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The 1986 California Floods

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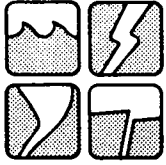
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"1986 California Floods"

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THE 1986 CALIFORNIA FLOODS

Robert Bolin

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Quick Response Research Report #02

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In February, 1986, large sections of northern California experienced a period of intense and protracted rain and snow storms from a series of back to back wet Pacific storms. As a consequence, major flooding occurred in a number of areas along several river drainage systems. The flooding and associated damages resulted in large scale property damage to residences, businesses and agricultural enterprises, including key viticultural areas of Sonoma and Napa Counties. In the course of the flooding, thousands of families were evacuated, homes destroyed and daily life disrupted. A number of California counties received federal disaster declarations, making them eligible for federal relief programs made available through Disaster Assistance Centers (DAC's) established throughout the stricken areas by FEMA.

While national media attention to the unprecedented flooding in northern California was quickly redirected to the destruction of one of NASA's space shuttles, the problems of responding to the flood and its thousands of victims nevertheless persisted. The paucity of national media coverage of the events in California belies the scope and impact of the disaster in terms of both financial and human costs. While the death toll was very low, the property damage and resultant dislocation of families was extensive if not adequately dramatic to draw media attention away from the space shuttle debacle.

The destruction of homes and the displacement of families made the stricken communities a suitable place to investigate the role of social support in mitigating the stressful effects of

residential dislocation on disaster victims. Prior to the California disasters, approval to study social support and the mental health impacts of disasters had been received from the Natural Hazards Research and Applications Information Center, under the aegis of it's "Quick Response" research program. This report presents findings from research conducted with NHRAIC support.

To present an overview of the research that I conducted, this report will be divided into three major sections. First a general description of the flooding and its social impacts in northern California will be presented. Because the nature of the flooding differed considerably by locale, these differences will be highlighted. This particular study will focus on one impacted community, and the nature of the disaster in that community will be described after an overview of the statewide damage is presented.

The second segment of this report will describe the study questions that guided the research and briefly discuss some of the extant literature on the topic. In this section the field procedures that were followed as well as a description of the qualitative methodologies will be given. Because of several unique characteristics of the research setting, data gathering techniques required a certain amount of flexibility, hence the use of qualitative techniques.

The third segment of this report will examine the data, looking specifically at social support and mental health impacts of the disaster, relocation stressors, housing problems, pre-disaster social trends and post-disaster effects. Included here

will be a discussions of some of the unique problems that seemed to affect the victims (and disaster workers) in the flooded community.

The Winter Floods, California 1986

Northern California was battered by series of intense Pacific Storms starting February 12, 1986 and persisting for more than a week. While some 29 counties in California were declared emergency areas by the state, the locales receiving the greatest damage included Sonoma, Napa, Lake, and Yuba Counties, along with large areas of the delta region where the Sacramento and San Joaquin rivers empty into San Francisco Bay.

The chief source of flooding in Sonoma County was the Russian River which heavily damaged the town of Guerneville, the subject of this study. To the east in Napa County, the Napa River flooded causing the evacuation of 4200 residents of the town of Napa. Property damages estimates in Napa were placed at forty million dollars with an additional sixteen million dollars in damage to the vineyards. Some 12,000 of 30,000 acres of wine grapes were inundated although growers did not expect any long term effects on production.

Another major source of property damage was the Yuba river which broke through an 84 foot high levee and flooded the town of Linda near Sacramento. Ironically, the Yuba was over 5 feet below flood stage when the break occurred. Some 26,000 residents were forced to evacuate and the flooding resulted in 6,700 homes being inundated at an estimated property loss of \$50 million. Elsewhere, 1300 had to evacuate after a levee break along the

Mokelumne River.

Because much of the delta region is up to 20 feet below sea level, the levee system containing the rivers flowing into the area is critical, with breaks resulting in large scale flooding. Levee breaks along the Sacramento and San Joaquin Rivers resulted in over 10,000 acres of prime farmland being flooded. Because of the volume of rain received (some towns reporting 22 inches in one week), rivers such as the Sacramento carried record flows, often more than the 1100 miles of levees in the area could contain. For example the normal winter flow of the Sacramento is approximately 40,000 cubic feet per second (cfs) but during the February floods it reached over 630,000 cfs. Elsewhere, flooding along the Eel River resulted in the destruction of two hundred redwoods up to 1000 years old, a loss of an essentially irreplaceable scenic resource.

In addition to riverine flooding and levee breaks, lake flooding also caused evacuation of residents. Clear Lake rose 4 feet over its banks necessitating the evacuation of 450 families living along its shores. Due to constricted outflow from the lake, once the rains ceased the lake could be lowered less than two inches per day. Lake Sonoma, a recently constructed flood control and recreational lake went from 120 thousand acre feet to 240 thousand acre feet as it impounded some of the record runoff. The lake is credited with preventing the Russian River from cresting any higher than it did. A considerable area of the Russian's watershed lies below the dam, hence the extensive flooding that did occur.

