Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition To List the Least Chub (Iotichthys phlegethontis) as Threatened or Endangered With Critical Habitat

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce a 90-day finding on a petition to list the least chub (Iotichthys phlegethontis) as threatened or endangered under the Endangered Species Act of 1973, as amended (Act). We find that the petition presents substantial scientific or commercial information indicating that listing of the least chub may be warranted. Therefore, with the publication of this notice, we are initiating a status review of the species, and we will issue a 12-month finding to determine if the petitioned action is warranted. To ensure that the status review is comprehensive, we are soliciting scientific and commercial data regarding this species. We will make a determination on critical habitat for this species if, and when, we initiate a listing action.

DATES: To allow us adequate time to conduct this review, we request that we receive information on or before December 15, 2008.

ADDRESSES: You may submit information by one of the following methods:

- U.S. mail or hand delivery: Public Comments Processing, Attn: FWS–R6–ES–2008–0088; Division of Policy and Directives Management; U.S. Fish and Wildlife Service; 4401 N. Fairfax Drive, Suite 222; Arlington, VA 22203. We will not accept e-mail or faxes. We will post all information at http://www.regulations.gov. This generally means that we will post any personal information you provide us (see the Information Solicited section below for more details).

FOR FURTHER INFORMATION CONTACT: Larry Crist, Field Supervisor, Utah Ecological Services Field Office, 2360 West Orton Circle, Suite 50, West Valley City, UT 84119; telephone 801–975–3330, extension 126. If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Information Solicited

When we make a finding that a petition presents substantial information to indicate that listing a species may be warranted, we are required to promptly commence a review of the status of the species. To ensure that the status review is complete and based on the best available scientific and commercial information, we are soliciting information from the public, other concerned governmental agencies, Native American Tribes, the scientific community, industry, or any other interested parties concerning the status of the least chub. We are seeking information regarding the species' historical and current status and distribution, its biology and ecology, ongoing conservation measures for the species and its habitat, and threats to the species and its habitat.

If we determine that listing the least chub is warranted, it is our intent to propose critical habitat to the maximum extent prudent and determinable at the time we propose to list the species. Therefore, with regard to areas within the geographical range currently occupied by the least chub, we also request data and information on what may constitute physical or biological features essential to the conservation of the species, where these features are currently found, and whether any of these features may require special management considerations or protection. In addition, we request data and information regarding whether there are areas outside the geographical area occupied by the species that are essential to the conservation of the species. Please provide specific information as to what, if any, critical habitat you think we should propose for designation if the species is proposed for listing, and why such habitat meets the requirements of the Act (16 U.S.C. 1531 et seq.).

Please note that submissions merely stating support or opposition to the action under consideration without providing supporting information, although noted, will not be considered in making a determination, as section 4(b)(1)(A) of the Act directs that determinations as to whether any species is a threatened or endangered species shall be made “solely on the basis of the best scientific and commercial data available.” At the conclusion of the status review, we will issue the 12-month finding on the petition, as provided in section 4(b)(3)(B) of the Act (16 U.S.C. 1533(b)(3)(B)).

You may submit your information concerning this 90-day finding by one of the methods listed in the ADDRESSES section. We will not accept comments sent by e-mail or fax or to an address not listed in the ADDRESSES section. Finally, we may not consider comments that we do not receive by the date specified in the DATES section.

If you submit information via http://www.regulations.gov, your entire submission—including any personal identifying information—will be posted on the Web site. If your submission is made via a hardcopy that includes personal identifying information, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so. We will post all hardcopy submissions on http://www.regulations.gov.

Information and materials we receive, as well as supporting documentation we used in preparing this 90-day finding, will be available for public inspection on http://www.regulations.gov, or by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, Utah Ecological Services Field Office (see FOR FURTHER INFORMATION CONTACT).

Background

Section 4(b)(3)(A) of the Endangered Species Act requires that we make a finding on whether a petition to list, delist, or recategorize a species presents substantial scientific or commercial information indicating that the petitioned action may be warranted. We are to base this finding on information provided in the petition and supporting information otherwise available in our files at the time of the petition review. To the maximum extent practicable, we are to make this finding within 90 days of our receipt of the petition, and publish our notice of this finding promptly in the Federal Register.

Our standard for substantial information as defined in the Code of Federal Regulations (CFR) regarding a 90-day petition finding is “that amount of information that would lead a reasonable person to believe that the measure proposed in the petition may be warranted” (50 CFR 424.14(b)). If we find that the petition presents substantial information, we are required to promptly commence a review of the status of the species.
We received a petition from the Center for Biological Diversity, Confederated Tribes of the Goshute Reservation, Great Basin Chapter of Trout Unlimited, and Utah Chapter of the Sierra Club, dated June 19, 2007, requesting that we list the least chub (*Iotichthys phlegethontis*) as threatened or endangered under the Act. Additionally, the petition requested that critical habitat be designated concurrent with listing. The petition clearly identified itself as a petition and included the identification information, as required in 50 CFR 424.14(a). We acknowledged receipt of the petition in a letter dated July 13, 2007. In that letter we advised the petitioners that we could not address their petition at that time because existing court orders and settlement agreements for other listing actions required nearly all of our listing funding. We also concluded that emergency listing of the least chub was not warranted.

In making this finding, we relied on information provided by the petitioners that we determined to be reliable after reviewing sources referenced in the petition and available in our files. We evaluated that information in accordance with 50 CFR 424.14(b). Our process for making this 90-day finding under section 4(b)(3)(A) of the Act is limited to a determination of whether the information in the petition meets the “substantial information” threshold.

### Previous Federal Actions

In 1972, and again in 1989, the least chub was recognized as a threatened species by the Endangered Species Committee of the American Fisheries Society (Miller 1972, p. 250; Williams et al. 1989, pp. 2, 5). In 1980, the Service reviewed the species’ status and determined that there was insufficient data to warrant its listing as an endangered or threatened species. On December 30, 1982, the Service classified the least chub as a Category 2 Candidate Species (47 FR 58454). In 1989, we again conducted a status review, and we reclassified least chub as a Category 1 Candidate Species (54 FR 554). On September 29, 1995, the Service published a proposed rule to list the least chub as endangered with critical habitat (60 FR 50518). A listing moratorium, imposed by Congress in 1995, suspended all listing activities and further action on the proposal was postponed.

