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In Reply Refer To:

June 26, 2008

AESO/SE
22410-F-2008-0348

Memorandum

To: Project Coordinator, Arizona Fish and Wildlife Conservation Office, Fish and Wildlife Service, Flagstaff, Arizona

From: Field Supervisor

Subject: Biological Opinion on Renovation of Cibola High Levee Pond

Thank you for your request for formal intra-Service consultation with the Arizona Ecological Services Office (AESO) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). Your request was dated June 17, 2008, and received by us on June 17, 2008. At issue are impacts that may result from the proposed renovation and restocking with native fish at Cibola High Levee Pond (CHLP) located on the Cibola National Wildlife Refuge (CNWR) in La Paz County, Arizona, and Imperial County, California. The proposed action may affect the endangered razorback sucker (*Xyrauchen texanus*) and its designated critical habitat in the Colorado River, and the endangered bonytail (*Gila elegans*).

In your memorandum, you requested our concurrence with your determinations that the proposed action is not likely to adversely affect the endangered Yuma clapper rail (*Rallus longirostris yumanensis*), and not effect the endangered southwestern willow flycatcher (*Empidonax extimus traillii*) and the candidate yellow-billed cuckoo (*Coccyzus americanus*). We concur with your findings and provide our rationales in Appendix A.

This biological opinion is based on information provided in the June 17, 2008, intra-Service biological evaluation form and other sources of information. Literature cited in this biological opinion is not a complete bibliography of all literature available on the species of concern, use of rotenone or Antimycin A to kill fish as a management action and its effects, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

Consultation History

AESO, Arizona Fish and Wildlife Conservation Office (AzFWCO) and CNWR (all Fish and Wildlife Service [FWS] offices) discussed the need for renovation of CHLP to remove non-native fish species. Plans for this activity were initiated in 2005; however, several issues arose that required extensive discussions. Key contacts with the Southwest Regional Office and the Office of the Solicitor were completed in May, 2008, and enabled planning for the project to go forward. AESO provided guidance to AzFWCO in developing the intra-Service biological evaluation, and reviewed a draft document on June 16, 2008. The final biological evaluation with the request for consultation was emailed to AESO on June 17, 2008.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The project area is the CHLP, a 5.5 acre isolated backwater of the Colorado River on the CNWR (Figure 1). The backwater is located behind the bankline stabilization and levee on the western side of the river, and was originally formed as part of an oxbow lake. Immediately downstream of CHLP is Pretty Water, another oxbow backwater. Water flow through the levee and via subsurface flow of river water into and out of the backwater provides freshening flows and also could carry piscicides out to the river.

The purpose of the proposed action is to restore and enhance the native fish community in the lower Colorado River by eradicating non-native fish from CHLP and restocking the backwater with endangered razorback sucker and bonytail. Providing habitats that are free of non-native fish for these two fish species would aid in recovery. Currently, our ability to effectively conserve and manage native fish in the lower Colorado River is limited due to the presence of non-native fish; however, isolated backwaters such as CHLP provide important habitat for endangered fishes. This action would be undertaken cooperatively by AzFWCO and CNWR in coordination with other partners. The preferred method of nonnative removal would include the use of a chemical piscicides to remove non-native fish. The chemical renovation would occur up to three times during 2008-2010 as needed. Following use of the piscicides, razorback sucker and bonytail would be restocked into the backwater. With this initial renovation, it is anticipated that restocking efforts would be completed by winter 2008 and a long-term monitoring program would be initiated to evaluate success of the preferred alternative and for management of the re-established native fishery.

The EPA-registered piscicide (antimycin or rotenone) would be applied under the supervision of a certified applicator, in accordance with a treatment plan approved by AzFWCO and CNWR. If the treatment chemical is rotenone, the formulation used would be either Nusyn-Noxfish or CFT Legumine. Both formulations would be applied using backpack sprayers along shorelines and small boats with electric motors to cover deeper sections of CHLP.

If antimycin is used, CHLP would be treated with a combination of aqueous antimycin A (Fintrol-Concentrate) and possibly sand-coated antimycin A (Fintrol-15). Fintrol-concentrate

would be applied either by backpack sprayer or mixed in buckets with water and dispersed by hand. Fintrol-15 is comprised of antimycin A coated over a grain of sand that is then coated with other inert materials that dissolve slowly when in water to allow the antimycin to be released over a depth of 15 feet when applied at the surface. Fintrol-15 is applied by hand or with a hand-held seed or fertilizer spreader.

Prior to treatment, CHLP volume would be calculated using direct measurements. Appropriate calculations would then be made to determine the amounts of piscicide necessary to treat CHLP. These calculations would be double-checked by a certified pesticide applicator. To ensure coverage into shallow, nearshore areas, the narrow strip of cattails will be mechanically removed prior to treatment. Regrowth of cattails from the roots is expected to be rapid and occur within several weeks.

All activities would comply with applicable state and Federal rules and regulations. Sodium or potassium permanganate would be used to detoxify the fish toxicant, to ensure that downstream water quality and public safety concerns are met. A detoxification drip station would be established downstream of the CHLP, where the oxbow lake known as Pretty Water begins, to meter either aqueous potassium permanganate (KMnO_4) or sodium permanganate (NaMnO_4) into the area. In addition, to ensure that no subsurface flow carrying piscicide enters into the Colorado River in toxic amounts, an additional detoxification station would be established within the Colorado River. For each station, a cage with sentinel fish would be placed approximately 100 yards downstream of the detoxification area to ensure that the detoxification is occurring as intended.

