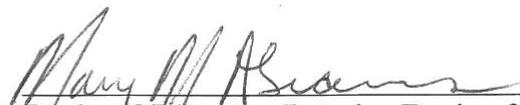


Amendment to the Recovery Plan for the Native Fishes of the Warner Basin and Alkali Subbasin

Original Recovery Plan Approved: [April 27, 1998](#)

Original Recovery Plan Prepared by: Pacific Region, U.S. Fish and Wildlife Service

Recovery Plan Amendment Approved:



Acting Regional Director, Interior Region 9
U.S. Fish and Wildlife Service

Date: 23 Sept 2019

Species Addressed in this Amendment: Hutton tui chub (*Gila bicolor* ssp.) [Threatened]

We have analyzed the best available scientific and commercial information and find that an amendment to the recovery criteria for the Hutton tui chub (*Gila bicolor* ssp.) is warranted. The current recovery criteria have been in place since the recovery plan was completed in 1998. In this amendment, we discuss the adequacy of the current recovery criteria, show amended recovery criteria, and present the rationale supporting the recovery plan modification. The modification of the criteria is presented as an addendum that supplements the recovery plan, superseding only items 1, 2, and 3 (referring to recovery objectives for attaining the conservation and long-term sustainability of Hutton tui chub) on page v of the Executive Summary and pages 41 to 42 in section II.A (Recovery Objective and Criteria) of the recovery plan (USFWS 1998).

BACKGROUND INFORMATION

Recovery plans should be consulted frequently, used to initiate recovery activities, and updated as needed. A review of the recovery plan and its implementation may show that the plan is out of date or its usefulness is limited, and therefore warrants modification. Keeping recovery plans current ensures that the species benefits through timely, partner-coordinated implementation based on the best available information. The need for, and extent of, plan modifications will vary considerably among plans. Maintaining a useful and current recovery plan depends on the scope and complexity of the initial plan, the structure of the document, and the involvement of stakeholders.

An amendment involves a substantial rewrite of a portion of a recovery plan that changes any of the statutory elements. The need for an amendment may be triggered when, among other possibilities: (1) the current recovery plan is out of compliance with regard to statutory requirements; (2) new information has been identified, such as population-level threats to the species or previously unknown life history traits, that necessitates new or refined recovery actions and/or criteria; or (3) the current recovery plan is not achieving its objectives. The amendment replaces only that specific portion of the recovery plan -- supplementing the existing recovery plan, but not completely replacing it. An amendment may be most appropriate if significant plan improvements are needed, but resources are too scarce to accomplish a full recovery plan revision in a short time.

Although it would be inappropriate for an amendment to include changes in the recovery program that contradict the approved recovery plan, it could incorporate study findings that enhance the scientific basis of the plan, or that reduce uncertainties as to the life history, threats, or species' response to management. An amendment could serve a critical function while awaiting a revised recovery plan by: (1) refining and/or prioritizing recovery actions that need to be emphasized, (2) refining recovery criteria, or (3) adding a species to a multispecies or ecosystem plan. An amendment can, therefore, efficiently balance resources spent on modifying a plan against those spent on managing implementation of ongoing recovery actions.

METHODOLOGY USED TO COMPLETE THE RECOVERY PLAN AMENDMENT

The recovery plan amendment was developed after a review of the best available scientific information by U.S. Fish and Wildlife Service (Service) biologists, with input from biologists from the Oregon Department of Fish and Wildlife. Although the Recovery Plan for the Threatened and Rare Native Fishes of the Warner Basin and Alkali Subbasin (USFWS 1998; hereafter "recovery plan") does not identify specific delisting criteria for the Hutton tui chub, it does describe the conditions required to achieve the conservation and long-term sustainability of Hutton tui chub. We reviewed these conservation objectives and determined that they directly address the identified threats to Hutton tui chub, and therefore are appropriate to serve as delisting criteria with some modifications. This recovery plan amendment incorporates these conservation objectives into specific recovery criteria for the Hutton tui chub.

