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Restoration in a Contaminated Urban Waterway: If We Build It, They Will Come – But Is That Good?

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Restoration in less-than-pristine areas or implementation of restoration projects prior to remediation of contaminated sediments can be a battle cry in the heavily urbanized and industrialized watershed of the Lower Passaic River in northern New Jersey. Local constituents have waited too long for restoration along this river and remediation of arguably one of the most contaminated waterbodies in the world may not happen soon enough. Development pressure along the river is strong, opportunities for restoration are limited and dwindling, and yet the potential for recontamination of restored areas (by unremediated areas, the remediation itself, and ongoing urban sources) poses a serious threat to receptors. Restoration planners are forced to weigh the pros and cons of restoring habitat in, and access to, a heavily contaminated river. They must also consider how soon restoration can safely occur, how much can be implemented, how it can be designed to minimize adverse impacts (e.g., attractive nuisance), and what benefits the project can provide. The arguments are strong both for and against restoration in contaminated urban rivers and "restoration before remediation."

This presentation will explore the variety of challenges encountered when seeking to conduct habitat restoration in a Superfund site and in urban environments in general. Site-specific issues on the Lower Passaic River will be used as a case example.

Sediments of the Lower Passaic River are heavily contaminated with dioxins, PCBs, heavy metals, and PAHs as well as a suite of other constituents. The entire lower river has been designated a Superfund Site as well as an Urban Rivers Restoration Initiative pilot project. Stakeholders on the lower river include a large group of potentially responsible parties, non-governmental organizations, municipalities, and government agencies, each with their own views on how, why, and when restoration along the river must be implemented.

Ultimately some level of restoration may occur before the Lower Passaic River is completely remediated. Regulators and restoration planners must ensure that those projects are conducted with an awareness of how to maximize benefits while minimizing risks to the public and the environment. And all stakeholders need to recognize the importance of both the risks and rewards of "restoration now."

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4th International Conference on Remediation of Contaminated Sediments

