



WATER AND SEWER BOARD REGULAR MEETING

August 11, 2021 – 6:30 a.m.

2nd Floor Conference Room - 301 Walnut Street

Windsor, CO 80550

Link to join Webinar

<https://windsorgov.zoom.us/j/97397251420>

The Town of Windsor will make reasonable accommodations for access to Town services, programs, and activities and will make special communication arrangements for persons with disabilities. Please call (970) 674-2400 by noon on the 2nd **day** prior to the

AGENDA

A. CALL TO ORDER

1. Roll Call
2. Review of Agenda by the Board and Addition of Items of New Business to the Agenda for Consideration by the Board
3. Public Invited to be Heard

B. CONSENT CALENDAR

C. BOARD ACTION

1. Approve minutes from the June 11, 2021 meeting

D. Presentation

1. Water Management in Northern Water by Darell Zimbelman

E. Communications

1. Harvest festival schedule
2. NISP Update
3. September Board Meeting schedule



WATER AND SEWER BOARD REGULAR MEETING
June 9, 2021 – 6:30 a.m.
Meeting in 2nd Floor Conference Room and via Zoom
301 Walnut St, Windsor, CO 80550

MINUTES

A. CALL TO ORDER

Board Chairperson Bielawski called the meeting to order at 6:41 a.m.

1. Roll Call

Chairperson	Greg Bielawski
Vice-Chairperson	Carlos Medina
Secretary	Janene Willey
	Darell Zimbelman
	Milt Tokunaga
	Milton Geiger
	Gale McGaha Miller (absent)
Alternate	Alan MacGregor
Alternate	Alan Overton (absent)
Town Board Liaison	Ken Bennett
Also present:	Dir. Of Community Development John Thornhill
	Water Resources Administrator Leif Lesoing
	Utility Billing Admin Specialist Erin Porter

2. Review of Agenda by the Board and Addition of items of New Business to the Agenda for Consideration by the Board

There were no new agenda items considered.

3. Public Invited to be Heard

There was no public comment.

B. CONSENT CALENDAR

There were no items on the consent calendar.

C. BOARD ACTION

1. Minutes of April 14, 2021 Regular Meeting

Board Secretary Willey moved to accept the minutes for the April 14, 2021 meeting; Board Member Geiger seconded the motion. Motion carried unanimously with Alternate Member McGregor voting in place of Board Member McGaha-Miller.

D. COMMUNICATION

1. Mayor's Water Challenge

The Town of Windsor came in 2nd place based on population size nationwide. Aurora placed 3rd Grand Junction and Greeley both placed 4th in their population size group. No other Colorado cities made the top 10.

2. Ad Hoc Committee Update

The Ad Hoc Committee has been working on developing a flyer for distribution at various functions and meetings. Information included would revolve around current water and wastewater projects.

The Ad Hoc Committee is in the process of reaching out to HOAs and Metro Districts in Town to encourage application for Northern Water's grant program for water efficiency in their common areas.

The Ad Hoc Committee is working with Janine Hegeman, the Town's Stormwater Coordinator, on the education requirement for the MS4 program. There is a Back to the River poster located at Treasure Island. Volunteers from the Committee will be assisting with the Play on the Poudre table located at the launch site in Windsor.

There will be a class on June 16th at Treasure Island for water wise gardening, and the same group that put on the classes in the spring are willing to create videos for shutting down the garden in the fall.

3. Northern Water Aftermath #3 Meeting June 16

Northern Water has been saying that everything is business as usual, but they have had some difficulties determining the availability of water. Since the fires ran until November of 2020 and the snow was intermittent, most data has been collected via satellite.

The Board discussed potential impact of the water quality and smaller availability of water stores for Colorado and the region.

F. ADJOURN

Board Member Zimbelman moved to adjourn the meeting at 7:32 am; Board Secretary Willey seconded the motion. Motion carried unanimously with Alternate Member McGregor voting in place of Board Member McGaha-Miller.

Submitted by:



Erin Porter, Utility Billing Administrative Specialist

“WATER MANAGEMENT IN THE NORTHERN COLORADO WATER CONSERVANCY DISTRICT”

- Setting and background
- NCWCD and the C-BT Project
- The future
- Concluding remarks

BEGINNING OF “WESTERN WATER”



WESTERN/COLORADO WATER— THE DECADES

- 1805 Lewis and Clark, then Pike, then Long
- 1840s Mormon migration
- 1850s Gold rushes (CA, CO)
- 1860 Farm expansion and water wars
- 1870 Colorado Constitution—"First in time"
- 1880s Mining boom, then bust, railraoding
- 1900s Owens Valley (LA); Denver Water born
- 1920s Colorado River Compact, MWD
- 1930s New Deal, CWCB, NCWCD, River District

COLORADO WATER LAW



CITIZEN'S GUIDE TO

Colorado Water Law

Fifth edition

Colorado Water Law

This useful desk reference, authored by Justice Gregory Hobbs Jr., explores the basics of Colorado water law, how it developed, and how it is applied today. Readers can learn more about surface water and groundwater allocation and regulation, understand concepts such as interstate compacts, or read about how a “call” for water works.

View a flipbook of the guide online. Or **visit our store**

CITIZEN'S GUIDE TO COLORADO WATER LAW

- “Territorial water law that was developed to promote irrigation has turned into state law that serves a multitude of human and environmental needs.” (Pg.4)
- “In light of water scarcity and value in this arid region, Colorado water law is intended to provide security, reliability, and flexibility in the development and protection of water resources.” (Pg.4)
- “*Yunker vs. Nichols* in 1872 was the Territorial Supreme Court’s first water law decision. The court held that water could be diverted from any stream and carried through ditches built across public and private land to bring water to its place of beneficial use.” (Pg.5)

CITIZEN'S GUIDE TO COLORADO WATER LAW

- “Colorado water law broke entirely away from the water law framework followed in many other areas of the country, known as the Riparian Doctrine. Under riparian law, only those with land adjoining the stream have a right to stream water.” (Pg.5)

CITIZEN'S GUIDE TO COLORADO WATER LAW

- Colorado water doctrine has four essential principles:
 - All water, either surface or groundwater, is a public resource available for beneficial use.
 - A water right is a right to use a portion of this public resource.
 - Holders of water rights may use streams and aquifers to transport or store water
 - Holders of water rights may use private lands of others to construct related facilities, upon the consent or just payment of the landowner. (Pg.5)

CITIZEN'S GUIDE TO COLORADO WATER LAW

- Basis of Colorado Water Law:
 - Prior Appropriation System
 - A legal framework that regulates use of surface water and ground water connected to streams.
 - Mandated by Colorado Constitution
 - “First in time, first in right”
 - Codified in “1969 Water Rights *Determination Act* and 1965 *Ground Water Management Act*. (Pg.6)

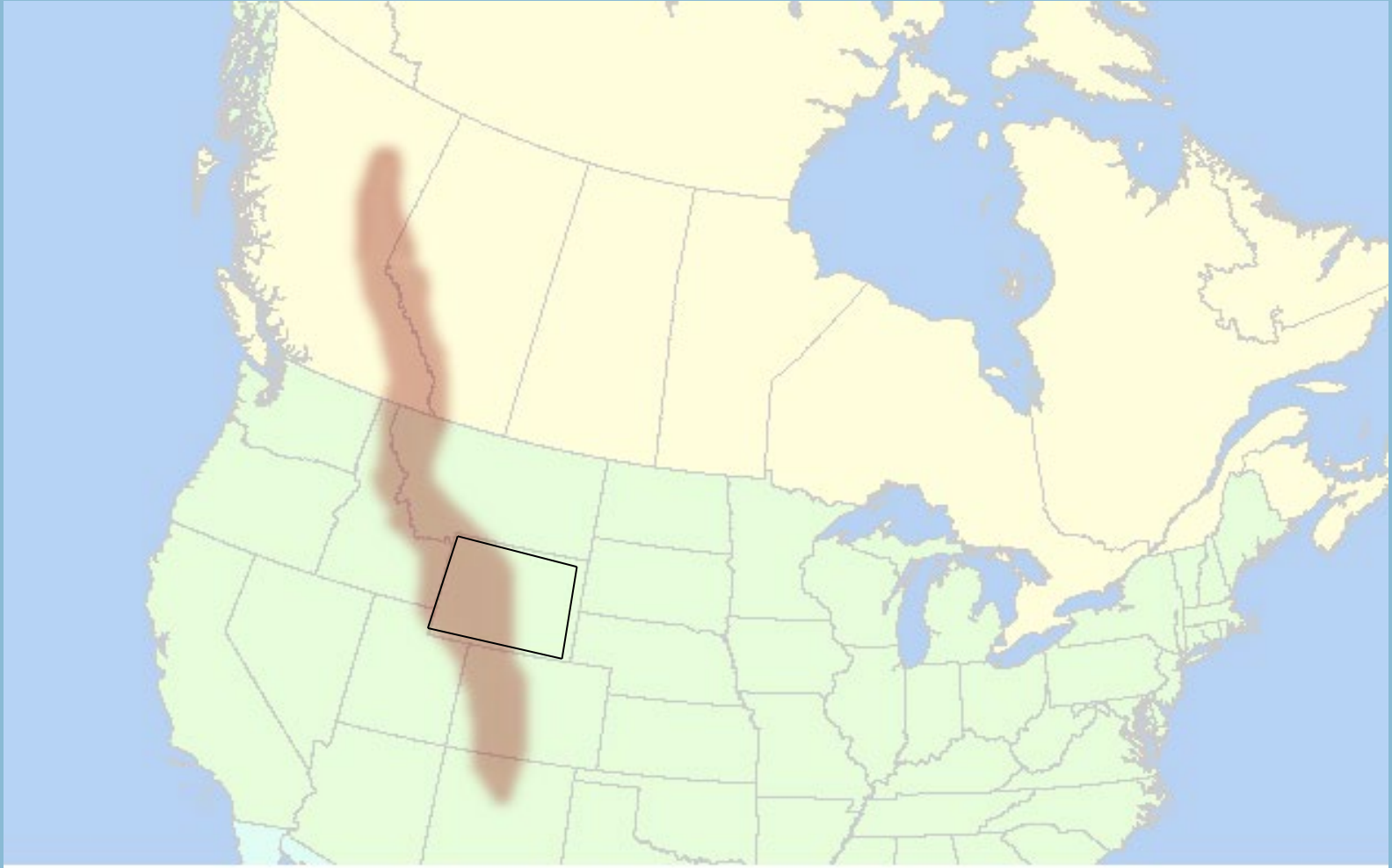
WESTERN WATER—BY THE DECADES

- 1940s War
- 1950s Colorado drought, CBT
- 1960s California State Water Project
- 1970 Environmental decade
- 1980 Peripheral Canal defeated
- 1990 Post Two Forks scramble in CO
- 2000s SD-Imperial
- 2010s Droughts, wildfires, Colo. River

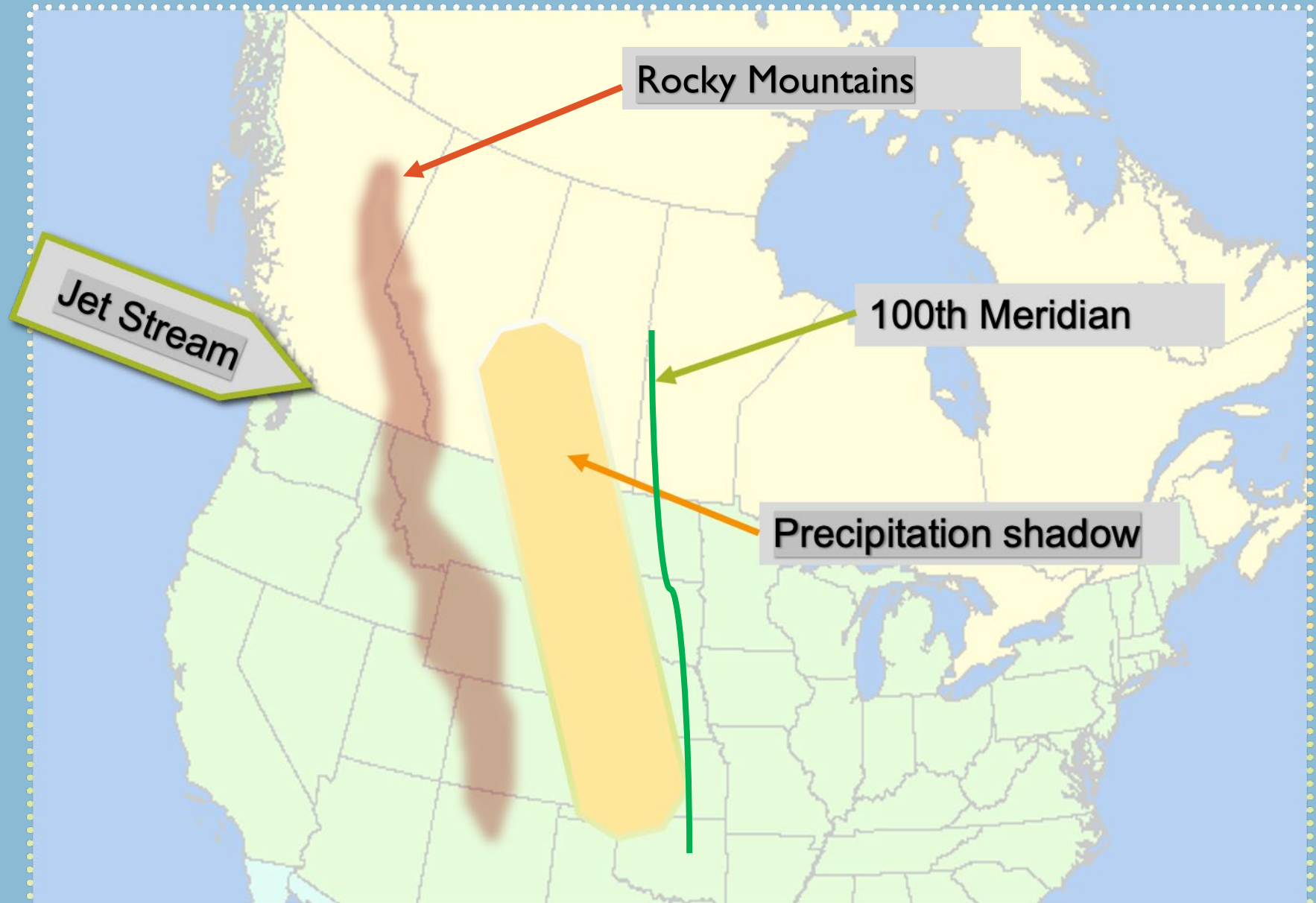
“The challenge—survive in a “desert”



