

HURRICANE BOB

A Bahamas Birth, A New England Destiny

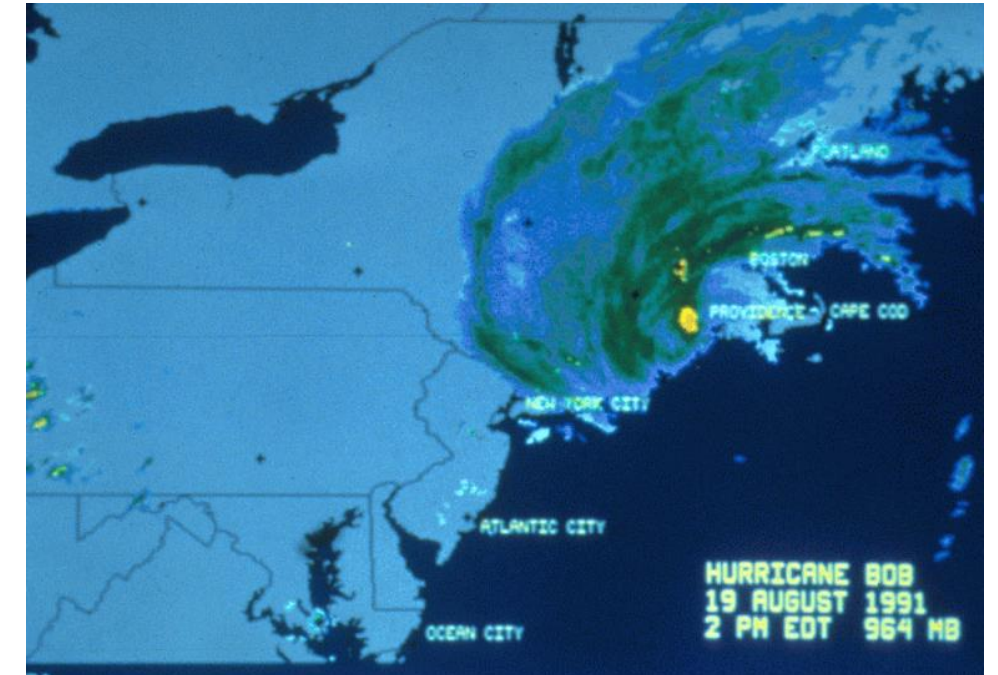


25 Years Ago

Bob Thompson
Southern New England
Weather Conference
October 29, 2016

HURRICANE BOB

- What happened
- Forecast operations
- Response by community
- Then and now



What Happened – Hurricane Impacts

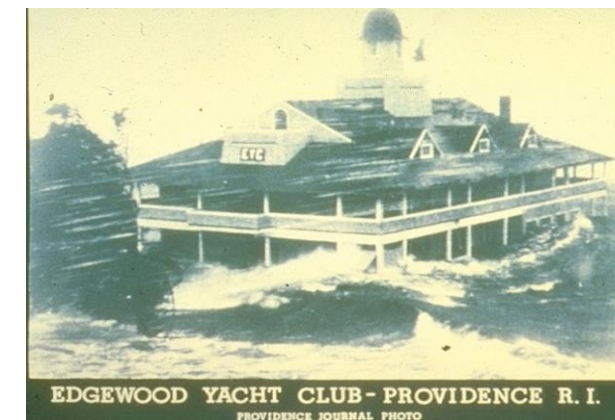
- Wind



- Flooding Rain

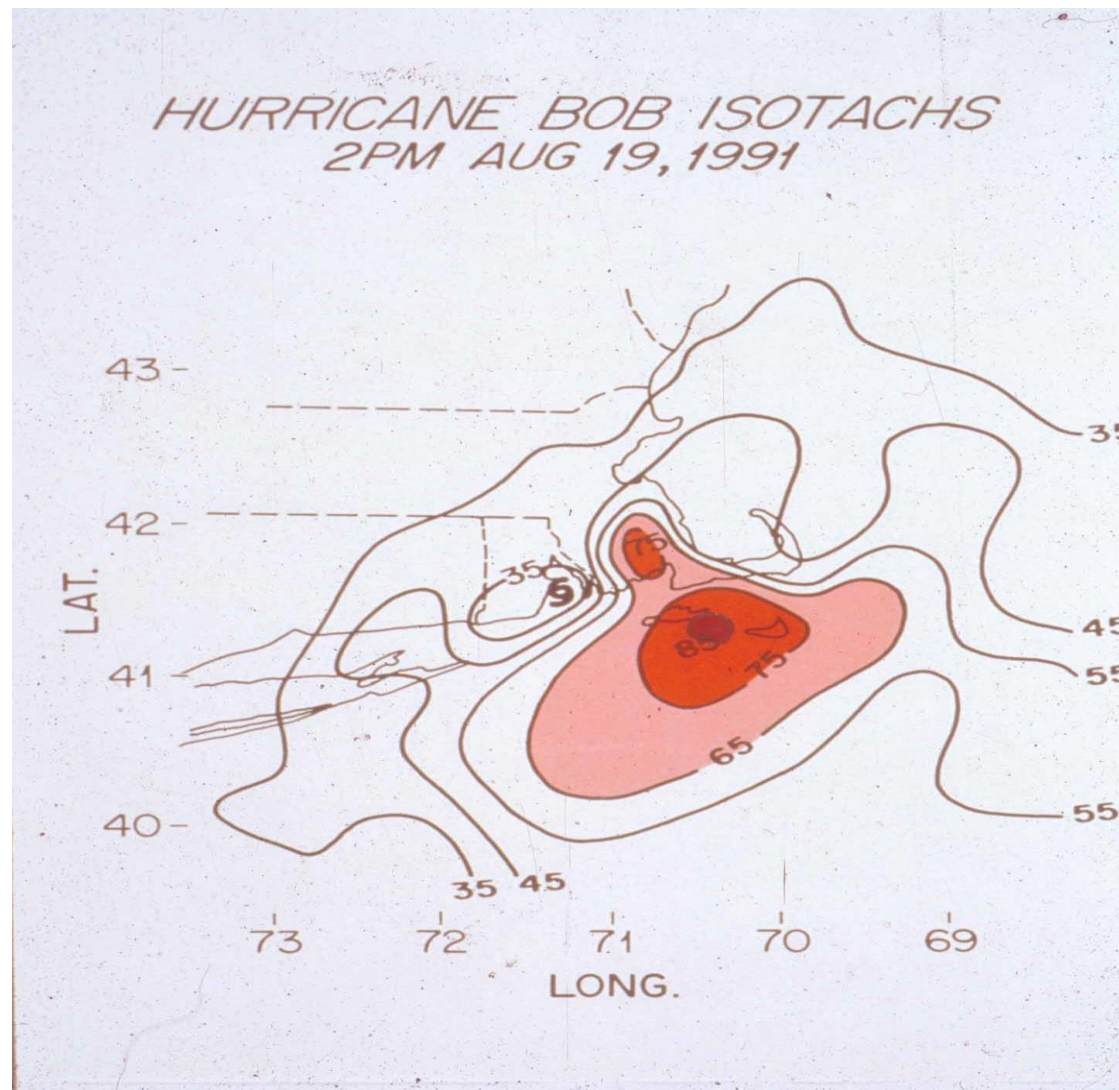


- Storm Surge Flooding



Hurricane Bob Wind

- Weakening Category 2 Hurricane (96 to 110 mph)
- Strongest winds on east side (to right of track)
- Pockets of enhanced damage interior under stronger spiral bands

