

# **HMSC Tsunami Options Quest**

**Established:** 2016 by 7th graders at Newport Middle School

**Revised and Renamed:** 2021 by Oregon Sea Grant

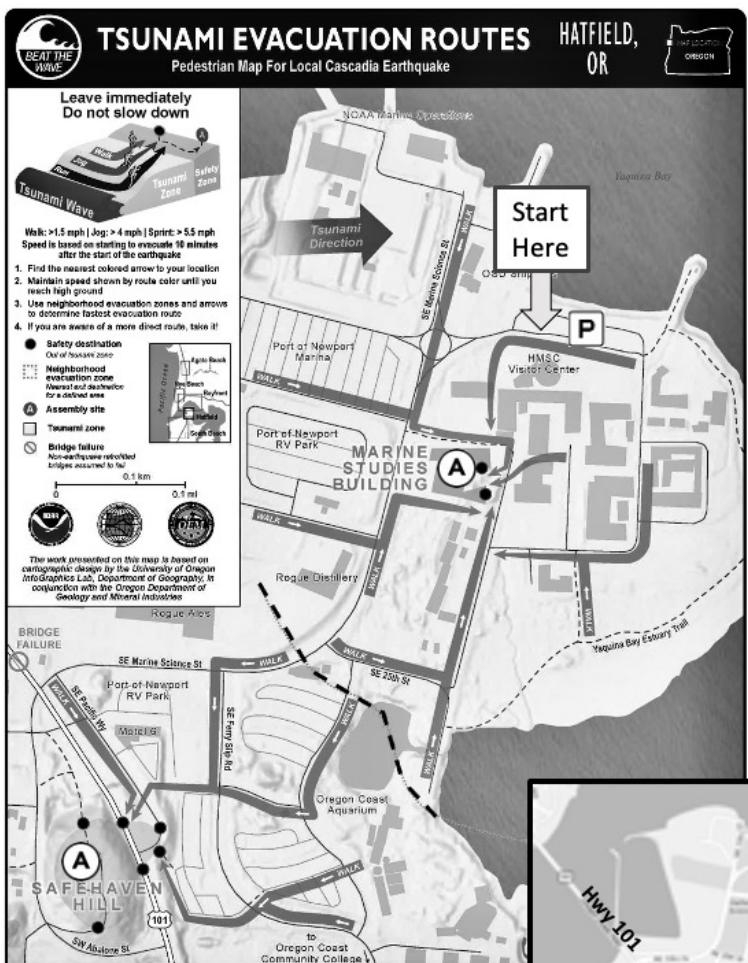
**Box Monitor:** Oregon Coast Quests

If the Oregon Coast experiences a large earthquake, a tsunami will reach low-lying areas within minutes. Therefore, it is important that coastal visitors and residents know what to do to stay safe. This Quest is a fun way to learn about some of the evacuation options in South Beach, and to practice walking two different evacuation routes from the Hatfield Marine Science Center (HMSC). The more you know about your options, the better prepared you will be to make decisions during an emergency.

This Quest covers about one mile over what is mostly a paved and level path, and it ends with a short but steep uphill hike on a gravel trail.



Use this Beat the Wave map from [oregontsunami.org](http://oregontsunami.org) to help you solve the Quest. Follow the directions and collect the letter clues to fill the numbered squares on the last page of this Quest. The message you complete will help you find the hidden Quest box. NOTE: A full color version of this map is available at [oregontsunami.org](http://oregontsunami.org).



This map shows two Assembly Sites: **A**. For a given location on the map, follow the evacuation arrows to find the closest exit destination. The heavy dashed line shows the boundary between neighborhood evacuation zones.

## Quest Partners

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In a real emergency, you would want to evacuate very quickly, and when you get to high ground you should stay there. However, when you are doing this Quest, you can take time to explore, search for clues, discuss ideas, and learn about safety. Plan at least 60 minutes to complete your round-trip walk.

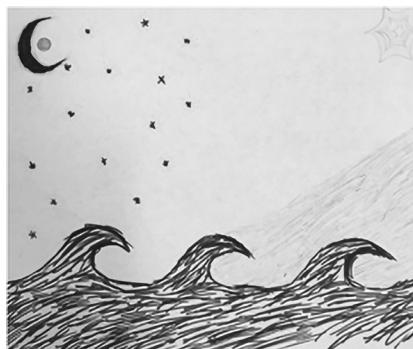
This Quest begins outside the public entrance to the Visitor Center at the Hatfield Marine Science Center (HMSC). From Newport, drive south on Hwy 101, cross the Yaquina Bay Bridge, get off at the first exit after the bridge, and follow the signs to the HMSC main entrance. Park in the main parking area and start reading the directions at the big orange and black sign in front of the Visitor Center that says, “Hatfield Marine Science Center.”

## Let's begin!

If a big earthquake offshore  
Caused the ground to shake.  
Tsunami waves would follow.  
What steps should you take?

Escape the coming wave!  
This Quest will do its utmost  
To share what we can do  
To stay safe on the coast.

Earthquakes and tsunamis,  
In Japan, are not a mystery.  
Events in recent times  
Reflect a seismic history.



### Did You Know?

*The word tsunami means “harbor wave” in Japanese (tsu=harbor + nami=wave). Which letter appears to be silent in the word “tsunami”? Write that letter in square #1.*

### Did You Know?

*In 2011, an earthquake off the coast of Japan generated a tsunami that flooded coastal areas and washed many structures out into the ocean. One dislodged dock washed up over a year later on the Oregon coast, and part of it stands here on display next to the big yellow buoy near the building. Walk to the dock piece now.*

Search around the base  
Of this well-traveled dock.  
Clue 2 is in a square  
Painted low on the block.

Next, walk out on the lawn.  
What plan could you make  
If right here, right now,  
The ground started to shake?

Step One is to DROP.  
Get down before you fall!  
Crouch low, on your knees.  
Poised as if to crawl.

Step Two is to COVER.  
Shield your head with your arm.  
If indoors, use a table  
To protect yourself from harm.

Step Three is to HOLD ON  
'Til the shaking starts to slow.  
As soon as you are able,  
Decide where you will go.

Now return to the sign  
Where you started this Quest,  
Then beyond to the flagpole  
A bit farther west.

There's a letter left for you  
At the base of the pole.  
Write it in square 3.  
Now you're on a roll!



#### ***Did You Know?***

*After a coastal earthquake, low-lying areas like where you are standing now can expect to see flooding within minutes. As soon as the shaking stops, you should EVACUATE to high ground immediately. Do not delay. Do not wait for officials to tell you to evacuate; just go. The first wave could arrive at Hatfield Marine Science Center in 15 minutes, so knowing in advance what to do, what to look for, and where to go saves precious time.*

### **Did You Know?**

*From where you are standing, the roof of the Gladys Valley Marine Studies Building is the closest high ground to which you could evacuate for safety after an earthquake because this building was built as a Vertical Evacuation Structure (V.E.S.) The building has been designed to withstand a 9+ earthquake and a large (XXL) tsunami event, and the roof stands at a height of 47 feet – well above the worst-case tsunami. This building is the ONLY tsunami Vertical Evacuation Structure in the state of Oregon.*

Turn left, which is south.

Peer over the rooftop.

The tall building beyond  
Will be our next stop.

Follow the pavement south  
Between the buildings squat.  
Soon you'll find yourself  
At a big new parking lot.

Ahead see the tall building  
Just built at HMSC.  
It has special features  
Find out what those might be.

It's built tall and strong.  
Safety it does address.

It's a Vertical Evacuation Structure.

Also called a "V.E.S."

See the sign on the building  
Sticking out, way up high?  
Go over; look more closely.  
What do the pictures imply?

Two bright contrasting colors  
Comprise the sign up there.  
The letter ending them both  
Goes in the clue 4 square.

Continue south to the east entrance.  
Stay outside on ground level today.  
See big words on the building.  
What do these words say?



### **Did You Know?**

*This sign is unique to a V.E.S. It shows people escaping a tsunami wave by running toward a building. The image of the person in the wheelchair indicates that this evacuation option accommodates all mobility levels.*

**POP QUIZ:** Is it generally a good idea to run into a tall building to protect yourself from a tsunami?

**Answer:** NO! The ONLY building for which this behavior may be advisable is the Gladys Valley Marine Studies Building at Hatfield Marine Science Center. This \$61.7 million building was specifically designed as a Vertical Evacuation Structure (V.E.S.) Any other building on the coast could be dangerous to enter after a severe earthquake, and would NOT be likely to survive impacts from tsunami waves.

The name of this building  
Is on the wall's face.  
Put the third letter of the fourth word  
In the clue 5 space.

One option to ascend  
To the rooftop so high  
Is the giant, wide ramp.  
It's not difficult to spy!

Today we will keep on walking  
To another evacuation site.  
We're just exploring our options.  
Each provides the needed height.

At the ramp's bottom corner  
Turn right to start your way  
Toward "Safe Haven Hill"  
Near the bridge over the bay.

