



United States Department of the Interior



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Memorandum

To: Assistant Manager, Ecological Services, California-Nevada Operations Office, Sacramento, California.

From: Field Supervisor, Nevada Fish and Wildlife Office, Reno, Nevada

Subject: Biological Opinion on the Effects of the Issuance of an Enhancement of Survival Permit Under Section 10(a)(1)(A) of the Endangered Species Act to the Nevada Department of Wildlife

This document represents the biological opinion of the U.S. Fish and Wildlife Service (Service) in accordance with section 7 of the Endangered Species Act of 1973 (Act) as amended, regarding potential effects to the endangered razorback sucker (*Xyrauchen texanus*) and bonytail chub (*Gila elegans*) from the proposed issuance of an Enhancement of Survival Permit (Permit) under section 10(a)(1)(A) of the Act in association with the Programmatic Safe Harbor Agreement (Agreement) for these two species in Clark County, Nevada. The proposed Agreement would be issued to the Nevada Department of Wildlife (NDOW) and would promote conservation of the razorback sucker and bonytail chub and enhance the survival and recovery of these federally-listed as endangered species through a cooperative government-private partnership. The Permit would authorize the incidental take of razorback sucker and bonytail chub. The proposed action will not result in effects to critical habitat that has been designated for the razorback sucker and bonytail chub; therefore, further analyses and determinations in this biological opinion are not warranted.

This biological opinion is based upon: 1) the application requesting an Enhancement of Survival Permit received on March 1, 2006; 2) final Programmatic Safe Harbor Agreement for Voluntary Enhancement/Restoration Activities Benefiting Razorback Sucker and Bonytail Chub within Clark County, Nevada; 3) information provided in the Service's 1990 Bonytail Chub Recovery Plan (Service 1990) and the Service's 2002 Bonytail (*Gila elegans*) Recovery Goals: Amendment and Supplement to the Bonytail Recovery Plan (Service 2002a); 4) information provided in the Service's 1998 Razorback Sucker Recovery Plan (Service 1998) and the Service's 2002 Razorback Sucker (*Xyrauchen texanus*) Recovery Goals: Amendment and

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Supplement to the Razorback Sucker Recovery Plan (Service 2002b); and 5) information contained in our files. A complete administrative record of this consultation is maintained in the Southern Nevada Field Office, Nevada Fish and Wildlife Office, Las Vegas, Nevada.

