DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R6–ES–2019–0026; FXES11130900000–201–FF09E22000]

RIN 1018–BD48

Endangered and Threatened Wildlife and Plants; Reclassification of the Endangered June Sucker to Threatened With a Section 4(d) Rule

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), are reclassifying the June sucker (*Chasmistes liorus*) from endangered to threatened under the Endangered Species Act of 1973, as amended (Act), due to substantial improvements in the species' overall status since its original listing as endangered in 1986. This action is based on a thorough review of the best scientific and commercial data available, which indicates that the June sucker no longer meets the definition of an endangered species under the Act. The June sucker will remain protected as a threatened species under the Act. We are also finalizing a rule under section 4(d) of the Act that provides for the conservation of the June sucker.

DATES: This rule is effective February 3, 2021.

ADDRESSES: This final rule, supporting documents we used in preparing this rule, and public comments we received are available on the internet at *http://www.regulations.gov* at Docket No. FWS–R6–ES–2019–0026. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Relay Service at 800–877–8339.

FOR FURTHER INFORMATION CONTACT: Yvette Converse, Field Supervisor, telephone: 801–975–3330. Direct all questions or requests for additional information to: JUNE SUCKER QUESTIONS, U.S. Fish and Wildlife Service, Utah Ecological Services Field Office, 2369 Orton Circle, Suite 50, West Valley City, UT 84119. Persons who use a TDD may call the Federal Relay Service at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish a rule. Under the Act, if a species is determined to no longer be an endangered or threatened species, we may reclassify the species or remove it from the Federal Lists of Endangered and Threatened Wildlife and Plants due to recovery. A species is an ''endangered species'' for purposes of the Act if it is in danger of extinction throughout all or a significant portion of its range and is a ''threatened species'' if it is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act does not define the term ''foreseeable future.'' However, we consider ''foreseeable future'' as that period of time within which a reasonable prediction can be relied upon in making a determination about the future conservation status of a species. We are reclassifying June sucker from endangered to threatened (*i.e.,* ''downlisting'') because we have determined that the species is no longer in danger of extinction throughout all or a significant portion of its range. Downlisting a species can only be completed by issuing a rule.

The basis for our action. Under the Act, we can determine that a species is an endangered or threatened species based on any one or more of the following five factors or the cumulative effects thereof: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. Based on an assessment of the best available information regarding the status of and threats to June sucker, we have determined that the species no longer meets the definition of endangered under the Act, but does meet the definition of threatened. The 4(d) rule provides exceptions to take prohibitions for activities that will further recovery of the species.

This final rule recognizes that based on the best available science, June sucker no longer meets the definition of an endangered species, but will remain protected as a threatened species under the Act. This progress towards recovery is a result of conservation efforts implemented by stakeholders. Collaborative conservation efforts have reduced the intensity of threats to the species and improved its population numbers. The 4(d) rule will accommodate recovery activities such as non-native control efforts, habitat restoration, monitoring, research, stocking, and refuge maintenance.

Previous Federal Actions

On March 31, 1986, we published in the **Federal Register** (51 FR 10851) the final rule listing June sucker as an endangered species and designating critical habitat comprising the lower 4.9 miles (mi) (7.8 kilometers (km)) of the Provo River in Utah County, Utah.

On November 13, 2001, we published in the **Federal Register** (66 FR 56840) a notice formally declaring our intention to participate in the multi-agency June Sucker Recovery Implementation Program (JSRIP) in partnership with the U.S. Bureau of Reclamation (USBR), Utah Reclamation Mitigation and Conservation Commission (URMCC), the Department of the Interior (DOI), State of Utah Department of Natural Resources (UDNR), the Central Utah Water Conservancy District (CUWCD), Provo River Water Users Association, Provo Reservoir Water Users Company, and outdoor interest groups. The JSRIP was designed to implement recovery actions for the June sucker and facilitate resolution of conflicts associated with June sucker recovery in the Utah Lake and Provo River basins in Utah. We have participated in the JSRIP since this time and remain an active program member.

On November 26, 2019, we published in the **Federal Register** (84 FR 65080) a proposed rule to reclassify June sucker from ''endangered'' to ''threatened'' (*i.e.,* to ''downlist'' the species) on the List of Endangered and Threatened Wildlife (List). Please refer to that proposed rule for a detailed description of the Federal actions concerning this species that occurred prior to November 26, 2019.

Species Information

It is our intent to discuss only those topics directly related to downlisting June sucker in this rule. The citations represent only the sources required to support this action or to provide context for it, and are not the sum total of all literature pertaining to the species. For more information on the description, biology, ecology, and habitat of the species, please refer to the final listing rule published in the **Federal Register** on March 31, 1986 (51 FR 10851), and the species' recovery plan (Service 1999), as well as the materials cited in this rule. These documents will be available as supporting materials on *http://www.regulations.gov* under Docket No. FWS–R6–ES–2019–0026.

In our analysis, we identify the species' ecological requirements for survival and reproduction using the concepts of resiliency, redundancy, and representation (the 3Rs). Resiliency is the ability of a species to withstand environmental and demographic stochastic events (the natural range of favorable and unfavorable conditions). It is associated with population size, growth rate, and habitat quality. Redundancy is the ability of a species to withstand catastrophic events for which adaptation is unlikely. It is associated with the number, distribution, and resilience of individual populations throughout the current range of the species. Representation is the ability of a species to adapt to novel changes in its environment, as measured by its ecological and genetic diversity and its ability to disperse and colonize new areas.

Taxonomy and Description

The June sucker, a unique lake sucker named for the month in which it spawns, was first collected and described by David S. Jordan in 1878, in Utah Lake, Utah County, Utah (Jordan 1878, entire). However, taxonomic questions regarding hybridization of the June sucker and co-occurring Utah sucker (*Catostomus ardens*) ultimately resulted in reclassification of the species as described below.

The two species likely evolved together in Utah Lake. During the 1930s, a severe drought stressed the sucker populations in Utah Lake, increasing the incidence of June and Utah sucker hybridization (Miller and Smith 1981, p. 7). After this hybridization event, as sucker populations increased in abundance, the new genes that occurred in both the June sucker and Utah sucker populations resulted in hybrid characteristics within both populations (Evans 1997, p. 8). It is likely that the two species may have hybridized at multiple points in the past, in response to environmental bottlenecks (Evans 1997, pp. 9–12). As a result of the hybridization event in the 1930s, two subspecies of June sucker were originally identified—*Chasmistes liorus liorus* for sucker specimens collected in Utah Lake in the late 1800s, and *Chasmistes liorus mictus* for specimens collected after 1939, following the drought years (Miller and Smith 1981, p. 11). This classification was never corroborated, and because the June sucker maintained its distinctiveness from other lake suckers despite hybridization, we determined that it should be listed as a distinct species under the name *Chasmistes liorus* (51 FR 10851; March 31, 1986).

The June sucker has a large, robust body; a wide, rounded head; and a hump on the snout (Scoppettone and Vinyard 1991, p. 1). Adults are 17–24 inches (in) (43.2–61.0 centimeters (cm)) in length (Scoppettone and Vinyard 1991, p. 1; Belk 1998, p. 2). Lake suckers are mid-water planktivores (plankton feeders). The June sucker is a long-lived species, living to 40 years or more (Scoppettone and Vinyard 1991, p. 3; Belk 1998, p. 6). In the wild, June suckers reach reproductive maturity at 5–10 years of age. They exhibit rapid growth for the first 3–5 years, with intermediate growth rates between ages 8–10, and a further reduced growth rate after age 10. Growth between sexes does not differ within the first 10 years (Scoppettone and Vinyard 1991, p. 9).

Distribution and Habitat

The June sucker is native and endemic to Utah Lake and its tributaries, which are the primary spawning habitat for the species. The June sucker is not found outside of its native range except in two populations established for conservation purposes. A refuge population was created as part of the JSRIP stocking program to enhance and secure the species' population in Utah Lake at the Fisheries Experiment Station (FES) hatchery in Logan, Utah (Service 2015, entire). An additional population was established in Red Butte Reservoir, Salt Lake County, Utah, in 2004 and is now self-sustaining (Utah Division of Wildlife Resources (UDWR) 2010, pp. 4–5). These additional populations have aided in retaining ecologic and genetic diversity in June sucker, which in turn aids the species in adapting to changing environmental conditions (*i.e.,* increases representation) (JSRIP 2018, pp. 2–3).

Utah Lake is a remnant of ancient Lake Bonneville, and is one of the largest natural freshwater lakes in the western United States. It covers an area of approximately 150 square miles (mi^2) (400 square kilometers (km^2)) and is relatively shallow, averaging 9 feet (ft) (2.7 meters (m)) in depth (Brimhall and Merritt 1981, pp. 2–3). The lake lies west of Provo, Utah, and is the terminus for several rivers and creeks, including the Provo, Spanish Fork, and American Fork Rivers, and Hobble and Battle Creeks. The outflow of Utah Lake is the Jordan River, which flows north into the Great Salt Lake, a terminal basin.

Utah Lake is located in a sedimentary drainage basin dominated by erosive soils with high salt concentrations. Utah Lake had a sediment filling rate of about 0.03 in (1 millimeter (mm)) per year over the past 10,000 years; this rate more than doubled with the urbanization of Utah Valley (Brimhall and Merritt 1981, pp. 3–5). Faults under the lake appear to be lowering the lake bed at about the same rate as sediment is filling it (Brimhall and Merritt 1981, pp. 10–11). Inputs of nutrient-rich sediments combined with the lake's high evaporation rate cause high levels of sediment loading, high soluble salt concentrations, and high nutrient levels as a baseline condition (Brimhall and Merritt 1981, p. 11).

Shallow lakes, such as Utah Lake, are typically characterized as having one of two ecological states: A clear water state or a turbid water state (Scheffer 1998, p. 10). The clear water state is often dominated by rooted aquatic macrophytes (aquatic plants) that can greatly reduce turbidity by securing bottom sediments (Carpenter and Lodge 1986, p. 4; Madsen *et al.* 2001, p. 6) and preventing excessive phytoplankton (algae) production through a suite of mechanisms (Timms and Moss 1984, pp. 3–5). Alternatively, a shallow lake in a turbid water state contains little or no aquatic vegetation to secure bottom sediments (Madsen *et al.* 2001, p. 9). As a result, fish movement and wave action can easily suspend lake-bottom sediments (Madsen *et al.* 2001, p. 9). In addition, fish can promote algal production by recycling nutrients (both through feeding activity and excretion). Fish can also suppress zooplankton densities through predation, and the zooplankton would otherwise suppress algal abundance (Timms and Moss 1984, p. 11; Brett and Goldman 1996, p. 3).

Historically, Utah Lake existed in a clear water state dominated by rooted aquatic vegetation, as shown in sediment cores extracted from Utah Lake (Macharia and Power 2011, p. 3). Sediment cores reveal a shift in the state of the lake shortly after European settlement of Utah Valley to an algae-dominated, turbid condition, lacking macrophytic vegetation that serves as refugial habitat for June sucker (Brimhill and Merritt 1981, p. 16; Scheffer 1998, p. 6; Hickman and Thurin 2007, p. 8; Macharia and Power 2011, p. 5). This shift is believed to be a result of excessive nutrient input, management-induced fluctuations in lake levels, and the introduction of common carp (*Cyprinus carpio*). The result of compounded natural and human-caused effects is a present-day lake ecosystem that is dominated by algae, rather than the clear water state in which June sucker evolved.

The extent of ideal riverine habitat available for spawning adults and developing larval June sucker was more abundant historically than it is currently. Prior to settlement of Utah Valley, spawning tributaries, such as the Provo, Spanish Fork, and American Fork Rivers, and Hobble Creek, contained large deltas with braided, slow, meandering channels and aquatic vegetation that provided suitable spawning and larval rearing habitat (Olsen *et al.* 2002, p. 4). Multiple spawning tributaries provided redundancy for June sucker. The range of diverse habitats historically present within these tributaries was essential to larval sucker survival and maintaining the species' resiliency. Most importantly, slow water pool and marsh habitats provided refuge from predation by larger fishes.

Since European colonization of Utah Valley, changes to the tributaries have decreased the available habitat for June sucker spawning and rearing, although recent restoration projects have improved conditions in the Provo River and Hobble Creek. The Provo River contains many natural characteristics that support the majority of the June sucker spawning run and also play an important role in contributing to the recovery of the species. The Provo River is the largest tributary to the lake in terms of annual flow, width, and watershed area (Stamp *et al.* 2002, p. 19). All of these characteristics contribute to higher numbers of spawning June suckers using the Provo River than the other Utah Lake tributaries. These characteristics also best support the proper timing of the June sucker's spawning period and help protect against further hybridization with Utah sucker. Continued increase and improvement of available larval rearing habitat in the Provo River is necessary for recovery of the species.

Biology and Ecology

June suckers are highly mobile and can cover large portions of their range in a short period of time (Radant and Sakaguchi 1981, p. 7; Buelow 2006, p. 4; Landom *et al.* 2006, p. 13). Adult June suckers exhibit lake-wide distributional behavior throughout most of the year (Buelow 2006). However, in the fall, June suckers congregate along the western lakeshore, and in the winter, move to the eastern areas. One explanation for the easterly orientation in the winter may be the presence of relatively warm fresh-water springs along the eastern shore of Utah Lake (SWCA 2002, p. 14).

During pre-spawn staging, in April and May, June suckers congregate in large numbers near the mouths of the Provo River, Hobble Creek, Spanish Fork River, and American Fork River (Radant and Hickman 1984, p. 3; Buelow *et al.* 2006, p. 4; Hines 2011, p. 8). June suckers generally initiate a spawning migration into Utah Lake tributaries (primarily the Provo River, but also Hobble Creek and, to a lesser extent, Spanish Fork River and American Fork River) during the second and third weeks of May (Radant and Hickman 1984, p. 7). Provo Bay is likely one of their primary pre-spawn and post-spawn congregation areas (Buelow 2006, p. 4).

Most spawning is completed within 5–8 days. Post-spawning suckers congregate near the mouth of Provo Bay, which could be a response to the high food productivity that remains in the bay until the fall (Radant and Shirley 1987, p. 13; Buelow 2006, p. 8). Zooplankton densities are greater in Provo Bay than in other lake areas (Kreitzer *et al.* 2011, p. 9), providing abundant food to meet the energy demands of post-spawn suckers, as well as an ideal location for the growth and survival of young-of-year June suckers recently emerged from the spawning tributaries (Kreitzer *et al.* 2011, p. 10).

