



Recovery Times



Virgin Islands
May 29, 1996

"People Helping People"

FEMA
Issue 4



Workers in the Virgin Islands repair damage from Hurricane Marilyn which struck September 15-16, 1995.

FEMA Photo by
Andrea Booher

Disaster Assistance Tops \$625 Million

Federal assistance to help the Virgin Islands recover from Hurricane Marilyn has exceeded \$625 million according to Federal Coordinating Officer Jose A. Bravo.

"In the six months after the Virgin Islands was struck, the federal government committed more than \$625 million in disaster assistance," Bravo said. "Nearly a third of that is in the form of low-interest loans from the U.S. Small Business Administration."

The Small Business Administration (SBA) has approved more than 7,300 loans totaling nearly \$210 million for damage to homes and businesses. SBA funds include almost \$20 million in economic injury loans to local businesses affected by the hurricane.

In addition, more than \$65 million in disaster housing funds have been made available to nearly 36,000 residents. The disaster housing program is 100% federally funded and provides money for repairs to make homes habitable, alternate rental housing and help for those facing eviction or foreclosure because of the hurricane.

"The federally funded Individual and Family Grant Program, which is administered by the Territory, has disbursed more than \$42 million to more than 17,500 applicants," Bravo said. "These grants are helping victims with serious disaster-related needs and expenses not covered by other assistance programs or insurance."

Nearly \$100 million has been committed in federal assistance to the Territory for repairs to public buildings, debris removal, restoration of power and measures designed to protect against future losses. Almost \$40 million has been earmarked for the Virgin Islands Water and Power Authority.

"The commitment by FEMA to help the people of the Virgin Islands does not stop with providing funds for repairs of the damage inflicted by this hurricane," Bravo said. "FEMA is looking at measures that can be taken now to prevent damage that may occur from the next hurricane. Our Hazard Mitigation Program has identified steps that residents and business owners can take to limit future damage and has already committed more than \$30 million to those efforts."

Lessons Learned From Marilyn Will Bring Faster Relief in the Future

Food and water shortages and long lines for relief supplies were some of the problems island residents faced after being forced from their homes by Hurricane Marilyn.

"It was hard enough to loose your home and possessions without having to face shortages and delays," Territorial Coordinating Officer General Rudolph Francis said. "To better deal with this in the future we have developed an emergency operations plan that will allow us to be self-sufficient for the first 72 hours following a disaster."

The plan calls for setting up an Emergency Coordinating Center, staffed by trained response management personnel from all affected V.I. government departments and agencies.

In the first 72 hours after a disaster, the staff would assess emergency needs and act to restore critical emergency services. "We want to be ready to provide the necessary services to those most affected by a disaster as quickly as possible," Francis said. "Our goal is to immediately respond with life's basic necessities of food, water and shelter without delay."

The plan calls for the strategic preplacement of emergency equipment and supplies throughout the territory so that they would be available for distribution to victims immediately after a disaster.

**For Flood Insurance
Information Call
1-800-427-4661**



FEMA Director James L. Witt

As residents of the US Virgin Islands continue to recover from Hurricane Marilyn, a new hurricane season is fast approaching.

We at FEMA., together with our partners at the Virgin Islands Territorial Emergency Management Agency (VITEMA), stand committed to help you complete your reconstruction efforts, and to assist you in protecting your homes and loved ones from future storms.

The impact of Hurricane Hugo, and more recently Marilyn, are dramatic reminders of nature's power. Hurricanes always will be a part of a Virgin Islander's life. However, we have learned many lessons about reducing the damage they can cause.

Virgin Islanders took a significant step forward as they adopted the recent changes to the islands' building codes. Strong building codes and consistent code enforcement are key elements in a coordinated effort to break the cycle of repeated damage. Along with the many protective responsibilities that lie with government and communities, there are individual responsibilities, as well.

With dramatic devastation only months behind us, it is easy to look backward. But instead, we must all look ahead with dedication to building back safer. Working together we can build a safer place for Crucians, St. Jonians and St. Thomians to call home.

Success Story

SBA Pays Off for Island Resident

Eleven years ago, Rufus George, an electrician by trade, was dabbling in boatbuilding on St. Croix's West End. One day, at the suggestions of friends, he put up "a little shed" where they could enjoy some food, drink and domino playing. From then on, customers showed up every night."

Thus was born the Mt. Pellier Hut Domino Club Bar & Restaurant, which as of last September could accommodate 300 for functions. Many visitors stop in just to see Tony, GeeGee and Miss Piggy, three people-oriented Yorkshire pigs who are famous for their beer consumption.

George's establishment escaped Hurricane Hugo with little damage. Marilyn was another story. "It lifted the whole 65- by 52-foot building up in the air and dropped it about 200 feet away," he recalls.

George, then 68, had no hesitation about what to do: "I started working immediately to get the place back together to serve people. At a FEMA

Recovery Center he learned about the U.S. Small Business Administration (SBA) business loan programs.

Inspectors visited the premises and George completed the loan application forms. A few weeks later, the loan was approved at 4 percent interest with a 30 year term.

George is one of more than 7,300 V.I. homeowners, renters and business owners who have received SBA disaster loans as part of the post-hurricane recovery effort — loans totaling more than \$210 million.

Rufus George's rebuilding plans have been approved, and he's getting estimates from three contractors. The new structure will have concrete columns, "so probably I can sleep better whenever the next hurricane is." He looks forward to completing the work in three to five months.

Persons with questions about the status of their applications may also call the SBA toll-free telephone number, **1-800-659-2955**, weekdays 9 a.m. to 6 p.m.

Volunteer Agencies Continue to Assist Islands' Residents

Volunteers from across the United States and Canada continue to work side-by-side with residents of the Virgin Islands in an effort to recover from the devastating effects of Hurricane Marilyn.

Members of the American Red Cross, the Mennonite Disaster Services, the Lutheran Social Services, Church of the Brethren and two local inter-faiths are working together in repairing homes and providing assistance to affected families. More than 2,000 volunteers have come to the Virgin Islands since Hurricane Marilyn struck last September.

The American Red Cross has implemented its Additional Assistance Program . National representatives are working to aid people in the recovery process.

The Church of the Brethren has two teams on the islands working to repair and reconstruct damaged homes.

The Lutheran Social Services has committed two recovery and reconstruction teams for the next two years.

The Mennonite Disaster Services teams have been present since the early days after the hurricane struck and continue to rebuild homes.

The St. Thomas, St. John and St. Croix Local Interfaiths are gathering funding and local support for the long term recovery operations.

Disaster assistance benefits will not affect your eligibility for Social Security, welfare, food stamps or other federal benefits.

Make sure disaster aid goes to those who deserve it.

**Call FEMA
Fraud Hotline**

1-800-323-8603

Disaster recovery assistance is available without regard to race, color, sex, religion, national origin, age, disability or economic status. If you believe you or someone you know has been discriminated against, you should contact the federal or state Equal Rights Officer.

44 Complete Training Program

After completing five weeks of seminars sponsored by the Federal Emergency Management Agency (FEMA), 44 people on St. Croix have a broader, deeper understanding of what post-disaster reconstruction can and should be all about.

A team of three FEMA specialists in hazard mitigation, the concept of rebuilding *safer, stronger, smarter*, developed and taught the seminars at the new Vocational Technical High School. One session, twice weekly from 4 to 6 p.m., was aimed at high school and college students. Another, the same evenings from 7 to 9 p.m., was for people working during the day.

“As it turned out, both sections were a mix of backgrounds — students, designers, builders, teachers, homeowners doing their own contracting work, and voluntary agency representatives on island to help with recovery work,” program coordinator James Zemlicka said. “We provided essentially the same information to both classes.”

The goal of the 20 hours of free instruction was to orient participants to what Zemlicka calls “the practical applications of constructing a single-family or two-unit dwelling in accordance with the new provisions of the V.I. Building Code.”

Zemlicka and FEMA colleagues Ken Haines and Chuck Hendley called on various guest experts as presenters. As Zemlicka puts it, “The course showed participants how the code applies to them practically,” Zemlicka said.

At the same time, the team developed a workbook specifically oriented to the Virgin Islands and its strengthened building code. Classes, which met from late January to the end of February, were videotaped as well.

From start to finish, the seminars promoted the FEMA concept of rebuilding to lessen the likelihood of damage in a future disaster. Topics covered included site selection and excavation; lot and building layout; foundations and concrete form work; floor, frame, wall and roof construction; and plumbing and wiring. Also addressed were math for builders, alternative energy, plastering, siding, waterproofing, landscaping and recordkeeping.



FEMA Photo by Andrea Booher

Workers repair hurricane damage to roof on St. Thomas.

A Message from Federal Coordinating Officer Jose A. Bravo

When a hurricane, an earthquake or any disaster strikes a community causing destruction beyond the coping abilities of local and state agencies, the Federal Emergency Management Agency may be called upon to respond.

With a disaster declaration from the President, the community becomes eligible for federal assistance programs to help restore homes, businesses and public operations to bring a sense of normalcy back to people’s lives.

Here in the Virgin Islands, the experiences of Hurricane Hugo in 1989 and Hurricane Marilyn in 1995 taught us a valuable lesson: that our fate lies in disaster preparedness, training and hazard mitigation.

There are numerous small, simple steps that individuals and families can take to prepare for a hurricane or any other disaster long before it threatens the community. This publication lists many of them. Taken together, they can make a huge difference.

Specific action taken in the aftermath of one disaster can *lessen*, or *mitigate*, the potential for damage and destruction in another. A strengthened Virgin Islands building code now provides a firm foundation on which to rebuild damaged structures and construct new ones in ways that will reduce the likelihood of such vast destruction in future disasters.

The recovery from a disaster — however long it may take — is a tribute to the many individuals and organizations who work tirelessly to restore lives, and to the resiliency of the victims whose lives are thrown into upheaval. Every blue tarpaulin and each new roof replacing one is a reminder of FEMA’s commitment to continue working with our Virgin Islands partners as long as there is a need.

It is clear that the spirit of Virgin Islanders is strong and resilient. As FEMA continues to work with our federal and territorial partners, our hope is that the community will rebuild *safer, stronger, smarter*, so that the children of the Virgin Islands need not worry about the next hurricane.

Federal Agencies in Action

FEMA

FEMA full time employees and disaster reservists along with people hired from the local community have been working with territorial government officials to provide services including management of disaster assistance programs, damage assessment and operation of recovery information centers. FEMA also provided a contingent from its security force to the operation.

General Services Administration

GSA staff in the territory provided procurement services in conjunction with relief operations. Units from the **U.S. Protective Service** also provided security support to the relief effort.

Department of Transportation

Provided logistical support for the transportation of goods and materials by air and sea. The **U.S. Coast Guard** performed assessments of the Islands' harbors and assisted in the efforts to clear navigable waters. The **Federal Aviation Administration** assisted in reopening the territory's two airports. The **Federal Highway Administration** supported the reopening of the territory's road system.

Environmental Protection Agency

Dispatched a strike force to work in conjunction with the V.I. Department of Planning and Natural Resources, the V.I. Department of Health and the V.I. Water and Power Authority to monitor hazard mitigation, drinking and coastal water conditions, disposal of medical waste and the handling of PCB transformers.

Department of Defense

Provided units of military personnel, vessels, supplies and vitally needed heavy equipment to support the overall relief operations. The **Army Corps of Engineers** responded to various requests to provide direct and technical support assistance in the repair and emergency operation of vital public facilities.

Department of Health and Human Services

Coordinated a variety of federal health-related agencies in a task force designed to provide assistance to damaged health services.

Department of Justice

Provided U.S. Marshals to support the territorial request for security personnel. Agents of the **Federal Bureau of Investigations** (FBI) were also assigned to the security detail. **Department of Justice** community relations staff operated in St. Croix and St. Thomas.

Department of Interior

Provided a security detail from the **National Park Service** to support law enforcement operations.

U.S. Small Business Administration

Provided loan officers to help individuals and business owners apply for low-interest disaster assistance loans.

Department of Agriculture

Participated in mass feeding and emergency food stamp distribution programs. Provided agents from the U.S. Forest Service to the law enforcement component. Twenty-one members of President Clinton's national service program, Americorps, assisted in the disaster relief efforts.

Department of Housing and Urban Development

Assisting territorial housing agencies by providing training and other technical assistance to meet emergency housing needs.

Department of Energy

Worked with public utilities to ensure the return of power and telephone service to the islands.

Recovery Times is published by the Federal Emergency Management Agency and the Virgin Islands Territorial Emergency Management Agency with help from other federal, state, and voluntary agencies to provide timely and accurate information about disaster recovery programs for victims of Hurricane Marilyn. Comments and inquiries about *Recovery Times* may be directed to **1-800-525-0321**.

Jose A Bravo,
Federal Coordinating Officer

General Rudolph Francis,
Territorial Coordinating Officer

Morrie Goodman, Director of Strategic Communications, FEMA

Barbara Yagerman, Editor, FEMA Office of Emergency Information and Media Affairs

Bill Riley, Managing Editor

RECOVERY TIMES

Internet/WorldWideWeb <http://www.fema.gov>

DR 1067

FEMA

500 C Street S.W. Room 820

Washington, D.C. 20472

Official Business - Penalty for Private Use \$300

BULK RATE
POSTAGE &
FEES
PAID

Federal Emergency
Management Agency
Permit No. G-114



Surviving the Storm

A Guide to Hurricane Preparedness

June 1996



FEMA Photo by Andrea Booher

This home stands in sharp contrast to the two homes in the background which were built with adequate hurricane connections from roof to ground.

Safer, Stronger, Smarter

Building to Survive the Storm

In the aftermath of Hurricane Marilyn, it is clear that some buildings survived better than others. Although weather patterns can account for some differences, many structures sustained less damage as a result of building design and construction techniques appropriate to this hurricane-prone area.

This is the reward of using hazard mitigation — the concept of building *safer, stronger and smarter*.

How to get it done

Get detailed information from the Department of Planning and Natural Resources (DPNR) on design and construction techniques appropriate to the Virgin Islands.

Use metal hurricane straps to connect your roof at the ridge and to the walls. Straps are easier to attach when a roof is being built or repaired, but they can be installed on undamaged existing roofs.

Have the contractor tie your house

down from top to bottom with hurricane- and earthquake-resistant connectors or the appropriate masonry or concrete reinforcing.

Have hurricane shutters properly installed. Permanently installed shutters are recommended for homes with large glass areas.

When you consider purchasing a home, look for such hazard mitigation features as hurricane straps. If the house is new, review the final inspection report issued by DPNR. Seek expert advice.

Beware of building or buying in flood-prone areas. At DPNR, maps are available showing these areas in the Virgin Islands, along with personnel to advise on how to protect yourself and your home from flood problems.

Remodel to strengthen such structural elements of your home as walls, beams and columns. The DPNR Building Division staff can provide information and assistance.

Tropical Depressions Produce Deadly Storms

Hurricanes develop from tropical depressions (sustained winds up to 38 mph) to tropical storms (winds 39-73 mph) before becoming hurricanes (winds 74 mph or more).

The winds, a product of extremely low pressure zones powered by moisture from the sea and heat from condensation, spiral downward counter-clockwise. If the barometer drops below 1,000 millibars (29.53 inches), you should start monitoring weather broadcasts on the radio.

Usually the most dangerous part of a hurricane in the eastern Caribbean is the northeastern quadrant.

Wind gusts within a hurricane may exceed the sustained winds by as much as 50 percent. The time between the first rise in wind and a return to moderate levels is often 24 hours or more. But this varies greatly, depending on the size of the hurricane, its forward speed and its path. Rainfall also varies with these factors. As a hurricane passes through an area, 5 to 30 inches of rain may fall.

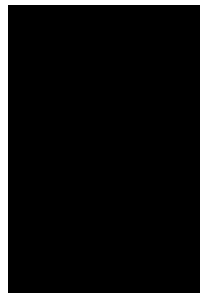
Keep in mind that a hurricane does not have to be a direct hit to cause great damage and that the course and intensity of a storm can change as it approaches your area.

Low pressure and strong winds around the hurricane's center raise the surface of the sea a foot or two higher than the surrounding water in a dome sometimes 50 miles across.

As the storm reaches shallow coastal waters, the dome becomes a surge that can rise 20 feet or more. The surge may smash onto land as a whole, producing massive destruction and flash flooding of coastal lowlands, or it may come ashore in a series of giant waves.

The highest storm surge is usually from near the eye of the hurricane in the quadrant where winds are blowing toward shore.

A storm surge can crush vessels and structures, erode miles of beach and undermine poorly anchored low-lying buildings.



A Message From Gov. Roy L. Schneider

Our hurricane season begins with Hurricane Supplication Day on the fourth Monday in July and continues to Hurricane Thanksgiving Day, or Local Thanksgiving Day, on the third Monday in October.

According to the chair of the International Decade for Natural Disaster Reduction, losses from natural disasters increased threefold between 1960 and 1980, with losses in 1992 exceeding \$62 billion. While world population has doubled between 1960 and 1990, disaster losses have increased 10 times.

The reasons for this are many: population density has substantially increased, especially in highly desirable but high-risk coastal and beachfront areas; greater population requires use of more marginally safe land; high-rise buildings are more prone to major damage; and increasingly costly personal effects are subject to damage and loss. This is compounded by a trend toward more frequent, larger-scale natural disasters.

To save lives and limit damage, we must reduce risk by enforcing hurricane-resistant building codes. Successful hazard mitigation depends upon well-trained government officials, and a public prepared and educated about what to do.

Educate your family on how to protect themselves and your home before, during and after a storm. Understanding and using the information in this publication is a most important step in the protection and mitigation process.

Territory's Agencies Continue Recovery Effort

Nearly 2,000 people representing more than 18 territorial agencies and departments are continuing to respond to the needs and concerns of the people of the U.S. Virgin Islands in the wake of Hurricane Marilyn according to Territorial Coordinating Officer General Rudolph Francis.

“Primary responsibility for recovery operations is vested in the Virgin Islands Territorial Emergency Management Agency (VITEMA),” General Francis said. “VITEMA continues to coordinate the territory’s response with federal authorities as well as working with our own agencies to get the job done.”

Efforts to rebuild the homes, businesses and infrastructure of the islands have moved along steadily since last September. In addition, VITEMA has been working to improve the government’s ability to prepare for and respond to future disasters. “As we continue to pick up the pieces from Marilyn, we must be ever vigilant that this could happen again,” General Francis said. “The territory has made great strides, most notably by adopting the new building code and Emergency Operations Plan.”

Hurricane Preparedness Tips

When a hurricane threatens your area, you must decide whether to evacuate or ride out the storm at home. Listen to the radio for weather advisories, and if authorities recommend evacuation for your area, leave promptly.

In general, plan to leave if you live on the coast or in a low-lying area not far inland, in a mobile home, or aboard a boat. You also should leave if you know your home is not structurally sound or if it is in an area that continually floods or is near a stream or gut likely to overflow in heavy rainfall.

If you need to seek emergency shelter, wait for notification from the American Red Cross officials of shelter locations.

Public shelters are set up as a temporary, emergency means of caring for people. A shelter’s primary function is to provide a roof over your head. Food, blankets and amenities may not be available. Pets, weapons, alcoholic

beverages and non-prescription drugs are not allowed in shelters. Smoking may be banned.

If you go to a shelter, travel light. Put everything into a portable disaster kit, including:

Non-perishable food

Drinking water (two quarts per person per day)

Valuable papers such as your driver’s license or other identification, bank books, insurance policies, property inventory and photographs

Eating and cooking utensils, can and bottle openers

Toiletries and sanitary supplies

Medications, prescriptions, important medical information, eyeglasses, cleaning solution for contact lenses, hearing aid, and walking aids.

Rope

Portable radio with extra batteries

Flashlight with extra batteries

Blanket or sleeping bag for each person

Small valuables such as photographs

Before you leave your home:

Unplug all electrical appliances and machines and store them as high as possible. If a machine is too heavy to move, disconnect and move the electric motor.

Turn off electricity at all breakers plus the main switch. Label breakers to identify what the lines carry.

Store toxic materials as high as possible in the most protected area available.

Leave several small windows partly open to maintain equal air pressure inside and outside the home.

Agree with family members on a location to meet or a means of reaching one another with messages in the event you become separated.

Severity of Damage Linked to Wind Speed

The amount of damage you can expect from a hurricane is directly linked to the wind velocity of the storm. Winds in an intense storm may reach a sustained velocity of more than 150 mph with gusts up to 200 mph.

The National Hurricane Center uses the Saffir/Simpson scale that classifies storms into five categories. Here is a summary of possible damage to shorelines and vessels in each case.

CATEGORY 1

Winds 74-95 mph, storm surge four-to-five feet above normal. Flooded low-lying coastal roads, minor pier damage, some small craft in exposed anchorages torn from moorings.

CATEGORY 2

Winds 96-110 mph, storm surge six-to-eight feet. Coastal and low-lying roads leading inland flooded two to four hours before the hurricane eye passes over. Piers damaged, marinas flooded, small craft in unprotected anchorages torn from moorings.

CATEGORY 3

Winds 111-130 mph, storm surge nine-to-twelve feet. Smaller structures destroyed by coastal flooding; larger structures destroyed by battering waves and floating debris. Low-lying roads leading inland flooded three-to-five hours before the eye passes over.

CATEGORY 4

Winds 131-155 mph, storm surge 13-18 feet. Flooding of flat terrain up to 10 feet above sea level as far as six miles inland. Major flooding and wave battering damage to lower floors of structures near shore. Low-lying roads leading inland flooded three-to-five hours before the eye passes over. Major beach erosion.

CATEGORY 5

Winds above 155 mph, storm surge more than 18 feet. Major damage to lower floors of all structures less than 15 feet above sea level within 500 yards of shore.



FEMA Photo by Andrea Booher

High winds from Hurricane Marilyn left only one interior wall standing in this St. Thomas home.

Know Your Weather Terminology

ADVISORY. Hurricane and storm information disseminated to the public every six hours.

INTERMEDIATE ADVISORY. Information update every two-to-three hours, or as necessary.

SPECIAL ADVISORY. Information disseminated with any significant change in storm-related weather conditions or warnings.

GALE WARNING. An advisory of 39-54 mph sustained winds and strong wave action.

STORM WARNING. An advisory that sustained winds of 55-73 mph are expected.

HURRICANE WATCH. An indication that a hurricane may threaten a specific area but is not imminent.

HURRICANE WARNING. An advisory that a hurricane is expected to strike the specified area within 24 hours or less, with sustained winds of 74 mph or higher and dangerously high water and waves.

TROPICAL DISTURBANCE. A moving area of thunderstorms in the tropics.

TROPICAL WAVE. A westward-moving, low-pressure trough in the deep easterly current that tends to organize low-level circulation and sometimes travels

thousands of miles with little change in shape, producing showers and thunderstorms along its path.

TROPICAL DEPRESSION. An area of low pressure, rotary circulation of clouds and winds up to 38 mph.

TROPICAL STORM. Counterclockwise circulation of clouds and winds of 39-73 mph. At this stage the storm is assigned a name.

HURRICANE. A tropical storm with winds of 74 mph or more.

HURRICANE CENTER or EYE. The relatively calm area near the center of the storm which can last from several minutes to more than an hour.



Caution!

When venturing out after a storm be certain to stay away from downed power lines as they present a danger of electrical shock or electrification.

**For Flood Insurance
Information Call
1-800-427-4661**

Hurricane Preparations: Know What to Do

A Hurricane Warning Means Get Ready

A **hurricane warning** is issued for an area when a hurricane is expected to strike within 24 hours. If you know your home is structurally sound and not from likely to flood and you decide to ride the hurricane out, there are many simple but important precautions to take before the storm strikes. For your own well-being and that of others:

Listen to the radio for advisories and emergency information from officials of VITEMA and other agencies.

Limit telephone calls to short, essential messages.

If you are elderly or disabled, consider asking a friend to stay with you.

If you have room, consider giving refuge to neighbors, relatives, or elderly or disabled persons who live in a flood-prone area.

If a doctor has advised that any ill or disabled persons in your home stay elsewhere, move them early.

If you don't have a vehicle, arrange ahead of time for transportation in case evacuation becomes necessary.

When you complete your precautions, offer to assist neighbors, particularly families with very young, elderly or disabled persons.

As the Hurricane Approaches

OUTSIDE

Disconnect and take down any TV antenna or small satellite dish.

Plug cistern intakes, disconnect downspouts, cover low-level overflow pipes and protect exposed cistern access covers.

Remove or roll up and lash canvas awnings. Close and secure shutters. If you don't have shutters, board windows and sliding-glass doors. Cover screens in plastic trash bags and make sure they are securely in place.

Secure outdoor items that might blow away or be torn loose and hurled through the air by the wind.

Move carts and trailers from under trees and turn them over or remove the wheels.

Cut down dead tree limbs and palm fronds and remove them, along with limbs on the ground near your home. Pick any fruit on your trees.

Drain swimming pools about halfway. Disconnect the power and add extra chlorine to the water. If the filter pump is exposed, wrap it with a waterproof covering and tie it in place.

Fill buckets with sand and take them inside for use if fire breaks out.

Park vehicles in a garage or away from trees, utility poles and guts. Set emergency brakes.

INSIDE

Tape windows and sliding-glass doors with strong masking tape in large X's. Draw drapes and close blinds.

Make sure door and window locks hold securely. Wedge sliding glass doors with braces or broom handles to prevent their being lifted off the tracks or ripped loose by wind or vibrations. Have towels ready in case rain seeps in.

Move furniture away from exposed doors and windows.

Wrap glass objects, artwork, photographs, fragile items of sentimental value, tools, electronic equipment and small appliances and store them in a protected

area. Do the same with jewelry, titles, deeds, insurance papers, licenses, stocks and bonds and inventory lists after placing them in waterproof containers.

Sterilize the bathtub, washing machine and other containers with bleach and let them dry. Line the tub with plastic to prevent drain leakage and fill it and the other containers with water for drinking, cooking, washing and bathing. (Note: Boil this water before drinking it.)

As hurricane winds strengthen, disconnect power at the master switch. If power is still on, don't touch electrical equipment in a wet location unless you are standing on a piece of dry wood and wearing rubber footwear and gloves.

During the Hurricane

Remain indoors. Wind, downed live power lines and falling or flying trees and debris all pose serious danger.

Open small windows slightly on the side of your home away from the wind. When the wind changes direction, close those windows and open some on the other side. The difference in atmospheric pressure inside and outside in a hurricane can blow open a window or door or make an airtight house collapse.

Stay on the side of the house opposite the direction the wind is coming from. As the wind shifts, move to a room on the opposite side. If you have a room within a room, such as a bathroom, stay there during the height of the hurricane. Keep away from windows and glass doors.

Don't go out during the calm as the eye of the hurricane passes overhead. The wind may cease for several minutes or for an hour or more, and the sky may clear, but this is only the mid-point of the hurricane. The lull will end suddenly as the wind strikes from the opposite direction, rising rapidly to hurricane force, often stronger than before.

If the roof blows off or the house shows signs of collapsing, take cover in a room within a room such as a bathroom or under a stairway, strong table or door frame.

Make the effort to remain calm and encourage your family members, especially children, to stay calm. Stay inside until you are absolutely sure it's safe to go out again.

Surviving the Storm is published by the Federal Emergency Management Agency, and the Virgin Islands Territorial Emergency Management Agency. Comments and inquiries about *Surviving the Storm* may be directed to 1-800-525-0321.

Jose A. Bravo,
Federal Coordinating Officer

General Rudolph Francis,
Territorial Coordinating Officer

Morrie Goodman, FEMA, Director of Strategic Communications

Bri Rodriguez,
FEMA Regional Public Affairs Officer

Barbara Yagerman, Editor, FEMA, Emergency Information and Media Affairs

Bill Riley,
Managing Editor
SURVIVING THE STORM
Internet/WorldWideWeb <http://www.fema.gov>
DR 1067

What to do Before the Storm Strikes



The destructive force of hurricane winds is evident in the damage to these homes in St. Thomas.

FEMA photo by Andrea Booher

Animals Need Help, Too

Here are ways to protect your pets and livestock as a hurricane approaches:

Put identification tags on the animals. Do not leave pets outside or tied on leashes.

If you remain at home, bring pets inside with you. Have newspapers on hand for sanitary purposes. Feed the animals moist or canned food so they will need less water to drink.

Carry birds and chickens into the house in a cage. Put larger livestock on the loose in an open field with plenty of food and water.

If you are not going to stay in your home during the hurricane, arrange to leave your pets with your veterinarian or friends, or leave them loose inside your home with food and plenty of water. Remove the toilet tank lid, raise the seat and brace the bathroom door open so they can drink.

Remember, public shelters usually will not take pets.

In case of a Hurricane Watch

A hurricane watch is issued when a hurricane may threaten an area but is not imminent. At this point, you should immediately begin to gather the survival supplies and materials that you will need in the event that a hurricane reaches your area. Some examples:

Materials to protect glass windows and doors (shutters, plywood, masking tape) and the tools to install and apply them.

Several days' supply of canned food and beverages and non-perishable foods that don't need refrigeration or cooking. Buy food and beverages in containers and packages that will allow for immediate consumption with no leftovers.

An adequate supply of needed prescription drugs, other medications and basic first aid supplies.

Filled fuel tanks and safe battery water levels on your vehicles.

A good supply of clean clothing and linens.

A transistor radio and flashlights that work, along with fresh batteries to last several days.

Several days' supply of candles, and matches stored in a waterproof container.

In addition, you should:

Be sure all doors are watertight.

Use bleach to clean the bathtub, washing machine and containers with covers to store water for drinking, cooking and washing for several days. For drinking, you will need containers with covers to hold two quarts of water per person per day. (If you rely on commercially bottled water for drinking, be sure to have several days' supply on hand.)

Know how to use any fuel-operated lanterns you have safely, and have several days' supply of fuel.

Be sure your fire extinguishers are fully charged.

Know where your main turn-off switches are for electricity, water and gas.

If there are ill or disabled persons in your home, ask a doctor on where they should stay in the event a hurricane approaches your area. If relocation will be necessary, have plans in place.

Make arrangements ahead of time if you want to board pets at a veterinary facility.

Hurricane First Aid Kit

Hydrogen peroxide or Betadine solution

Rubbing alcohol

12 gauze bandages (4" x 4")

1 roll 1/2" adhesive tape

1 roll 2" gauze bandage

Antibiotic cream

Box of adhesive bandage strips

Aspirin or acetaminophen

Petroleum jelly

Eye drops

Clean fabric for sling

Baking soda or Epsom salts

Milk of magnesia

Cotton swabs



FEMA Photo by Andrea Booher

These coastal homes suffered extensive damage from the high winds and tidal surge of Hurricane Marilyn.

Flood Insurance:

The Best Protection Money Can Buy

Most homeowners' policies do not cover flood damage. Fortunately, however, federally backed flood insurance protection is available through the National Flood Insurance Program (NFIP).

NFIP coverage is available from any property and casualty insurance agent or broker. Homeowners can get up to \$250,000 in coverage; businesses, up to \$500,000.

Flood insurance is available for virtually any building that is walled, roofed and principally above ground, along with building contents. Separate policies are needed for each structure.

Building owners can insure both structure and contents; renters and condominium owners, only the contents of their units. Condo associations should insure such commonly owned areas as walls, roofs, floors and stairways.

Mobile homes can be insured if they are on a permanent foundation and anchored to resist flotation, collapse or lateral movement.

NFIP rates are set by the federal government. A 30-day waiting period applies from the date of application until coverage becomes effective with payment of the premium.

If property is located in a Special Flood Hazard Area on the V.I. Flood Insurance Rate Map, flood insurance must be purchased to be eligible for any federal or federally related financial construction or acquisition assistance.

Those who live in Special Flood Hazard Areas and receive federal disaster loans or grants are required to purchase and maintain flood insurance. Otherwise, many forms of disaster assistance may be denied in future floods.

Since 1969, the NFIP has paid over \$6.9 billion in claims to policyholders. Currently, the NFIP protects more than three million policyholders with more than \$330 billion in coverage. All NFIP claims and operating expenses are paid by policy premiums. No federal tax dollars are used for this purpose.

Emergency Planning Could Save Your Business

If a hurricane is threatening the area where your business is located, take the following steps:

Photograph your business establishment, inside and out, from all angles, to help substantiate any insurance claims later.

Assemble papers such as insurance policies, checkbooks and financial records, and pack them in waterproof containers.

Arrange to pay your employees, preferably in cash, as it may be some time before banking institutions reopen after a hurricane.

Clear out areas with extensive glass frontage, as much as possible. If you have shutters, use them. Otherwise, board up windows and glass doors. To reduce shattering, use strong masking tape in an "X" pattern on the inside of each glass panel.

Remove outdoor hanging signs.

Bring inside or secure any objects that might become airborne and cause damage in strong winds.

Secure and tape showcases, turning the glass side toward an inside wall where possible.

Store as much merchandise as high off the floor as possible, especially goods that could be in short supply after a storm.

Move merchandise that cannot be stored away from windows and glass skylights, and cover it with tarpaulins or heavy plastic.

Open small windows slightly to equalize pressure as the hurricane passes through.

Secure generators, along with the fuel needed for its operation.

Secure all goods in warehouses above the water level, and place sandbags in spaces where water could enter. Remove lower drawers from file cabinets, put them in plastic trash bags and store them on top of the cabinets.

Turn off gas, water heaters, stoves, pilot lights and other burners.

A Boater's Guide to Hurricane Readiness

Planning, preparation and timely action are the keys to saving lives, preventing injury and reducing property damage to pleasure boats and live-aboard vessels in a hurricane.

Each boat owner needs a plan specific to the vessel, for where it is normally kept and for where it might be moved for protection.

PRIOR TO HURRICANE SEASON

See that your vessel is in sound condition. Check out the hull, deck hardware, rigging, ground tackle, machinery and electronics; be sure batteries are charged, bilge pumps are operable and all equipment is secured. Absentee owners should arrange for a haulout or supervised inspection.

Inspect primary cleats, chocks, winches, bits and bollards. Be sure they have substantial backplates and adequate-size stainless steel bolts.

Acquire any needed *emergency gear* such as extra mooring lines, screw anchors, fenders, fender boards, chafing gear and anchors.

Identify hurricane holes and safe harbors in the area, assemble emergency equipment and supplies, come up with a *refuge plan* — and then *practice* it to see how much time and work are involved and what aspects need to be revised.

Make sure your *insurance coverage* is current; read the policy thoroughly for information relative to the coverage, exclusions and your responsibilities as the vessel owner.

Assemble your insurance policies, boat registration, a recent photograph of the vessel, gear inventory, marina or storage lease agreement and important telephone numbers — the local harbormaster, Coast Guard, National Weather Service, insurance agent — and put them in a secure place off the boat.

Know your responsibilities and liabilities as well as those of the marina or storage facility, if you keep your boat tied up or in storage.

Inventory items to be removed from the boat and items to leave aboard; keep copies on board and ashore. Mark valuable items for identification.

WHEN A HURRICANE WATCH IS ISSUED:

Monitor marine radio weather reports continuously.

Identify the safest reachable haven and move your boat there at least 48 hours before a hurricane is expected to strike your area.

Have written copies of your *hurricane plan* aboard and with associates on shore; be sure family members and crew read and understand it.

See that fuel tanks are full, fuel filters are clean, batteries are charged, bilges are clean, cockpit drains are clear, firefighting equipment works and livesaving equipment is in good condition and readily accessible.

Make anchoring or mooring provisions. Check the condition of existing mooring hardware and lines.

Ensure watertightness above and below the waterline by sealing hatches, windows and doors with duct tape if necessary, shutting seacocks and capping off or plugging unvalved through-hull fittings.

Remove all equipment on deck that you can, including roller furling sails. Lash down everything you cannot move, such as tillers, wheels and booms.

Double all lines. The second set of lines should be a size larger than the regular ones. Rig crossing spring lines fore and aft. In a mangrove lagoon, use nylon line only, attaching it to big trunks. At a marina with strong pilings, attach lines high on them to allow for surge and install preventers so they cannot slip off the top. To prevent chafing, use double neoprene hose, or wrap lines at rough points with tape, rags or other protective material. Put out fenders and fender boards to guard against rubbing against pilings, pier and other vessels. If possible, occupy two slips, rather than one. Recheck the attachment of primary cleats, winches and chocks.

See that your *batteries are fully charged* to operate automatic bilge pumps for the duration of the storm. Consider backup batteries. Cut off all devices consuming that use electricity except bilge pumps.

WHEN A HURRICANE WARNING IS ISSUED

Continue to monitor marine radio reports continuously.

Prepare to have all aboard leave the vessel. Boat owners unwilling to do this must weigh the desire to stay aboard carefully. **Of eight confirmed deaths in Hurricane Marilyn, at least seven, were individuals who remained aboard boats.**

AFTER THE HURRICANE

Check the condition and security of the vessel as soon as it is safe to do so.

If it has been damaged, take immediate action to save the vessel and/or equipment and prevent further loss or damage — this is a requirement of all marine insurance. Notify your insurance agent as soon as you can.

Pickle the engine immediately and purge the boat of marine life and saltwater.

Report any theft or vandalism loss or damage to law-enforcement authorities promptly; obtain a copy of the incident report or at least its number.

If salvage removal of the vessel is necessary and you must make arrangements yourself, read the salvage contract, and find out where your vessel is being taken and if security is to be provided.

Take Special Precautions With Mobile Homes

Mobile homes are particularly vulnerable to hurricane-force winds. Do what you can to secure your home, and then take refuge with friends or relatives or at a public shelter. But before you leave, be sure to take the following suggested precautions:

- Wrap breakables, pack them in boxes and put the boxes on the floor.
- Remove and tape mirrors. Place lamps and mirrors in the bathtub or shower wrapped in blankets.
- Tape X's on the inside of windows and slightly open those on the side away from the approaching wind.
- Disconnect electricity, sewer and water lines. Shut off propane tanks. Leave the tanks outside and anchor them securely.
- Store awnings, cabanas, folding furniture, trash cans and other such outdoor objects.
- Use over-the-top and frame ties to anchor the mobile home.

HURRICANE TRACKING CHART

REMEMBER: hurricanes are large powerful storms that can suddenly change directions.

Check frequently on the storm's progress until all Watches and Warnings for your area from the National Weather Service are canceled.

HURRICANE WATCH: hurricane may threaten within 36 hours

- Be prepared to take action if a warning is issued by the National Weather Service.
- Keep informed of the storm's progress

HURRICANE WARNING: hurricane expected to strike within 24 hours

- Leave beachfront and low-lying areas.
- Leave mobile homes for more substantial shelter.
- Stay in your home if it is sturdy, on high ground, and not near the beach, but if you are asked to leave by authorities **Go!**
- Stay tuned to radio, NOAA Weather Radio, or television for hurricane advisories and safety information.



Scale

