

NATIONAL WEATHER SERVICE
HURRICANE FORECAST COMMUNICATION PUBLIC SURVEY

-- Web-Based Public Survey --

INTRODUCTION

You can affect how the National Weather Service (NWS)¹ reports tropical and extratropical² storm forecasts on its websites. We are collecting opinions from people who live in areas from Maine to Texas where these storms can occur. Your email address was randomly chosen from a list of people who volunteered to be contacted for things like this. **Your opinions are very important!**

This survey will show you a few images that are being considered for use on NWS websites and ask for your opinion on how well the images provide someone like you with information on storm forecasts.

Eastern Research Group is doing this study for NWS. This is not a commercial survey. We will report your answers together with those of the total group. Your identity will not be disclosed.

Thank you for taking the time to answer these questions. We believe you will find them both interesting and informative.

Completing this survey is voluntary and your responses to the questions are anonymous. By clicking on the "AGREE AND CONTINUE" button below, you are indicating that you have read this and agree to participate in this survey. Otherwise, please click on the "Exit" button.

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other suggestions for reducing this burden to Jennifer Sprague, NOAA National Weather Service, SSMC 2, Room 17205, 1325 East West Highway, Silver Spring, MD. Notwithstanding any other provisions of the law, no person is required to respond to, nor shall any person be subjected to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

[Note to reviewers: To the extent possible, each graphic will be on the same screen as its questions. Sometimes this will mean repeating the graphics as the respondent works his/her way through the online survey. To avoid making the file size too large, we have included only one of each graphic.]

¹ The National Weather Service is the official weather forecasting service for the United States. It consists of several centers, such as the National Hurricane Center, and regional forecast offices around the country, such as the Miami-South Florida Weather Forecast Office.

² A type of cyclone that occurs outside the tropics in the middle latitudes.

SAMPLE SCREENING

1. Are you 21 years of age or older?

- Yes
- No [THANK THEM AND EXIT]

2. Do you live within 50 miles of the Atlantic or Gulf coast?

- Yes
- No [THANK THEM AND EXIT]
- Not Sure/Don't Know [THANK THEM AND EXIT]

LOCATION OF HOME

3. Is your current home located in an official EVACUATION ZONE for hurricanes or severe storms?

- Yes
- No
- Not Sure/Don't Know

4. Is your home located in an area subject to FLOODING from rainfall storm surge (the water that is pushed toward the shore by a hurricane or severe coastal storm)?

- Yes
- No
- Not Sure/Don't Know

5. What would you GUESS is the ELEVATION (height above sea level) of the land on which your home is located?

- Below Sea Level to 4 Feet Above Sea Level
- Between 5 and 9 Feet Above Sea Level
- 10 to 24 Feet Above Sea Level
- 25 to 49 Feet Above Sea Level
- 50 Feet or More Above Sea Level
- Not Sure/Don't Know

CONCERN

6. To what extent ARE YOU CONCERNED about a tropical storm, hurricane, or other serious storm (such as a Nor'easter) affecting the general area where you live?

NOT CONCERNED AT ALL	SOMEWHAT CONCERNED	CONCERNED	VERY CONCERNED	EXTREMELY CONCERNED
---------------------------------	-------------------------------	------------------	-----------------------	--------------------------------

7. Which one of these would you worry the MOST about?

[RANDOMLY CHANGE THE ORDER OF RESPONSES OPTIONS]

- Category 1 Hurricane
- Category 5 Hurricane
- Not Sure/Don't Know

8. Which one of these would you worry the MOST about?

[RANDOMLY CHANGE THE ORDER OF RESPONSES OPTIONS]

- Hurricane Warning
- Hurricane Watch
- Not Sure/Don't Know

9. If a tropical storm, hurricane or other serious storm (such as a Nor'easter) was predicted for your area, HOW CONCERNED WOULD YOU BE about each of the following HAZARDS it might bring to your area?

10.	HAZARD	EXTREMELY CONCERNED	VERY CONCERNED	CONCERNED	SOMEWHAT CONCERNED	NOT CONCERNED AT ALL
	STORM SURGE					
	WIND					
	TORNADOES					
	INLAND FLOODING					
	HEAVY SNOW					

Which would you guess causes the most DEATHS during hurricanes and coastal storms?

- Wind
- Water From the Ocean
- Inland Flooding From Rain
- Not Sure/Don't Know

WITHIN SAMPLE SCREENING

The rest of the questions you will be asked will depend on how far you live from the coast.

11. What is your BEST GUESS OF THE DISTANCE BETWEEN YOUR HOME AND THE NEAREST OCEAN COAST?

- Between 10 and 50 Miles From the Coast [SKIP TO TROPICAL FORECAST CONE SECTION]
- Between 5 and 10 Miles From the Coast [SKIP TO QUESTION 13.]
- Between 2 and 5 Miles From the Coast [SKIP TO QUESTION 13.]
- Within 2 Miles of the Coast [SKIP TO QUESTION 13.]
- Not Sure/Don't Know [ASK QUESTION 12.]

12. Do you think you live within 10 miles of the coast?

- Yes [SKIP TO QUESTION 13.]
- No/Not Sure [SKIP TO TROPICAL FORECAST CONE SECTION]

STORM SURGE FORECAST PRODUCT

The category assigned to a hurricane (Categories 1 through 5) is based on its wind speed. The amount of surge, however, can vary among hurricanes with the same wind force. Therefore, NWS may decide to issue a SEPARATE warning for storm surge in addition to the Hurricane or Tropical Storm Watches and Warnings.

13. Do you think it is good idea for NWS to ISSUE A SEPARATE STORM SURGE WARNING for hurricanes or severe coastal flooding events?

- Yes
- No
- Not Sure/Don't Know

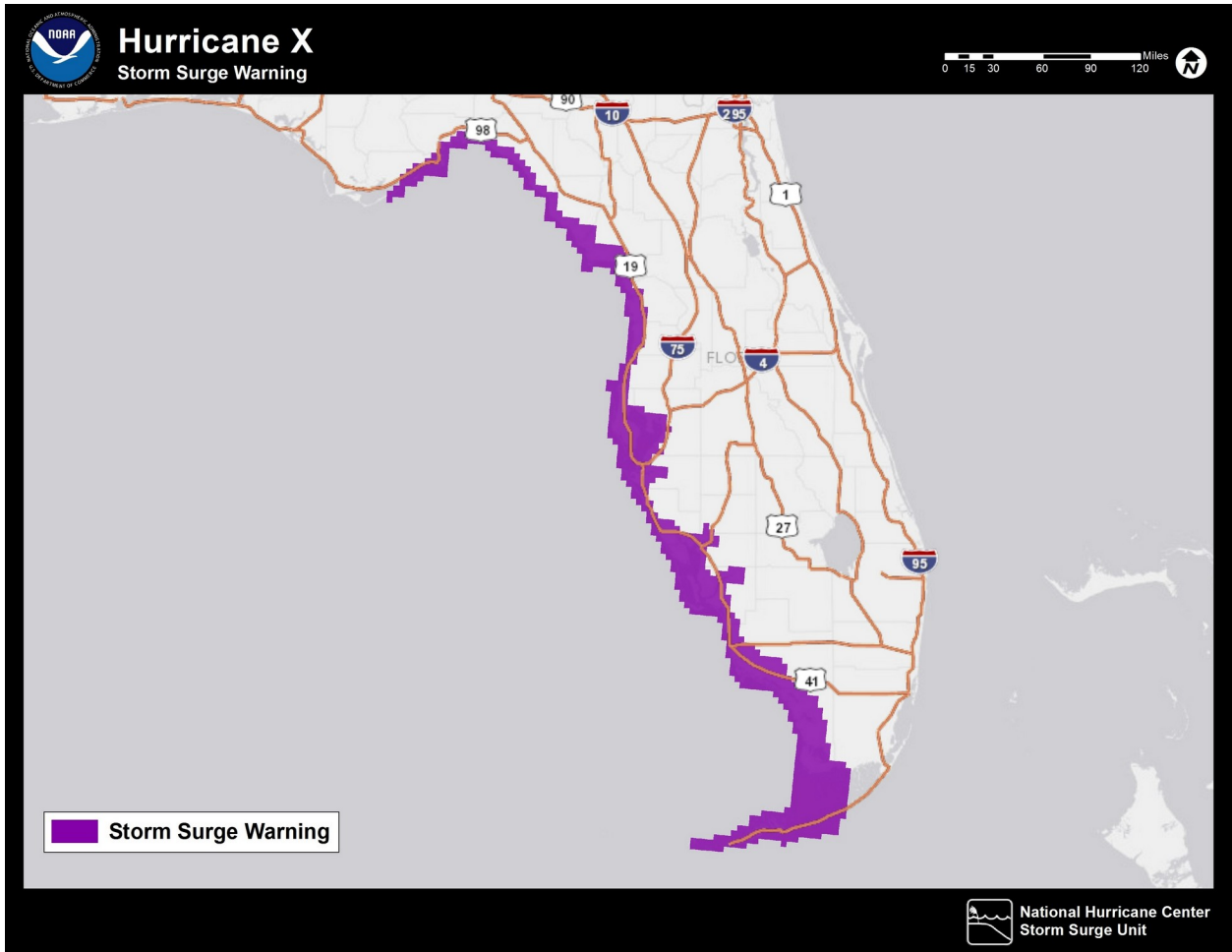
14. If a separate warning product is issued for storm surge or coastal flooding associated with tropical and extratropical storms, it needs to be named. What do you think of each of these names?

