



Great Lakes-St. Lawrence Legislative Caucus Web Meeting

September 6, 2019 | 10 am EDT/9 am CDT



GREAT LAKES-ST. LAWRENCE
LEGISLATIVE CAUCUS



MIDWEST

Housekeeping

- This event is being recorded. The recording will be available later today at www.greatlakeslegislators.org.
- To reduce noise on the phone lines, all participants will be in “listen-only” mode during the presentation.
- To ask a question at any time:
 - Type questions using the “questions” pane in the webinar console.
 - Click on the “raise hand” icon in the webinar console.
 - Email your question to gllc@csg.org.
- If you wish to speak, you must enter your audio PIN.

Agenda

Welcome and Introductions

Senator Ed Charbonneau (Indiana), GLLC Chair

Featured Presentation: High Water Levels in the Great Lakes and Their Impact on Coastal Communities

Dr. David Hart, Assistant Director for Extension at the University of Wisconsin Sea Grant Institute

Business Session

- Resolutions for Consideration at the 2019 Annual Meeting
- Acknowledgement of Great Lakes-St. Lawrence Appreciation Day
- Preview of GLLC Annual Meeting in Chicago

Adjourn

About the GLLC

- Clean water is essential to support a healthy population, a thriving economy, and a well-functioning ecosystem.
- The GLLC is organized around the guiding principle of assuring that the Great Lakes and St. Lawrence River continue to provide a plentiful source of clean, affordable water to the region's residents, businesses, and industries.
- Learn more about the GLLC at www.greatlakeslegislators.org.



Featured Speaker

David Hart

Assistant Director for Extension
UW Sea Grant Institute
dhart@aqua.wisc.edu
(608) 262-6515



Reflecting on an integrated assessment to address the impacts of changing Great Lakes water levels

David Hart, AICP

Assistant Director for Extension

University of Wisconsin Sea Grant Institute

Great Lakes-St. Lawrence Legislative Caucus

September 6, 2019



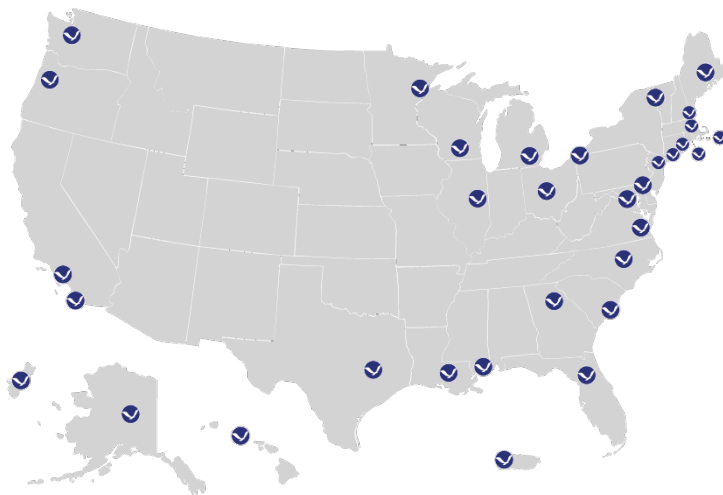
Outline

- What is Sea Grant?
 - Leveraging the Great Lakes Sea Grant Network
- Great Lakes Water Levels Integrated Assessment
 - About integrated assessments
 - Overarching themes from the four projects
 - Wisconsin Integrated Assessment
 - Options for adapting to a changing coast
- Resilience Resources
 - Recent state legislation addressing high water levels
 - Some projects and programs

About Sea Grant

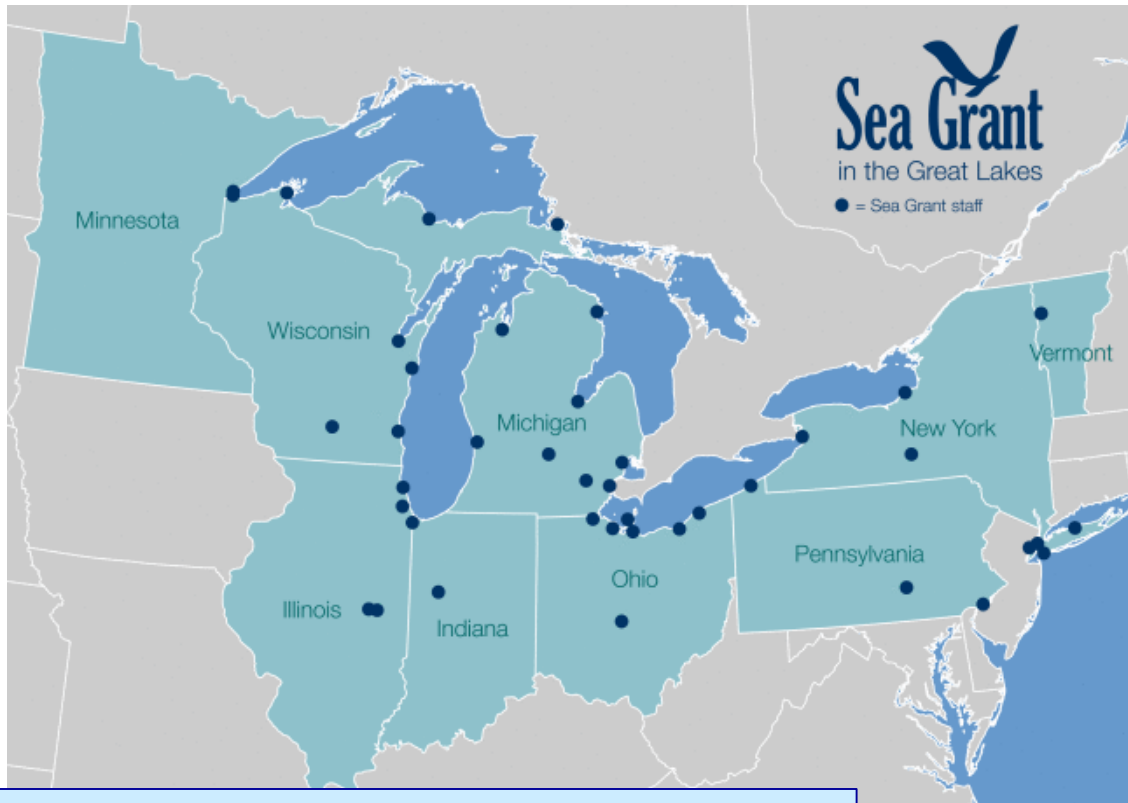


- National Sea Grant College Program founded in 1968
- Currently 33 programs on ocean and Great Lakes
- Modeled after Land Grant Colleges and Cooperative Extension
- Leverages a network of universities to conduct **research** on pressing coastal issues and share it broadly through **outreach** and **education**.



