National Oceanic and Atmospheric Administration (NOAA)

National Weather Service (NWS)

National Tsunami Hazard Mitigation Program (NTHMP)

Mitigation and Education Sub-Committee Meeting (MES)

January 28-30, 2020

Attendees:
Washington – Maximillian Dixon, Elyssa Tappero, Brendan Cowan, Jacob Winecraft
Oregon – Althea Rizzo
U.S. Virgin Islands – Denise Lewis
Alaska – Dan Belanger
Hawaii – Kevin Richards
FEMA – Amanda Siok
NCEI – Nicholas Arcos
Gulf Coast – Brad Baker
NTWC – Summer Ohlendorf
CNMI – Jonathon Villagomez
East Coast – Ed Fratto
SCEC – Jason Ballmann
California – Kevin Miller, Yvette LaDuke, Todd Becker
NOAA Puerto Rico – Christa Von Hillebrandt-Andrade
NOAA Western Region – Jeff Lorens
NOAA ITIC – Laura Kong
Matt Wall, WSSPC

I. MES Overview
   A. Review of MES Terms of Reference
   B. Overview of MES Key Accomplishments and Purpose
   C. Key Change: MES Leadership Change
      1. 2 State Representatives & 1 Federal Agency Representative
      2. Leadership Structure: Chair, Vice-Chair, 2nd Vice Chair – Rotate Annually from 2nd Vice Chair up to Chair then Rotate Off Committee Leadership
   D. Alaska Comment: Consider Impact of Events on Communities Into Future

1. Unfamiliar with Hazard Until Experienced
2. Alaska Still Experiencing Impacts
3. Consider During Planning

E. Puerto Rico Comment: Experiencing Continuous Shaking – Over 20,000 After Shocks

II. MES Strategic Plan Review

A. Four (4) Overarching Themes
    a. Review of Education & Outreach Theme
        i. Baseline for future work plan task development

III. MES Work Plan Discussion

A. TsunamiZone.Org – 7 NTHMP Partner Pages
    1. Hawaii – Expanding content on webpage. Likes availability of additional platform for outreach
    2. Oregon – Providing additional input to develop webpage
    3. U.S. Virgin Islands – Coordinating with SCEC to develop webpage
    4. Washington – Expanding content on webpage, not tracking registration for Tsunami Preparedness activities
    5. Alaska – Recently provided content for webpage. Adding additional information
    6. Guam – Started working with SCEC to build webpage
    7. Caribbean and California have robust webpages and Tsunami Preparedness activity registration

B. Mitigation & Recovery Planning Work Group (Pronounced – MERP Wig)(Co Lead: CA, WA & FEMA)
    1. Goal – Take some tasks of MES Workload
    2. Identify Key Items to be Top Focus
    3. Need Champions to Commit to Lead on Tasks to Ensure Success
    4. Discuss Opportunities to Link Mitigation to Maritime
    5. Maritime Guidance
        a. Alaska, Hawaii, Oregon, Washington, California in Forefront
        b. California Lead in Developing Maritime Website
    6. Key: Input/participation from Science, Emergency Managers and Harbor Partners Together to be Successful
    7. Washington: Doing Equivalent of Pedestrian Evacuation for Maritime – May take 1 to 2 decades
    8. Mapping Component
    9. Planning with Port and Harbor Stakeholders

