MARYLAND

Hurricane Preparedness Guide

MARYLAND

Maryland Emergency Management Agency

Tracking the Hurricane

You can track the path of the hurricane using locational information provided by the NOAA Weather Radio or the weather channels on television. Using the Hurricane Tracking Map, find the longitude and latitude of the storm and put an "X" on that spot*. Every few hours, mark the spot of the new longitude and latitude, and you can see the progress of the storm.

*One important note: the location given is the location of the "eye" of the storm. The average storm is 250 miles in diameter: thus the danger zone extends some 100 miles on either side of the location.

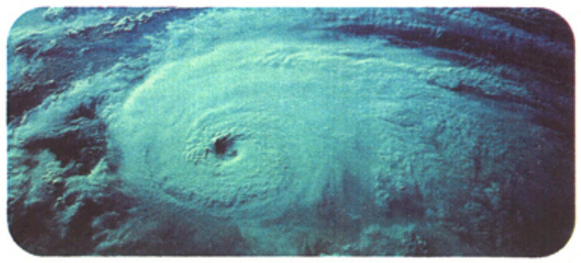
Governor
Robert L. Ehrlich, Jr.

Lt. Governor
Michael S. Steele

MEMA Director
John W. Droneburg

Safe Boating Precautions

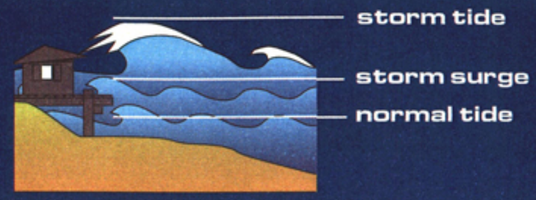
- Heed and respect National Weather Service warnings. Begin your safe anchorage trip before the storm.
- After you have prepared your boat for the hurricane, leave it! DO NOT stay on boats during a hurricane.
- Remove trailerable boats from the water and store them on high ground.
- If you are boating out of your local area, inquire about and plan to find a suitable location for safe anchorage.
- Keep safe anchor rigging on board: new or good tie ropes with extra length, and three or four substantial anchors.
- Do not tie up parallel to a bank. If possible, anchor boats in groups with bow lines individually tied high to a tree or piling on the mainland. Use a half hitch knot (loop knots slip) anchored to hooks. Be sure to leave extra length on ropes. Anchor stern well to hooks. Tie boats in the group together at bows and sterns using protective bumpers.
- Keep a navigable passage available at the stern of secured boats for late arriving vessels seeking safe anchorage.



What's in a name?

A tropical storm is named when its wind speed reaches a sustained 39 miles per hour. It becomes a hurricane when winds develop to 74 miles per hour or more.
The practice of naming storms began informally in the 1940s and became a more formalized practice in 1950. Storms were named after characters in the international phonetic alphabet... Alpha, Baker, Charlie, etc., from 1950 to 1952. Beginning in 1953, women's names were used exclusively. By 1979, men's names were added to the list, and later the list was expanded to include English, French and Spanish names.

