

Wyoming vs Colorado

A Water Management Comparison



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Wyoming vs Colorado

- Water-related organizations
- Water rights and legal framework
- Administration and regulation of water rights
- Data collection and data availability
- Water planning processes

Water Related Organizations



- Adjudicating,
Amending,
Administering



- Adjudicating,
Amending



- Administering

Water Related Organizations



- River Basin Planning
- Dam and Reservoir Planning
- Construction Program



- Water Supply Planning
- Finance and Administration
- Interstate and Federal
- Stream and Lake Protection
- Watershed and Flood Protection

Water Rights and Legal Framework

Process	Wyoming	Colorado
Water Rights Permits	Submit to SEO	Submit to Water Court
Public Involvement	After Put to Beneficial Use	During Water Court Process, Water Court issues decree
Adjudication (Make Absolute)	After put to Beneficial Use, by BOC	After put to Beneficial Use based on terms and conditions in decree, by SEO
Abandonment	Can be initiated by other WR holders or SEO, 5 years non-use	Can only be initiated by SEO, 10 years non-use
Temporary Uses (oil and gas, construction, etc)	Can be approved by SEO	Water right holder can lease water to temp uses if use is permitted in decree

Water Rights and Legal Framework

- Tied to the Land, 1 cfs per 70 acres
- Supplemental and Secondary



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- Property Right can be bought/sold
 - Same acreage can be irrigated by senior and junior water rights
 - No specific Duty of Water, water right can account for soil types and ditch length
 - Alternate Points and Exchanges



Water Rights and Legal Framework

- Decreed Augmentation Plans allow Colorado Water Users to divert Out-of-Priority and replace river depletions
 - Source is generally historical CU credits
- Often the source of water for temporary uses such as oil and gas



Administration and Regulation

- Water Users place calls
- Measurement devices can be required
- Primarily Regulated Streams diversions are recorded

