Tsunami Maritime Response and Mitigation Strategy – Port of Bellingham

# Appendix 5: Maps and Figures

Boater Considerations Graphic



Figure 1: Considerations for boaters who are already offshore during a tsunami.

#### Study Area Boundary



Figure 2: Map of the Bellingham area with close up of port and Fairhaven Terminal areas. Close up boundaries represent modeling study area extents.

# Simulated Tide Gauge Locations Bellingham



Figure 1: Simulated gauge locations near Squalicum Harbor and Bellingham Shipping Terminal.

# Simulated Tide Gauge Locations Fairhaven



Figure 2: Simulated gauge locations near Bellingham Cruise Terminal.

#### Bellingham Evacuation Walk Times Map



Figure 3: Evacuation Walk Map for Bellingham and Fairhaven areas for a CSZ-L1 scenario.



## Inundation from CSZ Tsunami Event in Bellingham

Figure 4: Modeled inundation depth from a tsunami generated by the Cascadia subduction zone (CSZ) L1 scenario in Bellingham.





Figure 5: Modeled inundation depth from a tsunami generated by the Cascadia subduction zone (CSZ) L1 scenario in Fairhaven.



### Inundation from Alaskan Tsunami Event in Bellingham

Figure 6: Modeled inundation depth from a tsunami generated by the Alaska-Aleutian subduction zone (AASZ) AKMaxWA scenario in Bellingham.



# Inundation from Alaskan Tsunami Event in Fairhaven

Figure 7: Modeled inundation depth from a tsunami generated by the Alaska-Aleutian subduction zone (AASZ) AKMaxWA scenario in Fairhaven.



#### Modeled Water Depth Gauge from a CSZ Tsunami Event in Bellingham

Figure 8: A comparison of water depths for a tsunami simulated by the Cascadia subduction zone (CSZ) L1 scenario modeled at Mean High Water (MHW) and the Mean Low Water (MLW) tidal datums. Water depth values were recorded at a simulated tide gauge location in the Bellingham study area shown in Figure 12 as "simulated tide gauge". Tsunami wave amplitudes deviate from the MHW and MLW tidal datums, respectively



#### Modeled Water Depth Gauge from a CSZ Tsunami Event in Fairhaven

Figure 9: A comparison of water depths for a tsunami simulated by the Cascadia subduction zone (CSZ) L1 scenario modeled at Mean High Water (MHW) and the Mean Low Water (MLW) tidal datums. Water depth values were recorded at a simulated tide gauge location in the Bellingham study area shown in Figure 13 as "simulated tide gauge". Tsunami wave amplitudes deviate from the MHW and MLW tidal datums, respectively.



#### Modeled Minimum Water Depth from a CSZ Tsunami Event in Bellingham

Figure 10: Modeled minimum water depth from a tsunami generated by the Cascadia subduction zone (CSZ) L1 scenario in Bellingham. Each colored zone has a 3-foot water depth interval. In the zone closest to land, water depth drops to 3 feet or less. Refer to the designated tide gauge plots to see the relative timing of each wave drawdown



### Modeled Minimum Water Depth from a CSZ Tsunami Event in Fairhaven

Figure 11: Modeled minimum water depth from a tsunami generated by the Cascadia subduction zone (CSZ) L1 scenario in Fairhaven. Each colored zone has a 3-foot water depth interval. In the zone closest to land, water depth drops to 3 feet or less. Refer to the designated tide gauge plots to see the relative timing of each wave drawdown.



Modeled Water Depth Gauge from an Alaskan Tsunami Event in Bellingham

Figure 12: A comparison of water depths for a tsunami simulated by the Alaska-Aleutian subduction zone (AASZ) AKMaxWA scenario modeled at Mean High Water (MHW) and the Mean Low Water (MLW) tidal datums. Water depth values were recorded at a simulated tide gauge location in the Bellingham study area shown in Figure 16 as "simulated tide gauge". Tsunami wave amplitudes deviate from the MHW and MLW tidal datums, respectively.



Modeled Water Depth Gauge from an Alaskan Tsunami Event in Fairhaven

Figure 13: A comparison of water depths for a tsunami simulated by the Alaska-Aleutian subduction zone (AASZ) AKMaxWA scenario modeled at Mean High Water (MHW) and the Mean Low Water (MLW) tidal datums. Water depth values were recorded at a simulated tide gauge location in the Fairhaven study area shown in Figure 17 as "simulated tide gauge". Tsunami wave amplitudes deviate from the MHW and MLW tidal datums, respectively.



#### Modeled Minimum Water Depth from an Alaskan Tsunami Event in Bellingham

Figure 14: Modeled minimum water depth from a tsunami generated by the Alaska-Aleutian subduction zone (AASZ) AKMaxWA in Bellingham. Each colored zone has a 3-foot water depth interval. In the zone closest to land, water depth drops to 3 feet or less. Refer to the designated tide gauge plots to see the relative timing of each wave drawdown.



#### Modeled Minimum Water Depth from an Alaskan Tsunami Event in Fairhaven

Figure 15: Modeled minimum water depth from a tsunami generated by the Alaska-Aleutian subduction zone (AASZ) AKMaxWA in Fairhaven. Each colored zone has a 3-foot water depth interval. In the zone closest to land, water depth drops to 3 feet or less. Refer to the designated tide gauge plots to see the relative timing of each wave drawdown.



Modeled Current Speeds for both CSZ and Alaskan Tsunami Event in Bellingham

Figure 16: Modeled tsunami current speeds (knots) for tsunamis generated by the Cascadia subduction zone (CSZ) L1 and Alaska-Aleutian subduction zone (AASZ) AKMaxWA scenarios at a simulated tide gauge location in the Bellingham study area shown in Figure 20 as "simulated tide gauge".



#### Modeled Current Speeds for both CSZ and Alaskan Tsunami Event in Fairhaven

Figure 17: Modeled tsunami current speeds (knots) for tsunamis generated by the Cascadia subduction zone (CSZ) L1 and Alaska-Aleutian subduction zone (AASZ) AKMaxWA scenarios at a simulated tide gauge location in the Fairhaven study area shown in Figure 21 as "simulated tide gauge".



#### Modeled Current Speeds for a CSZ Tsunami Event in Bellingham

Figure 18: Modeled current velocity from a tsunami generated by the Cascadia Subduction Zone (CSZ) L1 scenario in Bellingham.



Modeled Current Speeds for a CSZ Tsunami Event in Fairhaven

Figure 19: Modeled current velocity from a tsunami generated by the Cascadia subduction zone (CSZ) L1 scenario in Fairhaven.



#### Modeled Current Speeds for an Alaskan Tsunami Event in Bellingham

Figure 20: Modeled current velocity from a tsunami generated by the Alaska-Aleutian subduction zone (AASZ) AKMaxWA in Bellingham.



Modeled Current Speeds for an Alaskan Tsunami Event in Fairhaven

Figure 21: Modeled current velocity from a tsunami generated by the Alaska-Aleutian subduction zone (AASZ) AKMaxWA in Fairhaven.