June 25, 2026

*Via Electronic and Certified Mail**

Doug Burgum, Secretary
U.S. Department of the Interior
1849 C Street, NW
Washington, D.C. 20240
exsec_exsec@ios.doi.gov

Brian Nesvik, Director
U.S. Fish and Wildlife Service
1849 C Street, NW
Washington, DC 20240
brian_nesvik@fws.gov

Stewart Jacks, Acting Regional Director
Southwest Region
U.S. Fish and Wildlife Service
P.O. Box 1306
Albuquerque, NM 87103-1306
stewart_jacks@fws.gov

Matt Filsinger, Acting Assistant Director
Office of Conservation Investment
U.S. Fish & Wildlife Service
5275 Leesburg Pike
Falls Church, VA 22041-3803
matt_filsinger@fws.gov

Cliff Schleusner, Regional Manager
Southwest Region
Office of Conservation Investment
U.S. Fish and Wildlife Service
P.O. Box 1306
Albuquerque, NM 87103-1306
cliff_schleusner@fws.gov

Tom Finley, Director
Arizona Game & Fish Department
5000 W. Carefree Highway
Phoenix, AZ 85086
tfinley@azgfd.gov

Marsha Petrie Sue, Commission Chair;
Kurt Kerr, Member;
Jeff Buchanan, Member;
James E. Goughnour, Member; and
Jessica Manuell, Member;
Arizona Game and Fish Commission
5000 W. Carefree Highway
Phoenix, AZ 85086

* This unofficial version of the Notice was edited on June 25, 2026, to correct on error on Page 13 referring to the photo of a Gila chub as a Gila topminnow.

RE: Sixty-Day Notice of Intent to Sue the U.S. Fish and Wildlife Service and Arizona Game and Fish Department for Violations of the Endangered Species Act Concerning Federal Funding for Stocking and Management of Nonnative Fish in Arizona

Secretary Burgum, Director Nesvik, Acting Regional Director Jacks, Acting Assistant Director Filsginer, Regional Manager Schleusner, Director Finley, Commission Chair Sue, Commissioner Kerr, Commissioner Buchanan, Commissioner Goughnour, Commissioner Manuell:

This letter serves as 60-days' notice on behalf of the Center for Biological Diversity ("Center") of our intent to sue the U.S. Fish and Wildlife Service ("Service") and the Director and Commissioners of the Arizona Game and Fish Department ("AGFD") in their official capacities for violations of the Endangered Species Act ("ESA") related to actions implementing the Dingell-Johnson Sport Fish Restoration Act ("SFRA"). The actions at issue include: the Service's review and approval of AGFD's "sport fish" stocking program for 2021 to 2031 ("2021–2031 stocking program"); the Service's review and approval of other SFRA-funded projects that impact threatened and endangered species; the Service's annual SFRA grant decisions that fund these stocking and non-stocking projects; and both agencies' funding and implementation of SFRA projects that take listed species in violation of ESA Section 9.

In sending this notice, the Center does not seek to put a stop to sport fish stocking in Arizona. Rather, the Center's goal is to ensure that federally funded sport fish stocking and management is not driving Arizona's highly imperiled native fish and aquatic species to extinction, and is instead providing for their survival and recovery. The Center asks that the Service and AGFD correct the longstanding imbalance between the management of nonnative sport fish and the conservation of native fishes, amphibians, and reptiles. The Service has spent decades violating the ESA by prioritizing sport fish; it is time to finally account for and mitigate that damage. The Center hopes that by raising the following legal violations, the Service and AGFD will reevaluate how their actions are harming ESA-listed species and reform how the agencies implement SFRA to comply with the ESA.

Nonnative fish are the most significant threat to the survival and recovery of Arizona's native aquatic species.[1] Since SFRA's enactment in 1950, the Service has approved over $414 million in grants to Arizona's sport fish stocking and management programs,[2] which have spread nonnative fish throughout the state and had devastating impacts on native aquatic species.[3] Approximately 85 percent of Arizona's native fish species are declining, more than any

[1] *See* W.L. Minckley & Paul C. Marsh, Inland Fishes of the Greater Southwest: Chronicle of a Vanishing Biota, at 50 (2009); Robert W. Clarkson et al., *Conflicts Between Native Fish and Nonnative Sport Fish Management in the Southwest United States*, Fisheries, Sept. 2005, at 20.

[2] This refers to inflation-adjusted dollars. U.S. Fish & Wildlife Serv., *Sport Fish Restoration Apportionments*, https://tracs.fws.gov/sportFishRestorationApportionments.html (last visited June 11, 2026).

[3] *See* Peter B. Moyle, *Living with Aliens: Nonnative Fishes in the American Southwest*, *in* Standing Between Life and Extinction: Ethics and Ecology of Conserving Aquatic Species in North American Deserts 69, 69–70 (David L. Propst et al., eds., 2020); Minckley & Marsh (2009), at 50–51; Julian D. Olden & N. LeRoy Poff, *Long-Term*

other state.[4] Most of Arizona's native fish species are listed as threatened or endangered under the ESA,[5] including the Gila topminnow, Gila chub, loach minnow, spikedace, Little Colorado spinedace, razorback sucker, and bonytail. Other ESA-listed aquatic species include the narrow-headed gartersnake, Northern Mexican gartersnake, and Chiricahua leopard frog.

The Service reaffirms its massive federal investment in Arizona's sport fish stocking and management on an annual basis, yet has failed to ensure compliance with the ESA since it was enacted in 1973. The Service did not even attempt a statewide biological opinion until 2011 ("2011 BiOp"),[6] when it approved AGFD's 2011–2021 stocking program despite massive, well-documented harms to the state's increasingly imperiled native aquatic species. The inaugural 2011 BiOp at least conditioned each year's SFRA funding on AGFD completing conservation projects to benefit those species most harmed by the past and present stocking of nonnative sport fish.[7] But in the subsequent, 2021 biological opinion ("2021 BiOp"),[8] the Service removed most of these conditions while approving another ten years of federally funded sport fish stocking.

As detailed herein, the Center notices ESA violations against the Service in its role as the expert agency responsible for administering the ESA and as the action agency responsible for administering SFRA. As the expert agency, the Service issued the 2021 BiOp arbitrarily concluding that the 2021–2031 stocking program is not likely to jeopardize the continued existence of threatened or endangered species or destroy or adversely modify these species' critical habitat, and issued unlawful incidental take statements ("ITS") that fail to adequately specify or limit the impact of incidental take caused by the 2021–2031 stocking program. In particular, the Service failed to rationally address inconsistencies between the 2021 BiOp's conclusions and the Service's prior analyses, or explain how the 2021 BiOp comports with the best available scientific data demonstrating that nonnative fish pose a significant extinction risk to Arizona's ESA-listed aquatic species. The abject failure of the Service to comply with the ESA in relation to its SFRA funding is all the more egregious given its primary role under the ESA in protecting and recovering listed species.

As the action agency, the Service's implementation of SFRA unlawfully fails to ensure against jeopardizing ESA-listed species and destroying or adversely modifying their critical habitat in violation of ESA. The primary reason is that the Service's approval of the 2021–2031 stocking program and its annual funding decisions rely on the unlawful 2021 BiOp. Additionally, the Service has failed to provide a reasoned explanation showing that its implementation of SFRA complies with the ESA's mandate to utilize other programs to further

---

Trends of Native and Non-Native Fish Faunas in the American Southwest, 28 Animal Biodiversity & Conservation 75 (2005); Clarkson et al. (2005).

[4] 79 Fed. Reg. 38678, 38689 (July 8, 2014).

[5] *Id.*

[6] U.S. Fish & Wildlife Serv., Biological and Conference Opinion (BCO) for Wildlife and Sport Fish Restoration Funding of Arizona Game and Fish Department's Statewide and Urban Fisheries Stocking Program for 2011 – 2021 (Aug. 26, 2011) [hereinafter "2011 BiOp"].

[7] *See* 2011 BiOp, at 474; U.S. Fish & Wildlife Serv. & Ariz. Game & Fish Dep't, Final Environmental Assessment: Sport Fish Stocking Program, at P58 (Aug. 2011) [hereinafter "2011 EA"].

[8] U.S. Fish & Wildlife Serv., Biological and Conference Opinion (BCO) for Wildlife and Sport Fish Restoration Funding of Arizona Game and Fish Department's Statewide and Urban Fisheries Stocking Program for 2021 – 2031 (Aug. 6, 2021) [hereinafter "2021 BiOp"].

the ESA's conservation purpose. In particular, the 2021 BiOp and 2021–2031 stocking program require such an explanation because the Service abandoned conservation measures included in the 2011–2021 stocking program that the Service had deemed a substantial contribution to the conservation of ESA-listed species.

For these and additional reasons, the Service's review, approval, and implementation of SFRA has violated and continues to violate ESA Section 7. The Service's and AGFD's implementation of SFRA and SFRA-funded projects is also an ongoing violation of ESA Section 9. The Center provides 60-days' notice of these violations pursuant to the citizen-suit provision of the ESA, to the extent such notice is deemed necessary by a court.[9]

The Center will prevail should this matter be litigated. Nonetheless, our intention is that by sending this detailed letter, the Service's Office of Conservation Investment, the Service's Ecological Services Office, and AGFD will seriously consider our concerns and respond within sixty days to discuss a plan for remedying these violations while avoiding needless litigation.

Again, the Center's goal is not to put a stop to sport fishing in Arizona. The Center's goal is to ensure the survival and recovery of Arizona's threatened and endangered native aquatic species. Protecting these species requires mitigation and conservation measures proportional to the significant, ongoing harm of nonnative fish.

LEGAL BACKGROUND

A. The ESA

The ESA is "the most comprehensive legislation for the preservation of endangered species ever enacted by any nation."[10] Its fundamental purposes are "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved [and] to provide a program for the conservation of such endangered species and threatened species."[11] Section 2(c) of the ESA establishes that it is "the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species."[12] Section 7(a)(1) further specifies that the Service "shall review other programs administered by [the agency] and utilize such programs in the furtherance of [the ESA]."[13] The ESA defines "conservation" 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 this Act are no longer necessary."[14]

To achieve these objectives, ESA Section 4 directs the Service to protect and recover species by listing them as "endangered" or "threatened."[15] "Endangered" means a species "is in danger of extinction throughout all or a significant portion of its range."[16] "Threatened" means a

[9] *See* 16 U.S.C. § 1540(g).
[10] *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 180 (1978).
[11] 16 U.S.C. § 1531(b).
[12] *Id.* § 1531(c)(1).
[13] *Id.* § 1536(a)(1).
[14] *Id.* § 1532(3).
[15] *Id.* § 1533(a).
[16] *Id.* § 1532(6).

species is "likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range."[17] Once a species is listed, the ESA provides a variety of procedural and substantive protections to ensure not only the species' continued survival, but its ultimate recovery, including: the designation of critical habitat; the preparation and implementation of recovery plans; and the prohibition against the take[18] of listed species.[19]

The Section 7 consultation process is one of only two exceptions to this prohibition on take and allows federal agencies to obtain an "incidental take statement."[20] Described as the "heart of the ESA,"[21] Section 7(a)(2) requires federal agencies—including the Service—to ensure that "any action authorized, funded, or carried out by such 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 [critical] habitat."[22] An action jeopardizes the continued existence of a listed species if it "reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species."[23] An action destroys or adversely modifies critical habitat if it appreciably diminishes the value of critical habitat for the conservation of the species.[24]

Once an action agency makes the threshold determination that a federal action is likely to affect threatened or endangered species in the action area, the agency must engage in "formal" consultation with the Service's consulting branch.[25] During formal consultation, the Service must "use the best scientific and commercial data available" to prepare a "biological opinion" assessing whether the action is likely to jeopardize a species or destroy or adversely modify critical habitat.[26] "Action" is broadly defined to include all activities or programs of any kind authorized, funded, or carried out by federal agencies.[27] The Service must consider "the effects of the action or actions as a whole,"[28] which include "all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action."[29]

---

[17] *Id.* § 1532(20).
[18] The term "take" means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." *Id.* § 1532(19).
[19] *See id.* §§ 1533(a)(3), (f), 1536, 1538.
[20] *Id.* § 1536. The other exception to the take prohibition is ESA Section 10, under which private parties may apply for and obtain incidental take permits by meeting certain requirements, such as the preparation of a habitat conservation plan. *Id.* § 1539.
[21] *W. Watersheds Project v. Kraayenbrink*, 632 F.3d 472, 495 (9th Cir. 2011)
[22] 16 U.S.C. § 1536(a)(2).
[23] 50 C.F.R. § 402.02.
[24] *Id.*
[25] *Id.* § 402.14(a), (g); 16 U.S.C. § 1536(b)(3)(A). There is an exception to this requirement if the action agency prepares a "biological assessment" finding that the action is not likely to "adversely affect" ESA-listed species or critical habitat and the Service concurs with that finding. 50 C.F.R. § 402.14(b)(1).
[26] 50 C.F.R. § 402.14; 16 U.S.C. § 1536(a)(2).
[27] 50 C.F.R. § 402.02.
[28] *Id.* § 402.14(c)(4).
[29] *Id.* § 402.02.

