HISTORIC AMERICAN ENGINEERING RECORD
PRAIRIE CREEK FISH HATCHERY

Table of Contents

HAER Information

Introduction

Local history and Setting

Fish Hatchery Policy in California

Architecture, Facilities, and Landscape of Fish Hatcheries

Water Supply and Fish Ponds

Landscape Features

Description of Buildings

- Hatchery
- Superintendent's House
- Assistant's House
- Garage-Shop
- Shed
- Pipeline stream crossing
- Round outdoor water tanks
- Aeration Tower
- Rectangular, aboveground concrete tanks
- Dedication Pond and Associated Features
- Pump House (1962)
- Pump House (1971)

Bibliography

Index to Photographs

Table of Contents

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PRAIRIE CREEK FISH HATCHERY

HAER No. CA

LOCATION: Redwood National and State Parks, U.S. Highway 101, Orick vicinity, Humboldt County, California

DATE OF CONSTRUCTION: ca. 1936

BUILDER: Most buildings designed by the California Division of Architecture

SIGNIFICANCE: The Prairie Creek Fish Hatchery (PCFH) is representative of the nature of pre-World War II functions of hatcheries in California and illustrative of significant changes in hatchery goals and infrastructure in post-war years. Although built in the 1930s, it has more in common with 19th-century hatchery facilities than it does with those built after 1946. Attributes it shared with earlier hatcheries were its small size, localized region of release, design to hatch and release fingerlings, purpose to stock streams rather than mitigate dam construction, provision of housing for workers, dependence on simple technology with minimal need for power, and funding through fishing licenses and related fees. Its period of significance is 1936-1946. Prairie Creek Fish Hatchery is significant as one of only three fish hatcheries known to both survive among the 150 hatcheries built in California from 1871 to 1946 and to still possess integrity. PCFH was among the last built before a major state program of modernization and mechanization begun in 1947.

HISTORIAN: Kristen O'Connell, HAER, 2005

PROJECT INFORMATION: The Prairie Creek Fish Hatchery Recording Project was a cooperative effort between the Historic American Engineering Record (HAER), part of the Heritage Documentation Programs (Richard O'Connor, Acting Manager), Redwood National and State Parks (William Pierce, Superintendent), and the Pacific West Regional Office (Stephanie Toothman, Chief, Cultural Resources).

Karin Anderson, Cultural Resources Program Manager for Redwood National and State parks, facilitated the project and provided access to the site. Justine Christianson and Kristen O'Connell, HAER Historians, did the fieldwork, and Kristen O'Connell produced the historical report. Jet Lowe, HAER Photographer, produced the large format photography.

Introduction

Prairie Creek Fish Hatchery (PCFH) is located on the east side of U.S. Highway 101 about three miles north of Orick in Humboldt County. It is in a mountainous and heavily forested area within Redwood National and State Parks. The property is on Lost Man Creek just above its confluence with Prairie Creek. The hatchery originally consisted of a 6.2-acre parcel with a main hatchery building, four houses, a garage-shop, a shed, and outdoor water tanks; a 3000-foot linear right-of-way for a 12-inch pipeline; and an 800-foot long reservoir created by a rock dam.[1] Today the boundaries of the PCFH historic district are those of the 6.2 –acre parcel. Within the boundaries are the main Hatchery, two houses, the garage-shop, the shed, water tanks, and the pipeline stream crossing, which is all that remains of the pipeline. The dam and reservoir were removed in 1989. Despite diminished integrity of design, workmanship, materials, and feeling that is associated primarily with the loss of the pipeline and reservoir, there remains a high degree of integrity among the buildings and other features of the hatchery. Whereas the pipeline and reservoir were upstream, away from the highway and hidden in the forest, the features that survive are highly visible and strongly convey the significance of the property. The buildings that survive are well built, but modest, plain, wood-frame structures, designed by the California Division of Architecture.[2] The reinforced concrete outdoor water tanks, the pipeline crossing, and the troughs and tanks inside the main Hatchery still convey the function of the facility. (Note: The facilities or group of buildings are referred to as a "hatchery". The main building of PCFH is referred to as the "Hatchery".)

Prairie Creek Fish Hatchery is located about four miles north of Orick, California in Humboldt County. PCFH is located just above the conjunction of Lost Man Creek with Prairie Creek, in a mountainous and heavily forested area. As is was built in 1936, the facility was in three parts: an L-shaped, 6.2-acre parcel on the east side of U.S. Highway 101 on which were built the PCFH buildings; a right-of-way of unspecified width for a 12-inch pipeline stretching approximately 3,000 feet in a curvilinear alignment eastward from the 6.2-acre parcel to a dam on Lost Man Creek; and the water source on Lost Man Creek, consisting of a dam measuring 175 feet long and four feet wide at its extreme points, and a reservoir which backed up as much as 800 feet. A substantial amount of the whole system including portions of each of these three parts remains in place today.

The 6.2-acre parcel is an L-plan consisting of a generally rectangular area (170 feet by about 900 feet) with an east-west orientation, and a small panhandle (150 by 200 feet) south of the east end. The north side of this parcel is steeply sloped. Lost Man Creek flows across the southern half of the eastern two thirds of the parcel, entering the parcel across the east border and exiting across the southern boundary on its way to Prairie Creek. The topography of the area is such that the few buildable sites are on the narrow

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[1] Michael Corbett and Denise Bradley. *Final Historic Resources Study Report for Prairie Creek Fish Hatchery, Redwood National and State Parks, Humboldt County, California.* Chico, CA: Mountain Anthropological Research, May 1997. 5.
[2] Corbett, 5-6.

alluvial flat lands along the creeks. The seven original buildings of the PCFH (hatchery, four houses, garage-shop, and shed) were built close to Lost Man Creek, with six of them at the southwest corner of the 6.2-acre parcel on the north side of the creek, between the creek and U.S. 101, and the seventh, a cabin, on the south side of Lost Man Creek. In addition, the pipeline stream crossing over Lost Man Creek remains a fragment of the once continuous pipeline that stretched to the east beyond the 6.2-acre parcel.

