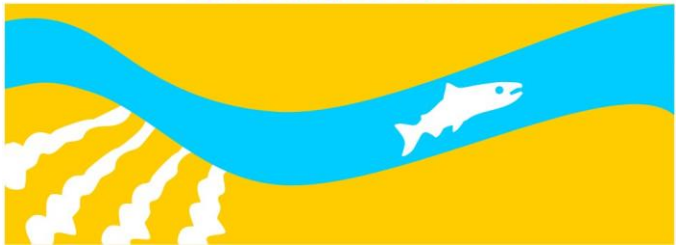
Study 36

Segregation Weir – Design, Location, Operations, and Permitting

Final
2015 Monitoring and Analysis Plan

SAN JOAQUIN RIVER
RESTORATION PROGRAM



January 2015

1.0 Segregation Weir – Design, Location, Operations, and Permitting

Theme(s):

- Fish reintroduction

Related Question(s): Questions not developed for this theme to date.

1.1 Statement of Need

The 10(a)1(A) permit 17781 requires the U.S. Fish and Wildlife Service (USFWS) to develop a Segregation Protocol by April 2015 to ensure to the greatest extent possible, the prevention of fall-run genetic introgression to the spring-run population and fall-run superimposition on spring-run redds. The segregation protocol must be implemented by April 2016. An evaluation of a segregation weir is included in the Hatchery Genetics Management Plan. During the initial 5-year time frame of the 10(a)1(A) permit, it is anticipated that genetic introgression and redd superimposition will be minimized by controlling the timing and number of fall-run that are "trapped and hauled" to Reach 1 and possibly by using a protective device (e.g., metal grate) to protect spring-run redds. If monitoring determines that the potential for genetic introgression is greater than 2 percent or if fall-run are likely to superimpose their redds on spring-run redds, then a segregation weir may be needed to separate spawning spring-run from fall-run.

The objectives of the 2014 study plan for a segregation weir have been modified for 2015 to focus the evaluation on potential locations, designs, operations and permitting requirements for a segregation weir in Reach 1 if it is deemed necessary. A pilot study to install a segregation weir will not be implemented until studies have demonstrated that excessive genetic introgression or redd superimposition occurs. The segregation protocol will define the thresholds for excessive levels of genetic introgression and redd superimposition.

1.2 Background

The San Joaquin River Restoration Program's (SJRRP) Restoration Goal is to reintroduce both spring-run and fall-run Chinook salmon between Friant Dam and the confluence with the Merced River. In the event that competition, inadequate spatial or temporal segregation or other factors determined to be beyond the control of the Parties make achieving the Restoration Goal for both spring-run and fall-run Chinook salmon infeasible, then priority shall be given to restoring self-sustaining populations of wild

spring-run Chinook salmon. It is currently unknown whether spring-run and fall-run can coexist in the Restoration Area and whether a segregation weir will be necessary.

1.3 Anticipated Outcomes

The study will result in several outcomes:

- Identify potential locations for a segregation weir in Reach 1 relative to channel suitability and access.
- Determine potentially effective weir designs based on experience with the Hills Ferry Barrier and other segregation weirs, such as the one currently used on Clear Creek.
- Determine the best weir operations regarding timing, maintenance (debris removal), potential vandalism, and effectiveness, based on experience with other barriers and weirs.
- Determine permitting requirements.

1.4 Methods

Type of Study: Combination of literature and field studies.

Reaches: Reach 1 and other Central Valley rivers.

Boat surveys may be used to investigate potential weir locations in Reach 1 where spring-run are likely to hold and spawn. Desirable locations for weirs include coarse substrate, uniform channel cross-section, well-formed riverbanks, and the ability to portage water craft, if necessary. The evaluations can be conducted whenever base flows are released and no permits will be required. SJRRP outreach staff will assist with determining whether access exists for each potential site.

1.5 Deliverables and Schedule

Updates will be provided biannually. Draft and final reports will be produced after spring-run holding and spawning habitats have been documented in the Restoration Area for several years, potential weir locations have been identified, and other Central Valley weir operations have been investigated regarding design, operations, and permitting requirements.

1.6 Budget

The total cost estimate is $23,233 for USFWS for fiscal year 2015 (FY15) and includes two weeks of biological technician time for field reconnaissance and associated travel, literature review, and reporting.

Table 1-1. Proposed 2015 Budget

Task	Cost
Staff (0.6 FTE)	$14,646
Travel	$3,103
Subtotal	$17,749
Overhead (30.9%)	$5,484
Total	**$23,233**

Key:
FTE = full-time equivalent

1.7 Point of Contact / Agency Principal Investigator

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