50 CFR Part 17

RIN 1018-AB42

Endangered and Threatened Wildlife and Plants; the Razorback Sucker (Xyrauchen texanus) Determined To Be an Endangered Species

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The U.S. Fish and Wildlife Service determines the razorback sucker (*Xyrauchen texanus*) to be an endangered species under the authority of the Endangered Species Act of 1973, as amended. This native fish is found in limited numbers throughout the Colorado River basin. Little evidence of natural recruitment has been found in the past 30 years, and numbers of adult fish captured in the last 10 years demonstrate a downward trend relative

to historic abundance. Significant changes have occurred in razorback sucker habitat through diversion and depletion of water, introduction of nonnative fishes, and construction and operation of dams. Further changes are anticipated as these activities continue. Listing the razorback sucker as endangered will afford this species full protection under the Endangered Species Act.

EFFECTIVE DATE: November 22, 1991.

ADDRESSES: The complete file for this rule is available for inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service Field Office, 2060 Administration Building 1745 West 1700 South, Salt Lake City, Utah 84104–5110.

FOR FURTHER INFORMATION CONTACT: Patricia A. Schrader, Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, 529–25½ Road, suite B–113, Grand Junction, Colorado 81505/6199, (303) 243–2778.

SUPPLEMENTARY INFORMATION:

Background

The razorback sucker was described by Abbott (1861) from a single mounted specimen captured from the Colorado River. He placed it in the genus *Catostomus*, but Eigenmann and Kirsch, after further study, assigned it to its own genus, *Xyrauchen* (Kirsch 1889). Also known as the humpback sucker, the adult razorback sucker is readily identifiable by the abrupt sharp-edged dorsal keel behind its head and a large fleshy subterminal mouth that is typical of most suckers. Adult fish are relatively robust, often exceeding 3 kg (6 lbs.) in weight and 600 mm (2 ft.) in length. Although traces of the developing keel have been observed externally on some cultured specimens as small as 85 mm (3.3 in.) (Snyder and Muth 1990), the dorsal keel of juvenile razorback suckers may not be obvious in other individuals, making them difficult to distinguish from other sucker species.

The razorback sucker was once abundant throughout 5,835 km (3,500 mi.) of the Colorado River basin, primarily in the mainstem and major tributaries in Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming; and in the States of Baja California Norte and Sonora of Mexico (Ellis 1914, Minckley 1973). The Colorado River was divided into upper and lower basins at Lee Ferry, Arizona (approximately 14 km (9 mi.) below Glen Canyon Dam), by the Colorado River Compact of 1922. There are many accounts of razorback suckers during early settlement of the lower basin (Gilbert and Scofield 1898, Minckley 1973) and a significant commercial fishery for them existed in southern Arizona in the early 1900's (Hubbs and Miller 1953, Miller 1964). In the upper basin, Jordan (1891) reported razorback suckers to be very abundant at Green River, Utah, in 1889. Residents living along the Colorado River near Clifton, Colorado, observed several thousand razorback suckers during spring runoff in the 1930's and early 1940's (account in Osmundson and Kaeding 1989a).

In recent times, razorback sucker distribution has been reduced to about 1,208 km (750 mi.) in the upper basin (McAda and Wydoski 1980, Holden and Stalnaker 1975, Ecology Consultants 1978). In the lower basin a substantial population exists only in Lake Mohave, but they do occur upstream in Lake Mead and the Grand Canyon and downstream sporadically on the mainstem and associated impoundments and canals (Marsh and Minckley 1989). Marsh and Minckley (in press) estimated approximately 60,000 adult razorback suckers still occur in Lake Mohave, and Lanigan and Tyus (1989) estimated that 758 to 1,138 razorback suckers still inhabit the upper Green River. In the upper Colorado River subbasin most razorback suckers occur in the Grand Valley area (Valdez et al. 1982). Observations in other areas are spotty and inconsistent and are generally viewed as incidental captures. The number of adult captures in the Grand Valley had declined appreciably since 1975 (Osmundson and Kaeding 1991). No significant recruitment to any population has been documented in recent years (Tyus 1987a, McCarthy and Minckley 1987, Osmundson and Kaeding 1989a).

Information on behavior and habitat needs of the razorback sucker is limited. Until recently, it has not been a major objective of most upper basin investigations and it is rarely collected in fisheries investigations directed at the three endangered Colorado River fishes: The Colorado squawfish (*Ptychocheilus lucius*); humpback chub (*Gila cypha*); and bonytail chub (*Gila elegans*). However, information has been accumulated in conjunction with other studies, and some specific studies have been conducted.

In 1981, the U.S. Fish and Wildlife Service (Service) and the Arizona Game and Fish Department began a reintroduction and monitoring program in historic razorback sucker habitats of the Gila, Salt, and Verde Rivers. The State of California initiated a similar effort on the Colorado River mainstem in 1986 (Minckley et al. in press). In the past 10 years, over 13 million razorback suckers were stocked in 57 sites in Arizona, primarily in the Verde, Gila, and Salt Rivers and their tributaries (Duane Shroufe, Director, Arizona Game and Fish Department, *in litt.*, 1990). Recaptures from these stocking efforts have been scarce because most fish stocked were fry (which normally experience high attrition), stocked fish were heavily preyed upon, and there were inadequate survey efforts for the large reintroduction area (Brooks 1986). There are indications that populations are being established in isolated habitats and in the uppermost reservoirs of the drainages being stocked (Duane Shroufe, Director, Arizona Game and Fish Department, *in litt.*, 1990).

Some adult razorback suckers migrate considerable distances to specific areas to spawn (Tyus 1987a, Tyus and Karp 1990). Spawning occurs in the lower basin from January through April (Ulmer 1980, Langhorst and Marsh 1986, Mueller 1989). In the upper basin, ripe razorback suckers were observed in suspected spawning areas in the Green River from April 20 to June 14, from 1981 to 1989 (Tyus 1987a, Tyus and Karp 1990). Osmundson and Kaeding (1991) summarized captures by various investigators of razorback suckers in the Grand Valley, and report that 40 of the 42 running ripe adults captured were captured between May 24 and June 17. Water temperatures during spawning in the lower basin ranged from 11.5–18°C (52.7–64.4°F) (Douglas 1952, Ulmer 1980, Langhorst and Marsh 1986) while temperatures recorded in the upper Green River ranged from 9–17°C (48–63°F) (Tyus and Karp 1990). Spawning is usually accomplished over gravel bars that are swept free of silt by currents and several males accompany a single female (Jonez and Sumner 1954, Ulmer 1980). In Lake Mohave and Senator Wash Reservoir, spawning takes place on gravel bars swept clean by wave action (Ulmer 1980, Bozek et al. 1984). Tyus (1987a) collected ripe adults over coarse sand substrates and in the vicinity of gravel or cobble bars, but direct observation of spawning was not possible because of high turbidities prevalent during that time of year. In Senator Wash Reservoir and Lake Mohave, the eggs apparently settled onto gravel and into interstices swept clean by the spawning activity; larvae remained in the gravel until swim-up (Ulmer 1980, Mueller 1989).