Savannah, GA

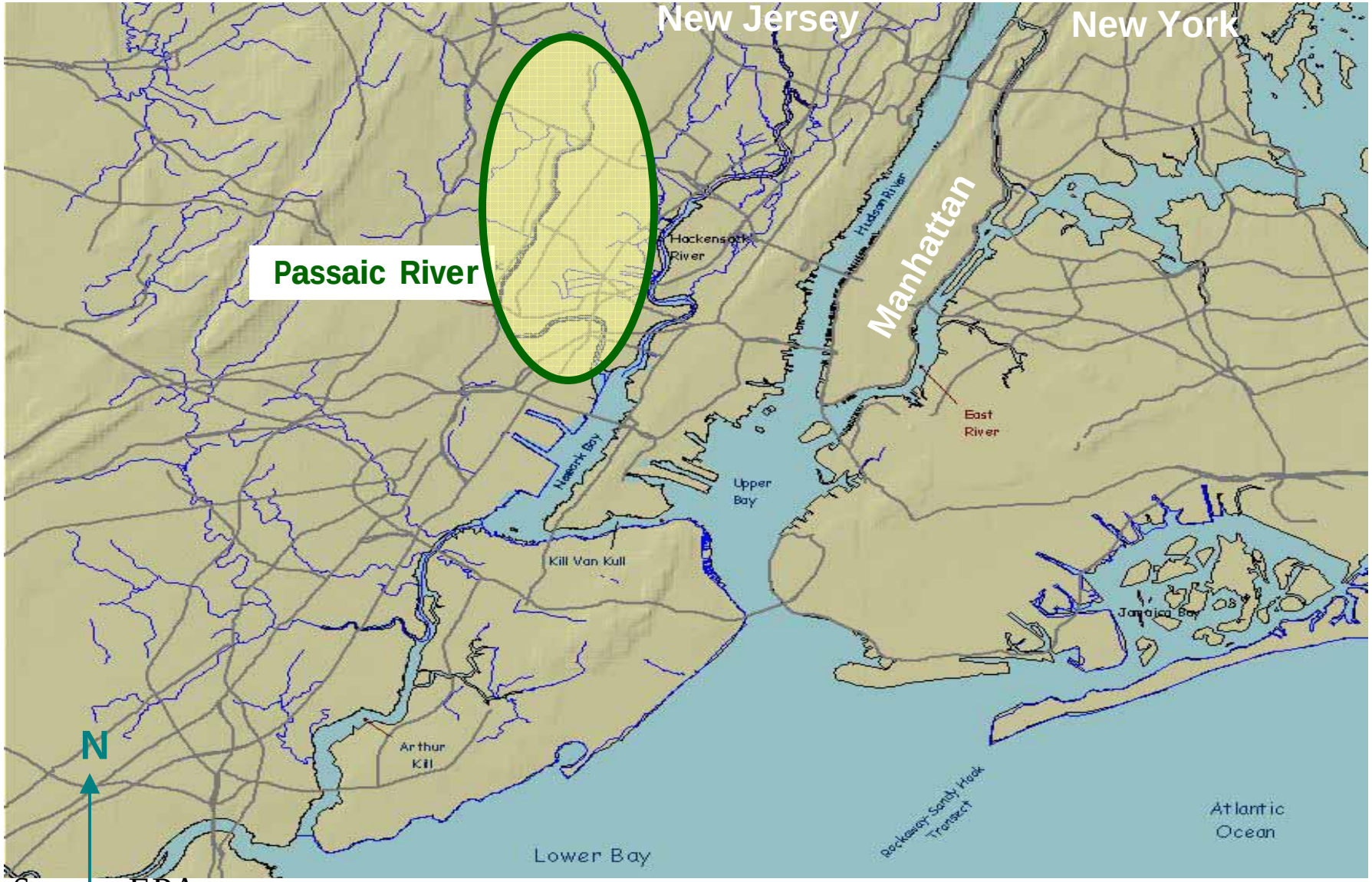
January 25, 2007

Tom Brosnan, Reyhan Mehran, Carl Alderson, Lisa Rosman, Eli Reinharz

This presentation is intended to air restoration issues and initiate a broader discussion on restoration options in the Passaic River, NJ and other urban/contaminated areas.

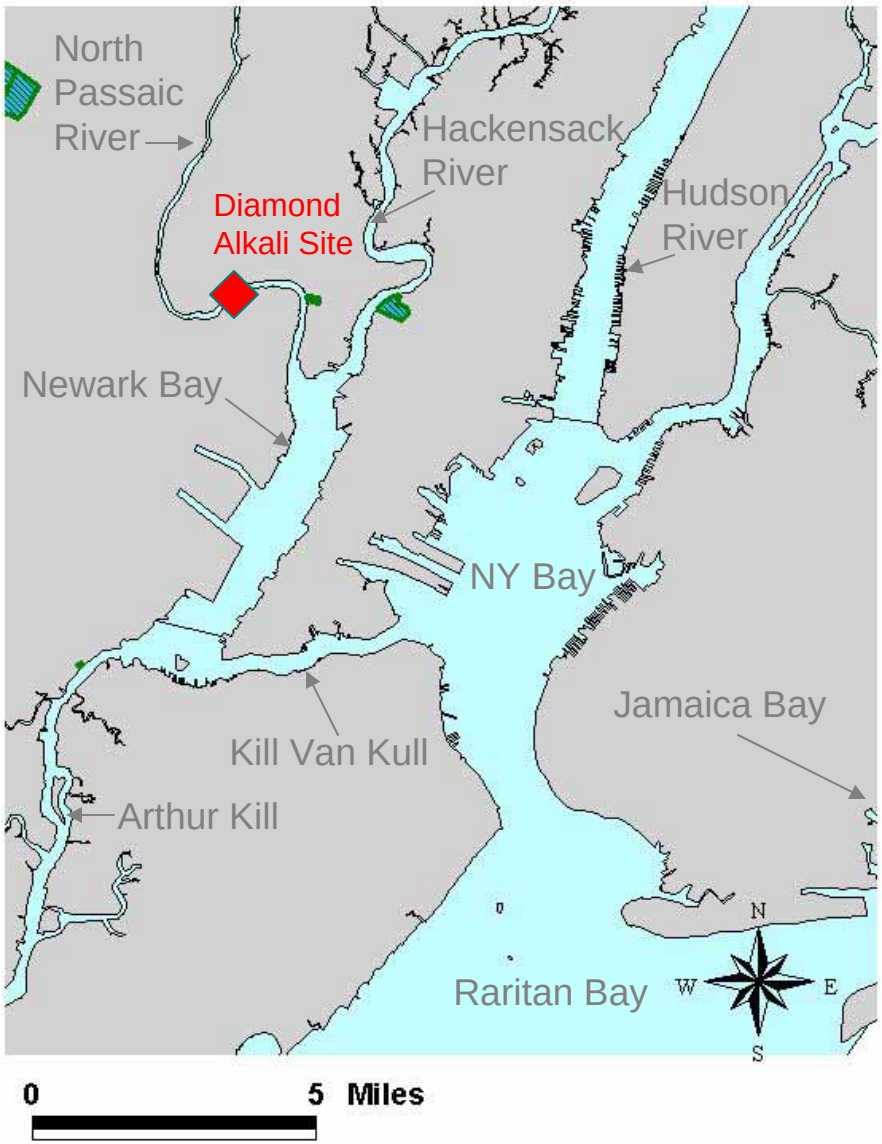
It is not intended to represent the views of any particular agency or person.

