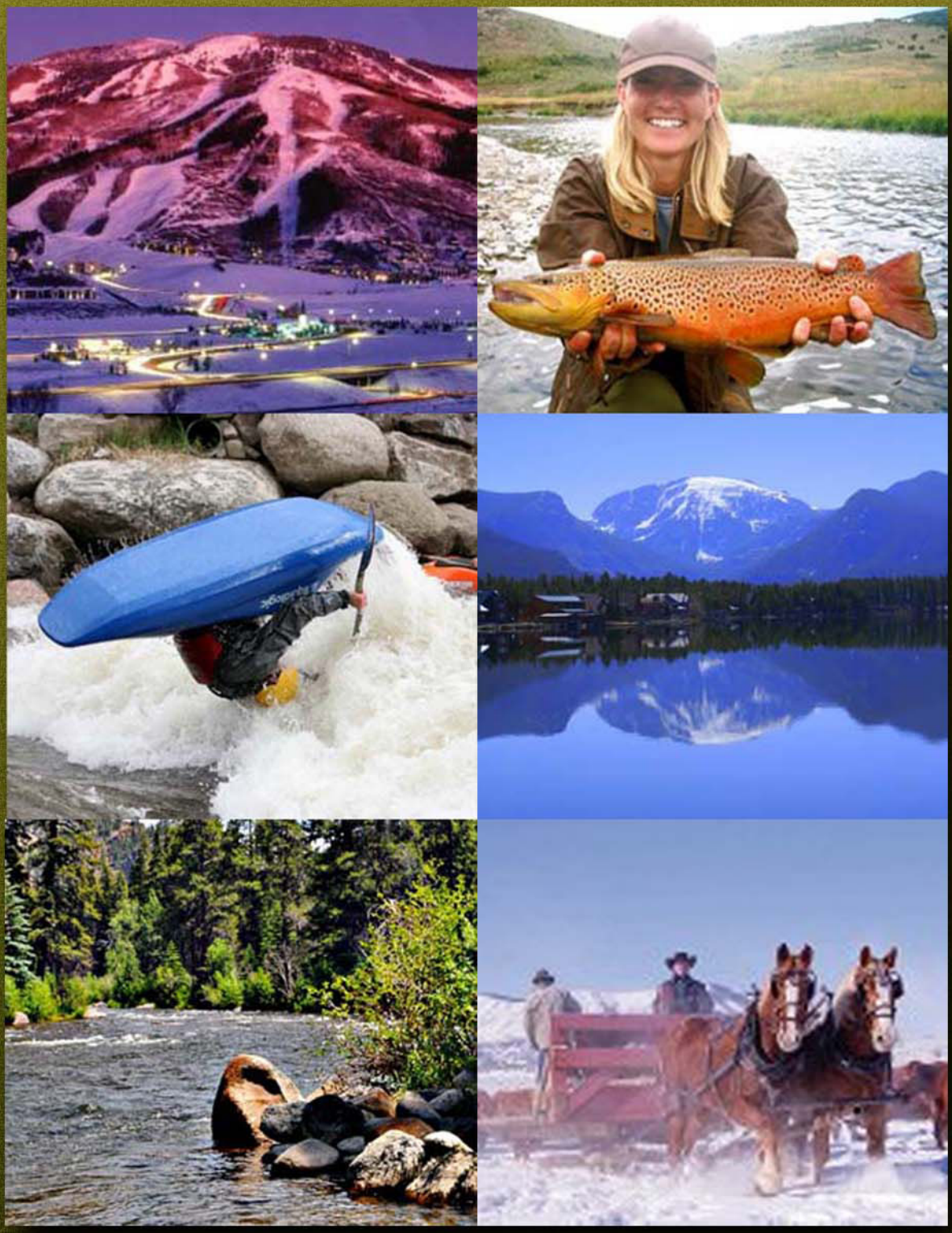
Water and its Relationship to the Economies of the Headwaters Counties

Summary



Prepared for:

The Northwest Colorado Council of Governments
Water Quality and Quantity Committee

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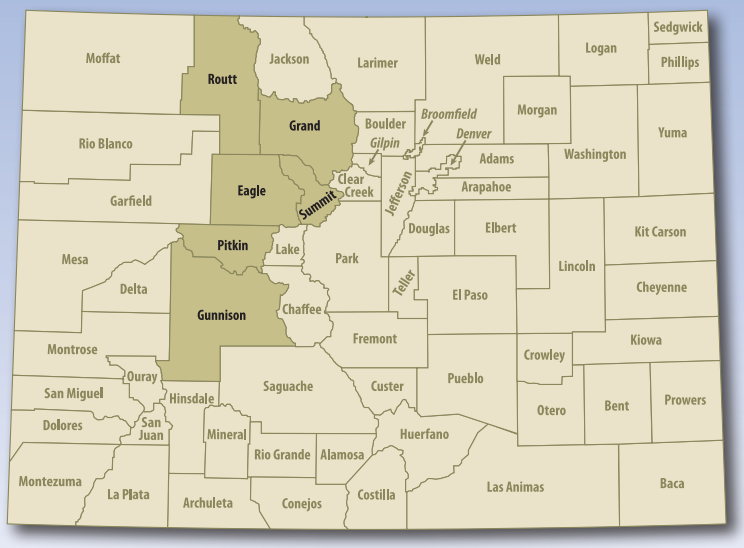
Report Purpose

This report describes the:

- Unique economic characteristics of six headwaters counties;
- Link between water and these local economies;
- Economic relationship between water and the headwaters counties and their relationship with the Front Range and Eastern Plains, and;
- Compromised conditions triggered by transmountain diversions and other competing demands for water and potential economic consequences of over allocation of West Slope water.

Headwaters Counties



The report provides a counterbalancing perspective to the recent attention to the adverse economic consequences of purchasing agricultural water rights from properties on the Eastern Plains. This report is descriptive; it does not take issue with Front Range municipal water users or Eastern Plains agricultural water users. All parties have important and worthy concerns and points of view.

Key Messages

1. Front Range water users, Eastern Plains agricultural properties and statewide economic developers need healthy headwaters county economies. There are numerous, mutually supportive economic relationships among the regions of the State.
2. Water in its natural stream course is essential to the economies of headwaters counties. Headwaters counties' water needs are primarily nonconsumptive.
3. The West Slope is already compromised from historic transmountain water diversions. Diverting more water without full mitigation will have West Slope and statewide adverse economic consequences. From the water-basin-of-origin, transmountain water diversion is 100% consumptive.
4. Historical strategies to manage remaining West Slope water have provided mitigation relief but a continuation of these same strategies may not work in the future. We may be near the environmental tipping point.
5. Moving forward, future transmountain water diversions from the headwaters counties should only be approved after close coordination with interests of the basin-of-origin counties and robust mitigation of environmental and socioeconomic impacts. There are creative management solutions to be explored and activated. West Slope and East Slope interests have a strong history of creative and cooperative problem solving.

"This state has to realize, people in the metropolitan Denver have to realize, that their self-interest is served by treating water as a precious commodity and that its value on the Western Slope is just as relevant as its value in the metro area." ***Governor John Hickenlooper. (Denver Post, April 29, 2011.)***

Unique Characteristics of the Headwaters Counties

- Provide a source of water not only throughout Colorado, but also to six other states and the Republic of Mexico.
- The adage: "The West Slope contains 11% of the State's population and 85% of the State's water." is often misinterpreted because a substantial portion of this water is legally and physically spoken for.
- Contain world-class recreation venues that attract national and international visitors and require minimal consumptive water.
- Provide the iconic image and draw for many Front Range economic development initiatives.

