

IA 2

Emergency Operations Plan – Incident Annex 2 *Tsunami*

Section 1: Introduction

1.1 Lead Agency

Maine Emergency Management Agency (MEMA)

1.2 Supporting Agencies

- American Red Cross (ARC)
- Department of Agriculture, Conservation, and Forestry (DACF)
- Department of Health and Human Services (DHHS)
- Department of Transportation (DOT)
- Department of Public Safety – Maine State Police (MSP)
- U.S. Coast Guard (USCG)
- Department of Marine Resources (DMR) – Marine Patrol
- National Weather Service (NWS) – Gray and Caribou
- Maine Geological Survey (MGS)
- Coastal County Emergency Management Agencies

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Section 2: Purpose, Situation, and Assumptions

2.1 Purpose

The purpose of this plan is to establish the operational procedures to be used by the State of Maine to prevent and minimize casualties resulting from a tsunami.

2.2 Situation

Tsunamis are ocean waves produced by earthquakes, underwater landslides, atmospheric pressure waves (harmonic resonance between the atmosphere and the ocean), and/or volcanic activity. They consist of a series of waves that can travel at speeds averaging 450 (and up to 600) miles per hour in the open ocean. The National Tsunami Warning System was developed and implemented to help reduce the loss of life and property from a tsunami event. The National Oceanic and Atmospheric Administration (NOAA) monitors for earthquakes and subsequent tsunami events in both the Pacific and Atlantic Oceans. The Tsunami Warning Centers issue Tsunami Warnings, Watches, Advisories, and Information Bulletins for both the U.S. West and East Coasts.

As a tsunami crosses the deep ocean, its length from crest (top of the wave) to crest may be a hundred miles or more, and its height from crest to trough (bottom of the wave) can a few feet or less. Tsunamis in the open ocean are not felt or seen aboard ships due to their long period (time between crests) and low height. When a tsunami enters shallow water as it approaches coastlines, its velocity lessens and the wave height increases. The size of a tsunami may vary from a brief, discrete elevation increase of the water level to a ‘mega-tsunami,’ which can reach heights of several hundred feet. The wave heights vary greatly along the affected coastline and can be amplified by shoreline and bathymetric (sea floor) features. A large tsunami can flood low-lying coastal land over a mile from the coast.

The rugged coastline of Maine the bathymetry of the Gulf of Maine largely protect the state against tsunamis, these features also present a unique risk. Georges Bank, elevated sea floor that stretches from Cape Cod to Nova Scotia, separates the Gulf of Maine from the Atlantic Ocean. A tsunami approaching the Gulf of Maine would slow in speed and the waves would begin to break over the bank, thus lessening the impact of a tsunami on the coast of Maine. Due to the Great South Channel and the North Channel, tsunami waves generated outside the Gulf of Maine could still enter the gulf and present a danger to the coast. The irregular coastline of Maine would redirect tsunami wave energy and currents in unpredictable manners, which would cause unusual tidal fluctuations and present a threat to harbors and marinas.

Meteotsunamis present a particular hazard because there is no warning time involved. While smaller than other types of tsunamis, these waves still have the capability to threaten life and damage property. In the case of a meteotsunamis, much of the efforts will be focused on response and recovery.

The tsunami threat for Maine is relatively low and any tsunamis would likely be small and inundate low elevation areas and beach areas. Although the risk is low the consequences could be high. Tsunami run-up over three feet is dangerous to people and property. Tsunamis have been recorded on the U.S. Atlantic Coast in 1755, 1884, 1886, and 1929. The majority of tsunamis in the Atlantic Ocean and Caribbean Sea were triggered either by earthquake activity or were the result of volcanic eruptions.

Most of these resulted in localized damage and death, but nothing on a regionally catastrophic scale outside of the Caribbean.

2.3 Assumptions

- A tsunami may occur at any time during the day or night.
- A locally generated tsunami of any significance affecting Maine is unlikely, except for a meteotsunami, which has occurred as recently as 2008 in Boothbay Harbor. See **Attachment A - Tsunami Background Information**.
- A Tsunami Watch, Advisory, or Warning will be transmitted by the National Tsunami Warning Center (NTWC) and NWS forecast offices for all tsunamis that are forecast to impact Maine resulting from a seismic event. See **Attachment I - Tsunami Warning System**.
- The NWS forecast offices might not activate the Emergency Alert System (EAS) for all tsunamis forecast to affect Maine. Tsunamis forecast with minimal impacts (riptides for example) may not result in EAS activation.
- The tsunami threat in Maine may be caused by a distant seismic source, and in this case would provide at least three to four hours of lead time to warn the public and evacuate sensitive facilities.
- Landslides on the outer continental shelf and slope along the Mid-Atlantic coast have the potential to trigger tsunamis that may affect populated coastal areas and arrive in a much shorter period of time.
- Communications and critical infrastructure services may be disrupted or destroyed.
- The maximum possible tourist and workforce populations may be present in the affected areas.
- Withdrawal of the sea may be a precursor to the arrival of the waves.
- The first wave may not be the largest. The largest wave usually occurs among the first three waves.
- Damage will be widespread and will vary widely. There may be concentrations of significant damage in some areas with only slight damage in others.
- Access to and from the damaged areas may be restricted and some low-lying areas may be inundated.
- Meteotsunamis are likely to come without warning.

