

Council document ISRP 97-2

Report of the Independent Scientific Review Panel

for the Northwest Power Planning Council

Review of
“A Method and Criteria for Evaluating the Technical Merits and
Feasibility of Watershed/Habitat Projects”

Richard N. Williams, Chair

Peter A. Bisson

Charles C. Coutant

Robert Francis

Daniel Goodman

Nancy Huntly

James A. Lichatowich

Lyman McDonald

Brian E. Riddell

Jack A. Stanford

Susan S. Hanna

ISRP Report 97- 2

15 August, 1997

TABLE OF CONTENTS

EXECUTIVE SUMMARY3

CHARGE TO THE ISRP4

CRITERIA FOR PRIORITIZING SUBBASINS.....5

 EMPHASIZE HABITAT PROTECTION OVER RESTORATION5

Protect the best5

Focus Management on Basins Which Can Be Fixed5

Fish and Wildlife Funding Should Not Be Used for Watersheds With a Low Potential for Recovery or Response 5

STEP 1: GROUP PROJECTS BY TYPE.....6

STEP 2: EVALUATION OF ON-THE-GROUND PROJECT PROPOSALS.....6

 LEGAL6

 PURPOSE AND NEED.....6

Adequate watershed assessment.....6

Adequate strategic plan.....6

Habitat management options7

Watershed-level monitoring and evaluation8

 SCIENTIFICALLY VALID STRATEGIES AND TECHNIQUES8

 DURABILITY8

 EVALUATION CRITERIA8

 EVALUATION MATRIX9

 EXAMPLE PROPOSAL10

REFERENCES.....10

EXECUTIVE SUMMARY

The ISRP believes the proposed criteria for evaluating the technical merits and feasibility of watershed/habitat projects represent an important and useful method of screening new projects and evaluating ongoing projects for funding. In this report we focus on the specific request from the Northwest Power Planning Council to examine the procedure for subbasin prioritization and the criteria for rating on-the-ground projects.

The criteria are an excellent start at defining the approach to selecting watershed/habitat projects for funding. The methods and criteria include many of the evaluation features recommended by the ISG in *Return to the River* and the ISRP in its programmatic review of the Fish & Wildlife Plan (ISRP Report 97-1), including the very important role of peer review in improving projects through constructive criticism. As it stands, a major deficiency in the current document is the sample proposal, which, in the ISRP's view, is a good project summary but lacks the documentation that is needed in an actual proposal. Proposers should be provided with a more complete example.

Another difficulty is that proposal solicitation will take place in advance of a basin-wide synthesis of information and prioritization that will guide implementation of measures in the Fish & Wildlife Plan. Both proposers and proposal reviewers must have an agreed-upon view of the technical criteria that define good and poor habitat. Delaying completion of these criteria and definitions until the FY1999 review process, as suggested in the document, is risky. In one sense, this document may place the "cart before the horse" by attempting to define criteria to protect the best remaining habitat without fully specifying what attributes of the habitat make it stand out above other areas.

Nevertheless, the ISRP agrees that watershed/habitat project proposals and evaluations should be:

1. Based on a clearly stated set of objectives that address one or more key elements of the Fish and Wildlife Plan.
2. Grounded in a thorough watershed assessment that recognizes the importance of protecting or re-establishing normative conditions.
3. Aware of the need to avoid harm to non-target species while enhancing conditions for target species.
4. Cost-effective, with a minimum of annual operation and maintenance costs.
5. Subjected to an unbiased peer review to determine the technical need for the project and the likelihood that it will succeed.

The procedure for prioritizing subbasins, as it is currently drafted, does not provide enough detail for determining which watersheds are best, which watersheds can be fixed, and which watersheds should not receive restoration funding because the potential for recovery is low. The ISRP

ISRP REPORT 97-2

cautions against “writing off” any subbasin because of its current condition; such a strategy may lead to further loss of isolated small populations that are an important part of the metapopulation structure of the species. Although the strategy as written emphasizes protection over restoration, it seems very likely that the majority of funding will go toward habitat improvement projects rather than acquisition of riparian and floodplain areas. However, a process for acquiring such areas should be given serious consideration.

The ISRP suggests that an explicit conceptual framework for matching watershed/habitat projects to the extent of alteration be adopted, such as the one proposed in the NRC report *Upstream*. A diagram of the framework is included in this report.

