DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Docket No. [FWS-R8-ES-2012-0072]

[4500030113]

Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition to List the Eagle Lake Rainbow Trout as an Endangered or Threatened Species

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of 90-day petition finding and initiation of status review.

SUMMARY: We, the U.S. Fish and Wildlife Service, announce a 90-day finding on a petition to list the Eagle Lake rainbow trout (*Oncorhynchus mykiss aquilarum*) as an endangered or threatened species under the Endangered Species Act of 1973, as amended (Act). Based on our review, we find that the petition presents substantial scientific or commercial information indicating that listing the Eagle Lake rainbow trout may be warranted. Therefore, with the publication of this notice, we are initiating a review of the status of the subspecies to determine if listing the Eagle Lake rainbow trout is warranted.

To ensure that this status review is comprehensive, we are requesting scientific and commercial data and other information regarding this subspecies. Based on the status review, we will issue a 12-month finding on the petition, which will address whether the petitioned action is warranted, as provided in section 4(b)(3)(B) of the Act.

DATES: We request that we receive information on or before **[**INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER**]**. The deadline for submitting an electronic comment using the Federal eRulemaking Portal (see **ADDRESSES** section, below) is 11:59 p.m. Eastern Time on this date. After **[**INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER**]**, you must submit information directly to the Division of Policy and Directives Management (see **ADDRESSES** section below). Please note that we might not be able to address or incorporate information that we receive after the above requested date.

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

(1) *Electronically*: Go to the Federal eRulemaking Portal: *http://www.regulations.gov*. In the Search box, enter Docket No. FWS–R8–ES–2012–0072, which is the docket number for this action. Then click on the Search button. You may submit a comment by clicking on "Comment Now!"

(2) *By hard copy*: Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: FWS–R8–ES–2012–0072; Division of Policy and Directives Management; U.S. Fish and Wildlife Service; 4401 N. Fairfax Drive, MS 2042–PDM; Arlington, VA 22203.

We will not accept e-mail or faxes. We will post all information we receive on *http://www.regulations.gov*. This generally means that we will post any personal information you provide us (see the **Request for Information** section, below, for more details).

FOR FURTHER INFORMATION CONTACT: Susan Moore, Field Supervisor, Sacramento Fish and Wildlife Office, telephone at 916–414–6600; or facsimile at 916–414–6712. If you use a telecommunications device for the deaf (TDD), please call the Federal Information Relay Service (FIRS) at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Request for Information

When we make a finding that a petition presents substantial information indicating that listing a species may be warranted, we are required to promptly review the status of the species (status review). For the status review to be complete and based on the best available scientific and commercial information, we request information on Eagle Lake rainbow trout from governmental agencies, Native American tribes, the scientific community, industry, and any other interested parties. We seek information on:

(1) The species' biology, range, and population trends, including:

(a) Habitat requirements for feeding, breeding, and sheltering;

(b) Genetics and taxonomy;

(c) Historical and current range, including distribution patterns;

(d) Historical and current population levels, and current and projected trends; and

(e) Past and ongoing conservation measures for the species, its habitat, or both.

(2) The factors that are the basis for making a listing determination for a species under section 4(a) of the Act (16 U.S.C. 1531 *et seq*.), which are:

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

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

(c) Disease or predation;

(d) The inadequacy of existing regulatory mechanisms; and

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

If, after the status review, we determine that listing the Eagle Lake rainbow trout is warranted, we will propose critical habitat (see definition in section 3(5)(A) of the Act) under section 4 of the Act, to the maximum extent prudent and determinable at the time we propose to list the species. Therefore, we also request data and information on:

(1) What may constitute "physical or biological features essential to the conservation of the species," within the geographical range currently occupied by the species;

(2) Where these features are currently found;

(3) Whether any of these features may require special management considerations or protection;

(4) Specific areas outside the geographical area occupied by the species that are "essential for the conservation of the species"; and

(5) 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 section 4 of the Act.

Please include sufficient information with your submission (such as scientific journal articles or other publications) to allow us to verify any scientific or commercial information you include.