Section 3: Concept of Operations

3.1 Tsunami Warning System

- NOAA operates the Tsunami Warning System. The goal of the Tsunami Warning System is to protect life and property from tsunamis by providing timely, accurate, reliable, and effective tsunami warning to coastal populations and emergency management organizations within the area of responsibility (AOR), as well as by advancing other aspects of tsunami hazard mitigation.
- The following notices are issued by NOAA's Tsunami Warning Centers. Each has a distinct meaning relating to county emergency response.

Notice	Meaning	Recommended Action
Warning	Inundating waves expected or imminent	Full evacuation
Advisory	Strong currents or dangerous waves are possible	Stay away from shore
Watch	A dangerous event may impact the area later	Stay alert for more information (e.g., close beaches, evacuate harbors and marinas, reposition ships to deep waters)
Information Statement	No danger expected	No action suggested

- All tsunami notices for Maine are issued by the NTWC when a potential tsunami-producing earthquake greater than the threshold magnitude of 6.75 (Richter scale) occurs in the Atlantic Tsunami Center's AOR. Tsunami notices may also be issued when potential tsunami-producing earthquakes greater than magnitude 7.5 occur outside the Atlantic AOR and are likely to impact the AOR.
- The geographic extent of a tsunami product is based on the size of the earthquake, the tsunami travel times throughout the AOR, and expected impact zones.
- Tsunami Warnings are generally issued within 10 minutes after an earthquake occurrence.

3.2 Alert and Warning

1. In the event of a Tsunami Warning, Advisory, Watch, or Information Statement, the NTWC issues the tsunami message to the NWS (Gray and Caribou) as well as the Augusta Regional Communications Center (RCC). The MEMA Radio Room will also receive any messages sent using NAWAS.
2. The decision to activate the Integrated Public Alert and Warning System (IPAWS), Emergency Alert System (EAS) and/or Wireless Emergency Alert (WEA), for a tsunami notice is the responsibility of the NTWC and the State NWS forecast offices. The issuance of a Tsunami Warning will prompt NTWC to activate IPAWS. However, the issuance of a Tsunami Advisory, Watch, or Information Statement does not automatically prompt IPAWS activation. In these cases, the NWS and MEMA will determine if it's appropriate to activate IPAWS. If IPAWS is activated by the NTWC, state officials may follow-up with additional activations of IPAWS or use other methods to warn the public and/or issue safety messages.

3. Upon receipt of a Tsunami Warning, Advisory, Watch, or Information Statement, Augusta RCC (the State Warning Point) will confirm receipt of the tsunami message with the NTWC and relay it to regional RCCs. For redundancy, the Augusta RCC has several communications systems to receive tsunami messages, including:
 - a. National Warning System (NAWAS).
 - b. NOAA Weather Wire Service (NWWS), also referred to as “Weather Wire,” is a satellite data collection and dissemination system operated by the National Weather Service (NWS). Its purpose is to provide state and federal government, commercial users, media, and private citizens with timely delivery of meteorological, hydrological, climatological, and geophysical information.
 - c. Telephone, email, and cellular telephones are also used to disseminate and confirm receipt of tsunami information.
4. During business hours a copy of the tsunami message is given to MEMA officials by the Augusta RCC and sent (via general message – file 13) to the coastal emergency management offices. The Augusta RCC will call to confirm receipt of the message.
5. After business hours, it is sent (via general message – file 13) to regional RCCs and coastal county emergency management warning centers which notify the appropriate county emergency management directors. The Augusta RCC will also confirm receipt of the message telephonically with the warning centers. The message will also be emailed to the MEMA Duty Officer (DO).
6. Upon receipt of any of the tsunami products, the MEMA Director (or their designee) will confer with the NWS Warning Coordination Meteorologist (and if not available, a State NWS forecast representative) to confirm threat and discuss potential consequences.
7. Upon receipt, the MEMA Duty Officer will follow the alerting procedure outlined in **Appendix I. MEMA Duty Officer Procedure.**
8. Depending upon the nature of the event, MEMA’s radio room may issue a general broadcast via the RegionNets.
9. In the event a Tsunami Warning, Advisory, Watch, or Information Statement is issued for the Maine coast by NTWC, the State Emergency Operations Center (SEOC) will activate in accordance with standard operating guidelines.