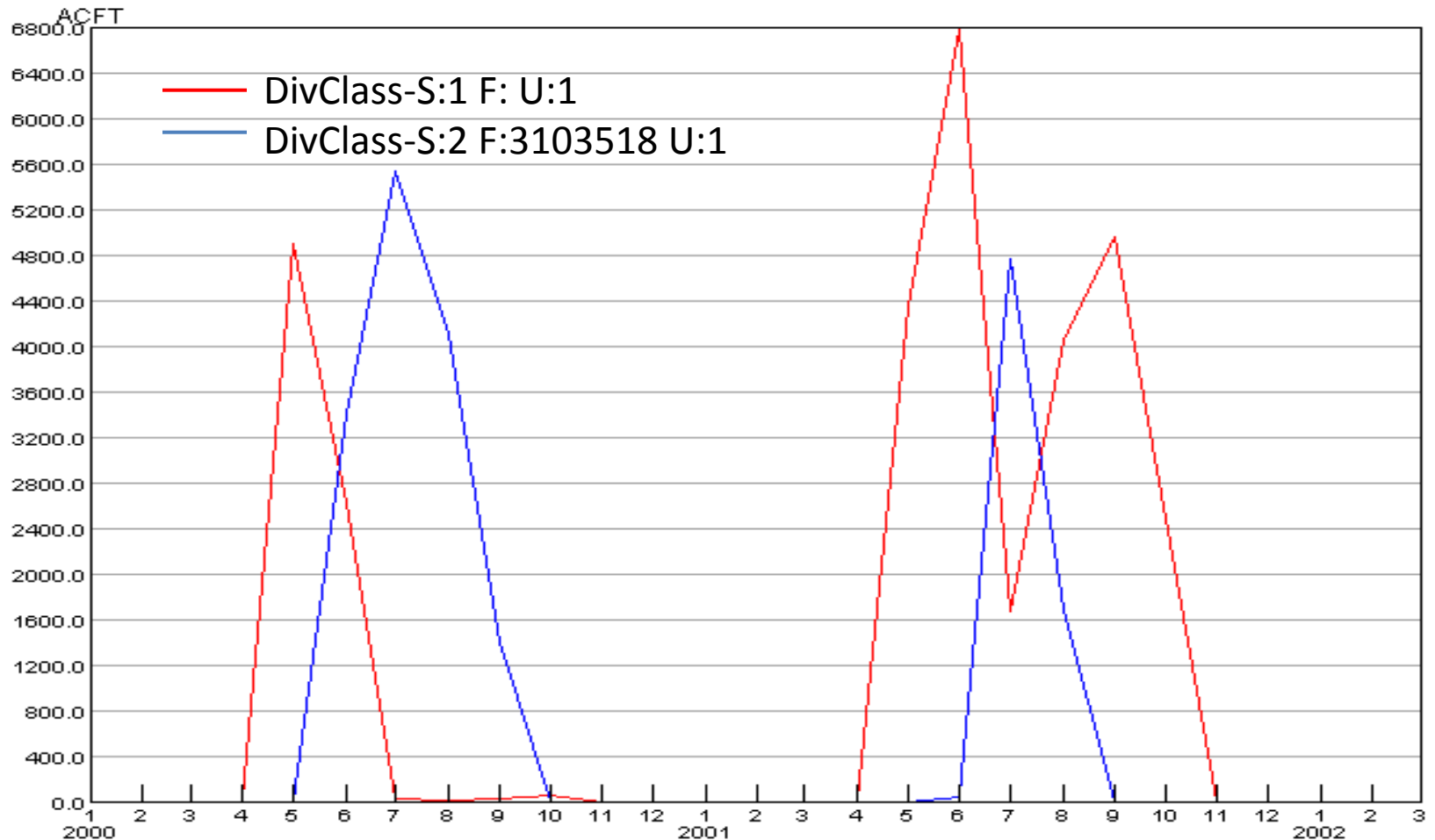


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- Water Users place calls
 - Colorado requires measurement device on diversions – 95% of diversions are recorded
 - Colorado records source and use type codes (DivClass or SFUT)