10. Alaska: What Maritime tasks should be under MES vs. M & R Work Group
    - Tasks should be Prioritized or dropped-off
11. Washington: Do we Keep Science Then Place other Topics into a Bucket or Break-down a Component to Make more Manageable?
12. Guidance Needed for implementing ASCE 7-16 – Tsunami Building Codes and Construction Guide
    - If going to build in Tsunami Zone, here's how to incorporate mitigation measures
13. California: Modeling Inundation Zone – updating using new modeling technology
    - Developing regulatory zone – Tsunami Technical Advisory Panel formed to work on this
14. Vertical Evacuation: Impacts to Vertical Evacuation Structures
    - Washington & Oregon: Shift in ability to construct in the tsunami Zone
    - Oregon: Regulation that cannot build within tsunami zone
    - Combination of FEMA & Local Funding Sources
    - Guidance Available: P646 (new construction) & Washington Vertical Evacuation Guidance
    - Suggestion: Develop guidance to navigate process – applying for grant funding strategies, completing forms, best practices (successful projects)
15. ASCE (Building Code) – Not Land Use Planning (Washington)
    - Gap: No national hazard map similar to seismic hazard map
    - Gap: No national approach to using probability
      Washington pushing through the National Academy of Sciences with NOAA (multi-state coordination)
    - Engineers working on their component, MES focus on mapping & modeling of where tsunami zone exists
    - FEMA: Suggested MES develop document to address tsunami zone identification
      Guidance on constructing in Zone
      Education & Outreach for stakeholders in Zone
16. Probability Tsunami Hazard Analysis
    FEMA suggested M & R put task on hold until MES can coordinate with MMS.
    - Washington: Core effort in MMS – MES should identify core information needed
    - Probability needed for local land use planning decisions

- Coordinate with MMS to improve public education
- Key: Needed to drive "Risk Reduction"

17. Debris Planning
    - Oregon: Conducted webinars
      Outcomes: 1) Guidebook needed; 2) Continuing Education
    - California: Has resources available to assist with Guidance development
    - Comment: Lack of information available on debris & spill (environmental) impacts
    - Agreed to remain on M & R Work Group – California & Oregon as Champions
    - Component of TsunamiReady Tier II

<u>Questions:</u>

- Do we move from MES to Focus on Mitigation or Leave As-Is?
  Comment, California: Not totally moved over – components for harbor mitigation opportunities and TsunamiReady for Maritime Communities
- What are the Gaps?
- Is the Mitigation & Recovery Work Group a sub-unit of the MES?
  Answer: No. Not a formal process. Work group formed to focus on 1 or 2 key topics
- Washington: Members from MMS & MES
- Hawaii: Military a huge component
- Hawaii: Not enough familiarity of harbor and Coast Guard requirements
- East Coast: Why was the MES initiated? Seems to be a big focus on education and outreach, but not mitigation
- Washington: How do we focus more & build a Mitigation Program?
  Comment: M & R Should Remain
- Hawaii: What Source Can Fund M & R tasks? How do we partner to identify funding support? M & R tasks may not fit into current NOAA/NWS grant funding proposals
- Science needs to be practical for implementation by emergency mangers
- What are gaps in mapping & modeling?
- Guidance needed for identifying existing structures that can be designated as vertical evacuation structures

C. HAZUS
   1. New Tsunami Module Available
   2. Washington: Pushing FEMA to Conduct Cascadia Run

3. California: Conducting Pilot Run
    - Expanding to 2 scenario runs for coastal counties as identified in NOAA/NWS grant funded task for FY19
4. Oregon: Completed initial Work
5. East Coast: HAZUS does not exist on East Coast yet
6. HAZUS currently built for 5 highest risk areas: Washington, Oregon, California, Alaska, Hawaii
7. Washington: Suggested development of Guidance to Help push for expansion to include East Coast

D. TsunamiReady (TR)
1. NOAA/NWS: Recent Decline in TR Recognized Communities
2. Challenges Exist with Warning Coordination Meteorologist Workloads & Priorities, and Local-Level Turn-Over
3. State/Territory Emergency Managers have workload Challenges
4. Cumbersome Process to Maintain
5. Issues Exist with Local Commitment, no local champion = no success
   Concern: Congress looking at number of TR communities to determine funding levels for Program
6. NOAA: Looking at expanding time-frame for renewal period from 3 years to 4 years
    - Will be discussed during national WCM conference in June 2020
    - Suggest having Ian attend to represent NTHMP
7. NOAA: WCMs now tasked with promoting "Weather Ready Nation Ambassador Program – new large time commitment (High Priority)

