

# **Potential implications for navigation (including ports, harbours, waterways and dredging) of EU Water Framework Directive Articles 16(1) and 16(7)**

*This paper has been prepared as a discussion document by representatives of the International Navigation Association (PIANC), the Central Dredging Association (CEDA) and the International Association of Dredging Companies (IADC). It has the support of the European Sea Ports Organisation (ESPO), and the European Federation of Inland Ports (EFIP).*

*The purpose of this paper is to raise awareness of the possible implications, for the wider navigation sector, of the discussion documents associated with the implementation of Article 16 of the EU Water Framework Directive (WFD)*

## **SUMMARY VERSION**

### General concerns

1. Whilst it is appreciated that the WFD was not intended to deal with sediments, sediments are nevertheless an important part of the natural system, particularly in coastal and transitional waters
2. It is not possible, therefore, to implement Article 16 without ensuring that the methods are technically realistic with respect to naturally occurring suspended sediment levels
3. Article 16 implementation must also take into account the potential consequences for navigation

### Specific concerns

4. Any interpretation of disturbance due to activities such vessel movement, overflow from a dredger, or the aquatic disposal of dredged material, as a discharge, emission, loss or transfer to the water body under Article 16(1) of the Directive would have serious implications for the wider navigation sector
5. This would, in turn, contradict political efforts towards modal shift in European transport policy, as laid down in the White Paper on European Transport Policy
6. Quantitative environmental quality standards, derived from limited toxicological data, should not be employed as compliance criteria in complex natural systems
7. Setting quantitative water standards based on total water analyses has serious technical flaws, particularly in estuarine (transitional) and coastal waters and other water bodies with naturally high suspended sediment concentrations
8. This is because impacts on biota depend on whether or not the contaminants in suspended sediment are biologically available, rather than on total concentrations. The bioavailability of contaminants in a whole water sample is thus profoundly influenced by the presence of suspended sediments

### Potential consequences

9. Navigation, dredging, and disposal could potentially be significantly constrained by the measures required to achieve good status
10. Temporary increases in suspended sediment levels are unlikely to compromise the achievement of the WFD objectives.

11. Imposing constraints such as dredging without overflowing, using confined disposal sites, or treating dredged material (where practical) would be expected to lead to a massive increase in both the cost of dredging and disposal, and the complexity of such activities
12. Increased costs would be incurred in the form of trans-shipment and double handling costs. In addition, there would be further environmental costs (air quality, noise, congestion) if waterborne freight transfers to land transport, particularly road transport.
13. In certain estuaries, any constraints which preclude the relocation of dredged sediments within the aquatic system would bring the WFD into direct conflict with the objectives of the EU Birds and/or Habitats Directive - and indeed with the requirement under the WFD to meet good ecological status
14. Removal of sediment from many estuarine systems would also exacerbate coastal erosion

#### The way forward

15. The objectives of the WFD in delivering improvements in the status of surface water bodies and in preventing deterioration in status are fully supported
16. Sediment is vital to aquatic life: suspended sediments are an integral part of complex natural systems
17. Sediment management strategies will play a vital role in river basin management planning and in ensuring effective delivery of WFD objectives
18. Care has to be taken to ensure that economically vital activities such as navigation and associated dredging are not unjustifiably constrained, for example as a consequence of interpreting such activities as losses to a water body
19. The uniform Environmental Quality Standards set out in the discussion documents should be replaced by the development of guidelines similar to those already developed for the protection of the marine environment
20. It will be essential to ensure that the disproportionate cost argument, referenced in Articles 4(4) and 4(5) of the WFD, is properly retained in the daughter Directive
21. It will be important to develop appropriate monitoring methodologies, taking into account *inter alia* the two-directional movement of water and sediments in coastal and transitional water bodies

#### In conclusion ..

22. PIANC, CEDA and IADC seek assurances that the EC will draw on the extensive experience of relevant international conventions, and will make full use of the aquatic science expertise available, before making a final decision on their preferred approach to delivering WFD objectives in coastal and transitional waters and in other sediment-rich water bodies.

#### How can we help?

23. PIANC, CEDA and IADC, as professional Associations, have extensive networks of highly qualified and experienced members with access to relevant regional and global conventions as well as EU initiatives such as SedNet. Our Associations have also published a number of potentially useful reports and guidance documents. We encourage the EC to make maximum use of all these resources.
24. Our Associations will be pleased to act as facilitators in the important process of delivering the WFD objectives in a timely, realistic and cost-effective manner.

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## **FULL PAPER**

### Background

**Ports and navigation are of vital economic importance to EU Member States. Dredging, particularly maintenance dredging, is essential to the safe operation of many of these ports and waterways.**

Article 16 of the Water Framework Directive (WFD) provides for strategies against pollution of water. Article 16(1) requires the adoption of specific measures to progressively reduce discharges, emissions and losses of priority substances, and to cease or phase out discharges, emissions and losses of priority hazardous substances. Article 16(7) provides for the development of environmental quality standards (EQS) that can be used to determine the chemical status of surface waters.

