

Application of Geospatially Enabled Geographic Response Plans for Oil Spill Response in the Western Basin of Lake Erie

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Fred A. and Barbara M.
Erb Family Foundation



www.mtri.org



- **Area Contingency Plans (ACPs)** and their associated **Geographic Response Plans (GRPs)** are site-specific documents designed to outline steps to be taken by responders to protect sensitive sites after an oil or chemical spill.
- Designed to improve the speed and efficiency of a response during the critical first few hours after a spill.
- Existing paper based plans and their associated maps, tables and graphics can be difficult to update and expensive to distribute on paper.



Source: author photo



Source: http://www.nytimes.com/2010/07/29/us/29michigan.html?_r=0

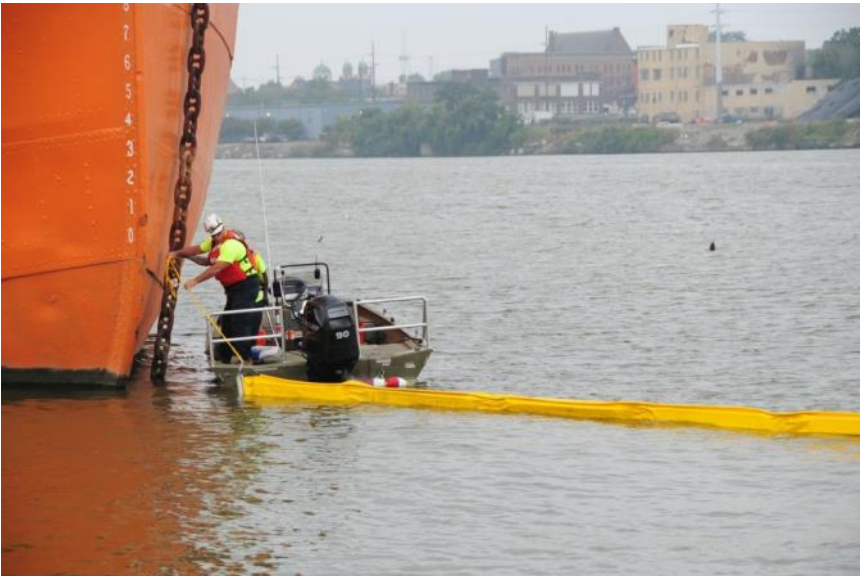
Project Overview

- Project proposes a GIS based dataset of protection strategies and resources for ecologically and economically sensitive sites in the western basin of Lake Erie.
- Provides a framework for development of GIS based protection strategies and spill response plans elsewhere in the Great Lakes.
- Initial work done in collaboration with the Western Lake Erie Area Committee, US and Ohio EPA and the US Coast Guard Marine Safety Unit Toledo for a Masters thesis at the University of Toledo
- Additional input from USCG MSU Cleveland, USCG Sector Detroit and NOAA

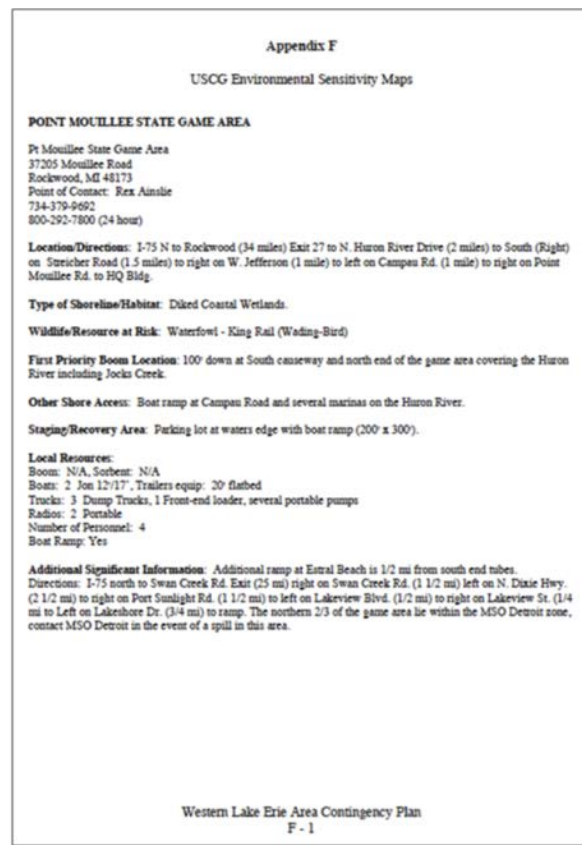
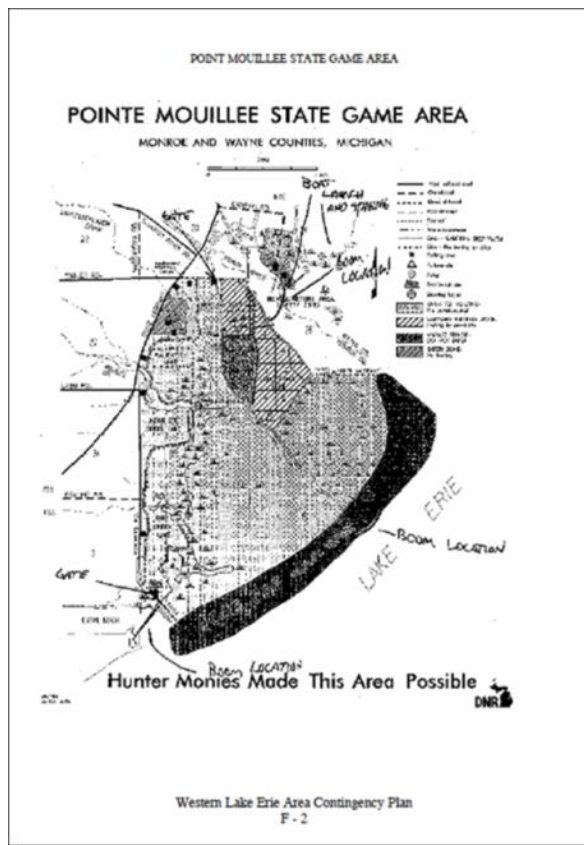


What is a GRP?