<https://seagrants.noaa.gov>

Great Lakes Sea Grant Network



- 8 programs in Great Lakes states, including a program on Lake Champlain shared by Vermont and New York.
- More than 75 staff addressing outreach and education, most situated in Great Lakes coastal communities.

<https://greatlakesseagrant.com>

Great Lakes Sea Grant Network



Mary Austerman
NY Sea Grant (Newark, NY)
Flood Recovery Visioning



Sara Stahlman
PA Sea Grant (Erie, PA)
Resilience Action Network



Roy Widrig
NY Sea Grant (Oswego, NY)
Coastal processes/hazards



Adam Bechle
WI Sea Grant (Madison, WI)
Coastal engineering

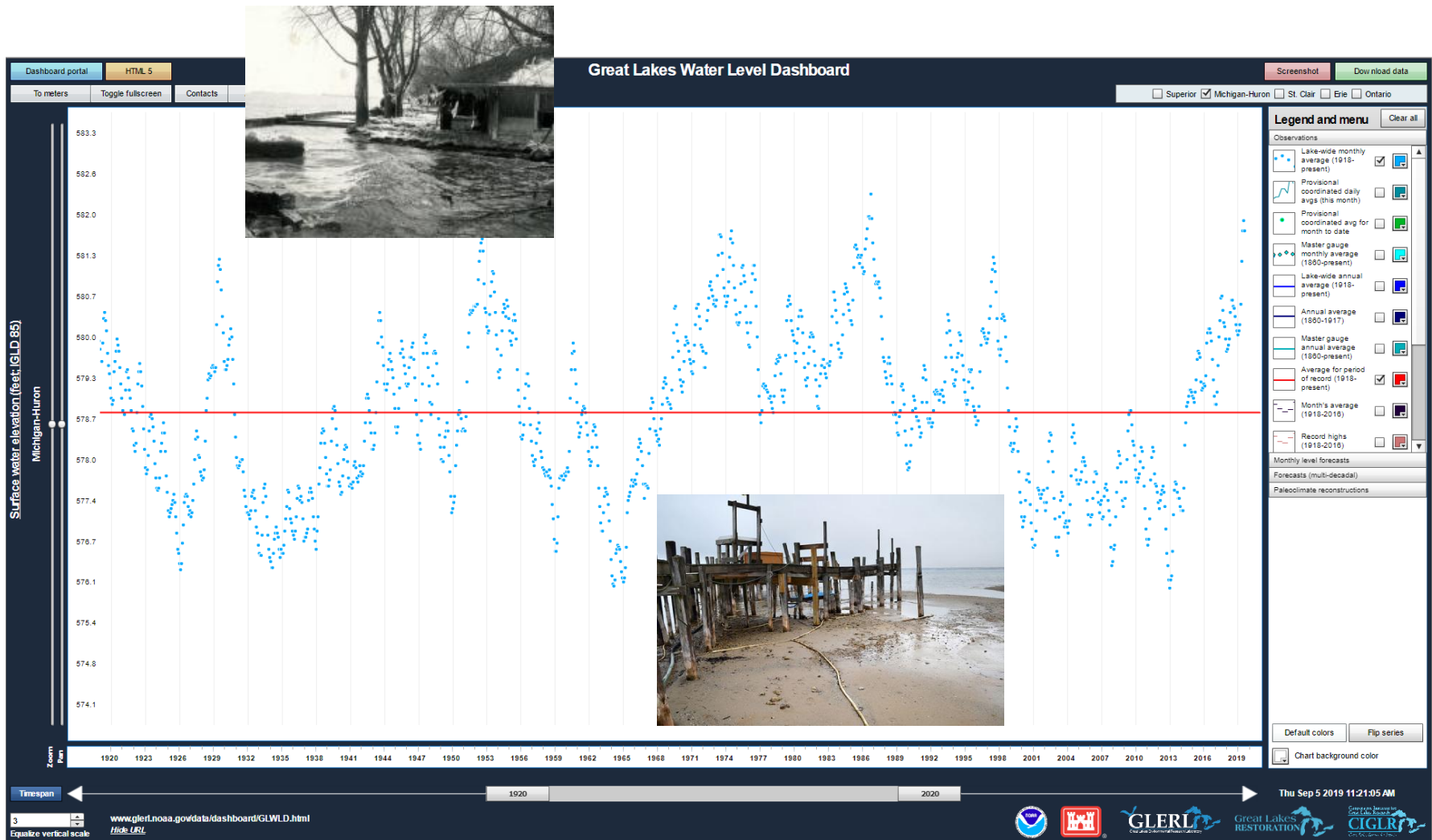


Mark Breederland
MI Sea Grant (Traverse City)
Water level workshops



Sara Orlando
OH Sea Grant (Sandusky, OH)
Resilient marinas tool

Lake Michigan-Huron Water Levels



<https://www.glerl.noaa.gov/data/dashboard/GLWLD.html>



Great Lakes Water Levels Integrated Assessment

What environmentally, socially, politically, and economically feasible policy options and management actions can people, businesses, and governments implement in order to adapt to current and future variability in Great Lakes water levels?