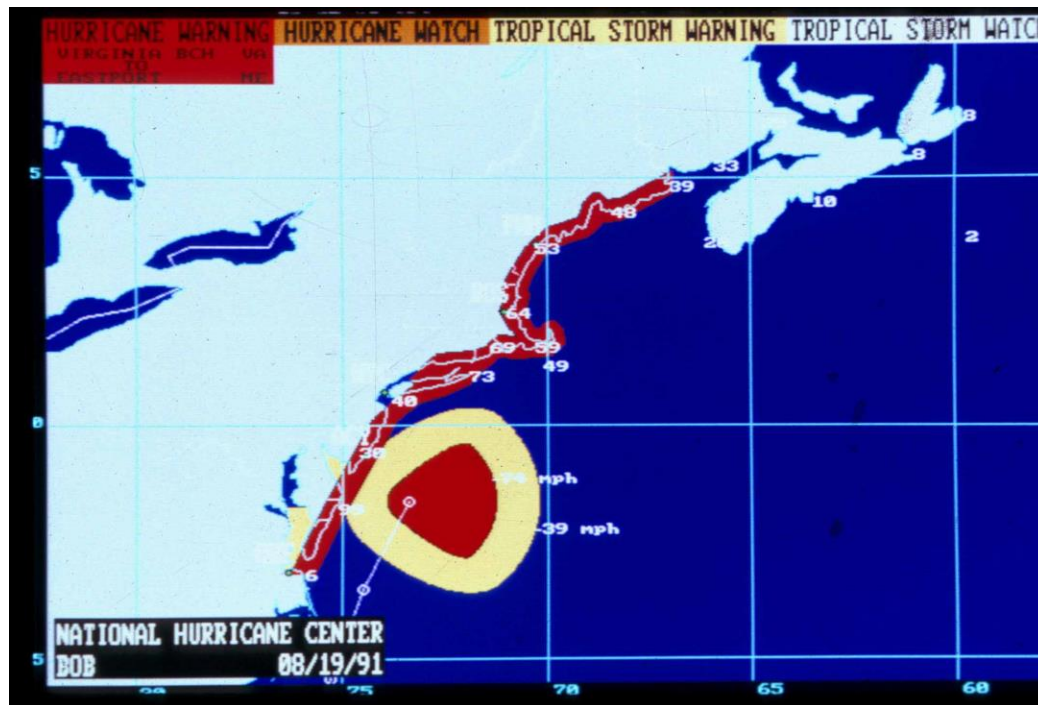


End Game

When Tropical Storm Force Winds Arrive

Tree taken down on weaker side of Hurricane Bob

- Sustained wind = 40 mph
- Gusts = 60 mph



Key on approach of tropical storm force winds
- Not the eye



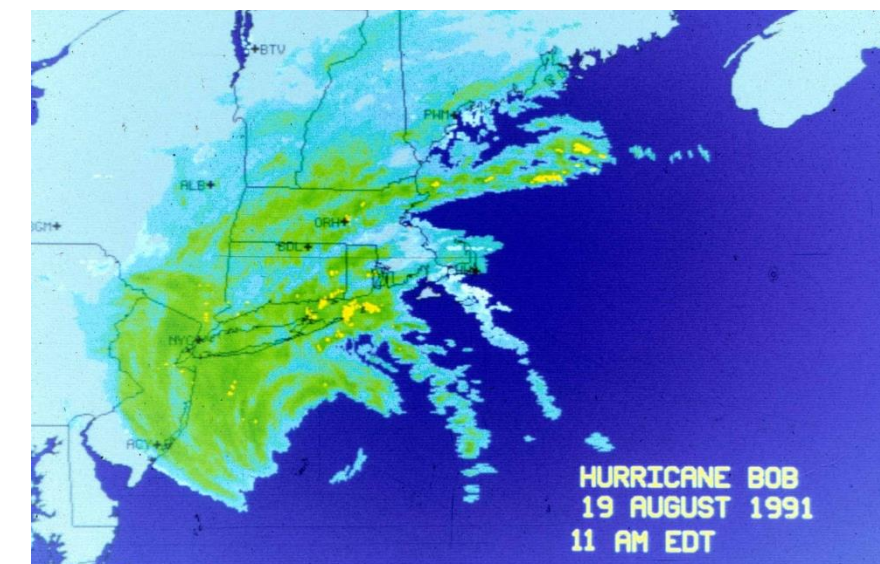
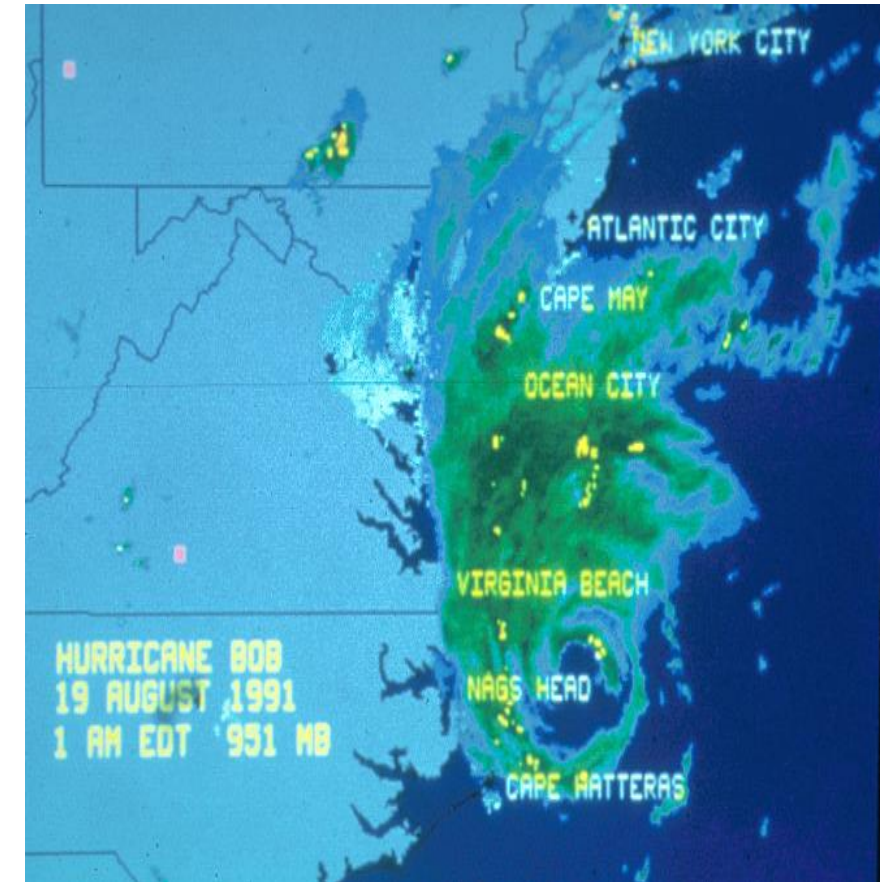
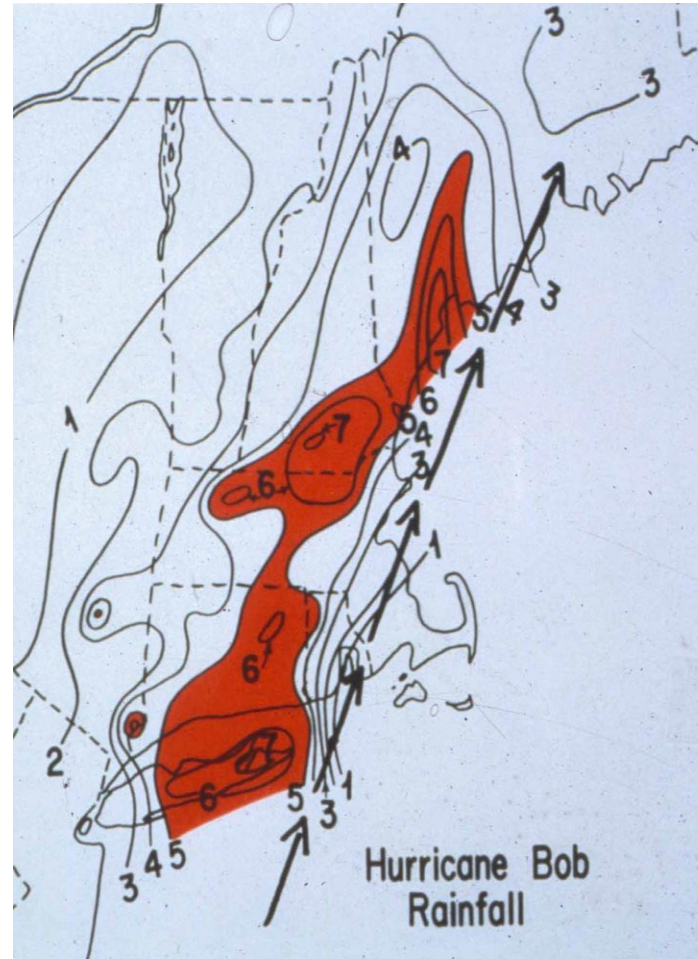
TRAFFIC!



