

2022 DECEMBER 23 WINTER STORM AT GREAT DIAMOND ISLAND STATE PIER



HOW BAD WAS IT?

The December 23, 2022 storm produced a storm tide of 13ft 9" at the Great Diamond Island State pier, making it the third-highest water-level event recorded in Portland, Maine.

Winter Storm Elliott evolved into a powerful bomb cyclone as warm and cold air masses collided over eastern North America. A bomb cyclone is an intense low-pressure storm that rapidly strengthens over a short period of time. Meteorologists classify a storm as a bomb cyclone when its central pressure drops at least 24 millibars within 24 hours, a process known as bombogenesis. This rapid intensification can significantly increase wind speeds, wave heights, and coastal flooding impacts.

Elliott developed into one of the most powerful winter storms of 2022, affecting much of North America as it tracked from the Great Lakes into eastern Canada. Along Maine's coast, heavy rainfall, coastal flooding, and strong winds caused widespread impacts, with wind gusts ranging from 30-40mph along the immediate shoreline.

STORM AND SURGE TIDAL STATS FROM 1912-2023 (MGS)

frequency	storm surge (ft)	storm tide (ft)
every year	2	11.7
every 5 years	2.9	12.6
every 10 years	3.3	12.9
every 25-100 yrs	+4	13.4-14.1

TIDAL STATS DO NOT INCLUDE WAVE HEIGHT OR SWELLS. TYPICAL WAVE HEIGHTS IN CASCO BAY RANGE FROM 1-3 FEET.

HIGH WATER MARK

SEVERE STORM SURGE +4-4.7FT

5-10 YEAR STORM SURGE +3FT

ANNUAL STORM SURGE +2FT

PREDICTED TIDE HEIGHT

SOURCE LINKS:

MGS STORM SURGE AND TIDE FAQS
PORTLAND TIDAL STATION 8418150
GDI SEA LEVEL RISE PROJECTIONS