- GRPs (aka protection strategies) are an important component of the contingency planning process.
- GRPs make response data more accessible and portable for field crews
 - Crews know where to go and what to do when they get there.
- GRP data is useful for briefing documents
 - Overview of what resources are necessary to execute a response strategy



- Existing paper response maps and supporting data tables are not easy to update and may not be kept up to date, potentially leaving response and command personnel with an incomplete picture of conditions during an incident.



Paper based GRPs

CATAWBA ISLAND STATE PARK

CATAWBA ISLAND STATE PARK

Lake Erie Islands State Park
4049 East Moore's Dock Rd.
Port Clinton, Ohio 43452
Point of Contact: Reggie Langford
Work: 419-797-4530
24-hour: 419-797-2322

Location/Directions: Woodville Rd. East from Anthony Wayne Bridge (3/4 mi) To Route 2 East to Port Clinton (42 mi) to Route 53 N (5 mi) to left Schoolhouse Rd. (3/4 mi) left on Catawba Rd. to right on Moores Ok.Rd. (3/4) to Park Office

Type of Shoreline/Habitat: Rock Cliff/Stone Beach/Fishing Pier.

Wildlife/Resource at Risk: Recreational Day use Picnicking and Fishing.

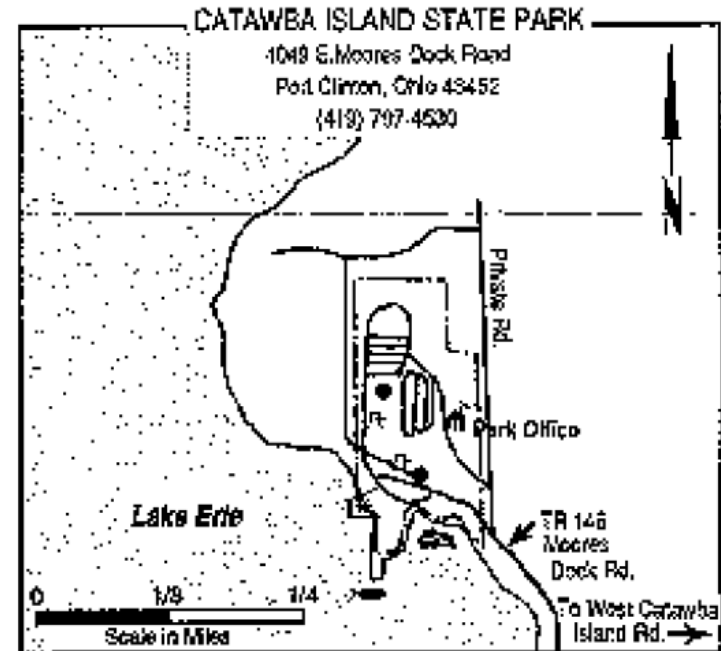
First Priority Boom Location: Public Areas at Boat House

Other Shore Access: Beach Areas.

Staging/Recovery Area: Fishing Pier with small parking at water's edge.

Local Resources:
Boom: N/A, Sorbent: N/A
Boats: 1 (26)
Trucks: 1 pickup
Radios: 1 base, 1 portable, frequencies: 155.355 Parks
Number of Personnel: 2 Full, 1 Seasonal
Boat Ramp: Yes

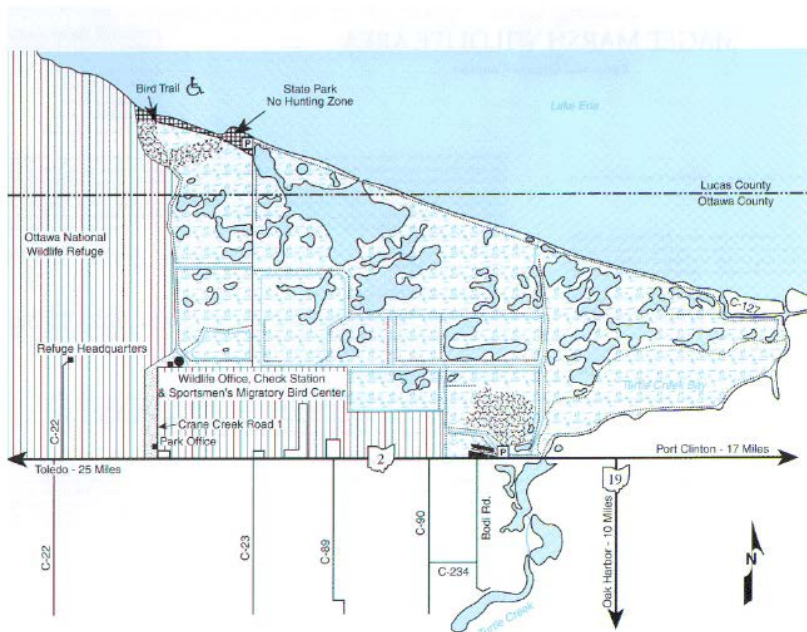
Additional Significant Information: Open 8-5 P.M. 12-1 P.M. off for lunch.