NY-NJ Harbor Estuary



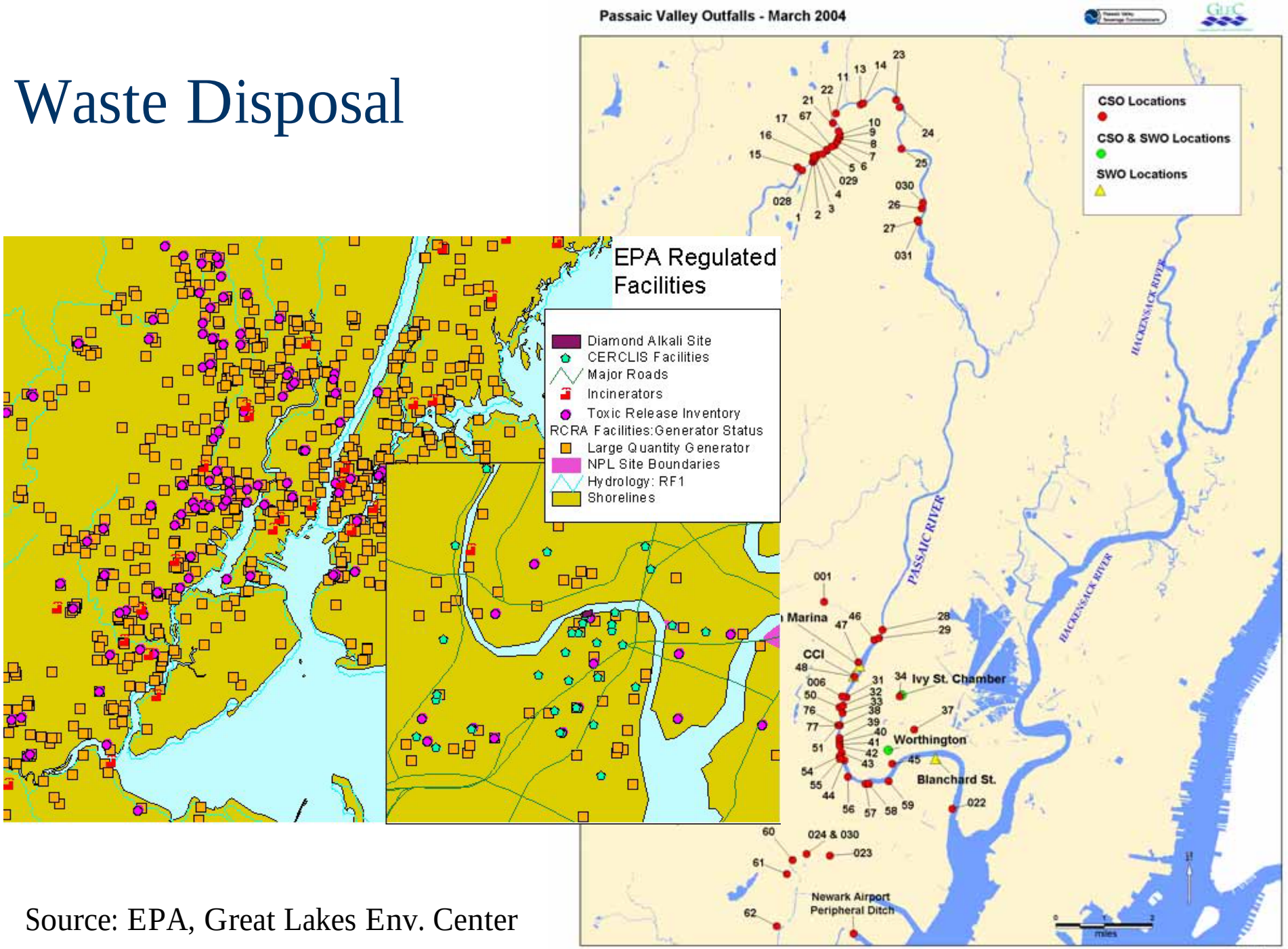
Source: EPA

Passaic River/ Newark Bay Background



- **Urban/Industrial Complex**
- **935 mi2; flows 90 mi. through 7 counties and 45 municipalities**
- **40,000 live w/in 1 mi. of the DA Site; 367,000 live within 3 mi.**
- **Extensive historical contamination from multiple pollutants and sources**
- **218 industrial discharges and 110 municipal discharges**
- **Thousands of waste sites**
- **Many physical changes (dredge/fill, habitat loss)**

Waste Disposal



Source: EPA, Great Lakes Env. Center

