



**Programmatic Candidate Conservation Agreement with
Assurances
for
Least Chub (*Iotichthys phlegethontis*)**

Developed cooperatively by:

U.S. Fish and Wildlife Service, Utah Field Office

and

Division of Wildlife Resources, State of Utah

Tracking # TE136305-0

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I. Parties

This Programmatic Candidate Conservation Agreement with Assurances (CCAA), effective and binding on the date of the last signature below, is between the State of Utah Division of Wildlife Resources (UDWR) and the U.S. Fish and Wildlife Service (Service). Participating property owners may also be included under the CCAA by signing a Certificate of Inclusion (CI), subject to approval by UDWR and with the concurrence of the Service. Administrators of this CCAA are:

Service: Utah Field Office
2369 West Orton Circle, Suite 50
West Valley City, Utah 84119
801-975-3330

UDWR: Utah Division of Wildlife Resources
1594 W. North Temple
Salt Lake City, Utah 84114-6301
801-538-4700

 ACTING DIRECTOR 6/12/14

Director, Date
Utah Division of Wildlife Resources



for U.S. Fish & Wildlife Service Date
Field Supervisor, Utah Ecological Services Office 6-16-14

II. Responsibilities of the Parties

(a) Participating Property Owners (Permittee):

1. Enroll in the CCAA by completing and submitting a CI application (Appendix A), which will include conservation measures and detail the specific actions agreed upon by all parties. An approved CI will provide property owner protection under the 10(a)(1)(A) Enhancement of Survival Permit (Permit) associated with the CCAA if the species is listed under the Endangered Species Act (ESA). The approved and properly implemented CI will also provide assurances from the Service that it will not require the commitment of additional land, water, or financial compensation, or additional restrictions on the use of land, water, or other natural resources available for development or use under the original terms of the CCAA without the consent of the permittee.
2. Provide and allow access by the UDWR to the property for management and monitoring purposes. Terms of access will be agreed upon by all parties in advance and detailed in the CI.

(b) UDWR:

Implement and administer the CCAA as the 10(a)(1)(A) permit holder through the following actions:

1. Encourage enrollment of property owners under the CCAA through CIs when their property is occupied or potentially suitable habitat of the least chub.
2. Work with property owners to ensure CIs incorporate applicable conservation strategies consistent with the conservation actions stated in Section VII of this document. These actions are based on the least chub Conservation Agreement and Strategy (Bailey *et al.* 2005), or any future revisions.
3. Review and sign CIs. At least 30 days prior to enrolling participating property owners under this CCAA, UDWR will provide the completed CI to the Service for concurrence and signature.
4. Be the primary party responsible for conducting monitoring activities as specified in Sections XII and XIII of this CCAA.
5. Work with property owners to ensure appropriate implementation of the provisions of CIs.

6. Submit an annual report (due December 31 of each year) to the Service that documents activities implemented and a summary section of each CI for the overall programmatic CCAA.

(c) Service:

1. Issue a permit to UDWR, under section 10(a)(1)(A) of the ESA, in accordance with 50 CFR 17.22 and 17.32 (d), with a term of 35 years that will provide the UDWR with authorization for incidental take of least chub and provide regulatory assurances should the species be listed under the ESA in the future. The permit will authorize incidental take of least chub resulting from otherwise lawful activities on the lands enrolled under CIs and approved by UDWR and the Service. Along with the permit, the Service will provide assurances that it will not require the commitment of additional land, water, or financial compensation, or additional restrictions on the use of land, water, or other natural resources available for development or use under the original terms of the CCAA without the consent of the permittee. These assurances are conveyed to participating landowners through properly implemented CIs.
2. Within 30 days of receipt of a completed CI, notify UDWR as to whether the Service concurs that the CI is adequate to enroll the subject lands. If the Service concurs with the CI, it will sign the document and return it to UDWR. If the Service does not concur, it will contact UDWR and attempt to develop measures that would create an adequate CI for Service signature.
3. Within 60 days of receipt of annual monitoring reports submitted by UDWR, the Service will review the reports and notify UDWR of any possible issues with or suggested amendments to the CCAA or CIs that may warrant consideration.

III. Enrolled Lands

This CCAA pertains to non-federal lands in the Bonneville Basin of Utah encompassed by the current distribution of least chub, and to those non-federal lands within the historic range and distribution that provide potential habitat that may be occupied by the species in the future (Appendix 1).

All known wild populations of least chub occur at least partially on non-federal land. Currently, nine of the 16 introduced populations of least chub are located on non-federal land in the Bonneville Basin. The remaining seven populations occur on federally managed lands. This CCAA includes occupied or potentially suitable least chub habitats within the Bonneville Basin and may include portions or all of the following Utah counties: Beaver, Box Elder, Cache, Davis, Garfield, Iron, Juab,

Kane, Millard, Morgan, Piute, Rich, Salt Lake, Sanpete, Sevier, Summit, Tooele, Utah, Weber, Wasatch, and Washington. Non-federal property owners that will be considered for enrollment into this agreement include those with existing wild and introduced least chub populations as well as those within this region who are willing to cooperate with the UDWR and the Service to introduce least chub onto their property.

A property owner may be enrolled in this CCAA if there is an existing least chub population on the property and the property owner is willing to work with the UDWR and the Service to maintain existing conditions or make agreed upon habitat improvements to their property. A property owner may also be enrolled in this agreement if: 1) they are willing to allow UDWR to introduce least chub onto their property and there is suitable habitat which UDWR determines least chub will be likely to persist in; or 2) they are willing to allow UDWR to introduce least chub and they are willing to work with UDWR and the Service to make agreed upon habitat improvements which once completed will create suitable least chub habitat.

IV. Authorities and Purpose

Sections 2, 7, and 10 of the ESA, allow the Service to enter into this CCAA. Section 2 of the ESA states that encouraging parties, through federal financial assistance and a system of incentives, to develop and maintain conservation programs is key to safeguarding the nation's heritage in fish, wildlife, and plants. Section 7 of the ESA requires the Service to review programs that they administer and to utilize such programs in furtherance of the purposes of the ESA. By entering into this Agreement, the Service is utilizing its Candidate Conservation Programs to further the conservation of the nation's fish, wildlife, and plants. Lastly, section 10(a) of the ESA authorizes the issuance of permits to allow certain acts that would otherwise be prohibited by the ESA, if such acts are expected to enhance the propagation or survival of the affected species. Under this permit, if the species becomes federally listed in the future, take of the species is permitted as long as the activity causing the take has been specifically allowed in the CCAA, and the overall effect of the CCAA is to enhance the survival of a candidate or listed species.

The purpose of this CCAA is for the Service to join with the UDWR and participating non-federal property owners to implement conservation measures for least chub in a manner that is consistent with the Service's Policy on Candidate Conservation Agreements with Assurances (64 FR 32726) and applicable regulations. The conservation goal of this CCAA is to reduce the threats to least chub and its habitat and increase the number of least chub populations within its historic range. Property owners will be provided with regulatory certainty concerning land use restrictions that might otherwise apply should least chub become listed under the ESA. The CCAA supports UDWR's ongoing efforts to sustain and enhance existing populations and create new populations of the species. This CCAA is considered a programmatic CCAA under which owners of non-federal properties comprising occupied or potentially suitable least chub habitat are eligible to participate.

V. Description of Existing Conditions

Historic and Current Distribution

The first documented collection of least chub is from a “brook” near Salt Lake City in 1871 (Hickman 1989). Between 1871 and 1979, many least chub occurrences were reported across the State, ranging from the eastern portions of the Snake Valley to the Wasatch Front and from the northern extent of the Bear River south to the Beaver River. Least chub were very common in tributaries to the Sevier, Utah, and Great Salt Lakes in the beginning of the 20th Century (Jordan 1891; Jordan and Evermann 1896, in Hickman 1989).

