Cat Island Chain Restoration

Brown County Port & Resource Recovery Department



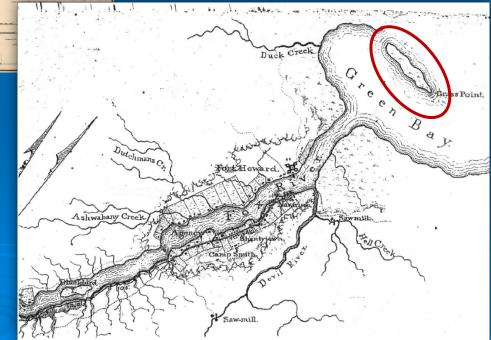
March 7, 2018



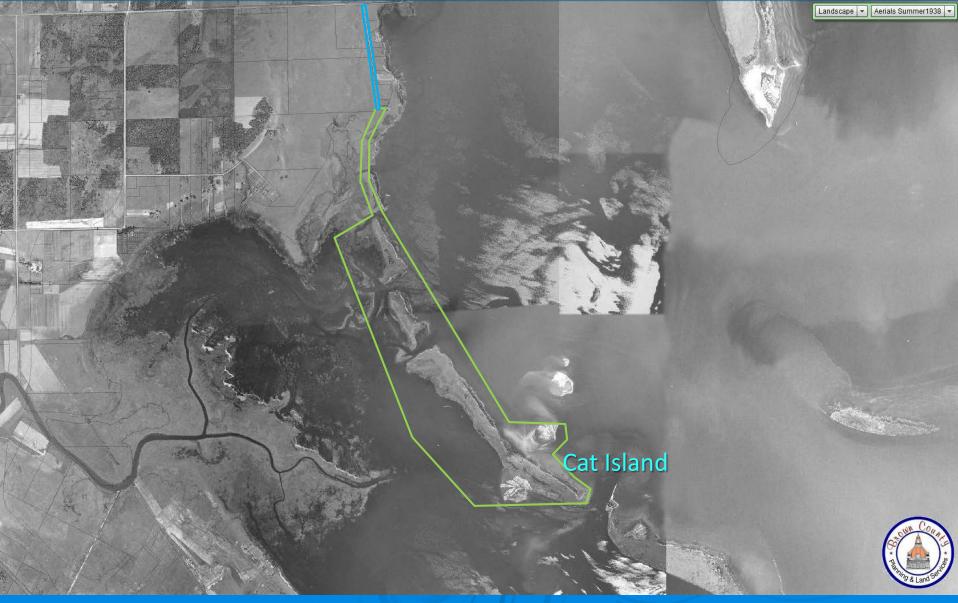


1845 Chart of Green Bay & Fox River

1820s Fox River Military Road Map to Fort Howard



Cat Island Chain - 1938



Brown County Aerial Photography, 1938

Historic Western view of lower Green Bay
Expansive emergent marshes (e.g. Duck Creek delta, Peats Lake)
Numerous small islands
Beaches and mud flats

Submerged aquatic plant beds

Bass Islands

Willow Island

Lone Tree Island

Cat Island

Grassy Island

Navigation Channel

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

Photo Courtesy of Tom Erdman, 1966

Little Tail Point

Long Tail Point

Cat Island Chain

Peter's Marsh

-06

Duck Creek Delta

Municipal incinerator and landfill

Rock dikes hardened the shoreline

Photo Courtesy of Tom Erdman, 1970

Long Tail Point

Bass Islands

Duck Creek Delta Marsh

I-43 Construction

90% of Coastal Wetlands Lost from Southern Green Bay

Agriculture

Photo by WDNR, 1969

Cat Island

Landf

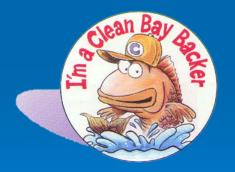
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Cat Island Chain – 1960-2010

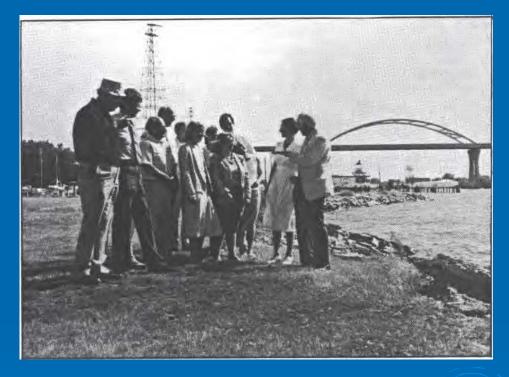


Project Beginning

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*)

