



United States Department of the Interior
U.S. GEOLOGICAL SURVEY
SOUTHWEST BIOLOGICAL SCIENCE CENTER
GRAND CANYON MONITORING AND RESEARCH CENTER
2255 NORTH GEMINI DRIVE, MS-9394
FLAGSTAFF, ARIZONA 86001
928 556-7094 Telephone
928 556-7092 Fax

February 13, 2009

MEMORANDUM

To: Technical Work Group

From: John Hamill, Chief, Grand Canyon Monitoring and Research Center, Southwest Biological Science Center, US Geological Survey, Flagstaff, Arizona

Subject: Preliminary Fiscal Year 2010-11 Glen Canyon Dam Adaptive Management Program Budget

Attached is the subject budget for your consideration. The draft budget was developed based on guidance provided in the:

- Monitoring and Research Plan (MRP) to Support the Glen Canyon Dam (GCD) Adaptive Management Program (AMP) which was approved by the Adaptive Management Work Group (AMWG) in August 2007, and
- The March 2008 Environmental Assessment (EA) and related Conservation Measures included in the recent Fish and Wildlife Service Biological Opinion (BO) on the operation of GCD.

In addition, GCMRC considered input from the Budget Ad Hoc Work Group in formulating this budget proposal. An amended MRP to reflect the EA and BO will be sent out around the end of the month for review at the next TWG meeting.

The purpose of the preliminary budget is to identify the priorities for the FY 10-11 work plan, including ongoing project, discontinued projects, and new initiatives. The preliminary budget will provide the basis for the development of the FY 10 11 work plan. The proposed budget provides for the continued implementation of a number of ongoing projects included in the approved FY 09 Work Plan and Budget, although funding for projects was adjusted to reflect cost of living increases, increased salary costs, logistical support, past performance, etc. Major emphasis in FY 10 and 11 will be to provide increased emphasis on data analysis and reporting and moving several projects from R&D to Core Monitoring status.

General descriptions of each of the ongoing projects can be found in the MRP; more detailed descriptions are contained in the FY 09 AMP Work Plan and Budget. Major changes or revisions to the FY 10-11 budget proposal include:

Goal 2 Native Fishes

- Establishment of mainstem fish monitoring and LCR monitoring as a Core Monitoring Projects beginning in FY 10 (BIO2.M1.10 and BIO2.M2.10, respectively). The scope and budget for these monitoring efforts will be determined based on the outcome of the PEP review planned for May 2009. For the purposes of the preliminary budget we assumed that funding levels for these efforts would continue at FY 09 levels, adjusted for inflation.
- Transfer lead and funding responsibility for the nonnative fish control project (BIO2.R16.09) to an appropriate management agency beginning in FY 10. GCMRC believes this is no longer a research or experimental activity, and as such, is more appropriately implemented by a management agency using funding from outside the AMP science budget. GCMRC will continue to design and oversee monitoring efforts for this action and possibly provide logistical support, if needed. Our primary concern is that funding major management or compliance actions will seriously erode the AMP science program over time.
- Establishing a new project in FY 11 to provide science support for implementation of the Non Native Fishes Management Plan that will be completed in FY 10 (BIO2.R17.11).
- Providing GCMRC biology staff support associated with the Mainstem Fish Survival Project (BIO2.R9.10) to work with the GCMRC's Senior Ecologist to develop more robust ecosystem models (PLAN12.P1.10).
- Beginning in FY 10, direct funding from the nonnative control pilot testing project (BIO2.R.6.09) to the Mainstem Fish Monitoring project (BIO2.M4.10) to increase the ability to detect changes in abundance or distribution of nonnative fishes.

Goal 4. Rainbow Trout

- Establishment of Lees Ferry Trout monitoring as Core Monitoring Project beginning in FY 10 (BIO4.M2.10). The scope and budget for the monitoring effort will be determined based on the outcome of the PEP review planned for May 2009. For the purposes of the preliminary budget we assumed that funding levels for trout redds, larvae, and adults monitoring would continue at FY 09 levels, adjusted for inflation.

Goal 6. Riparian/Springs

- Establishment of vegetation mapping and transects as Core Monitoring Project beginning in FY 10 (BIO6.M1.10 and BIO2.M2.11, respectively). Vegetation mapping would occur every four years, following system-wide remotely sensed overflights (for example, in FY10-11, following 2009 imagery data collection), while vegetation transects would be conducted in the field every other year beginning in FY 11.
- Establishment of a revived terrestrial habitat monitoring project (BIO6.R4.10) focused on arthropod. Terrestrial monitoring would focus on selected avifauna and arthropods as indicator species for ecosystem responses to dam operations and the associated monitoring protocols would be conducted every other year beginning in FY 10 (alternating with vegetation transects).
-

Goal 7 Quality of Water Monitoring & Modeling Research and Support

- Enhanced research and development of flow, temperature and sediment modeling during FY09-10, with a default of returning to lower level of ongoing funding support of

modeling linked with water quality monitoring in FY11 and beyond.