By the 1940s and 1950s, the numbers of least chub were decreasing (Holden 1974, in Hickman 1989). Only 11 known populations existed by 1979 (Workman *et al.* 1979). By 1989, least chub had not been collected outside of the Snake Valley for the previous 25 years (Hickman 1989). Three wild least chub populations were extant in 1995 (Leland Harris Spring Complex, Gandy Marsh, and Bishop Spring Complex) (60 FR 50518).

The UDWR began surveying for new populations and monitoring existing populations statewide in 1993. As a result, UDWR found three previously unknown populations of least chub: Mona Springs in 1995, Mills Valley in 1998, and Clear Lake in 2003 (Mock and Miller 2003; Hines *et al.* 2008). The Mona Springs site is in the southeastern portion of the Great Salt Lake sub-basin and occurs on the eastern border of ancient Lake Bonneville, near the highly-urbanized Wasatch Front. Clear Lake and Mills Valley are both in the Sevier sub-basin, in relatively undeveloped sites (Hines *et al.* 2008). Although it is possible that additional wild populations may still be discovered, UDWR has conducted extensive surveys throughout the historic range of least chub and believes that all extant populations are documented. A comparison of survey results from the 1970s (Workman *et al.* 1979) to surveys from 1993 to 2007 (Hines *et al.* 2008) indicates that a majority of the natural populations extant in 1979 were extirpated by 2007. A brief description of the wild least chub populations is provided below.

- 1) Leland Harris Spring Complex: R.R. Miller first collected least chub at this site, located north of the Juab/Millard County line, in 1970 (Sigler and Sigler 1987). The site consists of 12 to 15 springheads that feed a playa wetland with habitat fluctuating in size seasonally. Land ownership at Leland Harris consists of private and UDWR lands. In 2014, the Utah School and Institutional Trust Lands Administration (SITLA) parcel transferred ownership to UDWR as part of a land-swap agreement. Least chub and native Utah chub occupy the site and have persisted since monitoring began in 1993 (Hines *et al.* 2008). Another spring to the north, is also occupied by least chub and is part of the Leland Harris Spring Complex, but connectivity between the two springs only occurs in the spring season.

- 2) Gandy Marsh: C.L., L.C., and E.L. Hubbs first collected least chub at this site in 1942 (Sigler and Miller 1963). Gandy Marsh is south of the Millard/Juab County line and the Leland Harris Spring Complex and consists of private, SITLA, and Bureau of Land Management (BLM) lands. The complex consists of more than 50 small springheads or ponds that drain into a large playa wetland. Least chub is the dominant fish species in a native fish community at the Gandy Marsh site (Hines *et al.* 2008).
- 3) Bishop Springs Complex: Least chub were documented at this site in 1942 (Hickman 1989). The complex is now the largest occupied least chub site in Snake Valley. Located south of and very near Gandy Marsh, the site has large springs containing least chub, including Central Spring and Twin Springs (Hines *et al.* 2008). Land ownership is a combination of private, SITLA and BLM lands. The least chub population in Bishop Springs has remained stable and has demonstrated successful reproduction and recruitment (Hines *et al.* 2008). Least chub were reintroduced into the manmade Foote Reservoir in 2010. The reservoir also contributes water to the playa marshlands that provide seasonal least chub foraging, reproduction, and nursery-type habitat (Crawford 1979).
- 4) Mills Valley: UDWR biologists discovered least chub at multiple locations at this site in 1998 (Hines *et al.* 2008). Mills Valley is in the Sevier River drainage in southeast Juab County (Hines *et al.* 2008). A large portion of this complex is owned by UDWR and managed as a Wildlife Management Area (WMA). Other portions of the site are owned by multiple private owners. Mills Valley consists of a wetland with numerous springheads throughout the complex. Least chub have persisted since UDWR began monitoring in 2001 (Hines *et al.* 2008; Stahli and Crockett 2009).
- 5) Clear Lake: In 2003, UDWR biologists found least chub at the Clear Lake WMA in Millard County (Hines *et al.* 2008). This reserve consists of a shallow reservoir and diked ponds fed by springs from adjacent Spring Lake. The site is owned and managed by UDWR for waterfowl habitat (Hines *et al.* 2008). Least chub recruitment has been documented in Clear Lake since monitoring began in 2003 (Hines *et al.* 2008; Wheeler and Fridell 2009). Least chub use of the diked ponds has varied with water levels at the WMA (Wheeler and Fridell 2009).
- 6) Mona Springs: The UDWR biologists discovered this least chub site in northeast Juab County in 1995 (Mock and Miller 2003). Habitat in the vicinity of Mona Springs was primarily private land (75 FR 35398). However, the Utah Reclamation Mitigation Conservation Commission (URMCC) acquired 34.6 ha in 1998 and 7.2 ha in 2006 for the protection of least chub and the Columbia spotted frog (*Rana lutreiventris*), a Utah State sensitive species (Hines *et al.* 2008). The URMCC recently purchased and

protected an additional 44.5 ha of land on the north end of the spring complex (75 FR 35398). Mona Springs previously provided habitat for a genetically distinct, naturally occurring population of least chub. However, the Mona Springs site is no longer suitable for least chub because of the presence of nonnative fish; only four least chub were collected here in 2008 (LCCT 2008a), 13 in 2009 (UDWR 2010), three in 2010, five in 2011 and nine least chub in 2012 surveys (UDWR 2012a; UDWR 2012b; UDWR 2013). Because of the lack of population viability, the Service considers Mona Springs not a self-sustaining least chub population at this time (75 FR 35398).

Least chub exist at 17 introduced locations throughout the Bonneville Basin. The number of introduced populations continues to increase every year. A brief description of the introduced populations established by January 1, 2014 is provided below.

- 1) Red Knolls Pond: Least chub from the Bishop Springs population were introduced into this site on BLM land in 2005. Successful recruitment was observed 2005-2009 and 2011-2012, indicating that reproduction is occurring (UDWR 2013). No other fish species are present at this site.
- 2) Willow Pond: Least chub from the Clear Lake population were introduced into this site in 2007. Annual monitoring efforts for the past five years (2008-2012) found that least chub were present and recruitment to the population was apparent (UDWR 2013). However, a fire in 2013 resulted in a heavy sediment load into the pond, and UDWR salvaged the remaining individuals and placed them in the Fisheries Experiment Station hatchery. The least chub will be returned to the site if the habitat is found to be suitable, or placed at another site, once one is selected. Surveys in 2014 revealed that several least chub individuals are still present in the pond. No other fish species are present.
- 3) Rosebud Top Pond: Least chub from the Mills Valley population were introduced into this site in 2008. Annual monitoring efforts for the past four years (2009-2012) found that least chub were present and recruitment to the population was apparent (UDWR 2013). Native speckled dace (*Rhinichthys osculus*) and nonnative sterile rainbow trout (*Oncorhynchus mykiss*) are also present at this site.
- 4) Lucin Pond: In 1989, 42 least chub of unknown origin and 89 least chub from Leland Harris Spring Complex were released into this site. The UDWR detected least chub at this site every year from 1999 through 2012 (Thompson and Crockett 2011; UDWR 2013). This is the first and only location with mosquitofish where they have not rapidly extirpated least chub—least chub have coexisted with mosquitofish in this habitat for more than 11 years (Thompson and Crockett 2011).

