

# Consolidation of Proposed Action Feedback:

## Bureau of Indian Affairs

It will be especially important to keep tribes involved in the decision making as the resource central to their origin stories becomes more and more endangered.

Perhaps whether HFEs should occur at all is the more important question. In the eyes of the public (including tribes), if an HFE uses any more water whatsoever than would be normal for electricity generation or water apportionment, then why would it be done? Others having to cut back so an "experiment" can take place needs to be examined.

## National Park Service

### **Truth 1:**

This fits our understanding of climate science, and the permanent change that increasingly hotter temperatures and increased evaporation rates are being observed across the western US. We believe using the term "aridification" rather than "drought" helps everyone work from a common basis about what the problem is and what types of solutions need to be brought to bear to address it.

### **Truth 2**

This is helpful to understand and given the lack of storage both lakes Powell and Mead, this accurately reflects the path forward on the Colorado River.

### **Truth 3**

While we agree that hydropower is an important part of the western energy grid, we would also point out the major and increasing role that other alternative energy, particularly solar and wind power, are playing with in filling the daily peak needs for power. Expected increases/additions of solar and wind power within the next few years will increase the contribution of these sources significantly. We believe there are compelling short-term needs that may require some diversion of hydropower to maintain resources important to both the NPS and all the states, such as the federally threatened humpback chub downstream of the Glen Canyon Dam.

### **Truth 4**

We agree and appreciate the clarity with which you've identified this clear and present danger.

### **Truth 5**

We agree. However, we would point out that a longer-term response is needed to have meaningful effects on the establishment of these invasive species. Their numbers will increase quickly next summer if our understanding of the likely temperature regime in the river is correct.

### **Truth 6**

We think this statement is correct and appreciate your leadership at this time to adapt on the timescale needed.

### **Truth 7**

We most certainly agree and want to emphasize the importance of adaptive management. The Glen Canyon Dam AMP was predicated on the notion of adaptive management, and we need to utilize those tools now more than ever before if we are to address the challenges before us.

### **Truth 8**

We look forward to working with you to do what we can on these issues from our role as the NPS and the land manager of Glen Canyon National Recreation Area and Grand Canyon National Park.

### **Evaluation of HFEs under Low-elevation/Low-flows**

We think this action is needed to respond to low water conditions and have a viable strategy moving forward for meeting the Grand Canyon Protection Act mandate to maintain natural and cultural resources and recreation downstream of the dam. Our sandbars are experiencing erosion at alarming rates, creating difficulties for recreational users and exposing cultural resources. We look forward to seeing GCMRC analysis about ways to address these concerns. We suspect some options may be available under the flexibility afforded by the LTEMP ROD for low water conditions. Others may require changes to the ROD to allow for us to fully respond and adjust to aridification for the longer term.

### **Evaluation of Downstream Resource Impacts under Low-Elevations/Low-flows**

These are very important analyses that will highlight the dangers to humpback chub and many other resources if we allow the system to reach these major benchmarks. We would also point out that the operating range between 3525' and powerpool may be one of the worst operating ranges for non-native fish concerns in terms of passthrough and temperatures issues. We suggest the evaluation consider the approach to powerpool as well as the powerpool level itself.

### **Nonnative Fish Strategic Plan**

We appreciate this action and particularly the focus on the equipment and budget since we believe many actions were contemplated under the 2019 NPS Expanded Non-native Aquatic Species Management Plan. However, there is need for assistance on equipment, staffing and multiagency coordination on the approach for of these actions. We believe this forum, in conjunction with more formal consultation with tribes, may allow for creative brainstorming of new approaches that may address many concerns.

### **NEPA Compliance for Operational Flexibilities to Address Nonnative Fish**

We appreciate this action item and the focus on a rapid time period for this to occur. Early analysis is showing that to have a meaningful impact on preventing the establishment of these highly invasive non-native fish, this action is the critical. The consideration of options that include the use of bypass is also critical to address this clear and present danger that these invasives present to the threatened humpback chub and other native fish in the Grand Canyon.

### **Planning to Evaluate Exclusion Projects**

This is important and we hope Reclamation can quickly identify and implement the most effective approaches to reducing non-native fish passthrough at the dam.

## US Fish and Wildlife Service

### **Planning to Evaluate Exclusion Projects**

Important to provide a time frame. 6 months -- February 2023; this would allow feasibility studies by December 2023 (10mo)?/February 2024 (12mo)? How long do feasibility studies take, can they be compressed, if so how much? Aggressive goal would be to have construction completed 2024, or before warm water AIS spawning season 2025.

