NATURAL HAZARDS CENTER

QUICK RESPONSE REPORT

The *Selendang Ayu* Oil Spill: A Study of the Renewable Resource Community of Dutch Harbor/Unalaska

Liesel Ritchie
Western Michigan University
Kalamazoo, Michigan

Duane Gill
Mississippi State University
Mississippi State, Mississippi

Introduction

On December 8, 2004, the Malaysian-flagged freighter Selendang Ayu, carrying 66,000 tons of soybeans and more than 500,000 gallons of fuel grounded and split in two off of Unalaska Island, a remote wildlife-rich area in Alaska's Aleutian Islands (Figure 1). More than 300,000 gallons of heavy bulk fuel leaked from the *Selendang Ayu*, much of it washing ashore on beaches of Skan Bay and Makushin Bay, areas that provide recreational, subsistence, and commercial fishing resources for residents of the Dutch Harbor/Unalaska community.

Figure 1. Location of Grounding of the *Selendang Ayu*

Source: *Anchorage Daily News*

Dutch Harbor/Unalaska is a renewable resource community that annually processes over $1 billion of fishery resources. Although initial projections of the U.S. Coast Guard indicated that oil from the *Selendang Ayu* would not threaten this industry, some tar balls did enter Unalaska Bay, where processing plants and crabbing vessels draw much of their water. Close monitoring and removal of these tar balls combined with vigilant inspection of seafood processing during January 2005's critical crab season prevented closure of the industry, which is essential for most residents of the community. The disaster, however, represented a "shot across the bow" for Dutch Harbor/Unalaska because it highlighted the risks associated with the high volume of international shipping that occurs in the region.

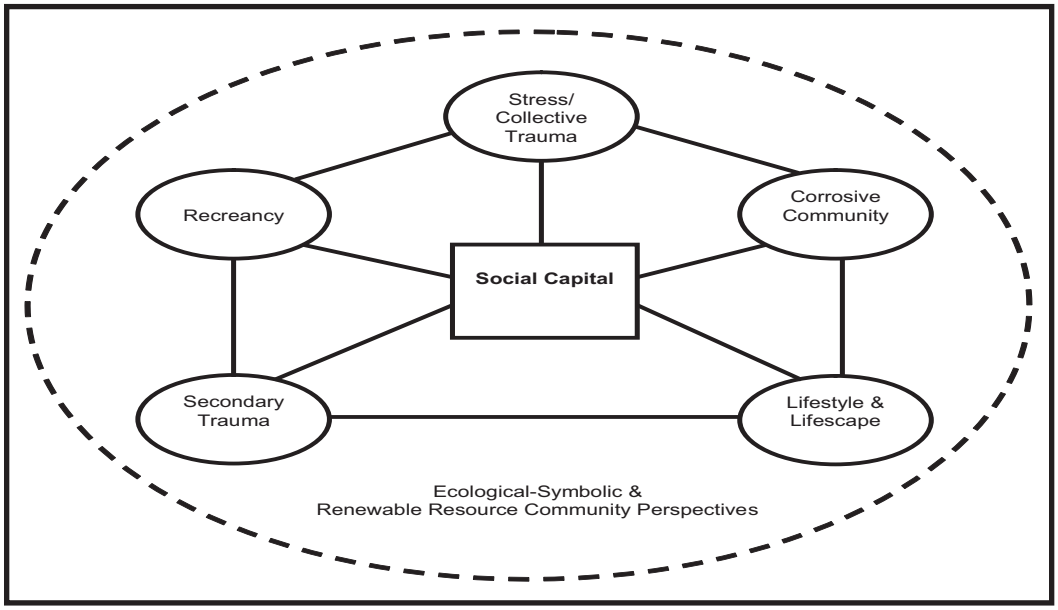
Theoretical Framework

The purpose of this study was threefold:

1. Examine community responses to the Selendang Ayu shipwreck and oil spill by applying a conceptual model derived from research on technological disasters.
2. Determine the extent to which this event may be characterized as a technological disaster.
3. Inform disaster research and improve our conceptual model.

The theoretical framework for this research is presented in Figure 2 (Ritchie 2004). In this model, the ecological-symbolic perspective and the renewable resource community (RRC) concept provide a context for an integrating theoretical framework for technological disaster research. The ecological-symbolic approach postulates that interpretive processes mediate how humans experience environmental trauma and that these processes are influenced by

FIgure 2. An Integrating Theoretical Framework for Technological Disaster Research



the type of environment that is damaged (Kroll-Smith and Couch 1991a). "[C]ommunities exist in exchange relationships with their built, modified, and biophysical environments. From this perspective, theories of disaster are always about the disruptions between people and habitats" (Kroll-Smith and Couch 1993a: 50).

As defined by Picou and Gill, "An RRC is a population of individuals who live within a bounded area and whose primary cultural, social, and economic existences are based on the harvest and use of *renewable* natural resources" (1997: 4, italics added). This concept takes into account the importance of exchange relationships demonstrated in subsistence activities, the symbolic significance of sharing harvested resources, spiritual ties to the environment, and occupational/economic reliance on harvesting renewable resources (Gill 1994; Gill and Picou 1997, 2001; Picou and Gill 1997). Community equilibrium in an RRC is dependent on maintaining exchange relationships with the biophysical environment; when collective interpretations of these relationships are damaged, social and cultural equilibrium may be disrupted and may lead to collective stress (Gill and Picou 1997, 2001; Picou and Gill 1997).

The RRC conceptualization embedded in the ecological-symbolic approach delineates how exchange relationships between natural, built, and social environments are disrupted in the wake of a technological disaster. Social capital, defined in this model as "social networks, the reciprocities that arise from them, and the value of these for achieving mutual goals" (Schuller, Baron, and Field 2000: 1), represents a common thread between each technological disaster concept in the framework. Lines in the model represent connections between social capital and individual stress and collective trauma (Erikson 1976, 1994); corrosive community (Freudenburg and Jones 1991); lifestyle and lifescape change (Edelstein [1988] 2004, 2000) and ontological security (Giddens 1990, 1991); recreancy (Freudenburg 1993, 1997, 2000); and secondary trauma (Erikson 1976). These concepts will be defined and discussed with respect to the *Selendang Ayu* event following a review of methods employed in our study.

Methodology

After initial telephone/e-mail inquiries and discussions with local residents in December 2004 and January 2005, we determined there was sufficient interest in and need to study this event. In particular, two primary points of contact—a member of the Alaskan native community and a nonnative community leader—strongly encouraged our work and provided excellent entrée to the area. In January, we researched community history, demographics, and geography to develop a foundation for the context of our research. We also monitored spill response activities and tracked media coverage dating back to December 8, 2004, when the *Selendang Ayu* ran aground.

Logistical issues of getting into the field proved somewhat challenging due to the January 15 open-

ing of the Bering Sea crab fisheries (beyond the spill impact area) and the influx of personnel associated with spill response and cleanup activities. Annually, the limited number of daily flights to Dutch Harbor in January are completely booked by the previous August, more than five months prior to the opening of crab season, by fishermen and processing companies. Thus, we were unable to secure flights into the community until early February. Moreover, lodging was scarce. The only hotel in Dutch Harbor/Unalaska (The Grand Aleutian) was completely booked for use by the incident command team (i.e., Coast Guard, cleanup contractors, state and federal government officials), often referred to as the unified command in this report. We found available rooms in a bunkhouse that provided an affordable, comfortable setting and convenient location from which to operate.

We arrived in the community three days after leaving Mississippi, traveling from Birmingham, Alabama, to Anchorage, and then on to Dutch Harbor, a three-hour flight on a prop plane from Anchorage. To make the most of our time in Dutch Harbor/Unalaska, we began meeting with community leaders that first evening and maintained a rigorous interview schedule from that point forward for the duration of our stay. People in the community were extremely busy but gracious with their time as we scheduled interview appointments.

Using a combination of purposive and snowball sampling techniques, we purposely selected individuals representing various groups and perspectives within the Dutch Harbor/Unalaska community (e.g., Alaska natives, commercial fishermen, community leaders, business owners). Beginning with names provided by our telephone contacts prior to our arrival, we developed a matrix of possible interviewees. We focused on people who were recommended by at least two individuals as being knowledgeable about the community as we proceeded with scheduling interviews. As we made contacts throughout the community, we distributed a one-page information sheet introducing ourselves and providing information about the study. No one we contacted declined to be interviewed.

From February 4-14, we conducted 31 personal interviews averaging about one hour each. Interviews were conducted in locations convenient for participants, from individual's homes, to work places, to fishing boats, to a private setting in the bunkhouse. All interviews were tape recorded for transcription. Ultimately, our sample included Alaska natives, commercial fishermen, longshoremen, Filipinos, fish processors, business owners/managers (including ecotourism), community leaders, environmentalists, the general public, and the incident commander (Coast Guard). As we learned more about the research setting, the incident, and the population, we refined our discussion guide to appropriately explore and capture key issues as identified by local residents. We also spent considerable time in various community settings (e.g., attending spill briefing meetings, participating in an Aleutian Life Forum planning session, visiting the local library and museum).

Finally, we had an opportunity to return to Dutch Harbor/Unalaska in August 2005, eight months after the incident, where we participated in the Aleutian Life Forum that examined lessons learned from the grounding of the *Selendang Ayu*. The format for the forum was a five-day series of sessions focused on the impacts of the oil spill on wildlife, fisheries, and the community; organizers also included daily cultural events and a community festival. Participants included representatives from the Alaska Marine Advisory Program, Unalaska Visitors Bureau, Unalaska Department of Parks and Recreation Center, Unalaska city government, native tribes, U.S. Coast Guard, Alaska Department of Environmental Conservation, and others. The forum afforded us an opportunity to share our preliminary findings with the community, to obtain feedback about our findings, and to observe community interactions after our initial data collection.

Findings

Generally, narratives from our interviews describe community life, events associated with the wreck of the *Selendang Ayu*, individual and community responses to the grounding, threats to renewable resources and the seafood industry, subsistence activities, and possible changes that might be implemented to reduce risks from the heavy volume of ships passing through the area. Narratives also provide accounts of previous incidents in the immediate vicinity, offering insights into residents' concerns about future groundings/wrecks. In this report, we primarily focus on findings associated with elements presented in the theoretical framework. Subsequent papers, presentations, and articles generated by this research will expand on additional themes.

Individual Stress and Collective Trauma

Individual stress and collective trauma are typical responses to technological disasters, resulting in changes in social dynamics. As defined by Erikson, collective trauma represents "a blow to the basic tissues of social life that damages the bonds attaching people together and impairs the prevailing sense of communality" (1976: 154). From a sociological perspective, it is these collective changes in social dynamics, and how individual stress is related to these meso- and macrolevel responses, that are of most interest with respect to stress in the aftermath of any given event.

The grounding of the *Selendang Ayu* and the loss of six of its crewmembers took place less than three weeks prior to the 2004 Indian Ocean tsunami that killed more than 240,000 people.[1] Within a month, on January 6, 2005, a train carrying chlorine gas derailed in Graniteville, South Carolina, releasing toxic fumes that killed eight people and drove thousands from their homes. It was in this context that interviewees in Dutch Harbor/Unalaska reflected on their local "disaster" and responded to our questions. We asked residents to describe their perspectives on the incident and their immediate reactions to learning about the accident 50 miles away:

> [The first I heard] that the *Selendang Ayu* beached [I was in Anchorage]. [I was told] they didn't know what to do, [that] they lost the helicopter, [that] . . . everybody was dead. It was the worst possible. I come from a Coast Guard family…and my first initial thought was, "We have got to have a Coast Guard base here . . . " I got on the plane the next morning and came back. And it was just insane. It was just total insanity. Absolute total insanity.

When we spoke with them in February, interviewees were keenly aware that the situation could have been much worse than it was. In a community where loss of life on the Bering Sea is an all too frequent occurrence, it was clear that they were trying to gain their own perspectives on the relative importance or significance of the incident and trying to help those of us who were interested understand, as well. The following quotes offer various factors that contextualized reactions to the *Selendang Ayu*, ranging from comments on the loss of life when the Coast Guard helicopter crashed, to comparisons with the tsunami, to previous oil spills in their area, and to the *Exxon Valdez* oil spill:

> Had the helicopter not been lost, there were plans put into place that actually started after the *Exxon Valdez*, that was late 90s. After the *Kuroshima* [grounding in 1997] they kinda refined it a little more. Every time something happens, it's completely different. There are elements [that are] the same. There is oil; there's environmental destruction; there's safety concerns; [there's oil] that needs to be cleaned up. But the circumstances are so very different. I think [the unified command] brought a lot of that [experience] to this incident. However, when the helicopter was lost, everything just came to a shattering crash and halt . . . [L]oss of life changed everything. And it seems to [have affected the situation] for about the first week . . .
>
> They started having meetings right away at the city hall. Even in the midst of all the disbelief and grief and whatever that was going on, . . . people expressed the most anger [that the crew of the *Selendang Ayu*] didn't have survival suits . . . [I]t's easy to just be furious at what happened but given that loss of life, this was a big tragedy.
>
> It's been tough. I think it's worn on us. We had that tsunami thing right after and that knocked us back too. We thought we had our hands full. We were humbled by that. Just to see the tremendous suffering that people down in Indonesia had kind of set us back. We are all alive and we've still got things going. But . . . you don't deal with things with the same strength and resilience that you would because you have been hit and everything else is a little harder. You're not dealing with other things.

One issue that had the potential to generate considerable individual and collective stress was the possibility of contamination of crab and other fish being processed in Dutch Harbor. However, by the time we entered the field, it was apparent that this threat had passed and the town was breathing a collective sigh of relief, as revealed in these comments:

> We got through a $50 million opilio crab season without any contamination. That was a big relief. We had a lot of people in the industry very concerned. If we had a contamination event . . . the word would travel to Europe and Asia that anything that comes out of the Port of Dutch Harbor was possibly contaminated with oil. That [includes] polluck, cod, crab, [and] we have halibut . . . starting in a few months. This port has product worth a billion, a billion and a half dollars that goes through, finished product. So this is a big deal and a great concern. So far so good.
>
> I was so happy to see that the crab season went off without any oil on any shellfish. You don't know how bad that could have been for our

world. This is the number one port for crab fishing . . . and if something bad like that would have happened, oh my God, we would have had problems for five, ten years.

Although everyone we interviewed expressed concern over the incident and possible impacts on the fishing industry, subsistence/cultural activities, ecotourism, and, more generally, the environment, our data do not suggest the presence of individual or collective stress beyond that generated by relatively short-term disruptions in daily routines (at that point, approximately eight weeks). Moreover, such disruptions were not communitywide. For example, processing plants remained in operation, and the world-renowned opilio crab season opened as scheduled. Local residents whose daily lives were most obviously impacted included city government officials, representatives of Alaska native organizations, a number of commercial fishermen, and other concerned citizens, who closely tracked spill response and cleanup activities as well as the movement of the oil. This exchange between two interviewees captures a typical response to our questions about disruptions in daily routines associated with attending spill-related meetings:

R2: It's hard to concentrate on a lot of different things and we've got the cleanup going on . . .
R1: And you're always afraid you are going to miss something.
R2: And it's not productive. So you're spending all your time on something that's really not productive.
I: But you feel you have to do it?
R1: You have to do it.
R2: You absolutely have to do it because if you don't then you will miss something.[2]

Others who experienced changes in their routines were individuals who went to work on shoreline cleanup; people involved with cleanup related activities, such as cooking or serving as mechanics on boats for cleanup crews; and businesses, such as restaurants and commercial cargo and salvage companies supporting spill response efforts. Arguably, in the immediate aftermath of the spill and through the summer (based on observations during a follow-up visit in August), a group of individuals whose routines were significantly affected by the spill were employees at the Grand Aleutian Hotel (headquarters for the incident command). These individuals worked extended hours for weeks at a time to accommodate the influx of spill response personnel.

For the most part, after the first couple of weeks following the grounding, most individual's routines did not appear to be dramatically altered. When directly asked the questions: *To what degree would you say the events surrounding the recent oil spill have been stressful?* and *how does this stress reveal itself in your life?*, no one with whom we spoke reported any of the stress-related symptoms often induced by trauma accompanying disasters, such as trouble sleeping or eating or experiences with other depression-related or anxiety-related symptoms. Although there may have been individuals who did experience impacts of the event to this degree, we saw no evidence of and no one described any behaviors we would associate with collective stress. As a caveat to this, it should be noted that there was no spill-related litigation underway at the time of our formal interviews, and to our knowledge there is none as of the writing of this report. During our follow-up visit in August 2005, we learned that claims had been filed by individuals and organizations directly with the responsible party. In the event that expectations are not met regarding compensation, there is potential for individuals to experience stress associated with the loss of financial resources, and if enough individuals were to be affected, this might emerge as collective stress.

Finally, in the unlikely event that long-term environmental damages emerge as greater than anticipated, negative impacts on commercial fishing, subsistence, and cultural activities might result in stress to groups and individuals closely tied to the affected areas. Among these we would include small boat commercial fishermen, Alaska natives with centuries-old cultural ties to Skan and Mukushin bays, and owners of ecotourism businesses. Specifically, shores directly affected by the *Selendang Ayu* oil spill were owned by various Alaska native corporations and tribes. Several interviewees expressed concern about the symbolic impacts of this recent grounding on the Alaska native population as well as the cumulative impacts of relatively minor events:

I know [the native elders] worry. They look back at their childhood. I'm sure that's painful for them . . . even though they've never been back there in maybe 50 or 60 years to clam those beaches and they may never go back down there and they might not even know anybody that's going to go back down there. Just knowing that no one could for quite a long time now . . . [is probably painful]. They probably kept that in their mind as a good place. And now in their mind it's not. It's like their memory of that now is not going to

be good anymore, [not] whole anymore. People [have] got enough bad memories with World War II [and having been relocated] and everything else and now they've got another thing to add. People are pretty resilient and I have to say that's something I admire about people here. But things add up . . . [There are] cumulative impacts . . . That one thing at a time is not always the final straw but things add up, and you have to be aware of that. You have to pay attention.

Especially in informal settings, but also during interviews, we were privy to comments suggesting that Alaska natives and nonnatives did not necessarily view the incident from the same perspective:

> There are people in the community [who] haven't had a chance to see first hand what is happening out there. [They] think that nothing is happening and everything is terrible. That is not the case. People think, "My potential lifestyle is gone." The reality is 99 percent of people probably never go down to that area and utilize the resources down there as it is. Give it a couple of years and things will be back to where you can't see the impact. I think they are making a bigger deal out of it than what's necessary.

Alaska natives we interviewed tended to be more vocal about impacts of this spill and previous spill events on subsistence activities than nonnatives:

> When you have impacted shorelines, no matter where they are around the island and you impact more of them, it just feels like even though this is the second largest island in the chain that there's not going to be any beaches to eat off of anymore. You don't use the subsistence because you're afraid to eat it [and our children have not] acquired that taste from when [they were] little for [traditional] food . . . So you lose in these kinds of instances because the continuity of the culture is impacted that way.

These undertones were also evident during the Aleutian Life Forum, where dialogue and presentations highlighted different perspectives within the community. Various presentations at the forum described and examined ways in which subsistence and native culture have been affected by the incident (e.g., Svarny-Livingston 2005).

Challenges associated with stating that one group was "more affected" or "more impacted" than another by the same incident are frequently encountered in community-based research; we found this to be the case with our findings in Dutch Harbor/Unalaska. Although our data does not support the idea that any one segment of the population in the community experienced significantly more stress than another in the aftermath of the grounding of the *Selendang Ayu*, we did see different reactions to the oil spill associated with individuals' and groups' relationships to the impacted area. These findings highlight the importance of context in conducting this type of research and further suggest value in employing the ecological-symbolic and renewable resource community perspectives.

Corrosive Community

Empirical evidence suggests social disruption in the form of a corrosive community emerges in the wake of technological disasters (Freudenburg and Jones 1991; Gill 1994; Gill and Picou 1998; Kroll-Smith 1995; Kroll-Smith and Couch 1991b, 1993a, 1993b; Picou, Marshall, and Gill 2004; also see Cuthbertson and Nigg 1987). A corrosive community is characterized by social disruption, uncertainty, and lack of consensus about what is taking place and who should be held responsible for a disaster (i.e., who was "recreant"). The corrosive community phenomenon is further exacerbated when outsiders are not in a position to fully understand, and thus, offer limited support.

As previously discussed, in the case of Dutch Harbor/Unalaska in the aftermath of the grounding of the *Selendang Ayu*, we did not observe nor were we informed of social disruption that would be characteristic of a corrosive community. Our interview guide included questions about social dynamics following the wreck, such as: *Has this recent oil spill brought the locals closer together, or caused/resulted in some divisiveness? What effect, if any, has the recent wreck had on relationships in the community?* We also asked about potential short- and long-term impacts of the event on community relations. Although our interviews did suggest that issues of recreancy emerged following the wreck, the social fabric of the community generally remained strong as residents responded to the incident. There were a limited number of comments revealing negative feelings with regard to who was filing claims for fishing-related losses. The following quote represents the extreme of these sentiments:

> Some of these people, they really do have a valid gripe . . . but they are not the ones that are making the claims . . . Most of the [ones who have valid claims] are just disgusted. And we talk about it to each other. Every once in awhile you'll get thrown into a social situation where they are talking about it. And it's like, "You bastard. You're just after free money to pay off the

boat and your house in Hawaii." And then the fur flies.

There were also a few comments, in formal interviews as well as in informal settings, related to the contracting of people and boats to work on spill response and cleanup activities. These comments focused on the belief that people from outside Unalaska were being brought in to work on the oil spill cleanup rather than hiring locals:

> There was something in the mind set of the unified command that they just needed to bring in their people. It is pretty upsetting because there are a lot of people here that worked on the *Kuroshima* spill. It was mostly locals that worked on that spill. All those people are still here. They were like, "OK, maybe we can make some money on this. After all, it's on our beach. We should be the ones making the money to clean it up. They should be paying us, right?" You would think, but I don't know. There were a lot of phone calls on that issue.

Several interviewees noted that many of those in charge of the cleanup were not from the community and so had little vested interest in seeing that it was done well:

> It's a little bit frustrating to have people come in tell us that everything is going to be okay, knowing that when all is said and done they are going to get on an airplane and go back to their little lives and say, "We did the best we could." This is our home and our island and our beaches that have been impacted. It just frustrates me so much.

Some people were confused about the processes involved with how individuals were hired to work on these activities, and what made one person "qualified" while another was not. Although officials could readily articulate these requirements to us, a number of people with whom we interacted did not understand, or, perhaps, the process was not implemented as formally described.

The uncertainty originally conceptualized as part of a corrosive community primarily concerned the extent of contamination within a neighborhood, community, or town. Feelings of uncertainty experienced by residents of Dutch Harbor/Unalaska were qualitatively different, though worth mentioning. Specifically, narratives in the aftermath of the grounding expressed uncertainty about potential environmental damage resulting from the heavy bulk fuel leaked by the *Selendang Ayu*. It was noted often that although the site of the grounding was more than 50 miles away, in a remote area visited by relatively few residents, it was still part of their home and their community. As one individual put it, "Even though it's not right here on our front beaches . . . it's still our home. You wouldn't want this either, wherever you live. We've told the Coast Guard and all these guys that if this was in your place you wouldn't want it."

Most people we interviewed felt positively about the potential for environmental recovery, expressing confidence that "the land will heal itself. Mother Nature will take care of all of this . . . " Despite a general sense of optimism, there was considerable uncertainty felt by area residents following the event as described in the following narratives:

> As I try to look at the overall picture, the biggest concern is oil that might be floating in the harbor here, getting sucked up into a crab vessel or into one of the inflow lines from the processing plants. If there is any kind of oil damage to any kind of seafood product that we are trying to ship out of here, that could ruin us. That's really our only source of revenue . . . If fishing goes away, this town will get small quickly.

> That's the ticking time bomb. Where is that stuff going to actually end up? Is it just going to go out to sea somewhere? I'm sure that everybody including the people that are responsible for it hope that it does that. A lot of the people in the community do, too. But until we get at least one year under our belt, how are we ever going to know what we can trust over on that side [of the island]?

> The thing that worries me the most . . . [is that] there could be just a gigantic mess of oil down there.

> Where is all the oil? That's the part that scares me. It doesn't seem like it's on the beach. It's not on the bottom . . . So, it's in the water table somewhere. How much is it gonna drift and how much is gonna come in here and how much is gonna go to the baby islands and other communities around? Is it gonna damage the commercial fisheries? That's a hard question.

> You can dig five or six feet down and still find oil. When it warms up out here it is all going to start seeping. It is going to be a mess for a long time. It is probably lying on the bottom too and when the water starts warming up it is going to start surfacing again. That's what I think. It is going to be a long time. It is probably going to take a good year.

Officials recognized the challenges they faced in dealing with this widespread uncertainty, as expressed by a Coast Guard representative:

> There are so many issues on the table. There are commercial fisheries, subsistence fisheries. [People are wondering about] . . . being able to use the beaches and how safe is it? [We want] to give people the confidence level that they can go out and gather and use those resources for . . . their dinner table . . . We were [asked] today [during our meetings], "How clean is clean? I want to be able to eat off of it." Those are issues that are tough to deal with.

Uncertainty about the extent of environmental contamination was exacerbated by concerns that the unified command did not take advantage of local knowledge to address cleanup and response issues following the grounding. Although this did not lead to a corrosive community, frustrations were expressed in interviews and informal settings in February and remained a source of contention six months later. We posed the question: *To what extent do you feel like Coast Guard officials have the interests of this community in mind as they are dealing with the spill?* As expressed by one individual, "If you talk to anybody in town… [The unified command] just didn't want to take our comments or they really couldn't go back and change the plan after they'd committed." In February, residents shook their heads as they described their perceptions that local knowledge and experience was initially being discounted by "the experts" of the unified command:

> I don't have a college degree, but I ain't stupid, either. I fished here for quite a few years. I have seen quite a few wrecks. They didn't use any, as far as I know, any local expertise from fishermen or anything. They tried to get a local boat to go out there and do a survey on the crab because they know where to fish . . . If you owned this house and I walked in and took a five gallon bucket of oil and dumped it on your dining room table and said, "We will set up the unified command on cleaning up your table but [you] don't touch it. You know the house but we will get someone else from someplace else and come take a look at how we can best clean this up. The best way to clean it up would be to get some paper towels and wipe it off the table but no that local paper towel won't help. Let's go get some Bounty's. They got some really good commercials. We will get those and come and clean that up for you."

> A lot of the experienced mariners that were here in town were telling them [the Coast Guard] that the current is closer in than what they were saying and that they were closer to the beach than that, and that there was actually pretty good likelihood that there might be some oil. They kept saying, "oh no, no. Our people have told us." Our local guys kept telling them "no." And sure enough we started seeing tar balls—at which point they had to stand up and say, "Yeah, you did tell us that this was going to happen."

One individual suggested that officials should:

> [S]tart looking at reality and the conditions and . . . start getting involved with the local people and the local knowledge on how to do some things. Ninety-nine percent of the time, a local person is going to be able to pull it off a lot easier. That is probably one of the downsides of what has happened. They haven't utilized that knowledge quite well enough.

It does appear that after several weeks the unified command did start to tap into the experience and expertise of the locals, many of whom gave them credit for this:

> It was kind of funny actually, in . . . that one sort of infamous meeting where someone asked, "So do you expect any of this oil to end up in our bay here?" Whoever [responded] . . . I don't mean to flag him for this because he seems like he has done a pretty good job, but he said, "No. We have looked at the currents and we have studied the currents and it should just pass right by this island." It wasn't two days later that they found oil in the bay here. [After that, the fellow acknowledged,] "You guys seem to know a bit more than we do about the things involved here so we are taking the comments pretty seriously." That was an issue for the first couple of weeks, that many people would stand up at those meetings and say, "I fished out there, I think I know a little bit about what's going on. Here are some things that you should look out for." In the early stages [they acted as if] . . . "We have worked on oil spills before guys, we know what we are doing here." I think they came around quite a bit after we had a few of those meetings.

> We know from experience that what works in other places just doesn't work here. [We have] . . . tremendous weather, not like any other place . . . [S]ince we rely on [the unified command] to get this cleaned up we've been doing the best we can to teach them the ropes as fast as we can. To tell them right upfront, "You never know what the weather is going to do . . . " [T]hey wanted to come in and do kind of little preliminary thing and then pull out and come back in the spring

and clean it up. We said, "Oh no, no. Don't do that . . . What do you mean by spring? We don't really get spring. By the time it gets to be June then we're in another season and it warms up . . . You better get down and get this stuff cleaned up 'cause it's doing damage every minute it's down there . . . " They have been pretty open because they needed us. As much as we needed them, they needed our experience fishing and skiff operators and boat owners to go down there and get crews in and out, dealing with the weather.

These tensions between expert and local knowledge were a common theme in our qualitative data and, notably, remained an issue of primary concern during the Aleutian Life Forum. As summarized by one relatively new resident in the community:

I think [the locals] may not understand. They don't have the history [of working on an incident this like in that particular location] either. They don't have what's worked before, and I think a lot of people that are responding [from the unified command] do have a little bit of background. That works for and against them. They come in and say, "We're the experts. We've been on oil spills. Just let us do our thing." The local community is saying, "No, we don't want you hauling tubs of oil over our beautiful land where it could potentially cause more of a disaster."

Our data and observations do not provide any evidence to suggest that Dutch Harbor/Unalaska experienced social disruption to the extreme of becoming a corrosive community. Although there was considerable uncertainty about immediate threats to the fishing industry and the ultimate extent of environmental damage (including threats to subsistence/cultural/ecotourism resources), this uncertainty did not constitute social disruption to the point of corrosion. Although interviewees commented on tensions among groups with what might be considered competing interests or perspectives, these tensions emerged along previously existing "social fault lines," as might be expected. For example, there are some contentious issues between grassroots environmentalists and local government officials, commercial fish processors, and business owners regarding claims of pollution in Unalaska Bay. At the very least, different perspectives emerging in the narratives of those we interviewed emphasize the importance of context in understanding how people respond to or process events, activities, and actions in the aftermath of this type of incident. The development of shared meanings—common definitions of what has taken place and what continues to evolve following the immediate crisis period—further influence how communities and policy makers might prepare for and respond to future incidents.

Lifestyle and Lifescape Change

In the wake of technological disasters, communities undergo both a "lifestyle change" and a "lifescape change" (Edelstein [1988] 2004, 2000). Lifestyle change refers to a disruption in normal routines or patterns of everyday life. Changes in lifescape represent a much deeper, fundamental disruption of underlying, taken-for-granted assumptions under which societies operate. "The lifescape reflects each individual's way of embodying a larger shared societal paradigm in the context of personal life" (Edelstein 2000: 131). Similar to the corrosive community concept, negative lifescape changes following a technological disaster result in feelings of isolation, abandonment, health concerns, distrust of others, distrust of the environment, and loss of control (Edelstein [1988] 2004, 2000). Negative lifescape changes have the potential to influence "ontological security"—confidence, faith, or individuals' trust in their identities and their surroundings—which is critical for emotional survival (Giddens 1990, 1991). Stress (discussed in an earlier section), lifestyle change, and lifescape change are mutually influential.

As previously noted, certain people and groups in Dutch Harbor/Unalaska experienced short-term lifestyle changes as a result of the wreck of the *Selendang Ayu*. Although interviewees did not express that they had experienced "negative" lifescape changes associated with the event, narratives did indicate a shift in lifescape for several area residents with respect to beliefs about what should be done to prepare for future incidents. In this sense, the type of lifescape change articulated could be characterized as positive, or at least proactive, because we heard people articulate that the community as a whole needed to be better prepared for future wrecks and spills. There seemed also to be an increased awareness (or at least expression of awareness) of potential environmental impacts of shipping accidents in the region. A theme that emerged across interviews was, "It's not a matter of if there will be another oil spill, but when." There was confusion and definite frustration among some residents about what, if anything, was being done to enhance response and preparedness:

I have been really surprised at . . . the resignation [I am seeing. That this is] about where we live

and these are kind of the things that happen here. No one is happy about it, but there hasn't been this big cry like, "I can't believe what a travesty this was." It is more just kind of confusion about, "How could something like this happen?"

What happened in Makushin and Skan Bay, they need as many people studying like yourself and all these people at the command center, the different agencies. It needs to be studied and documented well, every detail, because it is going to happen again. It is just a matter of time. The next time it will be closer here. Or it may be deeper inside Makushin Bay or maybe in Beaver Inlet or maybe in Akutan. You know it's just a wonder that we haven't had a big spill like that inside Unalaska Bay with all these huge ships anchoring.

The feeling that the *Selendang Ayu* grounding represented another "shot across the bow" for the community was apparent in narratives and expressed by many in a matter-of-fact tone about this incident and the inevitability of future events:

You have to say, "Okay it happened. It wasn't intentional." Initially you are really mad. There are some people that are really pissed off about it, but the reality is you are not going to change it. So if you can't change it, you have to look at things you . . . have control of so you can create your own destiny.

We're certainly aware of [the danger], but it's not something that causes us angst. We know that [shipping] traffic [is] out there. We want to be able to respond if something happens. We want to be able to have the best plan and best equipment in place to respond because being as far out as we are, we're on our own . . . You can plan for specific types of incidents, but you can't plan how that incident is going to happen and how you are going to react. You just can't because there are far too many pieces of the puzzle.

Beliefs that more must be done to prepare for the inevitable next spill were tempered by undertones of resignation as expressed by these interviewees:

Putting a special tugboat here at the cost of nine or ten thousand dollars a day, just sitting here, who's going to pick up the tab? I don't know if that's the answer . . . [with the] combination of weather and everything. You just can't control [a vessel] like that when you have hundreds of tons and a 50-, 60-knot storm . . . If you have a storm like that and somebody gets in trouble, is the tugboat going to be able to keep it off the beach or not? I don't know. So you might be spending a bunch of money and not really have any success.

It seems to me that we've got to mess with the system somehow and change that so when one of these things happen, we start taking oil off right away . . . Somehow we've got to get our arms around the fact that the first thing you've gotta do in one of these things is start getting the oil off and not wait three and a half weeks. I don't know how to change that.

Although segments of the Dutch Harbor/Unalaska community experienced lifestyle changes as a result of response and cleanup efforts following the grounding of the *Selendang Ayu*, impacts on daily life were limited to the aforementioned groups and did not affect the community as a whole. Our understanding is that a large majority of area residents employed to work on the oil spill response did not give up their regular jobs or drastically alter their routines, though they admitted working much longer hours during cleanup and as salvage efforts commenced.[3] For most of those involved, any changes in daily patterns were short term and frequently expressed to us in terms of being "an interesting experience." Thus, the extent to which lifestyles were altered seems negligible.

The nature of lifescape change suggests that it may be too soon to tell whether the community or the groups or individuals in it have experienced fundamental changes in ontological security or how they view the world around them. We detected no negative lifescape changes that would lead the Dutch Harbor/Unalaska community at large to experience feelings of isolation, abandonment, health concerns (other than general concerns about possible contamination of subsistence foods), distrust of others, distrust of the environment, or loss of control. There does seem to be an increased awareness of risks associated with shipping traffic in the region and an understanding that this recent event offered an opportunity to focus attention on issues important to the community in both the short and long term. If there are any lasting changes in lifescape, we expect based on our interviews and observations that these will be manifested in community efforts to prevent, prepare for, and respond to future oil spills. All of which might be considered positive lifescape changes.

Recreancy

The term "recreancy," referring to "the failure of experts or specialized organizations to execute

properly responsibilities to the broader collectivity with which they have been implicitly or explicitly entrusted" offers some insights into this incident (Freudenburg 2000: 116). "The word comes from the Latin roots re- (back) and credere (to entrust), and the technical use of the term is analogous to one of its two dictionary meanings, involving a retrogression or failure to follow through on a duty or a trust," (Freudenburg 2000: 116). Recreancy distinguishes between the processes or facts associated with institutional trust and emotional consequences of the breach of trust.

To explore issues of recreancy in Dutch Harbor/Unalaska we asked respondents, *Who/what organizations do you feel are most responsible for the recent spill?* Generally, those we interviewed considered the primary responsibility for the wreck of the *Selendang Ayu* as that of the ship's captain, Kailish Bushan Singh, of New Delhi, India. According to media accounts of Singh's trial, during which he pleaded guilty to lying to federal investigators, he falsified records about circumstances following the grounding and instructed his crewmembers to do the same. As our interviews were conducted prior to these related court proceedings, narratives do not reflect what is now public record: that a catalyst for the incident was a result of intentional efforts to deceive owners of the ship made worse by a failure to report trouble to U.S. officials for more than 15 hours. This further reflects how our understanding of risk, responsibility, and recreancy change over time. In February, when we conducted our interviews, Singh's decision to shut down his engines was met with disbelief among many experienced mariners and other local residents of Dutch Harbor/Unalaska. They could not understand why he would take such an action in potentially treacherous waters:

> I blame the captain in charge of that vessel . . . I believe they never called for help soon enough. They drifted right by us. Why didn't they ask for help sooner is because they thought it was going to get going the whole time and they didn't ask for help soon enough. I believe that captain is at 100 percent fault. That happens a lot out here and they are foreigners and they think they can get it without help then that's what they will do.

> Apparently it seems that notification of distress was way late and was a contributing factor . . . I understand that the type of main [engine] they had on that boat could run on cylinders. They didn't even have to shut down in order to repair the cylinder . . . I am highly skeptical that they even had to shut the main down in the first place to start tearing it apart, given the proximity to land and wind and weather and all of that. I think probably human error was pretty much behind the thing but I [would want to wait to hear more evidence].

> Their first mistake was shutting the engine down . . . It would have to be the captain's decision. The captain is on the ship and he is the master and is responsible, regardless of what the corporation thinks.

Others initially considered the incident to simply be an "unfortunate accident," just one example of what can happen on the Bering Sea:

> I don't blame anybody [for the wreck of the *Selendang Ayu*]. It was an accident. Accidents happen all the time. It was an unfortunate accident. People died. It could happen to me. I could do something and end up on the beach somewhere and somebody would be killed or I'd be killed or people would be killed trying to rescue me . . . [S]ure the guy shouldn't have shut the engine down, but who am I to say? . . . Nobody planned for this to happen . . . [T]his is unlike the *Exxon Valdez* where a person was drunk. As far as I can tell . . . the pressure maybe was to get somewhere and they didn't wanna come into town . . . But nobody planned to put that thing there. So here we are. And hopefully it gets cleaned up and we can just move on from it.

> I know very little about the *Selendang Ayu*. Were they allowed to sail without reasonable measures taken about the safety of the boat? I'm sure they didn't. I'm sure when they sailed they knew that they would be doing everything right, that they would bring their cargo and their people safely back home . . . I'm sure they took all the precautions before they sailed. But, I know very little about that. I just know that this [type of] catastrophe happened hundreds of years before now, and will be happening hundreds of years from now in the future. So, you can't blame anybody about that. Maybe I'm wrong.

Once the ship ran aground, issues of response to the accident came to the fore. From our qualitative data, there were essentially two timeframes described with respect to response: the first immediate period of getting the crew off of the disabled ship and the second phase of initiating lightering operations (removal of oil from the ship) and shoreline cleanup/restoration. There were a variety of narratives regarding efforts of the Coast Guard to rescue the crew. For example, when asked about his assessment of the recent wreck and how it was handled, a long-time resident and former commer-

cial fisherman was adamant and very critical of the Coast Guard's immediate response to the incident:

> Horrible. Disgusting. I am ashamed at our government to allow these kinds of things to happen. The second that boat lost power, the peaceful transit was out the window. When they waited 13 hours to say that they were trouble . . . When you have been towing on them and you know that a storm is coming for two days and you are parked in all your rigging . . . Why did [the Coast Guard] not resort to something more drastic? . . . This is a 350 foot chunk of ship with two lifeboats on board, why did you [the Coast Guard] try to rescue them in the dark in that horrible weather? [The Coast Guard] all had frog suits on. These [*Selendang Ayu* crewmembers] are running around in flip flops and street clothes. You crash a 10 million dollar helicopter trying to save them and end up killing them anyway. Why didn't you just drop one of your guys on the boat, give them all survival suits, and ride it out until daylight at the very least? Or wait until the weather was halfway decent? You put your men, your equipment at risk, and the people you were trying to rescue. It just boggles my mind, the whole thing.

The unified command, consisting of Coast Guard personnel, federal and state officials from various agencies, and the "responsible party," was charged with overseeing cleanup activities. Comments ranged from frustrations that the immediate response was not quick enough to concerns that local knowledge was not being applied to the situation. Frustrations with response time associated with lightering operations were articulated in a variety of ways:

> It's a little bit like a fire. You don't go out and contact three fire departments and have them give you a bid . . . for how they are going to put it out and how much they charge you. You just get a fire department in here real quick because the building is on fire.

> On the lightering of the oil, many of us felt that [the unified command] didn't listen to us. We told them and we told them, "This is not helicopter country." We had good weather right after the wreck where they could have got a barge alongside the stern section at least and possibly the bow section while it was still floating and done some work with pumps, by flying some pumps in instead of waiting almost three and a half weeks for this helicopter to come from Oregon. By the time the helicopter got here, the bow section was sunk. 100,000 gallons of the bow section goes into the environment. Stern section, the bottom of it falls apart, is destroyed . . . Just because they had this plan where they were going to use helicopters to get the oil off. They've got a hundred and forty thousand gallons off out of almost half a million gallons. What's that 15 percent? 20 percent? They probably would have had a chance to get a significant amount more if they would have used the barges [that were] available.

One interviewee was particularly critical in his assessment of the cleanup operations:

> This whole cleanup they are doing is worse. Of all what they are going to get after they clean off the beach after a month and after hundreds and thousands of super sacks and little sacks, the actual volume of oil they took off the beach is going to be maybe a few thousand gallons. How much was spilled, 400 or 300 and something thousand gallons? They [lightered] a 100 [thousand gallons] and the other 300 [thousand gallons] spilled. Actual cleanup, they have done nothing. Why do it? It is a waste of money . . . They are not going to clean this oil up. I don't care how many people they put on the beach or what they do. They are not going to clean this up. So, why waste the money other than some of it goes in the community?

A number of individuals noted that they felt like members of the unified command were hoping the weather would get bad so they could go home: It sounds like they [unified command] keep hoping that winter is going to show up tomorrow so they can go home for a month or two. [That's] the feeling I'm getting from them . . . I don't feel very good about that. I think they know they'd . . . hear about it if they pulled out and the weather continued to be like this. We've had a very mild winter.

Some interviewees, many of whom were relatively close to the operations of the unified command (i.e., interacted with officials on a regular basis), praised the actions of the unified command, clearly recognizing the challenges and complexities of dealing with the situation:

> There's so many fingers in the pot . . . Millions are on the table and everybody wants some and everybody thinks they have the best idea to deal with it. I've seen a lot of confusion, but they are still getting stuff off the beach. Nobody else has been injured or hurt. Things are working well.

> Different organizations have different goals and different objectives to meet those goals. Because you're dealing with separate entities . . . it's hard to bridge the gap between state and federal and

> others . . . [I]t's been an interesting learning experience for me, dealing with people in certain situations and learning the psychology of how different organizations work.

When we interviewed the incident commander, we asked him the inevitable question: *What, if anything, would you have done differently in retrospect as you dealt with the spill?* He responded that:

> I always ask my folks that when I get ready to let them go. If you were king for a day what would you do? If I could do something different it would be only because I have 20/20 hindsight right now. I wouldn't have come in with such a small group of people to do the beach cleanup. I would have hit it with a much larger contingent of people. Quite frankly, I thought we were not going to have any days on the beach. As it worked out we had a lot of time on the beach . . . They are not clean but we got that big thick amount of oil off of them. That would have been nice. From the standpoint of changing things . . . I don't think I would have really done anything differently. It is just [difficult] when people think you are the stupidest person they ever met. [People ask], "Why aren't you using a ship to offload the oil?" You pick a course and you stick to it and you take the weather when it comes.

Obviously, having a different perspective by being more integrally involved with response and cleanup activities has considerable bearing on beliefs about how the incident was handled. Again, this highlights the contextual nature of understanding this type of incident and how to best deal with future accidents.

Several interviewees acknowledged the community's role in not demanding better prevention and response plans, as these comments reveal:

> In some ways we are as much to blame as they [the foreign vessels] are because we should know better. It's always after the fact that [we think about these things].

> [We felt] more grief than anything . . . It's not to say that we don't all realize that it shouldn't have happened and that there are things we could do to keep it from happening . . . that there is some carelessness on our part for not doing what we could . . . I guess that makes it a little different maybe than *Exxon* [*Valdez*] when you clearly have a really drunk captain and a reef that was right there.

This emergent theme in our data suggests some level of responsibility being accepted or carried by local residents in assessing and addressing risk, preparedness, and response associated with their way of life and their physical/geographical location on the Bering Sea. Again, this suggests the possibility of lifescape change as a result of the *Selendang Ayu* oil spill.

Finally, the complexities of assigning responsibility and blame, as well as the futility of such efforts, were discussed by interviewees. These perspectives further illuminate the challenges of assessing these issues when, even in the aftermath of such an incident with the benefit of hindsight, people are "bewildered." These sentiments are summarized in the following narratives:

> I never have sensed a lot of anger about this. I guess I have talked to some people that were angry about this, but I think people are more bewildered about how this happened. There is this guy cruising through the Bering Sea during a storm. Apparently he voluntarily shuts his engine off in the middle of the storm in the Bering Sea and a lot of people have just wondered how it is possible for someone to be that dumb. It is just a strange thing to do. There have been a lot of comments about how this could have been prevented if we were properly equipped here, since we had a day and a half of [the vessel] drifting toward us. If we would have had a big tug here, somebody could have grabbed hold of that maybe and kept this from happening.

> I don't know [who to blame]. I don't blame me. Do you blame the skipper or was he taking orders from management? Do you blame the chief engineer? Was he not good enough or not have the guts to say, "No I don't think we should shut it down right now?" He doesn't look at the weather facts. He doesn't know that the storm is coming. Who do you blame? I don't know. Who do you blame with *Exxon* [*Valdez*]? Do you blame Hazelwood that is asleep in his bunk? Drunk or not, he wasn't on watch. It wasn't his responsibility. [Do] you blame the Coasties that weren't awake that were supposed to be awake and watching to see where they were going? Who do you blame? Who cares? Let's not let that happen again.

Secondary Trauma

Secondary trauma can be thought of as trauma caused by a poorly planned or failed response from social organizations having disaster and emergency response obligations (Gill 2005). Erikson introduced the term to describe the loss of "communality" (i.e., social networks and neighbor relationships) expe-

rienced by survivors of the Buffalo Creek, Virginia, dam collapse and flood (1976). In Buffalo Creek, this loss of communality was exacerbated by rescue and recovery activities by outside authorities, who were faced with the destruction of 16 communities and villages in the valley. This was most pronounced when surviving families were placed in a temporary mobile home park without regard for preexisting neighborhood patterns, resulting in a disruption of social capital that further demoralized many survivors.

Secondary trauma can also occur when litigation to recover damages from a disaster is prolonged. For example, the lack of resolution for litigation involving the *Exxon Valdez* oil spill 12 years after the jury trial and verdict has further traumatized individuals, groups, and communities impacted by the disaster (Picou, Marshall, and Gill 2004). Likewise, the Federal Emergency Management Agency's inadequate response to Hurricane Katrina probably caused a high degree of secondary trauma.

In the *Selendang Ayu* incident, we found no initial evidence of secondary trauma. During our follow-up visit in August 2005, we observed no apparent secondary trauma associated with the incident. Moreover, because we found little to no evidence of immediate collective trauma during our interviews, we do not anticipate the emergence of secondary trauma.

Social Capital

Social capital refers to social networks, the reciprocities and trustworthiness that arise from them, and the value of these networks for achieving mutual goals (Putnam 2000). Social capital promotes social cohesion, social solidarity, and economic achievement for communities and organizations and enhances spiritual well-being, a sense of identity and belonging, honor, social status, and prestige for individuals (Coleman 1988).

Social capital is integral to technological disaster concepts (Ritchie 2004; Ritchie and Gill forthcoming). First, stress reactions following technological disasters change social dynamics and how people and groups relate. Negative changes in associations (e.g., if associations break down or communication is diminished) represent diminished social capital. Stress often leads to decreased interaction and isolation that can further tax social capital and create additional stress. Second, a corrosive community involves disruption of relationships, loss of trust, and declines in reciprocity. This diminishes individual and community social capital. Third, lifestyle changes may produce stress reactions that affect social capital. Moreover, negative lifescape changes, particularly involving ontological security, may challenge essential elements of social capital, such as trust, interaction, and reciprocity. Fourth, recreancy confronts beliefs about organizational trustworthiness and reliability as well as feelings of security. When trust and ontological security are diminished, social capital becomes limited. Finally, secondary trauma further taxes already depleted stores of social capital, and a cumulative loss of social capital may cause additional secondary trauma.

Social capital in Dutch Harbor/Unalaska was explored by asking respondents questions about their community (e.g., *Is this a good place to live? What are some of the reasons you live in this community? How did you come to be in this community? What are some of your dislikes about living in this community?*). In general, we found a high level of social capital in the community. There was pride in the local education system, local government, and civic affairs.

Overall, many respondents noted that the community had a high quality of life. This quality of life was linked to several physical amenities made possible by revenues from the fishing industry. However, there was a recognition that social capital was also behind the amenities as well as the quality of life:

> You've got some of the greatest people here. You don't know if you're talking to somebody that's got a PhD or somebody that didn't even get a GED. And they are not judged by that. They are not judged by what kind of house they live in or what kind of car they drive or what kind of clothes they wear. They are judged by, "can you do what you say you can do?" . . . It's the kind of community that helps people if somebody is in trouble. They'll still have fundraisers out here if somebody needs surgery and doesn't have health insurance.

> You can't run a community with 90 percent of it sitting idle when it is this small and have the amenities that we have got in this community. It is unheard of. I think even in the lower 48 there are not many towns just over 4,000 that have an indoor swimming pool and gyms and indoor track and basketball courts. [We] sink a lot of money back into the quality of life.

> I think we have an excellent quality of life. We have excellent schools. We have excellent new facilities. We are more of a community now instead of a seafood industrial park atmosphere that I think you could call this place in the '70s

and probably most of the '80s because it was such a highly transient type community . . . In the '90s the revenue generated from industry allowed the city to pay cash for all these buildings that you are seeing, the library, city hall, the clinic. Ball fields, park, hike trails, you know, we've done a huge amount of infrastructure here for quality of life that make people want to stay here and raise their family plus we have an outstanding school.

Although Dutch Harbor/Unalaska is ethnically diverse, few signs of racism or discrimination are evident. Instead, these diverse groups seem to work together and share a mutual stake in community activities. This exemplifies the concept of "bridging social capital" that tends to nurture generalized reciprocity (Paxton 1999; Putnam 2000; Schuller, Baron, and Field 2000):

> The community is real united. There is just no difference between the Asian community and the American community. They've got the FILAM Association, Filipino-American Association. And everybody just works together, plays together, laugh together, cry together, there's just no difference . . . This is a great place to live. You know, it's not for everybody. And it's fun to go on vacation. However, it's a great place to live . . . Living in Unalaska allows you to really take ownership in your community because you are so reliant on each other, and you just feel ownership in it.

> One thing that has always really amazed me about the community is how . . . a community as diverse as this gets a long as well as it does . . . I feel little racial tension in this community and I think a lot of that is just because how affluent this community is. I mean everybody in this community for the most part is making good money and I think that makes a lot of racial tension go away.

Another aspect of bridging social capital is how a community relates with other communities and outside organizations, including the state. One respondent provided insight into how Dutch Harbor/Unalaska possessed this type of social capital:

> City government here is pretty well respected throughout the state. One of the members of our school board is the upcoming Alaska Association of School Board's president. He will be very well respected throughout the state in the education system as well as other school board members. On the city side, we got tons of council members that are pretty well respected and in fact our mayor was just down in Juneau and we have representatives who know who people are that we surveyed. They start asking questions. It builds up relationships so the city has got a really good rapport with other communities and the state as whole.

Social capital is often a subtle resource that may be easily taken for granted and go unnoticed. There are times, however, when it becomes very apparent. This is particularly evident in times of crisis or emergency, when people and organizations draw upon social capital to render assistance. Descriptions of community responses to the grounding of a tour ship, the *Clipper Odyssey*, provide a more visible demonstration of social capital in Dutch Harbor/Unalaska. In this incident, the tour ship grounded in the evening and passengers had to be taken off the ship to spend the night in the community. As one respondent noted:

> Everything that could have gone right on the *Clipper Odyssey* went right. It happened in the daylight hours. [We began] to transfer the people in the daylight hours. [It was] so close that we had so many vessels able to respond. [We] even [had] a tramper over there who could respond and carry lots of people. [We had] the training in hand here . . . with EMTs. And the harbor officers and the police officers [were here] to control the area, keep gawkers out. People that we know to help were there [and] knew what they needed to do . . . Where do we put these people? Well, you're gonna go to the hotels first. And we have PCR (Parks, Culture, and Recreation Department) ready to go, to open up, with cots and mats on the floor. The gym at the school is ready. The Methodist church was ready. Everybody was ready. Food was being prepared as they were coming in. The big galleys, they were cooking soups and sandwiches, and setting up. And a bunch of volunteers went to the stores and raided the stores. It was all donated. Everything was donated. Bags for the women, bags for the men, bags for the kids. We figured, they are leaving those boats with nothing. They are gonna walk off with nothing, and who knows when they are gonna get back on that ship. And those people came in, and as they were coming in, it was getting dark, and they were smiling. And . . . they got off the boat and were met with people who helped them off and cared for others.

Likewise, surviving crew members of the *Selendang Ayu* also benefited from a visible display of the community's social capital:

> We got together and we worked with some of the community businesses and we got people to

donating whatever they can so we started buying them underwear and socks. Some people started donated money and pants and sweat pants and sweatshirts and gave them their used clothes like jackets and sweat shirts. They ended up with a couple of 50-pound bags of clothes. They ended up with more than what they lost in the boat.

Summary and Conclusions

Although identified as the second largest oil spill in Alaska history, the environmental, economic, and social impacts of the December 2004 *Selendang Ayu* accident—thankfully—remain far from that of the magnitude of the 1989 *Exxon Valdez* disaster in Prince William Sound. Indeed, the grounding of the *Selendang Ayu* could hardly be considered a disaster by most standards, although our data suggest that the incident certainly affected different individuals and groups within the Dutch Harbor/Unalaska community to varying degrees. This incident does, however, offer an opportunity to learn more about contextual factors associated with assessing the degree to which an event constitutes a disaster. To this end, our qualitative data support the merit of employing our conceptual model in examining impacts of events ranging from natural disasters, such as the 2004 Indian Ocean tsunami, to accidents, such as the *Selendang Ayu*, to technological disasters, like the *Exxon Valdez* oil spill. More importantly, this model can be employed to help us better understand social impacts of events, such as Hurricane Katrina, where a combination of natural, social, and technological causes and consequences are evident.

Our findings are based on interviews, observations, media accounts, and background information on the community. At a general level, we found that individual and community reactions were tempered by the initial loss of life in the rescue effort of *Selendang Ayu* crewmembers. This fact, as well as other more global events, including the 2004 Indian Ocean tsunami, contextualized individual, group, and community perspectives about the incident.

"We were fortunate," "It's not a question of if but when," and "shot across the bow" summarize various expressions heard throughout the community regarding the accident. The *Selendang Ayu* incident heightened awareness of risks associated with the high volume of international shipping passing through the region. Similar events experienced by the community during the past 10 years further contribute to local risk perceptions (e.g., the groundings of the *Kuroshima* and the cruise ship *Clipper Odyssey*). These risk indicators are valid and warrant consideration in developing approaches to reduce risks. As a renewable resource community, Dutch Harbor/Unalaska has evolved a collective lifescape that accepts risks associated with its environment (e.g., extreme weather) and activities required to coexist with that environment (e.g., subsistence, commercial fishing). Local involvement and utilization of local knowledge, understanding collective lifescape, and drawing on social capital are vital to addressing these risks.

Based on findings presented at the Aleutian Life Forum, subsistence activities, native culture, tourism, ecotourism, and commercial fishing have been affected to varying degrees by the incident (e.g., Kelty 2005, Kniaziowski 2005, Svarny-Livingston 2005). Makushin and Skan Bays have traditional cultural value for Aleutian people, including cultural traditions of subsistence and memories of ancestors, which provide significant symbols that help define individual and group identity. Indeed, the symbolic importance of this region may outweigh the relatively small amount of subsistence activities that actually occur there.

Commercial fishing is integral to the community economy and government. Damages to a tanner crab fishery in the impacted region are not fully resolved, but commercial fishing, in general, should continue on course. Tourism and ecotourism may take longer to recover due to a lost season in 2005. Most ecotourism businesses are expected to resume activities next year. Ultimately, recovery will depend on how tourism client bases have been affected, and it is too early to gauge continuing ecotourism impacts.

Recreancy was evident throughout our interview data, and several respondents blamed the ship's captain for the wreck. Media accounts of the captain's trial (after our initial data collection in February) indicated that he pled guilty to lying to federal investigators and falsifying records about circumstances following the grounding and instructing his crewmembers to do the same. In the case of the *Selendang Ayu* grounding, the shipping company was officially identified as the responsible party and assumed a position to assist in response and recovery efforts. In addition, some interviewees placed some blame on the government for not having more effective prevention policies given the level of vessel traffic in the region.

Other than recreancy, we found little to no evidence of other social impacts outlined in our

conceptual model. That is, our data do not suggest collective trauma and stress, a corrosive community, negative lifescape change, secondary trauma, or loss of social capital in the aftermath of the *Selendang Ayu* incident. According to our conceptual model, community impacts could have been much worse and probably would have been had the spill been larger and closer to Unalaska Bay.

Overall, there is little to no evidence to suggest that there will be negative long-term social impacts from this single incident. Indeed, some positive outcomes have occurred in terms of an increased appreciation for the community's ties to the natural environment. We also observed considerable social capital, as well as financial, human, and natural resource capital in this community. These various forms of capital combine to create healthy community resilience. Maintaining resilience, however, depends on continued local involvement in community issues, particularly discussions about risks. Indeed, the *Selendang Ayu* incident heightened awareness of other environmental risks in the area. For example, some groups are concerned about risks from contaminants in Unalaska Bay.

The findings presented in this report are not intended to represent the final word on social impacts of the *Selendang Ayu* incident. Although the community as a whole has experienced little stress or collective trauma, some individuals and groups have experienced social disruption and stress and may continue to do so. After 2005 cleanup operations are concluded, there may be a period of individual and collective reflection on this incident that may produce stress. Further, if expectations about compensation for damage claims are not met, stress and social friction may ensue. At the same time, the incident opens opportunities to maintain and build upon the high levels of social capital observed in Dutch Harbor/Unalaska; the 2005 Aleutian Life Forum exemplifies efforts to do this. It is important for formal and informal community leaders to be aware of social capital and other factors of resilience as citizens, groups, and the community continue to process meanings and implications of this incident.

Notes

[1] Some estimates of the death toll are as high as 310,000.

[2] "R1" and "R2" represent respondents; the interviewer is represented by "I".

[3] Employment data presented by local industries at the Aleutian Life Forum in August 2005 support this finding.

References

Coleman, James S. 1988. Social capital in the creation of human capital. *American Journal of Sociology* 94 (Supplement): S95-S120.

Cuthbertson, Beverly H., and Joanne M. Nigg. 1987. Technological disaster and the nontherapeutic community: A question of true victimization. *Environment and Behavior* 19: 462-83.

Edelstein, Michael. [1988] 2004. *Contaminated communities: The social and psychological impacts of residential toxic exposure*. Boulder, CO: Westview Press.

———. 2000. Outsiders just don't understand. In *Risk in the modern age: Social theory, science and environmental decision-making*, ed. M.J. Cohen. New York: St. Martin's Press, Inc.

Erikson, Kai T. 1976. *Everything in its path: Destruction of community in the Buffalo Creek flood*. New York: Simon and Schuster.

———. 1994. *A new species of trouble: Explorations in disasters, trauma, and community*. New York: W.W. Norton.

Freudenburg, William R. 1993. Risk and recreancy: Weber, the division of labor, and the rationality of risk perceptions. *Social Forces* 71(4): 909-32.

———. 1997. Contamination, corrosion and the social order: An overview. *Current Sociology* 45(3): 19-40.

———. 2000. The 'Risk Society' reconsidered: Recreancy, the division of labor, and risks to the social fabric. In *Risk in the modern age: Social theory, science and environmental decision-making*, ed. M.J. Cohen. New York: St. Martin's Press, Inc.

Freudenburg, William R., and Timothy Jones. 1991. Attitudes and stress in the presence of technological risk: A

test of the Supreme Court hypothesis. *Social Forces* 69(4): 1143-68.

Giddens, Anthony. 1990. *The consequences of modernity*. Cambridge, UK: Polity Press.

———. 1991. *Modernity and self-identity: Self and society in the late modern age*. Cambridge, UK: Polity Press.

Gill, Duane A. 1994. Environmental disaster and fishery co-management in a natural resource community: Impacts of the *Exxon Valdez* oil spill. In *Folk management in the world's fisheries: Implications for fisheries managers,* ed. C.L. Dyer and J.R. McGoodwin. Boulder, CO: University of Colorado Press.

———. 2005. Conceptualizing secondary disasters: Insights from Hurricane Katrina. Presidential address delivered at the annual meeting of the Mid-South Sociological Association, Atlanta, GA.

Gill, Duane A., and J. Steven Picou. 1997. The day the water died: Cultural impacts of the *Exxon Valdez* oil spill. In *The* Exxon Valdez *disaster: Readings on a modern social problem*, ed. J.S. Picou, D.A. Gill, and M. Cohen. Dubuque, IA: Kendall-Hunt.

———. 1998. Technological disaster and chronic community stress. *Society and Natural Resources* 11: 795-815.

———. 2001. The day the water died: The *Exxon Valdez* disaster and indigenous culture. In *Modern American Disasters*, ed. S. Biel. New York: New York University Press.

Kelty, Frank. 2005. Effects of oil on fisheries. Keynote presentation given at the Aleutian Life Forum, Dutch Harbor, AK.

Kroll-Smith, J. Stephen, and Stephen R. Couch. 1991a. What is a disaster? An ecological symbolic approach to resolving the definitional debate. *International Journal of Mass Emergencies and Disasters* 9: 355-66.

———. 1991b. Technological hazards, adaptation and social change. In *Communities at risk: Collective responses to technological hazards*, ed. S.R. Couch and J.S Kroll-Smith. New York: Peter Lang.

———. 1993a. Symbols, ecology and contamination: Case studies in the ecological-symbolic approach to disaster. *Research in Social Problems and Public Policy* 5: 47-73.

———. 1993b. Technological hazards: Social responses as traumatic stressors. In *International handbook of traumatic stress syndromes*, ed. J.P. Wilson and B. Raphael. New York: Plenum Press.

Picou, J. Steven, and Duane A. Gill. 1997. Commercial fishers and stress: Psychological impacts of the *Exxon Valdez* oil spill. In *The* Exxon Valdez *disaster: Readings on a modern social problem*, ed. J.S. Picou, D.A. Gill, and M. Cohen. Dubuque, IA: Kendall-Hunt.

Picou, J. Steven, Brent K. Marshall, and Duane A. Gill. 2004. Disaster, litigation and the corrosive community. *Social Forces* 82(4): 1448-82.

Paxton, Pamela. 1999. Is social capital declining in the United States? A multiple indicator assessment. *American Journal of Sociology* 105: 88-127.

Putnam, Robert D. 2000. *Bowling alone: The collapse and revival of American community*. New York: Touchstone.

Ritchie, Liesel A. 2004. Voices of Cordova: Social capital in the wake of the *Exxon Valdez* oil spill. PhD diss., Mississippi State University.

Ritchie, Liesel A., and Duane A. Gill. Forthcoming. Social capital theory as an integrating theoretical framework in technological disaster research. *Sociological Spectrum*.

Schuller, Tom, Stephen Baron, and John Field. 2000. Social capital: A review and critique. In *Social capital: Critical perspectives*, ed. S. Baron, J. Field, and T. Schuller. Oxford: Oxford University Press.

Svarny-Livingston, Sharon. 2005. Alaska native culture. Presentation given at the Aleutian Life Forum, Dutch Harbor, AK.

Natural Hazards Center
Institute of Behavioral Science
University of Colorado at Boulder
482 UCB
Boulder, CO 80.09-0482

phone 303.492.6818
fax 303.492.2151

www.colorado.edu/hazards/