ACCOUNTING FOR UTAH'S DEPLETION UNDER THE COLORADO RIVER COMPACTS

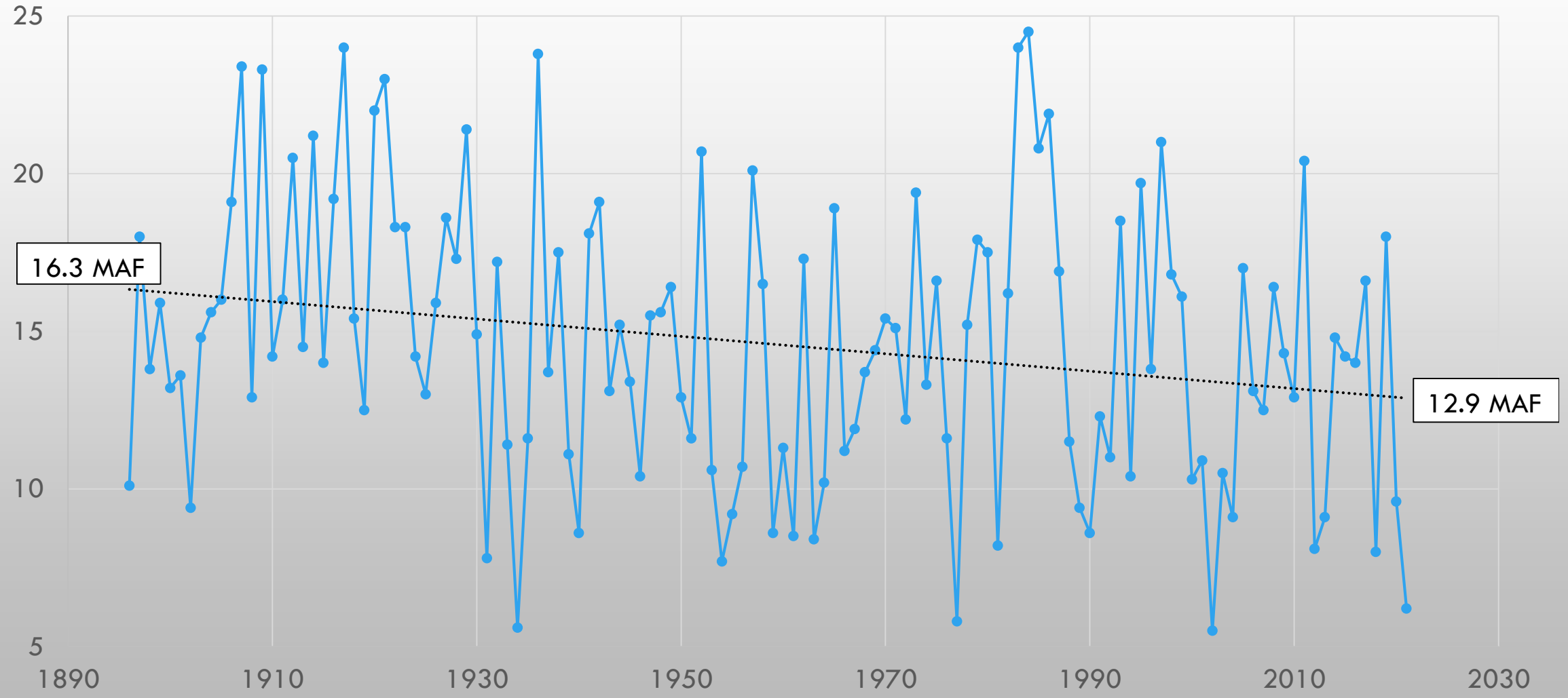
UTAH WATER USERS WORKSHOP

MARCH 21, 2023

JARED MANNING, P.E.

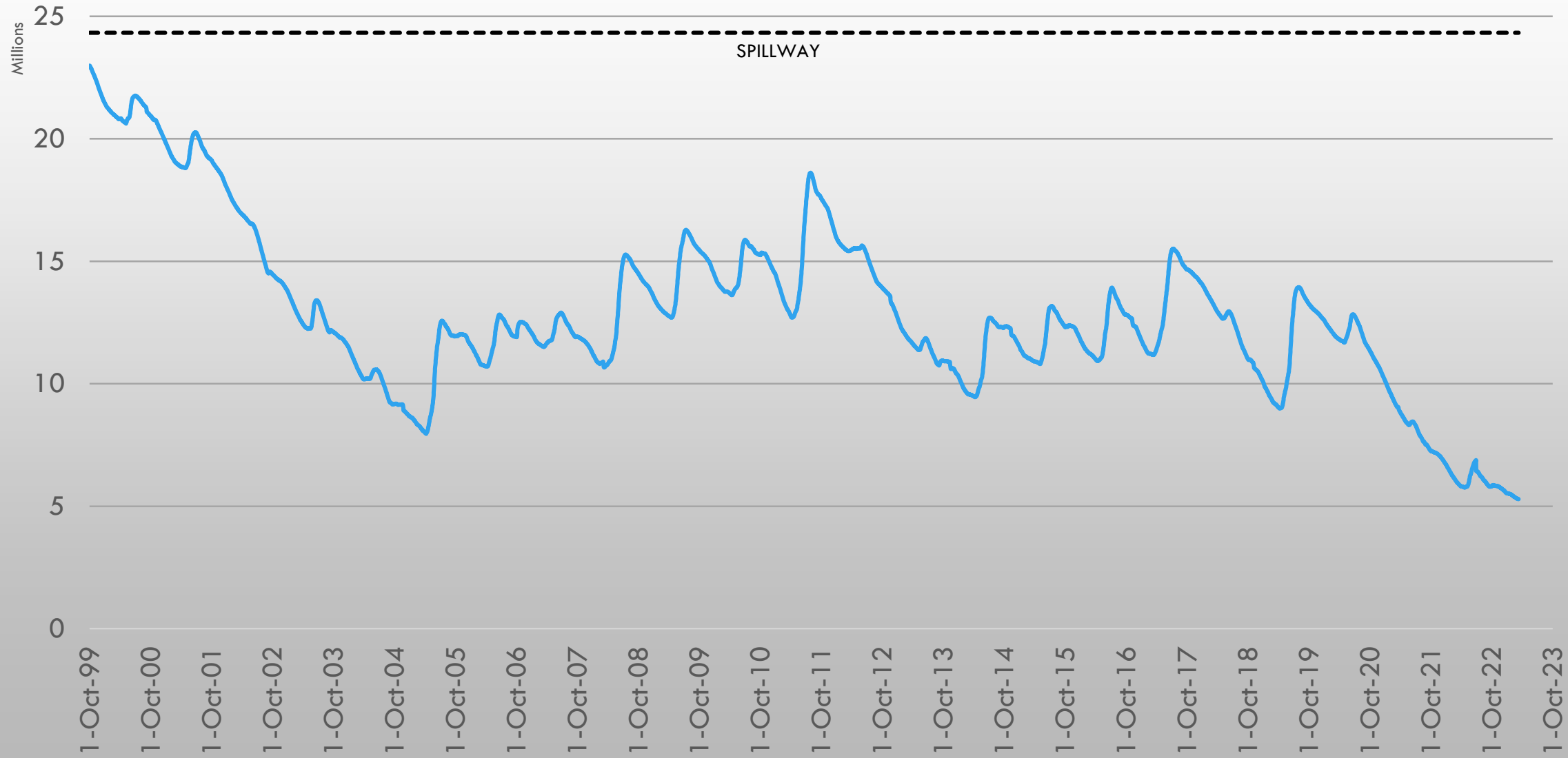
DEPUTY STATE ENGINEER

NATURAL FLOW AT LEE FERRY

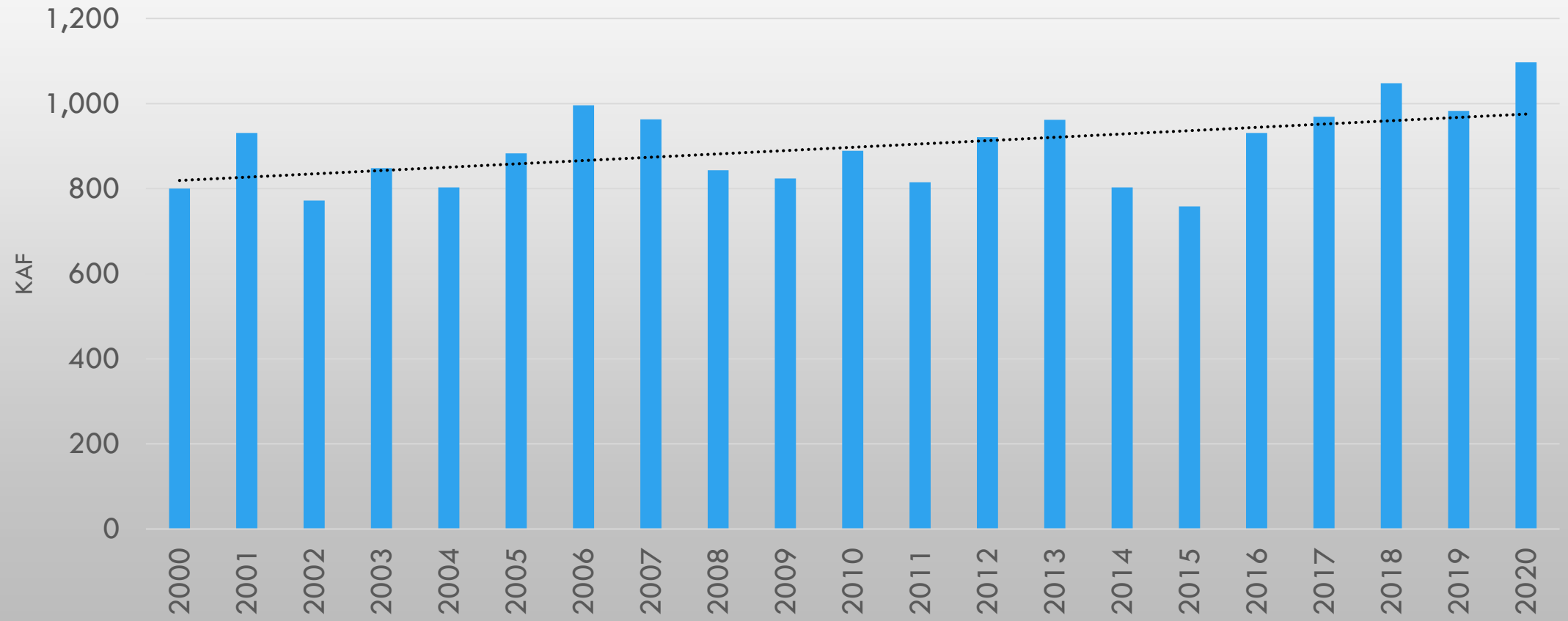


Source: UCRC Annual Report

LAKE POWELL VOLUME (MAF)



UTAH DEPLETIONS IN THE UPPER COLORADO RIVER BASIN



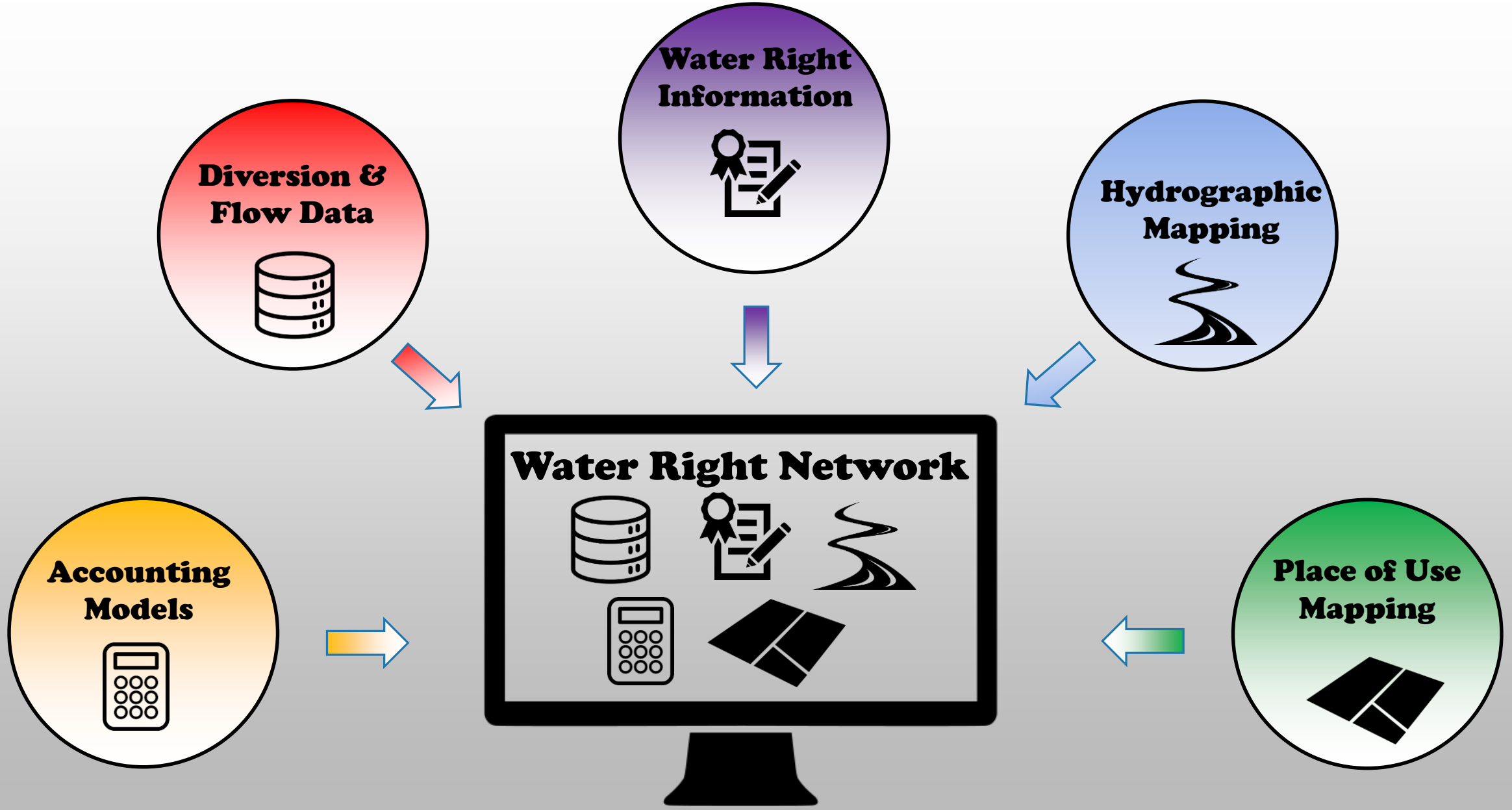
Source: BOR Consumptive Uses and Losses Report