We published a draft of this recovery plan amendment for public review and comment on June 27, 2019 (84 FR 30764). In addition, we solicited peer review. Please see the Appendix for a summary of the comments received and our responses.

ADEQUACY OF RECOVERY CRITERIA

Section 4(f)(1)(B)(ii) of the Endangered Species Act (Act) requires that each recovery plan shall incorporate, to the maximum extent practicable, "objective, measurable criteria which, when met, would result in a determination... that the species be removed from the list." Legal challenges to recovery plans (see *Fund for Animals v. Babbitt*, 903 F. Supp. 96 (D.D.C. 1995)) and a Government Accountability Office audit (GAO 2006) have also affirmed the need to frame recovery criteria in terms of threats assessed under the five threat factors (section 4(a)(1) of the Act).

Recovery Criteria

The current recovery criteria can be found on pages 41 to 42 in the recovery plan.

Synthesis

When we finalized the recovery plan in 1998, we identified Hutton tui chub as a narrow endemic species threatened by actual or potential modification of its habitat. Hutton tui chub occur in low numbers naturally, and inhabit springs that are subject to human disturbance. The known range of the Hutton tui chub is limited to two small springs, Hutton Spring and 3/8 Mile Spring, found on private lands in Lake County, Oregon. The potential threats identified to Hutton tui chub at the time of listing in 1985 were:

- groundwater pumping for irrigation
- excessive trampling of habitats by livestock
- channeling of the springs for agricultural purposes
- other mechanical manipulation of the spring habitat
- presence of a chemical waste disposal site near Hutton Spring (potential pollution)
- possible introduction of nonnative fishes

We reevaluated the status of Hutton tui chub in 5-year reviews in 2008 and again in 2013 (USFWS 2008; USFWS 2013). Both reviews recommended no change in status.

Current threats and population size are difficult to assess at this time due to the lack of access to the private property to conduct surveys. The Oregon Department of Fish and Wildlife (ODFW) has not had access to the private land where the Hutton tui chub are located to conduct population surveys, since 2007 (Scheerer and Jacobs 2007). No observations of the species or habitat at either spring have been made in the field since a Bureau of Land Management (BLM) field visit in 2010 (Leal *in litt.* 2013). However, at the time of this last visit, Hutton tui chub were observed at both springs and appeared healthy, and vegetation was reported to be vigorous and in good condition (USFWS 2013, p. 3). We found no additional information available beyond what was evaluated in our most recent (2013) 5-year review.

We have revisited the five-factor threat assessment for Hutton tui chub. No known threats have increased from the time of original listing in 1985 (March 28, 1985; 50 FR 12302), and several of the potential threats originally identified at the time of listing have not been realized. Our current understanding of the threats to Hutton tui chub are as follows:

Factor (A) – The present or threatened destruction, modification or curtailment of its habitat or range: The original listing in 1985 stated the following [in italics]: *Hutton tui chub are limited in distribution to two small springs and their outflows, which are vulnerable to modification or destruction. A portion of the larger Hutton Spring has already been enlarged by mechanical means.* Since the time of listing, little has been done to modify or alter the habitat and few observations have been made. The recovery plan completed in 1998 reported that the habitat was in stable condition. Field reconnaissance in April of 2005 indicated the spring was still in stable condition at that time. Hutton Spring and the surrounding area is fenced to exclude cattle grazing and there is no evidence of any recent “mechanized” impacts. Observations by BLM personnel in 2010 indicated that the habitat looked to be in good condition, and Hutton tui chub were present and appeared healthy at both springs. We have no recent indication of mechanical modification of the habitat, and no information as to whether any pumping or channeling of the water may be occurring.

Factor (B) – Overutilization for commercial, recreational, scientific, or educational purposes: The original listing in 1985 stated the following [in italics]: *There is no indication that the Hutton tui chub or Foskett speckled dace are over-utilized for any of these purposes.* We have no information to support any changes to this original listing factor assessment.

