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GCMRC FY 2019 Proposed Budget

Technical Work Group Meeting
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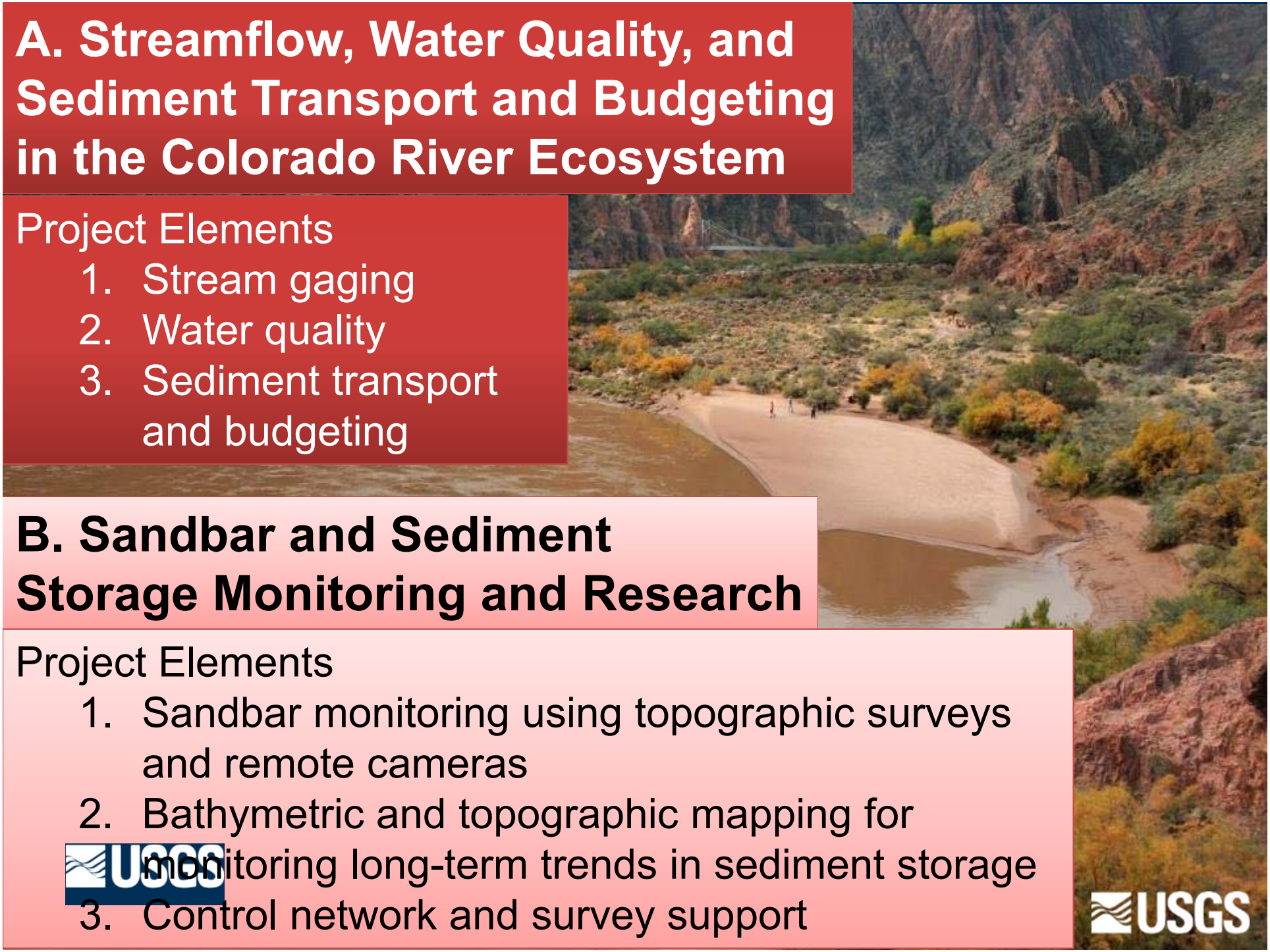
U.S. Department of the Interior
U.S. Geological Survey

A. Streamflow, Water Quality, and Sediment Transport and Budgeting in the Colorado River Ecosystem

Project Elements

1. Stream gaging
2. Water quality
3. Sediment transport and budgeting



B. Sandbar and Sediment Storage Monitoring and Research

Project Elements

1. Sandbar monitoring using topographic surveys and remote cameras
2. Bathymetric and topographic mapping for monitoring long-term trends in sediment storage
3. Control network and survey support

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C. Riparian Vegetation Monitoring and Research

Project Elements

1. Ground-based riparian vegetation monitoring
2. Imagery-based riparian vegetation monitoring at the landscape scale
3. Vegetation responses to Long-Term Experimental and Management Plan (LTEMP) flow scenarios
4. Vegetation management decision support

