U.S. Fish and Wildlife Service

Moving Towards Remediation & Restoration at Grassy Island

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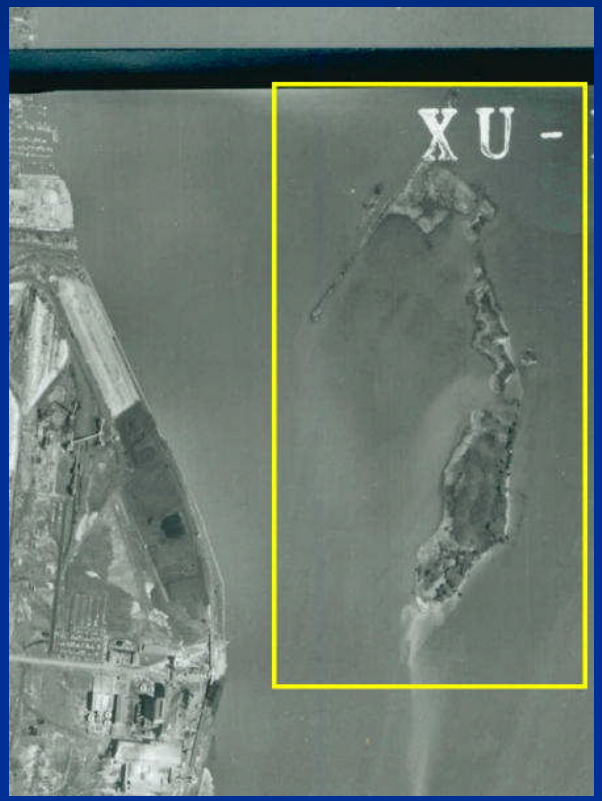
Overview

- Grassy Island history
- Process to resolve contaminants issues and restore natural resources
- Where we are now: Preliminary Assessment/Site Inspection (PA/SI)
- Next steps
- Opportunities for Community Involvement

Grassy Island History



- Prior to 1959:
  - marsh
  - shoals
  - submerged vegetation
  - small upland area
- Valuable habitat for fish, waterfowl, and other wildlife

Grassy Island History

- 1959: Corps of Engineers (COE) built a 6’ dike around the island
- 1960: COE began disposing of dredged materials from Rouge River
- 1961: the U.S. Congress designated Grassy Island and surrounding 300 acres a National Wildlife Refuge (Wyandotte NWR)
  - Provided for COE to continue dredge disposal

