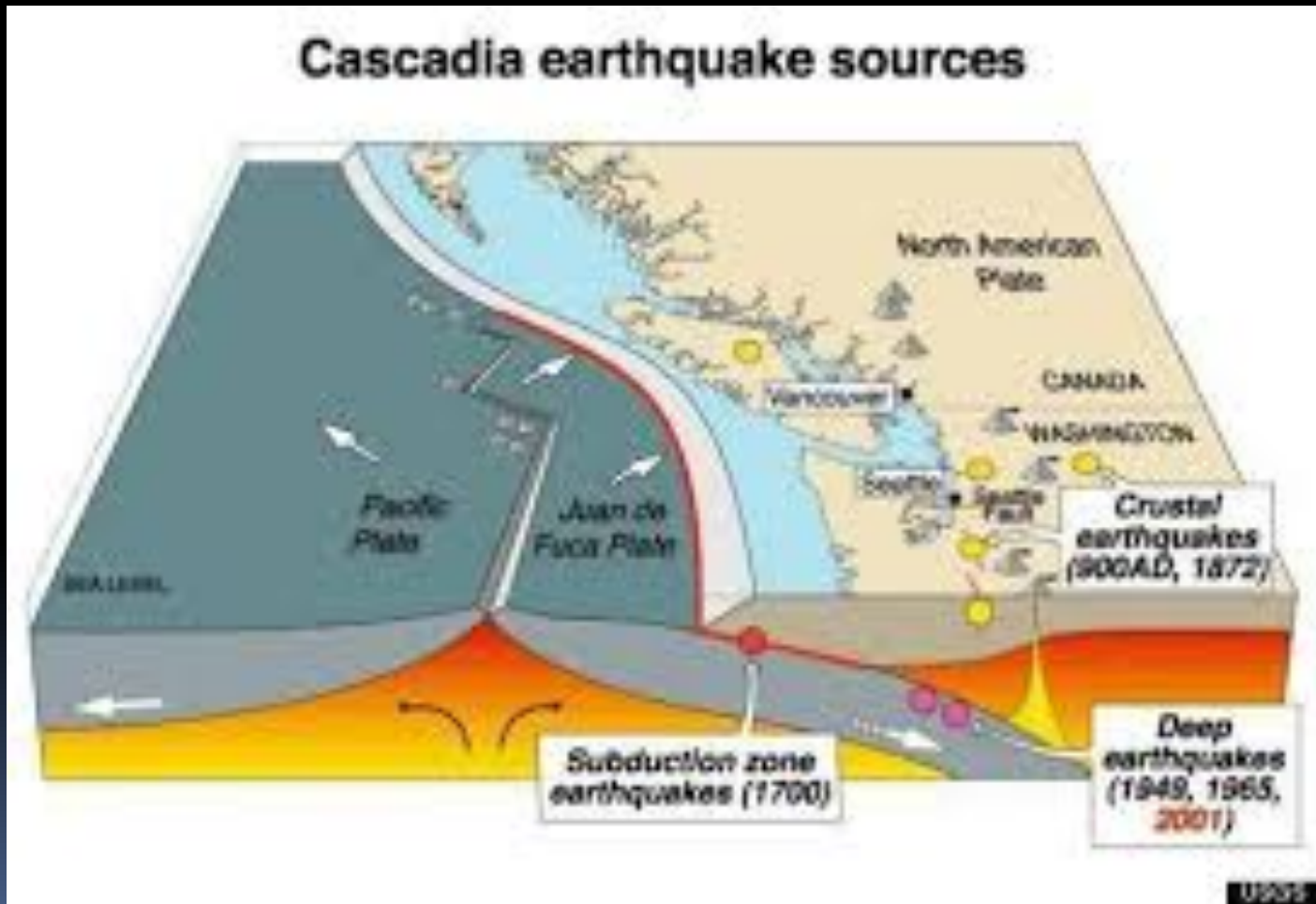


Spoiler alert: No

**ARE YOU READY FOR THE BIG
ONE?**

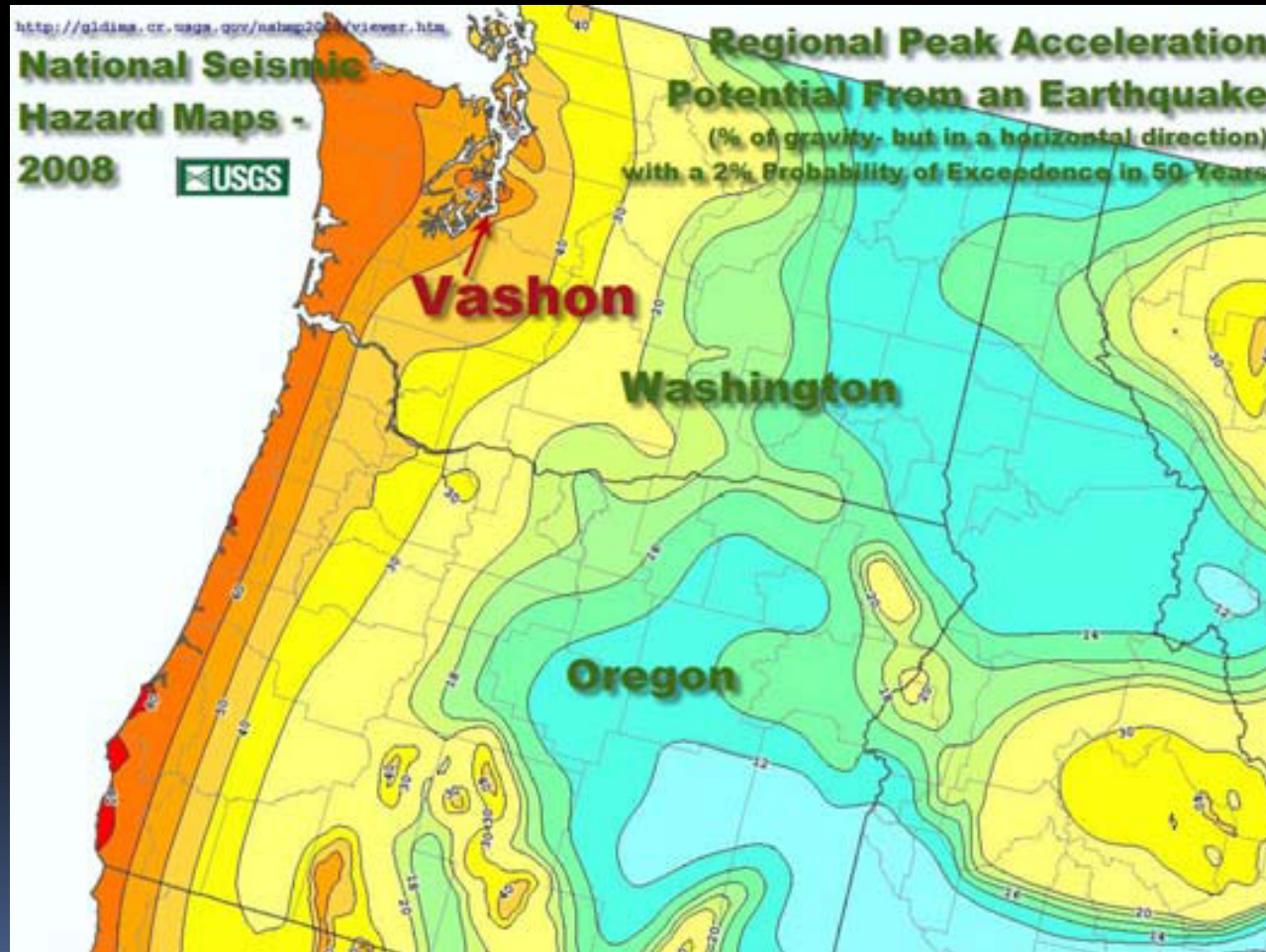
The Big Quake



BC to California




Ground acceleration

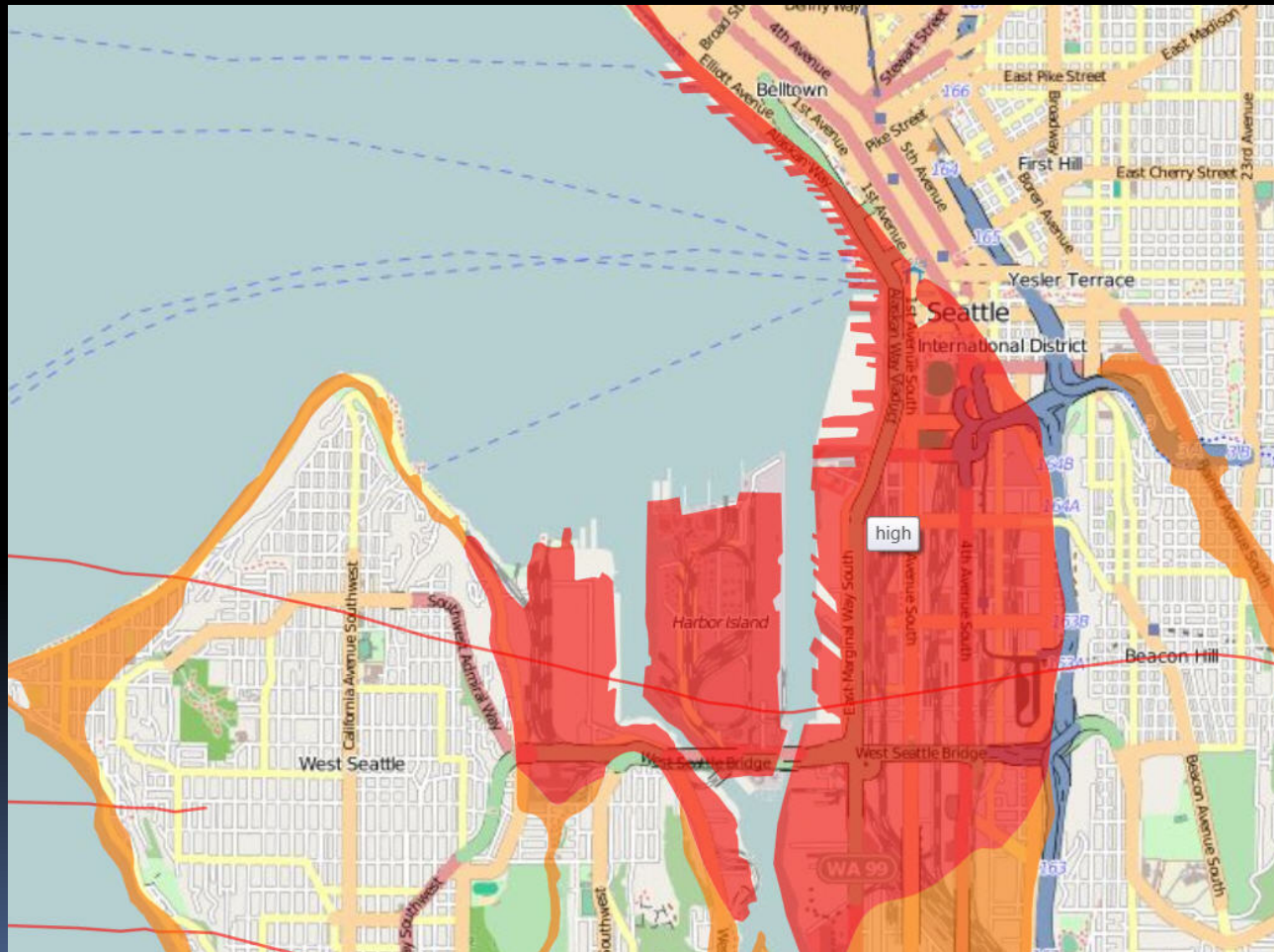




More than a shake

- Liquefaction
 - Landslides
 - Tsunamis
- 

Liquefaction Downtown Seattle



Worst case scenario

- Compound disaster
- The New Yorker article (<http://www.newyorker.com/magazine/2015/07/20/the-really-big-one>)
- Cascadia Rising exercise 2016
- Full Rip book





What you should do


Duck, Cover, and Hold

Take care of yourself first, then family and others






Why and how to prepare

- Prepare the sequence of levels-individual, family, neighborhood, community
 - Make a plan and set about reducing risk and improving survival chances
- 



This talk

Introduction

1. Personal Preparedness
 2. Family Preparedness
 3. Neighborhood Preparedness
 4. Community Preparedness
 5. Communications & Situational Awareness
 6. Dynamic Preparedness
- 



