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PERSONAL ACCOUNTS FROM SURVIVORS OF THE HILO  
TSUNAMIS OF 1946 AND 1960: TOWARD A DISASTER  
COMMUNICATION MODEL

A THESIS SUBMITTED TO THE GRADUATE DIVISION OF THE  
UNIVERSITY OF HAWAII IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

IN

COMMUNICATION

MAY 2003

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DEDICATION PAGE

I would like to dedicate this thesis to the survivors of the 1946 and 1960  
tsunami in Hilo, Hawaii --- and to those who did not survive.

## ACKNOWLEDGEMENTS

I would like to thank Gina Kaiu for all of her help in putting together the figures and tables for this thesis and Malia Bervar for her tireless editing and endless support.

## ABSTRACT

In 1960 a tsunami took the lives of 61 people in Hilo, Hawaii only 14 years after 96 people were lost in the 1946 tsunami. In 1960 there was 12 hours notice of a possible large tsunami and a siren warning system in place that was sounded more than four hours prior to the event. The governmental agencies knew there was a tsunami alert, the media was broadcasting warnings. What went wrong? My research includes analysis of transcripts available in the archives of the Pacific Tsunami Museum of interviews conducted with survivors of both the 1946 and 1960 tsunamis. A focus group was utilized to assess current tsunami awareness. Additionally, I examined logs of three governmental agencies recorded during the 1960 tsunami. My research indicates effective tsunami mitigation can be accomplished only through continual tsunami awareness education for the public, governmental agencies and the media.

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## CHAPTER 1

### INTRODUCTION

This thesis will examine interpersonal and group communication methods that were utilized to inform the endangered community of Hilo, Hawaii of the impending tsunamis that struck in 1946 and 1960. These two tsunamis caused tragic loss of life and enormous economic damage in Hilo, Hawaii and along the shores of the Hawaiian Island chain.

The purpose of this study is to provide information that will assist in future disaster mitigation planning. Analysis of the research will reveal that a lack of communication between governmental agencies, media inaccuracies, and a public that is not educated in tsunami safety contributed to the tragic loss of life. It is my assertion that communicating accurate information in a timely manner to a tsunami-safety conscious populace will reduce the loss of life and property.

The data for this thesis was derived from my investigation of survivor interviews archived at the Pacific Tsunami Museum and from logs obtained at the State of Hawaii, Civil Defense Division in Hilo, Hawaii. Additional information was collected by means of a questionnaire distributed to a focus group. The focus group was assembled from a group of people who currently reside in Hilo and are either tsunami survivors or are current residents of the evacuation zone.

#### Why is the Phenomenon Called "Tsunami"?

*Tsunami*, often referred to as a "tidal wave", is a Japanese word meaning port or harbor wave (*tsu* – port or harbor; *nami* – wave). Lander, Lockridge, and

Kozuch (1993) state that tsunamis are water waves generated by a sudden vertical displacement of the water surface. In harbors and harbor entrances they may appear as swift currents and eddies [an eddy is a current, as of water or air, moving contrary to the direction of the main current, especially in a circular motion].

Lander et al. (1993) claim that the misconception that tsunamis are “large, breaking waves leads to a communication problem between scientists, officials, and the public” (p. 2).

### What Causes a Tsunami?

“Tsunamis are caused by the violent movement of land on the shoreline or sea floor, which can occur in any of three ways” (Dudley & Stone, 2000, p. 26). Those three ways include submarine earthquakes, landslides and volcanic activity. During a submarine earthquake when a portion of the ocean floor is moved up or suddenly drops the movement displaces a massive amount of water. Dudley and Stone (2000) state that this can occur when under sea tectonic plates collide. In the case of a landslide, the displacement of water can be caused either by a slide that occurs under the water, or from a location above the water when a material becomes unstable and slides or is thrust into the water. Such an incident can be created by an earthquake, storms or the addition of new material. Finally, volcanic activity according to Dudley and Stone, especially an eruption in the sea can cause a huge displacement of water that creates a tsunami. Ultimately, Dudley and Stone reveal, a tsunami is always caused by the displacement of water.

### Will There be Notice of an Impending Tsunami?

According to Dudley and Lee (1998) notice of the impending event would be 15 hours at most, if the tsunami comes from South America; and 5 to 10 minutes at the most, if the tsunami is locally generated. Therefore, tsunami disaster communication requires a specialized strategy due to their rare occurrence and the possibility of limited warning time. With the limited time frame, there is little time for critical thinking. It is imperative that the disaster response community, the media and the public have accurate information as quickly as possible.

### 1946 Tsunami

On April 1, 1946 a major earthquake centered about 90 miles from Scotch Cap lighthouse created a 100-foot tsunami wave that swept away the lighthouse located on Unimac Island in the Aleutian Islands killing all five U. S. Coast Guard personnel who manned the facility (Dudley & Lee, 1998). The lighthouse guarded Unimac Pass between the Pacific Ocean and the Bering Sea. The five story structure, built in 1940, was nearly 100 feet high (Dudley & Lee) and was situated 40 feet above sea level (Martin, 2002).

Both the U.S. Coast and Geodetic Survey located on the University of Hawaii campus in Honolulu and the Hawaiian Volcano Observatory at Kilauea on the Big Island registered and recorded the Aleutian earthquake shortly after it occurred (Dudley & Lee, 1998). According to Jaggar (1946) the great tsunami originated at approximately 2:00 a.m. in what is known as the Aleutian Deep under about 18,000 feet of water when a section of the sea floor dropped downward.

Jaggard states that the sea floor deepened and water rushed in to fill the hollow, piling itself up into a long wave. No one realized that a wave had been created that would travel over 2,300 miles from the Aleutians to Hawaii at a rate of about 500 miles an hour. According to Dudley and Lee the first wave reached Kauai at 5:55 a.m. and traveled on to Honolulu where it arrived at 6:30 a.m. The wave reached the island of Hawaii just before 7:00 a.m.

Dudley and Stone (2000) relate that as the wave approached the town of Hilo, it smashed into the Laupahoehoe peninsula where it took the lives of 24 people, including 16 school children, 4 of their teachers and 4 residents. Railroad bridges fell as ferocious 20-foot waves carried them away. The wave continued on into Hilo demolishing the community that stood in the tsunami's destructive path. A few miles down the bay lay the residential neighborhood of Keaukaha. The first wave came silently into Keaukaha and when it receded the residents discovered that the only road out of the low-lying community had been washed out by the retreating water. There was no escape except through the dense tropical jungle behind the homes. A total of nine waves came ashore in the town of Hilo that day and it is estimated that the waves varied from 17 to 25 feet in height (Dudley & Stone).

The tsunami came without warning. In 1946 no one anticipated that an earthquake in Alaska could have such a destructive impact on the Hawaiian Islands, particularly the charming town of Hilo. Dudley and Stone (2000) relate that almost 500 homes and businesses were totally destroyed and at least 1,000 others were

badly damaged on that day. Estimates (Dudley & Stone) are that the cost of the destruction was \$26 million in 1946 dollars. The cost in relation to human life was much worse. In Hawaii that day, 159 people lost their lives and 96 of those lives were lost in Hilo.

Almost immediately the people of Hilo set out to rebuild their homes and their lives. Dudley and Stone (2000) relate that there were some changes in Hilo after that fateful day. The businesses between Kamehameha Avenue and Hilo Bay were never rebuilt. Most of the residential areas, however, were rebuilt as were many of the businesses in Waiakea. Unfortunately, some of these structures were rebuilt in low-lying areas that would be vulnerable to the next tsunami (Dudley & Stone).

#### 1960 Tsunami

Dudley and Lee (1998) chronicle events that took place in the South American country of Chile beginning on Saturday, May 21, 1960. It was the earthquakes in Chile that led up to the catastrophic tsunami on May 23, 1960 in Hilo, Hawaii. The saga began on May 21, 1960 just after 6:00 a.m. (Chile local time) when a major earthquake, 7.5 on the Richter scale, struck near the city of Concepcion in Chile, 6,600 miles from Hawaii. This earthquake was registered at the U.S. Coast and Geodetic Survey Observatory in Honolulu, Hawaii where a tsunami watch was issued at 6:45 a.m. (Chile local time). In Valparaiso, Chile, small waves registered on the tide gauges. These waves continued for some hours and gradually began to decrease. Eaton, Richter, and Ault (1961) report that the

May 21, 1960 earthquake in Chile produced a small wave in Hilo Bay. The Honolulu Observatory commenced to observe tide gauges throughout the Pacific area. Since only a small wave was recorded in Hilo Bay, at 8:49 p.m. on Saturday, May 21, 1960, the alert was cancelled. Dudley and Lee note that although the alert was called off, the Chilean Navy was ordered to keep continuous watch on the tide gauge in Valparaiso.

Dudley and Lee (1998) relate that the next afternoon, May 22, 1960, at 1910 Greenwich Mean Time (GMT), the shaking began again with another 7.5 earthquake. Seconds later an even larger earthquake occurred at the same epicenter which was just off the coast of Chile between Concepcion and Chiloe, offshore of the province of Llanquihue (Dudley & Lee). Eaton, Richter and Ault (as cited in Dudley & Lee, 1998) state that the earth shook with violent force for nearly seven minutes and that it was measured "at a colossal 8.6 on the Richter scale---more than 30 times the energy of the earlier 7.5 quakes" (p. 131). Eaton, et al. (1961) disclose that the major earthquake credited with causing the destructive tsunami of May 23, 1960 was "preceded by several sizeable foreshocks ... and it was followed by many aftershocks" (p. 136). They reported that the first quake nearly eradicated the preliminary phases of the main earthquake. Eaton, et al. (as cited in Dudley & Lee, 1998) state that after observing that an earthquake of 8.6 magnitude had been recorded, the scientists who were watching the seismographs at the Honolulu Observatory predicted a tsunami had been generated and that it could be a large tsunami.

According to Eaton, Richter, and Ault, (1961) the earthquake and resulting tsunami took a great toll along the coast of Chile. From the Chilean coast the tsunami waves fanned out across the Pacific heading directly for Hawaii, over 6,000 miles away. Along its journey, the tsunami struck a few islands, including Juan Fernandez Island, 400 miles off the coast of Chile and Easter Island, more than 2,000 miles from Chile. Eaton, et al. (1961) estimated that it would take about 15 hours for a tsunami to travel 6,600 miles and reach Hawaii from Concepcion, Chile. They calculated that a tsunami created at the time of the main earthquake would reach Hawaii around midnight, local time.

Meanwhile, according to Dudley and Lee (1998) the news media began to report on the destructive waves and the damage that those waves had caused along the coast of Chile. Although the media was broadcasting news regarding damaging waves in Chile, the scientists at the Tsunami Warning Center had no reports from stations along the path of the tsunami between Chile and Hawaii. Despite the lack of official reports, the scientists felt that they had to make a decision about whether to issue a warning. Dudley and Lee report that the decision was made at 6:47 p.m. (Hawaiian time) to err on the side of caution and issue an official tsunami warning. A message indicating no tsunami had been observed arrived from Christmas Island, located approximately 1,300 miles from Hawaii, just 40 minutes after the tsunami warning had been issued.

Dudley and Lee (1998) specify that at 8:30 p.m. the sirens located on the coastlines of the Hawaiian Islands were sounded. According to the logs of the



Hawaii Civil Defense Agency (HCDA), the Hawaii Police Department and the Hawaii Fire Department, the sirens in Hilo were first sounded at 8:35 p.m. There are differing accounts as to how many times the sirens sounded and for how long. Lachman, Tatsuoka, and Bonk (1961) note that the warning sirens sounded “for a 20-minute period more than four hours prior to the impact of the wave” (p. 1406). While all three of the logs, Hawaii Civil Defense Agency (HCDA), the Hilo Police Department and the Hawaii Fire Department, indicate that the first siren sounded at 8:35 p.m., it is only the Hawaii Civil Defense Agency log that indicates that the sirens were sounded five times between 8:35 p.m. and 8:50 p.m.

At 9:00 p.m. Dudley and Lee (1998) report that there were news broadcasts on radio stations that described the waves that hit Tahiti as three feet high. Dudley and Lee (1998) state that Tahiti is relatively safe from tsunamis since it is surrounded by reefs and steep offshore slopes and these elements would tend to minimize the effects of a tsunami.

It was not until 10:23 p.m. (Dudley & Lee) that official notice was received by the warning center in Honolulu from Tahiti located approximately 3,800 miles from Honolulu that unusual wave activity had occurred. This was the first official confirmation of the tsunami received by the warning center since the first reports that tsunami waves had impacted the Chilean coast.

At 12:07 a.m. (Eaton, Richter, & Ault, 1961) reported that they noticed the water begin to rise beneath their vantage point on the bridge on the west edge of Hilo Bay. The water crested at 12:13 a.m. at about + 4 feet and began to fall slowly

until 12:30 a.m. to a trough of – 3 feet. Dudley and Lee (1998) state that at 12:46 a.m. the second wave passed the Wailuku bridge at a level of nine feet above normal. This wave went on to flood Kamehameha Avenue and the business district of Hilo. The water began to withdraw and the geologists measured a trough of seven feet below normal. Again the water gathered force. Eaton et al. (1961) observed “a 20-foot-high nearly vertical front of the in-rushing bore churning past our lookout” (p.139) and at 1:05 a.m. the power plant at the south end of Hilo Bay was hit and the city of Hilo and most of the Island of Hawaii went dark.

### Warning Systems

On April 1, 1946 when Hilo, Hawaii was struck by a tsunami generated by an earthquake in the Aleutian Islands, there was no prior warning to the population. By 1960 a siren warning system to be used for tsunami warnings was in place in the state of Hawaii. In addition to the sirens, there were warnings propagated by radio and government agencies, as well as scientists who were aware of the earthquakes in Chile and the possible disastrous results. With this warning system in place there was still a loss of 61 lives in Hilo.

Bonk, Lachman, and Tatsuoka (as cited in Dudley & Lee, 1998) explain that since the system for the warning sirens had been changed only a few months prior to the 1960 tsunami that many people did not understand the warning. Dudley and Lee (1998) described the old system as three separate alarms; the first siren was to indicate that a tsunami warning was in effect; the second siren meant to evacuate; and the third was supposed to go off just prior to the arrival of the first

waves. The new system was only one siren and that meant to evacuate immediately. This caused confusion since many people were waiting for the second siren before leaving their homes.

Some relatively small tsunamis that were perceived by the public as *false alarms*, such as the tsunami of May 21, 1960 in Hilo, lulled the population into complacency. Anita Matthews, 1960 tsunami survivor is quoted in her interview as follows: "That week we had so many alerts. When the tidal wave really came my husband told me, 'Huh, it's just another false alarm'".

Since reports predicted that the waves would arrive around midnight many people were curious and actually went down to the water to wait for the waves to arrive. Eaton, Richter, and Ault (1961) relate that reports from a radio station stated that no waves had yet arrived in Hilo and that the estimated tsunami arrival time had been set back half an hour just minutes after they observed the first wave arrive and crest at four feet above normal at 12:13 a.m. It was obvious that communication between those in charge of the warning system and the news media had broken down and misinformation was being passed along to the public.

## CHAPTER 2

## LITERATURE REVIEW

Natural science literature contains the greatest body of knowledge in the area of tsunamis. The technical areas such as tsunami generation and run-up are beyond the scope of my research; however, some of the natural science literature does contain social science research. My focus is on the social science aspects of tsunami disaster communication with only essential references to scientific data.

Tsunami Research

For more information on the scientific aspects of tsunamis, please refer to the following: an article by MacDonald, Shepard and Cox called "The Tsunami of April 1, 1946, in the Hawaiian Islands" (1947) *Pacific Science* and Dr. Dan Walker's report published in 1993 for the School of Ocean and Earth Science and Technology Report, "Pacific-wide tsunamis reported in Hawaii from 1819 through 1990: Runups, magnitudes, moments, and implications for warning systems". Another resource is George D. Curtis' paper that appeared in *Natural and Technological Disasters: Causes, Effects, and Preventive Measures* entitled "Tsunamis --- seismic sea waves" edited by Majumdar, Forbes, Miller, and Schmalz (1992) for the Pennsylvania Academy of Science. Also, Gerald Fryer's "The most dangerous wave" that appeared in *The Sciences* in the 1995 July/August issue. "Tsunami Casualties and Mortality in Hawaii" published by Doak C. Cox (June 1987) discusses the long-term average potential tsunami mortality rate in Hawaii in the absence of protective means such as tsunami warnings.

In the aftermath of the May 23, 1960 tsunami that took 61 lives in Hilo, Hawaii, several reports and articles were published. One of these reports, "Tsunami Warning System Review" written by Austin, Cox, Eaton, Haraden, Visher, and Vitousek (June 1960) for the Geophysical Society of Hawaii revealed that the siren warning system now in use provided technically successful warnings of three large tsunamis, November 4, 1952, March 9, 1957 and May 23, 1960. The authors indicate that improvement in the overall system and its acceptance by the public is needed. Why was there such a tremendous loss of life in the 1960 tsunami when there was a modern siren warning system in place?

The U. S. Army Engineer's (1960) report entitled "The Tsunami of 23 May 1960 in Hawaii Final Post Flood Report" reported that on the evening of the 1960 tsunami disaster, an engineer from the Corps of Engineers was sent to Hilo to observe and report on the tsunami. The engineer, Mr. James K. K. Look, lost his life in the tsunami. Why, in 1960, was a government employee so foolishly placed in harm's way? As with the other lives lost in the 1960 tsunami, his life could have been spared if authorities and the population had been educated in tsunami safety and the warning had been effectively communicated.

In the *Bulletin of the Seismological Society of America*, (April, 1961) there appears a research paper by Eaton, Richter and Ault entitled, "The Tsunami of May 23, 1960, on the Island of Hawaii". The authors express their concerns that the need for tsunami research and continual public education, as a means for preventing further disaster, is painfully evident. To this day, the need for public

education in tsunami safety remains imperative. My research indicates that residents of Hilo living within the evacuation zone do not have a complete and clear understanding of the dangers that are posed by tsunamis.

Dr. Walter C. Dudley and Min Lee's book entitled "*Tsunami!*" (1998) (2nd ed.) offers a comprehensive account of tsunamis from both a natural science and social science perspective. In addition to information on 1946, 1952, 1957, 1960 and 1964 distant tsunamis and the impact they had on the Hawaiian Islands, the book includes data on locally generated tsunamis in Hawaii and recent tsunamis from around the world. The book includes interviews with tsunami survivors as well as stories collected by Min Lee. Dudley and Lee point out that Hawaii has been struck by more tsunamis than any other region in the world and yet most residents and visitors do not have an understanding of the tsunami hazard. They note that despite the death and destruction by tsunamis experienced on the shores of Hawaii in the 20<sup>th</sup> century, that a commitment to protection and education is still badly needed. In the event of the next distant tsunami, we will probably have enough warning, but the authors ask, "Will the warning be understood and heeded?" In my research I ask the same question.

Another book used extensively in this thesis was *Tsunamis Remembered: Oral Histories of Survivors and Observers in Hawai'i* (2000), a collection of transcripts of interviews conducted by Dr. Warren Nishimoto, Director of the Center for Oral History, Social Science Research Institute, University of Hawaii. This is a two-volume set of interviews from which transcripts of survivors of the

1946 and 1960 tsunamis in Hilo, Hawaii were extracted and analyzed (see chapter 5 Nature of Results and Findings). The findings are disturbing as the stories reveal the depth of confusion and misunderstanding present during the 1946 and 1960 tsunamis. A heightened awareness of tsunami safety was not found when comparing the responses of the 1946 tsunami survivors to the 1960 survivors.

### Disaster Research

No single sociological theory is sufficient to address the complexity of social life. Therefore, a broad literature review of the prominent theories in group and interpersonal communication was conducted to provide the background necessary to cultivate insight into disaster communication theory. Littlejohn (2002) provided *background information on interpersonal and group communication theory*.

Social science disaster researchers began seriously looking at the behavior of people in relation to disasters in the 1950s. Until then little had been written in the area of disaster communication theory. The writings of Henry W. Fischer III, E. L. Quarantelli, Russell R. Dynes and Kathleen J. Tierney, prominent researchers in the field of disaster research offer theories on the social dimensions of disaster.

Dynes and Tierney (1994) edited a book entitled *Disasters, Collective Behavior, and Social Organization* in which they pay tribute to the organizational and intellectual contributions of Quarantelli. Quarantelli made significant *theoretical and empirical contributions in the fields of disaster research, collective behavior, and social organizations*. Quarantelli pioneered studies that concentrated

more on the social stability and continuity, including adaptability and response, and less on the chaotic nature of disaster. Notably, when researchers began looking at behavior they discovered that there was not widespread antisocial and irrational panic behavior.

Henry Fischer (1998) in his book, *Response To Disaster: Fact Versus Fiction & Its Perpetuation: The Sociology of Disaster*, refers to the idea that people will cease to act in an orderly manner as *disaster mythology*. He claims that most people think that when a disaster occurs “[potential] victims will panic and engage in any behavior deemed necessary at the moment to facilitate their escape”. Fischer (1998) states that “the norms that we tend to follow during normal times hold during emergency times”. My research confirms that panic was not among the common responses. In fact most people acted in an appropriate manner considering the situation and the lack of adequate warning.

Ted Steinberg, a leading young environmental historian and author of *Acts of God: The Unnatural History of Natural Disaster in America* states in his book that “our culture needs a passionate, critical engagement with the past to encounter the denial and apathy that inform so many aspects of the response to natural disasters in contemporary America”. Steinberg stresses that if we continue to ignore patterns of destruction and rebuild in danger zones that we must take responsibility for the consequences. Steinberg discusses communities built in flood zones. A parallel can be made to the continued building of homes and businesses in tsunami evacuation zones.



### Similar Studies

After the 1960 tsunami, the Hawaiian Academy of Science met and formed a Tidal Wave Disaster Study Group. This group requested that William J. Bonk, Instructor in Anthropology and Sociology at the University of Hawaii, Roy Lachman, Research Psychologist and Assistant Professor of Psychology at the Johns Hopkins Hospital and School of Medicine in Baltimore, Maryland, and Maurice Tatsuoka, Assistant Professor of Science and Mathematics at the University of Hawaii at Hilo prepare a report by gathering factual information from interviews of survivors. Over 30 members of the Hawaii Division of the Hawaiian Academy of Science and other volunteers assisted with the interviewing. The research was supported in part by a grant from the National Institute of Mental Health, Public Health Service and by the University of Hawaii. An examination of the report was utilized to compare and contrast my findings.

In addition to the report, an article by Lachman, Tatsuoka, and Bonk (1961) was published in *Science*. The objective of the research was to study the subjective interpretations of the warnings and the resulting behavior. The report and article addressed how the interviewees received information during the pre-impact period, impact period and the post-impact period as well as possible determinants of adaptive behavior. In the conclusion, the report discloses results based on the behavior of the individuals and includes some specific recommendations.

In 1960 there was a siren warning system in place and yet 61 people lost their lives in Hilo. Why? Was there confusion in communication? Were there

mixed signals from the media? Was there confusion on the part of authorities?  
Was there incorrect word-of-mouth? The report written by Bonk, Lachman and  
Tatsuoka (1960) shortly after the 1960 tsunami addressed some of these  
communication issues. However, I will show in my findings that the situation has  
not improved greatly in the past 43 years.

## CHAPTER 3

### METHODOLOGY

#### Research Design

The research conducted for this thesis consisted primarily of an investigation of interviews of tsunami survivors, a focus group questionnaire, and a review of Hawaii Civil Defense Agency (HCDA), Hawaii Police Department – Hilo Station and Hawaii Fire Department logs with the focus on communications prior to and during the 1946 and 1960 tsunamis.

