



CENTRAL UTAH WATER

Using RiverWare to Support the Accounting and Operations of the Central Utah Project

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August 2023

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What is Central Utah Water Conservancy District (CUWCD)?

“With 62% of our growing state living in Central Utah Water’s boundaries we are dedicated to planning for the future by developing, delivering and efficiently using our limited water resources. Thank you for your trust.”

— GENE SHAWCROFT, GENERAL MANAGER



Managing
\$3.5 billion in
infrastructure



Treating more
than **100 million**
gallons per day



Serving **1.5 million**
people
every day



Maintaining
178 miles
of canals,
tunnels and
pipelines



Delivering
more than
400,000 acre-feet
annually

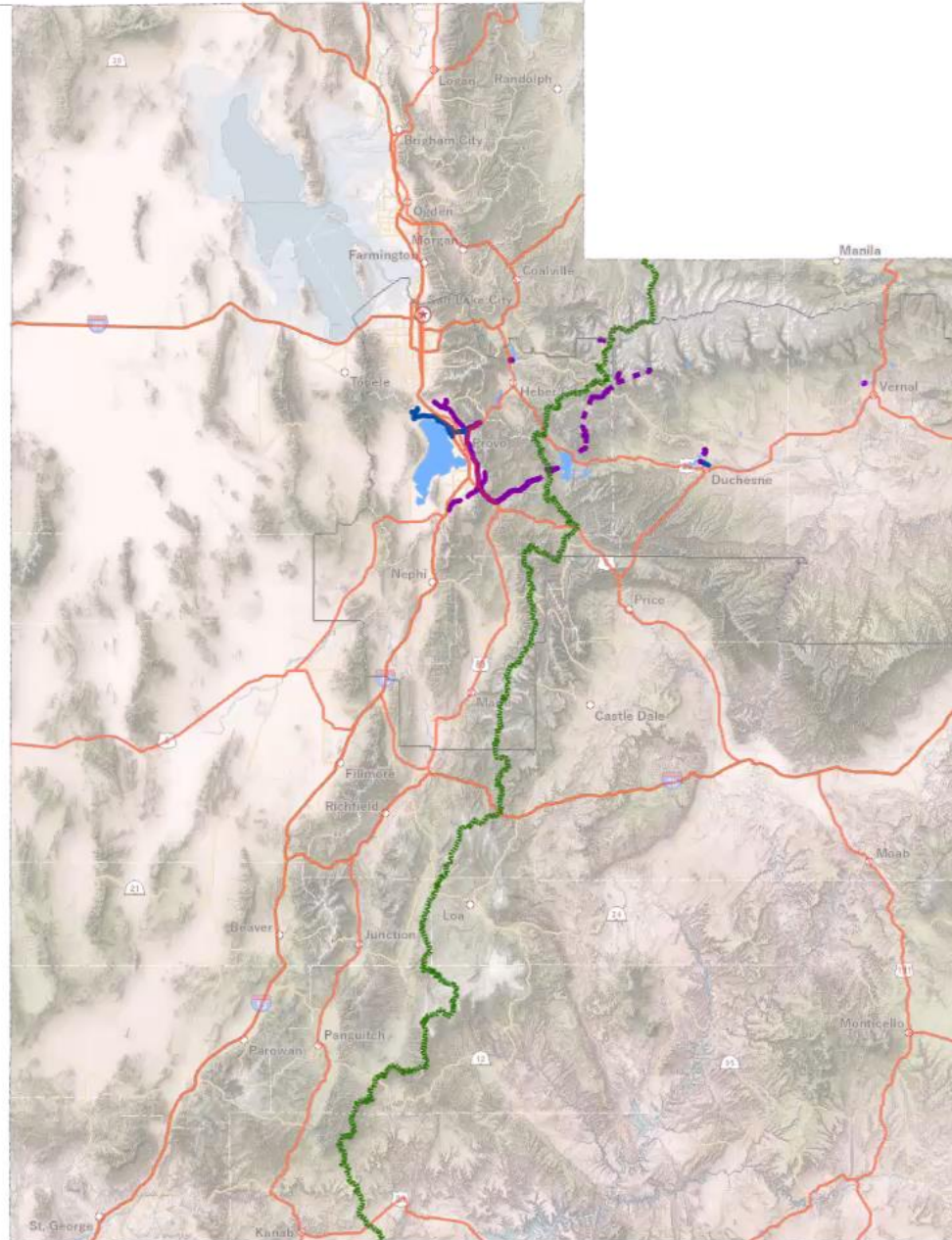


Storing
565 billion gallons
in reservoirs

Provide: Culinary & Agricultural Water, Recreational Resources, Hydroelectric Power, Environmental Protections, Flood Control, and more.



