



## "A Voice for Salmon" *365 Days a Year*

Hi Gordon

I want to respond more fully to your email regarding release of hatchery salmon. I would like to start by stating a few facts about the state's hatchery salmon program that I hope your group acknowledges.

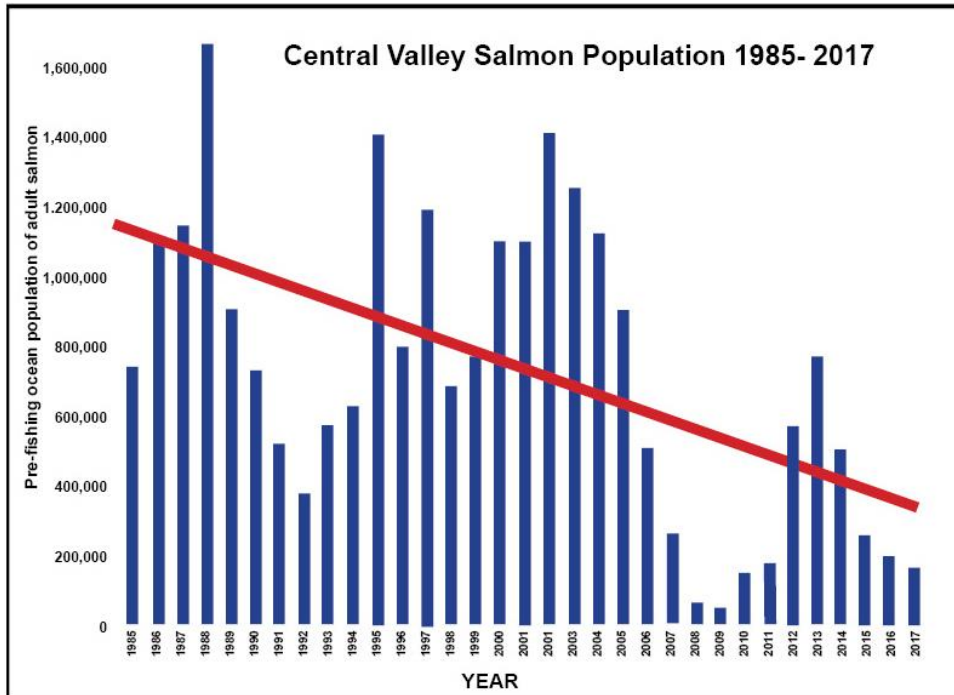
The hatcheries exist to mitigate for lost salmon spawning and rearing habitat. Estimates are that in the Central Valley, between 80 and 90 percent of this habitat has been lost<sup>1</sup>, most blocked by rim dams that don't have fish ladders on them. Due to their height, these dams don't lend themselves to being retrofitted with ladders, and no one expects them to be removed anytime soon.

In addition, more spawning and rearing habitat was lost in the Central Valley by "reclamation" activities. Construction of levees and armoring of river banks changed river floodplain and side channels, important for rearing and spawning, into agricultural fields. Today's Central Valley salmon producing rivers more resemble straighten, armored, irrigation delivery canals. GSSA and others work to correct these environmental wounds.

Because of the habitat losses, Central Valley dam operators have legal obligations to produce fish in order to meet mitigation requirements including those attached to their FERC operating license. Hatchery production goals were set years ago when water project operations still allowed for some measure of outmigration success of both hatchery and naturally spawned salmon.

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<sup>1</sup> Lindley, S., R. S. Schick, A. Agrawal, M. Goslin, T. E. Pearson, E. Mora, J. Anderson, B. May, S. Greene, C. Hanson, A. Low, D. McEwan, R. Macfarlane, C. Swanson, and J. G. Williams. 2006. Historical population structure of Central Valley steelhead and its alteration by dams. *San Fran Est Wat Sci* 4.



The last two decades have seen a precipitous collapse in Chinook salmon survival. As abundance has fallen, so has allowable harvest. To address worsening in-river conditions, the State began to truck juvenile hatchery salmon to release sites in the bay. The river itself, downstream of the hatcheries in all but the wettest years can be a deadly migration corridor.<sup>2</sup>

Fish produced by the USFWS’s Coleman Hatchery upriver from Red Bluff near Anderson as a rule aren’t trucked although they were at the height of the last drought and there’s a very small experimental program underway that releases a small number at a site about 70 miles downstream of the hatchery.

Unsurprisingly, relatively few of the Coleman fish survive to the ocean, much less to adulthood. In some years much less than one percent of the Coleman fish survive to return or be harvested. The fish produced by CDFW that are trucked to Mare Island near Vallejo, (the preferred release site used by CDFW), often survive at one percent or less. This represents a huge loss to the salmon fishery many Californians rely on to make a living, or to supplement the dinner table.