- FY11 support level contingent upon evaluation of progress made by end of FY10 relative to management needs for enhanced predictive capabilities.
- If enhanced R&D in model development needs to continue in FY11, then additional funding will be required above the basic modeling support linked with water quality monitoring shown in the draft budget.

Goal 8. Sediment

- Suspend channel and sandbar mapping in FY 10 and focus on analysis and reporting of data collected in FY 09 and before (proof of concept for managers to evaluate relative to identified sediment monitoring information needs). If this sediment monitoring protocol moves from provisional to approved for long term implementation, then beginning in FY 11, channel mapping will occur annually and measurements at the NAU sandbar study sites would occur every other year.

Goal 9 Recreation

- Suspend sandbar and campground mapping field work in FY 10 (REC9.R1.10) and focus on analysis and reporting of data collected in the past, and PEP Review to determine the scope and direction of future monitoring.
- Establish sand bar and campable area monitoring (REC9.M1.11) as a Core monitoring Project beginning in FY 11
- Include staff support for maintenance, updating and analysis of the information in the GIS Campsite Atlas (REC9.R3.10).
- Discontinue the project to compile and analyze existing safety data

Goal 11 Cultural

- Reduce the scope and budget of the archaeological site monitoring R& D project to eliminate NPS funding, and reduce survey and cooperator support in FY10 and 11; assumes closer integration with NPS-funded monitoring efforts beginning in FY09. A final PEP review will be conducted in FY11 to determine the long term monitoring program.

Goal 12. DASA

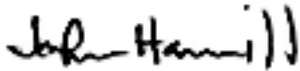
- Following the 2009 remote sensing overflight mission, establishment of a new initiative (DASA12.D9.10) intended to achieve more highly integrated monitoring, analyses and reporting - coordinate/manage various remote sensing imagery acquisition, processing and change detection projects including vegetation mapping, Legacy Data Conversion, Goal 8 Channel Change, and sandbar and campable area mapping/change detection. Funding is derived from existing projects (Legacy data conversion, Integrated Analysis & Modeling),
- Establishment of a new initiative to synthesize the results of the 1996, 2004, and 2008 HFE using a portion of the Experimental Funds (DASA12.D10.10),
- Establishment of a new initiative to provide study design and statistical support for GCMRC science projects (DASA12.D8.10).

To achieve a balanced budget a number of projects had to be scaled back to accommodate the increased funding being requested for several new or expanded projects and for other non-discretionary increases in costs for continuing projects. These adjustments are noted in the attached spreadsheet.

The preliminary budget does not account for a potential High Flow Experiment in FY 10/11. Currently, a HFE has not been authorized for FY 10/11. Beginning in FY 10, approximately \$400,000 should be available to support additional experimentation. GCMRC estimates the study costs for conducting the next HFE test at approximately \$500,000 to \$750,000.

After considering recommendations from the TWG, AMWG and DOI agencies, GCMRC, consistent with our established process, will develop detailed work plans for each of the projects that will be submitted to the Budget Ad hoc Group, TWG and AMWG for final review and consideration.

Your participation in this review process is appreciated.

A handwritten signature in black ink that reads "John Hamill". The signature is written in a cursive style with a double vertical line at the end.

