

# Glen Canyon Dam Adaptive Management Program Ad Hoc Committee on Strategic Planning

Notes from Meeting on August 21 and 22, 2000 and Conference Call on August 28, 2000

## Development of Qualitative Targets for Management Objectives

### Definition

Qualitative Target: an articulation of the purpose of one or more Management Objectives, in order to

- ◇ give AMWG members a description in words of what the numerical target levels are intended to accomplish, and
- ◇ to give direction and guidance to the members of the “small groups” who will develop the quantitative targets.

### Overall Directions to the Small Groups Developing Quantitative Targets

- A range may be more useful than a single number.
- Some targets may be Information Needs (INs). If you identify an IN, tell us what it is.
- Where the current or target level is indicated, please evaluate both the number and the metric.
- Be aware of the proposed changes to the Strategic Plan Document detailed below.

### Proposed Changes to the Strategic Plan Document

- There are several references in the Goals to “ecosystem goals.” Below is an explanation of those references. The next iteration of the Strategic Plan will include these explanations.
  - ◇ “Biological goals” include Goal 1 (foodbase), Goal 2 (native fish), Goal 3 (extirpated species), Goal 7 (Kanab ambersnail), Goal 8 (Southwestern willow flycatcher), and Goal 9 (riparian and spring communities).
  - ◇ “Recreational goals” include Goal 4 (trout) and Goal 10 (recreation).
  - ◇ “Cultural goal” refers to Goal 12.
  - ◇ The reference in Goals 5 and 6, “...to achieve GCDAMP ecosystem goals,” indicates that Goals 5 and 6 are methods to achieve certain other goals. In these cases, “ecosystem goals” includes biological goals, recreational goals, and the cultural goal.
  - ◇ The reference in goal 8, “... in a manner consistent with riparian ecosystem goals,” and the references in goals 10 and 11, “...within the framework of GCDAMP ecosystem goals,” is intended to indicate a hierarchy or order of precedence. That is, the accomplishment of Goals 8, 10, and 11 should be undertaken in such a way that the likelihood of achieving the ecosystem goals is not impaired.
  - ◇ The “riparian ecosystem goal” referred to in Goal 8 is Goal 9. The “ecosystem goals” referred to in Goal 10 are the biological goals and the cultural goal. The “ecosystem

- goals” referred to in Goal 11 are the biological goals, recreational goals, and the cultural goal.
- Goal 5, MO 20: Change the target level from “decision process” to “current ROD operating criteria.”
  - Goal 5, MO 20: Add to the Comments column, “See MO 50 for experimental flows.”
  - Goal 6, MO 21: In the Place column, change “below” to “up to.”
  - Goal 8, MO 26: Under the Abundance Attribute, change the Comment column to read, “The target is the number of breeding pairs that the habitat is capable of supporting.”
  - Goal 8, MO 26: Under the Distribution Attribute, change the Comment column to read, “The target is the distribution of breeding pairs that the habitat is capable of supporting.”
  - Goal 8, MO 27: Change the Attribute to “critical habitat.”
  - Goal 10, MOs 36 and 37: Copy the Comment from MO 35 for these two MOs.
  - Goal 10, MO 38: Remove the words “decision process” from the Target Level column.
  - Goal 13, MO 48: Add a second Attribute, “Participation.” The Current Level is “See meeting records,” and the Target Level is “Information Need.”
  - Goal 13, MO 49: Change the Element to “Funding,” the Attribute to “Tribal participation,” and the Target Level to “Information Need.”
  - Goal 13, MO 50: The note in the Comments column is changed to read, “Target level is the experiments needed to gain critical understanding of ecosystem function under different dam operations.”
  - Goal 13, MO 51: The note in the Comments column is changed to read, “Target level is the experiments needed to gain critical understanding of ecosystem function under different management alternatives outside of dam operations.”
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## Qualitative Targets and Other Direction to Small Groups

### Goal 1 – Foodbase

The target is adequate food availability to support trout and native fish above the Paria River, and native fish below the Paria River. Linkages: See the numbers of fish desired under Goals 2, 3, and 4.

NOTE: This qualitative target is based on the assumption that fish are an adequate indicator of ecosystem health. Tell us if this assumption is inaccurate.

### Goal 2 – Native Fish

MOs 8-12 and 14-15: The target is viable populations and removal of jeopardy.

MO 13: The target is reduction of non-native fish predation and competition so they do not impinge on native fish viability. Suggested metrics for this MO are stomach content analysis, abundance, and distribution. Linkages: The native fish MOs in Goal 2 and Goal 3.

**Goal 3 – Extirpated Species**

This goal will not be referred to a small group.

**Goal 4 – Trout**

This goal is self-explanatory and does not need a separate qualitative target.

The small group should evaluate whether the proposed quantitative targets are correct. In addition, it should address the question of whether an overall trout management plan should be developed that links condition, growth, and abundance and addresses the potential for leakage downstream of the Paria River. Linkages: See Issue Paper B (trout).

NOTE: The purpose of this goal is recreation. It is limited by MO 13.

**Goal 5 – Water**

MO 18: The target is a temperature range and pattern of seasonal variability based on

- ◇ the range of natural variability,
- ◇ the range of operational flexibility of the dam,
- ◇ the range of legal flexibility, and
- ◇ the range that optimizes conditions for the featured resources.

Featured resources are foodbase, native fish, trout, and people (human health and safety – microorganisms and hypothermia).

Temperature patterns should have as their first priority the improvement of conditions for native biological resources, including native fish, and including foodbase and trout interactions. This is based on the special status of native fish. Linkages: MO 13; Principles 4, 6, and 7; and the Vision-Mission statement.

