



Habitat Expansion Agreement

for

Central Valley Spring-Run Chinook Salmon and California Central Valley Steelhead

Questionnaire Instructions

The attached questionnaire is intended to solicit information needed by the Steering Committee to review projects relative to the criteria established in the Habitat Expansion Agreement. For each proposed action (project), please complete the questionnaire to the fullest extent possible. Please provide citations where applicable and provide a full reference for each citation at the end of this questionnaire (Section X. Supporting Documents). Specific instructions follow.

I. Contact Information

Provide the name of the agency or group making the proposal as well as a contact person for the project. Include contact information such as mailing address, phone number, and email address.

II. Project Description

Provide a descriptive name for the action (project). If the action is listed in the *Working List of Potential Habitat Expansion Actions* (provided during the January 2009 meetings of HEA parties), please include the reference number associated with the action. The project location should specify the watershed or subwatershed (e.g., Deer Creek, Beegum Creek) as well as specific areas within the watershed where the project will be located and what portions of the watershed will benefit from the project. Please include geographic coordinates of the project location(s), if applicable. The project description should be a narrative that provides as much detail as possible about the project.

III. Species Limiting Factors

In this section, indicate the factors that currently limit production of spring-run Chinook salmon and/or steelhead in your watershed. The intent is that the environmental and biological objectives of your project address these limiting factors in some way. Please check one or more of the limiting factors that apply to your watershed. In the second column, describe how and where the factor limits spring-run Chinook salmon and/or steelhead. For each factor that you check, please rank its effect on spring-run Chinook salmon and/or steelhead using the drop-down box in the last column. Finally, we also ask that you describe the source of your conclusions, such as a watershed assessment or other document. Please provide enough information that we can find the document if we need it.

IV. Project Objectives—Environmental

Environmental objectives describe how the project is intended to address the limiting factors to achieve the biological objective described in the next section. Environmental objectives should be as specific and quantitative as possible (e.g., reduce gravel embeddedness in the watershed from 75% to 25% by fencing riparian areas to exclude cattle and allow riparian forest to reestablish). Describe how you think environmental objectives relate specifically to the biological objectives. In the last column, we ask you to describe the environmental objectives as either the primary or secondary focus of the project. For example, a project to plant trees might have a primary focus on riparian/floodplain function with a secondary focus on temperature or water quality.

V. Project Objectives—Biological

Biological objectives describe the anticipated biological response from the project and should be as quantitative as possible. Indicate which species and life stages are the focus of the project. Describe specifically the general condition of the target species in your watershed relative to the historical abundance. The condition of the species should be indicated using the categories in the drop-down box. Species condition categories are defined on the last page of this form. Biological objectives should include the following information: (1) an estimate of the expected contribution of the project in terms of potential adult returns, to the extent possible (and an explanation of how the estimate was developed); and (2) an explanation of how the biological objective for the species is addressed by the action relative to the environmental limiting factors (e.g., the biological objective of an action might be to increase egg incubation survival in a watershed that is currently limited by sediment levels).

VI. Project Cost

To the extent possible, estimate the capital cost of the project, the annual operating and maintenance (O&M) cost, a description of annual O&M activities, and the project lifetime (i.e., how many years O&M activities are expected, including indefinitely, and how long until you expect the project to provide benefits). Provide any confirmed or potential funding partners, or opportunities for cost sharing with other funders or between projects. Also, identify any confirmed or potential partners that might provide maintenance support for the project (funding support or labor support).

VII. Schedule

Describe the project schedule, including a potential start date, construction period, and environmental and biological response times (i.e., the expected time to realize environmental and biological benefits). The last points refer to the maturation period for the project during which time environmental conditions develop. For example, it may take 50–100 years before full environmental benefits (e.g., shading, channel stability, water quality) of planting riparian trees are realized.

VIII. Feasibility

Describe the feasibility and challenges of the project. Feasibility issues should include primarily technical issues, success of projects utilizing similar technology, and particular challenges posed by the specific project. Other issues of feasibility that may be included are challenges associated with property ownership, permitting, zoning, and other social-economic-legal issues.

IX. Project Support

Describe the support or potential conflicts associated with the project. Specifically, provide supporting and cooperating entities (e.g., agencies, non-governmental organizations). Are there cooperating agencies or groups, aside from the potential funding partners mentioned previously? Describe the degree of local support and any known opposition or conflicts with other parties.

X. Supporting Documents

Provide full references for each citation used to support the information presented in this questionnaire for your project. At a minimum, a reference should include the author(s) name; name of agency/organization (if applicable); title of the document; volume and title of journal, if the document is taken from a professional journal; and publisher, date, and location of publication.