Nevada



Colorado

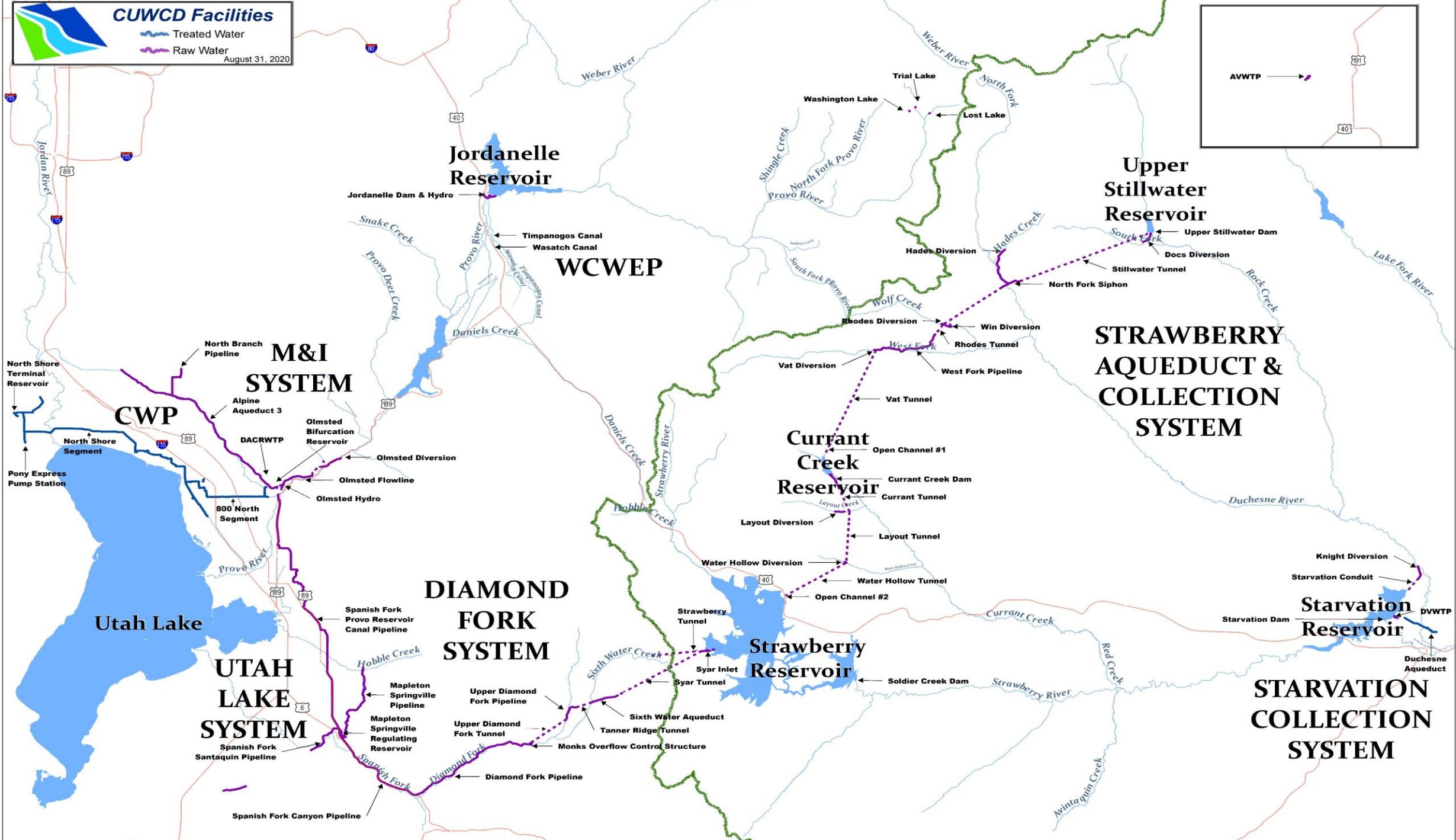
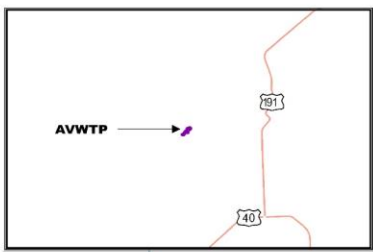
Nevada

Colorado

CUWCD Facilities

 Treated Water
 Raw Water

August 31, 2020



CUWCD Annual Water Supply and Deliveries

Central Utah Project:

- M&I 154,750 A-F
Some turned back for instream flows
- Irrigation Water 39,500 A-F
- Instream Flow (Uinta Basin) 44,400 A-F
- Total CUP 238,650 A-F
- Non-CUP Water Conveyed in CUP facilities ~100,000 A-F (varies)
- Instream Flows Also Delivered to Provo and Spanish Fork rivers

Central Water Project:

- M&I 53,600 A-F

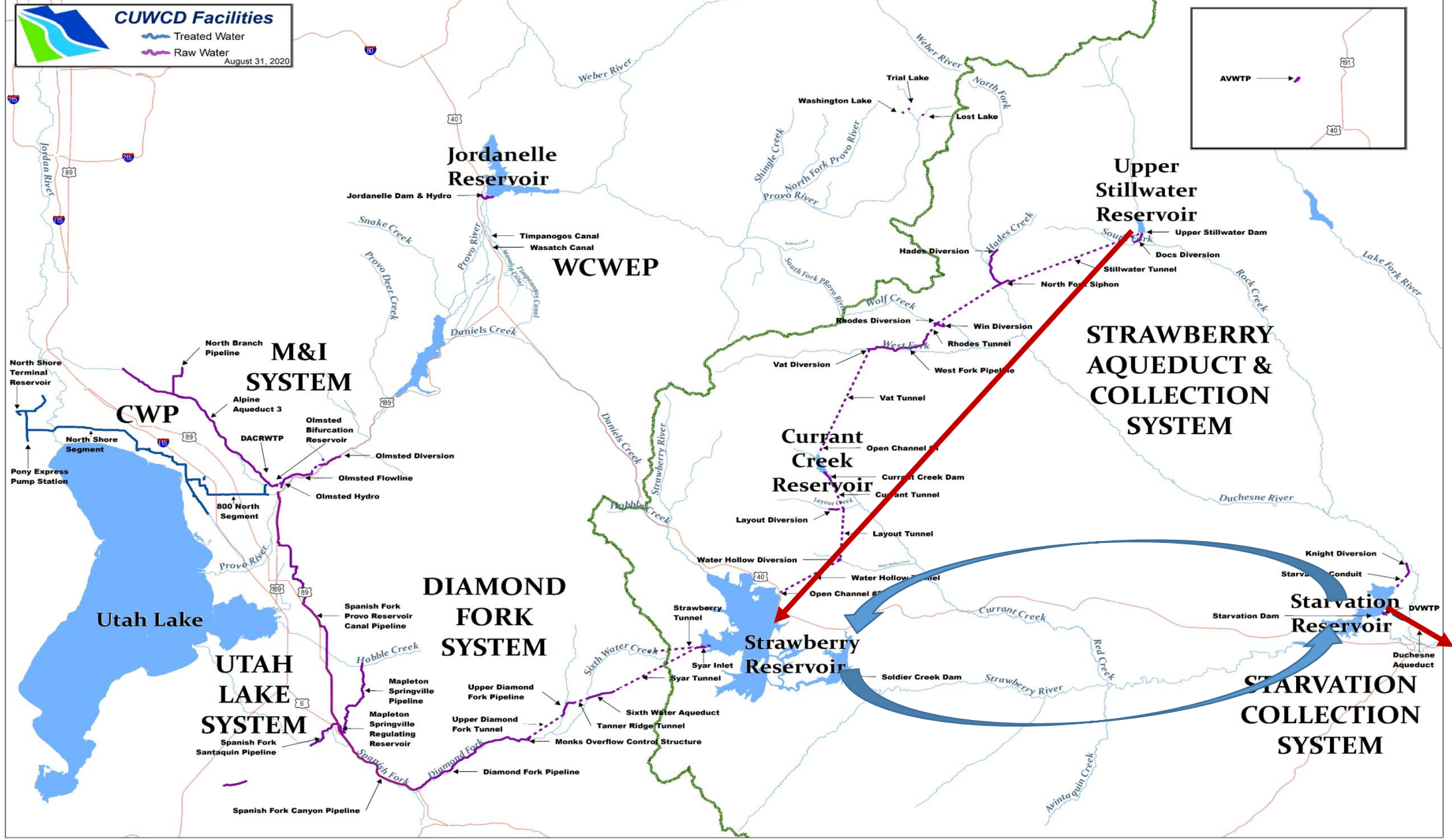
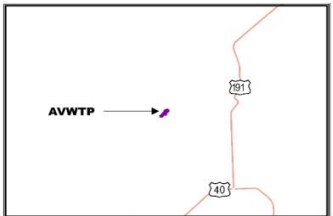
Strawberry Valley Project:

- Irrigation Water 61,000 A-F



CUWCD Facilities

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 Raw Water
 August 31, 2020



Upper Stillwater Dam Operation Report

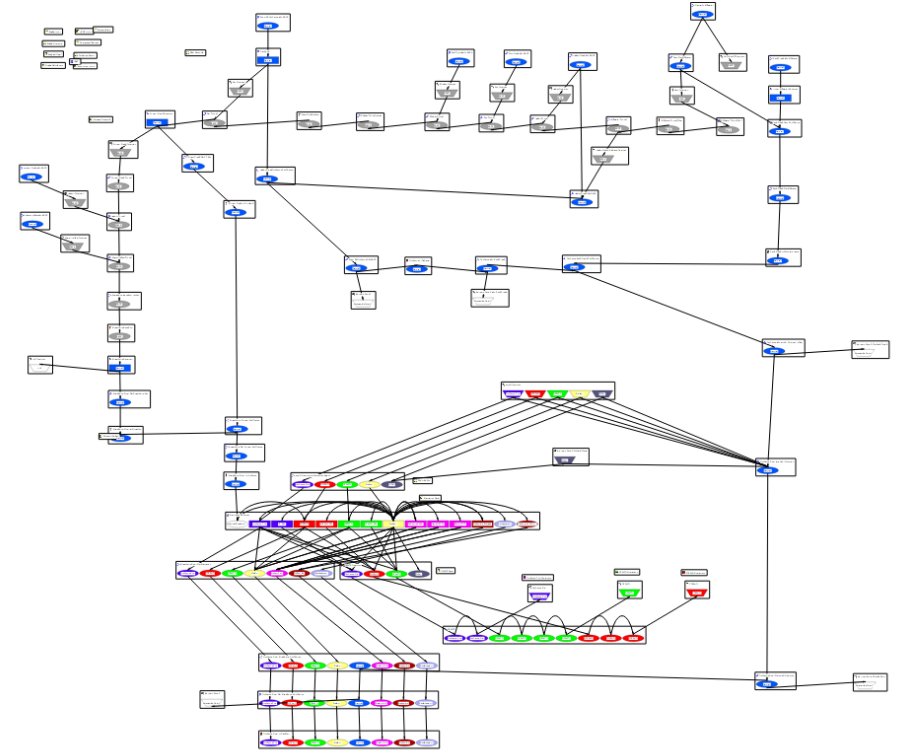
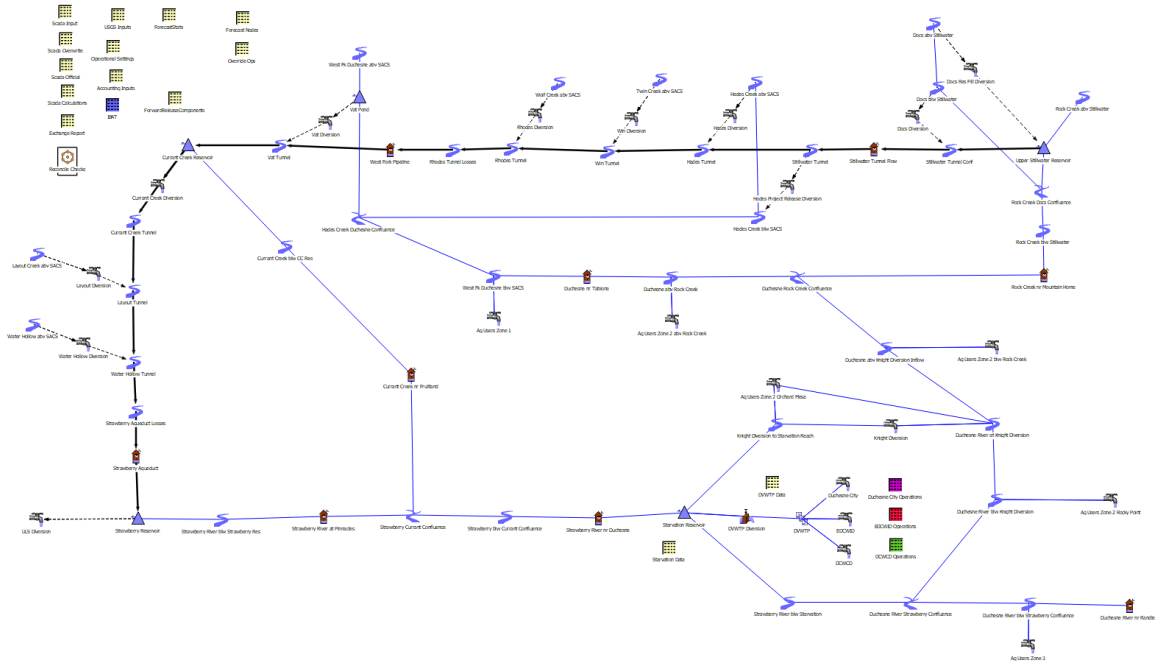
CENTRAL UTAH PROJECT
UPPER STILLWATER DAM OPERATION

