Selection Panel (Primary) Review

− ***Fund*** (a proposal recommended for funding at the amount sought or funding in part of selected project tasks or subtasks)

− ***Reconsider if Revised*** (a proposal that is a high priority but that requires some revision followed by additional review prior to being recommended for funding)

X Not Recommended

Amount Sought: $1,353,357

Fund This Amount: $***0***

Conditions recommended (Conditions that applicants would need to meet to obtain funds may be recommended for proposals suggested for either full or partial funding. For proposals recommended for partial funding, conditions that identify the funded tasks or subtasks must be recommended.)

Please provide a brief explanation of your rating, including an explanation of the reasons for any conditions that the panel recommends. Revisions required of proposals recommended for reconsideration should be outlined, together with a justification for the suggested revisions:

The Technical Panel rated this proposal inadequate largely because the proposed monitoring was not related to or evaluated relative to individual or collective restoration actions as sought by the PSP. The Selection Panel agrees with this conclusion and does not recommend the proposal for funding. This proposal essentially lacked an evaluation component, and focused instead only on baseline monitoring. Baseline monitoring alone is inconsistent with the need of this PSP for evaluations that provide insight into effects of past restoration actions. The data would have assisted in evaluating strategic benefits of achieving goals for listed and candidate Chinook salmon. Further, resource managers, decision−makers and stakeholders would have found the data valuable in setting take limits and in modeling some of these populations, particularly in looking for quantitative associations of environmental factors with changes in annual returns.

This proposal is for baseline monitoring that is of great utility in assessing status and trends of some priority salmon species populations in the upper Sacramento River basin. The Selection Panel recognizes the value of these data for status and trends analyses, management activities such as setting take limits, and for ongoing modeling efforts. The Selection Panel suggests that the applicant seek funding for this essential monitoring from other more approriate sources.

Technical Panel (Primary) Review

inadequate

Explanation Of Summary Rating

This is in principle a good proposal, but it will provide very limited information on the success of restorations in the basin. Adult escapement by itself provides limited information on restoration success; including variables such as juvenile survorship would provide more information, as would an approach/model that would include the influence of factors other than restoration actions. There is benefit to continuing adult escapement surveys and to basin−wide monitoring, but the tie to specific restoration activities is not very strong.

Review Form

Goals And Justification

The monitoring is tied to a series of previously funded restoration actions in this basin that were aimed at Chinook salmon restoration. The status of adult returns will be used as a primary ecological indicator to evaluate success of previous restoration efforts. So this is population monitoring on a watershed scale. There is merit in coordinating and continuing the escapement surveys. A great deal of money and time has been invested in restoration actions aimed at Chinook salmon restoration, and programs like these provide some idea (with limitations noted below) of basin−wide success of restoration efforts and serve to assess progress towards the goals of doubling population sizes and delisting of the threatened and endangered runs. Justification is relatively weak when it comes to evaluating specific restoration activities. There is no framework to test the relationship between escapement and specific restoration activities. While there is a good justification for basinwide monitoring, it has inherent limiations to the usefulness of the data. If populations have not increased, which restoration efforts were unsuccessful? Or low ocean survival may have offset successes of restoration efforts in freshwater habitats. And if restoration was not successful, which life stage formed the bottleneck (only adults are monitored; stage−specific survivorship would have been more informative)? Data sharing between individual restoration projects in the basin and this study may shed light on the relationship between restoration success and adult escapement trends. The two hypotheses listed are rather simplistic, and comparing abundance changes in 3−year increments does not provide a strong record of long−term population trends (with the fish's 3−5 year life cycle, a 3−year sampling regime would miss a substantial part of a cohort). The proposal also does not discuss what change in abundance is needed to judge restoration activities as having been successful. One external technical reviewer

strongly recommended the application of power analysis when testing the hypotheses.

Approach

A strength of this proposal is the adaptive planning used to design the monitoring activities and its building on previous years of field work and improvements in population assessment models. The activities in this proposal are likely to provide some information on escapement numbers over time (building on decades of salmon monitoring); thus providing data relevant to decision makers. The winter−run monitoring is especially expected to provide benefits to the management of this subspecies, since a strong monitoring program has been in place for a while. Monitoring of the other runs faces some hurdles (e.g. due to low numbers of carcasses). A problem with the fall−run monitoring is that not all of the hatchery fish are externally distinguishable from natural spawners. However, it is very beneficial that tissue samples will be collected for genetics work (part of an ongoing study) that will be used to determine the contribution of hatchery−derived fish. Contributions to our knowledge base are limited by the limitation inherent to assessing escapement numbers (see above).

Feasibility And Likelihood Of Success

The project is technically feasible. It builds on a long history of monitoring adult escapement in this system, and the lead people and agencies involved have many years of experience with this work indicating a high likelihood of success. The past experience also ensures continuity (i.e. comparable data) and quality control. The scale of the project is consistent with the objectives, though the project will not be able to establish causal linkages between abundance and restoration. The regional and environmental compliance reviews did not identify local circumstances or other obstacles affecting project feasibility. While environmental conditions could pose significant challenges for some sampling, adaptive management has in the past always overcome such challenges.