ROCKY MOUNTAINS

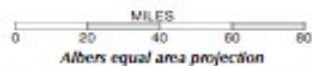
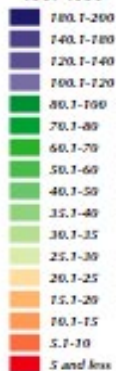


WEATHER PATTERN



PRECIPITATION

Average Annual Precipitation (in inches)
1961-1990



WYOMING

COLORADO

NEBRASKA

UTAH

50 to 80 inches

*** 15-20 inches**

*** 10 to 15 inches**

*** 5 to 10 inches**

KANSAS

OKLAHOMA

NEW MEXICO

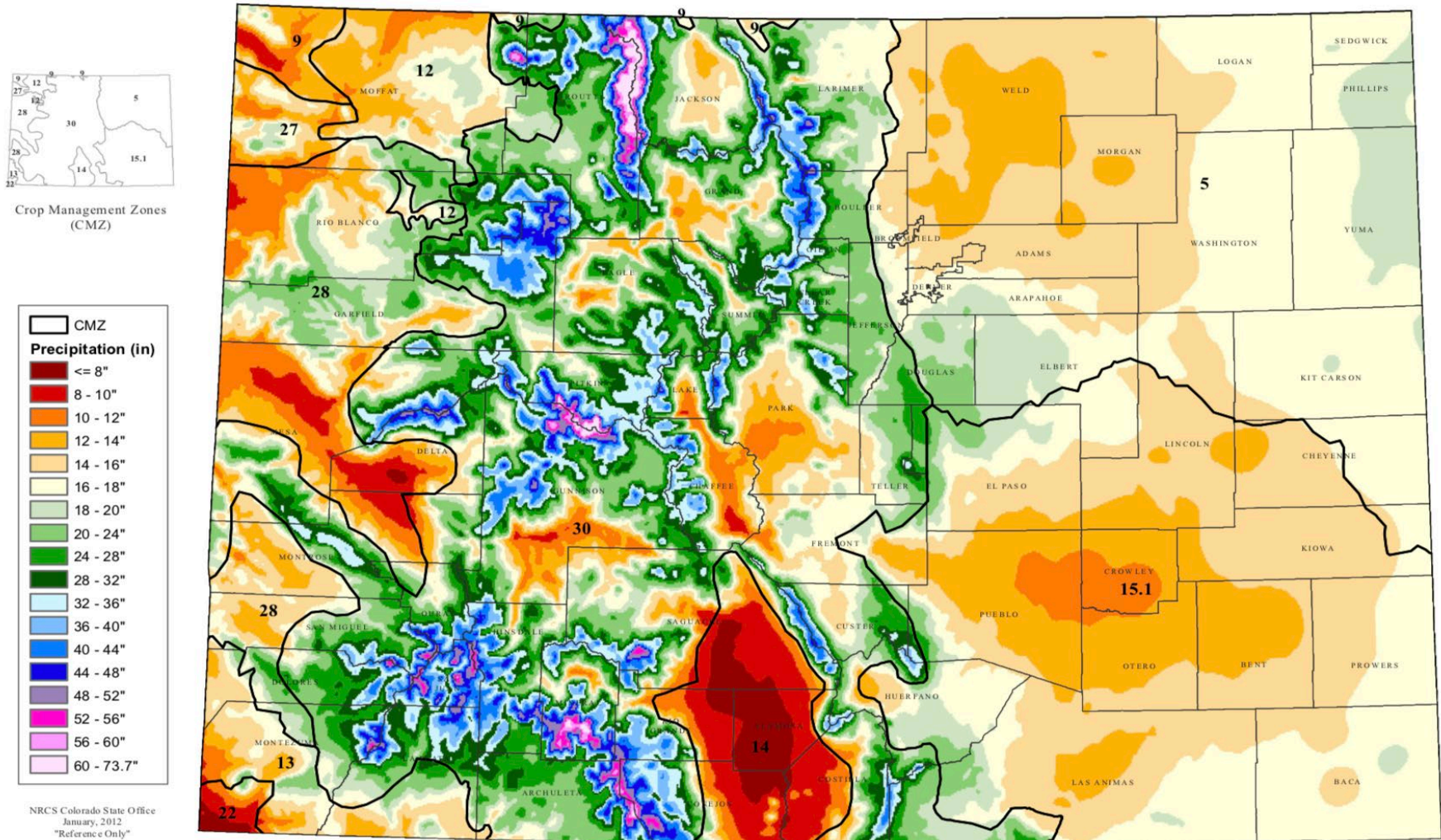
U.S. Department of the Interior
U.S. Geological Survey

The National Atlas of the United States of America®

bioRxiv preprint doi: <https://doi.org/10.1101/000000>; this version posted January 1, 2016. The copyright holder for this preprint (which was not certified by peer review) is the author/funder, who has granted bioRxiv a license to display the preprint in perpetuity. It is made available under aCC-BY-NC-ND 4.0 International license.

Colorado average precipitation 1981 – 2010 in inches

Colorado Average Annual Precipitation (1981-2010) & Crop Management Zones



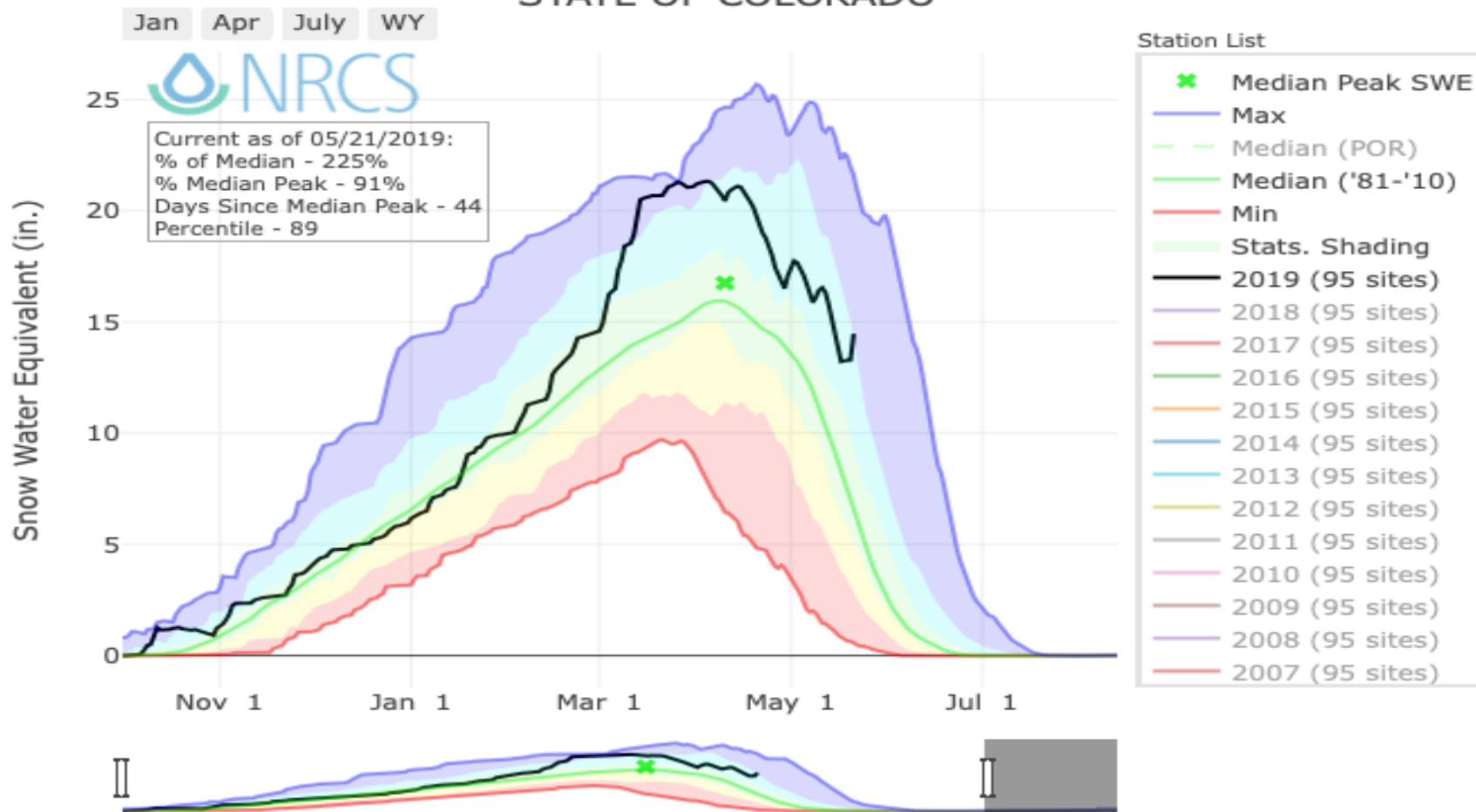
NRCS Natural Resources
Conservation Service

USDA **OSU**
Oregon State University

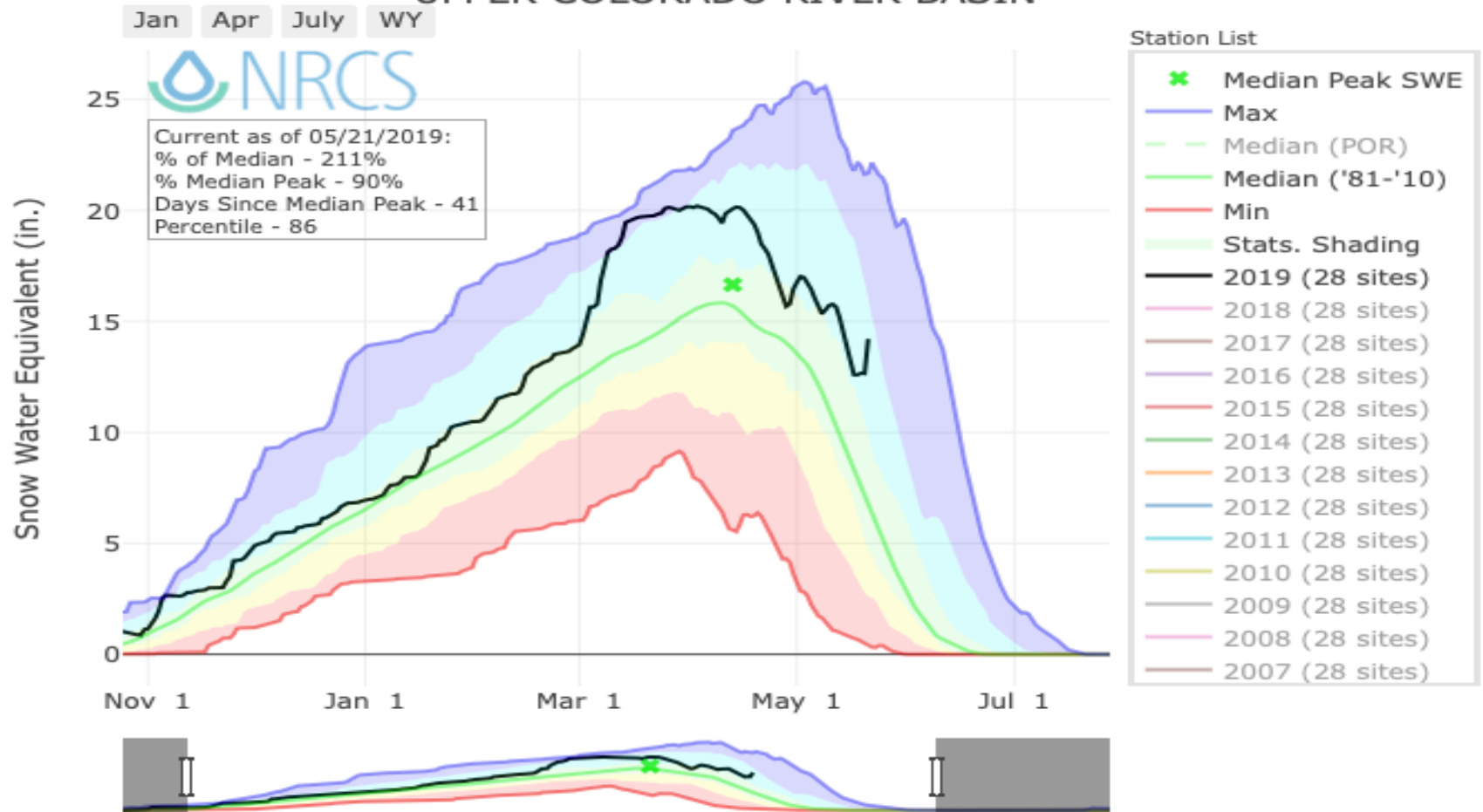
Precipitation Data: PRISM Climate Group at Oregon State University.
The data are average monthly and average annual precipitation for the climatological period 1981-2010.
The maps were created from 30 arc-seconds (~800m) PRISM derived grids. Publication 2012.
<http://www.prism.oregonstate.edu/>