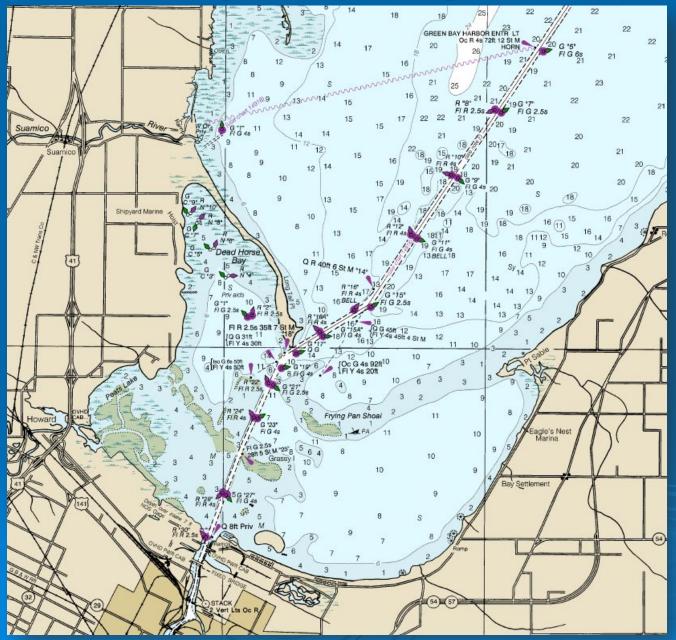


Runoff April 15, 2011

Duck Creek River



Green Bay Shipping Channel



Annual Dredging

Annual maintenance dredging is necessary to keep the Port of Green Bay active

Annual dredging of 100,000 to 250,000 CY of sediment that has settled into the 14 mile long navigational channel



Project Goals

- Restore diversity of island and aquatic habitats
- Recreate 1960s island "footprint"
- Enhance spawning and nursery grounds for various fish species (e.g. yellow perch, musky, pike, walleye, sunfish)
- Create disposal capacity
- Beneficially use dredged material from the maintenance of the Port of Green Bay



Photo by WDNR 1969

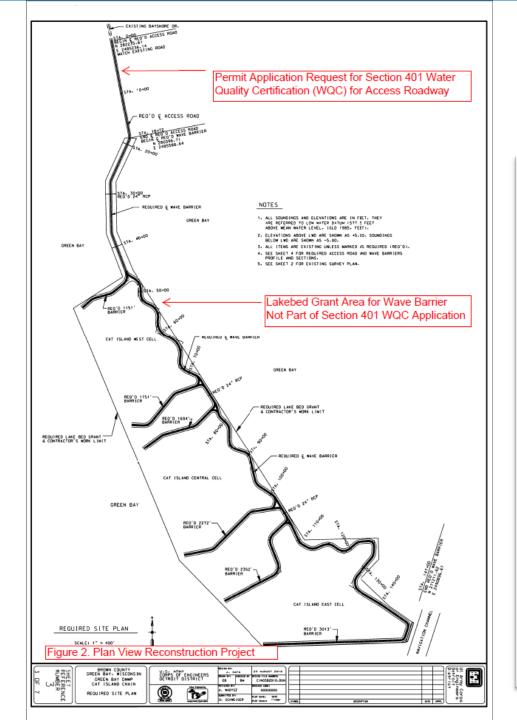
Project Partners

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

Cat Island Advisory Committee (CIAC)





Lake Bed Grant

State of Misconsin



2005 Assembly Bill 868

Date of enactment: May 10, 2006 Date of publication*: May 24, 2006

2005 WISCONSIN ACT 390

AN ACT relating to: the conveyance of certain submerged lands to Brown County.

The people of the state of Wisconsin, represented in senate and assembly, do enact as follows:

SECTION 1. Nonstatutory provisions. (1) GRANT. This state grants to Brown County all rights and title to, and interest in, the land described in subsection (2) to be held and used by Brown County for the purposes described in subsection (3) and subject to the conditions under subsection (4).

(2) DESCRIPTION. The land to which Brown County is granted all rights and title to, and interest in, is submerged land under the waters of Green Bay and dry land that exists or may be created within that area and that is described as part of Sections 1, 12, and 13, Town 24 North, Range 20 East and part of Sections 7 and 18, Town 24 North, Range 21 East more fully described as follows: commencing at the Northwest Corner of Section 1, Town 24 North, Range 20 East; thence N. 87 degrees 56 minutes 55 seconds E. 2639.62 feet along the north line of Section 1 to the North 1/4 corner; thence continuing N. 87 degrees 56 minutes 55 seconds E. 134.72 feet along the north line of Section 1 to the meander corner on the north line of Section 1; thence S. 16 degrees 02 minutes 35 seconds E. 2634.74 feet to the point of beginning, thence S. 87 degrees 20 minutes 46 seconds E. 220 39 feet, thence S. 26 degrees 44 minutes 12 seconds W. 903.25 feet; thence S. 00 degrees 31 minutes 29 seconds

