

IBCC Colorado River Basin
Minutes of Meeting on February 23, 2009
Main topics: Agriculture

1. **Next Meeting:** Monday, March 23, 2009. **Glenwood Springs Community Recreation Center, 1:00 to 4:00.** Agenda: Colorado Basin Vision; Agricultural water use facts and figures; Colorado Climate Presentation by Nolan Doeskin.
2. **Approve January 2009 meeting minutes.** The minutes were approved with one correction, that the existing Non Consumptive Needs Assessment (NCNA) committee will administer the \$315,000 grant submitted to the CWCB rather than a new committee.
3. **Reporter: These minutes were prepared by** Ken Ransford, Esq., CPA, 970-927-1200, kenransford@comcast.net.
4. **Upcoming meetings:**
 - a. **March 5, 2009:** The Colorado Basin Vision Committee will meet at Dale Tooker's office at the Clifton Water District.
5. **Report from other Roundtables** – The CBRT met with the Arkansas Basin Round Table, and traded Stan Cazier for an undisclosed future draft pick.
6. **CWCB Report:**
 - a. The CBRT Basin Reserve Account \$315,000 grant request for a NCNA analysis has been forwarded to the CWCB.
7. **Energy Subcommittee Report:** The energy and Water Use Subcommittee has issued a Request for Proposals, and three parties have expressed interest to conduct Phase 2. The committee will interview them within 30 days. Phase 1 determined how much water may be needed to develop energy on the Western Slope, and Phase 2 will address where the water will come from.
8. **CBRT Vision Committee:** The CBRT Vision Committee held its first meeting February 19 in Clifton, and Kim Albertson was chosen as chair. The committee's task is to develop a vision of the Colorado River Basin's point of view that can be presented when the Energy and Water Needs Analysis, the NCNA, and Water Availability Study are completed. Membership is open to all interested parties.
9. **Membership survey:** Caroline Bradford presented a membership survey and encouraged CBRT members to complete it.
10. **CWCB Report on agricultural water issues.** Eric Hecox and Jacob Bornstein presented a 22-slide PowerPoint Agricultural Summary.
 - a. South Platte Roundtable Public Relations grant. The South Platte Roundtable obtained a \$30,000 Water Reserve Account grant to fund the Winter 2009 Headwaters magazine issue that focused on the South Platte, and included articles on agriculture.
 - b. Agriculture's impact on Colorado's Economy. Agriculture accounts for \$1.4 billion in revenue, or .62% of Colorado's gross domestic product. It plays a far bigger role in employment as agricultural workers comprise 385,373 of Colorado's 2,915,339 jobs, 13% of

the state's total, and 22% in rural areas. The value produced by the cattle and calf industry is the fourth largest of all states in the US, and the sheep and goat industry is second largest in the US.

- c. Projected reduction in Agriculture. The CWCB predicts that by 2030 the state will lose 185,000 to 427,900 irrigated acres. The Colorado River basin is projected to lose 7,900 to 16,000 acres of irrigated agriculture. By 2050, the CWCB projects that 35-70% of Colorado's irrigated agriculture will be dried up. This assumes that the state's population will double to 10 million.
- d. Arkansas BRT study regarding Agriculture to Urban Water Transfers. The Arkansas Basin Roundtable received a \$23,860 Water Supply Reserve Account grant to study what issues should be considered and what questions should be asked when water is transferred from agriculture to urban uses. The resulting paper, *Considerations for Agriculture to Urban Water Transfers*, is available on the CWCB website. Alternatives to permanent dry up include Interruptible Supply Agreements and short term leases. Todd Doherty of the CWCB and Wayne Vanderscheure of Colorado Springs are well versed on this topic.
- e. Agricultural Water Conservation Measures. The Colorado Agricultural Water Alliance, a new statewide group of agriculture leaders throughout Colorado, prepared a paper titled *Meeting Colorado's Future Water Supply Needs* dated February 11, 2008. Ken Ransford reviewed this paper following the meeting and recommends it to CBRT members. The report states that only a third of Colorado's 3 million irrigated acres use efficient irrigation practices such as sprinklers and drip irrigation systems. The cost to make the remaining two-thirds more efficient would be \$1,000 per acre, or \$2 billion. The Future Considerations section on pages 31-32 of the 33 page paper includes a dozen proposals to preserve both agriculture and water used in agriculture.
- f. Yampa-White RT \$201,410 Basin Reserve Grant to study agriculture. Alone among Colorado's eight watershed basins, the Yampa-White basin is predicted to add as much as 39,000 acres of irrigated agriculture by 2030. The Yampa-White RT approved a grant of over \$200,000 of its own funds to study the future of agriculture in its basin, including an analysis of the impacts of climate change and energy development, with a view toward adopting policies to preserve agriculture in the region.
- g. The Gunnison RT approved a similar grant of \$185,800 to study agriculture, of which over \$100,000 came from its own basin reserve funds. Again, the goal is to study how to preserve agriculture in the region.
- h. SWSI Model under-estimated agricultural water consumption in Western Colorado. Since the SWSI Gap Analysis report was prepared, it has become apparent that the Blaney-Criddle coefficients that estimate agricultural water consumption in high altitude regions of Western Colorado have under-estimated the amount of agricultural water that is actually consumed. Blaney-Criddle coefficients are based on flood irrigation and not drip irrigation. Rachel Richards recommended that Blaney-Criddle coefficients be analyzed for the Colorado River basin.
- i. Alternatives to permanent agriculture dry up include:
 - 1. Rotational fallowing on 10-20% of irrigated acreage can free up a similar percentage of water consumed in agriculture.