Performance Measures

The data collected in the project, added to the previous years of monitoring data, will allow evaluation of the success of restoration actions on a watershed scale. But restoration−independent factors (such as ocean conditions and emigration success through the delta) are likely to also contribute to annual variation in returns. The project needs to relate changes in adult returns to the suite of factors that can affect abundance. This will require careful thought about data analyses. The technical review panel suggests that a stronger effort be made to partition natural variation from restoration−related influences. While this project's monitoring is incapable of relating results to specific restoration actions, such efforts would yield a stronger connection to the combined effects of the restoration efforts in the basin.

Products

The project will lead to information that is of use to resource managers, other decision makers and scientists. Data will be available in reports to agencies, but apparently not available to a wider audience (e.g. through a web site). Statistical treatment of the data may need to be expanded for publication in a peer−reviewed journal; the investigators are urged to not limit publication to technical reports but to publish the results in peer−reviewed journals so that a more general scientific audience can be reached.

Capabilities

The project team has extensive prior experience with this work, indicating they have the ability to complete the project.

Budget

The budget seems reasonable and appropriate for the proposed work. The budget is heavy on personnel costs, but this seems appropriate given the substantial amount of man−hours required for the monitoring.

Regional Review

The Sacramento regional review finds that the project meets all the necessary criteria of this program and that the data produced are essential to resource managers and the CalFed program. The data will provide population status information to allow evaluation of multi−species conservation strategy milestones for the region. The regional panel had questions as to whether or not some of this monitoring should continue to be funded by the individual agencies, and noticed some overlap with the Clear Creek surveys in a different proposal. Overall ranking: very high

Administrative Review

The budget review indicated that project management expenses appeared inadequate (at 2% of total project), and noted some minor problems with indirect cost rates, insufficient budget detail for some items, and insufficient detail on tasks and services for subcontractor work. The environmental compliance review identified some minor issues.

Additional Comments

The investigators are encouraged to review current literature, since some very good studies exist that explore in−depth the relationships described in this proposal, e.g. on effect of naturally spawning fish on wild spawners (this need was pointed out by an external reviewer without identification of any actual references). This proposal has considerable overlap with another proposal (#28), and some overlap with other proposals (such as #38) that focus on individual tributaries of the Upper Sacramento River basin.

Technical Review Panel's Overall Evaluation Rating:
inadequate

Sacramento Regional Review

Very High

Review:

1. ***Applicability to ERP goals and regional priorities.***

Information collected during adult Chinook escapement monitoring will be used to assess the effect of restoration actions implemented by the Anadromous Fish Restoration Program, Central Valley Project Improvement Act and, CALFED programs. The project would directly monitor the population level responses of spring− and winter−run Chinook salmon to CALFED ERP and CVPIA restoration actions in the upper Sacramento River as well as almost all of the high priority tributaries to the upper river including Battle Creek, Mill Creek, Deer Creek, Beegum Creek, Antelope Creek and Clear Creek. The data collected will provide key population status information to allow evaluation of Multi−Species Conservation Strategy milestones for the region.

This proposal responds to the following management needs for Upper Sacramento River Basin (USRB) Chinook salmon:

A. Providing a sound basis for assessing recovery of listed stocks B. Monitoring the success of restoration programs C. Evaluating the contribution of hatchery fish to USRB populations D. Sustainably managing ocean and inland harvest

This proposal directly responds to the first key goal of the CALFED Ecosystem Restoration Program's (ERP) Draft Stage 1 Implementation Plan (CALFED 2001):

At−Risk Species (Goal 1): Achieve recovery of at−risk native species dependent on the Delta and Suisun Bay as the first step toward establishing large, self−sustaining populations of these species; support similar recovery of at−risk native species in the Bay−Delta estuary and its watershed; and minimize the need for future endangered species listings by reversing downward population trends of native species that are not listed.

The proposal also addresses the CALFED Program Multi−Species Conservation Strategy (MSCS)−ERP milestones (2000) including:

"Through the use of existing, expanded, and new programs, monitor adult anadromous salmonid returns in each watershed within the MSCS focus area. Monitoring techniques, data compilation and analysis, and reporting should be standardized among researchers and watersheds to the greatest extent possible."

And the CALFED ERP Implementation Plan (2001) CALFED Science Program Goal:

“Coordinate and extend existing monitoring. A strength of the CALFED Program is the monitoring systems already in place in the system. Common questions and subsequent investments are needed to tie together the existing monitoring…”

The CALFED ERP Implementation Plan, in its identification of restoration priorities for the Sacramento Region, also included:

“Annual population estimates. Annual estimates of fish populations on the Sacramento River are a key ingredient in management actions to protect fish in the Delta. A strong need exists to understand and reduce the uncertainties in those estimates via more field studies, and data analysis as well as applying advanced field methodologies and modeling capabilities. Models and basic studies that might allow better connection of management actions and specific stressors to population responses of key species of native fish are critical to managing fish protection and water supplies (Strategic Goal 1, At−risk Species Assessments).”

2. ***Links with other restoration actions.***

The Upper Sacramento River Chinook escapement surveys are part of the Comprehensive Assessment and Monitoring Program (CAMP), designed to monitor the progress of restoration activities of the CVPIA program (USFWS 1997). Continuation of this program will provide valuable information on the successes and failures of the various restoration activities being conducted in the upper Sacramento River and its tributaries by the CALFED ERP and CVPIA. A recent CALFED−funded statistical study of Central Valley salmon escapement data concluded:

“Improving the quality of escapement estimates may be the most beneficial management action that can be taken to increase the chance of determining whether or not progress is being made toward the CVPIA objective of doubling natural production.” (Newman 1999).

