

BEFORE THE COLORADO WATER CONSERVATION BOARD

STATE OF COLORADO

**IN THE MATTER OF PROPOSED INSTREAM FLOW APPROPRIATION IN WATER
DIVISION 4: SAN MIGUEL RIVER (confluence Calamity Draw to confluence Dolores
River CWCB ID: 09/4/A-009)**

**PREHEARING STATEMENT OF SOUTHWESTERN WATER CONSERVATION
DISTRICT**

In accordance with Rule 5n(2) of the Rules Concerning the Colorado Instream Flow and Natural Lake Level Program, 2CCR 408-2 (the "ISF Rules"), Southwestern Water Conservation District ("SWCD") hereby submits its Prehearing Statement in opposition to the CWCB staff recommendation to appropriate an instream flow on the San Miguel River between its confluences with Calamity Draw and the Dolores River in the timing and amounts recommended by CWCB staff.

I. INTRODUCTION AND STATEMENT OF INTEREST OF THE SWCD.

The SWCD is statutorily charged with the conservation of the water of the San Juan and Dolores Rivers and their tributaries in order to facilitate the growth and development of the district and the welfare of its inhabitants. SWCD has been recognized by the General Assembly as established to safeguard for Colorado, all water to which the state of Colorado is equitably entitled. *See* C.R.S. 37-47-101. Accordingly, the SWCD is concerned that the ISF as currently proposed will limit SWCD's ability to carry out its statutory charge.

II. STATEMENT OF FACTUAL AND LEGAL CLAIMS ASSERTED.

The SWCD asserts that in formulating the proposed ISF the CWCB staff advanced a recommendation premised upon an incorrect legal standard motivated by an improper goal for the ISF program. Moreover, SWCD asserts that the amounts and timing of the ISF recommendation, as a factual matter, were not properly supported based upon available or readily obtained scientific information and analysis.

A. Legal Claims.

The CWCB's authority to appropriate instream flows for the people of Colorado derives from the General Assembly's recognition of "the need to *correlate* the activities of mankind with *some reasonable preservation* of the natural environment." C.R.S. 37-92-102(3) (emphasis added)¹. To "correlate" means "to establish a mutual or reciprocal relationship between." Thus, in advancing an instream flow appropriation the Board is challenged with balancing the natural environment with other human needs, including future needs. The Board is given direction in how to accomplish this difficult balancing act in at least two places in the statute.

First, the specific statutory direction to appropriate water for the protection of the natural environment "to a reasonable degree" informs the balance that must be struck.² The Colorado Supreme Court has held that the statutory authority

[G]rants the Board the right to determine and appropriate *only the minimum* amount of water necessary for the preservation of the environment. . . . Because the Board has the duty to appropriate *only the minimum amount of water necessary* to reasonably preserve the environment, its water rights, as determined by the water court, *and its actual appropriation* must comport with that duty.

Aspen Wilderness Workshop, Inc. v. Colorado Water Conservation Bd., 901 P.2d 1251, 1257 (Colo. 1995).

Second, in formulating the instream flow program the legislature recognized that circumstances might arise in which otherwise justifiable instream flow appropriations might impair Colorado's ability to develop its compact entitlements, stating,

Nothing in this article shall be construed as authorizing any state agency . . . to deprive the people of the state of Colorado of the beneficial use of those waters available by law and interstate compact.

C.R.S. 37-92-102(3).

¹ The SWCD, since its creation, has also been vested with limited statutory authority to "file upon and hold for the use of the public sufficient water of any natural stream to maintain a constant stream flow in the amount necessary to preserve fish" and recognizes that the preservation of natural environment for the benefit of the public is an important charge that can play an important role in regional economic development when properly correlated with the myriad other demands on our State's water supplies. C.R.S. 37-47-107(1)(j).

² See *In Re, Board of County Com'rs of County of Arapahoe*, 891 P.2d 952, 972 (Colo. 1995) ("The General Assembly has addressed the accommodation of the policy of maximum utilization of water and the policy of preservation of natural resources, but only in a limited way. It has expressed its concern that maximum utilization of water be balanced by preservation of the natural environment "to a reasonable degree" by authorizing appropriations on behalf of the people of the state of Colorado for that latter purpose.")

Accordingly, in carrying out its statutory charge “to correlate” the preservation of the natural environment with the activities of mankind in addition to those findings specified in C.R.S. 37-92-102(3)(c) and the analogous ISF Rule 5i, the CWCB is also charged with balancing the ISF program with other human demands by ascertaining whether the amounts claimed are the minimum amounts necessary and can operate without impairing Colorado’s ability to develop its compact entitlements. Nowhere in the record before the Board has there been a recommended finding by staff balancing these interests.

With respect to the obligation to identify minimum flows, BLM and DOW very clearly developed their recommendations, supported by staff, based upon maximizing habitat for the identified species rather than identifying the minimum amount necessary to correlate human and environmental needs. *See, e.g.* Staff Analysis and Recommendation, p. 7 Table 1, note (“amounts shown reflect the discharge which produced the *maximum amount of usable habitat*”); (“The instream flow recommendation of 170 cfs was derived *to maximize* the existing bluehead and flannelmouth sucker habitat available under a declining hydrograph”) (emphasis added).

With respect to ascertaining whether the proposed ISF (coupled with those existing statewide) will impair Colorado’s ability to develop its compact entitlements there has simply been no analysis. The Board should be particularly sensitive to making large ISF appropriations proximate to the stateline, which almost certainly have the effect of conducting water to downstream states, impairing Colorado’s future development.

B. Factual Claims.

Even assuming, *arguendo*, that the foregoing legal claims can be addressed, the proponents and staff have failed to establish the factual predicates necessary to advance the appropriation in its current form, as more fully detailed below.

1. The proponents and staff have not established and verified that the reach selected for the study is “representative” of habitat conditions within the proposed instream flow reach.

No documentation was provided or produced verifying that the site of the study reach was typical based upon ground, aerial or float surveys of the entire ISF reach with respect to such morphological characteristics as channel dimensions, gradient, sinuosity, and physical habitat availability as well as human alterations within the floodplain.

2. The available hydrology may be inflated by the development of a synthetic hydrology which overestimates water availability at the upper end of the reach.

In evaluating water availability it does not appear that availability at the upper study reach was accurately evaluated, but, instead, may have been inflated by relying on a synthetic hydrology that failed to take into account the gaining nature of the stream.

3. The biological justification in the PHABSIM analysis supporting the appropriation failed to consider multiple life stages, relative abundance of species or the habitat requirements of the most sensitive species.

The PHABSIM analysis only looked to the adult life stages of the bluehead and flannelmouth sucker rather than considering the habitat requirements for spawning, fry and juvenile life stages. Moreover, the PHABSIM analysis failed altogether to consider the habitat requirements of the roundtail chub, the only species listed as sensitive by both the CDOW and the BLM. Further no effort was made to balance the habitat requirements of the similarly abundant sucker species within the proposed ISF reach.

4. There has been no documentation verifying the habitat suitability criteria as appropriate to the proposed ISF reach.

The PHABSIM habitat suitability criteria used were developed on the Yampa, Colorado, Gunnison and Dolores Rivers. To date, there has been no written documentation of the propriety of applying these criteria to the much smaller San Miguel River either by the conduct of field sampling or careful comparison of habitat characteristics.

5. The depth and velocity criteria applied in the R2CROSS modeling were improperly applied.

The velocity and depth habitat suitability criteria used were developed from field data collected in pools and runs as well as riffles. Accordingly, the suitability criteria would be biased toward these other habitat types and are inappropriately applied in an R2CROSS analysis which is only appropriately applied in riffles.

6. The analysis of the flow at which maximum weighted usable area (WUA) for the two sucker species is obtained, is flawed.

For bluehead sucker species maximum WUA is first attained at approximately 435 cfs, not 500 cfs and at about 310 cfs, not 325 cfs for flannelmouth sucker.

7. The proposed ISF flows fail to protect the natural environment to a reasonable degree.

The 325 cfs flow regime proposed from April 15 – June 14 constitutes a proposal to maximize or optimize adult habitat. No linkage has been established between adult and spawning habitat and therefore the need to maximize adult habitat is not supported. This is

particularly the case given that the proposal maximizes habitat for the lower priority flannemouth sucker not the higher priority bluehead sucker. The proposed 325 CFS provides disparate amounts of habitat for the sucker species. A flow regime which balances the habitat needs between the two species is the better approach.

III. EXHIBITS TO BE INTRODUCED AT HEARING.

- A. HabiTech, Inc., Memorandum from Tom Wesche, PhD, Principal Scientist, Re: San Miguel Instream Flow Recommendations (June 29, 2011).
- B. Any other exhibits endorsed by other parties in their Prehearing Statements.

IV. WITNESSES TO BE CALLED AND A DESCRIPTION OF THEIR TESTIMONY.

- A. Dr. Thomas A. Wesche, PhD.

Dr. Wesche's testimony will be related to the scientific basis for the ISF recommendation including any shortcomings in the methodology employed as well as recommendations for an alternative proposed instream flow.

- B. Bruce Whitehead, Executive Director, Southwester Water Conservation District

Mr. Whitehead may testify on the interest of the SWCD and history of the proposed instream flow appropriation.

- C. Witnesses who may be listed on other parties' Prehearing Statements.

V. ALTERNATIVE PROPOSAL TO THE PROPOSED INSTREAM FLOW.

SWCD requests the Board remand this matter to staff for further consideration of the following issues:

1. Identification of the minimum streamflow necessary to preserve the natural environment in a manner that correlates the protection of the natural environment with the future needs of mankind.
2. The impact of the proposed ISF on Colorado's ability to develop its compact entitlements in light of existing instream flows.
3. Development of thorough and transparent documentation of the application of the scientific methodologies used in advancing the ISF proposal.

Alternatively, SWCD requests that the Board limit its appropriation within the reach as follows:

170 cfs from April 15 to July 31;

100 cfs from August 1 to 31;

80 cfs from September 1 to February 29; and

100 cfs from March 1 to April 14

Dated this 15th day of July 2011.

MAYNES, BRADFORD, SHIPPS & SHEFTEL, LLP
Attorneys for Southwestern Water Conservation District



John B. Spear, No. 13878

Janice C. Sheftel, No. 15346

Adam T. Reeves, No. 26230

Maynes, Bradford, Shipps & Sheftel, LLP

835 E. 2nd Avenue, No. 123

Durango, CO 81301

(970) 247-1755

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HabiTech, Inc.

EXHIBIT A

Water Resource Consultants

P.O. Box 944
Laramie, WY 82073
(307) 742-4902 (Office)
(307) 742-4752 (Fax)

Lora B. Wesche, President
Thomas A. Wesche, PhD, Principal Scientist
E-mail: lwesche@aol.com

29 June 2011

TO: Bruce Whitehead, Southwestern Water Conservation District
FROM: Tom Wesche
SUBJECT: Comments on San Miguel River Instream Flow Recommendations

Introduction and Background

As you requested in March 2011, I reviewed the instream flow recommendations for the lower San Miguel River (SMR) from Calamity Draw downstream to the confluence with the Dolores River. The documents you provided for my review included 1) the draft and final versions of the Executive Summary of the Instream Flow Recommendation prepared by the Colorado Water Conservation Board (CWCB) based on the analyses conducted by the Colorado Division of Wildlife (CDOW) and the Bureau of Land Management (BLM), 2) a preliminary report by Bikis Water Consultants dated November 2009 entitled, "Evaluation of technical basis for lower SMR CWCB Instream Flow Recommendations", 3) a memorandum from Mark Uppendahl, CDOW, and Roy Smith, BLM, to Linda Bassi, CWCB, dated April 5, 2010. regarding technical evaluation of Bikis Water Consultants report regarding SMR instream flow recommendation, 4) a memorandum from Owen Williams, CWCB, to Linda Bassi and Jeff Baessler, CWCB, dated March 10, 2010, regarding preliminary response to Bikis Water Consultants report entitled, "Evaluation of technical basis for lower SMR CWCB instream flow recommendations", 5) a memorandum from Don Conklin, GEI, to Montrose County Commissioners, dated January 14, 2011, regarding proposed SMR instream flow recommendations, and 6) a memorandum from Branden Effland, Deere and Ault Consultants, to Montrose County Commissioners, dated January 27, 2011, regarding review of Final SMR ISF Executive Summary - hydrologic data and analysis. Following my review of these documents, I prepared a memorandum of my preliminary findings, dated 30 March 2011, for consideration by the Southwestern Water Conservation District (SWCD) Board at their 31 March, 2011 meeting.

Since the preparation of the March memorandum, I have had the opportunity to 1) further review the documents described above, 2) review additional supporting technical documents and appendices for the Executive Summary found on the CWCB website, 3) review several key documents cited in the Executive Summary, 4) visit with Mark Uppendahl via telephone and electronic mail regarding questions I had about the study approach and analyses, and 5) visit with Don Conklin via telephone regarding his work on behalf of the Montrose County Commissioners. Based upon this information and my earlier preliminary review in March 2011, I have prepared this memorandum summarizing my opinions regarding the technical approach taken and the resultant instream flow recommendations.

