



# HOW TO CHECK TIDE LEVELS IN HAMPTON, NH

WEATHER-BASED TIDE FORECASTS, EMERGENCY ALERTS, AND PLANNING AHEAD

## WHY DO YOU NEED TO CHECK THE TIDE LEVEL?

Each day in Hampton, there are two high tides and two low tides. During a tide cycle, the water level will increase and decrease by approximately 8 or 9 vertical feet. You may want to check the tide before you go to the beach, before you launch a boat, or to find out if and when areas are likely to flood or if they are actively flooding.

## WHERE CAN YOU FIND TIDE INFORMATION FOR HAMPTON?

### HAMPTON HARBOR TIDE GAUGE

For most accurate 3-day forecasts & real-time tide levels

[→ view the tide gauge hydrograph](#)

To get accurate, short-term (3 days ahead) tide forecasts that factor in weather as well as real-time tide observations, refer to the National Weather Service (NWS) Hampton Harbor tide gauge **hydrograph**. To learn more about tide gauges and how to read a hydrograph check out page 3. Historical data from the tide gauge can be accessed from the **NERACOOS data management system**.

### HAMPTON HARBOR ANNUAL TIDE TABLE

For planning up to 12 months ahead

[→ view the annual tide table](#)

Many people access long-term tide predictions from Hampton Harbor's **annual tide table** published by the National Oceanic and Atmospheric Administration (NOAA), also commonly accessed at **U.S. Harbors**. The tables show the upcoming year's daily predicted high and low tide levels and times based on the alignment and gravitational pull of the earth, sun, and moon. It is useful to estimate tide heights months ahead of time, however, weather and sea level rise are not included in annual tide table predictions, so the tables often underestimate high tide levels.

### HIGH TIDE ALERTS BY HAMPTON PUBLIC WORKS

For emergency high tide alerts

[→ sign up for Notify Me alerts](#)

You can sign up with the Hampton DPW to receive email or text alerts about high tides that are expected to cause localized flooding. The alert information is based on the annual tide tables, so they may underestimate high tide levels. Sign up with the **Notify Me service**.

# WHAT DOES THE HAMPTON HARBOR TIDE GAUGE TELL US ABOUT HIGH TIDE FLOODING?

Between 2013 and 2020, high tide flooding occurred on average 134 days per year in Hampton. High tide flooding occurred three times more often than predicted in NOAA's Hampton Harbor annual tide tables, which do not factor in weather or sea level rise.

**High tide flooding** takes place when tidal waters flow above the natural landscape onto roadways, driveways, and yards, and interrupt daily routines. In Hampton, high tide flooding occurs with tides at or greater than 10 feet referenced to mean lower low water.

# HOW COULD SEA-LEVEL RISE AFFECT HIGH TIDE FLOODING IN HAMPTON?



With 1 foot of sea-level rise, high tide flooding could occur 219 days per year in Hampton.



With 2 feet of sea-level rise, high tide flooding could occur almost every day, and a major flood could occur 27 times per year in Hampton. A major flood is defined as a tide above 13 feet MLLW.

**Mean lower low water (MLLW)** is the average height of the lowest daily tide. MLLW is used as the zero or reference value for the Hampton Harbor tide gauge.

## Looking ahead to 2050

NH Coastal Flood Risk Guidance recommends planning for 1.3 to 2.3 feet of sea-level rise above the 2000 sea level as well as increases in the number and severity of extreme weather events.

# WHAT SHOULD YOU DO WITH THIS INFORMATION?

## TO PREPARE FOR FLOODING | [www.floodsmart.gov/first-prepare-flooding](http://www.floodsmart.gov/first-prepare-flooding)

- ✓ Check tide predictions and keep an eye on tide forecasts and real-time observations.
- ✓ Know which tide levels and weather conditions flood your property and get informed about future flood risks.
- ✓ Residents in floodprone areas can obtain a permit from the Town Clerk to park in specified public lots during high tide flooding. | Phone: 603-926-0406
- ✓ Purchase flood insurance, take inventory of items in your home or business, and keep important documents in waterproof containers.
- ✓ Make an evacuation plan and a flood emergency kit. [www.ready.gov/sites/default/files/2021-02/ready\\_checklist.pdf](http://www.ready.gov/sites/default/files/2021-02/ready_checklist.pdf)
- ✓ Get involved in community discussions about flood management and planning.



Photo By Sue Lambert

# WHAT IS A TIDE GAUGE?

A tide gauge is a scientific instrument with sensors that precisely measure the height of the surrounding tidally-influenced water. The collected information can be used to learn about the changes in tide heights over time, water levels during storm events, and to update and refine tide forecasts.



Hampton Harbor tide gauge

Photo By Francesco Peri

# HOW DOES THE HAMPTON HARBOR TIDE GAUGE WORK?

Since February 2013, the Hampton Harbor tide gauge has been measuring the water level every 6 minutes with an accuracy of 1/16th of an inch. A water level sensor sends microwave radiation pulses down to the water's surface and measures the time it takes to reflect back. The recorded measurements are transmitted hourly to a remote computer. The Northeastern Regional Association of Coastal Ocean Observing Systems (NERACOOS) is responsible for collecting data and maintaining the gauge equipment.

# HOW DO YOU READ A HYDROGRAPH?

A hydrograph is a graph that shows water level changes over time at a specific location. The Hampton Harbor hydrograph tracks real-time, observed tide gauge water level measurements (blue line) and plots the next 72 hours of forecast water levels (purple line) based on the local weather forecast. The lines on the graph show peaks for high tide and valleys for low tides. Flood stages are shown on the graph for Action, Minor, Moderate, and Major. Occasionally the real-time observed data (blue line) will not appear or will show very strange values when the gauge malfunctions due to ice or other factors.

