

BHS response to Hydromorphology consultation : May 2007

General

The general observation is made that no discussion is included within the document of the natural hydrological variability within riverine systems. Firstly, this factor will have a powerful role in defining the ‘hydromorphology’ of the system: e.g. following a flood event, channel migration may take place – leading to increased sediment loading with decreased water quality as defined by ecological parameters – but yet acceptable and expected from a geomorphic perspective. Secondly, there are time implications, i.e. more understanding is required of long-term variability within riverine systems, not just short-term fluctuations (<50 years).

Specific responses

Section 1.3

There is little discussion of what constitutes the boundary of the channel: it is imperative that this is considered within a catchment scale. Indeed, there are reservations about the separation of the hydromorphology from the catchment – what is the justification for this? This is required if an understanding of the processes is to be provided and incorporated into the management of these systems. It is important to flag that an activity can significantly alter the geomorphic processes upstream, not just downstream.

Table 3

There is little discussion of the role of mining / in-channel aggregate: it is important to recognize that localized abstraction can have catchment-wide implications. Perhaps this aspect could be included within Tables 6-9.

Section 1.5.2

Few natural river systems exist, if any, in the UK – what will be considered as the benchmark?

Section 1.5.4

The terminology ‘good water status’ may conflict with good process status – to propose assessing morphological processes against biological standards is highly inappropriate, since what may constitute bad/poor water status may be appropriate for the geomorphic processes within a reach or system. Again, we point to the need to address the temporal variability associated with hydrological processes.

Chapter 6

Fluvial geomorphology has, for the last two decades, responded to the needs of UK river managers for assessment, design and regulation of such disparate activities as flood risk management, river rehabilitation/restoration and the control of developments covered by the Habitats Regulations. Because of the slightly different incorporation of the WFD into Scottish law, the application of geomorphological tools north of the border has already advanced, via the activities of SNIFFER, ably assisted by academics working on rivers in England and Wales and by Environment Agency. This activity, particularly the emerging tools such as MiMAS, are not included in the Defra consultation.

The hectic activity to assist with management applications within fluvial geomorphology in England and Wales is summarised in the Defra/EA 'Guidebook of Applied Fluvial Geomorphology' (R&D Technical Report FD1914, 2003) which is shortly to be published commercially in a heavily revised/updated form by Thomas Telford (Sear *et al.*, in press). We should like to point out that there is no reference in the Consultation to this overview of tools in place to advise on essentials of hydromorphological management under the WFD.

There is insufficient emphasis in the Consultation on the particular problems of using the integrated concept of 'hydromorphology' when the constituent sciences have tended to (been encouraged to!) work separately and when UK field survey (cartographic, monitoring etc.) have all ignored those river channel details which are its focus. An exception to the latter discrepancy is the River Habitats Survey database which includes basic but useful geomorphological and hydromorphological data: this source is not mentioned in the Consultation.

The document also fails to refer to a Defra-financed development from RHS – into geoRHS, details of which can be found in R&D Technical Report SC020024/TR (2005). At many points of this Technical Report, the role of geoRHS is linked by worked examples and tabulations to the remit of EA under the WFD. Thus, the Consultation needs to point up the lack of remotely sensed and ground-surveyed information on river channels (and the resulting current weakness of generalisations, such as typologies, to guide regulators), together with strategies for deploying RHS and geoRHS as national surveys in future. Guidance on our current ability to merge evidence from geomorphology and freshwater ecology is likely to come from the report by Professor Ormerod.

Chapter 10

In relation to point 10.2.2., in some instances the long-term development as a result of a historical activity has left a unique environment as a legacy. These new environments may prove to be valuable, harbouring species absent elsewhere within the region. Although the identification of these areas appears straightforward, where they have been present for considerable periods of time the geomorphology of the system may have been significantly influenced and a new equilibrium reached within the system.

It would be interesting to see reference to the application of novel approaches towards remediation, perhaps included within the points at the end of the chapter. Such an example would be the *BIOabsorption of Metals from Abandoned miNe sites (BIOMAN) project* (<http://www.aber.ac.uk/bioman/>)