The Grand Calumet River Area of Concern Program: An Introduction

Citizens Advisory for the Remediation of the Environment (CARE)

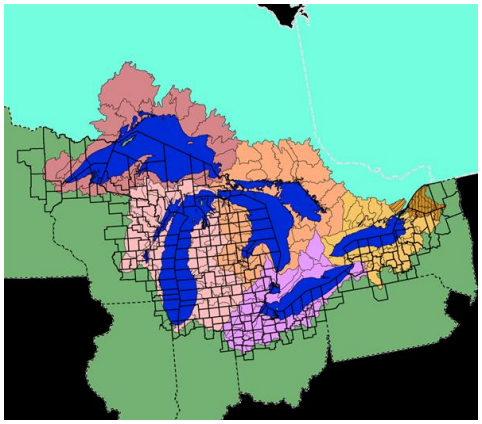
Public Learning Session

June 19, 2018

What is this "Area of Concern"?

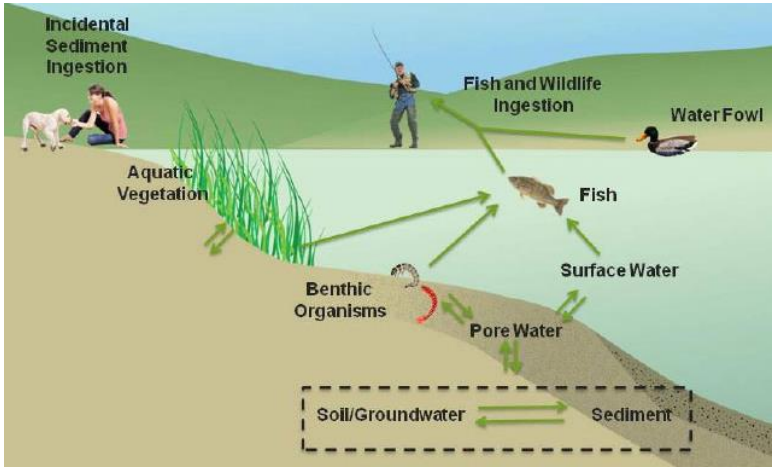
Great Lakes Water Quality Agreement

- The agreement, signed by the United States and Canada in 1972, recognized that:
  - The Great Lakes are vital to the social and economic well-being of both countries.
  - Both countries needed to cooperate to protect this binational resource.
  - Intense use and modification by people had resulted in lakewide problems.
- In addition, some areas were particularly impacted by human-caused contamination.
  - The agreement was updated in 1987 to address these "Areas of Concern."
  - These areas had the potential to damage the Great Lakes as a whole.



Areas of Concern Program

- The United States and Canada have identified 43 Great Lakes "Areas of Concern" (AOCs).
- Focuses on contaminated lakes, rivers, and harbors with a direct connection to the Great Lakes.
- Takes an ecosystem approach to addressing legacy (historical) contamination.
- Restoring these areas will improve the Great Lakes as a whole.

