



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
West Coast Region  
650 Capitol Mall, Suite 5-100  
Sacramento, California 95814-4700

MAR 21 2014

In response refer to:  
WCR-2013-75

Mr. Robert Clark  
Fisheries Program Supervisor  
U.S. Fish and Wildlife Service  
2800 Cottage Way, Suite W-2606  
Sacramento, California 95825

Dear Mr. Clark:

Enclosed is Permit 17781, issued to United States Fish and Wildlife Service under the authority of section 10(a)(1)(A) of the Endangered Species Act (ESA) of 1973, as amended, and its implementing regulations. Permit 17781 authorizes take of ESA-listed Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*) (spring-run Chinook) from the Feather River Fish Hatchery (FRFH) for the following activities: 1) the collection of spring-run Chinook juveniles and eggs from the FRFH and their transport to stream side incubators located alongside the San Joaquin River; 2) the transport of collected spring-run Chinook to holding pens located in the San Joaquin River; 3) the tagging of FRFH collected spring-run Chinook; 4) the release of tagged juvenile spring-run Chinook from: FRFH, the salmon conservation and research facility (SCARF), and those juveniles that were raised in the stream side incubators; 5) the release of tagged adult salmon from SCARF in years 4-5 of the permit; 7) monitoring and evaluation associated with permitted activities; and 8) if required, quarantine and pathology testing on eggs and/or juveniles collected from FRFH. In effecting the take authorized by Permit 17781, you will have accepted the terms and conditions of the permit and you will be prepared to comply with the provisions of the permit, the applicable regulations, and the ESA.

You are required to review Permit 17781 prior to engaging in your research activities and comply with the permit's conditions. The original and a file copy of the signature page are also enclosed. Please sign and date both and return the signature page marked "FILE COPY" to the National Marine Fisheries Service contact at the California Central Valley Area Office. In the future, should you need a change in this authorization, please submit a modification request.

Your attention is directed to Section C, which describes annual reporting and authorization requirements. Reports are due by January 31, annually. Permit 17781 is subject to annual review based, in part, on your reported take per annual period and your compliance with the conditions of the permit. Permit 17781 expires on December 31, 2019.

Please note that Permit 17781 is not valid until the California Central Valley Area Office receives the signed copy of the signature page. You may submit the copy by facsimile to (916)



930-3629 or by e-mail and then send the original by mail. Please contact Ms. Elif Fehm-Sullivan at (916) 930-3723, or via e-mail at [Elif.Fehm-Sullivan@noaa.gov](mailto:Elif.Fehm-Sullivan@noaa.gov) if you have any questions concerning this permit or require additional information.

Sincerely,

  
for William W. Stelle Jr.  
Regional Administrator

Enclosure

Cc: Copy to File ARN 151422SWR2013SA00288

**ENDANGERED SPECIES ACT SECTION 10(a)(1)(A) PERMIT FOR DIRECT TAKE  
OF LISTED SPECIES FOR SCIENTIFIC RESEARCH AND ENHANCEMENT  
PURPOSES**

**Permit Number:** 17781  
**Permit Type:** Scientific Research and Enhancement  
**Expiration Date:** December 31, 2019  
**Reporting Period:** January 1 through December 31, annually  
**Report Due Date:** January 31, annually

Permit Holder

U.S. Fish and Wildlife Service  
2800 Cottage Way, Suite W-2606  
Sacramento, California 95825  
Phone: (916) 414-6600

Responsible Party, Principal Investigator and Primary Contact

Robert Clark  
Fisheries Program Supervisor  
U.S. Fish and Wildlife Service  
2800 Cottage Way, Suite W-2606  
Sacramento, California 95825  
Phone: (916) 414-6581  
(916) 468-8146  
Email: Robert\_Clarke@fws.gov

Co-Investigators

Paul Adelizi  
A.J. Dill  
Matt Bigelow  
Eric Guzman  
Benessa Espino  
Michael Ficele  
Carl Mesick  
Zachary Jackson

**Authorization**

This authorization is subject to the provisions of the Endangered Species Act (ESA) of 1973 (16 U.S.C. ' 1531-1543) as amended, the National Marine Fisheries Service (NMFS) regulations governing ESA-listed species permits (50 CFR Parts 222-226), and the conditions set forth hereinafter.

U.S. Fish and Wildlife Service (USFWS) is hereby authorized take of Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*) (henceforth referred to as spring-run Chinook) listed under the ESA from the Feather River Fish Hatchery (FRFH) and the salmon conservation and research facility (SCARF), for scientific research and enhancement purposes, as cited in the

permit holder's application and summarized below. Take numbers are listed by category in section A of this permit.

One step of the San Joaquin River Restoration Program (SJRRP) includes spring-run Chinook being reintroduced into the San Joaquin River. Reintroduction is not one single event, but a series of several events that over time will lead to successful restoration of spring-run Chinook to the San Joaquin River. In order for the reintroduction to be successful, the initial step of this reintroduction process will have a testing phase, where the collection, transportation, holding, rearing, and release techniques can be tested to ensure that the program will not have an adverse effect on these listed fish. This permit authorizes the implementation of this necessary initial testing phase only.

### Abstract

This is the original Section 10(a)(1)(A) Permit 17781. This permit authorizes USFWS, under the implementation of the SJRRP, to collect, transport, rear, handle, tag, and release individuals into the San Joaquin River to establish an experimental population of spring-run Chinook. USFWS, for a period of five years, is authorized to collect, transport and rear eggs and/or juveniles produced for this permit, and to release juveniles annually from the FRFH, the current interim and the future complete Salmon Conservation and Research Facility (SCARF) located on the grounds of the existing San Joaquin Fish Hatchery in Friant, California. In addition, adults from SCARF may be placed into the San Joaquin River during years 4-5. Individuals collected will be spring-run Chinook eggs or juveniles from the FRFH produced for this permit, and otherwise would not contribute to the Feather River population, or will be individuals spawned and reared at the SCARF for the purpose of being released into the San Joaquin River.

