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FISH BULLETIN 150

A History of California'S Fish Hatcheries 1870–1960

BY

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Inland Fisheries Branch 1970

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DEDICATION

This volume is dedicated to the late Captain G. H. Lambson, superintendent of the United States Bureau of Fisheries stations in California from 1899 to 1916, and Mount Shasta Hatchery and Klamath River stations from 1917 to 1931, who gave the author his first assignment at the Mount Shasta Hatchery on July 21, 1923.

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ABSTRACT

The purpose of this bulletin is to document the development of fish culture in California from 1870 through 1960. During this period, 170 hatcheries and egg collecting stations were constructed, and brief descriptions of many of these are given. Since only 25 installations were operating in 1960, the reasons for closing the other sites were determined when possible. Detailed descriptions of each of the major hatcheries operated in 1960 are presented.

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PREFACE

This bulletin was written to record under one cover the history of artificial fish propagation in California, some actions of early fish commissions, a history of former-day fish hatcheries in California, and a brief résumé of existing fish hatcheries.

In compiling this account the author has searched widely through early records and publications of the Fish and Game Commission and has drawn heavily on the materials submitted by the many contributors thereto.

In addition, the author, an employee of the Department of Fish and Game for more than 36 years, has put into print some of the interesting events which occurred through the years of his employment.

EARL LEITRITZ
May 1961

ACKNOWLEDGMENTS

This volume could not have been completed without the assistance of many employees of the Department of Fish and Game. I extend my sincere thanks to all of those who helped me in this undertaking, especially Evelyn Oathout, librarian; Carl Hill, Mount Shasta Hatchery; Delbert West, Crystal Lake Hatchery; Lloyd Hume, formerly at Darrah Springs Hatchery, now at Bishop (Region 5): and Carl Freyschlag, formerly at Friant and Central Valleys Hatcheries, now at Region 2.

I extend my heartfelt appreciation to Viola Kobriger, who prepared the copy, and to Leo Shapovalov, who did the final editing.

E*ARL* L*EITRITZ*

Note

Since the above was written, Mrs. Oathout has left the employ of the Department of Fish and Game and Mr. Freyschlag has retired.

Mr. Leitritz retired soon after he had prepared the manuscript. Although it was essentially complete, I thought that it would be enhanced by including at least brief accounts of some minor installations which had been listed but not discussed, and by attempting to say in every case possible why an installation was closed. This task, which required painstaking search through many documents, was admirably carried out by John W. Emig of the Inland Fisheries Branch.

L*EO* S*HAPOVALOV*
March 1969

A HISTORY OF CALIFORNIA'S FISH HATCHERIES, 1870–1960

EARL LEITRITZ [1]

INTRODUCTION

The California Department of Fish and Game now (1961) maintains and operates 16 fish hatcheries for the artificial stocking of game fish in the inland waters of the State. Hatchery operations are coordinated by the Inland Fisheries Branch.

California, which is comprised of 58 counties with a total area of 158,000 square miles, has over 4,000 lakes and reservoirs and some 37,000 miles of streams and canals suitable for game fish. In 1960, about 1,000,000 licensed anglers fished in these waters. Over half of them fished for trout.

To maintain angling in California, all known tools of fisheries management are employed. These include habitat improvement, introduction of new species, stream flow maintenance, and artificial stocking.

During the 1959–60 fiscal year, California fish hatcheries produced a total of 34,152,246 salmon and trout weighing 1,755,693 pounds, and 509,713 warmwater game fish. This is a tremendous increase over the year 1874, when 60,000 eastern brook trout[2] eggs were hatched at the State Hatching House, Berkeley, and distributed in the public waters of the State. That was the first official record of state hatching and planting.

On April 2, 1870, the California State Legislature had passed "An Act to provide for the restoration and preservation of fish in the waters

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of this State". Governor H. H. Haight, in accordance with the provisions of the act, appointed B. B. Redding, S. R. Throckmorton, and J. D. Farwell as the first Board of Commissioners of Fisheries. This occurred a year before the United States Congress appointed a Commission of Fish and Fisheries for all the states of the Union. The latter later became the United States Bureau of Fisheries, now incorporated into the United States Fish and Wildlife Service.

The year 1870 not only marked the creation by the Legislature of the Board of Commissioners of Fisheries in California, but also the establishment of the first two publicly owned fish hatcheries: the California Acclimatization Society Hatchery located at the City Hall, San Francisco, and the State Hatching House located at the University of California, Berkeley.

Before going deeply into the history of California's fish hatcheries, it is perhaps in order to review some highlights and to discuss briefly the history of early fish commissions.

SOME HIGHLIGHTS IN THE EARLY HISTORY OF FISH CULTURE IN CALIFORNIA AND THE UNITED STATES

1850—California became a State.

1851—California enacted a law concerning oysters and oyster beds.

1852—California enacted the first salmon law and included a closed season on some kinds of game. It called upon all citizens and officers of justice to remove, destroy, and break down any weir, dam, fence, set or stop net, or other obstruction to the run of salmon in any river or stream.

1854—The California Legislature outlawed nets and seines in Stockton and Mormon Sloughs, San Joaquin County.

1861—The California Legislature adopted its first laws for the protection of trout.

1870—Under "An Act to provide for the restoration and preservation of fish in the waters of this State", approved April 2, 1870, the Governor appointed three Commissioners of Fisheries to serve without pay during 4-year terms. Their duties were to establish "fish breederies", to stock and supply streams, lakes, and bays with both foreign and domestic fish, to purchase and import spawn and ova, to employ fish culturists and other needed help, to construct fish ladders, and to distribute spawn and ova to fish breeders. The new law also contained provisions for the conservation of fish. From 1870 to 1882, about $40,000 was appropriated for the Commission. In the reports of the Fish Commissioners from 1870 to 1886, their official title is given as Board of Commissioners of Fisheries. From 1886 to 1909, the title Board of Fish Commissioners is used.

1871—The Congress of the United States appointed a Commission of Fish and Fisheries for all the states of the Union, with a full staff of officers having a knowledge of fish culture. Up to 1880, the total sums placed at the disposal of the Commission amounted to about $488,500.

1871—The American Fish Culturist Association was organized and, in 1872, applied to Congress to authorize the United States Commission to undertake the duty of restoring fish to depleted rivers. A resolution

was passed authorizing the United States Commission to fulfill that duty.

1878—The California Fish Commission was granted jurisdiction over game as well as fish.

1909—The name of the Board of Fish Commissioner was changed to Board of Fish and Game Commissioners. Beginning with the Biennial Report for 1910–1912 the title Fish and Game Commission is used.

1913—The first general angling license ($1) was required for all persons over 18.

1927—The Department of Natural Resources, created in this year, succeeded to the powers and duties of the Fish and Game Commission. A Division of Fish and Game was established within the Department, and a new Fish and Game Commission was created to administer the Division.

1933—A separate Fish and Game Code was enacted by the Legislature, deleting fish and game from the State Penal Code.

1937—The Fish and Game Commission was increased from three to five members.

1940—The State Constitution was amended to provide for a five-man commission serving 6-year staggered terms, the members being removable only by concurrent vote of both houses of the Legislature.

1952— The Division of Fish and Game in the Department of Natural Resources was made a separate department, and called the Department of Fish and Game.

HISTORY OF ARTIFICIAL FISH PROPAGATION

It is at fish hatcheries that the science of artificial fish propagation is carried on. The science is both ancient and interesting. It was the very early discovery that eggs of certain fish could be artificially fertilized and the resulting offspring raised to maturity that eventually led to modern fish cultural practices.

To the early Chinese, inventors of gunpowder and the printing press, must also be credited the discovery of methods of the artificial propagation of fish. In the works of Fo-Hi, written about 2100 B.C., mention is made of laws regulating the time at which fish spawn should be taken. The reader is referred to Greenberg (1960), for an interesting and concise summary of the history of artificial fish propagation.

EARLY FISH CULTURE IN CALIFORNIA

No one knows for sure just when trout were first propagated in California. There is evidence that private breeders were well established in California before public fish hatcheries came into being. The report of the Commissioners of Fisheries for the years 1870–71 states: "On the Truckee River about five miles above the town of Truckee the Brothers Comer have an establishment for the artificial hatching of trout. They have been engaged in this business for the past three years and have successfully hatched and have in their ponds more than a half million of fish."

The history of fish hatcheries in California is interesting and intriguing. It is filled with events which vary from the tragic to the sublime, and it is interspersed with fables that rival those of Aesop

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and failure-and-success stories reminiscent of Horatio Alger. Many things are involved: devastation by floods; an eruping volcano; skirmishes with Indians; disputes over fishing rights; litigation over water use; lawsuits; influence exercised by elected officials, strong individuals, and organized groups; staunch opinions held by early-day fish culturists; and firm views expressed by some of the world's greatest ichthyologists. In reviewing the available records pertaining to California's hatchery system, at times one is led to wonder how it has survived.

Since the establishment of the Fish and Game Commission in 1870, 169 public fish hatcheries and egg collecting stations have been operated in California through the year 1960 (Table 2).

The foregoing list is of great interest because it points up the hazards involved in operating fish cultural stations in California. Although many of the hatcheries were experimental in nature, the fact that 69 hatcheries were established and later abandoned shows that many difficulties were encountered. This is more than four times the number now in operation, and an even higher ratio holds true for egg collecting stations. This clearly demonstrates that satisfactory hatchery sites are difficult to find in California and that in the future great care should be taken and all possible information obtained before new stations are established.

An interesting story has been told about the establishment of Alpine Hatchery (1931–1942) on Pleasant Valley Creek near Markleeville, Alpine County. The story dates back to the campaign of the late Governor James Rolph, Jr., in 1930, and goes as follows:

"James Rolph, Jr., and C. W. Barrett, then Sheriff of Alpine County, were close friends for many years. Rolph, before becoming Governor of California, was Mayor of the City of San Francisco. When the pressure of business in San Francisco became too great he would retreat to Alpine County to the home of Sheriff Barrett to 'get away from it all'. Sheriff Barrett naturally was very active in Mayor Rolph's campaign for Governor. As a result of his influence, when the 58 votes cast for Governor in Alpine County were counted the score stood as follows: Republican James Rolph 56, Democrat Milton K. Young 1, and Socialist Upton Sinclair 1. After the election Governor Rolph asked Sheriff Barrett what he wanted for Alpine County. Sheriff Barrett requested a fish hatchery.

"Although there was no suitable fish hatchery site in Alpine County, a hatchery had been requested, a promise had been made, and the debt was to be paid. The Fish and Game Commission was ordered to construct a hatchery and proceeded to build one on Pleasant Valley Creek, as likely a spot as any in the County". This is how some of the early fish hatcheries came into being.

Actually, reasons for establishing a hatchery in Alpine County are given in the 31st Biennial Report, 1928–1930, addressed to Governor C. C. Young from the Fish and Game Commissioners, before the election of Governor Rolph; a hatchery in this district would eliminate the long haul from Mount Whitney Hatchery. With truck and aerating systems, the fish reached the streams in excellent condition, but the trip was long and required too much time.

TABLE 2

Public Fish Hatcheries and Egg Collecting Stations Operated in California From 1870 Through 1960

Name of installation	Location	Years of operation

California Acclimatization Society Hatchery	City Hall, San Francisco, San Francisco County	1870–1871
State Hatching House	University of California, Berkeley, Alameda County	1870–1877
Baird Hatchery	McCloud River, Shasta County	1872–1883
(U.S. Fish Commission owned and operated)		1888–1935
Clear Lake Experimental Hatchery	Kelsey Creek, Lake County	1873–1874
Frazier Hatchery	Squaw Creek, Placer County	1875–1880
San Leandro Hatchery	San Leandro, Alameda County	1878–1883
Crooks Creek Station*	McCloud River, Shasta County	1879–1888
Hurley Hatchery	Tahoe City, Placer County	1880–1888
Woodsen Egg Collecting Station	Fort Bidwell, Modoc County	1881–1884
Shebley Hatchery	Shebleys Station, Nevada County	Dates unknown
(Privately owned and operated)		1883–1888
(Privately owned, State operated)		
Phipps Hatchery*	Lake Tahoe, El Dorado County	1884–1888
Hat Creek Hatchery	Burney, Shasta County	1885–1888
Mount Shasta Hatchery	Mount Shasta, Siskiyou County	1888–Present
Tahoe Hatchery (First)	Tahoe City, Placer County	1889–1891
		1894–1920
Tahoe Hatchery (Second)	Tahoe City, Placer County	1920–1956
Fort Gaston Hatchery	Trinity River on the Hoopa Indian Reservation, Humboldt County	1889–1898
(U.S. Fish Commission owned and operated)		
Shovel Creek Egg Collecting Station*	Klamath River near Beswick, Siskiyou County	1889–1912
		1929–1934
Glen Ellen Hatchery	Glen Ellen, Sonoma County	1890–1891
(Privately owned, State operated)		
Del Monte Hatchery	Del Monte, Monterey County	1890–1891
(Privatedly owned, State operated)		
Bear Valley Hatchery	Olema, Marin County	1891–1894
Redwood Creek Egg Collecting Station	Redwood Creek, Humboldt County	1891–1898
(U.S. Fish Commission owned and operated)		
Alma Hatchery	Alma, Santa Clara County	1892–1893
(Privately owned, State operated)		
Independence Lake Hatchery and Egg Collecting Station*	Independence Lake, Nevada County	1893–1894
Independence Lake Egg Collecting Station*	Independence Lake, Nevada County	1934–1935
Korbel Hatchery	Korbel, Humboldt County	1893–1898
(U.S. Fish Commission owned and operated)		
Tallac Hatchery (First)	Taylor Creek, El Dorado County	1895–1909
Tallac Hatchery (Second)	Taylor Creek, El Dorado County	1909–1953
Wawona Hatchery	Big Creek at Wawona, Mariposa County	1895–1928
Battle Creek Hatchery	Battle Creek, Shasta County	1895–1945
(U.S. Fish Commission owned and operated)		
Price Creek Hatchery	Grizzly Bluff, Humboldt County	1897–1916
Ukiah Hatchery	Ukiah, Mendocino County	
(Owned and operated by the City of Ukiah)		1897–1910
(State operated)		1911–1927
Hazel Creek Egg Collecting Station	Near Sims, Shasta County	1898–1899
Mears Creek Egg Collecting Station	Near Sims, Shasta County	1898–1899
Cottonwood Creek Egg Collecting Station	Hornbrook, Siskiyou County	1900–1938
Campbell Creek Station*	McCloud River, Shasta County	1901
Squaw Valley Creek Station*	McCloud River, Shasta County	1901
Howe Creek Egg Collecting Station*	Eel River, Humboldt County	1902
Verdi Hatchery	Verdi, Nevada	
(Privately owned, State of California operated)		1902–1905
Mill Creek Hatchery	Los Molinos, Tehama County	
(U.S. Fish Commission owned and operated)		1902–1911
		1913–1945
(U.S. Fish Commission owned, State operated)		1912
Glen Alpine Hatchery	Glen Alpine Springs, El Dorado County	1905–1912

* Not described in text.

TABLE 2

Public Fish Hatcheries and Egg Collecting Stations Operated in California From 1870 Through 1960

TABLE 2—Continued

Public Fish Hatcheries and Egg Collecting Stations Operated in California From 1870 Through 1960

Name of installation	Location	Years of operation
Scott Creek Egg Collecting Station*	Davenport, Santa Cruz County	
(County owned and operated)		1905–1912
(County owned, State operated)		1913–1939
Brookdale Hatchery	Brookdale, Santa Cruz County	
(County owned and operated)		1905–1912
(County owned, State operated)		1913–1953
Edgewood Egg Collecting Station	Shasta River near Edgewood, Siskiyou County	1906–1907
Shasta River Egg Collecting Station*	Shasta River near Yreka, Siskiyou County	1907–1908 1936–1943
Shasta River Fish Counting Station*	Mouth of Shasta River, Siskiyou County	1928–1935
Bouldin Island Striped Bass Hatchery	Bouldin Island, San Joaquin County	1907–1910
Snow Mountain Egg Collecting Station	Eel River, Mendocino County	1907–Present
Camp Creek Egg Collecting Station	Klamath River, Siskiyou County	1910–1934
Bogus Creek Egg Collecting Station	Klamath River, Siskiyou County	1910–1941
Klamathon Egg Collecting Station	Klamath River near Hornbrook, Siskiyou County	1910–1917
(U.S. Fish Commission owned and operated)		
(State owned and operated)		1918–Present
Sacramento Experimental Station	Sacramento, Sacramento County	1911–1913
Willow Creek Egg Collecting Station*	Thrall, Siskiyou County	1912
Gottville Egg Collecting Station*	Klamath River, Siskiyou County	1914
Bear Lake Hatchery	Big Bear Lake, San Bernardino County	
(Privately owned and operated)		1914–1915
(State owned and operated)		1916–1932
Burney Creek Egg Collecting Station	Burney Creek, Shasta County	1915
Ward Canyon Egg Collecting Station*	Copco, Siskiyou County	1915
North Creek Egg Collecting Station	Big Bear Lake, San Bernardino County	1915–1928
North Creek Hatchery	Big Bear Lake, San Bernardino County	1918–1928
Yuba River Shad Hatchery	Yuba City, Sutter County	1916
Marlette-Carson Hatchery	Carson City, Nevada	
(Privately owned, State of California operated)		1916–1917
Almanor Hatchery	Below Lake Almanor Dam, Plumas County	1916–1919
Domingo Springs Hatchery	Chester, Plumas County	1916–1937
Fort Seward Hatchery	Alderpoint, Humboldt County	1916–1942
Bryans Rest Egg Collecting Station*	Bryans Rest, Humboldt County	1917
Rae Lakes Egg Collecting Station	Rae Lakes, Fresno County	1917 1920–1927
Forest Home Hatchery	Forest Home, San Bernardino County	
(Privately owned and operated)		1917–1931
(State owned and operated)		1932–1940
Mount Whitney Hatchery	Independence, Inyo County	1917–Present
Feather River Experimental Hatchery	Gray Eagle Creek, Plumas County	1918–1920
Cottonwood Lakes Egg Collecting Station	Cottonwood Lakes, Inyo County	1918–1920 1924–1941 1953–Present
Yosemite Experimental Hatchery	Yosemite Valley, Mariposa County	1918–1920
Yosemite Hatchery	Yosemite Valley, Mariposa County	1927–1956
Clear Creek Hatchery	Westwood, Lassen County	1918–1930
Bull Creek Egg Collecting Station*	Dyerville, Humboldt County	1919
Grout Creek Egg Collecting Station*	Big Bear Lake, San Bernardino County	1919–1928
Metcalf Creek Egg Collecting Station*	Big Bear Lake, San Bernardino County	1919–1928
Fall Creek Hatchery	Copco, Sisikiyou County	1919–1948
Kaweah Hatchery	Three Rivers, Tulare County	1919–1950
Eel River Egg Collecting Stations	Branscomb, Mendocino County	1920–1921

* Not described in text.

TABLE 2—Continued

Public Fish Hatcheries and Egg Collecting Stations Operated in California From 1870 Through 1960

Name of installation	Location	Years of operation
Warner Creek Egg Collecting Station*	Warner Creek, Plumas County	1920–1937
San Joaquin Experimental Station	Auberry, Fresno County	1921
Johnsville Experimental Hatchery	Johnsville, Plumas County	1921–1923
Ward Creek Egg Collecting Station*	Lake Tahoe, Placer County	1921–1924
Blackwood Creek Egg Collecting Station*	Lake Tahoe, Placer County	1921–1932
Blackwood Creek Hatchery*	Lake Tahoe, Placer County	1925–1937
Taylor Creek Egg Collecting Station*	Taylor Creek, El Dorado County	1921–1935
Upper Truckee River Egg Collecting Station*	Myers, El Dorado County	1921–1942
Feather River Hatchery	Clio, Plumas County	1924–1953
Beaver Creek Egg Collecting Station*	Klamath River, Siskiyou County	1925–1937
Shackleford Creek Egg Collecting Station*	Scott River, Siskiyou County	1925–1940
Rush Creek Egg Collecting Station*	Rush Creek, Mono County	1925–1953
Butt Creek Egg Collecting Station*	Lake Almanor, Plumas County	1926–1927 1933–1935
Gull Lake Egg Collecting Station*	Gull Lake, Mono County	1926–1936
Fern Creek Hatchery	June Lake, Mono County	1926–1942
Big Creek Hatchery	Big Creek, Santa Cruz County	1927–1939
Burney Creek Hatchery	Burney, Shasta County	1927–1949
Kern River Experimental Hatchery	Kernville, Kern County	1927
Kern River Hatchery	Kernville, Kern County	1928–Present
Santa Ana River Station*	Forcee Creek, San Bernardino County	1928–1929
San Gabriel River Station*	Coldbrook Camp, Los Angeles County	1928–1929
Mormon Creek Experimental Hatchery*	Sonora, Tuolumne County	1928–1930
Mud Creek Egg Collecting Station*	Lake Almanor, Plumas County	1928–1931
Cold Creek Hatchery	Ukiah, Mendocino County	1928–1937
Kings River Experimental Station	Kings River, Fresno County	1928–1930
Kings River Hatchery	Kings River, Fresno County	1930–1954
Hot Creek Experimental Hatchery	Hot Creek, Mono County	1928–1931
Hot Creek Hatchery	Hot Creek, Mono County	1931–Present
Prairie Creek Egg Collecting Station	Orick, Humboldt County	1928–1937
Prairie Creek Hatchery	Orick, Humboldt County	
(State owned and operated)		1928–1956
(State owned, County operated)		1957–Present
Walker River Egg Collecting Station*	West Walker River, Mono County	1929 1931–1932
Bucks Lake Egg Collecting Station*	Bucks Lake, Plumas County	1929–1931
Yuba River Hatchery	Fiddle Creek, Sierra County	1929–1950
Ballards Reservoir Egg Collecting Station*	Canby, Modoc County	1930
Lake Hemet Egg Collecting Station*	Lake Hemet, Riverside County	1930
San Gabriel River Hatchery*	Rincon Flats, Los Angeles County	1930–1932
Santa Ana River Hatchery*	Seven Oaks, San Bernardino County	1930–1932
Snow Creek Hatchery*	Snow Creek, Riverside County	1930–1932
Lake Arrowhead Egg Collecting Station*	Lake Arrowhead, San Bernardino County	1930–1932 1935 1940–1941
Lake Arrowhead Hatchery*	Lake Arrowhead, San Bernardino County	1940–1942
Madera Hatchery	Bass Lake, Madera County	1930–1952
Lake Almanor Hatchery	Chester, Plumas County	1931–1933
	Westwood, Lassen County	1934–1953
Butte Lake Egg Collecting Station*	Butte Lake, Lassen County	1931–1934
Chester Egg Collecting Station*	North Fork of Feather River, Plumas County	1931–1937
Alpine Hatchery*	Pleasant Valley Creek near Markleeville, Alpine County	1931–1942
Huntington Lake Hatchery*	Huntington Lake, Fresno County	1931–1943
Walker Lake Egg Collecting Station*	Walker Lake, Mono County	1931–1953
Hagen Flat Egg Collecting Station*	Pit River, Shasta County	1932–1933

Friant Bass Hatchery	Friant, Fresno County	1932–1937
Kosk Creek Egg Collecting Station*	Pit River, Shasta County	1933–1934
Hamilton Branch Egg Collecting Station*	Lake Almanor, Plumas County	1933–1936

* Not described in text.

TABLE 2

Public Fish Hatcheries and Egg Collecting Stations Operated in California From 1870 Through 1960

TABLE 2—Continued

Public Fish Hatcheries and Egg Collecting Stations Operated in California From 1870 Through 1960

Name of installation	Location	Years of operation
Deep Creek Egg Collecting Station*	Big Bend, Shasta County	1934
Hobart Creek and Lake Egg Collecting Station* (State of California owned and operated)	Carson City, Nevada	1934–1939
Marlette Lake Egg Collecting Station* (State of California owned and operated)	Carson City, Nevada	1934–1939
Blue Lakes Egg Collecting Station*	Upper Blue Lake, Alpine County	1934–1941
Lake Eleanor Egg Collecting Station*	Yosemite National Park, Tuolumne County	1934–1958
Tompkins Creek Egg Collecting Station*	Scott River, Siskiyou County	1935
San Lorenzo River Egg Collecting Station*	Brookdale, Santa Cruz County	1935–1942
Central Valleys Hatchery	Elk Grove, Sacramento County	1937–Present
Kirman Lake Egg Collecting Station*	Coleville, Mono County	1937–1940
Little River Egg Collecting Station*	Blue Lake, Humboldt County	1938
Pasadena Reservoir Egg Collecting Station*	San Gabriel River, Los Angeles County	1938–1939
Mountain Home Hatchery*	Mountain Home, San Bernardino County	1938–1940
Claremont Rearing Reservoir*	Claremont, Los Angeles County	1939–1941
Heenan Lake Egg Collecting Station	Heenan Lake near Markleeville, Alpine County	1939–Present
Sequoia Hatchery	Exeter, Tulare County	1940–1960
Fillmore Hatchery	Santa Clara River near Fillmore, Ventura County	1940–Present
Black Rock Rearing Ponds	Independence, Inyo County	1941–Present
Coleman National Fish Hatchery (U.S. Fish and Wildlife Service owned and operated)	Battle Creek near Cottonwood, Shasta County	1942–Present
Whittier Hatchery	Whittier, Los Angeles County	1944–1951
Crystal Lake Hatchery	Burney, Shasta County	1947–Present
Moorehouse Springs Experimental Station	Springville, Tulare County	1947–1948
Moorehouse Springs Hatchery	Springville, Tulare County	1949–Present
Mojave River Hatchery	Victorville, San Bernardino County	1947–Present
Cedar Creek Egg Collecting Station*	Madeline, Lassen County	1948–1949
East Side Rearing Reservoir	Napa, Napa County	1948–1956
Willow Creek Experimental Station* (Mapes Spring)	Susanville, Lassen County	1949
San Joaquin Experimental Hatchery	Friant, Fresno County	1948–1950
San Joaquin Hatchery	Friant, Fresno County	1955–Present
Cedar Creek Experimental Station	Leggett, Mendocino County	1949–1950
Cedar Creek Hatchery	Leggett, Mendocino County	1955–Present
Darrah Springs Experimental Hatchery	Paynes Creek, Shasta County	1949–1953
Darrah Springs Hatchery	Paynes Creek, Shasta County	1954–Present
Tule River Experimental Station*	Camp Wishon, Tulare County	1950
Moccasin Creek Experimental Station	Moccasin, Tuolumne County	1949–1950
Moccasin Creek Hatchery	Moccasin, Tuolumne County	1954–Present
Fish Springs Hatchery	Big Pine, Inyo County	1952–Present
Nimbus Hatchery	Nimbus, Sacramento County	1955–Present
Pudding Creek Egg Collecting Station	Fort Bragg, Mendocino County	1957–Present
Chatterdown Creek Egg Collecting Station	O'Brien, Shasta County	1959–1960

Klamath River Experimental Hatchery	Copco, Siskiyou County	1959–1960

* Not described in text.

TABLE 2

Public Fish Hatcheries and Egg Collecting Stations Operated in California From 1870 Through 1960

On June 8th and 9th of 1930 the Superintendent of Mount Whitney Hatchery made an inspection trip to Alpine County to study water and road conditions in this area. He found conditions satisfactory at the site on Pleasant Valley Creek.

In August 1930, permission to construct Alpine Hatchery had been granted by the Department of Finance, and preparations were made. Construction began in September, and was completed December 12. Fish culture started in the spring of 1931. The hatchery opened March 1 and 200,000 eastern brook trout eggs from Mount Whitney Hatchery were hatched that month.