This research utilized content analysis of recorded interviews of individuals who survived the 1946 and 1960 tsunamis in Hawaii. The majority of the interviews were video-taped for the Pacific Tsunami Museum and I was the interviewer. In addition to interviews archived at the Pacific Tsunami Museum in Hilo, Hawaii, my research reviewed and analyzed interviews conducted by Dr. Warren Nishimoto, Director of the University of Hawaii Center for Oral Histories, of tsunami survivors that were published in *TSUNAMIS REMEMBERED: Oral Histories of Survivors and Observers in Hawai'i* (2000).

An extensive description of the setting within which the disaster occurred has been provided in Chapter 2. Data was gathered and the raw data was classified and interpretations were made from that data. Methods of investigation and theoretical constructs were discussed with my committee.

Content analysis of the 1946 and 1960 interviews was focused on specific communication related variables. Utilizing qualitative research, additional data

was collected from documentation located at the Hawaii Civil Defense Agency (HCDA) office in Hilo, Hawaii regarding the 1960 tsunami. Other pertinent documentation available at the Pacific Tsunami Museum was investigated. The research data was analyzed in relation to various communication aspects. Once the data was analyzed, tables showing the data were prepared. The evidence, where possible, was compared and contrasted with the Bonk, Lachman, and Tatsuoka (1960) study. There is a discussion of the findings in Chapter 6.

### Participants

The majority of subjects of this research project are survivors of the 1946 and 1960 tsunamis in Hilo, Hawaii. Their interviews were collected and transcribed and are archived at the Pacific Tsunami Museum, 130 Kamehameha Avenue, Hilo, Hawaii.

Another group was utilized as a focus group. The focus group was assembled from a number of people who were members of one of the following three categories:

1. Tsunami survivors still living in the evacuation zone;
2. Tsunami survivors who currently reside in Hilo, but not in the evacuation zone, and
3. New residents who currently are living in the evacuation area.

The tsunami survivors were interviewed in a variety of settings. These interviews were conducted on a one-on-one basis with each interviewee. The interviews were anywhere from 15 minutes to one hour in length. They were recorded on digital audio tape (DAT). Copies of the transcriptions along with the original DAT tapes are archived at the Pacific Tsunami Museum in Hilo, Hawaii. All of the interviewees have received copies of the transcripts and have released their interviews to the Pacific Tsunami Museum and the interviews are available to the public.

#### Procedure

The researcher reviewed all of the transcripts available at the Pacific Tsunami Museum that fit the criteria and investigated other documentation available at the Hilo Public Library and the Hawaii Civil Defense office in Hilo. The University of Hawaii Manoa libraries and the internet were also explored during research for this paper. Additionally, the focus group questionnaire was utilized to assess the current level of awareness of those in the group.

#### Data Analysis Plan

It is important to note that some of the survivors of this disastrous event found it difficult and emotional to talk about their experiences despite the length of time since the event. For some of the interviewees, it was the first time that they had shared their experiences since the event. In all cases, the interviewer respected the survivor's pace and content as they shared their stories. During the interview the survivors may or may not have made clear reference to the method in which

they found out about the tsunami. All attempts were made to accurately report the information they relayed.

During the process of my research, I found that one of the preeminent scholars in the area of disaster research is Dr. E. L. Quarantelli, Research Professor at the Disaster Research Center of the University of Delaware. Quarantelli (Dynes & Tierney, 1994) is well published and in his work follows a consistent theme that centers on “disaster behavior, the social nature of disaster, the adaptation of community structure in the emergency period, the dimensions of emergency planning and the differences among social situations that are... considered disasters” (p. 13). He is also interested in chronicling the intellectual history of disaster research, “in particular, developing oral histories from other pioneering disaster researchers and policy makers” (p. 16). I emailed Dr. Quarantelli and received the following reply:

While disaster researchers who have now been operating around 50 years often have done field studies, almost always they have focused on survivors and others more or less right after a disaster has hit. Except for an historian now and then there is no great tendency to go back years after a disaster and do oral histories. So your work given its nature is very worthwhile.

(personal communication, 2 December 2002)

### Human Subjects Concerns

The tsunami survivor interviews archived at the Pacific Tsunami Museum were all obtained voluntarily from the interviewees and have been released to the

museum granting the museum the right to allow access to the transcripts. The transcripts of the tapes and the interviews with the focus group were found exempt by the Committee on Human Studies under Section 45 CFR Part 46. Attached is a copy of the documentation (see Appendix A).

## CHAPTER 4

### RESEARCH AND FINDINGS

#### Part 1: Agency Logs

The majority of my data collection took place in Hilo, Hawaii. During my research at the Hawaii County Civil Defense office in Hilo, I discovered logs from the Hawaii Civil Defense Agency (HCDA) (see Appendix B), the Hawaii Police Department – Hilo Station (See Appendix C) and the Hawaii Fire Department (see Appendix D) written during the period of May 22 and 23, 1960. Although these agencies may operate under a different name today, I have used their names just as they appeared on the 1960 logs.

#### Timeline of Interagency Communication

From the logs I created a timeline to illustrate the events that took place during the 28-hour period from 11:58 a.m. (1158) on Sunday, May 22, 1960 through 4:03 p.m. (1603) on Monday, May 23, 1960 (see Appendix E).

#### Critical Communication Events

From this timeline I have isolated the critical communication events (see Figures 1, 2 and 3). All notations are taken directly from the logs (see Appendix B, C, and D) and are verbatim except for a few cases where they have been edited due to length and/or redundancy.

#### 1960 Tsunami

It was known by 11:30 a.m. Hawaiian time on Sunday, May 22, 1960 that a major earthquake had occurred in Chile, according to Eaton, Richter, and Ault



(1961). This large earthquake occurred in an area that had been rocked by many smaller but severe earthquakes during the preceding 33 hours. Eaton et al. (1961) reported that the earthquake was recorded at the U. S. Geological Survey Volcano Observatory on the Island of Hawaii and it had a “magnitude of 8-1/4”. There had been a large foreshock of “magnitude 7-1/2” on May 21, 1960 that had been accompanied by a tsunami in Chile which produced a small wave in Hilo Bay. Eaton et al. stated that it seemed almost certain that this major disturbance would also send a tsunami to Hawaii and that it could be a large one. The U. S. Coast and Geodetic Survey chart “Seismic Sea Wave Travel Times to Honolulu” estimated that it would take approximately 15 hours for a tsunami to reach Hilo.

Unofficial Notification (see Figure 1, a)

The first indication of the impending disaster (see Appendix F) recorded in the logs was the “unofficial” report from Harold Krivoy of the U. S. Geological Survey’s Volcano Observatory staff received by the Hawaii Police Department at 11:58 a.m. (1158) on Sunday, May 22, 1960. It was 17 minutes later at 12:15 p.m. (1215), Officer Lim of the Hawaii Police Department notified the Hawaii Civil Defense Agency (HCDA). This notification indicated that the arrival time of the tsunami in the Hawaiian Islands would be about 12 Midnight (2400). The log for the Hawaii Fire Department in Hilo did not begin until 8:05 p.m. (1005) on Sunday, May 22, 1960.

“Tidal Wave” Alert (see Figure 1, b1 – b4)

Eaton et al. (1961) reported that at 6:47 p.m. (1847) the U.S. Coast and Geodetic Survey Honolulu Magnetic Observatory, Center of the Seismic Sea Wave Warning System, issued a Seismic Sea Wave Warning and estimated that a tsunami might reach Hawaii at about midnight. The logs of the Hawaii Civil Defense Agency (HCDA) disclose that at 7:05 p.m. (1905) KHBC radio [Hilo] announced that the Coast and Geodetic Survey had issued a tidal wave alert at 6:48 p.m. (1848). Six minutes later, at 7:11 p.m. (1911), the logs of the Hawaii Police Department declare that the Honolulu Police Department called and reported the warning. In addition, the account exhibits that the State Civil Defense Headquarters requested that the Hawaii Police Department “Notify all C.D. Agency to mobilize to an extent deputy directors C.D. agencies feels and to report action taken to C.D. HQ Honolulu, Telephone number 72161, and reverse charges. Don’t sound siren until notified.” It was almost an hour later that the Hawaii Fire Department logs indicated at 8:05 p.m. (2002) “Tidal wave alert”.

Warning Sirens (see Figure 1, c1 – i)

“Radio stations notified that no 8:00 p.m. siren will be sounded” was recorded at 7:59 p.m. (1959) on the Hawaii Police Department Disaster Bulletin log. Then at 8:00 p.m. (2000), Assistant Chief George Martin of the Hawaii Police Department called Pakele [HCDA] to notify him that he had received a message from Mr. T.G.S. Walker [State Civil Defense] through the hotline that sirens are not to be sounded until notified by the State Civil Defense Headquarters.

At 8:15 p.m. (2015) Pakele phoned Mr. T.G.S. Walker at the State Civil Defense Headquarters and was given the authority to sound the sirens. All three logs, the Hawaii Civil Defense Agency (HCDA), the Hawaii Police Department and the Hawaii Fire Department at 8:35 p.m. (2035) recorded respectively, "First Siren Sounded", "Sirens sounded ... Evacuation begins in lower areas" and "Tidal wave sirens sounded". According to the Hawaii Civil Defense Agency (HCDA), there were five sirens that were sounded at 8:35 p.m. (2035), 8:40 p.m. (2040), 8:43 p.m. (2043), 8:47 p.m. (2047), and at 8:50 p.m. (2050).

In an article that appeared in *Science* entitled "Human Behavior during the Tsunami of May 1960" Lachman, Tatsuoka, and Bonk (1961) stated that "the warning siren for the tidal wave sounded for a 20-minute period more than four hours prior to the impact of the wave ...". It appears from this report that the sirens might have sounded for 20 minutes continuously. However, according to the Hawaii Civil Defense Agency logs, there were five sirens sounded during the 15 minute period from 8:35 p.m. until 8:50 p.m. and they were sounded at varying intervals and did not sound continuously during that time period.

At 9:38 p.m. (2138) the Hawaii Police Department Disaster Bulletin log indicates that they received a call from Sgt. Molina of the Honolulu Police Department asking them to sound the warning siren. No other records could be located during my research to indicate whether this message was passed along to any other agency, nor was there any record of the sirens being sounded at or around 9:38 p.m.

Figure 1. Critical communication events

	11:58 AM	12:15 PM	7:05 PM	7:11 PM	7:15 PM	7:59 PM	8:00 PM	8:05 PM	8:15 PM	8:35 PM	8:40 PM	8:43 PM	8:47 PM	8:50 PM	9:38 PM
Hawaii Civil Defense Agency (HCDA)		a	b1		b3		c2		d1	e1	f	g	h	i	
Hilo Police Department	a			b2		c1				e2					d2
Hawaii Fire Department								b4		e3					

Log Entries:

- a. Krivoy, Volcano Observatory reported unofficial that an earthquake was recorded on the coast of Chile at about 9:00am 5/22/60 (local time). Magnitude of about 8.25. Feel sure that tsunami will result from this quake. Arrival time in the Hawaiian Islands about 12:00MN (midnight) tonight 5/23/60. First place to strike would be Kalapana and Pohoiki area. Request that tidal wave gauge keeper be contacted and see if he can possibly change the recordings about 3:00 pm so that yesterdays recordings would not be lost.
- b1. KHBC announced that the Coast & Geodetic Survey has issued a tidal wave alert at 6:48pm.
- b2. Received from Sgt. Kitsuwa, Honolulu Police. Reported that according to McCaffery of the Honolulu Geodetic Survey, Honolulu, reported a tidal wave warning. A severe sea wave spreading over the Pacific. First wave will hit Hawaii at 12:00MN; Maui 12:15 am; Oahu 12:30 am; Kauai 12:45 am. Southern part of Hawaii will be affected first. Danger will last for several hours. Velocity of wave cannot be determined at present. Mr. Walker, State CD HQ, Honolulu. Notify all CD Agencies to mobilize to an extent deputy directors CD agencies feels and to report action taken to CD HQ Honolulu. Telephone number 72161, and reverse charges. Don't sound siren until notified.
- b3. Sgt. Yuhas of the Hilo Police Department reported to Pakele that the Honolulu Police Dept. has issued tidal wave warning. Wave expected to hit the Big Island at 12 Midnight and island of Oahu at 12:30am.
- b4. Tidal wave alert.
- c1. Radio stations notified, no 8:00 pm sirens will be sounded.
- c2. Asst. Chief George Martin of the Hilo Police Dept. called Pakele to notify him that he received a message from Mr. T.G.S. Walker, through the hotline that sirens are not to be sounded until notified by State DC Headquarters.
- d1. Pakele phoned Mr. T.G.S. Walker at the State CD headquarters and was given the authority to sound the sirens.
- d2. Sgt. Molina: Honolulu Police ... (message) "Will you sound tidal wave warning now".
- e1. First Siren Sounded.
- e2. Sirens sounded ... Evacuation begins in lower areas.
- e3. Tidal wave sirens sounded.
- f. Second Siren Sounded
- g. Third Siren Sounded
- h. Fourth Siren Sounded
- i. Fifth Siren Sounded

Evacuate low-lying areas (see Figure 2, j)

At 9:56 p.m. (2156), the Hawaii Police Department was “instructed to evacuate lower areas immediately”. Just before 10:00 p.m. (2200) a group from the U. S. Geological Survey Volcano Observatory and Hawaii National Park decided that they could make some useful observations despite the darkness and they set out for Hilo. Even though the roads had been blocked off, the Hawaii Police Department allowed the group to drive through the deserted Hilo waterfront streets to their vantage point at the north end of the Wailuku Bridge. The group planned to measure heights from various reference points on the northernmost part of the bridge. They felt that they could sprint north along the highway to safe high ground. From their observation point they had an excellent view of the harbor and the portion of Hilo fronting the bay (Eaton, Richter, & Ault, 1961).

Tahiti Wave Report (see Figure 2, k1 – k6)

At this point the Hawaii Civil Defense Agency (HCDA) logs become confusing because they are recorded by different typewriters and the time is out of sequence on some of the pages (see Appendix B). For the purposes of this paper, the times have been put in sequential order. Also, there is no indication on any of the logs as to who was logging the information.

At 10:31 p.m. (2231), the Hawaii Civil Defense Agency (HCDA) log reports, “Wave hits Tahiti at 8:00 pm, 3 ft. high ...”. By this time, the Hawaii Fire Department had sent one of their employees, Edward Ahuna, over to the Hawaii Civil Defense Agency (HCDA) with a walkie talkie. Ahuna reported the news of

the Tahiti wave to the Hawaii Fire Department at 10:35 p.m. (2235) just four minutes after the Hawaii Civil Defense Agency (HCDA) received the report. However, the Hawaii Police Department did not log the news until 20 minutes later, at 10:55 (2255), and their log reveals that they received their report from KHBC [Hilo radio] "... 3'3" waves were recorded in Tahiti. First reports indicate no damage".

At 11:00 p.m. (2300) the Hawaii Civil Defense Agency (HCDA) log reports that Pakele [HCDA] called Col. Byrnes [Civil Defense Honolulu] and

...gave him a report of Hilo Police as to procedure in notifying him. Col. Byrnes confirmed thru hot line F.A.A.& Navy – wave hit Tahiti on time – 39" at 8:10 pm - expect wave to hit Hawaii on time. Maybe of a same size, smaller or bigger - Col. Byrnes suggested that Hilo Police advise Honolulu Police to notify Byrnes when the message goes through the hot line.

At 11:04 p.m. (2304) the Hawaii Police Department was notified again of the Tahiti wave and at 11:05 p.m. (2305) there is a second report of the Tahiti wave in the Hawaii Civil Defense log.

#### "Tidal Wave" Gauge (see Figure 2, 1)

The Hawaii Police Department log reported at 11:30 p.m. (2230) that "the tidal wave gauge is normal". Since there was no record of where the "tidal wave gauge" was located, I contacted Robert "Steamy" Chow who was a Hilo police officer during 1960. Mr. Chow stated that the gauge was located at Pier One in Hilo Harbor "on the breakwater [ocean] side of the harbor". Mr. Chow indicated

that whenever there was a tsunami warning, the police department would send an officer down to watch the gauge. He stated “we waited for the alarm to sound and then would take off and pray that you reach Silva Street and Kalanianaʻole Avenue before the water comes”.

Christmas Island and Samoa Wave Reports (see Figure 2, m1, m2)

At 11:47 p.m. (2347) the Hawaii Police Department logs reveals that “a wave 1.3 ft. high struck Christmas Island”.

At 11:53 p.m. (2353) the Hawaii Fire Department indicates that a “wave struck Samoa at 8:40 p.m. (2040) height of wave was 6 inches. Wave struck Christmas Island at 10:58 p.m. (2258), height of wave 1’ 3” high. No damages at Tahiti as notified officially by Governor of Tahiti”.

The First Wave (see Figure 2, n1, n2)

According to Eaton, Richter, and Ault (1961) at 12:07 a.m. the water began to rise and by 12:13 a.m. it had crested at about “+ 4 feet” (p. 139).

At 12:09 a.m. (0009) May 23, 1960, according to the Hawaii Police Department Disaster Bulletin, the tidal wave gauge [Pier One in Hilo Harbor] went off. At 12:15 a.m. (0015) the Hawaii Civil Defense Agency (HCDA) log reports that Lt. Rosehill [Hawaii Police Department] notified them that the gauge went off and that the water had not yet started to recede.

Coconut Island Covered (see Figure 2, o1 – o3)

At 12:20 a.m. (0020), the Hawaii Civil Defense Agency (HCDA) is quoted “Coconut Island fully covered. Pier at Naniloa [covered] with water – close to 3 ft.

high". At the same time the Hawaii Police Department noted in their log that Pakele [HCDA] called and said "Coconut Island covered – pier at Naniloa Hotel 3' – water receding at 12:22 a.m. (0022)". [Note that this detail is logged in at 12:20 a.m. (0020) but states that the water is receding at 12:22 a.m.]. Also at 12:20 a.m. (0020), the Hawaii Fire Department log attests that "Coconut Island covered by tidal wave at 12:20 a.m. Tidal wave alarm at pier No. 1 went off at 12:09 a.m."



Figure 2. Critical communication events

	9:56 PM	10:31 PM	10:35 PM	10:55 PM	11:00 PM	11:30 PM	11:47 PM	11:53 PM	12:09 AM	12:15 AM	12:20 AM
Hawaii Civil Defense Agency (HCDA)		k1								n2	o1
Hilo Police Department	j			k3	k4	l	m1		n1		o2
Hawaii Fire Department			k2					m2			o3

Log Entries:

- j. Instructed to evacuate lower areas immediately.
- k1. Wave hits Tahiti at 8:00 pm, 3 ft. high.
- k2. Tidal wave struck Tahiti at 8:00 pm, wave three (3) feet high. Via walkie talkie from fireman Edward Ahuna at Civil Defense Office.
- k3. Harold Marques, KHBC reported via News Service that at 8 pm and 8:10 pm, Hawaiian time, 3'3" waves were recorded in Tahiti. First reports indicate no damage. Report is being evaluated by US Coast and Geodetic Survey in Honolulu.
- k4. Col. Byrnes, Hon advised message – Wave struck Tahiti at 8:10pm, 39 inches high.
- l. Sgt. Bellah reported that the tidal wave gauge is normal.
- m1. Sgt. Molina, Honolulu, reported that at 10:58 pm tonight a wave 1.3 ft. high struck Christmas Island.
- m2. Wave struck Samoa at 8:40pm, height of wave: six (6) inches. Report received via walkie talkie from Fireman Edward Ahuna at Civil Defense office. Wave struck Christmas Island at 10:58 pm, height of wave 1'3" high. No damages at Tahiti as notified officially by Governor of Tahiti. All messages received via walkie talkie from Civil Defense office by Liaison Fire Dept. Man at Civil Defense office.
- n1. Tidal wave gauge went off.
- n2. Lt. Rosehill called in, he reported that at 12:09 gauge went off. It has not started receding as yet.
- o1. Coconut Island fully covered. Pier at Naniloa with water – close to 3 ft. high. Mrs. Santos Asst. Mgr. Naniloa reported.
- o2. Pakele: Coconut Island covered – pier at Naniloa Hotel 3' – water receding at 12:22 pm
- o3. Coconut Island covered by tidal wave at 12:20am. Tidal wave alarm at pier No. 1 went off 12:09. Liaison man Edward Ahuna reporting from CD office via walkie talkie.

Water Recedes (see Figure 3, p – q5)

At 12:25 a.m. (0025) according to the Hawaii Civil Defense Agency (HCDA) log, Col. Pakele received a call from the U. S. Coast Guard to let him “know that drop of wave height is just as important” as the rise in water.

At 12:25 a.m. (0025) the Hawaii Police Department log states that water was receding at Wailoa. At 12:30 a.m. (0030) Pakele (HCDA) called Lt. Rosehill at the Hawaii Police Department. The Hawaii Civil Defense Agency (HCDA) log recalls, “Rosehill reported water already at Naniloa parking area – Pakele advised him [Rosehill] to let Honolulu office know thru hot line as soon as authenticated report is received rather than calling C.D. office first. Then call this office.” At 12:33 a.m. (0033) the passage in the Hawaii Civil Defense Agency (HCDA) log notes “water receding 5’ below normal” [Pier One Hilo Harbor].

Eaton, Richter and Ault (1961) report that the water began receding slowly, “reaching a trough of about – 3 feet at 12:30 a.m.”. It was then that they received information that the water from the first wave had gone over the sidewalk at the south end of the bay near the Wailoa Bridge in Waiakea.

Next, when we heard a Honolulu radio station report that no wave had yet arrived and that the estimated tsunami arrival time had been set back half an hour, we realized with growing uneasiness that communications between crucial observation points and public news media had broken down (p.139).

At 12:35 a.m. (0035) the Hawaii Civil Defense Agency (HCDA) log states that Col. Byrne from Honolulu called for Pakele. “Col. Pakele reported that 5’

water receding”. At the same time, 12:35 a.m. (0035), according to the Hawaii Fire Department log, “Coast Guard reported from Pier No. 1 that water has receded five feet below normal and still going down”. Another log entry at 12:35 a.m. (0035) the Hawaii Civil Defense Agency (HCDA) recounts “Lt. Rosehill [Hawaii Police Department] called in that the water has been receding since 24:22 – *Coconut Island is not covered but water came up to the turntable*”.

#### The Second Wave (see Figure 3, r1 – s2)

The narrative of the tsunami arrival reported by Eaton, Richter, and Ault (1961) indicates that by 12:40 a.m. the water was surging under the bridge and into the estuary. At 12:46 a.m. the group noted that “the second wave crested at about + 9 feet and a turbulent, swirling retreat of water from the estuary to the bay began” (p. 139). Later they learned that the second wave flooded the business district. They watched as the water poured out of the estuary and the water level dropped until 1:00 a.m. when it was at “nearly 7 feet below the pre-wave water level” (p. 139).

At 12:44 a.m. (0044) the Hawaii Police Department log relates, “Coconut Island covered with water and now flowing into Liliuokalani Park”. Then at 12:47 a.m. (0047), “Water coming over the pier”. At 12:52 a.m. (0052), “Water entering Hawaiian village at Wailoa”.

#### Civil Defense Evacuates Headquarters (see Figure 3, t)

At 12:53 a.m. (0053), the Hawaii Civil Defense Agency (HCDA) log states, “Secured headquarters at 60 Shipman Street”. That is the last item logged until

1:40 a.m. (0140). The HCDA evacuated their Shipman Street headquarters and relocated to the Fire Department because at that time their headquarters was located at Shipman Street in the Hilo Armory. According to Robert “Steamy” Chow, that location is approximately 100 yards from Hilo Bay and 100 feet from the Wailuku River.

#### Reports of Inundation (see Figure 3, u - w)

The Hawaii Fire Department log details at 12:53 a.m. (0053) that the Naniloa Hotel was surrounded by water at 12:48 a.m.”. Then at 12:58 a.m. (0058) the Hawaii Fire Department log indicates that Kamehameha Avenue was covered with water from the Hilo Theater to Waiakea.

