DEFENDERS OF WILDLIFE · ENVIRONMENTAL DEFENSE · NATIONAL WILDLIFE FEDERATION
PACIFIC INSTITUTE · SIERRA CLUB · SONORAN INSTITUTE · WESTERN RESOURCE ADVOCATES

April 30, 2007

VIA ELECTRONIC DELIVERY (strategies@lc.usbr.gov) AND U.S. MAIL

Regional Director
Lower Colorado Region
Bureau of Reclamation
Attention: BCOO-1000
PO Box 61470
Boulder City, NV 89006

Re: Comments of NGO "Conservation Before Shortage" Consortium on Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead, Draft Environmental Impact Statement

Dear Regional Director:

We greatly appreciate the inclusion of the "Conservation Before Shortage" Alternative by the U.S. Bureau of Reclamation (Reclamation) as one of the five alternatives under consideration in the "Draft Environmental Impact Statement on Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead," dated February, 2007 (DEIS). We also greatly appreciate Reclamation's technical support and assistance, including its extensive modeling work, as we developed and revised the Conservation Before Shortage proposal.

We offer the following comments on the DEIS on behalf of Defenders of Wildlife, Environmental Defense, National Wildlife Federation, Pacific Institute, Sierra Club, Sonoran Institute, and Western Resource Advocates, collectively representing more than four million members nationwide.

I. Critical Preferred Alternative Components

The importance of developing shortage guidelines for Colorado River management cannot be overstated. System storage has decreased steadily through the past eight years of drought, while basin-wide uses continue to increase. We commend Reclamation's efforts to develop shortage guidelines, and urge Reclamation to adopt a policy that will facilitate increased flexibility in water use.

We point Reclamation specifically to two key elements of the "Conservation Before Shortage" alternative (CBS) that we believe should clearly be incorporated into the preferred alternative for the "Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lakes Powell and Mead." As discussed further in our comments below, the analysis provided in the DEIS supports the inclusion of both of these elements in the preferred alternative.

First, the preferred alternative should allow for a program of *voluntary and compensated forbearance* as the volume of water in storage at Lake Mead drops below key thresholds. The

benefits of this approach, relative to the involuntary and uncompensated water shortages proposed in all other alternatives, are multiple. Rather than cutting water deliveries to the same users each time, the voluntary program would be available to all Lower Basin and Mexican water users, dispersing the impacts of reduced water use. Participants would be compensated for forbearance, decreasing or eliminating the economic impacts of the guidelines. Finally, the federal government would replace bypass flows in times of decreased reservoir storage, when they are most needed. This approach, which was recommended as a part of the YDP/Ciénega de Santa Clara Workgroup recommendations,[1] offers a more efficient way to meet the bypass flow obligation.

Second, the preferred alternative should accommodate an *extended program for Intentionally Created Surplus* (ICS), including the reservation of additional banking capacity in Lake Mead for this purpose. This program should expressly allow for the participation of the U.S. federal government, entities other than existing Colorado River contractors (including U.S. NGOs), and should leave the door open to future participation by Mexico in the event that the United States and Mexico adopt an appropriate international framework for this participation.

By allowing the U.S. federal government to participate in the ICS program, Reclamation will introduce critically-needed flexibility into the Lower Colorado River system, allowing a mechanism by which water could be acquired for a variety of purposes – including accumulation of bypass flow replacement credits, water for environmental purposes, shortage mitigation, and other needs. Similarly, by allowing entities other than just existing Colorado River contractors to participate in the ICS program, the federal government would open the door to private conservation efforts to dedicate water to environmental restoration projects. Perhaps most importantly, by leaving the door open for Mexico to create and deliver ICS credits, Reclamation would not preclude new water exchanges that could benefit water users in both the United States and Mexico, the Mexican creation of pulse flows for the Colorado River Delta, and binational agreements about shortage sharing on the Colorado River that might not be politically feasible in the absence of a binational ICS program.

We urge Reclamation to define a preferred alternative and final guidelines in the Final Environmental Impact Statement and Record of Decision that include these two policies.

II. Comments on CBS

In the following comments we further discuss the benefits of certain elements of CBS, identify various legal and technical issues associated with the alternatives presented in the DEIS and the presentation of CBS, and discuss several ways that the analysis of environmental and socioeconomic impacts of the various alternatives presented in the DEIS could be improved.

Relative Benefits of an Expanded ICS Program

In their proposal for ICS, the basin states have taken an important step forward in Colorado River management. With the river over-allocated, the best way to accommodate new uses (and

[1] *See* Balancing Water Needs on the Lower Colorado River: Recommendations of the Yuma Desalting Plant/Ciénega de Santa Clara Workgroup (April 22, 2005), available at http://cals.arizona.edu/AZWATER/publications/YDP report 042205.pdf.

existing municipal and industrial (M&I) uses that are not predicated on firm supplies) is to re-allocate water. ICS will be an important new tool facilitating this re-allocation. The three basic premises of the ICS mechanism, that water can be transferred between a seller/lessor and a buyer (as allowed by the forbearance agreements), that it can be stored over time in Lake Mead (as allowed by the proposed banking arrangements), and that it can be delivered upon request, are critical to developing a water market in the Lower Colorado River basin.

Although the basin states have proposed limiting the creation of ICS to existing contractors, CBS proposes that other entities should be able to participate in the ICS mechanism, including U.S. federal agencies; state agencies; private entities, including U.S. non-governmental organizations; Mexican federal agencies; and Mexican water users and non-governmental organizations.

The benefits of expanding the ICS mechanism are multiple, including a probable increase in water stored in Lake Mead, opportunities for improving riparian habitats throughout the Lower Colorado River through dedicated instream flows, as well as an opportunity for Mexico to improve its management of Colorado River water. The benefits of this approach are partially, but not completely, discussed in the DEIS. Reclamation's analysis illustrates the first two of these benefits:

- **More water remains in storage, decreasing the probability of shortages, and increasing hydropower generation.** Reclamation's analyses consistently suggest that the greater the potential size of the ICS mechanism, the higher the probable elevation at Lake Mead (table 4.3-25) and the lower the probability of shortages in any given year (figure 4.4-2 and table 4.4-4). Reclamation's analysis also suggests that CBS would result in modest increases in hydropower generation at both the Glen Canyon power plant and the Hoover power plant when CBS is compared to both the no action and the Basin States alternatives (tables 4.11-4 and 4.11-10).

- **New opportunities to create and improve Colorado River riparian habitats.** An extended ICS policy could allow an entity such as a conservation organization or the Mexican government to generate ICS for the purpose of creating a dedicated pulse flow below Morelos Dam, which would result in a considerable improvement in riparian conditions on the southernmost reach of the Colorado River. The DEIS analysis notes this benefit (tables 4.8-1 and 4.8-8) as the greatest possible positive impact to biological resources for any of the contemplated alternatives, with "relatively high flows expected past Morelos Diversion Dam, which would benefit the riparian corridor" (DEIS at 4-172) including the neotropical migratory birds that rely on native riparian forest, such as the endangered Southwestern willow flycatcher and Yuma clapper rail. As discussed further below, we believe this analysis should be expanded.

