



# Innovative strategies to manage flow and water volumes in rivers and lakes during drought in the Western U.S. and ways to promote national drought-resilience efforts



Transactions, Reservations, or Otherwise,  
Just get my fish some water!

Patrick Byorth  
Montana Water Director  
April 25, 2016  
FLOW Conference 2018

## Three Key points:

---



1. In over-appropriated, western states focus on water policy reforms allowing *water right transfers* within property right protections and the prior appropriation doctrine.
2. In Hawaii and Alaska, where waters are still lightly appropriated, the focus is on reserving water for instream and environmental flows. Other western state authorize reservations, as well.
3. Where instream transfers are not efficient or available, there are many drought management alternatives that keep streams wet and fisheries healthy, limited only by creative partnerships.



Instream flow transfers and  
Instream reservations

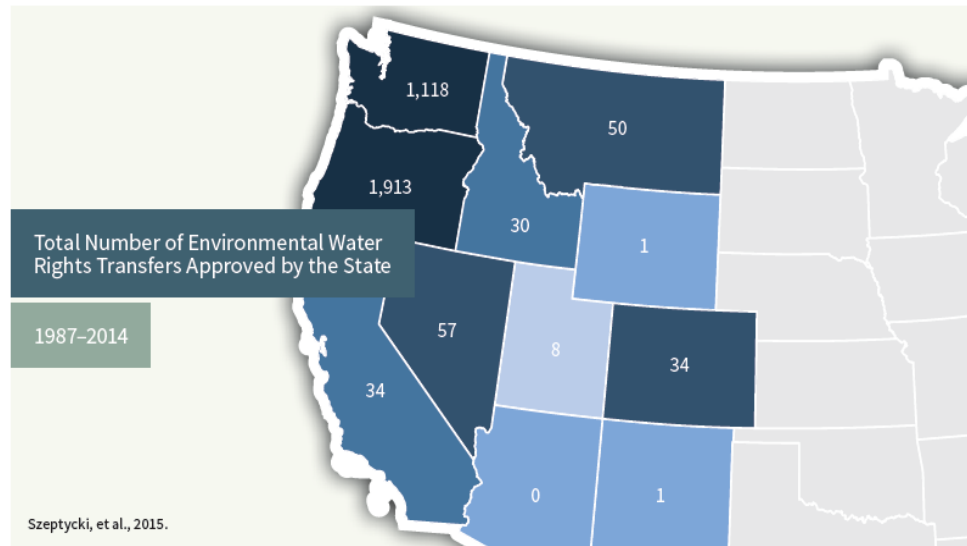
## 10 | Elements of Instream flow tools and transactions



# Restoring Flows to Dry Streams: A Review of State Laws\*



- Requires the ability to transfer a senior water right to an instream purpose.
- Different state-law authorities across the western states.
- Instream flow *transfers* are less relevant in Alaska and Hawaii, where focus is on reserving unallocated water



\* **Environmental Water Rights Transfers: A Review of State Laws** <http://waterinthewest.stanford.edu/sites/default/files/WITW-WaterRightsLawReview-2015-FINAL.pdf>

# Protecting Flows in Wet Streams

- Water is over-allocated across the west; flow transfers are “buying back” water rights. Water reservations are also common, junior.
- Alaska and Hawaii enjoy unallocated water, are reserving water for environmental flows
- Eight western states also authorize instream reservations (OR, WA, CO, MT, ID, CA, WY, UT)



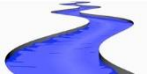




# Ten Elements\*



1.) State law recognition of recreation, or environmental purposes as beneficial uses?



2.) Transfers to instream or environmental uses allowed?



3.) Environmental transfers *explicitly* recognized by statute.



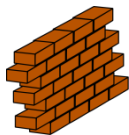
4.) Can private parties hold instream flow rights?



5.) Permanent transfers (reservations?) allowed?



6.) Short-term leases and some form of expedited review?



7.) Special limits on Environmental transfers?





8.) A conserved water statute?



9.) Can instream uses be “stacked”?



