

Protecting Streamflows:

How The Colorado Water Trust Can Help You Prepare to Do More With Less



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Sustaining Watersheds Conference 2013

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A private, non-profit organization formed in 2001 and dedicated to protecting and restoring streamflows in Colorado through voluntary, market-based efforts.

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Watershed Health

Water
Quantity

Water
Quality

Riparian and
Aquatic Habitat



Water quantity

... rivers need water!

- Click to edit Master text styles

- Second level

- Third level

- Fourth level

- Fifth level



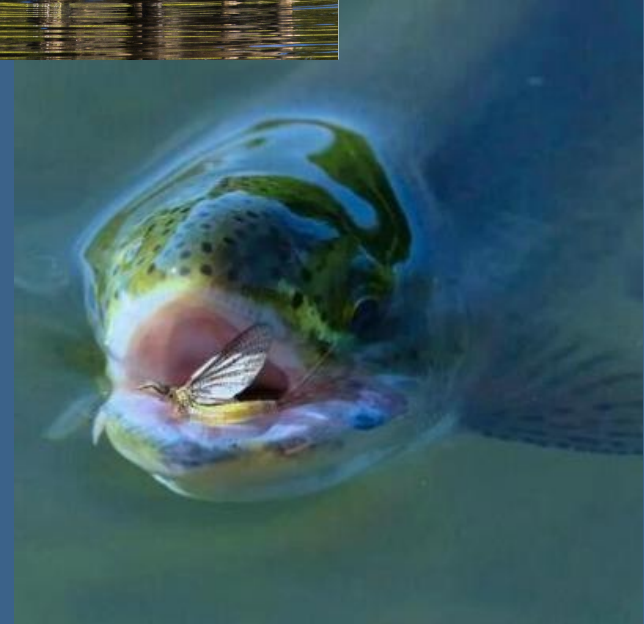
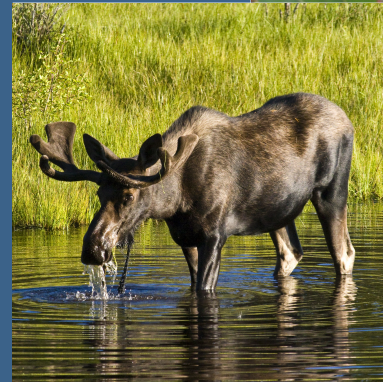
Ensuring a river has enough water can improve **water quality** by...

- Diluting and moving pollutants
- Improving water temperatures
- Creating habitat for plants that
 - filter and remove nutrients from water and soil
 - stabilize banks and prevent erosion



Restoring, preserving, and enhancing streamflows...

...provides **riparian habitat and habitat for aquatic organisms**, including endangered fish and other species of concern.

