

Great Lakes Districts

Lower Lake Michigan/Indiana RSM

Sediment Budget and Data Sharing

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10 August 2011

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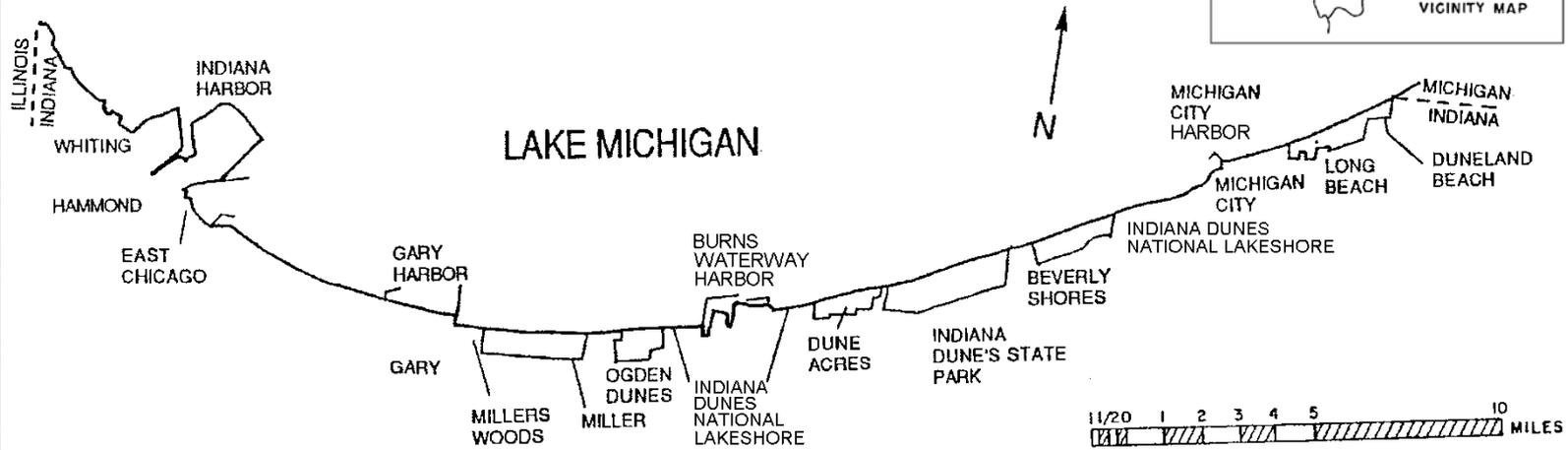
US Army Corps of Engineers
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Lower Lake Michigan/Indiana

- **Lead:** David F. Bucaro, P.E. LRC-PM-PL-F
- **Budget:** \$115,000
- **Purpose:** Digitize current and historical shoreline data, make data available online, develop a regional sediment budget, coordinate data needs among agencies.
- **Potential Users:** USACE, National Park Service, Indiana DNR, Indiana Geological Survey, local communities



