Reclamation Point(s) of Contact: John Hannon

American River Salmonid Habitat Restoration

Fact Sheet Number

FY18_030

Project Description

This is the implementation of an annual project in the American River to improve salmonid spawning and rearing habitat with a primary focus on providing additional juvenile rearing habitat. The project will be accomplished within a cooperative agreement with the Sacramento Water Forum/City of Sacramento. The project creates and enhances juvenile rearing habitat for Chinook Salmon and steelhead by increasing floodplain and side channel habitat, incorporating new woody material, and adding coarse substrate. This is a continuation of annual restoration actions that started in 2008. The 2018 project location is planned to be at upper Sailor Bar.

Project Need

Dams, flow alteration, and bank protection projects have reduced the quantity and quality of salmonid habitat in the lower American River. The gravel budget shows the channel has down cut and connectivity with side channels and floodplain habitats have been decreasing. The maintenance and improvement of instream habitats is essential to meeting the CVPIA doubling goal and species recovery goals. The American River provides about 20 percent of Central Valley salmonid production and presents many opportunities for increasing productivity.

Project Objectives

The objective is to provide suitable rearing habitat adjacent to and downstream of spawning areas in the American River. This expected to increase the abundance and size of juvenile salmonids emigrating from the American River.

Schedule of Project Milestones (When Will Data Collection, Analyses, and Reporting Elements be Completed?)

Date	Milestone
03/01/2018	Funding available
06/01/2018	Design complete
08/01/2018	Implementation begins
10/01/2018	Implementation finished
09/30/2019	Annual monitoring results reported

Expected FY 2018 Project Cost

$1,000,000

Is this Project for a CVP/SWP Biological Opinion or Water Right Decision Compliance? If so, Which Specific Requirement?

The work is done under the authority of the CVPIA, Section 3406(b)(13).

Investigator

John Hannon and Lilly Allen
Water Forum

Reclamation Point(s) of Contact: John Hannon

East Sand Slough Restoration - Sacramento River

Fact Sheet Number

FY18_031

Project Description

East Sand Slough is along the east side of the Sacramento River just upstream of the Red Bluff Diversion Dam. The area was inundated when the Red Bluff Diversion Dam gates were lowered. Now that the gates are permanently raised the area is a dry side channel and becomes inundated only at flows above 20,000 cfs. When flows rise and subsequently subside salmonids are stranded and are quickly preyed upon, stuck on dry ground, or succumb to high temperature on sunny days. This project would lower the elevation of the side channel to provide a perennial flow through the area, provide floodplain habitats over a wider flow range, and include woody material additions to enhance juvenile rearing. annual restoration actions that started in 2008. The 2018 project location is planned to be at upper Sailor Bar.

Project Need

Dams, flow alteration, and bank protection projects have reduced the quantity and quality of salmonid habitat in the Sacramento River. Habitat surveys show that meander bends have been cut off and meander belts reduced. Side channel rearing habitat and floodpain features upstream of Red Bluff are few. The maintenance and improvement of instream habitats is essential to meeting the CVPIA doubling goals and species recovery goals. The endangered Sacramento River winter-run Chinook juveniles are present in the area at the exact time that flows are reduced and habitats diminished. Juvenile rearing habitat opportunities need to be increased to sustain these fish.

Project Objectives

The objective is to provide suitable rearing habitat downstream of spawning areas in the Sacramento River. Habitat quality in general decreases as fish move down the Sacramento River and predation is believed to increase. This project attempts of provide habitat in the upper river so that juveniles will stay and grow larger before migration to the ocean. This expected to increase the size and survival potential of juvenile salmonids emigrating from the upper reaches of the Sacramento River. This initial year of funding is intended to jump start the project, develop partnerships, begin permitting and determine feasibility.

Schedule of Project Milestones (When Will Data Collection, Analyses, and Reporting Elements be Completed?)

Date	Milestone
03/01/2018	Funding available
09/30/2018	Feasibility assessment completed
06/01/2019	Design complete (needs FY19 funds)
10/01/2019	Permits obtained (needs FY19 funds)
11/01/2019	Construction begins (needs funds)

Expected FY 2018 Project Cost

$100,000

Is this Project for a CVP/SWP Biological Opinion or Water Right Decision Compliance? If so, Which Specific Requirement?

The work is done under the authority of the CVPIA, Section 3406(b)(13).

Investigator

John Hannon and Jane Dolan
Sacramento River Forum

Reclamation Point(s) of Contact: John Hannon

Sacramento River Salmonid Habitat Restoration

Fact Sheet Number

FY18_032

Project Description

The project improves juvenile salmonid rearing habitat in the Sacramento River Keswick to Red Bluff area through the reconnection of historic side channels cut off from the Sacramento River and the creation of new side channels. It includes activities such as woody material additions and rearing habitat structure placement. Sites are designed to provide habitat at the minimum Sacramento River flows that often occur during the peak of winter-run Chinook rearing and should provide functional habitat over a range of flows. Improving rearing habitat in the Sacramento River is a high priority in the CVPIA SIT process.