June sucker spawning habitat consists of moderately deep runs and riffles in slow to moderate current with a substrate composed of 4–8 in (100–200 mm) coarse gravel or small cobble that is free of silt and algae. Deeper pools adjacent to spawning areas may provide important resting or staging areas (Stamp *et al.* 2002, p. 5).

Under natural conditions, June sucker larvae drift downstream and rear in shallow vegetated habitats near tributary mouths in Utah Lake (Modde and Muirhead 1990, pp. 7–8; Crowl and Thomas 1997, p. 11; Keleher *et al.* 1998, p. 47). Juvenile June suckers then migrate into Utah Lake and use littoral aquatic vegetation as cover and refuge (Crowl and Thomas 1997, p. 11). June sucker juveniles form schools near the water surface, presumably feeding on zooplankton in the shallows. Young-of-year suckers form shoals (aggregations of hundreds of fish) near the surface under the cover of aquatic vegetation (Billman 2008, p. 3).

However, effects from nonnative common carp, altered tributary flows, lake water level management, nutrient loading, poor water quality, and river channelization have reduced the amount of shallow, warm, and complex vegetated aquatic habitat for rearing at the tributary mouths and Utah Lake interface. This reduction in rearing habitat has reduced survival of June suckers during the early life stages (Modde and Muirhead 1990, p. 9; Olsen *et al.* 2002, p. 6), resulting in reduced population viability and resiliency. As June suckers reach the subadult stage, they begin to move offshore (Billman 2005, p. 16).

Species Abundance and Trends

Early accounts indicate that Utah Lake supported an enormous population of June suckers (Heckmann *et al.* 1981, p. 8), and was proclaimed ''the greatest sucker pond in the universe'' (Jordan 1878, p. 2). The first major reductions in the number of June suckers were in the late 1800s. Through the mid-1900s, June suckers were caught during their spawning runs and widely used as fertilizer and food (Carter 1969, p. 7). During this period, an estimated 1,653 tons (1,500 metric tons) of spawning suckers were killed when 2.1 mi (3.3 km) of the Provo River was dewatered due to reduced water availability and high demand (Carter 1969, p. 8).

Hundreds of tons of suckers also died when Utah Lake was nearly emptied during a 1932–1935 drought (Tanner 1936, p. 3). After the drought, June sucker populations gradually increased again, but due to the combined impacts of ongoing drought, overexploitation, and habitat destruction, the population did not return to its historical level (Heckmann *et al.* 1981, p. 9). June suckers were rare in monitoring surveys during the 1950s through the 1970s (Heckmann *et al.* 1981, p. 11; Radant and Sakaguchi 1981, p. 5).

By the time the species was listed under the Act (16 U.S.C. 1531 *et seq.*) in 1986, the June sucker had an estimated wild spawning population of fewer than 1,000 individuals. In 1999, we estimated the wild spawning population to be approximately 300 individuals, with no evidence of wild recruitment (Keleher *et al.* 1998, pp. 12, 53; Service 1999, p. 5).

Due to the immediate threat of June sucker extinction at the time of listing, the UDWR began raising populations in hatcheries and at secure refuge sites. These efforts resulted in the stocking of June suckers into Utah Lake to boost population numbers beginning in the 1990s and continuing through the present day (UDWR 2018b, p. 3). As of 2017, more than 800,000 captive-bred June suckers have been stocked in Utah Lake (UDWR 2017b, p. 6). Stocking is planned to continue until the wild population is self-sustaining, which will be determined by population viability analysis (JSRIP 2018, p. 10).

Approximately 3,500 June suckers were spawning annually in Utah Lake tributaries as of 2016 (Conner and Landom 2018, p. 2). This represents at least a ten-fold increase in spawning fish from when the recovery plan was finalized in 1999 (Conner and Landom 2018, p. 2). The vast majority of fish detected spawning in Utah Lake tributaries are stocked fish that have become naturalized (survived for multiple years until reaching breeding age) (UDWR 2018c, p. 7). For all spawning tributaries combined, the spawning population size for both sexes substantially increased from 2008 to 2016, and the total known spawning population size grew by 22 percent. These figures represent a minimum number of confirmed spawning June suckers, not a population estimate. They do not include subadult or juvenile individuals, non-spawning adults, untagged fish, or tagged fish that were not detected via the monitoring antennae.

The actual population of wild June suckers in Utah Lake is likely greater than 3,500, because this number represents only the spawning adults. However, we did not attempt to extrapolate a total population estimate from the adult spawning data because monitoring efforts in tributaries were not consistent across all years, data were not available for one year due to high flows, and the percentage and origin of untagged fish in Utah Lake is not yet clear (Conner and Landom 2018, p. 4). Stocked June suckers are tagged with a passive integrated transponder (PIT). Untagged fish may be stocked fish that lost their PIT tag or the result of reproduction (*i.e.,* recruitment) in the wild (UDWR 2017, entire).

Monitoring of June suckers in the lower Provo River during the 2018 spawning period captured a significant portion of fish that were not PIT tagged (UDWR 2018, p. 3). The natural geochemical markers (signatures) in the otoliths (ear bones) and fin rays of collected, unmarked June suckers show that 39 percent (12 of 31) of these fish likely originated from the FES hatchery; 42 percent from Red Butte reservoir, other rearing facilities, or inconclusive; and 19 percent (6 of 31) had signatures indicating they originated in Utah Lake (Wolff and Johnson 2013, p. 9), meaning they were likely recruited naturally into Utah Lake. These results indicate that successful natural reproduction and recruitment are occurring, although the exact location and conditions that contributed to this successful natural recruitment are not known. Additional analysis of June suckers of unknown origin is planned within the next several years to determine the level of natural recruitment occurring in Utah Lake. Regardless of origin, capture of untagged fish indicates there is an unknown number of spawning June suckers that were not accounted for in the spawning population estimate.

The year-to-year survival rate of fish stocked into Utah Lake varies significantly depending on a number of factors, including length of fish at stock (which correlates to age) and time of year stocked (Goldsmith *et al.* 2016, p. 5). June suckers stocked in early summer that were 11.6 in (296 mm) in length or more (usually representing an individual that was 2 years old) had a survival rate of 83 percent. June suckers stocked at age 1 had survival rates ranging from 0 to 67 percent. The smallest June suckers, those stocked at under 7.9 in (200 mm), had a survival rate into the next year of only 2 percent (Goldsmith *et al.* 2016, p. 14).

Year-to-year survival rates for spawning June suckers ranged from 65 to 95 percent depending on the tributary and the year (Goldsmith *et al.* 2016, p. 3). Additionally, June suckers that were stocked more than 10 years prior were detected spawning on multiple occasions, indicating the capability for long-term survival in Utah Lake (Conner and Landom 2018, p. 3). Between 2013 and 2016, June sucker showed a positive population trend with a combined annual growth rate of 1.06 for females and 1.04 for males across three tributaries (Provo River, Spanish Fork, and Hobble Creek), with Provo River having the highest population growth rate and Hobble Creek showing an overall decline (Conner and Landom 2018, p. 3). However, nearly 50 percent of spawning June sucker detected in Hobble Creek were of unknown origin. Therefore, a decline in detected spawners in this tributary does not necessarily mean fewer fish overall are using the tributary. Naturally recruited fish that have never been tagged would not be detected by the remote electronic methods used to collect June sucker presence information at spawning locations.

In summary, the viability of June sucker in its native range—as indicated by its representation, resiliency, and redundancy—has improved significantly since the time of listing, largely due to the efforts of the JSRIP (see Recovery, below). Stocking of June suckers, a program designed to maximize representation through genetic diversity, has been very successful at increasing the number of fish in Utah Lake. Stocked individuals are behaving as wild fish by migrating to new habitats, surviving many years, and participating in spawning activities. The JSRIP stocking program is planning to continue until the June sucker reaches self-sustaining population levels, with a focus on stocking 2-year-old fish over 12 in (300 mm) long to increase their chances of survival. The spawning population has increased at least ten-fold since 1999; there is evidence of high year-to-year survival rates and long-term survival for spawning individuals; and the spawning population is increasing at a high rate, improving the resiliency of the wild population. The stocking program and maintenance of two additional populations (the refuge population at FES hatchery and the introduced population at Red Butte Reservoir) also provide redundancy to the wild population. In 2020–2021, a study is underway to improve our understanding of the degree of natural recruitment of June sucker in Utah Lake and the origin of untagged June suckers. This information will, combined with future monitoring, yield a population estimate and help inform future stocking rates and management decisions for the purposes of further bolstering the species' representation, resiliency, and redundancy to achieve full recovery.

Recovery

Section 4(f) of the Act directs us to develop and implement recovery plans for the conservation and survival of endangered and threatened species unless we determine that such a plan will not promote the conservation of the species. Under section 4(f)(1)(B)(ii), recovery plans must, to the maximum extent practicable, include objective, measurable criteria which, when met, would result in a determination, in accordance with the provisions of section 4 of the Act, that the species be removed from the List.

Recovery plans provide a roadmap for us and our partners on methods of enhancing conservation and minimizing threats to listed species, as well as measurable criteria against which to evaluate progress towards recovery and assess the species' likely future condition. However, they are not regulatory documents and do not substitute for the determinations and promulgation of regulations required under section 4(a)(1) of the Act. A decision to revise the status of a species, or to delist a species, is ultimately based on an analysis of the best scientific and commercial data available to determine whether a species is no longer an endangered species or a threatened species, regardless of whether that information differs from the recovery plan.

There are many paths to accomplishing recovery of a species, and recovery may be achieved without all of the criteria in a recovery plan being fully met. For example, one or more criteria may be exceeded while other criteria may not yet be accomplished. In that instance, we may determine that the threats are minimized sufficiently and that the species is robust enough that it no longer meets the definition of an endangered species or a threatened species. In other cases, we may discover new recovery opportunities after having finalized the recovery plan. Parties seeking to conserve the species may use these opportunities instead of methods identified in the recovery plan.

Likewise, we may learn new information about the species after we finalize the recovery plan. The new information may change the extent to which existing criteria are appropriate for identifying recovery of the species. The recovery of a species is a dynamic process requiring adaptive management that may, or may not, follow all of the guidance provided in a recovery plan.

We finalized a recovery plan for June sucker in 1999, which included recovery actions and recovery criteria for downlisting and delisting of June sucker. These criteria lack specific metrics and will be updated in a forthcoming revised recovery plan for the species. However, they are still relevant to the evaluation of recovery, and we discuss them in this document as one way to evaluate the change in status of June sucker.

Since 2002, the JSRIP has funded, implemented, and overseen recovery actions for the conservation of June sucker in accordance with the guidance provided by the recovery plan, including using adaptive management techniques to address new stressors as they arose. These recovery actions include: (1) Acquiring and managing water flows, (2) restoring habitat, (3) removing carp, and (4) augmenting the wild June sucker population. These efforts, and how they relate to the recovery criteria, are described in the following paragraphs.

Acquisition and Management of Water Flows

The first downlisting criterion requires that Provo River flows essential for June sucker spawning and recruitment are protected (Service 2011, p. 5). We consider this criterion to have been met. The JSRIP provides annual recommendations for river flows to support June suckers on the Provo River and Hobble Creek based on the known biology of the species and the historical flow levels to the CUWCD and other water-managing bodies. The JSRIP has also acquired water totaling over 21,000 acre-ft (25,903,080 cubic m (m^3)) per year to enhance flows during the spawning season on the Provo River and to supplement base flows through the summer for the benefit of larval June sucker. Approximately 13,000 acre-ft (16,035,240 m^3) of this water is permanently allocated, and the remainder is allocated through 2021. The JSRIP is pursuing additional water, permanent and temporary, to bolster June sucker allocations after 2021 (JSRIP 2018, p. 5). Additionally, the JSRIP has acquired 8,500 acre-ft (10,485,000 m^3) of permanent water for Hobble Creek, up to 4,500 acre-ft (5,550,660 m^3) of which may be used to supplement Provo river flows as needed in any given year (USBR 2017, pp. 3–5). These protected water sources, when delivered as additional water, provide added resiliency by improving habitat quality for the species, and operational flexibility to address fluctuating annual precipitation scenarios in a timely manner.

The amount of water delivered to supplement flows in the Provo River and Hobble Creek and the timing of those deliveries are determined annually through a cooperative process involving multiple agencies. In 1996, the June Sucker Flow Work Group (Flow Work Group) was formed by the USBR, DOI Central Utah Project Completion Act (CUPCA) Office, Provo River Water Users Association, Provo River Water Commissioner, CUWCD, UDWR, the Service, Provo City Public Works, and the URMCC. These agencies initially worked together to adjust reservoir releases to mimic a Provo River spring runoff hydrograph and improve June sucker spawning success. Since 2002, this process has been overseen by the JSRIP.

As recovery-specific water was acquired, the role of the Flow Work Group expanded to provide a forum for determining the optimal delivery pattern of supplemental flows. Based on existing conditions for a given year (*e.g.,* snow pack and reservoir storage), the multi-disciplinary work group uses operational flexibility for reservoir water delivery and runoff timing to evaluate and operate the system to deliver year-round flows to benefit June sucker recovery. Based on recommendations of the Flow Work Group, the JSRIP makes annual recommendations for flow deliveries to the Provo River and Hobble Creek, adjusted for the available water conditions. Water managers (including USBR, CUPCA, Provo River Water Users Association, the Provo River Water Commissioner, CUWCD, and Provo City Public Works) then work to deliver water to meet that specific annual recommendation and have been successful in meeting the hydrograph scenarios agreed to by the Flow Work Group on an annual basis since 2004.

In 2004, the CUWCD, in cooperation with the Service and other members of the Flow Work Group, agreed on operational scenarios that mimic dry, moderate, and wet year flow patterns for the Provo River (CUWCD *et al.* 2004, p. 17). The Flow Work Group applied these operational scenarios in determining the spawning season flow pattern for the Provo River with the goal of benefiting June sucker recovery. In 2008, an ecosystem-based flow regime recommendation was finalized for the lower Provo River (Stamp *et al.* 2008, p. 13). This year-round flow recommendation refined the operational scenarios identified in 2004, through the incorporation of relevant ecological functions into the in-stream flow analysis. Hydrologic variability, geomorphology, water quality, aquatic biology, and riparian biology were considered as aspects of flow recommendations. The year-round flow recommendations are adaptive, with consideration of the variability within and among each water year. These include recommendations for a baseline flow, a spring runoff flow, and the duration of the rising and receding flow periods before and after runoff. As more is learned about the associations between flow and river functions, the recommendations can be adjusted (Stamp *et al.* 2008, p. 10). In 2015, the JSRIP passed a resolution affirming this process, which further defined how flows in the Provo River should be prioritized for the benefit of the June sucker, and defined the roles of partners in supporting the water needs of June sucker in the Provo River (JSRIP 2015, entire).

