

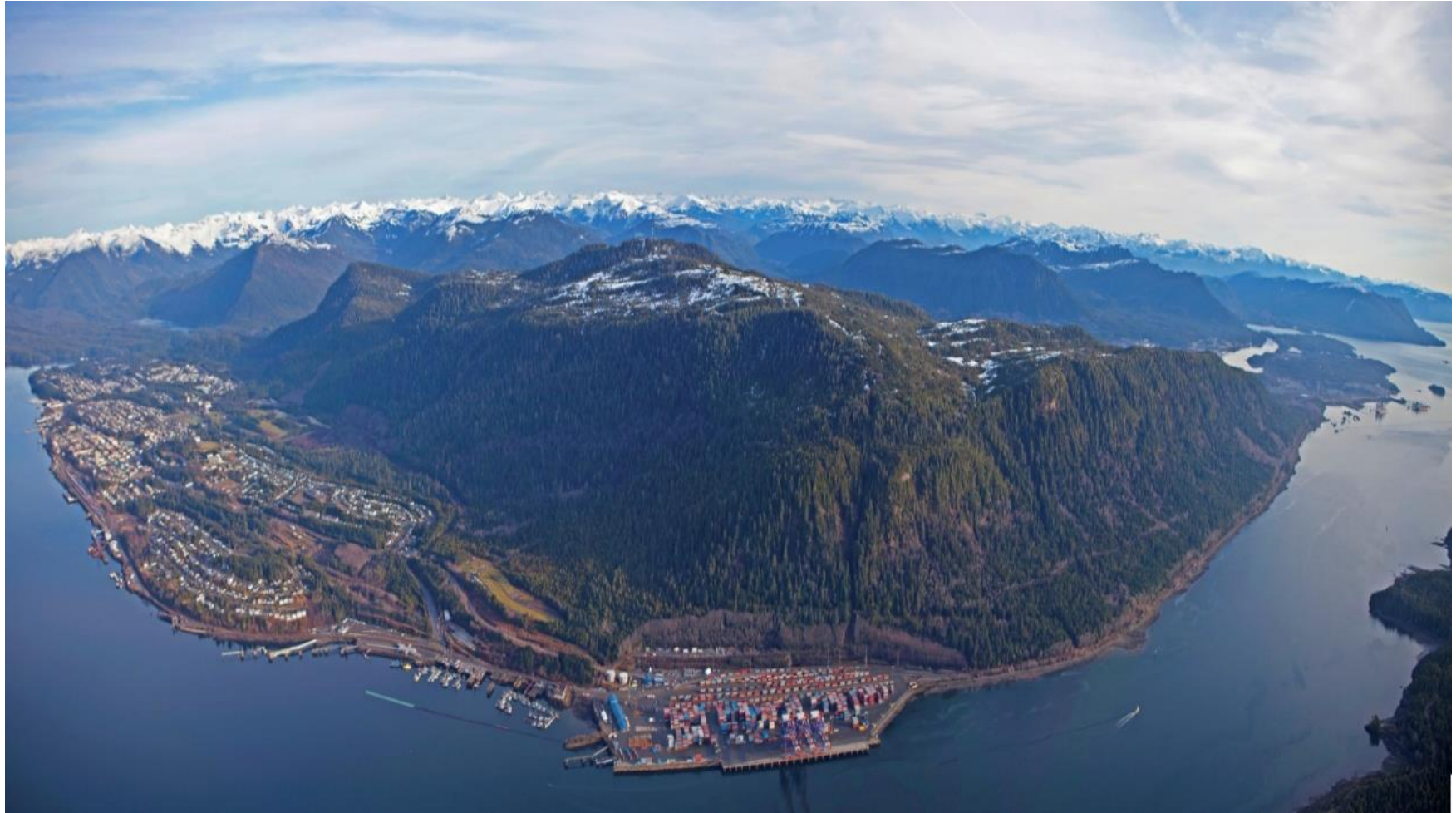


PORT OF  
PRINCE RUPERT



# Stewardship and Sustainability at the Port of Prince Rupert

Jason Scherr, Manager Environmental Sustainability  
Commission for Environmental Cooperation  
Joint Public Advisory Committee  
December 12, 2016



**PORT OF PRINCE RUPERT**  
**Welcome to North America's Leading Edge**



# Agenda

- Who we are
- Current Facilities Overview
- Building the Gateway
- Environmental Initiatives
- Air Quality Program
- Additional programs





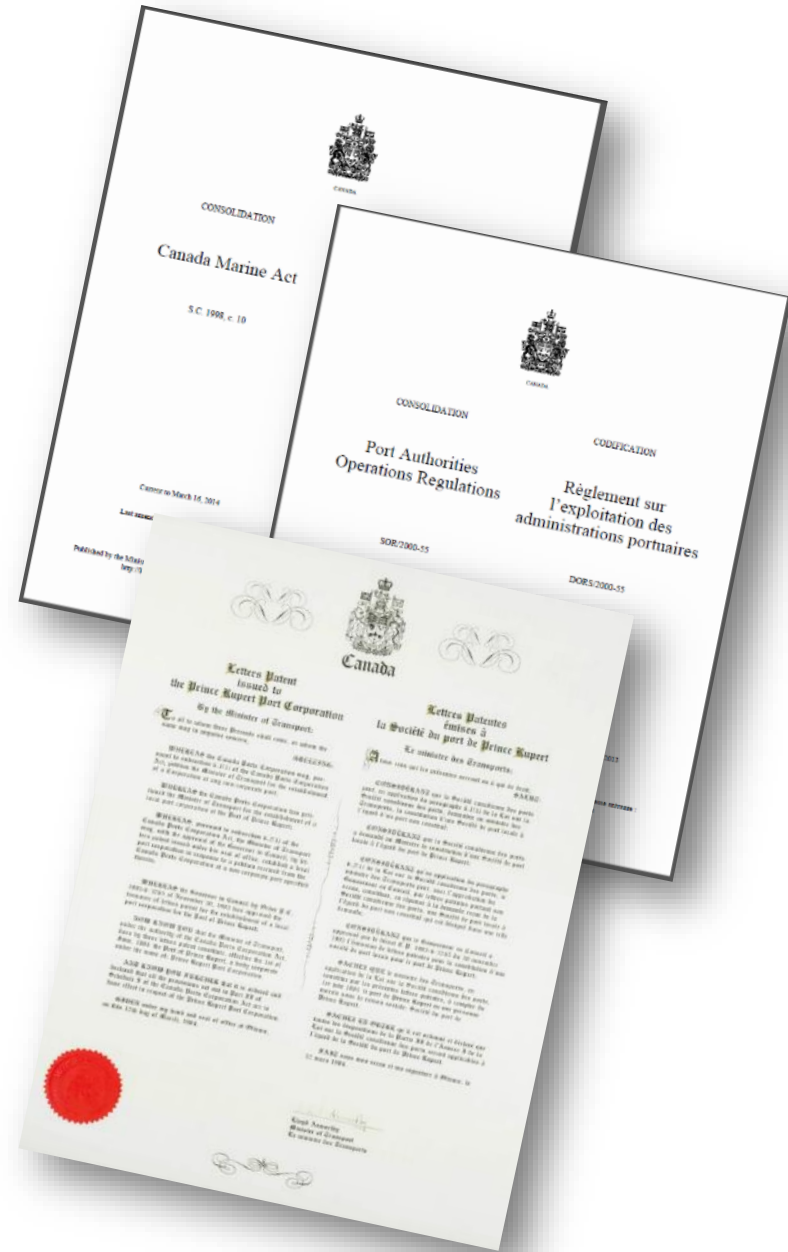
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# Canada Marine Act

Port was established and is governed by three distinct articles:

- Canada Marine Act - 1998
- Port Authority Operations Regulations
- PRPA Letters Patent
- **Build marine infrastructure for Canada**
- **Manage services and infrastructure in a commercial manner**
- **Provide and ensure a high level of safety and environmental protection**



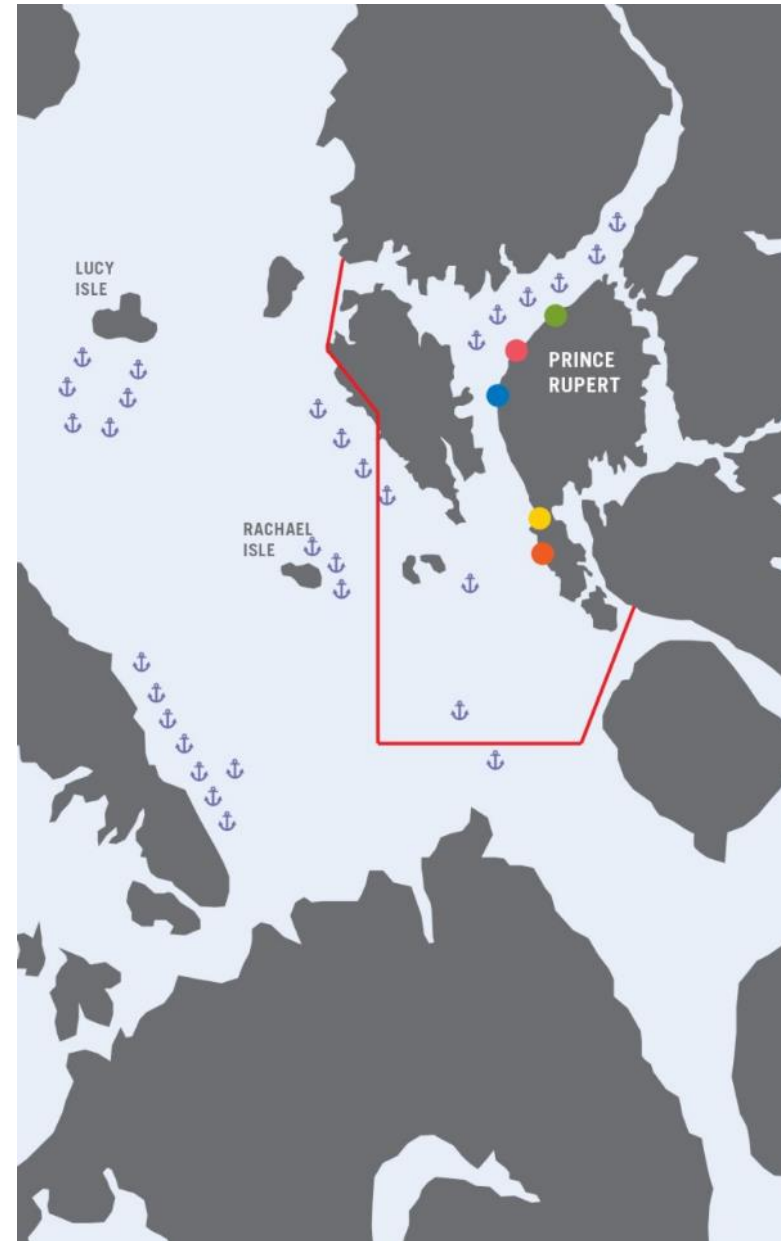
# Harbour Boundaries and Oversight

## LAND

- 2,400 acres of land
- Total land holdings – 966 hectares

## WATER

- 35,000 acres of water
- Owned harbour – 14,000 hectares
- Navigable waters – approx. 350 km of shoreline
- Natural deep water port – no draught restrictions
- Easily accessible from Great Circle Route







Northland Cruise Terminal



Westview Terminal



Fairview Container Terminal



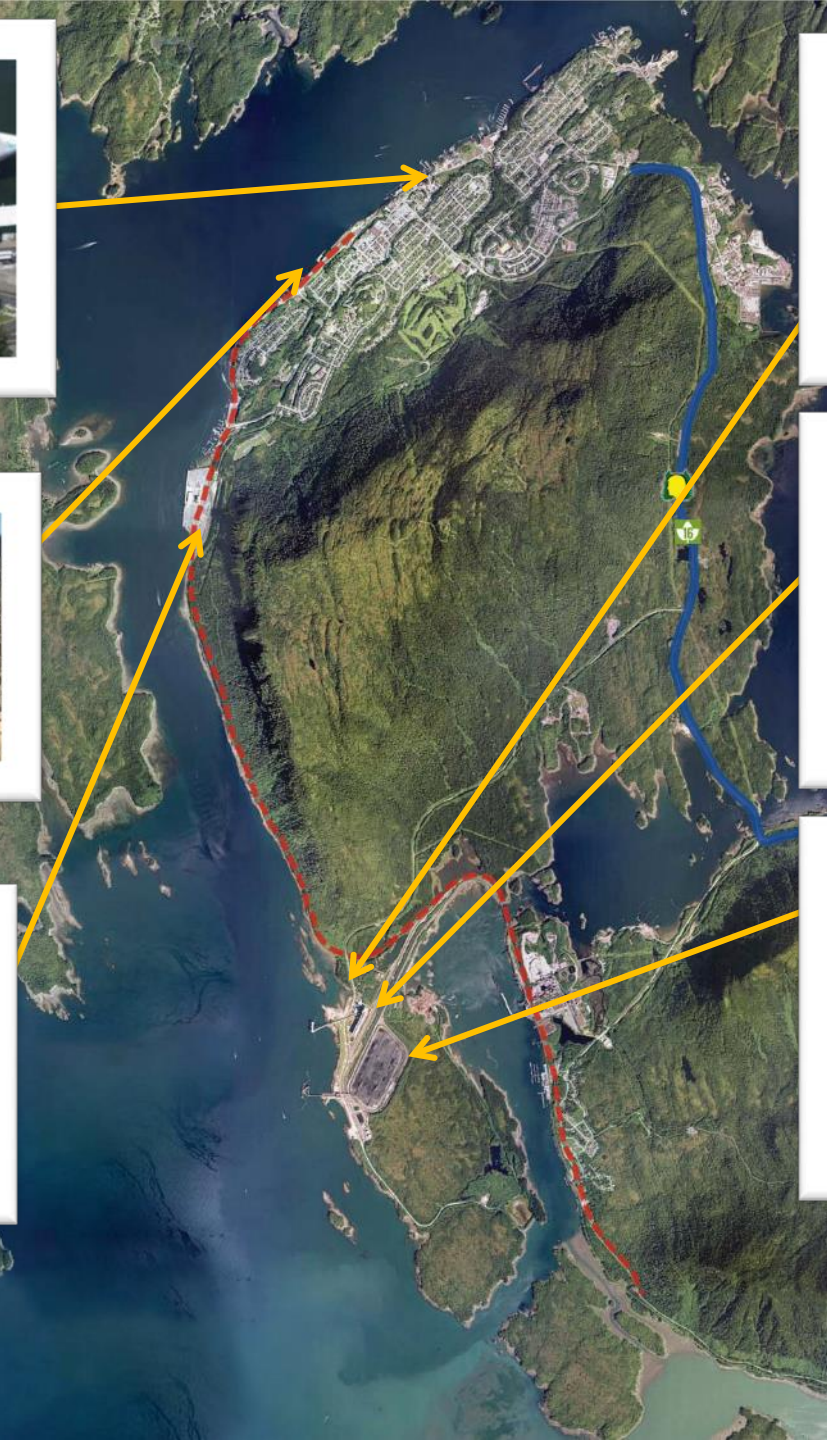
CT Terminal



Prince Rupert Grain

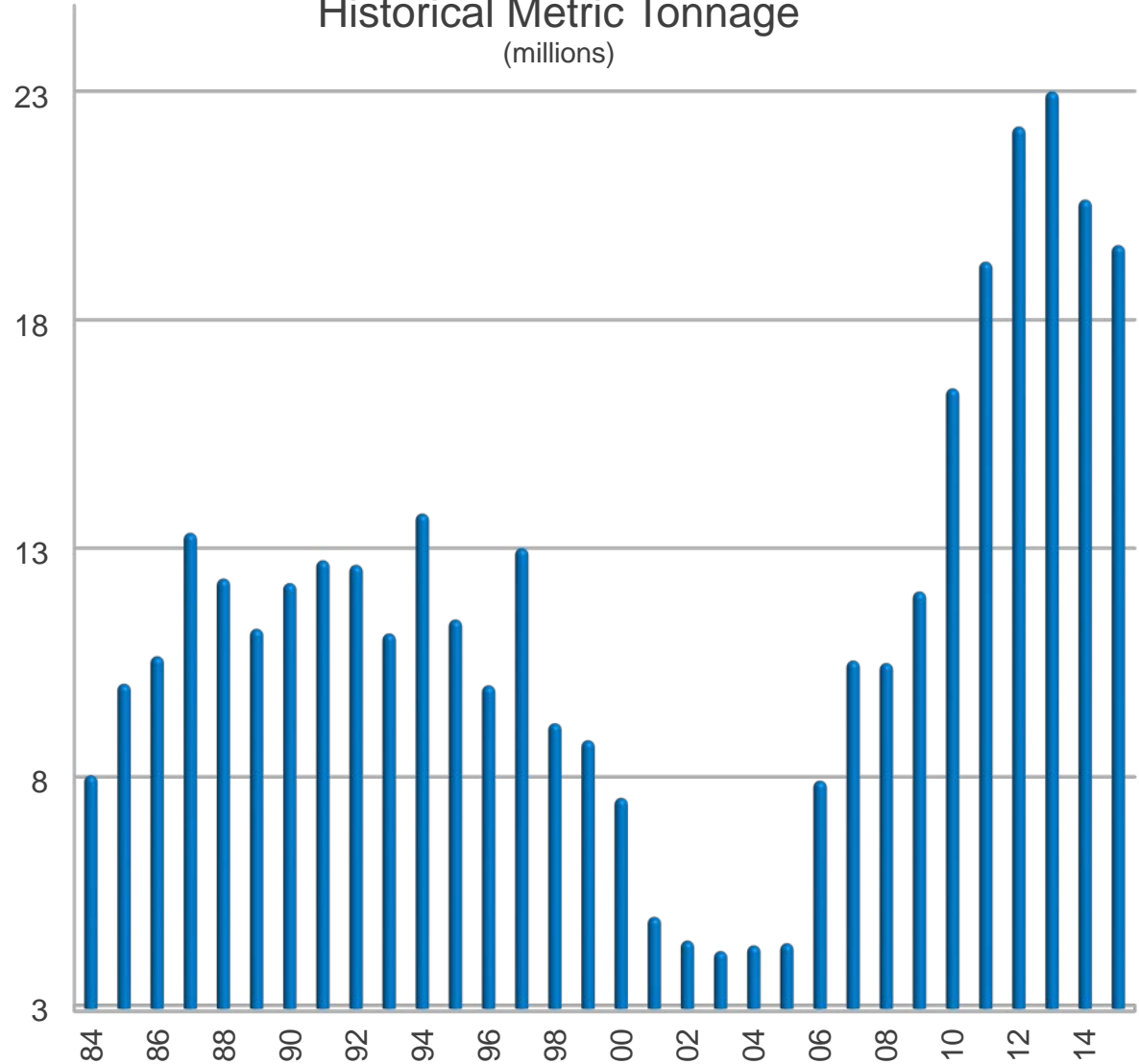


Ridley Terminal





Historical Metric Tonnage  
(millions)





# GATEWAY 2020 – LAND USE PLANNING





# GATEWAY 2020 – ROAD RAIL UTILITY CORRIDOR





# GATEWAY 2020 – FAIRVIEW TERMINAL EXPANSION

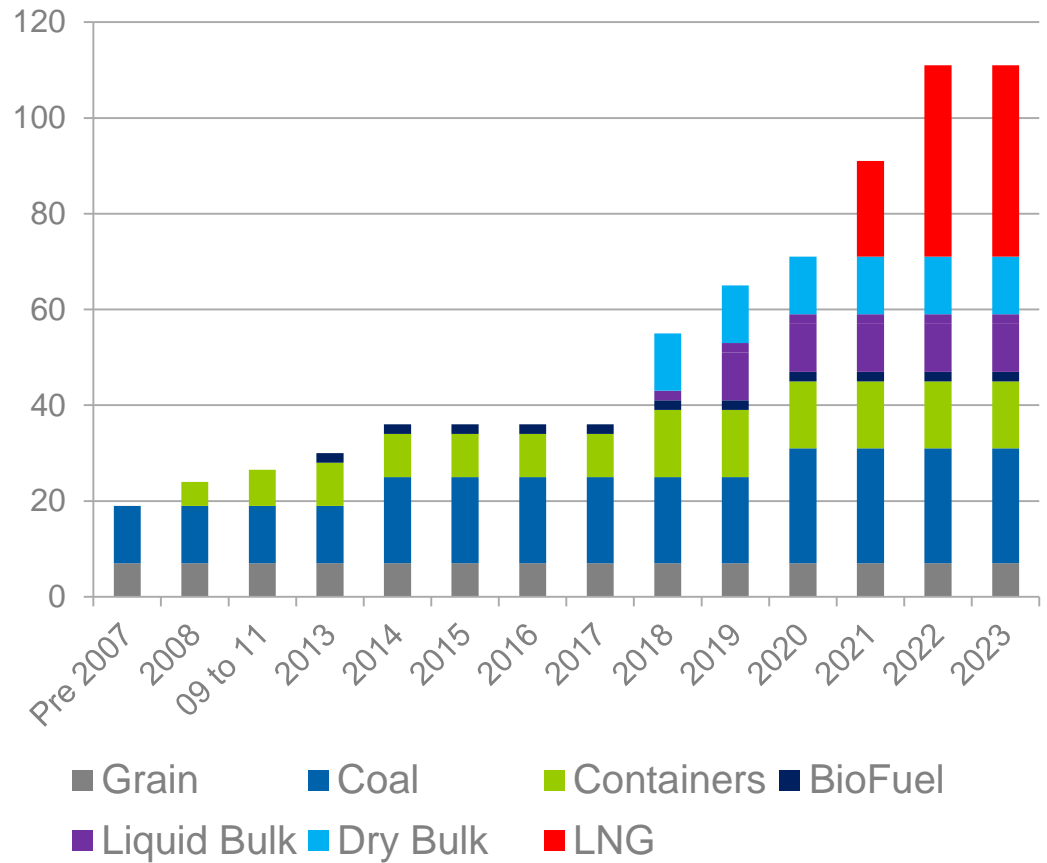




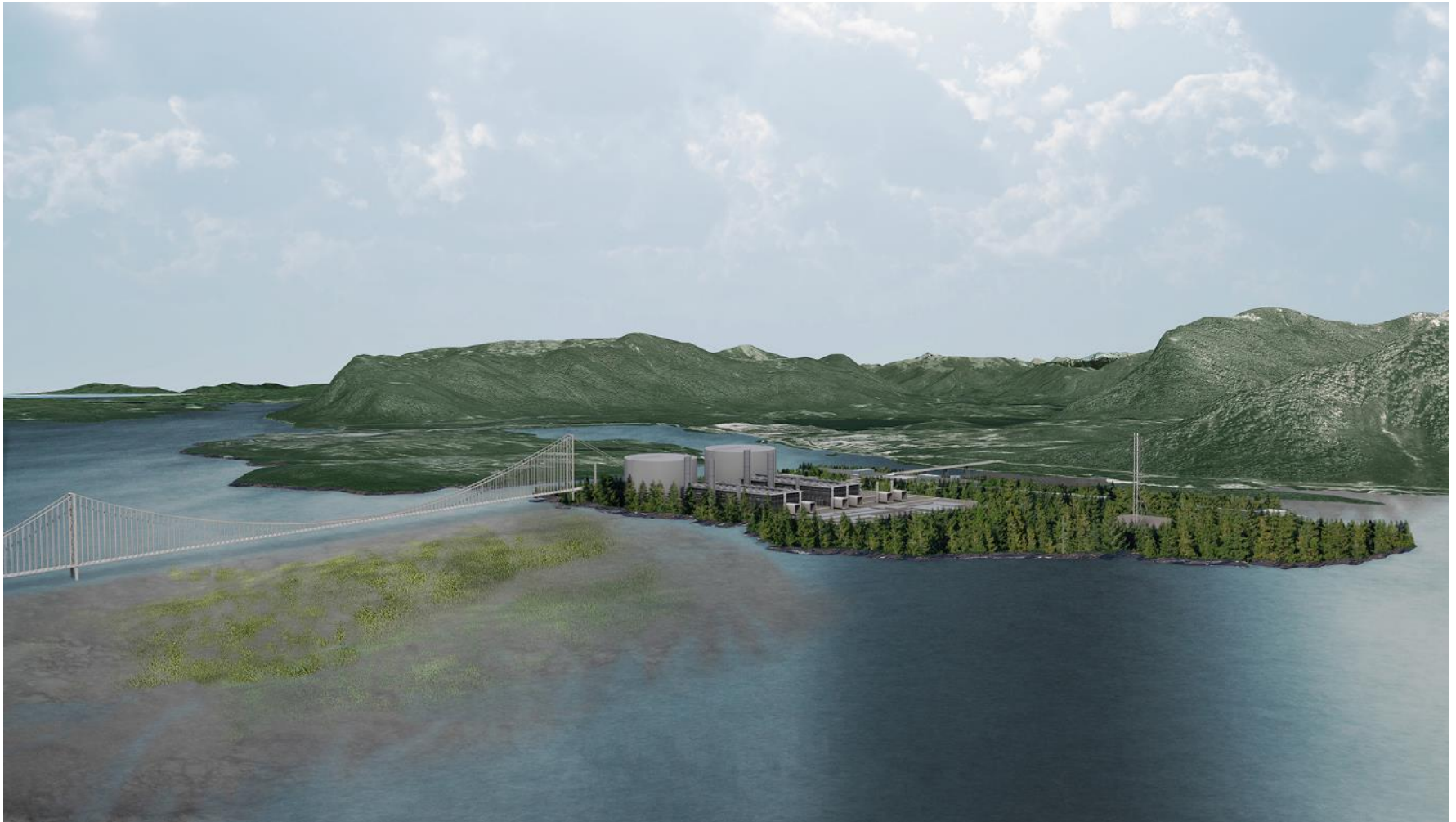


# Port Capacity: Advanced Projects

*Million Metric Tonnes*

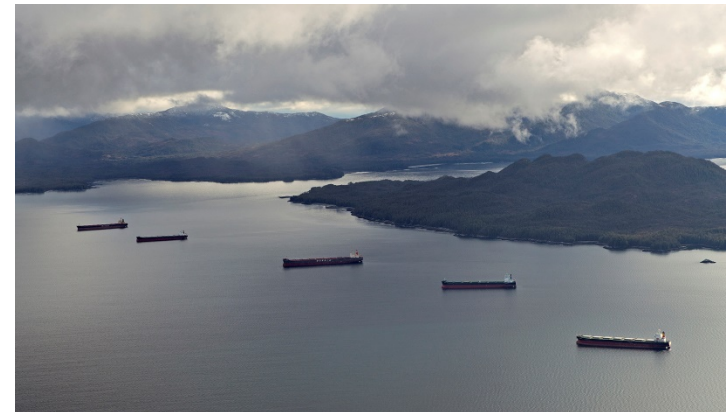


# Getting Ready For Growth



# Environmental Initiatives

- Completion of an environmental footprint study to understand baseline of air quality, water quality, noise
- Development of a Environmental Sustainability Plan
- Establishment of Port Environmental Stewardship Committee
  - Port tenants and users
  - Proponents
  - First Nations
  - Government agencies
  - Academics
  - NGOs
- Development of programs and action plans:
  - Air quality
  - Water quality
  - Habitat Stewardship
  - Marine Mammals





## Green Marine Program

- Program established 2007
- Collaboration of ship owners, ship yards, port authorities in Canada and US
- Prince Rupert Port Authority joined program in 2010
- First west coast participant
- Performance indicators include:
  - Air emissions and GHG
  - Community impact
  - Environmental leadership
- Core of program is continued improvement
- Program has facilitated communication and collaboration with other participants and supporters including NGOs, academics and government agencies.



# Air Quality Program

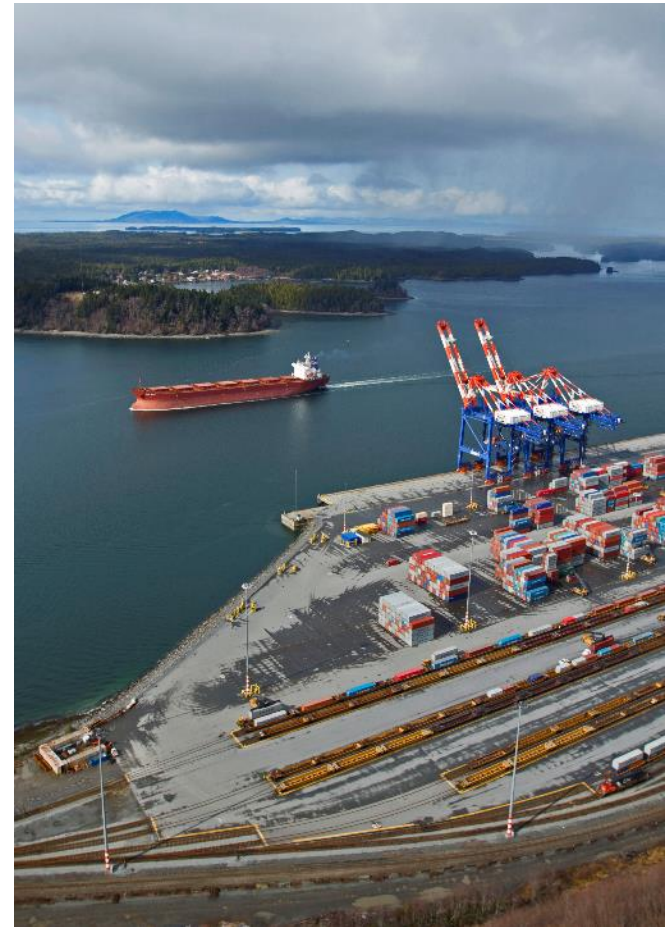
Understand baseline, establish long-term monitoring and implement measures to manage and mitigate impacts

- Energy and Emission Inventory
- Meteorological stations
- Dispersion modeling
- Wet deposition station
- Air quality and dust monitoring
- Clean Trucking Program
- Shore Power
- Green Wave Program



# Energy and Emission Inventory

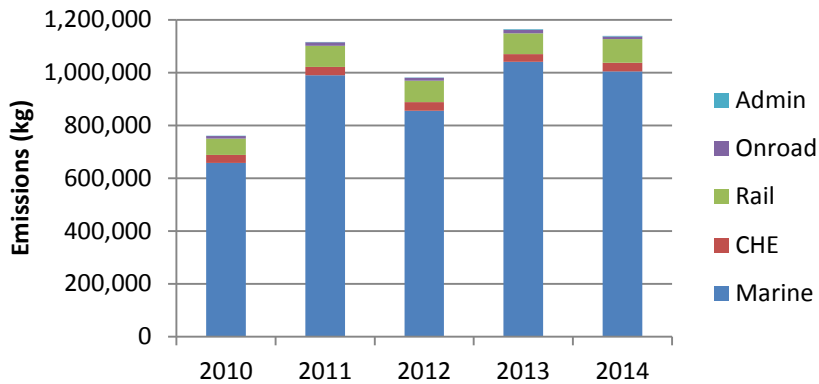
- Annual inventory includes all port tenants and users
- Includes land and water side components
- Use of the Port Emission Inventory Tool (PEIT) developed by Transport Canada
- Five source groups are:
  - Marine
  - Cargo Handling Equipment
  - Rail
  - On-Road Vehicles
  - Administration
- Marine vessels account for largest component of port emissions
- Reductions of SO<sub>x</sub> and PM<sub>2.5</sub> due to implementation of NA ECA



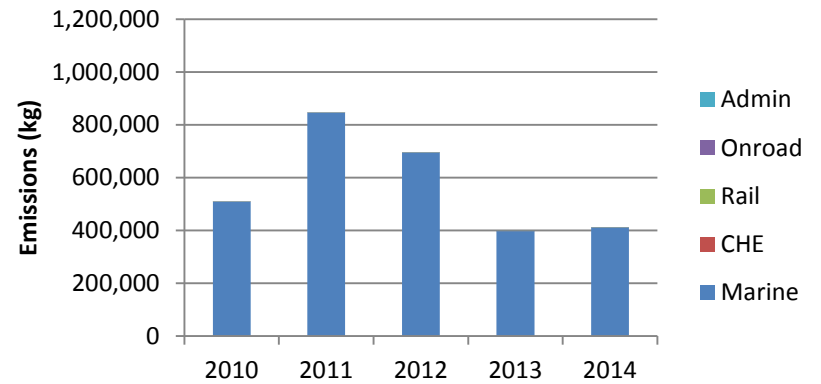


# Emission Inventory Data

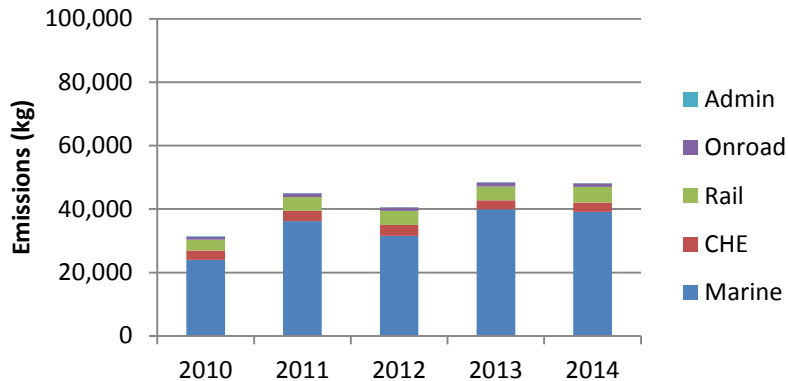
## Port-wide NO<sub>x</sub> (Port Boundary)



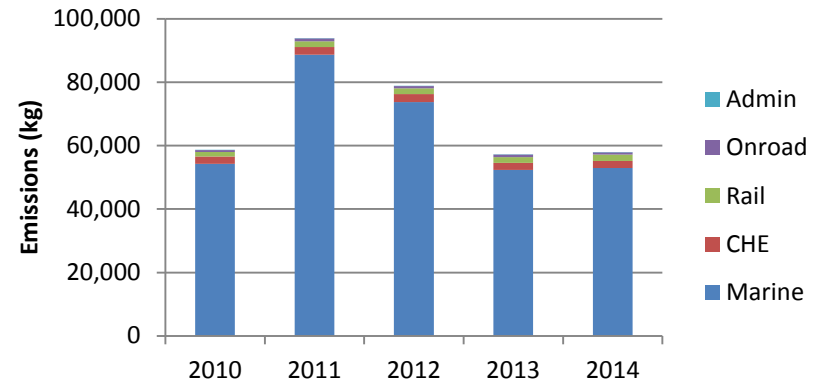
## Port-wide SO<sub>x</sub> (Port Boundary)



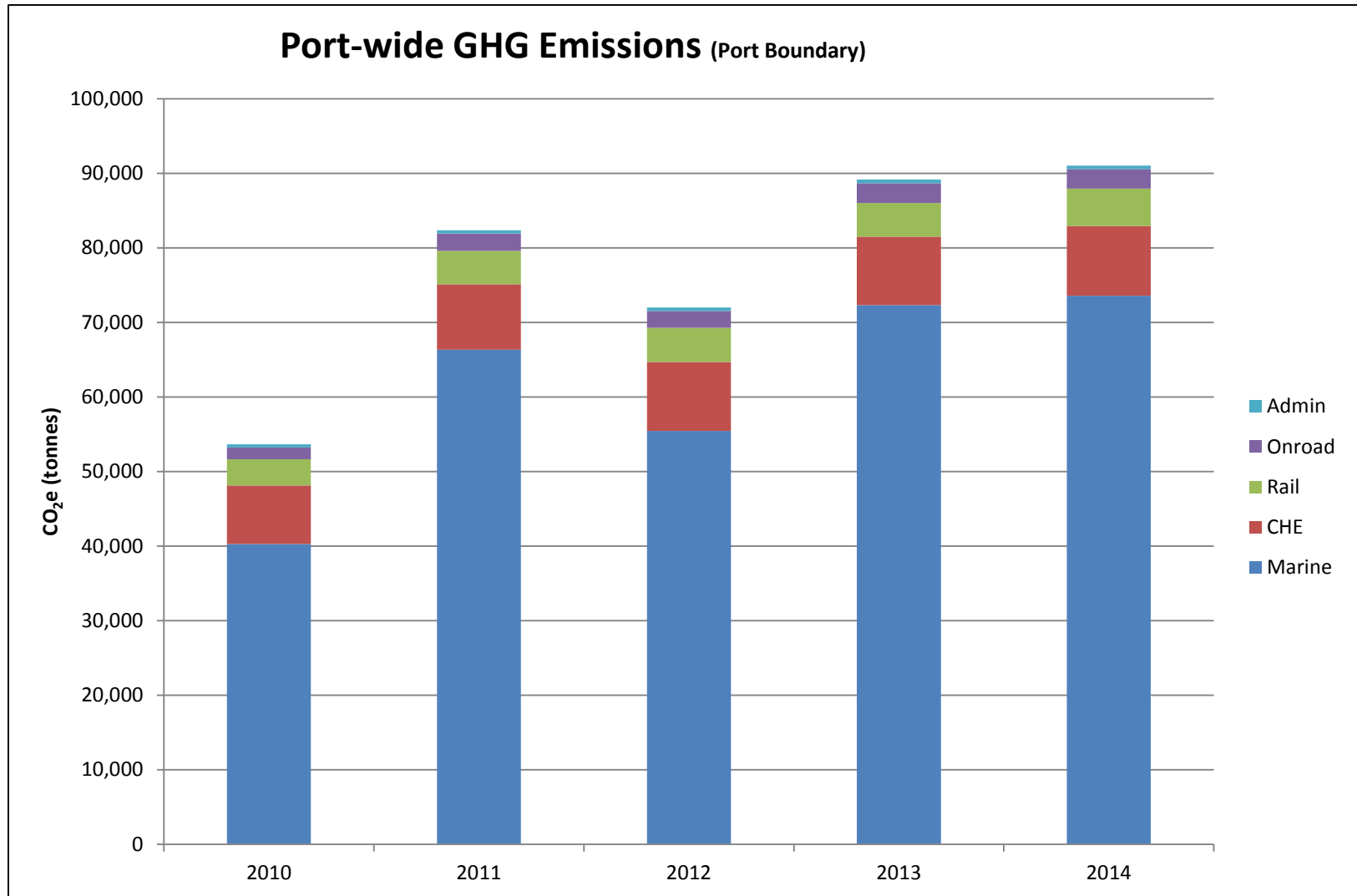
## Port-wide VOCs (Port Boundary)



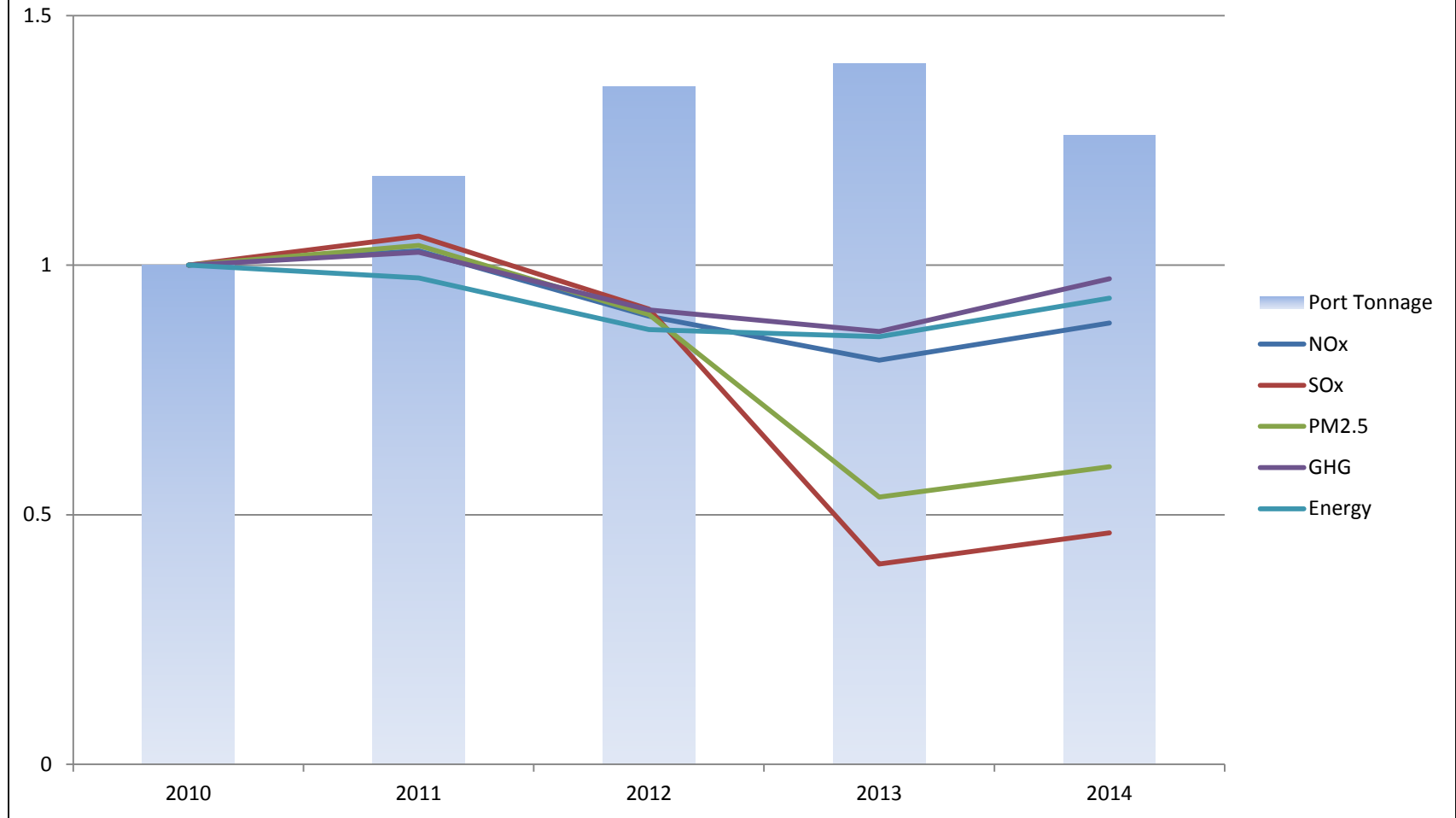
## Port-wide PM<sub>2.5</sub> (Port Boundary)



# Emission Inventory Data



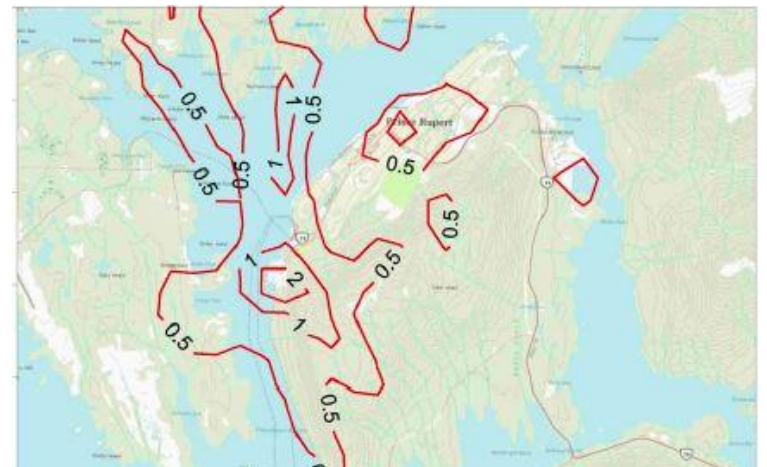
### Emission Intensities and Throughput Relative to 2010 (Terminal Boundary)





# Meteorological Stations / Dispersion Modeling

- Establishment of a series of meteorological stations around the port region
- Assists with safe navigation
- Data also used to understand dispersion of port related emissions
- Conducted dispersion modeling using port emissions and regional meteorological data
- Assists in understanding regional air shed and air quality issues
- Prince Rupert Air Shed Study – conducted by Province of BC



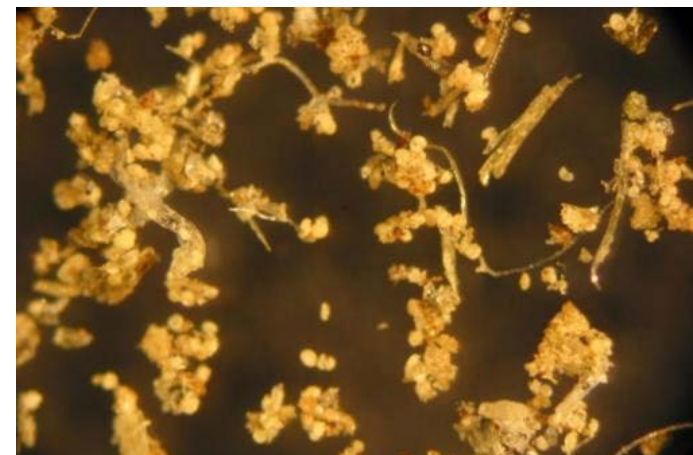
# Wet Deposition Program

- Station established Jan 2014
- Part of the National Atmospheric Deposition Program
- Co-funded by four LNG proponents
- Chemical analysis of precipitation
- Provides long-term air quality baseline
- Data used to assess potential impacts from current activity and future port development