Breckenridge

Primary Economic Sectors of the Headwaters Counties	
Sector	*Report Addresses:*
Tourism Agriculture Mineral Resources	• Importance to the local economy • Relationship to the Front Range, Eastern Plains & State • Reliance on water

The Tourism Sector

- Tourism, including outdoor recreation and visits to high-country environments, is the primary basic-sector "industry" in the headwaters counties. It comprises 48% of all jobs in the headwaters counties; in comparison, tourism comprises only 8% of all jobs statewide.
- Tourism in the headwaters counties is the State's primary feature to attract visitors from other states and countries. Colorado has developed its state brand around world-caliber recreation activities that are heavily reliant on snow and flowing water in its natural stream courses.
- In the headwaters counties, 32% of the homes are owned by households from other states and countries.

Percent of Statewide Economic Impacts from Fishing - Attributable to Counties

14% Headwaters Counties	57% Front Range Counties	29% Other Colorado

Source: The Economic Impacts of Hunting, Fishing and Wildlife Watching in Colorado, BBC and the Colorado Division of Wildlife

- Many recreation activities that occur in the headwaters counties generate more economic impact in the Front Range than in the headwaters counties. For example, Front Range counties reap 57% of the statewide economic impacts of fishing, which often occurs in the streams, rivers, lakes and reservoirs of the headwaters counties.

Percent of Homes Owned in the Headwaters Counties by Place of Permanent Residence

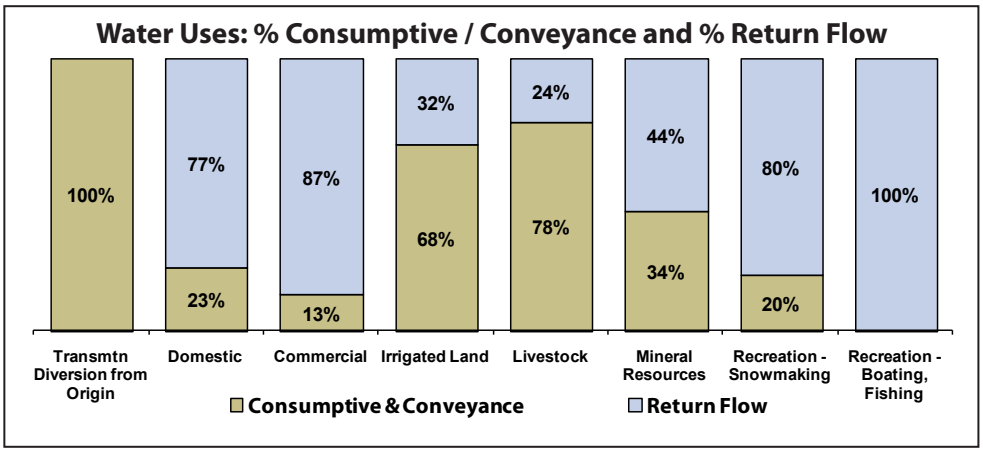
44% Local (Native) County	22% Front Range	2%*	32% Out of State

*Source: Individual County Assessor Databases * Other Colorado*

- Tourism relies on flowing water in its natural stream courses to deliver world-class recreation including "Gold Medal" fishing and international caliber kayaking venues.
- Tourism relies on water clarity and predictable water volume in its lakes and reservoirs

Kayaker on the Colorado River in Gore Canyon

- Tourism has a minimal water resource footprint. For example, snowmaking requires only 20% consumptive water. Fishing, boating, kayaking and rafting, the mainstays of the summer economy, require no consumptive water. In contrast, transmountain water diversions are 100% consumptive from the perspective of the headwaters (origin) counties.
- Tourism relies on an adequate volume of water delivered to its ski areas to insure sufficient snowmaking. An average ski area consumes 100 acre-feet of water to generate manmade snow to assure November and December skiing and related jobs and revenue.