2. Interruptible Supply Agreements (ISAs) between farmers and cities can permit cities to use agricultural water in dry years.
 3. Water banking.
 4. Deficit irrigation. A 15% reduction in water used for irrigation can lead to only a 5% drop in crop production.
 5. Leasebacks: Cities can purchase water from farmers and lease it back to them in non-drought years.
 6. Converting to crops with shorter growing seasons, and that require less water.
- j. Other impacts from agricultural to water transfers.
1. Jason Carey, an engineer from Glenwood Springs, noted that when water storage is transferred to the Front Range, there is an additional loss to the transferring community because water that recharged aquifers as it flowed through local ditches is permanently lost. The Water Commissioner charges a 10% surcharge for water that is transferred to the point of diversion, since this is the estimated water lost in transit. If water rights are diverted to other basins, this surcharge will be lost to the basin where the water originated. For instance, when Aurora purchased Rocky Ford agricultural water rights, it received 90% of the water rights that it purchased. Meanwhile, storage in Twin Lakes reservoir increased equal to the remaining 10% of water that formerly irrigated the Rocky Ford acreage and was deemed to have been lost in transport. Jason noted that as agricultural lands are dried up, land becomes less saturated, and water that previously migrated toward rivers instead will often divert to drier regions away from river basins.
 2. Rachel Richards suggested that return flows support domestic wells, and that this should be considered when agricultural dry ups are proposed.
 3. Kirk Klancke commented that water quality is impacted when less water flows downstream. Eric Hecox noted that whenever any transfer of 2,000 acre feet or more is proposed, its impact on water quality must be studied.
 4. Ken Ransford suggested that the CWCB place more emphasis on efficient irrigation practices in the PowerPoint presentation and, particularly, that it be cited in Slide 11.
 5. Eric Hecox noted that efficient irrigation practices do not produce as much additional water as is often hoped, and that drip systems result in greater savings than sprinkler systems. Significant water savings are available with large agricultural operations that are low in the basin so that there are not many downstream users relying on the return flows. Colorado law is problematic because farmers that adopt conservation practices do not benefit from the water saved since they cannot irrigate more acreage than has been historically irrigated. Real savings typically result only when consumptive use patterns change, such as by changing crop selection. For instance, alfalfa consumes 31 inches of water annually, and sugar beets consume 36 inches of water per year in Holyoke on the Eastern Plains, as described in the Colorado Agricultural Water Alliance report.
- k. Carlyle Currier's impassioned plea to preserve agriculture. CBRT Representative to the IBCC and third generation Collbran rancher Carlyle Currier believes that Colorado is looking

at the symptoms and not the causes of the problem of agriculture's disappearance in Colorado. He believes the cause of the problem is that the state does not consider agriculture important, preferring for instance to promote subdivision of prime agricultural land for housing. The state needs to ask whether agriculture is important, and it needs to devote additional resources to agricultural research. State spending on rural agriculture infrastructure has decreased. Ten years ago, the US was the world's largest food exporter and today it is almost a net importer. Colorado needs to ask the fundamental question of whether agriculture is worth saving. If 35-70% of the state's irrigated agriculture is dried up, the infrastructure necessary to sustain the agricultural industry will collapse because there won't be the critical mass necessary to sustain it.

11. Update on Colorado Water Availability (WAS) Study. Blaine Dwyer, P.E., of Boyle Management, the Project Manager of the Colorado WAS, updated the CBRT on the WAS. When the CWCBA authorized the WAS in the annual Projects Bill, it called for IBCC and Roundtable participation. The CWCBA wants the CBRT to comment on the modeling used in the WAS to estimate water currently consumed in the basin. Phase 1 of the WAS will determine how much water is currently being consumed in Colorado, and Phase 2 will analyze how much water is available for additional consumption.

- a. Blaine Dwyer requested additional recommendations from people familiar with the local environment for nodes in the Colorado Decision Support System (CDSS) that could provide river flow data. If gages in an area are scarce, the model may lack specificity.
- b. Blaine noted that most reservoirs do not have storage loss factors, so these are not included in the model.
- c. Carlyle Currier questioned how return flows are calculated. Blaine stated the formula is:

$$\begin{aligned} & \text{Total quantity diverted} \\ & - \text{Water lost in transport (the 10\% surcharge)} \\ & - \text{Water consumed by crops} \\ & = \text{Return flows} \end{aligned}$$

Ross Bethel noted that return flows must match to what is reported at stream gages.

Rachel Richards recommended that the CBRT identify shortfalls in the data and identify locations where new gages should be placed in the future.

- d. The Glover Analysis is a groundwater model that estimates how long it takes for water to migrate back to the river.
- e. Chuck Ogilby said it would be helpful to see a graphic presentation of river flows at different river locations. For instance, he recommended that components of municipal flows and trans-mountain diversions be shown graphically in wet, average or dry years at various locations on the state's rivers.
- f. The deadline for providing additional information to Blaine Dwyer is March 23, 2009. CBRT members may send recommendations to Jim Pokrandt, and he will forward them to Blaine.

12. Future topics: None were recommended.

Appendix: Summary of Prior Meetings

December 12, 2005

The Bylaws of the Colorado River Basin Roundtable (CBRT) were approved.

Elect IBCC Round Table representatives Stan Cazier and Carlyle Currier.

January 23, 2006

1. Lyn Kathlene presented results from a survey of stakeholders on water issues in Colorado.
2. Eric Kuhn discussed Colorado Big Thompson project, the Blue River decree, and other water projects.
3. Louis Meyer made a motion that was seconded and approved that the CBRT break into subgroups at future meetings.