# Air Quality / Dust Monitoring

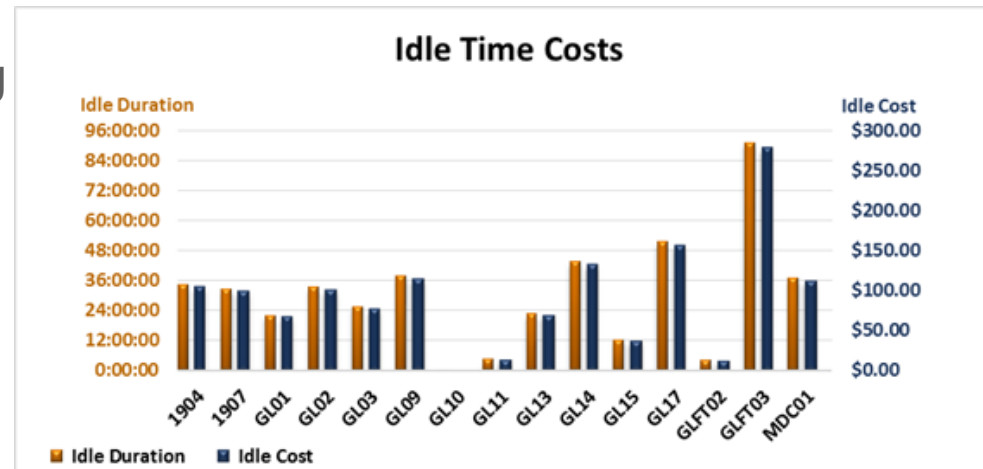
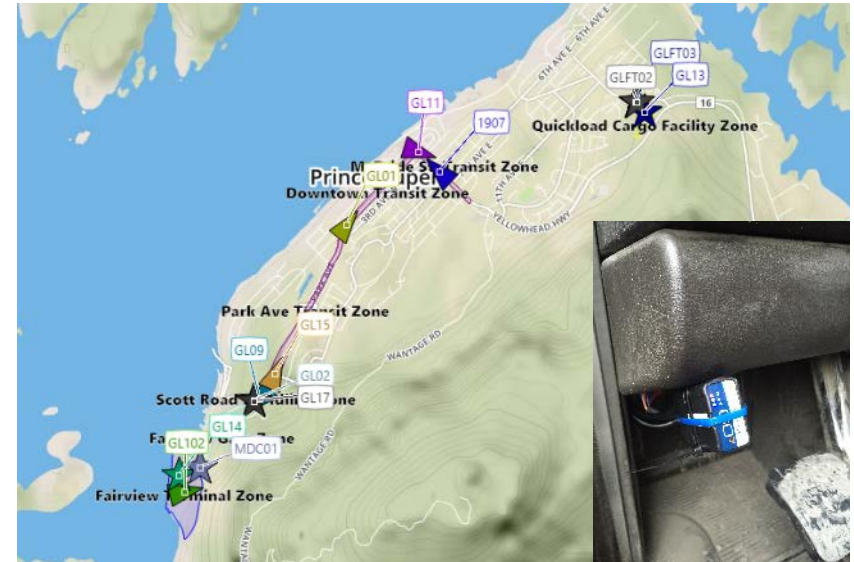
- Air quality monitoring around the port
- Baseline data collection prior to port development
- Real time monitoring technology being deployed around the port
  - SO<sub>x</sub>
  - NO<sub>x</sub>
  - PM
  - VOCs
- Dust fall being monitored in select port locations
- Use microscopic analysis for dust





# Clean Truck Program

- Program to reduce emissions from trucking fleets
- Working with trucking company to use tracking technology
- Monitors cargo fluidity and driver behavior
- Reduction of activities such as idling reduces emissions
- Reduction of fuel use saves trucking company money



# Energy

Reduction of energy use with implementation of technology and improved design

- LED lighting in port offices and Port Interpretive Center
- LED roadway lighting for RRUC
- RRUC lighting activated with use
- New water pump house with a 90% reduction of energy



## Shorepower

- Fairview Terminal first Canadian container terminal to commission shore power
- Commissioning was Oct 2014
- Shore power rate for the Province of BC established May 2015
- Shore power rate was a collaboration between Port of Prince Rupert, Port of Vancouver and BC Hydro
- Shore power rate will encourage implementation of technology
- Shore power at Fairview Terminal will become operational after completion of terminal expansion in 2017





# Green Wave Program

- Established 2013
- Targets marine component of port emissions
- Reduced harbour dues for vessels that have implemented emission reduction measures and/or other environmental practices to improve environmental performance
- Vessels qualify based on performance within one of the following organizations/initiatives:
  - Green Marine
  - RightShip
  - Environmental Ship Index
  - Green Award
  - Clean Shipping Index
  - Energy Efficiency Design Index
- 2015 - 133 vessels qualified, \$140K in discounts
- 2016 – 145 vessels, \$241K discounts (to date)

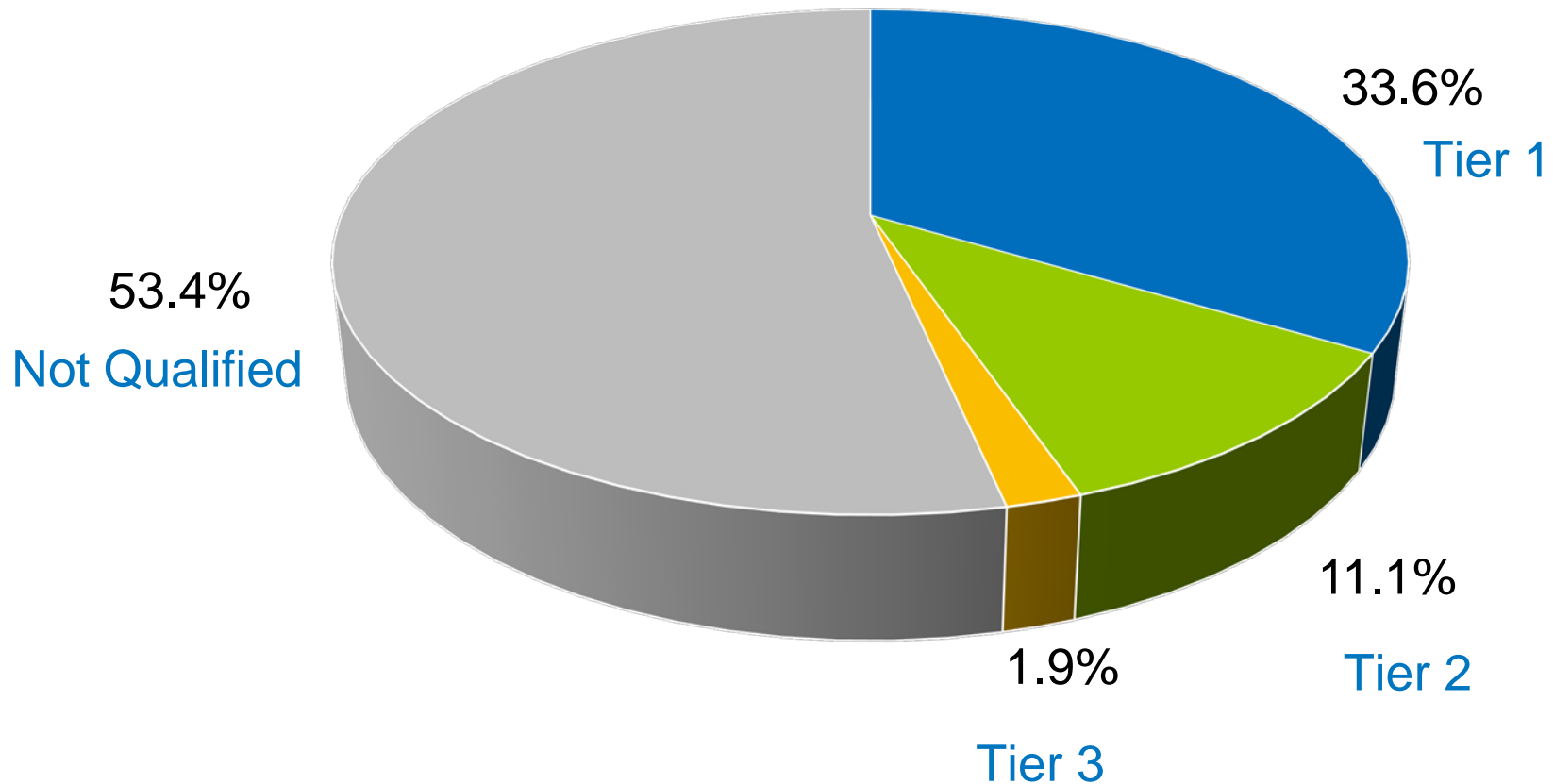


# 2016 Green Wave Criteria

GENERAL	SPECIFIC	TIER 1 (10%)	TIER 2 (20%)	TIER 3 (50%)
<b>ENVIRONMENTAL PROGRAM</b>	<b>Environmental Ship Index (ESI)</b>	<b>Scores 20-30</b>	<b>Scores &gt;30 - 50</b>	<b>Scores &gt;50</b>
	<b>Green Marine</b>	<b>Level 3 GHG AND min. Level 2 Others</b>	<b>Level 4 GHG AND min. Level 2 Others</b>	<b>Level 5 GHG AND min. Level 2 Others</b>
	<b>RightShip</b>	<b>GHG B,C OR Environmental 3+ with min. GHG D</b>	<b>GHG B AND Environmental 3+</b>	<b>GHG A</b>
	<b>Energy Efficiency Design Index</b>	<b>EEDI 5% better than required</b>	<b>EEDI 10% better than required</b>	
	<b>Green Award</b>	<b>Award certificate</b>		
	<b>Clean Shipping Index</b>	<b>Score of Yellow</b>	<b>Score of Green</b>	