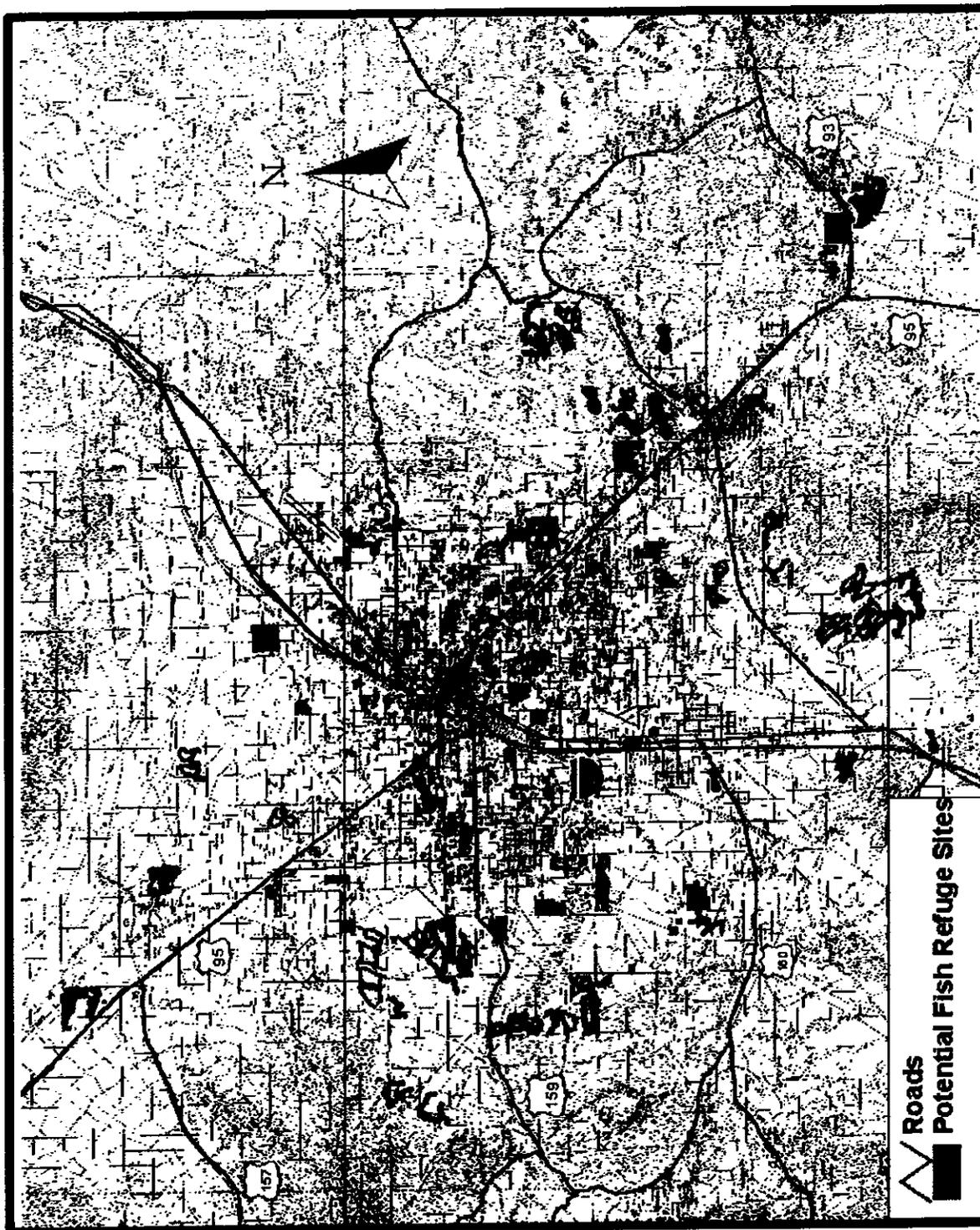
BIOLOGICAL OPINION

Description of the Proposed Action

The Service proposes to issue an Enhancement of Survival Permit (Permit) pursuant to section 10(a)(1)(A) of the Act to NDOW and enter into a Safe Harbor Agreement (Agreement). Nevada Department of Wildlife is the State agency responsible for the restoration and management of fish and wildlife resources within Nevada's land and waters. The Permit application includes the final *Programmatic Safe Harbor Agreement for Voluntary Enhancement/Restoration Activities Benefiting Razorback Sucker and Bonytail Chub within Clark County, Nevada* between NDOW and the Service. Nevada Department of Wildlife would hold the incidental take permit and enroll landowners (Cooperators) into the Agreement through Cooperative Agreements (CA) and by issuing Certificates of Inclusion to each Cooperator. The purpose of the proposed Agreement is to promote the conservation and enhancement of survival and recovery of the razorback sucker and bonytail chub through: 1) the development of facilities for the rearing of juvenile fishes on private and non-Federal lands for use in augmentation of extant wild populations; 2) the development and maintenance of facilities suitable as refuge sites for the long-term maintenance of adult individuals of these species; and 3) encouraging landowners to assist with the maintenance and management of these species and their habitats on their property.

The primary objective of this proposed Agreement is to encourage voluntary habitat restoration, maintenance, or enhancement activities that would benefit razorback suckers and bonytail chub by relieving landowners who enter into and implement the provisions of a CA and Certificate of Inclusion from any additional section 9 liability under the Act beyond that which exists at the time the CA is signed (baseline responsibilities). As long as landowners carry out agreed-upon conservation measures on their property and maintain their baselines, they may continue or undertake future covered management activities. The overall goal is to produce conservation measures that are mutually beneficial to the Cooperator and the long-term existence of razorback suckers and bonytail chub.

The area covered by this Agreement ('enrolled lands') may include sites on private and local-government land within Clark County, Nevada, containing landscape and irrigation ponds that have been identified as potentially suitable for grow-out or refuge facilities for razorback sucker and bonytail chub (Map1), as well as other suitable sites within Clark County which have not yet been specifically identified. The Agreement will focus on properties with apparently suitable aquatic habitat for the rearing and long-term maintenance of adult fish, including permanent ponds with a preferred minimum depth of 10 feet, sites with reliable and protected water supplies/quality, sites with limited or controllable public access, and sites that can be easily



Map 1. Potential razorback sucker and bonytail chub rearing ponds and refuge sites within Las Vegas Valley, Clark County, NV.

accessed for management purposes and fish stocking and removal. Sites with these characteristics are located primarily within the Las Vegas, Henderson, and Boulder City metropolitan areas, as well as near the City of Mesquite, Nevada. Each property enrolled under the Agreement will have a separate CA to include: a map of the property with legal description, the proportion and acreage of each property to be enrolled, and a description of the existing conditions (biological communities/habitat types, sensitive species, non-native aquatic species, current and future expected land-use practices and development, water supply characteristics, access issues) for the portion of the property to be enrolled in this Agreement.

Under this Agreement, NDOW will be the administrator and enroll individual landowners via CAs and Certificates of Inclusion. Upon signing of a CA, NDOW will issue a Certificate of Inclusion and a Letter of Authorization for Take of Protected Species to a Cooperator authorizing incidental take of razorback sucker and/or bonytail chub on the Cooperator's lands. Nevada Department of Wildlife will provide the Service with copies of finalized CAs and Certificates of Inclusion within 30 days of their execution.

