SedNet

Sediments on the move

First Announcement and Call for Abstracts

10th International SedNet Conference
Palazzo San Giorgio, Genoa, Italy

Co-organized by DISTAV - University of Genoa, Italy
Hosted/sponsored by the Port Authority of Genoa

DISTAV
Dipartimento di Scienze della Terra, dell'Ambiente e della Vita
Università degli Studi di Genova

14-17 June 2017

with pre-conference sessions on 13 June 2017

Sediment moves from the mountains to the sea and from fresh water to marine environments thus passing cultural, political and geographical borders. But sediment is also on the move in terms of its evolving management that has been guarded, publicly discussed and jointly advanced by SedNet already for 15 years now.

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Background

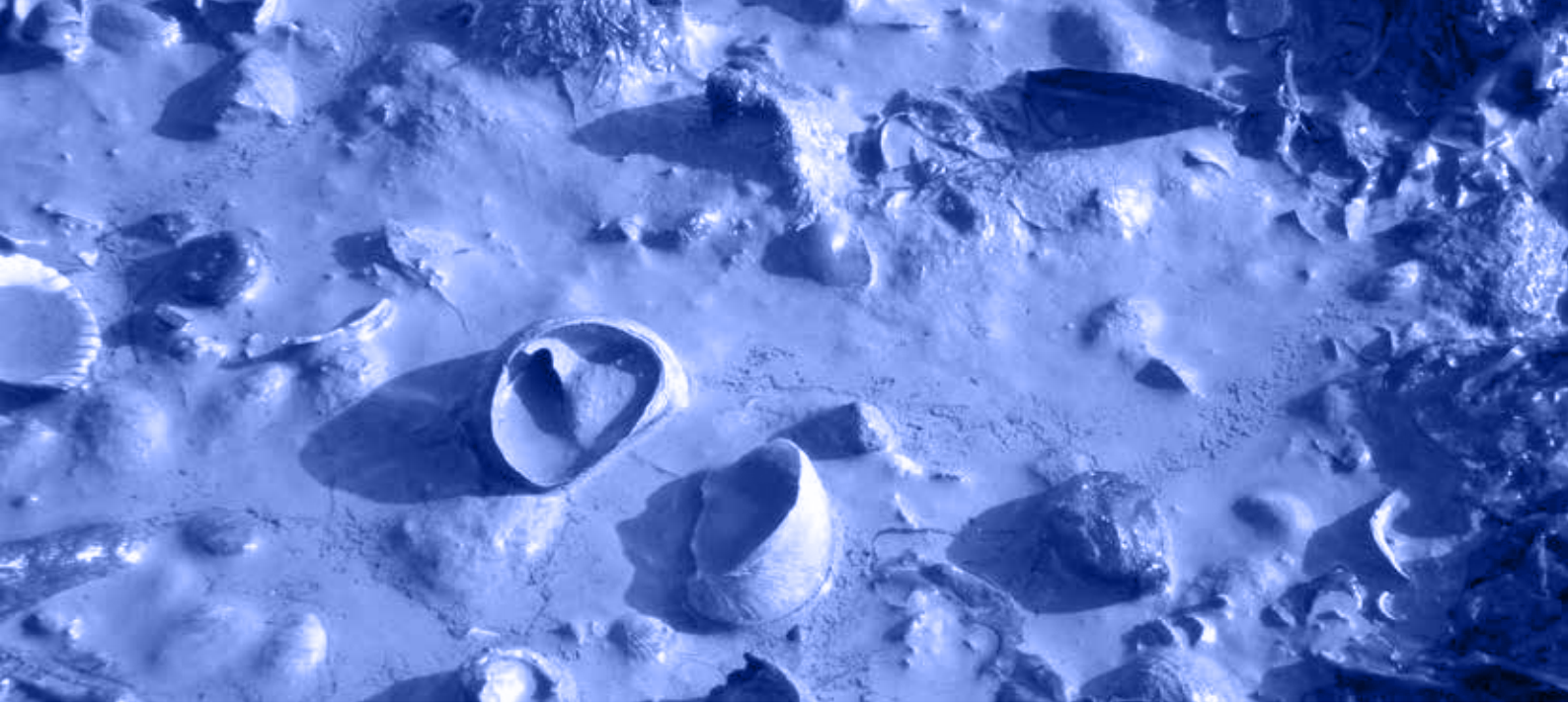
Rivers, flood plains, river deltas and coastal plains are valuable assets in our living environment. They provide us goods and services for our well-being, such as healthy ecosystems, transport lanes, port activities and recreational use. Water and sediment quality as well as sediment fluxes contribute towards the functioning of river-sea ecosystems. Sediment management has proven to be a significant issue in European rivers, estuaries and coastal areas. This relates to quantity as well as quality aspects, as prior SedNet activities clearly indicated.

