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Colorado Water Conservation Board

BEFORE THE COLORADO WATER CONSERVATION BOARD

STATE OF COLORADO

IN THE MATTER OF PROPOSED INSTREAM FLOW APPROPRATION IN WATER DIVISION 4: SAN MIGUEL RIVER (confluence Calamity Draw to confluence Dolores River)

REBUTTAL STATEMENT OF WESTERN RESOURCE ADVOCATES AND THE WILDERNESS SOCIETY

Pursuant to the August 2, 2011, First Prehearing Order, and Rule 5n(5) of the Rules Concerning Instream Flow and Natural Lake Level Program, 2 CCR 408-2 ("ISF Rules"), Western Resource Advocates ("WRA"), and The Wilderness Society ("TWS") (collectively, "Conservation Groups"), by and through its undersigned counsel, submit the following Rebuttal Statement in support of the Staff ISF Recommendation on the San Miguel River, Water Division No. 4. *See* Notice of Contested 2011 ISF Appropriations (May 26, 2010), before the Colorado Water Conservation Board ("CWCB" or "Board").

The Conservation Groups continue to support the Staff ISF Recommendation and Board intent to appropriate an in-stream flow water right for the San Miguel River. Although the higher flow regime proposed by John Woodling, Ph.D., Conservation Groups' PHS Ex. 1, is more consistent with the habitat needs of the Flannelmouth Sucker, Bluehead Sucker, and Roundtail Chub (collectively, the "Three Species"), the Staff ISF Recommendation is foundational to preserving the natural environment in the San Miguel River to a reasonable degree.

I. The proposed ISF flows are necessary to support existing populations of the Three Species in the Subject Reach.

The proposed ISF water right is the minimum amount of water necessary to preserve the natural environment to a reasonable degree. As noted by Woodling, the proposed ISF water right's winter flows would result in water depths that are "less than marginally suitable" habitat for bluehead sucker. Conservation Groups' PHS, Ex. 1 at 8. Woodling's 8/14/11 rebuttal memo, *attached as* Ex. 3 ("Woodling Rebuttal"), concludes that reducing flows even to the level of the proposed ISF water right "would likely result in presence of both fewer and smaller fish" and therefore harm existing populations of the Three Species in the San Miguel River. Woodling Rebuttal at 2.

Some opposers claim that the equivalent of historic dry-year condition flows is all that is needed to preserve the natural environment to a reasonable degree. Montrose County Ex. A at 3 (Conklin memo); Norwood/Lone Cone PHS at 5. Although an ecosystem may limp through one bad drought year, it does not follow that the ecosystem can survive such extreme conditions in perpetuity. Woodling notes that Conklin's July 8, 2011, memo provides no scientific justification for this novel and counterintuitive proposition. Woodling counters that smaller and sparser populations of the Three Species in the Dolores and Yampa strongly suggest that consistently low winter flows harm populations of these fish over the long-term. Woodling Rebuttal at 1-2.

Futhermore, Woodling finds that Conklin's estimate of the habitat needs of the bluehead and flannelmouth sucker fry is inappropriately based upon different fish species with significantly different – and often conflicting – habitat needs. Specifically, Woodling notes that the white sucker is an invasive species from Colorado's eastern slope. By contrast, The West Slope's native bluehead and flannelmouth suckers are adapted to the flow conditions of the West Slope. Furthermore, the white sucker may actually harm native bluehead and flannelmouth suckers when cohabitating in low flow conditions.

In addition, Woodling finds Conklin's use of longnose dace appears particularly inapposite, as these eastern slope fish appear to prefer habitat with as little as 2 to 4 inches of water depth. Furthermore, Woodling notes that Conkin's attempt to use the longnose dace to estimate the habitat needs of the speckled dace—the latter of which is native to the West Slope—is neither relevant nor justified because the speckled dace is not one of the Three Species that forms the primary purpose or need for this proposed ISF water right, is not declining in its West Slope range or abundance, and does not require lower flows. Woodling concludes that the comparisons made by Conklin to these eastern slope species are "not appropriate or valid." Woodling Rebuttal at 3-6.

