

State of California

Department of Fish and Wildlife

Memorandum

Date : September 22, 2014

To : Sonke Mastrup
Executive Director
Fish and Game Commission

From : Charlton H. Bonham
Director



Subject: **Proposed Notice of Findings, Petition to List the Clear Lake Hitch (*Lavinia exilicauda chi*) as Threatened under the California Endangered Species Act**

At its August 6, 2014 meeting in San Diego, California, the Fish and Game Commission made a finding pursuant to Fish and Game Code section 2075.5, that the petitioned action to add the Clear Lake hitch (*Lavinia exilicauda chi*) to the list of threatened species under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.) is warranted.

The proposed Notice of Findings is attached for Commission consideration and possible adoption.

If you have any questions or need additional information, please contact Stafford Lehr, Fisheries Branch Chief, by telephone at (916) 445-3181 or by email at stafford.lehr@wildlife.ca.gov, or Tina Bartlett, Regional Manager, North Central Region, by telephone at (916) 358-2898 or by email at tina.bartlett@wildlife.ca.gov.

Attachment

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NOTICE OF FINDINGS

Clear Lake Hitch

(Lavinia exilicaudachi chi)

NOTICE IS HEREBY GIVEN that the California Fish and Game Commission (“Commission”), at its August 6, 2014 meeting in San Diego, California, made a finding pursuant to Fish and Game Code section 2075.5, that the petitioned action to add the Clear Lake hitch (*Lavinia exilicaudachi chi*) (“CLH”) to the list of threatened species under the California Endangered Species Act (“CESA”) (Fish & G. Code, § 2050 et seq.) is warranted. (See also Cal. Code Regs., tit. 14, § 670.1, subd. (i).)

I. Background and Procedural History

On September 25, 2012, the Commission received the “Petition to List the Clear Lake Hitch (*Lavinia exilicaudachi chi*) as Threatened under the California Endangered Species Act” (September 25, 2012; hereafter, the “Petition”), as submitted by the Center for Biological Diversity (“Petitioners”). Commission staff transmitted the Petition to the Department of Fish and Wildlife (“Department”) pursuant to Fish and Game Code section 2073 on September 26, 2012, and the Commission published formal notice of receipt of the Petition on October 12, 2012 (Cal. Reg. Notice Register 2012, Vol. 41-Z, p.1502). The Commission granted a 30-day extension to the Department for completion of the Department’s initial review of the Petition. After evaluating the Petition on its face and in relation to other relevant information it possessed or received, the Department prepared its January 2013 “Report to the Fish and Game Commission: Evaluation of the Petition from the Center for Biological Diversity to List Clear Lake Hitch (*Lavinia exilicaudachi chi*) as a Threatened Species under the California Endangered Species Act” (“Petition Evaluation Report”) and, pursuant to Fish and Game Code section 2073.5, recommended to the Commission, based on the information in the Petition, that there was sufficient scientific information to indicate the petitioned action may be warranted, and that the Petition should be accepted. At a noticed public hearing in Mount Shasta, California on March 6, 2013, the Commission determined the petitioned action may be warranted and accepted the Petition for further review. (Fish & G. Code, § 2074.2, subd. (e)(2).) The Commission published notice of the designation of CLH as a candidate species under CESA on March 22, 2013. (Cal. Reg. Notice Register 2013, Vol. 12-Z p. 488; see also Fish & G. Code, §§ 2068, 2080, 2085.)

