

## **WATER, WATER, EVERYWHERE**

**Jean E. Crampon**  
Director

and

**Melinda Hayes**  
Collection Development and Librarian  
Hancock Library of Biology and Oceanography  
University of Southern California  
Los Angeles, California U.S.A.

### **ABSTRACT**

The topic of "aquatic information resources" is viewed from a different perspective. Can there be too many "aquatic resources" in the library? Yes, if the discussion is on the hazards of water on the library collection rather than "aquatic information resources" within the subject scope of the library's collection. This presentation includes personal experience of "water in the library" floor level, flooding, rain, and overacting air-conditioning leaking from above, and broken pipes from within the library or spaces above the library from experience in three different library settings. A checklist includes supplies needed to respond to the emergency, handling of library materials, and preventive measures to minimize possibilities of recurrence. This does not cover extensive disaster planning which requires outside assistance, but focuses on techniques that can be done in-house. Service issues in continuing to provide information to clientele are addressed.

When I attended library school I did not take a course on preservation or conservation of library materials, although I have attended workshops which include conservation issues. My experience is all practical, hands on, and basically reactive to a present problem. This has showed me the need for proactive planning. Melinda Hayes, the co-author of this paper, has been interested in conservation issues since library school. She was a Conservation Intern at the Huntington Library and Art Gallery and while working at the Huntington served on their Conservation Council. Since 1982 she has been a member of the Preservation of Library Materials Section of the Association for Library Collections and Technical Services, a division of the American Library Association, and was a member of the American Institute for Conservation for nine years. Since we have been working together at the Hancock Library of Biology and Oceanography she has shared her expertise, not only with me,

but with the University of Southern California Library's Preservation Planning Team and the Preservation Policy Committee in dealing with broader preservation issues for the University Libraries.

In this presentation we do not deal with major disasters. We don't analyze pros and cons of outside contracting, freeze drying, etc. This is intended to be practical and based on personal experience to present easy techniques that are achievable with minimal training, cost, materials, and staff. I will be speaking of my own experience, both before and after coming to USC, with the input of Melinda to focus on what we did right, what we could do better, and what are the basic needs for dealing with a water emergency.

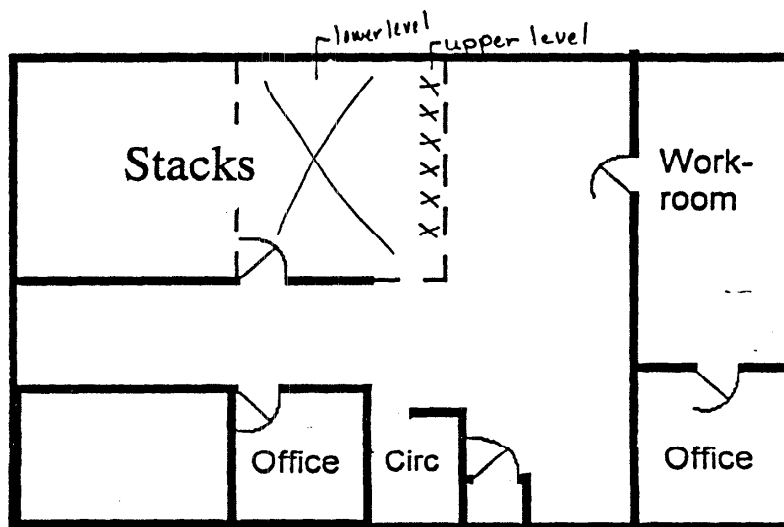
I present this in order as the emergencies occurred. In each case I will show a floor plan, tell how the water entered the library and from where it came, the amount and duration of the problem, the type and amount of materials affected, how the problem was dealt with in-house, and what had to be referred out of the library. Finally, we present a list of materials to keep on hand to deal with the problems using the staff available.