A number of investigators have collected viable fertilized eggs and larvae in the areas of observed spawning activity (Bozek et al. 1984, Ulmer 1980, Marsh and Langhorst 1988, Tyus 1987a), but few have collected larvae larger than 14 mm (0.6 in.) in the

wild. This indicates little or no successful recruitment of wild razorback suckers (Tyus 1987a). Marsh and Langhorst (1988) recovered larvae up to 20 mm (0.8 in.) total length in an isolated backwater in Lake Mohave where predators had been previously eradicated, and growth to 20 cm (7.9 in.) was reported for juvenile razorback suckers in the same location (Minckley et al., in press). However, these fish disappeared within a month following reinvasion of the backwater by predators. Most investigators have reported concentrations of carp (*Cyprinus carpio*), green sunfish (*Lepomis cyanellus*), bluegill (*Lepomis macrochirus*), channel catfish (*Ictalurus punctatus*), and largemouth bass (*Micropterus salmoides*) in razorback sucker spawning areas (Jonez and Sumner 1954, Marsh and Langhorst 1988, Ulmer 1980, Bozek et al. 1984). Larvae and larger razorback suckers have been found in stomachs of predatory fishes such as green sunfish, warmouth (*Lepomis gulosus*), channel catfish, flathead catfish (*Pylodictis olivaris*), and threadfin shad (*Dorosoma petenense*) (Marsh and Langhorst 1988, Langhorst 1989, Brooks 1986).

Habitat needs of young and juvenile razorback suckers in the wild are largely unknown because they rarely have been encountered by researchers, particularly in native riverine habitats (Tyus 1987a). Marsh and Langhorst (1988) observed that larval razorback suckers in Lake Mohave remained near shore after hatching but either disappeared or migrated to depths in excess of 15 m (49 ft.) within a few weeks. Most juveniles have been collected from irrigation canals in southern California and Arizona (Marsh and Minckley 1989). Substantial numbers of razorback suckers have been reared through the juvenile and adult stages in hatcheries (Toney 1974, Hamman 1985) and in isolated ponds (Langhorst 1989, Osmundson and Kaeding 1989b), providing some information on growth rates and food habits.

Diets of razorback sucker larvae have been studied in Lake Mohave (Marsh and Langhorst 1988) and under experimental conditions (Papoulis 1988, Tyus and Severson 1990). Larvae from reservoirs selected *Bosmina* spp. (Cladocera) and avoided Copepoda, while larvae from backwaters or Lake Mohave selected *Bosmina* and avoided Rotifera (Marsh and Langhorst 1988). Dietary studies in controlled conditions indicated wide differences in their response to commercial fish foods (Tyus and Severson 1990). Information is not available on food habits of razorback sucker larvae from natural riverine habitats.

Only limited information has been accumulated on the food habits of adult razorback suckers, primarily due to their rarity and protected status under State law. Marsh (1987) examined the stomachs of 34 adult specimens from Lake Mohave and found contents dominated by planktonic crustaceans, diatoms, filamentous algae, and detritus. Jonez and Sumner (1954) reported midge larvae as the dominant food item in their stomach analysis of Lake Mohave razorback suckers. They also reported algae as the most common food item found in razorback sucker stomachs from Lake Mead, followed by plankton, insects, and decaying organic matter. Vanicek (1967) examined eight adult razorback sucker stomachs from the Green River and found them packed with mud or clay containing chironomid larvae, plant stems and leaves.

Using scales, Minckley (1983) estimated annual growth rates in the wild Lake Mohave population to be less than 10 mm (0.4 in.) per year after their seventh year of life. Recently, researchers have demonstrated the inadequacies of using scales to determine the age of razorback suckers and have shown that most razorback suckers captured in recent times are much older than their scales would indicate (McCarthy and Minckley 1987). Using sectioned otoliths, McCarthy and Minckley (1987) computed the ages of Lake Mohave razorback suckers collected in 1981–83 to be 24 to 44 years. Eighty-nine percent of the 70 fish sampled were estimated to have hatched prior to or coincident with impoundment. Disappearance of razorback suckers from lower basin reservoirs 40 to 50 years after impoundment was documented by Minckley (1983). McCarthy and Minckley (1987) predicted the Lake Mohave population is following this trend and may be extirpated before the year 2000. Tyus (1987a) concluded that razorback suckers in the Green River were substantially smaller and younger than those found in the lower basin, but no recent recruitment to the adult population was evident.

Adult razorback suckers are more vulnerable to capture during the spawning season. Tyus (1987b) reported them to be 10 times more prevalent in standardized electrofishing collections during the spring than during the remainder of the year. During spawning season, razorback suckers have been found in runs with coarse sand, gravel, and cobble substrate; flooded bottomlands and gravel pits; and large eddies formed by flooded mouths of tributary streams and drainage ditches (Tyus 1987a, Osmundson and Kaeding 1989a). Tyus (1987a) tracked six radio-implanted adult razorback suckers for 2 years, and found that they utilized the main channel of the Green and Duchesne Rivers. During non-breeding season, the fish were found in depths of 0.6 to 3.4 m (2.0 to 11.0 ft.), used sand or silt substrates, and water velocities of 0.1 to 0.6 m per second (0.33 to 2.0 ft. per second). Razorback suckers also selected near shore runs during the spring, but shifted to relatively shallow waters off mid-channel sandbars during the summer months. Except for spawning migrations, razorback suckers are fairly sedentary, moving relatively few kilometers over several months (Tyus 1987a, Tyus and Karp 1990). Valdez and Masslich (1989) tracked 17 razorback suckers throughout the winter on the Green River. They found that most of the radio-telemetered fish moved less than 5 km (3 mi.) throughout the winter. They also reported localized diel movement patterns that increased with fluctuating flows which they attributed to changes in water velocities. The radio-telemetered razorback suckers used slow run habitats, slack waters, and eddies. They selected depths of 0.6 to 1.4 m (2.0 to 4.6 ft.) and velocities of 0.03 to 0.33 m per second (0.1 to 1.1 ft. per second). Osmundson and Kaeding (1989a) reported the year-round movement and habitat use of one to four radio-telemetered adult razorback suckers over a 3-year period in the Grand Valley region of the upper Colorado River. They reported that pools and slow eddy habitats were predominantly used from November through April, runs and pools from July through October, runs and backwaters during May, and backwaters and flooded gravel pits during June. Selection of habitats of various depths changed seasonally; use of relatively shallow water occurred during spring and use of deep water during winter. Mean depths were 0.9 to 0.99 m (3.0–3.3 ft.) during May and June, 1.62 to 1.65 m (5.3–5.4 ft.) from August through September, and 1.83 to 2.16 m (6.0–7.1 ft.) from November through April.

