

2021 Extension Disaster Education Award Program Outline

Preparing for the Cascadia Subduction Zone Event

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With five team members

Introduction Other than forest wildfires that have grown with increasing severity and intensity over the past 30 years, Oregonians have little experience with preparedness for catastrophic disasters. In the past 40 years, scientists have documented extraordinary evidence that confirms clashing tectonic plates have caused a devastating disaster 19 times in the last 10,000 years. The Cascadia Subduction Zone Event (CSZ) is a major recurring natural disaster for the Pacific Northwest region that happens about every 280 to 350 years. Earthquakes of Magnitude 8.0 to 9.1 (Richter Scale) with sustained shaking of five to seven minutes are expected with a 30 to 50 foot tsunami wave hitting the Pacific coastline within minutes of the initial rupture off of the Oregon coast. The last one was January 26, 1700. While elected officials have taken actions to change building codes, train staff and exercise disaster scenarios since we learned about the CSZ, Extension Service professionals along with most Oregonians are unaware or have been in denial. The goal of this project is to help OSU Extension professionals become aware and prepared for the CSZ through a free, online learning system on campus.eXtension.org, *Preparing for the Cascadia Subduction Zone Event*, (<https://beav.es/Cascadia>) so they can help their communities become prepared. With community partner input, the target audience for all four modules has expanded to community leaders, emergency agency and organization staff, and allowed the general population to also view modules 1-3. A Spanish course will be available in 2021.

Program Description **Relevance** About one million Oregon residents are expected to be displaced for months to years when the CSZ occurs. Travel options and help from first responders will be severely limited. Rather than gathering everyone in a Mass Care facility, officials believe that Oregonians who still have residences that are safe to inhabit will have better resiliency and quicker recovery by sheltering in place.

Neighbors helping neighbors will be a best option for many residents. Those viewing the course modules will learn what will happen (Module 1, *The Evidence* with 13 original sessions), what to do during and immediately after the CSZ (Module 2, *The Experience* with one original session, one original simulation, and two commercial productions shared by media partners). They will also learn how to survive (Module 3, *It's time to Get Ready* with three original sessions and one learning articulate overlay) and take at least one Cascadia Action Step to get motivated. Module 4, *For the Professional: Building Resiliency and Expanding Capacity* is designed to provide training and resource information for Extension professionals and volunteers, emergency agency and organization professionals, staff and volunteers and neighborhood leaders. All 13 PowerPoint sessions are narrated videos and also offered in text-only format. Each module has Resource pages with links to supporting content or additional information.

Partnerships Lynette Black, the Oregon Point of Contact in the Extension Disaster Education Network (EDEN), and disaster preparedness expert in her county spent years providing educational sessions at Extension conferences but momentum was slow to build. In 2018, she built a small, dedicated team with the Oregon Sea Grant Extension Coastal Hazards specialist, and two Family and Community Health (FCH) faculty who understood survival basics related to preparedness and resiliency and the National Institute of Food and Agriculture (NIFA) grant process. Extension Communications provided technical support for the supplemental publications and the Evaluation Specialist from FCH Administration agreed to help. The team was awarded a NIFA Smith-Lever Special Needs Competitive Grant to fund the online learning system with the bulk of the federal grant funding the development of a Magnitude 9.0 earthquake simulation and Spanish translation for the course and supplemental materials and narration for the sessions. Extension Administration supported the grant application and provided a very strong letter of support. Once the online course was opened, Extension Communications set up the *Cascadia Earthquake Preparedness* resource web page on the OSU Extension website to help direct Oregon residents to the online course and provide direct access to the simulation and supplemental publications (<https://extension.oregonstate.edu/cascadia-earthquake-preparedness>).