More specifically, the USFWS is permitted to: 1) collect spring-run Chinook juveniles and eggs from the FRFH; 2) transport collected spring-run Chinook to holding pens located in the San Joaquin River; 3) the tagging(including coded wire tags) (CWT), adipose fin-clipping (ad clipping), calcein marking, PIT tagging and/or acoustic tagging) of FRFH and/or SCARF collected spring-run Chinook ; 4) transport collected spring-run Chinook eggs from the FRFH to stream side incubators located alongside the San Joaquin River; 5) release tagged juvenile spring-run Chinook in years 1-5 of the permit from FRFH and/or SCARF, or those juveniles that were raised in the stream side incubators; 6) release tagged adult salmon in years 4-5 of the permit from SCARF ; 7) monitoring and evaluation; and 8) if required quarantine and pathology testing on eggs and/or juveniles collected from FRFH.

All spring-run Chinook released into the San Joaquin River must be tagged; eggs will not be directly translocated into the San Joaquin River. Eggs will be transported to stream side incubators. As they develop into juveniles they will held in incubators until they can be tagged and adipose fin clipped (ad clipped), then moved to holding pens. Juveniles will be put into net pens in Reach 1 for acclimatization and then released at appropriate river locations depending on the river connectivity.

This permit authorizes the collection, transport, rearing, and imprinting of up to 54,400 FRFH spring-run Chinook juvenile fingerlings or 80,000 FRFH spring-run Chinook eggs annually. In addition, up to 300 ancillary broodstock yearlings during years 2-3 and between 800-2000 ancillary broodstock yearling in years 4-5 from SCARF are authorized for release into the San Joaquin River. Up to 100 adult broodstock are authorized for release directly into the San Joaquin River, only in years 4 and 5 of this permit. Up to 50,000 eggs or juveniles from SCARF are authorized to be placed in streamside incubators/net pens for rearing, then tagged, ad clipped and released into the San Joaquin River. Up to 434,700 juveniles either from FRFH, SCARF, or the stream side incubators will be calcein marked prior to release.

If quarantine of individuals is required, pathology testing will occur. Once pathogen results are confirmed negative, collected eggs or juveniles will be trucked from the FRFH located in Oroville, California to a quarantine facility at either Silverado Fisheries Base (Silverado) located in Yountville, California or the Center for Aquatic Biology and Aquaculture (CABA) located in Davis, California. After the appropriate quarantine time, the eggs or juveniles will then be trucked to the stream side incubators, or net pens in the San Joaquin River

All fish to be released will be ad clipped and tagged with a CWT (100 percent of fish will be clipped and tagged). If any issues arise associated with this permit, USFWS must work with NMFS to develop a suitable plan for the disposition of the fish that are rearing and being held in the stream side incubators, net pens, the SCARF.

The monitoring and evaluation associated with this permit will involve both assessment of adult and juvenile abundance and survival. Counts of juvenile abundance and run timing will be assessed through the use of rotary screw traps. Adult presence and return estimates will be measured for evaluating this permit's success. Redd surveys and escapement surveys will be used to assess reproductive success of returnees.

#### **A. Number and Species of Animals**

This permit is for work to be conducted over an approximate 5 year period. Take numbers listed below are the maximum take authorized per annual reporting period (January 1 through December 31) for the spring-run Chinook Evolutionary Significant Unit (ESU).

**Table 1. Summary of Take Associated with Collection, Translocation, and Release activities in Permit 17781**

SPECIES	LISTING UNIT/STOCK	PRODUCTION/ORIGIN	LIFESTAGE	SEX	EXPECTED TAKE	INDIRECT MORTALITY	TAKE ACTION	OBSERVE/ COLLECT METHOD	PROCEDURES	TRANSPORT RECORDS	DETAILS
Salmon, Chinook	Central Valley spring-run (NMFS Threatened)	Listed Hatchery Adipose Clip	Juvenile	Male and Female	54400	1082	Collect and Transport Live Animal	Hand and/or Dip Net	Anesthetize; Finclip - mark; Paint, Stain or Dye Immersion; Tag, Acoustic or Sonic (Internal); Tag, Coded-Wire; Tag, PIT	1;2;5	Different conditions warrant different transport strategies (1, 2, or 5). See Transport Records for more details.
Salmon, Chinook	Central Valley spring-run (NMFS Threatened)	Listed Hatchery Intact Adipose	Egg	Male and Female	80000	800	Collect and Transport Live Animal	Hand and/or Dip Net	Anesthetize; Finclip - mark; Paint, Stain or Dye Immersion; Tag, Acoustic or Sonic (Internal); Tag, Coded-Wire; Tag, PIT	1	Procedures will be conducted after fish are reared to the appropriate size.
Salmon, Chinook	Central Valley spring-run (NMFS Threatened)	Listed Hatchery Intact Adipose	Egg	Male and Female	50000	500	Collect and Transport Live Animal	Hand and/or Dip Net	Anesthetize; Paint, Stain or Dye Immersion; Tag, Acoustic or Sonic (Internal); Tag, PIT	3	Eggs produced from broodstock held at the SCARF. Procedures will be conducted after fish are reared to the appropriate size.