Grassy Island History

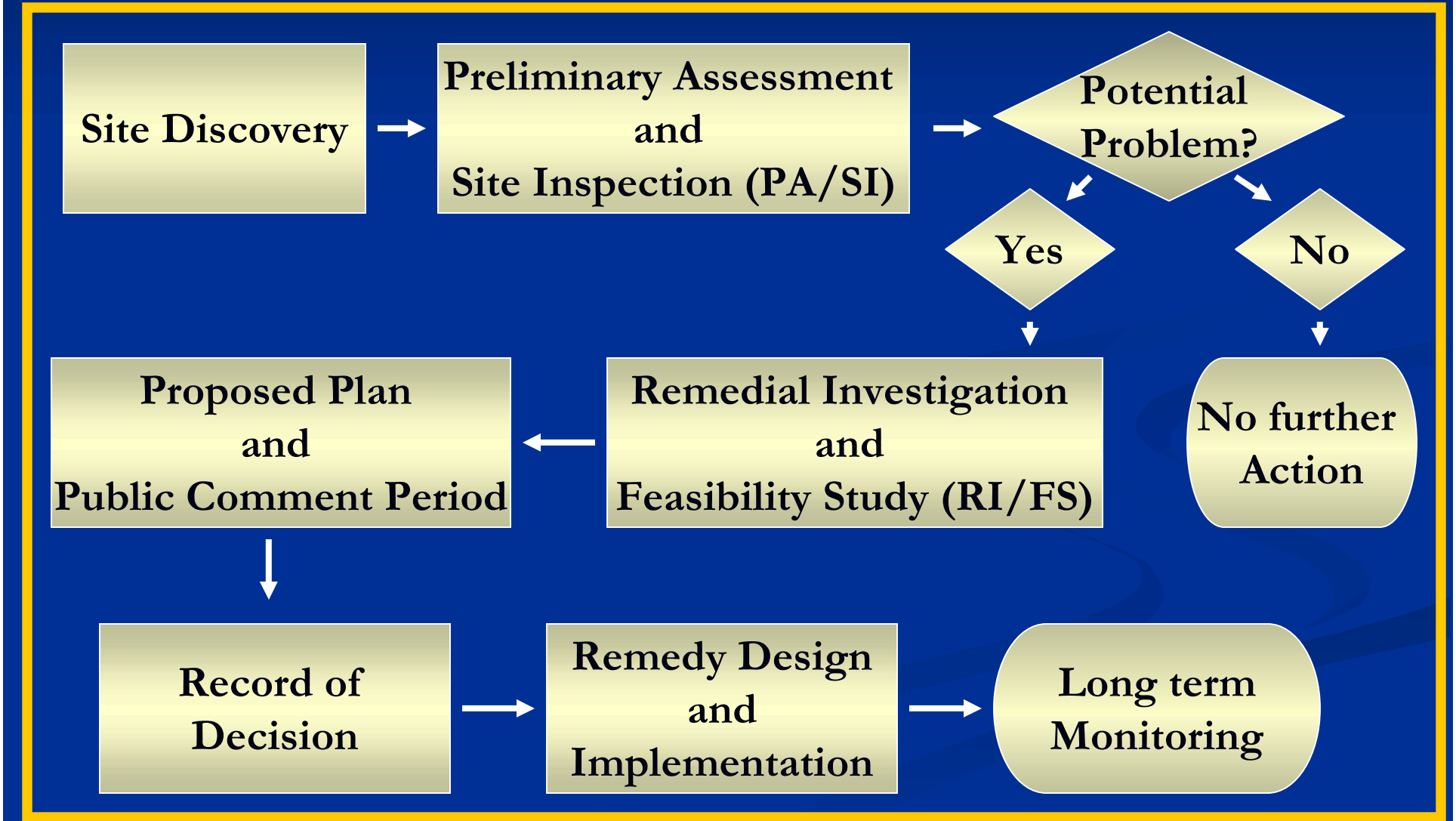
- 1971 : 20’ interior dike built to increase capacity
- 1982: last year dredged materials disposed of on Grassy Island
  - Total of ~3 million cubic yds
  - 95% of volume from Rouge River
- 1987: COE relinquished rights to use Grassy Island
  - U.S. Fish and Wildlife Service (Service) began management

Current Island Conditions

- 2001: Detroit River International WR
- Riprap shoreline provides protection from wave action

- Island interior vegetated, no pools of water in 2004
  - Cottonwood, willow, and giant reed grass (*Phragmites*) dominate

Planning Process for Remediation and Restoration



Planning Process for Remediation and Restoration

Site Discovery

- **Public knowledge of site history (i.e. use as disposal facility) resulted in identification**

Planning Process for Remediation and Restoration

Site Discovery → Preliminary Assessment and Site Inspection (PA/SI)

- Studies were conducted by the U.S. Geological Survey (USGS) and the Service
  - Biological
  - Geology
  - Water
  - Soil/Sediment

