



1. Atmospheric river event
2. "Zim Kingston" casualty

CBMU Fall conference : Nov 30, 2021



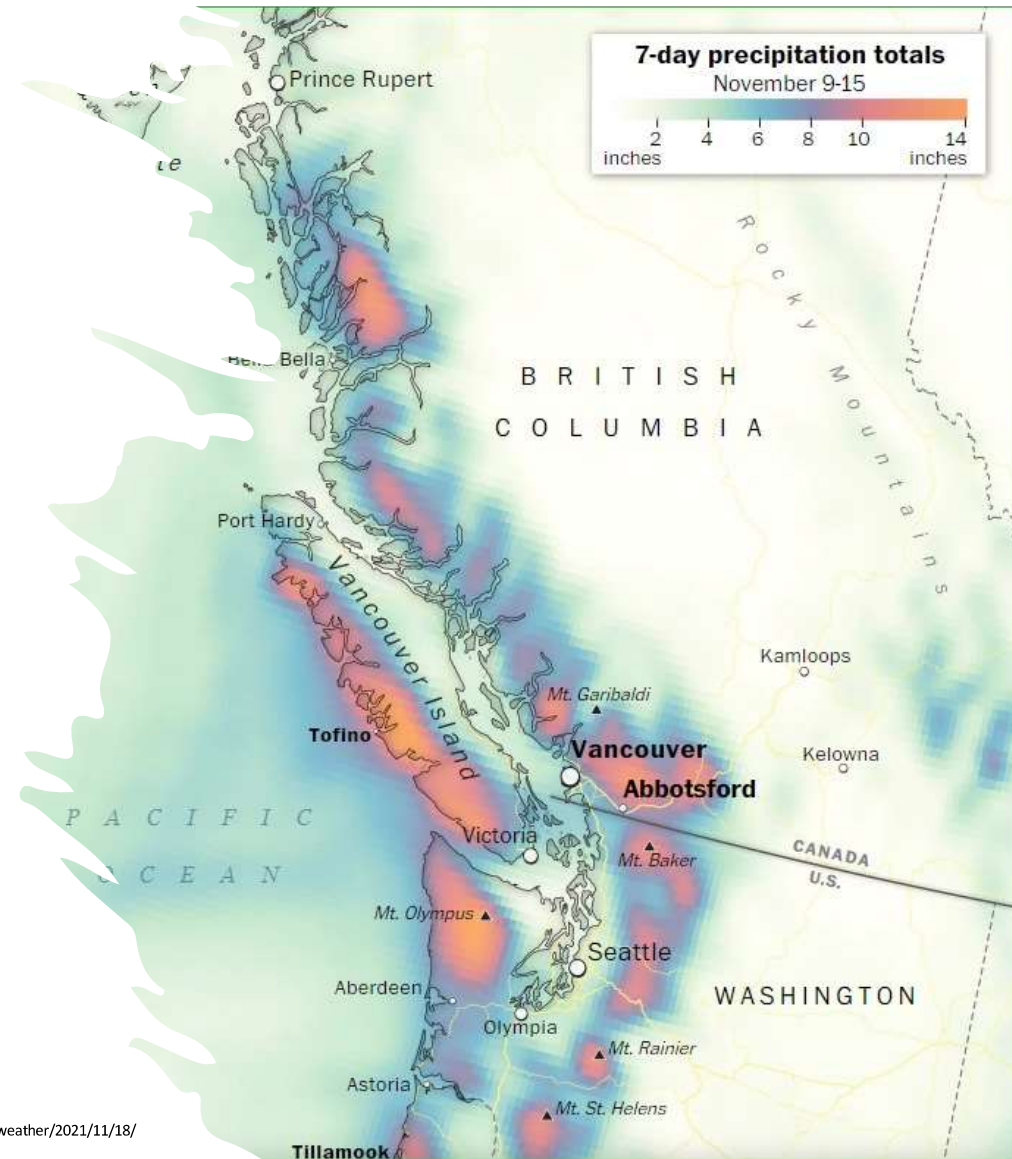
Mariella Dauphinee
Immediate Past President

Agenda

- The atmospheric river event in British Columbia on November 15, 2021 and the impact to the marine sector.
- The “Zim Kingston” casualty – October 22, 2021.

Atmospheric River

- An atmospheric river brought heavy rainfall to British Columbia and the Pacific Northwest on November 15, 2021, resulting in massive flooding and mudslides.
- Atmospheric rivers are long, narrow bands of water vapour in the atmosphere from the tropics and move with the weather.
- The exceptional rainfall was caused by a powerful 2,600-mile-long narrow band of water vapour originating near Hawaii, known as an atmospheric river.
- This event rated 5 out of 5 in the scale of atmospheric rivers.

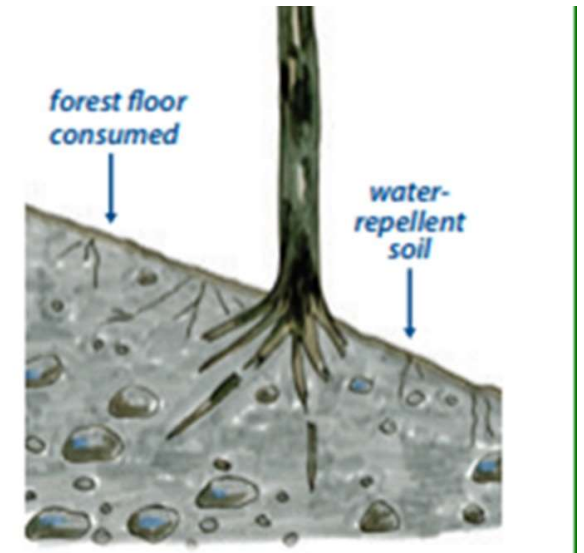
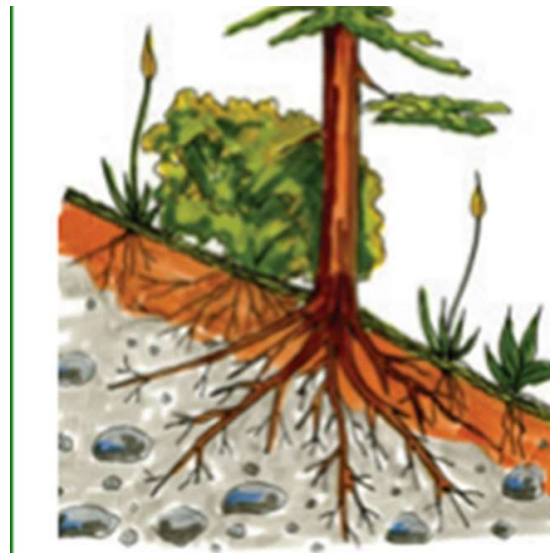
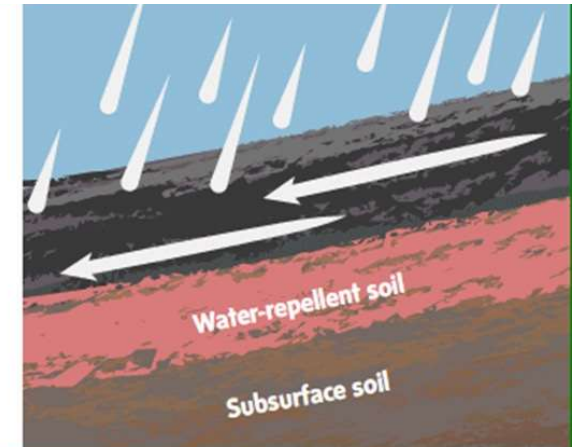
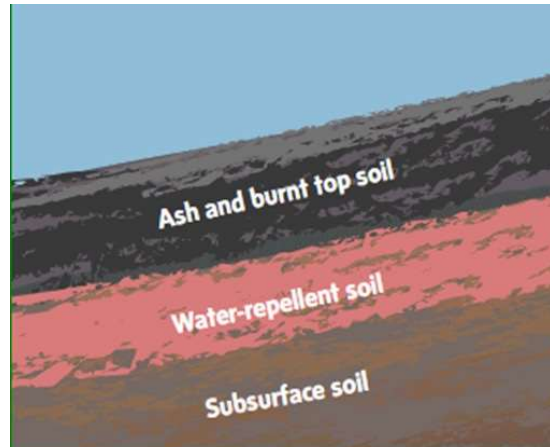


The rainfall over 24 to 36 hours exceeded what many locations typically see during all of November, the wettest month of the year



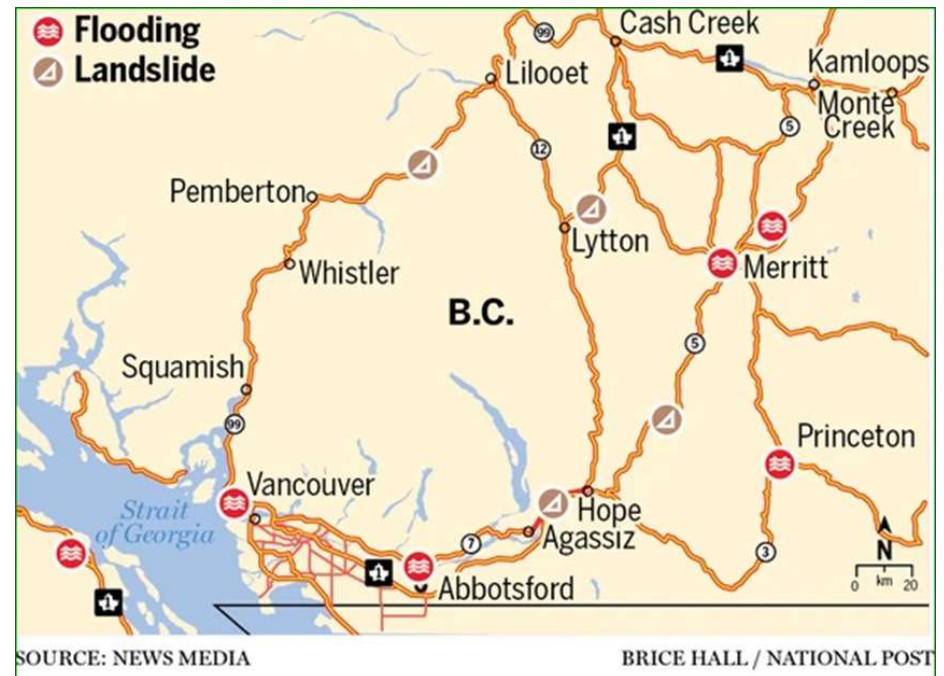
Wildfire scars contribute to mudslides and landslides

- The record temperatures in the summer set the stage for the wildfires.
- The fires burned the ground in a way that prevents water from seeping into the soil.
- This resulted in the water from torrential rains pouring more quickly into streams and rivers, causing floods.

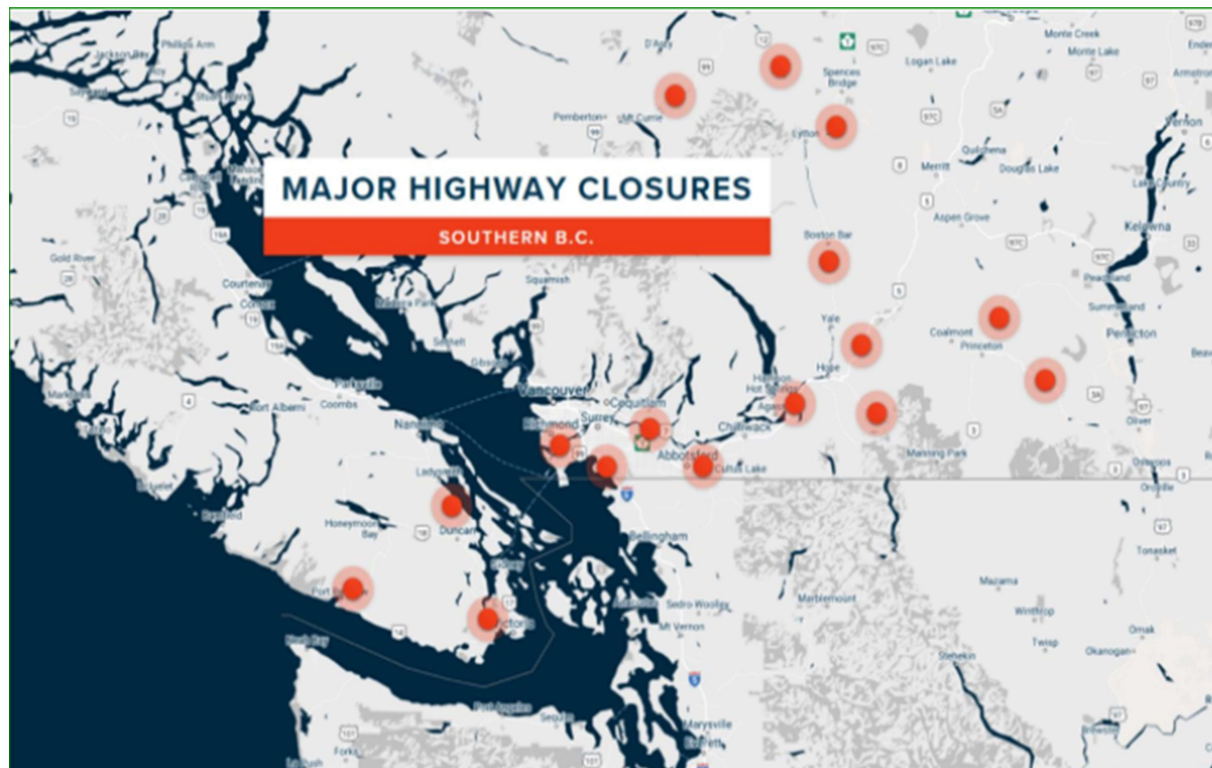


Extreme weather closes highways

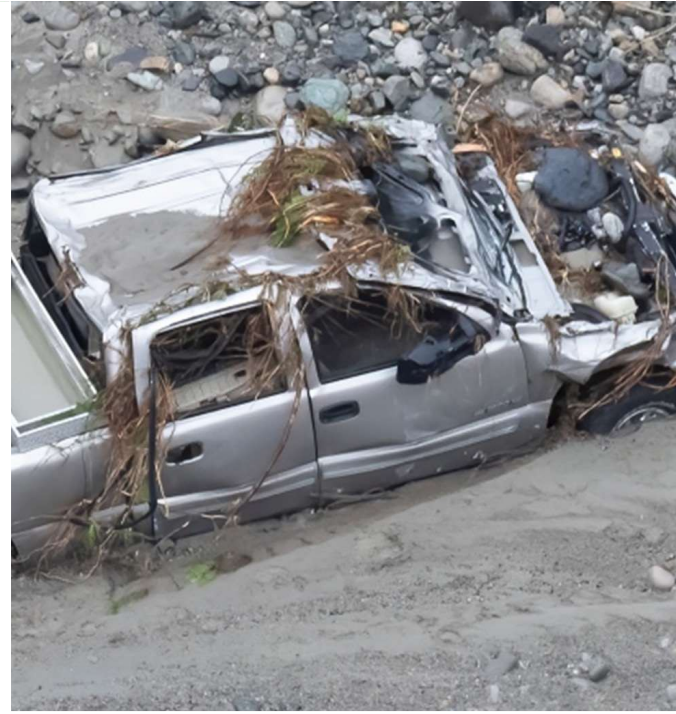
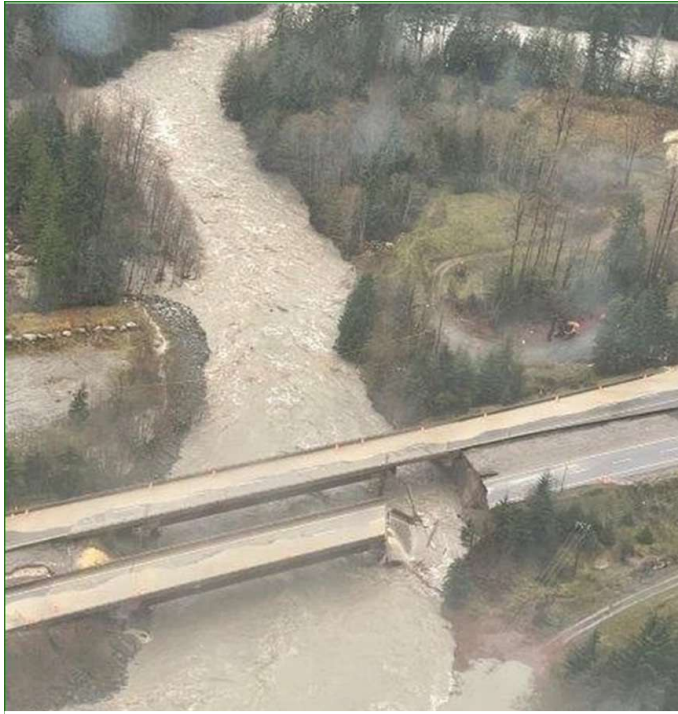
- Due to torrential rain, flooding and mudslides, many highways were closed.
 - Metro Vancouver is essentially cut off from the rest of the province.
 - To leave the Lower Mainland of BC, you need to use Highway 99, Highway 1, or the Coquihalla.
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- All those routes were shut down.



Reconstruction
and repairs on
all major
roadways
continue...



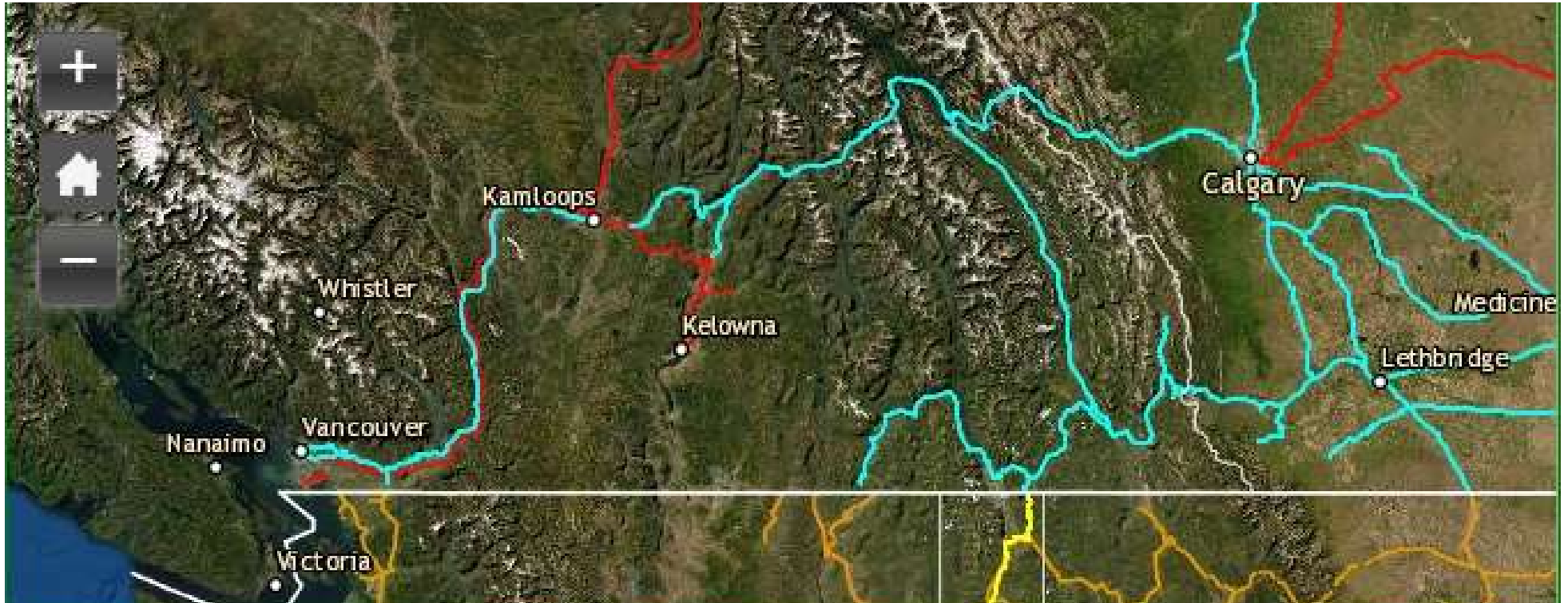
<https://vancouver.citynews.ca/2021/11/15/metro-vancouver-highway-closures-storm>



Highway washouts and mudslides



The railways that link Vancouver and the southern part of British Columbia were flood damaged and impassable.



Affected area: Vancouver to
Kamloops

Connecting to the rest of Canada and United States



<http://www.acwr.com/economic-development/rail-maps/class-i-freight-carriers>

Rail operations

- CN and CP crews and engineering teams continue to clear debris and undertake repairs to damaged infrastructure between Kamloops and Vancouver.
- Although significant progress has been made in restoring multiple rail sections, access to some impacted locations continue to be hampered by safety and logistical challenges.
- Low speed restrictions to enable monitoring of rail infrastructure when operating in restored line and intermittent closures to ensure safety.



Grain



<https://www.theglobeandmail.com/business/article-canada-faces-grain-backlog-with-freight-halted-through-bc-after>

- This is the peak shipping season for farmers whose grain normally travels by rail through the Fraser Valley in B.C. to the port of Vancouver.
- This year it is a short crop. There is some room to store grain in the short term as well as capacity in the trains due to the short crop years.
- Elevators are about 75 per cent full, after farmers harvested 48 million tonnes of grain this year compared to 70-75 million tonnes in a normal year.
- Flooding comes after severe wild fires in BC earlier this year caused transportation delays.

Trans Mountain pipeline shutdown due to severe rain and flooding.

- The 1,500-kilometre Trans Mountain pipeline is Canada's only pipeline system carrying oil from Alberta to the West Coast.
- Capacity of 300,000 barrels per day.



Provincial state of emergency declared.

- BC imposes gas rationing and travel restrictions:
- Limit of gasoline to 30 litres per visit to a gas station.
- The restriction in place until December 1 affects drivers in the Lower Mainland, including Hope, the Fraser Valley, Metro Vancouver, Sea-to-Sky region and the Sunshine Coast and Vancouver Island and Gulf Islands
- Essential vehicles, including emergency responders, commercial transport vehicles, health-care and public transit have unfettered access to fuel.
- Non-essential travel prohibited on B.C. roads most severely affected by floods.

<https://vancouver.citynews.ca/>





As floods and mudslides in southern B.C. shut highways and railways, some panic buying has taken place.



Runaway barge

- The Coast Guard is monitoring a number of vessels on the B.C. coast that have either sunk, run aground, or are simply drifting in the ocean due to the storm that brought torrential rain and damaging wind.
- The most visible of the vessels that ran aground is a barge that landed on Sunset Beach after breaking loose from its mooring and drifting across English Bay.
- The Burrard Bridge leading into downtown Vancouver was closed due to the risk of the barge at Sunset Beach coming loose and colliding with the bridge.

<https://www.vancouverisawesome.com/>



Debris

Log came down Fraser River and lodged under vessel at marina poking a hole through the hull

Courtesy of Coast Claims Insurance Services

Flood damage

Warehouse that flooded to 6
feet of height of water sinking
and damaging hulls

Courtesy of Coast Claims Insurance Services

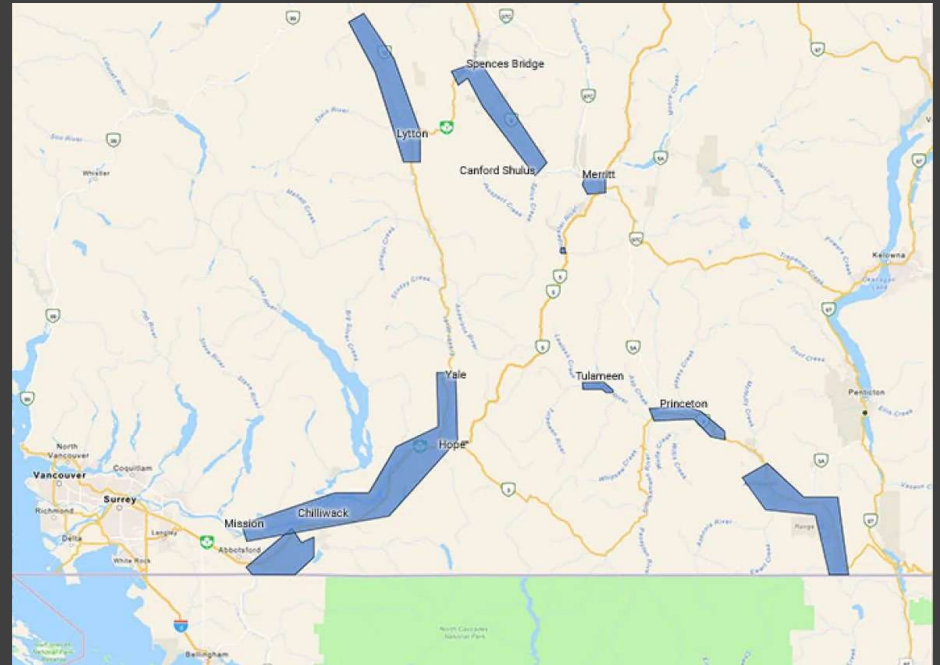


Overwhelmed by torrential rain

- Typical open walk around vessel that bilge pumps drew down batteries and eventually sunk vessel.
- 6 in one marina

Courtesy of Coast Claims Insurance Services





Transport Canada prohibits non-essential boat traffic in flooded areas of B.C.

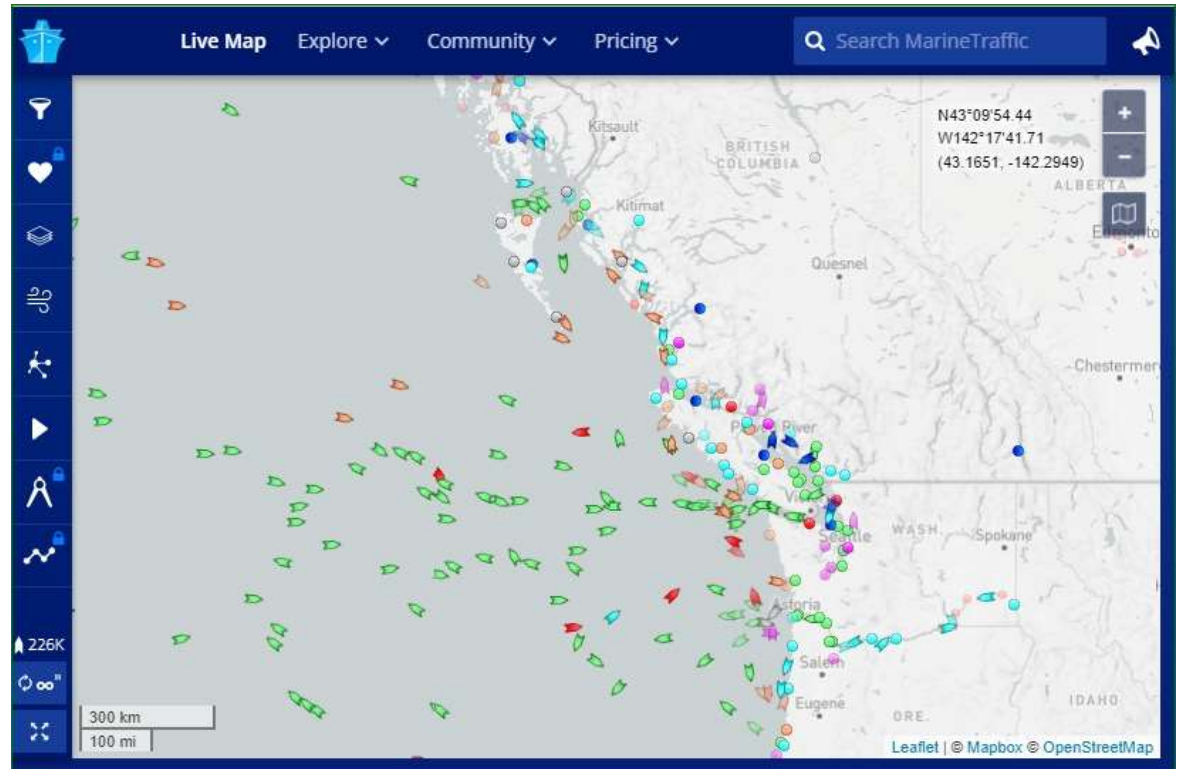
Effects of
windstorm
on a lumber
yard



Courtesy of MRM Solutions Ltd

Marine operations

- Anchorage demand is high and nearing capacity across all vessel types.
- 66 vessels in the port
- 26 at berth
- 48 at anchorage awaiting a berth
- Canada is starting to do something similar to what L.A. and Long Beach are doing. These ports are reporting less vessels at anchorage awaiting a berth, as vessels are 300 miles out to sea stopped and drifting.
- Potentially dangerous to have vessels off the coast of Vancouver Island, drifting in the North Pacific during winter.



<https://www.marinetraffic.com/en/ais/home/>



<https://www.maritime-executive.com/>

- Container ship “Zim Kingston”, 2008, 40,030 GRT.
- Casualty at sea while on passage from Busan, Korea to the port of Vancouver

Positioning

- Prior to the initial incident involving the loss of containers, the vessel was plying international waters 70 km west of the entrance of Juan de Fuca Strait.
- She was in a holding pattern, “loitering” for approx. 20 hours in gale force winds of around 35 knots and gusts of 100 knots and 20-foot waves.
- Port congestion was the reason the Zim Kingston was out at sea at the time of the casualty.



Strait Of Juan De Fuca - WorldAtlas



<https://twitter.com/USCGPacificNW>



www.victoriabuzz.com



<https://twitter.com/USCGPacificNW>

- At around 12:30 a.m. on Friday, October 22, 2021 with the ship listing at a reported 35 degrees, 109 containers were lost overboard.
- Initial reports had it at 40 containers.
- The containers were packed with consumer goods, such as refrigerators, engine parts, yoga mats and toys, but also hazardous materials

On the move...

- Some of the containers and their spilled contents were washing up along the shores of Vancouver Island, as they make their way up the coast on a northwest trajectory parallel to the island.
- The Coast Guards of both Canada and the USA issued warnings for ships in the area to watch for floating containers, as they are a hazard to navigation.





<https://dailyhive.com>



<https://vancouverisland.ctvnews.ca>



mycowichanvalleynow.com

Some containers and their spilled contents were washing up along the shores of Vancouver Island.



The damaged ship then made its way to an emergency anchorage just off Victoria, at Constant Bank

Whilst at Constance Bay, a fire broke out in 10 damaged containers



<https://www.shippingandfreightresource.com/wp-content/uploads/zimkingston5.jpg>

Two of the burning containers contained hazardous material identified as potassium amlyxanthate (used in the mining industry), which substance is classified as being spontaneously combustible.

Responders could not apply water directly to the fire. Instead, they cooled the ship's hull with water

The containers burned down to their shells and then collapsed into themselves.

The ship itself was not on fire, but an emergency zone was set up for one nautical mile around the ship.

Resolve Marine and Salvage, which has a base in Alaska, was hired by the ship's operator to help with firefighting and to salvage the overboard containers

Multi-agency command post

- A multi-agency command post, headed by JJ Brickett at Victoria's Coast Guard base, was established.
- Participants from all levels of government and First Nations to monitor everything from fire status to crew safety and environmental testing.



Update

- The 21-member crew all were rescued safely!
- The fire damaged ship has received the go-ahead from federal officials to move to a port in either Vancouver or Nanaimo,
- General Average has been declared.
- High ocean freight costs dramatically increase contributory values!



<https://npa.ca/cruise-npa-ca/map>

THANK YOU