See **Appendix G. State Tsunami Warning Point System** for a complete flowchart of the partners and communications involved in tsunami alerting (from a state perspective – does not include municipal partners, which would be a county alerting responsibility).

See **Attachment F** for a sample news release.

3.3 Evacuation

- The Tsunami Warning Centers utilize high-speed communications to provide the maximum amount of time for evacuation. A tsunami produced from a distant source may allow for three or four hours to evacuate.
- The State Tsunami Evacuation Zone uses the recommended NWS Forecast Zone, which is the evacuation of a box-shaped coastal area 300 feet away (approximately one city block) from the ocean or 15 feet above normal sea level (approximately the third floor of a high-rise building) in the event of a Tsunami Warning.
- Inland evacuation is the preferred method to evacuate low-lying coastal areas in advance of the initial tsunami wave. However, if lead time is insufficient to conduct an inland mass evacuation,

citizens should be advised to evacuate to high rise buildings, at least to the third floor to implement vertical evacuation procedures. Vertical evacuation is the act of moving to the highest floor in a multiple-story building in order to avoid the tsunami wave. It is the government's responsibility to recommend the most prudent evacuation method for its threatened areas.

- If there is observation of severe ocean water drawback from Maine coasts and it is authenticated by reliable sources, county officials shall order an evacuation of the beach via whatever communication methods are available at the time (route alerting, loud speaker, etc). The county emergency management director will request the State NWS forecast office to issue an emergency alert message to broadcast the tsunami warning and for persons to evacuate the beach immediately.
- Pickup Points for those without transportation will be designated in the tsunami evacuation areas by county emergency management directors.
- Shelters outside the tsunami evacuation areas will be identified for evacuees.
- If the need arises to implement evacuation routes, the routes currently identified as Emergency Evacuation Routes will be implemented along with the traffic management operations. County officials will be responsible for coordinating the local evacuation effort. See the Evacuation Annex in the State Comprehensive Emergency Management Plan (CEMP) for additional information.

See **Appendix B. Tsunami Watch Checklist**, **Appendix C. Tsunami Warning Checklist**, and **Appendix D. Tsunami All Clear Checklist**.

Section 4: Responsibilities

4.1 Lead Agency

Maine Emergency Management Agency

- Review and update the Tsunami Annex annually with applicable state agencies, State NWS forecast offices, and county emergency management offices.
- Provide assistance to coastal county emergency management offices in support of tsunami planning and the TsunamiReady Program (in concert with the NWS).
- Coordinate with county emergency management offices and State NWS forecast offices to review procedures for disseminating tsunami notices to county jurisdictions.
- Coordinate and implement procedures to relay and/or verify receipt of tsunami notifications to affected counties.
- Communicate with DOT (radio room), Department of Agriculture, Conservation, and Forestry – Bureau of Parks and Lands, and the Department of Marine Resources and provide direction.
- Coordinate with MGS, State NWS forecast offices, and county emergency management offices to determine tsunami inundation areas within the State and develop/update tsunami inundation maps.
- In conjunction with county emergency management offices and State NWS forecast offices develop public education tools for a tsunami public education program.
- Coordinate with State NWS forecast offices to prepare EAS tsunami messages to include ALL CLEAR messages.
- Coordinate with State NWS forecast offices to participate in scheduled EAS tests and provide information to coastal counties.
- In coordination with Department of Health and Human Services (DHHS), identify populations requiring Personal Assistance Services in the tsunami evacuation zone and the requirements to evacuate (to include both healthcare facilities and individuals at home).
- See **Emergency Support Function 5 – Information and Planning** for additional information.