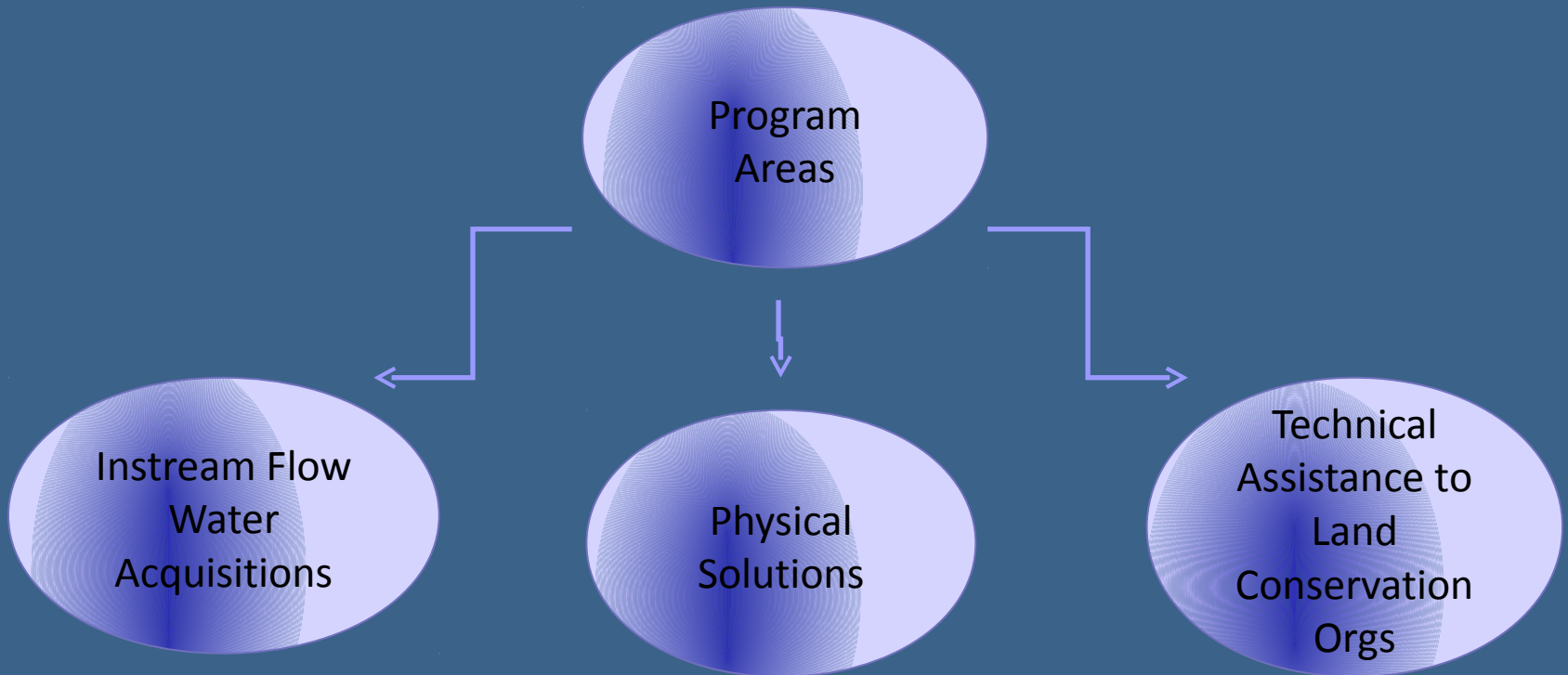


How do we know if our local streams and rivers
have adequate stream flows?

How do we improve flows?

How do we ensure sufficient
streamflows are available to
meet environmental needs?

Colorado Water Trust Program Areas



Tools CWT Uses to Improve Streamflows

Through the acquisitions program...

- Permanent acquisitions
 - Donations
 - Purchases
- Loans/leases of water
 - Long-term leases
 - Short-term leases (3 in 10 year leases)
- Interests in water
 - Contracts and other arrangements

Colorado's Instream Flow Program

- Recognized “the need to correlate the activities of mankind with some reasonable preservation of the natural environment.”
- Vested the Colorado Water Conservation Board (CWCB) with the authority “on behalf of the people of the state of Colorado, to appropriate or acquire ... such waters of natural streams and lakes as may be required to preserve the natural environment to a reasonable degree.”

An Instream Flow Water Right Is:



- A right to use water “in-channel”
- To preserve or improve the natural environment to a reasonable degree
- For “minimum flows” between specific points on a stream
- Held exclusively by the Colorado Water Conservation Board
- Administered within the State’s water right priority system

Benefits of Water Acquisitions



Cochetopa Creek – July 2002

- Can restore, rehabilitate, or improve the natural environment of degraded stream systems
- Can protect streamflows where water may not be available for a new junior ISF water right
- Can extend amount of time water is legally available to existing junior ISF water rights

Tools CWT Uses to Improve Streamflows

Through the physical solutions program...

- Structural
 - headgate and delivery system upgrades
 - reservoir outlet upgrades
 - habitat improvement
- Water use solutions
 - changes in points of diversion, source
 - exchanges
- Creative combinations

Benefits of Physical Changes

- Do not touch the water rights!
- Reduce amount of water diverted so more is left in the stream channel while ensuring diverters get their decreed water
- Allow releases to be made from reservoirs so stored water can be used to bolster streamflows in critical times and places
- Move diversions from critical stream reaches to reaches where more water is available
- Allow fish movement even during times of extremely low flow
- Reduce mortality of fish and other organisms



Doing More With Less...

