

Proposal Reviews

#82: Nimbus Basin Side Channel Salmon and Steelhead Spawning and Rearing Habitat Restoration - Preliminary Feasibility Study

HDR Engineering, Inc.

Research and Restoration Technical Panel Review

Sacramento Regional Review

#1

#2

External Scientific Review

#3

#4

#5

Environmental Compliance

Budget

Research and Restoration Technical Panel Review:

CALFED Bay-Delta 2002 ERP PSP Research and Restoration Technical Panel Review Form

Proposal Number: 82

Applicant Organization: HDR Engineering, Inc.

Proposal Title: Nimbus Basin Side Channel Salmon and Steelhead Spawning and Rearing Habitat Restoration - Preliminary Feasibility Study

Review:

Please provide an overall evaluation summary rating:

Superior: outstanding in all respects;

Above Average: Quality proposal, medium or high regional value, and no significant administrative concerns;

Adequate: No serious deficiencies, no significant regional impediments, and no significant administrative concerns;

Not Recommended: Serious deficiencies, significant regional impediments or significant administrative concerns.

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
-Superior	Two technical panel members and the regional review panel ranked this proposal Poor/Low. The other external reviewers ranked the proposal as Good or Excellent. The remaining technical panel member ranked the proposal as Excellent but had a number of negative comments during panel discussions that were similar to those of other reviewers who gave the proposal a Poor ranking. The fundamental flaws in this proposal are the poor and confusing conceptual model/hypotheses, the lack of specifics concerning the monitoring activities, and the limited period of baseline assessment leading to a poor characterization of pre-treatment conditions. Any assessment of the benefits of this side-channel restoration project will therefore be seriously compromised. The regional panel also had a number of serious and justified concerns.
-Above average	
-Adequate	
XNot recommended	

1. **Goals and Justification.** Does the proposal present a clear statement of goals, objectives and hypotheses? Does the proposal present a clear justification and conceptual model for the project?

All panelists and external reviewers agreed that the goals and objectives were reasonably clear. The panelists and external reviewers found that they hypotheses and conceptual model were confusing. For example, many of the hypotheses were actually workplan tasks, not uncertainties that could be tested by the project.

2. **Likelihood of Success (Approach, Feasibility, Capabilities and Performance Measures).** Is the project likely to succeed based on the approach, feasibility and project team capabilities? Are the proposed performance measures adequate for measuring the project's success?

Panelists agreed that the general strategy of collecting baseline data collection, planning and designing the side channel, and then building it, was a sound approach. A critical flaw was that only one year of baseline data would be collected, and this would be inadequate to characterize pre-treatment hydrologic conditions, spawner use, and juvenile production. Hence the evaluation of the restoration effort will be very weak. There was not enough detail provided on the monitoring activities.

Feasibility of the proposed project was high, with the caveat that the monitoring data will be of little use.

3. **Outcomes and Products.** Will the project advance the state of scientific knowledge in general and/or make an important contribution to the state of knowledge of the Bay-Delta Watershed? For restoration proposals, is the project likely to contribute to ecosystem restoration or species recoveries in a significant way? Will the project produce products useful to decision-makers and scientists?

The project will not advance the state of knowledge. There is no information provided to determine whether the project will provide a significant improvement in the availability of salmonid habitat in the American River.

4. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

The monitoring component is weak but adds significant costs to the project, so the cost to benefit ratio is low.

5. **Regional Review.** How did the regional panel(s) rank the proposal (High, Medium, Low)? Did the regional panel(s) identify significant benefits (regional priorities, linkages with other activities, local involvement) or impediments (local constraints, conflicts with other activities, lack of local involvement) to this proposal? What were they?

The regional panel ranked this proposal as Low. The panel pointed out that the project is beyond a fish barrier and had little likelihood of lasting in the specified location. The project was not linked with the overall restoration effort on the American River. The regional panel supported this type of restoration effort, but not past the fish barrier and just below the dam.

6. **Administrative Review.** Were there significant concerns about the proposal with regard to the prior performance, environmental compliance and budget administrative reviews? What were they?

Need to obtain a State Lands Commission Land Use Lease

Miscellaneous comments:

None

Sacramento Regional Review:

Proposal Number: 82

Applicant Organization: HDR Engineering, Inc.