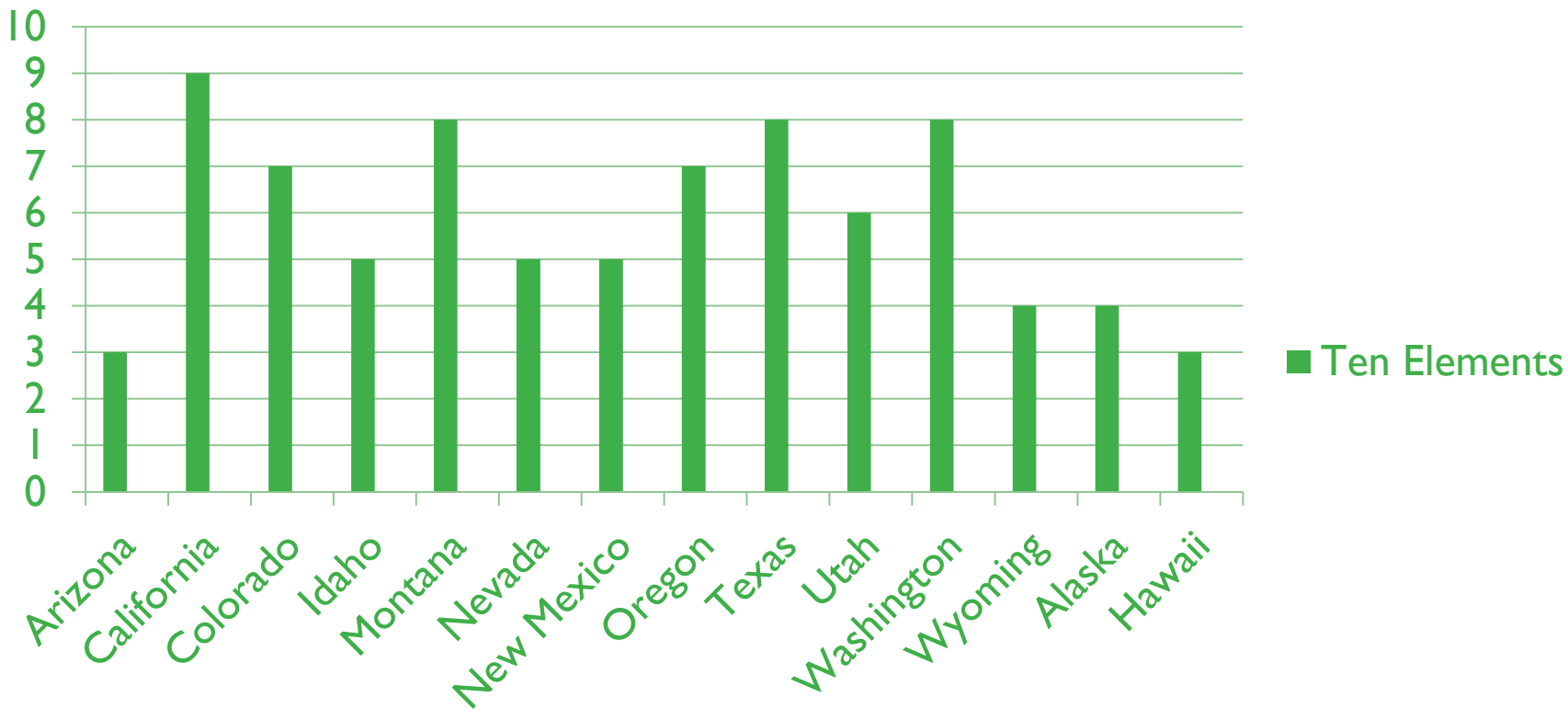
10.) Protection for informal short-term private transactions from any risk of forfeiture or abandonment.