Preliminary Assessment/Site Inspection Purpose

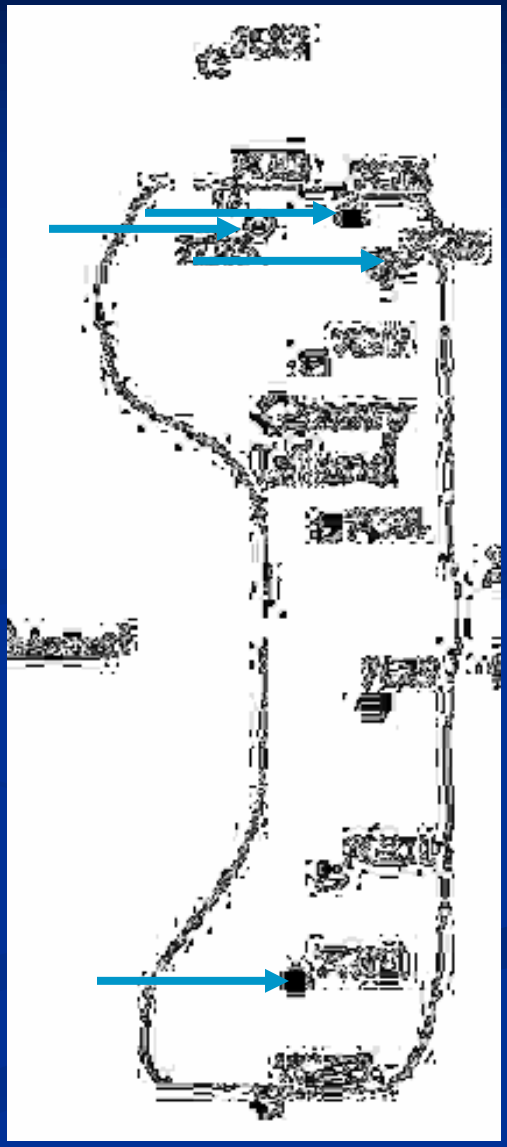
- Review and synthesize existing information
  - Documents from 1951-2003
  - 10 previously conducted studies
- Identify potential contaminants of concern
- Identify potential pathways of release
- Identify uncertainties
- Determine if site warrants more in-depth investigation

PA/SI Methods

- Compared sampling data to criteria and screening guidelines
  - Direct contact criteria
  - Drinking water standards
  - Guidelines protective of plants and wildlife
- Evaluated possible pathways of release and routes of exposure

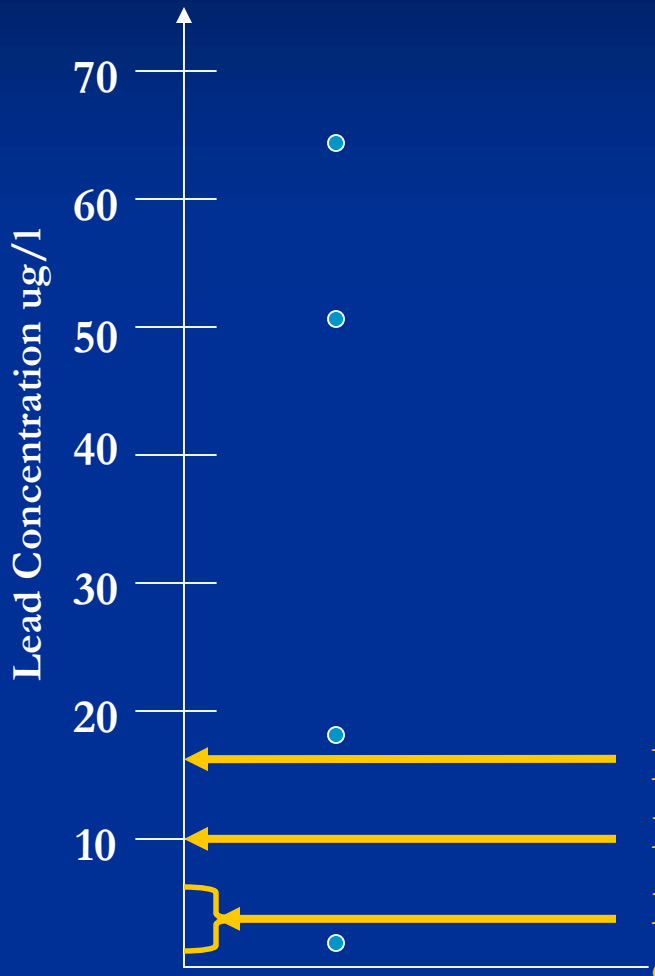
Water Samples

- Samples from 4 locations
- 140+ different substances tested for
  - Metals
  - Pesticides
  - Volatiles/Semivolatile organics



