COLORADO WATER CONSERVATION BOARD, STATE OF COLORADO

PREHEARING STATEMENT - CUCHARAS SANITATION AND WATER DISTRICT

IN THE MATTER OF THE CONTESTED INSTREAM FLOW APPROPRIATIONS FOR CUCHARAS CREEK AND THE HUERFANO RIVER

Pursuant to Rule 5n(2) of the Rules Concerning the Colorado Instream Flow and Natural Lake Level Program (2 CCR 408-2), and the Second Revised Notice of Prehearing Deadlines for Submissions and Prehearing Conference, provided by the Colorado Water Conservation Board Hearing Officer on September 18, 2009, the Cucharas Sanitation and Water District ("Cucharas"), by and through its attorneys Vranesh and Raisch, LLP, hereby submits its Prehearing Statement for the Hearing concerning the contested instream flow appropriations for Cucharas Creek and the Huerfano River, scheduled for November 16, 2009.

1. Statement of Factual and Legal Claims

In January of 2009 the Colorado Water Conservation Board ("CWCB") formalized its intent to make new instream flow ("ISF") appropriations on Cucharas Creek and the Huerfano River. In 2007 and 2008, the CWCB provided notice to water users that it would consider these new appropriations, and provided information about the proposed reaches and flow rates for the ISF appropriations.

Based on the information provided by the CWCB prior to its formal action in January of 2009, Cucharas identified concerns that it had with the proposed ISF reach for Cucharas Creek. Cucharas communicated with CWCB Staff members about its concerns, and was able to resolve them informally. The ISF appropriation for Cucharas Creek formalized by the CWCB in January of 2009 included the stream reach that was agreed to by Cucharas, the CWCB Staff, and the Colorado Division of Wildlife.

On March 23, 2009, Huerfano County and the Huerfano County Water Conservancy District ("Contesting Parties") submitted a Notice to Contest Cucharas Creek and Huerfano River Instream Flow Appropriations. Although that notice includes a general statement about the Contesting Parties' concerns, it does not provide specific information about what aspects of the CWCB's Cucharas Creek and Huerfano River ISF appropriations would be challenged, or how either of those entities believe that this contested matter should be finally resolved. Cucharas obtained Party status in this matter so that it could monitor and fully participate in the Hearing so as to protect its interests and prior negotiations concerning the ISF for Cucharas Creek.

C.R.S. §37-92-102(3)(c) and Rule 5i of the Rules Concerning the Colorado Instream Flow and Natural Lake Level Program require that the CWCB make the following determinations prior to initiating a water right filing to confirm an instream flow appropriation:

i. That there is a natural environment that can be preserved to a reasonable degree with the Board's water right, if granted.
ii. That the natural environment will be preserved to a reasonable degree by the water available for the appropriation to be made.
iii. That such environment can exist without material injury to water rights.

As of this Prehearing Statement, Cucharas has not received or reviewed any formal description of the issues that the Contesting Parties or others with Party or Contested Hearing Participant status intend to raise or challenge at the Hearing scheduled for this matter. Based on the information currently known to it, Cucharas does not object to the ISF appropriations for Cucharas Creek or the Huerfano River as formalized by the CWCB in January of 2009. As it does not yet have any specific information about what issues will be raised in this matter, Cucharas cannot at this time make any additional statements about the factual and legal claims that it might assert at the Hearing. Cucharas reserves the right to provide additional information about its factual and legal claims in its Prehearing Rebuttal Statement.

2. List of Exhibits

Based on the ISF Appropriations for Cucharas Creek and the Huerfano River formalized by the CWCB in January of 2009, and the limited information currently known to it about the matters to be raised by the Contesting Parties or others with Party or Contested Hearing Participant status, Cucharas provides the following list of exhibits that may be offered at the Hearing:

- March 1, 2007, CWCB Memorandum and attached Executive Summary for the Proposed Cucharas River ISF
- December 13, 2007, Letter from S. Corbridge to CWCB Staff re Proposed Cucharas River ISF
- March 14, 2008, Notice of Proposed 2009 Instream flow Appropriations - Water Divisions 1, 2, 4, 5, and 6, with attached Executive Summary for the Proposed Cucharas River ISF
- September 19, 2008, Email from J. Baessler to S. Corbridge re Cucharas River ISF Reach
- November 25, 2008, Email from S. Corbridge to J. Baessler re Cucharas River ISF Reach
- November 25, 2008, Email from J. Baessler to S. Corbridge re Cucharas River ISF Reach

- December 3, 2008, Email from J. Baessler to S. Corbridge re Proposed Cucharas River ISF, with attached Executive Summary for the Proposed Cucharas River ISF
- February 3, 2009, CWCB Notice of Intent to Appropriate, with attached Executive Summary for the Cucharas Creek ISF
- Aerial Photo showing location of Cucharas WTP

Copies of these exhibits are attached to this Prehearing Statement. Cucharas reserves the right to update its list of exhibits in its Prehearing Rebuttal Statement, based on the information included in the Prehearing Statements provided by the Contesting Parties or others with Party or Contested Hearing Participant status. In addition to any comments and legal argument provided at the Hearing, Cucharas may also rely on information provided by other parties related to this matter, including CWCB Staff recommendations, and reports and memos concerning the subject ISF appropriations, including the data and appendices attached to those reports.

3. List of Witnesses

Based on the ISF Appropriations for Cucharas Creek and the Huerfano River formalized by the CWCB in January of 2009, and the limited information currently known to it about the matters to be raised by the Contesting Parties or others with Party or Contested Hearing Participant status, Cucharas provides the following list of witnesses for the hearing:

a. Robert Northup

Mr. Northup is the manager of the Cucharas Sanitation and Water District. If called for testimony at the Hearing, Mr. Northup's testimony could include, but not be limited to, the location of Cucharas' water treatment and water service facilities with respect to the proposed ISF Appropriation on Cucharas Creek, Cucharas' communications with the CWCB Staff concerning the originally intended reach for the Cucharas Creek ISF Appropriation and the changes that were agreed to, and any other matters related to Cucharas' involvement in this matter.

b. Jeff Baessler

Mr. Baessler is a staff member for the CWCB. If necessary, Mr. Baessler would be called to testify about his work on, and communications with, Cucharas and its legal counsel concerning the proposed ISF Appropriation for Cucharas Creek and the concerns raised by Cucharas.

Cucharas reserves the right to update its list of witnesses in its Prehearing Rebuttal Statement, based on the information included in the Prehearing Statements provided by the Contesting Parties or others with Party or Contested Hearing Participant status.

4. Alternative Proposal

Cucharas does not currently have an alternate proposal for the ISF Appropriations for Cucharas Creek and the Huerfano River that were formalized by the CWCB in January of 2009. Cucharas reserves the right to provide an alternate proposal in its Prehearing Rebuttal Statement, based on the information included in the Prehearing Statements provided by the Contesting Parties or others with Party or Contested Hearing Participant status.

5. Written Testimony to be Offered

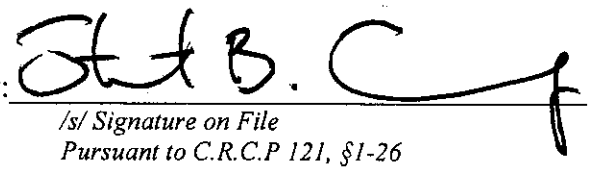
Cucharas does not currently have any written testimony to be offered at the Hearing. Cucharas reserves the right to provide written testimony to be offered at the Hearing in its Prehearing Rebuttal Statement, based on the information included in the Prehearing Statements provided by the Contesting Parties or others with Party or Contested Hearing Participant status.

6. Legal Memoranda

Cucharas does not currently have any legal memoranda to be offered at the Hearing. Cucharas reserves the right to provide legal memoranda to be offered at the Hearing in its Prehearing Rebuttal Statement, based on the information included in the Prehearing Statements provided by the Contesting Parties or others with Party or Contested Hearing Participant status.

Respectfully submitted this 6th day of October, 2009.

VRANESH AND RAISCH, LLP

By: 

/s/ Signature on File
Pursuant to C.R.C.P 121, §1-26
Stuart B. Corbridge (#33355)

ATTORNEYS FOR CUCHARAS
SANITATION AND WATER DISTRICT

CERTIFICATE OF SERVICE

I hereby certify that on this 6th day of October, 2009, 25 hard copies of the foregoing **PREHEARING STATEMENT - CUCHARAS SANITATION AND WATER DISTRICT** were sent by FedEx to the offices of the Colorado Water Conservation Board. I also hereby certify that on the 7th day of October, 2009, a true and correct copy of the foregoing was also served on the following via email or US Mail:

Linda Bassi, *CWCB*
linda.bassi@state.co.us

Chris Cummins, *Huerfano County and Huerfano County Water Conservancy District*
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Drew Peternell, *Trout Unlimited*
dpeternell@tu.org

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Via US Mail

/s/ Signature on File
Stuart B. Corbridge

ORIGINAL SIGNED DOCUMENT BEING RETAINED AT THE OFFICE OF VRANESH AND RAISCH, LLP

PROPOSED EXHIBIT

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MEMORANDUM

To: Colorado Water Conservation Board Members

From: Jeff Baessler
Todd Doherty

Date March 1, 2007

Re: **Agenda Item 17, March 12-13, 2007–Board Meeting**
Stream and Lake Protection – Notice of 2008 Instream Flow Recommendations and Summary of ISF Workshop

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General Background

On February 21, 2007, Staff held its annual Instream Flow Workshop at the Colorado Division of Wildlife Hunters' Education Building in Denver. The meeting was well attended by staff, 6 CWCB Board Members and representatives from the CDOW, BLM, Trout Unlimited, Western Resources Advocates, Colorado Environmental Coalition, Clear Creek County Water Bank, Eagle River Watershed Council and Jackson County.

The main objective of this meeting was to allow recommending entities an opportunity to present and discuss the specific streams and lakes that they would like to bring to the Board in January 2008 for inclusion in the Instream Flow and Natural Lake Level (ISF) Program. In addition, the recommenders indicated which water divisions they would like to focus on during the 2007 field season. The earliest that these streams could be recommended to the Board would be January 2009. The workshop allowed the recommending entities an opportunity to present their recommendations and provide an explanation of why instream flow protection is important for these particular streams. During the workshop, the Board and the public had the opportunity to raise questions and or concerns regarding the recommendations.

As stated in the Instream Flow and Natural Lake Level Program Rules, all persons or entities interested in recommending stream reaches or natural lakes for inclusion in the ISF Program may make recommendations at any time. Below is the list of the streams that were discussed at the workshop which are being noticed for possible inclusion into the program in January 2008. The

complete list of the streams can also be found on the CWCB website at: http://cwcb.state.co.us/Streamandlake/newAppNotices.htm.

Water Division	Stream Name	County (ies)	Recommender(s)*
1	Como Creek	Boulder	CDOW, TU
2	Purgatoire River	Las Animas	CDOW
2	South Fork Purgatoire River	Las Animas	CDOW
2	Cucharas River	Huerfano	CDOW
2	Newlin Creek	Fremont	CDOW
2	Lake Fork Middle Fork South Arkansas River	Chafee	CDOW
2	Severy Creek	El Paso, Teller	CDOW, TU
2	North Cheyenne Creek	El Paso, Teller	CDOW, TU
2	Bear Creek	El Paso, Teller	CDOW, TU
5	Eagle River	Eagle	Town of Mintum, CDOW
5	Right Fork Barrel Springs Creek	Garfield	BLM
5	Wallace Creek	Mesa	BLM
5	North Fork Wallace Creek	Mesa	BLM
5	Battlement Creek	Garfield	BLM
5	Baldy Creek	Garfield	BLM
5	Arapaho Creek	Grand	CDOW, TU
5	Mule Creek	Grand	BLM
5	Rabbit Ears Creek	Grand	BLM
5	Troublesome Creek	Grand	BLM
5	Corral Creek (ISF Increase) Existing ISF: 5-86CW214	Grand	BLM
5	Beaver Creek (ISF Increase) Existing ISF: 5-86CW206	Grand	BLM
5	Willow Creek (ISF Increase) Existing ISF: 5-78W3774	Grand	BLM
6	Indian Creek	Jackson	BLM
6	South Fork Big Creek	Jackson	BLM
6	North Fork North Platte River	Jackson	BLM
6	Piceance Creek	Rio Blanco	BLM, CDOW
6	Black Sulphur Creek	Rio Blanco	BLM
6	East Willow Creek	Rio Blanco	BLM
6	Yellow Creek	Rio Blanco	BLM, CDOW
6	Little Cottonwood Creek	Moffat	CDOW
6	Beaver Creek**	Moffat	BLM
6	Willow Creek**	Moffat	BLM

* CDOW (Colorado Division of Wildlife), TU (Trout Unlimited) and BLM (Bureau of Land Management)

** These streams may be considered for appropriation by the Board in 2007.

- The BLM recommended streams in water divisions 5 and 6 to be included into the Instream Flow Program with a 2007 appropriation date. The BLM is interested in obtaining instream flow protection on streams flowing through BLM lands, especially those with threatened or sensitive species, areas with high recreational values and uses, diverse fishery or riparian communities and sufficient water quality to support fisheries. The streams listed above in water division 6 (i.e. Jackson, Rio Blanco and Moffat Counties) are those streams that have been previously noticed by the CWCB but have

been delayed due to various concerns such as water availability and/or their potential to impact water rights.

- The Colorado Division of Wildlife recommended several streams in water division 2. The CDOW is interested in obtaining instream flow protection on streams with threatened and endangered species, areas with high recreation value and those flowing through State Wildlife Areas. In addition, the DOW streams located in Division 6, and the Eagle River in Division 5, were previously noticed by the CWCB but have also been delayed due to various concerns.
- Trout Unlimited, in cooperation with the CDOW, has recommended several streams located in water divisions 1, 2, and 5. With the exception of one stream, all of these streams contain Greenback Cutthroat Trout, a species currently listed as "threatened" under the Endangered Species Act. The stream noticed for division 1 is being considered outside the normal basin rotation schedule based on evidence that clearly outlines and justifies the need. This exception falls within the policy guidelines concerning the basin rotation approach that were adopted by the Board at its March 2006 meeting.

The BLM, CDOW and TU have coordinated their planning efforts for the 2007 field season and have communicated at the ISF Workshop that they would like to concentrate their efforts in water divisions 4 and 6. The earliest these streams could be recommended to the Board for appropriation would be the January 2009 CWCB meeting.

Discussion

At the workshop, staff suggested, and several Board Members agreed, that it would be beneficial for the Board to take a more active role in defining stream protection goals and prioritizing streams that it will consider for inclusion into the ISF program. Currently, the recommending entities bring streams to the Board for consideration based on their internal agency goals. For example, entities are currently recommending streams that will accomplish multiple goals including streams with threatened species, high recreational value streams and streams located within state wildlife areas. In some cases, these diverse goals have resulted in the recommendation of streams where there is significant conflict with other water right interests, resulting in a substantial drain on CWCB staff and financial resources. The development of common goals between the CWCB and the recommending entities and a prioritization of streams based on those goals would ensure that limited staff resources are being utilized in the best way possible.

There are 32 stream segments, as shown in the table above, that staff will be working on over the next year. During this period, staff will review the recommendations and the supporting data, conduct thorough water availability analyses, conduct site visits for each stream, provide broad public notice, and discuss recommendations with the Division Engineers' offices, water districts and water users located within the particular stream reach. The purpose of this extensive and thorough review and noticing process is to identify and resolve issues prior to the January 2008 CWCB meeting, when staff will ask the Board to declare its intent to appropriate. As in years past, some of the currently recommended segments will require significantly more staff and financial resources to resolve water users' concerns. Staff continues to be concerned regarding its limited resources and its ability to adequately address all issues on all segments within the next year.