Temporary signs would be placed at public access points along CHLP prior to and during renovation activities that would explain the preferred alternative and list public precautions. Permanent signs would be placed near visited areas to inform the public about the value of native fish populations and the penalties associated with live transfer of non-native fishes.

Fish Salvage: Fish salvage operations would commence a week prior to rotenone or antimycin treatment of CHLP. Using a combination of electrofishing and nets, desirable sportfish such as flathead catfish, large/smallmouth bass, and channel catfishes would be captured and restocked into areas open to recreational fishing. The salvage effort would also target bonytail and razorback sucker that are still in CHLP. Most of the resident native fish were removed in 2005; however, some were certainly missed, and there may have been some recruitment events since 2005 that would increase the remnant population. Any bonytail or razorback captured would be released into the river.

During the application of piscicides, if a bonytail or razorback is observed in the pond, efforts to capture it and place it in fresh water to revive will be made. These efforts are more likely to be successful with rotenone than with antimycin due to the method of toxicity.

Repatriation: The proposed action includes restocking of CHLP with bonytail and razorback sucker. Fish would be provided by FWS hatcheries or be obtained from other isolated pond habitats and hauled to CHLP by vehicle on established roads. The intent of the proposed action is for these native fishes to be able to reproduce successfully and create a multi-generational population in a low predator environment.

Monitoring and re-treatment: Following the initial chemical treatment, CHLP would be intensively sampled by AzFWCO and CNWR to determine if project objectives were met (complete nonnative fish kill). If piscivorous, non-native fish remain in CHLP post-renovation, re-treatment would be necessary and be scheduled immediately. This project could include up to three piscicide treatments, if necessary, to remove non-native fishes until 2010. Additional treatment may also be necessary due to non-natives invading CHLP through illegal introductions. However, the need for additional chemical treatments would be assessed based upon the extent of the reinvasion. AzFWCO expects to work cooperatively with CNWR in implementation of the Native Fish Sanctuary Management Plan for CHLP to determine when and if additional application of fish toxicant is necessary.

Following successful treatment, monitoring CHLP would be conducted through a collaborative, cooperative effort that is identified in a Native Fish Sanctuary Management Plan. The Sanctuary Plan is a working document intended to identify and describe management goals, resources and methods required to effectively manage native fishes at CHLP. The Sanctuary Plan also identifies research opportunities. Through the active management of these native species in small sanctuary habitats, scientists and resource managers would gain the knowledge and experience that would be important for the species to be recovered on a larger scale.

STATUS OF THE SPECIES AND CRITICAL HABITAT

Bonytail

The bonytail was listed as an endangered species on April 24, 1980. The Bonytail Chub Recovery Plan was updated in 1990 (USFWS 1990) and Recovery Goals were approved in 2002 (USFWS 2002a). Critical habitat was designated in six river reaches in the historical range of the bonytail chub on March 21, 1994. In the Lower Colorado River Basin, critical habitat was designated in Lake Mohave, Lake Havasu, and a portion of the Colorado River above Lake Havasu. No critical habitat is within the action area. Biological information on the bonytail is available in the Recovery Plan.

The range-wide trend for the bonytail chub is for a continued decrease in wild populations due to lack of sufficient recruitment of young adults with the loss of old adults due to natural mortality. Loss of the extant wild populations is expected. Extinction of this fish in the wild throughout its historical range is being forestalled by the stocking of sub-adult fish into the Upper Colorado River Basin, and in the lower Colorado River from Lake Mohave to Imperial Dam. These stockings are intended to create populations of young adults that may be expected to persist for 40-50 years. Research into rearing techniques and other related questions are ongoing.

Threats to the bonytail include loss of habitat due to water-development actions throughout its historical range, and the introduction of non-native fish species to the historical range. Non-native fish species compete with bonytail for space and resources, and are known to prey on all life stages of the bonytail (USFWS 1990). Recruitment failure due to predation by non-native fish species has resulted in the loss of bonytail populations, and impacts the eventual success or failure of reintroductions to open systems containing these species.

Given the wide-range of this species, several Federal actions affect the bonytail every year. Consultations in the Upper Colorado River Basin address effects to the remaining populations there. A list of formal consultations for the last 10 years in the lower Colorado River can be found in Appendix B. Copies of all biological opinions contained on the list are available at our website (www.fws.gov/southwest/es/arizona). Survey work and recovery projects also occur on the lower Colorado River. The Lower Colorado River Multi-Species Conservation Program (LCR MSCP) website (www.lcrmscp.gov) maintains information and reports on ongoing projects funded under the program.

Razorback sucker

The razorback sucker was listed as an endangered species on October 23, 1991. The Razorback Sucker Recovery Plan was released in 1998 (USFWS 1998). Recovery Goals were approved in 2002 (USFWS 2002b). Biological information is available in the Recovery Plan.

Critical habitat was designated in 15 river reaches in the historical range of the razorback sucker on March 21, 1994. Critical habitat included portions of the Colorado, Duchesne, Green, Gunnison, San Juan, White, and Yampa rivers in the Upper Colorado River Basin, and the Colorado, Gila, Salt, and Verde rivers in the Lower Colorado River Basin.