Groundwater: Lead

- Sample size: 4
- Range: ND – 64 ug/l



- 3 of 4 samples exceed all guidelines

EPA Primary Drinking Water (15)

MI Groundwater Interface; Canadian Drinking Water

MI Drinking Water Standards (4); EPA Freshwater criterion (2.5); Canadian aquatic life (1-7)

Potential Contaminants of Concern

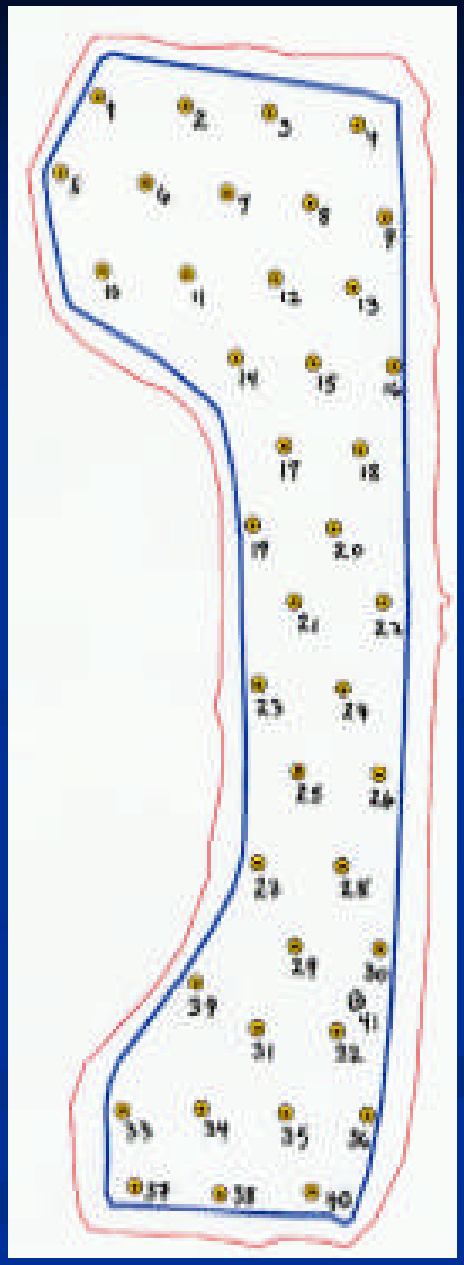
- Contaminants in water
  - Mean concentrations of many substances exceeded one or more screening levels
  - Screening criteria included:
    - Michigan, EPA, and Canadian drinking water standards
    - EPA and Canadian guidelines for protection of aquatic life
  - Contaminants identified included were:
    - Organics (PCBs and PAHs)
    - Metals (including: Cd, Cr, Cu, Fe, Hg, Pb)

