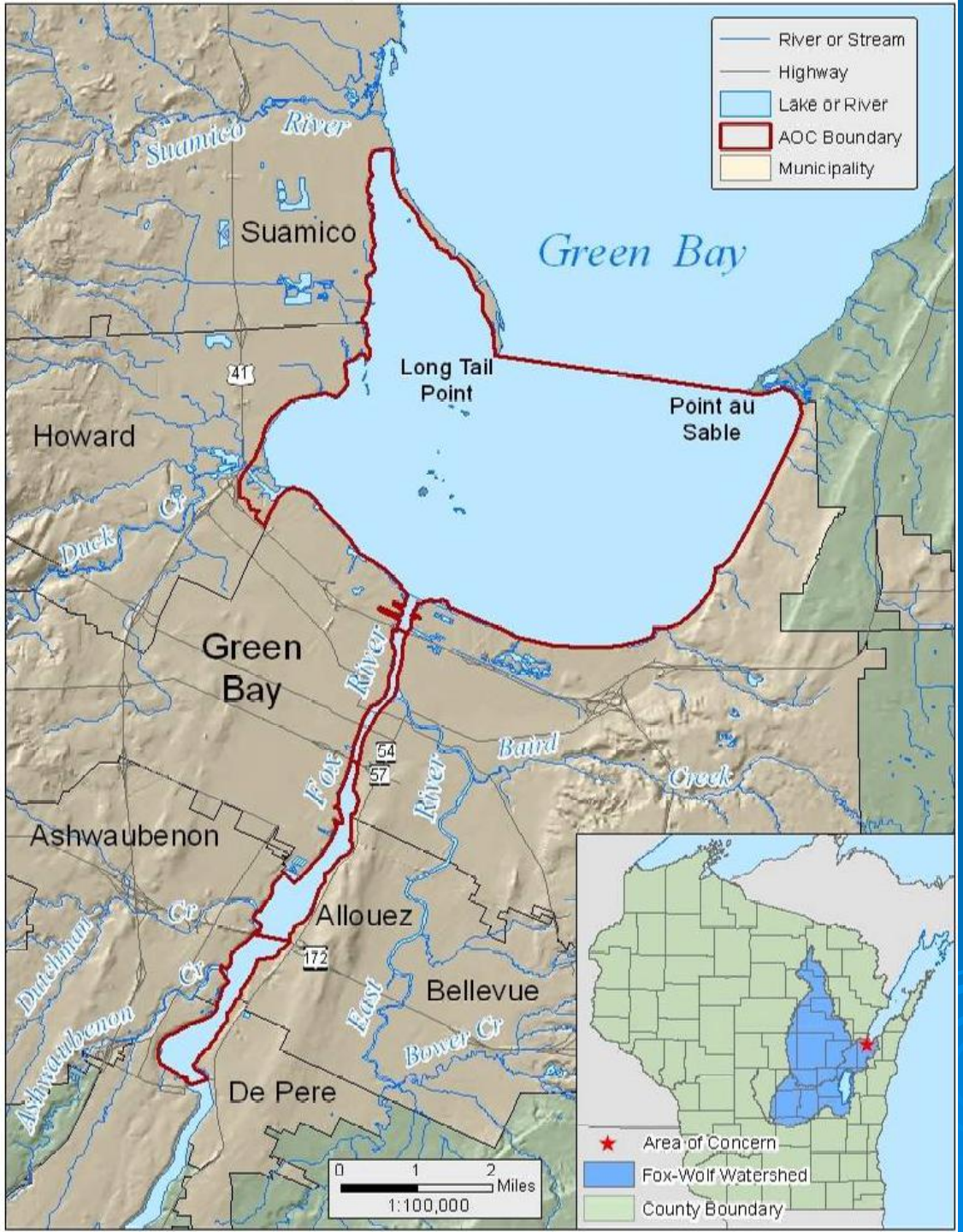