When preparing a biological opinion, the Service must also analyze each species and its critical habitat in terms of its current status and "environmental baseline," the latter of which is specific to the action area and must include the past and present impacts of all Federal, State, or private actions.[30] If a biological opinion concludes that the effects of the action—plus the current status, environmental baseline, and cumulative effects[31]—are not likely to jeopardize the continued existence of a listed species or to result in the destruction or adverse modification of critical habitat, the Service must provide an ITS setting a limit on how the action may affect each species, requiring "reasonable and prudent measures" to minimize those effects, and setting forth the "terms and conditions" the action agency must comply with to implement those measures.[32] Only with an ITS issued pursuant to a lawful biological opinion may a federal action cause the "take" of listed species.[33]

B. SFRA

SFRA authorizes the Service to provide federal funding to state fish and game departments to implement "fish restoration and management projects" that "conform to the standards fixed by [the Service]."[34] SFRA defines eligible "fish restoration and management projects" as those "designed for the restoration and management of all species of fish which have material value in connection with sport or recreation in the marine and/or fresh waters of the United States."[35] This includes restoring "water or land adaptable as hatching, feeding, resting, or breeding places for fish."[36] States must apply for funds on an annual basis and receive the Service's approval that the proposed projects comply with SFRA and the Service's other statutory obligations, including the ESA.[37]

FACTUAL BACKGROUND

A. Nonnative Sport Fish Threaten the Survival and Impede the Recovery of Arizona's Native Aquatic Species

Southwestern desert fishes are one of the most imperiled groups of animals in North America.[38] Of Arizona's 37 native fish species, 21 are listed as threatened or endangered under the ESA and one is extinct.[39] The threatened or endangered species include the Gila topminnow, Gila chub, loach minnow, spikedace, Little Colorado spinedace, razorback sucker, and bonytail. Another 13 fish species are protected as "special status species" by the state of Arizona or

---

[30] *Id.* §§ 402.02, 402.14(g).
[31] *Id.* § 402.14(g).
[32] 16 U.S.C. § 1536(b)(4); 50 C.F.R. § 402.14(i).
[33] *See* 16 U.S.C. § 1536(o).
[34] 16 U.S.C. § 777(a); *Sport Fish Restoration*, U.S. Fish & Wildlife Serv., https://www.fws.gov/program/sport-fish-restoration (last accessed Jan. 6, 2026).
[35] 16 U.S.C. § 777a(1).
[36] *Id.* § 777a(1).
[37] *See* 50 C.F.R. § 80.82(b)(14)(ii).
[38] Holmes Rolston III, *Fishes in the Desert: Paradox and Responsibility*, *in* Battle Against Extinction: Native Fish Management in the American West, at 93, 104–05 (W.L. Minckley & James E. Deacon eds., 1991).
[39] U.S. Fish & Wildlife Serv. & Ariz. Game & Fish Dep't, Final Environmental Assessment: Sport Fish Stocking Program, at 33 (Aug. 2021) [hereinafter "2021 EA"].

federal agencies.[40] In addition to fish, the narrow-headed gartersnake, Northern Mexican gartersnake, and Chiricahua leopard frog are listed as threatened under the ESA.[41] Nonnative fish stocking and management using SFRA funds has played a significant role in the imperilment of these listed species.

Although desert fishes evolved at the "cutting edge of adaptability," European colonization has brought unprecedented environmental harms to the Southwest that have caused these fishes' rapid decline.[42] Most notably, federal and state agencies have worked together to introduce at least 46 species of nonnative sport fish to Arizona's waters[43] and nonnative fish have become "a far greater problem to native fish survival than all our other environmental abuses combined."[44] Most introduced species have significantly expanded their range far beyond the waters where they were first stocked and collectively outnumber native fish in most of the state.[45]

The best available scientific data demonstrate that nonnative fish pose an existential threat to Arizona's native fish, particularly in the cumulative context of habitat destruction, climate change, and numerous other threats.[46] The Santa Cruz pupfish went extinct after largemouth bass were introduced into its namesake Santa Cruz River system.[47] Many other species have avoided a similar fate only due to intensive conservation efforts. The desert pupfish, for instance, has lost all natural populations in Arizona and only occurs at transplanted refuges.[48] Big-river fishes like the razorback sucker have long relied on captive rearing programs to sustain "wild" populations.[49]

---

[40] *Id.* The only native fish species in Arizona that are not threatened, endangered, or otherwise considered "Special Status Species" are two marine/estuarine species occurring in the lower reaches of the Colorado River. *Id.*
[41] *Featured Species*, Ariz. Ecological Servs. Field Off., U.S. Fish & Wildlife Serv., https://www.fws.gov/office/arizona-ecological-services/species (last visited June 11, 2026). Nonnative fish pose many of the same threats to native fishes, amphibians, and aquatic reptiles, so much the following discussion refers to native fishes as a stand-in for this broader community of imperiled native species. While the species highlighted in this notice spend the most time in waterbodies occupied by nonnative sport fish, there are also threatened and endangered mammals, birds, insects, and plants that are harmed by sport fish management. *See generally* 2021 EA.
[42] Rolston (1991), at 107.
[43] 2021 EA, p. 32; *see also* Moyle (2020), at 69–70 ("Carp, trout, bass, sunfish, and catfish were transported throughout the West in special railroad cars, with agency biologists meeting the trains by truck, horse, and backpack. At that time, most native fishes in the Southwest were regarded by decision makers as 'rough fish' or 'trash fish,' even if they were valued for food and fertilizer by local people.").
[44] W.L. Minckley & Michael E. Douglas, *Discovery and Extinction of Western Fishes: A Blink of the Eye in Geologic Time*, *in* Battle Against Extinction: Native Fish Management in the American West, at 7, 17 (W.L. Minckley & James E. Deacon eds., 1991).
[45] *See* Olden & Poff (2005), at 80; Moyle (2020), at 69.
[46] *See, e.g.*, Paul C. Marsh & Carol A. Pacey, *Immiscibility of Native and Non-native Fishes*, *in* U.S. Fish & Wildlife Serv. & U.S. Bureau of Reclamation, *Restoring Native Fish to the Lower Colorado River: Interactions of Native and Non-native Fishes*, at 59 (2005); Clarkson et al. (2005), at 21 ("Given the present state of knowledge, our conclusion is that native and nonnative fishes must be segregated if the former are to survive."). For a representative subset of this literature, refer to Appendix A.
[47] Minckley & Marsh (2009), at 50.
[48] *Id.* at 240.
[49] *See id.* at 50

The primary causes for this extinction crisis are that nonnative fish eat adult native fish; prey on fish eggs, larvae, and juveniles[50]; and outcompete native species for prey and habitat, which increases these species' stress hormones and exposes them to additional threats in suboptimal habitat.[51] Even seemingly benign nonnative fishes have severe effects on native fish.[52] A waterbody stocked with nonnative sport fish poses additional threats to native fish, including introduction of invasive bait fish, fish-borne pathogens, discarded fishing gear, and the intentional collecting or killing of non-sport aquatic species.[53]

Nonnative sport fish are generally divided into two broad groups.[54] "Warm water fish" include basses, sunfishes, and catfishes.[55] These species rapidly colonize natural or artificial (usually, dammed)[56] waterbodies, where they are almost impossible to eradicate after they have invaded.[57] Accordingly, stocking or maintaining warm water fish populations is particularly dangerous to native ecosystems unless resource managers are certain that the receiving

---

[50] Minckley & Marsh (2009), at 50–51. Studies on the impacts of nonnative fish often underestimate this predation on native fish because "early life stages are fragile, readily masticated, and rapidly digested." *Id.* at 51. *Compare, e.g.*, Jeanette Carpenter & Gordon A. Mueller, *Small Nonnative Fishes as Predators of Larval Razorback Suckers*, Sw. Naturalist, June 2008, at 236, 240 ("We caution that absence of larvae in gut contents of fishes collected in the field is insufficient evidence to conclude that nonnative species are not preying on larval native fishes."), *with* 2021 BiOp, at 514–15 ("AGFD did not observe any fish in the stomachs of any stocked trout captured. . . Therefore, although adverse effects from stocking may occur, they are likely to be limited in frequency and intensity.").

[51] *See* T.J. Pilger et al., *Diet and Trophic Niche Overlap of Native and Nonnative Fishes in the Gila River, USA: Implications for Native Fish Conservation*, 19 Ecology Freshwater Fish 300 (2010); Sarah E. Zahn Seegert et al., *High Diet Overlap Between Native Small-Bodied Fishes and Nonnative Fathead Minnow in the Colorado River, Grand Canyon, Arizona*, 143 Transactions Am. Fisheries Soc'y 1072 (2014); Michael E. Douglas et al., *Indigenous Fishes of Western North America and the Hypothesis of Competitive Displacement:* Meda fulgida *(Cyprinidae) as a Case Study*, 1994 Copeia 9; Carpenter & Mueller (2008), at 239–40.

[52] *See, e.g.*, Minckley & Marsh (2009), at 154 ("[W]e are convinced that decline of spikedace, and most other southwestern fishes as well, results mostly from interactions with non-natives. Recent research has documented extensive larval predation by small-sized introduced minnows, some, like fathead minnow, previously considered innocuous.").

[53] *See generally* 2021 BiOp, at 1052–89; Herbert R. Ludwig Jr. & Jay A. Leitch, *Interbasin Transfer of Aquatic Biota via Anglers' Bait Buckets*, Fisheries, July 1996, at 14 (providing empirical evidence of widespread bait-bucket transfers); Robert W. Clarkson et al., *Asian Tapeworm (*Bothriocephalus acheilognathi*) in Native Fishes from the Little Colorado River, Grand Canyon, Arizona*, 57 Great Basin Naturalist 66 (1997) (documenting tapeworm in nonnative fishes); Philip C. Rosen et al., Final Report to Arizona Game and Fish Department Heritage Fund: Ecological Factors Affecting Conservation Status of the Narrow-headed Gartersnake (*Thamnophis rufipunctatus*) (Jan. 2012) (discussing impacts of increased recreation on narrow-headed gartersnakes, including intentional killing); José Luis Barragán-Ramírez & José de Jesús Ascencio-Arrayga, 44 Herpetological Rev. 158 (2013) (observing aquatic gartersnakes killed by lost or abandoned fishing gear).

[54] The fact remains that virtually every species of nonnative fish poses a significant threat to native aquatic species. *See generally* Clarkson et al. (2005).

