



Superfund in New York and New Jersey Harbor Estuary: The Birth of Superfund Sediment Regional Management?

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ABSTRACT

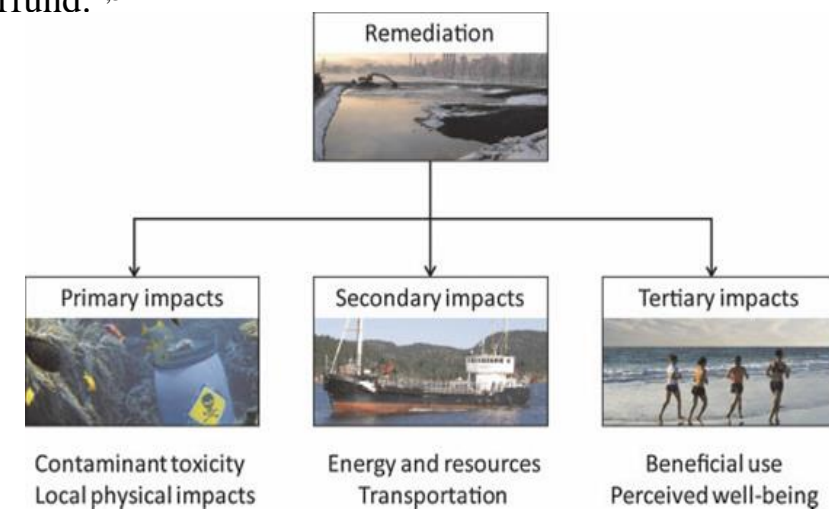
On-going clean-ups in the New York (NY)/New Jersey (NJ) Harbor Estuary have a scale and complexity that is unprecedented in Superfund history. Currently remedial planning is underway for five sites in the Harbor Estuary that encompass all of Newark Bay, NJ and an aggregate 30 tributary river miles. Proposed Plans (PRAPs) call for the removal of approximately 5 million cubic yards of sediments from the Passaic River, NJ and the Gowanus Canal, NY.^{1,2} Upcoming PRAPs for Newtown Creek, NY, Berry's Creek, NJ, Newark Bay, NJ, Pierson's Creek (Troy Chemical Corp), Newark, NJ and the remaining upper 9 miles of the Passaic River may remove an additional 2 million to 4 million cubic yards or more, according to estimates (see table below). A sixth, the 1.5 mile-long, was recently added to the National Priorities List. While the Hudson River Superfund boundaries extend to the lower tip of Manhattan, clean-up is currently restricted to the Troy, NY area.

The proposed remedies will all be similar - dredging followed by some aspect of capping, dewatering, whether mechanical or the addition of portland cement, and hauling to an out-of-state landfill and/or incinerator at significant cost to responsible parties and impact to local communities. However, for the first time, the integration of innovative technologies developed by the U.S. Environmental Protection Agency is being considered since their commercialization is now practical and cost-competitive.

The Regional Sediment Management (RSM) program for the harbor estuary was established for long-term management of sediment, while Superfund was envisioned as an emergency response/enforcement program. The complexities of sediment clean-up can require decades to restore Superfund sediment sites. Concurrent clean-up of these six Superfund sites, plus the 2 million cubic yards dredged annually to operate and maintain the Port of NY & NJ, suggest the inclusion of Superfund into the port's Regional Sediment Management framework³ is warranted to reduce impacts and enhance socio-economic benefits.

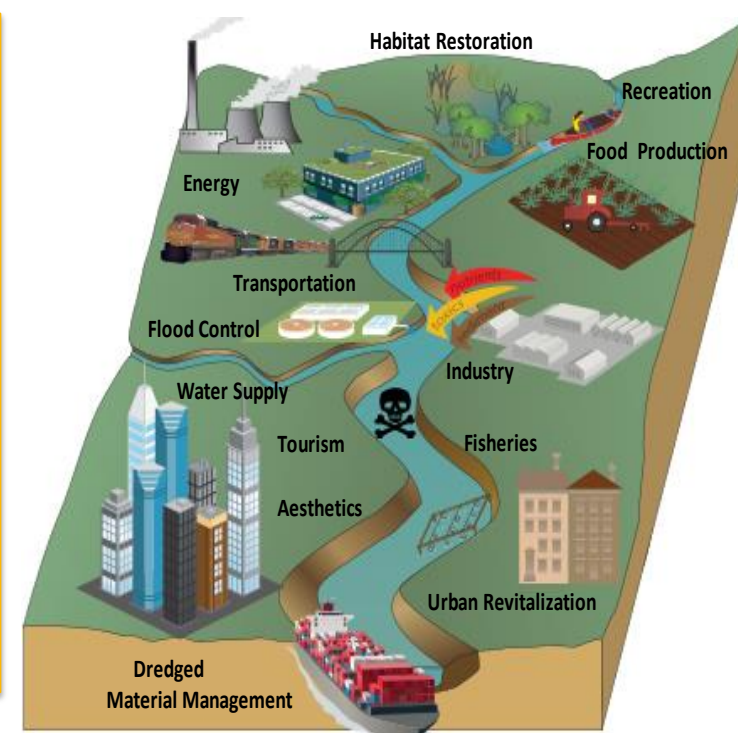
Sediment is Fundamental to our Physical, Biological and Social Infrastructure

Concurrent construction will entail considerable environmental and social effects. The full range of effects are not normally considered by Superfund.^{4,5}



All six NY/NJ harbor estuary sediment Superfund sites are biophysically linked and will need to share the marine, transportation and treatment infrastructures.