There are additional benefits to an expanded ICS mechanism that are not discussed in the DEIS:

- **Mexico gains ability to improve Colorado River management.** As discussed in detail elsewhere below, at present, Mexico does not have the ability to store Colorado River water, and must use its entire allocation on an annual basis. Multiple examples can be found in the Lower Basin states demonstrating the advantages of storage for water management. Offering

Mexico this benefit would allow Mexico to address urban water supply challenges, and could open the door to U.S. entities purchasing temporary ICS credits in Mexico.

- **United States enters negotiations with Mexico over Colorado River shortages with something to discuss beyond unilateral imposition of shortage guidelines.** While noting that any determination of shortages with respect to deliveries to Mexico is not a part of the proposed federal action, and that any such determination would be made in accordance with the 1944 Treaty, Reclamation acknowledged the probability of a shortage agreement with Mexico by incorporating it into modeling assumptions. As Reclamation develops new rules for domestic shortages, the State Department will need to negotiate new rules for shortages to Mexico. An expanded ICS program may well be perceived by Mexican negotiators as a benefit, and may help negotiators for the United States reach a satisfactory agreement regarding Mexican shortages.

Benefits of Voluntary, Compensated Forbearance Compared to Involuntary, Uncompensated Shortage

CBS would provide compensation to willing sellers/lessors of water to forbear use, while the Basin States alternative would eliminate water deliveries, without compensation, to water users with low priority rights. The benefits of the CBS approach are numerous, and are only partially discussed in the DEIS:

- **Involuntary shortages are rare.** During the term of the guidelines, Reclamation's analysis projects that the probability of involuntary shortages under CBS remains less than 10%, while the probability under the Basin States' alternative is as high as 35% (figure 4.4-1 and table 4.4-2).

- **The economic impact of reduced water use is significantly diminished or eliminated completely.** Because of the low probability of involuntary shortages under CBS, any reductions in water use are likely to be compensated. Although Reclamation has not yet analyzed the economic impact of compensated forbearance (see further comments below), we expect that such analysis would show that the income received by water users for forbearance would substantially offset any negative impacts of reduced water use. Because CBS would solicit proposals for forbearance from willing sellers, water users would be able to choose whether or not to participate, and could make this decision based on whether or not participation would benefit them economically.

- **Reductions in water use are spread among a larger pool of water users.** Under the Basin States' alternative, reductions in water use would always be imposed on the same water users, in the same order of priority. In a stage 1 shortage (by far the most probable, see tables 4.4-5 through 4.4-9), California water users are not included in the pool of impacted water users, and prescribed shortage volumes would be imposed repeatedly on select water users in Arizona, Nevada, and Mexico. Under CBS, water users throughout the Lower Basin and Mexico would have the opportunity to participate in a voluntary and compensated forbearance program, and water users could choose whether or not to participate in the forbearance program in any given year. As discussed further below, these benefits are not adequately recognized in the DEIS.

- **The low rates of return on some crops suggest that the cost of the forbearance program could be less than $75/acre-foot.** Reclamation's analysis suggests that Arizona water users growing wheat, cotton, and alfalfa hay produce varied economic results with every acre-foot of water used generating anywhere from a loss of $46.43 to a profit of $70.48 (see table H-2). These and other water users could have an economic incentive to participate in such a forbearance program. As discussed below, Reclamation's analysis on this subject could be substantially improved.

- **Decreased probability of shortages imposed on urban water users with low priority rights.** While Reclamation's analysis of impacts to urban water users with low priority rights is limited, the DEIS notes that shortages to municipal and industrial water users of up to 283,000 acre-feet (af) could occur (DEIS at 4.14.3.1). Because of the very small probability of shortages under CBS, it is unlikely that urban water users would be denied water under that alternative. However, there is a considerable probability of shortages to urban users under the Basin States alternative.

- **The federal government would replace bypass flows in a cost-efficient manner.** CBS would have the volume of water conserved by the federal government under voluntary forbearance agreements count as bypass flow replacement. Reclamation has acknowledged the federal obligation to replace bypass flows (see letter from Reclamation to interested public, September 22, 2005) and is studying how the agency should proceed. By implementing a program during conservation conditions (as defined in CBS) to conserve water through payments to voluntary participants in a forbearance program, Reclamation could ensure that bypass flow replacement would occur during times of low water supply, and that bypass flow replacement water would not be lost during flood control releases. Moreover, Reclamation could avoid other, more costly alternatives for bypass flow replacement.

The remainder of this letter addresses changes Reclamation could make to improve the DEIS.

Characterization of CBS Alternative in the DEIS

Apart from Appendix K, in many instances the DEIS does not accurately or fully present CBS, which materially limits the comparison and analysis of CBS. Accordingly, we ask that Reclamation properly characterize and analyze CBS in the Final EIS and formulate the preferred alternative only after CBS has been properly characterized as follows:

- As discussed above, CBS proposes that involuntary and uncompensated water shortages on the lower Colorado River should be managed and avoided through voluntary conservation or reductions in water deliveries that are compensated through market mechanisms. In Chapter 2 and Appendix M that fundamental concept is properly expressed as "voluntary conservation" or "voluntary, compensated reductions in water use," but in Chapter 4 and elsewhere CBS is improperly characterized as the imposition of "voluntary shortages." Compensated reductions in deliveries under CBS should be consistently termed as "voluntary water conservation" or "compensated reductions in water use" where appropriate in any discussion of the preferred alternative and the final EIS.

An essential component of CBS is that the mechanism for ICS would be opened up to federal and state agencies, to non-governmental organizations in the U.S., and to federal and state agencies, traditional water users, and non-governmental, conservation water users in Mexico. Clearly, any international extension of this market mechanism to Mexico must go through diplomatic channels, as is repeatedly recognized by CBS and Reclamation's commentary. The DEIS does not fully disclose this key difference between CBS and the Basin States' alternative (see, for example, reference to "unassigned" ICS credits in table 2.4-1). That first discussion of CBS should disclose the other entities that could participate in the more extensive water banking proposed by CBS. To the extent such international water banking could be beyond the scope of the proposed action it should not be precluded; such up-front disclosure could be qualified and footnoted in the same way as the modeling assumptions specific to CBS in the chapter on environmental consequences (DEIS at 4-11) and in Appendix M (page M-1). In addition, to fully serve its informational role, an EIS should identify all relevant, reasonable mitigation measures that could improve the project, even if they are outside the jurisdiction of the agency. *See* 40 C.F.R. §§ 1502.16(h), 1502.14(c).

