

**\*\*\*ATTACHMENTS\*\*\***

# Implementing Dangerous Currents Best Practices

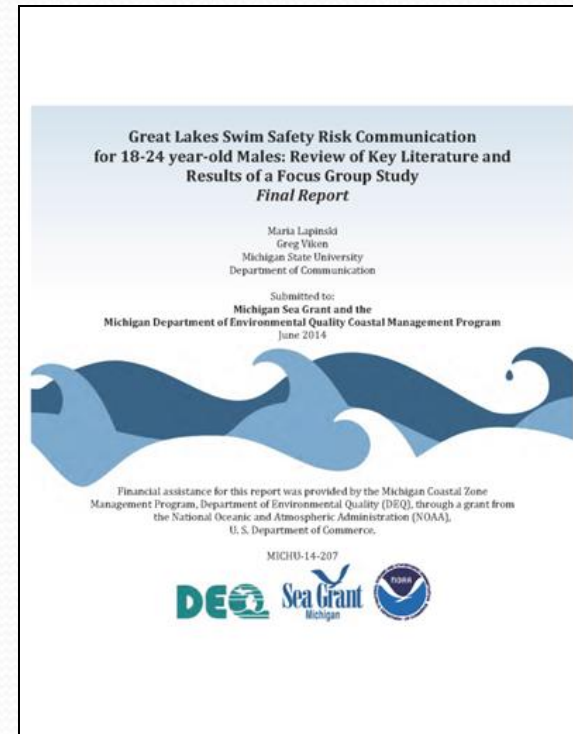
## Development of an Observation, Forecasting, and Warning System for Rip Currents

Lakefront Water Safety Task Group  
Sheboygan, Wisconsin

Todd Breiby  
Wisconsin Coastal Management Program  
Department of Administration



# Risk Communication: Great Lakes Beach Hazards



Targeted audience: youth, tourists and parents of small children

# Development of an Observation, Forecasting, and Warning System for Rip Currents (INFOS)

## **Project Objective**

Improve rip current beach hazard warning by developing an innovative and cost-effective means to characterize, identify and detect rip currents, communicate risks and educate public.

## **Project partners**

UW-Madison, UW Sea Grant, MN Sea Grant, WI Coastal Management, NOAA Coastal Storms, NOAA National Ocean Service, GLERL, NOAA National Weather Service, City of Port Washington, City of Duluth and Milwaukee County.

# Project Locations

Duluth, MN  
Park Point Beach



Port Washington, WI  
North Beach

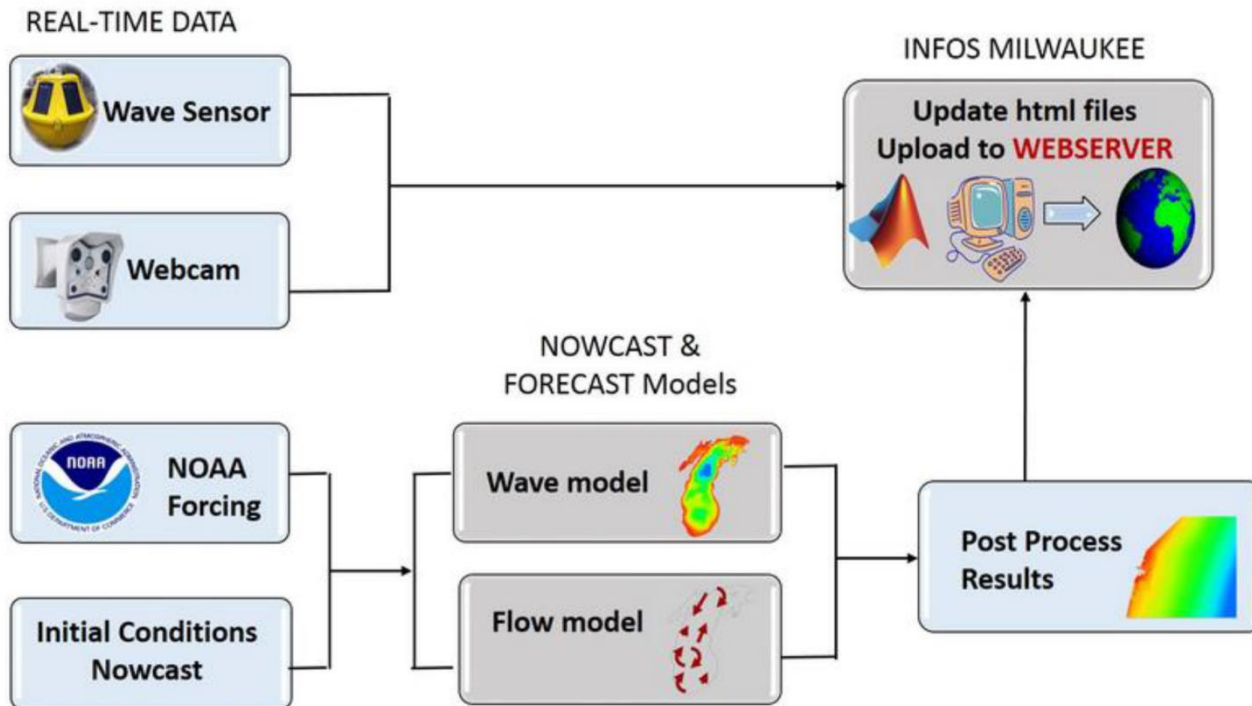
Milwaukee, WI  
McKinley Beach

# INFOS Observation System: Port Washington



# Integrated Nowcast (real-time) Observation and Forecast Operation System (INFOS)

Integrated **N**owcast **F**orecast **O**peration **S**ystem  
(**INFOS**)



# Forecast System

## INFOS *Port Washington*

### Integrated Nowcast/Forecast Operation System for the Port Washington

[Home](#) [About INFOS](#)

**Rip Risk Watch** 10/18 9 AM All Times in CST

10/17 10 PM	10/18 10 AM
10/17 11 PM	10/18 11 AM
10/18 12 AM	10/18 12 PM
10/18 1 AM	10/18 1 PM
10/18 2 AM	10/18 2 PM
10/18 3 AM	10/18 3 PM
10/18 4 AM	10/18 4 PM
10/18 5 AM	10/18 5 PM
10/18 6 AM	10/18 6 PM
10/18 7 AM	10/18 7 PM
10/18 8 AM	10/18 8 PM
<b>10/18 9 AM</b>	10/18 9 PM

Map Satellite

0 25 50 cm/sec  
0 0.85 1.7 foot/sec

Surface Currents

**Partnership**

- Wisconsin Coastal Management Program
- EEM
- WISCONSIN NATIONAL WEATHER SERVICE
- PORT WASHINGTON YOUR Home Port
- NARR
- OZAUKEE COUNTY
- WISCONSIN
- Sea Grant University of Wisconsin
- US Army Corps of Engineers