1:2,800,000
0 10 20 40 Miles
N

Snow Water Equivalent in STATE OF COLORADO



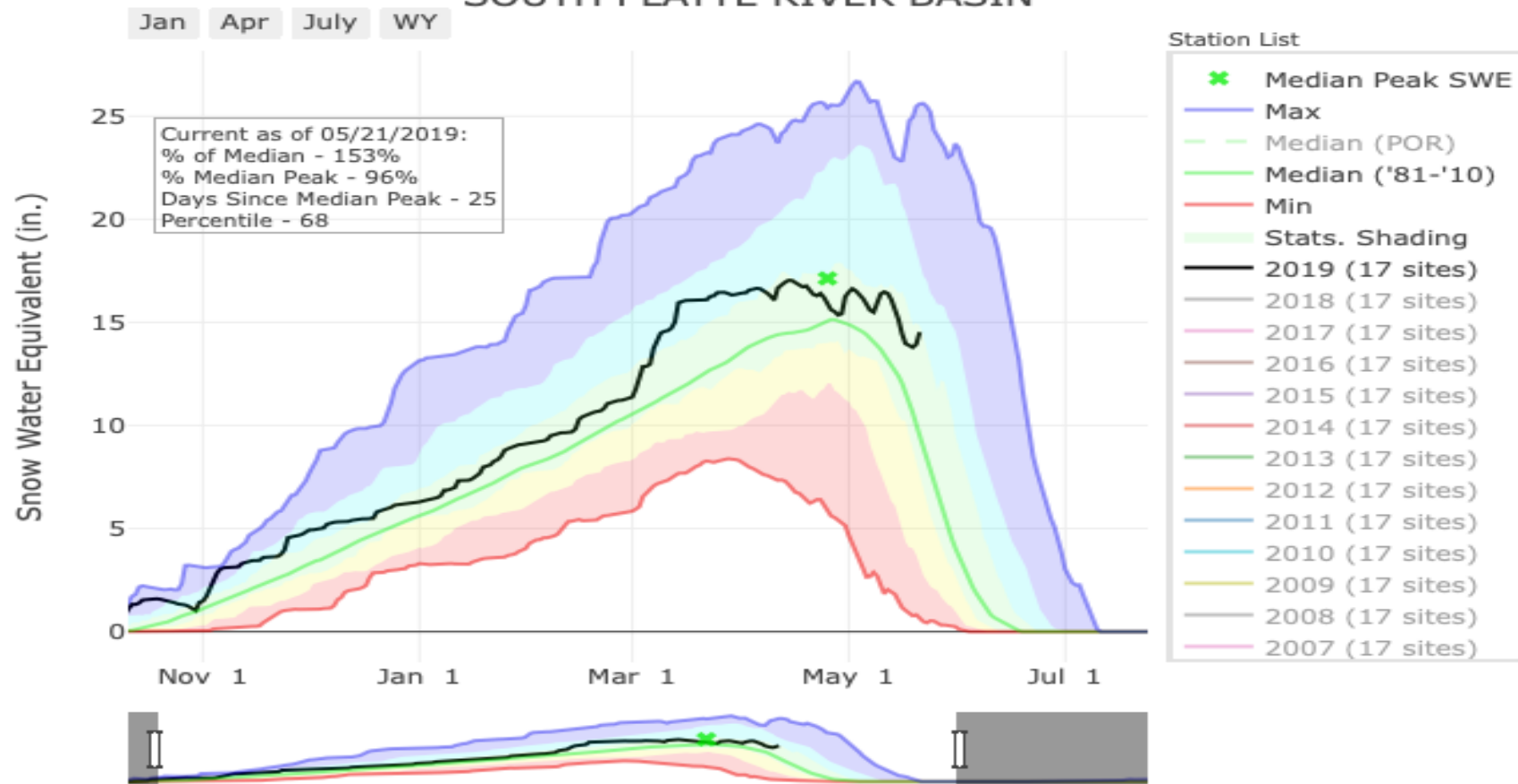
Snow Water Equivalent in UPPER COLORADO RIVER BASIN



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th Percentiles.

For more information visit: [30 year normals calculation description](#).

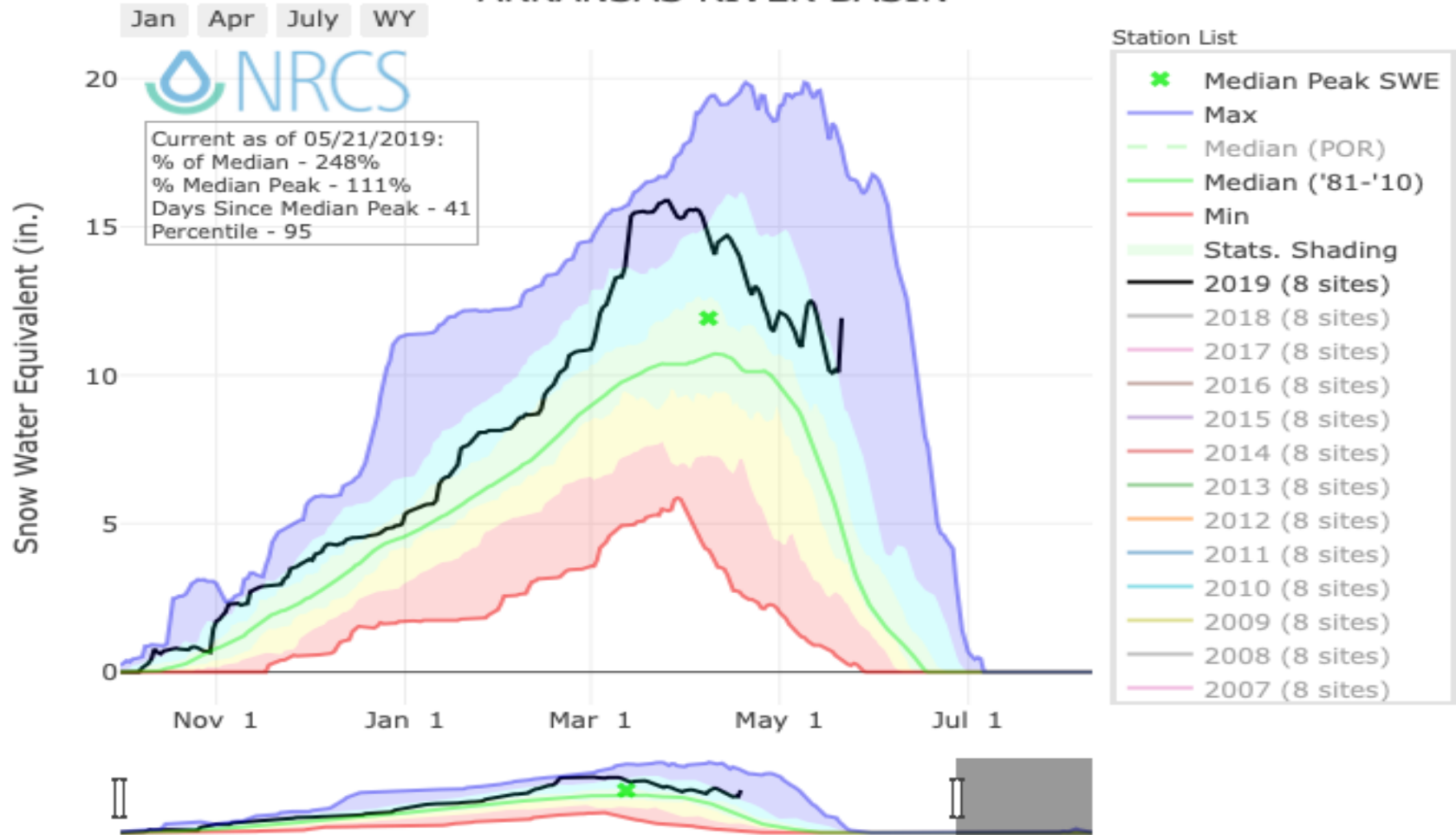
Snow Water Equivalent in SOUTH PLATTE RIVER BASIN



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th Percentiles.

For more information visit: [30 year normals calculation description](#).

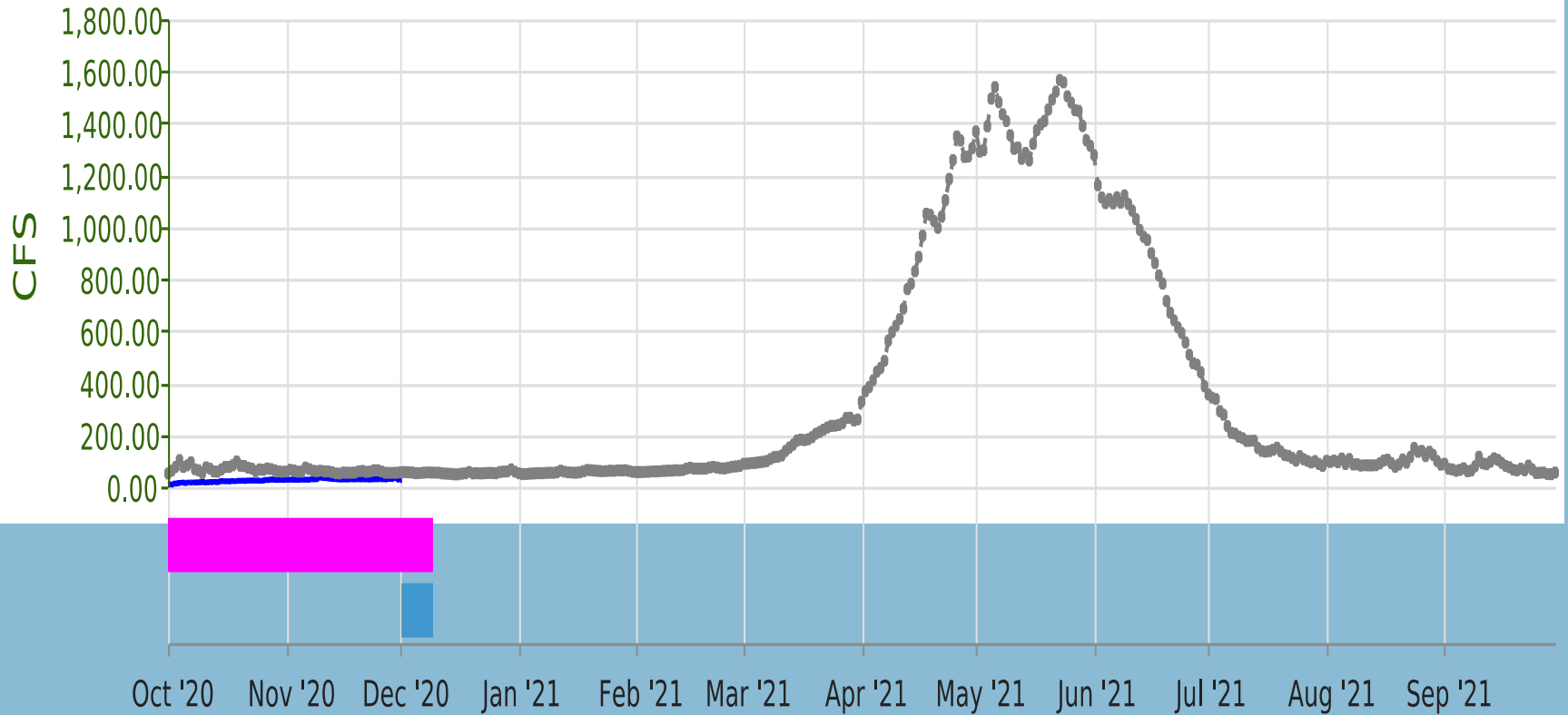
Snow Water Equivalent in ARKANSAS RIVER BASIN



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th Percentiles.