### Case 1

This location was a former Federal Bureau of Investigation (FBI) building which was slated to be condemned after the residents, including the library, vacated the building. The library occupied about two-thirds of the building's main level and its entire basement level, the former FBI vault. On only one occasion was there water damage. In this case, there was a severe thunderstorm with water entering on both levels. Flood drains could not handle the volume of the water and we arrived in the morning to find nearly an inch and a half of standing water in the basement and the ceiling leaking on the main level. The basement was full of journal stacks which essentially escaped damage because the flooding was lower than the bottom shelf; however, about twenty boxes of serials were on the floor. The first person in that morning had already draped one upper level stack with plastic sheeting before the next person got to work. We learned that splashing and additional drips required draping at least five more stacks. The next priority was to get the boxes of materials off the floor of the basement. This entailed partial bailing of the area using trash cans, and our only bucket, to lower the water level to allow two people getting wet by wading very slowly through the water and placing materials on the stairs to be moved up and out. Boxes on the tops of piles were removed intact. The bottom boxes had to be emptied as we did not think the cardboard would survive being lifted. We were right. The boxes had protected most of the materials. Some were damp, but none were wet. These were arranged standing open on tables in the workroom and quickly air dried. The hard part was wading through the water without causing splashing up onto the shelving. The water in the basement drained out over the next two days and the floor dried with the help of a mop and a fan. There was some mud as the floor dried, but this was minimal. On the main level the shelving all had tops which prevented the

books from being dripped on directly, but the water needed to be routed off the ranges and to reduce splashing. This remained up for about five days until the dripping ceased. Mops helped here too. Service to users required nearly all the collection to be paged by the staff as we retrieved from the basement and we wanted to protect the users from climbing under the plastic sheeting. We learned that the sheeting should be precut for easier handling and that a slightly heavier sheeting was preferred over the flimsy supply we had. The building was not repaired, nor was any external work done. We moved out of the building before any further severe rainstorms came, but we kept our supplies handy and no longer stored anything on the floor.

## Case 1



Supplies: mop, bucket, fan, plastic sheeting, trash cans.

What we did right: protected the upper level from further damage first, then dealt with the more time consuming problem threatening the basement collection.

What we could have done better: we had 1mm plastic dropcloths which clings to things, especially people. Heavier plastic sheeting would have been easier to use and we should have had a plan to call in backup help. We dealt with the problem, but it would have been easier with additional hands, i.e., from the other department in the building which had not been affected.

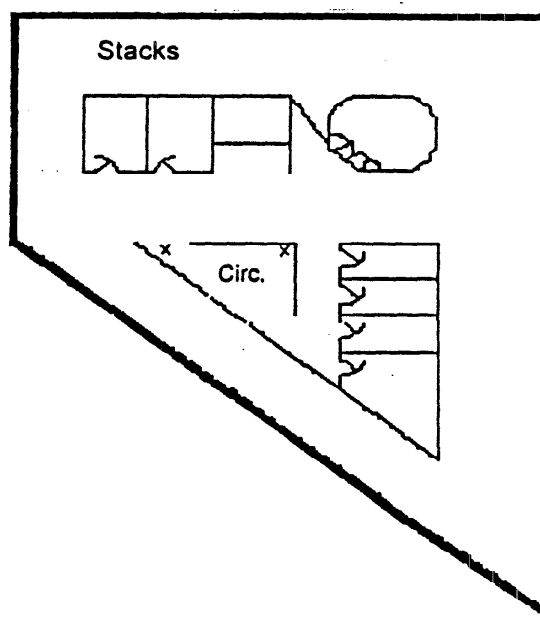
What we learned: we could handle the problem, where supplies were kept, and that boots can be a useful tool.

## Case 2

This was the same collection, but we had moved into a new building. We thought our days of plastic sheeting were over. We were wrong.

Nearly all of the fourth floor of Phase I of the building was designated for the library. We actually moved the collection twice as the carpet was not available when we first moved in, so we had to shift the stacks for the carpet to be laid. Soon after moving into the new building we noticed rust marks on our new counter height circulation desk. Within a few days we could watch the leak from above. We checked the rest of the library, but there were no other leaks - yet. For the next six months or so we kept a trash can in the center of the circulation desk to catch the drips and waited for the next leak. The contractors and architect refused to hear our complaint or acknowledge any fault in the building. When the ceiling in the stairwell began leaking after a rainstorm, they finally began to consider the problem. They fixed the stairwell skylight and caulked the seams above the circulation area, and the leak moved over the reserve stacks. The reserve collection was small enough that we did not need to shelve in that section. We moved our trash can and waited. We were assured that only an extremely severe rainstorm would cause the ceiling to leak. They even flooded the roof to test for leaks. The water selected its own route through the ceiling and did not necessarily follow the seams, as might have been expected. For the roof flooding we draped the reserve stacks with plastic sheeting as a precaution. Strangely enough

## Case 2



I noticed that leaks occurred after a very hot spell, not after a rainstorm. I suspected an overworked air conditioner on the roof was the cause, but no one agreed with me.

Supplies: trash cans, plastic sheeting, paper towels.

What we did right: kept track of the leaks and kept reporting the problem.

What we could have done better: coordinated communications with the contractor and architect through upper administration so our voice could have had more effect.

What we learned: even a new building is not immune to leaking and rain is not the only cause.

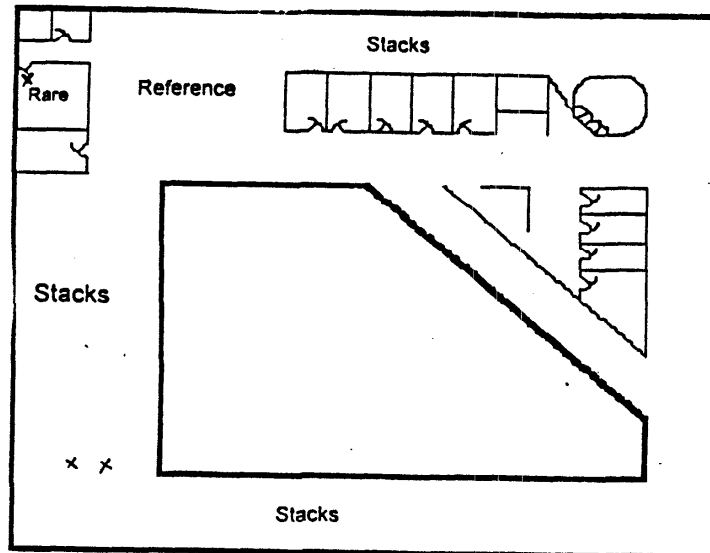
### Case 3

The building now had expanded to include Phase II. The library enclosed a central courtyard. Enough of the ceiling had been given extra caulking that we had dispensed with the trash cans, but we were skeptical about the new portion of the building being waterproof. This turned out to be a wise precaution. We soon learned where the leaks occurred. After placing trash cans in strategic locations in the journal stacks, and making sure to empty them daily, we kept the damage to a minimum. No materials had been damaged, but some carpeting had gotten wet. Fans dried it out before any mildew could start. Plastic sheeting was used over certain stack areas as we identified where leaks appeared first. The sheeting was arranged and weighted to steer the water into the trash cans and away from the journals. Finally, the architect and contractors agreed there was a problem (about four years after we moved into Phase I) and to try to track the leaks. Again they flooded the roof and we all waited to see what would happen. After a couple days some of the leaks showed up, but it took over a week for all of them to appear. The contractors decided to put in shallow drains, or conduits, to route the water to a location out of the public areas. We put away the plastic sheeting once more. Now about a day or so after a rainstorm, or an excessively hot day where the air conditioning works overtime, we empty the trash cans two or three times a day to remove the water.

Finally came the day the conduit overflowed before reaching the downspout into the trash can. The location was the one which had the potential for the greatest possible monetary damage: the rare book room. Fortunately, the rare book room had glass fronted locked cases. All the glass fronts had been kept locked open by about quarter of an inch to allow air circulation. This opening proved not to be a problem. The cases still protected the materials with only slight warping of the wooden tops of the cases. We dried the room quickly with a dehumidifier and fans to increase air circulation and we added daily or twice daily checks of this room to our routine. The contractor added a second conduit with another drain into the staff room. There were no further incidents in the rare book room. Later the rare book room was moved and

the ILL department occupied this room. As a precaution, however, the room was arranged so that the overhead conduit goes across the area for packaging materials with supplies stored under the tables. To the best of my knowledge no damage was ever reported to materials or equipment.

### Case 3



Supplies: trash cans, plastic sheeting, bookends for weights, mops, bucket, dehumidifier, fan(s).

What we did right: improved our checking procedure, kept the supplies handy.

What we could have done better: tried harder to have the conduits not go through the rare book room in the first place.

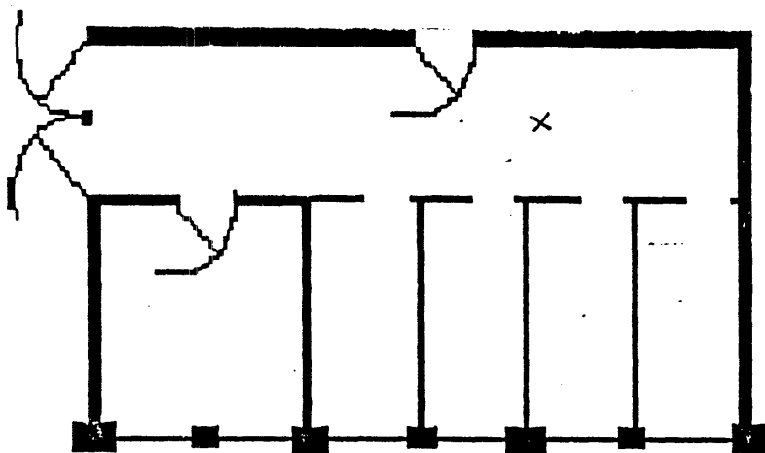
What we learned: importance of monitoring when a problem is considered fixed, to maintain good relations with the contractor.

### Case 4

The office space of this library is former laboratory space with some of the features still remaining: laboratory benches along the walls, doors connecting the offices to other laboratories and specimen collection spaces, and pipes from other

laboratory space which formerly served as a drain from the lab above. One morning we arrived to find a small puddle on the floor under the pipe and a trail of drips about five feet long. We used the trusty trash cans again and started moving materials out of the line of water. Unfortunately, part of the line was the kardex which was too bulky and heavy to move, so plastic sheeting was used also. Fortunately, the only materials which got wet were not new journals to be processed, but a pile of duplicate issues waiting for disposal. The drip was sealed quickly by a plumber always on call for the institution and the water flow was turned off to prevent another occurrence. The water was not supposed to be going through this pipe in the first place. The water was diverted to another drain which did not go through library space. We have had no further incidents at this site.

## Case 4



Supplies: trash cans, paper towels, mop, plastic sheeting, bookends for weighting plastic, book cart for temporary storage of materials.

What we did right: removed as much as possible and protected what had to be left in place.

What we could have done better: no materials should have been stored where the duplicates were.

What we learned: to be sure that labeling of pipes is accurate. Changes in

staffing may result in personnel who do not know the correct rules and may turn on or allow water to flow where it should not.

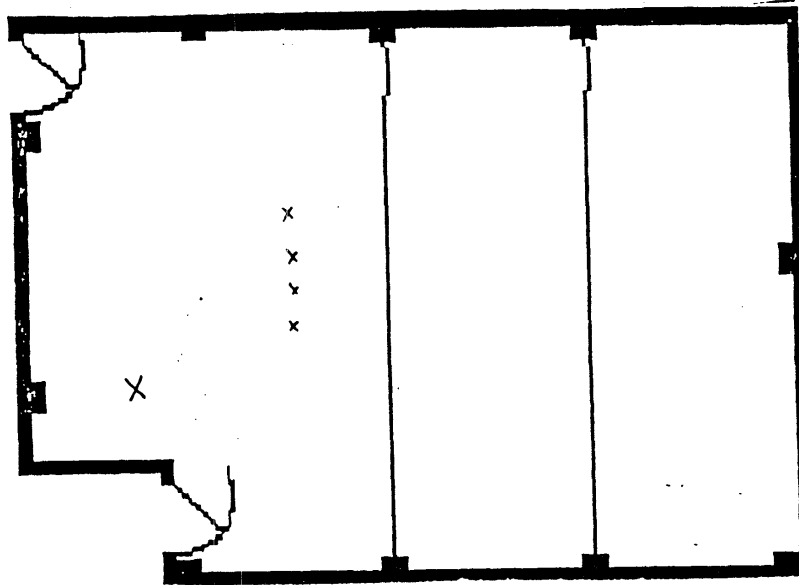
#### Case 5

This was the most recent occurrence. In this case I was stopped by one of the graduate students on my way in to work. Fortunately, I was early that morning. When he had arrived at his lab he found standing water over the entire floor, about 1800 square feet with about three-quarters of an inch of water, or a potential 842 gallons of water standing in a space directly above the library's rare book room. This is dry lab space, but there are pipes going across the ceiling. He had already called for emergency assistance from plumbing and cleaning crews, so I immediately went in to check the rare book room. This room is laid out in three sections. Essentially, the books are arranged as rare, more rare, and most rare, but there are some non-rare materials awaiting processing in the "rare" area. I took a quick glance in the outer two areas and checked the inner area, "most rare," first. No damage. The central area was clear too. This left the outer area. I had already noticed one line of drips, but these were directly down the aisle. I called for back up assistance, opened the rest of the library for business, and started lining up supplies. By this time someone else had arrived at work. We identified another leak which was not visible on the first pass and Melinda, my preservation expert, had arrived to take over the rare book room. She put out trash cans to catch the drips to prevent splashing on materials, draped plastic sheeting over the affected ends of ranges, and began offloading one of the ranges which was directly affected. The water was leaking down through the ceiling, not down the visible seams as one would have expected, but between the seams. One book had taken the brunt of the damage, the 1895 volume of *Archiv fur Mikroskopische Anatomie, Bonn*. It was extremely wet from the outside edge of the pages in to about one and a half inches. She gave the book to me to begin interleaving to dry it out. The paper was stuck together in chunks, so on the first pass I used paper toweling, the only thing I had available quickly, for interleaving at 20 page intervals. For the next couple hours, between dealing with library users and telephone calls asking for progress reports, I changed the toweling every half hour or so as the toweling soaked up the water. We left the book standing upright with pages fanned open. There was good air circulation in this area of the library. Melinda kept an eye on the drips and wiped up water from shelves where the water dripped along the end of the shelf range. This spot could not be covered by plastic sheeting, so it had to be watched until the leak stopped. More plastic sheeting was needed than we had on hand, but we were able to acquire it immediately from a faculty member in the building. This plastic was somewhat thicker than needed and did not have the flexibility that 2-4mm plastic would have. Meanwhile, the leak had been fixed and a wet vacuum and mops had removed the water on the floor above by facilities management staff. They came down to the rare book room and mopped the wet floor beneath the leaks. Mopping was sufficient to remove the water, but residual drips continued throughout the morning and the door to the Rare Book Room remained open to provide increased air circulation. Melinda continued to monitor the area as the rest of the water worked its way through



the ceiling. By afternoon, I was down to 10 page interleaving intervals about every two hours. By the end of the next day, the plastic sheeting was removed and books reshelfed. Interleaving could now be inserted between every page for the small area that was still damp. The binding was kept intact because we did not interleave too often at first, and only a few pages show any discoloration.

## Case 5



Supplies: paper towels, plastic sheeting, trash cans, bucket, mops, book carts.

What we did right: got materials out of the way of the leaks; got supplies as quickly as possible, as we did not have enough stored in the library; put most staff to work on the problem areas and the least number on continuing to provide normal service; kept on good terms with the people in the lab above us so they would keep us informed as to a problem there.

What we could have done better: Kept additional supplies on hand as almost everything was stored centrally. All newsprint paper supplies had been moved out to the library during the previous year. This would be the preferred interleaving material over the paper towels used.

What we learned: I learned interleaving hands on, instead of it being only a concept described to me, and that you don't have to interleave every page at first.

## CONCLUSION

We must deal with water emergencies quickly. The principal cause of damage is not the water itself, but mildew, so materials need to be dry within 72 hours to prevent mildew from forming. Most of the time staff can deal with water emergencies and potential damage to the collection with simple supplies and training.

We should all be prepared to deal with water emergencies because, in the words of a colleague:

"All libraries attract water. It is simply a given."--  
Philip Leighton, Stanford University Libraries.

## REFERENCES

Leighton, Phillip. 1992. Disaster preparedness for libraries. Presented at Special Libraries Association Annual Conference, San Francisco, CA.

## **MINIMUM PRESERVATION NECESSITIES**

### **A Level**

Good air circulation

Paper towels

Plastic or other leakproof trash cans

Mop

Extra book cart (have at least one empty at any time)

Plastic sheeting 2mm thickness or more

### **B Level**

Bucket

Fan(s)

Newsprint paper (this is better than paper towels for interleaving because it's not as thick and it's relatively cheap, but don't use newspaper that has been printed on.)

Covered bricks or extra bookends for weighting down plastic

Dehumidifier