Following the Commission’s designation of the CLH as a candidate species, the Department notified affected and interested parties, and solicited data and comments on the petitioned action pursuant to Fish and Game Code section 2074.4. (See also Cal. Code Regs., tit. 14, § 670.1(f)(2).) Subsequently, the Department commenced its review of the status of the species in California. On May 28, 2014 the Department

Director submitted its “Report to the Fish and Game Commission: A Status Review of the Clear Lake Hitch (*Lavinia exilicauda chi*),” dated May 2014 (“Status Review”), to the Commission pursuant to Fish and Game Code section 2074.6, including a recommendation based upon the best scientific information available that, in the Department’s independent judgment, the petitioned action was warranted. The Department’s report also included a preliminary identification of habitat that may be essential to the continued existence of CLH and management recommendations. In preparing its report the Department sought independent and competent peer review on its draft Status Review from scientists with acknowledged relevant expertise. An appendix to the final Status Review contains the specific input provided to the Department by the individual peer reviewers, a brief explanation and evaluation of that input by the Department, and a description of related revisions included in the final Status Review transmitted to the Commission. (See generally Fish & G. Code § 2074.6; Cal. Code Regs., tit. 14, § 670.1(f)(2).)

On August 6, 2014, at a noticed meeting in San Diego, California, the Commission held a public hearing regarding the Petition after receiving related testimony and other information, and began its deliberations regarding the petitioned action.

Species Description

CLH is a member of the cyprinid family, growing to 35 centimeters (cm) standard length (SL), and with laterally compressed bodies, small heads and upward pointing mouths (Moyle et al. 1995). They are separated from other California minnows by their long anal fin consisting of 11 to 14 rays. The dorsal fin (10 to 12 rays) originates behind the origin of the pelvic fins. Juvenile CLH are silvery with a black spot at the base of the tail. As CLH grow older the spot is lost and they appear yellow-brown to silvery-white on the back. The body becomes deeper in color as the length increases (Hopkirk 1973; Moyle 2002). CLH show little change in pigmentation during the breeding season (Hopkirk 1973). The deep, compressed body, small upturned mouth, and numerous long slender gill rakers (26 to 32) reflect the zooplankton-feeding strategy of a limnetic (well-lit, surface waters away from shore) forager (Moyle 2002). This lake adapted subspecies also has larger eyes and larger scales than other hitch subspecies.

Federal Status

On September 25, 2012 the Center for Biological Diversity petitioned the U.S. Fish and Wildlife Service (USFWS) to list CLH as endangered or threatened under the federal Endangered Species Act (ESA). As of the preparation of these Findings, there has been no action taken on the petition by USFWS.

The U.S. Forest Service (USFS) lists CLH as a sensitive species. USFS sensitive species are those plant and animal species identified by a regional forester that are not

listed or proposed for listing under the federal ESA for which population viability is a concern.

II. STATUTORY AND LEGAL FRAMEWORK

The Commission, as established by the California Constitution, has exclusive statutory authority under California law to designate endangered, threatened, and candidate species under CESA (Cal. Const., art. IV, § 20, subd. (b); Fish & G. Code, § 2070). The CESA listing process for CLH began in the present case with the Petitioners' submittal of the Petition to the Commission on September 25, 2012. Pursuant to Fish and Game Code section 2073, on September 26, 2012 the Commission transmitted the petition to the Department for review pursuant to Fish and Game Code section 2073.5. The regulatory process that ensued is described in some detail in the preceding section above, along with related references to the Fish and Game Code and controlling regulation. The CESA listing process generally is also described in some detail in published appellate case law in California, including:

- *Mountain Lion Foundation v. California Fish and Game Commission* (1997) 16 Cal.4th 105, 114-116;
- *California Forestry Association v. California Fish and Game Commission* (2007) 156 Cal.App.4th 1535, 1541-1542;
- *Center for Biological Diversity v. California Fish and Game Commission* (2008) 166 Cal.App.4th 597, 600; and
- *Natural Resources Defense Council v. California Fish and Game Commission* (1994) 28 Cal.App.4th 1104, 1111-1116.

The “is warranted” determination at issue here for CLH stems from Commission obligations established by Fish and Game Code section 2075.5. Under this provision, the Commission is required to make one of two findings for a candidate species at the end of the CESA listing process; namely, whether the petitioned action is warranted or is not warranted. Here, with respect to CLH, the Commission made the finding under Fish and Game Code section 2075.5, subdivision (e)(2), that the petitioned action is warranted.

