

California Anadromous Hatcheries Strategic Management Implementation 2014 Annual Report



California Anadromous Hatchery Policy
Team

California Hatchery Policy Team

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Cover Photograph: CDFW Mark Sparkman



INTRODUCTION

The U.S. Congress recognized hatcheries have a necessary role in meeting harvest and conservation goals for Pacific salmonids; however, Congress also recognized that hatcheries in the Pacific Northwest needed a comprehensive review. In 2000, Congress established and funded the hatchery review process for salmon and steelhead hatcheries. The hatchery review process had two goals: 1) to help recover and conserve naturally spawning salmon and steelhead populations;

and 2) to support sustainable fisheries with little or no deleterious consequences to natural populations (HSRG 2012). Washington State has two completed hatchery review reports, one for the Columbia River basin and one for Puget Sound and Coastal Washington (www.hatcheryreform.us/hrp/reports/welcome_show.action). In California, a group of independent, agency and tribal scientists reviewed hatchery operations and made scientifically based recommendations to improve hatchery operations. This California Hatchery Scientific Review Group developed the “California Hatchery Review Report” (CHRR (2012)) providing recommendations to improve the efficiency of California’s hatchery operations, reduce hatchery impacts on natural populations, and support commercial, tribal, and recreational fisheries. California’s hatchery review focused on salmon and steelhead hatcheries in the Klamath and Trinity basins, and the Central Valley. The CHRR (2012) is online at www.cahatcheryreview.com/reports.

California completed the Hatchery Scientific Review Group (HSRG) review in April 2012. The HSRG consisted of eleven members which provided substantial expertise and historical experience in hatchery operation, genetics, fishery management, monitoring, and fish health.

Dr. John Carlos Garza, National Marine Fisheries Service, Southwest Regional Science Center
Scott Hamelberg, U.S. Fish and Wildlife Service
Dr. David Hankin, Humboldt State University
Michael Lacy, California Department of Fish and Game
Dennis Lee, Independent Consultant
Dr. Bernie May, University of California, Davis
Michael Mohr, National Marine Fisheries Service, Southwest Regional Science Center
George Nandor, Pacific States Marine Fisheries Commission
Kevin Niemela, U.S. Fish and Wildlife Service
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Kimberly True, U.S. Fish and Wildlife Service

D.J. Warren and Associates, Inc., in association with Malone Environmental Consulting, Meridian Environmental, Inc. and ICF provided technical support and facilitation.

The final CHRR (2012) describes 14 important issues (Appendix A) for management of California’s salmon and steelhead hatcheries. It also provides statewide and hatchery-specific

recommendations, standards, and guidelines. At the statewide level, the report makes recommendations on five key hatchery topics including broodstock management; program size and release strategies; incubation, rearing and fish health management; monitoring and evaluation programs; and the direct effects of hatchery operations on local habitats and aquatic and terrestrial organisms. The statewide recommendations include, but are not limited to, the following.

- *Broodstock management*: Recommendations include selection of appropriate broodstock sources, broodstock collection, broodstock composition, mating protocols, and steelhead spawner disposition.
- *Program size and release strategies*: Program size needs to take into account mitigation responsibilities, preventing extinction of listed species, societal benefits and effects on natural fish populations. The report recommends basing program size on adult returns instead of juvenile releases. Hatchery release strategies should generally mimic natural emigration in timing, release location, and fish size/life history.
- *Incubation, rearing and fish health management*: The California Department of Fish and Wildlife (CDFW) needs to ensure hatcheries have the infrastructure to produce quality fish and should consider development of a statewide fish health policy and a fish health management plan that includes routine monitoring by fish health specialists. In addition, the CHRR (2012) recommends maintaining distinct sanitation and biosecurity measures at each phase of production. Water quality should meet or exceed standards described in IHOT 1995.
- *Monitoring and Evaluation*: CHRR (2012) recommendations include extensive monitoring and evaluation of hatchery programs through Hatchery and Genetic Management Plans, Hatchery Evaluation Plans, creation of Hatchery Coordination Teams, in-hatchery monitoring and record keeping, marking and tagging programs, post-release emigration monitoring, adult monitoring programs, and hatchery performance evaluation programs.
- *Direct Effects of Hatchery Operations on Local Habitats, and Aquatic or Terrestrial Organisms*: Ensure hatchery operations integrate into local watershed restoration efforts and activities. Hatchery operations should minimize impacts to aquatic species. Hatchery effluent should meet all National Pollutant Discharge Elimination Systems (NPDES) requirements.