# State by State Comparison of Instream Flow Toolboxes

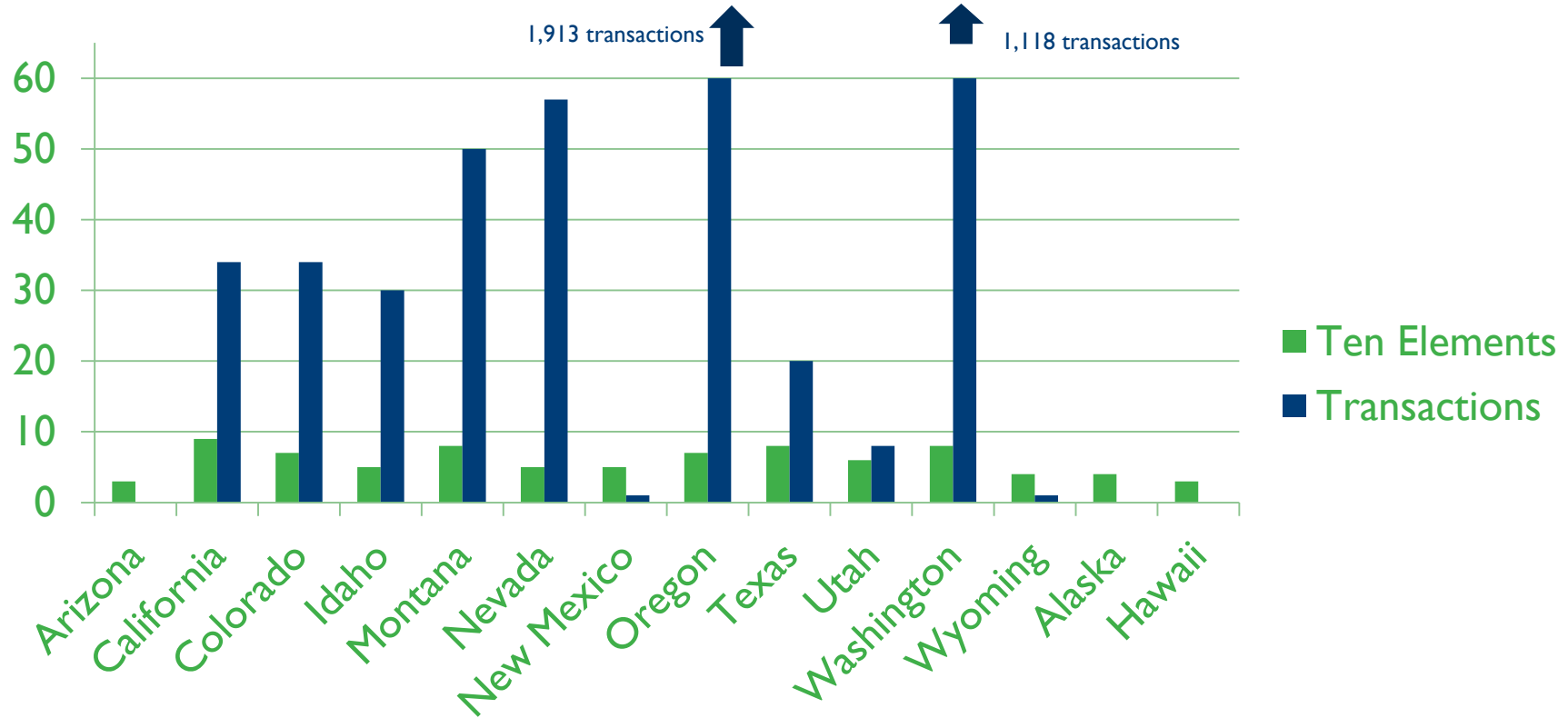


# Close-Up of the Instream Flow Toolbox



California has the most tools—Arizona the least

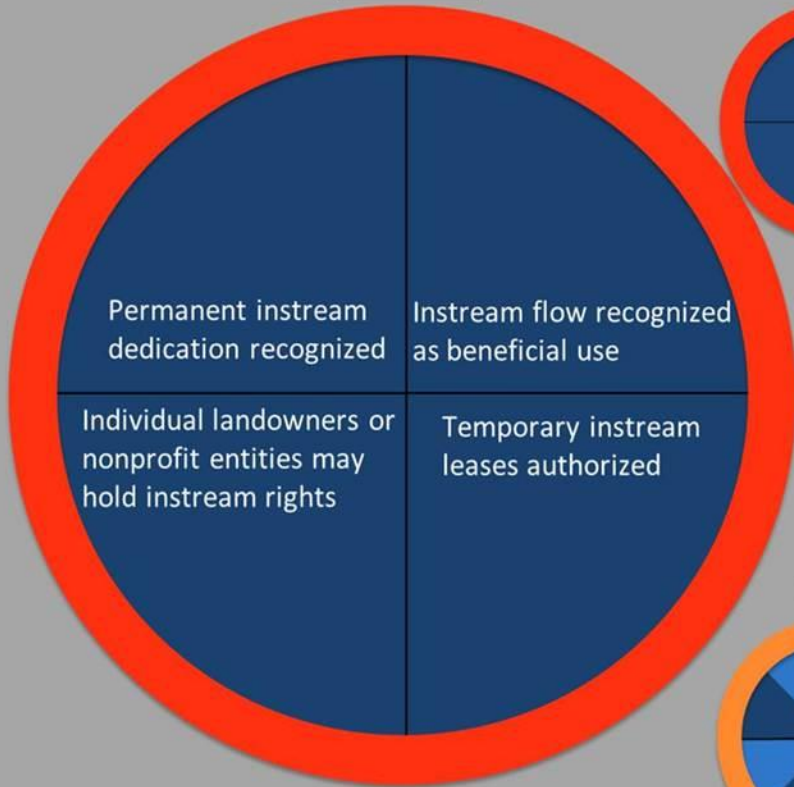
# Relationship between Toolbox and Transactions