Also, NDOW will provide the Service with an annual report which consists of: 1) a description of each property enrolled through CAs under this Agreement, including legal descriptions and current ownership; 2) presence or absence of razorback sucker and bonytail chub on each property, including the date that presence or absence was determined; 3) information on the results of biological and compliance monitoring, including the overall status of razorback sucker and bonytail chub, numbers of each species stocked into individual ponds/aquatic habitats or removed for release to the wild, management activities undertaken related to razorback sucker and bonytail chub and occupied habitats, and maintenance of baseline conditions; and 4) incidental take of razorback sucker and/or bonytail chub on lands covered by CAs signed under this Agreement, including numerical losses during the rearing and grow-out process which cannot be attributed to specific causes. The report will include an assessment of the contribution of enrolled lands to the recovery of razorback sucker and bonytail chub through the augmentation of wild and refuge populations of those species. The report will also include copies of all Certificates of Inclusion and the associated CAs executed during the reporting period.

This Agreement becomes effective upon issuance of the section 10(a)(1)(A) Permit and will be in effect for 50 years. Based on NDOW's experience, this time frame is sufficient to establish, use, and maintain grow-out ponds for razorback sucker and bonytail chub on enrolled lands at a level that will substantially augment and assist recovery efforts for these species. Additionally, the Agreement and Permit may be renewed beyond their specified durations through amendment, with concurrence of both the Service and NDOW. Given the probable time required to enroll individual Cooperators, develop or enhance aquatic rearing habitats, and provide enrolled lands with sub-adult fish for rearing, the Service and NDOW estimate it may take two years of implementing the Agreement to fully reach a net conservation benefit for the species, although some level of benefit will likely occur within a shorter time period. Also, the 50-year Permit term will provide the opportunity for additional facilities suitable for use as grow-out ponds to be

developed over the term of the Permit and enrolled for conservation purposes under CAs and Certificates of Inclusion. Nevada Department of Wildlife may enroll Cooperators under CAs from the date this Agreement and Permit becomes effective until 10 years before they terminate. Obligations under CAs will be in effect for variable lengths of time depending on the property covered and the agreement of the Cooperator and NDOW. However, the minimum duration of obligations will be for five years from the date each CA is signed.

Consistent with the Safe Harbor Policy (64 FR 32717), the Permit will authorize incidental take of above-baseline conditions of any razorback sucker, bonytail chub, or the species' habitat as a result of lawful activities on enrolled lands. These customary management activities may include but are not limited to: operation of vehicles and maintenance equipment, building or fence construction, gardening, hunting, recreational fishing, farming, mowing, control of weeds, maintenance of landscaping and recreational facility infrastructure, commercial and non-commercial recreational activities, and normal utilization of impounded waters for irrigation and landscape maintenance.

Compliance and biological monitoring will be conducted by NDOW, with assistance from the Service where appropriate, for each CA. Compliance monitoring obligations include visiting enrolled properties to ensure compliance with the CA, including any obligations of the Cooperators and maintenance of baseline responsibilities. Biological monitoring will be conducted by NDOW with assistance from the Service at least semi-annually. Prior to completing a CA and Certificate of Inclusion for any enrolled property, NDOW, in cooperation with the private landowner and the Service, will complete a detailed biological assessment of that property. The biological assessment of the given property will determine baseline conditions which will include, but is not limited to: an evaluation of aquatic habitat quality and suitability; a characterization of species present, including non-native species, if any; and a determination of appropriate management actions and conservation measures needed.

Until such a time as razorback sucker and bonytail chub are placed on an included property for purposes of rearing and maintenance, the Cooperator will have no responsibilities under this Agreement except to implement those specific actions, including maintenance of habitat quantity and quality, agreed to in the CA. Following the placement of razorback sucker and/or bonytail chub on enrolled lands, or when razorback sucker or bonytail chub are otherwise known to be present, NDOW, with assistance from the Service where appropriate, will monitor the species by visiting occupied enrolled lands at least semi-annually to ascertain the number of fish present and growth rates, aquatic habitat quality, the efficacy of current management activities and conservation measures, and to perform management actions, including marking/tagging and capture/removal of fish for release to the wild.

To return the enrolled property to baseline conditions, a Cooperator must demonstrate that baseline conditions were maintained and that activities identified in the Agreement were carried out for the duration of the Agreement. At the end of the CA term, and before a CA expires, a Cooperator may reduce razorback sucker and bonytail chub numbers or occupied habitat to the

established baseline to avoid accruing additional take under the Act. The Cooperator will notify the Department at least 30 calendar days in advance of any activities reasonably anticipated to result in the loss of individuals or occupied habitat. The notification will give the Department an opportunity to capture and relocate the affected individuals, thereby minimizing the impact of the authorized take.