Current Uses of the River / Bay

Habitat

Development

The New Jersey Performing Arts Center (NJPAC) in Newark

Recreation

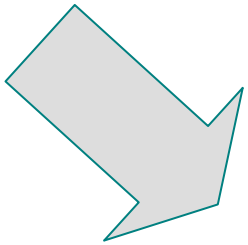
Waste Disposal

Source: EPA

Lower Passaic River Restoration Project: the Process and Players…

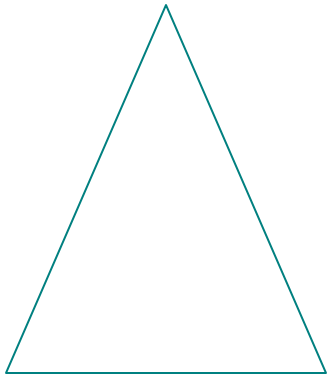
Release(s)

(PRPs, other releases)



Response

(RI/FS by response agencies, e.g., EPA, NJDEP)



NRDA Restoration

(Trustees, e.g., NOAA, DOI, NJDEP)

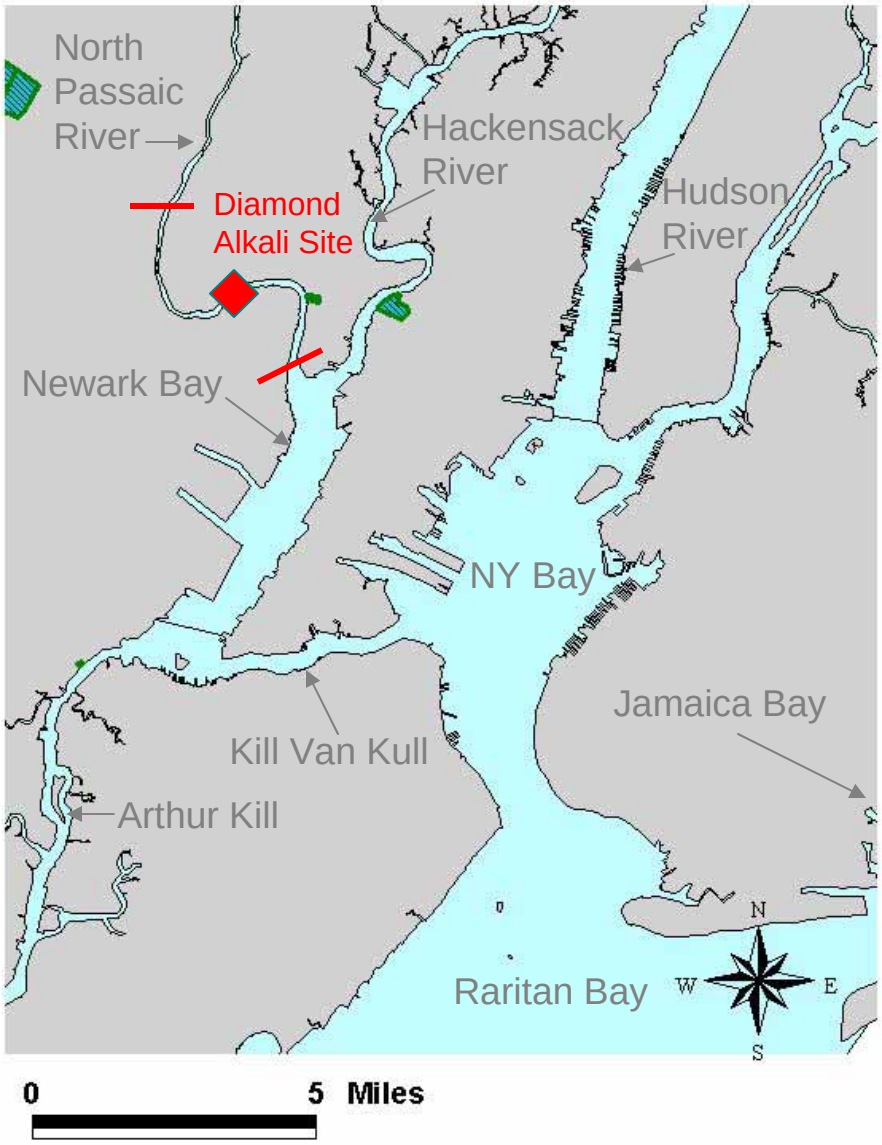
Protect and restore to baseline, compensate for interim losses; NEXUS

