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In Reply Refer To:
AESO-SE
2-21-01-F-058 November 28, 2000

Memorandum

To: Refuge Manager, Bill Williams River National Wildlife Refuge, Fish and Wildlife Service, Parker, Arizona

From: Field Supervisor

Subject: Biological Opinion for Installation of New Domestic Water Pump Station for Bill Williams River National Wildlife Refuge

This document transmits the Fish and Wildlife Service's biological opinion based on our review of the proposed development of a new domestic water pump station for the Bill Williams River National Wildlife Refuge (BWRNWR) on Lake Havasu, La Paz County, Arizona, and its effects on the bonytail chub (*Gila elegans*), razorback sucker (*Xyrauchen texanus*) and designated critical habitat for the bonytail chub in Lake Havasu. This is in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.). Your November 13, 2000, request for consultation was received on November 15, 2000.

This biological opinion is based on information provided in the November 13, 2000, intra-Service biological evaluation, a telephone conversation between Dr. Kathleen Blair of your staff with Ms. Lesley Fitzpatrick of my staff, another conversation between yourself and Ms. Fitzpatrick on November 21, 2000, and other sources of information. A complete administrative record of this consultation is on file at this office.

Consultation History

The finalized intra-Service biological evaluation (BE) was delivered to the Arizona Ecological Services Office (AESO) on November 15, 2000. The BE made findings of "no effect" for the Yuma clapper rail (*Rallus longirostris yumanensis*), brown pelican (*Pelecanus occidentalis*), bald eagle (*Haliaeetus leucocephalus*), southwestern willow flycatcher (*Empidonax traillii extimus*) and desert tortoise (*Gopherus agassizii*). The AESO concurs with these findings of "no effect." The BE also contained a finding of "may affect, not likely to adversely affect" for the bonytail chub and its critical habitat and the razorback sucker in Lake Havasu. The AESO reviewed the BE and determined that there was a potential for take to occur for these two fish species from the operation of the pumping station. On November 21, 2000, Ms. Fitzpatrick advised Dr. Blair that we could not concur with the finding and that formal consultation would be necessary. Dr. Blair agreed that the take could be an issue and verbally requested that formal consultation be initiated. Additional project design information was obtained from a conversation between you and Ms.

Fitzpatrick on November 21, 2000.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The proposed action would provide water for the BWRNWR and Parker Fishery Assistance Office headquarters domestic water supply. The current supply is from a well at the complex and water quality and quantity have deteriorated and are now inadequate. Rehabilitating the existing system is economically infeasible. The new system would be located in the headquarters complex and have a small dock from the lakeshore to the floating pump. The intake line would be about a foot below the lake surface in 8-9 feet of water. The opening of the pipe would be screened with a 1/4 inch mesh to reduce intake of organisms or debris. Water would be stored in 2 above ground tanks at the headquarters and run through a reverse osmosis system before use for domestic purposes at the headquarters building and support facilities. The BWRNWR, through Havasu National Wildlife Refuge has a water right to the Colorado River that would be used for this purpose. The existing well operates via this right, as would the proposed pumping operation.

Conservation Measures

The proposed action contains several conservation measures to reduce the adverse effects of the action. The location of the dock is bare ground at the lakeshore and riparian or wetland habitats would be avoided. Placement of the intake offshore and high in the water column, along with the mesh screening, would reduce the risk to larvae of bonytail or razorback of being sucked into the inflow.

Description of the Action Area

The proposed project would be located on the Colorado River, in La Paz County, Arizona. The BWRNWR is located along the Bill Williams River to and including the confluence with Lake Havasu between Lake Havasu City and the Town of Parker. The project would be constructed on the shoreline of Lake Havasu within the fenced boundaries of the BWRNWR headquarters. This is along the southeastern shore of the lake south of the inflow from the Bill Williams River. The site is adjacent to the large pumping plant that takes water for Arizona's Central Arizona Project.

The lower Colorado River is managed by the Bureau of Reclamation for water storage, flood control and power generation. Water deliveries are controlled by the water contract holders in the three states (Arizona, California, Nevada) and, other than flood control releases, water is released by the Bureau of Reclamation only to meet requested downstream demand. The operation of the river by the Bureau was the subject of a section 7 consultation in 1997, and the Federal and state/private operations are the subject of an ongoing Habitat Conservation Plan development effort. The Lower Colorado River Multi-Species Conservation Plan (LCR-MSCP) will include coverage for all water diversions, Federal and private, that have valid water service contracts or other type of allocation. The Havasu National Wildlife Refuge has a allocation that will cover the BWRNWR's water use and this will be included in the MSCP program. The

actual diversion of this allocation by BWRNWR is not the subject of this consultation, only the method of diversion and its effects are considered.