Questionnaire

for

Information on Potential Projects to Support Spring-Run Chinook Salmon and Steelhead in the Sacramento River Basin for the Habitat Expansion Agreement

DUE: Friday, February 27, 2009

Send completed questionnaires to hea@water.ca.gov

I. Contact Information

Name: Gary Reedy
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Phone Number: (530) 265-5961 ext 208
Email Address: gary@syrccl.org

II. Project Description

Project Name: Backwater, Side-channel, and Riparian/Floodplain Habitat Restoration in the lower Yuba River
Reference No. or New: New
Project Location: Yuba River downstream of Englebright Dam

Project Description:

At present, a pre-project assessment is being conducted to inform opportunities for juvenile salmonid habitat enhancements (including a pilot riparian revegetation project) at Hammon Bar on the lower Yuba River. The pre-project assessment is addressing the geomorphic, hydrologic, and biotic factors influencing riparian recruitment, growth, and survival in the project area. Current work includes a public outreach component to inform nearby landowners, concerned stakeholders, and watershed groups about the proposed pilot project.

II. Project Description

We want to expand the current work to evaluate conditions along approximately 3 additional river miles of Western Aggregates land recently placed under conservation easement in agreement with SYRCL downstream of Hammon Bar. Using what we learn from the pre-project assessment and pilot project, we intend to implement large-scale restoration in the Yuba River by creating and restoring backwater, side-channel, and riparian/floodplain habitat in the lower Yuba River.

III. Species Limiting Factors

In this section, describe the limiting factors for spring-run Chinook salmon and steelhead in your watershed. The last page of this questionnaire defines the limiting factors.

<u>Limiting Factors</u>	<u>Description (from back page)</u>	<u>Rank</u>
<input checked="" type="checkbox"/> Channel Form	The Yuba River in California's Central Valley was severely degraded by hydraulic and dredger mining, primarily from the mid-19th through mid-20th century. In the Yuba Goldfields reach of the Lower Yuba River, dredger tailings confine the river channel along much of its length, and shaded riverine aquatic habitat, riparian habitat, and floodplain inundation are limited. The resulting reduction in aquatic habitat complexity and diversity has been identified as a limiting factor to salmonid populations, and adversely affects rearing salmonids in particular.	High
<input type="checkbox"/> Channel Unit Types		Select Rank
<input type="checkbox"/> Substrate		Select Rank
<input checked="" type="checkbox"/> Structure	The Yuba River in California's Central Valley was severely degraded by hydraulic and dredger mining, primarily from the mid-19th through mid-20th century. In the Yuba Goldfields reach of the Lower Yuba River, dredger tailings confine the river channel along much of its length, and shaded riverine aquatic habitat, riparian habitat, and floodplain inundation are limited. The resulting reduction in aquatic habitat complexity and diversity has been identified as a limiting factor to salmonid populations, and adversely affects rearing salmonids in particular.	High
<input type="checkbox"/> Flow		Select Rank
<input type="checkbox"/> Temperature		Select Rank
<input type="checkbox"/> Water Quality		Select Rank
<input type="checkbox"/> Passage		Select Rank
<input checked="" type="checkbox"/> Riparian/Floodplain	The Yuba River in California's Central Valley was severely degraded by hydraulic and dredger mining, primarily from the mid-19th through mid-20th century. In the Yuba Goldfields reach of the Lower Yuba River, dredger tailings confine the river channel along much of its length, and shaded riverine aquatic habitat, riparian habitat, and floodplain inundation are limited. The resulting reduction in aquatic habitat complexity and diversity has	High

III. Species Limiting Factors

been identified as a limiting factor to salmonid populations, and adversely affects rearing salmonids in particular.

Source Documents:

CVPIA 10-year Implementation Plan

Additional Notes:

IV. Project Objectives—Environmental

In this section, describe how your project will affect one or more of the limiting factors for spring-run Chinook salmon or steelhead described above.

<u>Limiting Factor</u>	<u>Description and Objective</u>	<u>Focus</u>
<input checked="" type="checkbox"/> Channel Form	Create/restore 5 acres of new backwater or side-channel habitat for rearing juvenile salmonids.	Primary
<input type="checkbox"/> Channel Unit Types		Select Focus
<input type="checkbox"/> Substrate		Select Focus
<input checked="" type="checkbox"/> Structure	Create/restore 5 acres of new backwater or side-channel habitat for rearing juvenile salmonids, as above. Installation of instream woody material may be used to provide structure.	Primary
<input type="checkbox"/> Flow		Select Focus
<input type="checkbox"/> Temperature		Select Focus
<input type="checkbox"/> Water Quality		Select Focus
<input type="checkbox"/> Passage		Select Focus
<input checked="" type="checkbox"/> Riparian/Floodplain	Create/restore 50 acres of new riparian/floodplain habitat for rearing juvenile salmonids.	Primary

V. Project Objectives—Biological

In this section, describe the objective(s) of your project relative to the goal of providing habitat for spring-run Chinook salmon and steelhead. Indicate the species and life stage that are targeted by the project. (It is okay to have more than one species/life stage target).