JOHN HAMILL
Chief, GCMRC

Attachment
cc Secretary's Designee

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1				ID	Project Descriptions	Approved BOR FY09 Budget (incl 4.9% CPI increase)	BOR Estimated FY10 Budget (3% CPI over FY09)	BOR Estimated FY11 Budget (3% CPI over FY10)						
2	Reclamation Administration Power Revenue Under Cap Funded Projects													
3	A Adaptive Management Work Group													
4	1				Personnel Costs	176,747	182,049	187,511						
5	2				AMWG Member Travel Reimbursement	17,467	17,991	18,531						
6	3				Reclamation Travel	14,439	14,873	15,319						
7	4				Facilitation Contract	26,959	27,768	28,601						
8	5				POAHG Expenses	55,536	57,202	58,918						
9	6				Other	7,969	8,208	8,455						
10	Reclamation AMWG Subtotal					299,118	308,091	317,334						
11	B Technical Work Group													
12	1				Personnel Costs	86,195	88,780	91,444						
13	2				TWG Member Travel Reimbursement	23,952	24,670	25,410						
14	3				Reclamation Travel	17,658	18,188	18,734						
15	4				TWG Chair Reimbursement	24,625	25,363	26,124						
16	5				Other	2,277	2,345	2,416						
17	Reclamation TWG Subtotal					154,706	159,347	164,128						
18	C Other													
19	1				Compliance Documents	50,000	51,500	53,045						
20	2				Administrative Support for NPS Permitting	118,852	122,417	126,090						
21	3				Contract Administration	39,953	41,152	42,386						
22	4				Experimental Carryover Funds - to be held by BOR	500,000	515,000	530,450						
23	5				Integrated Tribal Resources Monitoring	142,884	147,171	151,586						
24	6				Mainstem Non-native Mechanical Removal	0	164,259	169,187	\$141,963 is the FY09 budgeted amount; \$18,037 added to FY10 from line 73 (for nearshore ecology) and incremented by CPI for FY11; nearshore ecology will now be funded from USBR appropriated funds. (see BIO 2.R15.10 Line 155)					
25	7				Non-native Fish Suppression Contingency Fund	48,483	49,937	51,436	The total recommended amount is \$103,658 of which \$48,483 is underfunded FY09 and 55,175 is FY08 carryover.					
26	Other Subtotal					900,172	1,091,436	1,124,179						
27	Reclamation Administrative Subtotal					1,353,996	1,558,875	1,605,641						
28	D Programmatic Agreement Cultural Resources													
29	1				Reclamation Administration	60,164	61,969	63,828						
30	2				NPS Personnel Support for Archaeological Program	-	-	-	Combined with the Canyon Treatment Plan with line #3					
31	3				Canyon Treatment Plan and Implementation	500,000	515,000	530,450	Includes \$70,000 for NPS Support					
32	Programmatic Agreement Subtotal					560,164	576,969	594,278						
33	Reclamation Power Revenue Under Cap Program Subtotal:					1,914,160	2,135,844	2,199,920						
34														
35	Reclamation Appropriated Funded Projects													
36	HCA				Development of a LCR Management Plan	-	-	-						

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
37				Tribal Consultation										
38				A	Cooperative Agreements with Tribes									
39				1	Hopi Tribe	95,000	95,000	95,000						
40				2	Hualapai Tribe	95,000	95,000	95,000						
41				3	Navajo Nation	95,000	95,000	95,000						
42				4	Pueblo of Zuni	95,000	95,000	95,000						
43				5	Southern Paiute	95,000	95,000	95,000						
44				6	DOI Handling Fee	-	-	-						
45				Tribal Consultation Subtotal		475,000	475,000	475,000						
46				Reclamation Appropriated Projects Subtotal:		475,000	475,000	475,000						
47														
48				BUREAU OF RECLAMATION TOTAL AMP PROGRAM COSTS:		2,389,160	2,610,844	2,674,920						

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
49														
50	GCMRC Project ID	FY10 Status	FY11 Status	Funding Emphasis	Project Descriptions	FY09 Approved Budget (incl 4.9% CPI Increase)	FY10 Estimated Budget (w/ 3% CPI Increase over FY09)	FY11 Estimated Budget (w/ 3% CPI Increase over FY10)	Comments					
51	U.S. Geological Survey - Biological Resource Division - GCMRC - Power Revenues Under Cap Funded Projects													
52	1.03													
53	GOAL 1 - FOOD BASE													
54	BIO 1.R1.10	O	C	CRD	Aquatic Food Base (FY05--FY10)	510,626	498,894	-	FY10: All tech reports finalized & reported to TWG by Sept '10, One trip for data collection planned in FY10					
55	BIO 1.M1.11	N	O	CRD	Aquatic Food Base (FY11--Ongoing)	-	-	249,192	One trip for data collection planned in FY11. FY11: PEP Review and implementation as a Core Monitoring Project.					
56	BIO 1.R4.10	O	C	CRD	Impacts of Various Flow Regimes on the Aquatic Food Base (FY08--FY10)	85,472	62,111	-	FY10: Final Report will be part of BIO 1.R1.10 FY11: Any future work will be Integrated with Aquatic Food Base (BIO 1.M1.10)					
57	SUB-TOTAL GOAL 1					596,098	561,005	249,192						
58	GOAL 2 - NATIVE FISHES													
59	BIO 2.R1.09	C	C	CRD	LCR HBC Monitoring Lower 15km (HBC Population Est) (FY09)	487,666	-	-	BOCM ; FY10 / FY11 Moved to Core Monitoring (BIO 2.M1.10)					
60	BIO 2.R2.09	C	C	CRD	LCR HBC Monitoring Lower 1,200m (FY09)	61,635	-	-	BOCM ; FY10 / FY11 Moved to Core Monitoring (BIO 2.M1.10)					
61	BIO 2.R3.09	C	C	CRD	HBC Monitoring Above Chute Falls (FY09)	136,490	-	-	BOCM ; FY10 / FY11 Moved to Core Monitoring (BIO 2.M1.10)					
62	BIO 2.M1.10	N	O		LCR Fish Monitoring (FY10--Ongoing)	-	672,695	688,613	Funding & scope of project subject to revision based on the outcome of the FY09 PEP; Assumes approval as a Core Monitoring Project beginning in FY10					
63	BIO 2.R4.09	C	C	ORD	Monitoring Mainstem Fishes (incl Diamond Down) (FY09)	474,723	-	-	BOCM ; FY10 / FY11 Moved to Core Monitoring (BIO 2.M4.10)					
64	BIO 2.M4.10	N	O	ORD	Monitoring Mainstem Fishes (FY10--Ongoing)	-	608,888	641,029	BOCM ; Funding & scope of project subject to revision based on the outcome of the FY09 PEP; Assumes approval as a Core Monitoring Project beginning in FY10; Includes funding for expanded nonnative fish sampling					
65	BIO 2.R5.10	O	C	ORD	Nonnative Control Planning (FY06--FY10)	63,640	78,058	-	BOCM Longterm Nonnative Fish Management Plan to be delivered by Sept 2010 for Management consideration					
66	BIO 2.R17.11		N	ORD	Nonnative Control Plan Science Support (FY11--FY13)	-	-	138,599	BOCM Provide science support for implementation for the Nonnative Fish Control Plan					
67	BIO 2.R6.09	C	C	ORD	Nonnative Control Pilot Testing (FY06--FY09)	110,281	-	-	BOCM Funding moved to Monitoring Mainstem Fishes (BIO 2.M4.10) beginning in FY10					
68	BIO 2.R7.10	O	O	CRD	Stock Assessment of Native Fish in Grand Canyon (FY07--Ongoing)	54,619	93,260	97,619	BOCM Humpback Chub ASMR update & refinement					
69	BIO 2.R9.10	O	O	CRD	Mainstem Fish Survival (FY07--FY11)	96,013.00	-	-	BOCM FY10: Integrated with System Ecologist (PLAN 12.P1.10) & Near Shore Ecology (BIO 2.R15.10) projects					
70	BIO 2.R10.09	C	C	ORD	Backwater Seining	-	-	-	Will be addressed in Near Shore Ecology (BIO 2.15.10) project and evaluated in the FY09 PEP					
71	BIO 2.R11.09	C	C	CRD	Native Fishes Habitat Data Analysis (FY07--FY09)	-	-	-	Report completed FY09; FY10: Integrated in to Near Shore Ecology (BIO 2.15.10) project					

