

STATUS REPORT

Tsunami Hazard Mitigation Subcommittee

Period: 1997 – April 1999

"What difference has the Tsunami Program made with regard to reduction of loss of life and property in the five States?"

ALASKA - This State should have less loss of lives and property from future tsunamis because since 1997, the National Tsunami Hazard Mitigation Program (NTHMP) has provided funds that were unavailable anywhere else for the following actions and plans that are occurring:

Tsunami Program funds and staff were used to approach cutting edge tsunami modelers and other tsunami scientists to create a Blue Ribbon Panel to fill a gap in tsunami mitigation activities. This gap was a partnership where local communities could work closely with the scientists to explain and prioritize their needs. By listening to the locals, scientists are creating inundation maps that will have the most effective use for the locals to guide them in planning to move people and critical functions out of the danger zone during future warnings. The information developed is also potentially valuable to some longer range plans to reduce loss of property and functions. This panel will be customized for other communities.

Tsunami Program funds are being used on an ongoing basis to accomplish other local tsunami education and mitigation activities in the communities, including acceptance and planning for installation of tsunami signage as promoted by NTHMP in many communities. Update – a contractor is working with Sitka on sign purchase and installation. ADES is discussing signage with three other communities currently. Potential communities besides Kodiak and Sitka include Seward, Valdez, Unalaska/Dutch Harbor, Homer Cordova, King Cove, Sand Point, Yakutat, and False Pass.

Tsunami Program funds were leveraged to gain additional funds from the Alaska Science and Technology Foundation to help produce the highest priority maps.

Update – more tsunami brochures will be purchased and distributed.

Update – tsunami outreach presentations are expanding to and through the Local Emergency Preparedness Councils (LEPC) such as Aleutians East, Sitka, and to

Seward businesses. This outreach is being incorporated into other routine presentations during LEPC meetings and travel will be increased to accomplish this.

Update – ADES is continuing to develop their community risk analysis database from 1998 community surveys that updated a survey done in the 1980s. Surveys for 100 communities include community profiles, historical tsunami data, known sources of data, existing plans, identifying at risk populations, shelter information and communications capabilities and limitations.

Update – tsunami modeling for three Kodiak communities is in progress and discussion has begun on selection of the next three that the Blue Ribbon Panel will address.

RESULT: Many more Alaskans are aware of the danger of tsunamis and will remove themselves from the inundation areas and have greater knowledge about how to protect themselves than prior to NTHMP. Alaskans have developed more resources for mitigation and planning through partnerships fostered by NTHMP resources. NTHMP funds have been leveraged to find additional resources in the state. Alaska is developing their own internal expertise in tsunami modeling and expects to be able to more easily addressing mapping needs of additional communities. The Blue Ribbon Panel is a catalyst and resource for tsunami awareness and action.

CALIFORNIA - This State should have less loss of lives and property from future tsunamis because since 1997, NTHMP has provided funds that were unavailable anywhere else for the following actions and plans that are occurring:

Tsunami Program funds and staff were used to hold workshops in California communities at risk to tsunami since the program began. Some workshops focused on local needs and priorities. Others focused on bringing the local experts together in a partnership to create the best inundation maps possible to protect California's large at-risk population. Some workshops resulted in a document that include findings and recommendations for addressing tsunami hazard mitigation issues and this document will now serve to guide this mitigation statewide.

Education of at-risk population has been a priority. Study of tsunami signage is underway.

California is the lead on a practical project to benefit all NTHMP states. In concert with the other NTHMP states, they are creating a document providing guidance for local governments to address saving of lives and property through the best mitigation and response practices that can be found in many scattered sources. Update – an RFP was issued and a contractor will be selected soon.

Update – the final draft of the Local Government Tsunami Planning Guide has been reviewed by coastal jurisdictions and will be presented at the April NTHMP Steering Committee meeting.

RESULT: Many more Californians are now aware of tsunami risk and the need for planning. Plans are being created or updated with new information. A network of tsunami knowledge is developed that will serve decision-makers well since NTHMP began. The new guidance document will serve all NTHMP states and others who are interested.

HAWAII - This State should have less loss of lives and property from future tsunamis because since 1997, NTHMP has provided funds that were unavailable anywhere else for the following actions and plans that are occurring:

Tsunami Program funding in Hawaii is being used to update and fill in gaps on their inundation maps, for example Oahu, and with the warning system. Update – contracts are being developed for four projects addressing current gaps: 1) Distant Tsunami Modeling, 2) Local Tsunami Modeling, 3) Purchase of tsunami coastal recorders for use in local tsunami modeling, 4) production of a state tsunami hazard safety video. The first project will help in considering the severity of a tsunami warning as the critical element in decisions on canceling warnings since "false alarms" cause great expense. The second project will help in forecasting severity of a local event by providing computer programs and related tools to develop scenarios. The third project will enhance the critical interrelationship of local tsunami modeling and tide station measurements. The fourth project is a key tool in raising public awareness on tsunamis and will be patterned after the State of Oregon's tsunami video.

Hawaii has been especially valuable to other NTHMP states as a resource for guidance and materials in the early days of NTHMP and continues to be a valuable advisor on many issues other States are interested in. This State houses some of the most experienced tsunami scientists and responders whose expertise has been at the disposal of NTHMP. Many of Hawaii's educational materials and

awareness activities have been built upon.

Tsunami Program funds have allowed Hawaii to enhance some of their existing and new partnership efforts with a variety of groups interested in tsunamis. Update – another April "Tsunami Awareness Month" is being sponsored by a consortium of tsunami organizations including the National Weather Service, Hawaii State Civil Defense, the Pacific Tsunami Museum, and others to remind the public about the tsunami potential.

Hawaii's history with numerous tsunami losses has been a source of valuable lessons for other NTHMP states.

RESULT: Hawaii can further reduce loss of lives and property based on old gaps in mapping that are now being addressed, continued participation in tsunami science issues review and update discussion by Hawaiian experts, upgrading of the warning system, and education of new and younger populations to the history and risk of tsunamis in Hawaii.

OREGON - This State should have less loss of lives and property from future tsunamis because since 1997, NTHMP has provided funds that were unavailable anywhere else for the following actions and plans that are occurring and led by Oregon Emergency Management (OEM) and the Oregon Department of Geology and Mineral Industries (DOGAMI):

Tsunami Program funds have been used to produce additional educational materials that reach out to a large and diverse coastal population, including visitors. These products have been so successful that other NTHMP States have used the same or similar products in their education activities.

The Tsunami Program funded several workshops and meetings bringing local communities together to discuss issues of priority need. Participants went into the field with scientists and emergency managers to learn how to plan their own evacuation routes. Several participants continue to work at a State/Local level as a work group to address tsunami risk issues common to communities in Oregon.

Tsunami Program funds have produced maps to guide evacuation planning for a coast that hosts large numbers of inland visitors.

Tsunami Program funds have established a center of modeling expertise in Oregon that benefits all the NTHMP States through oversight, advisory, and

archival functions for tsunami mapping in other States.

Oregon is also the lead in a multistate project researching, comparing and making recommendations about the various tsunami siren warning systems currently in action. It is felt that loss of life may result if some kind of consistent standards are not explored.

Update – development of evacuation and destination routes for schools is being continued and will result in evacuation signs posted for participating schools.

Partnerships with several entities is being continued or developed to include working with: lodging facilities to educate and help them plan evacuations, rental car agencies to place tsunami maps in cars, ODOT to add tsunami information to state maps, AAA to add tsunami information into the AAA newsletter and AAA Tour Books, and to put tsunami videos in bookstores, libraries, and on public and cable TV.

RESULT: Thousands of residents' and visitors' lives are safer because of the mapping and education efforts funded by NTHMP. Oregon is a center of expertise for tsunami mapping and mitigation planning. Many of the Tsunami Program funded products developed in Oregon benefit other States directly.

WASHINGTON - This State should have less loss of lives and property from future tsunamis because since 1997, NTHMP has provided funds that were unavailable anywhere else for the following actions and plans which have and are occurring:

Tsunami Program funds and staff have provided seed activities that resulted in a State and Local Tsunami Work Group. Early leadership by NTHMP staff has shifted to County leaders who establish priorities needing funding and staff input to best result in saving lives and property. A recent development is a working partnership to try to provide much wider coverage of the coastal warning and information delivery system. A highly successful tsunami hazard education sign and evacuation sign system was implemented. Locals have been giving valuable input to the design of inundation maps that will make their use much more efficient. Update – this group continues to be active and has expanded to include tribal representatives.

Several workshops hosted in different coastal Counties have resulted in increased

awareness by leaders, responders and residents of these communities to tsunami risk and mitigation.

Better awareness campaigns of tsunami risk have been funded.

Washington is leading a couple of multistate projects including a Pacific States Tsunami Information System for appropriate users to keep them updated on the latest useful findings, and a book describing risk from the Cascadia Subduction Zone earthquake as pictured in lessons learned from the Chilean Great Earthquake. Update – the "lessons learned" book is near completion and has been enriched with more information from Chile and Japan while tightening the relationship to Cascadia communities.

RESULT: A strong coalition of coastal Counties and tribal leaders are increasing the number of lives that will be saved as a result of their actions and planning with regard to education and mitigation.

Additional Results and Comments:

NTHMP is receiving increased requests from other States and territories for information and materials to help them reduce future loss to tsunamis, for example the Caribbean and Pacific Islands. Established tsunami risk groups, in places like Japan, are also interested in what NTHMP is developing that may be useful for them, and they are also sharing their methods with NTHMP.

The various types of State and local partnership coalitions that grew out of the original Federal and State partnership ensures that appropriate local priorities and needs are being met. Locals have acknowledged the leadership and assistance of the NTHMP as described in the words of one County emergency manager, "We are light years ahead of where we were in 1994". The year 1994 is referred to in memory of the variety of responses (some appropriate, some not) that occurred following a tsunami warning. Some of these responses put thousands of people at risk because of simple ignorance and lack of resources for tsunami planning back then.

From the Federal point of view, it is particularly desirable to hope that States would work cooperatively to use scarce resources for the same ends. The States in the NTHMP have shown exemplary leadership in rising above protecting a particular

State's "piece of the pie." They work together to design the priority needs, address their particular needs, and assign a significant piece of the funds to projects that benefit more than one of them, even though certain projects may not benefit all of them at once. They also show leadership in providing for their local communities in a way that generously invites the locals into the original planning process for the use of the scarce resources. Update – FEMA is nearing completion of a high-quality publication that reports on the activities mentioned in this report in much more detail and highlights case studies. The report will be usable for communities outside the NTHMP and showcases the many new tsunami hazard mitigation activities funded by the NTHMP while listing existing activities and resource areas. It will also be usable for the next phase of the Strategic Implementation Plan which is review of progress and planning for future years of tsunami mitigation activities.