State of California – Natural Resources Agency
DEPARTMENT OF FISH AND GAME
Division of Ecosystem Conservation
1416 Ninth Street, Suite 1208
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EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

December 18, 2012

Robert Clarke
Assistant Fisheries Program Manager
U.S. Fish and Wildlife Service
Pacific Southwest Region
2800 Cottage Way, W-2606
Sacramento, CA 95825

Dear Mr. Clarke:

CONCURRENCE FOR SAN JOAQUIN RIVER RESTORATION PROJECT INTIAL BROODSTOCK PROGRAM (2080-2012-017-04)

On November 19, 2012, the Department of Fish and Game (DFG) received notification from the United States Fish and Wildlife Service (USFWS) that the National Marine Fisheries Service (NMFS) issued Enhancement of Survival Permit 14868 (Permit) to USFWS on October 11, 2012 as well as a Biological Opinion (NMFS file No. 151422SWR2010SA00361) (BO) on October 3, 2012 for the proposed San Joaquin River Restoration Project Initial Broodstock Program.

NMFS issued the Permit (77 Fed. Reg. 67796) Oct. 11, 2012 pursuant to section 10(a)(1)(A) of the Federal Endangered Species Act. The Permit authorizes take of ESA-listed Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*) from the Feather River Fish Hatchery (FRFH) for scientific research and enhancement activities to establish broodstock methodologies, and to allow collection of eggs and/or juveniles from the FRFH to initiate studies associated with holding practices of spring-run Chinook associated with the San Joaquin River Restoration Program. The Permit and associated BO describe the collection, transport and rearing of eggs and juveniles, low-level of intentional lethal take annually for pathogen analysis, and sets forth a series of measures to reduce impacts of research activities on Central Valley spring-run Chinook salmon, which species is designated as threatened pursuant to the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq). (See Cal. Code Regs., tit. 14, § 670.5, subd. (b)(2)(C).)

DFG has determined pursuant to Fish and Game Code section 2080.3 that this Permit will further the conservation of spring-run Chinook. A copy of the DFG determination is enclosed for your records and will be published in the California Regulatory Notice Register.

If you have questions regarding DFG's concurrency determination, please contact Mr. Gerald Hatler, Environmental Program Manager at (559) 243-4014 extension 259, or via email at GHatler@dfg.ca.gov.

Sincerely,

Sandra Morey
Deputy Director

Enclosure

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CALIFORNIA DEPARTMENT OF FISH AND GAME
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1416 NINTH STREET
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CALIFORNIA ENDANGERED SPECIES ACT
FISH & GAME CODE §2080.3 CONCURRENCE NO. 2080-2012-017-04

Project: San Joaquin River Restoration Project Initial Broodstock Program

Location: Butte, Napa, Yolo, and Fresno Counties

Permittee: U.S. Fish and Wildlife Service

Background

On October 11, 2012, the National Marine Fisheries Service (NMFS) issued Enhancement of Survival Permit 14868 (Permit) to the U.S. Fish and Wildlife Service (USFWS), pursuant to section 10(a)(1)(A) of the federal Endangered Species Act (ESA). The Permit authorizes take of ESA-listed Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*) (spring-run Chinook salmon) eggs or juveniles from the Feather River Fish Hatchery (FRFH) to initiate studies associated with holding practices of spring-run Chinook associated with the San Joaquin River Restoration Program (SJRRP). More specifically, the Permit authorizes the collection, transportation, rearing and establishment of a spring-run Chinook broodstock, along with quarantine and pathology activities, for a period of approximately five years.