Maintenance of a long term record of adult escapement for the upper Sacramento and upstream tribs, when compared to estimates of juvenile production for the same years, will provide direct insight into the efficacy of spawning and juvenile rearing habitat improvement projects, as well as the effects of other environmental factors such as weather, flow levels, water temperatures, etc.

Data from the adult escapement surveys will be stored at the DFG Red Bluff office (2440 Main Street, Red Bluff, CA). Additional data (genetic, hatchery) from the joint Winter−run Chinook carcass survey will be stored at the USFWS Northern Central Valley Fish and Wildlife Office (NCVFWO) (10950 Tyler Road, Red Bluff, CA). Computer based databases

and paper databases will undergo at least one (typically three) quality control (QC) review(s) to ensure accuracy. After QC review the electronic database will be considered final and the paper copies will be stored on site(s). Analytical files will be used to link individual survey files into one or more master files which summarize the adult escapement into the upper Sacramento River for each year. Once complete these databases and master files will be available upon completion of required written products.

Project biologists are responsible for updating the USRB data in the Department's "GrandTab", which reports salmon escapement numbers for all runs in the Central Valley from 1952 to present.

3. ***Local Circumstances.***

The proposed approach will be both feasible and appropriate to the completion of the escapement surveys. The proposed work and completion schedule is commensurate with the tasks and schedules of previous large scale escapement monitoring in the USRB that was adequately funded. Environmental conditions can be of significant consequence (flooding) to certain surveys (late−fall−run), but are typically sporadic and often temporary in nature. The continuation of these surveys over many years has allowed most of the operational and environmental problems to be overcome by adaptive management designs that have tailored individual surveys to each watershed in the USRB.

The staffs of the PSMFC, DFG and USFWS are covered under the existing DFG and USFWS ESA permits for the work to be performed in this proposal.

In 1993 SB779 amended sections of Fish and Game Code to require Department employees to obtain written permission to enter onto private property. Fall–run Chinook escapement surveys on Battle, Mill, and Deer Creek(s) occur on private land. The DFG has written permission from landowners to access their properties for survey activities. These numerous individual agreements are stored at the DFG Red Bluff office. A letter of cooperation from the Watershed Conservancy of Mill Creek outlining the intent and willingness of the landowner's approval is shown in Figure 6. Copies of the individual permission slips are available if desired.

4. ***Local involvement.***

This program does not involve any direct public involvement. However the staff is often contacted by Resource managers, biological consultants and the general public requesting salmon escapement numbers or generalized salmon life history information. This program is broadly supported by multiple watershed groups throughout the USRB. DFG and USFWS staff will inform affected stakeholders about the status of salmon populations by giving

presentations to watershed groups, news media, city, county governments, local Fish and Game Commissions and other state and federal agencies. Project biologists will give annual presentations to the Mill Creek Conservancy, Deer Creek Watershed Conservancy, and others, as requested, on fisheries issues addressed in Existing Conditions Reports and Watershed Management Plans. Project data will be used in biennial reports to the state Fish and Game Commission on the status of winter and spring−run Chinook populations.

Project biologists are responsible for updating the USRB data in the Department's "GrandTab", which reports salmon escapement numbers for all runs in the Central Valley from 1952 to present. Copies of GrandTab and annual escapement reports will be given to various stakeholders including Watershed Conservancies and local Resource Conservation Districts on Clear, Cow, Cottonwood, Battle, Mill and Deer Creeks, NorCal Guides, and individual landowners. GrandTab and annual escapement reports will continue to be made available to other agencies and partners, including Department of Water Resources−Northern and Sacramento Districts, USFWS − Red Bluff, Sacramento and Stockton offices, NOAA Fisheries − Sacramento and Long Beach offices, Lassen National Forest, and Sierra Pacific Industries. In addition, report copies will be available at the Pacific States Marine Fisheries Commission (PSMFC) Calfish website (http://www.calfish.org). Calfish is a multi−agency cooperative program designed to gather, maintain, and disseminate fish and aquatic habitat data and data standards. Databases generated will be made available for use by co−management agencies upon request. Information on the current status of salmon escapements will increase understanding about the USRB ecosystem for all stakeholders directly or indirectly involved in restoration actions.

5. ***Local Value.***

See information above. This project provides information that increases understanding of multiple restoration actions and allows local resource managers, stakeholders and others to make resource management decisions. It provides managers with information on how well restoration actions are attaining their objectives, how salmon populations are responding to multiple restoration actions in local areas, and whether or not adjustments to prior restoration actions are needed to better achieve objectives. The investigations will be useful at various scales, including the local project area, the watershed, and the region.

6. ***Other comments:***

The panel had questions as to whether or not some of this monitoring should continue to be funded by the individual agencies (DFG &FWS).

It was also noted that there seems to be some overlap of the Clear Creek surveys with similar monitoring in proposal # 38.

The panel noted that in the past, data and final reports from these programs has been slow in their release and dispersal.

Overall Ranking:
Very High

Provide a brief summary explanation of the committee's ranking:

The panel ranked this proposal as very high. It meets all the necessary criteria and the data produced is essential to State and Federal resource managers and the Calfed program in general.

