

# Instructions for calculating the River Habitat Quality Class using RHS

The River Habitat Quality (RHQ) index was suggested to the Environment Agency in 2001 and implemented as part of the River Habitat Objectives in 2005 (Walker, 2005). It provides a way of calibrating HMS and HQA scores against data from Benchmark sites (i.e. sites of outstanding quality) and assessing potential management impact.

## Benchmark Distance categories:

The RHQ requires the derivation of HMS and HQA classes as well as a new index called the Benchmark Distance score (BCD). The BCD measures the distance from the site HQA score to the HQA score of the nearest Benchmark site using context analysis. This index is used for semi-natural sites only ( $HMS \leq 16$ ).

## Methods:

- Using the context analysis, select the closest benchmark sites on the PCA map.
- Select the Benchmark site with the highest HQA.
- Calculate the difference between the site HQA and the Benchmark site HQA
- Define BCD categories using the following table:

HQAsite-HQABenchmark	BCD categories
$\leq 5$	1 (Benchmark equivalent)
6 to 10	2 (Similar)
11 to 15	3 (Fairly dissimilar)
16 to 20	4 (Dissimilar)
20 and more	5 (Very dissimilar)

## River Habitat Quality index:

The RHQ is derived by combining HMS, HQA and BCD categories using the following simple matrix. Please note that:

- ◆ For modified RHS sites, only HMS and HQA are used to define RHQ categories.
- ◆ For semi-natural sites, ONLY the BCD categories are used to determine RHQ, so that sites falling into the lower percentiles of the HQA distribution but close to benchmark quality can be attributed a score that truly reflects their quality. For example, a semi-natural site falling within the bottom

20% of reference sites of similar types with a BCD of 1 would be upgraded to a class I RHQ.

- ◆ It may not always be possible to find close Benchmark sites for all sites. In this case, only HMS and HQA are used to determine the RHQ categories.
- ◆ Outstanding sites will automatically fall within RHQ1 (see RHQ report by Raven et al, 1998 for outstanding site definition).
- ◆ Sites with rare features or rare combinations of features will at least fall within RHQ 2 (see RHQ report, Raven et al, 1998).

		Habitat Quality Assessment Score Categories				
		Top 20%	Top 40%	40%-60%	Bottom 40%	Bottom 20%
Habitat Modification Score Categories	Semi-natural (HMS 0-16)	I and/or BCD=1 or site outstanding	II and/or BCD=2,3		III and BCD>3	
	Predominantly unmodified (HMS 17-199)	II or rare feature(s)present		III		IV
	Obviously modified (HMS 200-499)	III		IV		V
	Significantly modified (HMS 500-1399)	III		IV		V
	Severely modified (HMS 1400+)	IV		V		V

RHQ score description and management prioritisation:

River Habitat Quality Categories	Description	Management
I	Excellent	Protect
II	Good	Maintain and Improve
III	Moderate	Enhance
IV	Poor	Rehabilitate
V	Extremely Poor	Restore