In 2009, ecosystem-based flow recommendations were developed for Hobble Creek in the Lower Hobble Creek Ecosystem Flow Recommendations Report (Stamp *et al.* 2009, pp. 11–12). These recommendations were adopted by the JSRIP, included in the East Hobble Creek Restoration Project Environmental Analysis (JSRIP 2009, p. 5), and are currently considered each April when determining the annual recommendations for delivery of flows to Hobble Creek (DOI *et al.* 2013, p. 41). Similar to the Provo River, these recommendations are intended to be adaptive. In 2012, the JSRIP passed a resolution affirming this process, which further defines how flows in Hobble Creek should be prioritized for the benefit of June sucker, and defines the roles of partners in supporting the water needs of June sucker in Hobble Creek (JSRIP 2012, entire).

Habitat Restoration

The second downlisting criterion for June sucker requires that spawning and brood-rearing habitat in the Provo River and Utah Lake be enhanced or established to provide for the continued existence of all life stages (Service 1999, p. 4). We consider this criterion to have been met. Habitat restoration projects occurred on the Provo River and Hobble Creek, and habitat quality was enhanced in Utah Lake as a result of nonnative species removal (see *Carp Removal,* below).

Modifications of the Fort Field diversion structure on the Provo River, located within critical habitat, were completed in October 2009. This modification made an additional 1.2 mi (1.9 km) of spawning habitat available for the June sucker, permitting fish passage farther upstream in the historical range (URMCC 2009, pp. 8–9; JSRIP 2008, p. 12). During the 2010 spawning season, June suckers were observed in the Provo River upstream of the modified Fort Field Diversion structure (UDWR 2011, pp. 7–8). In cooperation with the JSRIP, the CUWCD and URMCC are working with other diverters on the Provo River to evaluate further diversion structure removal or modification.

The JSRIP is also implementing a large-scale stream channel and delta restoration project for the lower Provo River and its interface with Utah Lake, called the Provo River Delta Restoration Project (PRDRP). This project will restore, enhance, and create habitat conditions in the lower Provo River for spawning, hatching, larval transport, rearing, and recruitment of the June sucker to the adult life stage, thus increasing the species' resiliency (Olson *et al.* 2002, p. 15; BIO–WEST 2010, p. 3). The PRDRP will reestablish some of the historical delta conditions in the Provo River, thereby increasing habitat complexity and providing appropriate physical and biological conditions necessary for egg hatching, larval development, growth, young-of-year survival, and recruitment of young fish into the adult population. A final environmental impact statement (EIS) for the PRDRP was released in April 2015, with a record of decision signed in May 2015. Federal agencies have acquired lands needed for the PRDRP and developed a detailed design to provide optimal rearing habitat for June sucker (PRDRP 2017, entire). Work began spring of 2020, and is expected to be completed in 2024 (Stamp 2020, pers. comm.).

Shortly after formation of the JSRIP, and based on delisting criteria identified in the 1999 June Sucker Recovery Plan (Service 1999, pp. 5–6), several Utah Lake tributaries were evaluated for the purpose of establishing a second spawning run of June sucker in addition to the Provo River spawning run (Stamp *et al.* 2002, p. 13). Depending on the availability of water in any given year, June suckers will use multiple other tributaries for spawning, including Spanish Fork, American Fork, and Current Creek. However, not all tributaries are available in every year, due to changing lake levels and water availability. Therefore, we determined that an additional, reliably available (*i.e.,* available every year) spawning run would improve redundancy for the species by providing security in the event that a catastrophic event eliminated the Provo River spawning habitat. Hobble Creek provides the best opportunity of the available spawning tributaries for establishing a second consistent spawning run (Stamp *et al.* 2002, p. 13). Hobble Creek is more frequently available to fish in low water years compared to other tributaries. However, Hobble Creek would still require habitat enhancements to make it suitable for consistent, annual June sucker spawning runs and allow for the development of quality rearing habitat for young suckers (Stamp *et al.* 2002, p. 13).

In 2008, the lower 0.5 mi (0.8 km) of Hobble Creek was relocated and reconstructed on land purchased by the JSRIP to provide June sucker spawning habitat, a more naturally functioning stream channel, and suitable nursery habitat for young suckers. The JSRIP partnered with the Utah Transit Authority to implement the habitat restoration project on the purchased property (DOI 2008, p. 14). The project re-created a functioning delta at the interface between Hobble Creek and Utah Lake, and allowed the reestablishment of a June sucker spawning run. The restoration resulted in more active river processes and includes numerous seasonally inundated off-channel ponds, which serve as larval nursery and rearing habitat to increase larval fish growth and survival (DOI 2008, p. 22).

In 2009, June suckers spawned in the restored Hobble Creek, with verified larval production (Landom and Crowl 2010, pp. 1–12), and in 2010, juvenile June suckers (from 2009 spawning) were found in ponds within the Hobble Creek restoration area (Landress 2011, p. 4). Due to the success of the restoration, additional reaches of Hobble Creek have been selected for habitat enhancements to increase the amount of available spawning habitat. For example, approximately 1 mi (1.6 km) upstream of the lower Hobble Creek restoration area, the East Hobble Creek Restoration Project was completed to enhance the stream channel by increasing floodplain width, sinuosity, and floodplain connectivity; modify or remove diversion structures; and provide additional stream flows for Hobble Creek (JSRIP 2016b, p. 17). An age-1 June sucker was observed in this area in January 2018, indicating that June suckers are using this area for rearing (Fonken 2018, pers. comm.).

Improving water quality in Utah Lake is also an important part of enhancing June sucker habitat. In the interest of supporting June sucker recovery through increased water quality, the Utah Division of Water Quality (UDWQ) became a member of the JSRIP in 2017 (JSRIP 2017). As part of the State's commitment to water quality management and improvement in Utah Lake, UDWQ formed a science panel composed of independent experts and representatives of all stakeholder agencies for the express purpose of furthering scientific understanding of the conditions in Utah Lake and creating a comprehensive plan for improvement. This plan will support June sucker recovery by including recommendations for actions and threshold limits of nutrients and other anthropogenic inputs for the benefit of June sucker specifically and the Utah Lake ecosystem as a whole (UDWQ 2017, entire).

Carp Removal

The third downlisting criterion requires that nonnative species that present a threat to the continued existence of June sucker are reduced or eliminated from Utah Lake. We consider this criterion met, but ongoing. The common carp was identified as the nonnative species having the greatest adverse impact on June sucker habitat and resiliency, due to the large-scale changes in water quality and macrophytic vegetation caused by these fish (see *Distribution and Habitat,* above).

In 2009, a mechanical removal program was instituted to remove common carp from Utah Lake. Between 2009 and 2017, over 13,000 tons (11,750 metric tons) of common carp were removed from the lake (UDWR 2017c, p. 2). This removal resulted in a decline of the common carp population. Catch-per-unit effort of common carp has decreased over the past 4 years, while average weight of individual common carp has increased, thus indicating a trend of reduction in common carp density in Utah Lake (Gaeta and Landom 2017, p. 7).

In 2015, after 6 years of common carp removal, native macrophytes were observed in Utah Lake vegetation monitoring studies for the first time (Landom 2016, pers. comm.). As of 2017, multiple sites in the lake have native littoral vegetation, including sites with increasing complexity supporting more than four native macrophytic species at one site (Dillingham 2018, entire). Sites with more complex vegetation support a higher diversity of macroinvertebrates, which provide additional food for June sucker, provide greater opportunities for June sucker to shelter from predators, and indicate improved water quality in the lake (Dillingham 2018, entire).

The common carp removal program in Utah Lake has a positive impact on habitat quality, which may be contributing to natural recruitment and survival rates for the June sucker (Gaeta and Landom 2017, p. 8; see *Species Abundance and Trends,* above). Ongoing research by Utah State University continues to assess the relationship between common carp removal, habitat improvement, and June sucker population response as well as develop long-term recommendations for sustainable common carp management (Gaeta *et al.* 2018, entire). The JSRIP prioritizes continued suppression of the common carp population via mechanical removal, as well as research into genetically modified sterile (YY) male technology that has the potential to reduce or eliminate carp from Utah Lake in the future (JSRIP 2018, p. 2).

Population Augmentation

The fourth and final downlisting criterion in the June sucker recovery plan is that an increasing, self-sustaining spawning run of wild June sucker resulting in significant recruitment over 10 years has been reestablished in the Provo River. We consider this criterion to be ongoing. This criterion does not define ''significant'' recruitment. Although the spawning population of June sucker is increasing, annual stocking continues in order to maintain the population. An augmentation plan for the June sucker set a goal, for the purposes of meeting the recovery criterion of a self-sustaining population, of stocking 2.8 million individuals into Utah Lake (Service and URMCC 1998, entire). The goal was based on early studies of June sucker survival and the production capabilities of the facilities. As of 2017, more than 800,000 captive-bred June sucker have been stocked in Utah Lake from the various rearing locations, and a long-term, continued stocking strategy based on the most up-to-date research on stocking success and survival rates is under development (JSRIP 2008, p. 8; UDWR 2017b, p. 6).

Although the June sucker has not yet met this downlisting criterion identified in the 1999 recovery plan, we find that the population increases and trends achieved thus far (see *Species Abundance and Trends,* above), along with the addition of refuge populations to increase redundancy and genetic representation, support downlisting the species. The criterion of an increasing, self-sustaining spawning run of wild June sucker resulting in significant recruitment over 10 years is more suitable as a delisting criterion and indicative of full recovery.

Overall, recovery actions have addressed many of the threats and stressors affecting the June sucker. The JSRIP has been effective in collaborating to implement a stocking program, increase June sucker spawning locations, acquire and manage water flows, remove nonnative common carp, and develop and conduct habitat restorations that target all life stages of June sucker. Studies are planned to improve understanding of the effects of other threats and stressors, including lake water quality and the impact of other invasive species on the June sucker. The JSRIP continues to be active and committed to full recovery of the June sucker.

Summary of Factors Affecting the Species

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 424) set forth the procedures for listing species, reclassifying species, or removing species from listed status. ''Species'' is defined by the Act as including any species or subspecies of fish or wildlife or plants, and any distinct vertebrate population segment of fish or wildlife that interbreeds when mature (16 U.S.C. 1532(16)). The Act defines an endangered species as a species that is ''in danger of extinction throughout all or a significant portion of its range,'' and a threatened species as a species that is ''likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.''

The Act requires that we determine whether any species is an ''endangered species'' or a ''threatened species'' because of any of the following factors:

(A) The present or threatened destruction, modification, or curtailment of its habitat or range;

(B) Overutilization for commercial, recreational, scientific, or educational purposes;

(C) Disease or predation;

(D) The inadequacy of existing regulatory mechanisms; or

(E) Other natural or manmade factors affecting its continued existence.

These factors represent broad categories of natural or human-caused actions or conditions that could have an effect on a species' continued existence. In evaluating these actions and conditions, we look for those that may have a negative effect on individuals of the species, as well as other actions or conditions that may ameliorate any negative effects or may have positive effects.

We must consider these same five factors in downlisting a species from endangered to threatened. Under our regulations at 50 CFR 424.11(c)-(e), we may downlist a species if, after a review of the species' status, the best available scientific and commercial data indicate that the species no longer meets the definition of an endangered species, but that it meets the definition of a threatened species.

For the purposes of this analysis, we evaluate whether or not the June sucker meets the Act's definition of an ''endangered species'' or a ''threatened species,'' based on the best scientific and commercial information available. We use the term ''threat'' to refer in general to actions or conditions that are known to or are reasonably likely to negatively affect individuals of a species. The term ''threat'' includes actions or conditions that directly affect individuals (direct impacts), as well as those that affect individuals through alteration of their habitat or required resources (stressors). The term ''threat'' may encompass—either together or separately—the source of the action or condition or the action or condition itself.

However, the mere identification of any threat(s) does not necessarily mean that the species meets the statutory definition of an ''endangered species'' or a ''threatened species.'' In determining whether a species meets either definition, we must evaluate all identified threats by considering the species' expected response and the effects of the threats—with regard to those actions and conditions that will ameliorate the threats—on an individual, population, and species level. We evaluate each threat and its expected effects on the species and then analyze the cumulative effect of all of the threats on the species as a whole. We also consider the cumulative effect of the threats with regard to those actions and conditions that will have positive effects on the species—such as any existing regulatory mechanisms or conservation efforts. The Secretary determines whether the species meets the Act's definition of an ''endangered species'' or a ''threatened species'' only after conducting this cumulative analysis and describing the expected effect on the species now and in the foreseeable future.

The Act does not define the term ''foreseeable future,'' which appears in the statutory definition of ''threatened species.'' Our implementing regulations at 50 CFR 424.11(d) set forth a framework for evaluating the foreseeable future on a case-by-case basis. The term foreseeable future extends only so far into the future as we can reasonably determine that both the future threats and the species' responses to those threats are likely. In other words, the foreseeable future is the period of time in which we can make reliable predictions. ''Reliable'' does not mean ''certain''; it means sufficient to provide a reasonable degree of confidence in the prediction. Thus, a prediction is reliable if it is reasonable to depend on it when making decisions.

It is not always possible or necessary to define foreseeable future as a particular number of years. Analysis of the foreseeable future uses the best scientific and commercial data available and should consider the timeframes applicable to the relevant threats and to the species' likely responses to those threats in view of its life-history characteristics. Data that are typically relevant to assessing the species' biological response include species-specific factors such as lifespan, reproductive rates or productivity, certain behaviors, and other demographic factors.

In our determination, we correlate the threats acting on the species to the factors in section 4(a)(1) of the Act.

The following analysis examines factors currently affecting the June sucker or that are likely to affect it within the foreseeable future. For each factor, we examine the threats at the time of listing in 1986 (or if not present at the time of listing, the status of the threat when first detected), the downlisting criterion pertinent to the threat, what conservation actions have been taken to meet the downlisting criteria or otherwise mitigate the threat, the current status of the threat, and its likely future impact on June sucker. We also consider stressors not originally considered at the time of listing, most notably climate change.