[55] *See* 2021 EA, at 8–9 (listing species stocked in Arizona using federal funds); *see also* Minckley & Marsh (2009), at 224–26 (describing nonnative catfishes being stocked); *id.* at 286–95 (describing basses and sunfishes being stocked).

[56] Moyle (2020), at 70 ("Reservoirs are aquatic sores on the landscape that infect every waterway to which they connect with alien creatures.")

[57] *See* Olden & Poff (2005) (documenting spread of nonnative species). *But see* Moyle (2020), at 72 ("Eradication, or at least containment, is typically aimed at either new invaders where the invasion is taking place or at established populations of harmful aliens in a confined area.").

waterbody will never connect to other waters in the region.[58] In the desert Southwest, where severe floods define the landscape and regularly create hydrologic connections, very few waterbodies are sufficiently isolated.[59] In the event of a flood, any surveys that detect changes in the fish community may be too late for corrective action if an invasive species has already become established or a crucial native species population has already been extirpated.[60]

"Cold water fish" include trout and other salmonids that require relatively cool, fast-moving waters to survive.[61] These fishes are stocked throughout Arizona, but struggle to survive outside of mountain headwaters, so they are generally stocked in larger quantities and more mature life stages than warm water fish. These stocking practices can negate many of the perceived "benefits" of stocking comparatively less-invasive or less-predatory cold water fishes and thus create immediate threats to native aquatic species.[62] In recent decades, rainbow trout have been the most frequently stocked cold water sport fish in Arizona, and at one point was the most common salmonid species—native or nonnative—in mountain streams of the Southwest.[63] Brown trout are a particularly voracious predator of native aquatic species and are also established in many headwater streams in Arizona.[64]

B. The Threated and Endangered Species Most Impacted by the Service's Implementation of SFRA

The continued existence of at least ten ESA-listed native species is jeopardized by the Service's implementation of SFRA. Despite repeatedly identifying nonnative fish as a primary threat to these ESA-listed species, the Service has continually served as AGFD's primary source of funding for sport fish introductions and management.

---

[58] Robert W. Clarkson, *Effective of Electrical Fish Barriers Associated with the Central Arizona Project*, 24 N. Am. J. Fisheries Mgmt. 94, 104 (2004) ("[I]f a barrier is not 100% effective, it is ineffective.").
[59] *See* Sally E. Stefferud & Jerome A. Stefferud, in xooperation with Paul C. Marsh, Native Fish Lab, Ariz. State Univ., Fish Movement Through Intermittent Stream Channels: Report to the U.S. Bureau of Reclamation, at 6 (Aug. 13, 2007) ("[F]or most streams [in the American Southwest,] the likelihood of occurrence of the specific set of conditions necessary for movement of some fish species upstream through a 'dry' stream reach is moderate over a multi-year period, rising to high on a multi-decadal basis.").
[60] *E.g.*, U.S. Fish & Wildlife Serv., Reinitiated Biological Opinion on Transportation and Delivery of Central Arizona Project Water to the Gila River Basin in Arizona and New Mexico and its Potential to Introduce and Spread Nonindigenous Aquatic Species, at 91 (2008) [hereinafter "2008 CAP BiOp"].
[61] *See* Minckley & Marsh (2009), at 85; *see, e.g.*, W. Linn Montgomery & Yael Bernstein, U.S. Forest Serv., Rocky Mtn. Reg., Species Conservation Project, Rainbow Trout (*Oncorhynchus mykiss*): A Technical Conservation Assessment at 24–28 (2008) (describing specific habitat requirements for rainbow trout).
[62] *Cf.* Michael D. Yard et al., *Trout Piscivory in the Colorado River, Grand Canyon: Effects of Turbidity, Temperature, and Fish Prey Availability*, 140 Transactions Am. Fisheries Soc'y 471, 484 (2011) ("[R]ainbow trout were less piscivorous than brown trout, but the greater abundance of rainbow trout resulted in a larger cumulative piscivory effect on the native fish community. . . . Consequently, general studies on fish diet may either overlook (e.g., rainbow trout) or overemphasize (e.g., brown trout) the potential role of some nonnative species as predators of native fishes, especially if the numerical effect of predator abundance is not accounted for.").
[63] Minckley & Marsh (2009), at 95.
[64] *Id.* at 97.

Table 1. This table provides the year of the Service's most recent listing, critical habitat, and recovery decision for each species, all of which identify nonnative fish as a primary threat.

Species	ESA Status	Critical Habitat	Recovery Plan
Chiricahua leopard frog	Threatened & Critical Habitat, 2012		Final Plan, 2007
Gila topminnow	-[65]	-	Draft Revision, 1999
Gila chub	Endangered & Critical Habitat, 2005		Draft Plan, 2014
Loach minnow	Endangered & Critical Habitat, 2012		Amended, 2019
Spikedace	Endangered & Critical Habitat, 2012		Amended, 2019
Little Colorado spinedace	Threatened & Critical Habitat, 1987		Amended, 2019
Narrow-headed gartersnake	Threatened, 2014	2021	-
Northern Mexican gartersnake	Threatened, 2014	2021	-
Razorback sucker	Endangered, 1991	1994	New Goals, 2002
Bonytail	Endangered, 1980	1994	New Goals, 2002

i. Chiricahua Leopard Frog (*Rana chiricahuensis*)

The Chiricahua leopard frog was once found in wetlands, rivers, and lakes across Arizona and New Mexico.[66] As sport fish and other nonnative predators have invaded much of this habitat, the frog has declined to just 14 to 19 percent of its historic range, confined to isolated headwater streams and livestock tanks.[67] Even for these remaining populations, predation and disease are two of the most significant threats.[68]

As with many imperiled species at issue in this notice, the Chiricahua leopard frog relies on interconnected "metapopulations" to recolonize declining sites and struggles to survive in

[65] The Service listed the Gila topminnow as endangered in 1967 under the ESA's predecessor statute.
[66] 77 Fed. Reg. 16324, 16335 (Mar. 20, 2012).
[67] *Id.*; U.S. Fish & Wildlife Serv., Chiricahua Leopard Frog 5-Year Review, at 26–27 (2011) [hereinafter "Chiricahua Leopard Frog 5-Year Review (2011)"]. The Chiricahua leopard frog also occurs in Mexico, but the extent of that range is unclear. 77 Fed. Reg. 16324, 16335 (Mar. 20, 2012).
[68] U.S. Fish & Wildlife Serv., Chiricahua Leopard Frog (*Rana chiricahuensis*) Final Recovery Plan, at 20–21 (Apr. 2007).

fragmented habitat.[69] Historically, waterways provided this connectivity for the frog, but once they are filled with nonnative sport fish, reservoirs and slow-moving rivers become another barrier to dispersal, much like highways, major dams, walls, and physical structures.[70] So while recovery efforts have made some progress since the frog was first listed as threatened in 2002,[71] the frog's continued existence will remain in jeopardy until serious efforts are made to curtail the presence of nonnative sport fish and other predators.[72]

Chiricahua leopard frog.
Photo Credit: Jim Rorabaugh, U.S. Fish & Wildlife Service

ii. Gila Topminnow (*Poeciliopsis occidentalis*)

In only a few decades, the Gila topminnow went from one of the most common fishes of the Gila River Basin—with an almost continuous population throughout the river system prior to 1940—to nearly extinct when the Service listed it as endangered in 1967.[73] This drastic

---

[69] Chiricahua Leopard Frog 5-Year Review (2011), at 20.
[70] *Id.*
[71] *See* 67 Fed. Reg. 40790 (June 13, 2002).
[72] *See* 77 Fed. Reg. 16324, 16337 (Mar. 20, 2012); *e.g.*, *id.* at 16361 ("[R]ainbow trout . . . likely prey upon Chiricahua leopard frog tadpoles.").
[73] James E. Deacon & W.L. Minckley, *Western Fishes and the Real World: The Enigma of "Endangered Species" Revisited*, *in* Battle Against Extinction: Native Fish Management in the American West, at 405, 409 (W.L. Minckley & James E. Deacon eds., 1991); W.L. Minckley et al., *Conservation and Management of Short-lived Fishes: The Cyprinodontoids*, *in* Battle Against Extinction: Native Fish Management in the American West, at 247, 272–73 (W.L. Minckley & James E. Deacon eds., 1991).

decline "mirrored the spread of nonnative fishes,"[74] with smaller baitfish outcompeting Gila topminnow and larger sport fish preying on them.[75] Since the 1980s, recovery efforts have attempted to reintroduce the species to over 200 sites, but the species only survives at 33 of them.[76] Only nine natural populations survive.[77]

These remaining Gila topminnow populations are isolated from one another and thus require careful management to withstand nonnative fish, drought, flooding, and winter cold.[78] For instance, the reintroduced Gila topminnow population at Fossil Creek was threatened by smallmouth bass that breached the protective fish barrier during flooding between 2009 and 2010.[79] While this protective barrier was quickly repaired, this example shows the perils of maintaining native and nonnative fish populations in close proximity.

Gila topminnow
Photo credit: Robin Silver

[74] Anthony A. Echelle & Alice F. Echelle, *Restoration of Aquatic Habitats and Native Fishes in the Desert: Some Successes in Western North America*, *in* Standing Between Life and Extinction: Ethics and Ecology of Conserving Aquatic Species in North American Deserts 353, 357 (David L. Propst et al., eds., 2020).
[75] *See* U.S. Fish & Wildlife Serv., Intra-Service Biological and Conference Opinion on Issuance of an Enhancement of Survival Permit (TE-083686-0) to the Arizona Game and Fish Department, at 13 (Feb. 11, 2008); U.S. Fish & Wildlife Serv., Draft Gila Topminnow Revised Recovery Plan, at 10–11 (Dec. 1998).
[76] U.S. Fish & Wildlife Serv., Biological Opinion on Ongoing Grazing on the Coronado National Forest, at 53 (Sept. 30, 2021).
[77] *Id.*
[78] *See* W.L. Minckley, *Ecological Review and Management Recommendations for Recovery of the Endangered Gila Topminnow*, 59 Great Basin Naturalist 230, 232–41 (1999).
[79] Echelle & Echelle (2021), at 362.

iii. Gila chub (*Gila intermedia*)

Historically, the Gila chub was found across the Gila River basin, where it inhabited pools and other quiet, deep waters in streams, springs, and ciénegas.[80] This habitat hosted few native predators, leaving Gila chub unprepared to withstand the onslaught of predatory nonnative fish.[81] As widespread channelization of desert streams further reduced the availability of pool habitat, the Gila chub disappeared in at least 85 to 90 percent of its historical range.[82]

The Gila chub's remaining populations would benefit greatly from interconnected habitat, but the widespread distribution of nonnative, predatory fish leaves "management by isolation" as the only viable option to conserve the Gila chub.[83] This "inelegant but compelling approach to conservation" requires sufficient funding to construct and maintain fish barriers, as well as facilitate genetic connection between isolated populations.[84]

Gila chub*
Photo credit: Brian Gratwicke, Flickr (CC BY 2.0)

iv. Loach Minnow (*Tiaroga cobitis*) & Spikedace (*Meda fulgida*)

Again reflecting the effects of nonnative sport fish, the loach minnow and spikedace each occupy less than 10 to 20 percent of their historic range in Arizona and New Mexico.[85]

---

[80] 70 Fed. Reg. 66664, 66665 (Nov. 2, 2005).
[81] *Id.* at 66682.
[82] *Id.* at 66665.
[83] *See* U.S. Fish & Wildlife Serv., Gila Chub (*Gila intermedia*) Draft Recovery Plan, at 33 (2014).
[84] *Id.* at 51.
* The original Notice incorrectly captioned this photo "Gila topminnow." This unofficial version was corrected on June 25, 2026.
[85] 77 Fed. Reg. 10810, 10826–27 (Mar. 26, 2012). Additionally sampling since 2012 indicates that these percentages are an overestimation. *See, e.g.*, 2021 BiOp, at 836 (describing the spikedace's continued decline towards functional extirpation in the Upper Verde River).