The Permit that is the subject of this determination, as well as the Permit's associated biological opinion, arise from the SJRRP. The SJRRP executes a legal settlement from the lawsuit, *NRDC et al. v. Kirk Rodgers et al.* In 1988, a coalition of environmental groups, led by the Natural Resources Defense Council (NRDC), filed a lawsuit challenging the renewal of long-term water service contracts between the United States and California's Central Valley Project Friant Division contractors. After more than 18 years of litigation, the Settling Parties reached a Stipulation of Settlement Agreement (Settlement). The Settling Parties, including NRDC, Friant Water Users Authority (now known as the Friant Water Authority), and the U.S. Departments of the Interior and Commerce, agreed on the terms and conditions of the Settlement, which was subsequently approved on October 23, 2006. The Settlement establishes two primary goals:

- **Restoration Goal** – To restore and maintain fish populations in "good condition" in the mainstem San Joaquin River below Friant Dam to the confluence with the Merced River, including naturally reproducing and self-sustaining populations of salmon and other fish.

- **Water Management Goal** – To reduce or avoid adverse water supply impacts to all of the Friant Division long-term contractors that may result from the Interim Flows and Restoration Flows provided for in the Settlement.

Through a 2006 memorandum of understanding between the Department of Fish and Game (Department or DFG) and other state agencies and the Settling Parties, DFG stated its intention to assist the Settling Parties in implementation of the Settlement consistent with DFG's authorities, resources, and broader regional resource strategies. Subsequently, President Obama signed the San Joaquin River Restoration Act on March 30, 2009, giving the Department of the Interior full authority to implement the SJRRP. The implementing agencies, consisting of the Department of the Interior, Bureau of Reclamation (Reclamation) and USFWS, NMFS, DFG, and California Department of Water Resources (DWR) organized a Program Management Team (PMT) and associated Technical Work Groups to begin Settlement implementation.

The Settlement requires the reintroduction of spring-run Chinook salmon into the San Joaquin River. The SJRRP's Hatchery and Genetic Management Plan (2010) for the SJRRP proposes using a Conservation Facility (Interim Facility and proposed future Salmon Conservation and Research Facility (SCARF)) to develop a self-sustaining population of spring-run Chinook salmon for the SJRRP using genetic management and conservation hatchery techniques. The Interim Facility, located in Friant, California in Fresno County, and the proposed SCARF will rely on artificial propagation using broodstock to attain sufficient numbers of spring-run Chinook salmon for SJRRP reintroduction.

Because the Program is expected to result in take of a species designated as threatened under the federal ESA, USFWS consulted with NMFS as required by Section 7 of the ESA. On September 29, 2010 the USFWS submitted its *10(a)(1)(A) Enhancement of the Species Permit Application for the Re-Introduction of Central Valley Spring-run Chinook into the San Joaquin River* (10(a)(1)(A) Application) to NMFS. On December 27, 2011 USFWS submitted a final revised 10(a)(1)(A) Application to NMFS. On October 3, 2012, NMFS issued a Biological Opinion (NMFS file No. 151422SWR2010SA00361) (BO) to USFWS for the collection, of eggs or juveniles from the FRFH in order to establish collection, transportation, rearing and spawning methodologies associated with initiating a broodstock program.

NMFS issued the Permit on October 11, 2012. The Permit describes the proposed activities and the authorized take, and requires USFWS to comply with measures to minimize any adverse impacts on listed species during research activities. The associated BO provides further detail and protocols. These measures include but are not limited to adherence to the guidelines within the 2010 SJRRP Hatchery and Genetic Management Plan (HGMP).

The Permit provides that Spring-run Chinook salmon will not be released into the San Joaquin River unless designated as an experimental population under Section 1539(j) of Title 16 of the United States Code. Nonetheless, the SJRRP proposes and the Permit allows USFWS to implement necessary research and initial testing of collection, transportation, rearing, and spawning procedures, and establishment of a broodstock at the Interim and proposed facilities for a period of approximately five years. This testing phase, as described in the Permit, is needed to ensure the reintroduction will not have an adverse effect on the species. If an experimental population is not designated by the Permit's termination USFWS will work with NMFS to develop a suitable plan for the disposition of the fish. The FRFH has

adjusted its operations to supply eggs and juveniles for the broodstock while still meeting the FRFH's other production goals.

