Issue A: Potential development of Management Objectives for Lake Powell

Issue: The issue is whether MO's should be developed for Lake Powell or whether the MO's should be limited to downstream resources. Management Objectives are defined as the desired future condition of a particular resource. Monitoring and research in Lake Powell is needed, as outlined in the IWQP and the Black/Gray/White monitoring decision document in order to understand and predict the downstream impact of changing Lake Powell water quality parameters.

Response: Management Objectives should be developed for resources downstream of Glen Canyon Dam. Defining downstream water quality MO's implicitly mandates water quality monitoring and research work in Lake Powell, but appropriately focuses the impacts and benefits of such targets on the downstream resources

Rationale: The GCPA directs the operation of GCD to protect the resources of the Grand Canyon National Park and the Glen Canyon National Recreation Area. In several places, the committee language accompanying the statute further defines the area of concern as the GCNP and GCNRA downstream of the dam, noting that while "the primary purpose of this title is to authorize changes in the operation of Glen Canyon Dam to prevent damage to downstream resources," other authorities were identified "to address downstream effects of Glen Canyon Dam if such other remedial measures meet this title's goal of protecting, mitigating damage to, and improving the resources downstream of the dam." With this strong focus on the downstream resources, we believe it important to have the management objectives tied directly to these downstream resources, both for directness of application and appropriateness of measurement.

Specific downstream targets associated with these MO's that are directly tied to Lake Powell characteristics will need to be monitored in order to both predict and ensure that the downstream management objectives are met. The IWQP was developed with this conclusion as a basic premise. The Loveless Guidance Document also confirms that work above Lake Powell is justified based on the impacts to downstream resources. The term Colorado River Ecosystem used in the principles and goals was defined in such a way to include the forebay of Lake Powell and appropriate tributaries of the downstream Colorado River to allow monitoring and research activities in these areas if necessary to understand and improve and protect the conditions in the downstream riverine environment.

Issue B: Native fish versus Lee's Ferry rainbow trout

Issue: Is there a conflict between Adaptive Management Program (AMP) goals and management objectives for native fish versus the goals for Lees Ferry rainbow trout?

Response: Upstream of the Paria River, naturally reproducing Rainbow trout and native fish populations will attempted to be conserved and enhanced concurrently. Downstream of the Paria River, native fish are accorded preferential status over all non-native fish.

Rationale: This issue is focused on the need to concurrently manage for two desired resources that may be in conflict with each other, specifically: endangered native fishes and non-native Rainbow trout. Healthy populations of native fish in the ecosystem are a primary management objective as reflected in National Park Service policy directives. A healthy Rainbow trout fishery is also desired. Both fisheries are considered resources of concern by the AMP stakeholders and in the GCDEIS.

The principles, goals, and management objectives developed by the AMP imply that the rainbow trout above the Paria River in the Lees Ferry reach have a different status as compared to other non-native fish in the Colorado River ecosystem. These same principles, goals and management objectives provided guidance for resolving conflicts between native fish and rainbow trout above the Paria River in the Lees Ferry reach. Under the above guidance, flows, temperature regimes and other management actions one might consider to benefit native fish throughout the Colorado River ecosystem are initially constrained by the range of flows, temperatures, and other effects that provide for the continued existence of rainbow trout above the Paria River in the Lees Ferry reach.

Issue C: Responsibility scope of the Management Objectives

Issue: Should we include only those MOs that are the responsibility of the AMP, or should we include all MOs needed to accomplish the Goal? Is it appropriate to include MOs that cannot be accomplished solely through modifications to dam operations, or that may require activities that may not be funded by hydropower revenues?

Response: In summary, the MOs should be focused on resources and impacts within Glen Canyon National Recreation Area and Grand Canyon National Park below Glen Canyon Dam. The question of whether nonreimbursable CRSP hydropower revenues may be used to accomplish an MO does not have to be resolved when an MO is listed. The GCPA authorizes both changes to dam operations and activities other than changes to dam operations to accomplish the purposes of the act.

Rationale: This question is addressed by Principle 1, which states that "Some of the Objectives and actions that fall under these Goals may not be the responsibility of the GCDAMP, and may be funded by other sources, but are included here for completeness." There are two underlying assumptions. First is that the MOs will be focused on resources within the scope of the program and second, that some of the actions needed to accomplish the MOs may be accomplished through "other authorities" and other funding. The GCPA clearly states that the Secretary has the authority to implement changes to dam operations as well as non-operational measures to accomplish the purposes of the act.

The basis for this Principle stems from the Grand Canyon Protection Act (GCPA), the Senate Report Language for the Act (Report Language), the Charter of the Adaptive Management Work Group (Charter), and the Glen Canyon Dam Adaptive Management Program AMWG FACA Committee Guidance document (Guidance) prepared by Scott Loveless.