Salmon, Chinook	Central Valley spring-run (NMFS Threatened)	Listed Hatchery Adipose Clip	Smolt	Male and Female	2000	2	Collect and Transport Live Animal	Hand and/or Dip Net	Anesthetize; Paint, Stain or Dye Immersion; Tag, Acoustic or Sonic (Internal); Tag, PIT	3	Juveniles brought in as broodstock and held at the SCARF. Up to 2000 excess broodstock to be released in river.
SPECIES	LISTING UNIT/STOCK	PRODUCTION/ORIGIN	LIFESTAGE	SEX	EXPECTED TAKE	INDIRECT MORTALITY	TAKE ACTION	OBSERVE/ COLLECT METHOD	PROCEDURES	TRANSPORT RECORDS	DETAILS
Salmon, Chinook	Central Valley spring-run (NMFS Threatened)	Listed Hatchery Adipose Clip	Adult	Male and Female	100	0	Collect and Transport Live Animal	Hand and/or Dip Net	Anesthetize; Paint, Stain or Dye Immersion	3	Adult broodstock released from SCARF

Salmon, Chinook	Central Valley spring-run (NMFS Threatened)	Listed Hatchery Adipose Clip	Juvenile	Male and Female	60	0	Intentional (Directed) Mortality	Hand and/or Dip Net	Tissue sample (other internal tissues)	In the event that fish need to be transported from FRFH to another facility (quarantine), 60 FRFH juvenile spring-run Chinook will be sacrificed for pathogen analysis to ensure that pathogens will not be transferred to another fish facility.
Salmon, Chinook	Central Valley spring-run (NMFS Threatened)	Listed Hatchery Adipose Clip	Juvenile	Male and Female	250000	2500	Collect and Transport Live Animal	Hand and/or Dip Net	Anesthetize; Finclip - mark; Paint, Stain or Dye Immersion; Tag, Acoustic or Sonic (Internal); Tag, Coded-Wire; Tag, PIT	Juveniles produced from broodstock held at SCARF and released in river.

Table 2. Summary of Take Associated with Monitoring Activities in Permit 17781

SPECIES	LISTING UNIT/STOCK	PRODUCTION/ORIGIN	LIFESTAGE	SEX	EXPECTED TAKE	INDIRECT MORTALITY	TAKE ACTION	OBSERVE/COLLECT METHOD	PROCEDURES	TRANSPORT RECORDS	DETAILS
Salmon, Chinook	Central Valley spring-run (NMFS Threatened)	Listed Hatchery Adipose Clip	Juvenile	Male and Female	13040	130	Collect and Transport Live Animal	Trap, Screw	Anesthetize; Paint, Stain or Dye Immersion; Tissue Sample Fin or Opercle	6	Fish will only be transported when Trap and Haul necessary.
Salmon, Chinook	Central Valley spring-run (NMFS Threatened)	Natural	Juvenile	Male and Female	5759	58	Collect and Transport Live Animal	Trap, Screw	Anesthetize; Paint, Stain or Dye Immersion; Tissue Sample Fin or Opercle	6	Fish will only be transported when Trap and Haul necessary.
Salmon, Chinook	Central Valley spring-run (NMFS Threatened)	Listed Hatchery Adipose Clip	Adult	Male and Female	100	0	Observe/Harass	Snorkel/Dive surveys			
Salmon, Chinook	Central Valley spring-run (NMFS Threatened)	Listed Hatchery Adipose Clip	Spawned Adult/ Carcass	Male and Female	100	0	Observe/ Sample Tissue Dead Animal	Spawning surveys	Tissue Sample Fin or Opercle		Heads may also be removed for CWT extraction and analysis.
Salmon, Chinook	Central Valley spring-run (NMFS Threatened)	Listed Hatchery Adipose Clip	Adult	Male and Female	100	3	Collect and Transport Live Animal	Weir (only if associated with fish handling)		4	Fish captured at Hills Ferry Barrier or Sack Dam and transported to more suitable habitat in Reach 1 of the Restoration Area

Steelhead	California Central Valley (NMFS Threatened)	Natural	Juvenile	Male and Female	100	10	Capture/Handle/Release Fish	Trap, Screw	PROCEDURES	TRANSPORT RECORDS	DETAILS
SPECIES	LISTING UNIT/STOCK	PRODUCTION/ORIGIN	LIFESTAGE	SEX	EXPECTED TAKE	INDIRECT MORTALITY	TAKE ACTION	OBSERVE/COLLECT METHOD			
Steelhead	California Central Valley (NMFS Threatened)	Natural	Adult	Male and Female	100	0	Observe/Harass	Snorkel/Dive surveys			
Steelhead	California Central Valley (NMFS Threatened)	Natural	Juvenile	Male and Female	100	0	Observe/Harass	Snorkel/Dive surveys			

**Table 3. Transport Record Information**

1.	<p>Mode(s) of Transportation: FRFH to San Joaquin River. Transported by fish cans to a 500-gallon transport tank and trailer.</p> <p>Transportation Company: USFWS</p> <p>Maximum amount of time between capture and arrival: Transport times would depend on the release location but may be as long as 4 hours.</p> <p>Container Description: 500-gallon transport tank and trailer.</p> <p>Special Care: Water would be oxygenated, supplemented with sodium chloride, moved using a water filled vessel, water would be tempered to 2 degrees Celsius (°C) at the receiving facility.</p> <p>Accompanying Personnel Qualifications: Will be accompanied by experienced biological staff.</p> <p>Facility Title: San Joaquin River</p> <p>Facility: San Joaquin River</p> <p>Affiliation/Organization: Oroville, CA and Friant, CA UNITED STATES</p> <p>Address: Oroville, CA and Friant, CA UNITED STATES</p> <p>Phone Number:</p> <p>Containment Method: Juvenile fish will be released into holding pens in Reach 1 in the SJ River. Eggs will be released into stream side incubation tanks along the San Joaquin River. See list of locations in attached app.</p> <p>Final Disposition: Juvenile fish will be released into the San Joaquin River after being ad clipped and tagged. See Transport Record 5.</p>
2.	<p>Mode(s) of Transportation: FRFH to Silverado or CABA and then to Reach 1 in the San Joaquin River. Transported by fish cans to a 500-gallon transport tank and trailer.</p> <p>Transportation Company: USFWS</p> <p>Maximum amount of time between capture and arrival: Transport times would depend on the location but may be as long as 4 hours. The transport time from FRFH to Silverado Fisheries Base is between 2.5 and 3 hrs. The transport time from FRFH to CABA is 1.5 hrs.</p> <p>Container Description: 500-gallon transport tank and trailer.</p> <p>Special Care: Water would be oxygenated, supplemented with sodium chloride, moved using a water filled</p>

