

## Background

The California Department of Fish and Game (DFG) is the principal agency with responsibility to manage and conserve the biological resources of the state, including fish, wildlife, and plants. The mission of DFG is to manage California's diverse fish, wildlife, and plant resources and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public. As part of its responsibility, DFG operates a statewide system of fish hatchery facilities that rear and subsequently release millions of trout, salmon, and steelhead of various age and size classes into state waters. These fish are reared and released for recreational and commercial fishing, for conservation and restoration of fish species that are native to California waters, for mitigation of habitat losses caused by construction of dams on the state's major rivers, and for mitigation of fish lost at state-operated pumping facilities in the Sacramento-San Joaquin River Delta. The state has been operating hatcheries for more than 100 years and in the process has supported fishing as a significant recreational opportunity for residents and visitors to California. Currently DFG has 184 authorized positions dedicated to establishing policy for and managing the operation of its own hatchery facilities and the hatcheries of other state, federal, and local entities throughout the state.

After the passage of the California Environmental Quality Act (Public Resources Code Section 21000 et seq. [CEQA]) in 1970, DFG continued to operate its hatchery facilities and stocking of fish without undertaking a CEQA impact evaluation. Stocking activities were considered exempt from CEQA review on several grounds, including Section 15301 (j) of the State CEQA Guidelines, which specifically provides an exemption from CEQA review to fish stocking conducted by DFG. In fall 2006, with growing concern that the stocking of trout was having adverse effects on native fish and wildlife species, DFG initiated an internal environmental review of its stocking program. DFG began the process of preparing an environmental evaluation document describing the potential impacts associated with its hatchery and stocking activities, including:

- all 24 of the trout, salmon, and steelhead hatchery facilities operated by DFG;
- the stocking of trout, salmon and steelhead in state waters;
- the issuance of private stocking permits to parties wishing to stock fish (including trout and warmwater fish);
- hatchery operations; and
- DFG protocols used to determine where fish are released.

Prior to issuing this evaluation, DFG was sued in a court case regarding the effects of its fish stocking on legally protected and sensitive fish and wildlife populations. In May 2007, the Sacramento Superior Court ruled in *Pacific Rivers Council, et al., v. California Department of Fish and Game* (Case No. 06 CS 01451), in which the petitioners alleged that DFG was in violation of CEQA by continuing its fish stocking program without conducting an environmental review of the effects of that program. The petitioners noted a special concern for the effects of trout stocking on native species of fish and amphibians. The ruling required DFG to comply with CEQA by preparing an environmental evaluation of its fish stocking activities on a schedule approved by the court. The DFG went back to the court and asked for an extension in time to complete the CEQA document and as part of the

ruling, the petitioners' request that fish stocking be suspended until the environmental review was completed was denied. Instead, the court ordered interim measures that limit DFG's ability to stock fish where monitoring surveys have demonstrated the presence of certain sensitive native aquatic and amphibian species, or where monitoring surveys for these species have not yet been conducted. The sensitive and native species identified by the plaintiffs are listed in Table 4-1 of Chapter 4 in this document. Where budget and staff are available, DFG is conducting surveys for the native fish and wildlife species at lakes and streams where stocking has been halted and where the presence of these species is unknown so that stocking can resume if these species are not present.

DFG determined that, as part of its analysis of ongoing fish stocking, it also would include an evaluation of the fish stocking mandates included in Assembly Bill (AB) 7, passed by the State legislature in 2005 and included in the California Fish and Game Code (CFGC) as Section 13007. This section of the CFGC mandates that one-third of the fees collected from the issuance of sport fishing licenses be deposited into the Hatchery and Inland Fisheries Fund (HIFF) and used for the management, maintenance, and capital improvement of California's fish hatchery facilities, the Heritage and Wild Trout Program, other sport fishing activities, and enforcement of these activities. Furthermore, Section 13007 establishes requirements for yearly increases in trout production and mandates that DFG increase production of trout based upon the 2008 sport fishing license sales. Specifically, by July 1, 2009, and thereafter, DFG is to release a minimum of 2.75 pounds of trout per sport fishing license sold in 2008, 2.25 pounds of which must be of catchable size or larger. Section 13007 (b) (3) stipulates that by January 1, 2012, at least 25% of the trout produced in the state must be native California trout.

The joint environmental impact report/environmental impact statement (EIR/EIS) has been prepared in compliance with the above-mentioned court order, CEQA, and the National Environmental Policy Act (NEPA). The EIS is being prepared jointly with the EIR in compliance with the provisions of NEPA in support of the U.S. Fish and Wildlife Service (USFWS), which is acting as co-lead agency. The USFWS has undertaken a co-lead agency role to support its decision-making regarding funding of certain elements of the hatchery operation and stocking activities of DFG under the Sport Fish Restoration Act (SFRA). All aspects of the DFG and USFWS involvement in California's hatchery and stocking activities are described in detail in Chapter 2 of the EIR/EIS. The remainder of this Executive Summary provides general background on:

- the nature of California's hatchery and stocking program;
- the DFG objectives for the hatchery and stocking program and the purpose and need of USFWS funding for certain elements of this program;
- Organization of the EIR/EIS;
- Alternatives considered in the EIR/EIS; and
- Impacts of the hatcheries and stocking program.

