

## **Work Plan for Implementation of the Habitat Expansion Agreement**

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# Acronyms and Abbreviations

Background Status Report	Background Report on the Status of Spring-Run Chinook Salmon and Central Valley Steelhead in the Sacramento River Basin
CalTrout	California Trout, Inc.
DEMs	Digital Elevation Models
DFG	California Department of Fish and Game
DPS	distinct population segment
DWR	California Department of Water Resources
ESU	evolutionarily significant unit
FERC	Federal Energy Regulatory Commission
FPA	Federal Power Act
FPC	Federal Power Commission
GIS	geographic information systems
HEA	Habitat Expansion Agreement for Central Valley Spring-Run Chinook Salmon and California Central Valley Steelhead
NMFS	National Marine Fisheries Service
NMFS Draft Recovery Plan	NMFS Draft Recovery Plan for the Evolutionarily Significant Units of Sacramento River Winter-Run Chinook Salmon and Central Valley Spring-Run Chinook Salmon and the Distinct Population Segment of Central Valley Steelhead
Oroville	Oroville Facilities Project No. 2100
PG&E	Pacific Gas and Electric Company
Poe	Poe Hydroelectric Project No. 2107
Rock-Creek Cresta	Rock Creek-Cresta Hydroelectric Project No. 1962
Upper North Fork Feather River	Upper North Fork Feather River Hydroelectric Project No. 2105
USFWS	U.S. Fish and Wildlife Service

# Work Plan for Implementation of the Habitat Expansion Agreement

## Executive Summary

*Note: The Executive Summary will be prepared once the Work Plan is complete.*

## Introduction

### Work Plan Objective

The objective for this Work Plan is to document the process used to develop the Habitat Expansion Plan under the *Habitat Expansion Agreement for Central Valley Spring-Run Chinook Salmon and California Central Valley Steelhead* (HEA). Until the Work Plan is finalized, much of the information presented in this Work Plan should be considered a “work in progress” as the process to develop the Habitat Expansion Plan evolves.

## Habitat Expansion Agreement

### Purpose

Effective November 20, 2007, Pacific Gas and Electric Company (PG&E) and the California Department of Water Resources (DWR) entered into the HEA with the following parties: American Rivers, Arthur G. Baggett, Jr.<sup>1</sup>; California Department of Fish and Game (DFG); U.S. Department of Agriculture Forest Service; National Marine Fisheries Service (NMFS); U.S. Fish and Wildlife Service (USFWS); and State Water Contractors, Inc. Under this agreement, DWR and PG&E have 2 years to jointly identify, evaluate, and select the most promising and cost-effective action(s) to expand spawning, rearing, and adult holding habitat for spring-run Chinook salmon and steelhead in the Sacramento River Basin, as an alternative to the resource agencies and other parties seeking

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<sup>1</sup> Mr. Baggett signed the HEA as a recommendation to the California State Water Resources Control Board (State Water Board), not as a Party to the HEA. Mr. Baggett will not be participating in the State Water Board’s consideration of any petition for water quality certification for any Habitat Expansion Plan pursuant to Section 401 of the federal Clean Water Act.

project-specific fish passage prescriptions or license conditions in the new Federal Energy Regulatory Commission (FERC) licenses for PG&E's Upper North Fork Feather River Hydroelectric Project and Poe Hydroelectric Project and for DWR's Oroville Facilities Project (all of which are located in the Feather River system). DWR and PG&E formed a Steering Committee, comprised of two representatives each, to execute the HEA. A copy of the HEA is available on the HEA public website ([www.sac-basin-hea.com](http://www.sac-basin-hea.com)).

## **Background on the Habitat Expansion Agreement**

### **FERC Relicensing for Feather River Projects**

DWR constructed and operates the Oroville Facilities, FERC Project No. 2100 (Oroville), on the lower Feather River. Oroville was developed as part of the California State Water Project, a water storage and delivery system of reservoirs, aqueducts, power plants, and pumping plants. The State Water Project makes deliveries of supplemental water to two-thirds of California's population and over 750,000 acres of agricultural lands. Oroville is also operated to provide power generation, improve water quality in the Sacramento and San Joaquin Delta, manage Feather River floodwaters, provide recreation, and enhance habitat for fish and wildlife.

Oroville operates under a license originally issued by the Federal Power Commission (FPC) on February 11, 1957, for a term of 50 years. The current license for Oroville expired on January 31, 2007. Under the requirements of the Federal Power Act (FPA) and FERC regulations, DWR filed a timely application for a new license on January 26, 2005. This application is currently still pending before FERC.

PG&E owns and operates the Poe Hydroelectric Project, FERC Project No. 2107 (Poe) on the North Fork Feather River under a license issued by the FPC on October 26, 1953, for a term of 50 years. Under the requirements of the FPA and FERC regulations, PG&E filed an application for a new license for Poe on October 2, 2001. This application is currently still pending before FERC. The original license for Poe expired on September 30, 2003; since that time, the project has been operating under annual licenses pursuant to Section 15 of the FPA.

PG&E owns and operates the Upper North Fork Feather River Hydroelectric Project, FERC Project No. 2105 (Upper North Fork Feather River) under a license issued by the FPC on January 24, 1955, for a term of 50 years. Under the requirements of the FPA and FERC regulations, PG&E filed an application for a new license for the Upper North Fork Feather River on October 23, 2002, which is currently still pending before FERC. The original license for the Upper North Fork Feather River expired on October 31, 2004; since that time, the project has been operating under annual licenses pursuant to Section 15 of the FPA.