External Technical Review

Goals And Justification

The primary objective of this proposal is to continue monitoring annual abundance, migration timing, and distribution of adult winter, spring, late−fall and fall−run Chinook salmon in the Upper Sacramento River Basin (USRB) over a three year period. In essence, Allen et al. are proposing to conduct surveys of adults, either post−spawning adult carcasses (Tasks 2 and 4) or pre−spawn adults or post−spawn redds (Task 3); data collected during this proposal will be analyzed primarily by personnel from California Dept. of Fish and Game, U.S. Fish and Wildlife Service, and NOAA NMFS. There is a great deal of merit in continuing the escapement surveys, from both scientific and restoration perspectives, and for this reason I am recommending funding of this proposal. I do, however, two concerns associated with the Goals and Justification that I will address in the following paragraphs.

Project Justification.−−As stated above, the primary purpose of the proposed work is to conduct surveys of adult Chinook escapement, with the data being used by management agencies to assess various restoration efforts and actions in the USRB. As such, the data are extremely valuable and reports generated from these surveys should allow for limited assessments of ongoing restoration efforts described in Tasks 2−4. The conceptual model presented in the proposal does justify continued monitoring activities, but it should be noted that none of the proposed activities will result in direct assessment of recovery efforts listed on page 6 of the Conceptual Model. The primary null hypothesis presented in the proposal (simply stated − Chinook salmon run−size is greater at time t than at time t−3) is overly simplistic and provides for only two equiprobable outcomes: run sizes are either greater or smaller at the end of the three−year period. What if there is no change or only a slight increase? While either outcome may or may not be statistically significant, these outcomes might be biologically relevant. The application of statistical power analysis to this problem would provide a means of assessing the magnitude of potential results. I would also suggest that to really understand the significance of the magnitude of changes in run size over time requires a Bayesian statistical approach, which would allow for testing the probabilities of various potential influences and responses in the data. I recognize, however, that is beyond the scope of this project. At a minimum, the application of power analysis is fundamental to testing the primary hypotheses. The secondary null hypothesis presented (successful spawning of hatchery reared Chinook > 0) is also overly simplistic and poorly worded. I have no doubt that given current straying rates in hatchery−reared fish, some individuals will successfully spawn with wild fish. So, a straying rate of one fish would fail to reject the null hypothesis? What about fish that broadcast their eggs while dying but have not actively spawned (a behavior that has been observed natural conditions)? How would counting these individuals in the survey affect testing between the two alternative hypotheses? The important outcome of spawning events is whether or not viable fry are produced that will

smolt, and ultimately become part of the reproductive population. Granted such a study is way beyond the scope of this proposal; I bring up this point merely to caution against hypotheses that are overly simplistic. I would add that a strong point of this proposal is the collection of tissue samples while conducting the escapement surveys that will be used in genetic analyses conducted by other agencies.

Approach

The project outlined by Allen et al. is very well−designed and feasible given the proposed timeline. Another strength of this proposal is the adaptive planning used to design the monitoring activities, building upon previous years of field work and the growing sophistication of population assessment models. As stated previously, there is a great deal of merit in continuing the escapement surveys because of the building of long−term, base−line data will be crucial to monitoring recovery trends of Chinook populations over time and, potentially, through environmental fluctuations.

Technical Feasibility

The project outlined by Allen et al. is very well−designed and technically feasible given the proposed timeline. The scale of the project is commensurate with the proposed tasks and man−power requirements are more than adequate to complete this project in three years. In addition, contracting with California Dept. of Fish and Game and the USFWS to continue tasks and subtasks from previous monitoring perioed, ensures quality control in data collection and analyses.

Performance Measures

As noted earlier, monitoring adult escapement over the proposed period, in addition to previous years monitoring data, will serve to establish the long−term, baseline data needed to evaluate the success of various restoration actions in the respective watersheds. Having such a data set provides more than ample justification for funding this proposal. I would caution, however, that some thought needs to be given to formulating hypotheses, as well as using appropriate statistical analyses, so that the data can be examined in a meaningful and rigorous framework in which the success of restoration activities may be evaluated. Overly simplistic hypotheses and statistical analyses can lead to false impressions of the success of restoration activities.

Products

Again, monitoring adult escapement over the proposed period, in addition to previous years monitoring data, will serve to establish the long−term, baseline data needed to evaluate the

success of various restoration actions in the respective watersheds. As such, any number of resource managers, policy makers, and/or scientists will find the data produced by the proposal to be extremely valuable. Methods for data handling, storage, and ultimate availablity, are well outlined and more than adequate for the proposed work. Given the rigorous sampling methods for the escapement data, I have no doubt that the data will withstand peer−review. I would urge the authors, however, to broaden their statistical treatment of the data in their final reports. I suspect that this will need to be done if the data is ever published in a peer−reviewed journal.

Capabilities

The project team assembled for this proposal are very well qualified to conduct the proposed work. Team members all have experience with the proposed survey work and I have no doubt that the project will be successfully completed.

Budget

The budget for the proposed work is reasonable, given the estimates provided in the budget justification. My only question is about the $9,548/year for PSMFC Program Management/coordination. What is this cost? This is almost $27k and needs to be documented.

Additional Comments

Although I have some concerns associated with the formulation of hypotheses, I want to emphasize that I believe this proposal will provide valuable base−line data that is needed to evaluate ongoing restoration efforts in the USRB. More long−term studies (i.e., greater than 10 years) are needed to document population trends, assess environmental effects on populations, and evaluate the success of restoration efforts. I hope that funds will be available, both now and in the future, for such important work.