Overflow effects for other disasters

Winter Storms: same except for heating

Wildfires: evacuation same

Tsunami: evacuation same

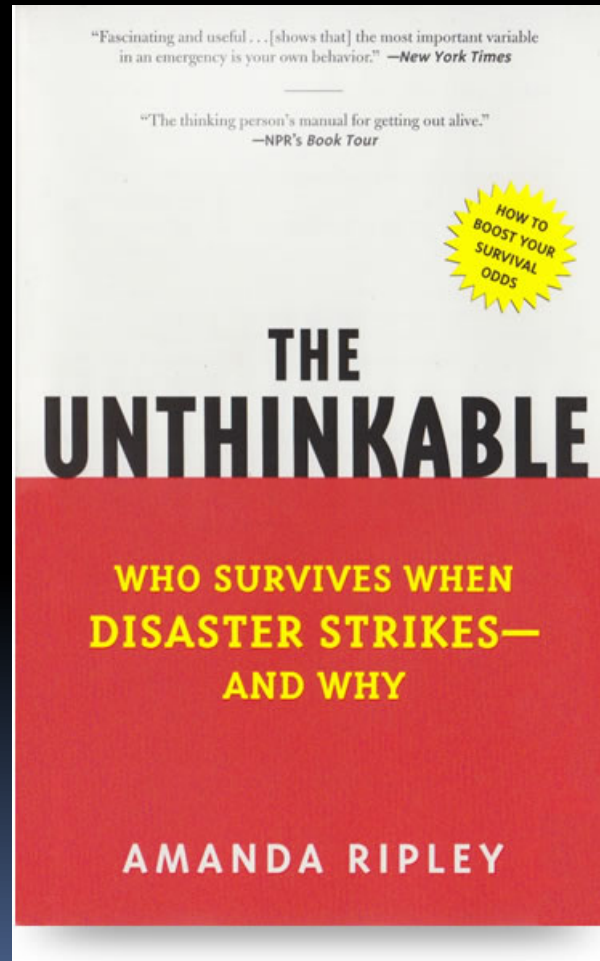
Tornado: shelter

Disease outbreak: slightly different

Active shooter: slightly different



Why do some people survive?





Who are the most vulnerable?

Elderly

Young people

Homeless



Psych



Chill out

Left of boom: depressing,
relentless, never safe,
money wasted.

Right of boom: things will
never be the same again;
PTSD symptoms



Antidotes

Left of boom:

Do what you can

Step back and pause

Use rational tools for decision making

Make it a game

Right of boom:

Talk about it

Trust someone


Don't allow depression to get rolling

Drugs

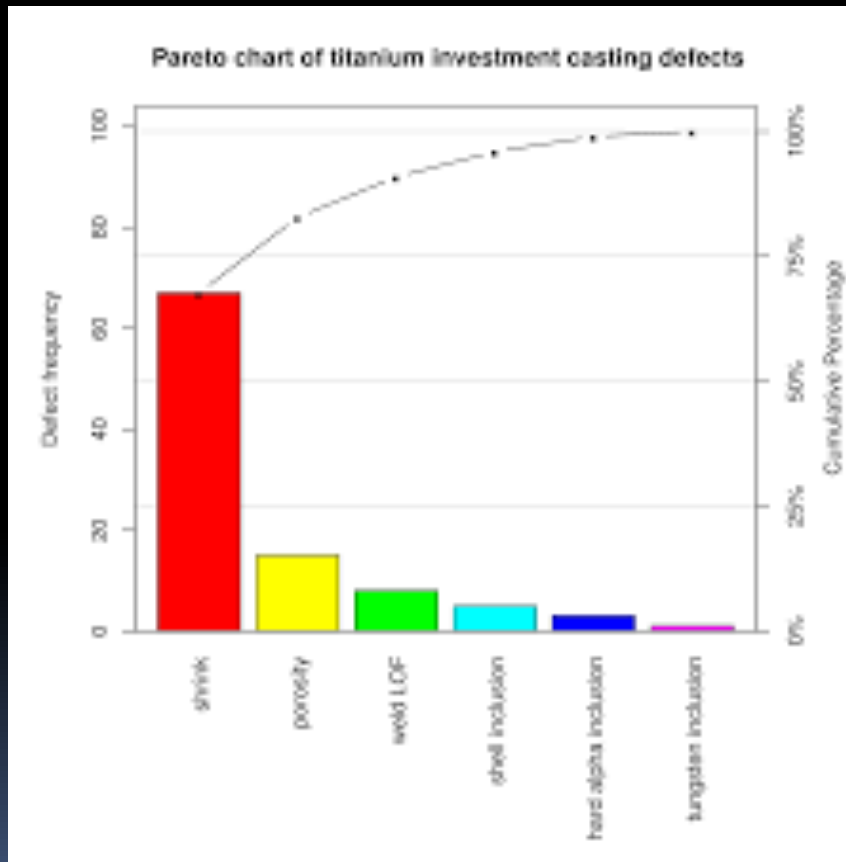
Accept that life is meaningless, or at least, not to be taken too seriously



Some tools

- Temporal orientation relative to the quake
 - Prioritization of spending
 - Risk mitigation
 - Identify likelihood of location at moment of quake
- 

Pareto



- Set priorities among a large set of factors
- See a solution that is good enough
- Not waste effort

Risk matrices


Qualitative Descriptors		Likelihood				
		Rare	Unlikely	Possible	Likely	Certain
Quantitative Scales		< 0.0001	0.001	0.01	0.1	1
Consequence	Very High Severity	50,000,000				
	High Severity	5,000,000				
	Medium Severity	500,000				
	Low Severity	50,000				
	Very Low Severity	< 5,000				



Figure 1: Example of a SaS risk matrix using log-log quantitative scales.




Where are you at Boom?

- Home 60%
 - Work 15%
 - Commuting 5%
 - Restaurant, Class, “Out”
 - Vacation or Business Travel
- 



Your Emergency Plan

- Where are you at Boom?
 - What do you have to do at boom for individual, family, neighborhood, community?
 - What are your risks for each?
 - What is your prioritized purchasing and training plan?
 - What is your testing plan?
 - Are you more ready today than you were a month ago? Quantify it.
- 



Fallacies

Dual usage

Living off the grid

Foraging



1: Personal Preparedness

Starts now

The first thing right of boom

All other preparedness depends on this



The bedside 10

Knife

2 Lights

Wallet

Passport

Cell phone w/
charger

Medications

Glasses

Machete

Baseball Bat

Whistle



Everyday Carry (EDC)

Knife

Light

Cell phone

Pen

Tools



Good habits

Never let the gas tank drop below 75%

Never go to sleep without charging your phone

Never enter a room or building without considering egress and construction

Never fail to replace anything you borrow from your kits before you go to bed

Rotate food and water through usage

The bed box

- Boots
- Helmet & Lamp
- Gloves
- Long Underwear
- Pants
- Heavy Socks
- Rain Jacket
- Fleece
- Lights
- Water Bottle
- Sign
- FRS Radios
- Safety Glasses
- Nitrile Gloves
- Neck Cover
- Gas Shutoff



In the car(s)

- Go Bag
- CERT Pack
- Radios
- Sleeping Bags & Pads
- Toilet paper
- 3 meals, 4 quarts water
- Warm jacket
- Maps/Thomas Guide

The Go-Bag

3 changes of clothes and underclothes

Toiletries

Medications

Glasses

Electronics and Chargers

Boots

Athletics shoes

Socks

2 Flashlights and batteries

Iodine Tablets

4 Energy bars

Blanket

Important papers

Hat

The Bag

Reading

Sunglasses

Hand Crank NOAA radio

Rain Jacket

Fleece

Water Bottle

Water Filter

Moist Towelettes

Plastic Trash Bags

Dust Mask

First Aid Kit

Whistle


Can Opener

Cash

Leatherman Tool




At work?

