

Gunnison River Basin Facts

Colorado Water Conservation Board

January 2000



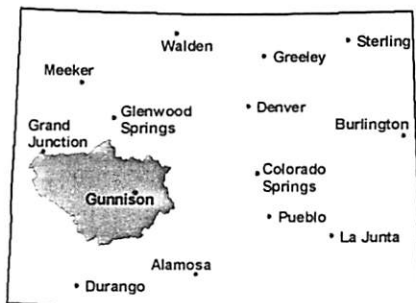
Bill Owens
Governor

Greg E. Walcher
DNR Executive Director

Peter H. Evans
CWCB Director

Dan McAuliffe
CWCB Deputy Director

Ray H. Werner
CWCB Member,
Gunnison River Basin



Blue Mesa Reservoir

Overview

The Gunnison River Basin, encompassing 8,000 square miles, extends from the continental divide to Grand Junction where it joins the Colorado River. The major water development feature in the basin is the Aspinall Unit of the Colorado River Storage Project, consisting of Blue Mesa, Crystal and Morrow Point Reservoirs. The three reservoirs store approximately 1.1 million acre-feet. Development of the basin yield is limited by interstate compacts. Future development will be limited by the Aspinall Unit Section 7 Consultation.

Major tributaries to the Gunnison River include the Uncompahgre, Taylor, Slate, East, North Fork, and Smith Fork Rivers; and Tomichi and Cochetopa Creeks. This basin contains large amounts of U. S. Bureau of Land Management and Forest Service lands. Agriculture is the dominant water use.

Major Water Organizations

Water Conservation Districts
Colorado River

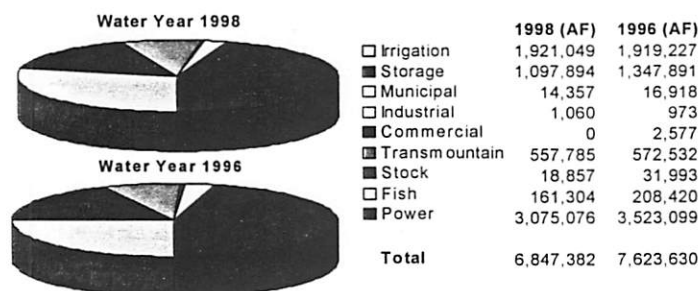
Water Conservancy Districts
Bostwick Park North Fork
Crawford Tri-County
Fruitland Mesa Upper Gunnison River
Grand Mesa

Other
Uncompahgre Valley Water Users Association

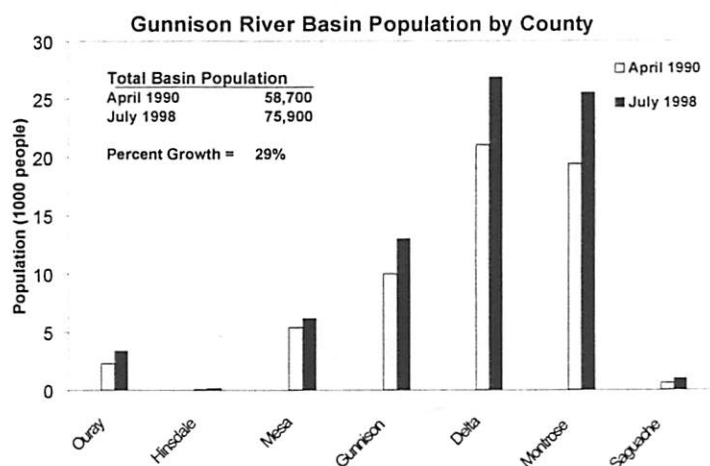
Growth

The basin is comprised of portions of seven counties in the southwestern portion of the state. Between 1990 and 1998, the population in this region increased by 29 percent and now accounts for 1.9 percent of the state's total population. The graph below lists population for the portions of the counties that are in this basin.