Proposal Title: Nimbus Basin Side Channel Salmon and Steelhead Spawning and Rearing Habitat Restoration - Preliminary Feasibility Study

Overall Ranking: XLow -Medium -High

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

The project proposes to restore spawning and rearing side channels directly below the dam. This area is currently beyond a fish barrier. The project has little likely hood of lasting in the specified area. Moreover, the social and political arena would be strongly opposed to this low priority action.

1. Is the project feasible based on local constraints?

-Yes XNo

How?

Physically, maybe yes; socially and geomorphologically -No. The Lower Am River restoration effort reviewed this project and found it wanting. The project is of low priority and the local group feels strongly that it would be a wasted effort.

2. Does the project pursue the restoration priorities applicable to the region as outlined in the PSP?

-Yes XNo

How?

On the surface it addresses PSP priority Sac Region-2, but it conflicts with SR-1 because it does not emerge from local collaborative efforts.

3. Is the project adequately linked with other restoration activities in the region, such as ongoing implementation projects and regional planning efforts?

-Yes XNo

How?

The project is not linked with the overall restoration effort on the American River. The local group reviewed this project and had extended discussion regarding the value of this type of project at the specified location. The local group supports this type of restoration idea, but not past the fish barrier and just below the dam.

4. Does the project adequately involve local people and institutions?

-Yes **X**No

How?

X

Other Comments:

X

External Scientific: #1

Research and Restoration External Scientific Review Form

Proposal Number: **82**

Applicant Organization: **HDR Engineering, Inc.**

Proposal Title: **Nimbus Basin Side Channel Salmon and Steelhead Spawning and Rearing Habitat Restoration - Preliminary Feasibility Study**

Conflict of Interest Statements:

I have no financial interest in this proposal.

XCorrect

-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

None

Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;

Good: quality but some deficiencies;

Poor: serious deficiencies.

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
-Excellent	I consider this project to be a good project to be considered for funding. However, I would suggest a refinement to the scope to flesh out the goal and subquestions a little better. The misuse of the terms, conceptual models and hypothesis provided some discomfort for this reviewer that the applicants knew what they were talking about.
X Good	
-Poor	

1. **Goals.** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

Rating: Very Good. The central goal is clear, i.e., the initial design phase for a project to restore steelhead and salmon spawning habitat. The component objectives are not as clear, and become confused with the goals of Phases 2 and 3 of the broader project, which are not part of this proposal.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

Rating: Very Good. The proposed project appears to be adequately justified. However, the 9 conceptual models/hypotheses are misleading. The text is really a series of arguments and do not fit the definitions of models or hypotheses.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

Rating: Excellent. The approach is good in that this first phase is proposed separate from subsequent phases to allow a reality check before proceeding. The components of conducting a baseline ecological monitoring, preparing a pilot design, and producing a pilot environmental report appears to be a good strategy.

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

Rating: Excellent. This project appears to be very feasible. The uncertainties listed by the applicants are right on target and lend credibility for this project.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

Rating: Good. Performance measures are listed, but very little detail is given. More detail is needed on the support documentation that fish spawning would potentially be restored if the project proceeds into phases 2 and 3.

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

Rating: Excellent. The series of products and expected outcomes is comprehensive and excellent.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

Rating: Very Good. The team and team members appear to be well qualified. It is interesting that the principal applicant is not listed on the project team.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

Rating: Very Good. The costs appear to be sufficient for this first phase. Insufficient detail given on monitoring aspects to ascertain adequacy of funding for this aspect.

Miscellaneous comments:

This looks like a good project, but detail lacking on specific research questions and objectives provides some uncertainty in ability to move into phases 2 and 3.

External Scientific: #2

Research and Restoration External Scientific Review Form

Proposal Number: **82**

Applicant Organization: **HDR Engineering, Inc.**

Proposal Title: **Nimbus Basin Side Channel Salmon and Steelhead Spawning and Rearing Habitat Restoration - Preliminary Feasibility Study**

Conflict of Interest Statements:

I have no financial interest in this proposal.

XCorrect

-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

none

Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;

Good: quality but some deficiencies;

Poor: serious deficiencies.