- 5) Pilot Spring: Least chub from Leland Harris were introduced into this site on BLM land in 2008. The UDWR detected least chub from 2009 to 2012 (UDWR 2013). Recruitment was limited in 2009, but juvenile least chub comprised 50 percent or more of the samples in 2010, 2011, and 2012. The BLM dredged the pond in 2010 and water levels had not recovered (Thompson and Crocket 2011) until 2012, when levels increased approximately eight inches (UDWR 2013). No other fish species are present.
- 6) Cluster Springs: Least chub from the Mills Valley population were introduced into this site on BLM land in 2008. No other fish species are present. In 2009 and 2010 least chub were present and recruitment to the population was apparent (UDWR 2013).
- 7) Pond SE of Pilot: Least chub from the Mills Valley population were introduced into this site on BLM land in 2008. No other fish species are present. Monitoring from 2009 to 2012 documented successful recruitment (UDWR 2010; UDWR 2012b; UDWR 2013).
- 8) Chambers Spring: Least chub from the Mills Valley population were introduced to this site in 2008. In 2009 and 2010, least chub were present and recruitment to the population was apparent, however catch per unit effort was low both years (UDWR 2010; Thompson and Crockett 2011). Catch per unit effort for least chub remained low in 2011 in spite of an additional 900 least chub being stocked into Chambers Spring on September 7, 2010 (Thompson 2012). Other species captured at this site include speckled dace and one common carp in 2009 (Thompson and Crockett 2011); however, common carp have not been observed while monitoring the past three years (UDWR 2013). The catch per unit effort remained low again in 2012, but limited recruitment did occur (UDWR 2013).
- 9) Stokes Nature Center: Least chub from the Mills Valley population were introduced to this site in 2008. Native Utah chub (*Gila atraria*) were also present at this site. Monitoring in 2009 documented successful recruitment of least chub (Thompson and McKay 2010). In 2012, recruitment to the population was apparent, but the catch per unit effort decreased from the 2011 rates to a rate slightly above those seen in 2009 and 2010 (UDWR 2013).
- 10) Escalante School: Least chub from the Mona population were introduced into this site in 2006. These ponds were designed to support least chub populations and no other fish species are present at this site. For the past four years (2009 to 2012) least chub have been present at the site and recruitment to the population has been apparent (UDWR 2013).
- 11) Atherly Reservoir: This introduction site consists of a series of wetland ponds, a stream, and a prominent reservoir (Atherly Reservoir) located within James Walter Fitzgerald WMA. Occupied and potential least chub habitat

spans more than 5 km along Faust Creek to the north of Faust in Rush Valley. Least chub from the Mills Valley population were introduced into this site in 2007. Utah Chub, common carp (*Cyprinus carpio*), and nonnative goldfish (*Carassius auratus*) are also present at this site. Successful recruitment was observed in three of the last four years indicating reproduction is occurring (Thompson and Crockett 2011).

- 12) Keg Springs: In 2009, 200 least chub from Gandy Marsh were released into this habitat (UDWR 2010). In 2010, 2011, and 2012 least chub were present and recruitment to the population was apparent (Thompson and Crockett 2011; Thompson 2012; UDWR 2013).
- 13) Upper Garden Creek Pond: In 2011, 500 least chub from Mona Springs were released into this headwater pond (UDWR 2012a). The first monitoring efforts began in 2012, and 210 least chub were collected. Successful recruitment was observed, indicating that reproduction is occurring (UDWR 2013).
- 14) Deseret Chemical Depot: In 2011, 500 least chub from Mona Springs were released into this restored wetland habitat (UDWR 2012a). Least chub were only released into the northeast pond, and the first monitoring survey in 2012 collected 800 least chub (689 juveniles) in the northeast pond and 74 juveniles in the southwest pond (which was not stocked) (UDWR 2013). Thus, successful recruitment and migration between ponds occurred in 2012 (UDWR 2013).
- 15) Locomotive Springs: In 2012, 341 Bishop Springs least chub from Red Knolls Pond were released into this six spring complex on WMA land (UDWR 2013).
- 16) Sparks Spring: In 2012, 2,000 Mona Springs least chub from Wahweap State Fish Hatchery were released into this spring on BLM land (UDWR 2013).
- 17) Fairfield Big Spring: In 2013, 15,200 Mona Springs least chub from Wahweap State Fish Hatchery were released into this spring on private land (LCCT 2014).

Threats to Least Chub

In a 12-month finding in 2010 (75 FR 35398) the Service identified and discussed threats to least chub. Groundwater withdrawal, inadequacy of existing regulations to regulate groundwater withdrawals, nonnative fishes, grazing and, the cumulative effects of drought, current and future groundwater withdrawal, and climate change were listed as significant threats. These threats are summarized below (for a full discussion of threats see 75 FR 35398).

- 1) Groundwater Withdrawal and Inadequacy of Existing Regulation to Regulate Groundwater Withdrawals—Proposed large-scale groundwater withdrawals from Spring Valley, Nevada for transport to Las Vegas by the Southern Nevada Water Authority (SNWA) was one of the most serious threats to least chub in general and the Gandy, Bishop Springs, and Leland Harris sites specifically. These sites occur in close proximity to one another and within the same groundwater basin in Snake Valley. Future groundwater withdrawal in Spring and Snake Valleys may directly reduce spring discharge through reduced flows from the shallow basin-fill aquifer or through reduction of the hydraulic head of the deep carbonate aquifer (Service 2013). Further, as spring discharge decreases, habitats may lose characteristics essential to aspects of complex lifecycles, particularly the reproductive requirements of least chub (Deacon 2007; Service 2013). In the 2010 12-month finding, the Service found that groundwater withdrawal and the inadequacy of existing mechanisms to regulate groundwater withdrawal were each significant threats to least chub (75 FR 35398).
- 2) Nonnative Fishes—Least chub are not an effective competitor with nonnative species (Lamarra 1981) and are threatened by the introduction and presence of some nonnative fish (Hickman 1989). The mosquitofish is the most detrimental invasive fish to least chub (Perkins *et al.* 1998; Mills *et al.* 2004). Mosquitofish prey on the eggs and the smaller size classes of least chub and compete with adults and young (Mills *et al.* 2004). The presence of mosquitofish also changes least chub behavior and habitat use because young least chub retreat to heavily vegetated, cooler habitats in an effort to seek cover from predation. In these less optimal environments, they have to compete with small mosquitofish that also are seeking refuge from adult mosquitofish. This predatory refuge scenario affects survivorship and growth of least chub young of year (Mills *et al.* 2004).

Mosquito abatement districts throughout Utah have released mosquitofish for mosquito control since 1931 (Radant 2002). Subsequently, the mosquitofish has expanded into aquatic ecosystems throughout Utah (Sigler and Sigler 1996). Despite extensive efforts that include chemical poisoning and mechanical removal, the elimination of mosquitofish from least chub habitats has proven unsuccessful. Mosquitofish have caused the extirpation of four naturally occurring or introduced least chub populations (Hines *et al.* 2008; Wilson and Whiting 2002; Thompson 2005). These include the sites of Deadman and Walter springs, Antelope Island, and Mona Springs.

Common carp are present in the Clear Lake population (Hines *et al.* 2008, p. 43). Common carp, in high densities, reduce submerged aquatic vegetation (Parkos *et al.* 2003). Aquatic vegetation is preferred least chub-spawning habitat and it provides the eggs, larvae, and young with oxygen, food, and cover (Crawford 1979).

The Mills Valley population is periodically exposed to several potentially harmful species during spring flooding events (UDWR 2006). Nonnative green sunfish (*Lepomis cyanellus*), which is a voracious predator, and fathead minnow (*Pimephales promelas*) (Sigler and Sigler 1987), invaded least chub habitat at the Mills Valley in 2005 (Hines *et al.* 2008; UDWR 2006) and spread throughout the wetland complex by 2007 (UDWR 2010). Mosquitofish were detected in low numbers in 2013, likely due to overland sheetflow from the Sevier River. Nonnative fish numbers in least chub habitat declined from 2007 to 2009 (UDWR 2010); however, the potential for nonnative reinvasion during spring flooding events continues to threaten the Mills Valley least chub population.

In the 2010 12-month finding, the Service found that nonnative fishes were a significant threat to least chub (75 FR 35398).