On November 19, 2012, the Director of DFG received a letter from the USFWS notifying the Department pursuant to Fish and Game Code section 2080.3 that it had received a 10(a)(1)(A) permit authorizing the taking of spring-run Chinook salmon in order to establish or maintain an experimental population in the San Joaquin River. USFWS' notification requested that DFG: (1) make a determination that the Permit will further the conservation of the species; and (2) publish the notification as required by Fish and Game Code section 2080.3(a)(2).

Project Summary

The activities described in the Permit will result in the intentional take[1] of spring-run Chinook salmon. Spring-run Chinook salmon is designated as a threatened species pursuant to the the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.). (See Cal. Code Regs., tit. 14, § 670.5, subd. (b)(2)(C)). Spring-run Chinook salmon will be intentionally taken at the FRFH[2] as a result of USFWS collecting preferred eyed eggs or juveniles and removing those individuals from the FRFH for the purposes of establishing a broodstock program at the Interim Facility and the proposed SCARF. Collections will only occur after the FRFH has met its annual production goal of 3 million fertilized eggs, and the number of eggs or juveniles collected annually will be determined by the rearing capacity at the Interim or the proposed SCARF facility at the time of collection. In years 1 – 3 USFWS may collect a maximum of 560 eyed eggs or 560 juveniles annually for the broodstock program; in years 4 – 5 USFWS may collect a maximum of 2,760 eyed eggs or 2,760 juveniles annually for the broodstock program.

Out of these totals, a low level of intentional lethal take will also occur. A maximum of 60 eyed eggs or 60 juveniles may be taken annually for pathology analysis prior to transport to the Interim Facility or the proposed SCARF, to ensure that pathogens are not transferred. All collected individuals will be moved to the quarantine facility (Silverado Fisheries Base (SFB) in Yountville CA, or the Center for Aquatic Biology and Aquaculture (CABA), in Davis, CA). The 60 juveniles collected for lethal take will be humanely euthanized once they have reached sufficient size for pathology testing. After pathology clearance, fish can be safely transported to the Interim facility or SCARF.

The Permit includes measures and conditions for the selection of individual eggs and juveniles from the FRFH. As described further in the accompanying BO and USFWS permit application, FRFH staff will segregate a minimum of 50 spring-run Chinook salmon crosses,

[1] Pursuant to Fish and Game Code section 86, "'Take' means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill."

[2] The FRFH, in Oroville, California, is the only source of hatchery-produced spring-run Chinook salmon in the Central Valley. Spring-run Chinook salmon are spawned at the FRFH in mid- to late-September of each year. The selection and collection of eggs and juveniles for the SJRRP are the only activities at the FRFH regulated under the Permit.

and USFWS will collect corresponding individual fish data as outlined in the Permit. Eyed eggs will be randomly selected from preferred crosses, guided by the criteria outlined in the Permit. If the FRFH is unable to segregate enough eggs for broodstock because of space constraints, eyed eggs will be randomly selected from the non-segregated FRFH spring-run egg trays, and juveniles will be randomly selected from all available raceways, as outlined in the BO. USFWS will collect and move eggs to the quarantine facility when they are at their most shock resistant. All eggs transported to the quarantine facility will be hatched and transported to the Interim Facility or the proposed SCARF as fry or juveniles.

Indirect mortality of spring-run Chinook salmon may also occur. Indirect mortality may occur during transportation (FRFH to SFB/CABA, and SFB/CABA to the Interim/SCARF Facility), rearing (SFB, CABA, Interim Facility, and SCARF), rearing, and marking/tagging (Interim Facility and SCARF). The Permit outlines measures and conditions to reduce adverse impacts of these research activities on the fish. All rearing and spawning of broodstock will follow protocols outlined in the 2010 HGMP to ensure activities reduce hatchery influence and minimize genetic effects. All juveniles will be adipose fin clipped and tagged with a coded wire tag.