Status of the Species

Razorback Sucker (Xyrauchen texanus)

The razorback sucker was listed as an endangered species on October 23, 1991 (56 FR 54957), with an effective date of November 22, 1991. Critical habitat was designated in 15 river reaches within the historic habitat of the razorback sucker on March 21, 1994, with an effective date of April 22, 1994 (59 FR 13374). Critical habitat in or near the action area includes Lake Mead and Lake Mohave up to their full-pool elevations. All critical habitat areas were considered occupied at the time of designation. Constituent elements of critical habitat include water, physical habitat, and biological environment. The Razorback Sucker Recovery Plan (Service 1998), signed in 1998, was updated and supplemented in 2002 by the Razorback Sucker (*Xyrauchen texanus*) Recovery Goals (Service 2002b).

The razorback sucker, a member of the *Catostomidae* family, occurs in the upper and lower Colorado River system within portions of Utah, Colorado, Nevada, Arizona, and California. These large river fish are brownish-green with a yellow to white-colored belly and have a distinct dorsal keel that is used for navigation in strong currents. The species can grow more than 600 millimeters (2 feet) in length, weigh more than 3 kilograms (6 pounds), and live over 40 years. For detailed information on the razorback sucker's life history, range-wide status, and distribution, please refer to the 1998 Recovery Plan (Service 1998) and Appendix A of the 2002 Recovery Goals document (Service 2002b).

In the Lower Colorado River Basin, the current distribution of razorback sucker is limited to altered mainstem habitats and reservoirs in four known locations. A relict population exists in Lake Mead; estimates of population size have ranged from 23 to 52 fish at Echo Bay and 11 to 310 fish at the Bay (Holden and Welker 2004). The recent discovery of several sub-adult razorback suckers by Holden and Welker (2003) indicates natural recruitment is occurring in Lake Mead, albeit at levels that are likely too low to sustain the population without stocking. A population of unknown size exists in Lake Havasu and upstream to below Davis Dam from reared sub-adult fish released into that reservoir. An unknown number of adult razorback sucker persist in the Colorado River above Imperial Dam from recent releases for research purposes. With the exception of Lake Mead, none of these populations have conclusively demonstrated natural recruitment.

Currently, the group of razorback sucker in Lake Mohave is the largest remaining in the entire Colorado River Basin, composed of both aged wild fish and young adult fish released into the

reservoir since 1994, which were hatchery reared individuals from larvae collected in the wild. Observers reported razorback suckers as being common to abundant when the reservoir was filling in the 1950s, with the number of adults appearing to remain fairly stable through the 1970s and 1980s (Minckley et al. 1991). No natural recruitment has been observed in Lake Mohave despite documented spawning and the presence of larval fish (Minckley 1983; Marsh 1994). This failure to recruit has been attributed primarily to predation on razorback sucker larvae by non-native fishes (Minckley et al. 1991; Burke 1994; Horn 1996; Pacey and Marsh 1998). Estimates of the wild stock in Lake Mohave, now aged and senescent, have dropped precipitously in recent years from 60,000 as late as 1991, to 25,000 in 1993 (Marsh 1993; Holden 1994) to about 9,000 in 2000 (pers. comm., T. Burke, Bureau of Reclamation), and 966 wild fish (95% confidence interval: 580-1,711) and 1,366 repatriated fish (95% confidence interval: 735-2,573) in 2004 (pers. comm., M. Burrell, NDOW).

In the Upper Colorado River Basin above Glen Canyon Dam, Arizona, there are small reproducing populations in the Green River, Utah, as well as small numbers of wild individuals in the upper Colorado River and San Juan River sub-basins. The fish in all upper basin populations are aged, with senescent adults and little or no recruitment, except for the middle Green River (Service 2002b). Hatchery-reared juvenile and adult fish are currently being stocked into selected riverine habitats in the upper basin with some recent evidence of success. Although naturally-recruited razorback suckers are thought to be extirpated from the Gunnison River and this population consists of only a few hatchery-reared adults (Service 2002b), analysis of larval fish collected from the Gunnison River in spring 2002 indicated the presence of razorback sucker larvae in the sample, suggesting successful reproduction in the wild by hatchery-reared adults released into mainstem upper basin habitats.

The range-wide trend for the razorback sucker is the continued decrease in wild populations due to lack of sufficient recruitment of wild-born and reared young adults that would serve to offset the loss of old adults due to natural mortality. The remaining wild populations are extremely small and the loss of all but one of the remaining wild populations is expected to occur within the decade. The exception to this is the Lake Mead razorback sucker population, which is made up of young to middle-aged fish forming a second post-impoundment generation. Extinction of this fish in the wild elsewhere within its historic range is being forestalled by the stocking of captive-born sub-adult fish into rivers in the Upper Colorado River Basin and in Lake Mohave, Lake Havasu, and the Colorado River below Parker Dam in the Lower Colorado River Basin. These stockings are intended to create populations of young adults that may be expected to persist for 40-50 years. While it is expected that these young adults will reproduce in the wild, the successful recruitment of wild-born fish to the population may not occur without additional management of habitat and biological factors. Management and research on these populations will be critical to provide for the survival and recovery of the species. The ongoing Lake Mohave population replacement program sponsored by the Native Fish Work Group is providing a genetically variable "broodstock" for the razorback sucker in the form of young wild-born fish captured, reared, and then repatriated to the lake. Adult fish from this population will be used to provide young fish for stocking elsewhere within the historic range of the species.