- 3) Grazing—Livestock grazing can reduce least chub habitat quality by causing bank erosion and sedimentation to springheads (LCCT 2008b, UDWR 2010). Livestock grazing impacts occur at Mills Valley (Wilson and Whiting 2002; Bailey 2006; Hines *et al.* 2008), Gandy Marsh (Hines *et al.* 2008; LCCT 2008b), Leland Harris Spring Complex (Bailey 2006; Hines *et al.* 2008), and Bishop Springs (Wheeler and Fridell 2005). In the 2010 12-month finding, the Service found that grazing was a significant threat to least chub (75 FR 35398).
- 4) Drought—Drought has the potential to impact all existing least chub sites. The impacts to least chub habitat from drought can include: reduction in habitat carrying capacity; lack of connectivity resulting in isolation of habitats and resources; alteration of physical and chemical properties of the habitat, such as temperature, oxygen, and pollutants; vegetation changes; niche overlap resulting in hybridization, competition, and predation; and reduced size and reproductive output (Alley *et al.* 1999; Deacon 2007). These impacts are similar to those associated with water withdrawal.

The Utah and Nevada portions of the Great Basin experienced drought conditions from 1999 until 2004 (NDMC 2009). The recent drought is not unusual for its length, but is for its severity; water year 2002 will be recorded as one of the driest years on record for many parts of the Great Basin (NDMC 2009). Although least chub have survived for thousands of years with intermittent natural drought conditions, recent human settlement has exacerbated drought conditions via groundwater withdrawal (Hutson *et al.* 2004).

In the 2010 12-month finding, the Service found that drought was a significant threat to least chub when considered cumulatively with groundwater withdrawal and climate change (75 FR 35398).

- 5) Climate Change—Utah has experienced about 1.6 °C of warming over the last 100 years (1908–2007) (Saunders *et al.* 2008). Modeling of future climate change for Utah projects the State to warm more than the average for the entire globe, with fewer frost days, longer growing seasons, and more heat waves (UBRAC 2007). Although exact temperature increases are not known, projected temperature rise in the southwestern United States by 2050 ranges between 1.4 and 2.0 °C for a lower emissions scenario, and between 2.5 and 3.1 °C for a higher emissions scenario (USGCRP 2009, p. 129).

Precipitation models predict a reduction in mountain snowpack, a threat of severe and prolonged episodic drought and a decline in summer precipitation across all of Utah (UBRAC 2007). More locally to least chub, the hydrology of the Great Salt Lake Basin will be impacted by changes in mountain runoff (UBRAC 2007). While predictions indicate that the Great Salt Lake Basin will be affected by declining mountain snowpack and the resulting runoff, the timing and extent of these changes are unclear (UBRAC 2007). Drought conditions and higher evaporation rates result in lowered groundwater levels, reduced spring flows, and reductions in size and depth of pool habitat for least chub (Wilson 2006). Although current data and climate predictions do not indicate the exact nature of future changes to extant least chub habitat sites, some negative effects are likely.

In the 2010 12-month finding, the Service found that climate change was a significant threat to least chub when considered cumulatively with groundwater withdrawal and drought (75 FR 35398).

- 6) Cumulative Effects of Groundwater Withdrawal, Drought, and Climate Change—Least chub evolved in the Great Basin desert ecosystem, demonstrating their ability to withstand historical climatic variability, including drought conditions (Hines *et al.* 2008). The Service believes that under future climatic conditions that include higher temperatures and reduced precipitation and the added pressure of human water consumption, these evolutionary adaptations may not be adequate to guarantee long-term survival of least chub populations (75 FR 35398). The effects of ongoing and proposed groundwater withdrawal, drought, and climate change are likely to compound and increase the risk and magnitude of least chub habitat loss throughout its range.

In the 2010 12-month finding, the Service found that the cumulative effects of groundwater withdrawal, climate change and drought were significant threats to least chub (75 FR 35398).

Addressing Threats to Least Chub

Since the mid-1990's, a multi-partner Least Chub Conservation Team has implemented conservation actions to address threats to least chub using an adaptive

management approach under the umbrella document Conservation Agreement and Strategy (CAS) for Least Chub (Perkins et al. 1997). Conservation actions implemented under the CAS were cited by the Service as justification to withdraw their September 29, 1995 proposed rule to list the species (50 CFR 17). The species as a whole is in better condition in terms of distribution and numbers today than it was at the time of the withdrawal; however, localized threats continue to emerge and new threats have been identified which resulted in the Service's 12-month finding, on June 21, 2010, that listing of the least chub was warranted (75 FR 35398).

In the years since the 12-month finding (75 FR 35398), the status of some threats has changed and there has been continued development of refuge populations and documentation of their success. Additionally, in response to the finding the Least Chub Conservation Team amended the CAS to include conservation actions to address the identified threats. The goal of the Least Chub CAS and its amendment is to ensure the long-term persistence of the least chub within its historic range, provide a framework for future conservation efforts, and ultimately address the threats presented in the warranted finding such that listing of the species will no longer be necessary. Working under an adaptive management framework, the Least Chub Conservation Team has a demonstrated track record of cooperation and collaboration to address threats as they arise. The amendment to the CAS was finalized in the spring of 2014 and outlines conservation approaches and actions that will be enacted to address the threats that were identified in the warranted finding (75 FR 35398).

VII. Conservation Measures

Conservation Measures

The two objectives of the CAS for Least Chub (Bailey *et al.* 2005) are to: 1) eliminate or significantly reduce threats to least chub and its habitat to the greatest extent possible; and 2) restore and maintain self-sustaining populations throughout its historic range. These objectives can, in part, be met through this CCAA by introducing least chub to additional locations and by enhancing and maintaining suitable habitat conditions for newly introduced and extant populations.

All conservation measures discussed below are presented in a generalized format as potential actions to reduce threats and improve habitat conditions for least chub. Additional actions which are not listed here may be considered if all parties agree that the actions will achieve desirable results similar to the expected outcomes from the actions listed below. Specific action(s) required for enrollment into this CCAA will be one or several of the actions listed below. Both the UDWR and the Service must concur that the conservation actions are likely to result in a self-sustaining least chub population. In addition, conservation actions must meet CCAA Final Policy (64 FR 32726) requirement that "the Service must determine that the benefits of conservation measures to be implemented by a property owner under a CCAA, when combined with those benefits that would be achieved if the conservation measures were also to

be implemented on other necessary properties, would preclude or remove any need to list the covered species.” Specific methodologies, responsible parties, and time frames will be determined on a site-by-site basis and agreed upon by the property owner, UDWR, and Service prior to their enrollment.

One or more of the following conservation measures may be necessary to implement on a permittee’s site to maintain, improve, or ensure habitat is suitable for the long term persistence of least chub:

- 1) Habitat enhancement—Maintain, enhance, and/or restore habitat conditions.
 - a) Control livestock access by:
 - i) fencing the spring system to prevent livestock access, and/or
 - ii) developing a grazing management plan (GMP) allowing limited, agreed upon livestock access to the pond, spring, or wetland complex.
 - b) Bank stabilization – Erosion of banks into the aquatic system may reduce suitable habitat for least chub. Bank stabilization may be enhanced or maintained through one or a combination of the following methods:
 - i) planting native vegetation,
 - ii) fencing the pond to reduce or eliminate grazing,
 - iii) reducing slope of the stream bank, and/or
 - iv) implementing other agreed upon methods to increase bank stability.
 - c) Enhance or maintain native vegetation—Least chub require moderate to dense aquatic vegetation to provide suitable habitat for spawning, foraging, and cover. Vegetation commonly associated with least chub includes: bulrush (*Scirpus spp.*), sedges (*Carex spp.*), cattails (*Typha spp.*), duckweed (Lemnaceae), rushes (*Juncus spp.*), watercress (*Nasturtium officinale*), grasses (Graminae), and algae (Osmundson 1985). Efforts to enhance native vegetation may include:
 - i) planting site-appropriate native vegetation,
 - ii) removing nonnative vegetation – methods of nonnative vegetation removal will be agreed upon by the property owner, UDWR, and the Service, and/or
 - iii) fencing or protecting newly planted vegetation to ensure establishment.
 - d) Dredging of springheads—Springheads or ponds that were or are being filled in with sediment may require dredging to maintain sufficient habitat for least chub. This will likely be done in conjunction with other management actions to prevent the continued sedimentation of the habitat. This work should be conducted in a manner that will minimize the impact to least chub and other native aquatic species. Work should be done prior to the introduction of least chub. If least chub or other native species such as Columbia spotted frog (*Rana luteiventris*) are already present, work should be conducted during an agreed upon time of year where potential impacts to least chub and other

native species will be minimized. Dredging of springheads and creating additional least chub habitat may be conducted by mechanical removal of sediment or removal of overgrown aquatic vegetation.

