



## **SEDNET E-NEWSLETTER – DECEMBER 2008**

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### **Next SedNet event:**

## **Sediment Management in River Basin Management Plans (Round Table Discussion) and The Role of Sediments in Coastal Management (Conference) on 6-8 October 2009, Hamburg, Germany**

The issue of Sediment Management is rising on the European agenda. Sediment topics will be an element of several River Basin Management Plans which are to be published in 2009 under the Water Framework Directive. Sediment Management is an element of a new Working Group on Estuaries, managed by the Nature and Bio-diversity unit of DG Environment of the EU Commission. Sediments are named in new EU legislation, like the Directive on environmental quality standards in the field of water policy, the Marine Strategy Directive, and the Waste Directive.

In Europe the largest amounts of sediments have to be dredged in the North Sea region, where the natural sediment regime in the sea leads to high sedimentation in ports, harbours and waterways. At the same time, due to expected sea level rise and loss of fine grained sediments in the Wadden Sea, sediments gain importance in other respects.

On this background SedNet intends to organise another event, this time in Hamburg, Germany, where still ongoing river restoration challenges coincide with dredging needs. Here sediments play a central role. Thus the region is a good example to discuss cross-cutting science-policy issues.

It is intended to follow the outline of SedNet event which took place in November 2006 in Venice with a Round Table Discussion with invited speakers and an open conference with a special focus.

The date will be **Tuesday –Thursday 6-8 October 2009**.

The venue will be the Patriotische Gesellschaft, a very nice old building with conference facilities in the very center of Hamburg. The conference will take place on 6-8 October 2009. Further details will be disseminated in due time.

## **Transatlantic inspiration as promising start for potential cooperation**

River basin management challenges and uncertainties appear the same in the USA/Canada and Europe. The common management issues are: hydro-morphological alterations and diffuse pollution (nutrients from agriculture), followed by specific – historic legacy related – issues in specific basins. However, compared to Europe, USA/Canada developed different approaches to overcome these challenges. Furthermore, like in Europe, USA and Canada put a lot of effort in research and in policy development aimed to find new ways to improve/optimize the effectiveness of river basin management: technical as well as improvements in participatory approaches. This all seems to provide an excellent basis for transatlantic inspiration and learning, and maybe also for transatlantic cooperation aimed to jointly address these common challenges.

This was the key-conclusion from a study trip of Adriaan Slob (TNO) and Jos Brils (Deltares/TNO) to the USA and Canada end of October/beginning November 2008. Main objective of the study trip was to learn more about the holistic, integrative strategies applied in the USA and Canada to overcome the many and complex challenges faced in river basin management. Adriaan and Jos visited subsequently: Lafayette (Lower Mississippi Delta/Atchafalaya basin), San Francisco (San Francisco Bay redevelopment), Edmonton/Canada (river basin management in general in Alberta) and finally Washington (US EPA and World Resources Institute). They spoke with representatives of many institutions from science/research to NGO to SME to research funders. Their findings were reported to

EC DG Research as well as to officials within US EPA. Furthermore, they proposed to organize a joint (North America - Europe) conference (2009 or 2010?) e.g. on the theme "new approaches to face common challenges in water management". That conference could thus be the starting basis for further cooperation on priority topics jointly identified and agreed upon. The EC and EPA were asked if such a "North America - Europe" conference would fit under the EC-EPA cooperation agreement (see: <http://ec.europa.eu/research/press/2007/pr0902-2en.cfm>) and if there thus would exist any opportunity to apply for some necessary sponsoring to make it happen.

Contact: Jos Brils ([jos.brils@tno.nl](mailto:jos.brils@tno.nl)) and/or Adriaan Slob ([adriaan.slob@tno.nl](mailto:adriaan.slob@tno.nl))

## Paradigm shift in river basin management

River basin management is extremely challenging, amongst others due to the complex and not well understood interactions between the biophysical (ecological) and social system. Furthermore, management is further complicated due to uncertainties related to the anticipated impacts of global change. That is why the EC FP6 Integrated Project NeWater (see: [www.newater.info](http://www.newater.info)) at their final conference in Seville (17-19 November 2008) advocated and gave guidance on how to achieve a 'paradigm shift' in water management. The core is to shift from traditional 'command and control' management practices (paradigm example: "protect against water") towards 'Adaptive Water Management' (paradigm examples: "room for the river" or "living with water").

Independent and apart from NeWater the EC FP6 project RISKBASE ([www.riskbase.info](http://www.riskbase.info)) as well as the Dutch "Living with Water" project "AquaTerra-Nederland" ([www.levenmetwater.nl](http://www.levenmetwater.nl)) also came to this 'paradigm shift' and described it in their own words as follows:

- regard river basins (and parts thereof) as complex, dynamic and close-knit social/ ecological systems;
- select the sustaining of ecosystem services (see: [www.millenniumassessment.org](http://www.millenniumassessment.org)) as the central objective;
- apply – risk-based – the best available system understanding (scientific and local) to reach the above objective;
- hereby accept, and thus learn, to live with uncertainty and surprises;
- manage local/regionally, include all stakeholders but also have concern for our neighbours down- and upstream;
- regard the WFD – or any other current environmental policies – as tools, no longer as objective;
- learn by doing, in small steps, and correct instantaneously if needed (adaptive).