During the moratorium, the Service, Utah Department of Natural Resources (UDNR), Bureau of Land Management (BLM), Bureau of Reclamation (BOR), Utah Reclamation and Mitigation Conservation Commission (URMCC), and Confederated Tribes of the Goshute Reservation, and Central Utah Water Conservancy District developed a Least Chub Conservation Agreement and Strategy (LCCAS), and formed the Least Chub Conservation Team (Perkins et al. 1998). The LCCAS was revised in 2005 (Bailey et al. 2005). The goal of the agreement is to ensure the species’ long-term survival within its historic range and assist in the development of rangewide conservation efforts. The objectives of the agreement are to eliminate or significantly reduce threats to the least chub and its habitat, to the greatest extent possible, and to ensure the continued existence of the species by restoring and maintaining a minimum number of least chub populations throughout its historic range. The Least Chub Conservation Team implements the LCCAS, and monitors populations, threats, and habitat conditions.

As a result of conservation actions and commitments made by signatories to the 1998 LCCAS (Perkins et al. 1998, p. 10), the least chub were being addressed and implemented. Consequently, the Service withdrew the listing proposal on July 29, 1999 (64 FR 41061).

### Species Information

The least chub (*Iotichthys phlegethontis*) is a monotypic cyprinid (member of the minnow family) that is typically less than 6.5 centimeters (2.6 inches) long. The species has broad tolerances to habitat conditions that have allowed it to persist in the fluctuating environments of the springs and marshes of Utah’s West Desert (Lamarra 1981, p. 1). Least chub are intermittent spawners, releasing a few eggs at a time over an extended period from February to September (Crawford 1979, p. 74). They are opportunistic feeders and use available food items, including algae, diatomaceous material, midges, copepods, and ostracods (Sigler and Sigler 1987, p. 182; Hickman 1989, p. 8), depending on seasons and habitats (Crist and Holden 1980, p. 808; Lamarra 1981, p. 5).

The species is endemic to the Bonneville Basin of Utah where it was once widely distributed throughout a variety of habitats, including rivers, streams, springs, ponds, marshes, and swamps (Sigler and Miller 1963, p. 91). Over the past 15,000 years, least chub have persisted in relic wetland pockets left by Bonneville and Provo Lakes, which have been receding since the Pleistocene period. A decline in the abundance of least chub was first noted in the 1940s and 1950s (Osmundson 1985, p. 1).

Currently, six known, wild, extant populations of least chub remain. Three are in Snake Valley in Utah’s West Desert, and include the Leland Harris Spring complex, Gandy Salt Marsh, and Bishop Spring:

1. **Leland Harris**—R.R. Miller collected the first least chub from the Leland Harris Spring complex in 1970 (Sigler and Sigler 1987, p. 182). The site is north of the Juab/Millard County line and is primarily on BLM land, but portions are privately owned. The site consists of 12 springheads that feed a playa wetland. The habitat fluctuates in size seasonally. Least chub is the dominant fish species; they are abundant and the population appears to be stable (Hines et al. 2008, p. 42). The site has been monitored annually by the Utah Division of Wildlife Resources (UDWR) since 1993 (Hines et al. 2008, p. 43). Miller Spring is part of the Leland Harris Spring complex, but outflows of the two sites are not always connected.

2. **Gandy Salt Marsh**—C.L. Hubbs collected least chub at this site in 1942 (Sigler and Miller 1963, p. 82). Gandy Salt Marsh is north of the Millard/Juab County line and is managed by BLM. It consists of 52 small springheads that drain into a large playa wetland. Least chub numbers fluctuate at this site, but they are persistent and nonnative species are not present (Hines et al. 2008, p. 40).

3. **Bishop Springs (Twin Springs)**—This spring complex is the largest occupied least chub site in Snake Valley. The marsh has four large springs containing least chub, including Foote Reservoir, Central Spring, and two sites at Twin Springs. These flow into marshlands, seeps, and braided channels. The least chub population has remained stable; however, nonnatives are present and include common carp (*Cyprinus carpio*), bull frogs (*Rana catesbeiana*), and a small number of bass (*Micropterus sp.*) (Hines et al. 2008, p. 37).

The remaining three wild populations are located along the Wasatch Front and include Mills Valley and Clear Lake in the Sevier River drainage and Mona Springs in the Utah Lake drainage:

4. **Mills Valley**—The Mills Valley population was discovered in 1996 by UDWR biologists. The site is in the Sevier River drainage in Mills Valley, southeast Juab County. It consists of a wetland with many springheads throughout the complex. Most of Mills Valley is privately owned, but a portion is on the UDWR Mills Meadows Wildlife Management Area (WMA). Nonnatives at this site include fathead minnows (*Pimephales promelas*),
sunfish (Lepomis sp.), and common carp (Cyprinus carpio). Surveys from 1999 to 2006 indicate a stable least chub population; however, fathead minnow numbers during this period have doubled (Hines et al. 2008, p. 44).

(5) Clear Lake—In 2003, UDWR biologists found least chub at the Clear Lake Waterfowl Management Area. This reserve consists of a shallow reservoir and diked ponds. It is managed by UDWR to provide waterfowl habitat and is located on the southern edge of the Bonneville Basin in Millard County. Nonnatives captured at Clear Lake include rainbow trout (Oncorhynchus mykiss) and common carp. Population estimates are difficult to determine at the Clear Lake site; however, since the discovery of this population, successful recruitment has been documented (Hines et al. 2008, p. 45).

(6) Mona Springs—The Mona Springs population was discovered in 1995 by biologists from UDWR. The UDWR and BOR acquired 41.5 hectares (ha) (102.6 acres (ac)) on the Mona Springs complex (URMCC 2008). Least chub at this site may be extirpated as a result of mosquitofish (Gambusia affinis) infestation (Hines et al. 2008, p. 34).