February 27, 2006

1. Small groups determined issues to address in future meetings.
2. Lane Wyatt presented the Upper Colorado Study.
3. Richard Proctor discussed the Grand Valley Water User's Association.
4. A motion was made by Mark Fuller, and seconded by Louis Meyer, and unanimously passed that all future projects that affect the Colorado River Basin, including those that have already initiated the permitting and DEIS process such as the Moffatt Tunnel and Windy Gap, be open for review and discussion by the Roundtable.

March 27, 2006

1. Discussion of short term and long term goals of the CBRT.

April 24, 2006

1. Karla Brown, outgoing Executive Director of the Colorado Foundation for Water Education, made a presentation regarding the Director's Notebook.
2. Subgroups presented goals. The four subgroups were:

Consumptive use
Non-consumptive use
Water availability
Education
3. Louis Meyer made a motion that was seconded and approved to discuss the topic of determining the baseline data for minimum stream flow needs in the Colorado River basin, for discussion at

the May, 2006 meeting.

May 22, 2006

1. The Colorado Basin Roundtable decided that a quarterly meeting with other Roundtables is a good idea.
2. Presentation by Gary Severson, Executive Director of Northwest Colorado Council of Governments, on demographic trends in the Upper Colorado Basin.
3. Colorado Department of Natural Resources Handbook, *Water Supply and Needs Report for Colorado Basin*, was handed out.

June 26, 2006

1. Russell George, Director of Colorado Department of Natural Resources, presented a discussion on the \$10 million/year IBCC grant requests (\$40 million total).
2. Don Carlson of the Northern Colorado Water Conservancy District (Northern), discussed Northern's plan to take over the Bureau of Reclamation's operations and maintenance of the Colorado Big Thompson project, except for operations at the Green Mountain Reservoir.
3. Jim Pearce of the Colorado River Water Conservation District made a presentation on the Green Mountain Reservoir pump back.
4. A motion was made to request the Colorado congressional delegation to ensure that the Grand Junction office of the Bureau of Reclamation maintain oversight of the Green Mountain Reservoir operations and maintenance.

July 24, 2006

1. Bill Bates, Denver Water Board, discussed the 2006 Shoshone power plant agreement between the City of Denver and Public Service Company (Xcel) in which Denver secured a call reduction of up to 550 cfs at the Shoshone power plant between March 20 and May 20 each year in years that Denver Water's projected reservoir storage capacity is less than 80%. The actual water saved will vary from year to year, due to the complex relationship between Xcel's Shoshone call, downstream priorities, water availability at diversion points and actual native flow available in the stream. Dave Merritt estimates that the agreement may generate 6,000 to 10,000 maximum additional acre feet for Denver in any year that Denver Water's projected reservoir storage capacity is less than 80%.
2. Bob Smith, news anchor for KKCT television station in Grand Junction, made a presentation to promote Grand Valley Lake, a proposed 195,000 acre foot reservoir on Orchard Mesa.
3. The roundtable discussed recommendations to the CWCB for how to allocate the SB 179 \$10 million grants.

4. The roundtable unanimously agreed to revise the June 2006 resolution to recommend that the Grand Junction Bureau of Reclamation office manage Green Mountain Reservoir. The revised resolution recommends that the reservoir be managed by an unprejudiced agency in a fair and impartial manner.

August 26, 2006

1. Presentation by Connie Woodhouse, Tree Rings and Past Flows on the Colorado River.
2. IBCC Report: New IBCC subcommittees were created: (1) Needs Assessment Work Group to study instream flows and water quality; (2) Education and Outreach: How to get public input back to the IBCC, so that special interest groups do not dominate; and (3) Water Supply Reserve Account Guidelines to determine how to allocate SB-179 grant money.
3. Changes to the SB 179 Grant Guidelines were discussed and agreed upon to forward to the IBCC and CWCB.

September 25, 2006

1. CBRT Bylaws were approved, and the officer slate was re-elected, with no change from the prior year to either the bylaws or the officer slate.
2. Subcommittees met to determine potential Water Supply Reserve Account grant applications.
4. Stan Cazier recommended that a representative from XCEL energy come to the November CBRT meeting to discuss Shoshone power plant operations, and that the CBRT discuss drafting the letter and meeting with Denver after that discussion. Ken Neubecker seconded the motion, and it passed unanimously.

October 23, 2006

1. The CBRT report to the legislature for 2005-06 was edited, with changes stressing that the CBRT believes SWSI inadequately addressed consumptive and nonconsumptive needs assessment and, in particular, failed to address energy development's impact on water supply and availability.
2. CDM (Camp Dresser McKee) was introduced as the engineering firm charged with performing the needs assessment.
3. Group broke out into consumptive and nonconsumptive groups to discuss SB 179 and HB 1400 grant requests, and decided to prioritize these at the November 2006 meeting.
4. No motions were voted upon. However, the CBRT members discussed and stated its strong belief that a basin wide needs assessment is needed.

November 27, 2006

1. The CBRT approved unanimously a motion by Lane Wyatt that CDM prepare a non-consumptive needs assessment of the Colorado River basin.
2. The CBRT approved unanimously a motion by Lurline Curran that the CBRT join the Arkansas, Denver Metro, and South Platte roundtables in requesting that SB 179 funds be used for a 10825 Water nonconsumptive needs assessment.
3. Tom Pitts, P.E., water user's representative for the Upper Colorado River Endangered Fish Recovery Program, discussed minimum stream flow requirements to protect endangered fish in the Colorado River through Garfield and Mesa Counties.
4. Tim Sarno, Town Manager of Palisade, and Pete Atkinson of WATER, requested \$100,000 from SB 179 to fund the Palisade whitewater park at the Price Stubbs roller dam just upstream of Palisade on the Colorado River. Decision on the grant request was postponed until the December CBRT meeting.