4.2 Supporting Agencies

a. American Red Cross

- In coordination with the county emergency management directors and MEMA identify shelters to support evacuations from tsunami risk areas. Identified shelters should be outside the tsunami risk areas.
- In coordination with MEMA, the Disaster Feeding Task Force, and county emergency management directors be prepared to feed evacuated persons from the tsunami-threatened areas to include groups of special needs such as nursing homes, health care facilities, and vulnerable adult population groups.
- See **Emergency Support Function 6 – Mass Care, Emergency Assistance, Housing, and Human Services** for additional information.

b. Department of Agriculture, Conservation, and Forestry – Bureau of Agriculture, Food and Rural Resources

- Consult with the Maine Association of Veterinarians and DHHS concerning animal diseases and public health concerns related to a tsunami hazard, and assist with dissemination of this information to the public.
- In coordination with county emergency management directors and Community or County Animal Response Teams, identify emergency animal shelters outside the tsunami risk areas.
- See **Emergency Support Function 11 – Agriculture, Animal, and Natural Resources for additional information.**

c. Department of Agriculture, Conservation, and Forestry – Bureau of Parks and Lands

Direct the evacuation of state parks and lands as directed by MEMA.

d. Department of Health and Human Services

- Review all aspects of possible health concerns that may affect the public following a tsunami and develop procedures to prevent the spreading of communicable diseases and the contamination of food and water supplies.
- Identify populations requiring Personal Assistance Services in potential tsunami evacuation zones and special requirements needed to conduct an evacuation.
- Support shelter and recovery with behavioral health services.
- Identify the vulnerable population groups in the tsunami evacuation zones and the requirements to evacuate.
- See **Emergency Support Function 8 – Public Health and Medical Services** for additional information.

e. Department of Transportation

- In conjunction with MEMA, Department of Public Safety, and local law enforcement offices, assist in the development and coordination of traffic management plans to ensure effective evacuation to include establishing local traffic control points/road blocks, and pickup points, and implementing of a tsunami traffic management plan if necessary.
- Alert the Maine Pilotage Commission and Maine Ferry Service and provide recommendations for ships.
- See **Emergency Support Function 1 – Transportation** for additional information.\

f. Department of Public Safety – Maine State Police

In conjunction with MEMA, DOT, and local law enforcement offices, assist in the development and coordination of traffic management plans to ensure effective evacuation to include establishing local traffic control points/road blocks, and pickup points, and implementing of a tsunami traffic management plan if necessary.

g. U.S. Coast Guard

- Take appropriate actions with regard to Coast Guard assets.
- Issue alerts to marine vessels as appropriate (e.g., Pan-Pan).

h. Department of Marine Resources – Marine Patrol

- Take appropriate actions with regard to Marine Patrol assets.
- Assist harbormasters as available in the evacuation of harbors.

i. National Weather Service – Gray and Caribou

- Provide subject matter expertise to inform preparedness and response activities.
- Issue alerting products per NWS policies and procedures.
- Utilize IPAWS per NWS policies and procedures.

j. Maine Geological Survey

Provide subject matter expertise to inform preparedness and response activities.

k. Coastal County Emergency Management Agencies

- Participate in TsunamiReady Program and tsunami planning.
- Develop plans to reissue Tsunami Warnings, Advisories, Watches, and Information Statements.
- Alert harbormasters and provide recommendations for ships as directed by MEMA and the NWS.
- Alert private beaches and campgrounds and relay recommendations
- In conjunction with MEMA, State NWS forecast offices, Department of Public Safety, DOT, and local law enforcement offices, assist in the development and coordination of traffic management plans to ensure effective evacuation to include establishing local traffic control points/road blocks, and pickup points, and implementing of a tsunami traffic management plan if necessary.
- Review and identify the best methods to evacuate threatened areas: inland or vertical evacuation.
- In coordination with DHHS, identify populations with special transportation needs including day care facilities, schools, nursing homes, health care facilities, vulnerable adult population groups, and those without transportation.
- In conjunction with ARC and MEMA, identify shelters outside the tsunami evacuation zone to support displaced persons.
- In conjunction with MEMA, disseminate tsunami public education and information program materials. Utilize materials from the TsunamiReady Program.
- In coordination with MEMA and State NWS forecast offices, implement plans to issue ALL CLEAR signal and initiate re-entry procedures.

Section 5: Appendices

Appendix A. Sample Evacuation Order

State of Maine
Executive Department



Office of the Governor

EXECUTIVE ORDER NO. _____

WHEREAS, the coastline of the State of Maine has been placed under a Tsunami Warning by the National Oceanic and Atmospheric Administration (NOAA) National Tsunami Warning Center (NTWC). It was estimated that the wave will arrive here at approximately _____; and

WHEREAS, tsunamis, like hurricanes, are potentially dangerous even though they may not strike each coastline or do damage when they strike, the effects of this event have the potential to generate great damage to our State;

WHEREAS, effective at _____ today, I have declared that a State of Emergency exists within the State; and

WHEREAS, I hereby declare that all state and county government agencies perform all emergency functions as assigned in the Emergency Operations Plan or as directed by the Director, Maine Emergency Management Agency during this State of Emergency.