The primary constituent elements (PCEs) for razorback sucker critical habitat are:

- Water: a quantity of water of sufficient quality (i.e., temperature, dissolved oxygen, lack of contaminants, nutrients, turbidity, etc.) that is delivered to a specific location in accordance with a hydrologic regime that is required for the particular life stage of the species.
- Physical habitat: this includes areas of the Colorado River system that are inhabited or potentially habitable by fish for use in spawning, nursery, feeding, and rearing, or corridors between these areas. In addition to river channels, these areas also include bottom lands, side channels, secondary channels, oxbows, backwaters, and other areas in the 100-year floodplain, which when inundated provide spawning, nursery, feeding, and rearing habitats, or access to these habitats.

- Biological environment: food supply, predation, and competition are important elements of the biological environment and are considered components of this PCE. Food supply is a function of nutrient supply, productivity, and availability to each life stage of the species. Predation and competition, although considered normal components of this environment, are out of balance due to introduced non-native fish species in many areas.

In addition to the PCEs, five additional selection criteria were used to determine critical habitat areas for designation. These criteria were needed due to the lack of a recovery plan for the razorback at the time of designation of critical habitat.

1. Presence of known or suspected wild spawning populations, although recruitment may be limited or non-existent.
2. Areas where juvenile razorback suckers have been collected or which could provide suitable nursery habitats (backwaters, flooded bottom lands, or coves).
3. Areas presently occupied or that were historically occupied that are considered necessary for recovery and have the potential for reestablishment of razorback suckers.
4. Areas and water required to maintain rangewide fish distribution and diversity under a variety of physical, chemical, and biological conditions.
5. Areas that need special management or protection to insure razorback survival and recovery. These areas once met the habitat needs of the razorback sucker and may be recoverable with additional protection and management.

Overall, the critical habitat units designated for the razorback sucker met one or more of the PCEs or additional selection criteria (USFWS 1993). Due to the diversity of sites and the conditions extant in each, the designation provided a wide range of opportunities for the conservation of the razorback sucker across its historical range. Of the 15 designated reaches, 10 were seen as containing resources and populations needed for delisting, and five others would support downlisting. The baseline conditions of PCEs and additional selection criteria were described in supporting documents for the designation (USFWS 1993). Improvements to these conditions through recovery actions undertaken by the Colorado River Recovery Implementation Program for the Upper Basin have occurred and are documented in publications on their website (www.fws.gov/mountain-prairie/crrip/). In the Lower Basin there have not been any actions undertaken to improve the baseline condition of critical habitat reaches as a whole; however, efforts to improve small, isolated portions within designated critical habitat have occurred on the lower Colorado River. The improvements focus on eliminating non-native fish from otherwise suitable backwaters to allow the establishment of small recruiting populations of razorback sucker.

Range-wide, the status of razorback sucker is exceedingly poor due to lack of significant recruitment, ongoing habitat loss, and continuing pressure from nonnative species. The range-wide trend for the razorback sucker is a continued decrease in wild populations due to a lack of sufficient recruitment and the loss of old adults due to natural mortality. Stocking and research programs are underway throughout the Basin to restore populations to the historical range. In the lower Colorado River, research, monitoring, and stocking occur from Lake Mead down to Imperial Dam.

Threats to the razorback sucker include loss of habitat due to water development actions throughout its historical range, and the introduction of non-native fish species to the historical range. Non-native fish species compete with razorback sucker for space and resources, and are known to prey on all life stages of the razorback sucker (USFWS 1998). Recruitment failure due to predation by non-native fish species has resulted in the loss of razorback sucker populations, and impacts the eventual success or failure of reintroductions to open systems containing these species.

Given the wide-range of this species, several Federal actions affect the razorback sucker every year. Consultations in the Upper Colorado River Basin address effects to the remaining populations there. A list of formal consultations for the last 10 years in the lower Colorado River can be found in Appendix B. Copies of all biological opinions contained on the list are available at our website (www.fws.gov/southwest/es/arizona). Survey work and recovery projects also occur on the lower Colorado River. The Lower Colorado River Multi-Species Conservation Program (LCR MSCP) website (www.lcrmscp.gov) maintains information and reports on ongoing projects funded under the program.

ENVIRONMENTAL BASELINE

The environmental baseline includes past and present impacts of all Federal, State, or private actions in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

Description of the Action Area

The action area for the proposed action is the entire extent of CHLP (5.5 acres), the shorelines surrounding the pond, the upper end of Pretty Water, and the Colorado River adjacent to the pond from the top of the pond downstream to 300 feet below the outflow area from the pond to the river. The pond and its shorelines are part of the CNWR. The river itself is not Federal land; however, release of flows and bankline stabilization are under the direction of the Bureau of Reclamation (USBR).

A. Status of the species and critical habitat within the action area

Bonytail and razorback sucker were stocked into CHLP in 1993 after it was renovated to remove non-native fish. Until 2005 multi-aged populations of both species were thriving in the pond. In 2003, largemouth bass were found to have invaded the pond, triggering the need to renovate. A significant number of the bonytails and razorback suckers in the pond were removed in preparation for the renovation. It is likely that some individuals of both species are still in the pond.