December 18, 2006

1. The CBRT voted on the following grant requests; 18 votes needed to forward to the CWCB for consideration:

CBRT Approval to Spend CBRT \$	CBRT Approval to Spend CWCB \$	Applicant and Grant Purpose	CBRT Vote to spend CBRT Funds	CBRT Vote to spend CWCB Funds
\$40,000		Ruedi Power Authority – Roaring Fork Watershed Plan	27	7
30,000		Grand County – Stream Management Plan methodology	27	6
	250,000	Eagle County – Increase Eagle Park Reservoir by 155 acre feet		24
	1,500,000	Grand County – Purchase share in Vail Ditch		26
	300,000	CBRT – Join with Yampa Roundtable for Energy Development Water Needs Assessment		25
	200,000	CBRT – Join with Metro Denver and South Platte Roundtables for analysis of 10825 Water and Endangered Fish Recovery Program		25
		Bull Creek Reservoir Co. – Enlarge reservoir. \$150,000 request, did not pass	13	16
		Palisade – Price Stubbs Roller Dam Whitewater Park - \$100,000 did not pass	5	10

2. A non-consumptive needs assessment working group was established to develop the parameters of a grant request for a non-consumptive needs assessment. Ken Neubecker, Rose Ann Sullivan, Louis Meyer, Bruce Hutchins, Phil Overeynder, Ken Ransford, Tom Hilleke, and Lane Wyatt volunteered to join this committee
3. Tom Clark, Greg Trainor, Mark Fuller and Mike Wajeck formed an energy- needs assessment committee to study energy extraction impacts on Western Slope water.
4. The CBRT approved changes to Amendment 18 that was being discussed by the CWCB. Amendment 18 would permit the CWCB to set aside 20% of severance tax Revenue allocated to the Department of Natural Resources for new water projects. The CBRT voted to limit the scope that the severance tax revenues could be used for to the following types of water projects: “addressing compact calls, drought mitigation, endangered species, instream flows, river restoration, and recreation.”

January 22, 2007

1. The CBRT voted unanimously to send a letter to Governor Bill Ritter commending Russell George’s leadership in the roundtable process.
2. Ken Neubecker reported that a subcommittee met to discuss the non consumptive needs assessment required by HB 1177, and listed 8 areas the non-consumptive needs assessment should cover.
3. The 2006 Shoshone Reduction Agreement between Denver and Xcel energy was discussed, with presentations by Bill Bates, Randy Rhodes, Bill Sappington, Ken Neubecker, and David Graf.

February 26, 2007

1. Chips Barry, head of Denver Water, held a question and answer session with Eric Kuhn and other parties regarding the current mediation between Denver Water and several Western Slope water entities to address the Moffat firming project, and the Blue River Decree.
2. Kirby Wynn, USGS, and Cathy Kay, Western Colorado Congress, discussed water requirements for oil shale and mineral development on the Western Slope
3. Rick Brown, CWCB, discussed and suggested improvements to recent SB 179 grant applications.

March 26, 2007

1. James Pritchett, CSU agricultural economist, discussed the impact to local tax revenues if irrigated agricultural land is taken out of production when agricultural water uses are redirected for municipal and industrial uses.
2. Eric Kuhn, Colorado River Water Conservation District, discussed the potential impact of global warming on Colorado water resources, and the need for Colorado to determine how it will respond to a call on the river by lower basin states.

3. Ken Neubecker, Trout Unlimited, explained the components of a non-consumptive needs assessment.

April 23, 2007

1. Lynn Kathleen, PhD., conducted a network analysis survey funded by the IBCC Outreach and Education Subcommittee to determine spheres of influence among water stakeholders.
2. Rick Brown, CWCB, led a discussion of the grants requested by Grand County and the Roaring Fork Watershed Group, and whether the results of the studies funded by these grants could interfere with existing water rights.
3. John Sikora discussed the energy subcommittee's progress in determining energy development's water needs, and attempts to discover water rights owned by energy companies on the Colorado and White rivers.

May 21, 2007

1. Art Bowles presented a request for \$25,000 from the Basin Reserve Account for well monitoring equipment and a study in Missouri Heights, in Carbondale.
2. Irvin Johnson presented a request for \$120,000 from the Statewide Reserve Account to maintain and improve Bull Creek Reservoir No. 4.
3. Irvin Johnson presented a request for \$50,000 from the Basin Reserve Account to pay for engineering studies of Bull Creek Reservoir No. 5.
4. David Merritt of the Colorado River Water Conservation District and CBRT chair, discussed salinity and selenium in the Colorado River.

June 25, 2007

1. The Missouri Heights well monitoring grant request for \$25,000 from the Basin Reserve Account was approved with 22 votes in favor and 0 opposed.
2. The grant request to improve Bull Creek Reservoir No. 4 for \$120,000 from the Statewide Funding Account was approved with 22 votes in favor and 0 opposed.
3. The grant request to study the spillway at Bull Creek Reservoir No. 5 for \$50,000 from the Basin Funding Account was approved with 20 votes in favor and 1 opposed. Phil Overeynder opposed the grant request because he did not feel that Bull Creek Reservoir Company adequately explained how it would pay for the spillway improvements once the engineering studies were complete.
4. Jeff Baessler and Linda Basin made a presentation on Colorado's In Stream Flow program administered by the CWCB.

5. Eric Hecox of the CWCB made a presentation regarding progress on the Non Consumptive Needs Analysis (NCNA) study of water in Colorado.

July 23, 2007

1. Dave Merritt presented an overview of the Water Availability Study, designed to determine water available for current and future development in Colorado.
2. A handout described Aaron Million's Green River Pumpback proposal. A memo by Eric Kuhn encouraging the CRWCD Board to oppose the project until the consumptive, non-consumptive, and energy needs assessments are completed, and a response by Million's attorneys to allow the proposal to go forward and be evaluated under the NEPA process were also included.