- Where is the point of safety?
 - Do you need to get out of the building after boom?
 - Is there a shelter?
 - Are you on your own or part of a team organized by your employer?
 - Can you go home?
 - Can you see your Emergency Plan on an electronic device?
 - Can you begin to implement, or is getting home your priority?
- 




Training

- First Aid/CPR
 - CERT
 - Amateur Radio license and ARES courses
 - FEMA courses
- 



What to do individually


- Denial-Deliberation-Decision
 - Duck, Cover, and Hold
 - Self Assessment-treat injuries
 - Visual check of surrounding area and structure
 - Look for interior lights, exterior lights, glare from fire
 - Listen for human noises, structural noises
 - Find the bedside ten
- 

Individual risks and mitigations

- Training in medical and CERT nonexistent
- Pack Go-Bag, EDC, Bedside 10, Bed Box don't have them
- Figure out what to do at work at boom-no idea
- Need to practice immediate reaction and thought process-never done that




2: Family Preparedness

- When-as soon as your individual safety is taken care of, and probably as soon as you are all reunited.
- 



What to do-2


The Picnic (3-5 days) Rally; find your way together, preferably at home. Assess your survival plan and prepare to execute it. Look at weakest links (water? food? money) and mitigate. Care for animals. Test generator and establish electrical power-on periods. Try to establish situational awareness of roads, credit and cash machine, retail stores, damage to infrastructure. Eat leftovers, contents of refrigerator, thawing freezer food.



The Campout (2-4 months) Establish routines for eating, drinking, cooking, cleaning, hygiene, defense, and electricity. Start the Map Your Neighborhood response once your family is taken care of. Evaluate the option of leaving.




Rally points and notification plans

- Assume no phones-establish rally points, one at home, one elsewhere
 - Send a text message of where you are and what your conditions is immediately after the quake
 - Call or text your out-of-area/state contact as a virtual rally
 - Make sure you tell the others what you plan to do
- 



Water


- 1 gallon/day per person (CDC)
 - 15 liters/day per person (WHO)
 - 4 months/3 people=360 gallons
 - Rationing could reduce this 30%
 - This determines how long the campout lasts, period
 - You have to save bottled water or water in disinfected large containers
- 

Purifying water is all bad choices

- Activated charcoal filtration: won't get all pathogens
- Boiling: use fuel; boil for one full minute of roiling
- Chemical tablets: expensive and taste bad
- In a pinch, 2 drops of bleach per quart
- Trying to separate potable from non-potable is not practical
- A rainwater catchment system for roof downspouts is a good way to get a lot of water in the the Northwest; but only practical if you have enough fuel for constant boiling




Food

- 2800 calories men
 - 2200 calories women
 - 1400 calories children under 13
 - 50-30-20 Carbohydrates-Protein-Fats
 - Canned Meat-Beans-Fish every day
 - 120 days equals approximately 600-700 cans of food
 - On the picnic, eat leftovers, refrigerated food, frozen food as it thaws; stretch this as long as possible; it doesn't come out of your long term stash
 - Most of us can afford to eat slightly too few calories for two weeks to get the weight loss benefit, so long as the balance and vitamin content are maintained. After that, weigh yourselves once a week to track weight loss and reestablish caloric steady state.
- 




Know the Signs of Malnutrition

- Listlessness or depression
 - Ketones on breath
 - Skin color change
 - Infections more frequent and heal slowly
 - Difficulty concentrating
 - Difficulty keeping warm
- 




Medical treatment

- You may have to go beyond your comfort zone: have a couple of advanced outdoor medicine text around
 - Robust first aid kit, including medications the family is currently prescribed
 - Be prepared to suture, clean wounds, deal with compound fractures
 - First Aid/CPR really isn't enough; you need one family member with First Responder training at least
- 



Electrical power

- Generator
 - Fuel: the weakness; it runs out.
 - You must test your generator once a month most of the year and once a week November through April
 - Use dewatering agent in fuel
 - Cycle fuel through your car every six months
 - Even a built in system with a large gas tank will run out of fuel.
 - Establish a daily schedule to run the house, charge electronics, cook food. Do not run the refrigerator or freezer on generator. If you run the heater, be conservative.
- 

Fuel for heating and cooking

- Besides heating the house, you must boil water and cook food. You should heat the house before you cook the food.
- You must calculate your consumption of fuel each day in order to calculate the point of evacuation if you get no resupply.
- If you are confident of resupply then you should schedule one hot shower day. Make it a Navy shower. If not, cold sponge baths. Your call: comfort vs. survival



Light and Fire

- Candles-more light leans more fire risk
- You can't live on batteries
- You need about four candles per day, or 480 small candles; also five oil lamps, with about 10 gallons of kerosene
- You need ventilation
- Fire starter for fireplace, propane stove, lamps. Matches and five other backups



Hygiene

Sponge baths

Quick daily bathing


Wash hands after urinating or defecating-more chance of infection, and no medical treatment available

Less water and no vacuuming means more dirt and dust accumulates over time. Also, wood heating spreads more ash and smoke. Requires more frequent mechanical cleaning

This begins to be a problem after a week.




Cleaning home spaces and laundry

- Washing tubs
 - Clothespins
 - Scrub brushes and rags
 - Brooms and mops
 - Tubs for washing dishes and pots
- 



Solid waste

- Double trash bags
 - Shovels
 - Pre-dig trenches
 - Separate trenches for feces
 - Dry garbage out if possible
 - Deep enough trenches to keep animals out: three feet
 - Farthest extent of property but accessible in rain
- 



Heat

Firewood

Axe, wedges, saw, sharpener

A chainsaw is not for cutting firewood

Wood needs to be dried; cutting a cord just after the quake isn't going to do much good

Propane refills likely won't be available

If you shut off your gas you may not be able to get it back on without the gas company

If you have no electricity you probably have no heat unless you have a mechanical valve that bypasses the solenoid and sends gas to a fireplace flame

Depending on the type of wood, your discipline, and the weather, you may need two cords of wood



Security: theory of overlapping defenses

Nothing can stop determined invaders; multiple layers can stop most of them

Layers should overlap

Detection and sensors are more important than weapons

A large dog is the single best investment in home security you can make (despite the downside of care, food, training, etc.)



