Dec. 1st Grassy Island Forum – Next Steps

- Reach Agreement on Problem Definition and Collaboratively Scope Remaining Portion of Investigative Phase
- Citizens' Visioning Exercise
- RAP Pursue Funding for Grassy Island
- Organize Volunteer Biological Surveys
- Nominate Grassy Island as a Priority Under Great Lakes Regional Collaboration
- Convene Another Grassy Island Forum in Early March

FIRST DIRECTION, THEN VELOCITY!

Strategic Planning is Worthless
Unless There is First Strategic Vision

STRATEGIC VISION

A strategic vision is a clear image of what you want to achieve, which then organizes and instructs every step toward that goal. The extraordinarily successful strategic vision for NASA was "Put a man on the moon by the end of the decade." That strategic vision gave magnetic direction to the entire organization. Nobody had to be told or reminded of where the organization was going. Contrast that organizing focus with "We are going to be the world leader in space exploration," which doesn't organize anything.

STRATEGIC VISION - *Continued*

In a constantly changing world, strategic planning is not enough; it becomes planning for its own sake. Strategic planning must be completely geared to a strategic vision and must know exactly where it is going, with a clarity that remains in spite of the confusion natural to the first stages of change.

John Naisbitt, Megatrends

Fighting Island in 1993

Fighting Island in 2004

Grassy Island Today

Grassy Island: Tomorrow

?

Bruce Jones & David Howell

Interagency Issue Agreement

Signed by representatives from U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Geological Survey, & Michigan Department of Environmental Quality

"…work together to assure that Grassy Island is not having adverse impacts on the environment…"

"… a joint commitment to work toward the characterization of Grassy Island and is intended to demonstrate a spirit of cooperation and synergy between our agencies…"

U.S. Fish and Wildlife Service

Remedial Investigation and Feasibility Study Overview

Lisa Williams, PhD
East Lansing Field Office
U.S. Fish and Wildlife Service

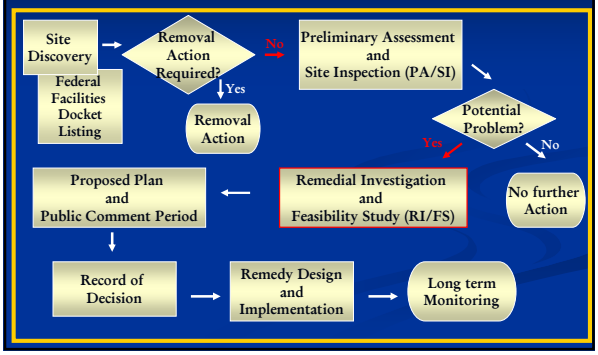
Remedial Investigation and Feasibility Study: Basis for an Informed Decision

- What contaminants are present?
- What form are they in and in what concentrations?
- Are they being released from the site?
- Are humans or other organisms being exposed now? In the future? How?
- If so, do the exposures pose a risk?
- If so, what *could* be done to reduce risk and protect human health and the environment?
- What *should* be done?

Regulations

- Federal laws provide authorities for remediation and define the process to be followed:
  - Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
  - Superfund Amendments and Reauthorization Act (SARA)
  - National Contingency Plan
  - Executive Order 12580
  - Federal Facility Compliance Act
- The process being used at Grassy is consistent with federal and Michigan laws

CERCLA Remediation Pathway



Remedial Process

- ✓ Submit information to EPA for their docket
- ✓ Conduct a preliminary assessment / site investigation
- ✓ Determine regulatory pathway (per National Contingency Plan requirements)
  - EPA deferred NPL listing and MDEQ will oversee further response actions
- ✓ Begin a remedial investigation/feasibility study (RI/FS) in consultation with MDEQ
- Complete RI/FS, Proposed Plan, ROD, remedy, monitoring

RI/FS Purpose

- 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 alternative

RI/FS Process

- The RI/FS process includes:
  - *Scoping
    - *Identify applicable or relevant and appropriate requirements (ARARs)
    - *Identify data needs
    - *Prepare work plans, sampling and analysis plan, etc
  - *Site Characterization
    - Field sampling and laboratory analyses
    - *Risk assessments
  - *Development and Screening of Alternatives
  - Detailed Evaluation of Alternatives with Selection of Preferred Alternative

*Recent progress

Basis for Selecting Remedial Alternative

- Protectiveness of human health and the environment
- Compliance with ARARs
- Long-term effectiveness and permanence
- Reduction of toxicity, volume or mobility through treatment
- Short-term effectiveness
- Implementability
- Cost
- State acceptance
- Community acceptance

Potential RI/FS Costs

- If contracting out most of the RI/FS, the cost estimate is $660,000 - $1.1 million for a contract to complete:
  - Project planning (SAP, HASP, QuAPP, CIP)
  - Additional investigative studies
  - Human health risk assessment
  - RI/FS reports
- Working with partners will greatly reduce these estimated costs