Surface Water Deliveries in Acre-feet by Use



Source: Division 4 Annual Reports to the State Engineer



Source: Colorado Department of Local Affairs

Additional information about this river basin is available at <http://www.dnr.state.co.us/cwcb>

Major Storage Projects

Reservoir	Total Capacity (acre-feet)
Blue Mesa Reservoir	940,800
Morrow Point Reservoir	117,190
Taylor Park Reservoir	106,230
Ridgeway Reservoir	80,000
Crystal Reservoir	26,000
Paonia Reservoir	20,950
Crawford Reservoir	14,395
Silverjack Reservoir	13,520
Onion Valley (a.k.a., Gould) Reservoir	9,000
Overland Reservoir	5,828
Fruitgrowers Reservoir	4,540

Source: U.S. Department of the Interior Water and Power Resources Data Book, 1981

Hydrological Variations

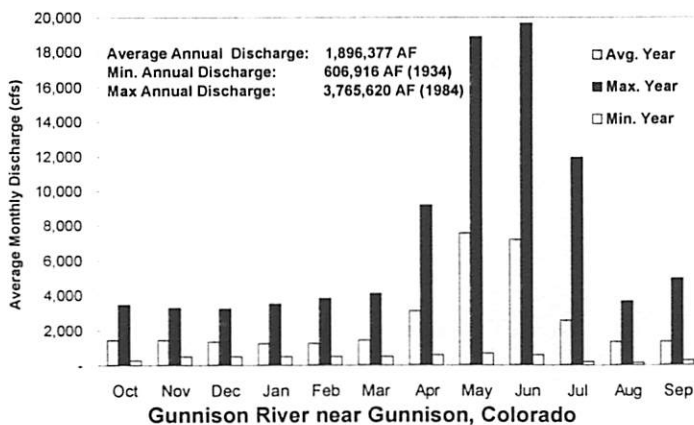
Annual and seasonal variations are shown below for the Gunnison River.

Gage	Maximum Recorded Flow (cfs)	Minimum Recorded Flow (cfs)
Near Gunnison	11,400 (1918)	80 (1963)
Near Grand Junction	35,200 (1920)	106 (1934)

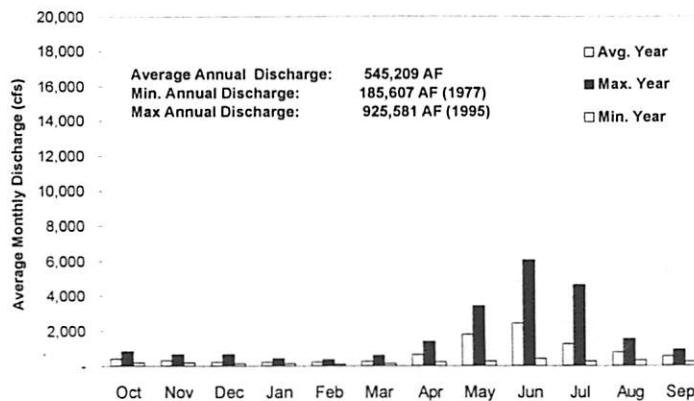
Source: U.S. Geological Survey Water Data Reports

Annual Discharges

Gunnison River near Grand Junction, Colorado



Gunnison River near Gunnison, Colorado



Source: U.S. Geological Survey Water Data Reports

Major Water Rights Calls

Water rights administration on the Gunnison mainstem is in a state of flux. Recovery flows for endangered fish and reserved rights for the Black Canyon National Park are expected to change the status quo. Tributaries typically are controlled internally by senior agricultural water rights.

Historically, mainstem calls have been very infrequent. The Gunnison Tunnel (1905 priority, 1,175 cfs) can control the Upper Gunnison but is nearly always satisfied by storage in Blue Mesa and Taylor Park Reservoirs. This operation is expected to continue. The hydropower and storage rights of the Aspinall Unit of the Colorado River Storage Project (1957 priority) can call on the Upper Gunnison, but have not. A subordination agreement recognizing this practice is being finalized which will allow 60,000 acre-feet of junior in-basin depletions above the Aspinall Unit.

