

# **Summary Report of the Tsunami Hazard Mitigation Steering Group Meeting**

**April 15-16, 1998  
Honolulu, Hawaii**

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## **Attendees**

### **Steering Group**

Eddie Bernard - NOAA	Lori Dengler - State of California
Frank González - NOAA	Brian Yanagi - State of Hawaii
Richard Hagemeyer - NOAA	Augustine Furumoto - State of Hawaii
Richard Hutcheon - NOAA	Donald Hull - State of Oregon
Chris Jonientz-Trisler - FEMA	Mark Darienzo - State of Oregon
Roger Hansen - State of Alaska	Timothy Walsh - State of Washington
Mike Webb - State of Alaska	George Crawford - State of Washington

### **Tsunami Public Affairs Working Group Members**

Delores Clark - NOAA/NWS	Ruth Barritt - NOAA/NWS
Ann Thomason - NOAA/PMEL	Jeff Wells - State of Alaska

### **Guests**

Michael Blackford - ITIC	Charles McCreery - PTWC
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## Overview

Eddie Bernard gave an [overview of the program and a report on the budget status](#). Funds have been transferred from NOAA to FEMA and USGS. Funds went through FEMA to the states in March. The National Tsunami Hazard Mitigation Program funding was removed from the NOAA FY 99 budget by the Department of Commerce.

FY 98 funds were divided as follows (after the 2.4% NOAA surcharge):

	Revised FY 98 Budget
Produce Inundation Maps	\$390,400
Develop Hazard Mitigation Programs	\$390,400
Install Tsunami Detectors	\$683,300
Improve Seismic Network	\$780,800
TOTAL	\$2,244,800

Brian Yanagi to prepare and forward draft letter to Steering group members. Members to prepare letters of support for FY 99 budget and have them in the mail by April 30, 1998.  
ACTION: Brian Yanagi

The National Tsunami Hazard Mitigation Program brochure has been made and copies have been sent to all agencies. It was suggested that the brochure be made into a web page that could be downloaded and printed.  
ACTION: Eddie Bernard.

Eddie Bernard reported that the *Eos* overview article has been submitted, reviewed, and should go to print in four to six weeks.  
ACTION: Eddie Bernard to forward black and white as well as color copies of *Eos* article to Steering Group members as soon as it is printed.

Eddie Bernard reported that he is still working with NHK to obtain rights to the 68 seconds of tsunami footage for the video.  
ACTION: Eddie Bernard to continue to follow up and report his progress to the group via e-mail.

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

Richard Hagemeyer reported that the EMWIN procedure for disseminating small earthquake information has been tested and is in operation. Mr. Hagemeyer reminded everyone that NOAA makes the earthquake information available through EMWIN but the responsibility for the information belongs to the USGS.

Richard Hagemeyer reported that work continues on the Historical Tsunami Database for the U.S. Pacific Coast.

ACTION: Michael Blackford will work with Connie Manson on the cataloging effort at ITIC.

## **Deploy Tsunami Detection Buoys**

Eddie Bernard reported on the buoy program. He provided a written report and explained the upcoming process of buoy recovery and deployment. The group suggested that buoy locations (lat. and long.) be added to the near real-time web site.

ACTION: Eddie Bernard will modify the web page.

## **Produce Inundation Maps**

Frank González gave a report on inundation mapping for Oregon, Alaska, California, and Washington. He reviewed his written report . Alaska is looking for funding sources to help with joint mapping proposal and would appreciate letters of support to Alaska's delegation by May 1, 1998.

ACTION: Bernard to provide Hansen with letter of support by May 1, 1998.

## **Develop Hazard Mitigation Programs**

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

ACTION: Chris Jonientz-Trisler to meet with Ann Thomason at PMEL to include subcommittee reports on the web site.

Lori Dengler to make changes to the Implementation Plan and work with PMEL to publish it as a PMEL report.

