i. Proposal number.# 2001-K201*
ii. Short proposal title .# Genetic Population Structure of Central Valley Chinook Salmon*

APPLICABILITY TO CALFED ERP GOALS AND IMPLEMENTATION PLAN
1a1. Link to ERP Strategic Goals: What Strategic Goal(s) is /are addressed by this proposal? List the letter(s) of all that apply.

A. At-risk species
B. Rehabilitate natural processes
C. Maintain harvested species
D. Protect-restore functional habitats
E. Prevent non-native species and reduce impacts
F. Improve and maintain water quality# A*

1a2. Describe the degree to which the proposal will contribute to the relevant goal. Quantify your assessment and identify the contribution to ERP targets, when possible.# Chinook salmon recovery is a key effort in the ERP. The ERP targets for chinook are identical with the MSCS species prescriptions. An important component of the recovery strategy is the Viable Salmonid Population (VSP) framework developed by NMFS scientists. The purpose of this proposal is to establish a comprehensive genetic population structure of Central Valley chinook salmon stocks that will help frame the VSP in guiding the recovery effort.*

1b. Objectives: What Strategic Objective(s) is/are addressed by this proposal? List Objective (from the table of 32 objectives) and describe potential contribution to ERP Goals. Quantify your assessment, when possible.# Goal 1, Objective 1. Achieve, first recovery, and then large self-sustaining populations of chinook salmon.*

1c. Restoration Actions: Does the proposal address a Restoration Action identified in Section 3.5 of the PSP? Identify the action and describe how well the proposed action relates to the identified Restoration Action.# Yes. The PSP specifies studies which include genetic assessment of Central Valley salmonids. This proposal directly responds to that study.*

1d. Stage 1 Actions: Is the proposal linked directly, indirectly or not linked to proposed
Stage 1 Actions? If linked, describe how the proposal will contribute to ERP actions during

Stage 1.# This is primarily a research proposal. It is indirectly described in the following Stage 1 action: assist in the preparation of detailed, ecosystem-based restoration and recovery plans for any priority species identified in the ERP Strategic Plan and the MSCS for which up-to-date plans are not available. The genetic analysis is the cornerstone of future recovery efforts.*

1e. MSCS: Describe how the proposal is linked to the Multi-Species Conservation Strategy and if it's consistent with the MSCS Conservation measures. Identify the species addressed and whether the proposal will "recover", "contribute to recovery" or "maintain" each species.# Chinook salmon are identified in the MSCS as "recover" species. This proposal will provide a definition of each recovery unit.*

1f. Information Richness/Adaptive Probing related to the proposal: Describe the degree to which the proposal provides information to resolve one of the 12 scientific uncertainties (Section 3.3 of the PSP), and whether the proposal offers a prudent approach to answer these uncertainties.# Certainly, this proposal will provide much information regarding the genetic structure of Central Valley chinook populations. As a research effort, it is not adaptive. The results of the study, however, will provide a basis for adaptively managing and restoring Central Valley chinook salmon populations.*

1g. Summarize comments from section 1a through 1f related to applicability to CALFED goals and priorities. Identify the strengths and weaknesses of the proposal, highlighting the applicability of the proposed project to CALFED and CVPIA goals and priorities. Focus on aspects of the proposal that may be important to later stages in the project review and selection process.# The results of this type of comprehensive genetic analysis are long over due. It is needed and it should be funded.*

APPLICABILITY TO CVPIA PRIORITIES

1i. Describe the expected contribution to natural production of anadromous fish. Specifically identify the species and races of anadromous fish that are expected to benefit from the project, the expected magnitude of the contribution to natural production for each species and race of anadromous fish, the certainty of the expected benefits, and the immediacy and duration of the expected contribution. Provide quantitative support where available

(for example, expected increases in population indices, cohort replacement rates, or reductions in mortality rates).# This research proposal is directed at developing a discriminate genetic analysis of Central Valley winter, fall, late-fall, and spring run chinook salmon. Proposal does not directly contribute to natural production, but will potentially provide an effective model and management tool to guide and assess CVPIA and CALFED restoration actions for Central Valley salmon. Ultimate benefit is therefore longterm.*