NOW THEREFORE, by the virtue of the power and authority vested in me as Governor pursuant to the Constitution and the laws of Maine, I hereby order a mandatory evacuation of the following areas:

1. _____
2. _____
3. _____

This mandatory evacuation order is effective at _____ today. The scope of this Order may be expanded to include such areas as are identified on a county-by-county basis by county emergency management officials for people who are deemed to be in immediate danger.

GIVEN UNDER MY HAND AND THE GREAT SEAL OF THE STATE OF MAINE, THIS ____ DAY OF ____ MONTH
____ YEAR.

GOVERNOR

ATTEST:

SECRETARY OF STATE

Appendix B. Tsunami Watch Checklist

A Tsunami Watch is issued to alert emergency management officials and the public of an event which may later impact the watch area. The watch area may be upgraded to a warning or advisory or canceled based on updated information and analysis.

Action	Completed by (Name)	Time
Confirm with counties receipt of Watch message		
Discuss with counties their response actions and their resource needs		
Discuss with counties their decision to evacuate		
Assemble available information on status of the Tsunami Watch. Sources of information: <ul style="list-style-type: none"> • NWS • FEMA • NOAA 		
Activate SEOC		
Facilitate a conference call with the primary ESF agencies to discuss local actions and to be prepared to report to SEOC for possible activation		
Review maps of threatened areas to determine locations of critical facilities within or outside of the evacuation zones		
Request NWS offices to monitor tide gauges (Wells and Portland) to determine the potential tsunami effect		
Determine time remaining to estimated first wave arrival		
Issue public information statements on the Tsunami Watch and the State’s actions		
Review status of communication systems in the tsunami evacuation area		
Be prepared to issue an Executive Order for Evacuation		
Obtain information on weather/road conditions		
Obtain tourist count in the threatened area using historical data		
Coordinate with county governments the evacuation routes and request county governments to identify pickup points if needed		
Coordinate with county and the ARC to identify shelters and the need to place shelters on standby notice		
Consider if any action is needed until a Tsunami Warning is issued		
If not, consider: <ul style="list-style-type: none"> • Moving search and rescue equipment to staging areas outside risk area 		

<ul style="list-style-type: none"> • Determine if a voluntary evacuation of tourists is needed • Determine if critical facilities need evacuation assistance 		
<p>Consider securing or closing ports and boat landings</p>		
<p>Discuss state response actions with NWS offices, county officials, Adjacent states and ESFs</p>		
<p>UPDATE JURISDICTIONS AT 30 MINUTE INTERVALS OR IMMEDIATELY UPON RECEIPT OF TIME SENSITIVE INFORMATION</p>		

Appendix C. Tsunami Advisory Checklist

A tsunami advisory is issued due to the threat of a potential tsunami which may produce strong currents or waves dangerous to those in or near the water. Coastal regions historically prone to damage due to strong currents induced by tsunamis are at the greatest risk. The threat may continue for several hours after the arrival of the initial wave, but significant widespread inundation is not expected for areas under an advisory. Appropriate actions to be taken by county officials may include: closing beaches, evacuating harbors and marinas, and the repositioning of ships to deep waters when there is time to do so safely. Advisories are normally updated to continue the advisory, expand/contract affected areas, upgrade to a warning, or cancel the advisory.

Action	Completed by (Name)	Time
Confirm with counties receipt of Advisory message		
Discuss with counties their response actions and their resource needs		
Discuss with counties their decision to evacuate harbors and marinas if necessary		
Monitor the status of the Advisory. Sources of information: <ul style="list-style-type: none"> • NWS • FEMA • NOAA 		
Activate SEOC		
Facilitate a conference call with the primary ESF agencies to discuss local actions and to be prepared to report to SEOC for possible activation		
Review maps of threatened areas to determine locations of critical facilities within or outside of the evacuation zones		
Request NWS offices to monitor tide gauges (Wells and Portland) to determine the potential tsunami effect		
Determine time remaining to estimated first wave arrival		
Issue public information statements on the Tsunami Watch and the State’s actions		
Review status of communication systems in the tsunami evacuation area		
Be prepared to issue an Executive Order for Evacuation		
Obtain information on weather/road conditions		
Obtain tourist count in the threatened area using historical data		
Coordinate with county governments the evacuation routes and request county governments to identify pickup points if needed		
Coordinate with county and the ARC to identify shelters and the need to place shelters on standby notice		