Portions of wild least chub populations have been introduced into captive or natural refuge environments by UDWR, including five genetic refuge and translocation sites:

(1) Lucin Pond—Lucin Pond was built to provide cooling water for locomotive steam engines for the transcontinental railroad. The water is collected from springs in the Pilot Mountains and delivered by an antiquated aqueduct a distance of approximately 8 kilometers (km) (5 miles (mi)). Forty-two least chub were transplanted to Lucin Pond in 1989 by UDWR biologists; however, the origin of these fish was not documented. Genetic analysis indicates the fish originated from both the Gandy Salt Marsh and Leland Harris populations in Snake Valley (Mock and Miller 2005, p. 276). Mosquitofish are abundant in the pond.

(2) Antelope Island—Garden Creek is a 0.04–ha (0.1–ac) pond that was dredged by the Utah Department of Parks and Recreation (UDPR), and is fed by a perennial stream. In 2004, 947 least chub were introduced to the pond. This site is considered a genetic refuge for the Mona Springs population. Reproduction and recruitment are occurring, and this transplant area appears to be a success (Hines et al. 2008, p. 46).

(3) Atherly Reservoir—Atherly Reservoir is a waterfowl management area located in Rush Valley in Tooele County, and operated by UDWR. Approximately 13,000 least chub from the Mills Valley population were introduced in 2006. Common carp are present at the site. The status of the population will be determined after monitoring is conducted (Hines et al. 2008, p. 50).

(4) Fish Springs National Wildlife Refuge—Attempts in 1995 and 1996 to introduce least chub into spring heads on the refuge were unsuccessful due to the reinvasion of mosquitofish. In 2007, least chub were introduced into Ibis and Pintail Ponds, two units on the Refuge that had been drained and allowed to stay dry over the winter. Mosquitofish are present, but the sites are large, the habitat is diverse and expansive, and the ponds can be drained periodically (Hines et al. 2008, p. 50).

(5) Red Knolls Pond—This site is located in west Box Elder County. Nonnative eradication has been conducted, and the pond is fenced to exclude livestock. In 2005, 250 least chub from Bishop Springs were introduced. Successful recruitment was observed in 2006 (Hines et al. 2008, p. 50).

Least chub are being held and produced at the Wahweap State Fish Hatchery in Big Water, Utah, and the Fisheries Experiment Station in Logan, Utah. Fish from these stations are used for transplants to reintroduction sites.

Threats Analysis

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR 424) set forth the procedures for adding species to the Federal Lists of Endangered and Threatened Wildlife and Plants. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1) of the Act: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. Listing actions may be warranted based on any of the above threat factors, singly or in combination.

In making this 90-day finding, we evaluated whether information regarding the least chub, as presented in the petition and other information available in our files at the time of petition review, is substantial, thereby indicating that listing the least chub as threatened or endangered may be warranted. Our evaluation is presented below.

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

The petitioners state that threats to the species’ habitat include: (1) Livestock grazing; (2) mining, including peat mining and oil and gas leasing and exploration; (3) urban development; and (4) water withdrawal and diversion.

Livestock Grazing

The petitioners state that nearly 100 percent of the wild, extant least chub sites have been impacted by livestock in the last 10 years, and that direct and indirect impacts from livestock grazing to least chub, and aquatic habitats in general, is well documented in the literature (Schultz and Leininger 1990, pp. 297–299; Fleischner 1994, pp. 635–636).

The petitioners report that livestock grazing impacts at the Mills Valley population site are the most serious in existing wild chub habitat. Ungulate damage occurs at other least chub sites, including Mona Springs, Leland Harris, and Twin Springs south of the Bishop Springs site, and Central Spring and Foote Reservoir at the Bishop Springs site. They state that most least chub habitats are not protected from grazing.

The petitioners provide general information regarding livestock damage to least chub habitats, but do not present specific information that livestock damage has resulted in least chub population declines or loss of habitat. The LCCAS has identified livestock grazing as a potential threat to least chub habitats; the Least Chub Conservation Team monitors grazing conditions at least chub population sites, and implements protective measures as necessary. At the Mona Springs site, an electric fence has been installed around the spring and riparian area to exclude cattle. Fencing has also been installed at Gandy Salt Marsh, Leland Harris, and Miller Spring to exclude cattle from spring head areas. A rotational grazing plan was implemented on 75 ha (188 ac) of the Leland Harris site to improve habitat conditions (Hines et al. 2008, p. 8).

On the basis of our evaluation of the information presented in the petition, we determined that the petition does not present substantial information indicating that listing the least chub may be warranted due to the present or threatened destruction, modification, or curtailment of its habitat or range due to livestock grazing. The Least Chub Conservation Team implements monitoring and mitigation measures through the LCCAS to reduce the threat
of livestock grazing to known populations of least chub.

Mining, Oil and Gas Leasing and Exploration

The petitioners state that mining can negatively impact least chub populations by polluting streams or reducing stream flows. The petition documents illegal peat mining in Mills Valley on private property in the late 1990s. Mills Valley contains one of the larger least chub populations. Although the illegal activities have ceased, permits have now been issued that could allow future peat mining. The petitioners acknowledge that peat mining has not yet occurred, and they reference an evaluation indicating that peat mining in Mills Valley might not be profitable.

The petitioners accurately report that oil and gas leasing and exploration is ongoing in areas occupied by least chub. They state that oil and gas exploration or development can result in impacts to springs, marshes, and riparian and other associated vegetation. Water used for these operations can impact habitats by polluting streams or reducing stream flows.

The petition documents that, in 2006, BLM leased multiple parcels north and west of Miller Spring and in parts of the Leland Harris population site. Most of the Gandy Salt Marsh area and portions of Mills Valley also have been leased. Applications for permits to drill at these sites have not yet been pursued. The petitioners document that BLM has attached directional drilling stipulations to the Gandy Salt Marsh leases with the intent to minimize impacts to occupied least chub habitats.

Seismic lines have been tested to determine locations of oil and gas deposits in the Mills Valley area. Although lease holders have committed to avoiding spring and marsh habitats within seismic routes, the petitioners believe that impacts will occur from seismic exploration. The petitioners state that vehicles, including drilling rigs and recording trucks, will crush vegetation and compact soils. Routes used for seismic exploration will likely become established roads. Surface activities may impact water quality. Drilling activities have the potential to release drilling fluids into the aquifer or fracture underground geologic features that are associated with spring discharge.