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
-Excellent	<p>While I think this project has considerable merit and is excellent, there needs to be some improvement to the proposal to clarify some critical uncertainties, fill deficiencies, address drawbacks of the proposal, and to reduce overall costs. Together these factors resulted in my rating as good.</p> <p>A fundamental uncertainty is why the applicant did not make it clear why they did not submit a budget request for the following year. If this is simply due to uncertainty in cost, this is understandable and acceptable. The critical point is that it does not seem worthwhile to complete the study if there is no commitment to follow through with construction. This is likely an oversight.</p>
XGood	<p>There are also deficiencies in the description of the technical methods and level of effort. One can possibly judge this from the total budget allocation for the Task 1 work, however, without it being described it does not appear to be well thought out and problematic from a contractual standpoint as the deliverable for the task is not clear.</p>
-Poor	<p>Finally, the cost of the proposal is very high relative to the benefits accruing from the deliverable. This again may be rectifiable with some better understanding work that is being undertaken, and better communication of why these costs are necessary in relation to the anticipated construction cost or risks of the project that require intensive effort/investment. On the other hand, there may be room to reduce the budget.</p>

1. **Goals.** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

The goals and objectives, while presented in a redundant fashion, are reasonably clear.

The goal of the proposed project is to develop off channel and mainstem habitat for spawning and rearing chinook salmon and steelhead trout. This concept is timely and important as it closely follows the key objectives for the many fisheries agencies associated with the Lower American River, the Central Valley Project Improvement Act (CVPIA), and CALFED ecosystem restoration goals. The project has real merit and is interesting because it attempts to address some social issues associated with habitat restoration in a semi-urban setting. The objective the project is to conduct initial studies to gather additional physical, biological, and social data to aid in the design of the project.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

The proposed project is initial design study for a two part program to complete the restoration project. Since there apparently is relative poor information available on the physical and biological attributes of the Nimbus Bar to form the basis of the design and to determine whether the project is indeed feasible, this initial design phase study is justified as

it will contribute to the determination of feasibility or implementation of the project. However, the proposal does lack clarity about how this part of the project is embedded in the complete project. Since no funding was requested nor was it indicated that it would be if the project appear feasible this remains an uncertainty. One would expect some explanation why the proposal was made in this manner

There seems to be some misunderstanding what a conceptual model is and how exactly hypotheses relate to that. I would expect the conceptual model for the restoration project is to first determine whether its look feasible to implement the restoration project and if so it would be constructed and evaluated. The proposal presents nine Conceptual Models/ Hypotheses which are more like hypotheses that need to be assessed to evaluate feasibility. The first problem is the high degree of redundancy between the Conceptual Models/Hypotheses. For example, Conceptual Models/Hypotheses #1 and Conceptual Models/Hypotheses #2 are not qualitatively distinct, in fact they are exactly the same but worded differently (i.e. improved substituted for increased). This redundancy occurs through all of the conceptual models/hypotheses in some form or another. It may simply that not enough detail was provided for each component so that it was not possible to clearly differentiate them. These should be more explicit or the number should be reduced to reflect the three different issues: 1) more or less habitat, 2) fish use, and 3) social impact/benefit. The second problem is that the hypotheses can not be tested with the studies proposed in this phase of the project (i.e. the proposed program can not test difference of before and after construction without constructing the side channel) so these must be for the whole project. However, since no funding was requested this uncertainty as to the applicants proposed future actions needs clarification. Clearly it is not in the best interest of CALFED to fund a design study with some commitment to implement the project if it feasible and appears beneficial.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

The approach to this project is appropriate for the project. It is particularly commendable that the applicant is addressing some of the social issues that could impact on the project as well as the possible social benefits. The results of the work will likely provide the knowledge to determine the feasibility and cost of the restoration project which will be useful for decision-makers determining whether the Nimbus project is a beneficial project. However, it is not likely to generate novel information that is applicable outside of this site specific situation as the approach has been applied in many locations in the Pacific Northwest.

The approach to this project is appropriate for the project. It is particularly commendable that the applicant is addressing some of the social issues that could impact on the project as well as the possible social benefits. The results of the work will likely provide the knowledge to determine the feasibility and cost of the restoration project which will be useful for decision-makers determining whether the Nimbus project is a beneficial project. However, it is not likely to generate novel information that is applicable outside of this site specific situation as the approach has been applied in many locations in the Pacific Northwest.