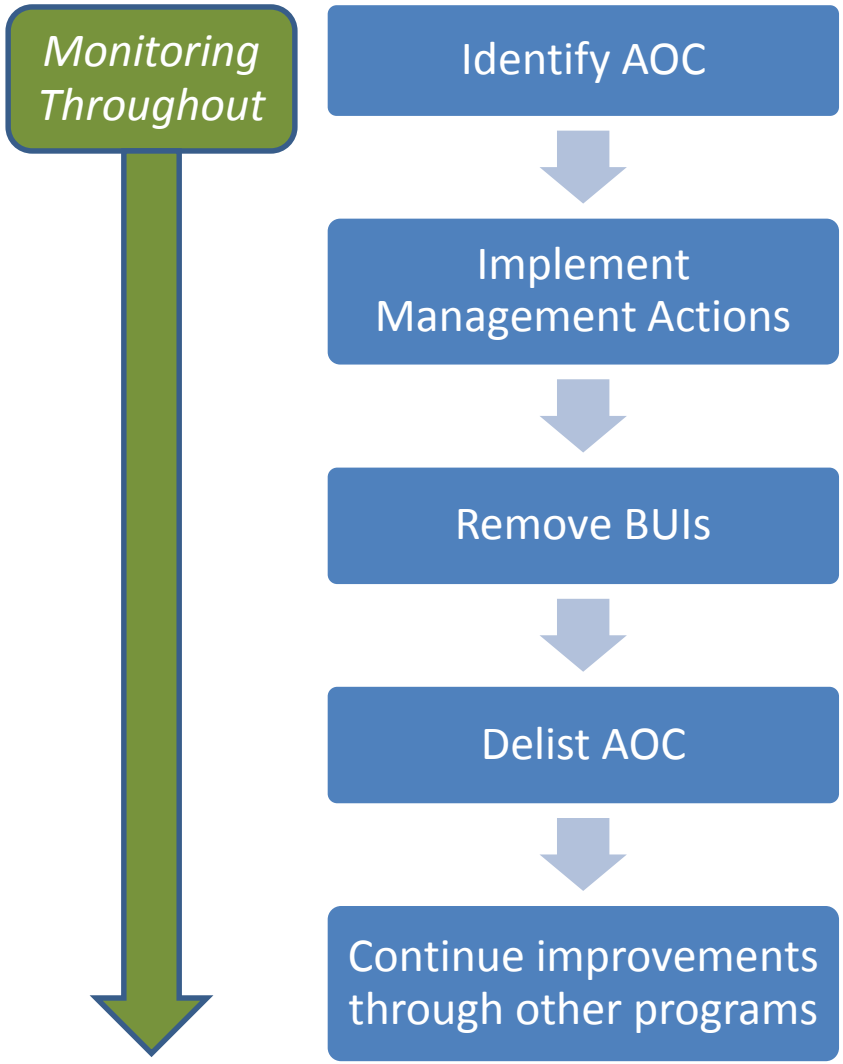


Beneficial Use Impairments (BUIs)

- Within AOCs, human-caused damage to the physical, chemical, or biological integrity of the watershed has occurred.
- This typically occurs due to legacy sediment contamination.
- This damage shows up as one or more "Beneficial Use Impairments" (BUIs).
  - Generally restrictions on business, municipal, or recreational activities that may be conducted.
- The presence of BUIs shows that basic ecosystem services are compromised.

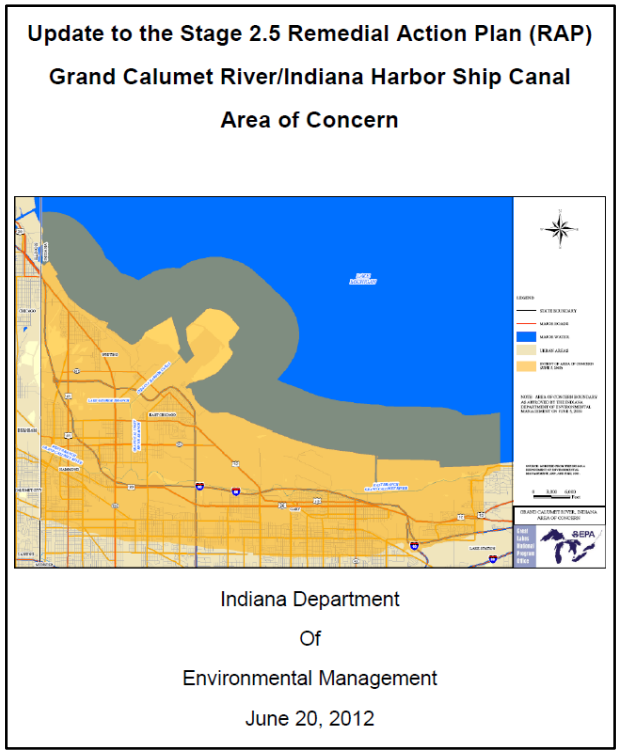
How Are AOCs Restored?

- Cooperative process involving federal, state, and local entities in the United States and Canada.
- Once an AOC is listed, a process starts to understand and restore damaged or impaired ecosystem services:
  - Identify which BUIs apply.
  - Develop a Remedial Action Plan (RAP), a blueprint for removing the applicable BUIs.
  - Conduct those actions or projects expected to remove the BUIs.
  - Monitor the ecosystem to gauge progress toward BUI removal.
  - Demonstrate that the BUIs no longer exist.
- Once all BUIs are removed, the area can be delisted (removed from the list of AOCs).
- Monitoring the ecosystem happens throughout the process.



Remedial Action Plan (RAP)

- Document required of all AOCs to guide the restoration and eventual delisting.
- Produced in multiple stages to describe:
  1) The environmental problems which required listing the AOC.
  2) The plan for addressing the environmental problems.
  3) The evidence that the environmental problems have been addressed and the AOC may be delisted.


Update to the Stage 2.5 Remedial Action Plan (RAP)