The CHRR's (2012) recommendations include hatchery-specific and species-specific actions to meet these overarching statewide recommendations. For example, the Iron Gate Fish Hatchery recommendations include hatchery-wide recommendations such as, reviewing mating protocols for consistency with recommendations. An associated species- or program- specific action is to incorporate natural-origin broodstock at a minimum rate of 10percent. All anadromous hatcheries have hatchery-wide recommendations and recommendations by program. In addition to recommendations in the CHRR (2012), Appendix VIII contains standards and guidelines for each hatchery program. In Appendix VIII, section 4.3 Programmatic Strategies that includes tables for each of the statewide recommendations, describes the standards, states if the standard is met or not, and then provides guidelines to meet the standards. Together, the statewide,

hatchery- specific and program-specific recommendations, along with the standards and guidelines, provide California hatcheries with a science-based approach to produce high-quality fish and protect natural fish populations. However, the CHRR (2012) states hatchery improvements alone will not ensure successful natural fish populations. *The state must develop a comprehensive approach that includes hatchery operations, water management, habitat restoration and sustainable salmon fisheries.*

In order to evaluate and implement recommendations made by the CHRR (2012), California reinitiated the Hatchery Policy Team and created hatchery-specific Hatchery Coordination Teams (HCT). The Policy Team oversees the evaluation and statewide implementation of CHRR (2012) recommendations, ensures continuity and integration between hatcheries, and provides guidance to the HCTs. The hatchery-specific HCTs evaluate the ability to implement CHRR (2012) recommendations as they relate to individual hatcheries and take into account priority, feasibility, cost and efficacy. The HCTs will determine how best to implement the recommendations at each hatchery and will provide their recommendations to the Policy Team. A detailed description of the Policy Team and HCTs and their roles occurs later in this document.

This is the initial annual report describing progress toward implementation of the CHRR (2012) recommendations by the Policy Team and the individual HCTs. This report details activities through August 2014.

CALIFORNIA FISH HATCHERIES



California's Central Valley is one of the most productive Chinook salmon systems on the west coast. Historically, this was due to natural production; however, today it is primarily due to hatchery production. This relationship between natural and hatchery production occurs in the Central Valley, the Klamath River and the Trinity River. The Central Valley is the only watershed that supports all four Chinook salmon races. Salmon and steelhead face numerous challenges in California: loss of habitat from

dam construction, fish passage barriers, and quality and quantity of water. California's salmon and steelhead hatcheries are an important management tool to mitigate for these degraded habitat conditions.

California salmon and steelhead hatcheries produce eggs, fry, juvenile and in some cases broodstock-sized fish. Eggs, fry and juveniles life stages have relatively low survival rates in the wild. Hatcheries increase the numbers of fish in these life stages to increase the number of individuals that survive to adulthood and become available for harvest or return to the stream or hatchery of origin to spawn. In addition, hatcheries produce salmon and steelhead to mitigate for habitat losses, aid in recovery, and improve harvest opportunities.

California and/or Federal Endangered Species Act listed salmon and steelhead are present in hatchery managed and influenced watersheds.

- Central Valley fall- / late fall-run Chinook salmon are a federally identified Species of Concern.
- Central Valley spring-run Chinook salmon are state and federally listed as threatened.
- Sacramento River winter-run Chinook salmon are state and federally listed as endangered.
- California Coastal Chinook salmon are federally listed as threatened.
- California Central Coast coho salmon (South of Punta Gorda) are state and federally listed as endangered.
- Southern Oregon-Northern California Coasts coho salmon (North of Punta Gorda) are state and federally listed as threatened.
- California Central Valley steelhead, Central California Coast steelhead and Northern California steelhead are federally listed as threatened.