Human interventions, such as river regulation, dredging, coastal and port construction and soil degradation often have large impacts on sediment supply, sediment transport and river morphology.
Sediment transport is a vital component of the natural hydromorphological regime. Contaminated sediment can however have adverse effects on society, the environment and the economy. Because sediment is transported by water through the river basin to the sea, such effects can occur not only locally but also far from the source of the contamination. Sediment is a fundamentally important component of aquatic ecosystems and connects the 'mountains to the sea'. Achieving a sustainable balance between the development of waterways and meeting ecosystem objectives (i.e. to reach good ecological status and protect ecosystem functions including natural capital and ecosystem services provision) will depend on constructive dialogue between various stakeholders, better policy coordination and effective transboundary cooperation.

Sediment and biota in river-sea systems have been exposed to multiple and interacting stressors for decades or even centuries. Europe has responded to the most apparent contaminants and pressures with a range of policies and measures since the 1970s. Clear improvements in water quality can be attributed to integrated river basin management plans and to the Programmes of Measures that resulted from the major and coordinated effort of the European Water Framework Directive that entered into force in 2000. However, improvements in sediment and biota lag behind due to containment and accumulation of contaminants in sediment (historic legay), costly and laborious monitoring techniques, and also lack of sufficient legal integration of sediment management into policy and related legislation.

To sustainably manage sediments, integrative and system oriented, innovative and cost-efficient approaches and solutions are needed. Sediment management, which tends to be focused only on the apparent areas of concern, comes with the challenge of avoiding measures which have only short-term and locally positive effects, whilst having unforeseen negative consequences elsewhere now, or in the future.

Against this background of "sediments on the move" SedNet is organising its 10th international conference in Genoa. Given the tremendous diversity of Europe's southwest coast, Genoa is a highly appropriate venue for a conference that will also pay special attention to estuarine and coastal sediment management issues.



Conference Programme

Platform and Poster Sessions will be organised on the themes specified below.

THEME 1
Sediments moving to land, and soil moving to water

In soil-sediment-water cycles, a lot of particulate material is continuously eroded, deposited, exposed, suspended and buried. Typically affected areas/ occasions are tidal zones, river banks or the shores of hydropower reservoirs, land disposal, deposition on flood plains, intentional or unintentional flooding of land etc. Few studies have dealt with the physicochemical changes that the material undergoes during and after transitions, and the related consequences for ecosystem services provision and the implications for management decisions, which can be quite extensive. Periodic or episodic exposure to changing aquatic and terrestrial conditions causes changes in morphological fine structures, water content, salinity, oxygen availability, redox potentials, pH levels etc. This may affect the suitability of soil/sediment material as a habitat for organisms, and it may change the availability of contaminants.
For this session, papers are welcomed that tackle the topic of soil-sediment and sediment-soil transitions with regard to the influence on key processes (biogeochemical changes, impacts on the microbial community, contaminant mobility and availability), impacts (toxicity, colonization, contaminant transport), or implications for management decisions. Case studies are welcomed.

