



Summary report SedNet conference 2011

River Basin Management – Coastal Zone Management

by Igor Liska, ICPDR, session chairman

Proper sediment management is an important factor for achieving environmental objectives of EU Water Framework Directive and environmental targets of the EU Marine Strategy Framework Directive. The issues such as sediment contamination, sediment transport or sediment dredging have to be investigated carefully to make sure that programmes of measures will be designed in an effective way.

Adrian Collins presented the ongoing WFD-driven research in England and Wales which is extending the empirical evidence base on the ecological impacts of fine sediment and developing a generic modelling toolkit for assessing catchment compliance using revised ecologically-informed targets. The outcome of this research will be a manual to catchment managers on river basin scale guidance for positioning and prioritization of sediment mitigation measures.

To address the environmental value of sediments the International Sava River Basin Commission has decided to develop a Protocol on Sediment Management. The Protocol will pave the way towards sustainable sediment management in the Sava River Basin addressing both quality and quantity issues. Samo Groselj introduced the provisions of the Protocol according to which the adoption of the Sava River Basin Sediment Management Plan is foreseen. A clear message was conveyed by this presentation that without sustainable sediment management the environmental objectives of WFD can not be reached.

Due to a considerable increase of dredging during last decade as well as to the challenges implied by the designation of the fairway as EU-protected Natura 2000 sites, the Hamburg Port Authority (HPA) has developed a long term win-win strategy addressing both nature and economy. The Tidal Elbe Concept is continuously being upgraded to provide sustainable solutions. Manfred Meine highlighted three key targets of the concept (i) reducing the incoming tidal energy by soft constructions in the mouth, (ii) creation of shallow water areas in the upper part of the estuary, and (iii) an adaptive sediment management in the river basin.

After their exploitation, marine extraction sites offer great potential for bringing an added value for various functions such as revitalization, recreation and fishing. Daan Rijks presented a project exploring the relationship between the physical characteristics of a sand extraction site in the North Sea and the potential ecological benefits for habitats and biodiversity in that site. The project managed to identify the important design parameters necessary for both achieving the desired ecological habitat and keeping the extraction works economically feasible.

Damiano Scarcella described development of a large scale integrated system for sediment management on a sandy coast in the Tuscany region in Italy. The system is built on a hierarchical approach using a checklist to record every sediment management action within the entire area. Having the data collected it will be possible to plan the actions to be taken including re-establishing the sediment balance along the coast and optimizing the future dredging activities.

Another presentation on the Tuscany coastal area was given by Luigi Cipriani showing a case study to evaluate the environmental impact of relict sand dredging. One of the objectives of the Regional Coastal Restoration Plan is a gradual conversion of hard shore protection with seawalls, detached breakwaters and groins to soft shore protection by creating beaches using large volumes of sand and gravel. This approach is both economic and having a minimum impact on the environment.



Sediment flux estimates are a key component to calculate regional budgets of sediments and associated pollutant matters. Major limitation for these approaches is lack of homogeneous and accurate data on sediment transport in rivers. Jean-Marie Mouchel showed the results of calculating the sediment fluxes in 88 French rivers using the available water discharge and sediment concentration data. An improved rating curve approach has been applied to estimate mean annual sediment fluxes from such dataset.

Transport of sediments was also a topic of the presentation by Kari Moshenberg. A hydrodynamic and suspended sediment model has been developed to better understand the sediment fate and transport in the Elbe River. The results obtained from the model provide insight to the problem of sediment contamination and help this way to properly design the necessary measures.

Climate change may potentially affect sediment management as well. Project SCARCE aims at predicting of impacts of the climate change on water availability and water management in the Mediterranean river basins of the Iberian peninsula. Damia Barcelo outlined the plans of the project to focus on different aspects of sediments such as transport dynamics or contamination under conditions of water scarcity.