

i. Proposal number.# 2001-K221*

ii. Short proposal title.# Food Resources for Zooplankton in the Sacramento-San Joaquin River 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, D***

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.# This research will provide information to better understand Delta foodweb interactions and potential impacts on estuarine dependent species such as delta smelt, splittail, all anadromous salmonids, and other aquatic species. It will also examine foodweb relationships in a variety of habitat and monitor foodweb development in restored tidal habitat areas.*

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.# This research proposal is linked to Goal 1, objective 1 (at-risk species) but is most closely aligned with Goal 1, Objective 3: enhance and/or conserve native biotic communities in the Bay-Delta estuary and its watershed, including the abundance and distribution of estuarine plankton assemblages. This proposal can make significant contributions to our understanding of the role and requirements of native and introduced zooplankton, primarily copepods.*

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.# This proposal is most closely linked to the Fishery Monitoring Assessment, and Research section of the PSP. It also touches on other categories including the food web structure element of Natural Flow Regimes, Non-Native Invasive Species studies, the potential beneficial impacts to food web communities by

Flood Management/Bypasses as an Ecosystem Tool, and foodweb relations in Shallow Water, Tidal and Freshwater Marsh Habitat. Foodweb research is not specifically identified in the PSP, but this high caliber study has linkages to many of the actions promoted by the ERP and to be implemented through 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.# This is a research proposal and is described in the list of draft Stage 1 actions in the Strategic Plan in at least two items that address foodweb target research.*

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.# Species which could benefit from the type of data analysis to be developed in this study include delta smelt, splittail, and all anadromous salmonids. All are MSCS "recover" species. Certainly, foodweb population dynamics and nutritional requirements are very important for the potential survival or health of juvenile fish dependent on the estuary.*

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.# This

proposal is directly linked to the uncertainty related to the Decline in Productivity. The proposal is excellent. It has well founded, clearly presented conceptual models and testable hypotheses which are designed to provide a better understanding of a possible mechanism for the decline in native and harvestable fishes. It also will provide insight regarding the competition for food resources by introduced species at the various trophic levels and how they influence zooplankton abundance. It will also provide information regarding the manner in which structural habitat changes may influence the production potential of the Delta. All these items are essential in the long-term adaptive management approach. The analyses from this research will provide improved information upon which to develop future management actions that may include restoration of shallow water habitats and the foodweb implications of such actions.*

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.

This proposal is excellent. Its strength comes from the caliber of researchers who developed the proposal and their experience in foodweb dynamics. It addresses a critical uncertainty in efforts to restore at-risk species, namely, the decline in productivity of the Bay-Delta foodweb. It will key on other ongoing CALFED habitat restoration projects and will capitalize on other ongoing research efforts. High quality research into the basic functioning of the Bay-Delta system is extremely valuable and needs to begin early in the implementation phase so that future researchers and restoration project developers can benefit from the foodweb analyses and recommendations.*

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).

Anadromous fish species potentially benefiting from this project include: all four races of chinook salmon, steelhead trout, striped bass and American shad. Studies have no direct benefits to natural production, but can contribute indirectly by improving understanding of how systems work. The magnitude of this project's indirect contribution to natural production of all these species is potentially high because all of them eat zooplankton at some point in their life cycles. The certainty of the project's benefits is also high in that it will lead to improved understanding of a vital link between physical habitat modification and natural fish production. The expected benefits would depend in part on the findings of the study and the degree to which its recommendations are confirmed with field-scale adaptive management experiments, but could be immediate and of infinite duration.*

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.

Listed anadromous species benefiting from the project would include: Sacramento River winter run chinook salmon (endangered), Central Valley spring run chinook salmon (threatened) and Central Valley steelhead trout (threatened). Central Valley fall and late fall run chinook salmon, a candidate for federal listing, would also benefit. Given that zooplankton figure heavily in the

diet of Delta smelt (endangered) and Sacramento splittail (threatened), these listed species would also likely benefit from improved understanding of Delta copepod production. Also, successful culturing of copepods (Task 1) would contribute to efforts to culture Delta smelt*

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.# One task of the project would compare copepod (fish food) production and nutritional value between natural and highly altered channel conditions. The project would specifically investigate how water residence time and different habitat configurations influence food quality and quantity for copepods in the Delta. This information could be used immediately to adapt management strategies or habitat restoration project designs*

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).# Results of this study could lead to changes in the location or timing of b(2) releases or to the expansion of criteria used to identify or prioritize b(3) acquisitions.*

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 would contribute substantially to 3406(g) ecosystem modeling effort.*

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.

This study would address issues of fundamental relevance to habitat restoration focused on all

AFRP target species. It supports a high priority evaluation item (Delta Evaluation 10) identified in the 1997 Revised Draft Restoration Plan for the Anadromous Fish Restoration Program (AFRP). It would provide useful information on fish food production and

quality among habitat types and seasons and on trophic effects of exotic copepods. Improved understanding of copepod ecology would help in providing a scientific basis for guiding and evaluating Delta management and restoration. Results of this study could lead to changes in the location or timing of b(2) releases or to the expansion of criteria used to identify or prioritize b(3) acquisitions. The project would also benefit the CVPIA's 3406(g) ecosystem modeling effort. This project would be appropriate for funding under the Anadromous Fish Restoration 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.#Collaborators on previous CALFED food resources project (97B06) and complements other Delta food-web research by the National Science Foundation, USGS, DWR, and The Nature Conservancy. 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.## No*

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.## Broad and enthusiastic support from agency and academic scientists; no apparent opposition or third party impacts.*

ENVIRONMENTAL COMPLIANCE

4d. List any potential environmental compliance or access issues as identified in the PSP checklists.## This is subject to CEQA and CESA and ESA. Project proponents state it is not and no permits are needed. Sampling for zooplankton has the potential to collect threatened or

endangered fish larvae depending on where and when sampling takes place. CEQA documents need to be completed and reviewed for CESA and ESA compliance for issuance of take permits.*

4e. Specifically highlight and comment on any regulatory issues listed above that may prevent the project from meeting the projected timeline.# Project proponent need to complete the documents early enough for regulatory agencies to review and issue permits.*

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.# Applicant quoting an indirect rate of 26% for both federal and state funding.*

COST SHARING

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

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:# \$0*

6c2. Matching funds:# \$0*

6c3. Show percentage that cost sharing is of total amount of funding requested along with calculation.# \$0%*

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