Factor (C) – Disease or predation: The original listing of 1985 stated the following [in italics]: *There are no known threats to the Hutton tui chub or Foskett speckled dace from disease or predation.* Following the population estimate surveys conducted by ODFW in 2005 and 2007, the ODFW biologist commented that “[t]he fish appeared to be in good condition with no obvious external parasites” (Scheerer and Jacobs 2005, 2007). We have no information to support any changes to this original listing factor assessment.

Factor (D) – Inadequacy of existing regulatory mechanisms: The original listing in 1985 stated the following [in italics]: *The State of Oregon lists both the Hutton tui chub and Foskett speckled dace as “fully protected subspecies” under the Oregon Department of Fish and Wildlife regulations. These regulations prohibit taking of the fishes without an Oregon scientific collecting permit. However, no protection of the habitat is included in such a designation and no management or recovery plan exists for these subspecies.* We note that management and recovery plans are not regulatory documents, and therefore are not technically relevant under this listing factor. A recovery plan does now exist for these species, however (USFWS 1998, entire), and is the subject of this amendment. Furthermore, although ODFW protections of Hutton tui chub as a threatened species under the Oregon Endangered Species Act (Oregon Revised Statutes (ORS) 496.171 through 496.192) do not specifically extend to its habitat, there are several State laws that are in place to protect aquatic habitats such as Hutton Spring, depending on the circumstances. As an example, the following State provisions could apply to future development or land use changes that could potentially impact the springs inhabited by Hutton tui chub: (1) Under ORS 196, the Department of State Lands regulates the removal or addition of material in wetlands and waterways, with special consideration for species designated as endangered, threatened, sensitive, or sensitive-critical (as defined by ORS 496); (2) land use planning decisions by the Oregon Department of Land Conservation and Development incorporates special considerations for unique wildlife habitats (ORS 197.230); (3) the Department of Environmental Quality is mandated to restore and preserve the quality and purity of the air and waters of the State, with special consideration given to species designated as endangered, threatened, sensitive, or sensitive-critical; (4) the Oregon Water Resources Department works with ODFW to prioritize the needs of fish and wildlife when allocating water resources under ORS 537, 541; and (5) ORS 526 and 527 (Oregon Department of Forestry) and ORS 603 and 634 (Oregon Department of Agriculture) provide additional protections to fish and wildlife habitat and water quality. This is not an exhaustive list, but in all cases, the specific regulations and the potential protections that might apply would depend on the nature of the changes proposed. We have no information at this time to suggest that the inadequacy of regulatory mechanisms poses an active threat to Hutton tui chub.

Factor (E) – Other natural or manmade factors affecting its continued existence: Other natural or manmade factors affecting its continued existence. The original listing of 1985 stated the following [in italics]: *Hutton Spring is located approximately 1¾ miles north of a large*

chemical disposal site. Wastes from the dump have already contaminated the adjacent ground water, surface water, and air in the Alkali Lake area. It is likely that the spring habitat of the Hutton tui chub will become contaminated within the foreseeable future as levels of these toxic chemicals increase. This could endanger the Hutton tui chub and possibly result in its extinction if measures are not taken to prevent contamination of its habitat. The Oregon Department of Environmental Quality (DEQ) performed a risk assessment and determined that the plume of toxic material moved west and north of the original dump site (DEQ 2011). They further found that movement of the plume had ceased during the 10 years prior to the conclusion of that assessment. Although the Oregon DEQ did not detect subsurface movement of the toxins toward Hutton Spring, they did detect trace amounts of toxins in the soils around the area. They also documented movement of the toxins via “fugitive dust” which is transported via the prevailing winds (DEQ 2011). The toxic plume is currently closer to Hutton Spring than originally reported. There is a possibility that toxins could be transported to the Hutton Spring site via aerial transmissions. The Oregon DEQ assessment did not specifically assess the possibility of contamination of Hutton tui chub, but did develop risk categories for “trespass” visitation to the contamination site. Assuming the threats to a trespasser are through aerially transmitted particles, it is reasonable to assume that the same particulate matter could be transmitted to the springs inhabited by Hutton tui chub (DEQ 2011).