Habitat Destruction and Modification

Loss and alteration of spawning and rearing habitat were major factors leading to the listing of the June sucker (51 FR 10851; March 31, 1986) and continue to pose a threat to the species' overall resiliency and its recovery. Suitable spawning and rearing habitat in Utah Lake and its tributaries declined due to water development, habitat modification, introduction of common carp, and urbanization, but has improved since listing due to recovery actions taken by the JSRIP.

Water Development and Habitat Modification

Water development and substantial habitat modifications have occurred in the Utah Lake drainage since the mid-1800s. These changes include the reduction in riverine flows (including the Provo River) from numerous water diversions, various water storage projects, channelization, and additional lake and in-stream alterations (Radant *et al.* 1987, p. 13; UDWR and UDNR 1997, p. 11; Andersen *et al.* 2007, p. 8). Many of these modifications and water depletions remain today, and continue to hinder the quantity and quality of June sucker rearing and spawning habitat, which in turn impacts species resiliency.

In 1849, settlers founded Fort Utah along the Provo River and began modifying the waters of Utah Lake and its main tributaries (USBR 1989, p. 3). In 1872, a low dam was placed across the lake outflow to the Jordan River, changing the function of Utah Lake into a storage reservoir (CUWCD 2004, p. 2). By the early 1900s, a pumping plant was constructed at the outflow to allow the lake to be lowered below the outlet elevation; this structure has since been modified and enlarged (Andersen *et al.* 2007, p. 5). The present capacity of the pumping plant is 1,050 cubic feet per second (cfs) (29.7 cubic meters per second (cms)), and it can lower the lake level 8–10 ft (2.4–3.0 m) below the compromise elevation of 4,489 ft (1,368 m) (Andersen *et al.* 2007, p. 5). The compromise elevation is a managed lake elevation target that the responsible water authorities have agreed not to exceed through the active storage of water. This compromise elevation was intended to balance the threat of flooding among lands adjacent to Utah Lake and those downstream along the Jordan River (CUWCD 2004, p. 7).

As a storage reservoir, the surface elevation of Utah Lake fluctuates widely. Prior to the influence of water development projects, annual fluctuations averaged 2.1 ft (0.6 m) per year. For approximately 50 years, under the influence of water development projects, water levels fluctuated an average of 3.5 ft (1.0 m) annually prior to the completion of the Central Utah Project. The Central Utah Project was the largest water resources development program in Utah, distributing portions of Utah's share of Colorado River water. After its completion, annual lake fluctuations averaged 2.5 ft (0.8 m) (Hickman and Thurin 2007, p. 20). Fluctuation in surface elevation of Utah Lake (particularly while the Central Utah Project was under construction) is one of the possible factors that contributed to the marked degradation of shoreline habitat and aquatic vegetation in the lake and to a decline in June sucker refugial habitat from predators (Hickman and Thurin 2007, p. 23).

The long history of water management in the Provo River, including river alterations, dredging, and channelization efforts, has modified the historical braided and complex delta into a single trapezoidal channel (Radant *et al.* 1987, p. 15; Olsen *et al.* 2002, p. 11). The current channel lacks vegetative cover, habitat complexity, and the food sources necessary to sustain larval fishes rearing in the lower Provo River (Stamp *et al.* 2008, p. 20). Additionally, the lower 2 mi (3.2 km) of the Provo River experience a backwater effect, where the velocity stalls under low-flow scenarios and a high seasonal lake level causes the water to back up from the lake into the Provo River (Stamp *et al.* 2008, p. 20). The slack water substantially reduces the number of larvae drifting into the lake. As a result of their poorly developed swimming abilities, the larvae either starve or are consumed by predators in this lower stretch of river (Ellsworth *et al.* 2010, p. 9). Because of the extensive modification of the lower Provo River, in the past, most June sucker larvae have not survived longer than 20 days after hatching (Ellsworth *et al.* 2010, pp. 9–10). The upcoming PRDRP is designed to increase survival of larvae by providing additional rearing habitat along the Provo River (PRDRP 2017, entire).

Similar to the Provo River, Hobble Creek and other tributaries of significance (Spanish Fork River and American Fork River) have been extensively modified by human activities. The hydrological regimes are altered by multiple dams and diversions, and the stream channels have been straightened and dredged into incised trapezoidal canals (Stamp *et al.* 2002, p. 5). These alterations resulted in the streams becoming isolated from their historical floodplains and having modified flow velocities and pool-riffle sequences (Stamp *et al.* 2002, p. 6). Until recent restoration efforts were implemented, the Hobble Creek channel had almost no gradient and ended without a defined connection to the lake interface in Provo Bay due to diversion structures and dredging. In the past, the channel was blocked by debris that created barriers to fish migration, preventing adult June suckers from accessing the main stem of Hobble Creek.

Located south of Provo Bay, the Spanish Fork River is the second largest stream inflow to Utah Lake, but the majority of the discharge is diverted during the irrigation season (June through September; Psomas 2007, p. 12). Adult and larval June suckers occur in the Spanish Fork River (UDWR 2006, p. 2; 2007, p. 2; 2008a, p. 3; 2009a, p. 4; 2010b, p. 2); however, the seasonally inadequate flows, poor June sucker rearing habitat at the Utah Lake interface, low water clarity, diversion structures, and miles of levees along the channel are obstacles to successful recruitment (Stamp *et al.* 2002, p. 5). Adult spawning habitat is limited to the lower 2.7 mi (4.3 km) of the Spanish Fork River, where it is of poor quality. Other tributaries where spawning may occur under favorable conditions include the American Fork River and Battle Creek, but streamflow to Utah Lake in these tributaries is not available most years; therefore, they are not found to comprise a significant portion of June sucker spawning habitat.

Recovery actions for the June sucker to address impacts from water development and habitat modification have included water acquisition, water flow management, and habitat restoration (see Recovery, above). The availability of quality spawning habitat will improve species resiliency, and multiple spawning tributaries will improve species redundancy. The positive trend in spawning population numbers, increased number of June suckers, and observations of young-of-year and age-1 June suckers in the wild indicate that water acquisition, water flow management, and habitat restoration have had a positive impact on June sucker reproduction (JSRIP 2018, p. 1; see *Species Abundance and Trends,* above).

Introduction of Common Carp

Historically, Utah Lake had a rich array of rooted aquatic vegetation, which provided nursery and rearing habitat for young June suckers (Heckmann *et al.* 1981, p. 2; Ellsworth *et al.* 2010, p. 9). However, with the introduction of common carp around the 1880s (Sigler and Sigler 1996, pp. 5–6), this refugial habitat largely disappeared. Common carp physically uproot and consume macrophytes and disturb sediments, increasing turbidity and decreasing light penetration, which inhibits macrophyte establishment (Crowl and Miller 2004, pp. 11–12). Although not specifically identified at the time of listing in 1986, the successful establishment of common carp and their effects on the Utah Lake ecosystem are a threat to the June sucker (SWCA 2002, p. 19). However, the previously described carp removal program reduced carp populations and increased macrophytic vegetation in the lake, improving resiliency of the June sucker (see Recovery, above).

Urbanization

Rapid urbanization on the floodplains of Utah Lake tributaries stimulated extensive flood and erosion control activities in lake tributaries and reduced available land for the natural meandering of the historical river channels (Stamp *et al.* 2008, p. 4). Channelization for flood control and additional channel manipulation for erosion control further reduced riverine habitat complexity and reduced the total length of tributary rivers for spawning and early-life-stage use (Stamp *et al.* 2008, pp. 12–13). It is anticipated that further urban infrastructure development is likely, as the populations of cities bordering Utah Lake and its tributaries continue to increase.

Among the potential impacts from continued urbanization near Utah Lake is the potential for the construction of bridges or other transportation crossings. One example is the Utah Crossing project, a causeway across Utah Lake proposed in 2009 (Service 2009, entire). An updated application for the project to proceed has not been filed with Utah's Department of Transportation; however, as development continues on the western side of Utah Lake, the potential need for some type of crossing may increase.

A large-scale project to dredge Utah Lake, remove invasive species, and build habitable islands for private development was proposed in 2017, and is under early stages of planning and review at the State level (ULRP 2018, entire). This project has not received any approval or necessary permits at the State or Federal level. We do not expect this Utah Lake Restoration Project or the Utah Crossing project to move forward or impact the June sucker in the next 5–10 years. All development projects on Utah Lake are subject to Federal and State laws, and require consultation with the Service prior to beginning work. However, such projects could potentially impact the June sucker by increasing habitat for predatory fish and restricting June sucker movement in Utah Lake (Service 2009, entire). Additional impacts to water quality due to the runoff from new structures could also pose a threat to the June sucker (Service 2009, entire). The UDWQ is partnering with the Utah Lake Commission and other stakeholders to research and provide recommendations to improve water quality and address impacts of urbanization and other factors that may negatively impact future water quality (UDWQ 2017, entire).

Lake Water Quality

Utah Lake is hypereutrophic, characterized by frequent algal blooms and high turbidity (Merritt 2004, p. 14; Psomas 2007, p. 12). The increased turbidity, decreased water quality, and historical change in the plant community from macrophyte-dominated to algae-dominated (see *Habitat Restoration,* above) affect the fishes of Utah Lake, including the June sucker.

High turbidity decreases the feeding ability of many species of planktivorous fish (Brett and Groot 1963, pp. 5–6; Vinyard and O'Brien 1976, p. 3), and can result in a lack of access to sufficient food for rearing juveniles. Thus, elevated turbidity levels may decrease feeding efficiency of June suckers by limiting their ability to visually prey on preferred plankton food types.

Utah Lake is listed on Utah's 2016 section 303(d) list for exceedance of State criteria for total phosphorus and TDS concentrations (UDWQ 2018, p. 3–7). The majority of the total phosphorus load to Utah Lake is from point sources. Although Utah Lake has naturally elevated salinity levels compared to other intermountain freshwater lakes, the concentrations are substantially higher today than they were before human development (Psomas 2007, p. 8). Within Utah Lake, natural salinity levels are due in part to high evaporation rates, which are a function of the lake's large surface-area-to-depth ratio and drainage basin characteristics. Evaporation naturally removes about 50 percent of the total volume of water that flows into the lake, resulting in a doubling of the mean salt concentration in water passing through the lake (Fuhriman *et al.* 1981, p. 7).

In addition, several natural mineral springs near the shores of Utah Lake contribute dissolved salts, although the magnitude and effect of these sources has not been quantitatively evaluated (Hatton 1932, p. 2). Evaporative losses continue to be the main driver of salinity concentrations in Utah Lake. However, settlement and development of the Utah Lake basin since the 1800s led to increases in irrigation return flows containing dissolved salts, which likely exacerbated natural salinity concentrations within Utah Lake (Sanchez 1904, p. 1). Despite the human influences on inflows, in recent years, salinity levels in Utah Lake have not increased markedly (Psomas 2007, p. 13). The UDWQ continues to monitor Utah Lake for any changes in salinity concentrations.

The effects of increased salinity concentrations on the various life stages of June suckers are unknown. Egg size, hatching success, and mean total length of larvae decreased as salinity levels increased for another lake sucker that occurs in Nevada, the cui-ui (*Chasmistes cujus;* Chatto 1979, p. 7). However, salinity concentrations were much higher in the cui-ui habitat than any recorded concentrations in Utah Lake.

Natural nutrient loading to the lake is high due to the nutrient- and sediment-rich watershed surrounding the lake (Fuhriman *et al.* 1981, p. 12). Additionally, human development in the drainage increased the naturally high inflow of sediments and nutrients to the lake (Fuhriman *et al.* 1981, p. 12). Sewage effluent entering the lake accounts for 50, 76, and 80 percent of all nitrogen, total phosphorous, and ortho-phosphate, respectively (Psomas 2007, p. 12). Phosphorus inputs to the lake (297.6 tons (270.0 metric tons) per year) exceed exports (83.5 tons (75.7 metric tons) per year) during all months of the year. Thus, the lake acts as a phosphorus sink, accumulating approximately 214 tons (194.1 metric tons) annually (Psomas 2007, p. 15). These high nutrient loads increase the frequency and extent of large blue-green algal blooms, which greatly affect overall food web dynamics in Utah Lake (Crowl *et al.* 1998b, p. 13). Blue-green algae is inedible to many zooplankton species, which decreases zooplankton abundance and its availability as a food source for the June sucker (Landom *et al.* 2010, p. 19). Reductions in feeding rates translate into long-term effects such as decreased condition, growth rates, and fish survival (Sigler *et al.* 1984, p. 7; Hayes *et al.* 1992, p. 9). Furthermore, the increased algal biomass limits available light for submergent vegetation (Scheffer 1998, p. 19), thus reducing refugial habitat for early life stages of June sucker. The frequency and size of algal blooms may be increasing based on large-scale algal blooms that occurred in 2016 and 2017 (UDWQ 2017, p. 3).

Although there is a significant amount of research indicating that algal blooms can be harmful to many types of fish, we do not have direct evidence regarding the degree or manner in which they impact June suckers in Utah Lake (Psomas 2007, p. 14; Crowl 2015, entire). No fish kills were documented during recent bloom events, but post-stocking monitoring of June sucker has noted that, during algal blooms, fish movement decreased measurably (Goldsmith *et al.* 2017, p. 13).

The average Utah Lake TDS concentration is about 900 parts per million (ppm)/milligrams per liter (mg/L), but large variations occur, depending on the water year (Hickman and Thurin 2007, p. 9). There is no evidence of direct mortality to June suckers due to higher salinity levels, but it is possible that increased salinity, when combined with increased nutrient input and turbidity, may negatively affect June suckers by reducing zooplankton and refugial habitat abundance as described above. Further study of June sucker responses during high salinity events is needed to better understand this relationship.

Water quality concerns in Utah Lake are being addressed through a large-scale study and the formation of a steering committee and science panel to develop recommendations for Utah Lake water quality for the benefit of June sucker (UDWQ 2017, entire).

Riverine Water Quality

Prior to 1986, the year in which we listed the June sucker, riverine water quality was heavily impacted by water withdrawal, agricultural and municipal effluents, and habitat modification. The water withdrawals reduced the ability of the rivers to effectively transport sediments and other materials from the river channel. Furthermore, withdrawals influenced temperature, dissolved oxygen, and pollutant and nutrient concentrations (Stamp *et al.* 2008, p. 18). Diverted streams with reduced, shallow summertime base flows are very susceptible to solar heating and can experience lethally warm water temperatures (above 80 degrees Fahrenheit (°F) or 27 degrees Celsius (°C), depending on life stage). High water temperature, especially if combined with stagnant flow velocities, can lead to low dissolved oxygen levels in streams where flows have been reduced (Stamp *et al.* 2008, p. 19).