Contact Information

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

U.S. ARMY
CORPS OF ENGINEERS
DETROIT DISTRICT

ENVIRONMENTAL ANALYSIS BRANCH

PLANNING DIVISION

Environmental Analysis Branch

US Army Corps of Engineers
Detroit District

- **Summary of U.S. Army Corps of Engineers' ERDC Evaluation of Seepage and Surface Runoff from Grassy Island**

Environmental Analysis Branch

US Army Corps of Engineers
Detroit District

- **HELP MODEL**
  - **Hydrologic Evaluation of Landfill Performance**
  - **EPA model**
  - **Water balance model**

Environmental Analysis Branch

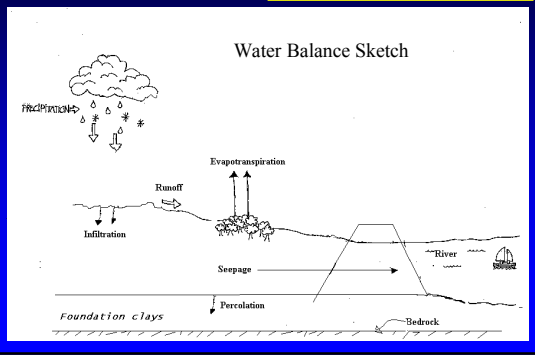
US Army Corps of Engineers
Detroit District

Water Balance - determine by calculating:

- Input
- Output
- Storage changes of water at ground surface

Environmental Analysis Branch

US Army Corps of Engineers
Detroit District



Environmental Analysis Branch

US Army Corps of Engineers
Detroit District

Equation for water balance:

Changes in soil storage of water =

- precipitation
- evapotranspiration
- runoff
- seepage
- percolation

Environmental Analysis Branch

US Army Corps of Engineers
Detroit District

SEEPAGE

- Interaction of local climate
- And soil conditions at the surface of the facility
- HELP can either simulate or use historical daily climatological data

Environmental Analysis Branch

US Army Corps of Engineers
Detroit District

OUTPUT PARAMETERS

HELP computes the following on a daily basis:

- Surface runoff
- Evapotranspiration
- infiltration

Environmental Analysis Branch

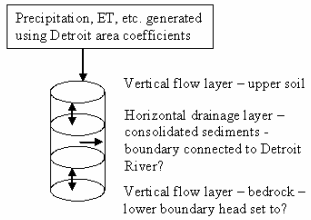
US Army Corps of Engineers
Detroit District

TWO DIMENSIONAL MODEL

- Divides the vertical soil profile into sub-profiles
  - Computes the drainage values for each subprofile
- Models seepage thru dikes
  - Using a lateral drainage layer in which flow is both vertical and horizontal

Environmental Analysis Branch

US Army Corps of Engineers
Detroit District



Environmental Analysis Branch

US Army Corps of Engineers
Detroit District

RESULTS OF MODEL

- Average annual precipitation = 30.12 inches
- Annual average seepage thru the dikes = 0.0016 cfs
- Annual average runoff flow = 0.02 cfs

Environmental Analysis Branch

US Army Corps of Engineers
Detroit District

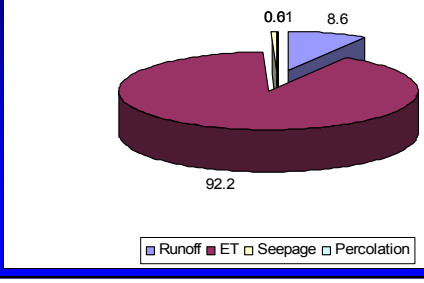
Predicted distribution as follows:

- Evapotranspiraton = 92.2 %
- Runoff = 8.6 %
- Seepage thru dikes = 0.61 %

Environmental Analysis Branch

US Army Corps of Engineers
Detroit District

WATER BALANCE FIGURE



Environmental Analysis Branch

US Army Corps of Engineers
Detroit District

CONCLUSION OF HELP MODEL

•Dike seepage is predicted to be low

Environmental Analysis Branch

US Army Corps of Engineers
Detroit District

DIKE INSPECTION

•USACOE-Detroit District assisting FWS

•Follow checklist in O&M Manual

•Addresses site inspection of dikes, dike interior, weir structure and general conditions at the site