The razorback sucker was proposed for listing as a threatened species on April 24, 1978, in the **Federal Register** (43 FR 17375). The proposal was withdrawn on May 27, 1980, in accordance with provisions of the 1978 amendments to the Endangered Species Act (Act) of 1978, as amended (16 U.S.C. 1531 *et seq.*). These provisions required the Service to include critical habitat in the listing of most species and to complete

the listing process within 2 years or withdraw the proposal from further consideration. The Service did not complete the listing process within 2 years.

A petition dated March 14, 1989, was received from the Sierra Club, National Audubon Society, The Wilderness Society, Colorado Environmental Coalition, Southern Utah Wilderness Alliance, and Northwest Rivers Alliance on March 15, 1989. The petition requested the Service to list the razorback sucker as an endangered species. A positive finding on this petition was made in June 1989 and subsequently published by the Service in the **Federal Register** on August 15, 1989 (54 FR 33586). This notice also stated that a status review was in progress and that the Service was seeking information until December 15, 1989. A proposed rule to list the razorback sucker as endangered was published in the **Federal Register** on May 22, 1990 (55 FR 21154). A public hearing was held on August 14, 1990, in Farmington, New Mexico.

Summary of Comments and Recommendations

In the May 22, 1990, proposed rule (55 FR 21154) and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. The initial comment period closed on July 23, 1990, but was reopened on July 27 and closed on August 27, 1990 (55 FR 30727). Appropriate State agencies, county governments, Federal Agencies, scientific organizations, and other interested parties were contacted and requested to comment. Newspaper notices inviting general public comment were published in the following papers between June 7 and June 14, 1990: Denver Post, Colorado; Rocky Mountain News, Colorado; Daily Sentinel, Colorado; Durango Herald, Colorado; Northwest Colorado Daily Press, Colorado; Times Independent, Utah; Vernal Express, Utah; Sun Advocate, Utah; Salt Lake City Tribune, Utah; Deseret News, Utah; Southern Utah News, Utah; Ogden Standard Examiner, Utah; and Casper Star Tribune, Wyoming. Newspaper notices were published on June 21, 1990, in the following papers: Mohave Miner, Arizona; Mohave Valley News, Arizona; and Farmington Times, New Mexico. Sixty-two written and eighteen oral comments were received (including duplicates from several commenters) and are discussed below. Comments (sometimes several from an organization) were received from 11 Federal and 7 State agencies, 10 local governments, and 47 private organizations, companies, and individuals. Forty-one comments supported listing, twenty-four comments were neutral, and nine comments were opposed to listing.

A public hearing was requested and held in Farmington, New Mexico, on August 14, 1990. Approximately 60 people attended the public hearing and 18 people presented oral statements.

It should be noted that many commentors surfaced issues or questions that concerned the razorback sucker but that were not pertinent to the two decisions that are the subject of this rulemaking, i.e., whether the razorback sucker merits listing and whether critical habitat should be designated. Predominant among these concerns was the potential impact of the proposed Animas-LaPlata Project on the Animas River and the razorback sucker, and the potential impact of listing and/or critical habitat designation on the proposed Animas-LaPlata Project and future water development. Copies of these letters were referred to the appropriate Service offices. Other commentors raised questions regarding the specifics of how the species would be protected or recovered and the impacts likely to ensue, for example, the impact of species listing on agricultural practices, operation of federally controlled dams, recreational opportunities, and other human activities; whether stocking of nonnative fishes would be impacted by listing; the extent of the species' range that would be protected; the degree of State-Federal partnership in species' protection; the need for additional research on the species; the use of hatcheries to recover the species; and how critical habitat designation might restrict current water-related management practices.

Though such concerns are understandable, they only can be addressed after the species is listed. The Act's amendments of 1982 made it clear that decisions to list a species must be made solely on biological considerations, and that economic or other nonbiological factors were not to be taken under consideration in the decision of whether to list. However, economic considerations are relevant if critical habitat is designated. Specifics on how the species would be protected and the impacts of such protection are more properly addressed on a case-by-case basis after the species is listed, i.e., during the course of Section 7 consultation and as specific recovery actions are proposed.

Written and oral comments pertinent to this rulemaking that were received during the comment periods are covered in the following summary. Comments of a similar nature or point are grouped into a number of general issues. These issues and the Service's response to each are discussed below.

Issue 1: All commentors who supported listing the razorback sucker supported listing it as endangered, except two Regions of the Bureau of Reclamation and the State of Nevada. The Bureau of Reclamation recommended listing the razorback sucker as threatened throughout its range. The State of Nevada recommended threatened status in the lower basin and endangered status in the upper basin. The Bureau of Reclamation stated that listing the razorback sucker as endangered could jeopardize or delay positive programs initiated in the upper and lower basins. They state that listing the species as threatened would allow more active management of the species.

Response: According to section 3 of the Act, a threatened species is defined as any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. An endangered species is defined as any species which is in danger of extinction throughout all or a significant portion of its range. After reviewing the biological data, the Service finds that the razorback sucker is clearly in danger of extinction throughout all of its range, due to its greatly reduced range, the extensive alteration of its natural habitats through impoundment and altered flow and temperature regimes, its apparent inability to recruit successfully in the wild, and the introduction of nonnative fish species. Therefore the razorback sucker qualifies as endangered.

Issue 2: One individual representing water development interests stated that the razorback sucker should not be listed as threatened or endangered in the Upper Colorado River Basin because he believes the razorback suckers in the upper basin are a distinct subpopulation, and that no data are available to indicate the upper basin population has experienced a serious decline. This individual also states that the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Implementation Program) is adequate for recovery of the razorback sucker and listing would not provide any additional benefits.

Response: The Service has determined that the razorback sucker is in danger of extinction throughout all of its range, which includes the upper and lower basins. This rule presents information on the rarity of and threats to razorback suckers in the upper basin (see Factors A, C, and E, and "Background"). Factor D and "Available Conservation Measures" discuss the capabilities and limitations of the Recovery Implementation Program in protecting the razorback sucker and the additional benefits provided by listing the species.