We are aware of past illegal peat mining activities in Mills Valley. We reviewed the potential for lawful peat mining to occur in the future. As the petitioners cite, UDNR contracted an analysis of the quality of the peat in 2003. The report revealed that the peat is of inferior quality and would not be financially profitable to harvest. Therefore, given our current understanding of peat quality in the area, we believe the threat from large-scale peat mining is minimal.

Oil and gas leasing and exploration have the potential to impact least chub habitats. The petition provides general information regarding the extent of oil and gas leasing and potential development in least chub habitats. However, it does not present specific information that this development has resulted in losses, or threatens to result in losses, of least chub habitat. The petition correctly identifies conservation measures that BLM has attached to leases in occupied least chub habitats.

Much of the information in the petition concerning oil and gas leasing and exploration identifies potential rather than actual impacts. On the basis of our evaluation of the information presented in the petition, we determined that it does not present substantial information to indicate that listing the least chub may be warranted due to the present or threatened destruction, modification, or curtailment of its habitat or range due to mining or oil and gas leasing or exploration.

Urban and Suburban Development

The petitioners indicate that urban and suburban development affect least chub habitats with numerous, diverse, direct and indirect impacts, including but not limited to: (1) Encroachment that changes the hydrology, sediment regimes, and pollution input; (2) human occupation near streams and springs that increases the potential for introduction of nonnative plants and animals; and (3) alterations of stream banks, floodplains, and wetland habitats by increased diversions of surface flows and connected groundwater.

The petitioners state that throughout the Utah Lake hydrological subunit, residential development and agricultural and municipal water development projects have impacted least chub by converting habitats into residential areas and altering natural flows. They indicate that the Mona Springs habitat is experiencing rapid growth and that a development is expanding to within 2 km (1.25 mi) of the least chub site.

We acknowledge that development has impacted the Wasatch Front least chub populations. The least chub was originally reported to be common throughout the Bonneville Basin in a variety of habitat types (Sigler and Miller 1963, p. 82). Innumerable springs, streams, and wetlands along the Wasatch Front have been impacted or eliminated as a result of development.

However, within the currently occupied range of the least chub, no wild populations are known to be at risk from urban development. UDWR owns the majority of suitable habitat of populations near the Wasatch Front, including the Mona Springs and Clear Lake sites, and a portion of Mills Valley. In addition, Mills Valley is largely a peat wetland with low development potential. On the basis of our evaluation of the information presented in the petition, we determined that it does not present substantial information to indicate that listing the least chub may be warranted due to the present or threatened destruction, modification, or curtailment of its habitat or range due to urban or suburban development.

Water Withdrawal and Diversion

The petitioners consider the most significant threat to Snake Valley least chub populations to be proposed groundwater withdrawals from the Snake Valley aquifer. They indicate that the agency charged with supplying water to Las Vegas, the Southern Nevada Water Authority (SNWA), has proposed drilling nine groundwater pumping stations just inside Nevada on the Utah/Nevada border in Snake Valley, and withdrawing up to 3,048 to 3,658 hectare-meters (ha-m) (25,000 to 30,000 ac-ft) a year of groundwater (Schaeffer and Harrill 1995, p. 11). The petitioners believe the wells will likely be drilled at locations where water from creeks coming off the Snake Range becomes subterranean and enters Utah's portion of Snake Valley. If all permits are granted, SNWA intends to start pumping in 2015. The petitioners state that although SNWA’s formal proposal calls for pumping about 3,048 ha-m (25,000 ac-ft) of water per year from Snake Valley, SNWA has applications on file with the Nevada State Engineer for pumping roughly double that amount—up to 6,177 ha-m (50,665 ac-ft) per year. In their Clark, Lincoln, and White Pine Counties Groundwater Development (GWD) Project Final Scoping Package for an Environmental Impact Statement, SNWA identified 9 points of diversion in Snake Valley and estimates of 15 to 25 groundwater production wells (BLM 2006, pp. 1, 2, 17, 18).

The petitioners reference several studies predicting impacts to the dynamics and overall budget of the Snake Valley groundwater system (Schaeffer and Harrill 1995, pp. 19–27; Kirby and Hurlow 2005, pp. 21–26, 30–
(20,000 ac-ft) per year based on results of 10 years of monitoring (State of Nevada 2007, p. 56). The Service and other Department of the Interior (DOI) agencies (BLM, National Park Service, and Bureau of Indian Affairs) protested SNWA’s Spring Valley water rights applications when they were filed in 1989, based in part on potential impacts to water-dependent resources.

The DOI agencies reached a stipulated agreement with SNWA for the Spring Valley withdrawal, and withdrew their protests before the Nevada State Engineer held a hearing. The Stipulated Agreement, signed in September 2006, established a process for developing and implementing hydrologic and biologic monitoring, management, and mitigation (State of Nevada 2007, p. 56). Representatives from the Service and UDWR are participating on the Biological Work Group formed under the Spring Valley Stipulation Agreement. This group is designing and implementing a monitoring, management, and mitigation plan to avoid unreasonable adverse effects to water-dependent ecosystems and to maintain or enhance baseline biologic integrity and ecological health (SNWA 2006, Exhibit 2). In accordance with the Nevada State Engineer’s ruling, 5 years of baseline data must be collected and analyzed prior to initiation of any groundwater pumping.

The Nevada State Engineer hearings on SNWA water rights applications in Snake Valley have not yet been scheduled. According to the Lincoln County Recreation and Development Act (LCCRDA) of 2004, before any trans-basin diversion from groundwater basins located within Nevada and Utah, the States must reach an agreement on the division of water resources and groundwater flow systems. Negotiations are occurring, but Nevada and Utah have not reached agreement. The timeframe for an interstate water withdrawal agreement for Snake Valley is uncertain.

The petitioners reference predictions of impacts to the Snake Valley aquifer from groundwater pumping (Kirby and Hurlow 2005, p. 33). We concur that some or all of these impacts may occur. However, a lack of information on the extent of aquifers, their hydraulic properties, and the distribution of water levels in the aquifers makes it difficult to develop a reliable prediction of the amount or location of draw-down, or the rate of change in natural discharge, caused by pumping (Prudic 2006, p. 3). A hydrologic groundwater flow model specific to the six basins being analyzed in the current Environmental Impact Statement (EIS), and outlined in the GWD project, is being developed.