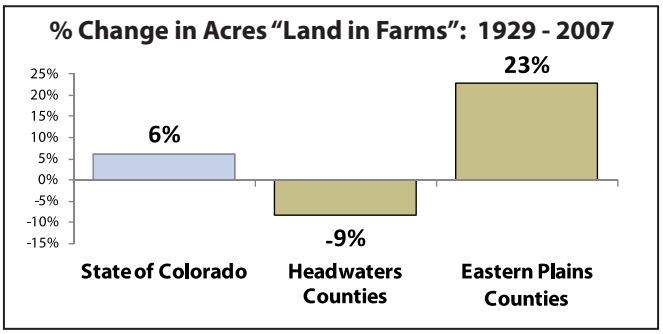


Sources: USGS for State of Colorado (most results); individual ski areas (snowmaking)

The Agricultural Sector

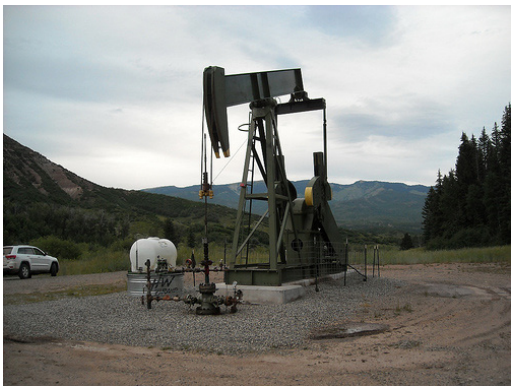
Sweetwood Ranch, Routt County

- The value of agriculture to the headwaters counties is often understated because many attributes are intrinsic and qualitative. Agriculture is part of the historic culture; it is complementary to tourism and a vital source of return flows that sustain late season streamflows for fisheries. It produces cattle that support Eastern Plains feedlots.
- Agricultural land is such a significant asset to the headwaters counties that each county has joined the ranching community in investing substantial funds and effort into keeping expansive agricultural land intact. Local nonprofit organizations dedicated to agricultural preservation have been activated. The State of Colorado and the federal government have supported these efforts as well through significant matching funds for worthy projects.
- The amount of agricultural land in the headwaters counties has decreased. Between 1929 and 2007, agricultural land in the headwaters declined by 9% while increasing by 6% statewide and increasing by 23% in the 15 Eastern Plains counties. Similar relationships hold for irrigated agricultural land.
- Visitors value agriculture. A survey in Gunnison County, conducted by CSU, found that 54% of the winter visitors would reconsider a return visit to Gunnison if only 25% of the ranch land were converted to another use.
- Transmountain water diversions trigger low flows which cause some irrigation ditch failures.
- Reductions in the rural landscape, triggered by less water, may reduce the volume of visitors.
- Low streamflows in high plateaus can reduce the production of agricultural land to one crop per year.
- In most headwaters counties, agriculture is not able to benefit from the relatively inexpensive water that is delivered through the Bureau of Reclamation projects that serve the Eastern Plains agriculture.



Source: US Census of Agriculture, various years

The Mineral Resource Sector



Natural Gas Production in Gunnison County

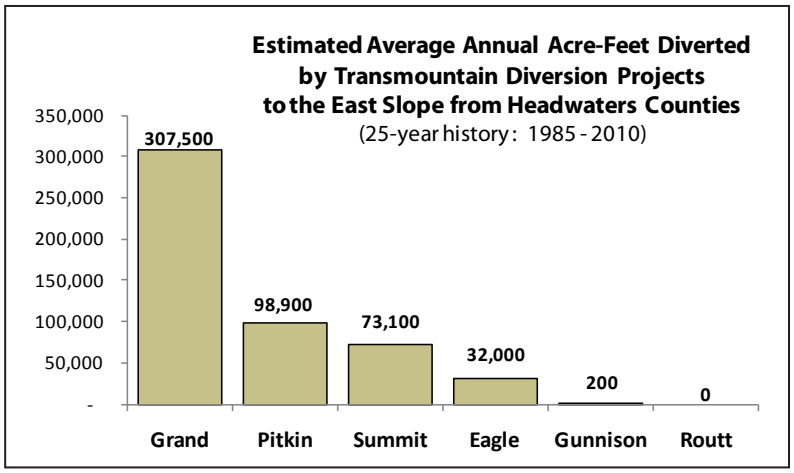
- Coal production in Gunnison and Routt counties are a substantial portion of the State total.
- Oil and gas is actively produced in Gunnison and Routt counties.
- Molybdenum is produced adjacent to Grand County and will be restarted in Eagle, Lake, and Summit Counties.
- Water demands from future energy development (oil shale, natural gas, coal and uranium) may require between zero and 120,000 acre-feet of water annually. Actual water demand will depend on issues other than water availability, such as technological and economic viability.
- The bulk of additional water demand from energy development will occur in the White River Basin, where water supplies may be sufficient with enlargement of Lake Avery or a new reservoir.
- Natural gas and oil shale development via fracking may heighten water quality and water table concerns.
- Energy development companies might purchase water from local agricultural interests or the BLM/Ruedi Reservoir. Either situation might trigger adverse economic conditions.