Recommendation

In order not to exhaust all of its resources on a few controversial streams, staff recommends the Board direct staff to evaluate and prioritize the 32 segments as follows.

1. Resolve the remaining issues on Beaver Creek and Willow Creek in Moffat County. Staff is close to resolving outstanding issues on Beaver Creek and is hopeful that it can resolve stakeholder concerns on Willow Creek. Staff intends to bring these recommendations to the Board no later than at its July 2007 meeting.

2. Attempt to resolve the issues regarding the Jackson County streams that were discussed at the January 2007 Board Meeting.

3. Investigate and scrutinize the recommendations in divisions 2 and 5 to identify which streams may develop significant controversy and require additional staff resources to resolve issues. Staff will then move the non-controversial streams forward and develop a plan to address issues on the remaining streams as time and resources allow.

4. Continue to work with the recommending entities and stakeholders on those streams in Divisions 5 and 6 that were recommended in previous years. The majority of these streams have a high degree of controversy associated with them and staff may need additional time or more resources to successfully identify and resolve issues prior to asking the Board to form its intent to appropriate. These include the streams in Division 6 in Rio Blanco County located in the Piceance Creek Basin, Little Cottonwood Creek in Moffat County, and the Eagle River in Eagle County.

Stream: Cucharas River

Executive Summary

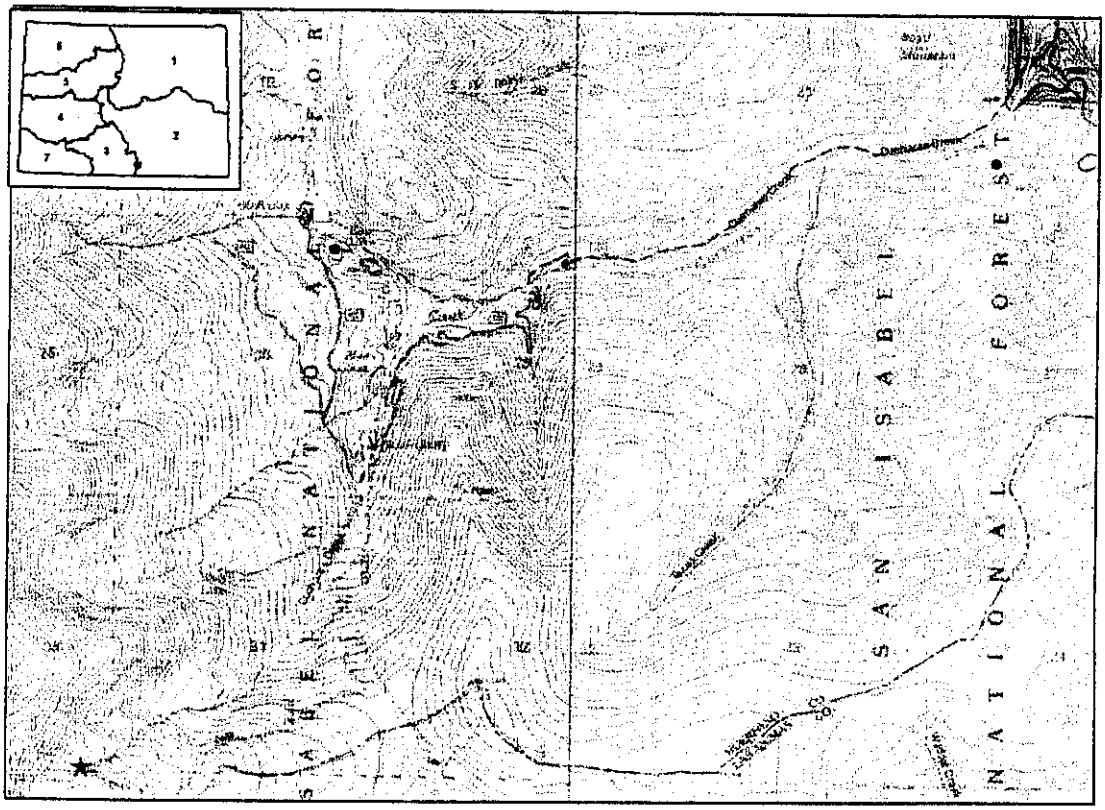
Water Division: 2
Water District: 16
CDOW#: 29606

Segment: Headwaters to Deadman Creek

Upper Terminus: Headwaters
Latitude: 37° 17' 47.2"N Longitude: 105° 09' 27.7"W
UTM North: 4127771 UTM East: 130486024

Lower Terminus: Deadman Creek
Latitude: 37° 20' 04.2"N Longitude: 105° 05' 43.1"W
UTM North: 4131985 UTM East: 130491558

Counties: Huerfano
Length: 5.3 miles
USGS Quad(s): Trinchera Peak, Cucharas Pass
ISF Appropriation: 4.9 cfs (05/15 – 06/30)
1.6 cfs (07/01 – 09/15)
1.2 cfs (09/16 – 03/31)
1.6 cfs (04/01 – 05/14)



Cucharas River - Huerfano County

The information contained in this report and the associated instream flow file folder forms the basis for the instream flow recommendation to be considered by the Colorado Water Conservation Board (Board). It is the Colorado Division of Wildlife (CDOW) staff's opinion that the information contained in this report is sufficient for the Board's staff to begin the investigations required to support the findings required in Rule 5(i) of the Instream Flow Rules.

The State of Colorado's Instream Flow Program (ISFP) was created in 1973 when the Colorado State Legislature recognized "the need to correlate the activities of mankind with some reasonable preservation of the natural environment" (see 37-92-102 (3) C.R.S.). The statute vests the Board with the exclusive authority to appropriate and acquire instream flow and natural lake level water rights. In order to encourage other entities to participate in Colorado's ISFP, the statute directs the Board to request instream flow recommendations from other state and federal agencies. The CDOW is recommending this segment of the Cucharas River to the Board for inclusion into the ISFP. The Cucharas River should be considered for inclusion into the ISFP because it has a natural environment that can be preserved to a reasonable degree with an instream flow water right.

The CDOW is forwarding this stream flow recommendation to the Board to meet Colorado's policy "... that the wildlife and their environment are to be protected, preserved, enhanced, and

managed for the use, benefit, and enjoyment of the people of this state and its visitors ... and that, to carry out such program and policy, there shall be a continuous operation of planning, acquisition, and development of wildlife habitats and facilities for wildlife-related opportunities" (See §33-1-101 (1) C.R.S.). The CDOW Strategic Plan states "[h]ealthy aquatic environments are essential to maintain healthy and viable fisheries, and critical for self-sustaining populations. The [CDOW] desires to protect and enhance the quality and quantity of aquatic habitats."

The Cucharas River is approximately 70 miles long. It begins on the northeast side of Trinchera Peak at an elevation of approximately 12,000 feet and terminates at the confluence with Huerfano Creek at an elevation of approximately 5,100 feet. Of the 5.3 mile segment addressed by this report, approximately 95% of the segment, or 5.3 miles, is located on public lands. The Cucharas River is located within Huerfano County. The Cucharas River generally flows in a northeasterly direction.

The subject of this report is a segment of the Cucharas River beginning at its headwaters and extending downstream to Deadman Creek. The proposed segment is located southwest of the Town of Cuchara. The recommendation for this segment is discussed below.

Instream Flow Recommendation(s)

The CDOW is recommending 4.90 cfs, summer, and 1.60 cfs, winter, based on their data collection efforts. This recommendation is based on the physical and biological data collected to date and does not incorporate any water availability constraints.

- 4.90 cubic feet per second is recommended is required to maintain the three principal hydraulic criteria of average depth, average velocity and percent wetted perimeter;
- 1.60 cubic feet per second is required to maintain two of the three principal hydraulic criteria.

The modeling results from this survey effort are within the confidence interval produced by the R2CROSS model (see Table 1).

Land Status Review

Upper Terminus	Lower Terminus	Total Length (miles)	Land Ownership	
			% Private	% Public
Headwaters	Deadman Creek	5.3	5%	95%

95% of the public lands are managed by the USFS.

Biological and Field Survey Data

The CDOW, in April of 1997 and May and July of 2006, collected stream cross section information, natural environment data, and other data needed to quantify the instream flow needs for this reach of the Cucharas River. The Cucharas River is classified as a small stream (between 10 to 19 feet wide) and fishery surveys indicate the stream environment of the Cucharas River supports rainbow trout (*Oncorhynchus mykiss*), brown trout (*Salmo trutta*) and brook trout (*Salvelinus fontinalis*) (See CDOW Fish Survey in Appendix B).

Field Survey Data

CDOW staff used the R2CROSS methodology to quantify the amount of water required to preserve the natural environment to a reasonable degree. The R2CROSS method requires that stream discharge and channel profile data be collected in a riffle stream habitat type. Riffles are most easily visualized, as the stream habitat types that would dry up first should streamflow cease. This type of hydraulic data collection consists of setting up a transect, surveying the stream channel geometry, and measuring the stream discharge. Appendix B contains copies of field data collected for this proposed segment.

Biological Flow Recommendation

The Board staff relies upon the biological expertise of the cooperating agencies to interpret output from the R2CROSS data collected to develop the initial, biologic instream flow recommendation. This initial recommendation is designed to address the unique biologic requirements of each stream without regard to water availability. Three instream flow hydraulic parameters, average depth, percent wetted perimeter, and average velocity are used to develop biologic instream flow recommendations. The CDOW has determined that maintaining these three hydraulic parameters at adequate levels across riffle habitat types, aquatic habitat in pools and runs will also be maintained for most life stages of fish and aquatic invertebrates (Nehring 1979; Espegren 1996).

For this segment of stream, three data sets were collected with the results shown in Table 1 below. Table 1 shows who collected the data (Party), the date the data was collected, the measured discharge at the time of the survey (Q), the accuracy range of the predicted flows based on Manning's Equation (240% and 40% of Q), the summer flow recommendation based on meeting 3 of 3 hydraulic criteria and the winter flow recommendation based upon 2 of 3 hydraulic criteria.

Table 1: Data

Party	Date	Q	250%-40%	Summer (3/3)	Winter (2/3)
DOW	4/23/97	3.5	8.8 – 1.4	4.9	2.0
DOW	5/10/06	2.2	5.5 – 0.9	$7.9^{(OR)}$	1.3
DOW	7/19/06	2.7	6.8 – 1.1	$7.8^{(OR)}$	1.4

DOW = Division of Wildlife OR = Outside of R2X Accuracy Range

Biologic Flow Recommendation

The summer flow recommendation, which met 3 of 3 criteria and is within the accuracy range of the R2CROSS model, ranged is 4.9 cfs (See Table 1). The winter flow recommendations, which met 2 of 3 criteria and were within the accuracy range of the R2CROSS model, ranged from 2.0 cfs to 1.3 cfs. Averaging the winter values within range, results in a 1.6 cfs winter recommendation (See Table 1).

Hydrologic Data

The CDOW staff conducted a preliminary evaluation of the stream hydrology to determine if water was physically available for an instream flow appropriation. The hydrograph below was derived from data collected by the USGS stream gage for Cucharas River at Boyd Ranch, near

La Veta, CO (#07114000), which has a drainage area of 56 square miles (See Gage Summary in Appendix C). The total drainage area upstream of this ISF segment of the Cucharas River is 9.4 square miles. The period of record for the Cucharas River gage was 1934 to 1981, the period of record used by staff in their analysis was 1934 to 1981, or 47 years of record. Table 2 below displays the estimated flow of Cucharas River at the lower terminus of the instream flow reach in terms of a percentage of exceedence.

Table 2: Estimated Stream Flow for Cucharas River

Exceedences	January	February	March	April	May	June	July	August	September	October	November	December
1%	2.1	2.7	3.7	20.1	47.0	44.5	18.9	8.1	4.5	3.9	3.4	2.5
5%	1.8	1.8	2.7	11.2	34.7	31.2	10.9	5.7	3.4	2.9	2.5	2.0
10%	1.6	1.6	2.2	7.6	28.6	24.8	9.1	4.7	2.7	2.2	2.0	1.8
20%	1.4	1.4	1.8	4.9	19.0	18.1	6.7	3.9	2.4	1.8	1.7	1.5
50%	1.2	1.2	1.3	2.7	8.1	9.2	3.9	2.4	1.6	1.5	1.4	1.2
80%	0.9	0.9	1.1	1.5	3.4	3.9	2.2	1.5	1.2	1.0	1.1	1.0
90%	0.8	0.9	0.9	1.3	2.0	2.9	1.7	1.2	0.9	0.9	0.9	0.8
95%	0.7	0.8	0.9	1.1	1.4	2.2	1.3	0.9	0.7	0.8	0.8	0.7
99%	0.6	0.6	0.7	0.9	1.2	1.2	0.6	0.6	0.5	0.6	0.6	0.5

Table 2 shows that the summer flow recommendation of 4.9 cfs is available at least 50% of the time for the months of May and June. The winter flow recommendation of 1.6 cfs is available at least 50% of the time from July through mid September and the month of April. Based on this water availability analysis, the winter recommendation was further reduced to 1.2 cfs for the time period of September 16 through March 31. After incorporating the above water availability constraints, the original instream flow recommendation was modified to the following:

- 4.90 cubic feet per second is recommended from May 15 through June 30;
- 1.60 cubic feet per second is recommended from July 1 through September 15;
- 1.20 cubic feet per second is recommended from September 16 through March 31;
- 1.60 cubic feet per second is recommended from April 1 through May 14.

However, if additional water is determined to be available in further investigations, the CDOW would recommend appropriating the additional water up to the recommended flow amounts to preserve the natural environment to a reasonable degree.

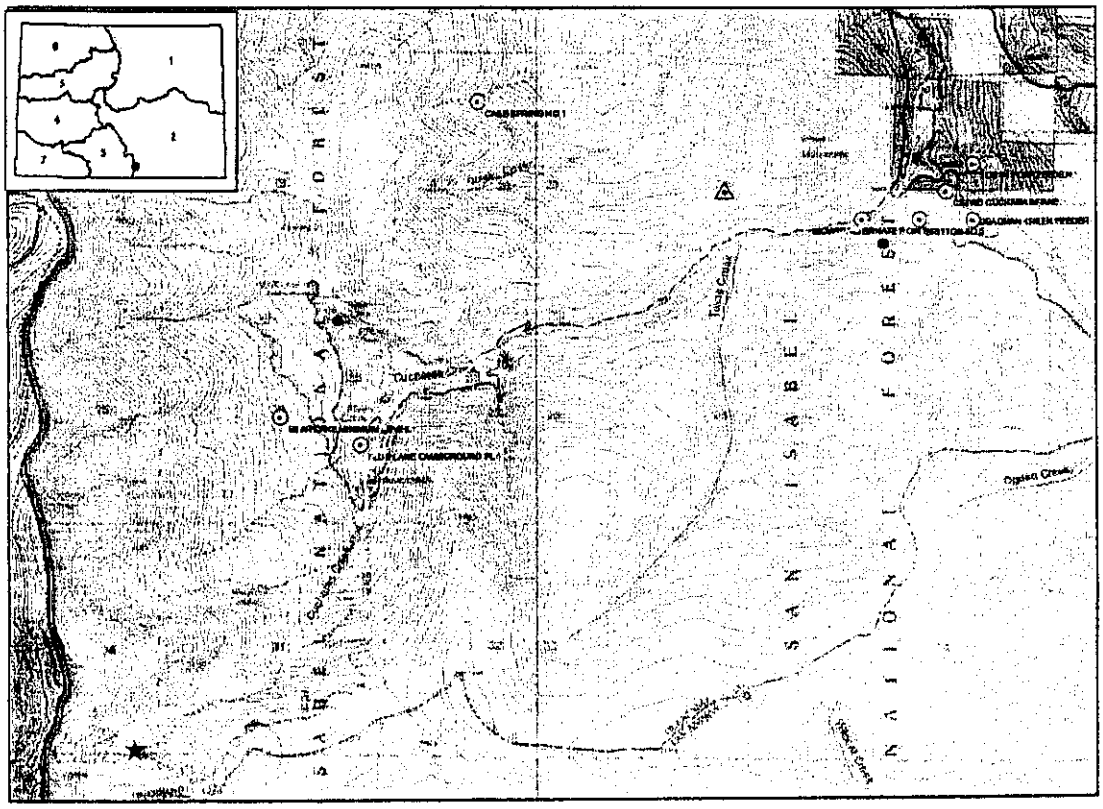
Precipitation Data

CDOW staff identified 4 local precipitation data sets located near the Cucharas River Drainage: La Veta, La Veta Pass, North Lake and Aguilar 18 WSW (see Precipitation Data in Appendix C).

