

**Lower Columbia Fish Recovery Board**  
**Evaluation of Habitat Restoration and Protection Proposals**  
**August 2006**

**I. Overview**

Habitat restoration and protection proposal are evaluated to determine their potential benefits to fish and the likelihood or certainty that they will achieve those benefits.

Benefits can be generally defined as improvements in productivity, abundance, and/or distribution. They are determined based on measures, strategies, actions, and priorities identified in the Lower Columbia Salmon Recovery and fish and Wildlife Subbasin Plan (LCFRB, 2004) and the 6-Year Habitat Work Schedule (LCFRB 2006). The two key components of the benefits determination are:

- a. The importance of the fish populations, key life history stages and associated limiting factors targeted by the project; and
- b. The extent to which the project will address the targeted limiting factors.

Of equal importance to a project’s potential benefits is the likelihood that it will achieve those benefits. Key considerations in this regard are:

- a. Whether the approach is technically appropriate;
- b. The extent to which the project is coordinated with other habitat protection and restoration efforts in a watershed;
- c. Physical (site or watershed conditions), legal, social, or cultural constraints;
- d. The qualifications and experience of the sponsor; and
- e. Community and landowner support.

Using this evaluation process, each project is assigned benefit and certainty ratings of High, Medium, or Low as well as a numerical score. Each project is assigned to priority grouping based on its benefit and certainty ratings using the following matrix. Projects are then ranked within each group based on their numerical scores.

Project Priority Grouping Matrix

		Certainty		
		High	Medium	Low
Benefit	High	Group 1	Group 2	Group 5
	Medium	Group 3	Group 4	Group 5
	Low	Group 5	Group 5	Group 5

A more detailed discussion of Benefit and Certainty ratings and scoring is provided below.

**2. Benefits to Fish**

Benefit to fish ratings and scores are the product of:

- a. A population/reach rating and score;
- b. A benefit rating and score; and
- c. A cost reasonability score.

Benefit ratings are High, Medium, and Low and the maximum Benefit score is 200 points. It should be noted that in developing a benefit score and rating it is assumed that each proposed project will achieve its goals and predicted outcomes. The likelihood that a project will actually achieve its goals or predicted outcomes is evaluated in determination of the project's certainty of Success.

### Population/Reach Ratings and Score

Population/Reach Ratings and Scores reflect the degree to which a project targets priority populations and reaches.

Population/Reach Rating: A project's Population/Reach Rating is based on the Tier of the targeted reach or reaches. Tier ratings are assigned in the Recovery Plan based on the following rules.

Designation Rule	
Reaches	Rule
Tier 1	All high priority reaches (based on EDT) for one or more primary populations.
Tier 2	All reaches not included in Tier 1 and which are medium priority reaches for one or more primary species and/or all high priority reaches for one or more contributing populations.
Tier 3	All reaches not included in Tiers 1 and 2 and which are medium priority reaches for contributing populations and/or high priority reaches for stabilizing populations.
Tier 4	Reaches not included in Tiers 1, 2, and 3 and which are medium priority reaches for stabilizing populations and/or low priority reaches for all populations.

If a project targets a Tier 1 reach or predominantly Tier 1 reaches, it received a "High" rating. If it targets a Tier 2 reach or predominantly Tier 2 reaches, it received a "Medium" rating. If it targets a Tier 3 or 4 reach or predominantly Tier 3 or 4 reaches, it received a "Low" rating.

**Issue for TAC Consideration:** Should the Population/Reach Rating for multiple reach projects be based on the highest Tier rating rather than on the rating of the predominant Tier rating for all targeted reaches?

Population/ Reach Score: In addition to its Population/Reach Rating, each project received a Population/ Reach Score. This score is necessary to reflect that reaches within a given Tier may be utilized by a varying number of populations of varying recovery classifications and that the targeted reach or reaches may be of varying importance to the populations. The score is the cumulative total of the Population Classification (Primary = 3, Contributing = 2, Stabilizing =1) plus the Species Reach Potential (High=1, Medium=2, Low=1) for each population using the targeted reach or reaches. For multiple reach assessments, Population/ Reach Score is the average of the Population/ Reach scores for the individual reaches. The Population Classifications and Species Reach Potential ratings were taken from the Recovery plan. The maximum Population/ Reach Score is 100 points.

**Issue for TAC Consideration:** Should the average of the Population/ Reach scores for all reaches be used for all multiple reach projects rather than for just assessments?

## Benefit Ratings and Scores

Benefit ratings and scores reflect whether a project targets priority habitat project needs and the extent to which the project would address those needs. Benefit ratings are High, Medium, and Low and the maximum score is 100 points. The benefit ratings and scores are product of three elements:

- a. The Protection/Access/Restoration (PAR) Rating and Score (0 to 85 points); and
- b. The Cost Score (0 to 15 points).