Security: layers

Sensors: gravel tracks

Passive weapons: thorn bushes

Passive defense: padlocked gates

Passive weapon: dead bolted front, side, rear doors

Sensor/Active weapon: working dog

Active weapon: machete

Active weapon: baseball bat

Active weapon: knife

Security: no one wants to talk about this

Guns require licenses, training, ammunition, regular cleaning, target practice, safe and secure storage. All of this is the minimum.

Ideal mix is one 12 gauge shotgun, one M4 assault rifle, one .45 ACP pistol, and one 9mm automatic pistol. This is the ideal combination of long, medium, and close-in ranges and rates-of-fire.

Invaders don't necessarily know you have guns, so deterrence is limited.


In the extremely unlikely event that you need a gun, you will be glad you have one (or four)



False Security

One or two weapons without frequent disassembly and cleaning, regular target practice, training in proper methods of shooting, use of a modern locking system, and appropriate licensing is worse than no guns at all.

Very few people are killed with machetes and baseball bats each year, and almost none accidentally





Time to leave?

Issues

When: 30-90 days right of Boom

What: Refugee or Emigrant?

Drivers: Cash, Fuel, Employment

Situational Awareness: Roads, Gas, Credit Cards

True Costs of Staying vs. Going

Needs

Clear destination and route
Pets?

Fuel for trip

Food-Water-Cooking

Tent

Clothes


Personal electronics

Toilet

Valuables & papers




Simulation & training

- Based on your Emergency Plan
 - Semiannually at least; monthly is ideal
 - Specify simulated date, time, weather
 - Part rehearsal, part test, part exploration
 - One person brings one unexpected variable
 - One person reads the plan/narrative
 - Introduce more variables each time
 - Without a critique, performance measures, and feedback, this is a waste of time
- 



Pets

- Pet stores will be closed
 - Food, medication, water
 - Birds, fish, small mammals have specialized diets; how long are you stocked to support them?
 - Animals suffer after a natural disaster, too: disorientation, grief, depression
- 



Family risks

- No evacuation plan thought out
- No pet supplies laid away
- Never thought about home security systematically
- Haven't really quantified each kind of supplies
- Don't have enough wood, fuel, or water put away
- Haven't establish contact plan or conducted a simulation



3: Neighborhood preparedness

When? As soon as your family is reassembled and cared for





The Question

Are you going to share your preparations and supplies with your neighbors whom you know or don't know if they haven't prepared themselves?

Make this decision now rather than in real time





Map Your Neighborhood

Map Your Neighborhood (MYN) was developed by Dr LuAn Johnson, first in Sunnyvale, CA and then in Seattle, WA. The program was implemented state-wide by the State of Washington's Emergency Management Division (EMD) in 2006. This award-winning program has proven its effectiveness. During the Nisqually (Seattle) Earthquake on February 28, 2001, 92% of 460 organized neighborhoods effectively responded utilizing the 9-Step Neighborhood Disaster Response Plan. More than 50 counties and cities in Washington State are in various stages of implementing MYN. States which have adopted MYN include Alaska, Oregon, California, Montana, Idaho, Kansas, Pennsylvania and South Carolina.



What to do-3

THE NINE STEPS TO TAKE IMMEDIATELY FOLLOWING A DISASTER:

1. Take care of your loved ones.
2. Protect your head, feet and hands.
3. Check the propane at your home.
4. Shut off water at the house main.
5. Place the HELP or OK sign on your front door or window.
6. Put your fire extinguisher in front of house.
7. Go to the Neighborhood Gathering Site.
8. Form teams to listen to the radio for alerts; check on elderly, disabled and children; check propane; check homes with HELP cards and those with no card.
9. Return to Neighborhood Gathering Site to share what has been done.

The Picnic (3-5 days) Reassemble the teams every other day

The Campout (2-4 months) Reassemble the teams weekly or biweekly




3 MYN teams


Care (children, elderly, disabled)

Search-based on maps and phone trees and knowledge of who's out of town; also consider pets

Control-listen to radios, any other media still operable, serve as message center, centralize neighborhood supplies



Neighborhood team supplies and equipment


- Stretchers
 - Tools (pry bars, 4x4 blocks, shovels, chainsaws)
 - Food and water
 - Blankets
 - First aid kits
- 



Fuel and chainsaws

Do you know what it takes to cut apart and move a 100 foot pine tree blocking a street?

Chainsaws, replacement blades, chain oil, 2 cycle fuel, people, vehicles, rigging?



Multiply this by several hundred trees and you will see the potential problem after a 9.0 earthquake

Who will fix a chainsaw if one of the neighbors breaks theirs?



Simulation & training

Walkthrough-not a real test

Callout/Walkaround

Assembly at Neighborhood center

Break into Search, Daycare, Operations teams


Each team sets up and discusses its function



Simulated search, simulated lost child, simulated intermittent communications



Neighborhood risk matrix

- Never heard of MYN-need to investigate and get a presentation
 - Do not know half my neighbors, nor what skills we have around us
 - Ought to get one of those HELP signs
- 



4: Community preparedness

When? As soon as family and neighborhood are taken care of; CERT members call into to team leads or show up at EOC. The earthquake is considered the callout.





What to do-4

The Picnic (3-5 days)

Report to CERT when you are free of neighborhood and family issues; Divide your time and the commitments you make so that you can continue to collect fuel, water, food.

Rapid Impact Survey comes first

Assisting police and fire & rescue as needed

Coping with aftershocks may mean another RIS or more rescue work

The Campout (2-4 months)

More of the same, dividing time between home and neighborhood and community; at some point you will have to choose between using dwindling gas supplies to help at CERT vs. conserving.



Lord of the Flies

Community Emergency Response Team (CERT) Training

Unit 1: Disaster Preparedness (2.5 hrs). Topics include (in part) identifying local disaster threats, disaster impact, mitigation and preparedness concepts, and an overview of Citizen Corps and CERT. Hands on skills include team-building exercises, and shutting off utilities.

Unit 2: Fire Safety (2.5 hrs). Students learn about fire chemistry, mitigation practices, hazardous materials identification, suppression options, and are introduced to the concept of size-up. Hands-on skills include using a fire extinguisher to suppress a live flame, and wearing basic protective gear.