Although the Oregon DEQ concluded that contamination of Hutton Spring from the chemical waste disposal area “... appears to be extremely remote,” there remains concern for the potential for contaminants to affect Hutton tui chub because of the high toxicity of dioxin and other chemicals present at the site and the lack of an analysis specific to Hutton tui chub. The chemical waste dump pollutants are not monitored at Hutton Spring, so impacts from that pollution are speculative. The latest Oregon DEQ monitoring event was in 2016. Monitoring wells located up to 2,400 feet (730 meters) from the contaminant dumpsite still show detectable levels of contaminant from various herbicide manufacturing wastes dumped at the site (DEQ 2016).

A new stressor identified since the original listing of Hutton tui chub is the potential impact of climate change on the spring habitats inhabited by this species. The springs have a subterranean source. While we anticipate they may be relatively resilient to the effects of climate change, any potential impacts that may affect water quality and/or quantity are not well understood. Monitoring of the springs will be important, in order to evaluate effects from this potential stressor. If access to the private land is granted, water temperature and water surface elevation monitoring could be conducted to detect water quality and quantity changes to Hutton Spring and 3/8 Mile Spring.

Summary of five-factor threat analysis

Potential threats to the Hutton tui chub include those falling under Factor A (present or threatened destruction, modification, or curtailment of the species' habitat or range), including any actions that would negatively affect water quality, quantity, or extent in the two springs such as groundwater withdrawal or channeling for irrigation diversions; and Factor E (other natural or manmade factors), which includes potential contamination of water in the springs due to contaminants from a nearby chemical waste site. Information about the current status of these threats is unknown to us at this time, due to lack of access to the springs in recent years. Threats under Factors B, C, and D are not considered active or potential for Hutton tui chub.

Population estimates of Hutton tui chub have not been conducted on a regular basis. At the time of listing, Bills (1977) estimated fewer than 300 individuals at Hutton Spring and 150 in an unnamed spring now referred to as 3/8 Mile Spring, based on a visual estimate. In 2007, ODFW used mark-recapture methods to estimate 959 Hutton tui chub (95% CI 735-1,251) in Hutton Spring and 87 (95% CI 65-116) in 3/8 Mile Spring (Scheerer and Jacobs 2007). These are the most recent population estimates available.

AMENDED RECOVERY CRITERIA

Recovery criteria serve as objective, measurable guidelines to assist in determining when an endangered species has recovered to the point that it may be downlisted to threatened, or that the protections afforded by the Act are no longer necessary and the species may be delisted.

Delisting is the removal of a species from the Federal Lists of Endangered and Threatened Wildlife and Plants. Downlisting is the reclassification of a species from an endangered species to a threatened species. The term "endangered species" means any species (species, subspecies, or DPS) which is in danger of extinction throughout all or a significant portion of its range. The term "threatened species" means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Revisions to the Lists, including delisting or downlisting a species, must reflect determinations made in accordance with sections 4(a)(1) and 4(b) of the Act. Section 4(a)(1) requires that the Secretary determine whether a species is an endangered species or threatened species (or not) because of threats to the species. Section 4(b) of the Act requires that the determination be made "solely on the basis of the best scientific and commercial data available." Thus, while recovery plans provide important guidance to the Service, States, and other partners on methods of minimizing threats to listed species and measurable objectives against which to measure progress towards recovery, they are guidance and not regulatory documents.

Recovery criteria should help indicate when we would anticipate that an analysis of the species' status under section 4(a)(1) would result in a determination that the species is no longer an endangered species or threatened species. A decision to revise the status of or remove a species from the Federal Lists of Endangered and Threatened Wildlife and Plants, however, is ultimately based on an analysis of the best scientific and commercial data then available, regardless of whether that information differs from the recovery plan, which triggers rulemaking. When changing the status of a species, we first propose the action in the Federal Register to seek public comment and peer review, followed by a final decision announced in the Federal Register.