External Technical Review

Goals And Justification

Does the proposal identify the restoration actions whose outcomes will be monitored? Yes. Does the proposal present a clear and internally consistent statement of the goals and objectives of these restoration actions? Yes. Does the proposal present a clear conceptual model that adequately explains the underlying basis for the restoration actions? The proposal presents a conceptual model that explains the basis for restoration monitoring but does not adequately provide a framework to test relationships between escapement and restoration activities. Does the proposal clearly state the hypothesis(es) that the proposed monitoring will test? Are these hypotheses justified relative to existing knowledge and knowledge gaps? The proposal will fill information needs that are important to the continued management of Central Valley¡¦s salmonid resources. The proposal builds on prior technical knowledge and provides sound methods to accomplish the goal of monitoring numbers of adult salmon in key watersheds in the USRB. The scope of the proposed monitoring is quite large which provides benefits in terms of consistency of methods, and also drawbacks such as experimental design and data analysis. The main successes of the proposed monitoring are that many of the technical monitoring limitations have been well tested over time, thus technically the proposal should be successful. The winter−run portion of the proposal is well thought out and should provide returns on many levels. The main weaknesses are, i) the stated relation between the proposed monitoring and specific restoration activities is simplistic and lacking adequate hypotheses; ii) These data in conjuction with other types of data and with experimental designs for hypothesis testing could be much more powerful. For example, except for winter−run data which is published elsewhere, it is difficult to assess how these data have aided management. e.g. have population trends been statistically using census data? Has census data detected previous restoration benefits? Other than obtaining numbers of adults (which are important) can these data be tailored to address some of the other issues raised in this proposal (restoration and hatchery influence)? There is no doubt that census data can play a role in species recovery but the intended benefits achieved through experimental design and data analysis should be as rigorous as the methods used to count fish.

Approach

Is the approach well−designed and appropriate to meet the project's objectives? Does the project adequately build upon previous monitoring, including appropriate modifications to respond to lessons−learned during the prior monitoring? The approach is well designed to meet the objective of establishing census of four Chinook runs in the USRB and builds on lessons learned from previous monitoring studies so that technical difficulties of obtaining

census estimates should be overcome. Are the monitoring and evaluation activities described in the proposal likely to make significant contributions to our knowledge−base? If so, please describe the contributions and their significance. Will these contributions be useful to decision−makers? In terms of the stated objectives of testing causal relationships between restoration actions and biological responses resulting in increases of: i) the numbers of adult salmon successfully reaching the spawning areas [due to] (fish passage projects, flow modifications) ii) the success of spawning and egg incubation [due to] (gravel restoration, flow modifications) iii) survival of rearing juveniles [due to] (fish screens, riparian restoration, floodplain acquisition, flow modification). Under the main hypothesis: Ho: A specific Chinook salmon run−size (i.e. fall, late−fall, spring or winter) estimate at time (t) is greater than the run−size estimate at time (t−3). Ha: A specific Chinook salmon run−size (i.e. fall, late−fall, spring or winter) estimate at time (t) ƒq is less than the run−size estimate at time (t−3). With the conclusion that: Satisfaction of the null hypothesis would document an increasing trend in the abundance estimate of stream−specific Chinook salmon runs and thus support restoration actions and activities as implemented. First, Ho and Ha should be reversed because the burden of proof is on demonstrating that restoration actions cause an increase in the number of returning adult salmon. Furthermore, the possibility of no change is not addressed, nor is a discussion of what level of change is statistically significant (does a 1% increase validate restoration activities?). A more serious problem is that there is no experimental design in place to test whether change in census is due to independent factors or whether increasing trends support restoration actions as implemented. What if numbers go down because of low ocean survival? Does that mean that restoration activities as implemented should be changed? Are all restoration activities expected to yield significant increases in numbers in a single generation? Why did the authors not consider stage−specific survivorship which might yield some insight to restoration activities? It is difficult to justify using population trends to test for restoration effectiveness when a direct test of restoration effectiveness is what is needed. The intended informational benefits from a well designed study that tests valid hypotheses to establish causal relationships would be very valuable and consistent with CalFed objectives. It might be possible to modify CDFG¡¦s Interim Restoration Effectiveness and Validation Monitoring Protocol to individually test the specific restoration activities listed in the proposal. Furthermore, not all of the above restoration actions are best evaluated at the adult stage because many of the intended benefits occur during the juvenile stage. Without a measure of survivorship from egg to emigration, adult increases cannot be directly correlated to restoration. Without understanding data sharing and experimental design between this proposal and other concurrent monitoring projects in the USRB it is difficult to assess whether these intended benefits can be realized. The following monitoring and evaluation activities described in the proposal are likely to make significant contributions to our knowledge−base. a. Winter−run enumeration: The informational needs, actions to fill those needs, and long−term goals of the winter−run portion of this proposal are well developed and will provide demonstratable benefits to the continued management of that sub−species. Previous monitoring of winter−run similar to the type of monitoring proposed in