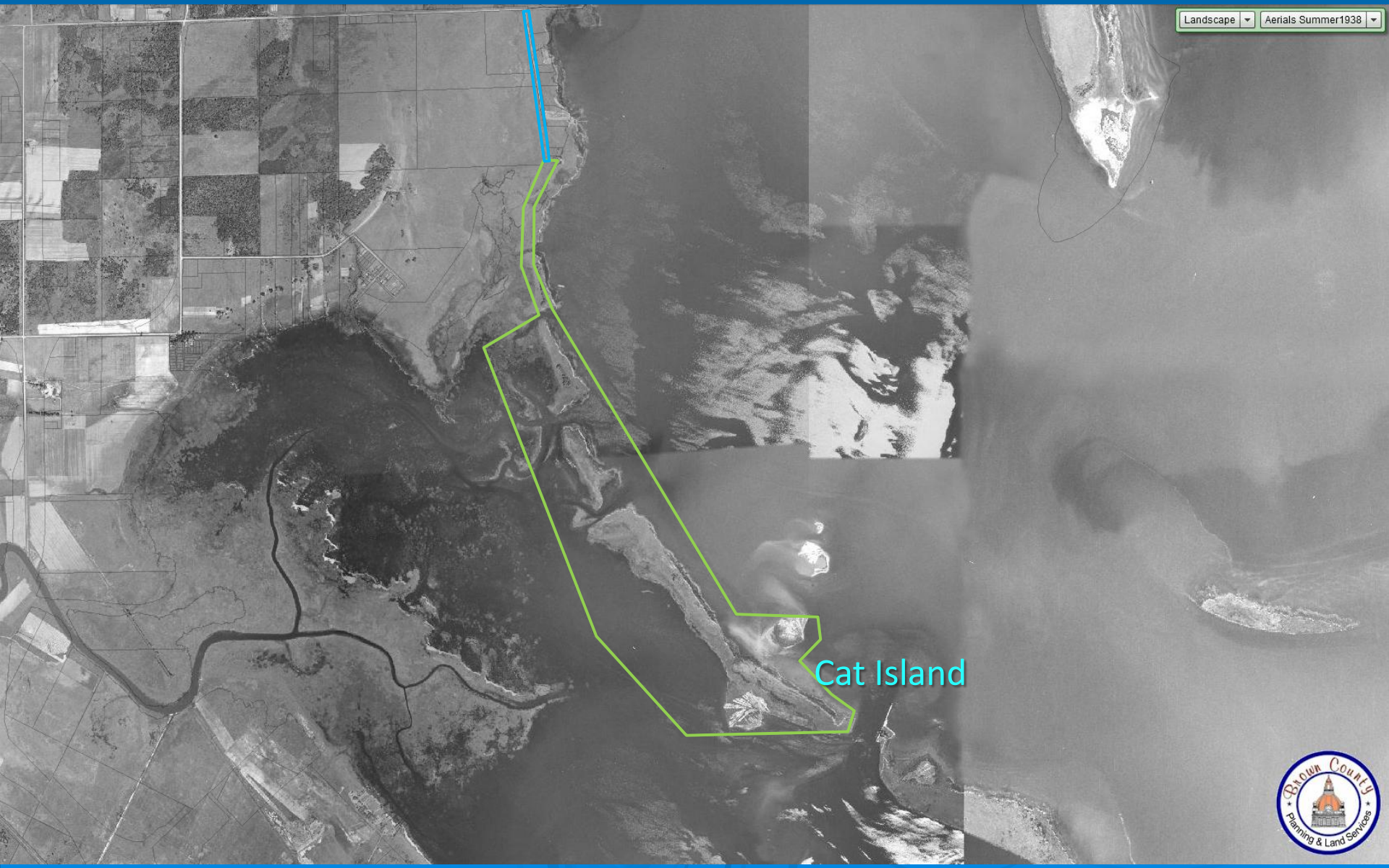