The Commission was guided in making this determination by statutory provisions and other controlling law. The Fish and Game Code, for example, defines an endangered species under CESA as “a native species or subspecies of a bird, mammal, fish, amphibian, reptile or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, over exploitation, predation, competition, or disease.” (Fish & G. Code, § 2062.) Similarly, the Fish and Game Code defines a threatened species under CESA as “a native species or subspecies of a bird, mammal, fish, amphibian, reptile or

plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter.” (*Id.*, § 2067.)

The Commission also considered Title 14 of the California Code of Regulations, section 670.1, subdivision (i)(1)(A), in making its determination regarding CLH. This provision provides, in pertinent part, that a species shall be listed as endangered or threatened under CESA if the Commission determines that the species’ continued existence is in serious danger or is threatened by any one or any combination of the following factors:

1. Present or threatened modification or destruction of its habitat;
2. Overexploitation;
3. Predation;
4. Competition;
5. Disease; or
6. Other natural occurrences or human-related activities.

Fish and Game Code section 2070 provides similar guidance. This section states that the Commission shall add or remove species from the list of endangered and threatened species under CESA only upon receipt of sufficient scientific information that the action is warranted. Similarly, CESA provides policy direction not specific to the Commission per se, indicating that all state agencies, boards, and commissions shall seek to conserve endangered and threatened species and shall utilize their authority in furtherance of the purposes of CESA (Fish & G. Code, § 2055). This policy direction does not compel a particular determination by the Commission in the CESA listing context. Nevertheless, as the Court of Appeal for the Third Appellate District underscored in the CESA listing context specifically, “[l]aws providing for the conservation of natural resources’ such as the CESA ‘are of great remedial and public importance and thus should be construed liberally.” (*California Forestry Association v. California Fish and Game Commission, supra*, 156 Cal. App.4th at pp. 1545-1546, citing *San Bernardino Valley Audubon Society v. City of Moreno Valley* (1996) 44 Cal.App.4th 593, 601; Fish & G. Code, §§ 2051, 2052.)

Finally in considering these factors, CESA and controlling regulations require the Commission to actively seek and consider related input from the public and any interested party (see, e.g., *Id.*, §§ 2071, 2074.4, 2078; Cal. Code Regs., tit. 14, § 670.1, subd. (h)). The related notice obligations and public hearing opportunities before the Commission are also considerable. (Fish & G. Code, §§ 2073.3, 2074, 2074.2, 2075, 2075.5, 2078; Cal. Code Regs., tit. 14, § 670.1, subds. (c), (e), (g), (i); see also Gov. Code, § 11120 et seq.) All of these obligations are in addition to the requirements

prescribed for the Department in the CESA listing process, including its initial evaluation of the petition and a related recommendation regarding candidacy, and a review of the candidate species' status in California culminating with a report and recommendation to the Commission as to whether listing is warranted based on the best available science. (Fish & G. Code, §§ 2073.4, 2073.5, 2074.4, 2074.6; Cal. Code Regs., tit. 14, § 670.1, subds. (d), (f), (h).)

III. Factual and Scientific Bases for the Commission's Final Determination

The factual and scientific bases for the Commission's determination that designating CLH as a threatened species under CESA is warranted are set forth in detail in the Commission's record of proceedings including the Petition, the Department's 2013 Petition Evaluation Report, the Department's 2014 Status Review, written and oral comments received from members of the public, the regulated community, members and representatives of Clear Lake Native American tribes, the scientific community and other evidence included in the Commission's record of proceedings as it exists up to and including the Commission meeting in San Diego, California on August 6, 2014. The administrative record also includes these findings.

The Commission determines that substantial evidence highlighted in the preceding paragraph, along with other evidence in the administrative record, supports the Commission's determination that CLH in the State of California, while not presently threatened with extinction, is likely to become an endangered species in the foreseeable future, absent the special protections and management efforts required by CESA, and that it is in serious danger or threatened by one or a combination of the following factors as required by the California Code of Regulations, Title 14, section 670.1, subdivision (i)(1)(A):

1. Present or threatened modification or destruction of its habitat;
2. Predation;
3. Competition; or
4. Other natural occurrences or human-related activities.