<p>Accompanying Personnel Qualifications:          Facility Title:          Facility          Affiliation/Organization:          Address:          Phone Number:          Containment Method:          Final Disposition:</p>	<p>vessel, water would be tempered to 2 °C at the receiving facility.          Fish will be accompanied by experienced biological staff.          Silverado Fisheries Base          California Department of Fish and Wildlife (CDFW)          Yountville, CA or Davis, CA UNITED STATES          Juvenile fish will be held for quarantine in circular tanks at facilities (Silverado or CABA) and then transported to holding pens in Reach 1 of the San Joaquin River.          After transport from FRFH to the appropriate quarantine facility, juvenile fish will be held for quarantine in circular tanks and then transported once more to holding pens in Reach 1 of the San Joaquin River.</p>
<p>3. Mode(s) of Transportation:          Transportation Company:          Maximum amount of time between capture and arrival:          Container Description:          Special Care:          Accompanying Personnel Qualifications:          Facility Title:          Facility          Affiliation/Organization:          Address:          Phone Number:</p>	<p>SCARF to the San Joaquin River Transported by fish cans to a 500-gallon transport tank and trailer.          USFWS          Transport times would depend on the location but may be as long as 4 hours. The travel time from the SCARF to Hills Ferry Barrier is 2 hrs.          500-gallon transport tank and trailer.          Water would be oxygenated, supplemented with sodium chloride, moved using a water filled vessel, water would be tempered to 2 °C at the receiving facility.          Will be accompanied by experienced biological staff.          San Joaquin River          Hills Ferry and Friant, CA UNITED STATES</p>

Containment Method:	Juveniles and adults will be released into the SJ River. Eggs will be released into stream side incubation tanks along the San Joaquin River. See list of locations in attached app.
Final Disposition:	Fish will be held in net pens or released into the San Joaquin River. Eggs will be reared in stream side incubators and then transferred to net pens tagged and then released. See list of locations in attached app.
4. Mode(s) of Transportation:	Fish will be transported from Sack Dam or Hills Ferry Barrier to Reach 1 in the San Joaquin River when connectivity is not sufficient to allow for natural passage. Fish will be transported by fish cans to a 500-gallon transport tank and trailer.
Transportation Company:	USFWS
Maximum amount of time between capture and arrival:	Transport times would depend on the release location but may be as long as 4 hours.
Container Description:	Water would be oxygenated, supplemented with sodium chloride, moved using a water filled vessel, water would be tempered to 2 °C at the receiving facility.
Special Care:	Will be accompanied by experienced biological staff.
Accompanying Personnel Qualifications:	
Facility Title:	San Joaquin River
Facility	
Affiliation/Organization:	
Address:	Fresno County and Merced County, CA UNITED STATES
Phone Number:	
Containment Method:	Adult fish will be transported and released into Reach 1 of the San Joaquin River to allow for natural spawning.
Final Disposition:	Adult fish will be released into Reach 1 of the San Joaquin River.
5. Mode(s) of Transportation:	Transport from San Joaquin River Reach 1 to Reach 5 or another location when river connectivity is not sufficient for natural passage. Fish will be transported by fish cans to a 500-gallon transport tank and trailer.

Transportation Company:	USFWS
Maximum amount of time between capture and arrival:	Transport times would depend on the release location but may be as long as 4 hours.
Container Description:	500-gallon transport tank and trailer.
Special Care:	Water would be oxygenated, supplemented with sodium chloride, moved using a water filled vessel, water would be tempered to 2 °C at the receiving facility.
Accompanying Personnel Qualifications:	Will be accompanied by experienced biological staff.
Facility Title:	San Joaquin River
Facility Affiliation/Organization:	
Address:	Fresno, CA UNITED STATES
Phone Number:	
Containment Method:	Juvenile fish will be released into the San Joaquin River at Reach 5 or another location downstream of capture site when flows are not sufficient to maintain connectivity. See list of locations in attached app.
Final Disposition:	Juvenile fish will be transported from Reach 1 and released into the lower San Joaquin River at Reach 5 or at the highest upriver location that has connectivity to the ocean.
6. Mode(s) of Transportation:	Juveniles caught in RST in the SJ River will be transported downstream. Transported by fish cans to a 500-gallon transport tank and trailer.
Transportation Company:	USFWS
Maximum amount of time between capture and arrival:	Transport times would depend on the release location but may be as long as 4 hours.
Container Description:	500-gallon transport tank and trailer.
Special Care:	Water would be oxygenated, supplemented with sodium chloride, moved using a water filled vessel, water would be tempered to 2 °C at the receiving facility.
Accompanying Personnel	Will be accompanied by experienced biological staff.

Qualifications:

Facility Title:

Facility Affiliation/Organization:

Address:

Phone Number:

Containment Method:

Final Disposition:

San Joaquin River

Fresno County and Merced County, CA UNITED STATES

500-gallon transport tank and trailer

Juvenile fish will be released into the SJ River at Reach 5 or at the highest upriver location of connectivity.