September 24, 2007

1. Eric Hecox led a discussion of the Water Availability Study scope of work. Tyler Martineau and Ken Spann, Gunnison Roundtable members, attended and commented.

Handouts included the Bylaws for the CBRT, a 15-page Colorado River Water Availability Study Scope, September 12, 2007 draft, and a magazine by the Colorado Water Education Foundation regarding groundwater in the Denver Basin was distributed.

October 22, 2007

1. The CBRT held a joint meeting with the IBCC. Dave Merritt presented the major issues affecting the Colorado River Basin to the IBCC.
2. The minutes summarize water issues that concern counties represented in the Colorado Basin Roundtable. Tables in the minutes describe current transbasin diversions to the East Slope that total nearly 500,000 AF, and a list of Colorado River Basin reservoirs that total over 1,340,000 AF storage.
3. Dan Birch, a Yampa Roundtable member and engineer with the CRWCD, described the Yampa pumpback proposed by the NCWCD.
4. The proposed Green Mountain pumpback to pump water upstream to Dillon was discussed.

Handouts included an updated Colorado River Water Availability Study Scope, October 19, 2007 draft, a press release by the Colorado River District urging the State Engineer to delay adopting rules to administer a Compact Call until the Water Availability Study is completed, Dave Merritt's summary of Colorado Basin issues, and a summary of comments on the Water Availability Study that were sent to the CWCB.

November 26, 2007

1. John Redifer of the CWCB explained CWCB's proposed Policy 18, which would permit the CWCB to set aside 20% of its Severance Tax revenues to invest in water projects in return for

water rights that the CWCB could sell or lease. The CWCB presently only holds water rights for Instream Flow (discussed at the June 2007 CBRT meeting).

2. Grant proposals were presented requesting \$327,900 from the CBRT Basin Account. To date, \$115,000 has been allocated from this account, and \$1 million is available over 6 years.

December 17, 2007

1. The CBRT Non-Consumptive Needs Assessment committee held a meeting that discussed the timetable of the Non-Consumptive Needs Assessment data would be collected (18 months), and a discussion of the data collection techniques to quantify minimum flows required to maintain healthy river ecosystems.
2. The CBRT approved grants totaling \$300,000 from the CBRT Basin Account and \$127,900 from the Statewide Account. To date, \$415,000 has been allocated from the CBRT Basin Account out of \$1 million total available over 6 years. The grants approved include:

Proposal	CBRT \$	CWCB \$
Grand County Phase 2 Stream Flow Mgmt Plan	100,000	
Roaring Fork Watershed Study Phase 2	40,000	
Old Dillon Reservoir Enlargement	100,000	
Fraser River Berthoud Pass sand collection facility	60,000	127,900
Total	\$300,000	\$127,900

3. Jim Broderick, Executive Director of the Southeastern Colorado Water Conservancy District, Pitkin County Commissioner Rachel Richards, and Aspen City Engineer Phil Overeynder discussed the PSOP, or Preferred Storage Option Plan, for increased storage alternatives in the Fryingpan-Arkansas basin. The Southeastern Colorado Water Conservancy District recommends increasing dam heights to store 75,000 additional acre feet in Pueblo Reservoir and 14,000 additional acre feet in Turquoise Lake.

January 28, 2008

1. Scott Balcomb, Glenwood Springs attorney, discussed the Upper Colorado River Commission the Shortage Criteria recently adopted by the 7 states that are participants in the Colorado River Compact, and Colorado's need to develop a response to a forthcoming Compact Call.
2. The settlement between Denver and the Eagle Water and Sanitation District was discussed in which Eagle settled its lawsuit against Denver for failure to exercise due diligence in perfecting its conditional water rights. Denver relinquished conditional water rights it held in the Eagle River upstream of Minturn and in the Eagles Nest Wilderness Area, but retained the right to develop the Wolcott Reservoir and fill it with withdrawals from the Eagle River and Piney River.
3. John Bickerman discussed the Global Settlement negotiations.

February 25, 2008

1. Stan Cazier and Carlyle Currier led a discussion of what the CBRT would like the Colorado River to look like in 50 years with respect to water supplies. Roundtable members recommended that sources of water be addressed in local land planning decisions; that agriculture should not be dried up to permit bluegrass lawns and ornamental shrubs on the Front Range; that agriculture should be preserved in Colorado; the Front Range conserve more water; and that the water availability, consumptive and non-consumptive needs analyses be completed before additional east slope diversions occur.
2. Mark Levorson of URS described the impact that natural gas drilling in Garfield County is having on water supplies. Drilling activities can permit saline water from deep water aquifers to migrate up through vertical fractures into potable water supplies, and permit saline plumes to migrate to the Colorado River.
3. A preliminary report on the energy demand water needs assessment was presented.

March 24, 2008

1. The CBRT discussed the CWCB's denial of the Roaring Fork Watershed and Grand County Stream flow Management Plan grant applications on the grounds that they constitute unacceptable challenges to Colorado water law.
2. Lane Wyatt reported on the Non-Consumptive Needs Assessment committee progress. The NCNA committee selected the Roaring Fork River and the Colorado River between Kremmling and Dotsero in order to do model NCNAs.
3. Rod Sharp discussed educational town meetings, and suggested that each CBRT Roundtable member schedule a town meeting in their area promoting the CBRT process.

April 28, 2008

1. Eric Kuhn discussed his draft "Vision for a West Slope Water Future."
2. The Grand County Stream Flow Management Plan, Phase II, was discussed by consultants Peggy Bailey and Thomas Wesche.