... By Working Together

CWT can partner with your organization to:

- amend or expand watershed plans so they include a flow component
- identify critical and flow-limited reaches of your local rivers and streams
- educate staff, board, and local community
- enhance and protect streamflows in your local streams and rivers

Understanding and Addressing Flow Issues

- Your organization:
 - Understanding of basin
 - Local relationships
 - Tracks metrics
 - Identifies critical reaches
- CWT:
 - Helps identify and navigate legal and administrative issues
 - Provides technical expertise
 - Legal
 - Engineering
 - Restoration
 - Biological and hydrological

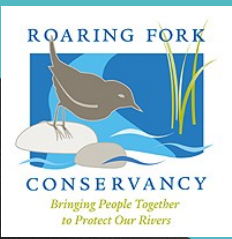
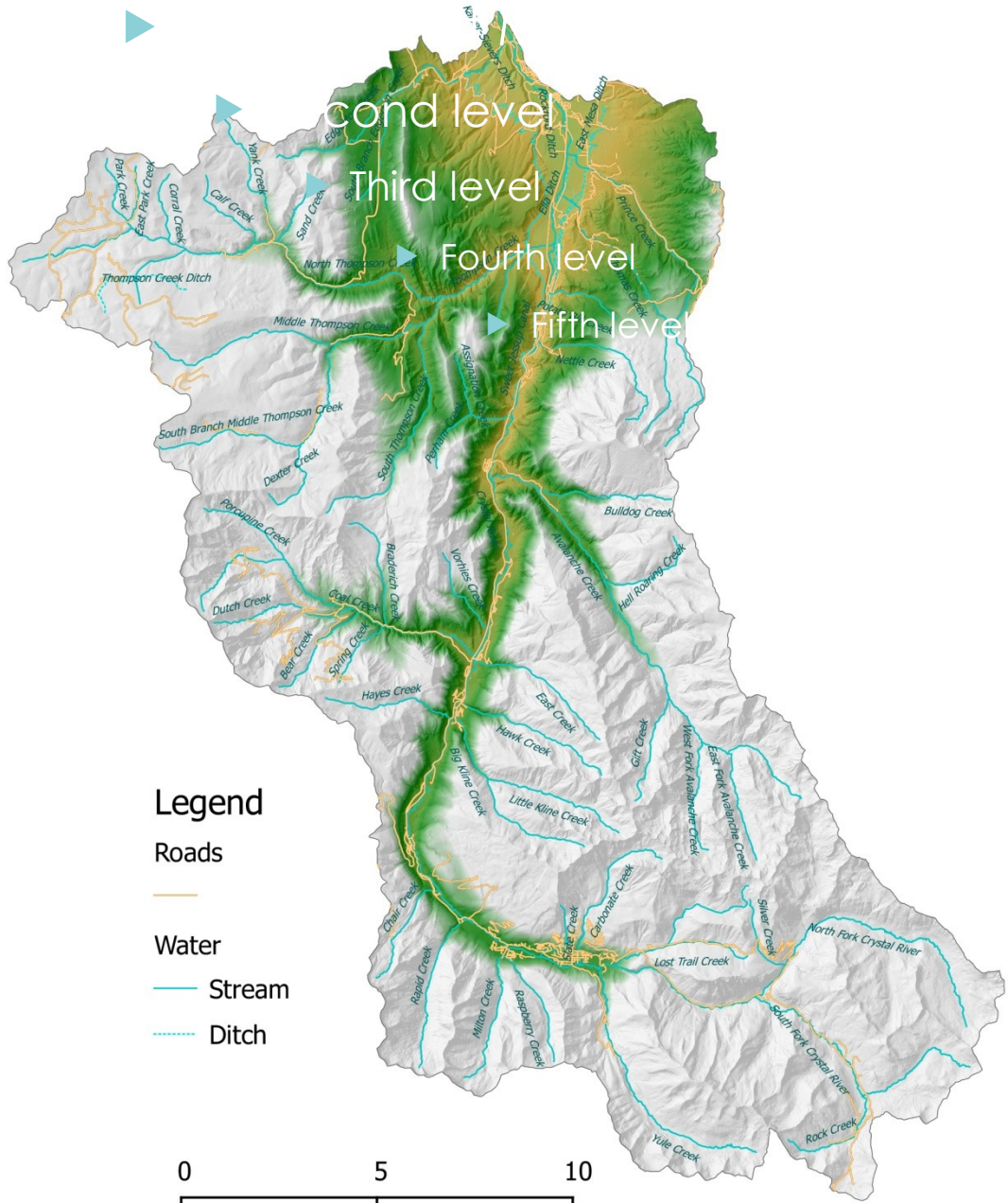




Doing More With Less...

