



Independent Scientific Review Panel

for the Northwest Power & Conservation Council
851 SW 6th Avenue, Suite 1100
Portland, Oregon 97204
isrp@nwcouncil.org

Memorandum (ISRP 2007-11)

August 13, 2007

To: Tony Grover, Fish and Wildlife Division Director, Northwest Power and Conservation Council

From: Eric Loudenslager, ISRP Chair

Subject: Review of Combined Habitat Assessment Protocols (CHAP) work element in Project 200600600, Habitat Evaluation Procedures (HEP)

Background

At the Council's request, the ISRP reviewed additional materials submitted in response to the ISRP's final FY 2007-09 review¹ of the Combined Habitat Assessment Protocols (CHAP) work element of project 200600600, Habitat Evaluation Procedures (HEP). In our final FY 2007-09 review, we found that the CHAP work element did not meet the ISRP's scientific review criteria.² Specifically, we stated:

The proposal did not provide convincing evidence that the approach of NWI would be a significant improvement over the HEP-derived habitat unit metric now in place. In particular, the methods used to determine habitat value (HV) were not clearly presented. It would have been useful for the proposal to include a more clear explanation of the calculation and use of habitat value, with an example from a subbasin of how to use the metric, habitat value, as a measure of progress towards mitigation. It seems likely that direct biological M&E will almost always be more convincing, more interpretable, and thus more useful for evaluation and application to management decision-making than would be a less direct, HEP-type measure. The proposal did not convince the ISRP that the NWI efforts to improve HEP would be as good as direct biological M&E.

The ISRP also noted that actual evaluation of wildlife projects was rarely provided in proposals. The use of HEP or CHAP would imply that habitat was an adequate proxy for value to wildlife, but this proposal does not articulate habitat goals or how and when progress towards goals would be measured. The use of HEP to provide monitoring and evaluation is not considered scientifically well advised. The relationships of HEP- or CHAP- derived metrics to focal species identified in subbasin plans or to non-focal species were not defined.

¹ ISRP Final Review of Proposals Submitted for Funding through the Columbia River Fish and Wildlife Program (ISRP 2006-6, August 31, 2006): www.nwcouncil.org/library/isrp/isrp2006-6.htm; see page 185.

² Note that for Proposal 200731200, Albeni Falls Dam Operation Loss Assessment of Riparian Ecological Function in the Pend Oreille River Ecosystem, we found the use of CHAP in the context of a research proposal -- an "Index of Ecological Integrity" -- to be better justified than as an objective in the HEP proposal (ISRP 2006-6, page 621).

As a programmatic comment, we also stated, “the Habitat Evaluation Procedure (HEP) should be used only as an initial scoring system for the mitigation agreements that underlie the Wildlife Program. It should not serve as the sole criterion for judging whether an agreement is worthwhile.”

Considering the ISRP’s recommendation, the Council recommended to BPA not to expand the scope of the project, that is, not to fund the CHAP work element. However, the Bonneville Power Administration reserved a budget to fund the CHAP work element to address the need for a scientifically sound crediting process for Willamette Basin wildlife mitigation. Subsequently, the Council recommended that the ISRP re-review the CHAP work element for its intended Willamette subbasin mitigation purpose.

ISRP Recommendation and Summary

The ISRP’s conclusion is that there is still insufficient evidence, from the supplemental material provided, that the CHAP protocol represents a substantial improvement over HEP for wildlife habitat assessments, as required by the Council’s Fish and Wildlife Program. Thus, the CHAP element of proposal 20060600 **Does Not Meet Scientific Review Criteria** because it has not yet been shown to represent a sufficient improvement of habitat evaluation practice leading to quantifiable benefits to fish and wildlife.

Specific Review Comments

In the FY 2007-09 review the ISRP concluded that the CHAP work element Does Not Meet Scientific Review Criteria (classified at the time as Not Fundable) based on insufficient information being provided in the proposal for the ISRP to evaluate whether CHAP was a sufficient improvement over HEP. The ISRP further suggested that information on estimation of Habitat Value (HV) and an explanation of the calculation and use of HV would be needed by the ISRP to more thoroughly consider CHAP as it would be applied to the Willamette subbasin.

The sponsor provided extensive, valuable material, which facilitated a review of the CHAP work element in the context of the FY 2007-09 solicitation and review of proposal 200600600.

The primary concern raised by the ISRP was that there was not enough evidence that CHAP represented a fundamental improvement over HEP. The question guiding this review is whether the new information shows that CHAP sufficiently remedies the weaknesses of HEP, to represent the best science available to address the mitigation challenges of the Willamette River subbasin.

