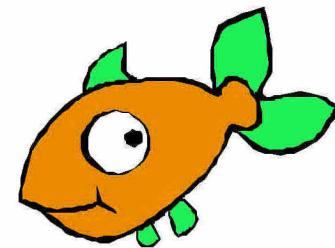


CONTAMINANT ASSESSMENT & REDUCTION PROJECT (CARP)

- ⌘ What is the relative importance of specific loadings (discharges) of toxic contaminants to the quality of dredged material in the harbor today?
- ⌘ What management actions to reduce contamination will produce the greatest overall benefits, both in time and area extent?



NJ TOXICS REDUCTION WORKPLAN TEAM



NJ Department of Environmental Protection

Joel Pecchioli, Project Manager
Floyd Genicola, Quality Assurance
Gary Buchanan, Toxicologist

NJ Office of Maritime Resources, NJ Department of Transportation

Scott Douglas, Project Monitor

US Geological Survey - NJ

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Great Lakes Environmental Center on behalf of The New Jersey Harbor Dischargers Group

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Richard Styles, Ph.D., Co-PI

THE NEW JERSEY TOXICS REDUCTION WORKPLAN FOR NY-NJ HARBOR



PROJECT OVERVIEW

Joel A. Pecchioli

Division of Science, Research & Technology

New Jersey Department of Environmental Protection

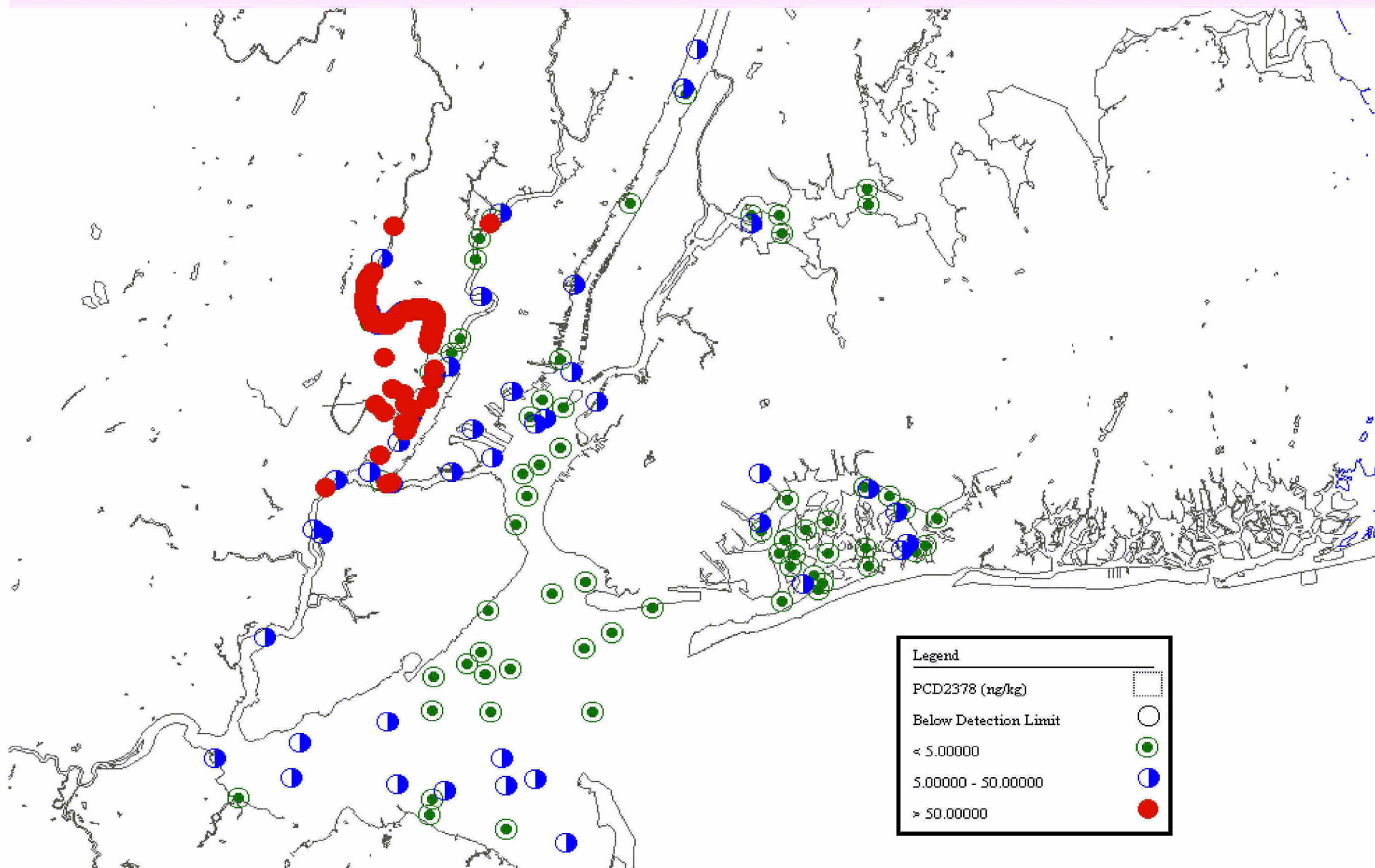
Trenton, NJ

(609) 633-2200



**PROBLEM: Contaminated Dredged Material
Limited Management Options**

2,3,7,8-TCDD in Surface Sediments



THE NEW JERSEY TOXICS REDUCTION WORKPLAN FOR NY-NJ HARBOR