Transmountain Water Diversions

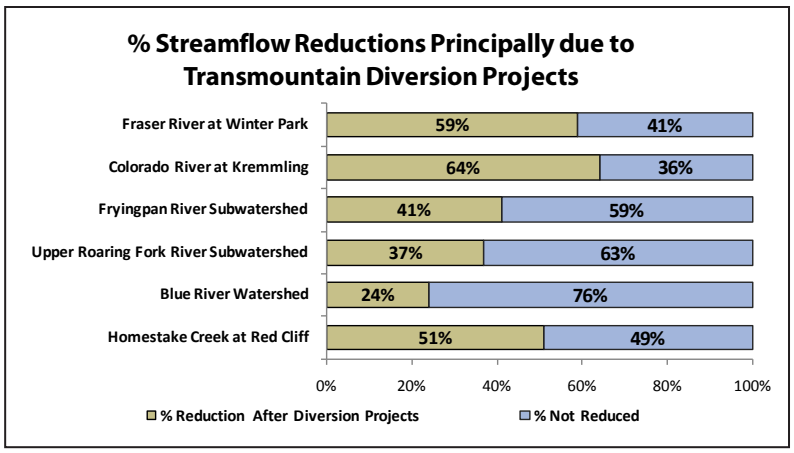
There are 45 transmountain water diversions in Colorado; among these, 16 projects are located in the headwaters counties. Since 1985, these projects have collectively diverted an average of 511,700 acre-feet of water each year to Front Range and other East Slope water users.

Each headwaters county has experienced different volumes of transmountain water diversions to the East Slope. The graph to the right illustrates the county of origin for the average volume of acre-feet diverted over the last 25 years.

Actual streamflow in many headwaters counties is substantially less than native or natural flows. Streamflow fluctuates for a variety of reasons, including annual precipitation, in-basin recharge, municipal, industrial and recreational use and out-of-basin diversions. As illustrated in the graph to the right, there are several locations in the headwaters counties where streamflow reductions relative to a prior natural state have been principally triggered by nearby transmountain diversion projects.



Source: Colorado Division of Water Resources, CDSS Data Base



Sources vary by location. See full text and endnotes.

Historic Impacts and Compromised Conditions

Historic transmountain diversion projects have created environmental constraints that have begun to compromise the aquatic and riparian ecosystems in Pitkin and Grand counties and have triggered a number of related economic impacts. These impacts are not potential conditions based on decade-long forecasts. Rather, they are current and on-going conditions. The types of environmental impacts and the types of economic consequences triggered by these impacts are listed below and explored more completely in the full report.