W. 940.56 feet; thence S. 21 degrees 34 minutes 36 seconds E. 788.95 feet; thence S. 31 degrees 00 minutes 00 seconds E. 6035.27 feet; thence S. 89 degrees 59 minutes 59 seconds E. 1399.70 feet; thence S. 00 degrees 00 minutes 01 seconds E. 399.91 feet: thence S. 44 degrees 59 minutes 57 seconds W. 499.90 feet; thence S. 45 degrees 00 minutes 00 seconds E. 750.89 feet; thence S. 53 degrees 52 minutes 46 seconds E. 526.24 feet; thence S. 19 degrees 24 minutes 14 seconds W. 402 30 feet, thence S. 89 degrees 34 minutes 04 seconds W. 2695.72 feet, thence N. 42 degrees 51 minutes 26 seconds W. 2273.50 feet; thence N. 21 degrees 17 minutes 02 seconds W. 5167.96 feet; thence N. 59 degrees 00 minutes 00 seconds E. 1099.29 feet: thence N. 19 degrees 28 minutes 42 seconds W. 861.89 feet; thence N. 00 degrees 12 minutes 04 seconds E. 996.85 feet; thence N. 25 degrees 48 minutes 04 seconds E. 889.72 feet to the point of beginning.

(3) PURPORTS. Brown County may hold and use the land described in subsection (2) for the purposes of restoring the chain of islands that formerly existed in approximately this location and that were known as the Cat Island Chain, in order to have a place to deposit dredged materials from the navigation channel, to construct the islands and restore the function of the Cat Island Chain in protecting water quality in Green Bay, to restore the former terrestrial habitat and near—shore aquatic habitat of the Cat Island Chain, and to provide opportunities for public use.

 Section 20111, WINCOMDA STRUCTED 2003-04 : Effective date of acts. "Every act and every portion of an act enacted by the legalization over the governer's partial view which does not expressly prescribe the time when it takes effect shall take effect on the day after its due of publication is designated? By the sectering of states [the date of publication may not be timere than 10 working days after the late of exectioned;

Construction Phase I - June 2012



Cat Island

Brown County Aerial Photography, 2012

Construction Phase II - October 2012



December 17, 2012





May 16, 2013

	Tons	(\$)
Gravel	41,788	\$ 158,379
Core Stone	504,411	\$ 1,743,609
Armor Stone	161,666	\$ 1,611,829
Total	707,865	\$ 3,513,817

Approx. 34,000 truckloads

November 12, 2013 95% Complete

Project Costs

	Original	Actual
Project Cost	\$ 34,190,889	\$ 19,281,931
Less Brown County GLRI Grant	<u>\$ 1,500,000</u>	<u>\$ 1,450,053</u>
Total Project Costs	\$ 32,690,889	\$ 17,831,878
65% Federal Share	\$ 21,249,078	\$ 11,182,838
35% Non-Federal Share	<u>\$ 11,441,811</u>	<u>\$ 6,649,040</u>
Total Project Costs	\$ 32,690,889	\$ 17,831,878
Non-Federal Funding Sources		
WDOT Harbor Assistance Grant	\$ 7,141,835	\$ 5,319,232
NRDA Funds	\$ 800,000	\$ 800,000
Terminal Operator Harbor Fees	\$ 499,000	\$ 529,808
Brown County	\$ 336,459	\$ -
Brown County In-Kind	<u>\$ 150,000</u>	<u>\$ -</u>
Total Non-Federal Funds	\$ 8,927,294	\$ 6,649,040
25% Non-Federal In-Kind Contribution	\$ 8,172,722	\$ 4,457,970
10% Non-Federal Cash Contribution	\$ 3,269,089	\$ 1,783,188

Sediment Disposal

Island	Area (acres)	Storage Capacity (yards ³)	Years Remaining (assume 2 yr cycles and sequential filling)
West Island	74	900,000	8
Central Island	92	1,140,000	22
East Island	106	1,680,000	40

Only outer harbor "clean sediments" will be placed onto the islands

September 9, 2014



May 7, 2015



July 2, 2015



October 24, 2016



October 26, 2016



April 21, 2017



Habitat Impacts









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

Importance of the area



- Interior sites gaining recognition for importance
- Lower Green Bay identified as important shorebird staging area
- 35 species reported via eBird in Wisconsin portion of Green Bay





Cat Island Habitat Projects



Piping Plover

Piping Plover successfully bred on westernmost island in 2016 & 2017

• First local breeding in 75+ years







Tern Platforms







Wild Rice Planting







Courtesy UWGB, 2015, 2016

FY17 Dredging Activities



On-Going Issues

> Management Cat Island Advisory Committee (CIAC) > Public Access Public Safety Sensitive Wildlife Habitat Area > Filling Sequence and Timing Removal of Causeway