The EC has sought advice on the draft standards from the Scientific Committee on Toxicity, Ecotoxicity and the Environment (CSTEE) on the setting of Environmental Quality Standards for Priority Substances and Priority Hazardous Substances, and is considering how to apply that advice. **It is then intended to adopt the EQSs via a daughter Directive on environmental quality standards and emission controls in the field of water policy.**

Whilst there has been consultation over a period of time as the proposals have been developed, it does not appear that representatives of the ports, navigation and dredging community have been adequately involved until very recently. It is accepted that the preparation of the discussion documents is well advanced. Nonetheless, **these documents raise some potentially serious concerns and PIANC, CEDA and IADC urge the European Commission and relevant national administrations to give urgent attention to the following issues.**

### Concerns

- *Water quality standards*

The approach used for **setting quantitative water standards based on total water analyses has serious technical flaws, particularly in estuarine (transitional) and coastal waters and other water bodies with naturally high suspended sediment concentrations.** This is because many water bodies, particularly estuarine and coastal water bodies, have naturally very high levels of suspended sediments (as background levels, or under certain tidal or weather conditions) when compared to the levels on which the standards are based.

Coastal and estuarine waters and others with high levels of suspended sediments would thus frequently be expected to fail such standards, simply due to the presence of substances adsorbed to the suspended sediments, and despite the fact that no environmental harm is likely. This is because impacts on biota depend on whether or not the contaminants in suspended sediment are biologically available, rather than on total concentrations. The bioavailability of contaminants in a whole water sample is thus profoundly influenced by the presence of suspended sediments rather than by total concentrations.

- *Interpretation of 'losses' under WFD Article 16(1)*

It is not clear from the discussion papers whether disturbance due to activities such as **vessel movement**, the **overflow from a dredger** or the **aquatic disposal** of dredged material would constitute a **'loss' to the water body** (ie. discharge, emission, loss or transfer) under the terms of Article 16(1) of the WFD. However, when the approach taken to deriving the proposed environmental quality standards (EQS) and the associated compliance monitoring are considered, it is clear such an interpretation **would have very severe implications for these crucial activities, particularly those taking place in coastal and transitional waters.**

- *Sediment quality standards*

International organisations such as the International Council for the Exploration of the Seas and the OSPAR Convention (the latter having jurisdiction to landward as far as the freshwater limit on estuaries) have given in excess of 20 years consideration to the question of environmental criteria for sediments. Indeed, the WFD itself recognises the importance of such initiatives. These international organisations have concluded that **quantitative environmental quality standards, derived from limited toxicological data, should not be employed as compliance criteria in complex natural systems.** Notwithstanding this, 'guidelines' can be effective as part of a tiered risk assessment approach.

#### Potential consequences

Failure to meet the EQS would result in an (often unnecessary) requirement for 'measures', *inter alia* in the form of constraints on activities affecting suspended sediments, the latter consisting of predominantly natural materials. Activities which may be subject to constraints would include **dredging** which, by its very nature, typically results in temporary increases in suspended solids concentrations. Depending on the type of dredger used, sediment resuspension may be associated with the movement of the drag head and/or with overflow from the hopper. Hydrodynamic dredging techniques, meanwhile, rely entirely on mobilising sediment within the water column. **Aquatic disposal** of dredged material similarly leads to temporarily increased suspended sediment levels. Even **vessel movements** in shallow areas or areas with low under-keel clearance can cause significant resuspension. All such activities **could, potentially, be constrained to a greater or lesser extent by the measures required to achieve good status.**

In this respect, it is also important to recognise that **short term increases in suspended sediment levels are unlikely to compromise the achievement of the WFD objectives.** Indeed, activities such as clean-up dredging could play a vital role in helping to achieve the WFD's medium-long term goals.

**Imposing constraints such as dredging without overflowing, using confined disposal sites, or treating dredged material** (where practical) **would be expected to lead to potentially massive increases in both the cost of dredging and disposal, and the complexity of such activities.** In Europe as a whole, it is estimated that maintenance dredging quantities total some 200 million m<sup>3</sup> annually. Constraints on dredged material

disposal may lead to increases from a typical cost of €2 per m<sup>3</sup> for sea disposal to a minimum of €7 to €10 per m<sup>3</sup> for land disposal, assuming there is available capacity. Further significant cost increases - to somewhere in the range €20 to €300 (and exceptionally €1000) per m<sup>3</sup> - would be experienced if treatment is required. In the USA, average remediation costs of €700 per m<sup>3</sup> have been noted, and even with such expenditure it is unlikely that contaminant levels could be reduced to zero. It is also important to be aware that some treatment techniques work well only in certain sediment types - for example physical separation may not be effective in areas (such as many areas in the UK) where there is a high fines content in the dredged material.