Issue 3: Fourteen commentors expressed concern about critical habitat designation. Ten commentors supported designation of critical habitat; four commentors opposed designating critical habitat or including areas within critical habitat that might adversely impact their economic interests. Among the commentors supporting critical habitat designation, the following reasons or concerns were surfaced:

a. Five commentors believed critical habitat was capable of being determined and/or would provide habitat protection benefits to the species.

b. Two commentors thought it would limit the area that would need to be evaluated in determining impacts to the species.

c. Two commentors thought it would help in protecting against further introduction of nonnative fishes.

d. One commentor thought conservation measures could not be implemented without such designation.

e. One commentor questioned whether designation of critical habitat would preclude restoration efforts.

Response: There appears to be some misunderstanding regarding what designation of critical habitat means, and what benefits designation of critical habitat might provide for the razorback sucker.

Under section 3 of the Act, critical habitat is defined as "(i) the specific areas within the geographical area occupied by the species at the time it is listed * * *, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed * * *, upon a determination by the Secretary that such areas are essential for the conservation of the species." "Designation" means identification of critical habitat via rulemaking. Economic and any other relevant impacts must be taken into consideration prior to designation of critical habitat. After critical habitat has been designated, Federal Agencies must insure that their actions are not likely to result in the destruction or the adverse modification of this habitat, per section 7(a)(2) of the Act.

Critical habitat is not always designated for a listed species. It is not designated at the time of species listing if it is not determinable (i.e., if the biological needs of the species are not well known enough to permit identification of critical habitat or if sufficient information is not available to perform the required impact analysis). It is not designated if it is not prudent (i.e., if designation would increase the threat of taking or vandalism or it would not be beneficial to the species). The "Critical Habitat" section of this rulemaking explains why critical habitat designation is considered not determinable for the razorback sucker at this time.

With regard to the reasons or concerns surfaced by commenters supporting critical habitat designation:

(a) *Because it is determinable and/or would provide habitat protection benefits:* The Service does not find critical habitat to be determinable at this time for the reasons explained in the "Critical Habitat" section of this rulemaking. The Service will review existing data and the protections provided by listing the species, the Recovery Implementation Program, and other activities to determine whether determination and designation of critical habitat would provide habitat benefits over and above the protection provided to the razorback sucker following species listing.

(b) *Because it would limit the area of evaluation:* Designation of critical habitat highlights specific areas where special management considerations or protections are needed; however, it does not limit the area of evaluation for determining impacts to a listed species. Once a species is listed, it is protected throughout its range. Even if critical habitat was designated such that it was coincident with the razorback sucker's current range, proposed Federal actions that would alter flows or water quality upstream of this habitat would still need to be evaluated.

(c) *Because it would protect against further introduction of nonnative fishes:* At this time, it is not clear whether designation of critical habitat would deter future stocking of nonnative fishes beyond any deterrent resulting by listing the species as endangered. This point will be examined during the review of data and existing protections following species listing. As noted under Factor D, the Service can limit the introduction of nonnative species through agreements with the States or by withholding Federal funds or fish from Federal hatcheries for stocking proposals with potential to adversely impact the razorback sucker.

(d) *Because conservation measures could not be implemented:* It is not necessary to designate critical habitat in order to implement conservation measures. Conservation measures, which are used to avoid jeopardy to listed species, are currently provided in biological opinions for three species of endangered fish in the Colorado River basin which do not have critical habitat designated.

(e) *Whether it would preclude restoration efforts within existing habitat:* If critical habitat were to be designated, only federally authorized, permitted, or funded restoration efforts that would destroy or adversely modify critical habitat would be precluded. Because the purpose of any restoration effort would be to benefit the species and/or habitat, it is unlikely that designation of critical habitat would preclude restoration efforts.

Issue 4: One county in Utah stated that the introduction of the river otter into the Colorado River could be a threat to razorback suckers.

Response: The river otter's historic range included the Colorado River and its tributaries in Utah and Colorado. River otters and native fishes coexisted historically. The Utah Division of Wildlife Resources recently prepared an environmental assessment that examined potential conflicts between the reintroduction of the river otter and the rare and endangered fishes in the Colorado River system. It concluded that reintroducing the river otter would not have a significant impact on rare and endangered fish species. Diet studies conducted in Colorado found that crayfish and channel catfish comprised a major portion of the river otter's diet. If a negative impact on rare and endangered fishes is detected, river otter numbers could be controlled.

Issue 5: The Denver Water Department stated that the Two Forks project underwent section 7 consultation and was found not to be a threat to razorback suckers.

Response: The section 7 consultation conducted for the Two Forks project was for three Colorado River fishes currently listed as endangered: The Colorado squawfish; humpback chub; and bonytail chub. The razorback sucker was a candidate for Federal listing at the time of the subject section 7 consultation. Candidate species receive no legal protection under the

Act, and the razorback sucker was not addressed in the biological opinion issued for the Two Forks project. Therefore, the Service has not determined whether the Two Forks project is likely to jeopardize the continued existence of the razorback sucker.

Issue 6: One farm bureau asked that adverse impacts to private property owners be considered during the listing process.

Response: Only biological factors may be used in our decision on whether to list a species.

Issue 7: Several commentors asked whether the razorback suckers stocked in the lower basin during the last 10 years would be considered endangered if the species were listed. Also, one Federal Agency recommended that the razorback suckers stocked in the Gila, Salt, and Verde Rivers be designated as an experimental population.

Response: All razorback suckers, regardless of their origin or where they occur, would be fully protected under the Act upon listing. The Service cannot designate an existing naturally-occurring population as experimental. Once the razorback sucker is listed, any future reintroduction or augmentation would require a permit, or a rule could designate the stocked fish as an experimental population if the future reintroduction site is unoccupied habitat within historic range.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that the razorback sucker should be classified as an endangered species. Procedures found at section 4(a)(1) of the Act and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act were followed. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). These factors and their application to the razorback sucker (*Xyrauchen texanus*) are as follows:

A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

Once abundant and widely distributed throughout the Colorado River basin, the razorback sucker now inhabits approximately 25 percent of its original range. The razorback is considered rare, and of the four rare and endangered large-river native Colorado River basin fishes, only the bonytail chub (*Gila elegans*) is considered less common (McAda 1987). In the Lower Colorado River Basin, the razorback sucker occurs in substantial numbers only in Lake Mohave, in Arizona and Nevada. These fish are thought to represent the largest remaining population in the basin (Minckley 1983) but are expected to decline in numbers as they die and are not replaced. Razorback suckers are very rare and sporadic in the Colorado River, reservoirs, and canals downstream of Davis Dam (Marsh and Minckley 1989). In the Upper Colorado River Basin, razorback suckers are rare in the upper Green River, Utah; lower Yampa River, Colorado (Tyus 1987a, Tyus and Karp 1990); and mainstem Colorado River near Grand Junction, Colorado (Kaeding and Osmundson 1989). The razorback sucker is very rare throughout the remaining warmwater reaches of the Green, San Juan, and upper Colorado Rivers. Small numbers also occur in the Colorado, Dirty Devil, and San Juan arms of Lake Powell (Persons and Bulkley 1982, McAda 1987, Roberts and Moretti 1989).

