

GCMRC FY2004 Work Plan:

Attached is a copy of the redline/strikeout version of changes made to:
“GCMRC Fiscal Year 2004 Monitoring and Research Work Plan
(Revised Final dated May 5, 2003)” by Ted Melis on 6-26-03 showing
Cultural Resource project reprogramming to coincide with the budget.

Projects reprogrammed:

Project D.6. “Cultural Resource Synthesis and Status Report”

Project D.7. “Cultural Affiliation Study”

Please replace attached pages (77/78, 83/84, and 121-126) in your copy of
the plan that was distributed to the AMWG and the TWG (with Denny
Fenn’s memo dated May 6, 2003).

After anticipated approval by the AMWG at it’s August 13-14, 2003,
meeting, the plan will be finalized and distributed to the AMWG and the
TWG.

Note:

- an underline indicates an addition (or “redline”) of text
- “strikeout” indicates deletion of text
- vertical lines in the margin indicate a change has been made to that area on the page

integration with other biological and physical resource programs. GCMRC staff will conduct this project internally, although some analyses may be contracted.

External Project Awards: None

Project Accomplishments: Substantial temperature data was gathered during the LSSF experiments throughout the mainstem and in FY 2001. FY 2002 began a process of integration with fisheries and foodbase work and responsiveness to the Aquatic PEP Report.

Schedule: Sampling regimes and schedules are being developed as part of the IWQP five-year plan.

Budget: \$179,000

INTEGRATED WATER QUALITY MONITORING - DOWNSTREAM		FY-2002	FY-2003	FY-2004
Salary (includes benefits)				
Biology Program Manager	1.00	6,230	5,150	5,000
Biologist - Aquatic	2.00	3,000	12,800	6,000
Hydrologist	0.00	29,000	24,000	0
Hydrologist - Limnologist	17.10	29,000	19,200	53,000
Hydrologic Technician	18.00	12,000	10,400	36,000
Ecologist		1,200	0	0
Biology Student		850	0	0
Contracts				
Biology		84,000	46,000	43,000
Technical Support Services				
Logistics		15,700	32,000	36,000
TOTAL		180,980	149,550	179,000

Pay periods are bi-weekly. One year has 26.1 pay periods.

C. INTEGRATED TERRESTRIAL AND AQUATIC ECOSYSTEM ACTIVITIES

ONGOING PROJECTS:

PROJECT TITLE AND ID: C.1a. INTEGRATED LONG-TERM MONITORING OF FINE-GRAINED SEDIMENT STORAGE THROUGHOUT THE MAIN CHANNEL

Rationale/Problem Statement: Relationships between Glen Canyon Dam operations, fine-sediments input from gaged and ungaged tributaries below the dam, and interrelated downstream biological, socio-cultural resources are of primary management concern. This is true owing to the fact that sand bars are the primary substrate along many shoreline areas of the ecosystem. Monitoring data on fine-grained (sand and finer) deposits, linkages with physical habitats and relationships to non-physical resources and processes offer insight on the effectiveness of the Secretary's 1996 Record-of-Decision (ROD), relative to management objectives.

Annual-to-biennial monitoring of fine-grained sediment storage provides information: (1) on the status of near-shore aquatic and terrestrial habitats where vegetation and associated fauna, socio-cultural resources are of management concern; (2) on the availability of fine-grained sediment that can be periodically manipulated through controlled floods to preserve and sustain downstream resources dependent on fine sediment; (3) on identification and interpretation of linkages between dam operations and changes in physical habitats and related ecosystem resources. All three areas of information support science-based evaluations of large-scale flow experiments (e.g., the Secretary's actions), and associated decision responses required for adaptive management to succeed.

Integration: Fine-sediment deposits along the main channel form many physical habitats for both terrestrial and aquatic organisms of the ecosystem, including ~~ethno-botanical resources.~~ Fine-grained deposits are also sources and sinks for nutrients, recreational campsites and settings for in-situ preservation of cultural resources, with emphasis on role of aeolian processes. Information on the distribution and characteristics of these deposits must be measured in ways that can be related to dam

data throughout the ecosystem, as well as annual data on changes in camping areas. The project has also been working toward completion of a decade-scale comparison (1990 to 2000) of changes in sand deposits within key reaches related to return-current channels (backwaters) and pre-dam river terrace deposits. New advances include methods for capturing very high-resolution data for channel-bed topography, bed substrates, as well as digital imagery of substrate grain-size distributions. This project is also producing digital ortho-photogrammetry data for sand bar area and volume at 45 pre-existing study sites. The purpose of this work is to extend the time series of those sites from 10 years (1991-2001) to 17 years (1984-2001). In addition, this project is also exploring new ways to use LIDAR data and ortho-rectified remote imagery to enhance the efficiency of change-detection mapping of sandy deposits.