NAME	EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
EXTREME COASTAL FLOOD WARNING					
STORM SURGE WARNING					
STORM SURGE RISK					
STORM SURGE DANGER					

15. If you lived in an area threatened by storm surge, to what extent do you think you WOULD TAKE THE THREAT MORE SERIOUSLY if the NWS issued a separate surge warning?

DEFINITELY	PROBABLY	MAYBE	PROBABLY NOT	DEFINITELY NOT

If a warning for storm surge is issued, a map will show the AREA INCLUDED IN THE WARNING, something that is currently done for Hurricane and Tropical Storm Warnings. More detailed maps will be provided for localities. The color purple is used in the following example in order to avoid colors used for other NWS watches and warnings.



16. How EFFECTIVE do you think a map like this would be in showing the GENERAL AREA UNDER STORM SURGE WARNING?

EXTREMELY EFFECTIVE	VERY EFFECTIVE	EFFECTIVE	SOMEWHAT EFFECTIVE	NOT EFFECTIVE AT ALL

17. Do you have any suggestions for improving it?

[OPEN-ENDED RESPONSE]

COASTAL FLOODING MAPS

To help you understand your danger from coastal flooding or STORM SURGE, the National Hurricane Center (NHC) is developing coastal flooding maps for each storm. We are looking for the best way to LABEL these maps so people understand. The maps will show an ESTIMATE OF THE AMOUNT OF OCEAN WATER EXPECTED ON TOP OF THE LAND. The elevation or height of the land above the sea level will already have been subtracted from this estimate.

18. Please tell us how CLEAR OR EASY TO UNDERSTAND you think each of these LABELS would be.

LABEL	NOT CLEAR	SOMEWHAT CLEAR	VERY CLEAR
FEET ABOVE GROUND LEVEL			
FEET ABOVE GROUND			
FEET ABOVE ELEVATION			
DEPTH OF WATER			
HEIGHT OF WATER			

19. Do you have another label to suggest?

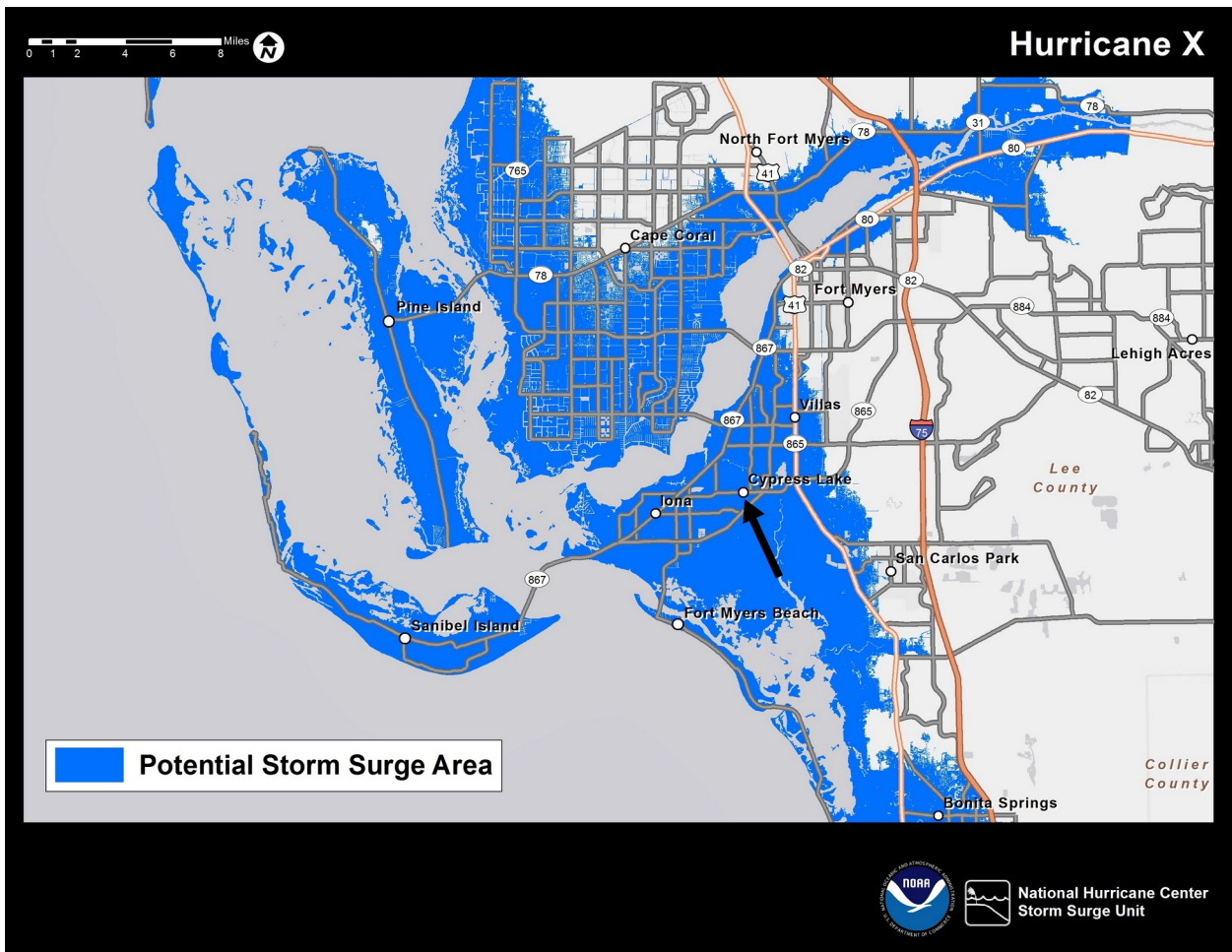
[OPEN-ENDED RESPONSE]

20. What does the phrase “feet above ground level” mean to you?

[OPEN-ENDED RESPONSE]

Next you will see three ways this information might be mapped. A past hurricane forecast for Lee County, Florida, is used for the example. (If a storm is forecast where you live, the map will show this information for your area.)

Please STUDY each of next three maps to see what it tells you and then answer the questions to the best of your ability. If you are not sure or don't know, just choose that option.



21. How would you rate this map on EASE OF UNDERSTANDING the surge risk?

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR

22. Does this map indicate whether you would experience storm surge if you lived at Cypress Lake? (See arrow.)

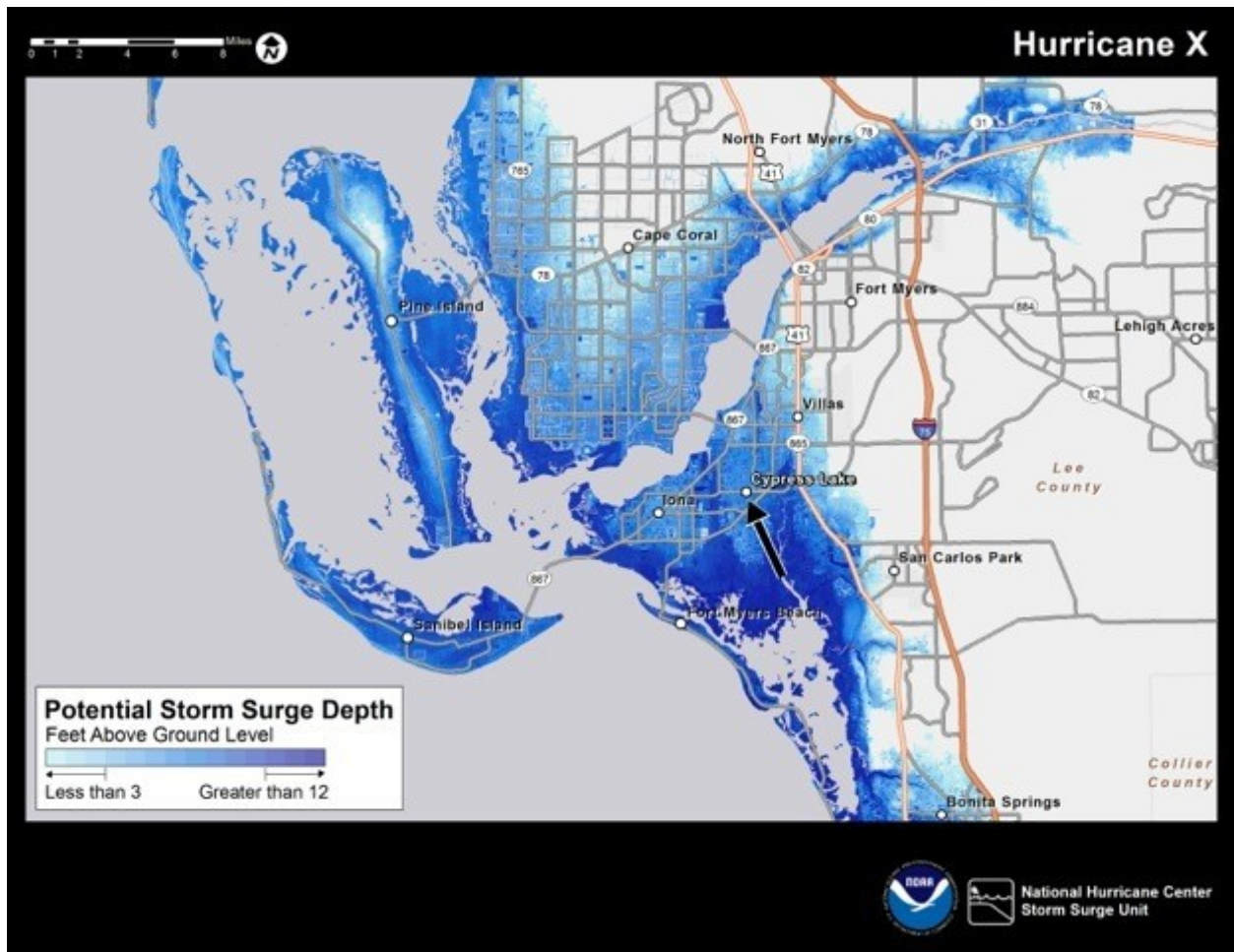
- Yes
- No
- Cannot Tell

23. Does this map indicate how DEEP the storm surge might be if you lived at Cypress Lake?

- Yes
- No
- Cannot Tell

24. Given this information, if you lived in Cypress Lake, would you LEAVE OR EVACUATE your home ahead of this storm?

DEFINITELY WOULD	PROBABLY WOULD	PROBABLY WOULD NOT	DEFINITELY WOULD NOT	NOT ENOUGH INFORMATION TO DECIDE



25. How would you rate this map on EASE OF UNDERSTANDING the surge risk?

EXCELLEN T	VERY GOOD	GOOD	FAIR	POOR

26. Does this map indicate whether you would experience storm surge if you lived at Cypress Lake? (See arrow.)

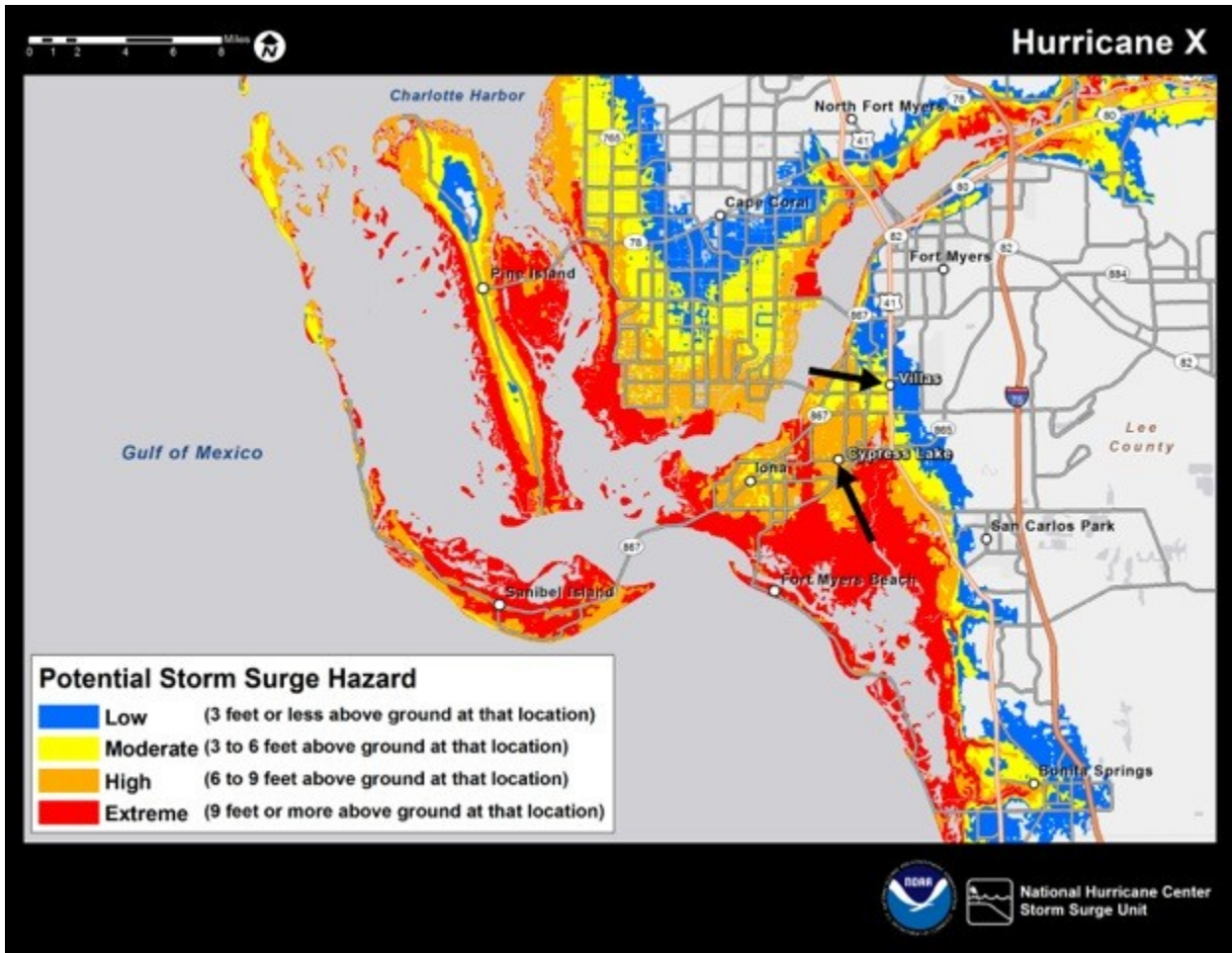
- Yes
- No
- Cannot Tell

27. Does this map indicate how DEEP the storm surge might be if you lived at Cypress Lake?

- Yes
- No
- Cannot Tell

28. Given this information, if you lived in Cypress Lake, would you LEAVE OR EVACUATE your home ahead of this storm?

DEFINITELY WOULD	PROBABLY WOULD	PROBABLY WOULD NOT	DEFINITELY WOULD NOT	NOT ENOUGH INFORMATION TO DECIDE



29. How would you rate this map on EASE OF UNDERSTANDING the surge risk?

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR

30. How much flooding does this third map estimate for Cypress Lake?

- Less Than 3 Feet
- 3 to 6 Feet
- 6 to 9 Feet
- Not Sure/Don't Know

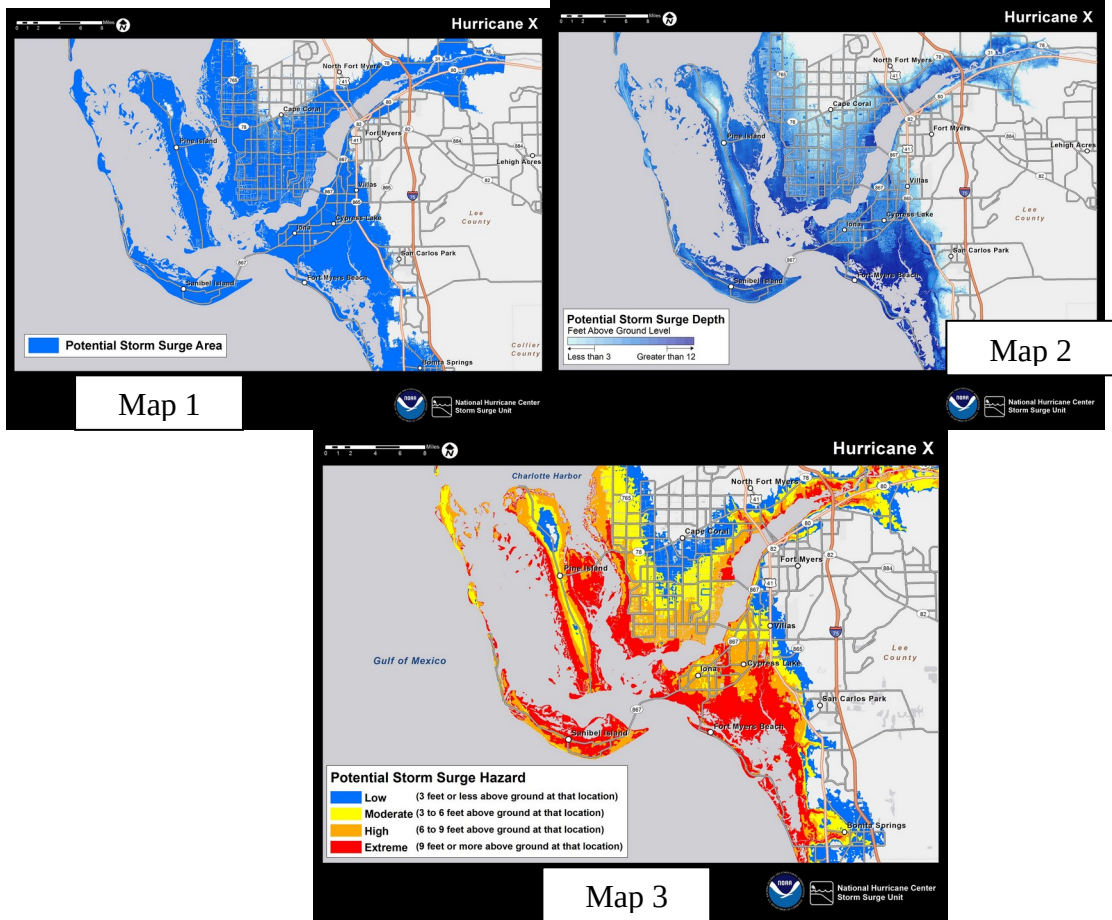
31. If you lived there, given this information, how likely is it that you would LEAVE your home ahead of this storm?

DEFINITELY WOULD	PROBABLY WOULD	PROBABLY WOULD NOT	DEFINITELY WOULD NOT	NOT ENOUGH INFORMATION TO DECIDE

32.
If

you lived in the Villas, how likely is it that you would LEAVE your home ahead of this storm?

DEFINITELY WOULD	PROBABLY WOULD	PROBABLY WOULD NOT	DEFINITELY WOULD NOT	NOT ENOUGH INFORMATION TO DECIDE



33. Of these three maps, which ONE do you think does the BEST JOB of telling you what to expect?

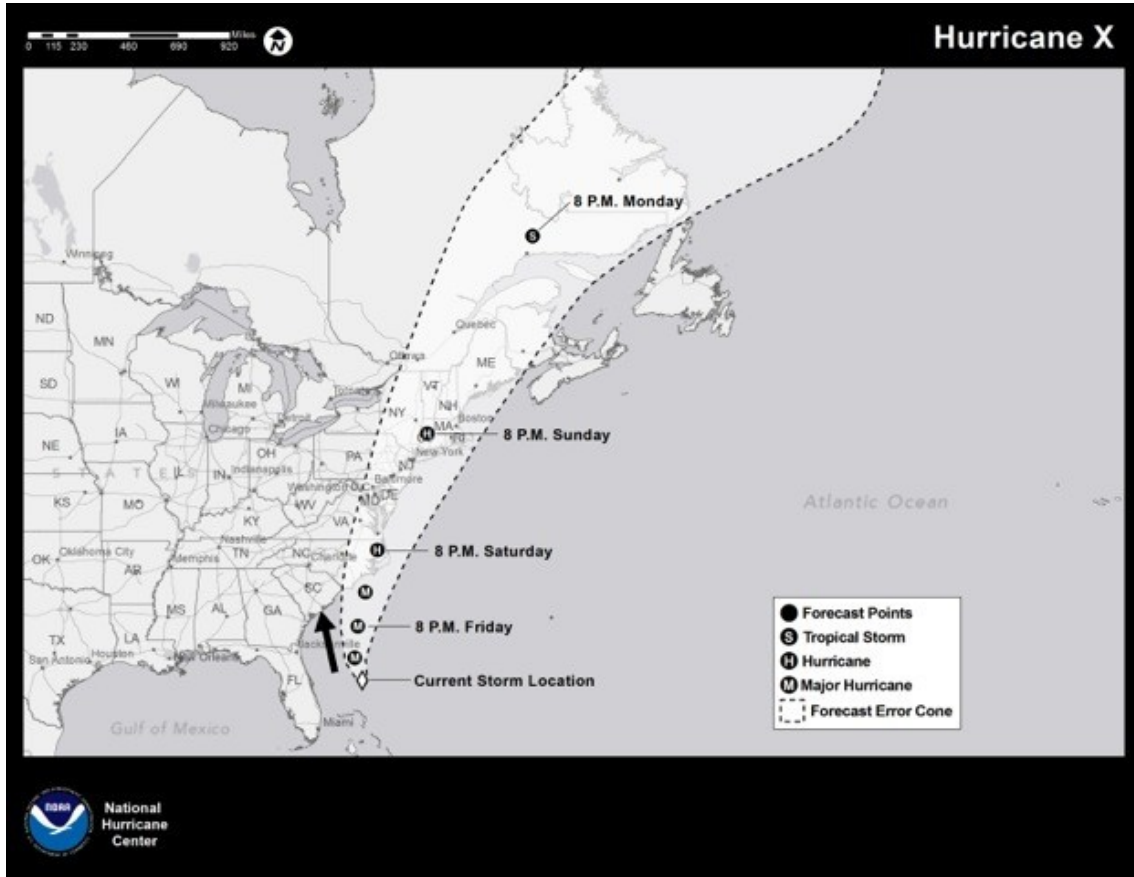
- Map #1: One Shade of Blue Shows Entire Area Under Surge Threat
- Map #2: Shades of Blue Show Range of Potential Storm Surge Depth
- Map #3: Colors Show Four Levels With Potential Range of Surge Depth for Each

