

A dramatic photograph of a coastal storm. In the foreground, a large, dark tree trunk stands on the right, with bare branches reaching across the top of the frame. To the left, waves are crashing violently against a rocky shore, creating a massive spray of white water. In the background, several multi-story houses with balconies are visible, partially obscured by the mist and spray of the storm. The sky is overcast and grey.

Camden 23 December 2022

Storm Meteorology

- James Bennett
- Bennett Marine Systems Engineering, LLC
- Sagadahocman@gmail.com
- 207.542.2612

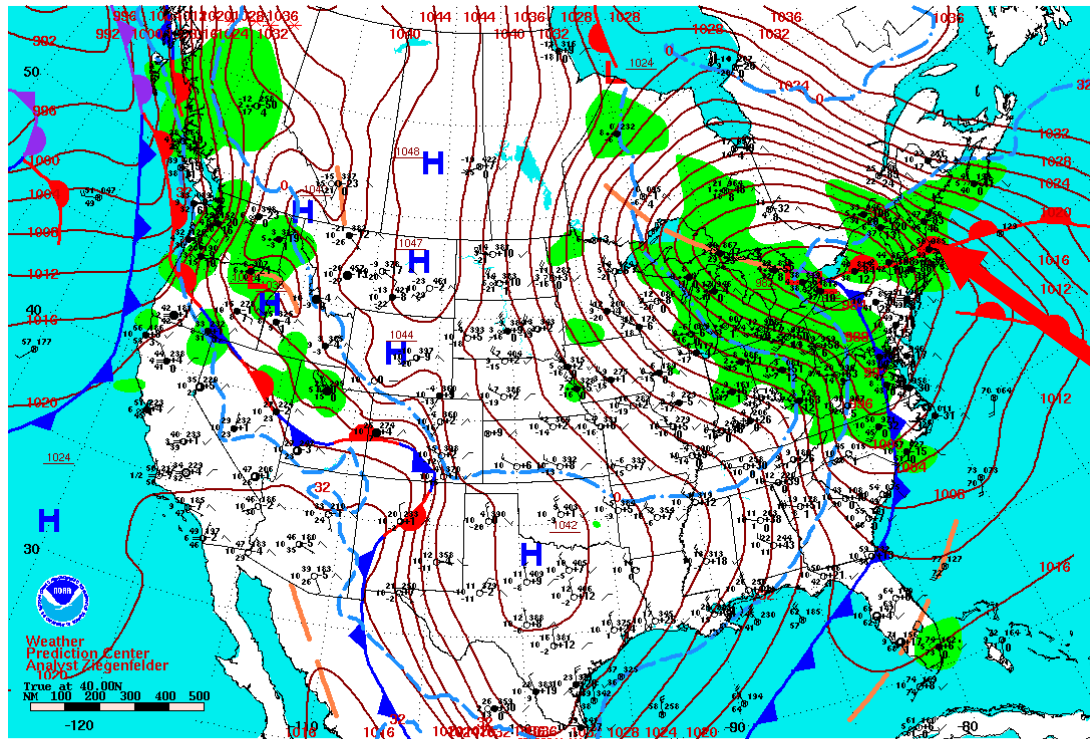
We Dodged A Bullet

SE Storms in Winter Are
Rare But Severe

Winds of This Storm Were
Well Below Hurricane Force

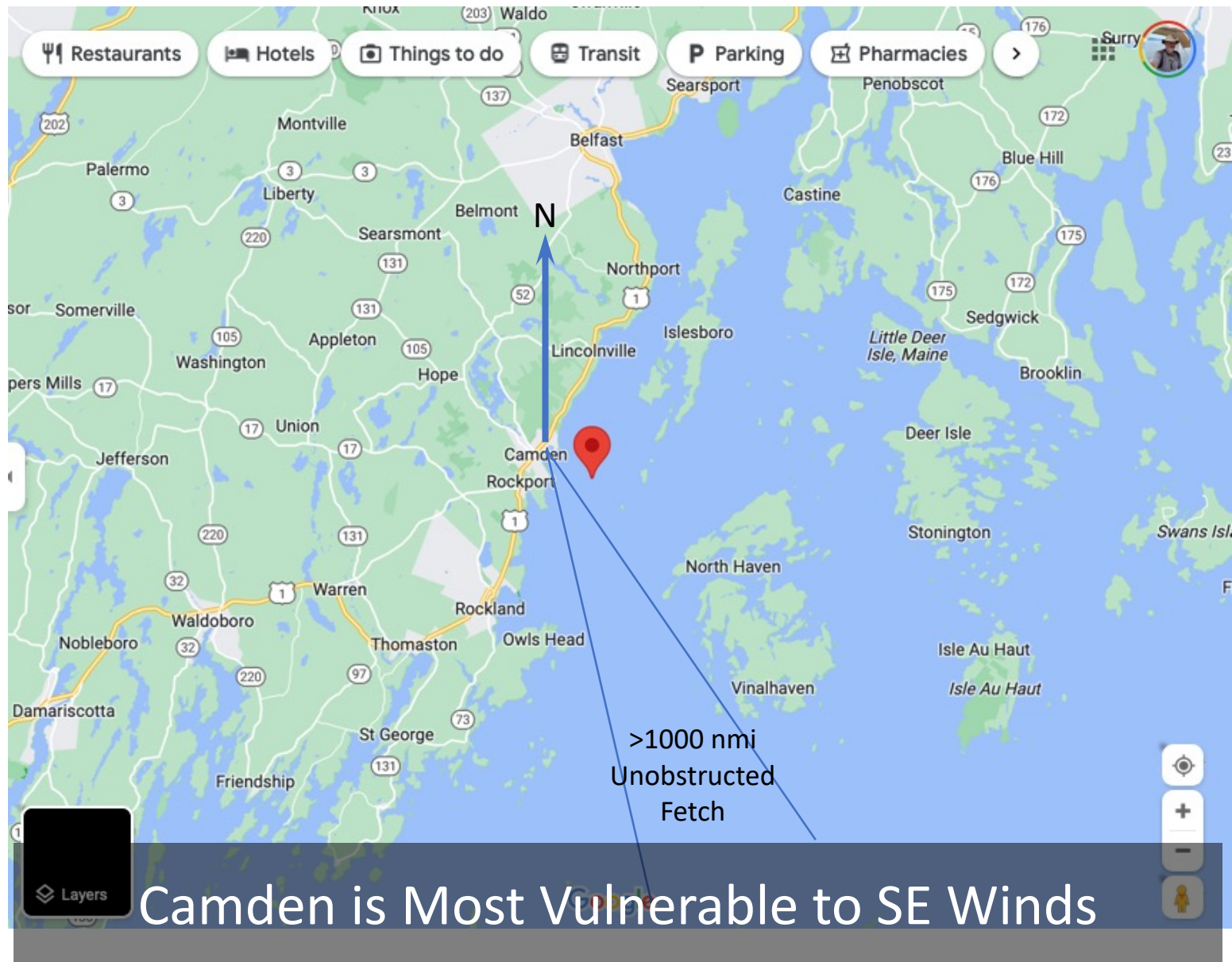
Peak Tide Occurred Well
Ahead of Low Pressure

