Fiscal Year 2020 Annual Project Report - Questions & Answers

GCRMC Response: Thanks to representatives from the State of Nevada for reviewing our FY2020 Annual Report and for following up with your thoughtful questions. Our responses are below in *italicized* text.

1. Project B, Page 26, Project C, Page 39, Project G, Page 102 – Can you please explain "Higher costs in cooperative agreements was due to additional funding to conduct work associated with a vacancy at GCMRC and the requirement to GCMRC to move FY2019 funds from an expiring 5-year agreement between USGS and Reclamation to a new one. As previously planned, funds were transferred to the cooperator in FY2020.

   ***GCRMC Response**: The previous five-year interagency agreement between USGS and Reclamation ended in Sept. 2019 and a new five-year agreement was established. Funding provided to USGS, and in turn to its cooperators, under that agreement had to be spent by Sept. 30, 2019. This created challenges for funding several cooperators with projects that spanned these two agreements since approvals required by USGS to fund those agreements were not obtained until late in FY2019. The resolution to this problem was to return (deobligate) funds from the old agreement originally planned to go to cooperators in FY2019 back to Reclamation who then added (obligated) them to USGS under the new agreement. USGS then transferred those funds to cooperators in early FY2020. Therefore, the actual amount listed for cooperative agreements includes funding planned to go to cooperators from FY2019 and FY2020 planned budgets plus the funds from unspent salaries.*

2. Project C – Page 35 – Are we going to maintain the genetic patterns of willows in the Grand Canyon by only planting willows from Marble Canyon or Grand Canyon?

   ***GCRMC Response**: Grand Canyon National Park already has a policy to use restoration stock from within the National Park boundary and from areas relatively close to the restoration site, so they are already only propagating plants from Marble and Grand Canyons. The data presented here give them some options about whether or not they want to use restoration stock from Marble Canyon in Grand Canyon or vice versa. Not shown in this report are estimate of genetic diversity for each of these sites, as well. We can use the genetic structure data (shown in the figure) in combination with genetic diversity estimates to make decisions about maximizing the genetic diversity of the site without compromising existing genetic structure.*

3. Project E – Page 55 - Is the ecosystem model [converting conceptual model of nutrients and temp info into statistical model, ~ stalled in 2019] still underfunded?

   ***GCRMC Response**: It is funded at a lower level than requested which means progress will be slower than ideal, since we were unable to backfill an analyst position lost in the last workplan. However funding is somewhat higher than in the last workplan so we expect to have the time to make more progress.*

4. Project E – Page 69 - It appears from the pictures of the artificial stream experiment that the rocks are clean. Why are they not clean in the river above Lees Ferry?

   ***GCRMC Response**: The rocks in the river above Lees Ferry are colonized by a combination of diatoms, macroalgae, and bryophytes, which are communities that have developed over many*

years. This colonization has occurred due to a stabilization in the ecosystem, with relatively few large disturbance events to reshuffle cobble and disrupt aquatic vegetation growth over time. In the mesocosm experiment, we took bare, dry cobble from the banks of the Colorado River and used them in experimental tanks, so the type of communities we may see in the field had just begun to grow. Nevertheless, we did see algal growth on the rocks in the laboratory, as shown in the right-hand photograph on page 67.

5. Project F – Page 82 - Please explain "The lack of anticipated Experimental Funds in FY2020 constitutes the overall budget shortfall for Project F?"

   ***GCRMC Response**: Field sampling and sample processing was conducted based on a verbal agreement between USGS and Reclamation staff to cover associated costs from the Experimental Fund. Changes in staffing led to delays in communication of this agreement to newer staff which resulted in funds no longer being available to cover these costs.*

6. Project G – Page 84 – Is the reason for so few juvenile humpback chub the lack of winter flooding? Is this due to the lack of detritus in the LCR?

   ***GCRMC Response**: While the exact mechanism linking winter floods is to recruitment is unknown, it seems unlikely to be from a lack of detritus since some of the biggest recruitment years have occurred when there was minimal flooding. The lack of recruitment in 2018 (a year without any winter flooding) contributed to current low numbers, but there have also been a number of years with poor recruitment, the cause of which is being studied. The three leading hypotheses involve habitat in the LCR, poor condition of spawning adults, and predation by nonnatives (primarily catfish) in the LCR.*

7. Project G – Page 86 – Why is there low over winter survival rates for LCR humpback chub versus Colorado River migrants?