Although easily agreed upon, it is also realized that we are still 'miles away' from this paradigm shift. The next generation of WFD river-basin management plans will provide some room for improvements. That is for sure. But how much? This is exactly what we have to find out in the last phase of the above mentioned RISKBASE and Living with Water project: we have to define what the next small step can realistically be, keeping this paradigm shift in mind.

Contact: Jos Brils ([jos.brils@tno.nl](mailto:jos.brils@tno.nl)), coordinator RISKBASE and AquaTerra-Nederland

## Adoption of the Directive on environmental quality standards in water

Article 16 of the Water Framework Directive 2000/60/EC sets out a strategy for dealing with chemical pollution of water. As a first step towards implementation of this strategy, a list of priority substances was adopted by the European Commission, identifying substances of priority concern at Community level (Decision 2455/2001/EC). A new Directive proposal, aiming to ensure a high level of protection against the risks from these priority substances and certain other pollutants to the aquatic environment, was launched by the Commission in July 2006.

The core of this daughter Directive is the setting of environmental quality standards for different important pollutants. More specifically, the “Directive on environmental quality standards in the field of water policy and amending Directive 2000/60” sets limits on concentrations in surface waters of 41 types of pesticides, heavy metals and other dangerous chemical substances. Apart from the setting of these environmental quality standards, it provides rules with regard to the cessation of emissions, discharges and losses, the establishment of inventories and the determination of transitional areas of exceedance. A transitional area of exceedance can be defined for the vicinity of point source discharges for those parts of water bodies where the environmental quality standards cannot be met due to the elevated levels of pollutants in the effluents.

After publication in July 2006, the Directive proposal followed its legislative way through European Parliament and Council. After a first political agreement reached within the Council in June 2007 and a vote at second reading within the Parliament in June 2008, the EU environment ministers finally rubber-stamped second-reading agreements in October 2008. The adoption of this daughter Directive completes the pieces of legislation needed to support the Water Framework Directive. It can therefore be regarded as the last remaining legislative component of the EU’s water strategy. The new Directive will enter into force following publication in the EU’s official journal. Member States must transpose the Directive within 18 months.

## **Chemical Monitoring Activity (CMA) - Guideline for Monitoring Sediment and Biota under the Water Framework Directive**

Keeping in mind that about 80% of the Priority Substances of the WFD are sorbed to sediment and suspended particulate matter (SPM) the Parliament, Council and Commission of the EU agreed in June 2008 to give the Member States the opportunity to apply environmental quality standards (EQS) for sediment and/or biota instead of those for water.

The guideline which is scheduled for 2009 will bring up the monitoring requirements for controlling the EQS and will cover freshwater, transition zone and coastal and marine zone aquatic ecosystems. Surface sediments (the upper 5-10 cm in most cases) will be collected in net deposition zones with preferentially no change in geochronology. SPM sampling will be included as an alternative. In co-operation with the River Basin Management Plans (IKSR, IKSE, IKSD...) 4-5 representative sampling locations are recommended where composite samples are taken. The frequency will be according to the WFD every 1 to 3 years and up to 6 years for lakes and coastal areas. Recommendations for the sampling equipment, the normalisation, preparation and storage will be given in detail. Additionally, requirements and aspects of the trend monitoring will be included. It is recommended to analyse the contamination geochronology once to get information related to the re-exposure of older contaminated sediments during flood events and dredging activities in accordance with the data available and the River Basin Management Plans.

## **Water Information System for Europe**

An interesting website for everybody who is looking for information on policies, projects, tools, documents or any other information that is relevant for the implementation of the Water Framework Directive: <http://www.wise-rtd.info>

## **Stability of Contaminated Sediments**

The Norwegian Geotechnical Institute (NGI) has completed a five-year Strategic Research Programme on “Stability of Contaminated Sediments” supported by The Research Council of Norway (RCN).

The research program focused on advancing the state of knowledge on physical and chemical sediment stability, the understanding and prediction of contaminant transport, and the design of long term containment methods.

Historically, sediments have been a sink for the contaminant input, from rivers, urban and industrial activity as well as atmospheric input to the fjords. Significant reduction in industrial point sources has been achieved over the last decades. Detailed site investigation can answer the question whether the sediments at present are still forming a sink or have become a secondary source of contaminants to the fjord system. Diffuse sources related to our daily life, like run-off from traffic and urbanised areas, have been shown to be significant for the near coastal zone. This contaminant input sets clear limits to the environmental objectives that can be achieved by sediment remediation alone.

Significant environmental improvement of fjords and the coastal zone can only be achieved if a set of remedial measures is implemented that covers all relevant sources both on shore and off-shore. This clearly indicates that sediment contamination is not an echo from the past but a mirror of our behaviour.

