Chapter 2
Program Description

Introduction

Chapter 2 presents a description of the Program that is analyzed in Chapters 3–6. As stated in Chapter 1, the Program is not the proposed project or proposed action typical of CEQA and NEPA documents. Instead, it represents what DFG has been undertaking in its hatchery and stocking programs over the past 5 years (2004–2008) and is considered the baseline. A proposed project or proposed action is to be identified based on the analysis of baseline operations and alternatives.

The Program includes a description of the statewide system of trout, salmon, and steelhead hatcheries operated by DFG and the stocking activities that are associated with the hatcheries. The chapter also describes other DFG activities associated with raising and stocking fish in the state, including the relatively small Fishing in the City and CAEP programs, and the much larger private stocking permit program. Hatcheries within California that are owned and operated by the USFWS (the Coleman and Livingston Stone Hatcheries in northern California) are not included in the Program because they are not subject to DFG oversight. These USFWS hatcheries are considered in the "Cumulative Impacts" chapter (Chapter 8).The chapter is organized to provide some basic background on DFG hatchery and stocking activities (history and objectives), then to clearly describe the various elements of current hatchery operations and stocking. The other programs which involve release of fish to California's waters and for which DFG only provides oversight are described at the end of the chapter.

There are two distinct elements to DFG hatchery operations and stocking—the trout hatchery program and the salmon and steelhead hatchery program. These programs are separate because they serve somewhat different purposes, they have different funding sources, and they have different levels of DFG involvement. The trout hatchery program rears and stocks trout and some salmon species in California's inland waters. Inland waters are water bodies typically not accessible to fish migrating from the ocean. These fish are planted to provide recreational opportunities for California's anglers, and for conservation and restoration of native fish species. All trout hatcheries discussed in this chapter are owned and operated by DFG.

The salmon and steelhead hatchery program rears and stocks several species of salmon and steelhead trout. These fish are anadromous and therefore are stocked in anadromous waters (water bodies typically accessible to fish migrating from the ocean). The program exists to provide mitigation for loss of anadromous fish habitat and blocked access to upstream spawning areas due to dam construction, to provide mitigation for fish lost due to operation of state-owned Sacramento-San Joaquin Delta pumps, and to enhance native anadromous fish populations for recreational and commercial fishing. Only two of the 10 salmon and steelhead hatchery facilities discussed below are owned and operated by DFG; the remaining facilities are owned by state and federal agencies, utilities or private corporations. DFG operates these hatchery facilities under contracts or agreements with the owners. While the trout and the salmon and steelhead programs are relatively distinct, there have been instances where trout hatcheries have reared and stocked anadromous fish in anadromous waters, and salmon and steelhead hatcheries have reared trout or salmon for stocking in inland waters.

Program History

The science behind fish hatcheries dates back centuries. Lieutenant G. L. Jacobi of Germany is credited as being the first person to successfully impregnate fish artificially in the late 1700s (Greenberg 1960:2). Hatcheries are the place where fish eggs are hatched and reared before planting. They require a plentiful supply of clean water, as well as equipment, including troughs, nursery tanks, ponds, raceways, screens, and ladders, for the care and raising of the fish (Greenberg 1960:68, 75–79, 83, 85). The hatcheries play a critical role in the artificial propagation of California's fish species. Today, California operates 24 hatchery facilities: 10 designed for salmon and steelhead and 14 for trout.

California's earliest fish hatcheries were built over 135 years ago. As early as 1852, California passed its first salmon law, which forbade the obstruction of salmon runs in any of the rivers and streams that the fish used for breeding. In 1870, Governor Henry Haight approved legislation that established the Board of Commissioners of Fisheries of California (Board). Among the Board's responsibilities 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 (Leitritz 1970:8). This new legislation also created California's first two fish hatcheries.

The first two publicly owned fish hatcheries in California were established in the San Francisco Bay area. The California Acclimatization Society Hatchery was located in San Francisco's City Hall in 1870. J. G. Woodbury, a fish culturist and eventual state superintendent of hatcheries, operated the facility and successfully hatched eastern brook trout eggs that were shipped from the East Coast (Leitritz 1970:46; Shebley 1917:3). As the fish hatched, they were placed in Lake Merced, located on the western edge of the city limits; some small ponds in San Francisco; and small streams in various sections of California. In addition to the brook trout, the hatchery also hatched and distributed trout native to Lake Tahoe. To meet expenses, some eggs and fish were sold, while others were kept as brood stock (Leitritz 1970:15). This hatchery was short-lived and closed in 1871 (Leitritz 1970:11). The second hatchery, State Hatching House, was located at the University of California, Berkeley. This hatchery closed in 1877 because the facilities were too small, and there was an inadequate water supply. The Board transferred operations to the San Leandro Hatchery the following year (Leitritz 1970:15).

The most successful of the early fish hatcheries was the Baird Hatchery, named for professor Spencer F. Baird, the first U.S. commissioner of fisheries of the U.S. Fish Commission. Baird Hatchery was established in 1872 on the McCloud River by Dr. Livingston Stone, a recognized expert and fish culturist with the U.S. Fish Commission, and his two assistants, Myron Green and William T. Perrin. Baird Hatchery marked the first successful salmon breeding station on the Pacific Coast (Leitritz 1970:16). The station briefly closed in 1884, due to a decline in the number of eggs available for taking. The hatchery reopened in 1888 to provide eggs for another hatchery, Sisson Hatchery (now the Mount Shasta Hatchery) on Spring Creek in Siskiyou County. Baird Hatchery operated for the next 46 years. Eventually, it was flooded by Shasta Dam in 1944 (Leitritz 1970:17).

During those early years, more than 25 fish hatcheries were created by the Board. Most operated for an average of 2 or 3 years before closing. One of the most successful operations was the Battle Creek Hatchery in Shasta County. Established in 1895 near Balls Ferry on what was one of the largest tributaries of the upper Sacramento River, the California Fish Commission operated it for 2 years. The state did not have the proper funds to operate the facility to its fullest capacity, and it

propositioned the federal government to purchase the hatchery. The eggs collected under federal operation were transferred to the California Fish Commission for hatching and release. The Coleman National Fish Hatchery on Battle Creek near Cottonwood, in Shasta County, replaced this hatchery in 1945. In addition to constructing hatcheries at locations chosen by the Board, private enterprises also constructed hatcheries for the Board. The San Francisco and North Pacific Railroad Company built the Ukiah Hatchery (1897–1927) west of Ukiah. The railroad was interested in having the streams along its railroad line stocked because the railroad's president, A. W. Foster, had an interest in fish stocking. The hatchery facility had capacity for 2 million eggs, and the railroad company arranged with the California Fish Commission to supply the hatchery with trout eggs on the condition that the fish would be released into public waters in Marin, Sonoma, and Mendocino Counties. The state took over operations in 1911 and closed the hatchery in 1927, when it opened a new facility at a better location on Cold Creek in Ukiah. (Leitritz 1970:24–25.).

Mount Shasta Hatchery, established in 1888 on Spring Creek in Siskiyou County, was an ideal location for a hatchery. It had plenty of fresh water and was close to a railroad, which was necessary for transporting the eggs and fish. As originally designed, it had one building, which housed 44 hatchery troughs. Later, it was enlarged to include ponds for trout brood fish. The Board continued to expand this hatchery and even purchased its own railroad cars to more easily transport the fish. In 1926, the hatchery was remodeled, and five new buildings that could accommodate 468 hatching troughs were added (Leitritz 1970:55–58). This hatchery remains in operation.

In 1909 the Board's official name changed to the Board of Fish and Game Commissioners, and in their 1910 biennial report they were known as the California Fish and Game Commission (CFGC) (Leitritz 1970:9). It was during the first half of the 20th century that California opened more than 100 fish hatcheries and egg collecting stations (Leitritz 1970:11–14). Some operated for a short time before closing because of natural disasters (e.g., the eruption of Mount Lassen in 1915 killed all the fish in Hat Creek), drought, and an insufficient number of eggs for collection. Other stations, including Cottonwood Creek Egg Collecting Station (1900–1938), Mill Creek Hatchery (1902–1945), Brookdale Hatchery (1905–1953), and Fort Seward Hatchery (1916–1942), thrived for decades. The Mount Whitney Hatchery opened in 1917 and continues to operate as a trout hatchery, although it is temporarily inactive due to damage from a mudslide in July of 2008. It was one of the first hatcheries opened in southern California. Architecturally, it has a European design, it was constructed almost entirely of native stone, and it was considered one of the least expensive hatcheries to maintain or repair (Keep 1951:22; Leitritz 1970:63).

According to the 1920–1922 biennial report of the CFGC, 30 hatcheries and egg-collections stations were in operation during that period. Combined, these facilities produced nearly 41 million trout fry and 18 million salmon fry. The earliest hatcheries and those constructed before the 1930s focused on producing fry and fingerling (2 inches in length) trout. These stations were located where clear, cold water was readily available. The demand from anglers put pressure on the CFGC to produce catchable (6 to 10 inches in length) fish. In order to meet this demand, the CFGC recommended constructing more hatcheries that could produce catchable fish. Large trout grew better in warmer water, and it was no longer necessary to establish stations at higher elevations. Stations in the foothills and valleys where water temperatures averaged between 55°F and 65°F were favored and could produce trout that grew 1 inch per month (Leitritz 1970:50–53; California Fish and Game Commission 1922:8; Keep 1951:23). The first facility constructed to make this transition was the Hot Creek Hatchery, which opened in 1931. In 1937, the Central Valleys Hatchery became the CFGC's only hatchery devoted to rearing warm-water game fish (black bass, sunfish, and catfish) and forage fish. The Work Projects Administration (WPA) program constructed the hatchery near Elk Grove, in

Sacramento County (Leitritz 1970:68). Fillmore Hatchery in Ventura County was completed in 1942 and featured 30 ponds, four cottages, a feed room, and a garage (Leitritz 1970:71). Because of shortages during World War II, Fillmore Hatchery would be one of the last hatcheries constructed until the war ended. Plans for constructing seven new, modern, warm-water hatcheries for catchable trout had to be placed on hold (Leitritz 1970:53).

One of the greatest hurdles in constructing more hatcheries during the early to mid-20th century was the lack of funding. Between 1910 and 1947, the CFGC received no appropriations from the state (California Fish and Game Commission 1922:8). New legislation in 1947 created the Wildlife Conservation Act, which created the Wildlife Conservation Board under the jurisdiction of the Department of Natural Resources (Wildlife Conservation Board 2007:5–6). This legislation provided the much-needed funding to construct new hatcheries that could produce catchable fish. The first hatchery and the largest undertaking using these funds was the Crystal Lake Hatchery, which opened in 1947 (Leitritz 1970:74). The Fish Springs Hatchery in Inyo County was another hatchery constructed from the Wildlife Conservation Board funds. This hatchery was established for raising catchable rainbow trout that were distributed in the Inyo-Mono area. Other early hatcheries created from Wildlife Conservation Act funds were the Darrah Springs Hatchery (1954) and the Moccasin Creek Hatchery (1954). Darrah Springs was one of the state's most successful hatcheries and was capable of producing 400,000 pounds of trout (Leitritz 1970:80). Between 1957 and 1958, more than $4 million was spent on fish hatchery and stocking projects (Wildlife Conservation Board 2007:5, 13). During the 1950s, some of the older existing hatcheries underwent expansion and modernization, including Mount Shasta Hatchery, Kern River Planting Base, and Black Rock Rearing Ponds (California Division of Fish and Game 1950:11).

Two of California's most successful hatcheries were constructed during the mid-1950s: San Joaquin Hatchery and Nimbus Hatchery. San Joaquin Hatchery (1955) is below Friant Dam in Fresno County and remains operational today. It was one of the state's largest hatcheries, and its purpose was to rear catchable trout. Originally, it had an aerating tower, a hatchery building with 104 troughs, 12 circular tanks for fingerlings, four ponds for rearing warm-water fish, storage buildings, and residences. The facility was expanded in 1960 with the addition of 12 ponds. This hatchery was capable of producing 165,000 pounds of catchable fish (Leitritz 1970:76–77). The Nimbus Hatchery opened in December 1955 at a total cost of $937,000. It was a joint project between Reclamation, DFG, and the USFWS, a result of mitigation when the Folsom and Nimbus Dams were constructed (Hooper 1955:12; Leitritz 1970:84). These dams interrupted 85% of the spawning grounds of the American River Chinook salmon and steelhead trout. Nimbus Hatchery was built to compensate for the loss (Leitritz 1970:84).

The construction of hatcheries slowed in the 1960s and 1970s. Most that were built were the result of mitigation: Trinity River Hatchery (1961), Mokelumne River Hatchery (1963), Iron Gate Hatchery (1966), Feather River Hatchery (1967), and Merced River Hatchery (1970) (California Department of Fish and Game and National Marine Fisheries Service 2001:9). Feather River Hatchery (1967) was constructed by the DWR after Oroville Dam was built. The facility was the result of collaboration between DFG and the DWR. Feather River Hatchery remains one of California's most successful and advanced fish hatcheries (California Department of Fish and Game 2008b). Two non-mitigation hatcheries were built during this period. The American River Hatchery (a trout facility) was built in 1967. The Mad River Hatchery (1971), which was constructed by the Wildlife Conservation Board, was established to maintain and enhance salmon and steelhead populations (California Department of Fish and Game and National Marine Fisheries Service 2001:7; California Department of Fish and Game 2008c; Urrutia pers. comm.).

The trend to build hatcheries as part of mitigation measures continued in the 1980s, when Warm Springs Hatchery (1980) opened. This hatchery is owned and funded by the USACE and operated under contract by DFG. Initially, this hatchery produced steelhead, Chinook, and coho salmon. However, Chinook, and coho salmon production at the hatchery ceased in the 1990s in association with federal ESA listings and due to low female returns of these species to the hatchery. The hatchery continues to produce steelhead which are released to the Russian River and to Dry Creek, a tributary to the Russian River. In 2001, the Coho Recovery Program was started by DFG at the hatchery in cooperation with the USACE, NMFS, Sonoma County Water Agency, and other agencies (Larson pers. comm.).

California's fish hatcheries have an important role in the conservation of California's fish populations. The cooperative fish rearing program, which began in 1973, plays an important part of conservation efforts. The program's goal is to increase salmon and steelhead populations through partnerships with a variety of organizations, including nonprofit groups, corporations, counties, and tribes. Without the hatcheries, California's rivers, streams, and lakes would have been overfished many years ago. The hatcheries in operation today successfully rear fish that are used by both commercial and recreational anglers and stock the rivers and lakes of California from Del Norte County in the north to San Diego County in the south.

Program Objectives

As stated in Chapter 1, the fundamental objectives of DFG's Program are to continue the rearing and stocking of fish from its existing hatchery facilities for the recreational use of anglers, for mitigation of habitat loss due to dam construction and blocked access to upstream spawning areas, for mitigation of fish losses caused by operation of the state-operated Sacramento-San Joaquin Delta pumps, and for conservation and species restoration. These fundamental objectives should be accomplished while addressing the impacts of stocking DFG-reared fish and issuing private stocking permits on native, sensitive or legally protected fish and wildlife species. The purpose of USFWS's proposed SFRA funding is to support operations of DFG's 14 trout hatcheries, the Mad River Hatchery for steelhead, associated stocking of fish produced at those hatcheries, and operation of the DFG Fishing in the City and CAEP programs. The need addressed by the proposed action is the support of viable recreational fishing in California, through increased angler success that is provided by stocking of hatchery fish in both urban and rural water bodies. Provision of SFRA funds for support of private stocking permits or operation of other anadromous fish hatcheries and their associated stocking efforts is outside the scope of actions contemplated by USFWS at this time.

Current Hatchery and Stocking Program

The following pages describe the DFG Program as it has been operating in the past 5 years. The material below is a comprehensive summary that is designed to inform both the public and the decision makers, as a basis for assessing the effects of the Program on the environment. The management structure and guidance and the funding are identified. The hatchery and stocking activities for trout as well as salmon and steelhead elements of the Program are also described. More detailed information about the facilities and basic operations of the individual hatcheries is included in Appendix A.