With regard to the inconsistencies of the various communities' warning systems, it was determined that a group of volunteers (Mark Darienzo, Chair; Augustine Furumoto, Eddie Bernard, Chris Jonientz-Trisler, and Michael Blackford) would formulate questions and develop a plan of action. This plan would be presented to the Steering Group at the October 1998 meeting in Anchorage, Alaska.

Dr. Furumoto was asked to find out how the Japanese authorities disseminate tsunami warnings to the ordinary people, literally to the men and women in the streets. Dr. Furumoto gladly accepted the task and will report at the October meeting.

## [Improve Seismic Networks](#)

David Oppenheimer discussed his written report ([link](#)) on the Consolidated Reporting of Earthquakes and Tsunamis. He reported that the West Coast/Alaska Tsunami Warning Center has been integrated with the Earthworm Core Tsunami System that enables them to access all seismic data via the Earthworm front end.

## **Outreach Activities and Products Discussion**

Don Hull presented a report on the many outreach activities in Oregon and on the various tsunami hazard mitigation products they have produced. These include an educational and entertaining tsunami mug, bookmarks, tent cards, signs, trivia quizzes, and educational materials for schools containing the rules for tsunami evacuation.

## [Public Affairs Working Group Report](#)

Delores Clark presented the Public Affairs Working Group (PAWG) Report. In April, Hawaii is holding its Tsunami Awareness month, Washington is having a Disaster Preparedness month, and Oregon and California are having Earthquake Awareness month. All states have been active in outreach activities. See the PAWG Report for highlights.

## **Empirical Method of Numerical Forecasting of Tsunami Wave Heights in Hawaii**

Augustine Furumoto gave a presentation on the Empirical Method of Numerical Forecasting of Tsunami Wave Heights in Hawaii .

## **Tour of the Pacific Tsunami Warning Center (PTWC)**

At the invitation of Charles McCreery, Director, PTWC, the group was given an overview of the operations of the center followed by a tour of the PTWC facilities.

# **Summary Report of the Tsunami Hazard Mitigation Steering Group Meeting**

**October 7-8 1998  
Anchorage, Alaska**

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## **Attendees Steering Group**

Eddie Bernard - NOAA  
Frank González - NOAA  
Richard Hagemeyer - NOAA  
Richard Hutcheon - NOAA  
Chris Jonientz-Trisler - FEMA  
Gary Brown - State of Alaska  
Roger Hansen - State of Alaska

Richard Eisner - State of California  
Lori Dengler - State of California  
Brian Yanagi - State of Hawaii  
Augustine Furumoto - State of Hawaii  
Donald Hull - State of Oregon  
Mark Darienzo - State of Oregon  
George Crawford - State of Washington  
Timothy Walsh - State of Washington

## **Tsunami Public Affairs Working Group Members**

Delores Clark - NOAA/NWS  
Ann Thomason - NOAA/PMEL  
Dane Konop - NOAA/OAR/PA  
Tom Mullins - State of California  
David Oppenheimer - USGS

Ruth Barritt - NOAA/NWS  
Marilu Trainor - NOAA/NWS  
Angie Karel - State of Oregon  
Robert Kamphaus - NOAA

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## **Overview**

Eddie Bernard gave a review of the action items from the last meeting, a report on the budget status, a report on the Papua New Guinea tsunami, and a report on other new developments.

## Review of action items from the previous meeting:

The National Tsunami Hazard Mitigation Program brochure has been made and copies have been sent to all agencies. The brochure was made into a pdf file and placed on our web site. CLOSED

Eddie Bernard reported that the *Eos* overview article has been printed and black and white and color copies of the article to were sent to all Steering Group members. The article was also chosen for *Earth and Space*. CLOSED

Eddie Bernard reported that we have obtained the rights to the 10 minutes of tsunami footage from NHK for the video. CLOSED.