PG&E also owns and operates a third project on the North Fork Feather River, the Rock Creek-Cresta Hydroelectric Project, FERC Project No. 1962 (Rock Creek-Cresta), under a license issued by FERC on October 24, 2001, which expires on September 30, 2034.

## **Habitat Expansion Agreement Negotiated as an Alternative to Prescribed Fish Passage**

NMFS has a prescriptive right for fish passage that they exercised in the FERC relicensing proceedings for the Oroville and Upper North Fork Feather River Projects for DWR and PG&E, respectively. NMFS believed that a trap-and-haul program for spring-run Chinook salmon in the Feather River system would meet its fish passage objectives. The trap-and-haul program would involve trapping adult fish below the Oroville Dam, hauling them upstream, and placing them in the upper North Fork Feather River. The program also would require collecting downstream migrants in the upper North Fork Feather River and hauling them back downstream below Oroville Dam. NMFS prescribed the upper end of the trap-and-haul program in the Upper North Fork Feather River relicensing proceeding and intended to prescribe the lower end of the trap-and-haul program in the Oroville relicensing proceeding.

The trap-and-haul program generated concern because of its high estimated cost and the potentially low likelihood for success. Ultimately, DWR and PG&E, together with other participants in the relicensing proceedings, came together to discuss alternatives to trap and haul for expanding habitat for anadromous fish. As a result of this collaborative effort, the parties negotiated the HEA to establish an approach for identifying, evaluating, selecting, and implementing the most promising and cost-effective action(s) to expand spawning, rearing, and adult holding habitat in the Sacramento River Basin in lieu of the resource agencies or other parties seeking fish passage on the Feather River or its tributaries in the relicensing of the Oroville, Poe, and Upper North Fork Feather River Projects, or through amendment of the license for the Rock Creek-Cresta Project.

As stated under Section 1.2 of the HEA, Purpose of Agreement, the HEA will:

- fully mitigate for impacts of all fish species due to the blockage of fish passage caused by the Feather River Hydroelectric Projects; and
- resolve among the parties to the HEA, during the term of the HEA, issues related to regulatory conditions for fish passage associated with or related to any of the Feather River Hydroelectric Projects in excess of the actions contemplated under the HEA.

## **Goal of the HEA and the Habitat Expansion Threshold**

The overall goal of the HEA (Section 2.1, Goal of Agreement) is to expand habitat with physical characteristics necessary to support spawning, rearing, and

adult holding of spring-run Chinook salmon and steelhead in the Sacramento River Basin as a contribution to the conservation and recovery of these species. Habitat expansion would be accomplished through enhancements to existing accessible habitat, improving access to habitat, or other action(s) and is intended to fully mitigate for any presently unmitigated impacts due to the blockage of passage of all fish species caused by the Feather River Hydroelectric Projects.

The specific Habitat Expansion Threshold of the HEA (Section 2.2, Habitat Expansion Threshold) is to expand spawning, rearing, and adult holding habitat sufficiently to accommodate an estimated net increase of 2,000 to 3,000 spring-run Chinook salmon for spawning in the Sacramento River Basin, as compared to the habitat available under any relevant existing requirements or commitments (i.e., actions expected to occur in a timeframe comparable to implementation of habitat expansion action[s] under the HEA). The Habitat Expansion Threshold is focused on spring-run Chinook salmon as the priority species, as expansion of habitat for spring-run typically accommodates steelhead as well.

## Potential Habitat Expansion Actions

The HEA (Section 3.1, Scope of Eligible Habitat Expansion Actions) states that habitat expansion actions may include, among other things:

- dam removals or dam re-operation,
- creation or enhancement of fishways,
- water temperature or flow improvements, or
- other physical habitat enhancements.

Potential habitat expansion actions will be identified, evaluated, and recommended by the Steering Committee using criteria identified in the HEA, including:

- seventeen non-prioritized Evaluation Criteria (Section 4.1.1) to screen potential habitat expansion actions and develop a preliminary list of viable actions, and
- four non-prioritized Selection Criteria (Section 4.1.2) to select recommended habitat expansion actions for implementation.

## Habitat Expansion Plan

The effective date of the HEA, which is the date when the HEA was executed by all parties to the HEA and approved by the California Department of Finance, is November 20, 2007. Within 2 years of the effective date (i.e., by November 20, 2009), the Steering Committee is to complete the identification, evaluation, and recommendation of habitat expansion actions—in consultation with the other

parties to the HEA and directly affected third parties—and prepare a Draft Habitat Expansion Plan.

As described in the HEA (Section 4.1.3, Draft Habitat Expansion Plan), the Draft Habitat Expansion Plan will include a description of:

- the recommended action(s), including any functional start-up testing and future operation and maintenance;
- the rationale for their selection based on the Evaluation Criteria and the Selection Criteria;
- a preliminary schedule for each of the remaining phases in Section 4 of the HEA, Planning and Implementation of Habitat Expansion Action(s), including provisions for anticipated schedule uncertainties;
- the responsibilities of each Licensee for implementing the action(s);
- the estimated contribution of the action(s) to the Habitat Expansion Threshold; and
- a pre-feasibility-level cost estimate for implementing the action(s).

By November 20, 2009, the Steering Committee will distribute the Draft Habitat Expansion Plan to the other parties to the HEA and directly affected third parties for a 90-day review and comment period. Within 90 days after the close of this review and comment period, or by May 2010, the Steering Committee will submit a Final Habitat Expansion Plan for approval by NMFS. (A detailed project timeline is presented in Appendix A.)

