i. Proposal number.# 2001-F200

ii. Short proposal title.# Transport of SE and C in the Delta*

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, B, C, D, F*

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.# ERP Goal A - Proposal will contribute significantly to this goal. The proposal will provide food web data, assess the potential for Se exposure and bioaccumulation, and provide habitat data for at-risk benthivorous fish species, such as splittail, delta smelt, salmon, and green sturgeon. The proposal states that selenium may be a cause of the disappearance of native fish species and the inhibition of their recovery in the aquatic ecosystem.

ERP Goal B - The proposal would contribute significantly to this goal. The proposal describes the use hydrodynamic models to predict and evaluate the impacts of Se loads (suspended particulate, sediment, dissolved) on the Delta food web. Information from this study would assist decision makers for habitat rehabilitation and restoration projects.

ERP Goal C - The proposal will contribute to a high degree for harvested species by providing information about white sturgeon (various life stages) and investigate the toxic effects of Se exposure on this species. White sturgeon and green sturgeon are similar in biology and feeding habits and therefore will provide important information for ERP Goal A.

ERP Goal D - The proposal contributes to a very high degree towards the goal of improving and maintaining water quality. The diversity and amount of physical, chemical, and biological data collected and modeled from this study is substantial. The study is particularly useful in that modeling and field data collected under different flow conditions should assist decision makers with future habitat restoration efforts.
ERP Targets 11,17, 21, 22: The proposal will contribute to the these targets by providing data that will support decisions about reducing Se loads, concentration, and bioaccumulation in the Sacto-SJR Delta. The data can be used to support U.S. EPA and RWQCB/SWRCB water quality/TMDL decision making and used as an incentive to improve or modify agricultural drainage practices and/or land acquisition/retirement along the West SJR.*

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.# ERP Goal A, Objective 3 - The proposal most contributes to Objective 3 and may contribute to a lesser extent to Objectives 4.

ERP Goal B, Objectives 1,2,3 - The proposal would contribute significantly these objectives.

ERP Goal C - The proposal would contribute significantly to Objective 1.

ERP Goal D - The proposal would contribute to Objectives 1 and 2, and to a lesser extent to Objective 3.

ERP Goal F - The proposal would contribute significantly to Objective 1 and may contribute to a lesser extent to Objective 3.*

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.# RA 1 (Natural Flow Regimes) - The proposal strongly relates to this Restoration Action. The proposal will address information needs described in the PSP. For example, the study will use hydrodynamic models to evaluate transport and distribution of materials in Delta and will look at how Se transport and transformation affects food webs under different flow conditions.

RA 5 (Shallow Water Habitat) - The proposal will provide information that will assist decision making for type and extent of shallow water habitat is created in the Delta.

RA 6 (Contaminants) - The proposal directly addresses the stated need for selenium fate and transport within the food web studies described in Section 3.5 of the PSP.*

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.# Ecosystem Restoration Stage 1 Actions
Stage 1 Action #4 (Implement Habitat Restoration) - The proposal would provide useful information that would be used in habitat restoration decision making, particularly for shallow water habitat.
State 1 Action #8 (Complete Targeted Research/12 Uncertainties) - The proposal is linked to this Stage 1 Action as it will contribute significantly to CALFED scientific uncertainties.
General Water Quality Action
Stage 1 Action #2 -
Environmental Water Quality Actions
Stage 1 Action #7*

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.# The proposal will provide information that will contribute to the recovery of at-risk species.*

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.# Scientific Uncertainty #1 (Natural flow regime) - The proposal would contribute significantly to this uncertainty. Do not currently know the relationship of flow, sediment, and organic material and transport and transformation of Se in the Delta. The study will use modeling to define relationships between flow, contaminant concentrations and resultant dose and exposure to biota.

Scientific Uncertainty #3 (Decline in productivity) - The proposal would contribute significantly to this uncertainty. The study would look at food web productivity by looking at carbon loads to the estuary modification of flows and management activities in the watersheds and delta can affect delta food web productivity. Proposal will contribute to assessing the response of certain activities on food web productivity. Also looks at contaminants and impacts on food web productivity.

Scientific Uncertainty #4 (Diversion effects of pumps) - The proposal would contribute significantly this scientific uncertainly and the proposal offers a prudent approach to answering the scientific uncertainties described below. The proposal would use hydrodynamic modeling to assess the impacts of a range of pumping options and flows conditions on Se and C in Delta. Multiple uncertainties and comprehensive approach that includes modeling, field data, laboratory studies.

Scientific Uncertainty #10 (Marsh Habitat) - See above discussion. The information from this study may provide key information use in shallow water habitat restoration.

Scientific Uncertainty #11 (Contaminants in the Central Valley) - See above discussion. The proposal would contribute significantly.*

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.# Strengths

The proposal meets multiple CALFED goals, objectives, targets, restoration actions, Stage 1 Actions. The proposal would contribute to several scientific uncertainties. The proposal draws upon existing models and data where available and is balanced in its approach in that it includes that includes modeling, field studies, and laboratory studies.

Very well written. Clear presentation of objectives and hypothesis.

Weaknesses

The proposal is almost too complex, covers a wide range of objectives and hypotheses. Each project task alone represents a large research project with multiple sub-tasks. The complexity and scope of the project made it somewhat difficult to evaluate.

A more detailed presentation of the specific linkages to at-risk benthivorous fish species and the food sources (bivalves, copepods, amphipods) to be investigated would have been helpful.

