Distribution of Snake River Water in Idaho (including stored water in Jackson Lake Reservoir)

> Tony Olenichak Water District #1 Watermaster 9/14/2023

Idaho water rights based on prior appropriation doctrine..... "first in time, first in right"

Idaho farmers first began diverting water from Snake River and its tributaries in mid-1870's

Approximately 25 canals constructed between Heise and Rigby 1880 – 1890.



Canal diversions for irrigation in Idaho continued to increase through the early 1900's

1905 was the first year Snake River canals experienced water shortages.

Snake River becomes dry for approximately 10 miles in the vicinity of Blackfoot, Idaho.





JACKSON LAKE DAM

Log-crib dam constructed at outlet of Jackson Lake in 1906 to store 300,000 acre-feet of water to later be released to satisfy downstream Idaho irrigation diversions in later half of irrigation season when the available downstream natural flow became exhausted.

Jackson Dam rebuilt and raised in 1910 and again in 1913 increasing reservoir storage capacity behind dam to the current 847,000 acre-feet.



1910 - 1913

- Water shortages necessitate the adjudication of currently held water rights
- "Rexburg Decree" is issued covering irrigation water rights diverted for Idaho lands above Blackfoot.
- "Foster Decree" adjudicates Snake River water rights for diversions between Blackfoot and Milner Dam.



Water District #36 (later renamed Water District #1) established in Idaho in 1919 to regulate Snake River irrigation diversions according to their water right priorities/amounts, and to ensure reservoir storage water released from Jackson Lake made its way all the way down the Snake River past several Idaho irrigation diversions to reach the canals that had the storage rights in Jackson Lake Reservoir.



Snake River Compact between Wyoming and Idaho (October 1949)

96% of unappropriated water (as of 1949) from the Snake River headwaters to the Wyoming/Idaho State Line and all tributaries flowing into it within the boundaries of Wyoming shall be allocated to Idaho.....with the remaining 4% of unappropriated water (as of 1949) allocated to Wyoming.



How does Water District #1 determine who is entitled to divert natural-flow from the Snake River and its tributaries each day?

Step 1: Calculate the daily "reach gain" for each reach of the Snake River from its source down to Milner Dam near Twin Falls Idaho. Total of 36 river reaches.

Reach Gain = Reach outflow – Reach Inflow + Reach diversions + Change in Reservoir Storage if reach contains a reservoir



How does Water District #1 determine who is entitled to divert natural-flow from the Snake River and its tributaries each day?

Step 2: Sum the reach gains (upstream to downstream) calculated for each river reach to determine the total natural flow available to be distributed to water rights. Total of 36 river reaches from top to bottom of river system.



How does Water District #1 determine who is entitled to divert natural-flow from the Snake River and its tributaries each day?

Step 3: Distribute the total natural flow to each canal and reservoir according to its water right priority and amount.

- Water right with earliest priority distributed its water right first.
- Water right with second earliest priority distributed its water second.....and so on.....until all the natural flow has been distributed to earliest diversions and reservoir priorities.
- In addition to natural flow, most diversions also have storage allocations from the reservoir system.