HATCHERY POLICY TEAM

The Policy Team consists of state, federal and tribal representatives whose management decisions influence California's salmon and steelhead hatcheries either as a funding or operating entity. During the CHRR's (2012) evaluation and implementation process, the Policy Team evaluates statewide recommendations, coordinates programmatic funding needs, and provides guidance to the HCTs. The Policy Team also reviews and considers the statewide implications of the HCT's hatchery-specific recommendations while working within their respective agencies to implement actions

recommended by the HCTs. The Policy Team consists of six members and six special advisory members.

Members:

Kevin Shaffer (Chair), California Department of Fish and Wildlife
Robert Clark, U.S. Fish and Wildlife Service
Dave Hillemeier Yurok Tribe
Rob Jones, National Marine Fisheries Service
Michael Orcutt, Hoopa Valley Tribe
Michele Palmer, U.S. Bureau of Reclamation

Special Advisory Members:

Charlotte Ambrose, National Marine Fisheries Service
William Cox, California Department of Fish and Wildlife
Robert Jones, National Marine Fisheries Service
George Kautsky, Hoopa Valley Tribe
Heather McIntire, California Department of Fish and Wildlife
Jim Smith, U.S. Fish and Wildlife Service

The Policy Team meets quarterly. The Policy Team has met five times since early 2013 (April 2013, July 2013, November 2013, March 2014, and June 14). At every meeting, Policy Team members provide updates on items relevant to hatchery issues. In 2013, the Policy Team created the HCTs' membership lists, drafted charters for itself and for the HCTs, and provided formal invitations to the potential HCT members. Starting in June 2014, representatives from each active HCT also attend Policy Team meetings to provide updates on hatchery-specific HCT's progress. The Policy Team meetings provide HCTs an opportunity to discuss recommendations, issues and solutions, and to request guidance.

HATCHERY COORDINATION TEAMS



All state and federally operated hatcheries in California raising Chinook salmon, coho salmon and/or steelhead have an active HCT or a pending HCT. With time and resource limitations, the CHRR (2012) authors did not review the state's conservation hatcheries: Warm Springs, and San Joaquin River Conservation and Research Facility (SCARF) (nor its interim facility); however, these hatcheries are participating in the HCT process for consistency with other state hatcheries. The U.S. Fish and Wildlife Service (USFWS) leads the federal hatchery HCTs. Appointment of the Trinity River Hatchery (TRH) HCT is to be addressed by the TRH

governance board (CDFW, Hoopa Valley Tribe, Yurok Tribe, and U.S. Bureau of Reclamation). The state and federal processes are coordinated through the Hatchery Policy Team.

There are 11 fish hatcheries in California that produce Chinook salmon, coho salmon and/or steelhead. Nine of the 11 hatcheries are the result of mitigation obligations. Two hatcheries, SCARF and Warm Springs Fish Hatchery, are conservation hatcheries. The SCARF is an integral part of the spring-run Chinook salmon reintroduction strategy for the San Joaquin River Restoration Program. Several state and federal hatcheries rear listed species: coho salmon, winter-run Chinook salmon, spring-run Chinook salmon, and steelhead.

The following hatcheries have established or pending HCTs:

- Trinity River Fish Hatchery (first meeting anticipated in December 2014)
- Iron Gate Fish Hatchery (Klamath River)
- Mad River Fish Hatchery (meetings pending litigation)
- Feather River Fish Hatchery
- Nimbus Fish Hatchery (American River)
- Warm Springs Fish Hatchery (Russian River)
- Mokelumne River Fish Hatchery
- Merced River Fish Hatchery
- Salmon Conservation and Research Facility (San Joaquin River-interim and future hatchery)
- Coleman National Fish Hatchery (Battle Creek, pending)
- Livingston Stone National Fish Hatchery (Sacramento River, pending)

The CHRR (2012) recommends the HCTs bring together specialized expertise from a broad range of disciplines to ensure informed decisions and better coordination of hatchery management. Each HCT includes, at a minimum, a local CDFW or USFWS biologist, a fish health scientist, a hatchery manager, a geneticist, a representative of the agency(s) responsible for operating and/or financing the facility, and a NMFS representative for hatcheries with listed species. In addition, Klamath-Trinity HCTs include technical representatives from the Hoopa Valley Tribe and

Yurok Tribe. Due to time constraints, the Karuk Tribe (Iron Gate Hatchery only) has chosen not to participate but may do so in the future.