## California's Hatchery and Stocking Program

Since the late 1800s, the State of California has been involved in the construction and operation of fish hatcheries and the stocking of fish from these hatcheries. A detailed history of this state-sponsored activity was published in 1970 in *Fish Bulletin 150: A History of California's Fish Hatcheries 1870-1960* (Leitritz 1970). A summary of that history is contained at the beginning of

Chapter 2 (“Program Description”) of the EIR/EIS. The state’s involvement in hatcheries and stocking has evolved into a diverse set of activities in the past 135 years. DFG’s intent in this EIR/EIS is to analyze the environmental effects of a number of specific programs it currently manages that surround the rearing and stocking of a specific set of fish species. The whole of these individual programs is referred to as “the Program” in subsequent chapters, and serves as the baseline and No Action alternative as defined by CEQA. The detailed analysis of the current condition or baseline, as contained in Chapters 3–6, is not typical for CEQA or NEPA, which usually analyze a proposed project or proposed action. However, because DFG proposes to continue its existing programs, such a detailed analysis of the current condition is warranted. Alternatives to the current DFG Program have been developed based on the environmental effects of the Program and are analyzed in Chapter 7, including proposed changes to the current Program. The intent is to identify a proposed project or action after review of the effects of the Program and the alternatives. The individual elements of this Program and their interrelationships are briefly described below and in detail in Chapter 2.

The various elements of DFG’s activities surrounding the rearing and stocking of fish (the Program) within the state include:

- operation of 14 trout hatchery facilities owned by DFG and the related stocking of fish,
- operation of eight salmon and steelhead hatchery facilities owned by others and the related stocking of fish,
- operation of two salmon and steelhead hatchery facilities owned by DFG and the related stocking of fish,
- providing education staff and fish for stocking under the Fishing in the City program,
- issuing authorizations and providing fish eggs for the Classroom Aquarium Education Project (CAEP),
- issuing permits for stocking public and private waters with fish reared at private aquaculture facilities, and
- implementing the fish production and native trout conservation requirements contained in California Fish and Game Code Section 13007.

All of these Program activities are authorized and directed by a number of state and federal laws, regulations, contracts, and management directives. For example, the Trinity River Hatchery is owned by the United States Department of the Interior, Bureau of Reclamation, and is operated by DFG pursuant to a contract that specifies certain annual fish production goals that DFG is responsible for producing. These authorizations and directions are discussed in detail in Chapter 2.

A number of funding sources for the Program also are discussed in Chapter 2. Two funding sources currently play a role in supporting certain segments of the Program and are mentioned here. Funding from the SFRA, which is administered by the USFWS, is used to support: (1) operation of the 14 trout hatchery facilities owned and operated by DFG, (2) stocking fish from these hatchery facilities, (3) operating the Mad River steelhead hatchery and its associated stocking, and (4) managing the Fishing in the City and CAEP programs. As indicated earlier, funding directed in Section 13007 of the California Fish and Game Code (CFGF) mandates that one-third of fees collected from issuing sport-fishing licenses be deposited into the Hatchery and Inland Fisheries Fund (HIFF) and used for the management, maintenance, and capital improvement of California’s trout hatchery facilities.

The 14 DFG-owned and -operated trout hatchery facilities rear rainbow, golden, cutthroat, brown, lake, and brook trout; and kokanee, coho, and Chinook salmon. The trout and salmon from these facilities are stocked in “inland waters,” which are water bodies not typically accessible to fish migrating from the ocean. The goal of these hatchery facilities is primarily to provide recreational fishing opportunities to California residents.

The 10 DFG-operated salmon and steelhead hatchery facilities rear and stock primarily Chinook and coho salmon and steelhead, which are anadromous fish and are stocked in anadromous waters. *Anadromous* characterizes the life cycle of a fish that spawns in fresh water and spends a significant portion of its adult life in the ocean. Anadromous waters are waters accessible to fish migrating from the ocean. The salmon and steelhead hatchery facilities operated by DFG are in place primarily to mitigate the loss of salmon and steelhead spawning habitat caused by the construction of dams. One of the hatchery facilities is in place to partially mitigate the loss of fish caused by operation of the state-owned Sacramento–San Joaquin River Delta pumps. Some of these hatchery facilities also raise small numbers of trout for stocking in inland waters. Because of the different ownership relationships, fish species, funding, and objectives of salmon and steelhead hatchery facilities, they are considered distinct from the trout hatchery facilities in DFG’s overall Program.

Fishing in the City is an educational program managed by DFG staff and local sponsors. Small numbers of primarily rainbow trout and channel catfish are purchased by DFG or local sponsors from private aquaculture facilities and stocked in primarily urban settings. Some DFG regions have a similar urban fishing program that receives fish from DFG hatchery facilities that are then stocked in primarily urban settings. This program is distinct from the larger DFG trout, salmon, and steelhead hatchery program, but because it involves stocking of fish in state waters, it is included in this Program for analysis.

The CAEP is also an educational program. DFG’s role is to provide salmon or trout eggs from its hatchery facilities to classrooms for science education. The class follows the development of the eggs into small fish, which are subsequently released to water bodies dictated by DFG. Because of the release of these fish to state waters, the CAEP is included in this Program for analysis.

The final element of the Program is the private stocking permit program. This permit program involves the authorization of stocking trout and a variety of warmwater fish reared at private, registered aquaculture facilities. *Warmwater* refers to certain non-salmonid fish usually suited for water that consistently exceeds 70°F (salmonids are bony, soft-finned fish of the family Salmonidae, which includes salmon, trout, whitefish, and char). Catfish and a variety of sunfish such as bass, bluegill, and crappie are typical warmwater fish. Private stocking permits are issued by DFG, often for stocking private ponds and lakes, but also for stocking public waters. A significant element of this program is a permit exemption for stocking certain species of fish in private waters in all or portions of 37 California counties (refer to CCR, Title 14, Section 238.5). This permit program was included in the overall Program for this EIR/EIS because of the potential for effects on native species from the stocking activities.