The six buildings were in a U-plan with the mouth of the U open to U.S. 101 on the west. The north side of the U was formed by the Hatchery building, the south side by three houses (two of which survive), and the east end by the garage-shop building, with a shed behind it. The entrance to PCFH was from U.S. 101 into the mouth of the U. The shape of the unpaved driveway was like a running track, with straight sides and curved ends, so that traffic could move in a circular direction. In addition, the straight side on the south continued in a straight line past the north ends of the three houses and the south ends of the garage-shop and the shed to a dead end on the north bank of Lost Man Creek.

In the 1960s, following the sale of PCFH by the state to Humboldt County, the facilities at PCFH were expanded into an area south of the 6.2-acre parcel. During this period, the circular driveway was removed from its original location. A new entrance driveway to PCFH was built south of the houses, outside the boundaries of the 6.2-acre parcel. This is the current entry and driveway. Other additions to the facilities in this new area include two pump houses, two earthen ponds, and a footbridge across Lost Man Creek. The additional area of land south of the 6.2-acre parcel and the features located in this area were not part of the historical operations at PCFH during its period of significance (1936-1946) and are not within the boundaries of the site historic district.

At the time of survey, the windows and doors of the buildings had been nailed shut with plywood. The doors were opened temporarily for the purposes of the survey, but the windows remained shut. All the buildings were originally whitewashed, but since 1981, they have been dark red with cream-colored trim. In addition to the existing buildings described below, two others have been demolished and a mobile home has been removed.[3]

Local History and Setting

The history of PCFH is closely associated with the development of U.S. Highway 101 and the nearby town of Orick. This history can be divided into three general periods: 1) the early history, 1848 to 1927, associated with the exploitation of natural resources and homesteading; 2) the second phase, 1928 to 1967, associated with development of transportation and the local economy based on natural resources and agriculture; and 3) the third phase, 1968 to present, associated with declining reliance on natural resources and increasing tourism.

[3] Corbett, 24.

The early history of the area is associated with the exploitation of natural resources. The first Euro-Americans in the region came looking for gold along the Trinity and Klamath Rivers in the late 1840s and 1850s. Very quickly, a lumber industry was also established; several mills were established in Eureka by 1854. The first settler in the vicinity of PCFH arrived in 1864, with many others in the 1870s and 1880s. These settlers homesteaded and established the community of Orick on Redwood Creek, about three and one-half miles south of where the hatchery would later be built.

After World War I, an influx of settlers from Italy and Switzerland came to Orick and established about 25 small diary farms. By 1922, the site of PCFH was part of a large undivided property owned by the Hammond Lumber Company and the Hill-Davis Company, with the property immediately to the south owned by Robert McIntosh, a pioneer settler in Orick. Big changes came to the area beginning in 1927.

In that year a new highway bridge was built over Redwood Creek at Orick. In 1928, the state bought the right-of-way for construction of a highway north of Orick. By 1935, this highway would be completed and functioning as a portion of the Redwood Highway, which was later designated U.S.101. Also in 1928, the predecessor of the PCFH, a temporary hatchery and egg collecting station was established on Prairie Creek. In 1933, a Civilian Conservation Corps (CCC) camp was established about one and on-half miles north of CFH, now the site of Prairie Creek Redwoods State Park, Elk Prairie Campground. In 1936, PCFH was rebuilt as a permanent facility. After World War II, "Orick became a boom town – with a fire department and a community services district and a community hall – and more churches and more bars were built and the school was enlarged and more service stations were built and logging trucks were all over".[4]

The third phase of local history is associated with the establishment of Redwood National Park in 1968. The roots of the local tourist industry were much earlier, with designation of the "Redwood Highway" by 1935; recognition of sport fishing as a significant element of the economy by establishment of the temporary fish hatchery in 1928; and development of State Park facilities by the CCC and others in the 1930s. But tourism was a relatively minor element of the economy until 1968 when the establishment of the National Park both created a major focus for tourists in northern California and also permanently removed a substantial amount of land that was formerly logged by timber companies. In this same period, increased mechanization reduced the need for workers in the woods and in the mills. A major result of these changes was a need for fewer workers, and a consequent sharp decline in the local population.

For nearly ten years before PCFH was permanently established, it operated as a temporary or experimental hatchery. According to the 30th Biennial Report of the Department of Fish and Game: "During the summer and fall of 1927, a survey was made to find a stream on the northwest coast from which cut-throat trout eggs could be obtained. After a close study and from data gathered in former years, we decided to

[4] Corbett, 15.

establish a temporary hatchery and traps on Prairie Creek, Humboldt County".[5] The following year, in mid-November 1928, the hatchery was ready for operation. For the period of its temporary status, from 1928 to 1936, the predecessor to PCFH was named "Prairie Creek Station (Experimental)".[6] At least in its first year, it appears to have been located on the west side of the highway (rather than on the east side as it is today). Sometime before 1935, it was moved to another temporary location on the south side of Lost Man Creek (this is east of its present location).

In 1935, the Department of Natural Resources, Division of Fish and Game initiated steps to replace the temporary Prairie Creek Station with a permanent hatchery. To build a permanent hatchery, the land had to be surveyed and purchased; it was necessary to get a license from the Department of Public Works, Division of Water Resources to take water from Lost Man Creek; and the buildings and other features of the hatchery facility had to be designed and built.