Submissions merely stating support for or opposition to the action under consideration without providing supporting information, although noted, will not be considered in making a determination. Section 4(b)(1)(A) of the Act directs that determinations as to whether any species is an endangered or threatened species must be made "solely on the basis of the best scientific and commercial data available."

You may submit your information concerning this status review by one of the methods listed in **ADDRESSES**. If you submit information via *http://www.regulations.gov*, your entire submission—including any personal identifying information—will be posted on the website. 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 personal identifying 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 supporting documentation that we received and used in preparing this finding is available for you to review at *http://www.regulations.gov*, or by appointment during normal business hours at the U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

Background

Section 4(b)(3)(A) of the Act requires that we make a finding on whether a petition to list, delist, or reclassify 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, supporting information submitted with the petition, and information otherwise available in our files. 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 the finding promptly in the **Federal Register**.

Our standard for substantial scientific or commercial information within the Code of Federal Regulations (CFR) with regard to 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 substantial scientific or commercial information was presented, we are required to promptly conduct a species status review, which we subsequently summarize in our 12-month finding.

The "substantial information" standard for a 90-day finding differs from the Act's "best scientific and commercial data" standard that applies to a status review to determine whether a petitioned action is warranted. A 90-day finding does not constitute a status review under the Act. In a 12-month finding, we will announce our determination as to whether a petitioned action is warranted after we have completed a thorough status review of the species, which is conducted following a substantial 90-day finding. Because the Act's standards for a 90-day finding and the status review conducted for a 12-month finding on a petition are different, as described above, a substantial 90-day finding does not mean that our status review and resulting determination will result in a warranted finding.

Petition History and Previous Federal Actions

On April 28, 1994, we received a petition, dated April 25, 1994, from Mr. John F. Bosta of Susanville, California, requesting that the Eagle Lake rainbow trout be listed as an endangered or threatened species, with critical habitat, under the Act. On August 7, 1995, we published our 90-day finding in the **Federal Register** (60 FR 40149) that the petition did not present substantial scientific or commercial information to indicate the

petitioned action may be warranted. We based the finding on the lack of supporting information included with the petition, and on the existence of significant conservation efforts then underway.

On August 15, 2003, we received a new petition, dated August 14, 2003, again from Mr. John Bosta of Amargosa Valley, Nevada, requesting that the Eagle Lake rainbow trout be listed as an endangered or threatened species under the Act. The petition clearly identified itself as such and included the requisite identification information for the petitioner, as required by 50 CFR 424.14(a). On October 6, 2003, we received a similar petition from Mr. Chuck Sanford, of Loomis, California, dated September 23, 2003. As explained in our 1996 Petition Management Guidance (Service 1996, p. 5), subsequent petitions are treated separately only when they are greater in scope or broaden the area of review of the first petition. Mr. Sanford's petition repeated the same information provided earlier in Mr. Bosta's August 14, 2003, petition and will, therefore, be treated as a comment on the first petition we received.

In a February 24, 2004, letter to Mr. Bosta, we responded that we reviewed the information presented in the petition and determined that issuing an emergency regulation temporarily listing the species under section 4(b)(7) of the Act was not warranted. We also stated that, due to court orders and judicially approved settlement agreements for other listing and critical habitat determinations under the Act, which required nearly all of our listing and critical habitat funding, we would not be able to further address the petition at that time but would complete the action when workload and

funding allowed. Delays in responding to the petition continued due to the high priority of responding to court orders and settlement agreements. In response to litigation brought on behalf of petitioned and candidate species, we reached two settlement agreements on May 10, 2011, and July 12, 2011, that establish a 6-year work schedule for reaching final listing determinations for all petitioned and candidate species (*http://www.fws.gov/endangered/improving_ESA/listing_workplan.html*). The agreements were approved by the Federal District Court of the District of Columbia on September 9, 2011 (*WildEarth Guardians* v. *Salazar*, Nos. 10–377). This notice constitutes our 90-day finding on the August 14, 2003, petition to list the Eagle Lake rainbow trout and is in keeping with the Multi-District Litigation (MDL) 6-year work schedule as ordered by the Court.