Leadership capacity The grant application was awarded in 2018 to develop the learning system and promote it through Extension Disaster Education Network, build the simulation and get the modules translated into

Spanish. The grant was extended in 2019 as there were unexpected delays. In March 2020, the English course was introduced to Extension professionals in a soft opening a few days before offices were closed due to COVID-19. The course was promoted through the ConnEXTions weekly newsletter. The Interim Extension Director supported course and evaluation participation by email, and gave the team a presentation time at her quarterly update in May. Participation was slow to build (because of job challenges due to COVID-19) but finally 100 registered in June. The evaluations were completed and analyzed in time for the final report. An emergency grant extension was requested and granted though, because the Spanish translators were all called up to be contact tracers. A new contractor was found who will complete the work by May, 2021.

Unique delivery methods In addition to the original work done in the sessions, this course houses information and resources for all aspects of disasters. We highlighted best practices from FEMA's Ready.gov, Community Emergency Response Team training, the American Red Cross to state- and county-developed resources in the module Resource pages. We developed four *Creating a Culture of Preparedness* series publications (*No Power, No Problem*, EM 9728, *Cascadia Action Steps*, EM 9284; *Survival Basics: Water*, EM 9785 and *Survival Basics: Stress Less*, EM 9287) that could help clarify the preparations needed for the Cascadia Earthquake. The Magnitude 9.0 earthquake simulation in Session 2.1, "Cascadia House," is unique in its platform and quantity of options utilized and that it can be viewed three ways. Participants can see the simulation with the video that auto-starts, or with a mouse click, it becomes a self-guided tour, or through Virtual Reality (VR) goggles in which case participants should be seated. VR research shows that an improved emotional response can help the brain become more prepared and resilient for disasters. The simulation provides the backdrop in Session 3.3 Home, Safe Home, with an interactive articulate story overlay challenging the viewer to observe potential hazards in each room and make decisions that can improve preparedness. Participants can earn a certificate of achievement for viewing Modules 1-3 and taking a Cascadia action step and a Professional Basic Level certificate by also viewing Module 4. Both of these are accepted certifications in Extension Annual Reports through Digital Measures.

Program Impact Everyone was overwhelmed with new Extension protocols and adapting programs to the new reality. To meet our grant deadlines we moved forward with IRB-approved evaluation when 100 people

registered for the course. The Module 1-3 participant survey was embedded in the course. Anonymous survey links in qualtrics were sent to enrolled Extension professionals, the majority of the class. In the Module 1-3 survey (N=21), 90% of respondents reported they “gained knowledge that helps me understand the probability and effects of the CSZ” and 95% gained knowledge “that helps me prepare for the CSZ before it happens and “helped me advance my disaster preparations.” One hundred percent “plan to recommend the course to others.” In the Extension professional’s survey (N=14), statistically significant gains were recorded in all areas including: knowledge about the CSZ event; feeling prepared to provide info to Extension audiences about CSZ and the importance of preparing for the CSZ event as well as having taken steps to prepare themselves and family.

Community Partners Letters of support were provided by community partners for our NIFA Smith-Lever Special Needs Competitive Grant application including, the Resiliency Officer from Oregon Governor’s office, Oregon Health and Human Services Occupational Health and Safety and Emergency Services Manager, Oregon Food Bank and the Oregon Seismic Safety Policy Advisory Commission. Four of us serve on our local county Emergency Managers’ Planning Committee and support the Emergency Operations Center in disasters. One Emergency Management coordinator and one Public Health Community Emergency Preparedness coordinator reviewed our modules for content and accuracy. A coastal County Emergency Manager reviewed sessions directly related to coastal residents. The grant co-PIs presented a breakout session about Extension’s role in each county and our course at the Oregon Office of Emergency Management (OEM) annual 3-day workshop, “OregonPrepared.” Participants in that session have been helpful and supportive. One coordinates the Oregon National Guard Joint Operations (Army and Air Force in Oregon). His participation resulted in an invitation to the Senior Leadership Seminar during Oregon’s equivalent to Fleet Week where the military, including the THIRD Fleet network and make connections with civil leaders for emergency and disaster planning. Similarly beneficial was attending the OEM Oregon Tsunami Conference. There are strong connections with leading Cascadia geologists from Oregon State and Washington State Universities. One reviewed our simulation for accuracy. Connections have been developed with leaders in FEMA Region X, utilities, state highways, civil engineers, Red Cross, NOAA and other emergency and disaster preparedness agencies and organizations. The