- The DEIS should clarify that under CBS up to 600,000 acre-feet of ICS could be generated by federal agencies just to avoid that magnitude of shortage in the U.S., while up to 325,000 acre-feet of ICS could be generated by other entities in any one year to restore environmental flows in both the U.S. and Mexico, and possibly to avoid shortages to municipal, industrial, and irrigation uses in Mexico. The total amount of ICS that can be banked by such other entities in any one year including all banking by federal agencies to avoid shortages should therefore be corrected to 925,000 acre-feet (Tables 2.4-1 and M-4). To the extent that the banking of ICS by current contractors under the Basin States Alternative reduces the need for banking by federal agencies to avoid shortages, however, this cap will not be reached under CBS.

  This greater scope of water banking as proposed by CBS should be not be obscured, as it is by Table M-5, whose headings indicate that such ICS generation is limited to environmental flow restoration. The heading for the second column of that table should be corrected to illustrate the international water banking proposed by ICS to meet municipal, industrial, and irrigation water needs in Mexico, and so that the last column illustrates banking to provide environmental flows in the U.S., including the limitrophe below Morelos Dam. Figure P-61 should be clarified to separate out the deliveries of banked water to municipal, industrial, and water users who would divert such deliveries at Morelos Dam, from all water that would flow past Morelos Dam as deliveries of ICS water or otherwise.[2]

- We also understand that the interplay of the CBS proposal to generate 600,000 acre-feet of ICS to avoid that magnitude of shortage in the U.S., while at the same time maintaining the elevation of Lake Mead above 1000 feet so as to not cut-off the physical supply to Las Vegas, has not been modeled correctly. That is, the modeling now simply imposes involuntary shortages whenever necessary to keep Lake Mead above 1,000 feet, without first

[2] When Figure P-61 is so clarified, we expect to see the dramatic reduction of flows past Morelos Dam under the Basin States alternative to be contrasted with the delivery of banked water to maintain critical flood pulses to the Delta's river ecosystem.

seeking to develop up to a full 600,000 acre-feet of ICS to avoid involuntary shortages. This modeling assumption overstates the shortage volumes that could be required under CBS and understates its benefits in comparison to other alternatives.[3] To properly characterize CBS, the model should assume that the 'absolute protect 1000' involuntary shortage provision would be triggered only if 600,000 acre-feet of voluntary conservation would not be sufficient to keep Mead above an elevation of 1000 feet.

Moreover, involuntary water shortages in the U.S. greater than 600,000 acre-feet may be implied in the Basin States alternative in the event that Lake Mead would be drawn below 1000 feet of elevation during an extreme drought and the physical supply to Las Vegas is cut-off. This alternative cannot be fairly compared to CBS unless the involuntary shortages greater than 600,000 acre-feet inherent in the Basin States alternative are added to the operational modeling and all related analyses.

- To assess the longest possible stretches of river where flows might be reduced, the operational modeling for the DEIS creates the impression that all ICS proposed by CBS is generated in Mexico even for the replacement of bypass flows in the U.S (DEIS at M-8 and 9). So that the actual parameters of CBS are not mistaken with that analytical assumption, those parameters should be disclosed simultaneously.

  CBS proposes that the ICS to replace bypass flows could be generated in both the U.S. and in Mexico. CBS also presumes that ICS for environmental flows in the U.S. or Mexico or to meet other Mexican water needs can be generated in either the U.S. or Mexico, and for such ICS to be delivered for use in either the U.S. or Mexico, as illustrated in Appendix K.3.[4] One might expect that most ICS generated in the U.S. would be applied to manage U.S. shortages, and most ICS generated in Mexico to be applied to flow restoration and other water needs in Mexico, but CBS would not be unilateral and would keep the door open to substantial cross-border investments, water banking, and transactional innovations. We recommend that the FEIS include a sensitivity analysis of changes that would occur if ICS were distributed more broadly across users downstream of Lake Mead.

- Along with leaving the impression that ICS would only be generated in Mexico, the DEIS fails to explain a basic mechanism in CBS. When ICS is generated in Mexico in one year for delivery back to Mexico in another, the deliveries to Mexico under the Treaty with the U.S. should be reduced by the amount of the ICS in the year that it was generated, but then in the year that it was delivered back to Mexico, the amount of the ICS delivered would be in addition to all deliveries obligated by the Treaty.

- The modeling of CBS may properly apply the 5% system charge by not assessing this charge against the bypass flow account until ICS is generated to avoid water shortages in the U.S.,

[3] This mis-modeling may explain much of the difference between CBS and the Basin States alternative in the probabilities of involuntary shortages and consequent socio-economic impacts summarized in Tables 4.14-3 and 4.14-4.

[4] CBS does not include water transactions entirely within Mexico to restore base flows, but such transactions could be combined with CBS and riparian land restoration for a comprehensive plan to conserve the river dependent ecology of the Delta.

and not assessing it against any ICS that is generated and delivered to meet Mexican river flow or other needs, but that modeling assumption could be confirmed. The assessment of the 5% system charge against all other generation of ICS under CBS might then be footnoted as it is for the Basin States alternative in Table M-3, or the 5% charge added to Table M-3, as it was for Table M-4, so that is clear that the system charge is not applied differently across these alternatives.

- The DEIS misses several important aspects of the approach to funding forbearance when the water surface elevation at Lake Mead declines, which evolved after we submitted the original CBS proposal in 2005 and is described in the proposal we submitted in 2006 (CBS II). Federal funding would not be limited to the volume of voluntary water conservation needed to replace bypass flows in any year in which such conservation was triggered (page 2-13), but would be sought for all such conservation up to the maximum storage of 1.5 million acre-feet of ICS generated by federal agencies, because of the benefits of both bypass flow replacement and environmental flow restoration. The funding for banking additional ICS beyond that maximum for U.S. agencies would then be shared 50/50 by U.S. agencies and Lower Basin power and water users, and the water and power users would split their share 50/50 (see Appendix K, page K-5). Such cost sharing offers a strong incentive for state, private, and international investment in ICS for environmental flow restoration and provides an initial basis for discussion of how to distribute such costs equitably.

  It appears that the DEIS misapplies this funding concept to suggest that CBS would impose a $20-$100 surcharge for every acre foot of hydropower generation in the Lower Basin, which is incorrect. The concept of hydropower users sharing in perhaps 25% of the cost of generating ICS for environmental flow restoration is only applicable after a maximum of 1.5 million acre-feet of ICS is banked by federal agencies, and therefore would not be automatically applied or at all times. Such cost sharing also is illustrative and needs to be adjusted in proportion to the benefit to hydropower generation associated with the greater water banking at Lake Mead proposed by CBS, as indicated by Table 4.11-29,[5] and all other benefits of ICS, as properly characterized.

III. Comments on the Draft Environmental Impact Statement

Legal Considerations

As demonstrated in CBS, we encourage efforts to increase flexibility in Colorado River management. Such flexibility, however, should not come at the expense of the Secretary of the Interior's environmental authorities and obligations nor should the Secretary relinquish his role as water master in lower Colorado River management to achieve such flexibility. If Reclamation and this EIS make clear that the creation, storage, and delivery of ICS is within its authority to oversee and implement, then Reclamation should adopt the ICS program that is most environmentally beneficial. Reclamation must also expand the scope of the EIS to include the direct, indirect, and cumulative impacts of all who may participate in the ICS program.