The project is subdivided into four tasks. Comments on each task are provided below: Task 1 Baseline Surveys: While the topographic surveys and plant and animal surveys are fairly standard and straightforward, the fisheries survey description are vague and somewhat noncommittal. Because of the conditional nature of some of the statements there is some uncertainty what will actually be done. It would be most valuable to systematic surveys in time

and space throughout the study area to document the issues that are cited in this section (spawner use, rearing use, redd location and dewatering, fish stranding. Each part of this section could be enhanced to give the reviewer greater understanding of what is going to be done (detailed methods/sampling frequency) rather than what might be done. For example streambed mobilization studies can take many forms from the superficial to the excessively detailed or how many recreational surveys are going to be completed on what day and time during the week over the different seasons of the year. These are critical details needed to evaluate the utility of proposed deliverable from this initial design phase study.

Task 2 Design of the Pilot Experiment The description of this task is clear and appears competent. However, the process of the generation and evaluation of alternative design options is not clearly spelled out. Another omission is the review of other similar initiatives. This is not a new technology so presumably something can be learned from other applications.

Task 3 Environmental Documentation - The only comment is that it is unclear why this cost more than \$40,000. This must be involved and should be expanded for the uninitiated to the scope of required actions.

Task 4 Project Coordination no specific comment

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

As per the comments above the general approach to the study is documented, however, there are gaps in the technical details and the level of effort that will be committed to each component of study. In general the approach is technically feasible as it employs relatively standard methods (i.e. GIS, HEC RAS, RMA 2-D etc).

The likelihood of the successful completion of the initial design phase of the project is high. It is very likely with the proposed budget and staff that some alternative designs can be developed and judged as to their relative cost and delivery of specific habitat conditions. However, the degree to which the study successfully judges the capability of the proposed pilot experiment project to produce habitat that attracts and contributed to the biological production of anadromous stocks in the American River is uncertain due to 1) lack of technical description of proposed studies, and 2) lack of description of the second phase of the work in which construction and evaluation would occur.

The scale of the project is consistent with the objectives.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

The proposal does include performance measures, however, they read more like deliverables or the products from the study. In all fairness it is difficult develop performance measures that measure how well the feasibility of a project is assessed.

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

The deliverables from this project would be of obvious substantive value to the second phase of the work (assuming that it will be proposed).

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

The proposal provides information about the qualifications and affiliation of the applicant to provide a high level of confidence that the team has a good track record for completing past projects similar to the proposed study and that the infrastructure is in place to support successful completion.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

The cost estimate submitted for this project appears to disproportionately large relative to the benefits that will be obtained from completing it. While not estimate for construction cost is given it is hard to imagine that construction costs of the proposed channel works would greatly exceed the design costs (~\$185,000). This is a definite drawback that detracts from the desirability of the proposal.

Miscellaneous comments:

External Scientific: #3

Research and Restoration External Scientific Review Form

Proposal Number: 82

Applicant Organization: HDR Engineering, Inc.

Proposal Title: **Nimbus Basin Side Channel Salmon and Steelhead Spawning and Rearing Habitat Restoration - Preliminary Feasibility Study**

Conflict of Interest Statements:

I have no financial interest in this proposal.

Correct

Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

none

Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;

Good: quality but some deficiencies;

Poor: serious deficiencies.

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
-Excellent	The concept of developing a plan to restore a side channel to provide spawning and rearing habitat is sound. The applicants appear well qualified, but many of the tasks they propose provide little value. \$185,000 for the design of a side channel is extremely high.
-Good	
XPoor	

1. **Goals.** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

The overall goal of the project, to restore a side channel to provide spawning and rearing habitat, is clearly stated. The proponents have some interesting ideas about what constitutes a hypothesis. For example, #3, Nimbus Bar is an ideal location for restoring spawning habitat; or #5, Improvements in the side channel will not only lower the grade at the bar head These are not hypotheses but operational changes that will be implemented by the proponent. Irregardless, there are a few hypotheses (e.g. #1 and #2) that are valid questions that in theory can be tested (but not based on the proposed monitoring as described below).