Principal threats to the razorback sucker include predation on early life stages by, and competition from, non-native fish species; the alteration of mainstem and tributary historic flow regimes and loss of seasonal variability; the alteration of habitats through impoundment and channelization, including alteration of thermal and physical attributes; fragmentation of habitats and loss of connectivity; isolation and modification of connected backwaters essential for rearing and nursery habitat; and the small population sizes of remaining relict adult populations, even where wild recruitment has been noted. Although reproduction is well documented in a variety of occupied habitats through the presence of early-stage razorback sucker larvae, there is almost invariably an absence of recruitment due to the loss of post-larval early life stages due to the absence of suitable nursery habitats, predation, and other factors.

Designated critical habitat in the razorback sucker's range is occupied by the species. No critical habitat areas are considered pristine or unmodified. Changes to water flows and physical habitat conditions from the pre-development patterns have had significant impacts to habitat quality; however, the areas remain capable of supporting the species at some level. The biological environment has also changed significantly with the introduction of non-native fish species. Non-native fish may be the greatest impediment to survival and recovery of the razorback sucker.

Bonytail Chub (Gila elegans)

The bonytail chub was listed as an endangered species on April 24, 1980 (45 FR 27710), with an effective date of May 23, 1980. Critical habitat was designated in six river reaches within the historic range of the bonytail chub on March 21, 1994 (59 FR 13374), with an effective date of April 20, 1994. Critical habitat in or near the action area includes Lake Mohave up to its full-pool elevation. All critical habitat areas were considered occupied at the time of designation. Constituent elements of critical habitat include water, physical habitat, and biological environment. The Bonytail Chub Recovery Plan (Service 1990) was updated and supplemented by the Bonytail (*Gila elegans*) Recovery Goals in 2002 (Service 2002a).

The bonytail chub is a cyprinid fish species endemic to the Colorado River Basin. Bonytail chub are considered mainstream river species, preferring pools and eddies of warm, often heavily silted, swift moving rivers; however, they do occur in reservoir habitats as well. The body of an adult bonytail chub is highly streamlined, a greenish-grey, dusky color on its back with silvery sides, and a white belly. The bonytail chub may reach up to 24 inches in length and weigh over two pounds. For detailed information on life history, range-wide status, and distribution of the bonytail chub, please refer to the 1990 Recovery Plan (Service 1990) and Appendix A of the 2002 Recovery Goals document (Service 2002a).

Extremely small populations of wild bonytail chub exist in the Colorado, Green, and Yampa rivers in Colorado and Utah, and in the Lower Colorado River in Arizona and Nevada. The species may be functionally "extinct" since the last capture of a documented wild (not born from

hatchery stock) adult in the Upper Basin was in 1988, and in the Lower Basin, the last wild adult was documented in Lake Havasu in the early 1990s.

In the Lower Colorado River Basin, bonytail chub are limited in distribution to a small number of sub-adult and adult fish in Lake Mohave and Lake Havasu. The majority of these fish represent recent releases of juvenile and adult fish produced from parent stock held at Dexter National Fish Hatchery (NFH) in New Mexico, and the rate of survival for these recently released fish is unknown. The total number of free-ranging bonytail chub in the lower basin is unclear and it is unknown if any wild, naturally-recruited fish still exist in lower basin riverine habitats. Bonytail chub in off-stream refuge ponds have demonstrated recruitment and survival (Mueller et al. 2002), but there is no recent evidence of recruitment in connected flowing water or reservoir habitats. In the Upper Colorado River Basin, there is no known natural reproduction or recruitment, and fewer than 15 wild adult fish have been taken within canyon regions in the upper basin in the past 25 years. Hatchery-reared fish are currently being stocked into riverine habitats and riverside ponds in the upper basin with unknown success.

