

OHIO SEA GRANT AND STONE LABORATORY

Do Your PART: A Coastal Storms Preparation, Adaptation, and Response Tool for Great Lakes Marinas

Sarah A. Orlando¹, Joseph E. Lucente¹, Eric Toman², Alexander Heeren², Emily G. Hutchins²

¹Ohio Sea Grant College Program, 1314 Kinnear Road, Area 100, Columbus, OH

²The Ohio State University, School of Environment and Natural Resources, 316C Kottman Hall, 2021 Coffey Road, Columbus, OH 43210



@SarahAOrlando

@ohioseagrant

@OhioCleanMarinasCleanBoaters

Outline

- Project Overview
- Methodology
- Results
- Tool
- Outreach



NOAA Coastal Storms Program (CSP)

NOAA Great Lakes Coastal Storms Program
FOSTERING COMMUNITY RESILIENCE TO COASTAL HAZARDS



- Federal funding from NOAA
 - Match required by states
- Focused on regions throughout the U.S.

“Development of a Coastal Storms Preparation, Adaptation, and Response Tool for Great Lakes Marinas”

Why focus on coastal storms?

	Number of Disaster Events	Adjusted Damages (\$ Billions)	Percent Damage	Percent Frequency
Tropical Cyclones	31	417.9	47.4%	23.3%
Droughts/Heatwaves	16	210.1	23.8%	12.0%
Severe Local Storms	43	94.6	10.7%	32.3%
Non-Tropical Floods	16	85.1	9.7%	12.0%
Winter Storms	10	29.3	3.3%	7.5%
Wildfires	11	22.2	2.5%	8.3%
Freezes	6	20.5	2.3%	4.5%
Total	133	881.2	100.0%	100.0%

Table 1 Damage, percent damage, frequency, and percent frequency by disaster type across the 1980-2011 period for all billion-dollar events (adjusted for inflation to 2011 dollars)

Coastal storms most frequent natural disaster from 1980 - 2011 (Smith and Katz, 2012)



Credit: ODNR Office of Coastal Management

Why focus on marinas?

A single marina
experienced over \$2.7
million in damages from
Superstorm Sandy in 2012
(Coast Guard News, November 2012)



Great Lakes Coastal Infrastructure at Risk

- Currently, only **60** of the **139** federal projects on the Great Lakes support commercial navigation.
- Approximately **80 percent** of the Great Lakes harbor structures are **older** than their 50-year design life and many are more than 100 years old (USACE)
- Harbor infrastructure maintenance is no longer a federal budget priority
- In addition, recent high water levels have accelerated erosion along Great Lakes shorelines.



Credit: U.S. Army Corps of Engineers



Credit: U.S. Army Corps of Engineers

Why focus on Social Science?

Need to Understand:

- **Why** existing tools and resources that could have prevented this situation were not effective
- **How** Great Lakes marinas currently prepare/adapt/respond to storms
- **Where** marinas obtain their information



Credit: ODNR Office of Coastal Management

Methodology

- Conduct **needs assessment** of marina owners/operators in Erie Pennsylvania, Cleveland Ohio, and Milwaukee
 - Specific impacts associated with coastal storms
 - Current preparedness for coastal storms
 - Barriers to preparation
 - Awareness of existing tools; current sources
 - Types of tools/support desired
- Use focus group data to inform **development of tool** for Great Lakes marinas
- Disseminate tool and coastal storms **education** via workshop and outreach

Results

- **Impacts associated with coastal storms**

- Dredging
- Flooding/debris
- Abandoned and derelict vessels
- Lake level changes
- Structural damage/aging infrastructure

- **Current preparedness for coastal storms**

- Have an emergency flood plan, but no plan for storms

- **Reasons for lack of preparedness**

- Weather: tend to overestimate, don't believe forecasters
- Science: not enough scientific information available to convince them to prepare
- Priorities: other issues take priority & money

“Even if we were told by the weatherman, I doubt we would have believed it because they tend to overestimate.”