Schedule: This ongoing, long-term monitoring program will enter its fourth year in FY 2004, and will be continued through FY 2005, under the modified budget and work plan, through annual modification of the FY 2001 agreements. During FY 2005, this monitoring program's scope, methods and accomplishments shall be evaluated through an additional PEP-SEDS review. During the external review process, special focus will be placed on the level of integration achieved with biological, cultural and recreational resource management issues, as well as revised management objectives and information needs. The monitoring project shall be continued as phase II, from FY 2006 through 2010, following the PEP review, and approval of funding.

Integrated Fine-Sediment Storage Monitoring Project Time Line 2001-2005:

	2001	2002	2003	2004	2005
Project Solicitation Released, October 2000	Three New Agreements, in 2001	Renewed as Modification, Winter 2002	Renewed as Modification, Winter 2003	Renewed as Modification, Winter 2004	Renewed as Modification, Fall 2005
Integrated, Reach-Based Field Data Collection/Analysis (12 reaches), plus Selected Camping Areas & Sand bars	Planning for Reaches, plus Collect <u>Annual</u> Camp Areas & Sandbars	Collect Biennial Reach Data, plus <u>Annual</u> Camp Areas & Sandbars	Processing Reach Data, plus <u>Annual</u> Camp Areas & Sandbars	Collect Biennial Reach Data, plus <u>Annual</u> Camp Areas & Sandbars	Processing Reach Data, plus Collect <u>Annual</u> Camp Areas & Sandbars
Report and Data Delivery	Semiannual and Annual	Semiannual and Annual	Semiannual and Annual	Semiannual and Annual	Draft Final Reports
Project Technical Coordination, plus Review/Evaluation	Monthly to Annually, GCMRC	Monthly to Annually, GCMRC	Monthly to Annually, GCMRC	Monthly to Annually, GCMRC	Externally Reviewed PEP & SA
Scheduled Project Progress and Completion Dates	Progress Report, by 12/31/01	Progress Report, by 12/31/02	Progress Report, by 12/31/03	Progress Report, by 12/31/04	Final Reports by June 30, 2006

Budget: \$385,000 \$459,000

FINE-GRAINED SEDIMENT STORAGE	FY-2002	FY-2003	FY-2004
Salary (includes benefits) Pay periods:			
Physical Program Manager 4.10	8,900	8,500	16,000
Physical Resources Student 9.00		5,200	12,000
Biological Scientist	1,780	0	0
Ecologist	1,200	0	0
Cultural Program Manager 1.00	1,780	4,500	3,000
Contracts			
Biology	31,000	32,000	0
Cultural	87,000	75,000	25,000 91,000
Physical	230,000	237,000	259,000
Technical Support Services			
Logistics	117,600	52,000	57,000
Survey (Surveyor) 3.00	12,900	8,200	10,000
GIS 1.00		4,000	3,000
TOTAL	492,160	426,400	385,000 \$459,000

Pay periods are bi-weekly. One year has 26.1 pay periods.

Notes: The reduced budget (16 percent) for this core-monitoring project will limit the emphasis on integration of physical and ~~cultural~~ biological data. Additionally, biennial measurements in FY 2004 shall be made in only 8 of the 11 originally designated monitoring reaches with emphasis on the upper one-third of the ecosystem, where sediment resources have been most readily impacted and fine sediment conservation is of critical concern. Funds reprogrammed from D.6 and D.7 shall be used to support additional studies on the role of aeolian processes near archaeological preservation sites.

Budget: \$21,000

PUBLIC OUTREACH INVOLVEMENT PLAN IMPLEMENTATION		New in FY-2003	FY-2004
Salary (includes benefits)	Pay period:		
Cultural Program Manager	1.00	4,500	3,000
Cultural Assistant0	6.00		8,000
Contracts			
Cultural		30,000	10,000
TOTAL		34,500	21,000

Pay periods are bi-weekly. One year has 26.1 pay periods.

