

# Surf Zone Forecasts on Western Lake Superior

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# Presentation Outline

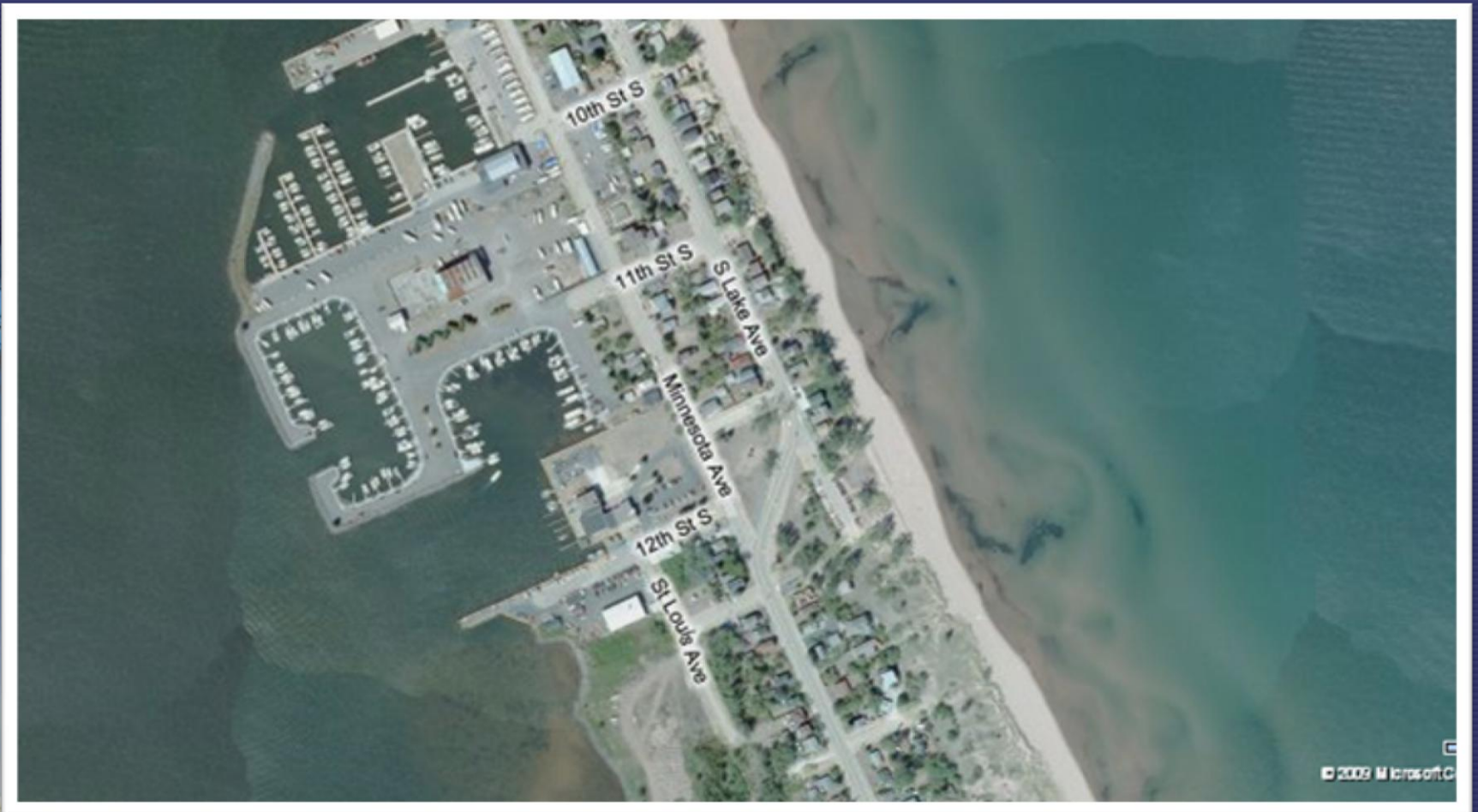
- Rip Current Problem Areas
- Evolution of the Surf Zone Forecast
- Product Details
- Forecasting Problems
- The Future



# Rip Current Problem Areas



# In The Twin Ports... This is our Problem Area!





# WORLD'S LARGEST FRESHWATER SAND BAR

Photo Courtesy - UMD

# Minnesota Point



Note proximity to main population & tourism base!

# August 17, 2003

- A 21 year old Duluth Man drowned off Minnesota Point near Park Point around 4 p.m.
- A man on a boogie board rescued 6 others around 4 p.m. at the same place
- The Duluth Fire Dept rescued a teenage girl around 8 p.m. near LaFayette Square
- Reports of several others rescued

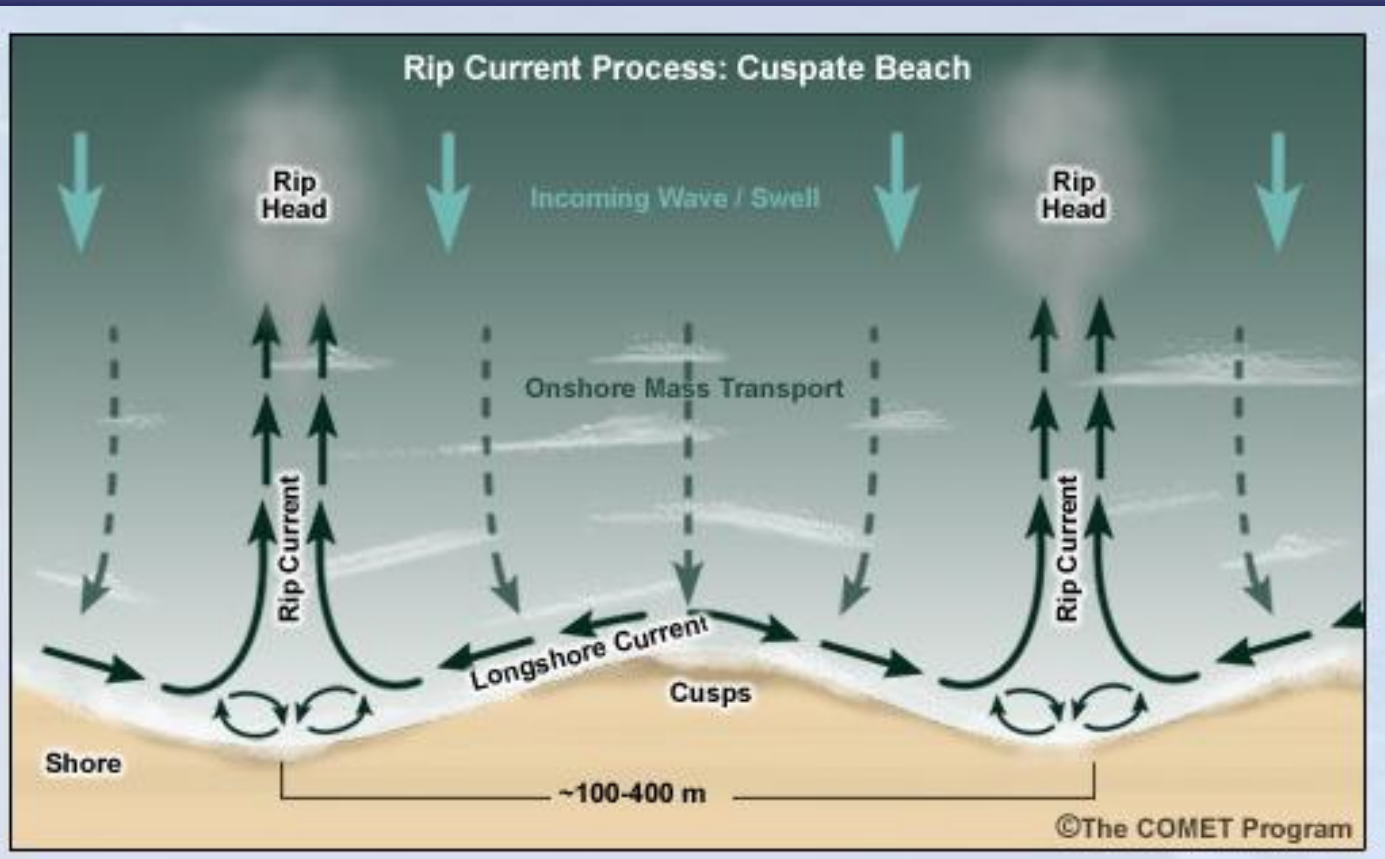


# August 17, 2003



Winds were east-northeast around 25 mph  
Waves were 4 to 8 feet  
It was hot inland - mid 80s, but 70s lakeside

# Shoreline Irregularities



# Shoreline Irregularities

- Note number of Cusps along the lake shore indicating possible rip zones



Looking away from the city. There is a regular trough/ridge pattern. Photo taken by Kurt Mayer on 8/19/03.

# Other Problem Areas?

We also feel that rip currents exist along much of the south shore of Lake Superior and may need to expand the Surf Zone forecast for those areas with time.



# Evolution of the Surfzone Forecast

- July 1, 2005: Rip Current program began for the Great Lakes. Mentioned daily in the Hazardous Weather Outlook
- August 15, 2008: The Duluth National Weather Service Office issues the first Surf Zone Forecast for the Great Lakes.



# Product Examples

**Low**

**Moderate**

**High**



# Surf Zone Forecast Example for a **Low** Risk Day

.TODAY...

SKY/WEATHER.....PARTLY CLOUDY (40-50 PERCENT)

MAX TEMPERATURE....61-66

BEACH WINDS.....SOUTHWEST WINDS 5 TO 10 MPH

SURF.....LESS THAN 2 FEET

RIP CURRENT RISK.....**LOW. HOWEVER...STRONG CURRENTS CAN STILL OCCUR NEAR PIERS AND JETTIES. ALWAYS HAVE A FLOTATION DEVICE WITH YOU IN THE WATER.**

Find This at [www.weather.gov/duluth](http://www.weather.gov/duluth)

# Surf Zone Forecast Example for a **Moderate** Risk Day

.TODAY...

SKY/WEATHER.....PARTLY CLOUDY (40-50 PERCENT)

MAX TEMPERATURE....61-66

BEACH WINDS.....NORTHEAST WINDS 15 TO 20 MPH.

SURF.....3 TO 5 FEET.

RIP CURRENT RISK.....**MODERATE. A MODERATE RISK OF RIP CURRENTS MEANS WIND AND OR WAVE CONDITIONS SUPPORT STRONGER OR MORE FREQUENT RIP CURRENTS. ALWAYS HAVE A FLOTATION DEVICE WITH YOU IN THE WATER.**

Find This at [www.weather.gov/duluth](http://www.weather.gov/duluth)

# Surf Zone Forecast Example for a **High** Risk Day

.TODAY...

SKY/WEATHER.....PARTLY CLOUDY (40-50 PERCENT)

MAX TEMPERATURE....61-66.

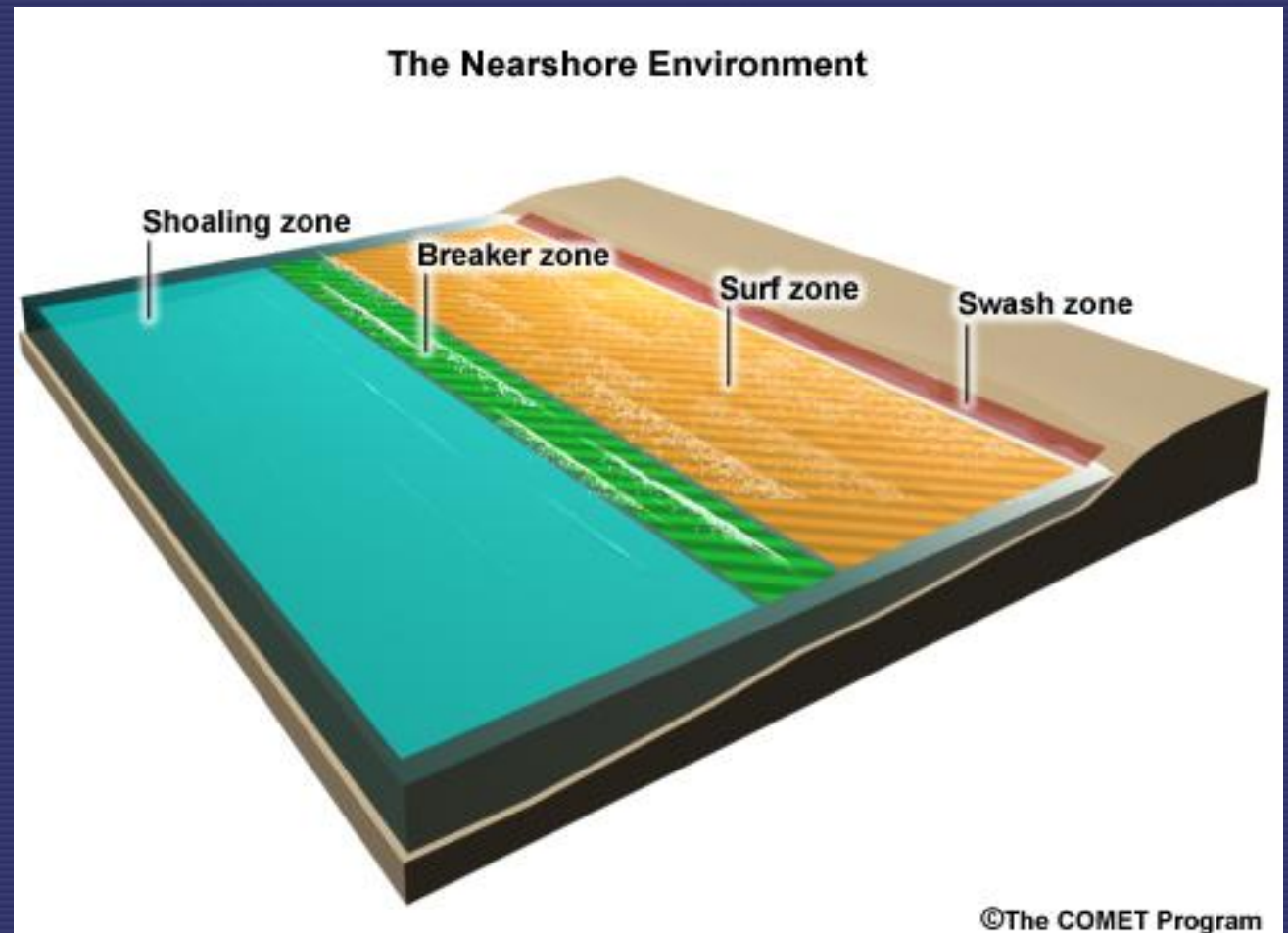
BEACH WINDS.....NORTHEAST AROUND 20 MPH

SURF.....4 TO 6 FEET.

RIP CURRENT RISK.....**HIGH. HIGH SURF AND LARGE SWELLS WILL PRODUCE DANGEROUS POUNDING SURF AND RIP CURRENTS AT THE BEACHES. PEOPLE VISITING THE BEACHES SHOULD STAY OUT OF THE HIGH SURF.**

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# The Focus for the Surf Zone Forecast is...the Surf Zone!