RGGI = Regional Greenhouse Gas Initiative;
SDWA = Safe Drinking Water Act;
CWA = Clean Water Act;
MS4 = Municipal Separate Storm Sewer Systems;
NPDES = National Pollutant Discharge Elimination System;
NPS = Non-point Source;
NRD = Natural Resource Damages;
CAA = Clean Air Act;
CERCLA = Comprehensive Environmental Response, Compensation and Liability Act (Superfund)
USEPA/USACE = Dredged Material Management



Connected Interests that Involve Sediment ^{5,6}

- Provisioning Services
- Food
 - Water supply
 - Energy
 - Transportation
 - Genetic resources
- Regulating Services
- Water quality
 - Climate regulation
 - Coastal defense and flooding
 - Disease regulation
- Support Services
- Nutrient cycling
 - Primary production
 - Soil formation
- Cultural Services
- Aesthetic
 - Spiritual
 - Recreation

The Superfund Perfect Storm



Site	USEPA Volume Estimate (1,000 Yards ³)	Record of Decision Date	Anticipated Construction Start
Gowanus Canal, NY	588	2013	2016
Passaic River, NJ			
- Lower 8 miles	4,300	2014	2018
- Upper 9 miles	TBD	TBD	TBD
Berry's Creek, NJ	500 - 1,000	2017	2018
Newtown Creek, NY	1,000 to 2,000	2018	2020
Newark Bay, NJ	TBD	TBD	2018
Pierson's Creek	TBD	TBD	TBD

If we consider only sediment, we only get sediment solutions....

Doug Reid-Green, BASF Corporation

RSM is a framework for regional management of sediment systems useful for:

- Overall risk management
- Integrating flood protection, navigation, and restoration
- Reducing impacts to local communities
- Climate adaptation and coastal defense
- Enhancing beneficial use
- Supporting revitalization of local economies
- Aligning social and Superfund timescales



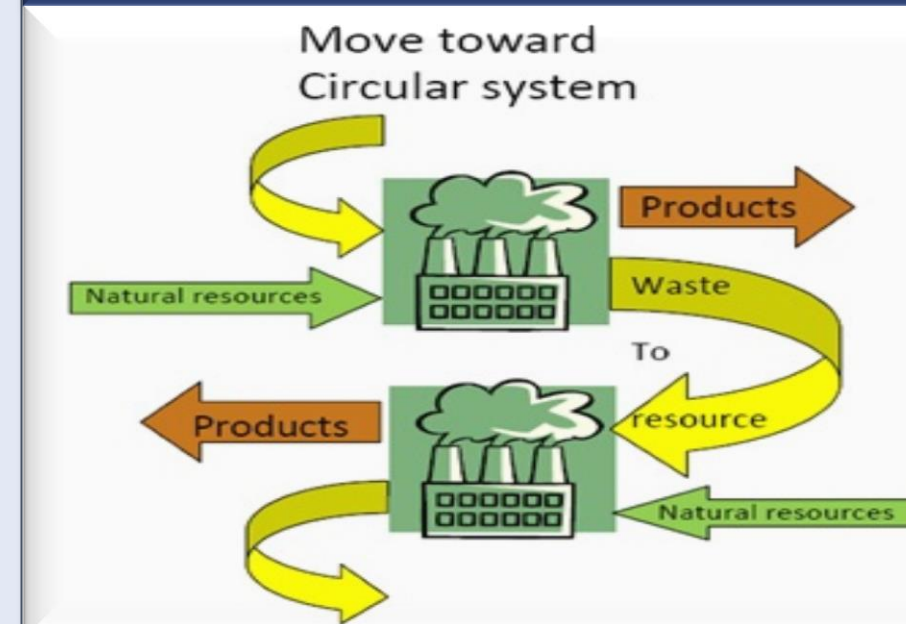
Current U.S. Policy Obstructions

- Management provided under competing regulatory and non-regulatory programs (not optimized)
- Localized, segmented remediation management
- Remediation without complete source control
- Prohibitive "all-in" costs
- Complexities in fair polluter pays allocations
- Lost revenue to Potential Responsible Parties (PRPs), as well as to surrounding communities
- ✓ Complex engineering to meet regulatory requirements undertaken in urban environments with degraded infrastructure
 - ✓ (example - Passaic River, NJ)
- Crisis management in choosing the least cost option with a lack of vision on sustainable measures and innovation (such as green remediation)