The LCCRDA of 2004 directed a study of groundwater quantity, quality, and flow characteristics in the carbonate and alluvial aquifers of White Pine County, Nevada; groundwater basins located in White Pine or Lincoln Counties, Nevada; and adjacent areas in Utah. This Basin and Range Carbonate Aquifer System (BARCAS) study was conducted by U.S. Geological Survey (USGS), the Desert Research Institute, and the State of Utah. USGS released a final report of the BARCAS study on February 22, 2008 (USGS 2008).

The BARCAS study included a water-resources assessment of the geologic framework and hydrologic processes influencing the quantity and quality of groundwater resources. USGS determined that groundwater systems underlying many of the valleys in eastern Nevada and western Utah are not isolated, but rather contribute to or receive flow from adjoining basins. They also determined that some large-volume springs cannot be supported entirely by the local recharge from the adjacent mountains; these springs depend on water from potentially hundreds of miles away (USGS 2008, pp. 2–8).

The BARCAS study is used to guide designation of basin and regional groundwater “budgets” for 13 hydrographic areas and the entire study area in White Pine County, Nevada. The study included assessment of the hydrogeology, recharge and discharge, and groundwater flow and geochemistry of the aquifer system. One result from the BARCAS study was documentation that the study-wide average annual groundwater recharge exceeded annual discharge by about 10,973 ha-m (90,000 ac-ft); most of this groundwater surplus exits the study area through Snake Valley to the northeast or White River Valley to the south (USGS 2008, p. 3).

In 2007, the Utah State Legislature charged the Utah Geological Survey with establishing a groundwater monitoring network in Utah’s West Desert in response to the proposed groundwater pumping project. The objectives of the monitoring network are to define background water level and geochemoical conditions prior to SNWA pumping, and to quantify any changes in these conditions after pumping begins.

On the basis of our evaluation of the information presented in the petition and in our files, we determined that the petition presents substantial information concerning a listing least chub as a threatened or endangered species may be warranted due to water
withdrawal and diversion. However, a great deal of uncertainty exists regarding the long-term effects of the groundwater pumping proposal for aquifers and surface waters in Utah’s West Desert. Numerous models and studies are underway that should provide additional information that would enable us to evaluate effects.

The GWD project is anticipated to be completed in January 2014 (SNWA 2007, pp. 4–11). Prior to its completion, baseline data collection and research on biologic and hydrologic impacts will continue. Despite lack of specific data at this time, the level of concern regarding negative impacts to spring discharge rates, and ultimately least chub habitats, from groundwater pumping is high.

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

The petition states the overutilization for commercial, recreational, scientific or educational purposes does not currently pose a threat to least chub.

C. Disease or Predation

The petitioners document that where nonnative fishes have been introduced, least chub are unlikely to persist (Osmundson 1985, p. 2; Hickman 1989, pp. 2–3, 9). Introduced game fishes, including largemouth bass (Micropterus salmoides), rainbow trout (Oncorhynchus mykiss), common carp (Cyprinus carpio), and brook trout (Salvelinus fontinalis), are predators on least chub, and these species have been stocked into least chub habitats (Workman et al. 1979, pp. 1–2, 136; Sigler and Sigler 1987, p. 183; Osmundson 1985, p. 2; Crist 1990, p. 5).

The petitioners note that mosquitofish ( Gambusia affinis), in particular, are a direct threat because of aggressive predation on least chub eggs and young (Sigler and Sigler 1987, p. 183; Sigler and Miller 1963, p. 92). They indicate that population declines at Mona Springs (Hines et al. 2008, p. 34) and Lucin Pond (Thompson 2005, p. 4) have been directly attributed to the presence of mosquitofish.

The petitioners note that disease and incidence of parasitism are not major factors affecting least chub. The parasite blackspot ( Neascus caticola) is known to be present in the Leland Harris population. Infested least chub examined to date have appeared to be robust and in good condition (Bailey et al. 2005, p. 21).

We find that the petition presents substantial information indicating that nonnative mosquitofish, are a predation threat to least chub in wild and translocated populations. Wasatch Front populations are currently impacted the most by nonnative species. The Mona Springs population is near extirpation (Hines et al. 2008, p. 34) due to the invasion of mosquitofish. The nonnative fathead minnow ( Pimephales promelas) is prominent at the Mills Valley site, and sunfish ( Lepomis sp.) and common carp also are present; however, no effects have been observed to the least chub population (Hines et al. 2008, p. 43).

Rainbow trout and common carp have been captured at Clear Lake, and other nonnative species may be present; these species do not appear to be affecting the least chub population.

Two efforts to translocate least chub to Fish Springs National Wildlife Refuge failed as a result of predation (and competition) by mosquitofish. A similar translocation on Antelope Island also failed as a result of predation by mosquitofish.

The Least Chub Conservation Team implements ongoing efforts to prevent the introduction of nonnative species into least chub habitats. The Policy for Fish Stocking and Transfer Procedures includes protocols for the introduction of nonnative species, including game, and is adhered to by UDWR. All stocking actions must be consistent with ongoing recovery and conservation actions for Utah Sensitive Species (UDWR 1997, p. 19).

In addition, the Least Chub Conservation Team (LCCT) has attempted mechanical removal of mosquitofish from occupied least chub habitats, most intensively at the Mona Springs complex. The least chub population at Mona Springs has been steadily declining since 1999. UDWR made extensive efforts to mechanically remove mosquitofish at this site for 3 consecutive years, but even after 95 percent removal, the population recovered within a year (Hines et al. 2008, p. 32). Least chub at this location are now near extirpation (Hines et al. 2008, p. 31). A treatment for mosquitofish at Water and Deadman Springs on the Fish Springs National Wildlife Refuge was conducted in 1995 and 1996 through a combination of Rotenone application and draining the ponds. Least chub were then transplanted into the ponds, but re-invasion by mosquitofish resulted in transplant failure (Wilson and Whiting 2002, p. 4; Wilson and Mills 2004, pp. 4–5).