Constraints on dredging techniques would similarly lead to sometimes very significant cost increases depending on the site-specific nature and scale of the problem.

If the constraints (whether directly, or indirectly because of prohibitive cost) lead to an inability to provide the necessary safe navigable water depth, **increased costs would also be incurred in the form of trans-shipment and double handling costs. If waterborne freight were to be transferred to land transport** as a result of such constraints, there would be **additional environmental 'costs' associated with air quality, noise, congestion, quality of life, etc.**

The consequences of such **constraints would** also be to **contradict political efforts towards modal shift in European transport policy**, as laid down in the White Paper on European Transport Policy.

Finally, it is worth noting that, **in certain estuaries, any constraints which preclude the relocation of dredged sediments within the aquatic system would bring the WFD into direct conflict with the objectives of the EU Birds and/or Habitats Directive** - and indeed with the requirement under the WFD to meet good ecological status - insofar as it would lead to a depletion in the quantity of sediment available to sustain intertidal habitats, etc. Any such **loss of sediment from estuarine systems would also exacerbate coastal erosion.**

#### The way forward

PIANC, CEDA and IADC recognise that the WFD is not aimed directly at the management of sediments. Nonetheless, suspended sediments are an integral part of complex natural systems. **Sediment is vital to aquatic life and hence to integrated river basin management.** If good status is to be achieved, particularly in coastal and transitional water bodies, PIANC, CEDA and IADC therefore believe that sediment management practices must be properly taken into account.

**PIANC, CEDA and IADC fully support the objectives of the WFD in delivering improvements in the status of surface water bodies and in preventing deterioration in status.** Indeed, navigation may well benefit from WFD implementation - for example, if effective source control reduces anthropogenic contamination of sediments, or if controls on abstraction reduce the frequency of low flow conditions. **However, the WFD objectives will only be achieved if the delivery mechanisms are technically realistic.**

In situations where it can be demonstrated that contaminants are not bioavailable, and given that ecological targets and associated monitoring regimes will be in place under the WFD to identify any medium-long term ecological effects associated with increased levels of suspended sediments, **care has to be taken to ensure that economically vital activities such as navigation and associated dredging are not unjustifiably constrained** for example as a consequence of interpreting such activities as 'losses' to a water body. This is particularly important when the potentially very high costs and other consequences are considered.

**Setting quantitative water standards based on total water analyses has serious technical flaws, particularly in estuarine (transitional) and coastal waters.** PIANC, CEDA and IADC firmly believe that the **preferred approach** to ensuring that activities such as navigation and dredging do not unnecessarily prejudice the achievement of WFD objectives **is the development of guidelines, within a tiered risk assessment.** The uniform Environmental Quality Standards set out in the discussion documents should be replaced by the development of guidelines similar to those already developed for the protection of the marine environment.

Such an approach, supported by the necessary guidance on its application (eg. what, when and where to monitor) would have the additional benefit of providing a level playing field because it ensures proper account to be taken of local characteristics including differing geology. International conventions (eg. OSPAR, ICES, and the HELCOM, London and Barcelona conventions), EU-funded initiatives such as SedNet, and indeed members of our own Associations, have substantial relevant experience in such issues.

Given the potential cost implications discussed above, PIANC, CEDA and IADC also believe that it will be **crucial to ensure that** cost-effectiveness and, particularly, **disproportionate cost analyses are properly applied** (ie. to evaluate the environmental gain and to ensure that the gain is justified by the expenditure).

PIANC, CEDA and IADC further stress the **critical importance of developing appropriate monitoring methodologies.** In this respect, it is **vital** for monitoring methodologies in coastal and transitional waters **to take into account, *inter alia*, the two-directional movement of water and sediments.**

Finally, PIANC, CEDA and IADC firmly believe that **long term sediment management strategies will play a vital role in river basin management planning and in ensuring effective delivery of WFD objectives,** notably in coastal and transitional waters. Such strategies would not only enable natural variations in suspended sediment concentrations to be properly considered, but would also cover coastal erosion, flood risk management, ports and navigation and other pressures.

#### In conclusion ..

**PIANC, CEDA and IADC seek assurances that the EC** will draw on the extensive experience of relevant international conventions, and **will make full use of the aquatic science expertise available,** before making a final decision on their **preferred approach to delivering WFD objectives in coastal and transitional waters** and in other sediment-rich water bodies.

#### How can we help?

PIANC, CEDA and IADC, as **professional Associations,** have **extensive networks of highly qualified and experienced members** with access to relevant regional and global conventions as well as EU initiatives such as SedNet. Our Associations have also published a number of **potentially useful reports and guidance documents.** **We encourage the EC to make maximum use of all these resources.**

**Our Associations will be pleased to act as facilitators in the important process of delivering the WFD objectives in a timely, realistic and cost-effective manner.**