- 2) Restoration of hydrologic conditions—Maintain, restore, and augment the natural hydrologic characteristics and water quality.
 - a) Provide adequate water flow to least chub habitat to maintain suitable habitat conditions described above. This includes:
 - i) changing beneficial use of water right to instream use,
 - ii) purchasing or leasing of water rights for instream use,
 - iii) increasing or maintaining efficiency in water use and delivery, and/or
 - iv) screening any discharge/intake system to ensure least chub are not entrained in irrigation canals/pipes or discharged out of the desired habitat.
- 3) Nonnative management—Maintain conditions without nonnative species or selectively control nonnative species that negatively impact least chub via predation and/or competition. A system without other fish is the most desirable for introduction of least chub. Introduction of least chub may be considered if other native fish or nonnative fish which are known to coexist with least chub are present. If other fish, especially nonnative piscivorous fish, are present in the system they may need to be removed prior to the introduction of least chub to ensure the persistence of least chub. The need for removal of nonnative fish will be determined on a case-by-case basis by the Service and the UDWR.
 - a) The UDWR, Service, and property owner will evaluate and agree upon removal methods on a site-by-site basis. Potential removal methods may include: chemical, mechanical, dewatering of the habitat, angling, and other methods as necessary.
- 4) Reintroductions and introductions of least chub—Create new habitats suitable for introduction of least chub and introduce the species or introduce least chub into existing suitable habitat.
 - a) The UDWR will provide least chub for introduction once habitat is determined suitable. The UDWR will determine the appropriate least chub numbers and genetic makeup based on the size and location of the potential habitat and least chub available for introduction.

Determining Site Suitability for Least Chub Introduction

In the 1980s, biologists surveyed occupied and potential least chub habitat and documented parameters that characterize suitable habitat for the species. Surveys of the Snake Valley populations documented the following characteristics at occupied habitats: 1) pool volume of 0.3 to 260 m³; 2) water depth of 0.1 to 3.6 m; and 3) summer daytime temperatures between 12 and 23 °C (Osmundson 1985). Surveys of potential habitats for reintroduction of least chub in Box Elder County (Paul and Bich

1987) resulted in a suite of primary factors used to determine suitability of the habitat for introduction of least chub. Primary factors are general site characteristics that should be in place before least chub are introduced. The primary factors include: 1) no fish present or low species diversity; 2) site security from nonnative introduction or grazing; 3) high density of aquatic vegetation; 4) high habitat complexity; and 5) landowner cooperation. These habitat characteristics should be used as broad guidelines for site suitability. A final determination of suitability will be conducted on a site-by-site basis by the Service and the UDWR.

VIII. Effects of the Action and Incidental Take

Authorization of incidental take is provided as part of the Permit issued by the Service in conjunction with this CCAA. Should the least chub become listed under ESA, authorization for incidental take under the Permit is limited to agricultural activities (e.g. crop cultivation, harvesting, livestock grazing, and irrigation) of the participating property owners and the implementation of the conservation measures addressed in this CCAA, and as described in the individual CIs. Because least chub protection and enhancement measures will be in place on enrolled lands, impacts will be limited to minor disturbance. Examples of take that might occur in association with specific conservation measures include the following:

- 1) Bank Stabilization and Spring Dredging Projects—Temporary loss of least chub habitat or temporary degradation of habitat that may occur during and immediately after bank stabilization or spring habitat dredging and deepening. Bank restoration and spring dredging and deepening projects have the potential to temporarily increase sediment inputs into the system, the duration and magnitude of impacts will vary depending on the size of the project and specific flow characteristics of the habitat. In both cases, the long term benefit of bank restoration and spring deepening will outweigh any temporary effects to the species.
- 2) Grazing Management Plans—Grazing management plans will either reduce the number of animals and duration of grazing impacts near least chub habitat or shift the timing of grazing activities to periods when impacts to least chub are minimized. In either scenario, although grazing impacts will be reduced by the conservation measure, there is still potential for some level of least chub habitat degradation caused by bank destabilization, vegetation removal, and eutrophication of least chub habitat by waste inputs caused by grazing animals.
- 3) Nonnative Management—Under extremely rare circumstances, the UDWR may chemically treat a water body to remove nonnative fish species that would not be removable through other methods and that pose a threat to least chub. In this situation, UDWR would first attempt to trap and hold any existing least chub, then treat the water, and finally reintroduce the trapped least chub back into the system. There is the potential that both the trapping efforts and the treatment may kill some number of least chub.

- 4) Restoration of hydrologic conditions—These conservation activities focus on landowners voluntarily reducing their own water use and increasing the amount of water available to least chub habitat. In some scenarios, it is possible that, even though landowners are increasing least chub habitat by allowing their water to be used as instream flow, the landowners use of retained water rights may reduce habitat availability or directly kill some number of least chub (through entrainment).
- 5) Salvaging of Introduced Populations—Property owners that allow the UDWR to introduce least chub onto their land, when least chub was not present prior to introduction, can request that UDWR remove least chub. Upon request, the UDWR will make reasonable efforts to salvage all least chub from property owners land. Salvaged least chub will then be transferred to a suitable habitat that either already has least chub of the same genetic lineage or to a new introduction site. During the process of salvaging and transferring least chub, some number of least chub may be killed or injured.

In summary, incidental take may occur on enrolled lands; however, the conservation benefits of this CCAA are anticipated to far outweigh the anticipated take. The actual level of take of least chub that may occur under the CCAA is difficult to estimate as we currently do not have accurate density data for the species at most locations. Additionally, take will necessarily depend not only on the conservation measures selected, but the magnitude of the conservation effort (e.g. a 10 meter versus a 1,000 meter bank stabilization project), and the hydrologic and physical conditions of the specific habitat (e.g. spring flow volume or pool depth).

IX. Expected Benefits

As identified in the Service's CCAA Final Policy (64 FR 32726), and regulations at 50 CFR 17.22, to enter into a CCAA and issue a permit and assurances, the Service must determine that the conservation measures and expected benefits, when combined with those benefits that would be achieved if it is assumed that similar conservation measures were also implemented on other necessary properties, would preclude or remove the need to list least chub. Consistent with the CCAA policy, meeting the CCAA standard does not depend on the number of acres enrolled, and adoption of the CCAA and enrollment of property owners does not guarantee that listing will be unnecessary. The Service will determine whether this CCAA meets the standard specified in the CCAA policy and regulations through a separate analysis in a findings document, which will be available to the public on the Utah Field Office website after completion of the CCAA.

A primary benefit of this CCAA is that it will maintain and increase the existence of introduced least chub sites on non-federal lands. This CCAA will encourage private land owners to allow least chub introductions on their property, increasing the number of least chub sites. The UDWR is already in communication with several

interested private land owners within the Bonneville Basin. Least chub introductions into several new sites will likely begin shortly after this CCAA is finalized.