In 2002, a Memorandum of Understanding (MOU) between UDWR and Mosquito Abatement Districts of Salt Lake and Davis Counties will conduct pilot studies to determine the effectiveness of replacing mosquitofish with least chub for mosquito control purposes; however, this has not yet been completed.

Despite efforts to monitor and remove mosquitofish, this nonnative species continues to be a predation threat (as well as a competitor; see Factor E) to the least chub. At some sites, such as Mona Springs, the threat is large enough that extirpation of least chub populations is possible. On the basis of our evaluation of the information presented in the petition, we find that the petition presents substantial information indicating that listing the least chub as a threatened or endangered species may be warranted due to the presence and potential spread of nonnative predatory species in least chub habitats.

D. Inadequacy of Existing Regulatory Mechanisms

The petition reviews the legal authorities of each Federal agency relative to providing protection for the least chub, including the Service, BLM, and U.S. Army Corps of Engineers (Corps). The petitioners indicate that State, Tribal, and local programs are inadequate substitutes for Federal protection under the Act (Center for Biological Diversity v. Gale Norton, CV 01–409 TUC DCB, Jan. 13, 2003; Doremus and Page 2001, p. 1266). They acknowledge other agencies that contribute to the LCCAS, but have no regulatory authority, including BOR, URMCC, and the Central Utah Water Conservancy District.

The petition indicates that the Service has no specific authority to take actions for recovery of least chub. Consideration or implementation of Service recommendations is discretionary. The petition states that management of least chub habitat on BLM lands is likely inadequate to prevent further decline of the species in Snake Valley because, regardless of the Federal Land Policy and Management Act (43 U.S.C. 1701 et seq.) and the National Environmental Policy Act (42 U.S.C. 4231 et seq.), impacts continue to occur to least chub sites. The Corps administers issuance of dredge and fill permits under section 404 of the Clean Water Act (33 U.S.C. 1251 et seq.). These permits regulate a wide variety of activities in streams and wetlands in both the historic and extant range of least chub. Under the regulations and policies governing implementation of this program, there is substantial latitude for allowing destruction and degradation of stream...
habitats, including those that could potentially support least chub.

The least chub is currently classified in the State of Utah as a Tier 1 Sensitive Species, a status that includes federally listed species and species for which a Conservation Agreement has been completed and implemented (UDWR 2005, pp. 5–3).

The petitioners review the extensive efforts of UDWR, as a result of the LCCAS, to implement conservation measures for the least chub. They compare proposed measures in the LCCAS to completed conservation measures of habitat enhancement and protection, restoration of hydrologic conditions, nonnative control, and education programs. The petitioners acknowledge progress made in all categories, but conclude that it is not adequate; despite the extensive efforts and new information on the species, the status of the least chub has not substantially improved since it was determined warranted for listing in 1995.

Although the least chub does not have protection under the Act, conservation provisions have been accomplished. The Service is represented on the LCCAS Technical Team, and we evaluate the progress of actions to protect the species. BLM also participates on the LCCAS Technical Team and assists in on-the-ground projects, such as fencing and habitat restoration, and has attached conservation measures to leases in areas of occupied least chub habitats.

UDWR, through coordinated efforts by the Least Chub Conservation Team, has implemented site-specific habitat enhancement and restoration projects that include land acquisition, conservation easements, landowner agreements, bank stabilization, nonnative vegetation removal, fencing to exclude livestock, dredging, and water line repairs (Hines et al. 2008, pp. 22–24). Hydrologic conditions of extant least chub population habitats in Snake Valley have been protected by the UDWR. For example, in 2007, UDWR purchased water rights in Foote Reservoir to maintain water levels at Bishop and Twin Springs (Hines et al. 2008, p. 23).

Efforts also have been made to protect and increase the long-term viability of least chub populations. Portions of five of the six wild least chub populations (Bishop Springs, Mills Valley, Mona Springs, Clear Lake, and Leland Harris) have been relocated to new sites to provide genetic refuge (Hines et al. 2008, p. 20). In addition, two fish hatcheries harbor brood stock for use in ongoing relocation efforts and four display/educational populations exist.

To date, BLM has demonstrated support for least chub conservation by requiring lease stipulations that avoid drilling in least chub habitats. UDWR has completed conservation measures within existing regulatory frameworks, such as acquiring water rights, purchasing land, and implementing habitat restoration. Mosquito Abatement Districts are now incorporating least chub conservation needs into mosquito control programs by removing mosquitofish as the primary control mechanism and cooperating in research efforts.

Despite extensive efforts, regulatory mechanisms have not been able to ameliorate the threat from nonnative species, and State water regulations are not specific enough to ensure long-term viability of the least chub. We conclude that the petition presents substantial information to indicate that listing least chub as a threatened or endangered species may be warranted due to inadequacy of existing regulatory mechanisms.

E. Other Natural or Manmade Factors Affecting Its Continued Existence

The petitioners state that other natural and manmade threats to the species include: (1) Competition from nonnative species; (2) hybridization; (3) mosquito abatement programs; (4) stochastic disturbance and population isolation; (5) drought and climate change; and (6) cumulative effects.

Competition from Nonnative Species

The petitioners indicate that nonnative fishes, including mosquitofish, rainwater killifish (Lucania parva), and plains killifish (Fundulus zebrenis), have been released into least chub habitats. These species have similar diets to the least chub and are considered competitors.

Nonnative fishes exist in least chub habitats. Mosquitofish, in addition to being a predator on least chub eggs and young, are a significant competitor to adult least chub for food sources. Population declines at Mona Springs and Lucin Pond have been directly attributed to the presence of mosquitofish (Hines et al. 2008, p. 34; Thompson 2005, p. 4). See Factor C (predation) for a discussion of the efforts, mostly unsuccessful, to remove and prevent reinvasion of nonnative fish in least chub habitats. We find that the petition presents substantial information to indicate that listing least chub as a threatened or endangered species may be warranted due to competition from nonnative fish.

