SedNet

GOBIERNO DE ESPAÑA
MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES
CSIC
Consejo Superior de Investigaciones Científicas

90 ANIVERSARIO
Instituto de Ciencias de la Construcción Eduardo Torroja

# Healthy Sediments

## 14th International SedNet Conference

6–10 October 2025

Madrid, Spain

Call for Abstracts

# Healthy Sediments: What Are They and How Can They Be Achieved?

Sediments fulfil fundamental functions as riverbeds, aquatic habitats, and play an integral role in the biogeochemical cycles of aquatic systems. Due to their quality and quantity, sediments have key functions for indispensable ecosystem services, including important human uses of water bodies.

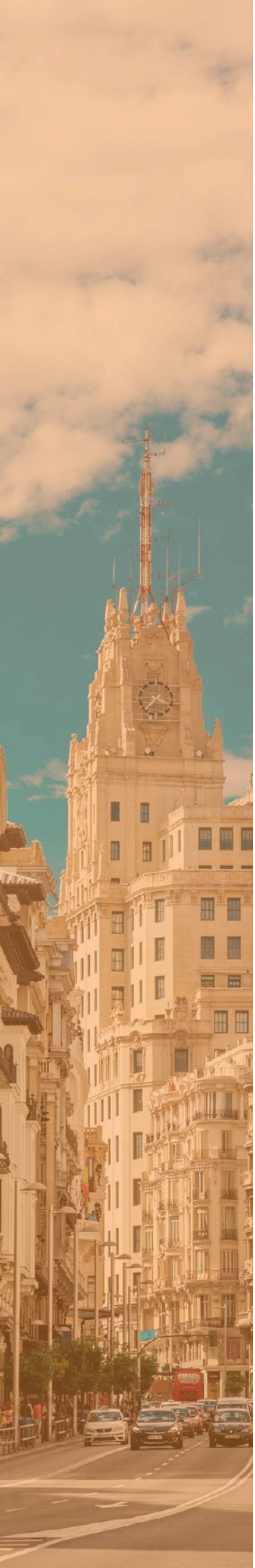
In line with the objectives of the European Water Framework Directive (WFD), Marine Strategy Framework Directive (MSFD), Mission Starfish 2030 (aiming to restore our oceans and waters), and the Green Deal (aiming for zero pollution), sediments must be healthy to help regenerate biodiversity, create good conditions for the provision of habitats and ecosystem services, and contribute to the good chemical and ecological status of water bodies. Water pollution causes sediments to function both as sinks and sources of pollutants. The remobilisation and transport of these polluted sediments can potentially negatively impact water quality and, consequently, the health of aquatic organisms. Additionally, activities such as mining and river regulation disrupt the natural sediment flow. To meet the objectives of European environmental policies, it is essential to achieve healthy sediments. We therefore need to define what constitutes healthy sediments and, thereafter, protect and, where needed, restore their health and balance. A strategy is needed to ensure the sustainable management and use of sediments.

In summary, healthy sediments are key to supporting life, maintaining biodiversity, enriching soil, and sustaining ecosystems. But how can the health of sediments be defined? What indicators can be used for assessment? We are inviting abstracts for a series of sessions addressing various challenges and proposed solutions to the overall 2025 SedNet conference theme: "Healthy Sediments".

We tentatively propose six thematic sessions for the conference:

1. **Zero Pollution**
2. **Sediment Flows**
3. **Nature Based Solutions**
4. **Sediment Literacy & Citizen Science**
5. **Data Collecting, Sharing and AI**
6. **Sediment Management Concepts and Policy**

We look forward to your contributions and discussions on these critical topics.



THEME 1

# Zero Pollution

Environmental pollution worldwide affects people's health and is one of the main reasons for the loss of biodiversity, reducing the ability of ecosystems to provide services such as carbon sequestration and impairing resilience. Under the umbrella of the European Green Deal, the Chemical Strategy for Sustainability and the Zero Pollution Action Plan for Water, Air and Soil adopted two headline actions on zero pollution. The zero pollution ambition envisions a toxic-free environment by 2050, with air, water, and soil pollution at levels no longer considered harmful to health and natural ecosystems and within the boundaries with which our planet can cope. It aims to include pollution prevention in all relevant EU policies, maximising synergies, identifying possible gaps or trade-offs, and prioritising the precautionary principle, preventive action where environmental damage is rectified at the source, and the polluter pays principle when pollution occurs and must be remediated. While healthy sediments are an integral part of a healthy water-soil continuum, this is not explicitly considered in the zero pollution ambition, despite their profound role in accumulating contaminants and potentially acting as a secondary source of pollution.