Lower Lake Michigan/Indiana



Lower Lake Michigan/Indiana

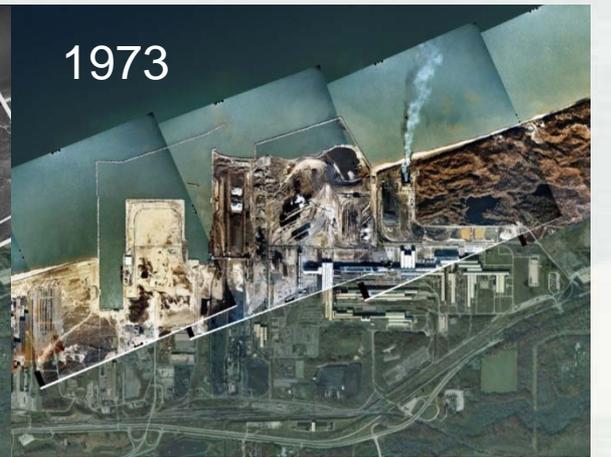
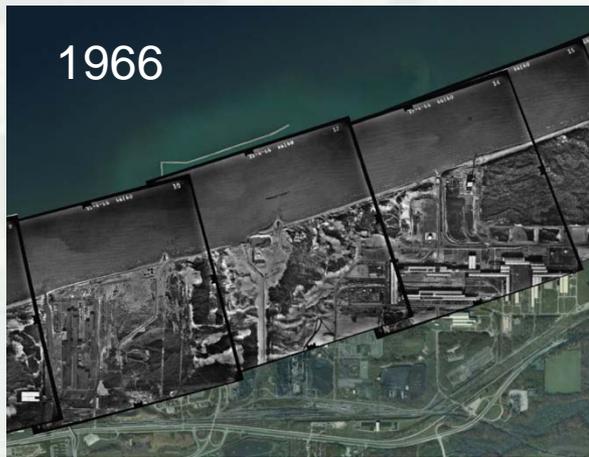
- Need:
 - ▶ Regional littoral processes have been altered by shore protection and navigation structures.
 - ▶ Several agencies use, maintain and have jurisdiction along the shoreline.
 - USACE, NPS, IDNR, local communities
 - Studies have focused on an individual Federal channel or particular reach instead of the system.
 - ▶ Monitoring data for the entire shoreline has not been consistently collected and archived.
 - In particular, the reach around Burns Harbor has required significant maintenance but is not consistently monitored.



Lower Lake Michigan/Indiana

- Work Completed
 - ▶ Historical aerial photographs digitized and georeferenced for 3 dates:
 - 1966 (prior to construction of Burns Harbor)
 - 1969 (after major construction completed)
 - 1973 (interim shoreline impacts of structures)
 - ▶ Cross-shore profiles digitized and georeferenced:
 - 1978-1985
 - ▶ Regional Sediment Budget in development
 - ▶ eCoastal Online database framework developed





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- Challenges:
 - ▶ Historical aerial photographs readily available, however collecting additional data such as cross-shore profiles more difficult. Data sharing with other agencies has been crucial.
- Next Steps:
 - ▶ Publish digitized data in online database via eCoastal
 - ▶ Complete regional sediment budget
 - ▶ Coordinate data collection plans with regional agencies



Great Lakes Districts

Saginaw River/Harbor RSM

Reducing dredging costs with sediment traps

Dr. Jim Selegan, P.E., P.H.

Hydraulic Engineer

Detroit District

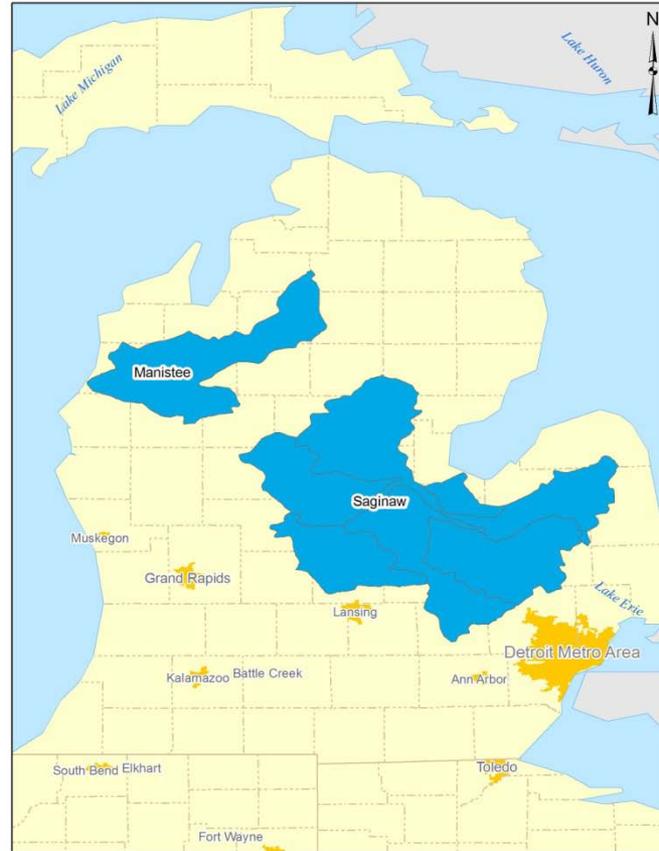
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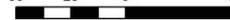
Saginaw River/Harbor Project Location