Operations continued through 1942. In May of that year hatchery personnel were gathering data for selection of a hatchery site with warmer water. None could be found.

Due to its many shortcomings—inadequate and cold water, vulnerability to cloudbursts and floods, and isolation—Alpine Hatchery was closed after the 1942 season.

HATCHERIES OF THE PAST

Hatcheries of the past present sufficient interesting highlights to warrant the inclusion of a brief bit of history on those on which information, though meager in many cases, is available. Certainly, colorful episodes such as those that occurred during the early days at Baird Hatchery should not be omitted from this record.

California Acclimatization Society Hatchery, San Francisco—1870–1871

The California Acclimatization Society, under the supervision of J. G. Woodbury, first began experimenting and had made several successful hatches of eastern brook trout eggs shipped from the eastern states prior to the establishment of a State Fish Commission. A small hatchery, situated near the City Hall in San Francisco, was utilized in this pioneer work.

Fish were hatched in water at 50 F. Approximately 1,200 gallons per day were used. A hatching trough was 12 feet long, 14 inches wide, and 10 inches deep. Partitions, each 2 inches high, divided the trough into 10 sections. Fine gravel was placed on the trough bottom. After the fish hatched, they were placed in Lake Merced, ponds near San Francisco, and small streams in different parts of the State.

Trout native to the Lake Tahoe area, as well as eastern brook trout, were hatched and distributed. Some fish and eggs were sold to help pay expenses. Others were retained as brood stock.

State Hatching House, Berkeley—1870–1877

The first hatchery owned and operated by the State was situated on the grounds of the University of California, Berkeley. Through 1873 the California Acclimatization Society actually operated this hatchery and was paid by the Fish Commission for the trout reared. Because the building was too small for the quantities of fish to be reared and lacked a reliable water supply, its operations were replaced by the larger San Leandro Hatchery in 1878.

Baird Hatchery—1872–1883, 1888–1935

In 1872, Professor Spencer F. Baird, the first United States Commissioner of Fisheries, instructed Livingston Stone to proceed to the Pacific Coast and there obtain a supply of king salmon eggs for introduction into East Coast waters to compensate for the depletion of the Atlantic salmon. Stone was at that time one of the recognized authorities on fish culture in the United States. He had been engaged for a number of years in the work on fish culture in New Hampshire and other eastern states, and was a man of education and a close observer of all things in nature.

Stone arrived in San Francisco in August 1872. He could gain no reliable information regarding the habits of king salmon or where they spawned. A general impression prevailed that the spawning grounds were near the confluence of the Sacramento and San Joaquin Rivers, but Stone soon concluded that the fish spawned elsewhere. A Mr. Montague, chief engineer of the Southern Pacific Company, informed him that he had seen salmon spawning at the junction of the McCloud and Pit Rivers. At that time the terminus of the railroad was at Red Bluff, 50 miles from the reported spawning grounds on the McCloud River. Stone was accompanied on his trip to this section by J. G. Woodbury, who had been in the employ of both the California Acclimatization Society and the California Fish Commission.

After many hardships and struggles to obtain material and supplies, Stone, aided by his two young assistants, Myron Green and William T. Perrin (his nephew), succeeded in establishing on the McCloud River the first salmon breeding station on the Pacific Coast, naming it Baird, in honor of his friend and employer.

FIGURE 1. The founders of Baird Hatchery: Myron Green, Livingston Stone, and Williar Perrin. *Photograph taken in San Francisco in 1873.*

FIGURE 1. **The founders of Baird Hatchery: Myron Green, Livingston Stone, and William T. Perrin.** *Photograph taken in San Francisco in 1873*

The report of the Commissioners of Fisheries of California for the years 1874–1875 states, "The largest establishment in the world, for the hatching of salmon eggs, is that of the Government of the United States, on the McCloud River, in Shasta County,... from six to ten million of young Salmon are hatched each year and distributed

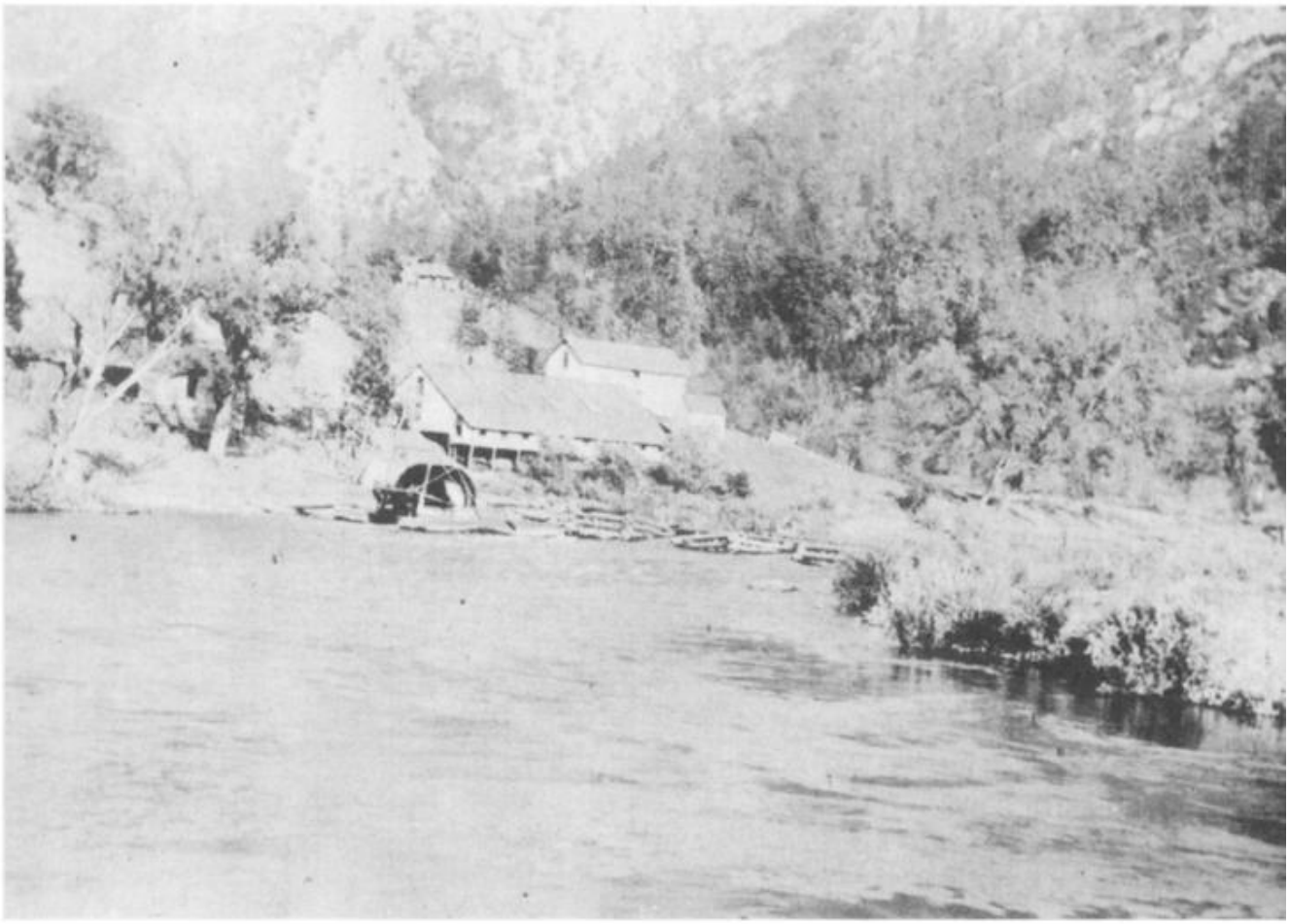

FIGURE 2. Baird Hatchery as reconstructed after the flood of 1881. Current wheel in f ground.

FIGURE 2. **Baird Hatchery as reconstructed after the flood of 1881. Current wheel in foreground.**

to the Fish Commissioners of the various States having rivers suitable for their growth and increase."

The number of salmon eggs collected at Baird Hatchery varied greatly from year to year. In 1883, only 1,000,000 eggs were taken. This was the lowest number obtained since operations began in 1872. The decline was attributed to a railroad being constructed from Redding northward. The salmon were disturbed by heavy blasting, many were taken for food, and others wantonly destroyed by railroad workers. The same condition existed in 1884, and the station was then closed. In 1888 the site was reopened to supply eggs for the newly established Sisson Hatchery. During the seasons of 1903 and 1905, over 25,000,000 eggs were taken; in 1911, only 60,000 eggs were obtained, and the end was in sight. During the later years, Baird Hatchery was primarily a handling station for eggs from Battle Creek and Mill Creek hatcheries. Hedgpeth (1941) presents a vivid account of the founding and history of Baird Hatchery.

Stone could not have had any idea that the hatchery site would be inundated by the water stored behind gigantic Shasta Dam in 1943. Yet this was the fate of Baird Hatchery.

The magnificent king salmon of the Sacramento River system were cut off from their ancestral spawning grounds by Shasta Dam. A living memorial to Baird Hatchery, where they were first artificially propagated, remains in the streams of New Zealand, to which they were successfully transplanted in 1873.

Public Law No. 732, enacted by the 79th U. S. Congress on March 10, 1934, provides for the mitigation of losses to fish and wildlife caused by the building of a government project. Therefore, in the planning for Shasta Dam, the portion of the Central Valley Project which

FIGURE 3. Livingston Stone, about 1905, shortly before retirement from the U. S. Bureau of Fisheries.

FIGURE 3. **Livingston Stone, about 1905, shortly before his retirement from the U. S. Bureau of Fisheries.**

finally spelled doom for Baird Hatchery, a program for maintaining the runs of salmon in the upper Sacramento River system was provided. Even though the existing runs of salmon in the Sacramento River system are still of considerable strength, the great runs of the time before white man came are gone and with them have vanished

the simple Indians whose life depended on them. Should we just stop here and proclaim the white man "Chief", the greatest of all ravishers?

Clear Lake Experimental Hatchery—1873–1874

In the fall of 1873, a temporary hatchery was established on Kelsey Creek, tributary to Clear Lake, for the purpose of hatching a shipment of lake whitefish sent to the California Commission by the United States Fish Commission. Eastern brook trout, landlocked Atlantic salmon, and whitefish, as well as native species, were propagated with some success, but the location was not suitable for carrying on large-scale operations.

Frazier Hatchery—1875–1880

Frazier Hatchery was established in 1875 by I. C. Frazier on Squaw Creek, Placer County, under permit and authority granted by the State Fish Commission. This hatchery was operated until 1880, when it was abandoned.

San Leandro Hatchery—1878–1883

Finding the State Hatching House at Berkeley too small for the quantities of fish to be hatched and lacking a reliable water supply, a larger hatching house, the San Leandro Hatchery, was built near Lake Chabot, Alameda County, in 1878, on property of the San Leandro Water Works. Here much of the trout work was carried on until Shebley Hatchery in Nevada County was taken over by the State.

Hurley Hatchery—1880–1888

Hurley Hatchery was established in May 1880 by John Hurley, under permit from the Fish Commission. During that year 95,000 trout were hatched and distributed. A Captain Todman leased the hatchery in 1884 and hatched and released over 500,000 trout.

Woodsen Egg Collecting Station—1881–1884

Little is known regarding the operation of this station. What information is available indicates it was operated by a Mr. Woodsen, an early settler who homesteaded property bordering Lake Annie, near Fort Bidwell, Modoc County. Lahontan cutthroat trout, of unknown origin, migrated from Lake Annie into the tributary stream to spawn during the spring of the year. Mr. Woodsen took eggs from the mature fish and turned them over to the State. The fish were then sold to residents of Fort Bidwell, but primarily to the fort military installation.

Shebley Hatchery—1883–1888

In 1883, the California Fish Commission abandoned San Leandro Hatchery, since the water was too warm for successful hatching and rearing during the warmer months.

A site was selected in Nevada County, on the ranch of J. V. Shebley, who donated to the State the use of the site and the water for hatchery purposes. The first superintendent was J. A. Richardson, a fish culturist formerly employed by the United States Fish Commission at the Baird Hatchery and by the California Fish Commission as an assistant to J. B. Woodbury at San Leandro Hatchery.

The work accomplished at Shebley Hatchery was limited, due to the small amount of money appropriated and the great cost of transporting the fry to the waters to be stocked. The Commission had to pay express charge on all shipments of eggs and fry distributed. The principal work was the hatching of rainbow, Lahontan cutthroat, and eastern brook trout and landlocked Atlantic salmon. This hatchery was operated until 1888, when the State Board of Fish Commissioners decided to establish larger hatcheries located near the egg collecting stations, where larger supplies of water were available. Accordingly, in 1888, after the distribution of fry was over for the season, Shebley Hatchery was abandoned.

Hat Creek Hatchery—1885–1888

In 1885, the California Fish Commission decided to establish a hatchery for the propagation of salmon. After examining a number of sites, one was selected on lower Hat Creek, Shasta County.

Hat Creek rises on the northeast slope of Mount Lassen, in the southeastern part of Shasta County, at an elevation of 7,300 feet above sea level. It flows northerly into the Pit River, about 9 miles northeast

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of Burney. Its principal tributary is Rising River, a stream only about 5 miles in length, which flows from large lava cap springs. Hat Creek has an average flow of about 100 cfs during the summer months.

The hatchery building was considered large for those days. It was well constructed and measured 100 feet long and 46 feet wide. It had a capacity of 90 troughs but only 64 were installed, since the run of salmon did not justify the installation of all the troughs. It had a capacity of 10,000,000 eggs.

The year following its completion, J. V. Shebley took charge of the station. He began operations early in August, and although trapping and seining for the spawning salmon was continued until November, only 1,200,000 eggs were collected. The spawning beds, which a few years before had been covered with thousands of spawning fish, were now deserted. The take of eggs the second year was even less. Every effort was made to procure sufficient eggs to justify operating the plant, but only 500,000 were taken.

In the spring of 1888, it was decided to abandon Hat Creek Hatchery. It had been demonstrated beyond any doubt, during the two seasons that this station was operated, that the spawning salmon no longer reached Hat Creek in numbers sufficient to justify operating the station any longer. In former years a large run of salmon ascended the Pit River as far as the falls below the town of Fall River Mills and also Hat Creek, but due to the diminishing number of salmon in the Sacramento River and its tributaries, the fish that ascended the river found ample spawning beds lower down, near the confluence of the Sacramento, Pit, and McCloud Rivers.

In 1915, eggs taken at Burney Creek Egg Collecting Station were to be hatched at Hat Creek Hatchery but Mount Lassen erupted and sent a tremendous flood of mud, water, and sand down the creek, destroying most of the fish in the stream from its headwaters to its confluence with the Pit River. This was one of the most serious destructions of fish life recorded in California. Both Hat Creek and Rising River were noted for their excellent rainbow trout fishing. After the eruption of Mount Lassen in May 1915, live trout could be found only in Rising River. The water in Hat Creek was muddy all during the season of 1915 and for several years thereafter.

Fort Gaston Hatchery—1889–1898
Redwood Creek Egg Collecting Station—1891–1898
Korbel Hatchery—1893–1898

In 1889, the United States Fish Commission erected a salmon hatchery at Fort Gaston, on the Hoopa Indian Reservation, Humboldt County. In 1891, it established Redwood Creek Egg Collecting Station. Korbel Hatchery near Korbel on the Mad River was built in 1893. Because of their inaccessibility, all three stations were abandoned in 1898.

Tahoe Hatchery (First)—1898–1891, 1894–1920

In the spring of 1889, Superintendent Woodbury, acting under instructions from the Board of Fish Commissioners, decided to locate a permanent hatchery on Lake Tahoe. The State had been carrying on hatchery operations under the direction of I. C. Frazier in a rented building which was not properly equipped to do good work. Each

season a few hundred thousand Lahontan cutthroat eggs had been taken from fish seined from Lake Tahoe. The eggs were shipped to Shebley Hatchery in Nevada County and the fry returned to the Truckee and Tahoe region for distribution.

After a study of possible hatchery locations, a site near Tahoe City was selected. Springs rising on the property constituted the water supply. Thirteen acres were first rented, and later purchased. Millions of Lahontan cutthroat trout were reared annually at this hatchery

FIGURE 4. First Tahoe Hatchery, 1896.

FIGURE 4. **First Tahoe Hatchery, 1896.**

until 1916, except for the period 1891 through 1893. During this period the hatchery was not operated, due to dissension among members of the Board.

Tahoe Hatchery (Second)—1920–1956

By 1916, it had become evident that the supply of water at the Tahoe Hatchery was entirely inadequate. Consequently, during the fall of 1917, a survey was made of all the available and suitable streams flowing into Lake Tahoe, and after a careful examination a site was selected at Walker Springs, a mile north of Tahoe City on the state highway.

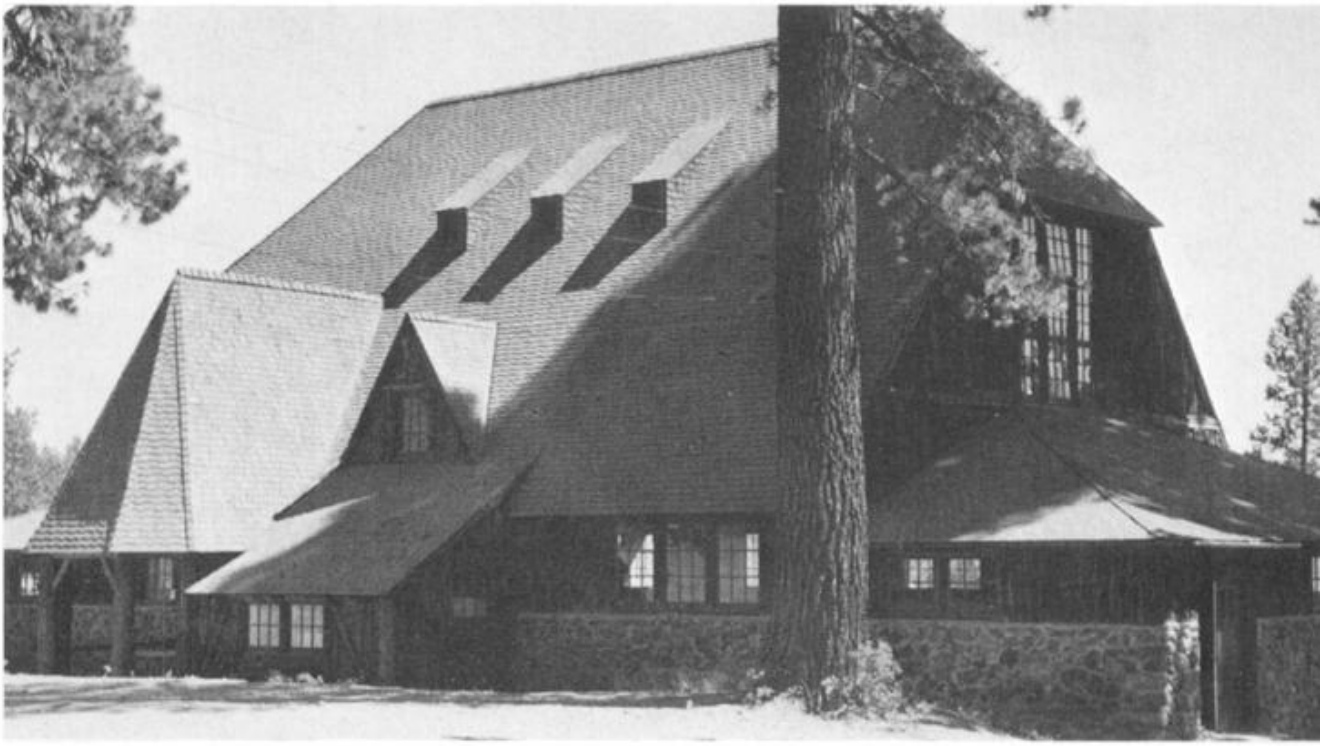

FIGURE 5. Second Tahoe Hatchery, completed in 1920.

FIGURE 5. **Second Tahoe Hatchery, completed in 1920.**

After purchasing the property, plans for a modern hatchery were made by the State Architect. The contract was given to Matt Green during the summer of 1919. Work was begun that fall and was completed in the fall of 1920. The new Tahoe Hatchery contained 64 troughs and had a capacity of about 2,500,000 fingerling trout.

Del Monte Hatchery—1890–1891
Glen Ellen Hatchery—1890–1891
Alma Hatchery—1892–1893

Del Monte Hatchery, Monterey County, Glen Ellen Hatchery, Sonoma County, and Alma Hatchery, Santa Clara County, were operated by the State when the Tahoe Hatchery was closed. Production from these privately owned stations was negligible.

Bear Valley Hatchery—1891–1894

To satisfy strong requests for a trout hatchery in the vicinity of San Francisco, and after careful examination of waters in neighboring counties, Bear Valley in Marin County was chosen as a site for a hatchery. Bear Valley Hatchery was erected in the fall of 1891 and was operated during the seasons of 1892 and 1893. Because of the limited water supply and the great distance from a railroad, it was not considered economical to operate this station any longer and it was closed in 1894.

Tallac Hatchery (First)—1895–1909
Tallac Hatchery (Second)—1909–1953

In 1895, Lawrence and Comstock erected a temporary hatchery near Tallac, about 2 miles above the mouth of Taylor Creek, and placed it under the control of the California Fish Commission. The following year operations were moved to Tallac Creek. For a number of years a

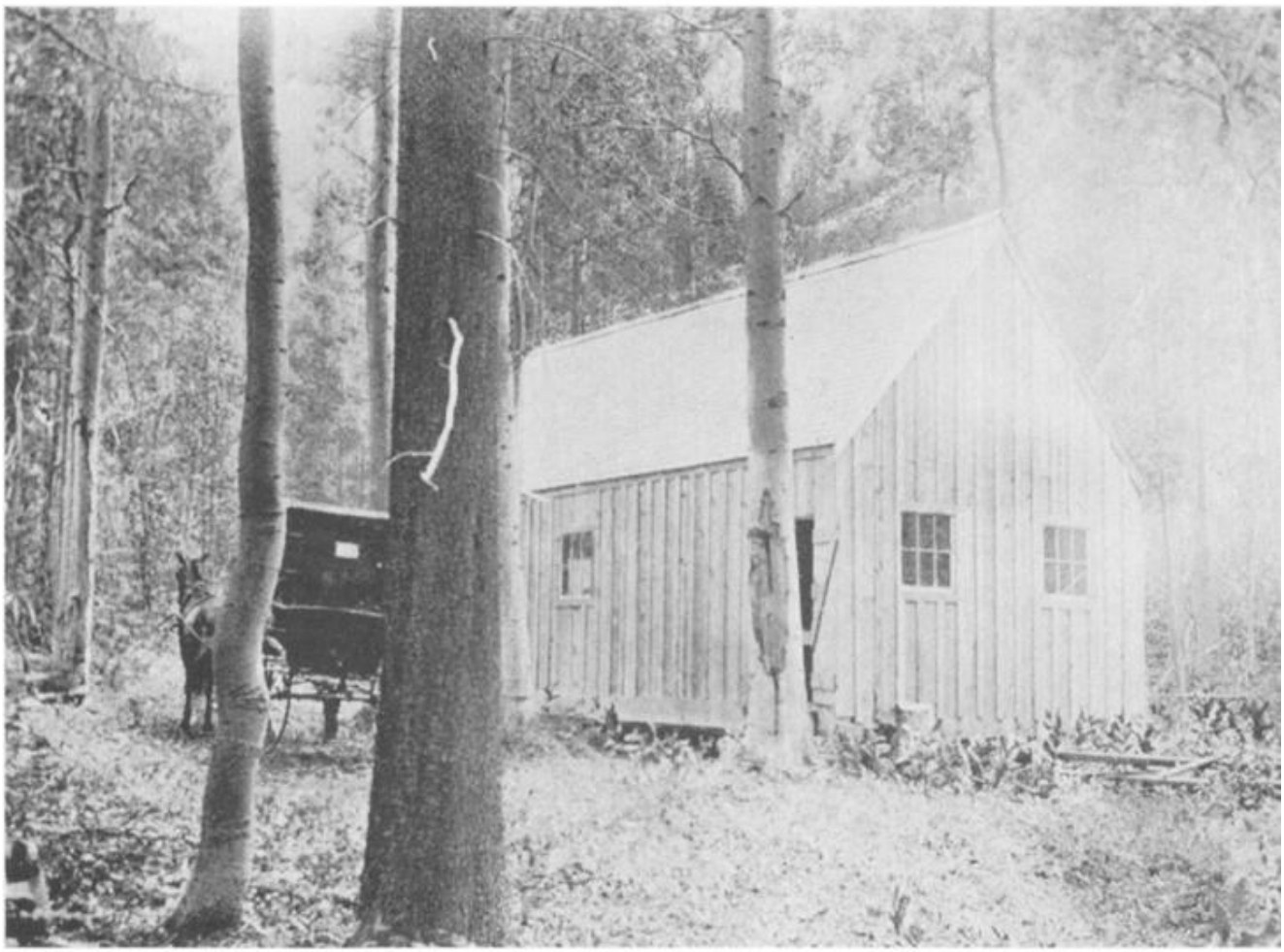

FIGURE 6. Tallac Hatchery, 1896.

FIGURE 6. **Tallac Hatchery, 1896.**

good portion of the eggs taken in the vicinity were hatched at this station and distributed in nearby public waters. Due to the long distance from the seining area at the mouth of Taylor Creek, and the small water supply, it was

decided in the fall of 1908 to abandon this location and erect a modern building on Taylor Creek near Tallac, where a large water supply was available and where the work of hauling the eggs to the hatchery in the early spring, when the area was usually covered deep with snow, would not be so difficult. After securing a lease from Mrs. Anita M. Baldwin, a hatchery building 40 by 70 feet with a capacity of 3,000,000 eggs, was erected.

FIGURE 7. Taking trout eggs at mouth of Taylor Creek, Lake Tahoe, 1896.

FIGURE 7. **Taking trout eggs at mouth of Taylor Creek, Lake Tahoe, 1896.**

Mount Tallac Hatchery sustained extensive damage from floods during the winter of 1937–38, but this was repaired. The hatchery was abandoned in 1953 with the modernization of the California hatchery system.

Wawona Hatchery—1895–1928

In 1895, a small hatchery was erected at Wawona, to provide fish for the lakes and streams in the Yosemite Park area. The hatchery was installed by the Yosemite-Raymond Stage Line and turned over to the California Fish Commission, to be operated on condition that 500,000 trout eggs would be hatched and distributed in the vicinity annually. It was managed for a number of years by M. L. Cross. Eggs were shipped to this station from outside sources.

Throughout its existence, Wawona Hatchery usually had difficulty keeping fish in good condition after the first of July. The water warmed rapidly, and although the fish grew well, they generally had to be planted before the end of July. Algal growths in the warm water also caused difficulties. The hatchery was finally closed because it was believed campers had contaminated Big Creek, which was the only source

of water. Big Creek was also affected by a prolonged drought, which began about 1914, and caused water supply problems at many other hatcheries.

Battle Creek Hatchery—1895–1945

Battle Creek Hatchery near Balls Ferry, Shasta County, proved to be one of the greatest salmon spawning stations in the world. Up to 60,000,000 eggs were taken in one year. It was largely due to the efforts of John P. Babcock that this station was established. He had taken a keen interest in the propagation of salmon and recommended this site to the California Fish Commission.

Battle Creek is one of the larger tributaries of the upper Sacramento River. It rises on the west slope of Mount Lassen and flows into the Sacramento River about 20 miles north of Red Bluff.

FIGURE 8. Racks and salmon egg collecting facilities, Battle Creek Hatchery, 1896.