August 2020

Operated by: CUWCD

DATE	RES. ELEV.	TOTAL STORAGE A-F	CHANGE IN RESERVOIR A-F	RELEASES (CFS)				EVAPORATION (CFS)	DIVERSIONS (CFS)			INFLOW (CFS)			PRECIP.	MAX. TEMP.	MIN. TEMP.	
				ROCK CREEK	SOUTH FORK	SEEPAGE	TOTAL		ROCK CREEK	SOUTH FORK (DOCS)	STILLWATER TUNNEL	ROCK CREEK	SOUTH FORK (DOCS)	TOTAL				
01-Aug-20	8,157.66	27,660	-8	48	8	0	56	1	10	3	13	55	11	66		83	59	
02-Aug-20	8,157.63	27,652	-12	48	8	0	56	1	10	3	13	53	11	64		82	56	
03-Aug-20	8,157.59	27,640	-17	48	8	0	56	1	11	2	13	51	10	61		82	58	
04-Aug-20	8,157.53	27,623	-21	48	8	0	56	1	11	2	13	49	10	59		79	56	
05-Aug-20	8,157.46	27,602	-27	55	8	0	63	1	4	2	6	46	10	56		78	55	
06-Aug-20	8,157.37	27,575	-37	62	8	0	70	1	0	2	2	44	10	54		76	55	
07-Aug-20	8,157.24	27,538	-41	62	8	0	70	1	0	2	2	42	10	52		76	51	
08-Aug-20	8,157.10	27,497	-33	62	8	0	70	1	0	1	1	46	9	55		77	51	
09-Aug-20	8,156.99	27,464	-35	59	8	0	67	1	0	1	1	42	9	51		77	53	
10-Aug-20	8,156.87	27,429	-37	61	8	0	69	1	0	1	1	43	9	52		78	54	
11-Aug-20	8,156.74	27,392	-55	60	8	0	68	1	7	1	8	40	9	49		75	54	
12-Aug-20	8,156.55	27,337	-76	57	8	0	65	1	22	1	23	42	9	51		75	55	
13-Aug-20	8,156.29	27,261	-79	57	8	0	65	1	22	1	23	40	9	49		78	53	
14-Aug-20	8,156.02	27,182	-84	57	8	0	65	1	21	1	22	37	9	46		76	52	
15-Aug-20	8,155.73	27,098	-79	57	8	0	65	1	22	0	22	40	8	48		78	54	
16-Aug-20	8,155.46	27,019	-87	57	8	0	65	1	22	0	22	36	8	44		81	53	
17-Aug-20	8,155.16	26,932	-213	56	8	0	64	1	85	0	85	35	8	43		83	55	
18-Aug-20	8,154.42	26,719	-458	52	8	0	60	1	214	0	214	36	8	44		84	58	
19-Aug-20	8,152.83	26,261	-577	53	8	0	61	1	280	0	280	41	8	49		82	58	
20-Aug-20	8,150.80	25,684	-564	53	8	0	61	1	278	0	278	39	8	47	0.30	76	60	
21-Aug-20	8,148.79	25,120	-559	53	8	0	61	1	280	0	280	42	8	50		81	54	
22-Aug-20	8,146.77	24,561	-606	53	8	0	61	1	281	0	281	40	8	48		80	58	
23-Aug-20	8,144.55	23,955	-583	52	8	0	60	1	278	0	278	37	8	45		77	60	
24-Aug-20	8,142.39	23,372	-567	51	8	0	59	1	274	0	274	40	8	48	0.04	77	56	
25-Aug-20	8,140.27	22,805	-543	40	8	0	48	1	282	0	282	49	8	57	0.23	76	57	
26-Aug-20	8,138.22	22,262	-541	25	8	0	33	1	294	0	294	47	8	55	0.05	78	53	
27-Aug-20	8,136.16	21,721	-564	40	8	0	48	1	286	0	286	43	8	51		78	55	
28-Aug-20	8,133.99	21,157	-569	50	8	0	58	1	280	0	280	44	8	52		77	53	
29-Aug-20	8,131.77	20,588	-561	47	8	0	55	1	276	0	276	41	8	49	0.02	75	57	
30-Aug-20	8,129.56	20,027	-555	42	8	0	50	1	273	0	273	36	8	44		72	54	
31-Aug-20	8,127.34	19,472	-577	42	8	0	50	1	276	0	276	28	8	36	0.19	63	46	
01-Sep-20	8,125.00	18,895																
AVERAGE IN CFS				52	8	0	60	1	132	1	133	42	9	51				
TOTALS IN A-F				3,187	492	0	3,679	61	8,130	46	8,176	2,586	538	3,124				
NOVEMBER 2019 TO DATE IN A-F				15,311	3,297	0	18,693	315	59,859	5,147	64,875	74,852	8,443	83,296				

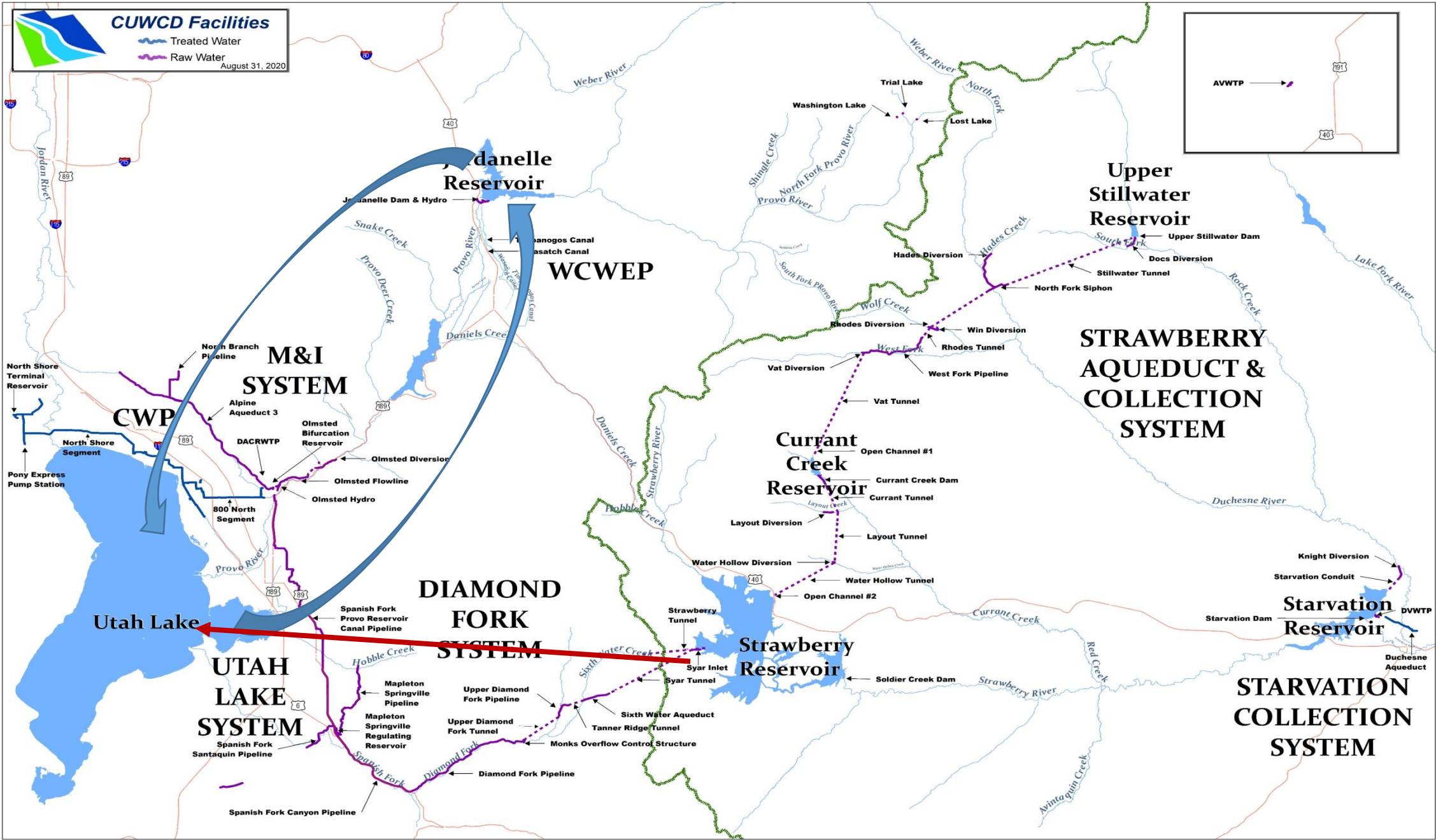
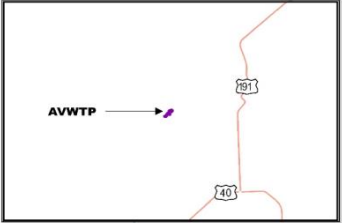
Strawberry Aqueduct Collection System Accounting RiverWare Model



	Upper Stillwater Reservoir .Pool Elevation ft	Upper Stillwater Reservoir .Storage acre-ft	Upper Stillwater Reservoir .Outflow cfs	Docs blw Stillwater .Outflow cfs	Upper Stillwater Reservoir .Evaporation acre-ft	Upper Stillwater Reservoir .Diversion cfs	Docs Diversion .Diversion cfs	Upper Stillwater Reservoir .Inflow Sum cfs	Docs abv Stillwater .Inflow cfs
08-10-2023 Thu	8,157.00 O 33	27,467.00 O 33	21.00 R 36	8.00 O 36	2.64 O 33	67.35 R 33	5.62 O 44	89.68 O 33	13.62 O 0
08-11-2023 Fri	8,157.00 O 33	27,467.00 O 33	21.00 R 36	8.00 O 36	2.64 O 33	65.12 R 33	5.35 O 44	87.45 O 33	13.35 O 0
08-12-2023 Sat	8,157.00 O 33	27,467.00 O 33	21.00 R 36	8.00 O 36	2.64 O 33	63.00 R 33	5.10 O 44	85.33 O 33	13.10 O 0
08-13-2023 Sun	8,157.00 O 33	27,467.00 O 33	21.00 R 36	8.00 O 36	2.64 O 33	60.99 R 33	4.85 O 44	83.32 O 33	12.85 O 0
08-14-2023 Mon	8,157.00 O 33	27,467.00 O 33	21.00 R 36	8.00 O 36	2.64 O 33	59.09 R 33	4.62 O 44	81.42 O 33	12.62 O 0
08-15-2023 Tue	8,157.00 O 33	27,467.00 O 33	21.00 R 36	8.00 O 36	2.64 O 33	57.28 R 33	4.40 O 44	79.61 O 33	12.40 O 0
08-16-2023 Wed	8,157.00 O 33	27,467.00 O 33	21.00 R 36	8.00 O 36	2.64 O 33	55.56 R 33	4.19 O 44	77.89 O 33	12.19 O 0
08-17-2023 Thu	8,157.00 O 33	27,467.00 O 33	21.00 R 36	8.00 O 36	2.64 O 33	53.93 R 33	3.99 O 44	76.26 O 33	11.99 O 0
08-18-2023 Fri	8,157.00 O 33	27,467.00 O 33	21.00 R 36	8.00 O 36	2.64 O 33	52.38 R 33	3.80 O 44	74.71 O 33	11.80 O 0

CUWCD Facilities

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Utah Lake Jordanelle Exchange Model Project Overview