PROJECT TITLE AND ID: D.6. CULTURAL RESOURCE SYNTHESIS AND STATUS REPORT

Rationale/Problem Statement: A status of cultural resources within the CRE is important to on-going and future activities. Several groups collect data concerning these resources. Synthesizing this information from all sources provides the most comprehensive report of the current status of the resources.

Integration: To achieve an ecosystem level of understanding of the relationships between resources of the Colorado River and Glen Canyon Dam operations, integration of long term monitoring between physical, cultural, biological, and recreational resources is required. This project will provide a means to disseminate cultural resource information concerning the ecosystem resources.

General Project Description: A synthesis of the current status of socio-cultural resources is briefly presented in the annual SCORE report. Given the number of projects and efforts within the Tribal groups, NPS, Reclamation and GCMRC, this information needs to be consolidated and coordinated to provide current and comprehensive information for these resources. This project will incorporate data from these sources and provide a general synthetic report of the knowledge gained from these projects and integrated across resource areas. In addition, this project will integrate information from the terrestrial monitoring projects with other cultural data. As additional projects from other resource areas develop

cultural components they will be included within the synthetic data. The report will be developed in-house by GCMRC through collaboration within AMP stakeholders.

Project Goals and Objectives:

- Coordinate data collected from stakeholder and GCMRC projects to provide up to date synthetic report on resources.
- Provide more comprehensive knowledge to the SCORE report.

MOs Addressed: This project addresses current cultural resource management objectives, MOs 11.1, 11.2.

Expected Products:

- Conduct workshops at GCMRC to share and collaborate on data obtained from projects
- Provide an improved, more comprehensive socio-cultural component to the SCORE report.

Recommended Approach/Methods: This project will be organized by GCMRC staff and will consist of a data collection and analysis and a series of workshops to share the results of information collected by various groups on projects conducted those groups. GCMRC staff will draft a resource status report based on this data sharing. The report will be incorporated in the SCORE report.

Status: This project was originally approved in FY 2003 and is on-going in FY 2004.

——— **External Project Awards:** This project will be conducted in-house at GCMRC; there will be not external awards.

——— **Project Accomplishments:** There are no accomplishments to date, as this project has not been initiated.

Schedule Project Time Line FY 2004:

Spring	Summer	Fall	Winter
Workshops to discuss existing project data	Data collection	Workshops Data compilation	Report write up

Budget: \$10,000 \$0

CULTURAL RESOURCE SYNTHESIS & STATUS REPORT		New in FY-2003	FY-2004
Salary (includes benefits)	Pay periods:		
- Cultural Program Manager	1.00	4,500	3,000
- Cultural Assistant	6.00		1,000
Other Operating Expenses (workshops)		10,000	6,000
TOTAL	--	14,500	10,000 0

Pay periods are bi-weekly. One year has 26.1 pay periods.

Project eliminated in FY04, funds reprogrammed to Project C.1, Aeolian Process Studies Near Archaeological Sites.

PROJECT TITLE AND ID: D.7. CULTURAL AFFILIATION STUDY

Rationale/Problem Statement: The tribes involved in the AMP have previously provided information about their oral tradition and tribal history as related to the canyons. However, this information is in separate reports and the level of information is uneven. The existing information has not been assessed in a comprehensive manner nor has it been evaluated for either compliance or research purposes. The goal of this study is to evaluate the comparability and comprehensiveness of the available tribal information as it relates to Native American Graves Protection and Repatriation Act (NAGPRA), and identify where information is unavailable. NAGPRA is a responsibility of the NPS and Reclamation. This project will provide information that will assist them in meeting that responsibility. In addition this project will assist stakeholders in management decision for resources and potential impacts to these resources.

Integration: To achieve an ecosystem level of understanding of the relationships between resources of the Colorado River and Glen Canyon Dam operations, integration of long term monitoring between physical, cultural, biological, and recreational resources is required. This project will evaluate the tribal information and how it is presented utilizing the underlying NAGPRA requirements as a baseline standard and contribute information on the cultural resources that form part of the ecosystem.

