

# Summary Report of the Tsunami Hazard Mitigation Steering Group Meeting

May 16-17, 2001  
Portland, Oregon

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## Attendees

### Steering Group

Eddie Bernard - NOAA	Lori Dengler - State of California
Richard Hagemeyer - NOAA	Brian Yanagi - State of Hawaii
Chris Jonientz-Trisler - FEMA	Laura Kong - State of Hawaii
Michael Hornick - FEMA	Mark Darienzo - State of Oregon
Craig Weaver - USGS	George Priest - State of Oregon
Scott Simmons - State of Alaska	George Crawford - State of Washington
Roger Hansen - State of Alaska	Tim Walsh - State of Washington
Richard Eisner - State of California	

### Guests

Frank González - NOAA

Ed Myers - OSU

Tom Sokolowski - WC/ATWC

Charles McCreery - PTWC

Lt Alan Yelvington - USCG

David Oppenheimer - USGS

Jim Kennard - OR DLCD

Ed Henry USDOT Region IX

Aurelio Mercado - U of Puerto Rico

Solomon Yim - OSU

Curt Peterson - PSU

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## **OLD BUSINESS:**

### **Review of action items from the previous meeting:**

**1. ACTION ITEM:** There was considerable discussion on how to confirm the availability of resources after a disastrous event. The group formed an ad hoc subcommittee to formalize the next steps. The subcommittee consists of: Richard Przywarty, Frank González, Eddie Bernard, George Priest, and Costas Synolakis. Three new members were added to the subcommittee: Mike Hornick, Chris Jonientz-Trisler, and Richard Eisner. There was a discussion of what role the National Tsunami Hazard Mitigation Program Steering Group would have in tsunami disaster response. NOAA currently has no input in times of disaster. The current National Post-Storm Data Acquisition Plan provides only for data collection. Mike Hornick, FEMA Region IX proposed a 2-step action plan: 1) The Federal Response Plan needs a tsunami action plan. Mike Hornick and Chris Jonientz-Trisler and FEMA HQ need to develop this plan, and 2) 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:** Subcommittee members named

**STATUS:** ONGOING

**2. ACTION ITEM:** Chris Jonientz-Trisler will rerun and expand the 1994 baseline survey to measure performance. The results of this survey will be compared to the 1994 baseline survey and the results presented at the August 2001 review of the program.

**ACTION:** Chris Jonientz-Trisler

**STATUS:** Survey has been conducted and data is being compiled and analyzed for the report

**3. ACTION ITEM: The Subcommittee Activities Matrix and Program Gaps were discussed as well as the FY 01 budget. The budget discussion was incomplete. The Subcommittee Coordinator indicated the budget discussion would be finalized during a conference call with all subcommittee members as soon as possible.**

**ACTION:** All Mitigation Subcommittee members

**STATUS:** CLOSED Conference call was held and matrix updated

**4. ACTION ITEM: Steering Group members were asked to send any final comments on the Local Tsunami Warning Systems and Procedures: Guidance for Local Officials document to him not later than January 1, 2001.**

**ACTION:** Each Steering Group Member

**STATUS:** CLOSED

**5. 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:** OPEN

**6. ACTION ITEM: All Steering Group members are to send comments on the proposed May Workshop agenda to Mark Darienzo. Mark Darienzo will contact state emergency managers for names of people to invite to the workshop and will arrange for the meeting sites for the workshop and Steering Group meeting.**

**ACTION:** All Steering Group Members, Mark Darienzo

**STATUS:** CLOSED workshop was held May 14-15

**7. ACTION ITEM: Continue to refine the draft Tsunami Ready Community Program proposal.**

**ACTION:** R. Przywarty, T. Sokolowski, L. Dengler

**STATUS:** CLOSED IMPLEMENTING

**8. ACTION ITEM: Each State is to recommend one pilot community for the Tsunami Ready Community Program by January 1, 2001.**

**ACTION:** Each State

**STATUS:** CLOSED Tsunami Ready Communities have been named in California, Washington, Oregon, and Alaska

**9. ACTION ITEM: In preparation for the review in August 2001 and keeping in mind the original Tsunami Hazard Mitigation Plan, each Steering Group member should prepare a presentation of their program review of the past 5 years for the May 2001 Steering Group Meeting that focuses on 1) what did you promise to do? 2) what did you do? and 3) what impact did it have?**