The range-wide trend for the bonytail chub is the continued decrease in wild populations due to lack of sufficient recruitment of wild-born and reared young adults that would serve to offset the loss of old adults due to natural mortality. The remaining wild populations are extremely small and complete loss of the remaining wild-born individuals is expected to occur within the decade. Extinction of this fish in the wild throughout its historic range is being forestalled by the stocking of captive-born, sub-adult fish into rivers in the Upper Colorado River Basin and in Lake Mohave and Lake Havasu in the Lower Colorado River Basin. Fish for these efforts are produced at Dexter NFH and are grown to stocking size at Dexter NFH, Willow Beach NFH on Lake Mohave, the Achii Hanyo Fish Rearing Facility on the Colorado River below Lake Havasu, and at other Federal, State, and private facilities. These stockings are intended to create populations of young adults that may be expected to persist for 40-50 years. While it is expected that these young adults will reproduce in the wild, the successful recruitment of wild-born fish to the population may not occur without additional management of habitat and biological factors. Management and research on these populations will be critical to provide for the survival and recovery of the species. Of vital importance to the stocking program is the maintenance and enhancement of the existing bonytail chub broodstock held at Dexter NFH. Genetic evaluation of the existing F1 broodstock is underway to assist in formulating a new broodstock (the F1 fish are over 20 years old and replacements for the broodstock are needed). Infusion of additional, unrelated wild-born individuals is being actively pursued in order to maximize the amount of genetic variability in the new broodstock. Captive born individuals from the original F1 and F2 breedings that have survived in the wild may also be incorporated.

Principal threats to the bonytail chub are the same as previously described for razorback sucker. Other significant threats to the bonytail chub include loss of riverine habitats, fragmentation of remaining riverine habitats, changes in flows due to water development projects, and hybridization with other species of the genus *Gila*. Additionally, the continued existence of wild

adult stocks is unclear, and recovery is dependent on production of fish for release to the wild from very limited numbers of adult refuge stock held at Dexter NFH and other facilities.

Designated critical habitat within the species' range is occupied by bonytail chub populations. No critical habitat areas are considered pristine or unmodified. Changes to water flows and physical habitat conditions from the pre-development patterns have had significant impacts to habitat quality; however, the areas remain capable of supporting the species at some level. The biological environment has also changed significantly with the introduction of non-native fish species. Non-native fish may be the greatest impediment to survival and recovery of the bonytail chub.

Environmental Baseline

The action area is Clark County, Nevada, where numerous sites with landscape and irrigation ponds on private and local government lands have been identified as potentially suitable for grow-out or refuge facilities for razorback sucker and bonytail chub (Map 1). The action area may include any and all of those sites identified in Map 1, or other suitable sites within Clark County which have not yet been specifically identified. However, those properties that have apparently suitable aquatic habitat for the rearing and long-term adult maintenance of razorback sucker and bonytail chub will be the primary focus of the Agreement.

Razorback sucker (*Xyrauchen texanus*)

A large percentage of razorback suckers within Clark County, Nevada, occur in Lake Mead and Lake Mohave within the Lake Mead National Recreation Area. The Lake Mead population is small (estimates ranging from 23 to 52 fish at Echo Bay and 11 to 310 fish at the Bay (Holden and Welker 2004)) with limited recruitment and is subject to various factors that could impede recovery, including predation by non-native game fish, such as the striped bass (*Morone saxatilis*). In Lake Mohave, recent (2004) estimates put population size of razorback suckers at 966 wild fish (95% confidence interval: 580-1,711) and 1,366 repatriated fish (95% confidence interval: 735-2,573) (pers. comm., M. Burrell, NDOW).

Bonytail chub (*Gila elegans*)

Effects of the Action

The proposed Agreement is expected to provide a net conservation benefit for razorback suckers and bonytail chub by aiding in the recovery of both species and assisting in the re-establishment of wild populations that may, in some situations, become self-sustaining. In order to accomplish this, it is essential that private landowners, the Service, and NDOW work together to provide habitat for these species and positive stewardship of refuge sites for adult fish and for the rearing of sub-adults for eventual release in the wild. Management activities that are undertaken through CAs will result in additional areas being available for these purposes. Without this cooperative

government-private effort, razorback sucker and bonytail chub would not occupy areas important to recovery in the foreseeable future, and the Service's ability to make measurable progress towards recovery of these species would be limited.

Razorback sucker and bonytail chub require predator-free, stable pond environments for the rapid growth of juvenile fish to a size suitable for release to unprotected habitats. Suitable pond environments on public lands in Clark County, Nevada, are limited primarily to managed, isolated backwaters along the shoreline of Lake Mohave which are subject to uncontrolled public access and variable environmental conditions and water levels, and which cannot be fully manipulated to the benefit of razorback sucker and bonytail chub. Ponds located on private lands which are maintained for landscape, recreation, and irrigation purposes frequently have more controlled access and landowners have a greater ability to control certain environmental variables, such as water level, water quality (i.e., contaminants), and invasion of undesirable species (e.g., non-native fish), which would limit productivity and the ability to produce suitably-sized individuals for augmenting wild populations. The total acreage of suitable ponds on public lands is not adequate to meet razorback sucker and bonytail chub production needs in order to address recovery and population augmentation goals. Additionally, this acreage cannot be expanded on public lands without constructing new pond facilities or substantively renovating existing backwaters and other appropriate areas, which may be detrimental to other wetland-dependent wildlife species. Similarly, isolated ponds and backwaters suitable for long-term maintenance of adult razorback sucker and bonytail chub populations are very limited on public lands, and these areas will not support persistent adult populations which are needed to maintain genetic stocks independent of production requirements for fish to be released to the wild. Existing private pond facilities in Clark County, Nevada, can meet much of the existing need for production and refuges without the need to construct new facilities and without the loss of habitat for resident wildlife.