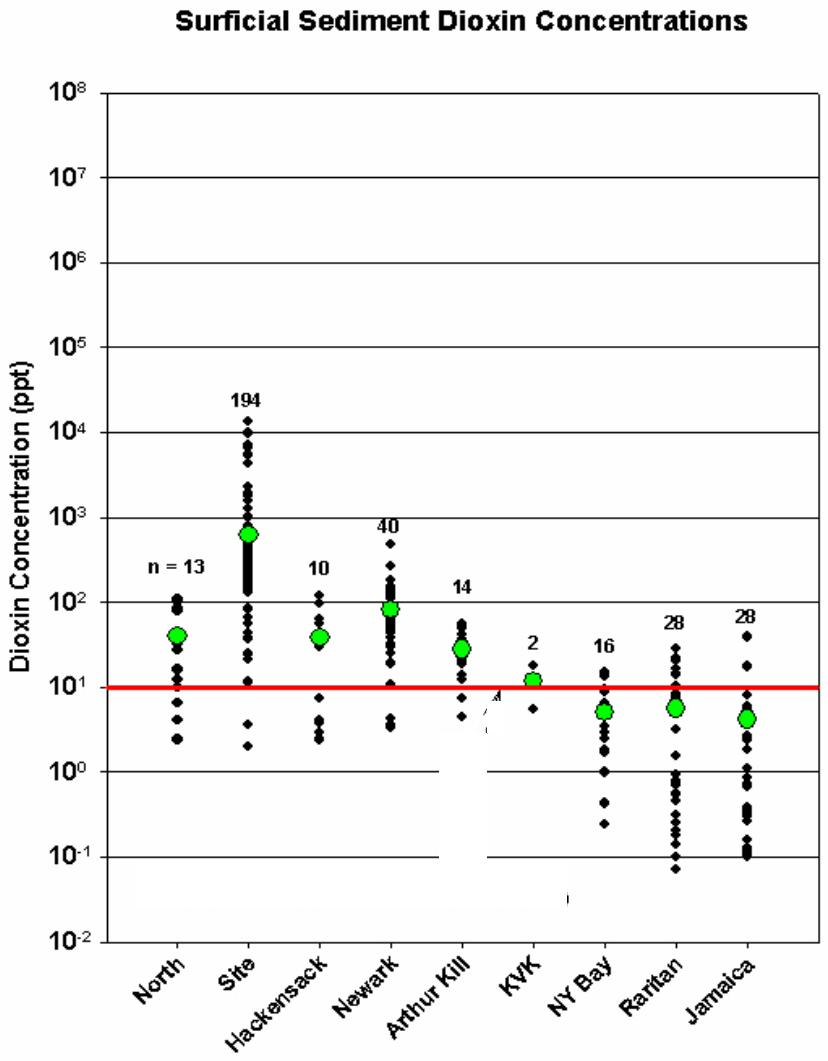
WRDA Restoration

(Other agencies, e.g., ACOE-EPA, NJDOT)

Habitat restoration, flood control, navigation, dredging, reuse, etc.