General Project Description: This is an ethnographic project that is a companion project to the research design that is being prepared for the Historic Preservation Plan under PA

program. This project will be contracted to an expert in oral traditions, ethnohistory, folklore, and anthropology. The contractor, utilizing tribal and other reports generated by the Glen Canyon Environmental Studies, Grand Canyon Monitoring and Research Center, published ethnographic sources, the Human Relations Area Files, and/or other available sources of information, will evaluate whether the extant information is comprehensive enough to address the tribal connections and cultural affiliation to the various earlier identified cultural groups within the Grand Canyon. These cultural groups are represented through the archeological sites, historic sites, and other material culture. Based on the outcome of this study, additional projects to address information gaps will be proposed. Examples may include work on linguistics, biology, archaeology, geography, history, etc.

Project Goals and Objectives:

- Compile and synthesize the existing information
- Present the information in a comprehensive, coherent document.
- Document will also evaluate the temporal validity of the information with respect to the various earlier identified cultural groups expressed in the canyon.
- Document will serve as one of the lines of evidence for cultural affiliation of the tribes as it applies to compliance with NAGPRA.

MOs Addressed: This addresses MOS in goals 11 and 12.

Expected Products:

- One report synthesizing and compiling the existing folklore, oral tradition, anthropological tribal information.
- The report will evaluate how this information relates to specific archaeological sites, archaeological cultures, temporal periods, and/or geographic areas within the canyons.
- The contractor and the GCMRC will transmit the draft report to each of the tribes for their review and comment. The tribes will be asked to evaluate and correct respective ethnographic information in the report, and to add additional information, as appropriate.
- The information provided by the tribes will be incorporated into a final report.

- The final report will serve as one of the lines of evidence in a comprehensive affiliation study and assist managers in their decisions concerning cultural resources.

Recommended Approach/Methods: This project will be conducted by a contracted expert in the oral traditions, ethnohistory, folklore, and anthropology. The contractor will evaluate the existing tribal information to determine if the information is comprehensive enough to address the tribal connections and cultural affiliation of the various groups to the Canyon. The synthesized information will be presented in a comprehensive, coherent document.

Based on the results of the information review, additional projects may be proposed to address information gaps. This project may be advertised through the RFP process or through an alternative process determined by the tribal groups in consultation with GCMRC. All project proposals, will be subject to external peer review.

Status: This project is new for FY 2004.

—— **External Project Awards:** There are no awards to date, as this project has not been initiated.

—— **Project Accomplishments:** There are no accomplishments to date, as this project has not been initiated.

Schedule: The duration of this project is 12 months from the time of award.

Fall	Winter	Spring	Summer
Project initiation and award of contract. Initial review of tribal information	Continued information review and assessment. Discussions with tribal groups	Draft report to GCMRC and discussions with tribes.	Development of final report and recommendations for additional work.

Budget: \$64,000 \$0

CULTURAL AFFILIATION STUDY -		-	-	New in FY 2004
Salary (includes benefits)	Pay periods:	-	-	-
- Cultural Program Manager	1.00	-	-	3,000
- Cultural Assistant	8.10	-	-	11,000
Contracts	- -	-	-	-
- Cultural	- -	-	-	50,000
Technical Support Services		-	-	-
- Logistics	- -	-	-	-
TOTAL	- -	-	-	64,000 0

Pay periods are bi-weekly. One year has 26.1 pay periods.

Project eliminated in FY04, funds reprogrammed to Project C.1, Aeolian Process Studies Near Archaeological Sites.

PROJECT TITLE AND ID: D.8. EXPERIMENTAL FLOWS

Discussions concerning experimental flow treatments are ongoing. To date, specific treatments have been proposed for FY 2004. An overview of the long-term experimental flows program is provided here and a preliminary budget figure which may support some but not all of the additional research and monitoring required is presented.

General Project Description: In response to the AMWG motion passed on January 18, 2002, the Grand Canyon Monitoring and Research Center (GCMRC) is recommending a program of annual experimental treatments spanning a multi-year time period rather than a single year flow scenario. The decision to expand from the specific directive of the motion to develop a single year flow scenario is motivated by the desire of GCMRC to forward a recommendation that embraces a defensible experimental design and is consistent with the principles of ecosystem science and adaptive management. If the experimental design proposed in this document is adopted by the AMWG, each treatment (e.g., high fluctuating flows from January through March) is proposed for two years. If the monitoring program measures unintended or adverse affects from a treatment, a proposal to end the treatment will be considered.

The notion that the evaluation of a single experimental flow scenario evaluated for a single year will lead to improved learning in an adaptive management framework has been repeatedly criticized. These criticisms are founded, most basically, in the recognition that an