

**Summary Report
of the
Tsunami Hazard Mitigation Steering Group Meeting
November 5-7, 2002
Seattle, Washington**

Attendees

Steering Group

Eddie Bernard - NOAA (Chair)
Hal Mofjeld- NOAA (Acting)
Jeff LaDouce- NOAA
Richard Przywarty - NOAA
Chris Jonientz-Trisler - FEMA
Craig Weaver - USGS
David Oppenheimer - USGS
Roger Hansen - State of Alaska
Ted Smith - State of Alaska (Acting)

Richard Eisner - State of California
Lori Dengler - State of California
Brian Yanagi - State of Hawaii
Laura Kong- State of Hawaii
Mark Darienzo - State of Oregon
George Priest - State of Oregon
George Crawford - State of Washington
Timothy Walsh - State of Washington

Guests

Landry Bernard - NOAA/NDBC
Charles McCreery - NOAA/PTWC
Bruce Knight - FEMA
Ruth Ludwig - U of WA
Christa Von Hillebrandt - U of PR
Elena Suleimani - U of AF
James Godfrey - State of California (Alt.)

Vickie Nadolski - NOAA/NWS
James Partain - NOAA/NWS
Tim Rulon - NOAA/NWS
Vasily Titov - NOAA/TIME Center
Angie, Venturato - NOAA/TIME Center
Marie Eble - NOAA/ Tsunami Project

Introduction of New Member and Guests

Eddie Bernard introduced Jeff LaDouce, Director, National Weather Service (NWS), Pacific Region, as our newest Steering Group member. He replaces Dick Hagemeyer, who passed away last year. Mr. LaDouce spoke briefly on his background prior to becoming the NWS Pacific

Regional Director.

The Directors of the National Weather Service: Western Region, Vickie Nadolski; and Pacific Region, Jeff LaDouce; Tim Rulon from NWS Headquarters; James Partain from the NWS/Alaksa Region; and Landry Bernard from NOAA's National Data Buoy Center (NDBC) were welcomed and introduced to the group.

Review of Action Items from the Previous Meeting:

Action item open prior to May 17, 2001:

1. ACTION ITEM: Final Local Tsunami Warning Systems and Procedures: Guidance for Local Officials document to be placed on the Oregon web site prior to the May 14-15, 2001 Workshop and Steering Group meeting.

ACTION: Mark Darienzo

STATUS: Document available on National Tsunami Hazard Mitigation Program web site and the TsulInfo Alert web site. **CLOSED**

Action item open prior to May 17, 2001:

2. ACTION ITEM: Find out what information customers want on earthquakes to NWS and USGS Regional Networks so the MOU can be updated in light of new technology so there will be a clarification of procedures and better coordination of warnings. Dick Hagemeyer suggested the following four steps: 1) find out what the customers want 2) agree to a standard format, 3) obtain headquarters approval to place on NOAA Weather Radio and EMWIN, and 4) determine how to get the information to those will put the messages on NOAA Weather Radio and EMWIN.

ACTION: Oppenheimer, Hagemeyer, Hansen

STATUS AS OF MAY 17, 2001: The feed from the University of Washington needs to be expanded. Reviewed text messages are to go onto EMWIN. The USGS is ready but needs a NOAA contact to proceed. Software needs to be developed. D. Oppenheimer will provide background to J. Weyman before proceeding. **OPEN**

NOVEMBER 2002 STATUS:

We have made some success on the earthquake side since this item was opened. We now have quake data being entered into a common system. NWS is developing a system (currently

experimental) to download USGS data on the NOAA weather wire and put on the gateway. There are still issues to discuss as the information dissemination policy problem needs further definition. It was agreed that Jeff LaDouce would take the lead on this item and work with D. Oppenheimer and R. Hansen to develop a subcommittee to address this issue.

ACTION: Oppenheimer, LaDouce, Hansen

STATUS: ONGOING

3. ACTION ITEM: Develop procedures for use of buoy data by warning centers by July 1, 2001.

ACTION: Tom Sokolowski, Frank González, Eddie Bernard, PTWC/Chip McCreery

STATUS: The FY 03 DART proposal would use any enhanced funds for DART Data Interpretation for Emergency Management **CLOSED**

4. ACTION ITEM: In honor of Dick Hagemeyer the Steering Group unanimously agreed to establish a yearly tsunami mitigation award to recognize a particularly outstanding state mitigation activity. A volunteer was solicited to draft the award criteria. Dr. Bernard prepared a letter introducing the award to the NOAA Administrator, with copies to the Assistant Administrator for Oceanic and Atmospheric Research and the Assistant Administrator for Weather Services. Each Steering Group member present at the meeting signed the letter and it was mailed on November 9.

Lori Dengler volunteered to draft the criteria for the award by December 1, 2001.

STATUS: Award criteria were developed and the award criteria and application form were placed on our web site. The award was advertised in Natural Hazards Observer, TsuInfo Alert, and on the tsunami bulletin board. Deadline for submissions was September 1, 2002. **CLOSED**

5. ACTION ITEM: The recommendation letter on Warning Center 24/7 operation drafted in response to the August 2001 Review is to be sent to NOAA and USGS in a timely manner.

ACTION: Bernard, Weyman, Przywarty

CURRENT STATUS: NOAA conducted an in-house study. USGS met with NOAA. There needs to be a better understanding of the requirement before resources can be discussed. **States were asked to submit their requirements to Eddie Bernard by December 1, 2002. OPEN**

6. ACTION ITEM: Write a report on research interest, ranking priorities and identifying a list of representatives at other agencies. Draft is due by January 2002 to Eric Geist, USGS. Final report due April 2002 for review by the full NTHMP Steering Group.

ACTION: Tsunami Research and Advisory Committee (TRAC)

CURRENT STATUS: Frank González attended NSF conference and reported on research needs. Everyone to e-mail their priorities to Frank González. **OPEN**

7. ACTION ITEM: One Program reviewer (August 2001) commented that the program is out of balance. the program's current emphasis is on detection and risk mapping but does not address the sociological issues of dealing with the behavior of human beings. Also the program does not include anyone trained in disciplines that study human behavior. The reviewer also noted that more of a team approach is needed not just federal-state or state-local.

To address this recommendation, the group plans to identify where the social science community can advise the NTHMP on the usefulness of its activities.

ACTION: Chris Jonientz-Trisler and each state.

STATUS: The mitigation subcommittee and E. Bernard participated on a panel at the Natural Hazards meeting. Two social scientists were invited to the panel and were included in the discussions. If there is enhanced funding in FY 03, a multi-state project to develop a social science tool is planned. **CLOSED**

8. ACTION ITEM: Encourage ITIC to be the archive for all tsunami event data. The Steering Group will offer cooperation and some resources.

ACTION: Bernard to write a letter to NWS/Weyman by January 1, 2002.

STATUS: The ITIC Newsletter has been improved to include tsunami events and is available on

the ITIC web site. The "Great Waves" booklet was reprinted and all 20,000 copies have been distributed. Another printing is planned if states need more copies. Copies of the ITIC Inventory of Tsunami Materials were handed out to each person present. **CLOSED**

9. ACTION ITEM: Prepare an arrangement between NWS and OAR on mirror or duplicate real-time web sites.

ACTION: Weyman, Bernard

STATUS: Due to the transition of the DART buoys to NDBC, NDBC will now probably provide that capability. **CLOSED**

10. ACTION ITEM: States to include in their Statements of Work a requirement to provide electronic and hard copies of mapping products to TIME.

ACTION: States

STATUS: This has been done. **CLOSED**

11. ACTION ITEM: A working group needs to develop a draft document on mapping certification procedures by May 2002.

ACTION: F. González will chair a working group to prepare a draft of mapping certification procedures. Working group named includes: Rich Eisner, Tim Walsh, Gerard Fryer, Doug Luther, George Priest, Lori Dengler, Vasily Titov, Costas Synolakis, Elena Suleimani, and Antonio Baptista.

STATUS: No action. **OPEN**

12. ACTION ITEM: Draft a Strategic Plan on how to interface with the Federal Response Plan in case of an event. the States need defined data collection activities. The subcommittee will review the NOAA Response Plan document and how it interacts with the states and report at the next meeting.

ACTION: Chris Jonientz-Trisler to draft Strategic Plan, Subcommittee to report on review of the NOAA Response Plan and how it interacts with the states.

CURRENT STATUS: **HIGHEST PRIORITY** J. Partain will convey the name of the person responsible for the Federal Response Plan to E. Bernard and Chris Jonientz-Trisler. Chris Jonientz-Trisler and Michael Hornick will draft the Strategic Plan. **OPEN**

13. ACTION ITEM: Begin interaction with National Science Foundation and NWS to draft a Tsunami Research Institute Plan and find funding sources.

ACTION: Bernard, González

CURRENT STATUS: Frank González attended NSF meeting and presented research needs. This item is part of the Tsunami Research and Advisory Committee (TRAC). **CLOSED**

14. ACTION ITEM: Draft a letter to USAPI to request a specific needs assessment before membership in the NTHMP.

ACTION: Yanagi, Jonientz-Trisler

STATUS: Letter written, will be sent soon. **OPEN**

15. ACTION ITEM: Bernard to e-mail to all Steering Group members the spreadsheet with FY 03 budget numbers as discussed during the meeting. Yanagi to send letters to Congressional members in Hawaii for support for the proposed FY 03 budget. States to also send letters of support to their state Congressional members.

ACTION: Bernard, Yanagi, states

STATUS: Brian Yanagi sent out the letter and the spreadsheet as discussed. Eddie Bernard also e-mailed out the FY03 budget Senate Mark Up showing an appropriation of \$6.3m. **CLOSED**

Status Report of Program Elements

[Develop State/NOAA Coordination and Technical Support](#)

NWS Pacific Region Director, Jeff LaDouce, met with the Japanese to assure them that cooperation would continue on tsunami issues. The warning center is standardizing product IDs and working to create public-friendly products. NWS is surveying users on how messages are disseminated and interpreted by users. Warning Coordination Meteorologists will work with their user communities to provide a usable product to the public. As approved by the International Coordination Group for the Tsunami Warning System in the Pacific (ITSU), the warning center will change to the moment magnitude (Mw) threshold for warnings. The PTWC will issue fixed warnings to local areas only on Mw 7.6 to 7.8 earthquakes. [TsunamiReady and Hawaii State accomplishments are contained in the coordination report.](#)

[Deploy Tsunami Detection Buoys](#)

FY 2002 Accomplishments are listed in the DART status report.

The transfer of operational responsibility, with continued engineering support by the Pacific Marine Environmental Laboratory (PMEL), for the DART array from PMEL to the National Data Buoy Center (NDBC) is underway. NDBC personnel were on site at PMEL in April 2002 to gather information. NDBC personnel were onboard R/V EWING to participate in the DART mooring maintenance and deployment in July. PMEL engineering personnel visited the NDBC facility in Mississippi in late October 2002 to assist NDBC with assembly procedures and provide technical assistance where needed.

The timeline of the technical transfer has been reduced from 3 to 2 years and is expected to be completed by October 2003. The expected impacts of this transfer remain:

- IMPROVE WARNINGS – NDBC will maintain the DART array and provide the necessary 24/7 support for the warning centers. This level of support is inappropriate for a research laboratory.
- INFUSE TECHNOLOGY – this action will transfer a prototype system from a research laboratory to an operational center, enhancing public safety.
- INCREASE EFFICIENCY – NDBC can assimilate the DART array into its operations and gain efficiencies by consolidating platforms, ships, and technicians.

Future plans for the system (if enhanced funds become available) include two-way communication using the Iridium satellite system. The seventh buoy deployment is currently planned for Spring 2003.

[.Produce Inundation Maps](#)

The NOAA Center for Tsunami Inundation Mapping Efforts (TIME) held a 2002 Puget Sound Tsunami Workshop in June 2002. The report from this workshop will be published soon. Historically, most tsunamis in Puget Sound have been caused by landslides.

Copies of the "Seattle Inundation Mapping Project - Mw 7.3 Seattle Fault earthquake scenario" Products CD ROM were given to each state. This was the center's first attempt to provide GIS files for easy access by state officials.

[Develop Hazard Mitigation Programs](#)

Chris Jonientz-Trisler presented the mitigation subcommittee report. Each state gave a report on their activities.

[Alaska report](#)

[California report](#)

[Hawaii report](#)

[Oregon report](#)

[Washington report](#)

[Improve Seismic Networks](#)

David Oppenheimer reported the USGS. has completed the installaion of common interface software at the warning centers. The CREST network is basically completed and in maintenance mode. Alaska has 18 of 21 stations operating with 3 left to install. Northern California has 9 stations operating and 2 left to install. A total of 50 of 56 stations are installed. CREST stations represent approximately 50% of the broadband stations in each of the five states.

[Public Affairs Working Group Report](#)

Ann Thomason presented the Public Affairs Working Group (PAWG) Report. All states have been active in outreach activities.

The NWS Western, Alaska, and Pacific Regions are planning to hold a Tsunami Coordination Meeting in Hawaii in February 2003. The meeting will include the WC/Alaska Tsunami Warning Center, the Pacific Tsunami Warning Center, and ITIC along with Warning Coordination Meteorologists from the three regions. At least one day of the meeting will be devoted to emergency managers from the three regions of British Colombia.

FY 03 Budget

At the last Tsunami Hazard Mitigation Program Steering Group meeting, the Steering Group

proposed an FY 03 budget of \$7.3m to meet the agreed upon Goals for the next five years. At meeting time, the U.S. Senate has agreed upon a \$5.3 m plus \$1 m Tsunami Warning and Environmental Observatory for Alaska (TWEAK) budget for the Tsunami Hazard Mitigation Program (the Program). However, the U.S. House of Representatives has not voted on a budget for the Program. The funding for the Program is now a line item in the NOAA/National Weather Service (NWS) budget at \$2.3m.

Based on the uncertainty of the amount of an FY03 budget as well as when the budget appropriations will be passed, each of the states and program elements were asked to submit proposals for core funding of \$2.3 m. This amount represents the funding currently available in the continuing resolution. States and program elements were also asked to provide an enhanced budget based on the current Senate mark of \$5.3 m.

Budget discussions focused on the core funding amount of \$2.3m and the following proposals were authorized by unanimous vote:

Alaska Proposal: a core budget of \$50K for mitigation and \$38K for mapping for a total of \$88K, Cooperative Institute For Arctic Research (CIFAR) proposal for TWEAK funds to operate UAF CREST seismic net \$294.4K (see USGS proposal).

California Proposal: a core budget of \$50K for mapping, \$38K for mitigation for a total of \$88K.

Washington Proposal: a core budget of \$50K for mitigation, \$38K for mapping, and \$130K for a multi-state project for a total of \$218K.

Hawaii Proposal: a core budget of \$50K for mitigation and \$38K for mapping for a total of \$88K.

Oregon Proposal: a core budget of \$50K for mitigation and \$38K for mapping for a total of \$88K.

Administrative Budget for Chairman Support: originally requested a core budget of \$115K for transfer of funds, chairman support, Chairman's travel, and travel support for three standing committees. The administrative budget was reduced by \$19,544 to help fund the shortfall in the seismic budget. Total approved administrative budget was \$95,456.

USGS Proposal: a core budget of \$450.3 funding to USGS for the CREST seismic project and \$294.4K funding to UAF for a total of \$744.7K was approved. The core budget is considerably higher this year due to USGS requiring that salaries, maintenance of stations, and communications costs be recouped for the CREST network.

TIME Center Proposal: a core budget of \$190K for scientist and modeler salaries, and computer support was approved.

DART buoys Proposal: a core budget of \$994,244 to maintain 6 DART buoys was approved.

After much discussion the Steering Group unanimously approved the core budgets as submitted. Votes on the core proposals (with comments, if any) from the 5 states and 3 agencies were recorded on ballots, initialed, and provided to the Chairman. Enhanced budgets were discussed but final enhanced budgets discussions were postponed until the Spring 2003 meeting awaiting a budget appropriation from Congress.

Immediate, critical problems are occurring in the states because states have not been taking salaries from the Program but have been donating in-kind support for the past 6 years. States were supplementing using earthquake funds from FEMA until these funds were lost 2 years ago. This loss of funds has reduced state emergency management staffs. States cannot continue to run both earthquake and tsunami programs without an infusion of funds from the Program. In Washington, 3 or 4 coastal counties are ready to quit the Program for lack of funds. Washington State Emergency Management has been doing what it can to keep the coastal programs going, but has reached the limit of what it can do without new funds. The new Homeland Security requirements for states as well as the uncertainty of the FEMA reorganization and inclusion into a Homeland Security Department all add to the competition for future earthquake and tsunami program funding.

The Program Chairman said that there is a need to build funding lines and support for base for the program using salary dollars. In addition, the group should press for funds for the 3 items proposed in the \$7.3m budget not included this year in the enhanced budgets for \$5.3m.

ACTION ITEM 1: Enhanced mitigation budgets need to be formulated and coordinated.

ACTION: States to formulate new enhanced mitigation budgets, Chris Jonientz-Trisler to coordinate enhanced mitigation budgets for discussion at the Spring 2003 meeting. **OPEN**

[Richard H. Hagemeyer Tsunami Hazard Mitigation Award](#)

A selection panel of Steering Group members served as judges for this award. The panel selected Professor Lori Dengler as the winner of the first Richard H. Hagemeyer Tsunami Hazard Mitigation Award from the following three nominations. She was presented with a commemorative plaque during the Steering Group meeting. NOAA prepared a [press release](#) naming the winner of the award.

TsulInfo Program, nominated by Chris Jonientz-Trisler. The TsulInfo Program was recognized for its work in compiling and providing access to tsunami mitigation information to those who need it. This has been accomplished by maintaining a library collection about tsunami mitigation, disaster management, and tsunami research as well as producing a bi-monthly TsulInfo Alert Newsletter.

The Cannon Beach, OR, Fire District Tsunami Warning Program, nominated by Mark Darienzo. The Cannon Beach Fire District was recognized for developing a sophisticated tsunami warning

system made up of several elements including sirens with voice capability, Emergency Management Weather Information Network (EMWIN), NOAA Weather Radios, emergency vehicles, and other elements. This system was established through local initiative with funds coming exclusively from the community.

Professor Lori Dengler, nominated by Richard Eisner. Prof. Dengler was recognized for her leadership in tsunami hazard mitigation through her involvement in the Redwood Coast Working Group, community education activities in Del Norte and Humboldt counties, through her contributions to the National Tsunami Hazard Mitigation Program, and her participation in the activities promoting and supporting mitigation in coastal counties of California. Her contributions span all areas of consideration for the Hagemeyer Award.

Report on the Puerto Rico Tsunami Warning and Mitigation Program

Prof. Christa von Hillebrand, Director of the Puerto Rico Seismic Network and Co-Principal Investigator of the FEMA/UPR tsunami project briefed the group on the status of the program. The first recognition of a need for a tsunami program came in September 1998 after Hurricane Georges. The National Tsunami Hazard Mitigation Program helped Puerto Rico prepare a proposal for funding for a tsunami program. The tsunami program was funded with a \$362K grant from FEMA and a University of Puerto Rico in-kind grant of \$120.9K. The objective of the program was to extend to U.S. citizens in the Caribbean the same concern for tsunami hazard mitigation afforded citizens in the National Tsunami Hazard Mitigation Program states. Since the program was begun all of the first generation inundation maps for Puerto Rico have been completed.

Response and Recovery

Bruce Knight from FEMA Region X discussed the Federal Emergency Plan. Following a disaster and upon notification by the President of the United States, FEMA becomes the coordinating agency and brings with it significant spending authority to provide emergency services. Under the Stafford Act, the Federal Government can pay up to 75% of the repair cost of infrastructure. Besides repair, the main goal is to look to reduce future losses. (See Previous Action Item 12 above)

NOAA Weather Radio on a Pole

George Crawford, Washington Emergency Management, gave a short presentation on the NOAA Weather Radio on a Pole. The NOAA Weather Radio on a Pole is a notification system for beach heads and high trafficked areas to facilitate the notification process of citizens. The system allows for local information input and is powered by battery and charged by wind. The system is currently being tested in Ocean Shores, Washington.

Cascadia Subduction Earthquake Regional Readiness Workshop

Goerge Crawford reported briefly on this Workshop that was sponsored by the Washington Army Corps of Engineers in July 2002. The purpose of the workshop was to get Federal, state, and local agencies involved in disaster management to discuss intergovernmental operations and issues in preparing for and responding to a catastrophic earthquake scenario in the Pacific Northwest. The scenario for the workshop was a Moment-magnitude 9.0 earthquake. The exercise pointed out numerous issues that players had not realized and showed just how complicated coordination between/among agencies is following a disaster. The bottom line is that the National Tsunami Hazard Mitigation Program must have a Disaster Response Plan in place to effectively support any major tsunami that affects the Pacific Rim states. (See Previous Action Item 12 above)

Next Meeting Date and Location

May 20-21, 2003, Oakland, California. Primary purpose of the meeting is to discuss FY 03 budgets based on appropriated funding which should be decided by Congress by then.