The Commission also determines that the information in the Commission's record constitutes the best scientific information available and establishes that designating CLH as a threatened species under CESA is warranted. Similarly, the Commission determines that the CLH is likely to be in serious danger of becoming extinct throughout all, or a significant portion, of its range within the foreseeable future in the absence of CESA's protections, due to one or more causes.

The following sections highlight in more detail some of the scientific and factual information and other evidence in the administrative record of proceedings that support the Commission's determination that designating CLH as a threatened species under CESA is warranted. The issues addressed in these findings represent some, but not all of the evidence, issues, and considerations affecting the Commission's final determination. Other issues aired before and considered by the Commission are addressed in detail in the record before the Commission, which record is incorporated herein by reference.

Background

Threats

Present or Threatened Modification or Destruction of Habitat

Beginning with the arrival of European settlers in the mid-1800s, alterations to habitats in the watershed have directly impacted the ability of CLH to survive. Habitats necessary for both spawning and rearing have been reduced or severely decreased in suitability in the past century resulting in an observable decrease in the overall abundance of CLH and its habitat. Throughout the expansion of European settlement around the lake, wetland habitat was drained and filled to provide urban and agricultural lands. Wetland habitat provides critical rearing habitat for juvenile fishes native to the lake. Comparisons of historical versus current wetland habitat reveal a loss of approximately 85 percent, from 9,000 acres in 1840 to 1,500 acres by 1977. Spawning tributaries have been physically altered by a combination of dams, diversions, and mining operations that have altered the course and timing of spring flows and the amount and quality of spawning habitat available for CLH. Dams create barriers to CLH passage that reduce the amount of available spawning habitat while altering the natural flow regime of tributaries. Water diversions on tributaries have resulted in decreased flows during critical spawning migrations for CLH. Loss of eggs, juvenile, and adult fish due to desiccation and stranding from water diversions are likely a significant impact on CLH populations. Gravel mining removed large amounts of spawning substrate during peak operations in the mid-1900s. Spawning substrate has been restored slowly after gravel mining was discontinued in the majority of the watershed.

Water quality impacts to the watershed have resulted in Clear Lake being listed as an impaired water body and led to the establishment of Total Maximum Daily Load (TMDL) limits for both mercury and nutrients for the lake. It is unclear to what extent the water quality impacts are affecting CLH populations. The increase in nutrient loads entering the lake has led to significant cyanobacteria blooms that plague the lake during warmer months. Primary producers such as epiphyton, benthic algae, and rooted vascular

plants form the base of the food chain in the lake. The cyanobacteria blooms reduce the amount of light penetration in the water column and cause a reduction in producers because they cannot reposition themselves to gain more light. The loss of function for primary producers results in significant alterations to the nutrient cycle and food web for the lake. The lake's food web continued to be altered as Clear Lake gnats were targeted for control with various pesticides. Clear Lake gnat, once the primary food source for CLH, were reduced through the use of pesticides from a population estimated in the millions to only a few thousand.

Modification and destruction of habitat is a significant threat to the continued existence of CLH.

Overexploitation

Harvest of CLH has occurred by both Native American tribes and commercial fishery operators at Clear Lake. Historical accounts from tribal members indicate that significant amounts of CLH were harvested during spawning runs. In recent years, the amount of harvest by the Pomo has been minimal, and the CLH are primarily used for educational and cultural reasons. Since the early 1990s commercial fishery operations have been required to return all CLH captured to the lake. Prior to that, CLH had not been regularly harvested for sale. It is likely that incidental catch during commercial harvest operations resulted in mortality of some CLH. However, there is no information indicating that overexploitation threatens the continued existence of CLH. There are currently no commercial fishing permits issued for operations on Clear Lake. The last commercial fishing operation was discontinued in 2007.