The main focus of the research was on the integration of knowledge on the physical and chemical interactions in contaminated sediments, with the following objectives:

1. Quantify the principal parameters determining the physical and chemical stability of contaminants in the sediment matrix.
2. Determine the contaminant migration resulting from engineering operations in contaminated sediments, like dredging, backfilling and construction works.
3. Establish design criteria for containment methods with a long-term intrinsic stability and required safety.
4. Develop tools to evaluate efficiency of remediation methods.
5. Develop innovative methods for sediment remediation, e.g. through thin-layer capping or sorbent amendment.

The final report summarizes the main results of the research program. A bibliography of the published papers is given in the last section for further reference.

A summary report is available free of charge. You can order a copy via [ngi@ngi.no](mailto:ngi@ngi.no). It will also be possible to download the report from [www.ngi.no](http://www.ngi.no)

## **SEDAG – the Sediment Advisory Group of SETAC**

Recently SEDAG has initiated working groups. The working groups will exist for a limited time and for a specific objective. WG info and developments will be made available on the internet. WG's are open to everybody and in particular to members of SedNet.

The following WG-descriptions have been made available:

- Watershed level assessment of contaminant fate and transport in sediments to build conceptual site models (WG-chair: AmyMarie Accardi-Dey, [aaccardi-dey@pirnie.com](mailto:aaccardi-dey@pirnie.com))
- Behaviour, fate and bioavailability of particle bound contaminants in changing aquatic environments (WG-chair: Susanne Heise, [susanne.heise@haw-hamburg.de](mailto:susanne.heise@haw-hamburg.de))
- Ecosystem based sustainable sediment management (WG chair: Sabine Apitz, [drsea@mudineye.plus.com](mailto:drsea@mudineye.plus.com))
- Harmonization of methods for assessing contaminated sediments (WG-chair: Chris Ingersoll, [cingersoll@usgs.gov](mailto:cingersoll@usgs.gov))
- PAH (WG chair: Judy Crane, [judy.crane@state.mn.us](mailto:judy.crane@state.mn.us))
- Reviewing sediment targets used for water policy (WG chair: Adrian Collins, [Adrian.collins@adas.co.uk](mailto:Adrian.collins@adas.co.uk))
- Sediment quality in tropical countries (WG-chair: Gerardo Gold-Bouchot, [ggold@mda.cinvestav.mx](mailto:ggold@mda.cinvestav.mx))
- Understanding and preparing for the response of sediment-contaminant systems to natural and anthropogenic disturbances and climate change (WG chair: Philip Owens, [owensp@unbc.ca](mailto:owensp@unbc.ca))

Feel free to contact the WG-chair if you are interested in joining a SEDAG working group.

More info on SEDAG at [www.setac.net](http://www.setac.net)

## Sediment risk governance

Sediment is one of the 6 risk fields that are under investigation in a project on “risk governance” commissioned by the European Commission under its 6th RTD Framework Programme. This project is entitled “RiskBridge”: Building Robust, Integrative inter-Disciplinary Governance models for Emerging and Existing risks ([www.riskbridge.eu](http://www.riskbridge.eu)). The members of the RISKBRIDGE sediment risk field group are: Ramon Batalla; Henk Senhorst; Matjas Mikos; Rick Wenning; Adriaan Slob; Jaap van der Vlies and Jos Brils. They agreed to write down and synthesize some practical experiences with sediment risk governance approaches in several countries in Europe as well as in the United States. The series of papers is now written and will be submitted early 2009 to the peer-reviewed SETAC journal "Integrated Environmental Assessment and Management (IEAM)".

Contact: Jos Brils ([jos.brils@tno.nl](mailto:jos.brils@tno.nl)), RiskBridge sediment risk field coordinator

## Testing ecological toxicity in rivers

Source: DG Environment News Alert Service, issue 130

Water quality in rivers is commonly classified according to its physical and chemical properties, but this may not fully describe its biological health. Polish researchers have tested a new method of water assessment, which looks at the toxicity to organisms of not just water, but also sediment and floodplain soil samples. This provides a more complete picture of a river's health and may help river managers meet the requirements of the EU Water Framework Directive (see: [http://ec.europa.eu/environment/water/water-framework/index\\_en.html](http://ec.europa.eu/environment/water/water-framework/index_en.html))

Pollutants are carried in both river water and the tiny sediments which they transport. Pollutants can accumulate in the sediments deposited on the river bed and consequently in mud which can occasionally get washed onto the surrounding floodplains. Sediment and mud can therefore represent biological hazards and should be treated as part of the river system.

Poland's mandatory testing of surface-water's physical and chemical properties treats each component, such as ammonia content, in isolation. This ignores possible effects that arise when other pollutants combine or react with each other, so does not measure the cumulative ecological stress on the river.