The HCTs provide input on strategic hatchery management, which is a significant responsibility. However, their role is limited to making recommendations on hatchery operations; they do not have the authority to make or enforce changes to hatchery operations. Ultimately, only the entities responsible for funding and managing hatchery operations can make any proposed changes. The HCTs are currently responsible for reviewing and prioritizing CHRR (2012) recommendations, and evaluating standards and guidelines for each recommendation as it relates to their respective hatchery. The HCTs also takes into consideration the feasibility of the recommendations, cost, and efficacy to implement. In addition, there are long-term benefits to having technical teams associated with each hatchery. These teams will also address other hatchery-related issues as needed, such as drought responses, Hatchery Genetic Management Plans, Monitoring and Evaluation, etc.

As part of the CHRR (2012) evaluation process, hatcheries within the Central Valley will coordinate with each other on recommendations and issues through a Central Valley HCT. The Central Valley HCT includes representatives from each Central Valley hatchery HCT and other experts who are unable to attend every hatchery-specific HCT meetings statewide (i.e., experts on NPDES, HGMPs, and genetics). This valley-wide team will integrate the information from individual Central Valley hatcheries to identify shared solutions and management strategies. This team will also ensure that operational recommendations are consistent for anadromous hatcheries throughout the Central Valley.

All HCTs will likely exist beyond this initial evaluation of the recommendations with a goal of providing strategic hatchery management advisory services that ensure operations meet scientific standards and minimize impacts to natural environments.



HATCHERY COORDINATION TEAM ACTIVITIES

Many HCTs began meeting in early 2014. Teams generally meet every other month to review and update HCT charters; evaluate team membership to ensure members meet the needed roles; develop a hatchery purpose statement; review Hatchery Genetic Management Plans as available; and review and evaluate CHRR (2012) recommendations for implementation. HCTs report their progress at the Policy Team meetings.

Iron Gate Fish Hatchery HCT

Lead: Wade Sinnen, CDFW

Iron Gate Fish Hatchery (IGH) mitigates salmonid habitat losses between Iron Gate and Copco dams due to the construction of Iron Gate Dam. Pacific Corp funds operation and monitoring while CDFW operates IGH. IGH produces coho salmon, fall-run Chinook salmon and steelhead. IGH's coho salmon program is a conservation program that produces approximately 75,000 coho salmon smolts. According to the 2011 draft IGH HGMP, "the coho salmon program is operated to protect and conserve the genetic resources of the Upper Klamath River coho population unit". The fall-run Chinook salmon program produces about six million juvenile fall-run annually. The IGH steelhead program's production goal is 200,000 steelhead smolts; however, actual steelhead production varies significantly and the goals have not been met since the early 1990's (HSRG 2012).

As of August 2014, the Iron Gate Fish Hatchery HCT met five times in either Redding or Arcata. This HCT has toured the IGH facility and reviewed the draft HGMP. In addition, they have updated their charter, created a purpose statement, and have begun prioritizing and evaluating CHRR (2012) recommendations.

The Iron Gate Fish Hatchery HCT meets every other month. The team is developing a purpose statement for all three programs, determining which coho recommendations are already being done, and is beginning to evaluate marking protocols as they relate to maintaining natural-origin broodstock at 10 percent.

Iron Gate Fish Hatchery HCT Members:

Mark Clifford, CDFW
Carlos Garza, NMFS
Mark Hampton, NMFS
Dave Hillemeier, Yurok Tribe
Nick Hetrick, USFWS
Terry Jackson, CDFW
George Kautsky, Hoopa Valley Tribe

Morgan Knechtle, CDFW
Michael Lacy, CDFW
Melodie Palmer-Zwahlen, CDFW
Keith Pomeroy, CDFW
Linda Prendergast, Pacific Corps
Linda Radford, CDFW
Wade Sinnen, CDFW

Trinity River Fish Hatchery HCT

Lead: TBD

The construction of Lewiston and Trinity Dam in 1963 resulted in the loss of 109 miles of salmonid spawning and rearing habitat. The U.S. Bureau of Reclamation (Reclamation) constructed the Trinity River Fish Hatchery (TRH) to mitigate for this lost habitat.