FIGURE 8. **Racks and salmon egg collecting facilities, Battle Creek Hatchery, 1896.**

The California Fish Commission operated this station for 2 years, but due to a lack of funds and a desire to see the station operated to its fullest capacity, a proposition was made by the California Fish Commission to the Honorable J. J. Brice, then United States Commissioner of Fisheries, to purchase the plant for a government station and apply the money thus obtained to increase the capacity of Mount Shasta Hatchery. Commissioner Brice accepted the proposal and presented the matter before the Congress, which made the necessary appropriation to purchase the station.

The eggs collected at this station, as well as at the other federal stations in the State, were largely turned over to the California Fish Commission for hatching and distribution. Operations at Battle Creek Hatchery were replaced by the newly built Coleman National Fish Hatchery in 1945.

Price Creek Hatchery—1897–1916

In its endeavor to increase the salmon supply in the north coast area, the State Board of Fish Commissioners searched for a hatchery site on the Eel River, and in 1897 established a hatchery on Price Creek, tributary to the Eel River about 12 miles upstream from its mouth.

FIGURE 9. Price Creek Hatchery, about 1906.

FIGURE 9. **Price Creek Hatchery, about 1906.**

The first eggs were shipped to the new station from Battle Creek in December of that year.

In 1902, this hatchery, then called Eel River Hatchery, made the first plant of steelhead trout fry in the State. In 1916, operations were moved to what appeared to be a more suitable location on the Eel River near Fort Seward, where there was an improved water supply system and better transportation facilities. Sediment in Price Creek during the winter months had caused some difficulties. In spring, the stream dwindled rapidly and became very warm, so it was impossible to hold the fry later than June.

Ukiah Hatchery—1897–1927

During the season of 1897, A. W. Foster, President of the San Francisco and North Pacific Railroad Company, became interested in stocking the streams along the line of his railroad. The company built a fish hatchery with a capacity of 2,000,000 eggs west of Ukiah, and arranged with the Commission to supply the hatchery with trout eggs, with the agreement that the fish would be planted in public waters. Foster employed competent men to operate the hatchery, and in the spring of 1897, 700,000 trout eggs were forwarded to Ukiah Hatchery. They were hatched and later distributed in public waters in Marin, Sonoma, and Mendocino Counties.

In 1911, the Board of Fish and Game Commissioners took over complete control of Ukiah Hatchery and operated it until 1927. Water conditions were poor, and because of the inadequate supply, it was necessary to pump the water through the troughs a second time. Operations were transferred to a better location on Cold Creek upon completion of new facilities there.

Hazel Creek and Mears Creek Egg Collecting Stations—1898–1899

During the early part of 1898, the Commission placed traps in Hazel and Mears Creeks, tributaries to the Sacramento River near Sims, Shasta County, hoping to obtain a supply of rainbow trout eggs. Due to lack of rain, these creeks did not rise appreciably and the expected run of

fish did not ascend them. However, the site was considered to be a good one and the effort was renewed the next year, but also failed. It was then decided to abandon the project and try a site on the Truckee River.

The expense of the Hazel Creek and Mears Creek Stations was borne by the Southern Pacific Railroad Company.

Cottonwood Creek Egg Collecting Station, 1900–1938

In January 1901, operations were commenced by putting in a rack and large trap on Cottonwood Creek near Hornbrook, Siskiyou County, and also fitting up troughs in a tent for the purpose of eyeing the eggs before

shipment to Mount Shasta (Sisson) Hatchery. It was later found, however, that the water supply, taken from a spring, was highly alkaline. Therefore, only egg taking operations were carried on and all eggs were shipped to Mount Shasta Hatchery to be eyed and hatched. This operation proved to be both successful and economical, since the station then required the services of only one man. Notwithstanding the fact that the trap was twice washed out by high water, 417,000 eggs were collected during the first season.

Operations were continued in the spring of 1902, and a new trap was installed in February, but the first run was lost because floods washed out the trap and allowed the fish to pass on upstream. Despite this drawback, 686,000 eggs were taken by the last of May. The station was operated for several years by the California Fish and Game Commission and was then turned over to the United States Bureau of Fisheries, which continued operations until 1919, when the station was again returned to the California Fish and Game Commission.

Verdi Hatchery—1902–1905

Attempts to take rainbow trout eggs from the Sacramento River having failed, the State Board of Fish Commissioners still desired to increase the output of rainbow trout fry. A site on the Truckee River at Essex Dam, near Verdi, Nevada, was selected. In 1902, a building was constructed and fitted up as a hatchery to hold the eggs until they could be shipped to Mount Shasta and Tahoe Hatcheries. Fish were collected from the river by traps placed near the fishway over the dam. Use of the land was donated to the Board of Fish Commissioners by Mrs. Margaret Foulks of Verdi, Nevada.

Authority for operations at this point was granted by the Washoe County (Nevada) Commissioners, who appreciated the fact that California and Nevada were jointly interested in improving fishing condition in the Truckee River and Lake Tahoe. (The Truckee River flows out of Lake Tahoe. It passes for many miles through the mountains of California and empties into Pyramid Lake, Nevada.) Between February 1 and May 1, 1902, 538,000 rainbow trout eggs were taken. In addition, 500,000 Lahontan cutthroat eggs were taken. The total number of eggs collected at the station during the first year was 1,038,000. Part of these were shipped to Mount Shasta Hatchery and part to Tahoe Hatchery, and the balance were hatched and planted in the Truckee River near Verdi.

The number of eggs taken in the spring of 1904 was most discouraging, although the prospects were good. Large numbers of good-sized

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fish were seen, but heavy and continuous storms kept the Truckee River at flood stage for several months. The gates at the outlet of Lake Tahoe, which had been closed during the summer of 1903, had stored the water at a higher level than usual. This level was raised by heavy rains and melting snow until it became necessary, in order to save property around Lake Tahoe, to open the flood gates to their full extent. The continuous flow of such a large volume carried away dams and swept a great deal of debris down the river. The total take was only 75,000 eggs, of which 35,000 were eyed and sent to the United States Bureau of Fisheries station at Leadville, Colorado. About 30,000 fry were hatched at Verdi.

In 1905, the Truckee River continued at such a height that the capture of spawning fish was not feasible. Funds of the Commission would not permit the construction of a permanent barrier or trap, and the number of eggs collected did not justify the expense at that time. The station was discontinued in 1905.

Mill Creek Hatchery—1902–1945

This federally owned establishment near Los Molinos, Tehama County, was operated in 1912 by the California Fish and Game Commission. Salmon eggs collected at Sisson Hatchery had been hatched at Sisson, but prospects for the coming season were unsually promising, and it was believed that the hatchery capacity would be exceeded. Therefore, by agreement with the federal bureau, the State operated the Mill Creek facility.

Mill Creek rises in the foothills in the northeastern part of Tehama County and empties into the Sacramento River about a mile above the town of Tehama. Salmon were captured by racks installed in the stream. The Bureau of Fisheries operated this hatchery in conjunction with Battle Creek and Baird Hatcheries. In 1945, work here was incorporated into operations of the newly built Coleman National Fish Hatchery.

Glen Alpine Hatchery—1905–1912

Through the joint efforts of Mrs. George Pierce of Glen Alpine Springs, El Dorado County, and Professor W. W. Price of Alta, a small hatchery was completed at Glen Alpine in 1905 and operated as an auxiliary to Tahoe and Tallac Hatcheries until 1912. It was a small building, on the property of the Glen Alpine Hotel Company, with a capacity of 1,000,000 eggs, and was used by the Commission to hatch a few hundred thousand eggs, mainly to save the cost of distributing fry from Tahoe and Tallac Hatcheries.

Brookdale Hatchery—1905–1953

In 1905, a hatchery was built on the San Lorenzo River at Brookdale for the County of Santa Cruz. An egg collecting station for the Brookdale Hatchery was established on Scott Creek, and was jointly operated by the California Fish Commission and Santa Cruz County. The fry hatched from the eggs collected at Scott Creek Egg Collecting Station were distributed in the waters of Santa Cruz, San Mateo, Santa Clara, and Monterey Counties, and some of the eggs were shipped to northern California hatcheries for distribution in other localities. On

FIGURE 10. Brookdale Hatchery.

FIGURE 10. **Brookdale Hatchery.**

July 1, 1912, the complete operation of both Brookdale Hatchery and Scott Creek Egg Collecting Station was taken over by the State.

Edgewood Egg Collecting Station—1906–1907

After the abandonment of the station at Verdi, Nevada, the Commission still considered it desirable to establish a station on a stream from which a dependable supply of rainbow eggs could be collected. Streams in Siskiyou County were examined and a site on the Shasta River near Edgewood, Siskiyou County, was selected.

The station was operated for the first time in 1906, but owing to unusual freshets which swept over the racks, most of the spawning fish were able to proceed upstream and only 50,000 eggs were taken. This number, however, was considered sufficient to demonstrate the value of the station. An agreement was entered into with the United States Bureau of Fisheries, whereby the bureau paid part of the expense of operating the station and in return was granted the privilege of eyeing its eggs at Mount Shasta Hatchery. The station did not come up to expectations and was last operated in 1907.

Bouldin Island Striped Bass Hatchery—1907–1910

Convinced of the advisability of attempting to increase the supply of striped bass by artificial propagation, the California Board of Fish Commissioners began an investigation of hatchery sites. The funds at that time being insufficient to bear the expense unaided, the matter was taken up with the United States Bureau of Fisheries at Washington, with the result that Capt. G. H. Lambson, in charge of the salmon hatching work of the United States Bureau of Fisheries in California, was instructed to cooperate in the venture. He brought with him three

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men from Baird: E. Ball, George Gray, and E. V. Cassell. R. B. Heacock was employed to serve as the working representative of the California Commission.

Accordingly, in the month of May 1907 operations were commenced at Bouldin Island, on the San Joaquin River, at which point a small hatchery building was constructed at the expense of the California Board of Fish Commissioners. A small pumping plant to supply the necessary water was also installed. Hatchery equipment, including McDonald hatching jars, was furnished by the United States Bureau of Fisheries. The hatchery depended on commercial fishermen for ripe eggs.

Although fishermen took a lively interest and assisted in every way, the results were unsatisfactory. It was found that the eggs and sperm could be taken from striped bass by the methods used in "stripping" trout and salmon. The percentage of eggs fertilized and hatched, however, was small. From many lots, no fish hatched. From other lots, 5 to 60% hatched. One lot hatched a very high percentage of the eggs. The total take of eggs for the first year's operations was about 18,000,000, about three times the number taken up to that time on the Atlantic Coast in a single season of which there is any record.

The results of the first season's work were encouraging, for hatching striped bass was still in the experimental stage and the results in numbers of eggs hatched during the season of 1907 were much better than had been obtained on the Atlantic Coast. It was not determined just why so many eggs failed to hatch, but failure was attributed to unsuitable water or some defect in hatchery method.

The season of 1908 found the hatchery better prepared for work and equipped with microscopes and apparatus to determine the cause of the failure of so many eggs to hatch. This season the run of bass was almost a failure, and the take of eggs so small that many of the experiments came to nothing for lack of eggs with which to experiment.

It was found that the first cleavage of the germinal disc in the developing egg takes place about 2 hours after fertilization. So, with the microscope it was possible to tell within 2 hours after the eggs were taken just what percentage was fertilized and developing. It was also found that the loss of eggs was due not to bad water or any defective method of handling the eggs in the hatchery, but to the nonfertilization of the eggs. It was demonstrated that fungus could be controlled through the use of a 1:500,000 solution of copper sulfate.

Hatching takes place about 3 days after impregnation. The yolk sac is not entirely absorbed until after the 7th day, and the stomach is not well developed until after the 13th day.

Young fry were kept for 2 weeks in McDonald hatching jars by removing the siphon tubes and replacing the tops with silk bolting cloth, allowing a small stream of water to flow on the cloth.

Artificial propagation was finally abandoned after further discouraging results during the seasons of 1909 and 1910, when few ripe females were obtained.

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Camp Creek Egg Collecting Station—1910–1934
Bogus Creek Egg Collecting Station—1910–1941

Beginning in 1910, egg collecting operations were carried on in the upper Klamath River by trapping steelhead as they ascended tributary streams. These streams are but a short distance apart. Bogus Creek is located on the south side of the Klamath River, and Camp Creek is a short distance above on the north side. Steelhead eggs taken at the Klamath River stations were eyed at Mount Shasta Hatchery and widely distributed to other hatcheries in the State.

Unsuccessful trap operation resulting from low water levels caused closure of the Camp Creek station in April 1934. The Bogus Creek station was discontinued in 1941, partially because of wartime personnel shortages, but also in conformance with the prevailing view that artificial propagation of steelhead as practiced contributed little or nothing to maintenance of the resource.

Sacramento Experimental Station—1911–1913

During the fall of 1911, the Commission decided to carry on a series of experiments to determine whether the eggs of king salmon could be successfully hatched and the fry reared near the City of Sacramento. It was thought that if water in which the eggs would hatch could be found, a greater percentage of the fry would safely reach the ocean than when released in the upper reaches of the river near the natural spawning grounds. It was thought that under the former system of releasing the fry as soon as they were able to swim, a great many of them were doomed to predation and others were carried into overflow areas during floods.

The experiments carried on at Sacramento were of great interest to the salmon industry. After testing the water from a number of wells, a site on the Sherburn tract was selected. All of the fish hatched at this station were

released in the Sacramento River. of these, 50,000 were marked by fin removal, to determine whether a greater percentage would return as mature salmon than from fish released in the upper reaches of the Sacramento River.

Nearly all of the salmon fry planted were floated in a screen cage into the middle of the Sacramento River and released. N. B. Scofield took 500 in a floating box down the river, where they were held and fed for several weeks in brackish water. They were not affected by the sudden change from fresh to brackish water and then to the saline water of San Francisco Bay.

Bear Lake Hatchery—1914–1932

Through the joint efforts of the San Bernardino Trout Association and San Bernardino County, a trout hatchery with a capacity of 1,000,000 fish was built in 1914 at Big Bear Lake. The hatchery was located on the south side of the lake. The entire expense of the hatchery was borne by the members of the association and no money was solicited outside the county. The Board of Supervisors had charge of the distribution of the fish hatched.

The object of this hatchery was to propagate rainbow trout from eggs taken from tributaries of Big Bear Lake. The association was not

successful in operating the hatchery and turned it over to the State in 1916.

In 1919, the necessity of increasing the capacity of Bear Lake Hatchery became apparent; the old buildings that had been erected by the association were inadequate. After obtaining a permit from the United States Forest Service for a site at Green Spot Springs, a new hatchery was erected and fully equipped. The site at Green Spot Springs was about 12 miles from the egg collecting station on North Creek.

In 1932, operations at Bear Lake Hatchery were merged with those at several other stations in southern California and transferred to Forest Home Hatchery. This combination was designed to increase production and reduce costs.

Burney Creek Egg Collecting Station—1915

In the spring of 1915, a lease was secured on a piece of land near the mouth of Burney Creek, tributary to the Pit River, Shasta County, for the purpose of collecting rainbow trout eggs. A rack was placed across the stream and the necessary live cars and pens were made to hold the fish that were expected to enter the creek. A tent, with hatching equipment, was set up and operations were begun. It was originally planned to eye the eggs and hatch them in the old Hat Creek Hatchery, 7 miles from Burney Creek. However, the eruption of Mount Lassen in 1915 destroyed all the fish in Hat Creek.

North Creek Egg Collecting Station—1915–1928
North Creek Hatchery—1918–1928

North Creek Hatchery and Egg Collecting Station were located on North Creek, a tributary to Big Bear Lake. The egg collecting station began operating in 1915. Operations were expanded in 1918, after a 20-year lease of the property was obtained. A permanent hatchery was installed and equipped. Many of the eggs taken were sent to Bear Lake Hatchery, where they were eyed and shipped or hatched. Some difficulty was encountered at the North Creek installations when low water hindered trout on their spawning migrations. North Creek flows were sometimes insufficient to force open the channel at its entrance to Big Bear Lake, and the trout were unable to ascend the stream.

The stations were not operated in 1928 because of low water.

Yuba River Shad Hatchery—1916

In 1916 the states of Massachusetts and Connecticut requested the California Commission to supply them with shad eggs for stocking purposes. Due to the increased interest in shad and belief that the heavy commercial fishing in the lower Sacramento-San Joaquin Rivers was causing a decrease in the number of shad, it was decided to establish a shad hatchery on the Feather River near Yuba City, where the movements of the spawning shad could be studied and eggs collected. The work was carried out under the supervision of Superintendent G. H. Lambson of Mount Shasta Hatchery.

Due to heavy fishing in the Delta area, plus a cold season with high and roily water, only a light run of shad reached the upper river. Fishing began at Yuba City on June 3, 1916, and during the season

1,421,000 shad eggs were collected. Eight hundred seventy-two thousand fry were successfully hatched and released into the Feather River. Sufficient eggs were not available to supply all requests. The hatchery was

permanently closed on August 1, 1916, after only one season's operations.

Marlette-Carson Hatchery—1916–1917

During the years 1916 and 1917, the State of Nevada did not operate its fish hatcheries, and the California Board of Fish and Game Commissioners was permitted to collect eggs from Marlette Lake. Carson City Hatchery was operated by the Commission and the eastern brook trout eggs collected at Marlette Lake were shipped to this hatchery, where they were eyed and delivered to hatcheries in California. The second year only half of the eggs taken were shipped to California, under terms of the agreement.

Almanor Hatchery—1916–1919

Almanor Hatchery was established in 1916 below Big Meadows Dam of the Great Western Power Company on Lake Almanor. It produced 261,000 rainbow eggs in 1918 and 282,000 in 1919. The water supply failed too early in the summer to permit rearing fry at the station, and all eggs taken had to be transferred to Clear Creek and Domingo Springs Hatcheries.

Domingo Springs Hatchery—1916–1937

A hatchery was established at Domingo Springs, Lassen County, in 1916. In 1917, the plant was moved to Rice Creek, one of the main branches of the North Fork of the Feather River above Lake Almanor. During the summer of 1919, a permanent building was erected and a substantial trap constructed one-quarter mile below the falls in Rice Creek. This station was to furnish fry for the area surrounding the west side of Lake Almanor, as well as the lakes and streams in Mount Lassen National Park and surrounding country. It was damaged by flood in 1937, and because of the very cold water, with consequent slow development of eggs and fish, the station was abandoned.

Fort Seward Hatchery—1916–1942

Because of the many shortcomings of Price Creek Hatchery, the Board of Fish and Game Commissioners decided to move operations to a more favorable location. After a careful survey of the streams on the line of the Northwestern Pacific Railroad, Fort Seward Creek near Alderpoint, Humboldt County, was selected. The Commission purchased 40 acres of land near the mouth of the creek.

Early in 1916, the task of moving the building and equipment from Price Creek to Fort Seward Creek was begun. The hatchery building was situated near the creek in a narrow canyon and the superintendent's dwelling on a knoll overlooking the hatchery. During the fall of 1919, two four-room cottages were built, so that men with families could be employed at this isolated location.

In 1938, it was recommended that Fort Seward Hatchery be dismantled and a new station built to replace it and Cold Creek Hatchery, which was destroyed by floods the previous winter. Fort Seward Hatchery was constructed when the only transportation was by rail and its

FIGURE 11. Fort Seward Hatchery, April 20, 1939. *Photograph by Leo Shapovalov.*

FIGURE 11. **Fort Seward Hatchery, April 20, 1939.** *Photograph by Leo Shapovalov*

purpose was to produce small fish for planting early in the season. By July, water supply temperatures were very high and the flow insufficient for satisfactory operation. With modern truck transportation it was more advantageous to have a hatchery situated closer to a main highway. However, the hatchery continued operating until November 1942, when the war drain on employees required that stations of minor importance and effectiveness be closed.

Rae Lakes Egg Collecting Station—1917, 1920–1927

Rae Lakes Egg Collecting Station was established during the spring of 1917 to furnish rainbow eggs for Mount Whitney Hatchery. It was situated on a beautiful chain of lakes in the heart of the high southern Sierra, Fresno County, at an elevation of 10,500 feet above sea level.

The difficult trip to the lakes was made via Oak Creek Pass, at an elevation of over 11,000 feet. There were few trails to follow and the trip had to be made through blind mountain passes over great depths of snow. Severe snowstorms in that section, even in June, when the fish were spawning, were frequent. Even when the days were clear and warm the nights were freezing cold, and the journey to Rae Lakes at its best was a difficult one, taxing the strength and resourcefulness of the hardiest mountaineers. Because of the difficulties attending the operation of this station and the fact that sufficient skilled help to operate all of the state hatcheries to capacity could not be obtained during the period of World War I, this station was not utilized during 1918 and 1919. It was again operated from 1920 through 1927.

The station was closed after the 1927 season because of poor egg production. Although fishing was prohibited in the lakes, they were not patrolled, and it was believed that the fish populations declined because of heavy angling pressure.

Forest Home Hatchery—1917–1940

Forest Home Hatchery was privately operated from 1917 to 1931. In August 1932 the Division of Fish and Game arranged acquisition of the property and operations at several small hatcheries in southern California were

consolidated and centered at Forest Home, which had better water conditions. This action was expected to increase output, reduce costs, and facilitate trout rearing and distribution in southern California.

Operations continued successfully until March 2, 1938, when an exceptionally heavy storm in southern California caused the nearly total destruction of Forest Home Hatchery. Two dwellings, a garage, a tool room, a food preparation room, and other equipment on the premises were lost. After a series of heavy storms and cloudbursts, Mill Creek, upon which the hatchery was situated, rose to such heights that it spread across the entire valley floor and shifted great volumes of boulders and gravel. Loss of the buildings and destruction of the hatchery was progressive and the superintendent and crew made every effort to protect the property. The ponds were almost completely obliterated and some places were covered with many feet of boulders and gravel. Mrs. Clanton, wife of the superintendent, moved most of the automotive equipment to high ground by herself while the men were working to save the ponds and houses. Because of her efforts, all the cars and trucks were saved. Immediate plans were made to replace the hatchery, but satisfactory sites were difficult to locate. The hatchery was not abandoned until 1940.

Feather River Experimental Hatchery—1918–1920

During the spring of 1918, following the plan of the Board of Fish and Game Commissioners to increase the number of hatcheries in the State, an experimental hatchery was established on Gray Eagle Creek, about a mile from the town of Blairsden, Plumas County. Steelhead eggs were shipped to the hatchery from Snow Mountain Egg Collecting Station, Lahontan cutthroat eggs from Tallac Hatchery, and rainbow eggs from Domingo Springs Hatchery. The plan was to test the site thoroughly and determine its suitability for a permanent hatchery. From such a hatchery all of the waters in Plumas, Lassen, and Modoc Counties, served by the Western Pacific and the Nevada, California, and Oregon railways, could be stocked. It was planned to supply the Westwood, Lake Almanor, and Juniper Lake districts with trout from Clear Creek and Domingo Springs Hatcheries. This would have eliminated the long hauls to these areas from Mount Shasta Hatchery. Unfortunately, the water of Gray Eagle Creek did not prove satisfactory for hatchery purposes. In 1921, the hatchery was moved to a site on Jamison Creek, tributary to the Feather River, near Johnsville, Plumas County.

Yosemite Experimental Hatchery—1918–1920
Yosemite Hatchery—1927–1956

In an attempt to stock the streams of Yosemite Park with trout fry, the Fish and Game Commission during the fall of 1917 made a survey to locate a suitable hatchery site. A site was located near Happy Isles in Yosemite Valley and application was made to the United States

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Department of the Interior to lease the property required for operations. Every assurance was given by Yosemite Park officials that the Commission would be granted a suitable lease.

In order to determine the suitability of the location for trout propagation, an experimental hatchery was established at Happy Isles during the fall of 1918 and operations were commenced in the spring of 1919. In all, 400,000 rainbow, Lahontan cutthroat, and steelhead trout eggs were shipped to the station, and the resulting fry planted in the streams and lakes of Yosemite Valley with the cooperation of park officials.

The site appeared satisfactory for rearing trout fry, but approval to erect permanent buildings on leased land could not be obtained. The Board of Fish and Game Commissioners, therefore, decided to abandon the project. All equipment was transferred to Wawona Hatchery.

Negotiations were resumed a few years later and arrangements for installation of a permanent hatchery were finally concluded in 1926. The building was constructed and finished in time for operation during 1927. There were 52 troughs, cottages, and an aquarium for display purposes. All species of trout, as well as grayling eggs from Montana, were successfully hatched and reared. The site was one of the most popular for visitors to the park.

FIGURE 12. Yosemite Hatchery, October 1938.

FIGURE 12. **Yosemite Hatchery, October 1938.**

Although storms during the winter of 1937–38 caused extensive damage, this was repaired and the hatchery was not abandoned until 1956, when it was considered to be outmoded. It operated at a high cost per pound of fish raised and its efficiency could not be increased. Waters formerly stocked by this hatchery are now planted with fingerlings produced at larger and more efficient stations.

Clear Creek Hatchery—1918–1930

Clear Creek Hatchery, located on Clear Creek 1½ miles from the town of Westwood, Lassen County, was established in the fall of 1918. Clear Creek is tributary to Hamilton Branch, which flows into Lake Almanor. Clear Creek rises from a large, clear spring and remains constant at a temperature of 45 F.

The Red River Lumber Company, which owned the Clear Creek site, forced the State to abandon it. The establishment of a more permanent installation was desired, but the lumber company would not lease or sell the location.

Fall Creek Hatchery—1919–1948

The first hydroelectric power development on the Klamath River in California was made by the Siskiyou Power Company, owned by the Fairchild family of Yreka, California. Its first development was the Fall Creek Powerhouse on Fall Creek, tributary to the upper Klamath River, in 1903. The first dam across the Klamath River was installed by this firm in 1910 at the present site of Copco No. 1 Dam. Prior to

FIGURE 13. Copco Dam and Powerhouse.

FIGURE 13. **Copco Dam and Powerhouse.**

1910, fish in the Klamath River ascended the river at least to the vicinity of Spencer Creek, about 12 miles above the California-Oregon border. Investigations during the early 1920's failed to show that any migrants ascended above this point. Claims were made that fish formerly passed up the Klamath River through Lake Euwana and Klamath Lake into the Sprague and Williamson Rivers in Oregon. This seems highly improbable because of the falls at the outlet to Klamath Lake at the town of Klamath Falls.

The California Oregon Power Company (Copco) acquired the Fairchild interests in 1913 and proceeded to construct Copco Dam.

