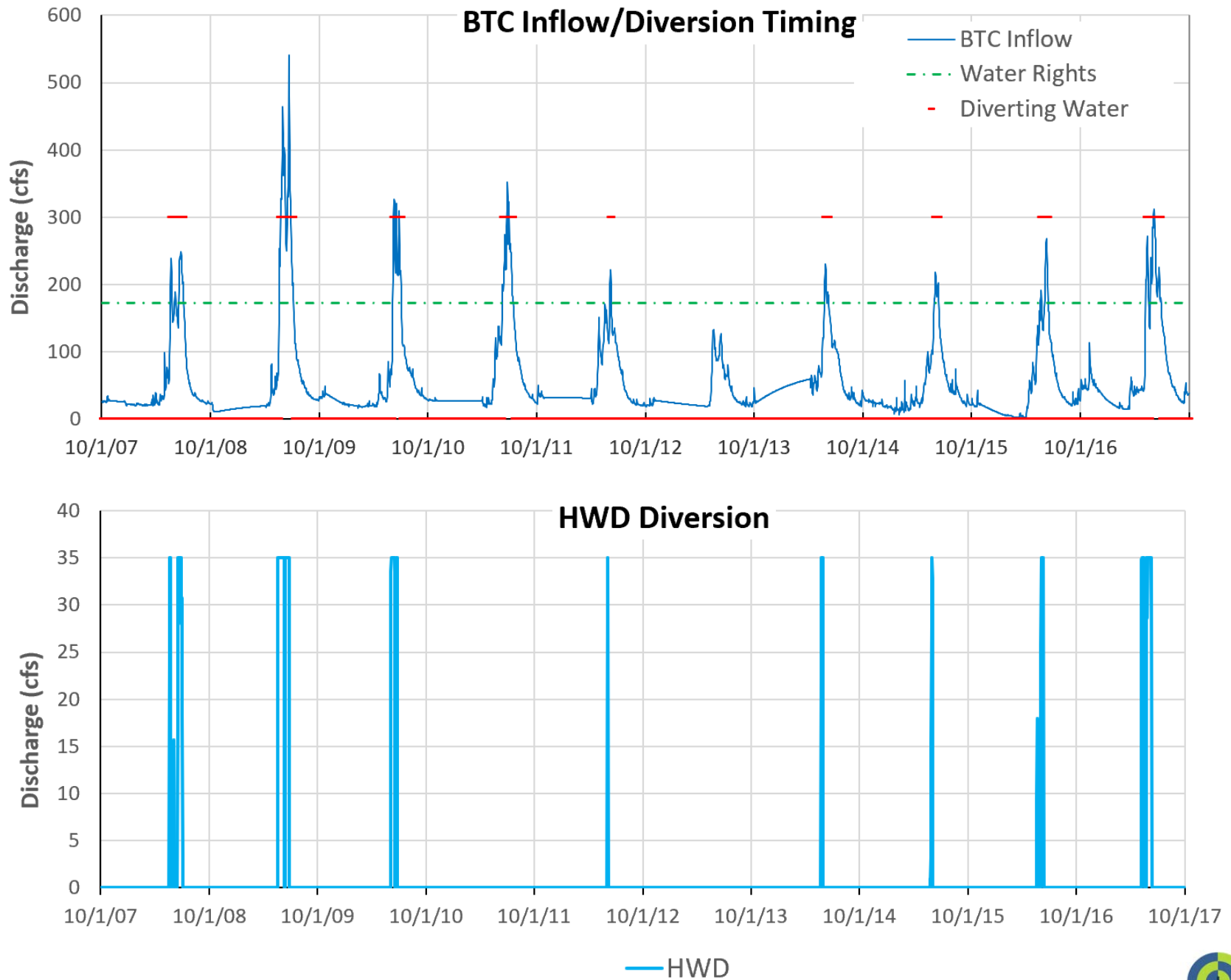


HWD Operations

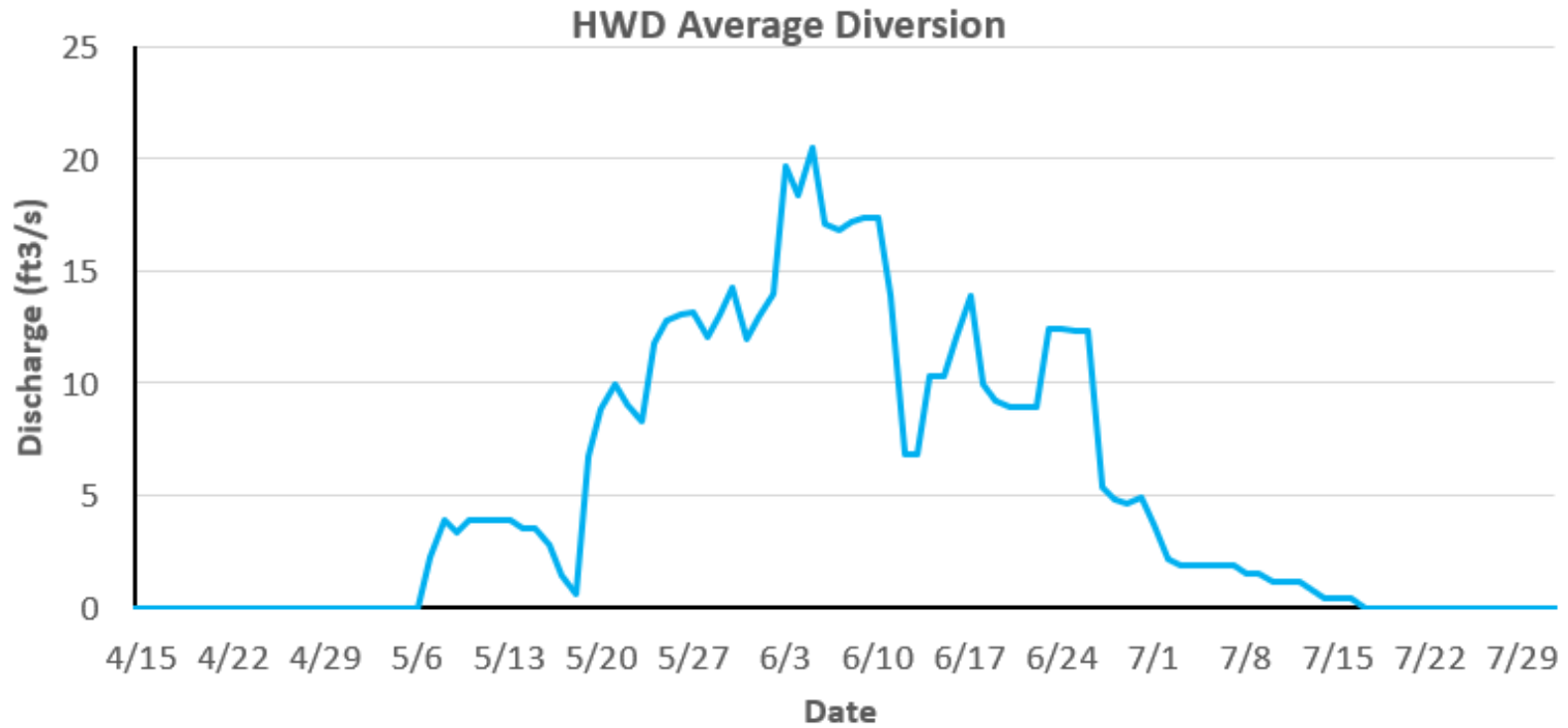
- Ditch Capacity: 35 cfs
- Irrigation: *Flood*
- Timing: *Water diverted after water rights are fulfilled*
- Crop type: *pasture*
- Irrigated area: 1800 ac
- Return Flow: *majority returns to Big Springs*



HWD Diversion



HWD Statistics

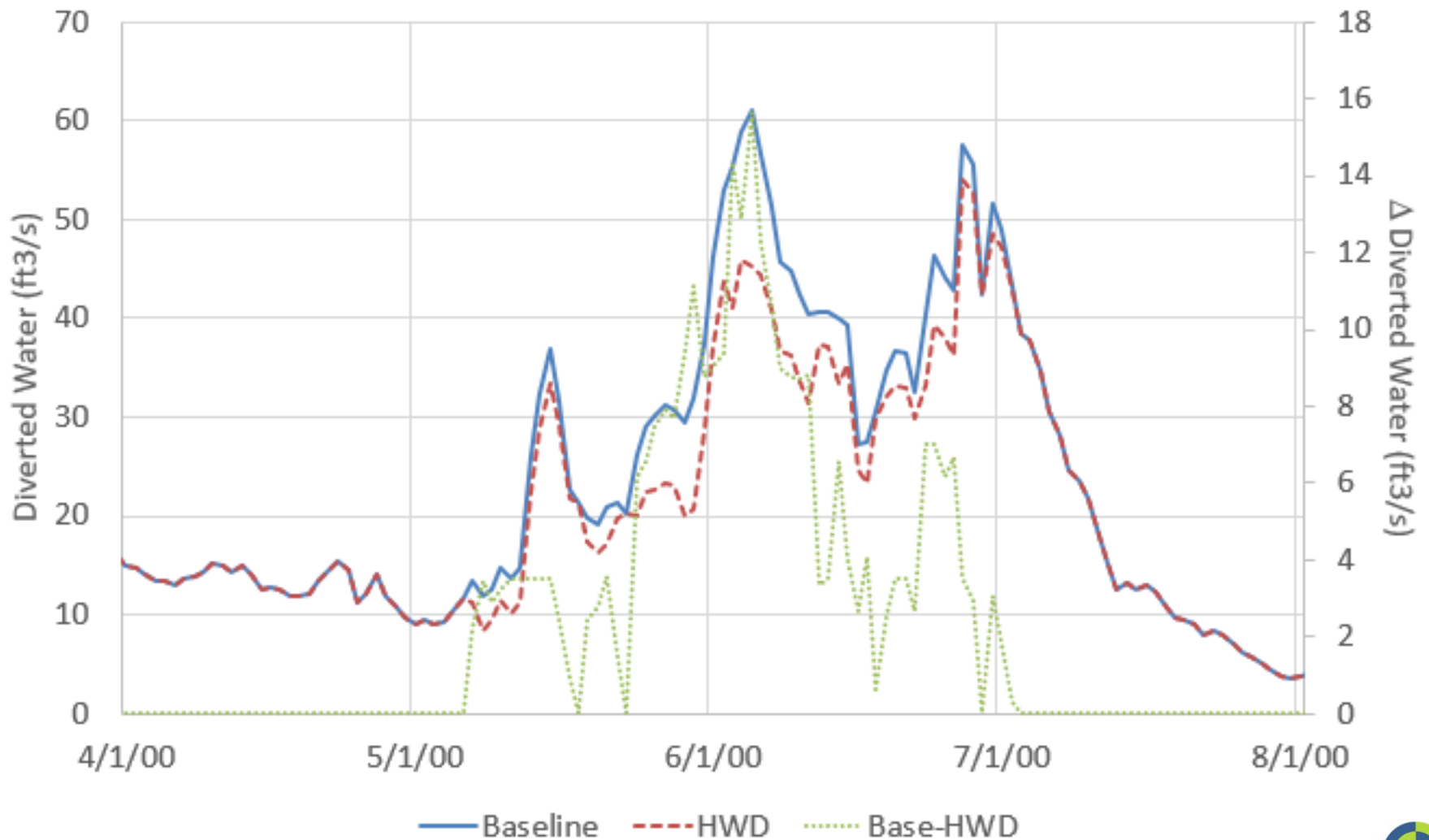


Parameter	May	June	July
Average Days Active	5.3	8.6	2.0
Average Diversion Rate (cfs)	28.0	32.8	10.8
Max. Diversion Rate (cfs)	35.0	35.0	18.4