Reclamation owns the facility and funds operations and maintenance. CDFW is responsible for operation of the hatchery which will be co-managed by a governance board comprised of CDFW, Hoopa Valley Tribe, Yurok Tribe, and Reclamation once a Memorandum of Agreement (MOA) is finalized. TRH produces listed SONCC coho salmon, fall-run Chinook salmon, spring-run Chinook salmon and steelhead. The coho salmon production goal is 300,000 yearlings annually. The fall-run Chinook salmon production goal is two million fingerlings and 900,000 yearlings annually. The spring-run Chinook salmon production goal is one million fingerlings and 400,000 yearlings annually. The steelhead program produces 448,000 smolts annually.

The TRH HCT will have their first meeting in December 2014. Currently, Reclamation, CDFW, Yurok Tribe and the Hoopa Valley Tribe are meeting to finalize a MOA which will formalize the governance board for oversight of TRH operations.

Trinity River Fish HCT members – to be appointed by TRH Governance Board (Reclamation, Hoopa Valley Tribe, Yurok Tribe, and CDFW).

Feather River Fish Hatchery HCT

Lead: Dennis Lee, CDFW Annuitant

To provide water storage, hydroelectric power, flood control and recreational opportunities, the State Water Project began construction on the Oroville Dam in 1961. The Feather River Fish Hatchery began operations in 1967 to provide mitigation for lost spawning habitat above the dam. CDFW operates and maintains the Feather River Fish Hatchery under contract with the Department of Water Resources. This hatchery has a technical team (in addition to the HCT) that advises staff on integration of hatchery operations and salmonid management. Feather River Fish Hatchery produces Central Valley fall/late fall-run Chinook salmon, Central Valley spring-run Chinook salmon and Central Valley steelhead. The spring-run Chinook salmon HGMP is in consultation with NMFS and is nearing finalization. The spring-run Chinook salmon program provides both a mitigation component and a conservation component. There are no numeric goals for adult production of the spring-run Chinook salmon conservation component, but the mitigation component aims to produce two million smolts annually. The fall-run annual production goal is six million smolts and production of up to an additional two million for the ocean enhancement program. Fishing organizations fund the ocean enhancement program specifically to produce fish for ocean harvest. There are no numeric goals for adult production for steelhead but the yearling production target is 450,000 annually.

The Feather River Fish Hatchery HCT has met three times and has made progress developing their “Purpose, Goals and Benefits” draft, members toured the hatchery, and they have updated their membership. In addition, they began reviewing and commenting on hatchery recommendations in the CHRR (2012). Due to the time constraints of the HGMP process, the team opted not to review the Feather River HGMP.

Feather River Fish Hatchery HCT Members:

Julie Brown, DWR
Elizabeth Campbell, USFWS
Mark Clifford, CDFW
Amanda Cranford, NMFS
Carlos Garza, NMFS
Kathy Hill, CDFW
Terry Jackson, CDFW
Anna Kastner, CDFW
Jason Kindopp, DWR
Brett Kormos, CDFW

Dan Kratville, CDFW
Ryon Kutth, DWR
Michael Lacy, CDFW
Dennis Lee, CDFW
Tracy McReynolds, CDFW
Jonathan Nelson, CDFW
Allyson Purcell, NMFS
Colin Purdy, CDFW
Eric See, DWR

Nimbus Fish Hatchery (American River) HCT

Lead: Dennis Lee, CDFW Annuitant

The Nimbus Fish Hatchery is on the American River just downstream of Nimbus Dam. Built in 1955 by Reclamation, the Nimbus Fish Hatchery mitigates lost spawning habitat between Nimbus Dam and Folsom Dam. Reclamation owns and funds operations. CDFW operates and manages the hatchery. Nimbus Fish Hatchery has two programs: fall-run Chinook salmon and steelhead. The production goal for fall-run is four million smolts and the steelhead production goal is 430,000 yearlings.