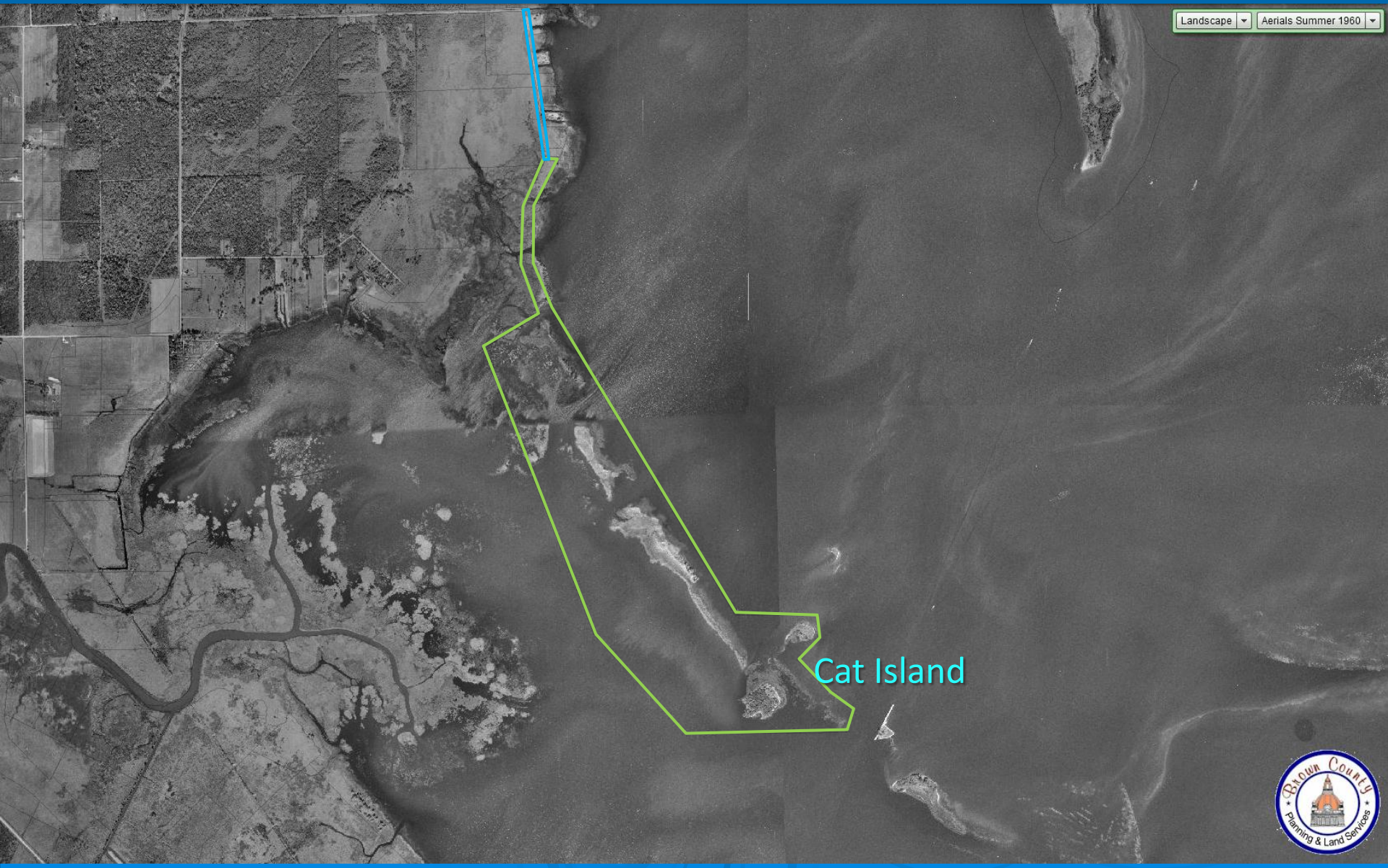