Artificially high temperatures may also occur in streams where flow regime alterations and channelization have limited the recruitment of woody riparian vegetation, thereby reducing the amount of streamside shading (Stamp *et al.* 2008, p. 19). Subsequently, extensive colonization by filamentous algae can occur in warmer temperatures, creating extreme daily dissolved oxygen fluctuations that are harmful to June sucker (Service 1994, p. 12). Agricultural and municipal effluents enrich production of algae, further impacting daily dissolved oxygen levels. These effluents can cause fish kills if significant runoff from agricultural and municipal properties occurs during low flow periods. Furthermore, heavy algal growth can cause the armoring of spawning gravels and aid in the accumulation of fine sediments that degrade spawning habitat quality (Stamp *et al.* 2008, p. 32).

The Provo River is listed on Utah's 2016 section 303(d) list for impairments harmful to cold-water aquatic life. Additionally, water quality is poor in the river's lower reaches during summer low-flow periods due to low dissolved oxygen levels and elevated temperatures (Stamp *et al.* 2008, p. 34). It is likely that the recent supplementation of flows for June sucker recovery in the Provo River are minimizing the risk of lethal temperatures and dissolved oxygen fluctuations by providing water during critical periods and maintaining base flows throughout the summer while larvae are developing. The planned PRDRP will provide additional water storage and refugial habitat (see Recovery, above).

Hobble Creek is not on the Utah section 303(d) list as an impaired waterbody. However, there are indications that total phosphorus and temperature may be problematic in Hobble Creek during certain times of the year (Stamp *et al.* 2009, pp. 22–23). Average total phosphorous concentration is 0.06 ppm/mg/L, which exceeds the Utah indicator value of 0.05 ppm/mg/L (Stamp *et al.* 2009, p. 24). In addition, creek temperatures exceed 68 °F (20 °C), which is the State cold-water fishery standard; this temperature increase typically occurs during summer days when air temperatures are high and flow in the channel is low (Stamp *et al.* 2009, p. 26). Similar to the Provo River, the augmentation of stream flows in Hobble Creek has likely minimized the risk of lethal temperatures by providing flows during critical periods.

Effects of Climate Change

The predicted increase in global average temperatures is expected to negatively affect water quality in shallow lakes (Mooij *et al.* 2007, p. 2). Turbid shallow lakes such as Utah Lake are likely to have higher summer chlorophyll-*a* concentrations with a stronger dominance of blue-green algae and reduced zooplankton abundance from the effects of climate change (Mooij *et al.* 2007, p. 5). This could affect June sucker food resources since zooplankton are the primary food source for the species.

In Utah, an increase in the intensity of naturally occurring future droughts and unprecedented warming are expected (Frankson *et al.* 2017, p. 2). Projected changes in winter precipitation include an increase in the fractions falling as rain, rather than snow, and potentially decreasing snowpack water storage (Frankson *et al.* 2017, p. 2). These changes in timing and amount of flow could affect June sucker spawning, because the spawning cues of increased runoff and water temperature, on which the June sucker relies to determine spawning time, would potentially occur earlier in the year.

As changes to water availability and timing occur in the future, the JSRIP will need to coordinate reservoir operations to ensure timely releases. If runoff and upstream reservoir volumes are insufficient, peak and base flows desired in spawning tributaries will be reduced. This, in turn, would negatively impact the early season attractant flows needed by spawning adults, and potentially limit flows needed by larval suckers to move into downstream rearing habitats. As previously described, the JSRIP partnership has acquired 13,000 acre-ft (16,035,240 m^3) of permanent water for the Provo River and 8,500 acre-ft (10,485,000 m^3) for Hobble Creek. Flows in both systems are intensively managed with consideration for the June sucker. Still, additional permanent water acquisitions may become necessary to secure water that can be used to supplement flows during critical spawning and rearing periods as the climate shifts.

Summary of Habitat-Based Threats

Water development and habitat modification, common carp, urbanization, and water quality are threats to the June sucker. Additionally, potential increased temperatures and decreased precipitation caused by climate change may impact water quality. However, since the time of listing in 1986, the JSRIP partnership has implemented the following recovery actions: (1) 13,000 acre-ft of permanent water for instream flows are secured to benefit the June sucker; (2) a mechanism for annually recommending and providing flows for June sucker spawning was implemented; (3) the common carp population was suppressed, resulting in measurable habitat improvement in Utah Lake; (4) the impacts of urbanization are being considered through active research and planning; (5) a landscape-scale stream channel and delta restoration for the Provo River is being implemented; and (6) future water quality and availability are actively being studied and prioritized by the JSRIP, UDWQ, and the Utah Lake Commission (see Recovery, above). We find that the severity of these threats has decreased since the time of listing; adaptive management of these threats is ongoing, and increased resiliency and redundancy are evident as indicated by increasing survival rates and overall population numbers.

Commercial Fishing

Commercial fishing, including fishing for June suckers, was historically an important use of Utah Lake (Heckman *et al.* 1981, p. 9). Some commercial fishing for June suckers occurred through the 1970s, but on a very limited basis. Shortly thereafter, commercial harvest for the species largely stopped due to the limited population size. Currently, the June sucker is a prohibited species and cannot be harvested (Utah Administrative Code R657–14–8). Consequently, commercial or recreational fishing is no longer considered a threat to the species. Regulated collections of June suckers for scientific purposes occur at a very limited level, but do not pose a threat to the species at the population level.

Disease

Neither disease nor the presence of parasites were considered threats to the June sucker at the time of listing (51 FR 10851; March 31, 1986). Although parasites likely exist in June sucker habitat, there is no evidence that June suckers at the individual or population levels are compromised by the presence of parasites. Fish health inspections are regularly conducted on June suckers at the FES hatchery and in Red Butte Reservoir, and no known pathogens have been detected (JSRIP 2018c, entire). At this time, the best available information does not indicate that the presence of parasites or disease negatively affects the June sucker.

Predation by Nonnative Fishes

Predation by nonnative fishes poses a threat to the successful recruitment of young suckers into the spawning adult life stage (Radant and Hickman 1984, p. 6) and was a major factor for listing the June sucker as endangered (51 FR 10851; March 31, 1986). The introduction of predatory nonnative fishes significantly altered the native Utah Lake fish assemblage. Historically, Bonneville cutthroat trout (*Oncorhynchus clarkii*) was the top-level piscivore (fish-eating predator) in Utah Lake; however, 30 fish species have been introduced since the late 1800s. Twelve nonnative fish species have established self-sustaining populations, and seven of these are piscivorous (SWCA 2002, p. 14). As a result, June suckers face an array of predator species, including white bass (*Morone chrysops*), walleye (*Sander vitreus*), largemouth bass (*Micropterus salmoides*), black crappie (*Pomoxis nigromaculatus*), black bullhead (*Ameiurus melas*), northern pike (*Esox lucius*), and channel catfish (*Ictalurus punctatus*).

Predation by nonnative fishes primarily targets the early life stages of June suckers. Adult June suckers are larger than the gape size of the average predatory fish and, therefore, are significantly less vulnerable. At the time of listing, the effects of predation were exacerbated by the lack of vegetated refuge habitat within Utah Lake.

White bass may have the highest potential to limit recruitment of young suckers into the spawning adult population (SWCA 2002, p. 132; Landom *et al.* 2010, p. 18). White bass become piscivorous at age-0 in Utah Lake (Radant and Sakaguchi 1981, p. 12; Landom *et al.* 2010, pp. 11–12) and are the most abundant piscivore (UDWR 2010, p. 9). The white bass population in Utah Lake could consume as many as 550 million fish of various species throughout the course of 1 year (Landom *et al.* 2010, pp. 8–10). However, it appears that restored habitat with complex aquatic vegetation provides the June sucker with effective refuge from white bass. Thus, habitat restoration is likely paramount to young-of-year June sucker resiliency and survival (see Recovery, above).

The recent illegal introduction of northern pike in Utah Lake raises concerns similar to white bass. Northern pike predominantly feed on juvenile fish; predation on adults is less than 1 percent (Reynolds and Gaeta 2017, p. 12). Thus far, the number of northern pike in the lake has not measurably increased, and active removal efforts continue to suppress populations (Reynolds and Gaeta 2017, p. 13). However, a northern pike population model shows potential for a high degree of population increase with potential for a high negative impact on the June sucker population by the year 2040 (Gaeta *et al.* 2018, entire). Despite these modeling results, unique factors impacting northern pike population dynamics in Utah Lake are still not understood. Recent habitat improvements in the lake from common carp removal (see Recovery, above) may help mitigate northern pike predation by providing refugia for June suckers. Additionally, high levels of total dissolved solids (TDS), such as those found in Utah Lake, may suppress northern pike spawning and development (Scannell and Jacobs 2001, entire; Koel 2011, p. 7). The JSRIP is funding research to clarify this relationship and to determine a course of action to prevent northern pike from becoming a greater threat to June sucker in the future.

While predation from nonnative species remains a threat, spawning populations of June suckers and the number of untagged fish (*e.g.,* possibly natural recruitment) are increasing. Adaptive management of nonnative fish is ongoing.

In addition to nonnative predatory fishes, avian predation on June suckers has been documented and primarily occurs when stocked June suckers are first released into the lake (Goldsmith *et al.,* p. 12). Predation is primarily from pelicans, and the amount varies based on location of release, time of year, and time of day of the June sucker release (Goldsmith *et al.,* p. 12). When possible, staff releasing stocked fish into Utah Lake drive off waiting pelicans, and do releases in the fall and at night, when predation is lowest (UDWR 2017, p. 3). The best available information does not indicate that pelicans or other avian predators are a threat to June suckers once the fish are established in Utah Lake.

Existing Regulatory Mechanisms

Under this factor, we examine the stressors identified within the other factors as ameliorated or exacerbated by any existing regulatory mechanisms or conservation efforts. Section 4(b)(1)(A) of the Act requires that the Service take into account those efforts, if any, being made by any State or foreign nation, or any political subdivision of a State or foreign nation, to protect endangered or threatened species. We consider relevant Federal, State, and Tribal laws, regulations, and other such binding legal mechanisms that may ameliorate or exacerbate any of the threats we describe in threat analyses under the other four factors or otherwise enhance the species' conservation. Our consideration of these mechanisms is described below.

As a listed species, the primary regulatory mechanism for protection of the June sucker is through section 9(a) of the Act, as administered by the Service, which broadly prohibits import, export, take (*e.g.,* to harm, harass, kill, capture), and possession of the species. Additional regulatory mechanisms are provided through section 7(a)(2) of the Act, which states that each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by the agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species that is determined by the Secretary, after soliciting comments from affected States, counties, and equivalent jurisdictions, to be critical. Section 10(a)(1)(A) of the Act provides a mechanism for research and propagation of listed species for recovery purposes through a permitting system that allows incidental take of a listed species in the course of scientific projects that will benefit the species as a whole. For non-Federal actions, section 10(a)(1)(B) of the Act authorizes the Service to issue a permit allowing take of species provided that the taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Section 10(a)(2)(A) of the Act requires that a conservation plan, which is part of an application for an incidental take permit, describe the impact of the taking and identify steps to minimize and mitigate the impacts.

The Act will continue to provide protection to the June sucker after downlisting to threatened status, for as long as it remains on the List. The June sucker and its habitat will also continue to receive consideration and protection through the other regulatory mechanisms discussed below.

The NEPA requires Federal agencies to evaluate the potential effects of their proposed actions on the quality of the human environment and requires the preparation of an EIS whenever projects may result in significant impacts. Federal agencies must identify adverse environmental impacts of their proposed actions and develop alternatives that undergo the scrutiny of other public and private organizations as a part of their decision-making process. However, impacts may still occur under NEPA, and the implementation of conservation measures is largely voluntary. Actions evaluated under NEPA only affect the June sucker if they address potential impacts to the species or its habitat.

The Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*) requires that Federal agencies sponsoring, funding, or permitting activities related to water resource development projects request review of these actions by the Service and the State natural resources management agency. Similar to caveats noted for NEPA, actions considered under the Fish and Wildlife Coordination Act are only relevant if they potentially impact the species or its habitat. The Fish and Wildlife Coordination Act does not provide strong or broad protections for listed species, but it provides an additional layer of review for projects likely to impact the June sucker and works in concert with other regulatory mechanisms.

Section 101(a) of the Federal Water Pollution Control Act (*i.e.,* Clean Water Act; 33 U.S.C. 1251 *et seq.*) states that the objective of this law is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters and provide the means to assure protection of fish and wildlife. This statute contributes to the protection of the June sucker through provisions for water quality standards, protection from the discharge of harmful pollutants and contaminants (sections 303(c), 304(a), and 402), and protection from the discharge of dredged or fill material into all waters, including certain wetlands (section 404).

The Clean Water Act requires every State to establish and maintain water quality standards designed to protect, restore, and preserve water quality in the State. However, Utah Lake has failed to meet water quality standards due to exceedance of total phosphorus and TDS concentrations (Psomas 2007, p. 11), and it is listed as a section 303(d) "impaired" water (Utah Lake Commission 2018, p. 7). Poor water quality in Utah Lake could alter food availability for the June sucker and contribute to increases in harmful algal bloom events and toxin concentrations from those events, which could increase the risk of large-scale June sucker mortality events. To meet Clean Water Act requirements, the UDWQ and the Utah Lake Commission are studying water quality in Utah Lake. They have a steering committee and science panel for the purposes of providing recommendations to improve water quality standards in Utah Lake (Utah Lake Commission 2018, entire).

June suckers receive some protections at the State level. Under Utah Administrative Code R657–14–8, June suckers may not be harvested, and if caught must be immediately returned alive and unharmed to the water from which they were taken.

When this rule is effective (see **DATES**, above), the June sucker will continue to receive protection under the Act as a threatened species. The June sucker will also continue to receive protection under the other aforementioned regulatory mechanisms. Despite these existing regulatory mechanisms, the threats discussed under the other factors continue to affect the June sucker such that it now meets the definition of a threatened species rather than an endangered species.

Cumulative Threats

The June sucker faces threats primarily from degraded habitat and water quality, water availability, predation from nonnative species, and urbanization. Furthermore, existing regulatory mechanisms do not adequately address these threats. The June sucker also faces a future threat of climate change, which may exacerbate other existing threats. These factors may act cumulatively on the species. For example, urbanization can result in increased pressure on existing water resources as well as degraded water quality, which, when combined with rising temperatures and decreased rainfall, can result in less available water, increased water temperatures, and decreased habitat quality. These factors can cause reduced availability of food for the June sucker, decreased reproductive success, and increased mortality.