1j. List the threatened or endangered species that are expected to benefit from the project. Specifically identify the status of the species and races of anadromous fish that are expected to benefit from the project, any other special-status species that are expected to benefit, and the ecological community or multiple-species benefits that are expected to occur as a result of implementing the project.# This genetic analysis is directed at all four races of Central Valley chinook salmon, of which the winter and spring run are state and federally listed endangered and threatened respectively , and the
fall and late-fall runs are federal candidate species. One of the potential valuable components of this
proposal is the discrete discrimination of tributary populations of a particular race, and discrete discrimination of temporal populations in the same tributary.*

1k. Identify if and describe how the project protects and restores natural channel and riparian habitat values. Specifically address whether the project protects and restores natural channel and riparian habitat values, whether the project promotes natural processes, and the immediacy and duration of benefits to natural channel and riparian habitat values.# This project may indirectly affect watershed restoration activities based upon the eventual development of individual stream and race specific genetic metrics. These metrics may serve as the basis for restoration and management actions which are directed at restoration of natural channel values and process.*

1l. Identify if and how the project contributes to efforts to modify CVP operations. Identify the effort(s) to modify CVP operations to which the proposed project would contribute, if applicable. Efforts to modify CVP operations include modifications to provide flows of suitable quality, quantity, and timing to protect all life stages of anadromous fish as directed by Section 3406 (b)(1)(B) of the CVPIA, including flows provided through management of water dedicated under Section 3406(b)(2) and water acquired pursuant to Section 3406(b)(3).# This proposal does not directly relate to CVPIA sections
which modify CVP operations, but as in 1k, may eventually serve as a basis for restoration and management actions that enhance or alter flow regimes.*

1m. Identify if and how the project contributes to implementation of the supporting measures in the CVPIA. Identify the supporting measure(s) to which the proposed project would contribute, if applicable. Supporting measures include the Water Acquisition Program, the Comprehensive Assessment and Monitoring Program, the Anadromous Fish Screen Program, and others.# This is a basic research project that builds upon a fragmented series of past evaluations, and which proposes to develop a Central Valley wide assessment of the genetic population structure of all races of chinook salmon. While the proposal may most directly relate to the Comprehensive Assessment and Monitoring Program, indirect benefits to other programs accrue from the potential as a tool in setting priorities and assessing the effectiveness of restoration activities.*

1n. Summarize comments from section 1i through 1m related to applicability to CVPIA priorities (if applicable, identify the CVPIA program appropriate to consider as the source of CVPIA funding [for example, the Anadromous Fish Restoration Program, Habitat Restoration Program, Water Acquisition Program, Tracy Pumping Plant Mitigation Program, Clear Creek Restoration Program, Comprehensive Assessment and Monitoring Program, and Anadromous Fish Screen Program]). Identify the strengths and weaknesses of the proposal, highlighting the applicability of the proposed project to CALFED and CVPIA goals and priorities. Focus on aspects of the proposal that may be important to later stages in the project review and selection process.# Applicant proposes to develop a comprehensive analysis of the genetic population structure of Central Valley chinook salmon. This assessment will attempt to discriminate population boundaries and times of divergence, levels of gene flow, effective population size and levels of recent change, and straying rates and levels of hybridization with hatchery fish. Applicant is proposing to assess the four races of Central Valley Chinook salmon, which included the state/federally listed winter and spring run, the federal candidate fall and late-fall run. The outcome of the proposed genetic analysis will provide the potential to more effectively direct CVPIA restoration actions and serve as a measure of their success. Additionally, a Central Valley-wide genetic model may form the basis for assessing the CVPIA goal of doubling the natural production of anadromous fish, and also may serve as a basis of assessment for projects implemented under the CVPIA FY1999-2004 focus area to restore Sacramento River basin spring run chinook. This proposal represents the first attempt to develop a systematic, comprehensive Central Valley-wide genetic analysis of all races of chinook salmon. This approach is essential to the management of individual watersheds with genetically discrete populations. A major weakness of this proposal may result from the limitations of physical access to stream reaches where tissue samples are to be collected. This limitation may potentially result in samples which are not representative of the total population. Applicant should be encouraged to develop systematic sampling protocol for each watershed that adequately covers the entire spawning area, both in time and space. CVPIA funding for this project might best be addressed by the Anadromous Fish Restoration Program or the Comprehensive Assessment and Monitoring Program.*

RELATIONSHIP TO OTHER ECOSYSTEM RESTORATION PROJECTS

2a. Did the applicant explain how the proposed project relates to other past and future ecosystem restoration projects, as required on page 57 in the PSP? Type in yes or no.#yes*