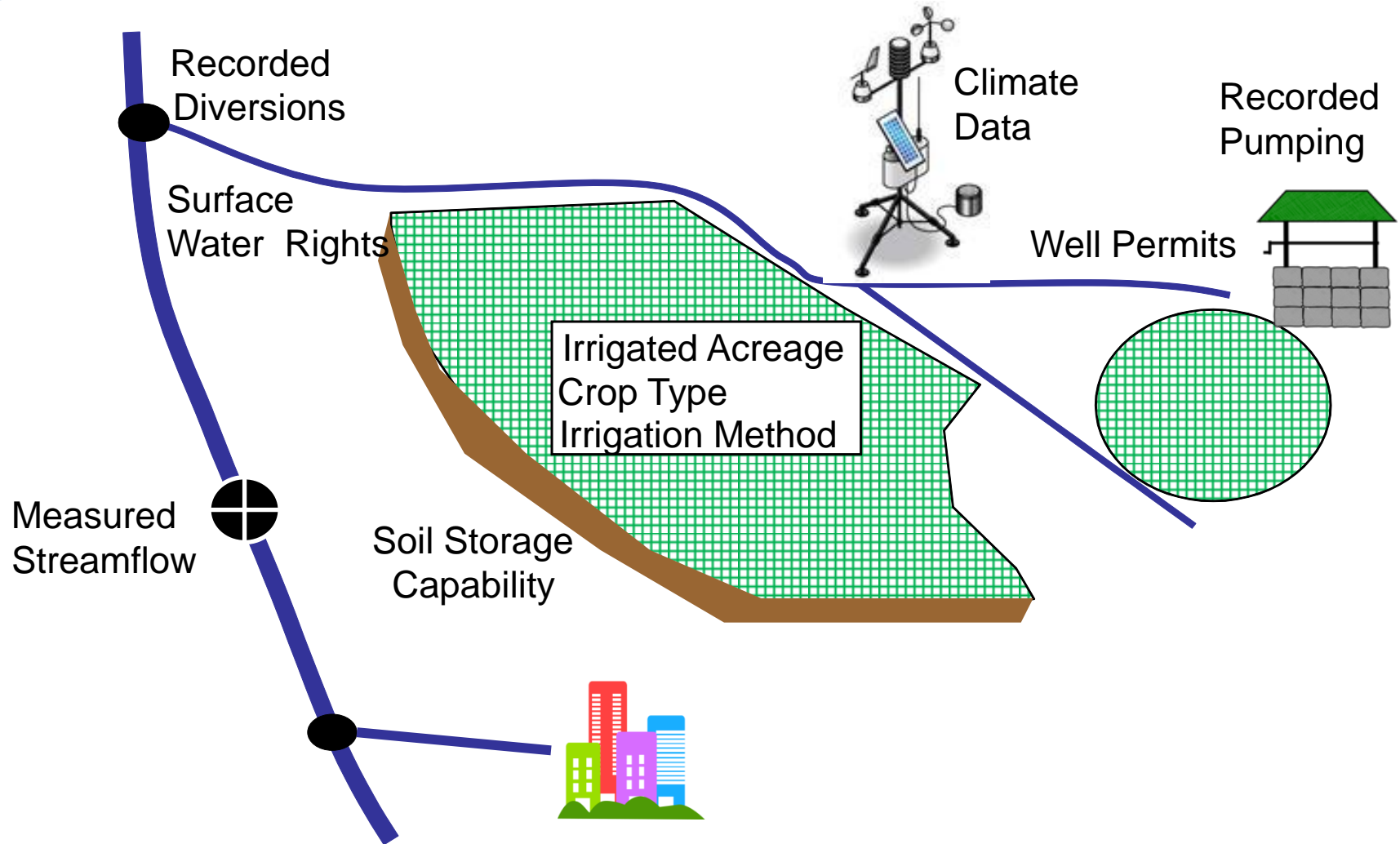


Administration and Regulation

Diversions – Robert Morrison Ditch



Data Collection and Availability



Data Collection and Availability

- Unique Water District Identifiers (WDIDs) tie
 - Irrigated Acreage
 - Water Rights
 - Diversion Records
 - Court Decrees
- Information stored in single database (HydroBase) managed by single DWR group
- Information can be queried and downloaded on-line



Data Collection and Availability

STRUCTURE SUMMARY FOR: ROBERT MORRISON DITCH (WDID 3100547)

WATER DISTRICT: 31

ID NUMBER: 547

WATER SOURCE: PINE RIVER AT STREAM MILE: 18.69

LOCATION: 34N 7W 11 SW SE IN LA PLATA COUNTY

TOTAL IRRIGATED ACRES: See irrigated acres summary.

STRUCTURE TYPE: Headgate

CIU (CURRENTLY IN USE): Active Structure with contemporary diversion records

DECREED CAPACITY (SUM OF ABSOLUTE NET AMOUNT RIGHTS): 107.7500 C



WATER RIGHTS NET AMOUNT INFORMATION

ADMIN NO	ADJ DATE	PADJ DATE	APRO DATE	PRIOR CASE NO	RATE ABS (CFS)	RATE COND (CFS)	USE TYPE
-							
14884.00000	1934-06-12		1890-10-01	P-21	0.3750	0.0000	IRR
18536.00000	1934-06-12		1900-10-01	P-26	39.1300	0.0000	IRR
21642.00000	1934-06-12		1909-04-03	P-34	5.6500	0.0000	IRR
21938.00000	1934-06-12		1910-01-24	P-35	12.6100	0.0000	IRR
33237.00000	1966-03-07	1934-06-12	1940-12-31	65-22	49.9850	0.0000	IRR
57708.57540	2008-12-31	2007-12-31	2007-07-16	08CW0040	0.0000	0.7800	IRR

Data Collection and Availability

STRUCTURE SUMMARY FOR: ROBERT MORRISON DITCH (WDID 3100547)

IRRIGATED ACRES SUMMARY -- TOTALS FROM VARIOUS SOURCES



 GIS Total (Acres): 5569.2 Reported: 2010
 Diversion Comments Total (Acres): 6392.0 Reported: 2007

IRRIGATED ACRES FROM GIS DATA -- BY CROP, YEAR, AND IRRIGATION METHOD

YEAR	CROP	ACRES			ACRES	ACRES TOTA
		FLOOD	SPRINKLER	UNKNOWN	TOTAL (FOR CROP)	ALL CROPS (FOR YEAR)
2005	ALFALFA	0.000	149.645	0.000	149.645	5530.339
2005	GRASS_PASTURE	5115.555	103.918	80.312	5299.786	5530.339
2005	SMALL_GRAINS	0.000	80.909	0.000	80.909	5530.339
2010	ALFALFA	0.000	136.639	0.000	136.639	5569.181
2010	GRASS_PASTURE	4972.561	292.439	80.312	5345.312	5569.181
2010	SMALL_GRAINS	34.543	52.687	0.000	87.230	5569.181

Data Collection and Availability

STRUCTURE SUMMARY FOR: ROBERT MORRISON DITCH (WDID 3100547)