REV 12/90

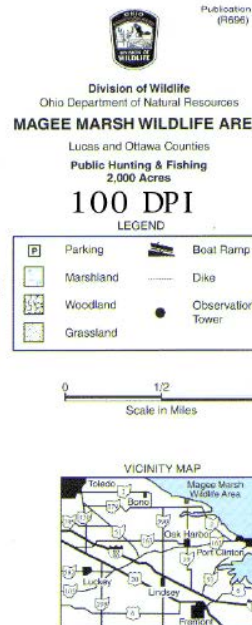
Paper based GRPs

MAGEE MARSH WILDLIFE AREA



Western Lake Erie Area Contingency Plan
F - 18

MAGEE MARSH WILDLIFE AREA



Magee Marsh Wildlife Area
13229 W. State Route 2
Oak Harbor, Ohio 43449
Point of Contact: Denis Franklin
Work: 419-898-0960
24-hour: 800-762-2437

Location/Directions: Woodville Rd. East from Anthony Wayne Bridge (3/4 mi) to Route 2, East (20 1/2 mi) to left on Crane Creek Rd. to right into office (1/2 mi)

Type of Shoreline/Habitat: Riprap/sand beach/coastal wetlands 1800 acres.

Wildlife/Resource at Risk: Wading Birds, Waterfowls, Muskrats, Mink, Possum, Fox, Deer, Hawks, Eagles, Owls.

First Priority Boom Location: Pump located at Locust Point (East End). Shut during emergency/main marsh unit inlets.

Other Shore Access: 2 miles east public fishing access - Turtle Creek

Staging/Recovery Area: 200-300 car parking lot at shore/open field behind service building, helicopter landing.

Local Resources:
Boom: N/A, Sorbent: N/A, 10" Diesel Pump, 2" Gas Pump
Boats: 2 (16'), Trailers: 8' flatbed
Trucks: 3 pickups
Radios: 1 Base, 5 portable.
Number of Personnel: 1
Boat Ramp: None

Additional Significant Information: (1) Park maintains bathing beach - Jim Brower, Maumee Bay State Park [419-836-7758] (2) Magee Marsh is another name for wildlife area. (3) Migration season March thru freeze up critical.

NOAA's ERMA: A geospatial framework for the project

- **ERMA** – Environmental Response Management Application
 - Designed as an aid in all phases of spill preparedness and planning
 - Can assist in coordination emergency response efforts and situational awareness
 - Supports SCAT (shoreline assessment), Natural Resource Damage Assessment (NRDA) process, recovery and restoration efforts post-incident.
- Developed by NOAA Office of Response and Restoration (OR&R) in Seattle, WA and UNH Coastal Response Research Center (CRRC) with US EPA, US Coast Guard
 - Open source application
 - Allows display and analysis of a wide variety of planning and response related geospatial data including model output
- Each ERMA has regional focus:
 - Great Lakes, New England, Atlantic, Gulf of Mexico, Southwest (CA), Pacific Northwest (WA, OR), Caribbean (PR, USVI) Pacific Islands, Arctic (AK)
 - Regional approach allows use of locally generated fine resolution data for stakeholders to take advantage of ERMA's analysis and data management capability
- USCG D9 (Great Lakes) designated ERMA as their Common Operating Picture (COP) GIS application

- [Great Lakes ERMA](#) went live 7-10-13
- Standard base maps/datasets/layers
 - Google Maps base map set – Streets, physical, hybrid and satellite
 - Administrative boundaries
 - Bathymetry & Hydrology
 - Environmental Quality and Monitoring
 - Imagery and Remote Sensing
 - Natural Resources, Habitats & Managed Areas
 - Navigation and Marine Infrastructure
 - Public Safety & Infrastructure
 - Response Planning
 - Weather, Oceanography & Natural Hazards
 - ...
- Regional and local data layers are added as identified and quality checked by NOAA OR&R.

GRP Review

- Looked for logical, consistent format in GRPs
- Great Lakes have unique regional data requirements
 - All other GRPs reviewed are in coastal/salt water environments
 - Shoreline/Riverine/Open water, highly productive wetlands (particularly western Lake Erie)
- Two sets of GRPs were of particular interest:
 - Florida Fish and Wildlife Research Institute (FWRI)
 - GRPs for Alabama, Florida, Georgia, South Carolina
 - California Office of Spill Prevention and Response (OSPR)
 - GRPs for California coast
- Both have GRPs on ERMA

Paper to Electronic GRPs

Maumee Bay State Park OH

MAUMEE BAY STATE PARK

Maumee Bay State Park

1400 Park Road #1
Oregon, Ohio 43618
(419) 836-7758 Park Admin. Office
(419) 858-8828 Camp Office (Mid-May through Mid-September)
(419) 858-8117 Nature Center
(419) 836-8711 Fax