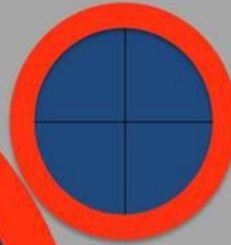


# State-Specific Instream Flow Authority

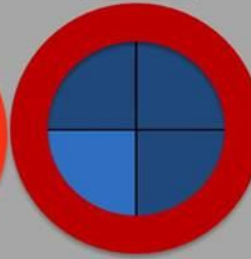
Montana



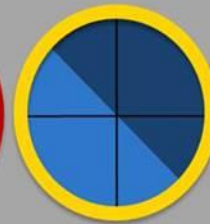
California



Colorado



Idaho



New Mexico



Oregon



Utah



Washington

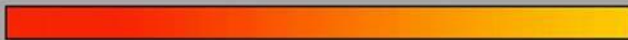


Wyoming



Transaction Costs

High



Low



Complete



Remaining progress



## 4 Factors toward Successful Instream Flow Transactions

---



- 🐟 Complete toolbox
- 🐟 Administrative Culture: Facilitate or Obstruct?
- 🐟 Building Trust and Expertise Takes Time
- 🐟 Funding Partnerships are key to Success



Instream Flow Tools in Action  
Building Drought Resilience

Alaska & Hawaii – not over-appropriated, but instream flow reservations in process

Wyoming - SCPP even though WY state doesn't authorize transfers for instream flows, this innovative program protects instream flow, with support of the state engineer waiving non-use

Montana – Sun River: changing reservoir management and carriage efficiencies restored flows even in drought years.

Montana: Big Creek: where 11 cfs instream lease has turned the tide for Yellowstone cutthroat trout.

- Alaska: reservations to date, about 156 instream and 1(one) in-lake reservations
- Hawaii: interim flow standards in place, reserving environmental flows state-wide on 376 streams







In the **Upper Colorado River Basin** (above Lake Powell), system conservation means payments to water users for voluntary, temporary reductions in water use.

## Conservation markets securing the West's water future

### Key features of SCPP:

Ranchers, landowners and others are paid for reducing consumed water through conservation practices such as **switching to less water-intensive crops and reducing water applications** (partial-season and deficit irrigation). These methods provide alternatives to permanent "buy and dry" of agricultural water rights.



**Conserved water is left in the stream** to flow down to reservoirs to benefit both water security and river health and habitat.

The goal of the SCPP is to test mechanisms that can bolster storage levels in Lakes Powell and Mead, protecting hydropower capacity and reducing the risks of involuntary water cut-backs. The long-term goal of SCPP is to **bolster storage levels in Lake Powell** to protect against loss of hydropower capacity and ensure the Upper Basin can meet its obligations to the Lower Basin under the 1922 Colorado River Compact.



In the **Lower Colorado River Basin**, system conservation is focused on protecting reservoir levels in Lake Mead to maintain hydropower generation and guard against potentially massive involuntary water shortage cuts, particularly to agriculture in Central Arizona.

Los Angeles

San Diego

Salton Sea

Las Vegas

Lake Mead

YVP

Great Salt Lake

Salt Lake City

Alton

Denver

Cherry

Albuquerque

Phoenix

Flagstaff

Albuquerque

Albuquerque

Great Salt Lake

Alton

Denver

Cherry

Albuquerque

Flagstaff

Phoenix

Albuquerque

Albuquerque

Albuquerque

Albuquerque

Albuquerque



### CARBON CANAL, UT

After TU helped the Carbon Canal Company secure funding for irrigation system upgrades, six members of the company agreed to SCPP projects that have conserved nearly 2,000 acre-feet of consumptive water and helped ensure healthy flows in the Price River. Moreover, the SCPP payments have created a positive local buzz about water leasing programs.