DEVELOPING AN UPPER COLORADO RIVER BASIN ANNUAL "WATER RIGHT DEPLETION REPORT"

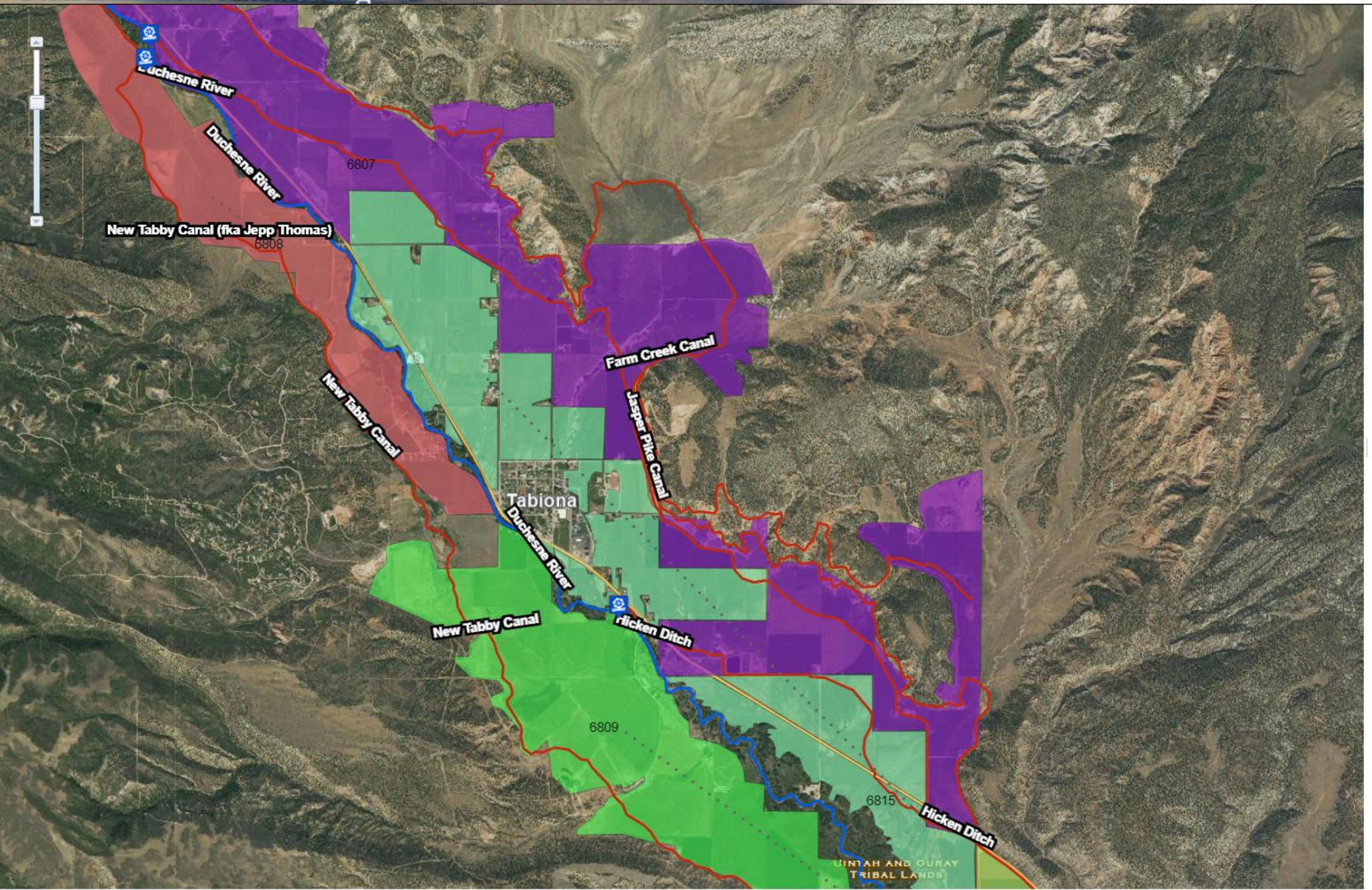
- SHOW DEPLETION FOR EACH WATER RIGHT
- ACTUAL DEPLETION INSTEAD OF PAPER VALUES
- EACH ANNUAL REPORT WILL BE UNIQUE BECAUSE OF HYDROLOGIC CONDITIONS
- SHOW IN REVERSE PRIORITY ORDER TO DEMONSTRATE ORDER OF POTENTIAL CURTAILMENT
- SHOW EACH RIGHT AS EITHER PRE- OR POST-COMPACT
- REPORT NEEDS TO BE AVAILABLE IN WEEKS OR MONTHS NOT YEARS

SIMPLIFIED WATER RIGHT DEPLETION REPORT UPPER COLORADO RIVER BASIN

Priority Date	Type of Water Right	Depletion	Cumulative Depletion
1968	Storage	4,300 acre-feet	4,300 acre-feet
1965 (and later)	Irrigation (Green River)	3,000 acre-feet	7,300 acre-feet
1964	Storage	78,000 acre-feet	85,300 acre-feet
1963	Storage	5,500 acre-feet	90,800 acre-feet
1958 – 1964	Irrigation (Green River)	26,000 acre-feet	116,800 acre-feet


Water Right Information
Diversion & Flow Data
Hydrographic Mapping
Water Right Network
Accounting Models
Place of Use Mapping