Consider if any action is needed until a Tsunami Warning is issued		
If not, consider: <ul style="list-style-type: none"> • Moving search and rescue equipment to staging areas outside risk area • Determine if a voluntary evacuation of tourists is needed • Determine if critical facilities need evacuation assistance 		
Consider securing or closing ports and boat landings		
Discuss state response actions with NWS offices, county officials, Adjacent states and ESFs		
UPDATE JURISDICTIONS AT 30 MINUTE INTERVALS OR IMMEDIATELY UPON RECEIPT OF TIME SENSITIVE INFORMATION		

Appendix D. Tsunami Warning Checklist

A Tsunami Warning is issued when a potential tsunami with significant widespread inundation is imminent or expected. Warnings alert the public that widespread, dangerous coastal flooding accompanied by powerful currents is possible and may continue for several hours after arrival of the initial wave. Warnings may be updated, adjusted geographically, downgraded, or canceled. To provide the earliest possible alert, initial warnings are normally based only on seismic information. If the tsunami has been generated by local meteorological conditions or a landslide, it's unlikely that responders will have adequate time to perform all of the actions below (i.e., will have to prioritize life-saving actions).

Action	Completed by (Name)	Time
Confirm that coastal communities and key agencies have received Tsunami Warning Information		
Determine time remaining to estimated first wave arrival		
Discuss with counties their response actions and their resource needs		
Review status of communication systems in the evacuation area		
Discuss with counties their decision to evacuate		
Activate SEOC		
Review maps of threatened areas to determine locations of critical facilities within or outside of the evacuation zones		
Discuss with county governments their areas of evacuation		
Consider requesting an Executive Order		
Obtain information on weather/road conditions		
Obtain estimate of tourist count in the threatened area using historical data in order to inform shelter needs		
Determine if county governments have ordered an evacuation		
Coordinate with county governments the need to implement evacuation routes and request county governments to identify pickup points		
Request Emergency Support Functions (ESFs) to activate response procedures to include: <ul style="list-style-type: none"> • Implement evacuation procedures • Coordinate and establish traffic control points (TCPs) • Open shelters • Stage emergency equipment outside of inundation area • Coordinate search and rescue missions if necessary • Clear lake and/or inter-coastal waterways • Move search and rescue equipment to staging area outside risk areas • Consider: <ul style="list-style-type: none"> – securing or closing of ports and boat landings – repositioning ships to deeper water 		

Disseminate Executive Order for Evacuation		
Situation dependent, implement area command for response and recovery		
Deploy first responders to staging areas		
Resource allocation will take into consideration the following areas of special concern: <ul style="list-style-type: none"> • Evacuation of education and childcare facilities and nursing homes • Evacuation of disabled persons and those needing special medical assistance 		
Activate State’s Mutual Aid System as necessary		
Notify adjacent States and FEMA of activation		
Issue public information statement		
Monitor evacuations and provide assistance to jurisdictions as required. Advise jurisdictions and agencies that evacuations should be maintained until a minimum of two hours after the last wave has arrived or the ALL CLEAR is issued.		
Monitor the NOAA tide gauges at Wells and Portland		
Relay to the counties and agencies the course of actions of the State		
Notify counties of Governor’s declaration, if applicable		
UPDATE JURISDICTIONS AT 30 MINUTE INTERVALS OR IMMEDIATELY UPON RECEIPT OF TIME SENSITIVE INFORMATION		

Appendix E. Tsunami ALL CLEAR Checklist

An ALL CLEAR determination will be the responsibility of the county officials. The evacuation areas should remain closed to the public until the evacuation order has been lifted and the ALL CLEAR decision is issued by county officials a minimum of two hours after arrival of the last wave. Before the ALL CLEAR determination is made, officials must be able to observe the waves from a safe distance/height.

Action	Completed by (Name)	Time
Advise jurisdictions to maintain full evacuation until the evacuation order is rescinded and a minimum of two hours after arrival of last wave upon shore		
Evacuated areas should remain closed to the public until the threat of tsunami no longer exists		
The decision to allow re-entry is a county decision and will be made based on the advice of the NWS forecast office and State authorities		
All traffic control points will be maintained until the order to remove traffic control points is issued		
Designate re-entry routes to ensure the safety of residents		
Request affected jurisdictions initiate and report windshield damage assessment, compile area-wide damage assessment		
Activate State’s Damage Assessment Team to assist county jurisdictions <ul style="list-style-type: none"> • Request aerial reconnaissance of damaged areas 		
Prepare for major public information effort to disseminate information to public about the re-entry plan		
Coordinate the inspection of damaged areas to ensure they are safe for residents’ return		
Request building inspectors to inspect damaged areas		
Based on damage, consider a Governor and/or Presidential Declaration of Emergency		
Establish response priorities and mutual aid requirements		
Based on the damage incurred, the following actions and issues may be considered: <ul style="list-style-type: none"> • Curfew • Quarantine (both human and animal) 		

