

## U.S.C.G. Merchant Marine Exam

Master Near Coastal Less than 100 Gross Registered Tons

Q162 Navigation General – Near Coastal

(Sample Examination)

**Choose the best answer to the following Multiple-Choice Questions.**

1. While on a course of  $349^{\circ}\text{T}$ , a light bears  $13^{\circ}$  on your starboard bow at a distance of 10.8 miles. What course should you steer to pass 2.5 miles abeam of the light, leaving it to starboard?
- A.  $349^{\circ}$
  - B.  $323^{\circ}$
  - C.  $002^{\circ}$
  - D.  $336^{\circ}$

Correct answer: A

2. Your vessel is on a course of  $082^{\circ}\text{T}$  at 19 knots.  
At 0255 a light bears  $059.5^{\circ}\text{T}$ , and at 0312 the light bears  $037^{\circ}\text{T}$ .  
At what time and distance off will your vessel be when abeam of the light?
- A. 0333, 5.1 miles
  - B. 0321, 4.7 miles
  - C. 0327, 4.3 miles
  - D. 0324, 3.8 miles

Correct answer: D

3. You are steering  $115^{\circ}\text{T}$ , and a light is picked up dead ahead at a distance of 16.7 miles at 0522. You change course to pass the light 3.5 miles off abeam to port. If you are making 12 knots, what is your ETA at the position 3.5 miles off the light?
- A. 0650
  - B. 0647
  - C. 0644
  - D. 0653

Correct answer: C

4. Your vessel is steering a course of  $337^{\circ}\text{psc}$ . Variation for the area is  $13^{\circ}\text{W}$ , and deviation is  $4^{\circ}\text{E}$ . The wind is from the south, producing a  $3^{\circ}$  leeway. Which true course are you making good?
- A.  $325^{\circ}\text{T}$
  - B.  $349^{\circ}\text{T}$
  - C.  $328^{\circ}\text{T}$
  - D.  $331^{\circ}\text{T}$

Correct answer: D

5. You are steaming on course  $126^{\circ}\text{T}$  at 14.8 knots. At 1022 you sight a buoy bearing  $128^{\circ}\text{T}$ , at a range of 4.8 miles. If you change course at 1026, what true course will you steer to leave the buoy 0.5 mile abeam to port?
- A.  $119^{\circ}$
  - B.  $122^{\circ}$
  - C.  $133^{\circ}$
  - D.  $136^{\circ}$

Correct answer: D

6. You wish to make good a course of  $035^{\circ}\text{T}$  while turning for an engine speed of 12 knots. The set is  $340^{\circ}\text{T}$ , and the drift is 2 knots. What course should you steer?
- A.  $027^{\circ}\text{T}$
  - B.  $037^{\circ}\text{T}$
  - C.  $044^{\circ}\text{T}$
  - D.  $054^{\circ}\text{T}$

Correct answer: C

7. What should you apply to a fathometer reading to determine the depth of water?
- A. Add the sea water correction.
  - B. Subtract the sea water correction.
  - C. Subtract the draft of the vessel.
  - D. Add the draft of the vessel.

Correct answer: D

8. Which of the following statements is TRUE regarding automatic identification systems (AIS)?
- A. The master may, at his/her discretion, turn off the AIS if he/she believes that it may compromise the safety or security of the vessel.
  - B. Under no circumstances shall AIS be turned off while underway as this could endanger the vessel and those around her.
  - C. AIS is always required to be operating if the vessel is in or in the vicinity of a VTS area.
  - D. AIS is always required to be operating if the vessel is within 100 nautical miles of the coastline.

Correct answer: A

9. Which level of accuracy can be obtained utilizing the U.S. Coast Guard's Maritime Differential GPS in an established coverage area?
- A. 10 meters
  - B. 20 meters
  - C. 50 meters
  - D. 92 meters

Correct answer: A

10. While steaming on course  $280^{\circ}\text{T}$ , you sight a buoy showing a very quick flashing (VQ) white light well to port. Maintaining course, you sight another buoy showing a quick flashing (Q) white light. How should you pass?
- A. East of the buoy
  - B. North of the buoy
  - C. South of the buoy
  - D. West of the buoy

Correct answer: B

**11.** Under the U.S. Aids to Navigation System, a special mark possesses which of the following characteristics?

- A. May show a light with the Morse code "A" rhythm
- B. May show a yellow light with a flashing rhythm
- C. Must be lighted with a fixed or flashing white light
- D. Must be lighted with a yellow isophase light

Correct answer: B

**12.** How are buoys which mark isolated dangers painted?

- A. Alternating green and black bands
- B. Alternating red and black bands
- C. Alternating green and white bands
- D. Alternating red and white stripes

Correct answer: B

**13.** If the main channel under a bridge is marked with lights of the lateral system how are the adjacent bridge piers marked?

- A. With occulting white lights
- B. With fixed yellow lights
- C. With fixed white lights
- D. With flashing yellow lights

Correct answer: B

**14.** A drawbridge may use visual signals to acknowledge a vessel's request to open the draw. Which signal indicates that the draw will NOT be opened immediately?

- A. A flashing white light
- B. A fixed red light
- C. A white flag raised and lowered vertically
- D. A flashing amber light

Correct answer: B

**15.** On a chart, the characteristic of the light on a lighthouse is shown as flashing white with a red sector. Which is TRUE of the red sector?

- A. It serves no significant purpose
- B. It indicates the limits of the navigable channel
- C. It is used to identify the characteristics of the light
- D. It indicates a danger area

Correct answer: D

**16.** Determine the approximate geographic visibility of an object, with a height above the water of 85 feet (25.9 meters), for an observer with a height of eye of 60 feet (18.3 meters).

- A. 18.4nm
- B. 19.9nm
- C. 20.8nm
- D. 21.5nm

Correct answer: B

**17.** A chart with a scale of 1:80,000 would fall into which category?

- A. Coastal charts
- B. General charts
- C. Harbor charts
- D. Sailing charts

Correct answer: A

**18.** Which defines the term charted depth?

- A. The average height of all low waters at a place
- B. The vertical distance from the chart sounding datum to the ocean bottom, plus the height of tide
- C. The vertical distance from the chart sounding datum to the ocean bottom
- D. The average height of water over a specified period of time

Correct answer: C

**19.** Which information does the outer ring of a compass rose on a nautical chart provide?

- A. Variation
- B. Magnetic directions
- C. Annual rate of variation change
- D. True directions

Correct answer: D

**20.** What is indicated when slanted letters are used to spell the name of a charted object?

- A. The object is underwater or floating
- B. The object is always visible
- C. The position is approximate or doubtful
- D. The object is a hazard to vessels drawing 20 feet draft

Correct answer: A

**21.** Which publication would describe the explosive anchorages in the ports on the east coast of the United States?

- A. Sailing Directions
- B. Pilot Rules for Inland Waters
- C. Coast Pilot
- D. Notice to Mariners

Correct answer: C

**22.** Which agency publishes the Light Lists?

- A. National Ocean Service
- B. United States Coast Guard
- C. Oceanographic Office
- D. Army Corps of Engineers

Correct answer: B

**23.** What is the most important source of information to be used in correcting charts and keeping them up to date?

- A. Notice to Mariners
- B. Pilot Charts
- C. Sailing Directions
- D. Fleet Guides

Correct answer: A

**24.** The chart indicates the variation was 3°45'E in 1988, and the annual change is increasing 6'. If you use the chart in 1991 how much variation should you apply?

- A. 3°27'E
- B. 3°27'W
- C. 3°45'E
- D. 4°03'E

Correct answer: D

**25.** To find a magnetic compass course from a true course what must you apply?

- A. Variation
- B. Magnetic anomalies (local disturbances)
- C. Deviation and variation
- D. Deviation

Correct answer: C

**26.** What is an advantage of the magnetic compass aboard vessels?

- A. It is reliable due to its essential simplicity.
- B. All points on the compass rose are readily visible.
- C. Compass error is negligible at or near the earth's magnetic poles.
- D. It does not have to be checked as often.

Correct answer: A

**27.** Your vessel is proceeding up a channel, and you see a pair of range lights that are in line dead ahead. The chart indicates that the direction of this pair of lights is  $093^{\circ}T$ , and the variation is  $6^{\circ}E$ . If the heading of your vessel at the time of the sighting is  $097^{\circ}$  per standard magnetic compass, what is the correct deviation?

- A.  $5^{\circ}E$
- B.  $5^{\circ}W$
- C.  $10^{\circ}E$
- D.  $10^{\circ}W$

Correct answer: D

**28.** What does a steep barometric gradient indicate?

- A. Light winds
- B. Strong winds
- C. Precipitation
- D. Calms

Correct answer: B

**29.** What benefit is a weather bulletin to a mariner?

- A. It allows the mariner to make long term weather forecasts.
- B. It is of little benefit since the weather changes frequently and rapidly.
- C. It gives the mariner time to prepare for weather changes.
- D. It provides a legal reason to cancel a projected voyage.