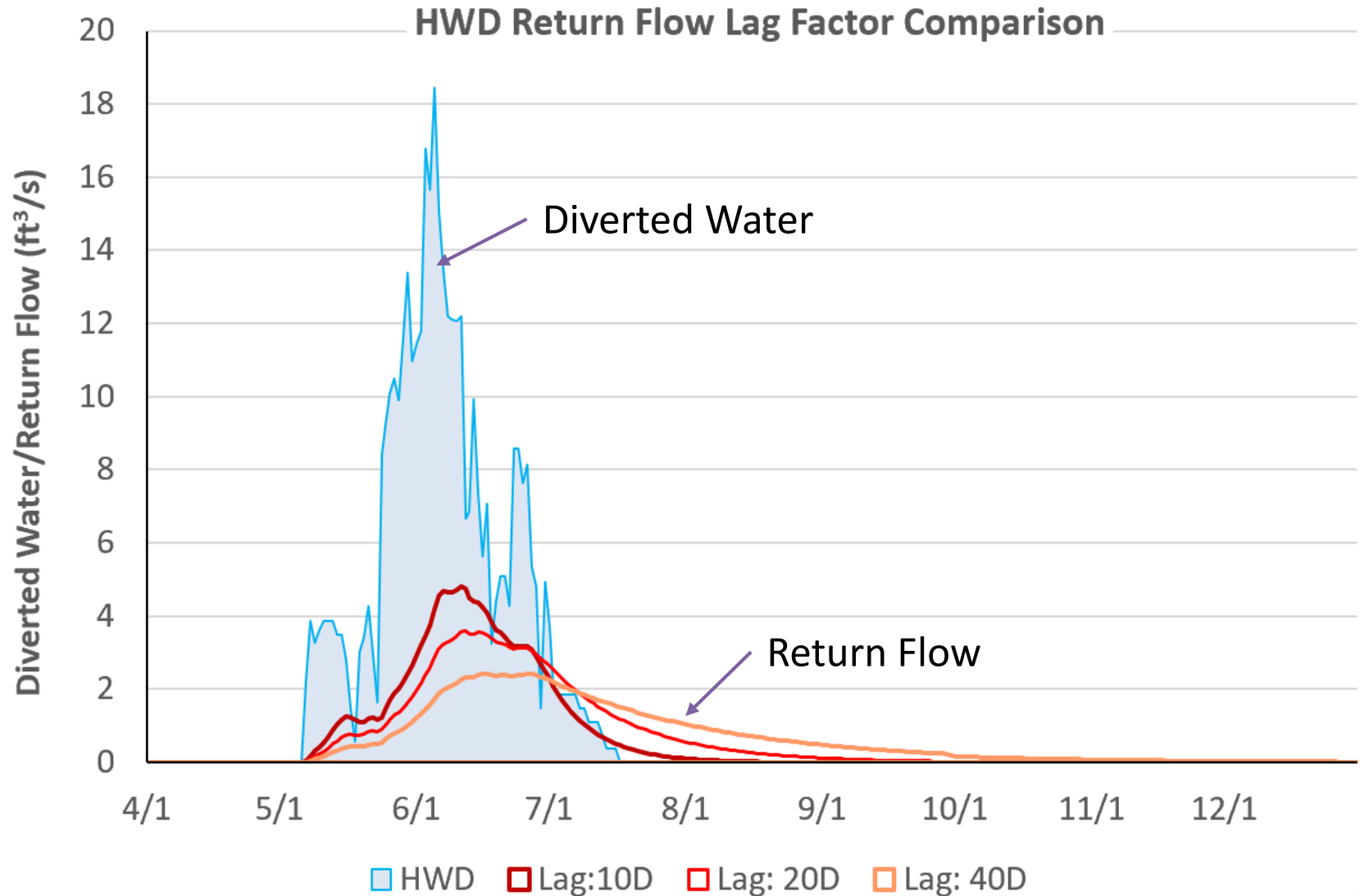
LRBM: HWD Scenario

BTC Discharge Downstream: Averages



LRBM: HWD Scenario

Preliminary Results



LRBM: HWD Scenario

- HWD Operations
 - Active 8 out of 10 years
 - Active end of May, June, beginning of July
 - Annual averages: 14.1 days, 30.7 ft³/s
- BTC flows upstream/downstream HWD
 - Reflects HWD diversion
- Estimate HWD Recharge to Sponge
 - Max Big Springs recharge: 4.8 – 2.6 ft³/s
 - 20D, 40D lag returns augment Big Springs flow in Aug, Sept





Photo Courtesy of www.roadslesstraveled.us

Water Right Transfers

Presented by Cody Parker, Water Rights Supervisor

Date: 10/09/2020



What is the purpose of a water right Transfer?

A Transfer allows a water right holder to modify elements of all or part of an established water right.

- Add, remove, change Points of Diversion
- Change the Place of Use
- Change the Nature of Use
- Change the period or Season of Use

Applications on idwr.idaho.gov

Changes in Use



[Application for Transfer of Water Right](#)



[Application for Transfer of Water Right - Point\(s\) of Diversion](#)

Water Right Transfer Process

Relevant Statutes

Idaho Code § 42-108 - A person entitled to the use of water may change certain elements of their water right so long as other water rights are not injured by the change.

Idaho Code § 42-222 - Defines the application process for changing elements of a water right. The Department may provide notice of the application to allow for public protest. Watermaster recommendations. Defines the criteria for evaluating proposed changes. Forfeiture resulting from non-use of a water right.



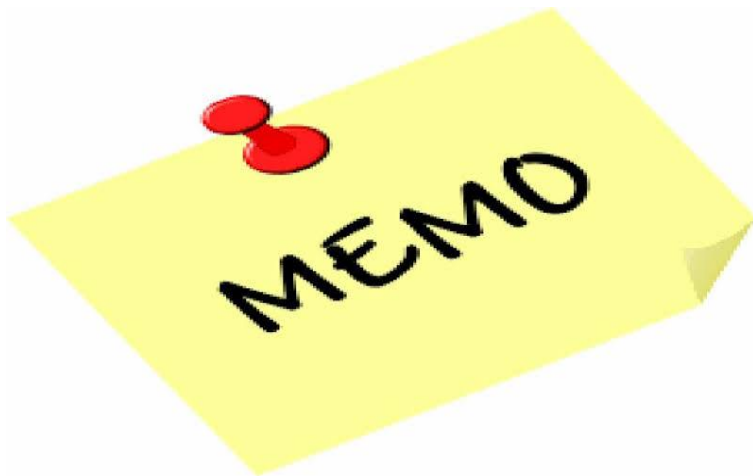
Water Right Transfer Process

Administrative Memos



Transfer Processing Memo 24 - Guidance for evaluating transfer applications.

Multiple Programs Memo 2 - Addresses the timing questions that arise during validity review by giving IDWR employees a simple, uniform way to calculate the period of non-use.



Water Right Transfer Process

Evaluation Criteria



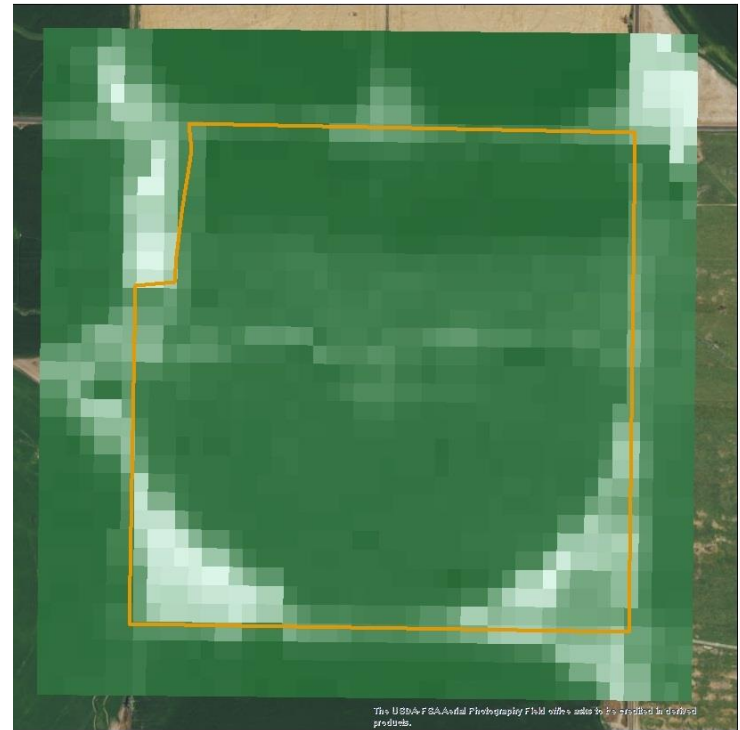
42-222 Idaho Code: The Director may approve a proposed change if:

- Water right is **valid**
- No other water rights would be **injured** by the change
- The change does not constitute an **enlargement** of the original right
- The change is consistent with the **conservation of water resources** in Idaho and is in the **local public interest**
- The change will not adversely affect the **local economy**
- The change proposes a **beneficial use of water**

Water Right Transfer Process

Water Right Validity

Water right must be evaluated to determine if it has been used, all or in part, for the beneficial use for which it was appropriated. Any right or portion of a right that was not put to the beneficial use for a term of 5 years or more may be subject to forfeiture.