D. Geomorphic Effects of Dam Operations and Vegetation Management for Archaeological Sites

Project Elements

1. Geomorphic effects of dam operations and vegetation management
2. Cultural resources synthesis to inform Historic Preservation Plan

E. Nutrients and temperature as ecosystem drivers: understanding patterns, establishing links and developing predictive tools for an uncertain future

Project Elements

1. Temperature and nutrients in the Colorado River ecosystem – patterns, drivers, and improved predictions
2. Linking temperature and nutrients to metabolism and higher trophic levels

F. Aquatic Invertebrate Ecology (Food Base)

Project Elements

1. Influence of dam operations on the food base
2. Aquatic food base status at humpback chub monitoring locations
3. Terrestrial-aquatic linkages
4. Glen Canyon food base monitoring and research
5. Are undesirable shifts in the Glen Canyon prey base facilitating expansion of brown trout?

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G. Humpback chub population dynamics throughout the Colorado River Ecosystem

Project Elements

1. Humpback chub population modelling
2. Annual spring/fall humpback chub abundance estimates in the lower 13.6 km of the Little Colorado River (LCR)
3. Juvenile chub monitoring near the LCR confluence
4. Remote PIT array monitoring in the LCR
5. Monitoring humpback chub aggregation relative abundance and distribution
6. Juvenile chub monitoring – West
7. Chute Falls translocations
8. Havasupai translocation feasibility (FY2020)
9. Backwater seining

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H. Salmonid Research and Monitoring

Project Elements

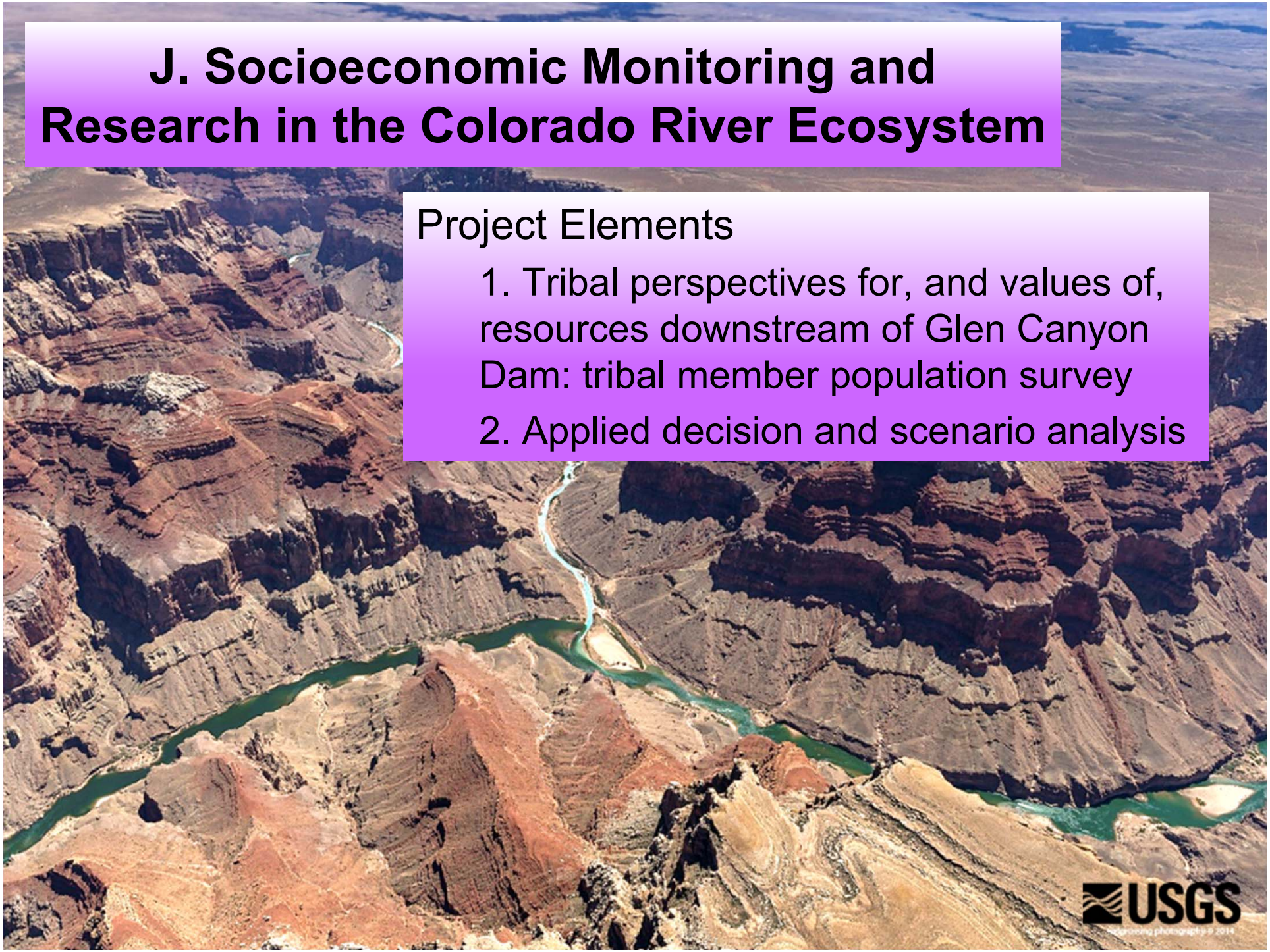
1. Experimental flow assessment of trout recruitment
2. Rainbow trout and brown trout recruitment and outmigration model
3. Using early life history and physiological growth data from otoliths to inform management of rainbow trout and brown trout populations in Glen Canyon
4. Rainbow trout monitoring in Glen Canyon