Management Structure and Guidance

Headquarters and Regional Structure

To coordinate program policies, regulations, legislation, funding, operational procedures, and statewide work responsibility, DFG is organized into four headquarter divisions and seven field regions. Headquarter divisions oversee, develop, and maintain policies for the programs in their area of responsibility. These program divisions also provide statewide coordination over each program area; and provide support and information to regions, the DFG director's office, the CFGC, and the Wildlife Conservation Board. The Fisheries Branch, in the Resources Management and Policy Division, is responsible for overseeing all activities associated with fish hatcheries and stocking. Regions are responsible for implementing statewide programs and policies at the field operational level. The trout and the salmon and steelhead hatchery programs are managed through five of the seven operational field regions (Figure 2-1), which are:

- 1—Northern Region, Redding;
- 2—North Central Region, Rancho Cordova;
- 3—Bay Delta Region, Yountville and Stockton;
- 4—Central Region, Fresno; and
- 6—Inland Deserts Region, Ontario.

Although Region 5 includes one trout hatchery (the Fillmore Hatchery), this facility is managed by Region 6 staff. The Marine Region does not manage elements of the Program.

DFG's authority to operate as a fish and game management agency is derived from many sources, including the California Constitution, a variety of state and federal laws, rules and policies promulgated by the Fish and Game Commission, and other control agencies such as California's Department of Finance and State Controller. Management of hatcheries and stocking is performed pursuant to policies developed by the CFGC, DFG guidance such as the *Strategic Plan for Trout Management: A Plan for 2004 and Beyond* (California Department of Fish and Game 2003), and other policies developed in response to a change in aquatic resource management philosophy.

California Fish and Game Code, Fish and Game Commission Policies, Department of Fish and Game Policies, and Regulations

DFG is guided by state law, and CFGC and DFG policies and regulations contained in 14 CCR in determining annual stocking allotments. Applicable examples of state law and DFG management plans and programs are:

- Fish and Game Code Section 13007 - Hatchery and Inland Fisheries Fund; License Fees Deposited Into; Use of Funds Deposited;
- Fish and Game Code Sections 1120,7260, etc (State Fish Hatcheries, Native California Trout);
- DFG's Strategic Plan for Trout Management: A Plan for 2004 and Beyond (California Department of Fish and Game 2003a);
- DFG High Mountain Lakes Program Guidance.

These codes and policies provide, in part, the structural framework within which DFG must make stocking allotment decisions.

Current Trout Stocking Guidance

The overall purpose of the recreational fish stocking program is to augment trout populations where recreational angling demand is greater than natural production and other standard methods of fisheries management are insufficient to meet that demand. However, recreational angling demand far outstrips the ability of the hatchery system to produce fish in many areas in California. Therefore, DFG utilizes a decision-making process to determine where to stock and how many fish to stock in order to best meet recreational angling demand. During the decision-making process, fisheries managers take into consideration many factors. Among these factors are:

- state laws and regulations;
- CFGC (see Appendix B) and DFG policies and regulations concerning fish stocking activities;
- historic fish stocking allotments;
- fisheries management practices;
- fish hatchery capability to produce and deliver stocked fish—number of fish, fish size, fish species, timing of fish plants, and locations to be stocked; and
- public input—County Fish and Game Commissions, local community stakeholders, non-governmental fishing/fisheries organizations, and concerned individuals.

These and other factors are described elsewhere in this section and in Appendix B.

During recent years, the effect of fish stocking practices on fish and wildlife species and natural communities has altered the manner in which the different Regions conduct their fisheries management and fish stocking practices. While the DFG has adhered to CFGC policy regarding the effect of fish stocking practices on native trout and other native fish species, changing social values with regard to the value of all native species and ecological communities as a whole have facilitated a shift in DFG priorities. Hence, the Regions have largely shifted from sport fisheries-based management to aquatic ecosystem/resource-based management.

The shift to the aquatic resource management concept is best exemplified by the DFG high-mountain lakes (HML) process. For higher-elevation waters that are stocked, biologists consider the presence of native species, legally-protected species, or species of special concern, and make decisions regarding whether or not planting those waters will impact the aquatic resources of specific waters.

High-Mountain Lakes Trout Stocking Program Guidance

The High Mountain Lakes (HML) project was established to focus DFG resource assessment and management activities on California's high elevation fisheries and native amphibian species. In the Sierra Nevada, this primarily includes habitats of the mountain yellow-legged frog and Yosemite toad above an elevation of 6,000 feet in the east, and above 4,500 feet in the north. In the Transverse Range of southern California, the project includes aquatic habitats in the southern DPS of mountain yellow-legged frog. In northern California, the project focuses on high elevation aquatic habitats of Cascades frog and other native amphibians above 5,000 feet elevation. The HML Project consists of most aquatic habitats in these high elevation regions, including lakes, ponds, streams, and wet

meadows. Most of these habitats were historically fishless, but trout have been planted in many of these waters dating back to the mid-1800s.

California's HMLs (Figure 2-2) have been extensively stocked with non-native trout during the last century. Approximately 90% of the larger HMLs (≥3 hectares [7.4 acres] and ≥3 meter depth [10 feet]) have extant introduced trout populations. Thousands of high elevation fisheries have been established, and they are enjoyed by a large and diverse group of adventurous anglers. Most of the HMLs are not accessible by car and are located in designated wilderness areas. The DFG's goal for managing these fisheries is to continue to provide fishing opportunities in HMLs consistent with policies to protect and enhance ecosystems for native species.

In the mid 1990's, the DFG initiated a regional fisheries management planning effort for Lake Crowley. This effort included consideration of not only the lake resources, but the resources associated with the tributaries and surrounding environment. This first attempt at applying a watershed-based management approach to fisheries within a single lake ended with preparation of the Lake Crowley Management Plan. While the DFG was crafting the management plan for Lake Crowley, it was also engaged in collecting data on HML watersheds, primarily in Region 6, such as Convict Lake, Bishop Creek, and Big Pine Creek. The goal for this management planning effort was to assess the resources of these watersheds to determine how to manage fisheries resources to provide recreational angling opportunities while trying to preserve native aquatic resources. These early efforts provided the DFG with valuable information on how to take a watershed approach to planning management of fishing opportunities for anglers while preserving and improving habitat for native species. During this same time period, the USFWS was petitioned to list the mountain yellow-legged frog and Yosemite toad as threatened or endangered under the federal ESA, and a decision was made in 2001 to cease stocking operations in most HMLs throughout the state unless surveys were conducted.

The DFG initiated a massive state-wide HML resource assessment of fish and amphibian populations in 2001. Resource assessments on fish and amphibians in HMLs are conducted following protocols originally designed by Fellers and Freel (1995), modified through consultation with Dr. Roland Knapp, and then further revised by DFG in 2001 for the HML survey. The HML protocol is attached as Appendix C. These surveys include assessments of the presence of several amphibian and reptile species, fish species presence, condition and relative abundance, habitat composition, and watershed characteristics including locations of unmapped water bodies and possible barriers to fish migration. Over 16,000 surveys have been completed on approximately 11,000 sites to date. Assessment data are used to develop aquatic biodiversity management plans (ABMPs) that include provisions for maintaining some recreational fisheries while recovering native animals, especially amphibians. To date, there are HML ABMPs completed or in draft for 27 management units. Additional ABMPs are needed to ensure that trout fisheries are managed in a manner compatible with native amphibian and invertebrate species. DFG ABMPs balance recreational benefits with maintaining or improving native biodiversity using a basin-by-basin watershed approach. Where completed, ABMPs provide the basis for making decisions on planting trout in HMLs using the following objectives:

> Objective 1: Manage high elevation aquatic resources in a manner that maintains or restores native biodiversity and habitat quality, supports viable populations of native species, and provides for recreational opportunities considering historical and future use patterns. In some areas, most or all of the waters may be managed as natural reserves with little or no angling available. Likewise, in areas of high recreational demand, most or all of the waters may be managed for recreational angling.

Objective 2: Trout stocking allotment changes should be based on site-specific data preferably collected within the last 5 years.

Objective 3: For each lake, the species, frequency, and number of trout stocked should be guided by the following provisions:

a. Since the abundance and distribution of certain amphibian species in lakes have declined and are negatively correlated with trout presence, lakes with extant, or existing, populations of key amphibian species (defined in this document as "decision species") should generally not be stocked with fish. Where decision species populations exist within two kilometers of an established high mountain lake fishery, an assessment of fishing use and the feasibility of trout removal should be made to determine if the water could be converted to a fishless condition in order to benefit the decision species.

b. Golden trout, *Oncorhynchus mykiss aguabonita*, are native to the South Fork Kern River and are sometimes given priority over other trout species and stocked into waters following existing Fish and Game Commission policy (Appendix B). Other species of trout may be stocked to meet other fishery management objectives and for experimental fisheries management programs. However, the stocking of brook trout should generally be avoided because they are a lake-spawning species with a greater tendency to become overabundant and produce stunted populations at the expense of native amphibians and other trout species. Brook trout should not be stocked where their range may be extended.

c. After achieving aquatic native biodiversity objectives above, HMLs could be managed to optimize angling quality and opportunity within a given basin. For example, some lakes might be managed for trophy-sized fish, some for fast-action on smaller sized fish, and others for angling species diversity.

d. Trout should not be stocked into waters with existing self-sustaining trout populations unless needed to meet goals for improving angling diversity, trophy or fast-action fishing, or research. Experimental planting of trout to control undesirable fish populations is allowed under this provision.

When planting fish in HMLs, the DFG either uses aircraft to access these lakes, or may plant in coordination with recreational groups through the use of pack animals. Pack animals are typically used where aerial stocking is unsafe or the lakes are too small. Aerial planting consists of loading fish into the plane and then releasing them while flying over the water. Because this method is used, only fingerlings are planted in HMLs (this also meets DFG policy of using "put-and-grow" management where possible). The species of trout to plant is chosen based on the desired management outcome. However, changes in the species planted must be approved by the Chief of Fisheries Branch and, for waters in wilderness, concurrence from the appropriate U.S. Forest Service Forest Supervisor.

Non-High-Mountain Lakes Waters Trout Stocking Guidance

The Department applies the same applicable CFGC policies and DFG guidance to other waters in the following manner. Again, the overall purpose of the recreational fish stocking program is to augment trout populations where recreational angling demand is greater than natural production and other standard methods of fisheries management are insufficient to meet that demand.

Historic Fish Stocking Allotments

Historic fish stocking allotments are a major factor used to determine the upcoming fish planting schedule while determining annual allotment. Over time, the Regions have developed stocking allotments that function to meet the goal of most efficiently satisfying recreational angling. In addition to meeting angling demand, these allotments account for all the previously mentioned factors that fisheries managers take into account—from Fish and Game Commission policy to fish hatchery capability and angler satisfaction—and are based on the premise that what worked successfully in recent years will likely work successfully in the coming year. Similarly, fisheries managers use information from previous allotments that have not met expectations, thus facilitating changes to achieve better success. In most years the development of annual stocking allotments is a fine tuning process rather than a process of radical shifts or manipulation in the stocking of fish species, size of fish, and numbers of fish stocked in each water body. However, budgetary constraints, changes in general fisheries management philosophy/strategies, or the regulatory environment require periodic restructuring of the overall stocking allotments.

Fisheries Management Practices

In waters where trout stocking is deemed appropriate, regional fisheries managers develop fish stocking allotments over time utilizing standard methods of fisheries biology. Factors taken into account are limnology, water quality, biological characteristics, and angling demand for each water body.

CFGC policy is a factor in the setting of stocking allotments. Priority is given to "put-and-grow" fingerling and subcatchable fish stocking where feasible, and to catchable trout stocking in waters that are incapable of producing satisfactory trout growth through other methods. In the case of catchable trout, stocking priority is given to larger reservoirs, lakes, and some smaller streams. Priority is given to those waters where the highest fishing pressure exists and the public has easy access.

The CFGC trout policy has an objective of 50% harvest by number or weight of fish planted. To meet this policy, fisheries biologists may conduct water quality surveys, biological/aquatic resource surveys, reward tags, and creel surveys to determine which fish species to stock and the appropriate size and density of fish to stock. Post-stocking creel surveys may be conducted to assess the success of stocking allotments. The fine tuning of stocking allotments is often an iterative process as creel census data, including angler feedback, are analyzed.

Put-and-grow trout and inland salmon fisheries are utilized in waters where the limnological characteristics are conducive to growing trout and salmon from fingerling or subcatchable size to catchable size. Additional factors may include the absence of excess predation and competition with other aquatic species. Typically, fingerling plants are used where natural reproduction is limited or non-existent but plankton, water quality conditions, and competition/predation factors are suitable to support growth to catchable sizes. Subcatchable trout and salmon plants are suitable in waters where fingerling growth and survival is limited or unsuccessful but growth and survival of larger (typically 6 inches or greater) subcatchable trout is adequate to provide quality angling.

In the case of catchable trout allotments, these numbers are driven more by reward tag and creel survey evaluation to determine angler demand and success rather than biological and limnological evaluations. Catchable trout plants are to be used when other methods of fisheries management have been proven unsuccessful and no other option exists to provide quality recreational trout

angling. Therefore, catchable stocking allotments are based on the number of fish that are harvested, hatchery availability, and accessibility of the water to hatchery delivery vehicles.

Fish Hatchery Capability

Annual fish stocking allotments are constrained by hatchery production constraints and the capability to deliver fish throughout the angling season. Hatchery production capabilities affect the decision on what species of fish to stock, what size of fish to stock, where to stock fish, and the numbers of fish to stock. Generally, hatcheries can produce large enough numbers of fingerling and subcatchable trout to satisfy demand; however, budget and space constraints limit the total number of catchable size trout that can be produced annually. Typically, fingerling and subcatchable trout can be produced in large numbers quickly at lower costs but their availability is limited throughout the year. A finite number of appropriate stocking locations limits total fingerling and subcatchable production while available hatchery space generally limits catchcable production.

Hatcheries have two major methods of delivering fish to planting locations; by truck and by airplane. This limits the stocking options that are available to fisheries managers. In areas that are inaccessible by road, the primary stocking option available is fingerling aerial plants. For areas accessible by road, DFG utilizes a fleet of transport trucks and trailers of varying sizes and capabilities. Typically, the largest trucks and trailers, those capable of carrying large numbers of catchable trout, are limited to paved or higher quality dirt roads while smaller vehicles are capable of delivery to more remote off-highway lakes, reservoirs, and streams. Additionally, trucks must be able to reach the water to deposit fish. This factor is often taken into consideration in low water years when lake and reservoir levels recede.

Hatchery trout, particularly catchable trout, require a minimum of 2 years of planning, which means that changes in stocking allotments take 1 to 3 years to implement. Typically, production for catchable trout for a current year allotment begins one or more years in advance. Therefore, in most years, a significant allotment change for any one water body from previous years generally requires an equal and opposite change to other waters within the region, as well as approval from the Fisheries Branch Chief.

Public Input

The recreational component of the DFG hatchery program is in place to meet recreational angling demand. Therefore, regional fisheries managers rely heavily on public input, particularly from recreational anglers, in drafting annual stocking allotments. Fisheries managers receive information from the county fish and game commissions, angling groups, public outreach, creel survey, angler survey forms, and through unsolicited contact with the general public. This information is vital to determining the success or failure of DFG fish stocking allotments and in making adjustments necessary to fulfill the Program's objectives. Additionally, anglers have developed expectations as to where they will and will not have successful angling experiences based on fish stocking allotments.

Salmon and Steelhead Hatchery Guidance

Salmon and steelhead hatchery operations follow specific guidance contained in agreements between DFG and the hatchery owner, guidance provided by the CFGC and DFG management, and more recently for some hatcheries, direction contained in draft hatchery genetic management plans (HGMPs) that were developed by DFG following recommendations from the DFG and NMFS Southwest Region Joint Hatchery Review Committee (2001). The recommendations from the Joint

Hatchery Review Committee included various changes in the way DFG collects fish for spawning to include specific considerations for maintaining genetic integrity; changing the release patterns of fish from hatcheries, including a reduction in trucking of fry downstream; providing better marking practices to improve monitoring and evaluation of hatchery programs; techniques to reduce interactions of wild and hatchery fish; and development of a process to review hatchery enhancement and mitigation goals. HGMPs do not exist for all salmon and steelhead hatcheries and none of the draft plans have been approved by NMFS. Hatcheries follow the draft HGMPs, steelhead restoration and management plans, and best management practices to achieve production goals set forth in their goals and constraints document. In the interim, DFG and NMFS staff continue to meet to develop guidance and protocols for hatchery operation. The practices used for harvesting, rearing, and stocking fish from salmon and steelhead hatcheries are described below in the "Salmon and Steelhead Hatcheries" section of this chapter.