Based on the information provided by the sponsor, the Willamette subbasin has lost wildlife habitat in Cascade Mountain forests, and a decision has been made to mitigate those losses by acquiring, restoring, and managing wildlife habitats located primarily in the valley floor. That is, the types of habitats chosen for mitigation will be different from those established in the loss agreement. The proposal materials identify this as “out-of-place” and “out-of-kind” mitigation.

It is unclear to the ISRP how the substitution of habitat types in the original loss statement will be determined. It does not appear that this would be scientifically determined, but rather would be a policy decision. This issue does not seem to be discussed in any of the

materials. The process for establishing this substitution is likely to be as difficult a challenge as determining credits for mitigating loss. Moreover, the choice of substitution will likely have as large an effect on the benefits to fish and wildlife as the method of crediting mitigation loss.

The ISRP has several concerns about relying on CHAP as a tool to establish crediting for habitat loss for the Fish and Wildlife Program.

First, even though the Habitat Appraisal and Barter (HAB) method represents an improvement over HEP in a number of ways, it is still essentially an expert-system model with assumed relationships between species and habitat attributes. It looks as though it is structured like EDT in terms of modeling the capacity of a site to support different wildlife species based on the deviation between site characteristics and the condition of "reference" sites. From examining the field data inventory forms, wildlife populations are not actually censused. Thus, as with EDT, what the sponsor is proposing is a system that relies on environmental surrogates to forecast species abundance. HAB (and the crosswalk CHAP effort to link HEP and HAB) may represent a more sophisticated model than an overly simplified HEP, but the fundamental approach is still the same: an inferential approach to habitat evaluation. It probably has fewer statistical flaws than the much older HEP models but probably more unproven assumptions about species-habitat value relationships.

The NHI data bases are important resources and have been valuable and useful for wildlife scientists and managers in the Pacific Northwest. The ISRP is, however, very skeptical of the wisdom of weaving the habitat value assumptions of key correlates and key functions, which are based on extrapolation of species-habitat-function relationships from one or several places to general relationships, and formalizing these relationships into evaluations of habitat in the Fish and Wildlife Program. The ISRP believes it should be recognized that the habitat loss assessments must be accepted as imperfect, since they were estimated in the past without a direct record of what was lost, and the program needs to move on to using strong direct measures (i.e., based on actual survey data) of habitat value to wildlife now.

Second, the ISRP maintains a general concern about reference site selection procedures that could strongly influence the outcome of the numerical ratings assigned to potential mitigation sites. There was no specific description of the criteria for reference site selection. The ISRP concerns include intentional or inadvertent bias in site selection that may benefit certain species or assemblages to the detriment of others, the possibility that appropriate reference locations simply do not exist in the nearby area, or the age and successional trajectory of reference site vegetation in relation to the potential vegetation communities that may develop in the area being modeled. This is not to say that the ISRP feels the CHAP protocol is biased; rather, that it was impossible to determine whether it represented a significant improvement over HEP with the information provided to us.

Third, the approach does not provide a landscape context for rating particular sites for their habitat value. Factors such as contagion and connectivity do not apparently enter into the calculations; each site is rated according to its own characteristics and the rating is apparently not influenced by the condition of neighboring areas. Adjacent habitats can be critical for some wildlife species that require suitable travel corridors between nesting, foraging, and roosting habitats. Ignoring the condition of the broader landscape also places the rating system at risk of missing important metapopulation considerations.

Finally, at the most basic level, the modeling approach of HAB needs to be more thoroughly reviewed before it is endorsed by the ISRP. The proposal presents CHAP as an accounting

device, which was the original intention of HEP. However, in section B of the proposal the sponsors state:

"Additional funding is needed to expand this innovative approach to new habitat types and to areas beyond the Willamette Valley. When fully developed and implemented, the CHAP concept would provide project managers with a far more comprehensive understanding of the relationship between habitat quality and key ecological correlates (KECs) and key ecological functions (KEFs) than what HEP alone provides. **The CHAP approach could also be incorporated into site specific M&E programs** and eventually replace HEP in many instances."

The ISRP strongly rejects the use of HEP for monitoring and evaluation in lieu of actual surveys, and by extension, any HEP-like processes would be similarly unsupportable.

The Council's reliance on HEP to account for losses and the decision to have a single HEP team were choices made to establish consistent assessments across the basin. The change to CHAP appears to violate this consistency. CHAP is presented as a better approach for crediting mitigation, and it may be, but it still uses some elements of HEP and is still an indirect approach to habitat evaluation.