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	GCMRC Project ID	FY10 Status	FY11 Status	Funding Emphasis	Project Descriptions	FY09 Approved Budget (incl 4.9% CPI Increase)	FY10 Estimated Budget (w/ 3% CPI Increase over FY09)	FY11 Estimated Budget (w/ 3% CPI Increase over FY10)	Comments					
50														
51	U.S. Geological Survey - Biological Resource Division - GCMRC - Power Revenues Under Cap Funded Projects													
72	BIO 2.R13.10	O	O	CRD	Remote PIT Tag Reading (FY07--FY11)	107,319	131,050	134,577	Could potentially reduce costs of LCR Monitoring (BIO 2.M1.10) project					
73	BIO 2.R15.10	O	O	CRD	Near Shore Ecology / Fall Steady Flows (FY08--Ongoing)	11,970	-	-	BOCM Funded entirely with BOR appropriated funds in FY10 & FY11 (see BIO 2.R15.10 Line 155)					
74	BIO 2.R16.09	C	C	CRD	Mainstem Nonnative Fish Control (FY09)	141,023	-	-	BOCM FY10: Move to Management Action and to appropriate Management Agency, to be determined; monitoring associated with nonnative removal will be designed by and coordinated through GCMRC					
75	SUB-TOTAL GOAL 2					1,745,379	1,583,951	1,700,437						
76	GOAL 3 - EXTIRPATED SPECIES													
77	07.3.00	-	-	NA	None Identified	-	-	-						
78	SUB-TOTAL GOAL 3					-	-	-						
79	GOAL 4 - RAINBOW TROUT													
80	BIO 4.M1.09	C	C	COR	Monitoring Lees Ferry Trout (Ongoing)	118,454	-	-	BOCM ; Moved to Core Monitoring (BIO 4.M2.10) beginning FY10					
81	BIO 4.E1.09	C	C	LTE	Monitoring Rainbow Trout Redds & Larvae (FY07--FY09)	-	-	-	Work conducted under HFE Science Plan in FY 08 and 09 (125k net); Moved to Core Monitoring (BIO 4.M2.10) beginning FY10					
82	BIO 4.M2.10	N	O		Monitoring Lees Ferry Rainbow Trout Redds, Larvae & Adults (FY10--Ongoing)	-	226,668	237,396	Funding and scope subject to revision based on FY09 PEP; Assumes approval as a Core Monitoring Project beginning in FY10					
83	SUB-TOTAL GOAL 4					118,454	226,668	237,396						
84	GOAL 5 - KANAB AMBERSNAIL													
85	BIO 5.R1.10	O	O	CRD	Monitor Kanab Ambersnail (FY07--FY11)	22,883	25,974	31,750	BOCM Funding and scope subject to USFWS status review & future PEP					
86	SUB-TOTAL GOAL 5					22,883	25,974	31,750						
87	GOAL 6 - SPRINGS / RIPARIAN													
88	BIO 6.R1.09	C	C	CRD	Vegetation Mapping (FY07--FY09)	121,804	-	-	Final core monitoring report will be completed FY09					
89	BIO 6.M1.10	N	O	CRD	Vegetation Mapping (FY10--Ongoing)	-	77,623	98,081	Will be implemented as component of Integrated Image Analysis and Change Detection (DASA 12.9.10); Assumes approval as a Core Monitoring Project beginning in FY10					
90	BIO 6.R2.11	C	C	COR	Vegetation Transects (FY07--FY09)	52,502	-	-	Final core monitoring report will be completed FY09					
91	BIO 6.M2.11	N	O	COR	Vegetation Transects (FY10--Ongoing)	-	-	156,613	Assumes approval as a Core Monitoring Project beginning in FY10; Transects monitoring will be implemented in alternating years					
92	BIO 6.R4.10	N	O		Terrestrial Habitat Monitoring R & D (FY10--FY12)	-	116,881	-	FY10: Sampling for arthropods; Will be implemented as a research project in alternating years (FY10 & FY12)					
93	BIO 6.R3.10	O	C	CRD	Vegetation Synthesis (FY07--FY10)	60,364	37,598	-	Final report will be completed in FY10					
94	SUB-TOTAL GOAL 6					234,670	232,102	254,694						