Fall Creek Hatchery on Fall Creek was constructed by the California Oregon Power Company in 1919 in lieu of a fish ladder over Copco No. 1 Dam. The dam, 110 feet high, was considered too high for steelhead and salmon to pass over successfully. Furthermore, no provision could be made for the safe passage of the young downstream migrants. King salmon eggs for the hatchery were taken at Klamathon Egg

FIGURE 14. Fall Creek Hatchery, 1935. *Photograph by J. H. Wales.*

FIGURE 14. **Fall Creek Hatchery, 1935**. *Photograph by J. H. Wales*

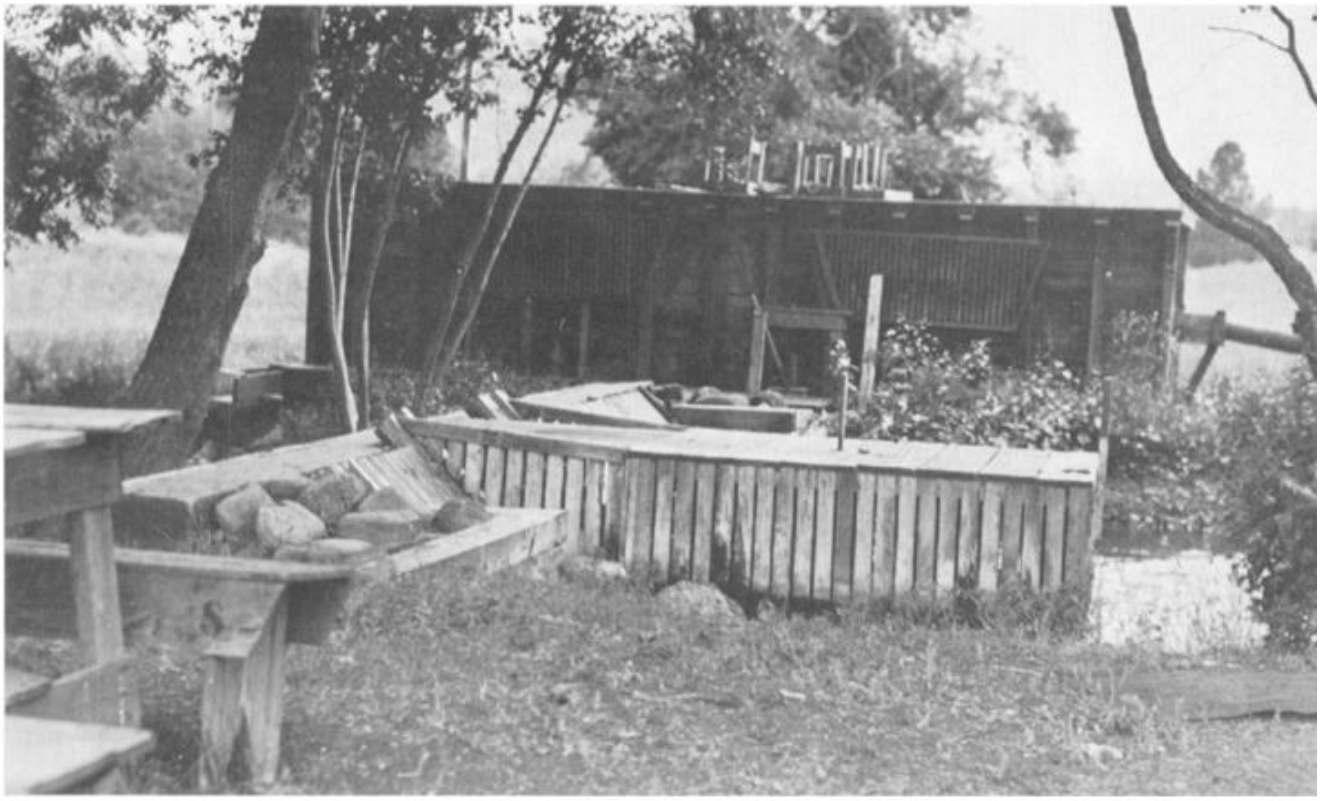

FIGURE 15. Trap and fish holding tank, Fall Creek Egg Collecting Station, 1936.

FIGURE 15. **Trap and fish holding tank, Fall Creek Egg Collecting Station, 1936.**

Collecting Station, about 12 miles downstream, while steelhead eggs were obtained at Fall Creek and Bogus Creek Egg Collecting Stations. Facilities initially installed included a 116-trough hatchery, three rearing ponds, and two houses for employees. In order to hold larger numbers of salmon and steelhead for fall rather than spring release, the number of ponds was increased to nine in 1937.

Kaweah Hatchery—1919–1950

Early in the spring of 1919, a hatchery to stock the streams of Fresno and Tulare Counties and a portion of Kern County was built on the Kaweah River near Hammond, Tulare County. The location was on the main highway to General Grant and Sequoia National Parks.

Kaweah Hatchery was severely damaged during the floods of the winter of 1937–38, but repairs were made and operations continued. More extensive damage occurred in November 1950 when flood waters caused the building to shift from its foundation. Equipment in the interior was greatly disarranged. Pumps, motors, and the entire grounds were covered with tons of sand and debris. This time the movable property was repaired and transferred to other installations, and the hatchery was permanently closed.

FIGURE 16. Kaweah Hatchery, 1935. Kaweah River in flood stage. *Photograph by J. H. Wa*

FIGURE 16. **Kaweah Hatchery, 1935. Kaweah River in flood stage.** *Photographby J. H. Wales*

Eel River Egg Collecting Stations—1920–1921

Racks, traps, holding pens, and cabins for the assistants were installed on the South Fork of the Eel River near Branscomb in the summer of 1921. This location was called the Branscomb Experimental Egg Collecting Station. Other facilities were placed on Kinney and Dutch Charlie Creeks, tributaries of the South Fork of the Eel River. These stations were to supply Fort Seward Hatchery with salmon and steelhead eggs.

Because of extremely low water at the time salmon should have ascended the streams, no eggs were collected. During the spring, water was so high that attempts to collect steelhead eggs were futile. These extreme flow conditions caused operations to be discontinued.

San Joaquin Experimental Hatchery—1921

Kerckoff Dam, completed in 1920 and situated on the San Joaquin River near Auberry, prevented the passage of salmon to their ancestral spawning grounds in the upper reaches of the river. In an attempt to mitigate salmon losses, an experimental hatchery was established on the San Joaquin River near Friant in 1921. The plan was to collect and transport eggs to an experimental hatchery on Willow Creek, a tributary about 35 miles upstream from Friant. This proved impractical, because of the inaccessibility of the experimental hatchery during the winter and the great distance over rough roads the green eggs would have to be transported in the fall.

Johnsville Experimental Hatchery—1921–1923

In the spring of 1922 the possibility of a snow avalanche endangered men working at the site on Jamison Creek, to which equipment from the Feather River Experimental Hatchery had been removed. The snow was 12 to 15 feet deep on level ground and its removal involved arduous labor. Moving eggs to the hatchery was also difficult. After the fry were distributed that fall, the Johnsville Experimental Hatchery facilities were moved to the property of W. A. Adams on Haskell Creek, a tributary of Sulphur Creek, near Clio, Plumas County. A 25-year lease was obtained in the spring of 1923. The water was tested through 1924 and found to be of excellent quality. The site's proximity to the Western Pacific Railroad was also favorable. The permanent installation was first operated in 1925, and was called the Feather River Hatchery.

Feather River Hatchery—1924–1953

Work at the Johnsville Experimental Hatchery established it as a suitable location for a permanent installation. In the fall of 1924, a 60-trough hatchery and attending cabins were built. The station was located 4 miles from Clio, Plumas County, on the Western Pacific Railroad. The hatchery carried out successful seasonal operations until it was finally closed in 1953, when it was considered to be outmoded and was abandoned.

FIGURE 17. Feather River Hatchery, 1935. *Photograph by J. H. Wales.*

FIGURE 17. **Feather River Hatchery, 1935.** *Photograph by J. H. Wales*

Fern Creek Hatchery—1926–1942

Because of success in collecting eggs at Rush Creek and June Lake, and the demand for a hatchery in Mono County, plans were made to construct a permanent installation. Construction began in the summer of 1926. Production averaged about 1,000,000 fish a year. These were distributed in June Lake, Gull Lake, Rush Creek, and other Mono County waters. In August 1941, 268,000 fingerlings were transferred to Mount Whitney Hatchery and 52,000 were planted. The troughs thus emptied were sent to the new hatchery at Hot Creek for installation there. In the 1942–1944 Biennial Report, Fern Creek Hatchery is listed as closed in 1942.

Big Creek Hatchery—1927–1939

Big Creek Hatchery was located on Big Creek, Santa Cruz County. A large number of healthy, vigorous fish were raised in the first year's operations. An epizootic which nearly exterminated all the fish in the hatchery appeared on

June 9, 1928. Ordinary remedies proved ineffective. The disease was identified as furunculosis and a possible cure or prevention was investigated. This was the second time the disease had appeared west of the Rockies. A 1908 epizootic at Mount Shasta Hatchery, believed to have been brought in by birds, resulted in the loss of a third of the fish. The epizootic at Big Creek was the first in which a total or a near total loss occurred. In 1929 there was no sign of the epizootic. Operations in 1930 were also successful, although the water was low.

In 1939, the egg take was below normal because of reduced silver salmon and steelhead runs. The flow of water was so low that fish had difficulty entering the stream from the ocean. This was the result of a long period of deficient rainfall which caused very low flows in many coastal streams. Disease and epizootics appeared at Big Creek, Brook-dale, and Prairie Creek Hatcheries. The epizootic at Big Creek continued

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in spite of remedial measures. Only 12 troughs were operated because of the low flows. Fish planting was completed that year on June 11.

A storm which lasted from February 25 to March 1, 1940, caused extensive damage at Big Creek Hatchery. The hatchery buildings were not seriously damaged, but roads and bridges were washed out. The pipeline broke and the intake was blocked. The stream formed a new channel around the garage and partly undermined its foundation. The walls of two rearing ponds were also broken. The hatchery was not repaired and operations were discontinued.

Burney Creek Hatchery—1927–1949

Burney Creek Hatchery, Shasta County, was constructed by the Pacific Gas and Electric Company in lieu of a fish ladder over Pit No. 3 Dam on the Pit River. The hatchery was located on the Burney Creek arm of Lake Britton, a half mile downstream from beautiful Burney Falls.

Hatchery operation began in 1927 with 100 troughs. In 1933, the Civilian Conservation Corps constructed four dirt ponds on the hatchery premises to provide additional rearing space. This hatchery provided millions of fingerling trout for the numerous streams and lakes in Lassen, Modoc, and Shasta Counties.

Burney Creek Hatchery suffered extensive damage during the severe floods of the winter of 1937–38. The hatchery was repaired, however, and operations continued.

FIGURE 18. Burney Creek Hatchery, on the shore of Lake Britton about a half mile be Burney Falls, 1936.

FIGURE 18. **Burney Creek Hatchery, on the shore of Lake Britton about a half mile below Burney Falls, 1936.**

Due to limited space, expansion of the hatchery was not possible; furthermore, the water supply system was steadily disintegrating. By 1949 the buildings were in poor shape and operations were moved to the present Crystal Lake Hatchery, about 20 miles away.

Cold Creek Hatchery—1928–1937

By 1927 Ukiah Hatchery was becoming aged. Its foundation had decayed and its water supply was insufficient for a hatchery large enough to supply the district. It was decided to establish a new and more modern station on Cold Creek, 10 miles from Ukiah on the Ukiah-Tahoe Highway. Construction began in the fall of 1927 and was completed in March 1928. In that month eggs and fry remaining at Ukiah Hatchery were transferred to Cold Creek Hatchery. The new hatchery consisted of a building with 52 troughs and residences for the employees. Tanks and other improvements were also built. Some trouble with storms was experienced during the first year of operation, but the fish grew well and water conditions were found to be very satisfactory.

Large numbers of fry and fingerlings were produced and distributed until the hatchery was destroyed by floods in December 1937. Extremely heavy and widespread rains in December 1937 and again in March 1938 also caused unprecedented damage to hatcheries and egg collecting stations throughout the State. Most of the hatcheries were left in repairable condition, but Cold Creek and Forest Home Hatcheries were completely destroyed.

Kings River Experimental Station—1928–1930
Kings River Hatchery—1930–1954

Plans for this installation were made in early March 1928. The site was centrally located for fish distribution in the upper San Joaquin and Kings Rivers and their tributaries, and lakes in the High Sierra. A dam was built to supply water because the river fluctuated considerably. The water was very satisfactory, as the fish were healthy and grew rapidly.

Because the first location was too low for a permanent site, being on a flat subject to floods during seasons of heavy rain and snowfall, the station was moved above the mouth of the North Fork to a flat bordering the South Fork of the Kings River. A cottage and cabin for the help were built and another dam constructed. A 16-inch pipe was laid from the dam to the hatchery and fish rearing activities began.

Work was successful until floods during the winter of 1937–38 caused severe damage. Repairs were made and the hatchery continued operating until 1954, when the old outmoded installation was abandoned. With completion of the hatchery expansion program, production here was replaced by San Joaquin Hatchery.

Yuba River Hatchery—1929–1950

The experimental station was established in 1928, and fish rearing began in 1929. The water was very suitable. The site was on Fiddle Creek, a tributary of the North Fork Yuba River about 34 miles from Nevada City. The land was leased from Pacific Gas and Electric Company and Mrs. A. F. Craig. It was centrally located in the Yuba River system and close to many lakes. In the first year of operation some

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trouble was caused by the water supply freezing at night. The ice had to be broken up so the water could flow over the eggs in the troughs. Later, it was necessary to plant the fish in early June to relieve crowded troughs. This was because the water supply was cut off by a Mr. Foote, who claimed a right to the use of the water. The District Attorney took care of this matter and no more trouble arose.

Floods during the severe winter of 1937–38 caused some damage, but repairs were made and operations continued. In January 1950, heavy snows caused Yuba River Hatchery to be closed temporarily, and the foreman was transferred to Idlewild Hatchery in Reno, Nevada, to supervise the kokanee program for the Lake Tahoe area under a cooperative agreement with the State of Nevada. In April the hatchery began operations again. Eggs were hatched and the water supplies were adequate, due to the large snowpack. However, by July increased water temperatures and decreases in the amount of water available made it necessary to plant the fish rapidly. By August, fish planting was completed. Storms during November 1950 caused such extensive damage that repairs could not be made and, since the hatchery was outmoded and suitable for rearing fingerlings only, it was permanently closed and all reclaimable material salvaged.

FIGURE 19. Lake Arrowhead Hatchery, October 2, 1940. *Photograph by Leo Shapovalov*

FIGURE 19. **Lake Arrowhead Hatchery, October 2, 1940.** *Photograph by Leo Shapovalov*

Madera Hatchery—1930–1952

Operations at this station near Bass Lake, Madera County, began in May 1930. It was first called the Madera Tank Station. It was constructed in order to solve a distribution problem in Madera County. Rainbow at this station were found to remain in good condition and grew well. Large numbers of fish were received from other hatcheries,

held for various periods, and planted in nearby waters. Operations began in April or May and were usually completed in July.

Storm damage sustained during the winter of 1937–38 was repaired, and operations continued until the station was temporarily closed in 1943. It was not operated during the war years because it was among the least essential and employees were needed elsewhere.

Newer, more efficient facilities at San Joaquin Hatchery replaced the Madera Hatchery operations.

Lake Almanor Hatchery—Chester, Plumas County—1931–1933
Lake Almanor Hatchery—Westwood, Lassen County—1934–1953

Lake Almanor Hatchery, located near Westwood, Lassen County, had 96 troughs, 8 redwood tanks, and 3 cement ponds. It replaced Clear Creek Hatchery, which was old, decayed, and too small to stock the district. The Red River Lumber Company denied an application for a lease for a site on Clear Creek near the old hatchery, so a location on nearby Benner Creek, a tributary of Lake Almanor, was selected.

The new hatchery was constructed in the fall and winter of 1930, and equipment from Clear Creek Hatchery was transferred to the new location. The hatchery began operations in January 1931. During the 3 years this site was

operated, the creek froze in winter and became very low and warm in summer. Although a well had been drilled to supply water, it was decided to move the hatchery to a new location.

A site was selected on Clear Creek, and lumber and materials from the buildings on Benner Creek were used to construct a new hatchery. Construction was completed in December 1933 and operations began in the spring of 1934.

The Lake Almanor Hatchery was permanently closed in 1953 and its production replaced by newer, more efficient installations.

Friant Bass Hatchery—1932–1937

Friant Bass Hatchery was constructed in 1932 in cooperation with the Fresno Sportsmen's Club.

Friant Bass Hatchery was a small spot on the map but it turned out to be one of the largest headaches that any fisheries manager ever tackled. The ponds were constructed in a gravel pit and a great amount of seepage occurred. often the water became too low to be pumped and at other times so high that the ponds could not be drained. Frequent breaks, resulting from a poorly constructed supply line, required constant attention.

The hatchery consisted of one spawning pond, five rearing ponds, and six daphnia tanks. The daphnia tanks were arranged to drain into the nursery ponds. During the first summer's operation it was discovered that the pond bottoms were so rough that it was impossible to harvest the fish. Later on a Civil Works Administration Project was set up and the hatchery was almost completely revamped. The CWA program was completed on March 29, 1934, with great improvements to the ponds. On June 10, 1934, a shipment of 904 spotted bass fry about 10 mm long was received from Ohio.

It was at Friant Hatchery that the techniques of rearing smallmouth bass, such as culturing daphnia, netting and transferring the tiny bass

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from the nests, and fertilizing the ponds were learned by California's fish culturists.

The present San Joaquin Hatchery was built on the site of the old Friant Hatchery in 1955.

Sequoia Hatchery—1940–1960

Experimental operations at Sequoia Hatchery, located near Visalia in Tulare County, began in 1940, using well water. Project cost was reduced by arranging for use of the property without charge in return for use of the pumped water for irrigation. Although the water was deficient in dissolved oxygen, this difficulty was overcome by passing water through jets in the supply pipes over the tanks. As the temperatures ranged from 58 to 62 F, trout grew exceptionally well.

The permanent installation began operating in July 1941 and was operated in conjunction with Kaweah Hatchery. The station consisted of ten 14-foot round redwood tanks each 30 inches deep and one rectangular pond approximately 8 feet by 200 feet. Conditions were very favorable for producing larger fish to plant in the more accessible areas in southern San Joaquin Valley from Huntington Lake to the Tule River. Normal production was 200,000 catchables per year.

In 1960, facilities at San Joaquin Hatchery, Fresno County, were increased to replace Sequoia Hatchery operations.

Whittier Hatchery—1944–1951

A few experimental ponds using well water were operated on lands of the City of Whittier, Los Angeles County, in 1944. With aeration the water was satisfactory and as the temperature was approximately 60 F, growth was rapid.

Predation from fish-eating birds caused trouble in March 1948. The birds came in flocks sometimes numbering over a hundred at night and early morning. One large American egret was observed to eat seven 4-inch trout in less than a minute.

In 1950, the installation consisted of six ponds each 100 feet by 12 feet. A warmwater fish rescue team was stationed here. The hatchery was permanently closed in 1951.

East Side Rearing Reservoir—1948–1956

East Side Rearing Reservoir, within the city limits of Napa, Napa County, began operations in October 1948. Fingerlings were planted in the reservoir, raised to catchable size, and distributed in lakes of Napa, Marin, Monterey, Santa Clara, and Solano Counties. They fed readily and grew rapidly. One crop of fish would be reared in late fall, winter, and early spring, and another in late spring, summer, and early fall. After each crop has been

distributed, the lake was drained, cleaned, and prepared for the next crop. Although temperatures in the summer were occasionally over 70 F, the fish thrived. Work here was discontinued in 1956.

Chatterdown Creek Egg Collecting Station—1959–1960

In 1959, an easement to private property bordering Chatterdown Creek, Shasta County, was obtained to establish a station for collecting kokanee eggs. The station was operated only during August and September,

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and about 89,000 eggs were taken in 1959 and 1,387,000 in 1960. The fry were hatched and raised at Mt. Shasta Hatchery. Operations here were discontinued because of the inaccessibility of the location, and because the traps and holding pens were frequently raided by bears.

Klamath River Experimental Hatchery—1959–1960

This installation was established to determine the feasibility of a hatchery below the proposed Iron Gate Dam on the Klamath River. The hatchery was necessary to maintain salmon and steelhead runs, which would be blocked by the dam from the last of the major spawning tributaries of the upper Klamath, as well as 6.5 miles of the main river. The suitability of the water for hatchery purposes was not known.

In September 1959 an experimental station was constructed adjacent to the Copco No. 2 plant, on property of the California Oregon Power Company. Two hatchery troughs and two 4-foot by 16-foot rearing tanks were built. The fish to be tested were steelhead trout and king and silver salmon. Eggs of steelhead and king salmon were obtained from fish trapped at Fall Creek. There was a lack of mature silver salmon, so eggs from Trinity River fish were eyed at Mount Shasta Hatchery and transferred to the new installation in March 1960. Disease and feeding problems were minor and it was concluded that the water was suitable for fish culture. A site for the permanent hatchery was selected a short distance downstream from the dam site, near the mouth of Bogus Creek. (Ed. note —The permanent hatchery is called Iron Gate Salmon and Steelhead Hatchery.)

EARLY CALIFORNIA FISH CULTURAL PERSONNEL

The fish cultural work of the State gained its initial impetus from the first Board of Fish Commissioners, appointed in 1870, B. B. Redding, S. R. Throckmorton, and J. D. Farwell. Because of their interest in stocking streams with desirable food fishes, the hatching and rearing of fish received encouragement. The first fish culturist retained by the Commission was J. G. Woodbury, who had been carrying on experiments in fish breeding for the California Acclimatization Society and later for the United States Fish Commission. Woodbury devoted nearly 20 years of his life to the interests of fish culture in California. His principal work was done at Berkeley and San Leandro, where trout and salmon were reared, and at Clear Lake Experimental Hatchery, where the propagation of whitefish was attempted. Woodbury became first assistant to Livingston Stone, a fish culturist with the United States Fish Commission, when the latter established the federal salmon breeding station on the McCloud River in 1872. He was made state Superintendent of Hatcheries in 1888, and during the same year, with the assistance and advice of Livingston Stone and United States Commissioner Marshall McDonald, he located Sisson (now Mount Shasta) Hatchery. The following year he located Tahoe Hatchery at Tahoe City. Woodbury resigned as Superintendent of Hatcheries in 1891.

In 1892, the Board appointed John P. Babcock to fill the newly created position of Chief Deputy of the California Fish Commission, in which capacity he acted until 1901, when he resigned to accept a position with the government of British Columbia.

The successful transportation of eggs and fry from eastern states in the 1870's was carried out under the supervision of Livingston Stone. On each of the several difficult transcontinental trips Stone proved that he understood the care of fish. Much of the early acclimatization work was a cooperative project between the United States Fish Commission and the California Fish Commission. Stone was at times employed by the California Commission. This was also true also when he became Superintendent of Baird Hatchery on the McCloud River, since the California Commission bore a portion of the cost of operating the hatchery.

J. A. Richardson, who had been employed by the United States Commission at Baird and who was an assistant at San Leandro Hatchery, was made Superintendent of Shebley Hatchery, Nevada County, when it was built in 1883. Richardson resigned in the fall of the same year and I. C. Frazier was appointed to succeed him. Frazier was a competent fish culturist, who had been a student of fish life for a great many years. In the early 1870's he associated himself with some of the acclimatization societies and later established a hatchery with rearing ponds on the Truckee River. He resigned in 1884, due to ill health, and J. V. Shebley was appointed Superintendent of Shebley Hatchery. In 1885, Shebley was promoted to Superintendent of Hatcheries and W. H. Shebley succeeded him at Shebley Hatchery. J. V. Shebley resigned in 1887 to engage in private business.

When Sisson Hatchery was built in 1888, J. A. Richardson was appointed Superintendent and managed the station until 1893, when W. H. Shebley succeeded him.

The first introduction of trout into the barren waters of the Yosemite region was carried out by W. H. Shebley in 1892.

In November 1911, the Commission created the Department of Fish Culture and Distribution, with W. H. Shebley in charge. The Division of Screens and Fishways was part of the Department of Fish Culture. W. H. Shebley retired as Chief, Bureau of Fish Culture, in 1933. R. W. Requa became Assistant Superintendent of Sisson Hatchery in 1911. A skilled mechanic, Requa invented a fish screen known as the Requa rotary screen.

On March 1, 1916, the central office of the Department of Fish Culture was transferred from Sisson to San Francisco. Extensive fish cultural operations demanded a more centrally located headquarters.

In 1916, E. W. Hunt, who for 20 years had been in charge of the Lake Tahoe area hatcheries, was appointed Field Agent. J. H. Hoerl became Chief Clerk, and Captain G. H. Lambson, who for 17 years had been superintendent of the United States Bureau of Fisheries stations in California, with headquarters at Baird, was appointed Superintendent of Sisson Hatchery. Hatchery operations at Ukiah were for many years directed by A. V. La Motte.

M. L. Cross was in charge of Wawona Hatchery and directed the distribution of trout into many of the previously barren lakes lying beyond Yosemite Valley. For many years before his death in 1918, F. A. Shebley was an employee of the Commission. He was the son of California's first famous fish culturist. At various times he was Superintendent of Price Creek Hatchery, Humboldt County; Brookdale

Hatchery, Santa Cruz County; and later Mount Whitney Hatchery, Inyo County.

In 1900, W. O. Fassett was appointed Superintendent of Price Creek Hatchery. He was placed in charge of newly built Fort Seward Hatchery in 1916. Later he had charge of all fish cultural operations along the North Coast.

In October 1901, Charles A. Vogelsang was appointed Chief Deputy of the California Fish and Game Commission, following the resignation of J. P. Babcock. During the administration of Vogelsang as Executive officer of the Commission (1901–1910), a number of practical improvements were put into effect: the Mount Shasta and the Tahoe stations were enlarged and improved; the hunting license law, which placed increased funds that could be devoted to the propagation and protection of fish and game at the command of the Commission, was passed; a fish distribution car was built; a game farm was established; and other improvements were made. Vogelsang resigned in 1910, but was reappointed Executive officer in 1920 and held that position until March 1922.

To these dedicated pioneers much credit is due. It is because of their untiring efforts, for which only small credit and remuneration were received, that the foundation of our present fish hatchery system was laid.

During the early years of the Fish and Game Commission, fish hatchery operations were under the supervision of the Superintendent of Hatcheries. In 1911, the Commission created the Department of Fish Culture and Distribution. The name was changed to Bureau of Fish Conservation in 1934, and became the present Inland Fisheries Branch when the former Division of Fish and Game attained Departmental status in 1952.