In our development of this finding, we attempted to contact both petitioners regarding the information they presented and to obtain documents cited in their petitions. The petitioners did not respond to our requests, or we were unable to contact them due to the timeframe between receiving the petitions and our ability to review them, and thus, we were unable to confirm or clarify the intent of some of the petitions' claims or issues raised or to specifically review the information. As a result, we have used information available at the time of the petition in our files to assist in our review of the petitions.

Species Information

The Eagle Lake rainbow trout is a recognized subspecies of rainbow trout (*Oncorhynchus mykiss*) that is native only to Eagle Lake in Lassen County, California (Snyder 1918; Busack *et al*. 1980, pp. 418–424; Moyle *et al*. 1995, p. 85; Moyle 2002, pp. 274–275). Eagle Lake, the second largest natural lake located entirely within California, is located approximately 15 miles (mi) (24 kilometers (km)) north of Susanville, and supports a popular recreational fishery (Moyle *et al*. 1995, pp. 85–87). The Eagle Lake rainbow trout can grow to approximately 24 inches (in) (60 centimeters (cm)) and weigh up to 10 pounds (lbs) (4.6 kilograms (kg)) and can tolerate high alkaline conditions (up to pH 9.6), which is more than any other rainbow trout (Platts and Jensen 1991, pp. 2–3; Moyle *et al*. 1995, p. 86; Moyle 2002, p. 277). Eagle Lake rainbow trout is distinguished by having 58 chromosomes, instead of the 60 chromosomes of most rainbow trout (Busack *et al.* 1980, p. 421). The subspecies is unusually late maturing (3 years) and can be long-lived (up to 11 years) (Moyle 2002, p. 278), although Eagle Lake rainbow trout older than 5 years are rare (McAfee 1966, p. 223).

The Eagle Lake rainbow trout's alkalinity tolerance helps it to survive the unusual conditions of Eagle Lake. Because the lake has no natural outlet, it is highly alkaline, with pH levels ranging from 8.4 to 9.6 (Platts and Jensen 1991, pp. 2–3; Moyle 2002, p. 277). With the exception of the Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*), the Eagle Lake rainbow trout is the only trout that can tolerate pH levels above about 8.4. Similarly, the longer lifespan of this fish likely is an adaptation to the dry climate in which Eagle Lake is located, which makes natural spawning impossible

during some years due to lack of water in the main spawning areas of Pine Creek (the primary tributary to Eagle Lake) and Bogard Springs Creek (an upper tributary to Pine Creek). Pine Creek has a total length of approximately 40 miles (Young 1989, p. 1). Pine Creek flows into the northwestern portion of the lake and currently has perennial flow for only the first 5 to 10 mi (8 to 16 km) of the 30- to 40-mi (48- to 64-km) creek (Platts and Jensen 1991, p. 4). The rest of the creek is intermittent, flowing in most years from March through about mid-June (Young 1989, p. 1).

Historically, Eagle Lake rainbow trout spawned primarily in the headwaters of Pine Creek (Moyle *et al*. 1995, p. 86). After spending 1 to 2 years in the headwaters of Pine Creek, juveniles made their way downstream to the lake, where they lived the rest of their lives except for spawning trips in the spring (Moyle *et al*. 1995, p. 86). Some spawning activity has also been observed along gravelly shores of Eagle Lake, but it is unknown if spawning has been successful or if it has contributed to recruitment to the population (Moyle *et al*. 1995, p. 86). A riverine population also may have remained in perennial portions of Pine Creek, rather than migrating to the Lake (Platts and Jensen 1991, pp. 19, 22).

Prior to 1917, population levels of Eagle Lake rainbow trout within the lake were high enough to support a commercial fishery, but harvesting of the fish was extremely high, leading to concerns the fish would be driven to extinction (Snyder 1917, p. 78; Moyle *et al.* 1995 p. 87). In 1917, the State of California banned commercial trout fishing in Eagle Lake, but the population of the Eagle Lake rainbow trout remained low

(Moyle *et al*. 1995, p. 87). According to researchers, the probable reasons for the continued low population numbers included drought, water diversions, logging, heavy grazing, barriers to upstream and downstream movement, introduced predatory brook trout (*Salvelinus fontinalis*) in the headwaters of Pine Creek, and road and railroad construction across Pine Creek that restricted the creek's flow and channelized the streambed (Platts and Jensen 1991, p. 1; Moyle *et al*. 1995, p. 87). Water from Eagle Lake was being diverted through the Bly Tunnel to agricultural operations south of Susanville between 1923 to 1935; however, this diversion has been plugged and is no longer in use (Platts and Jensen 1991, p. 2).