What direction are you headed?  
Have you already guessed?  
Clue #6 is the third letter  
Of the direction known as \_\_\_\_\_.



#### **Did You Know?**

*Tsunami waves can come ashore for many hours after the initial event, and subsequent waves can be bigger than the first. When you reach high ground, plan to stay there at least overnight. The Gladys Valley Marine Studies Building rooftop is designed to serve as an emergency assembly site for more than 920 people for up to two days after an earthquake.*

### **Did You Know?**

*"Safe Haven Hill" is the closest natural area of high ground to which you could evacuate for safety after an earthquake. This small hill is located at the base of the Yaquina Bridge, about  $\frac{1}{2}$  mile away. The land is considered to be high enough to be out of the tsunami inundation zone.*

Go 'round the building clockwise  
Turn left out of the lot.  
Cross the road using the crosswalk  
Toward a rock in a "middling" spot.

Turn left again and walk south.  
Pass a big anchor on your right.  
Continue south on the path.  
Soon yellow signs come into sight.

Nearby a tall lamppost  
Has not one lamp, but two.  
The second letter of its color  
Is your 7th clue.

How hard would it be to evacuate  
In the middle of the night?  
After a big earthquake  
Would these lamps still shine light?

Once done with your musings,  
Continue on your walk.  
Follow the path until you reach  
Another 'middling' rock.



### **Did You Know?**

*At this location, you are about halfway between the V.E.S. building and Safe Haven Hill. Up until now, your closest evacuation site was the building behind you. As you continue on your Quest, your closest evacuation site will be the hill ahead of you.*

Before crossing the drive  
In the crosswalk  
Find clue 8 on your right  
On one of three rocks.

### **Did You Know?**

*From where you are standing,  
you can see the high ground  
that is your destination; it  
is covered by tall evergreen  
trees. The last letter of the  
second word in the hill's name  
is clue #9.*



Carefully cross the driveway  
To another upright rock.  
Turn your gaze to the south.  
It's time to take stock.

How many ways can you reach  
Safe Haven Hill from here?  
Again, know your options  
In case routes are not clear.

(Also a third, further option  
Would be to head to OCCC.  
Since it's a mile to the south  
Moving fast would be key.)

Now walk to the bridge.  
It was built in '36.  
It would collapse after a big quake  
And would not be easy to fix.

After passing a green hut  
The path splits in two.  
Go to the left and spy  
A sign white and blue.

This evacuation sign  
Has a shape that is round.  
Its arrow points left.  
Follow it toward high ground.

Parallel to the bridge  
Cross the roads carefully.  
Pass three middling rocks more  
And soon you will see...

...Where the bridge meets the road  
Concrete stairs show the way.  
They're an option to reach high ground  
But DON'T take these steps today!

### **Did You Know?**

*After an earthquake, these  
stairs might help you reach  
high ground. However, since  
we are practicing evacuation  
today, we will NOT go up the  
stairs because they lead to a  
busy highway and it is unsafe  
to walk across highway traffic.  
Instead, follow the path  
UNDER the bridge.*

Follow the path UNDER the bridge  
To another concrete stair.

An arrow on a pillar  
Points to clue 10 painted there.

Don't take these stairs; instead  
Walk toward the trees until  
You spy a zig-zag trail  
That leads to the top of the hill.

Follow the wooden rail  
Up, up, up to higher ground.  
When you reach the top  
Many treasures can be found.

This big gathering space  
Has many signs to view.  
Behind one of them  
Hides your number 11 clue.

A large container holds  
Emergency supplies.  
Once you're on high ground  
Staying here would be wise.

### ***Did You Know?***

*Oregon Coast Community College (OCCC) is another tsunami evacuation option. It's farther away than Safe Haven Hill, but the area of high ground is larger and higher.*

Geologists have said  
That this hill will be stable.  
Find your 12th Quest clue  
Painted on a picnic table.

You have all your letters now.  
What do the words spell?  
How is this significant?  
(One of the signs will tell).

To finish your Quest, go back  
To the top of the zig-zag trail.  
Lift that which matches your message.  
You'll find the box without fail!



*Fill in the boxes with the answers to the clues to solve the Quest.*

<input type="text"/>								
6	12	3	4	9	1	4	12	8

<input type="text"/>							
10	5	8	11	7	12	2	

*When you've found the Quest Box, sign your name and stamp the back of your book to mark your accomplishment. Don't forget to seal the box tightly and return it to its hiding place for the next person to find!*

*For more information about tsunami safety on the coast visit  
[www.oregontsunami.org](http://www.oregontsunami.org).*