Potential Pathways of Release

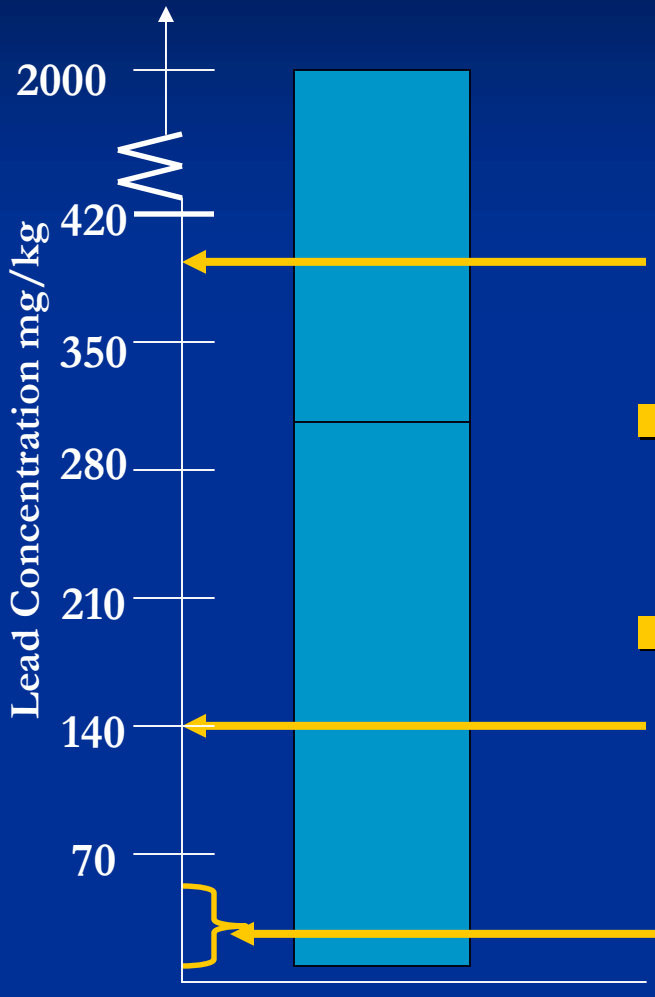
- Release pathways include:
  - Flooding
  - Seepage of water through dike walls
  - Water overflow and runoff
  - Catastrophic dike failure
  - Infiltration of groundwater into underlying aquifers
- Groundwater flow and dike wall seepage greatest uncertainties

Soil Samples

- Extensive sampling
  - Manny and Sweat
  - COE sampling
- Manny: 40 Locations
  - Within 1 meter of surface
  - 30 different substances tested for
- Sweat: 10 Locations
  - Up to 6 meters deep
  - 140+ different substances tested for



Soil: Lead



- Sample size: 80
- Range: ND – 2000 mg/kg
- Average: 310 mg/kg

MI Direct Contact (400)

- Many samples exceed all guidelines
- Average exceeds many guidelines

Canadian Residential/Park areas (140)

EPA birds (16); MI background (21); EPA mammals (59)