FISH AND GAME COMMISSIONERS

In 1870 the California Legislature established a three-man Board of Commissioners of Fisheries, by which name it was known to 1886. From 1886 to 1909 it was known as Board of Fish Commissioners. In 1909 the Legislature changed the title to Board of Fish and Game Commissioners, and since 1910 the title Fish and Game Commission has been used. In 1937 the Fish and Game Commission was increased from three to five members. The Commissioners are listed in chronological order:

Alexander T. Vogelsang	Nov., 1896–April 5, 1901	S[illegible]
C. B. Gould	Sept., 1897–April 5, 1901	Oakland
H. W. Keller	June 6, 1899–April 24, 1903	Santa Monica
W. W. Van Arsdale	April 5, 1901–May 14, 1907	Ridgewood
W. E. Gerber	April 5, 1901–June 25, 1907	Sacramento
John Bermingham, Jr.	March 23, 1905–July 15, 1908	Pinole
George Stone	May 14, 1907–May 12, 1910	San Francisco
F. W. Van Sicklen	June 25, 1907–Nov. 3, 1910	Alameda
M. J. Connell	July 15, 1908–Sept. 2, 1927	Los Angeles
W. G. Henshaw	May 12, 1910–Nov. 4, 1910	Oakland
Lendal M. Gray	Nov. 3, 1910–Dec., 1910	San Mateo
Dr. David Starr Jordan	Nov. 4, 1910–Aug. 11, 1911	Palo Alto
George V. Steed	1910–(never seated)	San Francisco
F. G. Sanborn	Jan. 21, 1911–Jan. 2, 1912	San Francisco
F. M. Newbert	Aug. 4, 1911–Dec. 1, 1925	Sacramento
Carl Westerfeld	Jan. 2, 1912–Dec. 8, 1916	San Francisco
E. L. Bosqui	Dec. 8, 1916–Dec. 12, 1922	San Francisco
G. H. Anderson	Dec. 12, 1922–May 5, 1925	San Jose
I. Zellerbach	May 5, 1925–Jan. 1, 1939	San Francisco
Ralph Clock	Dec. 1, 1925–Sept. 2, 1927	Long Beach
Reginald G. Fernald	Sept. 2, 1927–Jan., 1931	Santa Barbara
George B. Clarkson	Sept. 2, 1927–April 1, 1930	Los Angeles
Charles R. Bell	Aug. 18, 1930–Dec., 1931	Los Angeles
J. Dale Gentry	Dec., 1931–Feb. 4, 1935	San Bernardino
Earl B. Gilmore	Dec., 1931–Dec. 11, 1934	Los Angeles
Dr. E. C. Moore	Feb. 1, 1935–Jan., 1939	Los Angeles
E. C. Houchin	Feb. 5, 1935–Jan. 7, 1936	Bakersfield
Charles N. Cotton	Dec. 4, 1934–Feb. 9, 1935	Los Angeles
A. T. Jergins	Jan. 7, 1936–March, 1938	Los Angeles
Newton G. Booth	April 15, 1938–Jan. 13, 1939	Harbin Springs
Raymond Grey	April 5, 1938–Jan., 1939	Taft
E. L. McKenzie	April 15, 1938–Jan. 1, 1939	Red Bluff
Kenneth I. Fulton	Jan., 1939–Feb., 1940	Sacramento
Frank W. Clark	Jan., 1939–Sept., 1939	Los Angeles
Phil S. Gibson	Jan., 1939–Sept., 1939	Los Angeles
Edwin L. Carty	Sept., 1939–Jan. 15, 1943	Oxnard
Germain Bulcke	Sept., 1939–Jan. 15, 1944	San Francisco
Nate F. Milnor	Sept. 19, 1939–Jan. 15, 1945	Los Angeles
Lee F. Payne	Sept., 1939–Dec. 15, 1954	Los Angeles
W. B. Williams	Feb., 1940–Jan. 15, 1947	Alturas
H. L. Ricks	March 6, 1944–Jan. 9, 1946	Eureka
Dom A. Civitello	March 15, 1944–March 19, 1946	Sacramento
Harvey E. Hastain	May 23, 1945–Dec. 18, 1952	Brawley
William J. Silva	March 20, 1946–Dec. 16, 1956	Modesto
H. H. Arnold	March, 1946–April 6, 1948	Sonoma
Paul Denny	June 19, 1947–Jan. 15, 1953	Etna
Edwin L. Carty	April 27, 1948–Sept. 6, 1950	Oxnard
Carl F. Wente	Sept. 6, 1950–Jan. 15, 1961	San Francisco
Harley Knox	Dec. 19, 1952–Sept. 13, 1956	San Diego
Weldon L. Oxley	Feb. 3, 1953–Jan. 15, 1959	Redding
Andy Kelly	Dec. 15, 1954–Jan. 15, 1958	Los Angeles
William P. Elser	Oct. 3, 1956–present	San Diego
Thomas H. Richards, Jr.	Dec. 28, 1956–present	Sacramento
Jamie H. Smith	Jan. 27, 1958–present	Los Angeles
Henry Clineschmidt	Feb. 5, 1959–present	Redding

FISH AND GAME EXECUTIVES

During the early years of the Fish Commission, the Commissioners themselves took a very active part both as Commissioners and administrators of the Commission's activities, handling even small details such as ordering a load of lumber for a fish hatchery.

The first executive position other than Commissioner was that of Chief Deputy, established in 1892. The title was changed to Executive Secretary in 1911, to Executive officer in 1916, and to Director in 1952, when the present Department was established.

The position of Chief Deputy of the Fish Commission was appointive in 1892, just as that of the Director of the Department of Fish and Game is today. A list of the administrative heads of the Fish Commission, now Department of Fish and Game, from 1892 to the present follows:

Name	Title	Period
John P. Babcock	Chief Deputy	Oct. 1, 1892–Oct. 31, 190
Charles A. Vogelsang	Chief Deputy	Oct. 12, 1901–Aug. 15, 191
John P. Babcock	Chief Deputy	Aug. 11, 1910–Nov. 29, 191
Ernest Schaeffle	Executive Secretary	Nov. 29, 1911–Dec. 8, 191
	Executive Officer	
Carl Westerfeld	Executive Officer	Dec. 8, 1916–April 28, 192
Charles A. Vogelsang	Executive Officer	April 28, 1920–March 14, 192
George Neale	Executive Officer	March 15, 1922–Dec. 31, 192
B. D. Marx Greene	Executive Officer	Jan. 18, 1926–Dec. 1, 192
Eugene D. Bennett	Executive Officer	Dec. 1, 1927–April 1, 192
John L. Farley	Executive Officer	April 1, 1929–Dec. 15, 193
Herbert C. Davis	Executive Officer	Dec. 15, 1934–Sept. 19, 193
Lester A. McMillan	Executive Officer	Sept. 9, 1939–Aug. 7, 194
Larue F. Chappell	Acting Executive Secretary	Dec. 20, 1940–March 31, 194
George P. Miller	Executive Secretary	April 1, 1941–Sept. 18, 194
Larue F. Chappell	Acting Executive Secretary	Sept. 18, 1944–Dec. 1, 194
Emil J. N. Ott, Jr.	Executive Secretary	Dec. 1, 1944–April 30, 194
	Executive Director	
E. L. Macaulay	Executive Officer	May 10, 1948–Sept. 22, 195
	Executive Director	
Seth Gordon	Director	Sept. 22, 1951–March 31, 195
William E. Warne	Director	April 1, 1959–Dec. 31, 195
Walter T. Shannon	Director	Jan. 1, 1960–Present

CHART

TRANSITION PERIOD FROM FINGERLINGS TO CATCHABLES

During the early years of the Fish and Game Commission, and particularly during the period 1888 through 1933, hatchery efforts were directed almost entirely to the production of fry and fingerling trout. During this period, smaller fish were often adequate, since many waters, especially the high mountain lakes, were barren of fish life, while in other waters fishing pressure was not great enough to warrant the stocking of larger fish. Also, the techniques of rearing trout to larger sizes economically had not yet been learned.

Since hatcheries were intended to produce fingerlings, they were nearly always located where a clear, cold water supply was available. Usually the water temperatures ranged somewhere between 38 to 55 F and the trout grew rather slowly. It was general practice to take eggs from wild fish at egg collecting stations in the late fall and early spring months. The eggs were sent to hatcheries and the fingerlings planted during the summer months. Commencing with the first public

FIGURE 20. **Planting trout at the head of Kern River, 1914.**

FIGURE 21. **Division of Fish and Game pack train going over Elizabeth Pass, Tulare County, at the head of Roaring and Kaweah Rivers, 1914.**

hatchery in California in 1870, fingerling production was increased each year until 1930, when 27 hatcheries were operated and 62,000,000 trout and 10,050,000 salmon were planted. Emphasis was definitely on large numbers of small fish.

Beginning in the early 1930's, a trend toward planting large or "catchable-sized" trout developed. It was found that few fingerlings survive to reach the angler's creel in streams. On the other hand, a majority of catchable-sized trout stocked under proper conditions are caught by anglers. These changing ideas, coupled with increasing angling pressure, caused basic changes in trout management. Widespread stocking of fingerlings in California streams has gradually been discontinued. Instead, more and more 7- to 10-inch trout are being planted in carefully selected roadside waters readily accessible to anglers.

By the time the year 1930 had rolled around, fishing pressures had become so great that fingerling trout stocking could no longer supply the anglers' demands. Fish hatchery practices were beginning to change. Fish hauling trucks were coming into use and the old railroad fish cars were on their way out. It had been proven that trout grow faster in warm water so long as the temperature remains within their limits of tolerance. Instead of searching for hatchery sites at high elevations and looking for clear, cold water, attention was directed to the valley and foothill areas, where larger amounts of water at the preferred temperatures of from 55 to 65 F were available. At these temperatures trout grow about an inch per month, as much as they grew all season at some of the coldwater hatcheries. The end was in sight for the cold-water fingerling hatchery and the way was being paved for the new, more efficient, fast-producing "catchable" trout hatchery.

The transition from fingerling to catchable trout production was not a simple matter. A great amount of money—over $4,000,000—would be required to build new hatcheries with warmer water. A new hatchery program meant that some of the old fingerling hatcheries would have

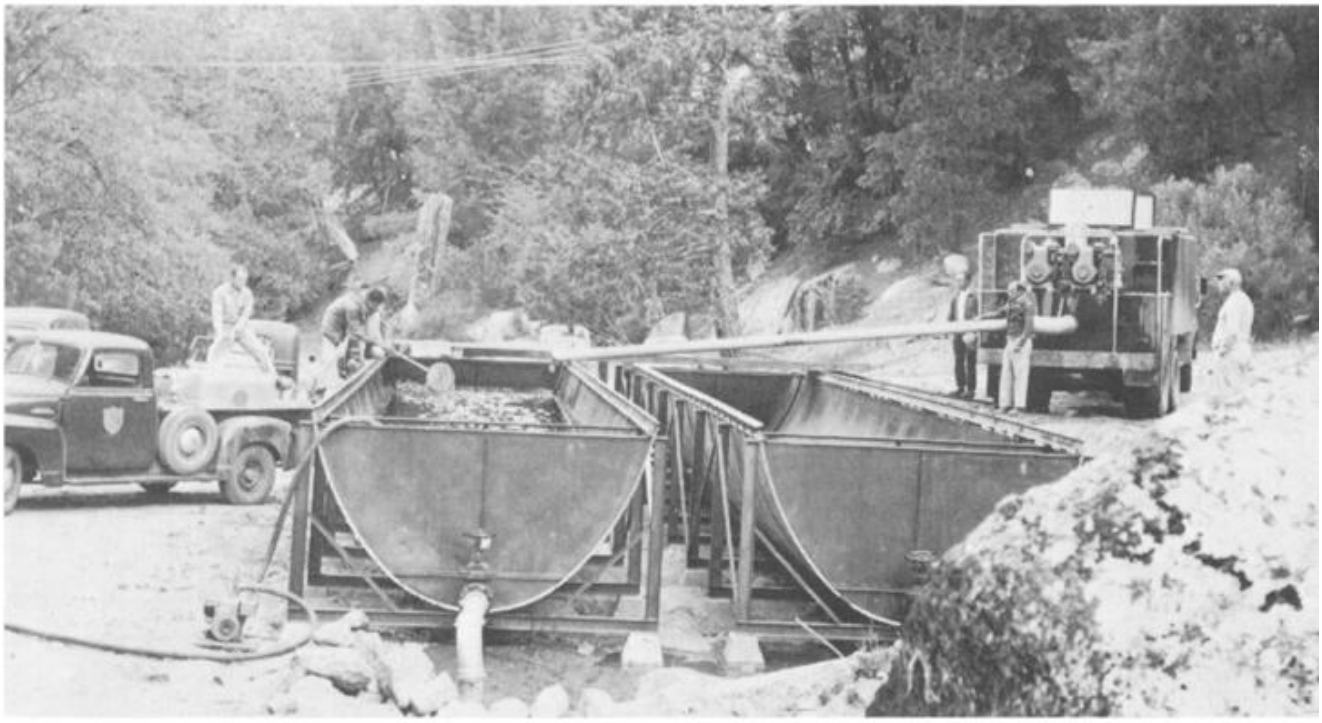

FIGURE 22. American River Fish Planting Base, near Kyburz, El Dorado County. "Catchab trout are delivered from the hatcheries to bases of this type in large transport trucks, t distributed to waters open to public fishing in small trucks, of the type shown at left picture. *Photograph by William C. Dillinger, 1954.*

FIGURE 22. **American River Fish Planting Base, near Kyburz, El Dorado County. "Catchable" trout are delivered from the hatcheries to bases of this type in large transport trucks, then distributed to waters open to public fishing in small trucks, of the type shown at left of picture.** *Photograph by William C. Dillinger, 1954.*

to be closed over the protests of local people and influential legislators. Furthermore, by 1941 the United States was in the midst of World War II. Neither labor, materials, nor funds were available for hatchery expansion and rehabilitation.

Actually, the Fish and Game Commission had gotten into the production of "catchable" trout on a feel-your-way basis before wartime restrictions were imposed (Forest Home Hatchery, 1932; Hot Creek Hatchery, 1933; and Fillmore Hatchery, 1940). Therefore, the period of wartime shortages from about 1940 to 1950 was turned into one of planning and conversion of the hatchery fingerling program to a catchable trout program.

FIGURE 23. Opening day at a well-stocked southern California pond.

FIGURE 23. **Opening day at a well-stocked southern California pond.**

Plans were formulated by the then Bureau of Fish Conservation of the Division of Fish and Game for the eventual abandonment of 14 outmoded fingerling producing hatcheries, the rehabilitation of 2 existing hatcheries so that they would fit into the new catchable trout program, and the construction of 7 completely new, large, modern warm-water hatcheries for the production of catchable trout.

This program was to cost $4,300,000 for plant construction, and during the early planning stages the matter of how this program was to be financed posed a knotty problem. Not until 1947, when the Wildlife Conservation Board was created, were capital outlay funds for the new hatchery program assured.

THE WILDLIFE CONSERVATION BOARD AND CALIFORNIA FISH HATCHERIES

In 1947 the State Legislature adopted the Wildlife Conservation Act, creating a special board consisting of the President of the Fish and Game Commission, the Executive officer or some other employee of the Commission designated by it, and the Director of Finance, together with three members of the Senate, appointed by the Committee

on Rules thereof, and three members of the Assembly, appointed by the Speaker thereof, to administer the funds and develop a program of conservation and recreation essential to the welfare of the State. At the same time, it appropriated $9,000,000 from the State's share of horse racing pari-mutuel funds to the Wildlife Restoration Fund.

A program for the modernization and expansion of the California hatchery system was presented to the Wildlife Conservation Board at its meeting in Sacramento on March 19, 1949, and received favorable action. The plan provided for construction of these new hatcheries: Cedar Creek, Mendocino County; Darrah Springs, Shasta County; Fish Springs, Inyo County; Moccasin Creek, Tuolumne County; Moorehouse Springs, Tulare County; San Joaquin, Fresno County; Tule River, Tulare County; Willow Creek, Lassen County; Crystal Lake, Shasta County; San Gabriel River, Los Angeles County; and Mojave River, San Bernardino County. It also provided for rehabilitation of Mount Shasta Hatchery and expansion at Tahoe Hatchery. Experiments carried on at the proposed Tule River and Willow Creek locations proved the water unsuitable for hatchery use. The proposed Tahoe project was deemed infeasible.

Fish hatchery projects financed by the Wildlife Conservation Board were augmented from time to time and up to January 1, 1961, a total of $4,207,035.90 had been spent on artificial propagation facilities.

Creation of the Wildlife Conservation Act of 1947 made the present modern trout hatchery system in California possible. Without the funds provided by the Wildlife Conservation Board, such a program could not have been undertaken.

NAMING OF DEPARTMENT INSTALLATIONS

At its meeting of March 4, 1946, the Fish and Game Commission adopted the following policy regarding the naming of installations.

It is the policy of the Fish and Game Commission that no fish hatchery, game farm, game refuge or public shooting ground be named for any individual, living or dead, but that such installations be named in a manner which will indicate their geographical location, avoiding as far as possible the names of local political units.

HATCHERIES OF THE PRESENT

Fish hatcheries are intended to supplement natural propagation. In our fast moving economy, with rapidly increasing populations and greater demands on our waters by the angling public, artificial methods must be employed. The fish hatchery attempts to fill the void between nature's ability to produce and the fisherman's demands.

The California Department of Fish and Game is justly proud in presenting the histories of the present hatcheries. Scattered from Siskiyou County in the north to Ventura County in the south, the 16 state-operated hatcheries comprise one of the most modern groups of fish hatcheries to be found anywhere. Functional in design and efficient in operation, their contribution to the anglers' fishing pleasure and to community economics is immeasurable.

Mount Shasta Hatchery—1888–Present

Located 1 mile west of Mount Shasta, Siskiyou County

In 1888, after a thorough examination and study of different streams, the California Fish Commission decided to establish Sisson (now Mount Shasta) Hatchery on Spring Creek, one of the tributaries of the upper Sacramento River in Siskiyou County near the town of Sisson (now the City of Mount Shasta). Situated near what is known as Big Springs, it has operated continuously except for the year 1891 when, due to dissension among members of the Commission, no hatcheries were operated. Mount Shasta Hatchery is delightfully situated, with Black Butte in the foreground and Mount Shasta, covered with eternal snow, a little farther away.

FIGURE 24. Mount Shasta Hatchery, 1895.

FIGURE 24. **Mount Shasta Hatchery, 1895.**

This location was chosen because of the ample supply of pure water and its close proximity to a railroad, which was necessary for egg and fish transportation in the early days. Prior to its establishment, arrangements had been made to operate Baird Hatchery on the McCloud River as an egg collecting station. Eggs taken at Baird were shipped to Mount Shasta Hatchery, where they were hatched and the young fish fed until large enough for release in the headwaters of the Sacramento River.

Mount Shasta Hatchery is located on land formerly owned by the late J. H. Sisson, for whom the townsite was named. Additional tracts were purchased in later years, making a total of approximately 30 acres now used for fish production.

There is good evidence that trout were already being bred at the location before the State became interested in the site. A news item from the Yreka Journal dated March 14, 1877, told of J. H. Sisson building a trout rearing pond on waters he had secured. This was to provide better fishing so that guests would stay longer at the Sisson Tavern.

The original equipment consisted of a single building 40 feet by 60 feet, containing 44 hatchery troughs. The output of fish during the

FIGURE 25. Mount Shasta Hatchery and ponds, 1914.

FIGURE 25. **Mount Shasta Hatchery and ponds, 1914.**

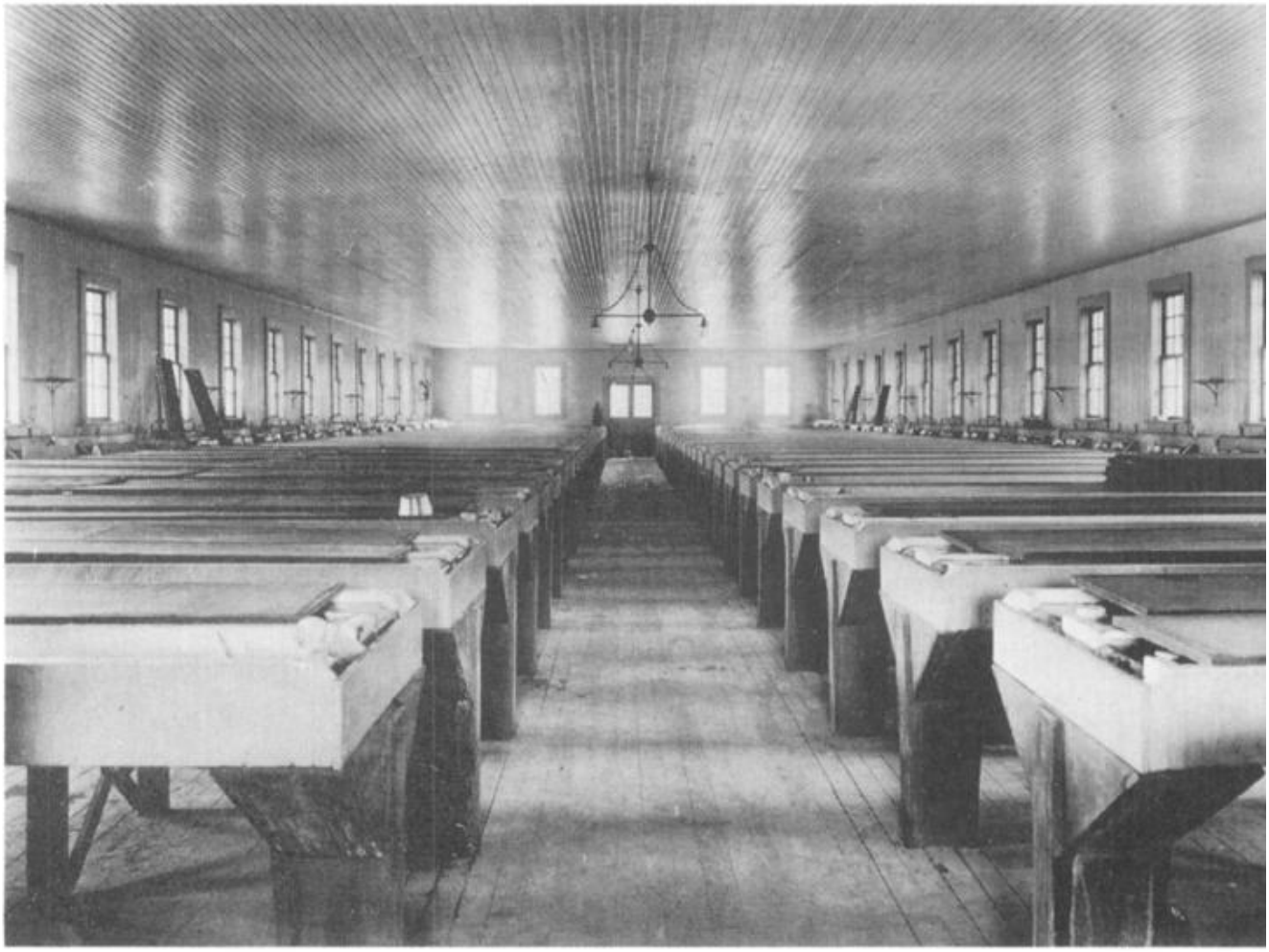

FIGURE 26. Interior view at Mount Shasta Hatchery, 1915.

FIGURE 26. **Interior view at Mount Shasta Hatchery, 1915.**

first few years consisted of a few hundred thousand fry annually. Later, trout and salmon were propagated and ponds were constructed to hold the trout brood fish. The hatchery was expanded and by 1910 production reached a high of about 66,000,000 trout and salmon fry. This large production was possible due largely to the policy of planting the salmon fry as soon as they began feeding.

After the reorganization of the Department of Fish Culture and Distribution in 1911, it was decided to again hold and feed the salmon fry until they were large enough to care for themselves. Large numbers of salmon fry were reared in ponds at the hatchery for release the following fall. This caused a further expansion, with more holding ponds built.

FIGURE 27. Feed room at Mount Shasta Hatchery, 1914. Diet consisted of ground beef li clabbered milk, and cooked wheat middlings. Bags in foreground contain wheat middlings

FIGURE 27. **Feed room at Mount Shasta Hatchery, 1914. Diet consisted of ground beef liver, clabbered milk, and cooked wheat middlings. Bags in foreground contain wheat middlings.**

Trout distributed throughout the State were transported from Mount Shasta Hatchery in railroad baggage cars, accompanied by an attendant. Aerating the cans of fish in baggage cars was accomplished with a narrow, screened dipper. The dipper was submerged in the can of fish and then the water was poured back from a height of about two feet.

In 1907, the State purchased a baggage car from the Southern Pacific Railroad Company and had it converted into Fish Distribution Car Number 01. The fish car consisted of a regular railway baggage car to which had been added an aerating system for delivering air to the cans, ice containers for controlling temperatures, and living quarters for the attendants.

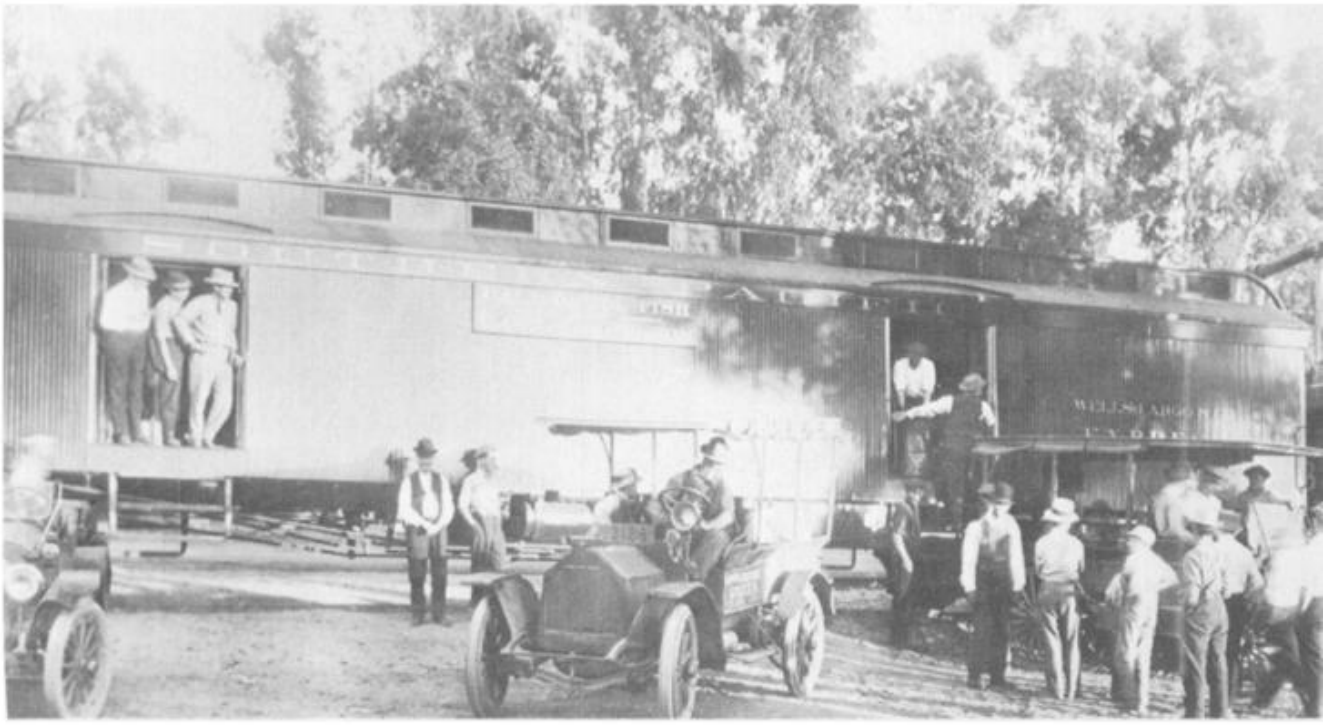

FIGURE 28. Unloading fingerling trout from railroad fish distribution car, Folsom, Califor
July 13, 1915. *Photograph by McCurry Bros.*

FIGURE 28. **Unloading fingerling trout from railroad fish distribution car, Folsom, California, July 13, 1915.** *Photograph by McCurry Bros.*

The car was equipped to handle 125 of the regular 10-gallon milk cans in which the fish were carried. A separate aerating hose with an air dispenser was provided for each can. Usually, the cans were loaded with from 1,200 to 2,000 fingerlings, and many a trip was made with a capacity load of 250,000 fish.