## Hatchery and Stocking Program Objectives, Purpose, and Need

CEQA requires that an EIR include project or program objectives because the statement of objectives informs the public of the project's or program's intent and is important in helping the lead agency develop a reasonable range of alternatives to evaluate in the EIR. The objectives also aid the decision makers in selecting a course of action and in preparing findings at the end of the CEQA process. As indicated earlier in this chapter, the EIR/EIS is analyzing a Program rather than a specific proposed project.

NEPA requires that an EIS include the underlying purpose and need for the proposed action because this statement explains why the federal agency and project proponents are undertaking the proposed action and what objectives they intend to achieve. The statement of purpose and need also is used to determine the appropriate range of alternatives to be evaluated in the EIS.

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 attributable 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 River Delta pumps, and for conservation and species restoration. These fundamental objectives should be accomplished while addressing the impacts of hatchery-stocked and privately stocked fish 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 hatchery facilities, the Mad River Hatchery for steelhead, associated stocking of fish produced at those hatchery facilities, 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 hatchery facilities and their associated stocking efforts is outside the scope of actions contemplated by USFWS at this time.

## Organization of the Environmental Impact Report/Environmental Impact Statement

The draft EIR/EIS was made available to the public for review and comment on September 25, 2009. A slightly revised draft EIR/EIS, including a summary, was made available to the public for review and comment on September 29, 2009. Copies of the document were filed with the Office of Planning and Research (OPR) along with a Notice of Completion (NOC) as required by PRC, Section 21161. The close of the 45-day public comment period for CEQA purposes was November 16, 2009. Copies were also filed with the U.S. Environmental Protection Agency (EPA) and a notice of the document's availability must be posted in the Federal Register. The close of public comment for NEPA purposes was November 30, 2009. The draft EIR/EIS was subject to public and agency comment at four public meetings, held in Carson, Bakersfield, Sacramento, and Redding, California.

This document contains a series of chapters, designed in consideration of the content requirements of CEQA and NEPA. The chapters are:

- Chapter 1, "Introduction";

- Chapter 2, “Program Description”;
- Chapter 3, “Hydrology, Water Supply, and Water Quality”;
- Chapter 4, “Biological Resources”;
- Chapter 5, “Recreation and Economics”;
- Chapter 6, “Cultural Resources”;
- Chapter 7, “Alternatives”;
- Chapter 8, “Cumulative Impacts”;
- Chapter 9, “Public and Agency Involvement”;
- Chapter 10, “References Cited”; and
- Chapter 11, “List of Preparers.”

The document also includes a number of appendices that support the chapters listed above.

## Areas of Controversy

Based on the DFG objectives, the central theme of the Program is to provide recreational sport fishing and mitigation for habitat loss in California using the existing network of DFG-managed hatcheries. These objectives are balanced by the need to avoid any significant effects on native, sensitive, or legally protected fish and wildlife species of the state, in the process of providing for that recreational opportunity and mitigation for habitat loss. Comments received from agencies and the public through scoping identified several areas where there is controversy regarding the continued stocking of fish in California by the DFG. Controversial areas include:

- declines in certain amphibian species populations in higher-elevation lakes and streams , in part due to predation by stocked trout;
- alterations in the genetic makeup of native trout species due to interbreeding with stocked strains of rainbow trout;
- changes in food webs and ecological systems in higher elevation areas where introduced trout compete for food with terrestrial wildlife;
- declines in native salmon, steelhead, and trout populations, in part due to predation and competition for spawning grounds, food, and space from hatchery-reared fish;
- alterations in the genetic makeup of native salmon and steelhead due to interbreeding with stocked strains of salmon and steelhead;
- declines in native salmon, steelhead, and trout populations due to non-target harvest associated with fishing for stocked fish;
- potential for damage to native, sensitive, or legally protected fish and wildlife from issuance of private stocking permits or from exemptions in requiring private stocking permits;
- distribution of invasive species through angling activity;
- water quality impacts due to operating hatchery facilities; and

- reduction in recreational fishing opportunities and the associated economic activity in communities reliant upon recreational fisheries.

These issues are addressed in the impact discussions in Chapters 3, 4, and 5. Alternatives were developed around alleviating impacts to these and less controversial issues associated with the Program.

## Alternatives

### Alternative Programs

The alternatives presented below are divided into the discrete segments of the overall DFG Program because the segments can be operated as separate and distinct operations. No alternatives are proposed for hatchery operations, the Fishing in the City program, or the CAEP because no significant, unmitigable effects were found for these overall Program elements. Ultimately, the DFG may decide to adopt one or a combination of the alternatives presented below to form DFG's hatchery and stocking program in future years.

#### **Alternative 1: No Project/No Action**

For the Purposes of CEQA, the No Project alternative is considered to be a continuation of the existing Program. This is consistent with direction given per CEQA guidelines section 15126.6(e)(3)(A) where "no Project is the continuation of an existing plan, policy or operation into the future." No modifications would be made to the hatcheries' operation and stocking activities undertaken by DFG over the past 5 years.