this proposal has yielded the kind of information feedback that should be requisite in more hatchery and restoration programs. Seminal publications have come from that well−thought−out monitoring plan such as providing the basis for estimates such as individual reproductive success of hatchery and wild fish, population effective size, temporal variation of genetic resources, etc. Continuation of that monitoring as proposed here, should provide valuable insight into winter−run population dynamics. b.and c. Spring, Fall and Late−fall−run monitoring: The proposed monitoring actions are well tailored to the specific on−site conditions of the USRB and because of previous lessons learned, will likely yield the maximum return for effort spent. However, the proposed monitoring establishes a very weak link between the intended benefit of using adult escapement to validate biological responses of restoration activities on the USRB or realistically establishing the Fall−run hatchery contribution to the naturally spawning component because Fall hatchery releases are not all marked. Furthermore the error rate in identifying degraded carcasses as hatchery−origin is not established; nor is spawning success of hatchery vs wild adults (just because they are in−river does not mean they spawn successfully). Due to the size and potential impact of naturally spawning Fall hatchery fish on the wild component of the population, this is a very valid study. However, the feasibility does not currently exist for runs other than Winter and Late−fall to a small degree.

Technical Feasibility

Is the project fully documented and technically feasible? Is the scale of the project consistent with the objectives? The project is fully documented and technically feasible from the standpoint of providing a descriptive census of returning adults in the USRB. The project in its current form does not adequately provide a framework to establish causal linkages between abundance and restoration, and hatchery input except in the case of winter−run monitoring due to the collaboration with other projects including genetic analyses.

Performance Measures

Will the data collected by the proposed monitoring allow evaluation of the restoration actions that are being monitored? Not significantly in its current form. Are specific performance measures proposed for evaluating these restoration actions? The performance measure to evaluate restoration actions is an increase in the number of returning adults. There is no framework in place to evaluate the potential restoration dependent or restoration independent causes for interannual variation in the numbers of returns. Is the rationale for the performance measures clearly demonstrated? The rationale for sample collection is adequate. The need for census information is adequate but, if the causal relationships between habitat improvement, increased juvenile survival, and hatchery impact on wild spawning populations cannot be made, it is difficult to see how census data will adequately inform management decisions if the causes of inter−annual variation cannot be established. On the other hand, if restoration

can guarantee a specified survivorship, then the value of the census data is much increased. Will these data and performance measures allow evaluation of the conceptual models underlying the previous restoration actions? Not in its current form. Is the monitoring and evaluation plan explicit and detailed enough to assess the performance of the restoration actions? No.

Products

Will the project lead to information that is useful to resource managers, other decision makers, and/or scientists? Yes. Does the project explicitly describe how others will be able to access the data produced by this monitoring effort? Only other agencies will be able to access the data. Reports will be accessible. Why not make the data public but without the GIS information? Are data handling, storage, and dissemination measures adequate to allow resource managers, other decision makers, and scientists to access and use the project?s results? Data handling, storage are adequate. Dissemination will be sufficient for managers, and potentially other scientists. Coordination with juvenile studies outmigrant monitoring projects and sufficient data analysis of combined results would be recommended. Is the project designed to produce high−quality results that are likely to stand up under peer−review? As currently written, inferences of restoration benefits (excepting USFWS portion)would not likely stand up to peer review.

Capabilities

Are the project team's qualifications commensurate with the project? Is the mix of disciplines appropriate to the project as described? Does the project team's performance record indicate that they have the ability to complete the project? They appear to have good expertise on obtaining samples in the methods described. One would hope that past and future collections will be standardized with these proposed methods to allow inferences of long−term trends. This is especially true because in this funding cycle offspring from none of three year−classes will have returned. Thus in the next funding cycle, methods should be the same (even though by that time the new design will be in place). If anything is lacking it would be expertise on setting up experimental designs to test the proposed relationships.

Budget

The budget seems reasonable in terms of man hours to accomplish the proposed work.

Additional Comments

Some very good studies exist that explore in−depth the relationships described in this proposal. The authors might be encouraged to make a detailed review of the current literature

if their intention is to make strong inferences about restoration and the effect of naturally spawning hatchery fish on wild spawners. However, the winter−run monitoring effort described in this proposal IS in a position to evaluate some of these relationships by virture of collaboration such as genetic studies so that offspring for example, can be typed back to parents to obtain estimates of reproductive success, and hatchery success.

External Technical Review

Goals And Justification

Time and money have been invested by CALFED for habitat restoration in the Upper Sacramento River Basin in order to successfully double the average census size of Chinook salmon. To adequately understand if these restoration actions are successful, monitoring the success of adult Chinook salmon is a high priority. The purpose of this proposal is to continue monitoring of the success of restoration actions by estimating annual abundance, migration timing, and distribution of adult winter, spring, latefall and fallrun Chinook salmon returning to spawn in the USRB for the next three years. The goals and objectives of this proposal are clearly stated and internally consistent with the restoration action presented in this proposal. In this regard, the conceptual model outlined by the author is clear and concise, explaining the underlying basis of restoration actions and the need for more monitoring of these actions. Lastly, each propose hypothesis is explicitly stated and justified given the existing knowledge and knowledge gaps.