- Utah Lakes Rights
 - 189,307 A-F Primary Water Rights
 - 16,862 CUWCD
 - 7,900 Reclamation for CUP
 - 112,739 A-F Secondary Water Rights
 - 57,073 CUWCD
 - 302,046 A-F Total Utah Lake (Storage Rights)
 - 81,835 total CUWCD or CUP
- Import Water
 - CUP Strawberry Reservoir
 - ~115,707 A-F currently
 - PRP Weber and Duchesne Rivers

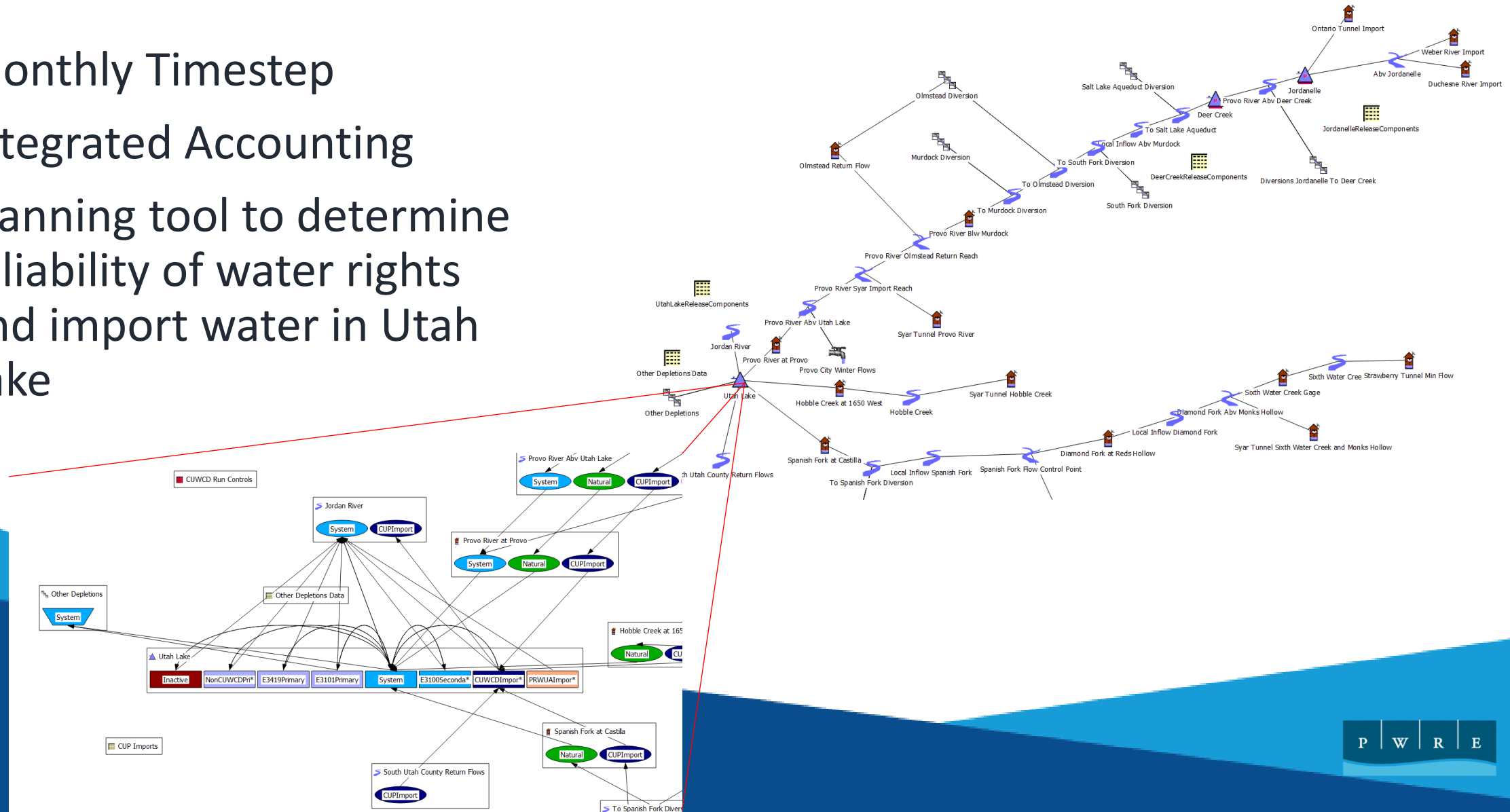
Develop a tool in the model to analyze and show the reliance Jordanelle has on Utah Lake Water Rights and Trans-Basin water and if there is any available water that can be used for other purposes.

- What happens if we use our 16,862 Acre-feet of Primary Storage for other purposes?
- How much of the CUP Strawberry Water in Utah Lake can be used for other purposes?
- What if operations change and instream flow requirements are reduced?
- Are there operations to best use CUP Import Water?
- How do future Operational and Hydrological Parameter changes to the system impact CUWCD Operations?