34. Thinking about the one you choose, how would you rate it on these qualities?

	EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
EASY TO UNDERSTAND					
PROVIDES USEFUL INFORMATION					
COMMUNICATES THE RISK					
PROMOTES PROTECTIVE ACTION					

TROPICAL STORM FORECAST CONE

The following map has a “Forecast Cone” that indicates the likely path of this storm. Based on past forecast error, the forecasters expect the eye of the storm to stay within the Cone about two-thirds of the time.



35. How would you rate this graphic on EASE OF UNDERSTANDING the forecast path and timing?

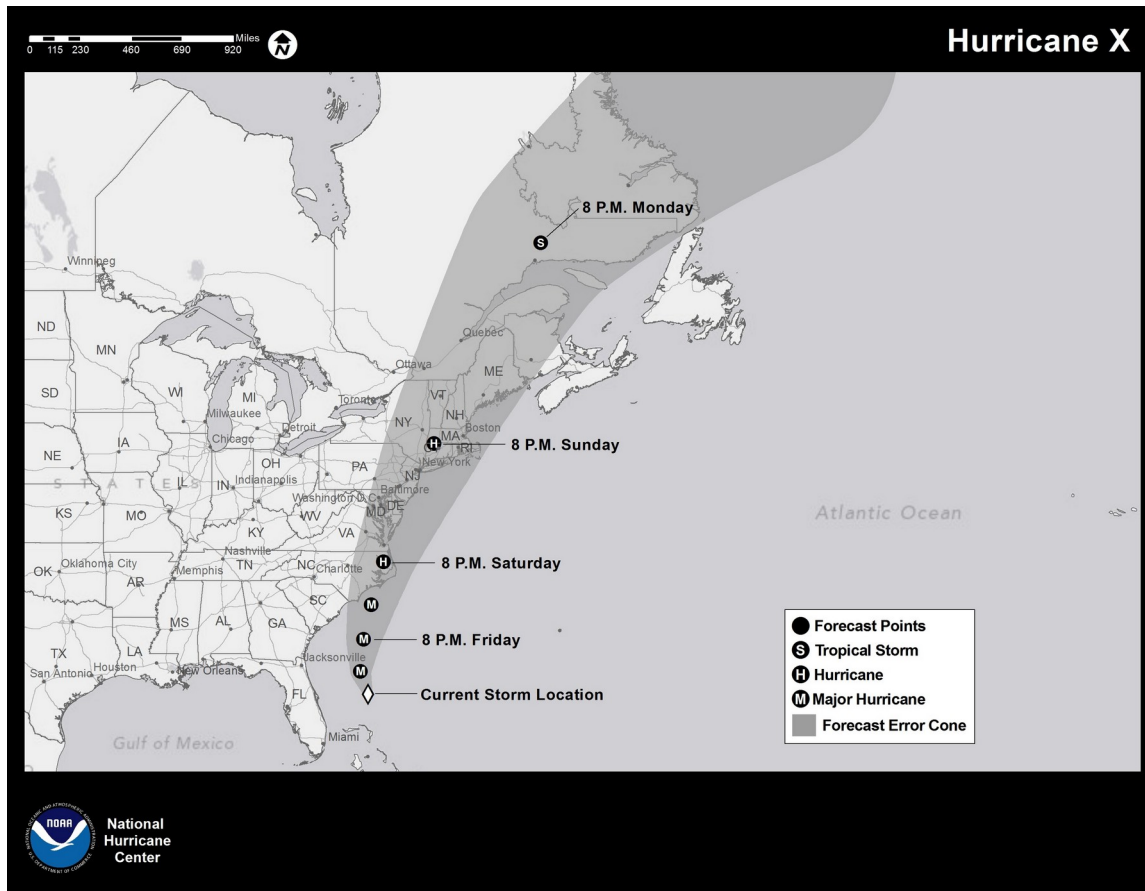
EXCELLENT	VERY GOOD	GOOD	FAIR	POOR

36. How would you rate this map on providing what people need to know?

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR

37. Looking at this map, if you lived in coastal SOUTH CAROLINA (SC), how likely do you think it is that you WOULD BE AFFECTED by this hurricane?

DEFINITELY WOULD	PROBABLY WOULD	PROBABLY WOULD NOT	DEFINITELY WOULD NOT	NOT SURE/ DON'T KNOW



38. How would you rate this graphic on EASE OF UNDERSTANDING the forecast path and timing?

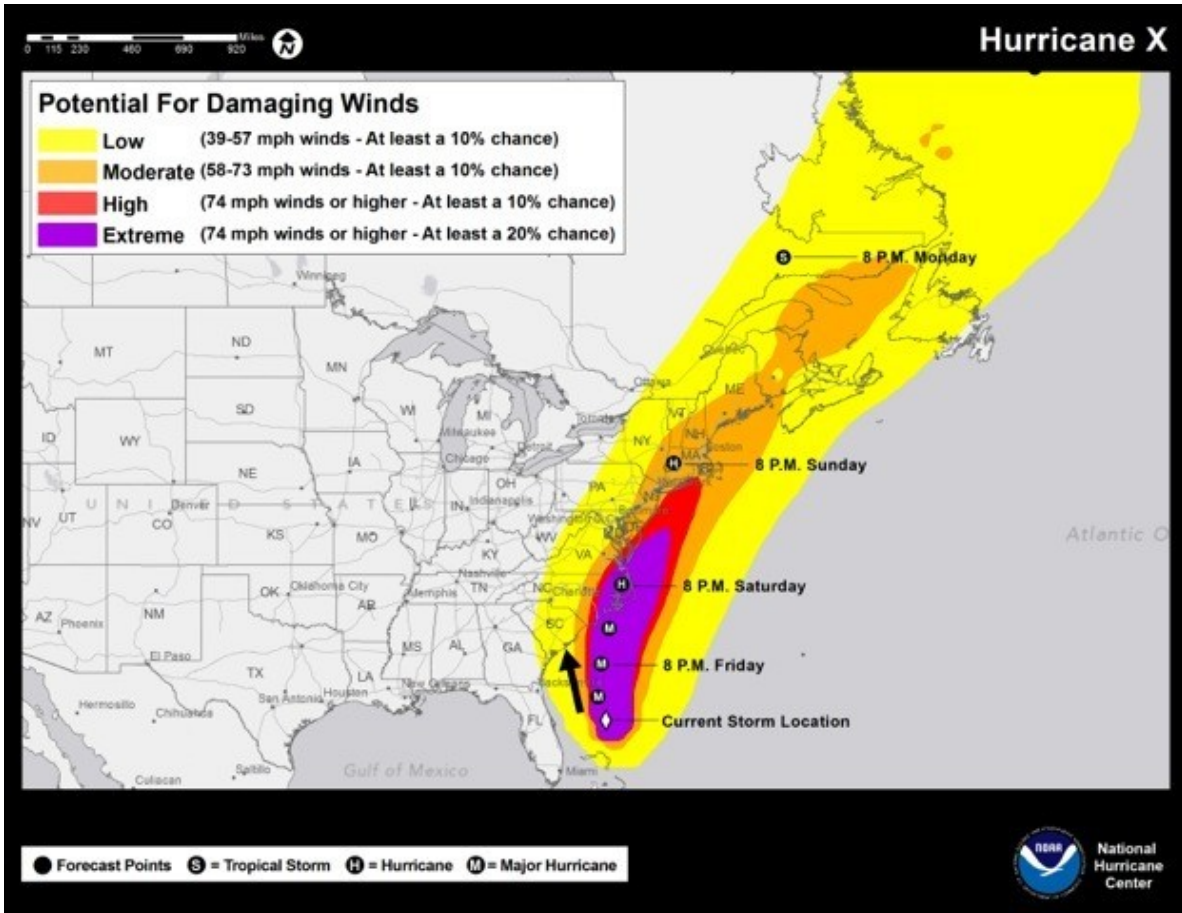
EXCELLENT	VERY GOOD	GOOD	FAIR	POOR

39. How would you rate this map on providing what people need to know?

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR

POTENTIAL FOR DAMAGING WINDS

The next map shows areas that may get damaging winds from the same storm.



40. How would you rate this map on EASE OF UNDERSTANDING the wind risk?

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR

41. How would you rate this map on USEFULNESS, that is, providing what people need to know about whether they may get damaging winds?

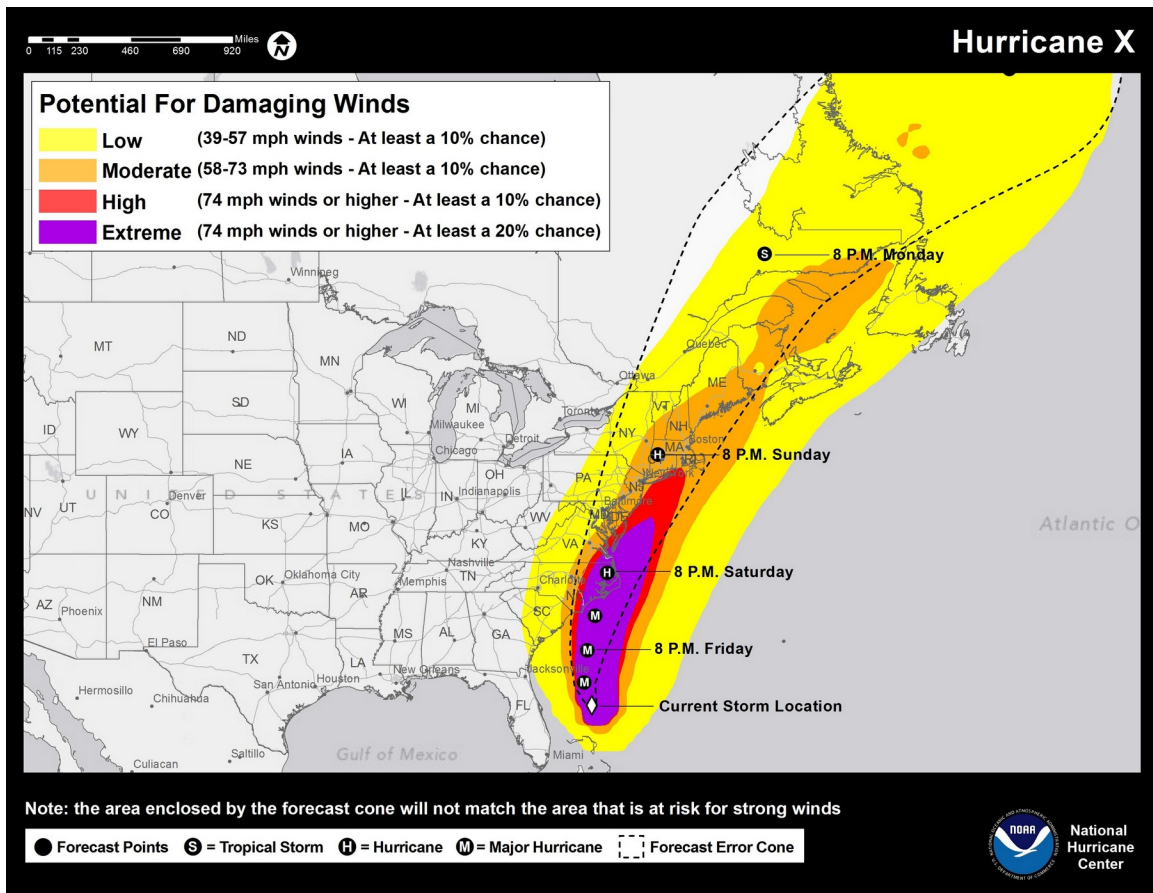
EXCELLENT	VERY GOOD	GOOD	FAIR	POOR

42. Looking at this map, if you lived in coastal SOUTH CAROLINA (SC), how likely is it that you would get damaging winds?

DEFINITELY WOULD	PROBABLY WOULD	PROBABLY WOULD NOT	DEFINITELY WOULD NOT	NOT SURE/ DON'T KNOW

WIND PLUS CONE

Please study the next map that combines the previous Forecast Cone and wind graphic.



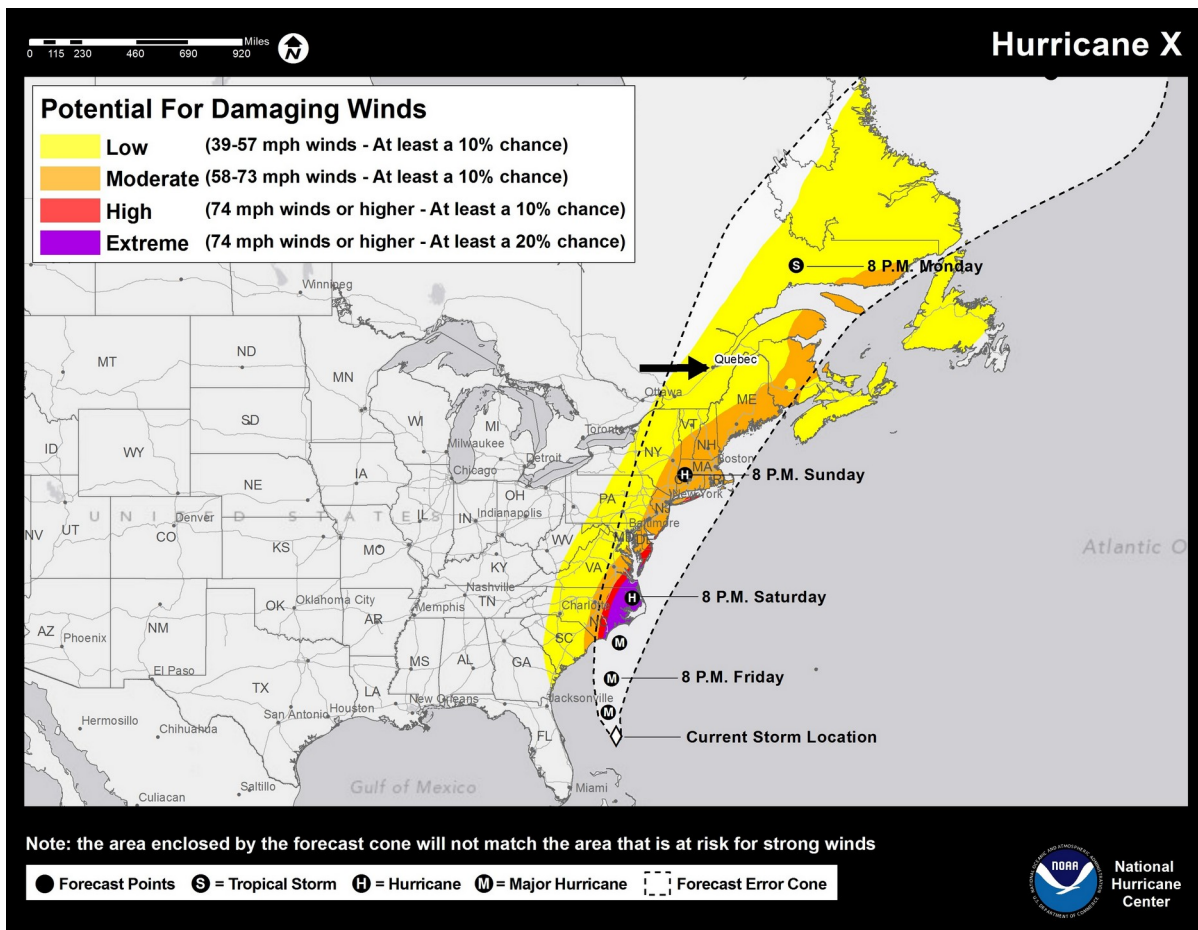
43. How would you rate this map on EASE OF UNDERSTANDING the path and wind information?