## Hualapai Tribe

*None*

## Hopi Tribe

Hopi only has one comment. A large portion of these issues stem from climate change. There is no mention of it in the document outside of inference. Neither is there anything on goal planning or research for that topic.

Beyond that this is a strong document; one that has great scope for all our agencies tackling these difficult recent issues.

## Navajo Nation

Request we act quickly

Regarding redistribution of funding and contracting for assistance: this is an opportunity to provide greater and more meaningful involvement with the Tribes. Technician positions and other non-technical positions should be prioritized to Tribes who have the capacity to provide staff who also have local knowledge of the river and area. Include tribal involvement in decision-making. This is an issue being evaluated currently anyway.

### **Evaluation of Downstream Resource Impacts under Low-Elevations/Low-flows**

Upstream also matters. We understand that BOR considers this a separate issue but there are also impacts "upstream" on Lake Powell.

### **Nonnative Fish Strategic Plan**

BOR and NPS plans should be clearly integrated and/or prepared as compliments to each other. Separate plans can be wasteful and may duplicate actions. And perhaps include a statement on a preference for ethical treatments to the extent possible.

### **NEPA Compliance for Operational Flexibilities to Address Nonnative Fish**

We agree with getting the NEPA process started now so we can get tools ready to deploy to address the short-term issues. Mid and long-term solutions will likely take longer to consider given other factors (i.e.,

hydropower, etc.). Regardless, managers need these tools in their tool box so we can address the issue as quick as possible.

### **Planning to Evaluate Exclusion Projects**

The way this is worded makes it sound as if only one option would be selected based on the feasibility. Whereas this should be revised to indicate that more than one option or multiple different approaches could be used to address non-native fish entrainment. I think it was said in the meeting that multiple techniques/approaches could yield better results.

## Pueblo of Zuni

*None*

## Southern Paiute Consortium

*None*

## Arizona

An opening paragraph would be helpful to outline that the truths are general observations from the Secretary's Designee, and not the AMWG.

**Truth 3** ADWR concurs with UT's comment in Truth Bullet 3 and suggests redrafting the sentence: "This is true of all uses, ~~but is perhaps most striking~~ including when water is diverted from hydropower."

### **Evaluation of HFEs under Low-elevation/Low-flows**

ADWR suggests additional language to clarify that HFEs are designed, per the LTEMP ROD, to build beaches and for sediment transport. The LE/LF actions to be explored by GCMRC should be constrained to meet those purposes, and ancillary benefits that may accrue to manage non-native fish species should not be part of the primary analysis or purpose for any experiments, though documentation of such benefits would be appropriate.

### **Nonnative Fish Strategic Plan**

The first non-native fish directive should be clarified to either clearly supersede the Directive issued in May, or to distinguish that it is supplementing the May Directive, and if so, how. The request to include budgets and equipment needs is an additional request from the May Directive. It should be clear that Reclamation and GCMRC are responsible for those budgetary actions and for proposals redirecting funds to meet near-term objectives. Acknowledgment of the TWG and SBAHG's voluntary role should be noted.

### **NEPA Compliance for Operational Flexibilities to Address Nonnative Fish**

The original May Directive was to Reclamation, GCMRC, and TWG. GCMRC's Charles Yackulic presented four substantial operational alternatives to the AMWG last week. The current language tasks Reclamation to compile a NEPA schedule (presumably to consider those alternatives/flow regimes). Please clarify that the May Directive's "Operational Alternatives" bullet has been completed or whether continued development/refinement by GCMRC is required.

ADWR has no concern with the term "GCDAMP partners" and presumes it meant the AMWG interested party and stakeholder mailing list. If it means something else, the term should be clarified/more specific.

### **Planning to Evaluate Exclusion Projects**

ADWR understands/assumes that a Feasibility Study for the non-native fish exclusion options will conform to Reclamation engineering standards for a Feasibility Report. Generally, given the time sensitive nature of the issues addressed during the August AMWG meeting, ADWR supports the sense of urgency generally laid out in the document.

## California

### **Nonnative Fish Strategic Plan**

A critical component to the success of this action is ensuring the plan is actionable. We suggest adding a second component to ensure identified critical gaps, including having the personnel and equipment for rapid implementation, are addressed.