At 1:00 a.m. (0100) the Hawaii Police Department log relates that “water went to intersection of Kalanianaʻole and Silva Sts. 100 yd.”. Three minutes later at 1:03 a.m. (0103) the Hawaii Fire Department log states that there is water on the road right up to Hilo Armory. “Lights on front street went out. Evacuating all cars from Shipman Street. CD Office evacuated from Headquarters at Shipman Street and set up temporary headquarters in the Fire Prevention Bureau Office”.

#### The Third Wave (see Figure 3, x1, x2)

Eaton, Richter, and Ault (1961) relate that at 1:00 a.m. (0100), “For a short while a strange calm prevailed as ground water cascaded from among rocks that are rarely exposed to view along the shore”. The narrative continues:

At first there was only the sound, a dull rumble like a distant train, that came from the darkness far out toward the mouth of the bay. By 1:02 a.m. all could hear the loudening roar as it came closer through the night. ... At 1:04 a.m. the 20-foot-high nearly vertical front of the in-rushing bore churned past our lookout, and we ran a few hundred feet toward safer ground. ... Seconds later, brilliant blue-white electrical flashes from the north end of Kamehameha Avenue a few hundred yards south of where we waited signaled that the wave had crossed the sea wall and buffer zone and was washing into the town with crushing force. At 1:05 a.m. the wave reached the power plant at the south end of the bay, and after a brief greenish electrical arc that lit up the sky above the plant, Hilo and most of the Island of Hawaii was plunged into darkness (p. 139).

At 1:05 a.m. (0105) on May 23, 1960 the Hawaii Police Department log attests, "Lights went out" and at that same time the Hawaii Fire Department log relates, "Electricity went out. No power in city. Tidal Wave hit town area".

Figure 3. Critical communication events

	12:25 AM	12:33 AM	12:35 AM	12:35 AM	12:44 AM	12:47 AM	12:52 AM	12:53 AM	12:58 AM	1:00 AM	1:03 AM	1:05 AM
Hawaii Civil Defense Agency (HCDA)	p	q2	q4	q5				t	Civil Defense moved to Fire Station			
Hilo Police Department	q1				r1	r2	s1			v		x1
Hawaii Fire Department			q3					s2	u		w	x2

Log Entries:

- p. Commander Yaergain called in to let Col. Pakele know that drop of wave height is just as important.
- q1. Sgt. Yuhas reported that water was receding at Wailoa.
- q2. Water receding 5' below normal
- q3. Coast Guard reported from pier No. 1 that water has receded five feet below normal and still going down. Report received via walkie talkie from Edward Ahuna.
- q4. Col. Byrne from Honolulu called for Pakele – Col. Pakele reported that 5' water receding as reported by Commander Yaergain.
- q5. Lt. Rosehill called in that the water has been receding since 24:22 – Coconut Island is not covered but water came up to the turntable.
- r1. Coconut Island covered with water and now flowing into Liliuokalani Park.
- r2. Water coming over pier.
- s1. Water entered Hawaiian village at Wailoa.
- s2. Naniloa Hotel surrounded by water at 12:48am, water has reached Uyeda Store, corner of Kapean land and Lihiwai Streets. South Point normal. Report received via walkie talkie from Edward Ahuna.
- t. Secured Headquarters at 60 Shipman Street.
- u. Front street on Kamehameha Avenue covered with water from Hilo Theater to Waiakea at 12:55 am, Edward Ahuna reporting from CD Office via walkie talkie.
- v. Water went into intersection of Kalaniana'ole & Silva Sts – 100 yards.
- w. Water over the road right up to Hilo Armory. Lights on front street went out. Evacuating all cars from Shipman Street. CD Office evacuated from Headquarters at Shipment Street and to set up temporary headquarters in the Fire Prevention Bureau Office (Edward Ahuna reporting form CD via walkie talkie).
- x1. Lights went out.
- x2. Electricity went out. No power in city. Tidal wave hit town area.

### After Hilo Went Dark

At 2:20 a.m. (0220) the Hawaii Civil Defense Agency (HCDA) log is quoted, “Capt. Kamau, [Hilo] Police Dept. came in to see Col. Pakele to try to coordinate efforts of Police Dept., Fire Dept and OCD”. This is the first indication in the logs that there is any attempt to coordinate interagency communication.

### Governor’s Notice to the Public

According to the Hawaii Civil Defense Agency (HCDA) log, Governor Quinn announced over the radio, KGMB [Honolulu] and KHBC [Hilo], at 2:30 a.m. that all people should stay away from the beach areas. Quinn mentioned the seriousness of damages in Hilo.

### Alert Called Off

Hawaii Police Department log recalls at 6:02 a.m. (0602) “Lights on” and at 6:24 a.m. (0624) “Director of State CD agency to all islands – NO FURTHER DAMAGES FOR THE PRESENT FROM THIS TIDAL WAVE. ALERT CALLED OFF – 6:10 AM”.

### South Point, Island of Hawaii

While analyzing the data obtained from the logs of the Hawaii Civil Defense Agency (HCDA) (see Appendix B), the Hawaii Police Department – Hilo Station (See Appendix C) and the Hawaii Fire Department (see Appendix D) recorded during the evening of May 22, 1960, I discovered references to South Point that contained interesting data. Apparently, from the logs, it appears that the Hawaii Civil Defense Agency and the Hawaii Police Department thought that the

tsunami would impact South Point prior to Hilo. Since there was no telephone available at South Point, the Hawaii Civil Defense Agency directed the Kau Station of the Hawaii Police Department to position a lookout at South Point who would send up a flare to indicate the arrival of the tsunami.

#### Log Entries

In the Hawaii Civil Defense Agency (HCDA) log it is noted at 9:38 p.m. (2138) that “[Mrs.] Ishimaru [of the Hawaii Civil Defense Agency] called Taketoshi Marumoto to be at South Point and give us information as soon as waves hit that area”.

At 10:43 p.m. (2243) there are two log entries. First, in the Hawaii Police Department log which states that Lieutenant E. Rosehill contacted Sgt. C. Araujo at the Kau Police Department:

Inform officer stationed at South Point to locate a Mr. Marumoto at South Point. He is to remain with this man and pass on information on the tidal wave to the Kau station and in turn to Hilo Station as soon as possible. CD office notified of arrangement at 10:48 p.m.

The second entry was made at 10:43 p.m. (2243), this entry was in the Hawaii Civil Defense Agency (HCDA) log and it revealed that [Mrs.] Ishimaru had spoken to Lt. Rosehill [Hawaii Police Department] about

...whether there is any possibility of some flare signal from the South Point area to the phone. Time is the element - to notify Honolulu - He will try to



get Police Officers from Naalehu to [go] down to meet Marumoto at the [South] Point and work out something satisfactory.

At 10:45 p.m. (2245) the Hawaii Civil Defense Agency log reports that a radio amateur operating from South Point is to notify Hilo and Honolulu.

Hawaii Police Department notes at 10:49 p.m. (2249) that Mrs. Ishimaru of the Civil Defense requests that any messages received from South Point regarding the tidal wave are transmitted immediately to the Honolulu Police Department via the hot line.

At 10:50 p.m. (2250) [Mrs.] Ishimaru [HCDA] called Lt. Rosehill [Hawaii Police Department] for further information. Rosehill reported no change from South Point at that time.

Then at 11:55 p.m. (2355) Pakele [HCDA] called Lt. Rosehill [Hawaii Police Department] for the latest report by 12:00 midnight (2400) from South Point before he called Honolulu.

The Hawaii Civil Defense Agency's log notes at 12:00 a.m. (2400) on May 23, 1960, "No change at South Point At 12:52 a.m. (0052) the log indicates, "South Point – No Activity". The Hawaii Fire Department log relates at 12:53 a.m. (0053), "South Point normal". The logs for the three governmental agencies do not mention South Point again.

## Findings

### Findings Hawaii Civil Defense (HCDA) Logs

One of the most interesting discoveries from my review of the logs was the lack of communication between the agencies and to the public along with a lack of understanding of the phenomena. The logs of the Hawaii Civil Defense Agency (HCDA) were understandably disorganized since they had to evacuate from their headquarters and move their operations to the Hawaii Fire Department.

It was apparent that there was more than one person journaling in the Hawaii Civil Defense Agency (HCDA) since different typewriters were used for the logs as well as different "Journal" forms. The HCDA logs are "time dated" using 24-hour time, although the time was out of sequence in some instances. The evacuation of the HCDA headquarters may account for the discrepancies in the time sequence. There is no notation in the logs as to who is doing the journaling.

### Findings Hawaii Police Department Disaster Bulletin

The Hawaii Police Department log is called a "Disaster Bulletin – Tidal Wave" and it begins as 11:59. a.m. (1159) on Sunday, May 22, 1960. This log is recorded in 12-hour time. One of the findings from the Hawaii Police Department log involved the communication plan that was established with the Kau Police Department. The plan called for someone to watch the waves at South Point and send up a flare which would alert the Kau Police Department which would then notify the Hawaii Police Department which would, in turn, notify the Honolulu

Police Department and the Hawaii Civil Defense Agency (HCDA). None of the logs were signed and it is not possible to tell who recorded them.

#### Findings Hawaii Fire Department

The Hawaii Fire Department Tidal Wave Disaster Log begins on May 22, 1960 at 8:05 p.m. (2005) and is recorded in 12-hour time. The Hawaii Fire Department log is the most concise of the three logs. The Fire Department received information in a timely manner since they sent one of their employees, Mr. Edward Ahuna, over to the Hawaii Civil Defense office at 10:10 p.m. (1010) to act as the liaison.

Another finding in the logs of the Hawaii Civil Defense Agency (HCDA) is that it took until 2:20 a.m. (0220) for the agencies to coordinate their efforts. The Hawaii Civil Defense Agency (HCDA) log is quoted, "Capt. Kamau, [Hilo] Police Dept. came in to see Col. Pakele to try to coordinate efforts of Police Dept., Fire Dept and OCD". It is apparent from reviewing the logs that there was virtually no coordination between governmental agencies during the pre-impact stage. None of the logs were signed and it is not possible to tell who recorded them.

## Part 2: Tsunami Survivors Interviews

Audio tape transcripts and video tape transcripts of 67 tsunami survivors from Hilo, Hawaii were reviewed for this study. There were 45 tsunami survivor interviews available from the April 1, 1946 tsunami in Hilo, Hawaii and 22 survivor interviews available from the May 23, 1960 tsunami.

### Demographics

The Pacific Tsunami Museum [formerly known as the Hilo Tsunami Museum] was founded in 1993. In 1996 the museum began collecting and archiving tsunami survivor interviews. By that time, 50 years after the 1946 tsunami, many of the people who had survived the tsunami of April 1, 1946 had died. Therefore, the majority of the survivors who were interviewed were under the age of 40 years during the 1946 tsunami.

The May 23, 1960 Hilo tsunami survivor interviews were also gathered after 1996. In this case, the majority of interviewees were over 31 years of age at the time of the event.

Table 1.  
Demographics of interviewees.

<u>Year of tsunami</u>	<u>Gender</u>	<u>Age at time of tsunami</u>				
		0-9	10-20	21-30	31-40	41-50+
1946	26 male	5	10	9	2	0
	19 female	3	11	3	2	0
1960	12 male	1	3	3	3	2
	10 female	0	0	3	3	4

### Questions

The 67 transcripts were examined in an effort to attain the answers to the following four questions:

1. Where were you when you heard about the tsunami?
2. Where did you get the information?
3. What did you do?
4. Would you do anything differently if it happened again today?

The first three questions were posed in various forms during the interviews.

The last question was not asked and except for one interviewee from the 1946 group and three in the 1960 group, it was not answered.

### Results of 1946 Research

Table 2.  
Question 1. Where were you when you heard about the tsunami?

Home	27
At work	5
Standing on road waiting for bus	4
Driving	2
Going to work	2
Going to school	2
On the way to school on sampan bus	1
Walking to the store	1
Okino Hotel	1
<b>Total</b>	<b>45</b>

Since the first tsunami wave arrived in Hilo shortly before 7:00 a.m. most people were either at home or in the process of going to work or school. Most of the interviewees, 27 out of 45, were at home.

Table 3.  
Question 2. Where did you get the information?

Saw wave	16
Parent	13
Relative	7
Other person	6
Friend	3
Total	45

There was no warning that a tsunami would strike Hilo on the morning of April 1, 1946, so the first inclination of a problem for many people was when they saw the water. From analysis of the interviews, it appears that 16 of 45 of the tsunami survivors saw the water before they heard the news from another source. The balance of the interviewees were informed by word-of-mouth, in most cases from a relative or friend, but some were informed by hearing people yelling in the street.

**Table 4.**  
**Question 3. What did you do?**

Leave (house) and run	27
Went to watch	7
Went into house	6
Wave hit with out notice	3
Continued to drive to Hilo (from Hamakua Coast)	1
Went to Police Station (employee)	1
<b>Total</b>	<b>45</b>

Over one-half of the survivors, 27 out of 45, left immediately and began running. There were 7 individuals who made a decision to watch what was happening. Not realizing the danger, 6 of the 45 people decided to go back into their homes. Three of the survivors did not have a chance to assess the information since their first indication was when they saw the water. One of the survivors was a policeman and he drove to the police station as soon as he was informed of the tsunami.

**Question 4. Would you do anything differently if it happened again today?**

"Don't think it's a lark. It is a serious life-threatening experience."	1
No response	44
<b>Total</b>	<b>45</b>

**Note:** This question was not asked during the interview.

The fourth question, “Would you do anything differently if it happened again today?” was not asked during the interview and, except for one of the interviewees, was not addressed. No similar studies were found to use for comparison.

#### Results of 1960 Research Compared and Contrasted with Bonk et al. Report

Bonk, Lachman, and Tatsuoka (1960) prepared a questionnaire (see Chapter 2 for details) that was administered to a cross-section of people who lived in the affected areas of Hilo. Their report states that 327 adults were utilized as their sample for examination of the warning and rescue systems. Bonk et al. (1960) stated that the prepared questionnaire was presented and explained to the interviewees by trained interviewers who were of similar ethnic background. Bonk et al. stated that because of this training and affinity, open and frank discussions could be initiated and a truthful picture of their [the interviewees] impression of the events would emerge.

Bonk, Lachman, and Tatsuoka (1960) interviewed a group of 327 individuals that they broke down into two groups. The first group of 197 was called “non-evacuees” and consisted of those who did not evacuate their homes prior to the impact of the tsunami. The second group was called “evacuees” and this group consisted of 130 people who evacuated prior to the tsunami. This breakdown, they claim, enabled meaningful comparisons of the two sub-groups. The section entitled “Pre-Impact Period” has the most relevance to this paper. The



Pre-impact period is further divided into “Siren Signal” with 309 responses and “Information other than siren” with 261 responses.

1960 Tsunami Survivor Questions

Table 6.

Question 1. Where were you when you heard about the tsunami?

Home	15
Work	4
Up in Volcano	1
Movies	1
Friends House	1
Total	22

The Bonk, Lachman, and Tatsuoka (1960) report did not state whether they asked this question in their questionnaire. There was no information in the report as to where the individuals were when they *first* heard about the tsunami. However, their data indicates that 197 out of 327 of the interviewees were at home at the time of the tsunami impact.

Table 7.  
Question 2. Where did you get the  
information?

Word of Mouth	9
Radio *	4
Siren*	3
Civil Defense	2
Saw Water	2
Volcano Observatory	1
Movie Management	1
No Answer	1
Total	23

\* note: one person gave two answers

In the subsection “Pre-Impact Period: Siren Signal”. Bonk et al. (1960) reported that 95 percent, or 309 of their interviewees heard the 8:35 p.m. siren and 18 people did not hear it because they were either at a movie or asleep at the time. Of those who heard the siren 127 evacuated and 182 did not evacuate (p. 5). In my research only 3 out of 23 people reported that they heard the siren.

Bonk, Lachman, and Tatsuoka (1960) asked, “Did you have information about the wave before it hit other than the siren?” They reported 261 answered “yes” and 66 people responded “no” (p. 10 – 11). The 261 who answered in the affirmative stated that;

178 heard from radio-TV;

45 from relatives and friends;

8 from police, fireman or civil defense;

22 from radio-TV and relatives and friends;

6 from radio-TV and government;

1 from relatives and friends and government;

1 person did not answer.

In my research the data from 22 interviewees indicates that 9 out of 23 people heard about the tsunami by word of mouth, from relatives and friends or other non-governmental sources. Two survivors in my research reported that they got their information from the civil defense while in Bonk, Lachman and Tatsuoka's (1960) study they found that 8 out of 261 individuals got the news from police, fire or civil defense. None of the people in the Bonk et al. (1960) research reported that their first information about the tsunami was from seeing the water while 2 people in my research said that is how they found out about the tsunami.

Since this question was not posed in the same manner in both studies, it is difficult to ascertain any real comparison. It is clear, however, that when asked directly, "Did you hear the siren?" that most of the individuals, 95 percent, in the Bonk, Lachman, and Tatsuoka's (1960) report stated that they heard the siren. In my study, respondents were asked, "Where did you get the information?" and hence, likely responded with the method of communication that made the greatest impact regardless of whether or not they actually heard the siren. This is easily reconcilable since as stated previously, there had been several occasions in previous days when the sirens were used to warn of a tsunami and no destructive tsunami occurred.

Table 8.  
Question 3. What did you do?

Stayed in house	8
Evacuated	6
Went to watch	4
Stayed at work (policeman and hotel employee)	2
Went home and went to sleep	1
Went to sugar company	1
Total:	22

Bonk, Lachman, and Tatsuoka (1960) asked the “Pre-Impact Period: Siren Signal” group of 309 individuals, “What did you do upon hearing the siren, and why?” (p. 7). The “Pre-Impact: Information other than the siren” group of 261 individuals were asked, “Did you do anything upon receiving this information?” (p.12).

In the case of the first group, under “Various behavioral responses to siren” the report shows 294 responses (p. 8):

- 131 waited for further information;
- 94 evacuated upon hearing the siren;
- 44 went about their normal routines;
- 25 indicated “other” responses.

In the second group 146 individuals responded that they took action upon receiving the information, as follows (p. 12):

53 evacuated (at least 9 returned home subsequently);

44 prepared to evacuate;

28 awaited further instructions;

14 did not respond;

5 went to watch the wave;

2 continued their normal routine;

My analysis indicated that 6 out of 22 evacuated compared to Bonk, Lachman, and Tatsuoka's (1960) report where 94 who heard the siren evacuated (p. 8) and 53 who got their information from other sources evacuated (p.12).

My research shows that 4 out of 22 went to watch compared to the Bonk et al.(1960) report where 5 out of 146 went to watch (p.12).

My research indicated that 8 out of 22 stayed home. It is difficult to ascertain from the Bonk et al. report the location of the interviewees but it is likely that most of them were at home due fact that the "Tidal Wave Alert", the first official alert, occurred at 6:48 p.m. and the siren was not sounded until 8:35 p.m.

Quote from Laura Yuen Chock

The following is a quote from Laura Yuen Chock from *Tsunamis Remembered* (2000):

My parents were still at Mamo Street. You know, we were given so many false alarms. Sirens were blowing throughout the week. Each time I went and picked them up. They got so disgusted my father didn't want to stay at my place because he'd only want to go back home again, back to the store.

I brought them home with me [after the siren blew] until about 11:00 [PM]. My father said he can't sleep; he wants to go back to the store. My mother insisted they both stay with me. He insisted on going back to the store because he said it is another false alarm. So my mother said, okay, she'll go to the store with him. So I dropped them off." (p. 318).

Table 9.  
Question 4. Would you do anything differently if it happened again today?

"Run away and go to the high land because it's dangerous."	1
"I will never, ever in my life, go down to the beach to see the water."	1
"Don't go down to the water and watch."	1
No response	19
Total	22

Note: This question was not asked during interview.

This question was not asked in the original interviews and examination of the transcripts disclosed only three responses. This question was not addressed in the Bonk, Lachman, and Tatsuoka (1960) report.

#### Survivors of both 1946 and 1960 Hilo tsunamis

There were 8 individuals out of the total of 67 interviewees in my research who survived both the 1946 and the 1960 tsunamis in Hilo, Hawaii. The following is a table showing the demographics:

Table 10.  
Demographics of survivors of both 1946 and 1960 tsunamis.

<u>Year of tsunami</u>	<u>Gender</u>	<u>Age at time of tsunami</u>			
		10-20	21-30	31-40	41-50+
1946	3 male	1	1	1	0
	5 female	3	0	2	0
<hr/>					
1960	3 male	0	1	1	1
	5 female	0	2	1	2

A comparison of the 8 tsunami survivors' responses to the 4 questions regarding each tsunami experience follows:

Table 11.  
Question 1: Where were you when you heard about the tsunami?

	<u>1946</u>	<u>1960</u>
Home	5	4
Waiting for bus	1	
Going to work	1	
Walking to store	1	
Working		2
Friend's house		1
At Volcano		1
<b>Total</b>	<b>8</b>	<b>8</b>

Since the April 1, 1946 tsunami occurred at approximately 7:00 a.m. most of the individuals were either at home or on their way to work or school. During the May 23, 1960 tsunami, the first destructive wave hit Hilo at 1:05 a.m. News of the tsunami was received unofficially at approximately 12:00 noon on May 22,

1960 and officially with the issuance of a “Tidal Wave Alert” at 6:48 p.m. along with the sounding of the sirens at 8:35 p.m. that evening. When they received the news of the impending tsunami in 1960, most people were at home.

Table 12.  
Question 2: *Where did you get the information?*

	<u>1946</u>	<u>1960</u>
From maid	1	
Friends	1	
People shouting	2	
Saw wave	2	
Relative	2	1
Scientist @ Volcano Observatory		1
Civil Defense		2
Radio*		2
Siren*		2
Warning at 3:00 p.m.		1
Total	8	9

\*note: one person gave two answers

In response to the question, “Where did you get the information?” 6 people the survivors in the 1946 tsunami got their information from word-of-mouth and 2 people from actually seeing the water advancing toward them. Since there was no warning, there was no official announcement.

Prior to the impact of the, 1960 tsunami the majority of the survivors got their information either from the civil defense, radio or siren. It is interesting to note that only 2 people mentioned that they heard the siren; 1 of those people also heard a warning on the radio and the other received the warning by word-of-mouth. Although it was reported in Eaton, Richter, Ault (1961) that the police had closed and blocked the roads, there was no mention in the interviews of any of the interviewees being notified by the police.



In comparing the responses of the 8 survivors from 1946 to 1960, the data shows that in 1946 the information was communicated by word-of-mouth while in 1960 the majority of the interviewees got their information from government officials or the media.

Table 13.  
Question 3: What did you do?

	1946	1960
Ran	4	
Watched	2	1
Drove to police station	1	
Went to second floor	1	
Stayed home		4
Evacuated		2
Went to work		1
Total	8	8

Due to the time of the tsunami impact, 7:00 a.m. in 1946 and 1:05 a.m. in 1960 it is clear why most of the people in both cases would have been at home, particularly when there was no official order to evacuate in 1946. In 1960, according to the Hawaii Police Department log (see Appendix D) there was a notation in the log to “evacuate lower areas” at 8:35 p.m. However, Eaton, Richter and Ault (1961) stated that “... only then, as we picked our way northward along Kamehameha ... did the horrible reality sink home: Hilo’s streets had been evacuated, but its buildings had not.” (p. 140)

Table 14.

Question 4: Would you do anything differently if it happened again today?

	<u>1946</u>	<u>1960</u>
No answer	8	7
Evacuate		1
Total	8	8

Note: This question was not asked during the interview.

The last question, “Would you do anything differently if it happened again today?” was not asked in any form during the interviews. Only one of the tsunami survivors indicated that if faced with a tsunami again, she would evacuate. This individual was literally caught in the water in both the 1946 and the 1960 tsunamis.

### Part 3: Focus Group Questionnaire

The participants in the focus group questionnaire were from three categories:

1. Tsunami survivors who still live in the evacuation zone;
2. Tsunami survivors who still live in Hilo but have moved out of the evacuation zone;
3. Residents who have moved into the evacuation zone since the 1960.

The prospective focus group was initially contacted by telephone and those who agreed to participate were mailed a letter along with a questionnaire and a release form “Agreement to Participate”. From the original list of 13 individuals, 8 completed and returned the questionnaire and release forms.

The same 8 questions were presented to the tsunami survivors who still live in the evacuation zone and to the tsunami survivors who currently live in Hilo but have moved out of the evacuation zone. A total of 5 individuals, 2 still residing in the evacuation zone and 3 who have moved out, answered the questions.

Tsunami survivors who still live in the evacuation zone and tsunami survivors who currently live in Hilo but have moved out of the evacuation zone (see Appendix G)

All 5 of the respondents had personal experience in the 1946 tsunami where there was no warning. Although initially they all had different impressions of what was happening, they all responded in the same manner and ran. Although 2 of the respondents replied that they felt panic, the majority did not report feeling panic and none of them were paralyzed and unable to take action; once they decided to run, that was their ultimate action. Although 2 of the respondents did not respond to the question, "Would you do anything differently if it happened again today?" 3 replied that they would "evacuate sooner" and one added "pack all valuables".

Survivor of both the 1946 and 1960 tsunamis (see Appendix H)

In the focus group 1 of the respondents was a survivor of both the 1946 and the 1960 tsunamis. This respondent replied to the most of the 8 questions in regard to both of the tsunamis. In response to the question, "Would you do anything differently if it happened again today?" this respondent replied "Pack all my things. Did not think the wave would hit Waiakea. Lost everything except my Bible."

Residents who moved into the evacuation zone since the 1960 tsunami

(see Appendix I)

It is apparent from the responses of 3 residents who moved into the evacuation zone since the 1960 that the new residents have given some thought to tsunami safety. All respondents indicated that they would take valuables with them and evacuate. Although they have all given thought to what they would do, it is apparent that they are not aware of the urgency of evacuating immediately [in the case of a locally generated tsunami] since they indicated that they would “gather their valuables” to take with them. Out of the 3 respondents, 1 did indicate he would gather valuables “if time allowed”. It is apparent that they are not aware that all preparation for evacuation should take place prior to a tsunami warning.

When asked, “What will happen to your children if the warning takes place during the school day?” all 3 of the respondents replied differently; “I would expect my grandchildren to remain at the school until they are picked up by their parents”; “I will pick them up at the school”; and “My only minor child attends school within the evacuation zone. They are instructed to remove the children to a safe place. We can pick them up later.” It is important that residents, new and old, learn that schools have policies about tsunamis and that they should leave their children in school if it is in a safe area. Families should prepare in advance for the eventuality of a tsunami during school hours.

## CHAPTER 5

## COMMUNICATION THEORY AND ANALYSIS

Several prominent scholars in the field of disaster research have developed theories on the social dimensions of disaster. The formulation of systematic databases has allowed other disaster researchers to develop materials focusing more on the social stability, adaptation and response and less about the chaos of the incident. It is precisely this social stability, adaptation and response that is directly pertinent to my research. Additionally, my research concentrates on survivors of the 1946 and 1960 tsunamis and the impact, or lack of impact, that interpersonal and group communications, media messages and tsunami awareness had on their response.

E. L. Quarantelli

According to Dynes and Tierney in their book, *Disasters, Collective Behavior, and Social Organization* (1994) the contributions of Quarantelli to theoretical and empirical research in the fields of disaster research, collective behavior and social organization have been significant. Quarantelli was cofounder and director of the Disaster Research Center and has spent most of his career working on understanding behavior in situations such as disasters. During such events, behavior appeared to be disorganized and chaotic and Quarantelli began looking for order and continuity. He emphasized that rather than study attitudes, it was important to study behavior.

While in graduate school, Quarantelli was involved in a research project administered by the National Opinion Research Center (NORC) in which interviews were conducted on a random sample of a population involved in a tornado in Arkansas. The interviews were tape recorded and then transcribed. At that time it was unusual to tape record interviews. This research furthered Quarantelli's interest in the concept of *panic*. Traditionally, panic was viewed as "a psychological state produced by conditions of extreme anxiety that resulted in behavioral paralysis" (Dynes & Tierney, 1994, p. 11). Quarantelli (Dynes & Tierney) on the other hand, emphasized the social context surrounding the behavior. He argued that "the explanation for panic behavior has to be sought in the norms and relationships that structure the particular situation and not in the individual's mental state..." (p.11). Quarantelli (Dynes & Tierney) suggested "that panic behavior is extremely rare and almost nonexistent in most disasters. Although this conclusion continues to be validated in research, many emergency managers still justify the withholding of threatening information as necessary to keep people from 'panicking' ...". (p.11 - 12).

My study involved taped interviews, as well as questions presented to a focus group. Although two respondents in the focus group stated that the news of the tsunami panicked them, they also stated that it did not paralyze them. By Quarantelli's definition (Dynes & Tierney, 1994, p. 10), when considering the structure of the situation and not merely the individual's mental state, we may infer

that in actuality, they did not panic, rather they responded to the situation and social context appropriately.

### Disaster Mythology

Most people are drawn to disasters because of their physical aspects. A disaster is usually a *unique occurrence*. Just as people slow down at the sight of a terrible automobile accident, they tend to have considerable interest in disasters. Dynes and Tierney (1994) report that until recently knowledge about disasters was usually based on accounts of untrained observers. From these isolated accounts popular literature emerged that was mostly about heroism and tragedy. It is from this literature that the population has developed myths about the behavior of *individuals when faced with a catastrophe*.

Fischer in his book, *Response to Disaster: Fact Versus Fiction & Its Perpetuation: the Sociology of Disaster* (1998) refers to the idea that people will cease to act in an orderly manner as *disaster mythology*. He claims that most people think that when a disaster occurs “[potential] victims will panic and engage in any behavior deemed necessary at the moment to facilitate their escape” (p. 14). Fischer (1998) states that research literature has established that people will make rational decisions and leave an area that is in danger if there is “a perceived avenue of escape and an opportunity to use it” (p. 14). Fischer goes on to say “the norms that we tend to follow during normal times hold during emergency times” (p. 18).

For the most part, my research concurs with Fischer’s theory. Most of the interviewees did not panic nor act in a dysfunctional manner. However, although

many of the survivors of the 1960 tsunami evacuated, many people did not. We must ask why these individuals made that decision and chose not to leave an area where they were in danger. Clearly, they had avenues of escape prior to the impact of the tsunami. They also had opportunities to use those avenues of escape since the official "Tidal Wave Warning" was issued at 6:47 p.m. over five hours before the impact of the tsunami. In my research I found several possible explanations for this behavior. Specifically, the population did not understand the danger involved. In any other emergency situation, such as an impending hurricane, most people would respond rationally and evacuate after receiving the warning because they perceived danger. What then was missing when the 1960 tsunami hit? Perceived danger! This can be attributed to the general public's lack of tsunami awareness; the lack of communication between governmental agencies; miscommunication or lack of communication from the governmental agencies to the public; and inaccurate statements from the media.

Recently disaster has struck with regularity and the Federal Emergency Management Agency (FEMA) as well as other emergency response organizations has been criticized for inadequate response to these events. Fischer in his book *Response to Disaster: Fact Versus Fiction & Its Perpetuation: The Sociology of Disaster* (1998) postulates that "perhaps our expectations are inappropriate, perhaps our perceptions are inaccurate". Fischer (1998) writes that all citizens "would benefit from a better understanding of the problems encountered in responding to and planning for disaster" (p. xvii). He states further that all of the



agencies who serve the public could do a better job if they had a more accurate understanding of disaster response problems. My research indicates that during the hours preceding the 1960 tsunami that the citizens definitely could have used a better understanding of tsunami safety and that the governmental agencies did not understand the phenomena of tsunami nor did they have procedures in place to deal with the disaster.

Another element of the mythology of disaster is that disasters are just a part of nature and we have no control them. Ted Steinberg, author of *Acts of God: The Unnatural History of Natural Disaster in America* addresses the issue and he asks:

The next time the wind kicks up and the earth starts to roar, what will we tell ourselves? Will we rise up in indignation at what nature has done to us? Or will we reflect on our own role as architects of destruction? It is how we answer these questions that will determine the future of calamity. (p. xxiii)

My research indicates that there is a lot of work to be done in the area of tsunami safety education for the population and the media. This will be discussed further in Chapter 6.

### Risk Communication

The field of risk communication has emerged out of the disaster research field. In their book *Disasters, Collective Behavior, and Social Organization* (1994), editors Dynes and Tierney present essays that cover a wide variety of subjects including elements of risk communication. These elements include

creating public awareness of the consequences of hazards as well as the warning process.

Studies on public warnings of impending disasters are numerous and conclusive. Research on public warnings of impending disasters began in the 1950s as part of a research program in the National Academy of Sciences (NAS) and was focused on technological as well as natural disasters. Fitzpatrick and Mileti (Dynes & Tierney, 1994) claim that “people who receive warnings attempt to form personal definitions about the risk and what to do about it” (p. 72). However, the warning or emergency information must be understood. This refers to personally attaching meaning to the message. “Meaning or understanding can vary among people, and these varied understandings may or may not conform to the meaning intended by those who issued the warning (cf., Haas, Cochrane, and Eddy 1977; Foster 1980; Perry, Lindell, and Green 1981; Lehto and Miller 1986)” (p. 73). For example, one person may understand a tsunami warning as an impending disaster presenting itself as a wall of water while another may interpret it as an opportunity to surf a large surfing wave. Depending on each person’s perception of the risk involved, they will attach a different meaning to the message. Understanding is connected to each individual’s frame of reference and knowledge. If a person has never heard of a tsunami, it would be difficult for them to attach a meaning to a tsunami warning. Therefore, it is extremely important that emergency information is provided to the public with accurate details and a common understanding of the situation. The authors (Dynes & Tierney) state that “the

differing understandings that might emerge among people if an emergency occurred can be avoided with proper planning” ( p. 73).

In Hilo there was no common understanding about what the warning sirens were meant to communicate. Some people interpreted the siren as a preliminary signal preceding an evacuation signal and some thought it meant to wait for further instructions. Additional interpretations included those people who thought it was a “signal to make preparations” and others who thought the meaning was “not ascertainable” (Lachman, Tatsuoka & Bonk, 1961, p. 1406). Therefore, people did not take action that could have protected them.

Appropriate action will be undertaken if individuals believe the warning is real. For example, consider the tsunami that devastated Hilo, Hawaii on April 1, 1946, which occurred on April Fool’s Day. Some people who might otherwise have taken the message seriously disregarded it because they thought it was an April Fool’s joke.

It is also essential that the content of the message be accurate. For instance, the May 23, 1960 tsunami that impacted Hilo was estimated to arrive at 12:00 midnight. In fact, according to Eaton, Richter and Ault (1961) the tsunami was first detected at 12:07 a.m. at the northern end of Hilo Bay and according to the Hawaii Police Department log the “tidal wave gauge” went off at 12:09 a.m. at Pier 1 in Hilo Harbor. Since the phenomenon was misunderstood and people did not know that the first wave is not necessarily the largest one, this lack of understanding about multiple waves led to many unnecessary deaths.

According to Eaton, Richter, and Ault (1961) they heard a Honolulu radio station report [at approximately 12:30 a.m.] that “no wave had yet arrived and that the estimated tsunami arrival time had been set back half an hour” (p. 139). Having heard the radio reports many people in Hilo returned to their homes only to be inundated by the third wave that arrived at 1:05 a.m.

Fitzpatrick and Mileti (Dynes & Tierney, 1994) state that “as with hearing, belief in the warning message may vary among a public at risk (cf. Clifford 1956; Wallace 1956; Demerath 1957; Williams 1957; Fritz 1961; Moore, Bates, Layman and Parenton 1963; Drabek 1969; Mileti 1975; Mileti, Drabek, and Haas 1975; Quarantelli 1980; Yamamoto and Quarantelli 1982)” (Dynes & Tierney, 1994, p. 73). If individuals do not believe that the warning applies to them they are likely to ignore it. Conversely, if a person feels that the warning pertains to them, they are likely to respond to the message (Dynes & Tierney). For instance, in the Hilo tsunami of 1960, people were aware of the areas that had been devastated by the 1946 tsunami. Some felt that the warning did not pertain to them because they did not reside in an area that was destroyed by the 1946 tsunami and, therefore, many people ignored the warning and did not evacuate.

#### Evacuation Compliance Model

Closely tied to risk communication is research on evacuation. It is known that one of the most effective methods of reducing loss of life is to evacuate the population from high risk areas. One of the contributors to *Disasters, Collective Behavior, and Social Organization* (1994), was Ronald W. Perry. According to

Perry, “warning response behavior represents one of the most studied phenomena in disaster research” (Dynes & Tierney, 1994, p. 85). In his chapter, “A Model of Evacuation Compliance Behavior”, Perry (Dynes & Tierney), developed a theoretical model specifically for predicting evacuation compliance behavior.

There are four issues:

1. Message content;
2. Warning confirmation and warning source credibility;
3. Perceived risk;
4. A plan that must be resolved by the warning recipient.

To understand how an individual evaluates and acts on a message begins with the initial message and its content. It is clear from my research as well as Bonk, Lachman and Tatsuoka’s (1960) report that in 1960 most people did not understand the content of the warning message.

The second issue for the warning recipient is to assess the accuracy of the message and to obtain confirmation of the warning. Neither Bonk, Lachman and Tatsuoka’s (1960) report nor my research asked specifically whether the interviewees had confirmed the warning message once it was received. However, Bonk et al. (1960) indicated that the overwhelming majority of people who heard the information from a source other than the siren heard it from multiple sources. This could be construed to mean that they had sought confirmation.

The next issue is the perceived risk. The individual must assess whether there will be any effect on their personal safety. As stated earlier in this chapter, it

is evident that the reason people did not evacuate in 1960 was because they did not perceive danger. This is shown both in Bonk, Lachman and Tatsuoka's (1960) research as well as my findings. Even the Hawaii Civil Defense Agency did not evacuate their headquarters until 12:53 a.m. which was after the first wave had arrived.

Finally, the warning recipient must determine how much personal danger exists and whether they can effect some protection from the upcoming event. The individual will analyze whether they "have a plan that can minimize what... will be the negative effects of the disaster agent" (p. 88). There is a definite need for a plan for families to evacuate which should be part of a public education program, perhaps in the schools. Just as the children, with the cooperation and aid of their parents devise an evacuation plan from their home in case of a fire, the family should have a plan for tsunami evacuation. Since Hawaii is an ocean state, it is not necessarily only those who live and work in the evacuation areas who are potential victims. Many others use the beaches and beach parks for recreational purposes.

The issue of an individual having an adaptive plan refers to "how much the individual has formulated a specific tactic for accomplishing an evacuation" (Dynes & Tierney, 1994, p. 89). This plan could be conceived in a number of ways including past disaster experiences, knowledge of the threat environment, personal disaster planning activities or even from information derived from the warning message itself. No matter how the plan information was derived, empirical studies have suggested that evacuation compliance is facilitated by possession of a plan.

Perry (Dynes & Tierney) also states that the “more precise the adaptive plan, the greater the likelihood of evacuation compliance” (p. 89). My data indicates that past experience as a tsunami survivor may be a factor in understanding the danger presented by a tsunami. However, much has changed since the last destructive tsunami, such as technology and population expansion in the tsunami inundation zone.

Accurate and timely communication to the public from the media and emergency response organizations is critical during a potential disaster situation. Disaster communication theory points out that an educated and aware public with a plan of action will remain, for the most part, stable and will have the ability to adapt to the situation and respond accordingly.

## CHAPTER 6

## DISCUSSION/CONCLUSION

My research reveals that governmental agencies did not function together efficiently during the 1960 tsunami. This lack of coordination led to confusion both within the agencies and with their communications to the public. Media inaccuracies along with a public naïve to the dangers of tsunamis increased the hazard of loss of life and property. Steps are being taken today by the governmental agencies involved in tsunami awareness to alleviate these problems in the event of the next catastrophic tsunami.

Implications of Findings

An in-depth examination of the logs prepared by the three leading governmental agencies responsible for the safety of Hilo's citizens during the 1960 tsunami was performed. The examination revealed the lack of procedure and an absence of cooperation between these agencies as demonstrated by log entries.

Procedures and coordination.

At 7:00 p.m. May 22, 1960 the State Civil Defense called the Hawaii Police Department in Hilo to tell the Hawaii Civil Defense Agency (HCDA) in Hilo to "mobilize to an extent deputy directors C.D. feels and report to C.D. HQ in Honolulu". Although it appears that the Hawaii Police Department was the primary agency during the tsunami, it would have been more expedient for the State Civil Defense to notify the Hawaii Civil Defense Agency directly. Also, the message was received almost one-half hour after the official "Tidal Wave Alert" and it is apparent that there were no procedures



in place and that any action taken was up to the discretion of the individual deputy director.

At 2:20 a.m. the Hawaii Civil Defense Agency (HCDA) log is quoted, "Capt. Kamau, [Hilo] Police Dept. came in to see Col. Pakele to try to coordinate efforts of Police Dept., Fire Dept and OCD [Oahu Civil Defense]". This is the first indication in the logs that there was any attempt to coordinate interagency cooperation. The exception to this was that the Hawaii Fire Department sent one of their employees to the HCDA with a walkie-talkie so that he could report the latest news to them. Interagency cooperation should be established long before a disaster occurs.

The "tidal wave gauge" was located at Pier 1 in Hilo Harbor on the breakwater [ocean] side of the harbor. Robert "Steamy" Chow indicated that whenever there was a tsunami warning, the police department would send an officer down to watch the gauge. He stated "we waited for the alarm to sound and then would take off and pray that you reach Silva Street and Kalaniana'ole Avenue before the water comes". This shows that the police department was not aware of the danger and did not understand the phenomena of tsunamis.

Since there was no telephone available at South Point, and reports from the Volcano Observatory (see Appendix F) stated that the wave would strike the Kalapana and Pohoiki side of the Big Island, the Hawaii Civil Defense Agency directed the Kau Station of the Hawaii Police Department to position a lookout at South Point who was to send up a flare indicating the arrival of the tsunami. In 1960 there should have been a better procedure in place than sending a lookout to South Point with a flare.

Another issue was that authorities did not evacuate the homes in the inundation zone. Eaton, Richter, and Ault (1961) reported they ventured into Hilo sometime after 2:15 a.m. on May 23, 1960, when it appeared to be safe where they found that “Hilo’s streets had been evacuated, but its buildings had not” (p. 140).

#### Media misinformation.

Eaton, Richter and Ault (1961) stated that about 12:30 a.m. just when the water began to recede after the first wave that they heard a Honolulu radio station report that no wave had yet arrived and that the estimated tsunami arrival time had been set back half an hour. It was then they realized with growing uneasiness that communications between crucial observation points and public news media had broken down.

#### Lack of tsunami awareness.

At 12:25 a.m. according to the Hawaii Civil Defense Agency (HCDA) log, Col. Pakele received a call from the U. S. Coast Guard to let him “know that drop of wave height is just as important” as the rise in water. This was hardly the time for tsunami education. The HCDA personnel should have been trained prior to the event.

At 12:53 a.m. the Hawaii Civil Defense Agency (HCDA) evacuated their Shipman Street headquarters in the Hilo Armory. According to Robert “Steamy” Chow, their headquarters was located approximately 100 yards from Hilo Bay and 100 feet from the Wailuku River. It should have been apparent that an agency whose function was to respond to a tsunami should not be located in the evacuation zone.

According to the Hawaii Civil Defense Agency (HCDA) log, Governor Quinn announced over the radio, KGMB [Honolulu] and KHBC [Hilo] at 2:30 a.m. that people should stay away from the beach areas. Quinn mentioned the seriousness of damages in

Hilo. This announcement should have been made five to seven hours prior to the expected arrival of the tsunami.

### Conclusion

It is not the intention of this study to place blame but rather to shed light on some areas of tsunami awareness and education that can be improved. There have been no destructive tsunamis that have impacted Hawaii since 1960. We, as a society, have become complacent. This complacency has led to several generations of people who know very little about the phenomena of tsunamis. Tsunami mitigation preparation and a heightened awareness are needed in order to lessen the impact of future tsunami disasters.

Charlie Rose, 1960 tsunami survivor, was on duty with the Hawaii Police Department on the night of May 22, 1960. He was posted at the bridge in Waiakea town. When asked how he would suggest educating people about the dangers of tsunamis he replied:

It's an uphill struggle because of the apathy in our community... Maybe some of the pictures you [the Pacific Tsunami Museum] have can be publicized... where people can be made aware that there's tremendous, tremendous danger ...".

### Tsunami awareness education.

Eaton, Richter, and Ault (1961) relate that Hilo Bay is one of the most vulnerable areas along the coast of Hawaii. They state that the failure of nearly two-thirds of the residents of the stricken area to evacuate in spite of notice on May 22, 1960 that a tsunami would probably reach Hilo "points up a fatal flaw in the public's understanding that low-lying seashore areas must be evacuated before the expected tsunami strikes" (p. 156).

In *Tsunami Warning System Review*, Austin, Cox, Eaton, Haraden, Visher, and Vitousek (1960) emphasize the need for tsunami awareness:

The poignancy of this tragedy is intensified by the fact that it was obviously technically preventable. An advisory bulletin on a possible tsunami had been made public nearly 12 hours before a wave could arrive, and a formal warning was publicly issued four hours in advance. It appears certain that this information reached the people concerned, not only in Hilo but generally in shoreline areas of the state. Yet many failed to take adequate precautionary action and, worse, others, spurred by curiosity, placed themselves in unnecessary danger. This behavior, and the testimony of many whose lives were spared, indicate a failure on the part of a large segment of the public to understand the nature of magnitude of the risks to which they subjected themselves (p. 1).

Forty years after the 1960 tsunami my research reveals that tsunami awareness is lacking. My study reveals that people are still misinformed and it chronicles the desperate need for tsunami education. Harry Yamamoto, tsunami survivor, is quoted from his interview:

After that 1960 tidal wave, that's when the people started to realize that it is nothing to play with. Plus even now when they have a tsunami warning to my observation it looks like there is more people going down to the beach instead of going away from it.

#### Media accuracy.

Since the media has been socialized to believe in the disaster mythology, education is the key to resocializing them and changing their perception. It is the

reporters who use their own frame of reference to reconstruct the reality that they portray in their news stories. Fischer (1998) explains that disaster researchers have an obligation to the communities and to society at large to lead the educational process so that it will reach the public and the emergency managers and the reporters. Emergency managers and reporters play an important role in the process of the public perception of and response to disaster (p. 185). It is imperative that the media in Hawaii be included in the disaster mitigation meetings and that a *continuing* program of media education be contemplated.

#### Formulate a plan.

Since Hawaii is an ocean state, it is not only those who live and work in the evacuation zones who are potential victims. In the case of a locally generated tsunami anyone in the inundation zone would be at risk. Every family needs to formulate an evacuation plan whether they live, work or occasionally use the beaches and parks for recreation. *Continuing* tsunami education is the key to successful tsunami mitigation.

A catastrophic tsunami will occur in the future and there will be a need for timely and accurate disaster communication. An increasingly complex and diverse society with a growing population and commercial environment in the inundation zone increase the need for disseminating of critical, life-saving information to the population.

**APPENDIX A**

## Protection of Human Subjects Assurance Identification/Certification/Declaration (Common Federal Rule)

Policy: Research activities involving human subjects may not be conducted or supported by the Departments and Agencies adopting the Common Rule (56FR28003, June 18, 1991) unless the activities are exempt from or approved in accordance with the common rule. See section 101(b) the common rule for exemptions. Institutions submitting applications or proposals for support must submit certification or appropriate Institutional Review Board (IRB) review and approval to the Department or Agency in accordance with the common rule.

Institutions with an assurance of compliance that covers the research to be conducted on file with the Department, Agency, or the Department of Health and Human Services (HHS) should submit certification of IRB review and approval with each application or proposal unless otherwise advised by the Department or Agency. Institutions which do not have such an assurance must submit an assurance and certification of IRB review and approval within 30 days of a written request from the Department or Agency.

1. Request Type <input type="checkbox"/> ORIGINAL <input type="checkbox"/> FOLLOWUP <input checked="" type="checkbox"/> EXEMPTION	2. Type of Mechanism <input type="checkbox"/> GRANT <input type="checkbox"/> CONTRACT <input type="checkbox"/> FELLOWSHIP <input type="checkbox"/> COOPERATIVE AGREEMENT <input type="checkbox"/> OTHER:	3. Name of Federal Department or Agency and, if known, Application or Proposal Identification No.
4. Title of Application or Activity  "Disaster Communication's Role in Natural Disaster: A Case Study of 1946 and 1960 Tsunamis in Hilo, Hawaii"		5. Name of Principal Investigator, Program Director, Fellow, or Other  Jeanne Branch Johnston

6. Assurance Status of this Project (Respond to one of the following)

This Assurance, on file with Department of Health and Human Services, covers this activity:  
 Assurance identification no. M- 1217 IRB identification no. 01

This Assurance, on file with (agency/dept) \_\_\_\_\_, covers this activity.  
 Assurance identification no. \_\_\_\_\_ IRB identification no. \_\_\_\_\_ (if applicable)

No assurance has been filed for this project. This institution declares that it will provide an Assurance and Certification of IRB review and approval upon request.

Exemption Status: Human subjects are involved, but this activity qualifies for exemption under Section 101(b), paragraph (2).

7. Certification of IRB Review (Respond to one of the following IF you have an Assurance on file)

This activity has been reviewed and approved by the IRB in accordance with the common rule and any other governing regulations or subparts on (date) by:  Full IRB Review or  Expedited Review

This activity contains multiple projects, some of which have not been reviewed. The IRB has granted approval on condition that all projects covered by the common rule will be reviewed and approved before they are initiated and that appropriate further certification will be submitted.

8. Comments

**CHS #11583**

9. The official signing below certifies that the information provided above is correct and that, as required, future reviews will be performed and certification will be provided.		10. Name and Address of Institution  University of Hawaii at Manoa Office of the Chancellor 2444 Dole Street, Bachman Hall Honolulu, HI 96822	
11. Phone No. (with area code)  (808) 956-5007	12. Fax No. (with area code)  (808) 539-3954	13. Name of Official  William H. Dendle	
14. Title  Compliance Officer		15. Signature 	
16. Date  January 29, 2002			

**APPENDIX B**



FROM May 22, 1960  
 TIME AND PLACE

ORGANIZATION HCDA

TO \_\_\_\_\_  
 TIME AND PLACE

PLACE \_\_\_\_\_  
 LOCATION OF HEADQUARTERS

JOURNAL

Y

TIME IN	TIME OUT	TIME DATED	INCIDENTS, MESSAGES, ORDERS, ETC.	DISPOSITION
		12:15	Officer Lim of the Hilo Police Dept., called Pakele at his residence with the following message:	
			Mr. Krivoy of the Hawaii National Park called and reported that an earthquake was recorded at 9:00 A.M. on the Chile Coast - magnitude 8 $\frac{1}{2}$ . Approximate arrival time of tsunami is 12 Midnight-Island of Hawaii and 12:30 A.M.-Island of Oahu.	
		1600	Pakele called Chairman Cook and relayed above message.	
		1635	Pakele " L. Ishimaru	
		1750	Mr. Eagle, Advertiser reporter, called for information.	
		1810	KGMB announced that Barbers Point will issue news before 8:00 P.M. whether or not there will be any wave generation here in the islands.	
		1905	KHBC announced that the Coast & Geodetic Survey has issued a tidal wave alert at 6:48 P.M.	

FROM May 22, 1960  
 TIME AND PLACE

ORGANIZATION \_\_\_\_\_

TO \_\_\_\_\_  
 TIME AND PLACE

PLACE \_\_\_\_\_  
 LOCATION OF HEADQUARTERS

JOURNAL

Y

TIME IN	TIME OUT	TIME DATED	INCIDENTS, MESSAGES, ORDERS, ETC.	DISPOSITION
		1915	Sgt. Yugas of the Hilo Police Department reported to Pakele that the Honolulu Police Department has issued tidal wave warning. Wave expected to hit the Big Island at 12 midnight and Island of Oahu at 12:30 A.M.	
		1920	Pakele called Mr. T.G.S. Walker, vice director, State Civil Defense Agency at Honolulu 72161 for information on tidal wave alert.	
		2000	Asst. Chief George Martin of the Hilo Police Dept. called Pakele to notify him that he had received a message from Mr. T.G.S. Walker, through the hot-line that sirens are not to be sounded until notified by the State C.D. Headquarters.	
		2015	Pakele phoned Mr. T.G.S. Walker at the State C.D. Headquarters and was given the authority to sound the sirens.	

FROM 1925 - MAY 22, 1960  
 TIME AND DATE

TO 2135 - MAY 22, 1960  
 TIME AND DATE

ORGANIZATION HCDA

PLACE 60 SHIPMAN STREET  
 LOCATION OF HEADQUARTERS

JOURNAL

TIME DATED	INCIDENTS, MESSAGES, ORDERS, ETC.	DISPOSITION
1925	CAP James Andrews, Geffry Hashimoto checked in.	
1936	Peter W. Pakele, Deputy Director HCDA checked in	
2030	Maude Beers, CDI; checked in	
2035	1st siren sounded	
2040	2nd " "	
2043	3rd " "	
2045	Tamayo Otsuka, CDI, checked in.	
2047	Lorraine Ishimaru CDI and <del>XXXXXXXX</del> checked in.	
2047	4th siren sounded	
2047	Cho Hen Chun, CD III, checked in.	
2050	5th siren sounded.	
2100	Dan Nathaniel checked in.	
2100	Dorothy Thompson checked in.	
2102	Dr. H. M. Bockrath, CD V checked in.	
2103	Sam Kumukahi, CD VI, checked in.	
2103	Luther Nathaniel checked in.	
2103	Maxine Milton (volunteer) telephone operator checked in.	
2110	Kenneth Kamei (volunteer) radio operator.	
2115	Walter Todd checked in	
2118	R. Carvalho, Supt. Parks & Recreation, checked in.	
2120	Manuel F. Gomes, " " " "	
2120	R. Tong, " " " "	
2125	Geo. Ah Sing, Bd. of Water Supply; Helen Bond, CAP; Geo. Matsumoto, CD IV; checked in.	
2135	T. K. Cook, Chairman CH; Major A. Aquiliza, Salvation Army; Doro Takeda, Dept. of Parks & Rec.; Alex K. Bell, CD I; Emelia Kellipio, CAP; checked in.	

21:55 C. Makaimoku, E. Keliipio, H. Bond, checked out to Hilo Civic Auditorium.  
21:49 Benedict Lui Kwan, CDI, checked in  
21:54 ~~R. Ryans~~ E. F. Morrison, CD III, checked in  
21:45 R. Ryans, Parks & Rec. checked in.  
2200 L. Sonsda, State Dept. of Health, checked in.  
2200 Don. Tong, CD I, checked in.  
2230 E.F. Morrison and Cho Hen Chun checked out to scout waterfront.  
2220 Anna R. Brown, CDI, checked in.  
2225 Edward Ahuna, Fire Dept., checked in.  
2230 W m. Thompson, CD II & IV, checked in.  
2240 Yoshio Inaba, CD III, checked in.  
2245 E. Kunishi, Don Mitchell, CAP, checked in.  
2250 E. F. Morrison and Cho Hen Chun checked in from scouting the waterfront, reported everyting okay.  
2310 Harris Suyama, CD III, checked in.  
Between 2250 and 0115, evacuated from CD Headquarters, 60 Shipman St., and relocated at Fire Dept.,

FROM 2015 22 May 1960  
 TIME AND DATE

TO 2400 22 May 1960  
 TIME AND DATE

ORGANIZATION CIVIL DEFENSE

PLACE HILO  
 LOCATION OF HEADQUARTERS

J O U R N A L

TIME DATED	INCIDENTS, MESSAGES, ORDERS, ETC.	DISPOSITION
2015	Ishimaru called Katsura's home. Kiyosaki	
2045	Inaba called in. He has alerted the men at 1930. He will call for more men.	
2100	Mrs. Unea from phone [REDACTED] called in. Her son will be ready to call on the Boys Scout if needed	Mr. Pakele advised that he he does not think there is a need at this time.
2134	Tsune Takemoto called from [REDACTED] -- He will be there for awhile. He may be reached at [REDACTED] if not at former number.	
2138	Ishimaru called Taketoshi Marumoto to be at South Point and give us information as soon as waves hit that area. He is at [REDACTED]	
2145	Ishimaru called Mr. Edward Silva of D.D. I at [REDACTED] He will be at home in case office needs him.	
2200	Ishimaru called Tsune Takemoto by suggestion from Mr. Pakele, if he could have the bus drivers assemble and let us know where they will be.	
2227	Pakele called Commander Yaergain of the Coast Guard - no information available	

(6)

FROM 2231 22 May 1960  
 TIME AND DATE

TO 2400 22 May 1960  
 TIME AND DATE

ORGANIZATION CIVIL DEFENSE

PLACE HILO  
 LOCATION OF HEADQUARTERS

JOURNAL

TIME DATED	INCIDENTS, MESSAGES, ORDERS, ETC.	DISPOSITION
③ 2231	Wave hit Tahiti at 8:00 p.m. - 3 ft. high (reported by Kumukahi's radio message)	
④ 2305	11:05 P.M. - Col. Byrnes, Hon. advised - message- Wave struct Tahiti at 8:10 p.m. 39 in. high.	
① 2200	Col. Byrne called in to have wave information as soon as we hear anything about it. Pakele informed him that he has Mr. Hay & Mr. Wilson in Puna and Mr. Marumoto & Mr. LeeHong are at South Point	
2203	Kandelario, Pippio, evacuated to civic - Chinen called in - all facilities available	
2205	Wm. Thompson called in - he will report to duty	
② 2210	Ishimaru called Miss Kaupiko [redacted] - Milolii - to let us know if she notices any high waves.	
④ 2243	Ishimaru spoke to Lt. Rosehill whether there is any possibility of some flare signal from the South Point area to the phone - time is the element - to notify Honolulu - He will try to get Police Officers from Naalehu to go down and meet Marumoto at the point and work out something more satisfactory.	2247 - Lt. Rosehill called in He contacted Police in Naalehu--He is already there with radio equipped to notify Hilo.
⑤ 2245 <del>2255</del>	Radio Amateur operating from South Point to notify Hilo & Honolulu	
⑥ 2250	Ishimaru contacted Lt. Rosehill to ask him to call directly through CD hot-line to Honolulu as soon as message is received from South Point rather than calling CD Office to save time as suggested by Pakele.	



FROM 2300 May 22, 1960  
 TIME AND DATE  
 TO 2400 May 22, 1960  
 TIME AND DATE

ORGANIZATION \_\_\_\_\_  
 PLACE \_\_\_\_\_  
 LOCATION OF HEADQUARTERS \_\_\_\_\_

J O U R N A L

TIME DATED	INCIDENTS, MESSAGES, ORDERS, ETC.	DISPOSITION
2300	Pakele called Col. Byrnes - gave him report of Hilo Police as to procedure in notifying him. Col. Byrne confirmed thru hot line F.A.A. & Navy - wave hit Tahiti on time - 39" at 8:10 p.m. - expect wave to hit Hawaii on time - maybe of a same size, smaller or bigger - Col. Byrnes suggested that Hilo Police advise Honolulu Police to notify Byrne when that message goes through the hot line.	2305 - Ishimaru called Lt Rosehill and informed him re conversation with Col. Byrne as to the procedure
2302	Paul Pakele called and said bus has been serviced and ready for action - P&B men at work since 8:35 p.m. - Louis Mattos, Joseph Veriato, Fermin Gualdarama, Alwin Campaignha and Water Barboza	
2345	Herbert Watson called in - he will be in for duty	
2350	Ishimaru called Lt. Rosehill for further information - He reported no change from South Point as of this time.	
2355	Pakele called Lt. Rosehill for latest report by 12:00 midnight from South Point before he called Honolulu.	
2356	Hay - reported no change in Poihiki area in Puna	
2400	Lt. Rosehill called in - no change at South Point	
2401	Pakele called Col. Byrne to give him the latest report - no change at South Point and Poihiki area in Puna.	
2405	Doroy Takeda and Manuel Gomes - checked out and left their telephone numbers in case they are needed - Manuel [redacted] - Doroy [redacted]	

May 23, 1960

FROM 2407 23 May 1960  
 TIME AND PLACE

ORGANIZATION H C DA  
 PLACE 60 Shipman ST  
 LOCATION OF HEADQUARTERS

TO \_\_\_\_\_ JOURNAL  
 TIME AND PLACE

IN	TIME OUT	TIME DATED	INCIDENTS, MESSAGES, ORDERS, ETC.	DISPOSITION
		2407	Anna Brown left for home	
		2408	Ishimaru called Hawaiian Homes Commission for report - Mr. Ahuna reported that there are about 70 people waiting for word.	
		2415	Lt. Rosehill called in - He reported that at 12:09 gauge went off over an inch above normal. It has not started receding as yet	
		2416	George Matsumoto called in - Some action seen at Fisherman's wharf	
		2420	Cocoanut Island fully covered - Pier at Naniloa with water - close to 3 ft. high - Mrs. Santos Ass't Manager Naniloa reported.	
		2425	Commander Yaegain called in to let Col. Pakele know that drop of wave height is just as important.	
		2430	Col. Pakele called Lt. Rosehill - Rosehill reported that water already at Naniloa Parking Area + Pakele advised him to let Honolulu Office know thru hot line as soon as authenticated report is received rather than calling CD office first. Then call this office.	
		2433	water receding 5' below normal.	
		2435	Col. Byrne from Honolulu called for Pakele - Col. Pakele reported that 5' water receding as reported by Commander Yaegain.	





(10)

FROM 0140 23 May 1960  
 TIME AND DATE

TO \_\_\_\_\_  
 TIME AND DATE

ORGANIZATION \_\_\_\_\_

PLACE Five Dept.  
 LOCATION OF HEADQUARTERS \_\_\_\_\_

JOURNAL

TIME DATED	INCIDENTS, MESSAGES, ORDERS, ETC.	DISPOSITION
0140	Richard Tong <del>xxxxxx</del> just returned from CD Headquarters with supplies reported as follows: <del>xxxxxxx</del> From Kailua—reported Henry Bray, Sr. - first phase recession 60' first wave hit buoy went over the wall. Waiting for the next wave.	
0150	Richard Tong left to inform Mr. Ozeki to secure at the CD Headquarters.	
0155	Tsuneo Takemoto checked out <del>xxxxxxx</del> .	
0205	Tsuneo Takemoto checked in.	
0210	Richard Tong checked in.	
0215	Sam Kumukahi requested for gasoline to operate radio.	
0215	1:58 a.m. From Kailua, K na- Henry Bray reporting - 5 waves, so far, to his his estimation, water is over road in front of Kukilan and Ocean View, wave has not come over wall—damage unknown—will call later.	Received by V. Smith Central Station Dispatch
0220	Tsuneo Takemoto <del>rx</del> checked in after taking five evacuees to Kapiolani School— he reported that no evacuees are being taken in at Kapiolani—only at Hilo High and Hilo Intermediate.	
0220	Capt. Kaman, Police Dept. came in to see Col. Pakele to try to coordinate efforts of Police Dept., Fire Dept., & OGD., <del>xxxxxxx</del>	
0230	Gov. Quinn announced over KQMB-KHBC for all people to stay away from the beach areas—mentioned the seriousness of damages in Hilo.	
0231	Chairman Cook requested over KHBC radio station for all doctors to report to Puuhale Hospital.	
0245	<del>Richard</del> Report came in over radio—waves coming in at 7 minutes interval.	
0245	Richard Tong reported back from <del>ceasing</del> situation at Hilo High and Intermediate Schools—No evacuees at Hilo High, all at Hilo Intermediate.	
0300	Police Radio Comm. - <del>xxxxxxx</del> State Highway Dept. <del>xxxxxxx</del> Garage almost completely demolished.	
0310	Wm. Thompson reported he is located at Water Works warehouse on Kinole.	
0315	Water pressure normally 90lb. down to 20 lb. Radio Request to Hilo Police from E. F. Morrison to Archie Berthelmen, State Highway Dept., Waimea	
	Request: Move all available equipment—grader, loader, trucks, from Waimea to Hilo by day lite.	

Police Communications Center reported back no communications out of Hilo.

(11)

FROM 0325 23 MAY 1960  
TIME AND PLACE

ORGANIZATION

PLACE Fire Dept.  
LOCATION OF HEADQUARTERS

TO  
TIME AND PLACE

JOURNAL

IN	TIME OUT	TIME DATED	INCIDENTS, MESSAGES, ORDERS, ETC.	DISPOSITION
		0325 0325	From HCD to Police Comm. Center - No one to enter area till To: <del>Central Comm. Police Comm. Center</del>	Daylite.
			From: HCD Headquarters - request contact Charles Tong, Am. to report to HCD Headquarters, Fire Dept. at once.	Red Cross
		0330 0335	Dorothy Thompson Checked out. 0325 Ralph Kiyosaki, DPI, requested for steno and clerks to Donald Tong called Kuniyoshi thru Motorola walkie Talkie via Hilo Police Dept.	be sent to Hilo High & Intermediate Sch. (Ishimaru contacted Chairman Cook and he instructed her) (to contact Kuniyoshi to recruit the clerks and steno and have them report to the various schools. Mrs. Virginia Malone of Lehua St, volunteered to help. This was also confirmed with chairman Cook and he asked her to report (to Mr. Kiyosaki of the DPI for duty.)
		0345	0345 - as reported by Benedict Lui Kwan; Hilo Intermediate Shelter informed Doctor in charge that Puuaille will receive patients. 0255 - Mr. Vance, Puuaille Hosp. says lights are on at Hilo Memorial--refer patients there. 0300 - checked Hilo Memorial--Dr. Wimmerman says to send badly injured there. 0310 - Informed Doctor at Hilo Intermediate and returned to walking patients back. 0310 - Delivered 1 injured (Wm. Delacruz) fractured left arm--delivered to Hilo Memorial. 0320 - Instructed Transp. (Takemoto) to assign 3 busses: 1-Hilo Intermediate, 1 Hilo Memorial, 1 Puuaille for standby.	

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FROM 0355 23 MAY 1960  
TIME AND PLACE

ORGANIZATION \_\_\_\_\_

PLACE Fire Dept.  
LOCATION OF HEADQUARTERS

TO \_\_\_\_\_  
TIME AND PLACE

JOURNAL

TIME IN	TIME OUT	TIME LISTED	INCIDENTS, MESSAGES, ORDERS, ETC.	DISPOSITION
		0355	Shinji Soneda reported he has been routing out all Public Health Nurses and sending them to the hospitals.	
		"	Mrs. Edwards, Am. Red Cross, and Richard Chinen picked up blankets and delivered same to Hilo High and Hilo Intermediate total of about 40.	
		0356	CAP Andrews and Hashimoto reported back from Kimiville. Was sent there to rescue people trapped & render first aid.	
		0400	Request for Col. Peter Pakele to report to Central Police Station to meet with Chairman Cook	
		0345	Caceres of the Hilo Board of Health went out to open up office to pick stretchers.	
		0400	Mr. Peter Hayashi reported at C. D. Headquarters on Kinoo Street informing Ighimaru that Mrs. Hayashi is available. Ighimaru advised him to have her report to the School Dept. where all the clerks and stenos are now needed to take registration, etc. as requested by Mr. Kiyosaki and which was also directed by Chairman Cook.	
		0405	Mr. Pakele left for conference at the Hilo Police Dept. with Chairman Cook and public officials.	
		0415	Takemoto of the Bus Control reported that his men are still evacuating casualties from Kimiville.	

FROM 0415 - G. D. Headquarters- Kinoole Street  
TIME AND PLACE

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TO \_\_\_\_\_  
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JOURNAL

PLACE Fire Dept.  
LOCATION OF HEADQUARTERS

TIME IN	TIME OUT	TIME DATED	INCIDENTS, MESSAGES, ORDERS, ETC.	DISPOSITION
		5/23/60		
0420			Lefty Kaniyoshi reported at the G. D. Headquarters.	He will try to get as many stenos as possible.
0425		"	reported by Bray, Kailua, Kona at 4:15 a.m.- At this hour, since previous report no receding of waves. Damages cannot be estimated at this time. Keauhou seems extensively damaged. Kailua- Kona Inn pretty well damaged.	
0430			Mrs. Edwards of the Red Cross reported. She reported that all evacuees are located at the Hilo Intermediate School and not at High School or at the Riverside School. Riverside School is preparing coffee, etc. for the workers and High School for the evacuees. She will be out for a while to check whether her house is still standing in Keaukaha.	
0440			Lui Kwan reported in. Ishimaru requested that the following personnel be recruited for morning shift of 8 hrs.: 4 stenos at G. D. Headquarters 3 stenos and 3 clerks at Hilo Intermediate School 3 steno clerks at the Puumaila-Memorial Hospitals.	They will report to Ishimaru, Mr. Vance and Mr. Kiyosaki or Mr. Serrao.
0430			HNG Headquarters is activated for duty under command of Capt. Nakamae by order of Col. Roman.	

City

FROM 0450 - C. D. Headquarters- Kinoole street  
TIME AND PLACE

ORGANIZATION

TO \_\_\_\_\_  
TIME AND PLACE

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PLACE

Fire Dept.

LOCATION OF HEADQUARTERS.

TIME IN	TIME OUT	TIME LISTED	INCIDENTS, MESSAGES, ORDERS, ETC.	DISPOSITION
		5:23r30		
	0505		Ishimaru relayed the following message to Deputy Chief Martin as instructed by Mr. Pakela; Water pressure is low; water is allowed to flow freely to	Requested this message be sent to Honolulu
			prevent suction of debris into mains. Chlorine application increased. water supply in reservoirs adequate.	
0513			CAP Andrews, Mitchell, Hashimoto, Richard Andrews, and	
			Group of rescue volunteers returned from morgue.	
025			Police Dept. reported that there is an injured person at intersection of Pillani and Manono.	Mr. Takemoto dispatched one bus to that area.
0526			Police Dept. radioed in- Requested that Chairman cook meet the Governor 0745 .	Col. Roman will take care of this.
0530			Col. Roman reported that 4 jeep-ambulance and 1 civilian type ambulance will be dispatched to the Fire Department Rescue Units. 2 for Mamala Street and 3 in Waikele Area.	
0535			Pakela requested that three more telephones be installed at C. D. Headquarters at 60 Shipman Street immediately for operation.	Mr. Hashimoto of the Telephone Company will take care of this.

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FROM 0535 C. D. Headquarters - Kinoole Street  
TIME AND PLACE

ORGANIZATION \_\_\_\_\_

TO \_\_\_\_\_  
TIME AND PLACE

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PLACE Fire Dept.  
LOCATION OF HEADQUARTERS

TIME IN	TIME OUT	TIME LATED	INCIDENTS, MESSAGES, ORDERS, ETC.	DISPOSITION
		5/23/60		
	0520		The following messages were broadcast over KHBC:	
			The following schools will be closed until damage, housing and evacuation needs can be assessed; Waiakae-Kai; Hilo Intermediate; Hilo High; Eilo Union; Keaukaha; Kapiolani	Kumukahi will relay the message to be broadcast over KHBC.
			All other schools will resume classes as well as possible. Teachers of other schools without classes please report to your principals in respective schools and stand by. The cooperation of the public is urgently requested. (sgd) R. Kiyosaki, District Supt., Hawaii Island Schools.	
	0550		Mr. Pakele checked out. Instructed Ishimaru to take care of the office. Also to check with the Police Department before moving back to 60 Shipman Street. Directed to take care of the workers at the Headquarters. Pakele is also reporting for conference with the Chairman at his office at 0700.	
0600			Mr. Leithhead of the Keaukaha School reported that water is very low at that school and he did not think that the kitchen facilities can be used.	Ishimaru suggested that he contact Mr. Kiyosaki who is coordinating the school end of the function.