Correct answer: C

**30.** Which kind of conditions would you observe as the eye of a storm passes over your vessel's position?

- A. Flat calm seas, heavy rain, light winds, and an extremely low barometer
- B. Huge waves approaching from all directions, clearing skies, light winds, and an extremely low barometer
- C. Huge waves approaching from all directions, clearing skies, light winds, and high pressure
- D. Flat calm seas, heavy rain, light winds, and high pressure

Correct answer: B

**31.** Which indication on the barometer is most meaningful in forecasting weather?

- A. The direction and rate of change of barometric pressure
- B. The actual barometric pressure
- C. The words "Fair -- Change -- Rain"
- D. The relative humidity

Correct answer: A

**32.** Which of the listed properties does warm air possess?

- A. Moisture in warm air condenses as the air is heated
- B. It rises above cooler air and cools as it rises
- C. Atmospheric pressure rises as warm air rises
- D. Warm air that has cooled will develop low pressure areas

Correct answer: B

- 33.** A weather forecast states that the wind will commence backing. What does this indicate if you are in the Northern Hemisphere?
- A. The wind will continue blowing from the same direction
  - B. The wind will decrease in velocity
  - C. The wind will shift in a clockwise manner
  - D. The wind will shift in a counterclockwise manner

Correct answer: D

- 34.** According to Buys Ballot's law, when an observer in the Northern Hemisphere experiences a northwest wind, where is the center of low pressure located?
- A. Northeast of the observer
  - B. Northwest of the observer
  - C. West-southwest of the observer
  - D. South-southeast of the observer

Correct answer: A

- 35.** Which are associated with Cumulonimbus clouds?
- A. A rapid drop in barometric pressure followed by darkness
  - B. Gusty winds, thunder, rain or hail, and lightning
  - C. Clear skies with the approach of a cold front
  - D. Dense fog and high humidity

Correct answer: B

- 36.** Which type of cloud is the classic "thunderhead"?
- A. Cirrus
  - B. Altostratus
  - C. Cumulonimbus
  - D. Stratus

Correct answer: C

- 37.** Fog generally clears when the \_\_\_\_\_.
- A. wind speed increases
  - B. temperature increases
  - C. wind direction changes
  - D. All of the above

Correct answer: D

- 38.** Brief, violent showers frequently accompanied by thunder and lightning are usually associated with \_\_\_\_\_.
- A. passage of a cold front
  - B. stationary high-pressure systems
  - C. passage of a warm front
  - D. winds shifting counterclockwise in the Northern Hemisphere

Correct answer: A

**39.** On a working copy of a weather map, a cold front is represented by what color line?

- A. Alternating red and blue
- B. Blue
- C. Red
- D. Purple

Correct answer: B

**40.** When observing a rapid rise in barometric pressure, what may you expect?

- A. Clearing weather, possibly accompanied by high winds
- B. Heavy rain or severe thundershowers
- C. Clear weather with no wind, but the possibility of rain or snow within 24 hours
- D. Deteriorating weather with rain or snow

Correct answer: A

**41.** Which is TRUE as the temperature of an air mass decreases?

- A. The absolute humidity decreases
- B. The relative humidity increases
- C. The dew point rises
- D. The specific humidity decreases

Correct answer: B

**42.** Which term is used to describe the small differences between the heights of two successive high tides or two low tides, in a tidal day?

- A. Mixed tides
- B. Semidiurnal tides
- C. Diurnal tides
- D. Solar tides

Correct answer: B

**43.** Which is TRUE of the velocity of the current in large coastal harbors?

- A. The current is generally constant
- B. The current is generally too weak to be of concern
- C. The current is predicted in Tidal Current Tables
- D. The current is unpredictable

Correct answer: C

**44.** A line of position is \_\_\_\_\_.

- A. the position of your vessel
- B. not used in a running fix
- C. a line on some point of which the vessel may be presumed to be located
- D. a line connecting two charted objects

Correct answer: C

- 45.** When you are steering on a pair of range lights and find the upper light is in line above the lower light, you should take which action?
- A. Come left
  - B. Wait until the lights are no longer in a vertical line
  - C. Come right
  - D. Continue on the present course

Correct answer: D

- 46.** The direction in which a vessel is steered is the course. The path actually followed is the \_\_\_\_\_.
- A. course over the ground
  - B. route
  - C. heading
  - D. track

Correct answer: A

- 47.** The direction in which a vessel should be steered between two points is known by which term?
- A. Course over the ground
  - B. Course
  - C. Bearing
  - D. Heading

Correct answer: B

- 48.** You are heading in a northerly direction when you come across an easterly current. Your vessel will respond in which manner?
- A. The vessel will be pushed to starboard
  - B. The vessel will be pushed to port
  - C. The vessel will remain on course
  - D. The vessel will decrease in engine speed

Correct answer: A

- 49.** On 10 November 2023 at 2130, you are inbound at Charleston Harbor Entrance Buoy "10" (ACT6611). Your vessel will transit 15nm and make good 12.5 knots to a berth where the nearest tidal current station is ACT6706. What will be the direction and velocity of the current as you approach the dock? Illustration D058NG
- A. 2.0kts at 172°T
  - B. 0.4kts at 104°T
  - C. 0.4kts at 280°T
  - D. 2.0kts at 335°T

Correct answer: A

Q162 Navigation General-Near Coastal  
U.S.C.G. Merchant Marine Exam  
Master Near Coastal Less than 100 Gross Registered Tons  
Illustrations: 2

**50.** On 14 October 2023, you will be docking at the Southern Branch Elizabeth River, VA at the first low tide. The berth is located between NOAA reference tidal station #8638660 and subordinate station #8639348. What time (LST) will you be docking? Illustration D063NG

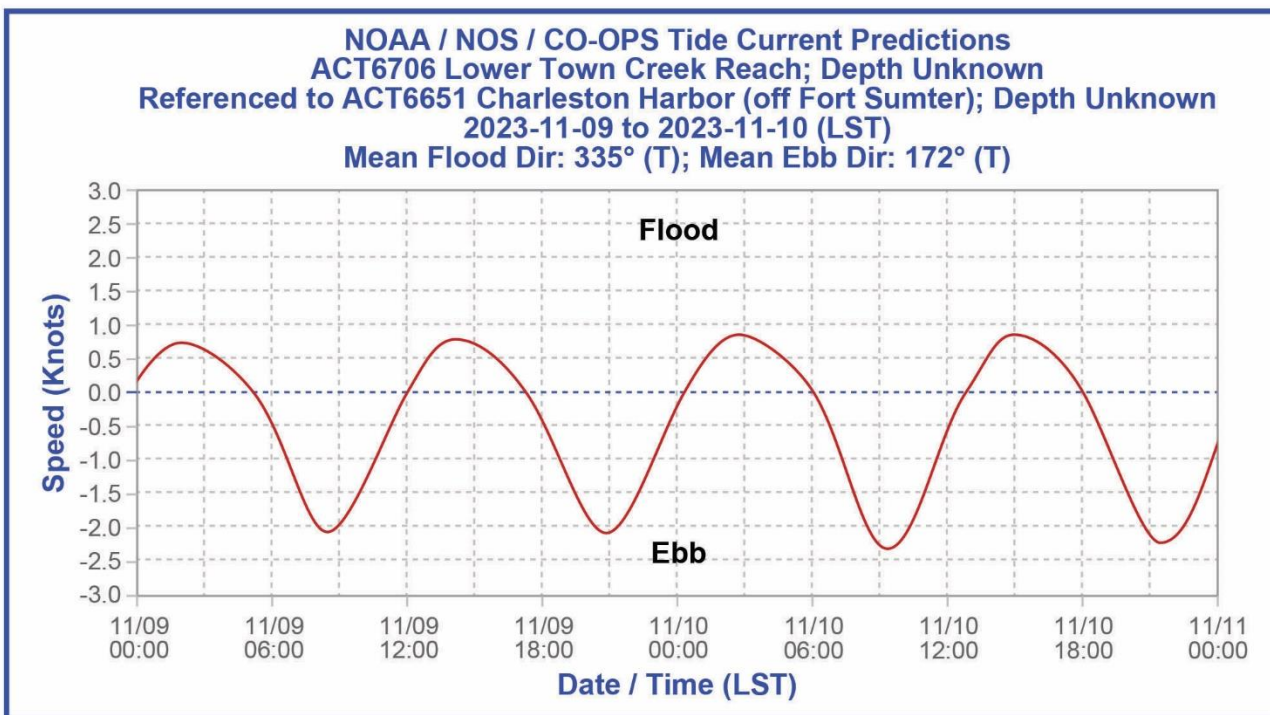
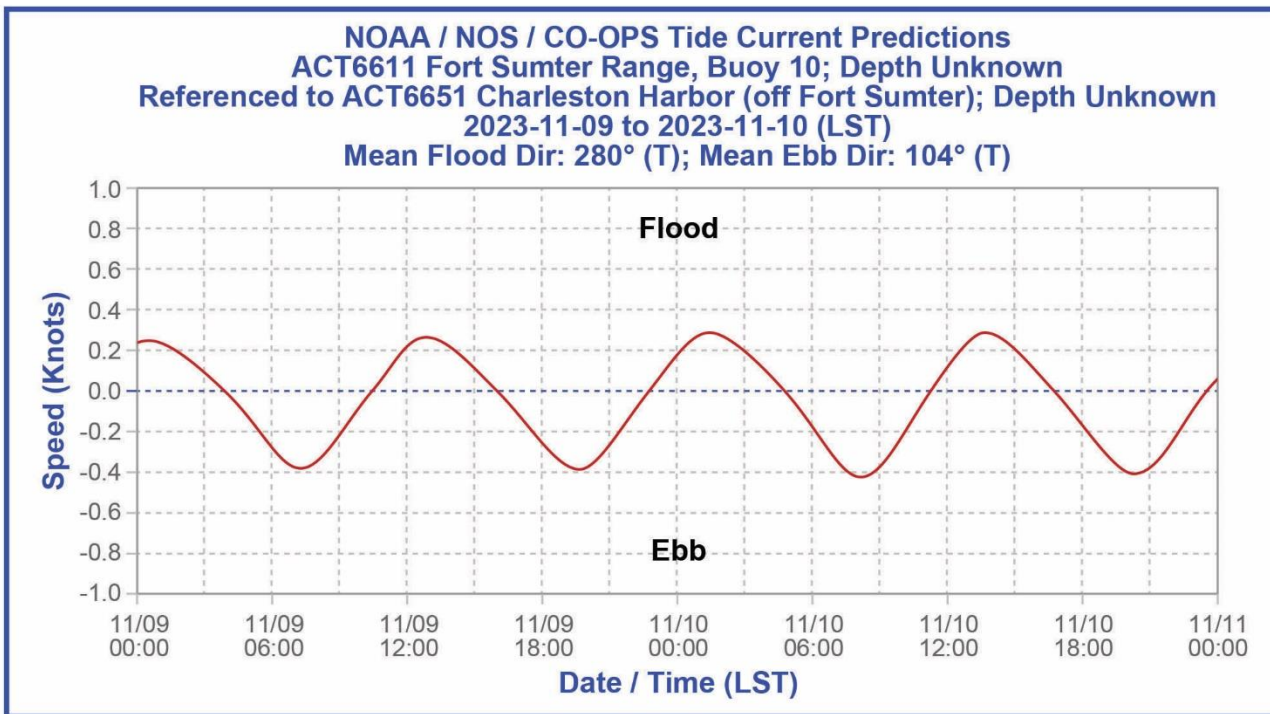
D063NG.jpg

- A. 0325
- B. 0300
- C. 0125
- D. 0225

Correct answer: D



## D058NG



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(NOAA) Current Predictions,

<https://www.tidesandcurrents.noaa.gov>

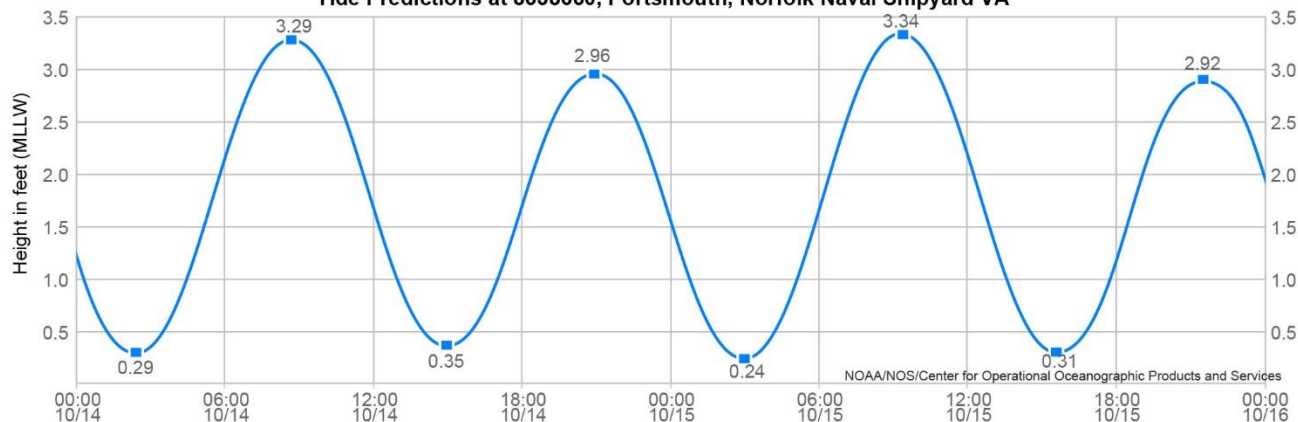
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## D063NG

