STATE OF COLORADO

Colorado Water Conservation Board
Department of Natural Resources
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TO: Colorado Water Conservation Board Members

FROM: Ted Kowalski, Chief, Interstate, Federal, and Water Information Section
Brent Newman, Interstate, Federal, and Water Information Section

DATE: July 5, 2012

SUBJECT: **Agenda Item 12, July 17-18, 2012 Board Meeting**
Interstate, Federal, and Water Information Section: Long Term Experimental and Management Plan (LTEMP) for the Operation of Glen Canyon Dam

Background

In July 2011, Secretary of the Interior Ken Salazar announced the initiation of the Environmental Impact Statement (EIS) process, regarding the Department's development of a Long-Term Experimental and Management Plan (LTEMP) for Glen Canyon Dam. This Plan would look to the past and the future: evaluating the dam's operations over the past fifteen years, and providing a framework for operations and adaptive management associated with releases from Lake Powell to the Grand Canyon for the next 15 to 20 years.

The LTEMP EIS process is designed to achieve more efficient management of Glen Canyon Dam while remaining in compliance with the Grand Canyon Protection Act and the numerous interstate compacts and federal laws already governing dam operations (Law of the River) for water supply purposes that are critical to the seven Colorado River Basin States. The Secretary encouraged the Basin States to work with the federal government to develop a States' alternative for inclusion in the EIS. To achieve this goal, the DOI held public scoping sessions across the West in November 2011 to communicate the goals of the LTEMP process, as well as solicit input from interested States, non-governmental organizations, and other interested parties.

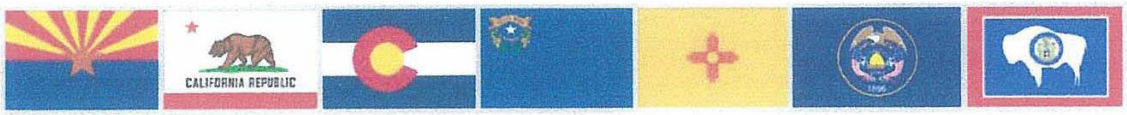
On July 2, the seven States submitted their proposal to the Department. The States' EIS alternative is a "resource targeted, condition-dependent strategy." The proposal provides a balanced and integrated approach for the recovery of the humpback chub, and the benefit of natural, recreational, and cultural resources in the Grand Canyon. Moreover, this alternative assures compliance with the Law of the River for water supply operations in a manner that minimizes the impacts to hydropower generation at the dam. The States' alternative relies heavily on structured decision trees, wherein certain scientifically important experiments can be conducted, depending on hydrologic and other resource conditions. The States' alternative relies on the most current scientific information, and it was developed with significant, and diverse, scientific input. In

addition, the States' alternative received the benefit of input from the DOI agencies and other federal agency involvement.

The management of the Colorado River requires striking a delicate balance between environmental compliance, tribal and cultural understanding, and providing efficient water management and stable water supplies for the arid West. With this complicated array of issues, the States prepared this balanced alternative with the overarching Colorado River ecosystem in mind, as well as the everyday concerns of the basin water users. The preservation of stable water supplies and the renewable resource of hydropower inform the States' proposed framework for management actions, with an eye to the potential for helpful scientific experiments and research.

Enclosed is the Basin States' cover letter to the Department submitted with the States' alternative. At the July Board meeting, Shanti Rosset O'Donovan from the Attorney General's Office, and Randy Seaholm, who has been essential to the LTEMP EIS process as a consultant to CWCB staff, will give a presentation on the States' alternative and answer questions from the Board on this process and the resulting proposal.

Staff Recommendation
This is an informational item and no formal Board action is required.



Colorado River Basin State Representatives of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming

July 2, 2012

Via E-Mail and U.S. Mail

Glen Canyon Dam LTEMP EIS
Scoping, Argonne National Laboratory
EVS/240, 9700 S. Cass Avenue
Argonne, Illinois 60439

Re: A Resource Targeted Condition-Dependent Strategy for the Long-Term Experimental and Management Plan for the Operation of Glen Canyon Dam

Dear LTEMP Team,

The seven Colorado River Basin States and the Upper Colorado River Commission representatives (collectively referred to as the Basin States) respectfully submit and strongly urge consideration, analysis and adoption of the attached Basin States' Alternative, entitled "A Resource Targeted Condition-Dependent Strategy", as part of the Department of the Interior's preparation of a Long-Term Experimental and Management Plan Environmental Impact Statement (LTEMP EIS). The Basin States have developed this alternative as input to the NEPA process at the invitation of Secretary Salazar, in the spirit of cooperation with the Department of the Interior and as part of the stakeholder process, in order to implement a balanced and integrated plan for operation and management of Glen Canyon Dam in a way that: 1) comports with the Law of the River; 2) mitigates potential adverse impacts associated with dam operations; and, 3) improves the values for which the Grand Canyon National Park and the Glen Canyon National Recreation Area were established. The Resource Targeted Condition-Dependent Strategy addresses the purpose and need of the LTEMP EIS; to identify dam operations, management actions and experimental actions that will provide a framework for adaptively managing Glen Canyon Dam over the next 15 to 20 years, consistent with the Grand Canyon Protection Act, the Law of the River, and applicable Federal laws. It does so in a manner that implements actions to benefit key resources (including and especially the humpback chub) and uses experiments and research to further develop future actions. It balances learning with improvement of other key resources of interest identified in the AMWG's (Adaptive Management Workgroup) recently adopted Desired Future Conditions for key resources of the Grand Canyon. This alternative has been developed using the best available current scientific

knowledge, while recognizing the current provisions of the High Flow Experiment and Non-Native Fish Control Environmental Assessments/FONSIs.