Since 1910, 15 dams have been constructed on the lower Colorado River and its major tributaries, the Gila, Verde, and Salt Rivers. These dams have dewatered, cooled, or impounded most of the lower basin system so that little natural riverine habitat exists today. Glen Canyon Dam has reduced water temperatures for 384 km (238 mi.) through the Grand Canyon. Spawning has been observed in several reservoirs in the lower basin (Jonez and Sumner 1954, Loudermilk 1985) and razorback sucker larvae have been collected in Lake Mohave, Lake Havasu, Senator Wash Reservoir, and the Central Arizona Project canal (Bozek et al. 1984, Marsh and Langhorst 1988, Marsh and Minckley 1989). However, only four juvenile razorback suckers (33 to 54 mm, or 1.3 to 2.1 in.) have been collected from Lake Mohave since the 1950's, which indicates insufficient recruitment to the population (Marsh and Minckley 1989). In the upper basin, Lake Powell and Flaming Gorge Reservoir have impounded 500 km (310 mi.) of razorback sucker habitat and lowered water temperatures in another 105 km (65 mi.) of the Colorado and Green Rivers. Other upper basin reservoirs also have altered natural flow and temperature regimes. The last report of juvenile razorback suckers collected from the upper Colorado River was that of Taba et al. (1965) who collected eight individuals 90–115 mm (3.5–4.5 in.) in length downstream of Moab, Utah, during 1962–1964.

Dams and diversions also obstruct razorback sucker migration. Although little is known of the location of razorback sucker spawning areas prior to the construction of these facilities, it is believed that they have obstructed access to or impounded once important spawning areas. Early investigators frequently referred to spawning concentrations in small tributaries in the lower basin (Jordan 1891, Hubbs and Miller 1953). More recently, Tyus (1987a) and Tyus and Karp (1990) observed concentrations of razorback suckers near three suspected spawning areas in the upper Green River and lower Yampa River. Ulmer (1980) also observed spawning in Senator Wash Reservoir and Mueller (1989) did so in the tailwaters of Hoover Dam. Spawning has been observed in Lake Mead and Lake Mohave (Jonez and Sumner 1954, Minckley 1983, Langhorst and Marsh 1986). Radio-tracking and recapture of tagged razorback suckers demonstrates that some fish migrate considerable distances to spawn. Tyus (1987a) recaptured 21 adult razorback suckers in suspected spawning areas that had been previously tagged in other locations over a period of 8 years. Ulmer (1980), utilizing SCUBA gear and sonic tags, followed five adult razorback suckers in Senator Wash Reservoir to two specific areas where congregations of spawning razorback suckers were observed.

Storage and diversion of natural flows have resulted in an 18 percent reduction in mean annual discharge at the Green and Colorado river confluence 26 km (16 mi.) upstream of Lake Powell (U.S. Geological Survey (USGS) flow records, 1906–1982). Storage of high flows during the spring and releases of more water during the remainder of the year have reduced spring runoff by 28 percent in the Green River and 37 percent in the Colorado River during May and June (USGS flow records, 1906–1982). Reduction of these high spring flows has altered the natural flooding cycle and reduced the area of off-stream habitats used by razorback suckers (McAda 1977, Osmundson and Kaeding 1991). Tyus and Karp (1989) believed that flooding of bottomland during spring runoff was important to adults and rearing of young. Osmundson and Kaeding (1991) suggested that flooded bottomlands in the Grand Valley were historically the primary spawning habitats. The lack of recruitment of razorback suckers in the upper basin may be associated with losses of these inundated habitats (Osmundson and Kaeding 1989a and 1990, Tyus and Karp 1989).

Dam operations also can cause changes in daily flow regimes. Peaking power operations at Flaming Gorge

produced a 400 percent increase in daily flow fluctuations at Jensen, Utah (USGS flow records, 1906–1982). Tyus and Karp (1989) recommend low, stable flows for razorback suckers during summer, fall, and winter, after finding that such flows are necessary for growth and survival of young native fishes. Stable flows through ice breakup also were important for overwinter survival of young and adult native fishes.

Cooler water temperatures, as a result of dam operations, may have excluded the razorback sucker from portions of its original range (Vanicek 1967). Bulkley and Pimentel (1983) showed that adult razorback suckers preferred water temperatures between 22–25°C (71.6–77°F) and avoided water temperatures below 14.7°C (58.5°F) and above 27.4°C (81.3°F). Whereas winter temperatures drop well below this reported preference range throughout most of occupied razorback sucker habitat, summer temperatures are generally within the preferred range. During the day, riverine temperatures can vary greatly between off-stream and mainstream habitats. Grabowski and Hiebert (1989) recorded summer and fall water temperatures in backwaters of the Green River to be 2.5 to 3.8°C (4.5 to 6.8°F) warmer than the mainstream. While water temperature is dynamic and influenced by many variables, there are two reaches of the Green and Colorado Rivers where spring and summer temperatures are clearly below the preferred range of razorback sucker. These reaches occur directly below Flaming Gorge Reservoir for 105 km (65 mi.) where summer temperatures average less than 15°C (59°F) (USGS Water Resource Data), and below Lake Powell for 384 km (238 mi.) where summer water temperatures rarely exceed 15°C (59°F) (Carothers and Minckley 1981). Razorback suckers have rarely been captured in these reaches since completion of these dams (Vanicek 1967, Carothers and Minckley 1981).

The alteration of temperatures caused by the construction and operation of dams also may affect incubation time and survival of razorback sucker embryos. Incubation time to hatching varies inversely with water temperature, with longer hatching times required at lower temperatures. Gustafson (1975) reported that 5.5 days were required at 20°C (68°F), while Bozek et al. (1984) reported the following incubation periods: 19.4 days at 10°C (50°F); 11.1 days at 15°C (59°F); and 6.8 days at 20°C (68°F). Marsh (1985) found it required 9 days for larvae to hatch at 15°C (59°F) and 3.5 days at 25°C (77°F). Most investigators reported poor hatching success at temperatures below 15°C (59°F) and total mortality of eggs below 10°C (50°F). However, Bozek et al. (1984) noted only slightly lower survival rates at 10°C (50°F) than at 15 and 20°C (59 and 68°F).