Conservation measures associated with this Agreement will contribute to recovery of the razorback sucker and bonytail chub. Private lands comprise only a small portion of the aquatic environments potentially available for recovery of these species. However, suitable sites on private land can be used for holding and rearing fish in a predator-free environment, thus allowing individuals to achieve a size (>300 millimeters) that will lower the probability of predation and greatly increase their chance of survival in the wild. Currently, razorback suckers and bonytail chub are located primarily in waters on public lands because private landowners are reluctant to participate in activities that will benefit these species due to fear of regulatory impacts associated with having a federally-listed species on their land. Having landowners participate in this Agreement will open areas to reintroduction, expansion, and preservation of razorback sucker and bonytail chub, which is needed to ensure the genetic viability of the species. It will also help create networked populations and increase species' numbers for use in stocking networked populations.

Consistent with Safe Harbor Policy, the Permit (through Certificates of Inclusion to landowners) authorizes incidental take of razorback sucker or bonytail chub as a result of lawful activities

occurring on enrolled lands. Such take may result only unintentionally and must occur as incidental to otherwise lawful activities associated with customary management or conservation measures, including but not limited to: operation of vehicles and maintenance equipment, building or fence construction, gardening, hunting, recreational fishing, farming, mowing, control of weeds, maintenance of landscaping and recreational facility infrastructure, commercial and non-commercial recreational activities, and normal utilization of impounded waters for irrigation and landscape maintenance. It is unknown at this time how many razorback suckers or bonytail chub will occur on the enrolled lands over the term of the Agreement, and when and where they may be affected by lawful activities on enrolled lands;

Emergency situations arising from natural disasters (e.g., fire, excessive rainfall, flood, extreme drought) may require the initiation of certain land management actions that may result in take of razorback sucker and/or bonytail chub. Certain other emergency situations such as the failure of water supplies, water delivery systems, or pond structures may occur outside the control or intention of the Cooperator, and could result in the take of razorback sucker or bonytail chub. Any take from implementing these emergency actions will be minimized through coordination between the Cooperators and NDOW, thus allowing for survey, salvage, and/or relocation of individuals prior to initiation of the land management action or as soon as practicable. However, surveys and/or relocation may be impossible in certain urgent situations.

Monitoring occupied lands on at least a semi-annual basis will be used to ascertain if the species is present, aquatic habitat quality, the efficacy of current management activities, and benefits to species conservation and recovery. Conservation measures that reduce impacts from management activities, promote conservation and long-term persistence of the species, and assist with recovery will be implemented; these measures will be as varied as the types of land and landowner enrolled under the Agreement. While many possible conservation measures exist for each management action, all possible measures cannot be anticipated. Each Cooperator will not be expected to implement the full set of measures. The conservation measures to be implemented will be specific to each individual Cooperator's baseline, habitat conditions, and management needs. The overall goal of the Agreement will be to produce conservation measures that are mutually beneficial to the Cooperator and the long-term existence of razorback sucker and bonytail chub.

The Permit/Certificates of Inclusion allow(s) for the eventual return to landowner baseline conditions. The baseline for each landowner signing a CA is the number of razorback sucker and bonytail chub on the property and/or the amount of occupied suitable habitat. For enrolled lands containing only pond facilities that will be managed to rear and grow-out fish, baseline will be assumed to be zero. Each CA will specify the baseline for the particular lands covered under that CA.

Before returning to baseline conditions, a Cooperator must demonstrate that baseline conditions were maintained and that activities necessary to achieve a net conservation benefit were carried out for the duration of the CA. Before the end of the CA and Certificate of Inclusion, a

Cooperator may reduce the number of individuals of a covered species or the amount of habitat to the established baseline condition in order to avoid accruing additional take under the Act. However, no individuals or habitat shall be impacted until the Cooperator has given NDOW or the Service prior notice of at least 30 days so that individual fish can be relocated. Even if all enrolled landowners return their property to baseline conditions after 50 years, which is not expected, populations of these species will still exist on public lands that have become linked due to conservation activities, spawning habitat, and over-wintering habitat. Thus, even a return-to-baseline condition/worst-case scenario is not likely to appreciably reduce the likelihood of survival and recovery in the wild of the razorback sucker or bonytail chub. Overall, implementation of this Agreement is expected to result in increased numbers of razorback sucker and bonytail chub in the wild, thus providing a net conservation benefit to both species.