The Resource Targeted Condition-Dependent Strategy addresses the full range of possible future hydrologic conditions and can be implemented consistent with the *2007 Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operation of Lake Powell and Lake Mead* (Interim Guidelines). The Basin States, and other stakeholders, have worked closely with a group of scientists with expertise in key Grand Canyon resource areas, to develop an adaptive management based alternative which includes both operational and non-operational measures to improve the Grand Canyon population of Humpback Chub, improve sediment conservation, manage the trout fishery, mitigate adverse impacts to important cultural resources and maintain hydropower production and recreation uses. The alternative also includes an experimental science plan using decision trees to describe experimental triggers and actions with a goal of improving our understanding of both key processes and resource interactions. Ultimately, these experiments are intended to inform future operations and management actions to benefit the key resources of the Grand Canyon.

The elements of the Resource Targeted Condition-Dependent Strategy continue an adaptive management framework for dam operations and other non-operational measures, including monitoring, that focus on the following:

1. Science Framework – This alternative employs a robust science design intended to test the efficacy of a range of treatments or experiments over a wide range of environmental conditions. The Basin States believe that it is imperative that the alternative includes management actions that are resilient against environmental perturbations. This alternative utilizes decision trees to consider condition-dependent actions aimed at benefitting the key resources (i.e., humpback chub and sediment). The experimental science design goal is to establish with some confidence, the causal relationships that will inform future operations.
2. Humpback Chub Recovery – The Grand Canyon population of the humpback chub has grown in numbers for well over a decade under the Modified Low Fluctuating Flow (MLFF) operational regime. The number of adult humpback chub has nearly doubled since its low point in 2000. Continuation of the improved status of this endangered population is critical, and warrants a conservative approach to future operational modifications to continue this trend.
3. Sediment for Beaches and Habitat – Lower, steady releases are proposed from August through October, months during which the Paria River often floods delivering sediment into the Colorado River mainstream. These lower, steady dam releases would retain sediment within the mainstream which may form the supply to trigger a High-Flow Experiment (HFE). Under sediment enriched conditions, load following flows would be curtailed before implementing an HFE in November. This sediment retention flow regime is intended to retain sediment inputs to maximize the benefits of an HFE.
4. Trout Fishery Management– The Basin States' Alternative includes trout management flows intended to enhance the trout fishery at Lees Ferry and avoid emigration of trout downstream to the Little Colorado River (LCR) where they could prey on endangered humpback chub or compete with them for limited food resources.

5. Cultural Resources – The Basin States' Alternative can be implemented consistent with the obligations that exist under the National Historic Preservation Act and the Memorandum of Agreement, which are important to the Tribes.
6. Hydropower – Sediment research has shown that the current down ramp rate is not an important factor in sediment loss from the system and thus the restriction on the hourly down ramp rate is likely unnecessary for sediment conservation. Hourly down ramp rates would increase from 1,500 cfs to 2,500 cfs under the Basin States' Alternative with appropriate monitoring.

Implementation of the Resource Targeted Condition-Dependent Strategy will result in balanced operations that will provide benefits for all of the key resources identified by the AMWG, given the current state of scientific knowledge. It includes an experimental science design to incorporate learning and adaptive management, with a goal to identify key causal relationships to inform future operations. The elements of this alternative are related and interdependent and removing or replacing one or more of these elements without full consideration of the entire alternative and experimental design would likely diminish its management and experimental value.

The Basin States appreciate your willingness to evaluate and consider this alternative in the LTEMP EIS process. With this submission, it is imperative that the Department of Interior and the Basin States work cooperatively to develop the rule sets, flesh out the appropriate screening criteria, and ensure full and appropriate analysis of the Resource Targeted Condition-Dependent Strategy and the other proposed alternatives. The Basin States recommend establishment of a process where that type of interaction can occur. The Basin States' technical representatives are available to provide further information, clarification and assistance.

Please feel free to contact the Basin States' representatives if you have any questions or require additional information regarding this alternative. The Basin States look forward to further productive engagement in this important element of the Adaptive Management Program.

Sincerely,

[Signatures on next page]

cc: Rob Billerbeck, National Park Service
Beverly Heffernan, Bureau of Reclamation
Anne Castle, Assistant Director for Water and Science, U.S. Department of the Interior

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