Additionally, the No Action alternative for the USFWS would be to eliminate all SFRA funding to DFG to operate trout hatcheries and the Mad River Hatchery. The inland stocking program is funded primarily by HIFF, which receives one-third of revenues from fishing license sales. Minor revenues are received from reimbursable contracts. The revenues and spending authority from HIFF are insufficient to produce the amount of fish mandated in CFGC Section 13007. SFRA funding support would contribute to full implementation of CFGC Section 13007. Redirection of DFG funds from other programs to substitute for SFRA funds that are not reinstated would have major impacts on other DFG activities from the reduction in funds. Therefore, in the absence of SFRA funding, the program would continue, although constrained, and impacts of the program would be similar. For this reason there is no separate analysis of a State No Project pursuant to CEQA and the federal No Action under NEPA. Existing practices analyzed in Chapters 3 through 6 represent the ongoing Program and constitute the No Project/No Action alternative.

#### **Alternative 2: Continue to Operate Hatcheries as in the Past Five Years and Stock Fish Based on New Guidelines**

This alternative provides guidance that will be followed throughout DFG to address the impacts described within the current Program as the No Project/No Action alternative. New guidance was developed by DFG to minimize impacts associated with the current trout stocking program, and DFG will rely on the process currently underway to prepare and implement Hatchery Genetic Management Plans (HGMP) for each of the anadromous fish hatcheries. This HGMP process entails

negotiating with the National Marine Fisheries Service (NMFS) on how to operate hatcheries to minimize adverse effects of planting hatchery-raised anadromous fish on wild populations.

A variety of potentially significant adverse impacts on biological resources arise out of the Program's current operations and stocking activities. For some of these impacts, mitigation described in Chapter 4 would be sufficient to reduce those impacts to less than significant. For others, mitigation measures proposed in Chapter 4 are presented only as recommendations, because they apply to salmon and steelhead mitigation hatcheries that are operated under mitigation agreements. A few impacts are reasonably certain to remain significant regardless of mitigation, for reasons detailed in Chapter 4. These impacts and mitigation measures are summarized in Table ES-2.

### **Hatchery Operations Guidelines**

Hatchery operation guidelines are circumscribed by mitigation measures, Impacts BIO-8 to BIO-13 inclusive, that are addressed chiefly to existing issues at specific hatcheries. All existing potentially significant impacts on biological resources can be fully addressed and reduced to less than significant by implementation of the identified mitigation measures.

### **Trout Stocking Program Guidelines**

Decisions regarding planting in high-mountain lake (HML) areas are made as described in Chapter 2. As described in Chapter 2, decisions about stocking in all other areas are less structured and, in some cases, counter to Fish and Game Commission policy. Impacts of the trout stocking program are in most cases expected to be resolved by successful implementation of the pre-stocking evaluation protocol (PSEP), described in Appendix K, which constitutes a structured approach to stocking intended to identify situations where stocking has the potential to adversely affect decision species and their habitat, and to ensure that stocking would not result in any significant impact on those species. The PSEP would include external collaboration with USFWS where listed species may be affected, to consider common conservation goals and confer on fish stocking management to best conserve native species. A few impacts call for other remedies. Mitigation Measure BIO-107 addresses the risk of disease transmission to native amphibian populations by requiring implementation of best management practices (BMPs) and a monitoring program to detect amphibian diseases in hatchery fish and avoid stocking such fish. Mitigation Measure BIO-119 requires a more formal approach to detecting and avoiding unintended stocking of hatchery fish than now exists and offers a means to both minimize and identify such unintended releases. Mitigation Measure BIO-120 calls for measures intended to minimize the risk that angler activities in riparian and aquatic habitats may result in local impacts on populations of threatened and endangered plants. Mitigation Measure BIO-123 proposes to maintain and improve the existing program to minimize introduction of invasive species by anglers; however, impacts from the spread of invasive species by anglers are still expected to be significant and unavoidable.

### **Salmon and Steelhead Stocking Program Guidelines**

Decisions regarding the stocking of anadromous salmon and steelhead will be addressed by DFG through the HGMP process. Through this process, DFG will continue to work with NMFS toward implementation of a comprehensive action plan that addresses the production goals of the stocking programs, Endangered Species Act (ESA) obligations to protected species, and public trust responsibilities to protect other wild populations of salmon and steelhead. To supplement the HGMP process, DFG will recommend to the owners of the salmon and steelhead hatcheries that they form



an independent review panel to provide ecological and hatchery operations recommendations that can be later incorporated into the HGMPs, as appropriate. Mitigation Measure BIO-138 describes the process of developing an HGMP for each hatchery program.

Harvest strategies that likely would affect wild and hatchery salmon and steelhead are being addressed by DFG through a review of harvest. DFG is evaluating mass marking and mark-selective fisheries as part of a broader proposed fishery management system designed to maximize fishing opportunity while meeting the annual conservation objectives and ESA consultation requirements for all West Coast salmon and steelhead stocks. Mitigation Measures BIO -190 and BIO-192 describe the process to develop harvest plans that address non-target harvest effects.

### **Fishing in the City, Classroom Aquarium Education Project, and Private Stocking Program Guidelines**

Fishing in the City, CAEP, and private stocking program guidelines are circumscribed by mitigation measures detailed in Table 7-1 of the EIR/EIS and summarized in Table ES-2 (impacts BIO-226 to BIO-238 inclusive). No mitigation is required for the CAEP, which has only less-than-significant impacts. For the other programs, the principal concern is stocking in waters used by decision species and their habitat, and the principal remedy is a protocol analogous to the PSEP, modified somewhat to meet the requirements of the existing Fishing in the City and private stocking programs (Mitigation Measures BIO-226 and BIO-233b). An additional required measure is Mitigation Measure BIO-233a; this measure seeks to eliminate the private stocking exemption in California Code of Regulations (CCR) Title 14, Section 238.5 and instead requires site-specific evaluation by DFG personnel of all sites proposed for private stocking. Mitigation Measure BIO-238 seeks to require monitoring for invasive species at all private aquaculture facilities permitted under the private stocking program. Currently, there are no requirements for any kind of certification or inspection at private aquaculture facilities for diseases that affect fish or amphibians. Finally, Impact BIO-240, distribution of invasive species by anglers, is a significant and unavoidable impact for much the same reasons as the analogous impact, BIO-123, under the trout stocking program.