Project Need

Salmonid rearing habitat in the Sacramento River has been reduced by the alteration in flows, reduction in coarse sediment and woody material inputs, and construction of bank protection features. Chinook salmon seek suitable rearing habitats when they emerge from the gravel. When suitable habitats are not present they move downstream in search of suitable rearing areas. Historically ideal habitats were present in the lower river so chance for survival was high. Currently lower river habitats are degraded so providing better upper and middle river habitat so fish can grow larger before emigrating should benefit the population.

Project Objectives

The objective is to improve juvenile salmonid rearing habitat in the upper and middle Sacramento River so that a portion of the population has ample opportunity to grow larger before emigrating.

Schedule of Project Milestones (When Will Data Collection, Analyses, and Reporting Elements be Completed?)

Date	Milestone
03/01/2018	Funding available
09/30/2018	South Cypress project completed and Anderson River Park side channels permitted for construction
09/30/2019	Annual monitoring report and Anderson River Park side channels completed
10/01/2019	Rancho Breisgau, or similar, project underway

Expected FY 2018 Project Cost

$1,800,000

Is this Project for a CVP/SWP Biological Opinion or Water Right Decision Compliance? If so, Which Specific Requirement?

The work is done under the authority of the CVPIA, Section 3406(b)(13).

Investigator

John Hannon and Upper Sacramento Restoration Team

Reclamation Point of Contact: John Hannon

Sacramento River - Improve Spawning Habitat Above Temperature Control Points

Fact Sheet Number

FY18_033

Project Description

The projects improves spawning habitat upstream of the temperature control point in the Sacramento River. The primary temperature control point, above which 99% of winter-run Chinook spawn, is at the Bonneyview Bridge in Redding – ten miles downstream of Keswick Dam. Activities would include gravel placement at the Keswick gravel injection site. The site is currently devoid of gravel after 2017 high flows. An additional sites may include replenishment of gravel at the Market Street gravel placement site and at the posse grounds, just upstream of the Sundial Bridge. These sites cover the majority of area used by winter-run for spawning. Improving spawning habitat in this area is a high priority in the CVPIA SIT process.

Project Need

High flows in 2017 moved spawning gravel downstream such that the most upstream spawning habitat where water is coolest has a reduced quantity of gravel. It is assumed spawning habitat potential is reduced in the area near Keswick Dam. Surveys in 2017 showed much of the gravel accumulated in the perennially wetted channel near the Diestelhorst Bridge and will likely be valuable spawning habitat into the future. This project will continue to replenish gravel at the uppermost injection site, Keswick Dam.

Project Objectives

The objective is to improve spawning habitat above the temperature compliance point in the Sacramento River to improve egg to fry survival for winter-run Chinook and other runs of Chinook and steelhead.

Schedule of Project Milestones (When Will Data Collection, Analyses, and Reporting Elements be Completed?)

Date	Milestone
03/01/2018	Funding available
09/30/2018	Gravel placed
09/30/2019	Annual monitoring report

Expected FY 2018 Project Cost

$800,000

Is this Project for a CVP/SWP Biological Opinion or Water Right Decision Compliance? If so, Which Specific Requirement?

The work is done under the authority of the CVPIA, Section 3406(b)(13).

Investigator

John Hannon

Reclamation Point of Contact: John Hannon and Elissa Buttermore

Stanislaus River Juvenile Rearing - Rodden Road

Fact Sheet Number

FY18_034

Project Description

Implement both in- and off-channel restoration designed to provide additional rearing habitat for juvenile salmon and steelhead in the Stanislaus River in collaboration with private landowners across the river from the City of Oakdale.

Project Need

The CVPIA Program is working to improve rearing habitat in the Stanislaus River.

Project Objectives

This project is ONGOING

1. The project will provide 3 acres of off-channel seasonally inundated rearing habitat and 5,000 cubic yards of in-channel spawning and rearing habitat. Designs are currently at the final conceptual level. This project builds on existing CVPIA restoration projects upstream (Lover's Leap, Honolulu Bar, Lancaster Road).

2. This charter supports the fall-run 'Stanislaus River, Improve/increase juvenile rearing habitat (floodplain)' Core Team priority.

3. The project design includes re-grading perched floodplain habitat to reconnect juvenile rearing habitat with the river on a 1-2 year interval. The project will also provide additional spawning gravel in the main channel adjacent to the property.

