

## DISASTER RECOVERY FOR FILMS IN FLOODED AREAS

### What to do with your flood-damaged film

If your films are in a flood, contact a film archive or film laboratory as quickly as possible for further advice. There are many variables that affect the stability of film materials, and each circumstance is different. The following suggestions are general advice and may not fit your particular situation.

1. Don't endanger people by attempting to enter a disaster area before it is safe to do so. Your films are important, but your life and health are far more important.
2. As soon as it is safe, locate your films. Films that have gotten wet can deteriorate quickly, much more quickly than many other types of material.
3. Try to minimize further damage to your films by following the steps below or the advice of a film archive or film laboratory. Keep your efforts simple and don't try to do too much. The idea is to stabilize your films, then let people with experience do the recovery and conservation work.
4. Prioritize as you go, working on films with high emotional value first. Home movies are irreplaceable, commercial releases are not. Use information written on labels and cans to help you choose the films that are most important to save.
5. Handle films gently, especially if they have gotten wet. Wet films are very fragile. Do not attempt to unroll a film to look at it. If you're not sure what the film is about, make a guess, but don't unroll it. Unrolling a film at this point will almost certainly cause further damage.
6. What to do with dry films: If a film is not wet, do not put it in water! Doing so will damage the film.

Keep the films in a cool, clean, safe place.

Films should only be placed in a refrigerator packed in a plastic bag to reduce any further drying out and should be sent to a lab for examination as soon as possible. Do not leave the film packed in the bag in the refrigerator without examination for more than a few weeks.

Have the film checked by a lab as soon as possible for mold or other problems. Any film in a flooded area may have suffered

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damage from humidity. [To search for film labs in the United States, click here.](#)

[See the FAQ on water damage on this website for additional information.](#)

7. What to do with wet films: If a film is wet, keep it wet. This provides the best hope of saving the film.

Keep your wet films wet, clean, cool, safe and undisturbed.

Place the film in a container of water. You may place more than one film in the same container. The water level should cover all films in the container.

Use cool, distilled water if you can. Next best: cool tap water or bottled water. If necessary, just use whatever water you have access to. Cool the water if you can.

A plastic container with a tight fitting lid is best, such as a Tupperware container. A plastic bucket, wastebasket, or trash bag will also work. If the container does not have a lid, cover it with a clean cloth to keep contaminants out.

If the films can be treated within a few days then leave them in the boxes, if the films cannot be rewashed within a few days then remove the films from their enclosures and store as described below.

If you leave the films in their boxes or cans: Don't open the boxes or cans if you are not going to take the films out.

Use an indelible marker to write a number on the film box or can. Write the same number on a piece of paper, then copy down any information written on the film box (names, dates, places, etc.) This will be the best bet in matching up the writing to the film later on. The writing on the box might be unreadable after the box has been sitting in water for a few more days. Gently rinse off the boxes and cans before submerging them in your container of water.

Take the films to a lab for treatment within 2 -3 days.

If you take the films out of their boxes or cans: First gently rinse off the can or box to avoid getting dirt or debris on the film. Then, very gently, rinse off the outside only of the film roll.

Do not unwind the film. Leave the film on its reel or core. Place a rubber band around the film so it forms a circle that will keep the film from unwinding. (If the film were an Oreo cookie, the rubber band would go around the filling.) Use an indelible marker to write a number on the leader of the film and the same number on the box or can the film came out of. Keep the boxes and cans to match up with the film reels later. Often there is writing on the can or box that helps identify the film. Do not unwind films to check if they are in the right cans.

Keep the container of films as cool as you can. Set it out of the direct sun, in a shady place if possible, preferably somewhere with a breeze or moving air. Put the container in a refrigerator if one is available. (Since the films are already in water, the relative humidity in the refrigerator is not a problem.) If are using a container with a cloth for a lid, keeping the cloth wet will help cool the films. For all containers, setting wet cloths around and on top of the container will help keep the films cool. Store a bucket of clean water next to the films in a cool spot so you will have cool water to add to the film container.

Make sure all of the films stay under water. Add cool, clean water to the container as needed.

Change the water daily if you can - otherwise as often as possible. Use cool, distilled water if possible. Do this as gently as you can, trying not to disturb the films. Remember, wet films are very fragile!

Keep the films clean by using a container with a lid or placing a clean cloth on top of an open container, and by using clean water to fill the container.

#### 8. What to do with films that got wet, then dried out completely:

Keep the films in a cool, clean, safe place.

Do not try to unwind the film.

Do not put the films in water.

Take the films to a lab as soon as possible to see what can be salvaged.

[To search for film labs worldwide, go here.](#)

[See the FAQ on water damage for more information.](#)

#### 9. For all films in flooded areas: Contact a film lab as soon as possible to discuss your next steps. (Films that have not gotten wet will need to be

checked for damage from humidity.) If your films have gotten wet, you will need to get them to a lab where they can be rewashed and properly dried. This process requires a professional with the necessary equipment.

10. For a list of film labs closest to the area affected by Hurricane Katrina that offer rewashing services, click here. To search for film labs worldwide, go to [http://www.kodak.com/US/en/motion/industry/dyn\\_labs.shtml?id=0.1.4.11&lc=en](http://www.kodak.com/US/en/motion/industry/dyn_labs.shtml?id=0.1.4.11&lc=en)

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## [FAQ On Film Water Damage](#)

How does getting wet affect film?

Film that has been immersed in water is in severe danger of having the base separate from the emulsion. This means that the part of the film with the image on it will come away from the plastic backing that gives the film its shape. The film is also at risk of being contaminated by mold growth and debris from flood water.

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Why do I need to keep my films cool?

The most important factors in determining whether or not a flooded roll of film will survive are the total time it has been wet and the temperature at which it has been kept. The warmer the conditions, the shorter the time frame.

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How much time do I have before films that have gotten wet are unrecoverable?

This depends on so many factors, it is impossible to say for any particular reel of film. Without question, the sooner you can get the film into the hands of recovery professionals, the better. But even if a lot of time passes before you are able to start the recovery process, if the film is valuable to you, it is worth trying to salvage it. You might at least be able to save part of the film.

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Why should I store films that have gotten wet underwater? Doesn't it make more sense to dry them off?

You should not try to dry the films! The reason for storing the films underwater is to prevent them from drying in the air. If films get wet and are not dried in a special way, the emulsion (image) from one layer can stick to the base (plastic backing) of the next layer. This is known as "blocking." If a film develops blocking it cannot be unwound without damage.

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When my films are stored in water, will I see any changes in them?

You probably will notice changes. First, the film will probably change color slightly. Sometimes it develops a purplish or blue color after a few days. This is normal and does not indicate any problems.

After a few more days, the film will become very slippery. This happens because the gelatin at the edges of the film is starting to dissolve and because bacteria and molds are active. This is a warning sign. The film may still be salvaged fairly intact at this point, but it needs to be taken to a lab as soon as possible.

"Threads" or filaments may start to appear on the film. These are thin sections of emulsion floating away from the film base. This is not a good sign. The emulsion may not withstand rewashing intact. Take the film to a lab as soon as possible.

"Gray soup," nasty, gooey, slimy water: the emulsion is decomposing and the film will not withstand any treatments. However, some frames may still be able to be seen and duplicated as still images. So even in this extreme case, you may still want to take the film to a lab to see what images can be salvaged.

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What happens if my films got wet, then dried out again before I could put them in water?

When a film becomes wet and then dries completely, there are two levels of damage that may occur. With luck, the damage to your films will not be too severe. Even if you are less fortunate, it may still be possible to save parts of your films.

If you are lucky, all that will happen is that the emulsion surface will become very shiny and smooth, especially around high density areas (where more dye or silver is congregated). This may occur in patches and will result in some noticeable artifacts (flaws) when the film is projected or copied.

In worse conditions, more serious damage, called "blocking," may occur.

When the film dries out, the gelatin emulsion will adhere via crosslinking to the backing layer of the adjacent wrap of film. This is a very strong adhesion, so strong that the emulsion will tear internally and some of the emulsion will remain adhered to the base where it should be and the rest will adhere to the other layer of film. It may also tear from the film base, so that chunks of emulsion will be removed and stuck to the adjacent film layer. Or the whole film will tear. Any attempt to unwind a blocked film will result in damage to the film.

While a blocked film cannot be unwound without damage, it is possible to carry out highly specialized conservation treatments that may enable the film to be unwound. These treatments carry a degree of risk, especially if the film has been wet for any length of time before drying out. The treatments are time-consuming and expensive. Unblocking treatments should be thought of as a last resort for attempting to save films that are very important to you.

Post a question on this website if you would like to ask for more information about unblocking films or other film recovery topics. A recovery expert will answer on the website promptly. Or e-mail your question to: [mick1asia@hotmail.com](mailto:mick1asia@hotmail.com).

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## [Getting your damaged films to a Lab](#)

For a list of film labs closest to the area affected by Hurricane Katrina that offer rewashing services - [click here](#).

To search for [film labs Worldwide](#), [go here](#).

**Driving:** When films need to be kept wet, labs within driving distance should be consulted first. If there are no appropriate labs nearby, discuss with the lab of your choice the best means of transporting the film to them.

**Shipping:** Use overnight express: If films are not being transported by hand, they should be shipped by overnight express so that they spend as little time possible in transit, where they will be subject to high temperatures and drying.

**FedEx:** Submerged films may be shipped by FedEx if you take care to pack them so that no water can leak out of the package. Speak to your FedEx representative and follow their instructions.

FedEx will ask you to pack the submerged films about like this: First place the films in a container with a tight-fitting lid, such as a Tupperware container, filled with water to keep the films wet in transit. Place this container inside a plastic bag and seal the bag. Place the first bag inside a second bag and seal the second bag. Place the double-bagged container in a waterproof receptacle, such as an ice chest. Add packing materials such as plastic bags or Styrofoam to the ice chest so that the film is packed in tightly. Snug packing will help prevent the film reels from moving around excessively during shipping (remember, the wet films are fragile) and will decrease the chances of the plastic bags moving around and possibly springing a leak. Seal the ice chest with duct tape. If the ice chest locks securely, you can wrap some packing tape around it to secure it and FedEx can ship it as is. If the ice chest doesn't lock, put it inside a cardboard box that can be secured with packing tape.

**Keeping records of shipped films:** When you get ready to send your films to a lab, be sure to keep detailed records of the films you are sending. The most important thing is to link the information on the film containers with the films themselves. Otherwise it may be hard to identify the contents of the films later on. Here's how:

1. Give each film box, can or reel an identifying number with an indelible pen (and permanent adhesive tape if the pen doesn't write directly on the container). Or write the number on the film leader. If a film box falls apart while underwater, the identification number will need to be transferred to the film reel or leader before shipping the film to a lab.
2. Manually copy all of the information written on the film box or can to a paper list. Include dates, names, places and all other information about the contents of the film. Write the same ID number you have written on the film box or reel by the information about that reel.
3. Or, instead of copying by hand the writing on the film box or can, take a digital or traditional photo of the box or can. Be sure that the photo includes the ID number you have written on the film container and any notes (dates, names, places, etc.) that could help identify the contents of the film.
4. Most ballpoint or felt tip pens that would have been used in the past to write on film cans or boxes will only withstand water immersion for a short period of time. Because of this, an organized identification system is essential.

## Salvaging Flooded Videotapes

- Do not attempt to play back wet tapes.
- Tape cases and shippers are not watertight. Exterior moisture usually means interior moisture.
- Damage to wet tapes is time sensitive. Delay in recovery is likely to destroy some tapes.
- Contaminants in the water can do more immediate harm than the water itself. The most common, dangerous contaminants found in water are salt, sugar, chlorine and sewage.
- It is sometimes possible to hold ferric oxide formulation tapes in very cold, distilled water for extended times without substantial damage. Metal Particle or Metal Evaporated tapes will oxidize and be destroyed if they remain wet too long.
- Freeze drying wet tapes is not recommended.
- Wet tapes should be decontaminated as soon as possible. Best results are obtained when professional restoration experts can begin working on the tapes while they are still wet.
- Handle wet tapes very gently. Water compromises the physical structure of magnetic tapes making them much more susceptible to stretching, tearing and edge damage.
- Prior to recovery, keep tapes in an area that is cool and well ventilated but do not freeze.
- Do not change the tape's orientation to avoid spreading water that may be trapped in the case.
- Contaminants must be rinsed off wet tape as soon as possible. Be gentle and use only cool distilled water. Never use tap water that may contain chlorine.
- In-house drying is best done by exposing the tapes to an environment of cool, dry air.

- In-house drying attempts can result in deformation of the tape and/or tape sticking to the inside of the cassette.
- All paper inserts and wet cardboard should be removed to reduce the possibility of fungal growth.
- Wet tapes should be wrapped in at least two layers of bubble wrap and packed in sturdy boxes to protect against shock and exposure during shipment.

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