NMFS will consider six Approval Criteria (Section 4.2.3), along with comments from the other parties to the HEA and directly affected and responsive third parties, as well as any other relevant information, when deciding whether to approve the recommendations made by the Steering Committee.

## Outreach

Because stakeholder input and public support are critical in making the Habitat Expansion Plan successful, the Steering Committee has been working closely with the signatories to the HEA and is currently seeking input from local Resource Conservation Districts and watershed groups to identify potential actions that could qualify for funding under the HEA criteria. The following sections describe how the Steering Committee is sharing information with the public and reaching out to the parties to the HEA and local stakeholders.

## HEA Website

The Steering Committee established a public website that is available to share information related to the HEA. In addition to providing information on the HEA, the website gives instructions for providing input on projects to be considered for the Habitat Expansion Plan. Specifically, a questionnaire is available for parties to the HEA and potential stakeholders to complete and submit to the Steering Committee for consideration under the HEA. The website is available at [www.sac-basin-hea.com](http://www.sac-basin-hea.com).

## Outreach to Signatories to the HEA

The Steering Committee has been actively reaching out to the signatories to the HEA. Some outreach activities that the Steering Committee took part in during the past year are described below.

### Salmonid Restoration Federation's Spring-Run Chinook Salmon Symposium

On July 10, 2008, members of the Steering Committee presented a PowerPoint presentation on the HEA and participated in a panel discussion on habitat expansion opportunities for spring-run Chinook salmon at the *Salmonid Restoration Federation's Spring-Run Chinook Salmon Symposium* held in Nevada City, California. The presentation is available at the HEA website identified above.

### Consultation with NMFS

The Steering Committee has been meeting with NMFS periodically to discuss the HEA. Meetings have included a conference call with NMFS held on April 30, 2008, and two face-to-face meetings with NMFS on August 20, 2008, and April 8, 2009.

On April 30, 2008, the Steering Committee participated in a conference call with representatives from NMFS to:

- provide NMFS with an update on the Steering Committee's efforts on implementing the HEA;
- identify which branch from NMFS would be signing off on the selected project(s) as having met the NMFS approval criteria identified in the HEA;
- obtain feedback from NMFS on the idea of soliciting proposals as a means of identifying potential projects;

- receive feedback from NMFS on the completion of the PG&E/California Trout, Inc. (CalTrout) effort to prioritize Central Valley anadromous salmonid recovery actions (described below) and how this process could be integrated with the *NMFS Draft Recovery Plan for the Evolutionarily Significant Units of Sacramento River Winter-Run Chinook Salmon and Central Valley Spring-Run Chinook Salmon and the Distinct Population Segment of Central Valley Steelhead* (NMFS Draft Recovery Plan); and
- obtain input on how the Steering Committee could integrate the HEA process with other recovery planning efforts, such as the USFWS Anadromous Fish Restoration Program and the CALFED Ecosystem Restoration Program.

On August 20, 2008, the Steering Committee met with NMFS and discussed the following topics:

- the Steering Committee's presentation at the July 10, 2008, Spring-Run Chinook Salmon Symposium;
- the Draft Work Plan for fulfilling the HEA and efforts to date;
- application of the HEA criteria to the PG&E/CalTrout Project database;
- availability and use of the NMFS Draft Recovery Plan;
- quantification methodologies for project contribution to the Habitat Expansion Threshold; and
- engaging other parties to the HEA using a similar agenda.

On April 8, 2009, the Steering Committee met with NMFS to review:

- the framework for evaluating and selecting habitat expansion actions;
- the HEA criteria definitions,
- quantification methodologies for determining contribution to the Habitat Expansion Threshold; and
- the list of potential habitat expansion actions.

The Steering Committee continues to consult with NMFS on the implementation of the HEA and plans to continue meeting with NMFS until the Draft Habitat Expansion Plan is issued.

## Letter to the HEA Signatories

On October 28, 2008, DWR and PG&E sent a letter to the other parties to the HEA to provide them with an update on the implementation of the HEA by the Steering Committee and to initiate contact with staff from the various HEA parties in order to obtain additional information on potential habitat expansion actions.

## Meetings with the HEA Signatories

The Steering Committee met with staff representing the signatories to the HEA in January 2009 to solicit information on potential habitat expansion actions, identify contact persons for additional follow-up on potential actions, facilitate the receipt of completed questionnaires requesting additional information on potential actions (see discussion below), and obtain a common understanding of the HEA criteria. Three meetings, which were divided by watersheds within the Sacramento River Basin, took place on:

- January 14, 2009, in Chico, California, focusing on potential projects from the central Sacramento River Basin watersheds;
- January 21, 2009, in Red Bluff, California, focusing on potential projects from the northern Sacramento River Basin watersheds; and
- January 28, 2009, in Sacramento, California, focusing on potential projects from the southern Sacramento River Basin watersheds.

In particular, the Steering Committee requested that the HEA signatories provide input on the preliminary list of potential habitat expansion actions. The signatories to the HEA were also asked to submit information on projects to be considered for the Habitat Expansion Plan by completing an HEA questionnaire.

## Outreach to Other Stakeholders

The Steering Committee is reaching out to potential stakeholders through local Resource Conservation Districts and watershed groups in the Sacramento River Basin to obtain their input on potential habitat expansion actions. Ways that the Steering Committee has been reaching out to the stakeholders are described below.