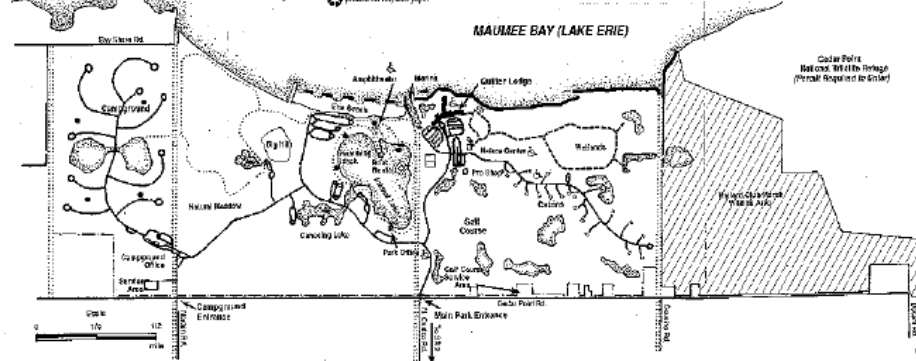
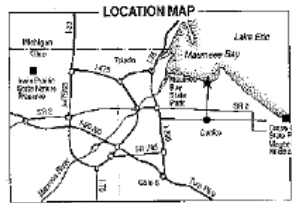
Maumee Bay Resort (Gullier Lodge)
1750 Park Road #2
Oregon, Ohio 43618
(419) 836-1488
(800) 282-7275 Reservations



Division of Parks & Recreation
1050 Robert Street, S.W.
Columbus, OH 43261-2388
George E. Peacock, Governor
Ronald L. Anderson, Director
All equal opportunity employer - M/F/V
printed on recycled paper

LEGEND

- ☐ Park Office
- ▭ Park Boundary
- Showers/Restrooms/Laundry
- ⊙ Amphitheater
- ⊙ Picnic Shelter
- ⊙ Picnic Tables
- ⊙ Interpretive Signage
- ⊙ Interpretive Boardwalk
- ⊙ Wildlife Area
- ⊙ Trail Miles
- ⊙ Wheelchair Accessible



Maumee Bay State Park
6505 Cedar Point Rd
Oregon, Ohio 43618
Point of Contact: Jim Brower
Work: 419-836-7758

Location/Directions: From I-280 Route 2 East (6.5 mi) to left on North Curtice (2 1/2 mi) to Office.

Type of Shoreline/Habitat: Permeable revetment (eastern mile) - bathing beach is sand east 1/2 of western mile. Last 1/2 mile west is rock revetment (non-permeable).

Wildlife/Resource at Risk: Shore birds, geese, ducks, herons, egret, cranes, eagles, hawks, muskrats, mink, fox, deer

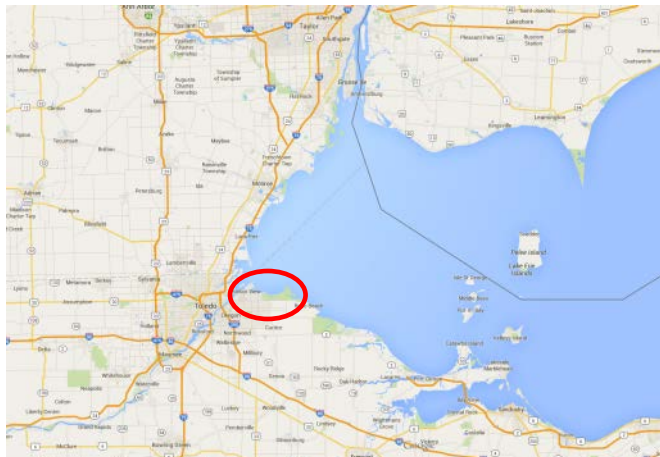
First Priority Boom Location: (1) Wetland area covering the eastern one third of the park. (2) Beach areas 1/2 mile east and west of lodge.

Other Shore Access: Fishing access at Bayshore Power Plant with 50 car lot (on Bayshore Road East of Power Plant).

Staging/Recovery Area: Parking Lot #7 (290 car) at beach. Water access available across sand beach.

Local Resources:
Boom: N/A, Sorbent: N/A
Boats: 1 (14'), Trailer: 12 ft, snowmobile
Trucks: 3 pickup/1 dump, Autos: 3
Radios: 2 base, 12 (portable), 3 frequencies: 151.355, 159.475, 154.935
Number of Personnel: 0
Boat Ramp: No

Additional Significant Information: (1) Nesting bald eagle within 1 mile of park. (2) 3 large drainage ditches drain areas south of park through park.





Great Lakes ERMA

Maumee Bay State Park



ERMA Environmental Response Management Application
Great Lakes

Information Help Recent Data Search Layers, Folders, and Bookmarks Geographic Search

Change Password Logout

ID location (lat,lon): 41.67402,-83.37087 - Google Chrome

<https://erma.noaa.gov/js/ermaplugins/identify/ident.html>

ID location (lat,lon): 41.67402,-83.37087

Western Lake Erie GRPs

gid	id	lat_dd	lon_dd	site_type	site_name	state	county	grp_link
21	24	41.6750700000	-83.3705430000	Response Site	Maumee Bay State Park	OH	Lucas	http://wiki.mtri.org/download/attachments/27951156/DRAFT_GRP_Maumee_Bay_SP.pdf https://www.google.com/maps/place/Maumee+Bay+State

Great Lakes Watershed

gid	id	giri_name
1	0	Great Lakes

Scale: 1:433K Zoom Level: 10 Location: 41.72994°,-83.10942°

US DOC | NOAA | NDS | NOAA Office of Response & Restoration
Disclaimer | Privacy policy | Official Citation | Email comments