Approach

The approach is well−designed and appropriate to meet all proposed objectives. Each agency has been monitoring Chinook returns for many years; thus much of the methodology is sound and field tested. Having numerous years of monitoring experience is an integral part of the proposed study. Monitoring Chinook runs has been accomplished for numerous decades, and has been consistently modified to respond to the inadequacies of mark and recapture data. Thus this project takes lessons learned by creating consistent sampling methodologies that make data more amenable to statistical analyses. The monitoring and evaluation activities in this proposal will make significant contributions to our knowledge base by assessing if CALFED Chinook restoration projects have been successful in their implementation. Only through long−term monitoring programs (as suggested in this proposal) will the CALFED restoration projects in the USRB be accurately assessed. Without this monitoring data, the invested time and effort of CALFED restoration projects would be pointless. The contributions made by this proposed monitoring will be useful to decision−makers. Data provided by this study will be imperative for future restoration strategies within the USRB and other California basins. Thus the monitoring effort will provide sound data, based on decades of monitoring, for managers so that they can make sensible management, restoration, and conservation decisions.

Technical Feasibility

The project is fully documented and technically feasible. Monitoring USRB Chinook escapements has been an ongoing task for decades, and each representative agency has years of technical work with escapement surveys. Therefore, both the scale and feasibility of this proposal is achievable given the proposal's time line and objectives.

Performance Measures

There is a baseline data set constructed from years of earlier run time data to compare pre and post restoration efforts. Therefore, data (annual abundance, migration timing, and distribution of adult winter) collected in this proposed monitoring will allow the author to adequately evaluate CALFED's restoration efforts for increasing Chinook returns. There are also specific performance measures proposed for evaluating restoration actions. Each proposed escapement survey (of which there are four) explicitly states the performance measures and the usefulness/rationale of these measures for evaluating restoration actions. In each case, the performance measures are clearly demonstrated. Furthermore, these data and performance measures allow for the evaluation of various aspects of the conceptual model by monitoring adult Chinook life stages (e.g., redd counts and carcass surveys).

Products

Continual estimates of adult salmon escapements are essential for monitoring the cumulative effects of recovery actions, and these data are critical to evaluate progress toward population doubling goals and/or delisting criteria. Thus tracking the status and trends of Chinook salmon populations in the USRB ecosystem is essential data that managers and biologists can use to determine whether specific restoration projects are achieving the desired objectives. Unfortunately the proposal does not describe how others will be able to access the data produced by this monitoring effort (e.g., the World Wide Web). Instead, dissemination to resource managers and scientist will be in the form of databases and spreadsheets, which at times may be arduous to access due to the non−connectivity of databases. Lastly, data gleaned from this study are likely to stand up under peer−review; however, the publication record of the PIs suggests that these data will be used solely for technical reports. The nature and quantity of high quality data generated from this proposal should not only be used for technical reports, but also for peer−review journals so that data would reach a more general scientific audience.

Capabilities

The team's qualifications correspond to the project design. Each team member is highly qualified and many of the members have 15+ years of experience in fisheries biology and

escapement monitoring. There is an appropriate mix of disciplines for this project. Collaborators have differing but broad skills in administrative, supervisory, and field settings. Finally, there is really no performance record for the team; thus determining whether they have the ability to complete the project is unclear. However, each agencies track record for monitoring Chinook runs suggests that the team can accomplish this work in a timely fashion.

Budget

The budget appears reasonable and adequate given the amount of time and man hours needed to monitor these sites effectively.

Additional Comments

This is a well written proposal and is an alliance among differing state and federal agencies. The proposal documents a clear need for long−term monitoring of Chinook runs so restoration strategies can be adequately accessed. Many of the initiatives outlined by this proposal are high priority objectives of CALFED ERP and CVPIA; thus making this proposal of equally high priority.

Budget Review

1. Does the proposal include a detailed budget for each year of the requested support?
Yes.

If no, please explain:

COMMENTS: 1. PMFC IDC is 15% 2. USFWS IDC rate is 17% 3. IDC charges applied to supplies &expendables &equipment 4. Supplies is $105,207 5. Equipment is $71,000 6. Hourly labor rate is adjusted (escalation) for each year for an average increase of 6% per year 7. Review supplies − some masy be duplication of OH/IDC charges 8. See general comments re equipment

Budget Detail/Administrative Overhead Fees – Budget detail combines the labor rates with the direct overhead rate. The labor rate, benefits and indirect rate should be itemized in the format provided by the PSP to enable reviewers to better evaluate and ensure that proposed labor rates are comparable to state rates.

2. Does the proposal include a detailed budget for each task identified?
Yes.

If no, please explain:

COMMENTS: 1. Per proposal page 22 commenets: distribution of $$ PSMFC for Proj Mgmt $28,644; USFWS is $496,886; DFG $42,000 2. Subs $$ is 40% $538,886

Task and Deliverables – Grantee must provide detailed information for all work including subcontractor work for each specific task, services, and work to be performed with the appropriate and corresponding deliverable or end product for each task(s) and/or sub−task(s). Costs associated with each task and deliverable should be evaluated based on what is considered to be reasonable costs for performing similar services.

Subcontracting – Proposals for work to be performed by subcontractors or other entities in excess of the 25% of the total project dollars the grantee is required to provide a justification for subcontracting services. If subcontractors are pre−selected and identified in the proposals as part of the project team, the grantee should provide a justification on how each subcontractor was selected. Grantee shall identify labor rates and indirect costs rates paid to each identified subcontractor to ensure that labor rates are comparable to State rates.