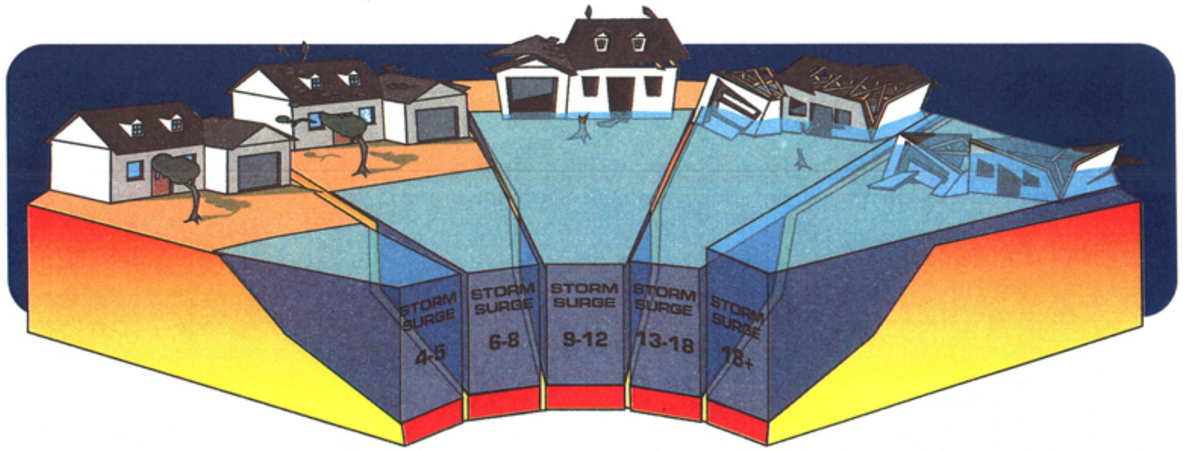
2005	2006	2007	2008	2009
Arlene	Alberto	Andrea	Arthur	Ana
Bret	Beryl	Barry	Bertha	Bill
Cindy	Chris	Chantal	Cristobal	Claudette
Dennis	Debby	Dean	Dolly	Danny
Emily	Ernesto	Erin	Edouard	Erika
Franklin	Florence	Felix	Fay	Fred
Gert	Gordon	Gabrielle	Gustav	Grace
Harvey	Helene	Humberto	Hanna	Henri
Irene	Isaac	Ingrid	Ike	Ida
Jose	Joyce	Jerry	Josephine	Joaquin
Katrina	Kirk	Karen	Kyle	Kate
Lee	Leslie	Lorenzo	Laura	Larry
Maria	Michael	Melissa	Marco	Mindy
Nate	Nadine	Noel	Nana	Nicholas
Ophelia	Oscar	Olga	Omar	Odette
Philippe	Patty	Pablo	Paloma	Peter
Rita	Rafael	Rebekah	Rene	Rose
Stan	Sandy	Sebastien	Sally	Sam
Tammy	Tony	Tanya	Teddy	Teresa
Vince	Valerie	Van	Vicky	Victor
Wilma	William	Wendy	Wilfred	Wanda



normal tide
+ storm surge
= storm tide

Storm Surge

Storm surge is the abnormal rise in sea level that occurs with a hurricane. Often the large violent waves that occur during a hurricane are mistaken for storm surge. The combination of the large wind driven waves and the higher sea surface make the coastal waters very destructive.

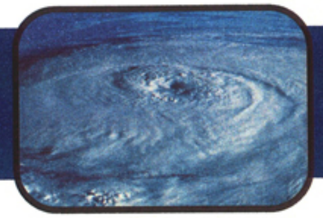


Hurricane Categories

category	winds	storm surge
I	74-95 mph	4-5 ft.
II	96-110 mph	6-8 ft.
III	111-130 mph	9-12 ft.
IV	131-155 mph	13-18 ft.
V	156+ mph	18+ ft.

Saffir-Simpson Scale

The Saffir-Simpson Scale is a guide for measuring the strength and damage potential of a hurricane on a scale of 1 to 5. The Saffir-Simpson scale measures both wind speed and water effects, known as storm surge.
The Saffir-Simpson Scale was developed in the early 1970's by Robert Simpson, former National Hurricane Director, and Herbert Saffir, a consulting engineer. The two men created the scale as a combination of engineering and meteorological knowledge that would give local forecasters an idea of the damage potential of a storm.



Hurricane: cause & effect

Anatomy of a Hurricane

Energy Produced
The amount of heat energy released in one day by a hurricane could supply the United States' electrical needs for about 6 months

The Eye
The eye, the calm at the center of the storm, is usually 20-30 miles wide. Around the rim of the eye, an area called the eyewall, winds may gust to more than 200 miles per hour.

The Bands
The spiraling arms around the storm are formed by bands of thunderstorms. These bands wrap around the center of the storm and can be up to 25 miles wide and 250 miles long.

Air Direction
Air flows from areas of low pressure. Air in a hurricane spirals in towards the low pressure at the center of the storm replacing the air that's rising.