Grand Calumet River/Indiana Harbor Ship Canal

Area of Concern

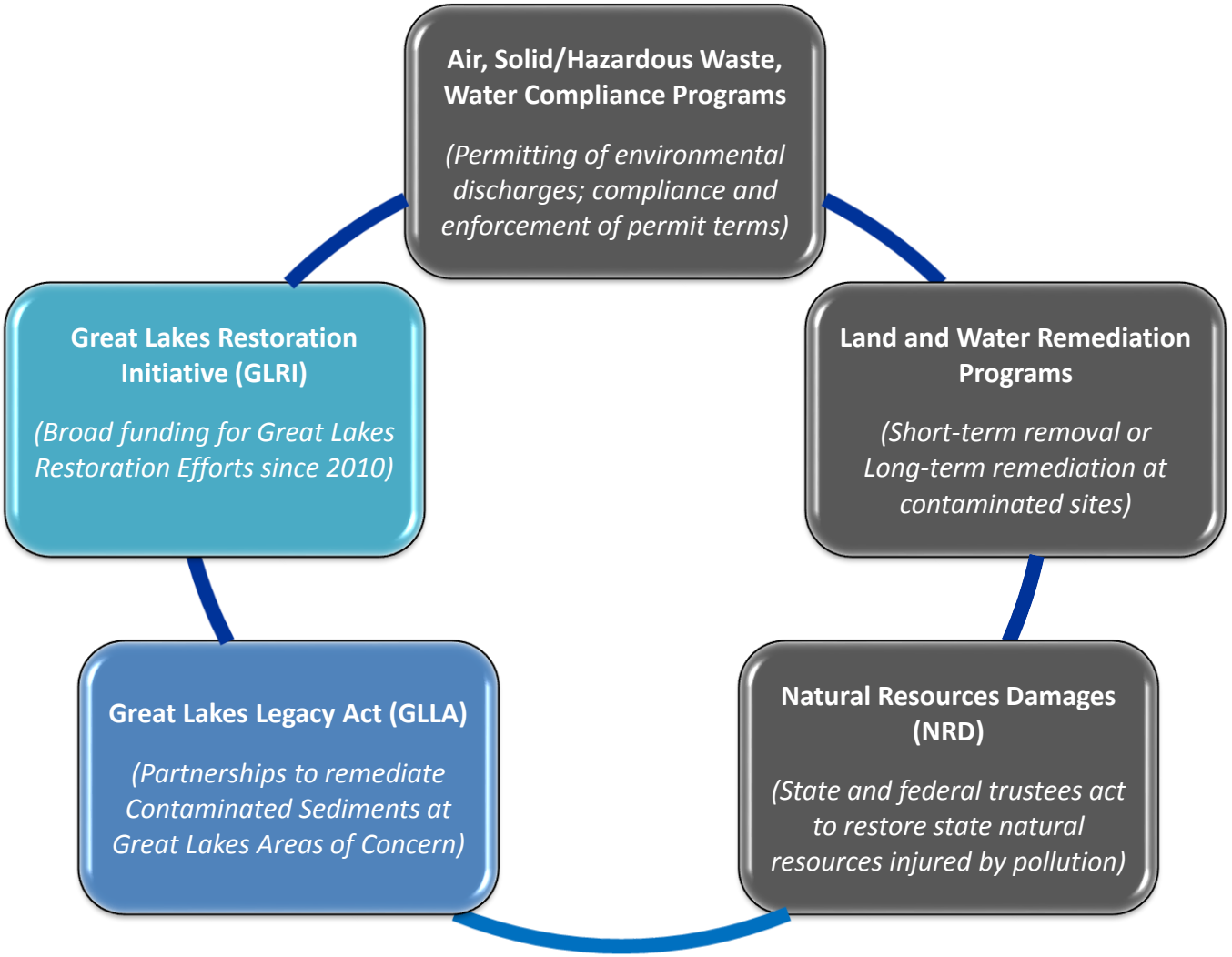
Indiana Department

Of

Environmental Management

June 20, 2012

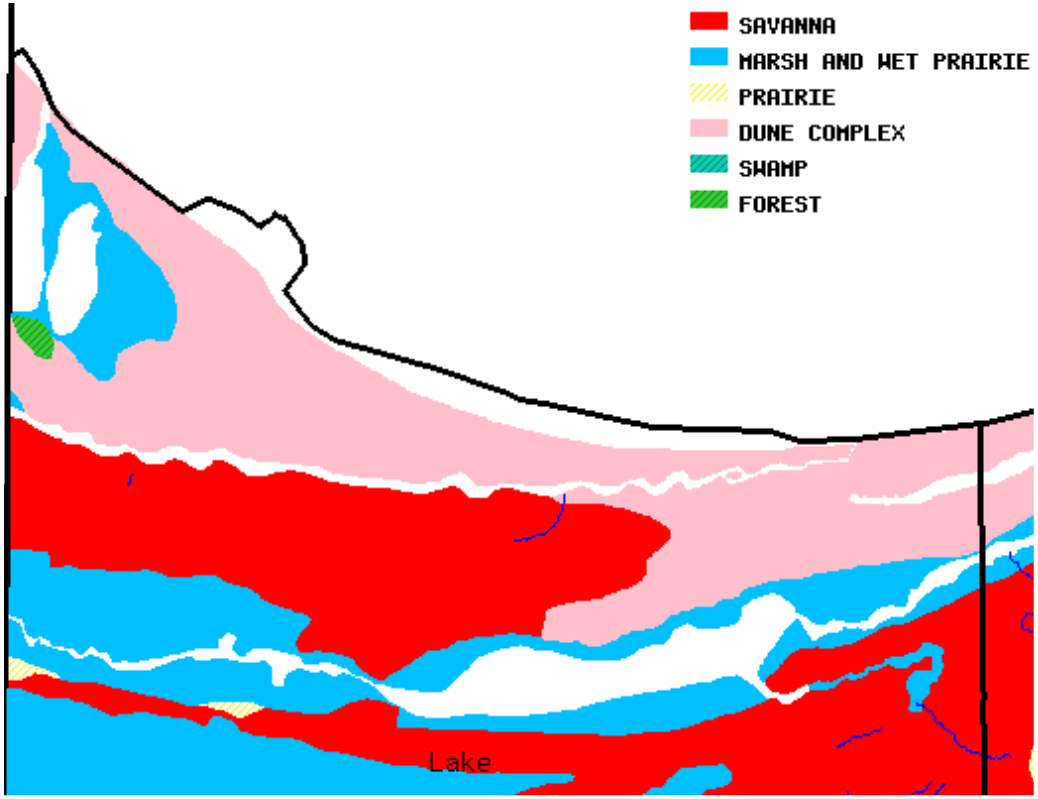
Environmental Programs Work Together In and Out of AOCs