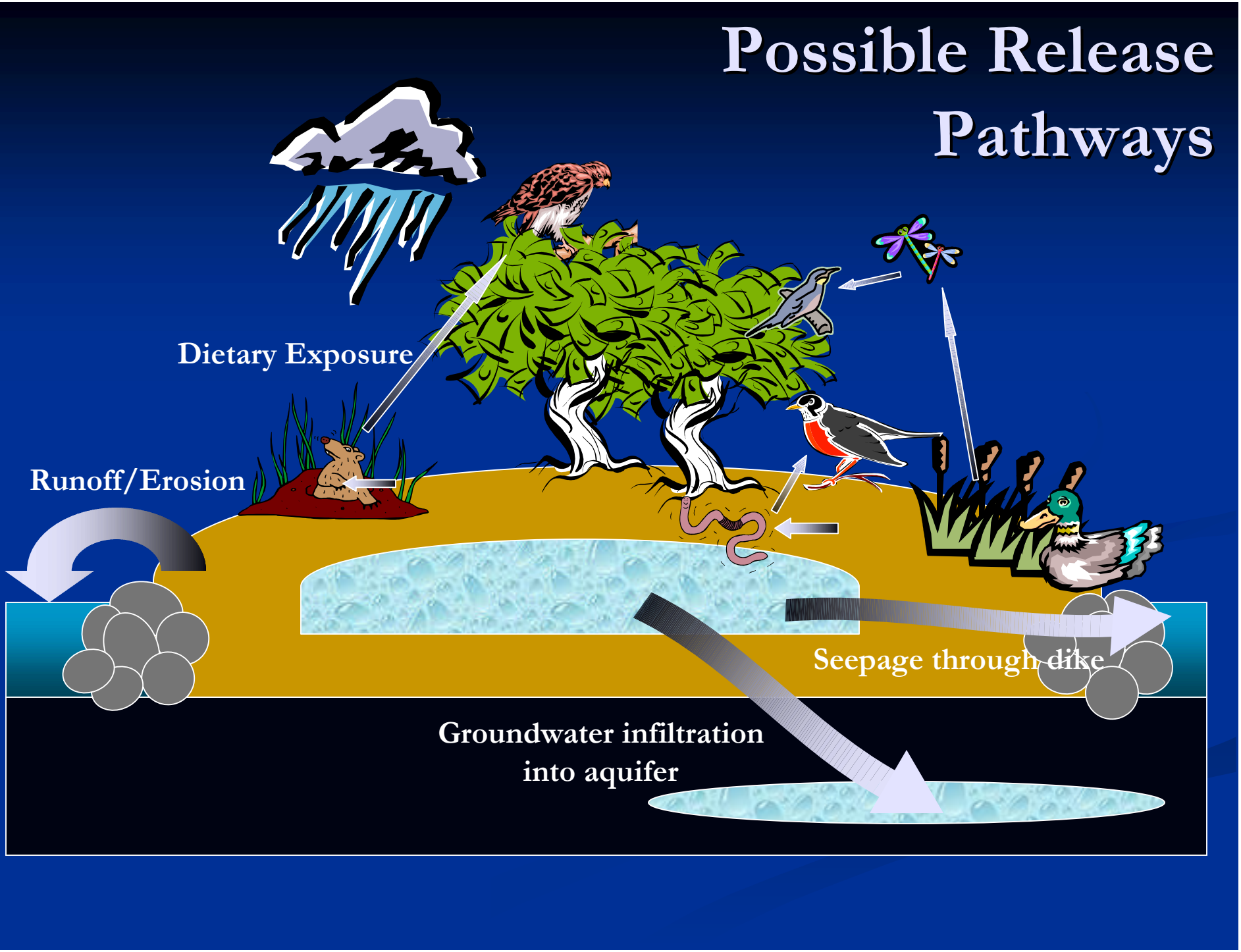
Potential Contaminants of Concern

- Contaminants in soil
  - Mean concentrations of many substances exceeded MI Background levels
  - No mean concentrations exceeded MI Direct Contact Criteria
  - Many mean concentrations exceeded Guidelines for Canadian residential areas/parks and/or EPA ecological soil screening values:
    - PCBs, PAHs, and some metals (including: Cd, Cr, Cu, Pb, Zn)