Of the 17 existing introduced least chub sites, 10 occur on non-federal lands. The introduced sites that occur on privately owned lands include: Lucin Pond, Willow Pond, Rosebud Top Pond, Chambers Spring, Stokes Nature Center, Escalante Elementary School, and Fairfield Big Spring. The introduced sites that occur on state owned lands include: Atherly Reservoir and West Locomotive Springs on UDWR land, and Upper Garden Creek Pond on Utah State Parks land. In some cases the UDWR acquired formalized private landowner consent for least chub introduction through Memoranda of Understanding (MOU). All private landowners as well as State Park managers expressed concern over having a federally threatened or endangered species on their land and the potential for additional federal restrictions and requirements. For this reason, most of the MOUs stipulate that in the event that the Service proposes to list least chub, the UDWR will remove all of the least chub from the privately owned introduction site. This CCAA provides landowners with assurances that the potential listing of least chub will not create an additional burden on their lands. Subsequently, this CCAA will reduce or prevent the need for the UDWR to remove least chub from existing introduced sites on private land.

Beyond maintaining introduced sites, the conservation measures included within this CCAA are tailored to address and minimize the threats to least chub that the Service identified in its 2010 12-month finding (75 FR 35398). The Service identified groundwater withdrawal, inadequacy of existing regulations to regulate groundwater withdrawals, nonnative fishes, grazing and, the cumulative effects of drought, current and future groundwater withdrawal, and climate change as significant threats (75 FR 35398). The following table organizes the CCAA's conservation measures by the threat they are intended to address and then describes the expected benefit gained from each measure (see Table 1).

Table 1. Threats to the least chub, targeted conservation measures, and expected benefits of those conservation measures.

Threat	Conservation Measure	Expected Benefit
<i>Groundwater withdrawal, inadequacy of existing regulations to regulate groundwater withdrawals, and cumulative effects</i>	<i>Restoration of hydrologic conditions</i> —Landowners may enroll under this CCAA if they change the beneficial use of existing water rights to instream use, or if they purchase or lease water rights for instream use, or if they increase the efficiency of their water use in such a way that it increases the amount of water available to least chub habitats.	The primary impact of these threats is the decreased water availability and consequently the amount and quality of least chub habitat. Restoration of hydrologic conditions will serve to minimize the effects of these threats by increasing the amount of water available to least chub habitats.
<i>Nonnative Fishes</i>	<i>Nonnative management</i> —Landowners will allow UDWR to remove nonnative fish from least chub habitats.	Nonnative fish outcompete or consume least chub. Nonnative management activities will remove nonnative fish from enrolled least chub habitats.
<i>Grazing</i>	<i>Habitat Enhancement</i> —Landowners may enroll in this CCAA by electing to control livestock access to least chub habitat on their land or developing grazing management plans. Additionally landowners may elect to stabilize banks, enhance native vegetation, or dredge spring heads to restore grazing impacted habitats.	Grazing impacts least chub by degrading habitat conditions. The habitat enhancement conservation measures serve to remove or reduce ongoing grazing impacts through fencing or grazing management plans. Additionally, the conservation measures improve habitat condition through several restoration strategies.
<i>All threats</i>	<i>Reintroductions and introductions of least chub</i> —Landowners may enroll under this CCAA by allowing the UDWR to introduce least chub into privately owned habitat.	Introduction locations are selected based on a lack of grazing impacts, lack of nonnative fish presence, and adequate and secure water supplies. Because introductions occur in locations with minimal or no existing threats, the introduced populations minimize the impacts of all significant threats to least chub. Further, introduced populations increase the redundancy and resiliency of the species and thereby reduce threat magnitude at a species scale.

X. Assurances Provided

Through this CCAA, the Service provides the UDWR and participating non-federal property owners, enrolled through CIs, with assurances that no additional conservation measures or additional land, water, or resource use restrictions (beyond the “Conservation Measures” described in this CCAA that have been voluntarily agreed to and are being properly implemented) will be required should the least chub become listed as a threatened or endangered species in the future. These assurances will be authorized with the issuance of an Enhancement of Survival Permit under section 10(a)(1)(A) of ESA.

XI. Assurances Provided to Property Owner in Case of Changed or Unforeseen Circumstances.

The regulatory assurances that will be provided by the Service through the Permit are linked to the following discussion of changed circumstances and unforeseen circumstances. “*Changed circumstances* means changes in circumstances affecting a species or geographic area covered by a conservation plan or agreement that can reasonably be anticipated by plan or agreement developers and the Service and that can be planned for (e.g., the listing of new species, or a fire or other natural catastrophic event in areas prone to such events)” (50 CFR 17.3). “*Unforeseen circumstances* means changes in circumstances affecting a species or geographic area covered by a conservation plan or agreement that could not reasonably have been anticipated by plan or agreement developers and the Service [USFWS] at the time of the conservation plan's or agreement's negotiation and development, and that result in a substantial and adverse change in the status of the covered species” (50 CFR 17.3). In the event of changed and unforeseen circumstances the UDWR and the Service are committed to working with the participating property owners to implement measures that limit the level of authorized take of least chub and allow the participating property owner to continue to implement their site-specific plan in compliance with this CCAA and the Permit.

(1) *Changed circumstances provided for in the CCAA.* Changed circumstances that can be reasonably expected to occur in the CCAA plan area include sudden drops in water levels due to pipe failure or spring tampering and illegal introductions of nonnative species. Sudden drops in water levels have occurred at introduced sites as a result of clogged input pipes. At Lucin Pond, UDWR staff responded to low water levels caused by a clogged input pipe. The UDWR staff unclogged a blocked pipeline to reestablish flows and water level. If enrolled lands experience sudden drops in water level due to a broken or damaged water conveyance system, the UDWR and the Service will work with enrolled private landowner to reestablish desired water conditions. If pipe repair, habitat dredging, or other maintenance activities are conducted, then the costs of those activities will be borne by the UDWR or the Service as funds become available.

If a nonnative species is introduced into habitat, as has occurred in several least chub populations, then the UDWR and the Service will evaluate the potential impact of the nonnative species on least chub. If the UDWR and the Service determine that the nonnative species is detrimental to least chub at the location then they will utilize the appropriate methods to remove the nonnative species. Potential removal methods may include: chemical, mechanical, dewatering of the habitat, angling, and other methods as necessary. If nonnative removal activities are conducted then the cost of those activities will be borne by the UDWR or the Service as funds become available.

If additional conservation measures not provided for in this CCAA are necessary to respond to changed circumstances, the Service, UDWR, and participating property owners will attempt to agree on suitable measures. The Service will not require any conservation measures in addition to those provided for in this CCAA without the consent of UDWR and the participating property owners.

(2) *Unforeseen circumstances.* If additional conservation measures are necessary to respond to unforeseen circumstances, the Service may require additional measures of the participating property owner, but only if such measures are limited to modifications within the CCAA's conservation strategy for the affected species, and only if those measures maintain the original terms of the CCAA to the maximum extent possible. Additional conservation measures will not involve the commitment of additional land, water, or financial compensation, or additional restrictions on the use of land, water, or other natural resources available for development or use under the original terms of the CCAA without the consent of the participating property owner and the UDWR and the Service. The Service will have the burden of demonstrating that unforeseen circumstances exist, using the best scientific and commercial data available. These findings must be clearly documented and based upon reliable technical information regarding the status and habitat requirements of least chub.

The Service will consider, but not be limited to, the following factors related to least chub: 1) size of the current range; 2) percentage of range adversely affected by the CCAA; 3) percentage of range conserved by the CCAA; 4) ecological significance of that portion of the range affected by the CCAA; 5) level of knowledge about least chub and the degree of specificity of the conservation program under the CCAA; and 6) whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of least chub.

XII. Compliance Monitoring

The UDWR will be responsible for monitoring and reporting related to implementation of the CCAA and fulfillment of its provisions, including implementation of agreed-upon conservation measures, and take authorized by the permit. The Service or UDWR, after reasonable prior notice to the property owner,

may enter enrolled lands to ensure compliance with this CCAA and the property owner's CI, as well as to provide technical assistance, as necessary.

