

OUTLINE

Baseline Human Health and Ecological Risk Assessment Problem Formulation

Newark Bay Study Area

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- I. Introduction
 - A. Report Purpose and Objectives
 - B. Summary of Risk Assessment Guidance/Guidelines and Policies – review both HHRA and ERA guidelines/processes and where/how this document fits into the process
 - C. Report Organization
- II. Environmental History and Setting – provide concise synopsis from CSM report
 - A. History of the Newark Bay Study Area – provide historical and industrial context of site setting
 - i. Include a review of historical flooding events
 - ii. Include a discussion of tributaries
 - B. Physical Setting of the Newark Bay Study Area
 - i. Geographic Areas
 - ii. Geomorphic Areas
- III. Data Summary – discuss pertinent data for risk assessment; discuss secondary data evaluation results
 - A. Qualitative Data – broad description of size of area, what habitats it encompasses, major land uses
 - i. Important Ecological Habitats – land use, wetlands, islands, fish, birds
 - ii. Population Data – current and likely future land uses in and surrounding the bay; population activities based on zoning and land use categories
 - B. Quantitative Data – description of datasets pertinent for risk assessment; all data will be provided in an electronic format
 - i. Sediment Data
 - 1. Sediment Chemistry
 - 2. Sediment Toxicity
 - ii. Tissue Data
 - 1. Tissue Chemistry
 - 2. Bioaccumulation Studies
 - iii. Surface Water Data

1. Surface Water Quality
2. Surface Water Chemistry
- iv. Crab and Tissue Ingestion Data from surveys of human consumption
- IV. Refinement of Constituents of Potential Ecological Concern (COPECs)
 - A. Summary of COPECs from SLERA
 - B. Updated COPEC Screen – using updated benchmarks (e.g., NJDEP’s ESC Table) and additional datasets
- V. Baseline Human Health Risk Assessment – Passaic River PFD HHRA portion will be mirrored where applicable
 - A. Conceptual Site Model – use text from Risk Assessment Scoping Document; update based on BHHERA Workshop Meeting Minutes
 - B. Exposure Scenario – evaluate to determine which is more appropriate
 - i. Combined Current/Future
 - ii. Separate Current/Future
 - C. Exposure Factors
 - i. Values from Passaic River HHRA used as appropriate
 - ii. Alternative values proposed for the Bay will be fully documented
 - D. Exposure Pathways and Potentially Exposed Populations – site-specific information/studies will be fully reviewed; all age groups (young child [age 1-6], adolescent, and adult) will be considered for each receptor (except the port/dock worker), completeness of exposure pathways will be determined during the CSM phase
 - i. Recreational Users – describe water and shore recreators
 - ii. Angler/Sportsman
 - iii. Port/Dock Worker – include commercial diver (adult only)
 - iv. Resident – based on review of land use surrounding the bay
 - v. Transient – qualitative evaluation only
 - E. Data Needs for Human Health Risk Assessment
 - i. Land Use, Zoning, Hunting, Future Development Plans
 - ii. Environmental Media
 - iii. Exposure Factors
- VI. Baseline Ecological Risk Assessment
 - A. Conceptual Site Model - use text from Risk Assessment Scoping Document; update based on BHHERA Workshop Meeting Minutes
 - i. Constituent Fate and Transport
 - ii. Ecotoxicity of Constituent Classes
 - B. Exposure Pathways and Receptors – discuss which geographic/geomorphic area and habitat each receptor inhabits or is exposed; use information from BHHERA Workshop

- i. Plants
 - ii. Invertebrates
 - 1. Benthic Infauna
 - 2. Epibenthic
 - 3. Pelagic
 - iii. Fish
 - 1. Forage
 - 2. Benthic Demersal
 - 3. Pelagic Predatory
 - iv. Birds
 - 1. Piscivorous
 - 2. Benthivorous
 - 3. Omnivorous
 - 4. Insectivorous
 - 5. Carnivorous
 - v. Mammals
 - 1. Omnivorous
 - 2. Insectivorous
 - 3. Carnivorous
 - C. Assessment and Measurement Endpoints – use table from BHHERA Workshop; update as necessary based on meeting minutes
 - i. Candidate Measurement Endpoints
 - D. Data Needs for Ecological Risk Assessment – use table from BHHERA Workshop; update as necessary based on meeting minutes
- VII. Next Steps – describes the overall next steps of the project, which include the development of work plans, sampling plans, and quality plans
- A. Development of Work Plans
 - i. Field Survey/Reconnaissance Work Plan
 - ii. Toxicity/Bioaccumulation Studies Work Plan
 - B. Development of Sampling and Analysis Plans (SAP)/Quality Assurance Project Plans (QAPP) to Collect Necessary Data
 - i. Surface Water and Sediment SAP/QAPP
 - ii. Benthic Invertebrates SAP/QAPP
 - iii. Fish and Blue Crab SAP/QAPP
 - C. Development of Risk Assessment and Risk Characterization Work Plan – describes how the baseline risk assessments will be conducted
 - i. Ecological Risk Assessment

- ii. Human Health Risk Assessment – deterministic, probabilistic including Pathways Analysis Plan.