For more information visit: [30 year normals calculation description](#).

DOLBEDCO - DOLORES RIVER AT BEDROCK, CO



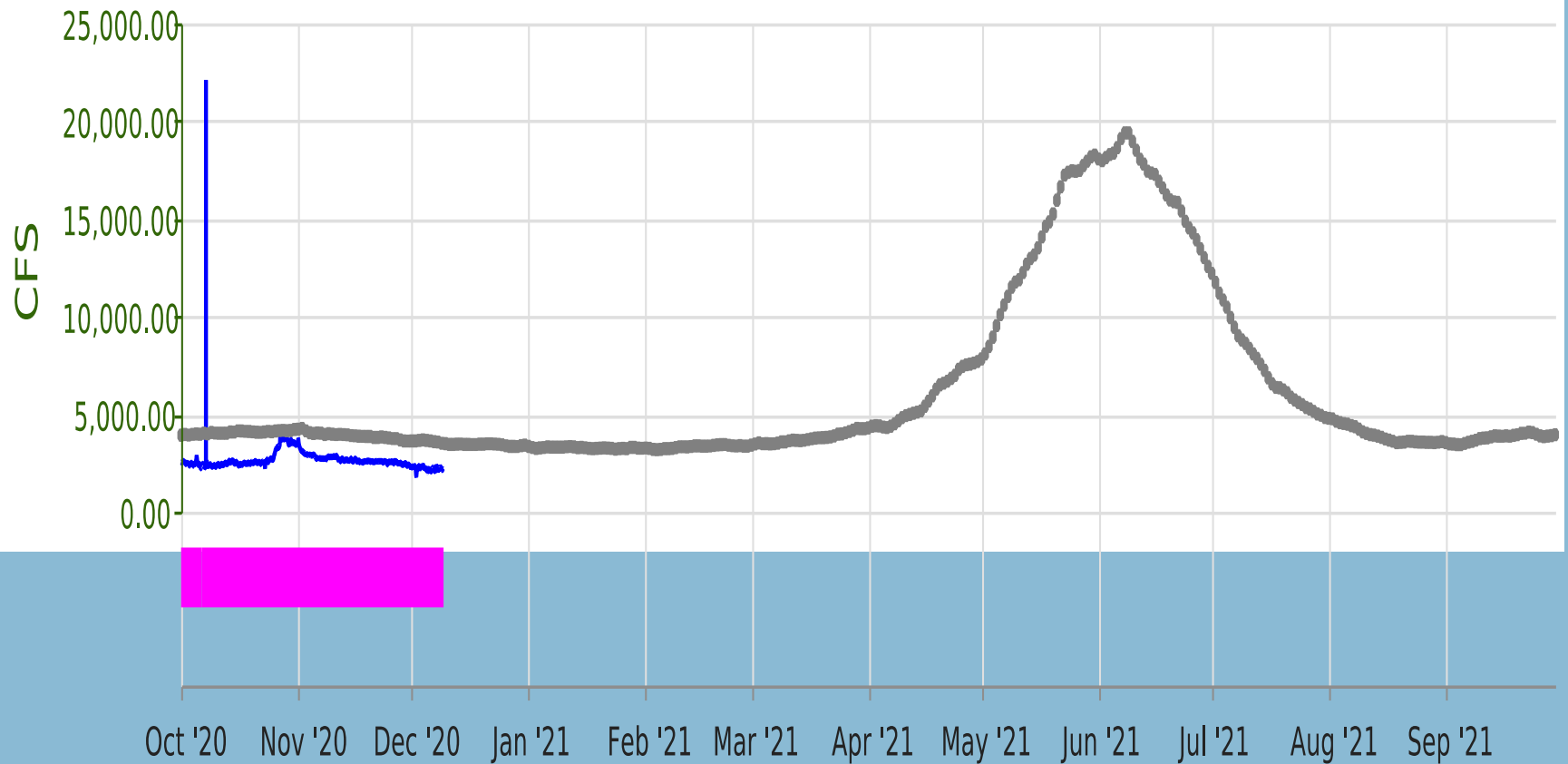
Legend

Flags



mestep

COLUTACO - COLORADO RIVER NEAR COLORADO-UTAH STATE LINE

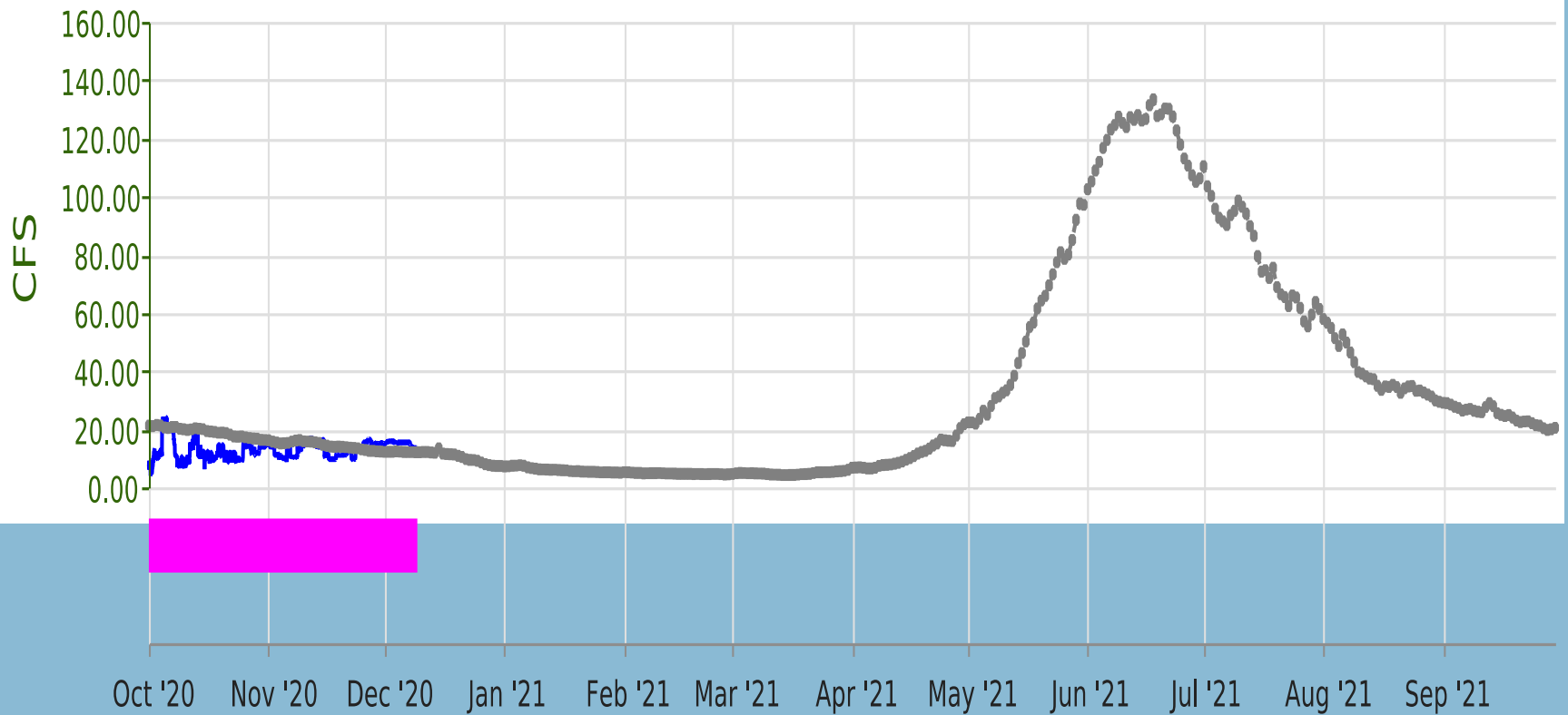


Legend

Flags



BLUABLCO - BLUE RIVER AT BLUE RIVER, CO.