Oregon Prepared three-day workshop provides many sessions with Lessons Learned themes from disaster responses across the country and guest speakers that brought clarity to disasters where they played a leadership role. The opportunity to view and interview military Navy and Marine leaders at a Proof of Concept exercise hosted by two coastal counties, the THIRD Fleet and the Oregon National Guard demonstrated actual equipment and supply delivery from the sea and air. Yes, the Air Flotation Landing Craft will be able to navigate the rough coastal waters in Oregon and Washington. The Navy has a ship on standby at the Port of San Diego that will be able to respond within seven days. One of the two Navy hospital ships should be offshore within two weeks. This was helpful to clarify expectations in the course for life after the CSZ.

Future Implications We plan to continue promoting the English course and introduce the Spanish course through marketing activities including the Governor's Kick-off (delayed due to COVID precautions and vaccine distribution, wildfire and ice storm disasters in 2020) and a social media campaign coordinated by Extension Communications for September 2021, National Preparedness month. At this writing, there are 260 participants in the course. We have three additional publications in the *Creating a Culture of Preparedness* series under review for spring publication (*Survival Basics: Food*; *Survival Basics: Emergency Kits* and *Survival Basics: Sanitation*) and five more planned in 2021-2022. There is a need to reach and train people with weak or no bandwidth or those who prefer to learn in face-to-face settings. Lessons will be developed in 2020 to be delivered by Extension professionals and volunteers when COVID-19 precautions are lifted. After the 2020 Labor Day wildfires in Oregon, the Interim Extension Director asked our team and a Regional Director to form a committee to improve Extension's response to disasters. Included in the Legislative "ask" in 2021 is funding for an Extension Disaster Specialist. Extension Administration has suggested a goal for OSU Extension offices to be ready to participate in the next FEMA-sponsored 3-day exercise, *Cascadia Rising* in June 2022.

Supporting Materials

1) Evaluation tool – Module 1-3 survey; 2) Evaluation tool – Extension Professionals survey; 3) Letter of Support – Mike Harryman; 4) Letter of Support - Stan Thomas; and 5) Sample of supplemental publications in *Creating a Culture of Preparedness* series: *Survival Basics: Stress Less*.

Extension Disaster Education Award Oregon Glenda Hyde

Module 1-3 Participant Survey in Qualtrics

RESEARCH CONSENT FORM

Study Title: *Preparing Oregon for the Cascadia Subduction Zone Event*

Principal Investigator: *Glenda Hyde*

Study team: *Marc Braverman, Lynette Black and Lauren Kraemer*

Sponsor: *Project supported by National Institute of Food and Agriculture Smith Lever Special Needs Competitive Grants Program (Award# 2018-05409).*

Version: *02252020*

We are inviting you to take part in a research study.

Purpose: *This study is about determining if people experience a change in knowledge or change any behaviors as a result of participating in the Preparing for the Cascadia Subduction Zone Event online course.*

You should not be in this study if you are under 18.

Voluntary: *You do not have to participate in the study if you do not want to. You can also choose to answer only the questions you feel comfortable answering.*

Activities: *The study activities include opening the survey link and responding to questions.*

Time: *Your participation in this study will last about 5 to 10 minutes.*

Confidentiality: *Your participation in this study is anonymous.*

Study contacts: *We would like you to ask us questions if there is anything about the study that you do not understand. You can call us at 541-548-6088 or email us at Glenda.hyde@oregonstate.edu.*

You can also contact the Human Research Protection Program with any concerns that you have about your rights or welfare as a study participant. This office can be reached at (541) 737-8008 or by email at IRB@oregonstate.edu

To save a copy of this Consent Letter, participants can "Print Screen" and save it to a Word or equivalent document. This document can be saved to the participant's files or printed.