4. The project addresses the doubling goal for Stanislaus River Chinook Salmon as well as the CV wide doubling goal and should also benefit out-migrating steelhead. The charter focuses on the doubling goal for fall-run Chinook Salmon for the Stanislaus River and the Central Valley. The project implements Stanislaus River Action 2 [Improve watershed management to restore and protect instream and riparian habitat, including consideration of restoring and replenishing spawning gravel.] of the Final Restoration Plan. It also implements OCAP RPAs II.2.1 and III.2.2.

5. 3 acres of floodplain provides habitat for nearly 225,000 juvenile fall-run Chinook Salmon (0.054 square meters per fish - DSM).

6. The project is more cost effective since planning and permitting has been informed by previous projects in the vicinity. The bulk of funding is slated for project construction.

7. Post-project monitoring will inform the DSM in regards to properly parameterizing juvenile growth and survival in higher gradient off-channel habitats relative to valley floor floodplains (Cosumnes).

8. The project is primarily focused on implementing restoration. See above (7) for DSM benefits.

9. Impacts from not doing the charter are continued decline of anadromous fish populations.

10. There are no known stakeholder objections to the project. Project is proceeding with willing landowners that sought us out.

Schedule of Project Milestones (When Will Data Collection, Analyses, and Reporting Elements be Completed?)

Date	Milestone
June 2020	Environmental Compliance permits
June 2020	Final Project Designs
September 2023	Project Completion Report
June 2019	Conceptual Project designs

Expected FY 2018 Project Cost

$662,500 of CVPRF funds to FWS

Is this Project for a CVP/SWP Biological Opinion or Water Right Decision Compliance? If so, Which Specific Requirement?

(b)(1) AFRP.

OCAP RPAs II.2.1 and III.2.2.

The project addressed the Stanislaus River and CV wide doubling goals.

Investigator

J.D. Wikert

Reclamation Point of Contact: John Hannon and Elissa Buttermore

Stanislaus River Migratory Corridor Rehabilitation

Fact Sheet Number

FY18_035

Project Description

Expand high quality migratory habitat downstream of Riverbank and protect and enhance the natural production of salmonids in the Stanislaus River.

Project Need

The CVPIA Program is working to improve spawning and rearing habitat in the Stanislaus River.

Project Objectives

This project is ongoing from FY 2017.

1. Restore shallow water migratory habitat for juvenile salmonids on the Stanislaus River downstream of Riverbank. Potential sites have been identified, and landowners will be contacted to determine interest prior to developing conceptual designs. Future phases will implement restoration projects.

2. Project supports the SIT/Core Team priority: 'Stanislaus River, Improve/increase juvenile rearing habitat (floodplain)'.

3. Projects will provide crucial rearing habitat for outmigrating juvenile salmonids before they enter the San Joaquin River and Delta by developing restoration designs in collaboration with willing landowners, followed by construction of suitable projects.

4. The project address the Stanislaus River and CV wide doubling goals.

5. A single acre (a reasonably predictable project size) will provide habitat for up to 75,000 juvenile Chinook Salmon (0.054 square meter/fry), as well as benefitting migrating steelhead. The implemented project will also provide possible refuge from predators for all juveniles migrating downstream.

6. One of the biggest challenges to implementing on-the-ground restoration is having willing (and enthusiastic) landowners. This process will identify those landowners that

also have suitable property (minimum cut depth to achieve seasonally inundated habitat). Working on multiple conceptual designs simultaneously will provide a reduction in overhead as permitting will be similar for multiple projects allowing for a more efficient regulatory process. Also, bang-for-the- buck will be determined by assessing multiple metrics for project designs (fish habitat/cut volume, tree impacts, etc.). Substantial on-the-ground implementation will occur in future phases.

7. The project supports the means objective of increasing the number of smolts produced, through enhancing growth opportunities and providing refuge from predators for migrating juveniles.

8. The project will benefit from some post-project monitoring designed to evaluate the differences between off-channel habitats restored in low gradient (sand bedded) versus higher gradient (gravel bedded) reaches, informing future decisions on locations for restoration.

9. Not continuing to implement the charter will result in continuing the long term decline of salmonid production in the basin.

10. There are no known stakeholder objections to the charter. The project specifically calls for willing landowners, reducing the likelihood of project failure.

Schedule of Project Milestones (When Will Data Collection, Analyses, and Reporting Elements be Completed?)

Date	Milestone
September 2018	Preliminary conceptual designs
June 2020	Final Design
June 2020	Permits
December 2023	Final Report

Expected FY 2018 Project Cost

842,700 of CVPRF funds to FWS

Is this Project for a CVP/SWP Biological Opinion or Water Right Decision Compliance? If so, Which Specific Requirement?

(b)(1) AFRP. The project addressed the Stanislaus River and CV wide doubling goals.

Investigator

J.D. Wikert