### The Protection/Access/Restoration (PAR) Ratings and Scores

- a. Protection: The protection benefit rating is based on the EDT preservation rating for the targeted reach or reaches using the following scale:

EDT Reach Preservation Rating	Protection Rating
>50%	High
25 to 49%	Medium
<25%	Low

The protection score is the product of the EDT preservation rating times the number of habitat units. For protection elements, one habitat unit equals 500 feet of stream length on both sides or 1,000 feet of stream length on one side of the stream.

- b. Access: The access benefit rating is based on the quality of the habitat that would be made available and a passage improvement factor. The quality is the average of upstream Tier reach ratings, where Tier 1=4 points, Tier 2=3 points, Tier 3=2 points, and Tier 4=1 points and an average Tier score of 3 or greater is “high”, 2 but less than 3 is “medium”, and less than 2 is “low”. Where no Tier rating is available the quality factor will be derived using habitat assessment data provided by the project sponsor. The passage improvement factor is equal to 100% less the current possibility percentage furnished in the project application, where a score of 60 to 100% is “high”, 30 to 59% is “medium” and <30% is “low”. The overall Access rating is then derived using the following matrix.

		Habitat Quality		
		High	Medium	Low
Passage Improvement	High	High	High	Medium
	Medium	High	Medium	Low
	Low	Medium	Low	Low

The Access Score is the product of the passage improvement percentage times the Habitat Quality Factor times Habitat Quantity Factor.

Habitat Quantity	Quantity Factor	Habitat Quality	Quality Factor
5+ miles	10	High	10
2 to 4.9	6	Medium	6
1 to 1.9	4	Low/Unknown	2
0.5 to 0.9	2		
>0.5	1		

- c. Restoration: The Restoration rating is based on the EDT-derived restoration type ratings (High, Medium, Low) provided in the 6-Year Habitat Work Schedule for the reaches targeted by a project. The ratings for the restoration types covered by the project are averaged and rounded up to the next highest rating.

With the exception of assessment projects, the Restoration Score is the sum of the benefit score for each restoration type covered by the project. The benefit score of each restoration type is the product of the restoration type rating (High=3, Medium=2, Low=1) times the number of habitat units times an effectiveness factor. A habitat unit equals:

- (1) 500 on both sides of the stream or 1000 feet on one side of the stream for riparian, floodplain, and hillslope process project types; or
- (2) 500 feet of stream length for instream project types.

The effectiveness factor reflects a percentage estimate of the extent to which the project would address the project type within the targeted habitat unit. For example, if the project were deemed to be fully effective in creating instream habitat structure it would receive an effective factor of 100%.

Assumptions used by LCFRB staff estimating effectiveness for each project are provided for the TAC's information. The TAC may review these assumptions and amend them and the effectiveness where it deems appropriate.

Assessment projects are important in identifying site-specific restoration needs and developing project designs. However, since they do not result in tangible on-the-ground benefits the scoring process was amended to allow these projects to be ranked along with on-the-ground projects. Since assessments often involve multiple reaches, an average, rather than the sum, of their restoration benefits was used. An effectiveness factor of 10 percent was used for all project types being addressed in an assessment. Finally, the average restoration benefit score was weighted to give a higher priority to assessment focusing on comprehensive restoration prescriptions for multiple reaches. This was done by multiply the average restoration benefit score for an assessment covering 5 or more reaches by a factor 1.25. An assessment covering 1 or 2 reaches was multiplied by 0.75.

- d. Overall Protection/Access/Restoration (PAR) ratings and scores.

A project was given an overall PAR rating of High, Medium, or Low based on the rating of the project's predominate type or if the project was felt to address several project types to an equal or similar degree an average of the project type ratings was used.

A project's overall PAR score is the sum of its protection, access, restoration and assessment scores. Protection, access, restoration and assessment scores were normalized so that they carry equal weight. The score range for the PAR component is 0 to 85 points.

Cost Score

The cost score is result of the TAC's determination of how reasonable a project's cost is relative to the projects anticipated benefits. The cost score range is 0 to 15 points

**Final Benefit Ratings and Scores**

A project's overall benefit rating is a combination of the Population/Reach and PAR ratings and is determined using the following matrix.

		Protection/Access/Restoration Rating		
		High	Medium	Low
Population/Reach Rating	High	High	High	Low
	Medium	Medium	Medium	Low
	Low	Low	Low	Low

A project's overall Benefit Score is the sum of its Population/Reach Score and its PAR score. The numerical score is used to rank projects within a given Benefit Rating group.