Comparison of Social and Superfund Timescales⁶

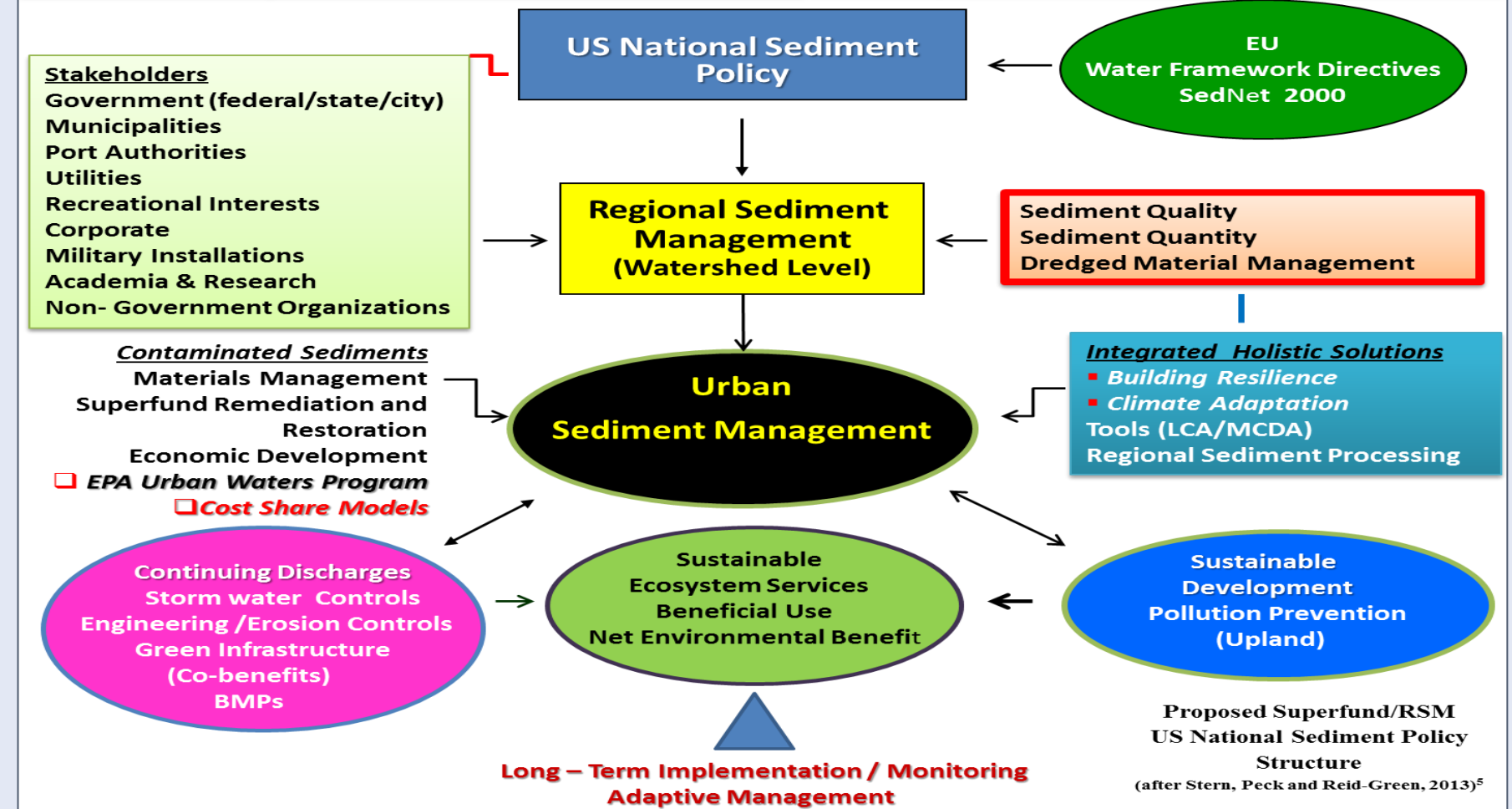
Timescales	Typical Duration (Years)	
	Lower	Higher
Social timescales		
Political representative terms	2	6
US Congress bill to law	6	10+
Development	2	5
Developer return on investment	5	8
Superfund process timescales		
Listing on National Priority List	2	25+
Remedial Investigation - Studies	2	10+
Design	1	3+
Construction	1	7+
Recovery (human/ecological health)	20	50+
Total Superfund process	25	95+

Beneficial Use Becomes Driver for Sustainable Remediation



Moving Forward
Regional Management of Sediment Systems
Integrate all components of the biophysical and social systems into planning and decision-making, including:
➤ **Facilitative leadership / Strategy**
-Regional Sediment Management (including Urban)
-Adaptive management
-Cost-sharing and incentives

- Covenant not to sue
- Advanced tools for decision making
- Inclusion of restoration in the remediation process
- Encouraged development of closed loop systems
- Expanded view of green remediation
- Expanded stakeholder participation



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