Unit 3: Disaster Medical Operations part 1 (2.5 hrs). Students learn to identify and treat certain life-threatening conditions in a disaster setting, as well as START triage. Hands-on skills include performing head-tilt/chin-lift, practicing bleeding control techniques, and performing triage as an exercise.

Unit 4: Disaster Medical Operations part 2 (2.5 hrs). Topics cover mass casualty operations, public health, assessing patients, and treating injuries. Students practice patient assessment, and various treatment techniques.



CERT Training

Unit 5: Light Search and Rescue Operations (2.5 hrs). Size-up is expanded as students learn about assessing structural damage, marking structures that have been searched, search techniques, as well as rescue techniques and cribbing. Hands-on activities include lifting and cribbing an object, and practicing rescue carries

Unit 6: CERT Organization (1.5 hrs). Students are introduced to several concepts from the Incident Command System, and local team organization and communication is explained. Hands-on skills include a table-top exercise focusing on incident command and control

Unit 7: Disaster Psychology (1 hr). Responder well-being and dealing with victim trauma are the topics of this unit

Unit 8: Terrorism and CERT (2.5 hrs). Students learn how terrorists may choose targets, what weapons they may use, and identifying when chemical, biological, radiological, nuclear, or explosive weapons may have been deployed.

Unit 9: Course Review and Disaster Simulation (2.5 hrs)



Rapid Impact Survey

Issaquah divided into 14 districts, with house by house maps; many municipalities have something similar.

RIS is a windshield survey, undertaken as soon after boom as it is safe to drive.

CERT survey personnel follow prescribed routes, looking for downed trees, fires, hazards to life, broken water mains or other utilities, road outages, power lines down, etc.

Results are returned to the City EOC on forms; emergency issues are radioed in to the EOC



The object is to get a quick view of the city before Fires & Rescue, Police, and Public Works can get to a site



Building Inspections

(not a CERT function)

Performed by civil engineers and building inspectors organized through the State of California

Based on ATC 20-1 and ATC-45 from the private non-profit Applied Technology Council

Focused on safely getting people access to their homes after earthquakes or windstorms/floods



It is anticipated that after a 9.0 event we will have an acute shortage of qualified building inspectors



Emergency Operations Centers

Most medium sized cities and all counties have some version of an EOC.

Most CERTs work out of an EOC.

Kitsap County EOC 911 Carver St. Bremerton,
WA 98312





Community Shelters

Ad Hoc


No clear listing is available

Sometimes Red Cross creates them, sometimes churches

If you search for them, you will get homeless shelters



Other levels of response

- Counties
 - State OEM
 - National Guard
 - FEMA
 - Other Federal agencies
 - Red Cross
 - Other NGOs
- 




Community Risk Matrix

- Never heard of CERT; I need to find the time (just 20 hours) to at least get the training
- Need to know the community a little better from walking it
- I need to know where the shelters are in my community



5: Communications & situational awareness

- Cellular networks will likely be at 20% or less effectiveness within 3 minutes of a regional subduction zone quake
 - Local commercial television and radio is likely to be completely inoperative within 1 minute (Some satellite television may be available)
 - Internet Service Providers are likely to be 100% inoperative within 3 minutes
 - Restoration of service will be spotty and irregular and may take 3 to six months
- 

The spectrum of options

FRS/GMRS Radios



Dual Band Handheld amateur radios



FRS / GMRS

No license required for
FRS

Limited range (5-10 miles
line of sight)

Useful in a neighborhood
or for a CERT team

Will get very crowded in
an emergency


Channel	Frequency (MHz)	Notes
1	462.5625	Shared with GMRS
2	462.5875	Shared with GMRS
3	462.6125	Shared with GMRS
4	462.6375	Shared with GMRS
5	462.6625	Shared with GMRS
6	462.6875	Shared with GMRS
7	462.7125	Shared with GMRS
8	467.5625	FRS use only
9	467.5875	FRS use only
10	467.6125	FRS use only
11	467.6375	FRS use only
12	467.6625	FRS use only
13	467.6875	FRS use only
14	467.7125	FRS use only

The three amateur radio licenses

- Technician: easy; test requires 8 hours study
- General: moderately difficult, perhaps 40 hours study
- Extra: probably not necessary, requires additional 40 hours of study
- 95% of all people are intimidated by the testing
- General is the minimum license for self-sufficiency



Amateur radio equipment

- Dual-band or Tri-band handheld transceivers
 - Headphones and microphones
 - Car-mounted mobile transceivers and antennas
 - Home base station transceivers and large antennas (separate mobile generators and battery banks)
- 

Local Amateur Radio

- Mike and Key is an umbrella organization of Puget Sound networks and clubs <http://www.mikeandkey.org/aboutus.htm>
- Puget Sound Repeater Group maintains repeaters across the region <http://web.psrg.org>
- The Amateur Radio Relay League is the national non-profit umbrella organization for hams. Washington clubs are listed at <http://www.arrl.org/clubs.html>
- Clubs provide classes for licenses and many conduct license testing
- The national ARRL site lists testing each month (<http://www.arrl.org/licensing-education-training>)

Amateur radio networks of Puget Sound-1

Day Time	Freq	Call	Net
Daily	900	146.86	W7AVM Island County ARC (except Sunday, at 1930)
	900	146.96	WW7 PSRG Nine O'clock Net (also at 2100)
	1730	146.82	K7LED Puget Sound NTS Net
	2000	28.43	(HF SSB) Chief Seattle Chapter of IOX Intl. (also Tues. at 0930)
M - F	545	145.33	K7NWS Northwest Weather Net (also at 1645)
SUN	1000	3.915	(HF SSB) 75 Meter Ham Swap Net
	1900	147.24	K7SYE Auburn Area Emergency Communications Team
	1900	146.84	WA7FW Federal Way D-STAR/D-RATS Practice Net
	1900	145.39	W7EOC Grays Harbor Co. Aux. Emerg. Comm. (& BeachNet rpters.)
	1900	28.33	(HF SSB) Kitsap County ACS (also 6-meter FM net on 52.430)
	1900	147.34	K6RFK NW Washington LDS Stakes ERC Net
	1900	442.3	N9VWV City of Sammamish ARES/RACES
	1900	146.74	K7SKW Whatcom County ARES Emergency Services Net
	1915	145.47	K7CPR Region 3 ARES/RACES (& BeachNet repeaters)
	1930	147.04	WA7FW Federal Way Amateur Radio Club
	1930	145.49	K7LWH Kirkland Emergency Comm. Team (KECT) / ARES
	1930	145.43	KD7WDG Kitsap County Alt. Comm. System (ACS)
	1930	443.5	W7VMI Vashon-Maury I. RC - ARES (1st Sun. 28.385 MHz SSB)