I. Warm-Water Native and Non-Native Fish Research and Monitoring

Project Elements

1. System-wide native and invasive aquatic species monitoring
2. Improved early detection of warm-water invasive fish
3. Assess the risks warm-water nonnative fish pose to native fish

J. Socioeconomic Monitoring and Research in the Colorado River Ecosystem



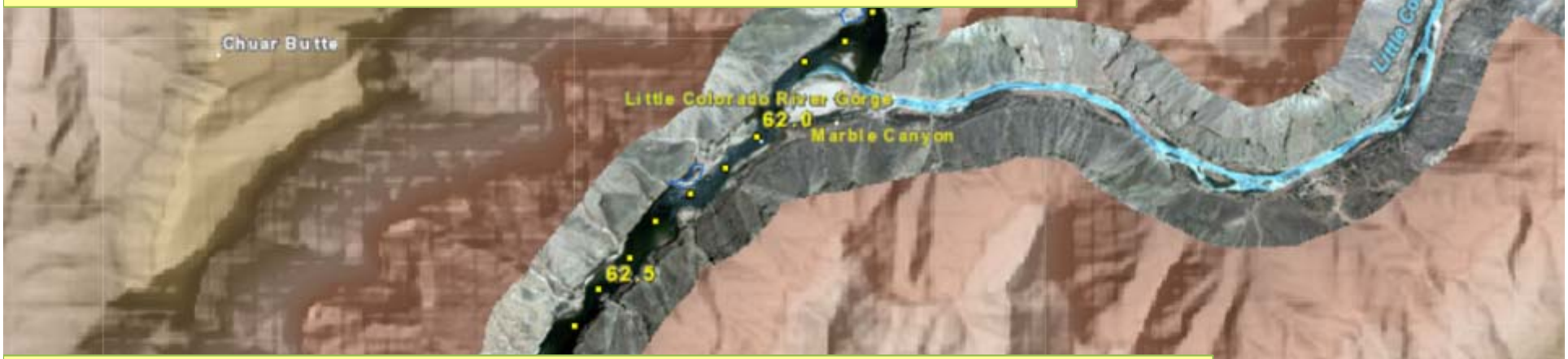
Project Elements

1. Tribal perspectives for, and values of, resources downstream of Glen Canyon Dam: tribal member population survey
2. Applied decision and scenario analysis

K. Geospatial Science and Technology

Project Elements

1. Geospatial data management, processing and documentation
2. Access to geospatial data holdings
3. Remote monitoring systems and technological engineering



L. Remote Sensing Overflight in Support of Long Term Monitoring and LTEMP

Project Elements

1. Remote sensing overflight in support of long term monitoring and LTEMP

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M. Administration

Project Elements

1. Administration
2. Logistics
3. IT

N. Hydropower Monitoring and Research

Project Elements

1. Hydropower monitoring and research

New USGS Flagstaff Science Building and Overhead Projection

- New GSA contract with City of Flagstaff by end of FY 2018, but as early as ~~May~~ June(?)
- New building expected to be completed within 18 months of contract signing
- Overhead does not increase until building is occupied
- FY 2019 overhead on GCDMAP funds: Current projection ~ 15.5%, pass-through rate = 3.0%
  - Rates unchanged from FY 2018

FY 2019 Proposed Budget Revisions

- Revised budgets using reduced overhead rate
- Eliminated use of Native Fish Conservation Contingency Fund
- Increased salaries to retain key capacities/staff (Projects A, C, E, G, H, I, K)
- Increased cooperative agreements to partially offset previous reductions (AGFD, USFWS)
- Added a project element to design future Trout Management Flows

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FY2019 Proposed Budget Revisions