DIVERSION SUMMARY IN ACRE FEET - TOTAL THROUGH STRUCTURE

YEAR	FDU	LDU	DWC	MAXQ	& DAY	APR	MAY	JUN	JUL	AUG	SEP	OCT	TOTAL
2000	05/03	10/19	128	101	06/09	0	4902	6011	5553	4096	1421	54.0	22037
2001	05/04	10/19	169	133	06/06	0	4355	6812	6434	5741	4955	2481	30777
2002	04/24	10/20	64	86.8	05/14	96.6	4566	2614	0	423	0	423	8123
2003	04/28	10/23	106	86.9	08/02	11.9	3752	4985	5029	452	0	642	14873
2004	05/05	10/31	180	116	06/16	0	4105	5921	5278	4910	3672	1191	25076
2005	05/04	10/24	173	113	06/24	0	3782	5958	5894	4828	4408	1960	26830
2006	04/30	10/22	176	97.1	06/13	44.6	4433	5476	5133	4779	4380	1820	26064
2007	04/30	10/26	180	104	06/01	39.3	4332	5510	5618	4872	4994	2453	27818
2008	05/08	10/21	167	106	06/13	0	3555	5850	5929	5694	4402	2012	27443
2009	11/01	10/31	326	106	05/13	0	5130	5319	5192	5337	4472	1776	28859
2010	11/01	10/31	337	101	06/01	59.5	4279	5640	5422	4678	3958	2559	28262
2011	11/01	10/24	326	106	06/15	0	3908	5667	5870	5774	4349	1053	27743
2012	11/01	10/30	289	102	05/23	92.8	5343	5409	5259	4859	3192	374	26332
2013	11/01	10/25	147	86.6	05/28	0	3978	5060	4955	3306	77.8	421	18126
2014	11/01	10/20	309	98.3	06/13	804	4718	5643	5359	4961	4372	1194	29207

AVE:	06/28	10/25	195	93.0	05/28	104	3050	4640	4609	3871	2996	1565	21149
64 years with diversion records										Average Flow = 54.68 CFS			

Data Collection and Availability

STRUCTURE SUMMARY FOR: ROBERT MORRISON DITCH (WDID 3100547)

DIVERSION COMMENTS

YEAR COMMENTS

2012

LATE OCTOBER DIVERSION TO FILL STOCK PONDS

2013

WINTERTIME FLOWS INCLUDES STOCK USE

2014

WINTERTIME FLOWS INCLUDES STOCK USE - IRRIGATED SOME LANDS UNDER THE THOMPSON AND EPPERSON DITCH (WDID 3100511) DURING REPAIRS TO THAT DITCH IN EARLY MAY 2014



Data Collection and Availability

- Need Unique Identifiers for Permits and Diversions to associate:
 - Permits with Diversion Locations
 - Acreage with Diversion Locations
 - Diversion Locations with Diversion Records
 - Diversion Records to Permits