Funding

Trout Funding

As discussed in Chapter 1, AB 7 added Section 13007 to the CFGC in 2005, which required DFG to deposit one-third of sport-fishing license fees in the HIFF on July 1 each year. The HIFF was created to ensure that at least 33 1/3% of the monies collected through fishing license sales be used for the management, operation, maintenance, and capital improvement of California's fish hatcheries, the Heritage and Wild Trout Program, other sport-fishing activities, and enforcement of these activities. The HIFF is funded exclusively through license fees paid by anglers who fish in California. Yearly funding is subject to approval by the Legislature (Senate and Assembly Budget Subcommittees) in the annual budget process. Upon appropriation by the Legislature, HIFF monies may be used to support DFG programs related to management, maintenance, and capital improvement of fish hatcheries, the Heritage and Wild Trout Program, and enforcement activities. The HIFF also supports other activities eligible for revenue generated by sport-fishing license sales. In the 2006–2007 and 2007–2008 fiscal years, the trout hatchery program received approximately 98% of its funding from HIFF funds.

DFG also receives funding from the SFRA's Sport Fish Restoration and Boating Trust Fund (Trust Fund) to apply toward hatchery operation costs. In the 2003–2004 through 2005–2006 fiscal years, SFRA accounted for approximately 10-20% of the trout hatchery program funding. In the two years following, the SFRA funding accounted for less than 2% of the program's funding. The SFRA is funded through the collection of excise taxes on sport-fishing equipment, electric motors, and sonar; import duties on fishing tackle, yachts, and pleasure craft; the portion of gasoline tax attributable to motorboats and small engines; and interest on the Trust Fund. The SFRA is administered by the USFWS, which grants the funds to the states. To receive funding under the SFRA, the state was required to pass legislation to assent to provisions of the SFRA and submit annual fishing license certification to the Secretary of the Interior. In addition, DFG must submit an annual comprehensive fish and wildlife resource management plan that perpetuates these resources or proposed fish restoration and management projects. States are required to match at least 25% of project costs and to maintain fish restoration and management projects established under the SFRA.

Under the action being considered in this EIR/EIS, the USFWS may continue to grant SFRA funds to DFG to support actions associated with:

- rearing and stocking of inland trout and inland salmon from DFG's 14 trout hatcheries;

- rearing and stocking of steelhead and inland trout from the Mad River Hatchery;
- egg-taking stations for inland trout and inland salmon;
- the Fishing in the City Program; and
- the CAEP.

SFRA funds, however, will not be used to support private stocking permits, or rearing or stocking from other anadromous fish hatcheries.

Salmon and Steelhead Hatchery Funding

DFG's operation of the salmon and steelhead hatcheries are all funded via reimbursement of costs from the owners of the facilities (except Iron Gate Hatchery, which is funded 80% by PacifiCorp and 20% by DFG; DFG's portion is through the Fish and Game Preservation Fund). Table 2-1 below indicates the funding sources of the state's 10 salmon and steelhead fish hatchery facilities:

Table 2-1. Purposes and Funding for DFG-Managed Salmon and Steelhead Hatcheries

Hatchery	Purpose	Funding
Coyote Valley Fish Facility	Mitigation	U. S. Army Corps of Engineers[a]
Feather River	Mitigation/Enhancement	California Department of Water Resources/Delta Pumping Plant Fish Protection Agreement
Iron Gate	Mitigation	PacifiCorp
Mad River	Enhancement/Trout[b]	U.S. Fish and Wildlife Service SFRA[a] and California Department of Fish and Game
Merced River	Mitigation/Enhancement	California Department of Fish and Game and California Department of Water Resources(Delta Pumping Plant Fish Protection Agreement)
Mokelumne River	Mitigation/ Enhancement	East Bay Municipal Utility District and Commercial Salmon Trollers Enhancement and Restoration Program
Nimbus	Mitigation	U.S. Bureau of Reclamation[a]
Thermalito Annex	Mitigation/Enhancement	California Department of Water Resources/Commercial Salmon Trollers Enhancement and Restoration Program
Trinity River	Mitigation	U.S. Bureau of Reclamation[a]
Warm Springs	Mitigation/Conservation	U. S. Army Corps of Engineers[a]

Note:
[a] Hatcheries that are funded or operated by federal agencies are obligated to enter into a Section 7 consultation with the NMFS to authorize the take of listed salmon and steelhead species.
[b] Mad River Hatchery also produces rainbow trout funded by DFG.

Trout Hatcheries

General Characteristics

DFG currently operates and maintains 14 trout hatcheries and associated annexes within California (Figure 2-1). These facilities provide for a range of fish culture activities, including spawning, egg incubation, juvenile rearing, brood stock maintenance, and transfer or release. There are a variety of physical facilities on each hatchery site to support the various culture activities, including: water supply diversions, pumps, and chillers; structures housing egg incubation tanks, staff offices, staff residences, equipment and vehicles; ponds and raceways for fish rearing; water treatment facilities and settling ponds; fuel storage tanks; and public viewing and information facilities. None of the 14 hatchery facilities are identical, but they generally fall into four main categories, including brood stock hatcheries, production hatcheries, rearing annexes, and planting bases. Table 2-2 provides some basic descriptive information for the 14 facilities. A general description of the operations at each of the four trout hatchery types is provided below. Appendix A includes a detailed description of all 14 of the trout facilities. While not mentioned in detail in this trout section, the Mad River steelhead hatchery also produces trout from eggs originating at the Crystal Lake or Mount Shasta Hatcheries. These fish are stocked in coastal inland trout waters.

Each of the trout hatchery facilities supports the rearing of one or more species, including rainbow, golden, cutthroat, brown, lake, and brook trout; and kokanee and inland coho and Chinook salmon. Each of these individual species is considered a "program" for the purposes of this document. Table 2-3 lists each program that has been maintained at the 14 trout hatchery facilities between 2004 and 2008. In a number of cases, salmon and steelhead hatcheries have produced trout or salmon for inland stocking, so they are also listed in Table 2-3. The table also indicates the average annual production and stocking for each program. It is important to note that all of the trout hatchery facilities except the Kern River Panting Base raise or produce fish that are not directly stocked from that facility. Many fish are transferred to other hatcheries in the system for further growth and eventual stocking. Therefore, production numbers do not necessarily match stocking numbers for each hatchery. A description of how production is defined for purposes of hatchery record keeping is included on Table 2-3.

Table 2-2. Trout Hatcheries General Information

Facility	Type[a]	DFG Region[b]	River Basin	Location[b]
American River Hatchery	Production with minor brood stock	2—North Central	American River	Sacramento County near Folsom
Black Rock Rearing Ponds	Rearing annex with minor brood stock	6—Inland Deserts	Owens River	Inyo County near Independence
Crystal Lake Hatchery	Production with minor brood stock	1—Northern	Pit River	Shasta County near Cassel
Darrah Springs Hatchery	Production with minor brood stock	1—Northern	Sacramento River	Shasta County near Paynes Creek
Fillmore Hatchery	Production	5—South Coast	Santa Clara River	Ventura County near Fillmore
Fish Springs Hatchery	Production	6—Inland Deserts	Owens River	Inyo County near Big Pine
Hot Creek Hatchery	Brood stock with minor production	6—Inland Deserts	Owens River	Mono County near Mammoth Lakes
Kern River Planting Base	Planting base with minor brood stock	4—Central	Kern River	Kern County near Kernville
Moccasin Creek Hatchery	Production with minor brood stock	4—Central	Tuolumne River	Tuolumne County near Moccasin
Mojave River Hatchery	Production	6—Inland Deserts	Mojave River	San Bernardino County near Victorville
Mount Shasta Hatchery	Brood stock with minor production	1—Northern	Sacramento River	Siskiyou County near the City of Mount Shasta
Mount Whitney Hatchery	Brood stock	6—Inland Deserts	Owens River	Inyo County near Independence
San Joaquin Hatchery	Production with minor brood stock	4—Central	San Joaquin River	Fresno County near Fresno
Silverado Fisheries Base	Planting base, quarantine station, minor production	3—Bay Delta	Napa River	Napa County near Yountville

Notes: [a] Hatchery types are described in the text of this chapter.
[b] DFG regions and hatchery locations are shown in Figure 2-1.

Operations

Brood Stock Hatchery

There are three major brood stock hatcheries in DFG's Program: Hot Creek Hatchery, Mount Whitney Hatchery, and Mount Shasta Hatchery. Minor brood stock operations are maintained at seven other facilities: Kern River Planting Base, American River Hatchery, Black Rock Rearing Ponds, Darrah Springs Hatchery, Moccasin Creek Hatchery, San Joaquin Hatchery, and Crystal Lake Hatchery. A typical brood stock hatchery provides facilities to rear, maintain, and periodically harvest adult fish that provide eggs and milt for the production of hatchery trout. Each of these hatcheries also includes the facilities that support the production effort (see the "Production Hatchery" section below). A flowchart of the activities at a typical brood stock hatchery is included in Figure 2-3. Brood stock for trout hatcheries come from multiple sources, including native fish collected from the wild, from fingerlings selected on the basis of parental characteristics, from production fingerlings, and occasionally from fish or eggs imported from out-of-state sources.

Production Hatchery

DFG production hatcheries include the American River, Crystal Lake, Darrah Springs, Fillmore, Fish Springs, Moccasin Creek, Mojave River, and San Joaquin Hatcheries. These facilities do not maintain and spawn brood stock as a significant part of their operation. Therefore, they typically receive eggs from the brood stock hatcheries, maintain the eggs in enclosed buildings until the fish hatch, and then transfer the fry to raceways or ponds for the rearing process. The major management activities associated with the rearing stage are feeding and maintaining good fish health. The fish are raised to desired size based on the stocking strategy and then removed from the ponds and raceways for transfer to the stocking locations. Figure 2-4 diagrams the typical operations at a trout production hatchery.

Planting Base/Quarantine Station

There are two planting bases in DFG's Program. The Kern River Planting Base facility on the Kern River upstream of Lake Isabella acts as a planting base for the southern Sierra Nevada, and the Silverado Fisheries Base facility near the Napa River at Yountville acts as a planting base for the central part of the state, from the coast to the Central Valley and Sierra Nevada. Silverado Fisheries Base also functions as a quarantine station. Planting bases typically receive fish that are at a size appropriate for stocking from the production hatcheries. These fish are held for acclimatization and then transferred to stocking locations. Holding periods range from a few hours to a few days. The two planting bases also support other operations, secondary to the holding and transfer functions. Silverado Fisheries Base periodically receives eggs from both within and out of state and acts as a quarantine station for these fish. The eggs are cared for, and once the fish are hatched and found to be disease-free, they are transferred to other hatcheries for further rearing and eventual stocking. The facility also raises small numbers of fish for the inland program, including kokanee, Chinook salmon and lake trout (Wilson pers. comm.). Figure 2-5 diagrams the typical operations of planting base and quarantine station facilities. These operations are further described in the detailed facility accounts in Appendix A.

Table 2-3. Trout and Inland Salmon Fish Programs and Average Pounds and Numbers of Fish Produced and Stocked Annually—2004 to 2008[a]

		Fingerlings								Subcatchables/Advanced Fingerlings								Catchables/Yearlings								All Sizes	
		Planted		Transferred[c]		Received[c]		Production[c]		Planted		Transferred[c]		Received[c]		Production[c]		Planted		Transferred[c]		Received[c]		Production[c]		Total/Production[c]	
Facility	Species	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number
American River Hatchery																											
	Brook trout	11	3,200	0	0	12	3,638	-2	-438	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-2	-438
	Brown trout	350	48,436	0	0	268	54,056	82	-5,620	3	39	0	0	3	39	0	0	6,788	15,479	0	0	6,800	15,506	-13	-26	69	-5,646
	Cutthroat trout	0	0	0	0	0	0	0	0	1,311	12,904	0	0	1,311	12,904	0	0	827	408	4	2	364	181	466	229	466	229
	Eagle Lake trout	868	111,926	225	7,652	1,087	172,371	6	-52,794	288	2,501	0	0	0	0	288	2,501	24,842	57,061	375	638	0	0	25,217	57,698	25,511	7,406
	Kokanee salmon	1,802	362,773	25	49,500	324	77,554	1,503	334,719	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,503	334,719
	Rainbow trout	1,786	217,091	5	617	1,869	298,212	-78	-80,504	8,193	78,516	0	0	1,038	10,975	7,156	67,541	331,283	645,445	86,601	155,195	2,125	3,275	415,759	797,365	422,837	784,402
	Steelhead trout	23	1,358	0	0	7	1,482	16	-124	0	0	0	0	84	1,025	-84	-1,025	486	1,022	0	0	0	0	486	1,022	418	-128
	Yearly average	4,839	744,783	255	57,769	3,567	607,312	1,527	195,240	9,795	93,960	0	0	2,436	24,943	7,359	69,017	364,225	719,415	86,980	155,834	9,289	18,961	441,916	856,288	450,802	1,120,544
Crystal Lake Hatchery																											
	Brook trout	2,205	55,618	40	5,068	0	0	2,244	60,685	2,025	29,100	0	0	0	0	2,025	29,100	102,052	175,753	3,766	8,975	0	0	105,818	184,728	110,087	274,513
	Brown trout	617	47,355	0	0	2	1,875	615	45,480	3,206	27,738	0	0	0	0	3,206	27,738	47,556	133,182	6,825	15,556	0	0	54,381	148,738	58,202	221,955
	Chinook salmon	0	0	0	0	100	8,462	-100	-8,462	5,520	51,303	0	0	0	0	5,520	51,303	2,519	12,564	0	0	0	0	2,519	12,564	7,938	55,406
	Eagle Lake trout	1,753	71,743	2,726	53,563	0	0	4,478	125,305	2,313	34,751	5,499	53,479	0	0	7,812	88,230	143,847	278,461	3,825	6,003	0	0	147,672	284,463	159,962	497,999
	Rainbow trout	3,036	85,831	1,099	57,749	0	0	4,135	143,580	1,838	19,225	2,616	20,475	191	1,239	4,263	38,462	153,676	239,914	55,394	91,410	0	0	209,070	331,323	217,467	513,365
	Yearly average	7,610	260,546	3,864	116,380	102	10,337	11,372	366,589	14,901	162,117	8,115	73,954	191	1,239	22,825	234,833	449,650	839,873	69,809	121,943	0	0	519,459	961,816	553,656	1,563,238
Darrah Springs Hatchery																											
	Cutthroat trout	0	0	0	0	0	0	0	0	1,758	17,048	1,006	10,373	0	0	2,764	27,421	0	0	0	0	0	0	0	0	2,764	27,421
	Eagle Lake trout	616	33,507	1,200	20,040	113	10,125	1,703	43,422	4,816	42,281	0	0	263	2,783	4,554	39,499	103,923	194,622	46,225	61,758	0	0	150,147	256,380	156,404	339,300
	Rainbow trout	0	0	0	0	378	30,345	-378	-30,345	400	3,560	6,619	67,353	500	3,850	6,519	67,063	131,926	226,333	98,084	146,612	200	980	229,809	371,965	235,951	408,683
	Yearly average	616	33,507	1,200	20,040	490	40,470	1,326	13,077	6,974	62,889	7,625	77,726	763	6,633	13,836	133,982	235,848	420,955	144,309	208,370	200	980	379,957	628,345	395,119	775,404
Feather River Hatchery[b]																											
	Coho salmon	1,594	56,661	0	0	152	16,781	1,442	39,881	2,450	17,150	0	0	15	150	2,435	17,000	16,403	63,692	0	0	0	0	16,403	63,692	20,280	120,572
	Eagle Lake trout	1,066	21,292	0	0	2,263	90,619	-1,197	-69,328	4,875	57,020	0	0	0	0	4,875	57,020	1,338	7,919	0	0	0	0	1,338	7,919	5,016	-4,389
	Yearly average	2,660	77,953	0	0	2,415	107,400	245	-29,447	7,325	74,170	0	0	15	150	7,310	74,020	17,741	71,611	0	0	0	0	17,741	71,611	25,296	116,183
Fillmore Hatchery																											
	Brown trout	0	0	45	7,988	0	0	45	7,988	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	7,988
	Eagle Lake trout	0	0	0	0	388	7,363	-388	-7,363	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-388	-7,363
	Rainbow trout	0	0	0	0	761	25,275	-761	-25,275	3,820	48,041	1,075	6,988	2,056	18,662	2,840	36,367	357,658	748,635	7,844	15,709	26,810	57,702	338,692	706,642	340,771	717,734
	Yearly average	0	0	45	7,988	1,148	32,637	-1,103	-24,649	3,820	48,041	1,075	6,988	2,056	18,662	2,840	36,367	357,658	748,635	7,844	15,709	26,810	57,702	338,692	706,642	340,428	718,359
Fish Springs Hatchery																											
	Brown trout	1,281	41,781	0	0	88	41,270	1,193	511	0	0	0	0	0	0	0	0	111	109	0	0	25	50	86	59	1,279	570
	Eagle Lake trout	1,050	19,005	0	0	0	0	1,050	19,005	10,742	113,478	0	0	0	0	10,742	113,478	20,364	31,026	0	0	1,800	3,600	18,564	27,426	30,356	159,908
	Rainbow trout	0	0	275	5,033	131	6,700	144	-1,668	8,418	61,435	2,159	20,663	0	0	10,577	82,098	343,271	660,722	18,365	37,402	7,901	17,730	353,735	680,394	364,456	760,825
	Yearly average	2,331	60,786	275	5,033	219	47,970	2,387	17,848	19,160	174,913	2,159	20,663	0	0	21,319	195,576	363,747	691,857	18,365	37,402	9,726	21,380	372,385	707,879	396,091	921,303
Hot Creek Hatchery																											
	Brown trout	137	39,267	98	36,010	0	0	235	75,277	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	235	75,277
	Cutthroat trout	1,002	104,013	26	15,775	5	1,900	1,023	117,888	1,818	19,712	0	0	0	0	1,818	19,712	0	0	0	0	0	0	0	0	2,841	137,600
	Eagle Lake trout	0	0	0	0	0	0	0	0	3,046	37,750	0	0	0	0	3,046	37,750	1,850	3,410	0	0	0	0	1,850	3,410	4,896	41,160
	Golden trout	35	34,065	0	13	0	0	35	34,078	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35	34,078
	Rainbow trout	330	152,833	427	179,326	58	5,362	698	326,798	5,157	46,669	30	303	1,380	15,028	3,808	31,944	241,617	429,597	492	1,051	2,697	8,811	239,411	421,837	243,917	780,579
	Yearly average	1,504	330,178	550	231,124	63	7,262	1,991	554,040	10,021	104,131	30	303	1,380	15,028	8,672	89,406	243,467	433,007	492	1,051	2,697	8,811	241,261	425,247	251,924	1,068,693