These opposers attack BLM and DOW's thoughtful efforts to "maximize" usable habitat for the Three Species in the Subject Reach. Southwestern PHS at 3; Norwood/Lone Cone PHS at 3-4. They claim that this effort violates the instream flow statute's requirement that ISF water right rights may only appropriate the minimum stream flow needed to preserve the natural environment to a reasonable degree. However, the instream flow statute and the agencies' efforts are consistent. As discussed above, this attempt to "maximize" useable habitat results in less than marginally suitable habitat for the Three Species. What the opposers characterize as an excessive effort is, in fact, a modest attempt to ensure that flows in the San Miguel provide as close to "marginal" habitat as is possible under the circumstances.

As is thoroughly described in the Conservation Groups' Prehearing Statement, including the 7/14/11 Woodling memo, a significantly higher suite of flows than the CWCB's proposed instream flow water right would be more consistent with the habitat needs of the Three Species in the Subject Reach of the San Miguel River. Although the proposed ISF water right would allow winter habitat to be reduced significantly below "marginal" water depths for the Three Species, it could play an important role in ensuring

that the Three Species are not listed under the Endangered Species Act. Therefore, the proposed ISF water right provides some reasonable preservation of the natural environment and is consistent with the instream flow statute, C.R.S. § 37-92-102(3).

II. Water is available for this proposed ISF water right.

Water is available more than 50% of the time for this proposed ISF water right. Belanger's August 16, 2011, analysis, *attached as* Conservation Groups' Ex. 4, finds that the July 14, 2011, report by Deere & Ault (Montrose County's Exhibit C), does not challenge the conclusion that water is available for the proposed ISF water right. Belanger's own calculation of water availability based upon Uravan gage data shows that the most infrequent timeframe that water is available for the proposed ISF water right is August at 55% of the time, and the most frequent is April 15 – June 14 at 89.4% of the time.

Some of the opposers claim that the Subject Reach is a "gaining" reach, meaning that the river gains more water from the groundwater than it loses to the groundwater, though existing data suggests otherwise. Farmers PHS Ex. 1 (Nov. 2009 Bikis analysis); Southwestern PHS at 3-4, Exh. A at 2 (incorporating the conclusions of the Nov. 2009 Bikis analysis). On this ground, these opposers assert that the CWCB Staff may overestimate water availability at the upper end of the Subject Reach. As thoroughly explained by Belanger, studies (Cooper & Arp, 1999; Cooper & Conovitz, 2001) show that these claims are based upon the incomplete and inaccurate Bikis analysis. Conservation Groups' PHS, Ex. 2 at 1-2. Though additional field work and analysis would be necessary to fully quantify surface and groundwater interactions throughout the reach, the opposite of these opposers' claims appears to be the case. Existing data show that the lower San Miguel River is a "losing" reach in most places, meaning that it actually loses more water to the ground than it gains. *Id.* Therefore, the allegation that the Staff overestimates water availability at the upper end of the Subject Reach is without merit.

III. Preservation of adequate flows in the San Miguel may be necessary to ensure survival of the Three Species in the Dolores River Basin.

Montrose County and Norwood/Lone Cone argue that evidence in the record regarding the potential benefits of the Staff ISF Recommendation to the broader Dolores Basin is "irrelevant". Without citing any authority, these parties claim that the Board may only consider the natural environment in the Subject Reach. Montrose PHS at 2, 3; Norwood/Lone Cone PHS at 5-6. Yet, neither the instream flow statute, C.R.S. § 37-92-102(3), nor the ISF Rules, are so constrained.

The relevant natural environment is simply the natural environment which "can be preserved to a reasonable degree" by the water available for this proposed ISF appropriation on the San Miguel River. *Id.* at § 102(3)(c); ISF Rule 5i(1). The Board's

consideration of the Staff ISF Recommendation properly includes all of the natural environment that can be preserved to a reasonable degree by the proposed water right. The Subject Reach is not a mere fish bowl to be viewed in isolation, but rather is a vital link within fish habitat that spans two important western Colorado rivers.

As described in the Conservation Groups' PHS at 3-4, the subject reach provides refuge habitat for the Three Species in the Dolores River and therefore could be a linchpin for the Three Species in the larger river system. It is true that other factors may impact the proposed ISF water right's ability to ensure the long-term survival of the Three Species in the Dolores. The same could be said for populations of the Three Species in the Subject Reach.

The evidence in the record suggests that perfection of this ISF water right may be a necessary step to preserving populations of the Three Species in the Dolores River and achieving the goals of the regional Conservation Agreement for the Three Species. Failure to protect the Subject Reach could imperil the Three Species in the Dolores River, and increase the risk that the Three Species will be listed under the Endangered Species Act. The Board should not be denied the opportunity to make a fully informed decision regarding this Staff ISF Recommendation.