However, since the time of listing (51 FR 10851; March 31, 1986), all of the identified threats to the June sucker have either improved measurably or are being adaptively managed according to the best available scientific information for the benefit of the June sucker (see Recovery, above). Conservation measures, including establishing refuge populations, stocking of June suckers in Utah Lake, habitat restoration projects on spawning tributaries, and nonnative fish removal, have resulted in increased numbers of June suckers in the lake, evidence of wild reproduction, and improved habitat within the lake and its tributaries. As a result, resiliency, redundancy, and representation have all improved. Continued research and monitoring provide an avenue to respond to new and evolving threats, such as the effects of climate change, to recovery progress. The existence of refuge populations ensures that, should a stochastic event or extreme combination of existing threats greatly impact the population in Utah Lake, the June sucker would not become extinct.

This resilience to the cumulative threats is due largely to the actions of an active, committed, and well-funded recovery partnership. The JSRIP is the driving force behind the reduction in threats, habitat improvement, and population augmentation, and the JSRIP is able to adaptively manage new stressors as they arise. The improvement of conditions and success of the JSRIP can be measured via the increased number of spawning June suckers, the positive population trend, and the high level of year-to-year survival.

Summary of Comments and Recommendations

In the proposed rule published in the **Federal Register** on November 26, 2019 (84 FR 65080), we requested that all interested parties submit written comments on our proposal to downlist the June sucker by January 27, 2020. We also contacted appropriate Federal and State agencies, scientific experts and organizations, and other interested parties and invited them to comment on the proposal. Newspaper notices inviting general public comment were published in the Salt Tribune (Salt Lake City) and Daily Herald (Provo). We did not receive any requests for a public hearing. All substantive information provided during the comment period is either incorporated directly into this final rule or is addressed below.

Peer Reviewer Comments

In accordance with our joint policy on peer review published on July 1, 1994 (59 FR 34270) and our August 22, 2016, memorandum (USFWS 2016, entire) updating and clarifying the role of peer review of listing actions under the Act, we solicited expert opinion from three knowledgeable individuals with scientific expertise and familiarity with the June sucker, its habitat, its biological needs and potential threats, or principles of conservation biology. The purpose of peer review is to ensure that our listing and reclassification determinations are based on scientifically sound data, assumptions, and analyses. We received responses from two peer reviewers.

We reviewed all comments we received from the peer reviewers for substantive issues and new information regarding the proposed downlisting of the June sucker. The peer reviewers provided additional information, clarifications, and suggestions to improve the final rule, which we include in this rule or address in the responses to comments below. One peer reviewer favored the downlisting of the June sucker and provided only small, technical edits to the document. The other peer reviewer also provided technical edits and suggestions. This reviewer also expressed concern that there was not enough detail in the proposed rule to determine whether June sucker meets the definition of a threatened species, and stated that many of the known threats should be more thoroughly mitigated before downlisting should be considered. Substantive comments from this reviewer are addressed below, and minor editorial comments were resolved in the text of the rule itself.

(1) *Comment:* The reviewer suggested that there may be additional information that could contribute to the accuracy and completeness of our description and analysis of the biology, habitat, population trends, and historical and current distribution of the June sucker. The reviewer stated there is quantitative information on population dynamics and trends that was not considered in the proposed rule.

Our Response: The reviewer did not specify what information may be missing from the rule or provide information on population dynamics and trends that we failed to consider. We were unable to find additional population or biological information about the June sucker that we had not reviewed when the proposed rule was published. Some additional information has become available since publication of the proposed rule, and it is included in the text of this rule where relevant.

(2) *Comment:* The reviewer commented that we referred the reader to the final listing rule and recovery plan, respectively published in 1986 and 1999, but that these documents are relatively old, and substantial new information has accrued since their appearance, which we reference later.

Our Response: The final listing rule (51 FR 10851; March 31, 1986) and the recovery plan (Service 1999) represent the only two Service-published documents with significant information on the biology and habitat of the June sucker, until the proposed rule was published in 2019 (84 FR 65080; November 26, 2019). We referenced the older documents in the proposed rule because the proposed rule itself also served as the 5-year review and our most recent update to those documents. As the reviewer notes, many other and more recent references are available for additional information and are cited in the text of both the proposed and final rules.

(3) *Comment:* The reviewer stated that we did not adequately consider some of the threats to June sucker in our analysis, particularly predation by white bass on juvenile June suckers, avian predation, and the reliance on hatchery-produced fish to maintain the population, as natural reproduction and recruitment are not sufficient. The reviewer did not provide any additional information to support these comments.

Our Response: The November 26, 2019, proposed rule (84 FR 65080), as well as this final rule, recognize that the June sucker currently relies on stocking to maintain the population in Utah Lake. We do not find this reliance to be in conflict with a ''threatened'' status determination, as we have reasonable certainty based on partner agreements that stocking will continue until the Utah Lake population can be shown to be self-sustaining. Continued and planned recovery actions, such as habitat restoration and removal of nonnative species, are likely to continue to have a positive effect on reproduction, recruitment, and survival, and the system is monitored intensely to detect any rising threats or reversal of recovery progress. As we discuss above in this final rule, the best available information does not indicate that white bass or avian predation constitute a threat to the June sucker in Utah Lake under current conditions (which include ongoing recovery actions, like stocking and nonnative fish removal). Some predation does occur, and we have added text regarding methods used to reduce pelican predation on June suckers while they are being stocked, as that is the time the largest number of fish are vulnerable to avian predation. If, in the future, these factors are shown to prevent the June sucker population in Utah Lake from being self-sustaining, they will need to be addressed before we can achieve full recovery.

(4) *Comment:* The reviewer stated that we assume that capture of untagged fish or fish of ''unknown origin'' results in population estimates and other demographic parameters that are incorrect (low), but adds that a population estimate does not depend on tagged fish only and the estimate should include the total number of fish, tagged and untagged.

Our Response: The reviewer is correct. The number we present as the known spawning population is not meant to represent a population estimate, but to provide the number of recorded individual June sucker spawners detected using PIT tags and antennae. That number is the minimum number of spawning adults we can be certain are surviving in the lake, and it does not account for fish that did not spawn in the years analyzed, fish without tags, or tagged fish that were not recorded by monitoring equipment. Due to the lack of information regarding untagged fish or Utah Lake fish that are not spawning, and the various ways the data have been collected, we do not attempt to extrapolate the number of recorded spawning June suckers into a full population estimate. We have removed all references to a population estimate in this document and clarified the nature of the numbers provided.

(5) *Comment:* The reviewer stated that we have not shown adequately that recovery criteria are met in order to allow for a downlisting, and cited the need for actions such as permanent, legally assured flows for spawning, increased habitat, and a permanent continuous plan to remove carp and combat future novel predators that may be introduced.

Our Response: The Recovery discussion in the proposed rule (84 FR 65080, November 26, 2019, pp. 84 FR 65084–65087), as well as in this final rule (above), goes into detail regarding the existing downlisting criteria and how they have been met (if they have) or why they are outdated or irrelevant.

The legal standard for downlisting is whether the species meets the definition of a ''threatened species'' that is, it is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Due to an exceptional track record and proven recovery measures, we are assured that the commitment of our partners and the JSRIP will continue, recovery actions and responses to threats will be implemented, and the existing agreements mean that June sucker is no longer currently in danger of extinction through all or a significant portion of its range. The reviewer's comments regarding downlisting criteria more closely represent the definition of full recovery and delisting than for downlisting the species to threatened status.

(6) *Comment:* The reviewer commented that we did not include all necessary and pertinent information to support our arguments, and they identified a number of references for June sucker that we did not cite in our proposed rule that were found through an internet search. The reviewer did not state that these particular references had information that would impact our status evaluation; in fact, the reviewer said that they had not read them. The reviewer only stated that they believed the fact that they could find references we did not cite meant we had not been thorough in our analysis.

Our Response: The literature cited in the proposed rule (84 FR 65080; November 26, 2019) constitutes the best scientific and commercial information available regarding the downlisting of the June sucker. Additional literature, including all of the citations provided by the reviewer, were previously evaluated as part of the rule development, and they remain on file as part of the record. A significant amount of literature on the June sucker and Utah Lake exists, some of which is outdated or redundant. Some was not necessary to include, as it provides a level of detail on aspects of June sucker biology that was superfluous to reaching a status determination. For the sake of clarity and brevity, we did not cite every existing piece of literature on the species, but limited our citations to the best scientific and commercial information available regarding the status of, and threats to, the June sucker. However, no piece of literature that we found might have bearing on our analysis, either positively or negatively, was excluded from our review, including the citations provided by the commenter.

Public Comments

We received 19 letters from the public that provided comments on our November 26, 2019, proposed rule (84 FR 65080). Twelve of the commenters expressed their explicit support for the proposed downlisting, and three expressed their opposition to it. Four commenters either did not explicitly state their position or expressed general concerns that threats should be addressed if the June sucker is to be downlisted. Relevant and substantive public comments that have not been addressed through changes to the text are addressed in the following summary.

(1) *Comment:* One commenter objected to the proposed downlisting on the basis that too many threats to the species (including climate change and carp) still exist to justify reduced protections, and stated that increased human development inevitably results in death or extinction of animals in the area.

Our Response: We agree that a number of threats still impact the June sucker and need to be continually managed for the species' protection and recovery. This rule analyzes adaptive measures for all known threats, including water management plans and habitat restoration to mitigate the effects of climate change; long-term management plans for carp and other nonnative, invasive species; and protections that prevent future development from increasing the June sucker's risk of becoming endangered again. All exceptions from take restrictions included in the 4(d) rule, as described below under *Provisions of the 4(d) Rule,* are tied directly to the benefit of June sucker recovery and the health of its native habitat. We are confident in the JSRIP's and our partners' commitment to following through with existing plans and continuing to manage the June sucker in accordance with recovery objectives, as they have for the last 18 years. Should threats to the June sucker increase to the point where there is an increased risk of extinction, the Service can and will reevaluate its status and protections accordingly.

(2) *Comment:* One commenter suggested removing all June suckers and other desirable native fishes from Utah Lake to a safe holding facility, exterminating the nonnative species, and then reintroducing native species back into the lake.

Our Response: This comment does not relate to the status of June sucker now, but to potential ways to continue recovery in the future. However, due to the size of Utah Lake and unique hydrological factors, removal of all nonnative fishes from the system, even using strong piscicides, is not feasible. Mechanical removal is not able to capture all nonnative fish at a rate that would prevent reestablishment, and suitable piscicides are not available in enough quantity to eradicate all nonnative fish from the lake, even if a practical and comprehensive application method could be found.

(3) *Comment:* One commenter requested that we update the June sucker recovery plan in order to specify what needs to be done to reach full recovery and delisting.

Our Response: An update of the June sucker recovery plan, including quantitative delisting criteria, is underway, and a draft will be published for public comment at a later date, after this rule goes into effect (see **DATES**, above).

(4) *Comment:* We received several comments requesting that provisions be added to the 4(d) rule regarding State management of recreational fisheries of Utah Lake and for education and outreach efforts for June sucker and Utah Lake. In addition to official public comments, both of these provisions were also informally requested by recovery partners at JSRIP meetings.

Our Response: We have added the requested provisions to the final 4(d) rule; both provisions will contribute to June sucker conservation.

Summary of Changes From the Proposed Rule

As explained above under Summary of Comments and Recommendations, we made several changes in this final rule in response to public comments we received on our November 26, 2019, proposed rule (84 FR 65080). The primary changes are to add exceptions to the prohibitions on take in the 4(d) rule for recreational fisheries management and for education and outreach. See ''Recreational Fisheries Management'' and ''Education and Outreach,'' under *Provisions of the 4(d) Rule,* below, for a description of these take exceptions. These changes address requests made both in public comments and by our recovery partners at JSRIP meetings.

Additionally, in response to a peer-review comment, in this final rule, we do not attempt to extrapolate the number of recorded spawning June suckers into a full population estimate; we have removed all references to a population estimate in this document and clarified the nature of the numbers provided. We also cite more recent information (published since the November 26, 2019, publication of the proposed rule), where it is relevant, in this final rule.

Finally, we made nonsubstantive, editorial changes, such as to explain a cross-reference to other regulations, to the text of the 4(d) rule to improve its clarity.

Determination of June Sucker's Status

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 424) set forth the procedures for determining whether a species meets the definition of ''endangered species'' or ''threatened species.'' The Act defines an ''endangered species'' as a species that is ''in danger of extinction throughout all or a significant portion of its range,'' and a ''threatened species'' as a species that is ''likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.'' The Act requires that we determine whether a species meets the definition of ''endangered species'' or ''threatened species'' because of any of the following factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence.

As required by the Act, we considered the five factors in assessing whether the June sucker is an endangered or threatened species throughout all of its range. We carefully examined the best scientific and commercial information available regarding the past, present, and future threats faced by the June sucker. We reviewed the information available in our files and other available published and unpublished information, and we consulted with recognized experts and State agencies. We evaluated the changes in resiliency, redundancy, and representation for the June sucker since the time of listing (51 FR 10851; March 31, 1986).

June sucker resiliency has improved since the time of listing, with an increase in the wild spawning population of at least ten-fold, a positive population trend, and increases in both the quality and quantity of habitat. We project that these conditions will continue to improve based on plans to continue successful management actions and implement new projects, such as the PRDRP and the Utah Water Quality Study. Redundancy in June sucker is assured by the existence of two new populations, including the refuge population maintained at FES hatchery and an additional naturally self-sustaining population in Red Butte Reservoir, as well as the presence of water flows in at least two spawning tributaries each year (Provo River and Hobble Creek), with up to five spawning tributaries available in good water years. Prior to the June sucker's listing, there were no refuge populations, and in low water years, there might be no available spawning tributaries with water throughout the summer. Representation for the June sucker exists in the form of genetic diversity in the breeding and stocking program, which has preserved a high degree of genetic variation in the fish stocked in Utah Lake since listing. Based on these elements, we find that overall viability for the June sucker has improved since the time of listing.

Factor B is not considered a threat to the June sucker due to the fact that harvest and collection of the species are strictly regulated and very limited. June suckers are affected by loss and degradation of habitat (Factor A), predation (Factor C), and other effects of human activities, including climate change (Factor E). Existing regulatory mechanisms outside of the Act (Factor D) do not address all the identified threats to the June sucker, as indicated by the fact that these threats continue to affect the species throughout its range. However, recovery actions have significantly improved viability of the June sucker and reduced the immediacy of these threats.