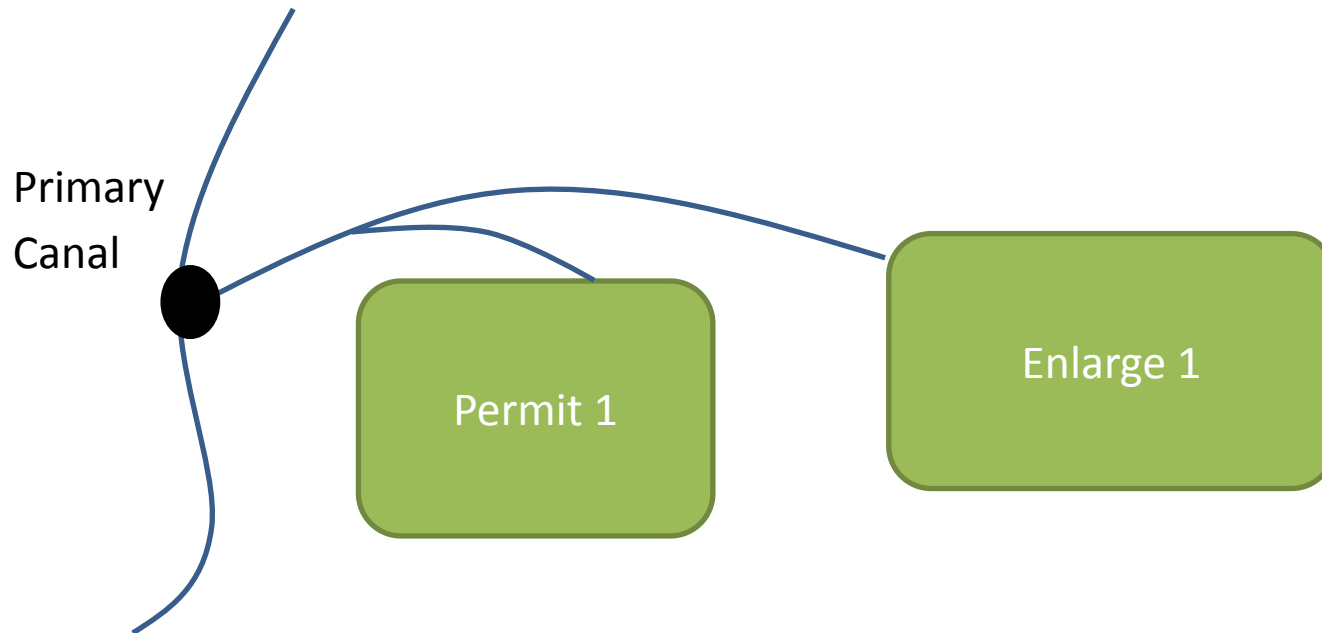


Data Collection and Availability

- Water Rights Permits or permit/certificate combination are unique
- Acreage assessments did not specifically tie acreage to permits
 - WyWRAG in Division IV has started the process
- Acreage assessments for did not tie permits to river diversions
- E-permit is moving toward the unique identifier combination (recently corrected?)



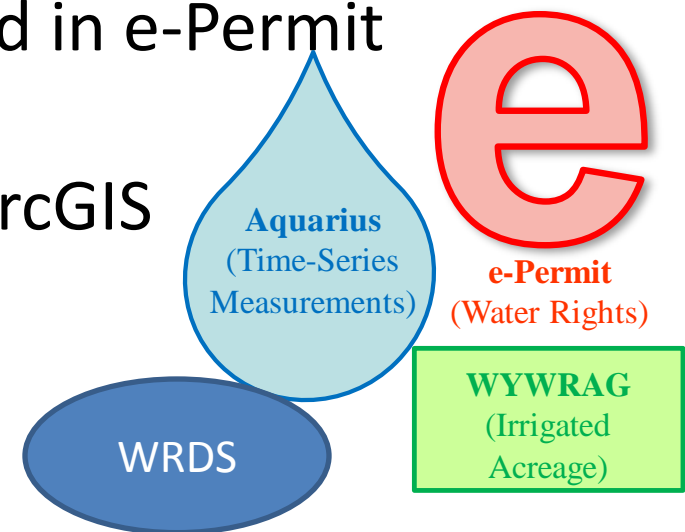
Data Collection and Availability



- Permit 1 can be tied to the Primary Canal
- Enlarge 1 permit may not reference the Primary Canal or may reference it by a different name

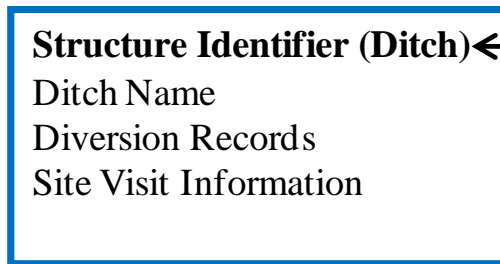
Data Collection and Availability

- Data is stored/managed in several databases by different SEO/UW sections
 - Continuous measured streamflow and diversions are stored in Aquarius database
 - Spot streamflow and diversion measurements are stored in WRDS database
 - Water Rights Permits are stored in e-Permit database
 - Irrigated Acreage is stored in ArcGIS Geodatabase (WyWrag)