In May of 1935, the Division of Fish and Game had a survey made to accompany its application to the Division of Water Resources.[7] On the map prepared by the surveyor, the following features were shown: the proposed hatchery property; the route of a pipeline from an upstream point of diversion to the hatchery property; and the point of diversion on Lost Man Creek. The hatchery property was an L-shaped piece of land (later described as 5.8 acres) consisting of a main east-west section, generally rectangular in shape, and a small panhandle projecting southward from the east end. The main part of the property was crossed by Lost Man Creek flowing northeast to southwest, from the east end to the center of the southern boundary; and the west end faced the Redwood Highway. A comparison with another survey made just prior to this map suggests that the southward panhandle at the east end of the property was included in order for the old temporary hatchery to fall within the boundaries of the new fish hatchery property.

For the purposes of the application, several features of the proposed hatchery were shown by the surveyor with dashed lines to indicate their proposed location and the general functioning of the facility. On the west half of the property between Lost Man Creek and the Redwood Highway, several buildings were shown including a rectangular hatchery, a garage, and two houses (for a superintendent and an assistant). A discharge flume was shown leading from the southeast corner of the hatchery in a southeastward direction to Lost Man Creek. In addition, a tank was shown near the east end of the hatchery that was the terminus of a 3,000-foot, 12-inch pipeline from the point of diversion.

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[5] California Department of Natural Resources. Division of Fish and Game. *30th Biennial Report for the Years 1926-1928.* Sacramento: California State Printing Office, 1929. 57.
[6] California Department of Natural Resources. Division of Fish and Game. *31st Biennial Report for the Years 1928-1930.* Sacramento: California State Printing Office, 1931. 52.
[7] California Department of Natural Resources. Division of Fish and Game. *33rd Biennial Report for the Years 1932-1934.* Sacramento: California State Printing Office, 1935. 50.

The map was prepared with the size and shape of the property shown as they were later established, and the facilities shown partly as they were established.[8] However, marked by hand on the map were corrections that showed the property as it was actually built. These hand corrections, which are not dated, were as follows: a domestic water tank is shown north of the group of buildings; the garage is turned from an east-west orientation to a north-south orientations, occupying the space of the building later called the shop; a small shed was built east of the south end of the garage-shop; a third house, for an assistant, was shown between the houses of the superintendent and another assistant; the discharge flume was moved so that it ran from the center of the Hatchery directly south toward Lost Man Creek; a house was shown on the east side of the creek south of the pipeline. Each of these features was built as shown on the altered surveyor's map, although some of the features have since been removed. The PCFH was built largely according to this map prepared in mid-1935, and all the features shown, whether as part of the original base map or drawn in by hand, were built by 1940.

With a permit to take water, work on the entire hatchery complex could proceed, beginning with design of facilities by the Department of Public Works, Division of Architecture (Nash 1996). PCFH was one of three new hatcheries whose construction and improvement were accomplished through government relief agencies.[9] This is all that is known about the source of money for the project. According to the "Progress Report by Permittee" for 1937, prepared 8 October 1937, all work o the hatchery was complete "at a total expenditure of approximately $20,000 for materials, labor and service." At the time of the report, the hatchery was not using as much water as it expected it would need, and was not in full operation.[10] By the end of the year, the hatchery was put into full operation[11], with 80 troughs and four tanks and the description as an egg collecting station was dropped.[12] The buildings were built under the supervision of a state employee who hired local carpenters to do the work.

The progress report for 1938, filed 14 October 1938, stated that maximum use of water had been reached, a prerequisite to inspection for permanent licensing. This was clarified in a letter on 25 October 1938 stating that the entire capacity of the water line was not being used, but that it would be used when additional tanks were installed "at some indefinite time in the future".[13]

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[8] California Department of Natural Resources. Division of Fish and Game. *33rd Biennial Report for the Years 1932-1934.* Sacramento: California State Printing Office, 1935. 57.
[9] California Department of Natural Resources. Division of Fish and Game. *34th Biennial Report for the Years 1934-1936.* Sacramento: California State Printing Office, 1937. 55.
[10] California Department of Natural Resources. Division of Fish and Game. *34th Biennial Report for the Years 1934-1936.* Sacramento: California State Printing Office, 1937. 43.
[11] California Department of Natural Resources. Division of Fish and Game. *35th Biennial Report for the Years 1936-1938.* Sacramento: California State Printing Office, 1939. 35.
[12] Earl Leitritz. *Fish Bulletin 150: A History of California's Fish Hatcheries, 1870-1960.* Sacramento: State of California, The Resources Agency, Department of Fish and Game, 1970. 13,67.
[13] Corbett. *Final Historic Resources Study Report.* 20.

Following the assertion in the progress report for 1939 that maximum use of water had been reached; the facility was inspected on 18 September 1940.[14] A.S. Wheeler, assistant hydraulic engineer for the Division of Water Resources, accompanied by Allan F. Pollitt, hatchery foreman, conducted this inspection. Facilities noted in the inspection were a concrete dam (8 feet high, 175 feet long) "with a plank apron and a 4'x54' spillway at the center", a conduit consisting of "4' of 16" and "3000' of 12" pipe" discharging into a filtration tank (22.6 feet x 16.6 feet x 7.8 feet) with three 8-inch distribution lines; three houses occupied by fourteen people; one house with a sink only for two people; a hatchery with 40 double rearing tanks and a meat room; five outside ageing tanks; 800 square feet of flowers and ornamentals; 2,825 square feet of lawns; an aquarium; and a 1,980 gallon domestic water tank. The objective of the facility was to raise annually 1,750,000 fish, 150,000 of which would be over three inches long. [15] Following this report, License for Diversion and Use of Water No. 2355 was issued for 1.86 cubic feet per second, enabling PCFH to operate on a permanent basis.[16]