[5] Per Table 4.11-29, 13% more hydropower energy is generated under CBS than the Basin States alternative and the present value is about $14 million more. The benefits to hydropower generation mostly at Lake Mead could also be greater over the interim period.

Both the DEIS and this letter note that various aspects of the alternatives, such as funding mechanisms in CBS, may require additional legislative authority. What has not been addressed is the potential need for additional federal rules or guidelines administering the ICS program as proposed in the CBS, Basin States, and Reservoir Storage Alternatives. The DEIS implicitly assumes that each alternative would implement the ICS program consistently, not altering the rules under which an entity would participate in ICS, change the relative size of any of the states' ICS banks, or, fundamentally, interpret the Law of the River differently than another alternative.

The DEIS, however, largely is silent as to how the Secretary would administer the ICS program. The Secretary has a prominent role in managing the Colorado River and will play a decisive role in implementing any of the alternatives, including ICS. An ICS program will entail a range of federal actions, from oversight and accounting to storage and delivery, possibly in the form of agreements to reduce water use and create ICS credits, to store ICS credits, and to delivery ICS credits. To ensure that this EIS process enables the adoption of the ICS program in CBS and sets the stage for future site-specific actions under the ICS program, it is critical that Reclamation expand the scope of the EIS.

Scope of the DEIS

The scope of an EIS depends not only on the range of actions and alternatives, but on the range of impacts resulting from each alternative, including direct, indirect, and cumulative impacts. 40 C.F.R. § 1508.25. The scope of the DEIS is particularly important for those actions which may require additional NEPA analysis and which may wish to tier to the instant EIS. *See* 40 C.F.R. §§ 1502.20, 1508.28 (Tiering is a process of addressing a broad program or proposal in a programmatic environmental impact statement and analyzing a site-specific proposal related to the initial proposal in a subsequent NEPA document).

The DEIS overlooks several geographic regions, and thus environmental resources, that potentially may be affected by the alternatives and their direct, indirect and cumulative impacts. For example, CBS contemplates voluntary conservation by any water user within the Lower Basin or Mexico. Because the conservation would be voluntary, and not based strictly on relative priorities of water entitlements, the impacts analyses must consider reductions in water use across the entire spectrum of water uses and users in the Lower Basin and Mexico. These omissions are most pronounced in the discussion of the affected environment and environmental consequences for biological resources, socio-economics, and land use. *See e.g.,* DEIS at 3-3 (including a narrow set of service areas in the affected environment); DEIS at 3-27 (expecting no change to Yuma area drainage flows); DEIS at 3-127 (limiting study area to those where "shortage" may occur); DEIS at 3-131 (limiting study area to MWD service area); DEIS at 4-261 (excluding Nevada and California from analysis); DEIS at Table 4.14-1; DEIS at 4-281 (concluding no effect to agricultural production in California or Nevada because no shortage); DEIS at 4-282; DEIS at 5-14 (exclusion of decreased flows and altered timing of flows in the Muddy River due pumping of groundwater under Coyote Spring Valley that may then be wheeled through or banked as ICS in Lake Mead); and DEIS at Table M-4 (exclusion of decreased river and spring flows, altered timing of flows, and significant wetland impacts from pumping 80,000 acre-feet/year of groundwater whose return flow credits are then banked as ICS at Lake Mead). The discussions of the affected environment and environmental consequences

are presently deficient because the full scope of the alternatives and their impacts are not examined.

Climate Change

As Reclamation considers various policies to manage droughts in the Lower Basin, it would be useful to have an understanding of how climate change might impact water supply. The Intergovernmental Panel on Climate Change issued a report[6] in early 2007 documenting the high level of scientific confidence in projections that the Colorado River basin will change significantly over the next century, both warming and drying. Under all scenarios, the report suggests an increase of one-to-two degrees Celsius for the southwestern United States from 2020-2029, as compared to 1980-1989. Such a rise in temperature will increase evaporative losses and evapotranspiration demand throughout the basin, coinciding with the proposed term of Reclamation's surplus and shortage guidelines. Moreover, the report documents that more than 90% of the models examined agree that winter precipitation in the southwestern United States will decline by 10-20% by 2090-2099, as compared to 1980-1989. While this timeframe is longer than that contemplated by the shortage guidelines, it suggests that precipitation changes might occur within the period of the guidelines. Some models show a significant drying of the Southwest U.S. as soon as the 2021-2040 period.[7] As the United States Geological Survey recently said, "We need to look at a large range of possible futures for water and [evaluate] how well will our designs, plans and allocations work under a whole range of climate scenarios – because we can't narrow it down."[8]

It would be useful for Reclamation to include in the FEIS a robust attempt to consider the impacts of all alternatives in consideration of the projected impacts of climate change. Moreover, we suggest that this analysis not be buried in an appendix, but that it should be discussed in the central text of the EIS, concomitant with the absolutely paramount importance of planning realistically for climate change.

The sensitivity analysis presented in appendix N (Analysis of Hydrologic Variability Sensitivity) is useful, as it expands the hydrologic variability modeled based on recent historic and paleo-hydrologic data. However, it is not adequate as a substitute for meaningful modeling that represents the expected impacts of climate change.

Term of the Proposed Guidelines

In our scoping comments we suggested that shortage guidelines should not be interim. However, recent IPCC and other climate change projections suggest that hydrologic assumptions driving

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[6] International Panel on Climate Change, 2007. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Summary for Policymakers, available at http://www.ipcc.ch/WG1_SPM_17Apr07.pdf. See also: P.C.D. Milly, K. A. Dunne, and A. V. Vecchia, 2005. Global pattern of trends in streamflow and water availability in a changing climate. *Nature* **438**: 347-350; M. Hoerling and J. Eischeid, 2007. Past Peak Water in the West. *Southwest Hydrology* **6**: 18-19,35; and N. Christensen and D.P. Lettenmaier, 2007 (in review). A multimodel ensemble approach to assessment of climate change impacts on the hydrology and water resources of the Colorado River basin. *Hydrology and Earth System Sciences*.

[7] Seager, et. al., 2007. Model projections of an imminent transition to a more arid climate in southwestern North America. *Science Express.* April 5.

[8] Lucy Kafanov, *Water Managers Must Gird for Extreme Conditions*, E&E News PM (April 27, 2007).

the current analysis (namely, that past hydrology is a reasonable predictor of future flows) might not be reasonable or informative. Given the potential for climate change to dramatically alter Colorado River hydrology – probably for the worse – we now believe that the limited lifespan of the shortage policy will be appropriate.

Nonetheless, it would have been useful to see the effects of leaving the alternatives in place past 2026. Projecting hydrologic impacts out to 2060 while arbitrarily assuming that shortage guidelines would not be extended only masks the likely conditions of the system beyond 2026.