### **Alternative 3: Permanently Operate the Hatchery and Stocking Program as Directed in Interim Order Dated November 20, 2008**

To address potential adverse effects from stocking trout in habitats occupied or potentially occupied by native aquatic species, the following alternative was developed by following the guidelines provided in the Order Modifying Judgment dated November 20, 2008 (Interim Order).

This alternative would take the interim measures outlined in the Interim Order and assume the continuation of those measures. In summary, DFG would not stock nonnative fish in any California fresh water body where monitoring surveys performed for or by the DFG have demonstrated the presence of any of 25 specified species. DFG would also not stock nonnative fish in any California fresh water body where monitoring surveys for the presence of any of those 25 specified species have not yet been conducted.

The Interim Order has certain specified exemptions to this broad prohibition:

1. renewal or reissuance of private stocking permits on terms similar to those issued in 2005–2008;

2. fish stocking actions that are specifically approved or conducted by DFG to support scientific research under the auspices of a recognized federal, state, or local government agency, tribe, or bona fide scientific consultant, school, or university, including the DFG's CAEP;
3. mitigation mandated by law, including mitigation stocking programs or stocking required by a Federal Energy Regulatory Commission (FERC) license or order, federal legislation, state or federal court orders, required mitigation via a NEPA or CEQA decision document, or a federal ESA or California Endangered Species Act (CESA) compliance decision document;
4. anadromous fish mitigation stocking programs operated by DFG at ten specified hatcheries;
5. fishery enhancement as specified in CFGC Section 7861.3;
6. human-made impoundments greater than 1,000 acres in size;
7. human-made impoundments less than 1,000 acres in size that are not hydrologically connected to rivers or other natural water bodies or that are not within the federally proposed red-legged frog critical habitat or where red-legged frogs are known to exist; or
8. projects exempt by CEQA.

### **Trout Stocking**

Applying the above set of criteria to the waters currently stocked by DFG would conclude with development of the following two lists: a list of stocked water bodies and a list of non-stocked water bodies. If DFG continues to stock waters on the list of stocked water bodies, impacts of the current program, or No Project/No Action alternative, would be partially mitigated. It is anticipated that some of these locations might be surveyed in the future depending on recreational needs, but it is assumed that there would be no additional surveys performed in order to quantify impacts. In some instances, not stocking water bodies on the non-stock list may not alleviate any of the impacts from the stocking program because it is anticipated that at least some populations of planted fish have become self-sustaining and the impacts in those water bodies would continue. Because no additional surveys would be performed, these situations would remain largely unknown. It is also unknown whether fishing recreation would completely cease at those locations where fish planting has ceased, and impacts associated with people fishing may not be mitigated. For the purposes of this analysis, the following assumptions are made.

- Trout production will continue as mandated by CFGC Section 13007, and those fish will be stocked into water bodies on the stock list.
- No further surveys will be performed to determine the absence or presence of sensitive species, and the stock and non-stock lists will remain as they are.
- Impacts on sensitive amphibians and aquatic species will be only partially mitigated, and impacts will continue in approximately 40% of the waters formerly stocked because of the presence of self-sustaining populations.
- People will no longer fish in water bodies where stocking has ceased, and this assumption will lead to an overstatement of the actual economic and recreation impacts associated with this alternative.

Table ES-1 presents a summary of the number of water bodies by DFG region to be stocked and not stocked as a result of applying the interim and long-term stocking management guidelines. This information is presented in detail by county and water body in Appendix J of the EIR/EIS.

**Table ES-1 Summary of Stocked and Not Stocked Locations by DFG Region under Alternative 3**

<b>DFG Regions</b>	<b>Numbers of Stocked Locations</b>	<b>Numbers of Non-Stocked Locations</b>
Bay Delta Region	29	12
Central Region	178	26
Inland Deserts Region	168	4
Northern Central Region	139	51
Northern Region	210	89
South Coast Region	49	8
<b>Total</b>	<b>773 (80.2%)</b>	<b>190 (19.8%)</b>

Source: Starr pers. comm.

Note: Table represents locations scheduled to be stocked in 2009

### **Salmon and Steelhead Stocking**

Implementing the described stocking criteria for this alternative would mean that stocking anadromous fish would continue pursuant to the current, or No Project/No Action, alternative because the anadromous fish hatcheries operated by DFG are for either mitigation or enhancement<sup>1</sup>. Most anadromous fish hatcheries are currently operating pursuant to draft HGMPs, and DFG will continue to work with NMFS to approve and implement HGMPs. Because DFG will continue to pursue the HGMP process, the salmon and steelhead stocking programs also will be operating pursuant to Alternative 2 and the new guidelines anticipated for the anadromous fish hatcheries.

### **Classroom Aquarium Education Project, Fishing in the City, and Private Stocking Permits**

No mitigation is required for the Classroom Aquarium Education Project, which has only less-than-significant impacts. The Fishing in the City and Private Permit Program impacts would continue pursuant to the current, or No Project/No Action, alternative because these are exempted from the requirements in the Interim Order.