Grand Calumet River / Indiana Harbor Ship Canal Area Of Concern

The Pre-industrial Calumet Region

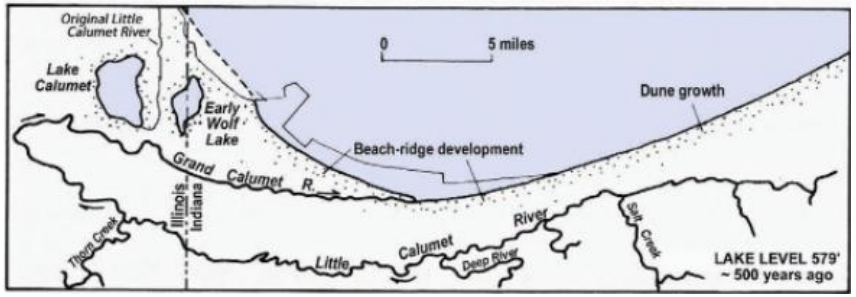
- Northern Lake County in the 1830s was mostly made up of the following land types:
  - Dunes
  - Savannas
  - Swamps
  - Marshes
  - Prairies
- The ecosystems of northern Lake County were developed as Lake Michigan retreated over thousands of years.



Source: Morton Arboretum

The Canal Age Shaped the Rivers

- The original Calumet River system followed depressions (swales) left over from ancient Lake Michigan shorelines.



Source: Shoon (2016)

- Canals for shipping and wastewater management (and other construction projects) during the 19th and early 20th centuries extensively modified the Grand Calumet River.

Source: Chicago Line Cruises

Industry Brought Jobs and Wealth

- In the 20th century, heavy industry flocked to Lake County, Indiana:
  - Meat packing
  - Steel
  - Petrochemicals
  - Sand mining
  - Cement
- Industry brought jobs, urbanization, and wealth to Northwest Indiana
  - US Steel's Gary Works Facility alone employed over 30,000 people at its peak in 1970

THE LAKE COUNTY TIMES

BIRD'S EYE VIEW OF MAGIC GARY

STEEL CITY SLOWLY RISING OUT OF SAND DUNES

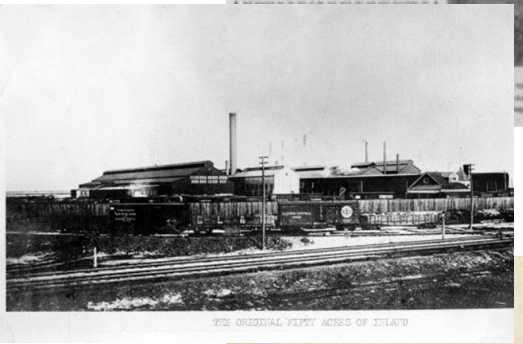
Gigantic plant fortified against sightseers except they come through dense woods to the West.

Position naturally impregnable on North, East and South.