Once the license had been issued, new reports were filed with the Division of Water Resources every three years. Reports continued to be made every two years by the Division of Fish and Game in the Biennial Reports. Looking back, Leitritz wrote, "During the 1940s, silver and king salmon and cutthroat, rainbow, and steelhead trout were produced. The installation also served as headquarters for rescue work on north coastal streams".[17] The superintendent of PCFH from 1943-1949 was Steven Paul Smedley. When the Smedley family moved in, the only electricity at the hatchery was provided, unreliably, by a hand cranked, blue Kohler generator in the north end of the shop. Water was delivered in a pipeline carried across Lost Man Creek on a suspension bridge with a walkway above the pipe. The dam where the pipeline began was a wood frame structure of rocks, with a trap and holding boxes at the north end. The pipeline ended at an elevated water filter located behind the east end of the Hatchery, where the easternmost round tank now stands. The filter was a wood cage full of rocks. When the water had passed down through the filter, it was distributed to the Hatchery, to five round concrete tanks on the north side of the Hatchery, and to the domestic water tank. At the Hatchery, it was carried in a flume across the north side of the building and distributed to the troughs. From the bottoms of the troughs, it was carried as waste in an outfall line southward into Lost Man Creek. From the filter, another pipe carried water to a pump north of the Hatchery, which raised it 60 feet to a tank on the hillside for domestic purposes. This was a round, redwood tank on a stand, covered by a roof. Gasoline was

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[14] California Department of Public Works. Division of Water Resources. *Progress Report by Permittee (Form 67)*. Annual reports prepared by Division of Fish and Game. 20 October 1936, 8 October 1937, 14 October 1938, and 16 October 1939. From the files of Redwood National Park.
[15] California Department of Public Works. Division of Water Resources. *Inspection Report*. Report to the State Engineer of the inspection of PCFH on 18 September 1940 by A.S. Wheeler, Assistant Hydraulic Engineer. 8 February. From the files of Redwood National Park.
[16] California Department of Public Works. Division of Water Resources. *License for Diversion ad Use of Water*. License No. 2355. 12 January. From the files of Redwood National Park.
[17] Leitritz. *Fish Bulletin 150*. 67.

pumped by hand in front of the shop. The shed east of the shop was used for storage of "presto logs" to heat the houses.[18]

Two types of fish were hatched, salmon and trout. Salmon swam up the creek and were trapped behind the dam. They were dipped out, examined, and, if ripe, eggs were removed from females and spawned from males in buckets. Carcasses were left for bears, and fresh carcasses were eaten by the staff or given away. Fertilized eggs were carried to the Hatchery and set in special baskets with holes inside the troughs. The baskets were turned, eggs hatched, and fry grew to fingerlings. Fingerlings were moved to outside tanks to grow. When they were big enough, they were place in milk cans with aerators, loaded in trucks and carried to streams in Humboldt and Del Norte Counties. By 1949, the deliveries were made in a special tank truck. Trout were raised in the same way, except that trout eggs were collected at the Mt. Shasta Hatchery and delivered to PCFH. While the fish were growing, they were fed a diet of ground liver, delivered regularly from a slaughterhouse in Eureka. The liver, from cattle, was dyed green so humans wouldn't eat it. It was ground in the northeast room of the Hatchery.[19]

The water supply deteriorated following World War II because of logging operations in the watershed above. Decreased flows in the summer followed by winter floods required expensive annual stabilization of the creek banks adjoining the hatchery property.[20] Between 1946 and 1948, $1,482.00 was spent on improvements to the water system.[21]

During the 1960s numerous changes were made at the Hatchery. Operational changes were made both to improve water quality and to modernize an outmoded process. Silt in Lost Man Creek, due to increased runoff from logging, resulted in water that was often too warm and too dirty for the fish. At least three attempts were made to dig a well, one of which resulted in the construction of a small pump house in 1962.[22] This was located just north of the intersection of U.S. 101 and Lost Man Creek on land that was outside the PCFH property. Sometime during the 1960s, and perhaps at this time, the entrance to PCFH from the highway was moved from its original location between the Hatchery and the houses to its present location just north of Lost Man Creek. In association with the use of well water, the old filtration tank behind the Hatchery was demolished and a new aeration tower was built by Humboldt County. Silted creek water and, especially, well water could be improved by passing through the aeration system.

Around 1965, the ornamental "dedication pond" was built where the driveway had been, between the Hatchery and the houses, and, to modernize the hatchery process, two, rock-lined, rectangular ponds were dug in the earth south of the houses. Inside the Hatchery, metal racks were placed for incubator trays, replacing the baskets with fertilized eggs that

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[18] Corbett. *Final Historic Resources Study Report.* 21
[19] Corbett, 20.
[20] Leitritz. *Fish Bulletin 150*. 67.
[21] California Department of Natural Resources. Division of Fish and Game. *40th Biennial Report for the Years 1946-1948.* Sacramento: California State Printing Office, 1949. 36.
[22] Corbett. *Final Historic Resources Study Report*. 23.

were previously put in the troughs for hatching. Now, fertilized eggs were placed in incubators until they grew into fry; fry were placed in troughs until they were big enough to move to the round tanks; and later to the rock-lined earthen ponds. Under Superintendent Bill Steuer (ca. 1967 to 1970), the cabin across Lost Man Creek was demolished; the lower dam was completed in August 1969; facilities consisting of a pond on the north side of Lost Man Creek about 100 yards above the Lower Dam, a levee, and a culvert, were built to accommodate growing salmon when normal capacity at the hatchery was exceeded; and there was quite a bit of construction work in and along Lost Man Creek. Because of problems with the water and construction work, no water was taken from the creek in 1968-1969. [23]