Clicking to the next screen indicates that this study has been explained to you, that your questions have been answered, and that you agree to take part in this study.

Q1

As a result of participating in the Preparing for the Cascadia Subduction Zone Event course I know more about what to do BEFORE, DURING, and AFTER the Cascadia Subduction Zone Earthquake and Tsunami Event (CSZ Event).

	Agree	Neither agree nor disagree	Disagree
I have gained knowledge that helps me understand the probability and effects of the CSZ Event.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have gained knowledge that helps me PREPARE for the CSZ Event BEFORE it happens.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have gained knowledge about actions that need to be taken to stay safe DURING the CSZ Event.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel more prepared for what I can expect my life will be like AFTER the CSZ Event.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel I know how I can become more prepared for life AFTER the CSZ Event.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I had basic knowledge before I took this course.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel this course has helped me advance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

my disaster preparations.

Q2

As a result of participating in this course I have learned about steps I can take to become more prepared or motivated to increase my preparedness for the Cascadia Subduction Zone Event. A few of these steps are listed below. Choose one of the responses for each line. If none applies, leave blank.

	Agree	Neither agree nor disagree	Disagree
	I INTEND to do	I have ALREADY done since I started this course	I had COMPLETED before this course
Learn how to use a fire extinguisher	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Keep at least ½ tank of fuel in my vehicle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Make written copies of the Family Communications Plan for each family member	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regularly scout and walk tsunami evacuation routes when at the coast	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assemble a 1st Aid Kit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Begin to store 1 gallon of water per person per day needed for 2 to 4 weeks (depends on your local area recommendation)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Begin to stock up on food for 2 to 4 weeks (depends on your local area recommendation)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prepare a sanitation system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Secure heavy furniture to wall to prevent tipping	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	I INTEND to do	I have ALREADY done since I started this course	I had COMPLETED before this course
Establish healthy routines (sleep, exercise, healthy eating, and stress management)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q3

As a result of participating in this course I plan to SHARE my knowledge with others. Check all that apply.

- My family
- My household (includes residents other than family)
- My neighbors
- My friends
- My coworkers
- Other

Q4

As a result of participating in this course I INTEND to ask others to take actions to prepare for the Cascadia Subduction Zone Event Earthquake and Tsunami.

	Yes	Don't Know	No
My family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My household (includes residents other than family)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My neighbors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

		Yes		Don't Know		No
My coworkers	<input type="radio"/>		<input type="radio"/>		<input type="radio"/>	
My larger community	<input type="radio"/>		<input type="radio"/>		<input type="radio"/>	

Q5

As a result of participating in this course I HAVE ALREADY asked others to take actions to prepare for the Cascadia Subduction Zone Event Earthquake and Tsunami.

	Yes	No	If Yes, how many?
My family	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
My household (includes residents other than family)	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
My neighbors	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
My friends	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
My coworkers	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
My larger community	<input type="radio"/>	<input type="radio"/>	<input type="text"/>

Q6
Recommending the course to others?

		Yes		No
I will recommend this course to others.	<input type="radio"/>		<input type="radio"/>	
I have recommended this course to others.	<input type="radio"/>		<input type="radio"/>	

Q10

What is the location of your primary residence in Oregon?

- Oregon Coast, West Slopes of Coast Mountain Range
- East Slopes of Coast Mountain Range, Willamette Valley, I-5 Corridor, West Slopes of Cascades Mountain Range and Siskiyou Mountains
- East Slopes of the Cascades Mountain Range and the Siskiyou Mountains, Eastern Oregon

Q7
Are you Hispanic or Latino?

- Yes
- No
- Prefer not to answer

Q8

What is your race? (check all that apply)

- American Indian or Alaskan Native
- Asian
- Black or African American
- Native Hawaiian or Other Pacific Islander
- White
- Prefer Not to Answer

Q9

What is your gender?