Surficial Sediment Dioxin Concentrations





Affected Resources and Services in the Passaic River / Newark Bay

- Recreational Fishing (dioxins, PCB)
- Ecological Health and Habitats
- Surface Water & Sediment
- Groundwater
- Navigation

Restoration Should (Ideally) be Implemented Where/When…

- When an adequate remedy is implemented to limit exposure/risk
- Strong nexus to the injury (in kind/in place)
- Greater Likelihood of Success
- Greater Benefit to the Resource and the Public (site may provide the most services)
- Compensates the Public ASAP (incl. offsite if necessary)

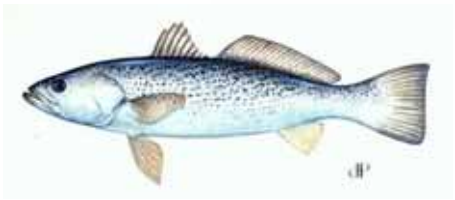
Restoration Issues

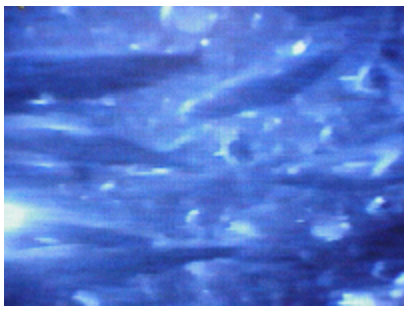
- ROD won't be issued until ~2011, remediation by ??
- In-place restoration opportunities are limited and dwindling
- Some stakeholders strongly favor immediate restoration, on the river
- Potential early settlement opportunities w/some PRPs
- Other restoration projects being proposed in the area for other reasons (Minnish Park=mitigation, Lincoln Park=Exxon Bayway)

The Arguments for Restoration Now, in the River

- “river has been studied for 20yrs, can’t wait another 20”
- Restoration=Stewardship=Better/Quicker Remedy
- Restoration in the community that has been most affected
- Wetlands=multi-benefits (nutrients, TSS, erosion, floods)
- Restoration has been done in nearby less-than pristine environs (Arthur Kill, Bronx River)
- Contaminated habitat better than no habitat -should we remove existing contaminated habitat?
- Opportunities are being lost to development every day and acquisition costs are increasing
- Willing to monitor to gauge recontamination

Biological Resources





NOAA Resources Using the Tidal Passaic River

Species	Spawning Area	Nursery Area	Adult Area	Commercial Fishery (a)	Recreational Fishery (b)
<u>Anadromous/Catadromous Species</u>					
Blueback herring	X	X			
Alewife	X	X			
American Shad *	X	X			
American eel			X	X	
Striped bass	X	X	X	X	X
<u>Estuarine/Marine Species</u>					
Bay anchovy	X	X	X		
Silver perch		X			
Atlantic menhaden		X		X	
Weakfish		X	X	X	
Mummichog	X	X	X		
Striped killifish	X	X	X		
Spot		X	X		
Atlantic croaker		X	X	X	X
White perch		X	X		X
Summer flounder		X			
Bluefish		X	X		X
Winter flounder		X			
<u>Invertebrates</u>					
Blue crab		X	X	X	

(a) Commercial fishing on the tidal Passaic River has been banned since 1983 for all species due to dioxin contamination

(b) Recreational fishing on the Passaic is restricted with a prohibition on the consumption of all fish and shellfish from the area between Dundee Dam and Newark Bay due to dioxin contamination