The Nimbus Fish Hatchery HCT meets every other month. The HCT prepared ground rules for the meetings, drafted a purpose statement, began reviewing CHRR (2012) recommendations, created a steelhead broodstock subgroup, and provided comments on a draft steelhead HGMP. Fieldwork is underway this summer to learn if potential broodstock opportunities exist for possibly replacing the existing Eel River steelhead strain as per the CHRR (2012) recommendation. The team has agreed that fish function, genetics, and minimizing disease are important in selecting broodstock and they have taken under consideration that other efforts to replace the broodstock have failed in the past.

Nimbus Fish Hatchery (American River) HCT Members:

Paula Hoover, CDFW
Patti Clinton, Reclamation
John Hannon, Reclamation
Josh Israel, Reclamation
Amanda Cranford, NMFS
Dennis Lee, CDFW
Jeanine Philips, CDFW
Terry Jackson, CDFW

Mark Clifford, CDFW
Michael Lacy, CDFW
Devon Pearse, NMFS
Elizabeth Campbell, USFWS
Brett Kormos, CDFW
Jonathan Nelson, CDFW
Dan Kratville, CDFW

Mad River Fish Hatchery HCT

Lead: TBD

The Mad River Fish Hatchery is not included in the CHRR (2012); however, for statewide consistency, CDFW is integrating it into this process. Mad River Fish Hatchery is unique in that it was not originally a mitigation hatchery. The California Wildlife Conservation Board built the hatchery in 1971 to rear salmon and steelhead to boost population levels. Lack of funds resulted in the hatchery's closure in 2004. The hatchery reopened in 2005 with assistance from the Friends of the Mad River Hatchery. The hatchery has an annual production goal of 155,000 steelhead.

CDFW is currently writing a HGMP for the Mad River Fish Hatchery, under the direction of NMFS. CDFW has yet to form the HCT.

Mad River Fish Hatchery HCT: Anticipated initial members:

Philip Barrington, CDFW
Mark Clifford, CDFW
Dan Free, NMFS
Ann Garrett, NMFS
Michelle Gilroy, CDFW

Terry Jackson, CDFW
Michael Lacy, CDFW
Shad Overton, CDFW
Linda Radford, CDFW

Mokelumne River Fish Hatchery HCT

Lead: Jose Setka, EBMUD

To mitigate lost spawning habitat from the construction of Comanche Dam, East Bay Municipal Utilities District (EBMUD) built the Mokelumne River Fish Hatchery in 1963. EBMUD funds operations, maintenance, and monitoring while CDFW operates the hatchery. Mokelumne River Fish Hatchery produces fall-run Chinook salmon and steelhead. The fall-run Chinook salmon production goal is to release up to five million smolts specifically for harvest. Another two million enhancement fish are released as smolts (or larger) into San Pablo Bay or into acclimation pens. The Mokelumne steelhead program has a goal of releasing 250,000 yearlings annually.

The Mokelumne River Fish Hatchery HCT has met three times. The HCT toured the hatchery, and reviewed the HGMPs and the Annual Operations Plan. In addition, they modified and finalized a charter specific to the Mokelumne River Fish Hatchery. The hatchery purpose statement is under development.

Mokelumne River Fish Hatchery HCT Members:

Darrick Baker, CDFW
Mark Clifford, CDFW
Amanda Cranford, NMFS
Terry Jackson, CDFW
Brett Kormos, CDFW
Michael Lacy, CDFW
Dennis Lee, CDFW

Devon Pearse, NMFS
Donnie Radcliff, USFWS
Jose Setka, EBMUD
Bill Smith, CDFW
Michelle Workman, EBMUD

Merced River Fish Hatchery HCT

Lead: Dean Marston, CDFW

The Merced River Fish Hatchery is at the base of the Crocker-Huffman Dam on the Merced River. In the 1970s, the facility consisted of a spawning channel to enhance salmon production for harvest. Later in the 1980s and 1990s, a hatchery expansion allowed for spawning and rearing. Merced Irrigation District provides partial funding to the hatchery, although funds are not adequate to operate the facility. Additional funding comes from other sources including, but not limited to, CDFW and the Department of Water Resources. CDFW operates and maintains the hatchery. The Merced River Fish Hatchery produces fall-run Chinook salmon with an annual goal of releasing one million smolts.