Both species are stocked into the lower Colorado River by the LCR MSCP in the vicinity of the action area. Fish are released into backwaters that are connected to the main river channel. Monitoring efforts focus on locating the stocked fish in other connected backwaters. Some individuals may utilize the main channel as a movement corridor between backwaters.

Razorback sucker critical habitat includes 134 miles of the mainstem Colorado River and the 100-year floodplain (Parker Dam to Imperial Dam) and includes the action area. CHLP is located behind the 80,000 cubic feet per second (cfs)-capacity levees, but is within the 100-year floodplain and does contain the PCEs. The conditions in the critical habitat have not significantly changed since critical habitat was designated. This critical habitat reach was included as a delisting reach. The amount of critical habitat within the reach that could be affected is very small, less than ½ mile along the river, the upper end of Pretty Water, and 5.5 acres of the pond that would be treated.

Individual bonytail and razorback sucker in the action area and the biological environment PCE continue to be adversely affected by the presence of non-native fish species in the river and CHLP. The water and physical habitat PCEs in this critical habitat remain affected by past river-management actions, particularly by those relating to channelization and changes in natural hydrology that have not yet reached equilibrium conditions. USBR river-management activities for the next 50-years are covered by the LCR MSCP, and the effects of those actions on individuals and critical habitat were addressed in the formal consultation (USFWS 2005). Conservation efforts, particularly in stocking both fish species, research and monitoring, and creation of secure backwater habitats for them are being implemented river-wide to address effects to the water and physical PCEs from river-management actions.

B. Factors affecting the species' environment and critical habitat within the action area

The present condition of the action area is the result of the suite of river-management activities described in the LCR MSCP biological opinion Environmental Baseline section (USFWS 2005). That description is herein incorporated by reference. CHLP exists as an isolated backwater due to the channelization of the lower Colorado River and the construction of the flood-control levees. Most of this work was completed prior to the listing of bonytail or razorback sucker, or the designation of critical habitat. The ongoing management of the river, including both the continuation of water deliveries, river management, and designated future actions are covered by the LCR MSCP with conservation actions undertaken to address the needs of listed species including these two fish species.

The presence of non-native fish in the river and backwaters is the result of deliberate stocking actions for recreational fisheries and unplanned releases of other fish species (bait fish, aquarium fish, etc.). These introductions began in the early 1900's and while new deliberate species introductions are not planned, illegal introductions of species already present in the river and those not already present are likely to continue. Large-scale renovation projects to eliminate non-native fish from the system have an extremely low potential for success and re-invasion from untreated areas is certain. Conservation of bonytail and razorback suckers in this area will be implemented with an understanding of this limitation.

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

Rotenone: Rotenone, a naturally occurring compound extracted from the roots of certain species of the bean family, has been used for centuries to capture fish (Finlayson et al. 2000). When introduced at a proper dosage into water, rotenone interrupts cellular respiration in gill-breathing animals by blocking the transfer of electrons in the mitochondria. Scientists believe that fish are more sensitive to rotenone because it is rapidly absorbed into the bloodstream from water flowing across the gill membrane. Both fish and aquatic insects are highly susceptible to rotenone (Skaar 2001), although aquatic insect populations usually rebuild to pre-treatment levels quite rapidly (Lennon 1971, Schnick 1974). Gill-breathing amphibians (i.e., frog and toad tadpoles and larval salamanders) are also adversely affected.

Rotenone is very unstable in the environment (half-life measured in days) and completely breaks down within one to four weeks depending on pH, alkalinity, temperature, dilution, and exposure to sunlight (Schnick 1974). Rapid neutralization (oxidation) occurs when rotenone is mixed with potassium permanganate (see Permanganate section below). Inert ingredients in the liquid formulation of rotenone such as Nusyn-Noxfish consist of petroleum hydrocarbons as solvents and emulsifiers (primarily naphthalene, methylnaphthalenes, trichloroethylene, and xylenes), whereas those ingredients have been essentially replaced with n-methyl-2-pyrrolidone and diethylene glycol ethyl ether in the CFT Legumine formulation. There is no Federal or state water-quality standard for rotenone. When applied to surface waters according to label instructions for fish control, rotenone is not a pollutant as defined under the Clean Water Act.

Antimycin A: Antimycin A is an organic compound that was isolated from the bacterium *Streptomyces girseus* at University of Wisconsin in 1945 (Leben and Keitt 1948, Dunshee et al. 1949). Antimycin ($C_{28}H_{40}N_2O_9$) (Rinne and Turner 1991) which inhibits growth of some

fungi but does not affect most bacteria, was later found to be toxic to fish and patented as a piscicide in 1964. The formulation proposed for use in this project is Fintrol-Concentrate. Fintrol is registered with the Environmental Protection Agency under registration number 39096-2. It consists of 10% antimycin, a surfactant, and acetone.

The degradation compounds have very low toxicity for both fish and mammals (Herr et al. 1967). Detoxification of antimycin is accelerated by pH greater than 7.0 and exposure to sunlight (Lee et al. 1971, Marking and Dawson 1972). When exposed to sunlight or open shade, antimycin degrades completely in 1.0 hour and 1.5 hours, respectively (Lee et al. 1971). The above-neutral pH of CHLP (Carpenter 2007) and exposure to sunlight would result in relatively rapid and total degradation of antimycin. For this reason, antimycin A application stations need to be established at 100-150 m intervals to maintain desired toxicity levels over a long enough period to achieve project objectives.