   ***GCRMC Response**: Survival seems to be lower in years of extensive winter flooding suggesting that cold water floods may pose a challenge to adults however the exact mechanism is unknown.*

8. Project G – Page 88 – Why is the survival rates for adults in western Grand Canyon lower than the survival rates near the LCR?

   ***GCRMC Response**: Unknown, but hopefully something we can learn if JCM – west is continued. It was not until we had ~7 years of data in JCM-east that we started to have enough contrast to look at environmental drivers.*

9. Project G – Page 100 – Is it important for juvenile humpback chub to migrate out of the LCR since they did not in 2019-2020?

   ***GCRMC Response**: Individuals that emigrate from the LCR take longer to reach adulthood, but contribute to long-term stability in the number of adult chub in the system, on the other hand, individuals that stay in the LCR reach adulthood quicker but generally die quicker...if individuals never emigrated the systems would fluctuate more dramatically so it is important that individuals emigrate in some years.*

10. Project G, Page 102 and Project J, Page 135– Can you please explain "Higher costs in cooperative agreements was due to the requirement to GCMRC to move FY2019 funds from an expiring 5-year agreement between USGS and Reclamation to a new one. As previously planned, funds were transferred to the cooperator in FY2020."

    ***GCRMC Response**: Please see the response for Project B (Question 1).*

11. Project H – Page 122 – Please explain "Higher costs of operating expenses was due to the need to shift a cooperative agreement to a service contract which falls in this budgeting category."

    ***GCRMC Response**: We have worked with Ecometric (Dr. Josh Korman) for many years and used cooperative agreements to fund that work, but last year the USGS Office of Acquisitions and Grants helped us shift to a more appropriate funding mechanism, purchasing services via a purchase order. Services covered this way fall under Operating Expenses and not under the Cooperative Agreement line item, so standard overhead applies rather than the pass-through rate. Dr. Korman lowered his costs somewhat as well, however overall costs were not quite what we projected.*

12. Project K, Page 138, Project N, Page 156, and Lake Powell Water Quality Monitoring – Please explain the funding for the research on Greenhouse Gas Emissions in Lake Powell, it appears it was funded by EPA?

    ***GCRMC Response**: EPA had some leftover funding that was used for post doc Sarah Waldo's trip out to Lake Powell. Robert Radtke agreed to support the project in kind, so the fieldwork was done as part of a quarterly Lake Powell Water Quality Monitoring trip with participation from BOR.*

13. Project M, Page 154 – Please explain "Higher costs in operating expenses due to the requirement of USGS to pay contract administrative fees associated with a labor dispute with the Department of Labor regarding salary rates in GCMRC's boat operations contract" and "Higher costs for operating expenses were due to needed field staff for several projects being provided by contractors instead of USGS employees which are funded through GCMRC's boat operations contract."

    ***GCRMC Response**: The costs related to the labor dispute resulted from employees for our previous boat operations contractor filing a complaint with the Department of Labor that they were not being paid a fair wage. The claim was investigated, and a determination was reached that the claim was valid. The contractor incurred expenses related to the investigation and the UGSS Contracting Officer determined that the Government was liable for some of these expenses and that they were valid costs under the contract.*

    GCMRC's most recent contract to provide boat operators for river operations also includes the option to hire science technicians. This has proved to be cost effective by allowing us to hire technicians only for the duration of river trips, but has required the shifting of funds from the Salary budget category to Operating Expenses where contracts are accounted for.

14. Lake Powell Water Quality Monitoring, Page 158 – Have the results of the salinity retention in Lake Powell been shared with the Salinity Control Forum?

    ***GCRMC Response**: Yes, lead author Deemer presented this work at the Colorado River Salinity Control Forum Science Team meeting on January 24, 2020.*

15. Lake Powell Water Quality Monitoring, Page 163 – Any thoughts on why SRP concentrations are elevated 10 m below the penstock depth and the bottom water?

    ***GCRMC Response:** This is likely due to decomposition of sinking plankton in the water column.*

16. Lake Powell Water Quality Monitoring, Page 166 - Lake Mead is included in the analysis. Was sampling also performed on Lake Mead for GHGs?

    ***GCRMC Response**: No GHG sampling was conducted for Lake Mead. We just estimated emissions from Lake Mead based on several published global models.*