The cataloging of the library at the International Tsunami Information Center (ITIC) is in progress and that work is continuing on the Historical Tsunami Database for the U.S. Pacific Coast. ONGOING ACTION: Mike Blackford

The real-time tsunami detector data page is being modified to include the latitude and longitudes as suggested at the last meeting. The page will be in operation soon using data from the functioning buoy at 50N, 145N. CLOSED

Brian Yanagi to prepared and forwarded a draft letter for Steering Group members to use to prepare letters of support for FY 99 budget. Letters were prepared and sent from Hawaii, Oregon, and Washington. CLOSED

Roger Hansen reported he received the letters of support for funding for his joint mapping proposal. The proposal was successful and Alaska was able to expand its list of communities for inundation mapping from 3 to 12 with these funds. CLOSED

Enhanced web page presentation of the mitigation subcommittee reports is still in the discussion stage. Chris Jonientz-Trisler will provide suggestions to the site webmaster. ONGOING ACTION: Chris Jonientz-Trisler.

Lori Dengler completed the Implementation Plan and it is in the process of being published as a PMEL Technical Report. CLOSED

Mark Darienzo reported that the group of volunteers forming the Local Warning Subcommittee (Mark Darienzo, Chair; Augustine Furumoto, Eddie Bernard, Chris Jonientz-Trisler, and Michael Blackford) have not met to develop a plan of action. DOGAMI and the Oregon Office of Emergency Management will develop a statement of work that will be reviewed by the subcommittee and the Steering Group. A private contractor will be hired to gather data and develop a document for everyone's use based on the statement of work. The subcommittee will present a progress report at the next Steering Group meeting in April 1999.

**ACTION:** Mark Darienzo/Local Warning Subcommittee

Gus Furumoto presented his research into Japan's nationally coordinated disaster mitigation and emergency management program. CLOSED

## **FY 99 Budget Status**

Currently we are operating at level funding under a Continuing Resolution through October 9. The Tsunami Program is included in the Senate version of the appropriations bill at \$2.3 million but no funds have been included in the House version of the bill. The Senate has named its conference committee members and the House has just named their conference committee members today. A list of the members' names and addresses of both committees was prepared and distributed to each Steering Group member.

All Steering Group Members requested more timely updates on the status of the various portions of the national Tsunami Hazard Mitigation Program between meetings.

**ACTION:** ALL Steering Group Members

## **Papua New Guinea (PNG) Aftermath**

There is still much confusion on the exact cause of the PNG tsunami, however, it now appears that this was a slump enhanced tsunami. The educational message from this disaster is that "it can happen here and we need to deal with the problem now."

Media interest generated by the PNG tsunami was quite significant. The Tsunami Hazard Mitigation Program Public Affairs Working Group (PAWG) did an excellent job of answering inquiries as well as setting up a media briefing at the Press Club in Washington D.C. One deficiency noted during this media blitz the need for a background video (b-roll). Items needed for this b-roll are high quality photos of historic damage, Pacific-wide models (animations), and information showing the Pacific states' tsunami risk. These items are needed immediately, the hindrance being funding.

**ACTION:** Prepare background video - NOAA with submissions from ALL Steering Group Members.

Another deficiency was lack of tsunami fact sheets for press kits. These should include historic tsunami information (not just for the Pacific), general background information, information on where tsunamis could occur and what impacts they might have, and information on preparedness (specifically tailored to each individual state/area).

ACTION: Press Kits - PAWG with materials submitted from ALL Steering Group Members.

Two new NOAA Background Sheets on tsunamis were presented and these will be updated and also added to the NOAA Public Affairs Web Site.

ACTION: Update of the NOAA Background Sheets and addition to NOAA Public Affairs web site - Dane Konop

## **Other Tsunami Issues**

Jim Lander's Tsunami Forecast for the Next 100 Years article is to appear in *Time* magazine this month. There were some parts of the article that the Steering Group took issue with and it was decided that Eddie Bernard should contact the Editor of *Time* magazine to clarify these issues.

ACTION: Eddie Bernard to contact the Editor of *Time* magazine.

Because of the history of tsunamis in the Caribbean, there have been some recent activities of interest to the NTHMP. George Maul (Florida Institute of Technology) has written two letters to The President and the National Weather Service concerning the need for a tsunami warning center in the Caribbean. In addition, scientists at the University of Puerto Rico have acquired a tsunami inundation model to develop scenario studies for seismically active areas of Puerto Rico. By way of a letter from the Director, NWS, NOAA agreed there is a tsunami hazard in the Caribbean. NOAA stated that it has a long-term goal of establishing a warning center in the Caribbean. The NTHMP will make every attempt to share the knowledge and the technology that has been developed as a result of past efforts.

Effective Disaster Warning - GOAL: To warn. A summary of this report was given emphasizing that effective disaster warnings need private corporations' investment in warning systems.

Okushiri Workshop Report - the Japanese are using wave tanks and they have made them available to U.S. scientists. Our modeling scientists are available to the Japanese.

## **Develop State/NOAA Coordination and Technical Support**

Richard Hagemeyer reported that the EMWIN procedure for disseminating small earthquake information from University of Washington to Gray's Harbor, Washington, has been tested and is in operation. Mr. Hagemeyer reminded everyone that NOAA makes the earthquake information available through EMWIN but the responsibility for the information belongs to the USGS. Richard Hagemeyer gave a demonstration of the beta version of the new tsunami database that has been compiled from all known sources by the Computing Center in Novosibirsk, Russia. Mr. Hagemeyer asked for a show of hands of Steering Group members who would like to preview the beta version.



**ACTION:** Richard Hagemeyer to send a copy of the beta version of the tsunami data base to each Steering Group member for preview and comment. Comments should be made to Mr. Hagemeyer within one month of receipt of the data base disk.

## Deploy Tsunami Detection Buoys

Eddie Bernard reported on the status of the tsunami detection buoy program. Four systems have been built. Plans for FY 99 deployments were discussed. Duplicate systems on each buoy as well as 2 buoys in each location are planned for redundancy. Costs for the components of each buoy are going down because the Navy is interested in purchasing large numbers of this equipment. Assuming availability of \$683,300, we plan to deploy a buoy in Monterey Bay, California, for a 60-day test (possibly keeping it there for 1 year). We plan to deploy 4 systems-2 in Alaska and 2 off the West Coast of the U.S. and recover and redeploy the system not currently working, for a total of 6 buoys by the end of the year.

## Produce Inundation Maps

LTJG Robert Kamphaus gave a report on inundation mapping for Oregon, Alaska, California, and Washington . All of the originally identified community inundation mapping for Oregon should be completed by spring 1999.

Dr. Frank González led a discussion of FY 99 TIME Plans and budget allocations. After lively discussion, it was agreed that this year's inundation mapping funds will be distributed as follows: \$100K to Hawaii and \$100K for Oregon/Washington. Assuming level funding, it was agreed that out-year funds will be distributed as follows: year 2000 - \$66.7K to Alaska, California and Hawaii;; years 2001 and thereafter - \$40K to each of the five states. The modeler's position is still vacant after extended recruiting efforts for this position.

## **Develop Hazard Mitigation Programs**

Chris Jonientz-Trisler presented the mitigation report. Each state gave a brief report on their activities. States submitted their FY 99 budgets and lists of projects and products funded from FY 98. The FY 99 budget was divided by allocating \$48.8 K to each state and \$150 K to the multi-state projects. The format of the Annual Mitigation Subcommittee Report was determined. It is attractive, explains the program, and shows successes. Its uses would be interested communities and Congressional members/staffers. The matrix will be incorporated into the annual report as well as descriptions of the multi-state projects with color photographs and graphics. The report would be approximately 30 pages in length. The goal is to highlight projects per state and how they are tied to the Mitigation Strategic Plan. Costs associated with successes are needed for the successes pages. The FY 98 report is scheduled to go to the printers in December.

Lori Dengler completed the [Mitigation Subcommittee Strategic Implementation Plan](#) and it is in the process of being published as a PMEL Special Report.

Mark Darienzo reported that the group of volunteers forming the Local Warning Subcommittee (Mark Darienzo, Chair; Augustine Furumoto, Eddie Bernard, Chris Jonientz-Trisler, and Michael Blackford) have not met to develop a plan of action. DOGAMI and the Oregon Office of Emergency Management will develop a statement of work that will be reviewed by the subcommittee and the Steering Group. A private contractor will be hired to gather data and develop a document for everyone's use based on the statement of work. The subcommittee will present a progress report at the next Steering Group meeting in April 1999.

**ACTION:** Mark Darienzo/Local Warning Subcommittee

Dr. Furumoto traveled to Japan and researched how the Japanese authorities disseminate tsunami warnings. He gave a comprehensive report on Japan's nationally coordinated disaster mitigation and emergency management program and described in depth the two basic ways a tsunami warning is transmitted to the people: 1) through government channels and 2) directly by broadcasts over radio and television. He provided a written report to the members of the group (report is available from Dr. Furumoto).

## **Improve Seismic Networks**

David Oppenheimer discussed his written report on the Consolidated Reporting of Earthquakes and Tsunamis . He reported that the West Coast/Alaska Tsunami Warning Center has been integrated with the Earthworm Core Tsunami System that enables them to access all seismic data via the Earthworm front end.

## **Outreach Activities and Products Discussion**

Don Hull presented a report on the many outreach activities in Oregon and on the various tsunami hazard mitigation products they have produced. Oregon has purchased copies of "The Wave" for educational purposes in the K-3 schools. Leading Edge Entertainment is producing a video entitled "Tsunami - Surviving the Killer Wave" that was funded by a grant from NEHRP. Angie Karel wrote the script for the video and over 1000 minutes of footage were collected in the production of the video. Some of the footage collected for the video appeared on the television program "Inside Edition." The video will be modified for use in educating the general public at state parks and for use by insurance companies. DOGAMI has worked to further implement state legislation to require training and evacuation drills in K-8 schools. There will be a Tsunami/Earthquake Workshop with a field trip to the TIME Center in Newport, OR, on November 7-8.

## **Public Affairs Working Group Report**

Delores Clark presented the Public Affairs Working Group (PAWG) Report. All states have been active in outreach activities. See the PAWG Report for details.

There was a lengthy discussion of a media project for PAWG to commemorate the 35<sup>th</sup> anniversary of the 1964 Alaska earthquake and tsunami. The Steering Group approved the ideas presented and agreed to work to obtain funding for a video and press kits.

**ACTION:** Richard Hagemeyer and Eddie Bernard agreed to work on obtaining funds. Eddie offered the use of the PMEL digital video camera and some of our Audio-visual Specialist's time to do some filming. Editing and production could be done in NOAA's video shop.

PAWG will take the lead in coordinating all aspects of the video and the media event

All Steering Group members are to supply photos, video footage, and other information that they possess.

## **Discussion of Funding for FY 2000**

It was discussed and agreed that we should maintain the status quo of our program and not request any increases in the FY 2000 budget. It was also agreed that we would not expand beyond our present Pacific emphasis at least in FY 2000; perhaps in later outyears if we continue to be funded.

## **Determination of Next Meeting Dates and Locations**

It was agreed to hold two meetings in FY 1999: April 26-29, in Eureka, California, and October 4-8, in Newport, Oregon. It was also agreed to add one-half to one full day to the Steering Group meeting.

## **Vote on Chairperson**

Dr. Bernard has served as Chairperson of the Steering Group for 2 years. He asked the Steering Group to vote on whether or not he should continue as chairperson. A motion for nominations for a new chairperson was put forward. No new candidates for chairperson were nominated and a motion to re-elect Eddie Bernard as chairperson was put forward, seconded, and passed.

## **Tour of the West Coast/Alaska Tsunami Warning Center (WC/ATWC)**

At the invitation of Tom Sokolowski, Director, WC/ATWC, the group was given an overview of the

operations of the center followed by a tour of the WC/ATWC facilities.