## Colorado

*None*

## Nevada

### **Evaluation of HFEs under Low-elevation/Low-flows**

Given the shortness of time for getting this done, I can understand why the Leadership Team is an appropriate avenue for this task. However, I do think we need a link back to the AMWG process, particularly if this analysis will impact future discussions (which it is very likely to do).

Also given the tribes and NGOs are not part of the leadership team, will there be parallel consultation/discussion/input with or from the tribes and NGOs?

### **Evaluation of Downstream Resource Impacts under Low-Elevations/Low-flows**

Will the proposed schedule and budget be part of the triennial budget or require additional funds? If funds are additional, do we know yet where will they come from? And will this schedule and budget be presented through the TWG and AMWG, that is to whom does the proposed schedule and budget get presented?

### **NEPA Compliance for Operational Flexibilities to Address Nonnative Fish**

Would this/could this also be shared with the TWG and AMWG?

### **Planning to Evaluate Exclusion Projects**

Would this not be folded into the second task? Or is the focus instead on what options would be available under existing compliance?

## New Mexico

### **Truth 7**

Should address reprioritizing.

### **Truth 8**

Isn't this one-time funding?

## **Evaluation of High-flow Experiments under Low-elevations/Low-flows**

Doesn't WAPA need to be involved here?

### **Nonnative Fish Strategic Plan**

The exclusion projects are part of this strategy and should not be separated from this plan.

### **Planning to Evaluate Exclusion Projects**

I believe that it may be possible to implement more than 1 type of exclusion device to maximize efficiency. I would not limit thinking to just 1.

## **Utah**

General comment: This doesn't seem to factor in the concerns that some other stakeholders detailed in a May letter about better stakeholder involvement in decisions, particularly from the tribes.

### **Truth 2**

In the future, releases to the lower basin could also be lower due to policy changes (e.g., less balancing) and not just lower inflows into Lake Powell

### **Truth 3**

This may be the Secretary's Designee's truth (that impacts to hydropower are most striking), but I don't know if it's a truth that all stakeholders would agree on.

### **Truth 4**

Do we need to distinguish as juvenile or YOY SMB? Adult SMB in small numbers have been observed in past sampling events over the years

## **Evaluation of High-flow Experiments under Low-elevations/Low-flows**

Present only to the leadership team, or the planning and implementation team (includes technical team, leadership team). AMWG as well.

### **Planning to Evaluate Exclusion Projects**

Are these options the same that are being considered in Reclamation's technical report for reducing fish escapement at dams (e.g. bubble curtains, nets, etc.) or do they also include other options for avoiding entrainment, such as keeping reservoir elevations higher? Is the "most effective option" option also limited by cost, policy, or other constraints?

## **Wyoming**

### **Evaluation of HFEs under Low-elevation/Low-flows**

I only have a comment, not a change. I feel that better understanding how to minimize impacts to hydropower while increasing the effectiveness of HFEs would provide valuable information to the AMWG in order to make decisions. Therefore, I do encourage this portion to remain in the proposed action.

### **NEPA Compliance for Operational Flexibilities to Address Nonnative Fish**

We appreciate and agree with the fact that you would keep this as a focused scope. Similarly, I feel it is important that you explicitly focus the attention on Lake Powell and Glen Canyon Dam with all upstream reservoirs removed from the scope. Please consider my changes to your text underlined below:

*"...I encourage Reclamation to analyze the degree to which such compliance can be tiered off the LTEMP FEIS and ROD at Glen Canyon Dam and Lake Powell. It will be important to maintain a focused scope for this effort and to avoid inclusion of ancillary actions ~~and~~ outside of Glen Canyon Dam and upstream reservoirs as well as issues to ensure the process can meet a possible spring/summer 2023 implementation...."*

I would like to end by saying that it is a very rare opportunity to have the available funding resources, specifically those in the Bipartisan Infrastructure Law and the Inflation Reduction Act, that explicitly are designed to support causes such as those that we find the system struggling against. I strongly encourage Reclamation, with support from the Secretary of the Interior, to seek out all opportunities in which it can use these funds! Not doing so is a lost opportunity and may ultimately sacrifice funds from an existing program within the GCDAMP.