In 1971 a new well was dug and a new pump house built for it, which were located behind the superintendent's house. A new pump for this well was purchased in 1973, and a new pole for increased power was installed east of the Hatchery by PG&E in 1984. An electrical weir, superseded by mechanical weirs, was placed in the stream at the base of a new concrete fish ladder. Fish were diverted up the ladder into a pair of new, rectangular, aboveground, concrete tanks. The old domestic water tank (8-foot diameter) was brought down the hill and placed inside the Hatchery next to the three existing tanks (10-foot diameter). More incubators were also purchased for the Hatchery. To provide better feed than pellets, a walk-in cooler was built outside the east end of the Hatchery for frozen meat.[24]

With these new facilities, the hatchery process was modified. Salmon returned up the fish ladder to the big rectangular concrete tanks where they were spawned; eggs were moved to incubators; fry were moved to troughs, which were "ponded" into sections; growing fish were moved to inside tanks, then outside tanks, then the rock-lined earthen ponds, then the rectangular concrete tanks again before release.

This operation was run with three workers. Family accommodations changed when the easternmost house was demolished to build the rectangular concrete tanks, and a mobile home was placed east of the garage-shop and shed. The houses, originally whitewashed, were painted red and re-roofed in 1981. In 1988, the original, upper dam, no longer in use, was removed.[25]

While the principal purpose of the facility continued to be a hatchery, with establishment of Redwood National Park around it in 1968, there was an increase in tourism, fishing, swimming and sightseeing in the 1970s. Redwood National Park built a footbridge across the creek on hatchery property to accommodate visitors. PCFH received thousands of visitors and was a regular part of school field trips in Humboldt County. In addition to its function as a hatchery, PCFH and its personnel took on the added role of serving as an interpretational and educational facility. PCFH closed 31 October 1992 and

[23] Corbett, 23.
[24] Corbett, 23-24.
[25] Corbett, 24.

it less than a month, the fish, most of the furnishings and equipment, and the personnel, except for a caretaker, were gone.[26]

Fish Hatchery Policy in California

From the earliest days of fish hatcheries in California, hatcheries have had two purposes; to provide for the restoration and preservation of fish in the waters of the state.[27] While the language of the act implied a fish conservation motive, the unstated, underlying purpose was to stock streams for sport fishing. Many streams and lakes had become depleted from over fishing and habitat changes, such as those caused by logging and hydraulic mining. California waters were stocked both with native fish and with exotics, imported from other parts of the United States, whose only purpose was sports fishing. The rise of sport fishing was associated with larger cultural developments, notably the rise of tourism and an interest in the outdoors, another manifestation of which was the establishment of the Sierra Club in 1892. Sport fishing increased in the early 20th century with the introduction of the automobile, which provided larger numbers of sports fishermen with access to more streams and lakes in increasingly remote areas.[28]

Sport fishing was the first important reason for fish hatcheries, and it has continued to be one important reason throughout the history of hatcheries, up to the present day. Sport fishing has had a growing economic value to the state, from the generation of sales of fishing and camping equipment and traveling expenses; and, since 1913, the sale of fishing licenses. In the late 90s the state averaged over $2,000,000 a year in fishing licenses, and it is estimated that billions of dollars in sales are added to the economy.[29]

From the beginning, a secondary reason for hatcheries was for the conservation of the fish species. The increased damming of streams for hydroelectric power, irrigation, and water supply in the early 20th century contributed to an enhanced recognition of the relationship between habitat changes and to a growing interest in conservation. For example, the Pit 1 hydroelectric facility in Shasta County was nicknamed "The Fish Killer" even before it was completed in 1921. In 1934, new hatcheries were required by federal law to mitigate the losses caused by dams, an action regarded at the time as a conservation measure.[30]

From 1947, when large amounts of money became available for the state hatchery program following passage of the Wildlife Conservation Act of 1947, to 1988, nearly all new hatcheries were built for mitigation purposes. This coincided with increased mechanism and a premium on economy and efficiency. Generally speaking, old, small

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[26] "Salmon Kebob." *The Eureka Times-Standard*. 17 September 1992.
[27] W.H. Shebley. "History of Fish Planting in California" *California Fish and Game*, Vol. 13, No. 3. July 1927. 164.
[28] Robert Stickney. *Aquaculture in the United States: A Historical Survey*. John Wiley & Sons, 1996. 132-136.
[29] Corbett. *Final Historic Resources Study Report*. 25.
[30] Corbett, 25.

hatcheries were closed, and larger, modern ones were built. The emphasis of the hatchery program shifted in this period away from the support of sport and commercial fishing and toward mitigation.

In 1988, the California Salmon and Steelhead Restoration Act and related federal legislation shifted the emphases of the hatchery program and state policy toward fish preservation. New objectives, unrelated to those of the past, included the improvement of genetic strains through natural reproduction, and preservation or restoration of habitat, rather than focusing only on the supply of fish. Under this new policy, hatcheries have a diminished role. [31]

Architecture, Facilities, and Landscapes of Fish Hatcheries

Throughout their history in California, fish hatcheries have typically consisted of a number of built components: a hatchery building providing shelter for the hatching process; support buildings for storage, maintenance, and fuel; indoor and outdoor ponds for growing fish; pipelines and other facilities for delivery of suitable water to the hatchery; fish ladders and other features to facilitate the return of fish to a hatchery. Remote hatcheries and almost all hatcheries built before World War II had housing for a superintendent and workers. Hatcheries required access to transportation, to receive feed, eggs, and other supplies, and to ship fish. Until after 1900, this always meant access to a railroad. After 1900, this increasingly could mean automobile roads. Apart from lighting, heating, plumbing and other systems for the comfort of workers, electricity was used at hatcheries for pumps and other machines when it became available – from generators or by hookups to outside sources. Finally, all hatcheries have needed a reliable source of good water, which has usually meant a stream, but may also include wells.