Since 1950, reproduction in the Eagle Lake rainbow trout population has depended largely on a hatchery program run by the California Department of Fish and Game (CDFG) (Platts and Jensen 1991, pp. 20–22; Moyle *et al*. 1995, p. 88). Fish are captured to collect their eggs and milt in order to produce offspring to release in Eagle Lake, and in more recent times, hatchery-produced trout have been released throughout the western United States and Canada for sport fishery purposes (Moyle *et al.* 1995, p. 87; Behnke 2002, p. 103; Moyle 2002, p. 275). In the late-1940s into the mid-1950s, collection traps on Pine Creek as well as additional artificial barriers at the mouths of other creeks were constructed (Platts and Jensen 1991, p. 21; Moyle *et al*. 1995, p. 87). These barriers were installed as part of an effort to protect the fish from being stranded in the creeks by insufficient flows and to assist in the collection of fish for the hatchery program.

Between 1959 and 1994, Eagle Lake rainbow trout were known to pass above the weir at Pine Creek during years of high water flow. The structure at Pine Creek was rebuilt in 1995 to address erosion problems and to prevent upstream migration because some individuals were being stranded, resulting in their death during years of low water levels. Construction modifications on the weir in 1995, and installation of an Alaskan style fish weir at the site in 2002, have made it highly unlikely that fish attempting to move upstream have been able to pass the weir to reach the headwaters of the creek to spawn, even in high flow years.

The CDFG traps fish as they enter Pine Creek from Eagle Lake. The fish are then collected and artificially spawned to produce 2 to 3 million eggs, which are shipped to Crystal Lake and Darrah Springs State Fish Hatcheries (Platts and Jensen 1991, pp. 20–23; Moyle *et al.* 1995, p. 87). Some of the collected eggs are sent to other State hatcheries for stocking in waters across the country (Moyle *et al.* 1995, p. 87). Eggs from fish collected at the mouth of Pine Creek are hatched, and the hatchery-spawned trout are returned and released into Eagle Lake (Moyle *et al*. 1995, pp. 87, 88). Approximately 90,000 half-pound fish produced at the hatcheries are released into Eagle Lake each fall near Pine Creek, while another 90,000 half-pound fish are released at the south end of the Lake annually. Another 1,000 young fish are also stocked in the Pine Creek headwaters, with the hope that they will prey on and outcompete the smaller nonnative brook trout that spawn there. Portions of each release group are freeze-marked to allow mark-recapture estimates of the population in the Lake.

In 1987, a Coordinated Resource Management Planning (CRMP) group met to identify goals and implement a course of action for habitat and ecosystem restoration for Pine Creek. The initial goals for restoring Pine Creek included: (1) Improve streambank stability; (2) improve vegetation cover in watershed; (3) raise the streambed and watertable in the drainage and spread out peak flows of Pine Creek; (4) restore the natural Eagle Lake rainbow trout fishery in Pine Creek; (5) improve wildlife habitat along Pine Creek; (6) reduce nutrient and sediment loading into Eagle Lake from Pine Creek; (7) maintain grazing and timber management; and (8) meet goals in a coordinated effort with all affected parties (Platts and Jensen 1991, p. 1). The CRMP group includes membership by the U.S. Forest Service (USFS), the University of California Cooperative Extension for Lassen County, the CDFG, and local landowners and interested parties. The Service has been occasionally involved in the planning efforts of the CRMP group since 1995. Numerous restoration efforts have been implemented since 1987 or are planned for the Pine Creek watershed.