Table 2-3. Continued

		Fingerlings								Subcatchables/Advanced Fingerlings								Catchables/Yearlings								All Sizes	
		Planted		Transferred[c]		Received[c]		Production[c]		Planted		Transferred[c]		Received[c]		Production[c]		Planted		Transferred[c]		Received[c]		Production[c]		Total/Production[c]	
Facility	Species	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number
Kern River Planting Base																											
	Eagle Lake trout	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10,507	18,256	0	0	10,507	18,256	0	0	0	0
	Rainbow trout	0	10	0	0	25	424	-25	-414	85	896	0	0	85	896	0	0	87,430	150,411	0	0	87,137	150,265	293	145	268	-269
	Yearly average	0	10	0	0	25	424	-25	-414	85	896	0	0	85	896	0	0	97,937	168,667	0	0	97,644	168,521	293	145	268	-269
Mad River Hatchery[b]																											
	Chinook salmon	0	0	100	8,462	0	0	100	8,462	3,261	23,822	30	189	0	0	3,291	24,011	371	1,968	488	5,289	0	0	859	7,256	4,250	39,729
	Coho salmon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	972	8,213	4,637	29,638	0	0	5,609	37,851	5,609	37,851
	Cutthroat trout	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,294	4,992	0	0	0	0	1,294	4,992	1,294	4,992
	Rainbow trout	19	334	0	0	0	0	19	334	631	7,002	0	0	0	0	631	7,002	23,670	41,032	0	0	1,238	8,786	22,433	32,245	23,082	39,581
	Yearly average	19	334	100	8,462	0	0	119	8,796	3,892	30,824	30	189	0	0	3,922	31,013	26,307	56,204	5,125	34,927	1,238	8,786	30,194	82,344	34,235	122,153
Merced River Hatchery[b]																											
	Brook trout	0	0	0	0	144	8,279	-144	-8,279	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-144	-8,279
	Yearly average	0	0	0	0	144	8,279	-144	-8,279	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-144	-8,279
Moccasin Creek Hatchery																											
	Brook trout	107	25,413	38	6,000	0	0	145	31,413	339	3,597	0	0	0	0	339	3,597	4,200	6,498	0	0	725	870	3,475	5,628	3,959	40,638
	Brown trout	784	37,630	12	12,596	48	13,872	748	36,354	4,495	51,446	3	39	0	0	4,498	51,485	0	0	0	0	0	0	0	0	5,246	87,840
	Cutthroat trout	35	21,317	0	0	6	1,854	29	19,463	75	750	59	881	0	0	134	1,631	30	181	0	0	0	0	30	181	193	21,275
	Eagle Lake trout	115	8,516	1,250	27,688	150	33,036	1,215	3,168	494	6,913	0	0	0	0	494	6,913	62,559	106,247	1,881	7,622	244	63	64,196	113,807	65,905	123,887
	Rainbow trout	2,361	182,027	1,045	105,374	841	47,476	2,564	239,925	4,501	38,100	1,175	10,975	54	499	5,622	48,576	266,709	495,925	13,113	24,709	838	1,675	278,984	518,958	287,170	807,459
	Yearly average	3,401	274,903	2,345	151,658	1,045	96,238	4,700	330,323	9,905	100,805	1,237	11,895	54	499	11,087	112,201	333,498	608,851	14,994	32,331	1,806	2,608	346,686	638,574	362,473	1,081,098
Mojave River Hatchery																											
	Brown trout	75	1,295	0	0	59	21,819	15	-20,524	1,804	12,922	0	0	0	0	1,804	12,922	0	0	0	0	0	0	0	0	1,819	-7,602
	Eagle Lake trout	2,456	43,903	0	0	741	22,061	1,715	21,842	10,678	130,798	0	0	0	0	10,678	130,798	17,512	29,965	1,800	3,600	1,156	6,247	18,156	27,319	30,548	179,958
	Rainbow trout	75	1,680	135	2,501	1,070	87,575	-861	-83,394	8,590	85,442	0	0	3,580	26,762	5,010	58,681	323,302	655,036	3,188	5,678	13,022	45,393	313,468	615,322	317,617	590,608
	Yearly average	2,606	46,878	135	2,501	1,871	131,455	869	-82,075	21,072	229,162	0	0	3,580	26,762	17,492	202,400	340,813	685,001	4,988	9,278	14,178	51,640	331,623	642,640	349,985	762,965
Mokelumne River Hatchery[b]																											
	Cutthroat trout	31	16,971	0	0	0	0	31	16,971	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	16,971
	Yearly average	31	16,971	0	0	0	0	31	16,971	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	16,971
Mount Shasta Hatchery																											
	Brook trout	1,166	180,989	12	3,638	40	5,068	1,138	179,559	0	0	0	0	0	0	0	0	6,258	10,086	0	0	3,041	8,105	3,217	1,981	4,356	181,540
	Brown trout	852	129,737	415	89,000	0	0	1,267	218,737	125	931	0	0	0	0	125	931	4,098	3,711	23	4	0	0	4,121	3,714	5,514	223,382
	Eagle Lake trout	2,637	459,682	1,803	245,455	2,661	49,435	1,779	655,701	6,347	47,322	0	0	5,237	50,697	1,111	-3,374	6,843	28,575	0	0	10,306	6,915	-3,463	21,660	-574	673,987
	Rainbow trout	4,022	469,515	477	41,344	8	620	4,491	510,240	994	12,788	0	0	6,619	67,353	-5,625	-54,565	75,150	133,566	0	0	22,771	15,779	52,379	117,787	51,245	573,461
	Yearly average	8,677	1,239,923	2,707	379,437	2,708	55,123	8,675	1,564,237	7,467	61,041	0	0	11,855	118,049	-4,389	-57,009	92,350	175,937	23	4	36,118	30,799	56,254	145,142	60,541	1,652,370
Mount Whitney Hatchery[d]																											
	Brook trout	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	534	356	0	0	0	0	534	356	534	356
	Brown trout	13	6,575	2	1,213	0	0	15	7,788	0	0	0	0	0	0	0	0	0	0	34	34	0	0	34	34	48	7,821
	Cutthroat trout	0	0	0	0	26	15,751	-26	-15,751	2,314	30,684	0	0	0	0	2,314	30,684	0	0	0	0	0	0	0	0	2,289	14,933
	Eagle Lake trout	0	0	9	4,856	0	0	9	4,856	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	4,856
	Rainbow trout	0	0	0	0	1	1,533	-1	-1,533	475	4,555	0	0	30	303	445	4,253	155,709	301,664	5,917	17,676	11,259	19,883	150,367	299,458	150,811	302,178
	Yearly average	13	6,575	11	6,069	26	17,284	-2	-4,640	2,789	35,239	0	0	30	303	2,759	34,936	156,243	302,021	5,951	17,710	11,259	19,883	150,935	299,847	153,691	330,144

Table 2-3. Continued

		Fingerlings								Subcatchables/Advanced Fingerlings								Catchables/Yearlings								All Sizes	
		Planted		Transferred[c]		Received[c]		Production[c]		Planted		Transferred[c]		Received[c]		Production[c]		Planted		Transferred[c]		Received[c]		Production[c]		Total/Production[c]	
Facility	Species	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number
San Joaquin Hatchery																											
	Brook trout	5	3,813	107	2,279	0	0	112	6,092	0	0	0	0	0	0	0	0	356	143	0	0	0	0	356	143	468	6,235
	Cutthroat trout	0	0	0	0	0	0	0	0	0	0	246	1,650	0	0	246	1,650	0	0	0	0	0	0	0	0	246	1,650
	Eagle Lake trout	138	26,864	189	25,756	0	0	326	52,620	3,736	41,310	0	0	0	0	3,736	41,310	34,387	58,458	10,751	18,318	0	0	45,138	76,777	49,200	170,706
	Golden trout	59	25,683	0	0	0	0	59	25,683	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	25,683
	Kokanee salmon	2,381	293,387	141	20,319	0	0	2,521	313,705	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,521	313,705
	Rainbow trout	2,758	447,107	1,651	111,588	135	2,501	4,274	556,194	1,535	12,529	139	1,395	0	0	1,674	13,924	282,678	486,639	87,550	150,640	0	0	370,228	637,279	376,175	1,207,397
	Yearly average	5,341	796,853	2,086	159,942	135	2,501	7,292	954,294	5,270	53,838	385	3,045	0	0	5,656	56,884	317,422	545,240	98,300	168,959	0	0	415,722	714,198	428,669	1,725,376
Silverado Fisheries Base																											
	Brown trout	149	29,253	0	0	149	29,253	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Chinook salmon	5,119	466,900	25	2,450	0	0	5,144	469,350	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5,144	469,350
	Coho salmon	0	0	150	16,769	0	0	150	16,769	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	150	16,769
	Eagle Lake trout	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39,931	62,093	0	0	39,931	62,093	0	0	0	0
	Kokanee salmon	1,456	316,212	180	56,480	25	49,500	1,611	323,192	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,611	323,192
	Lake trout	645	149,040	0	0	0	0	645	149,040	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	645	149,040
	Rainbow trout	359	30,911	199	25,736	301	28,996	256	27,651	0	0	191	1,239	191	1,239	0	0	202,233	350,356	0	0	202,408	350,706	-175	-350	81	27,301
	Steelhead trout	0	0	9	2,642	0	0	9	2,642	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	2,642
	Yearly average	7,727	992,317	562	104,076	475	107,749	7,814	988,644	0	0	191	1,239	191	1,239	0	0	242,164	412,449	0	0	242,339	412,799	-175	-350	7,639	988,294
Warm Springs Hatchery[b]																											
	Chinook salmon	0	0	10	1,888	9	547	1	1,340	0	0	0	0	26	1,261	-26	-1,261	506	4,202	1,304	8,877	0	0	1,810	13,079	1,785	13,158
	Yearly average	0	0	10	1,888	9	547	1	1,340	0	0	0	0	26	1,261	-26	-1,261	506	4,202	1,304	8,877	0	0	1,810	13,079	1,785	13,158
Yearly average production		47,374	4,882,515	14,099	1,244,376	13,294	1,240,349	48,179	4,886,542	118,655	1,183,985	19,772	189,014	20,604	197,001	117,823	1,175,998	3,281,917	6,135,287	450,637	796,684	426,493	745,168	3,306,060	6,186,804	3,472,062	12,249,344

Notes:

[a] Information from California Department of Fish and Game 2008a.

[b] Several salmon and steelhead fish hatcheries are listed because they produced or received trout or salmon for inland stocking between 2004 and 2008.

[c] "Transferred" refers to fish hatched at the facility and transferred to other facilities at various sizes prior to stocking. "Received" refers to fish hatched at other facilities and transferred in for additional growth and eventual stocking. The formula for "production" in Hatchery Information System Database reports has historically been used to scale an individual hatchery's productivity using the formula (([fish planted]+[fish transferred to other hatcheries])-([fish received from other hatcheries])) for each variety, and within a defined time period. It presents ([fish out]-[fish in]) as a measure of a hatchery's productivity with the intent of providing "credit" to a facility for resources used to grow and transfer fish to other hatchery facilities. "Production" using this formula can become negative via several routes. If a hatchery receives fish, holds them for a period of time, and then plants fewer numbers or pounds, due to disease, predation, or other factors, the hatchery's "production" will suffer. If a hatchery receives smaller fish, holds them for a period of time, and then plants fewer numbers or pounds in that size because they have grown out of that production size category, the "production" will suffer for that smaller size category. If a hatchery receives fish, holds them for a period, and then plants fewer numbers or pounds or none within the sampled time period, the "production" will suffer for that species by leaving uncounted fish in the ponds. (Krueger pers. comm.)

[d] Black Rock Rearing Ponds totals are included with Mount Whitney Hatchery.

Rearing Annex

There is only one rearing annex in the DFG trout hatchery system. The Black Rock Rearing Ponds are an annex to the Mount Whitney Hatchery. It is located several miles north of the hatchery. Its primary function is to receive and rear trout hatched at Mount Whitney Hatchery. Rearing activities center on feeding and maintaining good fish health. Once these fish are reared to an appropriate size, they are transferred to stocking locations by truck or pack animal. Black Rock also has a minor brood stock function; it raises fingerlings for brood stock use at Mount Whitney Hatchery. The details of operations at the Black Rock Rearing Ponds are included in Appendix A.

Program Flexibility

On occasion it is necessary to move fish from one hatchery to another. For example trout from Moccasin Creek Hatchery were moved to Mokelumne River Hatchery when the water was shut off at Moccasin Creek Hatchery for necessary repairs by the water project owner. Fish have also been relocated to cooler hatcheries during drought years when water temperatures were too warm. These actions are necessary for operational flexibility within the various hatchery types described above.

Egg-Taking Stations

DFG operates a number of small egg-taking stations that are ancillary to the larger Program and are used only briefly each year. The egg-taking station operations are not manned year round and are used to collect eggs and milt from trout and landlocked salmon populations. Typical operations may include the installation of a weir system to divert and collect fish into holding areas until the fish are spawned. These operations occur in the field and usually require several non-consecutive days of collecting activities. These spawning activities currently occur at Eagle Lake, Junction Reservoir, Heenan Lake, and the Cottonwood Lakes, where varieties of rainbow, cutthroat, and golden trout are spawned; and at Taylor Creek, the Little Truckee River, and Bucks Lake, where kokanee salmon are spawned. The egg-taking operations do not divert water from the natural water bodies and do not require generation or discharge of waste products. Small storage and handling structures exist at some of the stations. Because these facilities operate for a very brief time period; do not alter the streams or lakes in which they operate; and do not result in adverse effects to sensitive, native or legally-protected species; their operational effects are not addressed in the impact analyses in following chapters.