Water Right Transfer Process

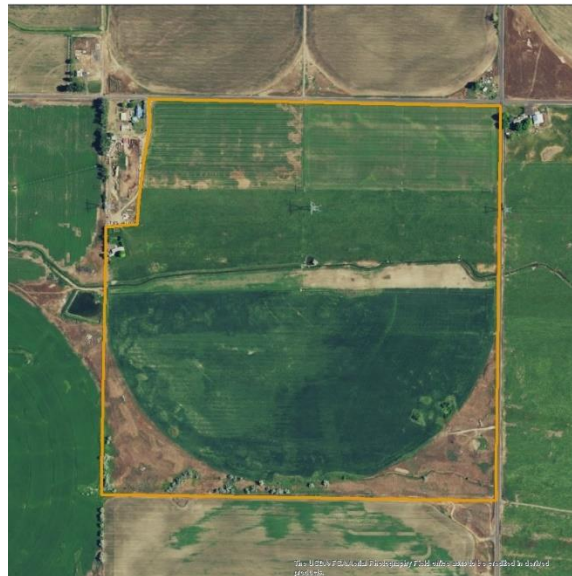
Water Right Validity

Aerial Imagery Review

2015



2017



2019

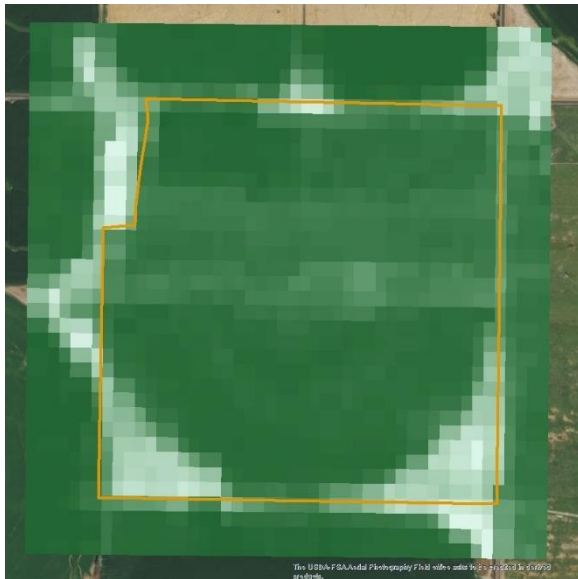


Water Right Transfer Process

Water Right Validity

Satellite Remote Sensing Review

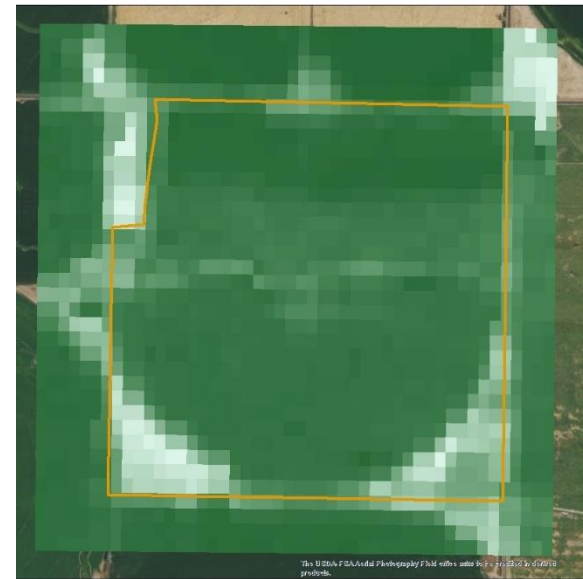
2015



2017



2019



Water Right Transfer Process

Water Right Validity

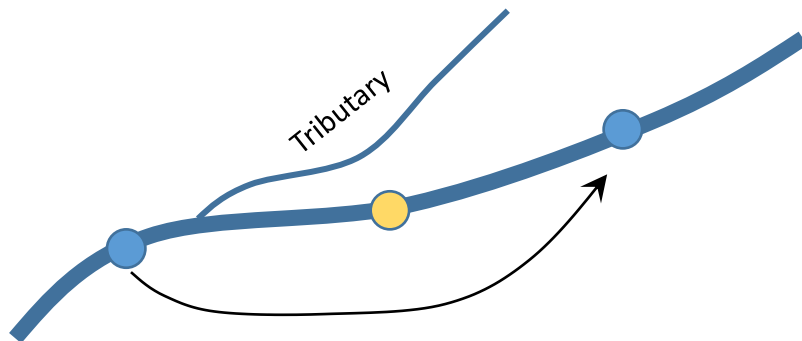


Acres in red potentially subject to forfeiture

Water Right Transfer Process

Injury

The basic idea is that no other water user, junior or senior, may be made worse off as a result of the transfer.



A senior water user (blue) moves their point of diversion from below the confluence to a location upstream of a junior user (yellow) in a water-poor stretch of the river.

Previously, the senior user did not need to make a call for water to satisfy their right because they benefitted from water added to the river from the tributary basin.

After the change, the senior user would have priority in the reach above the confluence and reduce the quantity of water available to satisfy the junior right.

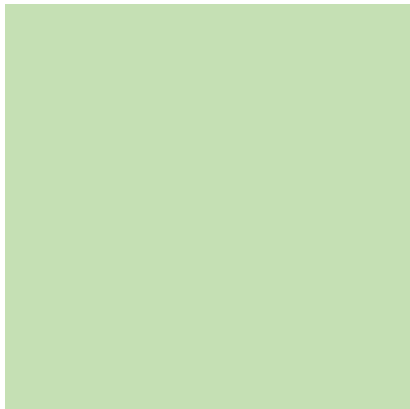
In certain cases, a mitigation plan may be put in place to offset the impact of the proposed change on other water users, avoiding injury.

Water Right Transfer Process

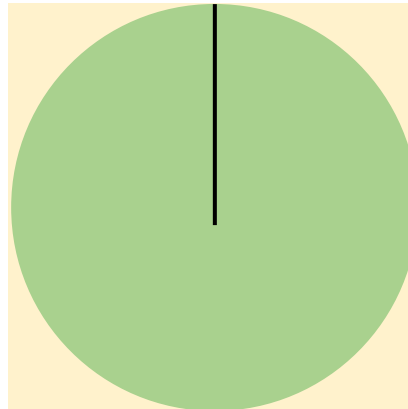
Enlargement

Per Transfer Memo No 24 – “*Enlargement will occur if the total diversion rate, annual diversion volume, or extent of beneficial use (except for nonconsumptive water rights), exceeds the amounts or beneficial use authorized under the water right(s) prior to the proposed transfer.*”

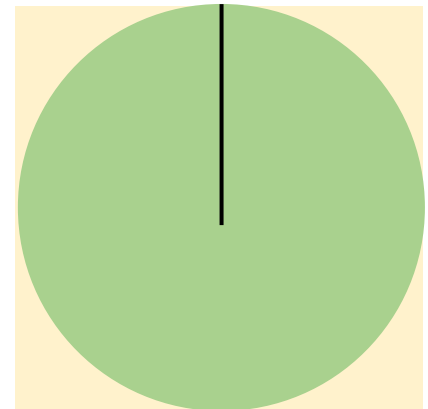
Water spreading is not permitted



40 acres @ 0.02 cfs/acre
0.8 cfs
Flood irrigated



70 acres @ 0.011 cfs/acre
0.8 cfs
Pivot irrigated



Water Right Transfer Process

Conservation of Water Resources and Local Public Interest

Examples of Consistency with Conservation of Water Resources evaluation criteria:

- Water delivery and distribution systems consistent with contemporary standards for efficient use
- Diversion rate within acceptable standards (0.02 cfs/acre) or higher if justifiable

Examples of Local Public Interest evaluation criteria:

- Will not adversely affect local recreation, fish, or wildlife
- Will not adversely affect water quality standards
- Complies with local and state government requirements, e.g. planning and zoning, local water resource regulations, etc.

Water Right Transfer Process

Local Economy

- Potential changes to current and future employment
- Potential changes to short and long-term economic activity
- Overall local economic stability