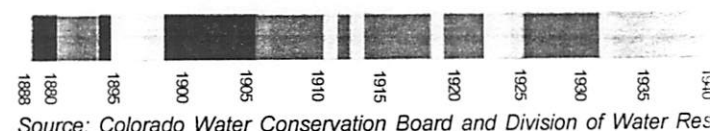
The now infrequent Redlands Water and Power call (750 cfs at Grand Junction) may occur often in the future. This water right has been satisfied historically by irrigation return flows and reservoir releases from Bureau projects. Federal ESA Section 7 consultations may result in bypass flow requirements below the Redlands diversion for recovery of the four endangered fish. These bypass requirements may result in a year-round Redlands call.

The Uncompahgre River is internally controlled by the irrigation water rights of the Uncompahgre Project which call every year. The number of users calling varies from year to year. The North and Smith Forks of the Gunnison are also internally controlled. The Paonia Ditch (1889 priority, 9.05 cfs) can dry the North Fork every year; however, irrigation return flows usually satisfy users from Hotchkiss to Delta. On the Smith Fork, water rights above Crawford generally dry the stream each summer. Most water users rely on storage for irrigation water after mid-summer.

Source: Division 4 Engineer's Office

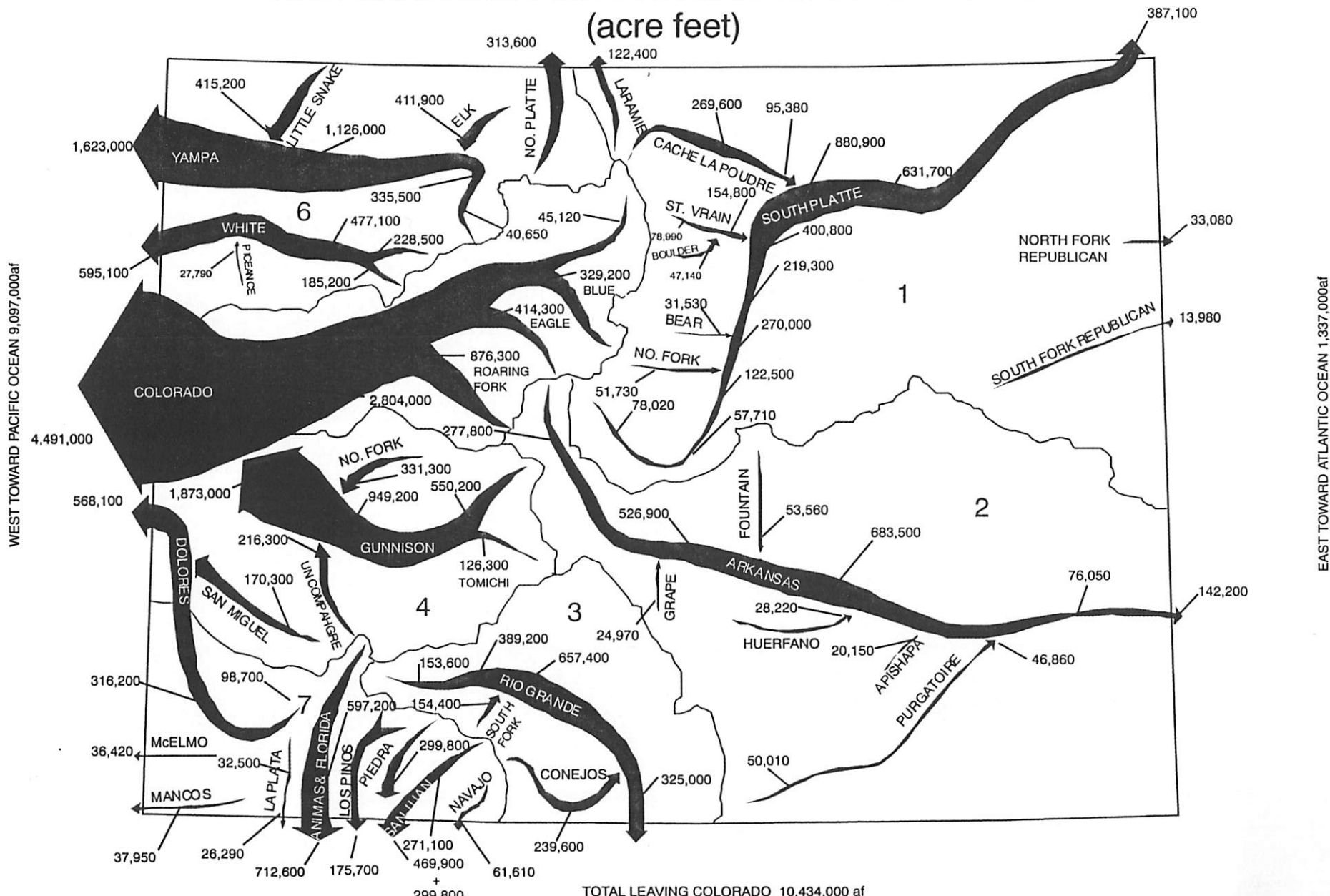
Wet and Dry Periods

Every year, Colorado experiences at least one 100-year flood somewhere in the state. Colorado's total flood losses have been documented to be \$4.9 billion to date. The basin's most recent flood event was May 21-26, 1984. The estimated total historic flood damages for this basin are \$13.2 million to date.



Source: Colorado Water Conservation Board and Division of Water Res

COLORADO HISTORIC AVERAGE ANNUAL STREAM FLOWS (acre feet)



Prepared by the Hydrographic Branch (1995)
Historic averages obtained from USGS Water-Data Report CO-93

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

Comments? Suggestions?

We at the Colorado Water Conservation Board are very interested in your comments and suggestions regarding the content of these draft river basin fact sheets and overall basin planning.

These fact sheets are being generated as part of an effort to revise the CWCB's 1995 Long-Range Plan. Eight river basin fact sheets are being prepared to cover four principal topics: water supply, flood protection, flow protection and demographic trends. The information in the fact sheets, and much more (including the Snake Diagram on the back of this sheet), eventually will be available on the Internet.

The draft fact sheets will be used in public meetings during 2000 in each major basin to get local and regional ideas about water resource related needs. The fact sheets will be revised to include additional facts the public believes are most important about their basins. The final fact sheets will be completed in the summer of 2000. The CWCB is expected to use the information and the comments received at the public meetings to complete its plan revision process in the fall of 2000 and the winter of 2001.