The Merced River Fish Hatchery HCT initiated meetings in late May 2014. This 12-member team is evaluating team membership, the charter, and began developing the purpose statement in August 2014. The team has toured the fish hatchery.

Merced River Fish Hatchery HCT Members:

Mark Clifford, CDFW
Amanda Cranford, NMFS
Tim Heyne, CDFW
Terry Jackson, CDFW
Zachary Jackson, USFWS
Brian Kelly, Merced Irrigation
District

Greg Kollenborn, CDFW
Brett Kormos, CDFW
Michael Lacy, CDFW
Dean Marston, CDFW
Mary Serr, CDFW

San Joaquin River Fish Hatchery HCT

Lead: Gerald Hatler, CDFW

The San Joaquin River Fish Hatchery refers to two hatcheries: the existing interim fish hatchery and the San Joaquin River Salmon Conservation and Research Facility (SCARF). These hatcheries are unique in that they are the result of the San Joaquin River Restoration Program process. The interim fish hatchery is developing broodstock and it will remain online until 2016. The SCARF facility is in the permitting phase. These are conservation hatcheries aimed at reintroducing spring-run Chinook salmon into the San Joaquin River basin as part of the San Joaquin River Restoration Program. Neither San Joaquin River fish hatchery is in the CHRR (2012) report; however, to ensure statewide integration, these hatcheries have a designated HCT and are going through the technical review and evaluation process.

The interim facility is currently holding 2012 and 2013 spring-run Chinook salmon. Before completion of the full-scale facility, yearly broodstock collections should gather enough fish or eggs to produce 50-100 adult pairs or 100,000-150,000 fry. Collections will continue until the full-scale facility is operational.

The SCARF HCT met twice, toured the interim hatchery, reviewed plans for the SCARF, discussed the team's role and composition, began developing a purpose statement, and began reading background information.

San Joaquin River Fish Hatchery Members

Paul Adelizi, CDFW
Elizabeth Campbell, USFWS
Anthony Clemento, NMFS
Mark Clifford, CDFW
Amanda Cranford, NMFS
Brian Erlandsen, CDFW
Elif Fehm-Sullivan, NMFS
Carlos Garza, NMFS

Josh Israel, Reclamation
Terry Jackson, CDFW
Zachary Jackson, USFWS
Greg Kollenborn, CDFW
Michael Lacy, CDFW
John Netto, USFWS
Jason Roberts, CDFW

Warm Springs Fish Hatchery HCT

Lead: Eric Larson, CDFW

Two facilities make up the Warm Springs unit: Warm Springs Fish Hatchery is on Dry Creek at the base of Warm Springs Dam and the Coyote Valley Hatchery is located on the East Fork Russian River below Coyote Valley Dam. The Water Resources Development Act of 1974 authorizes these facilities to compensate for spawning and rearing habitat losses associated with dam construction. The U.S. Army Corps of Engineers (USACOE) owns both facilities and CDFW operates both facilities through a cooperative agreement. A HGMP guides operations at the Warm Springs Fish Hatchery. Chinook salmon, coho salmon, and steelhead production meets both mitigation and enhancement goals. Annual mitigation production goals include: 300,000 yearling steelhead and 110,000 yearling coho salmon. Enhancement production goals are in addition to mitigation goals and include: 1 million fall-run Chinook salmon smolts, 1, 750,000 adult fall-run Chinook salmon and 1,000 coho salmon.

The Warm Springs Fish Hatchery HCT has met twice since May 2014. This 12-person team reviewed the team membership, elected a chairperson, discussed hatchery history and current operations, and began development of a purpose statement.