THEME 2
Sediment Balance

Sediment transport is a vital component of the natural hydro-morphological regime. Worldwide natural sediment equilibriums are seriously obstructed by human interventions. Sediment balance, particularly in a modified system, is a constant struggle for the responsible authorities of a river, estuary or coastal area. Sediment shortage results in erosion of river banks and destabilisation of coastal areas which can lead to ecosystem damage but also cause a loss of property, both physical and chemical. In the worst cases it even threatens public safety as it can lead to undermining, and later on collapsing of public and private works like bridges, dikes, roads and buildings. Too much sediment

on the other hand poses another set of issues. High sediment concentrations in the water column can hinder primary production and excessive siltation in channels and harbours requires regular and expensive maintenance dredging. The issue becomes even more complicated if sediments are contaminated.
Abstracts are invited for sediment management issues related to excess erosion or siltation in coastal, estuary and inland waters and in particular the management approach and innovative (e.g. nature-based) solutions taken to resolving these issues for sediments on the move.

THEME 3
Policy for sediment management: Finding the balance; "everything is contaminated"

Current standards for evaluation of the chemical quality of sediments in different European countries have been set up in a conservative way, maximizing ecological protection and resulting in 'save' threshold values. As a consequence of this methodology and as a result of historical industrial activities, large zones in waterways are actually considered as contaminated. Authorities, responsible for the management of waterways, are in such cases confronted with difficulties managing these contaminated areas. Due to the very high cost of remediation projects and because of limited public funds it is not possible to remove or remediate all contaminated sediments in waterways. Is a risk based approach possible and justified? Or is it maybe even the only 'common sense' way? How do we deal with contaminated sediments that are considered as a non-risk, but which are contaminated?
How do we prioritize in addressing contaminated sediments, so to optimize the use of limited public funds? For this session abstracts are invited that show how these challenges are being dealt with in different countries.

THEME 4
Using sediments as a resource – Sediments in a circular economy

In the past, most of the (contaminated) dredged sediments were transported and disposed of as waste. In a sustainable society, however, sediments are no longer regarded as waste, but reused as a valuable resource. This reuse matches with the philosophy of a circular economy, where nothing is a waste. In a circular economy the focus is on prevention and reduction (e.g. by dewatering)

and on reuse and recycling options for dredged sediment. To attain this, there are still some challenges: technical issues, bottlenecks in related policies, but also changing of people's mind-set. Abstracts on possible solutions to these challenges, practical examples and innovative approaches are invited.

THEME 5
Transboundary sediments

Sediments do not keep to boundaries. Are there examples of transboundary needs for exchange on sediments in coastal areas or on river basins where an excess or lack of sediments in a country can lead to uses or restrictions in other countries up- or downstream? This can link to naturally occurring coastal deposition, port dredging, coastal defence engineering, flood defence, maintenance of river systems etc. Transboundary sediments can also deal with dredging of transboundary waterways, estuaries or rivers and deal with transboundary marine areas or civil works. Examples of dealing with transboundary sediments like trans-shipment of sediments, or allowing its use in a circular economy, are also welcomed. Can transboundary options for sediments support EU policies on circular economy, on waste reduction and on resources preservation? Are there regulatory differences or parallels between different country policies on transboundary sediments?

THEME 6
Innovative maintenance of river-delta-sea systems

The combination of a rising sea level, land subsidence, an obstructed natural sediment flux and an anthropogenically disturbed distribution of that flux, as experienced in many deltas in the world, make it necessary to manage the sediment flux in order to maintain river-delta-sea systems. It is through this maintenance that a balance between water and sediment is secured, which keeps our feet dry and our waterways and harbours navigable and accessible.
Abstracts are invited for clever/innovative sediment flux oriented maintenance approaches. By clever/innovative we mean ways to move enormous quantities of sediment with lower CO2 emission and energy consumption rates that simultaneously protect natural capital and enhance ecosystem services provision. Suggested key-words that could appear in the abstracts: nature-based (solutions), eco-engineering, working-with-nature, circular economy, re-use, recycle, self-sustaining systems, natural capital, ecosystem services and sustainability (i.e. balancing people-profit-planet interests).