Existing Water Right Information

CDOW staff has analyzed the water rights tabulation and will consult with the Division Engineer's Office (DEO) to identify any potential water availability problems due to existing diversions. Records indicate that there are 4 surface water diversions that are located within this reach of Cucharas River. In addition, there are several existing water rights downstream of the proposed instream flow reach (see below).

WD	ID	NAME	WATER_SRC
16	825	CS&WD CUCHARA INTAKE	CUCHARAS RIVER
16	2123	CASE SPRING NO 1	UNAMED SPRINGS
16	586	BRITTON NO 5	CUCHARAS RIVER
16	2226	BLUE LAKE CAMPGROUND PL	UNAMED SPRINGS
16	985	DEADMAN CREEK FEEDER	CUCHARAS RIVER
16	986	SOUTH FORK FEEDER	CUCHARAS RIVER
16	988	85CW10 ALTERNATE POINT	CUCHARAS RIVER
16	3516	BEAR LAKE MINIMUM LEVEL	CUCHARAS RIVER
16	3859	BRITTON RESERVOIR NO 1	CUCHARAS RIVER
16	3860	BRITTON RESERVOIR NO 2	CUCHARAS RIVER
16	3861	BRITTON RESERVOIR NO 3	CUCHARAS RIVER



Cucharas River - Huerfano County

PROPOSED EXHIBIT

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Lisa Ledet
Stuart B. Corbridge
Nathan B. Rand

George Vranesh (1926-1997)

December 13, 2007

Via Email Only

Jeffrey Baessler
Owen Williams
Colorado Water Conservation Board
1313 Sherman St., Room 721
Denver, Colorado 80203

Re: Comments to Proposed Instream Flow Reach for Cucharas River

Dear Jeffrey and Owen,

The purpose of this letter is to provide you with comments to the CWCB's proposed Instream Flow ("ISF") appropriation for the Cucharas River. I am providing these comments on behalf of the Cucharas Sanitation and Water District ("District"). It is my understanding that the Board will not consider this proposed appropriation at the January 2008 meeting, and may instead consider it at its January 2009 meeting, or sometime later in 2008. Although this matter has been delayed, I thought it would be helpful to get the District's comments to you at this time.

It is our understanding that the proposed downstream terminus for the Cucharas River ISF reach is the confluence of the Cucharas River and Deadman Creek. The District is the owner of several water rights that are decreed for diversion from the Cucharas River at the District's Water Treatment Plant ("WTP") intake. The District also has two decreed exchanges that include the WTP intake as an upstream diversion point for the exchange. The WTP intake is located approximately 1/8 - 1/4 of a mile upstream from the proposed downstream terminus. This location is just downstream on the Cucharas River from the point where the highway leading up to Cucharas Pass crosses the river. I have enclosed an aerial photo with hand written notations that shows the location.

Although the District is not conceptually opposed to having an ISF right on the upper portions of the Cucharas River, it is concerned about the overlap of the proposed ISF reach with the point of diversion for its WTP. To resolve this issue we believe it makes sense to relocate the downstream terminus of the reach to a point that is upstream of the WTP intake, so that there is no overlap, and propose this modification for your consideration. We think a viable downstream terminus would be where the highway and stream intersect, just upstream of the WTP intake.

Adjusting the reach by this small amount does not materially impact the proposed ISF right. This new appropriation will be junior to all of the District's decreed water rights and exchanges, and the District's decrees authorize diversion of almost 7.0 cfs at the WTP intake. Under these circumstances, the proposed ISF right would potentially not be satisfied at times when the District is diverting at the WTP intake, if the ISF reach includes the segment from the WTP intake to the confluence with Deadman Creek. Our suggested change also would not impact the proposed flow amounts and associated annual flow periods for the ISF right.

We hope that this letter provides sufficient information for your review of this matter, and that you will take the necessary steps to accommodate the District's comments and concerns. If you need additional information please contact me by phone or email. Also, I would appreciate if you would contact me once you have made a determination about this request.

I look forward to hearing from you.

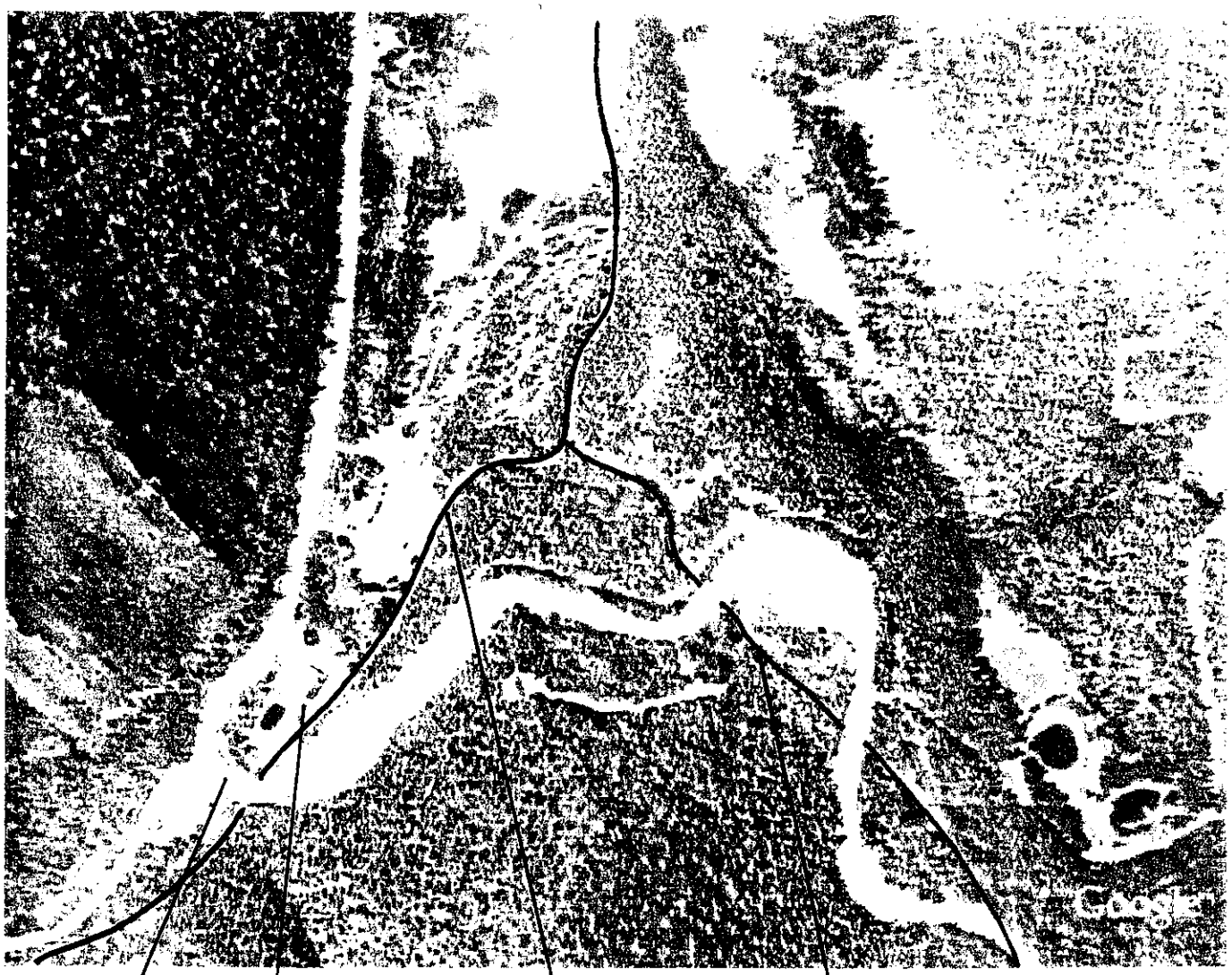
Sincerely,

VRANESH AND RAISCH, LLP

By: *Stuart B. Corbridge*
Stuart B. Corbridge
E-mail: sbc@vrlaw.com

SBC:kek
Enclosure

cc: Bob Northup


Highway
Cucharas WTP
Cucharas River
Deadman Creek

Stuart B. Corbridge

From: Stuart B. Corbridge
Sent: Thursday, December 13, 2007 11:54 AM
To: 'Baessler, Jeffrey'; 'owen.williams@state.co.us'
Cc: 'Bob Northup'; Michael D. Shimmin
Subject: Cucharas River ISF Appropriation

Attachments: CWCB ltr of 12.13.07 re ISF Reach (with Aerial Photo).pdf

Jeffrey and Owen,

Please see the attached letter. I look forward to hearing back from you.

Thanks,

Stuart

CWCB ltr of
12.13.07 re ISF Re..

PROPOSED EXHIBIT

STATE OF COLORADO

Colorado Water Conservation Board
Department of Natural Resources
1313 Sherman Street, Room 721
Denver, Colorado 80203
Phone: (303) 866-3441
Fax: (303) 866-4474
www.cwcb.state.co.us

NOTICE

To: Instream Flow Subscription Mailing Lists

Subject: Proposed 2009 Instream Flow Appropriations
Water Divisions 1, 2, 4, 5, and 6

Date: March 14, 2008

Pursuant to ISF Rule 5c, this notice identifies the streams to be considered for instream flow appropriations in 2009. At the January 2009 meeting of the Colorado Water Conservation Board (CWCB), staff may request that the Board form its intent to appropriate instream flow water rights for the streams listed on the attached Instream Flow Appropriation List. The attached list contains a description of the Instream Flow (ISF) Recommendations including stream name, watershed, county, upper terminus, lower terminus, length, and USGS quad sheet name(s).

Copies of the Instream Flow Recommendations and Appendices of data submitted into the Official CWCB Record are available for review by the public during regular business hours (8:00 a.m. - 5:00 p.m.) at the Colorado Water Conservation Board's Office, located at 1313 Sherman Street, Room 723, Denver, Colorado, 80203. In addition to the CWCB office, copies of the Instream Flow and Natural Lake Level Recommendations are available on the CWCB website by going to the Stream and Lake Protection Tab, followed by New Appropriations, Instream Flow Appropriation Notices, then 2009 Proposed Appropriations.

In addition to the above Instream Flow Recommendations and Appendices, staff may rely on any additional data, exhibits, testimony, or other information submitted by any party as part of the Official CWCB Record to support its Instream Flow Recommendations.

It should also be noted that:

(a) The Board may change flow amounts of contested ISF appropriations based on information received during the public notice and comment period.

(b) Staff will maintain, pursuant to Rule 5e.(3), an ISF Subscription Mailing List for each water division composed of the names of all persons who have sent notice to the Board Office that they wish to be included on such list for a particular water division. Any person desiring to be on the ISF Subscription Mailing List(s) must send notice to the Board Office.

4	E. Elk Cr. (ISF Increase) Existing ISF: 4-84CW378	Upper Gunnison	Gunnison	Confluence with Bear Wallow Gul	Confluence with Blue Mesa Reservoir	4.5 mi	Carpenter Ridge, West Elk Peak SW
4	Gunnison R.	Upper Gunnison	Gunnison	At Almont, CO	Curecanti National Recreation Area	18.0 mi	McIntosh Mntn, Gunnison,Signal Peak, Almont
4	Little Spring Cr	N Fk Gunnison	Gunnison	Crystal Springs	Upstream of Crystal Ditch Headgate	0.4 mi	Chair Mountain
4	Bent Cr. (ISF Increase) Existing ISF: 4-80CW101	Upper Gunnison	Hinsdale	Headwaters	Confluence with Lake Fork of the Gunnison R	3.0 mi	Redcloud Peak
4	Grizzly Gulch	Upper Gunnison	Hinsdale	Unnamed Lake	Confluence with Lake Fork Gunnison R	2.1 mi	Redcloud Peak
4	Henson Cr	Upper Gunnison	Hinsdale	Confluence with North Fork Henson Creek	Confluence with Nellie Creek	3.4 mi	Uncompahgre Peak
4	Schafer Gul (ISF Increase) Existing ISF: 4-84CW383	Upper Gunnison	Hinsdale	Headwaters	Confluence with Henson Cr	1.7 mi	Handies Peak
4	San Miguel R	San Miguel	Montrose	Confluence with Calamity Draw	Dolores R	16.5 mi	Davis Mesa, Red Canyon, Uravan, Nucla, Atkinson Cr
4	Tabeguache Cr	San Miguel	Montrose	Confluence with Fortyseven Cr	Confluence with San Miguel R	11.7 mi	Uravan, Nucla
5	Colorado R.	Colorado Headwaters	Eagle	Eagle-Grand County Line	Confluence with Eagle R	40 mi	Dotsero, Sugarloaf Mntn, Burns South, Burns North, Blue Hill, McCoy, State Bridge, Radium
5	Eagle R (ISF Increase) Existing ISF: 5-78W3796	Eagle	Eagle	Confluence with Gore Cr	Confluence with Cross Cr	3.77 mi	Minturn
5	Corral Cr (ISF Increase) Existing ISF: 5-86CW214	Upper Colorado River	Grand	Confluence with Smith Creek	Confluence with Colorado River	2.75 mi	Parshall
5	Troublesome Cr	Colorado Headwaters	Grand	Outlet Matheson Reservoir	Confluence with Rabbit Ears Cr	3.0 mi	Hyannis Peak
5	Troublesome Cr	Colorado Headwaters	Grand	Confluence with Rabbit Ears Cr	Headgate Pickering Ditch	3.0 mi	Hyannis Peak, Gunsight Pass
5	Buzzard Cr.	Colorado Headwaters - Plateau	Mesa	Confluence with Willow Cr	Confluence with Owens Cr	3.4 mi	Porter Mntn, Spruce Mntn
5	Grizzly Cr.	Little Snake	Routt	Conf w/ Unnamed trib	USFS Boundary	2.9 mi	Bears Ears Peaks
6	Indian Cr	North Platte Headwaters	Jackson	Headwaters	Headgate W Arapaho Feeder Ditch 2	7.7 mi	Spicer Peak, Whiteley Peak
6	N Fk North Platte R	North Platte Headwaters	Jackson	Headwaters	Headgate Little Nellie Ditch	7.5 mi	Boettcher Lake, Pearl, Davis Peak
6	S Fk Big Cr	Upper North Platte	Jackson	Confluence with Wheeler Creek	Colorado-Wyoming Border	1.88	Pearl
6	Moeller Cr	Upper White River	Rio Blanco	Headwaters	Confluence with Fawn Cr	3.5 mi	Fawn Creek
6	Piceance Cr	Piceance-Yellow	Rio Blanco	Confluence with Dry Fork	Confluence with White R	7.72 mi	Barcus Cr SE, White River City
6	Yellow Cr	Piceance-Yellow	Rio Blanco	Springs in NWNE S12, T1N R98W, 6PM	Confluence with White R	11.8	Barcus Cr, Barcus Cr SE, Rough Gulch,
6	S Fk Slater Cr	Little Snake	Routt	Headwaters	Confluence with	4.6 mi	Buck Point