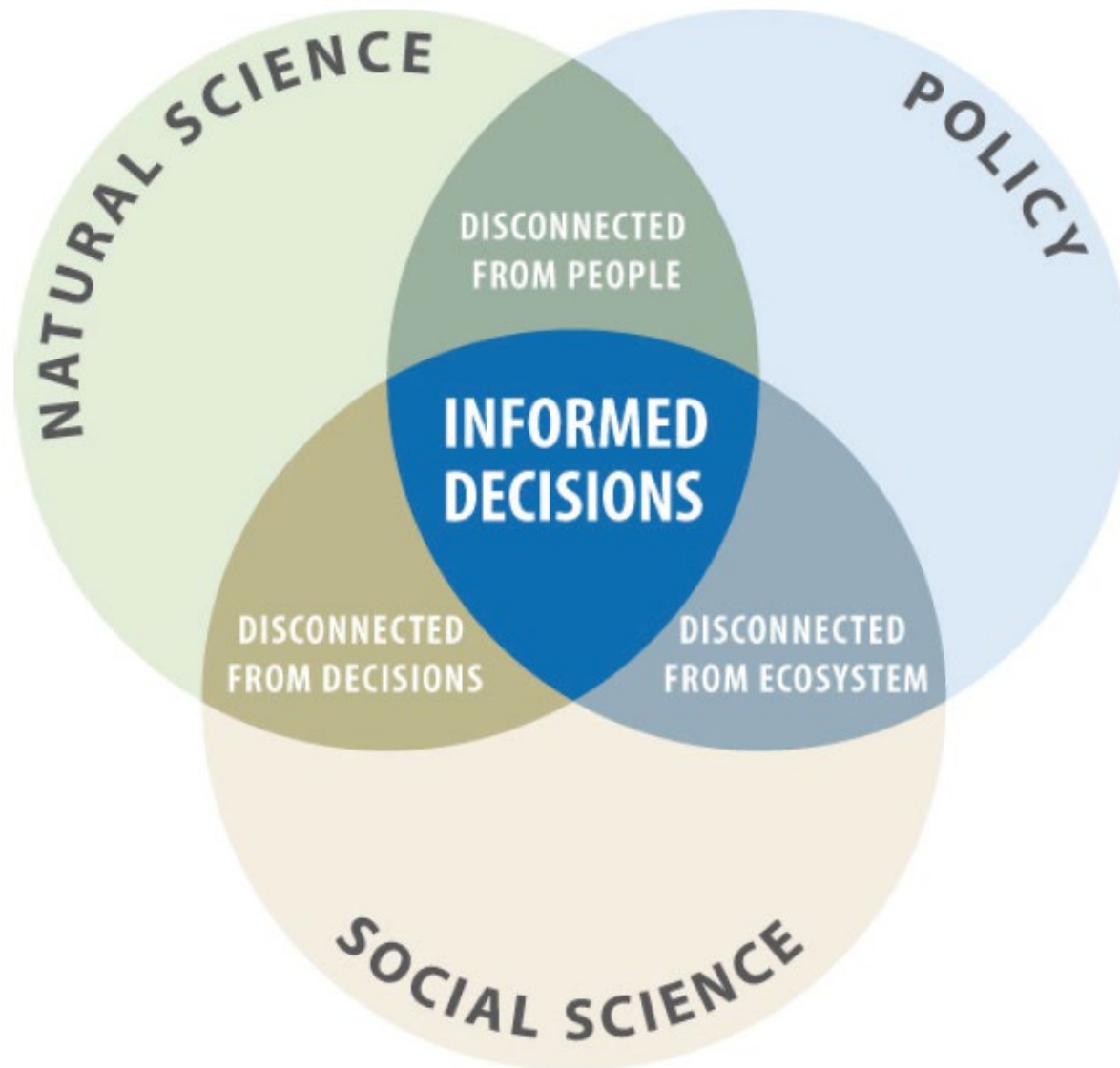
<http://graham.umich.edu/emopps/water-levels>

About Integrated Assessments

Integrated Assessments address complex problems where facts are uncertain, values in conflict, stakes are high, and decisions are urgent.

- Multi-disciplinary – requires natural scientists, social scientists and policy analysts
- Collaborative – connects researchers with resource managers, policy makers and the public
- Develops a range of policies and actions to consider, NOT prescriptions or recommendations

About Integrated Assessments





Integrated Assessment Place-based Projects



GLWLIA Options



M GRAHAM
SUSTAINABILITY INSTITUTE
UNIVERSITY OF MICHIGAN

Executive Summary

GREAT LAKES WATER LEVELS
INTEGRATED ASSESSMENT REPORT

FEBRUARY 2018

Figure 8: Categories of water level variability response options explored through the IA

Planning and Coordination

Individual measures cannot be applied in isolation from other measures and other shoreline communities. Multi-level coordination, planning, and funding cost-share among governments, non-governmental organizations and citizens is necessary.

Shoreline Stabilization

Structural and non-structural shoreline stabilization approaches can, in some instances, enhance shoreline stability. There are limits to what they can achieve, however, and structural solutions in particular can impact coastal dynamics and adversely impact other properties.

Land Use and Shoreline Management Policies

These options modify, prevent or regulate specific uses of the land and water. They can apply to both existing and future development, and within designated hazard areas or along the shoreline more broadly.

Education and Outreach

Education and outreach on a wide range of topics, for diverse audiences, and in multiple forms are important for raising awareness and successful implementation of other options.

GLWLIA Overarching Themes

Capacity

- At the local level, capacity is variable, and efforts should be cognizant of capacity needs and develop strategies to meet them.

Context

- Significant effort is needed to move general policy recommendations to locally specific adaptive management strategies.

Jurisdiction

- It is critical to understand the relevant authorities for decision making, particularly when multiple authorities (local, state, provincial, etc.) are involved.

GLWLIA Overarching Themes

Key Institutions

- Determining how to best apply limited resources and time can hinge on engaging key institutions and critical partners.

Public Input

- To find acceptable solutions, it is critical to solicit input from stakeholders, and competing perspectives should be sought out in a thoughtful manner. How stakeholder input is conducted can be as influential to an outcome as the methods of data collection and analysis.

Uncertainty

- Although uncertainty may be unavoidable to a certain extent, it need not preclude action. Tools such as scenario planning or approaches like adaptive management can help to develop and refine adaptive approaches in light of incomplete information.

Town of Port Washington

City of Port Washington

Wisconsin
GLWLIA
Project
Area

Town of Grafton

City of Mequon

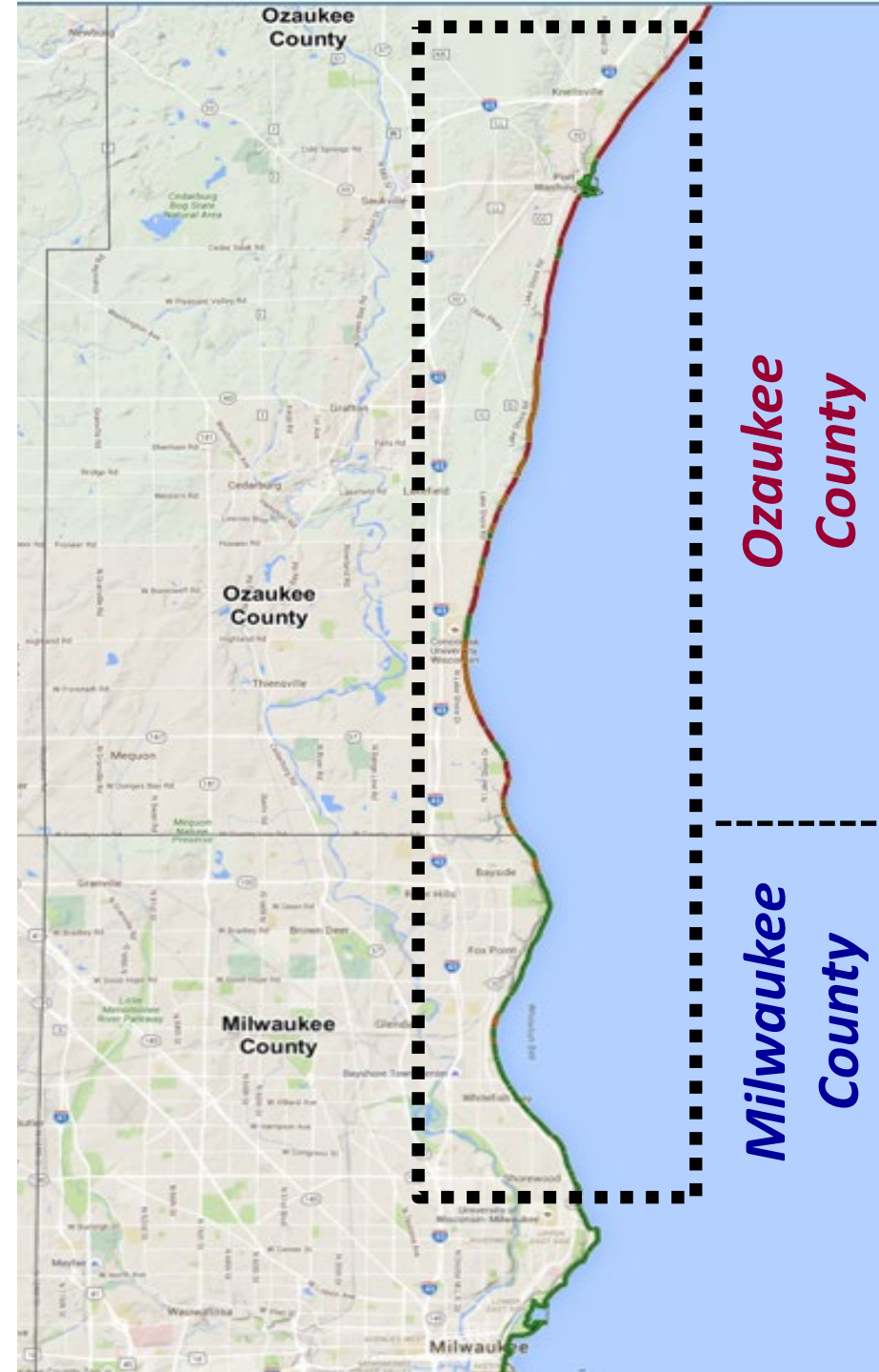
Village of Bayside

Village of Fox Point

Village of Whitefish Bay

Village of Shorewood

<https://go.wisc.edu/6kd7r6>



Project Team and Partners

Staff and scientists
representing:

- Civil Engineering
- Aquatic Ecology
- Geology
- Planning & Law
- Policy Studies
- Landscape
Architecture &
Site Design
- Beach Health



SEWRPC

Serving the counties of
Kenosha, Milwaukee,
Ozaukee, Racine, Walworth,
Washington, and Waukesha



 **WISCONSIN COASTAL
MANAGEMENT PROGRAM**



Bluff Stability Status & Trends

From 1976 to 2007, armoring of the Lake Michigan shore has increased from 9.6% to 27.3% in Ozaukee County and from 44.6% to 62.7% in Milwaukee County.

Town of Grafton, Ozaukee County
Photo taken 4/6/2012 18:53:29
April 2012 - 577.53 ft. IGLD85
Source: Great Lakes Oblique Imagery

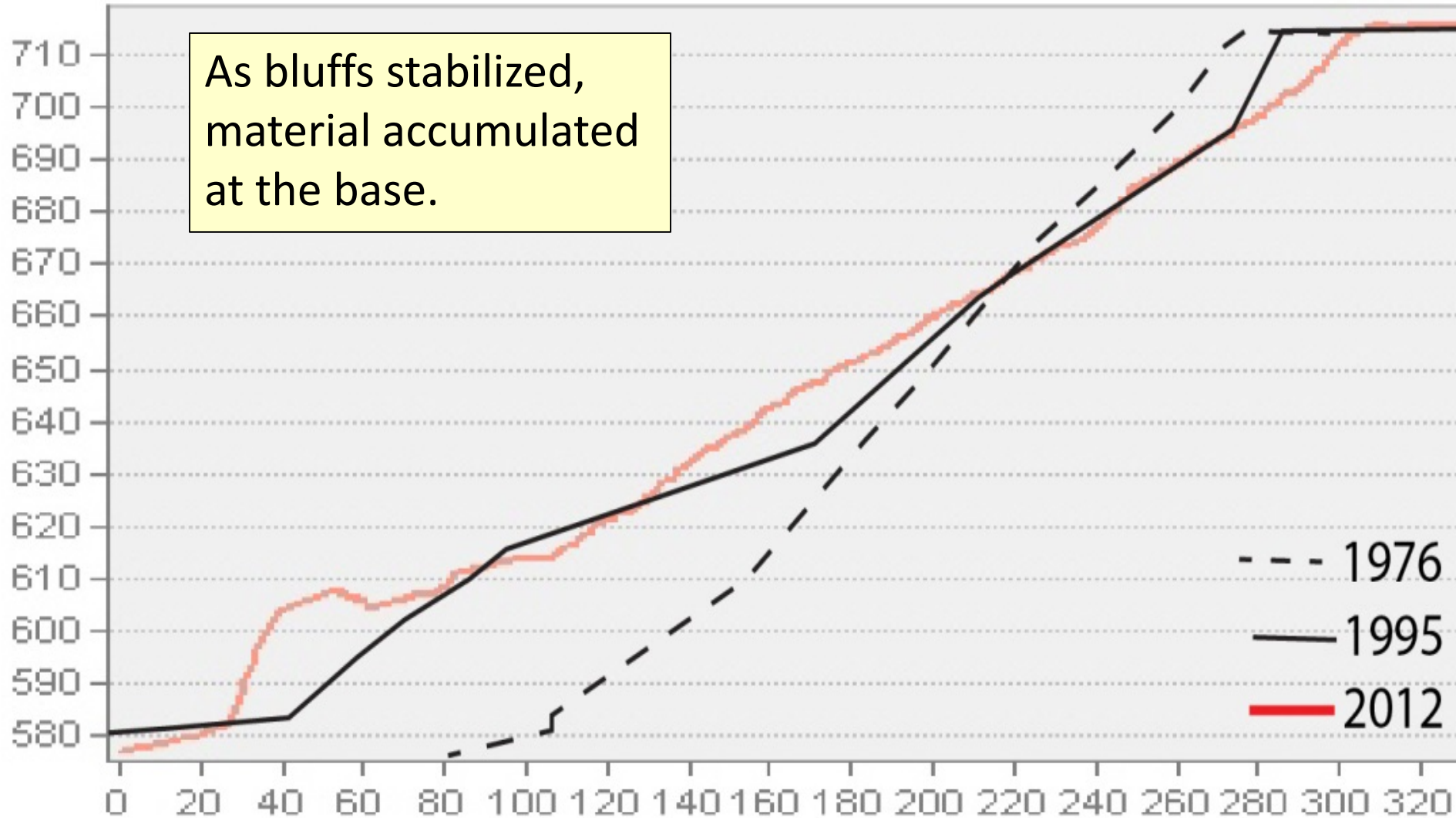
Bluff Stability Status & Trends



*Schlitz Audubon Nature Center,
Village of Bayside, Milwaukee County
Photo taken 4/7/2012 14:56:24
April 2012 - 577.53 ft. IGLD85
Source: Great Lakes Oblique Imagery*

From **1976 to 2012**, there was a trend towards more stable coastal bluffs in the study area. Research by geologist David Mickelson shows that of 48 bluff profiles analyzed for factor of safety in the study area, 90% increased in stability, 4% decreased and 6% remained unchanged.

Bluff Stability Status & Trends



Bluff Stability Status & Trends

Preliminary analysis of August 2016 oblique photos for the project area shows relatively little change in bluff stability since 2012, but change in higher bluffs lags shorter bluffs.

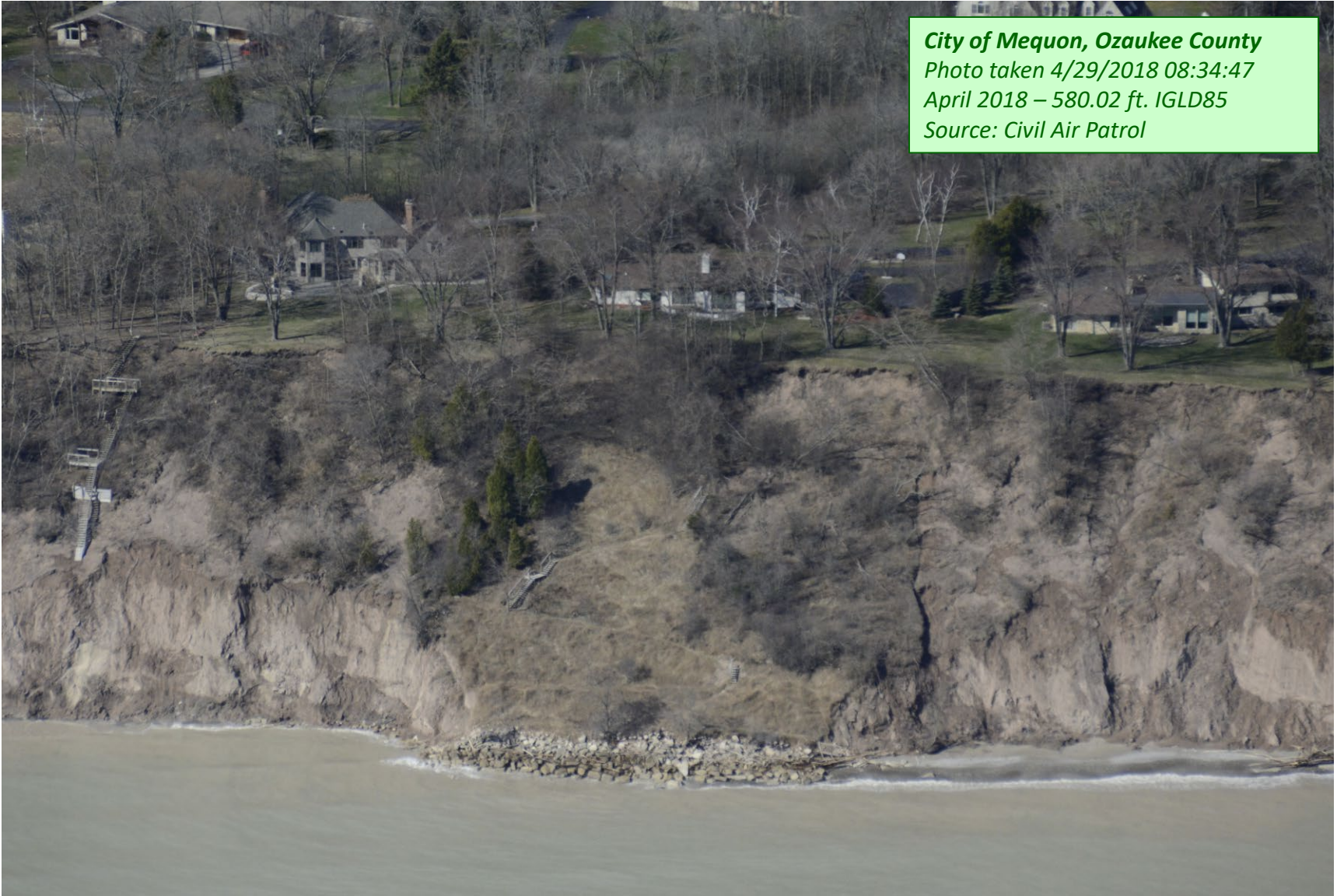
City of Mequon

Photo taken 8/23/2016

August 2016 – 580.12 ft. IGLD85

Source: David Mickelson and Lucas Zoet

Water Level Challenges



City of Mequon, Ozaukee County

Photo taken 4/29/2018 08:34:47

April 2018 – 580.02 ft. IGLD85

Source: Civil Air Patrol

Community Conversations – Summer 2016

- Port Washington/Grafton
 - June 15, 2016
 - American Legion Hall, Saukville
 - Attendance: 45
- Mequon
 - July 27, 2016
 - North Reuter Pavilion, Mequon
 - Attendance: 55
- Shorewood/Whitefish Bay/Fox Point/Bayside
 - August 17, 2016
 - Schlitz Audubon Nature Center, Bayside
 - Attendance: 43

Agenda for the Summer Meetings

- Welcome and Introductions
- Presentation
 - Background on water levels and coastal bluffs
 - Resources for addressing erosion
- Brainstorming Exercise
 - What are your hopes & wishes and concerns & issues for the future of coastal bluffs and shores?
- Closing Reflection

Weekday evening meetings lasting approx. 2.5 hours and were facilitated by experienced public engagement specialists

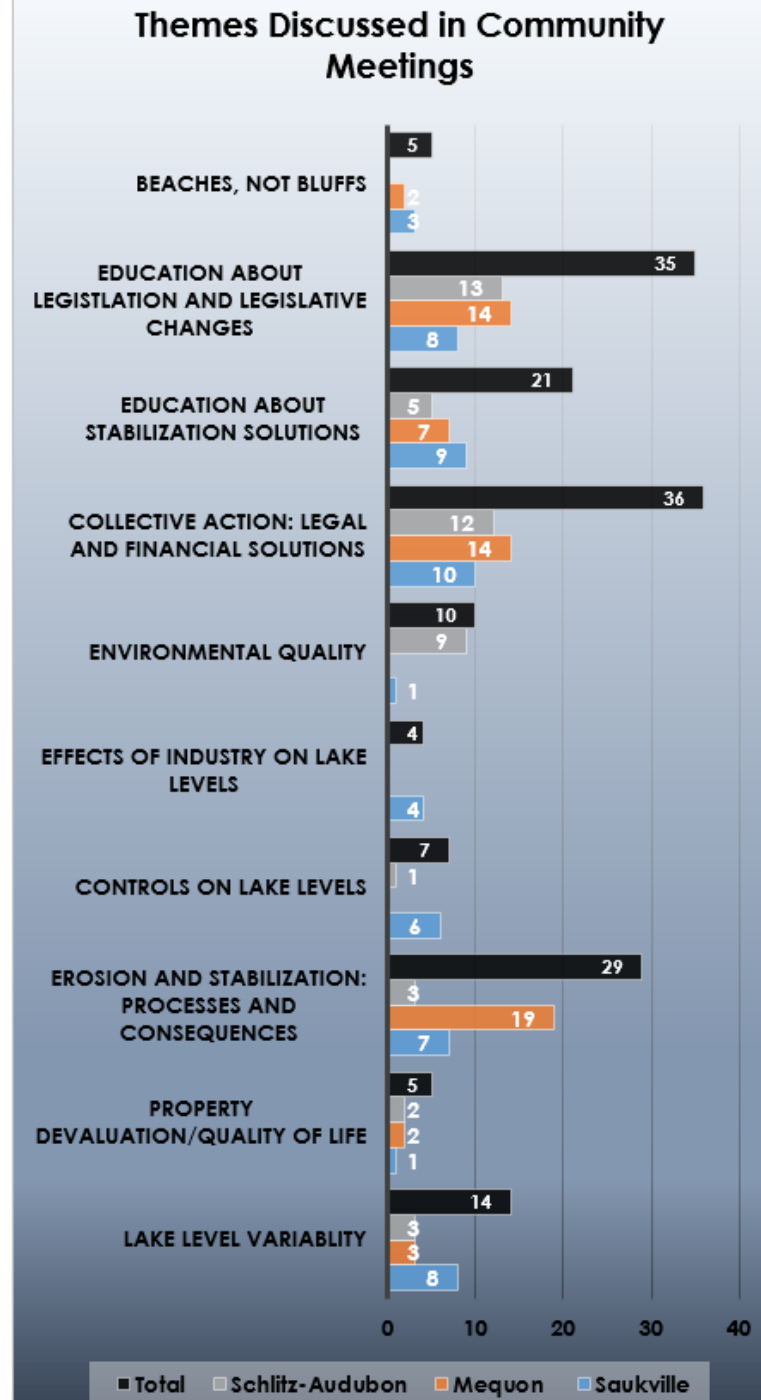
Sticky Note Exercise

Hopes & Wishes, Concerns & Issues



Themes from the Summer Meetings

1. Collective Action: Legal & financial solutions
2. Education about legislation and legislative changes
3. Erosion and stabilization: processes & consequences
4. Education about stabilization solutions
5. Lake level variability
6. Environmental quality



Category 1: Erosion Control and Bluff Stability Options

Theme 1: Low Impact Practices



- Building Relocation
- Mobile Construction
- Green Infrastructure/Low Impact Development

Theme 2: Bluff Stability Practices



- Bluff Top Stormwater Management
- Bluff Dewatering
- Bluff Vegetation and Green Infrastructure
- Bluff Re-grading and Terracing

Theme 3: Structural Shore Protection



- Revetment
- Sea Wall
- Breakwater
- Groin

Theme 4: Nature-Based Shore Protection



- Living Revetment
- Breakwater Protecting Living Shoreline
- Living Breakwater
- Artificial Beaches & Beach Nourishment

Category 2: Collaboration and Policy Options

Theme 1: Collaboration and Facilitation



- Non-Binding Collaboration with Neighbors
- Visioning and Facilitated Collaboration
- Dynamic Concept Mapping (VCAPS)...

Theme 2: Funding



- Cost Sharing Framework
- Incentives
- Creation of Aid Fund for Bluff/Shore Properties
- Revolving Loan Fund...

Theme 3: Permitting Guidelines



- New Homeowner Tutorial Requirement
- Fee to Fund Site Monitoring in Permits
- Revision of Permitting Process for Offshore Structures...

Theme 4: Analysis, Planning and Policies



- Coordinated Ordinances among Municipalities
- Bluff Top Stormwater and Onsite Wastewater Management Ordinances
- Bluff Vegetation Ordinances...

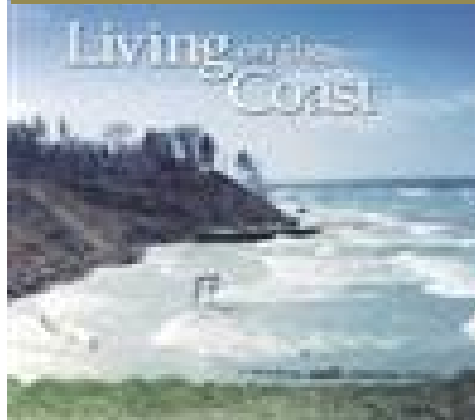
Category 3: Guidance and Resource Options

Theme 1: Outreach and Education Activities



- Homeowner Workshop Series
- Public Official Workshop Series
- Regional Resilience Outreach Specialist
- Develop K-12 Curriculum Material...

Theme 2: Publications



- Homeowner Guide to Bluff and Shore Erosion
- Home Relocation Guide
- DNR Permit Application Guide...

Theme 3: Mapping and Decision Tools



- Mapping and Visualization of Coastal Environmental & Social Characteristics
- Coastal Resilience Portal
- Spectrum of Response Options...

Community Review of Options



Response	Meaning
1	I like this option
2	I am neutral on this option
3	I do not like this option
4	I would like to know more before I rate this option

Meeting: October 27, 2016

- Reviewed hopes & wishes
- Rating exercise w/ clickers

Response Options - Rating Results

Structural - in general, "greening" of conventional approaches was most favorable

- Gray - Interest was moderate with revetments as the favorite
- Green - Some interest in greener approaches, but tentative about effectiveness
- Gray + Green - Most highly "liked" of all structural approaches

Outreach & Tools

- Near universal support for more outreach

Response Options - Rating Results

Policy - support for collaboration, but wanted more info on specifics of new policy initiatives

- Collaborative efforts with neighbors were strongly favored
- Adding a formal legal framework (e.g. Neighborhood Improvement Districts) were less favorable
- Moderate support for a larger authority throughout the Great Lakes
- Favor for changing permitting practices to ease approval of breakwaters/groins and promotion of green practices
- Favor for policy review mechanisms that would allow quicker responding regulations (trigger mechanism)

Adapting to a Changing Coast

OPTIONS AND RESOURCES FOR
LAKE MICHIGAN PROPERTY OWNERS



Adapting to a Changing Coast

UNIVERSITY OF WISCONSIN SEA GRANT INSTITUTE

OPTIONS AND RESOURCES FOR LOCAL OFFICIALS IN
SOUTHEASTERN WISCONSIN COASTAL COMMUNITIES



Adapting to a Changing Coast

UNIVERSITY OF WISCONSIN SEA GRANT INSTITUTE

Adapting to a Changing Coast

Structural Shore Protection - Revetment

Who?
Homeowner/local or state government

Purpose?
Reduce shore erosion

Challenges?
Can accelerate erosion of adjacent properties

Cost?
\$\$-\$\$\$\$

REVETMENT

Similar to a seawall, this is a hard protective structure, often made of stone, concrete or sandbags parallel to the shore with a sloping face designed to protect against wave erosion.

Benefits	Challenges
Resists bluff toe and shore erosion from strong waves	Can accelerate shore erosion of adjacent properties
Can provide some protection from storm surge	Can accelerate erosion of lakebed along bottom edge of revetment
Can be durable, long-term technique for reducing shore erosion	Requires appropriate materials/practices to be effective
	Reduces sediment input to lake and leads to loss of beaches
	Damages shoreline habitat
	Can limit pedestrian access to shoreline
	Can be difficult to access site for construction

Resources

"Natural and Structural Measures for Shoreline Stabilization," a publication by the Systems Approach to Geomorphic Engineering.

sagecoast.org/docs/SAGE_LivingShorelineBrochure_Print.pdf

"Living on the Coast: Protecting Investments in Shore Property on the Great Lakes," a joint publication from the University of Wisconsin Sea Grant Institute and the U.S. Army Corps of Engineers.

seagrant.umn.edu/downloads/ch002.pdf

"Great Lakes Coastal Shore Protection Structures and Their Effects on Coastal Processes," a publication by Wisconsin Sea Grant.

ready.wi.gov/CoastalErosion/GLCoastalShoreProtectionStructures.pdf



Related Options

Seawall

Groin

Living Revetment/Seawall
Artificial Beaches and Beach Nourishment

Revetment images: Revetments are often made of interlocking stones and should slope down into the water (top left).

The Southport Park revetment in Kenosha, Wis., provides simple shore protection (top right).

Revetments can be paired with other coastal erosion techniques. Bender Park in Oak Creek, Wis., is an example of a revetment paired with bluff re-grading. The bluff is at a stable angle, and the revetment protects the bluff toe from further erosion (bottom).

Great Lakes State Legislatures

Addressing Recent High Water Levels

Ohio Special Improvement Districts - House Bill 709

- allows bonding to implement projects that would otherwise be too costly to pay for in cash by homeowners

New York Homeowner Assistance - 2017 and 2019

- provides residents in impacted multi-county region up to \$50,000 in state funding to help offset damages to their primary residences

Indiana Sand Dredging Law – Senate Enrolled Act 178

- requires companies removing sand from port and industrial water intake pipes to deposit it directly on region beaches, instead of offshore

SE Wisconsin Coastal Resilience Project

SOUTHEASTERN WISCONSIN  COASTAL RESILIENCE



**Building resilience
to coastal hazards**

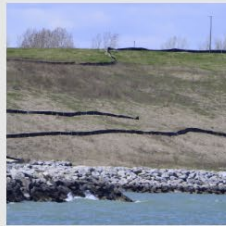
ABOUT THE PROJECT

Erosion, coastal storms and fluctuating water levels can threaten coastal properties and impair assets important to tourism and commerce. This project will provide resources and assistance to communities in Ozaukee, Milwaukee, Racine, and Kenosha Counties to plan and prepare for coastal hazards.

[LEARN MORE](#)



ASSESS AND MAP SHORELINE CHANGE



IDENTIFY LOCAL RESILIENCE OPPORTUNITIES



DEVELOP EDUCATIONAL RESOURCES ON RESILIENT COASTAL ACTIONS

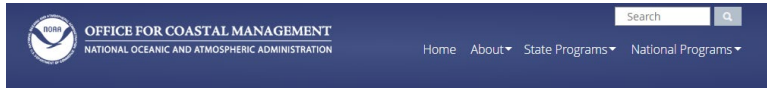


ORGANIZE A COMMUNITY OF PRACTICE FOR COASTAL RESILIENCE

- Three-year regional coastal resilience project funded at \$840K by NOAA.
- Build a network of 22 communities in 4 counties.
- Research bluff and shore erosion.
- Create guidance on risk reduction practices.
- Identify, fund and implement local resilience opportunities.

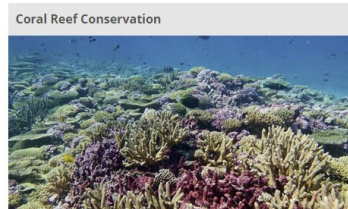
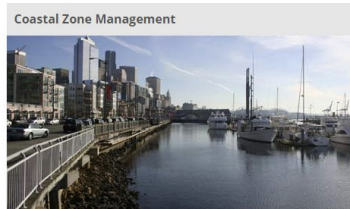
<https://sewicoastalresilience.org/>

Resources: Coastal Management Programs and Conservation Authorities



"Coastal management" refers to actions taken to keep residents safe, the economy sound, and natural resources functioning. This is accomplished with federal and state partnership programs. Federal legislation provides the overarching mandates; NOAA's Office for Coastal Management oversees implementation and provides technical assistance; federally approved state programs provide day-to-day implementation.

Learn About the Programs



Conservation Ontario represents Ontario's 36 Conservation Authorities, which are local watershed management agencies, mandated to ensure the conservation, restoration and responsible management of Ontario's water, land and natural habitats through programs that balance human, environmental and economic needs.

<https://coast.noaa.gov/czm/mystate/>

<https://conservationontario.ca/>

Questions?

David Hart

University of Wisconsin Sea Grant Institute

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Twitter: @dhartuw

Handouts

<https://uwmadison.box.com/v/gl-legislative-caucus>

Sea Grant

<https://seagrant.noaa.gov>

GL Water Levels Integrated Assessment

<http://graham.umich.edu/emopps/water-levels>

Wisconsin Integrated Assessment

<https://go.wisc.edu/6kd7r6>

SE Wisconsin Coastal Resilience

<https://sewicoastalresilience.org>



Business Session

- Resolutions for Consideration at the 2019 Annual Meeting
- Acknowledgement of Great Lakes-St. Lawrence Appreciation Day
- Preview of GLLC Annual Meeting in Chicago

Proposed Resolutions

19-1: Urging the Federal Government to Fund Research on Microplastics in the Environment

The GLLC urges the United States Environmental Protection Agency to increase research efforts on microplastics.

Proposed Resolutions

19-2: Urging Additional Research on Nonnative Fish Stocking in the Great Lakes

The GLLC urges the federal governments of the United States and Canada to provide appropriate resources to support research on the impacts of nonnative fish stocking of the Great Lakes; and requests government agencies as well as research institutions to identify research needs.



State Sen. Ed Charbonneau, R-Valparaiso, wears a river-inspired tie in the Senate chamber after winning unanimous approval for Senate Resolution 45, recognizing the importance of the Great Lakes and St. Lawrence River to Indiana's economy, and calling on the governor to designate Sept. 7 as Great Lakes-St. Lawrence Appreciation Day.

Dan Carden, The Times

#2019GLLC

- September 13
 - 7:30 – 11:30 am: Task Force on Lead workshop
 - 12 – 6 pm: Site Visit
 - 6:30 – 8:30 pm: Reception
- September 14
 - 7 – 8:15 am: GLLC Executive Committee breakfast meeting
 - 8:30 am – 5:30 pm: GLLC Meeting
- Wyndham Grand Chicago Riverfront Hotel at
71 E. Wacker Drive

*Please join us at this same
time on December 13, 2019.*

Thank you for attending!

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LEGISLATIVE CAUCUS



MIDWEST