## B. Notification Requirements and Operational Reports

### National Marine Fisheries Service Contact:

Elif Fehm-Sullivan  
National Marine Fisheries Service  
California Central Valley Area Office  
650 Capitol Mall, Suite 5-100  
Sacramento, CA 95814  
(916) 930-3723  
(916) 930-3629 (FAX)  
Elif.Fehm-Sullivan@noaa.gov

1. Notification of Field Activities: The permit holder shall notify the above contact, via phone, facsimile, or e-mail, at least two weeks in advance of initiating research activities for each reporting period (January 1 through December 31). The required notification shall include: start date(s), location(s), a description of the research projects that will be conducted, a description of the research methods to be utilized, the estimated number of ESA-listed spring-run Chinook that will be taken during the research project, projected end date(s), and the names and affiliations of all personnel who will operate under the permit who are not included as an investigator. The permit holder will also notify the above contact of any other research or monitoring activities occurring in the locations of the permit holder's activities. In addition, no less than two weeks prior to release activities, the permit holder must notify the above NMFS contact with the release strategy based on special conditions 22 and 23 of this permit.
2. Exceeding Authorized Take: The permit holder is not exempt from the ESA section 9 take prohibition for any additional take above that authorized, including mortalities. In the event that the authorized level of take, including mortalities, is exceeded, the permit holder shall notify, via phone, facsimile, or e-mail, the above contact as soon as possible, but no later than two calendar days after the unauthorized take. In the notification, the permit holder shall explain to the above contact the circumstances of the unauthorized take, if the unauthorized take included mortalities, or if the take occurred in a manner not authorized by Permit 17781. The notification shall also include a re-evaluation of the techniques that were used, or an explanation as to why permitted sampling techniques were not at fault for exceeding take. NMFS may evaluate the research project to determine if techniques need to be revised accordingly to prevent additional take. Pending review of these circumstances, NMFS may suspend research activities or amend this permit in order to allow research activities to continue.
3. Taking of Unauthorized ESA-listed Species: In the event any ESA-listed species not included in this permit, or covered by another permit or exemption, is taken during the course of research activities, the permit holder shall notify, via phone or facsimile, the above contact as soon as possible, but not later than two calendar days after the event. In the notification, the permit holder shall explain the circumstances of the unauthorized take. Pending review of these circumstances, NMFS may suspend research activities or amend this permit in order to allow research activities to continue.
4. Transfer of Biological Samples: Biological samples collected from ESA-listed spring-run Chinook are the responsibility of the permit holder and shall be properly

handled until transferred. All tissue samples shall be sent to the California Department of Fish and Wildlife (CDFW) Tissue Archive Lab, 8175 Alpine Ave Suite F, Sacramento, CA 95826 unless otherwise authorized by written approval from NMFS. Any such transfer shall be subject to such conditions as NMFS deems appropriate.

5. Taking of Marine Mammals: In the event any marine mammal is taken during the course of research activities, the permit holder shall notify the above contact by phone, facsimile, or e-mail as soon as possible, but no later than two calendar days after the event. The permit holder shall then submit a written report to the above contact, describing the circumstances of the unauthorized take. Pending review of these circumstances, NMFS may suspend research activities or amend this permit in order to allow research activities to continue.

### C. Permit Reporting and Reauthorization Requirements

National Marine Fisheries Service Contact:

Elif Fehm-Sullivan  
National Marine Fisheries Service  
California Central Valley Area Office  
650 Capitol Mall, Suite 5-100  
Sacramento, CA 95814  
(916) 930-3723  
(916) 930-3629 (FAX)  
Elif.Fehm-Sullivan@noaa.gov

**Monthly Report(s):** Reports shall be submitted monthly when fish are transported and/or reared in the Quarantine, SCARF, or stream side incubator facilities.

Monthly Reports shall include:

- a. Number of live spring-run Chinook transported and associated mortalities, if applicable.
- b. Number of live spring-run Chinook being held/reared at each egg box location and net pen location.
- c. Number of mortality of spring-run Chinook being held/reared at each egg box location and net pen location with reasons for mortalities.
- d. Daily rations by location.
- e. Information fish length and weight when available from inventories.
- f. Other pertinent information as needed.

**Annual Report(s):** The authorization of this permit is contingent upon receipt of annual reports. Annual reports must be submitted online at the *Applications and Permits for Protected Species* (APPS) website, <https://apps.nmfs.noaa.gov>. Once an annual report is submitted to NMFS, the permit holder may continue permitted research activities unless otherwise notified by NMFS. NMFS will notify the permit holder if the annual report is inadequate and more information is required. If information is requested but not supplied, this 10(a)(1)(A) permit may be suspended until the NMFS request is met.

Annual Reports shall include:

- a. Describe any problems and/or any unforeseen effects and any steps taken (or proposed) to resolve such problems.
- b. Describe 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, describe the circumstances. Describe how they were disposed of if it wasn't in the way described in the authorization/permit.
- d. Describe the physical condition of animals taken and used in the permitted activities.
- e. Describe the effects permitted activities had on animals, including any unforeseen responses or effects.
- f. If applicable, describe the method used to estimate take if it differed from your proposed method.
- g. State what steps were taken to coordinate the permitted activities with other permit holders.
- h. If you do not have an electronic version logbook, please submit a hard copy to the address above or send it to the fax number above (please include your permit number on all pages).
- i. Summarize any preliminary findings.
- j. List titles of reports or publications resulting from this reporting period.
- k. Provide any additional findings, results, or information you would like to report or comment on.

**Final Report:** The permit holder shall submit a final report on the APPS website <https://apps.nmfs.noaa.gov> within ninety (90) days of the expiration of this permit summarizing the results of the research and the success of the research relative to its goals.

#### **D. Special Conditions**

1. NMFS will monitor research activities to ensure that the research is operating satisfactorily in accordance with Permit 17781. NMFS will monitor the actual annual take of ESA-listed spring-run Chinook associated with the proposed research activities (as provided in annual reports or by other means). Authorized take may be reduced if population data indicate that the take associated with Permit 17781, or cumulative take

authorizations for the spring-run Chinook, exceeds that which NMFS determines is acceptable.