IV. The proposed ISF is consistent with continued consumptive development of Colorado's Compact share in the San Miguel River.

Claims that this proposed ISF water right is inconsistent with beneficial use of the water of the San Miguel River under law and compact are without merit. By allowing the Opposing Parties approximately a year to file for conditional water rights ahead of the Board announcing its intent to file for this proposed ISF water right, the Board has generously ensured that the Opposing Parties have ample opportunity to meet their reasonable future water needs. Indeed, Montrose County and the Norwood Water Commission took advantage of this opportunity and filed for conditional water rights with the Division 4 Water Court. Montrose County PHS at 1; Norwood/Lone Cone PHS at 1-2. These water rights, if decreed by the Water Court, will be senior to this proposed ISF water right. The merit of these applications, including the parties' claimed water needs, will be determined by the Water Court and should not be prejudged by the parties or the Board in this hearing.

The continued consumptive development of Colorado's Compact share is further assured by the abundant water that is physically available in excess of this proposed ISF water right. Belanger calculates that on average, 167,183 AF/yr is physically available beyond this proposed ISF water right. Even in many dry years, there are significant excess flows. For example, Belanager finds that "excesses above 50,000 AF occur in about 85% of all years." Conservation Groups' PHS, Ex. 2 at 3-4 (Belanger's Figure 1 shows significant excess flows in nearly all years). In addition, flows appropriated by this proposed ISF right will be physically available for consumptive use in the Dolores River below the Subject Reach.

Claims by opposers that this proposed ISF water right could limit their ability to exchange or change their pending conditional water rights are irrelevant and speculative. Montrose County PHS, Ex. D; Norwood/Lone Cone PHS at 5, 8. First, this argument ignores the vast quantities of water that are physically available for additional consumptive use in excess of this proposed ISF water right. *Cf.* Conservation Groups' PHS, Ex. 2 at 3-4. Second, the entire value of an ISF water right is its relative priority which can be defended against injury by, among other things, changes and exchanges. *Colorado Water Conservation Bd. v. City of Central*, 125 P.3d 424, 439 (Colo. 2005) (the value of an ISF water right is its priority). That the opposing parties might someday prefer to exchange or change their senior water rights, rather than seek to develop the excess flows, is irrelevant. The Colorado Supreme Court has considered and rejected similar claims attacking ISF water rights' ability to function within the priority system. *Id.* at 440. Allowing any and all injurious changes or exchanges is unnecessary to ensure continued consumptive development of the San Miguel River and would defeat the General Assembly's intent in giving ISF water rights an enforceable priority. *See id.*

V. Reservation of Time to Present Case at Hearing.

The Conservation Groups respectfully request 30 minutes within the time allotted to the proponent group. The Conservation Groups further request that any unused portions of its allotted time be ceded to CWCB Staff for rebuttal purposes.

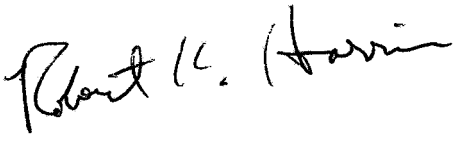
VI. Witnesses and Exhibits

The Conservation Groups add rebuttal memos from John Woodling Ph.D., *attached as* Ex. 3, and Laura Belanger, P.E., *attached as* Ex. 4. The Conservation Groups do not have additional witnesses to add to those described in its prehearing statement.

VII. Conclusion

Wherefore, the Conservation Groups hereby request that the Board increase the flow recommendation to the flow levels prescribed in the Woodling Memo, or in the alternative, approve the Staff ISF Recommendation for the San Miguel River (confluence Calamity Draw to confluence Dolores River).

Respectfully submitted this 19th day of August, 2011.



/s Robert K. Harris
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CERTIFICATE OF SERVICE

I hereby certify that on August 19, 2011, the above **Rebuttal Statement of Western Resource Advocates and The Wilderness Society** was served upon all parties herein by Federal Express, email, or depositing copies of the same in the U.S. mail, postage prepaid and addressed as follows:

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s/ Robert K. Harris
Robert K. Harris
Western Resource Advocates
Duly signed original on file at Western Resource Advocates

MEMORANDUM

TO: Western Resource Advocates and the Wilderness Society

FROM: John Woodling, Ph.D., Woodling Aquatics

DATE: 8/14/2011

SUBJ: Rebuttal comments concerning the relationship of proposed instream flow regimes in the San Miguel River to native fishes

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I have read and analyzed the July 8, 2011 memo from GEI consultant Don Conklin (July 8, 2011) submitted as part of the Montrose County Prehearing Statement at the request of Western Resource Advocates. Several aspects of this memo seemed to indicate a response to the Colorado Water Conservation Board is appropriate.