Without trucking, California’s salmon fishery would quickly fail because a harvestable surplus of Chinook salmon could not be relied upon. Eliminating trucking means the elimination of viable commercial and recreational salmon fisheries in California. GSSA asks: if young salmon

<sup>2</sup> Chinook salmon outmigration survival in wet and dry years in California’s Sacramento River Cyril J. Michel, Arnold J. Ammann, Steven T. Lindley, Philip T. Sandstrom, Eric D. Chapman, Michael J. Thomas, Gabriel P. Singer, A. Peter Klimley, and R. Bruce MacFarlane

are going to be trucked, why not seek the best return on investment by trucking to release sites where they have a better chance of survival. The data are clear, the closer to the ocean they are released, the higher their survival. <sup>3</sup>

Coastal communities north to south depend on these salmon for their economic well-being. To the north of Inverness, the town of Bodega Bay is largely there due to the salmon fishery. Further north, Pt. Arena and Ft. Bragg, Eureka and Crescent City all rely on salmon. To the south, the salmon industry is an important contributor to the economy of Bay Area cities including San Francisco, Sausalito, Richmond, Berkeley, Emeryville and more. Further down the coast, Half Moon Bay, Santa Cruz, Moss Landing, Monterey, San Luis Obispo, Morro Bay, and more, all benefit greatly from the salmon caught offshore. In too many years, the majority of these fish are hatchery fish.

**CDFW will continue hatchery production and a trucking program in recognition of the extreme losses in a highly degraded Central Valley river system, the question turns to where they should be released.**

Let's talk a bit about straying. Trucking is often blamed for straying. It is widely recognized that to some extent every salmon population strays. Hatchery fish released in basin (at the hatchery site) stray. Climate change is resulting in salmon straying further and further north, establishing populations right up into streams that terminate in the Arctic Ocean. The last Ice Age probably saw salmon in streams as far south as what is now Mexico. As the ice receded, the salmon colonized newly available habitat to the north. In Yolo County, a self-sustaining population of strayed Chinook salmon has recolonized Putah Creek. To be sure, trucked fish may stray to a somewhat greater extent than those released in basin. However, here in California, increased straying is also driven by water project operations that miscue salmon where to return to. For hatcheries like the Mokelumne, minimal dam releases of natal water coupled with the operation of the State Water Project's cross channel gates can result in equal stray rates whether the fish are released in the Delta or on the coast. For Mokelumne hatchery salmon, releases closer to natal waters do not appreciably reduce straying. Conversely, straying is much lower for trucked Feather River fish because flows are comparatively greater and they are not impacted by the cross channel gates.

Available data tells us that trucking hatchery fish closer to the Golden Gate or to the coast markedly improves survival as shown by the harvest and escapement of these fish as adults. At the same time, the stray rate is either unchanged (Mokelumne fish) or only marginally increased (Feather fish) when compared to other current out-of-basin release locations.

We respectfully disagree that the production and trucking of Central Valley Fall Chinook presents a threat to the survival of California coastal Coho salmon. Coho undoubtedly face

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<sup>3</sup> Recovery of Coded-Wire Tags from Chinook Salmon in California's Central Valley Escapement, Inland Harvest, and Ocean Harvest in 2017

significant challenges in coastal streams and rivers. Those challenges existed long before California trucked hatchery fish and are not related. It is difficult to imagine a genuine threat to California coastal Coho salmon or steelhead from Chinook salmon since they naturally coexist in many coastal streams including the Mattole, Eel, Russian and many other rivers.

Your July 24, 2019 letter to Director Bonham raises a few issues that deserve a response. You observe that spawning Chinook were not observed between 2007 and 2012, but Chinook were observed in Lagunitas Creek in some of those years. In fact, Chinook have been reported in that watershed at least as far back as the 1960's.<sup>4</sup> Moreover, an average of 29 Chinook redds were observed over six years, 2001 to 2007.<sup>5</sup> The presence of Chinook salmon, whether adults or juveniles in the Lagunitas watershed is neither new nor remarkable. You also cite a journal article<sup>6</sup> concerning salmon released from net pens to support the suggestion that coastal releases increase the risk of straying. However, that article states the contrary. Less than one percent of those fish were found to have strayed with the caveat that coded-wire tag recovery efforts were not robust on the spawning grounds.

We do not believe that credible evidence exists to support the concern that the intermittent presence of juvenile Chinook salmon in Lagunitas threaten Coho salmon or steelhead. As previously stated, all three species naturally coexist in California's coastal watersheds as well as in Oregon, Washington and Alaska. We have not found any scientific literature documenting the concern you raise. The ocean diets you cite are not relevant. Once in the ocean, Lagunitas Coho are far outnumbered by, and already compete with, Central Valley and California Coastal Chinook, including hatchery fish, regardless of where the hatchery fish were released.

For the record, GSSA works not only to boost survival of existing hatchery salmon but also to restore the natural conditions in the Central Valley needed to keep naturally spawned salmon alive.

Thanks for considering these views and the evidence cited.

Sincerely,



John McManus, president  
Golden State Salmon Association

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<sup>4</sup> Lagunitas Creek Stewardship Plan, June 2011 at p. 24

<https://www.marinwater.org/sites/default/files/2020-09/Lagunitas%20Stewardship%20Plan.pdf>

<sup>5</sup> Lagunitas Creek Fishery Management Plan, <http://cemarin.ucdavis.edu/files/124113.pdf>

<sup>6</sup> Hauser, W.J., P. Westley, C. Kerkvliet, and N. Dudiak. 2017. Homing of Pacific Salmon to a Marine Release Site. Northwest Science. 91 (3):314-323