Legend

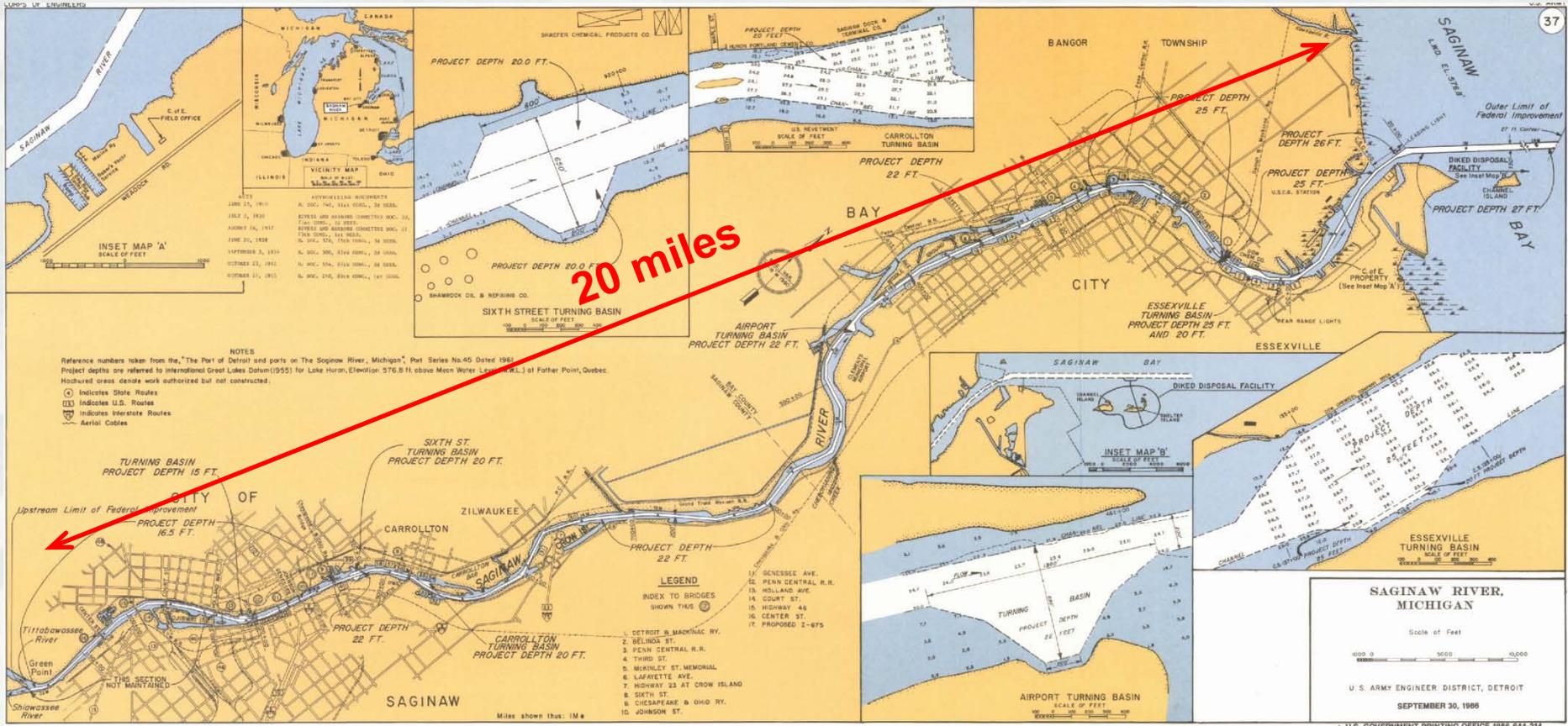
 Watershed

50 25 0 50 Miles



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Federal Navigation Channel



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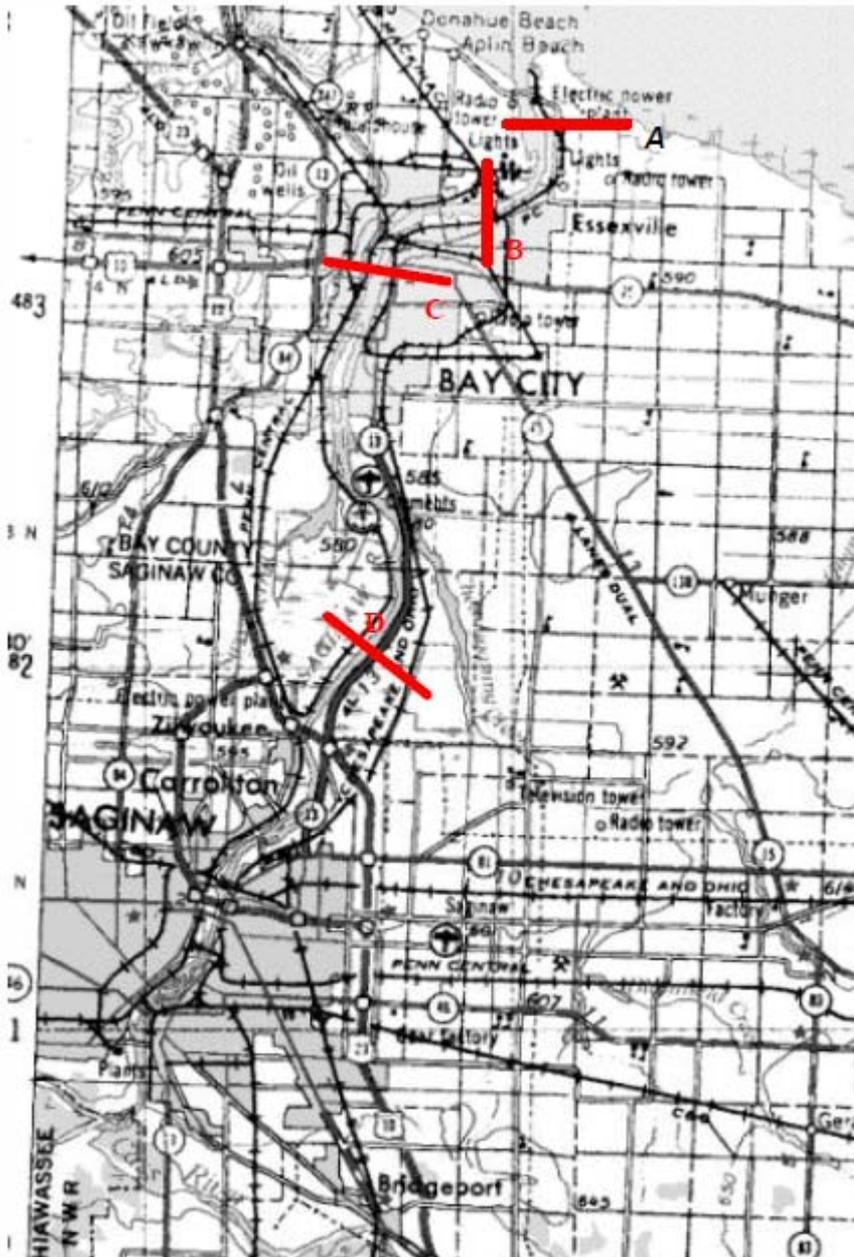
Saginaw River Background

- 6,000 square mile watershed
- Flows into Saginaw Bay
- Mostly agricultural landuse
- Large fraction of watershed is sand/silt
- **275,000 cu. Yards dredged each year by the Corps at a cost of \$1.1M**
- Sediment sources: mostly agricultural runoff



