

**Glen Canyon Dam Adaptive Management Work Group
AMWG Meeting Agenda Item Information
August 30-31, 2005**

<u>Agenda Item</u> Budget: Other Related Projects	
<u>Presenter</u> Dennis Kubly, Chief, Adaptive Management Group, Bureau of Reclamation	<u>Day and Time</u> August 30, 3:15-5:00 pm (shared)
<u>Previous Action Taken</u> √ By AMWG: In October 2004, AMWG heard a report recommending that a list be compiled of “projects external to the AMP which could affect the AMP.” This was intended to result in “a more comprehensive and collaborative process for maximizing information gain and exchange.” No objection was raised to compiling that list.	
<u>Action Requested</u> √ Information item only; we will answer any questions.	
<u>Background Information</u> √ I have attached the background information to be included in the AMWG packet that is distributed 30 days before the meeting, and posted on the website. √ If I bring updated handouts to the meeting, I will also bring a digital file of those handouts for posting on the website. The attached list is projects that are funded and implemented outside of the AMP, but which are related to the AMP’s work.	

Linkage Projects to GCDAMP in FY06
(Response to Inquiry from Budget Ad Hoc Group)

In September 2004, the BAHG voted to request the TWG to include in its budget development information from activities occurring in or near the CRE that could affect the GCDAMP.

Action: BAHG recommends to the TWG that identification of projects external to the GCDAMP but that would potentially influence GCDAMP activities be initiated for FY06-07 budget and that TWG members will bring forth information on their agency projects for that purpose to the BAHG early in their budget and workplan development cycle. This is intended to result in a more comprehensive and collaborative process for maximizing information gain and exchange.

The TWG agreed to this request at its September 2004 meeting, however, they did not take the appropriate steps to gather that information. This shortcoming was identified during a recent Core Monitoring Plan meeting in which the linkages with AMP activities was discussed. For example, in the event that appropriations are sought to supplement the AMP, it will be important to identify other projects occurring in the Grand Canyon region with similar purposes, including their objectives and funding sources. Examples that have been discussed by the TWG include the tamarisk control project and the tributary non-native fish investigations in Grand Canyon National Park. To correct this shortcoming, the following information was gathered. This is the first iteration of an effort to provide timely and complete information on other related projects occurring in or near the Colorado River Ecosystem as defined by the GCDAMP.

Grand Canyon National Park Natural Resource Linkages to the Adaptive Management Program

- Title of Project:** Routine sampling of 20+ tributaries along the river corridor near the confluence with the Colorado River
- Objectives:** Field parameters (base funded) with occasional lab processing as funding/partnership opportunities permit including bacteria, isotopes, nutrients, metals, and radionuclides. New sites have been visited over the year to complete inventory efforts of WQ at seeps and springs along the corridor.
- Geographic Area:** River Corridor
- Sponsor(s):** GRCA
- Approximate Funding and Sources:** Base funded with contributions from other sources as available (\$8,000)/year.
- Title of Project:** Long-term Discharge Monitoring at S. Rim Seeps and Springs
- Objectives:** Maintain stream gauges at 3 tributaries and collect discharge (and other water quality data) at 10 tributaries, 8 times per year.
- Geographic Area:** South Rim Redwall-Muav Aquifer Springs
- Sponsor(s):** GRCA
- Approximate Funding and Sources:** Base and Fee-Demo (\$50,000).
- Title of Project:** Complete and publish results of Water Chemistry Study from 30 plus sites, in cooperation with USGS. Sample additional wells in Tusayan and Williams areas as funded.
- Objectives:** Ground Water Flowpath Studies
- Geographic Area:** South Rim Redwall-Muav Acquirer Springs and wells
- Sponsor(s):** GRCA
- Approximate Funding and Sources:** Fee Demo, NPS-WRD, WAQAM (NPS, USGS Partnership Program) (\$200,000).
- Title of Project:** Conclude Geologic Mapping funded by GRCA/WASO-Water Resources Division in cooperation with USGS (looking at Ground Water flow pathways in Grand Canyon).
- Objectives:** To understand hydrogeology/ground water flow pathways
- Geographic Area:** Regional, Coconono Plateau and beyond
- Sponsor(s):** GRCA, NPS-WRD
- Approximate Funding and Sources:** NPS-WRD (\$200,000).
- Title of Project:** Conclude pilot project: Grand Canyon Springs/Ecosystems Coupled Models (NAU, USGS-BRD, NPS cooperators)
- Objectives:** To understand hydrogeology/ground water (GW) flow pathways and the effects of modeled GW decreases to the ecosystem.
- Geographic Area:** Cottonwood Creek, S. Rim GRCA
- Sponsor(s):** GRCA
- Approximate Funding and Sources:** Fee Demo (\$140,000).
- Title of Project:** Recently completed (not published yet) - Biologic Inventories of 20 Seeps and Springs along the South Rim. Solicited by the Park, cooperative effort with GCWC (Dr. Larry Stevens), and the State.
- Objectives:** To understand hydrogeology/ground water flow pathways and the potential effects of modeled ground water decreases to the ecosystem.