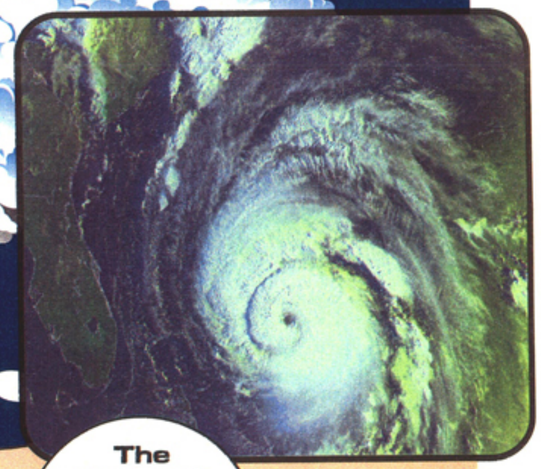
Warm Water
Hurricanes get their energy from the warm surface water of the tropics. The depth of the water must be at least 200 ft.; otherwise, storm winds which mix up the ocean waters will bring cold water from below the surface causing the hurricane to lose energy.

Storm Surge
A storm surge is the abnormal rise in sea level that occurs with a hurricane. As the hurricane approaches land the storm surge moves ashore. The combination of large wind-driven waves and the higher sea surface makes the coastal waters very destructive.

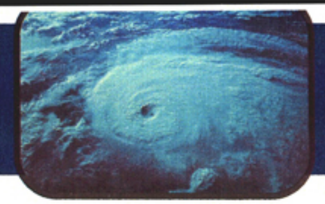
WATCH VS. WARNING

A **Hurricane Watch** is issued by the National Weather Service when there is a threat of hurricane-like conditions within 24-36 hours.

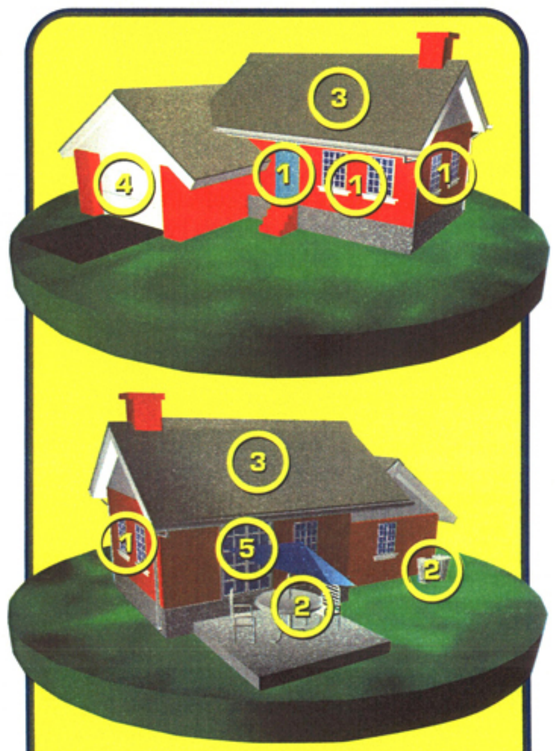
A **Hurricane Warning** is issued by the National Weather Service when hurricane conditions (winds of 74 miles per hour or greater, or high water and rough seas) are expected in 24 hours or less.



The Big Deal.
Hurricanes are enormous storms that can affect weather systems over thousands of square miles for up to two weeks.



Are You Prepared?



Protection for your house

1. **Windows/Doors**
   Cover doors and windows with plywood or a bracing kit from the manufacturer.
2. **Yard**
   Bring in outdoor objects such as lawn furniture, toys, garden tools, garbage cans, grills. Anchor any objects that cannot be brought inside. Trim branches and pick up debris that can become airborne during high winds.
3. **Roof**
   Check with a local building contractor to determine if your roof is braced properly for hurricane force winds. Hurricane straps may be helpful; contact a building professional.
4. **Garage doors**
   You can brace your garage door with 2x4s or a kit purchased from your garage door manufacturer or a local building supply store.
5. **Double entry doors/patio doors**
   It is extremely important to cover patio doors. If not secured, the double opening can allow wind inside, lifting the roof off the house.

Hurricanes can affect all of Maryland.

Coastal areas of the Chesapeake Bay and Atlantic Ocean can be affected by storm surge flooding and high winds. While the devastation of Hurricane Andrew, which struck Florida in 1992, is unlikely here, the effects of a hurricane or tropical storm can cause significant damage. It was the remnants of Hurricane Agnes in 1972, and Hurricane Fran in 1996 that caused millions of dollars in damages from the impact of heavy winds, rain, and flooding. Taking mitigative action now can help reduce vulnerability to disasters such as hurricanes.

What is meant by taking mitigative action?

Mitigative actions are those taken now which can help you avoid loss of life and property and may reduce your risk of becoming a disaster victim. There are many low-cost mitigative measures you can take to protect yourself, your home, or your business from losses. This brochure will provide many steps for making your life and property more disaster-resistant.

Mitigative Actions for the Homeowner/Business Owner

Protection from Wind

- Analyze your home or business structural strengths and weaknesses.
- Retrofit your existing roof with hurricane straps.
- Retrofit your existing roof with gable end braces.
- If you are building a new home or business, consider a hip roof with a pitch of 30 degrees or less.
- Install or build storm shutters to protect windows.
- Install braces to give additional support to garage doors.

Protection from Flooding

- Buy flood insurance. Contact your local emergency management office to obtain information on how to contact the local NFIP representative, or use the toll free number 1-800-427-4661.
- Move valuables and appliances out of the basement.
- Have the main breaker or fuse box and utility meters elevated.
- Consider elevating your home/business above the 100-year floodplain or estimated surge inundation level.
- Make sure that any flood-proofing efforts are in compliance with minimum NFIP requirements, and with State and local building codes. How? By calling your local planning office.

Preparations You Can Make Before the Start of the Hurricane Season (June 1st)

- Know the storm surge and flooding history of your area.
- Learn safe evacuation routes.
- Learn the location of official human and pet shelters by contacting your local office of emergency management for assistance.
- Decide where you will go in case of an evacuation order and plan your route accordingly.
- Inventory your property and put the list in a safe place.
- Prepare a disaster supply kit in a duffel bag, back pack, or covered garbage pail, which you can carry easily. If you need to evacuate, you should take this kit with you. It should include the following:

Disaster Supply Kit

- Bottled water and dried/canned foods to last 7-10 days
- Manual can opener
- Battery-operated flashlight
- Battery-operated radio
- Extra batteries
- Clothes
- Personal care items
- Medications
- Cash
- First Aid Kit
- Sleeping bags or blankets
- Sturdy shoes
- Insect repellent

- Clear gutters and downspouts, and trim trees and shrubs.
- If you have a boat, determine where to move it in an emergency.
- Review your insurance policy.
- Individuals with special sheltering or evacuation needs should contact their local offices of emergency management for assistance.

During the Storm

- Stay inside a well-constructed building.
- Stay away from windows and doors, even if they are covered.
- Close all interior doors.
- Go to the basement or an interior first floor room such as a bathroom, closet, or under the stairs.
- In a multiple story building, go to the first or second floor and take refuge in the halls or other interior rooms away from windows.
- Lie on the floor under tables or other sturdy objects.
- Be alert for tornadoes which often are spawned by hurricanes.
- If the "eye" of the hurricane passes over your area, be aware that the improved weather conditions are temporary, and that the storm conditions will return with winds coming from the opposite direction—some times in a period of just a few minutes!

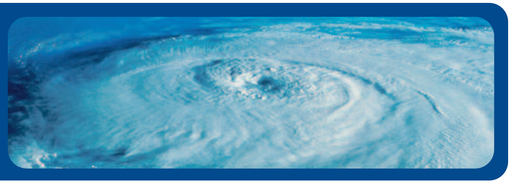
After the Storm

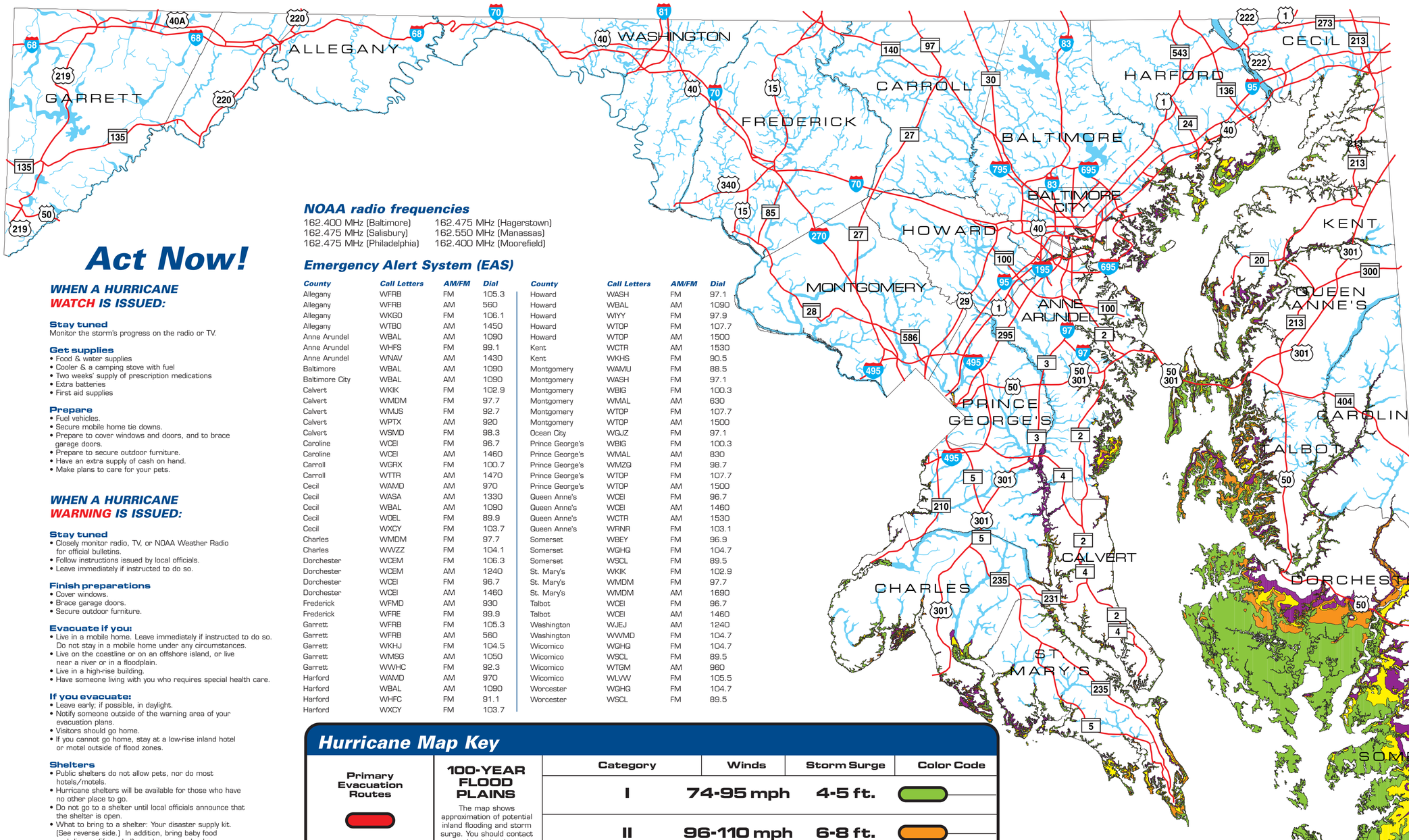
- Stay in your protected area until announcements are made on radio or television.
- If you have evacuated, do not try to return home until officials announce that your area is ready.
- Proof of residency may be required in order to re-enter areas that have been evacuated.
- If your home or building has structural damage, do not enter until it is checked by officials.
- Avoid using candles and other open flames indoors.
- Avoid downed power lines and any water in which they may be lying.
- Be alert for poisonous snakes, often driven from their habitat by high water.
- Beware of weakened bridges and washed out roads.
- Watch for weakened limbs on trees and/or damaged overhanging structures.
- Do not use the telephone unless absolutely necessary.
- Use dry or canned food. Do not drink or prepare food with tap water until you are certain it is not contaminated.
- Use caution when cutting up fallen trees.

mema

maryland emergency management agency

Maryland Hurricane Preparedness Guide





Act Now!