History  
Wiki  
Shipwrecks  
Fishing  
Others  
Coastal Storms Program  
NWS Rip Outlook  
Dangerous Currents

Webcams  
Port Washington  
Live View Cam  
Panoramas  
Rip Current Watch

Observations  
Waves  
Meteorology  
Radar  
Bluffs

Models  
Waves  
Currents  
Water Temperatures  
Water Level

Descriptions  
WAITS-RC  
NEMO-RC  
Great Lakes Beach Hazards

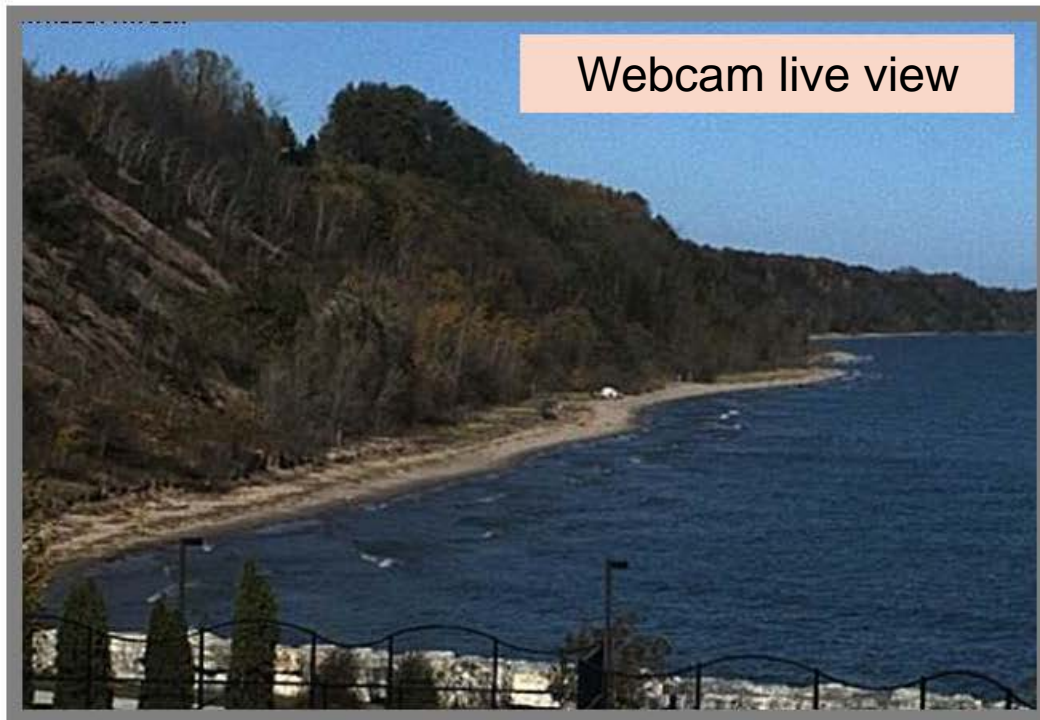
# Real-Time Rip Risk Watch Tool

Current Condition

## Real-Time Rip Current Watch at Port Washington, Wisconsin

*Update at: 2015/10/22  
2:16 PM*

<b>Wave Height</b>	N/A
<b>Wave Period</b>	N/A
<b>Wind Speed</b>	5.8 mph
<b>Wind Direction</b>	S
<b>Air Pressure</b>	30.3 in Hg
<b>Air Temp.</b>	58.5 °F
<b>Water Temp. (surface)</b>	56.8 °F
<b>Water Temp. (bottom)</b>	N/A



### Rip Current Risk Levels



A LOW RISK implies that dangerous waves and currents are not expected. However, dangerous currents may exist at any time near breakwater. Always use caution and never swim alone.

Risk level & explanation



[http://infosportwashington.cee.wisc.edu/pw\\_rip\\_watch\\_2.html](http://infosportwashington.cee.wisc.edu/pw_rip_watch_2.html)

# Implementing Dangerous Currents Best Practices

## **Project Objective**

The project will implement consistent best practices in targeted Great Lakes coastal areas and communities to help reduce the loss of life from dangerous currents.

## **Project partners**

IL, IN, MI, MN, OH & WI Sea Grant and Coastal Management Programs and NOAA Coastal Storms Program.

# Project Implementation

- Multi-state coordination (Great Lakes)
- Establish state working groups
- Develop and implement consistent messages
- Develop distribution plan for beach safety kits
- Promote and deploy beach safety kits, resources
- Beach safety kit surveys re: efficacy
- Develop GL Regional Dangerous Currents Sustainability Plan






# Water/Beach Safety Equipment

## Implementing Dangerous Currents Best Practices Beach Safety Kits

State Working Groups will gather feedback from local partners and report to project group:

- Determine what water safety and emergency rescue components are desirable for application in each state.
- Determine exact location for kits (based in part on NWS incident data) and quantities of kit components (based on size of public beach area and other factors) for each state.

In 2015 more than 1,875 pieces of equipment were distributed in six Great Lakes states (IL, IN, MI, MN, OH & WI)

Item	Description	Purpose	Photo (if available)
<i>Emergency Land-based Rescue Equipment</i>			
Rescue Throw ring (Type IV Buoy)*	Orange, 24 in (std.) with grab rope on buoy and 75 ft. rope	On-land emergency assistance-more visible from shore and easier to toss	
Rescue Throwbag (RQ3 Ultimate "No Knot")	Second-chance float feature with 75 ft. rope	On-land emergency assistance-optimal in high wind conditions	
<i>Emergency In-water Rescue Equipment</i>			
Adult life vest (Crew Mate)*	Head up design, Type I, min. 22 lbs buoyancy	Trained first responders and others performing in-water emergency rescues	
Youth life jacket*	Head up design, 11.8 lbs buoyancy, 50 - 90 lbs. weight	Youth at the beach – loaner programs to encourage use (Could consider multiple sizes)	
Rescue Board	Carlson, 2'x4'x4" ethafoam (9 lbs.)	In-water emergency rescues (to be used with adult life vest)	
<i>Water Safety Equipment &amp; Public Outreach Tools</i>			
Water watcher cards and lanyard	Break-away (no-choke cord) with plastic sleeve	Support a GL regional water watcher program to encourage close contact at the beach  Printed cards for lanyards and 25K for Sea Grant and parks service to hand out	See appendices for MDEQ MI Sea Grant sample**



# Safety Equipment Deployment and Rescue Stations



Lake Michigan and Lake Superior beaches

State and local public beaches

Over 200 pieces of safety equipment

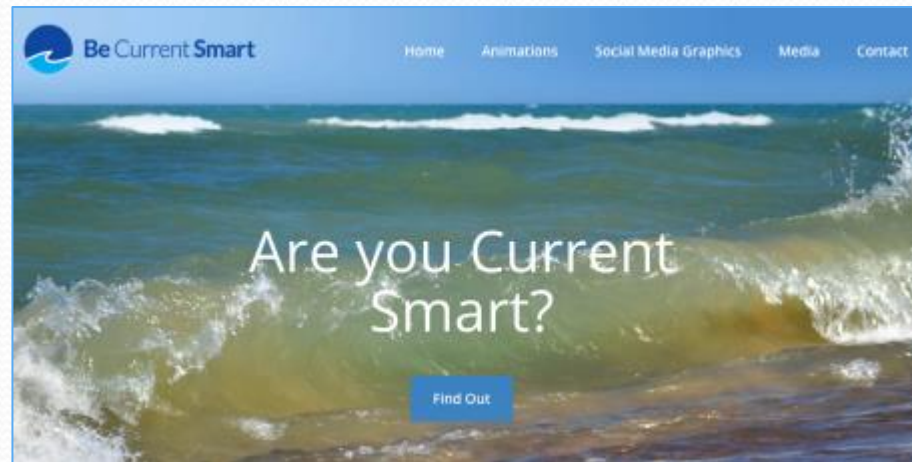
41 coastal beaches

1 coastal structure

7 of 15 coastal counties

# Be Current Smart

## *Regional Campaign*



*First GL regional water safety campaign*

- Science-based (NWS)
- Multi-media (social)
- Targets: young men & parents

### *6 Messages*

- Three Steps to Safety
- Be a Water Watcher
- Steer Clear of the Pier
- Stay Dry When Waves are High
- Shoreline Rescue
- Heed Warning Flags

# Leveraging Opportunities

Wisconsin Coastal Beaches Working Group

<http://seagrant.wisc.edu/Home/Topics/CoastalCommunities/Details.aspx?PositID=2230>

[wicoastalbeaches@mailman.great-lakes.net](mailto:wicoastalbeaches@mailman.great-lakes.net)

Great Lakes Water Safety Consortium

<http://greatlakeswatersafety.org/>



Dangerous Currents

<http://www.miseagrant.umich.edu/dc/>



Great Lakes Surf Rescue Project

<http://www.glsrp.org/>



# Thank You

Todd Breiby

Wisconsin Coastal Management Program

(608) 261-6349

[todd.breiby@wisconsin.gov](mailto:todd.breiby@wisconsin.gov)



# Water Safety PDT



Sheboygan, WI  
September 2016



# Detroit District

- 91 Harbors
- 99 miles of structures
- 611 miles of channels
- 3,200 miles of coastline

















**Warning**

Surface Uneven  
and Slippery  
When Wet

**Caution**

Waves Flood Surface  
During Storms and  
Rough Seas

**EMERGENCY  
CALL BOX**



# Headlines

GRAND  
HAVEN

TRIBUNE

COOL  
Details on page

© 1994 Grand Haven Publishing

GRAND HAVEN, MICHIGAN-49417- Saturday, October 28, 1995

24 PAGES 3

## Man drowns when large wave knocks him off pier

### Friends' rescue attempts fail

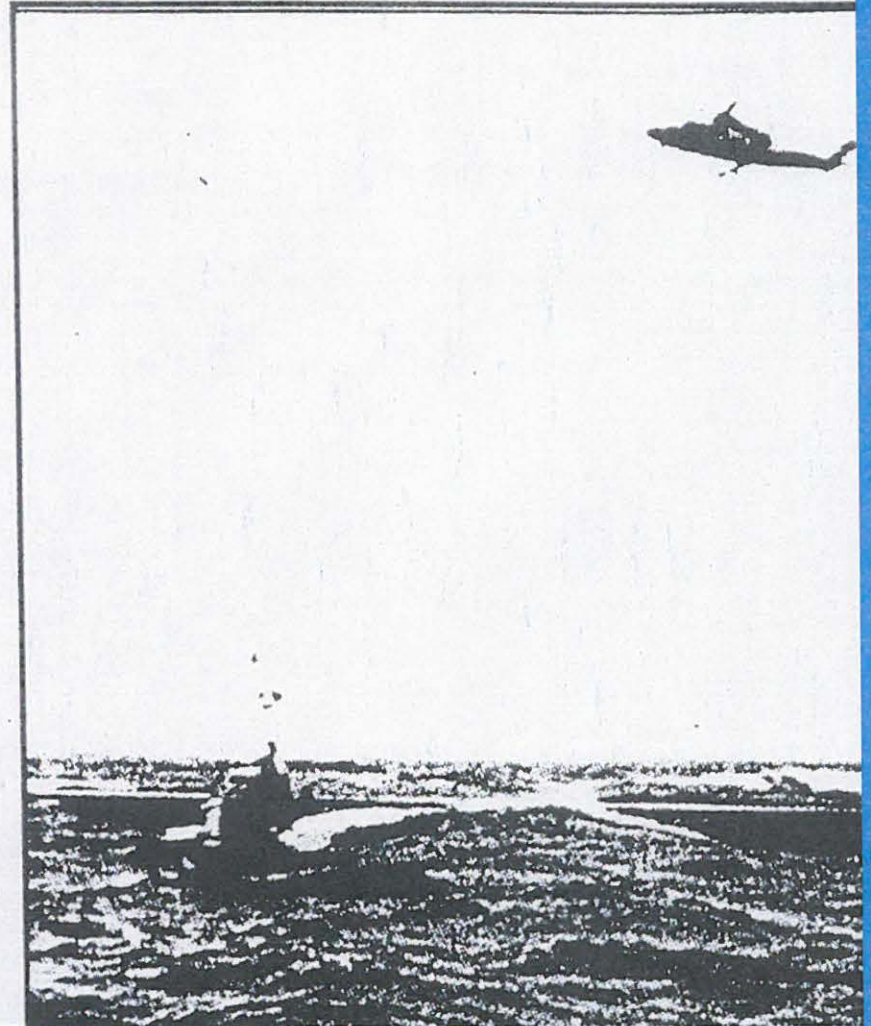
By Mickey Ciokajio  
Tribune writer


A visit to Grand Haven turned tragic Friday afternoon when a 29-year-old man drowned after a giant wave tossed him from the South Pier.

Two friends dove in to save Eugene Victor Grochowski of Delton when he was washed in at 3:25 p.m. but 52-degree water and 8-foot waves prevented them from pulling him to safety, said Richard Szczepanek, deputy director of the Department of Public Safety.

Roger Smith, of Kalamazoo, and 28-year-old Plainwell resident Mark Colwell managed to get back on the pier and were treated for hypothermia at North Ottawa Community Hospital. They were released Friday evening.

THE DROWNING is the first off the pier since new signs advising



A large, light-colored stone monument stands on a concrete pier. The monument is composed of two parts: a rectangular base and a larger, irregularly shaped upper section. The upper section is inscribed with two lines of text. The background shows a body of water, a blue metal railing, and some buildings in the distance under a clear blue sky.

IN MEMORY OF  
LIVES LOST  
OFF THESE PIERS.

IN HONOR OF  
THOSE WHO TRIED  
TO SAVE THEM.



# Pier Safety

## What is USACE doing?

- Report accidents on our structures
- Identify potential safety hazards (slipping, tripping, etc.)
- Provide appropriate warning signs
- Educate the public
  - Beach & Pier Safety Video & Brochure
  - Swimming, Jumping, Storm Press Releases



# Identify Safety Hazards

Standard  
Pier  
Walkway  
Markings





# Identify Safety Hazards






# Warning Signs





# Warning Signs





**CAUTION**

THIS STRUCTURE PROTECTS NAVIGATION  
INSURE YOUR SAFETY-USE WITH CAUTION  
KEEP OFF DURING STORMS  
OR HIGH SEAS

CORPS OF ENGINEERS U.S. ARMY DETROIT DISTRICT

SLIPPING - TRIPPING  
HAZARDS PRESENT



# Warning Signs

## Spanish Signs



### Aviso

Estructura no Esta  
Diseñado Para  
Acceso Publico  
Proceda a Su  
Propio Riesgo



ADVERTENCIA  
OLAS INUNDEN  
EL SUPERFICIE  
DURANTE TORMENTAS  
Y MAR ASPERO



ADVERTENCIA  
ESTRUCTURA  
IRREGULAR  
Y RESBALOSO  
CUANDO ESTA MOJADO



# Warning Signs





# Education

**BEACH & PIER SAFETY**  
PRESENTS  
*Respect the Power*

Remember when you walk these piers, when you venture into these waters to swim or surf, you are in the midst of a force you cannot reckon with, you can only arm yourself with the knowledge of how to avoid becoming a victim of its power.

DVD ver. 5a

**BEACH & PIER SAFETY**

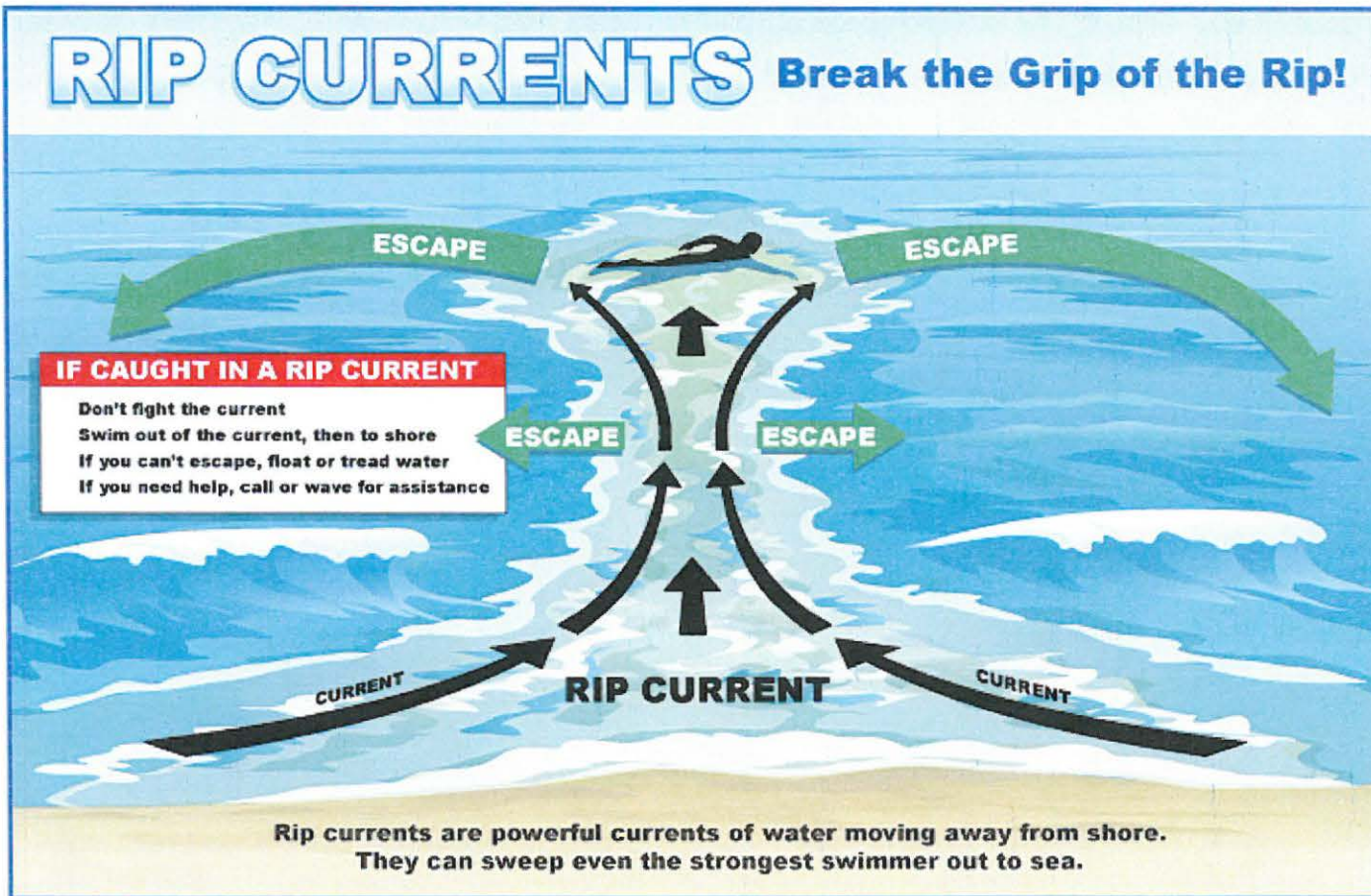
Respect the Power

**RIP CURRENTS!**

**BREAK THE GRIP OF THE RIP**

**RIP**™

# RIP CURRENTS **Break the Grip of the Rip!**



## Signs & Posters

# *Pier Safety:* A matter of life or death

## *A few suggested safety precautions...*

- Closely supervise your children.
- Life jackets should be worn by young children and non-swimmers.
- Do not dive off of or swim around pier structures.
- Stay off piers during high winds or when waves are washing over.
- Avoid walking upon wet, slippery areas.
- Do not get close to the edge.
- Do not run or climb upon pier structures.
- Local ordinances may prohibit swimming in navigational channels.

*Sponsored by:*

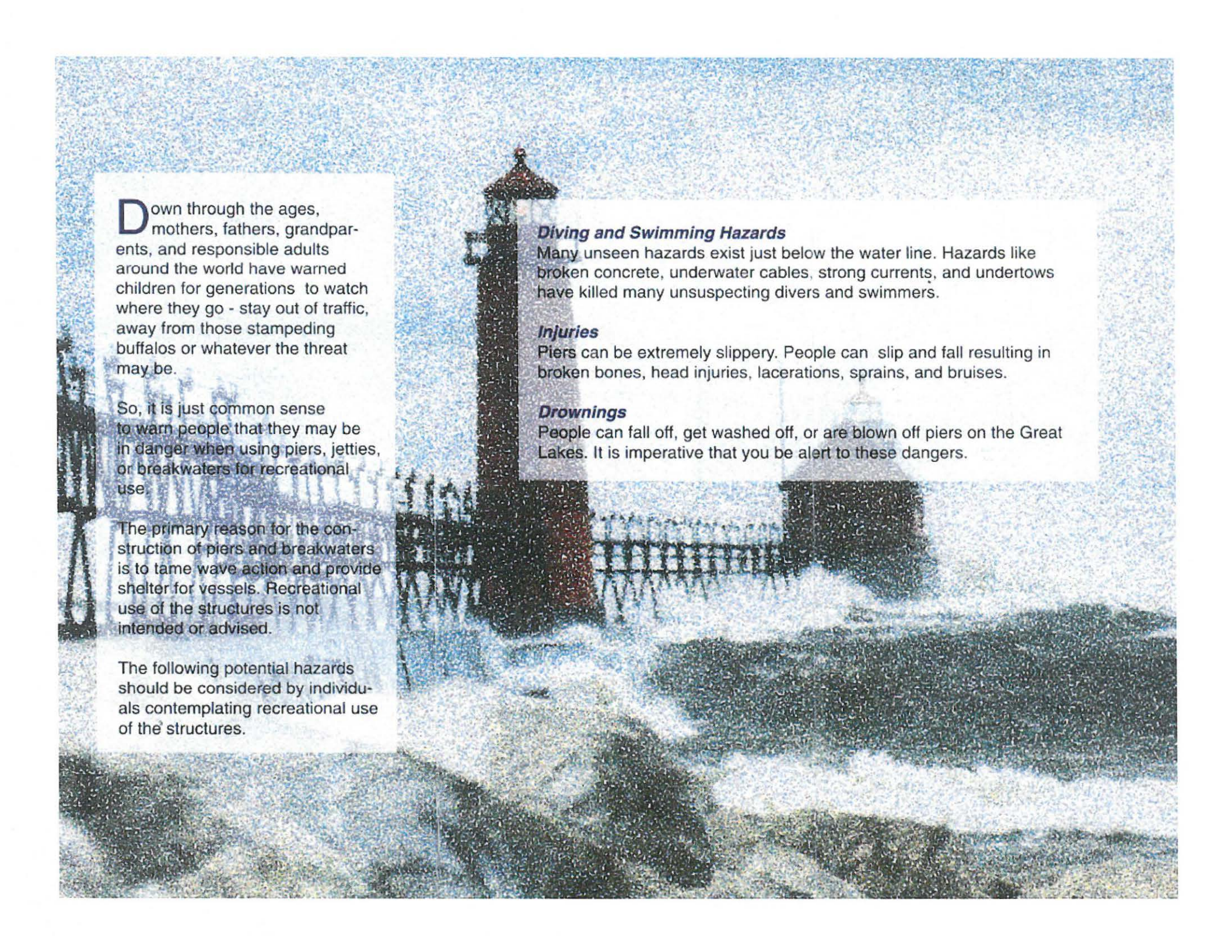


**US Army Corps  
of Engineers**  
Detroit District



Grand Haven Area Public Schools

*Photograph by  
Peggy Ray*



**D**own through the ages, mothers, fathers, grandparents, and responsible adults around the world have warned children for generations to watch where they go - stay out of traffic, away from those stampeding buffalos or whatever the threat may be.

So, it is just common sense to warn people that they may be in danger when using piers, jetties, or breakwaters for recreational use.

The primary reason for the construction of piers and breakwaters is to tame wave action and provide shelter for vessels. Recreational use of the structures is not intended or advised.

The following potential hazards should be considered by individuals contemplating recreational use of the structures.

#### ***Diving and Swimming Hazards***

Many unseen hazards exist just below the water line. Hazards like broken concrete, underwater cables, strong currents, and undertows have killed many unsuspecting divers and swimmers.

#### ***Injuries***

Piers can be extremely slippery. People can slip and fall resulting in broken bones, head injuries, lacerations, sprains, and bruises.

#### ***Drownings***

People can fall off, get washed off, or are blown off piers on the Great Lakes. It is imperative that you be alert to these dangers.



# Safety Features

## Harbors Within Grand Haven Area Office Boundary

- 18 Harbors Total
- 2 equipped with call boxes
- 4 equipped with life rings
- 15 equipped with safety egress ladders
- 13 equipped with safety railing



# Safety Ladder





# Safety Railing





# Pier Safety

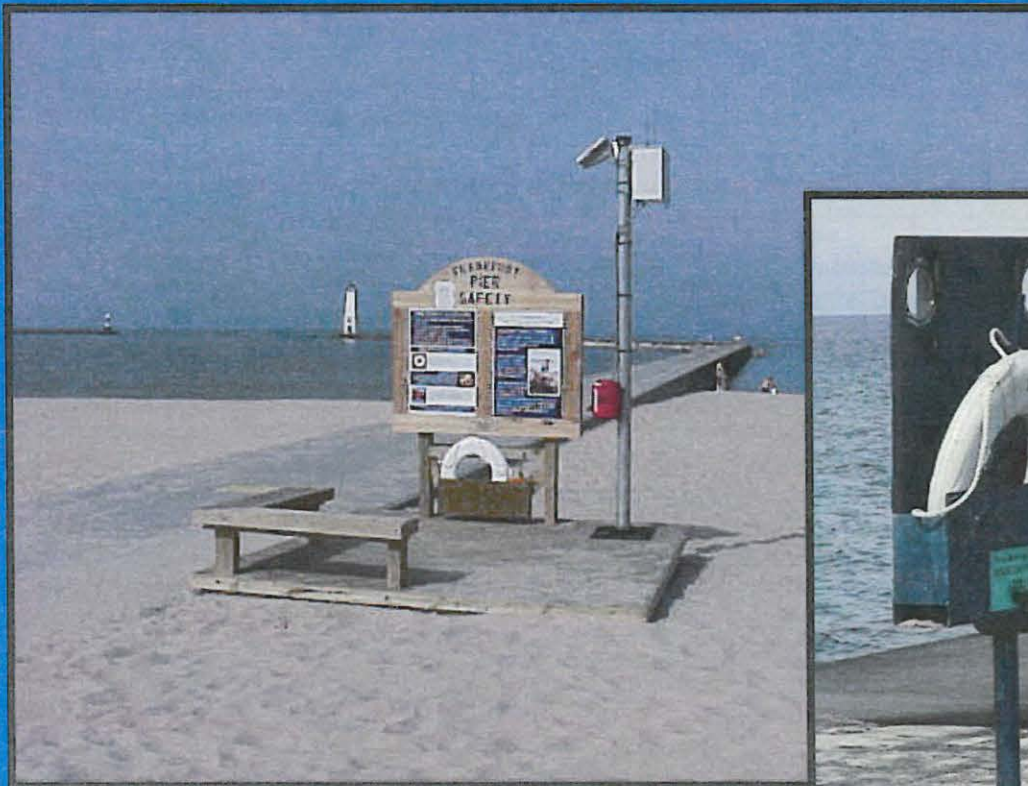
## Where is it working?

- **White Lake**
  - Electronic trip devices when ring is taken
- **Frankfort**
  - Pier Safety Education Deck: Call box (wireless phone), Memorial, Lifesaving Instructions
  - Life rings & Throw Ropes
- **Grand Haven**
  - Emergency call box (wireless phone) and beacon
  - Memorial Stone on South pier @ shoreline
  - Life Rings and Throw Ropes
- **St. Joseph Harbor** – Call boxes installed by City
- **Manistee** – Life rings and throw ropes
- **Michigan City, IN** -- Life rings in alarmed boxes



# Frankfort Harbor, MI

## EMERGENCY CALL BOX & LIFE RINGS





## PIER SAFETY GUIDELINES

- This is not public property, proceed at your own risk.
- Use caution if pier is wet or slippery, especially if waves wash over the pier or if storm conditions exist.
- Please, no bikes or skates.
- Use strollers & wheelchairs with caution.
- Diving or jumping from pier is not advised.

## LIFESAVING DEVICES



### FLOATATION RING

REMOVE RING FROM THE HOLDER.  
Toss beside victim  
in the water.

### THROW ROPE

CAN BE THROWN TO VICTIM, ALONG WITH  
FLOATATION RING, OR USED AS A LIFELINE TO  
RESCUE AN UNCONSCIOUS VICTIM. DO NOT  
ATTEMPT TO PULL THE VICTIM BACK TO  
THE PIER, CALL FOR EMERGENCY SUPPORT.



### CALL PHONE

FOR EMERGENCY PURPOSES ONLY.  
LIFT THE RECEIVER FOR EMERGENCY 911.  
POLICE & COAST GUARD WILL BE NOTIFIED  
IMMEDIATELY.

PLEASE REPORT MIS-USE OR MISSING EQUIPMENT  
TO THE FRANKFORT POLICE DEPT.

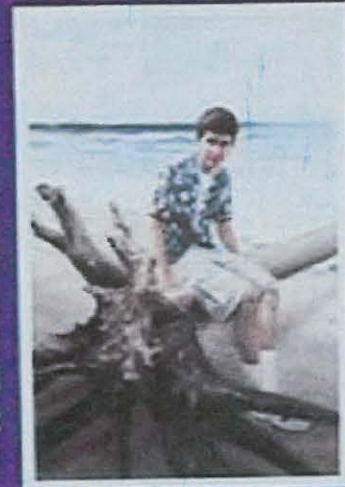
THIS EQUIPMENT WILL BE REMOVED DURING THE WINTER.

## OF CALEB SUTTER

### THE PIER SAFETY PROJECT

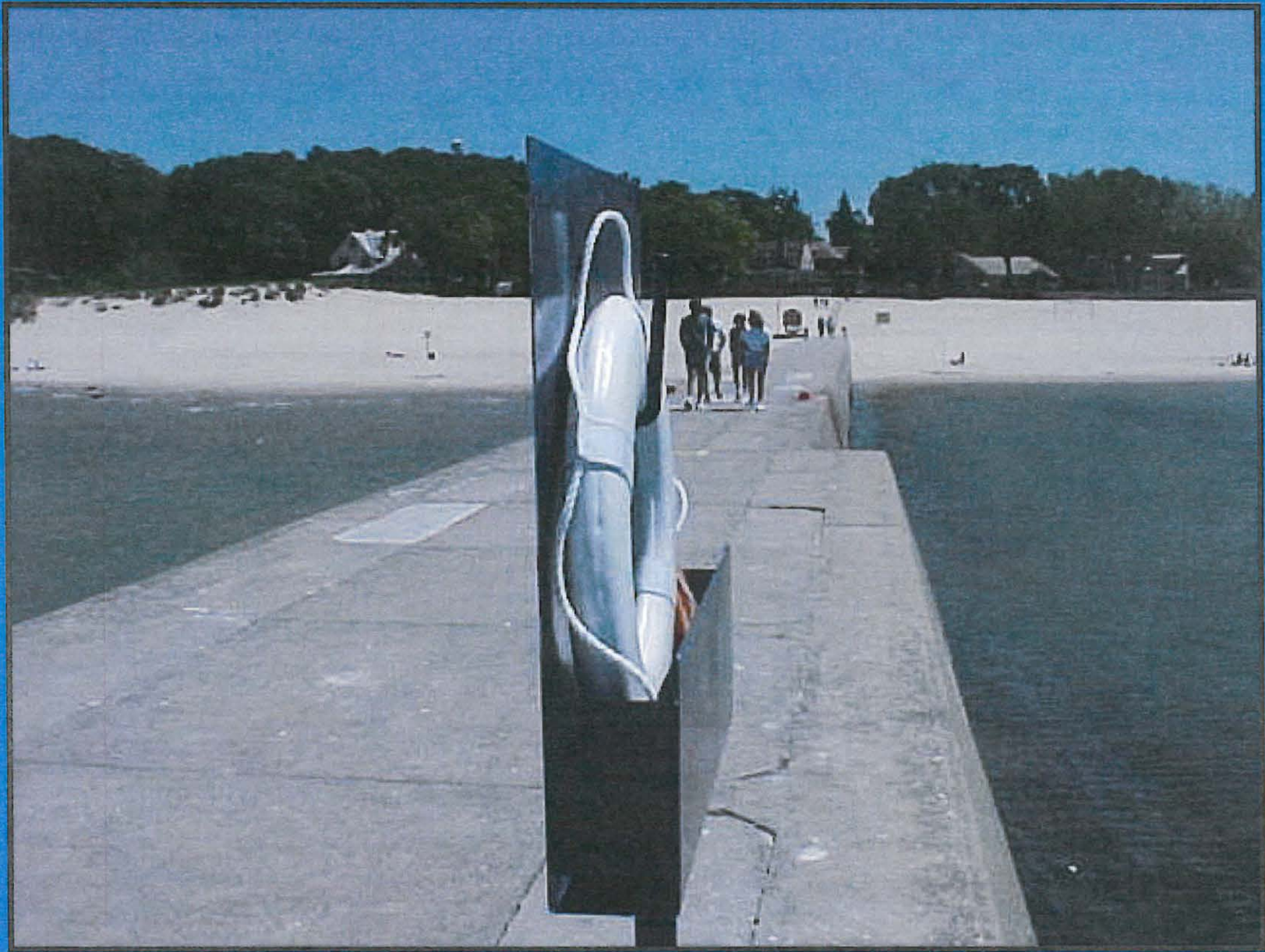
began after Caleb Sutter, a 15-year old  
Frankfort youth, was washed off of the  
Frankfort Pier and drowned,  
June 20, 2000.

In an effort to keep  
our piers available  
and safe to visitors  
and residents, funds  
were raised for these  
life-saving devices.



The Caleb Memorial  
Fund is an on-going  
project, with future  
contributions to be  
used to develop Water Safety Education in  
our schools, and equipment replacement.  
Donations are gratefully accepted at the  
Frankfort-Elberta Area Chamber of  
Commerce.







PLEASE REPORT ANY MISSING EQUIPMENT TO:  
BENZIE COUNTY SHERIFF'S DEPT:

**(231) 882-4484**

THEIR HELP!





# Grand Haven Harbor, MI

## EMERGENCY CALL BOX









# Pier Safety

## What can Communities do?

- Make people aware of potential dangers associated with piers
- Encourage safety precautions be taken when venturing out near the water
- Awareness and education can prevent accidents



# Pier Safety

## Visitor Precautions

- Do not walk on piers during storms or high seas
- Avoid being alone near the water
- Watch for tripping/slipping hazards near piers
- No swimming off piers!
- Read and obey all posted signs
- Become familiar with safety devices on piers

# Web Site

## <http://www.lre.usace.army.mil>

# DETROIT DISTRICT

United States Army Corps of Engineers

Login | Register | 25 February 2003  
Printer Friendly | Site Map | Feedback | FAQ

- Detroit Home Page
- News & Events
- Who We Are
- What We Do
- Where We Are
- Regulatory
- Employment
- Projects and Studies
- Great Lakes
- Doing Business With Us

### News and Events

- Access press releases and news clips from the Corps
- Water related educational materials
- Request presenters through our Speakers Bureau
- Get Corps photos
- Access our publications

### Employment

A link to the Army Civilian Personnel Online Vacancy Announcements homepage.

### Who We Are


Learn about our many offices that include Environmental Services and Project Management. You

### Projects and Studies

Access our project information sheets, dredging and navigation information, construction

### Image of the Day

Archives



### What's New?

- Saginaw Bay
- **Moving Toward A Sustainable Great Lakes**
- Detroit Riverfront Restoration



**making a difference...**

**[www.respectthepower.org](http://www.respectthepower.org)**

# Project List for Lakefront Water Safety Task Group

## Education

- 1) Education of rip current/ structural current/ pier safety
    - a. Children
      - i. School presentations
    - b. Tourist
    - c. Locals
    - d. [Booths at festivals](#)
- 

- 2) DVDs
    - a. segments –testimonials
      - i. hotels
      - ii. [movie theater](#)
- 

- 3) Pavilion/Onsite memorial
- 

- 4) Radio broadcasts –WHBL
    - a. Water safety
    - b. Current (Rip/ Structural) information
- 

- 5) Website banner
- 

- 6) Advertisements
    - a. Community Recreation program guide to have rip current ad
- 

- 7) [Life Jacket loaner board](#)
- 

- 8) [Reward kids for wearing life jackets](#)
-

# Project List for Lakefront Water Safety Task Group

## **Waterfront Warning System**

- 1) Signs
  - a. Existing locations
  - b. Addition locations
  - c. Reader boards
  - d. [Notify if equipment is missing signs](#)
  - e. [Picture signs vs word signs](#)

---
- 2) Closing of pier(s) – Develop Policy and Procedure
  - a. Barricades/Permanent Structure

---
- 3) Warning system
  - a. Flags
  - b. Reader board sign
  - c. Flip signs
  - d. Red/Green lights
  - e. Barricades

---

## **Emergency Response & Life Saving Devices**

- 1) Life Rings
  - a. Existing locations
  - b. Additional locations
  - c. [Automatically call 911 when removed](#)

---
- 2) Emergency phones – Additional locations?
  - a. Cameras on phones

---
- 3) [Police have lifesaving gear in trucks of vehicles](#)

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# Project List for Lakefront Water Safety Task Group

## **Enhance Regulations**

1) Speak to EOS about requiring their patrons wear life jackets

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2) No swimming zones next to structures (150' -300')

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3) No jumping off pier/Maintain availability for surfers

---

## **Other**

1) Update Sheboygan area water rescue report

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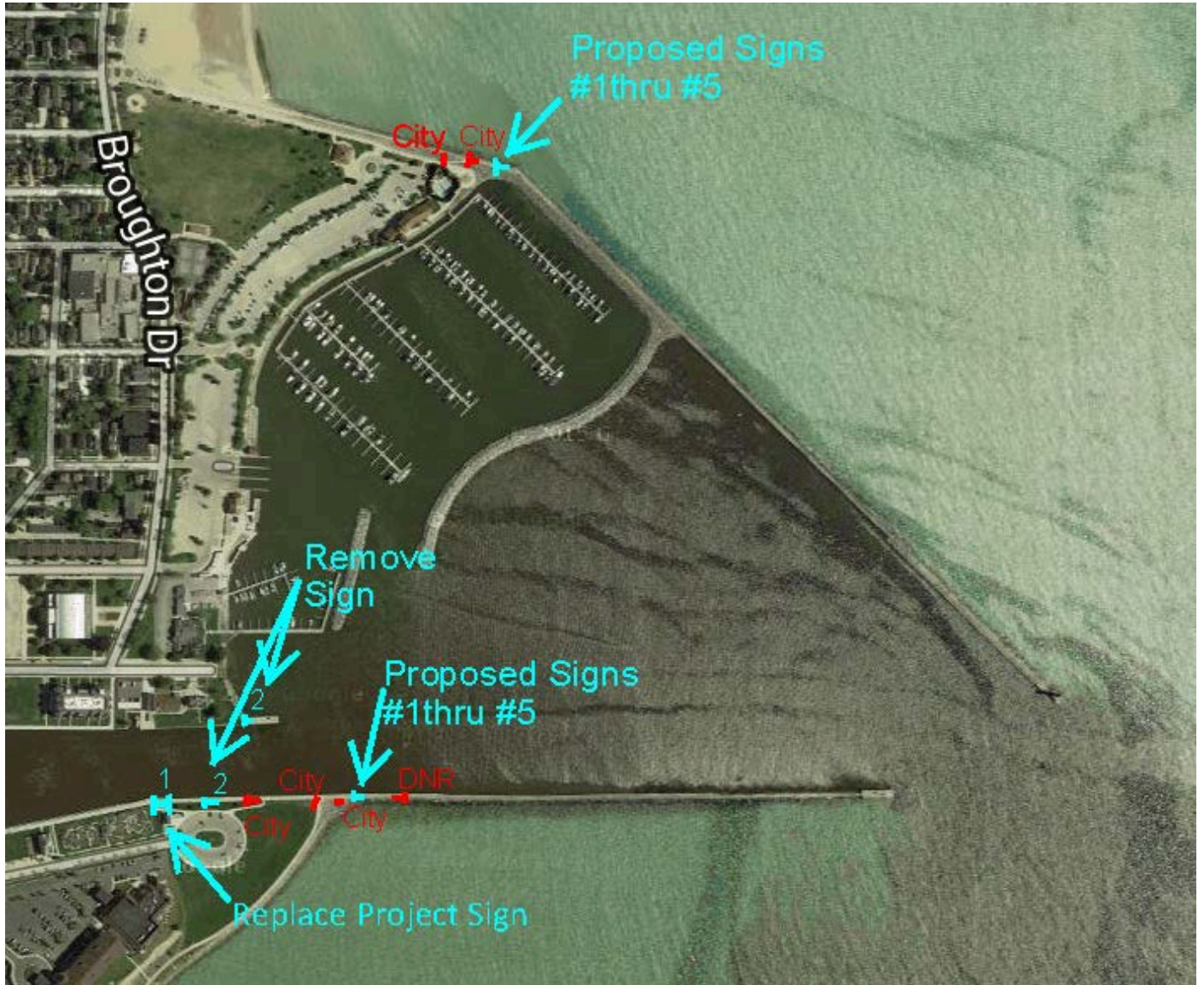
2) Communication with Kathleen Blaney – Letter to Mayor

---

# BEACH HAZARD WARNING??

**Click for information  
on current conditions**





**Sign locations: USACE Project Sign (#1), Removal of old Warning/ Caution Nav. Structure (#2) and installation of proposed new signs (#1 thru #5 Proposed Signs)**



**FIGURE 12 - Example of Proposed Signs #1 and #3 thru #6**

Sign Details:

**Warning Sign**

Font: Helvetica medium extended  
 Font size: 2"  
 Material: cut vinyl  
 Font/Border color: black

Panel size (w/h): 26.25" x 18"  
 Material: Aluminum  
 Mounting: Double Post  
 Color: Lemon Yellow; reflective vinyl

**No Swimming Sign**

Font: Helvetica bold  
 Font size: .75"  
 Material: cut vinyl  
 Font color: Black, red circle

Panel size (w/h): 9" x 11"  
 Material: Aluminum  
 Mounting: Single Post (both signs)  
 Color: White, reflective vinyl

**No Jumping or Diving Sign**

Font: Helvetica bold  
 Font size: .75"  
 Material: cut vinyl  
 Font color: Black, red circle

Panel size (w/h): 9" x 11"  
 Material: Aluminum  
 Mounting: Single Post (both signs)  
 Color: White, reflective vinyl

**Structure Picture Sign**

Material: cut vinyl  
 Color: black and lemon yellow  
 Size (w/h): 12" x 12"

**Wave Picture Sign**

Material: cut vinyl  
 Color: black and lemon yellow  
 Size (w/h): 12" x 12"



US Army Corps of Engineers

logout

inventory

reports

orders

catalog



Detroit District > Kewaunee Proj. Ofc. (Under Lake MI Area Ofc) > Kenosha Harbor, WI > 0004sign 4 of 4 (id 109523)

◀ previous    ◀◀ first

**WWA-40 (GRID-W-Y3)** , page Gateway  
lock, dam & waterway , warning & caution

overview

message

history/cost

notes

map

photos

### sign 0004

sign type	WWA-40 (GRID-W-Y3)	🔒
spec code	WTW-02	☰
sign status	proposed	▼
road speed	5 mph	▼
viewing distance	0	feet <a href="#">see chart</a>

### preview



### legend

typestyle	helvetica medium ex	🔒
size (A/M)	2"	
longest line	0.000 A	🔒
material	cut vinyl	🔒
layout grid	1	🔒
color	BK black	🔒

### panel

(autocalc on )

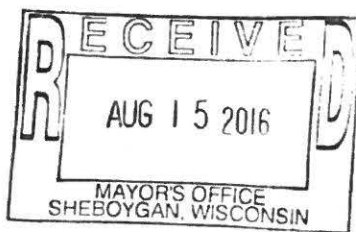
number of faces	1	🔒
size (w/h)	26.25" x 18"	☰
material	ALU aluminum	🔒
mounting method	double post	☰
mounting height	0"	
color	LY lemon yellow	🔒

### post

quantity	2	☰
size (w/d)	4" x 4"	
material	AL aluminum	▼
color	NF no finish	▼
breakaway	<input type="radio"/> yes <input checked="" type="radio"/> no	
<input type="button" value="submit sign update"/>		

### footing

quantity	0	
size (w/d/h)	0" x 0" x 0"	
material	select material	▼



August 12, 2016

To Mayor Mike Vandersteen,

I am writing in response to the tragic drowning of two young men off Sheboygan's south pier on July 17<sup>th</sup>. As one of Kurt Ahonen's former teachers, my grief for his loss and empathy for both families compels me to get involved. I have spoken to you and learned a committee was taking suggestions to make the pier safer. I'm sure consulting other lakefront cities for safety suggestions is also wise. On August 6<sup>th</sup>, I went to the south pier to look at it myself.

The walking surface of the pier itself was bad. The cement was crumbled with large chunks of concrete missing. With every step there were broken, uneven surfaces- sometimes down to exposed steel rods. Major repairs need to be made to improve this walkway for pedestrian traffic.

Beyond any doubt, the lakefront safety provisions are greatly lacking. To imagine a different outcome could have been possible that day is heartbreaking. It's too late for Kurt and Adam. Don't allow it to be too late for anyone else. Determine whose jurisdiction it falls under and take action.

My first recommendation: Install a sign at the entrance to the pier as it leaves the channel. An example was created to the right. As I have told you on the phone, I will pay for this in Kurt's memory. Another sign entering the harbor is also necessary. Please keep me informed as to how I can help. I know other mourners want to do so, as well.



DANGER

A second recommendation: Install more emergency call boxes at regular intervals, such as every 100 feet. There was, and still is, only one call box on the pier. With a pier of this length this is utterly inadequate. Precious time was lost which could have made a difference in this tragedy. Quick access to emergency help is essential.

HIGH WAVES HAVE  
THROWN PEOPLE  
OFF PIER & CAUSED  
DROWNINGS.  
KEEP ALERT TO  
CONDITIONS.

A third recommendation: Add a minimum of 10 more life rings. Having rings only at the start is meaningless. Install them the entire length of the pier. Paint the wooden boxes they are housed in bright orange so they are obvious and quickly visible. Aren't there Coast Guard regulations regarding some of these safety issues?

A fourth recommendation: If conditions turn unsafe, the Coast Guard boat should go out and announce to people to get off the pier. Shortly thereafter, the fishermen were swept into the water. The Coast Guard's job includes assessing people at risk and making contact with those people to avert accidents.

Your city's lakefront is a beautiful tourist attraction. As its steward, however, you carry the most solemn responsibility for the safety of your visitors. I implore you to move smartly and swiftly before one more precious life is lost and another family endures heartbreak for the rest of their lives.

Sincerely,  
Kathleen Blaney  
Green Bay, WI