In this session, we would like to reflect on the definition of healthy sediments compared to the traditional sediment quality paradigm and on how healthy sediments contribute to defining healthy, pollution-free oceans, seas, and waters.

For this, we invite contributions to the following topics:

- Better (integrative) monitoring of priority substances (persistent organic pollutants, PFAS, pharmaceuticals, pesticides, microplastics, etc.) and how sediment monitoring can contribute to surface water and groundwater quality assessment from a One Health perspective;
- How achieving 'good status' of sediments under the Water Framework Directive and the Marine Strategy Framework Directive would bring the EU closer to realising the zero pollution ambition for all aquatic ecosystems;
- The definition of sediment health in the context of the EU nature restoration targets and the promotion of depolluted and re-naturalised sites as potential public green areas;
- The distinction between contamination and pollution in the context of the objective of a healthy ecosystem;
- Advances in decontamination of sediments.

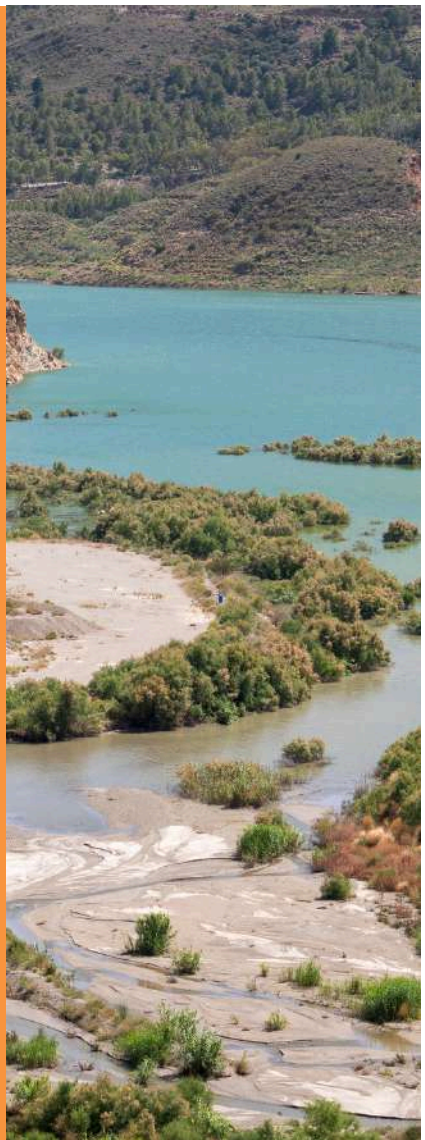
THEME 2

# Sediment Flows

Sediments are the product of weathering and soil erosion. They are also constantly on the move. Processes that disturb this balance can have a severe impact on the functioning of water bodies from the mountains to the sea. A lack of sediment can be caused by upstream entrapment (such as by dams) and can lead to scouring or riverbank and coastal erosion. Deforestation, urbanisation, or changes in agricultural land use can lead to increased soil erosion, resulting in siltation. A complicating factor is that sediments are an excellent medium for storing contaminants. Both historical and current upstream contamination can be washed out during flood events. Climate change may exacerbate these risks, whether the amount of sediment is too little, too much, or too contaminated.

This session welcomes abstracts on innovative approaches and showcases related to:

- The sediment (im)balance in relation to sediment sources for different types of water bodies (upstream rivers, downstream rivers, reservoirs, estuaries, and seas), either:
  - Based on historical analyses,
  - Based on current management policies,
  - As impacted by future scenarios (e.g., climate change).
- Quantification of the risks (too little, too much, or too contaminated sediment) in relation to specific measures or events.
- Solutions to mitigate these risks.



THEME 3

# Nature Based Solutions

In recent decades, there has been an increasing uptake of nature-based solutions involving sediment. These solutions use natural features and sediment processes, such as placement and transport, to address societal challenges like climate change mitigation (e.g., carbon sequestration) and the reduction of climate change impacts (e.g., natural flood defences). Nature-based solutions with sediment benefit humanity, biodiversity, and ecosystems, thereby contributing to sediment health.

For this session, abstracts are welcome that address any of the following questions:

- How do nature-based solutions with sediment contribute to a Circular Economy, and what are the enablers or barriers?
- Are current nature-based solutions with sediment future-proof in the context of climate change?
- How do nature-based solutions with sediment help sequester carbon and thereby mitigate climate change?
- How can the use of nature-based solutions with sediment be promoted to achieve the objectives of European environmental policies, such as the WFD, Green Deal, and Soil Monitoring Law?
- How can the use of dredged sediments be better valorised as an alternative to raw materials?