* Considered an endangered species in New Jersey

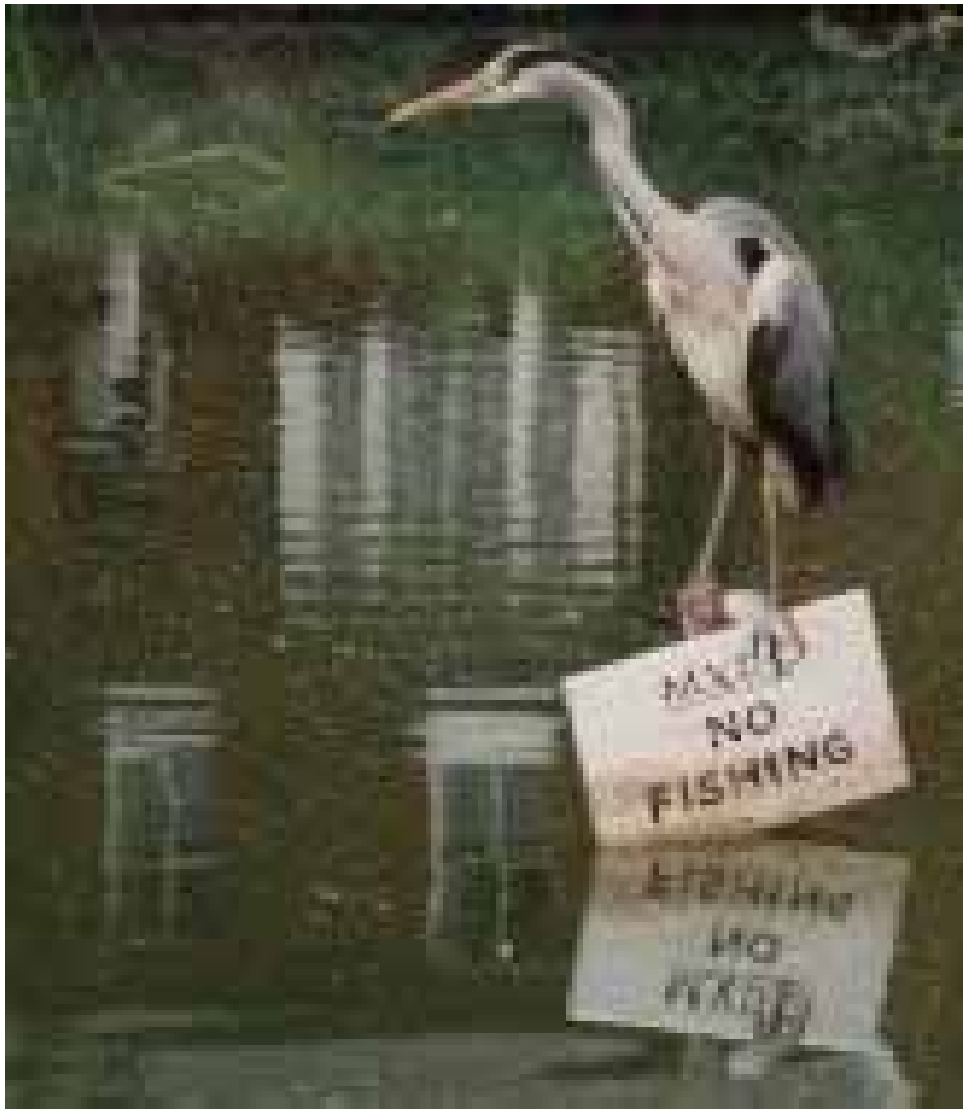
The Arguments Against Restoration Now, In River

- Remediation necessary before restoration
- Potential recontamination from the river, the remedy, or ongoing sources
- Creation of an attractive nuisance, increased risk
- Potentially less successful restoration
- Too expensive –areas outside watershed may be cleaner, cheaper to acquire and easier to restore
- Buy properties and restore after cleanup, or do restoration pre-remedy in less-contaminated areas.

Discussion:

- When might pre-remedial restoration be appropriate?
  - Done off site
  - Done in a way that doesn't increase injury (e.g., Montrose)
  - When the public and state demands it? (presumption that we know what's best for the public)
- When is pre-remedial restoration unacceptable?
  - Recontamination and Clear attractive nuisance
- How to make the decisions? Public survey?
- What are the tradeoffs, short- and long-term net impacts and benefits?
- If a pilot study, what monitoring and reopeners should be included for restoration in urban/contaminated areas?
- What credit to grant the PRPs?

What would you advise?



Information on NOAA's

Damage Assessment, Remediation, and Restoration Program

is available on our websites:

response.restoration.noaa.gov

www.darrp.noaa.gov