WHEN A HURRICANE WATCH IS ISSUED:

Stay tuned
Monitor the storm's progress on the radio or TV.

Get supplies
- Food & water supplies
- Cooler & a camping stove with fuel
- Two weeks' supply of prescription medications
- Extra batteries
- First aid supplies

Prepare
- Fuel vehicles.
- Secure mobile home tie downs.
- Prepare to cover windows and doors, and to brace garage doors.
- Prepare to secure outdoor furniture.
- Have an extra supply of cash on hand.
- Make plans to care for your pets.

WHEN A HURRICANE WARNING IS ISSUED:

Stay tuned
- Closely monitor radio, TV, or NOAA Weather Radio for official bulletins.
- Follow instructions issued by local officials.
- Leave immediately if instructed to do so.

Finish preparations
- Cover windows.
- Brace garage doors.
- Secure outdoor furniture.

Evacuate if you:
- Live in a mobile home. Leave immediately if instructed to do so. Do not stay in a mobile home under any circumstances.
- Live on the coastline or on an offshore island, or live near a river or in a floodplain.
- Live in a high-rise building.
- Have someone living with you who requires special health care.

If you evacuate:
- Leave early; if possible, in daylight.
- Notify someone outside of the warning area of your evacuation plans.
- Visitors should go home.
- If you cannot go home, stay at a low-rise inland hotel or motel outside of flood zones.

Shelters
- Public shelters do not allow pets, nor do most hotels/motels.
- Hurricane shelters will be available for those who have no other place to go.
- Do not go to a shelter until local officials announce that the shelter is open.
- What to bring to a shelter: Your disaster supply kit. (See reverse side.) In addition, bring baby food and diapers (if needed), cards, games, books, identification, valuable papers (insurance) and cash.

Staying Home
- Store a 2-week supply of drinking water in sterilized jugs and bottles.
- Fill bathtub and large containers with water for sanitary purposes.
- Turn refrigerator to maximum cold and open only when necessary.
- Turn off utilities if told to do so by authorities.
- Turn off propane tanks.
- Unplug appliances.

NOAA radio frequencies

162.400 MHz (Baltimore)	162.475 MHz (Hagerstown)
162.475 MHz (Salisbury)	162.550 MHz (Manassas)
162.475 MHz (Philadelphia)	162.400 MHz (Moorefield)

Emergency Alert System (EAS)

County	Call Letters	AM/FM	Dial
Allegany	WFRB	FM	105.3
Allegany	WFRB	AM	560
Allegany	WKGO	FM	106.1
Allegany	WTBO	AM	1450
Anne Arundel	WBAL	AM	1090
Anne Arundel	WHFS	FM	99.1
Anne Arundel	WNAV	AM	1430
Baltimore	WBAL	AM	1090
Baltimore City	WBAL	AM	1090
Calvert	WKIK	FM	102.9
Calvert	WMDM	FM	97.7
Calvert	WMJS	FM	92.7
Calvert	WPTX	AM	920
Calvert	WSMD	FM	98.3
Caroline	WCEI	FM	96.7
Caroline	WCEI	AM	1460
Carroll	WGRX	FM	100.7
Carroll	WTTR	AM	1470
Cecil	WAMD	AM	970
Cecil	WASA	AM	1330
Cecil	WBAL	AM	1090
Cecil	WOEL	FM	89.9
Cecil	WXCY	FM	103.7
Charles	WMDM	FM	97.7
Charles	WWZZ	FM	104.1
Dorchester	WCEM	FM	106.3
Dorchester	WCEM	AM	1240
Dorchester	WCEI	FM	96.7
Dorchester	WCEI	AM	1460
Frederick	WFMD	AM	930
Frederick	WFRE	FM	99.9
Garrett	WFRB	FM	105.3
Garrett	WFRB	AM	560
Garrett	WKHJ	FM	104.5
Garrett	WMSG	AM	1050
Garrett	WWHC	FM	92.3
Harford	WAMD	AM	970
Harford	WBAL	AM	1090
Harford	WHFC	FM	91.1
Harford	WXCY	FM	103.7
Howard	WASH	FM	97.1
Howard	WBAL	AM	1090
Howard	WIYY	FM	97.9
Howard	WTOP	FM	107.7
Howard	WTOP	AM	1500
Kent	WCTR	AM	1530
Kent	WKHS	FM	90.5
Montgomery	WAMU	FM	88.5
Montgomery	WASH	FM	97.1
Montgomery	WBIG	FM	100.3
Montgomery	WMAL	AM	630
Montgomery	WTOP	FM	107.7
Montgomery	WTOP	AM	1500
Ocean City	WQJZ	FM	97.1
Prince George's	WBIG	FM	100.3
Prince George's	WMAL	AM	830
Prince George's	WMZQ	FM	98.7
Prince George's	WTOP	FM	107.7
Prince George's	WTOP	AM	1500
Queen Anne's	WCEI	FM	96.7
Queen Anne's	WCEI	AM	1460
Queen Anne's	WCTR	AM	1530
Queen Anne's	WRNR	FM	103.1
Somerset	WBEY	FM	96.9
Somerset	WQHQ	FM	104.7
Somerset	WSCL	FM	89.5
St. Mary's	WKIK	FM	102.9
St. Mary's	WMDM	FM	97.7
St. Mary's	WMDM	AM	1690
Talbot	WCEI	FM	96.7
Talbot	WCEI	AM	1460
Washington	WJEJ	AM	1240
Washington	WWMD	FM	104.7
Wicomico	WQHQ	FM	104.7
Wicomico	WSCL	FM	89.5
Wicomico	WTGM	AM	960
Wicomico	WLVW	FM	105.5
Worcester	WQHQ	FM	104.7
Worcester	WSCL	FM	89.5

Hurricane Map Key

Primary Evacuation Routes

Maryland State Police and State Highway Administration employees will provide assistance along these designated evacuation routes.

100-YEAR FLOOD PLAINS

The map shows approximation of potential inland flooding and storm surge. You should contact your local planning or emergency management office (top right of this map) for specific flood ranges for your area.

Category	Winds	Storm Surge	Color Code
I	74-95 mph	4-5 ft.	
II	96-110 mph	6-8 ft.	
III	111-130 mph	9-12 ft.	
IV	131-155 mph	13-18 ft.	

Category V is not shown on the map because the probability of a Category V hurricane at this latitude is extremely unlikely.

For more information

Call your local emergency management office

State
Maryland Emergency Management Agency (MEMA)
877-MEMA-USA (877-636-2872) • 410-517-3600
www.mema.state.md.us

County	Phone
Allegany	301-777-5908
Anne Arundel	410-222-8040
Baltimore	410-887-5996
Calvert	410-535-1623
Caroline	410-479-2622
Carroll	410-386-2260
Cecil	410-996-5350
Charles	301-609-3402
Dorchester	410-228-1818
Frederick	301-694-1536
Garrett	301-334-7619
Harford	410-638-4900
Howard	410-313-6004
Kent	410-778-3758
Montgomery	240-777-2300
Prince George's	301-583-1899
Queen Anne's	410-758-0223
St. Mary's	301-475-8016
Somerset	410-651-0707
Talbot	410-770-8160
Washington	240-313-2930
Wicomico	410-548-4820
Worcester	410-632-1311

Municipal	Phone
Baltimore City	410-396-6175
Ocean City	410-723-6619

WATCH VS. WARNING

Hurricane Watch:
is issued by the National Weather Service when there is a threat of hurricane-like conditions within 24-36 hours.

Hurricane Warning:
is issued by the National Weather Service when hurricane conditions (winds of 74 miles per hour or greater, or high water and rough seas) are expected in 24 hours or less.