Trout Stocking

Planning

Trout stocking is planned and implemented on a regional basis. Hatchery operations in each region are overseen by a regional senior hatcheries supervisor; that person is responsible for working with DFG Fisheries Branch staff, the individual hatchery managers, and regional biologists to annually determine the location and extent of planting within the region. This process of setting the stocking allotments is described above in the “Management Structure and Guidance” section of this chapter.

Stocking Sites and Allotments

Hundreds of lakes, rivers, creeks, reservoirs, and ponds are stocked with trout and inland salmon raised at DFG hatcheries each year. These sites and the species stocked vary from year to year and

over longer periods. The process for annually establishing stocking sites and stocking allotments is described above in the "Management Structure and Guidance" section. The information presented in this chapter represents stocking records for the past 5 years, 2004 through 2008. During that period, a total of 963 individual water bodies have been stocked with trout or inland salmon by DFG (Starr pers. comm.). Table 2-4 lists the counties that are stocked by each of the DFG trout hatchery facilities and those salmon and steelhead hatcheries that have produced trout or salmon for inland stocking. The average numbers and pounds of fish stocked from each hatchery are included in Table 2-3.

Appendix G contains maps of all 58 California counties, with each trout and inland salmon stocking site located and identified. These stocking locations have been obtained from the DFG stocking database for the years 2004 through 2008. This database may contain minor additions or exclusions when compared to actual stocking activity. There are also stocking locations in the DFG program that were not stocked in the 2004-2008 period but remain an active part of the program and may be stocked in the future.

Stocking Timing and Methods

Trout are stocked throughout the year. Timing varies based on a whole range of factors, which in turn vary amongst the 14 hatchery locations. Some of the major variables include local climate, season, fishing regulations, availability of access, road conditions, water temperature, water flow, personnel availability, species to be stocked and the age of the fish.

Trout hatcheries use a variety of methods to deliver the fish to release waters. Most are taken by tanker truck to the stocking site (more than 98%); smaller numbers are stocked by air (less than 2%) and by pack animals (fractions of a percent) (Starr pers. comm.). Most catchable-sized trout stocked in larger lakes and reservoirs are transported by truck, and then released through pipes into the water. Most rivers and creeks are stocked by hand, by dipping fish from the tankers and carrying them to the release point in nets or buckets. Aerial stocking is used for remote lakes in high-mountain areas where truck access is limited or unavailable; the fish stocked in this manner are typically fingerlings. Stocking via pack animal is now very limited and is used where neither trucks nor airplanes have good access.

Regardless of the delivery method, fish ready for stocking are not fed for a period of time prior to being moved and are placed into vehicles or containers with clean, cold water to improve survival during the stocking process.

Tagging and Monitoring

Tagging and monitoring of hatchery-reared trout varies from region to region. In some regions, marked recapture and reward tagging programs are implemented to estimate catch rates of stocked fish. Additional monitoring associated with hatchery-reared trout includes occasional creel censuses and angler questionnaires conducted at planting locations. These censuses are designed to inform DFG about catch rates and therefore can be used to adjust planting numbers.

Table 2-4. Distribution of Trout and Salmon Stocked to Inland Waters in California Counties—2004 to 2008[a]

County	American River Hatchery	Crystal Lake Hatchery	Darrah Springs Hatchery	Feather River Hatchery[b]	Fillmore Hatchery	Fish Springs Hatchery	Hot Creek Hatchery[c]	Iron Gate Hatchery	Kern River Planting Base	Mad River Hatchery[b]	Merced River Hatchery	Moccasin Creek Hatchery	Mojave River Hatchery	Mokelumne River Hatchery[b]	Mount Shasta Hatchery	Mount Whitney Hatchery	Nimbus Hatchery[b]	San Joaquin Hatchery	Silverado Fisheries Base	Trinity River Hatchery[b]	Warm Springs Hatchery[b]	*Total*
Alameda	1											1							1			*3*
Alpine	1	1					1			1		1			1			1	1			*8*
Amador	1	1																				*2*
Butte	1		1	1																		*3*
Calaveras	1											1										*2*
Colusa	1																					*1*
Contra Costa	1											1							1			*3*
Del Norte										1					1							*2*
El Dorado	1						1					1			1			1				*5*
Fresno		1					1					1						1	1			*5*
Glenn	1																					*1*
Humboldt			1							1					1							*3*
Imperial													1									*1*
Inyo						1	1								1	1		1				*5*
Kern									1				1					1	1			*4*
Lake		1																	1			*2*
Lassen		1	1												1							*3*
Los Angeles					1								1									*2*
Madera						1	1											1				*3*
Marin																			1			*1*
Mariposa												1	1					1	1			*4*
Mendocino																			1			*1*
Merced												1	1									*2*
Modoc		1	1												1							*3*
Mono		1				1	1					1			1	1		1				*7*
Monterey					1														1			*2*
Napa	1	1	1																1			*4*
Nevada	1	1					1					1						1	1			*6*
Orange					1								1									*2*
Placer	1						1										1		1			*4*
Plumas	1	1	1												1				1			*5*
Riverside					1	1							1									*3*
Sacramento	1																1		1			*3*
San Benito																			1			*1*
San Bernardino					1								1									*2*
San Diego													1									*1*
San Francisco	1																		1			*2*
San Joaquin	1																					*1*
San Luis Obispo	1				1													1	1			*4*

Table 2-4. Continued

County	American River Hatchery	Crystal Lake Hatchery	Darrah Springs Hatchery	Feather River Hatchery[b]	Fillmore Hatchery	Fish Springs Hatchery	Hot Creek Hatchery[c]	Iron Gate Hatchery	Kern River Planting Base	Mad River Hatchery[b]	Merced River Hatchery	Moccasin Creek Hatchery	Mojave River Hatchery	Mokelumne River Hatchery[b]	Mount Shasta Hatchery	Mount Whitney Hatchery	Nimbus Hatchery[b]	San Joaquin Hatchery	Silverado Fisheries Base	Trinity River Hatchery[b]	Warm Springs Hatchery[b]	*Total*
San Mateo																						***0***
Santa Barbara					**1**																	***1***
Santa Clara																			**1**			***1***
Santa Cruz																			**1**			***1***
Shasta	**1**	**1**	**1**												**1**							***4***
Sierra	**1**	**1**					**1**					**1**						**1**	**1**			***6***
Siskiyou		**1**	**1**												**1**							***3***
Solano	**1**																					***1***
Sonoma																			**1**			***1***
Stanislaus												**1**										***1***
Tehama			**1**												**1**							***2***
Trinity		**1**	**1**							**1**					**1**							***4***
Tulare									**1**									**1**				***2***
Tuolumne	**1**	**1**					**1**					**1**						**1**	**1**			***6***
Ventura					**1**																	***1***
Yuba	**1**	**1**																	**1**			***3***
Total	**22**	**16**	**10**	**1**	**8**	**4**	**10**	**0**	**2**	**4**	**0**	**13**	**9**	**0**	**13**	**2**	**2**	**13**	**24**	**0**	**0**	

Notes:

[a] Information from California Department of Fish and Game 2008a.

[b] Several anadromous fish hatcheries are listed because trout or salmon were stocked to inland waters from these facilities between 2004 and 2008.

[c] Since January of 2007, Hot Creek Hatchery distribution has been limited to waters known to support populations of New Zealand mud snails in the Owens River drainage.

Salmon and Steelhead Hatcheries

General Characteristics

DFG is currently operating 10 salmon and steelhead hatchery facilities in California. Eight of these 10 facilities (the Iron Gate, Trinity River, Warm Springs, Feather River, Nimbus, Mokelumne River, and Merced River Hatcheries and the Coyote Valley Fish Facility) were constructed below dams on major rivers as mitigation for loss of access to anadromous fish habitat upstream of the dams. The Thermalito Annex, which is not located below a dam, supports the mitigation and enhancement programs that include Chinook and coho salmon for the Feather River Hatchery. The Mad River Hatchery, which is also not below a dam, is designed to enhance steelhead populations along the north coast of California. The Mad River Hatchery was originally constructed to maintain and enhance Chinook and coho salmon and steelhead on California's north coast. The Coyote Valley Fish Facility supports the Warm Springs Hatchery steelhead mitigation program. Since 2001, the Warm Springs Hatchery also has been supporting a conservation program aimed at re-establishing coho salmon runs in the Russian River watershed through a captive brood stock program. The location of these hatchery facilities is shown in Figure 2-1.

Each of the salmon and steelhead hatcheries has a goals and constraints guidance document that identifies rearing and stocking targets and provides direction on brood stock source, egg distribution, and disposition of excess eggs and returning adults. Several of the facilities have developed draft HGMPs that, once approved by the NMFS, will also provide detailed guidance on the management of the various anadromous fish populations that are produced and harvested at the hatcheries. Draft HGMPs exist for Nimbus Fish Hatchery steelhead and fall-run Chinook salmon, Feather River Hatchery spring-run Chinook salmon, Warm Springs Hatchery coho salmon and steelhead, Mad River Hatchery steelhead, and Iron Gate Hatchery coho salmon.

Salmon and steelhead hatcheries have many similarities to trout hatcheries, especially in their general layout and types of facilities. Their locations, however, are much more tied to dams and rivers, as they are designed to attract upstream migrant salmon and steelhead into the facility to supply the eggs and milt needed to meet production and mitigation goals. They provide for a range of fish culture activities, including attracting and trapping, spawning, carcass disposal, return of living adults (steelhead only) to the rivers following spawning, egg incubation, juvenile rearing, tagging, and transfer or release. There are a variety of physical facilities on each hatchery site to support the various culture activities, including: weirs and ladders from the river into the hatchery; water supply diversions, pumps, and chillers; structures housing egg incubation tanks, staff offices, staff residences, equipment and vehicles; ponds and raceways for fish rearing; water treatment facilities and settling ponds; tagging sites; flumes to release fish back to the river; and public viewing and information facilities. Table 2-5 provides some basic descriptive information for the 10 facilities. A general description of hatchery operations is provided below. Appendix A includes a detailed description of all 10 of the salmon and steelhead facilities.

Each of the hatchery facilities supports the rearing of one or more species of anadromous fish, including Chinook salmon, coho salmon, and steelhead. As with the trout, each individual species is considered a "program" for the purposes of this document. Table 2-6 lists each salmon and steelhead program that is maintained at the 10 facilities. The table also indicates average annual fish production for each program. Eggs for these hatcheries come from returning spawners. Some of these anadromous fish hatcheries also support the inland program by rearing and stocking Chinook and Coho salmon; and rainbow, Eagle Lake, cutthroat, and brook trout in small numbers (Table 2-3).

Table 2-5. Salmon and Steelhead Hatcheries General Information

Facility	Type[a]	DFG Region[b]	River Basin	Location[b]
Coyote Valley Fish Facility	Mitigation	1—Northern	Russian River	Mendocino County near Ukiah
Feather River Hatchery	Mitigation/ Enhancement	2—North Central	Feather River	Butte County near Oroville
Iron Gate Hatchery	Mitigation	1—Northern	Klamath River	Siskiyou County near Hornbrook
Mad River Hatchery	Enhancement/Trout	1—Northern	Mad River	Humboldt County near Blue Lakes
Merced River Hatchery	Mitigation/ Enhancement	4—Central	Merced River	Merced County near Snelling
Mokelumne River Hatchery	Mitigation/ Enhancement	2—North Central	Mokelumne River	San Joaquin County near Clements
Nimbus Hatchery	Mitigation	2—North Central	American River	Sacramento County near Folsom
Thermalito Annex	Mitigation/ Enhancement	2—North Central	Feather River	Butte County near Richvale
Trinity River Hatchery	Mitigation	1—Northern	Trinity River	Trinity County near Lewiston
Warm Springs Hatchery	Mitigation/ Conservation	3—Bay Delta	Russian River	Sonoma County near Healdsburg

Notes:
[a] Hatchery types are described in the text of this chapter.
[b] DFG regions and hatchery locations are shown in Figure 2-1.

Operations

Mitigation Hatcheries

As indicated above, most of DFG's salmon and steelhead hatcheries are designed primarily to mitigate for the loss of fish habitat and blocked access to upstream spawning areas caused by dam construction. These hatcheries are located immediately below dams and draw their brood stock from returning hatchery fish and wild fish. The eggs and milt from brood stock fish are harvested and then mixed to initiate fertilization. Spawned salmon are sacrificed in the process, and their carcasses may be made available to various groups for food, may be returned to the water to add nutrients, or may be hauled to a rendering plant. Spawned steelhead are not sacrificed; they are

returned to the river. The fertilized eggs are maintained in incubation trays that receive a constant flow of cold water (typically in the range of 42°F to 55°F) to maintain their health. Once the fish are hatched and reach sufficient size, they are transferred to nursery tanks or rearing ponds or raceways. At the fingerling (smolt) stage, most of the salmon are released back into the natural environment. Smaller numbers are raised to yearling size and released later in the year. Most steelhead are raised to the yearling stage before release. The typical operational scheme for salmon and steelhead hatcheries is diagrammed in Figure 2-6 .

Enhancement Hatcheries

The Mad River Hatchery is the only anadromous hatchery in the DFG system that has fisheries enhancement as its only objective. This facility is not located immediately below a dam. It was constructed to enlarge or enhance the runs of salmon in the state's north coastal rivers and creeks. In recent years, Mad River Hatchery has eliminated its salmon program and focused primarily on steelhead. DFG collects fish directly from the Mad River, including both hatchery and wild stock. The fish are collected, sorted, and spawned on site. Spawned fish are returned to the river. The eggs are incubated, and fry are raised to yearling status in raceways on site prior to release. The majority of the yearling fish are released volitionally from the hatchery's outfall pipe to the Mad River, approximately 6.5 miles upstream of the ocean. The Mad River Hatchery also raises a small number of rainbow trout for planting in local lakes in northwestern California. The Feather and Mokelumne River Hatcheries also have enhancement components to their fish programs.

Salmon and Steelhead Stocking

Planning

The 10 salmon and steelhead hatchery facilities have developed production and release goals based on requirements established when the facilities were originally constructed. These production numbers were developed based on the best available science at the time and reflect an estimate of the populations lost from dam construction or operation of Sacramento-San Joaquin Delta pumps. Each hatchery has codified these production and stocking goals in a goals document, referred to as "production goals and objectives" or "production goals and constraints." Hatchery managers can make minor adjustments in release sizes and dates based on prevailing environmental conditions, with approval from the Senior Hatchery Supervisor, but cannot operate outside goals and constraints without Regional Manager approval.

The Mad River Hatchery was established as an enhancement facility and does not have a mitigation-based set of goals for production and release. Planning for production and release of steelhead occurs in cooperation with the NMFS. A draft HGMP has been developed to document this planning process. This plan establishes the number of hatchery and native fish captured and spawned at the facility and the target for release of yearling steelhead.

Stocking Sites and Quantities

The information presented in this chapter represents stocking records for the past 5 years, 2004 through 2008. Table 2-7 lists the locations of stocking, by county, for 8 of the 10 DFG salmon and steelhead hatchery facilities. The Coyote Valley Fish Facility releases are included in the Warm Springs Hatchery totals and the Thermalito Annex releases are included in the Feather River Hatchery totals. The average numbers and pounds of fish stocked from each hatchery are included

in Table 2-6. Most of the fish raised in the hatcheries on coastal streams (the Iron Gate, Trinity River, Warm Springs, and Mad River Hatcheries and Coyote Valley Fish Facility) are released directly from the hatchery into the adjacent stream. Small numbers of fish are released periodically at downstream locations or in smaller tributary creeks.

The Central Valley hatcheries (Feather River Hatchery and its Thermalito Annex, Nimbus Hatchery, Mokelumne River Hatchery, and Merced River Hatchery) have released fish in the past five years into a number of environments, including: rivers adjacent to the hatcheries, rivers in other parts of the Central Valley, farther downstream in the Sacramento–San Joaquin River Delta (Delta), and San Pablo and San Francisco Bays. Small numbers of fish (51,600 to 437,700 annually) have been released from the Mokelumne River Hatchery through an enhancement program that involves trucking fish to ocean or bay environments (Avila, Monterey, Santa Cruz and Tiburon) and then placing the fish in net pens prior to release. Transporting hatchery fish downstream of the Delta improves their survival. However, off-site release can also increase the rate at which returning salmon stray from the stream of their origin. This straying can result in salmon returning to streams that previously only supported steelhead runs or streams supporting other populations of Chinook salmon.