Storm Duration Was Brief

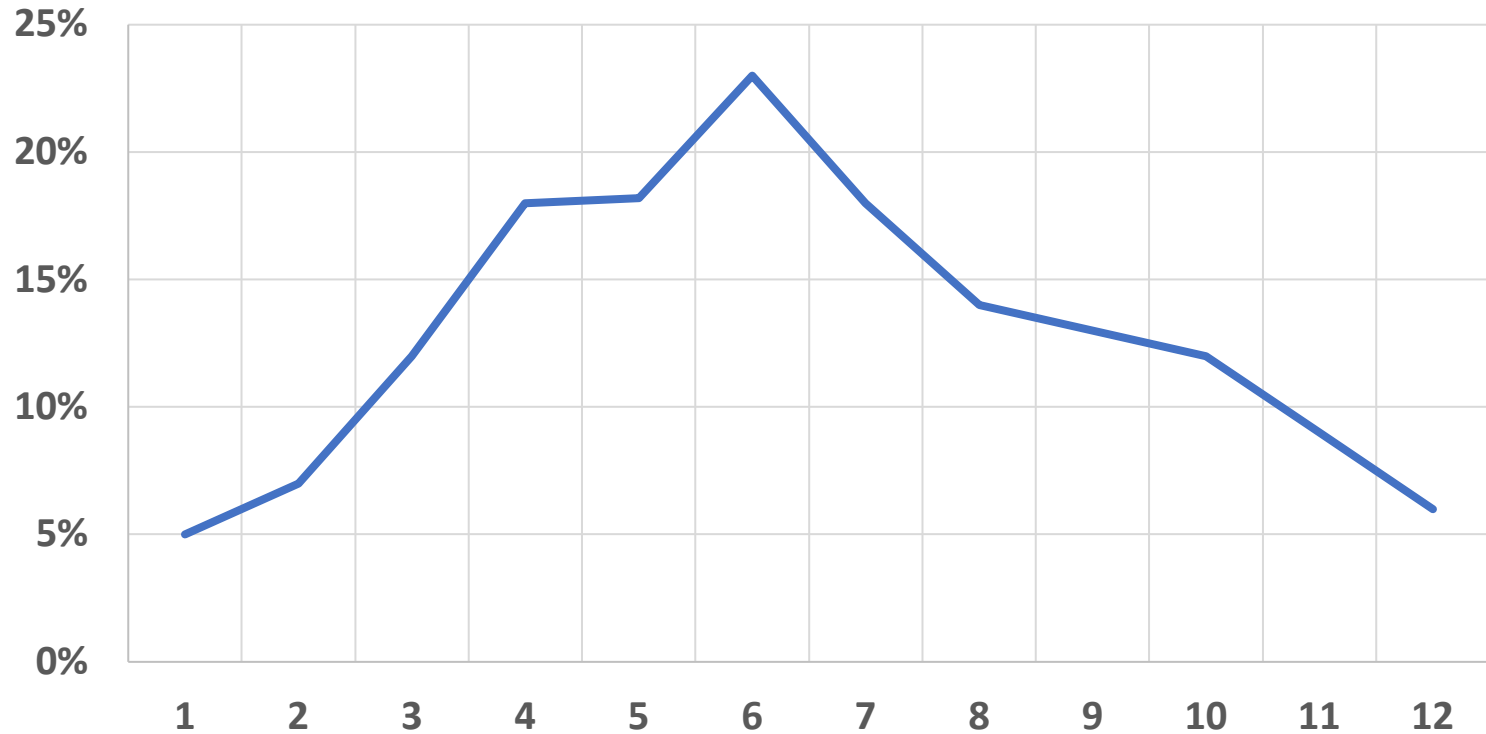


Surface Weather Map and Station Weather at 7:00 A.M. E.S.T.

Predicted 982 mb Low - Significant But Not Historic



Historical SE Wind Probability by Month