Coastal Response Research Center
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Proposed Digital GRPs

Maumee Bay State Park OH



GRP - Open Water Sensitive Site Response Strategy USCG Sector Detroit, MI

Site Name: **Maumee Bay State Park** Site ID: **TBD**

Geospatial Information

Latitude (DMS):	41°41'6.558"N	Longitude (DMS):	83°22'41.431"W	Location Description:
Latitude (DD):	41.685155	Longitude (DD):	-83.378175	Coastal, open water
ESI Map:	WLE11	ESI Name:		
NOAA Chart:	14847_1	Chart Name:	Toledo Harbor	
USGS Quad 1:	Oregon	USGS Quad 2:	Reno Beach	

Contact Information

Contact Name:	Jim Brower	Contact Phone:	419.836.7758	24 hour Phone:
Site Name:	Maumee Bay State Park			
Admin Address 1:	1400 State Park Road			
Admin Address 2:				
Admin City:	Oregon	Admin State:	OH	County:
Township:		Admin ZIP code:	43618	Fire district:
Site Address1:	1400 State Park Road			
Site Address2:				
Site City:	Oregon	Site State:	OH	Site County:
Site Township:	Jerusalem	ZIP code:	43618	Fire district:
Google Maps Link:	https://www.google.com/maps/place/Maumee+Bay+State+Park/@41.6808986,-83.3670563,3400m/data=!3m1!1e3!4m2!3m1!1s0x883b9cfc9897cd3:0xe0b9c4b05aefddd			

Google Maps Directions:	<p>From Ohio Turnpike (East): https://www.google.com/maps/dir/41.4578744,-83.2872913/Maumee+Bay+State+Park,+1400+State+Park+Rd,+Oregon,+OH+43616/@41.570171,-83.5225754,11z/data=!3m1!4b1!4m8!4m7!1m0!1m5!1m1!1s0x883b9cfc9897cd3:0xe0b9c4b05aefddd!2m2!1d-83.37138!2d41.68416</p> <p>From I-280: https://www.google.com/maps/dir/41.6366069,-83.491093/Maumee+Bay+State+Park,+1400+State+Park+Rd,+Oregon,+OH+43616/@41.6531103,-83.4647022,13z/data=!3m1!4b1!4m8!4m7!1m0!1m5!1m1!1s0x883b9cfc9897cd3:0xe0b9c4b05aefddd!2m2!1d-83.37138!2d41.68416</p>			
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Resources at Risk Information

Shoreline Type:	mixed sand beach in front of riprap / armored shoreline along state park shoreline.
Habitat:	Coastal Wetland
Wildlife:	Shore birds, geese, ducks, herons, egrets, cranes, eagles, hawks, muskrats, mink, fox, deer
Threatened or Endangered Species:	
Socio-Economic Resources at Risk:	State park lodge and beach, seasonal heavy recreational activity

WLEAC Response Strategies

First Priority Boom Location:	Protect state park shoreline - swimming beach just west of the lodge. Divert product to collection points along shoreline or to open water recovery.
Other site strategies	
Notes:	Lake may be very shallow just offshore. Check lake levels at http://glakesonline.nos.noaa.gov/monitor.html and select station 9063085 Toledo OH. For open water response protocols see umrba.org/hazspills/open-water.pdf
Staging Area:	Staging area (NW240) on site

Collection Points:	Potential collection points on east side of breakwater (NW 238) and in state park marina (NW239). Another potential collection point just west of the public beach.
Area Access:	West half of shoreline accessible from access drive just behind beach, east half accessible by water only.
Local Response Resources:	None
Parking access, staging access, etc. at location:	Yes, large parking lot at beach, water access across sand beach west of lodge and marina. Staging area on site (Staging Area NW 240)
Structures and/or Utilities in Area:	Water and power available from Maumee State Park marina
Boom Type:	Diversion
Min. Boom Length (ft):	1000' Booming Method: Diversion
Protection Strategy:	Deploy diversion boom to deflect spilled product to open water collection (or to collection points east and west of the public beach).
Additional Strategy	Nearest Staging Area is Maumee Bay State Park, (Site NW240)
Oblique aerials of the site (USACE)	http://greatlakes.usace.army.mil/image/EB-0108/full http://greatlakes.usace.army.mil/image/EB-0107/full http://greatlakes.usace.army.mil/image/EB-0106/full http://greatlakes.usace.army.mil/image/EB-0105/full
	Full extent of aerials of the Maumee Bay State Park shoreline are from image EB-0097 to EB-0113

GRP Data Sources:	1998 edition, Western Lake Erie Area Contingency Plan, aerial photography		
GRP Information compiled by:			
Name:	Phone:	Date:	
Data Verified by:	Phone:	Date:	

Proposed Digital GRPs

Maumee Bay State Park OH

Site Photos

Photograph #1

Direction Photograph Taken east Date Photograph Taken 3-Jul-14



Photograph #3

Direction Photograph Taken west Date Photograph Taken 3-Jul-14



Photograph #2

Direction Photograph Taken west Date Photograph Taken 3-Jul-14



Photograph #4

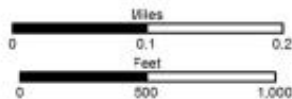
Direction Photograph Taken east Date Photograph Taken 3-Jul-14





Western Lake Erie Area Committee Geographic Response Plan

Protection strategy for: Maumee Bay State Park OH (Beach)



