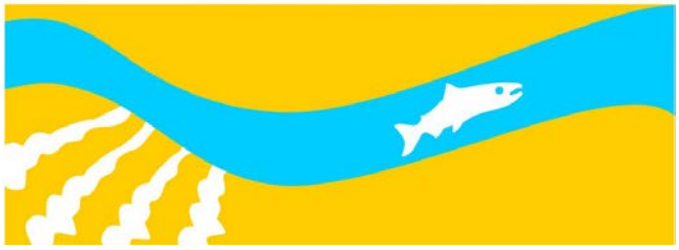
Study 36

Segregation Weir – Placement, Monitoring and Objective

Public Draft
2014 Monitoring and Analysis Plan

SAN JOAQUIN RIVER
RESTORATION PROGRAM



September 2013

San Joaquin River Restoration Program

Fall - Run Monitoring Activities

Segregation Weir – Placement, Monitoring and Objective

1. Statement of Need/Objective:

A segregation weir is needed to separate spawning spring-run from fall-run Chinook salmon to avoid superimposition and possible hybridization. Similar methods have been used in other Central Valley streams (i.e. Clear Creek) successfully. The timing of spawning for the two runs has an overlap as spring-run are expected to spawn from September to November and fall-run should spawn from October to December. This overlap may cause hybridization due to both species being present at the same time or the fall run may superimpose previously constructed redds made by earlier spawning spring run. The objective is to adequately segregate spring-run Chinook salmon from fall-run Chinook salmon in accordance with the San Joaquin River Restoration Program settlement, allowing both species to reestablish in the restoration area.

Based on the conceptual models support of the monitoring and analysis plan (MAP) it is important to try and answer the question: Will redd superimposition or genetic introgression by fall-run spawners affect spring-run salmon production? If so, will a segregation weir be effective and how and where will segregation weirs be necessary to keep fall and spring runs spatially separate? This document also addresses the needs of part IV (d) for the Implementation Plan for Brood Year 2013 Fish Reintroduction Actions (Draft in Production by FMWG for PMT).

2. Background:

The San Joaquin River Restoration Program restoration goal of reintroducing spring-run Chinook salmon below Friant Dam will require the movement of out-of-basin salmon into the Restoration Area. In addition the program will begin to move fall run that are lost above Hills Ferry Barrier into the upper reaches of the Restoration Area where both spring and fall run salmon are expected to spawn. On pages 17-18 paragraph 14 (a) of the settlement it states that: “In the event that competition, inadequate spatial or temporal segregation or other factors determined 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”. Implementing a segregation weir that allows spring-run Chinook salmon redds to be minimally bothered by other species until emergence should aid in prioritizing spring-run for reintroduction purposes.

3. Placement:

Constructing a weir in reach 1A above the Highway 41 Bridge where most of the spawning is expected to occur could separate the runs and allow for both runs to be present in the restoration area. Previous studies suggest that temperatures are close to or slightly above the target temperature set for holding and spawning (21.1 ºC and 15.5 ºC respectively). The HEC5Q model shows that from Friant Dam to 4.1 miles downstream temperatures average below 15.5 ºC through August, and to 5.1 miles downstream starting in September through October. Looking at

previous meso-habitat data provided by CDFW suggests nearly ideal conditions at river mile 261.2. Issues with access at this location may prove difficult. Vulcan, another location within reach 1A should provide better access and is being looked at as a primary location for a segregation weir. Easy access by road is a consideration for trucking weir materials to the site.

Alaskan style resistance weirs like those operated by FISHBIO on the Stanislaus would be ideal, as they work well under variable flow conditions and allow for upstream and downstream boat passage (See Figure 1). Small boats would have portage opportunities above and below the weir as well. The floating end is easily collapsible, providing a structure that is easy to maintain and clean.

4. Monitoring:

Monitoring would need to be done on a daily basis if not twice daily while the weir is in place. Monitoring the site would help with vandalism issues, debris build up, and assessing the weir for structural degradation and gaps where bank erosion may have taken place. If vandalism is a large concern the use of motion sensored wildlife cameras could be used in addition to daily (bi-daily) crew checks. Ideally the weir would only be in place for as short of duration as possible, most likely October through mid-November annually. USFWS and/or CDFW would be responsible for supplying field personnel responsible and properly trained in weir checks.

5. **Budget** as previously proposed by USFWS and CDFW:

Total Equipment – $75,000

Weir materials – $60,000

Generators/vehicle lease – $12,500

Misc. supplies (lighting, etc.) – $2,500

Equipment overhead (6%) – $4,500

Total Staff time – $147,693.60

Bioday rate (this rate includes salary, benefits, administrative costs, use of vehicles, gasoline, office materials, etc. $750 day for technical)

10 biodays for 1 to assist with planning and design - $7,500

75 biodays to construct and operate weir (2 technical staff, $750 rate) - $112,500

0.10 FTE – Field Study Coordinator – for oversight of all FWS lead MAP studies - $23,693.60

Travel - (4 staff for 2 weeks (construction)) = $4,000

Study Total: $222,693.60

6. Point of Contacts/Agency Responsibilities:

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Responsibilities include staffing the study for USFWS, study design and implementation, monitoring equipment.

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Responsibilities include coordinating DFW staff for weir installation and maintenance, investigation of locations, and report preparation.

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Responsibilities include assisting with report preparation, study design and implementation, and aiding with weir set-up and placement if feasible.

Figure 1. A motorized boat passing over a floating resistance weir.