Determination

DFG has determined that the Permit will further the conservation of the species. Specifically, as authorized by Fish and Game Code section 2080.3, DFG finds that: (1) take of spring-run Chinook salmon is for the purposes of establishing or maintaining an experimental population in the San Joaquin River pursuant to Section 1539(j) of Title 16 of the United States Code and the San Joaquin River Restoration Settlement Act; and (2) the measures identified in the 10(a)(1)(A) permit, as well as the accompanying BO and the HGMP, include methods and procedures which are necessary to bring spring-run Chinook to the point at which the protections of CESA are no longer necessary. The measures included in this determination pursuant to Fish and Game Code section 2080.3 are those in the 10(a)(1)(A) Permit. Those Permit conditions include, but are not limited to, the following:

Measures to Reduce Impacts of Research Activities

1. Spring-run Chinook salmon will not be released into the San Joaquin River unless designated as an experimental population under Section 1539(j) of Title 16 of the United States Code.

2. USFWS will integrate the Interim Facility and proposed SCARF into the Emergency Action Plan of San Joaquin River Fish Hatchery and the Friant Fishwater Release Hydroelectric Project (FERC Project No 11068-CA). The Interim Facility and proposed SCARF will be designed to minimize unintended releases to the San Joaquin River during flood events by installing screens on tanks. In the event that an emergency release is necessary due to flooding or other reason, fish will be loaded into fish transport tanks, transported to the river at an appropriate location, and released according to State and Federal rules and requirements.

3. USFWS will handle spring-run Chinook salmon with extreme care, and USFWS will keep spring-run Chinook salmon in water to the maximum extent possible during sampling and processing procedures. Adequate circulation and replenishment of water in holding units is required.

4. USFWS will use dip-nets with knotless nylon mesh to minimize scale and mucus abrasion and shall select the smallest mesh-size dip-net that is appropriate to achieve sampling objectives while reducing the probability that smaller fish will become gilled in the net.

5. USFWS will not handle spring-run Chinook salmon if water temperatures exceed 21 degrees Celsius. Under these conditions, fish shall not be collected.

6. USFWS shall take extreme care when using anesthesia (MS-222, Alka-Seltzer® Gold). USFWS will use the minimum amount of substance necessary to immobilize spring-run Chinook salmon for handling and sampling procedures. It is the responsibility of USFWS to determine when anesthesia is necessary to reduce injuries to spring-run Chinook salmon during handling and sampling activities.

7. USFWS will transport spring-run Chinook in a manner that minimizes fluctuations in water quality and the effects of handing and stress. The holding water will be monitored at all times: enriched dissolved oxygen levels will be at or near saturation, and water temperature may not vary more than two degrees Celsius (+ or -) during holding and/or transport.

8. USFWS will transport juveniles utilizing a 500-gallon transport tank and trailer. The tank will be filled with water from the FRFH (for transport from FRFH to Silverado, or CABA) or from Silverado/CABA (for transport from Silverado/CABA to the Interim Facility or the proposed SCARF) just prior to transport. Before transferring fish, the water will be tempered to within two degrees Celsius of the water temperature at the receiving facility.

9. Permittee will transport all eggs when they are the most shock resistant. All eggs transported to the quarantine facility will be hatched and transported to the Interim Facility or the SCARF as fry or juveniles.

10. Eggs will be placed in a specialized shipping container (*e.g.* specialized Styrofoam cooler) to reduce excessive movement and limit damage to the egg membrane. Eggs will be placed in wet cheesecloth and securely tied, then placed in the shipping container, kept cool and moist using non-chlorinated ice, and transported in a dark environment. Ice will be in a separate compartment of the shipping container, so as not to be in direct contact with the eggs. The ideal temperature for transport is

between 5 and 10 degrees Celsius. A standard vehicle will be used to transport eggs.