Project	Project Element(s)	Net Amount	Justification
A	A.1, A.2, A.3	$16,000	Restoration of GCMRC technician salaries to allow for additional collection and faster processing of water-quality samples as well as to ensure timely maintenance of water-quality gages.
C	C.2	$48,000	Restoration of GCMRC scientist salaries to allow for more timely analysis of remote sensing data of sand changes in areas of bare sand and campsites; development of maps of change associated with sand encroachment by vegetation; and analysis of vulnerability of areas of bare to sand to vegetation encroachment.
E	E.2	$35,000	Restoration of GCMRC technician salaries in support of conducting mesocosm experiments evaluating links between nutrients and ecosystem food-web dynamics. Provides a technician to conduct lab work, freeing up PI to focus effort on analysis and interpretation thus ensuring timely reporting of results.
G	G.1, G.2, G.3, G.5, G.7, G.9	$55,000	Restoration of GCMRC staff scientist in support of humpback chub population modeling to ensure the timeliness of reporting of annual population estimates. Also provides field technicians for monitoring of juvenile chub at the LCR confluence, in mainstem aggregations, and in backwaters, freeing up PI to focus on analysis and interpretation thus ensuring timely reporting of results. Restoration of cuts to funding for USFWS to ensure adequate staffing for monitoring of humpback chub in the LCR and mainstem aggregations and conducting Chute Falls translocations.
H	H.1, H.2, H.4	$25,000	Restoration of GCMRC scientist salaries to help evaluate the effects of experimental flows and GCD operations on trout recruitment and to develop a trout outmigration model thus ensuring the timeliness of reporting of the effects of experimental flows and other operations on trout reproduction, survival, distribution, and movement. Restoration of cuts to funding for AGFD to ensure adequate staffing for Lees Ferry trout monitoring.
I	I.3	$24,000	Restoration of GCMRC technician salaries to conduct laboratory experiments on the impacts of warm-water invasive fishes on native species, thus freeing up PI to spend additional time on analysis and reporting of results.
K	K.2, K.3, K.4	$53,000	Restoration of GCMRC staff salaries to provide GIS support including programming and analysis tasks, web-based application and interactive map development, and geospatial data processing and documentation in support of GCMRC projects thus avoiding delays in the development of products and serving of data.

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Net Total $256,000 **Gross Total $290,000**

FY2019 Proposed Budget Revisions

Project	Project Element(s)	Amounts Presented to BAHG	Revised Amounts
A	A.1, A.2, A.3	$36,000	$16,000
C	C.2	$52,000	$48,000
E	E.2	$38,000	$35,000
G	G.1, G.2, G.3, G.5, G.7, G.9	$67,000	$55,000
H	H.1, H.2, H.4	$38,000	$25,000
I	I.3	$29,000	$24,000
K	K.2, K.3, K.4	$58,000	$53,000
	Net Total	$318,000	$256,000
	Gross Total	$360,000	$290,000

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FY2019 Proposed Budget By Project

Project	Project Description	Proposed
A	Streamflow, Water Quality, and Sediment Transport and Budgeting in the Colorado River Ecosystem	$1,201,000
B	Sandbar and Sediment Storage Monitoring and Research	$1,050,000
C	Riparian Vegetation Monitoring and Research	$515,000
D	Geomorphic Effects of Dam Operations and Vegetation Management for Archaeological Sites	$269,000
E	Nutrients and Temperature as Ecosystem Drivers: Understanding Patterns, Establishing Links and Developing Predictive Tools for an Uncertain Future	$254,000
F	Aquatic Invertebrate Ecology	$746,000
G	Humpback Chub Population Dynamics throughout the Colorado River Ecosystem	$1,637,000
H	Salmonid Research and Monitoring	$709,000
I	Warm-Water Native and Non-Native Fish Research and Monitoring	$581,000
J	Socioeconomic Research in the Colorado River Ecosystem	$237,000
K	Geospatial Science and Technology	$274,000
L	Remote Sensing Overflight in Support of Long-term Monitoring and LTEMP	$75,000
M	Administration	$1,356,000
N	Hydropower Monitoring & Research	$12,000
	GCMRC Total Budget	$8,916,000

(Amounts rounded to nearest $1,000)

FY 2019 Proposed Budget Summary

	Proposed Estimate
GCMRC Total Budget	**$8,916,000
Anticipated GCMRC AMP Funds (80%)*	**$9,014,000
Over/Under Budget	**$98,000
Additional Funding:	
Native Fish Conservation Contingency Fund	$0
Anticipated Carryover (From Previous FY)	$175,000
Total	$273,000
Funds Planned to Carryover to FY2020	($162,000)
Remainder	**$111,000
New Projects: Trout Management Flow Design Work	**$111,000

Lake Powell: $71,000 (Not Funded by GCDAMP). Waiting for funding obligation.

*Consumer Price Index (CPI) FY18 = 2.2%, **FY19 = 1.0 %

** Preliminary, subject to revision

(Amounts rounded to nearest $1,000)


Questions?
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