**Small Mouth Bass (SMB)**

Limited use of bypass as a control for SMB will be a power issue not a flow issue. The amount of water will stay the same.

A warm water spike flow is not the most effective control method.

There is a concern if we don’t have dam operations in the next year within 5 years SMB will be throughout the system.

They are not sure if spike flows will help with Green Sun Fish (GSF).

SMB will reproduce at 15 deg C and spawning habitat is important.

Charles Yackulic has been graciously providing all of the information. He supports the biologists and has been modeling the situation. He has been giving his best estimates in a range of uncertainty. There were questions about theoretical versus reality, and about his time availability for this emergency.

GSF have been in the slough and have repeatedly passed through the dam and moved to this warm spot. The potential for GSF to explode in numbers has also gone up. They are catching GSF in other locations now too. It is important to understand what is going on with GSF too. Suggestions were made to fill in the upper slough, place a permanent structure over the slough to cool it, dredge a connection for flow through in the upper slough, or cover it with black plastic. A spike flow may not address GSF.

Another option to address SMB would be to do bypass the entire summer. This would cool the water significantly.

More GSF, walleye, large-mouth bass, and carp are occurring at Lees Ferry. It is extremely difficult to prevent dam pass-through and breeding, but these are most important aspects of control. Using the bypass tubes will limit the entrainment of these fish.

Use of the bypass tubes will limit the amount of water that can be discharged through the dam. This could restrict the annual volume of water released. From an energy perspective this is not a preferred option. Fifty percent of the power produced at Glen Canyon Dam goes to Tribes. Glen Canyon Dam is also a reserve and regulation dam. Reserve means power generation can ramp up to assist with any brownouts and regulation means there is always enough power on the grid.

If the lake is above 3525 ft, this may minimize the SMB problem. The current population is not yet established, so we need to find a solution as fast as we can. Once there are large numbers of SMB it will be too late. Spike flows have helped at Flaming Gorge. This mechanism has reduced spawning by 30%.

Suggestions of how to deal with the problem:

Spike flow

Bypass water for short periods

Bypass water for entire summer

Fill in or channelize slough. Channelizing the slough may not work because it may only reduce the temperature in slough a few degrees C.

Remove fish from slough and take to Lake Powell

**Tribal Perspectives**

***Hualapai*** – Tribes have been nonexistent in the discussion of this issue. Arden brought the letter he received at the last minute about the issue on the trip. Tribes are contacted only at the last minute. You (Reclamation) feel you know what is best and Tribal scientific knowledge is not as good. We spend a large amount of money on experiments and Tribes are not consulted until the 11th hour. This is not just true in this instance, but every instance and true of all Federal agencies including BLM and the Forest Service. Implement Section 106 at the beginning of the process so that input is open to everyone. Scientists, political leaders, agencies, and bureaucracies all think they know what to do that is best for the fish. We are repeating history. The model is a colonization model. They tried to take away our belief system but is still here, please consider using the model that is in front of you. Invite Tribal leadership at Glen and Grand Canyons to look at the slough. Maybe a blessing at the slough may be appropriate. Tribes need to be included in the various Ad Hoc Groups. It is important the Tribes are at the table. It is hard to manage and control nature. Trust nature rather than trying to manipulate it.

***Southern Paiute Consortium*** – Nature is the ultimate decision maker. We need to decide if we are managing for the fish or managing to protect the environment. All life is important to the Tribes and everything is connected. Listen to nature and respect what she has to say. Most Tribes knew this was going to fail. We have overlooked the Tribal view. The river is always going to run and have life, whatever decisions we make. Think about whether it is water for people or water for animals. The SPC is for life and life will take care of itself. Mother Nature will take care of it.

***Zuni*** – Fish will be fish. We all want to survive. We need to take a look at the whole picture and determine the best measures to protect the ecosystem. Modern man can’t control nature. At one time we wanted to get rid of the native fish. How do we mitigate something outside our control? Zuni would like to go to the site to see what can be done. We all have to find a way to live together and find a balance. A very important element is dialog. It would be helpful for the Zuni President to visit the site to figure out how do we make the best determination of what can be done. For the Zuni it is most important to promote life. There will have to be a resolution from Zuni and we will need to have everyone’s feedback. We have to have a solution, not just be reactive. The Canyon is healthy. Life is here. There has to be a remedy to this problem which includes the Tribal view. Arden wishes that all of his Tribe was in the Canyon so there could be a resolution. We need to sit down and talk and foster better relationships. Life is sacred and we need to make sure we make the correct decisions now. If Zuni contributes to the solution, it is the best way to reach consensus. Zuni needs to have a voice as well as everyone else. For the Zuni, Tribal leadership has to decide what is best.

***Navajo*** – We believe you should respect life and there is value in a balance in nature. In extreme circumstances we understand that removal may be necessary, but only as a last resort. There are different views on this across the Navajo Nation. Navajo DNR engages in removal of non-native fish in some instances. That said, the Navajo feel it is important for the Tribes to support each other and they are respectful of the other Tribes views. They would really like to see measures taken at the dam to limit fish passage, modify the slough, and decrease the amount of breeding ground available to the SMB.