These small fishes are threatened by predation, competition, and habitat loss.[86] Large nonnative fish like rainbow trout and channel catfish are a greater threat to adult spikedace and loach minnow, while small nonnative fish like mosquito fish and fathead minnow are a greater threat to eggs and larvae.[87]

Removing nonnative species from riverine habitat is particularly important for these species' survival and recovery because they rely on specific flow patterns absent from most isolated tributaries.[88] In broad terms, spikedace and loach minnow require gravel-laden streams where a mixture of slow- and fast-moving currents create shallow, turbulent riffles.[89] Gravel provides surfaces for the fish to attach adhesive eggs and riffles host aquatic insects that both species prey on.[90] Recent conservation efforts have reintroduced the species into protected headwater streams, but "opportunities for expansion of the two species' range are limited by dams, reservoirs, dewatering, and nonnative species distribution."[91]

Spikedace and Loach minnow
Respective photo credits: U.S. Fish & Wildlife Service; Robin Silver

v. Little Colorado Spinedace (*Lepidomeda vittata*)

The Little Colorado spinedace was once present throughout the upper reaches and tributaries of its namesake Little Colorado River, but now remains in just a handful of

---

[86] 77 Fed. Reg. 10810, 10819–21, 10895 (Mar. 26, 2012).
[87] *Id.*; *see also* Paul C. Marsh & Michael E. Douglas, *Predation by Introduced Fishes on Endangered Humpback Chub and Other Native Species in the Little Colorado River, Arizona*, 126 Transactions Am. Fisheries Soc'y 343 (1997) (documenting predation by larger sport fish, including rainbow trout, channel catfish, and brown trout, on speckled dace and other native fish similar in size to spikedace and loach minnow); Douglas et al. (1994) (describing competition between smaller nonnative fish and spikedace).
[88] *See* 77 Fed. Reg. 10810, 10818–19 (Mar. 26, 2012); Crosby Kirkpatrick Hedden, *Habitat Evaluation of Native Fishes in the Gila River Basin*, at 3, 33 (2020) (M.S. Thesis, Kans. St. Univ.), *available at* https://www.usbr.gov/lc/phoenix/biology/azfish/pdf/BORR18AC00066_Final_Report21dec2022.pdf.
[89] *See* 77 Fed. Reg. 10810, 10810–11 (Mar. 26, 2012).
[90] *Id.* at 10831–36.
[91] *Id.* at 10827.

headwater streams.[92] Reservoirs and water withdrawals have dried up much of the watershed, and most remaining waters face threats from nonnative sport fish moving upstream and downstream out of the reservoirs.[93] At least 15 nonnative fishes are present in the fish's habitat, all of which can prey on Little Colorado spinedace or compete with them for habitat and resources.[94] Rainbow trout are stocked the most frequently, despite multiple scientific studies recommending that nonnative trout be removed from Little Colorado spinedace habitat.[95]

The Service recommended uplisting the Little Colorado spinedace from threatened to endangered in 2008 and, despite the Service withdrawing this recommendation in 2018, the fish's long-term viability remains in peril.[96] Because there are so few stream reaches free from nonnative species, even successful conservation projects for the Little Colorado spinedace leave it with isolated populations vulnerable to wildfire and localized drought.[97]

vi. Narrow-Headed Gartersnake (*Thamnophis rufipunctatus*) & Northern Mexican Gartersnake (*Thamnophis eques megalops*)

The narrow-headed and Northern Mexican gartersnakes live on land and in slow-moving waterbodies where they hunt primarily aquatic prey.[98] The narrow-headed gartersnake consumes almost entirely small fish, while the Northern Mexican gartersnake consumes a combination of small fish and amphibians.[99] Prior to the introduction of nonnative fish, this prey base included Gila topminnow, spikedace, loach minnow, razorback sucker, bonytail and—for the Northern Mexican gartersnake—Chiricahua leopard frog.[100] But as the gartersnakes' habitat and native prey have dwindled in Arizona and New Mexico, both species have disappeared from most of their range.[101] The gartersnakes will attempt to hunt nonnative fish when left with no other options, but most stocked trout are too large for the gartersnakes to swallow and warmwater

---

[92] *See* U.S. Fish & Wildlife Serv., Little Colorado Spinedace (*Lepidomeda vittata*) 5-Year Review: Summary and Evaluation (Oct. 6, 2008) [hereinafter "Little Colorado Spinedace 5-Year Review (2008)"]; U.S. Fish & Wildlife Serv., Little Colorado Spinedace (*Lepidomeda vittata*) 5-Year Review: Summary and Evaluation (July 3, 2018) [hereinafter "Little Colorado Spinedace 5-Year Review (2018)"].
[93] *See* 52 Fed. Reg. 35034, 35034 (Sept. 16, 1987).
[94] *See* Minckley & Marsh (2009), at 153–54.
[95] *See, e.g.*, Scott D. Bryan et al., *Behavioral Responses of a Small Native Fish to Multiple Introduced Predators*, 63 Env't Biology Fishes 49, 55 (2002) (suggesting that "nonnative predators (including rainbow trout and crayfish) must be controlled or eliminated from critical habitats or potential reintroduction sites in order to conserve or enhance native fish populations"); Michael G. Sweetser et al., *Movement, Distribution, and Predation:* Lepidomeda vittata *and Nonnative Salmonids in Eastern Arizona*, 62 W. N. Am. Naturalist 197, 205 (2002) (recommending "removing nonnative salmonids and re-establishing [Little Colorado spinedace] in areas they historically inhabited"); Anthony T. Robinson et al., *Habitat Use by Nonnative Rainbow Trout,* Oncorhynchus mykiss*, and Native Little Colorado Spinedace,* Lepidomeda vittata, 68 Env't Biology Fishes 205, 213 (2003) ("[W]e recommend management actions that minimize rainbow trout densities in streams and thus lessen potential negative interactions with native species.").
[96] Little Colorado Spinedace 5-Year Review (2008). In 2018, the Service walked back this uplisting recommendation despite recognizing that "the future outcome may still be as we predicted in 2008"—"the spinedace may be on the brink of extinction." Little Colorado Spinedace 5-Year Review (2018), at 3–4.
[97] Skyler C. Hedden et al., *Translocation Prevents the Extirpation of a Threatened Minnow During Ongoing Drought and Nonnative Species Invasions*, J. Fish & Wildlife Mgmt., June 2024, at 127, 132.
[98] 79 Fed. Reg. 38678, 38679–80, 38684–85, 38688 (Aug. 7, 2014).
[99] *Id.*
[100] *Id.* at 38689, 38692.
[101] *See id.* at 38682, 38686 (listing dozens of historic population sites as "likely not viable").

sport fishes like bass or crappie have spines that can injure or kill gartersnakes attempting to eat them.[102] Instead of providing a reliable food source, many nonnative sport fishes attack juvenile gartersnakes and outcompete adult gartersnakes for prey.[103]


Northern Mexican gartersnake and narrow-headed gartersnake
Respective photo credits: U.S. Fish & Wildlife Service; (c) Pierson Hill

vii. Razorback Sucker (*Xyrauchen texanus*) & Bonytail (*Gila elegans*)

The razorback sucker and bonytail are two "big-river" fishes that once dominated the mainstem of the Colorado River and its tributaries before dams and nonnative fish permanently changed the ecology of the River.[104] When the Service listed the bonytail as endangered in 1980, the species was nearly extinct and some of the only remaining individuals were brought into captivity.[105] Now, both species are almost entirely reliant on reintroductions to sustain wild populations.[106] Conservation programs have spent over $1 billion attempting to recover these fishes and other imperiled species of the Colorado River,[107] but reintroduced razorback sucker and bonytail rarely recruit a second generation because nonnative sport fish—from fathead minnow to rainbow trout—feed on juveniles before they can reach adulthood.[108]

---

[102] *See, e.g.*, Erika M. Nowak & Manuel A. Santana-Bendix, Final Report to Arizona Game and Fish Department: Status, Distribution, and Management Recommendations for the Narrow-headed Gartersnake (*Thamnophis rufipunctatus*) in Oak Creek, Arizona, at 25–26 (Oct. 2002); 79 Fed. Reg. 38678, 38688 (Aug. 7, 2014).
[103] *See, e.g.*, 79 Fed. Reg. 38678, 38688 (Aug. 7, 2014) ("[W]hatever benefits fingerling brown trout present for narrow-headed gartersnakes are likely off-set by effects of brown trout predation on important native fish species, and possible effects to recruitment of narrow-headed gartersnakes through predation.").
[104] *See* Rolston (1991), at 104; *see generally* W.L. Minckley et al., *Management Toward Recovery of the Razorback Sucker*, *in* Battle Against Extinction: Native Fish Management in the American West, at 303 (W.L. Minckley & James E. Deacon eds., 1991).
[105] U.S. Fish & Wildlife Serv., Bonytail (*Gila elegans*) 5-Year Review, at 1–2 (2019).
[106] *Id.* at 2; U.S. Fish & Wildlife Serv., Species Status Assessment Report for the Razorback Sucker *Xyrauchen texanus*, at xi (Aug. 2018) [hereinafter "Razorback Sucker SSA (2018)"].
[107] *E.g.*, Razorback Sucker SSA (2018), at 45–47.
[108] *See* Carpenter & Mueller (2008), at 237, 240 ("Unless predatory impacts by small nonnative fishes on larval razorback suckers are addressed, recovery of this endangered species will be limited."); *see also* Gordon A. Mueller, U.S. Geological Survey, Scientific Investigations Report 2006-5065: Ecology of Bonytail and Razorback Sucker and the Role of Off-Channel Habitats in Their Recovery, at 46–48 (2006) ("This study supports the belief . . . that predation by nonnative fishes is the primary cause for recruitment failure for these species." (internal citations omitted)).


Razorback sucker and Bonytail
Respective photo credits: USFWS Mountain-Prairie, Public Domain Mark;
USFWS Fish and Aquatic Conservation, Public Domain Mark

* * *

On top of effects from nonnative sport fish, these threatened and endangered species are in the crosshairs of climate change. The Southwest is already in the midst of a multidecadal drought.[109] Climate change will make this increased aridity the new normal, growing human populations will demand more water, and, as a result, aquatic habitat will become even more scarce.[110] This will amplify the effects of nonnative fish on native aquatic species by confining both groups into warmer, slower-moving waters that generally favor nonnative fish.[111] Even where drought or wildfire are the primary cause of declining native fish populations, "the long-term resilience of these fish assemblages may be lessened because of continued presence, albeit low abundance of nonnative fishes and impediments to movement by native fishes among associated reaches."[112]

C. The 2021–2031 Stocking Program

Despite the best available scientific data overwhelmingly showing that nonnative fish are preventing the survival and recovery of Arizona's ESA-listed and other native aquatic species,[113] in 2021 the Service approved Arizona's ten-year plan for using federal funds to support the state's sport fish stocking program, wherein AGFD proposed to stock up to 200

---

[109] 2021 BiOp, at 1057.
[110] *See* Albert Ruhí et al., *Declining Streamflow Induces Collapse and Replacement of Native Fish in the American Southwest*, 14 Frontiers Ecology & Env't 465 (2016); Kristin L. Jaeger et al., *Climate Change Poised to Threaten Hydrologic Connectivity and Endemic Fishes in Dryland Streams*, 111 PNAS 13894 (2014).
[111] *See* Ruhí et al. (2016); Jaeger et al. (2014).
[112] David L. Propst et al., *Natural Flow Regimes, Nonnative Fishes, and Native Fish Persistence in Arid-Land River Systems*, Ecological Applications, Aug. 2008, at 1236, 1248–49.
[113] *See, e.g.*, Clarkson et al. (2005), at 24 (compiling decades of expertise and peer-reviewed literature before concluding that "management agencies need to designate watersheds or sub-watersheds for exclusive establishment of either native fisheries or nonnative sport fisheries. There is just no other way to retain both fishery types.").

million sport fish across 104 open waterbodies.[114]

The 2021–2031 stocking program is largely a continuation of past stocking, but it abandons the vast majority of the conservation and mitigation measures adopted under the 2011 BiOp and accompanying Conservation and Mitigation Program ("CAMP"). In the 2011 BiOp, the Service recognized that funding this significant harm to Arizona's ESA-listed species requires, at minimum, substantial conservation and mitigation measures to benefit these species. As a result, the Service required AGFD to spend a minimum of $500,000 each year to implement the 2011–2021 CAMP.[115] CAMP's requirements included restoring populations of threatened and endangered species,[116] removing stressors currently degrading habitat, and developing a watershed-based management program.[117] With these measures, the Service concluded that the 2011–2021 stocking program "would represent a substantial contribution to the conservation" of listed species.[118] The 2021–2031 stocking program abandons most of these conservation measures and is thus significantly more harmful to threatened and endangered species.