STATUS OF THE SPECIES

The bonytail chub was listed as an endangered species on April 24, 1980, with an effective date of May 23, 1980. Critical habitat for the bonytail was designated on March 21, 1994, with an effective date of April 20, 1994. Critical habitat in the action area is the mainstem Colorado River from Hoover Dam to Davis Dam, including Lake Mohave to its full pool elevation and the river and 100-year floodplain from the northern boundary of the Havasu National Wildlife Refuge south to Parker Dam, including Lake Havasu to its full pool elevation. The Bonytail Chub Recovery Plan was last updated in 1990 (USFWS 1990).

The razorback sucker was listed as an endangered species October 23, 1991, with an effective date of November 22, 1991. Critical habitat for the razorback was designated on March 21, 1994, with an effective date of April 20, 1994. There is no designated critical habitat within the action area. The Razorback Sucker Recovery Plan was released in 1998 (USFWS 1998).

Life history and rangewide distributional data on the bonytail and razorback can be obtained from the recovery plans (USFWS 1990, 1998) and the biological support document for the critical habitat designation (USFWS 1993). Additional information is available in the draft Upper Colorado River recovery goals documents (SWCA 2000a, 2000b). Please refer to these documents for more complete information.

The present range-wide status of the bonytail and razorback is precarious. Natural populations of both species are very small, isolated and recruitment is extremely limited. Extirpation of the species from most of their historic ranges has occurred, and hatchery or other captive reared stockings are preventing the disappearance of most populations that remain.

ENVIRONMENTAL BASELINE

The environmental baseline is the analysis of the effects of past and ongoing human and natural factors leading to the current status of the species, its habitat (including designated critical habitat), and ecosystem, within the action area. For the overall lower Colorado River area, the environmental baseline was documented in the 1997 biological opinion for Bureau of Reclamation Operations and Maintenance (USFWS 1997). Since the action area for the currently proposed action is within this larger action area, the baseline from 1997 is incorporated by reference.

Water levels in Lake Havasu are controlled by inflows from Davis Dam, outflows from Parker Dam and diversions within the lake. In addition to the Central Arizona Project, Metropolitan Water District of Southern California has a large diversion on the western sided of the lake. Smaller diversions for recreational developments, Lake Havasu City and the Chemehuevi Tribe also exist. The BWRNWR also takes its water from the lake via an alluvial well. Because of the need to provide stability for the major diversion structures, water levels in Lake Havasu are not subject to large fluctuations.

Habitat for bonytails and razorbacks in the area of the Colorado River that became Lake Havasu with the completion of Parker Dam in 1938 has been significantly altered. Physically, the area is now a reservoir with controlled inflows and outflows and not a riverine system. Floodplains have largely been submerged under the lake waters and non-native fish and crayfish abound in the system. These non-native species compete with and prey upon the native fish species and are largely responsible for the lack of recruitment to these populations.

Since 1997, the baseline status of the bonytail and razorback in Lake Havasu has been improved by augmenting the population with young, hatchery-reared fish. The wild populations of both species were very small and senescent from a lack of successful recruitment and would have been lost completely without these efforts. The problems relating to the lack of recruitment still remain in Lake Havasu; however, the augmentation allows for maintenance of these population while other management options are explored. These augmentations are carried out by a multi-agency team including the Bureau of Land Management, Bureau of Reclamation, Arizona Game and Fish Department, California Game and Fish Department and the Service as part of the Lake Havasu Fisheries Improvement Program. These augmentation programs are scheduled to be completed in 2003.

EFFECTS OF THE ACTION

Direct and Indirect Effects

The BWRNWR already draws its domestic water from the Colorado River via the existing well. This project would change the way water is removed, but not the general location or amount of water removed. Changes in lake levels due to the diversion of water would not be expected, since the amount of the diversion is small, and the Bureau of Reclamation releases water in response to the needs of water contract holders. Thus, operation of other dams on the system, or the amounts of water released from them, is not likely to change because of this action.