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	GCMRC Project ID	FY10 Status	FY11 Status	Funding Emphasis	Project Descriptions	FY09 Approved Budget (incl 4.9% CPI Increase)	FY10 Estimated Budget (w/ 3% CPI Increase over FY09)	FY11 Estimated Budget (w/ 3% CPI Increase over FY10)	Comments					
50														
51	U.S. Geological Survey - Biological Resource Division - GCMRC - Power Revenues Under Cap Funded Projects													
95	GOAL 7 - QUALITY-OF-WATER													
96	BIO 7.R1.10	O	O	CRD	Water Quality Monitoring Lake - Powell & Tailwaters (BUDGET PRESENTED BELOW) (Ongoing)	-	-	-	Funded under separate agreement, refer to Power Revenue Funded NOT Capped table below					
97	PHY 7.M1.10	O	O	COR	Integrated Quality-of-Water Monitoring (Downstream of GCD) (FY07--Ongoing)	931,513	979,080	1,010,329	This represents 1 of the 4 longterm core monitoring protocols for sediment; Data collection FY10 & FY11 will be same as FY09; assumes continued funding of Diamond Creek gage by Southern Nevada Water Authority					
98	PHY 7.R2.10	O	C	CRD	Integrated Flow, Sediment Transport and Temperature Modeling of the CRE (FY09--FY10)	127,134	245,599	-	FY09 budget increased by \$173,269 carry over from prior years (not reflected in FY09 budget at left) for a total of \$300,403 budgeted in FY09. Report containing results & recommendations for future model development will be completed in FY10					
99	PHY 7.R3.11		N	CRD	Modeling Support & Temperature Models (FY11--Ongoing)	-	-	126,866	Staff for ongoing model support and updating; Does not include cooperater involvement					
100	SUB-TOTAL GOAL 7					1,058,647	1,224,679	1,137,195						
101	GOAL 8 - SEDIMENT													
102	PHY 8.M2.10	O	O	COR	Integrated Longterm Monitoring of System Wide Changes in Sediment Storage (FY09--Ongoing)	309,224	220,000	470,434	Analysis of Overflight imagery will be implemented as component of Integrated Image Analysis and Change Detection 1(DASA 2.D9.10); Channel mapping or sandbar data collection suspended in FY10; Focus on data analysis & reporting; Resume data collection FY11					
103	SUB-TOTAL GOAL 8					309,224	220,000	470,434						
104	GOAL 9 - RECREATIONAL EXPERIENCE													
105	REC 9.R1.10	C		CRD	Sand Bar and Campable Area Monitoring R & D (FY01--FY10)	55,075	56,900	-	Fieldwork suspended in FY10; Focus on analysis & reporting and PEP review					
106	REC 9.M1.11		N	CRD	Sand Bar and Campable Area Monitoring (FY11--Ongoing)	-	-	78,142	Assumes approval as a Core Monitoring Project beginning in FY11; Budget and scope of project subject to revision by outcome of FY10 PEP					
107	REC 9.R3.10	O	O	CRD	Compile Campsite Inventory and GIS Atlas (FY07--Ongoing)	-	56,870	60,734	Website maintenance & updating (ongoing) and analysis of campsite data FY10 & FY11 only					
108	REC 9.R4.10	C	C	CRD	Compile and Analyze Existing Safety Data (FY09--FY10)	26,296	-	-	Project terminated in FY10; Final report will be completed in FY10					
109	SUB-TOTAL GOAL 9					81,371	113,770	138,876						
110	GOAL 10 - HYDROPOWER													
111	HYD 10.M1.10	O	O	CRD	Monitor Power Generation and Market Values under Current and Future Dam Operations (FY07--Ongoing)	19,587	9,680	10,104	Annual report and website maintenance					
112	SUB-TOTAL GOAL 10					19,587	9,680	10,104						
113	GOAL 11 - CULTURAL													
114	CUL 11.R1.10	O	C	CRD	Research & Development toward Core Monitoring (FY06--FY11)	448,088	354,887	370,684	Eliminates NPS funding, survey support, and reduced cooperater support in FY10; Assumes closer integration with NPS monitoring efforts beginning in FY09 and FY10; PEP review in FY11 to determine long term monitoring program					
115	CUL 11.R2.09	N	N	CRD	Implement Tribal Monitoring Projects (See funding in BOR section)	-	-	-	See funding in BOR section. Line 23.					
116	SUB-TOTAL GOAL 11					448,088	354,887	370,684						
117	GOAL 12 - HIGH QUALITY MONITORING, RESEARCH & AEAM													
118	DASA 12.M1.10	O	O	CRD	Quadrennial Remote Sensing Overflight Working Capital Fund) (FY08--Ongoing)	202,340	206,100	207,586	Acquisition, processing, analysis & reporting for the next planned Overflight in 2013					