2. Researchers shall 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.
3. Spring-run Chinook will be handled with extreme care and kept in water to the maximum extent possible during sampling and processing procedures. Adequate circulation and replenishment of water in holding units is required.
4. Spring-run Chinook will not be handled if water temperatures at the capture site exceed 18 degrees Celsius (°C). Under these conditions, fish shall not be collected.
5. When using sedation (tricaine methanesulfonate (MS-222) extreme care shall be taken to use the minimum amount of substance necessary to immobilize ESA-listed spring-run Chinook for handling and sampling procedures. It is the responsibility of the researcher to determine when sedation is necessary to reduce injuries to ESA-listed spring-run Chinook during handling and sampling activities.
6. USFWS will transport spring-run Chinook in a manner that minimizes fluctuations in water quality and the effects of handling and stress. The holding water will be monitored at all times, and requires enriched dissolved oxygen levels to be at or near saturation and water temperature may not vary more than two °C (+ or -) during holding and/or transport.
7. Any juveniles requiring transport between facilities will be moved utilizing a 500-gallon transport tank and trailer. The tank will be filled with water from the FRFH (for transport from FRFH to egg boxes, net pens, or quarantine facilities if needed) or from the San Joaquin River (for transport from egg boxes to net pen or net pens to the San Joaquin River release sites) just prior to transport. If quarantine is required, tanks will be filled with water from the quarantine facilities (Silverado Fisheries Base or CABA). Transport times will depend on the location, but may not exceed 5 hours. Before transferring fish, the water will be tempered to within two °C of the water temperature at the receiving facility.
8. Eggs from IHNV and BKD negative females will be properly disinfected at FRFH and transported for translocation to streamside incubators when they are most shock resistant. As they develop into juveniles they will be transferred to in-river holding pens and tagged and clipped when they reach the appropriate size. Eggs for translocation will not be taken to the SCARF.
9. All spring-run Chinook tissue samples will be preserved as voucher specimens and sent to: CDFW Tissue Archive Lab, 8175 Alpine Ave Suite F, Sacramento, CA 95826.

10. Eggs will be placed in a specialized shipping container (*e.g.* Styrofoam cooler) to reduce excessive movement and limit damage to the egg membrane. Eggs will be segregated 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 °Celsius. A standard vehicle will be used to transport eggs.
11. Individuals will be randomly selected from preferred crosses/trays 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, weight, fork length, ovarian fluid sample number, tissue sample number and corresponding genetic analysis data. These data will be used to select preferred crosses for this permit and 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 [base on the goal of 50 crosses from unrelated individuals (*i.e.* non-siblings)].
  - c. Run Timing - the SJRRP may include natural-origin (NO) fish with only one generation of documented spring-run Chinook phenotype (and lacking phenotypic information for previous generations) from the Feather River into the translocation collections. A maximum of 25% from NOxNO crosses AND 25% from NOx Hatchery Origin (HO) crosses, with a minimum of 50% HOxHO crosses. (NO= natural origin; HO=Hatchery Origin) This design will allow a formal evaluation of whether the phenotype reversion or domestication are significant factors.
  - 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 under Permit 17781 is only authorized for the 60 individuals that will be used for pathogen testing purposes; all other intentional lethal take is not authorized.
13. Quarantine requirements, as defined by CDFW pathologists, will be followed for juveniles being directly released into the San Joaquin River. If quarantine is required, the following methods will be used. Risk assessments for fish transfers will be conducted and based on the USFWS Aquatic Health Policy (713 FW 5). Fish health assessments will be conducted through the CDFW Fish Health Lab (Rancho Cordova, CA) and based on procedures described in the American Fisheries Society blue book: Suggested procedures for the detection and identification of certain finfish and shellfish pathogens (AFS-FHS 2010).
14. ESA-listed salmonids shall be handled with extreme care and kept in water to the

maximum extent possible during sampling and processing procedures. Adequate circulation and replenishment of water in holding units is required. When using gear that captures a mix of species, ESA-listed salmonids shall be processed first and be released as soon as possible after being captured to minimize the duration of handling stress.

15. The juvenile downstream migrant traps (rotary screw traps) shall be checked every morning (or more frequently as conditions warrant) of operation at a minimum to remove captured fish and debris. Additionally, to minimize mortality, traps shall be checked more frequently during periods of peak migration, high flows, and/or debris levels during storm periods to minimize mortality. The traps shall be adequately removed to allow both upstream and downstream adult ESA-list salmonids passage during high flow events. Additionally, during periods of operation, any adult ESA-listed salmonids captured in the downstream migrant traps shall be processed first and immediately released downstream of the trap.
16. Stream side incubators will be equipped with a flow through water system, and monitored daily for dissolved oxygen and temperature. Dissolved oxygen levels should be maintained near saturation (approximately between 80-100%), and water temperature should not exceed 20°C. If dissolved oxygen level drop below 80% saturation then the water will be oxygenated using bottled oxygen with oxygen stones and impellor driven aerators or fish densities will be lowered by, for example, thinning fish to other tanks. Both total suspended solid and carbon dioxide levels will be maintained at or below 10 mg/L. The tanks will be cleaned as needed, and the automatic feeders would be checked and reloaded once a day. The maximum allowable density index would be 0.15 lb/ft<sup>3</sup>/in as proposed by Banks (1994) and Ewing and Ewing (1995) for spring-run Chinook. Depending on the number and size of fish, multiple tanks may be necessary as not to exceed the maximum density. As fish grow the density will increase, thus fish may need to be split into multiple tanks as they grow. Feeding and growth rates will be monitored, per the SJRRP Draft HMGP associated with permit 14868. This information would be used to determine densities and when/if multiple tank(s) are necessary.
17. Under Permit 17781, only researchers that are trained and qualified can perform PIT and acoustic tagging on ESA-listed salmonids. Mr. Robert Clark must notify NMFS prior to tagging to confirm that researchers have been properly trained to perform PIT and acoustic tagging procedures on juvenile ESA-listed salmonids and provide documentation of training to NMFS prior to conducting research.
18. Only juvenile spring-run Chinook that are greater than 60 mm FL and in good condition will be PIT tagged.
19. Tag burden for acoustic tags can be no greater than 5% of body weight for spring-run Chinook.
20. All marked, tagged, and subsequently recaptured spring-run Chinook must be documented.