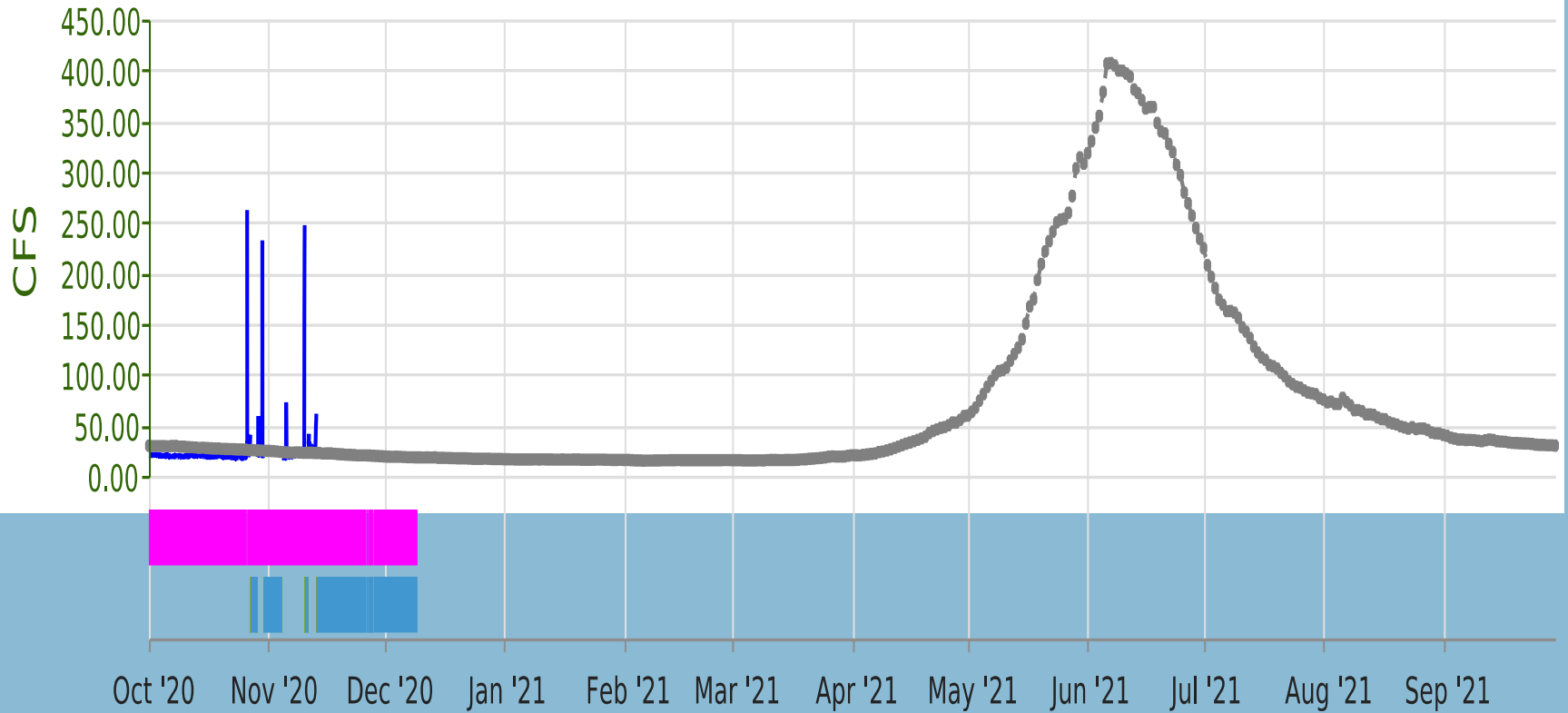


Legend

Flags

■ U - 3rd Party Data - Original data as collected by DWR; Reliability unknown

ARKLEACO - ARKANSAS RIVER NEAR LEADVILLE, CO



Legend

Flags



PLAHENCO - SOUTH PLATTE RIVER AT HENDERSON, CO



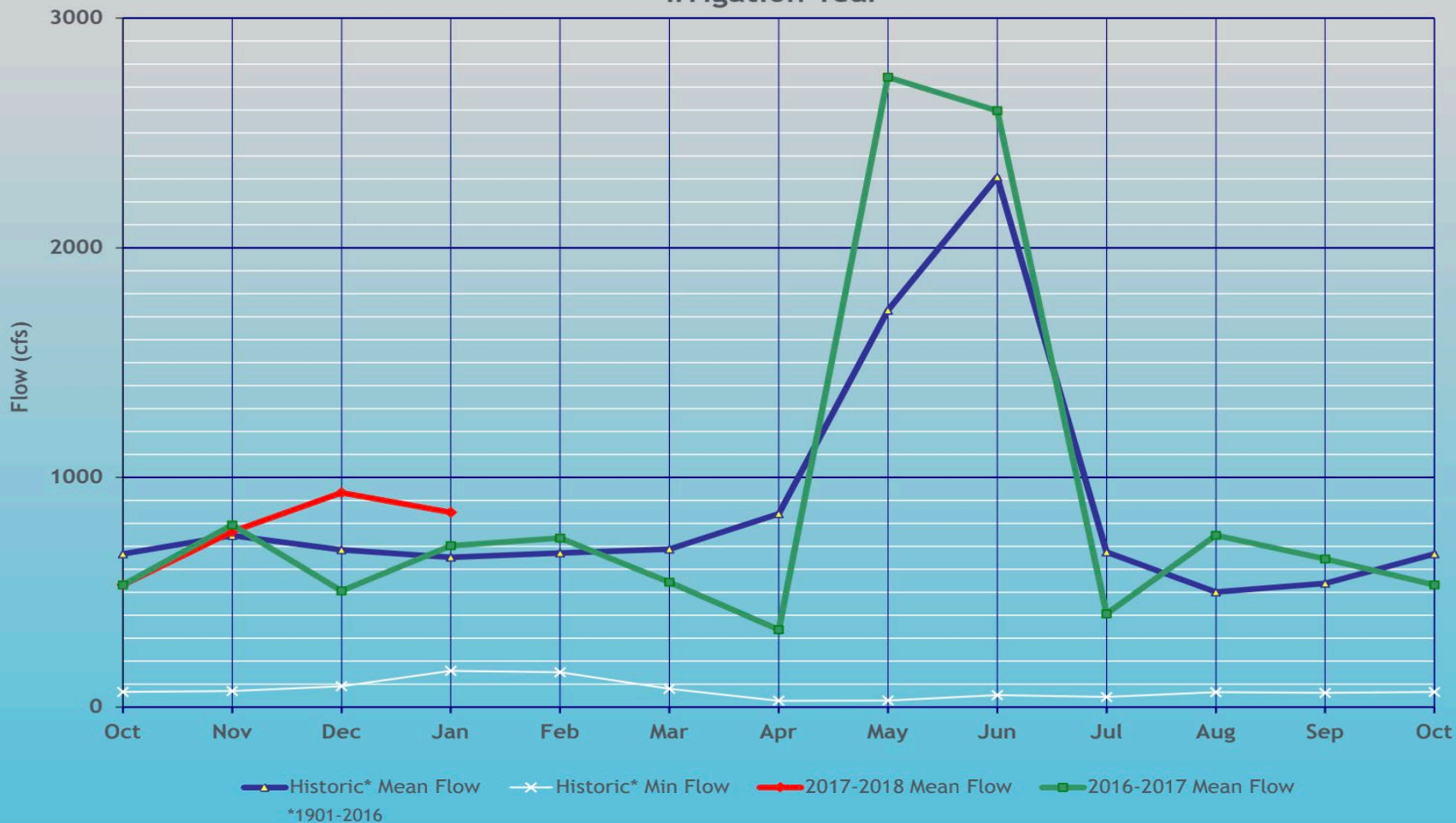
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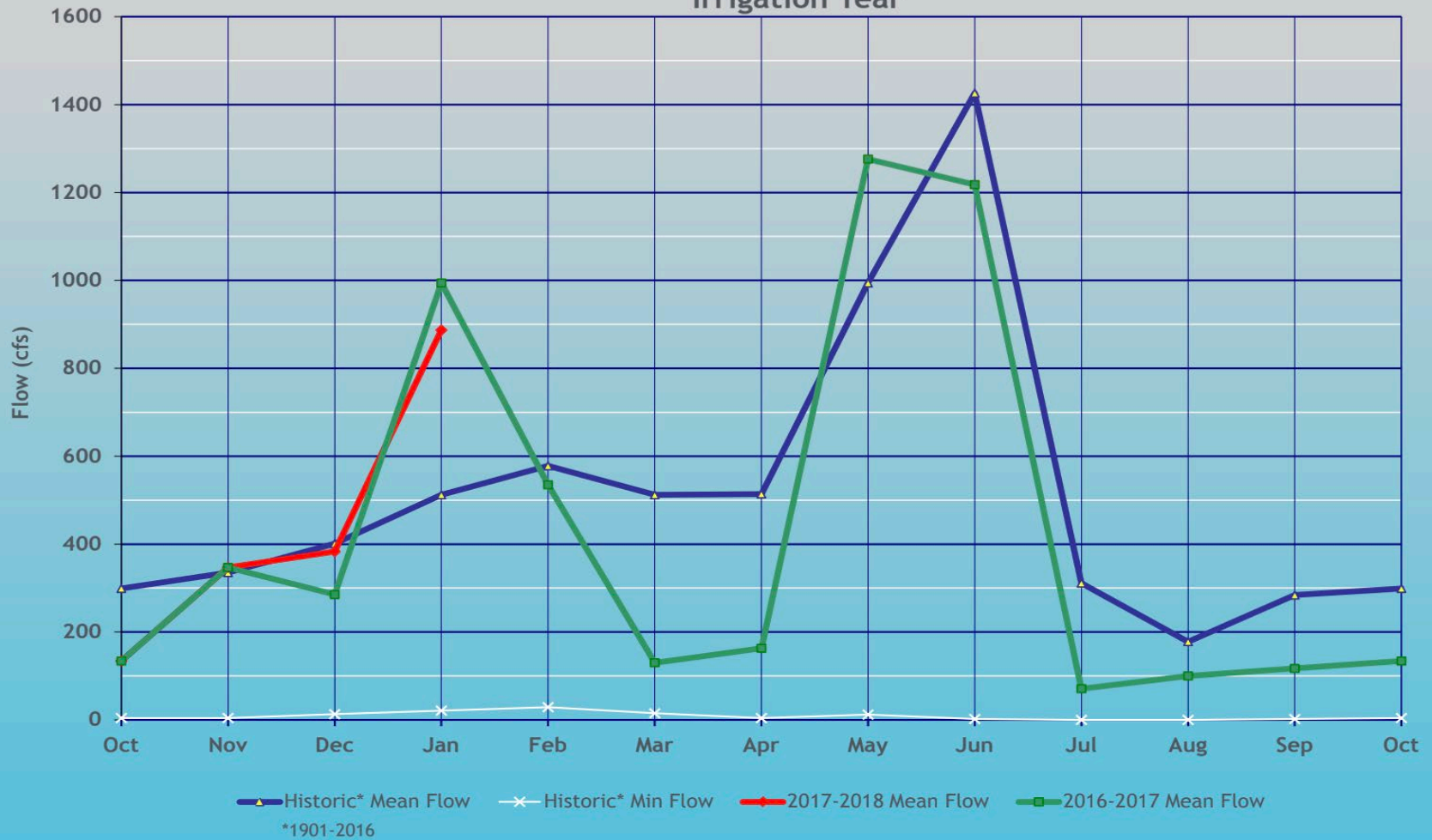
South Platte River at Kersey

Irrigation Year

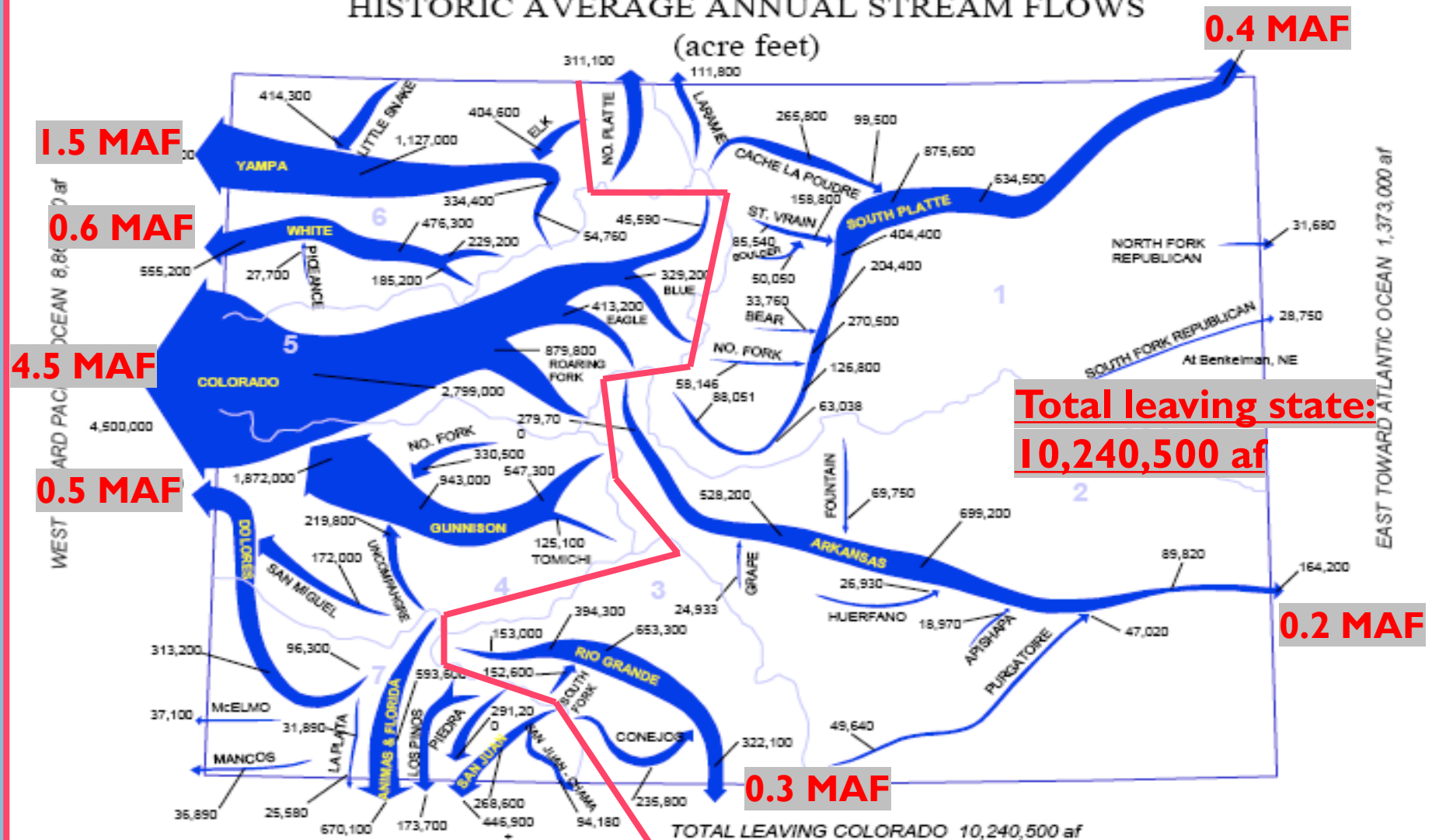


South Platte River at Julesburg

Irrigation Year



COLORADO HISTORIC AVERAGE ANNUAL STREAM FLOWS (acre feet)