- General Boon Configuration
- Ⓢ Containment_Points
- Ⓢ Staging_Areas

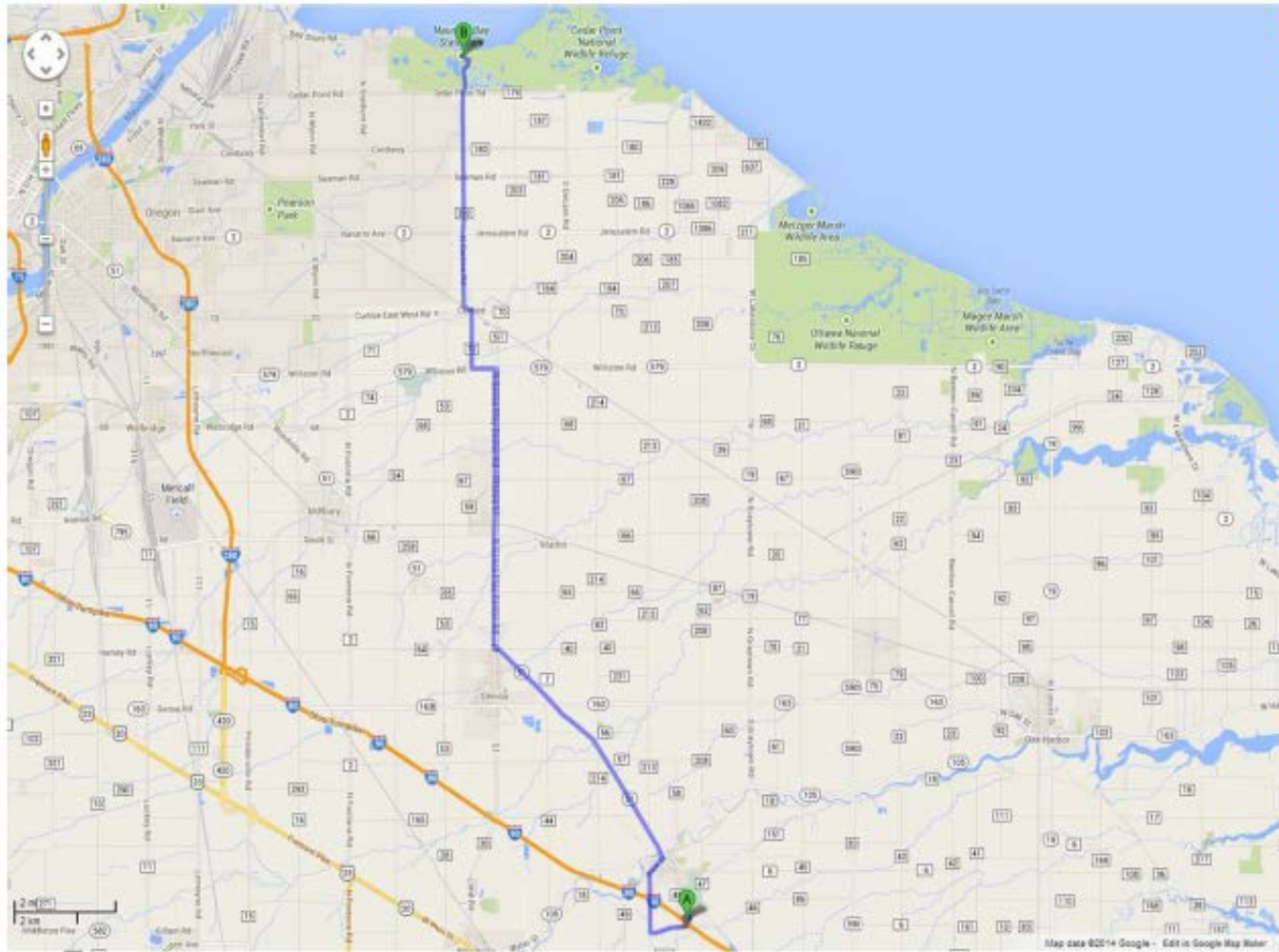
Legend

Marina/Boat Launch Admin Type

- | | | |
|--|--|--|
|  Club |  Municipal/City |  Township |
|  Commercial |  Park District |  Other |
|  County |  State |  Unknown |

Proposed Digital GRPs

Maumee Bay State Park OH



Map to Site
Map from Ohio Turnpike Exit 81 (Elmore, OH) to site

Proposed Digital GRPs

Maumee Bay State Park OH



<http://greatlakes.usace.army.mil/image/EB-0105/>

Proposed Digital GRPs

Maumee Bay State Park OH



Proposed Digital GRPs

Maumee Bay State Park OH



Elements included in GRP datasets

- **Geospatial information**
 - Lat/Long (DMS, DD)
 - NOAA chart number(s)/name(s)
 - Environmental Sensitivity Index map number
 - USGS 7.5 minute quad names
- **Site Address /Admin Contact Info**
 - Manager contact info/24 hour emergency numbers
 - Google Maps link to site map
 - Google Maps link to directions from nearby major intersections/interchanges
- **Resources at Risk**
 - Shoreline type
 - Habitats
 - Wildlife
 - Socio-Economic