Appendix G contains maps of all 58 California counties, with each anadromous salmon and steelhead stocking site located and identified. These stocking locations have been obtained from the DFG stocking database for the years 2004 through 2008. This database may contain minor additions or exclusions when compared to actual stocking activity. There are also stocking locations in the DFG program that were not stocked in the 2004-2008 period but remain an active part of the program and may be stocked in the future.

Stocking Timing and Methods

The timing of fish releases from salmon and steelhead hatcheries varies with species and size. Most Chinook salmon are released as smolts between mid-March and mid-August when flows in the rivers are high. If these fish are held over to yearling size, they are released later in the year, from September through December. Coho salmon raised for release and return to the ocean are typically released between mid-March and the beginning of May. Steelhead are generally released as yearlings. Three of the coastal hatcheries (the Iron Gate, Trinity River, and Mad River Hatcheries) make their steelhead releases in the March–May timeframe; Warm Springs Hatchery makes its steelhead releases earlier, in the December–April timeframe, and Coho salmon are released during three periods (spring: fry; fall: advanced fingerlings; and spring: smolts. The Central Valley steelhead programs all make their releases in mid-winter, January and February (California

Table 2-6. Salmon and Steelhead Anadromous Fish Programs and Average Numbers and Pounds of Fish Produced and Stocked Annually—2004 to 2008[a]

Facility	Fingerlings								Subcatchables/Advanced Fingerlings								Catchables/Yearlings								All Sizes	
	Planted		Transferred[c]		Received[c]		Production[c]		Planted		Transferred[c]		Received[c]		Production[c]		Planted		Transferred[c]		Received[c]		Production[c]		Total/Production[c]	
Species	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number
American River Hatchery[b]																										
Steelhead trout	184	10,862	0	0	57	11,856	127	-994	0	0	0	0	672	8,198	-672	-8,198	3,891	8,172	0	0	0	0	3,891	8,172	3,347	-1,020
Yearly average	184	10,862	0	0	57	11,856	127	-994	0	0	0	0	672	8,198	-672	-8,198	3,891	8,172	0	0	0	0	3,891	8,172	3,347	-1,020
Feather River Hatchery																										
Chinook salmon	14,598	1,684,472	1,506	636,445	1,502	636,448	14,601	1,684,470	198,459	8,900,911	0	13	0	0	198,459	8,900,923	0	0	0	0	0	0	0	0	213,061	10,585,393
Steelhead trout	42	3,088	431	116,881	431	116,881	42	3,088	560	26,897	1,966	57,862	1,966	57,862	560	26,897	85,734	419,539	418	7,411	459	7,498	85,693	419,453	86,295	449,437
Yearly average	14,639	1,687,559	1,937	753,327	1,934	753,329	14,643	1,687,557	199,020	8,927,808	1,967	57,875	1,966	57,862	199,020	8,927,820	85,734	419,539	418	7,411	459	7,498	85,693	419,453	299,356	11,034,830
Iron Gate Hatchery																										
Chinook salmon	54,405	5,310,763	120	23,125	114	23,125	54,411	5,310,763	14	600	0	0	0	0	14	600	96,840	969,615	0	0	0	0	96,840	969,615	151,264	6,280,978
Coho salmon	0	56	0	0	0	0	0	56	1	28	0	0	0	0	1	28	6,075	79,625	0	0	0	0	6,075	79,625	6,076	79,710
Steelhead trout	1	146	15	6,544	15	6,544	1	146	0	0	108	6,455	108	6,455	0	0	7,873	104,178	0	0	0	0	7,873	104,178	7,874	104,324
Yearly average	54,406	5,310,965	135	29,669	129	29,669	54,412	5,310,965	15	628	108	6,455	108	6,455	15	628	110,788	1,153,418	0	0	0	0	110,788	1,153,418	165,214	6,465,011
Mad River Hatchery																										
Steelhead trout	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42,075	203,943	0	0	0	0	42,075	203,943	42,075	203,943
Yearly average	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42,075	203,943	0	0	0	0	42,075	203,943	42,075	203,943
Merced River Hatchery																										
Chinook salmon	9,450	725,646	0	0	0	0	9,450	725,646	4,760	246,698	0	0	0	0	4,760	246,698	0	0	0	0	0	0	0	0	14,210	972,344
Yearly average	9,450	725,646	0	0	0	0	9,450	725,646	4,760	246,698	0	0	0	0	4,760	246,698	0	0	0	0	0	0	0	0	14,210	972,344
Mokelumne River Hatchery																										
Chinook salmon	15,207	1,034,123	0	0	109	45,641	15,098	988,482	89,955	4,068,141	0	0	0	0	89,955	4,068,141	9,251	72,162	0	0	0	0	9,251	72,162	114,304	5,128,785
Steelhead trout	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52,331	223,116	0	0	0	0	52,331	223,116	52,331	223,116
Yearly average	15,207	1,034,123	0	0	109	45,641	15,098	988,482	89,955	4,068,141	0	0	0	0	89,955	4,068,141	61,582	295,278	0	0	0	0	61,582	295,278	166,634	5,351,901
Nimbus Hatchery																										
Chinook salmon	31,577	2,205,103	109	45,641	0	0	31,686	2,250,743	29,200	1,662,200	0	0	0	0	29,200	1,662,200	0	0	0	0	0	0	0	0	60,886	3,912,943
Steelhead trout	0	0	0	0	0	0	0	0	955	31,492	0	0	0	0	955	31,492	85,493	383,675	84	1,025	0	0	85,577	384,699	86,532	416,191
Yearly average	31,577	2,205,103	109	45,641	0	0	31,686	2,250,743	30,155	1,693,692	0	0	0	0	30,155	1,693,692	85,493	383,675	84	1,025	0	0	85,577	384,699	147,418	4,329,134

Table 2-6. Continued

Facility	Fingerlings								Subcatchables/Advanced Fingerlings								Catchables/Yearlings								All Sizes	
	Planted		Transferred[c]		Received[c]		Production[c]		Planted		Transferred[c]		Received[c]		Production[c]		Planted		Transferred[c]		Received[c]		Production[c]		Total/Production[c]	
Species	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number
Trinity River Hatchery																										
Chinook salmon	21,954	2,074,210	0	0	0	0	21,954	2,074,210	25,270	1,073,874	0	0	0	0	25,270	1,073,874	97,839	1,286,911	0	0	0	0	97,839	1,286,911	145,062	4,434,995
Coho salmon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56,173	502,617	0	0	0	0	56,173	502,617	56,173	502,617
Steelhead trout	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	185,290	792,705	0	0	0	0	185,290	792,705	185,290	792,705
Yearly average	21,954	2,074,210	0	0	0	0	21,954	2,074,210	25,270	1,073,874	0	0	0	0	25,270	1,073,874	339,302	2,582,232	0	0	0	0	339,302	2,582,232	386,525	5,730,317
Warm Springs Hatchery																										
Coho salmon	120	12,403	0	0	11	1,622	109	10,781	401	15,194	0	0	4	208	397	14,986	204	314	0	0	148	81	56	233	562	26,000
Steelhead trout	0	0	0	0	2	1,160	-2	-1,160	0	0	0	0	0	0	0	0	104,240	496,290	26,875	131,858	26,867	131,858	104,248	496,290	104,246	495,130
Yearly average	120	12,403	0	0	13	2,782	107	9,621	401	15,194	0	0	4	208	397	14,986	104,445	496,604	26,875	131,858	27,015	131,940	104,304	496,522	104,808	521,130
Yearly average for salmon and steelhead program	**147,352**	**13,050,009**	**2,182**	**828,636**	**2,184**	**831,421**	**147,349**	**13,047,225**	**349,574**	**16,026,034**	**2,074**	**64,330**	**2,078**	**64,525**	**349,570**	**16,025,839**	**829,418**	**5,534,689**	**27,376**	**140,294**	**27,474**	**139,438**	**829,320**	**5,535,545**	**1,326,240**	**34,608,609**

Notes:

[a] Information from California Department of Fish and Game 2008a.

[b] The American River Trout Hatchery is listed because it reared and stocked steelhead in anadromous waters during the 2004-2008 period.

[c] "Transferred" refers to fish hatched at the facility and transferred to other facilities at various sizes prior to stocking. "Received" refers to fish hatched at other facilities and transferred in for additional growth and eventual stocking. The formula for "production" in Hatchery Information System Database reports has historically been used to scale an individual hatchery's productivity using the formula (([fish planted]+[fish transferred to other hatcheries])-([fish received from other hatcheries])) for each variety, and within a defined time period. It presents ([fish out]-[fish in]) as a measure of a hatchery's productivity with the intent of providing "credit" to a facility for resources used to grow and transfer fish to other hatchery facilities. "Production" using this formula can become negative via several routes. If a hatchery receives fish, holds them for a period of time, and then plants fewer numbers or pounds, due to disease, predation, or other factors, the hatchery's "production" will suffer. If a hatchery receives smaller fish, holds them for a period of time, and then plants fewer numbers or pounds in that size because they have grown out of that production size category, the "production" will suffer for that smaller size category. If a hatchery receives fish, holds them for a period, and then plants fewer numbers or pounds or none within the sampled time period, the "production" will suffer for that species by leaving uncounted fish in the ponds. (Krueger pers. comm.)

Table 2-7. Hatchery Source of Salmon and Steelhead Stocked to Anadromous Waters in California Counties—2004 to 2008[a]

County	American River Hatchery[b]	Feather River Hatchery	Iron Gate Hatchery	Mad River Hatchery	Merced River Hatchery	Mokelumne River Hatchery	Nimbus Hatchery	Trinity River Hatchery	Warm Springs Hatchery	*Total*
Alameda		**1**								***1***
Alpine										***0***
Amador										***0***
Butte		**1**								***1***
Calaveras										***0***
Colusa							**1**			***1***
Contra Costa		**1**			**1**	**1**	**1**			***4***
Del Norte										***0***
El Dorado										***0***
Fresno										***0***
Glenn		**1**								***1***
Humboldt				**1**						***1***
Imperial										***0***
Inyo										***0***
Kern										***0***
Lake										***0***
Lassen										***0***
Los Angeles										***0***
Madera										***0***
Marin						**1**			**1**	***2***
Mariposa										***0***
Mendocino									**1**	***1***
Merced					**1**					***1***
Modoc										***0***
Mono										***0***

County	American River Hatchery[b]	Feather River Hatchery	Iron Gate Hatchery	Mad River Hatchery	Merced River Hatchery	Mokelumne River Hatchery	Nimbus Hatchery	Trinity River Hatchery	Warm Springs Hatchery	*Total*
Monterey						**1**				***1***
Napa										***0***
Nevada										***0***
Orange										***0***
Placer							**1**			***1***
Plumas										***0***
Riverside										***0***
Sacramento	**1**	**1**					**1**			***3***
San Benito										***0***
San Bernardino										***0***
San Diego										***0***
San Francisco										***0***
San Joaquin		**1**			**1**	**1**				***3***
San Luis Obispo						**1**				***1***
San Mateo										***0***
Santa Barbara										***0***
Santa Clara										***0***
Santa Cruz						**1**				***1***
Shasta			**1**							***1***
Sierra										***0***
Siskiyou			**1**							***1***
Solano		**1**				**1**	**1**			***3***
Sonoma									**1**	***1***
Stanislaus					**1**					***1***
Sutter		**1**								***1***
Tehama										***0***

County	American River Hatchery[b]	Feather River Hatchery	Iron Gate Hatchery	Mad River Hatchery	Merced River Hatchery	Mokelumne River Hatchery	Nimbus Hatchery	Trinity River Hatchery	Warm Springs Hatchery	*Total*
Trinity								**1**		***1***
Tulare										***0***
Tuolumne										***0***
Ventura										***0***
Yolo		**1**								***1***
Yuba										***0***
Total	***1***	***9***	***2***	***1***	***4***	***7***	***5***	***1***	***3***	

Notes:

[a] Information from California Department of Fish and Game 2008a.

[b] The American River Hatchery raised small numbers of steelhead for release in the lower American River in 2006.

Department of Fish and Game and National Marine Fisheries Service Southwest Region Joint Hatchery Review Committee 2001).

Salmon and steelhead stocking is accomplished in two principal ways. For the coastal river hatcheries, most fish are released directly from the rearing ponds and raceways to the adjacent river or creek. The majority of the fish (both salmon and steelhead) are released in this manner from the Iron Gate, Trinity River, and Mad River Hatcheries. The Warm Springs Hatchery releases most of its steelhead from the hatchery into the adjacent Dry Creek, but it also trucks some fish to a release facility just below Coyote Dam (the Coyote Valley Fish Facility) on the east branch of the Russian River. Coho salmon fingerlings produced at the Warm Springs Hatchery under the Coho Conservation (Recovery) Program are backpacked in aerated coolers to coho habitat locations within tributaries to the Russian River in the lower portion of the Russian River watershed. The Central Valley hatcheries stock most of their fish by trucking them to downstream locations. These locations are on the river of origin, on adjacent rivers, in the Delta, and in San Pablo and San Francisco Bays.

Tagging and Monitoring

DFG's tagging and monitoring program for Chinook salmon has changed significantly in recent years. Historically, only a small number of the Chinook salmon that were planted in California's Central Valley rivers were marked in any way to distinguish them from native populations. Several of the Central Valley hatcheries tagged small numbers of fall-run Chinook salmon for experimental purposes, but most of the fish were released untagged. Spring-run Chinook salmon produced at the Feather River Hatchery, however, have all been tagged with coded wire tags since 2006 (Low pers. comm.). In recent years (2007–2008), there has been an effort to mark or tag 25% of planted fall run Chinook salmon in the Central Valley. Using CALFED Ecosystem Restoration Program (ERP) funds, a consortium of agencies (DFG, the California Department of Water Resources, the USFWS, the Pacific States Marine Fisheries Commission, the U.S. Bureau of Reclamation, and the EBMUD) initiated the Central Valley Constant Fractional Marking Program. This program has allowed DFG and the USFWS to mark 25% of the fall-run Chinook salmon released in 2007 and 2008 from Coleman National Fish Hatchery, Nimbus Hatchery, Feather River Hatchery, and Mokelumne River Hatchery with constant fractional marking/coded wire tagging. The Constant Fractional Marking Program's objectives are:

- to evaluate the contribution rates of hatchery fish to Central Valley Chinook salmon populations,
- to evaluate the Central Valley propagation program's genetic and ecological effects on natural Chinook salmon populations,
- to estimate exploitation rates of hatchery and natural Central Valley Chinook salmon in ocean and inland fisheries,
- to evaluate the success of restoration actions designed to increase natural production of Central Valley Chinook salmon,
- to evaluate the relative impacts of water project operations on hatchery and naturally produced Chinook salmon, and
- to evaluate the recovery of listed stocks of Chinook salmon (Buttars 2008).

The coastal stream salmon and steelhead hatcheries that produce Chinook salmon (Trinity River and Iron Gate Hatcheries) have also been tagging released fish with coded wire tags, but at varying

rates. The Trinity River Hatchery Chinooks have been tagged at the 25% rate since 1995. The Iron Gate Hatchery Chinook salmon have been tagged at lower rates (approximately 10%–15% in 2007 and 2008). Plans are to increase the Iron Gate Hatchery tagging to 25% in 2009 (Hansen pers. comm.).

DFG has maintained a long-term program of marking 100% of its coho salmon releases by making maxillary or adipose fin clips. All yearling steelhead, except a portion of those released from Iron Gate Hatchery, are also marked with adipose fin or maxillary clips (California Department of Fish and Game and National Marine Fisheries Service Southwest Region Joint Hatchery Review Committee 2001). All coho salmon produced out of the conservation program at Warm Springs Hatchery are coded wire tagged as well as receiving an adipose tag.