The researchers used 'microbiotests' to assess the effect of river samples on microscopic biological organisms. Previous research used the same tests on a variety of water samples (e.g. from rivers, groundwater and mine run-off), but they were used here for the first time on a complete river system, including sediment and soil samples.

Samples were taken from 4 rivers in central Poland and the tests included 8 species covering primary producers (including algae and plants such as duckweed), consumers (including crustaceans such as shrimps) and decomposers (protozoa and bacteria). Pollutants may kill or damage the species (e.g. restrict their growth). The toxicity results are expressed as a percentage. For example, a toxicity of 25 per cent means that there were toxic effects in 1 out of every 4 tests. This allowed water quality to be ranked in five classes according to levels of toxicity.

The standard mandatory testing regime had classified the rivers in generally unsatisfactory or poor condition (Class IV / Class V). However, the microbiotests suggest higher water quality, in the range of Class I-III. Sediment and soil samples were less variable and of higher toxicity than the water samples (mostly Classes II-III) reflecting the build-up of pollutants in the sediments. Tests found 4-19 per cent toxicity in water samples, and this level of toxicity had the greatest effect on primary producers. 6-27 per cent toxicity was found in the sediment and soils, which had the greatest effect on protozoan decomposers.

The researchers propose testing river systems in this way alongside the standard tests, to provide a more complete picture of a river's health and to assess trends in changing water quality.

Source: Mankiewicz-Boczek, J., Nalecz-Jawecki, G., Drobniewska, A. *et al.* (2008). Application of a microbiotests battery for complete toxicity assessment of rivers. *Ecotoxicology and Environmental Safety*. 71(3): 830-836.

Contact: [j.mankiewicz@erce.unesco.lodz.pl](mailto:j.mankiewicz@erce.unesco.lodz.pl)

## Iron as a new water "pollutant" in Central Germany (From the German Working group on "Sediments and Water Quality")

The River Pleisse, the major tributary of the River Weisse Elster in the Central-German industrial region, used to be excessively polluted mainly by industrial wastewater from coal-processing, textile, and leather industries before the political change in 1989. Since then, anthropogenic pollution has significantly decreased due to close-down of industrial plants and upgrading of wastewater treatment plants. Nevertheless, the water in the lower course of the river has remained turbid and brown. This causes concern in the city of Leipzig, where efforts are made to reconvert the river branches and mill races that had been canalized underground into open rivers and canals.

The cause of this phenomenon is groundwater pumping in the large brown-coal open-cast mining district south of the city. Quantity, quality, and locations of these mine-drainage discharges are changing along with the operation and advance of the mines. Groundwater that is drained from tertiary horizons, where marcasite and pyrite are present, contains up to 80 mg/l of soluble iron. In the river, the iron is rapidly oxidized, bound to particles of suspended matter, and transported downstream. Previously, when the organic pollution was high, the mine-drainage water with its high level of dissolved iron even had a purifying effect. The iron then flocculated the suspended particulate matter and precipitated it into sediment with a high content of sapropel.

**Sediments** sampled between 1991 and 2008 upstream of the mining area had iron contents between 4 and 5%. In the lower course of the river, the iron levels ranged between 24% in 1991, 8% in 1994, 20% in 2004, and 17% in 2008. The geogenic iron background level in **floodplain soils** on the lower River Pleisse is 4.3 % (Müller et al. 2003). Since iron is a common geogenic element it has accumulated with the mine drainage in the lower course of the River Pleisse for long. **Suspended particulate matter**, sampled between 2000 and 2008 in the lower course of the river at Leipzig, contains 6 to 26 mg/kg iron. This corresponds to 2 to 69 mg/l total iron. The wide variability is due to the fact that the sampling campaigns were made during different hydrological events (flood, drought). Most of the iron in the river is particle-bound. That is why the **total iron content** of the river water is influenced by the amount of suspended solids in the water and by the concentration of iron on these particles. It depends on direct inputs as well as on the hydrological situation. Heavy rain erodes soils, and flood events mobilise old sediments (secondary sources), so that concentration peaks may occur. The mean daily iron load is 1.2 t/d, during mean streamflow of 3.36 m<sup>3</sup>/s (gauged upstream of the mine-drainage input) and with a total iron concentration of 1 mg/l. Since January 2007, the mine-drainage inputs have been limited to 0.3 m<sup>3</sup>/s. This corresponds to an iron load of 0.8 t/d, calculated with a mean concentration of 30 mg/l. So, the total iron concentration in the river increases up to 3 mg/l downstream of the mine-drainage input.

It is a paradox that the decrease in pollution in the River Pleisse (heavy metals and organics) has also a negative side-effect. The fine iron-oxide particles remain longer in suspension, so that the riverbed on the whole lower course becomes covered with a brownish encrustation.

As a consequence, the mine operators are planning to build a mine-drainage treatment plant.