THEME 4

# Sediment Literacy & Citizen Science

Sediments are a crucial natural resource that influence landscapes, water quality, and habitats for aquatic life, yet their significance is often overlooked. Sediment literacy aims to increase understanding of the vital role sediments play in shaping our environment. By learning about sediments, we become better equipped to address issues such as erosion control, river dynamics, water quality, and coastal resilience. Embracing sediment literacy empowers us to make informed decisions about land-use, infrastructure development, and environmental conservation, ensuring sustainable interactions with our natural surroundings.

Citizen science engages communities in collecting data on sediments, offering valuable insights that complement scientific research and inform policy decisions. By participating in these activities, individuals gain a deeper connection to their environment and become advocates for sustainable practices. Together, sediment literacy and citizen science not only enhance public awareness but also empower communities to take an active role in preserving and managing natural resources. This collaborative approach to environmental conservation naturally includes the critical stewardship of sediments.

This session welcomes abstracts on innovative approaches and platforms related to:

- Sediment literacy activities and/or their results;
- Engagement of individuals, groups, or communities with sediment-related issues;
- Citizen science projects about or related to sediments;
- Integration of sediment literacy with citizen science activities;
- Knowledge transfer between different actors (e.g., scientists, stakeholders, governance, citizens, children).

THEME 5

# Data Collecting, Sharing and AI

Improved and expanded observation of sediment quantity and quality is fundamental to better understanding sediment health and their potential reuse in the environment as nature-based solutions. Increased observations and long-term monitoring are essential, and the acquired data should be publicly shared, open, and compliant with the principles of being Findable, Accessible, Interoperable, and Reusable (FAIR). This approach ensures that data are readily available to researchers, who can then transform the data into valuable information and develop knowledge to improve policies and define new measures to protect and, if necessary, restore sediment health.

This session welcomes abstracts on innovative approaches and showcases related to:

- *In situ* as well as remote sediment observation, such as using drones, LIDAR, or Earth Observation techniques;
- Engagement of citizen science in sediment observation;
- Public, open, and FAIR sharing of sediment data;
- Integrated modelling approaches that turn sediment data into information and knowledge, including the use of machine learning and Artificial Intelligence (AI) techniques.

THEME 6

# Sediment Management Concepts and Policy: An Integrative Approach to Effective Sediment Management and the Road to Implementation

The importance of sediments in achieving the environmental objectives outlined in the Water Framework Directive (WFD) and various other EU policies is now widely acknowledged. In several European river basins, sediment management plans have already been developed or are being developed as integral components of river basin strategies. These plans provide detailed recommendations on the most effective sediment management practices and measures to be taken in different sections of the river basin.

Despite recognising the issues, the transition from problem identification to problem resolution is often hindered by specific, individual conditions and circumstances within a river basin, leading to inaction. These conditions often include an unclear legal framework as well as a general lack of funding. This session aims to share experiences and lessons learned from the development of sediment management concepts and their implementation. We seek to explore the challenges in implementing the necessary remediation measures, identify existing approaches, and uncover the key factors for successful implementation.

## Submission of Abstracts

Please visit the conference page on the SedNet website for the template for submission of abstracts.

The abstracts should be sent to the SedNet Secretariat: secretariat@sednet.org.

**Deadline for submission of abstracts: Extended to 17 January 2025**
Preliminary conference programme: March 2025

## Conference Organisation

The conference is co-organised by SedNet and Instituto de Ciencias de la Construcción Eduardo Torroja- IETcc.

The Instituto de Ciencias de la Construcción Eduardo Torroja (IETcc) is a prominent Spanish research institution dedicated to the science and technology of construction. Founded in 1934 and named after the renowned civil engineer Eduardo Torroja, the institute is part of the Spanish National Research Council (CSIC). The CSIC is Spain's largest public research institution, founded in 1939. It operates under the Ministry of Science and Innovation, conducting multidisciplinary research across physical sciences, life sciences, social sciences, and humanities. CSIC plays a key role in advancing scientific knowledge and innovation in Spain and internationally. The IETcc focuses on advancing knowledge in construction materials, structural engineering, and building technologies, with a strong emphasis on sustainability, innovation, and improving the durability and safety of built environments. Its multidisciplinary research supports the development of standards, best practices, and cutting-edge solutions in the construction industry.

## Conference Venue

This conference will only be a physical event. The conference is organised at the Instituto de Ciencias de la Construcción Eduardo Torroja (IETcc), in Madrid, Spain. Madrid, the capital of Spain, is a vibrant and historic city known for its rich cultural heritage, stunning architecture, and lively atmosphere. As the political, economic, and cultural centre of the country, Madrid is home to iconic landmarks like the Royal Palace, Prado Museum, and Puerta del Sol. The city is renowned for its bustling streets, world-class art galleries, diverse cuisine, and vibrant nightlife, offering a blend of tradition and modernity. With a population of over 3 million, Madrid is a dynamic metropolis that embodies the spirit of Spain.