- The Steering Committee prepared a “Stakeholder Outreach Strategy” document describing the process and steps to be taken to reach out to local stakeholders. This document will become a component of the Communications Plan for the HEA.
- On March 6, 2009, the Steering Committee sent a letter to the stakeholders informing them about a possible opportunity for funding spring-run Chinook salmon and steelhead restoration projects and soliciting their input in the development of the Habitat Expansion Plan.
- On March 10, 2009, the Steering Committee posted a new page on the HEA website providing local stakeholders with useful information on how to participate in the HEA process and provide input on potential habitat expansion actions to be considered in the Habitat Expansion Plan.
- During the months of April and May 2009, the Steering Committee plans to meet with individual Resource Conservation Districts and watershed groups, upon request, to share information on the HEA and to inform the

stakeholders on how they can participate in the development of the Habitat Expansion Plan.

- In early June 2009, the Steering Committee plans to meet with the signatories to the HEA as well as other interested stakeholders, to inform them about the list of viable habitat expansion actions that may be considered in the Habitat Expansion Plan.

## Implementing the Habitat Expansion Agreement

The following sections describe how the Steering Committee will implement the HEA, with the goal of preparing a Habitat Expansion Plan.

### HEA Conceptual Framework

A conceptual framework describes how information is interpreted, how problems are identified, and the range of appropriate solutions (Williams 2006). The HEA lays out a logical path for arriving at a set of actions/projects that will constitute the Habitat Expansion Plan (Figure 1). The process involves screening potential actions through a series of three filters that ultimately lead to the Habitat Expansion Plan: (1) the HEA Evaluation Criteria, (2) the HEA Selection Criteria, and (3) the NMFS Approval Criteria. Once approved by NMFS, the Habitat Expansion Plan will include actions expected to meet the Habitat Expansion Threshold and align with a set of policy and scientific criteria embodied in the filters. The logic in the HEA provides considerable flexibility for the Steering Committee to develop a plan around the prevailing opportunities and circumstances.

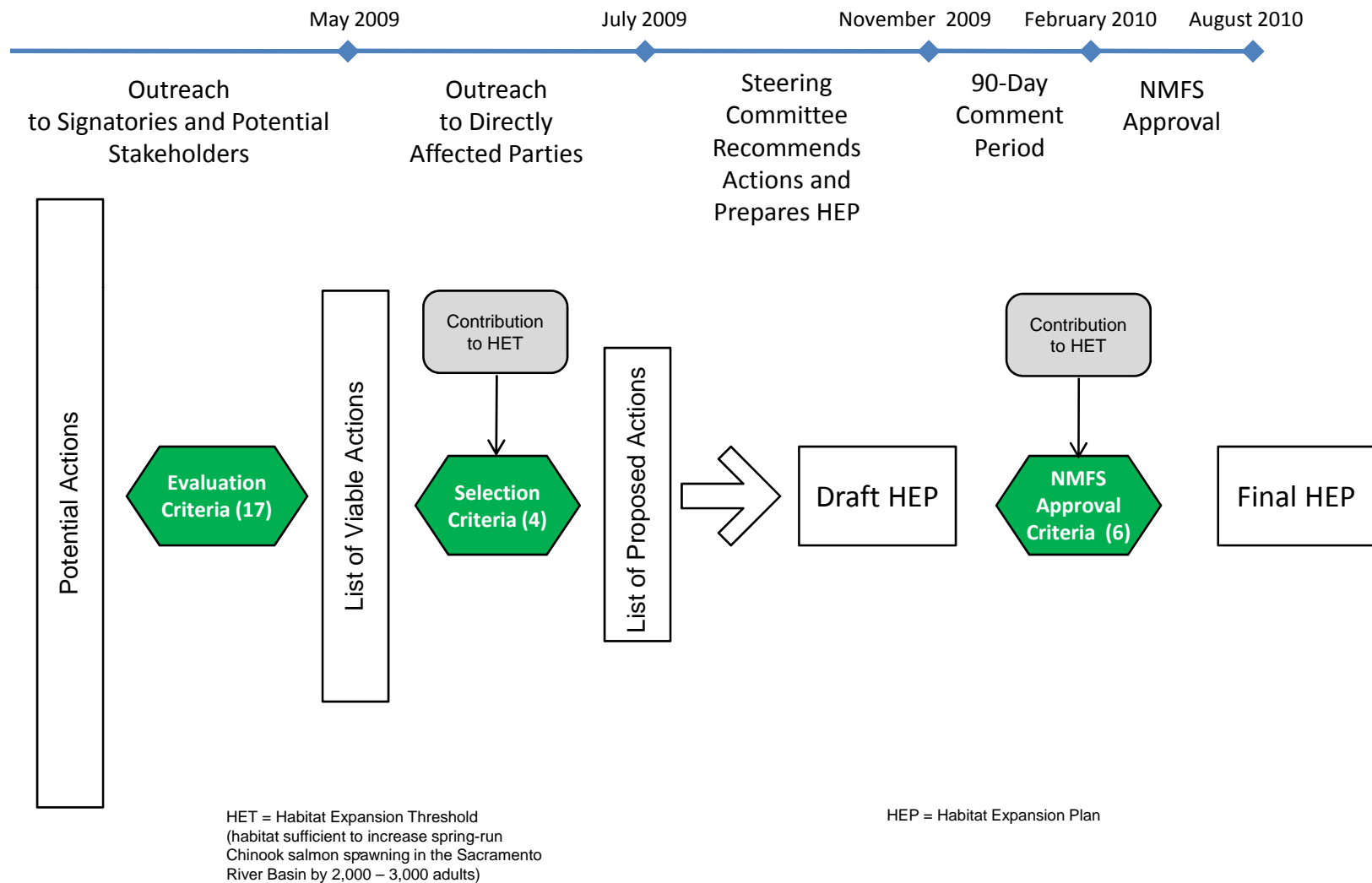
The HEA Conceptual Framework (Appendix B) describes the scientific rationale underlying the Steering Committee's approach to implementing the HEA and ultimately developing the Habitat Expansion Plan. This conceptual framework closely follows the logic of the HEA but defines the Steering Committee's interpretation of the terms and processes in the HEA.