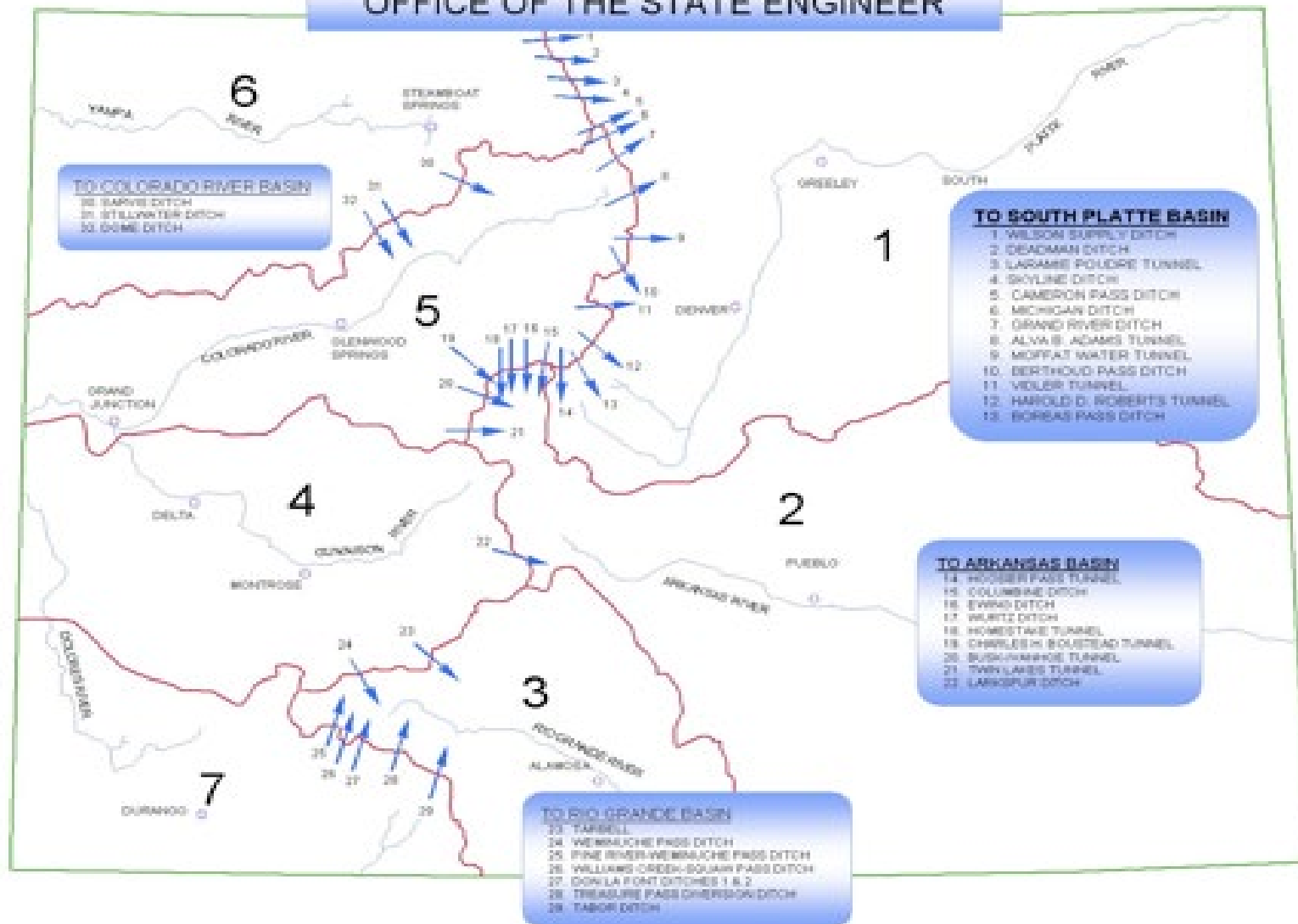
Prepared by the Hydrographic Branch (2003 Revision)

Historic averages obtained from USGS Water-Data Report CO-02

-- Continental Divide

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

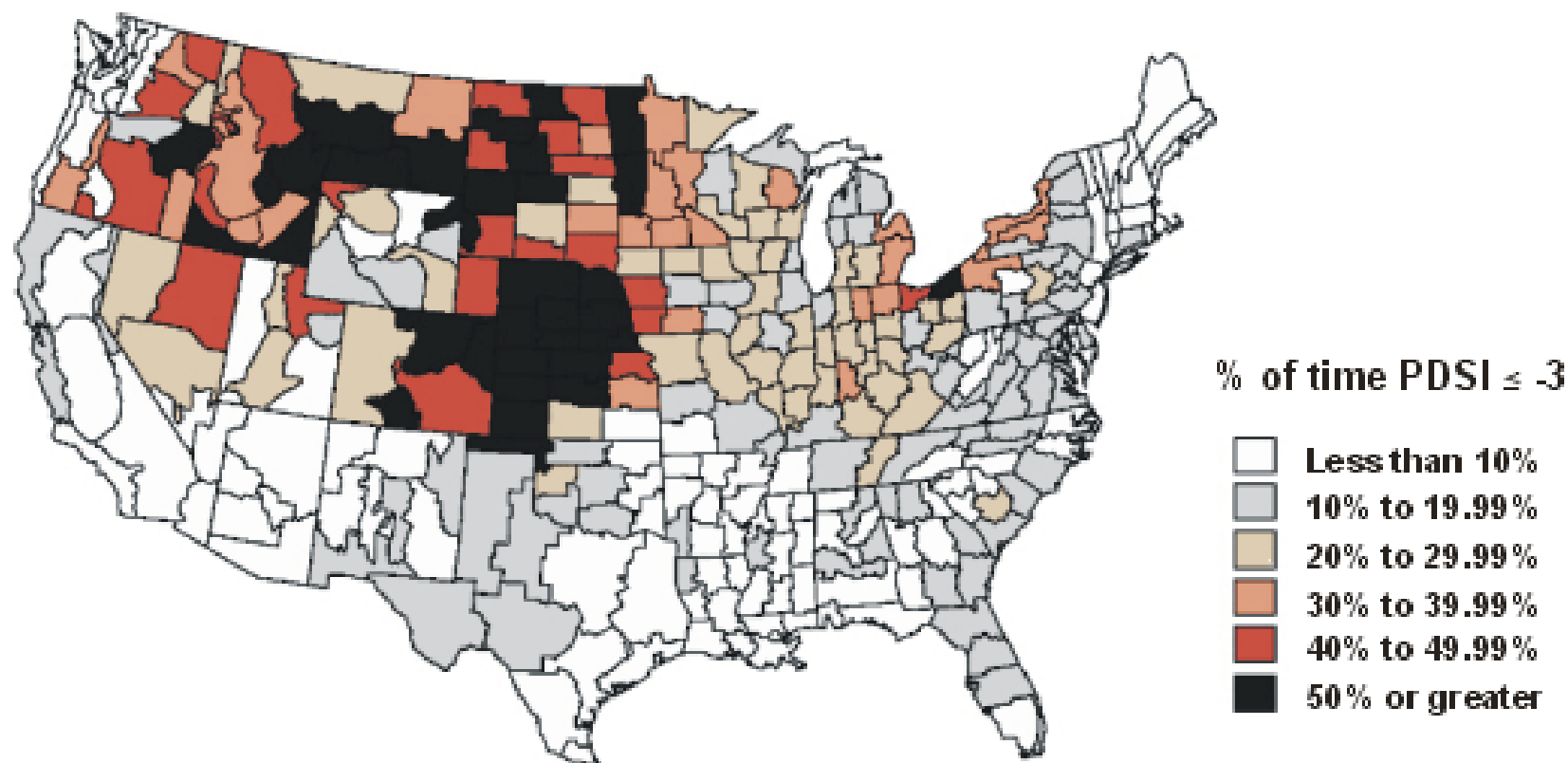
TRANSMOUNTAIN DIVERSIONS OFFICE OF THE STATE ENGINEER



Palmer Drought Severity Index

1930–1939

Percent of time in severe and extreme drought



SOURCE: McKee et al. (1993); NOAA (1990); High Plains Regional Climate Center (1996)
Albers Equal Area Projection; Map prepared at the National Drought Mitigation Center

ROYCE J TIPTON

- Past President of ASCE - 1965 to 1967
- Society Award by Irrigation & Drainage Council of EWRI
- Lieutenant – Corps of Engineers – WWI
- Honorary Degree from CU in CE in 1940
- President of ICID
- Engineering studies for Lake Mead
- Firm designed Indus Basin Projects Link Canals (8) in Pakistan - 1960's
- 1933 study to verify feasibility of C-BT Project

NORTHERN COLORADO WATER CONSERVANCY DISTRICT

- Started out in 1935 as Northern Colorado Water Users' Association
- Goal to supplement water supplies for northeastern Colorado
- Water Conservancy Act passed in 1937
- Contract with Bureau of Reclamation signed in 1938.
- Transbasin water transfer project agreed to

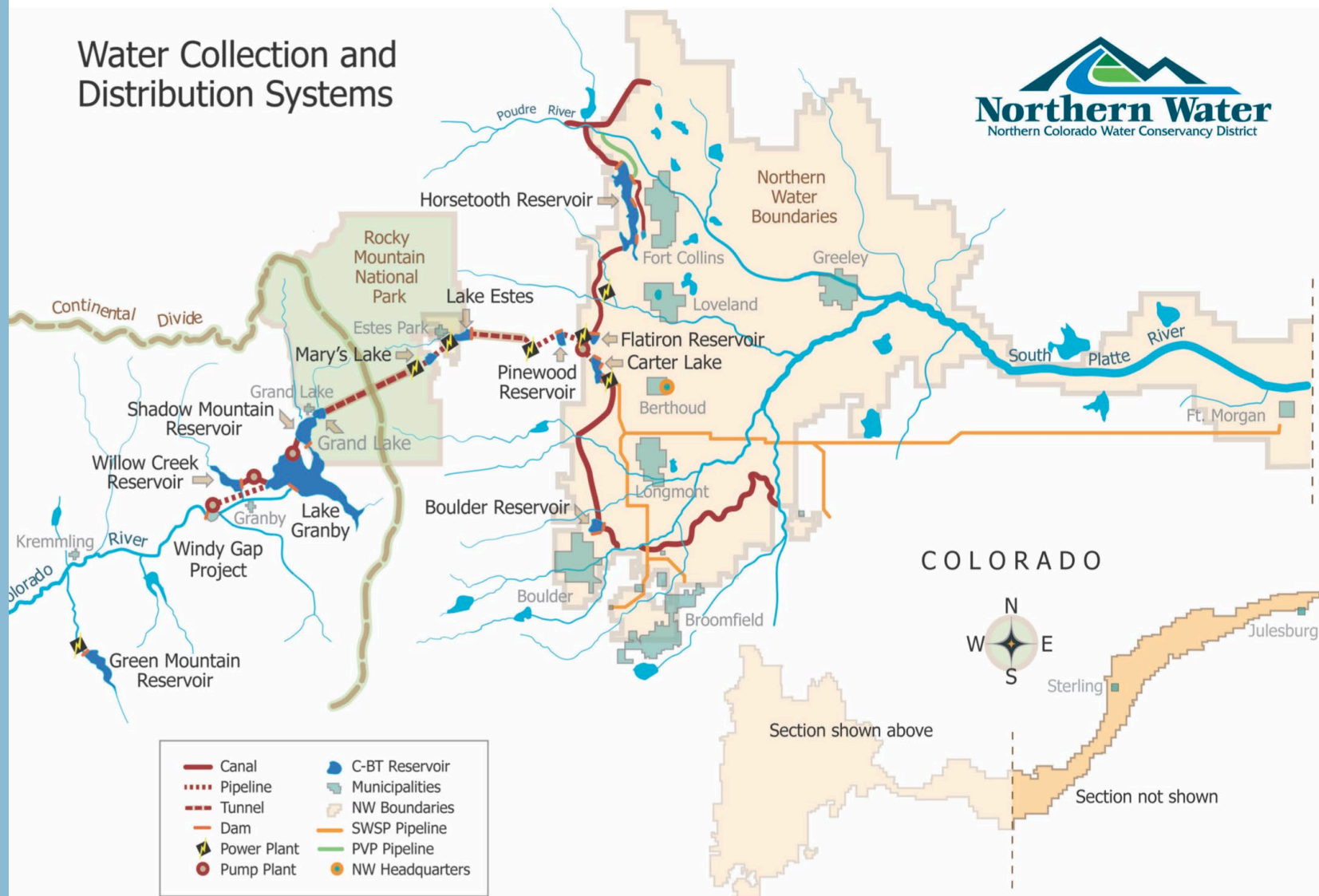
NCWCD OR NORTHERN WATER

- 12 member Board of Directors
- Appointed to staggering 4 year terms
- Monthly Board meeting
- 6 to 9 planning sessions per year
- Set policies, procedures and budgets
- Rules on water transfers

COLORADO-BIG THOMPSON (C-BT) PROJECT

- Constructed between 1938 and 1957
- 4 West Slope reservoirs constructed
- 5 East Slope reservoirs constructed
- 2 West Slope Pump Plants
- 4 East Slope Power Plants
- 1 West Slope Power Plant
- 21 kilometer long, 3 meter diameter tunnel under Continental Divide