Amateur radio networks of Puget Sound-2


MON	1830	3.985	(HF SSB) WA State Emerg. Net (Winter at 1730) (alt. 3.990, 7.245)
	1830	441.8	W7AW West Seattle ARC (also 145.130 & 53.290)
	1845	147.32	WB7DOB Kent Communications Support Team (KCST)
	1900	146.96	WW7PSR Seattle Auxiliary Communications Service (ACS)
	1930	146.96	WW7PSR Puget Sound Repeater Group (PSRG)
	1930	442.825	W7AUX Shoreline ACS (City of Shoreline)
	2000	147.26	W7DG Cowlitz County Auxiliary Communications Service
	2000	444.55	WW7SEA Puget Sound Digital Hams Practice Net
	2000	147.57	(simplex) Stanwood-Camano ARES
	2015	147.36	W7PIG Stanwood-Camano Amateur Radio Club
TUE	1000	145.19	N7GDE Region 1 EmComm Net (then QSY 444.5, 53.09, 223.86)
	1900	146.66	WA7ST SeaTac Amateur Radio (STAR)
	1900	441.4	NT7H Thurston County ARES/RACES (also 147.36 & 224.46)
	1930	147.28	W7DK Radio Club of Tacoma
	1930	441.4	NT7H Olympia Amateur Radio Society (also 147.36 & 224.46)
	2000	441.55	W7WWI American Red Cross - King & Kitsap (alt. 440.525)
	2000	147.26	KF7NPL Maple Valley Amateur Radio Club (146.54 simplex after)
	2000	146.92	WA7DEM Snohomish County ACS/ARES

Amateur radio networks of Puget Sound-3

WED 800 Mon.)	28.37	(HF SSB)	Stanwood-Camano ARC (informal net, also
900	145.15	W7JCR	Jefferson County ARES/RACES (formal net)
1900	145.19	N7GDE	Skagit County ARES
1930	146.72	N7SK	Mason County Amateur Radio Club (also Sun.)
1930	146.82	K7LED	Mike & Key Technical Net
2000	146.7	N7JN	San Juan County Amateur Radio Society
THU 1900 Communications	147.34	K6RFK	Bothell-area Amateur Radio Emergency
1900	443.55	W7SRZ	West. WA Med. Svcs. (also 444.825, 443.675, 440.550)
1900	443.6	K7FDF	Renton Emergency Communication Service
SAT 900 3.990, 7.245)	3.985	(HF SSB)	WA State Emerg. Net (WSEN) (secondary
2000	147.08	W7WWI	Western WA Amateur TV Society (also Wed.)



Other sources: frequencies

- Worldwide short wave/SSB
 - NOAA Weather radio
 - Community emergency radio
 - Commercial AM/FM radio
 - [Citizens Band is not a viable option]
- 

Weather learning

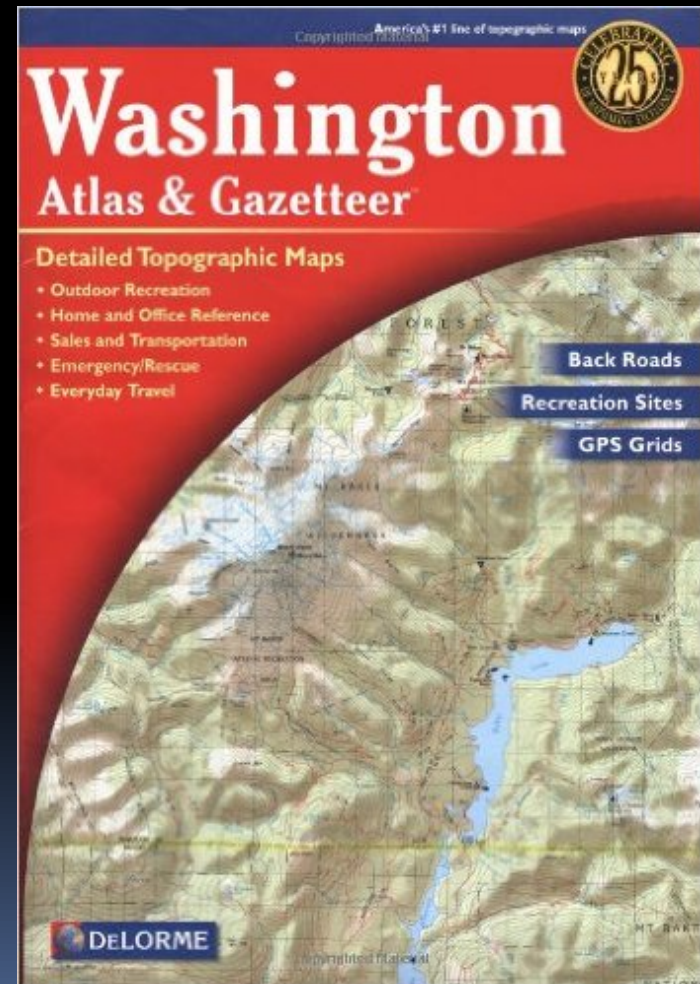
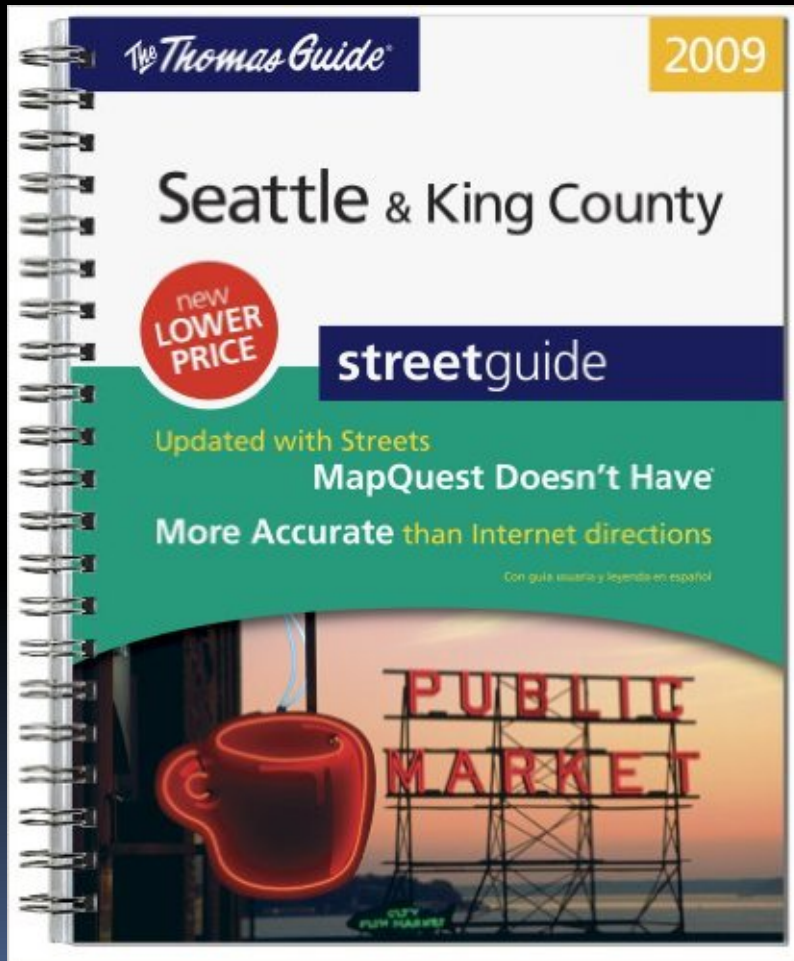
<https://www.meted.ucare.edu>



