Coastal Resiliency Training Workshops

welcome
Mission and Strategic Goals
Coastal Management Program

Mission: *Ensure a healthy environment, strong economy, and high quality of life for the people of Michigan*

Strategic Goals:
- *Protect and restore aquatic ecosystems*
- *Support vibrant, healthy and resilient communities*
- *Promote a culture of stewardship*
- *Build collaboration and shared governance for water*
Mission and Strategic Goals
Coastal Management Program

Focus Areas

1. Coastal Community Planning and Zoning
2. Coastal Public Access
3. Coastal Habitat
4. Coastal Water Quality
5. Coastal Hazards
Mission and Strategic Goals
Coastal Management Program

Coastal Hazard 309 Enhancement Strategy (2017-2021)

“Building Resiliency in Michigan Coastal Communities”
A new approach for master planning that focuses on adaptation to changing weather conditions

1. How can Great Lakes Coastal Communities better respond to dynamic coastal forces through improved land use policy and planning?

2. What are the fiscal implications given various land use practices?

3. What are the impacts to coastal resources?
<table>
<thead>
<tr>
<th>Type</th>
<th>Total</th>
<th>Municipalities on Great Lakes</th>
<th>Percent on Great Lakes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Village</td>
<td>262</td>
<td>24</td>
<td>9%</td>
</tr>
<tr>
<td>City</td>
<td>273</td>
<td>43</td>
<td>16%</td>
</tr>
<tr>
<td>Township</td>
<td>1,241</td>
<td>183</td>
<td>15%</td>
</tr>
<tr>
<td>County</td>
<td>83</td>
<td>41</td>
<td>49%</td>
</tr>
<tr>
<td>Total</td>
<td>1,859</td>
<td>291</td>
<td>16%</td>
</tr>
</tbody>
</table>

Total Population: 4,680,503

Source: University of Michigan
Planning for Resilient Communities

Program Partners

- Monroe (and surrounding townships)
- Holland
- St. Joseph
- Grand Haven (Twp. & City)
- Beaver Island (Two Twp.’s)
- Ludington (and surrounding townships)
- Macomb County & City of St. Clair
- East Jordan
- Bridgman

Resilient Master Planning Efforts
# Table of Contents

1. Building Community Resilience In Michigan .......................................................... 1
   Defining Community Resilience ............................................................................. 1
   How to Use This Handbook ..................................................................................... 4
   A Quick Primer on Climate Trends ....................................................................... 6
   A Planner’s Responsibility to the Principles of Resiliency ..................................... 12
   Legal and Policy Framework .................................................................................. 14
2. Climate Impacts on Michigan Communities .......................................................... 21
   Extreme Heat ......................................................................................................... 23
   Heavy Rain and Flooding ...................................................................................... 26
   Severe Winter Storms ............................................................................................ 30
   Coastal Dynamics .................................................................................................. 31
   Natural Ecosystems ............................................................................................... 34
   Agriculture and Food Systems .............................................................................. 38
3. Civic Engagement .................................................................................................... 41
   Education .............................................................................................................. 42
   Public Input .......................................................................................................... 45
4. Gathering Data ........................................................................................................ 57
   Climate .................................................................................................................. 59
   People .................................................................................................................... 61
   Mapping as a Resiliency Tool ............................................................................... 64
   Data Sources .......................................................................................................... 66
   The Built Environment .......................................................................................... 78
   Economic Resiliency .............................................................................................. 83
5. A Resiliency Planner’s Toolbox ................................................................................ 89
   Conducting a Vulnerability Assessment ............................................................... 91
   Weighing Risk ........................................................................................................ 97
   Building Scenarios ............................................................................................... 98
   Tracking Metrics .................................................................................................. 102
6. Ideas for Implementation ......................................................................................... 107
   Master Plan ........................................................................................................... 109
   Zoning Ordinance ............................................................................................... 112
   Parks and Recreation Plan .................................................................................. 114
   Site Plan Review .................................................................................................. 118
   Capital Improvement Plan ................................................................................... 120
   Watershed Management Plan ............................................................................. 123
   Climate Action and Greenhouse Gas Emissions Plan ......................................... 126
   Natural Hazard Mitigation Plan ........................................................................... 128
Appendix: Expert Contacts In Michigan .................................................................. 131
Eight-Part Resilient Michigan Video Series
Coastal Resiliency Training Workshops
www.resilientmichigan.org/workshops

SPECIAL COASTAL RESILIENCY TRAINING WORKSHOPS

You Are Invited! October 25, November 1, and November 15, 2017

Workshop Registration

Changes to lake levels and climate are forcing coastal communities to reevaluate how they manage land use, new development and infrastructure. These three no-cost workshops are intended to teach local and regional planners, planning commissioners, elected officials, municipal staff and interested citizens in Berrien, Cass and Van Buren counties how to address these dynamic challenges and bring greater resiliency to their communities.

Each workshop is from 6:00pm to 7:30pm, and held in the Commission Chambers on the 2nd Floor of St. Joseph City Hall, 700 Broad Street, St. Joseph, MI. Light refreshments will be provided. Each workshop will present unique information, so participants are encouraged to attend all three.

In Partnership with SWMPC
Coastal Resiliency Training Workshops

Workshop Two. Understanding and Gathering Coastal Data (Wednesday, November 1st)
• Dr. Alan Arbogast, Professor and Chair
  Department of Geography, Michigan State University
  Speaking on Dune Morphology and Dynamics
• How to use scenario planning and climate futures
• Mapping high-risk areas and management options

Workshop Three. Using Coastal Data to Impact Local Planning (Wednesday, November 1st)
• John Yellich, Director
  Michigan Geological Survey, Western Michigan University
  Speaking on Dune/Groundwater Dynamics
• Land Use, fiscal and environmental impacts
• How to conduct and analyze vulnerability assessments
Coastal Resiliency Training Workshops

Workshop One. Introduction to Coastal Dynamics and Resiliency  (Wednesday, October 25th)

Featured Speakers

Dr. Jeffrey Andresen, State Climatologist & Co-Director
Great Lakes Integrated Sciences & Assessments Program (GLISA) & Michigan State University

Dr. Guy Meadows, Director
Great Lakes Research Center, Michigan Tech. University

Dr. Richard Norton, Professor
University of Michigan School of Urban and Regional Planning
Coastal Resiliency Training Workshops

Workshop Two. Understanding and Gathering Coastal Data (Wednesday, November 1st)

- Dr. Alan Arbogast, Professor and Chair
  Department of Geography, Michigan State University
  Speaking on Dune Morphology and Dynamics
- How to use scenario planning and climate futures
- Mapping high-risk areas and management options

Workshop Three. Using Coastal Data to Impact Local Planning (Wednesday, November 1st)

- John Yellich, Director
  Michigan Geological Survey, Western Michigan University
  Speaking on Dune/Groundwater Dynamics
- Land Use, fiscal and environmental impacts
- How to conduct and analyze vulnerability assessments
Thank You For Coming!

www.resilientmichigan.org/workshops