Water Collection and Distribution Systems



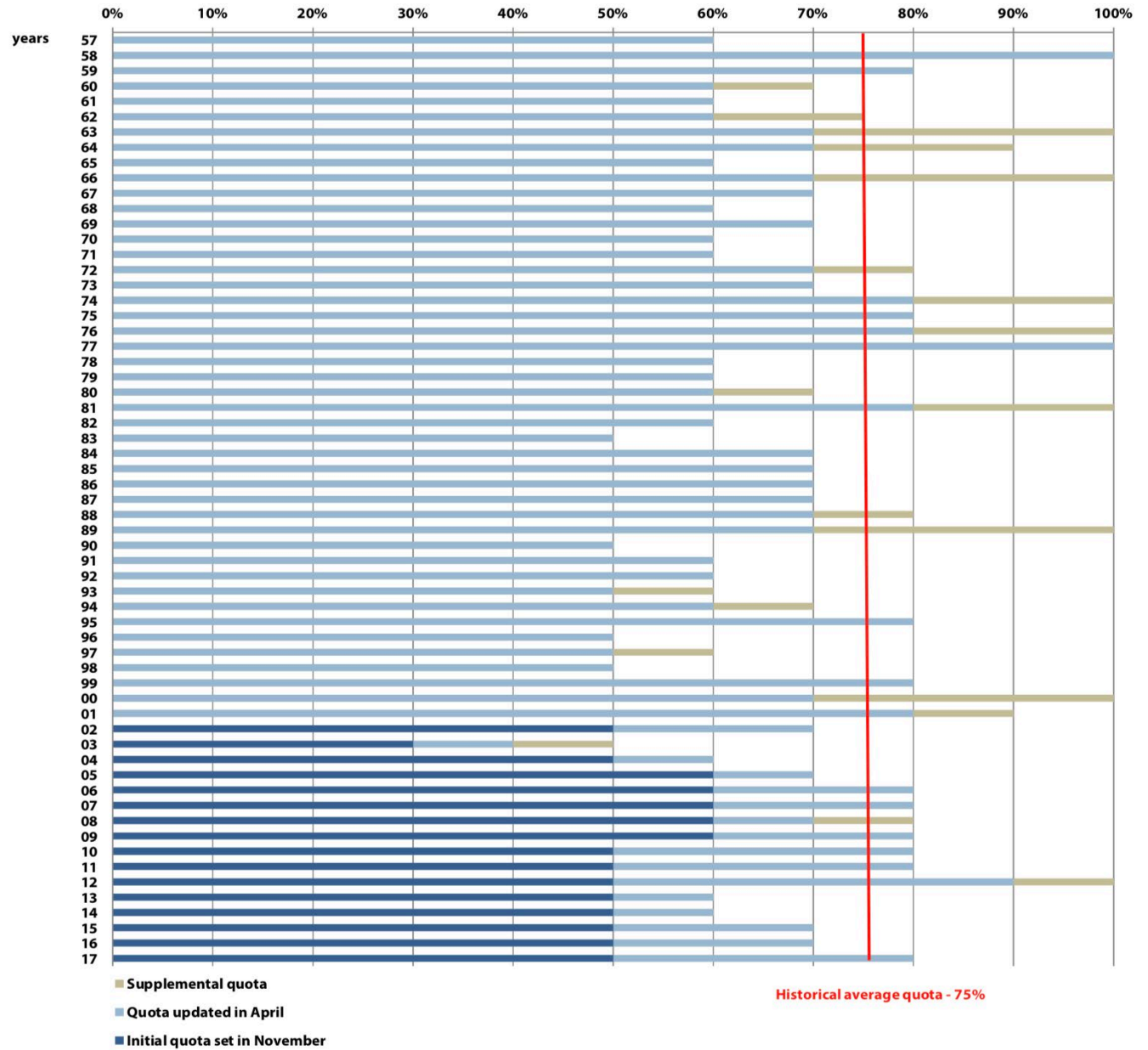
C-BT PROJECT WATER ADMINISTRATION

- 1940 estimated yield = 310,000 ac-ft
- 310,000 acre-foot units (AFUs) created
- Administered by allotment contracts
- Contractual right to use
- Annual obligation is to deliver 1/310,000th of water declared available

C-BT PROJECT WATER ADMINISTRATION

- Allocation expressed as a “quota”
- 100% quote = 1.0 ac-ft per AFU
- 50% quota = 0.5 ac-ft per AFU
- Range = 50% - 100%, average = ~75%
- Set prior to water year, reviewed in April
- Goal: to provide a “full” water supply for northeastern Colorado

C-BT HISTORIC QUOTA



C-BT PROJECT WATER ADMINISTRATION

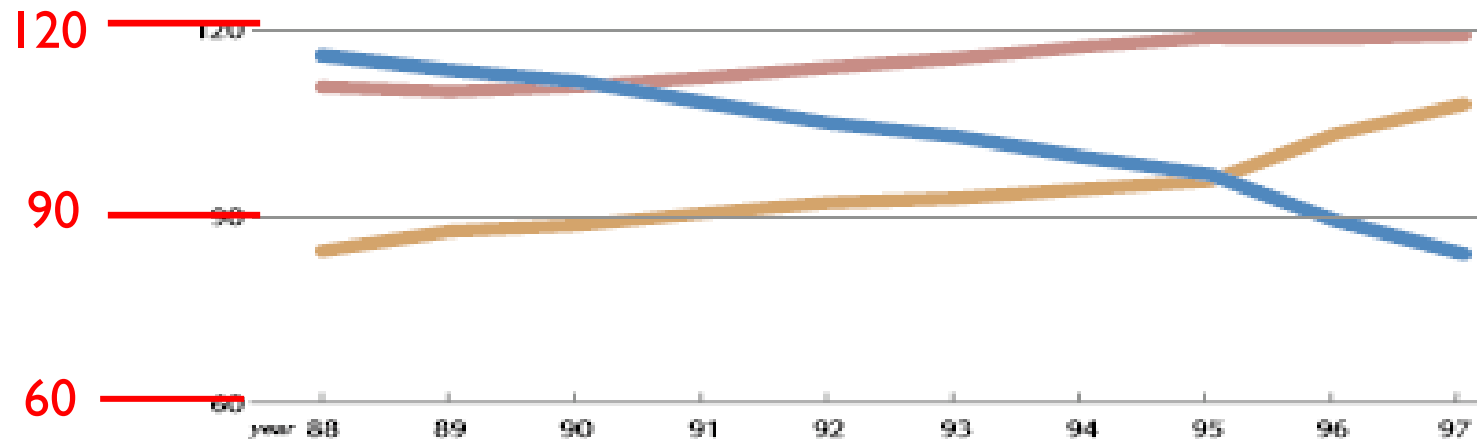
- Contracted amount is limited to need
- Irrigation's limit = $(3 \text{ ac-ft per acre} \times \text{number of acres}) - \text{non-CBT supplies}$
- Municipal's limit -- lesser of:
 - $\text{demand} \times 2 - \text{average non-C-BT supplies}$
 - $(\text{demand} - \text{firm non-C-BT supplies})/0.5$
- Evaluation: irrigation at 100% quota, municipal at 50% quota

C-BT PROJECT WATER ADMINISTRATION

- Benefits:
 - Municipalities have water needed for basic needs
 - Municipalities can rent excess to irrigation
 - Irrigators have water most years, but do not need to endure carrying costs

C-BT PROJECT OWNERSHIP

Units



-- **Class D, irrigation/individual**

-- **Class C, public corporation (irrigation plus M&I)**

-- **Class B, municipal**

Note: Class C allotment contracts include 67,091 irrigation units and 51,677 municipal and industrial units.

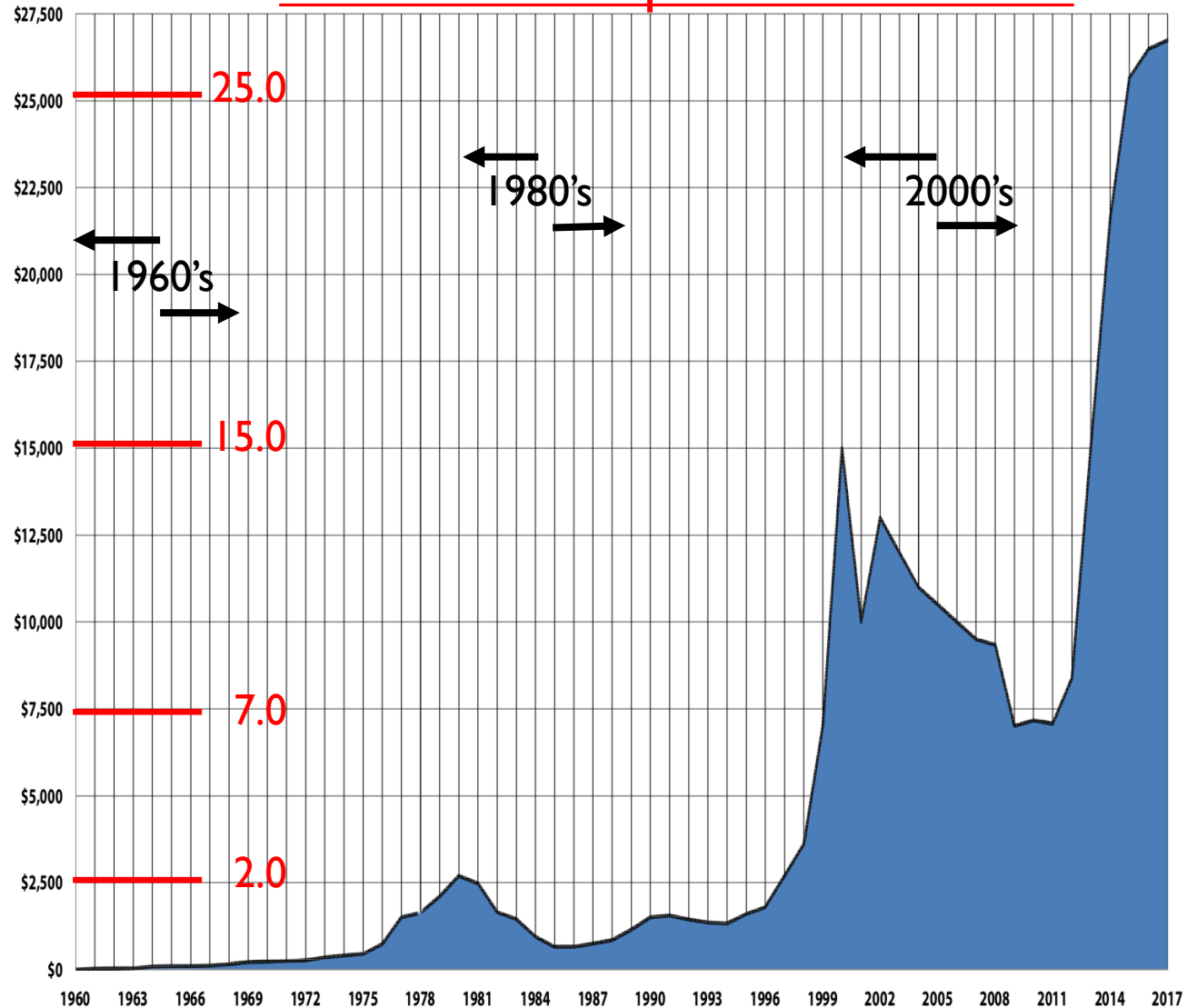
Year	Class B	Class C	Class D	Total Acre-feet of Water
1988	84,097	110,428	115,475	310,000
1989	87,198	109,660	113,142	310,000
1990	88,147	110,491	111,362	310,000
1991	90,107	111,921	107,972	310,000
1992	91,847	113,568	104,585	310,000
1993	92,547	115,017	102,436	310,000
1994	93,972	116,861	99,167	310,000
1995	95,296	118,352	96,352	310,000
1996	102,897	118,226	88,877	310,000
1997	107,623	118,768	83,609	310,000

C-BT PROJECT OWNERSHIP

	<u>1997 – Units</u>	<u>1997 - Percent</u>	<u>2017 - Units</u>	<u>2017 – Percent</u>
Class B - Municipal	107,623	35%	151,517	49%
Class C- M&I	51,677	17%	65,894	21%
Class C - Irrigation	67,091	21%	56,490	18%
Class D - Irrigation	<u>83,609</u>	<u>27%</u>	<u>36,099</u>	<u>12%</u>
Total:	310,000	100%	310,000	100%

C-BT UNIT HISTORIC MARKET PRICE

Acre-foot Unit price in thousands



C-BT PROJECT WATER ANNUAL RENTALS

- Water transfers can take place on a temporary basis, i.e. rentals
- Simple process requiring a post card or on line transfer
- Allows water to migrate yearly to area of greatest need
- Service provided free by NCWCD

C-BT PROJECT WATER PERMANENT TRANSFERS

- Water transfers can take place on a permanent basis
- Straight forward process requiring willing buyer and willing seller
- Allottees agree to value
- Board of Directors reviews and approves transfer