The ISRP suggests a modified matrix for on-the-ground project evaluation. The matrix is based on continuously variable numerical scores for each of a series of evaluation criteria. Evaluations should be limited to technical experts with no direct scientific or institutional connection to the project in question. Recommendations for funding or no funding should accompany each numerical score so that proposers can understand the basis for evaluation.

Finally, the document does not explicitly acknowledge that the ISRP will also be reviewing all Fish & Wildlife Plan projects annually. The ISRP will be looking for technical details describing rationale, experimental or management design, sampling methods and analysis, monitoring and evaluation, qualifications of participants, and relevance to specific measures of the Fish & Wildlife Plan. The ISRP may or may not agree with CBFWA recommendations, but agreement is much more likely if technical details are supplied by proposers and used by CBFWA to assess their overall merit. It is for this reason that the example in the document should contain details adequate for an objective scientific evaluation. Additionally, the ISRP recommends that similar criteria be used to evaluate proposals pertaining to resident fishes.

CHARGE TO THE ISRP

A draft report “A Method and Criteria for Prioritizing Fish and Wildlife Populations/Subbasins and Watershed/Habitat projects” was prepared by an *ad hoc* Habitat Work Group and submitted to the Anadromous Fish Caucus of the Columbia Basin Fish and Wildlife Authority on May 1, 1997. This report was revised slightly and submitted by CBFWA to the Council on June 25, 1997. The purpose of the document was “to provide an initial screening process that will be used to determine which habitat projects are technically sound and feasible. This initial evaluation will be performed by a technical work group that will be established by and will work under the auspices of the AFM [Anadromous Fish Managers]. The work group will include technical experts from several scientific disciplines, and will not be limited to the fish and wildlife managers. The technical work group will evaluate new and ongoing (currently funded) projects and will provide their final technical evaluations to the Anadromous Fish Managers” (6/25/97 letter from Si Whitman to John Etchart). The AFM will use the recommendations as the basis for its FY 98 ongoing and new anadromous fish habitat projects.

In its cover letter to ISRP, the Council expressed a particular interest in “advice pertaining to omissions or other problems in the criteria for prioritizing subbasins and the criteria for rating on-the-ground projects” (7/8/97 letter from Ken Casavant to Rick Williams). Therefore this report will focus on these two issues.

CRITERIA FOR PRIORITIZING SUBBASINS

I.A. Emphasize Habitat Protection Over Restoration

A. Protect the Best

The report states that protection of high quality habitat should receive the highest priority for funding. In general, the ISRP agrees with this conclusion. The report is not clear with regard to how BPA will assume the cost of management strategies directed toward habitat protection. Normally, this cost is assumed by the land owner through various federal, state, and local regulations.

The ISRP recommends that high priority be given to conserving and restoring sites that connect the best summer and winter rearing locations within watersheds.

The statement of a commitment to a watershed approach would benefit by a definition of the scale for a “watershed” in this document. It is not clear whether watersheds mean subbasins (e.g., the Imnaha) or small tributaries (e.g., Marsh Creek). Perhaps footnote 7 on the bottom of page 7 would be appropriate here if the scale is intentionally left open.

B. Focus Management on Basins Which Can Be Fixed

The distinction between basins which can be rehabilitated and those which have low potential for restoration appears to be based on the degree of fragmentation. The ISRP notes that determining the extent of habitat fragmentation is difficult and there are currently no widely recognized protocols for establishing instances where fragmentation is so extensive that recovery is unlikely. Determining which basins take priority will involve policy decisions that include a wide variety of factors.

C. Fish and Wildlife Funding Should Not Be Used for Watersheds With a Low Potential for Recovery or Response

The ISRP acknowledges that efforts to restore habitat are often wasted in areas where watershed alteration has been severe. However, there is a real danger that categorically excluding any watershed where habitat has been extensively altered may further jeopardize isolated small populations that may be crucial to species survival in the future, similar to Aldo Leopold’s admonition to “keep all the parts”. Therefore, we recommend that no areas be written off totally. If disruption of the mainstem corridor is used as one of the criteria for determining potential for recovery, this would in theory include much of the middle and upper Columbia River basin. The

importance of small populations existing in marginal habitat has been recognized as important for long-term species survival (Scudder 1989). How will habitat managers differentiate between marginal habitat which has real value and severely degraded watersheds that will fall victim to environmental triage? It seems what is needed are clear and explicit criteria that will distinguish watersheds beyond hope from marginal watersheds providing habitat for small populations.