THEME 7
Effects of remedial measures

The need for remediation of contaminated sediments is often well documented with extensive sampling and analysis. A lot of information is available on the use of different remediation methods as well. However, post-remediation performance data are generally scarce. In this session we especially invite contributions that address the long-term effect of remediation measures, with an emphasis on case-studies.
What were the environmental objectives for the planned remediation project and what were the long-term improvements that were achieved? What methods could help to document the long-term improvement? What is the balance between the long-term improvements and the remediation cost? How should this influence our pre-remediation investigation and choice of remedial measures? What can we learn from case-studies where the remediation measures did not have the expected result or exceeded the expected improvement?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THEME 8

Climate change; PIANC and SedNet Think Climate!

PIANCs Think Climate coalition (also supported by SedNet) has been formed to raise awareness of the impacts that climate change will have on waterborne transport infrastructure, and vice-versa. The coalition's "navigating a changing climate" action plan describes a series of actions that can be taken to mitigate carbon emissions and to adapt to climate change, including strengthening resilience and working with nature to manage its effects.

SedNet's work group initiative "sediments in a changing environment" addresses the consequences for particle bound contaminants, for sediments and their related ecosystem services when physico-chemical and hydrological parameters change.

In this session we will address the issues that link these two initiatives, for example:

- Could climate change affect the transport of suspended matter in estuaries and what effect could this have on the volumes of material that needs to be dredged for navigation reasons?
- How might measures taken to counter sea level rise affect sediment transport?
- Could climate change impact on contaminant transport along rivers and hence on the quality of dredged material, e.g. influencing its suitability for disposal and/or for beneficial use?
- When working with nature, will higher temperatures and increased solar radiation have an effect (positive or negative) on the bioavailability of contaminants and, hence, on the usefulness of sediment as habitat or building material?

Harbour masters, dredging companies and port authorities along with modellers, natural scientists and economists are invited to share their experiences and raise awareness of the challenges that lie ahead; what solutions – management or technical – exist, and what steps will need to be taken in order to ensure safe and sustainable development?

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THEME 9
Sediment quality

The role of sediments as contaminant repository may be considered as an ecosystem service provided 24/7 to society, for free. On the other hand, contaminated sediments may result in negative effects on waterbodies, not only locally but also far in time and space from the source of contamination. Relevant data are thus required for efficiently evaluating the quality of sediments and their impact on ecological and chemical status of surface waters and providing the basis for subsequent risk assessment and management (e.g. river basin management plans or dredging activities), but also identifying the causes of effects. The session on sediment quality proposes to address:

- Traditional and emerging pollutants, from priority substances through river basin specific contaminants to global challenges such as microplastics.
- Effect-based tools, from subcellular to community level.
- Role of sediment quality in causal pathway assessment.
- Legal basis and potential implementation for the definition of water status indicators within the WFD, Marine Strategy and sediment management in broader context (e.g. including related to the long-term trend analysis of concentrations of those Priority Substances listed in Part A of Annex I of the EQS Directive 2008/105/EC that tend to accumulate in sediment).

THEME 10
Sediment quality criteria: derivation, implementation and enforcement

Environmental quality criteria are essential tools for effective sediment monitoring and management. Over the years they have been developed in different contexts and with different purposes, e.g. Action Levels for dredged material management, predicted no effect concentrations (PNECs) for voluntary risk assessment of chemicals and environmental quality standards (EQS) for sediment and biota within the EU Water Framework Directive (WFD). They are named different, but are they all the same? Are they interchangeable? What if we use them in a different context and with a different use from the intended one, does it matter? What are the implications? Have we appropriately developed, implemented and enforced sediment quality criteria in different river basins? What are the effects on water quality? Do we comply now with the EU-WFD? Are sediment quality criteria on the move?

