State of California
Department of Fish and Wildlife

2025 Clear Lake Hitch (*Lavinia exilicauda chi*) Visual Surveys on Clear Lake Tributaries

Photo by A. Balletto

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Region 2

July 2025

Introduction

In September 2012, The Center for Biological Diversity submitted a petition to the United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) to list the Clear Lake Hitch (*Lavinia exilicauda chi*) (HCH-C) as a threatened or endangered species pursuant to the federal Endangered Species Act (ESA) and the California Endangered Species Act (CESA) (Fish and Game Code, 2050). On August 6, 2014, a decision to list the species as threatened under CESA was made by the California Fish and Game Commission. On December 3, 2020, the USFWS made the decision not to list the species as threatened or endangered under the Endangered Species Act; however, this changed in January 2025 when the USFWS proposed listing HCH-C as threatened along with an ESA 4(d) rule for activities that could have a conservation benefit for the species.

CDFW conducted visual surveys on seven tributaries to Clear Lake (Lake County) to monitor spawning HCH-C in late winter and spring of 2025. During the 2025 visual survey, CDFW sampled specific points along each tributary to help determine the relative number of HCH-C migrating upstream to spawn. This information, combined with previous years' data (Ewing 2014, 2016−2024) and with future surveys at these locations, will assist CDFW with long-term management decisions regarding HCH-C.

Methods

The HCH-C visual survey began on March 12, 2025, and continued through May 13, 2025 for a total of 10 surveys. During this period, CDFW and Alfred Balletto from Big Valley Rancheria conducted visual surveys at 21 sites on McGaugh Slough, Adobe Creek, Hill Creek, Kelsey Creek, Cole Creek, Manning Creek, and Thompson Creek (**Table 1** and **Figure 1**). Site 9 and Site 20 are no longer surveyed and are therefore absent from the report. For each visual survey, except site 17, staff made an upstream and downstream visual count of HCH-C from a bridge crossing as far as they could see in each direction and documented the total HCH-C observed. For site 17, the visual survey was done by walking upstream and downstream approximately 50 yards of Dorn Crossing and collecting counts. The time it took to conduct a count at each site was dependent on the number of HCH-C observed. Staff used fixed observation sites for each visual survey to reduce bias that could result from making HCH-C observations from different points at each given waterbody. HCH-C counts were collected once a week at every site until late in the season when low flow conditions prevent HCH-C migration to a specific site (**Table 2**).

Table 1. Global Positioning System (GPS) coordinates in degrees, minutes, seconds, of sites visited for visual surveys.

Site No.	GPS Coordinates		Site No.	GPS Coordinates	
McGaugh Slough			Cole Creek		
1	39° 00' 53.82 N	122° 51' 42.62 W	13	38° 59' 51.50 N	122° 48' 53.75 W
2	39° 00' 15.26 N	122° 51' 46.10 W	14	38° 58' 31.37 N	122° 49' 40.57 W
3	38° 59' 36.44 N	122° 51' 41.64 W	15	38° 56' 33.05 N	122° 48' 55.47 W
Hill Creek			Kelsey Creek		
4	38° 58' 57.04 N	122° 51' 44.58 W	16	39° 00' 39.15 N	122° 50' 07.38 W
5	38° 58' 43.98 N	122° 51' 47.31 W	17	38° 59' 49.98 N	122° 50' 38.09 W
Adobe Creek			18	38° 58' 55.84 N	122° 50' 36.87 W
6	39° 00' 53.69 N	122° 52' 14.55 W	19	38° 58' 42.59 N	122° 50' 34.07 W
7	39° 00' 15.57 N	122° 52' 23.71 W	Manning Creek		
8	38° 59' 37.67 N	122° 52' 39.56 W	21	39° 00' 40.52 N	122° 54' 01.30 W
Thompson Creek			22	38° 59' 54.97 N	122° 54' 28.49 W
10	39° 00' 40.42 N	122° 53' 44.99 W	23	38° 59' 54.36 N	122° 54' 45.17 W
11	38° 59' 51.86 N	122° 53' 38.75 W			
12	38° 59' 37.21 N	122° 53' 34.48 W			