Evaluation of Information for this Finding

Section 4 of the Act and its implementing regulations at 50 CFR 424 set forth the procedures for adding a species to, or removing a species from, 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) The inadequacy of existing regulatory mechanisms; or

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

In considering what factors might constitute threats, we must look beyond the mere exposure of the species to the factor to determine whether the species responds to the factor in a way that causes actual impacts to the species. If there is exposure to a factor, but no response, or only a positive response, that factor is not a threat. If there is exposure and the species responds negatively, the factor may be a threat and we then attempt to determine how significant a threat it is. If the threat is significant, it may drive or contribute to the risk of extinction of the species such that the species may warrant listing as an endangered or threatened species as those terms are defined by the Act. This does not necessarily require empirical proof of a threat. The combination of exposure and some corroborating evidence of how the species is likely impacted could suffice. The mere identification of factors that could impact a species negatively may not be sufficient to compel a finding that listing may be warranted. The information shall contain evidence sufficient to suggest that these factors may be operative threats that act on the species to the point that the species may meet the definition of endangered or threatened under the Act.

In making this 90-day finding, we evaluated whether information regarding the threats to the Eagle Lake rainbow trout, as presented in the petition and other information available in our files at the time the petition was received, is substantial, thereby indicating that the petitioned action may be warranted. Our evaluation of this information is presented below.

A. Present or Threatened Destruction, Modification, or Curtailment of the Species' Habitat or Range

Information Provided in the Petition: The petition asserts that past habitat modification, coupled with uncompleted habitat restoration projects, and the establishment of a barrier (weir) on Pine Creek for fish collection and hatchery purposes has eliminated natural spawning for the Eagle Lake rainbow trout and that the CRMP group established to coordinate habitat improvement efforts has not met in over 2 years (prior to 2003) and should be considered a failure.

Evaluation of Information Provided in the Petition and Available in Service Files: Under the guidance of the CRMP group, numerous habitat improvement projects for Pine Creek were completed or were nearing completion at the time the petition was received. The restoration efforts that had been implemented by 2003 within the Pine Creek watershed by the CRMP group included but were not limited to actions such as stream fencing, old channel restoration, and removal of upstream barriers (Highway 44 and the

Burlington Northern Railroad crossing) (Platts and Jensen 1991, pp. 1–2; Moyle 2002, p. 282). In addition, the grazing regimes along Pine Creek were modified and channel restoration projects were completed to encourage increased flows over longer time periods and to improve stream bank conditions. However, access to Pine Creek and its spawning grounds by Eagle Lake rainbow trout have been for the most part blocked since the late 1950's by a barrier (weir). The barrier was initially established to assist spawning as a result of low population numbers and to prevent fish from becoming stranded in Pine Creek during low flow periods. Even though some experts have stated that the trapping and collection of fish at the barrier most likely prevented the species from becoming extinct, the petitioners expressed concern with the hatchery program because fish in the early life-history stages are gradually being selected for survival in a hatchery environment, rather than in the wild (Moyle *et al.* 1995, p. 88), and this may increase the difficulty of reestablishing a naturally spawning population (Moyle 2002, p. 282). Fortunately, the present management strategy for Eagle Lake rainbow trout by the CDFG is to reestablish a self-sustaining wild population, but this has not yet occurred and hatchery operations are regarded as being an ongoing necessity in maintaining the trophy fishery for Eagle Lake (Platts and Jensen 1991, pp. 19–25; Moyle *et al.* 1995, p. 88).

Factor A Summary: Available information in our files (Platts and Jensen 1991; Moyle *et al.* 1995; Moyle 2002) indicates that the CRMP group had been and continues to make appreciable progress in addressing past habitat alterations and detrimental land use practices including the restoration of Pine Creek habitat and streamflows and development of plans for fish passage within Pine Creek. However, the presence of the

weir on Pine Creek was preventing fish passage and access to spawning grounds and therefore, has most likely prevented and continues to prevent any natural spawning from occurring. As a result, we find that the present or threatened destruction, modification, or curtailment of the species' habitat or range may be a threat. We will further investigate the threatened destruction, modification, or curtailment of the species' habitat or range in our status review for this subspecies.