... By Working Together

Crystal River Watershed



Issues on the Crystal

- Low Flow
 - Lower Crystal rarely meets CWCB Instream Flow in late summer/early fall
 - Irrigation Shortages
 - Temperature Increases
 - Reduced Baseflows
 - Water Quality Impacts
 - Influences Geomorphic Function
 - Influences Ecological Function
- Riparian Habitat
 - 70% of riparian and instream habitat are heavily modified or severely degraded.

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▶ Second level
September 2012

▶ Third level

▶ Fourth level

▶ Fifth level



Direct Effects of Drought

- ▶ Loss of Water and Flow
- ▶ Loss of Habitat
- ▶ Loss of Connectivity
- ▶ Earlier Drying of Soils and Streamside Areas



Lower Crystal River September 17, 2012

Indirect Effects of Drought

- ▶ Decline in Water Quality
- ▶ Decreased Sediment Transport
- ▶ Alteration of Food Resources
- ▶ Change in Interspecies Interactions
- ▶ Increased Fire Risk

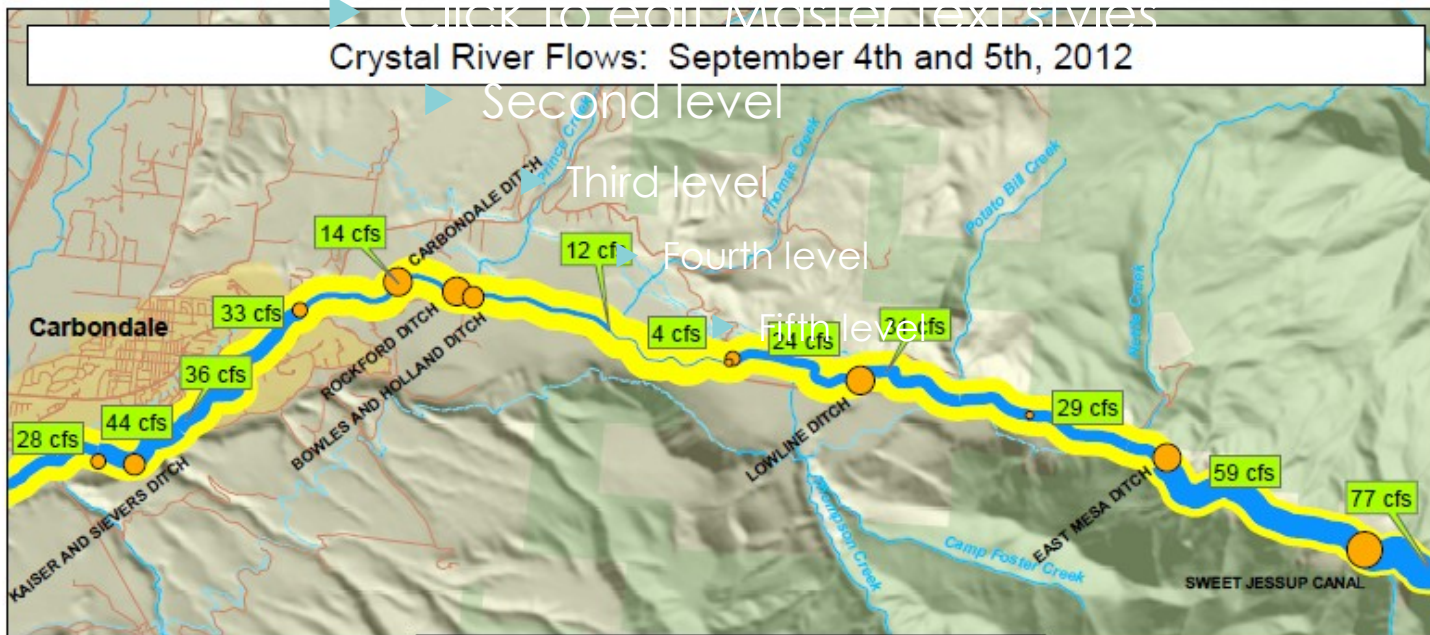


Lower Crystal River September 17, 2012

Snapshot Assessment



Crystal River Flows: September 4th and 5th, 2012



Description

This map depicts flows in different segments of the Crystal River near Carbondale, Colorado. The thickness of the blue line is proportional to the amount of water flowing in that segment of river. Observed stream flows are also indicated in the green callout boxes. Orange circles indicate diversion points on this section of river. Their size is proportional to the decreed diversion rate at these points. Several of the ditch names are indicated for reference.

Flows in the river increase below confluences with tributaries, such as Avalanche Creek. Flows generally decrease at major diversion points. The yellow band proportionally represents the 100-cfs Instream Flow (ISF) right held by the Colorado Water Conservation Board.

Legend

Decreed Diversion Rate (cfs)	Streamflow