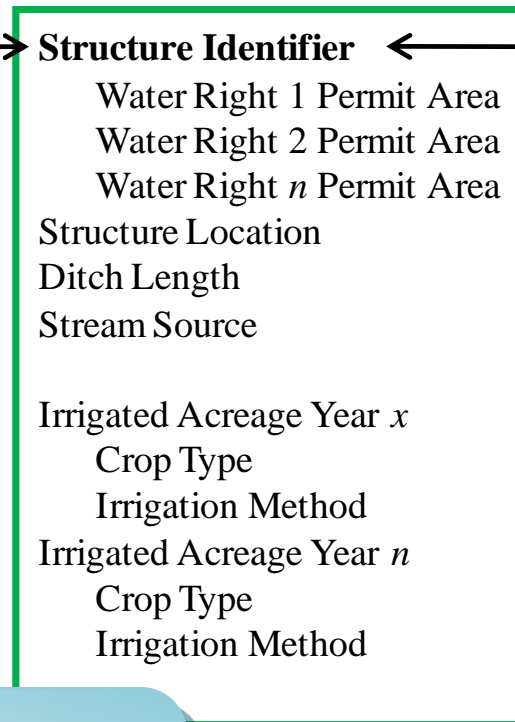


Data Collection and Availability

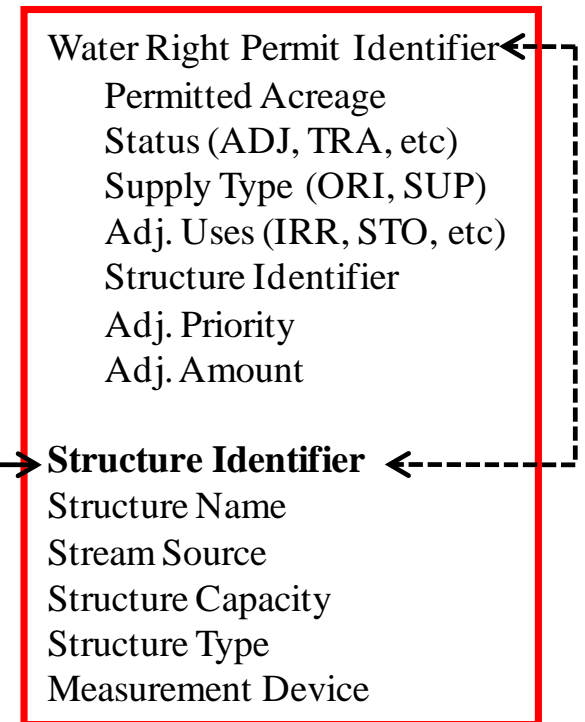
Aquarius (Time-Series Data)



WYWRAG (Spatial Data)



e-Permit (Water Rights)



Green River
Decision Support System
Feasibility Study

Water Planning Processes



Basin Plans



Framework
Plan



Potential
DSS?

Decision
Support System
(DSS)