Salinity

The DEIS neglects to explain why the CRSS salinity module (DEIS at 4-131 and F.1) was not expanded or modified to analyze changes in salinity below Imperial Dam. Projected salinities at the Northerly International Boundary (NIB) should be included in the final EIS, as it bears directly on salinity management measures in the Yuma area. As noted on Figure ES-1, the NIB clearly falls within the geographic scope of the action; salinity itself is a recognized water quality parameter analyzed for upstream reaches.

Pursuant to Minute 242, the Unites States has agreed to deliver Colorado River water to Mexico upstream of Morelos Dam with an annual average salinity of no more than 115 ppm ± 30 ppm over the annual average salinity of the Colorado River waters which arrive at Imperial Dam. Projecting the salinity at NIB would very likely distinguish among the alternatives, and would also be of great value in projecting the ability of the U.S. to meet a recognized treaty obligation. Whether an alternative may or may not adversely affect the ability to meet legal obligations would aid in the selection of a preferred alternative; the extent of adverse impact would also contribute to the significance of the impact. *See* 40 C.F.R. § 1508.27(b)(10).

The single greatest factor increasing the salinity of the Colorado River between Imperial Dam and NIB is the return of agricultural drainage to the river. In recent years, the salinity differential has approached the maximum value set by Minute 242. Diminishing the volume of 'non-storable flows' at the border will further increase the challenge of meeting the differential. CBS presumably could reduce the volume of these drainage flows or increase the delivery of water to Mexico from Lake Mead, thereby decreasing the river's salinity at NIB and facilitating Reclamation's ability to meet the salinity differential. Modeling a range of sources of voluntary reductions under ICS and CBS, including some that would otherwise discharge brackish return flows to the Colorado River between Imperial Dam and NIB, would provide better information to the reader and allow for better analysis of the alternatives.

Table ES-2 (DEIS at ES-18) should include a row describing projected salinities at NIB under each of the alternatives, and/or the salinity differential relative to Imperial Dam. The discussion of salinity at the NIB in Section 3.5.1 should be expanded, and should include a figure depicting annual salinities and flow at the border, similar to the figures included for other points along the river.

Biological Resources

We recognize that Reclamation has taken the position that it is under no obligation pursuant to NEPA to evaluate the impacts of this federal action on environmental values in Mexico.

However, we nevertheless suggest that some consideration of these impacts is warranted, if nothing else as a matter of international comity. This is particularly true in light of the fact that, of all of the portions of the Colorado River most likely to be directly affected by this action, the limitrophe and the Mexican portions of the Colorado River Delta will likely bear the greatest risk.

Conservation groups have defined restoration of the riparian corridor of the Colorado River delta as a major priority,[9] and have identified restoration of pulse flows to the delta as a central requirement for success. There are long-standing debates over how this water should be supplied, but no disagreement about the benefits of such pulse flows. By adopting an ICS program that leaves the door open to an international agreement that would allow for the generation and delivery of ICS as dedicated flow for the delta, the federal government would facilitate the best remaining opportunity to restore native habitat on the Colorado River, impacting the 23 miles of the delta's riparian corridor in Arizona, and the final miles of the river down to its outlet in the Upper Gulf of California.

The significance of restoring the riparian corridor below Morelos Dam is immense, as this is one of the only reaches of the Lower Colorado River where an opportunity exists to use pulse flows to create overbank flooding necessary to sustain viable native cottonwood and willow habitat. Above Morelos Dam, scheduled year-round water deliveries create high base flows in a relatively large channel, such that very large floods would be necessary to re-create such floods throughout most of the corridor. Below Morelos Dam, there are no scheduled deliveries for water users, base flows are low in a relatively small channel, such that relatively small floods, such as those contemplated in the CBS proposal, could provide the necessary overbank flows. Please see our letter to Reclamation, dated February 15, 2007, regarding the Environmental Assessment for the Lower Colorado River Drop 2 Storage Reservoir Project, for additional information on the environmental resources and affected environment in the limitrophe reach.[10]

Several existing and planned habitat restoration projects would benefit directly from pulse flows in the delta, including 20 acres already planted with native vegetation between the railroad bridge and the Carranza Crossing, with 4,400 more acres planned for restoration, 90 acres planned in the near term for Hunters Hole, and 100 acres planned for the near term on the Cocopah Reservation. The entire riparian corridor of the Colorado River below Morelos Dam has been identified as a priority for restoration in the long term.[11]

Of particular concern for Mexico in the Basin States alternative will be the provisions related to the implementation of shortages on the Lower Colorado. Although the 1944 Treaty provides that Mexico is to share "proportionately" with U.S. users in times of "extraordinary drought," the precise meaning of this provision remains unclear, and it has never been invoked since the time

[9] Sonoran Institute et al., 2005. Conservation Priorities in the Colorado River Delta: Mexico and the United States.

[10] The exceedingly brief description of baseline conditions for wildlife in the limitrophe yields a similarly deficient impact analysis. For example, the DEIS (at 4-200) states that there will be no impacts to special status fish, plants or amphibians from the NIB to SIB because none exist. There are, however, several special status species in this reach, as demonstrated in Table 3.2-4 of the Drop 2 EA. The DEIS is also completely silent as to special status birds, such as the Southwestern willow flycatcher and the Yuma clapper rail. The EIS must account for impacts – adverse and beneficial – to these species.

[11] Conservation Priorities in the Colorado River Delta: Mexico and the United States (2005; Sonoran Institute et al).

of the Treaty's execution. The Basin States Alternative unilaterally and precisely defines a set of proposed parameters under which shortages would be implemented against the Mexican allocation. We recognize that Reclamation has not itself proposed any specific shortage amount to Mexico; it has only adopted a potential shortage value as a modeling assumption. However, this modeling assumption demonstrates that Mexico will bear a significant risk of shortage under the Basin States Alternative (as well as other alternatives).

Because Mexico has no readily available mechanisms to reduce or mitigate against shortage impacts on its users (such as reservoir storage or water banking), shortages in Mexico will generate impacts as significant, if not more significant, than those that would arise among low-priority users in the U.S. These impacts would translate directly to environmental impacts in the Colorado River delta, which relies primarily on excess deliveries and agricultural drainage flows for its water supply.

Just as significantly, both the Basin States alternative and CBS will create incentives to further increase the efficiency of U.S. water delivery systems by providing opportunities to receive ICS credits for the funding of these projects (e.g., Southern Nevada Water Authority's proposed funding of the Drop 2 reservoir). On an individual and cumulative basis, these projects will reduce normal-year deliveries to Mexico by decreasing the volume of non-storable flows. Combined with gradually increasing efficiency in agricultural water use throughout the system, the restriction of ICS as proposed by the Basin States will continue to pose challenges for the maintenance of critical environmental values in the delta, which receive virtually all of their current water supplies from agricultural return flows, excess deliveries, canal leakage, and occasional flood events.

Regardless of whether Reclamation is required to consider environmental impacts south of the border, Reclamation need not ignore environmental benefits that might be associated with a given alternative, particularly where those benefits would implicate endangered species and migratory birds in the United States. Indeed, a primary advantage of CBS is that it would provide a storage mechanism that could be used to improve environmental conditions in Mexico (assuming the adoption of appropriate international agreements), some consideration of these benefits, however speculative, seems appropriate.