Geographic Area: South Rim Redwall-Muav Aquifer Springs
Sponsor(s): GRCA
Approximate Funding and Sources: State of Arizona, WPF, and NPS-WRD (\$200,000).

Title of Project: Cave and Karst Resource inventory work with partners (multi-discipline).

Objectives: Inventory work.

Geographic Area: GRCA

Sponsor(s): GRCA

Approximate Funding and Sources: Base funded and partnerships (\$8,000).

Title of Project: Archeological Site Excavations

Objectives: Achieve National Historic Preservation Act Section 106 compliance for NPS. Funds are being used to excavate 10 sites that have been identified as needing excavation through the GCDAMP 106 monitoring program. These sites experience some of the most extensive erosion, yet they still contain viable information. NPS has consulted with the State Historic Preservation Office and the Programmatic Agreement members, and the funds are now available to do the work.

Geographic Area: Grand Canyon National Park

Sponsor(s): NPS

Approximate Funding and Sources: \$1.2 million NPS funds

Title of Project: Tamarisk Management and Tributary Restoration

Objectives: This work focuses on the parks' tributaries and side canyons, with the removal of over 140,000 tamarisk trees removed from over 80 project areas to date. The current phase includes 35 project areas and expands the project to include other high priority species.. A new grant of more than \$250,000 was recently submitted to continue the project and to expand the efforts onto Hualapai Tribal lands, with development of this partnership. The efforts would further expand the number of target species to include all known, or newly-discovered populations of date palm (*Phoenix dactylifera*), reвенna grass (*Saccharum ravennae*), Russian olive (*Elaeagnus angustifolia*), Russian thistle (*Salsola tragus*), sahara mustard (*Brassica tournefortii*), sowthistles (*Sonchus* spp.) and tree of heaven (*Ailanthus altissima*) within the 30 target project areas and also within the main Colorado River corridor.

Geographic Area: Grand Canyon National Park

Sponsor(s): NPS in partnership with Grand Canyon National Park Foundation

Approximate Funding and Sources: \$189,000 State of Arizona Water Protection Fund

Title of Project: Rapid Site Inventory Program in the Colorado River Corridor

Objectives: Rapid site inventories are a fundamental tool for understanding backcountry recreation patterns, impacts, and issues. Because they provide a big picture examination and can be accomplished fairly quickly, they are typically the first recreation study recommended for evaluating use in a backcountry area. They also provide a baseline set of data for long-term campsite monitoring program. Each of 45 campsites is inventoried to record basic site information such as the presence of social trails, access trails, litter, human waste, archeological resources, invasive plant species, the number of tent sites, and site quality. The inventory also rates the appropriateness of

the campsite by recording the site's distance from the main trail, water sources, and archeological sites. These data build upon the more detailed Rapid Site Assessment data that is available for a smaller subset of the campsites in the river corridor. The program recently underwent a PEP review, June 2005, in cooperation with GCMRC.

Geographic Area: Grand Canyon National Park
 Sponsor(s): NPS
 Approximate Funding and Sources: This effort is funded, in part, by the CRMP implementation funds at \$20,000.

Title of Project: Condition Assessment and Restoration Prescription Program
 Objectives: Park vegetation managers have been revisiting many of the previously "rehabilitated" sites within the Colorado River corridor. They have re-taken photographs and begun to analyze change over time to determine which methods have most effectively mitigated human impacts. This effort currently lacks funding but has been supported by many volunteers and the Colorado River Fund's Cooperative Resource Conservation Program. Crews continue to document current site conditions in order to prepare for future rehabilitation efforts. GRCA staff are involved in GCMRC's review of its recreation monitoring program and hope to assist with the development of protocols and standards. Work is supported by NPS program budget (\$10,000) as time and funding allows.

Also, we continue the Vegetation Inventory and Monitoring Program in the backcountry. There is currently no funding for this effort; however, vegetation managers and volunteer botanists have been compiling species lists from many of the side canyons and have been documenting rare plant populations in order to update the park's information, including what is included in NPSpecies. The data will be used to initiate long-term monitoring efforts. Several of these species occur in the Colorado River corridor and others occur in areas that river visitors and backcountry users can readily access.

Geographic Area: Grand Canyon National Park
 Sponsor(s): NPS
 Approximate Funding and Sources: Work is supported by NPS program budget (\$10,000) as time and funding allows.

Wildlife Resources

- Continue funded Mexican Spotted Owl (MSO) surveys and radio tracking for Park planning and Endangered Species Act compliance purposes;
- Continue Condor nest watch and tracking (an overflights and Recovery issue for GCNP);
- Park project and Action Plan required surveys, or ESA consultation needs, that include big horn sheep, mountain lion, peregrine falcon, bald eagle, goshawk, small mammals, small vertebrates, and SWWFL populations in GCNP;
- Invasive species control and eradication on Bison herd on North rim;
- Continue with development of a Mexican Wolf Recovery Plan;

Air Quality

Continue air quality monitoring (including photography and optical visibility measurements, ozone, speciated fine particulates, wet and dry atmospheric deposition, visible and ultraviolet radiation, and meteorology) at six sites on south rim and two additional sites in canyon as part of various National Park Service and other national programs. Participate in state and regional air quality planning and organizations (especially the Arizona Department of Environmental

Quality and the Western Regional Air Partnership). Funding through Grand Canyon N.P. Air Resources Division, USGS, USDA UV-B Monitoring Program.

Vegetation Management

Development of a Vegetation Management Plan with the following components:

1. Invasive species and native plant communities inventory, assessment, and treatment options
2. Listed T&E species, and other species of special concern
3. Vital signs identification as part of a network level effort.
4. Vegetation mapping -- only focused on the completion of a grad sect analysis contract as current priority due to lack of funding. (No commitment to Inventory and Monitoring funding to continue these efforts.)
5. Vegetation sampling and monitoring -- preliminary draft only
6. Hazard tree management
7. Forest restoration (tied to park Fire Management Plan)

Implement "Trans-canyon corridor planting and vegetation maintenance" compliance document which provides vegetation management guidelines for NPS and concession staff to follow. This project will include work at the developed areas (Indian Garden, Phantom Ranch, Cottonwood, and Roaring Springs) within the trail corridor, including those areas assigned through a concession contract (i.e., Xanterra at Phantom Ranch). There is a need for a larger comprehensive site plan for these sites that includes trail, vegetation, and building maintenance. However, current staff and funding limitations prohibit this type of large-scale planning. In the interim, general vegetation maintenance will commence in September 2005 and will adhere to the guidelines set forth in the Indian Garden Cultural Landscape Report, with preparation for future vegetation planting beginning but only occurring on a limited basis until funding is acquired and additional interdivisional planning occurs.