### HEA Criteria and Criteria Definitions

The HEA identifies several criteria for identifying, evaluating, recommending, and approving habitat expansion actions, including:

- HEA Evaluation Criteria (see Section 4.1.1 of the HEA),
- HEA Selection Criteria (see Section 4.1.2 of the HEA), and
- NMFS Approval Criteria (see Section 4.2.3 of the HEA).

Figure 1. Process for Fulfillment of the Habitat Expansion Agreement (HEA) for Central Valley Spring-Run Chinook Salmon and Steelhead



The Steering Committee has been developing expanded definitions for the various HEA criteria (Appendix C) to better utilize these criteria for selecting proposed actions to be included in the Habitat Expansion Plan. Criteria definitions will draw on the concepts captured in the HEA, current scientific literature, recovery plans, and other sources. The Steering Committee plans to work in coordination with NMFS to further develop these definitions so that the criteria can be better utilized when identifying, evaluating, and recommending habitat expansion actions.

The proposed schedule for preparing the HEA criteria definitions is as follows (a detailed project timeline is presented in Appendix A):

- Develop draft expanded definitions for the HEA Evaluation, Selection, and Approval Criteria—April 2009
- Receive input from NMFS on the draft expanded definitions—May 2009
- Finalize the expanded definitions—May 2009

The Evaluation, Selection, and Approval Criteria are explained briefly below.

## **Evaluation Criteria**

According to Section 4.1.1 of the HEA, Evaluation Criteria, the Steering Committee shall use 17 non-exclusive and non-prioritized evaluation criteria to screen potential habitat expansion action(s) and develop a preliminary list of viable actions. (See Section 4.1.1 of the Habitat Expansion Agreement for a complete list of the HEA Evaluation Criteria.)

## **Selection Criteria**

According to Section 4.1.2 of the HEA, Selection Criteria, after developing a preliminary list of viable habitat expansion action(s) using the Evaluation Criteria set forth in Section 4.1.1 of the HEA, the Steering Committee will use the four non-prioritized Selection Criteria to select recommended habitat expansion action(s) for implementation. (See Section 4.1.2 of the Habitat Expansion Agreement for a complete list of the HEA Selection Criteria.)

## **NMFS Approval Criteria**

According to Section 4.2.3 of the HEA, NMFS Approval Criteria, in determining whether to approve the Final Habitat Expansion Plan, NMFS will review information submitted by the Steering Committee, comments received from other parties to the HEA and directly affected and responsive third parties, and any other relevant information and consider the extent to which the habitat expansion action(s) recommended in the Habitat Expansion Plan meet the six NMFS

Approval Criteria (See Section 4.2.3 of the Habitat Expansion Agreement for a complete list of the NMFS Approval Criteria.)

## Approach for Applying the HEA Criteria

The Steering Committee is currently preparing a detailed approach for applying the HEA criteria to the list of habitat expansion actions. In general, the criteria will be applied to the list of habitat expansion actions to determine the proposed actions, which will be included in the Draft Habitat Expansion Plan for NMFS's review and approval.

The proposed schedule for preparing the detailed approach for applying the HEA criteria is as follows (a detailed project timeline is presented in Appendix A):

- Develop draft approach for applying the HEA criteria—April 2009
- Receive input from NMFS on the draft approach—May 2009
- Finalize approach for applying the HEA criteria—May 2009

## Methods for Assessing Contribution to the Habitat Expansion Threshold

The Steering Committee is developing a methodology to assess the potential contribution of projects to the Habitat Expansion Threshold. The methodology for quantifying contribution to the Habitat Expansion Threshold will depend on numerous factors, including the availability or attainability of necessary watershed information within the timeframe required under the HEA timeline. At this time, DWR has prepared a document identifying several different quantification methods that could be used for this purpose. The Steering Committee will coordinate with NMFS to determine the best method(s) for assessing a project's contribution to the Habitat Expansion Threshold.

The proposed schedule for identifying quantification methods to be used for assessing contribution to the Habitat Expansion Threshold is as follows (a detailed project timeline is presented in Appendix A):

- Review quantification methods with NMFS—April 8, 2009
- Continue coordination with NMFS on quantification methods—May 2009
- Identify quantification methodology to be used to assess contribution to the Habitat Expansion Threshold—May 2009

## List of Potential Habitat Expansion Actions

The Steering Committee has developed a working list of potential habitat expansion actions to be considered for inclusion in the Habitat Expansion Plan. This working list was primarily developed from:

- the results of a separate PG&E and CalTrout effort to develop a list of prioritized actions that could contribute to salmon and steelhead recovery;
- recovery actions identified in the NMFS Draft Recovery Plan; and
- input received from other parties to the HEA who submitted completed HEA questionnaires and contact information sheets to the Steering Committee.

Other tools used during the development of the list of potential habitat expansion actions include a geographic information systems (GIS) database, which has compiled data for various watersheds in the Upper Sacramento River Basin, and a report providing background information on the status of Chinook salmon and steelhead populations throughout watersheds in the Sacramento River Basin. These tools, which will support the Steering Committee in the identification, evaluation, and selection of potential habitat expansion actions, are described in the following sections.