There is no system-wide program to monitor the numbers of salmon and steelhead returning to California streams. Different monitoring systems are used on the major river systems, depending on the objectives of the monitoring program. At facilities where coded wire tagging has taken place, returning fish are monitored for tagging prior to spawning. Fish with tags are identified and recorded. Heads are removed from salmon that are marked to indicate the presence of coded wire tags; these are sent to a central location for reading of the coded information. Spawning ground surveys are also conducted on the major streams that support Chinook salmon; carcasses of spawned fish are checked for marks, and heads are collected where coded wire tagging is indicated. Other techniques used to monitor the returning populations include redd surveys and snorkel surveys. Creel censuses are used to estimate the recreational take of salmon and steelhead.

DFG also maintains a monitoring program for salmon harvested in the ocean by both recreational and commercial fishermen. A random sample of returning recreational boats are met at landing sites, and fish are checked for the presence of tags. Heads are removed from fish with coded wire tags, then forwarded to a central location for reading of the coded information. Commercial fish are checked at sorting tables at the landing sites; DFG's goal is to monitor 20% of the commercial salmon harvest (Low pers. comm.). All of the monitoring information is recorded in annual reports issued by DFG.

Fishing in the City Program

Program Purpose and Management

The Fishing in the City Program is an urban fishing program created in 1993 to improve angling opportunities through the stocking of natural and constructed lakes and impoundments on streams. Fishing in the City is offered in four metropolitan areas: Los Angeles, Orange and San Diego Counties; the San Francisco Bay area (Bay Area); the south Bay Area; and the Sacramento metropolitan area. This program is funded by federal SFRA money (75%) and by state matching funds (25%), to support sport-fishing restoration and education programs. The SFRA funds are administered by USFWS.

The intent of the Fishing in the City program is to serve all ages, sexes, ethnic groups, and economic groups with stocking programs and fishing events. The programs are designed to recruit and teach beginning anglers, but experienced anglers are welcome and encouraged to participate. The programs are free of charge (except license requirements) and have an educational focus. In addition to fishing education and fishing clinics, the program includes equipment loan and advanced

aquatic education. DFG provides education and scientific consultation to community partners that sponsor the fishing events.

Water bodies accepted into the program by DFG have to meet certain consideration and be approved by DFG biologists. The considerations include those listed below.

- Is the stocked water body open to all the public for fishing?
- Is the lake within an urban area—accessible by public transportation, bicycle, etc?
- Can the lake biologically sustain a year round fishery?
- Are there water quality problems that would make the fish unsafe to eat?
- Does the lake manager support fishing and are they willing to maintain the site for fishing?
- Is there community support for a fishing program—volunteers, businesses, schools?
- Are the Lake Manager and community members willing to provide long-term in-kind support for maintaining a community fishing education program?

(Source: California Department of Fish and Game 2009a, available at http://www.dfg.ca.gov/fishinginthecity/overview.html.)

In addition to these basic selection criteria, DFG biologists review proposed fishing sites for presence of habitat that could support special status, native or legally-protected fish or wildlife species. Because this program is funded in part by SFRA grants, DFG biologists periodically complete federal aid Section 7 evaluation forms to document any potential effects on federally-listed threatened or endangered species. The USFWS restricts the lakes that rainbow trout can be stocked to lakes that either are not connected hydrologically to anadromous waters or are screened.

Most fish used in this program are purchased from private aquaculturists, either from within California or from out of state. DFG-managed hatcheries provide fish for this program in Region 5. Title 14, Section 236 of the California Code of Regulations requires a Standard Importation Permit from DFG before fish can be imported for stocking in public or private waters. Fish shipped in from out of state also must be certified as free of pathogens and parasites.

Currently DFG Region 4 does not have a FIC coordinator. However, urban and special fishing events do occur and are coordinated by Region 4 fishery management. Special events include those for educational purposes, sports shows, and opportunities geared towards kids, individuals with special needs, and disabled persons. There are also many events that are organized and coordinated by various organizations such as fly fishing clubs and civic groups. Region 4 trout hatcheries provide trout for these events. Federal funds (SFRA) are also sought for the purchase and planting of warm water game fish in appropriate urban lakes in Fresno and Bakersfield to provide year round urban fishing opportunities (Vance pers comm.). Region 1 also does not have a formal FIC program, but it does sponsor urban fishing opportunities for children using DFG-reared trout, similar to the program in Region 4.

Program Activity

The majority of the fish stocked under this program are released to contained waters (ponds) where the stocked fish will be isolated from other waterways. In a small number of cases, fish have been stocked in impounded stream reaches. The stocked fish include primarily rainbow trout and channel catfish. As stated above, multiple criteria are used for selecting ponds to minimize risk to native

species. A summary of water bodies stocked in recent years within each region is included in Table 2-8.

Region 4's urban fishing program is not represented in Table 2-8. Some of its stocking locations are in established and approved waters, while others have similar characteristics to many FIC stocking locations in that they occur in artificial water bodies within urban parks, sports complexes, or former swimming pools. Counties stocked in Region 4 for urban and special event fishing opportunities include Fresno (Fresno County Sportsman's Club Pond, Grizzly Stadium Pond, Sports Complex Pond, Willow Lodge Pond, Woodward Park Pond, and Wishon Reservoir, all of which are located within the City of Fresno with the exception of Wishon Reservoir), Kern (Kernville fishing pool, Kern Hatchery Pond, Mirror Lake in Bakersfield's Hart Park, and River Walk Lake in Bakersfield), Madera (Hensley /Eastman Lake and Southfork Recreation Area in North Fork), Merced (Yosemite Lake), San Luis Obispo (Barney Schwartz Park Lake in Paso Robles), Stanislaus (VFW pool in Modesto), and Tulare (Murrey Park Pond in Porterville) (Vance pers. comm.).

Classroom Aquarium Education Project

Program Purpose and Management

The CAEP provides students, from kindergarten through 12th grade, an opportunity to participate in the hatching and rearing of fish, from egg to fry. This interdisciplinary program provides students with a firsthand experience regarding the value of aquatic environments, the balance that must be met to maintain and preserve California's fisheries and aquatic habitats, and the effects of their personal actions on these valuable resources.

Instructors and their students set up an aquarium in the classroom, receive fish eggs under a special DFG authorization, and observe the fish as they hatch and develop. A typical classroom program receives between 25 and 300 eggs, usually from salmon, steelhead, or trout raised in DFG hatchery facilities. In some instances, sterile (triploid) eggs are purchased from out-of-state vendors. In such instances, they obtain an importation permit from DFG and follow specific protocols, which may require an inspection by a fish pathologist. The experience may culminate in a field trip to a specified local creek, river or lake where the fish are released. The release location is determined by a local DFG biologist to minimize the risk of competition, predation, genetic or pathogen-related impacts to native species. This location is stated on the instructor's authorization.

The CAEP is offered statewide in partnership with regionally based community organizations. Although the program has several names around the state (Salmonids in the Classroom, Trout in the Classroom, Steelhead in the Classroom, and Salmon and Trout Education Program), the essential learning elements and student experiences are similar. Completion of a training workshop is required to receive the DFG authorization and eggs. Teacher training workshops are offered at least once a year in each DFG region.

The CAEP is coordinated statewide by DFG and implemented regionally with the help of DFG hatchery and fisheries staff working in conjunction with community partners. This organization is intended to assist in implementing the objectives of the program which include protecting the state's genetic integrity of anadromous and resident fish populations in accordance with existing DFG and NMFS regulations.

Table 2-8. Fish Stocked Under the Fishing in the City Program by California Department of Fish and Game and Partners

Water Body Stocked	Fish Stocked	Hydrologic Status of Water Body	Stream Receiving Overflow
San Francisco Bay Area			
Alameda County: Stocking occurs between 15 and 20 times a year, generally between September and June. Fish are provided by private aquaculturalists.			
Don Castro Reservoir	Catfish; sterile rainbow trout[a]; Sacramento perch	Flow-through; the Don Castro fishery is slowly being phased out as the lake is rapidly silting in with no dredging planned	San Lorenzo Creek
Lake Elizabeth	Catfish; rainbow trout	Flow-through	
Lake Temescal	Catfish; rainbow trout	Flow-through	Temescal Creek
Lakeshore Park	Catfish; rainbow trout	Isolated	
Quarry Lake	Catfish; rainbow trout	Isolated	
Shadow Cliffs	Catfish; rainbow trout	Isolated gravel pit	
Contra Costa County: Stocking occurs between 15 and 20 times a year, generally between September and June. Fish are provided by private aquaculturalists.			
Contra Loma Reservoir	Catfish; rainbow trout	Isolated	
Heather Farms Pond	Catfish; rainbow trout	Isolated	
Hidden Valley Lake	Catfish; rainbow trout	Flow-through	Contra Costa Canal
Lafayette Reservoir	Catfish; rainbow trout	Flow-through	Lafayette Creek, a tributary to Walnut Creek
Lake Refugio	Catfish; rainbow trout	Flow-through	Refugio Creek
San Pablo Reservoir	Catfish; sterile rainbow trout[a]	Flow-through	San Pablo Creek
Marin County: Stocking occurs between 15 and 20 times a year, generally between September and June. Fish are provided by private aquaculturalists.			
Bon Tempe Reservoir	Catfish; rainbow trout	Flow-through	Bon Tempe is a flow-through reservoir on Lagunitas Creek, which supports major runs of steelhead trout and Coho salmon. There are two more lakes downstream of Bon Tempe (Alpine and Kent, which are both flow-through) that separate Bon

Water Body Stocked	Fish Stocked	Hydrologic Status of Water Body	Stream Receiving Overflow
			Tempe from the anadromous waters of Lagunitas Creek.
McInnis Park Pond	Catfish	Isolated	The pond has no outflow and no spillway. If water did spill over the berm around the pond, it would drain only to either a salt marsh area or a brackish water tidal channel leading directly to San Francisco Bay. Adjacent to the golf course in the northeast corner of McInnis Park, adjacent to the Las Gallinas Valley Sanitary District plant, in the city of San Rafael.
Scottsdale Pond	Catfish; rainbow trout, bluegill; Sacramento perch	Flow-through	Spills directly to tidal marshes adjacent to Novato Creek in Novato
Stafford Lake	Catfish	Flow-through	Novato Creek
San Francisco County: Stocking occurs between 15 and 20 times a year, generally between September and June. Fish are provided by private aquaculturalists.			
Lake Merced; North and South	Catfish; rainbow trout	Isolated	
Lake Chabot	Catfish; rainbow trout	Flow-through reservoir with a short reach of seasonal stream below the reservoir	Discharges to tidal reach of Napa River just before the river discharges to San Francisco Bay
Lake Ralphine	Catfish; rainbow trout	Semi-isolated	Santa Rosa Creek in Santa Rosa
South San Francisco Bay Area			
Santa Clara County: Rainbow trout (fertile and triploid), bluegill, Sacramento perch and channel catfish are planted. Stocking occurs between 15 and 20 times a year, generally between September and June. Fish are provided by private aquaculturalists.			
Campbell Perc Ponds	Catfish; Rainbow trout; bluegill	Isolated	Off channel ponds from Los Gatos Creek
Cottonwood Lake	Sterile rainbow trout[a]; Sacramento perch	Flow-through	Cottonwood is in Hellyer Park in South San Jose. It drains directly into Coyote Creek through a culvert, and it would be very easy to have stocked trout escape.

Water Body Stocked	Fish Stocked	Hydrologic Status of Water Body	Stream Receiving Overflow
			A screen would eliminate this problem.
Lake Cunningham	Catfish; rainbow trout; bluegill; Sacramento perch	Isolated	
Lake Vasona	Catfish; sterile rainbow trout[a]	Flow-through	Lake Vasona on Los Gatos Creek drains into the lower stem of the Guadalupe River, which is known seasonal habitat for native steelhead. The steelhead of the Guadalupe River in the central California. coast ESU is a federally listed fish. Biologists from DFG and from Santa Clara Water District determined there is no consistent use of Los Gatos Creek below Vasona by steelhead.
Sandy Wool Lake	Catfish; rainbow trout	Isolated	Sandy Wool and Spring Valley lakes are both in Ed Levin Park and both ultimately drain into the same flood control channel, Arroyo De Los Coches
Spring Valley Lake	Sterile rainbow trout[a]	Isolated	Spring Valley Lake is in Ed Levin State Park in Milpitas. This is a relatively small pond with an 18-inch culvert that drains overflow from the lake into a tiny unnamed creek that drains into Arroyo de los Coches. The latter is a concrete flood control channel (until crosses Morrill Avenue) when it turns back into a U-shaped drainage ditch that drains into the mouth of Coyote Creek near Dixon Landing Road.

Water Body Stocked	Fish Stocked	Hydrologic Status of Water Body	Stream Receiving Overflow
Los Angeles, Orange, and San Diego Counties			
Los Angeles County: Trout are provided by DFG hatcheries and are part of annual allotments. Catfish are purchased from a successful bidder (usually from the Imperial Valley).			
Alondra Park	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Belvedere Park	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Cerritos Park	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Echo Park	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
El Dorado Park	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Ervin “Magic” Johnson Recreation Center	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Hansen Dam Aquatic Center	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Hollenbeck Park	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	

Water Body Stocked	Fish Stocked	Hydrologic Status of Water Body	Stream Receiving Overflow
John Anson Ford Park	Channel catfish	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Kenneth Hahn State Recreation Area	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
La Mirada Park	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Legg Lake	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Lincoln Park	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Peck Road Park	Channel catfish and rainbow trout	Isolated	Overflow caught by Rio Hondo Flood Control Channel, eventually flowing into the Pacific Ocean
Puddingstone Reservoir	Channel catfish and rainbow trout	Isolated	
Receda Regional Park	Channel catfish	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Santa Fe Reservoir	Channel catfish and rainbow trout	Isolated	Overflow, if any, would be caught by Flood Control Channel, eventually flowing into the Pacific Ocean
Wilderness Park	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	

Water Body Stocked	Fish Stocked	Hydrologic Status of Water Body	Stream Receiving Overflow
Orange County: Trout are provided by DFG hatcheries and are part of annual allotments. Catfish are purchased from a successful bidder (usually from the Imperial Valley).			
Centennial Regional Park	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Chris Carr Park	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Eisenhower Park	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Greer Park	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Huntington Central Park	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Huntington Central Park	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Irvine Regional Park	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Laguna Lake Park	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	

Water Body Stocked	Fish Stocked	Hydrologic Status of Water Body	Stream Receiving Overflow
Mile Square Regional Park	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Ralph B. Clark Regional Park	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Tri-City Park	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Yorba Regional Park	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	Possible overflow into Santa Ana River Drainage
San Diego County: Trout are provided by DFG hatcheries and are part of annual allotments. Catfish are purchased from a successful bidder (usually from the Imperial Valley).			
Chollas Heights Reservoir	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Lindo Lake County Park	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Murray Reservoir	Channel catfish and rainbow trout	Isolated; stocking occurs entirely within artificial urban landscape containing a manmade lining and bordered by lawn	
Sacramento County: Stocking occurs approximately 13 times a year, often with catfish stocked during summer and trout stocked during winter.			
Elk Grove Park, pond	Channel catfish, rainbow trout	Isolated	
Florin Creek Park, pond	Channel catfish, rainbow trout	Isolated	

Water Body Stocked	Fish Stocked	Hydrologic Status of Water Body	Stream Receiving Overflow
Gibson Ranch, pond	Channel catfish	Isolated	
Hagan Park, pond	Channel catfish, rainbow trout	Isolated	
Howe Park, pond	Channel catfish, rainbow trout	Isolated	
Southside Park, pond	Channel catfish	Isolated	
William Land Park, pond	Channel catfish, rainbow trout	Isolated	
San Joaquin County: Catfish stocking occurs in summer, and trout stocking occurs in winter.			
Oak Grove Park, pond	Channel catfish, rainbow trout	Isolated	

Source: Starr pers. comm.

Notes:

[a] Sterile rainbow trout planted to prevent hybridization with native steelhead within anadromous waters.

EBMUD = East Bay Municipal Utility District

To effectively disseminate information pertaining to the specific regulations regarding the release or disposition of reared fish, CAEP participants are required to acquire and maintain a valid and signed Authorization to Transfer and Rear Eggs and Fish for Classroom Aquarium Education Projects (DFG form FG 772) from DFG. The principal conditions on the authorization form include those listed below.