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

Side channel development and improvements has been used very successfully to enhance salmon populations in the Pacific Northwest. The concept of restoring an abandoned side channel is well justified.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

My understanding is that the a good portion of the fisheries-focused river restoration activities in Californian rivers focus on gravel replenishment. If this assumption is true, the proposed study will demonstrate the utility of enhancing/providing side channel habitat. In this sense, the project, when implemented will, provide novel information that will be useful to decision-makers.

The project appears well designed but many of the components are not necessary and will provide little added value. Certainly a topographic survey and documentation of gravel quality is required. In B.C., we have constructed a great many side channels without the aide of 2D hydrodynamic models. By controlling flow through valves at the inlet of the side channel this can be done empirically (and much more effectively), using a wading rod, current meter, and measuring tape.

The proposed monitoring data provides only one year of pre-treatment conditions. Depending on hydrology and escapement, this single year may or may not be representative of average spawning/juvenile utilization/stranding prior to construction. Thus interpretation of the proposed monitoring data will be debateable and therefore of limited use. Hence many of the hypotheses listed in the proposal cannot be adequately tested. If the proponents truly wish to quantify the utility of the additional side channel habitat they are providing, a much longer-term baseline data collection period will be required.

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

The approach is well documented and feasible, the question is whether many of the activities are necessary. There is little doubt that for the money requested, the proponents will be able to provide a design for the development of a Nimbus Bar side channel.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

The immediate project goal is to design a side channel and to provide baseline data to evaluate its utility if it is built. As stated above, one year of pre-treatment data is not sufficient to characterize fish use and production in the project area.

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

A design plan for the Nimbus side channel will be valuable if construction is funded. The biological data will be of little use as described above. The 2D modeling is not required for design.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

The proponents appear to be well qualified in both engineering and biological aspects.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

A cost of \$185,000 for the design of a side channel seems very high. In British Columbia, we have built extensive side channels for less than the design cost of the proposed project! The budget does not provide details of the costs of different components of the study (e.g. physical modeling, topography, biological surveys, recreational surveys). The plant and animal, fisheries, and recreation surveys provide little value in terms of information but may be increasing the cost dramatically. The hydraulic modeling component is also not necessary if an engineer experienced in the development of side channel habitat is employed. The valuable component of the project could probably be completed for about 1/3rd of the proposed cost.

Miscellaneous comments:

External Scientific: #4

Research and Restoration External Scientific Review Form

Proposal Number: 82

Applicant Organization: HDR Engineering, Inc.

Proposal Title: **Nimbus Basin Side Channel Salmon and Steelhead Spawning and Rearing Habitat Restoration - Preliminary Feasibility Study**

Conflict of Interest Statements:

I have no financial interest in this proposal.

XCorrect

-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

None

Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;

Good: quality but some deficiencies;

Poor: serious deficiencies.

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
-Excellent	This project deals with an important topic restoration of a side channel may be extremely beneficial. Unfortunately the survey work is not described in sufficient detail and overall the approach is not presented in a convincing way. Further the costs are simply too high.
-Good	
XPoor	

1. **Goals.** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

Rating: 3. The objectives are clearly stated. They hypotheses are really tasks to be accomplished. There are no truly testable hypotheses presented.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

Rating: 3 The initial study and baseline surveys that are proposed should provide useful information on the site. The linkage of this information to the proposed restoration work is however not very clear. The conceptual model is largely a re-statement of the objectives/hypotheses and does not add to the clarity of the work and certainly does not make the need to do the work more convincing.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

Rating: 5 Unfortunately this is where this project really falls short. The description of the actual methods that will be employed for many of the tasks are not spelled out or vague at best. Further, I am concerned that the survey work may not be extensive enough (over time) to really allow them to determine if the gravel replenishment approach should be broadly recommended to managers. I do not think this will add to the general base of knowledge because I remain unconvinced that they will be able to interpret their results quantitatively.

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

Rating: 3 As outlined in 3) above the approach documentation is somewhat underdeveloped in terms of various measurements. The actually physical work (side channel and gravel replenishment) is technically feasible and certainly within the grasp of the authors.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

Rating: 1 Performance measures are well defined and adequate. It would be nice to have a little more on measurement of fish response but this should come in later phases of the work.