We urge Reclamation to expand the discussion of biological resources in section 3.8.1.4 and potential negative and positive impacts of the proposed alternatives in section 4.8.4.7. For your consideration, we include the following relevant information.

Biological resources below NIB

The remnant riparian and marsh wetlands areas in the Colorado River delta in Mexico, and the limitrophe area in the U.S. provide crucial habitat to several threatened and endangered species listed in Mexico and the U.S. and a key stopover along the Pacific Flyway. These wetlands provide habitat essential to over 350 species of land and aquatic migratory birds on their seasonal traverse of the continent. A recent survey of birds found densities to be 10 times higher in the Colorado River delta, than on the river above Morelos Dam.[12] Endangered species, including

[12] Hinojosa-Huerta, 2006. Conservation of Birds in the Lower Colorado River Delta, Mexico. Dissertation from the University of Arizona, Tucson.

the Yuma clapper rail and the Southwestern willow flycatcher, as well as the Yellow-billed cuckoo (under consideration for federal protection) rely on Colorado River habitat south of NIB, as do a number of species listed as wildlife of special concern by the state of Arizona. Ten species of breeding birds and fourteen species that use the Colorado River south of NIB as stopover or wintering ground have acquired legal protection status under Mexican laws (Endangered, Threatened, or Special Protection).[13]

Table 1.[14] Bird species under a protection category in Mexico or of conservation concern in the Colorado River delta.

Species	Protection Category	Breeding Status	Relative Abundance	Temporal Presence
Least Grebe	SP	NB	CA	SU
Laysan Albatross	TH	NB	RA	SP
Black Storm-Petrel	TH	NB	CO	PE
Least Storm-Petrel	TH	NB	CO	PE
Reddish Egret	SP	BR	RA	SU
Roseate Spoonbill	NP	NB	EX	WI
Fulvous Whistling-Duck	NP	BR	EX	SU
Brant	TH	NB	UN	WI
Bald Eagle	EN	NB	UN	WI
Sharp-shinned Hawk	SP	NB	UN	WI
Cooper's Hawk	SP	NB	UN	WI
Harris' Hawk	SP	NB	UN	WI
Red-shouldered Hawk	SP	NB	CA	WI
Swainson's Hawk	SP	NB	UN	WI
Ferruginous Hawk	SP	NB	RA	WI
Peregrine Falcon	SP	NB	UN	WI
Prairie Falcon	SP	NB	RA	WI
California Black Rail	EN	BR	RA	PE
Yuma Clapper Rail	TH	BR	CO	PE
Virginia Rail	SP	BR	CO	PE
Sandhill Crane	NP	NB	EX	WI
Snowy Plover	TH	BR	UN	SU
Heermann's Gull	SP	NB	CO	PE
Gull-billed Tern	NP	BR	CO	PE
Elegant Tern	SP	BR	RA	SU
Least Tern	SP	BR	UN	SU
Yellow-billed Cuckoo	NP	BR	UN	SU
Western Screech-Owl	NP	BR	RA	SU
Short-eared Owl	SP	NB	RA	WI
Gilded Flicker	NP	BR	EX	SU
Southwestern Willow Flycatcher	NP	BR	EX	SU
Bell's Vireo	NP	BR	RA	SU
Lucy's Warbler	NP	BR	EX	SU
Summer Tanager	NP	BR	EX	SU
Large-billed Savannah Sparrow	SP	BR	CO	SU

[13] See Table 2 in Diario Oficial de la Federación (DOF), 2002. Norma Oficial Mexicana NOM-059-ECOL-2001, Protección ambiental-Especies nativas de México de flora y fauna silvestres-Categorías de riesgo y especificaciones para su inclusión, exclusión o cambio-Lista de especies en riesgo. Secretaría de Medio Ambiente y Recursos Naturales. México, D.F. Marzo 6.

[14] From Hinojosa-Huerta, 2006. Four codes are given for each species: **Protection Category** in Mexico (SP – Special Protection, TH – Threatened, EN – Endangered, NP – No Protection), **Breeding Status** (NB – Non-breeding, BR – Breeding), **Relative Abundance** (EX – Extirpated, CA – Casual, RA – Rare, UN – Uncommon, CO – Common), and **Temporal Presence** (WI – Winter, SP – Spring, SU – Summer, PE – Perennial). Abundance categories follow M.A. Patten, E. Mellink, H. Gómez de Silva, and T.E. Wurster. 2001. Status and taxonomy of the Colorado Desert avifauna of Baja California. *Monographs in Field Ornithology* **3**:29-63.

The importance of the Colorado River riparian corridor south of NIB for the conservation of birds has been recognized both nationally and internationally. In Mexico, a portion of the delta's wetlands are protected by the Upper Gulf of California and Colorado River Delta Biosphere Reserve.[15] The delta is also an Important Bird Area in Mexico, and a priority site for the conservation of biodiversity as decreed by the National Commission on Biodiversity.[16] This ecosystem has additionally been recognized as a wetland of international importance by the Ramsar Convention,[17] and is part of the Western Hemisphere Shorebird Reserves Network.[18]

A century ago, the cottonwood-willow forest was very common in the Colorado River delta. Currently, only approximately 7,500 acres of cottonwood-willow forest remain. Most of the present vegetation in the riparian corridor has been regenerated by flood releases from the U.S. over the last 20 years. These areas of native vegetation have been maintained by non-storable flows from the U.S, and Mexico. Reclamation estimates an average of more than 70,000 acre-feet/year of deliveries in excess of Treaty requirements at NIB (see Drop 2 Draft Environmental Assessment, November 2006), some of which are passed directly below Morelos Dam, and some of which reach the riparian corridor via wasteways.

The riparian corridor is used by migrating species, and thus its ecological value cannot be considered in isolation. Neotropical migratory songbirds travel through this region on their journey to northern breeding areas in the U.S. and Canada and to their wintering grounds in southern Mexico and Central America. These species migrate along the Sonoran coast of the Gulf of California, and the Colorado River delta provides their first opportunity to stop in native riparian habitat where food and cover are abundant. The rarity of cottonwood-willow forest in this reach of the migration route —populations of riparian obligates have been significantly reduced on the Lower Colorado River—adds significantly to the importance of the remaining Colorado River riparian corridor below Morelos Dam.

While there is a distinct difference between the quality of Colorado River riparian habitats below and above Morelos Dam, it remains important to recognize the connectivity of the water source and the potential for connectivity in habitat. The abundance of water birds in the delta's riparian corridor has been increasing during recent years, with the creation of lagoons and marshes. Several species of waterfowl are now common in the area, with an estimated 2,000-4,000 thousand individuals each winter, in particular Mallard, American Widgeon, Northern Pintail, Green-winged Teal, and Cinnamon Teal. The riparian corridor also provides unique habitat types (freshwater river banks) for some sensitive species, such as the Spotted Sandpiper.