GRP - Open Water Sensitive Site Response Strategy USCG Sector Detroit, MI			
Site Name:	Maumee Bay State Park	Site ID:	TBD
Geospatial Information			
Latitude (DMS):	41°41'6.558"N	Longitude (DMS):	83°22'41.431"W
Latitude (DD):	41.685155	Longitude (DD):	-83.378175
ESI Map:	WLE11	ESI Name:	
NOAA Chart:	14847_1	Chart Name:	Toledo Harbor
USGS Quad 1:	Oregon	USGS Quad 2:	Reno Beach
Contact Information			
Contact Name:	Jim Brower	Contact Phone:	419.836.7758
Site Name:	Maumee Bay State Park		
Admin Address 1:	1400 State Park Road		
Admin Address 2:			
Admin City:	Oregon	Admin State:	OH
Township:		Admin ZIP code:	43618
Site Address1:	1400 State Park Road		
Site Address2:			
Site City:	Oregon	Site State:	OH
Site Township:	Jerusalem	ZIP code:	43618
Google Maps Link:	https://www.google.com/maps/place/Maumee+Bay+State+Park/@41.6808986,-83.3670563,3400m/data=!3m1!1e3!4m2!3m1!1s0x883b9cfc9897cd3:0xe0b9c4b05aefddddd		
Google Maps Directions:	From Ohio Turnpike (East): https://www.google.com/maps/dir/41.4578744,-83.2872913/Maumee+Bay+State+Park,+1400+State+Park+Rd,+Oregon,+OH+43616/@41.570171,-83.5225754,11z/data=!3m1!4b1!4m8!4m7!1m0!1m5!1m1!1s0x883b9cfc9897cd3:0xe0b9c4b05aefddddd!2m2!1d-83.3713812d41.68416		
	From I-280: https://www.google.com/maps/dir/41.6366069,-83.491093/Maumee+Bay+State+Park,+1400+State+Park+Rd,+Oregon,+OH+43616/@41.6531103,-83.4647022,13z/data=!3m1!4b1!4m8!4m7!1m0!1m5!1m1!1s0x883b9cfc9897cd3:0xe0b9c4b05aefddddd!2m2!1d-83.3713812d41.68416		
Resources at Risk Information			
Shoreline Type:	mixed sand beach in front of riprap / armored shoreline along state park shoreline.		
Habitat:	Coastal Wetland		
Wildlife:	Shore birds, geese, ducks, herons, egrets, cranes, eagles, hawks, muskrats, mink, fox, deer		
Threatened or Endangered Species:			
Socio-Economic Resources at Risk:	State park lodge and beach, seasonal heavy recreational activity		
WLEAC Response Strategies			
First Priority Boom Location:	Protect state park shoreline - swimming beach just west of the lodge. Divert product to collection points along shoreline or to open water recovery.		
Other site strategies			
Notes:	Lake may be very shallow just offshore. Check lake levels at http://glakesonline.nos.noaa.gov/monitor.html and select station 9063085 Toledo OH. For open water response protocols see umrba.org/hazspills/open-water.pdf		
Staging Area:	Staging area (NW240) on site		

Elements included in GRP datasets

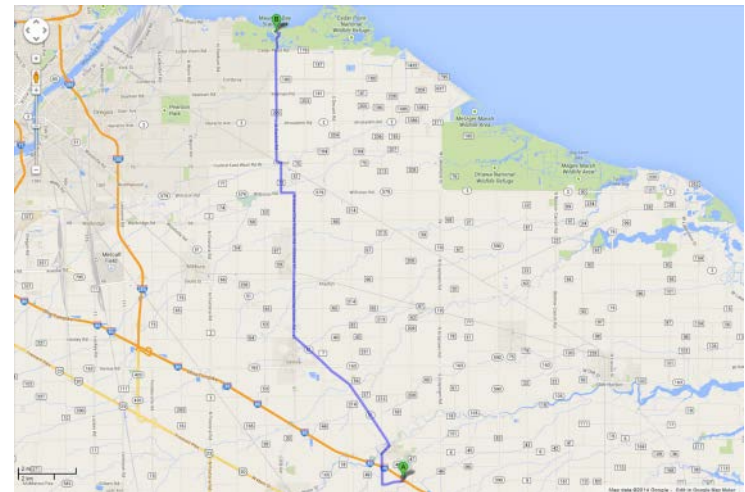
■ Response Strategies

- First priority response locations
- Collection points
- Staging areas
- Local resources
- Area access
- Structures/utilities in area
- Protection strategy
- Quantity/type/length of boom required
- Link to USACE oblique shoreline aerial imagery



Elements included in GRP datasets

- Site photos
 - Include significant features of site - landmarks, obstructions, ...
- Maps of boom configuration, location of staging areas, containment points, utilities, etc.
- Maps to site from major nearby interchanges/intersections/landmarks
- Other data as directed by Area Committees/Coast Guard/EPA/OSROs



Staging Area Sites

Western Lake Erie GRP - STAGING AREA - USCG Sector De

Site Name: **Catawba Island State Park**

Geospatial Information

Latitude (DMS):	41°34'25.818"N	Longitude (DMS):	82°51'24.732"W
Latitude (DD):	41.573838	Longitude (DD):	-82.85687
NOAA Chart:	14830_1, 14842_2	Chart Name:	Western Lake Erie
USGS Quad:	Gypsum	Quad Name:	

Contact Information

Operator:	Ohio DNR, Division of State Parks		
Contact Name:	Contact Phone:		
Site Name:	Catawba Island State Park		
Site Address 1:	4049 E. Moores Dock Road		
Site Address 2:			
Site City:	Port Clinton,	State:	OH
Site Township:	Catawba Island	ZIP code:	43452
Admin Address 1:	1169 North Buck Road [East Harbor State Park]		
Admin Address 2:			
Admin City:	Lakeside-Marblehead	Admin State:	OH
Township:		Admin ZIP code:	43440

Staging Area Site Description:

Location Desc: Located on the west side of Catawba Island, direct access to L

Site Description: 4 lane concrete ramp, parking is across Moore's Dock Road fr

Nearby Sensitive Sites:

Notes: Site is part of an economically sensitive area as well as serving area.