					Slater Cr		
6	W Prong S Fk Slater Cr	Little Snake	Routt	Headwaters	Confluence with S Fk Slater Cr	5.5 mi	Buck Point

Stream: Cucharas River

Executive Summary

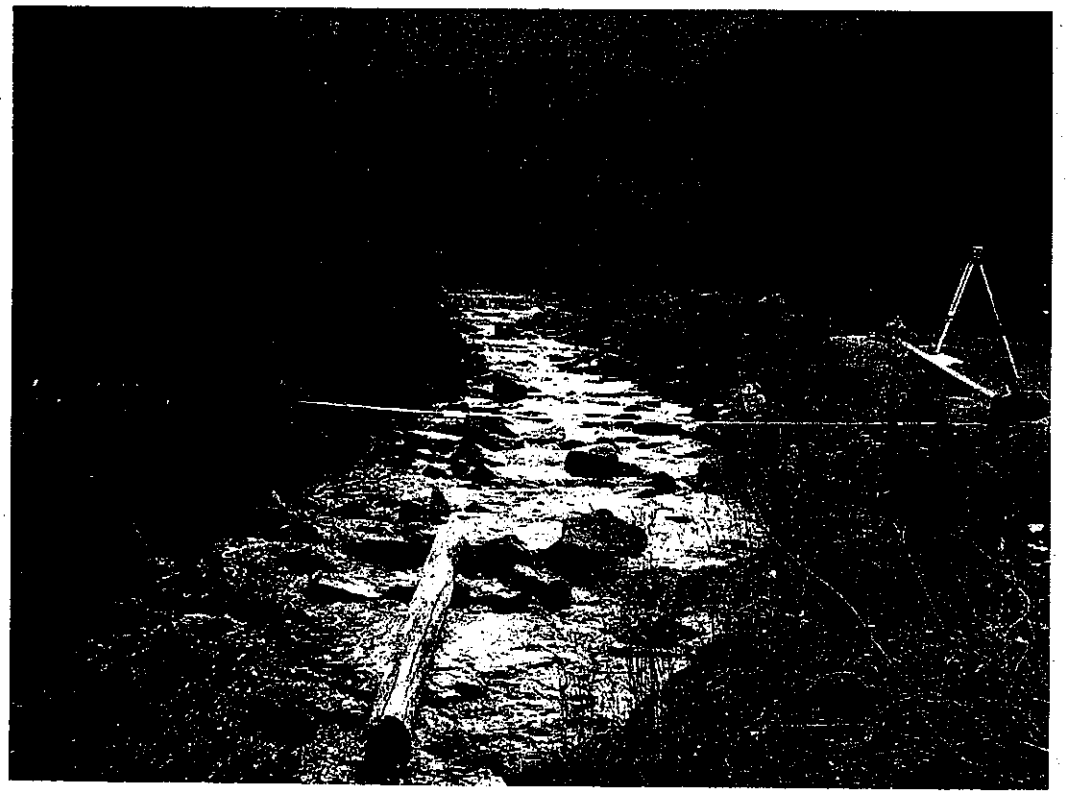
Water Division: 2
Water District: 16
CDOW#: 29606

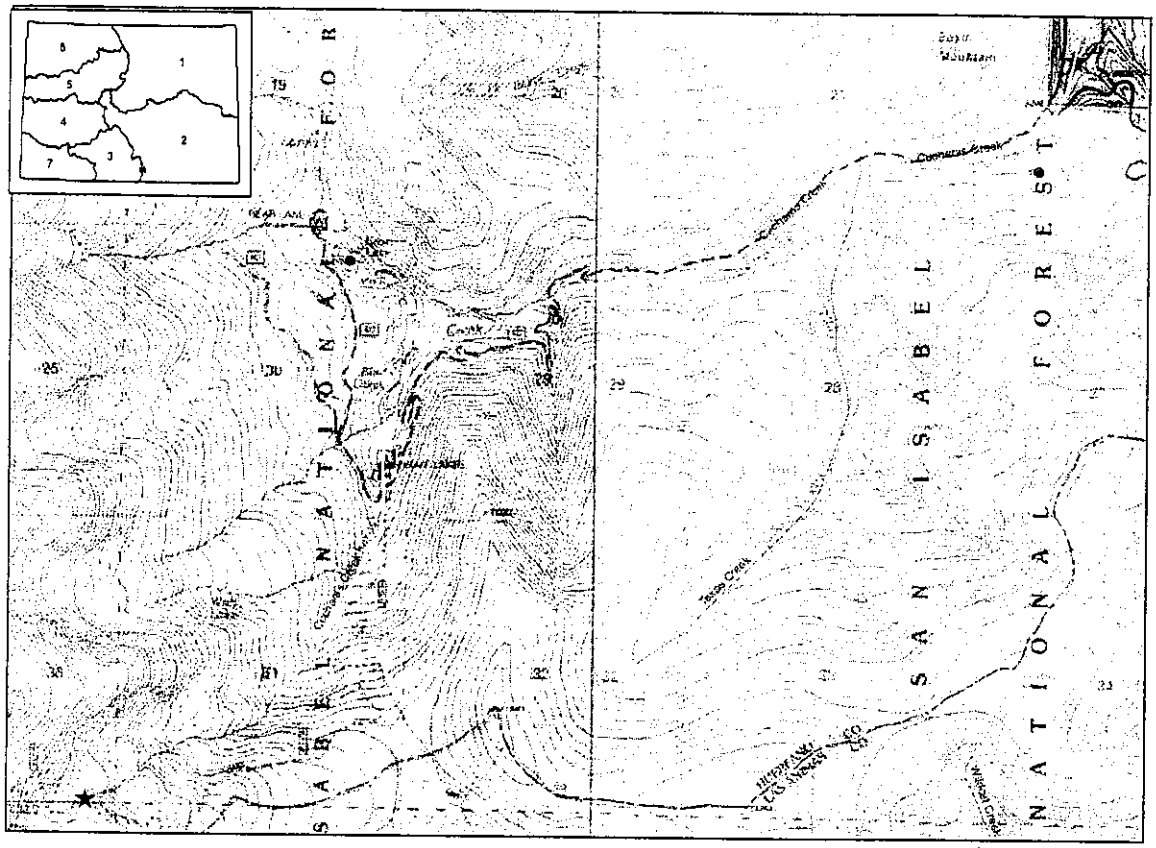
Segment: Headwaters to Deadman Creek

Upper Terminus: Headwaters
Latitude: 37° 17' 47.2"N Longitude: 105° 09' 27.7"W
UTM North: 4127771 UTM East: 130486024

Lower Terminus: Deadman Creek
Latitude: 37° 20' 04.2"N Longitude: 105° 05' 43.1"W
UTM North: 4131985 UTM East: 130491558

Counties: Huerfano
Length: 5.3 miles
USGS Quad(s): Trinchera Peak, Cucharas Pass
ISF Appropriation: 4.9 cfs (05/15 – 06/30)
1.6 cfs (07/01 – 09/15)
1.2 cfs (09/16 – 03/31)
1.6 cfs (04/01 – 05/14)





Cucharas River - Huerfano County

The information contained in this report and the associated instream flow file folder forms the basis for the instream flow recommendation to be considered by the Colorado Water Conservation Board (Board). It is the Colorado Division of Wildlife (CDOW) staff's opinion that the information contained in this report is sufficient for the Board's staff to begin the investigations required to support the findings required in Rule 5(i) of the Instream Flow Rules.

The State of Colorado's Instream Flow Program (ISFP) was created in 1973 when the Colorado State Legislature recognized "the need to correlate the activities of mankind with some reasonable preservation of the natural environment" (see 37-92-102 (3) C.R.S.). The statute vests the Board with the exclusive authority to appropriate and acquire instream flow and natural lake level water rights. In order to encourage other entities to participate in Colorado's ISFP, the statute directs the Board to request instream flow recommendations from other state and federal agencies. The CDOW is recommending this segment of the Cucharas River to the Board for inclusion into the ISFP. The Cucharas River should be considered for inclusion into the ISFP because it has a natural environment that can be preserved to a reasonable degree with an instream flow water right.

The CDOW is forwarding this stream flow recommendation to the Board to meet Colorado's policy "... that the wildlife and their environment are to be protected, preserved, enhanced, and

managed for the use, benefit, and enjoyment of the people of this state and its visitors ... and that, to carry out such program and policy, there shall be a continuous operation of planning, acquisition, and development of wildlife habitats and facilities for wildlife-related opportunities" (See §33-1-101 (1) C.R.S.). The CDOW Strategic Plan states "[h]ealthy aquatic environments are essential to maintain healthy and viable fisheries, and critical for self-sustaining populations. The [CDOW] desires to protect and enhance the quality and quantity of aquatic habitats."

The Cucharas River is approximately 70 miles long. It begins on the northeast side of Trinchera Peak at an elevation of approximately 12,000 feet and terminates at the confluence with Huerfano Creek at an elevation of approximately 5,100 feet. Of the 5.3 mile segment addressed by this report, approximately 95% of the segment, or 5.3 miles, is located on public lands. The Cucharas River is located within Huerfano County. The Cucharas River generally flows in a northeasterly direction.

The subject of this report is a segment of the Cucharas River beginning at its headwaters and extending downstream to Deadman Creek. The proposed segment is located southwest of the Town of Cuchara. The recommendation for this segment is discussed below.

Instream Flow Recommendation(s)

The CDOW is recommending 4.90 cfs, summer, and 1.60 cfs, winter, based on their data collection efforts. This recommendation is based on the physical and biological data collected to date and does not incorporate any water availability constraints.

- 4.90 cubic feet per second is recommended is required to maintain the three principal hydraulic criteria of average depth, average velocity and percent wetted perimeter;
- 1.60 cubic feet per second is required to maintain two of the three principal hydraulic criteria.

The modeling results from this survey effort are within the confidence interval produced by the R2CROSS model (see Table 1).

Land Status Review

Upper Terminus	Lower Terminus	Total Length (miles)	Land Ownership	
			% Private	% Public
Headwaters	Deadman Creek	5.3	5%	95%

95% of the public lands are managed by the USFS.

Biological and Field Survey Data

The CDOW, in April of 1997 and May and July of 2006, collected stream cross section information, natural environment data, and other data needed to quantify the instream flow needs for this reach of the Cucharas River. The Cucharas River is classified as a small stream (between 10 to 19 feet wide) and fishery surveys indicate the stream environment of the Cucharas River supports rainbow trout (*Oncorhynchus mykiss*), brown trout (*Salmo trutta*) and brook trout (*Salvelinus fontinalis*) (See CDOW Fish Survey in Appendix B).

Field Survey Data

CDOW staff used the R2CROSS methodology to quantify the amount of water required to preserve the natural environment to a reasonable degree. The R2CROSS method requires that stream discharge and channel profile data be collected in a riffle stream habitat type. Riffles are most easily visualized, as the stream habitat types that would dry up first should streamflow cease. This type of hydraulic data collection consists of setting up a transect, surveying the stream channel geometry, and measuring the stream discharge. Appendix B contains copies of field data collected for this proposed segment.

Biological Flow Recommendation

The Board staff relies upon the biological expertise of the cooperating agencies to interpret output from the R2CROSS data collected to develop the initial, biologic instream flow recommendation. This initial recommendation is designed to address the unique biologic requirements of each stream without regard to water availability. Three instream flow hydraulic parameters, average depth, percent wetted perimeter, and average velocity are used to develop biologic instream flow recommendations. The CDOW has determined that maintaining these three hydraulic parameters at adequate levels across riffle habitat types, aquatic habitat in pools and runs will also be maintained for most life stages of fish and aquatic invertebrates (Nehring 1979; Espegren 1996).

For this segment of stream, three data sets were collected with the results shown in Table 1 below. Table 1 shows who collected the data (Party), the date the data was collected, the measured discharge at the time of the survey (Q), the accuracy range of the predicted flows based on Manning's Equation (240% and 40% of Q), the summer flow recommendation based on meeting 3 of 3 hydraulic criteria and the winter flow recommendation based upon 2 of 3 hydraulic criteria.

Table 1: Data

Party	Date	Q	250%-40%	Summer (3/3)	Winter (2/3)
DOW	4/23/97	3.5	8.8 – 1.4	4.9	2.0
DOW	5/10/06	2.2	5.5 – 0.9	7.9(OR)	1.3
DOW	7/19/06	2.7	6.8 – 1.1	7.8(OR)	1.4

DOW = Division of Wildlife

OR = Outside of R2X Accuracy Range

Biologic Flow Recommendation

The summer flow recommendation, which met 3 of 3 criteria and is within the accuracy range of the R2CROSS model, ranged is 4.9 cfs (See Table 1). The winter flow recommendations, which met 2 of 3 criteria and were within the accuracy range of the R2CROSS model, ranged from 2.0 cfs to 1.3 cfs. Averaging the winter values within range, results in a 1.6 cfs winter recommendation (See Table 1).

Hydrologic Data

The CDOW staff conducted a preliminary evaluation of the stream hydrology to determine if water was physically available for an instream flow appropriation. The hydrograph below was derived from data collected by the USGS stream gage for Cucharas River at Boyd Ranch, near

La Veta, CO (#07114000), which has a drainage area of 56 square miles (See Gage Summary in Appendix C). The total drainage area upstream of this ISF segment of the Cucharas River is 9.4 square miles. The period of record for the Cucharas River gage was 1934 to 1981, the period of record used by staff in their analysis was 1934 to 1981, or 47 years of record. Table 2 below displays the estimated flow of Cucharas River at the lower terminus of the instream flow reach in terms of a percentage of exceedence.

Table 2: Estimated Stream Flow for Cucharas River

Exceedences	January	February	March	April	May	June	July	August	September	October	November	December
1%	2.1	2.7	3.7	20.1	47.0	44.5	18.9	8.1	4.6	3.9	3.4	2.5
5%	1.8	1.8	2.7	11.2	34.7	31.2	10.9	5.7	3.4	2.9	2.5	2.0
10%	1.6	1.6	2.2	7.6	28.6	24.8	9.1	4.7	2.7	2.2	2.0	1.8
20%	1.4	1.4	1.8	4.9	19.0	18.1	6.7	3.9	2.4	1.8	1.7	1.5
50%	1.2	1.2	1.3	2.7	8.1	9.2	3.9	2.4	1.6	1.5	1.4	1.2
80%	0.9	0.9	1.1	1.5	3.4	3.9	2.2	1.5	1.2	1.0	1.1	1.0
90%	0.8	0.9	0.9	1.3	2.0	2.9	1.7	1.2	0.9	0.9	0.9	0.8
95%	0.7	0.8	0.9	1.1	1.4	2.2	1.3	0.9	0.7	0.8	0.8	0.7
99%	0.6	0.6	0.7	0.9	1.2	1.2	0.6	0.6	0.5	0.6	0.6	0.5

Table 2 shows that the summer flow recommendation of 4.9 cfs is available at least 50% of the time for the months of May and June. The winter flow recommendation of 1.6 cfs is available at least 50% of the time from July through mid September and the month of April. Based on this water availability analysis, the winter recommendation was further reduced to 1.2 cfs for the time period of September 16 through March 31. After incorporating the above water availability constraints, the original instream flow recommendation was modified to the following:

- 4.90 cubic feet per second is recommended from May 15 through June 30;
- 1.60 cubic feet per second is recommended from July 1 through September 15;
- 1.20 cubic feet per second is recommended from September 16 through March 31;
- 1.60 cubic feet per second is recommended from April 1 through May 14.

However, if additional water is determined to be available in further investigations, the CDOW would recommend appropriating the additional water up to the recommended flow amounts to preserve the natural environment to a reasonable degree.