Alteration of razorback sucker habitat will likely continue because several major reservoirs and water diversions are in the planning process or are under construction (e.g., Animas-La Plata Project, Muddy Creek Reservoir, Sandstone Reservoir, Central Utah Project). Further loss of flooded bottomland habitat important for spawning is likely to occur as landowners continue diking the Colorado River, particularly in the Grand Valley. Other, less direct influences such as decreased flow, alteration in stream hydrology, increased dissolved solids, altered temperatures, and other water quality changes may adversely affect the razorback sucker by reducing or degrading its habitat, interrupting spawning, and increasing competition for food and space by creating conditions favorable to nonnative fish species. Development activities that most threaten the razorback sucker occur in the upper basin where most of the remaining riverine habitats occur. Since 1980, the Service has conducted consultations under section 7 of the Act on over 100 federally funded or regulated projects in the upper basin that involved water depletions. Several transbasin diversions are planned or are under construction. The most prominent is the Central Utah Project which would divert 165,000 ac. ft. of water from the Green River to the Bonneville Basin.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Though once extensively used for food when available in large number (Minckley 1973), the razorback sucker is no longer abundant and markets are no longer engaged in such enterprises. In the lower basin, there were once enough razorback suckers to support a commercial fishery (Hubbs and Miller 1953) but all States within its current range now have laws that protect it from harvest (Minckley et al. in press). Therefore, overutilization is not considered to be a threat today.

C. Disease or Predation

There is no evidence that disease is a significant factor in the current status of the razorback sucker. However, Minckley (1983) reported many old individuals captured in Lake Mohave were blind in one or both eyes and showed other signs of disease or injury. Several investigators have recently isolated pathogens from razorback suckers, but none have concluded that they were a serious threat to the existing stocks (Mpoame and Rinne 1983, Flagg 1982).

Several researchers have observed predation of razorback sucker eggs and larvae by carp, channel catfish, smallmouth bass (*Micropterus dolomieui*), largemouth bass, bluegill, green sunfish, and redear sunfish (*Lepomis microlophus*) (Jonez and Sumner 1954, Ulmer 1980, Langhorst 1989, Marsh and Langhorst 1988). Other researchers hypothesized that predation is a major cause underlying the lack of recruitment to the adult razorback sucker population throughout the basin (McAda and Wydoski 1980, Minckley 1983, Tyus 1987a). Loudermilk (1985) observed that young razorback sucker Larvae inhabited the upper water column for the first few days after swim-up and exhibited no defensive behavior from potential predators. Marsh and Langhorst (1988) found larval razorback suckers in Lake Mohave survived longer and grew larger in the absence of predators. Marsh and Brooks (1989) demonstrated that channel catfish and flathead catfish were major predators of razorback suckers stocked into the Gila River. They concluded that predation by these fish had potential to result in total loss of those stocks. Langhorst (1989) reported channel catfish and largemouth bass predation on juvenile razorback suckers averaging 171 mm (6.7 in.) total length stocked in isolated coves along the Colorado River in California. Two additional predaceous species, the walleye (*Stizostedion vitreum*) and northern pike (*Esox lucius*) have recently become prominent inhabitants of the Green River (Tyus and Beard 1990).

Though nonnative fish species were and are introduced by man, the ability of these nonnative fish to survive and become established in the Colorado River basin is, in part, due to the alteration of natural riverine habitat described under Factor A. Alteration of historic flow regimes and construction of reservoirs has created favorable conditions for some nonnative fishes (Seethaler 1978, McAda and Keading 1989, Minckley 1983). Thus the threat of predation is, to some extent, associated with habitat modification.

D. The Inadequacy of Existing Regulatory Mechanisms

As discussed in Factors A and C, the razorback sucker has declined substantially in the past 80 years because of major alterations in its

habitat, dissection of the river system with dams, and the introduction of many new species to the ecosystem. Although the razorback sucker has been included on the protected list of all Colorado basin States, except Wyoming (where they are extirpated) and New Mexico (though evidence suggests the species was probably historically native to the State, no specimen-substantiated records of razorback sucker exist in New Mexico) (Minckley *et al.* in press), it has continued to decline. It is presently one of the most endangered fishes in the Colorado River basin (Minckley 1983, Tyus 1987a).

Most State regulations protect the razorback sucker from take and possession. They do not, however, address the major problems of habitat destruction or the introduction of competitive and predaceous species. All States prohibit transportation and stocking of any fish species without prior consent of the respective State agencies. State agencies do, however, introduce new species which may compete with or prey upon the endangered Colorado River fishes. The Service has an informal agreement with the State of Colorado to review all stocking proposals in the Colorado River within Colorado. The Service is attempting to develop a similar arrangement with the State of Utah. However, Service agreements with other States with habitats occupied by razorback sucker have not been formulated. The Service can, to some extent, influence State stocking actions by withholding Federal funds or fish from Federal hatcheries for stocking proposals with potential to adversely impact the razorback sucker.

State water quality and streamflow regulations do not assign stringent criteria to waters inhabited by the razorback sucker. Regulations permit desilting and cooling because such water quality changes are generally deemed beneficial. However, the razorback sucker and other native fish species are adapted to the Colorado River's highly turbid, turbulent, and warm conditions. Most Federal regulations also consider water clarity, low temperatures, and "purity" desirable water quality standards, and they assign criteria that enhance or preserve these conditions even though they may not provide the best conditions for native ecosystems. Water discharges associated with development, such as oil and gas, may not have adequate regulations to assure that water quality standards are met.

The presence of any one or all of the other listed Colorado River fishes in the same reaches as the razorback sucker does not necessarily lend adequate protection to the razorback sucker because its life history and habitat requirements are different than those of the other species (Tyus and Karp 1989). Although Federal Agencies are mandated to consider the other listed fishes relative to their actions, they were not mandated to do so for the razorback sucker. Therefore, unless the razorback sucker is listed, Federal Agencies may take actions and implement programs which avoid jeopardy to other endangered fishes while adversely affecting the razorback sucker.

The Recovery Implementation Program has a goal of managing the razorback sucker so that it does not need the protection of the Endangered Species Act. The management goal adopted by the Recovery Implementation Program for the razorback sucker is to establish and protect self-sustaining populations and natural habitat. Substantial funds and resources have been provided by the Recovery Implementation Program to meet the goals for this and other listed Colorado River fishes. Although actions by the Recovery Implementation Program will provide benefits to the razorback sucker, these actions alone do not provide permanent protection because the Recovery Implementation Program is not a regulatory mechanism. Instead, it is a cooperative effort agreed to by public and private entities that have an interest in how the Upper Colorado River Basin and its resources are managed. The Cooperative Agreement that binds these parties may be amended or terminated by agreement of the parties, or any party may withdraw upon written notice. Section 7 of the Act requires that all Federal Agencies insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any threatened or endangered species. The Recovery Implementation Program does not have the force and effect of law to mandate that the effect of any Federal action on the razorback sucker be considered. And finally, the Recovery Implementation Program only applies to the upper basin (excluding the San Juan River), and therefore does not protect the species throughout its range.