As noted by Conklin (July 18, 2011) the purpose of the instream flow program is to "preserve the existing aquatic environment." This protection is to be provided to a reasonable degree as described in the documentation describing the instream flow program. The native fish species assemblage of the claimed reach of the San Miguel River would be at risk if the current flow regime of the river is reduced in the future.

The existing San Miguel River fish assemblage is maintained in part by the current flow regime in the San Miguel River. Other parameters such as temperature and water quality are involved however; flow is a critical habitat component of any river. In some years the stream flows exceed the Colorado Division of Parks and Wildlife (DPW) proposal and in other years the available flows are less than those proposed by the DPW. As noted by Montrose County (Conklin July 8, 2011, page 1),

> "The fish populations in the river at present are being preserved with the historical flow regime that has occurred over the years without designated minimum flows."

The comment by Montrose County (Conklin July 8, 2011) highlights a very important point. The current San Miguel River fish assemblage will persist into the future interacting with changes in the long-term flow regime. The fish assemblage will change if the long term flow regime changes to a sufficient degree. However, the fish assemblage does not change from year to year in response to yearly changes in seasonal flow levels. A serious drought in 2002 and several years of relative high stream flow occurred in the last decade in Colorado yet the fish species of concern to the DPW and BLM (the bluehead sucker, flannelmouth sucker and roundtail chub) have persisted in the claimed stream reach of the San Miguel River. These species are relatively long lived fish species, living perhaps in excess of 20 years. Population

persistence does not require successful reproduction each year for such long lived species. Any single fish only has to produce one offspring that reaches breeding age to assure persistence of the species in this stream reach.

The long term flow patterns in the San Miguel River are not expected to change to a large degree until additional water rights are granted and exercised. The seasonal flows proposed by the DPW/BLM could become the maximum water levels in the claimed stream reach of the San Miguel River in the future when additional water rights are approved and implemented by entities such as Montrose County. In that case the native fish assemblage could be exposed to maximum flow levels (and water depths) that will never exceed those approved as instream flow rights. The proposed minimum flow levels are far less than those present in the San Miguel River currently. No data exist that would suggest that the existing numbers and sizes of bluehead sucker, flannelmouth sucker and roundtail chub would continue to persist if stream flows were to be reduced to those recommended by the DPW/BLM in the claimed reach of the San Miguel River. On the contrary, evidence does exist demonstrating bluehead sucker, flannelmouth sucker and roundtail chub populations are most robust in the mainstem Colorado River and Gunnison River where water flows are deepest, while populations are lower and fish size reduced in streams with reduced flows (the Yampa River and notably the Dolores River). Reducing flows in the claimed reach of the San Miguel River would likely result in presence of both fewer and smaller fish.

Montrose County has proposed even lower minimum flows for the San Miguel River in the claimed reach of the San Miguel River than those proposed by the DPW/BLM (Conklin July 8, 2011). Montrose County proposed a flow during the time period of April 15 to June 14 lower than the 325 cfs proposal of the DPW/BLM based in part on the assertion that "The flow on every day of the historical period was either higher or lower than 325 cfs, which, due to the shape of the habitat relationship curve...results in habitat levels lower than the recommended levels 100% of the time" for flannelmouth sucker (Conklin July 8, 2011). Montrose concludes that "existing healthy populations of native fish have been maintained at habitat levels that are below the agencies' recommended levels for the majority of the runoff period" and that "The habitat level at 325 cfs recommended by the agencies for the runoff period (April 15 to June 14) has not been met historically from 75% to 100% of the time."

The statements presented by Montrose seem to indicate that stream flows are static events. Stream flows are not static but change daily. The habitat curves for every fish species have an optimum flow above and below which available habitat decreases. Stream flows will seldom be at any given flow, including the optimum flow for any species. A flow of 325 cfs is evidently appropriate for flannelmouth suckers but less than the optimum flows for bluehead suckers in riffles of the claimed reach of the San Miguel River. The fact that the stream flow is never exactly 325 cfs for an extended time period does not invalidate the flow proposed by the DPW/BLM. The same observations presented by Montrose County hold true for any flow. The populations of bluehead sucker and flannelmouth sucker found in the claimed reach of the San Miguel River are present in response to the current flow regime, where sometimes flows are greater than 325 cfs and sometimes less than 325 cfs. The flows proposed by the DPW/BLM

would allow for serious reductions in flow in many years but still in the view of the two agencies provide "reasonable" environmental protection.