Flood control releases and over-deliveries, as well as groundwater and local agricultural returns are all important water sources for the Colorado River riparian corridor south of NIB, and each of these water supplies might be impacted as system efficiency improvements are implemented.

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[15] SEMARNAP. 1995. Programa de Manejo Reserva de la Biosfera del Alto Golfo de California y Delta del Río Colorado. Secretaria del Medio Ambiente, Recursos Naturales y Pesca, Publicacion Especial 1, México D.F.

[16] M. Cervantes, M.J. Román, y E. Mellink. 1999. AICA: NO-17 Delta del Río Colorado. En: Benítez, H., C. Arizmendi, y L. Márquez. Base de datos de las AICAS. CIPAMEX, CONABIO, FMCN y CCA. (http://www.conabio.gob.mx).

[17] Ramsar Convention Bureau. 1998. See http://www.iucn.org/themes/ramsar/about_infopack-2e.htm

[18] Western Hemisphere Shorebird Reserve Network. 1993. Western Hemisphere Reserve Network Site Profiles. WA publication No. 4, Wetlands for the Americas, Manomet and Buenos Aires.

Significantly, the CBS alternative creates a mechanism to deliver conserved water to the riparian corridor south of NIB.

Socio-Economic Impacts

One significant benefit of CBS as compared to any other alternative under consideration in the DEIS is that the first 600,000 acre-feet of potential "shortages" are avoided under CBS through voluntary, compensated forbearance rather than involuntary shortages imposed on lower-priority users. The existence of a compensation mechanism clearly limits the extent of economic impact that will be associated with a "water delivery reduction," since the individual farmer or water user that experiences the reduction receives fair market compensation for voluntarily undertaking the reduction. Properly designed, such a mechanism should have the effect of mitigating economic impacts to individual farmers, local farm economies and labor markets, and local tax bases.

Under market conditions, forbearance should be distributed preferentially to those uses of water that produce the lowest economic returns. As such, one would anticipate that low-value crops would be fallowed before any higher-value crops or municipal uses. To the extent that farmers or other users seeking to participate in such a program might be able to obtain higher returns for their water via forbearance than they could via the normal use of that water, these users would realize greater economic benefits from voluntary conservation than they would otherwise receive.

These same assumptions cannot be made for involuntary shortages, since these will be governed by the water right and contract priority systems within each state. Within Arizona, for example, the existing system of priorities among CAP and the various on-river users would leave on-river municipalities exposed to significant shortages well before lower-value, higher-priority agricultural uses, and virtually every user on the CAP canal would be exposed to shortages prior to any of the present perfected right holders in the state. Moreover, even within the agricultural community, agricultural users would be reduced based on the relative priority of their rights. As such, CAP contracts for high-value agricultural users could be reduced before contracts or higher priority on-river rights dedicated to low-value agricultural crops. A market based program could also reflect the additional value of senior water right or contract priorities and tends towards the reduction of the lowest value and lowest priority users, but those choices would be made in the marketplace.

In addition, the benefits and/or costs of voluntary conservation efforts would not necessarily accrue in just one state – for example, although few if any involuntary shortages would ever reach California under the Basin States alternative, farmers and other water users in any of the Lower Basin states could potentially participate in voluntary fallowing, depending on market demand. Under CBS, the door would be left open to potential Mexican participation as well – mitigating the socio-economic and environmental impacts from involuntary shortages in Mexico and avoiding international conflict over the unilateral imposition of shortages.

The DEIS makes clear that once shortages occur, there is a significant likelihood that they will be sustained over multiple years. Involuntary shortages will necessarily be distributed to low-priority users for long periods, causing sustained economic disruptions in the communities where

those users are located. By contrast, voluntary conservation will not necessarily fall on the same users year after year, since individual users will be able to decide whether or not they can and should participate in voluntary conservation or fallowing efforts each year.

Insofar as the DEIS has followed existing priority schedules within Arizona when assigning involuntary shortages and has not evaluated the greater geographic and more flexible distribution of voluntary conservation, it has underestimated both the economic impacts associated with involuntary shortages under the Basin States alternative and the relative benefits of voluntary conservation under CBS. In analyzing socio-economic impacts, the DEIS implies that data on cost of water and on market prices for irrigation forbearance are needed to compare the Basin States alternative and CBS (DEIS at 4-264 through 266). In fact, no cost of water or market data were considered in analyzing the impacts of the involuntary shortages imposed under either alternative, while the same partial farm budgets that were applied to compare the socio-economic impacts of involuntary shortages in the agricultural sector in Arizona, could be applied to quantify a monumental difference in the socio-economic impact of these two alternatives. That is, the net agricultural income from voluntary conservation at a large scale would not be lost under CBS, and would offset such direct socio-economic losses from the involuntary shortages that could be imposed under the Basin States alternative. Institutionalizing the rotational elements of voluntary conservation and not permanently retiring irrigation would also offset much more of the indirect socio-economic losses.

Although it may not be possible to quantify all the socio-economic benefits of CBS, the preferred alternative should not be formulated without recognizing them clearly and concretely.

CBS Funding

The DEIS notes that "the viability of the Conservation Before Shortage program funding proposal is not known at this time. Reclamation does not have the authority to implement all facets of this proposal and additional legislation would be necessary to gain such authority." (DEIS at 2-13). While we fully recognize that some aspects of CBS would require new legislative authority to implement, we would also note that with year-to-year appropriations, the funding viability of any federal program is not known with certainty. Key aspects of both CBS and the Basin States alternative are contingent on the outcome of future international diplomacy, which is currently unknown.

This blanket statement also fails to recognize the fact that the authority and funding for one major element of CBS – the bypass flow replacement component – is better known. Reclamation does have a mandate, or at least authority and some annual funding, to engage in compensated water reductions on the Lower Colorado River. Under the Colorado River Basin Salinity Control Act, 43 U.S.C. § 1574, the replacement of the annual MODE bypass flow is a "national obligation" for which Reclamation is responsible. Until recently, this obligation was satisfied by the lining of the Coachella Valley Canal; however, at this point it is once again an active federal obligation. As such, the consideration of a compensated mechanism for reducing water use - at least to the extent of the national bypass flow replacement obligation – is entirely consistent with the existing requirements of federal law. We note that Reclamation is currently considering several potential mechanisms for bypass flow replacement resulting from the work

of the YDP/Ciénega de Santa Clara Working Group. These include a voluntary fallowing program that would operate in a manner essentially similar to that proposed by CBS.

Moreover, Reclamation has the ability in a NEPA analysis to consider alternatives that are outside its jurisdiction, *see* 40 C.F.R. § 1502.14(c), or require legislation for implementation. *See City of Sausalito v. O'Neill*, 386 F.3d 1186, 1208-09 (9th Cir. 2004) (cautioning that an alternative may be reasonable and not excluded from an EIS even if it requires additional legislative action); *Natural Resources Defense Council v. Morton*, 458 F.2d 827, 837 (D.C. Cir. 1972) (reasoning that "[t]he mere fact that an alternative requires legislative implementation does not automatically establish it as beyond the domain of what is required for discussion, particularly since NEPA was intended to provide a basis for consideration and choice by the decision-makers in the legislative as well as the executive branch").