**ACTION:** Each Steering Group Member

**STATUS:** OPEN IN PROGRESS Mitigation and Mapping are in draft form, others are complete

**10. ACTION ITEM: Each Steering Group member is to prepare a summary of their expectations and budgets for the next 5 years. (In other words, where do you want to be at the end of the next 5 years?)**

**ACTION:** Each Steering Group Member

**STATUS:** CLOSED

**11. ACTION ITEM: For FY 2001, \$2.3 million has been appropriated for the Program. There is an add-on of \$1 million for the Tsunami Warning and Environmental Observatory for Alaska (TWEAK), a letter of intent by Ray Highsmith at the University of Alaska. It was suggested that Ray Highsmith include Roger Hansen and Zygmunt Kowalik in writing the proposal for TWEAK.**

**ACTION:** Ray Highsmith, Roger Hansen, and Zygmunt Kowalik to write a proposal for TWEAK.

**STATUS:** OPEN Proposal has been written and distributed to Steering Group members. Discussion was held via conference call with Ray Highsmith on May 17. Steering Group members are to review proposal and meet via conference call on May 30 at 2 p.m. PDT.

**12. ACTION ITEM: A discussion of the question of how to report the mapping effort pointed out the difficulties of this issue and a method agreeable to all must be developed. Frank González and the States were asked to discuss and agree on the**

**method of reporting the inundation mapping effort no later than March 2001.**

**ACTION:** Frank González and States

**STATUS:** IN PROGRESS

**13. ACTION ITEM:** States and TIME are to decide on division of mapping projects funding for FY 01 so that Frank González can provide the mapping budget by December 1, 2000.

**ACTION:** States and TIME

**STATUS:** CLOSED

**14. ACTION ITEM:** Hal Mofjeld (PMEL) to provide a short tutorial on tsunami wave forms to tsuhaz prior to the May 2001 Tsunami Workshop in Portland, Oregon.

**ACTION:** Hal Mofjeld

**STATUS:** CLOSED Tutorial was completed. There are two main categories: Hawaiian type where the first wave is the highest with little tide effect--less concern for flooding in successive waves, and the Crescent City type with a long wave train and danger lasting many hours due to later waves being higher than the first wave and strong tidal effects. Hal Mofjeld will be happy to advise. States need to develop and put in place their warning strategies. Warning centers have the algorithms to use as tools in determining warnings.

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## **NEW BUSINESS**

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

Richard Hagemeyer reported that the tsunami database has been completed and is available to all on his ftp site. He will send messages to all tsuhaz members when the database is upgraded.

EMWIN worked very well in the Nisqually earthquake in Washington in February 2001. Warning centers had their data out in about 2 minutes using EMWIN.

**ACTION ITEM 1.** 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 4 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

## Improve Seismic Networks

Thirty to forty broadband seismic sites should be installed by August 7. Sites are done except for final equipment installation. Communications: All links are up and continue to function.

## Deploy Tsunami Detection Buoys

In June 2001, the NOAA ship Ronald H. Brown is scheduled to service the 4 DART buoys that are operational in the North Pacific Ocean. The surface buoys at D171, D165, D157, and D130 will each be inspected, serviced, and subsequently re-deployed for another year of service. A new DART site, D128, will be occupied off of the U.S Washington coast at approximately 128.5 degrees North latitude, 47 degrees West longitude. The sixth buoy is scheduled for deployment in the Equatorial Pacific in August.

D157 unexpectedly failed to return to normal tide reporting mode following the January 10 event trigger and continued to report 1-minute data for real-time transmission via the GOES satellite during the 3 months that followed. As a result, the surface buoy power supply has been depleted and is no longer relaying BPR data to ground stations. The PMEL Engineering Development Division has successfully reproduced a possible cause of the failure in D157.

**ACTION ITEM 2:** Update WC/ATWC, PTWC, and PMEL web sites showing buoy locations for better indication of events. **ACTION:** WC/ATWC, PTWC, PMEL

**ACTION ITEM 3:** Frank González to check on DART web site vulnerability to too many hits at one time. **ACTION:** Frank González

## Produce Inundation Maps

The Puget Sound Tsunami/Landslide Workshop was held January 23-24, 2001, in Seattle at the NOAA Sand Point campus (Bldg. 9). The Workshop, a partnership of NOAA/PMEL, USGS, and Washington State Emergency Management, whose goal is to develop an action plan to generate tsunami inundation maps and other tsunami/landslide mitigation products for Puget Sound communities. The workshop arose from discussions at the May 2000 Steering Group

Meeting. A Summary Report of the workshop has been published and distributed to all attendees.

Frank González gave a brief review of the various funding sources for inundation mapping and gave the highlights of the his [mapping status report](#).

Based on the discussion at the Hilo Meeting last year, a comparison of 1-D and 2-D models was done. FACTS was developed as a tool to do 1-D runup estimates, however, the 1-D approach is limited.

**ACTION ITEM 4:** Each state is to plan their mapping strategy using either coarse grid or fine grid. The TIME Center is available to help with this process. **ACTION:** George Priest, Frank González to determine the grid issue

## Mitigation

The Tsunami Warning Workshop was held in Portland, Oregon, on May 14 and 15. The workshop was organized by Mark Darienzo and generated fruitful discussions on many issues related to tsunami evacuation notification systems including telephones, NOAA Weather Radio, EMWIN, sirens, etc.

Chris Jonientz-Trisler reported the highlights from the Mitigation Subcommittee discussions yesterday. Lori Dengler said that the fifth tsunami awareness survey was recently completed in Humboldt County. Results of the survey showed a steady progression in positive responses to the main questions.

During Subcommittee discussions on mapping, particularly for Alaska, the need for bathymetry surveys was raised. Some support for bathymetric surveys might be available from the National Ocean Service.

**ACTION ITEM 5:** The Subcommittee suggested that a dialog with NOS on bathymetry/coastal zone managements issues was needed. **ACTION:** Eddie Bernard will contact the Acting Assistant Administrator for Ocean Services and Coastal Zone Management and initiate a dialog on this issue.

## Preparation for August Program Review

Eddie Bernard asked all Steering Group members to submit their review papers if not already submitted. The plan for the Program Review is to conduct the technical part of the review from 8 a.m. to 3 p.m. The review will consist of reports from each of the state and Federal partners on their accomplishments of the past 5 years as well as a presentation of plans for the next 5

years. Beginning at 3 p.m. there will be a public forum beginning with a 1-hour powerpoint overview of the program and followed by a poster session and reception. Members of Congress as well as state and local emergency planners have been invited to the public forum and the poster session/reception. International tsunami scientists attending the IUGG Tsunami Commission [ITS 2001](#) being held on August 8-10 have also been invited to attend the August 7 review and reception.

The media plan is to provide a b-roll and press package.

**ACTION ITEM 6:** States were asked for video and photos of the National Tsunami Hazard Mitigation Program in action including captions or explanations, as needed. **ACTION:** states to send video and photos to Eddie Bernard NLT May 30, 2001. (Oregon to provide video clip on school evacuation)

For the Poster session/reception States, Warning Centers, USGS, FEMA will have separate tables and poster display boards. Posters will be grouped by state, etc. Individuals will ship materials for their displays to PMEL and will pick up the items on August 6 following a dry run of all technical presentations. On the morning of August 7, Individuals will bring their display materials to the Walker Ames Room in Kane Hall on the University campus. Individuals will set up their displays by noon on August 7. (No overnight storage is available at Kane Hall)

**ACTION ITEM 7:** States requested use of large monitors with their laptops for the poster session. **ACTION:** PMEL to check with their Computer Services Division on availability of monitors for use at the review.

**ACTION ITEM 8:** States, Warning Centers, USGS, and FEMA were asked for logistical requests for tables, TV/VCR's, power, etc. for use at the poster session/reception. **ACTION:** States Warning Centers, USGS, FEMA to send their requests to Eddie Bernard via e-mail NLT May 25.

**ACTION ITEM 9:** PMEL will check on availability of logistical items for booths for poster session. **ACTION:** PMEL will check on availability of items requested and fill as many requests as possible.

## **Tsunami Warning and Environmental Observatory for Alaska (TWEAK)**

The TWEAK proposal was discussed during a conference call with Dr. Ray Highsmith, School of Fisheries and Ocean Sciences, University of Alaska Fairbanks. A TWEAK Review Panel was named to review and comment on the proposal



**ACTION ITEM 10:** Chris Jonientz-Trisler, Laura Kong, Frank González, Scott Simmons, David Oppenheimer, Richard Hagemeyer, Eddie Bernard, and Mike Hornick were named as the TWEAK Review Panel to review the proposal. **ACTION:** TWEAK Review Panel to send their comments via e-mail to Eddie Bernard NLT May 25. A conference call with all Panel members is planned for 2 p.m. on May 30.

## The Next 5 Years (Phase II)

Eddie Bernard led the group in a discussion of the Program's funding history over the past 5 years. Special attention was given to the matching funds section. It was determined that the matching funds section should be further divided into mapping and mitigation categories. A discussion was held on why the original 5-year budget request was too low: the great number of unknowns and uncertainties at the time the original budget was developed.

**ACTION ITEM 11:** Develop defensible matching funds divided into two categories: mapping and mitigation. **ACTION:** States are to E-mail their figures to Eddie Bernard, Frank González, and Chris Jonientz-Trisler NLT May 25, 2001.

Eddie Bernard announced that the Program has been included in the NOAA portion of the FY 2002 Presidential Budget Request. If this line item is not dropped in the later stages of the budgeting process, we would be in the FY 2002 NOAA budget for \$2.3 million.

Budget requests for the next 5 years (based on recommendations found in the review papers submitted) were discussed. Requests in some areas, especially mapping, DART buoys, and seismic greatly exceed the anticipated level-funding amount of \$2.3 million per year. Eddie Bernard said the best approach to increase the budget is to get constituents to write NOAA. Using lessons learned during the first 5 years, the group agreed to present a budget that represents what is needed for the Program knowing that, in reality, not all of the request will be funded. Bathymetry survey costs and mapping costs will be separate line items in the new budget. A strawman for distribution of funds with some minor changes was presented. The group agreed to start with last year's budget allocations as a starting point for determining future allocations. The next 5 years calls for keeping the operational parts of the program plus working toward more mapping and mitigation efforts.

The group held a multifaceted discussion on how the data from the DART buoys can be combined with the other data coming into the Warning Centers to formulate tsunami warnings given that the end-to-end warning system is not yet complete. Currently, there is a web site that can be used by the Warning Centers to model various scenarios for various areas based on data previously collected. Following the discussion, it was decided that procedures for use of buoy data by the Warning Centers needed to be developed.

**ACTION ITEM 12:** Develop procedures for use of buoy data by warning centers by July 1,

2001. **ACTION:** Tom Sokolowski, Frank González, Eddie Bernard, PTWC/Chip McCreery

**ACTION ITEM 13:** Produce isocrons prototype with elevations for likely events by July 1, 2001.

**ACTION:** Tom Sokolowski

## Presentations

Professor Aurelio Mercado from the University of Puerto Rico briefed the Steering Group on the tsunami program in Puerto Rico. He said that Puerto Rico received \$900,000 to do a Lidar survey of the island, \$100,000 to start a bathymetry survey, and \$500,000 over 2 years for a Puerto Rican Warning and Tsunami Program. The Program is tasked with flood mapping, education and outreach, seismic signal analysis, establishing protocols for communication with other Caribbean islands, creating a tsunami database, and attending the National Tsunami Hazard Mitigation Program Steering Group meetings.

Dr. Solomon Yim, Oregon State University, gave a presentation on the NEES OSU Tsunami Basin Project. OSU has received a \$4.8 million grant to develop this project. The goals of the project are: 1) Develop a facility for tsunami/coastal community by leveraging the existing facility and expanding its capacity to do tsunami waves and 3-D bathymetry, and 2) enhance the effectiveness of tsunami researchers by reducing the requirement for on-site presence (future vision is to host a web-based forum on research with real-time interaction of researchers with the research community during model tests), facilitating re-use of previous experience, and supporting integration of simulation and experimentation. Some examples of experiments that could be run using the new facility which should be operational in October 2004 are scale effects in tsunami runup and velocity, macro-roughness of effects on tsunami behavior, and tsunami wave forces on structures. A suggestion was made that the Steering Group hold their 2004 meeting in Corvallis in order to see the new wave facility.

Dr. Curt Peterson, Portland State University, discussed the projects his graduate students have been working on. He described the mapped coastal inundation plan in detail.

## Public Affairs Report

Ann Thomason distributed the PAWG report of activities and media attention since the last Steering Group meeting.

## Remaining Meeting Dates and Locations for 2001

August 7-10 International Tsunami Symposium, University of Washington, Seattle, Washington

## November 6-8 Steering Group Meeting, PMEL, Seattle, Washington

Eddie Bernard proposed a new meeting schedule that would begin next year: only one face-to-face meeting per year to be held at PMEL. The meeting would allow travel on Monday and Friday with the Mitigation Subcommittee meeting for 1/2 day and Mapping meeting 1/2 day on Tuesday. The Steering Group would meet for two full days on Wednesday and Thursday. All budget and other proposals would be prepared in advance and brought to the meeting for discussion. Additional conference calls, small group meetings, or e-mails would be used during the rest of the year to transact any business necessary. The majority of the group endorsed this plan.