In 1915, it was necessary for the Fish and Game Commission to acquire one more railroad distribution car to handle the great numbers

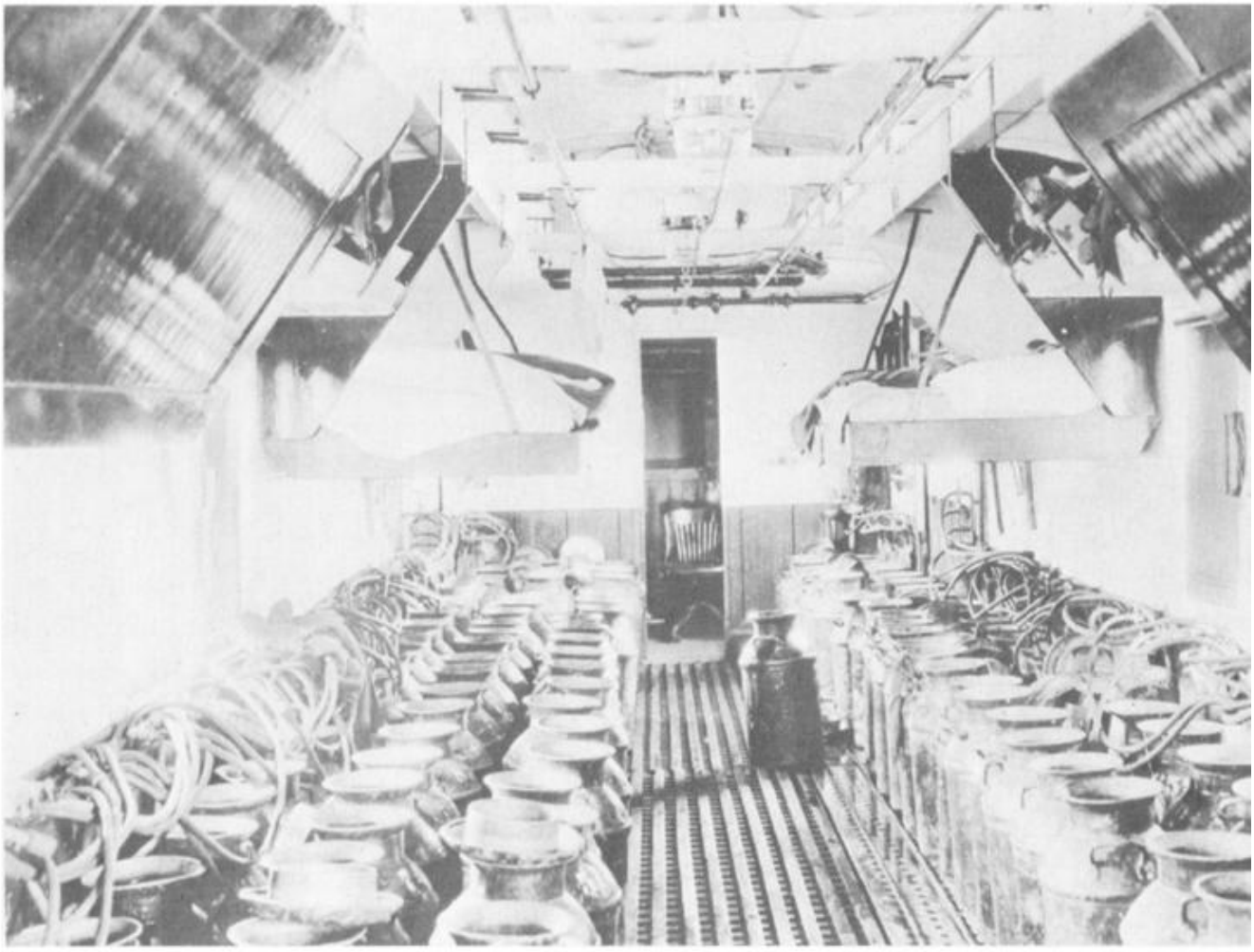

FIGURE 29. Interior of railroad fish distribution car. Hoses supplied air to the cans cont ing fish. Bunk beds provided sleeping accommodations for crew members.

FIGURE 29. **Interior of railroad fish distribution car. Hoses supplied air to the cans containing fish. Bunk beds provided sleeping accommodations for crew members.**

of fingerling trout that were shipped from the hatchery. The second car was equipped with a gasoline engine to run the air compressors. It was designated as Fish Car Number 02.

The two fish cars hauled fish throughout California and a few trips were made as far as Mexico City. Many of the railroads over which the fish cars traveled, such as the San Joaquin and Eastern from Fresno to Big Creek, the Yosemite Valley Railroad from Merced to El Portal, and the Ocean Shore Railroad from San Francisco to Tunitas, long since have died and their only visible reminders are grassy roadbeds.

On some trips within the State, the fish were in the car for over 96 hours before reaching their destination. In spite of this, many barren lakes were well stocked with trout a few years after planting. A good many streams started to produce catches of eastern brook and brown trout that were raised and sent out from Mount Shasta Hatchery. Descendants from some of these early plants are still found in waters of the State.

As the need for trout increased, other hatcheries were established throughout California. To help lessen the long hauls by railroad, automobiles and trucks were employed to distribute fish as early as 1917. They were first used to haul fingerlings to and from the railroad station. As our road system was expanded and improved, trucks were used to reach the more remote areas in place of wagons and mule trains and in 1937 the fish cars were discontinued. Automotive equipment had taken the place of rail transportation. However, mules and horses were still used to pack fish to high mountain lakes in roadless areas. This practice continued until the air age in fish transportation began in 1946. It was found that fingerling fish could be dropped from an

FIGURE 30. Airplane fish planting.

FIGURE 30. **Airplane fish planting.**

airplane without injury and with precision accuracy, and many remote lakes are now stocked by airplane.

In 1926, approximately $60,000 was spent in remodeling Mount Shasta Hatchery. At that time, there were 60 ponds of various sizes on the grounds, in addition to five hatchery buildings containing 468 hatching troughs. The ponds were used to hold eastern brook, brown, and rainbow trout brood fish. Eggs taken from these brood fish were used to supply hatcheries throughout the State.

FIGURE 31. 1961 model fish hauling truck; 2,000-gallon water capacity; V-6 engine ur the hood; carrying capacity 3,000 pounds of 6- to 10-inch trout. Gasoline powered ge ators develop power for operating water circulating pumps and refrigeration units. Aera of water is by a combination of venturi aspirator and overhead spray. *Photograph by Williams.*

FIGURE 31. **1961 model fish hauling truck; 2,000-gallon water capacity; V-6 engine under the hood; carrying capacity 3,000 pounds of 6- to 10-inch trout. Gasoline powered generators develop power for operating water circulating pumps and refrigeration units. Aeration of water is by a combination of venturi aspirator and overhead spray.** *Photograph by Bert Williams.*

With the increase in demand for catchable-sized trout, and the fact that many of the old ponds and buildings were in need of repair, it was decided to remove all of the old ponds and three of the hatchery buildings and remodel the entire plant. This remodernization started in 1950 and was completed in 1952. Sixteen new type raceway ponds for rearing catchable-sized trout and eight brood fish ponds with a modern spawning house were built, one new all metal hatchery building was erected, and a new feed preparation room with cold storage and an ice plant were constructed to complete the remodernization.

Mount Shasta Hatchery, under the new program, now produces approximately 100,000 pounds of trout and salmon each year. This production consists of approximately 500,000 7- to 10-inch rainbow trout and 3 to 4 million fingerling trout from 2 to 3 inches in length. Rainbow, brown, cutthroat, and eastern brook trout and three species of salmon—king, silver, and kokanee—are handled each year.

To assist in maintaining Klamath River salmon runs, blocked from the upper river by Copco Dam, king salmon eggs are taken from wild fish at Fall Creek Egg Collecting Station near Copco, California. The eggs are transferred to Mount Shasta Hatchery, and the resulting young salmon are planted back in the Klamath River in time to coincide with their natural migration to the ocean. About 2,500,000 king salmon are reared annually.

The rainbow are the only catchable-sized trout planted. The fingerlings of all species are planted in the more remote areas and are used primarily in lake management. Rainbow trout brood fish are held at the hatchery and spawned each year. Eggs are obtained the second year (from 1,500 to 2,500 eggs per fish) and each succeeding year, until the fish are from 5 to 6 years old. These fish are then planted, since egg production drops off. More than 8,000,000 rainbow trout eggs are taken each year for distribution to other hatcheries.

Selective breeding of trout for special characteristics is constantly carried on. Some of the more desirable characteristics for which selection is made are rapid growth, disease resistance, greater beauty, and longer spawning period. In California, selective breeding has been carried on since 1938. Selection has been limited almost entirely to rainbow trout, spring- and fall-spawning strains of which are propagated.

It is of interest that the fall-spawning rainbow trout were developed over a period of years, beginning with 1883. Eggs taken from wild spring-spawning rainbow trout from the McCloud River, California, were shipped to Neosho,

Missouri, by the United States Fish Commission. After many years of selection at Neosho, some of the fish were shipped to Springville, Utah, where further selective breeding for early spawning was carried on. As a result of selection, these normally spring-spawning fish had their spawning time moved ahead so that they became fall spawners. A shipment of eggs spawned from these fish was obtained for California hatcheries in 1933, forming the nucleus of California's present fall-spawning stock.

The foregoing indicates that there have been many changes in methods of rearing, planting, and managing California's hatcheries and fisheries. In spite of all this, Mount Shasta Hatchery today plays just as an important a part in maintaining angling in California as it did when it was established in 1888.

FIGURE 32. Snow Mountain Egg Collecting Station, 1938.

FIGURE 32. **Snow Mountain Egg Collecting Station, 1938.**

Snow Mountain Egg Collecting Station—1907–Present

Located near Potter Valley, Mendocino County

Snow Mountain Egg Collecting Station is situated on the Eel River at Cape Horn Dam, which forms Van Arsdale Reservoir. The dam was completed by the Snow Mountain Light and Power Company in 1907. Steelhead trout are automatically trapped as they ascend the fish ladder at the dam. The station consists of a large tank for holding adult steelhead, a residence for the attendant, and sufficient incubators to eye eggs for shipment. The station has provided a dependable source of steelhead eggs since 1907.

Klamathon Egg Collecting Station—1910–Present

Located on the Klamath River near Hornbrook, Siskiyou County

Klamathon Egg Collecting Station was installed by the United States Bureau of Fisheries in 1910. Salmon eggs taken at Klamathon were shipped to Mount Shasta Hatchery and the resulting fry returned to the Klamath River. During the early years of the station, a small hatchery was operated at the location. In 1915, the State took over complete operation and the hatchery was discontinued. The station continued to operate as an egg collecting station only.

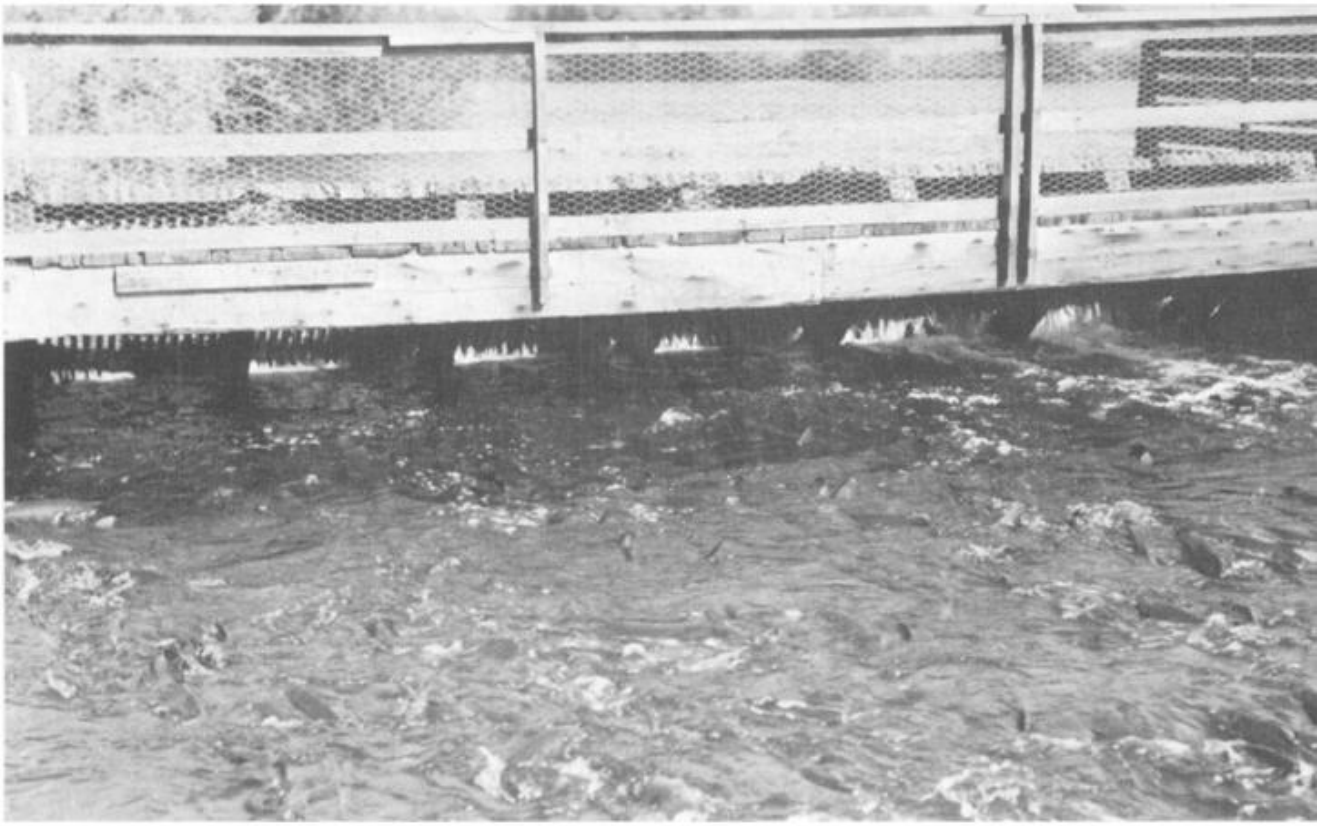

FIGURE 33. Adult king salmon below the fish racks at Klamathon Egg Collecting Stat
Photograph by Earl Leitritz, 1934.

FIGURE 33. **Adult king salmon below the fish racks at Klamathon Egg Collecting Station.** *Photograph by Earl Leitritz, 1934.*

In 1918, extensive repairs were made to the station by the California Oregon Power Company and the operation was tied in very closely with Fall Creek Hatchery. The program was to take 4,000,000 king salmon eggs for Fall Creek Hatchery to restock the upper Klamath River and compensate for the loss of spawning grounds destroyed by Copco Dam. All salmon eggs in excess of 4,000,000 were sent to Mount Shasta and Fort Seward Hatcheries.

Damage occurred during floods of the winter of 1937–38, but repairs were made. King salmon egg taking operations were transferred from

Klamathon Station to Fall Creek Hatchery in 1940, and since then Klamathon Station has been operated only as a salmon counting station.

Mount Whitney Hatchery—1917–Present

Located 3 miles northwest of Independence, Inyo County

Mount Whitney Hatchery is often referred to as "the stone monument". Constructed in 1917, it still continues to play an important part in our hatchery program. It obtains its water supply from Oak Creek. Establishment of this hatchery was not without its noteworthy incidents. The movement for a hatchery to serve southern California and particularly the Mono-Inyo area was spearheaded by Commissioner M. J. Connell of Los Angeles. Many local citizens joined in the selection of a location for the hatchery. Rivalry between towns in the Owens Valley and between Inyo and San Bernardino Counties soon reached a high pitch and tempers flared, with pressures exerted by local politicians and legislators. The citizens of Lone Pine proposed a site on Tuttle Creek, while residents of Independence insisted on the Oak Creek site, which was eventually selected. To indicate their interest in the hatchery and assure its establishment at Independence, local citizens called a meeting and solicited public donations for purchase of the hatchery site. The drive for funds netted $1,850 in cash, $1,500 of which was used to purchase the 40-acre tract on which the hatchery is located. Built of native granite boulders and of pleasing design, the hatchery is quite impressive. It has withstood the rigor of the seasons since 1917 and from a maintenance and repair standpoint is one of the cheapest hatcheries ever built in California. Initial cost of the building was $60,000. At present day costs it probably could not be duplicated for less than $1,000,000.

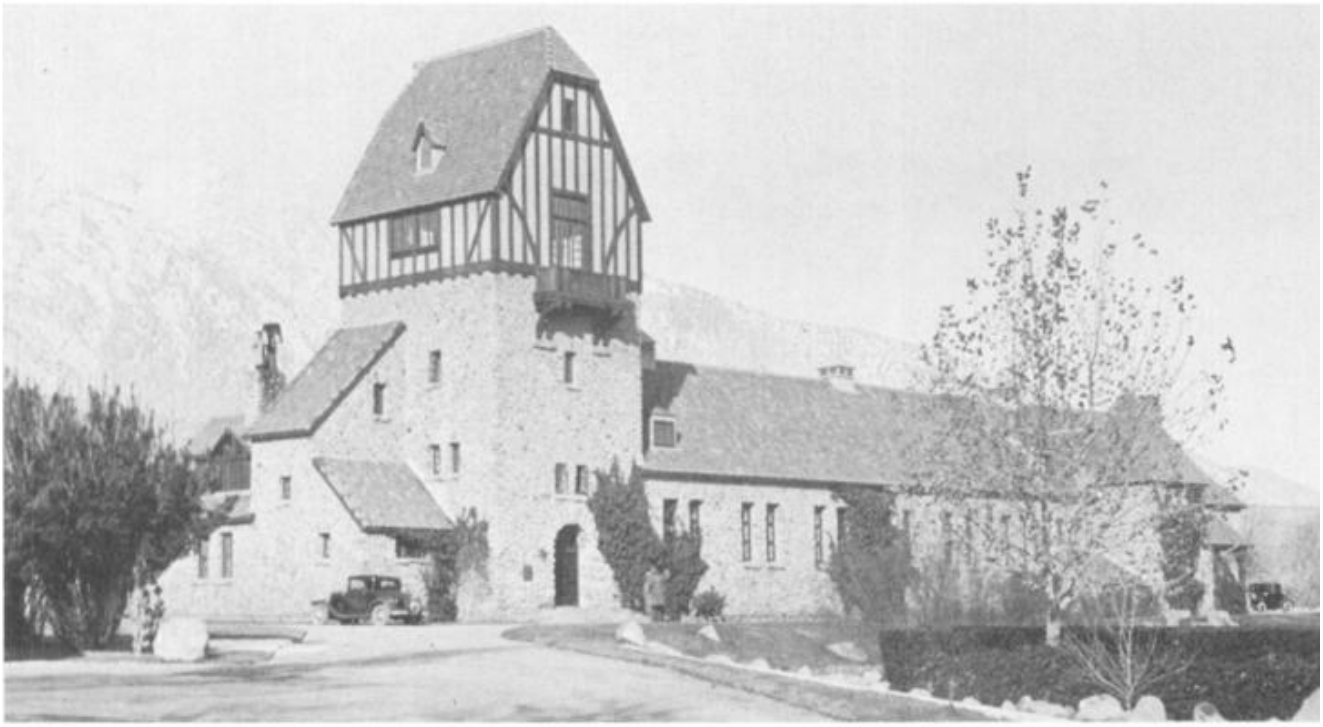

FIGURE 34. Mount Whitney Hatchery, completed in 1917. Built of massive chunks of na stone, with the towering Sierra Nevada in the background, it is a symbol of ruggedn

FIGURE 34. **Mount Whitney Hatchery, completed in 1917. Built of massive chunks of native stone, with the towering Sierra Nevada in the background, it is a symbol of ruggedness.**

Even though Mount Whitney is a coldwater installation, it fits into the Department's catchable trout program very nicely. The building, with 120 troughs, has a capacity of 3,000,000 fingerlings annually. These are used to stock the ponds at Fish Springs Hatchery and Black Rock

Springs, where no fingerling production facilities are available. Fingerlings are also reared at Mount Whitney Hatchery for airplane stocking of the high mountain lakes of the Mono-Inyo area. It was at Mount Whitney that the first attempt to propagate the famous California golden trout was undertaken in 1917, with eggs taken at Cottonwood Lakes. This work has been carried on intermittently ever since.

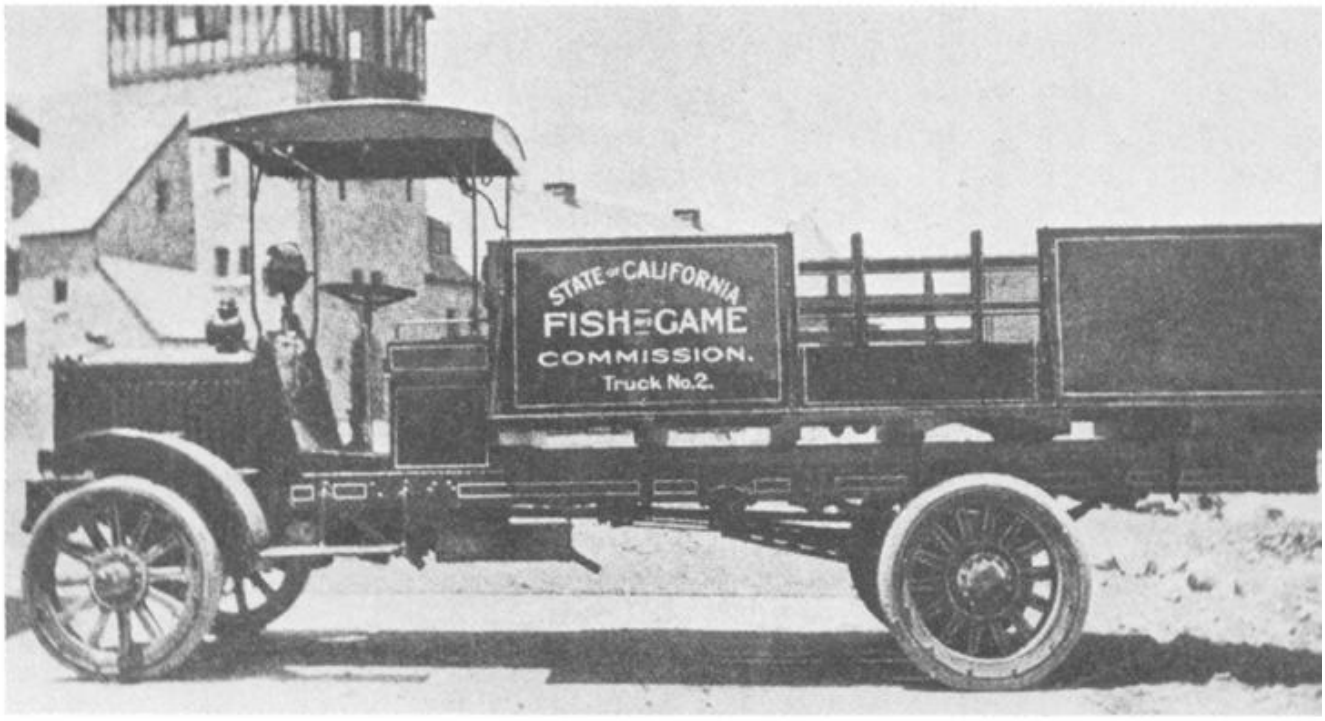

FIGURE 35. Truck No. 2 at Mount Whitney Hatchery. By means of two trucks such as the output of Mount Whitney Hatchery was hauled to the railroad station. *Photograph A. E. Culver, 1918.*

FIGURE 35. **Truck No. 2 at Mount Whitney Hatchery. By means of two trucks such as this the output of Mount Whitney Hatchery was hauled to the railroad station.** *Photograph by A. E. Culver, 1918.*

In addition to the fingerling rearing program carried on at this location, broodstock operations are a very important part of the work. Normally, 6,000 or more adults, selectively bred spawners, are kept at hand. These select fish annually produce about 10,000,000 eggs, which are distributed to hatcheries throughout the State and are also exchanged for eggs from other states and countries.

Cottonwood Lakes Egg Collecting Station—1918–1920, 1924–1941, 1953–Present

Located on Cottonwood Creek, Inyo County

During the summer of 1917, preliminary surveys were made of the Cottonwood Lakes area in Inyo County, to ascertain whether it would be feasible to undertake the propagation of golden trout.

The Cottonwood Lakes are situated in a rugged, almost inaccessible section of Inyo County near the Tulare County line, at the head of Cottonwood Creek, at an elevation of 11,150 feet. The lakes were stocked in the early 1870's with golden trout from Mulkey Creek, a tributary to the South Fork of the Kern River. It was found that a number of small creeks flow into the lakes and furnish excellent spawning grounds for golden trout. Racks and traps were installed and arrangements made to be on the ground at the proper time the following season. Lumber, tools, tents, camp equipment, and supplies had to be transported by pack train from Lone Pine. The spawning crew reached the station in ample time to catch the first of the fish ascending the streams to spawn. Five hundred thousand eggs were taken and transported

by pack animals to Mount Whitney Hatchery. The resulting fry were distributed in waters of that area.

The remoteness of the site from railroads, highways, or human habitation, the high altitude, and severe weather conditions make the trip during the spring months a hazardous undertaking. Nevertheless, the work has been continued and crews have gone into the lakes many seasons to obtain golden trout eggs. The early success of the operation was due to the skill and resourcefulness of George McCloud, who was in charge of Mount Whitney Hatchery and the golden trout egg collecting operations at Cottonwood Lakes during the period 1917 through 1941.

Kern River Experimental Hatchery—1927
Kern River Hatchery—1928-Present

Located about 1 mile north of Kernville on the Johnsondale Road, Kern County

During the latter part of July 1927, Dr. George A. Coleman, the first freshwater fisheries biologist employed by the former Bureau of Fish Culture, carried out a biological survey of the Kern River in the vicinity of Kernville, Kern County. Dr. Coleman recommended that an experimental hatchery be installed.

Experiments to determine the suitability of the water in Kern River below Kern No. 1 Powerhouse for fish cultural purposes got under way in October 1927. The work was done under the direction of J. H. Vogt, who in later years became Assistant Chief, Bureau of Fish Conservation.

Considerable difficulty in rearing fish at the experimental hatchery was encountered and in June 1928 it was decided to move the remaining fish to the ponds of the Kern County Sportsmen's Club. Results at the sportsmen's ponds were sufficiently encouraging to establish a permanent hatchery at the location.

The hatchery was enlarged and improved from time to time and in 1950–51, $47,588.64 from Wildlife Conservation Board funds was spent for further expansion and improvements. At present the hatchery has 14 natural raceway type ponds, with necessary appurtenances. It produces 126,000 fingerlings and 350,000 catchable-sized trout annually.

Hot Creek Experimental Hatchery—1928–1931
Hot Creek Hatchery—1931-Present

Located about midway between Bishop and Lee Vining, Mono County

Hot Creek Hatchery is situated in a large mountain meadow, 7,100 feet above sea level. Numerous springs with a temperature range from 52 to 60 F rise and flow in several watercourses through the meadow and into Hot Creek.

Hot Creek derives its name from the numerous hot springs that join it along its course, which bubble up near and in the stream in the vicinity of the hatchery. A temperature of 182 F was recorded in one of the hot springs near the hatchery.

The first attempt to rear fish at the location was made by the Rainbow Club of Bishop in the fall of 1928. One earthfill pond was constructed but soon washed out. In 1929, a concrete dam was constructed to form a pond and on February 14, 1930, 10,000 steelhead fingerlings were placed in the pond. Due to an abundance of amphipods and a

FIGURE 36. Hot Creek Hatchery, 1959.

FIGURE 36. **Hot Creek Hatchery, 1959.**

constant temperature of nearly 60 F, the fish grew rapidly. This clearly demonstrated the advantage of a warmwater trout hatchery. One of the great difficulties previously encountered in fish cultural work in California was the lack of suitable water for winter growth. The then Division of Fish and Game, Bureau of Fish Conservation, became interested in the property and started construction of two ponds on November 16, 1931. These ponds were completed December 4, 1931. The new ponds were first stocked with fingerlings on July 8, 1932.

The Hot Creek location was California's first warmwater trout hatchery and experiments in rearing fish to catchable size at a growth rate of about one inch per month were carried on for several seasons.

To take advantage of the winter growing season, a shipment of fall-spawning rainbow eggs from selectively bred stock was received at Hot Creek Hatchery from Springville, Utah, in 1933. This formed the nucleus of the present Hot Creek rainbow stock.

During the year 1940, the City of Los Angeles Department of Water and Power undertook construction of Grant Lake Dam on Rush Creek and Long Valley Dam on the Owens River, the latter dam forming Crowley Lake. Fishways over these dams were not feasible. An agreement was entered into between the Fish and Game Commission and the City of Los Angeles, whereby in lieu of the construction of fishways the City granted the Commission permanent use of the Hot Creek Hatchery site and contributed $25,000 toward the construction of the present Hot Creek Hatchery.

Construction was started in the spring of 1941. The new hatchery consisted of 38 ponds, 10 nursery tanks, and 30 troughs, together with broodstock ponds and necessary appurtenances. Output now amounts to about 5,500,000 catchable-sized trout, 700,000 fingerlings, and 13,000,000 eggs annually.

