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# Rescuing Tsunami-Damaged Photographs in Japan

Yoko Shiraiwa

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## Abstract

The Great East Japan Earthquake and Tsunami on March 11, 2011, caused tremendous damage to photographic materials and memorial objects owned by people located in the area. It was an unprecedented disaster over a vast area of Tohoku. Creating an orderly recovery programme for the privately owned materials, such as family photographs, seemed impossible at first. Soon after the earthquake, however, many volunteers staying at the evacuation shelters spontaneously started to wash photographs and albums. This shorter notice is a personal review of how the disaster recovery took place in Ofunato, Iwate prefecture, Japan. It identifies typical damage to the photographs, treatment methods used, the impact of broader issues during the initial recovery period, and how other rescue projects were carried out.

## Introduction

This shorter notice focuses on the activities surrounding the efforts to save family photographs and memorial objects from the Great East Japan Earthquake and Tsunami. A magnitude 9.0 earthquake hit the Pacific Coast of Tohoku at 14:46 on March 11, 2011. It was the strongest earthquake ever recorded to hit Japan and was followed by tsunami waves that reached heights of up to 40 m. A National Police Agency report (August 29, 2012) confirmed 15,869 deaths, 6109 injured, 2847 missing. The quantity of photographs and memorial objects was enormous and unpredictable and, as the tsunami swept them over many miles, they were separated from the names of their owners. For many of the disaster victims who lost their families and homes, the photographs became irreplaceable treasures and the most important things to retrieve from their lost lives. Here, the author shares her experience as a private conservator on rescuing photographs from this area and some of the outcomes achieved by the people who cared about the memories of others. The difficulties of undertaking rescue and salvage operations after major disasters is discussed, and the treatment protocols put in place are presented.

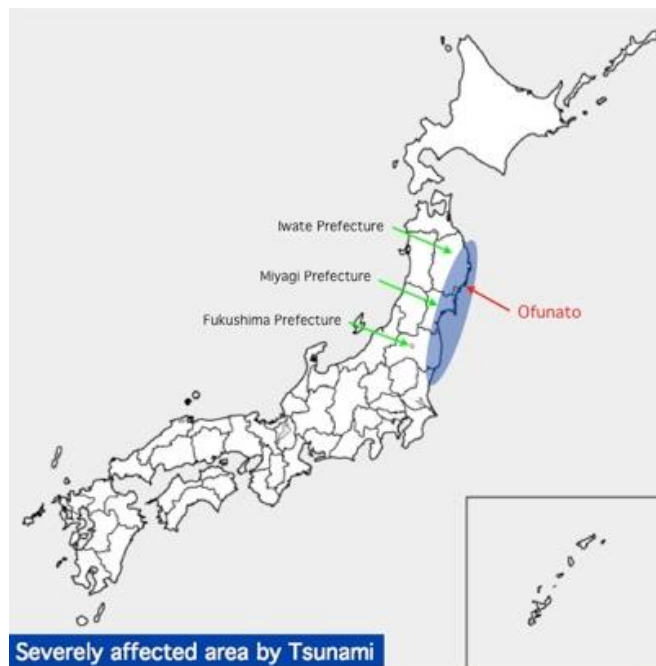


Fig. 1. Location of Ofunato city, Iwate prefecture, Japan and other areas affected by the tsunami.

### The Beginning of Salvaging Photographs at Ofunato, Iwate Prefecture

The author received a desperate telephone call from a conservator Satoko Kinno, a resident in Ofunato, a coastal city in Iwate prefecture, a week after the earthquake had struck on March 11, 2011 (Fig. 1). After initial relief that she was safe, the author learnt that there were many photographs without owners and that efforts had begun to collect the photographs together. It was apparent that guidelines for rescuing salvaged objects were urgently required. The author immediately started to find information on disaster response manuals and emergency recovery as well as consulting conservators abroad, and began to prepare guidelines in Japanese for rescuing photographs. Information from the following sources was used:

- Hess Norris, D., 1998, *Disaster Recovery – Salvaging Photograph Collections*, Technical Bulletins, Conservation Center for Art and Historical Artifacts, [http://www.ccaha.org/uploads/media\\_items/technical-bulletin-salvaging-photographs.original.pdf](http://www.ccaha.org/uploads/media_items/technical-bulletin-salvaging-photographs.original.pdf) ;
- Waters, P., 1993, Extracts from unpublished revised text, *Procedures for Salvage of Water Damaged Library Materials*, Library of Congress, <http://cool.conservation-us.org/bytopic/disasters/primer/waters.html>;
- National Archives and Records Administration (NARA), 1993, <http://cool.conservation-us.org/bytopic/disasters/primer/narafam.html>;
- Albright, G., *Emergency Salvage of Wet Photographs*, North East Document Conservation Center, <https://www.nedcc.org/free-resources/preservation-leaflets/3.-emergency-management/3.7-emergency-salvage-of-wet-photographs> (all accessed 10/06/14).

Table 1

<b>Timeline at Ofunato, Iwate</b>	
March 11	The Great East Japan Earthquake and Tsunami (Magnitude 9).
March 18	Telephone call from Satoko Kinno, book and paper conservator, resident in Ofunato, Iwate.
March 25	Japanese government makes official announcement for rescue crews to keep albums, photographs or other memorial objects. The Japanese Self Defense Force follows this order.
March 28	Recovery of electricity. Satoko is able to start using her mobile phone.
April 6	Email the guideline for rescuing photographs to Satoko who is able to receive it at the government building of Ofunato through JAXA (Japan Aerospace Exploration Agency) satellite.
April 7	Big aftershock. Magnitude 7 in Ofunato. Power cut. The ceiling of the allocated building where the treatment is about to start falls down.
April 11	The collected photographs begin to be delivered to Ofunato where they have set up a recovery center in one of the municipal buildings, administered by Ofunato Council of Social Welfare.
April 22-26	My first visit to Ofunato. The city is missing 200 people at that time.
April 30	Landline recovers. Internet access becomes available.
June 1	Ofunato Council of Social Welfare decides to employ eight people including Satoko. This changes the project from a volunteer activity to a municipal scheme. Satoko becomes the supervisor for the group.
June 22	Toshiba donates 5 freezers to Ofunato.
June 29-July 3	My second visit to Ofunato.
July 14	Tokyo Document Recovery Assistance Force sets up the Floating Board Washing System and the Air Stream Drying System in Ofunato.

On March 25, 2011, the Japanese Government made an official announcement regarding the saving of personal objects (Table 1). Without this announcement, the people of this affected area would have lost many of their personal treasures. It was not until March 28, when the conservator in Ofunato was able to use her mobile phone, that the author and conservator were able to exchange information and discuss how to treat the damaged photographs. Internet access was severely limited (the conservator in Ofunato had limited access until 50 days after the tsunami), which made the author and conservator realize how dependent people had become on the internet, and how difficult contact is without it.

The author was able to visit the area from April 22 to 26, 2011. This first visit highlighted the problems and difficulties facing those attempting to recover and conserve the photographs. The Japan Self Defence Forces and volunteers had started to collect photographs and memorial objects as they went through the debris to clear it away and look for missing people. Some of them were delivered to the Ofunato Welfare Centre where washing began to take place. Others were left in boxes piled high with photographs outside the evacuation shelters. In Rikuzentakata, 16km from Ofunato and one of the worst-affected cities, the photographs were left on the road where there would have been houses so that people could come back to find them (Fig. 2).



Fig. 2. Photographs collected in boxes placed near collapsed houses, Rikuzentakata.

### Difficult Situations during the First Few Months

During the first few months, the situation was extremely difficult. There were more than 20 aftershocks per day. Aftershocks are unavoidable. They start unpredictably and can interfere with rescue activity, with the emphasis being on personal safety over objects. Basic infrastructure had been devastated. Access to the area was extremely difficult as the railway along the coast had been destroyed. Debris was scattered everywhere and roads were still in the process of being secured for traffic. There was a lack of accommodation, food and fuel (petrol). Supplies of water, electricity and gas were interrupted. Local government was not able to function, many of their staff having been lost in the earthquake and tsunami. Searching for missing people and taking care of the evacuated citizens was the priority.

In terms of the recovery of photographs and personal items, there was an unknown quantity of materials. The scale of the disaster was too big to fully comprehend immediately. Materials were being delivered and collected continuously, which made it difficult to prioritize or plan the

recovery scheme. There was also not enough space available to undertake treatments. Accepting and training volunteers to undertake the work was difficult. Volunteers had to be instructed on what to do every day, as the volunteer workforce changed on a daily basis.

### Types and Presentation Forms of Salvaged Photographs

The majority of damaged photographs were chromogenic color prints on resin-coated paper printed after the 1970s and those on fiber-based paper. There were some gelatin silver prints, negatives and inkjet prints. Nineteenth-century process photographs were rare.

The presentation forms of photographs were also varied. Many were in pocket albums (simple pocket albums, common in Japan usually provided free by the photographic processing laboratories) as well as in magnetic albums. Individual photographs were often found kept in envelopes or sleeves in piles. There is a tradition in Japan of taking formal studio photographs to commemorate ceremonies, such as weddings, Children's Day and coming-of-age ceremonies, and presenting them to close relatives. Due to this custom, many photographs were found in photographers' presentation mounts which are made out of card. Some framed photographs in glass and acrylic glazing were found, including those of deceased family members, as there is a tradition of placing a photograph of the deceased person in the Buddhist altar at home. Negatives found were mostly in plastic sleeves or in negative file folders.

The Japan Self Defence Forces and volunteers had collected things that could easily be found in the debris, and additional identifiable materials were collected at the same time. Certificates, photographs, albums, memorial objects, letters and Buddhist memorial tablets with incised names were collected. It was interesting to note that CD-R, DVD and other digital media were rarely collected despite the fact that we now live in a digital age.

### Types of Damage to Photographs

Water from tsunamis is contaminated and various types of damage were seen on the photographs. Swelling and dissolution of the gelatin layer of the photographs which absorbed water and stayed wet was observed (Fig. 3). Bacteria and mold growth were also responsible for dissolution. The clear cover sheets of magnetic albums prevented them from drying once they were wet, accelerating mold growth on photographs and on the pages with adhesives. The salt in the water prolonged the time that the photographs were wet, preventing them from drying quickly. Photographs in piles had become



Fig. 3. Chromogenic Resin Coated print after the glazing (glass) was removed. Image has been destroyed where the water penetrated, leaving only the center part.

stuck together in blocks. Photographs became attached to glazing. Thin sheets of interleaving paper used with mounted studio photographs were stuck to the photographs, and photographs with no interleaving paper were stuck face to face in the albums, which made them difficult to open. Coated paper materials, such as those used in school yearbooks, became stuck together when dried, making it impossible to separate the pages. There was blurring of Inkjet prints. Photographs collected from some industrial areas had been soiled by thick oil.

### Disaster recovery Treatment at Ofunato

At Ofunato, the recovery treatment was carried out on site under the control of Ofunato Council of Social Welfare. They did not allow their photographs to travel outside of the city. Given the loss of infrastructure and limited transport, the materials used for treatment had to be easily obtained locally.

When the photographs were first delivered, they were dried by taking them out of the boxes they had been delivered in. Washing the photographs in water and drying them was the main treatment applied. However, it was not always so simple. Photographs that started to dissolve were difficult to wash. Where possible, the faces of people were left on the print so that it would be possible for the family to identify them. Blocks of photographs were immersed in water until they could be peeled off one by one (Fig. 4). Pocket albums were cut along the rims to open them up and then placed in the water to remove the plastic film and paper. It was sometimes necessary to split magnetic albums so that the water could penetrate. Some magnetic albums could not be washed as the images transferred to the clear cover sheets (Fig. 5); therefore, they were trimmed with the paper mount and cover sheet attached. Photographs stuck on to the glazing were extremely difficult to treat especially when the prints were on resin-coated paper which has polyethylene layers on both sides, making it impenetrable to water.

Thick oil from photographs was removed using mineral spirit or white spirit. Negative films were washed in the same way as the prints, with a final rinse in Fuji Driwel (a surfactant which minimizes water streaks and drying marks) solution. Photographs on resin-coated paper and negatives



Fig. 4. Prints separated one by one after immersion in water.



Fig. 5. The image is transferred to the clear cover of the magnetic album.

were hung out to dry with clothes pegs and those on fiber-based paper were pressed between newspaper and blotting paper with baking paper (silicone-coated paper) on top of the print surface.

On July 14, 2011, the Tokyo Document Recovery Assistance Force set up the Floating Board Washing System and the Air Stream Drying System in Ofunato and the staff were able to start drying photographs using this system. The Tokyo Document Recovery Assistance Force was established in May 2011 for the purpose of supporting the emergency recovery system for paper documents. The Floating Board and the Air Stream Drying methods were introduced, which contributed to facilitating and speeding up treatment of paper documents. By September 2012, this system had been set up in 15 places in Japan, together with training for using the systems locally. The Floating Board Washing System was used in the 1966 Florence flood (Cains, A., 2009. The Work of the Restoration Centre in the Biblioteca Nazionale Centrale di Firenze 1967–1971, In *Conservation Legacies of the Florence Flood of 1966*, Proceedings from the Symposium Commemorating the 40th Anniversary, London, Archetype Publications, 29–70). The Air Stream Drying System was originally suggested by R. Futernick in 1988 and introduced to paper conservation at the Western Regional Paper Conservation Laboratory in San Francisco (Glück, E., et al. 2011. Air-Stream Drying of Paper, *Restaurator* 32, no. 1: 27–38). There were advantages in applying these methods, which volunteers could easily and safely use after a brief training session. No special equipment was necessary, material supplies could be used repeatedly, and the system could be set up anywhere. The Air Stream Drying method was of enormous benefit for drying large amount of photographs as they could be dried and flattened at the same time without changing blotting papers. It also solved the problem of working with limited space.

Compared to other cities, Ofunato was able to start the photographic rescue operation very early. The success of the operation in this area came from the fact that personal contacts were used and that there was a leader to supervise the activity locally. Requesting freezers, even though there were not enough delivered for the amount of photographs, was a good decision as they were effective in preventing further mold growth. Photographs were placed in thin, high density polyethylene bags before placing them in the freezer. This enabled the photographs to dry gradually in the freezer which made it easier to conduct further treatment. For example, it was easier to remove clear cover sheets from magnetic albums that were frozen than those left to dry in the room. Those objects that were dried at an early stage, even without being washed, were in a better condition than those that were left as they were. This suggests that if there is not enough time and resources to wash them, an attempt should be made at least to dry the photographs and not leave them wet. The use of local volunteers produced fruitful results. The local people were able to identify the owners while they were treating the photographs. This could have happened only in an intimate community. From June 1, 2011, to the end of June 2012, 263,000 photographs were washed and 196,000 returned to their owners.

### **Fujifilm Photo Rescue project**

The Fujifilm Photo Rescue project was launched after the company Fujifilm began to receive enquiries on what to do with the damaged photographs from volunteers at evacuation centers in the area. On March 24, 2011, the company uploaded a short video clip on their website to

demonstrate a cleaning method and in April, a TV and radio commercial was broadcast to encourage people not to throw their photographs away, assuring them that they could be washed and saved. A project team of 30 members first visited Kesenuma in Miyagi prefecture on April 9, 2011 and from there they gradually travelled to other cities where volunteers were washing photographs. The team's members spent every weekend in the area until June 2011, giving advice and instructions to volunteers at 80 centers. Furthermore, because of the well-known name of the company, some local authorities gave permission for the photographs to be sent to Fujifilm's factory in Ashigara for treatment. From June 25, 2011, a vast washing project took place at the Ashigara Factory in Kanagawa prefecture. Fujifilm employees, ex-employees and their families gathered every day for a month to treat the photographs. It was estimated by the company that more than half of the photographs collected were originally from their products.

The company's support did not only take the form of instructing local volunteers how to handle and clean prints but also in providing supplies in the form of a cleaning kit package so that the volunteers could commence cleaning immediately. The cleaning kit package consisted of clothes pegs, wall net, ropes, gloves, masks, washing containers, brushes, and pocket albums to place washed photographs in. The role of the company was very important as they were a large enough organization with the capacity and resources to set up and run such a large project in such a short time.