River or Stream
Highway
Lake or River
AOC Boundary
Municipality
Suamico River
Suamico
Green Bay
Long Tail Point
Point au Sable
41
Howard
Duck Cr
Green Bay
Fox River
54
57
Baird Creek
Ashwaubenon
Ashwaubenon Cr
Alouez
172
Bellevue
East Bower Cr
Ashwaubenon Cr
De Pere
0 1 2 Miles
1:100,000
Area of Concern
Fox-Wolf Watershed
County Boundary

1938

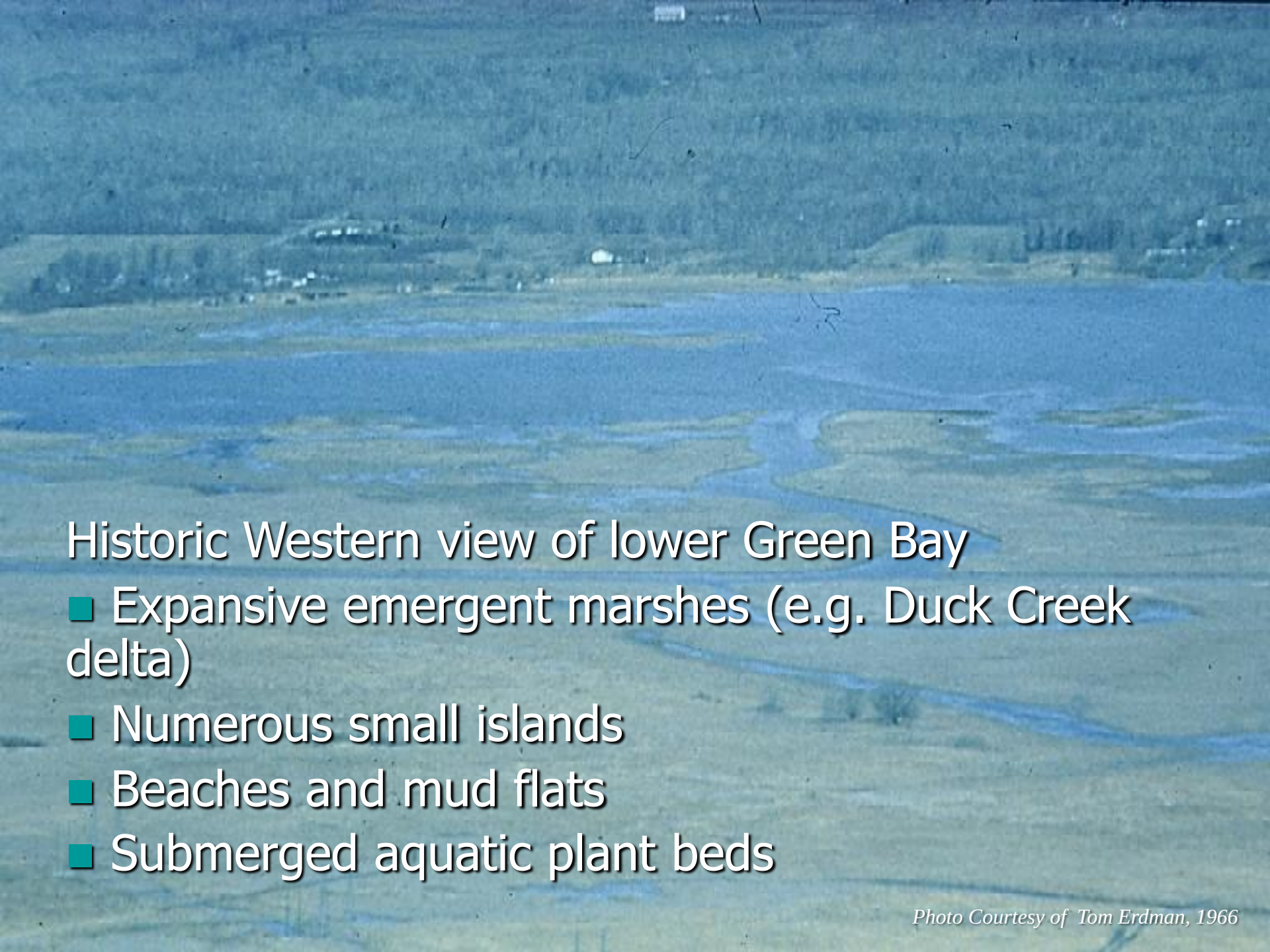


Brown County Aerial Photography, 1938

1960



Brown County Aerial Photography , 1960



Historic Western view of lower Green Bay

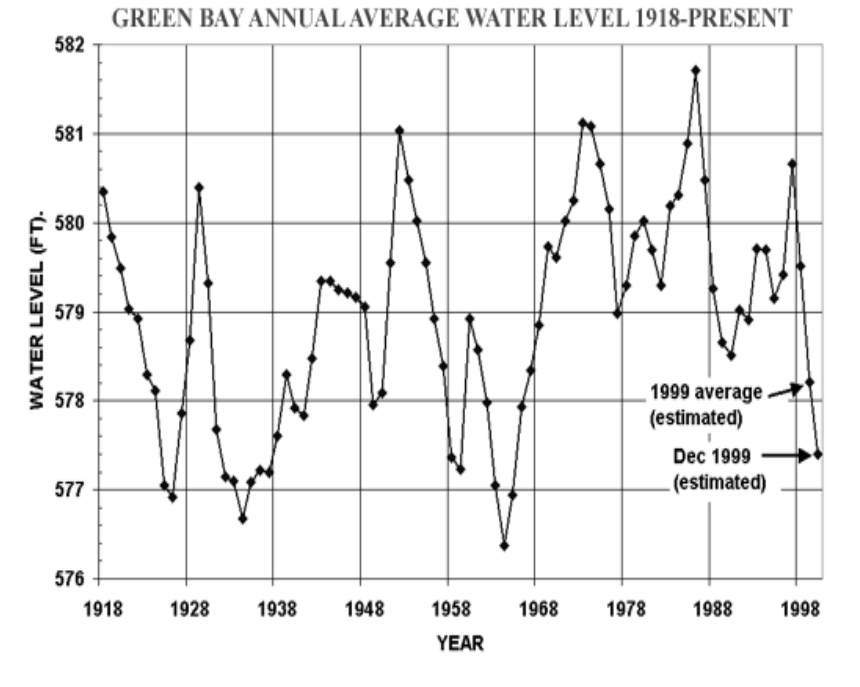
- Expansive emergent marshes (e.g. Duck Creek delta)
- Numerous small islands
- Beaches and mud flats
- Submerged aquatic plant beds