Utah Lake Jordanelle Exchange Model

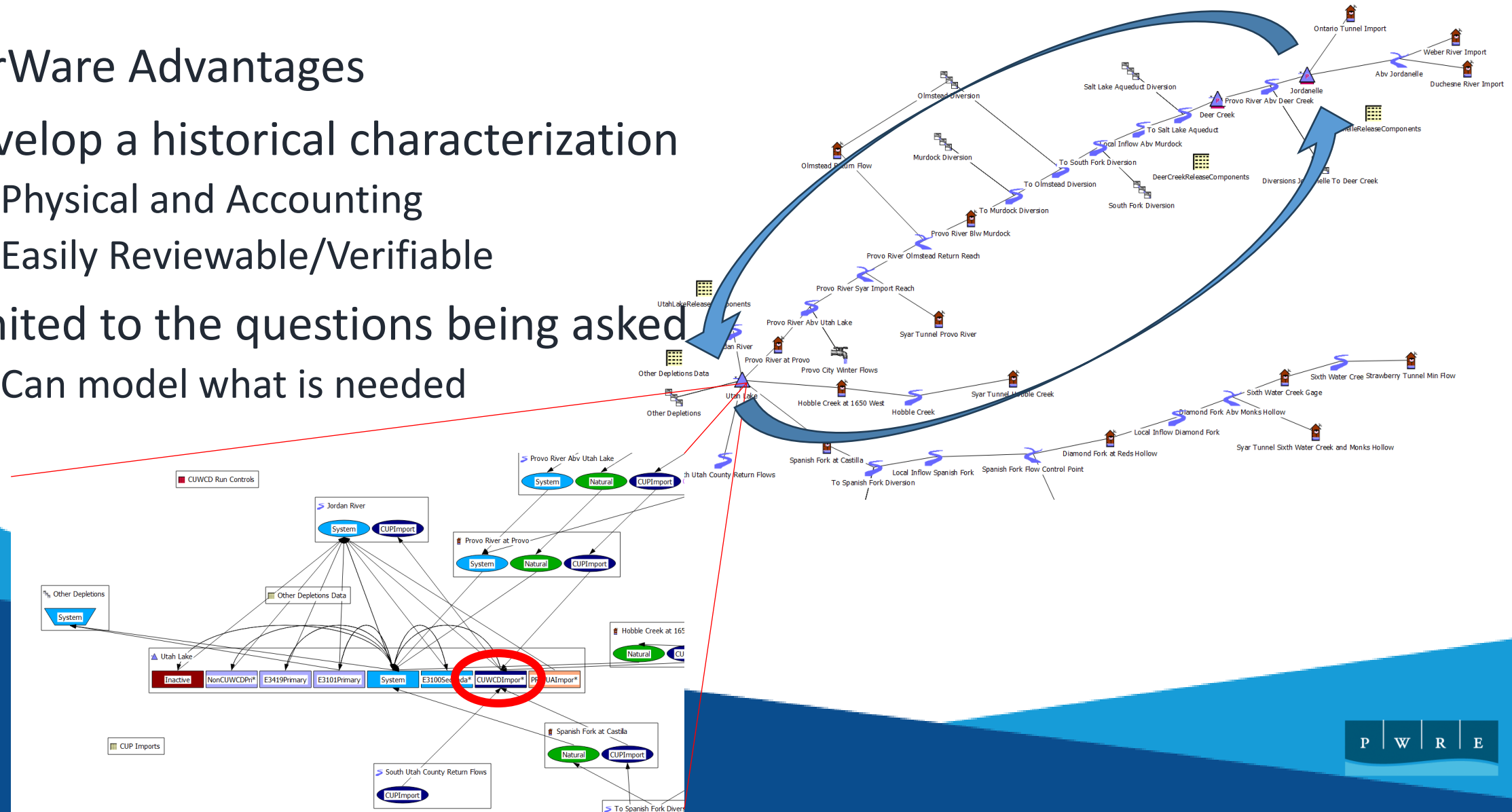
- Monthly Timestep
- Integrated Accounting
- Planning tool to determine reliability of water rights and import water in Utah Lake



Utah Lake Jordanelle Exchange Model

RiverWare Advantages

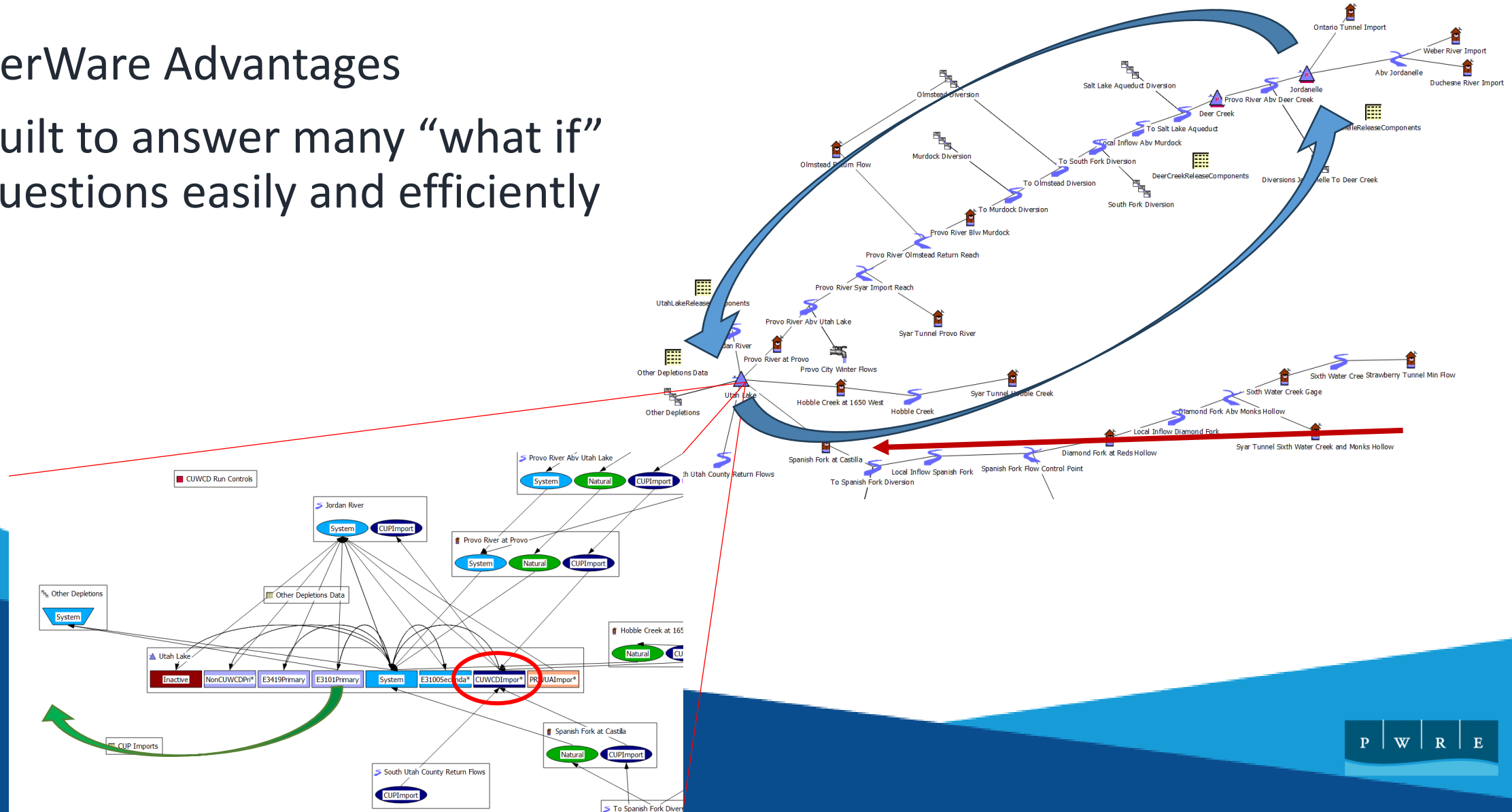
- Develop a historical characterization
 - Physical and Accounting
 - Easily Reviewable/Verifiable
- Limited to the questions being asked
 - Can model what is needed