Warm Springs Fish Hatchery HCTmembers:

Mark Clifford, CDFW
Bob Coey, NMFS
Mike Dillabough, USACOE
Joshua Fuller, NMFS
Carlos Garza, NMFS
Terry Jackson, CDFW
Manfred Kittle, CDFW

Mary Nichole, NMFS Affiliate
Peter LaCivita, USACOE
Michael Lacy, CDFW
Ellen McKenna, CDFW
Jonathan Nelson, CDFW
Benjamin White, USACOE
Brett Wilson, CDFW

Coleman National Fish Hatchery HCT

Lead: Scott Hamelberg, USFWS

According to the CHRR (2012), Coleman National Fish Hatchery mitigates habitat lost due to construction of Shasta and Keswick dams. Reclamation built the hatchery in 1942 and funds the hatchery. The USFWS operates and manages the hatchery. Coleman has three programs: fall-run Chinook salmon, late fall-run Chinook salmon, and steelhead. The fall-run Chinook salmon

program releases 12 million smolts annually anticipating a contribution of 120,000 fish to harvest and escapement. The late fall-run Chinook salmon program releases one million yearlings annually. The steelhead program releases 600,000 large (four fish per pound) steelhead annually.

The Coleman National Fish Hatchery HCT has not yet met.

Coleman National Fish Hatchery HCT Members: To be determined

Livingston Stone National Fish Hatchery HCT

Lead: TBD

The Livingston Stone National Fish Hatchery is a substation of the Coleman National Fish Hatchery created by Reclamation in 1997 specifically to produce winter-run Chinook salmon to assist in population recovery. This conservation hatchery does not have an adult production goal. They release up to 250,000 winter-run each year.

The Livingston Stone National Fish Hatchery HCT has not yet met.

Livingston Stone Fish Hatchery HCT Members: To be determined.



NEXT STEPS

The CHRR (2012) provides a strategy to improve hatchery operations while providing protections to natural-origin fish populations. Both the Policy Team and the HCTs are eager to improve California's hatchery system. The Policy Team meets regularly to provide oversight and guidance to the HCTs. The HCTs are completing initial tasks and starting to evaluate CHRR (2012) recommendations.

Over the next year, the Policy Team anticipates good progress on prioritization and evaluation of the recommendations. The Policy Team is responsible for moving recommendations forward to the various funding and operating agencies for consideration and implementation.

In the near future, the Central Valley HCT will begin meeting and provide coordination among all of the hatchery-specific HCTs located in the Central Valley (i.e., Merced, Mokelumne, Nimbus etc.). As litigation is resolved, the Mad River HCT will begin meeting. Once a finalized MOA for TRH is in place, the Governance Board meetings will begin. Both federal hatcheries, Coleman and Livingston Stone, should also begin meetings soon.

California's anadromous hatcheries will benefit and negative impacts to natural fish will be minimized from strategic management and science changes guided by the CHRR (2012) recommendations, from improved communication amongst hatcheries resulting from this process, and from the focused efforts of the Policy Team, HCTs, and leaders from agencies that operate and fund anadromous hatchery facilities. Improvements to operations at anadromous hatcheries throughout the state will result in better protections for California's anadromous salmonids and provide for sustained fisheries.

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APPENDIX A

California Hatchery Scientific Review Group Issues of Greatest Importance for Management of California's Salmon and Steelhead Hatcheries



According to the California Hatchery Scientific Review Group's California Hatchery Review Report (CHRR 2012), there are 14 issues of greatest importance for management of California's salmon and steelhead hatcheries including:

- Serious loss and degradation of habitat limits natural production of salmon and steelhead in California;
- Hatchery program goals have been consistently expressed in terms of juvenile production rather than adult production;
- Program purposes have not been clearly defined;
- Hatchery monitoring and evaluation programs and hatchery coordination teams are needed;
- Program size (measured by juvenile production) has been set independent of any consideration of potential impacts of hatchery fish on affected natural populations;
- Off-site releases promote unacceptable levels of straying among populations;
- Marking/tagging programs are needed for real-time identification of all hatchery Chinook salmon;
- Standard for fish culture, fish health management and associated reporting are inadequate and need to be improved;
- Populations and population boundaries have not been established for non-listed species and are needed for effective development of integrated hatchery programs;
- Harvest management of Sacramento River fall Chinook salmon should account for the productivities of naturally spawning adults;
- Several steelhead programs have seriously underperformed;
- Adults returning from "yearling" releases of hatchery Chinook salmon should be excluded from broodstock;
- True "1:1 matings" and associated incubation protocols need to be adopted by California salmon and steelhead hatcheries; and
- Effective methods are needed to ensure maintenance of distinct runs of Chinook salmon reared at the same facility.