Status Throughout All of Its Range

After evaluating threats to the species and assessing the cumulative effects of the threats under the section 4(a)(1) factors, we find that the threats of loss and degradation of habitat (Factor A), predation (Factor C), and other effects of human activities including climate change (Factor E) are still acting on the June sucker. Existing regulatory mechanisms outside of the Act (Factor D) do not address all the identified threats to the June sucker, as indicated by the fact that these threats continue to affect the species throughout its range, although with less intensity than at the time of listing (51 FR 10851; March 31, 1986). However, given increases in population numbers due to sustained recovery efforts by the JSRIP over the last 18 years, we determine the June sucker no longer meets the Act's definition of an endangered species. We therefore proceed with determining whether the June sucker meets the Act's definition of a threatened species.

Based solely on biological factors, we consider 25 years to be the foreseeable future within which we can reasonably determine that the future threats and the June sucker's response to those threats is likely. This time period includes multiple generations of the species and allows adequate time for impacts from conservation efforts or changes in threats to be indicated through population response.

The foreseeable future for the individual threats vary. Management and recovery progress of the population and its threats are overseen by the JSRIP. The charter of this program states that the purpose of the JSRIP is to recover the June sucker to the point at which it no longer requires protections under the Act, and to do so based on recovery guidance provided by the Service using the best available scientific and biological information in an adaptive management approach. Because the JSRIP is committed to achieving recovery and the partners have committed to continued funding, threats to the June sucker will continue to be adaptively managed by the JSRIP until such time as we find it no longer requires protections under the Act. For at least as long as the species remains listed, the JSRIP will continue to manage June sucker threats and population health and trends in an adaptive way, ensuring that the species is extremely unlikely to go extinct. The Service will then rely on management actions that have been put in place by the JSRIP, and other factors such as a population viability analysis, habitat improvements, and future long-term agreements, when delisting is being considered. This long-term management (*e.g.,* permanent water acquisition, breeding program, stocking, and nonnative fish removal) ensures continued stability in the absence of the protections of the Act after the June sucker reaches full recovery.

Although population numbers have increased and the intensity of the identified threats have decreased, our analysis indicates that, because of the remaining threats and stressors, the species meets the Act's definition of a threatened species. Thus, after assessing the best available information, we conclude that the June sucker is not currently in danger of extinction, but is still likely to become endangered within the foreseeable future throughout all of its range.

Status Throughout a Significant Portion of Its Range

Under the Act and our implementing regulations, a species may warrant listing if it is in danger of extinction or likely to become so in the foreseeable future throughout all or a significant portion of its range. The court in *Center for Biological Diversity* v. *Everson,* 2020 WL 437289 (D.D.C. Jan. 28, 2020) (*Center for Biological Diversity*), vacated the aspect of the Final Policy on Interpretation of the Phrase ''Significant Portion of Its Range'' in the Endangered Species Act's Definitions of ''Endangered Species'' and ''Threatened Species'' (79 FR 37578; July 1, 2014) that provided that the Services do not undertake an analysis of significant portions of a species' range if the species warrants listing as threatened throughout all of its range. Therefore, we proceed to evaluating whether the species is endangered in a significant portion of its range—that is, whether there is any portion of the species' range for which both (1) the portion is significant; and, (2) the species is in danger of extinction in that portion. Depending on the case, it might be more efficient for us to address the ''significance'' question or the ''status'' question first. We can choose to address either question first. Regardless of which question we address first, if we reach a negative answer with respect to the first question that we address, we do not need to evaluate the other question for that portion of the species' range.

Following the court's holding in *Center for Biological Diversity,* we now consider whether there are any significant portions of the species' range where the species is in danger of extinction now (*i.e.,* endangered). In undertaking this analysis for the June sucker, we choose to address the status question first—we consider information pertaining to the geographic distribution of both the species and the threats that the species faces to identify any portions of the range where the species is endangered.

The June sucker is a narrow endemic that functions as a single, contiguous population and occurs within a small area that includes one lake and associated tributaries. Thus, there is no biologically meaningful way to break this limited range into portions, and the threats that the species faces affect the species throughout its entire range. This means that no portions of the species' range have a different status from its rangewide status. Therefore, no portion of the species' range can provide a basis for determining that the species is in danger of extinction in a significant portion of its range, and we determine that the species is likely to become in danger of extinction within the foreseeable future throughout all of its range. This is consistent with the courts' holdings in *Desert Survivors* v. *Department of the Interior,* No. 16–cv–01165–JCS, 2018 WL 4053447 (N.D. Cal. Aug. 24, 2018), and *Center for Biological Diversity* v. *Jewell,* 248 F. Supp. 3d, 946, 959 (D. Ariz. 2017).

Determination of Status

Our review of the best available scientific and commercial information indicates that the June sucker does not meet the definition of an endangered species in accordance with sections 3(6) and 4(a)(1) of the Act, but does meet the definition of a threatened species in accordance with sections 3(20) and 4(a)(1) of the Act. Therefore, we are downlisting the June sucker in the List of Endangered and Threatened Wildlife from endangered to threatened.

It is our policy, as published in the **Federal Register** on July 1, 1994 (59 FR 34272), to identify to the maximum extent practicable at the time a species is classified, those activities that would or would not constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness of the effect of a listing on proposed and ongoing activities within the range of the species being listed. Because we are listing this species as a threatened species, the prohibitions in section 9 would not apply directly. We are therefore putting into place below a set of regulations to provide for the conservation of the species in accordance with section 4(d), which also authorizes us to apply any of the prohibitions in section 9 to a threatened species. The 4(d) rule, which includes a description of the kinds of activities that would or would not constitute a violation, complies with this policy.

Final Rule Issued Under Section 4(d) of the Act

Background

Section 4(d) of the Act contains two sentences. The first sentence states that the ''Secretary shall issue such regulations as he deems necessary and advisable to provide for the conservation'' of species listed as threatened. The U.S. Supreme Court has noted that statutory language like ''necessary and advisable'' demonstrates a large degree of deference to the agency (see *Webster* v. *Doe,* 486 U.S. 592 (1988)). Conservation is defined in the

Act to mean ''the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to [the Act] are no longer necessary.'' Additionally, the second sentence of section 4(d) of the Act states that the Secretary ''may by regulation prohibit with respect to any threatened species any act prohibited under section 9(a)(1), in the case of fish or wildlife, or section 9(a)(2), in the case of plants.'' Thus, the combination of the two sentences of section 4(d) provides the Secretary with wide latitude of discretion to select and promulgate appropriate regulations tailored to the specific conservation needs of the threatened species. The second sentence grants particularly broad discretion to us when adopting the prohibitions under section 9.

The courts have recognized the extent of the Secretary's discretion under this standard to develop rules that are appropriate for the conservation of a species. For example, courts have upheld rules developed under section 4(d) as a valid exercise of agency authority where they prohibited take of threatened wildlife, or include a limited taking prohibition (see *Alsea Valley Alliance* v. *Lautenbacher,* 2007 U.S. Dist. Lexis 60203 (D. Or. 2007); *Washington Environmental Council* v. *National Marine Fisheries Service,* 2002 U.S. Dist. Lexis 5432 (W.D. Wash. 2002)). Courts have also upheld 4(d) rules that do not address all of the threats a species faces (*see State of Louisiana* v. *Verity,* 853 F.2d 322 (5th Cir. 1988)). As noted in the legislative history when the Act was initially enacted, ''once an animal is on the threatened list, the Secretary has an almost infinite number of options available to him with regard to the permitted activities for those species. He may, for example, permit taking, but not importation of such species, or he may choose to forbid both taking and importation but allow the transportation of such species'' (H.R. Rep. No. 412, 93rd Cong., 1st Sess. 1973).

Exercising this authority under section 4(d), we have developed a species-specific 4(d) rule that is designed to address the June sucker's specific threats and conservation needs. Although the statute does not require us to make a ''necessary and advisable'' finding with respect to the adoption of specific prohibitions under section 9, we find that this rule as a whole satisfies the requirement in section 4(d) of the Act to issue regulations deemed necessary and advisable to provide for the conservation of the June sucker. As discussed under Summary of Factors Affecting the Species, we conclude that the June sucker is no longer at risk of extinction, but is still likely to become so in the foreseeable future, primarily due to the identified threats of water development, habitat degradation, and the introduction of nonnative species. The provisions of this 4(d) rule promote conservation of the June sucker by encouraging management of the Utah Lake system in ways that meet the conservation needs of the June sucker while taking into consideration the stakeholders' needs. The provisions in this rule are some of many regulatory tools that we will use to promote the conservation of the June sucker.

Provisions of the 4(d) Rule

This 4(d) rule provides for the conservation of the June sucker by prohibiting the following activities, with certain exceptions (discussed below): Importing or exporting; possession and other acts with unlawfully taken specimens; delivering, receiving, transporting, or shipping in interstate or foreign commerce in the course of commercial activity; and selling or offering for sale in interstate or foreign commerce. In addition, anyone taking, attempting to take, or otherwise possessing a June sucker, or parts thereof, in violation of section 9 of the Act will be subject to a penalty under section 11 of the Act, with certain exceptions (discussed below). Under section 7 of the Act, Federal agencies must continue to ensure that any actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of the June sucker.

Under the Act, ''take'' means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Some of these provisions have been further defined in regulations at 50 CFR 17.3. Take can result knowingly or otherwise, by direct and indirect impacts, intentionally or incidentally. Allowing incidental and intentional take in certain cases, such as for the purposes of scientific inquiry, monitoring, or to improve habitat or water availability and quality, would help preserve a species' remaining populations, slow their rate of decline, and decrease synergistic, negative effects from other stressors.

We may issue permits to carry out otherwise prohibited activities, including those described above, involving threatened wildlife under certain circumstances. Regulations governing permits are codified at 50 CFR 17.32. With regard to threatened wildlife, a permit may be issued for the following purposes: For scientific purposes, to enhance propagation or survival, for economic hardship, for zoological exhibition, for educational purposes, for incidental taking, or for special purposes consistent with the purposes of the Act. There are also certain statutory exemptions from the prohibitions, which are found in sections 9 and 10 of the Act.

We recognize the special and unique relationship with our State natural resource agency partners in contributing to conservation of listed species. State agencies often possess scientific data and valuable expertise on the status and distribution of endangered, threatened, and candidate species of wildlife and plants. State agencies, because of their authorities and their close working relationships with local governments and landowners, are in a unique position to assist us in implementing all aspects of the Act. In this regard, section 6 of the Act provides that we shall cooperate to the maximum extent practicable with the States in carrying out programs authorized by the Act. Therefore, any qualified employee or agent of a State conservation agency that is a party to a cooperative agreement with us in accordance with section 6(c) of the Act, who is designated by his or her agency for such purposes, will be able to conduct activities designed to conserve the June sucker that may result in otherwise prohibited take without additional authorization.

As discussed above under Summary of Factors Affecting the Species, nonnative species, water development, and habitat degradation affect the status of the June sucker. A range of conservation activities, therefore, have the potential to benefit the June sucker, including nonnative fish removal, habitat restoration projects, monitoring of June sucker, management of recreational fisheries, June sucker research projects, educational and outreach efforts, and maintenance of June sucker refuges and stocking programs. Accordingly, this 4(d) rule addresses activities to facilitate conservation and management of the June sucker where they currently occur and may occur in the future by excepting them from the Act's take prohibition under certain specific conditions. These activities are intended to increase management flexibility and encourage support for the conservation and habitat improvement of the June sucker. Under this 4(d) rule, take will continue to be prohibited, except for actions allowed in this 4(d) rule, provided the actions are approved by the Service, in coordination with any existing designated recovery program (*e.g.,* JSRIP), for the purpose of June sucker conservation or recovery. Approval must be in writing (by letter or email) from a Service biologist or supervisor with authority over June sucker decisions. Take is allowed under this 4(d) rule as follows, and is further described below:

- Incidental take resulting from activities intended to reduce or eliminate nonnative fish, including, but not limited to, common carp, northern pike, and white bass, from Utah Lake or its tributaries.
- Incidental take resulting from habitat restoration projects or projects that allow for the increase of instream flows in Utah Lake tributaries, such as diversion removals.
- Incidental take resulting from monitoring of June sucker in Utah Lake and its tributaries.
- Incidental take resulting from monitoring and management of recreational sportfish populations in Utah Lake and its tributaries.
- Incidental and direct take resulting from research projects to study factors affecting June sucker or its habitat for the purposes of providing management recommendations or improved condition of June sucker.
- Incidental and direct take resulting from educational or outreach efforts to increase public awareness, engagement, and support for June sucker recovery efforts.
- Incidental and direct take resulting from maintaining June sucker refuges and stocking population, and from moving June sucker for the purposes of stocking them in Utah Lake.

These forms of allowable take are explained in more detail below. For all forms of allowable take, reasonable care must be practiced to minimize the impacts from the actions. Reasonable care means limiting the impacts to June sucker individuals and populations by complying with all applicable Federal, State, and Tribal regulations for the activity in question; using methods and techniques that result in the least harm, injury, or death, as feasible; undertaking activities at the least impactful times (*e.g.,* conducting activities that might impact spawning habitat in a tributary only after spawning is concluded for the year) and locations, as feasible; procuring and implementing technical assistance from a qualified biologist on projects regarding all methods prior to the implementation of those methods; ensuring the number of individuals removed or sampled minimally impacts the existing wild population; ensuring no disease or parasites are introduced into the existing June sucker population; and preserving the genetic diversity of wild populations.

Nonnative Fish Removal

Incidental take is allowed where it results from activities intended to reduce or eliminate nonnative fish, including, but not limited to, common carp, northern pike, and white bass, from Utah Lake or its tributaries. Control of nonnative fish is vital for the continued recovery of June sucker. Control of nonnative fish is primarily conducted with mechanical removal via commercial seine netting and, to a limited extent, through angling (for northern pike). Other methods, including the use of genetically modified nonnative fish and electrofishing to reduce existing populations, may be implemented in the future.

This 4(d) rule defines nonnative fish removal as any action with the primary or secondary purpose (such as the introduction of genetically engineered nonnative fish as part of an elimination strategy) of removing nonnative fish from Utah Lake and its tributaries that compete with, predate upon, or degrade the habitat of the June sucker. These removal methods must be approved by the Service in writing (by letter or email), in coordination with an existing designated recovery program (*e.g.,* JSRIP) for that purpose. Such methods may include, but are not limited to, mechanical removal, chemical treatments such as piscicides, or biological controls. All methods used must be in compliance with State and Federal regulations. Whenever possible, June suckers that are caught alive as part of nonnative fish removal should be returned to their source as quickly as possible.

