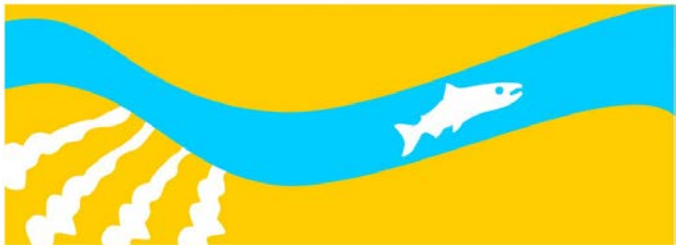
Study 46

Donor Stock Monitoring

Final
2014 Monitoring and Analysis Plan

SAN JOAQUIN RIVER
RESTORATION PROGRAM



November 2013

San Joaquin River Restoration Program

2014 Monitoring and Analysis Plan

Donor Stock Monitoring (year 3 – rotary screw trapping)

Fish Management Work Group

Principal Investigator(s): Zac Jackson (USFWS)

Contact Info. Of Principal Investigator(s): Zachary_Jackson@fws.gov

Proposed Staff: none; grant to CSU, Chico Research Foundation

County(ies) affected by Study: Butte, Glenn, Colusa, Sutter

I. Study Management

A. Study Description

1. History or Background

a. General project background discussion.

The San Joaquin River Restoration Program (SJRRP) is an effort whose charge is to execute 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 U.S. Fish and Wildlife Service (USFWS), in accordance with the Settlement, is proposing to reintroduce Central Valley spring Chinook salmon (*Oncorhynchus tshawytscha*) to the San Joaquin River (SJR) upstream of the mouth of the Merced River in the Central Valley of California.

The Central Valley spring Chinook salmon is listed as threatened under the Federal Endangered Species Act (ESA) and is listed as threatened under the California ESA (CESA). NOAA Fisheries has prioritized the SJR from Friant Dam to the Merced River confluence (the Restoration Area) as a primary focus for recovery for spring Chinook salmon in the Southern Sierra Nevada Diversity Group. The reintroduction of spring Chinook salmon into the SJR Restoration Area will meet one of the Settlement's primary

goals as stated above, in addition to ultimately contributing to the recovery of spring Chinook salmon viability in the Central Valley.

The overall objective of reintroducing spring Chinook salmon into the SJR is to collect and reintroduce multiple life stages to develop a naturally reproducing, self-sustaining population. Another clear objective within the proposed action is that these collections not have an adverse impact on the population viability of the ESU and the populations within each potential source stream.

b. Why is the study necessary (context of settlement requirements, reintroduction efforts, interim flow information needs, etc.)?

A variety of methods have been used to evaluate relative abundance and temporal distribution of spring run Chinook salmon in potential donor streams over the years (e.g., rotary screw traps, carcass and snorkel surveys, video and hydroacoustic monitoring; Low 2007). Due to funding limitations, some potential donor stock streams (e.g., Butte Creek) are not currently implementing monitoring programs necessary to provide the information required by the Donor Stock Collection Work Group to develop collection requests.

Butte Creek currently has the largest of three sustaining populations of Central Valley spring Chinook salmon, the others being in nearby Deer and Mill creeks. Prior to listing under the ESA and CESA, population metrics and basic life history information for Butte Creek spring Chinook salmon was extremely limited. The current study by the California Department of Fish and Game (CDFG), which began in 1995, was initiated to provide a more comprehensive basis for directing and assessing restoration efforts for eventual recovery and delisting.

The potential Butte Creek donor population should be monitored and the collection of spring Chinook salmon for reintroduction in the SJRRP would be determined and authorized according to the results of the monitoring and through continuing discussion between the implementing agencies. At no time would collection exceed a level that has been determined to be beyond a threshold which the potential for additive loss to the Butte Creek donor population is likely to occur.

The first year of study occurred during the January-June, 2013. However, historical sampling efforts in Butte Creek show that yearlings generally emigrate with the first significant rain event of the fall season. Additionally, historical sampling efforts have

documented fry emigrating as early as mid-November. In order to characterize the entire outmigration period and increase the likelihood of capturing yearling emigrants, year 3 funding is requested for an expanded sampling period to include November and December.

