PARTICIPANTS:

The meeting participants were:

Kerry Hinds, Task Team Leader, Deputy Director, Department of Emergency Management Barbados
Christa von Hillebrandt-Andrade, Manager US NWS Caribbean Tsunami Warning Program Chair UNESCO IOC CARIBE EWS
Damian Barker, Emergency Communications Officer, Department of Disaster Management, Anguilla
Juan Salado, Coordinator General, Tsunami Alert Unit, National Bureau of Meteorology (OMNAMET), Dominican Republic
Angelica Munoz, Geophysics Director, Nicaraguan Institute of Territorial Studies, Nicaragua
Wilfredo Ramos, Special Assistant to the Director, Puerto Rico Emergency Management Agency (PREMA), Puerto Rico
Donna Pierre, Disaster Risk Management Specialist Caribbean Disaster Emergency Management Agency (CDEMA)
Dr. Victor A. Huerfano, Associate Researcher and Interim Director Puerto Rico Seismic Network
Carolina Hincapie, Research Assistant, Puerto Rico Seismic Network
Wildaomaris Gonzalez Ruiz, Research Assistant III (TsunamiReady Program), Puerto Rico Seismic Network
Clevon Ash, Education and Outreach Officer (Ag.), Seismic Research Centre
John Kimbrough, Regional Adviser, United States Agency for International Development/Office of U.S. Foreign Disaster Assistance, Regional Office for Latin America and the Caribbean
Alison Brome, Interim Director, Caribbean Tsunami Information Centre

1.0 WELCOME AND INTRODUCTIONS

The Task Team Leader and Meeting Chair extended courtesies to participants and invited introductions on behalf of their respective Member States and Organisations.

Miss Hinds further introduced the revised agenda (Appendix I) which was adopted without modification.
2.0 PURPOSE OF ESTABLISHMENT OF TASK TEAM, TASK TEAM RESPONSIBILITIES
OUTLINE OF GOALS FOR SESSION

The Task Team (TT) Leader recalled the recommendation 1 of the Ninth Session of the Intergovernmental Coordination Group for the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE EWS-IX), for the TT to advance the development of the strategy or business proposal for a Performance Based Recognition Programme including the parameters, possible metrics or performance measures, the feasibility, and potential sources of funding for the programme. Miss Hinds further highlighted that the work of the TT fell under the ambit of ICG/CARIBE EWS Working Group 4: Preparedness, Readiness and Resilience.

In this regard, it was noted that the meeting should seek to provide a generic document for consideration and approval at the upcoming ICG/CARIBE EWS-X, 19 – 21 May, 2015.

3.0 REPORT OF TASK TEAM WORK 2013-2014

Ms. Hinds presented the Report of Task Team Work 2013-2014 which has been included as Appendix II.

The Meeting:

i. Noted that the 1st TT meeting was convened November 13 and 14, 2013 in Mayaguez, Puerto Rico. Further noted the meeting included a site visit to various TsunamiReady communities in Mayaguez.

ii. Further noted the key outcomes of the November 2013 meeting including:
   a. First-hand knowledge of the recognition and management requirements of TsunamiReady communities.
   b. Recommendation for a global accreditation standard for community-based tsunami preparedness.
   c. A multi-sector approach to sustainability including national or community level budgets, private-public sector partnership funding, private financing.
   d. Technical support from regional organisations such as the Caribbean Tsunami Information Centre (CTIC) would be key to maintaining the Programme.

iii. Noted the follow-up actions and the following recommendations from the November 2013 meeting:
   a. Member States should continue to support the ICG/CARIBE-EWS Regional Tsunami Preparedness and Mitigation Programme.
   b. The TT should continue its’ work on the development of the strategy for a Performance Based Recognition Programme as required by the ICG.
4.0 PRESENTATION: ANGUILLA’S ROAD TO RECOGNITION - LESSONS LEARNT(ANGUILLA)

The presentation was provided by Damian Barker, Emergency Communications Officer, Department of Disaster Management, Anguilla. Within his presentation, Mr. Barker highlighted the following:

i. Anguilla possessed a multi-hazard EWS which facilitated the pursuit of the recognition under the TsunamiReady Pilot Program;

ii. The program requirements, cost of the recognition process, time frames, roles and responsibilities of national and regional organisations as part of the verification process; and

iii. Challenges faced within the process.

The Meeting:

i. Congratulated Anguilla on the renewal process.

ii. Noted the post recognition challenges including theft of signs, low public response to events.

iii. Noted that the responsibility of the community-based tsunami programme was largely at the national level and there was a need for community level representatives and organisations which mirrored the roles of the Tsunami National Contact (TNC) and the Tsunami Warning Focal Point (TWFP) respectively.

5.0 THE PROCESS FOR IMPLEMENTING COMMUNITY TSUNAMI PREPAREDNESS PROGRAMMES IN NICARAGUA

This subject presentation was provided by Angelica Munoz, Geophysics Director, Nicaraguan Institute of Territorial Studies, Nicaragua and focused on the development of the national and community-based system of tsunami preparedness since 1992, including the establishment of the National System for the Prevention, Mitigation of, and Attention to Disasters (SINAPRED). Ms. Munoz highlighted additional features of the existing system such as:

i. The system of tsunami preparedness in Nicaragua was Government-led;

ii. The five-year National Risk Management Plan which is currently under review;
iii. The early warning system (EWS) was developed since 2004 with support from European countries that provided monitoring and sensor equipment. The system is buttressed by modelling and mapping and includes sixty (60) sirens along Nicaragua’s Pacific Coast with additional sirens being installed on the Caribbean Coast within the last 2 – 3 years.

iv. Community-level training including the transfer of risk knowledge and preparedness e.g. development of family plans;

v. The training has been implemented incrementally through a number of projects and also entails drills, exercises, and evacuations particularly since 2008, incorporation of tourists and the general population in the public awareness and education activities; and

vi. Inclusion of regional exercises such as CARIBE WAVE and PAC WAVE.

The Meeting:

i. Noted that the real tsunami events experienced by Nicaragua have helped to propel the national programme and the positive public response.

ii. Further noted that the declaration of a tsunami emergency is only within the powers and the President and therefore the strong legislative provisions and the form of governmental system have contributed to the success of Nicaragua’s community-based tsunami preparedness programmes.

iii. Also noted that the level of preparedness is measured through evacuation exercises which are held at least 3 times annually.

6.0 PRESENTATION: THE RECOGNITION PROCESS - PERSPECTIVES FROM CTWP

This presentation was provided by Christa von Hillebrandt-Andrade, Manager US NWS Caribbean Tsunami Warning Program (CTWP).

This presentation focused on the TsunamiReady Program Pilot Project Recognition Process; particularly the application, verification and recognition processes. The recent example of the British Virgin Islands (BVI) was used as a case study.

The Meeting:

i. Noted the current roll-out of similar initiatives in the Dominican Republic at the community level and the critical challenge being faced of sustainability including the availability of specialist personnel.
ii. **Recognised** that a key consideration would be the name of the programme.

iii. **Noted** the need for community or country information, including maps.

iv. **Also noted** the experiences of Anguilla and BVI, including the following:
   a. In Anguilla, the maps and signage were produced at a cost of approximately USD $3000
   b. In-kind technical support and guidance by a regional consultant contributed to a reduced cost for Anguilla
   c. In the case of BVI, the regional consultant provided guidance to the local GIS personnel preparing the maps
   d. The integration of the *TsunamiReady* concept within the Safe Schools Programme in the BVI.
   e. Travel costs for the verification team was included in BVI’s cost

v. **Acknowledged** the importance of donor funding to the success of the programme.

vi. **Recommended** that detailed consideration be given to the time-frame for certification.

vii. **Noted** the synergies of the proposed Tsunami Recognition Programme with the main recommendations of the 3rd World Conference on Disaster Risk Reduction 14 – 18 March 2015 to focus on recognizing communities and community-based initiatives. **Also noted** the need to use this synergy to raise the level of the programme.

**7.0 WORKING SESSION ON TSUNAMI RECOGNITION PROGRAMME**

The Working Session facilitated the review and adaptation of the existing *TsunamiReady* guidelines and application form through discussion involving all participants. The following represents a summary list of the topics discussed which will be reflected in the ICG/CARIBE EWS adapted versions of the guidelines, application form and processes to be considered at ICG/CARIBE EWS X:

i. Application form and application process – key considerations were who should initiate the process and whether it should occur at the national or community level.

ii. Verification process – the programme requirements as well as typical cost and time-frames.

iii. Required processes or stages within the proposed programme including renewal time-frame bearing in mind the human resource capacity of the CTIC and the number of Member States comprising the ICG/CARIBE EWS.
iv. Parameters – consideration of whether the parameters should be population-based/risk-based a combination or alternative criteria.

v. Scalability – the need for a level of adaptation within the processes and guidelines to facilitate participation and recognition by all Member States.

The Meeting:

i. Noted CTIC’s role in marketing the programme and the provision of technical support.

ii. Also noted the critical role of donors in funding and the sustainability of the community-based recognition programme.

iii. Recognised the need for various approaches to ensure that the recognition programme maintained a high profile at the political and public levels.

iv. Acknowledged the need for a name to be selected for the programme, noting that the name “TsunamiReady” is copyrighted.

v. Agreed that a level of standardisation would be required including the information disseminated to the public, maps and signage. Further recognised the importance of this for Member States which possessed both Caribbean and Pacific coasts.

vi. Noted the need to utilize real tsunami events to engender public and community participation and commitment within the programme. Further noted the inclusion of Annexes e.g. case studies such as Anguilla, Nicaragua, Puerto Rico and BVI as well as other documents e.g. science papers.

vii. Recommended that the programme gives consideration to special needs and vulnerable groups within communities.

viii. Highlighted the recommendations of the Working Group on Tsunamis and Other Hazards related to Sea Level Warning and Mitigation Systems (TOWS) considerations to use the CARIBE EWS programme as the model for all ICGs.

ix. Acknowledged the need for legislative provisions and strong political backing to support the programme.

x. Further acknowledged the differentiation of roles at the national and community levels in support of the programme.

xi. Recommended the widespread knowledge of protocols and piloting of the programme through existing and upcoming initiatives.

xii. Strongly recommended the development of a visibility and marketing strategy for the programme targeting public and private sectors as well as donors and at-risk communities.
xiii. **Recommended** that the draft CARIBE EWS Guidelines enclosed as Appendix III be referred for review and approval at ICG/CARIBE EWS-X.

8.0 **NEXT STEPS AND MEETING CLOSE OUT**

This agenda item was led by the Task Team Leader, who thanked participants for the high level of discussion and recommendations regarding the proposed programme and expressed appreciation in advance for feedback and support in finalising and piloting the programme.

**The Meeting:**

i. **Agreed** that the meeting report and the adapted guidelines would be referred to participants for feedback within a two-week timeframe.
APPENDIX I

TSUNAMI RECOGNITION PROGRAMME TASK TEAM MEETING

MAYAGUEZ, PUERTO RICO

APRIL 8, 2015

The objective of the Tsunami Performance Recognition Programme Task Team Meeting is to advance the development of the strategy or business proposal for a Performance Based Recognition Programme as required by the ICG, including the parameters, possible metrics or performance measures, the feasibility, and potential sources of funding for the programme.

AGENDA

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
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<tbody>
<tr>
<td>8:30-8:35 AM</td>
<td>Welcome and Introductions</td>
</tr>
<tr>
<td>8:35-8:45 AM</td>
<td>Purpose of Establishment of Task Team</td>
</tr>
<tr>
<td></td>
<td>Task Team Responsibilities</td>
</tr>
<tr>
<td></td>
<td>Outline of Goals for Session</td>
</tr>
<tr>
<td>8:45-9:05 AM</td>
<td>Report of Task Team Work 2013-2014</td>
</tr>
<tr>
<td>9:05-9:30 AM</td>
<td>Presentation: Anguilla’s Road to Recognition :Lessons learnt (Anguilla)</td>
</tr>
<tr>
<td>9:30-9:55 AM</td>
<td>The Process for Implementing Community Tsunami Preparedness Programmes in Nicaragua”</td>
</tr>
<tr>
<td>9:55-10:20 AM</td>
<td>Presentation: The Recognition Process: Perspectives from CTWP (Christa)</td>
</tr>
<tr>
<td>10:20-10:35 AM</td>
<td>BREAK</td>
</tr>
<tr>
<td>10:35 AM - 12:00 PM</td>
<td>Working Session on Tsunami Recognition Programme</td>
</tr>
<tr>
<td>12:00 - 1:30 PM</td>
<td>LUNCH</td>
</tr>
<tr>
<td>1:30 - 4:15 PM</td>
<td>Working Session on Tsunami Recognition Programme</td>
</tr>
</tbody>
</table>
APPENDIX II

REPORT ON TASK TEAM ON PERFORMANCE RECOGNITION PROGRAMME

Specific Purpose of Meeting:

The ICG CARIBE-EWS Working Group IV in association with the Caribbean Tsunami Information Centre (CTIC), the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organisation (UNESCO/IOC), and the United Nations Development Programme (UNDP) for Barbados and the OECS through the Enhancing Resilience to Reduce Vulnerability in the Caribbean (ERC) Project, is currently advancing activities to support the development of an end-to-end interoperable Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (CARIBE EWS).

As part of the activities being coordinated by the Working Group IV in association with the CTIC on behalf of the ICG/CARIBE - EWS the Tsunami Performance Recognition Programme Meeting was convened on November 13 and 14, 2013 in Mayaguez, Puerto Rico.

Tsunami Performance Recognition Programme Meeting

The objectives of the Tsunami Performance Recognition Programme Task Team Meeting were to advance the development of the strategy or business proposal for a Performance Based Recognition Programme as required by the ICG, including the parameters, possible metrics or performance measures, the feasibility, and potential sources of funding for the programme.

Task Team Membership

Kerry Hinds, DEM, Barbados, (Chair)
Wilfredo Ramos, PREMA, USA
Carolina Hincapie, PRSN, Puerto Rico, USA
Juan Salado, ONAMET, Dominican Republic
Gerard Metayer, SEMANAH, Haiti

Additionally technical expertise was provided by:

Donna Pierre, CDEMA Coordinating Unit

Alison Brome, Interim Director, CTIC

Dawn French, NEMO St. Lucia

Christa Von Hillerbrandt, PRSN, Puerto Rico, USA

Wildaomaris Gonzalez Ruiz, PRSN, Puerto Rico, USA

Anguilla Department of Disaster Management

**Key Outcome(s) of the Conference/Meeting:**

**Review of Day One**

**Field Trips**

Meeting participants were given the opportunity to visit the tsunami ready communities of Rincon and Mayaguez in Mayaguez Puerto Rico. After exchanging the customary pleasantries, the day’s activities commenced with a tour from the north to the south of Mayaguez including the special evacuation trail in the district near Western Plaza. During the tour, participants were able to see the sirens which have been erected as part of the early warning system, the signage which included evacuation route, evacuation zone and assembly point signs, billboards depicting evacuation maps and general tsunami public awareness information which have been placed in the municipality as part of the tsunami ready program. Persons were also taken to the special evacuation trail maintained by one of the communities. This was particularly interesting since this community created this trail as a short cut to get to higher ground very quickly if there is a tsunami event.

After the tour of the communities we then met with the emergency management Manager Chris Ramos and his personnel at the local emergency management agency to discuss the successes and challenges of the overall program and operations. The group was given the opportunity to hear firsthand from emergency management personnel about their experiences with the implementation of the tsunami ready
programme, view the various plans, procedures and equipment which supported Mayaguez’s operations as well as discuss the workings of the warning system its connectivity with the community, municipality authorities and state authorities.

In the afternoon participants continued the tour, visiting the tsunami ready community of Rincon. Similar to the morning segment of the tour participants were given a tour of the community thereby receiving the opportunity to see signage, evacuation routes, maps, assembly points and sirens. The group then visited the local emergency management agency and other first responder agencies such as the Municipal Police where there were given an overview of how the warning and communications system works. During the visit to Rincon, the visiting group was able to engage the officials about the implementation and continued operationalisation of the community-based tsunami ready program noting that while generally it was a good program there were still some sections of the community for example some hotels and residents that were not totally onboard with the program. There was some concern about erection of the signage having a negative impact on property values. It was also noted that some of the signage became victim to graffiti.

**Review of Day Two**

On Day two of the Tsunami Performance Recognition Task Team Meeting, participants discussed the development of a strategy for promoting and implementing a community-based recognition program for tsunami preparedness. Consideration was given to the existing National Weather Service TsunamiReady Program Guidelines and the implementation of existing tsunami recognition programmes in communities such as Rincon and Mayaguez, Puerto Rico as well as the Anguilla case study. Participants were able to develop an initial draft of Community-centric Tsunami Preparedness Guideline.

Discussion also centered on accreditation issues noting that it was important that communities be recognized for their efforts at promoting and enhancing their tsunami preparedness. It was further noted that a standard globally recognized accreditation was preferable and desirable for communities. However, an issue regarding accreditation was that of country accreditation versus community accreditation and
who would be the parties responsible for bestowing recognition at these various stages of the process.

The question of program sustainability was discussed, noting that community or country financing through national or community level budgets, private-public sector partnership funding, private financing were all feasible options which should be explored by individual countries before embarking on the programme. It was also noted that the Caribbean Tsunami Information Centre (CTIC) would support the programme through the rendering of technical assistance to countries and territories.

The monitoring and evaluation of the program on a periodic basis over its lifespan was considered. Standardised metrics would be developed to measure the effectiveness of the programme. These measurements over a period of time could also be done at the community, country and regional levels.

Programme Visibility was also discussed noting that any community based recognition programme would have to be marketed on an ongoing basis to harness support for the initiative and engage existing and potential stakeholders and or investors.

**Follow-Up Actions:**
1. Chair of Tsunami Performance Recognition Task Team will produce and circulate the report of the meeting for the benefit of the task team and the wider Regional Working Group IV Membership through the Technical Secretary IOC.
2. Barbados to convene a follow up task team meeting if required before or during the 9th Session of ICG CARIBE-EWS.
3. Barbados as Chair of the Task Team to indicate to ICG IOC Secretariat of St. Lucia’s willingness to participate in the task team.

**Recommendation(s):**
1. Member States should continue to support the ICG/CARIBE-EWS Regional Tsunami Preparedness and Mitigation Programme.
2. The Task Team should continue its’ work on the development of the strategy for a Performance Based Recognition Programme as required by the ICG.
### NOVEMBER 13, 2013

#### AGENDA

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>8:00 – 10:00 AM</td>
<td>Tour from North to South of Mayaguez, including the special evacuation trail made by the municipality near Western Plaza, Sirens, Signage (standard and maps), San Jose neighborhood.</td>
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<tr>
<td>10:00 – 11:30 AM</td>
<td>Visit and Meeting at Mayaguez OMME (Christian Ramos)</td>
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<tr>
<td>12:00 – 1:30 PM</td>
<td>Lunch at Hotel, OMME directors of Mayaguez and Rincon, invited</td>
</tr>
<tr>
<td>1:30 – 3:00 PM</td>
<td>Tour of Rincon, Estela, Lighthouse, signage, sirens</td>
</tr>
<tr>
<td>3:00 – 4:30 PM</td>
<td>Visit and Meeting to Rincon OMME/Municipal Police (Hector Martinez)</td>
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<tr>
<td>5:00 PM</td>
<td>Return to Hotel</td>
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</tbody>
</table>

### NOVEMBER 14, 2013

#### AGENDA

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>9:00 – 9:05 AM</td>
<td>Welcome and Introductions</td>
</tr>
<tr>
<td>9:05 – 9:15 AM</td>
<td>Purpose of Establishment of Task Team</td>
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<td>Task Team Responsibilities</td>
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<td></td>
<td>Outline of Goals for Session</td>
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<tr>
<td>9:15 – 9:30 AM</td>
<td>Recap of preceding day’s field trips</td>
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<tr>
<td>9:30 – 10:00 AM</td>
<td>Presentation by Local TsunamiReady Committee (Christa/Wilfredo)</td>
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<tr>
<td>10:00 AM – 12:00 PM</td>
<td>Working Session on Tsunami Recognition Programme</td>
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<tr>
<td>12:00 – 1:30 PM</td>
<td>LUNCH</td>
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<tr>
<td>1:30 – 4:15 PM</td>
<td>Working Session on Tsunami Recognition Programme</td>
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<tr>
<td>4:15 – 4:30 PM</td>
<td>Next Steps and Meeting Close Out</td>
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UNESCO IOC CARIBE EWS/NWS
Proposed Guidelines for CARIBE EWS Community Recognition

Guidelines for designation are given in the following table. Each guideline is fully discussed following the table. The guidelines are based Preparedness, Mitigation and Response Categories.

<table>
<thead>
<tr>
<th></th>
<th>Completed</th>
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<tbody>
<tr>
<td><strong>PREPAREDNESS</strong></td>
<td></td>
</tr>
<tr>
<td>Prep-1. Produce easily understood tsunami evacuation maps as determined to be appropriate by local authorities</td>
<td></td>
</tr>
<tr>
<td>Prep-2. Support an ongoing sustained tsunami public education effort. This effort should include the development and distribution of outreach materials</td>
<td></td>
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<tr>
<td>Prep-3. Hold at least three outreach or education activities annually</td>
<td></td>
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<tr>
<td>Prep-4: Conduct an annual tsunami community exercise.</td>
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<tr>
<td><strong>MITIGATION</strong></td>
<td></td>
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<tr>
<td>Mit-1. Have designated and mapped tsunami hazard zones.</td>
<td></td>
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<tr>
<td>Mit-2. Have a public display of tsunami information</td>
<td></td>
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<tr>
<td><strong>RESPONSE</strong></td>
<td></td>
</tr>
<tr>
<td>Resp–1. Address tsunami hazards in the community’s emergency operations plan (EOP).</td>
<td></td>
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<tr>
<td>Resp–2. Commit to supporting the emergency operations center (EOC) during tsunami incidents if an EOC is opened and activated.</td>
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<tr>
<td>Resp–3. Have redundant and reliable means for a 24-hour warning point (and EOC if activated) to receive official tsunami watch, advisory, and warning alerts</td>
<td></td>
</tr>
<tr>
<td>Resp–4. Have redundant and reliable means for 24-hour warning point and/or EOC to disseminate official tsunami watch, advisory, and warning alerts to the public.</td>
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</tbody>
</table>
CARIB EWS PROPOSED GUIDELINES -- FOUNDATION

The Guidelines in this document will be required for recognition for CARIBE EWS Performance Based Recognition Program. Until this date, the 2001 US TsunamiReady Guidelines were used for US, while a Pilot Project adapted these for the CARIBE EWS for joint recognition by NOAA/NWS and UNESCO.

http://www.tsunamiready.noaa.gov/guidelines.htm

Communities or counties that have a current recognition will be requested to meet the new guidelines for their recognition. Given that this recognition program is based on the proposed guidelines of the US TsunamiReady® Program, those communities under US jurisdiction which meet the US requirements will also be considered as recognized communities by CARIBE EWS.

Coastal communities seeking CARIBE EWS recognition should meet all elements. The specific actions required to meet each element will vary among communities depending on the types of tsunami hazards and related vulnerability and as determined by the local, state, national or regional TsunamiReady Board (composed of warning and disaster management national/regional experts as identified by the CARIBE EWS).

Communities with plausible local tsunami threats should include efforts that enable individuals at risk for tsunami inundation to take self-protective actions, in addition to strategies for all coastal communities that address regional and distant tsunamis. Determination of the range of plausible local, regional, and distant tsunami threats in a particular community rests with the designated Board who will be in close communication with tsunami experts, Tsunami Service Providers, Tsunami Warning Centers and emergency managers, universities, or consultants.

PREPAREDNESS (PREP)

Prep-1. Produce easily understood tsunami evacuation maps as determined to be appropriate by local authorities that depict tsunami evacuation routes and assembly areas (see Mit-1). Maps should be based on tsunami hazard zone mapping and in accordance with the community’s emergency operations plan. Maps should be made available via appropriate print and/or digital media. Note: for communities on the coasts of the Gulf of Mexico or in the Adjacent Regions of the Atlantic, a “baseline tsunami hazard zone” can be prepared and, where observed, is approved to meet this guideline.

Prep-2. Support an ongoing sustained tsunami public education effort. This effort should include the development and distribution of outreach materials that include, where appropriate, tsunami evacuation maps, evacuation routes, safety tips, and information about when and how to respond to warnings (including natural warnings for regions with a local tsunami threat). They should be tailored to meet local information needs and be based
on location-specific tsunami threats. All schools within the community requesting recognition should receive a copy of the materials. Distribution should use three or more wide-reaching diverse methods, including, but not limited to:

- Brochures and flyers distributed at public venues and/or bulk mailed to local residents and businesses
- Newspaper inserts
- Public utility/service industry bill safety notices
- Local faith-based and civic organization bulletins/mailings
- Local radio and television
- Billboard, roadside, highway, or educational signs
- Historical markers and interpretative signs
- Websites/Social media
- Bulk email

Possible physical locations for distribution of materials include:

- Schools
- Visitor centers and local tourist businesses (e.g., restaurants, bars)
- Hotels, motels, and campgrounds where visitors to beach areas stay
- Public libraries
- Community centers
- Recreation centers
- Kiosks or information centers in places where the public visits (e.g., malls, stores, etc.)
- Child care centers

**Prep-3. Hold at least three outreach or education activity annually** to educate community residents, businesses, and visitors, with an emphasis on those in the tsunami hazard zone, on tsunami hazards, evacuation routes, how warning information will be received (including natural warnings for regions with a local tsunami threat), safety, and response. These activities may be multi-hazard as long as they include tsunamis in the content. The number of activities required for a given community is to be determined by the Board but will generally include at least one community-wide event and/or multiple smaller scale events.

Acceptable activities include, but are not limited to:

- Leveraging of national, state, and regional campaigns through use of social media.
- Multi-hazard events or presentations.
- Booths at community events and county fairs.
- Community tsunami safety workshops, town halls, or similar public meetings.
- Presentations or workshops for faith-based organizations, community or civic groups.
- Local public safety campaigns, such as “Tsunami Preparedness” week/month.
• Local business workshops to help them develop response and business continuity plans.
• Information for business owners for employee training, outreach, or education that targets high-occupancy businesses in tsunami hazard zones (e.g., hotels, restaurants, fisheries, industrial sites).
• Door-to-door safety campaigns targeted to residents and businesses who live or work in the community’s tsunami hazard zone.

Prep-4: Conduct an annual tsunami community exercise. The exercise can focus solely on the tsunami hazard or can be a multi-hazard exercises that also address the tsunami hazard. The exercises could be tabletop, functional, or full-scale. The exercise should include a communications test. An effort should be made for the schools within the mapped evacuation zone to participate by conducting an evacuation drill. These exercises can be conducted as part of a multi-hazard drill (for example, combined with a fire, hurricane, volcano exercise).

MITIGATION (MIT)

Mit-1. Have designated and mapped tsunami hazard zones. The primary source for mapping potential tsunami hazard zones is inundation modeling, which illustrates expected areas to be flooded by the tsunami. If models are unavailable, other acceptable sources include guidance from tsunami experts from technical agencies, universities, or consultants. Modeling and mapping efforts should meet CARIBE EWS guidelines. Note: for communities on the coasts of the Gulf of Mexico or the Adjacent Regions in the Atlantic, a “baseline tsunami zone” can be used and, where observed, is approved to meet this requirement. SLOSH or other storm surge modeling is also approved for use for this purpose.

Mit-2. Have a public display of tsunami information and response that identifies for example: (1) tsunami danger area and/or hazard zone (entering and leaving signs), evacuation routes, and assembly area; and (2) provides tsunami response education (go to high ground). Signage should be implemented according to national and local policies and as determined to be appropriate by authorities, the Board, and with possible assistance from partners. Wherever possible, signage should comply with specifications aimed at standardization so that all coastal communities eventually will have identical signage. Continuity of signage benefits domestic residents and international visitors. Multi-hazard signs and displays that include the tsunami hazard are adequate for this item.
RESPONSE (RESP)

Resp–1. Address tsunami hazards in the community’s emergency operations plan (EOP). If a community-level plan does not exist, other acceptable plans include a countywide EOP or a state or local comprehensive emergency management plan. To meet this requirement, plans should:

- Identify tsunami as a hazard and provide a risk assessment
- A tsunami-hazard profile, including source locations, extent of inundation, run-up or height that a wave reaches above sea level, previous tsunami occurrences, and likelihood of future tsunamis
- A description of community vulnerability, including areas exposed to inundation and an impact summary of the resident population and specific sub-populations of people expected to be affected (e.g., individuals with access and functional needs, visitors, seasonal workers), businesses, infrastructure, and critical facilities
- Detail 24-hour warning point procedures relating to tsunamis
- Specify emergency operations center activation criteria, staffing expectations, and
- Specify tsunami criteria and procedures for the activation of the public warning system in its area of responsibility
  - Criteria and procedures for siren activation, cable television override, and/or local activation in accordance with state EAS plans, warning fan-out procedures, and communication to functional and access needs populations
- Provide contact information for all jurisdictional agencies and response partners, including the NWS
- Include evacuation plans for tsunamis, roles of community entities/agencies, tsunami hazard zone maps with evacuation routes, and protocols for access and functional needs populations
- Include procedures for updating information and determining when to advise it is safe for (1) emergency response personnel to enter the evacuated zones, and (2) when it is safe for the public to return to homes and businesses in the evacuated zone(s)
- Include procedures for providing security for the evacuated zone(s)
- Include procedures for reporting tsunami impacts in the community
- Include schools in the emergency operations plan and provide copy of the plan to the schools.

Resp–2. Commit to supporting the emergency operations center (EOC) during tsunami incidents if an EOC is opened and activated. Ensure that the EOC can execute tsunami warning functions (public notifications) based on predetermined guidelines related to CARIBE EWS tsunami information and/or tsunami incidents.

- Has 24-hour operations or plan to activate an EOC for tsunami incidents in accordance with the EOP
- Has warning reception and dissemination capability
- Has the ability and authority to activate the public warning system in its area of
responsibility

- Maintains the ability to communicate within and across jurisdictions (e.g., with other EOCs, including those maintained by private organizations, incident command posts, etc.); communication capabilities should be equal to or better than the communication/dispatch center
- Maintains established communication links with Tsunami Warning Centers to relay real-time weather and flood reports to support the warning decision making process

Note: this applies only for communities with a year-round population of 15,000 or more. For communities with less than a 15,000 year-round population, there must be ties to an EOC serving that community.

Resp–3. Have redundant and reliable means for a 24-hour warning point (and EOC if activated) to receive official tsunami watch, advisory, and warning alerts from CARIBE EWS Tsunami Service Providers, National Tsunami Warning Centers/Tsunami Warning Focal Points, or other officially recognized agencies such as state and local emergency management agencies. Alerts must be able to reach the 24-hour warning point by at least three of the following:

- Public Alert Radio Systems, like NOAA Weather Radio (NWR) receiver
- National/Territorial warning fan-out notification system (documented in writing with backup indicated)
- Instant messaging programs available via the Internet used by operational personnel to share critical warning decision expertise and other significant weather information
- Emergency Management Weather Information Network (EMWIN) receiver: Device that receives satellite feed and/or VHF radio transmission of NWS products
- National/Territorial telecommunications system: Automatic relay of NWS products, usually on law enforcement systems
- California Integrated Seismic Network (CISN) Display Program
- Amateur Radio transceiver: Potential communications directly to National Tsunami Warning Center or Tsunami Warning Focal Point
- Alerts provided through a third-party provider: Typically received via phone, email and/or a texting service to a smartphone, tablet, or computer
- Local Radio: Emergency Alert System, LP1/LP2
- Active Internet monitoring capability, including social media such as Facebook and Twitter
- Direct email from CARIBE EWS Tsunami Service Provider or National Tsunami Warning Center or Tsunami Warning Focal Point
- Direct fax from CARIBE EWS Tsunami Service Provider or National Tsunami Warning Center or Tsunami Warning Focal Point
- Text message or direct pager message from CARIBE EWS Tsunami Service Provider or National Tsunami Warning Center or Tsunami Warning Focal Point
• Coast Guard (CG) broadcasts: warning point monitoring of CG marine channels

• Other communications channel (e.g., active participation in a state-run warning network, two-way, local emergency responder radio network, etc.), please explain.

Resp–4. Have redundant and reliable means for 24-hour warning point and/or EOC to disseminate official tsunami watch, advisory, and warning alerts to the public. Alerts must be able to be disseminated from the 24-hour Warning Point and/or EOC through at least three of the following methods:

• Emergency Alert System (EAS) message initiation and broadcast
• Cable television audio/video overrides
• Local flood warning systems ideally with no single point of failure
• Plan for siren/megaphone notification on emergency vehicles
• Outdoor warning sirens
• Other local alert broadcast system
• Local pager/texting system
• Amateur radio operator network (ham radio)
• Telephone mass notification system
• Telephone tree to critical facilities
• Coordinated jurisdiction-wide radio network
• For counties, parishes, boroughs, etc., a countywide communications network that ensures the flow of information between all cities and towns within its borders, including acting as the surrogate warning point and/or EOC for communities without those capabilities
• Social media usage (Twitter, Facebook, etc.)
• Lifeguards on beaches and on patrol
• Other, please explain

All response requirements should recognize that during a local tsunami event, initial response would be performed primarily by at-risk individuals. Individuals in local tsunamis, including emergency personnel, will need to take personal responsibility for evacuating after recognizing the natural warnings or environmental cues of a possible or imminent tsunami (e.g., ground shaking from an earthquake, unusual rapid rise or fall of a shoreline). Official communications and warnings may be difficult to perform given the potential for infrastructure and telecommunication damage from the preceding earthquake and the limited time between the generation and arrival of the first wave in the tsunami.
APPENDIX A: GLOSSARY OF TERMS

24-Hour Warning Point (WP)†: A communication facility at a state or local level, operating 24 hours a day, which has the capability to receive NWS alerts and warnings, plus has the authority and ability to activate the public warning systems in its area of responsibility.

CARIBE EWS Recognized Community: A territorial/local government†, entity or facility that has the authority and ability to adopt the recognition guidelines within its jurisdiction.

†The term “local government” means –

a) A county, parish, borough, municipality, city, town, township, local public authority, school district, special district, intrastate district, council of governments, regional or interstate government entity, or agency or instrumentality of a local government.

b) An Indian tribe or authorized tribal organization, or Alaska Native village or organization that is not an Indian tribal government.

c) A rural community, unincorporated town or village,

‡The term “facility” for a community includes but is not limited to: universities, colleges, military installations, state/national parks, power plants/utilities, major transportation centers (i.e., airports, harbors, ports, railroad stations and other large transit complexes), theme parks/entertainment complexes, corporate business complexes, factories and large event venues (i.e., stadiums, arenas, race tracks, convention centers and other venues that temporarily host large gatherings of people).

Communications/Dispatch Center: Agency or interagency dispatch centers, 911 call centers, emergency control or command dispatch centers, or other facility and staff who handle emergency calls from the public and communication with emergency management/response personnel. This center may act as a 24-hour warning point.

Critical Facilities: A critical facility provides services and functions essential to a community, especially during and after a tsunami. Examples of critical facilities requiring special consideration include:

- Police stations, fire stations, critical vehicle and equipment storage facilities, and emergency operations centers needed for tsunami response activities before, during, and after a tsunami
- Medical facilities, including hospitals, nursing homes, blood banks, and health care facilities (including those storing vital medical records) likely to have occupants who may not be sufficiently mobile to avoid injury or death during a tsunami
• Schools and day care centers, especially if designated as shelters or evacuation centers
• Power generating stations and other public and private utility facilities vital to maintaining or restoring normal services to tsunami-hit areas
• Drinking water and wastewater treatment plants
• Structures or facilities that produce, use, or store highly volatile, flammable, explosive, toxic, and/or water-reactive materials

**Emergency Operations Center (EOC):** The physical location at which the coordination of information and resources to support incident management (on-scene operations) activities normally takes place. An EOC may be a temporary facility, a permanently established facility or located at a higher level of organization within a jurisdiction. EOCs may be organized by major functional disciplines (e.g., fire, law enforcement, medical services), by jurisdiction (e.g., federal, state, regional, tribal, city, county), or by some combination thereof.

**Distant Tsunami:** (Also referred to as a teletsunami). A tsunami originating from a faraway source, generally more than 1,000 km/621 miles or 3 or more hours tsunami travel time from its source to the area impacted. What may be a distant tsunami in one location can be a local tsunami for another location. A distant tsunami may also be referred to as a “far-field” tsunami hazard. The most common distant threats are from dangerous and unpredictable currents resulting in possible significant harbor and shoreline damage.

**Emergency Operations Plan (EOP):** A document maintained by various jurisdictional levels setting procedures for responding to a wide variety of potential hazards. It should include the following:

a) Describe how people and property will be protected
b) Detail who is responsible for carrying out specific actions
c) Identify the personnel, equipment, facilities, supplies, and other resources available
d) Outline how all actions will be coordinated

**Emergency Management/Response Personnel:** Includes federal, state, territorial, tribal, sub-state regional, and local governments, nongovernmental organizations (NGOs), private sector organizations, critical infrastructure owners and operators, and all other organizations and individuals who assume an emergency management role.

**Incident:** An occurrence, natural or manmade, that requires a response to protect life or property. Incidents can, for example, include major disasters, emergencies, terrorist attacks, terrorist threats, civil unrest, wildland and urban fires, floods, hazardous materials spills, nuclear accidents, aircraft accidents, earthquakes, hurricanes, tornadoes, tropical storms, tsunamis, war-related disasters, public health and medical emergencies, and other occurrences requiring an emergency response.
Inundation: The horizontal distance inland that a tsunami penetrates, generally measured perpendicularly to the shoreline.

Local Tsunami: A tsunami generated from a nearby source with less than 1 hour tsunami travel time from its source to the area impacted. What may be a local tsunami in one location can be a regional or distant tsunami for another location. A local tsunami may also be referred to as a “near-field” tsunami hazard. A local tsunami includes tsunamigenic influences due to tectonics in the source zone such as uplift, subsidence, landslides, and strong shaking. It is the focus of major destruction.

Regional Tsunami: A tsunami generated from a regional source, generally between 100 km/62 miles and 1,000 km/621 miles away or between 1 and 3 hours tsunami travel time from its source to the area impacted. What may be a regional tsunami in one location can be a local tsunami for another location. Regional tsunami also occasionally have very limited and localized effects outside the region. In comparison with a local tsunami, it gives a little more time for authorities to respond than the case of local earthquakes.

Tsunami: A tsunami is a series of waves that can cause dangerous fluctuations of water along shorelines, and are generated by earthquakes, volcanic eruptions, or landslides that cause a large scale and rapid displacement of the water. Tsunamis can last minutes, hours, or even days. Tsunami is a Japanese word meaning harbor wave. Tsunamis are often incorrectly called tidal waves; they have no relation to the daily ocean tides.

Tsunami Evacuation Map: A graphical representation of coastal areas that outlines the hazard zones and designates limits beyond which people must be evacuated to avoid harm from tsunami waves. Evacuation routes and assembly areas are generally designated to ensure efficient movement of people out of the evacuation area and to areas of safety. Tsunami evacuation maps should be based on tsunami inundation model outputs or the best available science.

Tsunami Evacuation Zone: Evacuation zones are much larger in surface area than hazard/inundation zones. There is a margin of error in estimation of the hazard/inundation zone. Some areas may not be flooded by tsunami activity but those areas may be isolated by flood waters. This essentially cuts these areas off from other areas. As such, people in those areas are requested to evacuate to prevent them from requiring rescue by first responders.

Tsunami Hazard Zone (aka Tsunami Inundation Zone): The area expected to be flooded or inundated by water in coastal areas. Hazard is synonymous with inundation in this sense, even though there are instances where simple inundation (flooding) may not necessarily be hazardous.

Tsunami Information Centers. Centers which provide education, outreach, technical and capacity building assistance to Member States and public in preventing, preparing, and mitigating measures for tsunamis. Among other activities, the centers manage post event
performance surveys, serve as a resource for the development, publication, and distribution of tsunami education and preparedness materials and information on tsunami occurrences, and may support risk assessment and mitigation activities.

**Tsunami Service Provider (TSP).** Centre that monitors seismic and sea level activity and issues timely tsunami threat information within an ICG framework to National Tsunami Warning Centres/Tsunami Warning Focal Points and other TSPs operating within an ocean basin. The NTWCs/TWFPs may use these products to develop and issue tsunami warning for their countries. TSPs may also issue Public messages for an ocean basin and act as National Tsunami Warning Centres providing tsunami warnings for their own countries.

**Tsunami Source:** Point or area of tsunami origin, usually the site of an earthquake, volcanic eruption, or landslide that caused a large scale and rapid displacement of the water resulting in a tsunami. A comet or meteorite impacting the ocean may also be considered a tsunami source.

**Tsunami Warning Center:** Facilities that have responsibility to detect, forecast, and issue tsunami alerts.