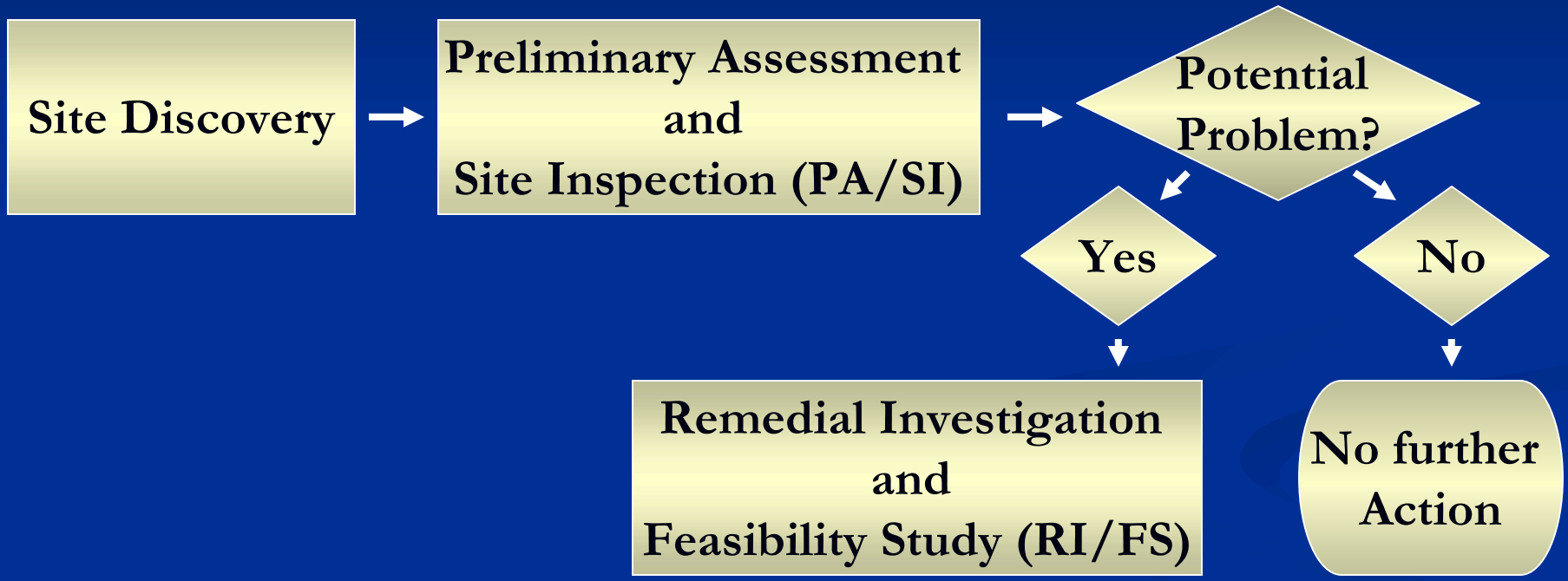
Potential Pathways of Release

- Release pathways include:
  - Direct contact with soil (burrowing animals)
  - Ingestion of soil (i.e. earthworms)
  - Food chain
  - Uptake into plants
  - Erosion
- Exposure to wildlife through food chain is the greatest uncertainty

Possible Release Pathways



Planning Process for Remediation and Restoration



- Recommendation is to conduct a Remedial Investigation/Feasibility Study (RI/FS)

Remedial Investigation/ Feasibility Study Overview

- Purpose of RI
  - Collect data necessary to assess the risks to the environment and human health
  - Support the development, evaluation, and selection of response alternatives
- Purpose of FS
  - Develop and evaluate remedial alternatives
  - Propose a preferred cleanup alternative
- Remedial alternative development coordinated with restoration planning

RI/FS Process

- Previous scientific studies address nature and extent of contamination
- Address scientific uncertainties
  - Physical integrity of dike walls
  - Are contaminants "leaking"? If so, to what extent?
  - What is the risk to wildlife currently, as well as under different management objectives?
- Define management goals for Grassy Island
  - Habitat types, species, compatible human uses

