

## **The case for Europe-wide vs. River Basin-specific sediment EQS**

### **A position paper prepared by the WFD Navigation Task Group**

**February 2011**

Members of the WFD Navigation Task Group<sup>1</sup> have given careful consideration to whether generic EU-level sediment environmental quality standards (EQS) are desirable, and we have concluded that such standards are neither scientifically justified nor workable in practice. The Group has, however, concluded that the development of sediment EQS at a local (catchment or river basin) level could be supported.

This paper explains our reasoning in reaching this conclusion.

#### **Experience of the Group**

The Navigation Task Group comprises a number of organisations representing European commercial and recreational, inland and maritime ports and waterways interests. The International River Commissions (e.g. Rhine, Sava) also participate in the Group, as do representatives of the dredging sector.

Sediment quality and quantity; sediment properties and behaviour; sediment transport; historic contamination; and sediment management are all of fundamental importance to our sector. As a result of this, individual members of the Group have a great deal of technical and scientific knowledge and a wealth of practical experience of dealing with sediment-related issues. The Associations represented in the Task Group have access to a wide range of further expertise. This collective knowledge has been used to inform this paper.

#### **Legal observations**

Article 2.18 of Directive 2000/60 (the 'WFD') confirms that good surface water status requires the achievement of both good ecological status and good chemical status. However, it does not imply that there is necessarily a relationship between chemical status and ecological status. This reflects the reality in the field: ecological status can be good even when a chemical standard for one or more substance is not met. Similarly, although interrelationships are complex and more research is required, it is evident that the chemical status of a water body can be good despite the sediments containing contaminants.

Article 16.7 of the WFD says that 'The Commission shall submit proposals for quality standards applicable to the concentrations of the priority substances in surface water, sediments or biota'. Article 3.2 of Directive 2008/105 (the 'EQS Directive') states the following: 'Member States may opt to apply EQS for sediment and/or biota instead of those laid down in Part A of Annex I...'. The use of an 'or' statement in both of these Articles and particularly the clear reference to Member States in the latter suggests to us that it is the Commission's prerogative to propose generic water-based EQS as the reference standards, and that Member States may opt to use

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<sup>1</sup> The WFD Navigation Task Group is a 'thematic cluster' of European navigation-related organisations which provides the navigation sector's contribution to the WFD Common Implementation Strategy (CIS). The Group comprises a number of professional bodies, trade associations and other stakeholders concerned with ports, commercial and leisure navigation and dredging, including: Central Dredging Association; European Barge Union; European Boating Association; European Boating Industry, European Community Shipowners' Associations; European Dredging Association; European Federation of Inland Ports; European Sea Ports Organisation; ICOMIA-IMEC (International Council of Marine Industry Associations and Marine Engine Committee); Inland Navigation Europe and PIANC (the World Association for Waterborne Transport Infrastructure). Central Commission for Navigation on the Rhine, the Danube Commission and the International Sava River Basin Commission have observer status at our meetings.

either biota or sediment standards to the extent that they provide equivalent protection and reflect the specific local or regional conditions.

Based on the above, and whilst we acknowledge the available option for Member States to develop and use sediment EQS where appropriate, the Task Group does not believe that there is either a specific requirement for generic European-wide sediment standards, or a role for the Commission to propose such standards.

Further – and importantly – the Task Group does not believe that meaningful sediment EQS can be developed for application at an EU level. The reasons for this position are explained below.

### **Differences between water and sediment**

Water and sediment behave very differently. While there is typically agreement on the type of measures required in situations where EQS for water are exceeded and, indeed, the WFD provides tools to tackle this, the same is not the case for sediments. Whilst sediments are an essential natural element of aquatic systems, they behave in a totally different way to water. Sediments can be coarse or fine; they are transported episodically; they can represent a long term 'memory' of river contamination. Different contaminants will have different effects in different environments (mountainous regions, low lands, estuaries). A mix of several chemicals can have different effects depending on different compositions. Over time, particle-bound contaminants may decompose leading to further changes. All of these factors contribute to making sediment assessment a real challenge and the application of measures very much a site-specific decision.

