ATTACHMENT 6

AMWG [redacted]

1/12-13/99

PROPOSAL FOR FALL MAINTENANCE FLOWS DURING TRIBUTARY FLOOD EVENTS (Sep 98)

Background

In the final GCDEIS, habitat maintenance flows were proposed as releases within powerplant capacity (up to 33,200 cfs) occurring when the reservoir was below 19 MAF on January 1 of each year. The intent of habitat maintenance flows was to re-form backwaters for fish habitat and maintain sandbars (camping beaches) at higher levels than would otherwise occur under the normal maximum release for the preferred alternative. Habitat maintenance flows were expected to occur nearly every year when the reservoir was low and a BHBF was not planned. They were proposed as high, steady releases for 1 to 2 weeks in March, although other months could be considered under the Adaptive Management Program.

In the final GCDEIS, Beach Habitat Building Flows (BHBF) were described as releases greater than powerplant capacity (but not greater than 45,000 cfs) that would occur under similar reservoir conditions as for habitat maintenance flows—when the reservoir was below 19 MAF and also when the risk of an unanticipated spill was negligible. However, because of their tendency to transport sediment downstream beyond the capacity of the tributaries to supply sediment, BHBF's were expected to occur much less frequently than habitat maintenance flows. The final GCDEIS impact analysis was based on an assumed frequency of 1 in 5 years. The intent of doing BHBF's was to rebuild high elevation sandbars, deposit nutrients, restore backwater channels and provide some of the dynamics of a natural system. Initially, BHBF's were to be scheduled in early spring for 1 to 2 weeks. The exact season and duration was to be determined through adaptive management.

When BHBF's were proposed in the GCDEIS process, the Basin States objected on legal grounds of violating the 1968 Act provision of avoiding anticipated spills. The Department of the Interior and the Basin States reached an agreement regarding BHBF's, changing the timing of such events from years of low reservoir storage to years when reservoir releases in excess of powerplant capacity are required for dam safety purposes (full reservoir). Both the 1996 Annual Operating Plan and the Record of Decision for the GCDEIS incorporated this change. Hydrologic triggering criteria have been prepared by the TWG and recommended by the AMWG, and resource criteria are now being discussed in the TWG. Through the adaptive management process, the months in which BHBF's are to be considered are also being proposed to change, expanding the range from early spring to a January-July time frame. In addition, the magnitude of a BHBF is proposed to be higher to increase the positive effect of such flows and achieve the benefits sought to biological resources that did not occur under the BHBF experiment in 1996. Impacts to the environment are still being evaluated and there is substantial controversy over this proposal due to potential effects on the endangered Kanab ambersnail and southwestern willow flycatcher.

Purpose of the Proposed Fall Habitat Maintenance Flows

Sediment main channel accumulation and channel margin and beach deposition continue to be key issues for the adaptive management of Glen Canyon Dam. The releases which followed the 1996 test of the BHBF resulted in the degradation of newly formed beaches and raised questions about the proper frequency of BHBF's and the management of main channel sediment storage.

When large tributary floods occurred on the Paria River in the fall of 1997, very large sediment loads were deposited in the main channel of the Colorado River downstream of the confluence. Peak flows of about 4,000 cfs were estimated on the Paria River. Researchers believed that the transit time for this sediment to move past the Little Colorado River (LCR) confluence would be a matter of weeks, particularly for the fine grained sediment, and some action to move this sediment to the sides of the channel was desired. In November 1997, a two-day test flow of about 31,000 cfs was released from the powerplant to observe the downstream effect of mobilizing the recently deposited sediment. Since the release did not involve powerplant bypasses, there was no legal controversy. The results of this release are still being analyzed, but preliminary data seems to indicate that (1) there currently is still substantial sediment in the Lees Ferry - LCR reach even after the 31,000 cfs test flow, and (2) beach and bar deposits were positively aggraded but at a slower rate during the November release than during the 1996 BHBF release.

Following the November test flow, it was hypothesized that if the maximum powerplant release occurred during the peak of the tributary event rather than following the event, a higher river stage and thus greater deposition would have occurred. Perhaps most significantly, the quickly-transported and nutrient-rich silt and clay load could have been deposited on the river bars and beaches.

Proposal

It is proposed that the Glen Canyon Dam operating criteria prepared under the 1992 Grand Canyon Protection Act be revised to allow releases up to powerplant capacity (about 31,000 cfs) to coincide with peak discharges from the Paria River. It is expected that such releases would occur during the late summer and fall months when the likelihood of monsoon and thunderstorm events is highest, but could occur in any month. Additional resource criteria regarding threshold Paria River peak flows and downstream biologic and sediment conditions would be developed by resource experts to guide the decision process for making the high powerplant release.

Outstanding Issues

Concerns over this proposal are related to the effectiveness of powerplant capacity releases in modifying the downstream environment related to economic impacts to power customers, impacts to native and endangered species, and disruption of recreation activities.

There are questions among TWG members about the positive effects of this proposal. Clearly the flow has less effect than BHBF's and some believe that greater benefits would occur if large releases were avoided until a BHBF were triggered under the existing criteria. Estimates should be made by sediment and resource experts to determine the positive value of this proposal.

Biologic impacts to endangered and other native species are a concern. This primarily would affect the young-of-year fish species residing in the mainstream Colorado River and concerns over their survival have been raised. The extent of the taking of Kanab ambersnails at Vasey's Paradise would not exceed 10 percent since the flow level downstream of the Paria confluence is not expected to exceed about 35,000 cfs. ESA compliance on these issues would likely be required to implement this proposal.

Regarding recreation, issues such as tributary flood frequency, flood peak travel time and the rapid increase of powerplant releases are also important issues. Discussions with resource experts would determine the acceptability of the proposal.

Next Steps

This proposal is being distributed to TWG members at the November 16-17 meeting. Comments and required areas of resource evaluation are being solicited. A discussion of this proposal at the TWG meeting is expected to lead to a recommended course of action.