*"Farming in the high desert in Eastern Utah means we need to be smart with how we use our water. System conservation gives producers a tool to add flexibility in our water management."*

—KEVIN COTNER, KC AG LLC, PRICE RIVER, UTAH

### SCPP in the Upper Basin

In 2015–2016, the SCPP conserved approximately 11,400 acre-feet (AF)\* of water with about 32 projects.

Roughly 75% of the water was conserved through temporary, split- or late-season following—ranchers and farmers irrigated for part but not all of the potential irrigation/production season.

In the 2016–2017 round, water users submitted 47 applications for SCPP projects, with a potential 20,000 acre-feet of water savings in Wyoming alone.

### ROUND 3 (2016–2017)

**\$7.5 million**  
The total value of all applications submitted.

**\$1.8 million**  
The amount actually available for funding.



A number of applications did not get funded. The program needs expanded support.

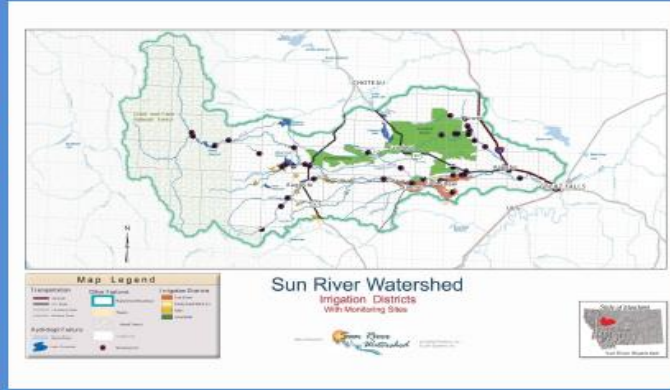
\*For comparison, one suburban household consumes about one acre-foot per year.



- 29 applications submitted (28 TU)
- 29 applications tentatively approved
- 16,944.97 acres enrolled
- 16,714.88 AF conserved
- \$150.00/AF
- Total Cost: \$2,168,832.00

# BUILDING TRUST WITH A SMART SOLUTION IN MONTANA

## IMPROVING FORT SHAW IRRIGATION DISTRICT WATER EFFICIENCY



*"Water is liquid gold," says Rich Boyle, Manager of the Fort Shaw Irrigation District in Montana. "It's a scarce resource we cannot live without, and we overcame our disagreements to protect it."*



For years, chronic dewatering and sediment in the Sun River basin bred animosity and mistrust among local irrigators and ranchers. As tensions neared a tipping point, stakeholders instead began taking positive steps to solve the basin's problems and created the Sun River Watershed Group. With funding from the Coca-Cola Company, the State of Montana, and Bureau of Reclamation's WaterSMART program, the Sun River Watershed Group's stakeholders, including the Fort Shaw Irrigation District and Trout Unlimited, worked together to successfully rebuild the District's aging irrigation system, increasing river flows and restoring wild trout habitat in the Sun River:

- A new bypass structure and 2,310 feet of PVC pipe for water delivery
- 2,000 feet of new lined canal and retiring 1,500 feet of old, leaky ditch
- 9,185 acre-feet of conserved water, adding over 20 cubic feet per second (cfs) of flow to the dewatered Sun River in the dry summer months
- 3,512 megaliters (3.5 billion liters)/year in Coca-Cola replenish benefit.



Since project construction, the Sun River's wild trout population has more than doubled while irrigators have received reliable irrigation water delivery. The success of this smart solution lies with the teamwork and collaboration among all of the Sun River watershed's stakeholders.



# Big Creek Monitoring

Year	Spawners	Redds	Fry
1988*	5 (season-long)	27 (all-season)	0
1989*		39 (all-season)	
1999**	57 (season-long)		3,429
2004	35 (one day)	142 (one day, near peak)	
2005		88	18,756
2015		105 (one day, post peak)	
2016	3	135 (one day, post spawning)	
2017	2	90 (one day, late post spawn)	Many on redds



Big Creek instream flow: 11 cfs left instream by collaborating with two ranchers, increases YCT fry production 18,000x

Questions?