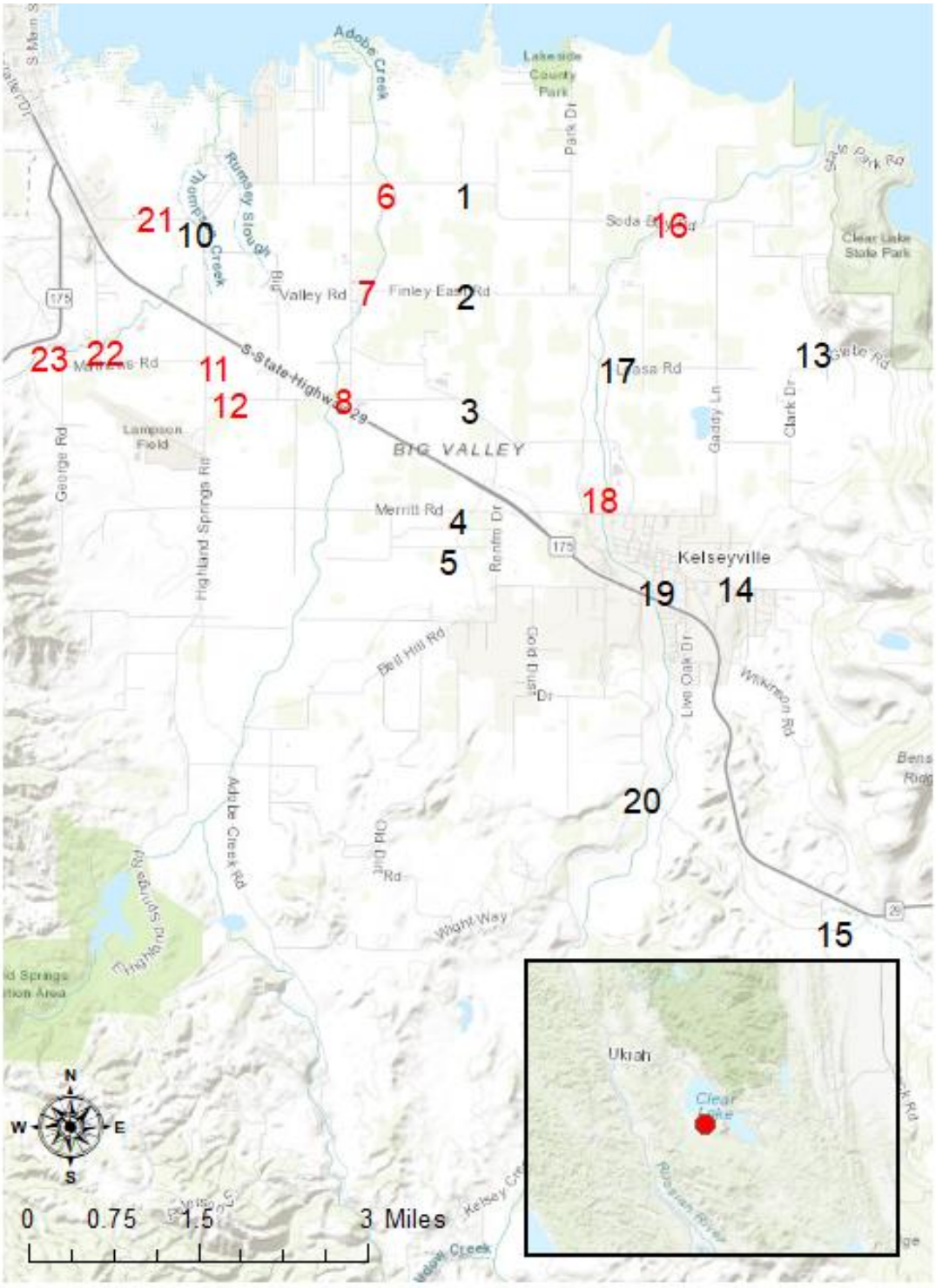

Figure 1. Visual survey sites on Clear Lake tributaries (Lake County, CA). Red-colored numbers indicate where HCH-C were observed in 2025. Location of visual survey sites in relation to Clear Lake found in inset map.

Table 2. Visual Survey Sites and Dates Visited. X = Site Surveyed; Dry downstream (DD) = Site Not Surveyed. Number of fish observed during each survey are included in the highlighted cells.