Photo Courtesy of Tom Erdman, 1966

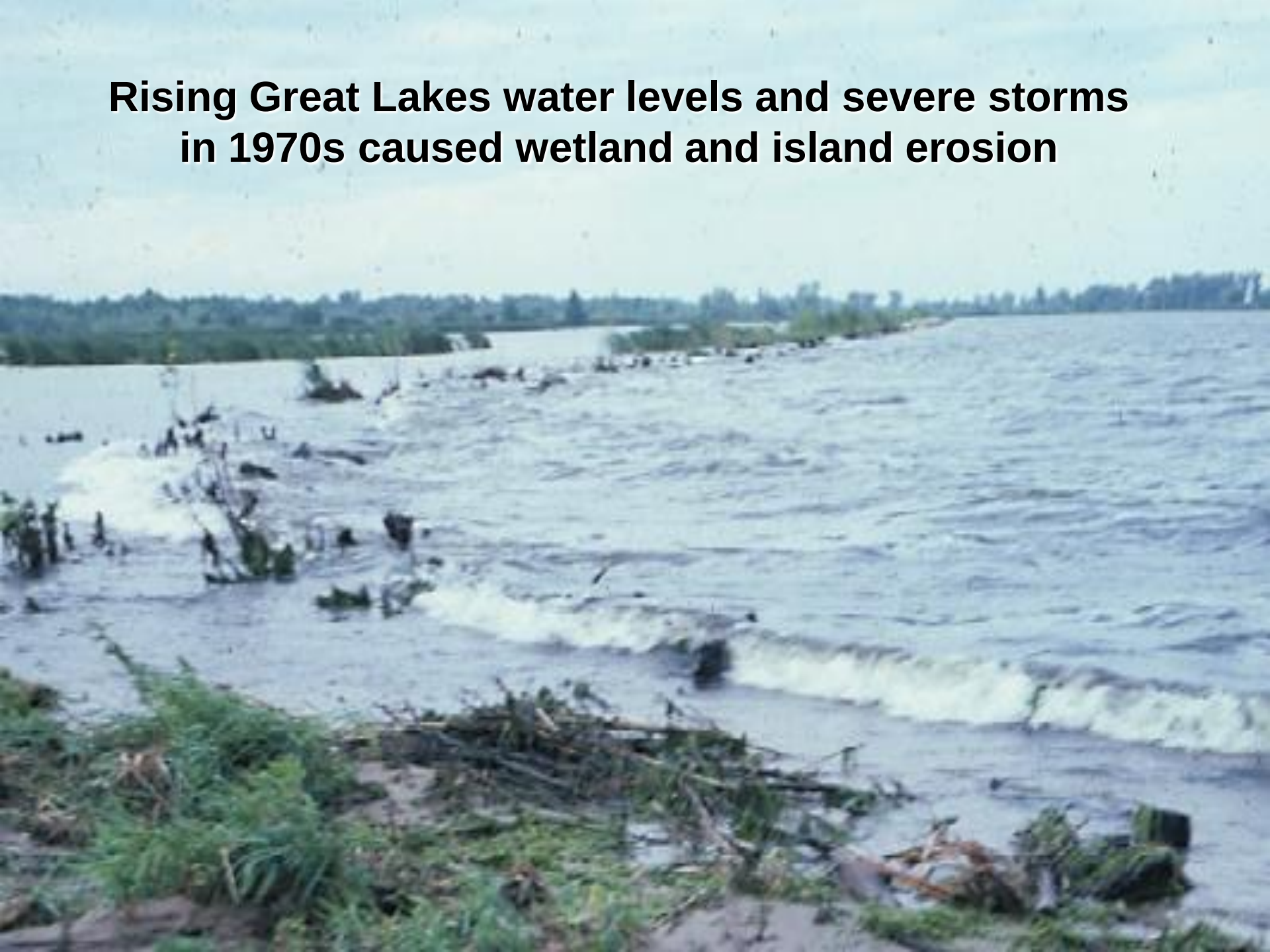
1966 during low water levels
Islands extend 2.5 miles into Green Bay

Photo Courtesy of Tom Erdman, 1966

Islands survived historical water level fluctuations – Why not now?