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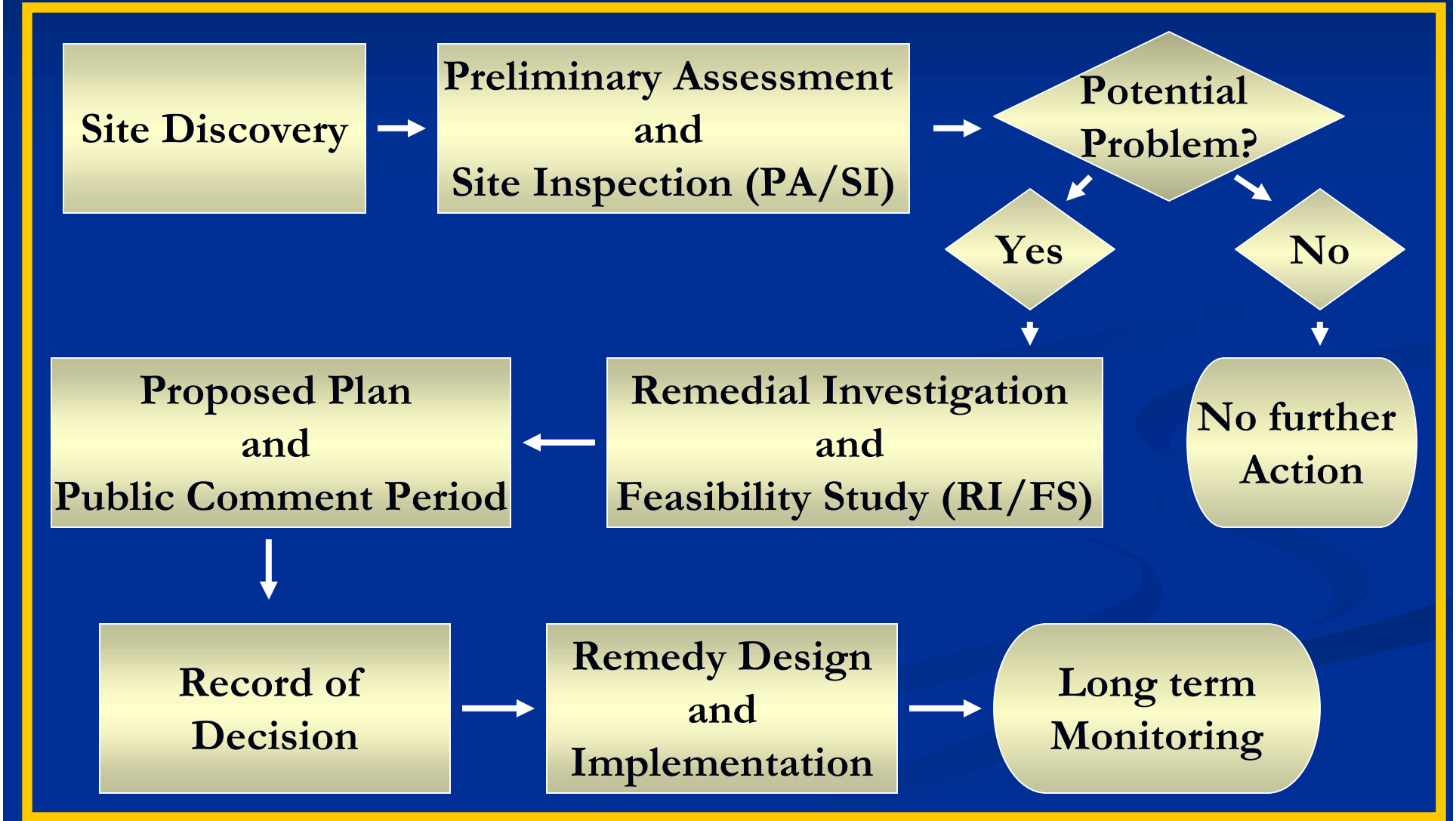

Planning Process for Remediation and Restoration

Proposed Plan and Public Comment Period

- Summarizes remediation alternatives evaluated
- Describes the preferred clean up strategy proposed
- Released for public comment

Planning Process for Remediation and Restoration

Record of Decision

- Selection of final remedy after public comments considered
- A legal public document

Planning Process for Remediation and Restoration

Remedy Design and Implementation

- Preparation of detailed engineering plans and specifications
- Construction activities
- Coordinated with restoration

Planning Process for Remediation and Restoration

Long term Monitoring

- After remedial activities have been completed, the site is monitored to ensure the effectiveness of the response

Community Involvement

- Occurs throughout the process to obtain information and provide input to decisions
- Activities involve:
  - Public Meetings
  - Easy Access to Documents
  - Community Interviews
  - Fact Sheets
  - Public Comment Periods and Response to Comments

Contact Information

- Documents available at:
  - Bacon Memorial Library
    45 Vinewood Ave.
    Wyandotte, MI 48192
  - http://midwest.fws.gov/grassyisland
- Project manager
  - Stephanie Millsap
    9311 Groh Rd
    Grosse Ile, MI 48138
    phone: 734-692-7628
    email: stephanie_millsap@fws.gov