Both the bluehead sucker and flannelmouth sucker select deeper water when that habitat is available. Deep water is positively correlated with higher stream flows. Available habitat for all fish species will change during each year and over a period of years. In drought periods flows (and depths) will be lower and in wet years flows increase. The spring time flows proposed by the DPW/BLM are those that support the two sucker species. This level of protection is less than that provided by the current flow regime of the claimed reach of the San Miguel River.

Montrose also suggests that flows lower than those proposed by DPW/BLM are appropriate for the winter time period (September 1 through April 14). Part of the Montrose justification is that their requested winter period low flows are present in the river in 8 of 10 years at the current flow regime. Conklin (July 8, 2011) asserts that the winter flow of 80 cfs as requested by the DPW/BLM is present about 50% to 60% of the time in December through February. As shown in the preceding paragraphs the existing fish assemblage is a result of the over-all flow regime through multiple years, not flows present each single year. No biological factor indicates that a flow regime present in 8 of ten years is better than the DPW/BLM proposal in late winter months. Montrose County indicated that reasonable minimum flows were those that "met more frequently with existing hydrology." The proposed DPW/BLM minimum flows are not only based on existing hydrology but recognize that the existing fish assemblage in the claimed reach of the San Miguel River respond to flow changes that occur over a multi-year time period not specific flows that occur in each year or in each month of a year. Of course the fish population would suffer calamitous losses if the stream were to dry completely but that does not appear to be an expected event in the San Miguel River based on the last several decades of flow data.

Montrose County also suggests that a flow of 65 cfs is appropriate for the entire time period of September 1 through April 14 since flows less than 80 cfs are present approximately half the time in the months of December through February. This proposal seems to be somewhat inconsistent since flows of 80 cfs are frequently present in the other four months of the winter flow period. Montrose County would have been more consistent in suggesting yet another flow level for December through February and not just apply their 65 cfs suggestion to the entire time period from September 1 through April 14. Even if Montrose County had suggested an additional flow period no factor indicates the DPW/BLM proposal is not appropriate.

The Montrose proposal is based on an analysis of habitat data for four species, the bluehead sucker, the flannelmouth sucker, the longnose dace (*Rhinichthys cataractae*) and the white sucker (*Catostomus commersoni*). The bluehead sucker and flannelmouth sucker are native to the San Miguel River and are the basis of the DPW/BLM proposal. The longnose dace and white sucker are not native to the basin and were used as surrogates by Montrose County. Montrose County used habitat information from the longnose dace in their analysis because habitat data are not available for the native speckled dace (*Rhinichthys osculus*). The county

justified use of data for longnose dace since both dace species are in the same genus. Habitat data for very young white sucker were used since habitat data for the early life stages of bluehead sucker and flannelmouth sucker are not available according to Montrose County and all three species are in the same genus.

Use of habitat preferences for longnose dace to predict habitat preferences of the speckled dace populations may well yield results that confound flow discussions, not clarify issues. The longnose sucker is most abundant in shallow riffle areas in eastern plains streams of Colorado, a portion of the native range of this species. I have seen multiple dozens of longnose dace tumble down through very shallow riffles towards the nets of DOW sampling crews in mainstem Clear Creek in metropolitan Denver during electrofishing operations. Water depths in those riffles ranged from two to four inches. The preferred habitat for the longnose dace appeared to be riffles so shallow that in comparison backs of larger fish such as bluehead suckers and flannelmouth suckers would stick up out of the water. In contrast, I have collected speckled dace from a variety of habitats in streams and rivers throughout western Colorado, ranging from rather shallow riffle areas to the deepest runs of the mainstem Colorado River in Grand Junction, Colorado where water depths exceeded one meter. The speckled dace is routinely captured in deeper waters of west slope streams and rivers and does not require the shallow water depths seemingly preferred by longnose dace. The habitat data for the surrogate longnose dace appears to create an obligatory need or preference for shallow water that does not exist for speckled dace.