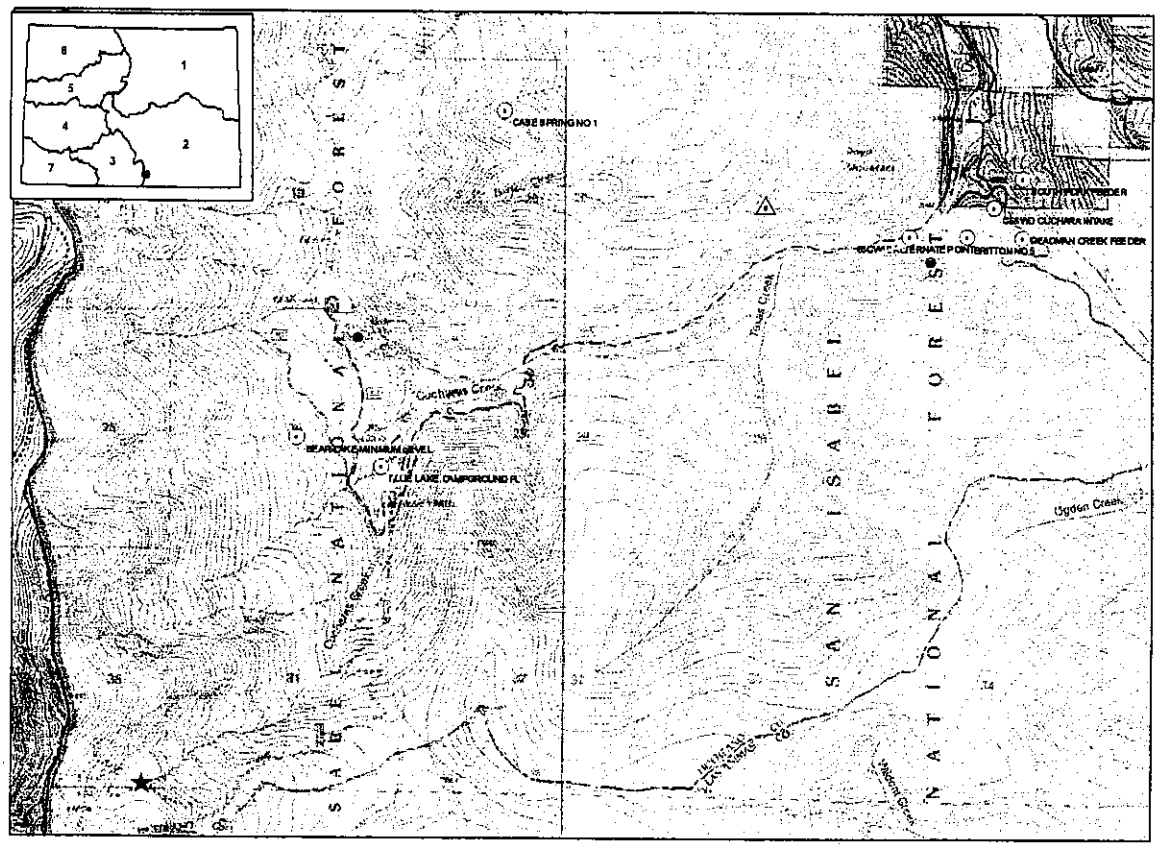
Precipitation Data

CDOW staff identified 4 local precipitation data sets located near the Cucharas River Drainage: La Veta, La Veta Pass, North Lake and Aguilar 18 WSW (see Precipitation Data in Appendix C).

Existing Water Right Information

CDOW staff has analyzed the water rights tabulation and will consult with the Division Engineer's Office (DEO) to identify any potential water availability problems due to existing diversions. Records indicate that there are 4 surface water diversions that are located within this reach of Cucharas River. In addition, there are several existing water rights downstream of the proposed instream flow reach (see below).

WD	ID	NAME	WATER_SRC
16	825	CS&WD CUCHARA INTAKE	CUCHARAS RIVER
16	2123	CASE SPRING NO 1	UNAMED SPRINGS
16	586	BRITTON NO 5	CUCHARAS RIVER
16	2226	BLUE LAKE CAMPGROUND PL	UNAMED SPRINGS
16	985	DEADMAN CREEK FEEDER	CUCHARAS RIVER
16	986	SOUTH FORK FEEDER	CUCHARAS RIVER
16	988	85CW10 ALTERNATE POINT	CUCHARAS RIVER
16	3516	BEAR LAKE MINIMUM LEVEL	CUCHARAS RIVER
16	3859	BRITTON RESERVOIR NO 1	CUCHARAS RIVER
16	3860	BRITTON RESERVOIR NO 2	CUCHARAS RIVER
16	3861	BRITTON RESERVOIR NO 3	CUCHARAS RIVER



Cucharas River - Huerfano County

PROPOSED EXHIBIT

Stuart B. Corbridge

From: Baessler, Jeffrey [Jeffrey.Baessler@state.co.us]
Sent: Friday, September 19, 2008 10:52 AM
To: Stuart B. Corbridge
Cc: Bassi, Linda; Uppendahl, Mark; Williams, Owen; Viehl, Rob
Subject: RE: 2009 CWCB ISF Appropriations - Cucharas River
Importance: High

Stuart,
I was unable to get in touch with Bob, but I did a site investigation of the Cucharas on Tuesday of this week. I also spoke with the Division of Wildlife and we have decided to move the lower terminus upstream to the HWY 12 road crossing as suggested. I believe that this move adequately addresses the District's concerns regarding this recommendation. A new notice, which reflects this change, will be sent to the instream flow subscription mailing list in November. If you have any further questions or concerns, please do not hesitate to contact me. I will be recommending that our Board form its intent to appropriate this revised recommendation at their January 2009 meeting.
Jeff

PROPOSED EXHIBIT

Stuart B. Corbridge

From: Stuart B. Corbridge
Sent: Tuesday, November 25, 2008 9:08 AM
To: 'Baessler, Jeffrey'
Cc: 'Williams, Owen'
Subject: November CWCB ISF Notice

Dear Jeff,

In an email to me dated September 19, 2008, you indicated that the CWCB and CDOW had decided to move the lower terminus of the proposed ISF reach on the Cucharas River upstream from the confluence with Deadman Creek to the point where HWY 12 crosses the Cucharas River. Your email noted that this change would be reflected in a notice sent out in November. In reviewing the November 13 notice and the CWCB website, I did not see any indication that the proposed Cucharas ISF reach had been modified. Did I miss something or misunderstand the process?

As always, thanks for your input and information.

Stuart C.

PROPOSED EXHIBIT

Stuart B. Corbridge

From: Baessler, Jeffrey [Jeffrey.Baessler@state.co.us]
Sent: Tuesday, November 25, 2008 9:23 AM
To: Stuart B. Corbridge
Cc: Uppendahl, Mark; Viehl, Rob; Williams, Owen
Subject: RE: November CWCB ISF Notice

Stuart,
I guarantee that the reach will be modified as previously discussed with the lower terminus at the HWY 12 road crossing. Unfortunately we were unable to make all the modifications to the previously submitted recommendations prior to our November notice. The notice simply lets stakeholders know which streams Staff will be bringing to the Board in January with a request that the Board form their intent to appropriate ISF rights. I have requested that the DOW send me a modified recommendation for this reach which will be posted on our web site prior to the January meeting. In addition, I will be preparing a detailed Board memo in January that identifies the streams, reaches and amounts in more detail. This memo will also be posted on our web site prior to the January meeting. My apologies, for my miscommunication.
Jeff

PROPOSED EXHIBIT

Stuart B. Corbridge

From: Baessler, Jeffrey [Jeffrey.Baessler@state.co.us]
Sent: Wednesday, December 03, 2008 12:54 PM
To: Stuart B. Corbridge
Cc: Viehl, Rob; Williams, Owen
Subject: FW: November CWCB ISF Notice
Attachments: Cucharas_R_ISF_RPT_vfinal(jb).pdf

Stuart,
Attached is the revised DOW recommendation that identifies the lower terminus as Hwy 12.

Rob,
Please post the revised final report on the web site and make the appropriate changes to our recommendation summary report that we will present to the Board in January.

Thanks,
Jeff

Stream: Cucharas River

Executive Summary

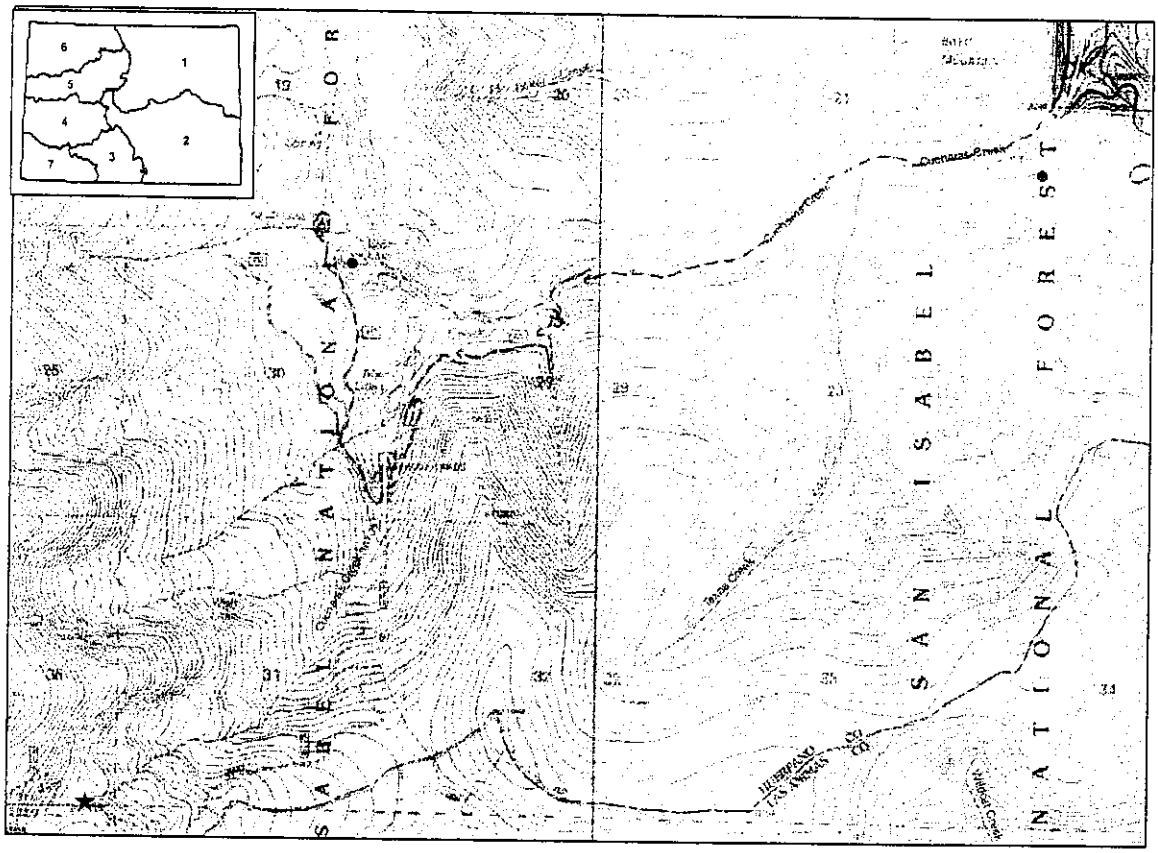
Water Division: 2
Water District: 16
CDOW#: 29606

Segment: Headwaters to State Highway 12

Upper Terminus: Headwaters
Latitude: 37° 17' 47.2"N Longitude: 105° 09' 27.7"W
UTM North: 4127771 UTM East: 130486024

Lower Terminus: State Highway 12
Latitude: 37° 19' 54.4"N Longitude: 105° 05' 48.5"W
UTM North: UTM East:

Counties: Huerfano
Length: 5.3 miles
USGS Quad(s): Trinchera Peak, Cucharas Pass
ISF Appropriation: 3.0 cfs (04/15 – 05/14)
4.9 cfs (05/15 – 06/30)
2.5 cfs (07/01 – 08/14)
1.6 cfs (08/15 – 09/15)
1.2 cfs (09/16 – 04/14)



Cucharas River - Huerfano County

The information contained in this report and the associated instream flow file folder forms the basis for the instream flow recommendation to be considered by the Colorado Water Conservation Board (Board). It is the Colorado Division of Wildlife (CDOW) staff's opinion that the information contained in this report is sufficient for the Board's staff to begin the investigations required to support the findings required in Rule 5(i) of the Instream Flow Rules.

The State of Colorado's Instream Flow Program (ISFP) was created in 1973 when the Colorado State Legislature recognized "the need to correlate the activities of mankind with some reasonable preservation of the natural environment" (see 37-92-102 (3) C.R.S.). The statute vests the Board with the exclusive authority to appropriate and acquire instream flow and natural lake level water rights. In order to encourage other entities to participate in Colorado's ISFP, the statute directs the Board to request instream flow recommendations from other state and federal agencies. The CDOW is recommending this segment of the Cucharas River to the Board for inclusion into the ISFP. The Cucharas River should be considered for inclusion into the ISFP because it has a natural environment that can be preserved to a reasonable degree with an instream flow water right.

The CDOW is forwarding this stream flow recommendation to the Board to meet Colorado's policy "... that the wildlife and their environment are to be protected, preserved, enhanced, and

managed for the use, benefit, and enjoyment of the people of this state and its visitors ... and that, to carry out such program and policy, there shall be a continuous operation of planning, acquisition, and development of wildlife habitats and facilities for wildlife-related opportunities" (See §33-1-101 (1) C.R.S.). The CDOW Strategic Plan states "[h]ealthy aquatic environments are essential to maintain healthy and viable fisheries, and critical for self-sustaining populations. The [CDOW] desires to protect and enhance the quality and quantity of aquatic habitats."

The Cucharas River is approximately 70 miles long. It begins on the northeast side of Trinchera Peak at an elevation of approximately 12,000 feet and terminates at the confluence with Huerfano Creek at an elevation of approximately 5,100 feet. Of the 5.3 mile segment addressed by this report, approximately 95% of the segment, or 5.3 miles, is located on public lands. The Cucharas River is located within Huerfano County. The Cucharas River generally flows in a northeasterly direction.

The subject of this report is a segment of the Cucharas River beginning at its headwaters and extending downstream to State Highway 12. The proposed segment is located southwest of the Town of Cuchara. The recommendation for this segment is discussed below.

Instream Flow Recommendation(s)

The CDOW is recommending 4.90 cfs, summer, and 1.60 cfs, winter, based on their data collection efforts. This recommendation is based on the physical and biological data collected to date and does not incorporate any water availability constraints.

- 4.90 cubic feet per second is recommended is required to maintain the three principal hydraulic criteria of average depth, average velocity and percent wetted perimeter;
- 1.60 cubic feet per second is required to maintain two of the three principal hydraulic criteria.

The modeling results from this survey effort are within the confidence interval produced by the R2CROSS model (see Table 1).

Land Status Review

Upper Terminus	Lower Terminus	Total Length (miles)	Land Ownership	
			% Private	% Public
Headwaters	State Highway 12	5.3	5%	95%

95% of the public lands are managed by the USFS.

Biological and Field Survey Data

The CDOW, in April of 1997 and May and July of 2006, collected stream cross section information, natural environment data, and other data needed to quantify the instream flow needs for this reach of the Cucharas River. The Cucharas River is classified as a small stream (between 10 to 19 feet wide) and fishery surveys indicate the stream environment of the Cucharas River supports rainbow trout (*Oncorhynchus mykiss*), brown trout (*Salmo trutta*) and brook trout (*Salvelinus fontinalis*) (See CDOW Fish Survey in Appendix B).