Antimycin acts at a cellular level to interrupt respiration (Schnick 1974) by inhibiting electron transport between cytochrome *b* and cytochrome *c* in Complex III of the cellular respiratory chain (Potter and Reif 1952, Rieske et al. 1967a, b). Antimycin does not repel fish (i.e. they are unable to detect it), and thus they do not attempt to avoid treated areas. Its action is rapid and irreversible (Aquabiotics Corp 1970). It is deactivated quickly and easily with approximately 1 mg/L potassium permanganate (KMnO₄) at the downstream end of the treatment area (Stefferd et al. 1991).

Permanganate: Although antimycin and rotenone rapidly degrade naturally, permanganate is the recommended neutralizer to ensure that fishes in Pretty Water or in the lower Colorado River below the levees are not affected by the piscicide treatment. Potassium permanganate (or sodium permanganate) is a strong oxidizer that breaks down into potassium (or sodium), manganese, and water very rapidly. These substances are common in nature and have no deleterious effects at concentrations normally used with neutralizing applications (Finlayson et al. 2000). Potassium permanganate reduces the half-life of antimycin from approximately 5 hours to 7 to 11 minutes in a laboratory setting (BSFW 1974). Neutralization is slowed by low temperatures and accelerated at high temperatures. Potassium permanganate itself can be toxic to some fish under certain hard water conditions at high concentrations (generally >4 parts per million) and long exposure periods (several hours) (Marking and Bills 1975).

The adverse effects of this action on bonytail and razorback sucker result from the deliberate application of either rotenone or antimycin to CHLP to kill non-native fish present. Application of a piscicide alters the water quality such that the toxic effects of the chemical are expressed. Any bonytail or razorback suckers present in the pond are not the targets of the renovation, and may be inadvertently killed by the piscicide. Previous efforts to remove most of the listed fish from the pond did significantly reduce the populations; however, no removal effort is likely complete. Further, in the two years since that removal, there may have been reproduction by any remaining adults, and some of those young fish may have survived even in the presence of the largemouth bass. Salvage efforts included under the proposed action will reduce the number of listed fish in the pond; but again, such efforts will likely leave individuals, particularly smaller individuals, behind. Monitoring and rescue of bonytail or razorback suckers observed during the renovation is included in the proposed action.

The piscicide may exit the pond through the levee and reach the river. Although the dilution factor between the seepage rate and the river volume is likely sufficient to dilute the piscicide to below lethal levels, there is a small risk to any fish in the vicinity of the levee and the immediate downstream area. Placement of potassium permanganate detoxification stations at the seepage outflow and downstream will further minimize the risk of an injurious level of piscicide being present in the river.

Effects to the water PCE (water quality) from application of piscicide to CHLP will be temporary. As described above, both compounds will degrade to non-toxic status within a short period. Within CHLP, no detoxification would be initiated for the pond itself, as it is advantageous to allow the maximum exposure time to provide for a complete kill. Any piscicide that escapes to Pretty Water or the river would be neutralized and diluted within a very short time and any effects would be short lived. Once the renovation project is completed, the quality of the critical habitat within the pond would be enhanced through the elimination of the non-native fish that compete with or prey on the listed species.

The repatriation of bonytail and razorback suckers to CHLP is a beneficial action that supports the conservation of both species. The pond contributed significantly to research into the ability of small isolated systems to provide secure habitats for multi-generational populations, interactions between these two fish species, and design features for new ponds. These valuable contributions will again be obtained with the completion of the proposed action. Transport and stocking of the fish and subsequent monitoring will be covered under section 10(a)(1)(A) recovery permits held by AzFWCO.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

The proposed action would take place on the CNWR and there are no future non-Federal actions likely to occur there. On the Colorado River, we do not anticipate any future non-Federal actions that would have significant effects to the river that were not already covered by the LCR MSCP.

CONCLUSION

After reviewing the current status of the bonytail, razorback sucker, and critical habitat for the razorback sucker, the environmental baseline for the action area, the effects of the proposed renovation of CHLP and the cumulative effects, it is the FWS's biological opinion that the renovation of CHLP, as proposed, is not likely to jeopardize the continued existence of the bonytail and razorback sucker, and is not likely to destroy or adversely modify designated critical habitat for razorback sucker.

This biological opinion does not rely on the regulatory definition of “destruction or adverse modification” of critical habitat at 50 CFR 402.02. Instead, we have relied upon the statutory provisions of the Act to complete the following analysis with respect to critical habitat.

We based our conclusions on the following:

- The number of bonytail and razorback suckers likely to be killed by the proposed action does not represent a significant portion of the remaining individuals of the species.
- The bonytail and razorback suckers in the pond do not represent a unique genetic heritage, since they are the product of stocking hatchery-born fish into the pond in 1993. Those broodstocks remain extant, and are currently in use for ongoing stocking in the lower Colorado River.
- Pre-treatment and during-treatment salvage of bonytail and razorback sucker will reduce the number of fish that may be injured or killed by the renovation.
- The effect of piscicides on water quality in the PCE for water will be temporary and not result in any long-term degradation of critical habitat.
- Completion of the renovation will provide the opportunity to restock bonytail and razorback suckers into CHLP to create a sanctuary habitat for population growth and development and research opportunities. The overall effect of the action will be of long-term benefit to the species and critical habitat.