- ⌘ \$9.5 million in funding from Port Authority of NY-NJ via New Jersey Maritime Resources (NJDOT)
- ⌘ Coordinated with NYSDEC component of NY-NJ HEP Contaminant Assessment and Reduction Program (CARP)
- ⌘ NJDEP Project Management: Division of Science, Research & Technology

GOAL & OBJECTIVES OF THE NJ WORKPLAN



⌘ GOAL: to understand the sources, transport, and fate of sediments and toxic contaminants in NY-NJ Harbor.

⌘ OBJECTIVES:

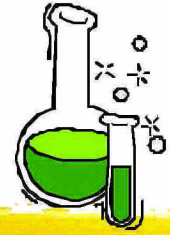
➔ To quantify the levels and loadings of the contaminants of concern in New York-New Jersey Harbor estuary.

➔ To identify and track down significant sources of these contaminants.

OUTCOMES OF THE NJ WORKPLAN



- ➔ More dredged material management options will be available over time as contamination in the estuary is reduced.
- ➔ NY-NJ Harbor Dredged Material Management Plan
- ➔ Overall improvement in the Harbor's water quality and natural resources.



CONTAMINANTS OF CONCERN

- ⌘ Dioxins/Furans (17)
- ⌘ PCB Congeners (114)
- ⌘ Pesticides (27)
- ⌘ PAHs (28)

- ⌘ Metals: Total Hg, Cd, Pb
 - Dissolved Hg, Cd, Pb
 - Dissolved (& Total) methyl-Hg

- ❖ Based on NY-NJ HEP List

MAIN COMPONENTS OF THE NJ WORKPLAN



⌘ PHASE ONE:

- ☒ hydrodynamic surveys
- ☒ ambient surface water quality sampling
- ☒ POTW, CSO, and SWO sampling

⌘ PHASE TWO: focused sampling of selected Phase I areas

⌘ PHASE THREE: trackdown activities other point and non-point sources, sediments

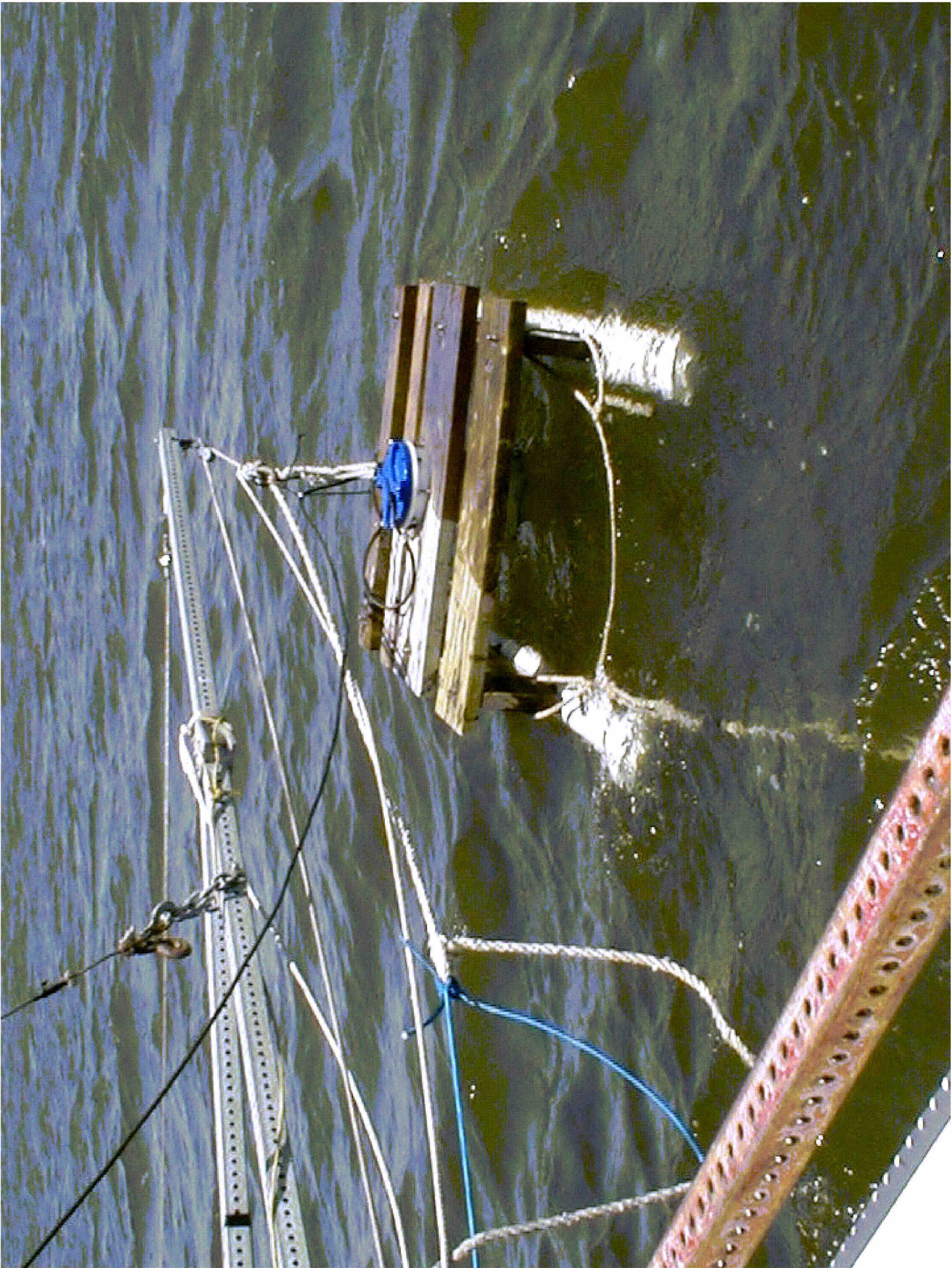
⌘ PHASE FOUR: modeling activities

Hydrodynamic Surveys



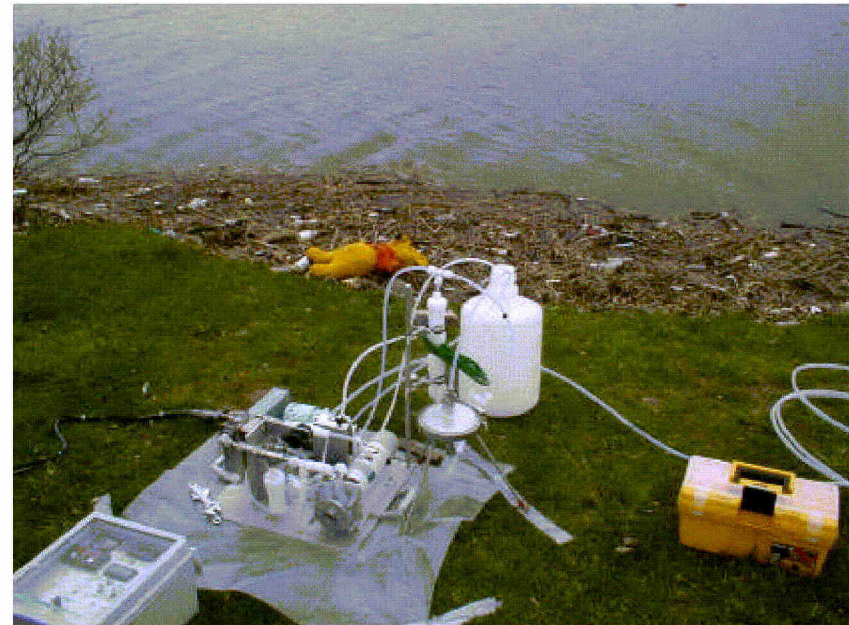






AMBIENT SAMPLING PROBLEMS & SOLUTIONS: “False Negatives”

- ⌘ **Problem:** Contaminants of Concern are present in source discharges and ambient waters at **very low concentrations**.
- ⌘ **Solutions:** Use high volume water samplers (TOPS) & high-resolution analytical methods (HRGC/HRMS)



NJTRWP PHASE I AMBIENT SAMPLING METHODS

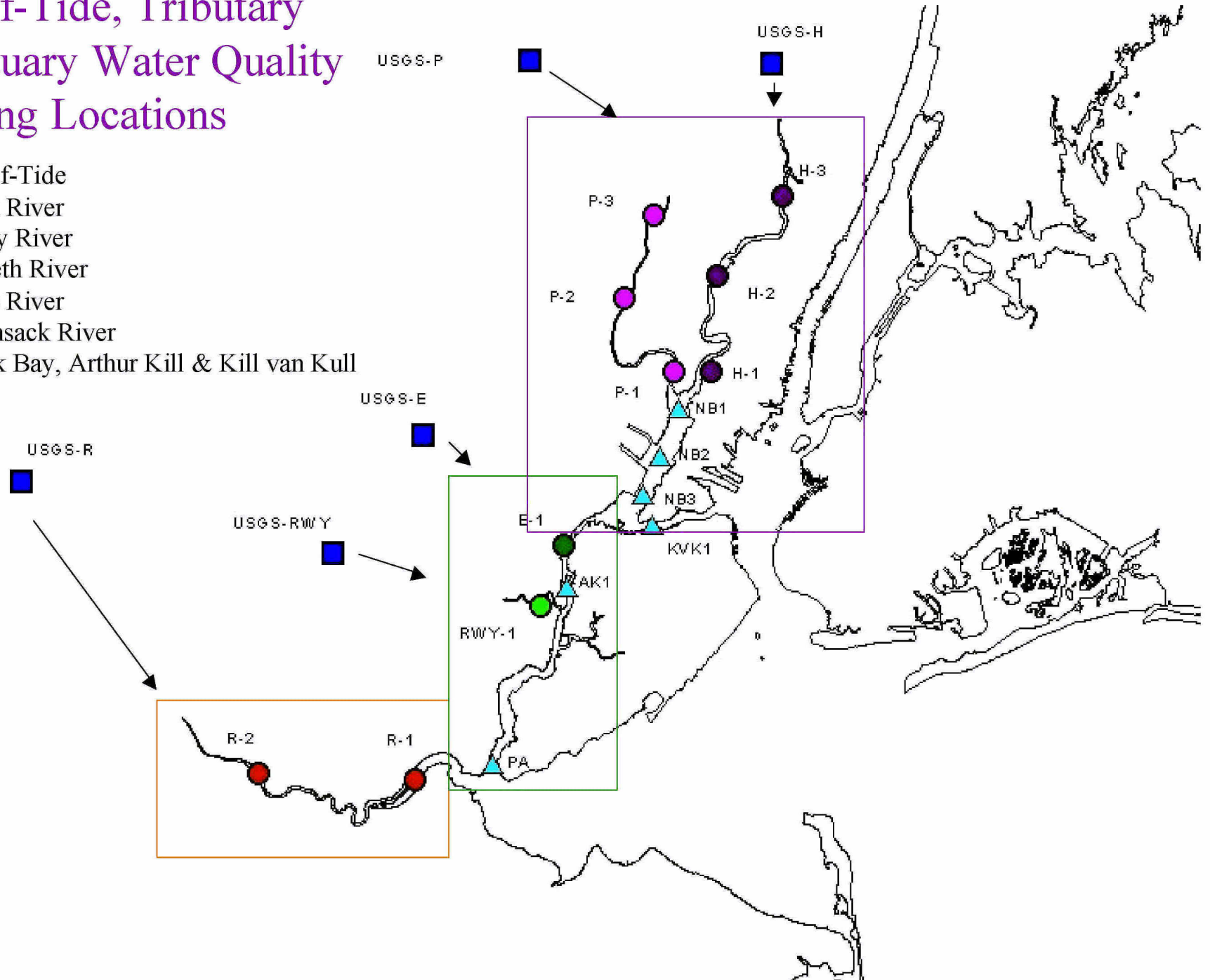


- ⌘ Synoptic water quality samples and hydrodynamic surveys
- ⌘ Dry and wet weather events
- ⌘ Sample during outgoing tides

- ⌘ Grab Samples: Metals & PAHs (Dissolved)
- ⌘ 4-Hour Composite/TOPS Samples
 - ☑ PAHs & Dioxins/Furans (Sediment)
 - ☑ PCBs & Pesticides (Dissolved & Sediment)

Head-of-Tide, Tributary and Estuary Water Quality Sampling Locations

- Head-of-Tide
- Raritan River
- Rahway River
- Elizabeth River
- Passaic River
- Hackensack River
- ▲ Newark Bay, Arthur Kill & Kill van Kull

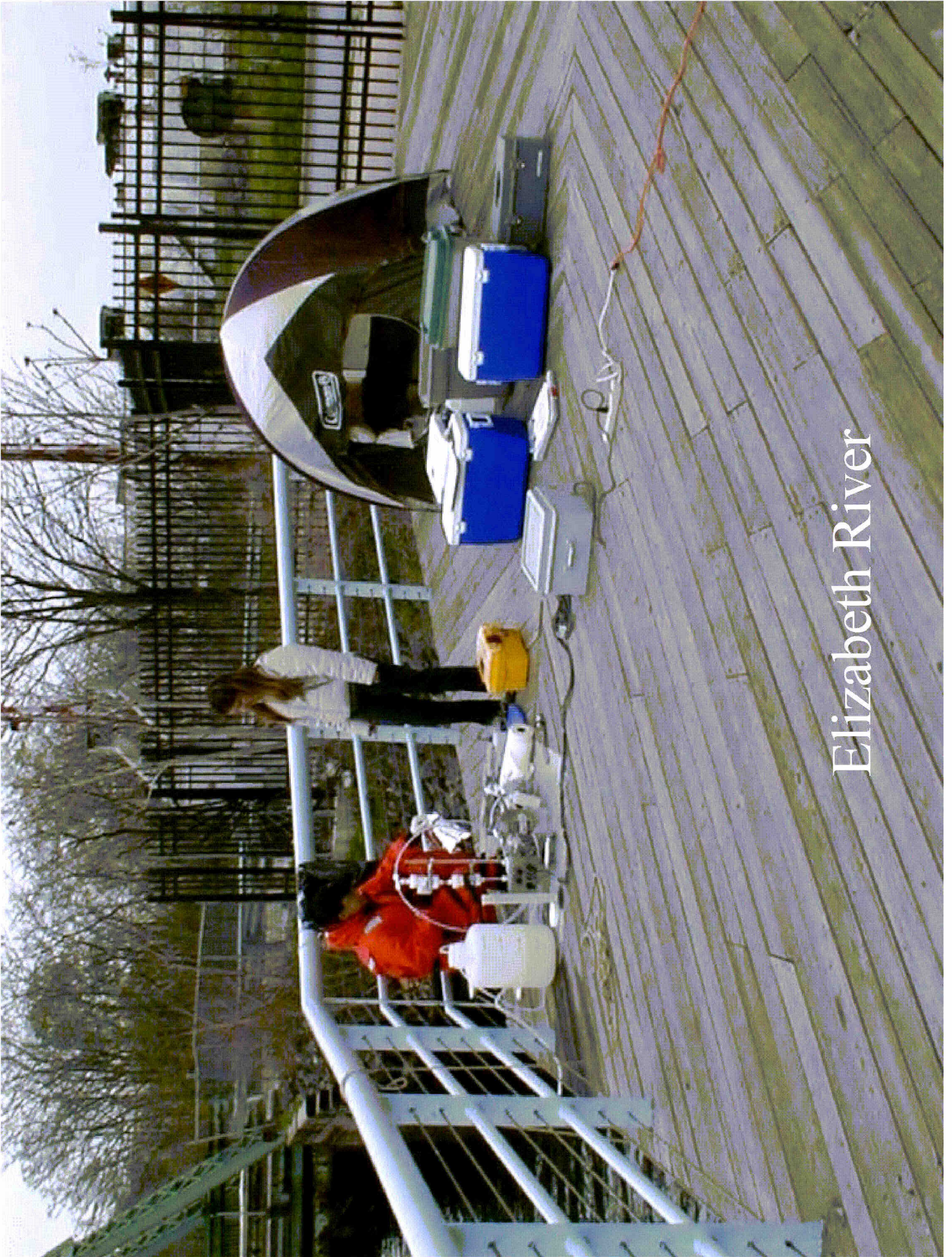




Elizabeth River
Head-of-Tide Sampling

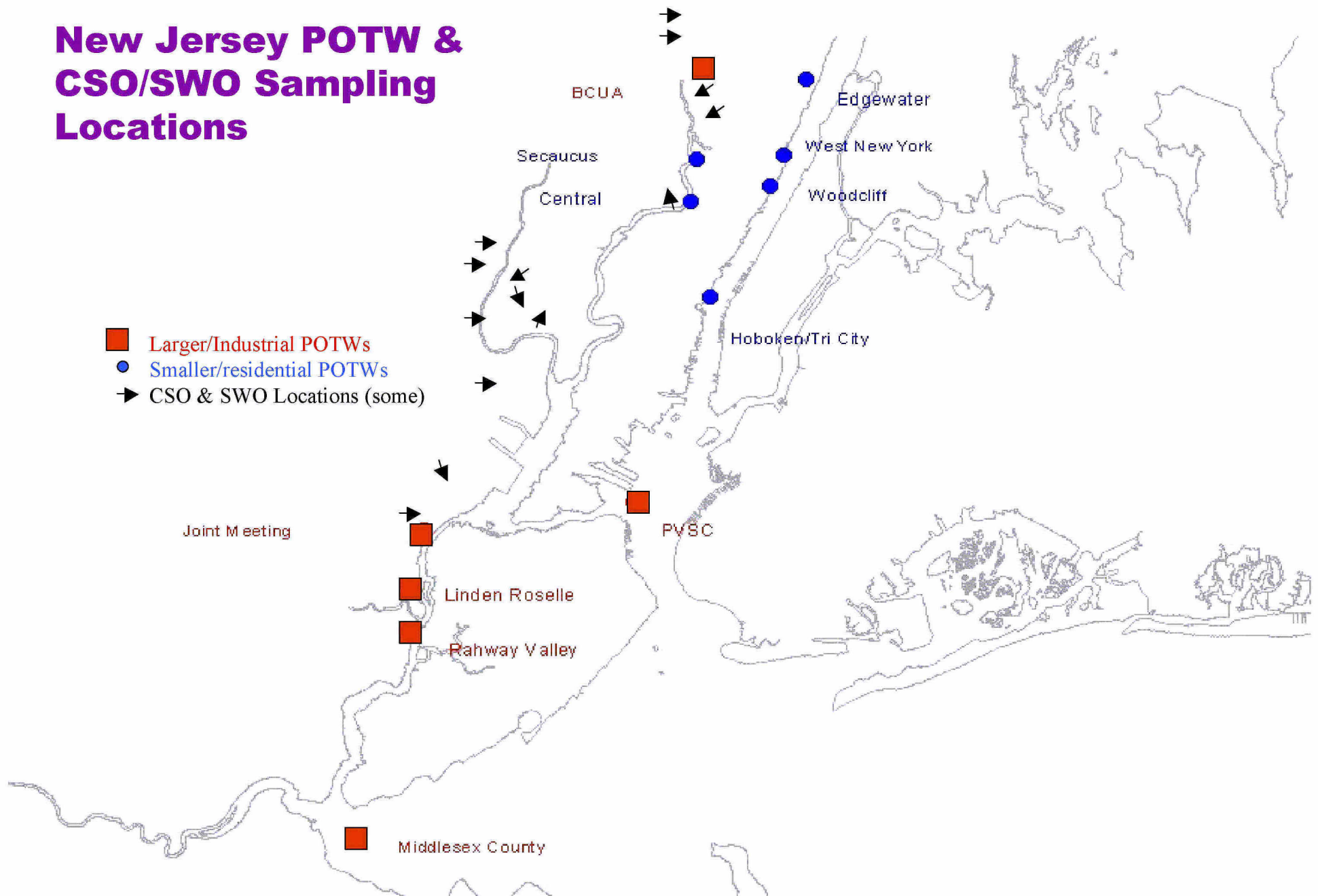
Rahway River





Elizabeth River

New Jersey POTW & CSO/SWO Sampling Locations



NJTRWP PROJECT STATUS



⌘ Sept 1999-June 2000: Method Development

ॐ June 2000-Present: Phase I Studies

⌘ August 2001: Newark Bay - Phase II Hydrodynamics Study

⌘ Dec 2001: Phase IV Modeling Activities (Hydroqual)

⌘ April 2002: Hackensack River - Phase II Metals Study

THE BIG “FUZZY” PICTURE



- ⌘ State-of-the-Science sampling and analytical methods.
- ⌘ Synoptic data collection and integration of hydrodynamics and water quality data.
- ⌘ Comprehensive - entire estuary studied
- ⌘ Has never been done before.