Some of the worst flooding along the Russian River occurred

where the river cuts a steep canyon through the rugged Coast Range to the point where it empties into the Pacific at the town of Jenner. Perhaps hardest hit was the town of Guerneville, located along the Russian at the junction of two converging side canyons. More than 1600 had to be evacuated from the Russian River area (including but not limited to Guerneville) with some 1000 homes receiving flood damage. In Guerneville, about 150 housing units were declared uninhabitable as a result of flood damage. At the start of the storms (Feb 12, 1986) the Russian River was running at 8.5 feet. It crested at more than 49 feet, 17 feet above flood stage. The flooding was such that Guerneville, at one point was isolated and victims had to be evacuated to Santa Rosa by helicopter. Utility service in Guerneville was disrupted for more than two weeks, denying victims the water necessary to clean up their previously inundated homes. Overall, damages in Sonoma County were estimated at 25 million dollars and the county received a federal disaster declaration.

Overall losses in California have been placed at \$319 million. The state drafted a \$115 million state emergency aid plan for victims including a program of \$5000 cash grants for victims without insurance. Those monies were in addition to FEMA's aid programs, meaning victims could receive as much as \$10 thousand in cash grants. The Red Cross provided important emergency aid as well as temporary housing support for victims of the Guerneville flood, as well as in other stricken areas.

Because of the nature of the damage in Guerneville and the

evacuation experiences of victims, it was selected as the research site. Guerneville and several adjoining small communities including Monte Rio, are focused on summer tourist/vacation trade. However, the area also is home to a number of poorer residents. The Russian River and its tributaries have flooded the town in the past, but to nowhere near the extent of the 1986 deluge.

Because of Guerneville's geographic (and some would say social and economic) isolation from the rest of Sonoma County, the management of the flooding and evacuation was somewhat problematic. The county's emergency services disaster center in Santa Rosa was mobilized on Feb. 13 (Thursday) and the Red Cross soon after. The mobilization was in response to county wide heavy rains which had pushed the Russian River up to 32 feet, five short of flood stage. A 37 foot crest was predicted for Saturday the 15th. The Red Cross established an emergency shelter in the Guerneville Veterans Memorial Building which housed 160 evacuees that Saturday when the river crested at 38.4 feet.

On Sunday the National Weather Service issued a statement saying that the river at Hopland had peaked and was receding, indicating that it would soon be dropping in downstream Guerneville. However because of heavy rains in the central watershed, downstream of the Hopland gauging station, the river did not act according to official expectations. The Russian began further rising on that Sunday and on Monday (Feb. 17) a local state of emergency was declared. The river hit 46 feet late Monday and surged toward its eventual near 49 foot crest on Tuesday. While many residents had already evacuated their homes

for the apparent safety of the emergency shelter in the Veteran's Building, their evacuation experiences were, in fact, just beginning.

Late Monday, as the river continued to rise, officials decided to evacuate the emergency shelter and take the refugees to Santa Rosa 25 miles to the east of the stricken community. However by the time that decision was made both roads to Santa Rosa were closed from flooding, leaving no overland escape route. Instead, the victims were first moved to a church on high ground in Guerneville to await a helicopter evacuation to shelter facilities in Santa Rosa. Through apparent problems in coordination between various organizations managing the emergency, there were delays in the airlift. Not all of the 1200 refugees were able to be evacuated that Tuesday and thus had to remain in Guerneville while the flooding continued. The remaining victims were evacuated by noon the following day. It took a total of 152 helicopter "sorties" to evacuate all the victims to emergency shelter in Santa Rosa.

Because of the scale of the flooding, the numbers affected, and the failure of the river to "behave" consistently with expectations, agencies were caught somewhat unprepared. Because far more were displaced than expected, food and manpower were in short supply in the emergency shelter as the flooding started. While the Red Cross had expected to use a Guerneville grocery store as a food supplier for the shelter, the store was soon flooded depriving them of a local supplier. The Red Cross was already responding to county wide flooding as well, resulting in

personnel and materiel shortages to manage the Guerneville disaster. Because of Guerneville's relative isolation and the number of agencies involved in the emergency, communication problems reportedly made coordination of response activities difficult. In the course of data gathering, victims were not short of criticism for how the evacuation was managed and when it was begun. Interviews with Red Cross workers disclosed that throughout the evacuation process, as well as in the emergency shelters, they were targets of "...surprising amounts of hostility by victims."

Victims evacuated to Santa Rosa were able to find emergency shelter at facilities set up by the Red Cross. A total of more than 700 evacuees occupied the Santa Rosa shelter on Feb. 18. The shelter was kept open for two weeks to allow refugees to find new housing or to return to their old homes in Guerneville. At the time of closing of the shelter (March 4) approximately sixty victims were still housed there. Remaining victims were placed in motels by the Red Cross while they looked for housing. However according to Red Cross officials, approximately 30% of those in the shelter at its closing may very well have been homeless but not as a result of the flood. One of the problems that was repeatedly mentioned by officials in the course of my research was the incidence of fraudulent disaster victims: persons seeking aid and housing from disaster agencies who, in fact were not disaster victims.