Contact: Dr. Lutz Zerling, Christiane Hanisch; Saxonian Academy of Sciences, Leipzig – Germany.  
([zerling@saw-leipzig.de](mailto:zerling@saw-leipzig.de); [hanisch@saw-leipzig.de](mailto:hanisch@saw-leipzig.de))

## Sediment response to catchment disturbances

Session HS11.3 of the General Assembly of the European Geosciences Union, 19-24 April 2009, Vienna, Austria

Conveners: Ellen Petticrew, Phil Owens and Marcel van der Perk

### Invited Presentations:

- Olav Slaymaker (University of British Columbia, Canada): The relative importance of relief, hydroclimate and human activity as drivers of environmental change in mountain regions

- Stan Trimble (UCLA, USA): Erosional effects of an extreme rainstorm on Coon Creek, Wisconsin, USA, August 2007
- Gert Verstraeten (K. U. Leuven, Belgium): Human impact on late-Holocene sediment transfers: typology, controlling factors and scaling issues

**Session details:**

One of the greatest concerns facing earth and environmental scientists is how landscapes respond to present and future potential disturbances. This session will focus on how sediment (fine and coarse) systems react to natural and human-induced landscape disturbances over a range of space and time scales. This session solicits contributions that further our understanding of the impact of disturbances, such as changes in climate, land use (agriculture, forestry, mining, and urbanization), wildfires, and anthropogenic alterations in river channel morphology, on sediment transport and sediment quality. Contributions related to sediment and sediment-associated nutrient and contaminant transfers ranging spatially from hillslope scales to continental erosion and temporally from short-term event processes to longer term historical records are welcome.

**Further details and abstract submission (deadline January 13<sup>th</sup> 2009):**

<http://meetingorganizer.copernicus.org/EGU2009/session/601>

## **Global change has dramatic impact on sediment dynamics**

Global change has a dramatic impact on sediment dynamics in the world's main river basins, also in Europe! This was the main message from an overwhelming presentation given by Prof. Des Walling at the UNESCO International Sediment Initiative (ISI) Steering Committee meeting in Beijing at 6 November 2008. ISI (see: [www.irtces.org/isi/](http://www.irtces.org/isi/)) is an initiative under the UNESCO's International Hydrological Program (IHP). Prof. Walling's presentation made a considerable impact at the ISI meeting because it is probably the first time that facts are brought together to this dimension and in such a convincing way. The ISI Steering Committee anticipates that the messages from this presentation may impact policy makers. Especially if there will also be an answer to the 'So what?' question. Some first suggestions for that answer were also briefly discussed, such as that the dramatic reduction in sediment loads will lead to: reduced biodiversity, reduced land fertility, wetland degradation, retreating coast lines etc. Several case examples can already be given of such impacts. Prof. Walling will further elaborate his paper and then it will be published through IHP channels. After that, UNESCO will communicate the main messages of this paper to the international press.

Contact: Jos Brils ([jos.brils@tno.nl](mailto:jos.brils@tno.nl)), SedNet delegate in the ISI Steering Committee

## **Summary SeKT- symposium “Sediment contact tests – Reference conditions, control sediments, toxicity thresholds” 13-14 November 2008, Koblenz, Germany**

An international symposium on sediment contact tests was held at the Federal Institute of Hydrology (BfG) to round off the SeKT joint research project, which has been funded by the German Federal Ministry of Education and Research (BMBF) during the last three years. The symposium focused on the outcome of the SeKT Project regarding the applicability of a sediment contact test battery as tool for the assessment of sediment quality in relation to four general topics: ecotoxicological science, method standardisation, water management and environmental monitoring. The results of the SeKT Project were presented by the coordinator (Ute Feiler, BfG), covering all major topics, such as (1) the definition of reference conditions and control sediments, (2) the variability of the test results influenced by natural sediment properties, (3) the definition of realistic toxicity thresholds, (4) the applicability of the sediment contact tests at various types of sediments, and (5) the development of a toxicity classification system for sediments by using a reasonable combination of sediment contact tests within a test battery that contributes to an ecotoxicological assessment concept. Additionally, a number of international speakers, stakeholders and scientists, were invited to



highlight aspects of the relevance of sediment contact tests in the context of environmental risk assessment and the EU WFD.

**Block 1: Sediment Contact Tests and Science** (Chair: Sebastian Höss, Henner Hollert)

Keynote: Jussi Kukkonen (University of Jyväskylä, Finland): Evaluation of Bioavailability and Toxicity of Chemicals in Sediments.

Jaap Postma (Ecofys, The Netherlands): Developments in the Dutch triad approach to improve the knowledge on sediment toxicity.

Sebastian Höss (Institute of Biodiversity - Network, Germany): Sediment Contact Tests as part of a holistic approach: Part Nematodes.

Henner Hollert (RWTH Aachen University, Germany): Sediment Contact Tests as part of a holistic approach: Part Fish.

**Block 2: Sediment Contact Tests and Standardization** (Chair: Ute Feiler, Georg Reifferscheid)

Keynote: Hans-Jürgen Pluta (Federal Environmental Agency, Germany): Benefit from standardization, regulatory and scientific requirements, procedures and participations.