Utah Division of Water Rights



Layers | Basemap | Search | Tools

- [x] Roads, Counties and Labels
- [ ] My Location
- [x] Points of Diversion
- [ ] Adjudication Books
- [ ] Irrigation Duty Values
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- [ ] Contours
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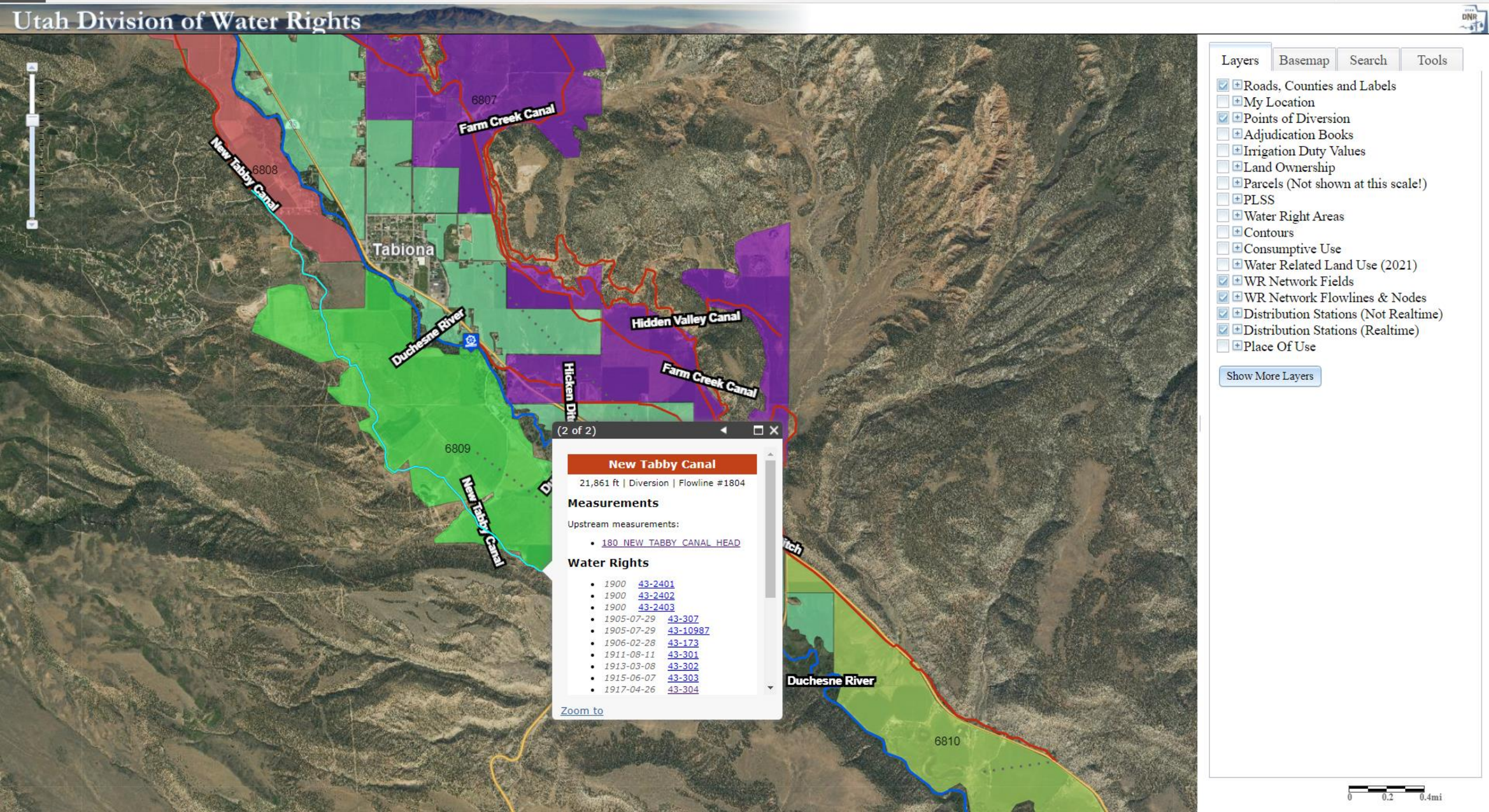
- [ ] Water Related Land Use (2021)
- [x] WR Network Fields
- [x] WR Network Flowlines & Nodes
- [x] Distribution Stations (Not Realtime)
- [ ] Distribution Stations (Realtime)
- [ ] Place Of Use