## Environmental Group – Grand Canyon Wildlands Council

Mr. Pullen, Mr. Fullard, and AMWG,

Thanks much for the opportunity to comment on the five proposed actions. We are in favor of all of these actions. Our only comments are that in this time of crisis we not forget that positive AMP mission-supportive actions can be taken on non-crisis issues, like 1) ensuring Native American trust responsibilities are being fully met, 2) making forward progress riparian restoration, 3) clarifying objectives for the 12 AMP goals so that we can derive a clear set of monitoring metrics, 4) improving basic understanding of ecosystem processes, like the nutrient budget and habitat development, and 5) correcting the HFE guidelines to allow for springtime high flows.

To the latter point, testing of one or more springtime high flows remains an essential task for learning in the LTEMP about how to improve river ecosystem management. Due to the present language in the triggering criteria, we will not have many opportunities to do so during the LTEMP, so we see having a clear plan for conducting a springtime HFE as a management experiment, when sufficient water is available, is essential.

## Environmental Group – American Rivers

None

## Recreational Industry – Grand Canyon River Guides

### Truth 2

True, but we cannot dismiss the importance of conservation and living within our means.

### Truth 3

Respectfully disagree that all of this statement is 'true'. By definition without water there is no hydropower, but it is troubling to think that an HFE is a 'diversion' from hydropower. More to the point,

Glen Canyon Dam's relative significance to the Western Interconnection is dramatically less today than it has been historically. It is certainly hugely important to historic users who lack alternative power sources, but perhaps not so much across 'a large swath' of the West's total population. Given the high potential of dropping 'below power pool' elevation, the 'truths' are that those users most dependent on GCD output need help to diversify their energy portfolio and the revenues generated by the dam will need to be replaced.

### **Truth 7**

Agreed. What does this mean for the future of decision-making? We need to evaluate how this body can improve not just the quality of its decisions, but the speed with which it can act.

### **Evaluation of Downstream Resource Impacts under Low-Elevations/Low-flows**

To evaluate these impacts we need to understand what releases 'below power pool' could look like. Suggest multiple scenarios be used to evaluate different flow regimes. At the same time we need to understand what releases are possible using the outlet tubes.

### **Nonnative Fish Strategic Plan**

It is imperative that collecting SMB data below the dam be done now so we can use that information to target actions in the next breeding season.

### **NEPA Compliance for Operational Flexibilities to Address Nonnative Fish**

Agreed and with commentary: This really demonstrates the limitations of the LTEMP and why an SEIS should be considered so this type of action could be covered by a CatEX or DNA. We will absolutely need more flexibility to meet the challenges ahead.

## **Recreational Industry – Trout Unlimited**

The Recreational Fishing AMWG and TWG representatives appreciate the clarity, direction and urgency expressed in the Truths and Proposed Actions presented to the AMWG on August 18, 2022.

We are in full support of the proposed actions and agree with all but one of the eight truths, and suggest only a few minor changes to the wording in the document.

We appreciate the urgency expressed in this document, and the call by you to create a nimbleness within the GCDAMP and BOR to address these critical concerns to the system. We agree with all of the action items that you proposed.

We also believe that the Grand Canyon Protection Act and the Endangered Species Act must be forefront in plans developed by the GCDAMP and BOR at all times, and especially during these times of threat to the river system.

Some minor suggestions for changes:

We suggest a spelling change in the fourth line of the 7th Truth. We think that it should read... - with the emphasis on the **word** available-

We would also suggest that in the fifth line of the 7th Truth that it should read Adaptive **Ecosystem** Management



We believe that change reflects the Program's intent for continued learning about our actions and their impacts on the Colorado River Ecosystem in order to improve future actions.

In the first Low Elevation/Low Flow action, it seems that there should be a desired or expected delivery date included. The same is true for the Non-native Fish Strategic Plan. It seems to need a desired or expected delivery date.

## **Truth 2**

We remain steadfast in our belief that water conservation is an important component in providing adequate water for Lake Powell, and ultimately the river. Importantly, the more that states and individuals in the entire basin exercise meaningful water conservation efforts, the more options are available to us in terms of maintaining or improving lake elevations, and using the lakes to protect the river corridor. We do not see how water conservation will lead to less water inflow into Lake Powell or Lake Mead.

While water conservation is considered outside of the purview of the GCDAMP by some, GCDAMP members hold considerable sway within their respective agencies, states, and organizations. If there is a way to leverage greater water conservation efforts through the GCDAMP, we encourage those actions.

In addition, we ask all GCDAMP members to educate those they can influence about the value of water conservation measures to this system, and strive to identify and implement meaningful water saving strategies as they work with their respective agencies, states, and organizations.