May 19, 2008

1. Carlyle Currier discussed efforts to conserve water consumed in agricultural operations.
2. Harris Sherman asked the Roundtable to address what the State should look like in 50 years and to comment on the IBCC/Roundtable process.
3. Rick Brown discussed SWSI Phase II.
4. Water Reserve Account grant requests were discussed.

Proposal	CBRT \$	CWCB \$
West Divide Water Conservancy District proposal for feasibility study of 3 Thompson Creek reservoirs.	\$40,000	
Battlement Reservoir #3 reconstruction to provide habitat for Colorado native Cutthroat Trout	80,000	
Membrane treatment study to result in zero level discharge and reduce wastewater byproducts to solids that can be stored in landfills.	200,000	600,000
Total	\$320,000	\$600,000

September 22, 2008

1. Jewlya Lynn and Lyn Kathleen discussed how a board without legal authority such as the CBRT can make a difference. The CBRT discussed past issues that have been voted upon, and policies that could be decided upon in the future by the CBRT.
2. Eric Hecox gave an update on the IBCC vision statement.
3. The CBRT unanimously voted to oppose Amendment 52, which is designed to cap severance tax revenues to 1.7% of oil produced (this is the tax currently being levied) and to divert severance tax revenues from the Department of Natural Resources to funding improvements on Interstate 70.

October 20, 2008

1. Sherri Thompson, BLM Program Manager for the Programmatic Environmental Impact Statement (PEIS), discussed the PEIS. It is being forwarded to the governors of Utah, Wyoming and Colorado for their comments.
2. Greg Trainor reported the Phase 1 Final Draft of the Energy Water Needs Assessment commissioned by the Water and Energy Subcommittee. Estimates of water needed for energy development in the Colorado and Yampa-White River basins range from 30,000 to 410,000 acre feet, with oil shale accounting for 380,000 af. The Roundtable unanimously voted to approve the draft and forward it to the IBCC, the CWCB, and the Governor for consideration prior to his approving the PEIS.
3. Jewlya Lynn and Lyn Kathleen presented a model that the CBRT can use to adopt policies and to promote the policies to interested stakeholders. The CBRT used the model in approving the Phase 1 Energy Water Needs Assessment.

November 24, 2008

1. Lane Wyatt reported that the CWCB has declined to fund the Non-Consumptive Needs Assessment as required by House Bill 1177.

2. Eric Kuhn reported on the Colorado River Compact Curtailment Commission, which has been created to develop a statewide plan to respond to a Compact Call.
3. Jim Pokrandt reported on the 4 basin roundtable meeting in Gunnison on November 14, and discussed the CWCB's prediction that meeting the Gap will result in a 35-70% reduction in irrigated acreage in Colorado.

January 26, 2009

1. Eric Hecox and Jacob Bornstein reviewed the Vision Statement that is being presented to the CWCB and the IBCC.
2. The CBRT approved \$315,000 from the Basin Reserve Account to pay for a nonconsumptive needs analysis. The CWCB had earlier agreed to fund this, but failed to do the analysis, so the CBRT agreed to fund it. The goal is to develop a flow monitoring tool and to test it at 3 locations on the Colorado River between Pumphouse and Dotsero. If successful, the flow monitoring tool will be an inexpensive alternative to site specific analyses, which cost up to \$50,000 per site to determine river flows necessary to maintain riparian health. The grant proposal will be discussed by the CWCB at its March board meeting.

February 23, 2009

1. Eric Hecox and Jacob Bornstein discussed agricultural water issues statewide and as they pertain to the Colorado River basin.
2. Blaine Dwyer updated the CBRT on the progress of the Water Availability Study and requested that CBRT members review the model inputs and the assumptions that are being incorporated into the model.

Glossary

10825 water. The Bureau of Reclamation designated 10,825 acre feet in Ruedi Reservoir as being available to support the Endangered Fish Recovery Program (EFRP). This was discussed at the November 2006 CBRT meeting. In an agreement scheduled to expire 12/31/09, Denver Water has voluntarily released ½ of that amount, or 5,412.5 cfs, from Williams Reservoir, and the Colorado River Water conservation District has released the remaining 5,412.5 cfs from Wolford Reservoir. If the agreement is not extended beyond 2009, prior water project approvals which permitted water appropriations from the Colorado River may not comply with the Endangered Species Act, and may be called into question. See www.grandriver.us/10825 for a history of the 10825 program

20% Gap. The CBRT created the Statewide Water Supply Initiative (SWSI) to study long term water needs in Colorado. SWSI Phase 1 determined that by 2030, there would be 20% greater demand than supplies existing in 2005; this is known as the 20% Gap.

Aspinall Unit. The Aspinall Unit includes three reservoirs on the Gunnison River: (1) Blue Mesa Reservoir, designed for water storage; (2) Morrow Point Reservoir, a dam with a lot of head in a narrow canyon designed to generate hydroelectric power; and (3) Crystal Reservoir, which collects Morrow Point Reservoir releases and moderates further releases into the Gunnison River at more constant flow levels.

Blue Mesa Pump Back. A proposal to drill a tunnel below the Collegiate Range to transport water from Blue Mesa Reservoir on the Gunnison River to the Eastern Slope.

Blue River Decree. A conditional water right granted to Denver Water to withdraw water from Dillon Reservoir through the Roberts Tunnel into the North Fork of the South Platte River.

CBRT: Colorado Basin Roundtable

CDM: Camp, Dresser, McKee, the engineering firm selected by CWCB to assist the Roundtables in perform the needs assessment called for in Section 35 75-104(2)(c), CRS (as created in HB 1177) .

CDSS: The Colorado Decision Support System, a computer modeling program developed by the CWCB that predicts river flows in Colorado. The CDSS is accessed at:
<http://water.state.co.us/pubs/datasearch.asp>.