Show More Layers

0 0.2 0.4mi

Utah Division of Water Rights



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Show More Layers

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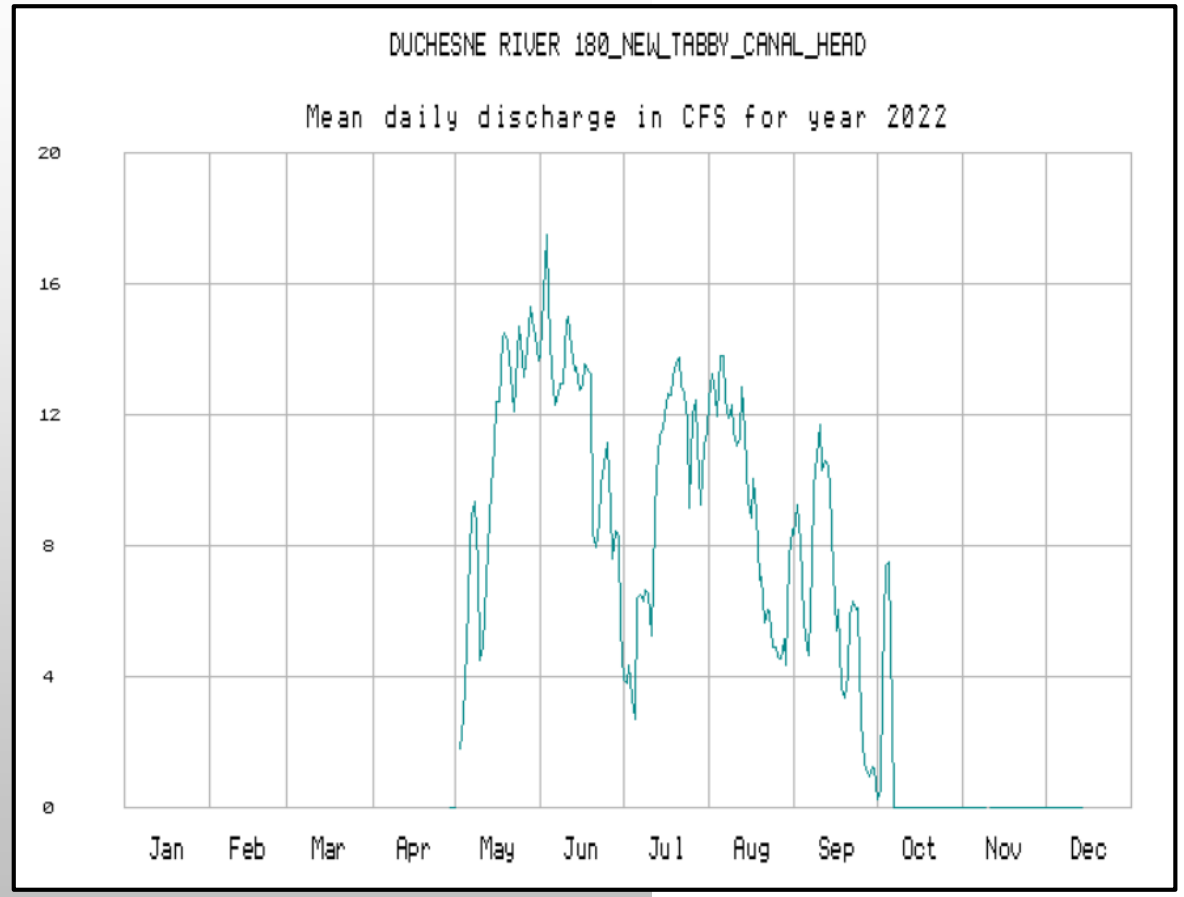
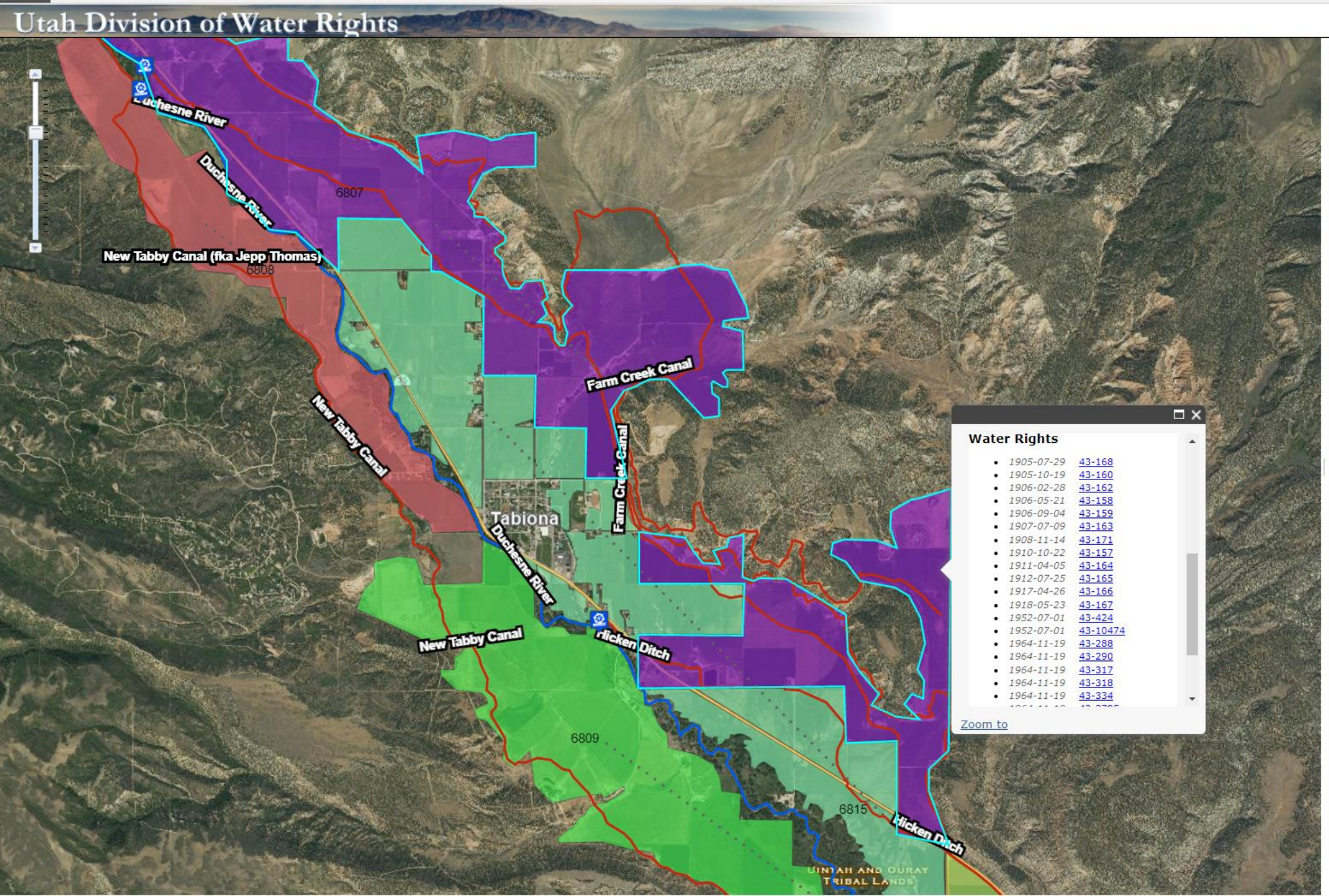
CALENDAR YEAR 2022 Mean daily discharge in CFS

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
01						15.64	3.75	13.24	9.23	0.52	0.00	0.00
02					1.79	17.48	4.32	12.57	8.09	3.88	0.00	0.00
03					2.71	15.41	3.31	11.93	5.67	7.40	0.00	0.00
04					4.86	13.28	2.69	13.77	5.15	7.49	0.00	0.00
05					7.81	12.26	6.37	13.78	4.65	2.67	0.00	0.00
					8.92	12.63	6.49	12.41	7.43	0.00	0.00	0.00
					9.32	12.91	6.29	11.90	9.77	0.00	0.00	0.00
					7.38	12.94	6.62	12.30	10.71	0.00	0.00	0.00
					4.47	14.90	6.53	11.46	11.68	0.00		0.00
					4.91	15.00	5.25	11.01	10.27	0.00	0.00	0.00
					6.86	14.02	8.82	11.29	10.57	0.00	0.00	0.00
					7.92	13.34	10.16	12.81	10.37	0.00	0.00	0.00
					9.74	13.41	11.32	11.42	9.71	0.00	0.00	0.00
					11.02	12.72	11.59	9.34	7.17	0.00	0.00	
					12.40	12.88	12.00	8.83	5.39	0.00	0.00	
					12.36	13.52	12.64	10.01	6.01	0.00	0.00	
					14.38	13.35	12.60	8.97	3.65	0.00	0.00	
					14.48	13.21	13.11	6.92	3.31	0.00	0.00	
					14.21	8.36	13.59	7.01	4.03	0.00	0.00	
					13.20	7.94	13.72	5.63	5.85	0.00	0.00	
					12.09	8.67	12.81	6.02	6.27	0.00	0.00	
					13.00	9.89	12.65	5.92	6.02	0.00	0.00	
					14.67	10.48	11.79	4.89	6.09	0.00	0.00	
					13.67	11.12	9.13	4.88	2.61	0.00	0.00	
					13.13	9.06	11.99	4.57	1.34	0.00	0.00	
					14.04	7.57	12.42	4.50	1.15	0.00	0.00	
					15.27	8.41	11.01	5.12	0.94	0.00	0.00	
				0.00	14.86	8.24	9.21	4.30	1.24	0.00	0.00	
				0.00	14.38	5.42	11.09	7.62	1.19	0.00	0.00	
				0.00	13.63	3.88	11.46	8.49	0.23	0.00	0.00	
31					13.80		12.46	8.32		0.00		
Mean				0.00	10.71	11.60	9.59	9.07	5.86	0.71	0.00	0.00
Min				0.00	1.79	3.88	2.69	4.30	0.23	0.00	0.00	0.00
Max				0.00	15.27	17.48	13.72	13.78	11.68	7.49	0.00	0.00
Acft				0.00	637.26	690.14	589.46	557.82	348.68	43.56	0.00	0.00