Photo Courtesy of www.gonorthwest.com



Photo Courtesy of
www.cityofsalmon.com

Water Right Transfer Process

Simple POU Changes

WR Decreed State



43 acres, 0.86 cfs, 193.5 af

WR After Change

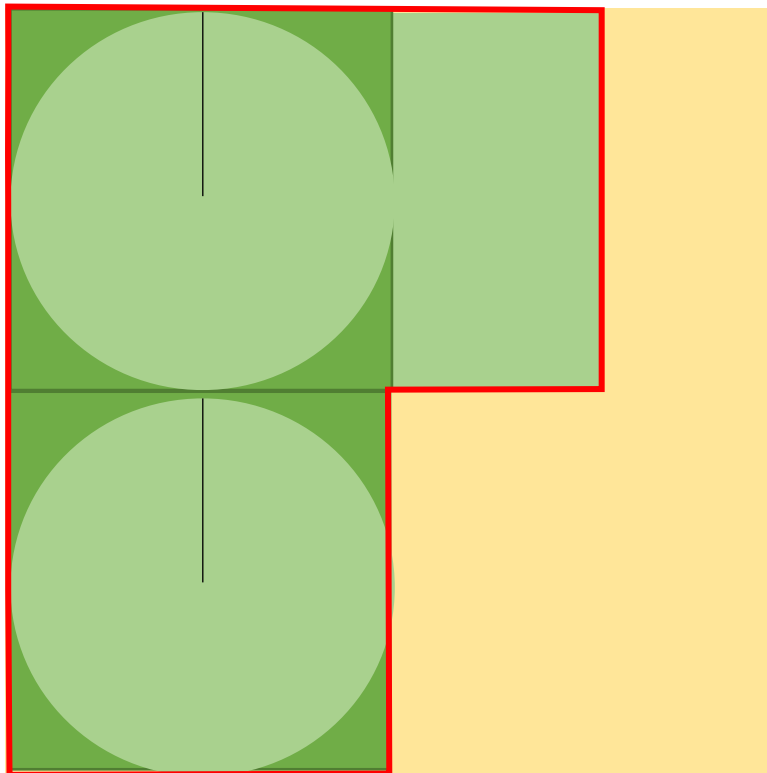


43 acres, 0.86 cfs, 193.5 af

Water Right Transfer Process

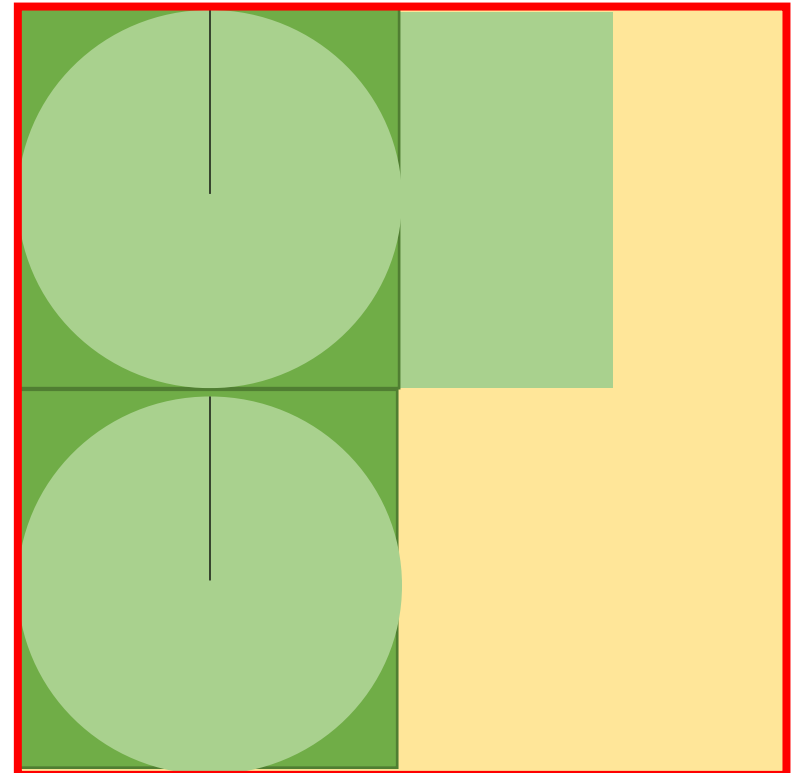
Permissible Place of Use (PPU)

WR Decreed State



100 acres, 2 cfs, 450 af

WR After Change

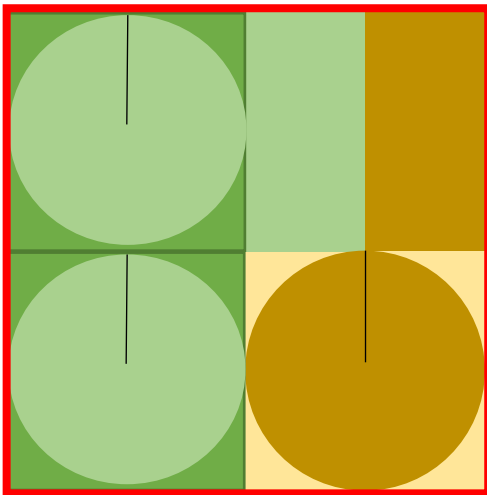


100 acres within 160 acre PPU, 2 cfs, 450 af

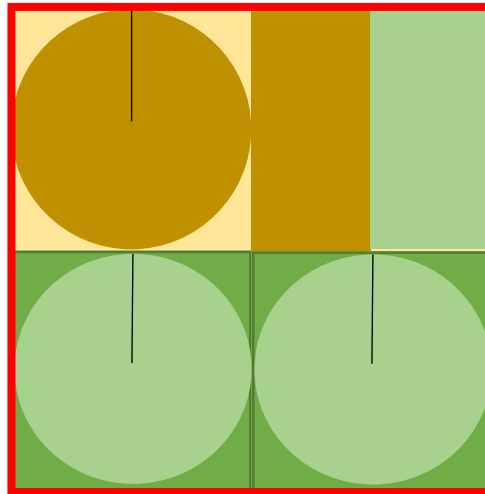
Water Right Transfer Process

Permissible Place of Use (PPU)

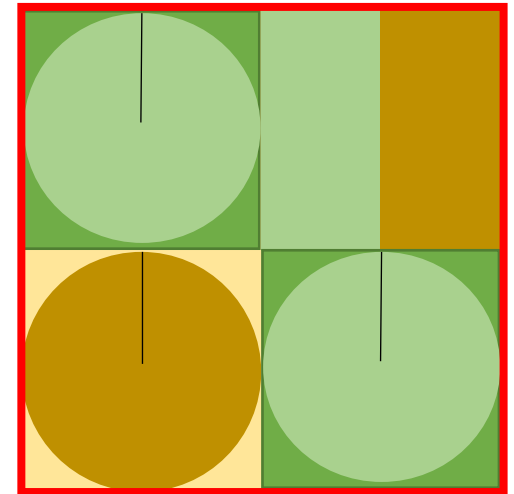
Year 1



Year 2



Year 3



Allows for rotation of irrigated acres from one year to the next under authority of the same water right.

Water Right Transfer Process

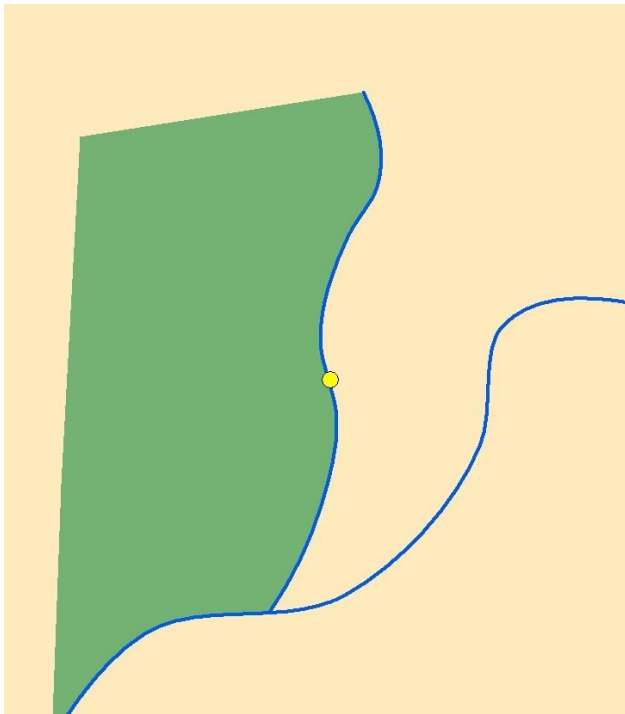
Permissible Place of Use (PPU)

- Allows irrigation of different acres from one year to the next.
- Irrigation must occur within the defined area of the PPU.
- Cannot irrigate more acres in a given year than the water right is authorized for.
- Cannot change irrigated acres within a given year.

Water Right Transfer Process

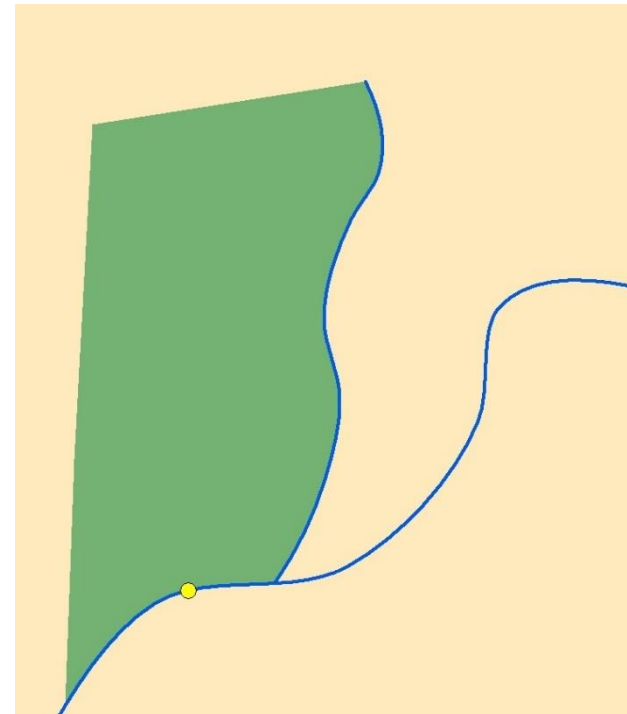
Move a POD

WR Decreed State



0.8 cfs, 40 acres, 180 af

WR After Change

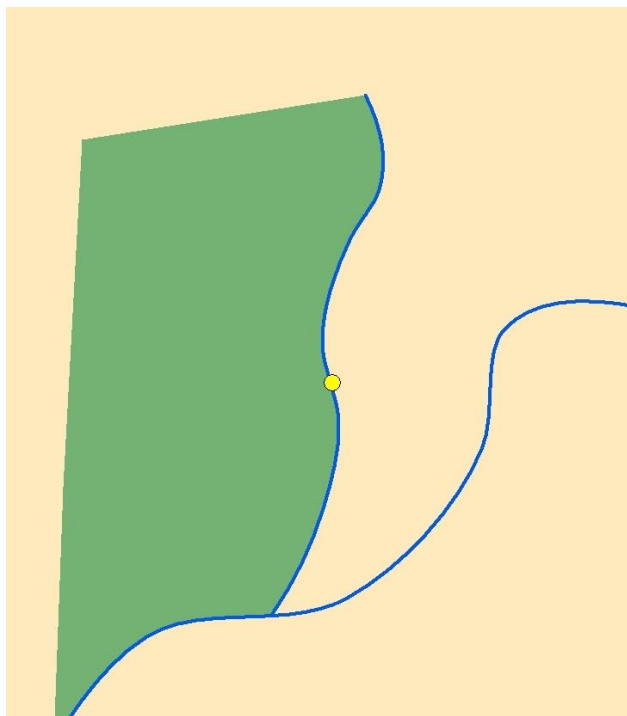


0.8 cfs, 40 acres, 180 af

Water Right Transfer Process

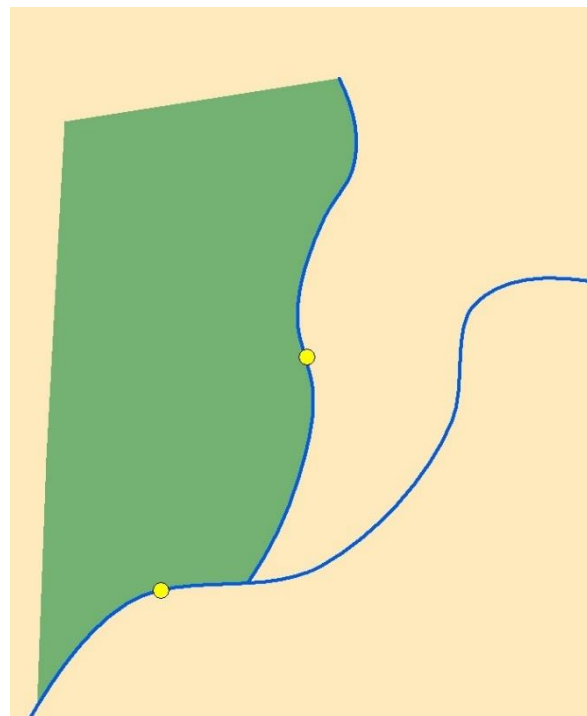
Add a POD

WR Decreed State



0.8 cfs, 40 acres, 180 af

WR After Change



0.8 cfs, 40 acres, 180 af

Water Right Transfer Process

Move or Add a POD

Reasons to Move or Add a POD:

- To provide better access or flexibility in water access for a diversion system.
- To provide better flow for fish in smaller tributaries or when a creek is at lower flows.



Water Right Transfer Process

Other Changes

- Nature of Use
- Season or Period of Use



Temporary Solutions

Water Supply Bank

- Water rights leased into the bank and rented out for use.
- Water Supply Bank rental allows for same solutions as Transfer but duration only 1-5 years.
- Water supply bank transactions are evaluated for validity, injury, and enlargement.



Temporary Approvals



- Authorization to use water for short duration - not to exceed 1 year.
- Ground water recharge, remediation, and flood prevention uses unlimited. All other uses limited to 5 acre-feet.

“Waste water” Definition

Colloquial Definitions

- Tail water accruing at the end of an irrigated field
- Excess water applied to crops which percolates into the soil
- Seepage water leaking from canals or reservoirs
- Effluent generated by a municipality or sewer district



“Waste water” Definition



Idaho Supreme Court/SRBA Definition

- 1) Water purposely discharged from the project works because of operational necessity
- 2) Water leaking from ditches and other works
- 3) Excess water flowing from irrigated lands, either on the surface or seeping under it

“Waste Water” Legal Principles

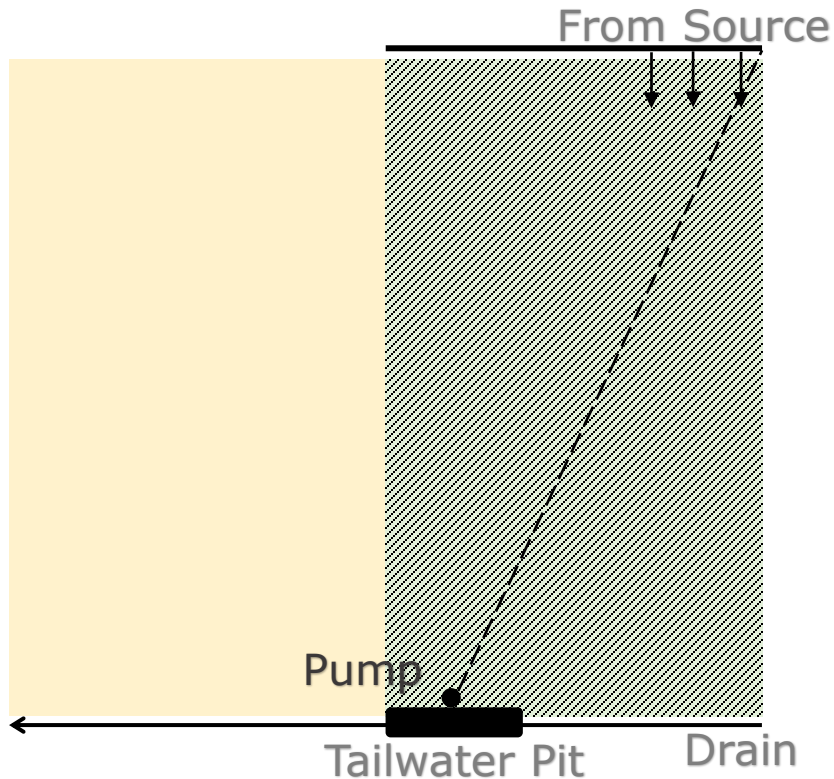
An irrigator “is not bound to maintain conditions giving rise to the waste of water from any particular part of its system for the benefit of individuals who may have been making use of the waste.” Wells A. Hutchins, *The Idaho Law of Water Rights*, 5 Idaho L. Rev. 1, 100 (1968).

An appropriator can recapture and reuse wastewater if the water is still capable of being identified. *See Sebern v. Moore*, 44 Idaho 410, 258 P. 176, 178 (1927).

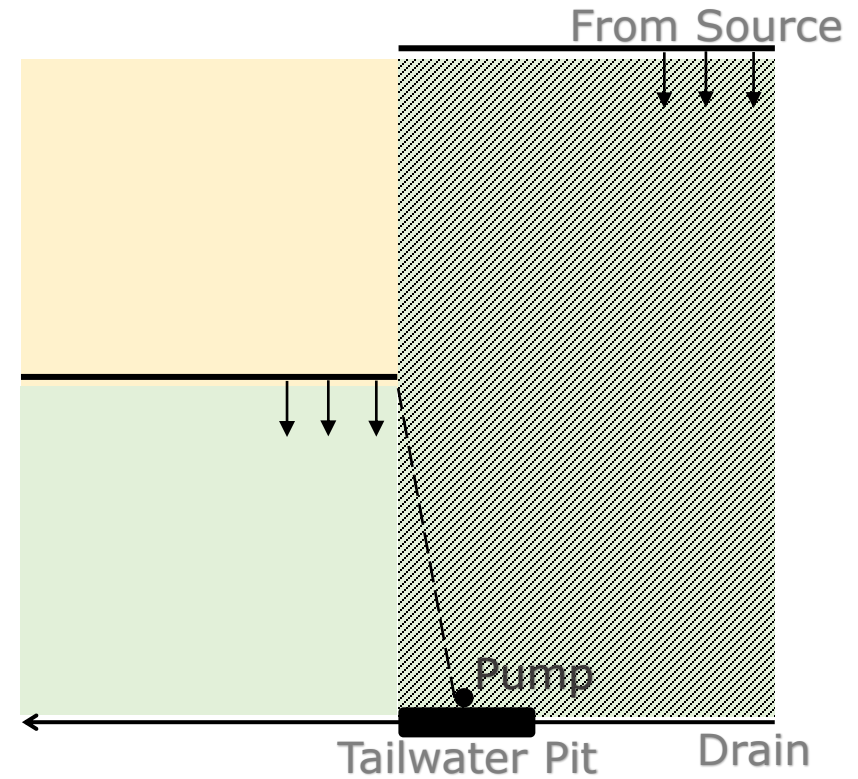
Recapture does not allow for enlargement. *See A & B Irrigation Dist. v. Aberdeen-Am. Falls Ground Water Dist.*, 141 Idaho 746, 752, 118 P.3d 78, 84 (2005).

Waste Water Recapture and Use

Use allowed under the existing water right



Use NOT allowed under the existing water right



Area authorized for irrigation
under water right



This is an enlargement of the base water right.
Requires a new water right.

Applying for a New Waste Water Right

Applicable Statute

§ 42-107 - All ditches now constructed or which may hereafter be constructed for the purpose of utilizing seepage, waste or spring water of the state, shall be governed by the same laws relating to priority of right as those ditches, canals and conduits constructed for the purpose of utilizing the waters of running streams.