2b. Based on the information presented in the proposal and on other information on restoration projects available to CALFED and CVPIA staff, describe how the proposed project complements other ecosystem restoration projects, including CALFED and CVPIA. Identify projects or types of projects that the proposed project would complement, now or in the future. Identify source of information.#This evaluation builds on existing genetic assessments for Central Valley chinook salmon and complements CALFED genetics projects on the San Joaquin (97C09), Clear Creek (98C12), and Central Valley (99N12,99N13) Source: Proposal*

RESULTS AND PROGRESS ON PREVIOUSLY FUNDED CALFED AND CVPIA PROJECTS, INCLUDING REQUESTS FOR NEXT-PHASE FUNDING

3a1. Based on the information presented in the proposal and on project reports and data available to CALFED and CVPIA staff, has the applicant previously received CALFED or CVPIA funding? Type CALFED, CVPIA, both, or none .#none*

3a2. If the answer is yes, list the project number(s), project name(s) and whether CALFED or CVPIA funding. If the answer is none, move on to item 4.#

3b1. Based on the information presented in the proposal and on project reports available to CALFED and CVPIA staff, did the applicant accurately state the current status of the project(s) and the progress and accomplishments of the project(s) to date? Type yes or no.#

3b2. If the answer is no, identify the inaccuracies:#

3c1. Has the progress to date been satisfactory? Type yes or no.#

3c2. Please provide detailed comments in support of your answer, including source of information (proposal or other source):#

REQUESTS FOR NEXT-PHASE FUNDING

3d1. Is the applicant requesting next-phase funding? Type yes or no.#no*

3d2. If the answer is yes, list previous-phase project number(s) here. If the answer is no, move on to item 4.

3e1. Does the proposal contain a 2-page summary, as required on pages 57 and 58 of the PSP? Type yes or no.#

3e2. Based on the information presented in the summary and on project reports available to CALFED and CVPIA staff, is the project ready for next-phase funding? Type yes or no.#

3e3. Please provide detailed comments in support of your answers, including source of information (proposal or other source):#

LOCAL INVOLVEMENT

4a. Does the proposal describe a plan for public outreach, as required on page 61 of the PSP? Type yes or no.# Yes*

4b. Based on the information in the proposal, highlight outstanding issues related to support or opposition for the project by local entities including watershed groups and local governments, and the expected magnitude of any potential third-party impacts.# Tissue collection needs to be systematically implemented and must encompass a statistically representative sample both temporally and spatially. Applicant discusses access issues as they relate to private lands, and because of lack of permission for access on some tributaries, will only sample at public access sites. Applicant should diligently adhere to accessing only private lands where permission has been granted, but should pursue private access permission on as large a scale as possible to increase statistical robustness of proposal*

ENVIRONMENTAL COMPLIANCE

4d. List any potential environmental compliance or access issues as identified in the PSP checklists.# Very thorough, None.*

4e. Specifically highlight and comment on any regulatory issues listed above that may prevent the project from meeting the projected timeline.#None*

COST

5a. Does the proposal include a detailed budget for each year of requested support? Type yes or no.# yes*

5b. Does the proposal include a detailed budget for each task identified? Type yes or no.# yes*

5c. Is the overhead clearly identified? Type yes or no.# yes*

5d. Are project management costs clearly identified? Type yes or no.# yes*

5e. Please provide detailed comments in support of your answers to questions 5a - 5d.# Indirect rates of 10
%-state for a total project amount of $505,169 and 26-48%-federal for a total project amount of $641,362 are quoted. Varying overheads for subcontracted work. Applicant does not describe any severability between task or years of performance.*

COST SHARING
6a. Does the proposal contain cost-sharing? Type yes or no.# yes*

6b. Are applicants specifically requesting either state or federal cost share dollars? Type state, federal, or doesn't matter.# doesn't matter*

6c. List cost share given in proposal and note whether listed cost share is identified (in hand) or proposed.

6c1. In-kind:# $145,478 proposed*

6c2. Matching funds:# $0*

6c3. Show percentage that cost sharing is of total amount of funding requested along with calculation.# 23% or 145,478/641,362=.226826659*

6d. Please provide detailed comments in support of your answers to questions 6a - 6c3.# In-kind services to
be provided by UCD investigators and CDFG personnel (and equipment) conducting white sturgeon research.*