Opinions on Technical Approach

I was pleased to see that CDOW/BLM applied the Physical Habitat Simulation (PHABSIM) model, in addition to their more standard R2CROSS approach, in the development of their SMR instream flow recommendations. PHABSIM allows a more rigorous and robust analysis of flow-habitat relations, can be species and life stage specific, and is generally considered more appropriate for streams of this size and habitat diversity. The R2CROSS procedure is restricted to use in riffle habitats only, is typically not species specific, and is usually considered more appropriate for smaller streams. The inclusion of PHABSIM analysis suggests to me the importance the agencies place on the SRM.

While I feel the habitat models applied by CDOW/BLM are appropriate, I do have several concerns regarding the study approach and analyses. These include:

1. The reach selected for study is described as being “representative” of habitat conditions throughout the 17 mile segment, but no documentation was provided regarding how this determination was made. Typically such a designation is based upon ground, aerial and/or float surveys of the entire segment in conjunction with appropriate topographic map work to examine morphologic characteristics such as river channel dimensions, gradient, sinuosity, and physical habitat availability, as well as human alterations within the floodplain. In response to my question on this matter, Mark Uppendahl explained that while no formal process was followed and no written documentation was developed, CDOW and BLM did consider these factors in their site selection process, as well as the good public access provided on The Nature Conservancy (TNC) property. As I have not had the opportunity to observe the entire segment, I found this response to be adequate, although formal written documentation should be developed to allow more thorough evaluation of their study reach characterization as “representative”.
2. It is unclear why the study reach was located near the upstream end of the segment just above the confluence with Tabeguache Creek, while the long-term USGS gage station used for the hydrologic analysis was located below this confluence. Typically we attempt to locate a study reach as near a gage station as possible with tributary inflows accounted for. In this case, such positioning could potentially result in lower recommended flows due to reduced channel size and flow at the upper end of the segment. However, to evaluate water availability, the synthetic hydrology was developed for the lower terminus of the segment. As the SMR appears to be a gaining stream based on the work by Bikis, the net result could be that while the recommended flows may be lower, their availability may be inflated by the downstream hydrology. In response to this question, Mark Uppendahl indicated the agencies are typically criticized for having their study reach near the downstream end of the segment thereby possibly inflating the instream flow recommendation. In this case, it appears most downstream locations were either altered by historic land uses or the channel morphology was too unique (e.g. canyon-bound) to be considered representative. Thus, the upper reach was selected for study. While this location appears acceptable, it would seem reasonable that for evaluating water availability, some consideration should also be given to the hydrology at the study reach.

3. Overall, the biological justification for the recommendations is limited. Typically, PHABSIM analyses include not just multiple species, but also multiple life stages, including spawning, fry and juvenile. This was not done for the SMR, with only the adult life stage of bluehead and flannelmouth sucker considered. Also, it does not appear that roundtail chub, the only species classified as “sensitive” by both the CDOW and the BLM, was considered in the analysis. For example, as roundtail chub spawn on the declining limb of the spring runoff hydrograph, consideration of their habitat and flow requirements during the mid-June to July period may have strengthened the biological basis for this portion of the recommendation. In response to my question on this matter, Mark Uppendahl pointed out that he was not aware of any habitat suitability criteria being available for roundtail chub and that for the sucker species, they relied upon the work of Anderson and Stewart (2003) which focused on relating community structure and fish biomass to habitat availability rather than specific life stages. In the absence of such habitat criteria for a key species and/or life stage, two approaches are commonly acceptable to fill the information gap. Field study of the habitat usage by the species/life stage in question can be conducted on the subject stream to develop the needed criteria or, if time and resources are limited, a literature review combined with professional judgement may be appropriate (Bovee 1986). In the case of the SMR PHABSIM analysis, neither approach was used, thereby limiting the biological justification for the flow recommendations. Furthermore, the similar relative abundance of the two sucker species through the segment (Kowalski 2008) was not used in the flow recommendation process to equitably balance available habitat among the species.
4. The habitat suitability criteria which provide the species-specific habitat use information (water depth and velocity) for bluehead and flannelmouth sucker for the PHABSIM modeling effort were based on the work of Anderson and Stewart (2003 and 2007) in the Yampa, Colorado, Gunnison and Dolores Rivers. While it is not unusual for instream flow practitioners to apply such external criteria to their test stream, such use is typically “verified” on the test stream either through field sampling or at least by careful comparison of the habitat and fishery characteristics between streams (Thomas and Bovee 1993). In the material I originally reviewed, I did not come across any information related to such verification. However, in his response to my question on this matter, Mark Uppendahl provided a reasonable explanation of the comparative process used to justify the criteria applied based upon field observations and professional judgement. Written documentation should be developed to allow a more thorough evaluation of the “verification” efforts.
5. The water depth and velocity criteria (1.0 ft and 1.3 ft/s) applied in the R2CROSS modeling were based upon the same habitat suitability criteria used for PHABSIM modeling. As R2CROSS is only applied in riffles, such an application would be acceptable only if the criteria used were developed from data collected specifically in riffles. However, review of the Anderson and Stewart (2003) report indicates the suitability criteria were developed from field data collected in pools and runs as well as riffles. Therefore, it would appear the suitability criteria used for R2CROSS analysis