Hybridization

The petition notes that hybridization may occur in compromised habitats. Hybrid introgression of least chub with Utah chub (Gila atraria), and with speckled dace (Rhinichthys osculus), has been reported (Miller and Behnke 1983, pp. 509–515). In complex habitats, reproductive isolating mechanisms can be eliminated as a result of habitat alteration and degradation; overlaps of reproductive niches and breakdowns of behavior due to overcrowding then occur (Crawford 1979, p. 74; Lamarra 1981, p. 7). Least chub hybrids have been reported from springs near Callao, Utah, where least chub once existed (Miller and Behnke 1985, p. 510).

Recent molecular diversity studies on existing least chub populations indicate that currently no evidence of hybridization between least chub and Utah chub exists, and suggest that previous hybridization reports may have been due to a misidentification of specimens (Mock and Miller 2003, p. 10). The information provided by the petitioners does not present substantial information to indicate that listing the least chub may be warranted due to hybridization.

Mosquito Abatement Programs

The petition indicates that, although BLM has rejected Juab County’s request for implementing a mosquito control spraying program on BLM administered lands, the spraying may still occur on private lands. The least chub may be affected because mosquito larvae are a major food item in the least chub diet. Least chub have been shown to be opportunistic feeders and use available food items, including algae, diatomaceous material, midges, copepods, and ostracods (Sigler and Sigler 1987, p. 92; Hickman 1989, p. 8) depending on seasons and habitats (Crist and Holden 1980, p. 808; Lamarra 1981, p. 5). As previously stated, an MOU between UDWR and Mosquito Abatement Districts was finalized in order to reduce the spread of mosquitofish in Utah. In 2008, UDWR and the Mosquito Abatement Districts of Salt Lake and Davis Counties will conduct studies to determine the effectiveness of replacing mosquitofish with least chub for mosquito control purposes; however, studies have not been completed. The petitioners conclude that effects of a mosquito control program on least chub are unknown. The petitioners do not present substantial information to indicate that listing the least chub may
be warranted due to effects from mosquito abatement programs.

Stochastic Disturbance and Population Isolation

The petition presents information relative to the limited distribution and isolation of remaining least chub populations. The petitioners cite literature on the risks to small, isolated populations, including environmental and demographic stochasticity (Lande 1993, pp. 911–917; Davis 2008, p. 20). Least chub populations are isolated, both naturally and as the result of human impacts. Habitat connectivity is absent among the three Wasatch Front populations as a result of past urban development. West Desert populations are similarly disconnected except in years of exceptionally high water. However, the LCCT team has been successful in protecting the remaining occupied sites. Translocation efforts have established five new sites in natural habitats (Davenport et al. 2008, p. 20). In addition, results of genetic studies indicate that ongoing translocation efforts have been successful in maintaining genetic diversity (Mock and Miller 2005, pp. 273–277). Therefore, although small, isolated populations will remain a conservation challenge, we find that the petitioners have not presented substantial information to indicate that listing the least chub may be warranted due to effects from stochastic disturbance and population isolation.

Drought and Climate Change

The petition indicates that a prolonged drought has occurred in Utah and some least chub habitats, particularly the Gandy Salt Marsh complex, may have been compromised. The petition cites the effects of climate change on biodiversity (IPCC 2001, pp. 5, 16; Davenport et al. 1998, pp. 229–238), and the combined effects of drought to least chub populations and habitats in Utah. The petitioners state that climate change, specifically increased global temperatures, may be a more serious long-term threat to least chub than drought. They indicate that the effects of increased global temperatures include decreased duration and depth of winter snowfall (IPCC 2001, pp. 6, 9); earlier spring runoff and decreased water availability; decreased productivity and cover of herbaceous vegetation, resulting in increased soil erosion; and unprecedented rates of vegetation shifts due to die off, especially along boundaries of semi-arid ecosystems (Davenport et al. 1998, p. 231). These changes may pose threats to native aquatic species as the quality and quantity of aquatic, riparian, and mesic upland ecosystems decline with decreased water availability.

The petitioners present no direct link between climate change and the least chub, and we have no information in our files to substantiate their claims. Therefore, we find that the petitioners have not presented substantial information to indicate that listing the least chub may be warranted due to effects from climate change. Drought has been documented periodically within the range of the least chub, and is likely currently affecting the species. However, the species has continued to exist despite periods of natural drought, and on its own, this is not considered a significant threat to the species. During periods of drought, farmers and ranchers rely more heavily on water sources for irrigation purposes, and this factor combined with drought has likely led to the loss of several springs in the Snake Valley. However, it is currently not possible to separate drought from water withdrawals in order to analyze it as a threat to the least chub. Therefore, we find that the petitioners have not presented substantial information to indicate that listing the least chub may be warranted due to effects from drought.

Cumulative Effects

The petitioners indicate that many possible combinations of effects could cumulatively impact least chub populations. They discuss possible combined effects of climate change, drought, and aquifer depletions on the least chub and its habitats.

We cannot predict the cumulative effects of climate change and drought on least chub at this time. In addition, because the effects of proposed groundwater withdrawals have not been determined, it is difficult to predict how the combination of those effects with potential climate change and drought would affect the least chub. Effects will be determined to some extent possibly by modeling efforts, and by the results of implementation and monitoring of future groundwater withdrawals. While potential combinations of negative impacts are a concern for the least chub, we find that the petitioners have not presented substantial information to indicate that listing the least chub may be warranted due to the cumulative effects of climate change, drought, and aquifer depletions.

Finding

We reviewed the petition, supporting information provided by the petitioners, and information in our files and evaluated that information to determine whether the sources cited support the claims made in the petition. We find the petitioners presented substantial information under Factor A (Present or threatened destruction, modification, or curtailment of habitat or range) indicating that listing the least chub as threatened or endangered under the Act may be warranted due to water withdrawals and diversions. While uncertainty exists on the magnitude of effects to the least chub from proposed groundwater pumping, concern regarding the six extant, wild populations is sufficient to warrant further analysis.

We find that the petitioners presented substantial information under Factors C (Disease or Predation) and E (Other Natural or Manmade Factors Affecting the Species’ Continued Existence) indicating that listing the least chub as threatened or endangered under the Act may be warranted due to the continuing threat of nonnative species, particularly mosquitofish, for which there is no known means of control. Several significant efforts have been made to remove mosquitofish from least chub habitats, without success. The wild least chub population at Mona Springs may be extirpated due to mosquitofish. Of the six natural populations, five have nonnative species present and of five refuge sites, two currently have mosquitofish present.