II. STEP 1: GROUP PROJECTS BY TYPE

ISRP agrees that project groupings are appropriate and that the categories suggested will be helpful in project evaluation.

III. STEP 2: EVALUATION OF ON-THE-GROUND PROJECT PROPOSALS

A. Legal

The evaluation criteria seem appropriate. ISRP believes that the Integrated Program Framework is an important document that will assist in determining whether a project is consistent with the NPPC Fish and Wildlife Program. The Integrated Program Framework needs to be referenced (not everyone knows what it is or how to get a copy).

B. Purpose and need

1. *Adequate watershed assessment*

The importance of having a thorough watershed assessment cannot be overstated, and we are pleased to see this element in the evaluation criteria (see also ISRP 97-1). The ISRP recommends that the list of information needs in a watershed assessment include the natural disturbance history of the watershed and the range of natural conditions that would be likely to occur there. For more details on what a watershed assessment should contain, refer to the NRC (1996) report *Upstream* (pp. 213-217).

2. *Adequate strategic plan*

It is important to match the restoration strategy to the degree of alteration of the watershed and the potential for natural recovery. There are many examples of restoration efforts in which frequent and expensive maintenance costs are required for a project that does not function well within its ecological setting. *Upstream* also provides a useful conceptual diagram of how different habitat improvement strategies can be employed, depending on the extent of anthropogenic alteration and the potential of the system to recover itself. This diagram might be helpful in the evaluation process:

Habitat Management Options

Management Actions

Ecosystem Conditions

Watershed Assessment Determines Priorities

Fully functional aquatic-riparian ecosystems

Dysfunctional aquatic-riparian ecosystems

Protection:

Preservation of areas that are ecologically intact and healthy. Restriction, to the extent possible, of human activities that significantly impact aquatic and riparian ecological functions. The strategy is intended to protect aquatic-riparian systems that are currently in good condition so that naturally-regenerative processes can continue to operate.

Restoration:

A. Natural restoration

Removal of sources of anthropogenic disturbance in altered aquatic-riparian ecosystems in order to allow natural processes to be the primary agents of recovery. The strategy is to allow the natural disturbance regime to dictate the speed of recovery in areas that have a high probability of returning to a fully functional state without human intervention.

B. Actively managed restoration

Restoration of disfunctional aquatic-riparian ecosystems to a state within the range of natural conditions by actively managing certain aspects of habitat recovery. The strategy is to combine elements of natural recovery with management activities directed at accelerating development of self-sustaining, ecologically healthy ecosystems.

Rehabilitation:

Re-establishment of naturally self-sustaining aquatic-riparian ecosystems to the extent possible, while acknowledging irreversible changes such as dams, permanent channel changes due to urbanization and roads, stream channel incision, floodplain losses, and estuary losses, may permit only partial restoration of ecological functions. The strategy is to combine natural and active management approaches in areas where ecological recovery is possible with substitution approaches where ecological self-sufficiency cannot occur.

Substitution:

A. Enhancement

Deliberately increasing the abundance or functional importance of selected habitat characteristics as desired. Such modifications may be outside the range of conditions that would occur naturally at a site. The strategy involves technological intervention and substitution of artificial for natural habitat elements. Note: it is possible that enhancement activities may shift aquatic-riparian ecosystems to another state in which neither restoration nor rehabilitation will be achieved.

B. Mitigation

An attempt to offset habitat losses by improving or creating aquatic-riparian habitat somewhere else or by replacement of lost habitat onsite. The strategy involves extensive use of technological intervention and replacement of natural habitats with artificially created habitats.

Degradation:

Existing or continued loss of aquatic-riparian habitat and ecological functions due to human activities and impacts. The strategy is to continue present practices and accept continued habitat loss.

5. Watershed-level monitoring and evaluation

The ISRP cautions against excessive reliance on fixed habitat standards and thresholds such as pool-riffle ratios and percentages of fine sediment as indicators of watershed health. There is an increasing body of scientific evidence that long-term disturbance and recovery cycles lead to changing natural conditions which are not static, but are still necessary for ecosystem productivity (Reeves et al. 1995). A healthy watershed contains all the components for successful completion of disturbance-recovery cycles, and maintains adequate representation of all necessary habitat types driving the recovery process.

