

OVERARCHING COMMENTS

Based on previous discussions (TAHG etc), given In/Out, what are the sideboards? Identifying the authority to perform the project as described.

How does this inform dam operations, CRE, how does this get to DFCs?

Conservation measures (4 of them) how are they being funded? Concern about dollars being reduced.

Needs to be a standard organization plan for numbering the projects. Hard to relate. Should use the same system.

Good idea to have every one of the projects be tied to the items in the science plan

On the items (conservation measures) that are funded, if the funding goes away is there any obligation to pick up the funding responsibility?

GCMRC (USFWS, NPS, AZGFD) – acknowledgement that they will quantify and record all life taking that is associated with monitoring and research that occurs in the GC and provide info back at the end of each year if collateral loss of life to Zuni and also to identify in this program what the effects research and management have on life in the canyon.

Switched back between the numbering system, challenging to track items and expenditures, also core monitoring. Commitment to developing an outline whether numbers/alphabets. Agree to one for the life of this program

Reorganize the GCMRC budget around LTEMP ROD

Robust science plan for the program, overall science plan structure that describes the underlying questions. Previous MRPs had important questions. Should be outlined in Chapter 2.

Approach to experimentation is missing, can be described to Chapter 2. Planning that goes into experiments, should be thinking about those. Flexible part of the budget that addresses science for experimental actions.

Source of funding for each budget should be described. Outside funding may be incorporated into some projects. Identify those.

Cost by project element

Describe what is included in the burden.

No description for hydropower resource.

A. STREAMFLOW, WATER QUALITY, AND SEDIMENT TRANSPORT

Water quality – 6 stations collecting data every 15 mins. Isn't it high cost to do these gages? How accurate are the readings over time? This kind of monitoring is very costly. How valuable is this data?

Trim off or reduce items

B. SANDBAR AND SEDIMENT STORAGE MONITORING AND RESEARCH

Project is \$1.4M been studying sediment for a long time. Is it necessary to study at this level, especially if the budget is constrained?

Bathymetry – Do we need to continue to do it this frequently?

Western GC – Question is it going to change a lot?

Looking at the effects of the hydrograph- concerns.

Why must a trip be in a non-motorized season?

Repeat maps – level of frequency not needed

Element 2 – Pearce Ferry is beyond the CRE – not explained or justified.

Predict sandbar responses – no sufficient justification to doing that

Post LTEMP ROD – what could be cut back here? Could we switch to a monitoring mode? Relatively how important is it compared to dam operations?

B3 – Is it important? Relate directly to resource goals and ROD. Look at decadal scales.

Sandbar modeling – Important because lower sloping beaches are less erodible and gets more out of the HFEs. Worth studying.

Is any of this info leading to the point where we might build individual beaches by artificial means?

C. RIPARIAN VEGETATION

Confused between the BOR & GCMRC budget. 800k to study it. Agencies should sit down and decide what needs to be and parse it out.

Good suggestion above (parsing it out). More clarification would be helpful.

Hesitation is the same as above. Needs to know more about the NPS role. This is one of the areas where it becomes a funding issue as anything else. Not appropriate for AMP funding.

Doing all these changes with exp. Flows. River and vegetation along the River is stable enough for long term work. Specific plantings etc., is getting ahead of yourself. Funding sources and how to use them

C7 and this – No discussion about the value of these habitats for wildlife. Manipulating vegetation yet trying to create riparian habitat for wildlife.

Two of the projects funded in the last project added up to 350k now its 700. Science around experimental treatments.

C1. And C2 Is an annual timescale, instead look at a 5 year or decadal time scale.

C3 – not sure how it relates to dam operation

C4 – Could use longer timescales. What are the timescales of importance that we are trying to get at.

Change frequency of data collection to reduce the cost

Specify to areas of importance

D. GEOMORPHIC EFFECTS OF VEGETATION MANAGEMENT AND DAM OPERATIONS

Aeolian sand should not be an area that is a priority.

Aeolian transport of sand in terms of site preservation – not doing this program much good.

Haven't supported Aeolian research in the last 14 years. Only useful at a handful of sites. Need to know what the integrity of archaeological sites - Not being addressed by these studies.

Have yet to figure out if aeolian sand is a good thing or a bad thing. Similar to my previous comment. Tribes, NPS, BOR get together and figure out how to best spend the money.

Share a lot of the same observations. Budget bigger than we have dollars. Relatively low priority.

The operations of the dam are aimed right now at improving the sandbars. Wind coming down there and able to distribute some of that sand is a secondary benefit. Spending dollars to further this effort does not benefit the program.

Terraces at Glen Canyon, adding impacts from boat wakes should be considered as an impact on those terraces.

E. NUTRIENTS AND TEMPERATURE AS ECOSYSTEM DRIVERS

Lake Powell Water Quality affects resources below dam. Study doesn't go far enough. May need to add evaporation studies of Lake Powell, water delivery.

Oxygen, temperature, macroinvertebrate Trio needs to be modelled out. Doesn't go far enough. Temps affect insect hatching.

Budget is 3m over. On the funding level wouldn't support it as is. Need to do some trimming down, split it over three years. Doesn't have enough play in the budget to add this scope.

Any additional evaporation studies may be outside of the AMP. Have broader implications.

Model to predict nutrient concentration (had trouble in Lake Mead) , monitoring of nutrients at Lees Ferry what about phytoplanktons? Zooplanktons? Temp. model – with data availability, should be easy to fix.

Turbid streams leaf litter & woody debris that help the bugs. Does addition of organic material help with the bugs?

Need evaporation studies of Lake Powell

F. AQUATIC INVERTEBRATE ECOLOGY

Project F4 – is outside of the scope of this program.

Think it's a doubling of the budget from last year. Focusing in some areas is recommended

Way over budget. Need to be pragmatic about what pieces do we need to focus on?

Research study on linkages between emergent insects and birds, bats and lizards – outside the scope of this program

Analysis of RBT may get us info that we need. During HFEs we lose foodbase. Stomach analysis of the trout as a surrogate sampling analysis. What type, how much is available before and after the HFEs. Use trout as a sampling tool.

G. HUMPBACK CHUB MONITORING AND RESEARCH

This might be the area where we might need to do the cutting. Echo Kurt's suggestion that since it involves killing, might be helpful to quantify taking of life

Interested in any kind of collateral or unintended loss of life as a result of the activities

Lot of great ideas and expansion of previous work. Concerned about increased downriver sampling. Not sold on JCM west yet, how useful is it and how critical is it for HBC recovery.

Hasn't seen any effects on the yet establishing population, concerned about additional sampling in western GC

Project I- use of eDNA and yet under. Project is not included in the sampling method. Less intrusive method.

Items 5,6 and 9 how those support the species' downlisting.

Upper Basin had the same issue with small populations of HBC. Let the western canyon go for a couple of years.

Concerned about how the lab studies will translate to real life studies re: Project 13

Translocating and imprinting draws a lot of concerns, for HBC in particular for Navajo for oral history and cultural significance of them . In terms of how the songs and prayers go into the ceremonial aspects.

Is the Chute Falls translocation effort supporting the translocation aggregation?

H. SALMONID MONITORING AND RESEARCH

Some lethal treatment of trout, in the Otolith study. TMFs , Zuni has objected to TMFs as it desiccates redds . Two basin projects

Electrofishing, in terms of the overall process specific to, looking at it from a holistic perspective. Each and every species play a specific role in the ecosystem, really spreads thin for environment to be healthy. Would have effects on other parts of the ecosystem. Effects on the canyon as a whole is looked at and respected. Culturally electrofishing and couple of other projects are not acceptable.

Creel survey – AMP funds pay for the creel survey, AZGFD pays for some... every third year?? ~\$25-\$30K per year. Is it worth the \$\$ spent? It gets a good information, how the anglers are perceiving the fishery. It is also in response to the recommendation from the PEP regarding communication with the angling community.

This project is actively seeking to kill fish. Right now no cultural compliance for doing this. Need to start on consultation process and compliance, because Hopi views experimental fish flows as adverse effects. PA explicitly did not include fish actions. PA even when signed is not going to cover this.

There needs to be another hard look at the number of trips, Systemwide electrofishing could be better utilized, how to reallocate resources. Time to take a hard look at that.

BRT not enough in here to understand expansion of BRT due to Fall HFEs. Also potential response of BRT to differently timed flows.

H5 - TMFs lots more need to get flushed out, hypothesis, success criteria etc.

Is H4 definitive testing methodology for testing of TMFs?

I. INVASIVE AQUATIC SPECIES

Will GCMRC be looking at the preferred temperature ranges for AIS?

This program ought to be expanding beyond Lake Mead NRA, or in collaboration with other programs?

How does it tie into NPS CFMP & NNF EA?

Also looking at the issue of climate for several projects. Guidance from DC regarding climate, and may get further scrutiny.

Think we need little more information to justify these surveys. Why do we need to go beyond CRE?

Other jurisdictions that are looking at these pieces as well.

Does this fit within the budget? Maybe scale it back to what is important? Focus on important areas like Lees Ferry, and if we do any work with alternative methods coordinate with UB.

J. SOCIOECONOMICS

Would focus limited dollars on the third element. Applied decision methods something this program has needed for a long time.

There used to be a hydropower element in the TWP, but not in here. This tradeoff is the only thing that gets at hydropower resources.

Research project on hydropower - A project proposal was included in the CREDA comments on the FEIS.

Not sure about J1. How applicable that is?

J2 is imp but can be moved to outyears

Focus on J3. Reverse priorities to J3, J2, J1.

K. GEOSPATIAL SCIENCE AND TECHNOLOGY

Overflight in this workplan. Didn't see it in this draft.

L. ADMINISTRATION