- Water levels rose rapidly to record highs and remained elevated for two decades
- Repeated severe spring storms
- Shorelines hardened by rip rap deflect wave energy and exacerbate erosion
- Poor water clarity from runoff pollution reduced aquatic vegetation and their wave dampening benefits


Rising Great Lakes water levels and severe storms
in 1970s caused wetland and island erosion


Long Tail Point
Cat Island
Bass Islands
Duck Creek Delta Marsh
Landfill
I-43 Construction
90% of Coastal Wetlands Lost from Southern Green Bay
Agriculture
Photo by WDNR, 1969

Green Bay islands during high water levels in 1976

Photo Courtesy of Tom Erdman, 1976

Brown County Aerial Photography, 2008

2010

Brown County Aerial Photography, 2010

Project Beginning

- The Cat Island Chain project developed out of the 1988 Lower Green Bay Remedial Action Plan (RAP) and was the top priority project for habitat restoration.

Members of the Citizens Advisory Committee and DNR staff worked together to develop the Lower Green Bay Remedial Action Plan. (Photo by Dave Crehore)

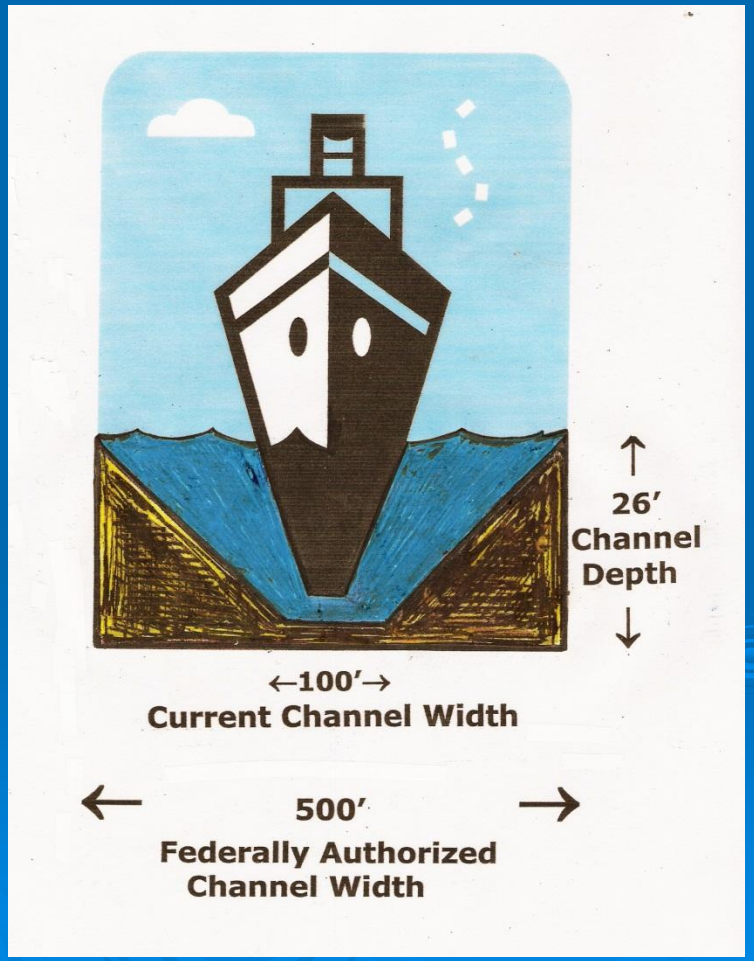
Dredging Crisis

- No Open Water Placement
- Renard Island CDF at Capacity
- Expansion Denied
- Upland Site Limited

- Port Recognizes Cat Island Project as Potential Win-Win Solution in late 1990s

Annual Dredging

- In order to maintain an active Port annual maintenance dredging is necessary
- Annual dredging of 100,000 to 250,000 cy of sediment that has settled into the 14 mile long navigational channel



Draft Report
Ecosystem Restoration Report and Draft Envir
Assessment
November 1999

Cat Islands, Green Bay Harbor
Wisconsin

ENVIRONMENTAL ASSESSMENT

Dredged Material Management Plan
Green Bay Harbor, Wisconsin

Proposed Island Creation
(site of former Cat Islands)

ust 2008

neer District, Detroit
eers, CELRE-PL-E
Box 1027
igan 48231-1027
26-6752

Army Corps of Engineers

Cat Island Chain Restoration
Initial Design Development and
Concept Evaluation

Completed for the
United States Corps of Engineers - Detroit District
October 2002