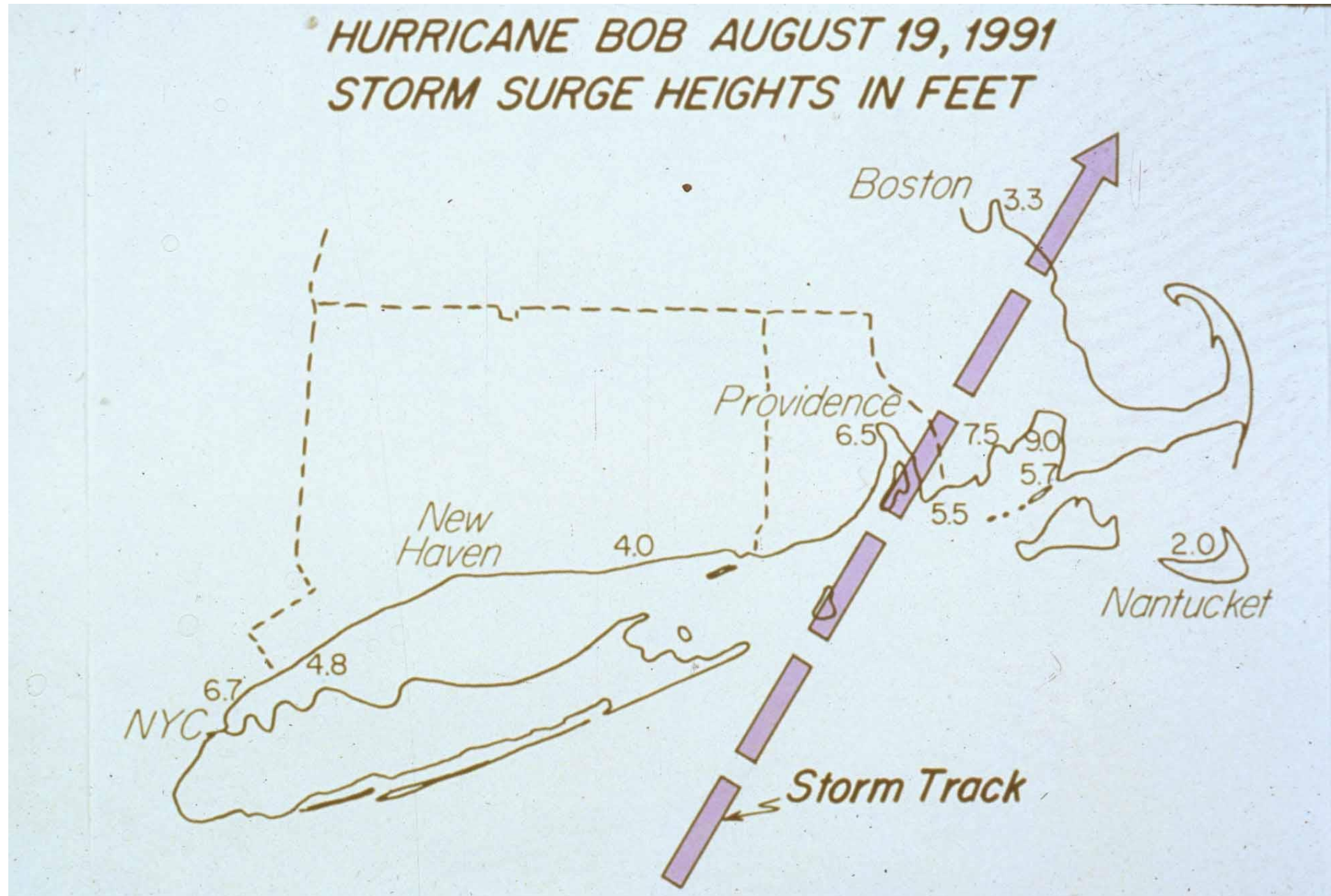
- Traffic was issue for Hurricane Bob
- Need Cape/Islands traffic not only across bridge before closure but also safely at destination before tropical storm force winds

FLOODING RAINS

- Heaviest rain fell to the left of the track
 - Typical for New England hurricane
- Small Stream and urban flooding
- Minor River Flooding
 - Park (CT)
 - Concord (MA)
 - Blackstone (MA and RI)
 - Presumpscot (ME)
- Dry antecedent conditions



HURRICANE BOB STORM SURGE FLOODING



Website: www.weather.gov/boston

Twitter: [@NWSBoston](https://twitter.com/NWSBoston)

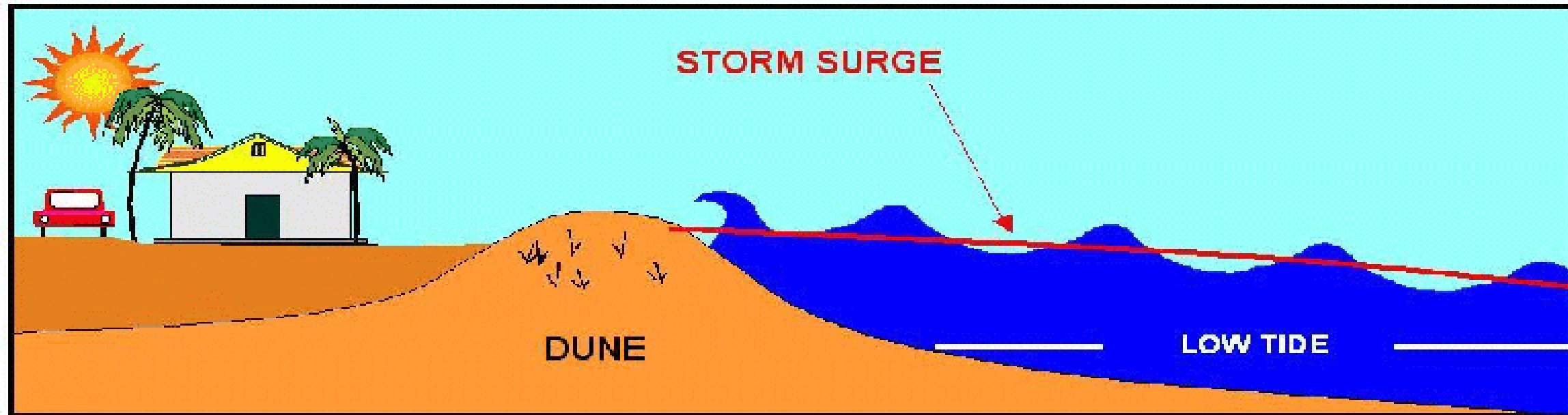
Facebook: <http://www.facebook.com/NWSBoston>

Hurricane Bob Storm Surge Flooding

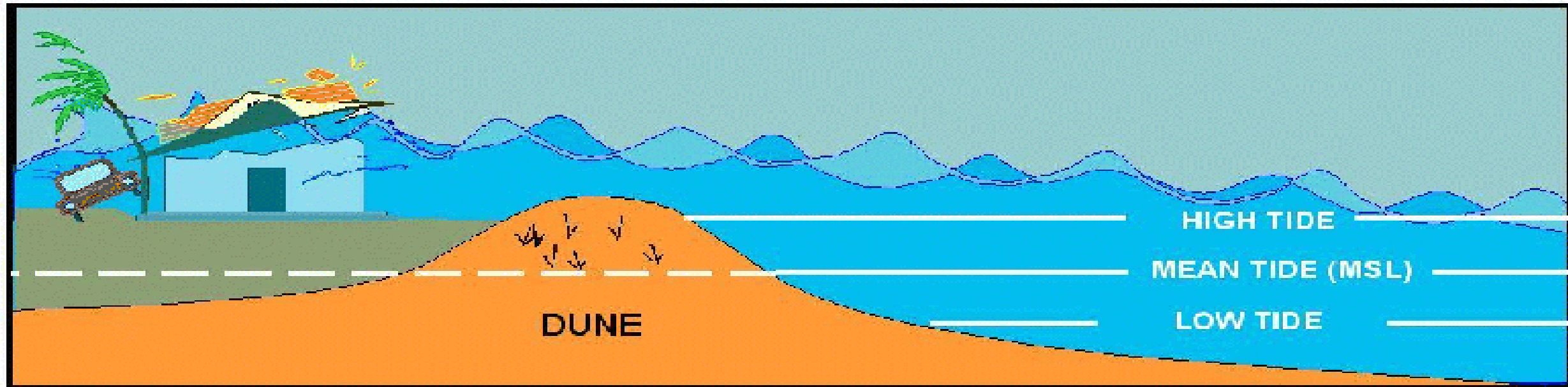
- Highest near and to the east of the track
 - Narragansett Bay and Buzzards Bay
- Storm surge arrived on incoming tide



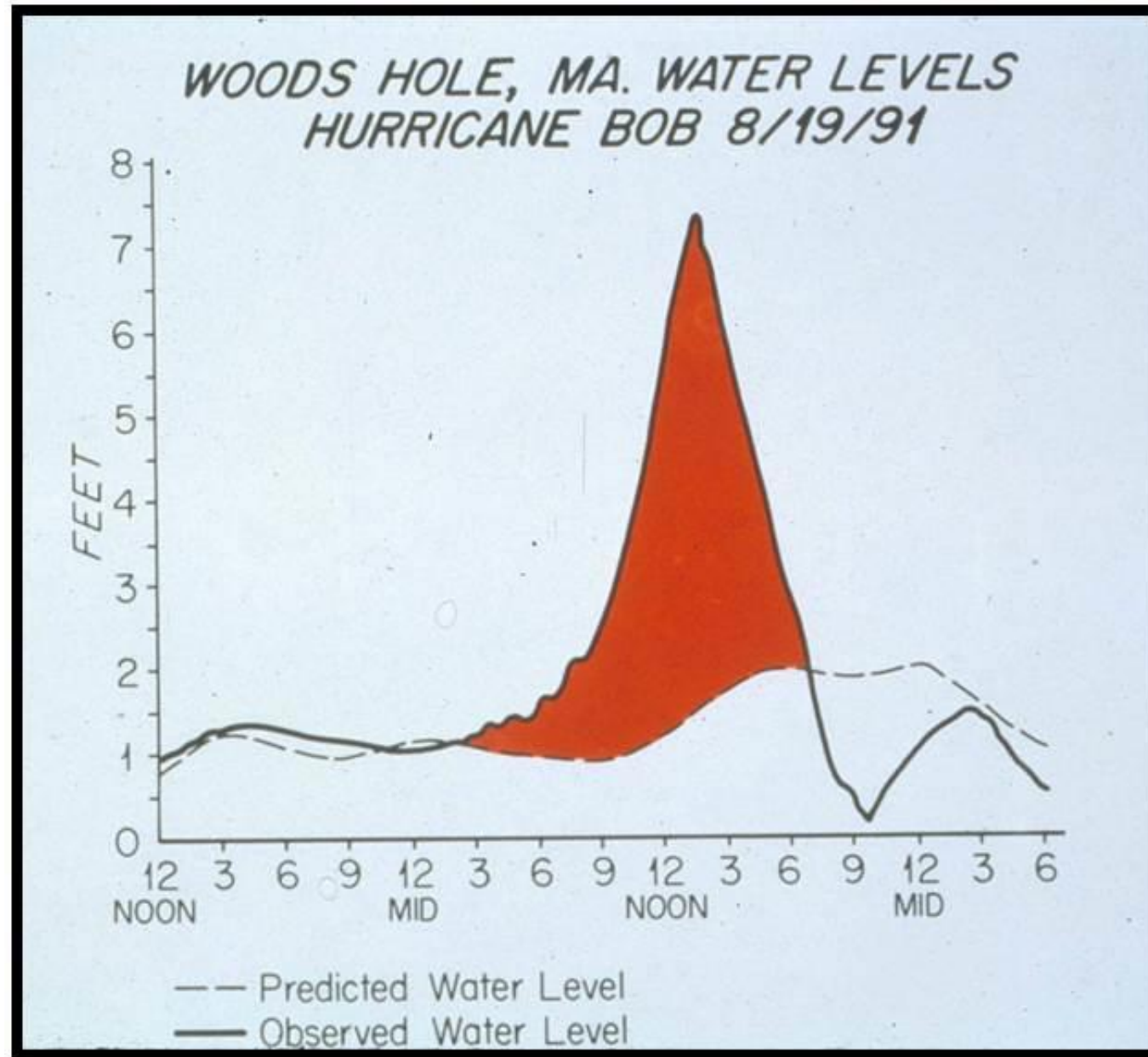
Timing Matters - LOW TIDE



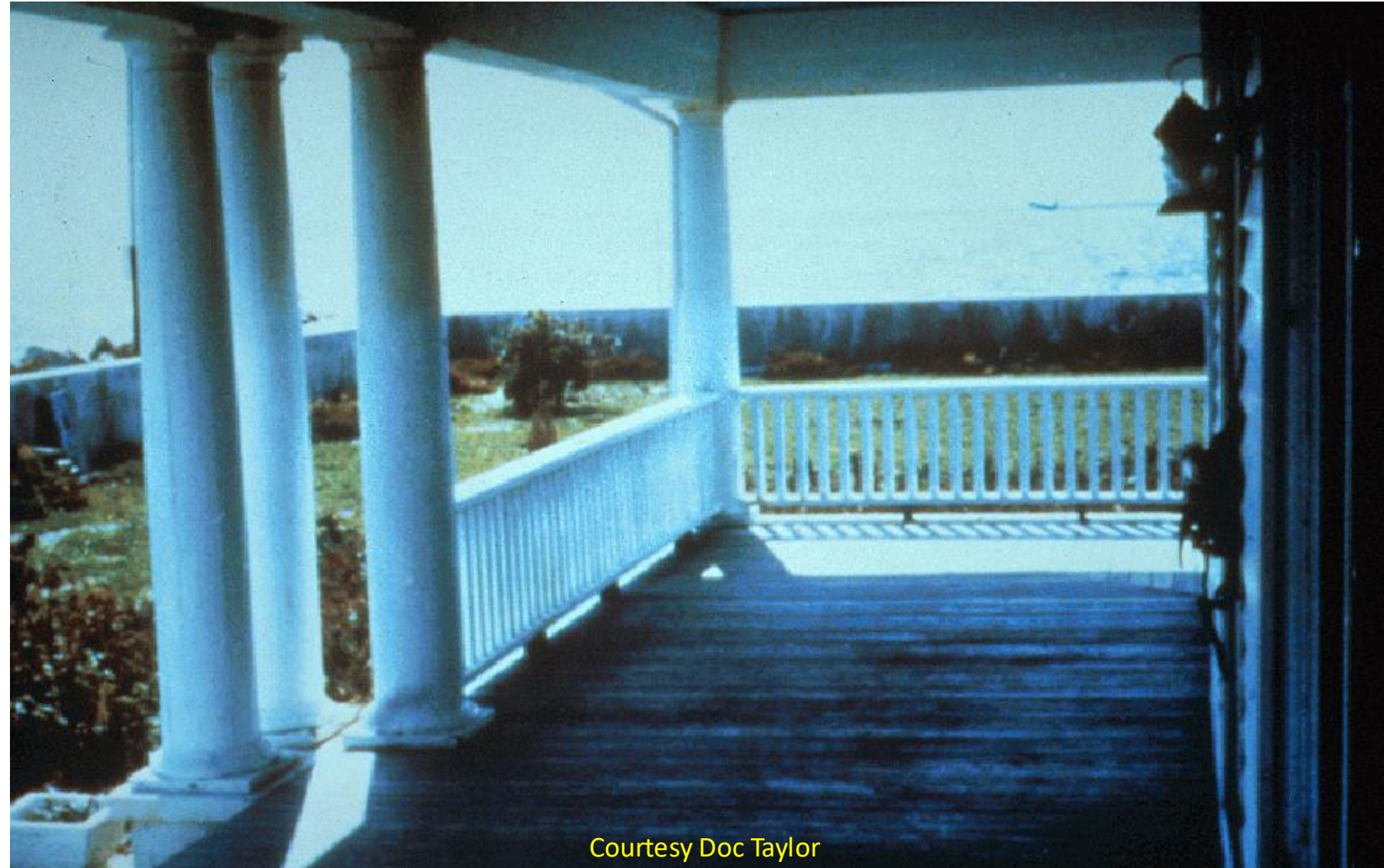
Timing Matters - HIGH TIDE



Hurricane Bob's Peak Storm Surge on Incoming High Tide



Let's take a trip to the Menauhant Section of Falmouth...*on a nice day*



...During Hurricane Bob (6 Foot Storm Surge)



Courtesy Doc Taylor

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Representative of Damage Along Buzzards Bay Shoreline



Cottage moved off foundation in Falmouth across Surf Street



Mattapoissett, MA after Hurricane Bob

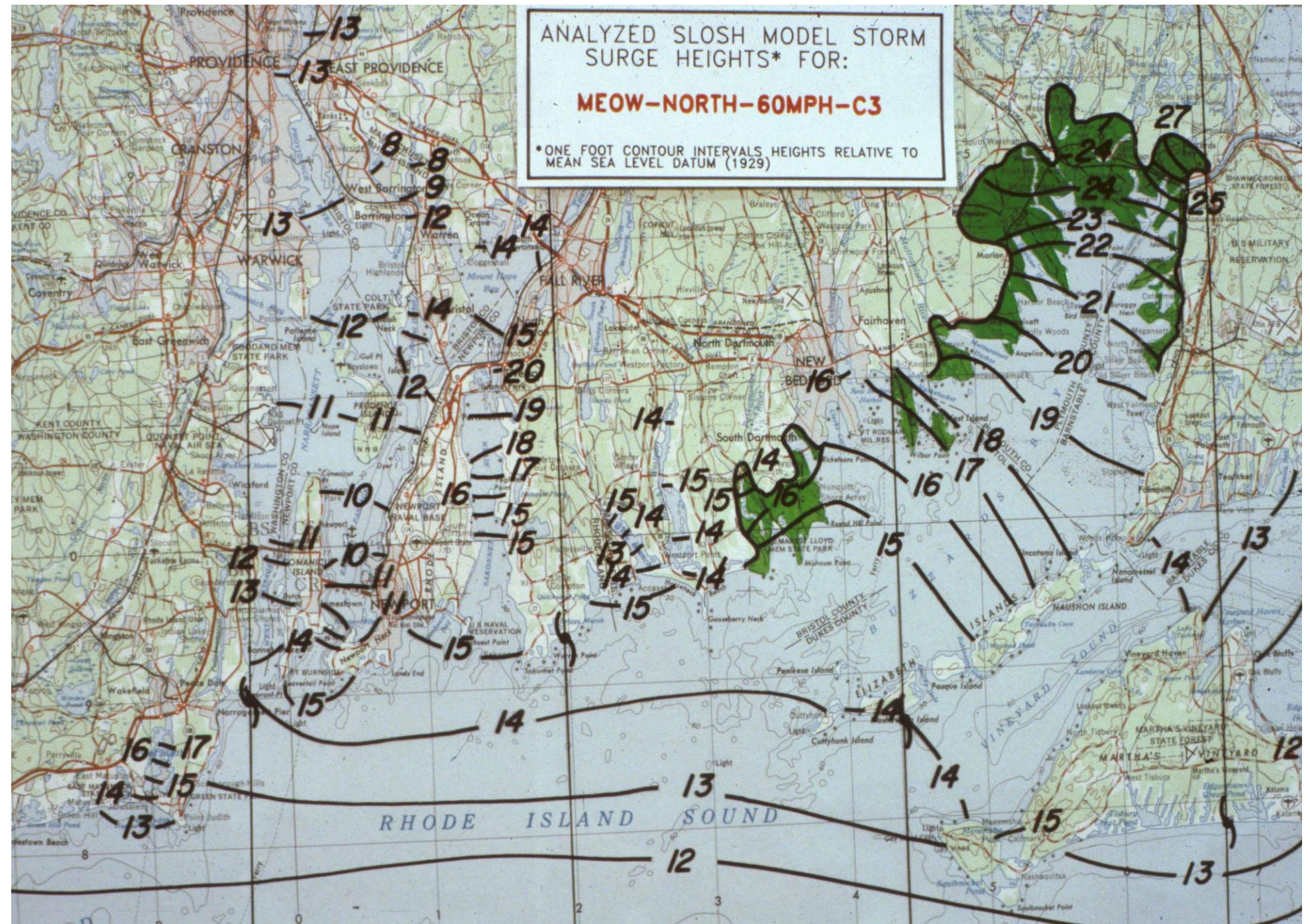
Worst Case Scenario (Fast Moving Category 3 Hurricane)



Buzzards Bay Village ~ Bourne, MA



Onset during 1938 Hurricane



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6 Foot versus 13 Foot Storm Surge



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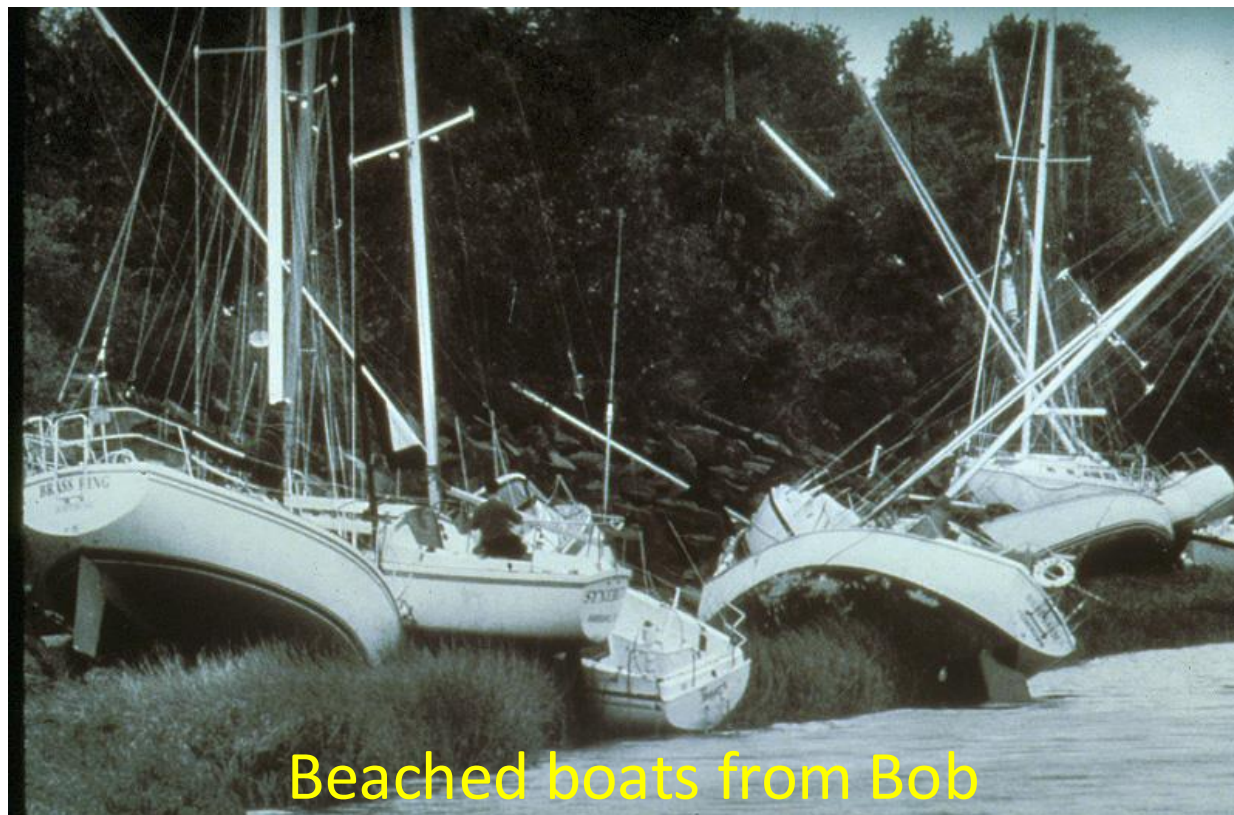
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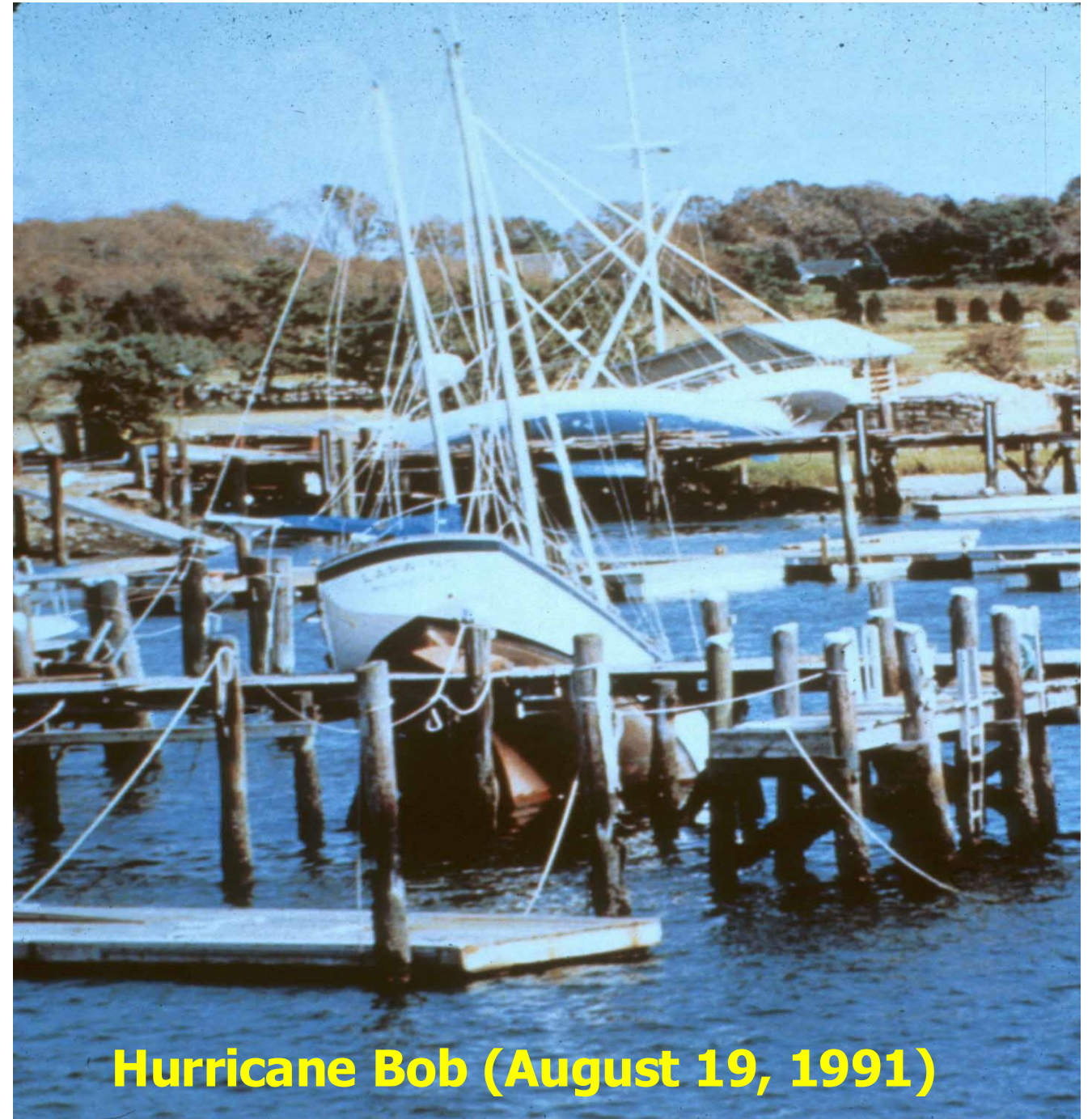
Hurricane Bob Boat Impact

PRE SEASON BOATER CHECKLIST?