The conclusions of this biological opinion are based on full implementation of the project as described in the Description of the Proposed Action section of this document, including any Conservation Measures that were incorporated into the project design.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. “Take” is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. “Harm” is further defined (50 CFR 17.3) to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. “Harass” is defined (50 CFR 17.3) as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by AzFWCO so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply. AzFWCO has a continuing duty to regulate the activity covered by this incidental take statement. If AzFWCO (1) fails to assume and implement the terms and conditions or (2) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, AzFWCO must report the progress of the action and its impact on the species to AESO as specified in the incidental take statement. [50 CFR §402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE

The FWS anticipates that an unknown number of individual bonytail and razorback suckers will be taken as a result of this proposed action. The incidental take is expected to be in the form of direct mortality from exposure to the piscicides and to be confined to those fish within CHLP at the time of piscicide application. Because we do not know the number of individuals remaining in CHLP, or the effectiveness of the pre-treatment salvage operations, we cannot specify a number of individuals that may be at risk. However, the level of take for bonytail and razorback suckers can be anticipated by the temporary change in water quality due to the application of piscicide to the 5.5 acres of CHLP. The presence of the piscicide renders the water toxic to bonytail and razorback suckers. Under the proposed action, the intent is to ensure the mortality of non-native fish present in the pond at the time of application of the piscicides. All bonytail and razorback suckers remaining in the pond would be affected by the change in water quality. Those not rescued, or rescued too late, would be killed by the toxicants.

Because no piscicides should reach the river or adjacent area, we have determined that the level of authorized incidental take will be exceeded if any fish in the sentinel cages are killed by piscicides that reach the river or adjacent waters. If mortality of sentinel fish is observed and is attributable to applied piscicides, additional native and non-native fish could be killed, indicating that the amount of authorized take has been exceeded.

EFFECT OF THE TAKE

In this biological opinion, the FWS determines that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat for the reasons stated in the Conclusions section.

REASONABLE AND PRUDENT MEASURES and TERMS AND CONDITIONS

The conservation measures built into the proposed action for the salvage of bonytail and razorback sucker prior to and during the renovation are sufficient to reduce the amount of incidental take. No additional reasonable and prudent measures are identified.

Disposition of Dead or Injured Listed Species

Upon locating a dead, injured, or sick listed species initial notification must be made to the FWS's Law Enforcement Office, 2450 W. Broadway Rd, Suite 113, Mesa, Arizona, 85202, telephone: 480/967-7900) within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph if possible, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to this office. Care must be taken in handling sick or injured animals to ensure effective treatment and care and in handling dead specimens to preserve the biological material in the best possible state.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

We have not identified any conservation recommendations for this proposed action.

REINITIATION NOTICE

This concludes formal consultation on the action(s) outlined in the request. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

The AESO appreciates AzFWCO and CNWR's efforts to identify and minimize effects to listed species from this project. For further information please contact Lesley Fitzpatrick (602-242-0210 x236) or me (x244). Please refer to consultation number 22410-F-2008-0348 in future correspondence concerning this project.

/s/ Steven L. Spangle

cc: Refuge Manager, Cibola National Wildlife Refuge, Cibola, AZ

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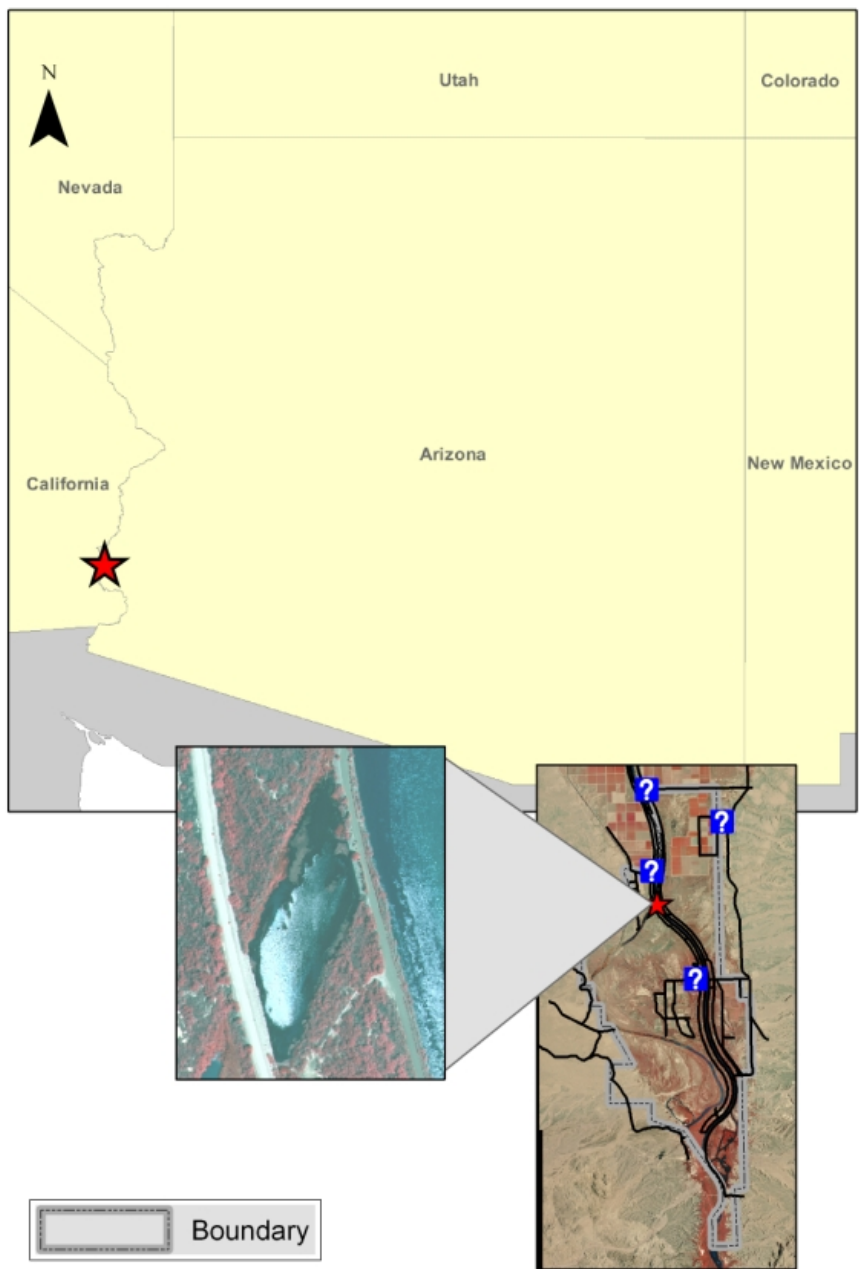
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TABLES AND FIGURES