NOAA/NOS/CO-OPS

### Tide Predictions at 8638660, Portsmouth, Norfolk Naval Shipyard VA



High/Low Tide Prediction Data Listing

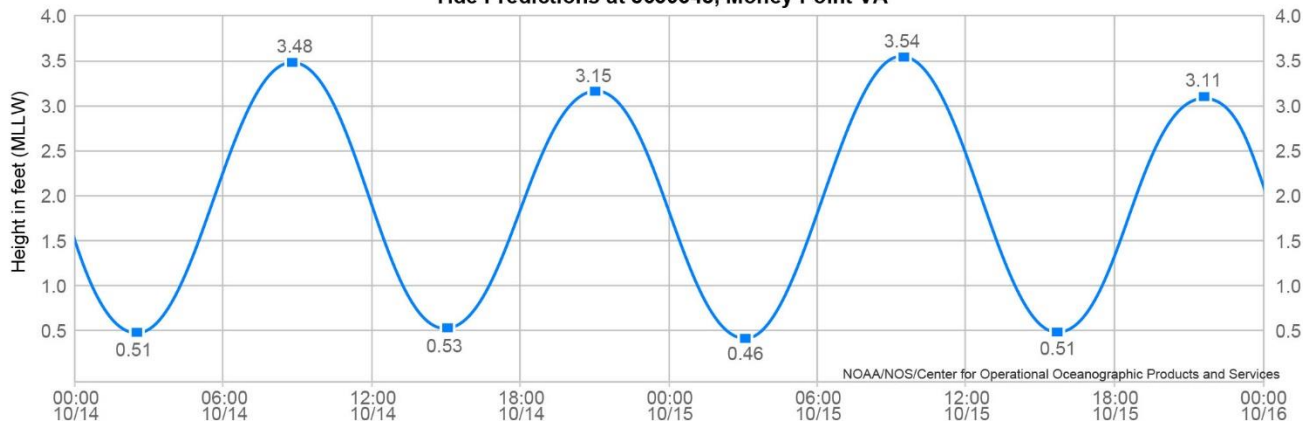
Station Name: Portsmouth, Norfolk Naval Shipyard, VA  
Action: Daily  
Product: Tide Predictions  
Start Date & Time: 2023/10/14 00:00  
End Date & Time: 2023/10/15 23:59

Source: NOAA/NOS/CO-OPS  
Prediction Type: Harmonic  
Datum: MLLW  
Height Units: Feet  
Time Zone: LST

Date	Day	Time	Hgt	Time	Hgt	Time	Hgt	Time	Hgt
2023/10/14	Sat	02:25	0.29 L	08:40	3.29 H	14:58	0.35 L	20:53	2.96 H
2023/10/15	Sun	03:00	0.24 L	09:17	3.34 H	15:37	0.31 L	21:32	2.92 H

NOAA/NOS/CO-OPS

### Tide Predictions at 8639348, Money Point VA



High/Low Tide Prediction Data Listing

Station Name: Money Point, VA  
Action: Daily  
Product: Tide Predictions  
Start Date & Time: 2023/10/14 00:00  
End Date & Time: 2023/10/15 23:59

Source: NOAA/NOS/CO-OPS  
Prediction Type: Harmonic  
Datum: MLLW  
Height Units: Feet  
Time Zone: LST

Date	Day	Time	Hgt	Time	Hgt	Time	Hgt	Time	Hgt
2023/10/14	Sat	02:25	0.51 L	08:48	3.48 H	15:00	0.53 L	21:02	3.15 H
2023/10/15	Sun	03:01	0.46 L	09:25	3.54 H	15:40	0.51 L	21:40	3.11 H

Note: The interval is High/Low, the solid blue line depicts a curve fit between the high and low values and approximates the segments between.  
Disclaimer: These data are based upon the latest information available as of the date of your request, and may differ from the published tide tables.

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(NOAA) Tide Predictions,

<https://www.tidesandcurrents.noaa.gov>

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