## **NEPA Compliance for Operational Flexibilities to Address Nonnative Fish**

We agree with that charge and especially appreciate the following sentence in that action item: *This NEPA analysis must not become a vehicle for addressing the range of concerns about the LTEMP FEIS and ROD, but rather give us possible tools that we can implement in a timely manner to address the non-native challenges we are currently facing.* While we, and probably others, see the need for changes to the current LTEMP FEIS and ROD, we understand and support the need at this time to be focused in a NEPA process to expedite the timeline to allow for the permission to use the best operational alternatives/actions to disadvantage smallmouth bass and other high-risk, non-native fish before it is too late for these alternatives/actions to have the desired impacts on this threat to the river.

Thank you for your leadership, and we are encouraged by the actions proposed in this document to help us resolve this threat to the river system while there is still time.

## **Federal Power Purchase Contractors - Colorado River Energy Distributors Association *and* Utah Municipal Power Agency**

Following the AMWG meeting on August 18, 2022, you circulated a document containing "Truths" and "Proposed Actions", seeking comment by COB August 22, 2022. Given the brevity of the comment period and noting that the proposed actions were described as preliminary, the following remarks should be considered preliminary and may not represent the views of the CREDA Board. We look forward to further discussion.

[Truth 1 and Truth 2] from the document are especially pertinent to CRSP power customers. In considering these truths, combined with your desire to “work together to reach compromise and consensus”, it is important to understand and acknowledge some additional Truths that should be considered as we work toward this objective.

- The Colorado River Storage Project Act of 1956 authorized the project for multiple purposes and multiple benefits. Section 5 of that Act established the Basin Fund and requires that all revenues collected in connection with the operation of the CRSP and participating projects be credited to that Fund.... *for (1) defraying the costs of operation, maintenance, and replacements of, and emergency expenditures for, **all facilities of the Colorado River storage project and participating projects...*** These obligations far exceed costs associated with hydropower production.
- On December 1, 2021, in order to preserve the Basin Fund so that it could continue meeting its funding obligations, the effective power rate was increased 46% and the power customers took on the added risk and cost of replacing power that is not being generated by CRSP facilities. Those actions allowed the Basin Fund to maintain sufficient revenues to cover the annual OM&R costs of the CRSP and to repay the capital costs of the project, irrigation assistance, Salinity Control Program and MOA costs.
- In accordance with processes established under the LTEMP ROD, consideration is being given to as yet fully defined and all untested operational experiments associated with non-native fish concerns as well as a fall HFE. Under historic and current funding structures, all of the options described to date would reduce the Basin Fund, putting at risk the multiple obligations and programs it funds. In addition, experiments that include powerplant bypass must also be analyzed to assess impacts to regional power supply, grid operations, ancillary services and black-start capability. For tribal customers who receive bill/benefit credits, immediate financial impact can also mean a reduced credit or payment, which is used by the Tribe as it determines, often improving quality of life conditions in their community. As proposed, these experiments will have a direct and immediate financial impact on 133 CRSP power customers, which include 53 tribes. This indisputable fact puts WAPA and the AMP power purchaser representatives in an untenable situation in trying to achieve consensus.

### **Evaluation of High-flow Experiments under Low-elevations/Low-flows**

At the outset, “would be effective” must be defined. What is the specific objective being sought?

Without that metric, one cannot assess efficacy of any HFE design. Next, we disagree that the objective for the hydropower resource is “minimizing impacts”. The LTEMP ROD has now been in place almost six years and there has not been one experiment or attempt to meet the clear LTEMP objective to “Maintain or Increase Hydropower Production”. Notwithstanding that objection, IF a sediment trigger is reached for the fall of 2022 accounting period, we recommend that a within powerplant HFE could be performed, recognizing the truths regarding aridification and power production, a bypass operation is not economically feasible. In the event such an HFE were undertaken, we recommend that fluctuations be maximized before and after the peak, with the objective of disturbing the river to negatively impact non-native fish. This type of operation was analyzed as part of Alternative B in the LTEMP EIS, so there should be sufficient compliance already in place. Whether or not that HFE design would “maintain or increase” hydropower should be analyzed; at a minimum, it would likely minimize impacts to hydropower as compared to any HFE that includes bypass.