U.S. Fish and Wildlife Service

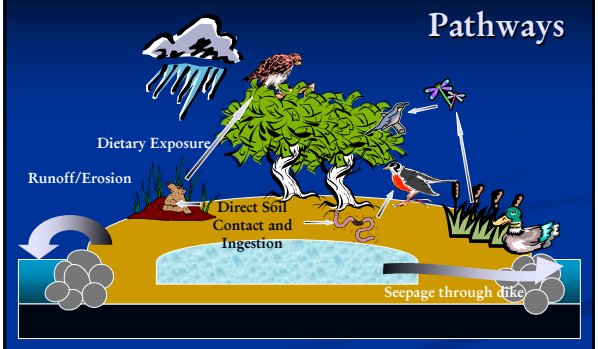
Investigation of Release Pathways

Stephanie Millsap, PhD
Detroit River Sub-Office
U.S. Fish and Wildlife Service

Release Pathways

- A mechanism for transport of a substance from the source to the air, surface water, groundwater and/or soil
  - HELP model report helped to focus data needs for surface and groundwater pathways

Possible Release Pathways



Movement of Water Off-Site

- Michigan environmental laws require that contaminant concentrations be below certain criteria
  - Part 201: soil and groundwater
  - Rule 57: surface water
- Michigan law also require actual site data
  - HELP model illustrates likely release pathways
  - Made progress in identifying how to collect necessary data

Surface Water Runoff Investigation

- During rainfall events, collect samples of water being released through the weir
  - Analyze for a list of contaminants
  - Compare results regulatory criteria
  - Use data in the human health and ecological risk assessments
- Study will be conducted by the USGS
  - DOI agency cost-savings (12.5%)
  - Designing details of the study

Dike Wall Seepage Investigation

- Seepage is extremely difficult to measure
  - The site is no longer an active facility
  - Dike walls built of clay (low permeability)
  - Estimates indicate low volume of seepage
- Weight of evidence approach
  - Determine integrity of the dike walls
  - Continue working with agency scientists and engineers to design specific studies

Water Release Pathway Investigation Schedule

- Surface water runoff
  - Finish scoping activities – Winter/Spring 2006
  - Begin data collection – Spring/Summer 2006
  - Complete study – Winter 2006/2007
- Dike wall seepage
  - Finish scoping activities – Summer 2006
  - Begin data collection as determined by agency scientists and engineers

Grassy Island Health Consultation Overview

Presented by: Joseph Walczak, MDEQ
For: Christina Bush, MDCH

March 9, 2006

MDCH Department of Community Health

ATSDR AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

Overview

- ATSDR and MDCH roles
- ATSDR Health Consultation process
- Grassy Island Health Consultation

Who is ATSDR?

- ATSDR is the Agency for Toxic Substances and Disease Registry
- They are a federal public health agency and are part of the Public Health Service in the U.S. Dept. of Health and Human Services
- ATSDR is not a regulatory agency

Who is ATSDR? (cont.)

- Created by Superfund legislation in 1980 with a mission to prevent exposure and adverse human health effects and diminished quality of life from exposure to hazardous substances from hazardous waste sites and hazardous waste releases

MDCH's Role

- MDCH performs Health Consultations through a cooperative agreement with the ATSDR
- Health Consultations performed by the MDCH are reviewed and approved by the ATSDR

ATSDR Health Consultation Process

- Provides advice on specific public health issues related to real or possible human exposure to toxic material
- Evaluates information available about toxic material at the site, determines whether people might be exposed to it, and reports what harm exposure might cause
- Provides recommendations to prevent further exposure or identifies the need for additional information.

Parts of a Health Consultation

- Evaluation of Environmental Data
- Evaluation of Exposure Pathways
- Chemical exposure relative to potential human health effects
- Community Concerns (includes anecdotal information).
- Other dangers (unsafe physical hazards)
- Conclusions, Recommendation, & Public Health Action Plan.

Sources of Information for Grassy Island HC

- Site Visit
- Existing Data
  - Environmental Chemical Data
    - Soil, water, air, biota
  - Health outcome data
- Community knowledge
- Health concerns of community

Environmental Media and Exposure Routes

- Soil - ingestion, dermal, inhalation
- Water - ingestion, dermal, inhalation
- Air - inhalation
- Sediment – ingestion, dermal
- Fish - ingestion

Association of Chemical Exposure with Health Impacts

- Complete exposure pathways
- Extent and duration of exposure
- Health effect has biologically plausible association with known toxicity of chemical
- Level of exposure is consistent with dose known to cause health effects

Health Consultation Outcomes for Grassy Island

- Conclusions about the public health hazard
- Recommendations and Plan to protect the public's health
  - Actions to prevent a completed exposure pathway
  - Advisories
  - Additional sampling/monitoring
  - Additional ATSDR activities
  - Community environmental health education

Contact Information

- MDCH: Christina Bush, MS
  Telephone: 517-335-9717
  Fax: 517-335-9775
  e-mail: bushcr@michigan.gov
- MDEQ: Keith Krawczyk
  Telephone: 517-335-4103
  Fax: 517-335-4887
  e-mail: krawczyk@michigan.gov

U.S. Fish and Wildlife Service

Ecological Risk Assessment

Stephanie Millsap, PhD
Detroit River Sub-Office
U.S. Fish and Wildlife Service

What is an Ecological Risk Assessement (ERA)?

