INTERVIEW

Interview with
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How do you see the current Italian approach to major land remediation compared to what happens in other European countries or in America?
The Italian approach to large-scale remediation does not differ significantly from that adopted in other countries of the European Union or other technologically advanced areas of the planet. This is because there is continuous communication in the field of scientific research dedicated to environmental remediation. The common underlying note is the 'newness' of the subject, which came into being in the 1980s, and which has yet to bring into focus the set of sites on which to act and also an exhaustive list of potentially hazardous substances to be neutralised. In the 1980s, regulations came into force in Europe and the United States to reduce and contain the effects of environmental contamination in the main environmental components: air, water, soil and sediment. Due to their low turnover, soils and sediments are the environmental compartments that have received, and continue to receive, the most attention. The impact of the scientific journals in this field, which have been on the market for just over twenty years, is growing exponentially and seeks to highlight both the common aspects and, with particular attention, the substantial differences between soils and sediments, whereby the work on the latter is much more complex. It will be increasingly important for the regulatory framework to take into account the evidence and technological solutions that will be proposed by the scientific community.

What distinctive elements should characterise remediation interventions in order to qualify as sustainable?
The concept of sustainability sometimes risks being just a 'pleasant sound bite' of Lucretian memory. In the case of remediation, the first requirement is economic sustainability, without which the intervention cannot take place. Then there is environmental sustainability, in the sense that the balance between environmental benefits and costs is in favour of the former. Finally, it must be ensured that the site's remediation and recovery objectives are met in order to ensure its safe availability for future generations. Due to the relative novelty of the subject and the peculiar characteristics of the sites where one intends to operate, carrying out a remediation project requires, right from the characterisation and perimeter phase of the intervention sites, extreme care in reconstructing the experience of the sites, identifying the sources of contamination, and knowing the timeframe of their action. Most Sites of National Priority are the result of historical contamination that has produced secondary (contamination) sources that require the use of innovative technologies to understand their behaviour and how they impact the surrounding natural system. Today we have the knowledge and technological solutions to achieve truly efficient and sustainable remediation, so it is important to promote their application on sites, in synergy with all stakeholders involved.

Speaking of sediments, what do you think could be a viable solution to the critical issues arising from past contamination in man-made marine environments? On which priorities would you propose to focus a possible National Plan for the recovery and protection of marine environments?
The criticality resulting from historical contamination in man-made marine environments does not exist if criticality is understood as 'the set of characteristics that make the situation precarious, susceptible to irreversible degradation'. These are sources of contamination active, for the most part, from the first half of the 1950s until the end of the 1970s, marking the transition from the total absence of standards to protect the sea from contamination to the coming into force of new rules that imposed a drastic containment of the spillage of potentially hazardous substances conveyed, for the most part, by untreated process water. Therefore, criticalities susceptible to degradation, in this case, cannot exist unless they are produced by removing old deposits without the necessary precautions. What one encounters is what, of the incident, remains imprinted in the memory of the sediment. While water-mobile substances have long since left the point of discharge, non-water-soluble and hydrophobic substances, when unable to be transported by currents or weather agents, have remained in place, generating, though not always, one or more secondary sources of contamination, especially in the sediment compartment. The priority is to identify historical stocks in sediments that are still contaminated today, to verify their actual hazard through measurements of mobility as suspended particulate matter, residual mobility to water, bioavailability and any bioconcentration and biomagnification phenomena.

How can academia and/or research organisations contribute to assessing the risk from sediments contaminated by past production and propose viable solutions?
Given the relative novelty of the subject, any contribution leading to the identification of the danger and quantification of the risk to both aquatic organisms and human health is desirable. Particular attention should be paid to the environmental trajectories of different contaminants taken individually or in mixtures with each other, in order to identify sources and targets and assess the need for action.