The list of potential habitat expansion actions is currently a work in progress and will continue to change over time until habitat expansion actions have been proposed for the Habitat Expansion Plan. A preliminary list of the potential actions was provided at the January 2009 meetings with the other parties to the HEA. In addition, a solicitation letter was sent to potential stakeholders in March 2009 requesting their input on potential habitat expansion actions. Responses from the stakeholders are due to the Steering Committee by April 30, 2009.

### PG&E and CalTrout List of Prioritized Actions

PG&E and CalTrout initiated a project in late 2005 known as *Prioritized Actions Contributing to Salmon and Steelhead Recovery*, with the participation of a broad set of public and private stakeholders that included NMFS, USFWS, DFG, and the Association of California Water Agencies. The purpose of this collaborative effort was to develop a prioritized list of recovery opportunities for Central Valley salmon and steelhead listed under the Endangered Species Act that is independent of, and complementary to, ongoing recovery efforts undertaken by federal and state agencies. More than 200 potential recovery actions were identified and evaluated as part of this process. In addition, a prioritization tool was developed and applied to many of the actions. The Steering Committee used this list as a starting point for developing the preliminary list of potential actions that could be included in the Habitat Expansion Plan.

## NMFS Draft Recovery Plan

NMFS is currently working on a Recovery Plan for listed Central Valley salmon and steelhead, and issued a co-managers review draft in May 2008. NMFS has stated that implementation of the Recovery Plan for the Sacramento River winter-run Chinook salmon evolutionarily significant unit (ESU), Central Valley spring-run Chinook salmon ESU, and Central Valley steelhead distinct population segment (DPS) is vital to the continued persistence and recovery of these species. This plan serves as a guideline for achieving recovery goals by describing the steps that must be taken to achieve viable ESUs/DPS. Although the plan is still in development, the Steering Committee obtained permission to use the NMFS Draft Recovery Plan to identify recovery actions for spring-run Chinook salmon and steelhead that could supplement the PG&E/CalTrout list of potential actions and be included in the Habitat Expansion Plan. The Steering Committee has integrated the NMFS Draft Recovery Plan actions into the working list of potential HEA actions. The NMFS Draft Recovery Plan is currently not available to the public.

## Questionnaire for Identifying Potential Actions

The Steering Committee and ICF Jones & Stokes prepared a questionnaire to obtain information on potential habitat expansion actions from the signatories to the HEA and other local stakeholders. The questionnaire was developed to solicit ideas for projects that could contribute to the expansion of anadromous fish habitat in the Sacramento River Basin and be considered for inclusion in the Habitat Expansion Plan. The type of information requested in the questionnaire will assist the Steering Committee in determining a project's potential to meet the HEA criteria and includes:

- action (project) contact information;
- project description;
- species limiting factors;
- environmental objectives (i.e., how the project is intended to change the environment in order to achieve the biological objective);
- biological objectives (i.e., the anticipated biological response from the project);
- cost;
- schedule;
- feasibility;
- support; and
- supporting documents.

The HEA questionnaire is currently available on the HEA website. To assist with filling out the questionnaire, a sample completed questionnaire prepared by DWR for the Iron Canyon Fish Ladder Rehabilitation project is also available on the HEA website.

## GIS Database for Potential Actions

Under the direction of the Steering Committee, DWR staff has started to develop a GIS database compiling appropriate data for various watersheds in the Upper Sacramento River Basin to support the identification and evaluation of potential habitat expansion actions. The GIS database is focused on the following watersheds: Clear, Cow, Bear, Cottonwood, Beegum, Battle, Antelope, Thomes, Mill, Deer, Butte, Stony, and Big Chico Creeks; and the Sacramento, Feather, Yuba, and American Rivers. The database is being developed for internal use to assist with selection of potential habitat expansion actions and is not available to the public.

The types of data that are being incorporated into the GIS database include base information (e.g., roads, towns, cities, public lands, and county boundaries); water features (e.g., rivers, streams lakes, ponds, and reservoirs); watershed boundaries; Digital Elevation Models (DEMs); 1:24K U.S. Geological Survey topographic maps; aerial photographs; satellite imagery; land use data; current and historical distribution of anadromous fish; designated critical habitat for spring-run Chinook salmon and Central Valley steelhead; dams, water diversions, and other potential fish passage barriers; ongoing and completed watershed restoration projects; and available data on salmonid habitat.

## Background Status Report

Under the direction of the Steering Committee, DWR staff is in the process of preparing a *Background Report on the Status of Spring-Run Chinook Salmon and Central Valley Steelhead in the Sacramento River Basin* (Background Status Report). The purpose of this report is to provide background information on the status of spring-run Chinook salmon and Central Valley steelhead populations throughout watersheds in the Sacramento River Basin in order to support the Steering Committee in the identification, evaluation, and selection of potential habitat expansion actions.

The report includes two main sections, addressing: (1) the general life history of spring-run Chinook salmon and steelhead in the Sacramento River Basin; and (2) the status of populations in individual tributaries of the Upper Sacramento River Basin.

The first part of the report covering general life history will include information about:

- basic life history characteristics of the species,
- their historical and current distribution, and
- results of the Population Viability Assessment done in support of NMFS recovery planning for the species.

The second part of the report will address the following tributary watersheds: Clear, Cow, Bear, Cottonwood, Beegum, Battle, Antelope, Thomes, Mill, Deer, Butte, Stony, and Big Chico Creeks; and the Yuba and American Rivers.