Figure 1. Action Area

CIBOLA NWR (HI-LEVEE POND)



Map Prepared by: Joseph Barnett
Data Source: USFWS
Date: 09/10/07

Appendix A: Concurrences

Yuma clapper rail (Endangered)

We concur with your finding of “may affect, not likely to adversely affect” for this species from the proposed action.

The Yuma clapper rail is associated with dense riparian and marsh vegetation. The amount of cattail in CHLP is limited to a thin strip along the west side. Recent surveys have not found clapper rails in CHLP (Dominic Barrett, CNWR Biologist, pers comm.) so the effects of the action are discountable. Any disturbance to individual rails moving through the area will be insignificant and discountable due to the limited time involved in implementing the proposed action (1-2 days). The proposed project will temporarily remove cattails for better chemical application but regrowth is expected to be within several weeks. The temporarily loss of this limited area of cattail in CHLP is not significant for the clapper rails in this portion of the river. There exists ample cattail habitat within a few hundred yards of the project site (Pretty Water), if a rail is displaced from the project site during renovation activities, these areas will provide alternative habitat.

Southwestern willow flycatcher (Endangered)

We concur with your finding of “no effect” for this species from the proposed action.

The riparian habitat at CHLP is not suitable for nesting of flycatchers, and is only of very limited value for migration. There would be no effects to this habitat from the proposed action.

Yellow-billed cuckoo (Candidate)

We concur with your finding of “no jeopardy” for this species from the proposed action.

The riparian habitat at CHLP is not suitable for nesting of cuckoos, and is only of very limited value for migration. There would be no effects to this habitat from the proposed action.

Appendix B: Formal Consultations for Bonytail and Razorback Sucker in Arizona 1998-2008

Number	Name of Consultation	Date	Species
2007-F-0081	Reinitiated Biological Opinion on Transportation and Delivery of Central Arizona Project Water to the Gila River Basin in Arizona and New Mexico and its Potential to Introduce and Spread Nonindigenous Aquatic Species	May 15, 2008	Razorback sucker
2003-F-0430	Intra-Service Biological and Conference Opinion for Issuance of a Section 10(a)(1)(B) permit to Salt River Project for Incidental Take of Threatened and Endangered Species Associated with the Operations of Horseshoe and Bartlett Reservoirs	April 1, 2008	Razorback sucker
2003-F-0022	Intra-Service Biological and Conference Opinion for Issuance of an Enhancement of Survival Permit (TE-083686-0) to Arizona Game and Fish Department	February 11, 2008	Razorback sucker
2006-F-0226	Phoenix Expansion Project	December 11, 2007	Razorback sucker
2007-F-0119	Reinitiation of Programmatic Biological Opinion on Effects of Safford/Tucson Field Offices' Livestock Grazing Program, Southeastern Arizona (original number 1996-F-0160)	December 27, 2006	Razorback sucker
2005-F-0086	Reinitiation of Biological and Conference Opinion on the Effects of the Safford Resource Management Plan (original number 1988-F-0114)	December 12, 2006	Razorback sucker
2003-F-0083	Intra-Service Biological and Conference Opinion Regarding the Proposed Issuance of an Incidental Take Permit and Approval of Arizona Game and Fish Department's Safe Harbor Agreement for Chiricahua Leopard Frog in Arizona	September 27, 2006	Razorback sucker
2006-F-0428	8 th Avenue Bridge Replacement in Safford	June 27, 2006	Razorback sucker
2005-F-0784	Lake Havasu City Field Office Proposed Resource Management Plan	June 15, 2006	Razorback sucker Bonytail
2006-F-0334	Intra-Service Biological Opinion for Pesticide Use Proposal for Lower Colorado River Fish and Wildlife Service Refuges for FY06	March 27, 2006	Razorback sucker Bonytail