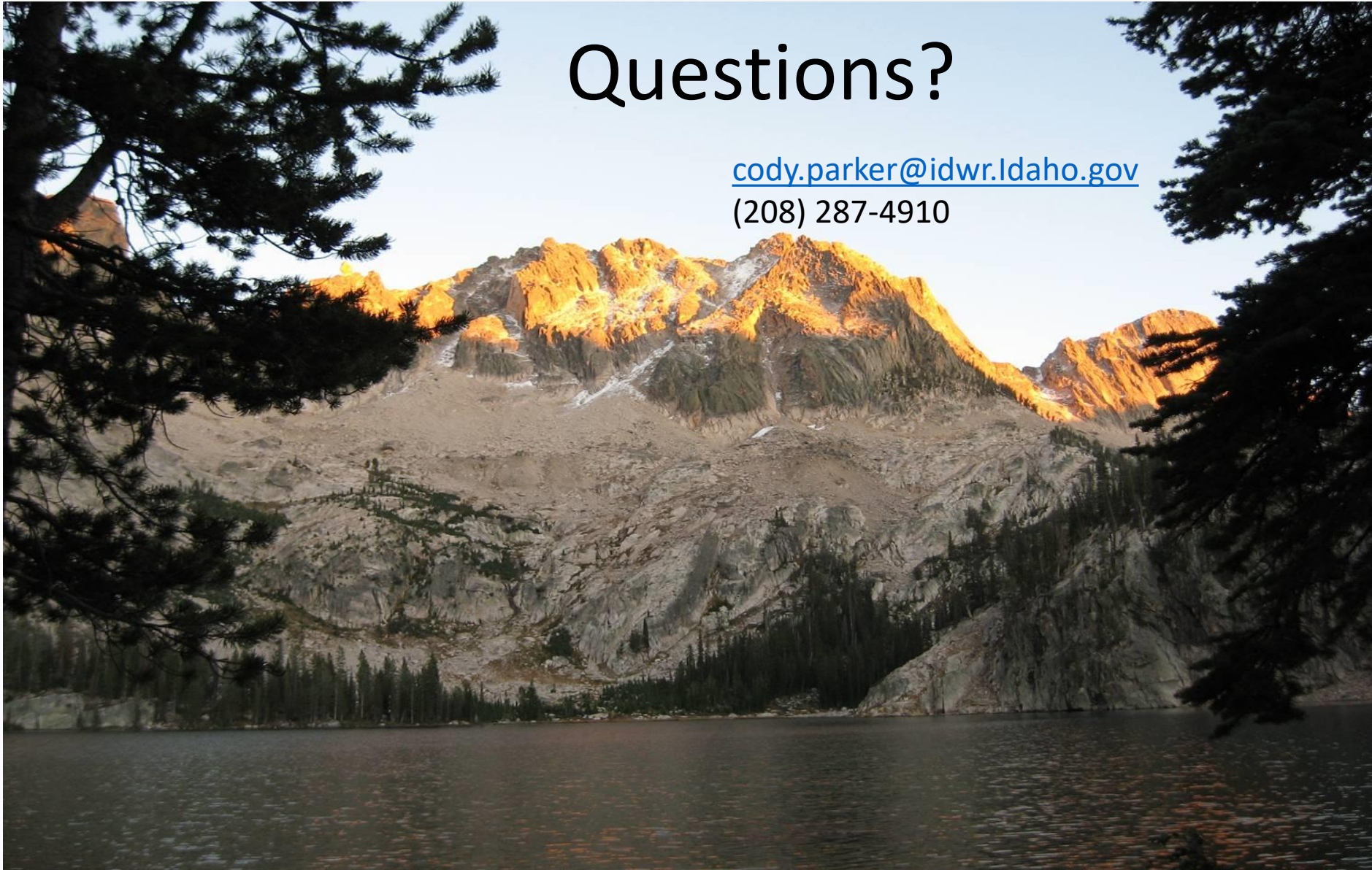
Conditions of Approval

“The waste water diverted under this right is subject to the right of the original appropriator, in good faith and in compliance with state laws governing changes in use and/or expansion of water rights, to cease wasting water, to change the place of use or manner of wasting it, or to recapture it.”

Questions?

cody.parker@idwr.idaho.gov

(208) 287-4910



WARNING - DATA ARE PROVISIONAL

Data Set Export - FlowX.DayMean@13304050 Big Timber Crk Abv Mouth at Leadore ID

Timestamp (UTC-07:00)	Value (Cubic Feet Per Second)	Comment
2019-05-01 00:00:00	4.67	
2019-05-02 00:00:00	5.57	
2019-05-03 00:00:00	3.3	
2019-05-04 00:00:00	1.3	
2019-05-05 00:00:00	1.53	
2019-05-06 00:00:00	2.03	
2019-05-07 00:00:00	2.85	
2019-05-08 00:00:00	7.45	
2019-05-09 00:00:00	10.4	
2019-05-10 00:00:00	9.07	
2019-05-11 00:00:00	6.59	
2019-05-12 00:00:00	5.35	
2019-05-13 00:00:00	10	
2019-05-14 00:00:00	12.9	
2019-05-15 00:00:00	7.23	
2019-05-16 00:00:00	7.61	
2019-05-17 00:00:00	9.64	
2019-05-18 00:00:00	7.33	
2019-05-19 00:00:00	3.88	
2019-05-20 00:00:00	4.58	
2019-05-21 00:00:00	3.5	
2019-05-22 00:00:00	7.96	
2019-05-23 00:00:00	6.58	
2019-05-24 00:00:00	6.84	
2019-05-25 00:00:00	6.5	
2019-05-26 00:00:00	7.45	
2019-05-27 00:00:00	8.14	
2019-05-28 00:00:00	7.57	
2019-05-29 00:00:00	8.01	
2019-05-30 00:00:00	9.2	
2019-05-31 00:00:00	11.3	Begin date
2019-06-01 00:00:00	24.3	
2019-06-02 00:00:00	17.1	
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2019-06-04 00:00:00	49.4	
2019-06-05 00:00:00	71.1	
2019-06-06 00:00:00	78.6	
2019-06-07 00:00:00	90.2	

2019-06-08 00:00:00	91.4
2019-06-09 00:00:00	55.3
2019-06-10 00:00:00	26.7
2019-06-11 00:00:00	15.4
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2019-06-13 00:00:00	39.4
2019-06-14 00:00:00	49.4
2019-06-15 00:00:00	47.4
2019-06-16 00:00:00	47.2
2019-06-17 00:00:00	55.8
2019-06-18 00:00:00	52.9
2019-06-19 00:00:00	43.8
2019-06-20 00:00:00	36.1
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2019-06-24 00:00:00	6.88
2019-06-25 00:00:00	6.43
2019-06-26 00:00:00	6.09
2019-06-27 00:00:00	7.06
2019-06-28 00:00:00	7.75
2019-06-29 00:00:00	7.35
2019-06-30 00:00:00	7.09

14.8 ← end date 23 days

23 days

----- WARNING -----
 # Some of the data that you have obtained from this U.S. Geological Survey database
 # may not have received Director's approval. Any such data values are qualified
 # as provisional and are subject to revision. Provisional data are released on the
 # condition that neither the USGS nor the United States Government may be held liable
 # for any damages resulting from its use.
 #
 # Additional info: <https://help.waterdata.usgs.gov/policies/provisional-data-statement>
 #
 # File-format description: <https://help.waterdata.usgs.gov/faq/about-tab-delimited-output>
 # Automated-retrieval info: <https://help.waterdata.usgs.gov/faq/automated-retrievals>
 #
 # Contact: gs-w_support_nwisweb@usgs.gov
 # retrieved: 2019-07-03 10:30:58 EDT (vaww01)
 #

Data for the following 1 site(s) are contained in this file
 # USGS 13305310 LEMHI RIVER BELOW L5 DIVERSION NEAR SALMON, ID
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Data provided for site 13305310
 # TS parameter statistic Description
 # 46359 00060 00003 Discharge, cubic feet per second (Mean)
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Data-value qualification codes included in this output:
 # P Provisional data subject to revision.
 #

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USGS	13305310	2019-05-15	190	P
USGS	13305310	2019-05-16	233	P
USGS	13305310	2019-05-17	288	P
USGS	13305310	2019-05-18	325	P
USGS	13305310	2019-05-19	285	P
USGS	13305310	2019-05-20	252	P
USGS	13305310	2019-05-21	213	P
USGS	13305310	2019-05-22	175	P
USGS	13305310	2019-05-23	164	P
USGS	13305310	2019-05-24	156	P
USGS	13305310	2019-05-25	167	P
USGS	13305310	2019-05-26	173	P
USGS	13305310	2019-05-27	195	P
USGS	13305310	2019-05-28	221	P
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USGS	13305310	2019-05-31	241	P
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USGS	13305310	2019-06-02	346	P
USGS	13305310	2019-06-03	404	P
USGS	13305310	2019-06-04	510	P
USGS	13305310	2019-06-05	569	P

*Cindy file AS
replacement flows.*

Big Timber start date

7/3/2019

https://waterdata.usgs.gov/id/nwis/dv?cb_00060=on&format=rdb&site_no=13305310&referred_module=sw&period=&begin_date=2019-05...

USGS	13305310	2019-06-06	561	P
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USGS	13305310	2019-06-08	614	P
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USGS	13305310	2019-06-11	376	P
USGS	13305310	2019-06-12	354	P
USGS	13305310	2019-06-13	466	P
USGS	13305310	2019-06-14	513	P
USGS	13305310	2019-06-15	479	P
USGS	13305310	2019-06-16	444	P
USGS	13305310	2019-06-17	482	P
USGS	13305310	2019-06-18	476	P
USGS	13305310	2019-06-19	448	P
USGS	13305310	2019-06-20	423	P
USGS	13305310	2019-06-21	425	P
USGS	13305310	2019-06-22	384	P
USGS	13305310	2019-06-23	339	P
USGS	13305310	2019-06-24	301	P
USGS	13305310	2019-06-25	279	P
USGS	13305310	2019-06-26	272	P
USGS	13305310	2019-06-27	248	P
USGS	13305310	2019-06-28	226	P
USGS	13305310	2019-06-29	230	P
USGS	13305310	2019-06-30	213	P

*High**Big Timber High Flow Gone*

• Table
Tab-separated
Days (365)