Utah Lake Jordanelle Exchange Model

RiverWare Advantages

- Built to answer many “what if” questions easily and efficiently

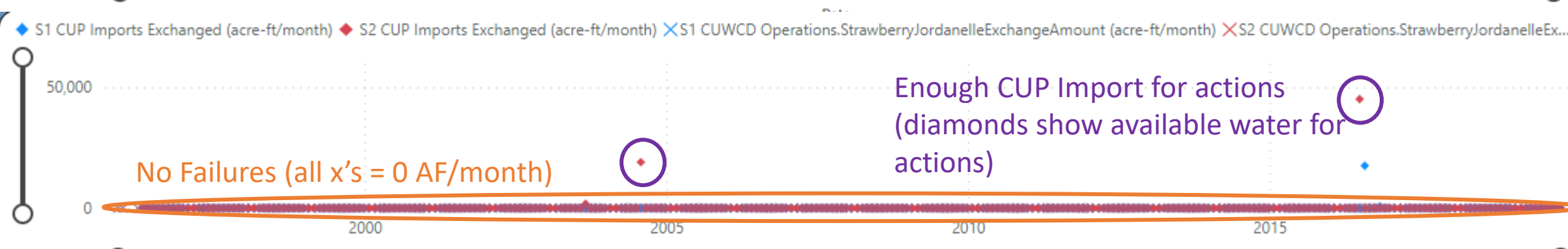
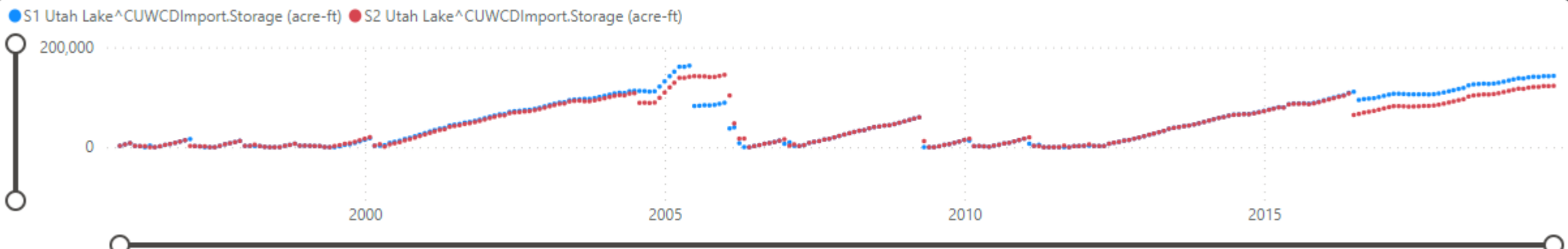
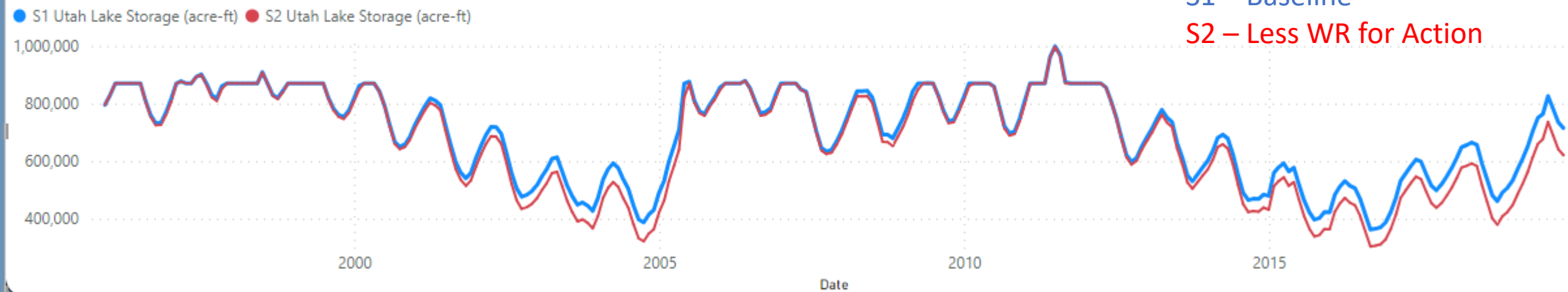


Simulation/Results – Using Water Rights for other purposes

Utah Lake Jordanelle Exchange and Spanish Fork Exchange Metrics

S1 – Baseline

S2 – Less WR for Action



Results and Impact

How much of the CUP Strawberry Water in Utah Lake can be used for other purposes?

- CWP Water Service Agreement will utilize up to 6,000 AF annually of the import water in Utah Lake
- Model results were used to draft NEPA document for CWP

Planning efforts on the Spanish Fork River to look at utilizing CUWCD water rights in Utah Lake for Exchange

Ongoing development to look at other impacts to Jordanelle and Utah Lake and the CUP Water Supply

Finding of No Significant Impact and Final Environmental Assessment for the **CENTRAL WATER PROJECT— WATER SERVICE AGREEMENT**

June 2023

Joint Lead Agencies

Central Utah Water Conservancy District
U.S. Department of the Interior, CUPCA Office



Questions and Discussion