0 - 10	ISF Right
10 - 18	Streams
18 - 27	Ditches
27 - 42	City Limits
42 - 75	Federal Land
	Streets

0 0.5 1 2 Miles

Created By: Bill Hoblitzell

Created On: 11/1/2012

Data Sources: S.K.Mason Environmental, LLC; CDWR; USDA; NRCS; and Pitkin County.

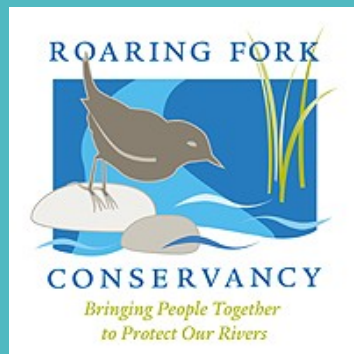
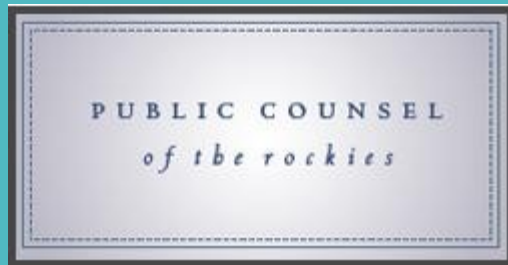
What to Do?

- ▶ Bring Major Water Rights Holders to the Table
 - Discussions in Feb 2013
 - ▶ Accommodated Irrigator Schedules
 - ▶ Ready for action for Summer 2013
 - Shared Snapshot Assessment Results
 - Short-term Lease Options
 - Asked for Feedback



How to Do it?

Teamwork! Pool our strengths to tackle long-standing low flow issues in the Lower Crystal River.



- ▶ **Colorado Water Trust:** Known for making stream flow projects take flight
- ▶ **Public Counsel of the Rockies:** Has the ability to coordinate large-scale projects
- ▶ **Roaring Fork Conservancy:** Knowledge of the Watershed; Proven track record of bringing people together to protect our rivers.

So What?

- ▶ 100 cfs ISF is **unobtainable** in a drought year.
- ▶ Can we still make a difference?
 - CWT-follow-up study conclusion:
 - ▶ *“the apparent convergence of the two methodologies around discharges ranging from 40 cfs to 60 cfs makes these flows a potential preliminary threshold for CWT leasing efforts on the Crystal River.”*
- ▶ Renew Discussions with Individual Water Rights Holders

Now What?

Strong Team in Place

- Relationships Strengthened, Trust Building
- Scientific Credibility



Creative Strategies to improve the Lower Crystal*

- Headgate/Diversion Structure Improvements
 - Improve Channel Function
 - Riparian Restoration
 - Coordinating Efforts to Reduce Sediment and Channel Down-cutting
- *Requires Continued Cooperation, Coordination, and Buy-in from Water Rights Holders

Questions ?

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