- Check key phone numbers (marina, insurance agent, etc.)
- Coordinated your storm preparedness plan with caretaker/marina
- Batteries fully charged
- Cleats checked
- Chafe gear stored/labeled
- Sufficient line
- Suitable anchors
- Bilge pumps, if applicable
- Hatches water tight
- Moorings
 - Inspected
 - Adequate for potential storm surge, wind and waves



Beached boats from Bob



Hurricane Bob (August 19, 1991)

Hurricane Bob Forecast Operations

- **Limited Preparation Time**
 - Bob formed on Friday and made landfall Monday
- **Peak leave season**
 - MIC covering Sunday public forecast shift
 - Scramble to get extra staff in place
 - Long day Sunday
 - Hurricane Watch issued Sunday 12 noon
 - Hurricane Warning issued Sunday 6 PM
 - Severe weather Sunday afternoon



4 PM Sunday August 18, 1991

Hurricane Bob Response

- Heads up communicated to emergency management community Friday afternoon
- Internal preparation actions Friday afternoon
- Hurricane Pre-watch Checklist completed Saturday
- MEMA and FEMA Region I Directors contacted at home Sunday evening
 - “Yes, we really do believe this storm is going to impact us”
- Falmouth activated EOC 7 PM Sunday; most others Monday AM
- MIC witnessed moderate amount of traffic heading into Boston early Monday AM
- Competing news story!
 - *Gorbachev coup*



Early Monday Morning
August 19, 1991

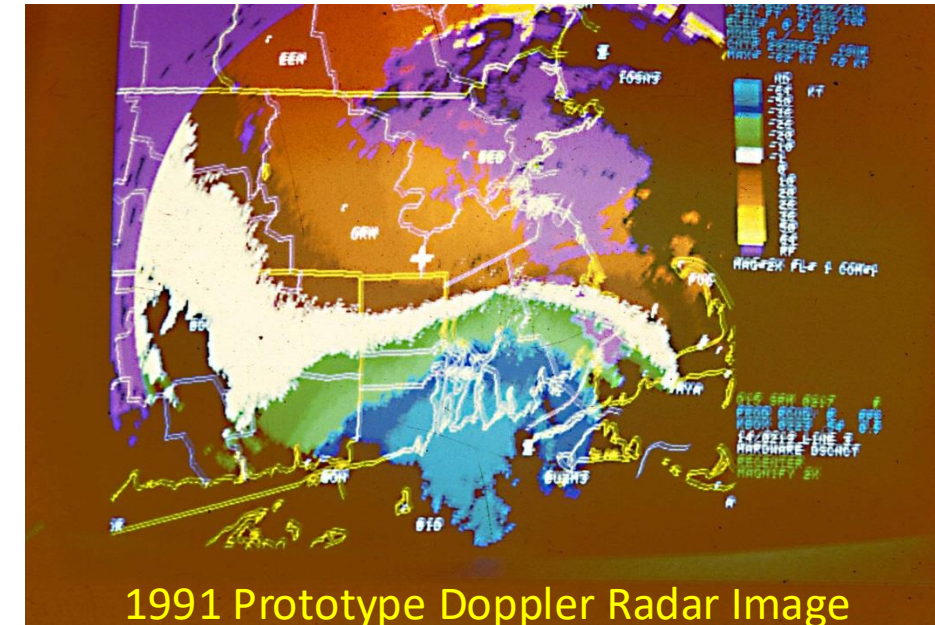
THEN AND NOW

- **Then – 1991**

- More “business as usual” than would expect today
- Storm was not really anticipated until it formed
- Heads up by NWS via phone calls
- Prototype doppler radar (Bloomfield, CT)

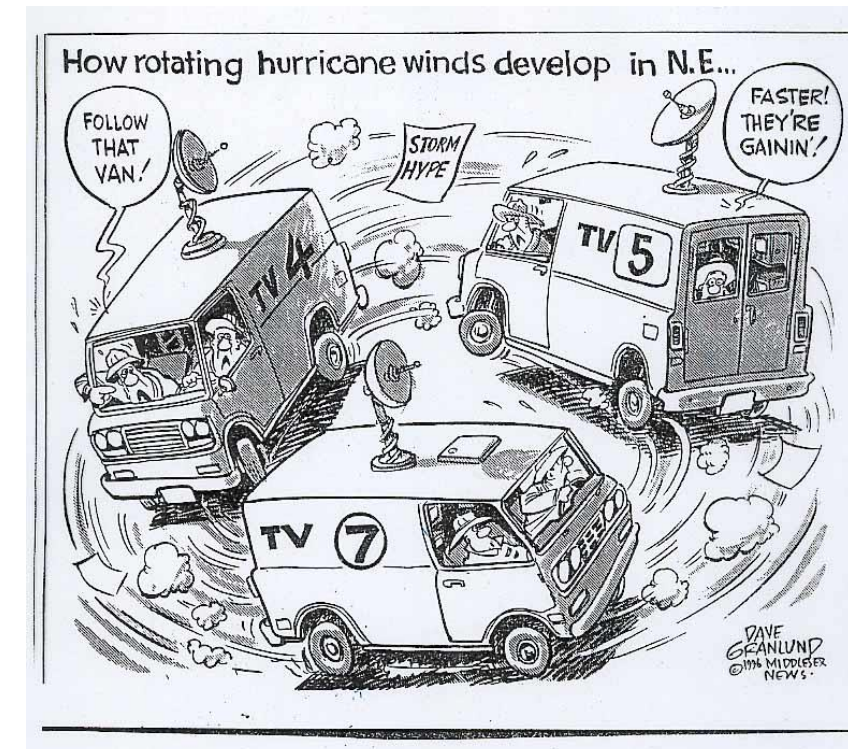
- **Now**

- Emergency managers looking at computer models on web over a week in advance
- Impact Decision Support Services
 - briefings started sooner based on today’s model projections
 - PowerPoint presentations and conference calls to hundreds of decision-makers
 - Probably continue post-storm due to increased vulnerabilities
- Cape Cod Emergency Traffic Plan would be activated
- Web and social media dissemination
- More intense media coverage even with competing news story or stories
- More aggressive short term forecasts and warnings in large part due to operational doppler radar (WSR-88d)



Hurricane Bob Legacy

- Start of more concerted and collaborative hurricane preparedness initiatives
 - Balance hype/preparedness
 - NWS, Emergency Management, Media
- Greater awareness of south coast vulnerability (especially Buzzards Bay)
- Early stirrings toward enhanced Decision Support Services from this office

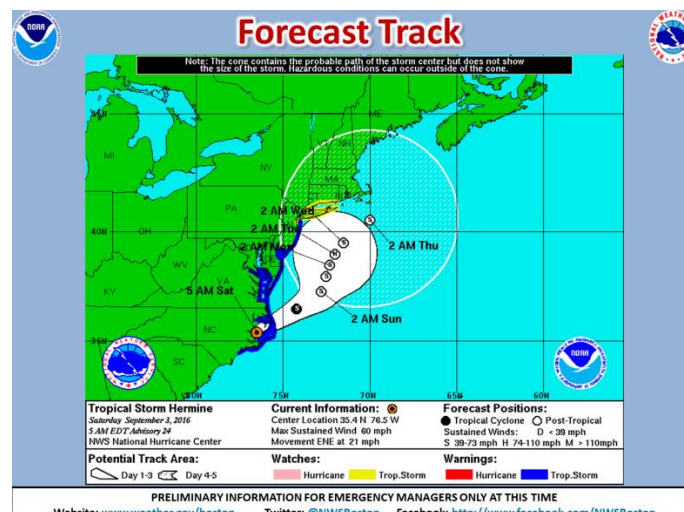


Tropical Storm Hermine

Weather Briefing
515 am Saturday
September 3, 2016

National Weather Service
Boston, MA

PRELIMINARY INFORMATION FOR EMERGENCY MANAGERS ONLY AT THIS TIME
Website: www.weather.gov/boston Twitter: @NWSBoston Facebook: <http://www.facebook.com/NWSBoston>



Summary of Potential Hazards

Wind

- Gusts 40-50 mph along the south coast/islands with a low probability of 60 mph wind gusts late Sunday into Monday morning
- Downed trees and large limbs producing scattered power outages across south coast and islands

Rainfall

- 1 to 2 inches Sunday night through Tuesday
- Low probability of 2 to 4 inches

Coastal/Marine impacts

- High surf and dangerous rip currents Sunday through Wednesday
- Beach erosion – generally minor but moderate possible along the Rhode Island coast between Westerly and Point Judith
- Minor coastal flooding along portions of RI and MA south coast possible
- Easterly wind gusts to 45 knots and seas building to 15 to 20 ft over southern waters Sunday into early Monday
- Worst case: 55 knot gusts and seas 20 to 25 feet southern coastal waters

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Questions?

- Latest information:
 - www.weather.gov/boston
 - Area Forecast Discussion
 - Hazardous Weather Outlook
- Call us: 508-823-2228
- NWSChat Online
 - <https://nwschat.weather.gov>
- E-mail:
 - box.operations@noaa.gov

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As We Move Forward...

Preparedness

- StormReady initiatives
- Web/Social Media info
- Workshops
- Community outreach
- Media programs

+ Science

+ Decision Support Services

= More Resilient Communities



Lest We Forget...

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“Natural calamity strikes at just about the time that one forgets its terror.”

-- Japanese Proverb

Hurricane Edition **THE SUN** **Local and Shore News**
Vol. 46, No. 39 WESTERLY, R. I., FRIDAY SEPTEMBER 23, 1938 Price Three Cents

Misquamicut Wiped Out; Napatree Point Gone; 50 Dead; Scores Missing

Westerly Paralyzed by Tropical Hurricane; Cottages at Charlestown Beach and Quonochontaug Washed Away; 4 Dead, 4 Missing In Stonington

Misquamicut with 500 cottages, was entirely wiped out, all cottages on Napatree Point, watch hill destroyed and more than 30 people killed and millions of dollars of property damage resulted from a tidal wave and hurricane which struck Westerly late Wednesday afternoon.

List of Dead and Missing

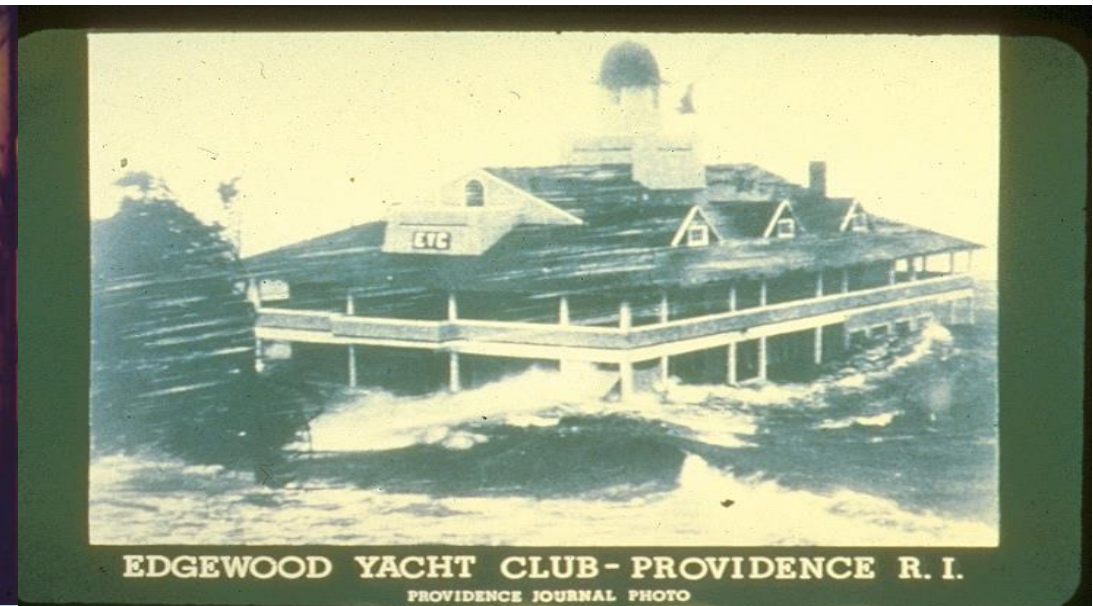
Bodies Recovered Mrs. Henry Bennett, New York City Mrs. Ella Bliven Mrs. Ralph Bliven, Misquamicut Mrs. Ossie Brasley Mrs. Byron Sutton Mrs. E. N. Brown Mrs. George P. Clark, Shannock Miss Harriet Clark, Shannock Miss Ann Clark, Shannock Miss Florence Clark, Shannock Mrs. Philip Clemens Mrs. Lloyd M. Cook George Cross, Charlestown Mrs. George Davidson Mrs. Dorothy Mrs. Zoe Fleicher Father Fitzgerald Mr. James Gould	Bodies Recovered Mrs. Kingsbury Mrs. Raybacker Mrs. Evelyn Bliven Mr. Eugene Eliel Crooker Frank Fessetti Mrs. John Davidson Amos Bursick Mrs. Amos Bursick B. L. Linspear Mrs. Mee and two children Mrs. William Bliven Two small mortuary children Mrs. P. Hobbie Mrs. S. Merrick Catherine Cutley Della O'Toole Frances O'Toole Eliel Avery
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Every one of the approximately 200 houses on Charlestown beach was carried away.

Between 75 and 100 houses on the Charlestown Pond area including Charlestown-by-the-Sea were demolished. The few houses left in that area have been saved from a few feet to a quarter of a mile away. A few houses on hill pastures are not so badly damaged. Many people who were staying in that section just barely escaped.

Mrs. David Larkhan and daughter who were on the beach started across the pond on a door when Larkhan washed away, but Miss Larkhan was saved, although she is in a poor condition.

Mr. Mee and family were in their car, leaving the beach, and stopped to assist the Brockbridge family who were in trouble. The wave



THANK YOU!

Nature's Awesome Power

HURRICANE BOB

Bahamas Birth
New England Destiny