Annual ACFT Total: 2866.93



Utah Division of Water Rights



Water Rights

- 1905-07-29 43-168
- 1905-10-19 43-160
- 1906-02-28 43-162
- 1906-05-21 43-158
- 1906-09-04 43-159
- 1907-07-09 43-163
- 1908-11-14 43-171
- 1910-10-22 43-157
- 1911-04-05 43-164
- 1912-07-25 43-165
- 1917-04-26 43-166
- 1918-05-23 43-167
- 1952-07-01 43-424
- 1952-07-01 43-10474
- 1964-11-19 43-288
- 1964-11-19 43-290
- 1964-11-19 43-317
- 1964-11-19 43-318
- 1964-11-19 43-334

Zoom to

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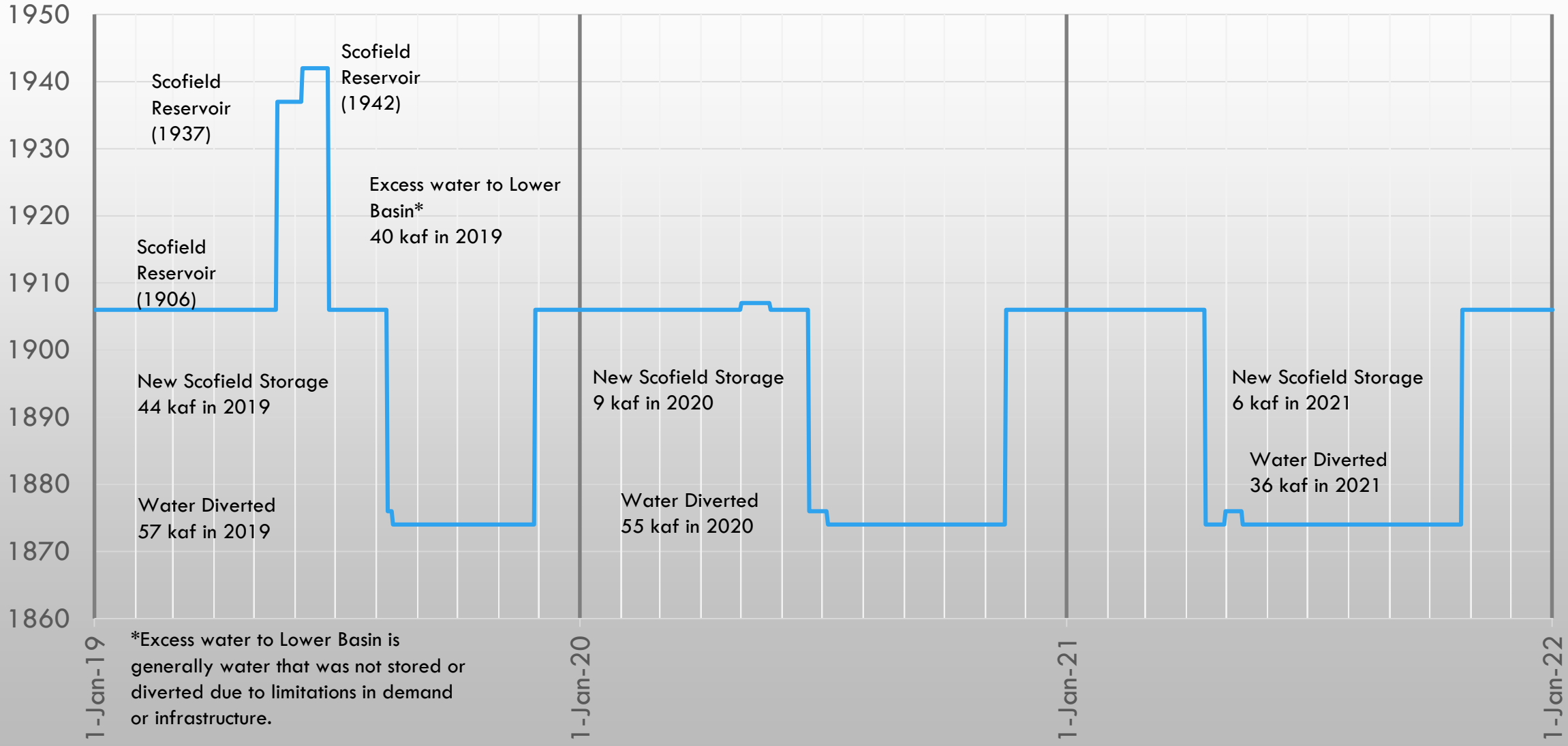
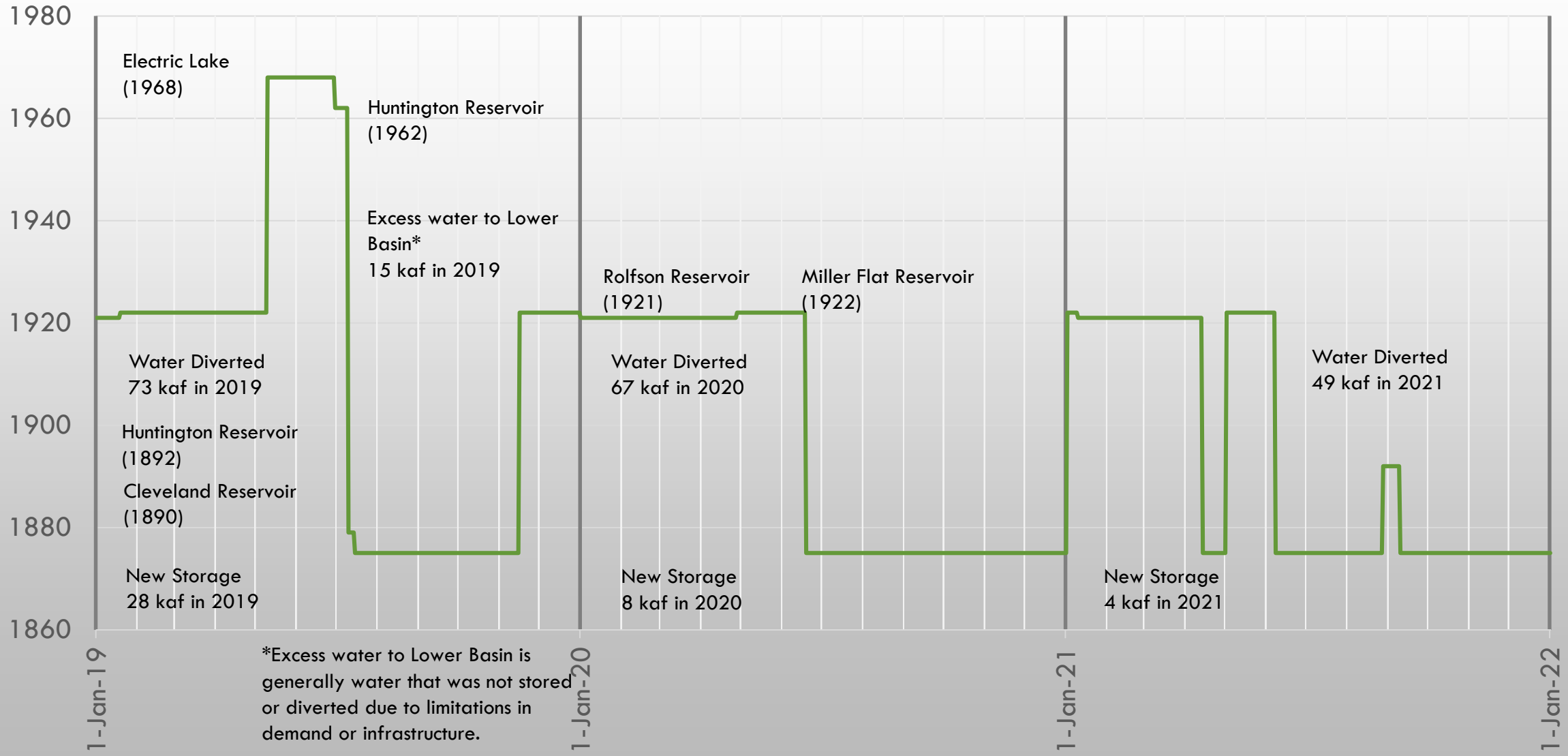
0 0.2 0.4mi