Under the 2021–2031 stocking program, nonnative sport fish are being stocked across Arizona's major river systems, including the Verde, Salt, Little Colorado, Santa Cruz, Bill Williams, and mainstem Colorado River watersheds. In many of Arizona's healthiest remaining waters, the 2021–2031 stocking program threatens native species' only remaining populations. Where native species have already been extirpated and require habitat restoration to recapture their historic range, the stocking program pushes recovery further out of reach. Numerous areas of designated critical habitat "essential to the conservation"[119] of threatened and endangered species are being stocked with nonnative sport fish. Compared to past stocking, the 2021–2031 stocking program adds new stocking sites and removes seasonal restrictions for many continued stocking sites.[120]

---

[114] *See* 2021 EA, at 2; 2021 BiOp app. A. "Open" refers to stocking sites that are hydrologically connected other waterbodies, thus allowing stocked sport fish to escape upstream or downstream. The Service also funds the stocking of nonnative sport fish in "closed" waterbodies, but largely assumes that stocking in closed waterbodies will have negligible effects on threatened or endangered species. This distinction is important for evaluating how nonnative sport fish stocked at a given site will impact the broader ecosystem, but it should not distract from the fact that many "open," yet allegedly isolated, waterbodies are themselves crucial habitat for threatened and endangered species. Moreover, even nonnative sport fish that never escape from their intended stocking site can harm native aquatic species. However. the Center is not seeking to halt or reduce the stocking of closed waterbodies in the AGFD's Community Fishing Program.

[115] *See* U.S. Fish & Wildlife Serv. & Ariz. Game & Fish Dep't, Sport Fish Stocking Conservation and Mitigation Program (2011) [hereinafter "2011 CAMP Plan"].

[116] CAMP required AGFD to secure or reintroduce multiple populations of Chiricahua leopard frog, loach minnow, Northern Mexican garternsake, narrow-headed gartersnake, headwater chub, roundtail chub, and Northern leopard frog. *See* 2011 BiOp, at 480–81.

[117] *See generally* 2011 BiOp, at 474–510.

[118] *See, e.g.*, 2011 BiOp, at 78 (describing benefits to Chiricahua leopard frog); *see also id.* at 104 (same for Gila topminnow); *id.* at 162–63 (same for Little Colorado spinedace); *id.* at 190 (same for loach minnow); *id.* at 222–23 (same for razorback sucker); *id.* at 234 (same for Sonoran tiger salamander); *id.* at 231 (same for southwestern willow flycatcher); *id.* at 271 (same for spikedace); *id.* at 289 (same for headwater chub); *id.* at 330 (same for Northern Mexican gartersnake); *id.* at 385 (same for narrow-headed gartersnake); *id.* at 407 (same for northern leopard frog).

[119] 16 U.S.C. § 1532(5).

[120] *See generally* 2021 BiOp, app. A.

The 2021–2031 stocking program includes a variety of both warm water and cold water fishes, but the vast majority of funding goes towards cultivating, sterilizing, and transporting triploid rainbow trout to habitats in which these fish can barely survive.[121] These rainbow trout are poorly adapted to many of Arizona's reservoirs and streams, so an "enormous" budget is required to stock sites as frequently as multiple times a week—masking the fact that many of these rainbow trout are being left to die in unnatural habitats.[122] Yet in waterbodies where the Service funds the stocking of triploid rainbow trout at high frequencies and quantities, the fishes can become a constant stressor on native species just like a population of invasive fishes.[123]

The following examples show how stocking harms ESA-listed species—the subject of the 2021 BiOp—but stocking is only one of the sport fish management activities that the Service funds in Arizona. Each of the Service's annual SFRA grants provides AGFD with a total of $7–9 million,[124] which covers the 2021–2031 stocking program, as well as other activities that maintain existing populations of nonnative sport fish, such as managing habitat to benefit nonnative species over native species.[125] Therefore, the stocking actions described below are additional threats to ESA-listed species, on top of the populations of nonnative species already present across the landscape, some of which are kept alive with federal funds. Without adequate conservation and mitigation measures, this unscientific approach to sport fish management will extirpate even more populations of native aquatic species and hinder the recovery of those that remain.

i. The Verde River Watershed

The Verde River is one of the most biodiverse watersheds in Arizona, primarily because it has relatively few dams or diversions.[126] So although nonnative fish and land development have crowded out many populations of the native fish and wildlife,[127] the Verde and its tributaries create important opportunities to restore habitat for threatened or endangered species.[128]

---

[121] *See* 2021 BiOp, at 948–64.
[122] *See* Zachary S. Beard et al., Ariz. Game & Fish Dep't, Technical Guidance Bulletin No. 17, Fate of Stocked Trout in Arizona Streams, at 9–12 (June 12, 2019).
[123] *See* 2021 BiOp, at 1011–12.
[124] U.S. Fish & Wildlife Serv., *Sport Fish Restoration Apportionments*, Wildlife TRACS, *available at* https://tracs.fws.gov/sportFishRestorationApportionments.html (last visited Jan. 15, 2026). The annual SFRA grants account for roughly 65 percent of the cost of implementing these actions; the State of Arizona pays the remaining 35 percent of the cost. 2021 EA, at 255.
[125] These non-stocking projects can threaten native species just as much as stocking because, according to the Service, "the majority of the species proposed for stocking already maintain existing populations . . . in various waterbodies throughout the state." 2021 EA, at 41. The Service's SFRA decisions, however, largely ignore the additive effects of supporting these existing populations. *See infra* Legal Violations.
[126] *See* Jeanmarie A. Haney et al., Ecological Implications of Verde River Flows: A Report by the Arizona Water Institute, The Nature Conservancy, and the Verde River Basin Partnership, at 51 (Feb. 2008); Nicholas V. Paretti et al., U.S. Geological Survey Scientific Investigation Report 2017–5100: Preliminary Synthesis and Assessment of Environmental Flows in the Middle Verde River Watershed, Arizona, at 2 (2017).
[127] *E.g.*, Paretti et al. (2017), at 93.
[128] Per the Service's Verde River Watershed Focus Area Plan, "restoration and management of tributary and river reaches for native fish, in combination with other non-native fisheries and watershed management actions, will be necessary to restore self-sustaining populations of native species to the watershed." U.S. Fish & Wildlife Serv., Strategic Habitat Conservation: Verde River Watershed Focus Area Plan, Arizona, at 5 (Sept. 2009).

For instance, the Upper Verde remains one of the rare stretches of river in Arizona where at least some native species persist in mainstem habitat.[129] But in the Upper Verde's headwaters, stocking sites are putting some of the most destructive nonnative fish—largemouth bass and channel catfish—into Watson Lake, Goldwater Lake, and Willow Creek Reservoir.[130] When these lakes spill, the fish can be washed down Granite Creek to its confluence with the Upper Verde.[131] As the Bureau of Reclamation noted in response to the Service's approval of the 2021–2031 stocking program, "[a]n extensive effort is underway to restore the upper Verde River native fish community. . . . The fish community in Watson Lake poses a threat to the restoration efforts of the upper Verde River through direct stocking and indirect effects of illegal bait bucket dumping."[132] If the Service is going to continue funding these stocking sites, it must do more to conserve ESA-listed species and their habitat in the Upper Verde.

In Spring Creek, recovering populations of spikedace and Gila topminnow are protected by a one-way fish barrier that prevents nonnative fish in Oak Creek from travelling upstream into Spring Creek.[133] However, surveys have also detected spikedace travelling out of Spring Creek and into Oak Creek,[134] and instead of helping this species recolonize its critical habitat in Oak Creek, the stocking program increases the number of nonnative fish in Oak Creek. These nonnative fish threaten any spikedace or Gila topminnow that travel downstream, as well as populations of narrow-headed gartersnake and Northern Mexican gartersnake.[135] This example shows how unmitigated sport fish stocking perpetuates habitat fragmentation and jeopardizes the continued existence of ESA-listed species that require interconnected metapopulations to withstand threats.[136]

ii. The Salt River Watershed

Originating on the Mogollan Rim and flowing south out the Tonto and Apache-Sitgreaves National Forests, the Salt River Watershed supports narrow-headed and Northern Mexican gartersnakes, Chiricahua leopard frogs, spikedace, and other native species. Nonnative fish are already a threat throughout the watershed[137] and the 2021–2031 stocking program adds significant effects to this degraded baseline without adequate conservation or mitigation measures.

---

[129] John N. Rinne, *Fish and Aquatic Organisms*, *in* U.S. Forest Serv., RMRS-GTR-291, Synthesis of Upper Verde River Research and Monitoring 1993-2008, at 189, 189 (Daniel G. Neary et al., eds., 2012).
[130] *See* 2021 BiOp, at 961–62 (showing that between 2021 and 2031, up to 1,330,000 channel catfish, largemouth bass, bluegill sunfish, rainbow trout, brown trout, Gila trout, and black crappie could be stocked in Watson Lake; 830,000 into Goldwater Lake; and 1,090,000 into Willow Creek Reservoir).
[131] *E.g.*, 2021 BiOp, at 840–41.
[132] 2021 EA, at 248.
[133] Tiffany S. Love-Chezem & Chase A. Ehlo, U.S. Fish & Wildlife Serv., Report U.S. Bureau of Reclamation, Barrier Monitoring 2020: Spring Creek, at 4 (2020), *available at* https://www.usbr.gov/lc//phoenix/biology/azfish/pdf/SpringCreekBarrier2020.pdf.
[134] *E.g.*, *id.* at 2; *see also* 2021 BiOp at 963–64 (between 2021 and 2031, showing up to 600,000 rainbow trout and/or Gila trout (if available) could be stocked in Oak Creek).
[135] *See* 79 Fed. Reg. 38678, 38682–87 (July 8, 2014).
[136] *See generally* Jaeger et al. (2014); Hedden et al. (2022).
[137] *E.g.*, 79 Fed. Reg. 38678, 38690 (Aug. 7, 2014) (describing results of gartersnake surveys (Holycross et al. 2006) that found nonnative fish at "75 percent of the sample sites in the Salt River subbasin").

At Roosevelt Lake, the watershed's largest stocking site, the Service already determined that it "is not, and will never be, suitable habitat for the northern Mexican gartersnake because of its management as a sport fishery."[138] This may be true, but without adequate safeguards preventing the spread of nonnative sport fish, this dead-zone for native species will expand further upstream into Tonto Creek and threaten to wipe out one of the four remaining Northern Mexican gartersnake populations in the United States.[139]

In the Salt River's headwaters, previously stocked populations of invasive brown trout threaten native species.[140] Instead of addressing the effects of the highly predatory invasive species, the Service is funding the stocking of additional nonnative trout that will perpetuate, if not increase, the impacts of existing populations, which have fragmented the distribution of narrow-headed gartersnakes and Chiricahua leopard frogs.[141]

iii. The Little Colorado River Watershed

In the headwaters of the Little Colorado River, a legacy of water withdrawals and nonnative sport fish stocking has left the Little Colorado spinedace with a "limited, highly fragmented distribution and relatively low numbers, making it highly vulnerable to stressors."[142] The Service is continuing to fund stocking throughout the watershed and has abandoned seasonal stocking restrictions in place since 1995 to prevent the "three sites that are most likely to have adverse effects to spinedace (CC Cragin Reservoir, Knoll Lake, and Nelson Reservoir)" from being stocked with rainbow trout before spring snowmelt floods have finished.[143]

When these reservoirs inevitably spill, sterile rainbow trout stocked in these sites will flood downstream into Little Colorado spinedace habitat and add to the baseline threats of invasive green sunfish, smallmouth bass, and crayfish.[144] One of the only safeguards the Service mandates in the 2021 BiOp is to check the stomachs of stocked rainbow trout for the bodies of Little Colorado spinedace, despite the fact that rainbow trout digest larval native fish almost immediately and have adverse effects beyond predation.[145]

---

[138] *Id.*
[139] *Id.*
[140] *See* U.S. Fish & Wildlife Serv. & Ariz. Game & Fish Dep't, Biological Assessment of the Arizona Game and Fish Department's Statewide Sport Fish Stocking Program 2021-2031, at 114–15 (2021).
[141] *E.g.*, 2021 BiOp, at 614 ("While stocking fingerling brown trout ensures the species' continued existence in the area, and by extension, its effect on narrow-headed gartersnakes, the gartersnake has persisted at moderate to low density with brown trout, and we anticipate no obvious shift in this ecological dynamic in the near- to intermediate-term.").
[142] U.S. Fish & Wildlife Serv., Little Colorado Spinedace Recovery Plan: Amendment 1, at 2 (2019).
[143] 2011 BiOp, at 159; *see also* U.S. Fish & Wildlife Serv., Biological Opinion of Federal Aid's Transfer of Funds to the Arizona Game and Fish Department for Nonnative Fish Stocking Nelson Reservoir, Blue Ridge Reservoir, and Knoll Lake (Nov. 20, 1995).
[144] *See* 2021 BiOp, at 461; Little Colorado Spinedace 5-year Review (2008), at 8–9 ("Though spinedace may remain extant in areas with a few or reduced non-natives, multiple predators may result in enhanced negative effects to spinedace."); *see also* Bryan et al. (2002), at 55 ("The presence of multiple predators (crayfish and trout) in streams occupied by spinedace may be a driving force behind the decline of the species.").
[145] 2021 BiOp, at 516.

iv. The Santa Cruz River Watershed

In the Santa Cruz watershed, water withdrawals have dried-up most mainstem river habitat.[146] With less water to go around, each nonnative fish has an even larger impact on aquatic habitats. The planned stocking at Peña Blanca Lake, Patagonia Lake, Rose Canyon Lake, Arivaca Lake, and Parker Canyon Lake will harm Chiricahua leopard frog, Northern Mexican gartersnake, Gila topminnow, and Gila chub.[147]

Most notably, at Peña Blanca Lake, the Service is funding the extirpation of "one of the largest single populations throughout the [Chiricahua leopard frog's] range."[148] In 2009, Peña Blanca Lake was renovated to remove invasive bull frogs and two years later there was a population of 300 to 500 Chiricahua leopard frogs.[149] But after eight years of stocking rainbow trout and a suite of warmwater sport fish, the Chiricahua leopard frog population is almost extirpated: A survey in April 2019 found two individuals and a follow up in September 2019 found zero.[150] Despite this clear evidence of decline, the 2021 BiOp concludes that "the presence of rainbow trout does not appear to preclude the presence of Chiricahua leopard frogs at [Peña Blanca Lake], as they are still present."[151]

This conclusion arbitrarily downplays the threat posed by rainbow trout, and ignores the fact that the Service's annual SFRA grants also fund projects that maintain or increase existing populations of nonnative fish.[152] At Peña Blanca Lake, the Service's annual SFRA grants are also funding the installation of underwater habitat structures to increase populations nonnative "forage fish" and feed a growing population of predatory largemouth bass.[153] In a 2025 biological assessment, the Service concluded that enhancing the largemouth bass population is not likely to adversely affect the Chiricahua leopard frog because "nonnative fish already preclude frog occupancy and breeding."[154] The Service's 2025 biological assessment fails to mention that these fish were stocked using SFRA funds between 2011–2025, thus ignoring the clear need for mitigation and conservation measures that address the effects of the SFRA funding as a whole.

v. The Bill Williams River Watershed

The 2021–2031 stocking program also threatens to spread invasive species, including largemouth bass and channel catfish, into otherwise uninvaded habitat in the Bill Williams

---

[146] *See* 2021 BiOp, at 141–42.
[147] *See* 2021 BiOp, at 276–80, 313–14, 358–65, 714–22.
[148] 77 Fed. Reg. 16324, 16350 (Mar. 20, 2012).
[149] 77 Fed. Reg. 16324, 16350 (Mar. 20, 2012).
[150] Cody D. Mosley et al., Ariz. Game & Fish Dep't, Chiricahua Leopard Frog Recovery in Arizona 2019, at 14 (2020).
[151] 2021 BiOp, at 278.
[152] *See* 2021 BiOp, at 277–78; U.S. Fish & Wildlife Serv., Sport Fish Restoration Compliance Approval for AZ FW-100-P-32/F24AF02295 EAC # M24-0207111358, Project: Pena Blanca Lake Natural and Artificial Fisheries Habitat Improvement (May 6, 2025).
[153] *See* U.S. Fish & Wildlife Serv., Concurrence for Peña Blanca Lake Natural and Artificial Fisheries Habitat Improvement (2025-0046616), at 3 (May 5, 2025).
[154] *Id.*

Watershed.[155] These two fishes occupy approximately 25 percent of surveyed waters in the Lower Colorado River Basin,[156] but are not yet established in Northern Mexican gartersnake habitat in the Bill Williams watershed.[157] The Service "d[oes] not anticipate an appreciable change to existing aquatic communities" when introducing invasive species to these relative strongholds for native species,[158] in blind defiance of the best available scientific data showing that largemouth bass and channel catfish are two of the most invasive and harmful fish in Arizona's waters.[159]

vi. The Colorado River

The 2021–2031 stocking program includes stocking sites on the mainstem Colorado River, where any additional threats jeopardize the continued existence of the highly imperiled razorback sucker and bonytail.[160] Nonnative fish make it nearly impossible for these two native fishes to reproduce in the wild, yet the Service is funding the stocking of thousands of channel catfish, largemouth bass, and bluegill into La Paz County Lagoon.[161] The Service's own analysis explains the arbitrary nature of this funding decision:

> Larval razorbacks use quiet water areas as nurseries, and the Lagoon is one of the few available in [the Colorado River below Parker Dam]. . . . All the species proposed for stocking are capable of [predation] on larval or post-larval razorbacks that may be in the backwater. The proposed action allows for stocking at any time of year, which may include the razorback sucker spawning period.[162]

This exemplifies the fallacy of the 2021–2031 stocking program and the 2021 BiOp: The Service readily admits that "[c]ontinued stocking of nonnative sport fish does not support achievement of recovery goals,"[163] yet it concludes that its own central role in funding such continued stocking will not jeopardize the continued existence of the many impacted ESA-listed species or destroy or adversely modify their designated critical habitat.[164]

---

[155] 2021 BiOp, at 39–40, 948–49 (showing plans to stock thousands of these fishes in waters where they were absent).
[156] Olden & Poff (2005), at 83.
[157] *See* 2021 BiOp, at 692; *see also* Thomas K. Pool & Julian D. Olden, *Assessing Long-Term Fish Responses and Short-Term Solutions to Flow Regulation in a Dryland River Basin*, 24 Ecology Freshwater Fish 56, 60–61 (2014).
[158] *See* 2021 BiOp, at 695.
[159] *E.g.*, Olden & Poff (2005), at 84 ("Perhaps our most striking result is that red shiner, fathead minnow, green sunfish, largemouth bass, western mosquitofish and channel catfish are the among the fastest expanding invaders in the [Lower Colorado River Basin], and these species have also been identified by expert ichthyologists as having the greatest negative impacts on native fish communities." (citations omitted)).
[160] Other state and federal programs stock or management nonnative sport fish populations throughout the Colorado River and its tributaries, including SFRA projects that the Service and AGFD artificially segment from the statewide program. *See, e.g.*, U.S. Fish & Wildlife Serv., Biological Opinion for the Intra-Service Section 7 Consultation to Fund Lees Ferry Rainbow Trout Stocking Conducted by the Arizona Game and Fish Department (May 25, 2018).
[161] *See* 2021 BiOp, at 770–771; 968–69.
[162] *Id.* at 771.
[163] *Id.* at 772.
[164] Regarding the razorback sucker, the Service has gone so far as stating that the effects of nonnative fish removal "are thought to be smaller" in Arizona than in other parts of the species' range "because of the continued desire for nonnative sportfish in the major reservoirs of the Southwest. If elimination of nonnative fishes were possible, it

LEGAL VIOLATIONS

The Service's actions regarding the 2021–2031 stocking program, the 2021 BiOp, and its annual SFRA awards violate the ESA. To reiterate, the Service's implementation of SFRA in Arizona is not limited to the 2021–2031 stocking program; it includes a broader list of projects that manage existing populations of nonnative sport fish. Although the Service isolates projects for the purposes of ESA compliance or long-term planning—*e.g.*, the 2021 BiOp addresses ten years of SFRA-funded sport fish stocking, but not management—the Service reviews and funds all of these projects in the same annual SFRA awards. Following its approval of the 2021–2031 stocking program, the Service has awarded funding based on AGFD's annual "comprehensive management system" award proposals, which lay out the SFRA-funded projects that AGFD plans to implement each year. These annual decisions rely on the Service's 2021 BiOp and other ESA Section 7 consultations to segment the Service's analysis of the effects of funding of AGFD's comprehensive management system.[165] Accordingly, the Service's approval of SFRA projects at the multi-year level, its ESA Section 7 consultation on those approvals as the expert agency, and its annual grant decisions are final agency actions subject to judicial review. The Service and AGFD rely on this Section 7 consultation to authorize the take of ESA-listed species. These actions violate the ESA in the following respects:

I. The 2021 BiOp Is Arbitrary, Capricious, and Contrary to ESA Section 7(a)(2)

The 2021 BiOp purports to analyze the effects of funding Arizona's 2021–2031 stocking program and concludes that the 2021–2031 stocking program is not likely to jeopardize any threatened or endangered species or destroy or adversely modify critical habitat. The APA prohibits agency action that is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law."[166] Agency action is arbitrary and capricious if it "relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise."[167] The ESA further requires that the Service "use the best scientific and commercial data available" when preparing a biological opinion.[168] The 2021 BiOp is arbitrary and capricious, and contrary to the ESA in at least five respects.

First, the 2021 BiOp fails to adequately consider the best available scientific data when describing the pre-action condition, environmental baseline, effects of the action, and cumulative effects for each threatened or endangered species and their critical habitat.[169] This includes, but is not limited to, the literature in Appendix A to this notice on the effects of nonnative fish—particularly rainbow trout, stocking site connectivity, habitat fragmentation,

---

may be politically untenable for some species." Razorback Sucker SSA (2018), at 116–17. The ESA requires the Service to conserve species based on the best available science, not political whims.