Thomas Knacker (ECT Oekotoxikologie GmbH, Germany): Standardization according to OECD rules: Sediment toxicity test with *Lumbriculus variegatus*.

Juha Lappalainen (Aboatox, Finland) Standardization according to ISO rules: Flash test.

**Block 3: Sediment Contact Tests and Management** (Chair Werner Manz)

Keynote: Ulrich Förstner (Technical University of Hamburg-Harburg, Germany) SeKT and river basin management: Focus on in-situ sediment remediation.

Axel Netzband (Hamburg Port Authority, Germany): Sediment assessment from a user's perspective.

Martin Keller (BfG, Germany/IKSR): The ICPR sediment management plan for contaminated sediments.

**Block 4: Sediment Contact Tests and Monitoring** (Chair Henner Hollert, Sebastian Höss)

Keynote: Mario Carere (National Institute of Health, Italy): Chemical monitoring activity in the context of the Water Framework Directive.

Eric de Deckere (University of Antwerpen, Belgium): Integrated sediment assessment in Flanders; From surveillance to investigative monitoring.

Maria J. Belzunce Segarra (AZTI-Tecnalia, Spain): A proposal for including an integrated sediments evaluation in the European Framework Directive.

Mathias Ricking (FU Berlin, Germany): Implementation of sediments/SPM in the WFD 2009.

Piet den Besten (Rijkswaterstaat, The Netherlands): Sediment quality assessment in The Netherlands: linking science to policy.

Christophe Mouvet (BRGM, France): Hazards linked to dredged sediments – a French perspective.

Major topics of the discussion were:

- Robust, representative and reliable bio-test systems are needed for better assessment of sediments and dredged materials as pointed out by the stakeholders (after Block 1-3). Standardisation of the sediment contact tests is desirable. The definition of reference conditions as in the SeKT Project is a valuable contribution to an improvement in the interpretation and reliability of sediment contact tests. A test battery, as presented in the SeKT Project, can help in balancing costs and benefits of sediment management.
- Contributions from several European countries were presented, reflecting the different ways of river monitoring in Europe. Different approaches for investigative monitoring studies of polluted sediments within the WFD (e.g. TRIAD, WOE, TIE, ms-PAF) were proposed and controversially discussed. Besides the derivation of environmental quality standards for chemical monitoring in waters, the elaboration of a methodology for the setting of EQSs for sediment and biota was pointed out.
- The need of sediment quality guidelines for ERA, ecosystem-based approaches for management of sediments (i.e. dredged material) and remediation technologies were in the focus of many contributions.

The proceedings of the symposium will be published (in English) in a BfG-publication series "Veranstaltungen". For more information, please contact Ute Feiler (feiler@bafg.de; <http://sekt.bafg.de>).

## **“Sustainability in Dredging” was the focus at CEDA Dredging Days**

The role of dredging and maritime construction in sustainable development was the focus of this year's CEDA Dredging Days which took place in Antwerp, Belgium, 1-3 October 2008. Under the theme 'Dredging facing sustainability', presentations in six technical sessions addressed the key issues facing the industry, including climate change. On the subject of climate change, it was clear from the presentations that dredging and maritime construction have important and complex roles to play. On the one hand the profession can contribute to the fight by reducing CO2 emissions through the development, and use, of innovative dredging equipment and technology. It also has an important role in enabling the shift to renewable energy sources for instance through the construction of wind farms. On the other hand the industry will play a crucial role in our adaptation to the effects of climate change by for example protecting human life and valuable resources from flooding. The role of dredging in restoring wetlands and in revitalising our estuaries was also extensively discussed.

In his opening speech Freddy Aerts, Conference Chair (Flemish Government), referred to the ProSes Scheldt Estuary 2010 development project and reminded delegates that "...it is possible to safeguard navigation possibilities in an economic manner and at the same time take the area's ecology into account". Conference highlights included the two keynote speeches 'Can dredging improve ecosystem services to achieve sustainability?' by Prof. Patrick Meire and 'The dredging industry and the European port system – challenges and opportunities' by Prof. Theo Notteboom, both from the University of Antwerp.

The presentations will be made available to the public from 1 February 2009 on the conference's website ([www.cedaconferences.org/dredgingdays2008](http://www.cedaconferences.org/dredgingdays2008)).

CEDA is already preparing for its next Dredging Days for which the call for papers was issued in Antwerp. With the theme 'Dredging tools for the future', CEDA Dredging Days 2009 will further elaborate on the subject of dredging and sustainability with a special focus on dredging equipment and technology (5 - 6 November 2009, the Conference Centre, Ahoy Rotterdam, the Netherlands).

For more information visit [www.cedaconferences.org](http://www.cedaconferences.org) or [www.dredging.org](http://www.dredging.org).