Predation

Direct predation of CLH by fish, birds, and mammals is known to occur in occupied habitats within the watershed. Spawning runs are vulnerable to predation from birds and mammals as fish migrate upstream and become stranded at various locations. Stranding occurs both naturally and as a result of habitat modifications described above. Non-native fishes prey directly on different life stages of CLH and represent an introduced impact to the population. CLH have been found during stomach content analyses of largemouth bass. Incidental observations indicate that largemouth bass may target CLH as they stage at the entrance to spawning tributaries in early spring. Other introduced fishes, such as catfish, also prey on CLH. A detailed diet study on selected introduced fishes is necessary to determine the extent of predation from introduced fishes. There is evidence suggesting that predation by introduced fishes threatens the continued existence of CLH.

Competition

The extent of impacts on CLH from competition with other aquatic species is poorly understood. Studies conducted on diet analysis of CLH indicate that there is competition between CLH and other zooplankton consuming fish species, primarily Mississippi silversides and threadfin shad. Observations by Department biologists and others indicate that CLH populations fluctuate on alternating cycles with Mississippi silverside and threadfin shad populations with CLH being more abundant in years with decreased Mississippi silverside and threadfin shad abundance. CLH directly compete with other native and non-native fishes for juvenile rearing habitat. Many fishes in Clear Lake utilize near shore wetland habitat as juveniles and adults. With the decrease in wetland habitat over the past century, there is increased competition for the remaining habitat. Although no formal studies have been completed, it is likely that competition for resources threatens the continued existence of CLH.

Disease

There are no known diseases that are significant threats to the continued existence of CLH.

Other Natural Occurrences or Human-related Activities

Numerous recreational activities such as angling, water skiing, wakeboarding, jet skiing, kayaking, and canoeing take place in Clear Lake each year. The majority of recreational activities pose no significant threat to the survival of CLH. It is believed that recreational and tournament anglers' capture CLH incidentally, however the occurrence is considered rare. The significance of the impact to CLH from angling is unknown, but likely does not threaten the continued existence of CLH.

IV. ADDITIONAL CONSIDERATIONS INFORMING THE COMMISSION'S FINAL DETERMINATION

Various additional considerations inform the Commission's determination that designating CLH as a threatened species under CESA is warranted. In general, the Fish and Game Code contemplates a roughly twelve-month long CESA listing process before the Commission, including multiple opportunities for public and Department review and input and peer review (see generally Fish & G. Code, § 2070 et seq.; Cal. Code Regs., tit. 14, § 670.1.). From the initial receipt of the Petition in September 2012 through the Commission's decision on August 6, 2014 that listing is warranted, the Department and the Commission received numerous comments and other significant public input regarding the status of CLH from biological, scientific and cultural resources

standpoints and with respect to the petitioned action under CESA. The Commission, as highlighted below, was informed by and considered all of these issues, among others, in making its final determination that designating CLH as a threatened species under CESA is warranted. (See Fish & G. Code, § 2075.5, subd. (e)(1); Cal. Code Regs., tit. 14, § 670.1, subd. (i)(2).).

V. FINAL DETERMINATION BY THE COMMISSION

The Commission has weighed and evaluated the information for and against designating CLH as a threatened species under CESA. This information includes scientific and other general evidence in the Petition; the Department's Petition Evaluation Report; the Department's Status Review; the Department's related recommendations; written and oral comments received from members of the public, members and representatives of Clear Lake Native American tribes, the regulated community, various public agencies, and the scientific community; and other evidence included in the Commission's record of proceedings. Based upon the evidence in the record the Commission has determined that the best scientific information available indicates that the continued existence of the CLH is in serious danger or threatened by present or threatened modifications or destruction of the species' habitat, predation, competition, or other natural occurrences or human-related activities, where such factors are considered individually or in combination. (See generally Cal. Code Regs., tit. 14, § 670.1, subd. (i)(1)(A); Fish & G. Code, §§ 2062, 2067.) The Commission determines that there is sufficient scientific information to indicate that designating the CLH as a threatened species under CESA is warranted at this time and that with adoption and publication of these findings the CLH for purposes of its legal status under CESA and further proceedings under the California Administrative Procedure Act, shall be listed as threatened.