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February 2014

Detroit River

International Wildlife Refuge Grassy Island Update



Grassy Island was the first facility in the Great Lakes to be used to confine sediments. This aerial photograph shows the access routes that were cleared for the geotechnical investigation and groundwater monitoring. USFWS

Grassy Island is a 72-acre island in the Detroit River that was used from 1961 to 1982 to contain contaminated sediments dredge primarily from the Rouge River. Approximately three million cubic yards of contaminated sediment were disposed on Grassy Island. In 1961, Grassy Island became part of the National Wildlife Refuge System and is now part of the Detroit River International Wildlife Refuge. The U.S. Fish and Wildlife Service (Service), as owner of the island, has been working with federal and state agencies, and interested nongovernmental organizations, to investigate the nature and extent of contamination on Grassy Island and identify a remedy that would meet federal and state regulatory requirements, and meet the Service's responsibilities for protection of trust resources.

Since 2004, federal and state agencies, and other organizations have collaborated to share information and cooperatively complete necessary investigations relative to Grassy Island. The most recent interagency roundtable discussion was held in November 2013. The purpose of this Grassy Island Update is to help keep interested individuals and organizations informed of progress.

Status

Grassy Island is considered a "federal facility" under the Federal Facilities Act, requiring cleanup and containment. Regulatory oversight rests with the Michigan Department of Environmental Quality. The presumed remedy for Grassy Island is containment of contaminants, including a cap. Currently, Grassy Island has a concave shape, like a bathtub, that retains water and promotes infiltration. Agency partners are collaborating on investigations to better understand the severity and geographic extent of contamination, the potential for contaminant movement

into the Detroit River, and potential ways and means of controlling these contaminants and minimizing risk to human and ecological health. Placing a cap on the island would change the shape of the island to convex to promote runoff and better control infiltration and ponding.

Since 2004, the U.S. FWS has received approximately \$3.5 million to: coordinate remedial activities with state and federal regulatory agencies; perform sediment characterization; undertake a preliminary assessment and site inspection; perform a baseline



Movement of equipment to Grassy Island to perform monitoring and geotechnical investigations. Photo courtesy of Bayshore Contractors

ecological risk assessment; conduct groundwater monitoring; complete geotechnical work related dike integrity and stability, and contaminant pathways and movement; and develop conceptual design alternatives for possible remedies. It should be noted that this is the minimum, necessary, sufficient, and feasible approach to completing the investigative phase. The work plan for this phase was developed by experts from the Bureau of Reclamation, with input from the Service, Michigan Department of Environmental Quality, U.S. Geological Survey and the U.S. Army Corps of Engineers. Additional background information is available at: www.fws.gov/refuge/detroit_river/refuge_units/grassy_island_reports.html

Investigation Update

The Bureau of Reclamation and Bayshore Contractors completed the field work for a major geotechnical investigation for the Service in the fall of 2010. Detailed data analysis from that investigation has greatly improved our understanding of the permeability and stability of the material contained within Grassy Island, as well as the dike walls. However, the data collected indicated that the river bottom east of Grassy Island was not well-characterized. Additional sampling will be necessary in that area to have an adequate understanding of the long-term stability of the dikes on that side of Grassy Island. Groundwater monitoring wells were installed during the work in 2010 and data are now being collected periodically to determine how groundwater moves within and to the edges of the island.

In 2014, the Service will be working with the Bureau of Reclamation to complete the additional geotechnical sampling and finalize that investigation. This will describe the potential for contaminant movement through groundwater, current dike stability and integrity, and where and how dikes will need to be enhanced to ensure proper containment of contaminants and to potentially support a cap. The Service will also continue performing groundwater monitoring.

Next Steps in the Process

The Service will also be working with the Bureau of Reclamation and other partners to develop and evaluate conceptual design alternatives for the presumed remedy of a cap, including the possibility of “beneficial use of dredged material” where clean dredged sediments could be placed on Grassy Island as part of a cap. The Service plans to complete this work and describe conceptual design alternatives to the public in the spring of 2015.

For more information, please contact John Hartig, Refuge Manager (734.692.7608; john_hartig@fws.gov) or Scott Hicks, Supervisor of East Lansing Field Office (517.351.6274; scott_hicks@fws.gov).

What is a Geotechnical Investigation?

- Studies performed by geotechnical engineers or engineering geologists
- Gather data on the physical properties of soil and rock at a site
- Necessary to design and repair earthworks
- Includes a surface and subsurface exploration of a site
- Involves soil sampling and laboratory tests of the soil samples retrieved

Objectives of the Grassy Island Geotechnical Investigation

- Determine the characteristics of the dredge materials and outer and inner dikes
- Assess the current stability of the dikes and their ability to support a cap
- Evaluate the potential for settlement if a cap were to be placed on the dredged fill
- Establish a groundwater level monitoring network to evaluate groundwater conditions