Target Species: Spring-Run Chinook Salmon **Population Status** Decreasing
Specific to Watershed:

Target Life Stages:

Spawning Egg Incubation Summer Rearing Winter Rearing
 Juvenile Emigration Adult Immigration Adult Holding

Description of Project Objectives:

Increase habitat complexity (e.g., create/restore backwater and side-channel habitat, physical structure, shaded riverine aquatic, riparian, and floodplain habitat) to provide for increased growth, protection from predators, and overall increased survival of juvenile salmonids.

Target Species: Steelhead **Population Status** Decreasing
Specific to Watershed:

Target Life Stages:

Spawning Egg Incubation Summer Rearing Winter Rearing
 Juvenile Emigration Adult Immigration

Description of Project Objectives:

Increase habitat complexity (e.g., create/restore backwater and side-channel habitat, physical structure, shaded riverine aquatic, riparian, and floodplain habitat) to provide for increased growth, protection from predators, and overall increased survival of juvenile salmonids.

VI. Project Cost

Capital Cost: \$2M

Annual Operation and Maintenance Cost: \$20K

Annual Operation and Maintenance Description: Ongoing gravel/riparian augmentation and instream woody material installation

Project Lifespan: 30 years

Project Partners (Funding): Corps of Engineers, Western Aggregates, PG&E, USFWS Anadromous Fish Restoration Program

Project Partners (Maintenance): Corps of Engineers, South Yuba River Citizens League

VII. Schedule

Proposed Start:	2009
Expected Time to Completion:	2019
Expected Time to Realize Environmental Benefits:	2011; full environmental benefits realized in 2019
Expected Time to Realize Biological Benefits:	2011; full environmental benefits realized in 2019

VIII. Feasibility

Technical Feasibility:	Pre-project assessment is underway; pilot project soon to be underway; design plans are needed and permits will need to be obtained.
Technical Challenges:	The Yuba River can be a very active river channel
Related Projects:	Other easements and publically-owned land are likely to become available for habitat restoration projects on the Yuba River.
Ownership or Permitting Challenges:	None
Conflicts with Cultural, Zoning, or Other Issues:	None

IX. Project Support

Supporting Entities:	SYRCL, FWS
Cooperating Entities:	DFG and NMFS
Degree of Local Support:	SYRCL has been conducting outreach activities to inform the public about this project
Known Opposition:	Corps of Engineers commitment to project is unknown.

X. Supporting Documents

Please provide a full reference for each citation used to support the information presented in this questionnaire.

X. Supporting Documents

Definitions of Limiting Factors for Spring-Run Chinook Salmon and Steelhead

Channel Form

This attribute describes changes to the channel, including incision, aggradation, diking, armoring, and other modifications of the channel adversely affecting spring-run Chinook salmon and steelhead.

Channel Unit Types

Examples of geomorphic features of the channel that form habitat types for spring-run Chinook salmon and steelhead are pools, riffles, glides, and runs. This attribute describes changes in the frequency and size of such features. For example, removal of large wood may reduce the frequency of pools, presence of steps, or retention of gravel for riffles.

Substrate

This attribute describes changes in the composition of the substrate of the stream, including increase in fine sediment and lack of gravel recruitment.

Structure

This attribute describes the loss of structural elements in the stream such as large wood, boulders, undercut banks, and so on. Loss of structure results in a simplification of the channel and influences Channel Form and Channel Unit Types.

Flow

This attribute addresses modification of the flow regime, including decrease in summer low flow, increased “flashiness,” and dewatering of the channel as a result of withdrawals.

Temperature

Change in water temperature can be attributable to human actions such as removal of riparian shading. This attribute describes the increase in summer water temperature and the loss of temperature refugia (springs or groundwater) as a result of human actions.

Water Quality

This attribute pertains to the input to the stream of toxins or pollutants that produce adverse impacts on spring-run Chinook salmon or steelhead. This can include chemical pollutants such as fertilizer and pesticides and nutrient sources such as cattle and feedlots.

Passage

This relates to the effect of impediments to adult or juvenile migration of spring-run Chinook salmon or steelhead, including dams, culverts, channel dewatering, and other structural and channel modifications. Please describe the location of the passage impediment and describe the extent of impediment (i.e., a complete or partial blockage to migration).

Riparian/Floodplain

This attribute describes the loss of functionality of the riparian forest/vegetation and the connection of the stream to the floodplain during high water and flooding.

Population Condition Definitions for Section V. Project Objectives—Biological

Increasing

Adult returns of the target species to the watershed have generally been increasing over the last several years; expectations are that the species is displaying characteristics of a rebuilding or healthy population.

Stable

Adult returns of the target species to the watershed show no clear trend over the last several years.

Decreasing

Adult returns of the target species to the watershed are declining over the last several years; the decline in abundance is a cause of concern and characteristic of a potentially unhealthy population.

Intermittent

Adult returns of the target species are occasionally seen in the watershed, but there is no viable or sustained population in the basin.

Extirpated

The population has been eliminated from the watershed although the species was present in the past.

Never Present

The species has never been known to occur in the watershed.