would be biased toward these other habitat types and inappropriate for use in riffles. In the materials reviewed, I did not find any consideration of this matter.

6. Comparison of the PHABSIM-based weighted usable area (WUA) versus discharge plots presented in the April 5, 2010 memorandum from Mark Uppendahl and Roy Smith to Linda Bassi with values presented in Table 1 of the Executive Summary indicates the interpretation of the flow at which maximum WUA for the two sucker species is attained may be flawed. For bluehead sucker, maximum WUA is first attained at about 435 cfs, not 500 cfs, and at about 310 cfs, not 325 cfs, for flannemouth sucker. As 325 cfs is the recommended flow for the April 15 to June 14 period, this discrepancy should be corrected. Likewise, the interpretation of the R2CROSS analysis appears to be incorrect on p. 7 of the Executive Summary. Here, about 650 cfs is identified as the spring/summer flow necessary to meet 3 of 3 critical hydraulic criteria at riffle cross-section #1. However, inspection of the modeled hydraulic data for cross-section #1 in Appendix H of the provided support information does not present the hydraulic values for depth, velocity and wetted perimeter for a flow of 650 cfs. Furthermore, assuming the unstated critical criteria being applied are depth > 1.0 ft, velocity > 1.3 ft/s, and wetted perimeter > 70 %, it would appear a flow of 360 cfs also meets all three criteria. As with the WUA interpretation, clarification is needed.

Opinions on Instream Flow Recommendations

The CDOW/BLM report recommends the following five-level instream flow regime for the SMR segment: 325 cfs for April 15 - June 14; 170 cfs for June 15 - July 31; 115 cfs for August 1 - August 31; 80 cfs for September 1 - February 29; and, 115 cfs for March 1 - April 14. As discussed above, I found the biological justification for these recommendations to be limited and not strongly supportive of these particular flow levels, times, and durations. Keeping in mind that the recommendation of instream flows is not an exact science and may often incorporate substantial professional judgment, I would offer the following comments:

1. The 325 cfs flow level is presented more as a flow to “maximize” or “optimize” adult habitat rather than a flow for “reasonable preservation of the natural environment”. As no linkage between adult and spawning habitat for the sucker species has been established, the need to maximize adult habitat at this time is unclear, especially when this flow maximizes habitat for flannemouth sucker, not the stated highest priority species, bluehead sucker. It is important to point out also that the 325 cfs flow provides highly disparate amounts of habitat for the two sucker species. From the WUA-discharge curves discussed above, 325 cfs provides about 40000 sq. ft of habitat per 1000 ft of stream for bluehead sucker and only about 24000 sq. ft per 1000 ft of stream for flannemouth sucker. As the fish sampling data collected by CDOW in 2008 and presented in Appendix C of the Executive Summary (Kowalski 2008) shows the relative abundance of both species is about equal through the segment, I feel a spring/early summer flow which provides about equal amounts of habitat for the species is justified, if available. A flow of 170 cfs for the April 15 to July 31 period meets these criteria, providing about 25000 sq. ft of habitat per 1000 ft of stream for bluehead sucker and

about 22000 sq. ft of habitat per 1000 ft of stream for flannemouth sucker. The 170 cfs flow also exceeds the critical depth and velocity criteria for R2CROSS and maintains almost 64 % of the wetted perimeter. Based on this analysis, 170 cfs will provide for "reasonable preservation of the natural environment" for the April 15 to July 31 period.