The key building in any hatchery facility is the hatchery building, a type of structure whose requirements for good light and unobstructed space for troughs, tanks, and water conduits have remained constant for a long time. They were all large, rectangular, and column-free rooms with bands of windows on the outside walls. While old hatchery buildings can still serve modern needs, many have been replaced due to war and tear, especially induced by constant overflows of water onto the walls and floors causing the floors to rot out. Other buildings at hatchery facilities appear to have been ordinary examples of their times, whether garages, sheds, or houses.

Water Supply and Fish Ponds

Much of the original water supply system has been destroyed or removed. The original dam, now referred to as the upper dam, was largely removed in 1988. When the dam was removed, so were the intake, the fish ladder, and the pond behind it, which backed up about 800 feet. Fragments of the wing walls, which anchored the dam to the banks of

[31] Corbett, 25-26.

Lost Man Creek, are still in place. Most of the pipelines, except the stream crossing, described below, are gone. The pipeline lay falling apart and unused on the ground during most of the 1960s, and washed away in a flood in 1971-1972. The original filtration tank was removed about 1962-65. The domestic water supply system was taken apart and the original domestic water tank was reused inside the hatchery. Other structures that were added after 1955, including an electric weir, two mechanical weirs, and two silt fences have since been removed. A pond, levee, and culvert from 1967 to 1970 are silted up and overgrown with plants.

Landscape Features

No visual or written record of the landscape of the PCFH during its period of significance (1936 to 1946) was found. Descriptions of the landscape provided by people who lived there during this period provided the record of this aspect of the hatchery facility. The entrance to PCFH was from U.S. Highway 101 and was located between the Hatchery and the Superintendent's house. In the center of the driveway were dahlias, a stand of second growth redwoods, and a flagpole with a cross bar for two flags. South of the houses was a concrete sidewalk that remains in place today. It is not known if there were other sidewalks or when the existing sidewalks were built. South of the sidewalk were located clotheslines and a garden. Today, this area is the location of the gravel-lined, rectangular ponds. The tri-annual water licensee reports mention lawns; rhododendrons grew on the property; and at the north end of the garage-shop Cecil Bruner roses grew over the remains of a large tree stump. The landscape during the period of significance was rural in character.

Today, except for the lawn and concrete sidewalk located to the south of the two houses, the landscape features and ornamental plants appear to have been put in place after the period of significance. The driveway was moved to its present location in the early 1960s and is now paved with asphalt. In the place of the original driveway, an ornamental fishpond was built in ca. 1962. This rectangular pond is faced with irregular cut stone laid in concrete mortar. Also at this time, entry porches and low, retaining walls for planting beds were built of the same materials and added to the Hatchery. Plant materials around the Hatchery (including rhododendrons on the south side, evergreen hedge on the west side, and lilies and ferns on the north side) most likely date from the early 1960s or 1970s. Today, although the setting of the facility remains rural, there has been an increase in the area of the property that is paved. There were no major paved areas during the period of significance. The resulting loss of lawn area and space devoted to gardens has altered the character of the property.

Other plant materials include: a holly, roses, and ferns on the front (north) side of the superintendent's house; an evergreen shrub and ferns on the front (north) side of the assistant's house; roses and blackberries growing along the east side of the driveway next to the fence; blackberries growing outside the fence along U.S. Highway 101 right-of-way; a hedge along the west side of the raised, concrete tanks, a row of trees planted along the fence on the western side of the property; and a red plum tree located just inside

the entry gate. All of these plant materials appear to have been planted, or in the case of the blackberries grew, after the period of significance; all appear to have been planted separately; and they were not planted as part of a plan.

Description of the Buildings

Hatchery (1936) – The Hatchery is a rectangular, gable-roofed building measuring 4 1 by 130 feet and oriented east-west. It is a wood-frame structure with 5 ½ by 6 inch posts which rest on a foundation of concrete posts. The vertical members of the trusses are round steel bars; the diagonal members are wood. The members of the trusses are fastened together and to the posts by steel bolts. The trusses support a gable roof with overhanging eaves and paneled soffits. The roof is clad in corrugated metal except for one fiberglass panel on the north side. Between the posts of the sidewalls, and in the end walls, are stud frames, to which is attached 7-inch wide, V-groove siding. Generally, between every other pair of studs is a two-over-two double-hung window. Vents at the tops of the gables provide for air circulation. The Hatchery is entered through doors in the centers of the east end and the north and south sides, and at the south end of the west wall. The side doors are replacements of hollow core construction. The eat end door is paneled. Outside the east end of the building is a shed-roofed lean-to, covering a refrigerator installed in the 1970s.

Inside, the two easternmost bays are partitioned and the seven remaining bays are open. Above the partitioned spaces is a loft. A central corridor divides the partitioned area, with a food preparation area on the north side; and a shop, office, and bathroom on the south side. The food preparation area, where liver was ground, includes storage cooler and a concrete floor tank with a faucet and drain. The shop has built-in shelves and a metal chimney or vent pipe. The office opens not into the corridor, but into the main hatchery space. Knob and tube fixtures indicate that electricity was provided early in the life of this building.