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	GCMRC Project ID	FY10 Status	FY11 Status	Funding Emphasis	Project Descriptions	FY09 Approved Budget (incl 4.9% CPI Increase)	FY10 Estimated Budget (w/ 3% CPI Increase over FY09)	FY11 Estimated Budget (w/ 3% CPI Increase over FY10)	Comments					
50														
51	U.S. Geological Survey - Biological Resource Division - GCMRC - Power Revenues Under Cap Funded Projects													
119	DASA 12.D9.10	N	O		Integrated Image Analysis and Change Detection (FY10--Ongoing)	-	242,798	248,237	Coordination / oversight of various image acquisition and processing & change detection projects including Vegetation Mapping (BIO 6.M1.10), Legacy Data Conversion (DASA 12.D3.10), Integrated Analysis & Modelling (DASA 12.D7.10), Goal 8 Channel Change (PHY 8.M2.10), Sandbar & Campable Area Mapping (REC 9.R1.10, REC 9.M1.11)					
120	DASA 12.D10.10	N	C		HFE Synthesis Report (All Resources) (FY10)	-	-	-	Approx 100k to be funded by Experimental Fund - See BOR Budget					
121	DASA 12.D2.10	O	O	APM	Grand Canyon Integrated Oracle Database Management System (FY07--Ongoing)	184,485	171,947	179,408						
122	DASA 12.D8.10	O	O	APM	Biometrics & General Analysis Support (FY09--Ongoing)	-	170,874	179,243	New position established through staff reorganization in FY09 (Lew Coggins)					
123	DASA 12.D3.10	O	O	APM	Library Operations (FY08--Ongoing)	56,284	62,524	81,111						
124	DASA 12.D4.10	O	C	APM	Legacy Analog Data Conversion (Analog to Digital - Reports & Imagery) (FY08--FY10)	130,739	20,188	-	Moved project & related funding to Integrated Image Analysis & Change Detection (DASA 12.D9.10)					
125	DASA 12.D5.10	O	O	APM	GIS Support for Integrated Analyses and Projects (FY07--Ongoing)	332,871	362,614	373,796						
126	DASA 12.D7.10	C	C	CRD	Integrated Analysis and Modeling - FY09 Overflights	129,124	-	-	Moved project & related funding to Integrated Image Analysis & Change Detection (DASA 12.9.10)					
127	<i>Sub-total Goal 12 DASA Portion</i>					1,035,843	1,237,045	1,269,381						
128	SUP 12.S1.10	O	O	APM	Logistics Base Costs (See BNELA for project related logistics costs) (Ongoing)	180,531	155,603	195,476						
129	SUP 12.S2.10	O	O	APM	Survey Operations (Ongoing)	114,718	61,126	64,183	Includes deposit in a WCF for survey equipment replacement FY11					
130	SUP 12.S3.10	O	O	APM	Control Network (Ongoing)	91,104	134,216	172,196						
131	<i>Sub-total Goal 12 Support Portion</i>					386,353	350,945	431,855						
132	PLAN 12.P1.10	O	C	CRD	Identify Critical Ecosystem Interactions and Data Gap (FY08--FY10)	50,585	167,259	119,399	Continued support for review, revision and upgrade of Ecosystem Models in collaboration with Senior Ecologist; Includes additional support from GCMRC Biologists					
133	PLAN 12.P3.10	O	C	ORD	Low Steady Summer Flows - Data and Research Compilation, Synopsis and Synthesis	29,251	16,792	-	Report finalization and publication in FY10					
134	<i>Sub-total Goal 12 Planning Portion</i>					79,836	184,051	119,399						

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
	GCMRC Project ID	FY10 Status	FY11 Status	Funding Emphasis	Project Descriptions	FY09 Approved Budget (incl 4.9% CPI Increase)	FY10 Estimated Budget (w/ 3% CPI Increase over FY09)	FY11 Estimated Budget (w/ 3% CPI Increase over FY10)	Comments						
50															
51	U.S. Geological Survey - Biological Resource Division - GCMRC - Power Revenues Under Cap Funded Projects														
135	ADM 12.A1.10 (A)	O	O	APM	Administrative Operations (Ongoing)	173,812	161,489	164,429	Travel, telephones, supplies, furniture & staff awards not specific to projects						
136	ADM 12.A1.10 (B)	O	O	APM	Administrative Operations - GSA Vehicle Costs (Ongoing)	50,950	63,525	66,701	GSA Vehicle Fleet - These costs have historically been held in Adminstarative Operations. In FY09 they were broken out in order to better track them						
137	ADM 12.A1.10 (C)	O	O	APM	Administrative Operations - Interior Vehicle Costs (Ongoing)	25,475	31,763	33,351	Interior Vehicle Fleet - These costs have historically been held in Adminstarative Operations. In FY09 they were broken out in order to better track them						
138	ADM 12.A2.10	O	O	APM	Program Planning & Management (Ongoing)	1,111,596	1,170,361	1,231,630	GCMRC Program Management staff, travel, & supplies						
139	ADM 12.A3.10	O	O	APM	AMWG/TWG Meeting Travel Funds (Ongoing)	19,154	19,501	20,085							
140	ADM 12.A4.10	O	O	APM	Independent Reviews (Ongoing)	21,423	19,647	22,465	PEPs and other non-SA peer reviews						
141	ADM 12.A4.10	O	O	APM	Executive Director of Science Advisors Review and Coordination; includes Science Advisors' Expenses (Ongoing)	214,227	180,250	224,646							
142	ADM 12.A6.10		O	APM	2011 Colorado River Basin Science and Management Symposium (FY11--Ongoing)	-	-	25,000	Total estimated cost: \$200,000. Assumes contributions from various Colorado River Recovery programs and other agencies.						
143	ADM 12.A5.10	O	O	APM	GCMRC Component of SBSC Sys Admin Support (FY05--Ongoing)	214,350	217,113	224,775	FY10 incr for 1/4 time position for website maintenance						
144	<i>Sub-total Goal 12 Administrative/Management Portion</i>					1,830,987	1,863,649	2,013,082							
145	SUB-TOTAL GOAL 12					3,333,019	3,635,690	3,833,717							
146	GCMRC Power Revenues Under Cap Projects Sub-totals					7,967,420	8,188,406	8,434,478							
147															
148															
149	GCMRC Power Revenue Funded Projects (NOT Capped) and Other Funded Projects														
150	BIO 7.R1.10	O	O	CRD	Water Quality Monitoring - Lake Powell & Tailwaters (FY07--FY11)	257,137	249,347	261,874	Refer to BIO 7.R1.10 Line 95						
151	GCMRC Other Power Revenue Agreements Projects Subtotals:					257,137	249,347	261,874							
152															
153	GCMRC Other Agreement Funding														
154	BIO 2.R15.10	N	N	CRD	Near Shore Ecology / Fall Steady Flows (FY08--FY12)	500,000	552,047	556,095	BOCM						
155	GCMRC Other Agreement Funding Projects Subtotals					500,000	552,047	556,095							
156	GCMRC ALL Other Agreements Projects TOTALS					757,137	801,394	817,969							
157															
158	GCMRC TOTAL AMP PLANNED PROGRAM COSTS					8,724,557	8,989,800	9,252,447							
159															
160	PROGRAM COSTS:	BOR Power Revenues Under Cap Program Costs:				FISCAL YEAR 2009	FISCAL YEAR 2010	FISCAL YEAR 2011							
161		BOR Power Revenues Under Cap Program Costs (gross)				1,914,160	2,135,844	2,199,920							
162		GCMRC Power Revenues Under Cap Program Costs (gross)				7,967,420	8,188,406	8,434,478							
163		Subtotal BOR & GCMRC Power Revenue Under Cap Program Costs				9,881,580	10,324,250	10,634,398							
164															
165	PROGRAM	BOR Power Revenues Under Cap Program Funding:				FISCAL YEAR 2009	FISCAL YEAR 2010	FISCAL YEAR 2011							