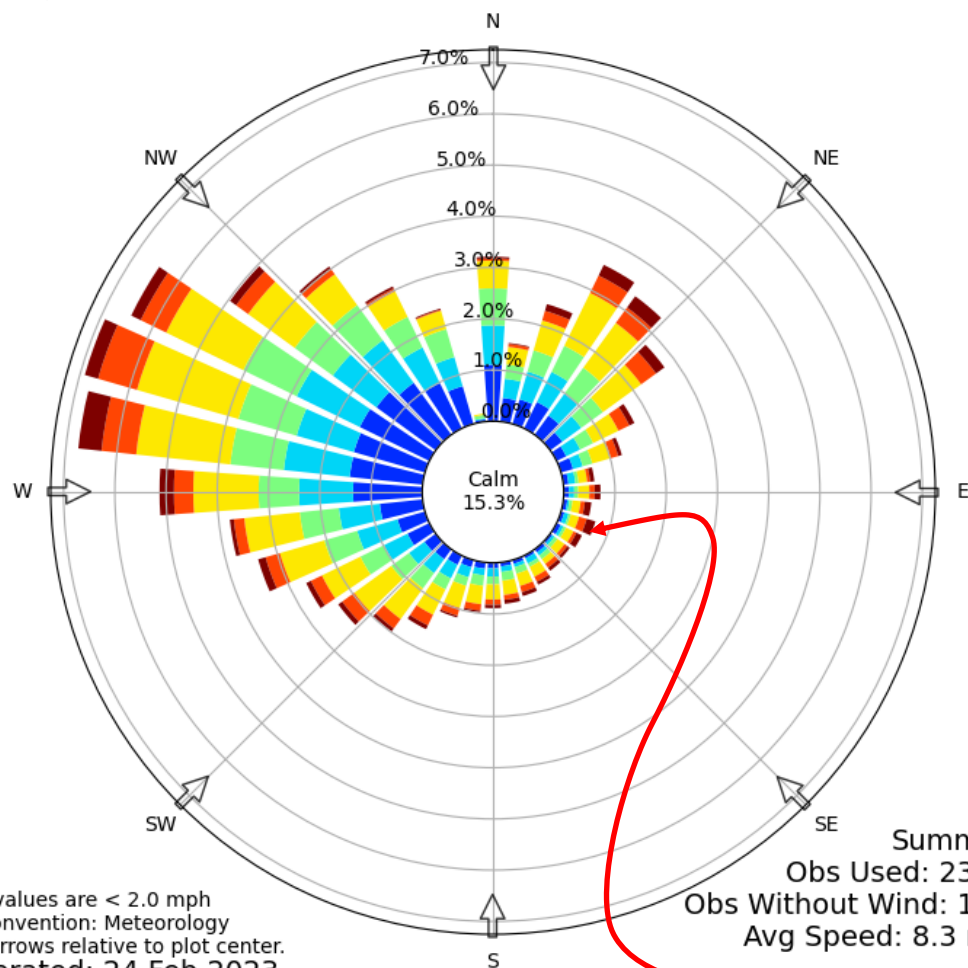
December SE Storms Are Rare But Powerful



Windrose Plot for [RKD] ROCKLAND/KNOX(AWOS)

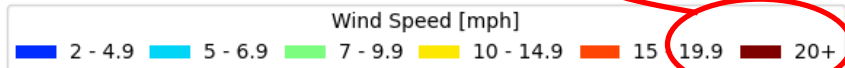
Obs Between: 26 Dec 1977 12:00 AM - 31 Dec 2022 07:56 PM America/New_York