C-BT PROJECT WATER PERMANENT TRANSFERS

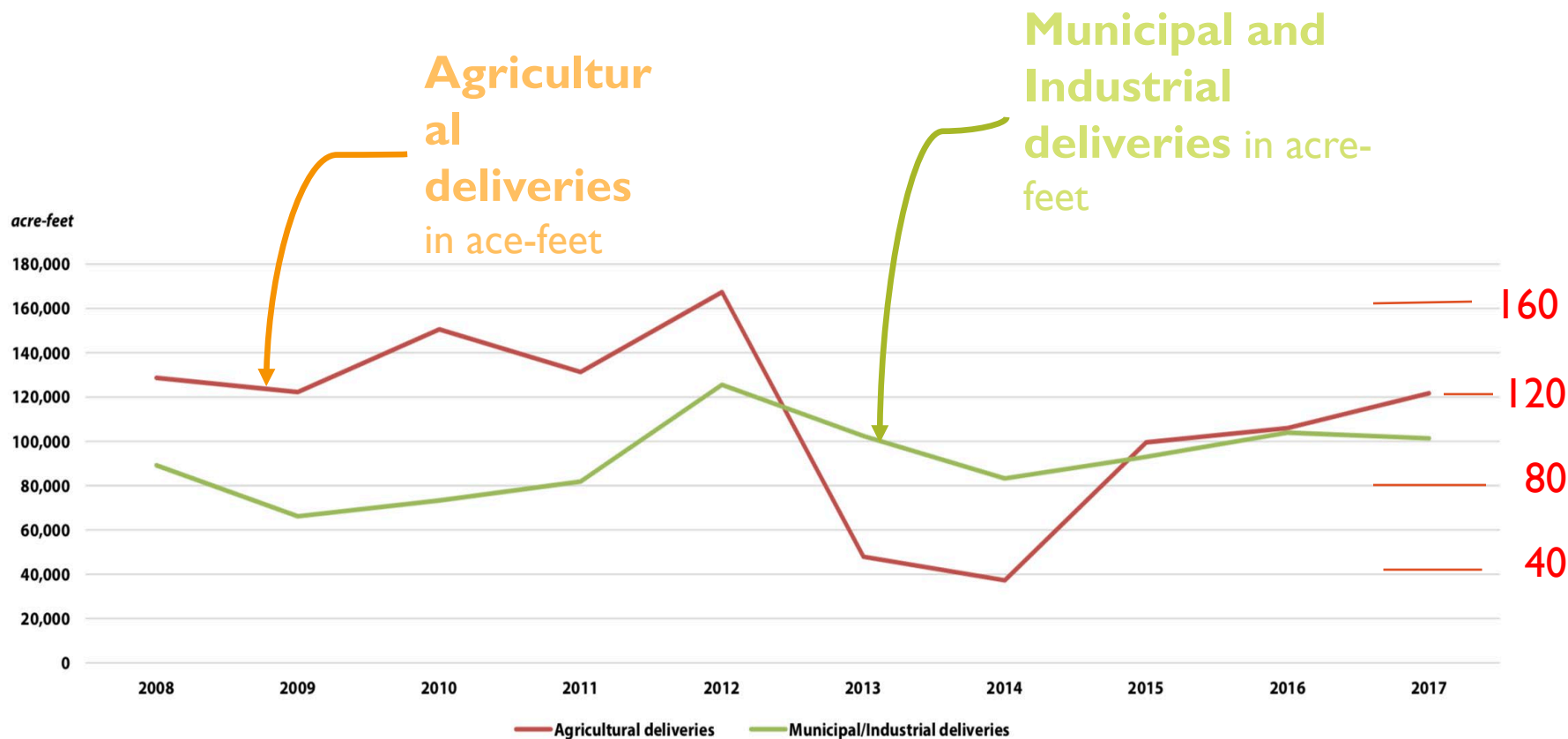
- Benefits:
 - Municipalities get water as agricultural land is developed
 - Municipalities have ready access to a flexible supply
 - Farmers can sell AFUs and benefit from increased value
 - Water moves to “highest use”

C-BT Project Water Deliveries (2008 - 2017)⁽¹⁾

District Enterprise Fund

Years ended September 30,
Unaudited

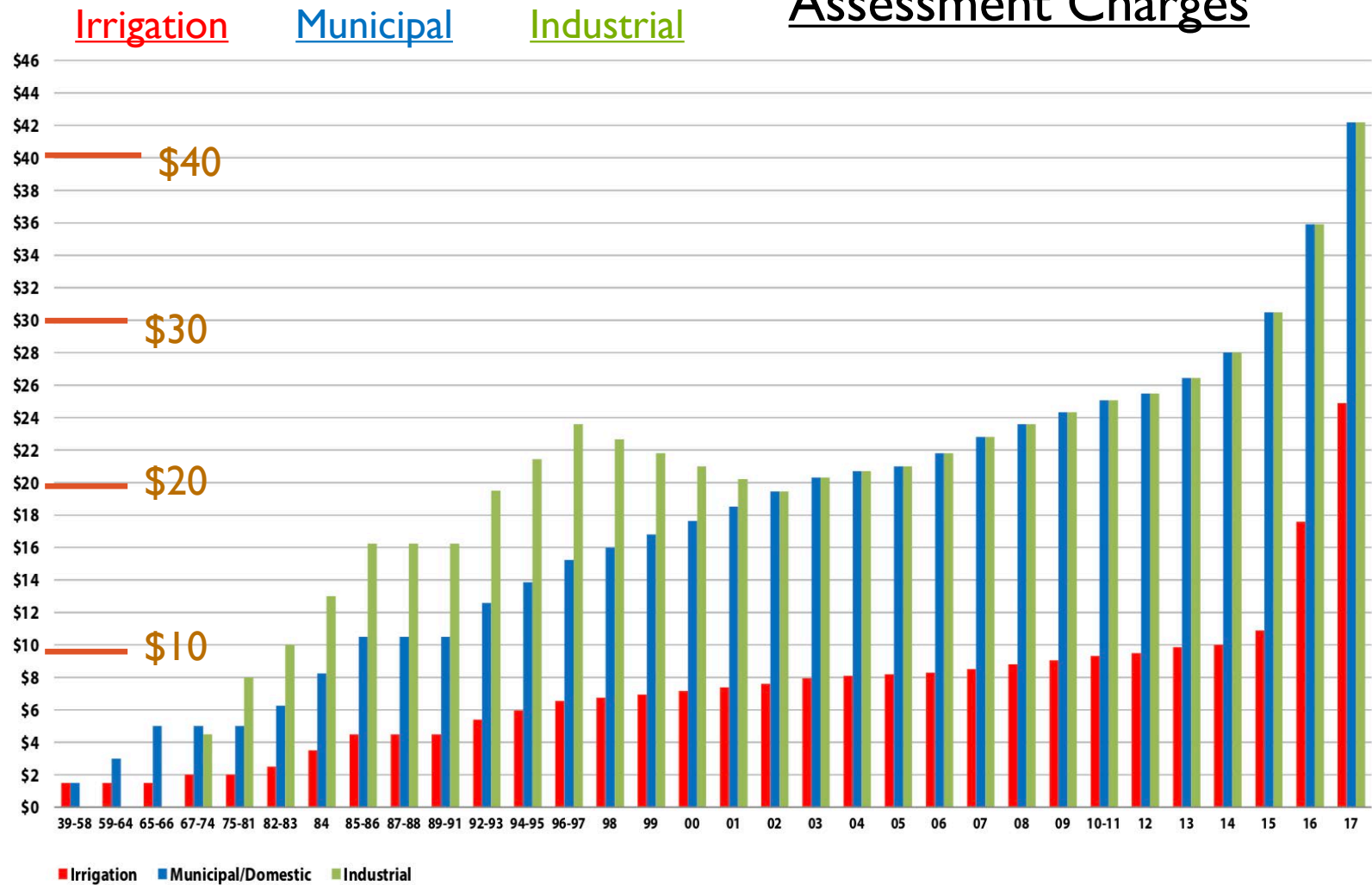
C-BT Deliveries 2008 to 2017



Open-Rate Water Assessment Charges (Historical)⁽¹⁾
District Enterprise Fund

September 30,
Unaudited

Open-Rate Water Assessment Charges



C-BT PROJECT WATER CARRYOVER WATER

- Allows conserved water to be carried over from one year to next
- Give users a motivation to conserve
- Allows municipalities to control a “base” water supply to meet essential needs
- NCWCD limits carryover amount to 20% of AFUs
- NCWCD charges for service

FUTURE

- Water Quality:
 - Increased contamination potential from activities along reservoir and canals
 - Increased need to monitor
 - Standards changing operations
 - Municipalities have stricter limits than irrigators

FUTURE

- Changing Ownership (irrigation to M&I)
 - Increased need for year around deliveries
 - Restricts maintenance opportunities.
 - Increases diversity of operational requirements

FUTURE

- New water supplies
 - C-BT transfers will be ending
 - Growth will continue
 - Need to protect agriculture
 - 2 projects in permitting process

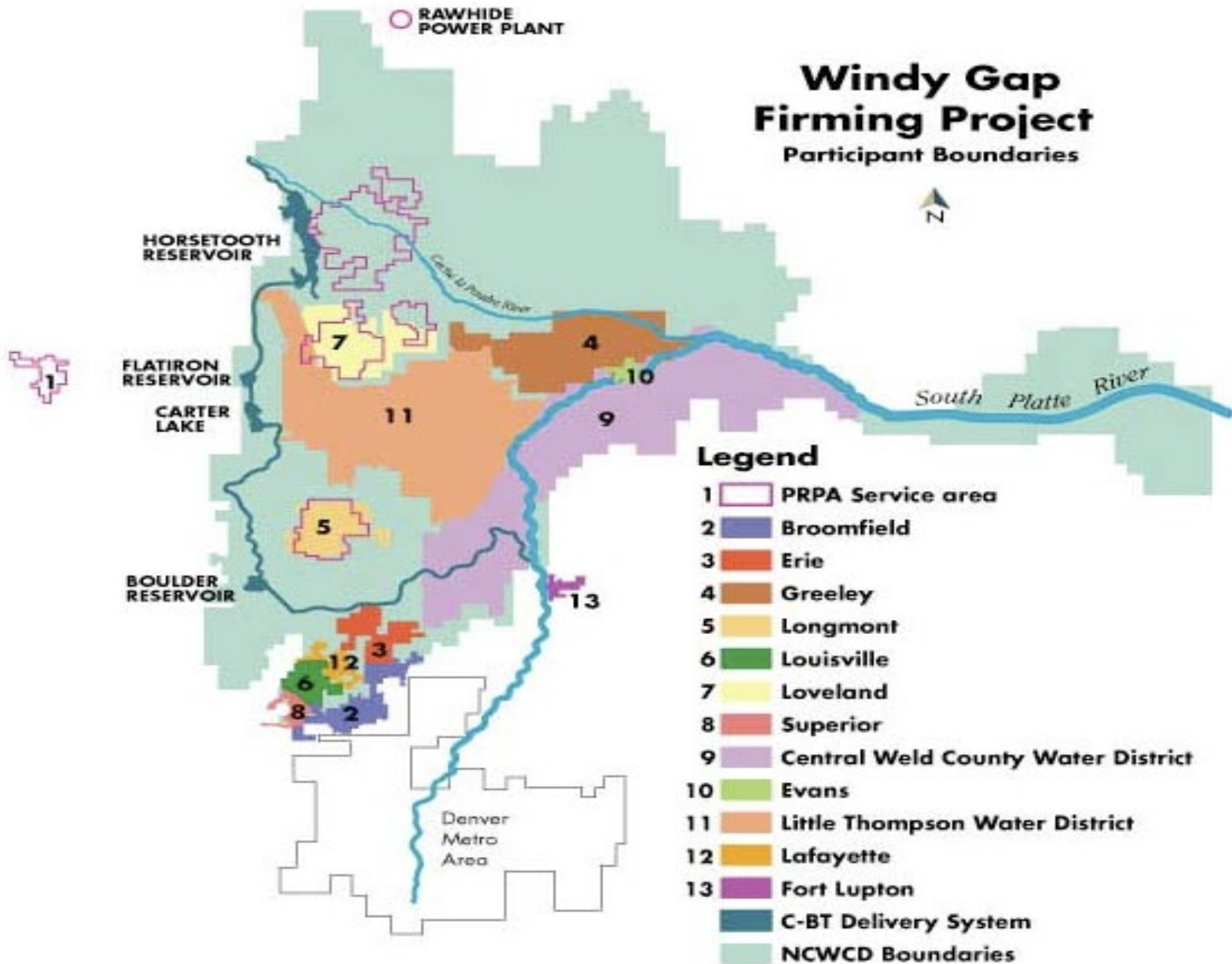


NISP project features



Windy Gap Firming Project

Participant Boundaries





Information and maps provided by:

COLORADO DIVISION OF WATER RESOURCES:
[HTTP://WWW.WATER.STATE.CO.US/](http://www.water.state.co.us/)

NORTHERN COLORADO WATER CONSERVANCY
DISTRICT: [HTTP://WWW.NCWCD.ORG/](http://www.ncwcd.org/)

WATER EDUCATION COLORADO:
[HTTPS://WWW.WATEREDUCATIONCOLORADO.ORG/](https://www.watereducationcolorado.org/)

STATE OF COLORADO:
[HTTP://WWW.COLORADO.GOV/](http://www.colorado.gov/)

THE MAP STORE: [HTTP://WWW.MAPS.COM/](http://www.maps.com/) -
FREE STUFF

WIKIPEDIA, THE FREE ENCYCLOPEDIA:
[HTTP://EN.WIKIPEDIA.ORG/](http://en.wikipedia.org/)

THANK YOU FOR ATTENTION