Appendix F. Sample News Release

Maine Emergency Management Agency
 72 State House Station
 45 Commerce Drive
 Augusta, ME 04333

FOR FURTHER INFORMATION CONTACT THE STATE PUBLIC INFORMATION OFFICER:

Telephone Number: _____ Fax: _____

Date: _____

Maine News Release Number: _____

Time of News Release: _____

POTENTIAL TSUNAMI FOR FOLLOWING MAINE COASTAL AREAS:

_____, _____, _____, _____
 Augusta, ME – According to the West Coast/Alaska-Pacific Tsunami Warning Center, a severe earthquake has been generated at (location) at (time). The earthquake was measured at (magnitude). It is (known/not known) at this time (that/if) a tsunami has been generated. The National Weather Service Forecast Offices have issued a Tsunami (Warning, Advisory, Watch, or Information Statement). A Tsunami (Warning, Advisory, Watch, or Information Statement) means

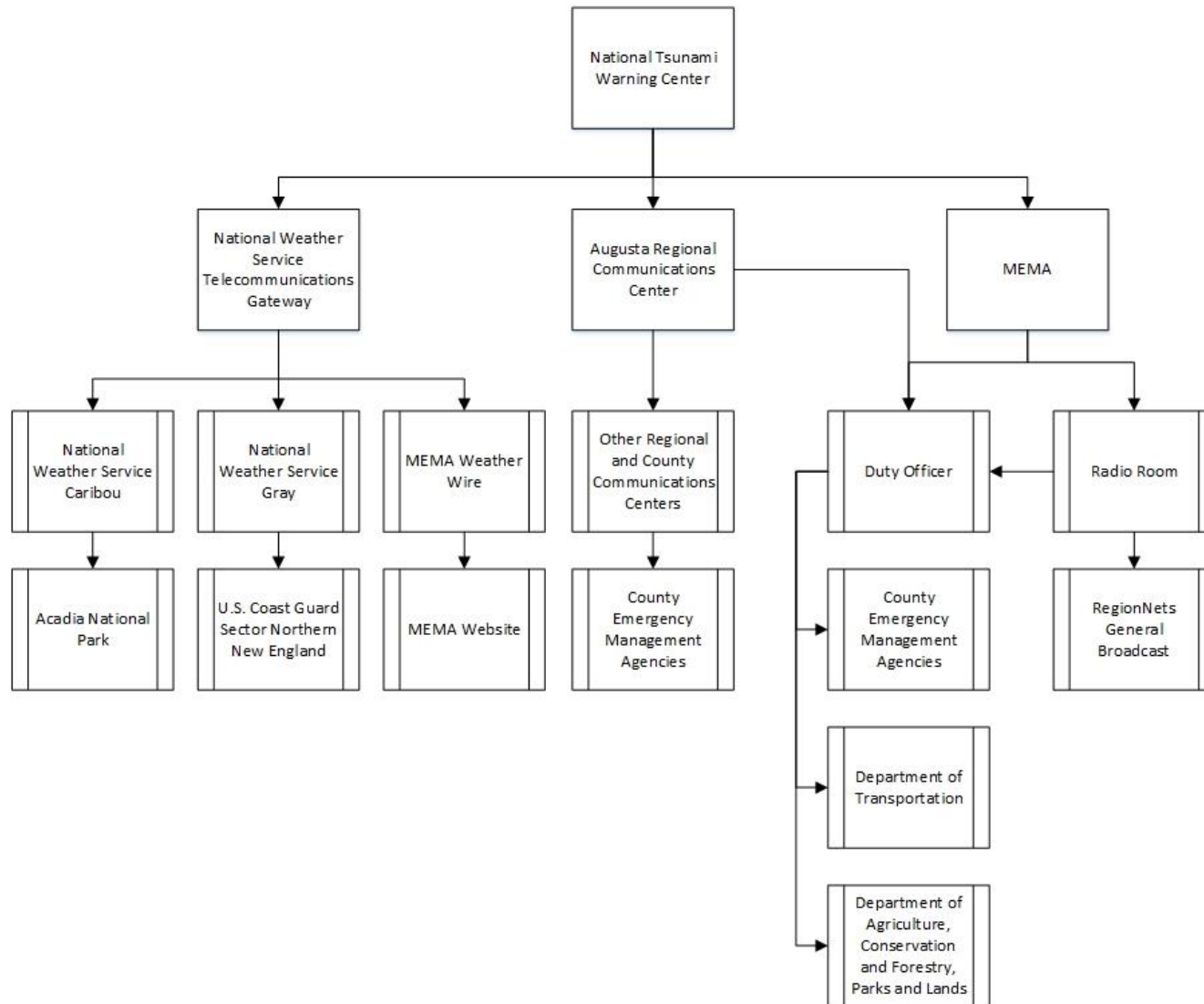
 If a tsunami has in fact, been generated, the wave heights cannot be accurately predicted; however, the tsunami waves could cause great damage to coastal cities and communities. Residents of affected areas are urged to keep tuned to their local Emergency Alert System station (_____) for further information. People should stay away from low-lying coastal areas until further notice.

A tsunami warning means: all coastal residents in the warning area who are near the beach or in low-lying regions should move immediately inland to higher ground and away from all harbors and inlets including those sheltered directly from the sea. Those feeling the earth shake, seeing unusual wave action, or the water level rising or receding, may have only a few minutes before the tsunami arrival and should evacuate immediately. Homes and small buildings are not designed to withstand tsunami impacts. Do not stay in these structures. All residents within the warned area should be alert for instructions broadcast from their local civil authorities. This tsunami warning is based solely on earthquake information – the tsunami has not yet been confirmed.

Tsunamis can be dangerous waves that are not survivable. Wave heights are amplified by irregular shoreline and are difficult to predict. Tsunamis often appear as a strong surge and may be preceded by a receding water level. Mariners in water deeper than 600 feet should not be affected by a tsunami. Wave heights will increase rapidly as water shallows. Tsunamis are a series of ocean waves which can be dangerous for several hours after the initial wave arrival. Do not return to evacuated areas until an all clear is given by local civil authorities.

Additional messages will be issued every half hour or sooner if conditions warrant. This tsunami Warning, Advisory, Watch or Information Statement will remain in effect until further notice.

Appendix G. State Tsunami Warning Point System¹



¹ NTWC can activate both federal and state NAWAS – allowing them to reach all regional communication centers

Appendix H. Augusta Regional Communications Center Procedure

1. Should you receive a tsunami request via teletype, please read the information carefully. If the wording indicates it is only a test then the only action needed is to acknowledge receipt of the message.
2. Should the information be that of a real tsunami event notice, the following procedures shall be utilized:
 - a. Augusta RCC would receive a message through the NAWAS.
 - b. Augusta DPS would then contact the County RCC's, RRC Gray and RCC Bangor via NAWAS and give the information received verbatim. The MEMA DO shall also be advised via pager at 851-8898
 - c. Bangor RCC will notify Hancock and Washington RCC's.
 - d. Gray RCC will notify Portland Fire, Cumberland, and York County RCC's.
 - e. Should it be a drill your announcement should commence with "this is a drill, this is a drill" and then the message should be read verbatim. At the conclusion of the announcement, it should be repeated again that "this is only a drill" and the question asked "do you understand this message?"
 - f. In an actual event, the RCC making the announcement should advise the appropriate agency to follow their fan out procedures as directed (see flowchart). A list of agencies, to include phone numbers, is available in the book should you be unsuccessful in reaching an agency via NAWAS.
 - g. Augusta RCC will notify Troopers, Wardens, and Marine Patrol in the respective areas in Knox, Lincoln, Waldo and Sagadahoc Counties (other RCCs will also notify first responder groups in their respective jurisdictions for redundancy).
 - h. Local Fire/Rescue services (if dispatched via Augusta RCC) shall be advised as well.

Appendix I. MEMA Duty Officer Procedure

1. Duty officers will be informed of a tsunami warning or alert in at least one of three ways:
 - a. The federal NAWAS line in the MEMA's communications center will receive the message from NTWC. During business hours, communications staff may receive the message and notify the duty officer.
 - b. The federal NAWAS line in the Augusta RCC will receive the message. They will alert the duty officer by pager.
 - c. NTWC will send an email to COMM.EOC@maine.gov all duty officers and MEMA leadership will receive this email.
2. Upon notification of a tsunami warning or alert, the duty officer should:
 - a. Send a Health Alert Network (HAN) message with the appropriate template. This will reach coastal and riverine county EMAs and essential state partners.
 - b. Call and alert the DOT radio room, either by phone at 207-624-3339 or by radio on channel 15, Union.
 - c. Post the alert to the WebEOC Significant Events Board.