The remainder of the Hatchery interior is a column-free space, open through the trusses to the underside of the roof. During the period of state operation, from 1936-1955, there were 80 troughs in the building. Troughs are narrow open flumes that step down from north to south, in which the eggs are hatched and the fish start to grow. Today there are six pairs of redwood troughs at the west end, fed water by a flume along the north wall. Each trough steps down at the center. Between the troughs an the partitioned area are two sunken rectangular tanks of reinforced concrete; four round redwood tanks; and metal racks with plastic incubator trays (installed after 1971). The floor in this area is a raised wood deck added because of water damage to the original floor below.[32]

Superintendent's House (1936) **–** The westernmost of the three original houses was originally designated the superintendent's house and was slightly larger than the others. It is a rectangular building (26 feet 3 inches by 38 feet 6 inches) oriented north-south,

[32] Corbett, 16.

with a small back porch abutting the southern boundary of the parcel and a front porch (12 feet by 7 feet 6 inches) facing the open space where the circular drive had been. It is a stud-frame structure on a foundation of concrete posts. The walls are clad in 7-inch V-groove siding. The gable roof has overhanging eaves with paneled soffits. The roof is clad in asphalt shingles. The interior is lit by wood double-hung windows (one over one), except the upstairs window, which is aluminum. There are attic vents at the tops of the gables. Entrances at the front and rear are paneled wood doors with glass upper panels.

The house is entered from the front porch directly into the living room. The living room and rear kitchen occupy the west side of the house. On the east side, there is a bedroom in each corner with a short corridor and a bathroom in between. A stair in the northeast corner bedroom leads up to an attic bedroom. Interior finishes originally included wood baseboards and cornice moldings, and wood battens between the paperboard wall panels. Original finishes are intake in the corridor and the southeast bedroom, as is most of the standard manufactured hardware. Heat is provided by a wood stove (which replace an early stove about 1971) in the living room, vented through a metal flue to a brick chimney on the roof. Electricity and plumbing were originally provided. The bathroom is partially remodeled, but retains some original tile and fixtures. The northeast bedroom, living room, and kitchen have been refinished.

Assistant's House (1936) – This is the easternmost of the two houses standing today, but was originally the middle of three houses. It is a generally rectangular building (26 feet 3 inches by 34 feet 6 inches) with a two-foot extension of the kitchen, a small back porch facing the southern boundary of the parcel, and a front porch facing the open space where the circular driveway originally ran. It is a stud-frame structure on a foundation of concrete posts, with walls clad in 7-inch V-groove siding. The gable roof and transverse gabled kitchen bay have overhanging eaves and are clad in asphalt shingles. The interior is lit by wood, double-hung windows (one over one). There are attic vents at the tops of the gables. Entrances at the front and rear are paneled wood doors with glass upper panels.

The house is entered from the front porch into the living room. The living room and kitchen occupy the west side of the house. On the east side, there is a bedroom in each corner with a short corridor and a bathroom in between. A stair in the southeast corner bedroom leads upstairs to an attic bedroom. Interior finishes originally included wood baseboards and cornice moldings, wood battens between the paperboard wall panels, and standard manufactured hardware. Original finishes are generally intact in the kitchen, corridor bathroom, and southeast bedroom. Living room and northeast bedroom finishes have been remodeled. Heat is provided by a wood stove (which replaced an earlier stove about 1971) in the living room that is vented through a steel pipe to a brick chimney on the roof. Electricity and plumbing were originally provided. The attic bedroom is finished in sheet rock, and was not originally a finished part of the house.

Garage-Shop (1936) – This building is rectangular in plan (48 feet 4 inches by 24 feet 4 inches), oriented north-south, with a gable roof. It is a wood structure with stud walls on

a concrete perimeter foundation and a gable roof supported by trusses. The walls are clad in seven-inch V-groove siding. The roof has overhanging eaves with paneled soffits, and is clad in corrugated metal. The interior is lit by two-over-two double-hung windows. There is a standard, wood paneled door in either end. Three wide doors on the west side open on rollers, providing access by motor vehicles.

Shed (1936) – This small shed is rectangular in plan (14 feet 6 inches by 12 feet), oriented north-south, with a gable roof. It is located east of the garage-shop and is the only surviving building that is not part of the main U-plan of buildings. This is a stud-frame structure on a concrete foundation. It is clad in 7-inch V-groove siding. Its gable roof is supported on rafters with collar beams. This roof has overhanging eaves with exposed rafter ends, and is clad in shingles. The singe interior space is lit by top-hinged windows in the side walls, and entered through a wide side hinged wood door with a diagonal framing member.

Pipeline stream crossing (1936) – The structure which originally served to carry the pipeline across Lost Man Creek is still in place, though the original steel pipeline has been replaced by plastic pipe. The crossing structure is a small suspension bridge with a steel tower on either side of the creek and steel cables. The towers are rectangular frames braces with crossing diagonal members in an X shape. From the cables, a portion of the pipeline and a wooden catwalk above it are suspended.

Round outdoor water tanks (ca. 1936 to 1943) – All five round water tanks located outside the north wall of the Hatchery building were built within the period 1936 to 1943. All the tanks are of reinforced concrete construction and measure 20 feet in diameter. They are sunk into the ground so that they are only a few inches high on the outside, but about a foot deep. The walls are about four inches thick, the bottoms slope slightly to a drain at the center. Today a pipe is cantilevered from the side toward the center of each tank. This replaces an earlier system for aerating the water. The aggregate in the concrete is exposed below the waterline in the tanks.

Aeration Tower (ca. 1962 to 1965) – This is a concrete frame supporting an elevated wooden aeration tank.

Rectangular, aboveground concrete tanks (ca. 1973) – This pair of reinforced concrete tanks was built in the early 1970s as elements in a redesigned water supply and hatchery process. The rectangular tanks are side by side and share a common wall. Vertical grooves in the concrete walls are designed for the placement of moveable gates. Valves at either end allow water and fish to be moved in and out of the tanks. Each tank is approximately 79 feet long by 10 and ½ feet wide.