## **Preferred Alternative**

Alternative 2 is DFG's preferred alternative and will allow DFG to continue stocking fish for the express purposes of providing recreational opportunities to anglers. Alternative 2 provides a mechanism for DFG to implement guidelines that will allow for the protection of native species by identifying those species prior to continuing stocking. The PSEP includes steps to provide for restoration of native species in those areas where stocking is not consistent with DFG's goals to manage and protect multiple species. This alternative also provides a mechanism for continuing to improve the management of DFG-operated anadromous hatcheries to minimize impacts on salmon and steelhead, as well as other native species. Alternative 2 includes steps to reduce impacts from the private stocking permit program by eliminating permit exclusions and requiring certification for hatchery operations as well as by providing for species surveys at planting locations. Alternative 2

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<sup>1</sup> DFG operates ten salmon and steelhead hatchery facilities. Of these, only the Mad River and Merced Hatchery are owned and operated by DFG. The other eight hatcheries were constructed to mitigate the loss of upstream salmon and steelhead habitat and production by the construction of large dams.

does not change any of the requirements for the CAEP as there are no significant effects from implementing this program.

Implementation of Alternative 2 is also the USFWS preferred alternative, and is the NEPA Environmentally Preferable Alternative. Alternative 2 reduces most of the impacts to less than significant and will provide the most protection to the decision species.

## Impacts Discussion

There are a number of impacts that occur as a result of the continued operation of the DFG Hatchery and Stocking Program. Most impacts from operations of the hatcheries are less than significant, with a few exceptions. For those exceptions, mitigation measures have been developed to reduce the impacts to less than significant.

### Biological Impacts

Biological Impacts, and Mitigation Measures, associated with the current program are enumerated in Table ES-2. For the preferred alternative, impacts of the salmon and steelhead stocking programs would continue as described in Chapter 4 pending the successful development and implementation of HGMPs for each of the stocking programs and a new harvest plan. Impacts from trout stocking also would continue as described in Chapter 4 until the proposed PSEP, and other mitigation measures, are implemented. Impacts from the private stocking permit program also would continue until new regulations were adopted by the California Fish and Game Commission to remove specific exemptions for some counties.

### Recreation Impacts

Recreational impacts of the current stocking program are beneficial, and fisherman and local businesses would continue to benefit from the stocking of trout for recreational purposes. According to the USFWS (2007) and Jackson (2007), nearly 10 million days of recreational fishing were expended in California in 2006. This total included fishing for trout, steelhead, inland salmon, and ocean salmon. The estimated dependence of this effort on stocked fish ranges from 44% for steelhead to 50%–60% for river-based Chinook salmon and 90% for ocean-based Chinook salmon. Impacts on recreation from implementing the preferred alternative would be less than significant.

### Economic Impacts

An estimated \$1.1 billion was spent on freshwater fishing trips and equipment in California in 2006, and a nearly equal amount was spent on saltwater fishing trips and equipment (U.S. Fish and Wildlife Service 2007). The state's commercial salmon fishing industry, which operates entirely in ocean waters, generated total income of \$24.4 million in 2005 and \$8.9 million in 2006. Impacts on economics from implementing the preferred alternative would be less than significant.

**Table ES-2 Summary of Potentially Significant Impacts on Biological Resources Associated with the DFG Hatchery and Stocking Program**

Impact	Mitigation Measure
<b>Potentially Significant Impacts Requiring Mitigation</b>	
BIO-8: Effects of Aquaculture Chemicals and Drugs in Rivers and Streams	BIO-8: Implement Alternative Technologies for Reducing Copper Concentrations in Discharges from Darrah Springs Hatchery as Required in Order R5-2004-0113
BIO-10: Effects Due to the Spread of Invasive Species through Hatchery Discharge	BIO-10: Develop and Implement Hazard Analysis and Critical Control Point Plans at Each DFG Hatchery
BIO-12: Pathogen Effects on Native Amphibian Populations	BIO-12: Develop and Implement Pathogen Monitoring and Control Management Practices
BIO-13: Effects from Stream Flow Alteration or Groundwater Draw-Down Due to Hatchery Water Supply Intakes	BIO-13: Manage Black Rock Rearing Ponds Pumping to Protect <i>Calochortus excavatus</i> Population
BIO-203: Impacts of Introducing Aquatic Invasive Species into Native Ecosystems as a Result of the Salmon and Steelhead Stocking Program	BIO-10: Develop and Implement Hazard Analysis and Critical Control Point Plans at Each DFG Hatchery
BIO-49: Predation and Competition Effects from Stocked Trout on Steelhead DPSs (Except Northern California DPS and Klamath Mountains Province DPS) and Chinook Salmon ESUs	BIO-49: Implement Pre-Stocking Evaluation Protocol for Steelhead and Chinook Salmon
BIO-69: Predation and Competition Effects from Stocked Trout on Oregon Spotted Frog	BIO-69: Implement Pre-Stocking Evaluation Protocol for Oregon Spotted Frog
BIO-71: Predation and Competition Effects from Stocked Trout on California Red-Legged Frog	BIO-71: Implement Pre-Stocking Evaluation Protocol for California Red-Legged Frog
BIO-72: Predation and Competition Effects from Stocked Trout on Foothill Yellow-Legged Frog	BIO-72: Implement Pre-Stocking Evaluation Protocol for Foothill Yellow-Legged Frog
BIO-73: Predation and Competition Effects from Stocked Trout on Cascades Frog	BIO-73: Implement Pre-Stocking Evaluation Protocol for Cascades Frog
BIO-74: Predation and Competition Effects from Stocked Trout on Mountain Yellow-Legged Frog	BIO-74: Implement Pre-Stocking Evaluation Protocol for Mountain Yellow-Legged Frog
BIO-75: Predation and Competition Effects from Stocked Trout on Northern Leopard Frog	BIO-75: Implement Pre-Stocking Evaluation Protocol for Northern Leopard Frog
BIO-83: Predation and Competition Effects from Stocked Trout on San Francisco Garter Snake	BIO-83: Implement Pre-Stocking Evaluation Protocol for San Francisco Garter Snake
BIO-87: Predation and Competition Effects from Stocked Trout on Willow Flycatcher	BIO-87: Implement Pre-Stocking Evaluation Protocol for Willow Flycatcher
BIO-103: Effects from Trout Stocking Program Non-Target Harvest on Central Valley DPS Steelhead, Central California Coast DPS Steelhead, South-Central Coast DPS Steelhead and Southern California DPS Steelhead	BIO-103: Implement Pre-Stocking Evaluation Protocol for Central Valley DPS Steelhead, Central California Coast DPS Steelhead, South-Central Coast DPS, and Southern California DPS Steelhead
BIO-105: Effects from Trout Stocking Program Non-Target Harvest on Klamath-Trinity River Spring-Run, Sacramento River Winter-Run, Central Valley Spring-Run, and California Coast Chinook Salmon ESUs	BIO-105: Implement Pre-Stocking Evaluation Protocol for Klamath-Trinity River Spring-Run, Sacramento River Winter-Run, Central Valley Spring-Run, and California Coast Chinook Salmon ESUs

