

## Nuisance Flood Plan – Monitoring Report 2021 Quarterly Threshold Review

Q1	Q2	Q3	Q4
<u>4</u> High Tide <u>1</u> Heavy Rainfall >1” <u>&lt;1’</u> Depth <u>2 days</u> Duration <u>avg</u> Extent <u>1/Qtr</u> Frequency  <b>1 NF Event</b>	<u>1</u> High Tide <u>1</u> Heavy Rainfall >1” <u>&lt;1’</u> Depth <u>&lt;1 day</u> Duration <u>avg</u> Extent <u>1/Qtr</u> Frequency  <b>2 NF Events</b>	<u>0</u> High Tide <u>4</u> Heavy Rainfall >1” <u>1’-2’</u> Depth <u>1+ day</u> Duration <u>avg</u> Extent <u>4/Qtr</u> Frequency  <b>4 NF Events</b>	<u>2</u> High Tide <u>1</u> Heavy Rainfall >1” <u>1’-2’+</u> Depth <u>1-3 day</u> Duration <u>avg</u> Extent <u>4/Qtr</u> Frequency  <b>3 NF Events</b>

	Nuisance Flood Area (Tidal)	Special Flood Hazard Area (FEMA 100 year storm)
<b>Frequency</b>	3.7 times per year average	0.1 times per year average
<b>Depth</b>	1 foot	2 to 4+ feet
<b>Duration</b>	One tide cycle (2 to 3 hours)	Multiple tide cycles (1 to 3 days)
<b>Extent</b>	Area <span style="float: right;">72 acres</span> Buildable % <span style="float: right;">4%</span> Structures <span style="float: right;">450</span>	Area <span style="float: right;">1,157 acres</span> Buildable % <span style="float: right;">58%</span> Structures <span style="float: right;">2,500</span>

- Tracking the number of minor flooding days per year, and comparing prior years of data from the tide gauge provides an important planning tool to identify changing conditions. New community responses may be initiated when:

	2020 Annual
✓ <b>FREQUENCY</b> - Nuisance Flooding exceeds 10 to 12 events per year	8 events, only 2 events exceed the Nuisance Flooding threshold (2.3’ NAVD88) based on tidal influence
✓ <b>DEPTH</b> - Flood depths during nuisance flooding events reach 2 feet deep (moderate flooding) on a sustained annual basis	Tidal events do not exceed Minor Flooding, Additional study required for rainfall events
✓ <b>DURATION</b> - Nuisance flood duration regularly exceeds one tide cycle	One extended event September 19-23
✓ <b>EXTENT</b> - When the extent of local nuisance flooding doubles in area, or exceeds 10% of the community buildable area	Typical Minor Flooding events only during this period, Additional study required for area comparison

- When any one or more annual threshold(s) are exceeded, the Nuisance Flood Plan work group will meet to evaluate the data and community concerns, and will present a report to the Mayor and City Council with recommendations for action.

Stage	NWS Elevation (MLLW datum)	FEMA Elevation (NAVD88 datum)
Major	6.0+ feet	4.3+ feet
Moderate	5.0 feet	3.3 feet
Minor	4.0 feet	2.3 feet
Action	3.5 feet	1.3 feet

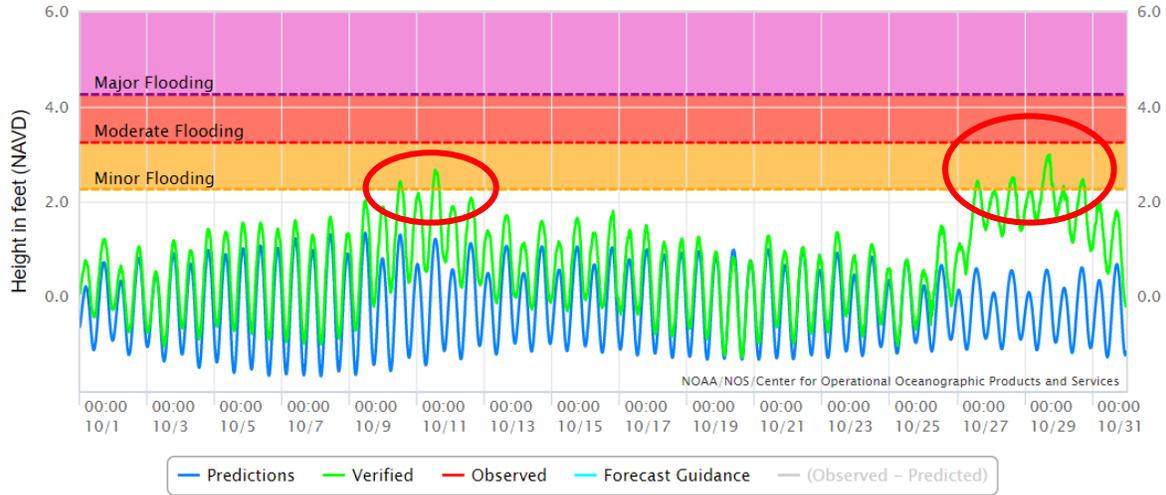
NWS	Elevation (Feet above MHHW)	Elevation (NAVD)	Event Date	Rainfall	Event Type	MyCoast
		2.95	10/30/2021	1.14"	Coastal Low Pressure	*
		2.67	10/11/2021		King Tide and Wind	
			9/9/2021	1.91"	TS Ida (remnant)	
			8/21/2021	1.95"	TD Fred (remnant)	
			7/30/2021	1.02"	Thunderstorm	
			7/9/2021	0.8"+	TS Elsa	
			6/9/2021	1.3"	Thunderstorm	
			5/29/2021	0.79"	High Tide plus rainfall event (2")	
			4/25/2021	0.46"		
			3/18/2021	1.43"		
		2.71	2/1/2021	0.93"	Nor'easter WS Orlena	*
	3.94	2.21	12/17/2020		Winter Solstice High Tide	
	4.27	2.53	10/30/2020	1.98"	Rainfall	
	3.86	2.13	9/21/2020		H Teddy	*
	3.90	2.17	9/17/2020	1.38"	Coastal Flood Advisory	
	4.03	2.30	8/17/2020		Coastal Storm	
			8/4/2020	1.23"	TS Isaias 1.23" Rainfall Wind	
			7/10/2020	1.92"	TS Fay 5" Rainfall Event	
			7/7/2020	2.56"	Rainfall	*
	4.02	2.29	4/4/2020		Coastal Storm	*
	4.10	2.37	12/2/2019		Winter Storm	
	4.30	2.57	11/18/2019		Coastal Storm	
	4.72	2.99	10/12/2019		TS Melissa	
	4.89	3.16	10/11/2019		Coastal Storm	
	4.85	3.12	10/11/2019		Coastal Storm	
	4.64	2.91	10/10/2019		Coastal Storm	
	4.32	2.59	9/6/2019	1.63"	H Dorian 1.63" Rainfall	
	4.27	2.54	10/27/2018		Noreaster	
	4.06	2.33	10/12/2018		TS Michael	
	4.58	2.85	9/9/2018		H Florence/Isaac/Helene	
			6/9/2018	7.5"	7.5" Rainfall Event	
	4.01	2.28	3/21/2018		Noreaster	
	4.35	2.62	3/7/2018		Noreaster, TS Riley	
	4.09	2.36	11/8/2017		Winter Storm	
	4.47	2.74	9/19/2017		TS Jose	
			7/28/2017	1.76"	1.76" Rainfall	

Minor Flooding

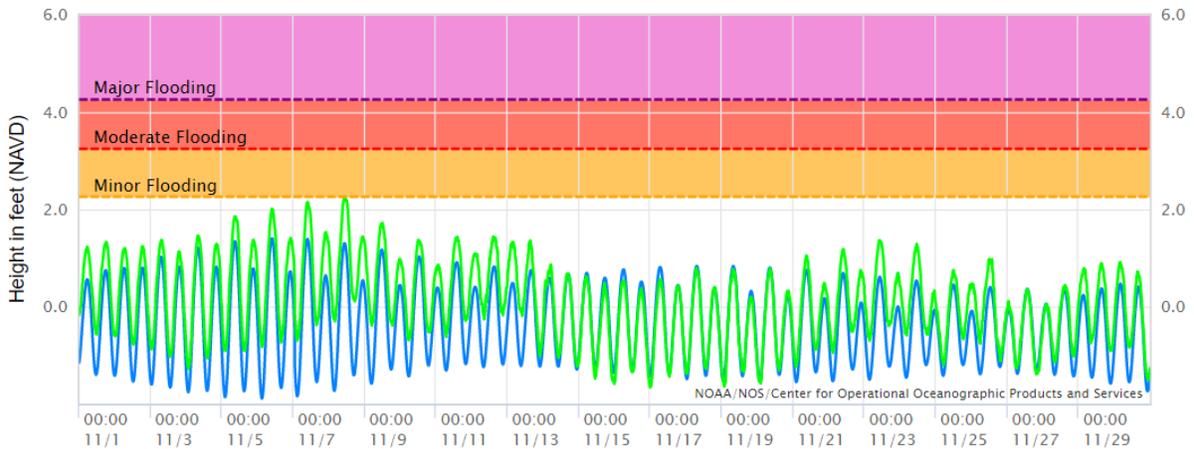
# Nuisance Flood Plan – Monitoring Report

## 2021 Tide Elevations Q4

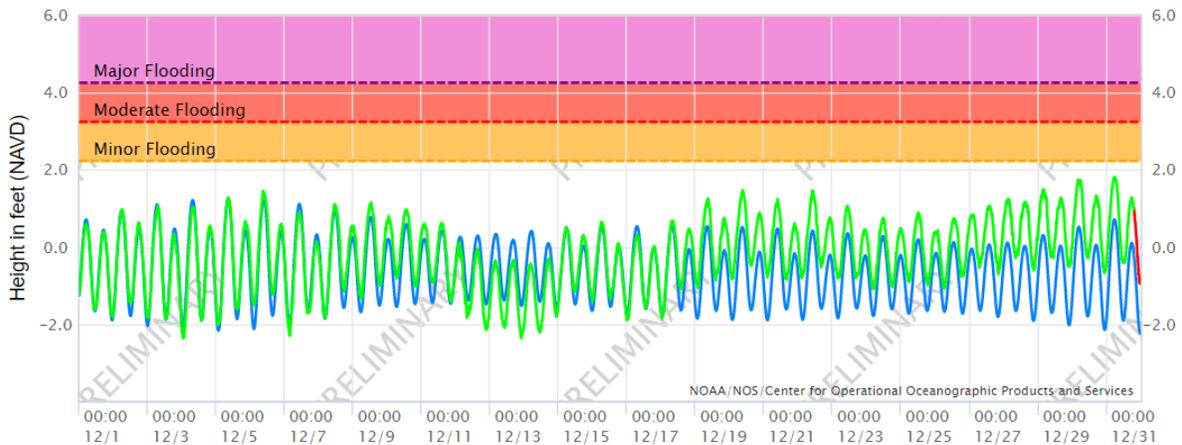
NOAA/NOS/CO-OPS  
 Observed Water Levels at 8570283, Ocean City Inlet MD  
 From 2021/10/01 00:00 LST/LDT to 2021/10/31 23:59 LST/LDT



NOAA/NOS/CO-OPS  
 Observed Water Levels at 8570283, Ocean City Inlet MD  
 From 2021/11/01 00:00 LST/LDT to 2021/11/30 23:59 LST/LDT



NOAA/NOS/CO-OPS  
 Observed Water Levels at 8570283, Ocean City Inlet MD  
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# Nuisance Flood Plan – Monitoring Report

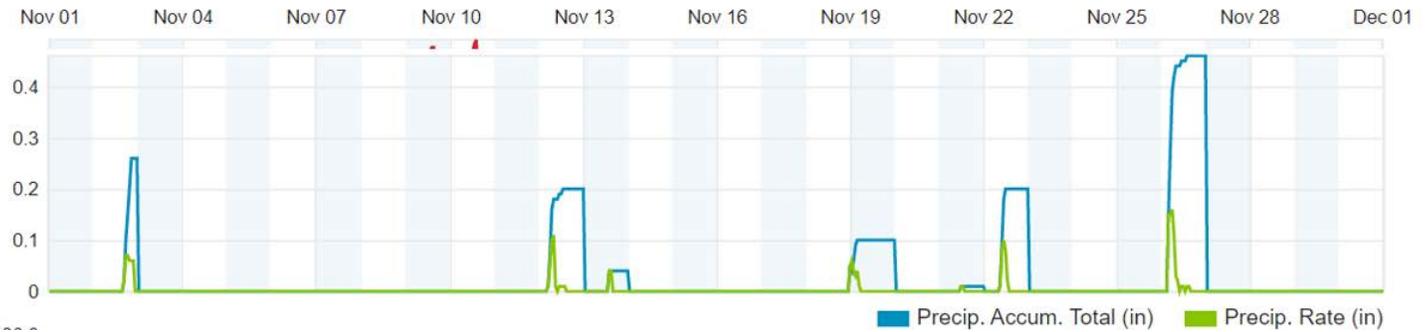
## 2021 Rainfall Events Q4

### October 1, 2021 - October 31, 2021



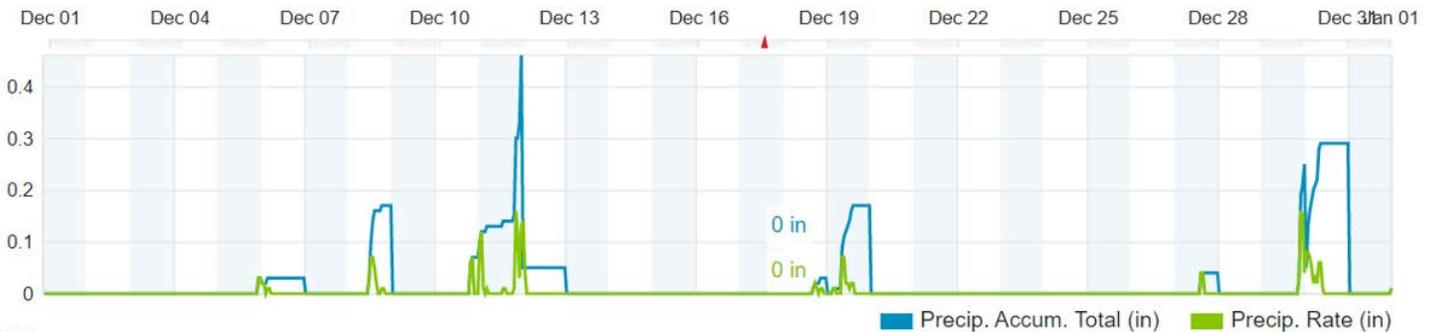
October 2021 Rainfall (50<sup>th</sup> Street – KMDOCEAN6) 10.30.21 high event 1.14in.

### November 1, 2021 - November 30, 2021



November 2021 Rainfall (50<sup>th</sup> Street – KMDOCEAN6)

### December 1, 2021 - December 31, 2021



December 2021 Rainfall (50<sup>th</sup> Street – KMDOCEAN6)

# Nuisance Tidal Flooding Report

See attached reports from October 11<sup>th</sup> and 29<sup>th</sup> 2021

Sun 10/10/2021 10:18 AM

**BR** Bob Rhode

NWS Wakefield Briefing - Minor to Moderate Tidal Flooding Expected Today

To

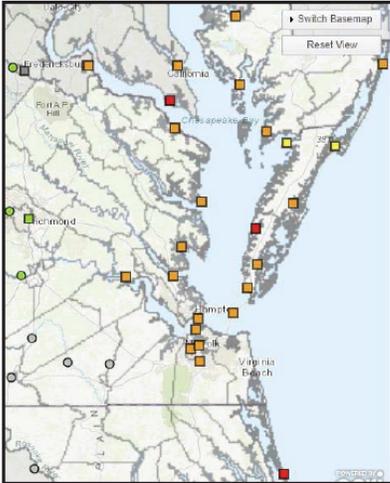
National image.png Wakefield 31 KB

PDF 20211010\_0609AM.pdf 534 KB

NWS Wakefield has forecasted a potential of minor tidal flooding during high tide cycles over the next several days for the Ocean City forecast area due to the off shore low pressure system. Sunday's high tides will be around 1100 and 2300 hours. Back bay several hours later. Minor flooding in normal flood prone areas is predicted. Tidal departures may be higher depending on rain fall at times of high tide. Prepare for daily operations according and Emergency Management is monitoring.

## Prolonged Nuisance – Minor Tidal Flooding

Wakefield, VA WEATHER FORECAST OFFICE

<p><b>OVERVIEW</b></p> <ul style="list-style-type: none"> <li>A combination of King Tides and a prolonged onshore flow with wind from the Northeast and East will result in <b>widespread tidal flooding through the weekend.</b></li> </ul>	<p><b>TIMING</b></p> <ul style="list-style-type: none"> <li>Re-occurring tidal flooding will occur with each high tide from <b>late Friday through the weekend.</b></li> <li>Tides will build Saturday into Sunday with each high tide.</li> </ul>
	<p><b>HAZARDS &amp; IMPACTS</b></p> <ul style="list-style-type: none"> <li>Primarily <b>nuisance to minor tidal flooding</b> is expected though <b>some locations may approach moderate flooding</b>, especially across the middle and upper Bay</li> <li>Shallow flooding in the most vulnerable locations near the waterfront and shoreline is expected including <b>some roads, parking lots, and boat ramps.</b> In some locations there could be a threat to low lying property vulnerable to flooding near the shoreline.</li> </ul> <p><b>ADDITIONAL INFORMATION</b></p> <ul style="list-style-type: none"> <li>For the latest water level information and forecasts visit <a href="https://www.weather.gov/erh/coastalflood?wfo=akq">https://www.weather.gov/erh/coastalflood?wfo=akq</a> (this website is also accessible by clicking on the Coastal Flood icon at <a href="https://weather.gov/akq">https://weather.gov/akq</a>)</li> </ul>

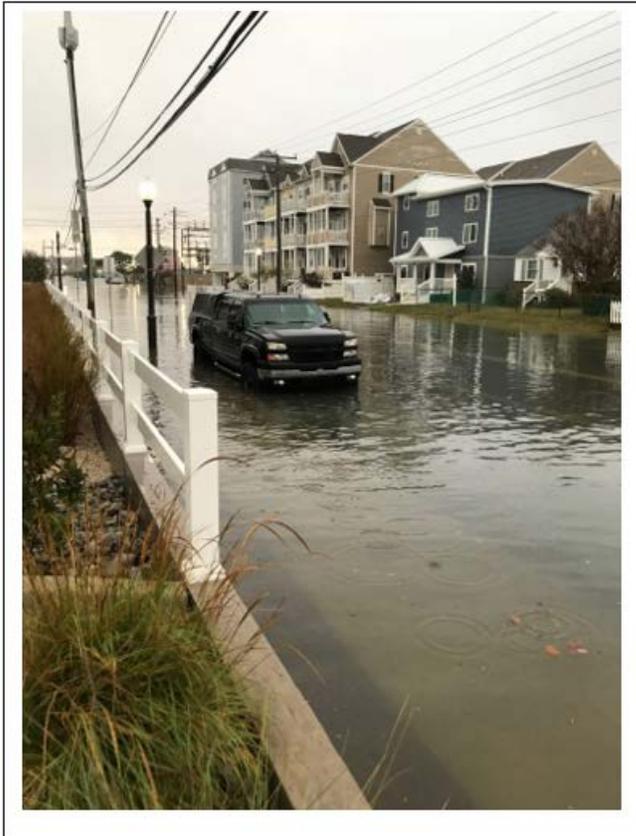
ISSUED: 10/8/2021 1:08 PM [www.weather.gov/akq](http://www.weather.gov/akq)

November 29, 2021

# Nuisance Tidal Flooding Report

## Ocean City, MD

"Tidal flooding and rain at 3rd and St. Louis ave day 3"



10/29/2021 | 5:42 pm



### Tidal Overview

1 hours 18 minutes after high tide

Data from **OCEAN CITY INLET** (0.6 miles away)

Water Level (at time of report): 5:42 pm, 4.6'

(NWS flood status: **Flood**)

High Tide (Predicted): 3:16 pm, 2.3' (NWS flood status: **None**)

High Tide (Observed): 4:24 pm, 4.7' (NWS flood status: **Flood**)

— Observed — Predicted water level ● Report time



[\(Click here for full tide details from NOAA Tides & Currents\)](#)



CHOOSE MAP

COASTAL RISK SCREENING TOOL

## LAND BELOW 2.2 FEET OF WATER

A water level of 2.2 feet above the high tide line could be reached through combinations of sea level rise, tides, and storm surge.

[DETAILS AND LIMITATIONS](#)

WATER LEVEL

2.2 ft



Feet  Meters

[CHANGE OTHER SETTINGS](#)

[Video Tutorial](#)



Observed Conditions 10.29.21

**From:** Jeff Orrock - NOAA Federal

**Sent:** Monday, November 1, 2021 3:46 PM

**Subject:** Recent Coastal Flood Event

We wanted to take a moment to reach out to all our coastal communities following what was one of the worst tidal flood events in the past 10 years or more for most locations in the middle and upper Bay. This was also one of our more widespread flood events with all oceanfront and lower Bay (and tidal river) locations reaching minor to moderate flood levels.



# NATIONAL WEATHER SERVICE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION



November 7<sup>th</sup> and 8<sup>th</sup> 2021

Hello All,

Please see the attached briefing from the National Weather Service, Wakefield for tidal flooding expected this weekend. Tides will build through the weekend resulting from the combination of the King Tides and increasing Northeast wind as a storm system passes offshore. Emergency Management will continue to monitor throughout the weekend.

**Key Points:**

- Tides will build Friday through Saturday and Sunday. High tides with the most flooding will occur during the morning / early afternoon high tides this weekend.
- **Middle and Upper Bay –Minor / Shallow flooding** in the most vulnerable locations near the waterfront and shoreline resulting in a low threat of property damage.
- Lower Bay –Tides build to near Moderate flooding with widespread flooding of vulnerable areas will result in elevated threat of property damage.
- VA Beach Coastline south across the Outer Banks - Major flooding will cause extensive inundation along the coast. Waves of 8 to 12 ft will result in extensive wave run-up resulting in some erosion of dune structures.
- **Marine Weather - Small Craft Conditions exist today and through Saturday with Northeast winds gusting to 30 kt. Gale conditions with increasing Northeast winds gusting up to 40 kt are expected Sunday and Sunday night. Seas of 6 to 8 ft will build to 12 to 14 ft from Cape Charles south.**

For the latest tide forecasts visit our [Coastal Flood Webpage](#)

Thank you,

*Amanda Lewis*

*Administrative Office Associate II*

*Department of Emergency Services*

*6501 Coastal Highway*

*Ocean City, MD 21842*

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*Fax: (410)520-5449*

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# ATLANTIC COAST NEAR OCEAN CITY INLET (IN MLLW)