PRICE RIVER DELIVERY PRIORITY 2019-2021



*Excess water to Lower Basin is generally water that was not stored or diverted due to limitations in demand or infrastructure.

HUNTINGTON CREEK DELIVERY PRIORITY 2019-2021



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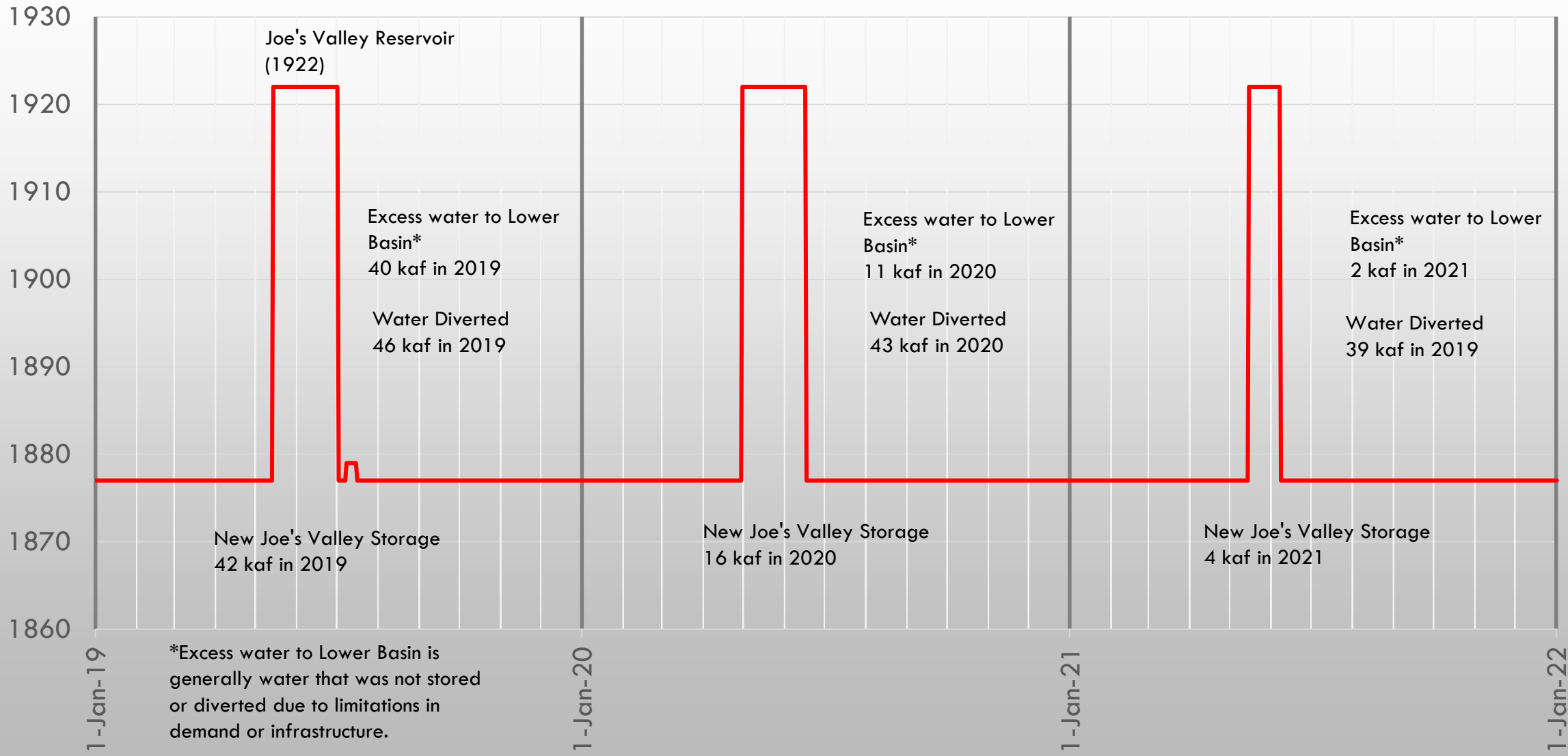
COTTONWOOD CREEK DELIVERY PRIORITY 2019-2021



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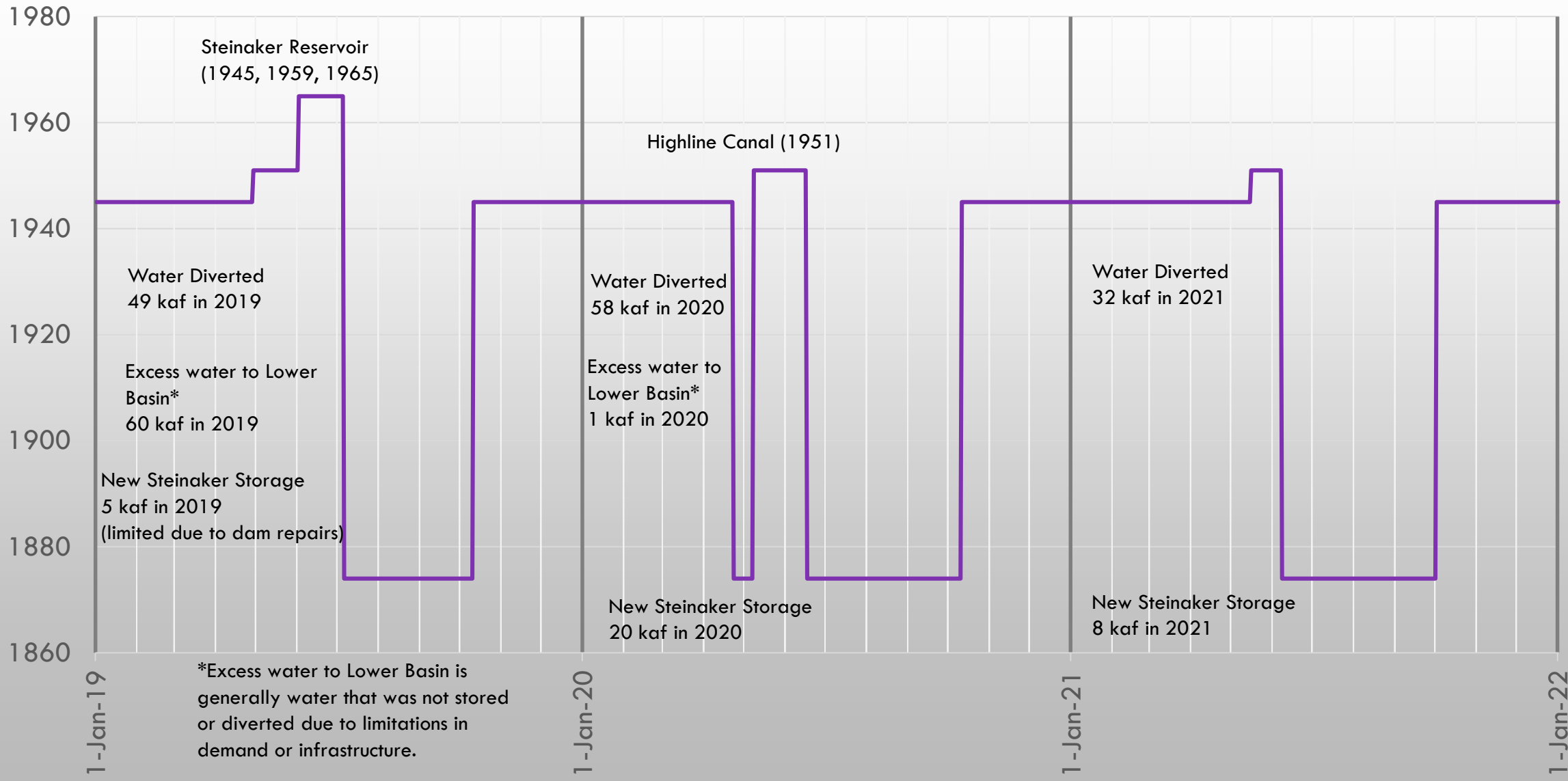
ASHLEY CREEK DELIVERY PRIORITY 2019-2021