2. Based again on equitable amounts of habitat between species and water availability, a flow of 100 cfs appears adequate for the August 1 to 31 and March 1 to April 14 periods. This flow provides about 12500 sq. ft of habitat per 1000 ft of stream for each species, meets the R2CROSS criteria for depth (based on the > 1% top width standard) and velocity, while maintaining almost 60 % of wetted perimeter, and provides an adequate transition flow between the higher spring/early summer flow and the winter low flow. Based on this analysis, 100 cfs will provide for "reasonable preservation of the natural environment" for the August 1 to 31 and March 1 to April 14 periods.
3. Based again on the provision of equitable amounts of habitat between sucker species and water availability, a flow of 80 cfs appears adequate for the winter period from September 1 to February 29. This flow provides about 9000 sq. ft of habitat per 1000 ft of stream for both bluehead and flannemouth suckers, and should provide adequate winter survival conditions with riffle water depth approaching 0.7 ft, velocity approaching 2.5 ft/s and wetted perimeter of about 60 %. For the September 1 to February 29 period, I am in agreement with the CWCB recommendation that 80 cfs will provide for "reasonable preservation of the natural environment".

Summary and Conclusions

Based upon my review of pertinent documents and the opinions presented earlier in this memorandum, I conclude the following:

1. A strength of the approach taken by the CDOW and BLM in developing the SMR instream flow recommendations was the application of the PHABSIM model in addition to the more standard R2CROSS protocol. These models were appropriate for study purposes.
2. Review of the study approach was hampered by the lack of formal, written documentation. A detailed technical report should be prepared describing all methods and procedures used in the conduct of the study, including, but not limited to, the rationale for study reach selection and the verification of habitat suitability criteria.
3. Several weaknesses were identified in the study approach, including 1) the spatial separation between the instream flow study reach and the lower terminus of the segment where flow availability was evaluated, 2) limited biological justification for the recommended instream flow levels including failure to consider key species and life stages in the analysis as well as the relative abundance of fish species in the segment to balance available habitat, 3) possible bias of habitat suitability criteria developed in

diverse habitats but applied only in a riffle habitat, 4) mis-interpretation of habitat-flow relationships for identifying certain instream flow levels, and 5) recommending flow levels for portions of the year to maximize available habitat for key species rather than just providing for “reasonable preservation of the natural environment”. Overall, these weaknesses were sufficient to raise concerns regarding several portions of the instream flow recommendation.

4. Taking into consideration the weaknesses in the study approach identified above, the following instream flow regime should provide for “reasonable preservation of the natural environment”: 170 cfs for April 15 to July 31; 100 cfs for August 1 to 31 and March 1 to April 14; and, 80 cfs for September 1 to February 29.

Literature Citations

- Anderson, R. and G. Stewart. 2003. Riverine fish flow investigations. Federal Aid Project F-289-R6 report. Colorado Division of Wildlife, Fish Research Section, Fort Collins, CO. June.
- Anderson, R. and G. Stewart. 2007. Fish Flow Investigation. Part 1. Two-dimensional modeling for predicting fish biomass in western Colorado; Part 2. Impacts of stream flow alterations on the native fish assemblage and their habitat availability as determined by 2D modeling and the use of fish population data to support instream flow recommendations for the sections of the Yampa, Colorado, Gunnison and Dolores Rivers in Colorado. Colorado Division of Wildlife, Aquatic Wildlife Research Special Report Number 80. May.
- Bikis Water Consultants, LLC. 2009. Evaluation of technical basis for lower San Miguel River CWCB instream flow recommendations. Preliminary report. November.
- Bikis Water Consultants, LLC. 2010. Suggested modifications to proposed instream flows-lower San Miguel River. Memorandum to Mark Uppendahl, CDOW, and Roy Smith, BLM. June.
- Bovee, K. D. 1986. Development and evaluation of habitat suitability criteria for use in the Instream Flow Incremental Methodology. Instream Flow Information Paper: No. 21. Biological Report 86(7). Instream Flow and Aquatic Systems Group, National Ecology Center, U. S. Fish and Wildlife Service, Fort Collins, CO.
- Colorado Water Conservation Board. No Date. Executive Summary, San Miguel River, Calamity Draw to Dolores River, Instream Flow Filing. CWCB ID: 09/4/A-009. Draft and Final, plus technical support information from CWCB website.
- Conklin, D. 2011. Proposed San Miguel River instream flow recommendations. Memorandum to Montrose County Commissioners. GEI Consultants, Inc. Denver, CO. January 14.