THEME 11
Disposal of sediments at sea

The relocation or disposal of dredged sediments from maintenance works in rivers and harbours can cause environmental impacts. Proper coastal management considers the issue of mobilisation and spreading of fine sediments and their potential absorbed contaminants. Measures to keep the contaminant load of dredged material to a minimum are sometimes regarded as good environmental practice for minimising the effects on the environment. The management of dredging and disposal sites and their sediment characteristics vary as there are different national laws that regulate these activities. This also effects environmental monitoring programs, that must be implemented to safeguard the marine ecosystems, especially in pristine areas and/or protected sites. Case studies are welcomed on this topic, but also abstracts sharing good policy and legislation experiences.

Call for Abstracts

SedNet would be pleased to receive abstracts addressing one or more of the conference themes. Abstracts will be selected by the SedNet Steering Group either for platform presentation or for poster presentation. Please see www.sednet.org for the template for submission of abstracts to the SedNet Secretariat: marjan.euser@deltares.nl

Deadlines

Deadline for submission of abstract:	16 January 2017
Decisions to abstract authors:	15 March 2017
Preliminary Conference Programme:	April 2017
Final Conference Programme:	June 2017

Pre-conference sessions

The European projects SEDITERRA and SEDRIPORT will organise pre-conference sessions on 13 June 2017. Participation to these sessions is free.

SEDITERRA - *Guidelines for the treatment of dredged sediments consistent with a strategy and an assessment of the risks related to a land handling of sediments* - provides for the capitalization of the knowledge gained from previous projects that have studied management models and treatment technologies applied to brackish and marine sediments, and the consequent experience gained by the French project partner to promote the reuse of treated dredged sediments in order to create a new supply chain in circular economy.

SEDRIPORT - *Sediments, Dredging and Harbor risks* - deals with problems common to the area of cooperation, arising from the emergency of the port silting: difficult to program ordinary and extraordinary dredging; incomplete and uncoordinated legislation; inconsistent regulations for the reuse of materials excavated from the port seabed; obligation to the global remediation with unsustainable costs.

Conference Venue

The conference is co-organized by DISTAV - University of Genoa, Italy, and hosted/sponsored by the Port Authority of Genoa. Genoa is one of the most important commercial and ferry ports in the Mediterranean Sea, and was subjected to a capital dredging operation for the deepening of the seabed. The port lies in a coastal region of major environmental and economic interest near numerous beaches, marine parks (the Marine Protected Area of Portofino and the Cetacean Sanctuary of the Mediterranean Sea) and protected ecosystems, such as Posidonia oceanica and precoralligenous; here the natural turbidity is low and therefore the preservation of marine environment comes primarily, as often happens in the Mediterranean Sea.

Event Tour

A site visit will be organised on the morning of Saturday 17 June 2017.

Language

The conference language will be English. No translation facilities will be provided.

Conference Fee

Regular fee: 400 euro, excl. VAT
Students: 100 euro, excl. VAT
If a student has submitted an abstract that has been selected for oral presentation, then his/her fee is waived.

The fee includes admission to the whole conference programme, social (dinner) events on the evenings of 14 and 15 June 2017 and an excursion on 17 June 2017.

Details about the social events and excursion will be provided in the Preliminary Conference Program.

Registration, Travel and Accommodation

Information about registration, travel and accommodation will be provided in detail in the Preliminary Conference Program.

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Further Information

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SedNet

SedNet is the European network which aims to incorporate sediment issues and knowledge into European strategies to support the achievement of good environmental status and to develop new tools for sediment management. Its focus is on all sediment quality and quantity issues at the river basin scale, ranging from freshwater to estuarine and marine sediments. SedNet brings together experts from science, administration, industry and consultants. It interacts with the various networks in Europe that operate at national or international level or that focus on specific fields (such as science, policy making, sediment management, industry, education). Special attention was devoted in recent years to the integration of sediment management in the WFD implementation process, and particularly in the River Basin Management Plans.

For further information about SedNet see
www.sednet.org