Cumulative Effects

Cumulative effects include the effects of future State, local, or private actions that are reasonably certain to occur in the 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. Numerous sites on private and local government lands in Clark County, Nevada, have been identified as potentially suitable for grow-out or refuge facilities for razorback sucker and bonytail chub, but it is not specifically known which sites will be enrolled under the Agreement. These sites include golf courses, public or private parks, residential landscape features, and irrigation storage sites. Additionally, there may be other suitable sites within Clark County that have not yet been identified. We are unaware of any non-Federal actions that are reasonably certain to occur on these potential sites.

Conclusion

After reviewing the current status of the razorback sucker and bonytail chub, the environmental baseline of both species in the action area, the effects of the proposed Agreement, and the cumulative effects, it is the Service's biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of either the razorback sucker or bonytail chub. Even a return-to-baseline condition/worst-case scenario is not likely to jeopardize the continued existence of either the razorback sucker or bonytail chub. Thus, it is the biological opinion of the Service that the Agreement and any resultant take authorized by the Permit will not appreciably reduce the likelihood of survival and recovery in the wild of the razorback sucker or bonytail chub; in fact, implementation of this Agreement is expected to result in increased numbers of razorback sucker and bonytail chub in the wild and a net conservation benefit to both species.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered or threatened species, respectively, without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or 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 behavior patterns which include, but are not limited to, 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, sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, carrying out 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 a 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 the Service for the exemption in section 7(o)(2) to apply. The Service has a continuing duty to regulate the activity covered by this incidental take statement. If the Service fails to assume and implement the terms and conditions, the protective coverage of section 7(o)(2) may lapse.

Amount or Extent of Take

Since it is unknown at this time how many razorback suckers or bonytail chub will occur on the enrolled lands over the term of the Agreement, and when and where they may be affected by lawful activities on enrolled properties, the Service cannot estimate the numbers of individuals that are likely to be harassed, injured, or killed during implementation of the Agreement. However, we anticipate that relatively few individuals of either species will be taken through injury or mortality during implementation of the customary management actions covered under the Agreement. It is the intention of the Agreement that any take from the customary management actions will be minimized by implementing the conservation measures to be included in the CAs.

On the other hand, the Service anticipates that all fish will be harassed during implementation of the Agreement through the process of stocking or removing fish from enrolled lands or through implementation of the customary management actions covered under the Agreement. Again, we anticipate that relatively few individuals of either species will be taken through injury or mortality during stocking or removal activities.

The Service anticipates that the following take could occur on enrolled lands under this Agreement:

1. All razorback suckers and bonytail chub on enrolled lands may be harmed or harassed when being stocked on a Cooperator's property; however, relatively few individuals of either species will be taken through injury or mortality.
2. All razorback suckers and bonytail chub on enrolled lands may be harmed or harassed

when being removed from the Cooperator's property, i.e., when a property is returned to its baseline condition at the end of each CA and prior to expiration of the Permit. However, relatively few individuals of either species will be taken through injury or mortality.

3. All razorback suckers and bonytail chub on enrolled lands may be harmed or harassed through implementation of the customary management actions covered under the Agreement; however, relatively few individuals of either species will be taken through injury or mortality.

Effect of Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to either the razorback sucker or the bonytail chub.

Reasonable and Prudent Measure

The Service believes the following reasonable and prudent measure is necessary and appropriate to minimize incidental take of razorback sucker and/or bonytail chub:

1. The Service shall ensure that measures in the Agreement and all terms and conditions of the accompanying section 10(a)(1)(A) Permit are implemented by NDOW and Cooperators.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the Service must comply with the following term and condition, which implement the reasonable and prudent measure described above. This term and condition is non-discretionary.

1. The Service shall work with NDOW and Cooperators to implement all measures in the Safe Harbor Agreement and terms and conditions of the accompanying section 10(a)(1)(A) Enhancement of Survival Permit.
2. The Service shall review and concur on all draft Conservation Agreements and provide comments to NDOW within 15 business days or less.

CONSERVATION RECOMMENDATIONS

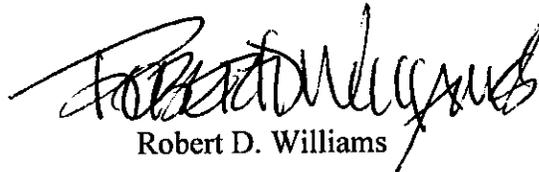
Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse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

help implement recovery plan, or to develop information. The process of developing a Safe Harbor Agreement necessitates the incorporation of this approach into the agreement process. Accordingly, the Service has no additional conservation recommendations at this time.

REINITIATION

This concludes formal consultation on the proposed issuance of a section 10(a)(1)(A) enhancement of survival permit to NDOW. As required by 50 CFR 402.16 reinitiation of 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 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 adverse affect to the listed species that was not considered in this opinion; or 4) a new species is listed or critical habitat designated that may be affected by this action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Please reference Service file number 1-5-07-FW-460 for any future correspondence relating to this consultation. If you have any questions regarding this biological opinion, please contact me at (775) 861-6300 or Shawn Goodchild in our Southern Nevada Field Office at (702) 515-5230.



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