The speckled dace is one of the very few fish species native to the western slope of Colorado that does not appear to be declining in range or abundance. The species is found in small streams to the largest rivers on the west slope of Colorado. Montrose County suggests that minimum flows in the claimed reach of the San Miguel River should be lower than those recommended by the DPW/BLM to protect the speckled dace. The speckled dace does not appear to require very shallow water flows in other streams and rivers in western Colorado. Modifying the DPW/BLM recommendation based on in such a claim is not warranted.

Use of the larval white sucker data to justify lower flows for the claimed reach of the San Miguel River may likewise not provide the best information concerning flow needs of native west slope fish species such as the bluehead sucker and flannelmouth sucker. The bluehead sucker and flannelmouth sucker spawn during the spring snowmelt and associated high stream flows. I have collected flannelmouth suckers in early March that had already developed tubercles on the tail and colors associated with breeding condition. I have observed flannelmouth suckers spawning in June in riffle areas where the water was about a foot deep. Several males would attend one female as the group swirled through the riffle. Yard long clouds of milt would drift downstream as the fish spawned. Eggs were not buried in nests but were swept downstream. Hundreds if not thousands of fertilized eggs were swept downstream each time a group of fish spawned. Eggs of such broadcast spawners develop and hatch in a few days. The resulting fish larvae are both small and not strong swimmers. Most eggs and larvae die. A long lived fish like the bluehead sucker and flannelmouth sucker will spawn for several years during the life time of any single

fish. A low rate of spawning success is needed by any individual bluehead sucker or flannelmouth sucker to assure persistence of the species in any given stream reach. Each individual fish has to only produce one offspring to assure the survival of the population in many conditions. The bluehead sucker and flannelmouth sucker are adapted to the historic flow conditions of river like the San Miguel where spring snowmelt flows can be very high during wet years and low during drought years. Habitat data for larval white sucker is not applicable to the native sucker species found on the west slope of Colorado.

The white sucker is native to the eastern half of Colorado not the State's western slope. The white sucker is an invasive species on the western slope of Colorado. Adult white suckers tend to be found in deeper pools and slower runs in many rivers and stream on both the east slope and western slope of Colorado. The white sucker hybridizes with the native suckers on the west slope of Colorado, one of many reasons the bluehead sucker and flannelmoth sucker are considered to be at risk on the western slope of Colorado. The hybridization issue is more of a concern in water such as the Yampa River where river flows are reduced to a large degree in summer and fall months (Rick Anderson, personal communication) due to water diversions. The bluehead sucker, flannelmouth sucker and white sucker concentrate in the deepest water available in the Yampa River since water levels are too low in the riffles and runs normally selected by the bluehead sucker and flannelmouth sucker, respectively. This hybridization is not as serious an issue in the mainstem Colorado River and Gunnison River where water remains relatively deep and the flow regimes are not as seriously compromised as in the Yampa River and Dolores River. Evidently the reproductive barriers between native suckers and the white sucker break down and hybridization between the species is an environmental issue endangering the survival of the native bluehead and flannelmouth suckers in streams and rivers where water levels are seriously reduced by water diversions.

Use of white sucker habitat needs for larval fish is not appropriate in the claimed reach of the San Miguel River to justify lower flows than those sought by the DPW/BLM for two reasons. First, the bluehead sucker and flannelmouth suckers evolved in and are adapted to the native flow regime of the claimed reach of the San Miguel River, conditions still present to some degree to this day. Secondly, the lower the flows in the claimed reach of the San Miguel River, or any west slope river, the greater the chance for hybridization. Using habitat data from an invasive species that could benefit from reduced flows does not seems to be a valid method of proposing a further reduction in the claimed reach of the San Miguel River flow regime.

Montrose County suggests a winter flow (September 1 through April 14) of 65 cfs is appropriate for the fall and winter period (Conklin July 8 2011) providing 20% of optimum habitat for bluehead suckers, greater than 35% optimum habitat for flannelmouth suckers, and 65% for longnose dace based on their analysis using habitat for longnose dace and white sucker. As shown in preceding paragraphs the use of longnose dace data and white sucker data is not appropriate or valid. Providing 20% of optimum habitat may also be questioned. The intent of

the instream flow program is to provide "reasonable" environmental protection. I am of the opinion that more than 20% of optimal habitat is needed to provide even marginal protection.