E. Other Natural or Manmade Factors Affecting Its Continued Existence

Of great concern is the fact that significant recruitment of young fish to these populations has not been evident for at least 30 years. There is considerable evidence that existing populations are composed primarily of old individuals that are slowly dying off (McCarthy and Minckley 1987, Tyus 1987a). Only a few naturally reproduced juveniles have been reported from Lake Mohave, the Colorado River, and off-stream canal systems downstream of Lake Mohave (Marsh and Minckley 1989) and from the Green River (Holden 1978) in the past 15 years.

The introduction and establishment of nonnative fish species into the Colorado River system is believed by many researchers to have negatively impacted the razorback sucker. Tyus *et al.* (1982) recorded 42 species that have become established in the upper Colorado River basin, and Minckley (1979) listed 37 nonnative species in the lower basin. Many of these may be innocuous or inhabit areas not occupied by razorback suckers but several are considered serious competitors or predators (Minckley 1983, Loudermilk 1985). In addition to direct predation (see Factor C), competition may result in negative impacts to the razorback sucker, but impacts from competition are more difficult to detect than predation impacts. Although these interactions are not fully understood, nonnative fish species are hypothesized to impact the razorback sucker due to their considerable numbers, the sharing of common foods, and occupation of the same habitats (Jonez and Sumner 1954).

The threat of competition continues as nonnative species continue to be introduced and their ranges continue to expand. The triploid grass carp (*Ctenopharyngodon idella*) has been legalized for importation into California and Arizona. In the lower basin, two tilapia species (*Tilapia* spp.) have become established, and, along with the flathead catfish, have become the dominant fish species in the lower Colorado River (W.L. Minckley, Arizona State University, pers. comm. 1989). The rainbow smelt (*Osmerus mordax*) recently has been proposed for introduction into Lake Powell (Gustaveson et al. 1990).

Marsh and Langhorst (1988) studied food availability and consumption by larval razorback suckers in Lake Mohave and found that larval razorback suckers consumed a variety of the zooplankters available in the area. Papoulias (1986) found, under experimental conditions, that food items needed to be present at a density of 10 organisms per liter within 10 days of absorption of the yolk sac. Death occurred at about 20–30 days of age if insufficient numbers of zooplankton were present. Marsh and Langhorst's (1988) research on Lake Mohave showed an average of 1.5 zooplankters per liter,

and they reported the disappearance of larvae at about 20 days of age. Papoulias' (1986) results indicate low availability of food organisms may explain the absence of fishes greater than 10.6 mm (0.4 in.) in Lake Mohave. However, Marsh and Langhorst (1988) report that low availability of larval foods does not account for the apparent total mortality of larvae in Lake Mohave.

Intercrossing between razorback suckers and flannelmouth suckers (*Catostomus latipinnis*) was first reported by Hubbs and Miller (1953). Vanicek et al. (1970) and Holden (1973) reported a high incidence of intercrossing between razorback and flannelmouth suckers in the upper basin. They found ratios of 16 intercrosses to 73 razorback suckers and 40 intercrosses to 53 razorback suckers, respectively. McAda and Wydoski (1980) reported 8 razorback sucker x flannelmouth sucker intercrosses collected with 95 razorback suckers in the upper basin. All of the above reports of intercrossing were based on an examination of morphological characteristics. The reports of intercrossing are suggestive, but not conclusive, evidence that intercrossing may be a threat to the species. Therefore, until additional scientific data are gathered, it is premature to conclude that intercrossing is a significant threat to the species. Recent electrophoretic analyses of Lake Mohave razorback suckers revealed less than a 5 percent incidence of flannelmouth sucker genes, and Buth et al. (1987) considered this level of introgression to be insignificant.

A pre-impoundment poisoning project in the Green River where Flaming Gorge Reservoir is now located is often cited as at least a partial cause for the loss of native fishes immediately downstream of the reservoir. While many razorback suckers were undoubtedly lost, a comparison of fish species composition in Dinosaur National Monument before and after the program (Binns et al. 1963, Vanicek and Kramer 1969, Vanicek et al. 1970) supports the premise that the effect of the poisoning was short term and not responsible for the current status of the razorback sucker. A similar pre-impoundment study and treatment program was conducted on the San Juan River in New Mexico where Navajo Reservoir is located. No razorback suckers were collected before or after the treatment program (Platania 1990).

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by the razorback sucker in determining to make this rule final. Based on this evaluation, the preferred action is to list the razorback sucker as endangered. Endangered status, which means that the species is in danger of extinction throughout all or a significant portion of its range, is appropriate for the razorback sucker because of its greatly reduced range, the extensive partitioning of its range by dams, the extensive alteration of its natural habitats through impoundment and altered flow and temperature regimes, its apparent inability to recruit successfully in the wild, and the introduction of nonnative fish species. A decision to take no action would constitute failure to properly classify the razorback sucker pursuant to the Act and would exclude the razorback sucker from protection provided by the Act. A decision to determine threatened status, which means the species is likely to become endangered within the foreseeable future, would not adequately reflect the status of the razorback sucker. The small number of old fish that currently represent the virtually nonrecruiting population indicate the razorback sucker is in danger of extinction throughout its range. Critical habitat is not being proposed for the reasons stated below.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that, to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time the species is determined to be endangered or threatened. In the proposed rule, the Service indicated that the designation of critical habitat was not determinable or prudent at that time for the razorback sucker. However, several commenters responding to the proposed rule recommended that critical habitat be designated. Another development since the proposed rule was published was a court decision (*Northern Spotted Owl* v. *Lujan*) regarding the designation of critical habitat for the spotted owl. That decision has caused the Service to scrutinize its critical habitat findings more closely. The Service finds that critical habitat for the razorback sucker is not presently determinable. The Service will reexamine the question of whether critical habitat designation is prudent during the period that the Service is attempting to determine critical habitat.

Critical habitat is defined in section 3(5)(A) of the Act as the specific areas within the geographical area currently occupied by a species on which are found those physical or biological features essential to the conservation of the species and that may require special management considerations or protection. Provisions also are included for designating critical habitat outside areas currently occupied. Designations of critical habitat must be based on the best scientific data available and must take into consideration the economic and other relevant impacts of specifying any particular area as critical habitat (Section 4(b)(2)).