<u>Questions:</u>
- What does TR mean on a local level? What do Locals get out of it? (Besides sign & certificate)
- Question: Can TR & Storm Ready be included into Weather Ready Nation Ambassador Program?
  Answer: No. Weather Ready Nation too broad/overarching and doesn't convey specific event (tsunami)

<u>Suggestions/Comments:</u>
- U.S. Virgin Islands separate community from Puerto Rico
- Use more general "Community Resilience" program that encompasses Storm Ready and Tsunami Ready
- Take out "sustaining" language, keep: maps, alerts, plans, etc. and change to "Tsunami Aware"

- Consider Options Other Than Change from 3 to 4 year renewal period (I.e. Require initial face-to-face meeting for 1st TR recognition, then complete renewal process remotely (if relationship established with locals, if new EM in local jurisdiction, then do face-to-face), reduces need for timely site visits)
- Use More Realistic or Other Milestone to Measure Success of Program – Something critical to states/territories
- States/Territories should be measured on capability & task completion

Action Items:

- Ian Sears attend WCM National Conference to address status and suggest solutions for TsunamiReady program
    - Sustaining and Increasing # of TR Communities
- TR Tier II Communities in California not identified on TR map on tsunami.gov website

E. MMS Workplan Review
1. Request for a timeline from MMS on data collected for tsunami source database
2. Status of Gap Analysis Project/Spreadsheet?
3. Maritime Project – In Progress
4. Need Clarification on Projects that appear to be merged
5. HAZUS Review – Oregon Leading, Looking for FY20 grant funding (Pilot done in FY19)
    - Presentation of Pilot Project – NTHMP 2020 Annual Meeting (Summer)

F. Social Science Project – Dr. Lindell

NSF Grant Funding Received to Study Tsunami Evacuation Modeling

1. 2-Phase Project:
    - 6 Tsunami Evacuation Products Evaluated
    - Quasi-Experiment to Evaluate Composite Approach
2. PAD Used in Evaluation
    - Added people's use of internet & Social media
    - Types of impacts & recommended response
    - Language & vocabulary issues evaluated
3. Stakeholder Perception – feeds into behavioral response
    - Who has stakeholder responsibility
    - Who is expert and/or trusted? (natural hazard is different from man made hazard)

- Some consider self as responsible expert (don't trust government, authorities, neighbors, etc.)

4. TEP Rating: Brochures scored higher than maps due to higher level of content.
5. Survey results: Two indexes computed – 1) % of respondents who skipped the survey question; and 2) How long the respondent spent on a particular question
   - Finding: Brochures increase knowledge/understanding
6. Spring 2020 Experiment: 2 population groups will be brought to a room for observation – Will be Conducted in Seattle area
   - 1st Test Group will receive brochure
   - 2nd Test Group will not be provided brochure
   - Participants of both test groups will be asked multiple-choice and true/false questions to determine level of understanding
   - Goal is to gain higher response rate than mailed survey. Many do not respond to mailed surveys
7. Currently conducting a Base State Study: Data is being collected in Portland Area to determine:
   - Comprehension of hazard maps
8. Conclusion: Many respondents had trouble reading and interpreting maps
9. Challenge: Taking academic information and applying it for practical use
10. Next Steps: Results of Survey were consolidated into a report and provided to Washington. Report contains detailed data that will require in-depth review/analysis and discussion. Washington was waiting to release report until briefing was provided during NTHMP meeting. Washington will release report prior to next meeting so that MES members can then discuss next steps.

<u>Questions:</u>

- Do people really retain information and for how long?
  Response: We don't really know how long people retain information seen in a brochure or heard at a meeting; however, it people feel shaking and know they are in the zone, more people remembered what to do
- Is mention of "painting buildings & signs" a recommended solution?
  Response: It is listed as a suggestion/possible solution
- What are common pitfalls?

Response: Several pitfalls were identified including barriers in outreach materials can be as simple as font type and size, graphics, user interface, distractions (i.e. logos distracting from content)

- What is the maps line item in the chart referring to?
  Response: Information contained in the brochure that describes the information being depicted in the maps

G. Maritime Guidance (Website)

1. Website Address:
2. Kevin navigated website during discussion to show components and content
3. Website not currently searchable; however, publicly available – will be searchable once website is ready to launch
4. Website contains:
   a) National Maritime Tsunami Guidance
   b) NTHMP Policies and Procedures
   c) Existing Guidance
   d) Scientific Research Products
   e) Jurisdiction-Specific Response Information
   f) Resources and Outreach Materials
   g) Information from NTHMP and other Maritime Partners
   h) Preparedness and Mitigation Information
   i) Recovery and Debris Information
   j) Reference Section
5. Future intent to house website on existing tsunami Program website, utilizing direct URL
6. California Tsunami Program seeking input, additional content, and links to other electronic maritime resources from NTHMP Partners – feedback gathered at Summer 2019 NTHMP meeting was incorporated
7. Categorized according to Maritime Stakeholder Groups
8. California conducted "small group discussions" with Hawaii, Alaska, Oregon, and Washington. Will coordinate with additional NTHMP partners soon
9. TsunamiReady Criteria for Maritime Communities
   a) Effort to inspire Response Actions

<u>Questions:</u>

- Does California Have a "Best Practice" to Share on Website?

Response: Mitigation & Recovery Work Group Looking to Compile Best Practices, Funding Opportunities and Can Incorporate Into Website. California not Sure if After Action Available for Crescent City.

- Does BRIC Program Apply?
  Response: Yes. (FEMA Provided Response)
- Where are We Trying to Go with Website? How Can Navigation of Content Be Improved? In Some Cases, Web-Links Exist and Other Areas Require User to Scroll Through Documents.
  Response: Both. Website is a Living Entity Functioning as a Library of Maritime Information. Design Limitations Due to Current Usage of Google Site
- Have We Sought Input from Federal Agencies Including Army Corps, FEMA, Coast Guard, Navy, Etc.?
  Response: Not Yet. This is a New Project so for Now, Seeking Feedback and Input from NTHMP Partners

Comments/Suggestions:

- Oregon suggested to include link to Nanoos.org. Website contains Oregon Maritime information
- Identify Funding Options to Ensure Continuation and Expansion of Website
- Incorporate Mitigation and Recovery Work Group Products on Website Once Developed
- Include More Quick Links (Maintain Full Documents for Those who Wish to Read Entire Document)
- Partners Differ in Jurisdictions, Some Port/Harbor Areas Very Complex and will Require Extensive Coordination
- Ports/Harbors Could Potentially Be TsunamiReady Supporters so Include Checklist for Program on Website
- Include more Videos and Make them Stand-out More as they Better Convey Harbor Threat (I.e. Santa Cruz Harbor Video)
- Target Outreach, Publicize, and Engage Port/Harbor Stakeholders and Emergency Managers to Get Feedback on Website

Action Items:

- Washington will share materials currently in development for inclusion on website
- California to Incorporate Link to Web-Camera Network

- California Check with Crescent City to See if After Action Exists for Mitigation and Recovery in Harbor Area Following 2011 Tohoku Event
- Puerto Rico Safe Depths Listed are Incorrect, Follow-Up with MMS Needed to Get Updated Information. Safe Depth for Boaters Greater for Distant-Source Tsunamis
- California Schedule One-On-One Maritime Discussion with Puerto Rico (PR Likes Site)
- California Will Update Website Prior to Summer 2020 Meeting
- Coordinate with Mitigation and Recovery Work Group to incorporate Products/Content

H. World Tsunami Awareness Day
   1. Develop Press Release to Increase Participation and Awareness of Day
   2. Encourage NTHMP Partners and Local Partners to Host Events
   3. Publicize on Social Media, TsunamiZone.org, State Websites

I. HAZUS (Tsunami Module) Project Presentation - California
   California Ran Pilot Study for Huntington Beach – Presented at California Tsunami Steering Committee Meeting in January 2020
   1. Looking at Tsunami Hazard on Population and Built Environment
   2. Scenario: Aleutian Islands Event
   3. Purpose: Use by Local Decision Makers for Planning and Response
   4. Used 975-year Return Period for Pilot, Will Use Both 975 and 475 Return Periods for Comparison During Project
   5. 975-Year Return Period Being Used to Correspond with Current Inundation Map Update Project
   6. Casualty Information Based on USGS Pedestrian Evacuation Analysis with 4-Hour Evacuation Time
   7. 1st Step: Identify Population and Number of Buildings Using Census Blocks (More Targeted Area than Census Tracts) to Generate Study Area
      a. 3 Levels of Hazard Data from 1=Basic to 3=Most Detailed to Include Tsunami Velocity, Force, Depth, Etc.
   8. Baseline Information in HAZUS Module Used for Pilot Run
   9. Input Hazard Data & Inventory Information to Learn:
      a. Casualties
      b. Structure Damage
      c. Content Loss

d. Economic Impact

10. Results:
    a. Estimates Were Conservative
    b. Feedback from California Tsunami Steering Committee Considered Estimates Too Low
    c. Economic Losses Reflected Aggregated Amount for Census Block, Not per Building
    d. Insured Losses Decrease Economic Impact for Reporting Purposes
    e. Losses Do Not Reflect Debris or Lifeline Losses – Data Not Included in HAZUS Tsunami Module
    f. Exposes Where Targeted Outreach is Necessary (i.e. – Senior Communities, Schools, Densely Populated Areas)
    g. New Improved Database (2.0) Available – Will Look at Using
    h. Look at Using Segregated Results for Future Runs (i.e. – Critical Infrastructure Including Fire Stations, Hospitals, Police Departments)
11. Once Database Developed fur Jurisdiction, it's Possible to Run Various Scenarios

<u>Questions:</u>

- Can You Conduct Comparison Runs? (i.e. Current State vs. ASCE by Adjusting Parameters for Building Type Including Wood, Masonry, Etc.)
  Response: No Response Provided to Question
- HAZUS is a Lot of Work and Little Local Expertise. Who is Developing HAZUS Information for Port/Harbor Areas?
  Response: HAZUS Doesn't Currently Include Port/Harbor Information
- Do Economic Losses Reflect Maritime (Boats/Yachts)?
  Response: No.
- Does HAZUS Use Insured or Market Value for Economic Losses?
  Response: Assessor Information Used. Building Information Could be Input in HAZUS; however, Very Tedious and Timely Process
- How are Casualties Calculated?
  Response: California will Provide Tsunami HAZUS Module Manual to Washington
- Can Transient Population be Varied to Reflect Extraordinary Circumstances (i.e. – Special Events, Holiday Weekends in Summer, Etc.)?

Response: HAZUS is Flexible but Detailed Scenario Inputs are Labor Intensive

- Is an Effort Underway to Compare HAZUS Model Results to Actual Event Losses to Test Results?
  Response: Haven't Had Enough Incidents in U.S. to Have a 1 to 1 Comparison, Building Codes Differ in Other Countries so Wouldn't Be Comparable Circumstances

Comments/Suggestions:

- FEMA Recommended Using Level 2 Hazard Data Instead of Standard Level 1 Base Run
- Washington Would Like to See Difference in Results in Using Version 1.0 versus Version 2.0
- Washington Has NOAA/NWS Grant Funding Request for HAZUS and
  1) Working with FEMA Region X to Run Earthquake and Tsunami Scenarios for Cascadia
  2) Want to do Additional Areas but Need Modeling Information First

Action Items:

- California Will Document Lessons Learned
- California Provide Washington with Lessons Learned During Pilot Run
- Oregon Provide Washington with Lessons Learned During HAZUS Project

J. Exercises - NOAA:
   1. Large Exercises Conducted in Atlantic, Pacific and Caribbean Regions
   2. Exercises Become Routine, Opportunity Missed to Really Internalize and Put Forth Serious Effort
   3. 800,000 Participated in Caribe Wave
      a. Increased Awareness
      b. Need More In-Depth Commitment
      c. TsunamiZone.Org Helps Promote Event Participation

K. TsunamiZone.Org Presentation - SCEC
   1. 7 NTHMP Partners with Individual Pages
      a. California
      b. Caribbean

   c. Guam
   d. Hawaii
   e. Washington
   f. Oregon
   g. Alaska
2. Website Navigated During Discussion
3. Provides Translation – Currently Spanish and French
4. Updating to Increase Mobile Capability – Work Still being done on Registration Page
5. TsunamiZone.Org Developed New Logo
   a. Color Variation Being Tested for DAFN Compliance
   b. Change from Cresting Wave to Wall of Water
   c. Concern Expressed Over Water Appearance in New Logo
   d. Some MES Partners Expressed Will Not Use new Logo in Local Outreach Materials, Some Liked New Logo
   e. Concerns Expressed Regarding Consistency – New Logo vs. Cresting Wave Used Nationally/Internationally
6. Exercises: Registration for Caribe Wave, LANTEX and PACIFEX for Information Only
   a. Registration Check Box for LANTEX and PACIFEX can Be Easily Added
   b. Hawaii Requires Annual Evacuation Drill for all Schools
7. Top Line of Triad Not Always Applicable – Distant Source Tsunamis or Local Tsunamis Where Evacuation Needs to be Immediate (No Time to Drop, Cover, Hold On

<u>Questions:</u>

- Where is TsunamiZone.Org Logo Used?
  Answer: Website, Outreach Materials, Email Campaigns
- How Does New TsunamiZone.Org Logo Scale
  Response: Good

<u>Suggestions/Comments:</u>

- Tsu Cat Tool (NOAA Database) Counties can Produce Scenario Specific for Exercise as Past Exercises Not Relatable to a Specific Geographic Location
- Phase-In New Signage if Graphic Changing (Cresting Wave to Wall of Water)

<u>Action Items:</u>

- Change NTWC Exercise Link to tsunami.gov/exercises
- SCEC Send Registration Reminder to Hawaii Schools (136) for Annual Evacuation Drills

L. Emergency Response – Discussion Washington Lead
   1. Washington Working with NTWC on Alert/Warning Issues Gaps
      a. Come to Light in January 2018 Event
      b. Specific Issue with Inland Waterway Notification
      c. NTWC Established Work Group to Address Issues – Could Take Up to 3 Years
   2. Looking at Current Breakpoints and How They Can be Refined Breakpoints Not Originally Designed for Tsunami Hazard
   3. Public Messaging Around Breakpoints – International Breakpoint Boundaries
      a. Public Confused Due to Alerting Bleeding from One Jurisdiction to Another with Different Alert Level and Different Messaging (I.e. Warning in Canada, but Watch in Washington)
   4. Coordination with Local Decision-Makers
   5. Messaging on Tsunami Information Statements Confusing
   6. Over-Alerting Issue in Alaska, San Francisco Bay a Special Procedure Area
   7. Washington and Oregon Developing Joint Mobile App
      a. Earthquake Early Warning
      b. Tsunami Information Statements
      c. WEA Messaging
      d. Preparedness Information
      e. Pull Information from NTWC and/or FEMA IPAWS
      f. Will Address Key Topics Noted in Social Science Review
      g. Will Include Evacuation Route Maps
   8. WEA Worked Well In Puerto Rico, Even in Areas with Low or No Internet Capability

   <u>Questions:</u>
   - Why Are Arrival Times Listed on TIS?
     Response: If Tsunami Wave Generated, NTWC is Able to Identify Arrival Times
   - How Can We Increase Coordination and Communication with Local Decision-Makers? How Does NTWC Connect with End Users?
     Response: NTWC Coordinates with States/Territories. Up to States/Territories to Then Coordinate with Locals. Participates in WCS Meetings and NTHMP Meetings

Action Items:

- Address Inland Waterway (Inner Coastal) Areas for Alert/Warning, Breakpoints Need to Be Adjusted
- Adjust Warning Areas to Reduce Over-Alerting
  States Coordinated with NOAA to Adjust Polygons, But Not Yet Implemented
- Washington Seeking Information/Participation from other NTHMP Partners with a Mobile App or Interested in Developing One
- Washington to Provide Mobile App Project Update During Summer 2020 NTHMP Meeting
- Resurrect Alert & Warning Work Group
  1) Coordination Needed Amongst Stakeholders
  2) Processes/Procedures Need to be Developed and/or Implemented

M. Outreach Discussion

1. MES Partners Shared Outreach Materials and Briefly Discussed Local Education/Outreach Programs

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Jan. 30

N. Training/Exercise: Christa

1. NDPTC – Tsunami Awareness Course – has funds to pay instructors if not affiliated with NOAA or other government org.
   a. Several trained instructors in MES – Kevin, Althea, Denise, Kevin R., Christa V.
   b. Developed standardized curriculum – Certificate course
   c. USVI provided most deliveries of training
   d. Certification Process:
      - Attend as listener
      - Pass as Attendee
      - Next Time You Deliver 1 of the 6 Modules With Trained/Certified Instructor, if good feedback – you can move forward to be instructor (about 40 trained tsunami instructors exist)
2. NDPTC has several course offerings
3. Puerto Rico - After Hurricane Maria, requests for training course significantly increased, offering course for people with disabilities

4. NDPTC provides course content, instructors modify to incorporate jurisdiction specific information while keeping core content
5. Instructors receive email when course is planned to be offers, instructor can then let them know if they are available to teach the course during that time.
6. Washington: Someone is coming to teach it in WA, Maximillian will attend.
   - Wants to see that outdated information gets updated.
   - Alert and Warning process has changed. New complexity not represented in course.
   - Locals ask questions specific to local area, not included in course curriculum
7. #1 challenge w/ training: People attending want to know specifics, what to do, when, who to contact, where to go
   - Local area instructors cannot see content when course initially announced to solicit instructor.
   - Laura Kong pushing that they use local instructors.
   - Laura's concern is that current exercise used for course still uses old information so inconsistent with current NTWC/PTWC jurisdictional boundaries
   - Laura requesting that MES members state that if they don't go through us prior to giving training, than NTHMP cannot endorse
8. 226 deliveries, 5,582 attendees in Tsunami Awareness Course
   - 131 deliveries in USVI since 2009.
   - USVI requests course, instructors often didn't have answers focused on local details.
   - Feedback requested local instructors.
   - Use local scientists and 3 preparedness.
   - USVI people will not attend if there is not a local instructor.
   - Has a number of schools in tsunami zone.
   - 80% of Department of Education Employees Trained about to do again due to retirements and new staff/teachers. Averaging 4 classes per month.
9. Now focus exercise on Puerto Rico so more applicable and less complaints. USVI used new videos… ones being used were old
10. Christa reviewed and provided input on content on training course.
11. Maximum 40 people in course if 2 instructors, 6 hours for course
12. Continuing education credits earned for taking course
13. Pre-test – then review at beginning of course

14. Goal: understand hazard, warning system, community response, risk reduction
15. Group learning activity
16. Post test – Test Available in Spanish

Suggestions/Comments:

- Oregon: Althea cannot teach course due to local rules since content within job scope and cannot get paid or trade "in-kind" time for services
- Hawaii: Kevin R. not currently teaching course

Action Items:

- MES Chairs: Develop Letter to Request Course Content Update for Coordinating Committee Vote at Next Meeting
  (Short list of needed updates/suggestions and recommend flexibility to include local content throughout course for relevance)
- Washington: Attend course being offered in state to provide responses to questions that come up regarding local information

O. ITIC Updates: - Laura Kong

1. Developing National Plan for Tsunami Disaster Impact Assessments –
2. Goal: Coordinated Post-Disaster Efforts
3. International Tsunami Survey Team Post-Tsunami Survey Field Guide: Used by scientists to steer post tsunami work
4. Most recently done in Pala in 2018 – Supports local government (international tsunami survey team (independent body)
5. Team meets with local representative pre & post work to discuss activities and share information gathered – important to use opportunity to share data to support local efforts, information supports early response process
6. PR – process established to conduct the field work, had 2 field teams, EERI & a Social Science.
7. EERI coordinated with officials, universities, virtual assessments, partnering with locals, making contact
8. Social Science (converge): dozens of stakeholders, discussed grants/funding opportunities
9. Tsunami response: different than earthquake response, international component, most of initial contact is remote email. Need smaller teams of experts who know what to do

10. FEMA coordinates national stakeholder call w/ USGS, NSF and FEMA partners (NEHRP funding) – incorporate locals (good coordination in PR) – rising awareness of social impacts of teams coming in following disaster events (how to integrate locals, local universities) – established criteria exists
11. FEMA national response center would activate and coordinate for large events
12. Don't reinvent wheel – structure in place for earthquake p use model for tsunamis
13. 12 states have mission ready packages for mission ready (assessors)
14. Building officials (engineers), architects
15. Process to call, give instructions, deputize, deploy
16. Needed elements exist in established processes
17. 12 states have mission ready packages for mission ready (assessors)Building officials (engineers), architects
18. Process to call, give instructions, deputize, deploy
19. Needed elements exist in established processes
20. Benefit to formalized process:
    - Have written plan
    - Train to the plan
    - Exercise it
21. National Framework:
    - Build on past efforts
    - Needs to be "needs" driven
    - Components for real-time and long-term
    - USGS Circular 1242: Plan to Coordinate NEHRP Post-Earthquake Investigations (tsunami not included)
22. Plan exists: US National Plan for Disaster Impact Assessment: Weather & Water (FCM: P33)
23. Annex 4: Tsunami Data Protocol
24. NWS training scientists in emergency management (ICS) for response purposes
25. WA – requires clearinghouse to take ICS training (state response protocols) and basic ICS 100, 200, etc.
26. Tsunami Data Protocol
27. Important for Sit Stat to know who experts are, reference material/products available, what information do you need and where to get it, back sources, timeframes for information to become available

28. Pre-scripted Mission Assignments – authorized usually after Fed Dec. but may occur prior in case of flooding (maybe tsunamis) can do state level mission tasking prior
29. Next Step: Look at what states have pre-scripted & USGS, Local FEMA region to develop pre-approved pre-scripted mission assignments – cannot be top-driven process, need to look at state and local level protocols and look at partners already incorporated into existing MOUs, etc.
30. Goal: have draft document available by 2021 in time for Cascadia rising exercise

Questions:

- What would help during tsunami response? (as far as post event field survey teams)
- Are mission ready packages developed?
  Response: Yes. Associated with EQ clearinghouse. List of Certified people capable of doing job/fulfilling need - updated and current. Problem with tsunami is that an event may not happen for decades

Suggestions/Comments:

- Suggested to discuss at upcoming national earthquake conference
- Cascadia 2022 exercise: reach out to identify opportunity to include Clearinghouse component
- Require Clearinghouse volunteers to have at least ICS 200 training
- Identify when locals doing EOC training determine if possible to provide subject matter training to understand terminology
- Consider FEMA Mitigation Assessment Team Structure
- MES Feedback: Initial connection with local to identify needs/gaps, access to assist with meeting threshold
- NTHMP Island Caucus Feedback Provided to Laura