Location	Site	2025 Survey Dates									
		3/12	3/18	3/25	4/1	4/10	4/15	4/23	4/29	5/7	5/13
McGaugh Slough											
Blower/Soda Bay Road	**1**	x	x	x	x	x	x	x	x	x	x
Finley East Road	**2**	x	x	x	x	x	x	x	x	x	x
Big Valley/Argonaut	**3**	x	x	x	x	x	x	x	x	x	x
Hill Creek											
Merrit Road	**4**	x	x	x	x	x	x	x	x	DD	DD
Holdenreid Road	**5**	x	x	x	x	x	x	x	x	DD	DD
Adobe Creek											
Soda Bay Road	**6**	x	x	157	x	198	x	x	x	x	x
Finley East Road	**7**	x	x	180	x	167	x	x	x	x	x
Big Valley/Argonaut	**8**	x	x	25	x	x	x	x	x	x	x
Thompson Creek											
Soda Bay Road	**10**	x	x	24	x	x	x	x	x	x	x
Highland Springs/Mathews	**11**	x	x	32	x	x	x	x	x	x	x
Highland Springs/Argonaut	**12**	x	x	x	x	x	x	x	x	x	x
Cole Creek											
Clark Road	**13**	x	x	x	x	x	x	x	x	x	x
Konocti Road	**14**	x	x	x	x	x	x	x	x	x	x
Bottle Rock Road	**15**	x	x	x	x	x	x	x	x	x	x
Kelsey Creek											
Soda Bay Road	**16**	x	x	18	x	68	608	1	x	x	x
Dorn Crossing	**17**	x	x	x	x	x	x	x	x	x	x
Merrit and Loasa	**18**	x	x	6	x	1	x	x	x	x	x
Main St. Bridge	**19**	x	x	x	x	x	x	x	x	x	x
Manning Creek											
Soda Bay Road	**21**	x	x	66	x	x	x	x	x	x	x
Ackley Road	**22**	x	x	3	x	x	x	x	x	x	x
George Road	**23**	x	x	13	x	x	x	x	x	x	x

Results

Staff observed 1,567 HCH-C during the 2025 visual survey season. The 2025 total was a large increase from 2024 (n = 1,042) and the third highest in 11 seasons (2023, n = 2,548, 2022, n = 306; 2021, n = 120; 2020, n = 1,672; 2019, n = 612; 2018, n = 1,153; 2017, n = 517; 2016, n = 693; 2014, n = 1,119) (**Figure 2**). All HCH-C observed in 2025 were in Kelsey, Manning, Thompson, and Adobe Creeks. No fish were observed in McGaugh Slough, Cole Creek, or Hill Creek. Staff observed HCH-C in Adobe Creek at sites 6 (Soda Bay Road Bridge Crossing), 7 (Finley East Road Bridge Crossing), and 8 (Argonaut Road Bridge Crossing) on March 25. Staff also observed HCH-C at sites 6 and 7 on April 10. Staff observed HCH-C in Kelsey Creek at sites 16 (Soda Bay Road) and 18 (Merritt Road) on March 25 and April 10. Staff also observed HCH-C at Site 16 on April 15 and 23. Staff observed HCH-C in Thompson Creek at sites 11 (Highland Springs Road Crossing) and 12 (Argonaut Road) on March 25. Staff observed HCH-C in Manning Creek at sites 21 (Soda Bay Road Crossing), 22 (Ackley Road), and 23 (George Road) on March 25. Adobe Creek was the most frequented tributary by HCH-C in 2025, 2023, 2022, 2018, and 2016 (Ewing 2023, 2022, 2018, and 2016).