The presence of the dock and pump assembly would provide structure usable by fish along the presently barren shoreline. Fish are often attracted to the shade under docks and similar structures. In areas near the proposed diversion point, there are limited areas of natural rock and overhanging vegetation structural components for the fish to utilize for shading, resting or foraging. No known spawning areas are in the vicinity of the dock and pump assembly; however, as populations increase due to the augmentation program, fish may appear in the vicinity to spawn. We do know from other locations in Lakes Mead and Mohave that gravel and cobble areas near the confluences of rivers or washes are selected as spawning sites at least by razorback sucker. Larval razorbacks are found along shorelines in embayments, coves, or areas with cover in the form of rock or vegetation. The dock could provide this sort of cover for young fish, as well as for potential predators. In areas with little underwater structure, the addition of structure is known to concentrate fish. The non-native fish enhancement portion of the Lake Havasu Fisheries Improvement Program is based on this concept. Larval bonytails could also be at risk from predation under the dock, although information about their habits is less well known.

The action of the pump to remove water may also pose a risk to small fish. Larvae of razorbacks will swim in the water column, but are more likely to keep closer to cover and stay in shallower waters. However, they do travel across lakes, as shown by the presence of larvae away from

spawning bars in Lake Mohave, and could be present at the pump site during the spawning season. Razorback larvae are also drawn to lights, which may bring them up into the water column in a position to be sucked up by the pump. Behavior of larval bonytails is not known sufficiently, but they may face the same risks.

Interrelated and Interdependent Effects

Interrelated effects are part of the proposed action that depend on the action for their justification and interdependent actions have no independent utility apart from the proposed action. No interrelated or interdependent effects were identified for this proposed action.

Effects to Critical Habitat

The proposed action would have new effects to physical habitat and biological environment constituent elements. Addition of the dock and pump would alter shoreline structure in a positive sense through the creation of shade and structure. Negative effects would result from the attraction of this new structure for both native and non-native fish that could provide additional competition and predation opportunities. There would be no new effects to the amount of water present in Lake Havasu, or in its seasonal distribution.

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 area not considered in this section because they require separate consultation pursuant to section 7 of ESA.

The Colorado River is already intensively managed for water and power. The three states use, or will shortly use, all of their allocations and additional water is not available on a firm basis. Changes to amount of use by a water contract holder or changes to diversion point do have a Federal nexus and are not considered cumulative. Changes in use without change in amount or point of diversion are not Federal actions, and effects to listed species would have to be considered. Development along the shorelines, including residential, urban, and recreational facilities is often under the jurisdiction of the Corps of Engineers under section 404 of the Clean Water Act, so those types of actions are also not considered cumulative. Development away from the shoreline may have effects to the listed fish species in terms of water pollution from runoff or septic system drainage, loss of natural terrestrial organic inputs, deliberate and accidental introduction of new non-native species, and increased recreational use.

Water will continue to be managed on the lower Colorado River, and thus the existing conditions of degraded habitats will be perpetuated into the future. Natural river processes will continue to be precluded from operating to provide a mosaic of habitats for the bonytail and razorback. The LCR-MSCP will address these baseline, ongoing and continuing adverse effects of river management and operation.

CONCLUSION

After reviewing the current status of the bonytail chub and razorback sucker, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the Service's biological opinion that the installation and operation of the new dock and floating pump for BWRNWR, as proposed, is not likely to jeopardize the continued existence of the bonytail or razorback, and is not likely to destroy or adversely modify designated critical habitat for the bonytail.

Our non-jeopardy finding is focused on the specific direct and indirect effects of the action under consultation, which is the replacement of a well with a pump station in the lake. There is no effective change to point of diversion because the well is situated in the BWRNWR headquarters compound. No additional water will be pumped over that used in the past. The status of the species is such that the overall operation of the lower Colorado River has severely impacted the habitat and native populations of the bonytail and razorback sucker to the extent that they have almost been extirpated from this portion of their historic range. This management, including the diversion of water by all water rights holders, is the subject of an ongoing section 7 and 10 effort to look at the entire scope of effects. Fish and Wildlife Service Colorado River water rights are included in that effort and are not part of this consultation.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the ESA 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 by the Service 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 by the Service 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 and 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 ESA 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 the BWRNWR so that they become binding conditions of any grant or permit issued to any applicant, as appropriate, for the exemption in section 7(o)(2) to apply. The BWRNWR has a continuing duty to regulate the activity covered by this incidental take statement. If the BWRNWR (1) fails to assume and implement the terms and conditions or (2) fails to require an 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, the BWRNWR must report on the progress of the action and its impact on the species to the AESO as specified in the incidental take statement. [50 CFR §402.14(i)(3)]

AMOUNT OR EXTENT OF TAKE

The Service anticipates that an unknown number of larval or small juvenile bonytails and razorback suckers will be taken by the placement and operation of the dock and pump facility at BWRNWR. This take will be in the form of direct mortality (from being sucked into the intake) and in harm from predation and competition with non-native species under the dock. The actual take events will be difficult to detect because of the type of mortality involved and the uncertain probability of young fish being in the area over the life of the project. Populations of both bonytail and razorback in Lake Havasu are made up of young adults that are only now coming into spawning condition, so it is expected that the number of spawning adults will increase over time, with the number of eggs and larvae in the system increasing as a result. Whether or not the vicinity of the dock and pump becomes a prime spawning ground is another factor to consider in determining the amount of take that may occur.