# My Personal Motivation

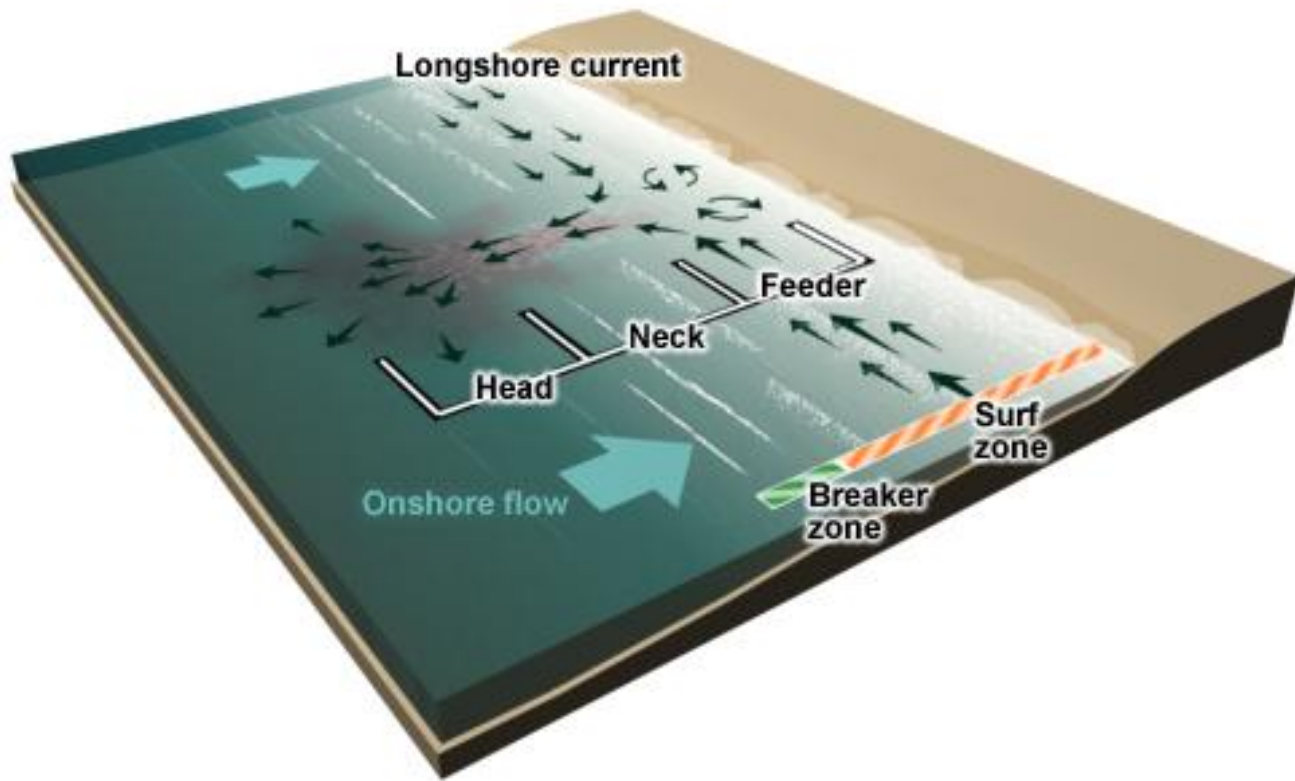




# People In a Rip Current

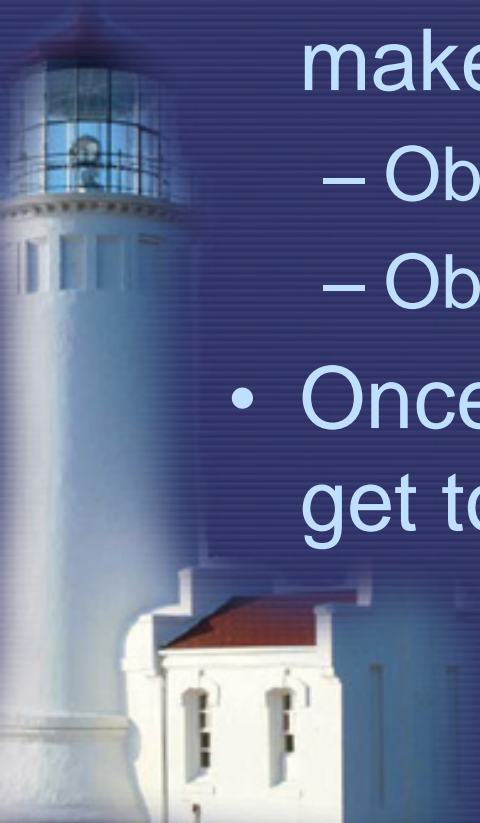


## Rip Current Structure



# The Surf Zone Forecast is just one piece of the puzzle

- The forecaster needs good input to make an accurate forecast.
  - Observations are badly needed!
  - Observations need to be timely & accurate
- Once the forecast is issued, it needs to get to the people using it



# For the Surfzone Forecast to be useful, it needs...

NWS: Accurate Surfzone  
Forecast – 6 am

Media: Communicating  
The Rip Current Risk

Observers  
Providing  
Updates

Emergency Personnel  
Communicating and  
Working Together

Rip Current Day!  
Reported...or  
Expected



# The Future



Image from NorthernImages.com

# The Future

- Electronic sign on Park Point?
- Audio alert rip current messages?
- Citizen observing network? – could help to improve forecasts and result in more timely closures
- Beach Patrols? Proactive rescues
- Increase educational outreach



# Electronic Sign?



# The Future



We all need to work together to  
develop a proactive solution!

Image from NorthernImages.com

# Contact Information

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[www.weather.gov/duluth](http://www.weather.gov/duluth)