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

Rating: 2 They will produce reports and a feasibility assessment. Outcomes will really be important AFTER the implementation phase.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

Rating: 1 Certainly well qualified

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

Rating: 4 The costs are too high given the expected benefits of the work.

Miscellaneous comments:

External Scientific: #5

Research and Restoration External Scientific Review Form

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Conflict of Interest Statements:

I have no financial interest in this proposal.

XCorrect

-Incorrect

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none

Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;

Good: quality but some deficiencies;

Poor: serious deficiencies.

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
X Excellent	The proponents appear well prepared to provide useful engineering plans towards development of a functioning side channel of benefit to fisheries values.
-Good	
-Poor	

1. **Goals.** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

Yes, goals are clear and consistent. The concept is important and may be timely if improved habitat conditions improve salmonid recruitment, which is highly likely based on experience elsewhere.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

The work is justified based on the degraded habitat conditions in existence on this river downstream of a dam site. The concept for the planning and pilot studies is well presented.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

This project is well-designed to develop an off-channel rearing habitat, knowledge from which will be demonstrative and useful to not only decision makers but also towards public education.

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

The planning approach is well documented and feasible, highly likely of success based on experience elsewhere (e.g., side-channel developments on the Chilliwack River near Vancouver, British Columbia). The scale is appropriate and utilizes an existing but under-used side channel, which is consistent with the objectives of improving production. More detail of the inlet structure is required to access its utility in preventing excessive debris (although some may be useful) and flood flows from entering the side channel.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

Performance measures for the design and planning stage are well documented and will be reported in detail. Monitoring of biological results (e.g., smolt yield) may require more explanation in subsequent proposals once the design plan has been implemented and after construction. Thorough monitoring of existing conditions is planned, which will allow before-and-after comparison, which is adequate for this type of work.

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

Products will benefit this location and serve as examples for other possible side channel developments, to the benefit of the fish. Real value will arise after the implementation and construction phase.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

The team is well rounded with strong technical background, and highly skilled based on the information presented, including past experience in several similar projects.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

The cost seems in line with the high level of technical skill and detail of planning documents that will result, and which are required for this level of intensive habitat manipulation.

Miscellaneous comments:

This project may prove to have significant benefit to fish, and serve as a demonstration for other possible side channel developments. Watershed restoration elsewhere has benefited from similar approaches.

Environmental Compliance:

Proposal Number: 82

Applicant Organization: HDR Engineering, Inc.

Proposal Title: Nimbus Basin Side Channel Salmon and Steelhead Spawning and Rearing Habitat Restoration - Preliminary Feasibility Study

1. Are the legal or regulatory issues that affect the proposal identified adequately in the proposal?

Yes -No

If no, please explain:

Need to obtain a State Lands Commission Land Use Lease.

All other necessary permits and environmental documentation will be obtained and filed.

2. Does the project's timeline and budget reflect adequate planning to address legal and regulatory issues that affect the proposal?

Yes -No

If no, please explain:

Budget and timeline adequate.

3. Do the legal and regulatory issues that affect the proposal significantly impair the project's feasibility?

-Yes No

If yes, please explain:

Other Comments:

Budget:

Proposal Number: 82

Applicant Organization: HDR Engineering, Inc.

Proposal Title: Nimbus Basin Side Channel Salmon and Steelhead Spawning and Rearing Habitat Restoration - Preliminary Feasibility Study

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

Yes -No

If no, please explain:

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

Yes -No

If no, please explain:

3. Does the proposal clearly state the type of expenses encompassed in indirect rates or overhead costs?

Yes -No

If no, please explain:

4. Are appropriate project management costs clearly identified?

Yes -No

If no, please explain:

5. Do the total funds requested (Form I, Question 17A) equal the combined total annual costs in the budget summary?

-Yes No

If no, please explain (for example, are costs to be reimbursed by cost share funds included in the budget summary).

\$2.00 difference in the budget summary and the amount requested

6. Does the budget justification adequately explain major expenses?

Yes -No

If no, please explain:

7. Are there other budget issues that warrant consideration?

-Yes No

If yes, please explain:

Other Comments: