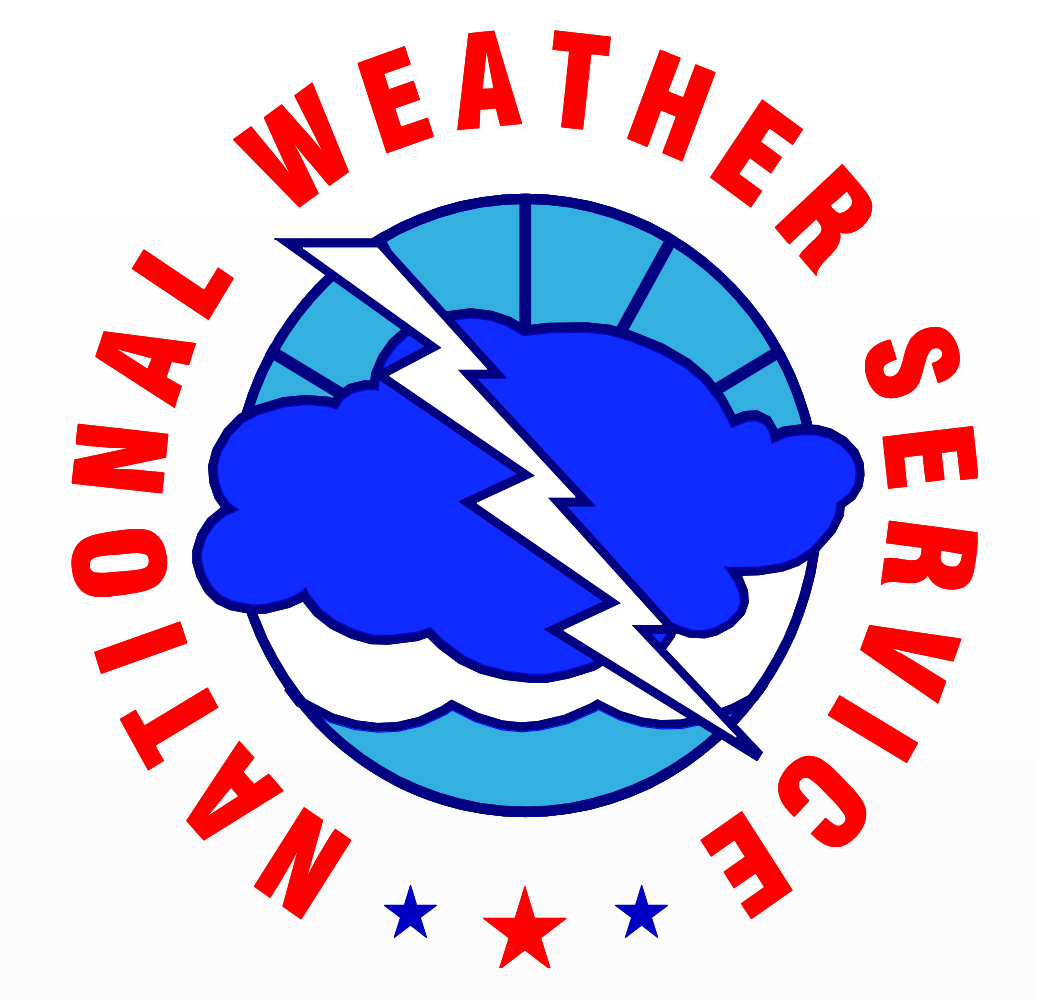




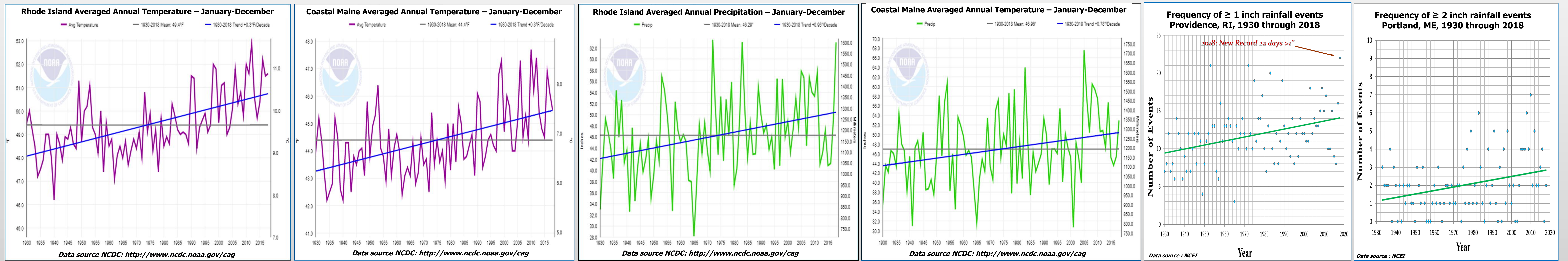
Examining Climate Trends in New England and their Impact on Riverine Flood Behavior



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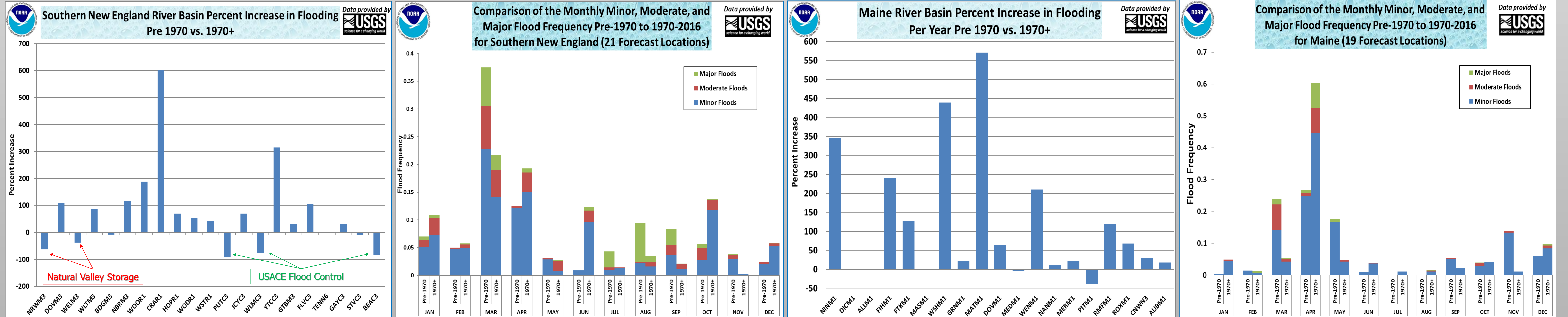
New England has been experiencing an increasing trend in annual average temperature, annual average precipitation, and the frequency of heavy rainfall events over the past several decades. During this same time period, the region has experienced an increasing frequency of flooding, and in some cases an increase in flood magnitude as well. The flood risk is compounded in smaller watersheds and where there has been significant changes in land use and encroachment into the floodplain. These flood episodes have been associated with a variety of storm types and have affected the region at different times of the year. The common threads in each episode were a persistent storm track and the ability of each storm system to tap a tropical moisture source which resulted in very rainfall on already saturated ground.

The Trending Climate in New England: Warmer, Wetter, and More Frequent Heavy Precipitation Events

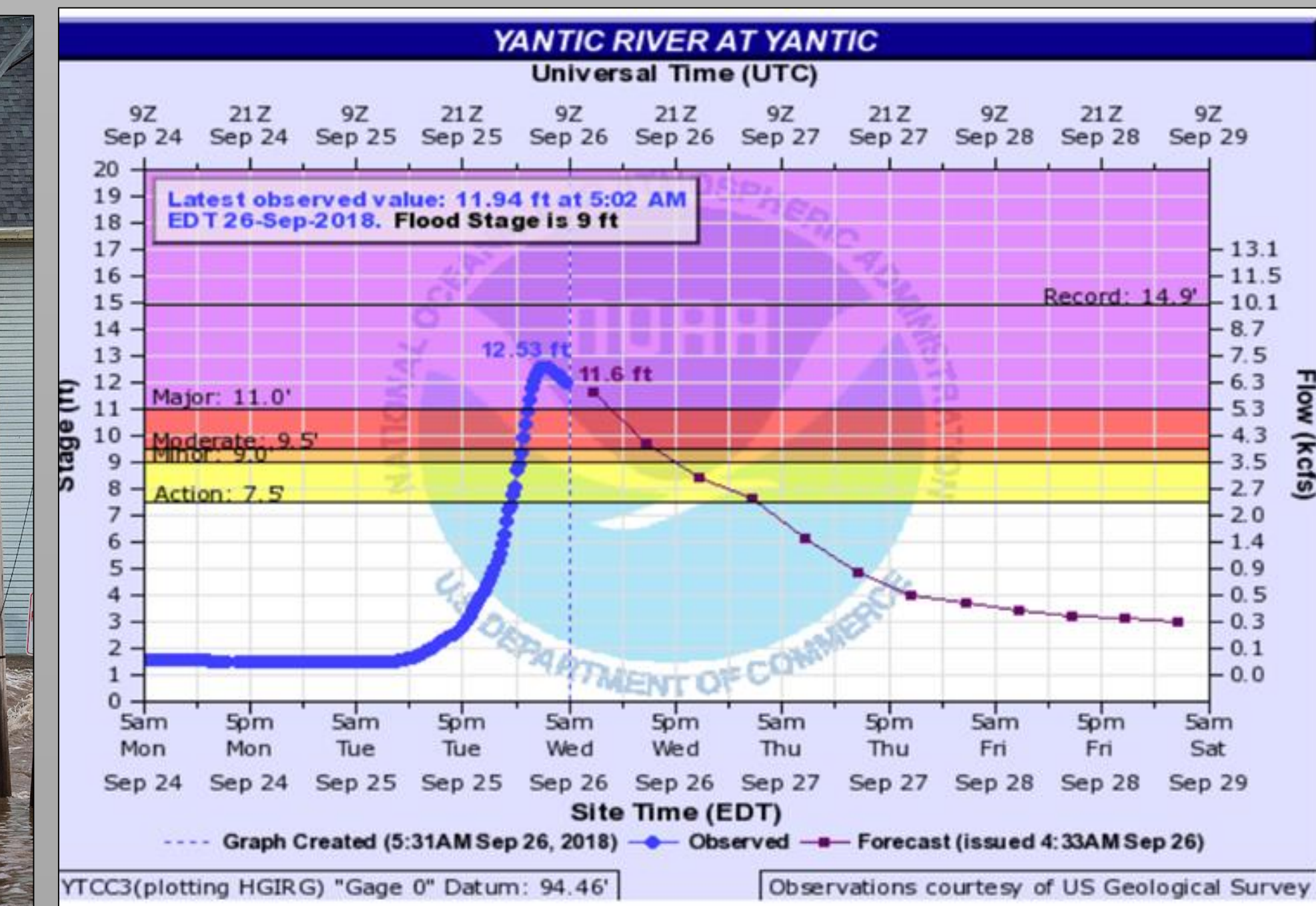
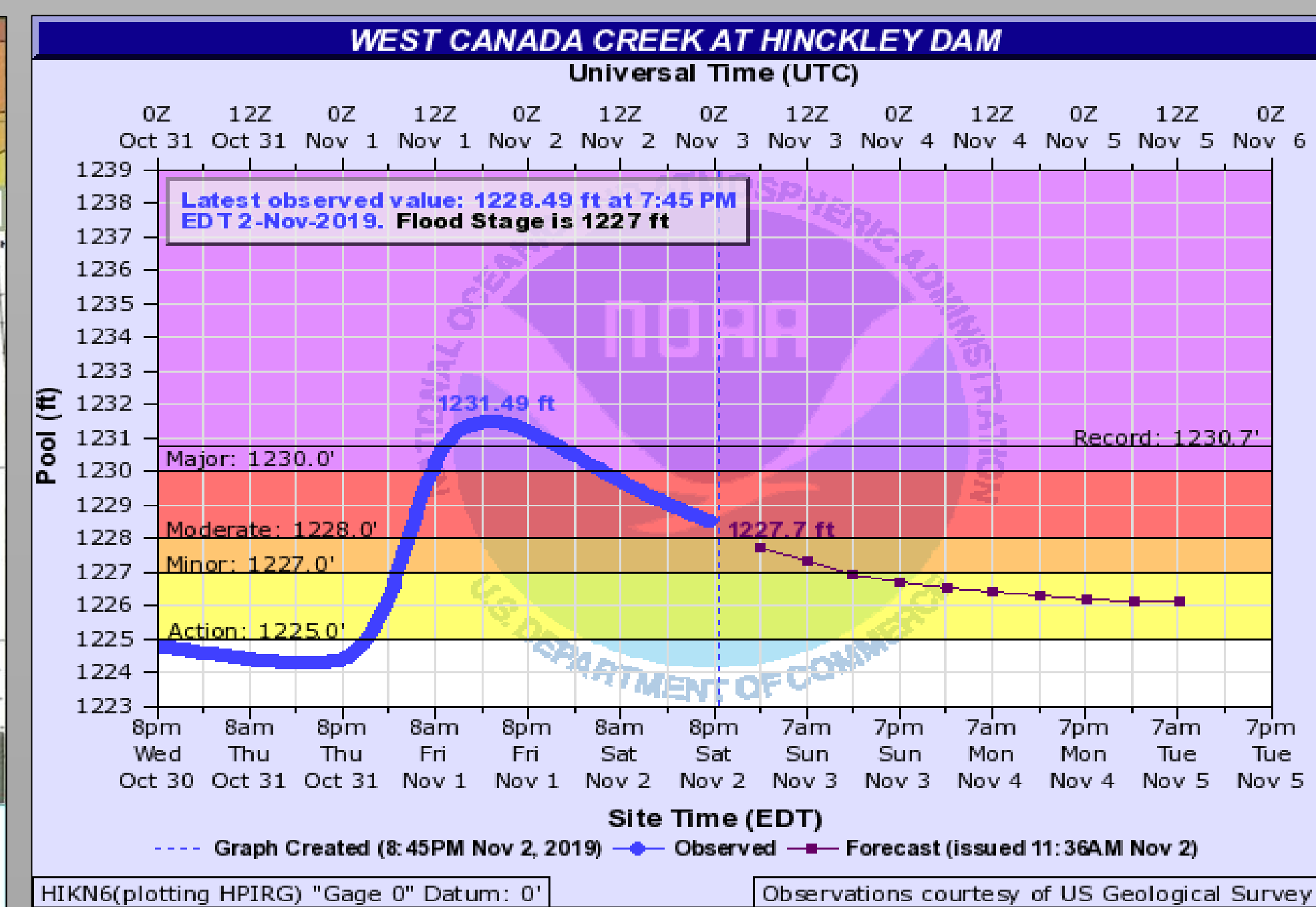
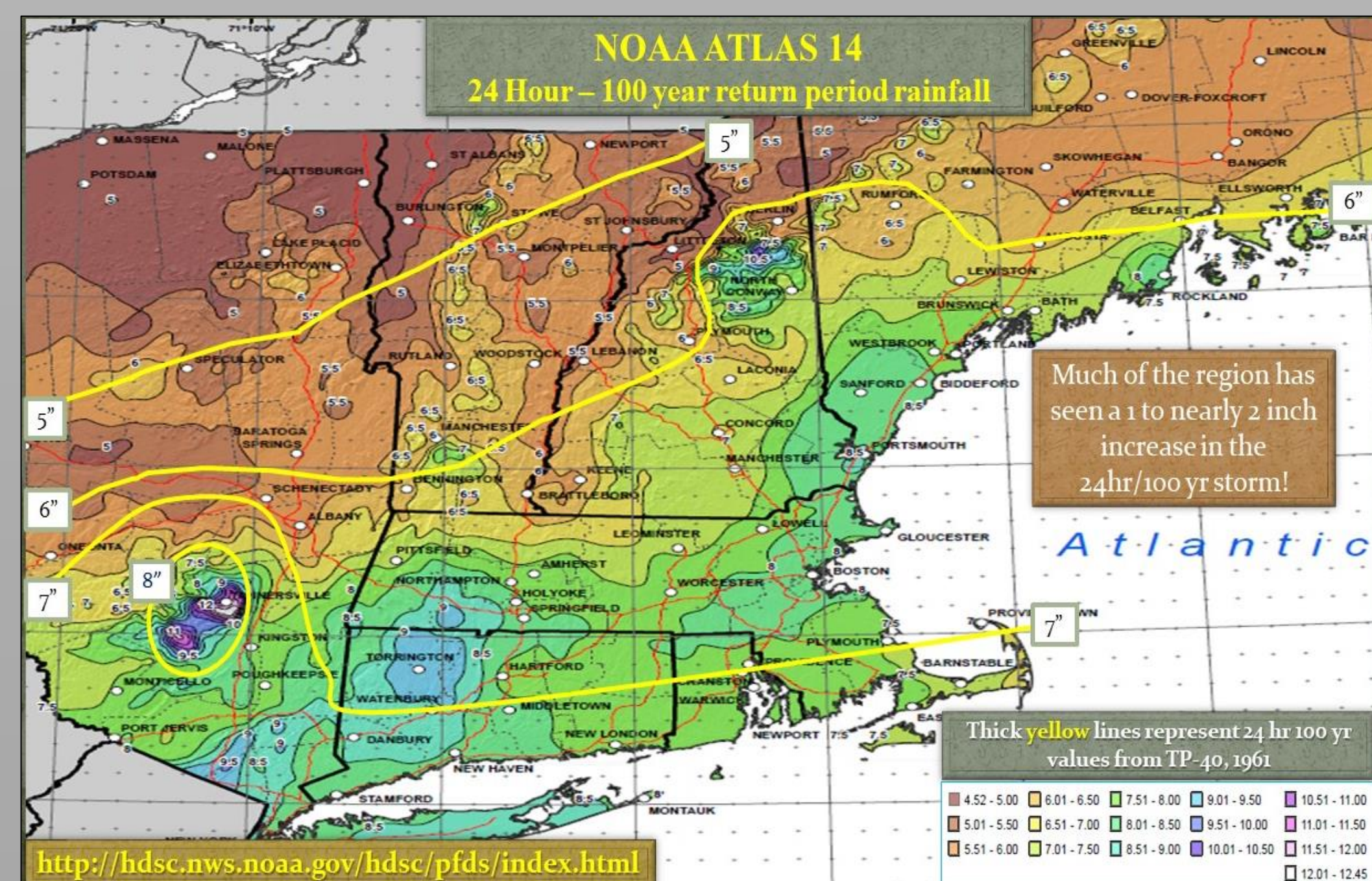


The Changing Flood Behavior: Increasing Flood Frequency, Flood Magnitude, and in Some Cases Both

- Smaller and more urbanized watersheds are experiencing the most significant changes
- Two practices that have reduced flood frequency and intensity:
 - Natural Valley Storage
 - USACE Flood Control Dams



Two Recent Examples of Major Flooding



Significant changes in the Design Storm across various return periods; Comparison of NOAA Atlas 14 to TP-40 from 1961

Record flooding on West Canada Creek at Hinckley Dam, November 1st, 2019 from 5-8 inches of rainfall. Source: NWS

Record flooding in Dolgeville, NY on West Canada Creek, November 1st, 2019. Source: D. McGee, Office of the Governor

Flash Flooding on the Yantic River from 5-7 inches of rainfall on September 25th, 2018. Source: NWS

Flash Flooding in Westport, CT - from 5-7 inches of rainfall on September 25th, 2018. Photo: Westport Fire Department