As victims returned to Guerneville, they then began the task of cleaning up (for those whose houses remained) and applying for aid from Red Cross, FEMA and associated agencies and

organizations. One of the chief problems facing the homeless was finding affordable housing in a county with very expensive housing. Guerneville represented one of the few locations where low cost housing was available in Sonoma County, but the Russian River managed to erase much of that housing stock. That left low income victims with a significant problem in trying to locate affordable housing in the Guerneville area. Problems victims faced in emergency shelter, in obtaining aid, and in finding housing will be discussed in more detail in subsequent sections.

Study Methods

Based on the nature of events at Guerneville, I selected that town to study the short-term mental health impacts of the disaster and what role social support may have played in affecting those impacts. Because of the problems already alluded to in terms of repeated evacuations, emergency shelter experiences and housing shortages, many victims experienced a number of stressful events. The central question that I studied was: What is the relationship between the use of social support networks and the psychosocial or mental health status of victims who had to live in emergency or temporary shelter as a result of the disaster in Guerneville? Basically this brief study involves a qualitative examination of several issues: the mental health impact of disaster (short-term); relocation stressors and related response generated demands; the use of informal helping networks by victims to cope with disaster related stresses.

At the outset the reader is advised that this study is based on a small scale "survey" of 15 victims who were interviewed

informally with a simple interview protocol. It does not purport to be either a clinical assessment of the mental status of disaster victims, nor does it claim to be a systematic, quantified sample of all victims using predetermined interview schedules to provide quantified measures of selected scales. In that sense, this study is exploratory, based on several sources of data.

The study of the mental health impacts of disaster is a burgeoning area within the overall field of disaster studies. Without delving into an overall review of that literature (see Sowder, 1985 for a recent review), some of the literature that pertains to this study will be noted.

There is disagreement in the literature as to the occurrence, pervasiveness and persistence of mental health disturbances as a result of disaster (e.g. Perry and Lindell, 1978; Quarantelli, 1979 and 1985). However there is ample evidence that under certain conditions, psychosocial problems do occur (e.g. Hocking, 1970; Lifton, 1967; Lindy et al., 1981; Gleser et al., 1981; Sowder, 1985).

Quarantelli (1979) has argued that some of the stresses that disaster victims face are not the result of the disaster per se but rather the result of the societal responses to the event. These "response generated demands" can include forced evacuation, stays in emergency and temporary shelter, permanent relocation, condemnation of properties, and disaster agency bureaucratic "hassles."

In the case of living in emergency or temporary shelter, as well as long-term relocation, victims often experience a

number of stresses associated with the loss of home and neighborhood and the disruption of support networks (Sowder and Steinglass, 1985; Garrison, 1985). Additionally, the failure to find suitable or stable housing arrangements can inhibit various aspects of victim recovery (Bolin and Bolton, Forthcoming). Frequent residential changes while in temporary shelter has been found to have negative psychosocial impacts (e.g. Gleser, et al., 1981; Lindy and Grace, 1985).

As Solomon (1985) has noted, disasters disrupt ongoing kin and friendship based social networks as well as create the need for support from those networks. Kin and friends can offer victims emotional support, instrumental help in cleanup/rebuilding, temporary shelter, transportation, and the like (Cobb, 1976; Kahn and Antonucci, 1980).

While coping with crises within the family is the normative strategy in this culture, failure to deal effectively with a crisis internally may result in families turning to support networks for assistance. Such support networks may be either kin based or non-kin support groups (Solomon, 1985). The close, intimate and personalized assistance available from primary group members may be effective in mitigating the effects of stress on persons in crisis situations such as natural disasters.

Paradoxically, disasters and the social responses to them may disrupt support networks while, as noted previously, creating a "need" for such support. Whenever victims are residentially displaced, from evacuation to emergency or temporary shelter, or through permanent relocation, their access

to support networks may be hampered. In cases of evacuation, of course, evacuees exhibit a preference for going to the homes of friends or kin over that of official shelters (Drabek and Key, 1984). Evacuation to the homes of friends and kin places victims in a socially supportive context (e.g. Loizos, 1977), particularly in societies in which responsibility to kin outweighs problems such as overcrowding and monetary demands (Bolton, 1979).

In situations in which victims temporarily or permanently relocate, their access to the stress buffering effects of support networks may be disrupted, hindering their psychosocial recovery from the disaster (Bolin, 1983; Parker, 1977). Relocation can deny victims access to the therapeutic effects of social support in the post-disaster community (Milne, 1977; Wettenhall, 1979). The disruptions of visitation patterns, familiar surroundings, and a secure home that accompany relocation increase the stress levels that victims experience (Ahearn and Castellon, 1979; Dudasik, 1980). The likelihood of mental health problems among victims has been found to increase as a result of such "relocation stressors" (Parker, 1977:589).