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	GCMRC Project ID	FY10 Status	FY11 Status	Funding Emphasis	Project Descriptions	FY09 Approved Budget (incl 4.9% CPI Increase)	FY10 Estimated Budget (w/ 3% CPI Increase over FY09)	FY11 Estimated Budget (w/ 3% CPI Increase over FY10)	Comments					
50														
51	U.S. Geological Survey - Biological Resource Division - GCMRC - Power Revenues Under Cap Funded Projects													
166	FUNDING:				BOR Power Revenues Under Cap (gross)	1,914,160	1,989,621	2,049,310	FY10 includes \$18,037 of power revenues which was for nearshore ecology which is being replaced by \$18,037 USBR appropriated funds.					
167					GCMRC Power Revenues Under Cap (gross)	7,967,420	8,188,406	8,434,478						
168					Subtotal BOR & GCMRC Power Revenue Under Cap:	9,881,580	10,178,027	10,483,788	FY09 should be 9,881,580 but you have a combined budget which is 99,789 above					
169					DIFFERENCE BETWEEN ESTIMATED COSTS AND ESTIMATED INCOME FOR FY09 POWER REVENUES UNDER CAP:	(0)	(146,223)	(150,610)						

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
	GCMRC Project ID	FY10 Status	FY11 Status	Funding Emphasis	Project Descriptions	FY09 Approved Budget (incl 4.9% CPI Increase)	FY10 Estimated Budget (w/ 3% CPI Increase over FY09)	FY11 Estimated Budget (w/ 3% CPI Increase over FY10)	Comments						
50															
51	U.S. Geological Survey - Biological Resource Division - GCMRC - Power Revenues Under Cap Funded Projects														
170															
171	PROGRAM COSTS:	BOR Appropriated and Other Program Costs:				FISCAL YEAR 2009	FISCAL YEAR 2010	FISCAL YEAR 2011							
172		BOR Appropriated and Other Program Costs (gross)				475,000	475,000	475,000							
173		GCMRC Appropriated and Other Program Costs (gross)				757,137	801,394	817,969							
174		Subtotal BOR & GCMRC Power Revenue (Non-Capped) and Other				1,232,137	1,276,394	1,292,969							
175															
176	PROGRAM FUNDING:	BOR Appropriated and Other Program Funding:				FISCAL YEAR 2009	FISCAL YEAR 2010	FISCAL YEAR 2011							
177		BOR Appropriated and Other Program Costs (gross)				475,000	475,000	475,000							
178		GCMRC Appropriated and Other Program Costs (gross)				757,137	801,394	817,969							
179		Subtotal BOR & GCMRC Power Revenue (Non-Capped) and Other				1,232,137	1,276,394	1,292,969							
180															
181		DIFFERENCE BETWEEN ESTIMATED COSTS AND ESTIMATED INCOME FOR POWER REVENUES UNDER CAP:													
182															

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	GCMRC Project ID	FY10 Status	FY11 Status	Funding Emphasis	Project Descriptions	FY09 Approved Budget (incl 4.9% CPI Increase)	FY10 Estimated Budget (w/ 3% CPI Increase over FY09)	FY11 Estimated Budget (w/ 3% CPI Increase over FY10)	Comments					
50														
51	U.S. Geological Survey - Biological Resource Division - GCMRC - Power Revenues Under Cap Funded Projects													
183	GCMRC HIGH FLOW EXPERIMENT FUNDING FY2009													
184	Various	NA	NA	EXP	Glen Canyon Dam Adaptive Management Program Experimental Funds (New funding in FY09); Agreement No. 06-AA-40-2439	500,000	-	-						
185	GCMRC High Flow Experiment Funding Projects Subtotals					500,000	-	-						
186														

187 Explanation of information found in columns A through H of Draft Budget for GCMRC GCDAMP					
188	Column				
189	GCMRC Project ID Program Areas	A	1-3	ADM: Administration BIO: Biology CUL: Cultural DASA: Data Acquisition, Storage and Analysis HYD: Hydropower PHY: Physical Science PLA: Planning REC: Recreation SUP: Support	
190			4-5	GCDAMP Goal Number	
191			6-7	Project Number within GCMRC Annual Work Plan A: Admin D: DASA M: Monitoring P: Planning R: Research S: Support	
192			7-8	Fiscal Year of Proposed Budget / First Year in Biennial Work Plan	
193					
194	Column	B			
195	Status				FY10 Project Status C: Complete N: New O: Ongoing
196					
197	Column	C			
198	Status				FY11 Project Status C: Complete N: New O: Ongoing
199					
200	Column	D			
201	Category				APM: Admin & Program Mgmt COR: Core Monitoring CRD: Core Monitoring Research & Development LTE: Longterm Experiment NA: Not Applicable ORD: Ongoing Research and Development
202					
203	Column	E			
204	Project Description				Project Title (Beginning Fiscal Year Start Date--End Fiscal Year Date)
205					
206	Column	F			
207	FY 2008 Approved Budget				FY 2009 GCDAMP Approved Budget
208					
209	Column	G			
210	FY 2009 Estimated Draft Budget				FY 2010 GCDAMP Estimated Draft Budget Proposal
211					
212	Column	H			
213	FY 2009 Estimated Draft Budget				FY 2011 GCDAMP Estimated Draft Budget Proposal
214					
215	Column	G			
216	Comments				Comments; BOCM represents Biological Opinion Core Monitoring Items