PUBLIC FORBIDDEN TO CROSS CALUMET RIVER

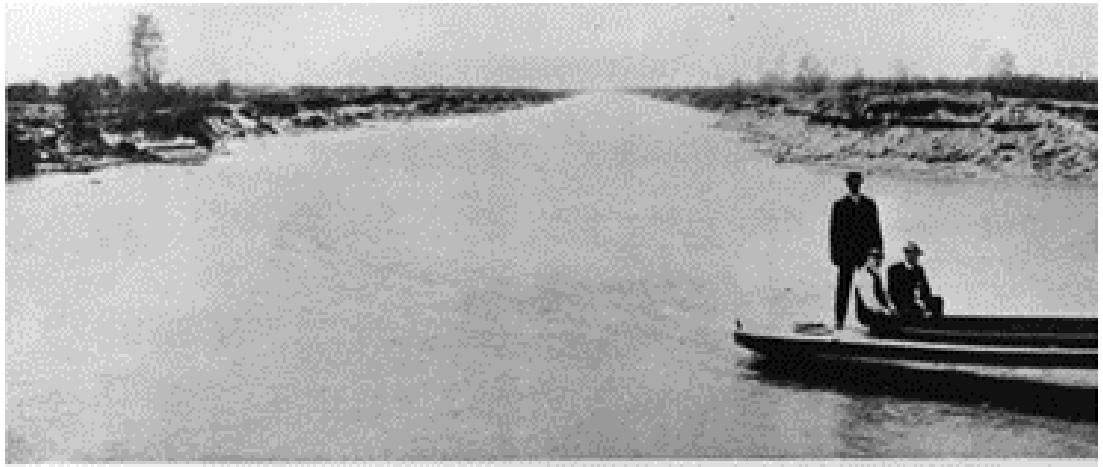
NEW PLANT OF THE STEEL COMPANY

JUDGE E. H. GARY,



And Reshaped the Landscape

Line of South Branch before Excavation. (Photo taken June, 1909.)



South Branch viewed from Junction with Main Canal and West Branch. (Same view as above, taken May, 1910.)
This photograph shows Collector of Customs Sternberg in his launch.

1938

Today

Results of Human Activity

Native ecosystems supported at least 18 natural communities;
Calumet river system flows in hairpin turn, exiting near Marquette Park;
Dune and swale ecosystem covers over 16,000 acres in Indiana

Harbors, canals, river channelization

River flow reversal; Loss of riverine wetlands; Disconnection between river and other ecosystems

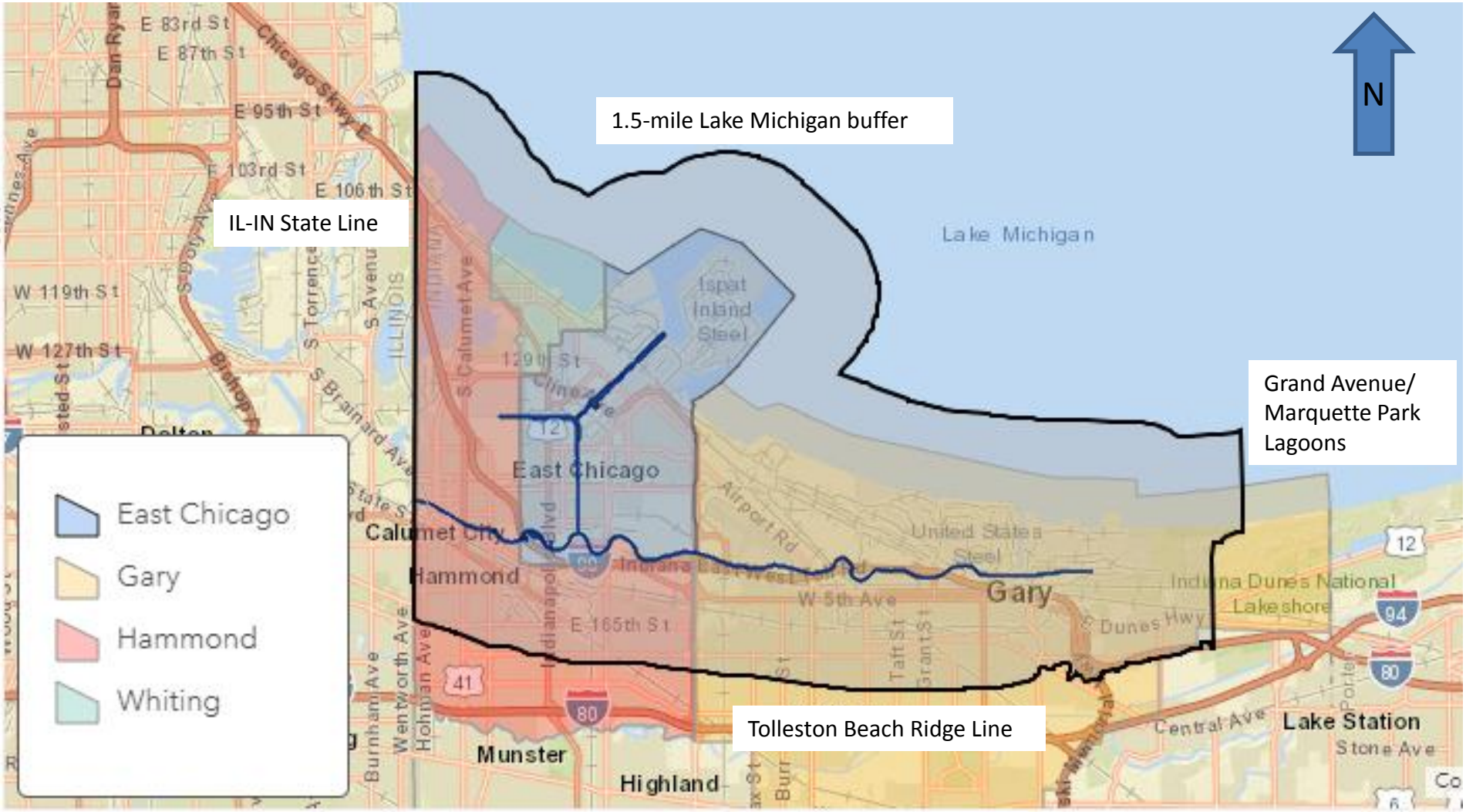
Urbanization, Habitat Destruction, Invasive Species