- Effland, B. 2011. Review of FINAL San Miguel River ISF Executive Summary - Hydrologic data and analysis. Memorandum to Montrose County Commissioners. Deere & Ault Consultants, Inc. Longmont, CO. January 27.
- Kowalski, D. 2008. Fish sampling report, San Miguel River Uravan to Dolores confluence. Colorado Division of Wildlife, Southwest Region. July 15.
- Thomas, J. and K. Bovee. 1993. Application and testing of a procedure to evaluate transferability of habitat suitability criteria. *Regulated Rivers: Research and Management* 8:285-294.
- Uppendahl, M. and R. Smith. 2010. Technical evaluation of Bikis Water Consultants LLC report regarding San Miguel River instream flow recommendations. Colorado Division of Wildlife and Bureau of Land Management memorandum to Linda Bassi, Colorado Water Conservation Board. April 5.
- Williams, O. 2010. Preliminary response to Bikis Water Consultants report entitled, "Evaluation of technical basis for lower San Miguel River CWCB instream flow recommendations". Memorandum to Linda Bassi and Jeff Baessler, CWCB, Denver, CO. March 10.

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the enclosed documents were served as indicated on the following person(s) this 15th day of July, 2011:

Colorado Water Conservation Board
Linda Bassi
1313 Sherman Street, Room 721
Denver, CO 80203
(303) 866-3441-ext 3204
Via Hand Delivery
(22 paper copies)

Colorado Dept. of Law
Natural Resources & Environmental Section
Susan Schneider – Staff Attorney
1525 Sherman St., 7th floor
Denver, CO 80203
(303) 866-5046
Susan.schneider@state.co.us
Via Email

Colorado Division of Wildlife
Mark Uppendahl
6060 Broadway
Denver, CO 80216
(303) 291-7267
Mark.uppendahl@state.co.us
Via Email

Bureau of Land Management
Roy Smith
DOI, BLM, Colorado State Office
2850 Youngfield Street
Lakewood, CO 80215-7093
(303) 239-3940
Roy_smith@co.blm.gov
Via Email

Farmer's Water Development Company
David Alexander, President
PO Box 10
Norwood, CO 81423
(970) 327-4844
farmerWDC@yahoo.com
Via Email

Felt, Monson & Culichia, LLC
319 North Weber St.
Colorado Springs, CO 80903
cdc@fmcwater.com
Via Email

Board of County Commissioners of Montrose County
Charles B. White
Robert Hayes
Petros & White, LLC
1999 Broadway, Suite 3200
Denver, CO 80202
(303) 825-1980
cwhite@petros-white.com
rhayes@petros-white.com
Via Email

San Miguel Water Conservancy District
Raymond Snyder, President
San Miguel Water Conservancy District
PO Box 126
Norwood, CO 81423
Via U.S. Mail
(1 paper copy)

Robert W. Bray, Secretary
San Miguel Water Conservancy District
PO Box 65
Redvale, CO 81431
Via U.S. Mail
(1 paper copy)

Board of County Commissioners of San Miguel County
Becky King
San Miguel County Attorney's office
PO Box 791
Telluride, CO 81435
(970) 728-3879
bekcyk@sanmiguelcounty.org
Via Email

Colorado Environmental Coalition
San Juan Citizens Alliance
American Whitewater
Western Colorado Congress
Center for Native Ecosystems
Becky Long
Colorado Environmental Coalition
1536 Wynkoop Street #5C
Denver, CO 80202
(303) 534-7006
becky@ourcolorado.org
Via Email

Sheep Mountain Alliance
Jennifer Russell
Nathaniel Smith
Russell & Pieterse, LLC
PO Box 2673
Telluride, CO 81435
(970) 728-5006
Jenny.russell@lawtelluride.com
Nate.smith@lawtelluride.com
Via Email

Western Resource Advocates
The Wilderness Society
Robert Harris
Bart Miller
Western Resource Advocates
2260 Baseline Road, #200

Boulder, CO 80302

(303) 444-1188

bmiller@westernresources.org

rharris@westernresources.org

Via Email

Casey Shpall, Hearing Officer

Casey.shpall@state.co.us

Via Email

Original Signature on File

Linda A. Winters