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

The information provided in the petition and in our files does not indicate that any impact from overutilization is occurring to Eagle Lake rainbow trout. Commercial fishing for the fish was stopped in 1917 (Snyder 1917, p. 78). However, we will further investigate overutilization for commercial, recreational, scientific, or educational purposes in our status review for this subspecies.

C. Disease or Predation

Information Provided in the Petition: The petition states that Eagle Lake rainbow trout were subject to outbreaks of "strawberry disease" in 2000 and 2003. Strawberry disease is a skin disorder of unknown origin that occurs in rainbow trout and is identified by bright red lesions on the skin. The petition attributes these outbreaks to stress, and describes symptoms such as weight loss and a tube-like appearance. The petition cites

the following items in support: (1) An article from the Washington Department of Fish and Wildlife; (2) two CDFG fish pathologist reports from 2000, one of which positively identifies the disease on a single fish; and (3) low-resolution photocopies of pictures of Eagle Lake rainbow trout with the disease.

Evaluation of Information Provided in the Petition and Available in Service Files: Strawberry disease is a skin disease that occurs sporadically in rainbow trout (*Oncorhynchus* sp.) and is a subchronic, nondebilitating, and nonfatal disease that has been recognized since the late 1950s (Olsen *et al*. 1985, p. 104). The disease goes into remission when water conditions improve, and untreated fish usually recover in 8 weeks (Olson *et al.* 1985, p. 105). We were unable to obtain a copy of the undated Washington Department of Fish and Wildlife article by Oman, and as a result, could not review the document for this finding. We are not aware of, and the petition did not provide any additional information regarding, the impacts associated with disease to the Eagle Lake rainbow trout or the extent to which disease may affect the subspecies.

The petition did not provide any information regarding predation. However, information in our files does include information on potential predation by introduced trout species. As stated in the *Species Information* section, a permanent population of Eagle Lake rainbow trout occupy upper Pine Creek in small numbers and may spawn (Platts and Jensen 1991, pp. 19, 22). Pine Creek, like other streams and lakes in California, was stocked indiscriminately with nonnative trout in the 1940s and 1950s. On Pine Creek, brook trout (*Salvelinus fontinalis*) and other rainbow trout of unknown origin

were stocked heavily until about 1950. Cutthroat trout may have also been planted in the 1940s. However, since the early 1950s, it appears that only Eagle Lake rainbow trout have been stocked in Pine Creek. Surveys in 1989 found brook trout to be dominant in the upper Pine Creek watershed including the Bogard Springs reach, Pine Valley, and Stephens Meadow. The dense brook trout populations most likely have had a negative effect on Eagle Lake rainbow trout populations in Pine Creek by keeping them unnaturally low (through predation of young or competition for resources) and may be preventing significant reestablishment (Platts and Jensen 1991, p. 24; Moyle *et al*. 1995, p. 88).

Summary of Factor C: The information provided in the petition and in our files does indicate that strawberry disease may affect individual Eagle Lake rainbow trout, but the extent and degree of the impacts are most likely small, short term, and isolated in nature. Predation in the main spawning habitat of Pine Creek from introduced brook trout most likely is occurring and may be having a negative effect on the stream population by keeping numbers artificially low. As a result, we find that predation by introduced brook trout may be a threat. We will further investigate disease or predation in our status review for this subspecies.

D. The Inadequacy of Existing Regulatory Mechanisms

The petition does not discuss or provide any information on how an inadequacy of existing regulatory mechanisms under Factor D may threaten the Eagle Lake rainbow

trout, and we do not have any information in our files suggesting that existing regulatory mechanisms are inadequate. However, we will further investigate whether the existing regulatory mechanisms are inadequate in our status review for the subspecies.

E. Other Natural or Manmade Factors Affecting the Species' Continued Existence

The petition lists two potential threats relevant to Factor E: (1) Mortality of Eagle Lake rainbow trout in 2000 during CDFG trout-stocking activities; and (2) hatchery practices that have reduced Eagle Lake rainbow trout's survival in the wild and affected their genetics through gene pool alteration and species contamination.