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR

44. Does this map give you information on each of these topics?

TYPE OF INFORMATION	YES	NO	NOT SURE/ DON'T KNOW
POSSIBLE TRACK OF STORM			
STORM SURGE			
WHETHER A TROPICAL STORM OR A HURRICANE			
WIND			
WHEN CENTER LIKELY TO ARRIVE			

This next graphic also combines the track and wind information, but this time displays the wind information for only the land area.



45. How would you rate this map on EASE OF UNDERSTANDING?

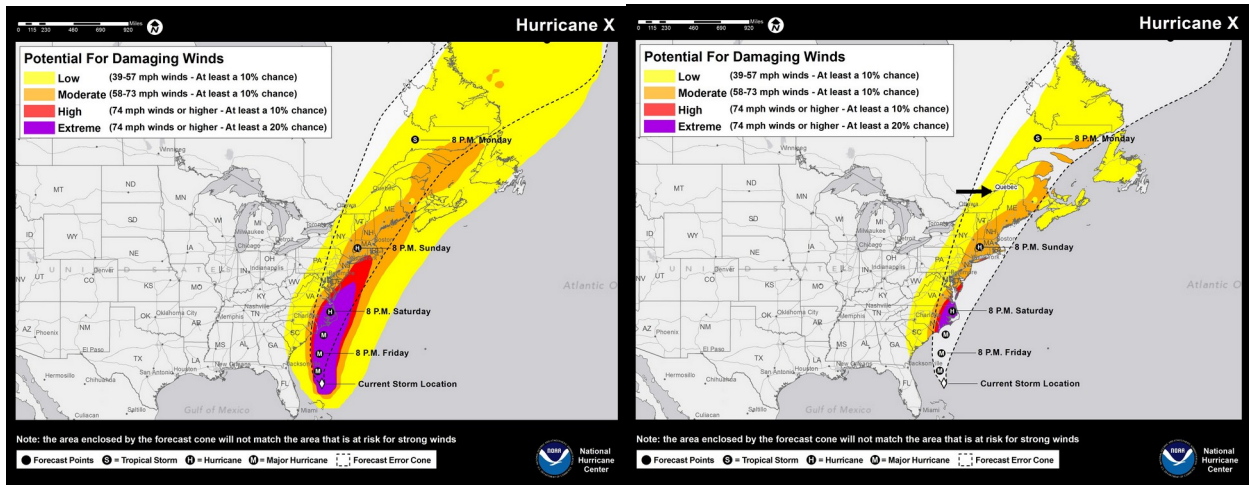
EXCELLENT	VERY GOOD	GOOD	FAIR	POOR

46. How would you rate this map on USEFULNESS, that is, providing what people need to know about whether they may get damaging winds?

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR

47. If you lived in Quebec, Canada, how would you interpret your risk based on this map?

- The Eye of This Hurricane Is Going to Go Over My Area Sometime Monday
- There Is a Good Chance This Hurricane Will Affect My Weather Sometime Monday
- The Storm Is Too Far Away for This Map to Provide Any Useful Information
- None of the Above
- Not Sure/Don't Know



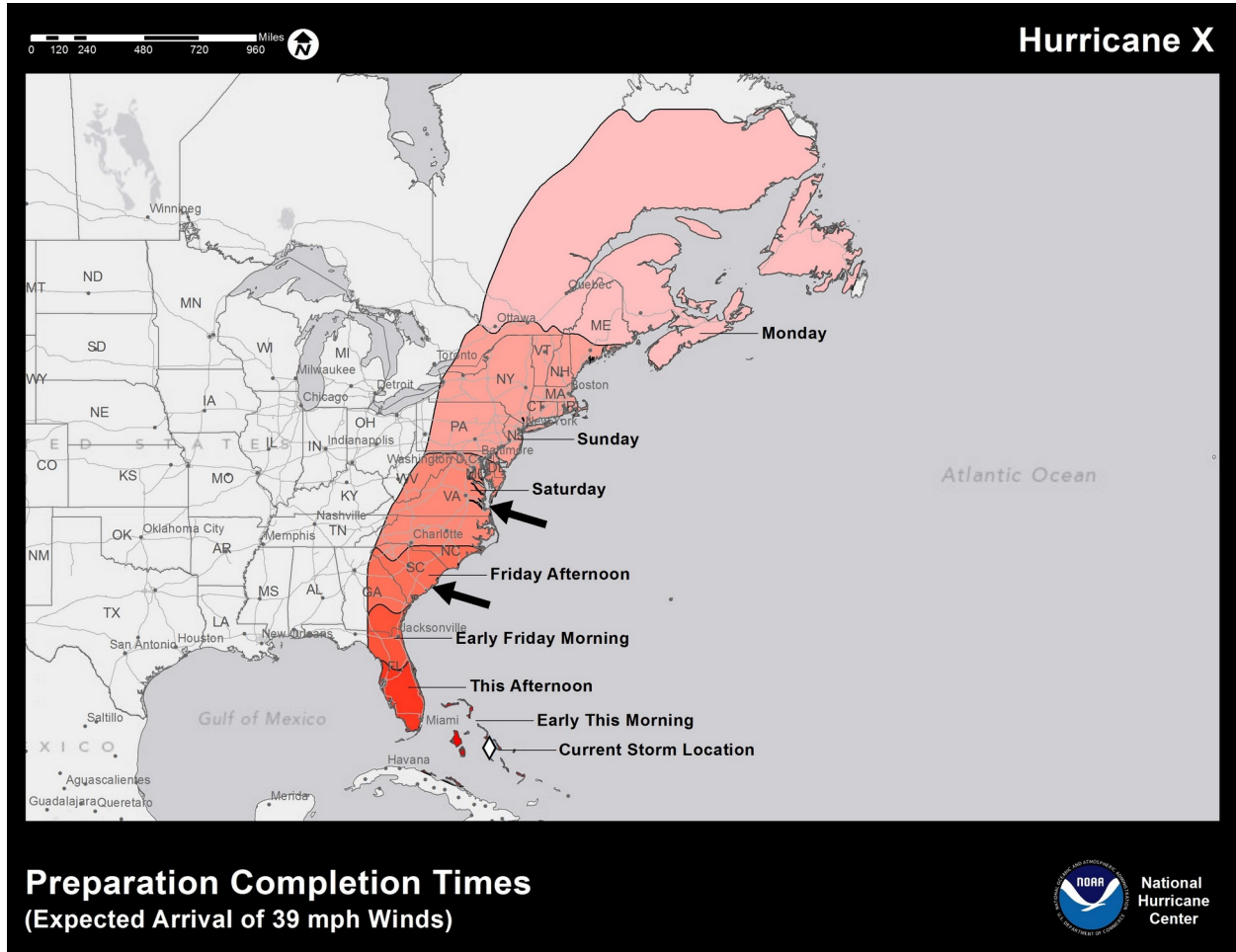
48. The areas that are likely to be most affected by this storm are coastal North Carolina and Virginia. Which map do you think BEST COMMUNICATES THE URGENCY to those areas?