C. Scientifically Valid Strategies and Techniques

The ISRP agrees with the conclusion that projects must represent appropriate solutions to identified problems, and that non-structural alternatives be carefully considered.

D. Durability

It is not clear whether the evaluation criteria are meant to judge if a project is likely to survive for 50 years. If so, why was this time period selected? It might be desirable for some projects to be designed specifically to persist for a greater or lesser interval.

F. Evaluation Criteria

The ISRP recommends a slightly revised matrix for on-the-ground project evaluation. This matrix gives greater weight to a clear and realistic statement of objectives, something that is frequently lacking in project descriptions. According to the matrix, evaluation criteria are given numerical scores ranging from zero to either five or ten, depending on relative importance. Total scores are tallied for each technical expert and then discussed to arrive at final evaluations. This procedure differs from the Yes/No scoring system used in the report's criteria, and is based on our belief that there will not be clear Yes/No answers to many of the questions. We recommend that only persons with specific technical expertise participate in this phase of the evaluation process. Public involvement in project selection may be appropriate, but not in the technical assessment phase.

<i>Criteria</i>	<i>Points</i>
Objectives of the proposal	
<ul style="list-style-type: none"> • Are objectives clearly defined and realistic? 	0-10
<ul style="list-style-type: none"> • Do objectives address an issue in the Fish & Wildlife Plan, including the Integrated Program Framework? 	0-5
Likelihood of success	
<ul style="list-style-type: none"> • Is the project likely to meet objectives (if new)? 	0-10
<ul style="list-style-type: none"> • If ongoing, is the project currently meeting objectives? 	0-10
Ecosystem concerns	
<ul style="list-style-type: none"> • Does the project promote natural (normative) processes? 	0-10
<ul style="list-style-type: none"> • Does the project promote connectivity between good habitats? 	0-10
Population concerns	
<ul style="list-style-type: none"> • Will the project promote population abundance and natural genetic variability of the target species? 	0-10
<ul style="list-style-type: none"> • Will the project also benefit non-target native species? 	0-10
Coordination and planning	
<ul style="list-style-type: none"> • Will the project complement management actions on private, public, and tribal lands? 	0-5
<ul style="list-style-type: none"> • Is the project supported by a local watershed group? 	0-5
Cost criteria	
<ul style="list-style-type: none"> • Is this the most cost-effective approach to the problem? 	0-10
<ul style="list-style-type: none"> • Is there a cost-share arrangement for construction/implementation? 	0-5
<ul style="list-style-type: none"> • Is the project sustainable without annual operation and maintenance costs? 	0-10
Total score	

Example Proposal

The example proposal at the end (page not numbered) is inadequate as a proposal, although it is a good and useful one-page summary. Documentation is needed in a full proposal for all the statements made in this summary. There should be a map for the site; identification of ownership of public and private land; justification for the statement that the project will enhance aquatic resource values; letters should be appended to document support by the organizations listed and the commitment by the landowner. References should be cited for the species using the site; ESA details should be given and references cited; how the project holds the key to production and connectivity should be explained with appropriate scientific references; the Natural Resource Conservation Service work should be cited; and so on. Projections of increased production should be documented with an assessment. The last sentence of the second paragraph appears to be missing a phrase. The budget needs to be much more explicit than given in the bottom paragraph. The items in this example should be checked against the ISRP's previous recommendations for what should be in a proposal; for example, there is no mention here of the qualifications of the proposers to carry out the work, including the monitoring and evaluation.

REFERENCES

- National Research Council (NRC). 1996. Upstream: salmon and society in the Pacific Northwest. National Academy Press, Washington, D.C.
- Reeves, G. H., L. E. Benda, K. M. Burnett, P. A. Bisson, and J. R. Sedell. 1995. A disturbance-based ecosystem approach to maintaining and restoring freshwater habitats of evolutionarily significant units of anadromous salmonids in the Pacific Northwest. *American Fisheries Society Symposium* 17:334-349.
- Scudder, G. G. E. 1989. The adaptive significance of marginal populations: a general perspective. Pages 180-185 *In* C. D. Levings, L. B. Holtby, and M. A. Henderson, editors. Proceedings of the national workshop on effects of habitat alteration on salmonid stocks. Canadian Special Publication of Fisheries and Aquatic Sciences 105.

d:\ww\isrp\isrp97-2.doc