11. USFWS will randomly select individuals from preferred crosses for broodstock. Corresponding individual fish data will be collected for each cross; including Hallprint tag number, adipose fin status, head tag number, CWT number, gender, fork length, ovarian fluid sample number, tissue sample number and corresponding genetic analysis data. These data will be used to select preferred crosses for the SJRRP guided by the following criteria:

    a. Disease Status - Parents of juveniles test negative for major virulent pathogens and in particular, Infectious Hematopoietic Necrosis Virus (IHNV) and Bacterial Kidney Disease (BKD).
    b. Genetic Variability – The collections accurately represent the genetic diversity of the donor population. Siblings should comprise less than 2 percent of the total collection [based on the goal of 50 crosses from unrelated individuals (i.e. non-siblings)].
    c. Run Timing – preferably two-generations of spring-run phenotype are identified using CWT data, parentage based tagging (PBT) or otolith microchemistry. Generation-one will be the spawning adults (i.e. parents of the eggs), and generation-two will be the parents of the spawning adults (i.e. grandparents of the eggs).
    d. Age of Maturing – Two-year-old males and females (based on length data) will comprise less than 5 percent of the parental crosses.

12. Intentional lethal take is only authorized for 60 individuals for pathogen testing purposes; no other intentional lethal take is authorized.

13. DFG fish pathologists must monitor fish health. Hatchery staff will carry out treatment methods prescribed by DFG fish pathologists for disease outbreaks and treatment protocols. Depending on the nature of an outbreak, treatment methods may vary. However, chemical treatments for external pathogens can include the use of salt, potassium permanganate, formalin or hydrogen peroxide (as allowed by the hatchery discharge permit). Bacterial infections could include the use of oxytetracycline, florfenicol or other approved antibiotic.

14. All treatments for disease outbreaks will follow veterinary guidance and will be used and monitored according to the National Pollutant Discharge Elimination System wastewater discharge requirements. Diagnostic procedures for pathogen detection will follow American Fisheries Society professional standards, as described in the American Fisheries Society Bluebook.

15. USFWS will institute natural rearing techniques at the proposed SCARF, and where feasible in the Interim Facility, to increase fitness and decrease domestication selection of fish for the SJRRP. The methods to be employed include the following:

a. Promote development of body camouflage coloration in juvenile fish by creating more natural environments in hatchery rearing vessels, for example, overhead cover, and in-stream structures and substrates.
b. Condition young fish to orient to the bottom rather than the surface of the rearing vessel by using appropriately positioned feed delivery systems.
c. Exercise young fish by altering water-flow velocities in rearing vessels to enhance their ability to escape predators (the ability to adjust water velocities to target optimal swimming speeds for salmonids has been shown to improve growth rates, feed efficiency, oxygen utilization, swimming performance and stamina, and to reduce aggression).

16. USFWS will tag all individual broodstock reared at the Interim Facility or the proposed SCARF using passive integrated transponder (PIT) tags and Visual Implant (VI) tags after reaching a minimum length of 55 millimeters (mm). All fish that are subjected to tagging will be thoroughly sedated using MS-222 or Alka-Seltzer® prior to tagging, which will expedite tag insertion and reduce the probability of injury to the fish. Sterilized PIT tags will be injected into the peritoneum using an implant gun or syringe-style implanter. PIT tags will be used for monitoring individual fish throughout captivity. Sterilized VI tags will be inserted into the clear tissue behind the eye using a sterilized syringe. VI tags will be used as a "duplicate" tag, since fish may expel PIT tags.

17. USFWS will tag adult fish prior to spawning. Adults will be tagged intra-muscularly with Petersen disc tags for easy visual identification. The tag will consist of two plastic buttons that are held to the sides of the fish by a stainless steel pin passed through the muscle tissue beneath the dorsal fin. The discs will be colored or marked with letters or numbers. Adult fish will be sedated during all tagging activities using MS-222, CO2, or Tricaine-S. USFWS will adjust dosage of anesthetics to avoid fish mortality.