### **Evaluation of Downstream Resource Impacts under Low-Elevations/Low-flows**

We don't understand why a "period greater than three months" is called out in this evaluation. Dropping below minimum power pool and below dead pool FOR ANY PERIOD should be the basis for evaluation. In addition, hydropower is an "LTEMP resource" that must be included in this evaluation. GCMRC will need to coordinate with WAPA as well as "Reclamation modelers on results that may be available to blend into coupled-modeling activities." This analysis must also consider impacts to grid operations, regional power supply, ancillary services and black start capability. WAPA will need to coordinate with AMWG power purchaser representatives to appropriately assess both economic and financial impacts to the CRSP hydropower resource.

### **Nonnative Fish Strategic Plan**

We will continue to participate fully through the SMB Ad Hoc, TWG and AMWG process to achieve this action.

### **NEPA Compliance for Operational Flexibilities to Address Nonnative Fish**

As described, this action is limited to development of a project management plan, so we will refrain from restating questions we have raised about specific NEPA compliance and authorities. Before any operational changes are considered, the management actions that have begun should be fully utilized, including additional activities that have been recommended by the SMB Ad Hoc Committee, such as physical treatment of the slough. We recommend that as this compliance will center on dam operations, WAPA should be a co-lead agency with Reclamation.

### **Planning to Evaluate Exclusion Projects**

Similar to the project management planning effort identified in items 3 and 4, we will defer specific comments pending review of the plan. We offer one general comment, however, on both the Truths and the Proposed Actions. "Establishment" must be specifically defined both in terms of fish presence as well as the geographic scope objective of any of these actions. From information gained through the SMB Ad Hoc Group, it is clear that specific proposed actions likely will not be effective in the entire river below Glen Canyon Dam. Therefore, it is important for the AMP to have a clear understanding of expectations and potential outcomes as alternatives are assessed.

### **Recommendation and Authorities**

The following recommendation is supported by another of the Truth statements: *We will need to consider taking actions that we have not considered before because we are facing conditions and resource impacts that have not seen before.*

**Secure non-reimbursable, non-returnable federal funding to mitigate drought impacts to the Basin Fund as follows:**

- a) **Federal funding for all GCDAMP experiments.**
- b) **Federal funding to supplement the Basin Fund to meet its net revenue requirements\* during annual periods of extreme drought.**
- c) **Federal funding to ensure the Basin Fund has sufficient funding for WAPA to meet its obligation to deliver the Deliverable Sales Amount (DSA) to its customers.**

This recommendation reflects another Truth, that the non-power programs funded by the Basin Fund are for the benefit of an entire population, and should be funded as such, not by a restricted pool of recipients of federal hydropower.

#### AUTHORITIES AND SUPPORT:

- CRSP Act of 1956, sec. 1, 5, 7
- IRA sec. 50233(b)(1) and (b)(3)
- Agreement No. 19-WC-40-746, sec. 3.3
- WAPA-199 Rate Brochure, pp. 7, 13, 17 (Basin Fund obligations, net revenue requirements, DSA)
- S.4232 sec. (d) as introduced
- P.L. 106-277, sec. 204(d)
- (d) ADDITIONAL FUNDING.—To the extent that funding under subsection (a) is insufficient to pay the costs of the monitoring and research and other activities of the Glen Canyon Dam Adaptive Management Program, the Secretary of the Interior may use funding from other sources, including funds appropriated for that purpose. All such appropriated funds shall be nonreimbursable and nonreturnable.

Leslie James, CREDA, [creda@creda.cc](mailto:creda@creda.cc)

## Arizona Game and Fish Department

*None*

## Western Area Power Authority

- Thank you for providing the leadership to recognize these issues that are upon us. We need to prioritize these issues over less urgent topics and experiments the Program has been involved with this past year. We don't have the time and the bandwidth to work on everything we would like to work on. We support fast-tracking non-flow actions this fall/winter to avoid additional entrainment of nonnative fish or other actions to limit over-winter survival of smallmouth bass in particular. One action discussed at the AMWG was use of higher fluctuations to try to reduce growth and survival of the smallmouth bass that were spawned below Glen Canyon Dam this past year. We think this could be helpful and would ask for some consideration of this option. It is something that might be done quickly using options considered in LTEMP.
- We are concerned about some of the comments we are hearing from various DOI staff that hydropower should be a lesser resource when dealing with nonnative fish or other issues. We understand the need to resolve issues regarding nonnative fish establishment, however some of the ideas being proposed could jeopardize the hydropower system and would have to be mitigated in some way. We have ideas that might help with those discussions. We would appreciate DOI's support in allowing us to describe these challenges during calls and that impacts to resources including hydropower may need to be addressed and resolved before proposed actions are deemed viable.
- The concept of smallmouth bass "establishment" and success of these various bypass alternatives needs additional clarification. Many of the proposed actions are only effective down to the LCR due to natural warming of water as it goes down the canyon. Existing plans appear to be deficient in preventing establishment lower in the river in the western Grand Canyon. Dr Yackulic can provide additional information on this. We recognize it may be important to take