Specific topics that will be addressed for each tributary watershed include:

- an evaluation of available watershed assessment data, including potential spawning, summer holding, and rearing habitat, as well as known limiting factors for spring-run Chinook salmon and steelhead populations;
- historical and current adult monitoring activities;
- completed, ongoing, and other identified restoration activities;
- limitations for restoration; and
- potential benefits of restoration.

## Schedule

The Steering Committee is currently preparing two lists of potential habitat expansion actions, including a draft list and a final list. The following are proposed completion dates associated with preparing the list of potential habitat expansion actions (a detailed project timeline is presented in Appendix A):

- Develop a draft list of potential actions—March 2009
- Develop a final list of potential actions—April 2009

## List of Viable Actions

The Steering Committee is currently developing a tool or methodology for applying the 17 Evaluation Criteria to the list of potential habitat expansion actions and assessing projects for their potential contribution to the Habitat Expansion Threshold (see “Approach for Applying the HEA Criteria” above). The developed evaluation tool or methodology will be applied to the list of potential actions to develop a list of viable actions.

The Steering Committee will prepare two lists of viable actions, including a draft list and a final list. The final list of viable actions will consider input from completed questionnaires received from the stakeholders. The following is a list

of proposed completion dates associated with preparing the list of viable habitat expansion actions (a detailed project timeline is presented in Appendix A):

- Develop an approach for applying the HEA Evaluation Criteria and evaluating the list of potential actions to develop the list of viable actions—April 2009
- Apply Evaluation Criteria to the list of potential actions—April 2009
- Develop a draft list of viable actions—April 2009
- Develop a final list of viable actions—May 2009

## List of Proposed Actions

The Steering Committee is currently developing a tool or methodology for applying the four Selection Criteria to the list of viable habitat expansion actions. This tool or methodology will build on the methodologies developed above for creating the list of viable actions and will incorporate the Selection Criteria described in the HEA. Preparing the list of proposed actions will also include continued work on the contribution of the actions to the Habitat Expansion Threshold. The developed selection tool or methodology will be applied to the list of viable actions to develop a list of proposed actions.

The Steering Committee will prepare a list of proposed actions that will be incorporated into the Draft Habitat Expansion Plan. The following is a list of proposed completion dates associated with preparing the list of proposed habitat expansion actions (A detailed project timeline is presented in Appendix A):

- Develop an approach for applying the HEA Selection Criteria and selecting the list of proposed actions from the list of viable actions—April 2009
- Develop a method for assessing contribution to the Habitat Expansion Threshold—May 2009
- Apply HEA Selection Criteria to the list of viable actions—June 2009
- Determine threshold contribution associated with each action—June 2009
- Develop a list of proposed actions—June 2009

## Draft Habitat Expansion Plan

According to Section 4.1.3 of the HEA, Draft Habitat Expansion Plan, the Steering Committee will prepare a Draft Habitat Expansion Plan after selecting recommended habitat expansion action(s) for implementation. The Draft Habitat Expansion Plan will include a description of:

- the recommended action(s), including any functional start-up testing and future operation and maintenance;

- the rationale for their selection based on the Evaluation Criteria and the Selection Criteria;
- a preliminary schedule for each of the remaining phases in this Section 4, including provisions for anticipated schedule uncertainties;
- the responsibilities of each Licensee for implementing the action(s);
- the estimated contribution of the action(s) to the Habitat Expansion Threshold; and
- a pre-feasibility-level cost estimate for implementing the action(s).

The Steering Committee anticipates completing the Draft Habitat Expansion Plan by November 20, 2009. At that time, the Draft Habitat Expansion Plan will be distributed to the signatories to the HEA and directly affected third parties for a 90-day review and comment period.

## Final Habitat Expansion Plan

According to Section 4.2 of the HEA, Final Habitat Expansion Plan, the Steering Committee will prepare a Final Habitat Expansion Plan that will include all elements required for the Draft Habitat Expansion Plan. In addition, the Final Habitat Expansion Plan will address comments received from the HEA signatories and other stakeholders during the 90-day review and comment period on the Draft Habitat Expansion Plan. The final plan also will include an explanation of why any comments were not adopted.

Once the Final Habitat Expansion Plan is complete, the Steering Committee will submit the final plan to NMFS for approval within 90 days after the close of the review and comment period on the Draft Habitat Expansion Plan. The Steering Committee will also distribute the Final Habitat Expansion Plan to the other parties to the HEA and directly affected and responsive third parties, for information only.

## Next Steps

Assuming that NMFS approves the Final Habitat Expansion Plan, the Steering Committee will distribute the final plan and a proposed timeline for completing the remaining process phases as described in the HEA. These remaining phases include:

- the preliminary design phase,
- the final design and permitting phase,
- implementation of the proposed action(s), and

- preparation of the Final Test Report.

Steps associated with each phase are listed below.

## Preliminary Design Phase

The preliminary design phase includes the following steps:

- prepare feasibility-level designs and cost estimates for approved actions,
- prepare and distribute semi-annual status reports, and
- submit Preliminary Design Report for NMFS approval (consistency determination).

The Licensees (DWR and PG&E) will receive new licenses prior to proceeding.

## Final Design and Permitting Phase

The final design and permitting phase includes the following steps:

- prepare bid-level design and cost estimates;
- prepare and distribute semi-annual status reports;
- apply for all permits, approvals, and rights necessary to implement; and
- submit Final Design and Permitting Report for NMFS approval (consistency determination).

## Implementation of the Proposed Action(s)

Implementation of the proposed actions includes the following steps:

- implement the proposed action(s) individually, jointly, or through cooperative efforts with others; and
- prepare and distribute semi-annual status reports.

