

LITTLE HURRICANE BOOK

Charles V. Balch, Revision 1.0

Before Hurricane Season

Examine your house. Think about wind coming from all possible directions and perhaps reversing itself. Is your house safe enough to stay in? If you are not sure, have a contractor examine your house. A pre-season checklist should include the following:

Install hurricane shutters or prepare precut $\frac{3}{4}$ " marine plywood for all openings to your home. Install anchors for the plywood and predrill holes in the plywood so that you can put it up quickly. Number or label the plywood so you know what goes where.

Make trees safer and more wind resistant by removing diseased or damaged limbs, then strategically removing branches so that wind can blow through. Consider where trees may fall so you can remove or brace

Essential Hurricane Kit

First aid kit and essential medications

Canned food and can opener

At least three gallons of water per person (one gallon of water per person for at least 3 days; often more is needed.) More if you want showers.

Protective clothing, rainwear, and bedding or sleeping bags

Battery-powered radio, flashlight, and extra batteries

Special items for infants, elderly, or disabled family members

Written instructions for how to turn off power, gas and water.

Good Hurricane Kit

Deluxe Hurricane Kit

Solar Power

Consider a single side band radio receiver (I've been using the Sony ICF-SW7600G)

During Hurricane Season

Weather information

Knowledge of what is out there is critical. During hurricane season, check the weather at least daily. The best weather is from the cable weather channel. Tropical weather is usually in the last 15 minutes of the hour. Satellite photos in the Daily News are nice but little interpretation is provided. The best AM weather is provided by WOSO (1030 AM on Puerto Rico, weather around 12 minutes after the hour) and Lucky 13 (1340 AM on STT, weather around). Unfortunately, none of the FM stations impressed me with their weather reports. There are a few terms to know:

Hurricane Watch

Hurricane conditions are possible in the specified area of the watch, usually within 36 hours.

Hurricane Warning

Hurricane conditions are expected in the specified area of the Warning, usually within 24 hours.

Listen to the advice of local officials, and leave if they tell you to do so.

Complete preparation activities.

If you are not advised to evacuate, stay indoors, away from windows.

Be aware, the calm "eye" is deceptive; the storm is not over. The worst part of the storm will happen once the eye passes over and the winds come from the opposite direction. Trees, shrubs, buildings, and other objects damaged by the first winds can be broken or destroyed by the second winds whose force is opposite the first winds.

When a storm is Immanent

During the Storm

Just after the storm

Listen to the radio to find what channel the Emergency Recovery Network is on. It will probably be Lucky 13 (1340 AM).

After the Storm

Insurance

Public adjusters.

Safety Tips

Walk or drive cautiously. Debris-filled streets are dangerous. Water can undermine roads and road structures which may collapse under vehicle weight.

Rodents, bugs and other pests may be a hazard. Don't leave (spoiled or otherwise) food out.

Don't expect buildings to be safe. Check for structural damage and make sure it won't collapse. Turn off all outside gas lines and allow gas to escape. Don't use open flame as a light source. Use a battery-operated flashlight. If the building has been flooded, mold spores will be present. Consider using a scarf or a face mask.

Be sure children are safe and observed at all times. Never leave young children alone or allow them to play in damaged buildings or areas that might be unsafe.

Keep chemicals used for disinfecting and poisons used for insect and rodent control out of the reach of children.

Wear protective clothing on legs, arms, feet and hands while cleaning up debris. Wear rubber gloves while scrubbing flood-damaged interiors and furniture.

Water

If no water is available consider working in the rain. Pool water works well to. You'll ruin your back pulling water out of a cistern.

Weather & News Information

First, rumors are going to be wild. Don't believe them. It is very frustrating to hear weather forecasters talking in what seems to be the same old recording without details of what's out there. You probably won't have the cable weather so your options are limited. The best pre-storm weather information that I found was from the Internet (see list of URLs in back). Second best is the Ham net and SSB

Staying Healthy

Food

EAT! Don't go on a "hurricane diet." You're probably using more calories than usual and stress has a way of stealing appetites. Eat a variety of good healthy food even if you don't feel hungry. Drink plenty of fluids. Alcohol is certainly fluid and may seem like one of the essential food groups. Your author won't argue (whatever gets you through the night) but don't ignore the other essential groups.

As a last resort, the government and other agencies provide food. But it's a lot more self satisfying to provide your own food.