Field Survey Data

CDOW staff used the R2CROSS methodology to quantify the amount of water required to preserve the natural environment to a reasonable degree. The R2CROSS method requires that stream discharge and channel profile data be collected in a riffle stream habitat type. Riffles are most easily visualized, as the stream habitat types that would dry up first should streamflow cease. This type of hydraulic data collection consists of setting up a transect, surveying the stream channel geometry, and measuring the stream discharge. Appendix B contains copies of field data collected for this proposed segment.

Biological Flow Recommendation

The Board staff relies upon the biological expertise of the cooperating agencies to interpret output from the R2CROSS data collected to develop the initial, biologic instream flow recommendation. This initial recommendation is designed to address the unique biologic requirements of each stream without regard to water availability. Three instream flow hydraulic parameters, average depth, percent wetted perimeter, and average velocity are used to develop biologic instream flow recommendations. The CDOW has determined that maintaining these three hydraulic parameters at adequate levels across riffle habitat types, aquatic habitat in pools and runs will also be maintained for most life stages of fish and aquatic invertebrates (Nehring 1979; Espegren 1996).

For this segment of stream, three data sets were collected with the results shown in Table 1 below. Table 1 shows who collected the data (Party), the date the data was collected, the measured discharge at the time of the survey (Q), the accuracy range of the predicted flows based on Manning's Equation (240% and 40% of Q), the summer flow recommendation based on meeting 3 of 3 hydraulic criteria and the winter flow recommendation based upon 2 of 3 hydraulic criteria.

Table 1: Data

Party	Date	Q	250%-40%	Summer (3/3)	Winter (2/3)
DOW	4/23/97	3.5	8.8 – 1.4	4.9	2.0
DOW	5/10/06	2.2	5.5 – 0.9	$7.9^{(R)}$	1.3
DOW	7/19/06	2.7	6.8 – 1.1	$7.8^{(R)}$	1.4

DOW = Division of Wildlife

R = Outside of R2X Accuracy Range

Biologic Flow Recommendation

The summer flow recommendation, which met 3 of 3 criteria and is within the accuracy range of the R2CROSS model, ranged is 4.9 cfs (See Table 1). The winter flow recommendations, which met 2 of 3 criteria and were within the accuracy range of the R2CROSS model, ranged from 2.0 cfs to 1.3 cfs. Averaging the winter values within range, results in a 1.6 cfs winter recommendation (See Table 1).

Hydrologic Data

After incorporating the above water availability constraints, the original instream flow recommendation was modified to the following:

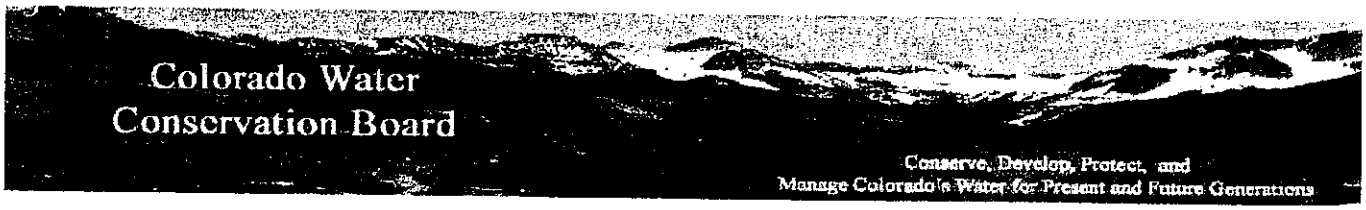
- 4.90 cubic feet per second is recommended from May 15 through June 30;
- 2.5 cubic feet per second is recommended from July 1 through August 15
- 1.60 cubic feet per second is recommended from August 16 through September 15;
- 1.20 cubic feet per second is recommended from September 16 through April 14;
- 3.00 cubic feet per second is recommended from April 15 through May 14.

However, if additional water is determined to be available in further investigations, the CDOW would recommend appropriating the additional water up to the recommended flow amounts to preserve the natural environment to a reasonable degree.

PROPOSED EXHIBIT

Stuart B. Corbridge

From: rob.viehl@state.co.us
Sent: Tuesday, February 03, 2009 3:42 PM
To: Stuart B. Corbridge
Subject: 2009 Proposed Instream Flow Appropriations Water Divisions 2, 4 and 5



At its January 27 – 28, 2009 regular meeting, the Colorado Water Conservation Board (CWCB) declared its intent to appropriate instream flow water rights for the streams listed on the attached Instream Flow Appropriation List. The attached list contains a description of the Instream Flow (ISF) Recommendations including stream name, water division, watershed, county, upper terminus, lower terminus, length, USGS quad sheet name(s) and recommended instream flow amounts. Copies of the Instream Flow Recommendation Summary Reports and Appendices submitted into the Official CWCB Record are available for review during regular business hours (8:00 a.m. - 5:00 p.m.) at the Colorado Water Conservation Board's Office, located at 1313 Sherman Street, Room 723, Denver, Colorado, 80203. In addition to the CWCB office, copies of the Instream Flow and Natural Lake Level Recommendation Summary Reports are available on the CWCB website at:
http://cwcb.state.co.us/StreamAndLake/NewAppropriations/ISFAppropriationNotices/2009ProposedAppropriations/

In addition to the above Instream Flow Recommendation Summary Reports and Appendices, staff may rely on any additional data, exhibits, testimony, or other information submitted by any party as part of the Official CWCB Record to support its Instream Flow Recommendations.

Pursuant to the rules concerning the Colorado Instream Flow and Natural Lake Level Program adopted by the Colorado Water Conservation Board, it should also be noted that:
(a) The Board may change flow amounts of contested ISF appropriations based on information received during the public notice and comment period.
(b) Staff will maintain, pursuant to Rule 5e.(3), an ISF Subscription Mailing List for each water division composed of the names of all persons who have sent notice to the Board Office that they wish to be included on such list for a particular water division. Any person desiring to be on the ISF Subscription Mailing List(s) must send notice to the Board Office.
(c) Any meetings held between Staff and members of the public will be open to the public. Staff may provide Proper Notice prior to any such meetings and may provide notice to persons on the ISF Subscription Mailing List(s).
(d) Any Notice to Contest must be received at the Board office no later than March 31, 2009, or the first business day thereafter. All Notices of Party status and Contested Hearing Participant status must be received at the Board office no later than April 30, 2009, or the first business day thereafter.
(e) Staff will announce its Final Staff ISF Recommendation concerning contested appropriations at the September 2009 Board meeting and, prior to that meeting, will send notice of the Final Staff Recommendation to all persons on the Contested Hearing Mailing List.
(f) The Board may take final action on any uncontested ISF appropriations at the May 2009 Board meeting.

Should you wish to comment on the proposed Instream Flow Recommendations, you may do so by writing Jeff Baessler of the Board's staff at the address given above or by sending your comments by email to jeffrey.baessler@state.co.us and owen.williams@state.co.us. It should be noted that while your appearance at any meeting is welcome, such an appearance is not necessary for your concerns to be recognized. Staff will take your comments into account and, if you so request, will present them to the Board in your absence. If you are not currently on the Board's Instream Flow Subscription Mailing List and you would like to be, please contact the Board's Office at the address given above.

Stream	Water Division	Watershed	County	Upper Terminus	Lower Terminus	Length (miles)	USGS Quad(s)	Flow (cfs)
Cucharas Creek	2	Huerfano	Huerfano	Headwaters	State Highway 12	4.7	Cucharas Reservoir, Trinchera Peak	3 (4/15-5/14), 4.9 (5/15-6/30), 2.5 (7/1-8/14), 1.6 (8/15-9/15), 1.2 (9/16-4/14)
Huerfano River (upper segment)	2	Huerfano	Huerfano	Outlet of Lilly Lake	Confl. Central Branch of Huerfano Creek	8.2	Mosca Pass	2.7 (11/1-4/30), 4.1 (5/1-10/31)
Huerfano River (lower segment)	2	Huerfano	Huerfano	Confl. w/ unnamed Trib.	Confl. w/ Stanley Creek	2.6	Mosca Pass, Red Wing	2.75 (11/1-3/31), 5.75 (4/1-10/31)
Maxwell Creek	2	Arkansas	Chaffee	Headwaters	Hdgt., O.W.	4.0	Buena Vista	1 (10/1-10/31),

Please access the CWCB/IBCC Insider on the CWCB or IBCC websites to manage your

		Headwaters			Friskey Ditch		West	0.4 (11/1-5/31), 3.3 (6/1-7/31), 1.5 (8/1-9/30)
Purgatoire River	2	Purgatoire	Las Animas	Confl. w/ M/N Fork Purgatoire River	Confl. Lopez Canyon	4.80	Vigil	7 (12/1-4/14), 8.4 (4/15-5/14), 21 (5/15-8/15), 15 (8/16-9/15), 8.4 (9/16-11/30)
Rock Creek	2	Arkansas Headwaters	Lake	Outlet of Native Lake	Confl. w/ Willow Creek	5.0	Mount Massive	1.7 (11/1-5/14), 11 (5/15-8/31), 5 (9/1-10/31)
South Fork Purgatoire River	2	Purgatoire	Las Animas	Confl. w/ Unnamed Trib.	Confl. w/ Torres Canyon	8.20	Tenco	3 (10/16-4/30), 9.6 (5/1-5/31), 18 (6/1-6/30), 13 (7/1-8/15), 5 (8/16-10/15)
Bent Creek (ISF increase) Existing ISF: 4-80CW101	4	Upper Gunnison	Hinsdale	Headwaters	Confl. w/ Lake Fork Gunnison River	3.0	Redcloud Peak	1.55 (4/1-10/31) Note: Existing ISF 2.0 (1/1-12/31)
Clear Fork East Muddy Creek	4	North Fork Gunnison	Gunnison	Headwaters	Forest Service Boundary	8.7	Elk Knob, Quaker Mesa	13 (4/1-8/15), 5 (8/16-3/31)
East Elk Creek (ISF Increase) Existing ISF: 4-84CW378	4	Upper Gunnison	Gunnison	Confl. w/ Bear Wallow Gulch	Confl. w/ Blue Mesa Reservoir	4.50	Carpenter Ridge, West Elk Peak SW	0.7 (4/1-10/31) Note: Existing ISF 1.5 (1/1-12/31)
Grizzly Gulch	4	Upper Gunnison	Hinsdale	Outlet of Grizzly Lake	Confl. w/ Lake Fork Gunnison River	2.10	Redcloud Peak	2.9 (4/15-9/15), 0.6 (9/16-4/14)
Henson Creek (ISF increase) Existing ISF: 4-82CW386	4	Upper Gunnison	Hinsdale	Confl. w/ North Fork Henson Creek	Confl. w/ Nellie Creek	3.40	Uncompahgre Peak	11 (4/1-10/31) Note: Existing ISF 12 (1/1-12/31)
Little Spring Creek (upper segment)	4	North Fork Gunnison	Gunnison	Crystal Springs	Inlet of Ragged Res. # 1	0.40	Chair Mountain	1.25 (1/1-12/31)
Little Spring Creek (lower segment)	4	North Fork Gunnison	Gunnison	Outlet of Ragged Res. # 1	Crystal Ditch Hdgt.	0.70	Chair Mountain	1.25 (1/1-12/31)
Schafer Gulch (ISF increase) Existing ISF: 4-84CW383	4	Upper Gunnison	Hinsdale	Headwaters	Confl. w/ Henson Creek	1.70	Handies Peak	1.3 (4/1-10/31) Note: Existing ISF 1 (1/1-12/31)
Buzzard Creek	5	Colorado Headwaters – Plateau	Mesa	Confl. w/ Willow Creek	Confl. w/ Owens Creek	3.40	Porter Mountain, Spruce Mountain	4.25 (4/1-8/31), 1.5 (9/1-3/31)
Corral Creek (ISF Increase) Existing ISF: 5-86CW214	5	Colorado Headwaters	Grand	Confl. w/ Smith Creek	Hdgt. of Home # 1 Ditch	2.7	Parshall	0.9 (11/1-3/31), 2.75 (4/1-10/31) Note: Existing ISF 1.5 (1/1-12/31)
Troublesome Creek (upper segment)	5	Colorado Headwaters	Grand	Confl. w/ Glomerate Creek	Confl. w/ Rabbit Ears Creek	2.2	Hyannis Peak	2.8 (11/1-3/31), 5.1 (4/1-10/31)
Troublesome Creek (lower segment)	5	Colorado Headwaters	Grand	Confl. w/ Rabbit Ears Creek	Hdgt Pickering Ditch	3.0	Hyannis Peak	5.9 (11/1-3/31), 9.3 (4/1-10/31)

account, including changing your default password, editing your contact data, updating your registration to the various public subscription lists, and deleting your account.

If you believe that you received this email in error, or the content is not correct, please reply to this email with specifics.

Stream: Cucharas Creek

Executive Summary

Water Division: 2
Water District: 16
CDOW#: 29606
CWCB ID: 08/2/A-003

Segment: Headwater to the State Highway 12

Upper Terminus: HEADWATERS IN THE VICINITY OF
(Latitude 37° 17' 46.95"N) (Longitude 105° 9' 27.75"W)

Lower Terminus: STATE HIGHWAY 12
(Latitude 37° 19' 54.1"N) (Longitude 105° 5' 47.58"W)

Watershed: Alamosa-Trinchera (HUC#: 13010002)
Counties: Huerfano
Length: 4.7
USGS Quad(s): Trinchera Peak, Cucharas Pass
Flow Recommendation: 4.9 cfs (May 15 to June 30)
1.6 cfs (July 1 to September 15)
1.2 cfs (September 16 to March 31)
1.6 cfs (April 1 to May 14)

Staff Analysis and Recommendation

Summary

The information contained in this report and the associated instream flow file folder forms the basis for staff's instream flow recommendation to be considered by the Board. It is staff's opinion that the information contained in this report is sufficient to support the findings required in Rule 5.40.

Colorado's Instream Flow Program was created in 1973 when the Colorado State Legislature recognized "the need to correlate the activities of mankind with some reasonable preservation of the natural environment" (see 37-92-102 (3) C.R.S.). The statute vests the CWCB with the exclusive authority to appropriate and acquire instream flow and natural lake level water rights. In order to encourage other entities to participate in Colorado's Instream Flow Program, the statute directs the CWCB to request instream flow recommendations from other state and federal agencies. The Colorado Division of Wildlife (CDOW) recommended this segment of Cucharas Creek to the CWCB for inclusion into the Instream Flow Program. Cucharas Creek is being considered for inclusion into the Instream Flow Program because it has a natural environment that can be preserved to a reasonable degree with an instream flow water right.

Cucharas Creek is approximately 8.5 miles long. It begins on the northeast side of Trinchera Peak at an elevation of approximately 11600 feet and joins the Cucharas River at an elevation of 9080 feet. Of the 4.7 mile segment addressed by this report, 100% of the segment, is located on public lands. Cucharas Creek is located within Huerfano County and generally flows in a northeasterly direction.

The subject of this report is a segment of Cucharas Creek beginning at its headwaters and extending downstream to State Highway 12. The proposed segment is located southwest of the Town of Cuchara. The recommendation for this segment is discussed below.

Instream Flow Recommendation(s)

The CDOW is recommending 4.9 cfs (May 15 to June 30), 1.6 cfs (July 1 to September 15), 1.2 cfs (September 16 to March 31), 1.6 cfs (April 1 to May 14), based on their data collection efforts and staff's water availability analyses.

Land Status Review

Upper Terminus	Lower Terminus	Total Length (miles)	Land Ownership	
			% Private	% Public
Headwaters	State Highway 12	4.7	0%	100%

100% of the public lands are managed by the USFS.