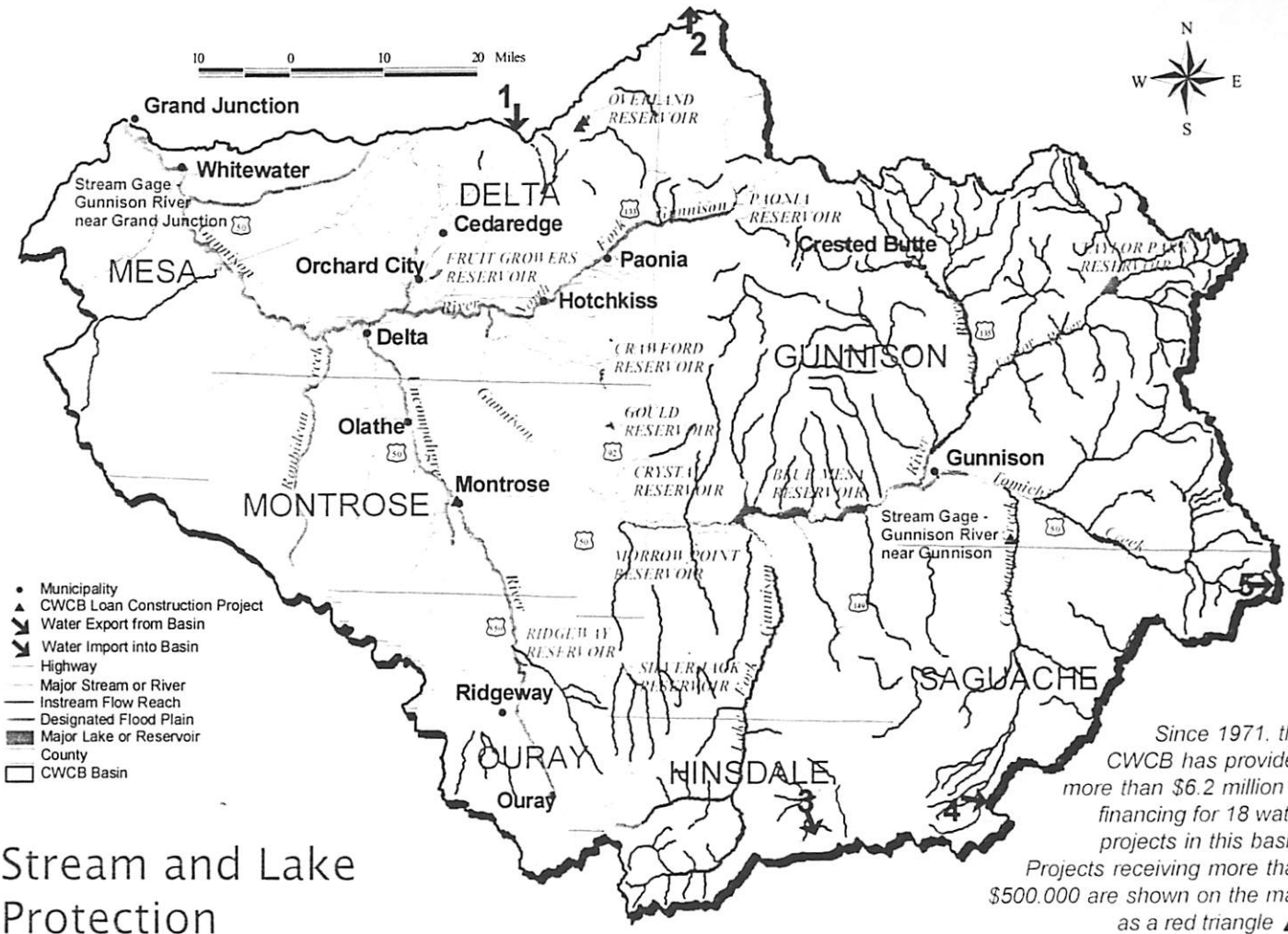
The deadline for submitting comments on these draft fact sheets to CWCB is May 31, 2000. Please send comments either to your Board member or to Dan McAuliffe, CWCB Deputy Director, 1313 Sherman Street, Room 721, Denver, Colorado 80203; fax: 303-866-4474; email: dan.mcauliffe@state.co.us.

Please use the space below for your comments on the Draft Colorado Water Conservation Board River Basin Fact Sheets. (use additional sheets as necessary). Please indicate to which basin fact sheet your comments/suggestions apply.

- Arkansas
- Colorado Mainstem
- Dolores
- Gunnison

- North Platte
- Rio Grande
- South Platte
- Yampa and White

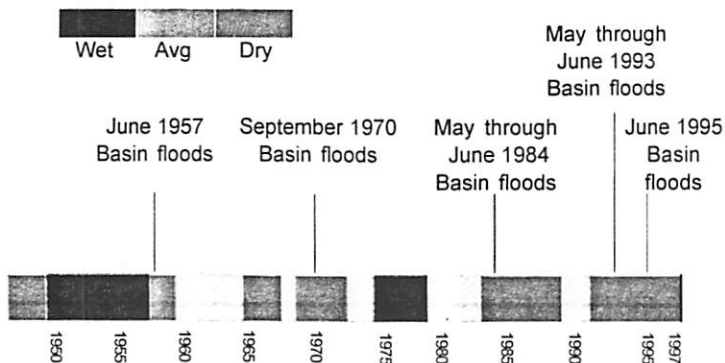
Gunnison River Basin



Stream and Lake Protection

There are 195 instream flow segments totalling approximately 1,219 stream miles in this basin. There are also 83 lakes with decreed natural lake levels. These decreed water rights are held by the CWCB to "protect the natural environment to a reasonable degree." The decreed flow or lake level for each of these instream flow segments and natural lakes is based on the flow or lake level required to maintain the water-dependent natural environment.