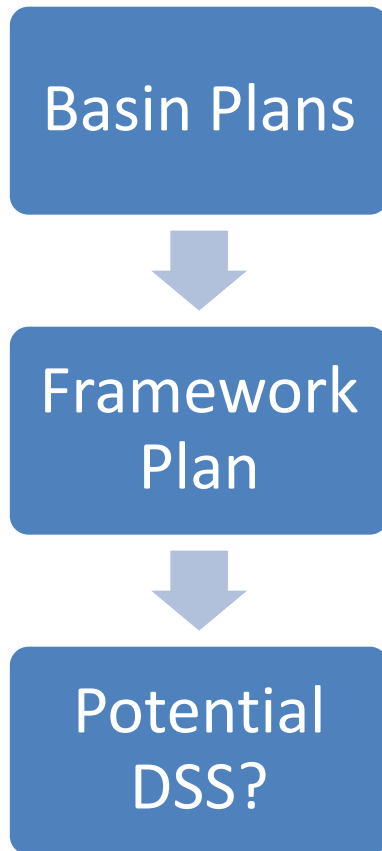
Basin
Implementation
Plans



Statewide
Water Plan



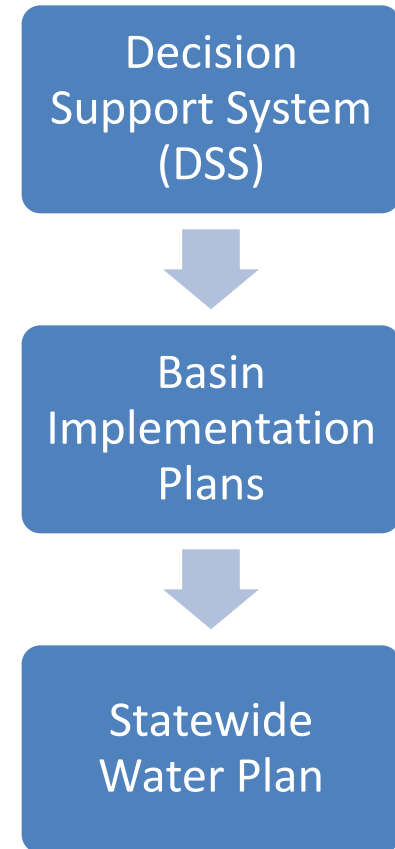
Water Planning Processes



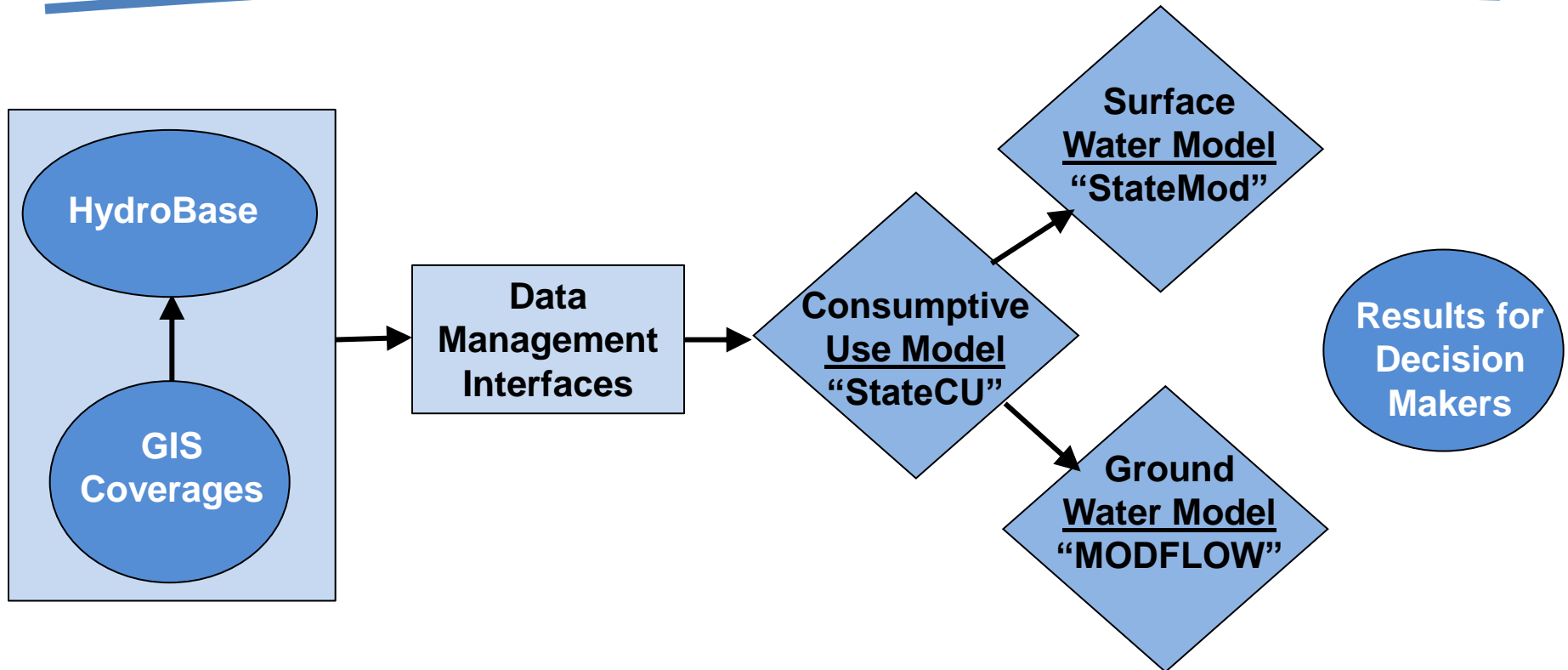
- Involved Basin Water Users Early
- Had a consistent procedure for each basin
- Did not have an upfront plan for managing data collected
- Began planning process before data was collected and analyses tools were in-place
- Top down? Bottom up?

Water Planning Processes

- Collected and managed data Statewide prior to basin planning
- Developed analyses tools prior to basin planning
- Tools and data were used in basin planning process
- Did not involve basin water users in early DSS process
- Did not have consistent procedure to direct individual basin planning
- Top down? Bottom up?



Colorado Decision Support System



- “Data-Centered”
- Transparent, Reproducible, Publically Available