## Language

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

## Excursion

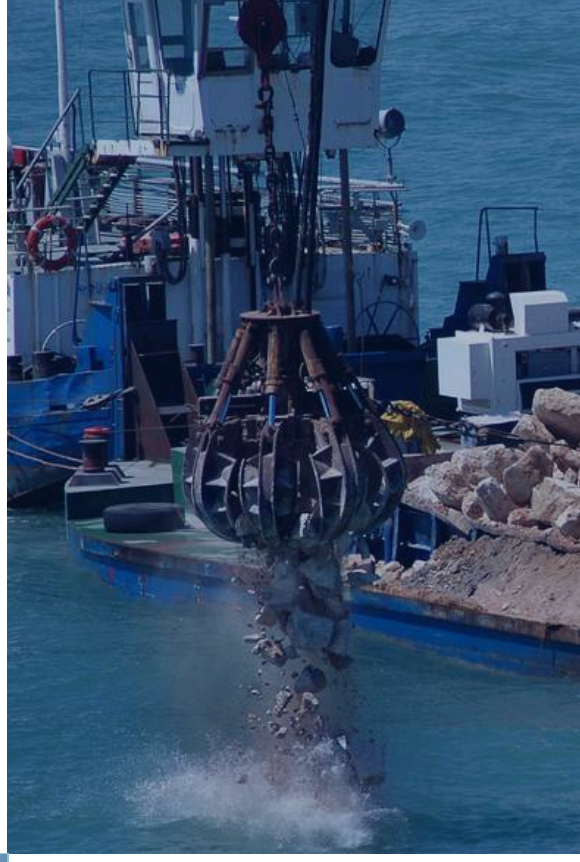
On the day after the conference, Friday, the 10th of October, an excursion will be organised. Details will be announced in the preliminary conference programme.

## Conference Fee

Regular fee: €550,00 excl. VAT
Students: €150,00 excl. VAT

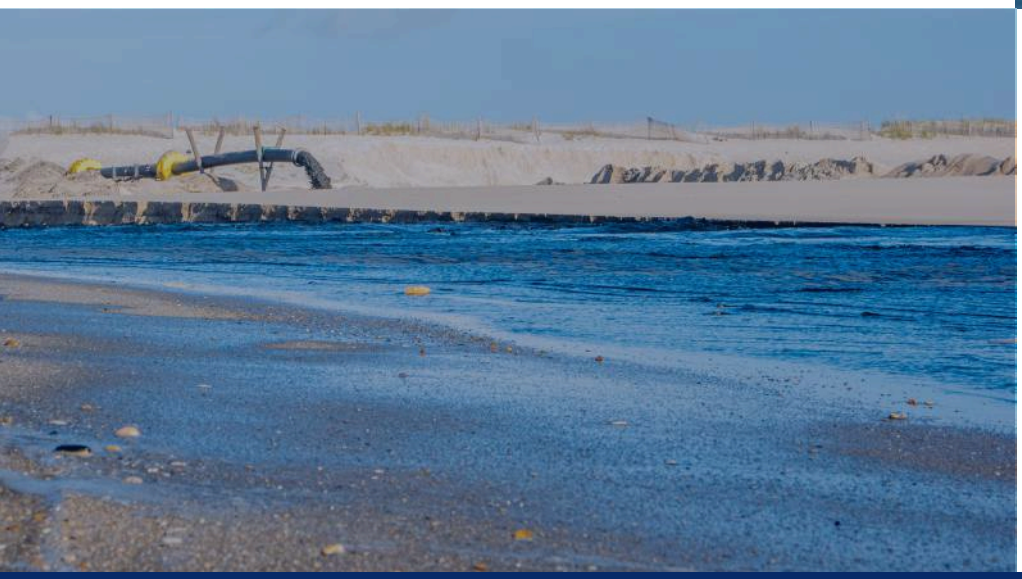
If a student has submitted an abstract that has been selected for oral presentation, then his/her fee will be waived.

The fee includes admission to the 3-day conference programme, social events, conference dinner on the 8th of October and an excursion on the 10th of October. Details about the social events and excursion will be provided in the preliminary conference programme.



## Registration, Travel and Accommodation

Information about registration, travel and accommodation will be provided in detail in the preliminary conference programme.



## Further Information

SedNet Secretariat, Chayenne van Dijk
E-mail: secretariat@sednet.org
Website: www.sednet.org

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

For more information about SedNet visit the website: **www.sednet.org**