Sections 1807, 1805, 1804 (c, B) and 1802 of the GCPA authorize the Secretary to use CRSP hydropower revenue for research, monitoring, consultation, and other activities that will ensure Glen Canyon Dam is operated in such a manner "as to protect, mitigate adverse impacts to, and improve the values for which Grand Canyon National Park and Glen Canyon National Recreation Area were established, including, but not limited to natural and cultural resources and visitor use." The nonreimbursable expenditures allowed under the GCPA included preparation of the EIS and its supporting studies as well as the other actions mentioned in this paragraph.

According to the Report Language "All measures undertaken pursuant to the authority of this Act have as their focus the improvement of conditions for downstream resources within the two Park Service units." The geographic focus of the AMP is also described in the definition of the Colorado River Ecosystem contained in this Strategic Plan. We recognize that there may be operational impacts on resources beyond the narrow geographic area defined above. Examples of activities that may be funded through nonreimbursable CRSP hydropower revenues and other sources are included in the Guidance (p. 7).

Issue C: Responsibility scope of the Management Objectives

According to the Guidance "The relevant Senate Report language says, after discussion of the primary purpose of the Act, that: "other reasonable remedial measures may be available to the Secretary. The phrase 'exercise other authorities under existing law' means that the Secretary should consider and may implement non-operational measures to address downstream effects of Glen Canyon Dam if such other remedial measures meet this title's goal of protecting, mitigating damage to, and improving the resources downstream of the dam."

The Charter further allows that "AMWG may recommend research and monitoring proposals outside the Act which complement the AMP process, but such proposals will be funded separately, and do not deter from the focus of the Act." However, the aspect of nonreimbursable funding applies only to specific expenditures within the authority of the GCPA.

Issue D: Riparian biotic community

Issue: This paper is focused on clarifying whether the AMP objectives for riparian biotic communities should be focused on native biotic communities (e.g., old high-water zone and sand beach), or on the naturalized biotic community (e.g., new high-water zone, marshes, tamarisk-dominated).

Response: The Strategic Plan ad hoc group believes that we should set objectives to attain and maintain viable examples of the native biotic communities, but we should also maintain examples of the naturalized biotic community, especially where it provides habitat for southwestern willow flycatcher. The riparian objectives may be attained and maintained through dam operations and/or other management actions. The sequence of management actions should be consistent with principle seven.

Rational: Both the native communities and the naturalized community are of value to the stakeholders. Setting objectives to attain and maintain both native and naturalized communities is consistent with the emphasis on native biodiversity articulated in our Vision-Mission statement and Principle six.

Issue E: Consistency between recovery plans and Management Objectives

Issue: Should AMP management objectives for T&E species parallel objectives in USFWS recovery plans?

Response: AMP management objectives for T&E species need to be consistent with our Vision-Mission and Goals and the current FWS recovery plans.

Rational: AMP objectives need to be consistent with our Vision-Mission and Goals to meet Principle 1. AMP objectives may not identical to recovery plan objectives simply because those objectives descend from different goals.

Issue F: Socio-economics

Issue: Should there be a goal for Socio – Economics instead of Goal 11 related only to hydropower?

Response: Goal 11 will be retained and the related MO's will be measured in metrics having other than dollar values. Determination and consideration of socio-economic values will be included in a MO for Goal 13.

Rationale: Although it is not a natural resource, hydropower generation was recognized as a resource of concern in developing the GCPA, the EIS, the ROD and the Guidance Document. Goals need to be developed for all resources of concern including both hydropower and recreation as well as others that are not considered to be primarily natural resources.

Socio – economic values are not a goal. They are a way to measure the value of the resources of concern and, as suggested by the NRC Downstream report, may provide a useful tool in presenting data to be used in making decisions. Development of socio – economic data (including non-use values) for use in decision making has been made a management objective in Goal 13.

Issue G: Principle six

Issue: Does Principle No. 6 appropriately recognize the continuing existence of Glen Canyon Dam (GCD) as well the possibility for management actions other than changes in dam operations?

Response: The ad hoc group suggests a more appropriate statement of the principle is "Management actions, including changes in dam operations, will be tried that attempt to return ecosystem patterns and processes to their range of natural variability. When this is not appropriate, or beyond the range of operational flexibility of the dam, experiments will be conducted to test other approaches."

Rationale: Principle No. 6 must be read and interpreted within the context of the Vision statement, the Guidance Document, and in combination with Principles 5 and 7. The second paragraph of the Vision Statement clearly states the AMP program will be accomplished through the operation of GCD and other means. The Guidance Document has several references to continued dam operations; page 2 paragraph 2 refers to the legislative intent in GCPA, and on page 4 quotes from the ROD on finding "an alternative dam operating plan." Given the statements in the underlying documents it is clear that Principle 6 assumes continued operation of the dam and places that restriction on the range of natural variability target. The principle should be modified to reflect that situation and to be more clear that non-operational actions are available to achieve some goals.