## **CEDA-MSI seminar “Dredging and the Environment” in Tallinn, Estonia, on 15-16 October 2008**

The Environment Commission of the Central Dredging Association (CEC) and the Marine Systems Institute of Tallinn University of Technology (MSI) jointly organised an international conference entitled "Dredging and the Environment". As with many other parts of the world the fast-growing economies of the Baltic countries generate a high demand on dredging services, be it the expansion of ports, offshore sand mining, the construction of offshore wind farms, or cleaning up the environment.

In his opening address Professor Jüri Elken, Director of MSI, said that the conference bridged the gap between marine science and engineering, and highlighted the importance of a more holistic approach to maritime construction works. The 12 presentations were given by speakers representing academia, ports, dredging contractors, consultants, and the owners of large infrastructure projects. The Presentations given at the seminar will be made available to the public from 15 February 2009 ([www.cedaconferences.org/tallinn2008](http://www.cedaconferences.org/tallinn2008)).

### About MSI:

Marine Systems Institute at Tallinn University of Technology (MSI) is a science and development organization researching the physical (mainly hydrodynamic) and biogeochemical processes of the Baltic Sea in the context of atmospheric, terrestrial and anthropogenic interactions. Their main focus is on water and material exchange in the Baltic Sea, changes in the structure and state of the pelagic ecosystem, coastal sea dynamics, and optics in the context of climate change. Based on the main research topics the institute is conducting scientific research and applied sea studies. Operational monitoring and prognosis of sea level, oil pollution propagation and blue-green algae blooms are performed. Different projects include the environmental impacts of land-based pollution and dredging, ice conditions, and remote sensing. The institute provides master and doctorate programs in oceanography. [www.msi.ttu.ee](http://www.msi.ttu.ee)

## New publication

The U.S. Army Engineer Research and Development Center announces the publication of a new document on its Web site: <http://el.erdc.usace.army.mil/>

ERDC/EL TR-08-29

Technical Guidelines for Environmental Dredging of Contaminated Sediments by Michael R. Palermo, Paul R. Schroeder, Trudy J. Estes, and Norman R. Francingues

This report provides technical guidelines for evaluating environmental dredging as a sediment remedy component. The document supports the Contaminated Sediment Remediation Guidance for Hazardous Waste Sites, released by the U.S. Environmental Protection Agency (USEPA) in 2005, by providing detailed information regarding evaluation of environmental dredging as a remedy component.

The document is intended to be applicable to contaminated sediment sites evaluated under various environmental laws and regulatory programs. The intended audience for this report includes all stakeholders potentially involved in evaluating environmental dredging for purposes of a feasibility study, remedial design, and implementation.

The scope of this document is limited to the technical aspects of the environmental dredging process itself, but it is important that environmental dredging be integrated with other components such as transport, dewatering, treatment, and rehandling and disposal options. The report covers initial evaluation, pertinent site conditions and sediment characteristics, environmental dredging performance standards, equipment capabilities and selection, evaluation of production, duration, and transport, methods for estimating resuspension, residuals and release, control measures, operating methods and strategies, and monitoring.

If you wish to access/download the document (302 pages, 6.1 mb) in pdf format, the address is:

<http://libweb.wes.army.mil/uhtbin/hyperion/EL-TR-08-29.pdf>

To access this file, you must be running Windows 95 or higher, Netscape or Internet Explorer, and Adobe Acrobat Reader 6.0 or higher. The free Adobe Acrobat Reader can be downloaded at

<http://www.adobe.com/products/acrobat/readstep2.html>

Please note: Documents open in popup window. Popup blockers must be set to "temporarily allow" for the document to load properly.

## To be published soon...

In January 2009 a new book will become available, entitled "Contaminated Sediments" in the series "[The Handbook of Environmental Chemistry](#)", Vol. 5 : [Water Pollution](#) , Part 5T.

Kassim, Tarek A.; Barceló, Damia (Eds.) - ISBN: 978-3-540-88013-4

When discussing the issue of contamination of the aquatic environment, water pollution is still the major aspect that has been regulated and extensively studied, but poor attention has been devoted to sediments. Sediments have been described as the sink or storage place and a source for contaminants entering river systems through various pathways. But bottom sediments have various functions in the environment, such as providing habitat for many aquatic organisms, and are an important component of aquatic ecosystems.

This volume of the Handbook deals with various aspects of sediment contamination such as the fate and behavior of persistent organic pollutants, the application of sediment toxicity identification evaluation (TIE) protocols, and the various ways to degrade toxic pollutants from sediments. Overall the book provides readers the fundamental knowledge needed to better understand the complex issue of contaminated sediments.

<http://www.springer.com/environment/air/book/978-3-540-88013-4>

## Calls for Abstracts/Papers

The **Call for Papers** for the [CEDA Dredging Days 2009 is now available online](#). The conference and exhibition will take place on 5<sup>th</sup> - 6<sup>th</sup> of November 2009 in Rotterdam, the Netherlands. On 4<sup>th</sup> of November there will be an optional technical visit to one of the shipyards of [IHC Merwede](#). With the theme "Dredging Tools for the Future".