Biological Data

Cucharas Creek is classified as a small stream (between 10 to 19 feet wide) and fishery surveys indicate the stream environment of the Cucharas Creek supports rainbow trout (*Oncorhynchus mykiss*), brown trout (*Salmo trutta*) and brook trout (*Salvelinus fontinalis*)

Field Survey Data

CDOW staff used the R2Cross methodology to quantify the amount of water required to preserve the natural environment to a reasonable degree. The R2Cross method requires that stream discharge and channel profile data be collected in a riffle stream habitat type. Riffles are most easily visualized, as the stream habitat types that would dry up first should streamflow cease. This type of hydraulic data collection consists of setting up a transect, surveying the stream channel geometry, and measuring the stream discharge.

Biological Flow Recommendation

The Board staff relies upon the biological expertise of the cooperating agencies to interpret output from the R2CROSS data collected to develop the initial, biologic instream flow recommendation. This initial recommendation is designed to address the unique biologic requirements of each stream without regard to water availability. Three instream flow hydraulic parameters, average depth, percent wetted perimeter, and average velocity are used to develop biologic instream flow recommendations. The CDOW has determined that maintaining these three hydraulic parameters at adequate levels across riffle habitat types, aquatic habitat in pools and runs will also be maintained for most life stages of fish and aquatic invertebrates (Nehring 1979; Espegren 1996).

For this segment of stream, three data sets were collected with the results shown in Table 1 below. Table 1 shows who collected the data (Party), the date the data was collected, the measured discharge at the time of the survey (Q), the accuracy range of the predicted flows based on Manning's Equation (240% and 40% of Q), the summer flow recommendation based on meeting 3 of 3 hydraulic criteria and the winter flow recommendation based upon 2 of 3 hydraulic criteria. It is believed that recommendations that fall outside of the accuracy range of the model, over 250% of the measured discharge or under 40%of the measured discharge may not give an accurate estimate of the necessary instream flow required.

Table 1: Data

Party	Date	Q	250%-40%	Summer (3/3)	Winter (2/3)
DOW	4/23/1997	3.5	8.8 – 1.4	4.9	2.0
DOW	5/10/2006	2.2	5.5 – 0.9	$7.9^{(or)}$	1.3
DOW	7/19/2006	2.7	6.8 – 1.1	$7.8^{(or)}$	1.4

DOW = Division of Wildlife OR = Outside of R2X Accuracy Range

The summer flow recommendation, which met 3 of 3 criteria and is within the accuracy range of the R2CROSS model, is 4.9 cfs. The winter flow recommendations, which met 2 of 3 criteria and were within the accuracy range of the R2CROSS model, ranged from 2.0 cfs to 1.3 cfs. Averaging the values within this range, would result in a 1.6 cfs winter recommendation. As a

result of water availability limitations, 1.6 cfs was used for the time periods from July 1 to September 15, and from April 1 to May 14. The winter flow recommendation of 1.2 cfs from September 16 to March 31, was further reduced from 1.6 cfs due to water availability limitations. Based on the foregoing, staff is recommending that the Board appropriate the flow amounts set forth in this paragraph.

Hydrologic Data and Analysis

After receiving the cooperating agency's biologic recommendation, the CWCB staff conducted an evaluation of the stream hydrology to determine if water was physically available for an instream flow appropriation. This evaluation was done through a computation that is, in essence, a "water balance". In concept a "water balance" computation can be viewed as an accounting exercise. When done in its most rigorous form, the water balance parses precipitation into all the avenues water pursues after it is deposited as rain, snow, or ice. In other words, given a specified amount of water deposition (input), the balance tries to account for all water depletions (losses) until a selected end point is reached. Water losses include depletions due to evaporation and transpiration, deliveries into ground water storage, temporary surface storage, incorporations into plant and animal tissue and so forth. These losses are individually or collectively subtracted from the input to reveal the net amount of stream runoff as represented by the discharge measured by stream gages. Of course, the measured stream flow need not be the end point of interest; indeed, when looking at issues of water use to extinction stream flow measurements may only describe intermediate steps in the complex accounting process that is a water balance carried out to a net value of zero.

In its analysis, CWCB staff has attempted to use this idea of balancing inputs and losses to determine if water is available for the recommended Instream Flow Appropriation. Of course, this analysis must be a practical exercise rather than a lengthy, and costly, scientific investigation. As a result, staff has simplified the process by lumping together some variables and employing certain rational and scientifically supportable assumptions. The process may be described through the following description of the steps used to complete the evaluation for this particular stream.

The first step required in determining water availability is a determination of the hydrologic regime at the Lower Terminus (LT) of the recommended ISF reach. In the best case this means looking at the data from a gage at the LT. Further, this data, in the best case, has been collected for a long period of time (the longer the better) including wet and dry periods. In the case of **Cucharas Creek** there is a USGS gage record of discharge on the stream. However, the gage station is downstream from the LT. The USGS gage is CUCHARAS RIVER AT BOYD RANCH, NEAR LA VETA, CO. (USGS 07114000); it has a period of record (POR) of 47 years collected between 1934 and 1981. The gage is at an elevation of 7,781 ft above mean sea level (amsl) and has a drainage area of 56.0 mi^2. The hydrograph (plot of discharge over time) produced from this gage includes the consumptive uses of several diversions. However, the existence of these diversions is not a major limitation upon the use of the data from the gage. To make the measured data transferable to Cucharas Creek above the LT, the consumptive portions of these diversions were added back to the measured hydrograph. The resulting "adjusted" hydrograph could then be used on Cucharas Creek above the LT by multiplying the "adjusted" gage discharge values by an area ratio; specifically, the area of Cucharas Creek above the LT (9.48 mi^2) to Cucharas River at Boyd Ranch, near La Veta, CO (56.0 mi^2). In this instance, due

to the absence of existing significant upstream consumptive irrigation uses or transbasin diversions on Cucharas Creek above the LT, the resulting proportioned "adjusted" hydrograph was not further "adjusted" (decreased). Nevertheless, the final hydrograph represents the existing distribution of flow over time.

{The Following discussion is based upon the US Geological Survey's *Techniques of Water-Resources Investigations* Series, *Book 4: Hydrologic Analysis and Interpretation, Chapter A3: Statistical Methods in Water Resources* (Chapter 3: Describing Uncertainty) by D.R. Helsel and R. M. Hirsch. This technical reference provides the scientific background and guidance important to the systematic interpretation of hydrologic data. The document is available online and is a valuable aid to understanding and interpreting the analyses described here.}

The next step in producing a representation of the discharge at Cucharas Creek is to compute the Geometric Mean of the area-prorated "adjusted" data values from the Cucharas River at Boyd Ranch, near La Veta, CO hydrograph. This step is of value because of the inherent statistical weaknesses found in any collection of data intended to measure natural stream discharge. Without getting into the details of statistical theory, it is worth noting that a set of discharge measurements is inherently inaccurate, no matter how well collected, due to the difficulties attendant to data collection, especially hydrologic data. To give deference to this fact and to increase the value of the hydrograph product of this analysis, the Geometric Means of the data were computed and plotted along with the 95% Confidence Intervals about the data. The resultant hydrograph, including recommended Instream Flow values, is displayed in figure 1 with an enlargement displayed in figure 2. The data displayed by this hydrograph follow in Table 1.

Fig. 1. Geometric Mean Q Cucharas Cr abv LT (prop on Cucharas R at Boyd Ranch near La Veta, adjusted for irr) & ISFs

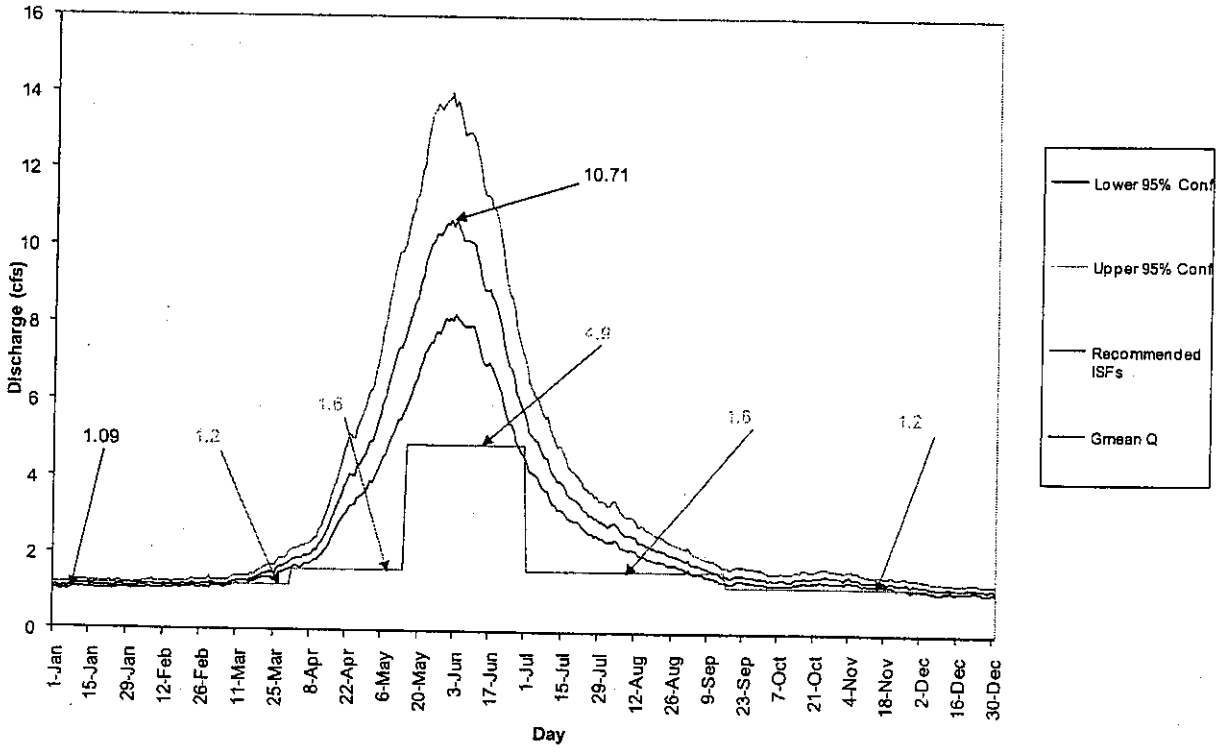


Fig. 2. Geometric Mean Q Cucharas Cr abv LT (prop on Cucharas R at Boyd Ranch near La Veta, adjusted for irr) & ISFs

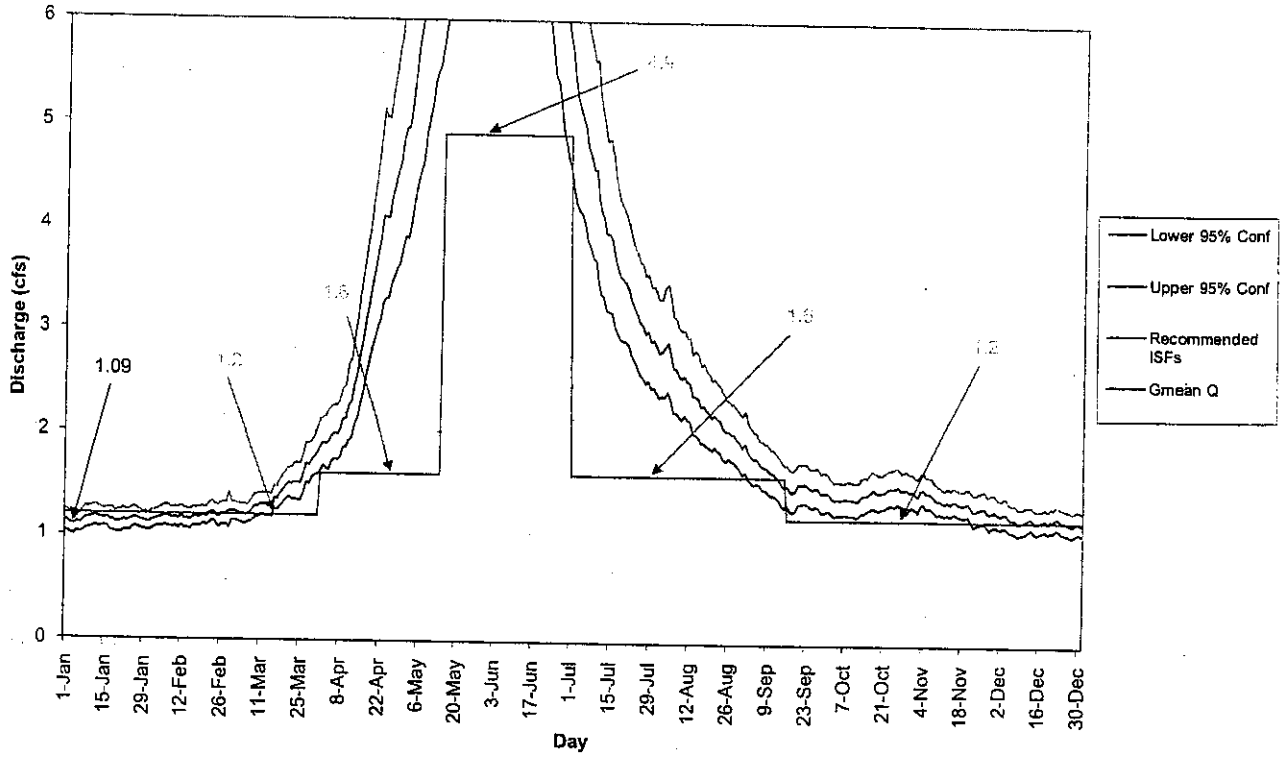


Table 1. Geometric Mean Discharge and Recommended Instream Flows

Date	Recommended ISF	Proportioned Adjusted GM (abv gage) Adj (-) for Irr & OoB in Cucharas Cr abv LT
1-Jan	1.20	1.130798133
2-Jan	1.20	1.11701651
3-Jan	1.20	1.099077494
4-Jan	1.20	1.091695436
5-Jan	1.20	1.117697214
6-Jan	1.20	1.104125636
7-Jan	1.20	1.128260148
8-Jan	1.20	1.157919962
9-Jan	1.20	1.157028195
10-Jan	1.20	1.162614728
11-Jan	1.20	1.175460756
12-Jan	1.20	1.179288165
13-Jan	1.2	1.161960784
14-Jan	1.2	1.161053694
15-Jan	1.2	1.160070355
16-Jan	1.2	1.164004715

17-Jan	1.2	1.13875404
18-Jan	1.2	1.139780959
19-Jan	1.2	1.118086964
20-Jan	1.2	1.120997593
21-Jan	1.2	1.121703087
22-Jan	1.2	1.145091175
23-Jan	1.2	1.131899976
24-Jan	1.2	1.139083422
25-Jan	1.2	1.160904099
26-Jan	1.2	1.169536484
27-Jan	1.2	1.157511908
28-Jan	1.2	1.145219138
29-Jan	1.2	1.135068603
30-Jan	1.2	1.128392275
31-Jan	1.2	1.119915594
1-Feb	1.2	1.141469965
2-Feb	1.2	1.150714909
3-Feb	1.2	1.160954322
4-Feb	1.2	1.167926064
5-Feb	1.2	1.173949196
6-Feb	1.2	1.185157864
7-Feb	1.2	1.184646428
8-Feb	1.2	1.17219374
9-Feb	1.2	1.165663733
10-Feb	1.2	1.174238046
11-Feb	1.2	1.158658456
12-Feb	1.2	1.187031846
13-Feb	1.2	1.159213353
14-Feb	1.2	1.15824708
15-Feb	1.2	1.150925399
16-Feb	1.2	1.17817561
17-Feb	1.2	1.176969429
18-Feb	1.2	1.174064743
19-Feb	1.2	1.185168267
20-Feb	1.2	1.190601304
21-Feb	1.2	1.182578979
22-Feb	1.2	1.217001654
23-Feb	1.2	1.232115956
24-Feb	1.2	1.210443493
25-Feb	1.2	1.177620408
26-Feb	1.2	1.202636222
27-Feb	1.2	1.209376991
28-Feb	1.2	1.211197887
29-Feb	1.2	1.237270108
1-Mar	1.2	1.234073326
2-Mar	1.2	1.233622486
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4-Mar	1.2	1.21368061
5-Mar	1.2	1.205472902