21. The following conditions must be met when using calcein marking:

- a. Only fish 2.0 grams or less may be used for calcein marking.
- b. Coordination with Ms. Bonnie Johnson on numbers of fish to be marked must occur. Phone: 406-994-9905 Fax: 406-582-0242 [bonnie\\_johnson@fws.gov](mailto:bonnie_johnson@fws.gov)
- c. Method of administration: Immersion: standing-bath treatment only.
- d. Treatment dosage: Option A: 125 - 250 milligrams calcein per liter Option B: 2.5 - 5.0 grams calcein per liter (finfish only).
- e. Treatment regimen: Option A: Treatment duration is 1 - 6 hours. Option B: Treatment duration is 1 - 7 minutes. (Note: Treatment may include a pre-treatment with a 1 - 5percent salt solution for ~3.5 minutes.) Calcein may be applied as a single treatment, or repeated treatments.
- f. Withdrawal period: None for fish; they may be released immediately following treatment for those treated at less than 2 grams and for Federally Threatened and Endangered species.
- g. Required test parameters: Investigator must collect mark retention and mortality data. Investigator should also report general fish behavior and any adverse effects relating to treatment.

Limitations or restrictions on use: Treatment is restricted to finfish having a body weight of 2 grams or less. Repeated treatments may be conducted to establish multiple marks. However, an interval of at least 2 days should be observed between treatment events. No discharge of calcein marking solution is allowed. Although used calcein marking solution may be stored on station in a secure, leak-proof container, it must ultimately be disposed of according to procedures detailed in a general Waste-stream profile (see INAD Study Protocol for specific instructions). Investigator must follow all instructions in the Study Protocol for INAD 10-987 regarding drug acquisition and handling, fish treatment and disposition, and data reporting requirements.

22. Spring-run Chinook juveniles will be released either volitionally or in adjacent low moving water near the net pens and allowed to migrate downstream unassisted between January and April. Release of spring-run Chinook can only occur within the nonessential experimental population of spring-run Chinook in the San Joaquin River as defined in 50 CFR 223.301(b). During the holding period, fish health and temperature conditions will be carefully monitored. Juveniles to be released will be placed in net pens below Friant Dam for a minimum of 3 days to acclimate to the San Joaquin River, after which they will be transported to other locations in the San Joaquin River depending on conditions as follows:

- a. Good Condition: Good conditions are defined as complete juvenile passage (i.e., full river connectivity, passage at structures, and stream temperatures below migration objectives of 18 °C) between Friant Dam to the confluence of the Merced River. Holding time would be dependent on the length of time “good” conditions are expected, based on daily monitoring of flow and temperature conditions. If stream temperatures exceed 22 °C or fish mortality exceeds 2 percent, juveniles will immediately be released in areas of the river that have connectivity to the ocean to migrate downstream. Under good conditions,

- juveniles will be released from the net pens below Friant Dam.
- b. Moderate Condition: Moderate conditions are defined as reduced levels of juvenile passage (i.e., areas of no river connectivity, areas of no passage at structures, and stream temperatures above migration objectives of 18 °C) between Friant Dam and the Merced River confluence which prevent full volitional migration and require juveniles to be released at a location downstream of passage barriers. Under moderate conditions, juveniles will be placed in holding pens below Friant Dam for a minimum of 3 days to acclimate to the San Joaquin River. Then they will be transported to a release location. Release location would depend on the location of juvenile passage barriers, but sites include: 1) below Mendota Pool (if volitional migration through Mendota Pool is limited by operations); 2) below Sack Dam (if volitional migration below Mendota Pool through Sack Dam is limited by release quantity, temperature, or diversions into Arroyo Canal); 3) in Reach 5, likely downstream of Hwy 165 (if flow release quantity and quality upstream limit volitional outmigration). If the release location was below Mendota or Sack dams, fish would be held for additional imprinting in net pens in Mendota Pool for a minimum of 3 days prior to release. If the release location will be in Reach 5, fish will be held in net pens for additional imprinting in Mendota Pool for a minimum of 3 days and in Reach 5 for a minimum of 3 days prior to release. If stream temperatures exceed 22 °C or fish mortality exceeds 2 percent, juveniles will immediately be released in areas of the river that have connectivity to the ocean to migrate downstream.
- c. Poor Condition: Poor conditions are defined as significantly reduced juvenile passage conditions (i.e., areas of no river connectivity, areas of no passage at structures, and stream temperatures above migration objectives of 18 °C) between Friant Dam and the Merced River that require release of juveniles in Reach 5 without additional holding between Friant Dam and the release site. Under poor conditions, juveniles will be placed in net pens below Friant Dam for a minimum of 3 days to acclimate to the San Joaquin River, or acclimated directly in Reach 5 for 3-7 days if projections of Reach 5 temperatures precluded additional holding below Friant Dam. Juveniles will be transported to a release location in Reach 5, below all potential barriers to outmigration, and held in net pens for 3-7 days for acclimation prior to release. During the holding period, fish health and temperature conditions would be monitored. If stream temperatures exceed 22 °C or mortality exceeds 2% of fish, juveniles would be immediately released to migrate downstream.
- d. Unsuitable Conditions: Unsuitable conditions are defined as no river connectivity, no passage at structures, or stream temperatures above migration objectives of 18 °C between Friant Dam and the Merced River that prevent the release of juveniles anywhere within the San Joaquin River Restoration Area. If conditions in the San Joaquin River are unsuitable at the time fish are to be received, fish will not be transported to the San Joaquin River. In addition, if conditions in the Delta become severe enough that the survival of spring-run Chinook would be appreciably lower than rates used to calculate expected returns in this permit application, spring-run Chinook will not be transported to the San Joaquin for release. If spring-run Chinook raised at SCARF or stream

side incubators cannot be released, USFWS must work with NMFS to develop a suitable plan for the disposition of those fish.