↳ constraints: Dec

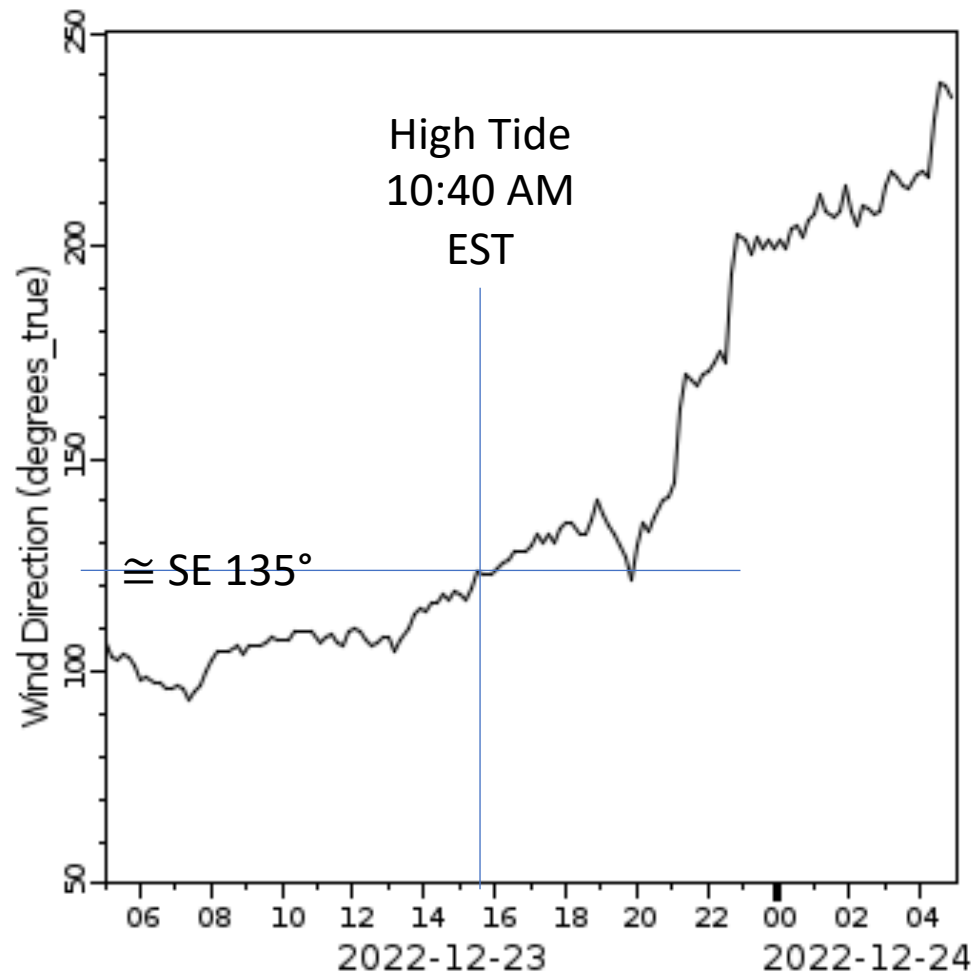


Calm values are < 2.0 mph
Bar Convention: Meteorology
Flow arrows relative to plot center.
Generated: 24 Feb 2023

Summary
Obs Used: 23496
Obs Without Wind: 1474
Avg Speed: 8.3 mph



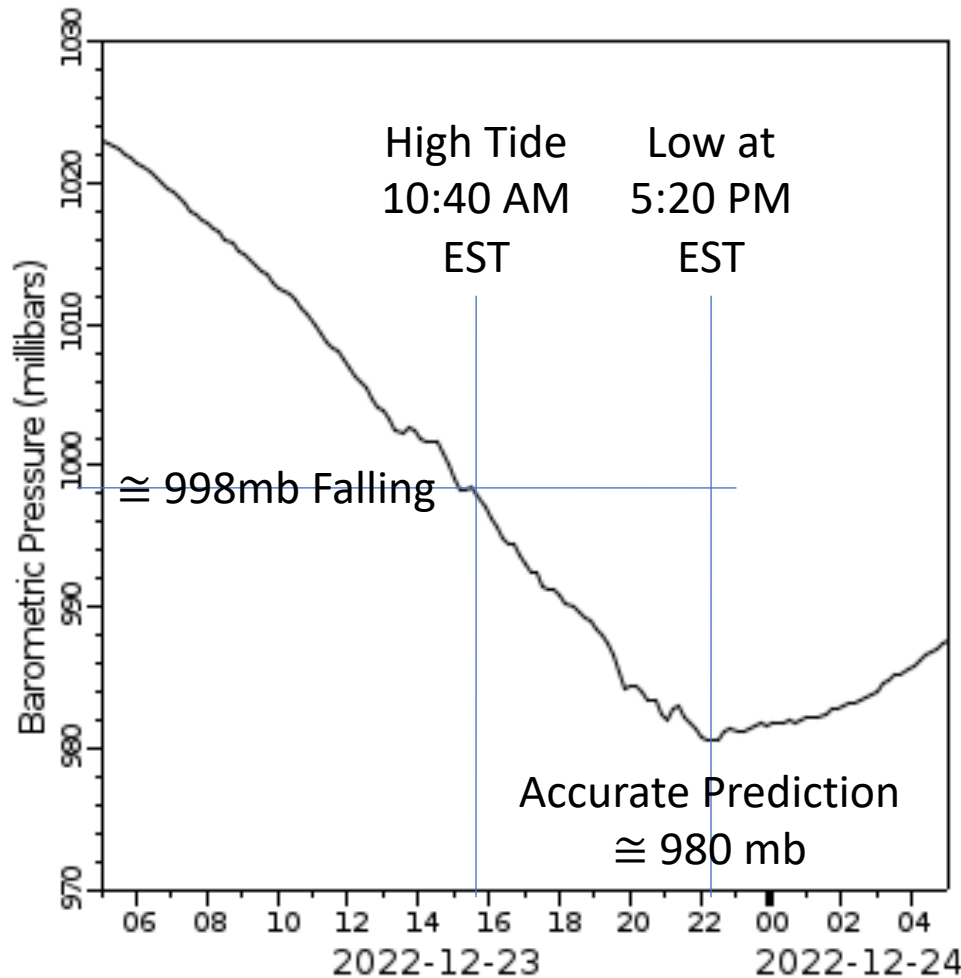
Low
Probability x
Extremely
High
Consequence
= HIGH RISK



— **E01 Met - Meteorology**
Data courtesy of Univ. of Maine

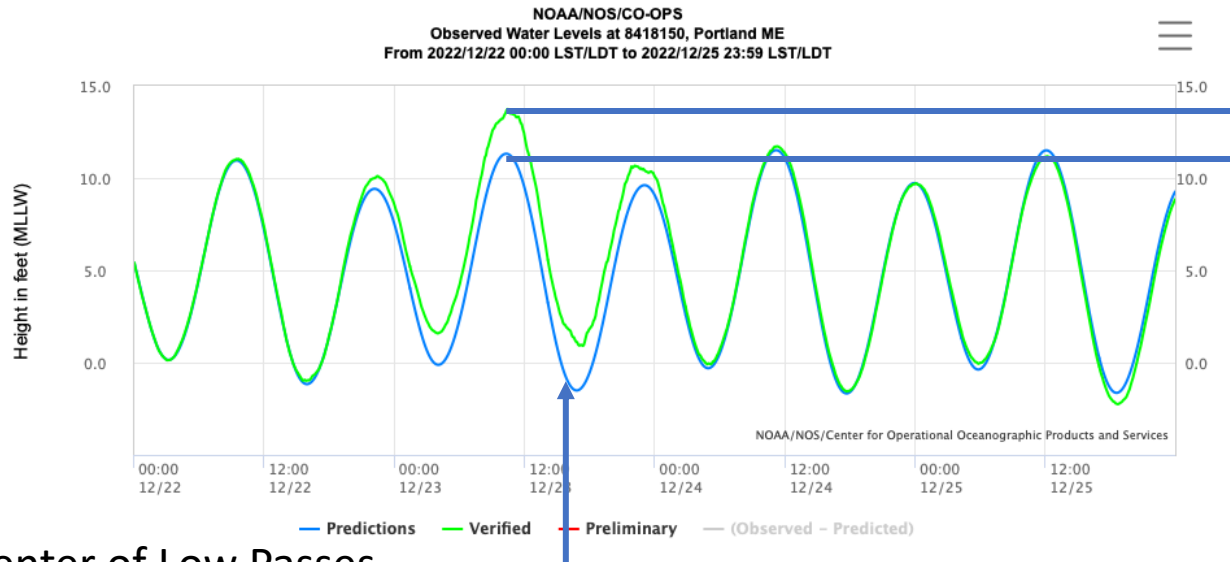
Wind Veered Rapidly From SE to WSW

Buoy 44033
Mid Maine Shelf



— E01 Met - Meteorology
Data courtesy of Univ. of Maine

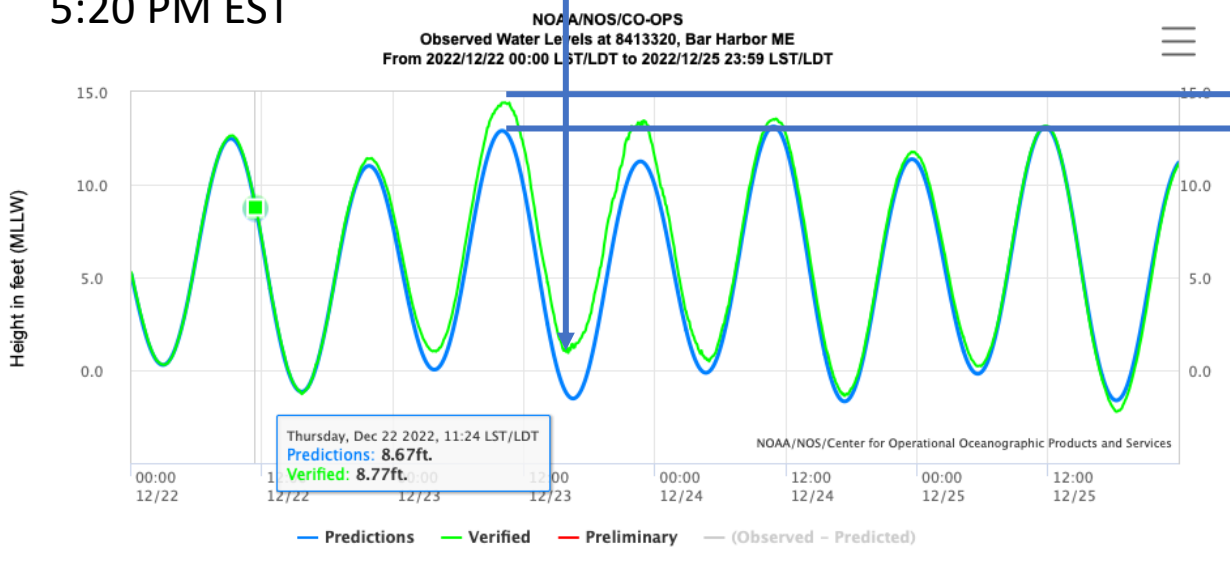
**Low Pressure
Concurrent with Low
Tide**
Buoy 44033
Mid Maine Shelf
**Well Above Historical
Low 950 mb**