<b>Impact</b>	<b>Mitigation Measure</b>
BIO-107: Impacts of Introducing Pathogens to Native Amphibian Populations as a Result of the Trout Stocking Program	BIO-107: Implement Monitoring and Best Management Practices Program to Minimize Risk of Disease Transmission to Native Amphibian Populations
BIO-108: Impacts of Introducing Aquatic Invasive Species into Native Ecosystems as a Result of the Trout Stocking Program	BIO-10: Develop and Implement Hazard Analysis and Critical Control Point Plans at Each DFG Hatchery
BIO-118: Genetic Effects on Central Valley DPS Steelhead, Central California Coast DPS Steelhead, South-Central Coast DPS Steelhead, and Southern California DPS Steelhead from Interbreeding with Stocked Trout	BIO-118: Evaluate Trout Stocking Locations and Stock Triploid Trout as Needed to Reduce the Potential for Interbreeding with Steelhead
BIO-119: Effects of Unintended Releases of Hatchery-Reared Trout	BIO-119: Minimize Unintended Releases
BIO-120: Disturbance of Riparian Systems Due to Use of Vehicles and Foot Travel to Access Fishing Locations as a Result of the Trout Stocking Program	BIO-120: Minimize Disturbance in Riparian Areas
BIO-123: Distribution of Invasive Species by Anglers as a Result of the Trout Stocking Program	BIO-123: Educate Anglers to Control Invasive Species
BIO-139: Predation and Competition Effects from Stocked Salmon and Steelhead on Steelhead, Klamath Mountains Province DPS	BIO-139: Complete Hatchery Genetics Management Plans
BIO-145: Predation and Competition Effects from Stocked Salmon and Steelhead on Coho Salmon, Southern Oregon/Northern California Coast ESU	BIO-139: Complete Hatchery Genetics Management Plans
BIO-147: Predation and Competition Effects from Stocked Salmon and Steelhead on Chinook Salmon, Upper Klamath-Trinity Rivers ESU	BIO-139: Complete Hatchery Genetics Management Plans
BIO-150: Predation and Competition Effects from Stocked Salmon and Steelhead on Chinook Salmon, Central Valley Spring-Run ESU	BIO-139: Complete Hatchery Genetics Management Plans
BIO-151: Predation and Competition Effects from Stocked Salmon and Steelhead on Chinook Salmon, Central Valley Fall-/Late Fall-Run ESU	BIO-139: Complete Hatchery Genetics Management Plans
BIO-190: Salmon and Steelhead Stocking Program Non-Target Harvest Effects on Central Valley Fall- and Late Fall-Run Chinook Salmon ESU	BIO-190: Reduce the Potential for Non-Target Harvest on Fall- and Late Fall-Run Chinook ESU
BIO-192: Salmon and Steelhead Stocking Program Non-Target Harvest Effects on Upper Klamath-Trinity Rivers Chinook Salmon ESU	BIO-192: Reduce the Potential for Non-Target Harvest on Upper Klamath-Trinity Rivers Chinook Salmon ESU
BIO-202: Impacts of Introducing Pathogens to Native Amphibian Populations as a Result of the Salmon and Steelhead Stocking Program	BIO-107: Implement Monitoring and Best Management Practices Program to Minimize Risk of Disease Transmission to Native Amphibian Populations
BIO-203: Impacts of Introducing Aquatic Invasive Species into Native Ecosystems as a Result of the Salmon and Steelhead Stocking Program	BIO-10: Develop and Implement Hazard Analysis and Critical Control Point Plans at Each DFG Hatchery
BIO-207: Genetic Effects on Central Valley Spring-Run Chinook Salmon ESU from Stocking Salmon and	BIO-139: Complete Hatchery Genetics Management Plans