DACW35-01-D0009

Phase II Report
Draft Dredged Material Management Plan Study
and Environmental Assessment
September 2010

Green Bay Harbor, Wisconsin
Volume I of II

US Army Corps
of Engineers®
Detroit District

DREDGED M
GREEN

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT

ENVIRONMENTAL ASSESSMENT

Dredged Material Management Plan
Green Bay Harbor, Wisconsin

Proposed Island Reconstruction
(site of former Cat Island Chain)

September 2010

U.S. Army Engineer District, Detroit
Corps of Engineers, CELRE-PL-E
P.O. Box 1027
Detroit, Michigan 48231-1027
313-226-7590

Prepared by
W.F. Baird & Associates Ltd.
Madison, Wisconsin

April 2005

Disposal Capacity

Island	Area (acres)	Storage Capacity ($yards^3$)
West Island	74	630,000
Central Island	92	720,000
East Island	106	1,000,000

- Only outer harbor “clean sediments” will be placed onto the islands
- Spine of islands will be initially constructed and provide immediate wave protection and environmental benefits

Strategic Communication Plan

- 2007 initiated a multi-faceted strategic communication plan (public relations, billboards, radio ads, sponsored events, riverfront signs, trail signs, ads, school curriculum, etc.)

HARBOR PROSPERITY.

Cat Island Project

- Today the project's primary focus continues to be habitat restoration and now has added the beneficial reuse of dredge material as a means of accomplishing the project.
- The project is a partnership between Brown County, WDNR, WDOT, US Fish & Wildlife Service, US Army Corps of Engineers, USEPA, UW-Sea Grant, UW-Green Bay, Port Operators and the Fox River Group of paper mills

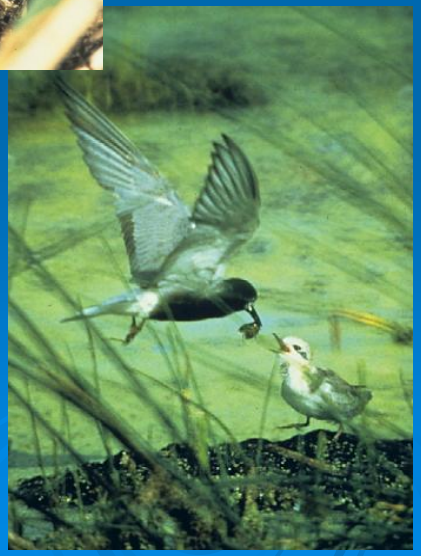
Goals

Photo by WDNR 1969

- Disposal Capacity
- Beneficial use of dredged material for maintenance of the Port of Green Bay
- Restore Islands and their diverse aquatic habitats
- Recreate 1960s island “footprint”
- Enhance spawning and nursery grounds for various fish species (e.g. yellow perch, musky, pike, walleye, sunfish)


YOU ARE HERE
Great Lakes RESTORATION
Brown County
Established 1818
WISCONSIN DEPARTMENT OF TRANSPORTATION
US Army Corps of Engineers ®
Detroit District

Lost habitat affects:



- Colonial Nesting Water Birds
- Shorebirds
- Waterfowl
- Fish Spawning
- Fish Nurseries
- Turtles
- Amphibians
- Invertebrates