measures to avoid establishment in reaches closer to Glen Canyon Dam in order to reduce propagule pressure that might lead to establishment in reaches further downstream, but data should also be provided showing that the proposed actions involving bypass will do little to affect smallmouth bass lower in Grand Canyon National Park if they establish down there.

- It will be important to be clear about authorities and coverage under NEPA and the ESA as we consider these actions. For hydropower, the baseline conditions considered under LTEMP have changed considerably and financial impacts to WAPA and customers is increasing due to the drought.
- Funding should be sought from BIL, IRA, or appropriations to offset hydropower impacts of operational changes involving bypass to control warmwater nonnative fish. The Basin Fund will likely not be able to support such operational experiments.
- Additional consideration should be provided for nonnative fish entrainment. How and when HFEs are conducted may influence the entrainment risk of nonnative fish. The entrainment risk might be reduced by limiting high releases from the penstocks to periods of time when the reservoir is stratified (July, August, September) or when the reservoir is at its highest elevation (June).
- Mechanical sand augmentation via dredging sand deposits in the river might be effective and rebuilding and maintaining a few select high-use campsites in years when sufficient sand is available but HFEs cannot be conducted. WAPA developed a pilot study on this use with Argonne National Lab and is interested in testing this operation in Glen Canyon to stabilize infrastructure and improve the NPS campgrounds in the Lees Ferry reach.
- Hydropower impacts from HFEs can generally be reduced by minimizing the amount of water bypassed, minimizing the amount of water moved from power months (December, January, February and June, July, and August), and conducting HFEs in shoulder months (September, October, November and March, April, May). It will be important for power to make decisions about HFEs as early as possible so that water can be moved from these lower power months. Given limited water and a number of other factors including low volumes which leads to more sand retention in Marble Canyon, we think that Spring HFEs using sand from the prior accounting period should get a fresh look and be considered for additional compliance. It seems clear that ecologically, spring is a better time than fall to conduct HFEs and assumptions used in the LTEMP regarding trout recruitment etc may no longer be valid. Costs to hydropower are likely similar, but we think the ecological benefits of spring vs fall HFEs is greater.
- Please make sure to include all the LTEMP resources including Hydropower and Energy. It is not clear why three months were used as the trigger. Going below minimum power pool or dead pool for any length of time could have huge effects on resources. Consider dropping the three month requirement.
- Is NEPA compliance going to include non-flow activities such as a permanent fix to the -12 mile slough? Operational alternatives and actions involving releases from Glen Canyon Dam should be assessed and implemented in concert with nonflow actions to ensure success to the greatest degree possible.
- A permanent fix to the -12 mile slough is needed in order to avoid annual rotenone treatments to remove warm-water nonnative fish that will continue to spawn and utilize it as nursery

habitat as long as release temperatures remain elevated. We support the position that rotenone treatments should only be conducted after the root cause of the problem is addressed. Excessively high water temperatures of 30C+ in the upper end of the lower slough could be mitigated by dredging a small channel from the mainstem at the upper end of the cobble bar, through the upper slough, and into the lower slough (see Option 1.2 in Reclamation's [Temperature Reduction report for the Glen Canyon Slough](#)). Reducing temperatures from 30C+ down to mainstem temperatures will help in reducing the slough in being such an attractant and nursery area for warmwater nonnative fish.

- Who will be the lead/co-lead agencies [for NEPA]? WAPA is interested in being a co-lead agency with BOR. At a minimum WAPA is interested in working with ANL to be the expert analysts for hydropower effects. It will be important to bring together the operators of the dam and hydropower system to evaluate potential effects and complexity of implementing these options. There could be impacts to facilities and power line systems, as well as staff resources that need consideration.
- Does this task [fish exclusion projects] have a deadline? Could this action be fast tracked for potential implementation ASAP?