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FROM 0600 C. D. Headquarters - Kinole Street  
TIME AND PLACE

ORGANIZATION

TO  
TIME AND PLACE

JOURNAL

PLACE Five Dept.  
LOCATION OF HEADQUARTERS

TIME IN	TIME OUT	TIME LATED	INCIDENTS, MESSAGES, ORDERS, ETC.	DISPOSITION
		5/23/60		
0605			Col. Roman reported that 90 blankets were sent to the school under supervision of Mr. Tong of the American Red Cross.	
0609			Mary Hiyama reported in	
0612			Raymond Suefuji reported in	
0620			Mr. Vance of the Mem. Hosp called in to report that he has already received 51 injured; 5 dead on arrival (2 children 3 unknown;) he will be able to take 60 more at the hosp. Will appreciate information as to number to be expected. Should it be more than 60 in number may have to open up the nurses cottage to accommodate them; may be reached at 51185 or 51156. If not there, leave message with John Jardine.	
0830			Clerks from C. Brewer as follows; D. Suefuji, S. Yano, S. Kishi, Y. Nahn, K. Yokenoka, J. Tao, G. Goto, M. Kami, A. Sazawa, A. Sato checked in.	Mr. Ed. Silva assigned these girls to CD Headquarters, Fire Dept.
0907			J. Andrews, R. Andrews, G. Hashimoto, CAP & Richard Cook, back from morgue.	
0907			The above checked out to go to Riverside School for meals.	
0910			Mrs. Hazel Fujimoto from Dept. of Social Services reported to work at 8:45 a.m.	
0910			Mrs. M. Ushijima, Mrs. Y. Horiuchi, Mrs. K McLarty reported in.	



FROM 0815 23 MAY 1960  
TIME AND PLA CE

TO \_\_\_\_\_  
TIME AND PLACE

(10)  
ORGANIZATION Civil Defense Agency

PLACE 60 Shipman Street, Hilo  
LOCATION OF HEADQUARTERS

J O U R N A L

Y

TIME IN	TIME OUT	TIME DATED	INCIDENTS, MESSAGES, ORDERS, ETC.	DISPOSITION
0650			Radio announced that 9 people reported dead (5 at the morgue, 4 more to the morgue.)	
0730			Mr. Oba of Kainehe called -- his house is still standing but he was asked to be evacuated.	
0745			Boys Scouts office may be reached at one of these numbers--Mr. Yamamoto-- Phone 53248 or 3066.	
0745			Mr. Minaai and Mr. Ichiyama of the Social Security Office were sent to the various schools, which are operating during emergency for further info- also xx to the services being rendered--number injured that may require hospitalization.	
0750			Mr. Yoshio Yanagawa reported that he has 15 or 16 units available at NAS for evacuees.	
0755			Mr. Greenwell of Greenwell Dairy of Kamuela called in to offer help in pastoralizing milk for children.	Referred this matter to Katsura & Kiyosaki of the DPI & Mr. Charles Tong of Am. Red Cross.
0800			Gary Kaneko called--needs help to curb looting in Waiakea District.	Ishimaru gave this message to Lt. Victor of the Police Dept.

FROM 0815 23 MAY 1960  
TIME AND PLACE

TO \_\_\_\_\_  
TIME AND PLACE

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ORGANIZATION Civil Defense Agency

PLACE 60 Shipman St., Hilo

LOCATION OF HEADQUARTERS

JOURNAL

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TIME IN	TIME DATED	INCIDENTS, MESSAGES, ORDERS, ETC.	DISPOSITION
0815		Mr. Minnai reported that about 160 evacuees registered at the Hilo Intermediate School. There were only about 6 injured. Planning to set up sleeping facilities for them. Needs more cots. Gas line cut.	
		Hilo High School on standby basis. (New Phone 50619)	
		Hilo Union on the Riverside School available for cooking & feeding civilian workers.	
		Kapiolani School closed up—volunteers are being sent to Hilo Intermediate School.	
		Mrs. Ward called in offering clerical & Steno help.	Ishimaru suggested that it may help for Welfare Service to get further information as to the number of evacuees, number injured, and the names of the people, etc., for governmental information to determine an accurate count of all those displaced as closely as possible. She will be very happy to help on this end.
0900		Yoshitsugu Maeda & Wife - 2 children (boy 13 yrs., girl 6 yrs.) 354 Muliwai St. Waiakea, near Haw'n Village: 2 bedrm. hse., lease from Doc. Hill clothing, lost everything—estimate damages \$3,000 to \$4,000 insured (whether insurance will pay, he does not know) Presently at sister's home 726 Leilani St. (Mrs. Takako Nagahisa, Phone No. 51339)	

FROM 0900 23 MAY 1960  
 TIME AND PLACE

TO \_\_\_\_\_  
 TIME AND PLACE

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ORGANIZATION Civil Defense Agency

PLACE 60 Shipman Street  
 LOCATION OF HEADQUARTERS

JOURNAL

Y

TIME IN	TIME OUT	TIME DATED	INCIDENTS, MESSAGES, ORDERS, ETC.	DISPOSITION
0900			Joe Makua, Elmer Makua, Gracie Makua (adults), & 4 children (pre sch. age) staying with friends (Mary H. Bragas, 2500 Kilauea, Phone 568043. Mr. & Mrs. and infant with another adult. Family resided by old Yanagihara Store at Waiakea Town.	
1110			Andy Okubo reported that he will be ready from noon on.	
1130			Henry Bray called in from 25-6555 - Kona Hukilau reported as follows:  Minoru Inaba (Holualoa Beach Home), Keakakekua, Kona Box 52-A, Route 1, Kailua, Kona Prop. damage - Home <del>stays</del> furnishings, bed, ice box, belongings (\$400.00) (Roadway blocked)  Ralph Nelson - house moved towards north 35' from its foundation. Holualoa Beach Home, Box 52, Route 1, Kailua, Kona  King Kamehameha Hotel - total damage downstairs, lounge, office, bar; <del>8' of water in lounge, dining room</del> lanai, dining room; 8' of water in basement (kitchen basement)  Ocean View - clear; Hukilau - no damage; Leialoha - no damage; Kona Palm - no damage; Kona Inn - lanai and lawn damaged.	

(17)

112 VAI  
Co-shipman

DISPOSITION

0640 PEPEKEO SUGAR COMPANY CALLED AND OFFERED THEIR EQUIPMENT AND WHATEVER HELP WE NEEDED.

REFERRED THEM TO MET MR. MORRISON THRU POLICE DEPARTMENT.

0630 MRS. ISHIMARU, MRS. BEERS, MRS. OTSUKA, RETURNED TO CD HEADQUARTERS, SHIPMAN STREET.  
0700 Kamei OF AUDITOR'S OFFICE CHECKED IN.  
0715 MR. MINAAI AND MR. E. ICHIYAMA FROM THE SOCIAL SECURITY OFFICE CHECKED IN TO OFFER THEIR PERSONAL SERVICES.

MRS. ISHIMARU ASSIGNED THEM DUTIES

0735 KAMEI CHECKED OUT TO TAKE SOME PRINTED FORM (PASSES) TO FIRE DEPT.

0735 MAJOR JOHN D'ARAUJO/HNG - REPORTED THAT THERE ARE NUMEROUS CALL COMING FOR AMBULANCE SERVICES. HE NOTICED AMBULANCES STANDING BY AT MAMOST., KUMU ST., NOT BEING USED, THEREFORE, HE HAS SENT SOME TO WAIAKEA DISTRICT WHERE THEY ARE CRYING FOR AMBULANCE SERVICES. HE ALSO INQUIRED AS TO WHERE HE SHOULD BUY FOOD FOR HIS WORKING PERSONNEL.

(FOOD FOR PERSONNEL) MRS. ISHIMARU SUGGESTED HE GO TO SOME RESTAURANT ON KILAUEA OR SEND THEM UP TO RIVERSIDE SHOOOL WHERE FOOD ARE BEING PREPARED FOR CIVILIAN WORKERS.

0736 Dorothy Thompson was requested to report to CD Headquarters from Central Fire Station

0750 MRS. IWAMASA, SOCIAL WELFARE SERVICE, REPORTED THAT SHE CAN BE CONTACTED AT HER OFFICE. OFFERED WHATEVER HELP HER DEPT. COULD GIVE.

MRS. OTSUKA SUGGESTED STENOS IF SHE HAD AND COULD SPARE THEM.

0800 KAHALOA  
MRS. KATHERINE/OF CIVIL DEFENSE REQUEST FOR TWO EXTRA CLERKS ~~ATXKXKX~~ FOR CD HEADQUARTERS, FIRE DEPT.

REFERRED TO MRS. ISHIMARU

0802 DIVISION OF FORESTRY CALLED TO OFFER TRUCKS FROM THEIR DEPT.

THIS WAS REFERRED TO MORRISON, THRU POLICE DEPT.

0835 Mrs. Loweth, Episcopal Church, said she has plenty of clothing that the evacuees may have. They may also use the building

0836 Mrs. Nagao from 209 Mauna Loa St. called and said she would like someone to pick up clothing for evacuees

0840 Rev. Cory, Hilo Methodist Church, offered his building to the Civil Defense and any of his facilities.

0845 Yoshio Yanagawa checked in - buildings available at NAS

0846 N. Guard office called and said Congressman Inouye is arriving 4:45 p.m. via Haw'n Airlines - make arrangements for hotel and someone to pick him up at airport

APPENDIX C

DISASTER BULLETIN  
Tidal Wave

Page 1

Sunday

May 22, 1960

11:59 AM KRIVVOY, Volcano Observatory reported unofficial that MORIGAKI an earthquake was recorded on the coast of Chile at about 9:00 AM, 5-22-60, (Local time). Magnitude of about  $8\frac{1}{4}$ . Be sure that tsunami will result from this quake. Arrival time in the Hawaii Islands about 12:00 MN, tonight, 5-23-60. First place to strike would be Kalepana & Pohoiki area.

Request that Tidal Wave gauge keeper be contacted and see if he can possibly change the recordings about 3:00 PM, so that yesterdays recordings would not be lost.

12:01 PM Sgt. GIVEN, Honolulu Police notified of quake. Honolulu MORIGAKI police receiving informations at the same time from Coast Geo. & Survey.

12:03 PM Capt. CK MARTIN notified LIM

12:05 PM Off. Eugene RAMOS, Laupahoehoe notified BROWN

12:10 PM Lt. Manuel ARAUJO, Olaa, notified BROWN

12:10 PM Capt. GOMBERG, notified LIM

12:15 PM Civil Defense, P. PAKELE notified LIM

12:15 PM KRIVVOY's request relayed to SHIMIZU, Tidal Wave gauge MORIGAKI

12:35 PM Sam MOLINA, Honolulu Police-Advisory Bulletin on MORIGAKI Tidal Wave. Within last 36 hours a report of damaging sea wave being generated from Chile and Valparaizo due to a large earthquake. May hit Hawaii by 12:00 MN, tomorrow morning, 5-23-60. Honolulu by 12:30 AM. Kauai later on. Later this afternoon we will inform you whether it will hit the islands. If it does we will give at least 6 hour prior notification.

12:40 PM Capt. CK MARTIN notified at police headquarters MORIGAKI

12:42 PM Civil Defense, Peter PAKELE notified MORIGAKI

12:45 PM Capt. GOMBERG notified at police headquarters MORIGAKI

1:02 PM Inspector HUSSEY notified BROWN

## DISASTER

## BULLETIN

Page 2	SUNDAY	May 22, 1960
1:32 PM	Lt. Manuel ARAUJO notified on Advisory Bulletin.	COPREA, A.
1:45 PM	Sgt. Martin PALMER notified	COPREA, A.
1:45 PM	Deputy Chief MARTIN notified	MORIGAKI
1:50 PM	K.I.P.A. Larry TAVARES ask information on tidal wave	COPREA
2:00 PM	K.H.B.C. notified	COPREA
2:05 PM	K.I.M.O. notified	COPREA
4:40 PM	Insp. KAMAU notified	YUHAS
7:11 PM	Received from Sgt. KITSUWA, Honolulu Police. Reported that according to McCAFFERY of the Honolulu Geodetic Survey, Honolulu, reported a tidal wave warning: "A severe sea wave is spreading over the Pacific. First wave will hit Hawaii at 12:00 MN; Maui 12:15AM; Oahu 12:30AM; Kauai 12:45AM. Southern part of Hawaii will be effective first. Danger will last for several hours. Velocity of wave cannot be determined at present.  Mr. Walker, State C.D. HQ, Honolulu. Notify all C. D. Agency to mobilize to an extent deputy directors C. D. agencies feels and to report action taken to C. D. Hq. Honolulu, Telephone number 72161, and reverse charges. Don't sound siren until notified.	KAUA
7:45 PM	Sgt. BELLAH, Sgt. MORIGAKI notified, Lt. E. ROSEHILL at 7:47 PM, Lt. C. VICTORINE at 7:50 PM.	ROSE
7:53 PM	Inspector HUSSEY contacted to return to station.	KEKUA
7:59 PM	Radio Stations notified no 8:00 PM siren will be sounded	KEKUA
8:06 PM	C. CHUN, State Highway notified 7:55 PM, requested flares and road blocks.	ROSE
8:35 PM	Sirens sounded..evacuation begins in lower areas	ROSEHILL
9:16 PM	Off. Richard AKAMU, reported that water was receding slowly at Honaunau, Kona. Received at 9:09PM.	APAUJO
9:38 PM	Sgt. MOLINA, Honolulu Police...(Message) "Will you sound Tidal Wave Warning now."	ROSEHILL
9:43PM	Lt. ROSEHILL to John HAILI--4 flares and 1 detour sign for Wainaku Cut-off and Belt road. Okayed.	

- 9:49 PM Charles TONG, Red Cross Disaster Committee, reported for our information that the following schools will be designated as evacuation centers: Keaukaha, Kapiolani, Hilo Intermediate and Union Schools.
- 9:56 PM Sgt. ROSEHILL, Kona, Preliminary assignments completed at 8:45PM Instructed to evacuate lower areas immediately.
- 9:58 PM Kau Police...No answer
- 9:58 PM Off. R. GLORY, Kohala, preliminary assignments completed at 9:03PM. Evacuation of lower areas to begin immediately.
- 10:00 PM Sgt. FERGERSTROM, Honokaa, preliminary assignments completed at 8:12PM. Evacuation of lower areas to begin immediately.
- 10:00 PM Off. TORIGOE, Olāa, preliminary assignments completed at 9:48PM. Ordered to evacuate all lower areas in the district immediately.
- 10:05 PM Sgt. PALMER, Laupahoehoe, preliminary assignments completed at 9:00PM. Evacuation of lower areas ordered immediately.
- 10:07 PM Kau Police...No answer
- 10:08 PM Charles TONG, Red Cross, reported that all of the schools nearest the disaster area in the contry districts will act as evacuation centers.
- 10:12 PM Off. R. GLORY, Kohala, notified that the schools will be used for evacuation centers.
- 10:13 PM Sgt. FERGESTROM, Honokaa, notified that the schools nearest the disaster area will be used as evacuation centers.
- 10:14 PM Sgt. PALMER, Laupahoehoe, notified that the schools in the District will be used as evacuation center.
- 10:15 PM Off. R. AKAMU, Kona, notified that the schools nearest the disaster area will be used as evacuation center.
- 10:16 PM Sgt. ARAUJO, Kau, completed preliminary assignment at 7:30PM. Notified to evacuate all lower areas and to use the nearest school as evacuation centers.
- 10:43 PM Lieut E ROSEHILL, to Sgt C ARAUJO, Kau. Inform Officer stationed at South Point to locate a Mr MARUMOTO at South Point. He is to remain with this man and pass on information on the Tidal Wave to Kau station and in turn to Hilo Station as soon as possible. C.D. Office notified of arrangement at 10:48PM.



D I S A S T E R            B U L L E T I N

Page 4

SUNDAY

May 22, 1960

10:49 PM	Off R AKAMU, Kona, reported that the tide was low in all beach areas. No receding of water as of 10:45 PM.
10:49 PM	Mrs L ISHIMARU, CD, requests that any message received from South Point re the Tidal Wave, we transmit immediately to Honolulu Police via the <u>hot line</u> .
10:55 PM	Harold MARQUES, KHBC, reported via News Service that at 8:00 PM and 8:10 PM, Hawaiian Time, 3'3" waves were recorded in TAHITI. First reports indicate no damage. Report is being evaluated by US Coast and Geodetic Survey in Honolulu.
10:57 PM	Off Glory, Kohala, reported evacuation of all area in Kohala district completed. Mahukona at 10:22 PM. Puako and Kawaihae at 10:50 PM.
11:04 PM	Sgt S MOLINA - Tahiti hit by 3' wave at 8:00 PM our time.
11:05 PM	Mrs L ISHIMARU - Request that when we flash the message from South Point to Honolulu Police, ask them to call Col BYRNES Office immediately thereafter.
11:30 PM	Sgt. BELLAH, reported that the Tidal Wave gauge is normal.
11:42 PM	Sgt C APAUJO - Off Elarionoff reports from South Point. Water action normal. No change. 11:12 and 11:40 PM.
11:47 PM	Sgt S MOLINA, Honolulu, reported that at 10:58 PM, tonite a wave 1.3 feet high struck Christmas Island.
12:01 AM	MAY 23, 1960
12:09 AM	Off R AKAMU, Kona. No change from last report.
12:14 AM	Tidal Wave gauge went off.
12:25 AM	South Point no change. Sgt APAUJO from ELARIONOFF
12:25 AM	TORIGOE thru WILSON. Pohoiki area no change.
12:25 AM	Sgt YUHAS reported that water was receding at Wailoa.
12:20 AM	PAKEIE: Coconut Island covered - pier at Naniloa Hotel 3' - Water receding at 12:22 AM
12:25 AM	Off. TOFIGOE: Pohoiki area ??
12:44 AM	Coconut Island covered with water and now flowing into Liliuokalani Park.
12:46 AM	Lihwai St., about 6' rise
12:47 AM	Water coming over the pier



DISASTER BULLETIN

Page 6

MONDAY

May 23, 1960

4:12 AM Sgt. Sam MOLINA, Honolulu Police: Col. M. POMAN - contact Col SILVER by Nat'l Guard radio.

4:00 AM Governor QUINN declared - State of Hawaii as a disaster area.

Deputies of CD - now acting in accordance with the provisions of Chapter 359 FLH'55

4:50 AM Off. AKAMU: 2:40 AM Honaunau area - no damages. Tide normal.

2:45 AM Napoopoo - beach road to Honaunau - not passable - landing structure on roadway

3:30 AM Napoopoo - 6 homes demolished - starting from Capt. Martin's home to Clement Gaspar's home - wiped out - occupant of Martin's home (Tsuji) slightly injured.

4:10 AM Kahalaui - Catholic Church and Club Tropicana moved from foundation to road. Ralph NELSON and Minoru INABA - homes damaged.

4:25 AM Napoopoo - 6 homes completely wiped out

1. Charles K. Martin
2. Lionel Gaspar
3. Mrs. Harry Brown
4. Abel Kabele
5. Clement Gaspar
6. Richard Pahiko

Damaged and moved

1. Antone Grace
2. Lempke
3. Kona Haven
4. Tough (Forean)
5. Kahekolo Cong. Church
6. Jim Ackerman's home - flooded basement

5:00 AM Stanley HABA, from Honolulu - any assistance before leaving for Hilo

5:15 AM VANCE, Hilo Memorial Hospital - about 100 bodies can be cared for at the hospital. 5 persons dead on arrival.

Deaths: Kimura (male) 5 or 6 yrs old  
 Kattie Fontes NAKAYAMA  
 2 Oriental youngsters (males)  
 1 Hawaiian adult (female)

6:00 AM No school - Hilo Hi, Hilo Intermediate, Waiakea Kai, Keaukaha Hilo Union and Kapiolani

6:02 AM Lights on

6:24 AM Lt. NUNOKAWA, Honolulu Police: Mr. T. S. WALKER, Deputy Director of state CD agency to all islands - NO FURTHER DAMAGES FOR THE PRESENT FROM THIS TIDAL WAVE. ALEPT CALLED OFF. - 6:10 AM. Deputy Chief MARTIN notified at 6:27 AM

D I S A S T E R      B U L L E T I N

Page 7

MONDAY

May 23, 1960

6:54 AM      Lloyd SADAMOTO, received from A. T. HOSSACK, Mgr. Hakalau Plantation. Hakalau Sugar Co., slightly flooded - no other major damage. Mill operation expected to start this morning.

7:00 AM      Off. AKAMU: nothing

7:15 AM      Hawaii Funeral Home: Daniel ICHIJO, 31 or 32 years - 414 Mohouli St., found dead rear of Dan's Bakery.

7:20 AM      2 bodies rear of Morgan Service Station --Off. PEA.

8:10 AM      1 body - Pauahi St., near Arruda's home  
3 bodies - Kimiville, 1 Manono St., near the State Highway office (Sueji Yoshioka) 1 on Kuwaa St., 1 at American Legion Hall (Miss Itsuko Yamamoto) teacher Waiakea Kai School, and 1 rear of new Shell Oil Service Station next to Kwong See Wo.

9:40 AM      Lt. E. ROSEHILL: Hawaiian Village, Muliwai St., only one hut left.

11:30 AM      Lt. H. SUGIYAMA: Puakou - 13 homes destroyed - estimated \$100,000.00 damages. 1 boat (owner Stewart DeBrae) sunk and one damaged at Kawaihae.  
Mahukona - no damage.

DISASTER BULLETIN

Page 8

MONDAY

MAY 23, 1960

- 2:20 p.m. Report from C. AFAUJO, Kau. No casualties. Property damage 4 to 5 homes at Kaaluwalu and 1 each at Puunahulu and Honoapu. 1 canoe damaged at South Point, military installation at South Point undamaged. Shore areas have been cleared.
- 2:32 p.m. To Sgt. Molina, Honolulu Police. Olds family okay - home intact. Request contact w/US Coast and Geodetic survey regarding possibility of another wave being generated. We are receiving numerous reports of water receding both from observation planes flying above and from our own patrol cars.
- 2:45 p.m. Molina from Coast and Geodetic Survey. No other quake - unusual activity must be from first tidal wave. This may continue for a couple of days.
- 3:40 p.m. Orders from Chief Paul - All devastated areas shall be secured with complete evacuation of everyone with exception of authorized personnel at 6 p.m. Members of the department and allied enforcement personnel will undertake strict security patrol in all affected areas.
- In some cases after thorough screening residents may be permitted to occupy their homes under safe conditions. Officers are to exercise discretion in granting entry to such persons.
- 4:03 p.m. All press releases information for radio broadcast will be referred to the OCD information center located at the Hilo Fire Department, Central Station. All inquiries through the dispatch office will be referred to Capt. Gomberg at that center.
- 5:43 PM leave From Chief PAUL to all Country Districts. No Officer will district to which he is assigned unless he is called into Hilo for duty. Kau notified at 5:43 PM - Kona at 5:44 PM Kohala at 5:44 Kamuela at 5:46 PM, Laupahoehoe at 5:46 PM Puna at 5:49 PM and Hamakua at 5:50 PM.
- 6:34 PM Mitchell WAILANI, Hilo, reported at 6:34 PM, 5-23-60, that the sampan "IWALANI" with two men aboard, John WAILANI and Godfrey JURY, was missing. They put out to sea at 9:30 PM, 5-22-60 because of the Tidal wave warning and have not been seen since.
- 7:25 PM Beginning 5-24-60, all passes into the disaster area will be issued by OD on a daily basis. Residents of the area will be issued 24 hour passes and other authorized personnel will received 12 hour passes.

APPENDIX D

HAWAII FIRE DEPARTMENT  
TIDAL WAVE DISASTER  
LOG

DATE: MAY 22, 1960

- 8:05 P.M. Tidal wave alert.
- 8:06 P.M. Deputy Fire Chief James K. Hussey notified.
- 8:09 P.M. Fire Chief Edward J. Bento notified.
- 8:16 P.M. Notified all station to recall all off duty personnel back to duty; Hawaii Fire Department "S. O. P. FOR DISASTER ALERT" per Special order No. 19 - dated July 30, 1958.
- 8:35 P.M. Tidal wave sirens sounded.
- 8:36 P.M. Fire Chief Edward J. Bento notified.
- 8:38 P.M. Deputy Fire Chief James K. Hussey notified.
- 8:28 P.M. Notified all liberty crew, Day off, Holiday time and vacation ordered to return back to station for standby duty, All men to report to their respective station at 10:00 P.M.
- 8:52 P.M. Kona Station No. 5 notified pertaining to the Tidal Wave Alert
- 8:52 P.M. Honokaa Station No. 6 notified pertaining to the Tidal Wave Alert.
- 8:55 P.M. Olaa Station No. 3 notified pertaining to the Tidal Wave Alert.
- 10:00 P.M. Recalled personnel reporting back to duty.
- 10:10 P.M. Fireman Edward Ahuna liason at Civil Defense Office.  
All personnel assigned to stations on all apparatus.
- 10:35 P.M. Tidal wave struck Tahiti at 8:00 P.M. Wave three (3) feet high.  
Via walkie talkie from Fireman Edward Ahuna at Civil Defense Office.
- 11:53 P.M. Wave struck Samoa at 8:40 P.M. Height of wave six (6) inches. Report received via walkie talkie from Fireman Edward Ahuna at Civil Defense Office.  
Wave struck Christmas Island at 10:58 P.M. Height of wave 1' 3" high  
No damages at Tahiti as notified officially by Governor of Tahiti.  
All messages received via walkie talkie from Civil Defense Office by Liason Fire Department man at Civil Defense Office.

DATE: MAY 23, 1960.

- 12:14 A.M. South Point and Pihiki, no damages - Liason man Edward Ahuna reported by walkie talkie.
- 12:28 A.M. Coconut Island covered by Tidal Wave at 12:20 A.M. Liason man Edward Ahuna Tidal Wave alarm at Pier No. 1 went off 12:09 A.M. reporting from CD office via walkie talkie.
- 12:35 A.M. Coast Guard reported from Pier No. 1 that water has receded five (5) feet below normal and still going down. Report received via walkie talkie from CD Office by Edward Ahuna.
- 12:53 A.M. Naniloa Hotel surrounded by water at 12:48 A.M. Water has reached Ufeda Store, corner of Kapean Land and Lihwai Streets. South Point normal. Edward Ahuna reporting via walkie talkie from CD Office.
- 12:57 A.M. Fire Chief Edward J. Bento ordered Engine Co. No. 4 and Ford Takner to evacuate Station No. 2 and proceed to Kuawa and Kanoelehua Street near American Factors.
- 12:58 A.M. Front street, on Kamehameha Avenue, covered with water from Hilo Theatre to Waiakea at 12:55 A.M. Edward Ahuna reporting from CD office via walkie talkie.
- 1:00 A.M. Engine Co. No. 4 and Ford Apparatus at corner of Kuawa and Kanoelehua Streets As ordered by Fire Chief Edward J. Bento at 12:57 via telephone.

- 1:05 A.M. Water over the road right up to Hile Amory.  
Lights on front street went out.  
Evacuating all cars from Shipman Street.  
CD Office evacuated from Headquarters at Shipman street and to set  
up temporary Headquarters in the Fire Prevention Bureau office.  
(Edward Ahuna reporting via walkie talkie from C.D. office shipman Street)
- 1:05 A.M. Electricity went out. No power in City. Tidal wave hit town area.
- 1:10 A.M. H F D generator 7.5 kilowatt in operation to supply lights and radio com-  
munications in Fire Department and to temporary Headquarters from Civil  
Defense office.
- 1:25 A.M./ Fire Chief Edward J. Bente ordered Engine Co. No. 4 to proceed to Waiakea  
Town area and pick up occupants at old Naalehu Dairy House and transport  
them to Civic Auditorium.
- 1:30 A.M. Ladder Co. No. 1 to Service Hotel to Rescues persons trapped in wrecked  
building: Rescues one person: Male, trapped in building.  
  
Engine Co. No. 4 at Kilehana and Kamehameha Avenue requesting additional  
assistance to rescue and remove injured persons in buildings wrecked by  
tidal wave. Engine Co. No. 4 rescued, assisted and removed approximately  
80 persons from the Waiakea area in buildings wrecked by tidal wave.
- 1:35 A.M. Rescue Truck No. 1 with Search and Rescues man Delbert Ching to assist  
Engine Co. No. 4 as requested.
- 1:43 A.M. Water up to Piilani Streets and Mawana Street up to Civic Auditorium.
- 1:45 A.M. Rescue Truck No. 1 requesting additional assistance at Waiakea Town area .
- 1:48 A.M. Rescue Truck No. 1 reported Waiakea area declared disaster area.
- 1:58 A.M. Car No. 11 to Waiakea Town area with additional personnel to assist in  
rescue operations.
- 1:53 A.M. Route to Waiakea: Piilani, Kaaolani, Kuawa, Hixaxe, Kamehameha to  
Kilehana Street.
- 1:58 A.M. Henry Bray, Kailua Kona, reported five (5) waves at Kailua. To his  
estimation water is running on road in front of Hukilau and Ocean View Inn.  
So far no waves over wall. Damages to property unknown.
- 2:00 A.M. H.F.D. No. 3 with Ba Chief H. Nathaniel and two (2) men to Mamo Street for  
rescue operations. Removed and Rescued persons trapped in buildings wrecked  
by tidal wave:  
2 male occupants  
1 female occupants  
Victims taken to Hile Memorial Hospital for treatment of injuries.
- 2:00 A.M. Engine Co No. 3 proceeding to Waiakea area with seven (7) men and Deputy  
Fire Hussey in-charge.  
rescued and removed five (50 persons from wrecked buildings.
- 2:22 A.M. Engine Co. No. at Kilehana Street, ordered to check about people trapped  
near Church on Kainehe Street.
- 2:24 A.M. Olaa Engine No. 7 ordered to report to station No. 1 for further orders.
- 2:27 A.M. C.D. Rescue Truck with Lt. Richard De Aguiar in-charge and T. Kouchi  
proceeding to Waiakea Town area to assist in Rescues operations in the area.
- 2:30 A.M. All casualties sent to Puumale Hospital. Wave hitting Waialeale at 2:25AM  
9 Spray up to 50 feet. Water up to Kapiolani Band Stand. (Edward Ahuna  
reporting via walkie talkie from C. C. Headquarters.
- 2:40 A.M. Engine Co. No. 7 at Central Station as ordered.
- 2:45 A.M. Engine Co. No. 4 requested saw, jacks and sledge hammer to be sent down  
also more vehicles to evacuate uninjured persons taken out from wrecked  
areas.
- 2:49 A.M. Engine Co. No. 7 at Kimiville for rescue operations.



DATE: May 23, 1960

- 2:49 A.M. Engine Co. No. 7 at Kimiville for Rescue Operations.  
Man on Coconut tree on Irea Works side.  
Police reported that at 2:46 A.M. waves were coming in at every seven(7) minute intervals.  
Front street from Kaupaha down is under water-Edward Ahuna reporting via walkie talkie.
- 2:57 A.M. C.D. Rescue Truck proceeding to 30 Kalamaku Lane for Rescue Operations with Lt. R. De Aguiar and T. Keuchi  
Four (4) persons rescue and removed from wrecked buildings.
- 3:08 A.M. Engine Co. No. 4 requested information regarding waves.  
Relayed message that waves are coming in every seven (7) minutes.
- 3:35 A.M. Engine Co. No. 4 and Rescue Crew combed areas from Kilehana down Kamehameha Avenue to Airport and along Kilehana to Liheliha to Bayan Drive and back to Hukilau homes. Injured removed to Puumaila Hospital.
- 3:40 A.M. Engine No. 7 request stretcher to Kimiville to transport injured person to the Hospital.  
Engine No. 3 requested someone to pickup injured persons and be transported to the hospital:  
1. M. Masutani  
2. Young baby.
- 3:47 A.M. Engine No. 4 request someone to pickup injured person from Sura Save.
- 3:52 A.M. Engine Co. No. 4 wants someone from C.D. Office to go and help get stranded people in their cars from the American Legion building and along Reeds Bay
- 3:55 A.M. Engine Co. No. 4 want some flash lights.
- 3:56 A.M. Engine Co. No. 3 request someone to pick up injured women at Waiakea Fire station.
- 4:00 A.M. Lights came on. Discontinued using generators.
- 4:04 A.M. Contacted Engine Co. No. 4 and relay message that Car 11 with three (3) men on way to American Legion to assist stranded persons.
- 4:07 A.M. Engine Co. No. 4 relayed message that Car No. 8 is there but Police took injured to Hospital already. Car No. 8 returned back to station.
- 4:15 A.M. Henry Bray, reported from Kailua, Kona. Conditions normal at this time of reporting. No estimation of damages, but damages in Keauhou extensive and some notable damages at Kona Inn in Kailua.
- 4:20 A.M. Chief Bente ordered stretcher to be taken to Lau's Launderette on Piepie Street.
- 4:24 A.M. Engine No. 7 waiting for stretcher and flash light batteries.
- 4:25 A.M. Dispatcher C.D. Rescue Truck to Piepie Street for Rescue Operations.  
Chief Bente ordered Engine No. 3 and No. 4 and other units to evacuate area.
- 4:30 A.M. Evacuating area to Kanelehua and Piilani streets; all accounted for.
- 4:36 A.M. Engine Co. No. 7 ordered to evacuate to Panacwa and Hualalai Streets.
- 4:38 A.M. Engine Co. No. 3 and No. 4 and other units at Waldron, Kanelehua Street.  
Chief Edward J. Bente ordered Dispatcher to inquire from Henekaa Station No 6 regarding situation in that area.
- 4:41 A.M. Fire Chief Edward J. Bente also requested same in the Kona area.
- 4:42 A.M. Engine No. 7 requested addition assistance from Central to assist trapped victim.
- 4:53 A.M. Chief Bente ordered all units to return to Central Station for coffee break.
- 4:55 A.M. All trucks returning back to quarters.

- 5:00 A.M. Engine Nos. 3, 4, Rescue 1, and Tanker Signal 1.
- 55:04 A.M. Engine No. 7 wants White Elephant Rescue Truck.
- 5:18 A.M. White Elephant went to Kimitiville.  
Schools closed (Waiakea Kai, Hilo Intermediate, Hilo High, Hilo Union, Keaukaha, and Kapiolani.)
- 5:24 A.M. LO2 Signal X.
- 5:25 A.M. 102 at Kumu Street (Kimitiville).
- 5:32 A.M. Army ambulances to be made available  
2 Jeep Type Ambulances at Mama Street  
3 Jeep Type Ambulances at Waiakea  
1 Civilian Type Ambulance at Waiakea.
- 5:35 A.M. 101 Signal 1.
- 5:48 A.M. All ambulances assigned to stay in their assigned districts.
- 6:08 A.M. Engine No. 4 and Tanker to Waiakea Area.  
Engine No. 3 reported a burning electric wire at the Corner of Pōhāhāwai and Kilauea Street.
- 6:14 A.M. Engine No. 3 reported fire's out (Helco probably turned power off).
- 6:19 A.M. Engine No. 3 reported at corner of Pōhāhāwai and Kilauea Streets.
- 6:22 A.M. Engine No. 4 and Tanker at corner of Lihelihe and Kaimohe Streets.
- 6:24 A.M. Engine No. 3 at corner of Haili and Keawe Streets, for search detail.
- 6:31 A.M. Engine No. 3 at corner of Haili and Kamehameha Streets for search detail.
- 6:32 A.M. Engine NO. 4 at Waiakea Station.
- 6:34 A.M. 104 relayed message that they will start taking out the dead man from where he was pinned as the same place the boy was.
- 6:44 A.M. Engine No. 4 at Kilauea and Kamehameha Corner.
- 6:45 A.M. Engine No. 4 and Tanker evacuating -- expecting another wave.
- 6:48 A.M. 101 ordered Engine NO. 4 to assemble at Waldron, corner of Kanoelohua and Piliwai.
- 6:50 A.M. Engine No. 4 received word that waters outside of broadwater was receding and building up.
- 7:00 A.M. Radio Test.
- 7:10 A.M. Engine No. 3 reported that their assignment to their area is completed. Awaiting further orders. Assigned new area from Pōhāhāwai to Kumu Streets by 101 - assist - Mrs. Hanami Kiyosaki, age 61, and other unidentified persons from area - remove 1 dead (Mr. Matsen)
- 7:45 A.M. 6 Volunteers assigned to Rescue Truck No. 14/  
7 Volunteers assigned to Engine No. 3. All Volunteers from Pahoa.
- 8:00 A.M. Radio Test. All liberty crew, D/O, vacation and HT ordered to do extra duty for search and pumping <sup>open list</sup> 33 volunteer firemen, from Pahoa, <sup>aka Hakalau</sup> and 9 CAP volunteers.
- 8:01 A.M. Contacted Engine No. 4 pertaining to the 6 volunteers assigned to them.
- 8:05 A.M. Contacted and assigned 2 volunteers for Engine No. 7.
- 8:08 A.M. 101 Signal X. Inquired Del of Kawaihae if they wanted help of any sort.
- 8:12 A.M. Relayed No answer from Kawaihae.
- 8:18 A.M. Engine No. 4 relayed that Nagae and 1 Volunteer dispatched to Waiakea area to check on Firefighter Akira Yamamoto.

APPENDIX E

**Appendix E. Timeline for Hawaii Civil Defense Agency (HCDA), Hawaii Police Department Disaster Bulletin and Hawaii Fire Department for May 22, 1960 and May 23, 1960 - (28 hours)**

		Hawaii Civil Defense Agency (HCDA): 60 Shipman Street / Fire Dept locations	Hawaii Police Department Disaster Bulletin	Hawaii Fire Department
May 22, 1960	May 22, 1960			
11:58:00 AM 24-hour time	11:58:00 AM 12-hour time		Krivoy, Volcano Observatory reported UNOFFICIAL that an earthquake was recorded on the coast of Chile at about 9:00am 5/22/60 (local time). Magnitude of about 8.25. Feel sure that tsunami will result from this quake. Arrival time in the Hawaiian Islands about 12:00 MN (midnight) tonight, 5/23/60. First place to strike would be Kalapana and Pohoiki area. Request that Tidal wave gauge keeper be contacted and see if he can possibly change the recordings about 3:00pm, so that yesterdays recordings would not be lost.	
12:15	12:15 PM	Officer Lim of the Hilo Police Dept. called from his residence with the following message: Mr. Krivoy of the Hawaii National Park called and reported that an earthquake was recorded at 9:00am on the Chile coast. Magnitude 8 1/4. Approximate arrival time of the tsunami is 12 Midnight. Island of Hawaii and 12:30 am island of Oahu.		
12:35	12:35 PM		Sam Molina, Honolulu Police - Advisory bulletin on Tidal Wave. Within last 36 hours a report of damaging sea wave being generated from Chile and Valparaiso due to a large earthquake. May hit Hawaii by 12:00MN, tomorrow morning, 5/23/60. Honolulu by 12:30 am, Kauai later on. Later this afternoon we will inform you whether it will hit the islands. If it does we will give at least 6 hour prior notification.	
16:00	4:00 PM	Pakele called Chsirman Cook and relayed above message.		
17:50	5:50 PM	Mr. Eagle, Advertiser reporter, called for information.		
18:10	6:10 PM	KGMB announced that Barbers Point will issue news before 8:00 Pm whether or not there will be any wave generation here in the islands.		

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		Hawaii Civil Defense Agency (HCDA): 60 Shipman Street / Fire Dept locations	Hawaii Police Department Disaster Bulletin	Hawaii Fire Department
May 22, 1960	May 22, 1960			
19:05	7:05 PM	KHBC announced that the Coast & Geodetic Survey has issued a tidal wave alert at 6:48 pm.		
19:11	7:11 PM		Received from Sgt. Kitsawa, Honolulu Police. Reported that according to McCaffery of the Honolulu Geodetic Survey, Honolulu, reported a tidal wave warning: " A severe sea wave is spreading over the Pacific. First wave will hit Hawaii at 12:00 MN; Maui 12:15 am; Oahu 12:30 am; Kauai 12:45am. Southern part of Hawaii will be effected first. Danger will last for several hours. Velocity of wave cannot be determined at present. Mr. Walker, State CD HQ, Honolulu: Notify all CD Agencies to mobilize to an extent deputy directors CD agencies feels and to report action taken to CD HQ Honolulu, Telephone number 72161, and reverse charges. Don't sound siren until notified.	
19:15	7:15 PM	Sgt. Yuhas of the Hilo Police Dept. reported to Pakele that the Honolulu Police Dept. has issued tidal wave warning. Wave expected to hit the Big Island at 12 Midnight and island of Oahu at 12:30 AM		
19:20	7:20 PM	Pakele called Mr. TGS Walker Vice Director, State Civil Defense Agency at Honolulu for information on tidal wave alert.		
19:59	7:59 PM		Radio Stations notified, no 8:00 pm siren will be sounded.	
20:00	8:00 PM	Asst. Chief George Martin of the Hilo Police Dept. called Pakele to notify him that he had received a message from Mr. TGS Walker, through the hotline that sirens are not to be sounded until notified by the State CD Headquarters.		
20:05	8:05 PM			Tidal wave alert
20:06	8:06 PM		C. Chun State Hwy notified 7:55pm, requested flares and road blocks.	

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		Hawaii Civil Defense Agency (HCDA): 60 Shipman Street / Fire Dept locations	Hawaii Police Department Disaster Bulletin	Hawaii Fire Department
May 22, 1960	May 22, 1960			
20:15	8:15 PM	Pakele phoned Mr. TGS Walker at the State CD Headquarters and was given the authority to sound the sirens.		
20:16	8:16 PM			Notified all stations to recall all off duty personnel back to duty; Hawaii Fire Dept. "S.O.P FOR DISASTER ALERT" per special order 19 - dated July 30, 1958
20:28	8:28 PM			Notified all liberty crew, day off, holiday time and vacation ordered to return back to station for standby duty, All men to report to their respective station at 10:00pm
20:35	8:35 PM	First Siren Sounded	Sirens sounded.... Evacuation begins in lower areas.	Tidal wave sirens sounded.
20:40	8:40 PM	Second Siren Sounded		
20:43	8:43 PM	Third Siren Sounded		
20:47	8:47 PM	Fourth Siren Sounded		
20:50	8:50 PM	Fifth Siren Sounded		
20:52	8:52 PM			Kona Station No. 5 and Honokaa Station No. 6 notified pertaining to the Tidal wave alert
20:55	8:55 PM			Olaa Station No. 3, notified pertaining to the Tidal wave alert.
21:38	9:38 PM	Ishimaru called Taketoshi Marumoto to be at South Point and give us information as soon as waves hit that area.	Sgt. Molina: Honolulu Police .... (message) "Will you sound Tidal Wave Warning Now."	
21:49	9:49 PM		Charles Tong, Red Cross Disaster Committee, reported for our information that the following schools will be designated as evacuation centers, Keaukaha, Kapiolani, Hilo Intermediate and Union Schools.	
21:56	9:56 PM		Instructed to evacuate lower areas immediately.	
21:58	9:58 PM		Kau Police ..., No answer.	

**Appendix E. Timeline for Hawaii Civil Defense Agency (HCDA), Hawaii Police Department Disaster Bulletin and Hawaii Fire Department for May 22, 1960 and May 23, 1960 - (28 hours)**

		Hawaii Civil Defense Agency (HCDA): 60 Shipman Street / Fire Dept locations	Hawaii Police Department Disaster Bulletin	Hawaii Fire Department
May 22, 1960	May 22, 1960			
22:00	10:00 PM	Col. Byrne called in to have wave information as soon as we hear anything about it.		
22:10	10:10 PM	Mrs. Kaupiko - Milolii - To let us know if she notices any high waves.		
22:16	10:16 PM		Sgt. Araujo, Kau, completed preliminary assignment at 7:30 pm, notified to evacuate all lower areas and to use the nearest school as evacuation centers.	
22:27	10:27 PM	Pakele Called Commander Yergain of the Coast Guard - no information available.		
22:31	10:31 PM	Wave hits Tahiti at 8:00 pm, 3 ft. high - reported by Kumukahi's radio message.		
22:35	10:35 PM			Tidal wave Struck Tahiti at 8:00 pm, wave three (3) feet high. Via walkie talkie from fireman Edward Ahuna at Civil Defense Office.
22:43	10:43 PM	Ishimaru spoke to Lt. Rosehill whether there is any possibility of some flare signal from the South Point area to the phone. Time is the element, to notify Honolulu. He will try to get Police Officers from Naalehu to down to meet Marumoto at the Point and work out something satisfactory.	Lieutenant E. Rosehill, to Sgt. C Araujo, Kau. Inform Officer stationed at South Point to locate a Mr. Marumoto at South Point. He is to remain with this man and pass on information on the tidal wave to Kau station and in turn to Hilo Station as soon as possible. CD Office notified of arrangement at 10:48 pm.	
22:45	10:45 PM	Radio Amateur operating from South Point to notify Hilo & Honolulu.		
22:49	10:49 PM		Mrs. Ishimaru, CD, requests that any message received from South point re: the tidal wave, we transmit immediately to Honolulu Police via the hot line.	
22:50	10:50 PM	Ishimaru contacted Lt. Rosehill to ask him to call directly through C.D. hot-line to Honolulu, as soon as messages is received form South Point rather then calling CD office to save time as suggested by Pakele.		

**Appendix E. Timeline for Hawaii Civil Defense Agency (HCDA), Hawaii Police Department Disaster Bulletin and Hawaii Fire Department for May 22, 1960 and May 23, 1960 - (28 hours)**

		Hawaii Civil Defense Agency (HCDA): 60 Shipman Street / Fire Dept locations	Hawaii Police Department Disaster Bulletin	Hawaii Fire Department
May 22, 1960	May 22, 1960			
22:55	10:55 PM		Harold Marques, KHBC reported via News Service that at 8 pm and 8:10 pm, Hawaiian time, 33" waves were recorded in Tahiti. First reports indicate no damage. Report is being evaluated by US Coast and Geodetic Survey in Honolulu.	
23:00	11:00 PM	Pakele called Col. Byrnes - gave him report of Hilo Police as to procedure in notifying him. Col Byrnes confirmed thru hot line F.A.A & Navy - wave hit Tahiti on time - 39" at 8:10 pm - expect wave to hit Hawaii on time. Maybe of a same size, smaller or bigger- Col Byrnes suggested that Hilo Police advise Honolulu Police to notify Byrnes when that message goes through the hot line.		
23:04	11:04 PM		Sgt. Molina - Tahiti hit by 3' wave at 8:00 pm our time.	
23:05	11:05 PM	Col. Byrnes, Hon advised message - Wave struck Tahiti at 8:10 pm 39 in high.		
11:30	11:30 AM		Sgt. Bellah, reported that the Tidal wave gauge is normal.	
23:47	11:47 PM		Sgt. Molina, Honolulu, reported that at 10:58 pm tonight a wave 1.3 ft. high struck Christmas Island.	
23:50	11:50 PM	Ishimaru called Lt. Rosehill for further information - he reported no change from South Point as of this time.		
23:53	11:53 PM			Wave struck Samoa at 8:40 pm, height of wave: six (6) inches. Report received via walkie talkie from Fireman Edward Ahuna at Civil Defense Office. Wave struck Christmas Island at 10:58 pm, height of wave 13" high. No damages at Tahiti as notified officially by Governor of Tahiti. All messages received via walkie talkie from Civil Defense Office by Liaison Fire Dept. man at Civil Defense Office.
23:55	11:55 PM	Pakele called Lt. Rosehill for latest report by 12:00 midnight from South Point before he called Honolulu.		