... the process that evaluates the likelihood that adverse ecological effects may occur or are occurring as a result of exposure to one or more stressors (EPA, 1998)

- Investigation into actual or potential impacts of contaminants from the Grassy Island site on plants and animals
  - Humans or domesticated species are not evaluated

Types of ERAs

- Screening Level – A general indication of the potential for ecological risk
  - Estimates likelihood of ecological risk
  - Identifies need for site-specific data collection
  - Focuses site-specific ecological risk assessments
- Baseline – More Refined, more site-specific
  - Identify and characterize the current and potential threats to the environment
  - Evaluate ecological impacts of alternative remediation strategies
  - Establish cleanup levels

Screening Level ERA Components

- Identify fate and transport mechanisms
- Identify likely ecological receptors
- Identify assessment and measurement endpoints
- Select benchmarks/screening criteria
  - Ecologically-based
- Compare contaminant concentrations to benchmarks/screening criteria
- Baseline Problem Formulation

Assessment & Measurement Endpoints

- Assessment endpoints – explicit expressions of the actual environmental value that is to be protected
- Measurement endpoints – a measurable ecological characteristic that is related to the assessment endpoint

Endpoint Example

Assessment Endpoint:

We want to protect the birds on Grassy Island

We need to know:

Are contaminant concentrations great enough to impair survival, growth, or reproduction of birds on Grassy Island

Measure Exposure:

Use site-specific soil and water data

Assess Effects:

Compare data to benchmarks (screening level)

Use data to estimate dietary exposure and compare to exposures known to be toxic to birds (baseline)

Risks will be evaluated for plants, invertebrates, reptiles, mammals, and birds

ERA Schedule

- Finish Screening Level ERA
  - Expected draft completion date: Fall 2006
  - Must be reviewed and accepted by MDEQ (finalized Winter 2006)
- Begin Baseline ERA
  - Expected to begin Winter 2006/7
  - Will incorporate results from biological surveys and other investigative studies
  - If existing data is insufficient, limited sampling in Spring 2007

Bruce Jones – IWR Alliance

Charlie Bristol – FDR RAP

GREAT LAKES REGIONAL COLLABORATION

- Cooperative effort to design and implement a strategy for the restoration, protection and sustainable use of the Great Lakes (http://www.glrc.us/)
- Collaboration of the federal Great Lakes Interagency Task Force, the Council of Great Lakes Governors, the Great Lakes Cities Initiative, Great Lakes tribes and the Great Lakes Congressional Task Force (1500 people)
- Strategy document released in December 2005
- Interagency Task Force is drafting a Work Plan for FY 2006/2007.
- The Service nominated Grassy Island for inclusion as an action item in the Work Plan.
- Work Plan to be reviewed and committed to by the ITF in next few weeks.

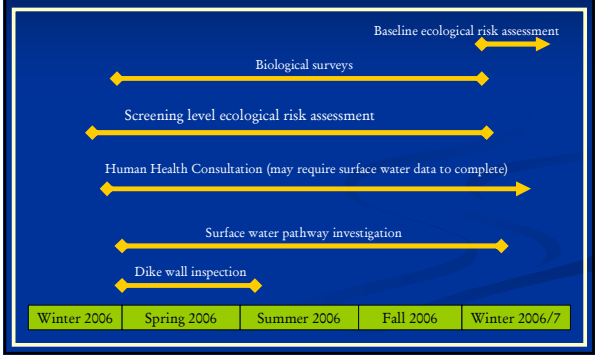
Summary

- Significant progress has been made on all action items from the last Forum
  - Citizen's vision for a future Grassy Island
  - Interagency agreement on issue
  - Scoping RI/FS
  - Scheduling biological surveys of the island
  - RAP involvement
  - Great Lakes Regional Collaboration
- Significant work necessary for informed decision-making will occur this year

Studies to be initiated in 2006

- Inspect dike walls, develop maintenance plan
- Analyze surface water runoff
- Determine data needs to assess potential dike wall seepage
- Conduct human health consultation
- Complete 4 biological surveys (birds, plants, mussels, reptiles/amphibians)
- Complete screening level ecological risk assessment
- Begin baseline ecological risk assessment

Initial Timeline: Investigations



Reporting Results

- Results from various studies will be used to write the entire Remedial Investigation and Feasibility Study Report
  - Next Forum will likely be approximately a year from now to review the results from studies and where we are relative to finishing the RI/FS phase of the remedial process
- Email availability of reports
- Updates during your group's meetings
- Access to reports online and at repository

Contact Information

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