[165] *See* 50 C.F.R. § 402.14(c)(4).

[166] 5 U.S.C. § 706(2)(A).

[167] *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

[168] 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(d).

[169] *See* 50 C.F.R. §§ 402.02, 402.14(g).

and climate change.[170]

Second, the 2021 BiOp fails to add together the pre-action condition, environmental baseline, effects of the action, and cumulative effects when concluding that the 2021–2031 stocking program will not jeopardize ESA-listed species or destroy or adversely modify their critical habitat.[171] This failure overlooks the severe consequences that decades of SFRA funding have had on ESA-listed species and how the 2021–2031 stocking program further diminishes the status of these species and their critical habitat. It also overlooks effects to the recovery of ESA-species, namely, whether the proposed stocking will "tip a species from a state of precarious survival into a state of likely extinction."[172]

Third, the 2021 BiOp arbitrarily fails to include all consequences in the "effects of the action" section, which must include the continuation of past stocking.[173] It unlawfully focuses "on the effects of the *changes* in the proposed operations, thereby silently including existing operations as part of the baseline."[174] A jeopardy analysis that compares the proposed action to past actions allows ESA-listed species to be "gradually destroyed" on a "slow slide into oblivion."[175]

Fourth, the 2021 BiOp arbitrarily fails to consider the effects of the Service's annual SFRA grants "as a whole."[176] The annual grants that fund the 2021–2031 stocking program also fund non-stocking projects that are harming ESA-listed species and their critical habitat, such as maintaining habitat to enhance populations of previously stocked sport fish.[177] The 2021 BiOp's failure to include these non-stocking projects as part of the environmental baseline, effects of the action, or cumulative effects is arbitrary, capricious, and contrary to the ESA.

Fifth, the no-jeopardy and no-destruction-or-adverse-modification conclusions in the 2021 BiOp unlawfully rely on mitigation measures for which alleged conservation benefits are not reasonably likely to occur, particularly given the lack of a "description of specific projects

---

[170] *See, e.g.*, *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.,* No. 3:01-cv-640-SI, 2026 U.S. Dist. LEXIS 38543, at *37 (D. Or. Feb. 25, 2026) ("[I]f [the Proposed Action] kills more salmonids because they are weakened by the effects of climate change, or if the amount of salmonids killed by [the Proposed Action] is more of a threat to the sustainability of the species because they are dying in greater numbers due to climate change, that is the reality in which [the Service] must assess the effects of the Proposed Action.").

[171] *See* 16 U.S.C. § 1536(a)(2); 50 C.F.R. §§ 402.02, 402.14(g).

[172] *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 524 F.3d 917, 930 (9th Cir. 2008)

[173] *See* 50 C.F.R. § 402.02; *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.,* 2026 U.S. Dist. LEXIS 38543, at *26 ("A consultation . . . must . . . analyze 'the effects of all of the discretionary operations' of a proposed action, 'even those operations that the Federal agency proposes to keep the same.'" (quoting 84 Fed. Reg. 44976, 44978 (Aug. 27, 2019)).

[174] *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.,* 2026 U.S. Dist. LEXIS 38543, at *28; *see* 50 C.F.R. § 402.02 ("Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action . . . ."); 2021 BiOp, at 19–20 ("For stocking sites where the proposed action is the continuation of past stocking program, the analysis carries forward the consequences (direct, indirect, and inter-dependent/inter-related effects) in the Environmental Baseline and are carried forward at the same level into the 10-year future covered by this consultation.").

[175] *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 524 F.3d at 930.

[176] 50 C.F.R. § 402.14(c)(4).

[177] The habitat enhancement project at Pena Blanca Lake is just one example. *See supra* Factual Background, Part C.iv. The Service approves and funds a suite of projects described in AGFD's annual Comprehensive Management System Award Proposals.

nor any assessment of the benefits to the species or habitat of any detailed project."[178] The best available scientific data shows that is unlikely that the alleged benefits will occur, especially given the numerous threats facing these threatened and endangered species. Further, the 2021 BiOp lacks an independent assessment from the Service of whether additional reasonable and prudent measures beyond AGFD's existing plans are necessary or appropriate.[179]

For these and additional reasons, the 2021 BiOp is arbitrary, capricious, and violates ESA Section 7(a)(2).

II. The ITSs in the 2021 BiOp Are Arbitrary, Capricious, and Contrary to ESA Section 7(b)(4)

The 2021 BiOp includes dozens of site- and species-specific ITSs, of which at least twenty-five violate the ESA. An ITS must specify the impact of incidental take on the species, specify the reasonable and prudent measures the Service considers necessary or appropriate to minimize such impact, and set forth the terms and conditions, including reporting requirements, that the action agency must comply with.[180] The Service may use a "surrogate," such as habitat or ecological conditions, to specify the amount of incidental take if the ITS: (a) "Describes the causal link between the surrogate and take of the listed species"; (b) "explains why it is not practical to express the amount or extent of anticipated take or to monitor take-related impacts in terms of individuals of the listed species": and (c) "sets a clear standard for determining when the level of anticipated take has been exceeded."[181]

Seventeen of the ITSs in the 2021 BiOp authorize the take of "all" individuals of a threatened or endangered species that encounter stocked fish from certain stocking sites. These ITSs violate the ESA because they fail to set a clear standard for determining when the level of anticipated take has been exceeded and fail to specify the impact of such incidental taking on the species.[182] As a result, these ITSs unlawfully fail to safeguard populations of Northern Mexican gartersnake,[183] Chiricahua leopard frog,[184] Gila chub,[185] Gila topminnow,[186] and razorback sucker.[187]

Similarly, eight ITSs use the total number of fish stocked as a surrogate to quantify take, but unlawfully fail to articulate an adequate causal connection between this surrogate and the

---

[178] *See Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 2026 U.S. Dist. LEXIS 38543, at *34; 50 C.F.R. § 402.02 ("A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur."); *id.* § 402.14(g)(8) ("Measures included in the proposed action or a reasonable and prudent alternative that are intended to avoid, minimize, or offset the effects of an action are considered like other portions of the action . . . .").

[179] 16 U.S.C. § 1536(b)(4) (requiring that the Service "specif[y] those reasonable and prudent measures that the [Service] considers necessary or appropriate to minimize" impacts on threatened or endangered species).

[180] *Id.* § 1536(b)(4)(c).

[181] 50 C.F.R. § 402.14(i)(1)(i).

[182] 16 U.S.C. § 1536(b)(4)(C); 50 C.F.R. § 402.14(i)(1)(i).

[183] 2021 BiOp, at 752.

[184] *Id.* at 291–95.

[185] *Id.* at 333–36.

[186] *Id.* at 381–83.

[187] *Id.* at 791.

species being taken.[188] These ITSs thus fail to specify the impact of such incidental taking on the species[189] and fail to safeguard populations of narrow-headed gartersnake,[190] Northern Mexican gartersnake,[191] and razorback sucker.[192]

For these and additional reasons, the ITSs in the 2021 BiOp are arbitrary, capricious, and violate the ESA.

III. The Service's Implementation of SFRA via the 2021 BiOp, the 2021–2031 Stocking Program, and Subsequent Grant Approvals Arbitrarily Fails to Ensure Against Jeopardy and the Destruction or Adverse Modification of Critical Habitat, in Violation of Sections 7(a)(2) and 7(d) of the ESA

As the action agency responsible for implementing SFRA, the Service is in flagrant violation of the ESA's mandate to ensure against jeopardy and the destruction or adverse modification of critical habitat.[193] ESA Section 7(a)(2) applies to "[e]ach federal agency" and "any action."[194] A Section 7 formal consultation must consider the effects of the action "as a whole"[195] and include "all consequences."[196] The Service's approval of the 2021–2031 stocking program and its annual SFRA funding decisions violate these requirements in two respects.

First, the Service is relying on an arbitrary, capricious, and illegal 2021 BiOp to support its approval of the 2021–2031 stocking program and its annual decisions that fund the 2021–2031 stocking program.[197] This reliance has violated and continues to violate the ESA's duty to ensure against jeopardy and the destruction or adverse modification of critical habitat.[198]

Second, the Service has issued and continues to issue these annual funding decisions without completing Section 7 consultation that considers all effects of the funding decisions "as a whole."[199] As noted above, the Service's annual approval of AGFD's comprehensive management system award proposals provides funding for Arizona's 2021–2031 stocking program—the subject of the 2021 BiOp—as well as funding for all of non-stocking projects in AGFD's comprehensive management system award proposals that are not covered by the 2021 BiOp, such as projects that manage aquatic habitat to benefit nonnative sport fish. The Service's annual approvals rely on individual consultations on stocking and non-stocking activities to comply with ESA Section 7(a)(2). Neither the 2021 BiOp nor any other individual consultations

---

[188] 50 C.F.R. § 402.14(i)(1)(i).
[189] 16 U.S.C. § 1536(b)(4)(C).
[190] 2021 BiOp, at 616–21.
[191] *Id.* at 750–55.
[192] *Id.* at 791.
[193] 16 U.S.C. § 1536(a)(2).
[194] *Id.*
[195] 50 C.F.R. § 402.14(c)(4)
[196] *Id.* § 402.02.
[197] *See* 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(a); *see also Pyramid Lake Paiute Tribe of Indians v. U.S. Dep't of Navy*, 898 F.2d 1410, 1415 (9th Cir. 1990) ("A federal agency cannot abrogate its responsibility to ensure that its actions will not jeopardize a listed species; its decision to rely on a FWS biological opinion must not have been arbitrary or capricious.").
[198] 16 U.S.C. § 1536(a)(2); *Wild Fish Conservancy v. Salazar*, 628 F.3d 513, 532 (9th Cir. 2010)
[199] *See* 50 C.F.R. §§ 402.02, 402.14(c)(4).

adequately consider all consequences of the annual funding decisions as a whole. Thus, the Service's annual funding decisions also violate ESA Section 7(a)(2) on this basis.[200]

Further, the Service's ongoing issuance of SFRA funding without complying with ESA Section 7(a)(2) is also a violation of ESA Section 7(d), which prohibits any irreversible or irretrievable commitment of resources that would foreclose the formulation or implementation of any reasonable or prudent alternative measures to minimize take of listed species.[201]

IV. The Service's Implementation of SFRA via the 2021 BiOp, the 2021–2031 Stocking Program, and Subsequent Grant Approvals Is Arbitrary, Capricious, and Violates ESA Section 7(a)(1)

Section 7(a)(1) of the ESA imposes an independent duty on the Service to utilize other programs that it implements (*e.g.*, non-ESA sources of authority) to further the ESA's purposes.[202] These purposes include "provid[ing] a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved."[203] The ESA further defines "conservation" 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 this Act are no longer necessary."[204] The APA's standard of review applies to these requirements and "[t]he absence of a reasoned explanation for disregarding previous factual findings" renders agency action unlawful.[205] Thus, the Service's failure to utilize SFRA to further the ESA's conservation purpose, in accordance with the Service's prior findings, is arbitrary, capricious, and contrary to the ESA.