Issue 1; Information Provided in the Petition: The petition claims that in November 2000, approximately 2,000 Eagle Lake rainbow trout were accidentally killed by CDFG when they were put into water that was too cold when they were stocked into Eagle Lake.

Evaluation of Information in the Petition and Available in Service Files: At the time of the petition we were not aware of any fish kills due to stocking activities. However, the information provided in the petition does not indicate that the loss of approximately 2,000 Eagle Lake rainbow trout due to stocking operations may be a factor that threatens the status of the subspecies. As stated earlier in the *Species Information* section, approximately 180,000 trout are stocked annually in Eagle Lake. The loss of

2,000 fish during a single event would not significantly affect the population of Eagle Lake rainbow trout as a whole. However, we will further investigate whether the loss of fish from stocking operations is a significant loss in our status review for the subspecies.

Issue 2; Information Provided in the Petition: The petition states that hatchery rearing is breeding out the "wildness" in the Eagle Lake rainbow trout and causing them to be less aggressive during spawning or be able to make the 40-mi (64-km) trip to the spawning grounds on Pine Creek. No information is provided specifically to support this claim, although other information provided relevant to the additional genetics arguments discussed below may have been intended for consideration with this argument as well. The petition argues that hatchery rearing has genetically altered the "Eagle Lake trout" into the Eagle Lake rainbow trout, and that these changes have altered the fish's ability to live in the higher alkaline water of the lake. The petition also states that these changes, brought about or abetted by stocking of "domestic" Eagle Lake rainbow trout from the Mount Shasta hatchery, have changed the native "March through May" spawning cycle to June through August. The petition cites a series of papers indicating that hatchery-rearing affects the long-term viability of the subspecies by genetic selection, alterations, and lowering their survival in the wild (Muir and Howard 1999, pp. 13853–13856; Marchetti and Nevitt 2003, pp. 9–14). The petition also cites an article by Robb Leary and Fred Allendorf, and another by M. Walker, but the journal titles and publication dates were not provided. As a result, we were unable to review the information. However, we did find a similarly titled article by Robb Leary, which may have been a prepublication version (see further discussion below).

Evaluation of Information in the Petition and Available in Service Files: Eagle Lake rainbow trout was originally called Eagle Lake trout (Snyder 1917, p. 77). Although the petition implies taxonomic changes have occurred regarding the subspecies because of hatchery operations and mixing with other rainbow trout, the name revision merely reflects a name change and not genetic manipulation or behavioral differences. However, Moyle *et al.* (1995) did cite concerns that the hatchery program may be resulting in fish that are gradually being selected for survival in the early life-history stages in a hatchery environment, rather than in the wild. They further state that the dependence on hatcheries for maintaining the Eagle Lake rainbow trout is undesirable because the survival of the species becomes dependent on the vagaries of hatchery funding and management and may be exposed to threats from disease and genetic disorders (Moyle *et al.* 1995, p. 88).

Moyle *et al.* (1995, p. 86) does support the petition's assertion that stocking procedures at one time involved placement of 25,000 "wild" and 150,000 "domestic" fish in the lake, and also notes that the "domestic" fish came from broodstock maintained at the Mount Shasta Hatchery. However, they do not suggest the domestic fish differed in any appreciable way, and they go on to explain that the "domestic" fish were marked so as to prevent their use in spawning, even if trapped at Pine Creek (Moyle *et al*. 1995, p. 86). The CDFG no longer stocks fish taken from broodstock maintained at the Mount Shasta Hatchery but only uses reproductively mature Eagle Lake rainbow trout that move into Pine Creek from Eagle Lake in order to spawn. The paper by Marchetti and Nevitt

(2003) cited by the petition does not provide strong support for the petition's implied assertion that hatchery rearing may be altering the brain structure of Eagle Lake rainbow trout individuals. The hatchery-raised trout in the study were descended from a long line (50 to 90 years) of solely hatchery-reared broodstock (Marchetti and Nevitt 2003, p. 10). Serious genetic changes capable of altering brain development are much more likely under such conditions due to the unintentional selection of traits promoting survival under hatchery conditions (Marchetti and Nevitt 2003, p. 11). In contrast, trout stocked in Eagle Lake come from eggs collected in the wild. While it is possible that at least some of the developmental brain differences noted by Marchetti and Nevitt (2003) result from environmental factors in the hatchery rather than from genetic differences, the petition presents no evidence to support that idea, nor to demonstrate how it might apply to Eagle Lake rainbow trout. Eagle Lake rainbow trout seem to have retained their basic biological traits and their migratory life history, as evidenced by their annual attempt to spawn in Pine Creek.