Dedication Pond and Associated Features (ca. 1962) – A pond was built between the hatchery and the houses about 1962 when the original driveway was removed fromt eh area. The rectangular pond is approximately 38 feet long and 11 feet wide. It is faced with irregular cut stone in concrete morter.

Pump House (1962) – This is a small square building (8 feet by 8 feet) located outside the hatchery property near the new gate that was established in the 1960s on the north edge of Lost Man Creek. This is a stud-frame structure on a concrete perimeter foundation. It is clad in 7 ¼ -inch V-groove siding. It has a gable roof with overhanging eaves and exposed rafters. The roof is clad in shingles. The building is ventilated by louvered openings on each side and a roof monitor. It has a wood door and no windows. There is a pipe running between the southeast side of the building and the ground above the creek.

Pump House (1971) – This is a small rectangular building (6 feet 3 inches by 8 feet 2 inches) oriented north-south, and located near the southwest corner of the superintendent's residence, outside the boundaries of the parcel. This is a stud-frame structure on a slab foundation, clad in 7-inch V-groom siding. It has a gable roof with overlapping eaves, exposed rafters, and wood shingles. It is ventilated by louvered openings on the side. The door is missing. Inside is a 40-horsepower Holloshaft Pump Motor.

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Table of Contents

HISTORIC AMERICAN ENGINEERING RECORD

INDEX TO PHOTOGRAPHS

PRAIRIE CREEK FISH HATCHERY HAER CA-334
Redwood National Park
Hwy. 101
Orick
Humboldt County
California

INDEX TO BLACK AND WHITE PHOTOGRAPHS

Jet Lowe, photographer, September 2005

CA-334-1	Hatchery complex looking northwest by 295 degrees.
CA-334-2	Hatchery complex looking northwest by 305 degrees.
CA-334-3	View looking northwest of the main hatchery building with the tank in the foreground. View to the southeast.
CA-334-4	Perspective view, Exterior of main hatchery building looking east, northeast.
CA-334-5	Perspective view, Exterior of main hatchery building. View to the west, northwest.
CA-334-6	Perspective the office, interior of main hatchery building. View to the northwest.
CA-334-7	Perspective of laboratory, interior of main hatchery building. View to southwest.
CA-334-8	Perspective of tool room, interior of main hatchery building. View to the southwest.
CA-334-9	Perspective view of interior main hatchery building, view to west.

PRAIRIE CREEK FISH HATCHERY
HAER CA-334
INDEX TO PHOTOGRAPHS

CA-334-10	Perspective of rearing tanks and work trays, interior of main hatchery building. View to southeast.
CA-334-11	Perspective view of interior of the main hatchery building. View to the northwest.
CA-334-12	View of foot of troughs showing signs/placards. Interior of main hatchery building, view northwest.
CA-334-13	Detail view of troughs, pumps and screens, interior of main hatchery building. View to the west.
CA-334-14	Detail of pumps in troughs, detail of truss - attachment to the wall - as well as the troughs themselves. Interior of the main hatchery building, view to the east.
CA-334-15	Perspective view of the interior main hatchery building, view to the northeast.
CA-334-16	Detail of trough as well as interior wall construction in main hatchery building. View to the northwest.
CA-334-17	Detail of interior truss, main hatchery building. View to the east.
CA-334-18	Superintendent's quarters with pump house in the foreground and the hatchery in the background. View to the northwest.
CA-334-19	Superintendent and assistant superintendent's quarters with the tank in the foreground. View to the southeast.
CA-334-20	Perspective of the superintendent's house, assistant superintendent's house, and pump house near Highway 101. View to the northeast.
CA-334-21	Perspective of the exterior of the assistant superintendent's house with the superintendent's house in the background. View to the west, southwest.
CA-334-22	Shed and garage, perspective shot, view to the northwest.
CA-334-23	Perspective of the garage. View to the north.
CA-334-24	Perspective view of the pump house looking south 180 degrees. This is the pump house at the southern most point of the complex.

PRAIRIE CREEK FISH HATCHERY
HAER CA-334
INDEX TO PHOTOGRAPHS

CA-334-25	Interior detail of pump house (1962) at southern most point of the complex.
CA-334-26	Pump house adjacent to the superintendent's house at the west end of the complex near Highway 101. Detail of Holloshaft pump. View to the south.
CA-334-27	Pump for spawning channels includes a turbine and motor. Turbine is Berkeley H-17500, model 8C2PH, Serial No. 2889, B. M. No. 4886 - Berkeley Pump Co. The Motor is G.E. Induction Motor, model 5K4256XA3YI, serial no. GAJ728337, Tri-Clad. View looking northeast.
CA-334-28	Elevation shot of spawning channels at southern entrance of complex. View to the west.
CA-334-29	Detail of spawning channels at south end of complex near entrance. Pump house in background. View to the southeast.
CA-334-30	Cement tank feature with Assistant's quarters in the background. View to the northwest.
CA-334-31	Elevation shot of large rectangular rearing tanks (pair). Warehouse in the background. View to the north.
CA-334-32	Detail of gate, gate slots, and connection between the two segments of the rectangular rearing tank. Pump house (1962) at entrance is in the background. View to the southwest.
CA-334-33	Detail of ump that is attached to rectangular rearing tanks (pair). Pump located on the north end of rearing tank. View to the northwest.
CA-334-34	Perspective circular rearing ponds on north side of hatchery. View to the west, northwest. Includes view of ditch and step up to hatchery building on left side of image.
CA-334-35	Aeration tower/pump. View to the north.

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HANDS IN WATER

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