Refrigeration is one of the first things to go. Sigh. With no ice in sight for weeks to months, we all hate to watch the freezer die. So how long does a fridge last? First, without power forget the refrigerator part. Most of the food you keep in there will either go in a couple hours or last for days. The freezer is different. With the freezer door closed all the time, foods usually will stay frozen at least a day, perhaps two or three days, depending on insulation. Food in a good 4-cubic-foot home freezers will not begin to spoil in fewer than three days; in 12- to 36-cubic-foot freezers you have up to five days.

Open the freezer and die! Only to take out the food or to add ice. Thawing rate depends on:

The amount of food in the freezer. A full freezer stays cold longer than a partially-full one (all the cold air goes pouring out).

The contents of the fridge. The more frozen water the longer food will last. A freezer filled with meat stays cold longer than a freezer filled with baked goods. Consider freezing a bunch of gallon jugs of water before the storm. To allow for expansion, jugs should be about 2/3s full. Jugs will take about 24 hours to freeze so you should put them in long before a storm is immanent.

The temperature of the fridge. The colder the food, the longer it will stay frozen.

The freezer. A well-insulated freezer keeps food frozen longer than one with little insulation. The larger the freezer, the longer food stays frozen. The quality of the door seal. Clean the seal before the storm.

While one of the few things nice things about a storm is the orgy of fine eating as you try to consume all those goodies that you've been hoarding in your freezer before it thaws and spoils, some food should be discarded:

Discard packaged food whose containers has not protected the inside of the package. Look for food in these containers that is normally finely divided (powdered or granulated) but is now caked or not free-flowing. Discard foil packages which show stain(s) on the inner paper wrapper.

Discard bulging, rusty, or leaking cans. Cans which have been tossed about may have been weakened or broken seals. Examine them closely.

Discard Commercially-bottled carbonated beverages, if the cap is crusted with silt; don't attempt to wash, since pressure in bottles may cause an explosion.

Discard all spoiled food (I have to tell you this?) Most lunch meats and such are gone in two hours or so. Red meats will probably last up to 12 hours (don't trust your nose on these). Read on for more information.

Partial thawing and re-freezing reduces the quality of foods, particularly fruits, vegetables and prepared foods. Red meats are affected less than many other foods. Perhaps disasters are the one time that most agree that red meat is good for you.

Longer term food sources are problematic but not impossible. Your author likes to cook and has lived aboard a boat without refrigeration for the last seven years. No problem.

Selection of food is important. I have found the following to be true for me without refrigeration. Your results may vary. Like life, if it smells or looks bad don't eat it. (Personal preferences vary). ☺ Don't take chances...

Eggs last for weeks. If you can find unfertilized eggs that have never been refrigerated, they last longer.

Mayonnaise and ketchup last months. Other condiments vary. Forget mustard and horseradish. Soy sauce lasts forever. Things last better when you use a clean utensil.

Hard cheeses last a long time and I think the flavor improves. You may need to scrape off some mold - go ahead, the stuff doesn't dig in. Soft cheeses and butter don't last long. Those squeeze margerines last forever. Of course powdered and canned milk will last forever.

Vegetables and fruits will have most of their "normal" refrigerator life span. Potatoes and onions last until the end of time.

Meat must be used quickly but last longer if cooked. Red meat lasts the longest. Fowl and sea food have very short unrefrigerated life spans.

In general, I ask myself would this be something a bug like to live on? Mushy and liquid foods go off quick.

Cooking meals can be difficult and even hazardous.

Ideally you have a gas range at home. They really are the best for cooking at all times. Charcoal or gas grills are the most obvious alternative sources of heat for cooking.

(Your author has successfully cooked both lasagna and pizza on a grill). Never cook on grills or camp stoves that use gasoline or solid fuel in an enclosed area. You risk both asphyxiation from carbon monoxide and the chance of starting a fire that could destroy your home. As a last resort, if you have access to an electrical generator, small electrical appliances can be used to prepare meals. Be warned that these devices use a LOT of power.

If you have to build a fire outside, build it away from buildings, never in a carport. Make sure any fire is well-contained. Sparks can easily get into the ceiling and start a house fire. Never use gasoline to get a wood or charcoal fire started. A charcoal grill is a good place in to build a wood fire. Be sure to put out any fire when you are through with it.

Even with a gas grill with its practically unlimited burning time, there are a number of considerations in disaster cooking. Leftovers will not keep well. You will probably need to buy less food more often. With limited resources you may wish to organize one-pan meals like casseroles. Clean up is easier if you cook and eat out of the can/pan. Not necessarily romantic but easier. Perhaps you could think of it as love among the ruins.

When cooking is not possible, a lot of canned food can be eaten cold. Consider canning your own. Yes, that old process involving a pressure cooker and jars. (Why do they call it canning when jars are used.) When compared to freezing, meals taste better when preserved by canning. They certainly last a long time. I've opened jars canned years before that tasted fresh. To can, you will need a pressure cooker and canning jars. K-mart sells both. If you get serious about canning, buy a professional canning machine for about \$100. I bought mine from Naco Restaurant Supply on STT. The process is something like this. Cook the meal, put the meal in a jar with a lid, then sterilize the jar under heat and pressure. I've never had a problem with my canners! Jars are about eight bucks a case but can be reused. I find the pint size great for individual use and the quart size good for larger groups. Only get wide mouthed jars. I run about a 1% loss rate. That is I discard the contents of about 1% of my jars (usually because the lid is bulging).

Finally you may wish to consider purchasing some survival supplies.

Mosquitoes and Other Bugs

Use insect repellent. Spray

Cleaning Tips

Begin cleanup as soon as possible. The job only gets worse and your peace of mind will be improved once your nest looks better. No matter how big the task, it will get

done one step at a time. After health, immediate concerns are to remove standing water; debris; salt and mud residue; then moisture.

As always, it's best to have safely stored supplies before the storm.

See the Water section on page 1. You'll need lots.

Consider the source of water and debris. No, don't get mad at your neighbor cause their roof is on your car. That hurricane that lifted roofs and took leaves off trees easily carried salt water spray for miles. The only thing in your home that likes salt water is the fish going bad in your freezer. Even worse than salt are other contaminants. Did a local sewer/septic tank backup? That leaf soup that seeped onto everything is busy making a bush tea that will stain everything. Hopefully you paid attention to earlier parts of this writing and that tea is not in your cistern! What about bottles of chemicals that may have spilled?

Assistance makes a job a lot less intimidating. Friends should help each other. Consider the inexpensive labor provided when you open your home to those less fortunate than you. If possible, hire professionals, they have the knowledge, tools and really cool chemicals. Besides, it's one less headache for you. As professionals (or the money to pay them) are often in short supply, the following tips are included. Most insurance policies provide money for cleanup -- your friends may wish to become contractors.

On to the cleanup...

Cleaning Agents

The right type of cleaner can makes any job easier. The best product removes soil, also kills bacteria, a wide variety of microorganisms, and does not damage your intended surface. Disinfect everything. The word disinfectant must appear on the label if the product is effective in killing microorganisms.

Liquid chlorine bleach is the most accessible, cheapest and easiest disinfectant to use. Unfortunately it can discolor many items. An effective concentration for a final bleach rinse is about 1/2 cup to the gallon. Dilute solutions (a couple of tablespoons a gallon) that are not left standing will have less impact on color and are still effective. Alcohol (about 1/4 cup to a gallon water) also disinfects but you will probably have better uses for your alcohol. Pine oil (Pine-O-Pine, Fyne Pine) and Phenolic (Pine-Sol, Al-Pine) are also cleaning disinfectants. Do not use them on washable wools and silks since the odor will remain. Consider purchase of fungicides and mildewcides. When covering large areas, a reusable sprayer will be very helpful.

Remember that many cleaning supplies are poisonous, hazardous and/or irritants. Wear rubber gloves, a raincoat, boots etc. Wash skin exposed to chemicals.

Metal Surfaces

All iron metal surfaces need to cleaned then wiped with oil. For stubborn stains and rust consider using one of those great "green scrubbies" or chemical rust remover.

Steel wool also works but may produce more scratches. Rub in one direction only.

Aluminum, brass and pewter should be cleaned either with a fine powder marketed for the purpose or toothpaste. An old toothbrush helps too. Aluminum stains can be removed by boiling with a weak vinegar solution.

For metal locks, knobs and hinges squirt a little machine oil into the bolt opening or keyhole. Work the knobs/hinge/lock to distribute the oil. WD40 is a great. Do not use too much oil as it may drip on the woodwork, making painting difficult.

If needed for your repairs, most hardware stores carry felt.

Household Furnishings

Any furniture worthy of repair should be completely cleaned, dried and stored in a dry, well-ventilated place until you have time to repair it. For short term use, scrape off surface dirt and disinfect. Cover mattress with a plastic or a rubber sheet. Before starting to salvage damaged furniture, do some triage and make individual decisions based on:

Cost of restoration/repair: It may be cheaper to buy new items than to repair old.

Cost of the item

Sentimental value

Type of Item: Antiques are often worth saving (after all they are proven survivors). Solid wood furniture can usually be restored, unless damage is severe.

Cheap Wood veneered furniture swells and is not worth repairing. Most upholstered furniture that has been soaked can not be saved. It may look OK but expect internal failure in the near future. Internal metal parts got soaked and will deteriorate, wood will warp, unreachable portions will get moldy.

Remember that when your talking to your insurance company/FEMA/SBA/IRS (see the Money section on page 5).

OK, you want to start the repairs.

See the Metal Section on page 3 for discussion on what to do with exposed springs and such.

Removing water spots. If the entire surface is affected, rub with a damp cloth dipped in turpentine or a solution of 1/2 household ammonia 1/2 cup water. Wipe dry at once and polish with wax or furniture polish. If color is not restored, dip 000 steel wool in boiled linseed, olive, mineral or lemon oil. Rub lightly with the wood grain. Wipe with a soft cloth and re-wax. For deep spots use a drop or two of ammonia on a damp cloth. Rub at once with a dry cloth. Polish. If spots remain after all efforts to remove them, the piece should be stripped of the old finish and refinished.

For wood furniture that has been completely wetted, there are some immediate things you can do. Remove as many drawers, slides and removable parts as possible (preferably outdoors as this can get messy). Do not try to force stuck drawers and doors out from the front. Be sneaky, remove the back and push out the drawer from

behind. After you have removed movable parts, clean off mud and dirt. Store furniture where it will dry slowly. Furniture left in the sunlight to dry will warp and twist out of shape. That's the dumb labor part. Once furniture is dry, further work will be required but not time critical.

Before you start, decide whether you have the time, equipment and ability. Consult a cabinetmaker. Your author strongly suggests that there are much better books on this. Still with me? OK, to reglue loose joints, first thoroughly clean joints of old glue, hold parts together with rope tourniquets or suitable clamps. To prevent damage from ropes or clamps, pad contact areas with cloth protection. Want to straighten some boards?

Remove the warped board from the furniture and strip the board of its old finish. (You may have to strip the entire piece of furniture to attain an even finish when the board is straightened, refinished and replaced.) The principle of warp removal is to add moisture to the dry side (concave) and remove it from the wet side (convex). You can do this by: Placing the wet side (concave) up in the direct rays of the sun. Keep the concave side moist with damp cloths and place bricks or other weights on top of the board and leave it for several days or until board is straight. Clamp board in a flat position when it has straightened. You may place several boards in the same clamps. Insert small wooden blocks between boards for air space. Place clamps no more than 12 inches apart. Use small pieces of wood or pads between board and clamps to protect the board. Loosen clamps and move them slightly once or twice a day to prevent splitting. Stand on end and leave in the clamped position until thoroughly dry. This will take from several days to several weeks.

Simple repairs to veneer are accomplished with some glue. Repairing badly damaged veneered furniture requires special skill and tools, don't attempt the job yourself. Take the furniture to a cabinetmaker or have your dealer return it to the factory for repair.

Clothes, Blankets, Sheets, Towels Etc

The easiest clothes to recover are ones that simply got wet. If you can't dry the right away, separate wet items by color as soon as possible to prevent colors from running together. To dry, simply wring out the water and use a solar clothes dryer (clothes line). An actual clothes line with pins is not necessary. Any line will do. Almost as good as clothes pins is wrapping two lines together and giving them a couple hundred twists, put the corners of your clothes in-between the lines. Consider tree branches and any clean flat surface. Consider weights to keep things from blowing away. With a little luck and skill, you'll look almost ironed. To avoid fires and burned clothes, do not dry clothes near a heat source such as a stove, Coleman lantern etc.

If it looks like dry cleaning is some time away, you might as well clean items that require dry cleaning and hope the clothes can be saved later.

Wet leather items should be stuffed with paper so as to keep their shape. Clean leather items other than suede

with saddle soap. Oil can help all leather but may cause discoloration. Don't leave leather in the sun to dry.

Water combined with other contaminants is a bit tougher to work with. Simply drying these is not enough. At least some rinsing will be required. Don't clean clothes in the pool (you may need that water for more important things like you). Adding a little bleach kills harmful bacteria, some stains and odors. However, bleach cannot be used on some garments. Once dry, shake and brush to remove as much soil as possible. You'll need at least one detergent cycle and one rinse cycle. Soak overnight in soapy water helps on the tough jobs but don't forget about color sorting. Hand washing detergent works best but even dish soap will do. Regular laundry detergent will mess up your unprotected hands. Machine wash when you can. When you do have access to washing machine and dryer, remember that drying clothes can set a stain.

Books & Important Papers

If damp, sprinkle cornstarch or talcum powder between pages to absorb moisture. Leave powder on for several hours and then brush off. Books that have sustained substantial water damage is tedious. The books should be placed on end with pages separated. When pages are partially dry, pile and press books to keep pages from crumpling. To prevent mildew, alternate drying and pressing until they are thoroughly dry. When books are nearly dry, apply low heat with an electric iron. Some chemicals such as parachlorobenzene may help stop mold growth. Books can be placed in closed containers with moth crystals to help stop mold growth. When books are thoroughly dry, close them and use C-clamps to help retain their shape. Books and papers may be frozen until you have time to work with them. Even if books and papers appear to have dried successfully, they may disintegrate. Photocopy important documents or papers.

Floors & Carpets

If you have power, a wet/dry shop vac is a thing of beauty for these jobs. But take it easy on them, they burn out faster than you do. You might want two.

If possible, pull up carpets and rugs and drape them outdoors to dry. Otherwise use towels and blankets to sop up as much moisture as possible. If the carpet is ruined, consider using it to cover hazards such as downed wires. If possible, hose carpets down and work a low-sudsing, disinfectant, carpet cleaning product deep into soiled spots. Brooms and stiff brushes are good tools here. A rinse with a solution of two tablespoons bleach to one gallon water discourages mildew and odors. Even a weak solution of bleach may cause discoloration. Don't use bleach on Wool carpets. Carpet (and floor) must be completely dried. If you have the power, use fans, vacuum cleaners and dehumidifiers to speed the drying. Waffle-weave, foam or rubber-type pads may be reused. When floor coverings are removed, allow subfloors to dry thoroughly, even though it may take several months.

If there has been substantial amounts of water on the floor for some time, special efforts are required. It is generally best to perform these actions before damage is evident. For wood strip floors, remove a board every few feet to reduce buckling caused by swelling. Ask a carpenter for tips on removing tongue-and-groove boards. Sections of subfloors that separate must be replaced to avoid buckling. For vinyl floors with wood subflooring, the vinyl covering should be removed so the subflooring can be dried or replaced. With concrete floors, removal of the vinyl isn't necessary except to hasten drying of the slab. Loose tiles may be replaced individually if the floor hasn't been soaked. If water has seeped under sheet flooring, remove the entire sheet.

Money

Glossary

Distribution Center: Run by FEMA and the territory.

Provide free food, water and disaster supplies (such as tarps, radios, lamps, etc) when available.

Generally housed in schools and churches.

Red Cross Shelters: A place to stay when a storm is immanent and live afterwards also free food.

Red Cross Service Centers: The American Red Cross provides many supplies to persons with disaster related needs. The Red Cross offers *vouchers* for medical needs such as eye glasses and dentures; personal needs such as clothes and food; living needs such as emergency rent and food; and replacement of larger appliances such as stoves, refrigerators, etc. Emergency needs are evaluated on a case-by-case basis. Red Cross Nurses provide free medical advice. Food and other necessities are often available.

Recovery Center: Local place to apply for FEMA grants, loans from the Small Business Administration, emergency housing assistance. If you are self-employed or an agricultural worker, you can also apply for unemployment assistance. For Marilyn, (800) 462-9029, connected with stateside FEMA Teleregistration.

Hurricane Watch: Hurricane conditions are possible in the specified area of the watch, usually within 36 hours.

Hurricane Warning: Hurricane conditions are expected in the specified area of the Warning, usually within 24 hours.

Major Players

Centers for Disease Control and Prevention (CDC), based in Atlanta, Georgia, has major responsibilities for preparing for and responding to public health emergencies such as disasters, as well as for conducting investigations into the health effects and medical consequences of disasters. Contact: Eric K. Noji, MD, M.P.H., Chief ; Disaster Assessment and Epidemiology Section ; Centers for Disease Control and Prevention

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Cool Books for Kids

- "Jason and Robin's Awesome Hurricane Adventure" workbook (ARC 5044) and video (ARC 5044V) designed for children in grades 4-6.
- "Disaster Preparedness Coloring Book" (ARC 2200, English, or ARC 2200S, Spanish) for use by children 3-10.
- "Adventures of the Disaster Dudes" (ARC 5024) video and Presenter's Guide for use by an adult with children in grades 4-6.
- "After the Storm" Coloring Book (ARC 2206, English, or ARC 2206S, Spanish) After a hurricane or tropical storm, some children experience difficulty expressing their feelings about the storm. This coloring book, in English or Spanish, is available from your Red Cross for a parent, teacher, or other adult to use with children to help them deal with their feelings