The Service's regulations (50 CFR 424.12(a)(2)) state that critical habitat is not determinable if information sufficient to perform required analyses of the impacts of the designation is lacking or if the biological needs of the species are not sufficiently well known to permit identification of an area as critical habitat. Though it is likely that there are areas very important to the razorback sucker, we are unable to adequately determine at this time the precise constituent elements within specific areas that are essential to its survival and recovery. As noted earlier, there is limited information on the specific habitat needs of the razorback sucker. Though habitat occupied by the razorback sucker has been identified and spawning has been documented in several areas, it is questionable as to whether these areas are adequately meeting the life history needs of the razorback if there has been little or no recruitment. The razorback sucker cannot perpetuate itself in the wild if there is little or no recruitment to the adult population. It would not be in the best interest of the species to identify or use the characteristics of existing habitats as the basis for critical habitat when we are unable to identify those specific areas and precise habitat characteristics needed to bring about recruitment. Hence, the Service finds that critical habitat is not determinable at this time.

Section 4(b)(6)(C) further indicates that a concurrent critical habitat determination is not required, and that the final decision on designation may be postponed for 1 additional year from the date of publication of the proposed rule, if the Service finds that a prompt determination of endangered or threatened status is essential to the conservation of the species involved. The Service considers that a prompt determination of endangered status for the razorback sucker is essential. As a proposed species, the razorback sucker would be eligible only for the limited consideration given under the conference requirement of section 7(a)(4) of the Act, as amended. This does not require a limitation on the commitment of resources on the part of

concerned Federal Agencies or applicants for Federal permits. Therefore, to ensure that the full benefits of Section 7 and other conservation measures under the Act will apply to the razorback sucker, prompt determination of endangered status is essential.

Pursuant to section 4(b)(6)(C)(ii) of the Act, as amended, it critical habitat is not determinable at the time of listing, within 2 years of the proposed rule the Secretary must designate critical habitat to the maximum extent prudent on the basis of whatever data are available at that time. That determination will be due for the razorback sucker on May 22, 1992.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. The protection required of Federal Agencies and the prohibitions against taking and harm are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal Agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(2) requires Federal Agencies to insure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal Agency must enter into formal consultation with the Service.

The Green and Colorado Rivers have been extensively developed through several Federal programs for power generation, flood control, salinity control, and irrigation. As a result, many Federal Agencies are involved with activities which may affect the razorback sucker. Flow conditions in the Green and Colorado Rivers are influenced by power generation and flood control at several Bureau of Reclamation projects. Power generated by the Colorado River Storage Project reservoirs is marketed by the Western Area Power Administration, whose marketing program has considerable influence on discharges from those reservoirs. Other Bureau of Reclamation projects involving diversions and storage for irrigation or municipal and industrial uses and salinity control are in various stages of planning, construction, or operation. The Soil Conservation Service has salinity control programs which affect flows and water quality in the Colorado River system. The Corps of Engineers would consider the razorback sucker in their administration of Section 404 of the Clean Water Act, and the Environmental Protection Agency also would consider the fish in administration of the Clean Water Act, the National Environmental Policy Act, and other pollution and pesticide control programs. Several Federal land and resource management agencies including the National Park Service, the U.S. Forest Service, and the Bureau of Land Management would have to consider the needs of the razorback sucker in programs under their jurisdiction.

The interagency Recovery Implementation Program coordinates the recovery of currently listed species (Colorado squawfish, humpback chub, and bonytail chub) and the management of the razorback sucker in the upper basin, excluding the San Juan River. The Recovery Implementation Program considers the razorback sucker an imperiled species that may require listing in the future unless actions are taken to reverse its downward population trend. Listing the razorback sucker as endangered will give it equal status with the other three listed species in the Recovery Implementation Program's recovery efforts.

Listing the razorback sucker as endangered would influence the stocking of nonnative fish species and the management of recreational sportfishing in a similar manner as the other three listed fish species in the Colorado River basin. If a stocking or sportfishing program involved Federal funds or permits, or received fish from Federal hatcheries, the action would be reviewed under section 7 of the Act. In addition, control of nonnative fishes is an element of the Recovery Implementation Program. This program would confine stocking of nonnative fishes to areas where no conflict with endangered fishes can be demonstrated. When feasible and effective, nonnative fishes would be selectively removed from areas considered essential to recovery of the listed species.

Participants in the Recovery Implementation Program also would review State sportfishing practices and regulations for compliance with Federal law and impacts on endangered fish species. As noted previously, the Service has an informal agreement with the State of Colorado to review all stocking proposals, and is seeking a similar arrangement with the State of Utah.

The Act, and its implementing regulations in 50 CFR 17.21, set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to take (includes harass, harm, pursue, hunt, shoot, wound, kill, trap, or collect; or attempt any of these), import or export, ship in interstate commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. It also is illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered wildlife species under certain circumstances. Regulations governing permits are at 50 CFR 17.22 and 17.23. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, and/or for incidental take in connection with otherwise lawful activities. In some instances, permits may be issued for a specified time to relieve undue economic hardship that would be suffered if such relief were not available. With respect to the razorback sucker, it is anticipated that few, if any, trade permits would ever be sought or issued, since the species is not in trade or common in the wild. Requests for copies of the regulations on animals and inquiries regarding them may be addressed to the Office of Management Authority, U.S. Fish and Wildlife Service, room 432, 4401 N. Fairfax Drive, Arlington, Virginia 22203, (703) 358-2093; FTS 921-2093.

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the

Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

References Cited

A complete list of all references cited herein, as well as others, is available upon request from the Service's Utah Field Office (see **ADDRESSES** above).

Authors

This rule was prepared by P.A. Schrader, U.S. Fish and Wildlife Service (see **FOR FURTHER INFORMATION CONTACT** above), with assistance from D.L. Archer, formerly with the U.S. Fish and Wildlife Service.

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, and Transportation.

Regulation Promulgation

PART 17—[AMENDED]

Accordingly, part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, is amended as set forth below:

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500, unless otherwise noted.

2. Amend § 17.11(h) by adding the following, in alphabetical order under "FISHES," to the List of Endangered and Threatened Wildlife:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
*	*	*	*	*	*	*	
FISHES							
*	*	*	*	*	*	*	
Sucker, razorback	*Xyrauchen texanus*	U.S.A. (AZ, CA, CO, NM, NV, UT, WY), Mexico.	Entire	E	447	NA	NA
*	*	*	*	*	*	*	

Dated: October 15, 1991.

Richard N. Smith,

Acting Director, Fish and Wildlife Service.

[FR Doc. 91-25471 Filed 10-22-91; 8:45 am]

BILLING CODE 4310-55-M