Portland
Surge 2.4'

High Tide Occurred In
Advance of Low
Pressure Center

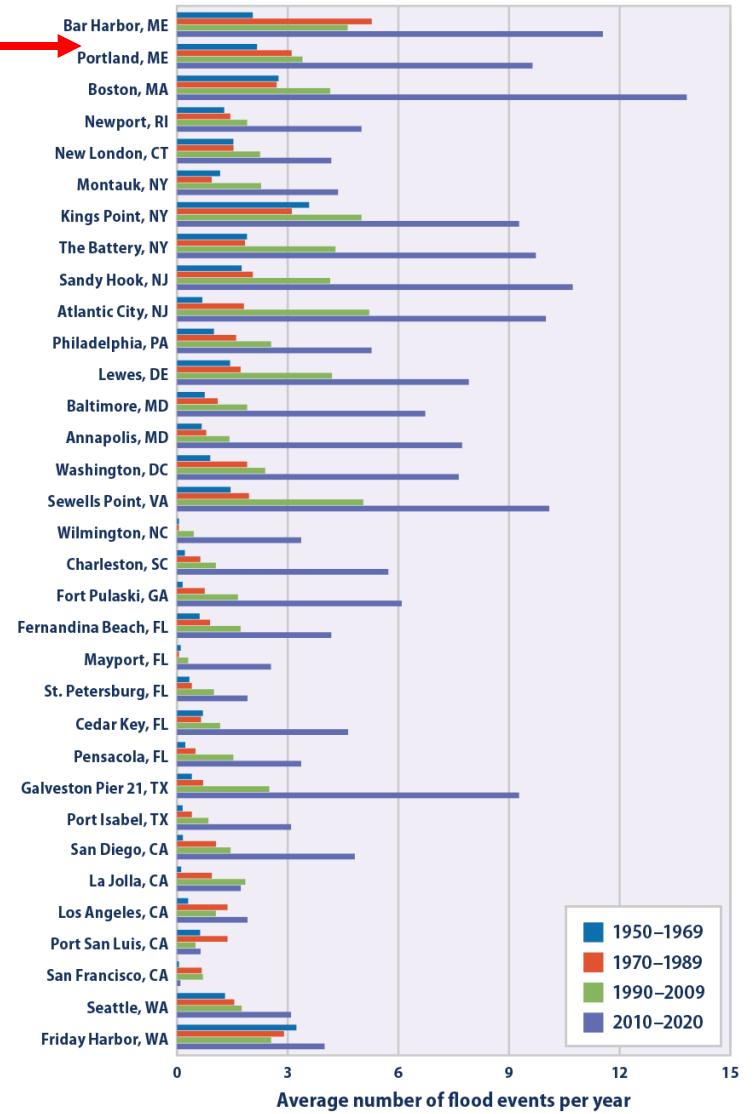
Center of Low Passes
5:20 PM EST

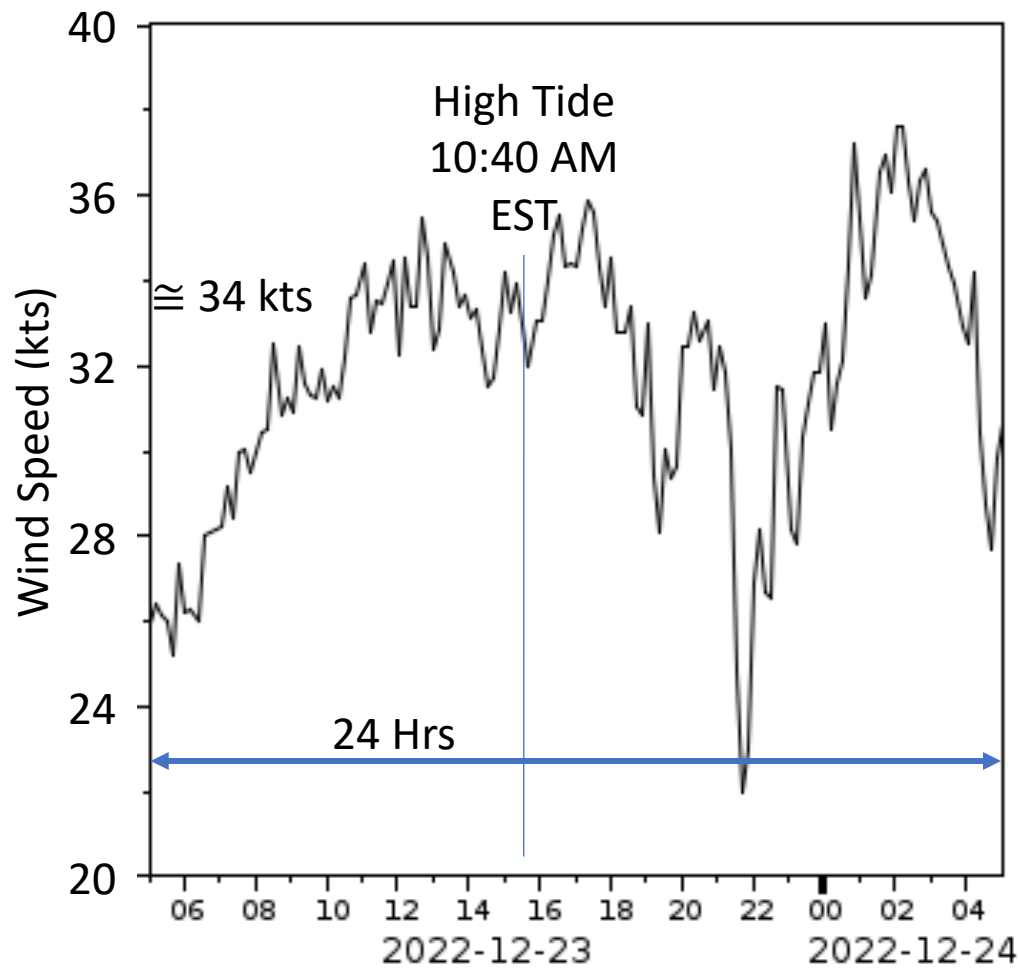