23. Temperatures for release will be monitored and reported to NMFS in real time, as follows:
  - a. At the proposed release sites, real time temperatures will be collected daily in the AM for a minimum of 4 days prior to proposed release date.
  - b. The 22 °C criterion of Special Condition 22 will be measured using temperature data collected from CDFW temperature sensor stations, or an alternative monitoring system approved by and shared with NMFS, along the San Joaquin River within the Restoration Area. The daily maximum temperature, for a minimum of 3 days prior to proposed release, will be used to determine the appropriate release location and if the 22 °C criterion is met. Temperature monitoring will continue to occur during the release period.
  - c. The daily maximum temperature must be below the 22 °C threshold for a minimum of 4 days prior to collection of fish to be translocated.
24. The maximum allowable density of fish in net pens will be 0.15 lb/ft<sup>3</sup>/in.
25. Within one year of issuance of this permit USFWS must work with NMFS to submit a plan, for NMFS approval, specifically identifying implementation of a segregation protocol which will be implemented to ensure to the greatest extent possible the prevention of fall-run genetic introgression into the spring-run Chinook population and fall-run superimposition on spring-run Chinook redds.
26. Implementation of the aforementioned segregation protocol must be complete within two years of issuance of this permit.
27. If any issues arise associated with this permit, USFWS must work with NMFS to develop a suitable plan for the disposition of the fish rearing and being held in the stream side incubators, net pens, and SCARF in addition to any adult spring-run Chinook that return to spawn before a segregation protocol is in place.
28. If conditions prevent juvenile spring-run Chinook from being placed into the river during the first year of this permit, all subsequent placement year requirements for ancillary yearlings which are currently allowed to be placed in the river in years 2-5 of this permit will then be changed to years 3-5 of this permit, and adult placement year requirements which currently allow placement in years 4-5 will be changed to year 5.
29. If take estimates are exceeded for the periods identified in the section above, the project shall be suspended and NMFS shall be notified within one calendar day, or on the next working day.

## E. General Conditions

1. The permit holder shall ensure that ESA-listed spring-run Chinook are taken only by the means, in the areas, and for the purposes set forth in the permit application, as limited by the special conditions in this permit.
2. Should NMFS determine that a sampling procedure provided for under this permit is no longer acceptable, the permit holder shall immediately cease using such procedure until an acceptable procedure has been prescribed by NMFS.
3. The permit holder, in effecting the take authorized by this permit, is considered to have accepted the conditions of this permit and shall be prepared to comply with the provisions of this permit, the applicable regulations, and the ESA.
4. The permit holder is responsible for the actions of any individual operating under the authority of this permit.
5. The permit holder, personnel, or designated agent acting on the permit holder's behalf, shall possess a copy of this permit when conducting the activities for which take of ESA-listed spring-run Chinook is authorized herein.
6. The permit holder may not transfer or assign this permit to any other person(s), as person is defined in section 3(12) of the ESA. This permit ceases to be in force or effective if transferred or assigned to any other person without prior authorization from NMFS.
7. The permit holder must obtain any other Federal, state, and local permits/authorizations necessary for the conduct of the activities provided for in this permit.
8. Any personnel operating under Permit 17781 that require Federal or State licenses to practice their profession shall be duly licensed under the appropriate law.
9. The permit holder shall coordinate with other researchers to ensure that unnecessary research duplication and/or adverse cumulative effects to ESA-listed spring-run Chinook shall not occur as a result of the permit holder's activities.
10. The permit holder shall allow any NMFS employee(s), or any other person(s) duly designated by NMFS, to accompany field personnel during the activities provided for in this permit and/or to inspect the permit holder's records and facilities if such records and facilities pertain to activities for which take of ESA-listed spring-run Chinook is authorized by this permit, relate to ESA-listed spring-run Chinook, or otherwise pertain to NMFS' responsibilities under the ESA.
11. Under the terms of the regulations, a violation of any of the conditions of this permit will subject the permit holder, and/or any individual who is operating under the authority of this permit, to penalties as provided for in the ESA.
12. The provisions of this permit may be amended by the NMFS, West Coast Region, California Central Valley Area Office, upon reasonable notice to the permit holder.

13. 50 CFR section 222.23(d)(8) provides for a reasonable fee to be charged to cover the costs of the issuance of permits under the ESA. The fee for this permit has been waived.
14. This permit may be revoked by NMFS if the activities authorized by this permit are not carried out, if the activities are not carried out in accordance with the conditions of the permit and the purposes and requirements of the ESA and its implementing regulations, or if NMFS otherwise determines that the findings made under section 10(d) of the ESA no longer hold.
15. Any falsification of annual reports or records pertaining to this permit is a violation of this permit.
16. The permit holder, in signing this permit, has accepted and will comply with the provisions of this permit, applicable regulations (50 CFR 222), and the ESA.

**F. Penalties and Permit Sanctions**

- 1. Any person who violates any provision of this permit is subject to civil and criminal penalties, permit sanctions, and forfeiture as authorized under the ESA and 15 CFR part 904.
- 2. All permits are subject to suspension, revocation, and denial in accordance with the provisions of subpart D [Permit Sanctions and Denials] of 15 CFR part 904.

*William W. Stelle Jr.*

*3-21-14*

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*WWS* William W. Stelle Jr.  
Regional Administrator  
West Coast Region  
National Marine Fisheries Service

Date

U.S. Fish and Wildlife Service

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Robert Clark  
Fisheries Program Supervisor  
Pacific Southwest Region  
U.S. Fish and Wildlife Service

Date

**F. Penalties and Permit Sanctions**

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*Maria Lu*

*3-21-14*

*for* William W. Stelle Jr.  
Regional Administrator  
West Coast Region  
National Marine Fisheries Service

Date

Robert Clark  
Assistant Regional Director  
U.S. Fish and Wildlife Service

Date

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*Maria Lu*

*3-21-14*

*for* William W. Stelle Jr.  
Regional Administrator  
West Coast Region  
National Marine Fisheries Service

Date

*Robert Clark*

*3/21/14*

Robert Clark  
Assistant Regional Director  
U.S. Fish and Wildlife Service

Date