Factors Affecting Sediment Trap Siting

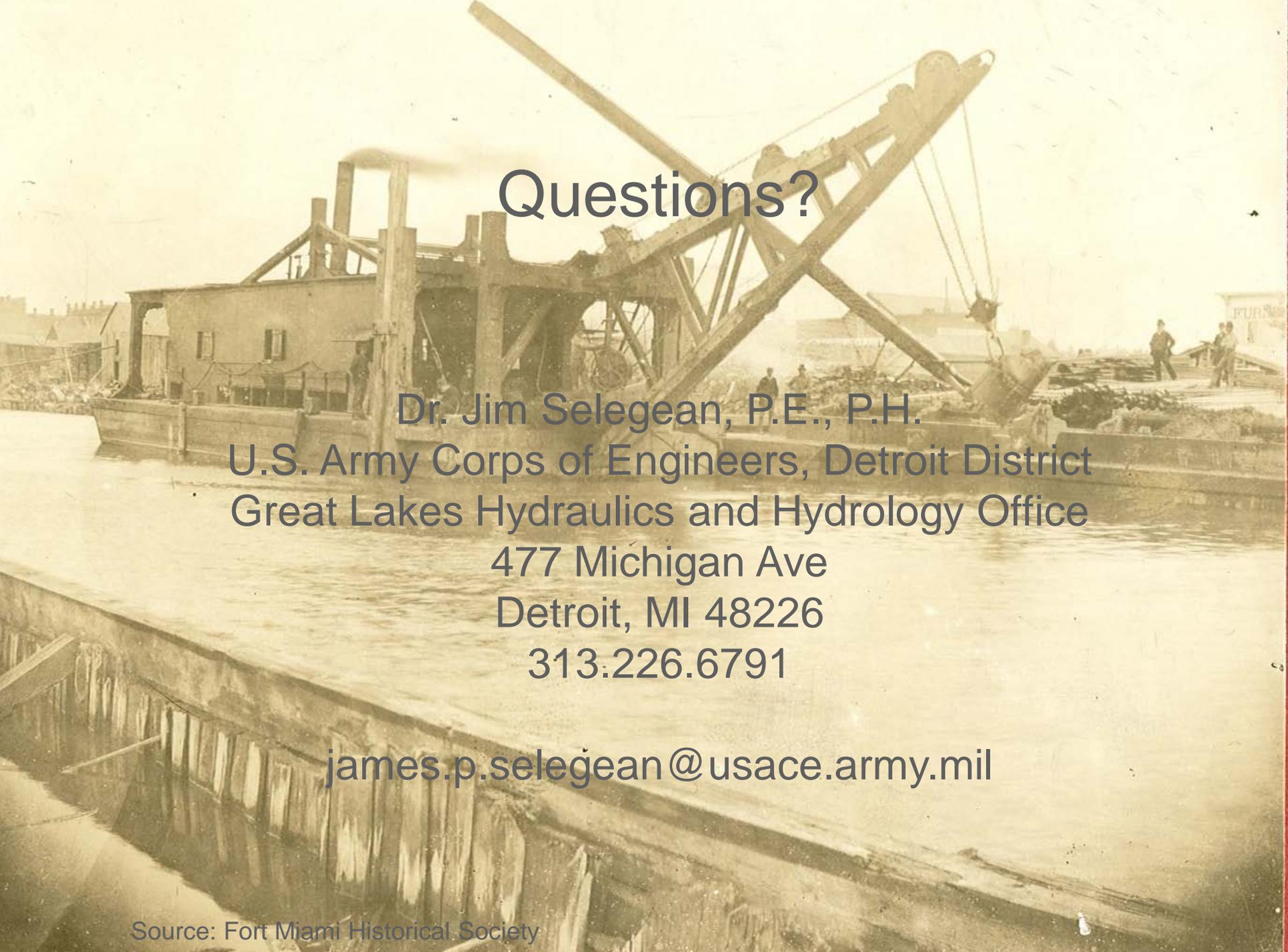
- Turning basins
- Ease of maintenance
- Disposal location
- Real estate issues
- Contaminants



Results

- Study to be complete in September
- Apply sediment transport model to assess efficiency of fluvial sediment traps
- Perform economic life cycle analysis





Questions?

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