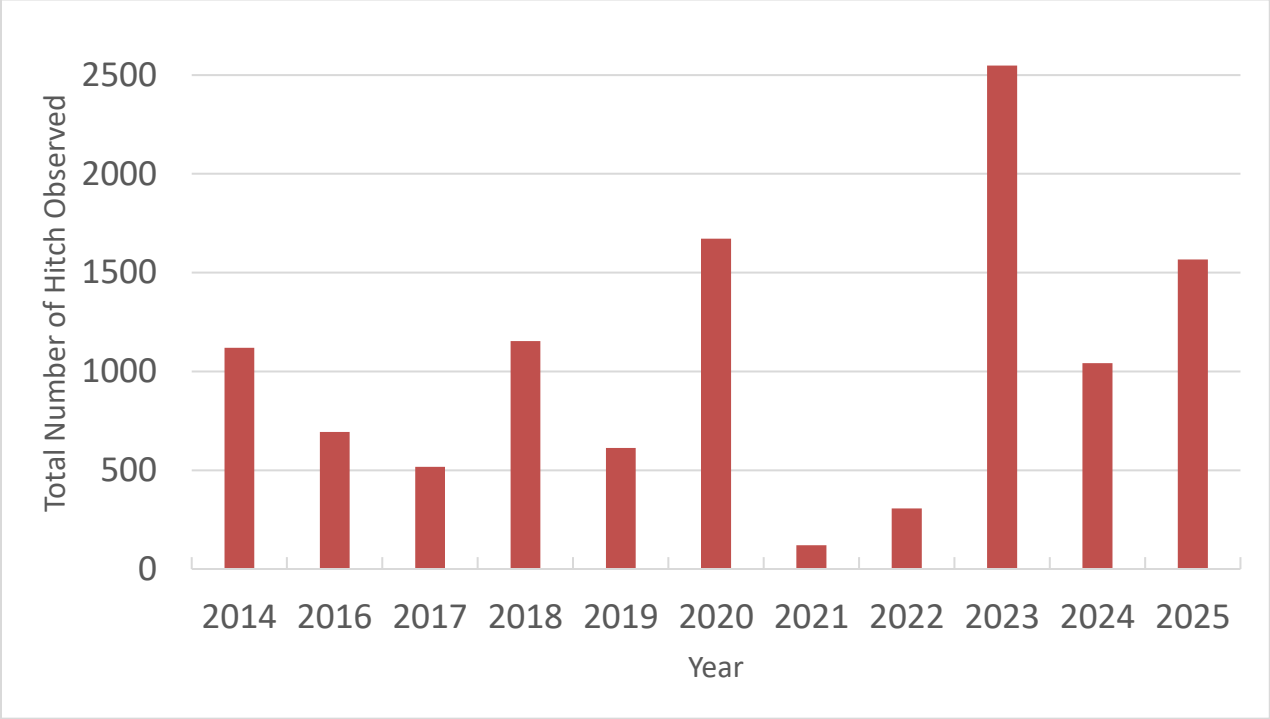

Figure 2. Clear Lake Hitch Visual Survey Totals from McGaugh Slough, Adobe Creek, Hill Creek, Thompson Creek, Cole Creek, Kelsey Creek, and Manning Creek from 2014, 2016-2025.

Discussion

In 2023, a record rainfall total during the wet season resulted in high and consistent stream flows, increasing the amount of HCH-C spawning in the tributaries (CDWR 2023). In 2024 and 2025, the rainfall totals weren't as high as 2023, but still contributed to more consistent and high stream flows. Staff observed all HCH-C at ten sites on four tributaries. All but three of the tributary sites retained water during the survey period, allowing opportunity for HCH-C upstream migration. Due in part to these conditions, HCH-C that were able to spawn in Adobe, Manning, Kelsey, and Thompson Creeks may have an increased chance of recruitment survival this year.

The number of HCH-C observed in 2025 was above the 11-year average of 1,032; however, more HCH-C were expected based on the number of HCH-C observed in 2023 results and another wet winter in 2024/25. Several factors including habitat conditions and decreased predation may also be contributing to an increase in in-lake spawning. High lake level, increased vegetative cover conditions within the lake during wet years may also be contributing to increased in-lake spawning. Robinson Rancheria and Rojas Fisheries have been active in removing Common Carp (*Cyprinus carpio*) and Goldfish (*Carassius auratus*) from Clear Lake to improve HCH-C egg/larvae survival and in 2024 CDFW began removing Common Carp and Goldfish from four sites sampled for a Relative Population Estimate Study. Reduced predation by these species may also lead to a portion of the HCH-C population utilizing in-lake spawning rather than moving upstream in the tributaries. Increased in-lake spawning may also be supported by results from CDFW's in-lake Relative Population Estimate Study in which a record number of HCH-C were collected via electrofishing in 2025 (n=2776). This is a significant increase to the previous record year in 2023 (n=1000) and in 2024 when 969 HCH-C were collected. The high numbers of HCH-C observed in 2025 suggest that at least a limited number of HCH-C spawned in Clear Lake in recent dry water years.

In spring 2026, CDFW will continue to survey the same 21 sites to monitor the HCH-C population during the spawning season and continue investigating reports of HCH-C sightings in other areas of the Clear Lake watershed.

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