The UDWR will provide the Service with an annual summary report related to the CCAA. Information in the annual summary report will include, but is not limited to: 1) a list of participating property owners enrolled under the CCAA over the past year, including copies of the complete CIs; 2) monitoring reports relating to overall habitat and population status, as conducted that year; 3) a summary of any federal and state funds used in furtherance of the CCAA; and 4) other information that UDWR deems pertinent to the least chub CCAA. Reports will be due by December 31 of each year and a copy will be made available to participating property owners.

XIII. Biological Monitoring

UDWR will be responsible for conducting biological monitoring of the habitats and least chub populations on the enrolled properties according to schedules and methods it will determine in consultation with the Service. The UDWR will provide the biological monitoring reports for enrolled land to the Service every two years as an attachment to the CCAA report described in Section XII.

XIV. Notification of Take Requirements

By signature of the CCAA and any associated CIs, participating property owners agree to provide the UDWR or the Service with an opportunity to rescue individuals of least chub before any authorized take occurs. Notification that such take will occur must be provided to UDWR and the Service 60 days in advance of the action or immediately upon recognition that take will occur if notification is not possible at least 60 days prior.

XV. Duration of CCAA and Permit

The CCAA, including any commitments related to funding under Service programs, will be in effect for 35 years following its approval and signing by the Parties. The section 10(a)(1)(A) permit authorizing take of the species will become effective on the date of the final rule listing least chub and will expire when this CCAA expires or is otherwise suspended or terminated.

XVI. Modifications

After approval of the CCAA, the Service may not impose any new requirements or conditions on, or modify any existing requirements or conditions applicable to, a property owner or successor in interest to the property owner, to compensate for changes in the conditions or circumstances of any species or ecosystem, natural community, or habitat by the CCAA except as stipulated in 50 CFR 17.22(d)(5) and 17.32(d)(5).

XVII. Modification of the CCAA

Any party may propose modifications or amendments to this CCAA or the Permit by providing written notice to, and obtaining the written concurrence of the other Parties. Such notice shall include a statement of the proposed modification, the reason for it, and its expected results. The Parties will use their best efforts to respond to proposed modifications within 60 days of receipt of such notice. Proposed modifications will become effective upon the other Parties' written concurrence.

XVIII. Amendment of the Permit

The permit may be amended to accommodate changed circumstances in accordance with all applicable legal requirements, including but not limited to the ESA, the National Environmental Policy Act, and the Service's permit regulations at 50 CFR 13 and 59 CFR 17. The party proposing the amendment shall provide a statement describing the proposed amendment and the reasons for it.

XIX. Termination of a CI or CCAA

As provided for in Part 8 of the Service's CCAA Policy (64 FR 32726), a property owner may terminate implementation of the CI's voluntary management actions prior to the CI's expiration date, even if the expected benefits have not been realized. However, the property owner will relinquish his or her take authority (if the species has become listed) and the assurances granted by the Permit. Similarly, the UDWR may terminate the CCAA before the Permit's expiration date, but upon doing so will relinquish the Permit and associated assurances. The UDWR and the property owner are required to give 60 days written notice to the other Parties of their intent to terminate the CCAA or CI, respectively. The property owner must give the UDWR and Service an opportunity to relocate least chub within 60 days of the notice.

If the UDWR determines, based on the monitoring program described in Sections XII and XIII or otherwise, that the property owner failed to comply with or implement the conservation measures, monitoring, reporting, or other requirements specified in this CCAA or in the property owner's CI, the UDWR may terminate the property owner's participation in the CCAA or otherwise revoke the CI. Such termination/revocation is effective upon receipt of written notice of termination/revocation from the UDWR. At that time, the take authority and assurances provided by the CI will be relinquished by the property owner. The UDWR will consider termination/revocation as a last resort, after making every reasonable effort to remedy the situation by working with the involved Parties.

Property owners that have allowed UDWR to introduce least chub onto their lands—when least chub did exist prior to introduction—may request removal of all least chub from their property. Property owners may request removal of introduced least chub even if the Service has listed least chub as threatened or endangered under the ESA. The property owner is required to make this request in writing. The request to remove least chub is notice to the other Parties of the property owner’s intent to terminate the CI. Within 60 days of receiving a written request, the UDWR will make reasonable efforts to salvage (capture and remove) all least chub from the property. Salvaged least chub will be transferred to a habitat deemed suitable by both the Service and the UDWR.

XX. Permit Suspension or Revocation

The Service may suspend or revoke the Permit for cause in accordance with the laws and regulations in force at the time of such suspension or revocation (50 CFR 13.28(a)). The Service may also, as a last resort, revoke the Permit if continuation of permitted activities would likely result in jeopardy to the least chub (50 CFR 17.22/32(d)(7)). Consistent with the CCAA regulations, the Service will revoke because of jeopardy concerns only after first implementing all practicable measures to remedy the situation.

XXI. Remedies

All Parties will have all remedies otherwise available to enforce the terms of the CCAA and the Permit. No party shall be liable in damages for any breach of this CCAA, any performance or failure to perform an obligation under this CCAA, or any other cause of action arising from this CCAA.

XXII. Dispute Resolution

The Parties agree to work together in good faith to resolve any disputes, using dispute resolution procedures agreed upon by all Parties.

XXIII. Succession and Transfer

This CCAA shall be binding on and shall inure to the benefit of the Parties and their respective successors and transferees, (i.e., new owners) in accordance with applicable regulations (50 CFR 13.24 and 13.25). The rights and obligations under this CCAA and associated CIs can transfer with the ownership of the enrolled property and are transferable to subsequent non-federal property owners pursuant to 50 CFR 13.25. The take authority and assurances that are provided with each CI are also transferable to the new owner(s) pursuant to 50 CFR 13.25. If the CCAA and permit are transferred, the new owner(s) will have the same rights and obligations with respect to the enrolled property as the original owner. The new owner(s) also will have the option of receiving CCAA assurances by signing a new CI. The property owner shall notify the UDWR

and the Service in writing of any transfer of ownership so that the UDWR and/or the Service can attempt to contact the new owner, explain the baseline responsibilities applicable to the property, and seek to interest the new owner in signing the existing CI or a new one to benefit the Least chub on regulations in force at the time.

XXIV. Availability of Funds

Implementation of this CCAA is subject to the requirements of the Anti-Deficiency Act and the availability of appropriated funds. Nothing in this CCAA will be construed by the Parties to require the obligation, appropriation or expenditure of any funds from the U.S. Treasury. The Parties acknowledge that the Service will not be required under this CCAA to expend any Federal agency's appropriated funds unless and until an authorized official of that agency affirmatively acts to commit to such expenditures as evidenced in writing. The Parties acknowledge that the UDWR will not be required under this CCAA to expend any State agency's appropriated funds unless and until an authorized official of that agency affirmatively acts to commit to such expenditures as evidenced in writing.

XXV. No Third-Party Beneficiaries

This CCAA does not create any new right or interest in any member of the public as a third-party beneficiary, nor does it authorize anyone not a party to this CCAA to maintain a suit for personal injuries or damages pursuant to the provisions of this CCAA. The duties, obligations, and responsibilities of the Parties to this CCAA with respect to third parties will remain as imposed under existing law.