6-Mar	1.2	1.203230068
7-Mar	1.2	1.215521925
8-Mar	1.2	1.242201363
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12-Mar	1.2	1.30128904
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19-Mar	1.2	1.439340811
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21-Mar	1.2	1.51033661
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27-Mar	1.2	1.695597421
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10-Apr	1.6	2.13565543
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14-Apr	1.6	2.587785298
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17-May	4.9	8.246581487
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6-Jun	4.9	10.16376632
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9-Jun	4.9	10.13208497
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23-Jul	1.6	3.2428108
24-Jul	1.6	3.185064645
25-Jul	1.6	3.100481035
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27-Jul	1.6	2.994509372
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19-Aug	1.6	2.222031769
20-Aug	1.6	2.175375966
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22-Aug	1.6	2.167613915
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3-Nov	1.2	1.496935464
4-Nov	1.2	1.517010315
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25-Nov	1.2	1.326900885
26-Nov	1.2	1.335392017
27-Nov	1.2	1.292642426
28-Nov	1.2	1.278951915
29-Nov	1.2	1.300575584
30-Nov	1.2	1.299598455
1-Dec	1.2	1.275829449
2-Dec	1.2	1.26360906
3-Dec	1.2	1.279474941
4-Dec	1.2	1.281451252
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6-Dec	1.2	1.225290059
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11-Dec	1.2	1.220033121
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24-Dec	1.2	1.207108303

25-Dec	1.2	1.20269387
26-Dec	1.2	1.193500375
27-Dec	1.2	1.177816614
28-Dec	1.2	1.173772466
29-Dec	1.2	1.19435501
30-Dec	1.2	1.20196586
31-Dec	1.2	1.183720338

Existing Water Right Information

CDOW staff has analyzed the water rights tabulation and contacted the Division Engineer's Office (DEO) to identify any potential water availability problems due to existing diversions. Records indicate that there are two surface water diversions that are located within this reach of Cucharas Creek, CS&WD Cuchara Intake AP and Briton #5 Ditch. Staff has determined that water is available for appropriation on Cucharas Creek, from the headwaters to State Highway 12, to preserve the natural environment to a reasonable degree without limiting or foreclosing the exercise of valid existing water rights.

CWCB Staff's Instream Flow Recommendation

Staff recommends the Board form its intent to appropriate on the following stream reach:

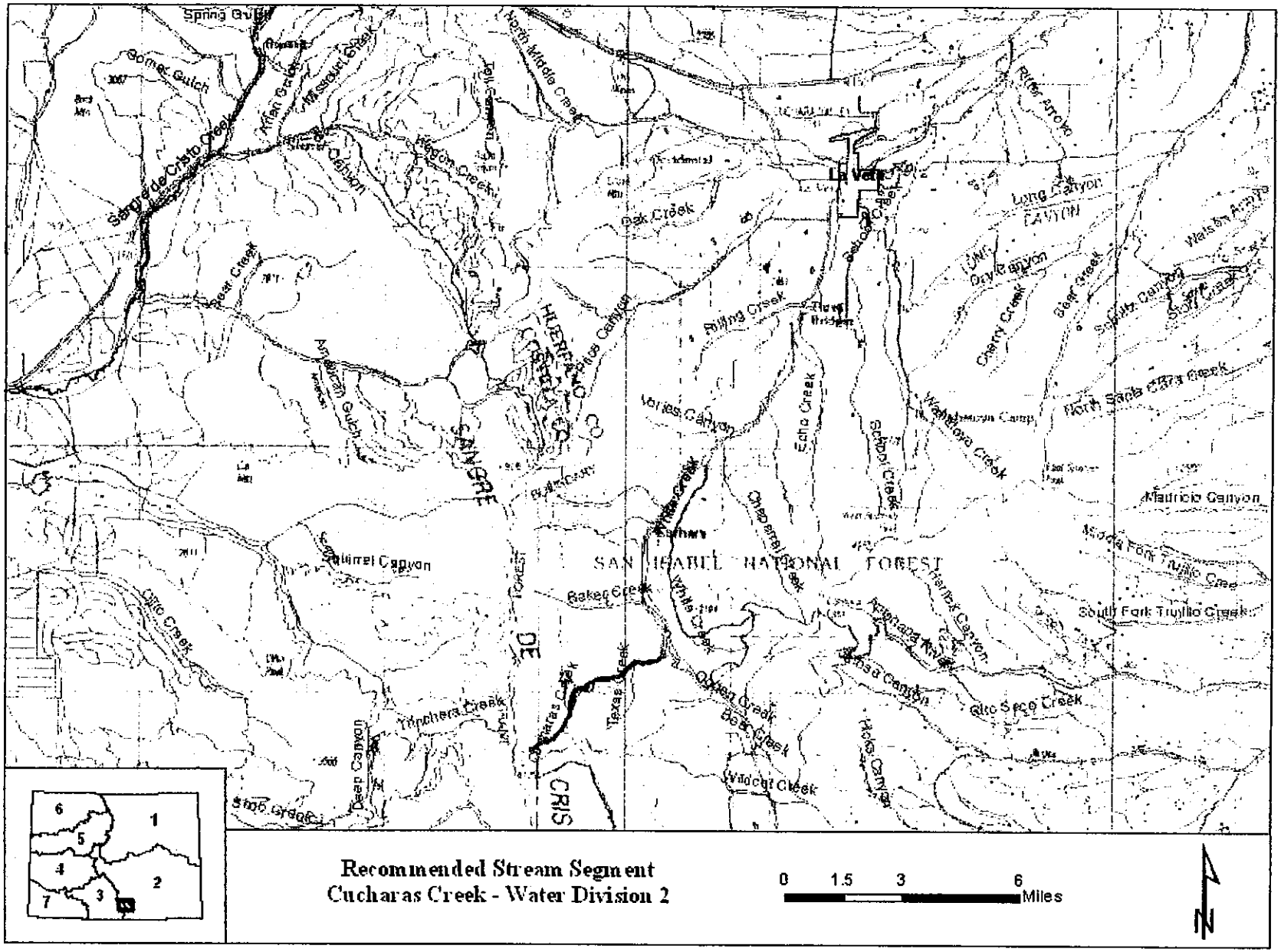
Segment: Headwater to the Confluence with State Highway 12

Upper Terminus: HEADWATERS IN THE VICINITY OF
(Latitude 37° 17' 46.95"N) (Longitude 105° 9' 27.75"W)
UTM North: 4127762.6 UTM East: 486022.5

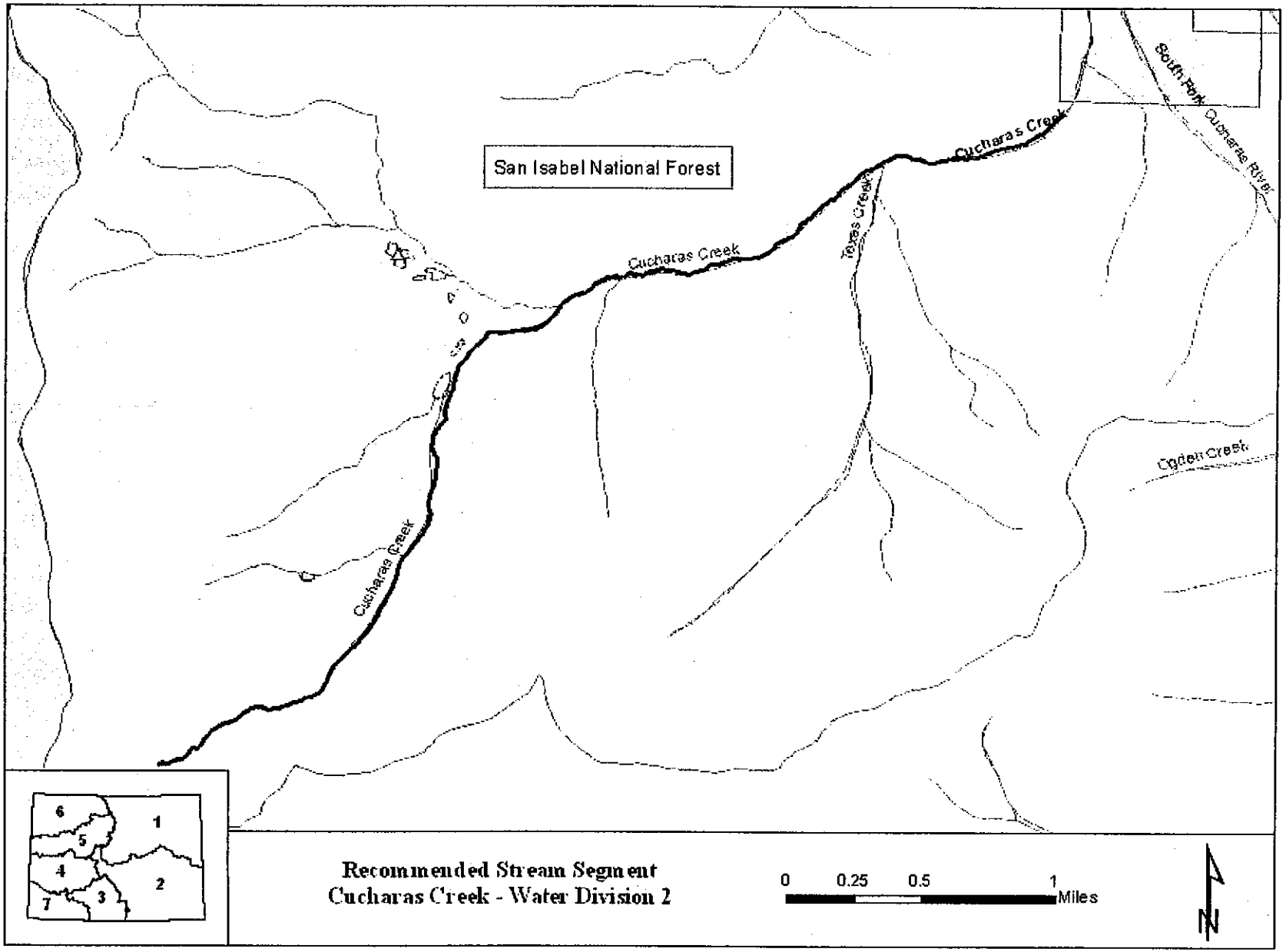
Lower Terminus: STATE HIGHWAY 12
(Latitude 37° 19' 54.1"N) (Longitude 105° 5' 47.58"W)
UTM North: 4131674.4 UTM East: 491446.9
NE SW S22 T31S R69W 6th PM
1350' East of West the Section Line; 2460' North of the South Section Line

Watershed: Alamosa-Trinchera (HUC#: 13010002)
Counties: Huerfano
Length: 4.7
USGS Quad(s): Trinchera Peak, Cucharas Pass
Flow Recommendation: 4.9 cfs (May 15 to June 30)
1.6 cfs (July 1 to September 15)
1.2 cfs (September 16 to March 31)
1.6 cfs (April 1 to May 14)

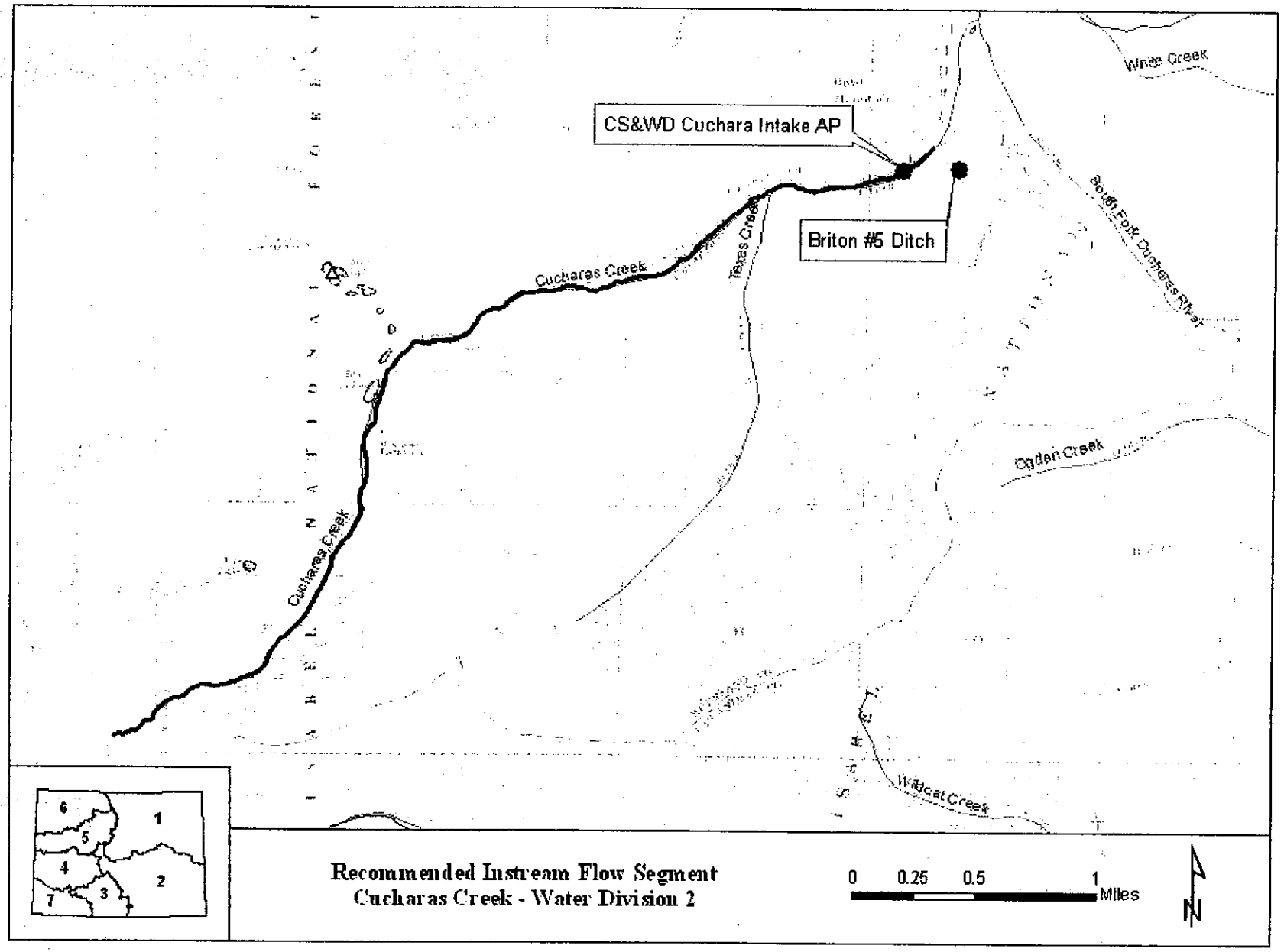
Vicinity Map



Land Use Map


San Isabel National Forest
Cucharas Creek
Cucharas Creek
Cucharas Creek
Jones Creek
South Fork Cucharas River
Ogden Creek
6
1
5
4
2
7
3
Recommended Stream Segment
Cucharas Creek - Water Division 2
0
0.25
0.5
1
Miles
N

Topographic & Water Rights Map



PROPOSED EXHIBIT

Highway

Cucharas WTP

Cucharas River

Deadman Creek