Bar Harbor
Surge 1.5'

Increased Frequency of Tidal Flooding - Largely Storm Related

Camden, Maine





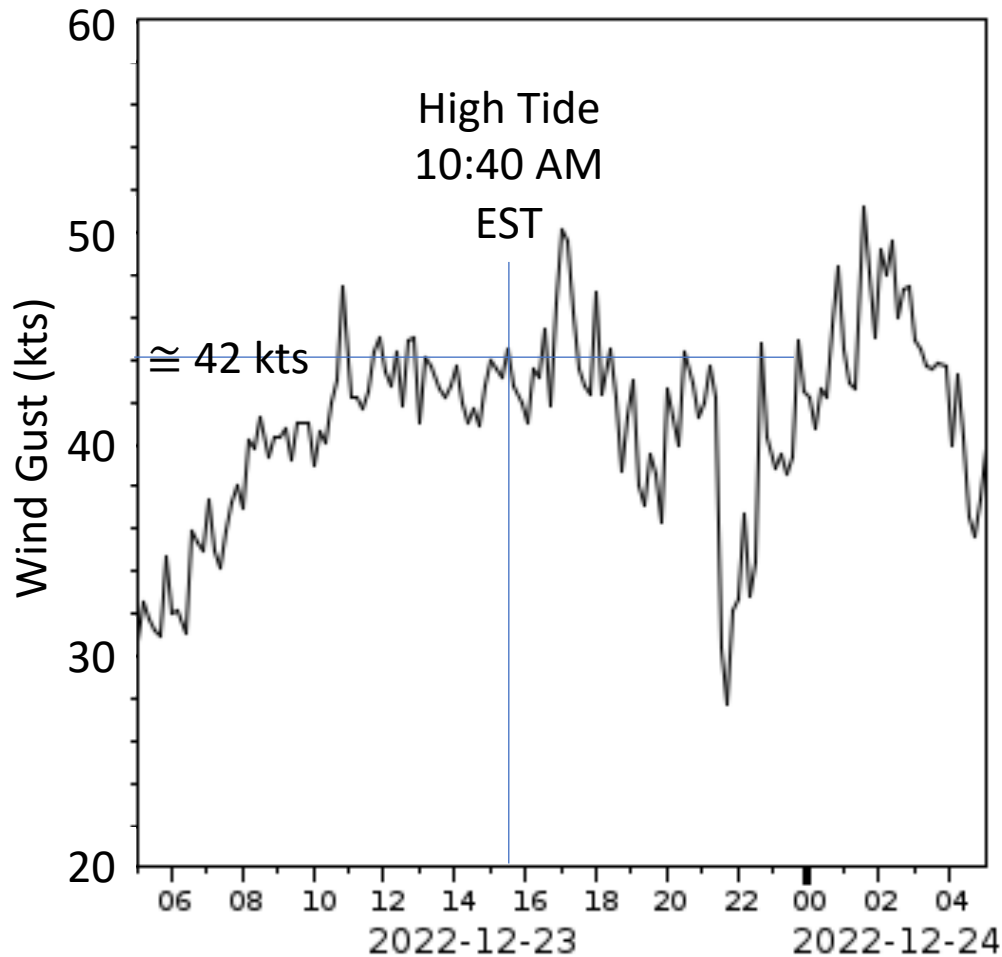
— E01 Met - Meteorology
Data courtesy of Univ. of Maine

**Sustained Wind Was
Well Below Hurricane
Force – 65 kts**

Buoy 44033

Mid Maine Shelf

**Storm Duration
<24 Hrs**
(‘78 Storm 48 hrs)



— E01 Met - Meteorology
Data courtesy of Univ. of Maine

**Wind Gusts Were
Well Below Hurricane
Force - 65 kts**
Buoy 44033
Mid Maine Shelf

Waves Atop Surge Caused Significant Damage



10:52 AM \cong 4 ft Wave Height At Entrance to Inner Harbor



10:17 AM Seawall Overtopped

Seawall Height 15.2 Ft Abv MLLW

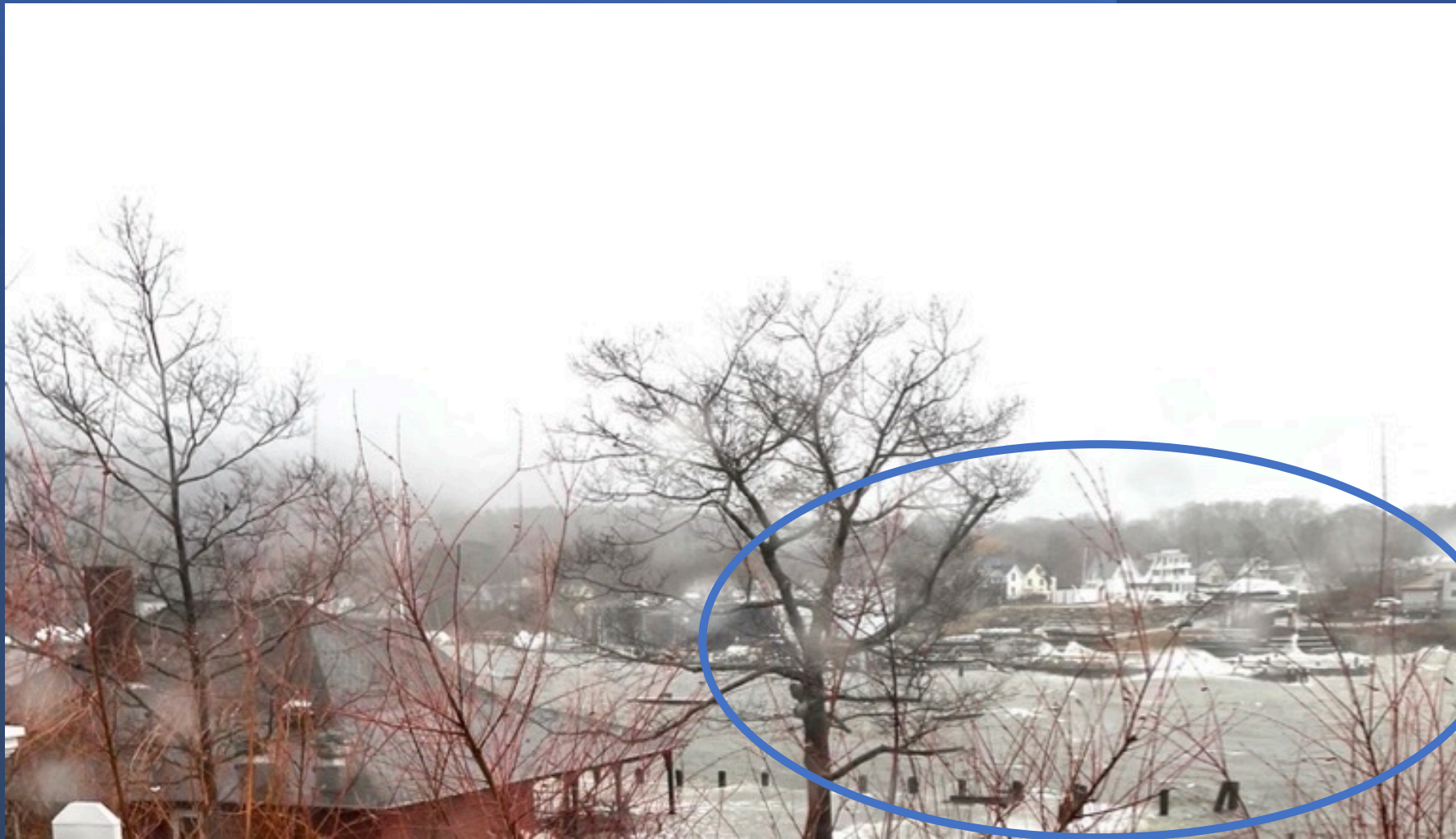
Property Damage – Municipal \$305K, Private \$??



How will Camden choose to deal with anticipated future occurrences?

MORE PICS

Estimated 4 ft Waves At Entrance to Inner Harbor



Estimated 4 ft Waves At Entrance to Inner Harbor



Estimated 4 ft Waves At Entrance to Inner Harbor



Estimated 4 ft Waves At Entrance to Inner Harbor