NOAA Weather Station Broadcasts


Site Name	Transmitter Name	Call Sign	Frequency	Power	WFO
H Street - Blaine Area	H Street - Blaine Area	KAD93	162.525	100	Seattle, WA
Astoria Naselle Ridge	KEC91	162.400	300	Portland, OR	
Seattle Cougar Mtn.	KHB60	162.550	100	Seattle, WA	
Yakima Ahtanum R	KIG75	162.550	300	Pendleton, OR	
Neah Bay	Bohokus Peak	KIH36	162.550	300	Seattle, WA
Forks Clearwater	KXI27	162.425	330	Seattle, WA	
Dayton Patit	KZZ73	162.525	300	Pendleton, OR	
Davis Peak	Longview	WNG604	162.525	100	Portland, OR
Okanogan	Tunk Mtn.	WWF49	162.525	50	Spokane, WA
RichlandRichland	WWF56	162.450	300	Pendleton, OR	
Puget Sound Marine	Miller Peak	WWG24	162.425	90	Seattle, WA
Spokane	Spokane Mtn.	WXL86	162.400	100	Spokane, WA
Wenatchee	Eagle Rock	WXM48	162.475	100	Spokane, WA
Capitol Peak	Olympia	WXM62	162.475	300	Seattle, WA
Cle Elum	Sky Meadows	WXN21	162.400	75	Pendleton, OR
Randle Bennett Road	WZ2502	162.425	100	Seattle, WA	

Maps






Situational Awareness Test

- Are the weather, road conditions, and availability of food and lodging good enough to drive to Yakima?
 - To drive to Portland?
 - Is gasoline available in Kitsap county? Cash or credit? How much per gallon?
 - Is CostCo open? Hours? Cash or credit?
 - What pharmacies are open in Kitsap county?
 - Where is the nearest hospital? Will they take my insurance in this post earthquake world?
- 




Situational Awareness Risk

- I need to get a full set of current maps
 - I should get an FRS radio for short range
 - I should get a hand-crank NOAA radio
 - I should think about an amateur radio license
 - I should take a look at MetEd
- 



6: Dynamic preparedness

- Think of preparedness as a continuous process, not something you achieve
 - Have an outsider look critically at your preparedness and planning
 - Be systematic-use Pareto principles to spend money where most effective, use Risk Matrix to mitigate
- 




Continuous training and practice

- Personal practice all the time: where's the egress, how would I make contact/rally,
- Family practice/simulation twice a year minimum, monthly ideally-doesn't have to be onerous
- Map Your Neighborhood practice once a year if you're lucky-at least meet your neighbors and trade phone numbers




Escalating stressors during simulations

- Separate the family in space
- Posit structural damage rendering your home uninhabitable
- Posit a small fire in the trees near your house caused by a shorted transformer
- A floor of your house collapsed, burying all your survival supplies
- Posit one family member severely injured requiring medical treatment



Working at risk mitigation: driving towards green


- Each month take a look at your risk matrices and try to drive some of the risks toward green.
 - This can be procedural, by purchasing supplies, getting some training, or practicing
- 

Learn from Government simulations

- The Great Shakeout 1020am October 20, 2016: participate and read debriefs and watch videos. (<http://shakeout.org/washington/>) also in California, Oregon, Southeast US, etc.
- Cascadia Rising Regional Simulation June 7-10, 2016. Look for debriefs and exercise planning documents in WA, OR, CA, and British Columbia



Teaching as learning

- Teach First Aid for the Red Cross
 - Teach or assist at CERT training
 - Teach or assist at local Ham radio club license courses
- 

Improve situational awareness


- Hard Copy Maps of Puget Sound, Washington State, Northwestern US, West Coast, your city
- Thomas guides
- List of weather station frequencies on short wave radios; NOAA stations
- WASHDOT web page and radios
- Build library of phone numbers of gas stations in Snoqualmie Pass, South on I-5 to California

Inventories

- Bedside IO
 - Under-bed Box
 - Go Bag
 - Valuables Strongbox
 - CERT Pack
 - Home Stores
 - MYN Supplies
 - CERT Team Supplies
 - Camping Supplies
 - Firewood
 - Fuel
 - Plywood
 - Tarps
 - Duct Tape
 - Batteries
- [Revisit rally points and notification plans]




The effect of Winter

- No one wants to train
 - Rain attenuates RF
 - Mold gets on survival supplies
 - Practicing functioning in the rain is not fun
 - Short days and extended darkness make training, working on risks, and attending meetings impossible
 - We are less prepared in Winter
- 




Formal Emergency Plan

- Risks Matrices and Mitigations
 - Inventories
 - Training Plan (Needed vs Achieved)
 - Updated Where Am I at Boom? pie chart
 - Simulation Plan/Checklist/Record
 - Boom Timeline
- 



What if you did nothing?

- Chances are you'd be OK
 - You'd save a lot of money and hassle
 - If the big quake happens in our lifetime, if you're within 50 miles of the epicenter, if the weather is bad or you're at the wrong place at the wrong time...
 - No one really knows
- 




Aftershocks...

Do a little every month

Don't stress

Don't stop

Don't believe ~~everything~~ anything you read or hear about preparedness, including this presentation; make up your own mind; know why you are doing something.





Disclaimer

Nothing herein represents the official position of any organization; it is offered as one person's opinion.