MO 19: The target is water quality based on

- ◇ the range of natural variability,
- ◇ the range of operational flexibility of the dam,
- ◇ the range of legal flexibility, and
- ◇ the range that optimizes conditions for the featured resources.

The featured resources are foodbase, native fish, trout, Southwestern willow flycatcher, riparian and spring communities, the recreational experience, and cultural resources. Linkages: Goals 1-3, 8-10, and 12.

Small groups should first identify water quality parameters that affect these resources, and then determine the quantitative targets. Ideally, there will be one target for all resources.

MO 20: Not referred to a small group.

**Goal 6 – Sediment**

The target is enough sediment to achieve biological, recreational, and cultural goals. Given limited sediment inputs, we need enough sediment in the system to facilitate reworking by BHBFs and habitat maintenance flows. What are the levels of sediment needed to achieve the

biological, recreational, and cultural goals, and how do we maintain those levels? For the biological goals, the purposes are habitat and nutrient storage. For the cultural goal, the purposes are plant habitat and preserving sites through filling in arroyos. For recreational goals, the purposes are camping beaches and trout spawning habitat. Linkages: Recreational, biological, and cultural goals: 1-4, 7-10, and 12.

NOTE: See the change to MO 21 under "Proposed Changes to the Strategic Plan Document," above.

### **Goal 7 – Kanab ambersnail**

The targets are described in Comments column. Note that "viable" includes the entire population, not just those below 70,000 cfs.

### **Goal 8 – Southwestern willow flycatcher**

MO 26: See the two changes to the comments under "Proposed Changes to the Strategic Plan Document," above, for the qualitative targets. The target for "fledging success" is the level needed to maintain the target level in the Abundance attribute of MO 26.

MO 27: The target is the capability of the habitat to support the species. See the Fish and Wildlife Service designation of critical habitat for definition of quality, quantity, and location of critical habitat. Also, see the change to MO 27 under "Proposed Changes to the Strategic Plan Document," above.

MO 28: The target is the level needed to maintain the target level of Southwestern willow flycatcher in MO 26.

### **Goal 9 – Riparian and Spring Communities**

MOs 29-32: The target is an achievable and appropriate mix of these types of communities. The small group should define what that mix is and how to achieve it. The goal is intended to help achieve the biological, cultural, and recreational goals.

All four communities are important for maintaining the diversity of wildlife. The Old High Water Zone is important because of the difficulty of maintaining it. We see maintaining it through BHBFs at greater than 45,000 cfs, which may have a negative effect on marshes and New High Water Zones. Be sure to consider the legal and regulatory mandates of the NPS to protect natural landscapes and native species and communities (which does not include New High Water Zone). Also, recognize the dynamic and successional nature of these communities.

MO 33: A separate small group will determine metrics and current and target levels.

MO 34: The target is the level at which these species do not impinge on biological, recreational, and cultural resources. Abundance refers to number of individuals within the species. These species should be limited to invasive ones, not just non-natives. The small group should identify which species are invasive.

### **Goal 10 – Recreational experience**

MO 35: The target is described in Comments column.

MO 36: Use the Comment for MO 35 as qualitative target. Consider the target level open.

MO 37: Use the Comment for MO 35 as qualitative target. On Distribution, the small group should identify reaches and number of campsites required.

MO 38: The target should address navigability across the range of flows allowed within the ROD. The metric is the number of accidents per rapid at each flow. NOTE: See the change to MO 38 under "Proposed Changes to the Strategic Plan Document," above.

MO 39: Is there an index of wilderness experience? Are there parameters that are indicators of wilderness experience? (The NPS is probably responsible for monitoring this MO.)

### **Goal 11 – Power**

What levels are appropriate? Consider the use of spinning reserve and AGC. The small group should identify generation parameters.

### **Goal 12 – Cultural Resources**

The small group will determine metrics and current and target levels.

### **Goal 13 – High-quality AMP**

MO 46: The target is described in Comments column. What are existing data sets for current and target levels?

MO 47: Current and target levels should include a planning document and an outside peer review document.

MO 48: NOTE: See the changes to MO 48 under "Proposed Changes to the Strategic Plan Document," above.

Consider using AMP Strategic Plan as the current and target levels for the Attribute "acknowledges uncertainty," with some outside judgment of adequacy of the program.

For the Attribute "Participation," the target is representation of all stakeholders at every AMWG and TWG meeting and other subcommittee meetings to which the stakeholders have committed, and review by all stakeholders of relevant program documents.

MO 49: NOTE: See the changes to MO 49 under "Proposed Changes to the Strategic Plan Document," above. This MO will be address by the cultural small group.

The target is a level of funding adequate to meet each tribe's needs to participate in the Adaptive Management Program. Linkage: Vision/Mission statement, particularly the mention of federal trust responsibilities.

MO 50: NOTE: See the changes to MO 50 under "Proposed Changes to the Strategic Plan Document," above. The target is the new statement in the Comments column.

MO 51: NOTE: See the changes to MO 51 under "Proposed Changes to the Strategic Plan Document," above. The target is the new statement in the Comments column.

MO 52: The target is adequate public support for AMP experiments, adaptive management, and a diverse funding base. The small group should indicate what an adequate outreach program should consist of and how to measure the outcome. Some ideas for an outreach program are in the Comments column.

MO 53: The target is adequate funding to meet the goal.

MO 54: The target is contributions to meeting Information Needs by externally funded investigators. NOTE: Incentives could include donated office space, partial funding, letters of support, facilitated access, and logistical support.