Focus Group Participant

What kind of information is out there scientifically that says “hey this is what’s going to happen?” I mean what do we need from that standpoint as far as, coming up with a plan to try and prepare ourselves for those such events?”

Focus Group Participant

Results

- **Awareness of existing tools**
 - Little-to-no awareness
- **Sources of information for preparedness and response**
 - Word of mouth
 - Local organizations (fire department, city council, etc.)
 - NOAA
- **Barriers to meeting needs**
 - Money
 - Lack of centralized information
- **Types of tools desired**
 - Case studies
 - Multiple options: webinar/in-person training/workshop
 - Education publications for boaters

*“All the resources are great,
but if you don’t attach
funding to it they’re just
something to read for the
most part.”*

Focus Group Participant



Preparation, Adaptation, and Response Tool (**PART**) for Great Lakes Marinas

• **Background**

- Terminology
- Coastal Storm Hazards in the Great Lakes and Marinas
- Why Prepare?

DO THIS NOW



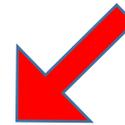
• **Preparation**

- Coastal Storms Preparation Checklist

• **Adaptation**

- Coastal Storms Adaptation Checklist

WORK ON THIS



• **Response**

- Coastal Storms Response Checklist

• **Resources**

• **References**

DO THIS AFTER

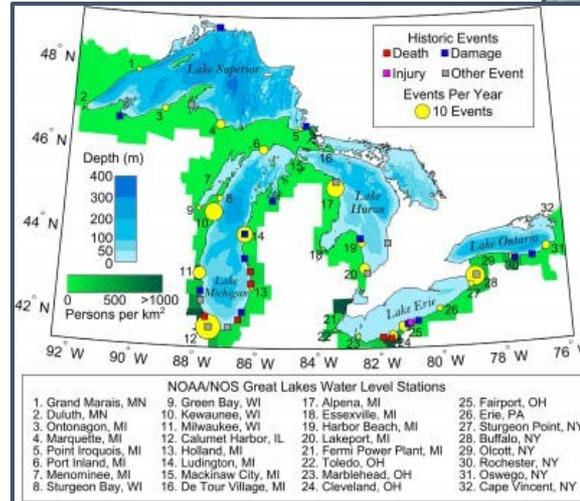


Background

- Key Terminology
- Coastal Storm Hazards in the Great Lakes
- Why Prepare?



Credit: Ohio Sea Grant



Credit: MSU Extension

Coastal Storms Checklists

- Preparation – DO THIS NOW
- Adaptation – WORK ON THIS
- Response- DO THIS AFTER
 - Facility Information
 - Team
 - Assess Your Risk

Coastal Storms PREPARATION Checklist

DO THIS NOW!

Facility Information

Marina Name: _____

Mailing Address: _____

Physical Address: _____

Primary Contact: _____ Secondary Contact: _____

Phone: _____ Fax: _____ Email: _____

Facility Description

Location (describe where facility is located): _____

Adjacent Water Body: _____ Acres: _____

Latitude: _____ Longitude: _____ County: _____

Facilities and Equipment:

<input type="checkbox"/> Wet slips, number: _____	<input type="checkbox"/> Picnic area
<input type="checkbox"/> Dry slips, number: _____	<input type="checkbox"/> Pump-out station
<input type="checkbox"/> Docks	<input type="checkbox"/> Fuel Dock
<input type="checkbox"/> Floating, number: _____	<input type="checkbox"/> Above ground storage
<input type="checkbox"/> Fixed, number: _____	<input type="checkbox"/> Underground storage
<input type="checkbox"/> Maintenance buildings, number: _____	<input type="checkbox"/> Travel lift
<input type="checkbox"/> Ships Store	<input type="checkbox"/> Hydraulic trailer
<input type="checkbox"/> Restrooms	<input type="checkbox"/> Fork lift
<input type="checkbox"/> Laundry facilities	<input type="checkbox"/> Other structures and equipment,
<input type="checkbox"/> Offices, number: _____	please list: _____
<input type="checkbox"/> Pavilion	

Proximity to Emergency Response Resources:
Please map out the distance from your facility operations to the following locations.

Fire Station: _____ miles	Emergency Mgmt Agency: _____ miles
US Coast Guard: _____ miles	Police Department: _____ miles

Resources

- Great Lakes Clean Marina Network Resources
- Technical Assistance and Regulatory Guidance
- Topics of Interest
- Sustainable Working Waterfronts Toolkit
- NOAA Coastal Resiliency Tools
- Resources for Boaters
- Funding/Incentives



Credit: NOAA Marine Debris Program



Credit: Ohio Sea Grant

Don't Wait to Secure your Boat

- Storm surge can carry your boat onshore
- Secure your boat before the storm hits
- Add additional lines as soon as a Watch is issued

Weather-Ready Nation
National Oceanic and Atmospheric Administration

National Weather Service
weather.gov/hurricanesafety



Credit: DISL

Great Lakes Clean Marina Network Resources

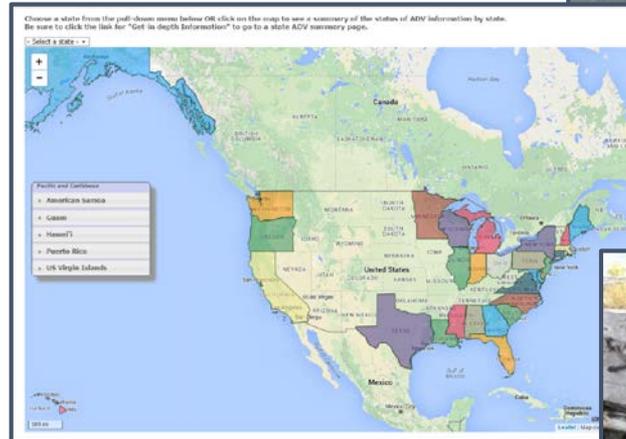
- [GLCMN Best Management Practices Guide](#)
- [Clean Marina Online Classroom](#)
 - [Increasing Resilience](#)
- [Increasing Resilience for Marinas and Harbors Project](#)
 - [Archived Presentations](#)
 - [Project Summary](#)
 - [Infrastructure Best Practices](#)
 - [Dredging Best Practices](#)
 - [Planning and Financing Best Practices](#)
 - [Climate Resources](#)

Technical Assistance

- [GLCMN Best Management Practices Guide](#)
- [Clean Marina Programs](#)
- [Soil and Water Conservation Districts](#)
- [Coastal Zone Management Programs](#)
- [Sea Grant Programs](#)
- [Federal Emergency Management Agency](#)
 - [State Emergency Management Agencies](#)
 - [Great Lakes Coastal Flood Study](#)
- [U.S. Department of Housing and Urban Development](#)
- [Small Business Administration](#)

Topics of Interest

- [Dangerous Currents](#)
- [Abandoned and Derelict Vessel InfoHub](#)
- [Failing Infrastructure](#)
- Nature-Based Shorelines
 - [Nature-Based Solutions](#)



Credit: NOAA Marine Debris Program



Credit: Michigan Sea Grant



Credit: Gene Clark, UW Sea Grant

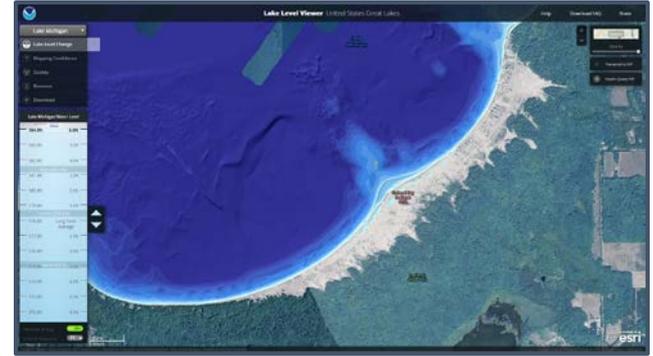
Sustainable Working Waterfronts Toolkit

- [Toolkit](#)
- [Tutorials](#)
- [Case Studies](#)
- [Economics](#)

The screenshot displays the National Working Waterfront Network website. At the top, the NWWN logo is visible, along with navigation links for Community, Financing, Law & Policy, Economics, Tools in Action, and Historic Trends. The main header reads "National Working Waterfront Network". Below this, a date "Mon November 16, 2015" is shown. The page features a sidebar with "Information for..." (Decision & Policy Makers, Waterfront Landowners, Waterfront Users), "Working Waterfronts Newsletter" (with a sign-up link), and "Site Tools" (Toolkit Video Tours, Case Studies, Oral Histories, Working Waterfront Community Center). The main content area highlights a case study titled "Transforming Marquette, Michigan's Waterfront with Form-Based Code", including its location (Marquette, Michigan), timeframe (2000 - present), and a summary of the waterfront redevelopment project. A "Printable Case Study" link is also present. On the right, a video player shows a scene from Marquette, MI, with a play button overlay and the text "Marquette, MI from National Working Waterfront Network on Flickr". Below the video, the region is identified as "Great Lakes".

NOAA Coastal Resiliency Tools

- [NOAA Lake Level Viewer](#)
- [NOAA CanVis](#)
 - [Tutorial](#)
- [NWS Weather-Ready Nation](#)
- [Great Lakes Coastal Resilience Planning Guide](#)
- [NOAA Great Lakes Water Level Dashboard](#)



Credit: NOAA



Credit: NOAA

Resources for Boaters

- [Boat U.S. – Hurricane Preparation for Boaters](#)
 - [Boater’s Guide for Preparing for Hurricanes](#)
 - [Hurricane Preparation Worksheet](#)
 - [What to do after a Hurricane](#)
- [U.S. Power Squadrons - Hurricane Preparation for Boaters Course](#)
- [NOAA Marine Debris – Storm Season Preparedness](#)
- [Great Lakes Observing System Boaters’ Forecast Tool](#)
 - [User Guide](#)



Credit: Boat U.S. Foundation

Funding Resources

- [NOAA Compiled List of Climate-Related Funding Opportunities](#)
- [Great Lakes Coastal Resilience Planning Guide – Funding Opportunities](#)
- [Sustainable Working Waterfronts Toolkit – Financing](#)
- [NOAA ENOW Explorer](#)



Outreach

- **Training materials made available**

- Archived webinar and presentation slides will be posted on Great Lakes Clean Marina Network website:

www.glcleanmarina.org

- ***PART* published in print and online**

- Will be distributed to over 200 marinas through Great Lakes Clean Marina Network
- Will be made available online through GLCMN

- **Marina case studies**

- Jill Bartolotta with Ohio Sea Grant completed a second Coastal Storms grant working with marinas in Ohio piloting the PART (see Appendix)



Credit: Ohio Sea Grant



Credit: Ohio Lake Erie Commission

Acknowledgements



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- Sara Stahlman

- Old Woman Creek National Estuarine Research Reserve

- Chagrin River Watershed Partners

Questions?

OHIO SEA GRANT AND STONE LABORATORY

CONTACT



Sarah Orlando
Ohio Clean Marinas Program Manager
OSU Extension
Ohio Sea Grant College Program
orlando.42@osu.edu
419-609-4120
@SarahAOrlando

Joe Lucente
Associate Professor, CD
OSU Extension
Ohio Sea Grant College Program
lucente.6@osu.edu
419-213-2028

FIND OUT MORE

www.ohioseagrant.osu.edu/clean
www.csc.noaa.gov/csp/greatlakes.html
www.glcleanmarina.org

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