Field Procedures: In order to study the relationship between the use of social support and the emotional status of victims, I utilized two sources of information- victim interviews and interviews with officials from a number of agencies and organizations that had knowledge of the mental health impacts of the disaster on victims in the Guerneville area. After preliminary phone contacts with FEMA in California and the California Office of Emergency Services to gather general

background information, I began field work in March 1986, approximately one month after the flooding ended in Guerneville.

In order to determine the most effective way to identify and contact a small number of victims in Guerneville for interviewing, I first interviewed representatives from several organizations. These included Red Cross District Operations in Santa Rosa, People for Economic Opportunity in Santa Rosa (involved in helping the poor and homeless in Sonoma County), Red Cross Service Center caseworkers in Guerneville, and mental health workers from the Guerneville Outreach program. Information obtained in these interviews helped in finalizing the general interview protocol to be followed in the interviewing of victims. It also alerted me to particular idiosyncracies of the setting as well as problems I might anticipate in the interviewing. Included in the latter was a warning that I could encounter high levels of xenophobia in some members of the community and the suggestion that I not attempt interviews with outlying victims without being accompanied by a community member. Apparently in the more remote mountainous regions around Guerneville, some residents are engaged in the farming of an illegal cash crop that is of no small interest to the DEA and other law enforcement agencies, hence the warning. The counter-cultural element coupled with a considerable amount of anger and frustration with disaster agency representatives also made a stranger asking questions suspect in the eyes of some victims.

In the course of my interviews with agency and program personnel I was fortunate enough to make contact with a long-time

resident of Guerneville who offered his assistance in identifying and interviewing victims in the area. In addition, because he was present during all phases of the flooding from onset through the serial evacuations of townspeople to their piecemeal return he functioned as something of a local informant (in the anthropological sense of the word). Because I alone would be doing the interviewing, and would be limited in the number of victims I could interview, he helped me identify 15 actual flood victims, based on his personal knowledge of the victims. Because he functioned as a Red Cross volunteer in the emergency centers, he had first-hand knowledge of many of the victims. One of the problems in the Guerneville area, as detailed to me by several Red Cross personnel was that some of the victims making claims for flood aid were not, in fact, flood victims. Before interviewing victims, their "authenticity" as flood victims was verified through pre-flood addresses that were in the impact zone.

Data Gathering: Because of the small scale nature of this study and some of the special characteristics of the study site already alluded to, all interviews were conducted using a general protocol of topics to be discussed. Interviews with agency personnel were focused on the activities of the organizations in the emergency and special problems they encountered in managing the Guerneville operation. Case workers for Sonoma County Outreach and for the local Red Cross in Guerneville were asked detailed questions about the victims in terms of their housing options, their psycho-social status, and their long-term options for being able to resettle in Guerneville. Information from

these interviews was recorded and compiled for presentation in this report.

For interviews with victims a two page protocol of general questions was prepared to guide interviews. Victims were first queried about their pre-flood housing and occupation. Questions were then asked about their flood experience, including evacuation, time spent in emergency and temporary shelter, as well as their use of informal support networks during the emergency period for shelter, transportation and related aid. Victims were asked to assess their post flood experiences and prospects in terms of reestablishing housing as well as particular problems they might be having in getting aid and housing.

Lastly victims were asked a general set of questions regarding their emotional status as a result of the disaster and the role of support from kin and friends in affecting their emotional status. Because of the small sample, the use of quantifiable formal mental health inventories was rejected as inappropriate. Rather included in the protocol were general questions based on symptoms and feelings they may have experienced (depression, feelings of helplessness, hostility, compulsive behavior, anxieties, fears etc.(e.g. Dohrenwend et al.,1980; Derogatis, 1975). It must be emphasized that although the questions were broadly based on psychological scales, the informal nature of the interviewing did not provide quantifiable measures. Instead the interviews provided indications of general psychological distresses, not clearly defined DSM III diagnostic

categories of mental disorders. All responses to questions were recorded and later compiled and sorted into general themes and categories of responses. This sorting and summarization of answers constitutes the data analysis for this paper.

Qualitative techniques such as these are well suited to exploratory research. Such techniques also allow flexibility in dealing with disaster victims who, for one reason or another, might be sensitive to a more formal interview style. In the case of Guerneville victims the informality of the interviews allowed completion of interviews with some victims who quite clearly would have rejected a formal interview. Interviews ranged in length from 30 minutes to one hour depending on the nature of the victim's post-disaster experiences and the types of problems they might have experienced. Interviews were completed over a four day period in the Guerneville area, except for one interview done in Santa Rosa with a victim who hadn't yet been able to find housing in Guerneville.