Although the recovery plan identified objectives for conservation and long-term sustainability of Hutton tui chub, these objectives were not presented in the recovery plan in the form of delisting criteria. We provide delisting criteria for the Hutton tui chub as follows:

Delisting Recovery Criteria

Delisting of the Hutton tui chub may be considered when the following conditions have been met:

1. Hutton tui chub exist in both Hutton and 3/8 Mile Springs and reproduction is evident through the existence of multiple age-classes of fish.

Justification: Hutton tui chub was not listed due to concerns over a reduction in population numbers or observation of a negative population trend. The best available information indicates that Hutton tui chub have been present in Hutton Spring (the population in 3/8 Mile Spring was not discovered until later) at the very least since it was first discovered and described in 1856 (Girard 1856, as cited in ITIS 2018), if not for thousands of years (Bills 1977). The species is naturally highly restricted in its distribution and numbers to these two small springs, where it has successfully persisted over time. We have no information to suggest any reasonable estimate of minimum population size or trend, and our experience with fish with similar life histories (e.g., Borax Lake chub, *Gila boraxobius*) indicates that such metrics are not particularly useful due to naturally high interannual variability in abundance. However, the presence of multiple age-classes of fish in each of the springs provides evidence that successful reproduction and recruitment is continuing to occur, thereby ensuring the persistence of the species in its naturally restricted native spring habitats into the future. The key to ensuring the continued persistence of Hutton tui chub is protection of its two known spring habitats. Our most recent information indicates that these habitats remain in good condition due to the stewardship of the private landowner.

2. Long-term protection and management of Hutton Spring and 3/8 Mile Spring, including spring source aquifers, spring pools and outflow channels, and the immediate area surrounding the springs, is ensured.

Justification: Long-term protection, management, and monitoring may be achieved through various alternative mechanisms, and will be dependent upon the interest and willingness of the private landowner. We recommend the development and implementation of a Cooperative Management Plan (CMP) for the long-term conservation of Hutton tui chub; such a plan could represent a partnership between, but not limited to, the Service, the ODFW (e.g., to monitor, survey, and take management actions for the benefit of the species, if needed), and the private landowner (e.g., for permission to secure regulated access). The CMP should provide guidelines for habitat management and monitoring to ensure the continued persistence of Hutton tui chub and to ensure that habitat quantity and quality, including water quality, quantity and extent, as well as the quantity and quality of surrounding vegetation, is sufficient to support the long-term survival of the species in Hutton and 3/8 Mile Springs. In addition to the implementation of a CMP, we recommend, should the landowner be interested and willing, that long-term protection and management could be achieved through a conservation easement, land acquisition by a non-governmental conservation organization, or land exchange with a State or Federal agency.

As of 2010, when the site was last visited, indications were that the private landowner has managed Hutton Spring and 3/8 Mile Spring in such a way as to maintain suitable habitat for Hutton tui chub. As the primary threat to this localized endemic fish is the potential for habitat degradation and modification through a variety of possible mechanisms, the key to its long-term viability is attaining reasonable confidence that habitat quality and quantity will continue to be maintained into the foreseeable future. As both populations of Hutton tui chub are found on private land, the most reasonable and efficient mechanism for achieving this assurance would be the development and implementation of a CMP with the private landowner, in conjunction with ODFW and the Service. The CMP would provide for regular monitoring of the presence of Hutton tui chub, as well as management and monitoring guidelines to maintain habitat quantity and quality at the two springs. Monitoring would continue for no fewer than 5 years subsequent to delisting of the species. Development and implementation of a Hutton tui chub CMP would greatly benefit protection of Hutton and 3/8 Mile Springs, as well as long-term persistence of the species, by clarifying management goals for the habitat, roles and responsibilities of involved parties, and identification of monitoring objectives for both habitat and fish. This criterion would address Factor A (present or threatened destruction, modification or curtailment of its habitat or range; specifically, modification of Hutton tui chub spring habitats) and E (other natural or manmade factors; specifically, the potential for contamination of spring habitats by toxins from the nearby chemical waste site, and the potential effects of climate change).