2. **Site Description**

    a. Location of the study

Juvenile monitoring will be accomplished through operation of one rotary screw trap and one diversion fyke trap located at the Parrott-Phelan Diversion Dam southeast of Chico, CA.

3. **Study Purpose**

    a. Statement of study goals

Project is providing baseline population information essential for assessment of Butte Creek as a potential donor stock for the SJRRP, recovery and delisting of spring Chinook salmon, as well as directing and assessing restoration actions on Butte Creek.

    b. List the objectives of the study

1. Identify and monitor time of alevin emergence
2. Monitor and document juvenile size at emigration
3. Develop a measure of juvenile relative abundance
4. Document rearing and emigration patterns

4. **What are the management or policy implications of the study?**

Incorporation of donor stocks with high genetic diversity has been identified as the reintroduction strategy most likely to succeed. However, due to the regulatory status of spring Chinook salmon in California, care must be taken to ensure that potential donor populations are not impacted by reintroduction efforts elsewhere. Information describing the temporal and spatial distribution of potential donor stock populations will be used to develop donor stock collection requests that reduce adverse impacts to donor and reintroduction stocks.

B. Study Organization and Responsibilities

1. **Person(s) responsible (names, title, phone numbers, addresses, e-mail) and role.**

Zac Jackson
Fish Biologist
US Fish and Wildlife Service
209-334-2968 x408
850 S. Guild Ave.,
Lodi, CA 95240
Zachary_Jackson@fws.gov.

Responsibilities include administration of the grant agreement.

CSU, Chico Research Foundation will be responsible for financial reporting and coordination with CDFG staff for hiring and compensating field technicians to be employed by CSU, Chico Research Foundation. The CDFG will oversee and direct all project activities and personnel during field activities, to include quarterly and annual field reporting, annual and end of project final report, quality control and quality assurance of data.

C. Field Work to be performed

Juvenile monitoring will be conducted and supervised by the CDFW staff and Chico Research Foundation technicians and will include the use of CDFW owned traps. Trapping will occur through the juvenile emigration period (November-June). Juvenile trap locations for Butte Creek will be at Parrott-Phelan Diversion Dam (PPDD) to include one rotary screw trap and one diversion trap. All traps will be adjusted daily, or more often as needed, to allow for safe operation and access as well as to maximize trapping efficiency. The PPDD side is directly downstream of the spring Chinook salmon spawning reach and upstream of the fall Chinook salmon spawning reach. Traps will be fished 24 hours per day, seven days per week and will be checked daily, or more frequently as conditions warrant. All fish will be netted from trap live-wells and immediately placed in buckets of fresh river water. Salmonids will be immediately sorted from other species, segregated into separate buckets, and processed. All captured juveniles will be counted. A random subsample of 50 juvenile salmon will be measured to the nearest mm FL and weighed. For genetic analysis, a 1 square mm caudal fin clip

will be obtained from up to 100 individual juveniles larger than 80-mm fork length (FL). Fish will be released back into Butte Creek immediately downstream of the trap site.

D. Study Resource Needs

1. **Detailed budget**

Staff time - $51,331.36
Staff overhead (6% for outside CVPIA) - $3,079.88
Study Total: $54,411.24

E. Compliance Considerations

1. **Route study through FRRT for compliance considerations**

This study is permitted by CDFW Butte Creek staff.

F. Invasive Species: What measures will be taken to ensure field staff does not spread invasive plants or animals to new sites during the study?

HACCP plans are developed for this activity.

G. Due Dates and Products

1. **Describe the timeline for the study, with due dates for deliverables, including drafts (this should relate to section I.A.2.c).**

This study will be implemented in November of 2014. Quarterly reports will be available January 31, April 30, and July 31, 2015 and the annual summary report will be available September 30, 2015. Information will be provided to the mid-year and annual technical reports as appropriate.