Prairie Creek Egg Collecting Station—1928–1937
Prairie Creek Hatchery—1928-Present

During the summer and fall of 1927, a survey of north coastal streams was made to find one suitable for collecting coast cutthroat trout eggs. A site was selected on Prairie Creek, Humboldt County, just below its junction with Lost Man Creek. Traps and a temporary hatchery were constructed the following year. Heavy rainfall and consequent soft, muddy ground made the work difficult. By the middle of November the racks were completed and the installation was ready to collect cutthroat and steelhead eggs the following spring. Water for the 30 eyeing troughs was taken from Lost Man Creek through about 2,500 feet of 12-inch flume. During the first season, 208,000 silver salmon and 1,400,000 steelhead eggs were taken. It was decided to continue operations in 1929.

Various improvements were made by 1930, but at that time the hatchery was still considered to be experimental. Adverse climatic conditions caused doubt that the site was suitable as an egg supply Nevertheless, the hatchery continued hatching steelhead, cutthroat trout, silver salmon, and king salmon eggs and distributing the fry in waters of Humboldt and Del Norte Counties through 1936. In 1937, the hatchery was rebuilt, and had a capacity of 80 troughs and 4 tanks. A fifth tank was added later.

FIGURE 37. Old hatchery building, Prairie Creek Hatchery.

FIGURE 37. **Old hatchery building, Prairie Creek Hatchery.**

During the 1940's, silver and king salmon and cutthroat, rainbow, and steelhead trout were produced. The installation also served as headquarters for fish rescue work on north coastal streams. Following World War II, the water supply deteriorated because of logging operations in the watershed above. Flows decreased in summer and winter floods required expensive annual stabilization of the creek banks adjoining the hatchery property.

The old, outmoded installation required extensive repairs by 1955, so work there was largely discontinued and production was replaced by the Cedar Creek Experimental Station. Humboldt County assumed operation of the hatchery in 1957.

Central Valleys Hatchery—1937-Present

Located near Elk Grove, Sacramento County

Central Valleys Hatchery is the State's only hatchery devoted entirely to the rearing of warmwater game fishes (black bass, sunfish, and catfish) and forage fish. It is the State's fourth hatchery devoted to rearing fish other than salmonids. The first was situated at Bouldin Island, Sacramento County, where the California Fish Commission propagated striped bass in 1907. The second was the experimental shad hatchery at Yuba City in 1916, and the third, which attempted to rear warmwater fish, was the one at Friant, at the same place where the San Joaquin (trout) Hatchery is now located.

The Fish and Game Commission purchased a 40-acre parcel of land near Elk Grove in 1936, to erect a modern warmwater fish hatchery. This location was chosen because it was centrally located in the State and because a stream, into which the ponds could be drained, flowed through the property.

Early in 1936, a Works Project Administration (WPA) program was set up to construct the hatchery. This occurred during depression days and most of the work was accomplished by hand labor. Wheelbarrows were used for dirt removal. One visitor to the location made the remark that the WPA had "finally found a job that should last forever". Another interested party saw the action and exclaimed "At first I could see nothing but dust, but when the air cleared I though I saw a million ants all trying to get into a little hole at the same time".

By January 1, 1937, the ponds had been completed and were ready to receive fish. Shortly afterward, necessary buildings, such as an office, workshop, net storage and drying shed, garages, and two dwellings, were completed.

Adult spotted bass were brought from the Friant ponds (which were soon afterward abandoned), Sacramento perch were obtained from Clear Lake, and adult smallmouth bass were obtained locally. In spite of the new ponds, which resulted in considerable roily water, a good crop of fish was reared.

Sacramento perch proved to be an easy fish to rear and were highly prolific. Large numbers of these fish were produced and planted in the large fluctuating reservoirs of Central California. For some unknown reason, they did not become abundant and their propagation was discontinued.

Spotted bass were stocked in the Cosumnes and Tuolumne Rivers. They became established in the Cosumnes, but not in the Tuolumne.

Smallmouth bass, introduced into California in 1874, were stocked in most of the suitable tributaries of the Sacramento and San Joaquin Rivers and are now found in the American, Feather, and Merced Rivers.

In 1944, a program to determine the compatibility of the different species of warmwater fishes was undertaken. This necessitated a reduction in smallmouth bass propagation.

FIGURE 38. Central Valleys Hatchery. Warmwater fish rearing ponds on left, concrete da nia tanks in center aisle, and broodstock holding ponds on right.

FIGURE 38. **Central Valleys Hatchery. Warmwater fish rearing ponds on left, concrete daphnia tanks in center aisle, and broodstock holding ponds on right.**

In 1949, aerating equipment to serve four ponds was installed and 80,000 small fingerling rainbow trout were received from Mount Shasta Hatchery on October 31. These ponds were normally idle during the winter months. The first season some trouble was experienced with oxygen deficiency. The following year this condition was satisfactorily overcome and a good crop of trout was produced. One disadvantage to this program was that the temperatures often rose sharply in February, and it was necessary to distribute the fish early in the season. Since this made difficult the timing for stocking suitable waters, the program was discontinued in 1954.

In 1951, propagation of white crappie and golden shiners was undertaken. The white crappie were planted in East Park Reservoir, Colusa County, and Bullards Bar Reservoir, Yuba County.

Golden shiners, a forage minnow, are well adapted to pond culture and were reared for several seasons. They were stocked in a number of large fluctuating reservoirs in the State, in an attempt to improve the food chain for the warmwater game fishes. They were also loaned to commercial live bait dealers for broodstock purposes. The fish were to be returned if needed at the hatchery.

In 1953, fathead minnows were obtained from a commercial live bait dealer at Turlock. These fish propagated readily and large numbers were stocked in waters containing warmwater game fishes. Fathead minnows were also released to commercial live bait breeders as brood stock.

In 1954, 368 adult red shiners were brought to Central Valleys Hatchery as a possible forage fish. They reproduced in small numbers only and their propagation was given up after several seasons of trial.

In the fall of 1956, adult red-ear sunfish were received from southern California. These fish propagated well and are looked upon with favor.

In 1958, the Department of Fish and Game became interested in rearing channel catfish. Adult brood stock was obtained with fyke nets from the Sacramento River and Sutter Bypass and an experimental hatching unit was set up.

FIGURE 39. Storage warehouse, Central Valleys Hatchery.

FIGURE 39. **Storage warehouse, Central Valleys Hatchery.**

Although little was known in California about rearing channel catfish, approximately 100,000 fingerlings were produced in the first season. Minor changes in the method of catfish culture contributed to a production of 600,000 fingerlings in 1959.

On April 28, 1959, a shipment of adult threadfin shad arrived from southern California. These fish were taken to Central Valleys Hatchery, where they were divided among four rearing ponds. They produced fairly well during the first season and most of the progeny were stocked in reservoirs lacking forage species.

One of the serious problems in pond management at Central Valleys Hatchery was created by aquatic plant growths. After five or six years of use, ponds became so dense with plant growth that they could no longer be used. Many experiments in plant growth removal were tried—employing both mechanical and chemical means. Fortunately, chemicals, such as Karmex, have now been developed which reduce this nuisance to a minimum.

In addition to the production of warmwater fish, Central Valleys Hatchery is the headquarters for warmwater game fish rescue work.

When the hatchery was first constructed, three fish rescue crews were headquartered there. One crew was based at the hatchery for local rescue work, one for work in the Modesto area, and one for operations around Fresno.

Rescue work was seasonal, the crews being organized in early summer. The success of the rescue work depended upon the extent of the season's precipitation and resultant overflow of the rivers. The San Joaquin River basin between Fresno and Stockton contained numerous overflow ponds and sloughs. Most of these seasonal ponds covered very rich soil and their fertile waters produced great numbers of fish.

Friant Dam on the San Joaquin River was completed and the reservoir started filling in September 1941. This reduced the fish rescue program sharply, since most of the important overflow ponds disappeared within a very few seasons. This occurred during World War II, and agricultural products were in great demand. Land became very valuable. Many of the former overflow ponds and sloughs dried up, the ground was leveled, and areas that had produced fish were turned to

the production of beans and similar products. Additional dams have been constructed since Friant Dam was built and the fish rescue program has changed from a very active one to a small operation. Since California's rivers have been harnessed with dams, sport fishing for warmwater game fishes has migrated to a considerable extent, from the floor of the Central Valley to the large foothill reservoirs.

Heenan Lake Egg Collecting Station—1939–Present

The Heenan Lake station was opened in April 1939 on an experimental basis to collect Lahontan cutthroat trout eggs. This first year's take was added to that collected at the regular station at upper Blue Lake. In 1940, a small tenthouse was constructed for the station operator, and about 700,000 eggs were collected between April 17 and May 12.

The station was closed in 1943 because of World War II manpower shortages. Operations were resumed after the war ended. The station is operated only during April and May and currently produces from 750,000 to 1,000,000 cutthroat trout eggs each year. The Nevada Fish and Game Commission also procures eggs here.

Fillmore Hatchery—1940–Present

Located 1 mile east of Fillmore, Ventura County

Fillmore Hatchery is located in a citrus grove bordering the Santa Clara River. It was one of the first warmwater trout hatcheries constructed in California to produce catchable-sized fish.

Initial testing of the water supply began in 1941. In 1942, 30 ponds, 4 cottages, a feed room, and a garage building were constructed at a

FIGURE 40. Ponds at Fillmore Hatchery, 1956.

FIGURE 40. **Ponds at Fillmore Hatchery, 1956.**

cost of approximately $74,000. The hatchery was completed and dedicated in July 1942.

Initially, the surface flow in the Santa Clara River exceeded 10 cfs, sufficient to operate the 30 ponds to capacity. A small well 100 feet deep was drilled to supply water for the hatchery troughs.

In 1948, after several drought years, the surface water disappeared entirely. Hatchery operations had to be curtailed while two additional wells were drilled. These are over 500 feet deep, 16 inches in diameter, and powered with 30-hp pumps.

Use of the two wells brought complaints from water users of the Piru Basin in 1949, who filed a written protest with the Division of Water Resources. The Department then agreed to use only one well, with the second serving as a standby. This reduced production about 30% to approximately 500,000 catchable-sized trout.

A study of the underground water tables in the vicinity of the hatchery was made in the spring of 1949 by the State Division of Water Resources, at the request of the Department of Fish and Game.

In 1951, the Piru Water District filed suit against the Department of Fish and Game to force the Department to discontinue pumping water from the Piru Basin for operation of the hatchery.

The Division of Water Resources again surveyed the underground water conditions of the Santa Clara River basin in the Piru-Fillmore area. It found that a large quantity of water was flowing underground to the ocean, and that there was no shortage of water. It was then decided to use both pumps again, pending legal clarification of the issue.

Several postponements of the court action were granted by the Superior Court of Ventura County. The case came to trial in July 1955 without a jury and a favorable decision was rendered.

Black Rock Rearing Ponds—1941–Present

Located about 12 miles north of Independence, Inyo County

Black Rock Rearing Ponds were artificially created by the City of Los Angeles by building a dam for diversion purposes near the source of Black Rock Springs. The springs normally have a flow of from 12 to 15 cfs at a temperature of 59 F. The proposal to rear large numbers of fish in such large ponds was at first frowned upon by some of the Department's hatchery personnel.

The ponds were first operated in the fall of 1941, when 450,000 rainbow fingerlings were placed in the ponds. During the spring of 1942, 274,385 trout averaging over 5 inches in length and weighing over 36,000 pounds were planted from the ponds. This production removed any doubt regarding their fish rearing possibilities. Numerous improvements to the ponds to increase efficiency have been made from time to time and the station regularly produces about 400,000 pounds of catchable-sized trout annually.

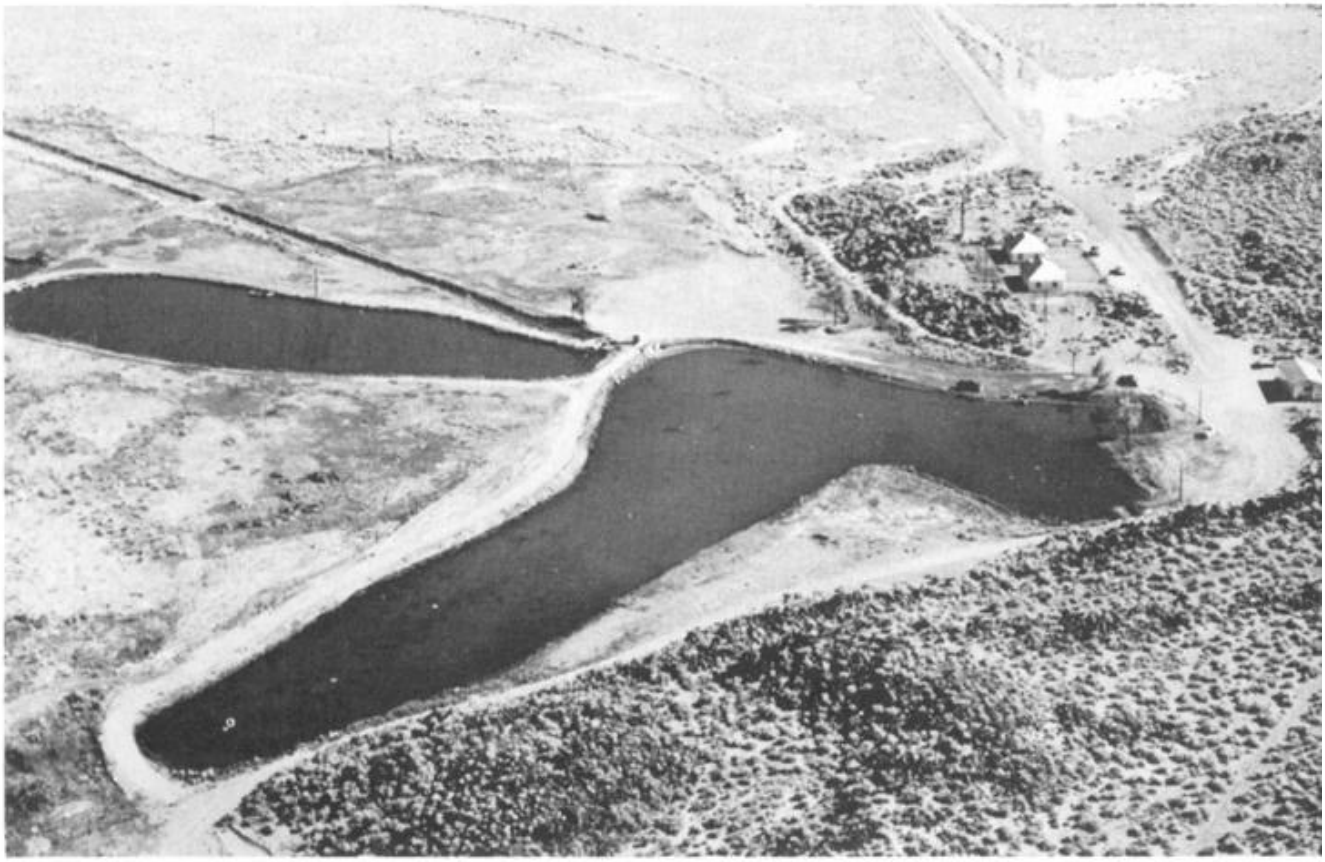

FIGURE 41. Black Rock Rearing Ponds.

FIGURE 41. **Black Rock Rearing Ponds.**

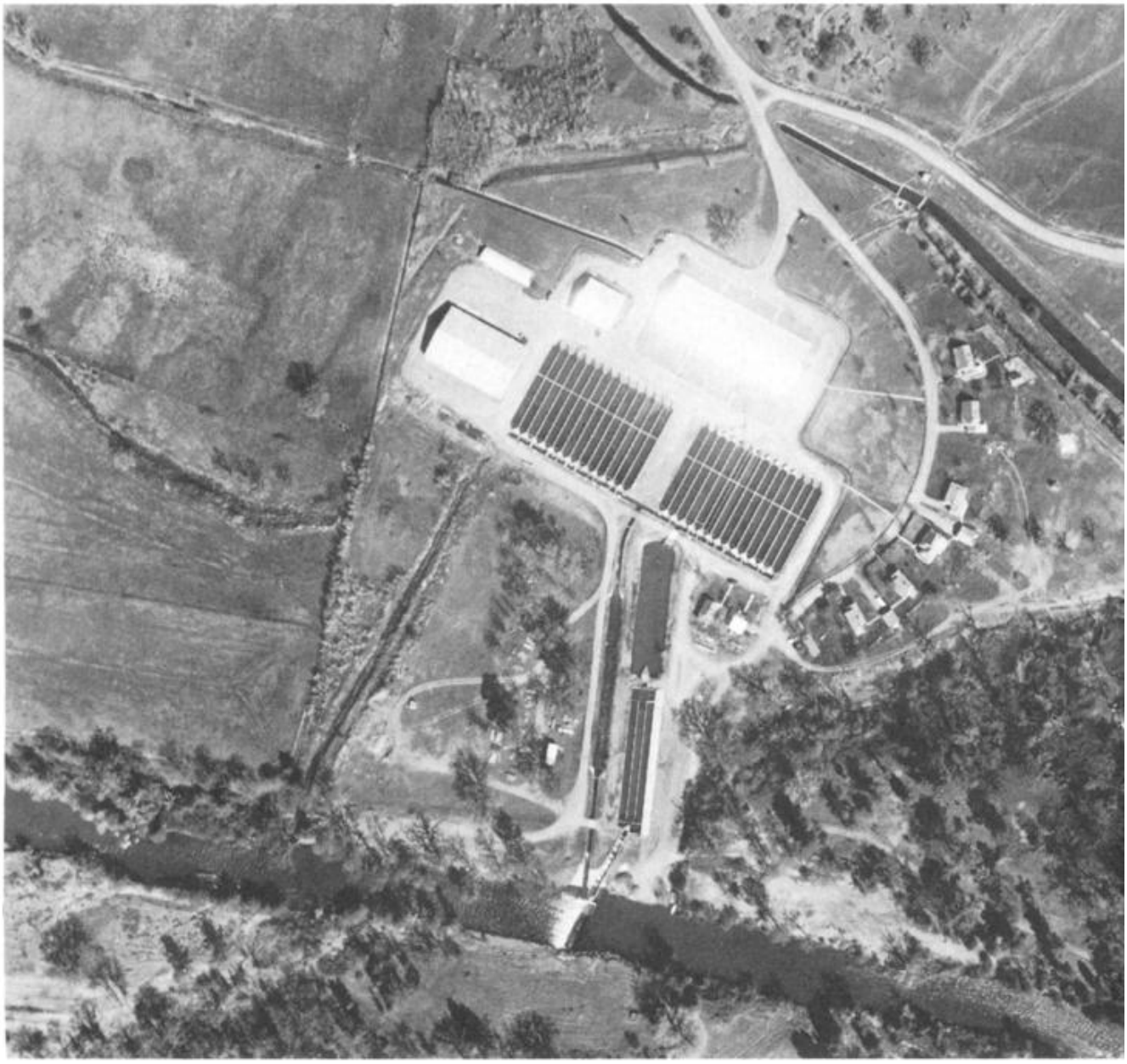

FIGURE 42. Aerial view, Coleman National Fish Hatchery on Battle Creek, Shasta County

FIGURE 42. **Aerial view, Coleman National Fish Hatchery on Battle Creek, Shasta County.**

Coleman National Fish Hatchery—1942–Present

Located near Anderson, Shasta County

Coleman National Fish Hatchery has the distinction of being the only federal (United States Bureau of Sport Fisheries and Wildlife) hatchery in California.

Constructed in 1942 as part of the great Central Valley Project, the hatchery cost approximately $2,500,000. Coleman Hatchery was constructed to compensate for the loss of salmon spawning grounds above Shasta Dam. It replaced the old Baird Hatchery, which was inundated by Shasta Reservoir, Battle Creek Hatchery (a little farther downstream on Battle Creek than Coleman Hatchery), and Mill Creek Hatchery near Los Molinos. The hatchery is devoted entirely to the rearing of salmon and steelhead for stocking in the Sacramento River system.

Crystal Lake Hatchery—1947–Present

Located near Cassel, Shasta County

Crystal Lake Hatchery is located on the south shore of Baum Lake, a short distance downstream from Crystal Lake. The hatchery consists of 24 raceway type ponds, 6 residences, and operation buildings. Construction started in 1947 with Wildlife Conservation Board funds. This was the first large undertaking with these funds. The ponds were put in operation in October 1947.

During the first year of operation, a serious infection of ceratomyxa caused heavy losses of fish. During the next year, heavy losses necessitated changing the water supply from Crystal Lake to Rock Creek, a small stream adjoining the property.

Crystal Lake Hatchery was completed July 1955 at a total cost of $272,299.43. It furnishes catchable-sized trout for Modoc, Lassen, and eastern Shasta Counties.

The property on which the hatchery is situated was originally owned by Frank G. Baum, widely known for his pioneering in hydroelectric power. Remains of his homemade powerhouse at the Crystal Lake falls are still in evidence. His outstanding electrical inventions and designs are widely used in modern hydroelectric powerhouses today.

Baum Lake was ranked with the outstanding Canadian lakes for its large brown trout by a national fishing magazine.

Moorehouse Springs Experimental Station—1947–1948 Moorehouse Springs Hatchery—1949–Present

Located 13 miles east of Springville, Tulare County

The first ponds at Moorehouse Springs Hatchery were put in operation in June 1947. On March 19, 1949, the Wildlife Conservation Board allocated $25,000 to assist completion. The hatchery was completed July 1949 and thus has the honor of being the first new hatchery completed with funds provided by the Wildlife Conservation Board. The combined flow from Moorehouse Springs—ranging in temperature from 59 to 63 F—is used for fish rearing purposes.

FIGURE 43. Natural rearing pools, Moorehouse Springs Hatchery, formed by limestone posits over many years.

FIGURE 43. **Natural rearing pools, Moorehouse Springs Hatchery, formed by limestone deposits over many years.**

An item of interest at this location consists of the natural terraced ponds, built up of limestone deposits. These ponds have been in the making over several thousand years and perhaps are the oldest ponds used for trout rearing purposes in the world.

The hatchery annually produces 130,000 trout, which are distributed mainly in the Tule River drainage.

Mojave River Hatchery—1947–Present

Located near Hesperia, San Bernardino County

often referred to as the hatchery on the desert, Mojave River Hatchery is nestled among ancient Joshua trees. It is located on the edge of the famous Mojave Desert. The hatchery water supply is obtained entirely from wells that draw water from below the normally dry Mojave River.

FIGURE 44. Mojave River Hatchery during development in 1950. An ancient Joshua tree member of the lily family, in foreground. Apple Valley in extreme background. Photogr by Kramer A. Adams, 1950.

FIGURE 44. **Mojave River Hatchery during development in 1950. An ancient Joshua tree, a member of the lily family, in foreground. Apple Valley in extreme background.** *Photograph by Kramer A. Adams, 1950.*

Funds for initial construction of Mojave River Hatchery were supplied by a legislative appropriation. Work began in 1947 and shortly thereafter the project became a Wildlife Conservation Board undertaking.

The first phase of the project in 1947 involved roughing in 40 ponds, of which only 4 were completed. These were used for preliminary experiments to test the suitability of the water for trout production. Tests showed that the high nitrogen content of the well water killed the fish.

Further experiments revealed that aerating towers would dissipate the harmful gases and make the water suitable for hatchery operations. Sixteen additional ponds were finished in 1949 and 20 were added in 1952, bringing the total to 40 ponds. As of March 26, 1952, the Wildlife Conservation Board had allocated a total of $246,700 for construction at Mojave River Hatchery.

The hatchery provides about two-thirds of the catchable-sized trout stocked south of the Tehachapi Mountains.

San Joaquin Experimental Hatchery—1948–1950
San Joaquin Hatchery—1955–Present

Located 1 mile below Friant Dam, Fresno County

San Joaquin Hatchery, one of the largest hatcheries in the state system, is situated below massive Friant Dam, a concrete structure 319 feet high. The reservoir behind Friant Dam is called Millerton Lake.

Experimental work to determine the suitability of Millerton Lake water for fish cultural purposes was undertaken in 1948 and carried on for 2½ years. The Wildlife Conservation Board allocated $748,000 for construction of the hatchery. Work started in October 1953 and the hatchery was completed and dedicated July 16, 1955. Designed primarily

to rear catchable-sized trout, it replaced Madera and Kings River Hatcheries, which were abandoned.

Twenty-five cfs of water are taken from the river gate level of Friant Dam. The water is passed through an aerating tower to dissipate harmful gases and increase the oxygen content of the water. After passing through the hatchery installation, the water is returned to the San Joaquin River, to supply water rights downstream.

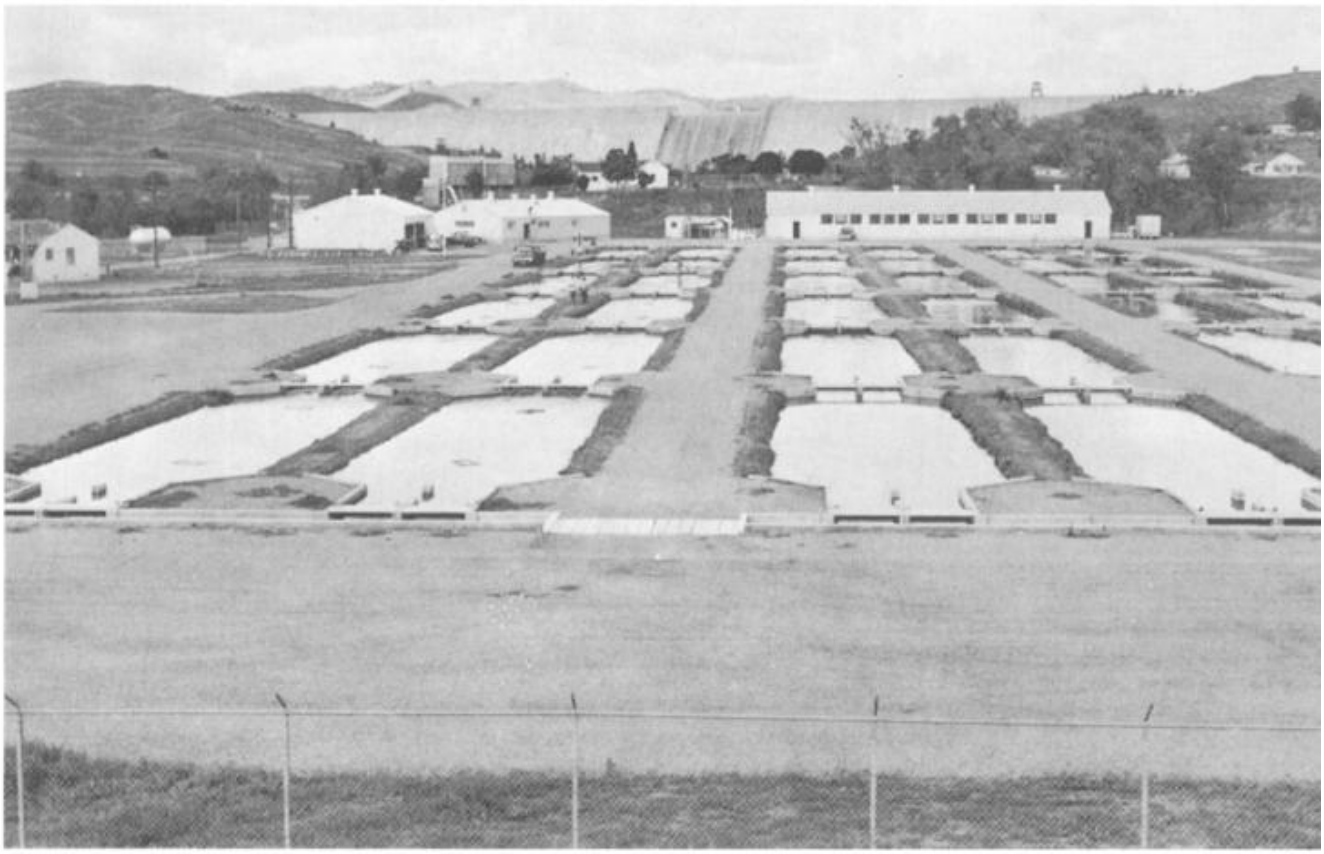

FIGURE 45. Standard California type earthfill rearing ponds, San Joaquin Hatchery. ponds are 100 feet long and are arranged in series of 6 ponds. Each series requires cfs of water. Friant Dam, which forms Millerton Lake, is in background. *Photograph by liam M. Carah, May 1956.*

FIGURE 45. **Standard California type earthfill rearing ponds, San Joaquin Hatchery. The ponds are 100 feet long and are arranged in series of 6 ponds. Each series requires 3½ cfs of water. Friant Dam, which forms Millerton Lake, is in background.** *Photograph by William M. Carah, May 1956.*

The installation includes the aerating tower for treating the water, a hatchery building with 104 aluminum troughs, twelve 14-foot redwood circular tanks for rearing fingerlings, 4 rectangular ponds for rearing warmwater game and forage fish, a food storage and preparation building, and 10 dwellings for permanent employees. Initially, the hatchery had 36 standard California-type rearing ponds. Twelve additional ponds were added during the fall of 1960, to bring the total to 48. These additional ponds replaced production of Sequoia Hatchery, Tulare County, which was closed. The fish are now produced at lower cost.