Loss of habitat functionality & native species; Decreased storm water management

Legacy air, land, and wastewater pollution

Contaminated water, soil, & sediment; Loss of native species; 90% of the flow comes from wastewater/ storm water; fish and wildlife consumption advisories

Grand Calumet River AOC Map



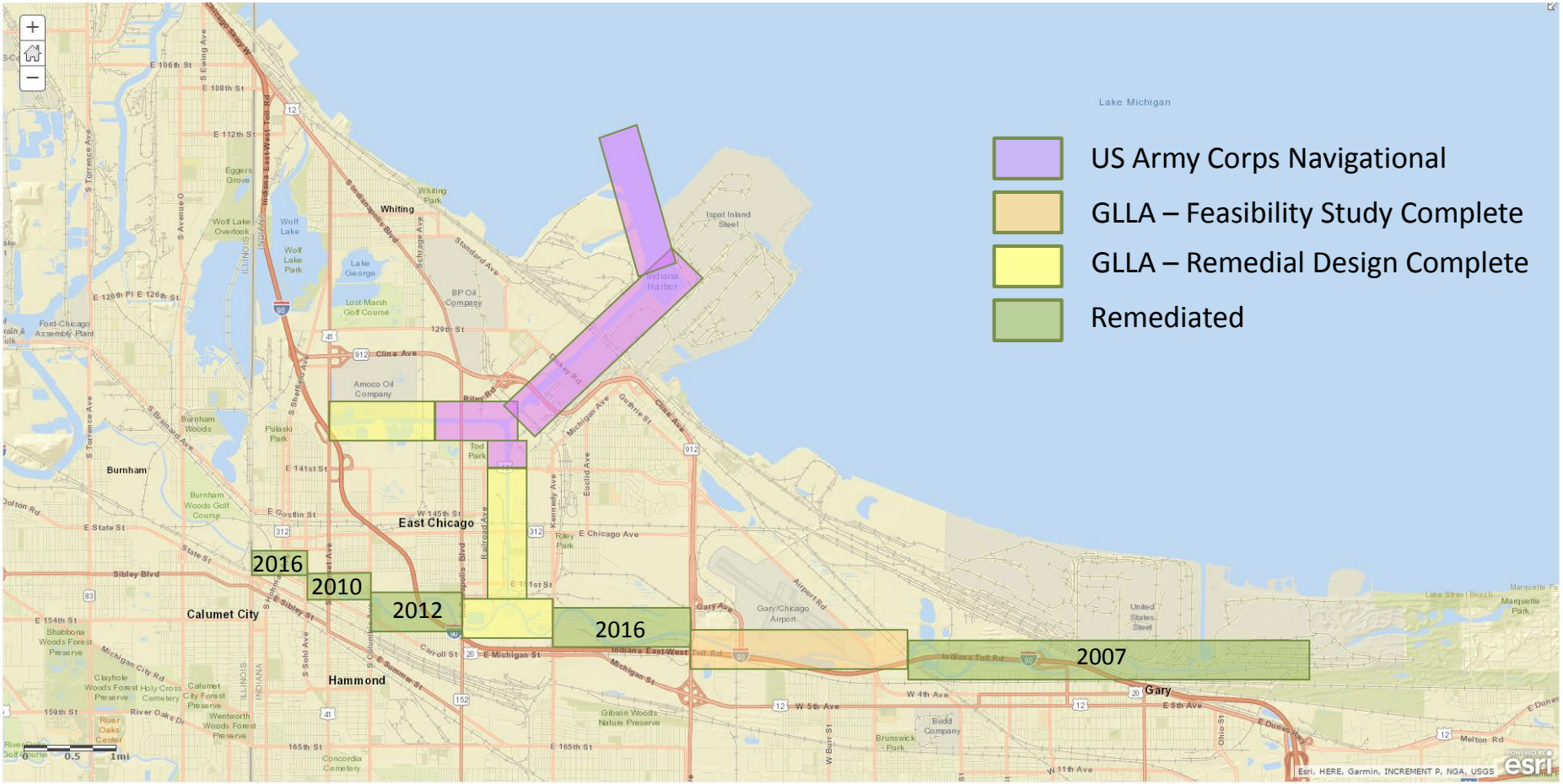
CARE Committee

- Former IDEM Commissioner Kathy Prosser formed the Citizens Advisory for the Remediation of the Environment (CARE) in 1990 to advise IDEM on the Remedial Action Plan for delisting the AOC.
- Consists of various stakeholders:
  - Citizens
  - Municipalities
  - Environmental Organizations
  - Industry
- Affiliated federal, state, and local agencies also participate.