NATER DISTRICT 01 - SNAME RIVER FLOW ACCOUNTING (VER 2.1.2.128)) - Jul 21, 2023 20230911	DIVERSION DATA - Jul 21, 2023	30911
REACH FLOWS IN CFS ACTUAL MATURAL ACTUAL RMAINTING FWRAENCH STORED RESUL DATE FLOW FLOW HAT FLOW FLOW FLOW FLOW	VOIR HATURAL TOTEL BEACH EVAP FLOW DIV BCH DIV GAIN LAST BIGHT	CES CF3 AF AF CES CF3 AF AF CES CF3 AF DIVERSION DIVISION DIVISIONI DIVISION DIVISIO	λ? NG
13 DESEMP PD1 18 2485. 240. 2485. 0.0 6. 14 SHAT RIVER ANY RES D01 16 793. 735. 0. 6. 15 SHAT RIVER ANY RES D01 16 793. 735. 743. 0. 6. 15 SHAT RIVER ANY RES D01 16 793. 708. 708. 708. 708. 709.	0. 0. 6. 245.1 ISSUED 0. 0. 6. 714. ISSUED 9. 0. 0. 714. ISSUED 9. 19. 0. 1174. ISSUED 9. 1174	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	240 549 549 549 549 549 549 540 540 540 540 540 540 540 540
6 KIRIK 9411.0 1411.0 -101.6 0.0 7500.0 1541.0 6 7 AMERICAN FALLS 971610.0 95253.0 -0556.7 0.0 452175.7 1569.2 6 LARE MALCOTI 5273.0 5500.0 124.4 0.0 95200.0 1217.8 5 LARE MALCOR 5442.7 3440.2 -0.6 0.0 0.0 9	FRIJARACES WHS 254710.0 254710.0 I SUAND FARE 1521 45000.0 45000.0 AMERICAN FLS WHS 156630.0 156630.0 AMERICAN FALLS 1565345.7 1505345.7	40 DILIS (6A) 22 0 5.1 2450 165 DIDH 229 0 00 186 5240 205 DEALAY 0 6 6 0 1 151200 (6A) 250 0 105 DEALAY 0 0 6 6 0 1 15120 A0 70 0 0 655 113 07 AN 0 70 0 105 113 07 AN 0 70 0 1 0 555 6 0 10 0 10 0 10 0 10 0 10 0	0 1122 (FRANKER (128) 9 0 0 2021 F FUNCTION 2 0 0 0 0525 A. B. DIR BUST 6 8 40 244 0 1132 (FRANKER (128) 9 0 0 0 224 B TOKING F1 0 0 0 0 355 A. B. DIR BUST 6 8 40 244 0 1141 J. DOSLI #1 0 9 0 0 4 24 B TOKING F1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
TOTAL 3246315.7 3215304.2 -15644.3 0.0 4055935.9 46554.6 11 CERNEE IN STORAGE STO FAST TOTAL ACT'L AN FALLS 13 CONTENT DIVENTED MILLINE STORED SCHED GAIN DIVENT 14	ADDRED LEMON APPU 015000 015000 015000 GRASST LAPE 15204.0 15204.0 FALISARES 1559 900412.4 FURNYS LARE 1955 10650.0 10650.0 KERE 75500.0 75500.0	51 MHTTE DETER TEN = 3 0 0 0 1312 SECURE TENES 0 0 220 MONOTILIZZE TENES 200 0 0 3 52 D HILTE DETER TEN = 3 0 0 0 0 1312 SECURE TENES 0 0 0 250 MONOTILIZZE 221 12 202 0 0 0 53 D HILTE DETER TENES 0 0 0 0 0 1313 CELEMENTSTIL (31D 8 0 0 250 MONOTILIZZE) 4 0 0 0 54 DEXEMPTI (202) 0 0 0 0 1313 CELEMENTSTIL (31D 8 0 0 250 MONOTILIZZE) 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
15 YEAR-TO-TARE AF -559383.4 501700,9 18032T.9 4048017.1 37000.0 2084.6 16	FALLOWLD FFDHD 7759.0 7759.0 RENIAL LIF 276862.0 39862.7	2 5 ELLEL 2 19/05 2 22 20 0 0 115 EL SOUCH 10 2 22 20 20 20 0 0 0 0 15 EL SOUCH 10 20 20 20 20 20 20 20 20 20 20 20 20 20	a 0 0 10 THE FALLS SOUTH SIDEN AND LETTER IN FRANKTERS ATTER DE NAME INDICATE DE CONTRACT 310 2070 5388 10785 11 00000 THE IDENTICALLY PRESEND AND LETTER IN FRANKTERS DE NAME INDICATE DE NAME AND



JACKSON LAKE – Water Right Accrual vs. Physical Contents



Jackson Lake storage rights are senior to all downstream reservoirs.

Releases from Jackson Dam are comprised of storage allocated to Jackson Lake USBR spaceholders unless reservoir remains 100% physically full.

If downstream reservoirs are unable to capture and store Jackson Lake releases, storage allocations to Jackson Lake USBR spaceholders may be reduced.



Outflows from Jackson Dam are determined by USBR taking into consideration: 1) Flood-control requirements; 2) Downstream irrigation demands; 3) Fisheries; 4) Boating/Rafting; and 5) Preserving previously stored water in the reservoir in case the upcoming winter snowpack isn't sufficient to completely refill the reservoir for the next season.

Once storage is released to flow downstream, you can't move it back upstream to store into the reservoir.



The goal each year is to completely fill the reservoir system without spilling water out the end of the system and keeping storage water as high up in the system as possible while considering downstream demands for flood-control, irrigation, fisheries, recreation, and flow augmentation.

QUESTIONS ?

Additional information and contacts:

Water District #1 Webpage www.waterdistrict1.com

Tony Olenichak, Watermaster <u>tony.olenichak@idwr.Idaho.gov</u> 208-525-7161

Craig Chandler, Staff Engineer <u>craig.chandler@idwr.Idaho.gov</u> 208-525-7161