Environmental Justice

The action alternatives' potential environmental justice impacts merit greater consideration and description in the FEIS. Other sections in the DEIS assess potential impacts over a range of shortage volumes. Instead, section 4.15 uses only one example, of the potential job loss of a 500,000 acre-foot shortage, in an effort to suggest that potential effects on environmental justice communities would be negligible. This is insufficient and unsubstantiated.

Expanded Opportunities for Bi-National Conservation

The inclusion of an expanded ICS program and a federally-controlled bank allotment in Lake Mead that would allow for U.S. federal, future Mexican participation, and/or non-contractor participation in ICS will also produce a series of potential benefits that deserve consideration in the NEPA process.

The Basin States alternative is largely concerned with water delivery operations between and among the Basin states, particularly the states of the Lower Basin. However, there are other interests that could potentially be met through U.S. federal participation in a Lake Mead banking program, including obtaining temporary water supplies for federal reservations, environmental programs (including MSCP), salinity control needs, protection of the power head at Hoover Dam or of recreational values, speculative accumulation of bypass flow replacement or other credits, or providing a reserve supply for water exchanges. This same mechanism could be used by current non-contractors to meet private water supply needs as well.

Reclamation's modeling clearly demonstrates that there would be no net increase in shortage risk associated with the maintenance of a federal bank allotment; quite to the contrary, the modeling shows a net benefit from the existence of such a bank insofar as this would tend to keep reservoir levels in Mead somewhat higher than would be expected with the smaller banking allotments provided by the Basin States Alternative. Given this net benefit to water users and the significant ancillary benefits that could be realized through a federal allotment, the inclusion of such a mechanism in the final preferred alternative adopted through the NEPA process is appropriate.

It should also be noted that the inclusion of a federal banking allotment and ICS program would be consistent with and build on the Basin States Alternative, as it would not alter the rules under which the Basin States would participate in ICS, change the relative size of any of the states' ICS

banks, or require interpretations of the various provisions of the Law of the River different than those implicated by the Basin States Alternative. All of the activities discussed above would seem to be well within Reclamation's inherent river regulation authority under the Boulder Canyon Project Act.

Obviously, any Mexican participation in an ICS program would require appropriate amendments to the current international framework to allow for temporary reductions or increases in Treaty deliveries. These could clearly be accomplished via the adoption of a new Minute to the Treaty of 1944 by the International Boundary and Water Commission.

Since these amendments to the Treaty framework are not currently in place, Reclamation cannot assume that such programs will in fact be established in the future. However, insofar as some elements of the Basin States proposal have expressly contemplated Mexican participation in shortages, we suggest that some consideration of the potential benefits of Mexican participation in the NEPA process is warranted, since the implementation of the Seven States Agreement on which the Basin States Alternative is premised – most notably the proposed shortage policy and proposed policies for unilateral water exchanges – will already require consultation with Mexico and/or the adoption of a new Minute. Other opportunities for Mexican participation could be considered in the same diplomatic process.

As discussed in the white paper attached to the CBS submittal, *Taking ICS to Mexico,* significant benefits for U.S. water users, Mexican water users, and the environment could potentially be derived from extending proposed policies related to ICS, system efficiency improvements, and water exchanges to include water users in Mexico. Such a program could provide significant assistance in resolving difficult issues related to urban, agricultural, and environmental water supplies in Mexico, while opening enormous opportunities for both U.S. and Mexican water users to obtain water supplies via funding of irrigation efficiency improvements, the construction of urban water infrastructure, water supply replacement or enhancement, desalination, and other projects.

These credits could be used to firm up urban water supplies in both countries, engage in long-studied environmental restoration projects in the Delta, and increase flexibility in Mexico's agricultural sector – creating economic, environmental, and social benefits in both countries while offering the United States and Mexico a venue for cooperation in the otherwise contentious area of water management at the border. These opportunities would clearly help to offset the negative impacts to Mexico that might otherwise be associated with a shortage strategy.

Given the potential benefits, we urge Reclamation to leave the door open to such a program in the preferred alternative and the ROD, and include both an unassigned banking allotment and a broader ICS mechanism.

Individual Technical Corrections to the DEIS

p. 3-17 delete "to construct" from quoted material

p. 4-76 lines 13-19 appear out of place. Are they a repeat of p.4-41 lines 16-22?

p. 4-164 section 4.8.2.2 discussing NIB to SIB should refer to pulse flows below Morelos Dam rather than "excess" flows as ICS for delta would by definition be a dedicated flow for a beneficial use, and therefore not "excess."

p. 4-170 lines 15-17 statement re: volume of water passing Morelos being rare [*sic*] and unimportant for vegetation and wildlife is false. See our comments on the Drop 2 draft EA for documentation of the importance of these flows.

p. 4-170 line 39 why would CBS increase flows by 0.4 mafy? Is this due to incorrect assumption about M&I water?

p. 4-171 line 4 pulse flows every other year – incorrect for same reasons

p. 4-200 lines 15-16 pulse flows every other year- incorrect for same reasons

p. 4-203 lines 3-5 "These benefits were deemed moderate because flows in this reach are currently rare and any additional flow in this reach is assumed to be beneficial." By what criteria are these benefits deemed moderate rather than major?

p. P-86. Once corrected as noted above, figure P-61 should be labeled as "Flows Below Morelos Diversion Dam."

IV. Conclusion

Once again, we thank Reclamation for its extensive assistance in developing, modeling, and considering CBS for the DEIS, and ask that Reclamation incorporate our comments as it refines CBS and its environmental and socio-economic analyses for the Final EIS. We welcome the opportunity to meet with Reclamation to discuss these matters further if this would be of assistance in Reclamation's analysis.

We believe that the current NEPA process represents a significant potential turning point in the history of the Law of the River, one which offers significant opportunities for both water users and environmental values on the River – but which also carries with it significant economic, environmental, and diplomatic risks. The Basin States Alternative, and the Seven States Agreement upon which it is built, represents a significant potential step forward for water management in the Lower Basin; however, in isolation it does not step far enough to ensure the protection of environmental values in the Lower Basin and Mexico and assist the development of an international agreement between the U.S. and Mexico that will be necessary to implement the States' proposed shortage policy.

Two components of CBS, the expansion of the ICS program to other users in the U.S. and Mexico, and the provision of a voluntary, compensated mechanism for shortage mitigation, are particularly critical in this regard, and we believe the analysis conducted to date strongly bears out the importance of these mechanisms. We strongly urge Reclamation to adopt these elements as a part of the preferred alternative in the Final EIS.

Thank you for your consideration of these comments. We look forward to continuing to work with Reclamation over the coming months as Reclamation moves to prepare its Final EIS and Record of Decision.

Sincerely,

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