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		Hawaii Civil Defense Agency (HCDA): 60 Shlpman Street / Fire Dept locations	Hawaii Police Department Disaster Bulletin	Hawaii Fire Department
May 23, 1960	May 23, 1960			
0:00	12:00 AM	NO Change at South Point.		
0:08	12:08 AM	Ishimaru called Hawaiian Homes Commission for report - Mr. Ahuna Reported that there are about 70 people waiting for word.		
0:09	12:09 AM		Tidal wave gauge went off.	
0:15	12:15 AM	Lt. Rosehill called in, he reported that at 12:09 gauge went off over an inch above normal. It has not started receding as yet.		
0:16	12:16 AM	George Matsumoto called in, some action seen at Fisherman's wharf [South Point].		
0:20	12:20 AM	Coconut Island fully covered. Pier at Naniloa with water - close to 3 ft. high. Mrs. Santos Asst. Mgr. Naniloa reported	Pakele: Coconut Island covered - pier at Naniloa Hotel 3'- water receding at 12:22 am	
0:25	12:25 AM	Commander Yaergain called in to let Col. Pakele know that drop of wave height is just as important.	Sgt. Yuhas reported that water was receding at Wailoa.	Coconut Island covered by Tidal wave at 12:20am. Tidal wave alarm at pier No. 1 went off 12:09 am. Liaison man Edward Ahuna reporting from CD office via walkie talkie.
0:30	12:30 AM	Col. Pakele called Lt. Rosehill - Rosehill reported that water already at Naniloa parking area- Pakele advised him to let Honolulu office know thru hot line as soon as authenticated report is received rather than calling C.D office first. Then call this office.		
0:33	12:33 AM	Water receding 5' below normal		
0:35	12:35 AM	Col. Byrne from Honolulu called for Pakele - Col. Pakele reported that 5' water receding as reported by Commander Yaergain.		Coast Guard reported from Pier No. 1 that water has receded five feet below normal and still going down. Report received via walkie talkie from Edward Ahuna.
0:35	12:35 AM	Lt. Rosehill called in that the water has been receding since 24:22 - Coconut Island is not covered but water came up to the turntable.		

Appendix E. Timeline for Hawaii Civil Defense Agency (HCDA), Hawaii Police Department Disaster Bulletin and Hawaii Fire Department for May 22, 1960 and May 23, 1960 - (28 hours)				
		Hawaii Civil Defense Agency (HCDA): 60 Shipman Street / Fire Dept locations	Hawaii Police Department Disaster Bulletin	Hawaii Fire Department
0:44	12:44 AM		Coconut Island covered with water and now flowing into Liliuokalani Park.	
0:46	12:46 AM		Lihwai St. About 6' rise. Sgt. White. 12:35 am Kawaihae 2' wave - no damage. Off. Akamu: Kailua 1' rise.	
0:47	12:47 AM		Water coming over the pier.	
Between 12:50 and 1:15 AM	Between 12:50 and 1:15 AM	CD Headquarters at 60 Shipman St. evacuated and relocated to the Fire Dept.		
0:52	12:52 AM	South Point - no activity	Water entered Hawaiian village at Wailoa	
0:53	12:53 AM	Secured Headquarters at 60 Shipman Street.		Naniloa Hotel surrounded by water at 12:48 am, water has reached Uyeda store, corner of Kapean Land and Lihwai Streets. South Point normal. Report received via walkie talkie from Edward Ahuna.
0:58	12:58 AM			Front street on Kamehameha Avenue, covered with water from Hilo Theater to Waiakea at 12:55am, Edward Ahuna reporting from CD Office via walkie talkie.
1:00	1:00 AM		Water went to intersection of Kalaniana'ole & Silva Sts., 100 yd.	
1:03	1:03 AM			Water over the road right up to Hilo Armory. Lights on front street went out. Evacuating all cars from Shipman Street. CD Office evacuated from Headquarters at Shipman Street and to set up temporary headquarters in the Fire Prevention Bureau Office. (Edward Ahuna reporting from CD via walkie talkie)
1:05	1:05 AM		Lights went out.	Electricity went out. No power in city. Tidal wave hit town area.
1:10	1:10 AM			HFD Generator 7.5 kilowatt in operation to supply lights and radio communications in Fire Dept. and to temporary headquarters from CD office.

**Appendix E. Timeline for Hawaii Civil Defense Agency (HCDA), Hawaii Police Department Disaster Bulletin and Hawaii Fire Department for May 22, 1960 and May 23, 1960 - (28 hours)**

		Hawaii Civil Defense Agency (HCDA): 60 Shipman Street / Fire Dept locations	Hawaii Police Department Disaster Bulletin	Hawaii Fire Department
1:30	1:30 AM			Ladder Co. No. 1 to service hotel to rescue persons trapped in wrecked building. Rescue one person: male trapped in bldg. Engine Co. No 4. at Kilohana and Kamehameha Ave. requesting additional assistance to rescue and remove injured persons in bldg wrecked by tidal wave. Engine Co. No. 4 rescued, assisted and removed approximately 80 persons from the Waiakea area in buildings wrecked by tidal wave.
1:40	1:40 AM	Richard Tong just returned from CD Headquarters with supplies reported as follows: From Kailua reported Henry Bray Sr. First phase recession 60' first wave hit buoy went over the wall, waiting for next wave.		
1:43	1:43 AM			Water up to Piilani Streets and Manono Street up to Civic Auditorium.
1:50	1:50 AM	Richard Tong left to inform Mr. Ozeki to secure the CD Headquarters.		
1:58	1:58 AM			Henry Bray, Kailua Kona reported five (5) waves at Kailua. To his estimation water is running on road in front of Hukilau and Ocean View Inn. So far waves not over wall. Damages to property unknown.
2:00	2:00 AM			HFD No #3 with B Chief H. Nathaniel and two men to Mamo Street for rescue operations. Removed and rescued persons trapped in buildings wrecked by tidal wave. 2 male and 1 female occupants victims taken to Hilo Memorial for treatment of injuries. Engine Co No. 3 rescued and removed 50 people from wrecked buildings.
2:15	2:15 AM	Sam Kurmukahi requested for gasoline to operate radio		
2:15	2:15 AM	1:58am from Kailua, Kona - Henry Bray reporting 5 waves so far to his estimation, water is over road in front of Hukilau and Ocean view, wave has not come over wall - damage unknown will call later.		

**Appendix E. Timeline for Hawaii Civil Defense Agency (HCDA), Hawaii Police Department Disaster Bulletin and Hawaii Fire Department for May 22, 1960 and May 23, 1960 - (28 hours)**

		Hawaii Civil Defense Agency (HCDA): 60 Shipman Street / Fire Dept locations	Hawaii Police Department Disaster Bulletin	Hawaii Fire Department
2:20	2:20 AM	Capt. Kamau, Police Dept. came in to see Col Pakele to try to coordinate efforts of Police Dept, Fire Dept. and OCD.		
2:22	2:22 AM			Engine Co. ordered to check about people trapped near Church on Kainohe Street.
2:27	2:27 AM			CD Rescue truck proceeding to Waiakea town to assist in rescue operations in the area.
2:30	2:30 AM	Gov Quinn announced over KGMB - KHBC for all people to stay away from the beach areas, mentioned the seriousness of damages in Hilo.		All casualties sent to Puuwaile Hospital. Wave hitting Waikiki at 2:25 am. Spray up to 50 ft. Water up tot Kapiolani Bandstand per Edward Ahuna reporting via walkie talkie from CD headquarters.
2:31	2:31 AM	Chairman Cook requested over KHBC radio station for all doctors to report to Puuwaile Hospital.		
2:40	2:40 AM		Honolulu Police: requested information on deaths, if any - negative so far.	
2:43	2:43 AM		Coast Guard: request height of last wave - Negative ???	
2:45	2:45 AM	Report came over radio - waves coming in at 7 minute interval. Richard Tong reported back from checking situation at Hilo High and Intermediate schools. No evacuees at Hilo High. All at Hilo Intermediate. Police Radio Comm. Garage almost completely demolished.		Engine Co. No. 4 requested saw, jacks and sledge hammer to be sent down, also more vehicles to evacuate uninjured persons taken out from wrecked areas.
2:49	2:49 AM			Engine Co. No. 7 at Kimiville for rescue operations. Man in coconut tree on Iron Works side. Police report that at 2:46am waves were coming in at every 7 minute intervals. Front street from Kauhane down is under water as reported by Edward Ahuna via walkie talkie from CD Headquarters.
2:57	2:57 AM			CD Rescue truck proceeding to 30 Kalamaku Lane for rescue operations. Four (4) persons rescued and removed from wrecked buildings.

**Appendix E. Timeline for Hawaii Civil Defense Agency (HCDA), Hawaii Police Department Disaster Bulletin and Hawaii Fire Department for May 22, 1960 and May 23, 1960 - (28 hours)**

		Hawaii Civil Defense Agency (HCDA): 60 Shipman Street / Fire Dept locations	Hawaii Police Department Disaster Bulletin	Hawaii Fire Department
3:00	3:00 AM		Honolulu Police: Governor Quinn request if National Guard is needed.	
3:08	3:08 AM			Engine Co. No. 4 relayed message that waves are coming in every seven (7) minutes.
3:15	3:15 AM	Police Communications Center reported back, no communications out of Hilo.		
3:25	3:25 AM	From HCD to Police Comm. Center- No one to enter area till daylight.		
3:25	3:25 AM	To: Central Police Comm Center From: HCD Headquarters - request contact Charles Tong, AM Red Cross to report to HCD Headquarters, Fire Dept. at once.		
3:35	3:35 AM			Rescue crew combed areas from Kilohana down to Kamehameha Ave. to Airport and along Kilohana to Liholiho to Banyan Drive and back to Hukilau homes. Injured removed to Puumale Hospital.
3:45	3:45 AM	at 0255 - Mr. Vance Puumale Hospital says lights are on at Hilo Memorial- refer patients there.		
3:45	3:45 AM	Caceres of the Hilo Board of Health went out to open up office to pick up stretchers.		
3:52	3:52 AM			Engine Co. No. 4 want some one from CD Office to go and help stranded people in their cars from the American legion building and along Reeds Bay.
3:55	3:55 AM			Engine Co. No. 4 want some flashlights
3:56	3:56 AM	Cap Andrews and Hashimoto reported back from Kimivile. Was sent there to rescue people trapped and render first aid.		
4:12	4:12 AM		4:00 am Governor Quinn declared - State of Hawaii is a disaster area.	
4:15	4:15 AM	Takemoto of the Bus Control reported that his men are still evacuating casualties from Kimivile.		

**Appendix E. Timeline for Hawaii Civil Defense Agency (HCDA), Hawaii Police Department Disaster Bulletin and Hawaii Fire Department for May 22, 1960 and May 23, 1960 - (28 hours)**

		Hawaii Civil Defense Agency (HCDA): 60 Shipman Street / Fire Dept locations	Hawaii Police Department Disaster Bulletin	Hawaii Fire Department
4:25	4:25 AM	Reported by Bray, Kailua Kona at 4:15am: At this hour, since previous report no receding of waves. Damages can not be estimated at this time. Keauhou seems extensively damaged. Kailua Kona Inn pretty well damaged.		
4:30	4:30 AM	Mrs. Edwards of Red Cross reported: That all evacuees are located at Hilo Intermediate School and not at High School or at the Riverside School. Riverside School is preparing coffee, etc. for workers at High school and evacuees. She will be out for a while to check whether her house is still standing in Keaukaha.		
4:36	4:36 AM			Engine Co. No. 7 ordered to evacuate to Pansewa and Hualalai Streets.
4:55	4:55 AM			All trucks returning back to quarters.
5:05	5:05 AM	Ishimaru relayed the following message to Deputy Chief Martin as instructed by Mr. Pakele: Water pressure is low: water is allowed to flow freely to prevent suction of debris into mains. Chlorine application increased. Water supply in reservoirs adequate.		
5:15	5:15 AM		Vance, Hilo Memorial Hospital: about 100 bodies can be cared for at the hospital. 5 persons dead on arrival.	
5:20	5:20 AM	The following messages were broadcast over KHBC: The following schools will be closed until damage, housing and evacuation needs can be assessed: Waiakea-Kai, Hilo Intermediate, Hilo High, Hilo Union, Keaukaha, and Kapiolani.		
5:32	5:32 AM			Army ambulances to be made available.
5:35	5:35 AM	Pakele requested that three more telephones be installed at CD Headquarters at Shipman Street immediately for operation.		

**Appendix E. Timeline for Hawaii Civil Defense Agency (HCDA), Hawaii Police Department Disaster Bulletin and Hawaii Fire Department for May 22, 1960 and May 23, 1960 - (28 hours)**

		Hawaii Civil Defense Agency (HCDA): 60 Shipman Street / Fire Dept locations	Hawaii Police Department Disaster Bulletin	Hawaii Fire Department
5:50	5:50 AM	Mr. Pakele checked out, instructed Ishimaru to take care of the office, and to check with the police department before moving back to Shipman Street.		
6:00	6:00 AM		No school - Hilo HI, Hilo Intermediate, Waiakea Kai, Keaukaha, Hilo Union and Kapiolani.	
6:02	6:02 AM		Lights on.	
6:20	6:20 AM	Mr. Vance of Mem. Hospital called in to report that he has already received 51 injured, 5 dead on arrival (2 children, 3 unknown), he will be able to take 60 more at the hosp. Will appreciate information as to number to be expected. Should it be more then 60 in number may have to open up the nurses cottage to accommodate them.		
6:24	6:24 AM		Director of State CD agency to all islands. - NO FURTHER DAMAGES FOR THE PRESENT FROM THIS TIDAL WAVE. ALERT CALLED OFF. - 6:10 AM.	
6:45	6:45 AM			Engine No. 4 and Tanker evacuating - expecting another wave.
6:50	6:50 AM	Radio announced that 9 people reported dead ( 5 at the morgue, 4 more to the morgue)		Engine Co. No. 4 Received word that waters outside of breakwater was receding and building up.
7:35	7:35 AM	Major John D' Araujoing, reported that there are numerous calls coming for ambulance services. He noticed ambulances standing by at Mamo street, Kumu Street, not being used, therefore, he has sent some to Waiakea district where they are crying for ambulance service. He also inquired as to where he		
8:00	8:00 AM	Gary Kaneko called, needs help to curb looting in Waiakea District.		
8:46	8:46 AM	Natl. Guard office called and said Congressman Inouye arriving 4:45 pm via Hwn. Airlines - make arrangements for hotel and someone to pick him up at the airport.		

**Appendix E. Timeline for Hawaii Civil Defense Agency (HCDA), Hawaii Police Department Disaster Bulletin and Hawaii Fire Department for May 22, 1960 and May 23, 1960 - (28 hours)**

		Hawaii Civil Defense Agency (HCDA): 60 Shipman Street / Fire Dept locations	Hawaii Police Department Disaster Bulletin	Hawaii Fire Department
14:32	2:32 PM		Request contact w/ US Coast and Geodetic Survey regarding possibility of another wave being generated. We are receiving numerous reports of water receding both from observation planes flying above and from our own patrol cars.	
14:45	2:45 PM		Molins from Coast and Geodetic survey. No other quake - unusual activity must be from first tidal wave. This may continue for a couple of days.	
15:40	3:40 PM		Orders from Chief Paul - All devastated areas shall be secured with complete evacuation of everyone with exception of authorized personnel at 6 pm. Members of the dept. and allied enforcement personnel will undertake strict security patrol in all affected areas.	
16:03	4:03 PM		All press releases information for radio broadcast will be referred to the OCD information center located at the Hilo Fire Dept. Central Station.	

**Note:** On the original log sheets some of the incidents are reported out of sequence. For the purposes of this timeline all incidents have been displayed in sequential order.



**APPENDIX F**

Hawaii Police Department  
**OFFENSE REPORT**

Watch \_\_\_\_\_

File No. \_\_\_\_\_  
Date \_\_\_\_\_

CLASSIFICATION TIDAL WAVE All Officers  
INVESTIGATOR

COMPLAINANT County of Hawaii Address \_\_\_\_\_ Phone \_\_\_\_\_

LOCATION OF OFFENSE County of Hawaii DATE 5-22-60 TIME 11:59 AM DAY Sunday

Reported by Dr. Harold KRIVOVY Address Volcano Observatory

Received by Sgt. T. MORIGAKI Date 5-22-60 Time 11:59 AM

Assigned by \_\_\_\_\_ Time Assigned \_\_\_\_\_ Time Arrived \_\_\_\_\_

How reported:  On Boat  Station Desk  Telephone  Letter  Or \_\_\_\_\_

Responsible Persons or Suspects (Names, ages, addresses or description)

- 1.
- 2.
- 3.
- 4.
- 5.

**SUMMARY OF COMPLAINT**

Reported unofficial that an earthquake was recorded on the coast of Chile at about 9:00 AM, (Local time) with a magnitude of about 8 $\frac{1}{2}$ . Feels sure that tsunami will result from this quake. Arrival time in the Hawaii Islands would be about 12:00 MN, 5-23-60. First place to strike would be the Kalapana & Pohoiki area.

WITNESSES

Further official notice will be thru proper channel.

*T. Morigaki*  
Sgt. T. MORIGAKI 5-22-60 12:25 PM  
Signed, Officer Date Time

*T. Morigaki*  
T. MORIGAKI SGT  
Approved Ron

**CLEARED BY**

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Prosecuted on this Charge | <input type="checkbox"/> Outside Arrest        | <input type="checkbox"/> Record Only                  |
| <input type="checkbox"/> Pros. on other Charge     | <input type="checkbox"/> Complaint Withdrawn   | <input type="checkbox"/> Unfounded                    |
| <input type="checkbox"/> Not Prosecuted            | <input type="checkbox"/> Comp. Ref. to Pros.   | <input type="checkbox"/> Property or Owner Located    |
| <input type="checkbox"/> Parole Retake             | <input type="checkbox"/> Warned or Reprimanded | <input type="checkbox"/> Civil Matter                 |
| <input type="checkbox"/> Probation Revoked         | <input type="checkbox"/> Damages Made Good     | <input type="checkbox"/> Referred to Other Department |
| <input type="checkbox"/> To Juvenile Court         | <input type="checkbox"/> Nuisance Abated       | <input type="checkbox"/> Miscellaneous Assistance     |

REFERENCE REPORTS \_\_\_\_\_

**APPENDIX G**

Appendix G.

**How and when did you first hear about the tsunami?**

	Tsunami survivors still living in the zone	Tsunami survivors no longer living in the zone	Total
How:			
Visually	2	3	5
Total	2	3	5
When:			
When first wave hit the area	2	3	5
Total	2	3	5

**Where were you and who were you with when you first heard of the tsunami?**

	Tsunami survivors still living in the zone	Tsunami survivors no longer living in the zone	Total
Where:			
Home	2	3	5
Total	2	3	5
With Whom:			
Relatives	2	3	5
Total	2	3	5

**What were your immediate thoughts?**

	Tsunami survivors still living in the zone	Tsunami survivors no longer living in the zone	Total
Thought the noise was rain		1	1
Cannot remember		1	1
Stay in the house, then move to		1	1
Fear	1		1
Knew instinctively it was a "tidal wave"	1		1
Total	2	3	5

**What action(s) did you take?**

	Tsunami survivors still living in the zone	Tsunami survivors no longer living in the zone	Total
Ran and climbed a tree	1		1
Ran	1	3	4
Total	2	3	5

**Did the news panic and paralyze you?**

	Tsunami survivors still living in the zone	Tsunami survivors no longer living in the zone	Total
Panic: Yes	2		2
No		3	3
Total	2	3	5
Paralyze: Yes	0	0	0
No	2	3	5
Total	2	3	5

**Did you respond to the event by trying to witness it or by trying to warn your family, friends or neighbors?**

	Tsunami survivors still living in the zone	Tsunami survivors no longer living in the zone	Total
Try to witness:			
Yes	0	0	0
No	2	3	5
Total	2	3	5
Warn family, friends or neighbors:			
Yes	0	0	0
No	2	3	5
Total	2	3	5

**Did anything happen to change your mind? What was it and what were your ultimate actions?**

	Tsunami survivors still living in the zone	Tsunami survivors no longer living in the zone	Total
Yes	0	0	0
No	2	3	5
<b>Total</b>	<b>2</b>	<b>3</b>	<b>5</b>

**Would you do anything differently if it happened again today?**

	Tsunami survivors still living in the zone	Tsunami survivors no longer living in the zone	Total
Yes:	0	0	0
Evacuate sooner	1	1	2
Pack all valuables then evacuate	0	1	1
No response	1	1	2
<b>Total</b>	<b>2</b>	<b>3</b>	<b>5</b>
No:	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>

**APPENDIX H**

Appendix H.

**How do you expect to hear about an impending tsunami?**

	New residents now living in evacuation zone
Radio, TV, phone or email	1
Radio, TV or Civil Defense alarm	1
Civil Defense warning and sirens	1
<b>Total</b>	<b>3</b>

**What action(s) do you expect to take?**

	New residents now living in evacuation zone
Gather my pets, important papers and pictures then evacuate.	1
Gather my family and important papers then head for higher ground.	1
If time allows, gather valuables and necessities and evacuate to a shelter or family's house. Also tie up, lock down and place things on higher ground.	1
<b>Total</b>	<b>3</b>

**Have you seriously thought about this?**

	New residents now living in evacuation zone
Yes	3
No	0
<b>Totals</b>	<b>3</b>



**Will you try to contact your family or friends? How?**

	New residents now living in evacuation zone
No	2
Yes (by cell phone)	1
<b>Totals</b>	<b>3</b>

**Do you need to evacuate?**

	New residents now living in evacuation zone
Yes	3
No	0
<b>Total</b>	<b>3</b>

**Will you evacuate?**

	New residents now living in evacuation zone
Yes	3
No	0
<b>Total</b>	<b>3</b>

**What will happen to your children if the warning takes place during a school day?**

	New residents now living in evacuation zone
I would expect my grandchildren to remain at the school until they are picked up by their parents.	1
I will pick them up at the school.	1
My only minor child attends school within the evacuation zone. They are instructed to remove the children to a safe place. We can pick them up later.	1
	<hr/>
Total	3

---

**APPENDIX I**

Appendix I. Survivor of both 1946 and 1960 tsunamis

	1946	1960
Question 1. How and when did you first hear about the tsunami?	Waiting for school bus at 7 a.m. in the morning and Uncle said to come into the house.	On the radio report to wait to 8:30 p.m. Heard reports all day long that wave was going to hit at 12 midnight.
Question 2. Where were you and who were you with when first heard about the tsunami?	Standing by the road with brother and sister.	At home at first. Then helped my girl friend move.
Question 3. What were your immediate thoughts?	Can't remember	I would have to go to work that night to evacuate the guest from the Naniloa.
Question 4. What action(s) did you take?	Ran into house and then ran next door after first wave.	Waited until 8:30 pm to report to work to move guests to Hilo Hotel. Worked with Hilo bus co. to move the guests.
Question 5. Did the news panic and paralyze you?	Scared	No, not really. I knew I had a job to do.
Question 6. Did you respond to the event by trying to witness it or by trying to warn your family, friends and neighbors?	No response	Everyone knew of the wave coming, people moved to higher ground.
Question 7. Did anything happen to change your mind? What was it and what were your ultimate actions?	No response	Maybe stayed at the hotel since water did not hit the 2nd floor. We left after the first wave hit. Went to Hilo Hotel because our home was in the evacuation zone.
Question 8. Would you do anything differently if it happened again today?	No response	Pack all my things. Did not think wave would hit Waiakea. Lost everything except my Bible.

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