In terms of the mortality from being sucked into the intake, the amount of take is related to the amount of water being removed from the lake during the January to June period. Clearly, this is a very gross estimate, because larvae are not always in the water column and, therefore, are not vulnerable during the entire time they are present, and the actual number of larvae using the area is unknown.

The mortality from competition and predation under the dock is related to the surface area of the dock and the amount of shade and underwater structure it provides. Again, the number of larvae that would be affected is uncertain. Because non-native species predation and competition have already eliminated natural recruitment of wild bonytail and razorback in Lake Havasu, it is also difficult to segregate the incidental take resulting from the proposed action from the background level of existing take.

The amount of incidental take from this project will be low in terms of actual mortalities provided that a spawning area does not develop near the facility. Therefore, we believe that the incidental take will be exceeded if a bonytail or razorback spawning area is located within ½ mile of the facility. This would significantly increase the probability of larval fish being in the area over the present conditions.

EFFECT OF THE TAKE

In the accompanying biological opinion, the Service has determined that this level of incidental take is not likely to jeopardize the continued existence of the bonytail or razorback.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures (RPMs) are necessary and appropriate to minimize impacts of incidental take of bonytail and razorback:

1. Reduce the risk of larval fish being sucked into the intake

2. Reduce the attractiveness of the dock structure to fish.

TERMS AND CONDITIONS

In order to be exempt from the prohibition of section 9 of the ESA, BWRNWR must comply with the following terms and conditions which implement the RPMs described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

To implement RPM 1, the following terms and conditions must be met:

a. Intake screens will be inspected monthly during the bonytail and razorback spawning season.

b. The intake pipe will be directed away from the dock structure itself and toward open water.

c. The intake pipe will extend no further into the water column than needed to provide for proper operation.

d. During the spawning season, pumping at night to re-fill storage tanks will be restricted

e. During the spawning season, scheduled maintenance that would require additional pumping will be deferred or only done during the day.

f. During the spawning season, lights on the dock will be turned off or directed upward so as not to attract larval fish.

To implement RPM 2, the following terms and conditions must be met:

a. The dock structure will be as small as possible to provide for operations and maintenance of the pump.

b. Dock lighting will be unobtrusive and the minimum needed to provide for safety.

c. Feeding of fish off the dock will be prohibited.

REPORTING AND MONITORING REQUIREMENTS

Essential in determining if incidental take is being exceeded is the presence of new spawning areas within ½ mile of the facility. The BWRNWR will obtain annual survey information on the presence or absence of identifiable spawning areas in the vicinity. Further, as a back up system, larval light surveys for razorbacks will be conducted at the dock one night per month during the January to April period. Positive reports will be provided to the AESO. If spawning areas or larvae are detected, the RPMs may need to be reviewed.

The BWRNWR will provide a report on the construction of the facility once it is completed to the AESO for inclusion in the records of this consultation.

DISPOSITION OF DEAD OR INJURED LISTED ANIMALS

It is not likely that any dead bonytails or razorbacks will be encountered in connection with this proposed action.

The RPMs, along with their implementing terms and conditions, are designed to minimize the impact of the incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation for consultation and review of the RPAs provided. The Federal agency must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the RPMs.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA 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 inclusion in this biological opinion.

REINITIATION NOTICE

This concludes formal consultation on the action 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 and effect to the listed species 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.

Any questions on this biological opinion should be directed to Tom Gatz (x240) or Lesley Fitzpatrick (x236) at our office (602/640-2720).

/s/ David L. Harlow

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM (ANWRS, ARD-ES)

Director, Arizona Game and Fish Department, Phoenix, AZ

BWRNWR pump BO:LAF:jh

LITERATURE CITED

SWCA, Inc. 2000a. Recovery goals for the bonytail (*Gila elegans*) of the Colorado River Basin. A supplement to the Bonytail Chub Recovery Plan. Draft Final Report dated July, 2000, for Upper Colorado River Endangered Fish Recovery Program, U.S. Fish and Wildlife Service, Region 6, Denver, Colorado. 75 pp plus appendices.

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