We stress that the current landowner has demonstrated commendable stewardship of these springs, and that any actions identified in the recovery criteria are entirely voluntary on the part of the landowner.

Rationale for Amended Recovery Criteria

Hutton tui chub were listed as a threatened species under the Act due to concerns regarding potential threats to its highly restricted habitat, not due to observations of declines in abundance or negative population trend. The recovery plan therefore identifies the primary recovery objective for Hutton tui chub as the long-term persistence of the species through preservation of its native ecosystem (USFWS 1998, p. iv). Because the long-term persistence of this narrow endemic species is dependent on the preservation of its native ecosystem, and preservation of its habitat is synonymous with recovery, we have based the delisting criteria for Hutton tui chub on the existing recovery objectives defined in the recovery plan. These objectives are already supported in the recovery plan, but were identified as objectives for “conservation and long-term sustainability” rather than delisting criteria (USFWS 1998, pp. v, 41). The science used to develop the recovery plan in 1998 is still valid today and supports this amendment to the recovery plan. Because access to the habitat occupied by Hutton tui chub is restricted, no additional information is currently available to assist in further revision of the criteria.

The recovery criteria tier directly from the stated conservation objective for the species and directly address the threats to the species identified under Factors A and E. Criterion 1 ensures the continued presence and reproduction of Hutton tui chub in numbers commensurate with the availability and suitability of available habitat (Factor A). Criterion 2 calls for the long-term protection and management of Hutton tui chub habitats and species monitoring (Factors A and E). These conservation actions will assure the long-term persistence of the species through

preservation and management of its native ecosystem (Factor A), and monitor for the possible threat to water quality posed by contaminants in the nearby environment (Factor E). These criteria also achieve the stated conservation objectives for the species as described in the recovery plan (USFWS 1998, p. 41, objectives 1 and 2).

We recommend further research into the life history, genetics, habitat use and preference, and population biology of Hutton tui chub to assist in future evaluations of the status of the species. These recovery criteria may be revised in the future as additional information becomes available and indicates that such revision is warranted and necessary.

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IN LITT. REFERENCES

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APPENDIX. SUMMARY OF COMMENTS RECEIVED

Summary of Public Comments

We published a notice of availability in the *Federal Register* on June 27, 2019 (84 FR 30764), to announce that the draft amendment to the Recovery Plan for the Native Fishes of the Warner Basin and Alkali Subbasin was available for public review, and to solicit comments by the scientific community, State and Federal agencies, Tribal governments, and other interested parties on the general information base, assumptions, and conclusions presented in the draft revision. We published a news release on our national webpage (<https://www.fws.gov/news/>) on June 26, 2019. Stakeholders and congressional contacts for this species, as well as for other species addressed in the same notice of availability, were notified of the public comment period. An electronic version of the draft amendment was posted on our Species Profile website (<https://ecos.fws.gov/docs/recoveryplan/Hutton%20tui%20chub%20Draft%20Recovery%20Plan%20Amendment%2020181211a.pdf>).

We received one comment letter from the Oregon Department of Fish and Wildlife (ODFW). We thank ODFW for these comments and to the extent appropriate, we have incorporated the applicable information or suggested changes into the final recovery plan amendment, as described here. Below, we provide a summary of the comments received and our responses.

Comment (1): Within the discussion on threats associated with listing Factor D, it is stated that “[h]abitat protection is not currently provided by the State regulations nor by any other mechanism.” Although this is true for fish and wildlife management plans, we do not agree with this general statement. There are numerous State laws and permit requirements around both land and water use that provide habitat protections, and these should be acknowledged. Additionally, given the focus is on an update to the threats assessment rather than identifying delisting criteria or requirements, we recommend that references to the potential for a Cooperative Management Plan (CMP) or land easement, acquisition, or exchange be deleted from this section.