Number	Name of Consultation	Date	Species
1989-F-0106R1	Colorado River Management Plan	January 3, 2006	Razorback sucker
2005-F-0331	Intra-Service Biological and Conference Opinion for Issuance of Recovery Permits for the Endangered Southwestern Willow Flycatcher for Scientific Purposes and/or Enhancement of Propagation or Survival (TE-100579)	April 21, 2005	Razorback sucker
2004-F-0161	Lower Colorado River Multi-Species Conservation Program	March 4, 2005	Razorback sucker Bonytail
2003-F-0210	Biological and Conference Opinion for Bureau of Land Management Statewide Fire Use Plan Amendment for Fire, Fuels, and Air Quality Management	September 3, 2004	Razorback sucker Bonytail
1989-F-0214	Surrender of License for Childs-Irving Project	August 17, 2004	Razorback sucker
2002-F-0504	U.S. Environmental Protection Agency Approval of the State of Arizona Proposed Revisions to Existing Water Quality Standards for Surface Water	June 21, 2004	Razorback sucker Bonytail
2004-F-0036	Intra-Service Biological Opinion on Pesticide Use Proposal for Lower Colorado River Fish and Wildlife Service Refuges for FY04	January 30, 2004	Razorback sucker Bonytail
1998-F-403R2 1998-F-403R1 1998-F-0403	State Route 260 Renovation Project: Cottonwood to Camp Verde	June 5, 2003 July 24, 2002 March 5, 1999	Razorback sucker
2002-F-0268	U.S. Environmental Protection Agency Approval of the State of Arizona's Arizona Pollution Discharge Elimination System	December 3, 2002	Razorback sucker Bonytail
2001-F-0263	Lake Mead National Recreation Area Lake Management Plan	October 7, 2002	Razorback sucker Bonytail
2002-F-0129	Colorado River Marina	September 23, 2002	Razorback sucker
1995-F-0216R1	Biological and Conference Opinion on Lower Colorado River Operations and Maintenance, Lake Mead to the Southerly International Boundary	April 30, 2002	Razorback sucker Bonytail
2002-F-0074	Willow Valley Marina	March 21, 2002	Razorback sucker
1996-F-0368	Navajo Nation Water Quality Program	December 26, 2001	Razorback sucker

Number	Name of Consultation	Date	Species
1996-F-160R5 1996-F-160R4 1996-F-160R3 1996-F-160R2 1996-F-160R1	Programmatic Biological Opinion for Safford/Tucson Field Offices Livestock Grazing Program, Southeastern Arizona	December 4, 2001 April 12, 2000 November 17, 1998 November 16, 1998 November 3, 1998	Razorback sucker
2001-F-0272	Bayless Emergency Watershed Bank Stabilization Protection Project	August 15, 2001	Razorback sucker
1990-F-0119a 1990-F-0119R4 1990-F-0119R3 1990-F-0119R2	Revised Biological Opinion on Transfer and Delivery of Central Arizona Project Water to the Gila River Basin in Arizona and New Mexico and its Potential to Introduce and Spread Non-Native Aquatic Species	April 17, 2001 November 4, 1999 June 25, 1998 May 6, 1998	Razorback sucker
2000-F-0273	Interim Surplus Criteria, Secretarial Implementation Agreements, and Conservation Measures on the Lower Colorado River, Lake Mead to the Southerly International Boundary	January 12, 2001	Razorback sucker Bonytail
2001-F-0058	New Domestic Water Pump Station for Bill Williams River National Wildlife Refuge	November 28, 2000	Razorback sucker Bonytail
2000-F-0298	Eagle Creek Bank Stabilization Project	October 31, 2000	Razorback sucker
1996-F-0197	Vegetation Clearing, Roadways and Tree-Trimming along 2 Gila River Electrical Transmission Lines: Hackberry to Morenci and Dos Candados to Hackberry	June 5, 2000	Razorback sucker
1999-F-0096	Proposed Bridge Replacement on Highway 75 Across the Gila River at Duncan, Greenlee County, Arizona	March 31, 2000	Razorback sucker
1999-F-0205	Laughlin Lagoon Dredging Project	August 19, 1999	Razorback sucker
1999-F-0231	Desert Pupfish Refuge at Cibola National Wildlife Refuge	June 25, 1999	Razorback sucker Bonytail
000089RO	Ongoing Livestock Grazing on Forest Service Allotments	February 2, 1999	Razorback sucker
1995-F-0307	Blue River Fish Hatchery NPDES Permit	December 21, 1998	Razorback sucker
1996-F-0187	Arizona Water Quality Standards	December 11, 1998	Razorback sucker Bonytail
1994-F-0243	Amendment #2 Forest Road 281 Normal Flood-Related Repairs	June 25, 1998	Razorback sucker

Number	Name of Consultation	Date	Species
1995-F-0399	Windmill Grazing Allotment, Coconino NF	June 25, 1998	Razorback sucker
1997-F-0314	Central Arizona Project Water Assignment for Cottonwood Water Works Inc. and Camp Verde Water System Inc, to the City of Scottsdale	March 30, 1998	Razorback sucker
1997-F-0082	Yuma District Resource Management Plan and Amendments	March 26, 1998	Razorback sucker Bonytail