GO

Instantaneous-data availability statement

-- or --

Begin date

2017-11-06

End date

2018-11-06

*Aug 4th Regulation 2020***Daily Mean Discharge, cubic feet per second**

DATE	Nov 2017	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	Jun 2018	Jul 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018
1		335 ^A	229 ^{A e}	306 ^A	251 ^{A e}	383 ^A	377 ^A	1,500 ^{A e}	590 ^P	26.2 ^P	25.3 ^P	86.0 ^P	307 ^P
2		344 ^A	224 ^{A e}	313 ^A	267 ^{A e}	384 ^A	302 ^A	1,440 ^{A e}	525 ^P	25.7 ^P	25.3 ^P	105 ^P	311 ^P
3		353 ^A	236 ^{A e}	360 ^A	259 ^{A e}	341 ^A	209 ^A	1,210 ^{A e}	490 ^P	24.8 ^P	25.8 ^P	122 ^P	311 ^P
4		336 ^A	251 ^{A e}	430 ^A	268 ^{A e}	347 ^A	179 ^A	1,100 ^{A e}	462 ^P	25.4 ^P	26.2 ^P	147 ^P	312 ^P
5		287 ^{A e}	286 ^{A e}	456 ^A	265 ^{A e}	345 ^A	188 ^A	1,080 ^{A e}	419 ^P	25.6 ^P	25.2 ^P	186 ^P	309 ^P
6	347 ^A	246 ^{A e}	306 ^{A e}	368 ^A	273 ^{A e}	374 ^A	225 ^A	1,050 ^{A e}	369 ^P	25.7 ^P	25.2 ^P	219 ^P	312 ^P
7	320 ^A	252 ^{A e}	313 ^{A e}	342 ^A	276 ^{A e}	406 ^A	312 ^A	1,010 ^{A e}	341 ^P	25.4 ^P	25.0 ^P	224 ^P	
8	310 ^A	238 ^{A e}	310 ^A	352 ^A	287 ^A	454 ^A	387 ^{A e}	1,050 ^{A e}	305 ^P	25.8 ^P	24.4 ^P	210 ^P	
9	343 ^A	228 ^{A e}	312 ^A	362 ^A	331 ^A	415 ^A	453 ^{A e}	1,030 ^{A e}	268 ^P	25.8 ^P	23.9 ^P	220 ^P	
10	354 ^A	246 ^{A e}	328 ^A	327 ^A	326 ^A	385 ^A	553 ^{A e}	1,050 ^{A e}	271 ^P	25.7 ^P	24.0 ^P	248 ^P	
11	358 ^A	253 ^{A e}	317 ^A	290 ^A	308 ^{A e}	397 ^A	602 ^A	924 ^{A e}	254 ^P	25.4 ^P	24.5 ^P	270 ^P	
12	353 ^A	252 ^{A e}	320 ^A	289 ^A	316 ^{A e}	418 ^A	606 ^A	815 ^{A e}	219 ^P	25.9 ^P	25.5 ^P	265 ^P	
13	353 ^A	270 ^{A e}	319 ^A	267 ^A	335 ^{A e}	406 ^A	565 ^A	685 ^{A e}	187 ^P	25.5 ^P	30.8 ^P	292 ^P	
14	362 ^A	301 ^{A e}	317 ^A	285 ^A	395 ^{A e}	386 ^A	530 ^A	624 ^A	159 ^P	25.2 ^P	35.0 ^P	284 ^P	
15	353 ^A	312 ^{A e}	313 ^A	299 ^A	459 ^{A e}	379 ^A	489 ^A	601 ^A	133 ^P	25.6 ^P	30.3 ^P	277 ^P	
16	365 ^A	300 ^{A e}	302 ^A	284 ^A	413 ^{A e}	395 ^A	498 ^A	814 ^A	132 ^P	25.7 ^P	27.6 ^P	291 ^P	
17	368 ^A	299 ^{A e}	296 ^{A e}	297 ^A	367 ^{A e}	397 ^A	576 ^A	808 ^A	112 ^P	26.4 ^P	24.8 ^P	306 ^P	
18	341 ^A	311 ^A	314 ^A	306 ^A	348 ^{A e}	369 ^A	712 ^A	1,100 ^P	84.7 ^P	26.7 ^P	23.3 ^P	309 ^P	
19	316 ^A	318 ^A	356 ^A	283 ^A	343 ^{A e}	356 ^A	816 ^A	1,060 ^{P e}	64.9 ^P	26.6 ^P	23.7 ^P	302 ^P	
20	339 ^A	320 ^A	321 ^A	236 ^{A e}	326 ^A	352 ^A	870 ^A	1,020 ^{P e}	47.4 ^P	26.7 ^P	24.0 ^P	294 ^P	
21	351 ^A	312 ^A	312 ^A	218 ^{A e}	325 ^A	357 ^A	940 ^A	1,010 ^P	40.4 ^P	26.3 ^P	26.0 ^P	294 ^P	
22	369 ^A	308 ^A	293 ^{A e}	243 ^{A e}	375 ^A	386 ^A	965 ^A	1,030 ^P	36.1 ^P	25.2 ^P	29.8 ^P	299 ^P	
23	386 ^A	308 ^A	289 ^A	252 ^{A e}	502 ^A	419 ^A	1,010 ^A	991 ^P	32.3 ^P	25.3 ^P	38.0 ^P	297 ^P	
24	394 ^A	227 ^{A e}	300 ^{A e}	255 ^{A e}	481 ^A	413 ^A	1,120 ^{A e}	925 ^P	30.1 ^P	25.1 ^P	45.6 ^P	299 ^P	
25	382 ^A	250 ^{A e}	299 ^{A e}	263 ^{A e}	447 ^A	393 ^{A e}	1,310 ^{A e}	856 ^P	26.3 ^P	25.2 ^P	51.3 ^P	294 ^P	
26	377 ^A	273 ^{A e}	281 ^{A e}	279 ^{A e}	375 ^A	382 ^{A e}	1,420 ^{A e}	800 ^P	25.7 ^P	25.3 ^P	55.2 ^P	292 ^P	
27	384 ^A	261 ^{A e}	286 ^{A e}	250 ^{A e}	350 ^A	375 ^A	1,500 ^{A e}	736 ^P	25.6 ^P	26.5 ^P	62.7 ^P	301 ^P	
28	376 ^A	255 ^{A e}	300 ^A	248 ^{A e}	355 ^A	406 ^A	1,560 ^{A e}	687 ^P	32.2 ^P	26.4 ^P	62.5 ^P	303 ^P	
29	363 ^A	261 ^{A e}	307 ^A		356 ^A	450 ^A	1,580 ^{A e}	681 ^P	26.6 ^P	25.9 ^P	56.3 ^P	306 ^P	
30	324 ^A	261 ^{A e}	345 ^A		361 ^A	434 ^A	1,620 ^{A e}	648 ^P	25.9 ^P	26.0 ^P	72.6 ^P	312 ^P	
31		244 ^{A e}	327 ^A		387 ^A		1,490 ^{A e}		25.7 ^P	25.5 ^P		302 ^P	

COUNT	25	31	31	28	31	30	31	30	31	31	30	31	6
MAX	394	353	356	456	502	454	1,620	1,500	590	26.7	72.6	312	312
MIN	310	227	224	218	251	341	179	601	25.6	24.8	23.3	86.0	307

Explanation

A	Approved for publication -- Processing and review completed.
P	Provisional data subject to revision.
e	Value has been estimated.

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USA

fish habitat, overflowing of the river 2018

by Leslie Shumate

Two problems were addressed by the Idaho Department of Fish & Game Fisheries Staff Biologist Jeff Diluccia at the October 28 Lemhi County Commissioners meeting. Fish and flooding.

Diluccia is in charge of a voluntary Lemhi River conservation program aimed at getting the salmon and steelhead off the Endangered Species list. He works with landowners towards the common goal of improving fish habitat. He said he was in attendance to get the commissioners' guidance on a current project that is underway which relates to fish by way of the habitual flooding in sub reach four from the overflowing Lemhi River.

He said there is money available for improving fish habitat but not very much for addressing existing flooding risks. Diluccia said the issue affects everyone including Sheriff Penner and the Lemhi County Road and Bridge Department, all of whom were present for the discussion.

In a power point presentation Diluccia showed aerial views of the area being affected. This clearly shows from present topography that at one time the river meandered and obstructed all over the Lemhi valley which was very good for fish habitat. With the advent of human habitation the waters have been con-

tained and channeled mostly to the Lemhi River. Straightening the river added more flow and higher cubic feet per second pressures along the river banks which are no longer able to contain high water. The breach of levies has caused major damage to the lower Lemhi Basin in the vicinity of Eagle Valley Ranch and what's known as the Eagle Valley Reach.

As far as the fish are concerned, he likened the effect to living on a constant treadmill while trying to gain weight. He said the lower end of the Lemhi is very important to the fish since it is where they need to grow strong to survive their seasonal migration. In some places there are levies on both sides of the river, which is not good for the health of the fish. He said, "It's time to fix our own back yard." The goal is to create some "managed flooding."

Plans are being designed to slow the river down much the same way switch backs slow down traffic. Diluccia showed photos of the flooding in 2018 that was actually worse than in 2017, which was a much heavier snow year. The 2018 flooding took out banks, rushed over Barracks Lane, over Geertson Creek Road and through the Olson Ranch corrals. He said he worked with county road and bridge to divert water back to the river, open the roads and reduce the flooding risk.

According to Diluccia there was concern that the work Fish & Game had previously done upstream had caused some of the flooding. He said that topic was discussed at length, however, none of the work performed by the agency had taken place in the main river. Diluccia said they were creating side channel complexes and did not work in the river until the summer of 2018.

He said Phase I of the project has involved installing structures to stabilize eroding banks and create fish habitat. Bonneville Power would not fund the work because it said the work wasn't focused enough on the fish. Funding came from another source. Phase II will be to develop a lateral floodplain which will have a more tangible fish benefit.

sis. The flood plain will be designed to be not only a good fish rearing habitat, it will act to spread out and lessen the amount of water now flowing towards Barracks Lane. He said a hydraulic model has been built to replicate the present ground conditions and study possible solutions.

Diluccia said he doesn't want to push any problems further downstream and that landowners are being consulted.

The group continued the discussion of what has been done and what should be done for the long-term. Diluccia asked the commissioners how, in their opinion, the agency should proceed.

He said as far as long-range downstream work to protect county infrastructure and landowners, that is something of which the county needs to be aware of. He would also be interested in the Army Corps of Engineers' view of the plan. Barsalou said he thinks if the landscape can be restored to a pre-event condition, it would be well worth the time to do it and would certainly be to the county's advantage. He told Diluccia that he should proceed with Phase II of the habitat plan.

Barsalou stated that he found it very surprising that what was evaluated as a five-year high water event on the Lemhi in 2017 was a 100-year high water event on the Main Salmon. Diluccia indicated his plan is to get more home-owners involved in the Phase II project and to also involve the Idaho Transportation Department and the Army Corps of Engineers. He promised to keep the Lemhi County Commissioners as well as other county departments apprised of the progress.

The biologist introduced Joe Young a geomorphologist-engineer. Geomorphology is the study of why the landscape looks the way it does. The project he described is located eight miles east of Salmon along Highway 28.

Young recapped the 2018 flooding on the Lemhi River which peaked on May 31 at up to 1,680 cubic feet per second. The river eroded 40 feet into a field and took out the existing levy. Flooding extended for 3.6 miles. Road and Bridge Supervisor Curt Rosin later commented that the particular bank did not provide a strong levy in the first place due to being built with highly erodible materials.

Young said the ultimate goal of the project is to create a threaded multichannel flood plain that will be naturally inundated on a yearly ba-

The Lemhi River was divided into 14 reaches (numbered from the upstream end; see fig. 4) between Leadore and Salmon on the basis of such factors as number of inflows and outflows, degree of detail desired, and access. A total of 117 measurements were made during the August seepage run. The number of measurements within a reach ranged from 6 to 14. In October, only about 50 of the 117 previously measured sites were remeasured because most of the diversions had been discontinued for the year.