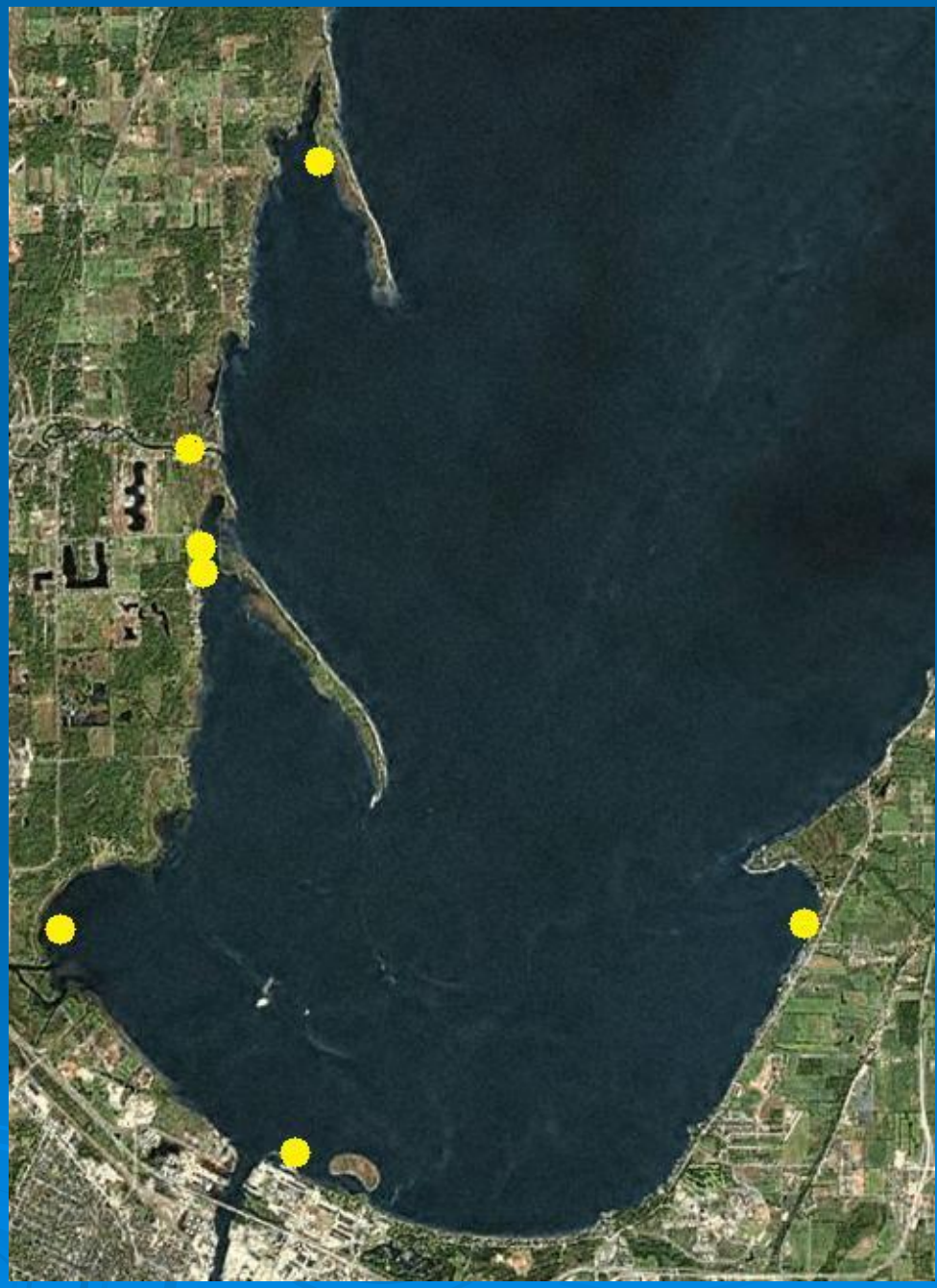
Improved Nursery Habitat

- Fish species which rely on structure to hide juvenile fish will benefit from the increase in aquatic vegetation.

Sunfish Species

- Sunfish Species; bluegill, largemouth bass, pumpkinseed
- Feeding shift
  - Insectivore → planktivore
  - Insectivore → piscivore
- Adapted to forage in vegetation during insectivore phase

Muskellunge Spawning Habitat



Improved Predation

- Visual predators
  - Increased efficiency
- Reduced recruitment of Common Carp
- Reduction in
  - Bullheads
  - Gizzard Shad

Photo from E. Engbretson

Contributing Factors to Project Implementation

- Established a Win-Win Project Demonstrating Economic Initiatives and Environmental Benefits
- Collaborated with Diverse # of Agencies, Port Businesses, Politicians and Not-for-Profits
- Built Community Awareness and Support
- Secured Local Cost Share Funding
- Collaboration contributed to a Legislative Lakebed Grant and all Necessary Permits

Project Outcomes

- 30-50 years worth of disposal capacity
- Beneficial reuse of dredged material
- Sustain jobs, industries and economic outputs of the Port of Green Bay for NE Wisconsin
- 2.5 mile wave barrier and re-establishment of 272 acres of islands
- Wave barrier will protect 1,225 acres and provide critical habitat for birds, fish and mammals
- Improved water clarity increasing weed grown for fish spawning and serve as a nursery and improved migratory bird sanctuary/lay over

Questions?

Cat Island Chain Restoration Project

Brown County Port & Resource Recovery Department

Port of Green Bay, WI