The Subcontracted work should be identified with a rate and hours and attributed to each task and deliverable for each year. A performance evaluation is also recommended for subcontractors that receive more than 50% of the grant funds. If the subcontractor has not been identified, a position description complete with education level, experience, and abilities be submitted and the rate and hour associated with that position will be attributed to a task, and deliverable. The grantee must also comply with the State competitive bidding process as stated in the PSP.

The Grantee should charge a reduced indirect cost rate to the state for services that will be subcontracted by the grantee. (Researching SCM Section 3.06 B).

3. Are project management expenses appropriately budgeted?
No.

If no, please explain:

COMMENTS: 1. Current budget shows 2% of total proj $ is allocated to proj mgmt − not adequate in proportion to proposed work − WHO IS PERFORMING THE WORK −PRINCIPAL GRANTEE OR SUBS??? 2. Review prior to award 3. Opens it up to request for add'l $$ via amendment

Task and Deliverables – Grantee must provide detailed information for all work including subcontractor work for each specific task, services, and work to be performed with the appropriate and corresponding deliverable or end product for each task(s) and/or sub−task(s). Costs associated with each task and deliverable should be evaluated based on what is considered to be reasonable costs for performing similar services.

4. Does the proposal clearly state the type of expenses encompassed in indirect rates or overhead costs? Are indirect rates, if used, appropriately applied?
No.

If no, please explain:

COMMENTS: Budget Detail/Administrative Overhead Fees – Budget detail combines the labor rates with the direct overhead rate. The labor rate, benefits and indirect rate should be itemized in the format provided by the PSP to enable reviewers to better evaluate and ensure that proposed labor rates are comparable to state rates.

If proposal is funded a detailed list of items included in the indirect cost rate should be

provided by the grantee. Grantee must provide itemized and detailed info included and charged as part of indirect rates (IDC) charges.

Note: No overhead or indirect rate charges on the equipment purchase should be allowed as part of the budget that shall be funded as a result of this PSP.

5. Does the budget justification adequately explain major expenses? Are the labor rates and other charges proposed reasonable in relation to current state rates?
Yes.

If no, please explain:

COMMENTS: Major Expenses− If the grant is awarded a detailed list of equipment purchase should be provided by the grantee so reviwers can better evaluate whether it is more cost effective for the state to purchase large dollar equipment items through the state procurement process. If the equipment list is available within the State inventory or stock, then purchase of some or all of the listed items may be provided, loaned, or leased by the state to the grantee. In the event, that the equipment is purchase by the grantee, grantee shall maintain an inventory of major equipment for auditing purposes and potention use for future projects. Grantee shall follow State Contracting Manual (SCM) Section 7.61 to 7.62 rules pertinent to equipment purchase, lease, etc.

6. Are other agencies contributing or likely to contribute a share of the projects costs?
No.

If yes, when sufficient information is available, please sum the amount of matching funds likely to be provided:

7. Does the applicant take exception to the standard grant agreement's terms and conditions? If yes, are the approaches the applicant proposes to address these issues a reasonable starting point for negotiating a grant agreement?
Yes.

If no, please explain:

Applicant will comply

8. Are there other budget issues that warrant consideration?

Yes.

If yes, please explain:

COMMENTS: See all other comments.

Other comments:

SUPPLEMENTAL COMMENTS: 1. Will need minor re−work to SOW/agreement &budget
2. Tasks &deliverables need detailed info by task

Small and new Non−profit Organizations – A financial evaluation of small and Non−profit organizations is recommended to ensure cost share funds are available and the organization has the financial capability to do business with the State.

END OF REVIEW

Environmental Compliance Review

1. Is compliance with California Environmental Quality Act (CEQA) required for this project?
YES− NO***X***

2. Is compliance with National Environmental Policy Act (NEPA) required for this project?
YES***X*** NO−

3. Does this project qualify for an Exemption or Exclusion under CEQA and NEPA, respectively?
YES***X*** NO− N/A−
Comments:

4. Did the applicant correctly identify if CEQA/NEPA compliance was required?
YES***X*** NO−
Comments:

5. Did the applicant correctly identify the correct CEQA/NEPA document required for the project?
YES***X*** NO− N/A−
Comments:

(This comment is in reference to question 6 below) The applicant indicated that a Categorical Exclusion would be required and that the lead agency would be the USFWS. However, there is no indication in the checklist or text whether the Cat. Ex. has already been completed.

6. Has the CEQA/NEPA document been completed?
YES− NO***X*** N/A−

7. If the document has not been completed, did the applicant allot enough time to complete the document before the project start date?
YES***X*** NO− N/A−

8. If the document has not been completed, did the applicant allot enough funds to complete it?
YES***X*** NO− N/A−
Comments:

9. Did the applicant adequately identify other legal or regulatory compliance issues (Incidental Take permits, Scientific Collecting permits, etc,) that may affect the project?

YES***X*** NO− N/A−
Comments:

Applicant checked off Section 10 permit, which will not be needed.

Identify those additional permits that may be needed by this project:

10. Does the proposal include written permission from the owners of any private property on which project activities are proposed or, if specific locations for project activities are not yet determined, is it likely that permission for access can be obtained?
YES***X*** NO− Project is on public land/water or question is otherwise N/A−
Comments:

the text states that permission letters are on file at DFG Red Bluff office, though copies were not attached to the proposal.

11. Do any of these issues affect the project's feasibility due to significant deficiencies in planning and/or budgeting for legal and regulatory compliance or access to property?
YES− NO***X***
Comments: