

URBC 2020 - Towards Best Practices in Developing Coastal Flood Scenarios for Adaptation and Risk Reduction - Capital Region Coastal Flood Modelling & Mapping Project

November 17, 2020

N. Elliott, CRD and T. Patterson, City of Victoria



Regional Coordination

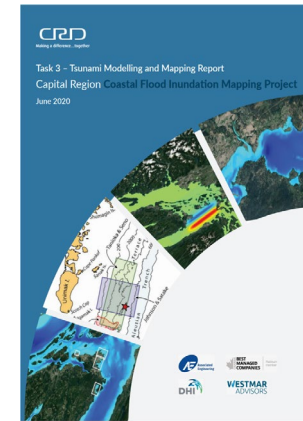
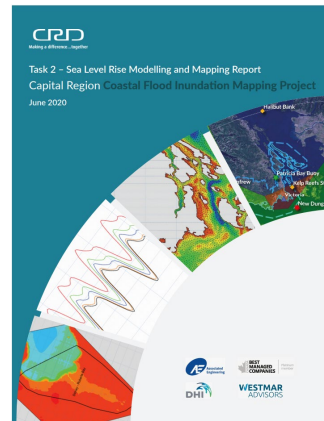


- CRD Climate Action Inter-Municipal Working Group
- Local Government Emergency Program Advisory Commission
- Regional Emergency Management Partnership



Map Date: 2020/04/28
File: C:\Users\1607\Documents\2019070600_CoastalFloodMapping\Working_Draft\003_028_51350000N

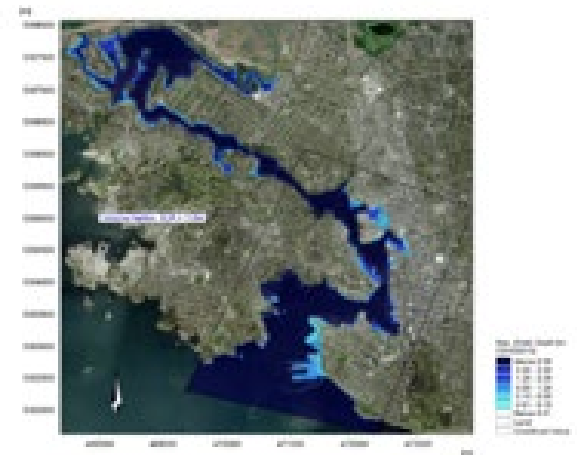
1. Digital Elevation Model Development
2. Sea Level Rise Modelling and Mapping Report
3. Tsunami Modelling and Mapping Report



- Provide information on the future hazards associated with coastal flooding related to sea level rise and tsunamis.
- Inform current and future flood policy and planning activities.

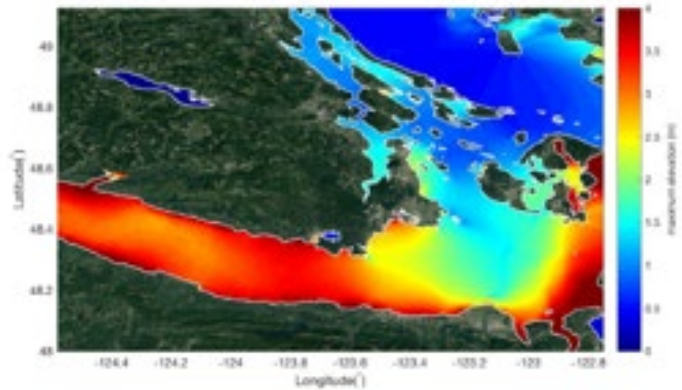


- Amendment to Section 3.5 and 3.6 Provincial Flood Hazard Area Land Use Management Guidelines & various guidelines
- Probabilistic method
- 4 RSLR scenarios
 - 0 m
 - 0.5 m
 - 1.0 m
 - 2.0 m
- Five annual exceedance probabilities
 - 10%, 5%, 2%, 1%, 0.5%

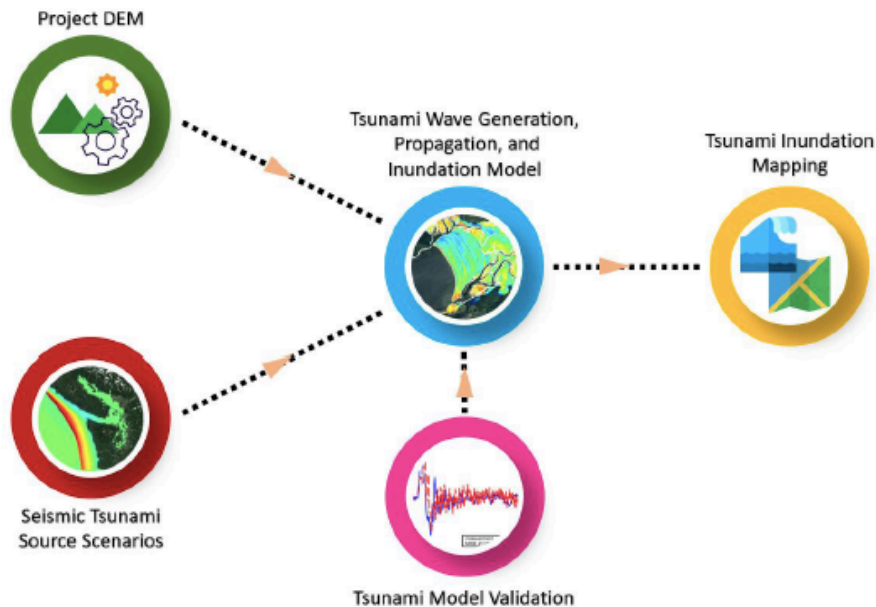


1 m SLR AEP 0.5% (200 year),
Victoria Harbour/Gorge Waterway

Selection of Scenarios - Tsunami



Maximum water surface elevation,
CSZ-NS



→ 11 tsunami scenarios

→ Entire region modelled to 30m cell resolution (1 arc-second)

→ Five areas were selected for detailed inundation modelling, resolution of 4 m.

Selection of Scenarios - Tsunami

Source	Abbrv.	Magnitude	Probability	Comment
Cascadia Subduction Zone, CSZ L1	CSZ – L1	9.1-9.2	2500-yr return period	Worst-case earthquake scenario (L1)
Cascadia Subduction Zone, CSZ Northern Segment	CSZ-NS	8.5-9.0	500-600 yr return period	Rupture of northern segment
Cascadia Subduction Zone, CSZ Central Segment	CSZ-CS	8.5	500-600 yr return period	Rupture of central segment (southern Washington, northern Oregon), identified by Wang et al., 2013
Devil's Mountain Island fault Mw 7.5.	DM1	7.5	2000-yr return period	Worst-case earthquake – Long transpressive rupture (>50 km)
Devil's Mountain Island fault Mw 6.5	DM2	6.5	<2000-yr return period	Middle length transpressive rupture (<50 km)
Southern Whidbey Island fault Mw 7.5	SW1	7.5	2000-yr return period	Worst-case earthquake – Long transpressive rupture (>50 km)
Southern Whidbey Island fault Mw 6.5	SW2	6.5	<2000-yr return period	Shorter transpressive rupture (<50 km)
Alaskan 1964	AL	9.2	500-1000 yr	Same as 1964 earthquake
Aleutian Trench	UN	8.6	unknown	1946 Aleutian Trench earthquake, off Unimak Island
Haida Gwaii	HG1			2012 earthquake
South of Haida Gwaii	HG2			Hypothetical event spanning region between Haida Gwaii failure and Nootka fault

More Information



www.crd.bc.ca/coastalflood

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