Source: Colorado Water Conservation Board



Major Imports into the Basin

Name	Diversions (acre-feet)
1 Leon Lake Tunnel	1,405
2 Other	560
Total	1,965

Major Exports from the Basin

Name	Diversions (acre-feet)
3 Divide Creek Highline Ditch	1,192
4 Tabor Ditch	791
5 Tarbell Ditch	310
6 Larkspur Ditch	122
Total	2,415

Source: Colorado Water Conservation Board tabulation and Department of Water Resources Hydrobase database, 10-year averages

Endangered Species

Under the Endangered Species Act, four Colorado River native fish species are listed as endangered: Colorado pikeminnow (a.k.a. Colorado squawfish), humpback chub, bonytail chub, and razorback sucker. Causes for the decline of these species include alteration of stream flows by water projects, introduction of non-native species and efforts to remove the native fish from the system in the past.

In 1988, the States of Colorado, Utah and Wyoming, water users, hydro-power customers, environmental organizations, and federal agencies developed a program to recover these species while allowing water use and development to continue. The Recovery Program for Endangered Fish of the Upper Colorado River Basin is designed to achieve recovery by (1) improving flow conditions by adding water to the river when needed by the fish, (2) improving and developing habitat, (3) reducing non-native fish populations, and (4) developing native fish stocking programs. Implementation of the Recovery Program should allow Colorado to fully develop its entitlement to water under the compact.

Source: Colorado Water Conservation Board



Humpback chub

Unique Characteristics

- ▲ Large volume of flow out of the basin compared to the small volume of transbasin diversions.
- ▲ Presence of the Aspinall Unit of the Colorado River Storage Project.
- ▲ Uncertainty of river administration because of the endangered species and federal water rights claims.
- ▲ Major export project proposed to serve Front Range water demand.

Compact Facts

Colorado River Compact of 1922

Allocates 7.5 million acre-feet (maf) of consumptive use annually to (1) the Upper Colorado River Basin (those parts of Arizona, Colorado, New Mexico, Utah, and Wyoming above Lee Ferry, Arizona) and (2) the Lower Colorado River Basin (those parts of Arizona, California, Nevada, New Mexico and Utah below Lee Ferry, Arizona). This Compact requires the Upper Colorado River Basin to deliver an average of 75 maf to the Lower Basin during any consecutive 10-year period. The Lower Basin may increase its consumptive use by 1.0 maf in the future.

Rio Grande, Colorado and Tijuana Treaty of 1944 between the United States and Mexico

Guarantees delivery of 1.5 maf of Colorado River water per year to Mexico. If there is not adequate surplus water to satisfy the obligation, the Upper and Lower Basins are to equally share the burden of reducing uses to make up any deficiencies.

Upper Colorado River Basin Compact of 1948

Allocates the Upper Basin consumptive use of water as follows:

Arizona	50,000 acre-feet/year
Colorado	51.75%
Utah	23%
Wyoming	14%
New Mexico	11.25%

Additionally, the State of Colorado may not deplete the flow in the Yampa River below an aggregate of 5 maf over any 10-year period.

Depending upon the interpretation of the Compacts, other laws, and the amount of water in the river, Colorado's right to the consumptive use of water under the compacts may range from 3.079 maf to 3.855 maf per year. Colorado currently consumes an average of 2.3 maf per year with facilities in place using up to 2.6 maf. Colorado's apportionment has not been divided among the various sub-basins within the state. The Yampa and La Plata River Basins have specific delivery obligations under the Compacts. The allocation and administration of any surpluses and shortages under the Compacts within Colorado remain open to discussion but ultimately will be subject to determination and administration by the State Engineer.



Black Canyon