Annual production amounts to 3,000,000 fingerlings, 20,000 subcatchables, and 800,000 catchables with a total weight of 165,000 pounds.

FIGURE 46. Loading trout for planting with a mechanical fish loader, San Joaquin Hatch
Photograph by William M. Carah, May 1956.

FIGURE 46. **Loading trout for planting with a mechanical fish loader, San Joaquin Hatchery.** *Photograph by William M. Carah, May 1956.*

Cedar Creek Experimental Station—1949–1950
Cedar Creek Hatchery—1955–Present

Located approximately 1 mile south of Leggett, Mendocino County

Construction of Cedar Creek Experimental Station was first considered by the former Bureau of Fish Conservation in 1941. The location, at the confluence of Cedar Creek and the South Fork of the Eel River, was selected after a thorough search for a suitable hatchery site in the North Coast Area.

A five-year lease, with an option to purchase, was taken on 42½ acres of land at the mouth of Cedar Creek. Due to wartime restrictions, development of the hatchery could not be undertaken.

Application to appropriate 12 cfs of water from Cedar Creek was filed with the State Division of Water Resources on June 13, 1946, and received favorable action.

The option to purchase the property was exercised in 1948.

A Wildlife Conservation Board project submitted by the Bureau of Fish Conservation was acted upon by the Board on March 19, 1949, with $125,000 allocated for the initial phase of the project.

A temporary fish hatchery to determine the suitability of Cedar Creek water for fish cultural purposes was undertaken in July 1949 and continued until floods disrupted the operation in January 1951.

Plans for Cedar Creek Experimental Station were to make the unit a combination fish hatchery and stream improvement and fish rescue headquarters. Experimental hatchery operations were to test the efficiency of artifically propagating salmon and steelhead.

Only the basic facilities for the intended purpose of the hatchery were installed and the hatchery was placed in operation in 1953. The hatchery is situated in an extremely heavy rainfall belt, subject to sudden floods. In December 1955, extensive flood damage was sustained to the ponds and grounds. Losses from this flood were replaced and by June 1956 there were approximately 500,000 young steelhead in the rearing ponds.

FIGURE 47. Cedar Creek Hatchery ponds after inundation by flood, December 1955. Dep
ment of Fish and Game photograph, December 26, 1955.

FIGURE 47. **Cedar Creek Hatchery ponds after inundation by flood, December 1955.** *Department of Fish and Game photograph, December 26, 1955.*

Facilities include 8 standard raceway ponds, 3 dwelling houses, and a utility building. The hatchery annually produces 90,000 salmon and 150,000 steelhead yearlings.

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Darrah Springs Experimental Hatchery—1949–1953
Darrah Springs Hatchery—1954–Present

Located approximately 27 miles east of Red Bluff near Manton, Shasta County

There is little doubt that Darrah Springs, with an abundant supply of clear water—approximately 30 cfs—at a constant temperature of 57 F, attracted Simon H. Darrah to the location of the Darrah Springs Hatchery site in 1865, for even in the early days water was much sought after. It was this excellent water supply which first interested the Department of Fish and Game and which led to the building of the State's largest hatchery at the location.

FIGURE 48. Feed storage and preparation room at Darrah Springs Hatchery. Constructed 1956, this building contains refrigeration and ice-making equipment.

FIGURE 48. **Feed storage and preparation room at Darrah Springs Hatchery. Constructed in 1956, this building contains refrigeration and ice-making equipment.**

The State became interested in the location in 1941, when the author became hatchery inspector for northern California. Due to the wartime restrictions, experimental work to determine the suitability of the water for hatchery purposes could not be undertaken. In 1949, shortly after World War II, experimental troughs and ponds were installed. Experiments proved Darrah Springs to be one of the finest hatchery sites in the State. Consequently, construction of the present modern installation was undertaken in 1954 and completed in 1956.

Built at a cost of nearly $800,000 with funds supplied by the Wildlife Conservation Board, the hatchery consists of 60 ponds, 32 nursery tanks, and a 120-trough hatchery building. The hatchery is capable of producing 400,000 pounds of trout annually.

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FIGURE 49. Aerial view, Darrah Springs Hatchery.

FIGURE 49. **Aerial view, Darrah Springs Hatchery.**

Moccasin Creek Experimental Station—1949–1950
Moccasin Creek Hatchery—1954–Present

Located at Moccasin, Tuolumne County

The Moccasin Creek Hatchery site was selected after lengthy investigations and search for a suitable fish hatchery site in the vast area between Lake Tahoe and Yosemite Valley.

Tests to determine the suitability of the Moccasin Creek Hatchery site were undertaken in 1949, and negotiations with the City of San Francisco for use of the property were started about that time. The hatchery is located entirely on property belonging to the City and County of San Francisco, and water is taken from the afterbay of the Moccasin Creek Powerhouse, which is a part of the Hetch Hetchy water supply system. The property and permission to use the water are held on a long-term lease with the City.

The initial installation, completed in 1954, consisted of 24 ponds, an 88-trough hatchery building, garage and equipment shed, feed preparation and storage building, and 6 employees' houses. Twelve ponds and two additional houses were added in 1956.

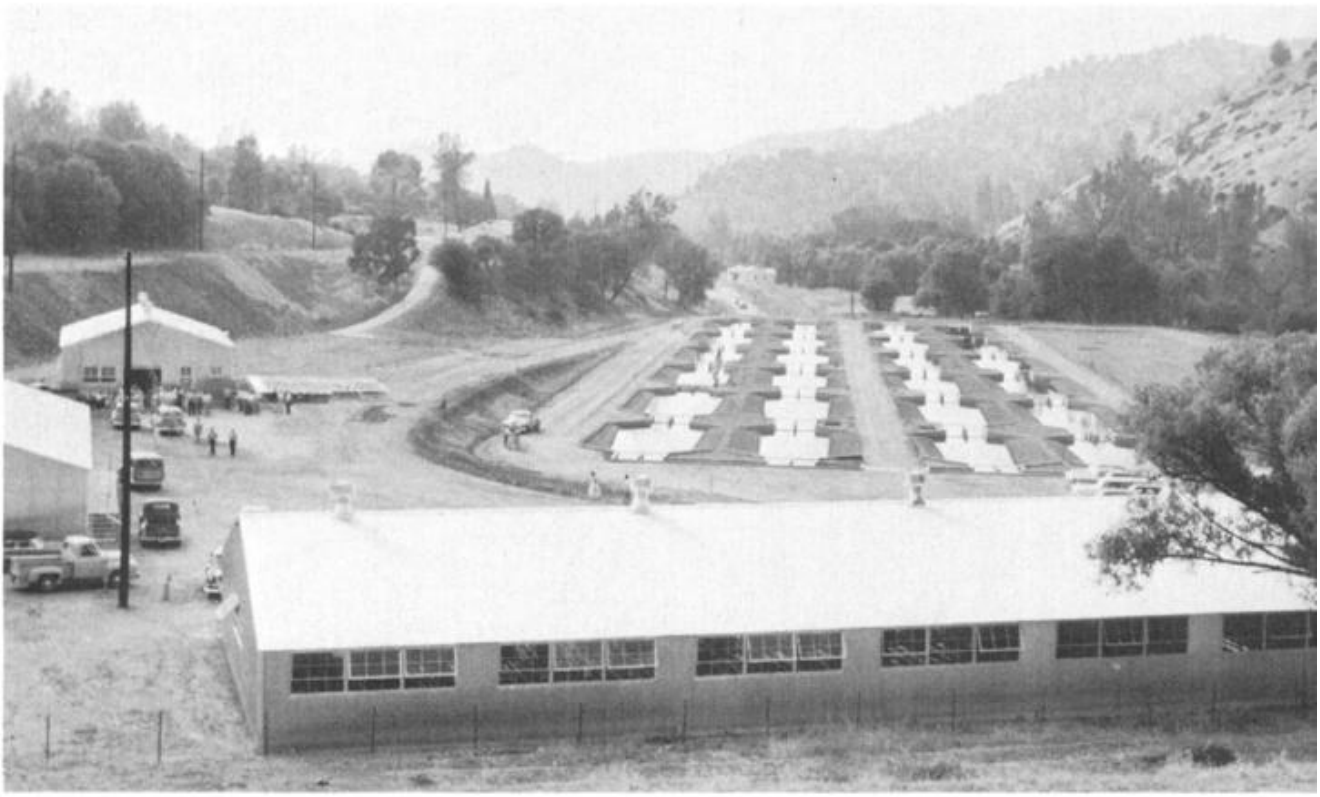

FIGURE 50. Moccasin Creek Hatchery on the day of dedication, June 29, 1954. The init installation included 24 standard raceway ponds. Twelve additional ponds were added 1955.

FIGURE 50. **Moccasin Creek Hatchery on the day of dedication, June 29, 1954. The initial installation included 24 standard raceway ponds. Twelve additional ponds were added in 1955.**

Fish Springs Hatchery—1952–Present

Located about 6 miles south of Big Pine, Inyo County

Fish Springs Hatchery obtains its water supply from a number of springs arising from a lava escarpment. Water temperature remains constant at 61 F and the average flow is 18 cfs.

FIGURE 51. Aerial view of Fish Springs Hatchery shortly after completion in 1952, show spring area with six earthfill ponds in foreground, food storage and utility buildings center, and employees' houses on right.

FIGURE 51. **Aerial view of Fish Springs Hatchery shortly after completion in 1952, showing spring area with six earthfill ponds in foreground, food storage and utility buildings left center, and employees' houses on right.**

The pond system consists of two parallel series of three ponds each, making a total of six ponds. The total length of each pond series is 1,700 feet. The total water capacity at normal 3-foot operating depth is 193,800 cubic feet or 1,453,500 gallons. The ponds are constructed of earth fill, with concrete dividing dams, the sides slope 3 to 1, and the ponds follow the meandering contour of the old streambed.

Appurtenances include a 40- by 80-foot food storage building with ice making equipment and a 40- by 100-foot utility building for equipment storage, with shop and repair facilities at one end and office space at the other.

FIGURE 52. Employees' houses, Fish Springs Hatchery. Elevation 3,880 feet. The peaks the Sierra Nevada, in the background, rise to over 13,000 feet above sea level.

FIGURE 52. **Employees' houses, Fish Springs Hatchery. Elevation 3,880 feet. The peaks of the Sierra Nevada, in the background, rise to over 13,000 feet above sea level.**

Built entirely with Wildlife Conservation Board funds and dedicated June 27, 1952, the hatchery is devoted almost entirely to rearing catchable-sized rainbow for distribution in the Inyo-Mono area. The annual production amounts to 190,000 pounds or 1,400,000 fish.

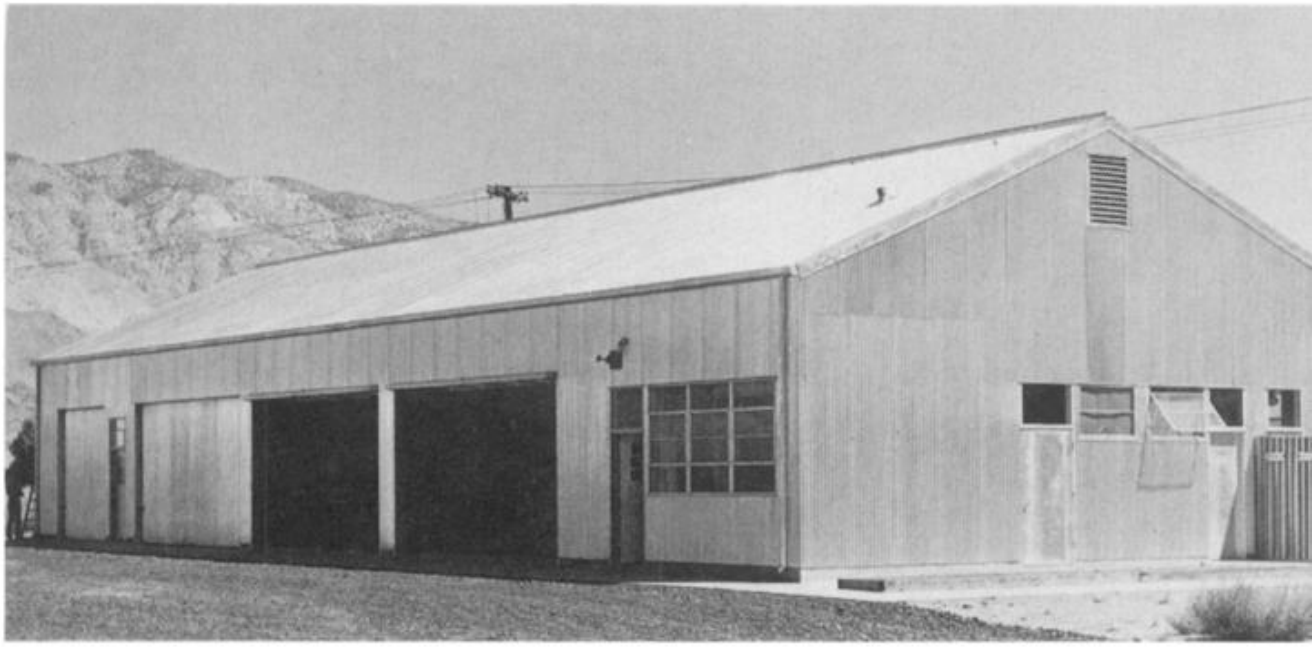

FIGURE 53. Utility building, Fish Springs Hatchery, showing shop and repair room at l end of building, truck storage in center, and office and public rest rooms at right e This facility is typical of utility buildings at Crystal Lake, Darrah Springs, Moccasin Cre San Joaquin, and Mojave River Hatcheries.

FIGURE 53. **Utility building, Fish Springs Hatchery, showing shop and repair room at left end of building, truck storage in center, and**

office and public rest rooms at right end. This facility is typical of utility buildings at Crystal Lake, Darrah Springs, Moccasin Creek, San Joaquin, and Mojave River Hatcheries.

Nimbus Hatchery—1955–Present

Located at Nimbus Dam, Sacramento County

Construction of the Folsom-Nimbus project, a unit of the Central Valley Project, cut off about 85% of the ancestral spawning grounds of American River king salmon and steelhead trout. Nimbus Hatchery was constructed to compensate for these lost natural spawning grounds by artificial propagation.

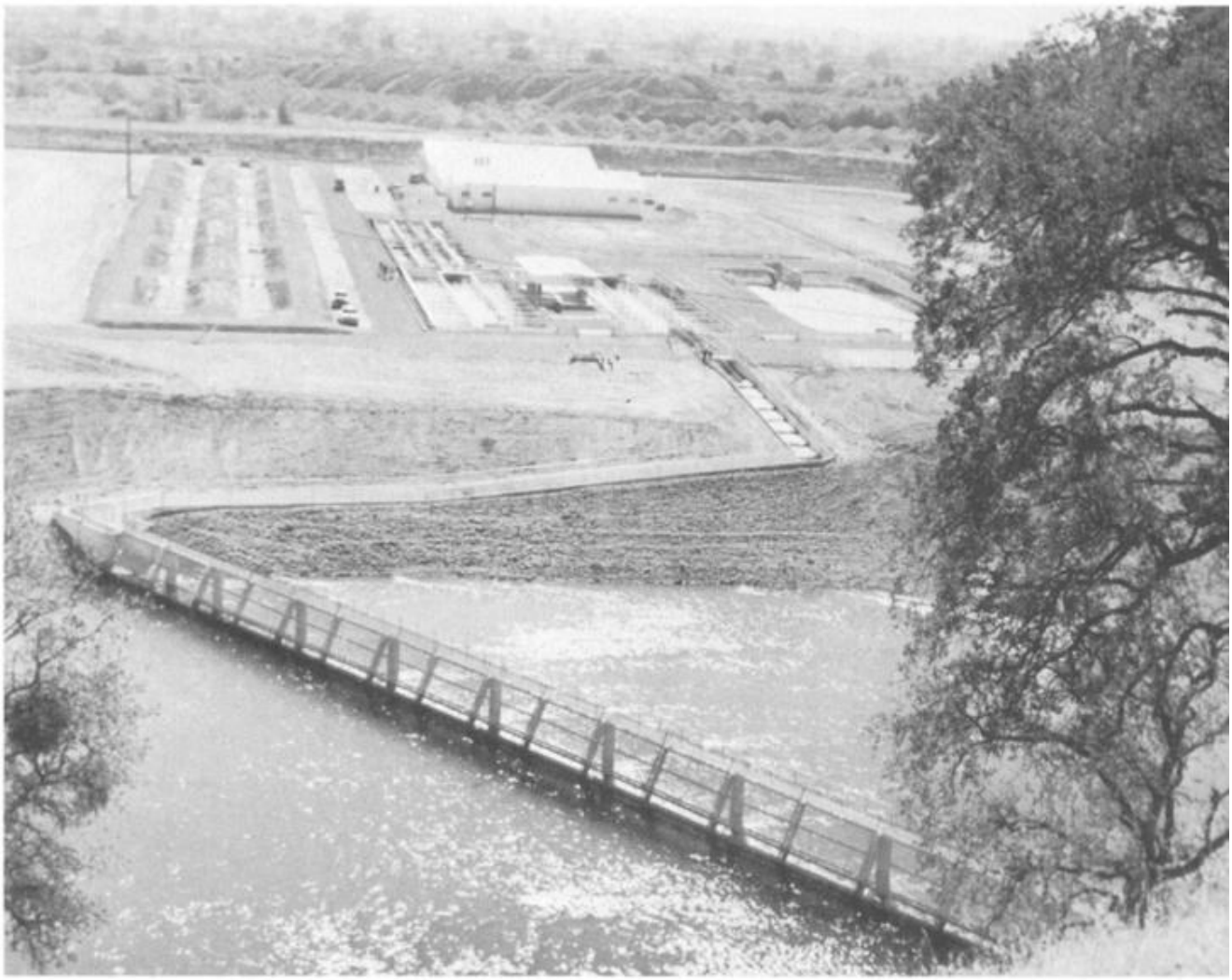

FIGURE 54. Nimbus Salmon and Steelhead Hatchery on the American River below Nimb Dam, Sacramento County. Rack set diagonally across the river guides fish to the fish lad entrance. Rearing ponds (empty when photograph was taken) at left. Hatchery and uti building at upper center. Adult holding ponds and spawning facilities at lower cent Mounds of gravel in the background are the result of gold dredging operations.

FIGURE 54. **Nimbus Salmon and Steelhead Hatchery on the American River below Nimbus Dam, Sacramento County. Rack set diagonally across the river guides fish to the fish ladder entrance. Rearing ponds (empty when photograph was taken) at left. Hatchery and utility building at upper center. Adult holding ponds and spawning facilities at lower center. Mounds of gravel in the background are the result of gold dredging operations.**

The United States Bureau of Reclamation designed the hatchery in cooperation with the Department of Fish and Game and the United States Fish and Wildlife Service. The hatchery was built by the Bureau of Reclamation, which pays the Department of Fish and Game for its cost of operation. It is presently the only federally-built hatchery in California operated by the State. Only salmon and steelhead are propagated. The hatchery has a capacity of 30,000,000 salmon eggs.

Situated near the thickly populated Sacramento area, it has the distinction of attracting more visitors than any other hatchery in the State. On November 20, 1960, during the peak of the king salmon run, an estimated 13,000 spectators visited the hatchery.

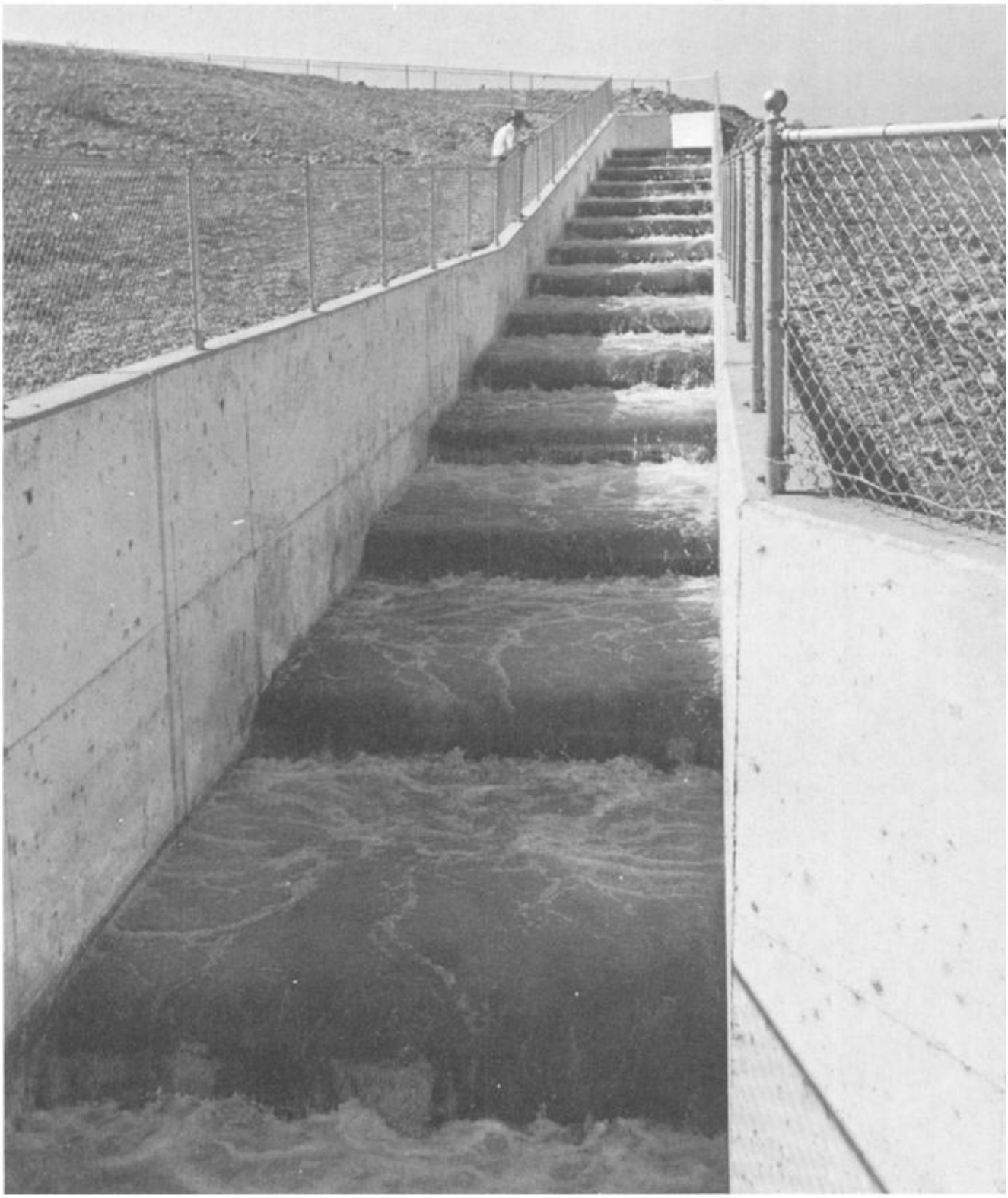

FIGURE 55. Fish ladder, Nimbus Hatchery. The pools are 12 feet long, 9 feet wide, an feet deep. There is a 1-foot jump between pools. Adult salmon and steelhead negotiate ladder with ease.

FIGURE 55. **Fish ladder, Nimbus Hatchery. The pools are 12 feet long, 9 feet wide, and 8 feet deep. There is a 1-foot jump between pools. Adult salmon and steelhead negotiate this ladder with ease.**

Pudding Creek Egg Collecting Station—1957–Present

This station was established to collect silver salmon eggs to supply a new silver salmon propagation program. Local sportsmen cooperated in the location of a site on Pudding Creek near Fort Bragg, Mendocino County. Sufficient eggs were obtained during the first year's season to meet requirements. Annual production amounts to about 200,000 eggs. The fry are hatched at Cedar Creek Hatchery and distributed in various streams of the north coast.

A VISIT TO CALIFORNIA'S FISH HATCHERIES

A visit to a fish hatchery is always one of interest. The sparkling, clear water, the small, extremely active fingerlings in the troughs,

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darting this way and that, the 6- to 8-inch juvenile trout leaping at the inflowing water and striking at surface objects, the large lazy-appearing 3- to 6-pound brood fish slowly cruising around the large holding pond but instantly churning the water surface when food is broadcast to them all attract attention. Trout culture is fascinating and fish hatcheries are extremely interesting.

All state-operated fish hatcheries are open to the public, free of charge, every day of the year, during regular working hours, from 8 a.m. to 5 p.m.

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FOOTNOTES

1. Retired August 4, 1961; deceased March 2, 1968.

2. The common and scientific names of organisms cited in this bulletin are listed in Table 1.

TABLE 1

Common and Scientific Names of Organisms Cited in This Bulletin

Common name	Scientific name	Common name	Scientific name
American shad	*Alosa sapidissima*	Eastern brook trout	*Salvelinus fontinalis*
Threadfin shad	*Dorosoma petenense*	Golden shiner	*Notemigonus crysoleucas*
Lake whitefish	*Coregonus clupeaformis*	Red shiner	*Notropis lutrensis*
Silver salmon	*Oncorhynchus kisutch*	Fathead minnow	*Pimephales promelas*
King salmon	*Oncorhynchus tshawytscha*	Channel catfish	*Ictalurus punctatus*
Kokanee	*Oncorhynchus nerka*	Striped bass	*Morone saxatilis*
Atlantic salmon	*Salmo salar*	Smallmouth bass	*Micropterus dolomieui*
Brown trout	*Salmo trutta*	Spotted bass	*Micropterus punctulatus*
Lahontan cutthroat trout	*Salmo clarkii henshawi*	Red-ear sunfish	*Lepomis microlophus*
Rainbow trout	*Salmo gairdnerii*	Sacramento perch	*Archoplites interruptus*
Steelhead rainbow trout	*Salmo gairdnerii gairdnerii*	White crappie	*Pomoxis annularis*
Golden trout	*Salmo aguabonita*	Ceratomyxa	*Ceratomyxa shasta*
		Daphina	*Daphnia* spp.

TABLE 1

Common and Scientific Names of Organisms Cited in This Bulletin

3. Out of print.