We find that the petitioners presented substantial information under Factor D (Inadequacy of Existing Regulatory Mechanisms) indicating that listing the least chub as threatened or endangered under the Act may be warranted due to inadequacy of existing regulations. Regulatory mechanisms may not be adequate to ameliorate the threat from nonnative species, and State water regulations are not specific enough to ensure long-term viability of the least chub.

Based on our consideration of the information provided in the petition, and in accordance with recent applicable court decisions pertaining to 90-day findings, we find that the petition presents substantial scientific information indicating that listing the least chub may be warranted. Our process for making this 90-day finding under section 4(b)(3)(A) of the Act is limited to a determination of whether the information in the petition presents “substantial scientific and commercial information,” which is interpreted in our regulations as “that amount of information that would lead a reasonable person to conclude that the measure proposed in the petition may be warranted” (50 CFR 424.14(b)).
Therefore, we are initiating a status review to determine if listing the species is warranted. To ensure that the status review is comprehensive, we are soliciting scientific and commercial information regarding the least chub.

It is important to note that the “substantial information” standard for a 90-day finding is in contrast to the Act's “best scientific and commercial data” standard that applies to a 12-month finding as to whether a petitioned action is warranted. A 90-day finding is not a status assessment of the species and does not constitute a status review under the Act. Our final determination as to whether a petitioned action is warranted is not made until we have completed a thorough status review of the species, which is conducted following a positive 90-day finding. Because the Act’s standards for 90-day and 12-month findings are different, as described above, a positive 90-day finding does not mean that the 12-month finding also will be positive.

We encourage interested parties to continue gathering data that will assist with the conservation and monitoring of the least chub. The petitioners requested that critical habitat be designated for this species. If we determine in our 12-month finding that listing the least chub is warranted, we will address the designation of critical habitat at the time of the proposed rulemaking.

**References Cited**

A complete list of all references cited in this document is available upon request from the Utah Ecological Services Field Office (see the FOR FURTHER INFORMATION CONTACT section).

**Author**

The primary authors of this document are staff of the Utah Ecological Services Field Office (see the FOR FURTHER INFORMATION CONTACT section).

**DEPARTMENT OF COMMERCE**

National Oceanic and Atmospheric Administration

50 CFR Part 622

RIN 0648–AV61

Fisheries of the Caribbean, Gulf of Mexico, and South Atlantic; Spiny Lobster (Panulirus argus) Resources of the Caribbean, Gulf of Mexico, and South Atlantic; Minimum Conservation Standards for Imported Spiny Lobster

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Announcement of availability of fishery management plan amendments; request for comments.

**SUMMARY:** NMFS announces the availability of Amendment 4 to the Spiny Lobster Fishery Management Plan (FMP) of Puerto Rico and the U.S. Virgin Islands and Amendment 8 to the Joint Spiny Lobster FMP of the Gulf of Mexico and South Atlantic prepared by the Caribbean, South Atlantic, and Gulf of Mexico Fishery Management Councils (Councils). Amendments 4 and 8 would establish minimum conservation standards for imported spiny lobster. The intended effect of Amendments 4 and 8 is to eliminate the primary market for lobster that do not meet the minimum size limit or mean size at sexual maturity, which is expected to result in a reduction in the foreign harvest of these undersized animals and increase the spawning stock biomass and long-term potential yield within the pan-Caribbean spiny lobster fishery.

**DATES:** Written comments must be received no later than 5 p.m., eastern time, on December 15, 2008.

**ADDRESSES:** You may submit comments by any of the following methods:

- E-mail: 0648–AV61.NOAA@noaa.gov. Include in the subject line the following document identifier: 0648–AV61–NOAA.
- Mail: Jason Rueter, Southeast Regional Office, NMFS, 263 13th Avenue South, St. Petersburg, FL 33701.
- Fax: 727–824–5308, Attention: Jason Rueter.

Copies of Amendments 4 and 8, which include an Environmental Impact Statement, a Regulatory Impact Review (RIR), and an Initial Regulatory Flexibility Analysis are available from NMFS Southeast Regional Office, 263 13th Avenue South, St. Petersburg, FL 33701; e-mail: jason.rueter@noaa.gov.

**FOR FURTHER INFORMATION CONTACT:**

Jason Rueter, 727–824–5305; fax 727–824–5308; e-mail: jason.rueter@noaa.gov.

**SUPPLEMENTARY INFORMATION:** The United States is a major importer of spiny lobster, importing over 88,000 tons (over 194 million lbs) over the past 10 years, worth an estimated $2.27 billion dollars. The United States imports over 90 percent of the spiny lobster harvested in South and Central America and the Caribbean countries. Some of the exporting countries have minimum size limits, but other countries do not. As a result, some of the imported product is legally harvested, but the majority of the undersized product is illegally harvested in the exporting countries.

The major exporters to the United States are the Bahamas, Brazil, Honduras, and Nicaragua. All of these exporting countries have some form of minimum size requirement, but the requirements are variable and enforcement is severely lacking. Therefore, NOAA Fisheries Service in coordination with the Caribbean, South Atlantic, and Gulf of Mexico Fishery Management Councils is considering minimum conservation standards on imports to curtail the flow of imported undersized lobster harvested in foreign countries. The pan-Caribbean spiny lobster stock is considered to be fully exploited or over-exploited in much of its range. Therefore, additional restrictions on the harvest of animals below the mean size at sexual maturity (i.e., undersized animals) would greatly benefit the stock. Eliminating the primary market for undersized lobster is expected to result in a reduction in the foreign harvest of undersized animals and increase the spawning stock biomass and long-term potential yield within the pan-Caribbean spiny lobster fishery.

A proposed rule that would implement the measures outlined in Amendments 4 and 8 has been received from the Councils. In accordance with the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), NMFS is evaluating the proposed rule to determine whether it is consistent with the FMPs, the Magnuson-Stevens Act, and other applicable law. If that determination is affirmative, NMFS will publish the proposed rule in the Federal Register for public review and comment.

Comments received by December 15, 2008 whether specifically directed to the Amendments 4 and 8 or the

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