This proposal extends two USGS research projects currently under CALFED funding. The proposal would have been enhanced if the status and remaining data gaps for the existing studies could have been described and linked to the current proposal.*

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).# The project would indirectly contribute to natural production of all anadromous fish that feed in the Delta by providing data and modeling tools needed to incorporate Se biogeochemistry into decisions about water and wastewater management in the Central Valley (especially the San Joaquin basin) and about where and how to restore Delta habitat so that anadromous fish are not exposed to toxic (Se-contaminated) food supplies. The benefits would be greatest for benthivorous species such as green and white sturgeon because benthic invertebrates bioconcentrate Se to a much greater degree than planktonic fish food organisms and because these anadromous fish species tend to spend a lot more time feeding in the Delta than salmonids. The improved understanding likely to result from this project could have essentially immediate and long term beneficial effects on restoration efforts focused on the Delta.*

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.# Species expected to benefit would include: definitely, green and white sturgeon, tule perch and splittail (threatened); possibly striped bass, American shad, winter run (endangered), spring run (threatened), fall and late-fall run chinook salmon (candidates), Central Valley steelhead (threatened) and Delta smelt (threatened).*

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 would promote natural habitat values because it would provide data and modeling tools needed to incorporate Se biogeochemistry into decisions about water and wastewater management in the Central Valley (especially the San Joaquin basin) and about where and how to restore Delta habitat so that fish and wildlife are not exposed to toxic food supplies. Potential benefits would be almost immediate and long lived.*

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).# The location, amount or timing of CVP releases under b(2) or VAMP could conceivably be
modified in response to recommendations stemming from the results of this study.*

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.

Project supports the b(1) other program by virtue of its potential for assisting efforts to ensure non-toxic food supplies for water birds or other wildlife that feed on aquatic invertebrates and for still higher trophic levels (including humans).*

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.# The proposed study would provide analytical tools and monitoring data for evaluation of Se contamination in the Delta and feedback on how restoration project outcomes or water/wastewater management decisions might affect Se threats to reproduction of sturgeon and possibly other Central Valley anadromous fish. The proposed study also contributes to a medium priority Delta-focused evaluation (Evaluation 7) and a high priority Central Valley wide action (Action 3-Reduce toxic chemical and trace element contamination) as identified in the 1997 Revised Draft Restoration Plan for the Anadromous Fish Restoration Program (AFRP). It therefore qualifies for funding consideration under the AFRP.*

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.#no*

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.#Information derived from this study fills an important gap in knowledge in understanding how constituents such as selenium, carbon, and organic matter are transported through the food web. This addresses CALFED concerns about contaminants in the Delta and complements other

CALFED contaminant projects including 97B06, 98B07, 98B14, 99B17, and 00G01. Information source: Proposal description and CALFED project tracking table.*

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.#CALFED*

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.#CALFED:
97B02 - Sediment Movement and Availability and Monitoring in the Delta
97B06 - Assessment of Organic Matter in the Habitat and its Relationships to the Food Chain
99B17 - Dissolved Organic Carbon Release from Delta Wetlands, Part 1
00G01 - Dissolved Organic Carbon Release-Delta Wetlands, Part 2
98-2015000-00096 - Assessment of the Impacts of Selenium on Restoration of the San Francisco Bay-Delta Ecosystem*

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.#yes*

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

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

3c2. Please provide detailed comments in support of your answer, including source of information (proposal or other source):#All USGS projects to date have been progressing satisfactorily and preliminary results presented in public forums. Information source: Proposal, CALFED project tracking table, progress reports.*

REQUESTS FOR NEXT-PHASE FUNDING

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

3d2. If the answer is yes, list previous-phase project number(s) here. If the answer is no, move on to item 4.#97-B06
98-2015000-00096*

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

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.#yes*

3e3. Please provide detailed comments in support of your answers, including source of information (proposal or other source):#USGS has completed historical analyses of DOC data; phytoplankton and zooplankton assays completed to develop model of primary production and bioavailability to next life stages;preliminary model developed, and selenium concentration sampling and analyses ongoing. Preliminary data presented at IEP Annual Meeting. On schedule to complete Phase 1 work in 2001.
Information source: Proposal*

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.# No apparent opposition or third party impacts.*

ENVIRONMENTAL COMPLIANCE
4d. List any potential environmental compliance or access issues as identified in the PSP checklists.# Need to comply with CEQA to determine if project will have impact on resources. Task 2 needs collecting permits and Rivers and Harbors Act permit for placing instruments in navigable waterways. Need to consult with the Corps for placing dye in channels.*

4e. Specifically highlight and comment on any regulatory issues listed above that may prevent the project from meeting the projected timeline.# Need to comply with CEQA to determine if project will have impact on resources. Task 2 needs collecting permits and Rivers and Harbors

Act permit for placing instruments in navigable waterways. Need to consult with the Corps for placing dye in channels.*

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.# All information requested has been provided by project proponent in a clear, concise, and understandable format.*

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.# doesnt matter*

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

6c1. In-kind:# no*

6c2. Matching funds:# $3,595,000.00.* **6c3. Show percentage that cost sharing is of total amount of funding requested along with calculation.#** $3,595,000 divided by $3,361,160=107%*

6d. Please provide detailed comments in support of your answers to questions 6a - 6c3.# n/a*