** Funding of the above projects, when available, comes from the 20% Fee Demo Park program.*

Lower Colorado River Multi-Species Conservation Program (LCR MSCP) Resource Linkages to the Adaptive Management Program

Title of Project: Southwestern Willow Flycatcher surveys and nest monitoring
Objectives: To determine the number, location, and success of WIFL nesting within the riparian corridor.
Geographic Area: For AMP interests, this will extend from Separation Canyon downstream to Grand Wash Cliffs and from the full pool of Lake Mead.
Sponsor(s): LCR MSCP through the U.S. Bureau of Reclamation (Lower Colorado Region) out of Boulder City, Nevada. Contact: Lorri Gray
Undoubtedly, the Hualapai Tribe will be playing a major role in this effort for tribal lands along the river.
Approximate Funding and Sources: Amount of funding for projects specific to this area is not defined but the source of funding will be through USBR using LCR MSCP monies.

Title of Project: Razorback Sucker population surveys
Objectives: To record and track a vestigial population of razorback suckers.
Geographic Area: This program is primarily directed to Lake Mead; however, there is interest in determining whether razorback suckers from Lake Mead enter the Colorado River either for spawning or foraging.
Sponsor(s): LCR MSCP through the U.S. Bureau of Reclamation (Lower Colorado Region) out of Boulder City, Nevada. Contact: Lorri Gray
Also, Southern Nevada Water Agency has been the field work in Lake Mead. Contact: Zane Marshall at SNWA.
Approximate Funding and Sources: Specific amounts for individual efforts has not been defined but the overall effort is to be funded by the LCR MSCP.

Title of Project: Funding for Humpback Chub Conservation Efforts
Objectives: To provide money to the AMP to support implementation of planned, but unfunded, chub conservation measures and, as appropriate, to fund species conservation measures in the lower Grand Canyon.
Geographic Area: Within the AMP geographic boundaries, which is identified elsewhere as the Colorado River ecosystem.
Sponsor(s): LCR MSCP through the U.S. Bureau of Reclamation (Lower Colorado Region) out of Boulder City, Nevada. Contact: Lorri Gray
Approximate Funding and Sources: Proposed \$10,000/year for 50 years from the LCR MSCP through USBR.

Title of Project: Various
Objectives: Due to the nature of the LCR MSCP and its desire to implement conservation measures for 26 different species of animals and plants, the overlapping planning boundaries between it and the AMP will no doubt create future opportunities for collaboration and shared funding. This could include habitat enhancement, restoration, replacement, etc., as well as species augmentation within the AMP.
Geographic Area: The overlapping program boundaries occur from Separation Canyon (river mile 239.5), believed to be the defined upstream extent of the influence of Lake Mead on the Colorado River, downstream to Grand Wash Cliffs (river mile 276.5).
Sponsor(s): LCR MSCP through the U.S. Bureau of Reclamation (Lower Colorado Region) out of Boulder City, Nevada. Contact: Lorri Gray
Approximate Funding and Sources: Variable funding depending on the project. MSCP money will come through the USBR, Boulder City, Nevada.

Arizona Game and Fish Department
Resource Linkages
to the Adaptive Management Program

Title of Project: Lees Ferry Creel Survey
Objectives: Assess angler use, catch, harvest, and satisfaction at Lees Ferry
Geographic Area: GCD to Lees Ferry boat ramp
Sponsor(s): Arizona Game and Fish Department
Approximate Funding and Sources: \$15-20,000/year, Sport Fish and Wildlife Restoration funding

Other potential projects are not funded at this time (possible future investigations into parasite monitoring and control, investigation of methods to reduce fish handling, etc. Again, no funding lined up yet.