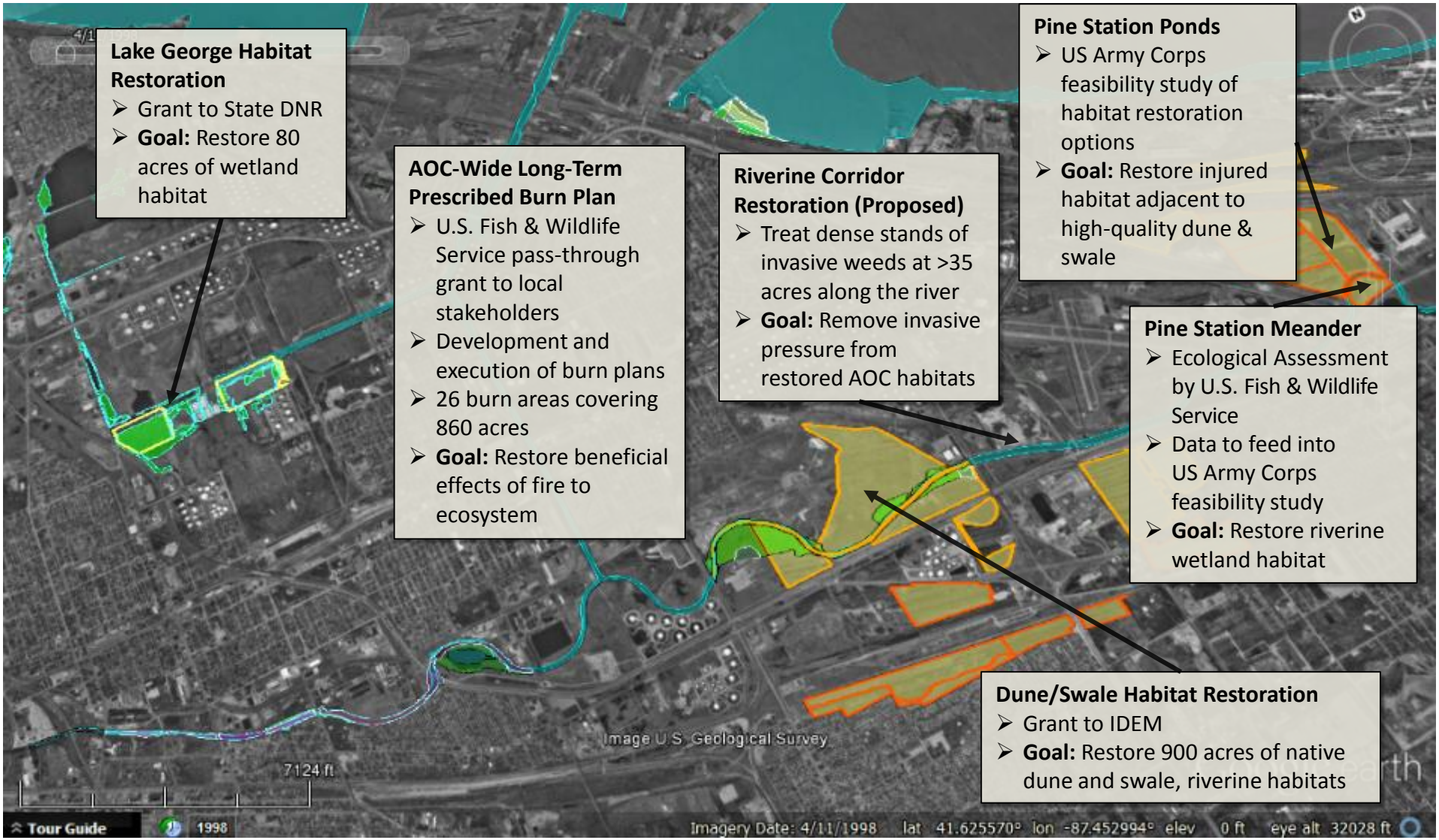
C A R E
Citizens Advisory for the Remediation of the Environment

What Is Being Done to Remove the Beneficial Use Impairments?