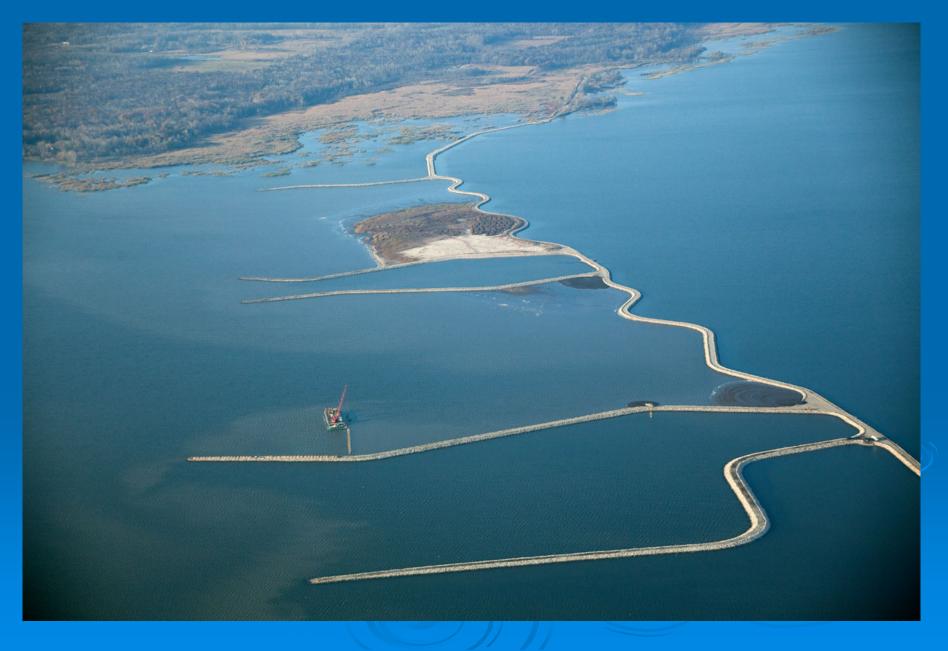


Public Access





November 8, 2017

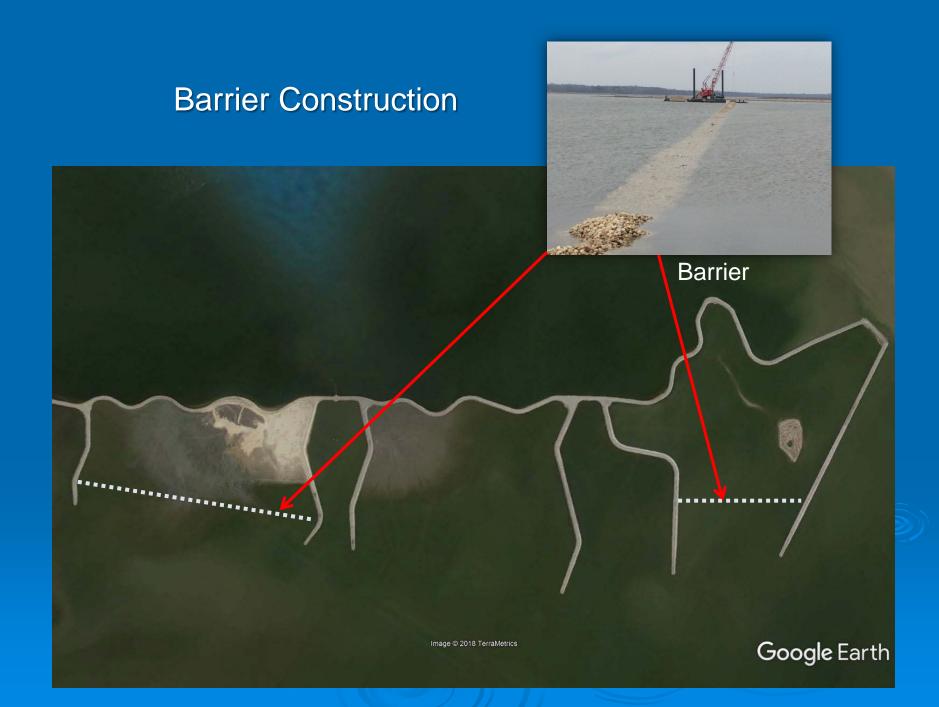


2017 CENTER CELL BARRIER INSTALLATION





Approximately 2300 LF of geotextile lined gabion-style barrier placed across the back of the center island



Cat Island Chain - 2017



Project Outcomes

- 30-50 years worth of disposal capacity
- Beneficial reuse of dredged material
- 2.5 mile wave barrier and re-establishment of 272 acres of islands
- Wave barrier protecting 1,225 acres and providing critical habitat for birds, fish and mammals

Improved water clarity increasing weed grown for fish spawning and serving as a nursery and improved migratory bird sanctuary/lay over

Questions?



Mark Walter

Brown County Port & Resource Recovery Department