Habitat Restoration and Improvement of Instream Flows

Incidental take resulting from habitat restoration projects or projects that increase instream flows in Utah Lake tributaries is allowed under this 4(d) rule. Habitat restoration projects are needed to provide additional spawning and rearing habitat and refugia for June sucker. Improvements in the ability to obtain and deliver water to any of the known spawning tributaries will allow for improved spawning conditions, entrainment of June sucker larvae for development, and periodic high flows providing scouring of spawning habitats. This 4(d) rule defines habitat restoration or water delivery improvement projects as any action with the primary or secondary purpose of improving habitat conditions in Utah Lake and its tributaries or improving water delivery and available instream flows in spawning tributaries. These projects must be approved by the Service in writing, in coordination with any existing designated recovery program, for that purpose. Examples of planned or suggested projects where incidental take is allowed to occur include the Provo River Delta Restoration Project and the removal of water diversion structures from the Provo River and Hobble Creek.

June Sucker Monitoring

This 4(d) rule allows incidental take associated with any method used to detect June suckers in the wild for the purposes of better understanding population numbers, trends, or response to stressors that is not intended to be destructive, but that may unintentionally cause harm or death. Monitoring of June suckers is vital to understanding the population dynamics, health, and trends; for measuring the success of the stocking program; for evaluating impacts from threats; and for evaluating recovery actions that address threats to the species. With the use of PIT tag technology, monitoring is becoming less disruptive to the June sucker. However, many monitoring methods, including the initial PIT tagging of individuals, may accidentally harm fish or result in death. In addition to PIT tag readers, methods that may be used to detect June suckers in the wild include trammel netting, spotlighting, minnow trapping, trap netting, gill-netting, electrofishing, and seining. Any monitoring activities not conducted by the State or under the State's section 6 permit must be approved by the Service in writing and be conducted in coordination with any existing designated recovery program.

Recreational Fisheries Management

Recreational fisheries monitoring actions conducted by the State are allowed to cause incidental take of June suckers through this 4(d) rule, provided that, whenever possible, June suckers that are caught alive as part of recreational fisheries are returned to their source as quickly as possible. These activities do not include fishing or other recreational activities conducted by private individuals but only those conducted by the State to manage fisheries in Utah Lake. Covered activities are those that do not occur in June sucker spawning habitat during the season of use or rearing habitat at any time of year, and are designed to count or capture recreational sport fish only. According to the interagency ''Policy for Conserving Species Listed or Proposed for Listing Under the Endangered Species Act While Providing and Enhancing Recreational Fisheries

Opportunities'' published in the **Federal Register** on June 3, 1996 (61 FR 27978), the Service will support management practices that are consistent with recovery objectives and compatible with existing recreational fisheries. Management of recreational fishing opportunities undertaken by the State, or its designated agent, on Utah Lake and its tributaries require regular monitoring of sport fish populations. Methods that may be used to monitor sport fish populations include trammel netting, spotlighting, trawling, minnow trapping, trap netting, gill-netting, electrofishing, and seining. Use of these methods may inadvertently result in the capture, and incidental take, of individual June Sucker. Any activities associated with recreational fisheries management that are likely to significantly or repeatedly impact June suckers, such as those in spawning habitat during the season of use, those in the rearing habitat any time of year, or those that use methods not targeted to count or capture recreational sport fish only, must be approved by the Service in writing (by letter or email) and conducted in coordination with any existing recovery program in order to minimize effects on the population.

Research

This 4(d) rule defines June sucker research allowed to cause take as any activity undertaken for the purposes of increasing our understanding of June sucker biology, ecology, or recovery needs under the auspices of UDWR, a recognized academic institution, or a qualified scientific contractor and approved by the Service in writing, in coordination with any existing designated recovery program, as a necessary and productive study for June sucker recovery. Additional research is needed on June sucker biology, ecology, habitat needs, predators, and response to threats in order to improve the species' status and provide recommendations for population management, habitat improvement, and threat reduction. Research may involve capture of June suckers using methods described above, or a variety of other activities to study water quality, nonnative fishes, lake and riverine ecosystems, tributary flows, habitat, or other factors affecting June suckers that may impact individual fish inadvertently. In some cases, lethal sampling of June suckers for research purposes may be necessary and appropriate.

Education and Outreach

This 4(d) rule defines June sucker educational and outreach actions allowed to cause take as any activity undertaken for the purposes of increasing public awareness of June sucker biology, ecology, or recovery needs and their positive effects on Utah Lake and its tributaries (*e.g.,* a June sucker rearing-and-release program for high school students or a live June sucker display at an outreach event). These activities must be approved by the Service in writing (by letter or email), in coordination with any existing designated recovery program (*e.g.,* JSRIP), as activities likely to benefit June sucker conservation through increased public awareness and engagement, which support June sucker recovery.

Education and outreach are a vital part of June sucker recovery progress. Public awareness of June sucker biology and ecology helps foster support for the recovery program's activities in and around Utah Lake. Increasing the prevailing understanding of how recovery activities for June suckers improve the health, function, beauty, and quality of Utah Lake for sport fishers, recreationists, and the surrounding community will strengthen support for continued conservation of the fish. It will also serve to counteract common and incorrect narratives that the protection of the June sucker is responsible for preventing positive activities and development in and around Utah Lake. This is particularly important during the upcoming PRDRP construction, in order to tie the recovery of the fish to meaningful improvements in ecological conditions and amenities for the public at Utah Lake.

Refuges and Stocking

This 4(d) rule defines June sucker stocking and refuge maintenance as any activity undertaken for the long-term maintenance of the June sucker at facilities outside of Utah Lake and its tributaries or for the production of June suckers for stocking in Utah Lake. Take could occur from necessary facility maintenance or water management, including at Red Butte Reservoir and its downstream drainages. Any breeding, stocking, or refuge program must be approved by the Service in writing, in coordination with any existing designated recovery program. Any June sucker breeding program shall be in compliance with all applicable regulations and best hatchery and fishery management practices as described in the American Fisheries Society's Fish Hatchery Management (Wedemeyer 2002).

Maintaining refuge populations and stocking the June sucker in Utah Lake is an integral part of June sucker recovery. The process of breeding, rearing, growing, maintaining, and stocking June suckers may result in take at all life stages, but the benefits to the species far outweigh any losses. At the present time, one facility (FES hatchery) breeds the June sucker for stocking in Utah Lake; this facility also functions as the designated refuge population for June sucker. In addition to the hatchery, FES uses offsite ponds as a grow-out facility to allow fish to reach a larger size before they are stocked in Utah Lake because this significantly increases survival upon release (Burgad *et al.* 2016, p. 8). Another population of June suckers exists in Red Butte Reservoir and is maintained, but not actively managed as a refuge, for stocking purposes. Red Butte Reservoir is a useful source population and may be used for stocking more intensively in the future, since fish from Red Butte Reservoir consistently have the highest post-stocking success rates.

Nothing in this 4(d) rule changes in any way the recovery planning provisions of section 4(f) of the Act, the consultation requirements under section 7 of the Act, or our ability to enter into partnerships for the management and protection of the June sucker. However, interagency cooperation may be further streamlined through planned programmatic consultations for the species between us and other Federal agencies, where appropriate.

Required Determinations

National Environmental Policy Act (42 U.S.C. 4321 et seq.)

We have determined that environmental assessments and EISs, as defined under the authority of the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*), need not be prepared in connection with determining a species' listing status under the Endangered Species Act. In an October 25, 1983, notice in the **Federal Register** (48 FR 49244), we outlined our reasons for this determination, which included a compelling recommendation from the Council on Environmental Quality that we cease preparing environmental assessments or environmental impact statements for listing decisions.

Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994, (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination with Indian Tribal

Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with Tribes in developing programs for healthy ecosystems, to acknowledge that tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to Tribes. We have determined that no Tribes will be affected by this rule because there are no Tribal lands or interests within or adjacent to June sucker habitat.

References Cited

A complete list of all references cited in this final rule is available at *http://www.regulations.gov* at Docket No. FWS–R6–ES–2019–0026, or upon request from the Utah Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this final rule are staff members of the Service's Regions 5 and 7 and the Utah Ecological Services Field Office (see **ADDRESSES** and **FOR FURTHER INFORMATION CONTACT**).

List of Subjects in 50 CFR Part 17

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

Regulation Promulgation

Accordingly, we hereby amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as follows:

PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS

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

Authority: 16 U.S.C. 1361–1407; 1531–1544; and 4201–4245, unless otherwise noted.

■ 2. Amend § 17.11(h) by revising the entry for ''Sucker, June (*Chasmistes liorus*)'' under ''FISHES'' in the List of Endangered and Threatened Wildlife to read as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Common name	Scientific name	Where listed	Status	Listing citations and applicable rules
* * *	* * *	*		*
FISHES				
* * *	* * *	*		*
Sucker, June	*Chasmistes liorus*	Wherever found	T	51 FR 10851, 3/31/1986; 85 FR [insert **Federal Register** page where the document begins], 1/4/2021; 50 CFR 17.44(cc) [4d]; 50 CFR 17.95(e).[CH]
* * *	* * *	*		*

■ 3. Amend § 17.44 by adding paragraph (cc) to read as follows:

§ 17.44 Special rules—fishes.

* * * * *

(cc) June sucker (*Chasmistes liorus*).

(1) *Prohibitions.* The following prohibitions that apply to endangered wildlife also apply to the June sucker. Except as provided under paragraph (cc)(2) of this section and §§ 17.4 and 17.5, it is unlawful for any person subject to the jurisdiction of the United States to commit, to attempt to commit, to solicit another to commit, or cause to be committed, any of the following acts in regard to this species:

(i) Import or export, as set forth at § 17.21(b) for endangered wildlife.

(ii) Take, as set forth at § 17.21(c)(1) for endangered wildlife.

(iii) Possession and other acts with unlawfully taken specimens, as set forth at § 17.21(d)(1) for endangered wildlife.

(iv) Interstate or foreign commerce in the course of commercial activity, as set forth at § 17.21(e) for endangered wildlife.

(v) Sale or offer for sale, as set forth at § 17.21(f) for endangered wildlife.

(2) *Exceptions from prohibitions.* In regard to this species, you may:

(i) Conduct activities as authorized by an existing permit under § 17.32.

(ii) Conduct activities as authorized by a permit issued prior to February 3, 2021 under § 17.22 for the duration of the permit.

(iii) Take, as set forth at § 17.21(c)(2) through (c)(4) for endangered wildlife.

(iv) Take, as set forth at § 17.31(b).

(v) Take June suckers while carrying out the following legally conducted activities in accordance with this paragraph (cc)(2)(iv):

(A) *Definitions.* For the purposes of this paragraph (cc)(2)(iv):

(*1*) *Qualified biologist* means a full-time fish biologist or aquatic resources manager employed by Utah Division of Wildlife Resources, a Department of the Interior agency, or fish biologist or aquatic resource manager employed by a private consulting firm that has been approved by the Service in writing (by letter or email), the designated recovery program (*e.g.,* June Sucker Recovery Implementation Program), or the Utah Division of Wildlife Resources.

(*2*) *Reasonable care* means limiting the impacts to June sucker individuals and populations by complying with all applicable Federal, State, and Tribal regulations for the activity in question; using methods and techniques that result in the least harm, injury, or death, as feasible; undertaking activities at the least impactful times and locations, as feasible; procuring and implementing technical assistance from a qualified biologist on projects regarding all methods prior to the implementation of those methods; ensuring the number of individuals removed or sampled minimally impacts the existing wild population; ensuring no disease or parasites are introduced into the existing June sucker population; and preserving the genetic diversity of wild populations.

(B) *Allowable forms of take of June suckers.* Take of June suckers as a result of the following legally conducted activities is allowed, provided that the activity is approved by the Service in writing (by letter or email), in coordination with any existing designated recovery program, for the purpose of the conservation or recovery of the June sucker, and that reasonable care is practiced to minimize the impact of such activities.

(*1*) *Nonnative fish removal.* Take of June suckers as a result of any action with the primary or secondary purpose of removing from Utah Lake and its tributaries nonnative fish that compete with, predate upon, or degrade the habitat of the June sucker is allowed. Allowable methods of removal may include, but are not limited to, mechanical removal, chemical treatments, or biological controls. Whenever possible, June suckers that are caught alive as part of nonnative fish removal should be returned to their source as quickly as possible.

(*2*) *Habitat restoration and improvement of instream flows.* Take of June suckers as a result of any action with the primary or secondary purpose of improving habitat conditions in Utah Lake and its tributaries or improving water delivery and available in-stream flows in spawning tributaries is allowed.

(*3*) *Monitoring.* Take of June suckers as a result of any method that is used to detect June suckers in the wild to better understand population numbers, trends, or response to stressors, and that is not intended to be destructive but that may unintentionally cause harm or death, is allowed.

(*4*) *Recreational fisheries management.* Take of June suckers as a result of any activity by the State, or its designated agent, that is necessary to manage or monitor recreational fisheries in Utah Lake and its tributaries is allowed, provided the management practices do not contradict June sucker recovery objectives and that the activities are not intended to cause harm or death to June suckers.

(*5*) *Research.* Take of June suckers as a result of any activity undertaken for the purposes of increasing scientific understanding of June sucker biology, ecology, or recovery needs under the auspices of the designated recovery program, a recognized academic institution, or a qualified scientific contractor is allowed. Incidental and direct take resulting from such approved research to benefit the June sucker is allowed.

(*6*) *Education and outreach.* Take of June suckers as a result of any activity undertaken under the auspices of the designated recovery program for the purposes of increasing public awareness of June sucker biology, ecology, or recovery needs and June sucker recovery benefits for Utah Lake, its tributaries, and the surrounding communities is allowed. Incidental and direct take resulting from such educational or outreach efforts to benefit the June sucker is allowed.

(*7*) *Refuges and stocking.* Take of June suckers as a result of activities undertaken for the long-term maintenance of June suckers at Service-approved facilities outside of Utah Lake and its tributaries or for the production of June suckers for stocking in Utah Lake is allowed.

(vi) Possess and engage in other acts with unlawfully taken endangered wildlife, as set forth at § 17.21(d)(2).

Aurelia Skipwith

Director, U.S. Fish and Wildlife Service.

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