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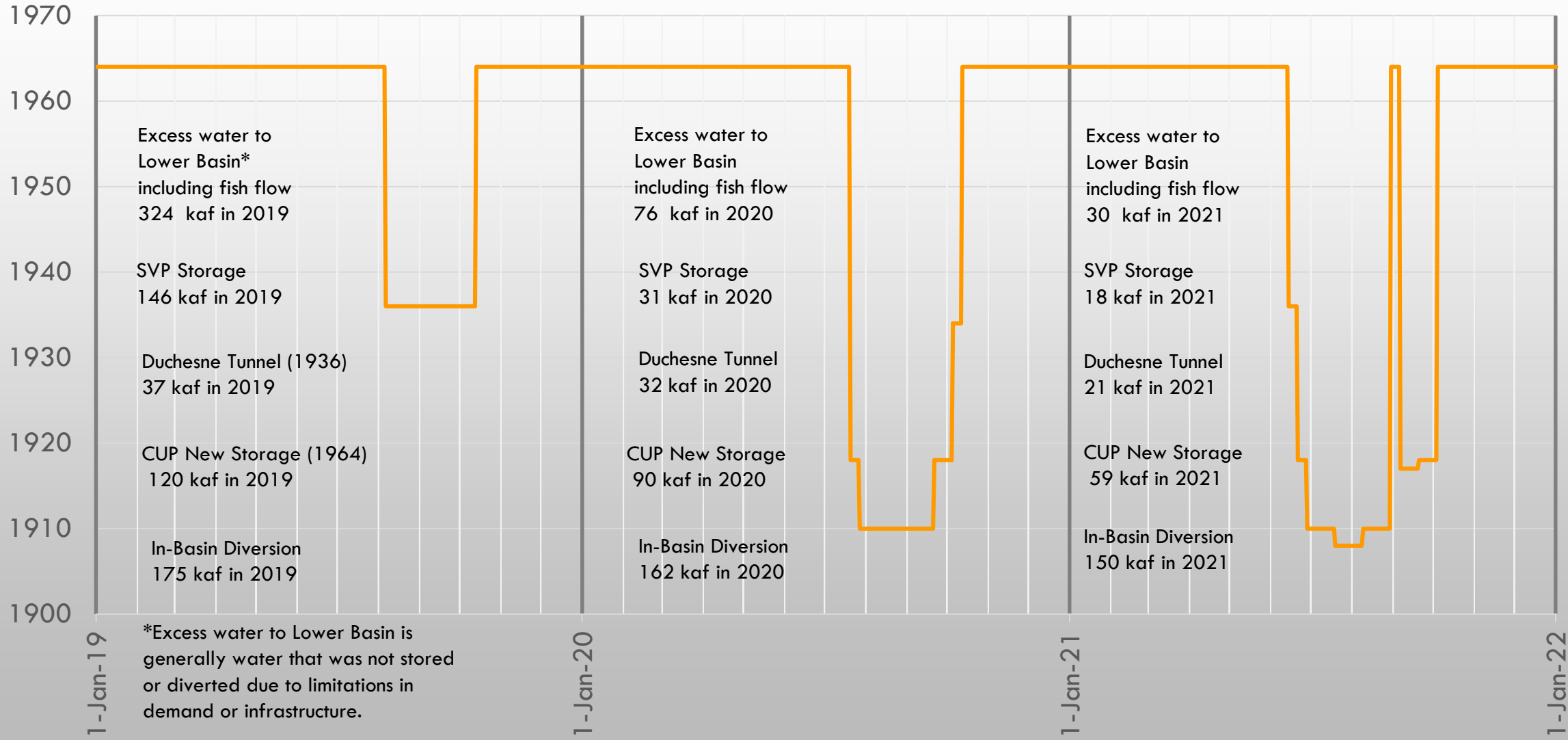
DUCHESNE RIVER DELIVERY PRIORITY 2019-2021



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DUCHESNE/STRAWBERRY APPORTIONMENT (KAF DIVERSION)

Pre-Compact Apportionment	**2019**	**2020**	**2021**	**Average**
In-Basin Diversions	120	117	115	117
SVP Storage	146	31	18	65
Sub-Total (Pre-Compact)	265	148	133	182
Post-Compact Apportionment	**2019**	**2020**	**2021**	**Average**
In-Basin Diversions	55	45	35	45
Duchesne Tunnel	37	32	21	30
SVP/CUP Storage	120	90	59	90
Sub-Total (Post-Compact)	212	174	120	161
TOTAL APPORTIONMENT	**477**	**316**	**248**	**347**

IN SUMMARY

- A COMPACT CALL IS LIKELY TO COME SOONER OR LATER
- THE STATE ENGINEER'S OFFICE IS DEVELOPING TOOLS TO PROVIDE INFORMATION ABOUT ACTUAL DEPLETION FOR EACH WATER RIGHT
- MOST LATE PRIORITY RIGHTS ARE LARGE STORAGE PROJECTS AND IRRIGATION FROM THE MAIN STEM OF THE GREEN RIVER
- DEMAND MANAGEMENT AND OTHER MARKET TOOLS ARE PREFERABLE TO CURTAILMENT