XXVI. Notices and Reports

Any notices and reports, including monitoring and annual reports, required by this CCAA shall be delivered to the persons listed below, as appropriate:

Property Owners

Utah Division of Wildlife Resources (UDWR)
1594 W. North Temple, Suite 2110
Salt Lake City, UT 84114

U.S. Fish and Wildlife Service
2369 West Orton Circle, Suite 50
West Valley City, Utah 84119

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XXVIII. Appendix A. Maps of Covered Area

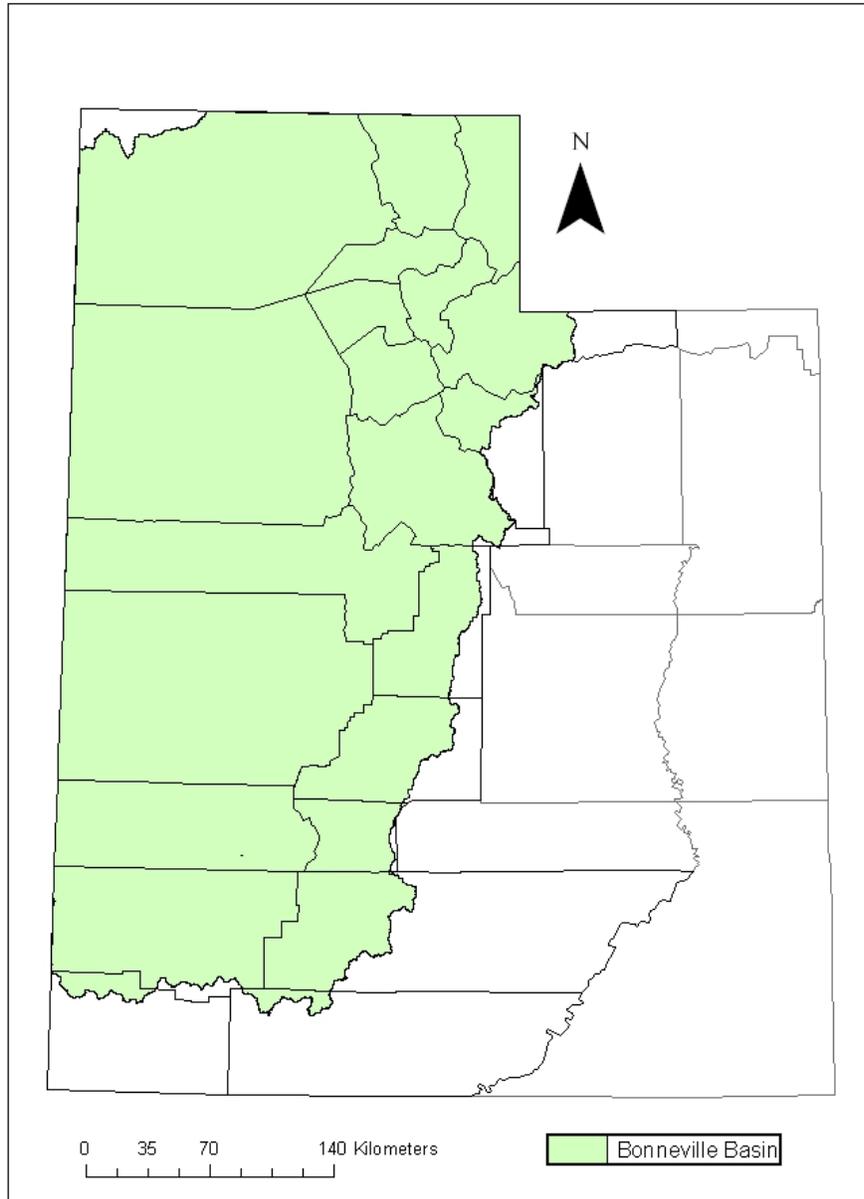


Figure 1. Bonneville Basin in Utah. Potential area for least chub reintroduction and inclusion of property owners into CCAA.

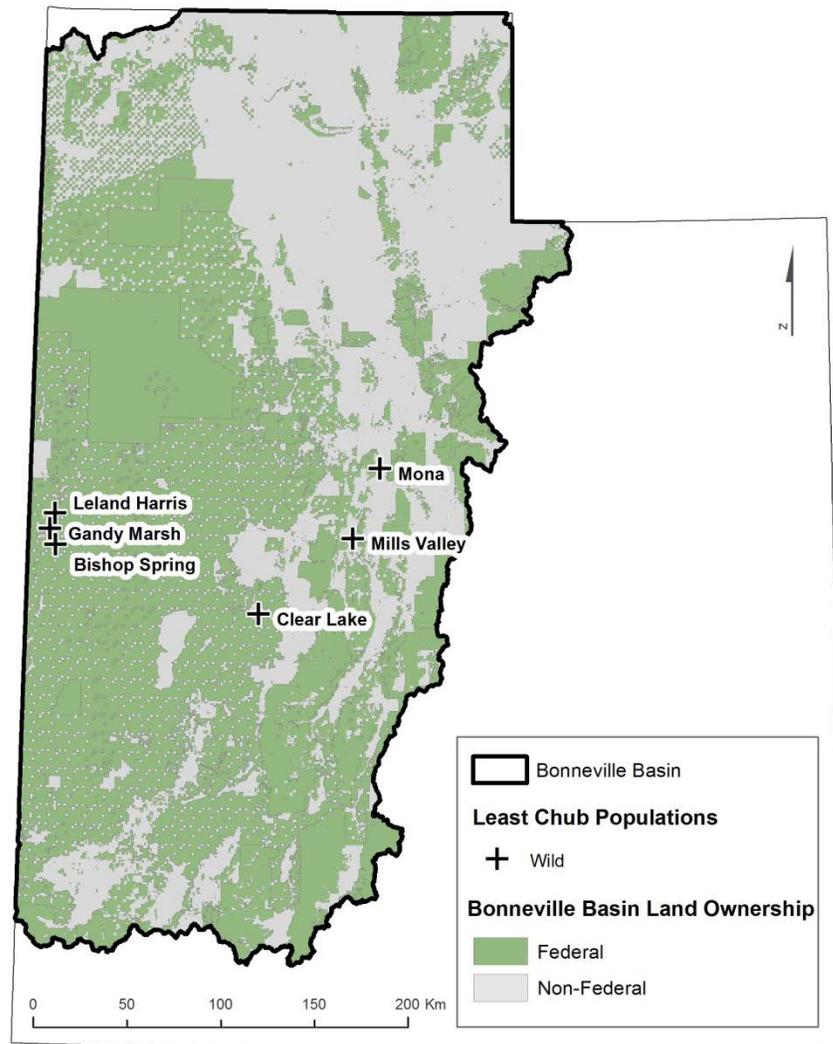


Figure 2. Property ownership at sites with wild populations of least chub.

XXIX. Appendix B. Certificate of Inclusion Application Form

Certificate of Inclusion

In The Candidate Conservation Agreement with Assurances
for the Least Chub (*Iotichthys phlegethontis*)
Between the Utah Division of Wildlife Resources
and U.S. Fish and Wildlife Service

This certifies that the Participating Landowner who owns or administers the property described below, is included within the scope of Permit No. TE136305-0, issued by the U.S. Fish and Wildlife Service on <Insert Date> to the Utah Division of Wildlife Resources (UDWR) under the authority of Section 10(a)(1)(A) of the Endangered Species Act of 1973, as amended, 16 U.S.C. 15389(a)(1)(A). Pursuant to that permit and this Certificate, the Participating Landowner is authorized to cause incidental take of least chub during the course of management activities described in the Agreement on the specific lands identified in this Certificate. Such permit authorization is subject to the carrying out of conservation measures described in this Certificate, the terms and conditions of the permit, and the terms and conditions of the Agreement entered into by the UDWR and the U.S. Fish and Wildlife Service. By signing this Certificate of Inclusion, the Participating Landowner agrees to carry out all assigned conservation measures as described in the Agreement and Certificate for a period of __ years.

A. Participating landowner's name and address:

B. Legal description, acreage, and/or map showing baseline conditions (if any) of the enrolled site(s):

C. Conservation commitments:

D. Required Conservation Period: _____

The term of this Agreement shall begin on the date of the final signature to this Agreement and shall remain in effect for ___ (up to 35) years.

F. Baseline condition of the covered area:

Surveys conducted on month __, 20__.

Participating Landowner

Date

Director, Utah Division of Wildlife Resources

Date

Concurrence, U.S. Fish & Wildlife Service
Field Supervisor, Utah Ecological Services Office

Date