Types of Environmental Impacts and Economic Consequences from Water Diversion Projects	
Environmental Impacts	*Economic Consequences*
• Lower streamflows • Reductions to flushing flows • Increases in water temperature • Degradation in water quality • Degradation in water clarity • Compromised riparian corridor • Compromised aquatic environment • Health and variety of fish	• Potential loss of "Gold Medal" fishing status and the related benefits of attracting anglers worldwide. • Adverse effects on fishing for trout that are reliant on streamflow, water quality and temperature. • Potential loss of Wild and Scenic River status and related adverse effects of fewer visitors, kayakers and rafters. • Less reliable streamflows for kayaking/rafting that impact summer tourism. • Water quality and clarity degradation that impacts visitors and property values. • Reductions in irrigated land that adversely impact jobs and property values. • Devaluation of real estate development that relies on healthy riparian corridors for scenic beauty and fishing. • Higher costs for water/sewer treatment facilities that are borne by local rate payers. • Constraints on rezoning due to water supply limitations.

Many of these local environmental impacts and related economic consequences have gone substantially unmitigated in the past; many were approved before State authorization of local review authorities were put into place. Examples of projects without compensatory mitigation at the time of construction include the Dillon Reservoir / Roberts Tunnel, the Moffat Tunnel, the Grand River Ditch, the Independence Pass (Twin Lakes) diversion system, the Hoosier diversion system and the Homestake diversion system.

Further reductions in headwaters county streamflows from transmountain diversion projects will exacerbate existing adverse conditions and may jeopardize the environment below the minimum streamflows necessary to maintain the already compromised ecosystem.

There are a number of potential water diversion projects and enhancements to existing water diversion projects under consideration. These projects are in the environmentally fragile headwaters of the Blue, Colorado, Eagle, Fraser, and Fryingpan Rivers in Eagle, Grand, Pitkin and Summit counties.

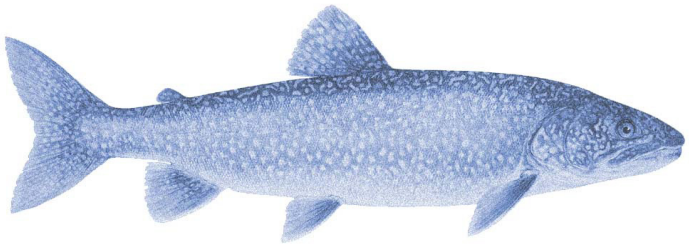
East Slope / West Slope Problem-Solving Successes

West Slope interests have worked creatively and effectively with East Slope water providers to solve water issues in the past, as illustrated below.

West-Slope / East-Slope Problem-Solving Successes – Illustrative Projects and Dates	
• Learning-By-Doing (proposed) • Colorado River Cooperative Agreement (approved in concept, 2011) • Blue Mesa Plan (2010) • Wild & Scenic River Alternatives – Stake'hldr Groups (2008) • Denver Water – Eagle County Settlement Agreement (2007) • Winter Park Master Plan – Zoning Density Constraint (2006) • Roaring Fork Watershed Collaborative (2002) • Blue River Restoration Project (2001+) • GMUG Pathfinder Project (2000)	• Grand Valley / Gunnison Selenium Task Force (1998) • Eagle River Memorandum of Understanding (1998) • Local Voter-Authorized Tax Rate Increases (1995 +) • Aspen Water Conservation Initiative (1993) • Wolford Mountain Reservoir Agreement (1992) • Clinton Reservoir-Fraser River Agreement (1992) • Upper CO. Endangered Fish Recovery Program (1988) • Summit County / Denver Water Agreement (1985) • QQ Committee of the NWCCOG (1978)

This does not imply that these same remedies will work effectively if there are additional depletions from the headwaters that push environmental conditions beyond the tipping point. However, there is a good history of innovative problem-solving upon which to build.

Enacted in 1974, HB-1041 authorizes counties and municipalities to regulate certain activities within their respective jurisdictions that are of "state interest." Headwaters counties used these authorities as an effective tool to negotiate mitigation remedies with transmountain water diverters. But for the authorities provided in HB-1041, Summit, Eagle and Grand counties would currently experience substantially greater adverse impacts associated with transmountain water diversion projects because transmountain water diverters would have no need to negotiate counterbalancing mitigation remedies with the basin-of-origin counties. HB-1041 has created a forum to resolve issues.



For a copy of the full report, visit **www.nwccog.org.**
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