18. USFWS will adipose fin clip and coded wire tag all hatchery juveniles produced. Coded wire tags are small (less than 1 mm) lengths of wire implanted into the snout of each juvenile fish using specialized automated equipment. The tags (visually indicated by the removed adipose fin) will allow fish to be identified as belonging to a particular Interim Facility or SCARF cohort. Some adipose fin clips will be used for additional genetic analysis.

19. If a Federal 10(j) experimental population is not designated by the time of the termination of the 10(a)(1)(A) permit, USFWS must work with NMFS to develop a suitable plan for the disposition of the fish rearing and being held at the Interim Facility or the proposed SCARF. Although not a condition of the Permit, DFG requests USFWS also work with DFG to develop a suitable plan.

20. USFWS is responsible for the actions of any individual operating under the authority of the Permit. Any personnel operating under the Permit that require Federal or State licenses to practice their profession must be duly licensed under the appropriate law.

Monitoring and Reporting Measures

21. If USFWS exceeds take estimates for the periods identified in the Permit, USFWS shall notify NMFS as soon as possible and no later than two calendar days after the unauthorized take. USFWS will also notify NMFS in the event of any take of ESA-listed species not included in this permit. Pending review of the circumstances of the take, NMFS may suspend research activities. Although not a condition of the Permit, DFG requests USFWS notify DFG as well.

22. NMFS will monitor project activities to ensure that the project is operating satisfactorily as described in the Permit and associated BO. NMFS will monitor actual take of ESA-listed species associated with the proposed Project (as provided in monthly and annual reports or by other means). Authorized take may be reduced if population data indicate that the take described in the Permit are deemed to be excessive, or if cumulative take authorizations for spring-run Chinook salmon are determined to operate to the disadvantage of listed fish. Although not a condition of the Permit, DFG requests USFWS notify DFG when NMFS adjust annual permitted take levels.

23. USFWS will submit annual reports to NMFS. Although not a condition of the Permit, DFG requests USFWS provide its annual reports to DFG as well. Annual Reports shall include:

    a. Description of any problems and/or any unforeseen effects and any steps taken (or proposed) to resolve such problems.
    b. Description of what measures were taken to minimize the permitted activities' effects on animals and the effectiveness of these measures.
    c. If animals were unintentionally injured or killed, description of the circumstances. Description of how they were disposed of if it wasn't in the way described in the authorization/permit.
    d. Description of the physical condition of animals taken and used in the permitted activities.
    e. Description of the effects permitted activities had on animals, including any unforeseen responses or effects.
    f. If applicable, description of the method used to estimate take if it differed from your proposed method.
    g. Statement of steps taken to coordinate the permitted activities with other permit holders.
    h. Summary of any preliminary findings.
    i. List of titles of reports or publications resulting from reporting period.
    j. Any additional findings, results, or information for comment.

24. USFWS will preserve all ESA-listed Central Valley salmonid tissue samples as voucher specimens and send to: Dr. Robert Titus, California Department of Fish and

Game, Tissue Archive Lab, 1875 Alpine Avenue Suite F, Sacramento, California 95814, (916) 227-6844.

Pursuant to Fish and Game Code section 2080.3, no further take authorization under CESA is required for USFWS to take spring-run Chinook salmon, as identified in, and in accordance with the federal Permit and associated BO and HGMP. The timing and extent of take authorization under this concurrence is limited to the terms in the federal Permit and expires upon the expiration date of the federal Permit. If there are any substantive changes to the Project, including changes to the measures or conditions, or if the NMFS amends or replaces the Permit, BO or associated HGMP, USFWS shall be required to obtain a new concurrence or a CESA permit for the Project from DFG. (See generally Fish & G. Code, §2080.3).

By: Sandra Morey Date: 12/18/12

Sandra Morey, Deputy Director
California Department of Fish and Game