Analysis

Victims that were interviewed can be divided into two broad socio-economic categories. One group consisted of lower-middle to upper-middle conventionally employed persons. Conventional here refers to small property owners (resorts, restaurants etc.) or wage workers at various enterprises or organizations (mechanic, firefighter etc.) in Guerneville. Incomes among this group ranged from \$18,000 to more than \$40,000 yearly. A chief characteristic of this category of victims (n=9) was relative residential stability in the area, and the existence of friend and kin networks in the Santa Rosa area (as well as Guerneville).

The second category of victims that were interviewed can be characterized as poor, residentially mobile and lacking in elaborate friendship or kin networks outside the impacted community. Three of the victims interviewed were female heads of households on AFDC with incomes below the poverty line. Three others were self-employed artisans with marginal incomes. All victims in this second category lived in rental units or trailers, in contrast to the first group which tended to own their homes. It is in this latter group where the highest levels of depression, anxiety and feelings of helplessness about the future, were mentioned during my interviews.

From interviews with the victims, it became possible to identify several distinct sources of stress that they experienced. The initial flooding of homes and property began the sequence of stressors for all victims. Evacuation to emergency shelter and the serial evacuation of two evacuation centers, culminating in the aerial evacuation of refugees to Santa Rosa was a second source of stress. For victims without alternative housing, the stay in the emergency shelter in Santa Rosa also constituted a protracted stressor. The return to Guerneville, the clean-up of damaged homes, the search for new housing, and the seeking of recovery aid were all tasks facing victims at the time that interviewing took place.

Of course, not all these stressors impacted victims to the same extent. Among the "conventional" victims, for example, none stayed in the emergency shelter in Santa Rosa, but rather found shelter in the homes of kin or in motels. Poorer victims did

not appear to have networks to draw on in Santa Rosa for emergency or temporary shelter, and thus stayed in the emergency shelter, an experience not without its own challenges and demands.

For the victims living in rental housing, a combination of factors conspired to produce heightened stress levels resulting in more self-reports of depression, sleeplessness, and anxiety of the future. As already noted, this category of victims did not have a support network to draw on outside the damaged community. Similarly, the friends (none had kin) they reported in Guerneville tended to have few resources with which to help out. Indeed, many of their friends had also been "wiped out" by the flood. This is in contrast with the other category of respondents, who, for the most part received temporary shelter from kin or friends, and who were also able to recruit friends from non-impacted areas to help out in the drudgery of clean up from the flood. Not surprisingly, the reported levels of depression and anxiety in this group appeared consistently lower than in the lower SES group.

One caveat is in order however in drawing conclusions about the mental health impacts of the disaster and its aftermath on the victims in this study. That is, there is no way to determine to what extent any of the indications of depression or anxiety were present prior to the disaster. Most reviews of the mental health literature indicate a higher incidence of mental health problems among those in the lower reaches of the class hierarchy in the U.S.

However it is also clear that the lack of support networks

for the poorer victims who were interviewed meant that they experienced stresses that other victims did not, while at the same time having fewer monetary or social resources to draw on to help them cope. Post-disaster housing is emblematic of some of the difficulties this group of victims faced.

Guerneville, according to interviews with agency personnel, is literally the only site of "low income" housing in Sonoma County, and there was little of that available even before the flood. This fact accounts for the presence of a considerable number of AFDC families, low income artisans and the like in Guerneville, as it was the only source of low income housing in the county. However the disaster destroyed many of the rental housing units that the poor lived in, exacerbating a shortage of low rent housing. Thus for many of the poor in Guerneville, their prospects for finding post-flood housing were very limited. This is in addition to the fact that federal programs to help disaster victims recover are much more generous for homeowners than for renters. In essence renters were left to fend for themselves after their 60 days (double the normal time) of rental assistance ran out.

Because of the difficulty in finding replacement housing for the poorer victims, many returned to live in flood damaged housing rather than have their landlords repair the building. In addition, as some rental properties were repaired, rents were raised, to the point where several victims accused their landlords of price gouging. In one instance, a landlord was insisting that his tenants buy new refrigerators for their

apartments, to replace those destroyed in the flood. Since most could barely afford the rent, his insistence on the purchase of refrigerators meant that many could no longer live there. The problems that poorer victims faced with housing resulted in apparent grief-like reactions over a lost home and fears of not being able to find suitable (and affordable) housing.

One of the victims interviewed alluded to a "...real feeling of desperation about this [her destroyed trailer]. I guess I'm just stuck...sometimes I just sit here and start crying." This attitude was not uncommon among the poorer victims interviewed. Most indicated that the feeling of being homeless and not having any good prospects for reestablishing one, was stressful and inescapable.

Victims who had owned their own homes prior to the flood appeared to have access to more resources as well as to support networks to aid in clean-up and rebuilding. Although many in this group reported frustrations and fatigue with the process of clean-up, aid applications and so forth, most also indicated some optimism about getting resettled. Because this group as a whole utilized kin and friends as sources of emergency shelter as well as in helping them in moving back into their former homes, none expressed any of the sense of helplessness and depression that some of the poorer victims did. They were likely to mention, in the course of the interviews, how grateful they were for the help their friends and kin provided in the aftermath. While this social support cannot be considered the only mitigating factor in the apparent lower levels of psychosocial distress among the higher SES group, virtually all mentioned it during interviews.

Because of some of the expressions of depression, grief and anxiety that were being mentioned by some of the poorer victims, I interviewed the case workers both at the Red Cross service center and at the Outreach program at Guerneville to get a broader perspective on some of the types of psychosocial problems they had encountered during the emergency and in the time period since.

In addition to an increased overall caseload since the flood, I was told at the Outreach Center that they were treating an increase in depression cases. Caseworkers there reported that for a period of a few days after the flood there was a period of "elation" but after a week people "started wearing down and breaking down." For those with homes, the return to Guerneville meant a breakdown in social support and an increase in psychological stress, according to one social worker. Also it was reported that there were some poorer victims whose "basic living needs weren't being met." The reference here was to homeless victims who had neither the resources nor the access to resources from support networks to get resettled into permanent housing.

While social workers at the Outreach program agreed that it was poor victims, those "at the margins of society," that were having the greatest difficulty in coping, a common source of grief and bereavement among several victims in counseling there was the loss of pets. In my interviews, 4 victims also expressed guilt over the loss of pets and indicated that it was that loss that was the hardest to accept.

To summarize the main points thus far, victims interviewed who indicated the highest level of psychosocial distress (particularly depressive states) tended to be poorer, have fewer friends whom to draw on for support, had problems in finding affordable housing to return to, and as a consequence had the longest stays in the emergency shelter in Santa Rosa. While higher SES victims were more likely to have friends and kin in Santa Rosa (4 of the 9 respondents worked there), the opposite held for the poorer victims. Among the latter, virtually none reported friends outside the immediate Guerneville area. Thus for most of the higher SES victims, the evacuation from Guerneville meant continued access to social support networks, if desired. For the poorer respondents, the evacuation meant being removed from available support except for whatever friends also staying in the emergency shelter.

Based on information provided by Red Cross workers, Outreach workers, as well as interviews with victims, staying in shelters was a source of considerable strain for many including those responsible for managing the shelters. Based on these sources, it would be safe to characterize the shelters as having unprecedented levels of violence, interpersonal aggression and hostility compared to most reports of shelter behavior in the literature.

One respondent told me during an interview, "I was stuck in three different shelters. I was hungry, I got wet and cold and spent alot of time not knowing what was going on. Some people around me were drunk or stoned and frankly I was pretty damned scared of them. At times I thought the flood was the least of my

problems."

These problems were confirmed in discussions with Red Cross workers. One shelter worker described some of the victims as "...street people, a real sad group. They were using drugs, alcohol, selling drugs...there was an attempted rape and family disputes." To try to alleviate such problems, armed guards were posted at facilities to try to control some of the aggressive behavior. Guerneville Outreach also placed social workers in the shelters to help victims talk out their hostilities and to keep violent behavior in check. Red Cross workers implied that it was the so-called "street people" who were the source of much of the anti-social behavior in the shelters. One respondent indicated that when shelter workers gave priority to the elderly for food and water, they received verbal abuse from other shelter occupants.

Whatever the source of the troubles in the shelters, those who spent any time in the shelters found the experience stressful. Because shelter workers were the targets of much hostility, I pursued this subject in interviews with Red Cross workers who managed the shelters and the disbursement of aid.

The central problems from shelter worker points of view centered on the "unconventional" nature of some of the victims and the problem of fraudulent claims for disaster aid. Because many of the victims lived in campers, buses and the like, verification of addresses was difficult for shelter workers. Similarly, a number of those utilizing Red Cross aid and shelter apparently had no clear "family structure" in the conventional

sense. This made it difficult to identify heads of households or the number of persons in a household who actually qualified for aid. This, in turn, created problems in the disbursement of aid. The lack of verifiable addresses also made determining whether an aid applicant was actually a flood victim problematic. This resulted in very lengthy interviews with victims as they applied for aid. These delays resulted in heightened levels of hostility toward agency personnel by victims. As one shelter worker said in an interview, "These people would come in here with a different story each time trying to get aid. A lot of us weren't trained to deal with this. It's real hard to approach victims while doubting their eligibility. And it got even worse when the shelter was moved to Santa Rosa. There we got more homeless coming in trying to be flood victims. They just overloaded the facilities." The upshot was that fraudulent claims and the demand for immediate relief by some victims placed many shelter workers in a very demanding and stressful situation. The problem of worker burnout was frequently mentioned by those agency personnel that were interviewed.

One experienced disaster worker indicated that the Guerneville operation presented "...far more problems than normal." One specifically mentioned problem was the fact that as the Santa Rosa shelter operation wound down, the Red Cross was left with a small group of "hard core homeless." This referred to a small group of apparent victims who had no housing and were not trying to find any. One official indicated that when the shelter would be closed, most in this group would "...just drift off." Verifiable victims who rented were entitled to sixty days rent

while they looked for new housing. The Red Cross was covering rents (typically in motels) until victim's federal aid checks arrived. Such delays, as well as protracted stays in motels were additional factors mentioned by victims as continuing problems that they were facing.

The flooding in Guerneville seemed to exacerbate pre-existing problems in the community. As already noted, the lack of low income housing became even greater after the flood. The marginal economic existence of a segment of the community became more marginal. Virtually all of the poorer victims that I interviewed indicated that they did not feel that they had many good prospects for finding suitable new housing. As one told me, "The folks I know around here are in the same fix I am. Some of them have been evicted and [their landlord] has kept their damage deposits. It's not like I can ask them for help."

For those respondents who were homeowners, their post-flood experiences and prospects appeared markedly different from the poorer victims. As a group they expressed fewer worries about the future, and made fewer statements about being depressed, anxious, or angry about the aid situation. Similarly, they expressed fewer somatic complaints such as fatigue and sleeplessness. Because the homeowners tended not to reside in emergency shelters in the few weeks after the flood and had liveable options in terms of temporary housing, it is not surprising that they had fewer stress related complaints than did the victims who were renters.

For the low income victims, on the other hand, the lack of

support networks in conjunction with longer stays in the public shelter and few opportunities for reestablishing permanent housing in Guerneville appear associated with several negative mental health complaints. This latter group of victims were more likely to answer positively to questions about if they were: nervous or jumpy, anxious, worried, or had trouble relaxing. They also frequently referred to themselves (in response to questions) as being depressed, in low spirits, or "felt like crying." In terms of positive affect for others, they were more likely to refer to themselves as feeling lonely or all alone. In terms of quantitative measures of psychological distress then, such answers would be categorized as expressions of (respectively) anxiety, depression and weak emotional ties (e.g. Veit and Ware, 1983). While my sample is too small to quantify meaningfully, it was apparent in the course of interviewing, that the higher SES, homeownership victims were not troubled by such distressed states nearly as frequently or as deeply as the poorer victims. As one victim noted in an interview, "...well, you know for about a week afterward I was really tied up and nervous, but once I got back here and got busy with clean-up things don't seem too bad. I think things will work out pretty well..."

Given the existential problems facing the poorer Guerneville victims, it should not be surprising that they appeared to have higher levels of psychological distress than other victims. From the small sample of victims I interviewed, it can't be determined if the lack of social support played a significant role in that distress. The lack of social support was one factor that

conspired with several others (e.g. longer stays in emergency shelters, housing problems, few personal resources) to add to the stressfulness of their post-disaster situation. From the other group of victims it can be concluded that having family or friends in surrounding communities became an important way to avoid a protracted stay in the emergency shelter, with whatever psychological benefits that may have entailed. Too, having surplus income or other financial resources allowed higher SES victims to evacuate to motels, without needing to wait for cash grants from the Red Cross or FEMA.

Conclusions

The flooding in Guerneville impacted what, in many ways is a unique population, and as a result, a number of problems emerged both for victims and for the agencies responding to the flood, as have been documented here. As such, the Guerneville flood confronted agencies used to responding in relatively routinized ways to victim needs, with many "non-routine victims" and extraordinary problems. Such problems as: violence and drugs in emergency shelters, non-familial collective living arrangements with several adults in the household claiming aid, fraudulent claims for aid by non-victims, difficulties in verifying addresses because victims lived in buses or tents, hostility by some victims toward aid givers, protracted evacuation experiences, extensive exposure to the flood for some victims, intensification of low income housing shortages due to flood damage, were present and affected agency personnel, victims or both.

Identifiable psychological distresses, including depression, anxiety, post-flood sleep disturbances were found to be more common among lower income victims, victims who, for the most part lacked extensive social support networks outside the stricken community. Such victims tended to lack steady employment or income (several were on AFDC) and had difficulties in dealing with the various aid bureaucracies because of unconventional living arrangements and the lack of easily verifiable addresses. One Red Cross worker referred to such victims as "ghettoized, people stuck in a different kind of poverty...drugs etc." While this "category" of victim only constituted a small portion of the Guerneville victims, in the eyes of various agency personnel responding to the emergency, they created major demands for the aid giving agencies.

From interviews with both middle and lower SES victims, it was the lower SES victims who were most likely to express various indicators of psychological distress, as noted above. Middle class victims tended to have the material, social support, and psychological resources to better cope with the many stresses associated with some of the unique characteristics of the Guerneville flood. Because middle income victims tended to be homeowners they had access to more extensive aid programs from the federal government (e.g. SBA loans, longer periods of rent subsidy while homes were being rebuilt or cleaned up etc.), reducing some of the demands and stresses being placed on them as recovery proceeded. One important way that the middle income victims tended to differ from the lower income victims in my

sample was the fact that the former averaged less than three days stay in emergency shelters, while at least one of the poorer victims I interviewed was still homeless and in the emergency shelter more than three weeks after the flood. Victims with the most extensive stays in emergency shelter (10 days or more) appeared to express more feelings of depression than others. In this regard then, being able to draw on informal social support networks was instrumental for a number of victims in being able to find emergency shelter in a more private, and typically, more supportive setting, thus avoiding some of the problems that occurred in the emergency shelters.

Ahearn, F. and S. Castellon

1979 "Mental Health Problems Following a Disaster Situation." Acta Psiquiatrica y Psicologica de America Latina. 25:58-68.

Bolin, R.

1982 Long-Term Family Recovery from Disaster. Institute of Behavioral Science. University of Colorado.

1985a "Disasters Characteristics and Psychosocial Impacts." pp. 3-29 in Sowder (ed.) Disasters and Mental Health: Selected Contemporary Perspectives. NIMH. Washington, D.C.

1985b "Disasters and Social Support." pp. 150-158 in Sowder (ed.) Disasters and Mental Health: Selected Contemporary Perspectives. NIMH. Washington, D.C.

Bolton, P.

1979 "Long Term Recovery from Disaster: The Case of Managua." Unpublished Dissertation. University of Colorado.
Davis, I. 1977 "Emergency Shelter." Disasters. 1 (No. 1):23-40.

Dohrenwend, B., P. Shrout, G. Egry and S. Mendelsohn.

1980 "Non-specific Psychological Distress and other Psychopathology.: Archives of General Psychiatry.37:1229-1236.

Drabek, T. and W. Key

1984 Conquering Disaster: Family Recovery and Long-Term Irvington.

Garrison, J.

1985 "Mental Health Implications of Disaster Relocation in the United States: A Review of the Literature." International Journal of Mass Emergencies and Disasters. Vol. 3, No. 2: 49-65.

Gleser, G., B. Green and C. Winget

1981 Prolonged Psychosocial Effects of Disaster: A Study of Buffalo Creek. NY: Academic Press.

Hocking, F.

1970 "Psychiatric Aspects of Extreme Environmental Stress." Disease of the Nervous System, 31, pp. 542-545.

Kahn, R. and T. Antonucci

1980 "Convoys Over the Life Course: Attachment, Roles and Social Support." In Baltes and Brim (eds.) Life Span Development and Behavior. New York: Academic Press.

Lifton, R.J.

1967 Survivors of Hiroshima: Death in Life. New York: Random House.

Lifton, R.J. and E. Olson

1976 "The Human Meaning of Total Disaster." Psychiatry. 39:1-18.

Lindy, J.D., M.C. Gruce and B.L. Green

1981 "Survivors: Outreach to a Reluctant Population." American Journal of Orthopsychiatry. 5 (July):468-478.

Loizos, P.

1977 "A Struggle for Meaning: Reactions to Disaster Amongst Cypriot Refugees." Disasters. 1(3):231-239.

Milne, G.

1977 "Cyclone Tracy: I Some Consequences on the Evacuation for Adult Victims." Australian Psychologist. 12:39-54.

Parker, G.

1975 "Psychological Disturbance in Darwin Evacuees Following Cyclone Tracy." Medical Journal of Australia. 1 (May 24):650-652.

1977 "Cyclone Tracy and Darwin Evacuees: On the Restoration of the Species." Brit. Journal of Psychiatry. 130 (June):548-555.

Perry, R.W. and M.K. Lindell

1978 "The Psychological Consequences of Natural Disaster: A Review of Research on American Communities." Mass Emergencies. 3:105-115.

Quarantelli, E.L.

1979 The Consequences of Disasters for Mental Health: Conflicting Views. Monograph #62. Columbus:Ohio State University, Disaster Res. Center.

1982 Sheltering and Housing After Major Community Disasters: Case Studies and General Conclusions. Columbus,Ohio: Disaster Research Center, Ohio State University.

Sowder, B. and P. Steinglass

1985 "The Impact of Loss of Home and Undesired Move on Mental Health." pp. 170-224 in Sowder and Dickey-Darbey (eds.) Some Potential Mental Health Consequences of Six Types of Losses Common in Major Disasters. Mandex: Virginia.

Tierney, K.J. and B. Baisden

1979 Crises Intervention Programs for Disaster Victims: A Sourcebook and Manual for Smaller Communities. Rockville, Maryland: NIMH.

Wettenhall, R.

1979 "Organisation and disaster: the 1967 Bushfires in Southern Tasmania. In Heathcote, R. and Thorn B (eds.) Natural Hazards in Australia. Canberra, Australia:Academy of Science.pp431-435.