- Male
- Female
- Prefer not to answer

Extension Disaster Education Award Oregon Glenda Hyde

Preparing for the CSZ - Extension Professionals Survey

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Q2

Before taking this course how much information about the probability, effects and long-range implications did you know about the Cascadia Subduction Zone (CSZ) event (earthquake and tsunami)? (Choose one).

- A great deal
- A lot
- A moderate amount
- A little
- None at all

Q3

As a result of this course, how much new information about the probability, effects and long-range implications have you learned or was reinforced about the CSZ event? (Choose one).

- A great deal
- A lot
- A moderate amount
- A little
- None at all

Q4

Before taking this course, how prepared did you feel you were to provide information to your Extension community audiences about preparing for the CSZ event? (Choose one).

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q5

As a result of this course, how prepared do you feel you are to provide information to your Extension community audiences about preparing for the CSZ event? (Choose one).

- Strongly agree
- Somewhat agree

- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q6

Before taking this course, how important did you feel it was to prepare yourself and (if relevant) your family for the CSZ event? (Choose one).

- Extremely important
- Very important
- Moderately important
- Slightly important
- Not at all important

Q7

As a result of this course, how important do you feel it is to prepare yourself and (if relevant) your family for the CSZ event? (Choose one).

- Extremely important
- Very important
- Moderately important
- Slightly important
- Not at all important

Q8

Before taking this course, had you taken steps to prepare yourself and (if relevant) your family for the CSZ event?

- Yes
- No

Display This Question:

If Before taking this course, had you taken steps to prepare yourself and (if relevant) your family... Yes Is Selected

Q9

IF YES: Can you briefly describe what those steps are?

Q10

As a result of this course, have you taken steps to prepare yourself and (if relevant) your family for the CSZ event?

- Yes
- No

Display This Question:

If As a result of this course, have you taken steps to prepare yourself and (if relevant) your famil... Yes Is Selected

Q11

IF YES: Can you briefly describe what those steps are?

Q14

To your knowledge, has your Extension office taken steps to prepare your office staff and operations for the CSZ event?

- Yes
- No

Display This Question:

If To your knowledge, has your Extension office taken steps to prepare your office staff and operati... Yes Is Selected

Q15

IF YES: Can you briefly describe what those steps are?

Q16

To your knowledge, does your Extension office offer trainings to community audiences for disaster preparedness?

- Yes
- No

Display This Question:

If To your knowledge, does your Extension office offer trainings to community audiences for disaster... Yes Is Selected

Q17

IF YES: What topics do you cover?

Display This Question:

If To your knowledge, does your Extension office offer trainings to community audiences for disaster... Yes Is Selected

Q18

IF YES: What communication channels do you use?

- In-person
- Print materials
- Web sites (other than social media)
- Social media (Facebook, Twitter, etc.)
- Other communication channels

KATE BROWN
GOVERNOR



May 17, 2018

RE: NIFA proposal

To whom it may concern:

As the State Resilience Officer in Governor Kate Brown's office I am excited to learn about the NIFA Smith-Lever Special Needs Competitive Grant opportunity for Oregon State University Extension's project, *Preparing Oregon for the Cascadia Subduction Zone Event On-line Learning System*.

In 2013, the Oregon Resilience Plan (ORP) was presented to the 77th Legislative Assembly, this 50-year report on preparing policy makers and Oregonians for a Cascadia Subduction Zone event has become Oregon's standard to bring all efforts together. However, despite efforts by emergency preparedness professionals, there is still a very large number of Oregonians who are unaware of the Cascadia Subduction Zone event and unprepared for it.

Oregonians need additional educational resources to become aware and prepared for the Cascadia Subduction Zone Event, this is major recommendation of the ORP.

Oregon State University Extension's project, *Preparing Oregon for the Cascadia Subduction Zone Event On-line Learning System* will point the investigators to additional resources that they may need and facilitate connections with key leaders in this work.