Google Maps Link: <https://www.google.com/maps/@41.5739356,-82.855>

Links to USACE <http://greatlakes.usace.army.mil/image/EC-0975/>

Oblique imagery:

Data Sources: Google Maps, Ohio DNR Office of Coastal Management

Information compiled by:

Name: Phone:

Data Verified by:

Name: Phone:

Site Photos

Photograph #1

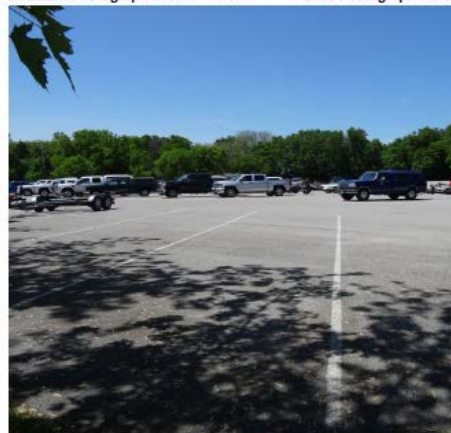
Direction	Photograph Taken	West	Date Photograph Taken	3-Jul-14
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Boat ramp at Catawba Island State Park

Photograph #2

Direction	Photograph Taken	East	Date Photograph Taken
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Parking area at Metzger Fishing Access

Photograph #3

USACE Aerial of the Catawba Island State Park launch ramp



Photograph #4

Shelter and cobble beach just north of boat ramp.



Western Lake Erie GRP - Water Access Point - USCG Sector Detroit, MI

Site Name: **Metzger Fishing Access** Site ID: **TBD**

Geospatial Information			
Latitude (DMS):	41°38'21.727"N	Longitude (DMS):	83°15'5.397"W
Latitude (DD):	41.639369	Longitude (DD):	-83.251499
NOAA Chart:	14847	Chart Name:	Toledo Harbor
USGS Quad:	Reno Beach	Quad Name:	

Contact Information

Operator:	Ohio Division of Wildlife		
Contact Name:	Contact Phone:	24 hour Phone:	
Site Name:	Metzger Fishing Access		
Address 1:	12253 Bono Road		
Address 2:			
City:	Curtice	State:	OH
Township:	Jerusalem	ZIP code:	43412
		County:	Lucas
		Fire district:	

Site Description:

Location Desc: Located on the south shore of Lake Erie on Wards Canal on Bono Road. Site is on the west side of Metzger Marsh Wildlife Area/Ottawa NWR.

Site Description: 2 lane concrete ramp, small parking area. This site has direct access to Lake Erie via Wards Canal.

Nearby Sensitive Sites: Metzger Marsh and Ottawa NWR (Site XXX) is just east of this site

Google Maps Link: <https://www.google.com/maps/@41.639027,-83.2512762,481m/data=!3m1!1e3>

Links to USACE Oblique imagery: <http://greatlakes.usace.army.mil/image/EC-0617/>

Data Sources: Google Maps, Ohio DNR Office of Coastal Management, photointerpretation
Information compiled by:

Name:	Phone:	Date:
Data Verified by:		
Name:	Phone:	Date:

Site Photos

Photograph #1

Direction Photograph Taken West Date Photograph Taken 3-Jul-14



Boat ramp at Metzger Fishing Access

Photograph #2

Direction Photograph Taken East Date Photograph Taken 3-Jul-14



Parking area at Metzger Fishing Access

- Ohio/Michigan/... Mapping Projects jointly developed by USEPA/State EPA on-scene coordinators
 - Demonstrated by Jon Gulch (USEPA) and Mike Gerber (Ohio EPA) at Toledo National Preparedness for Response Exercise Program (NPREP) Tabletop Exercise 7-10-13
 - Mapping project used in 2014 MSU Toledo Full Scale PREP exercise
 - Contains numerous useful response data layers
 - Has data for Ohio, Michigan, other state data being developed
 - **US EPA & Ohio EPA focused on inland response**
 - **USCG focused on shoreline and offshore**
 - USCG and USEPA coordinate response in areas where jurisdictions overlap

- ***GRPs / Response data should display seamlessly between ERMA, USEPA/state mapping projects***

Moving forward with the project

- ERMA provides GIS framework for this project
- Data are provided in standard GIS format (shapefiles, geodatabases)
- Provides multiple options for GRP data display and distribution (GRP as pdf, display different data layer combinations...)
- Easy data sharing between GIS applications ERMA, EPA's Flex Viewer, ArcGIS, other geospatial applications
- USCG D9 using NOAAs ERMA in the Great Lakes as Common Operating Picture GIS application
 - Integrate GIS data into standard Incident Command System (ICS) forms
- Continuing to work with USCG, EPA, others to develop and populate Geographic Response Plans to accommodate different environments around the Great Lakes

Questions, Comments?