CRWCD – The Colorado River Water Conservation District. This State Agency was founded in 1937 in response to plans by Denver Water and the NCWCD to divert Colorado River water to the Eastern Slope through the Adams and Moffatt Tunnels. The CRWCD was chartered to be "the appropriate agency for the conservation, use and development of the water resources of the Colorado River and its principal tributaries in Colorado." The CRWCD's office is in Glenwood Springs.

CWCB - Colorado Water Conservation Board: This is an agency of the State with a board appointed by the governor. It was created in 1937 for the purpose of aiding in the protection and development of the waters of the state. The agency is responsible for water project planning and

finance, stream and lake protection, flood hazard identification and mitigation, weather modification, river restoration, water conservation, drought planning, water information and water supply protection. It is the sole entity which can receive grants of conservation easements of water flows. It also administers grants from the Water Supply Reserve Account called for by SB 179.

Compact call. A call by Lower Basin States (California, Arizona and Nevada) that would require Upper Basin States (Colorado, Utah, Wyoming, and New Mexico) to limit diversions from the Colorado River and its tributaries. No Compact Call has ever been made.

Colorado River Compact - the 1922 agreement among the Colorado Basin States, and ratified by Congress in 1929. It was based upon an assumption that the average annual flow in the Colorado River at Lee Ferry is at least 15 million acre feet (maf), and that the Upper and Lower Basins would each receive 7.5 maf, to be divided among the Basins as they agreed. The 1922 agreement was predicated upon a concern that development in California was outpacing development in every other Western state, and that California would appropriate most Colorado River water unless changes were implemented to recognize the rights of each state to develop a certain amount of water in their own time frame.

Conditional water rights. Water rights that are not yet developed, but represent an intent to develop for a specific purpose in the future. They establish a priority date over later granted water rights.

Endangered Fish Recovery Program. Four fish, the Colorado pikeminnow, Razorback sucker, Humpback chub, and Bonytail, are listed as endangered species; they reside in the Colorado, Yampa-White, and Green Rivers.

Energy Development Water Needs Assessment. A study that estimates the water required for energy development in the Colorado and Yampa-White basins. The study was commissioned by the Colorado and Yampa-White Basin Roundtables and paid for by a \$300,000 Water Supply Reserve Account grant. Phase 1, released in October 2008, estimated that 30,000 af to 410,000 af is needed for energy development, with potential oil shale production accounting for about 380,000 acre feet of this. Phase 2 addresses where the water is likely to come from; it will consider the impact of redirecting the extensive conditional and absolute water rights already owned by energy industry to energy development.

Green Mountain Pumpback. 300 cfs would be pumped from Green Mountain Reservoir to Dillon Reservoir with a yield of 53,000 AF. This would permit Denver Water to divert more Dillon Reservoir water through the Roberts Tunnel to the North Fork of the South Platte. A new reservoir is sited at Wolcott to hold 25,000 to 85,000 AF to replace releases that will no longer be made from Green Mountain Reservoir down the Blue River. A pumping plant on the Eagle River with 250 cfs pumping capacity would fill the proposed Wolcott Reservoir.

Green River Pumpback. A proposal by Aaron Million to divert water from the Flaming Gorge Reservoir on the Green River and pump it east along Interstate 80 and then south along Interstate 25 to the Front Range.

House Bill 1177: Passed in 2005 by the Colorado legislature, this sets up nine roundtables around in the following drainages to discuss how to meet the water demands by year 2030:

Western Slope

Colorado
Yampa-White
Gunnison
San Juan

Eastern Slope

Arkansas
Rio Grande
North Platte
South Platte
Denver Metro

HB 05-1177 permits basins to study and implement voluntary transfers between basins in Colorado, while reaffirming existing water rights and the prior appropriation system. It states in relevant part:

37-75-102. Water rights - protections. (1) It is the policy of the General Assembly that the current system of allocating water within Colorado shall not be superseded, abrogated, or otherwise impaired by this article. Nothing in this article shall be interpreted to repeal or in any manner amend the existing water rights adjudication system. The General Assembly affirms the State Constitution's recognition of water rights as a private usufructuary property right, and this article is not intended to restrict the ability of the holder of a water right to use or to dispose of that water right in any manner permitted under Colorado law.

HB 1177 has 5 stated goals:

1. Consumptive needs analysis
2. Non- Consumptive needs analysis
3. Water availability study
4. Solve the 20% gap
5. Public education of water issues facing Colorado

In-stream flow. A flow rate appropriated by the Colorado Water Conservation Board which represents the amount of water deemed necessary to protect the environment to a reasonable degree. This determination takes into consideration the availability of water under water rights administered. An In-Stream Flow right is administered in priority, along with all other water rights on the stream.

Identified Projects and Processes (IPPs). These are water diversion and storage processes that have been identified by the CWCB in each major river basin in Colorado that provide additional water to meet future municipal and industrial (M&I) water needs. The IPPs are in various stages of development, and are projected to provide about 500,000 additional acre feet. Many are expansions of existing water projects. The CWCB estimates that Colorado will need up to 1.75 maf under a high growth scenario in 2050.

Maybell Pump Back: A proposal by the Northern Water Conservancy District to pump water from the Yampa River to the Eastern Slope.

NCNA. Non consumptive needs assessment conducted pursuant to HB 1177 to determine the amount of water needed to meet environmental and recreational uses.

Northern or NCWCD: The Northern Colorado Water Conservancy District, the agency that

contracts for delivery of water from the Colorado Big Thompson Project that diverts water from the Upper Colorado River at collection facilities in Grand County for distribution to the eastern slope.