Response: At the time of the original listing, the Factor D discussion (regarding the inadequacy of existing regulatory mechanisms) focused on assessing ODFW regulations regarding species designated for special protection. We did not intend to state that there are no other State laws and permit requirements that provide habitat protections to aquatic habitats. We have revised this discussion to include several examples of State laws or regulations that provide potential protections to aquatic habitats such as Hutton and 3/8 Mile Springs, depending upon the circumstances.

We have deleted discussion of a potential CMP from this section of the document.

Comment (2): Within the “Summary of five factor threat analysis,” the Service states that Factor D is not an active or potential threat. This can only be reasonably concluded if the Service incorporates discussion of the numerous State regulations mentioned in the previous comment, as the CMP or land easement, acquisition, or exchange have not occurred.

Response: Factor D refers to the inadequacy of existing regulatory mechanisms to address threats to the species. We have not determined that other State regulations are inadequate for protection of Hutton Spring, and at this time we have no information to suggest that Hutton tui chub is threatened by the inadequacy of regulatory mechanisms. We acknowledge that any CMP, land easement, acquisition, or exchange has not occurred. As noted in our response to Comment 1, this discussion has been deleted to avoid confusion, and we have additionally added references to the numerous State regulations that may provide protections to Hutton tui chub habitat provided to us by ODFW.

Comment (3): Within the description for “Delisting recovery criteria 2,” the Service should: (a) remove the pre-determined, parenthetical description of entity responsibilities for the CMP, as these have not been agreed upon and should not be perceived as specific requirements for meeting the criteria; (b) allow for the possibility of additional entities being part of the CMP (e.g., a non-governmental conservation organization or DEQ); (c) revise text so it does not indicate that a CMP and land easement, acquisition, or exchange are mutually exclusive; and (d) include in the justification that the criteria addresses Factor D, as well as Factors A and E, if the Service thinks that this is the case.

Response: (a) The parenthetical references are intended to describe examples of the types of actions we can expect to have in a voluntary CMP; they are not meant as specific requirements. We have added “e.g.” at the beginning of each of these descriptions to make it clear that they are to serve as examples only. The description of the CMP is to serve as guidance to assure protective measures to conserve Hutton tui chub are included in the final CMP, and not as a commitment from the partner agencies or organizations; (b) The listed partners are either suggested or known interested parties. Typically, we would allow for any party interested in the conservation of Hutton tui chub to be party to the CMP, and have changed the language in this criterion to be clear that this list is not intended to be all inclusive; (c) We do not intend for the text to indicate a CMP and land easement, acquisition, or exchange are mutually exclusive, and have revised the text accordingly; and (d) We have clarified in the text that we do not consider Factor D, the inadequacy of regulatory mechanisms, to pose a current threat to Hutton tui chub. The primary threat factors measured by the recovery criteria are Factor A and Factor E.

Comment (4): Climate change may affect ecological conditions, such as water quality and quantity, within the springs where Hutton Tui Chub are located. As such, we recommend that climate change be acknowledged in the assessment of threats under Factor E and addressed in a CMP. For example, the CMP could outline temporal and environmental triggers that would result in an on-site determination of conditions at the springs and, if necessary, the temporary salvage of fish.

Response: Climate change has not previously been identified as a threat to Hutton tui chub. The Service is currently preparing a 5-year status review of the Hutton tui chub. The purpose of the 5-year review is, in part, to identify any new threats; as such, we will analyze the potential effects from climate change in the 5-year review of Hutton tui chub. However, we have added the identification of climate change as a potential new threat to the discussion of Factor E in the final recovery plan amendment, and additionally indicate that any CMP should include monitoring of the habitat conditions at Hutton Spring and 3/8 Mile Spring with the intent of

detecting environmental conditions such as changes in water temperature, or ambient air temperature, which may be due to climate change. As suggested, we will consider an approach to monitor climatic effects by including monitoring, emergency contingency planning, and other action items in a CMP.