The Governor's Office can help promote the on-line course. We expect to post the link on our state resilience web page. I will review the class to prepare myself to participate in a media announcement to join in the Governor's Cascadia Subduction Zone Event Challenge to become aware and prepared.

We will also be pleased to recommend the series with the fifth module to "essential service" providers. This will enrich the leadership pool in each county with the capacity to work alongside federal, state, and county agencies or organizations with enhanced communication and cooperation to realign existing resources and develop new ones.

Sincerely,

Mike Harryman
State Resilience Officer



Oregon

Kate Brown, Governor

Department of Human Services

Emergency Management - Mass Care

500 Summer Street NE, E22

Salem OR 97301

503-990-0528

May 18, 2018



Dear Smith-Lever Special Needs Grant Review Committee,

Oregon Department of Human Services (DHS) is pleased to offer our support for Oregon State University Extension's *Preparing Oregon for the Cascadia Subduction Zone Event On-line Class Modules* proposal. This project supports the states interests in increasing community resilience and preparedness for a large-scale disaster event.

DHS mission is, "to help Oregonians in their own communities achieve wellbeing and independence through opportunities that protect, empower, respect choice and preserve dignity." Additionally, DHS is the lead agency for mass care, food and water for Oregonians impacted by a declared disaster under the State of Oregon Emergency Operations Plan. In this role we partner with government, non-governmental organizations, and private partners to plan for and respond to disaster events in the state of Oregon. This proposal takes a proactive approach to:

- Prepare Oregon citizens for a large-scale disaster,
- Potentially reduce the burden on response agencies at all levels in a disaster, allowing for more effective and efficient use of resources,
- Increase family and community resilience post disaster.

Preparing our citizenry for large scale disasters has the added benefit of increased resilience to more common and smaller scale emergencies. This increased resilience could have the effect of increasing stability and independence of families currently at risk to be food insecure.

As the lead agency in providing mass care, food and water in the event of a disaster – including a Cascadia Subduction Zone Event – Department of Human Services fully supports this grant application and recommends it for funding.

Sincerely,

Stanton E Thomas

Program Manager

DHS|OHA Shared Services

Occupational Health, Safety and Emergency Services

Stanton.e.thomas@state.or.us

503-990-0528

"Safety, health and independence for all Oregonians"
An Equal Opportunity Employer

CREATING A CULTURE OF PREPAREDNESS

Survival Basics: STRESS LESS

Tips for Handling Fear and Anxiety

By G. Hyde, L. Black and L. Kraemer

OREGON STATE UNIVERSITY EXTENSION SERVICE

Photo: © Paul Lovichi

Introduction

In an emergency, fear and anxiety are a natural reaction. However, there are ways to prepare for those tense, anxious moments with an emotional toolkit that helps you cope and respond effectively during a disaster. This publication explores mindfulness techniques to help you respond with resiliency in stressful times.

Dr. John Kabat-Zinn is the creator of the Stress Reduction Clinic and the Center for Mindfulness in Medicine, Health Care, and Society at the University of Massachusetts Medical School. He suggests that mindfulness can lower blood pressure, reduce depression and anxiety, and rewire parts of the brain. Practicing mindfulness enables you to respond, rather than react, to stress.

Reacting can lead to panic, which activates the primitive responses of fight, flight or freeze. Preparing your brain to respond, however, allows you to think more clearly and make wise decisions in moments of stress. Much like you develop muscle memory through practice and repetition, you can develop appropriate responses to stress through mental practice. Positive response, optimism and hopefulness lead to confidence, improved resiliency, and a quicker recovery when disaster strikes.

Brains enjoy being busy. However, too much stress may cause you to lose sleep, overeat, or lose your temper. When that happens, it's time to learn how to recognize your body's reactions and implement tools that reduce that stress.

Take the sessions

Preparing for the Cascadia Subduction Zone Event sessions are free at beav.es/Cascadia.

- *Module 1: The Evidence* features scientific and cultural evidence that the world's largest naturally recurring disasters return every 250 to 500 years. The last Cascadia earthquake was Jan. 26, 1700.
- *Module 2: The Experience* shows what to do during and after the Cascadia earthquake and tsunami. The Cascadia Simulator provides a virtual-reality experience that will help condition your brain for five to seven minutes of shaking.
- *Module 3: It's Time to Get Ready!* provides information and tips and outlines steps to take to plan, prepare, recover and rebuild.
- *Module 4: Professional Level Basics* provides additional information for neighborhood leaders or agency and organization staff and volunteers who hold emergency or preparedness assignments.

Glenda Hyde, associate professor of practice and Extension Disaster Education Network delegate; Lynette Black, associate professor and Extension Disaster Education Network delegate; and Lauren Kraemer, assistant professor of practice in the mid-Columbia region, all of Oregon State University.



“I can be changed by what happens to me, but I refuse to be reduced by it.”

Maya Angelou, American poet, singer, memoirist and civil rights activist.

Photo: © Valmedia Creatives

Mindfulness is one tool to retrain your brain. Through mindfulness, your brain learns that it is okay to take a break from thinking and move to gentle awareness of your surroundings. Even a daily one-minute thinking break can help improve your response to stress and short-circuit brain reactivity. This is particularly important in our modern culture where smart phones and the internet keep us constantly connected and rarely allow us to unplug or fully take a break.

Learning about and practicing mindfulness for 10 to 30 minutes a day can improve and strengthen your ability to think clearly during a disaster and recover more quickly after the emergency has passed. Mindfulness can rewire the brain and body to respond more skillfully.

Mindful breathing

Your breath is your most accessible tool because it is always with you. Mindful breathing can calm strong emotional and physical reactions and allow you to respond in a more logical, thoughtful way than you would otherwise. Pausing to take a few deep, mindful breaths when you first start experiencing everyday stressors will help reduce the production of cortisol, a stress hormone. Cortisol is important in times of danger, but a physical release is needed to use it. The buildup of cortisol in your blood, sometimes called chronic stress, damages brain cells and can have other negative effects on your health. Regularly practicing mindful breathing improves your ability to self-regulate emotions.

Directions:

- When you notice stress, first drink a glass of water to address any chance of dehydration. Just as an engine needs oil to function properly, our bodies need water to improve blood flow and get oxygen and important nutrients to the heart, muscles and brain.
- Sit with your feet flat on the floor and your hands on your knees. Relax your shoulders and breathe. Some people enjoy deep breaths or closing their eyes.
- Observe the way the breath feels as you breathe in ... and out. Observe the rise and fall of your chest and then your belly. You may wish to breathe in through your nose and out through your mouth, noticing the sensation of the air moving.
- If your mind wanders into thinking, reflecting or planning and you begin to judge yourself, stop. Guide yourself back to gentle awareness and observing. Practice for 10 breaths.

With a little training, your brain will learn to appreciate the time spent in relaxation and awareness instead of the busy-ness of thinking. With a week's practice you may find it easier to go back to sleep when you start mindful breathing.

Mindful movement

Ten simple “mindful movements” from Thich Nhat Hanh, a Buddhist monk and leader of a spiritual community in France, can be practiced daily. Individually or in a series, these



“The average person looks without seeing, listens without hearing, touches without feeling, eats without tasting, moves without physical awareness, inhales without awareness of odor or fragrances and talks without thinking.”

Leonardo da Vinci

Photo: © Simon Pilolla

movements can help you become aware of what is going on both inside and around you. There are free guided practices online where the narrator can help you or a group of people learn to engage in awareness. While you are moving, you can shed your stress with the basic awareness of repeated simple movements and physical sensations.

For example, Thich Nhat Hanh recommends the Reach for the Sky mindful movement.

Directions:

- Begin with your arms at your sides.
- Breathing in, lift your arms in front of you.
- In one continuous movement, bring your arms all the way up, stretching them above your head. Touch the sky!
- Place your palms together or facing forward as you reach up.
- Breathing out, bring your arms slowly down again to your sides.
- Repeat three more times.