The Service's utilization of SFRA contradicts its prior listing decisions, recovery plans, 5-year reviews, biological opinions, and conservation recommendations, which repeatedly recognize that recovering Arizona's ESA-listed aquatic species requires reducing effects from nonnative fishes. Compared to the 2011–2021 stocking program, the Service has arbitrarily abandoned many of the substantive mitigation and conservation measures that it determined would "contribute to the recovery and conservation of CAMP species."[206] Among these abandoned measures, the 2011–2021 CAMP required restoring populations of threatened and endangered species,[207] removing stressors currently degrading habitat, and developing a watershed-based management program.[208] CAMP also required that $500,000 of the roughly

---

[200] *See* 16 U.S.C. § 1536(a)(2).
[201] *See id.* § 1536(d).
[202] *Id.* § 1536(a)(1). Section 2(c) of the ESA reiterates this duty of all federal agencies to conserve threatened and endangered species. *Id.* § 1531(c).
[203] *Id.* § 1531(b).
[204] *Id.* § 1532(3).
[205] *Org. Vill. of Kake v. U.S. Dep't of Agric.*, 795 F.3d 956, 969 (9th Cir. 2015).
[206] 2011 BiOp, at 474. Most notably, the Service and AGFD developed a Conservation and Mitigation Program ("CAMP") for the 2011–2021 stocking program that conditioned the Service's annual SFRA grants on the completion of a suite of mitigation and conservation measures. *Id.* at 489 ("Only if suitable progress is made, as determined by [the Service], will grant funds be eligible for use in implementing the Statewide Sportfish Stocking Program.").
[207] CAMP required AGFD to secure or reintroduce multiple populations of Chiricahua leopard frog, loach minnow, Northern Mexican garternsake, narrow-headed gartersnake, headwater chub, roundtail chub, and Northern leopard frog. *See id.* at 480–81.
[208] *See generally id.* at 474–510.

$7.23 million annual SFRA funding package go towards implementing CAMP.[209] Relying on these measures, the Service concluded that the 2011–2021 stocking program "would represent a substantial contribution to the conservation" of listed species.[210]

The Service has failed to explain its decision to disregard the factual findings on which it relied when adopting CAMP. For instance, the Service has not addressed its 2011 recognition that AGFD's "ability to continue to provide sport fishing opportunities is closely tied to the continued conservation of native aquatic species."[211] Not only are most of CAMP's requirements missing from the 2021–2031 stocking program, the Service relegated some conservation measures to "recommendations" in the 2021 BiOp without explaining why the Service is not utilizing SFRA to implement these recommendations designed to "to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information."[212]

For these and additional reasons, the Service's failure to utilize its SFRA authority to further the conservation of threatened and endangered species impacted by the Service's implementation of SFRA is arbitrary, capricious, and contrary to the ESA.

V. The Service and AGFD Are Taking Threatened and Endangered Species in Violation of ESA Section 9

The ESA prohibits take of threatened and endangered species.[213] The term "take" means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."[214]

The Service's and AGFD's implementation of SFRA and SFRA-funded projects are ongoing violations of ESA Section 9 because these actions cause the take of listed species without a valid ITS or biological opinion. The 2021–2031 stocking program relies on the ITSs in the 2021 BiOp for authorization, but these ITSs are invalid and cannot provide authority for the ongoing take of listed species. The stocking program is causing ongoing take through numerous mechanisms including predation, resource competition, and pathogen introduction from nonnative sport fish, as well as the spread invasive bait fish, discarded fishing gear, and the intentional collecting or killing of non-sport aquatic species. The funding and implementation of non-stocking projects through SFRA are also ongoing violations of ESA

[209] *See* 2011 CAMP Plan; U.S. Fish & Wildlife Serv., *Apportionments Data*, Wildlife TRACS, *available at* https://tracs.fws.gov/sportFishRestorationApportionments.html (last visited June 11, 2026).
[210] *See, e.g.*, 2011 BiOp, at 78 (describing benefits to Chiricahua leopard frog); *see also id.* at 104 (same for Gila topminnow); *id.* at 162–63 (same for Little Colorado spinedace); *id.* at 190 (same for loach minnow); *id.* at 222–23 (same for razorback sucker); *id.* at 234 (same for Sonoran tiger salamander); *id.* at 231 (same for southwestern willow flycatcher); *id.* at 271 (same for spikedace); *id.* at 289 (same for headwater chub); *id.* at 330 (same for Northern Mexican gartersnake); *id.* at 385 (same for narrow-headed gartersnake); *id.* at 407 (same for northern leopard frog).
[211] 2011 BiOp, at 474.
[212] *E.g.*, 2021 BiOp, at 339.
[213] *See* 16 U.S.C. § 1538; 50 C.F.R. § 17.31.
[214] 16 U.S.C.§ 1532(19).

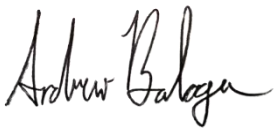
Section 9 to the extent those projects lack take coverage while maintaining nonnative sport fish populations that take listed species.[215]

CONCLUSION

The Service and AGFD have violated and continue to violate the ESA through their funding and implementation of SFRA in Arizona. By noticing these violations, the Center aims to ensure that federally funded sport fish stocking and management does not threaten the survival and recovery of Arizona's threatened and endangered fish and other aquatic species. Achieving the conservation measures necessary to protect and recover these imperiled species does not require putting a stop to recreational sport fishing. It merely requires the Service and AGFD to properly evaluate how their actions are harming ESA-listed species and balance these harms with adequate protections and recovery actions.

Please reach out to us at the contact information below if you would like to discuss this matter during the notice period.

Sincerely,



Drew Baloga
Associate Attorney, Endangered Species Program
Center for Biological Diversity
P.O. Box 11374
Portland, OR 97211
(971) 717-6402
dbaloga@biologicaldiversity.org

Lia Comerford
Senior Attorney, Endangered Species Program
Center for Biological Diversity
P.O. Box 11374
Portland, OR 97211
(971) 717-6420
lcomerford@biologicaldiversity.org

[215] For instance, the agencies' funding and implementation of habitat enhancement projects for previously stocked sport fish that are taking ESA-listed species violates ESA Section 9.

APPENDIX A: SELECTED LITERATURE

This is a representative subset of a wider body of literature that the Service has failed to adequately consider in its review and implementation of SFRA in Arizona. The sources are provided in chronological order.

Nonnative Sport Fish Stocking in Arizona: These sources exemplify literature showing that nonnative sport fish are far more significant contributor the ongoing decline of native aquatic species than the Service considers in its review and implementation of SFRA in Arizona.

- Battle Against Extinction: Native Fish Management in the American West (W.L. Minckley & James E. Deacon eds., 1991)
- Michael E. Douglas et al., *Indigenous Fishes of Western North America and the Hypothesis of Competitive Displacement:* Meda fulgida *(Cyprinidae) as a Case Study*, 1994 Copeia 9.
- Paul C. Marsh & Michael E. Douglas, *Predation by Introduced Fishes on Endangered Humpback Chub and Other Native Species in the Little Colorado River, Arizona*, 126 Transactions Am. Fisheries Soc'y 343 (1997).
- Robert W. Clarkson et al., *Conflicts Between Native Fish and Nonnative Sport Fish Management in the Southwest United States*, Fisheries, Sept. 2005, at 20.
- Paul C. Marsh & Carol A. Pacey, *Immiscibility of Native and Non-native Fishes*, *in* U.S. Fish & Wildlife Serv. & U.S. Bureau of Reclamation, *Restoring Native Fish to the Lower Colorado River: Interactions of Native and Non-native Fishes*, at 59 (2005).
- Julian D. Olden & N. LeRoy Poff, *Long-Term Trends of Native and Non-Native Fish Faunas in the American Southwest*, 28 Animal Biodiversity & Conservation 75 (2005).
- Charles B. Schade & Scott A. Bonar, *Distribution and Abundance of Nonnative Fishes in Streams of the Western United States*, 25 N. Am. J. Fisheries Mgmt. 1386 (2005).
- David L. Propst et al., *Natural Flow Regimes, Nonnative Fishes, and Native Fish Persistence in Arid-Land River Systems*, Ecological Applications, Aug. 2008, at 1236.
- Jeanette Carpenter & Gordon A. Mueller, *Small Nonnative Fishes as Predators of Larval Razorback Suckers*, Sw. Naturalist, June 2008, at 236.
- W.L. Minckley & Paul C. Marsh, Inland Fishes of the Greater Southwest: Chronicle of a Vanishing Biota (2009).
- Sarah E. Zahn Seegert et al., *High Diet Overlap Between Native Small-Bodied Fishes and Nonnative Fathead Minnow in the Colorado River, Grand Canyon, Arizona*, 143 Transactions Am. Fisheries Soc'y 1072 (2014).
- Standing Between Life and Extinction: Ethics and Ecology of Conserving Aquatic Species in North American Deserts (David L. Propst et al., eds., 2020).

Rainbow trout: These sources exemplify literature supporting that rainbow trout—the most frequently stocked sport fish in Arizona—poses far greater threats to native aquatic species than the Service considers in its review and implementation of SFRA in Arizona.

- Dean W. Blinn et al., *Effects of Rainbow Trout Predation on Little Colorado Spinedace*, 122 Transactions Am. Fisheries Soc'y 139 (1993).
- Scott D. Bryan et al., *Behavioral Responses of a Small Native Fish to Multiple Introduced Predators*, 63 Env't Biology Fishes 49 (2002).
- Michael D. Yard et al., *Trout Piscivory in the Colorado River, Grand Canyon: Effects of Turbidity, Temperature, and Fish Prey Availability*, 140 Transactions Am. Fisheries Soc'y 471 (2011).
- Daniel P. Whiting et al., *Macroinvertebrate Prey Availability and Food Web Dynamics of Nonnative Trout in a Colorado River Tributary, Grand Canyon*, 33 Freshwater Sci. 872 (2014).
- David L. Ward et al., *Are Hatchery-Reared Rainbow Trout and Brown Trout Effective Predators on Juvenile Native Fish?*, 38 N. Am. J. Fisheries Mgmt. 1105 (2018).
- Charles B. Yackulic et al., *Inferring Species Interactions Through Joint Mark-Recapture Analysis*, 99 Ecology 812 (2018).

Connectivity: These sources exemplify literature showing that the risk of sport fish stocking sites connecting to native fish habitat is far greater than the Service considers in its review and implementation of SFRA in Arizona.

- Robert W. Clarkson, *Effective of Electrical Fish Barriers Associated with the Central Arizona Project*, 24 N. Am. J. Fisheries Mgmt. 94 (2004).
- Jeanette Carpenter & James W. Terrell, USGS Fort Collins Science Center, Effectiveness of Fish Barriers and Renovations for Maintaining and Enhancing Populations of Native Southwestern Fishes (Sept. 27, 2005).
- Sally E. Stefferud & Jerome A. Stefferud, in Cooperation with Paul C. Marsh, Native Fish Lab, Ariz. State Univ., Fish Movement Through Intermittent Stream Channels: Report to the U.S. Bureau of Reclamation (Aug. 13, 2007).

Habitat Fragmentation: These sources exemplify literature showing that the many native species are at a far greater risk of extinction due to habitat fragmentation than the Service considers in its review and implementation of SFRA in Arizona.

- William F. Fagan et al., *Rarity, Fragmentation, and Extinction Risk in Desert Fishes*, 83 Ecology 3250 (2002).
- William F. Fagan et al., *Rarity, Fragmentation, and Scale Dependence of Extinction Risk in Desert Fishes*, 86 Ecology 34 (2005).

- Skyler C. Hedden et al., *Translocation Prevents the Extirpation of a Threatened Minnow During Ongoing Drought and Nonnative Species Invasions*, J. Fish & Wildlife Mgmt. June 2024, at 127.

Climate Change: These sources exemplify literature showing that climate change will enhance the threats of nonnative fish to a far greater extent than the Service considers in its review and implementation of SFRA in Arizona.

- Keith B. Gido et al., *Multidecadal Responses of Native and Introduced Fishes to Natural and Altered Flow Regimes in the American Southwest*, 70 Can. J. Fish. Aquatic Sci. 554 (2013).
- Kristin L. Jaeger et al., *Climate Change Poised to Threaten Hydrologic Connectivity and Endemic Fishes in Dryland Streams*, 111 PNAS 13894 (2014).
- Albert Ruhí et al., *Declining Streamflow Induces Collapse and Replacement of Native Fish in the American Southwest*, 14 Frontiers Ecology & Env't 465 (2016).