- Map #1 that Shows the Information Over Land and Water
- Map #2 that Shows the Information Only Over Land
- Not Sure/Don't Know

ARRIVAL OF TROPICAL STORM FORCE WINDS

Emergency managers and others have asked for information about WHEN TO EXPECT THE ARRIVAL of tropical storm force winds. TROPICAL STORM FORCE WINDS are winds that stay at 39 miles per hour or higher for at least one minute. All preparations should be completed by the time such winds arrive; after they do, it is dangerous to be outside or on the roads.

The following map shows the approximate arrival times for tropical storm force winds for areas on the East Coast.



49. How would you rate this map on EASE OF UNDERSTANDING when to expect tropical storm force winds?

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR

50. How would you rate this map on USEFULNESS, that is, providing the information people need?

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR

51. If you lived in coastal SOUTH CAROLINA, when would you be likely to get the first tropical force winds? That is, when should you be ready for the storm?

- Friday Afternoon
- Early Friday Morning
- Sometime Saturday
- Not Sure/Don't Know

52. If you lived in coastal VIRGINIA, when would you be likely to get the first tropical force winds? That is, when should you be ready for the storm?

- Friday Afternoon
- Early Friday Morning
- Sometime Saturday
- Not Sure/Don't Know

HURRICANE RESPONSE AND EXPERIENCE

53. If a major hurricane, Category 3 or above, threatens your area, how likely is it that you will EVACUATE OR LEAVE your home ahead of the storm?

DEFINITELY WOULD	PROBABLY WOULD	MAYBE	PROBABLY WOULD NOT	DEFINITELY WOULD NOT

54.
W

What about for a Category 1 or 2 hurricane? How likely is it that you will EVACUATE OR LEAVE your home?

DEFINITELY WOULD	PROBABLY WOULD	MAYBE	PROBABLY WOULD NOT	DEFINITELY WOULD NOT

55.
H

Have you EVER evacuated for a severe coastal storm or a hurricane?

- Yes No

56. If a hurricane or severe coastal storm threatens your area, you will need information. How much do you think you would use each of the following SOURCES FOR YOUR FORECAST INFORMATION?

INFORMATION SOURCE	NEVER	SOME	A LOT	THE MOST
LOCAL TV NEWS				
NATIONAL TV NEWS (E.G., ABC, CBS, NBC, CNN, OR FOX)				
WEATHER CHANNEL ON TV				
LOCAL RADIO STATION				
NOAA WEATHER RADIO				
FRIENDS OR FAMILY				
INTERNET				

57. Are there any other sources you would use that you'd like to mention?

[OPEN-ENDED RESPONSE]

58. If you will get SOME OF YOUR INFORMATION BEFORE THE STORM ON THE INTERNET, how much will you probably use each of these WEBSITES for hurricane information?

Please don't answer if you do not use the Internet for weather or storm information.

WEBSITE	NEVER	SOME	A LOT	THE MOST
LOCAL TV NEWS				
NATIONAL TV NEWS				
NATIONAL HURRICANE CENTER				
LOCAL OFFICE OF WEATHER SERVICE				
OTHER NOAA WEBSITE				
WEATHER CHANNEL				
WEATHER UNDERGROUND				
OTHER WEATHER WEBSITE				
LOCAL EMERGENCY MANAGEMENT				

59. Are there any other websites you'd like to mention?

[OPEN-ENDED RESPONSE]

60. How much would you probably use each of these devices TO GET TO THE INTERNET?

	NOT AT ALL	SOME	A LOT	THE MOST
MOBILE DEVICE SUCH AS SMART PHONE OR PAD				
COMPUTER IN MY HOME				
COMPUTER AT WORK				
COMPUTER AT A PUBLIC PLACE				
OTHER: SPECIFY				

61. Are you familiar with the services and information offered by the National Weather Service (NWS) office LOCATED IN YOUR AREA?

- Yes
- No
- Not Sure/Don't Know

62. In what TOWN OR CITY is the NWS office for your area located?

- _____
- Not sure/Don't Know

63. How much do you use the WEBSITE OF THE LOCAL NATIONAL WEATHER SERVICE OFFICE to get weather information?

NEVER	A LITTLE	SOME	A LOT

64. If you live in an area affected by tropical storms, how much do you use the website of the National Hurricane Center when a tropical storm threatens your area?

NEVER	A LITTLE	SOME	A LOT

DEMOGRAPHICS

To make sure NWS products meet the needs of many types of users, we need to know a little about you. Your answers will not be linked to you but they will help us understand the needs of people like you. You can, of course, decide not to answer any question.

65. What is your ZIP code? (Please answer, as this helps us understand your answers in relation to how far you live from the coastline.) _____

66. What TYPE OF HOUSE do you live in?

- Single Family Home
- Apartment or Condominium
- Mobile Home or Manufactured Housing
- Town House
- Other (Specify: _____)

67. About how OLD are you?

- 21-25
- 26-40
- 41-60
- 61-75
- 76 or older

68. What is the HIGHEST EDUCATION you have received?

- Grade School
- Some High School
- High School Graduate
- Vocational/Technical
- Some College
- College Graduate
- Graduate Degree

69. Are you male or female?

- Female
- Male

70. Do you consider yourself to be HISPANIC OR LATINO?

- Yes
- No
- Not Sure/Don't Know

71. How would you describe your RACE? You may give multiple answers.

- | | |
|---|--|
| <input type="checkbox"/> White | <input type="checkbox"/> Asian |
| <input type="checkbox"/> Black or African American | <input type="checkbox"/> Native Hawaiian or Other Pacific Islander |
| <input type="checkbox"/> American Indian or Alaska Native | <input type="checkbox"/> Other |
| | <input type="checkbox"/> Not Sure/Don't Know |

72. What is the MAIN LANGUAGE spoken in your home?

- ENGLISH
- SPANISH
- Other (Specify: _____)

73. About HOW MUCH MONEY DID YOUR WHOLE HOUSEHOLD TOGETHER MAKE LAST YEAR?

- | | |
|--|---|
| <input type="checkbox"/> \$10,000 or Less | <input type="checkbox"/> Between \$50,000 and \$80,000 |
| <input type="checkbox"/> Between \$10,000 and \$20,000 | <input type="checkbox"/> Between \$80,000 and \$100,000 |
| <input type="checkbox"/> Between \$20,000 and \$30,000 | <input type="checkbox"/> Over \$100,000 |
| <input type="checkbox"/> Between \$30,000 and \$50,000 | <input type="checkbox"/> Don't Know/No Response |

74. Do you have any comments that you would like to make about this survey or about the topics mentioned?

[OPEN-ENDED RESPONSE]

Thank you for completing this survey to help your National Weather Service improve its coastal storm services!