The average riffle depth of the claimed reach of the San Miguel River at 65 cfs (Montrose proposal for winter period) is 0.56 feet. In comparison the average depth of 1.0 foot is considered "marginally suitable" habitat for bluehead suckers (Anderson and Stewart 2003). The DPS/BLM recommendation of 80 cfs during the winter flow period results in an average depth of 0.6 feet for the bluehead sucker in riffle areas. This increase is slightly better than the Montrose proposal but still less than the average depth needed to provide "marginally suitable habitat for the bluehead sucker. The DPW/BLM seem to have made a more than reasonable attempt to propose flows to protect the three native fish species and still allow for some additional water development in the San Miguel River Basin,

In summary, I am of the opinion that Montrose County did not support their idea that the DPW/BLM proposal is too robust. The DPW/BLM proposal allows for other water development in the San Miguel River Basin and seems to acknowledge that current population demographics of the bluehead sucker, flannelmouth sucker and roundtail chub may not be sustained when San Miguel River flows in the claimed reach are reduced to the proposed minimum flow levels. I remain of the opinion that the flows proposed by DPW/BLM should actually be increased.

John Woodling, Ph.D.

WESTERN RESOURCE
ADVOCATES

Memorandum

To: Robert Harris

From: Laura Belanger, P.E.

CC: Bart Miller

Date: August 16, 2011

Re: Evaluation of Deere & Ault's ISF Water Availability Methodology Analysis

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In section A 9 ii of their Prehearing Statement, Montrose County Commissioners state "As described in the July 14, 2011 report by Deere & Ault ([Montrose County's] Exhibit C), the hydrological analysis used to develop and support the ISF recommendation for the Subject Reach includes unreasonable assumptions and methodologies, and, therefore, does not accurately reflect water availability in the Subject Reach."

Based upon a review of their memo, and the data provided therein, Deere & Ault appear to have raised some valid questions about the methodology used by the CWCB to develop synthetic lower terminus hydrology. Deere & Ault's primary recommendation is that data from the existing Uravan gage (which is located in the lower third of the ISF reach), rather than the synthetic lower terminus flows, be used in flow availability analyses. They also state that looking at Uravan gage flows in terms of percent exceedance, as compared to using the daily geometric mean of flows, would provide a better comparison of the ISF recommendation with flow availability.

To examine the impact of Deere & Ault's recommended methodology on flow availability, I developed Table 1 using Uravan gage data for each ISF period. The percent exceedance for each ISF recommendation is provided at the bottom end of the table. Note that similar exceedance data by month can be found in the Colorado Division of Wildlife memo which was included as an appendix to the CWCB's San Miguel ISF Recommendation Executive Summary. The data in Table 1 show that the ISF recommendation is met or exceeded more than 55% of the time in August, more than 64% percent of the time for the rest of the year, and as often as 89.4% of time in the April 15 – June 15 period. Though Deere & Ault raise questions about the CWCB's methodology, these results are consistent with the CWCB's water availability study on which their ISF recommendation is based. Water is available more than 50% of the time for the ISF appropriation.

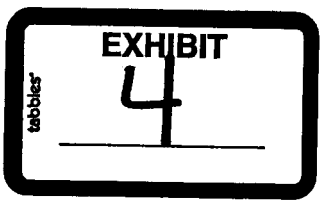

Table 1: Percent Uravan Gaged Flows[1] (USGS gage #09177000)

Percent Exceedance	Sep 1 - Feb 29	Mar 1 - Apr 14	Apr 15 - Jun 14	Jun 15 - Jul 31	Aug 1 - Aug 31
ISF Recommendation	**80**	**115**	**325**	**170**	**115**
1%	410	1730	3720	2250	906
5%	249	998	2600	1420	575
10%	185	700	2120	1210	401
15%	158	548	1830	1020	308
20%	140	429	1560	849	266
25%	130	340	1410	748	225
30%	120	284	1260	654	203
35%	113	245	1130	572	182
40%	107	211	1040	510	159
45%	100	185	952	456	142
50%	95	163	883	399	128
55%	90	142	823	355	116
60%	84	130	755	307	102
65%	79	120	694	262	90
70%	74	110	628	220	81
75%	70	100	555	185	66
80%	65	93	486	142	53
85%	60	84	410	115	40
90%	51	76	313	88	29
95%	39	66	185	48	22
99%	22	48	70	9.3	6
ISF Percent Exceedance	**64.5**	**67.0**	**89.4**	**76.8**	**55.5**

[1] All available daily data from 8/1/1954 – 6/2/2011 used in analysis (including daily data in years with incomplete datasets).