Thought surfing

When feeling stressed or overpowered with something out of your control, “thought surfing” can help you address powerful negative emotions such as fear and anger and regain your emotional balance. This activity can be one of your most powerful tools to help you accept a new reality.

Directions:

- Notice your thoughts and sensations. Let your mind fill with your emotion.
- Give this sensation a number from 1 to 10 to quantify the intensity of your upset.
- Breathe into this thought. Make room for it as it rises like a wave.
- Envision the wave in your mind as it rises, crests and falls as it rushes to the shore.
- Repeat several times. Like all waves, the agitation, urge or thought will peak and pass.
- Now, say your number again as the thought wave passes by and rolls on to the shore.

Riding the wave of your thought can give you time to regain your emotional balance and consider other ways to solve the problem. Being able to step back from racing thoughts allows you to take actions more in line with your values. With practice, thought surfing allows you to make room for once highly charged emotions off to the side of your mind.

Three moments

A simple activity called the three blessings exercise will increase positive emotions, decrease stress and help improve resiliency after a disaster. Dr. Martin Seligman, the founder of the positive psychology movement at the University of Pennsylvania,



“You can’t stop the waves, but you can learn to surf.”

Jon Kabat-Zinn, creator of the Stress Reduction Clinic and the Center for Mindfulness in Medicine at the Health Care, and Society at the University of Massachusetts Medical School

Photo: © Monkey Business Images

developed the practice. The three blessings exercise, done each evening for seven days, has lasting effects. Some people enjoy this activity and continue it because of the pleasing results.

Each night before you go to bed:

- Reflect on the past 24 hours, noticing things that went really well.
- Write down three things that you enjoyed or gave you a sense of happiness.
- Consider why these good things happened.
- Repeat for six more days.

Families might want to consider an adaptation of this practice for young children, tweens and teens. The exercise increases resiliency, confidence, self-worth and other positive emotions. At the end of the day, ask each child to think about three good things they observed in their siblings. Each child shares their thoughts and says why it was important. For example, “I’m glad you helped me when I fell down this morning. I didn’t feel so scared.” Repeat this activity daily.

Emotional freedom technique tapping

There is growing evidence that tapping acupuncture points along the body’s key energy meridians — a practice called emotional freedom technique tapping — can reduce stress and increase mindfulness. Studies of have shown the technique:

- Reduces symptoms of post-traumatic stress syndrome, depression, anxiety and stress.
- Changes stress biochemistry.
- Reduces the stress hormone cortisol.

The practice involves:

- Becoming aware of the stress or issue you are facing.
- Ranking the intensity of the stressor.
- Repeating an affirmation or key phrase during the practice.
- Tapping a sequence of eight acupuncture points along the head, face and torso.
- Reassessing the intensity again.

By bringing awareness to the brain and body, emotional freedom technique tapping is a quick and simple process. It can be taught to children as well as adults. Like breathing, the emotional freedom technique can be done anywhere. Learn more by searching for emotional freedom technique tapping on the internet for guides and instructions. Also, check the resources below.



Photo: © Paul Lovichi

“Resiliency is something you do, more than something you have. ... You become highly resilient by continuously learning your best way of being yourself in your circumstance.”

Al Siebert, American author and educator

Apps and activity trackers

Many mainstream apps can help you improve your mindfulness. Visit the App Store or see some of the top free suggested apps in the resources below. Some activity trackers for products such as Apple Watch and Fitbit have guided meditation or breathing sessions.

Music and videos

Music can help keep you be calm and relaxed. Relaxing music is available free on the Internet and YouTube videos. Options include calming, music-only videos with guided mindfulness practices using a soothing voice.

For more information

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“Courage doesn’t always roar. Sometimes courage is the quiet voice at the end of the day saying, I will try again tomorrow.”

Mary Anne Radmacher, consultant, author and artist

Photo: © Monkey Business Images

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