PHABSIM: Physical habitat simulation. A technique developed in the 1970s by the US Fish and Wildlife Service to determine optimal and critical river flows necessary to maintain healthy river ecosystems. A river site is first selected that has favorable fish habitat. At each selected site, river volumes are measured at ten transects (a transect is a line across the river that is perpendicular to the river flow), at 3 different times during high, medium and low flows from early spring to late fall. A Habitat Suitability Curve is developed for each site that indicates critical flows below which fish habitat is imperiled.

PBO: A Programmatic Biological Opinion for the Recovery of the Endangered Colorado River fish, which requires a number of measures which function as “reasonable and prudent alternatives” for diversions that would otherwise harm endangered fish in the Upper Colorado River.

Produced Water: This is water that has been produced from human activity, such as water reclaimed through sewage treatment, or water which has been pumped to the surface in the course of coalbed methane drilling activities.

PSOP: The Preferred Storage Option Plan, a discussion of water storage options to capture additional water from the Roaring Fork River for delivery to the Eastern Slope, discussed at the November 2007 CBRT meeting.

RICD: Recreation In Channel Diversion. A water right awarded in order to protect recreational boating in the river.

Senate Bill 179: Passed in 2006 by the Colorado legislature, this allocates \$10 million per year for four years to be allocated among the 9 roundtables to pay for water projects or studies (aka the Water Supply Reserve Account).

Shoshone Call: Xcel energy has a call on the Colorado River with a priority dating to 1907 permitting it to run 1,250 cfs through the Shoshone power plant turbines. In 2006, Xcel and Denver Water entered into an agreement which permits Denver to reduce the call by 550 cfs at the Shoshone power plant between March 20 and May 20 in years that Denver Water’s projected reservoir storage capacity is less than 80%; discussed at the July 2006 CBRT meeting.

SWSI: CWCBC manages the Statewide Water Supply Initiative (SWSI), which was created to study long term water needs in Colorado after the Big Straw Initiative failed in 2003.

Upper Colorado River Commission: A commission created in 1948 pursuant to the Upper Colorado River Compact of the four Upper Basin States: Colorado, Wyoming, Utah and New Mexico. It controls the Colorado River upstream of Lees Ferry, and is charged with monitoring that each the Upper Basin state delivers its quota toward the 75 maf required to be delivered to the Lower Basin states every 10 year period.

Water Availability Study: SB 07-122 appropriated \$500,000 to study the extent of Colorado water available for current and future needs. The Water Availability Study is designed to identify

whether Colorado still has water available under the 1922 Colorado River Compact for development, and what risks are associated with developing it. Phase 1 of the Water Availability Study is expected to be completed by July 2009.

Wolcott Pumpback: A plan to build a reservoir on a tributary to the Eagle River near Wolcott. This would store water that could be exchanged back to Dillon Reservoir to enhance Denver Water's yield from the Blue River (Dillon Reservoir/Roberts Tunnel).

Yampa Pumpback: A proposal to pump 300,000 acre feet from the Yampa River near Maybell to the Front Range, first discussed in detail at the November 2407 CBRT meeting.

Summary Table of Grant Requests and Funding Decisions

CBRT Approval to Spend CBRT \$	CBRT Approval to Spend CWCB \$	Applicant and Grant Purpose	CBRT Votes for/opp'd to spend CBRT Funds	CBRT Votes for/opp'd to spend CWCB Funds	CBRT Vote Date	Date CWCB Approved or Denied	Amount CWCB Approved
\$40,000		Ruedi Power Authority – Prepare Roaring Fork Watershed Plan	27	7	12/18/06	Approved 3/23/07	100%
		Grand County – Stream Management Plan methodology. \$30,000 approved, but Grand County turned down due to CWCB constraints.	27	6	12/18/06	Approved 3/23/07	100%
	250,000	Eagle County – Increase Eagle Park Reservoir by 155 acre feet		24	12/18/06	Approved 3/23/07	100%
	1,500,000	Grand County – Purchase shares in Vail Ditch		26	12/18/06	Approved 3/23/07	100%
	300,000	CBRT – Join with Yampa Roundtable for Energy Development Water Needs Assessment		25	12/18/06	Approved 3/23/07	100%
	25,000	CBRT – Join with Arkansas, Metro Denver and South Platte Roundtables for analysis of 10825 Water and Endangered Fish Recovery Program		25	12/18/06	Approved 3/23/07	100%
		Bull Creek Reservoir Co. – Enlarge reservoir. \$150,000 request, did not pass	13	16	12/18/06		
		Palisade – Price Stubbs Roller Dam Whitewater Park - \$100,000, did not pass	5	10	12/18/06		
25,000		Missouri Heights well monitoring program	22 / 0		6/25/07	Approved 8/15/07	100%
50,000		Bull Creek Res. #5 spillway analysis	20 / 1		6/25/07	Approved 8/15/07	100%
	120,000	Bull Creek Res. #4 reservoir improvements		22 / 0	6/25/07	8/15/07 failed	0%
100,000		Grand County Phase 2 Stream Flow Mgmt Plan		19/0	12/17/07		
40,000		Roaring Fork Watershed Study Phase 2		20/0	12/17/07		
100,000		Old Dillon Reservoir Enlargement		17/2	12/17/07		
60,000	127,900	Fraser River Berthoud Pass sand collection facil	16/3	11/2	12/17/07		
40,000		West Divide Water Conservancy District			5/19/08	Approved	

		proposal for feasibility study of 3 Thompson Creek reservoirs.				June 2008	
80,000		Improve Battlement Reservoir #3 to protect Native cutthroat trout habitat			5/19/08	Approved June 2008	100%
315,000		Develop flow evaluation tool (FET) and conduct 3 site assessments on the Colorado River between Pumphouse and Dotsero to test the FET.	18/1		1/26/09		
\$850,000	\$2,322,900	Total approved					