Whilst sediment monitoring may be one of a number of tools used to characterise an aquatic system, to monitor evolution over time or to help identify contamination sources, sediments are very different to water in a further important respect: the original, primary contamination source may not have existed for many years. Sediment EQS cannot therefore substitute for water EQS.

These important differences between water and sediment in both characteristics and behaviour lead the Task Group to conclude that great care is required to identify situations in which sediment EQS are relevant.

### **Diversity and natural variability**

The draft Technical Guidance Document on EQS recognises many of the challenges associated with seeking to develop meaningful sediment standards. In particular it highlights the potential variability in background concentrations, and it acknowledges how different biogeochemistries influence both sediment contamination and contaminant availability. In the view of Navigation Task Group, such natural diversity and variability between catchments or between river basin districts is an important reason why generic EU-wide sediment EQS are not appropriate.

There are also several factors which cause difficulties in collecting representative and relevant sediment quality data:

- if sediment is contaminated, samples often show a high variability in results, even at short distances from each other;
- sediment often contains historic contamination - which raises questions about the depth to which the sediment should be sampled and whether samples will reflect only recent contamination or also historic contamination;
- rates of sedimentation can also be quite different across river basins;
- particularly in coastal and transitional water bodies, natural processes (tides, storms, etc.) mix and re-distribute sediment on a variety of time scales: if this variability is not properly understood and accommodated, sediment sampling can become meaningless for the purposes of compliance or trend monitoring.

In addition, sediment composition and properties (e.g. fine versus coarse sediment) differ enormously between river basins and across Europe, meaning that normalisation is not a solution.

The high levels of natural diversity and variability between river basins and across Europe, combined with the various difficulties associated with collecting representative and relevant sediment samples, mean that it is impossible to set meaningful sediment EQS that can reasonably be applied at a Europe-wide scale.

In addition to the above, the Task Group recognises that *sources* of contamination also vary. In this respect, however, we believe that there may be some value in developing local (e.g. catchment or river basin specific) sediment standards. Sediment standards could be set – for example by the relevant River Commission – which reflect specific historical, biological and hydromorphological conditions and are therefore useful in supplementing water column EQS to address local issues regarding source control, trigger risk assessments, etc.

### **Role of sediment EQS vs. sediment monitoring**

Another key question concerns the possible role of sediment EQS. Will EQS be used only for trend monitoring? The Task Group understands that sediment *monitoring* can help identify sources of contamination, or confirm temporal and spatial trends. Setting a sediment EQS or target on a specific river system can potentially play a role in helping to deliver source control, but its value is less obvious if sources of contamination are historic. In the meantime, the draft Technical Guidance Document confirms that sediment monitoring might have a role in identifying site-specific risks of chemical deterioration; triggering further assessment studies; and monitoring long term trends. The Navigation Task Group agrees that sediment monitoring can indeed be useful for such trend monitoring – but EQS values are not a necessary prerequisite for trend monitoring.

The Task Group therefore requests that proper consideration be given to the intended role of sediment EQS and sediment management in the context of the WFD.

### **Conclusions**

Given the wording of the WFD and EQS Directives, the Task Group does not believe that there is either a specific requirement for generic European-wide sediment EQS or a role for the Commission to propose such standards

Important differences between the characteristics and behaviour of water and sediment lead the Task Group to conclude that great care is required to identify situations in which sediment EQS are relevant.

High levels of natural diversity and variability between river basins and across Europe, combined with the various difficulties associated with collecting representative and relevant sediment samples, mean that it is impossible to set meaningful sediment EQS that can reasonably be applied at a Europe-wide scale.

Taking all of the above points into account, it is clear to the Navigation Task Group that there remain severe doubts – about the legal basis for setting European-wide sediment EQS, about their scientific justification, and about their workability in practice.

The Navigation Task Group does, however, support sediment sampling to be used as appropriate for trend monitoring, source identification and, in certain cases, the setting of locally-specific sediment standards at a catchment or river basin level to supplement water column EQS.