Knee Deep in North Carolina: A Disaster Planning Manual

by *Ron Haislip*

In the fall of 1999, Hurricane Floyd struck North Carolina with a vengeance. A drive through the damaged area two months after this life-altering event left this author speechless, and with so much sadness evident in the eyes of the disaster victims, I was unable to take photos of the destroyed homes and floating caskets. North Carolina libraries were not immune from this destruction. According to the State Library of North Carolina Web site, extensive flooding caused collection damages in excess of $640,000 to the Albemarle Regional Library in Windsor. Twelve other libraries in the eastern part of the state sustained some degree of damage while several school media centers were completely destroyed. After being submerged in six feet of muddy, sewage-infested water for more than two weeks, none of Pattillo Elementary School's library collection was considered salvageable. Mold and mildew even attacked materials that were stored above flood level.

Angie Egerton, the Pattillo Elementary School media specialist, laments that even though the building was covered by insurance, few of the contents were insured. This is a common problem. In order to receive assistance from FEMA, she was required to submit a written inventory of all materials in the collection. Luckily, Angie had performed a backup of her catalog before the floods struck the area. With public donations and government assistance, the school and library are slowly rebuilding in a new location, but without proper planning, the situation could have resulted in a total loss with no means of recovery. In eastern North Carolina, it is too late to save many materials of historical significance, but with adequate insurance, a disaster plan and procedures manual, and knowledge of drying methods, perhaps other libraries can prevent or at least minimize the effects of such disasters.

The Disaster Plan

The reduction of stress and confusion in the event of a catastrophe will be the result of a well-designed disaster plan. Tailored to the needs of each institution, a plan should include most of the following components:

Introduction:
Included in the introduction should be directives as to how often a plan should be revised, as well as the last revision date. Because specific individuals may change positions within a library, responsibilities should be arranged by job position. In the disaster plan of the Baltimore Academic Library Consortium, the introduction details why the plan was created and also provides a basic summary of sources found within the plan.

Emergency Information Sheet:
This sheet should contain phone numbers for police, emergency units, and all appropriate library staff.[1] Brief step-by-step instructions of emergency actions should be listed in the plan booklet and posted on a wall near a phone in every department. A list designating the order in which persons should be called in the event of an emergency will help alleviate confusion in an already chaotic situation.

Collection Priorities
A map of the library with an outline of the order in which materials will be salvaged will help the fire department and fellow staff members direct immediate attention to those areas of the library which hold the most critical collections. Coated papers and easily replaceable materials should take lowest priority while rare items and those with historical importance should be at the top of the list.[2]

Prevention Strategy

Procedures, time schedules, and names of individuals responsible for the testing and inspections of fire alarms and water detection systems must appear in the plan. A checklist should be provided in the appendix. It is possible for these water detection systems to transmit signals to a central location that would then contact library administrators. SOLINET's (Southeastern Library Network, Inc.) Web page <www.solinet.net> also recommends a checklist of procedures to be followed when weather forecasters give advance warning of an emergency situation such as a hurricane or flood.

Recovery Procedures
Current salvage procedures should be included in full detail in the appendices to the plan. Library staff should be routinely trained in all methods of recovery. Salvage procedures are listed in a separate section of this paper.

Resources
A checklist of materials to be used in the recovery effort and their corresponding locations should be kept current. A list of the suppliers of these items, locations of freeze storage facilities, and emergency equipment suppliers must be updated a minimum of twice a year. A

comprehensive checklist can be found at the SOLINET Web site.

Disaster Procedures

Step 1: Safety First

Before entering the building, verify that no live electrical lines are sending currents through the floodwaters. Do not enter the building if it is structurally unsafe or if there is a possibility of electrocution.

Step 2: Circulate Cool Air

After power has been restored and permission granted to enter the building, turn off all heat sources and turn on functioning air conditioners. Open doors and windows and use fans and dehumidifiers in order to circulate as much fresh air as possible.

Step 3: Do Not Handle the Damaged Materials

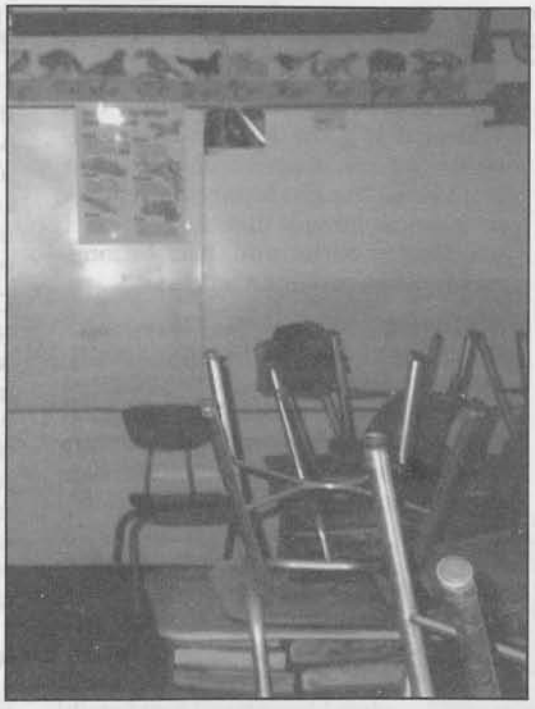
It is important to keep staff and volunteers from disturbing materials until the disaster team is able to provide direction by discussing a plan of action with all members of the crew. Reducing the cost of future restoration must be one of the top priorities of the salvage operation. Handling the materials improperly can cause more extensive damage than the initial flood.

Step 4: Assemble the Disaster Team

This team should consist of the administrator in charge of the building facilities, staff members, a cataloger to track materials, a professional conservator, and a power company representative.

Step 5: Salvage the Catalog and Other Records of the Collection

If a library still uses a card-based catalog system, then those cards must be given the highest priority of removal. Knowing what is in a collection is essential for damage estimates and insurance reimbursement. Volunteers should be arranged in an assembly line, and materials should be packed in crates, numbered, and then passed down the line to safety. Materials should be packed as found, and no attempts should be made to close books.



Step 6: Freeze Materials

In most instances, it is best to freeze wet items until they can be dried through one of the drying methods. This prevents mold from developing or spreading in the materials. In the case that access to the library has been forbidden for several days, it would be of great benefit to hire professionals to administer fungicidal fogging to the collection.

Step 7: Dry the Materials

This step can be accomplished through five techniques: vacuum freeze-drying, thermal vacuum drying, air-drying, dehumidification, and freezer drying.

(The majority of this section was adapted from Peter Waters' *Salvage of Water-Damaged Library Materials*.[3])

Methods for Drying Wet Books and Documents

Vacuum Freeze-Drying

This process is the most successful and least expensive method of drying large amounts of wet books and documents. Freeze-drying materials that have been frozen and stored at –20°F allows the ice crystals to change from a solid into a vapor state, pass though a condenser, and convert back to a solid state. Because the process tends to bring dirt to the surface, books are easier to clean and most will not have to be rebound. As a result of the liquid state of water being bypassed, materials regain their pre-damage condition with little or no distortion depending on the amount of swelling that had taken place before freezing.[4]

In 1968, in a fire at the Gothab, Greenland, Regional Library, books were instantly frozen when drenched by water from fire hoses. The frozen books were then transferred to Denmark for restoration of documents that were too unstable for air-drying. This was the first use of vacuum freeze-drying and it was so suc-

Damage to the Pattillo Elementary School library was extensive. Note the height of the water line (top photo). Photos courtesy Angie Egerton.

cessful that "even handwritten ink inscriptions did not run."[5] Since 1968, the vacuum freeze-drying method has been used in multiple instances including the Stanford Meyer Library water disaster in 1978, and the Klein Law Library of Temple University fire in 1972.

Thermal Vacuum Drying

Best used for newspapers and loose documents, this method of drying water-damaged materials does not require that they be frozen prior to treatment. The process involves drawing water molecules from documents placed in a vacuum chamber. Warm, dry air above 32°F is pumped into the chamber to complete the drying. Because water is in a liquid state before it vaporizes, some cockling, binding distortions, and staining will probably occur, therefore requiring rebinding of bound volumes. Older rare books and manuscripts must be dried separately from acidic materials because if mixed together, materials with high acidity will contaminate those with low acidity. This method should not be used with coated paper because the pages will block together permanently when dried.[6]

Storing mostly loose documents and not bound volumes of books, the Military Personnel Records Center in Overland, Missouri benefited greatly from thermal vacuum drying in 1973 when it experienced a disastrous fire. While still wet, the documents went directly to vacuum chambers at a McDonnell Douglas facility and a NASA installation. Records that "had been wet for four months and had become moldy" were successfully dried.[7]

Displaced students bravely face adversity. Photo courtesy Angie Egerton.

Air-Drying

Air-drying of paper items is most practical for collections that have sustained minimal water damage. This process is ideal for drying leather bound volumes because greater observation of the drying leather is required in order to minimize warping and shrinkage. Air-drying can cause more harm than good because the longer drying time allows mold growth to appear, inks to run, and coated paper to block. Materials will benefit most if first frozen because freezing stops mold growth and stabilizes the items until library staff can begin the tedious and time-consuming process of air-drying.[8]

Dehumidification

In this process, industrial dehumidifiers are brought into the library facility. This saves packing and removal time because all materials are left on the shelves. The *Baltimore Academic Libraries Consortium Disaster Preparedness Plan* <disaster.lib.msu.edu> states that in order for dehumidification to be successful, it must be "initiated before swelling and adhesion has taken place."

Freezer Drying

If left long enough, damp materials can be successfully dried in a self-defrosting blast freezer. This should not be used for coated papers. If temperatures are not maintained below –10°F, distortions may occur.

Conclusion

Now is the time to consider a plan of action, not after a disaster happens. Being prepared can mean the difference between saving an entire collection or facing its loss. If used properly and kept current, a disaster plan and an accompanying set of specific procedures will alleviate stress, shorten response time, and provide for a successful recovery operation. Remember Pattillo.

References

[1] Hilda Bohem, *Disaster Prevention and Disaster Preparedness*. Berkeley: University of California Task Group on the Preservation of Library Materials, 1978), 6.

[2] John N. DePew, *A Library, Media, and Archival Preservation Handbook*. Denver: ABC-CLIO, 1991), 262.

[3] Peter Waters, *Procedures for Salvage of Water-Damaged Library Materials*. (Washington, DC: Library of Congress, 1975).

[4] DePew, 281.

[5] John Morris, *The Library Disaster Preparedness Handbook*.. (Chicago: American Library Association, 1986), 59.

[6] DePew, 280.

[7] Morris, 60.

[8] Judith Fortson, *Disaster Planning and Recovery*. (New York: Neal-Schuman Publishers, 1992), 58-59.

Special Acknowledgment:

To Dr. Beatrice Kovacs, Assistant Professor, UNC-Greensboro, Department of Library and Information Studies, for her support and encouragement in the preparation of this article.