Muir and Howard (1999, entire) used modeling based on the Japanese medaka (*Oryzias latipes*), which were transgenic, meaning they had had portions of their genome deliberately spliced with genes from another species (genetically modified). Transgenic fish and their impacts are not relevant to the situation of the Eagle Lake rainbow trout.

Because the petition did not include reference information for the Leary and Allendorf paper, it is difficult for us to assess its content. We did find a study by Leary that we believe may be the paper referenced by the petition (Leary 1996); however, it

does not appear to provide strong support for the petition's conclusions. While the study did find differences between hatchery and naturally spawning stocks, the author also emphasized that the differences were of "little or no biological significance" (Leary 1996, pp. 11–13).

Summary of Factor E: We agree that a potential genotype and phenotypic shift in an ongoing hatchery system due to changed selection pressures can be an issue of concern for wild fish populations. Therefore, we find that the hatchery practices may be a threat. We will further investigate whether the hatchery operations and any other natural or manmade factors have significant effects on Eagle Lake rainbow trout in our status review for the subspecies.

Finding

We have reviewed the petition, literature cited in the petition, and information in our files and evaluated that information in relation to the information available to us at the time we received the petition. After this review and evaluation, we find that the petition does present substantial scientific information that listing the Eagle Lake rainbow trout may be warranted at this time.

We evaluated each of the five listing factors individually, and because the potential threats to the Eagle Lake rainbow trout may not be mutually exclusive, we also evaluated the collective effect of these potential threats. The petition focused on three of

the five listing factors; habitat modification (Factor A), disease (Factor C), and "other natural or manmade factors" (Factor E). Based on information we had at the time of the petition, the placement of the weir on Pine Creek has all but eliminated access to the spawning grounds, and although habitat conditions on Pine Creek had significantly improved through implementation of measures by the CRMP group, habitat conditions were still a concern and it was uncertain if fish are able to traverse the distance between the lake and spawning grounds.

The petition raised several concerns regarding potential genetic threats to the subspecies. Although many of these arguments were either unsupported, or supported by incomplete citations to articles that we were unable to locate, the information we did have or were able to find did raise concerns and supported less dependence on hatchery rearing.

On the basis of our determination under section 4(b)(3)(A) of the Act, we determine that the petition and the information in our files presents substantial scientific or commercial information indicating that listing the Eagle Lake rainbow trout throughout its range may be warranted. This finding is based on information provided under Factors A (the present or threatened destruction, modification, or curtailment of its habitat or range), C (predation), and E (other natural or manmade factors affecting the subspecies' continued existence). Although information provided under Factors C (disease), B (overutilization for commercial, recreational, scientific, or educational purposes), and D (inadequacy of existing regulatory mechanisms) do not support the

petition's assertions, we will further consider information relating to these factors in the status review.

Because we have found that the petition presents substantial information indicating that listing Eagle Lake rainbow trout may be warranted, we are initiating a status review to determine whether listing Eagle Lake rainbow trout under the Act is warranted. We will fully evaluate these potential threats during our status review, pursuant to the Act's requirement to review the best available scientific information when making our 12-month finding. Accordingly, we encourage the public to consider and submit information related to these and any other threats that may be operating on the Eagle Lake rainbow trout (see "**Request for Information**").

References Cited

A complete list of references cited is available on the Internet at *http://www.regulations.gov* and upon request from the Sacramento Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this notice are the staff member(s) of the Sacramento Fish and Wildlife Office (see **ADDRESSES**).

Authority

The authority for this action is the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq*.).

Dated: Augst 24, 2012

Rowan W. Gould

Acting Director, U.S. Fish and Wildlife Service

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