Contaminated Sediment Management



Habitat Management



Lake George Habitat Restoration
- Grant to State DNR
- **Goal:** Restore 80 acres of wetland habitat

AOC-Wide Long-Term Prescribed Burn Plan
- U.S. Fish & Wildlife Service pass-through grant to local stakeholders
- Development and execution of burn plans
- 26 burn areas covering 860 acres
- **Goal:** Restore beneficial effects of fire to ecosystem

Riverine Corridor Restoration (Proposed)
- Treat dense stands of invasive weeds at >35 acres along the river
- **Goal:** Remove invasive pressure from restored AOC habitats

Pine Station Ponds
- US Army Corps feasibility study of habitat restoration options
- **Goal:** Restore injured habitat adjacent to high-quality dune & swale

Pine Station Meander
- Ecological Assessment by U.S. Fish & Wildlife Service
- Data to feed into US Army Corps feasibility study
- **Goal:** Restore riverine wetland habitat

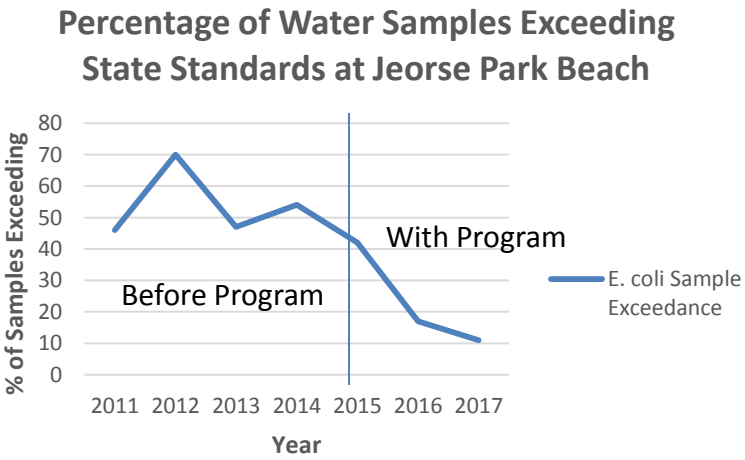
Dune/Swale Habitat Restoration
- Grant to IDEM
- **Goal:** Restore 900 acres of native dune and swale, riverine habitats

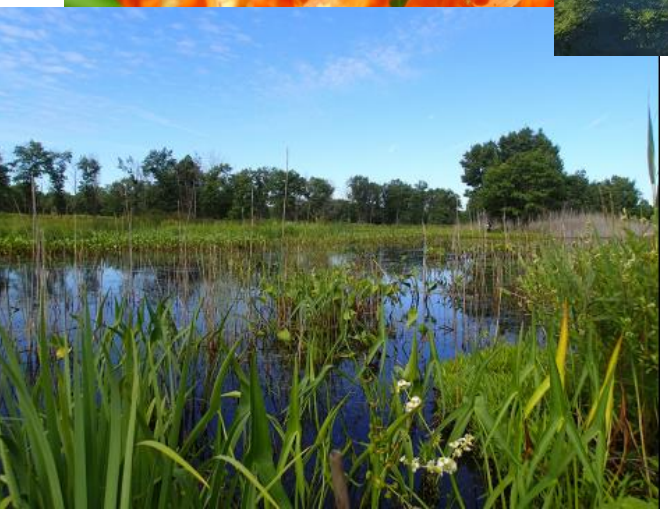
Why is Habitat Being Restored?

- Very little riverine wetland habitat remains to restore in the Grand Calumet River.
- Dune and swale is a globally rare habitat type that evolved together with the river.
- Experts from the United States and Canada, when reviewing Indiana's draft RAP, requested this habitat restoration component be included.

Nearshore Bird Management Program

- Studies indicate gull droppings contribute to beach advisories and closures at several AOC beaches.
- IDEM has provided funding to Wild Goose Chase, Inc. to patrol and deter nuisance shorebirds at selected AOC beaches (without harming the birds).





What Work Remains to Remove the Beneficial Use Impairments?

Remaining Sediment Work

- Address PCB contamination “hot spots” in the federal navigation channel and complete dredging
- Address contaminated sediment in areas outside the federal navigation channel:
  - Lake George Branch
  - Indiana Harbor Canal, south of Columbus Drive
  - Grand Calumet River, between Indianapolis Boulevard and Kennedy Avenue
  - “East Branch Phase 2” (Grand Calumet River, Cline Avenue to second railroad bridge east of Buchanan Street)

Other Remaining Work

- Complete habitat management actions (by 2020)
- Develop management actions for remaining BUIs (by 2020)
- Complete all management actions (by 2022)
- Monitor for BUI removal and eventual delisting

Getting Involved

- Plant natives, not invasives.
- Refrain from littering.
- Don’t feed birds at the beach.
- Visit and learn about nature preserves within the AOC.
- Learn more about the AOC Program:
  - IDEM Website
  - Public Events/Learning Sessions

Questions?

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