Great Lakes Coastal Resilience Planning Guide
(Beta Version)

Jeff Stone
Sr. Project Manager & GIS Coordinator
Association of State Floodplain Managers

Climate Tools Café 2 Webinar
May 7, 2013
Design Objectives

- Bridge coastal hazards with climate adaptation
- Provide “locally relevant” data, science & outreach to promote coastal hazard resilience
- Make available process-driven solutions
- Integrate with other resources
Collaborators & Stakeholders

Collaborators

Digital Coast Partners
- American Planning Association
- ASFPM
- Coastal States Organization
- National Association of Counties
- National States Geographic Information Council
- The Nature Conservancy
- UW – Sea Grant Institute
- UW – Extension
- NOAA Coastal Service Center

Stakeholders

Pilot Counties
- Brown County, WI
- Ozaukee County, WI
- Sheboygan County, WI
- 5 others

Regional Planning
- Bay Lakes RPC
- Southeast WI RPC
- WI State Floodplain Management
- WI DNR Office of the Great Lakes
Timeline

2012
Phase 1
Planning Guide
Local Workshop
Outreach Plan

2013
Phase 2
Guide (CMS)
Local Workshop
Outreach & Content

2014
Phase 3
New Content
Stewardship
Regional
Coastal Watersheds

Coastal-, Floodplain-, Stormwater- Managers & Planners

Natural Hazards       Climate Change

Explore, Learn, Acquire

Issues       Geography       Resources

Multi-Objective Planning & Management

Land Use & Zoning
- Case Study 1
- Case Study 2
- Case Study ...

Habitat & Environment
- Case Study 1
- Case Study 2
- Case Study ...

Infrastructure
- Case Study 1
- Case Study 2
- Case Study ...

Public Trust       Public Health       Economic Development       Invasive Species

Process-based & Locally Relevant

Case Studies
1) Awareness       2) Understanding       3) Analysis       4) Strategy

Local Stories       Maps, Data & Tools       Library       Stakeholders
Hazard & Climate Case Studies

View science-based case studies across key planning and management areas to learn about data, tools, methods, and policies that local governments are using to help make their communities more resilient.

- **Land Use & Zoning**
  - Plan, Manage, Communicate
  - Communicating the Risk of Coastal Flooding
    - Green Bay, Brown County, Wisconsin

- **Habitat & Environment**
  - Conserve, Restore, Protect
  - Identifying Restorable Wetlands and Riparian Buffers
    - Sheboygan County, Wisconsin

- **Infrastructure**
  - Assess, Plan, Maintain
  - Economic Valuation of Port Infrastructure
    - Duluth, Minnesota

Funding Opportunities & Deadlines

- **Healing Our Waters (HOW) - Climate Grant Program**
  - Freshwater Future
  - Funding Amount: $500 to $5,000
  - Deadline: Tuesday, June 3, 2014 - 12:00pm

- **The Fred A. and Barbara M. Erb Family Foundation**
  - The Erb Family Foundation
  - Funding Amount: Varies
  - Deadline: On-going opportunity

Upcoming Events & Training

- **Climate Tools Café 2 Webinar**
  - Webinar
  - May 7, 2014 - 12:00pm

- **Coastal Climate Adaptation & Resilience Workshop**
  - Owens Community College Toledo Area Campus
  - June 19, 2013 - 8:00am
Great Lakes Regional Strategy

- Build relationships
  - States, counties, cities

- Identify partners & outreach opportunities
  - ASFPM Chapters / State-wide conferences
  - TNC Collaboratory
  - EcoAdapt CAKE

- Develop workshops & content
  - Create issue-related content with solutions
  - Engage in other grant/funding opportunities

- Promote stewardship & ownership
Case Studies – In Progress

- Communicating the Risk of Coastal Flooding
  Brown County WI

- Planning for Long-term Bluff Erosion
  Ozaukee County / Sheboygan County WI

- Western Lake Erie Coastal Conservation
  Lucas County OH

- Economic Valuation of Port Infrastructure
  Toledo OH, Duluth MN

- Land Use Strategies for Reducing Watershed Impacts
  Sheboygan County WI

- Economic Assessment of Green Infrastructure
  Toledo OH, Duluth MN
Don't build along shoreline

That's what St. Joe city planners are recommending. It could be a first in Michigan.

ST. JOSEPH - The St. Joseph Planning Commission Thursday recommended that city commissioners adopt a no-build zone along the lakeshore north of the St. Joseph River to protect homeowners from encroaching water and to preserve the beach for the public.
**Port asset values and economic impacts**

New tools for estimating risks of water level changes, failing infrastructure

### Economic Impact Risks of Climate Change & Water Levels Changes

Matrix and Dredging Database results for Toledo Harbor and Maumee River

<table>
<thead>
<tr>
<th>Federal Channel Dredging Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>18,530,167 cy/ft x $5/cy = $92,650,835/ft of depth</td>
</tr>
<tr>
<td>ADAPTED FROM U.S. ARMY CORPS OF ENGINEERS, BUFFALO DISTRICT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Single Slip Dredging Estimate Midwest Terminals of Toledo International Facility 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vessel: 105' x 1000'</td>
</tr>
<tr>
<td>1.2 factor for maneuverability &amp; connection to main channel</td>
</tr>
<tr>
<td>Dredging Vol./ft: 105 ft x 4,196 ft x 1.2 = 176,232 cy/ft</td>
</tr>
<tr>
<td>$5/cy x 176,232 cy/ft = $881,160</td>
</tr>
<tr>
<td>$10/cy x 176,232 cy/ft = $1,762,320</td>
</tr>
<tr>
<td>$15/cy x 176,232 cy/ft = $2,643,480</td>
</tr>
</tbody>
</table>

### Single Slip Repair & Replacement Estimate Midwest Terminals of Toledo International Facility 1

<table>
<thead>
<tr>
<th>STRUCTURE TYPE</th>
<th>NEW/REPAIR</th>
<th>8'-13'</th>
<th>14'-25'</th>
<th>26'-35'</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSP Bulkhead w/Concrete</td>
<td>New</td>
<td>1,250-2,400</td>
<td>1,700-4,300</td>
<td>3,300-5,300</td>
</tr>
<tr>
<td>Cap (I/I)</td>
<td>Repair</td>
<td>835-1,350</td>
<td>1,400-2,500</td>
<td>2,400-3,360</td>
</tr>
<tr>
<td>New</td>
<td>$5,300/ft x 4,196 ft = $22,238,800</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repair</td>
<td>$3,000/ft x 4,196 ft = $11,748,800</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Gene Clark, UW Sea Grant

---

Low water levels contributed to this structural damage at Port Wing, Wisconsin.
Contact

Jeff Stone
Project Manager & GIS Coordinator
Association of State Floodplain Managers
jeff@floods.org