CEDA Dredging Days 2009" will explore how the dredging community responds to the new challenges of current times such as climate change, rising energy costs, the increasing demand for dredging services by the offshore and win farms industries and so on. The conference will be complemented by a technical exhibition that will take place in the foyer of the conference room.

Deadline for submission of abstracts is **15 January 2009**.

<http://www.cedaconferences.org/dredgingdays2009>

### **Session HS11.3 of the General Assembly of the European Geosciences Union, 19-24 April 2009, Vienna, Austria: Sediment response to catchment disturbances**

One of the greatest concerns facing earth and environmental scientists is how landscapes respond to present and future potential disturbances. This session will focus on how sediment (fine and coarse) systems react to natural and human-induced landscape disturbances over a range of space and time scales. This session solicits contributions that further our understanding of the impact of disturbances, such as changes in climate, land use (agriculture, forestry, mining, and urbanization), wildfires, and anthropogenic alterations in river channel morphology, on sediment transport and sediment quality. Contributions related to sediment and sediment-associated nutrient and contaminant transfers ranging spatially from hillslope scales to continental erosion and temporally from short-term event processes to longer term historical records are welcome.

**Further details and abstract submission (deadline January 13<sup>th</sup> 2009):**

<http://meetingorganizer.copernicus.org/EGU2009/session/601>

## Upcoming events

### **2009:**

**29–30 January 2009:** Seminar "Environmental Aspects of Dredging". Organised by PAO, Post Graduate Education, of the Delft University of Technology in co-operation with IADC and CEDA. Venue: Delft, The Netherlands.

<http://www.dredging.org/documents/ceda/downloads/events-ead2009-pao.pdf>

**2-5 February 2009:** Fifth International Conference on Remediation of Contaminated Sediment, Jacksonville, Florida, USA. Abstracts are due on 30 June 2008

<http://www.battelle.org/conferences/sediments>

**19-24 April 2009:** General Assembly of the European Geosciences Union, Vienna, Austria.

Session HS11.3: Sediment response to catchment disturbances

Further details and abstract submission (deadline January 13<sup>th</sup> 2009):

<http://meetingorganizer.copernicus.org/EGU2009/session/601>

**20-23 April 2009:** HydroEco 2009 – 2nd International Multidisciplinary Conference on Hydrology and Ecology – Ecosystems Interfacing with Groundwater and Surface Water, Vienna, Austria. Themes: interface surface-sediments-groundwater, wetlands, floodplanning and the role of sediments in this process. IAHS/IAHR are involved in the organisation. Focus on science, less on management.

<http://www.natur.cuni.cz/hydroeco2009/>

**11-13 May 2009:** BOSICON 2009 – the 2<sup>nd</sup> International Conference on Polluted Sites Remediation, Rome, Italy. Organised by the Sapienza University Rome. More info at

[http://w3.uniroma1.it/BOSICON\\_2009/index.htm](http://w3.uniroma1.it/BOSICON_2009/index.htm)

**27-30 May 2009:** Global Change – Challenges for Soil Management. Venue: Tara Mountain, Serbia. Organized by the World Association of Soil and Water Conservation, Belgrade University, World Association for Sedimentation and Erosion Research, European Society of Soil Conservation. For more info please contact [miodrag.zla@sbb.rs](mailto:miodrag.zla@sbb.rs) or [mizlatic@yahoo.com](mailto:mizlatic@yahoo.com)

**30 June – 3 July 2009:** Fourth International Symposium on Contaminated Sediments: Sustainable Management and Remediation. Ireland.

<http://www.irtces.org/isi/>

**14-16 September 2009:** 3<sup>rd</sup> International Conference on Estuaries and Coasts, Tohoku University, Sendai, Japan. <http://donko.civil.tohoku.ac.jp/icec2009/index.html>

**6-8 October 2009:** SedNet event “Sediment Management in River Basin Management Plans” (Round Table Discussion) and “The Role of Sediments in Coastal Management” (Conference), Hamburg, Germany. More info soon available at [www.sednet.org](http://www.sednet.org)

**5-6 November 2009:** CEDA Dredging Days 2009, Rotterdam, the Netherlands. Call for Papers open until 15 January 2009.

<http://www.cedaconferences.org/dredgingdays2009>

## 2010:

**15-17 March 2010:** Integrated River Basin Management Conference; action programs and monitoring under the Water Framework Directive. Lille, France.

<http://www.WFDLille2010.org>

**9–14 September 2010:** A conference of the World Organisation of Dredging Associations, WODCON XIX, Beijing, China. Organised by EADA in association of its Chinese Chapter, CHIDA. A Call for Papers will be issued early 2009.

<http://www.woda.org/>

## 2011:

**19-23 June 2011:** 12<sup>th</sup> International Symposium on the Interactions between Sediments and Water, Dartington, Devon, England. Organised by the International Association for Sediment Water Science (IASWS)

<http://www.IASWS.org> and [www.geog.plymouth.ac.uk/IASWS2011](http://www.geog.plymouth.ac.uk/IASWS2011)

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