<b>Impact</b>	<b>Mitigation Measure</b>
Steelhead	
BIO-208: Genetic Effects on Chinook Salmon, Central Valley Fall-/Late Fall-Run ESU, from Stocking Salmon and Steelhead	BIO-139: Complete Hatchery Genetics Management Plans
BIO-211: Genetic Effects on Chinook Salmon, Upper Klamath/Trinity Rivers ESU, from Stocking Salmon and Steelhead	BIO-139: Complete Hatchery Genetics Management Plans
BIO-213: Genetic Effects on Coho Salmon, Southern Oregon/Northern California Coast ESU, from Stocking Salmon and Steelhead	BIO-139: Complete Hatchery Genetics Management Plans
BIO-214: Genetic Effects on Steelhead, California Central Valley DPS, from Stocking Salmon and Steelhead	BIO-139: Complete Hatchery Genetics Management Plans
BIO-215: Genetic Effects on Steelhead, Northern California DPS, from Stocking Salmon and Steelhead	BIO-139: Complete Hatchery Genetics Management Plans
BIO-216: Genetic Effects on Steelhead, Klamath Mountains Province DPS, from Stocking Salmon and Steelhead	BIO-139: Complete Hatchery Genetics Management Plans
BIO-224: Distribution of Invasive Species by Anglers as a Result of Salmon and Steelhead Stocking Program	BIO-123: Educate Anglers to Control Invasive Species
BIO-226: Predation and Competition Impacts from Fishing in the City Program-Stocked Fish on Sensitive, Native, or Legally Protected Fish and Wildlife Species	BIO-226: Implement Private Stocking Permit Evaluation Protocol
BIO-228: Impacts of Introducing Pathogens to Native Amphibian Populations Through FICP Stocking	BIO-233b: Implement Private Stocking Permit Evaluation Protocol
BIO-229: Impacts of Introducing Aquatic Invasive Species into Native Ecosystems Through FICP Stocking	BIO-229: Require and Monitor Invasive Species Controls at Private Aquaculture Facilities
BIO-233: Predation and Competition Impacts from Fish Released Under Private Stocking Permits on Sensitive, Native, or Legally Protected Fish and Wildlife Species	BIO-233a: Eliminate Private Stocking Exemption BIO-233b: Implement Private Stocking Permit Evaluation Protocol
BIO-236: Impacts of Introducing Pathogens to Wild Populations of Native Fish and their Habitats through Private Stocking Permit Fish Releases	BIO-236: Require Aquaculture Products Stocked in Waters of the State to be Certified Free of Disease
BIO-237: Impacts of Introducing Pathogens to Native Amphibian Populations and Their Habitats through Private Stocking Permit Fish Releases	BIO-233a: Eliminate Private Stocking Exemption BIO-233b: Implement Private Stocking Permit Evaluation Protocol
BIO-238: Impacts of Introducing Aquatic Invasive Species to Wild Populations of Native Fish and Native Amphibian Populations and Their Habitats through Private Stocking Permit Fish Releases	BIO-238: Require and Monitor Invasive Species Controls for Private Stocking Permits
BIO-240: Distribution of Invasive Species by Anglers as a Result of the Private Stocking Permit Program	BIO-123: Educate Anglers to Control Invasive Species BIO-233a: Eliminate Private Stocking Exemption
BIO-243: Predation and Competition Impacts from Stocked Trout on California Black Rail	BIO-87: Implement Pre-Stocking Evaluation Protocol for California black rails
BIO-252: Impacts from Introduction of Invasive	BIO-107: Implement Monitoring and Best

<b>Impact</b>	<b>Mitigation Measure</b>
Species and Pathogens on Supplemental Evaluation Species	Management Practices Program to Minimize Risk of Disease Transmission to Native Amphibian Populations
BIO-254: Predation and Competition Impacts from Stocked Salmon and Steelhead on California Black Rail	BIO-87: Implement Pre-Stocking Evaluation Protocol for California Black Rails
BIO-263: Impacts of Invasive Species and Pathogens Released through Stocking Salmon and Steelhead on Supplemental Evaluation Species	BIO-107: Implement Monitoring and Best Management Practices Program to minimize risk of Disease Transmission to Native Amphibian Populations
BIO-266: Impacts of Invasive Species and Pathogens Released through Fishing in the City Program Stocking on Supplemental Evaluation Species	BIO-229: Require and Monitor Invasive Species Controls at Private Aquaculture Facilities BIO-233b: Implement Private Stocking Permit Evaluation Protocol
BIO-269: Predation and Competition Impacts from the Private Stocking Program on Supplemental Evaluation Species	BIO-233a: Eliminate Private Stocking Exemption BIO-233b: Implement Private Stocking Permit Evaluation Protocol
BIO-270: Impacts from Introduction of Invasive Species and Pathogens on Supplemental Evaluation Species	BIO-233a: Eliminate Private Stocking Exemption BIO-238: Require and Monitor Invasive Species Controls for Private Stocking Permits

## Summary of Cumulative Effects by Resource Area

There are no cumulatively considerable effects from the proposed program. The potential for cumulative impacts was identified in Chapter 8. Those resource areas thought to have the potential to contribute to a considerably cumulative impact were assessed in detail. Those areas assessed in detail are presented in Table ES-3.

**Table ES-3 Geographic Scope for Resources with Potential Cumulative Effects**

<b>Resource</b>	<b>Geographic Scope</b>
Water quality/hydrology	Downstream of hatchery discharges and at stocking locations
Biological resources	Statewide hatchery and stocking locations
Economics/recreation	Statewide in the vicinity of hatcheries and stocking locations
Cultural	Hatchery locations
Climate change	Global