



# ARIZONA RIPARIAN COUNCIL

Center for Environmental Studies  
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January 22, 2004

Ms. Nora B. Rasure, Forest Supervisor  
Attn: Ms. Cecelia Overby  
Coconino National Forest  
23223 East Greenlaw Lane  
Flagstaff, Arizona 86004

Dear Ms. Rasure:

The Arizona Riparian Council appreciates the opportunity to comment on the "Native Fish Restoration in Fossil Creek" DEA which was issued jointly by the U.S. Forest Service (USFS) and U.S. Bureau of Reclamation (BR). The ARC has been involved with the restoration of Fossil Creek since 1992 when relicensing for the Childs/Irving Hydroelectric Project was proposed. We are looking forward to December 2004 when full flows to Fossil Creek will be restored.

### General Comments.

The main concern of the ARC is the risk to the native fish community this action potentially poses. In the DEA the USFS and BR are proposing restoration of Fossil Creek's native fish community. All who have worked for the restoration of Fossil Creek flows and those presently involved with its restoration have the same goal in mind—protecting the native fish and the riparian ecosystem of this unique area. However, killing all of the fish (except the natives removed before the renovation) and an the undocumented community of macroinvertebrates is a very drastic measure, an irreversible step. It is one that should be undertaken only as the last resort. During the time the natives are being held in tanks an equipment failure could kill the entire population of native fish to be reintroduced into the stream. This would be disastrous.

Page 49 states, "In the absence of Federal action to protect the native fish community, the trend of increasing nonnative populations and decreasing native populations would continue, and Fossil Creek would likely become a smallmouth bass, green sunfish, and catfish dominated stream." This perhaps is the model for most southwestern streams; however, Fossil Creek's flow is going from 2-5 cubic feet/second (cfs) to 43 cfs. What is the probability that the native fish community living in newly created natural flow regime would be able to out compete the nonnative species? Serious analysis should be given to this scenario.

Specific Comments.

The number of individuals of each species of native fish needed to be collected to ensure that a sufficient gene pool needs to be determined. Page 23 states, "...capture as many native fish alive as possible." How many is this? 50 or 100 or 2,000 or 11,000 or 210,000 or 456,000, 6,987,000, etc. It is important to have a science base approach to determine a minimum viable population. Page 86 states that "There is no definitive number of fish that must be salvaged to ensure that genetic viability is preserved for repatriation following chemical renovation (T.E. Dowling, Arizona State University, personal communication)". Because of the importance of knowing the number of individuals needed to ensure a genetically viable population a second opinion on this matter would be prudent.

Page 23 describe the collection of native fish to be held reintroduction to the creek subsequent to renovation. Who specifically will be in charge of the salvage operation? Who will be responsible for each subreach? This description needs to contain a complete plan for the collection of the native fish: When will it take place? How many people are needed? Where are these people coming from? What equipment is needed and in what quantity? Will each stream section be broken down into subreaches for collecting? Where will the collection point be for each subreach? Where will the helicopter land? These and all of the "nuts and bolts" of the salvage operation need to be determined well in advance of project implementation.

Also, the equipment to be used to hold the native fish needs to be identified. How many and the type of holding tanks and aeration systems needs to be determined, where will you get them, when will you set them up and test them, what will be the water testing protocol, what is the contingency plan(s) in case of equipment failure. Who specifically will be in charge of the holding operation and how many people are needed for this phase of the operation?

The concentration of Antimycin A needed to be used to obtain a 100 percent fish kill needs to be decided. Page 24 discusses the concentration of Antimycin A needed to achieve this level. Yellow bullhead is the most difficult to kill and a 100 percent kill was reported using concentrations between 25 to 200 ppb. The lower reach in which yellow bullheads have been documented will be treated with "20 and above ppb" and the upper three reaches will be treated with 20 ppb. First, it would seem to be the prudent thing to do to assume that at least a few yellow bullheads are in the upper three reaches and dose the stream accordingly. Second, the amount of Antimycin A needed to achieve a 100 percent kill in all reaches (more specific that "20 and above ppb") needs to be determined.

Although the macroinvertebrate community would be expected to recolonize the renovated segment of Fossil Creek, it is unknown because of the lack of in depth surveys. Do any sensitive species exist in the stream? Prior to renovation, this information should be collected and a determination made.

In light of the fact that the renovation project is a extremely drastic measure which could result in dire consequences for the stream's native fish community, a thorough analysis of this action should be made. Appendix C lists the stream renovations in the Lower Colorado River Basin

and notes whether or not the project achieved its purpose. The projects were reported to achieve their purpose in 19 of 21 cases. However, the definition of "achieve it purpose" is not given. Was the purpose to benefit native fish or was the purpose to benefit native fish by removing 100 percent of nonnative fish? Are the projects which were deemed successful still regarded as successful. In other words were they truly successful and for how long?

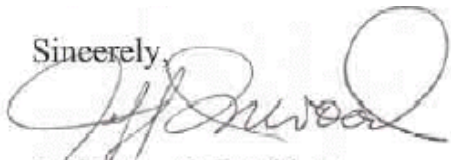
Design criteria for the barriers needs to be listed. For example, was it determined that a 4-foot vertical drop was needed with a 20-foot apron downstream of the barrier with a 2 percent slope needed for an effective barrier? Also, under what flood flows (1 in 10 year, 1 in 100 year, etc.) will the barrier be effective? Does the preferred alternative meet these design criteria?

In summary, the renovation project may be the prudent action to take to save the fish population in Fossil Creek; however, a more thorough analysis is needed to determine if this action is actually needed and what will be its probability for long term success.

Above all, if this project is implemented it must be done so successfully. Time is growing short until December 2004 and all the agencies involved in this operation need to plan--plan--plan.

Failure due to lack of planning is not an option.

Sincerely,



Jeff Inwood, President  
Arizona Riparian Council