### **Photo Rescue Summits and Co-operation Amongst Organizations**

In December 2011, a Photo Rescue summit took place, with a second summit in June 2012 both in Sendai, Miyagi prefecture. Their purpose was to assemble organizations who were supporting the recovery and those who were receiving support, and to provide links with the groups in the disaster-hit areas. The exchanges were invaluable, enabling communication amongst the organizations through their representatives. Ideas and expertise on cleaning were shared and means of returning photographs to their owners were discussed.

Some cities, such as Rikuzentakata, had sent out their photographs to several organizations to be treated. As the organizations were spread across the country, they spontaneously created a closed group on Facebook where members could easily report their activities, share technical skills and information and call each other for supplies. This encouraged many to continue their support, to help each other and feel united.

### **The Different Approaches of the Cities**

Although every city or organization had their own way of managing and operating the activity, they more or less followed the same method of washing and drying. However, there were different thoughts as to how far to go with the treatment, especially when it came to the degree of cleanliness and how much of the image should remain.

There were also different approaches to scanning the images and how to find the owners of the materials. In some places, it was decided to scan the images when the condition of the photographs made them too difficult to treat or some of the image would be lost through treatment. Digitization was used to set up a database, recording some information found on or



with photographs. Scanned images could also be printed. Ofunato was reluctant to scan photographs until it was felt that most of the photographs had been returned to those owners who could be found, because of concerns with privacy.

In terms of finding the owners, some cities decided to transport the photographs on a regular basis to temporary housing and local community centers to show them to people. Kesenuma decided to wait until people came to them as it was felt that many people still found it heartbreaking to look for their family photographs. Kesenuma and Yamamoto-cho both set up face-recognition systems using Picasa, enabling people to search photographs digitally. Yamamoto-cho is located in the south-east of Miyagi prefecture and it was one of the first places where digitization of photographs took place even before washing. Their project included duplicating all the student yearbooks of local schools and distributing them. Picasa is a computer software which has a face-matching system. This allowed people to search their photographs in the database without going through the albums physically.

Issues remain about how these photographs will be handled and preserved in the future, since some of them may never be claimed by their owners. Certainly the decision will be different from one city to another.

## Conclusions

In spite of the scale of the disaster, there were innumerable photographs and memorial objects saved. In the beginning, the media was interested in what was going on and frequently broadcast the recovery. It was something very optimistic to report from the affected areas, and the tremendous attention and exposure encouraged more and more individuals to be involved with the recovery.

Although the Japanese government made an announcement to encourage the retention of personal memorial objects, it did not take the initiative on how to recover them from the disaster. The government took immediate action as regards cultural property, historical objects and official documents. Its priority was to rescue public collections and, as a result, all private photographs had to be rescued by volunteers and local people together with the support from companies like Fujifilm. Eventually the salvage of private materials was administered by the Council of Social Welfare or by local authorities. Without the people who believed that these objects were irreplaceable and valuable, this recovery would not have happened. The level of each individual's commitment and contribution when faced with such an enormous amount of work was revealed. In a big disaster like this earthquake and tsunami, large amounts of private material need to be salvaged. Methods of coping with such huge numbers, and the types of materials, need to be found. This is something that needs preparation for the future.

Informal discussions with those looking for photographs after the disaster suggested that value concepts changed, including the perception of photographs. People began to reconsider what photographs are. They were reassessed as objects that are so precious compared to digital media. Although these were personal photographs, by going through the disaster, they will now have different values attached them. One person's record can become another person's memory and eventually become the collective memory of society.

No matter how prepared you are, many things can be learnt only by actually experiencing the disaster. Making judgements and being flexible with ideas is crucial throughout the activity but extremely difficult at times. However, in an emergency of this scale, making mistakes in moving forward should not be something to be feared, with the end goal of improving the current situation in mind at all times. Needless to say, the author learnt many lessons through involvement in this recovery which were different to the usual practice of conservation. In addition to the technical skills and methods of dealing with materials from a disaster, comprehending the significance of caring and saving objects was an important lesson learnt. Through tragedy and loss we are reminded of what we take for granted and this helps us rethink our values of life.

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Paper and Photograph Conservator

Private Practice

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