Discharge measurements were made using standard USGS procedures as outlined in a report by Rantz and others (1982) using Price AA and Pygmy meters. Discharge measurement sites on the Lemhi River are shown in figure 4 and listed in table 2. All measurements differentiated between inflow, diversion, or main channel, and were rated subjectively for adequacy on the basis of flow and cross-section conditions and the measurer's evaluation of how close the measurements were to the actual flow (within 2 percent, excellent;

Table 2. Summary of results of August and October 1997 seepage runs in the Lemhi River, east-central Idaho

[See Appendices 1 and 2 for complete results. Gains and losses are from and to ground water; results have been adjusted for diversions and returns. Locations of reaches shown in figure 4; gains and losses shown in figure 7. USGS, U.S. Geological Survey; BOR, Bureau of Reclamation; BLM, Bureau of Land Management; ft³/s, cubic feet per second; mi, mile]

Reach number and description	August				October			
	Gain or loss (-) (ft ³ /s)	Reach length (mi)	Gain or loss (-) (ft ³ /s /mi)	Percent gained or lost (-)	Gain or loss (-) (ft ³ /s)	Reach length (mi)	Gain or loss (-) (ft ³ /s /mi)	Percent gained or lost (-)
1. BOR gaging station at Leadore to Big Springs inflow	76.5	7.6	10.1	225	74.9	7.6	9.9	103.6
2. Big Springs inflow to Little Eightmile Creek	26.2	2.1	12.5	29.7	8.8	2.1	4.2	6.3
3. Little Eightmile Creek to BOR gaging station at BLM McFarland Campground	3.43	8.2	0.4	2.3	-20.0	8.2	-2.4	-9.3
4. BOR gaging station at BLM McFarland Campground to highway bridge above L-44 diversion	1.42	3.8	0.4	0.9	2.8	3.8	0.7	1.1
5. Highway bridge above L-44 diversion to Lemhi	20.3	1.8	11.3	11.1	-22.8	1.8	-12.7	-8.8
6. Lemhi to 0.1 mile downstream from Hayden Creek Road	16.1	1.6	10.1	7.6	47.0	1.6	29.4	17.9
7. 0.1 mile downstream from Hayden Creek Road to USGS gaging station (13305000)	41.6	5.6	7.4	18.9	-18.9	5.6	-3.4	-5.9
8. USGS gaging station (13305000) to highway crossing below L-30 diversion	84.2	2.2	38.3	23.5	54.3	2.2	24.7	15.0
9. Highway crossing below L-30 diversion to highway bridge 0.15 mile upstream from L-19 diversion	66.0	7.2	9.2	16.2	-5.2	7.2	-0.7	-1.2
10. Highway bridge 0.15 mile upstream from L-19 diversion to highway bridge 0.7 mile upstream from Baker intersection	26.2	3.5	7.5	6.4	-33.5	3.5	-9.6	-7.8
11. 0.7 mile upstream from Baker intersection to BOR gaging station at Barracks Lane	-5.51	4.1	-1.3	-1.4	32.2	4.1	7.8	8.1
12. BOR gaging station at Barracks Lane to USGS gaging station (13305310)	7.22	1.8	4.0	2.2	-29.5	1.8	-16.4	-6.5
13. USGS gaging station (13305310) to BOR gaging station at L-3A diversion	30.4	1.8	16.9	12.1	53.0	1.8	29.4	13.0
14. BOR gaging station at L-3A diversion to BOR gaging station at L-1 diversion	116	4.7	24.7	42.2	22.4	4.7	4.8	4.8
Net totals (rounded)	510	56			165	56		

LEMHI BASIN SETTLEMENT WORK GROUP DOCUMENT (IRE 408 and 507)

10/06/2020

DRAFT

RIGHT NUMBER: 74-XXXXX

NAME AND ADDRESS: TO BE DETERMINED

SOURCE: BIG TIMBER CREEK
LITTLE TIMBER CREEKTRIBUTARY: LEMHI RIVER
BIG TIMBER CREEK

QUANTITY: 85.660 CFS

PRIORITY DATE: DATE OF APPLICATION

POINTS OF DIVERSION:	BIG TIMBER CREEK	T14N	R26E	S7	NESW	(BT1)	Within LEMHI County
	LITTLE TIMBER CREEK	T15N	R25E	S13	SESW	(LT1)	Within LEMHI County
	LITTLE TIMBER CREEK	T15N	R25E	S24	SWNW	(LT2-4)	Within LEMHI County
	BIG TIMBER CREEK	T15N	R26E	S5	Lot 1	(BT4)	Within LEMHI County
	BIG TIMBER CREEK	T15N	R26E	S5	SENE	(BT5-6)	Within LEMHI County
	BIG TIMBER CREEK	T15N	R26E	S8	NWSE	(BT9-10)	Within LEMHI County
	BIG TIMBER CREEK	T16N	R26E	S33	NWNW	(BT2)	Within LEMHI County

PURPOSE AND

PERIOD OF USE:	PURPOSE OF USE	PERIOD OF USE	QUANTITY
	TO BE DETERMINED	03/15 to 7/31	85.660 CFS

PLACES OF USE: See conditions of approval. (Or list the place of use by 40-acre tract.)

Conditions of Approval:

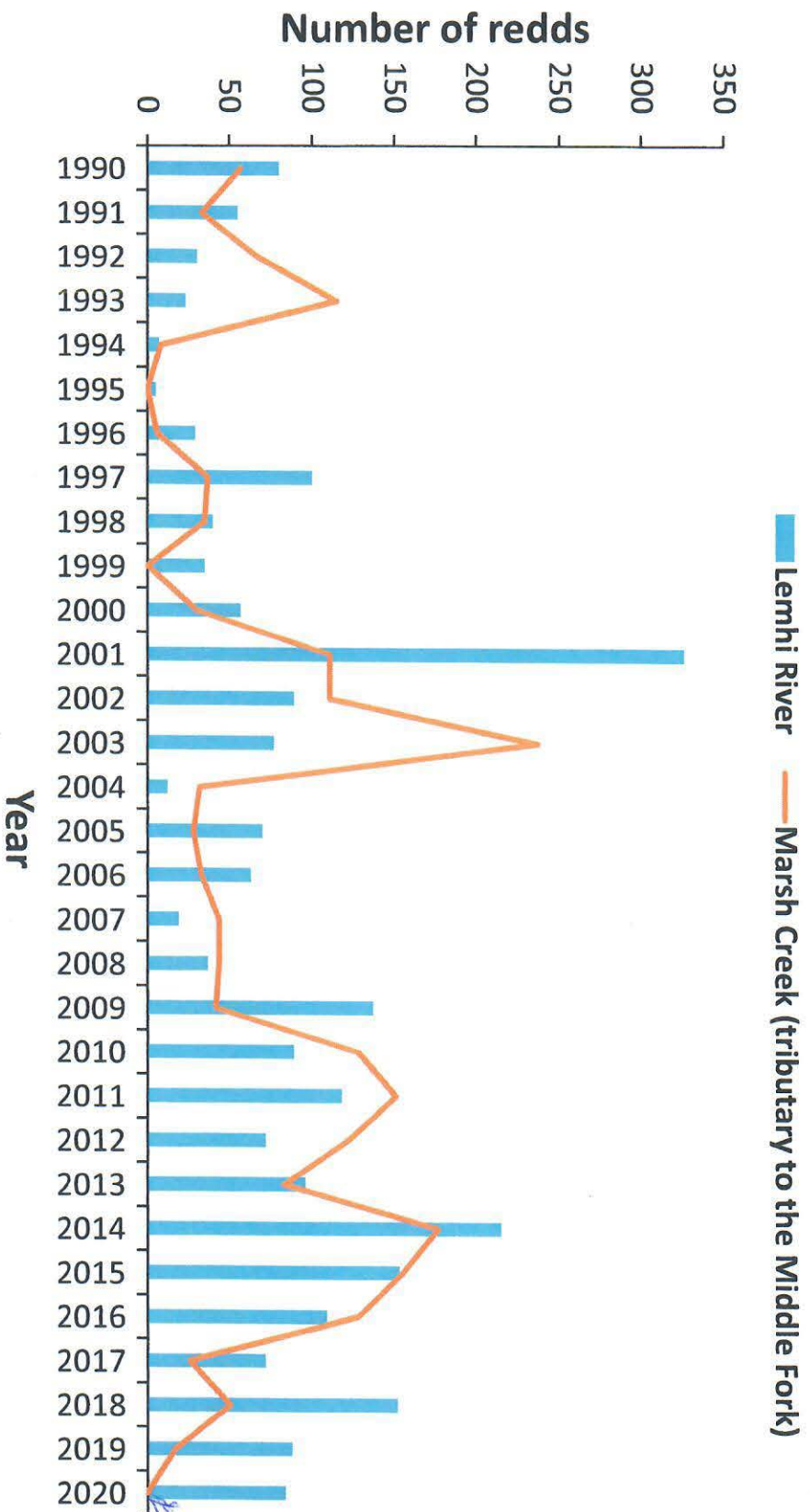
1. This right is for the diversion, distribution, and application of high flow water on the places of use described above "to hold or store water underground within the basin" to augment and/or supplement the "flow of the streams and river" "during the latter portion of the irrigation season."
2. This right does not grant any right-of-way or easement across the land of another.
3. Use of water under this right will be regulated by a watermaster with responsibility for the distribution of water among appropriators within a water district. At the time of this approval, this water right is within State Water District 74W.
4. The right holder shall coordinate with the users of this right and report to the watermaster how the water available under this right is to be allocated. (Determine whether additional instructions for allocation among users is needed.)
5. Prior to diversion of water under this right, the right holder shall install and maintain a measuring device and lockable controlling works of a type acceptable to the Department and watermaster as part of the diverting works.
6. The place of use for this right is land authorized to be irrigated pursuant to the following valid decreed water right(s) (or future renumbered portions of the following water rights) diverted from the source(s) for this right at the point(s) of diversion listed above: 74-49, 74-38, 74-40, 74-41, 74-50A, 74-51, 74-61, 74-33, 74-47, 74-48, 74-36A, 74-36B, 74-56, 74-42, 74-59A, 74-398, 74-399, 74-1834, 74-37, and 74-39A. [Determine whether application of water to the land under this right should be allowed if the underlying irrigation right is changed to a different beneficial use or is no longer used.]

LEMHI BASIN SETTLEMENT WORK GROUP DOCUMENT (IRE 408 and 507)

7. Water shall not be diverted pursuant to this right when the flow of water in Big Timber Creek (**add flushing flow criteria**).
8. The diversion and use of water pursuant to this right shall not benefit from the subordination provisions in element 10.b of the partial decree for federal reserved water rights 75-13316 and 75-11941.

DRAFT

Chinook Redds in the Lemhi River and Marsh Creek



No data yet