## Preparation of Final Test Report

Preparation of the Final Test Report includes the following steps:

- perform functional startup testing,
- prepare and distribute semi-annual status reports, and

- submit Final Test Report for NMFS's approval (consistency and functionality determination).

Upon NMFS approval of the Final Test Report, the Licensees will have met the obligations of the HEA.

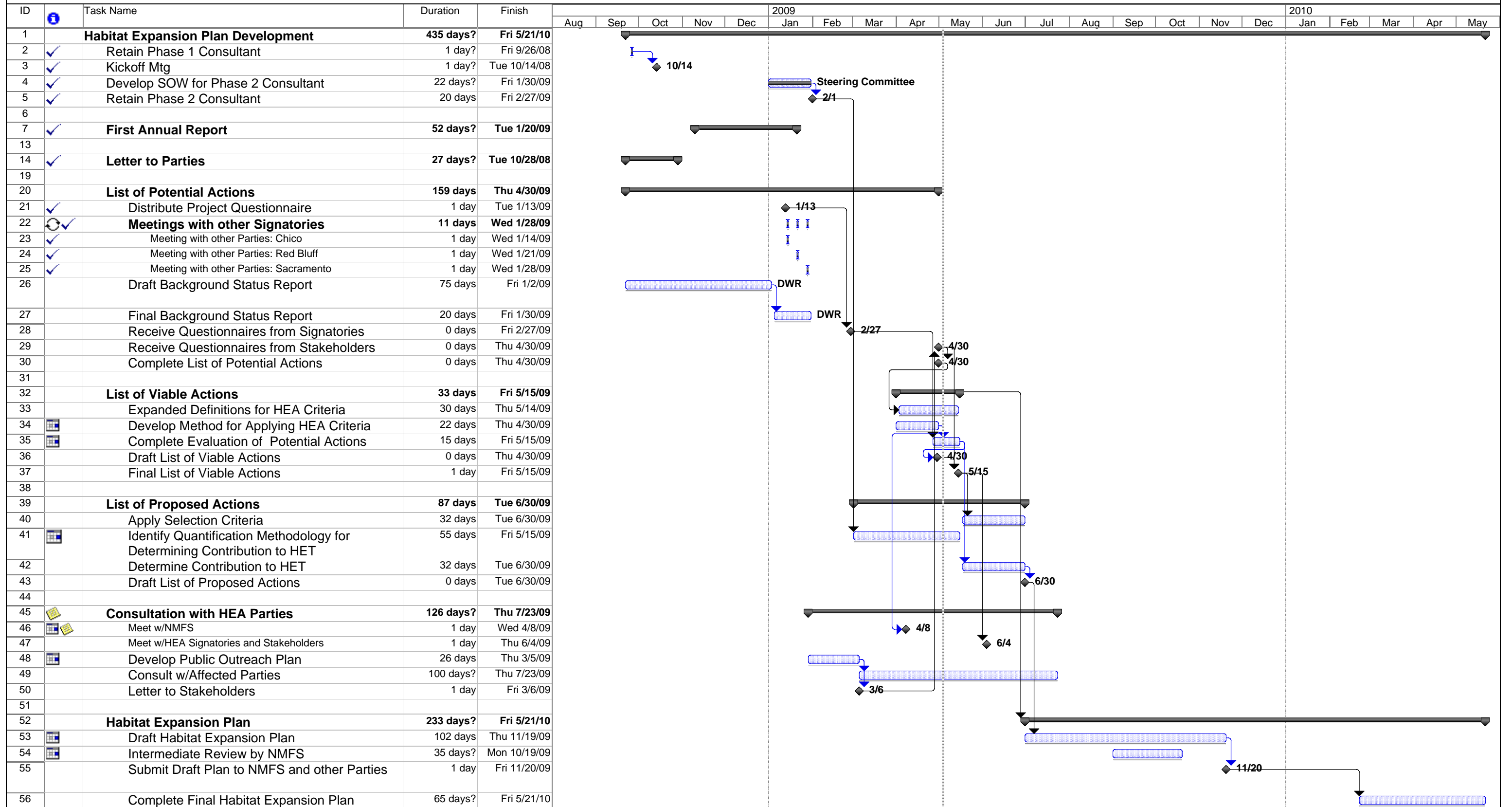
## References

Williams, R. N. (ed.). 2006. *Return to the River: Restoring Salmon Back to the Columbia River*. Elsevier, NY.

DRAFT

Appendix A  
**Timeline**

# Habitat Expansion Plan Schedule



Habitat Expansion Agreement  
 Draft Habitat Expansion Plan Schedule  
 Date: Mon 5/4/09

Task	Summary	Rolled Up Progress	Project Summary
Progress	Rolled Up Task	Split	Group By Summary
Milestone	Rolled Up Milestone	External Tasks	

Appendix B

# **Habitat Expansion Agreement Conceptual Framework**

Appendix B

# Habitat Expansion Agreement Conceptual Framework

The Habitat Expansion Agreement conceptual framework is currently being reviewed by the National Marine Fisheries Service. Once reviewed, the conceptual framework will be presented in this appendix.

Appendix C

# **Expanded Definitions of Evaluation, Selection, and Approval Criteria**

Appendix C

# Expanded Definitions of Evaluation, Selection, and Approval Criteria

The expanded definitions for the Habitat Expansion Agreement Evaluation, Selection, and Approval Criteria are currently being reviewed by the National Marine Fisheries Service. Once reviewed, the expanded definitions will be presented in this appendix.