June 14th 2005 Tsunami Warning
Lessons Learned

George Crawford, Washington Emergency Management Division
Lesson # 1
Multiple communication paths must be available

- Multiple lines added to NOAA Weather Radio Network
- Lines alarmed
- Tsunami Message sent statewide instead of affected jurisdictions only
- Increase the number of All Hazard Alert Broadcasting (AHAB) Radios on the coast
  - Interoperability - system on satellite control
Washington State All-Hazard Alert Broadcasting (AHAB) Network

FUNDED SYSTEMS TO BE INSTALLED BY JUNE 2007 (32)
- Bay Center
- Cape Disappointment
- Clallam Bay
- Cohasset Beach
- Copalis Beach
- Diamond Point
- Fort Worden
- Grayland (2)
- Hoquiam
- Ilwaco
- Long Beach
- Lower Elwha
- Lummi Nation (2)
- Pacific Beach
- Pacific Park
- Point Hudson
- Port Angeles
- Olympic City
- Ocean Park (4)
- Ocean Shores (3)
- Seaview
- Surfside
- Taholah
- Tokeland
- Westport

OPERATIONAL (16)
- Aberdeen
- La Push
- McAlder
- McMillin
- Neah Bay
- Ocean Shores
- Orting
- Port Townsend
- Puyallup (2)
- Sandy Point
- Seattle (3)
- Sumner
- Westport
Lesson # 2
Media must be part of the tsunami warning process

- Educate Broadcasters on the hazard
- Provide outline of process
- Provide sample messages
- Provide list of local experts
- Provide evacuation maps
- Provide “B Roll” that they can air
Lesson # 3

Decisions on tsunami warning/cancellation must be based on tsunami data and not seismic models

- Tsunami Warning Center must be sole authority for Tsunami Warning/Cancellation
  - Seismic Networks reports only on the earthquake not tsunami
- Tsunami Warning Center needs to update tsunami status faster
- DART Buoys need to be closer to source and extra DARTs added to Cascadia
- Upgrade tide gages to automate reporting

Real Time Detection of November 17, 2003 Tsunami
Lesson # 4
All levels of government must come together in a unified response

Tsunami Warning Flow Chart

HOW THE TSUNAMI WARNING SYSTEM WORKS

West Coast /
Alaska Tsunami
Warning Center
(Palmer, Alaska)

NWS sends Tsunami EAS Message
State EOC and
Local Jurisdictions and
Broadcasters and
Citizens (via NOAA Weather Radio)

State EOC Sends (via EAS) Prescribed Message
EMD/COUNTY TSUNAMI WARNING
To:
- Activate AHAB Radios
- Local Jurisdictions
- Broadcasters
- Citizens (via NOAA Weather Radio)

State EOC Sends (via EAS) Prescribed Message
COUNTY EVACUATION
(This message sent as requested by the County)
To:
- Activate AHAB Radios
- Local Jurisdictions
- Broadcasters
- Citizens (via NOAA Weather Radio)
Lesson 5
Citizens must be educated on tsunami warning response

- Message must be short and simple
- Workshops, media and public education materials
- Community and school exercises
- Testing tsunami communication systems
Summary

- Tsunami warnings can be effectively disseminated through multiple communication paths – infrastructure supporting them should be “life safety” and actively monitored for interoperability.

- Media is key for disseminating a tsunami warning – educating and training broadcasters on tsunami warning processes, evacuation routes/assembly areas, and providing videos they can air and a list of local experts will ensure that there is a consistent message.

- A seismic event provides the source for the initial tsunami warning -- tide gauge and buoy data provides sea level data to determine it’s potential impact -- you must be prepared for conflicting information.
Summary

- Tsunami warning requires a unified response at all levels of government to reduce confusion for the public and supports effective allocation of resources.

- Key to an appropriate response by the public: Keep warning message short and simple – regular testing of communication systems, holding workshops and exercises.