- Only the applicant on the form is authorized to acquire and incubate the eggs or fish.
- No eggs or fish acquired may be possessed, transferred, released, or otherwise disposed of except as authorized by the form. Fish shall be released only at the location(s) authorized on the front of the form.
- The authorization shall remain with the egg or fish at all times.
- All eggs and fish shall remain the property of the state, and decisions on final disposition remain solely with DFG.
- Applicants may not release deformed or diseased fish and should contact the DFG coordinator for instructions (modified from DFG form FG 772).

Training for the program is conducted by DFG staff or community partners working in conjunction with DFG staff. Information included in this training is intended to mitigate the spread of disease to wild and hatchery fish stocks and prevent the spread of nuisance species. As a part of the training, DFG provides information on laws regarding rearing of fish, and various other related fishery and habitat information.

Classes are instructed to contact DFG regional coordinators for the CAEP program prior to release. Release sites are chosen for their suitability for a field trip, and to avoid waters that have wild trout populations. In addition, fish are not released into historically fishless waters, preventing potential disruptions to aquatic ecosystems due to the addition of top level predators.

Project Activity

Region 1

DFG Region 1 provided eggs to 41 CAEP classrooms in Del Norte and Humboldt Counties in 2007/2008. These eggs were provided from the Mad River Hatchery and the Rowdy Creek Hatchery (private facility). All classrooms received approximately 25 eggs; the Mad River eggs were steelhead and the Rowdy Creek eggs were Chinook salmon. By the end of the season in June, 548 steelhead fry had been released into the Mad River at or below the hatchery, and 121 Chinook salmon fry had been released into Rowdy Creek at Rowdy Creek Park (Ramsey pers. comm.). In Siskiyou County in 2008-2009, Region 1 provided 100 rainbow trout eggs or 50 Chinook salmon eggs to 18 schools. Rainbow trout fry were released into ponds and creeks upstream of the Iron Gate Dam on the Klamath River; Chinook salmon fry were released into the Klamath River (Benthin pers. comm.).

Region 2

Between 2004 and 2007, Region 2 CAEP projects released a total of 2,857rainbow trout fry, primarily in Placer, Nevada, Sierra and Plumas County creeks. The numbers released at a single location ranged from 10 to 400. The egg sources for these trout projects included Mount Whitney, American River, and Mount Shasta Hatcheries. The Region also supported 41 Chinook salmon projects between 2004 and 2008. These projects received eggs from the Feather River, Nimbus, and Mokelumne River Hatcheries and resulted in the release of 8,594 fry over the 5-year period. Most of the fish were released in the lower Feather, Yuba, American and Mokelumne Rivers (Starr pers. comm.).

Region 3

Between 2003 and 2008, Region 3 released 12,420 rainbow trout into lakes throughout the San Francisco Bay Area. Eggs were distributed through the Silverado Hatchery and obtained from Darrah Springs. Between 2003 and 2008, 20,100 steelhead were released into the San Lorenzo River system. Eggs from this project were obtained by the private hatchery operated by the Monterey Bay Salmon and Steelhead Education Program. A total of 14,640 steelhead were released into the Russian River watershed. Eggs for this project were obtained from the Warm Springs Hatchery. There are a handful of classrooms in the San Francisco Bay Area hatching Chinook salmon. These are obtained (and permitted) through Region 2 and released at Discovery Park at the confluence of the Sacramento and American Rivers (Larson pers. comm.).

Region 4

Within DFG Region 4, CAEP released 12,010 rainbow trout and 11,560 Chinook salmon fry between the years 2004–2008 for a total of 23,570 fish released. Release sites included both lakes and rivers. Trout were released in the Calaveras, Kaweah, Kern, Kings, Merced, San Joaquin, Stanislaus, Tule, and Tuolumne Rivers, with the maximum annual release at any one site being 713 trout fry. Salmon

were released in the Tuolumne, Stanislaus, and Merced Rivers, with the largest annual release at any one site being 1,338 salmon fry (Starr pers. comm.).

In addition to the CAEP education programs above, DFG Fisheries Restoration Grant Program has provided funding since 2004 to Central Coast Salmon Enhancement, Inc. (CCSE), a nonprofit group based out of Arroyo Grande in San Luis Obispo County. Each year, 25-30 classrooms are equipped with one incubator each that includes 30 rainbow trout eggs obtained from DFG's Fillmore Hatchery. After approximately 3 months, fry have been released at either Lake Lopez, an instream impoundment on Arroyo Grande Creek, or Santa Margarita Lake, an instream impoundment on the Salinas River, both in San Luis Obispo County. From 2004 through 2009, there were approximately 2,250 rainbow trout fry released in Lopez Lake, and 400 released in Santa Margarita Lake (Vance pers. comm.).

Region 5

Between 2004 and 2007, Region 5 issued an average of 131 CAEP authorizations. A total of 59 were issued between January and June of 2008. These classroom projects resulted in the release of an average of 316 rainbow trout fry per year into 15 receiving waters for the 2004 through 2007 seasons. The largest annual release at one location was 2,521 fish at Monrovia Canyon Park. Release locations included a number of local or regional parks; Piru and Pine Creeks; the Santa Ynez and San Gabriel Rivers; and Cachuma, Casitas, Pyramid, Piru, and Castaic Lakes (Starr pers. comm.)

Region 6

Region 6 has reported a total of 13 CAEP programs per year since 2002, with each classroom receiving 120 rainbow trout eggs and releasing an average of 100 trout fry back into streams. Twelve of the 13 programs released their trout into Lone Pine Creek in Inyo County, and one program released its trout into lower Bishop Creek (Redfern pers. comm.).

Private Stocking Permit Program

Regulatory Authority

The California Fish and Game Code provides that it is unlawful to plant any live fish in the waters of this state without first securing the written permission of the DFG (California Fish and Game Code Section 6400). The California Fish and Game Code further provides that a person may, under the terms of a permit first obtained from the DFG, under regulations adopted by the CFGC, purchase or receive live fish from any registered aquaculturist, and may stock the fish in a stream or lake (California Fish and Game Code Section 6401).

Further, Section 15000 et seq. of the California Fish and Game Code authorizes DFG to register aquaculture operations in the state. Applicants must submit the following information along with a registration fee:

- the species maintained;
- the location(s) of the facilities;
- drawing(s) showing the orientation of the facilities to the natural waterways, inlets and outlets of the ponds, and the placement of any screens to prevent the ingress or egress of plants or animals; and

- the location of the water source.

The CFGC has promulgated regulations prescribing the methods of registering and regulating private individuals, other than DFG, who wish to import, raise, sell, or stock live aquatic plants and animals within the state. The focus of the regulations is to prevent the import and release of organisms that might cause harm to native populations of wildlife and plants. The basic elements of the regulatory program are an aquaculturist registration process, a permit to import live plants and animals, and a permit to stock aquatic species in public or private waters within the state. This EIR/EIS includes an analysis of the private stocking permit element of this overall program. Registration of aquaculturists, permitting for import of species, and operation of private aquaculture facilities are not the subject of this analysis.

Private stocking is further controlled by regulations contained in 14 CCR Sections 238 and 238.5. Section 238 regulates the sale and transport of aquatic plants and animals, while Section 238.5 regulates the stocking of aquaculture products, including fish. Section 238.5 allows for private stocking of fish without first obtaining a permit from DFG in certain specified areas. There is no permit required to stock white catfish, channel catfish, blue catfish, largemouth bass, bluegill, Sacramento perch, rainbow trout, or redear sunfish in a private pond, if those ponds are located in certain counties or portions of counties. The counties include: Alameda, Butte, Colusa, Contra Costa, Glenn, Imperial, Kern (except in the Kern River drainage above Democrat Dam), Kings, Lake (except in the Eel River Drainage), Merced, Los Angeles, Napa, Orange, Riverside, Sacramento, San Benito, San Bernardino, San Diego, Santa Barbara, Solano, Stanislaus, Sutter, Tehama, Ventura, Yolo, and Yuba; the following counties west of Highway 49: Amador, Calaveras, El Dorado, Mariposa, Nevada, Placer, Tuolumne; plus the following counties west of the national park and national forest boundaries: Fresno, Madera, and Tulare (see Figure 2-7). Publicly owned lakes may similarly be stocked without a permit if there is a cooperative agreement between DFG and the lake operator. A permit is required for stocking any public water, regardless of its location. The details of these regulations and other guidance provided to persons interested in obtaining a private stocking permit are contained in DFG Inland Fisheries—Information Leaflet No. 6 (California Department of Fish and Game 2009b).

The CFGC (Chapter 5, Article 4, Sections 6440-6460) also provides for the issuance of permits for stocking triploid grass carp in non-public waters. The details of this grass carp permit process, including the CCR Title 14, Section 238.6 implementing regulations, are contained in DFG Inland Fisheries Informational Leaflet No. 45 (California Department of Fish and Game n.d. (c)). This permit program, also administered by DFG, is independent of the private stocking permit program described above and is not analyzed in this EIR/EIS. DFG conducted a separate environmental evaluation of this permit program in 1989 (California Department of Fish and Game 1989). The document is available from DFG Fisheries Branch in Sacramento.

Permit Review Procedures

The restrictions implemented within the private stocking permit program are intended to protect California's aquatic resources from impacts associated with the introduction of planted fish. Throughout the state, the review process is guided primarily by restrictions contained in the regulations mentioned above, including 14 CCR Sections 238 and 238.5. These regulations allow DFG staff to receive information from the private stocking permit applicant (location, type and size of water body to be stocked; species and numbers of fish to be stocked; species present in water body to be stocked; river drainage where the water body to be stocked is located) and to inspect the

proposed stocking location if deemed necessary by the DFG biologist. The regulations also require that the stocked fish are free of diseases and parasites and that stocking is not contrary to an applicable DFG management program for that water or drainage. By evaluating the water bodies intended for stocking, DFG biologists are able to determine whether special status species are present and then make informed decisions on how the planting of fish will affect the local biological resources.

A majority of the waters planted using private stocking permits are ponds, lakes and reservoirs. While these closed bodies of water do not eliminate risk to other biological resources associated with fish stocking, potential impacts to entire watersheds are limited. In some cases, permits are approved for private stocking in streams and rivers.

Permit Activity

The numbers of private stocking permits issued over the past five years have varied significantly by region and year. Table 2-9 summarizes the numbers for each DFG region from 2004 to 2008. There is also a large variation in the numbers and types of fishes stocked and the types of waters stocked. A brief summary of private stocking activity for each region is presented below. The information was compiled by DFG region staff.

Table 2-9. Private Stocking Permits Issued by DFG Regions, 2004 to 2008

DFG Region	2004	2005	2006	2007	2008	Total
1	24	21	35	26	20	126
2	27	24	35	23	18	127
3	30	41	32	23	20	146
4	24	22	22	14	5[a]	87[a]
5	2	5	3	0	2	12
6	22	29	28	74	75	228
Total	129	142	155	160	140[a]	726[a]

Source: DFG Regional Office Permit Files.
Notes:
[a] Partial total; Region 4 permit files available only through February 28, 2008.

Region 1

The majority of permits issued in Region 1 are for stocking of rainbow trout in artificial lakes and ponds scattered throughout the region. Only 14 of the 126 permits issued in the past 5 years were for stocking in streams; all but one of these was for stocking rainbow trout. One permit was issued for stocking largemouth bass in an unnamed tributary to Tadpole Creek in Shasta County. The streams receiving rainbow trout included the Susan River, the South Fork of Battle Creek, Goodrich Creek, Hat Creek, Hot Spring Creek, Willow Creek and Paiute Creek. Plantings also occurred in Lewiston Lake, a reservoir, Skycrest Lake and Carrville Pond. Twenty-five permits were issued for

stocking warm-water fish in artificial ponds or lakes; the species involved included largemouth bass, channel catfish, mosquitofish, redear sunfish, bluegill, golden shiner, and common carp.

Region 2

Private stocking activity in Region 2 over the past 5 years has been spread over a wide geographic range and a wide variety of water bodies. Approximately half of the 127 permits issued have been for stocking rainbow, brown and brook trout in private ponds or lakes; most of these water bodies are in the foothill or higher elevations of Nevada, El Dorado, Plumas, Placer and Sierra Counties. Smaller numbers of plantings occurred in public lakes or streams, again primarily with rainbow, brown, brook and Lahontan cutthroat trout. Some of the public streams stocked included the Truckee and Yuba Rivers (north and south forks); and Grizzly, Smith, Pleasant Valley, Coldstream, Prosser, Sagehen, Jacks, Greenhorn, Cooks, Sawmill, Perry, Sierraville, Cold, and Smithneck Creeks. Permits for warm-water fish stocking have been issued primarily for channel catfish and largemouth bass destined for private ponds or public lakes/reservoirs at lower elevations in Sacramento, Placer, Calaveras, Butte and Yuba Counties. Only one permit was issued for planting warm-water fish is a public stream (Sacramento River). The small number of permits issued in the foothill and valley portions of the region is due to the permit exemption contained in Title 14, Section 238.5, described earlier in this section.

Region 3

Private permit stocking in Region 3 occurs primarily in private and public ponds and lakes. The only flowing waters to receive privately stocked fish (rainbow trout, common carp and channel catfish) are small creeks in Santa Clara, San Mateo and Sonoma Counties. The public and private ponds and lakes receive nearly equal plantings of rainbow trout and various warm-water fish (channel catfish, largemouth bass, bluegill, crappie, redear sunfish, black bass, fathead minnows and common carp).

Region 4

Region 4's private stocking activity has been focused on artificially constructed lakes, reservoirs and ponds accessible to the public, with lesser activity in private ponds and lakes. The only flowing streams to receive privately stocked fish (rainbow trout) include South Fork Tule River; the Nacimiento River upstream and downstream of the dam, Arroyo Seco River, and tributaries (with in-channel ponds) to the Carmel River in Monterey County; Sullivan Creek; Turnback Creek; Eshom Creek; and Sugar Pine Creek. The Monterey County stocking occurred while the county was part of Region 3. The publically accessible lakes and reservoirs have received primarily rainbow trout, and include Bass Lake, Millerton Lake, Hume Lake, Pine Flat Reservoir, Sequoia Lake, Don Pedro Lake, New Melones Reservoir, Lake Isabella, Shaver Lake, Calvin Crest Lake, Brentwood Lake, and Brite Lake. Permits for warm-water fish stocking (largemouth bass, bluegill, channel catfish, mosquito fish) have been issued for Millerton Lake, Pine Flat and New Melones Reservoirs, Brite Lake and several small public and private ponds, primarily in urban settings. The lack of permits issued for private ponds is likely due to the exemption allowed by Title 14, Section 238.5 (see above) for stocking certain fish in parts of the region west of Highway 49 and the U.S. Forest/ National Park boundaries in Tuolumne, Mariposa, Madera, Fresno and Tulare Counties.

Region 5

All of the counties in Region 5 are within the private stocking permit exemption area mapped in Figure 2-7. Therefore, there is very little private stocking permit activity in this region. Only 12 permits have been issued in the past 5 years. These have been issued for stocking a wide variety of warm-water fish (largemouth bass, bluegill, redear sunfish, catfish, black crappie, and green sunfish) in private ponds and lakes, and in publically accessible Lake Casitas and Castaic Lake. No trout were planted within the region under a private stocking permit in the past 5 years.

Region 6

Private stocking activity in Region 6 has varied widely in the past 5 years. From 2004 through 2006, the region averaged issuing 26 permits per year. This number jumped to 74 and 75 for 2007 and 2008 respectively, in part due to the reductions in trout stocking by DFG. Only one permit was issued for warm-water fish over the 5 year period; striped bass were stocked in Lake Elsinore in Riverside County in 2008. All of the other stocking involved rainbow, brown and Lahontan cutthroat trout, with the majority being rainbow trout. They were stocked in a variety of public and private water bodies almost exclusively in Inyo and Mono Counties. The counties in the southern part of the region are in the exempt area established by Title 14, Section 238.5. The major streams stocked included the West and East Forks of the Walker River, Indy Creek, Rock Creek, Bishop Creek, Independence Creek, Birch Creek, Robinson Creek, Indian Creek, Mammoth Creek, Mill Creek, Green Creek, Buckeye Creek, Shepherd Creek, Tinnemaha Creek and Taboose Creek. In the past two years, many of the permits have been issued to Mono County Economic Development, Bridgeport Fish Enhancement, County of Inyo Parks and Recreation, and Town of Mammoth Lakes.