What’s that Sound: Public & Official Perceptions of the January 2018 Tsunami Warning and Evacuation in the Alberni Valley

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Introduction

On 23 January 2018 at 1:31 AM (PST), a 7.9 magnitude (Mww) earthquake occurred in the Gulf of Alaska, leading Emergency Management British Columbia (EMBC) to issue an active tsunami warning for the Alberni Valley. The Emergency Operations Centre (EOC) was activated and staffed, per the regional tsunami response plan developed jointly by the City of Port Alberni and the Alberni-Clayoquot Regional District (ACRD). Due to a lapse in communication between EMBC and the EOC, and based on the information available at the time, the Director of the EOC initiated an evacuation of residents in the official tsunami inundation zone for the Alberni Valley. Tsunami warning and evacuation messages were broadcast from the region’s tsunami warning towers, and the City of Port Alberni firefighters and members of the Port Alberni RCMP detachment enacted their tsunami response plans. EMBC later contacted the EOC to inform them that tsunami warnings for the region had been lifted. The ‘all clear’ was given, and residents were notified to return home.

The tsunami evacuation in the Alberni Valley was an opportunity for researchers to explore how evacuations are conducted, examine what impacts they may have on the affected populations, and better understand the behaviors expressed during a hazards-related evacuation in order to improve the accuracy of evacuation modelling. As Port Alberni and the Alberni Valley are representative of small and medium-sized coastal communities across the country, the information gained from the study can help inform public safety and natural hazards response planning in coastal communities across Canada.

Research Questions

The primary goal of this research was to explore public and official perceptions surrounding tsunami risk and how the January evacuation event may have altered those perceptions. Four key research questions were identified by the researchers: 1) How was the tsunami warning and evacuation perceived from the different perspectives of emergency officials and community residents? 2) How did residents living in the tsunami inundation zone respond to the tsunami warning and evacuation? 3) What difficulties did residents experience while evacuating, and what lessons can emergency planners learn from these experiences? And 4) What impact has this event had on community perceptions of tsunami risk, their trust in emergency officials, and their participation in future evacuations?

Methods

Three different approaches were used to collect data for both the perceptions of the public and of the officials. A targeted door to door survey was undertaken of households located within the tsunami inundation zone and along its edge. Researchers visited more than 400 households and spoke with residents in approximately 275 households. Residents in 111 households agreed to complete the survey. An online survey was open to all residents of the Alberni Valley. 366 surveys were initiated and 358 surveys were submitted. Of these, 353 responses were from adult (19+) residents living in the community who were present at the time of the tsunami warning and evacuation. A total of 11 in person and telephone interviews were conducted with past and present emergency planners, emergency managers, first responders, and elected political representatives.
Preliminary Findings

Overall, the public’s perceptions of the official response were largely positive. Approximately 58% of study participants felt that the City of Port Alberni and the ACRD were reasonably prepared to handle a tsunami warning and evacuation. 87% of study participants indicated they believed the decision by the Director of the Emergency Operations Centre (EOC) to evacuate the community was the correct choice given the information available. 68% of participants felt that emergency managers had conducted the evacuation effectively under the conditions.

Of the surveyed participants who were living within the inundation zone, 94% indicated that they had evacuated, or begun evacuating, their homes by the time the evacuation was ended. The study found that 96% of those participants who evacuated their households managed to get to a safe destination on higher ground in under sixty minutes. However, only around 33% reached their destinations in twenty minutes or less, the desired time frame for the Alberni Valley in the event of a worst-case scenario from an earthquake-caused tsunami occurring along the nearby Cascadia Subduction Zone (CSZ).

Most evacuating participants indicated they sought refuge in the homes of friends or family members living in the community or nearby communities (37%), while others gathered in the parking lots of large businesses (34%) and at other locations at higher elevations. Around 96% of evacuating participants indicated that their household initially evacuated by vehicle. Only 4% of participants indicated they began their evacuations on foot. Of those living in the inundation zone who did not evacuate, 7% of participants noted being unable to evacuate due to a lack of assistance, illness or disability in the home, and 14% of participants did not evacuate due to fear of looting.

About 85% of the study participants living within the boundaries of the inundation zone indicated that they could hear the tsunami warning system at their homes. The community’s tsunami warning system was the first warning that 55% of the community received about the pending evacuation. While most participants (53%) reported no issues during their evacuation, 18% reported that traffic congestion was a barrier to their evacuation. Other difficulties identified included a lack of information from officials about what residents should do, where they should go, and what routes they should use to get there. Many participants reported that their searches for this information online went unfulfilled.

Conclusion

Residents and officials both indicated that the 2018 Port Alberni tsunami evacuation event was mostly successful. Most households that participated in the study indicated a need to create or update their own emergency response plans in light of their experiences. Some barriers to evacuations have been identified, but most participants experienced few difficulties in getting to safety. The City and ACRD are in the process of revamping their emergency communication plans to ensure that key communication staff are present in the EOC during an emergency and that critical information is better communicated to residents, including better use of the City’s website and social media accounts. As a whole, this event did not appear to have had a major impact on the community’s trust in emergency planners and managers, nor did it appear to have significantly altered the public’s perceptions surrounding tsunami risk in the Alberni Valley or their plans to evacuate should future warnings be issued. Using the data generated by the study, researchers will be testing a series of possible evacuation scenarios that have been suggested by officials, residents, and the research team as possible ways to improve evacuations in the Alberni Valley.