# Green Wave Program

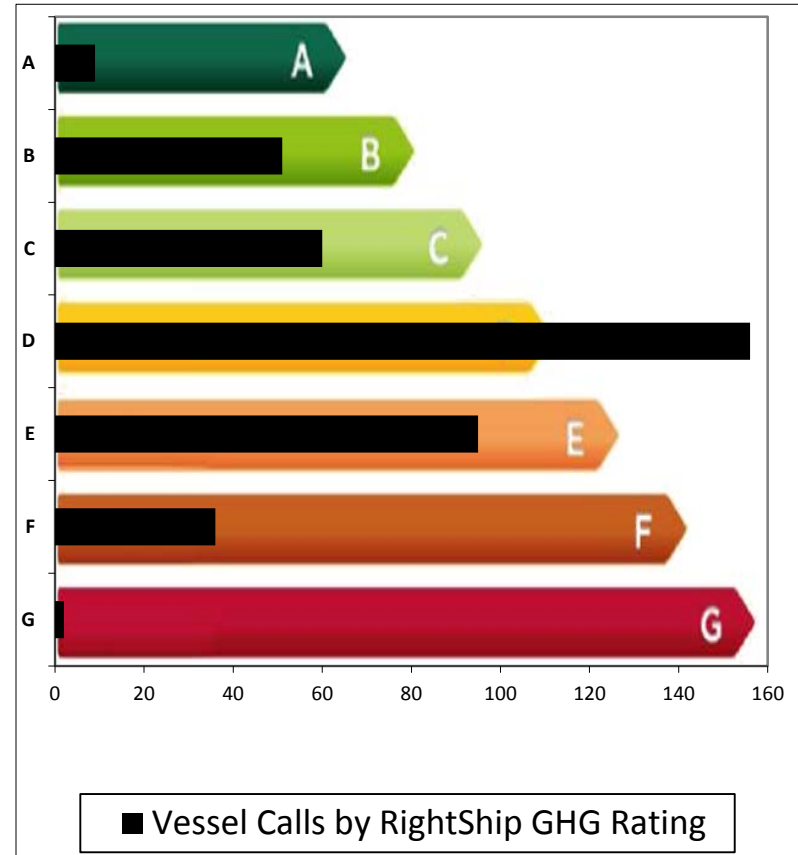
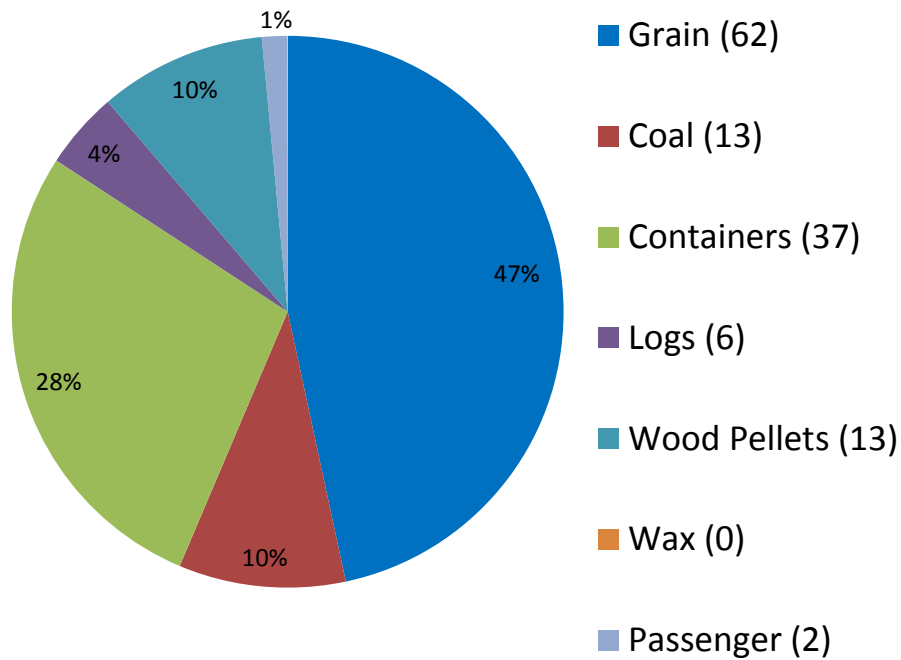
2015 Breakdown by Tier





# Green Wave Program

Qualifying Vessels by Commodity  
(2015)



## Next Steps

**Continue to encourage implementation of practices and technologies to reduce environmental impacts**

**Evolve the program over time to include additional criteria for recognizing and incentivizing environmental excellence**

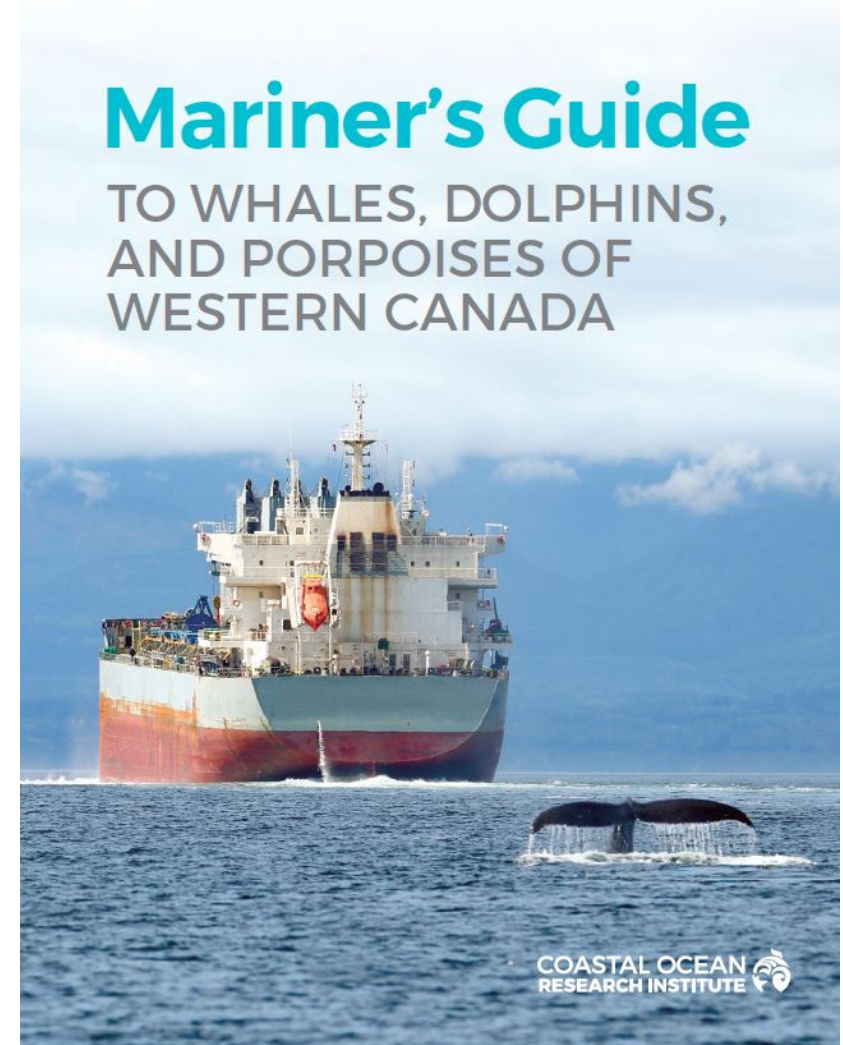
**Work with environmental programs, ship owners, port authorities and others to increase collaboration on addressing environmental impacts**

**Work to reduce both localized effects and global impacts**



## Marine Mammal Program

- Program launched spring 2015
- Supporting science and research projects
- Promoting collection of whale sightings
- Adding underwater noise criteria to the Green Wave program
- Development of Mariners Guide to Whale of Western Canada
- Working with industry, academics, NGOs and government agencies on new Green Marine performance indicator for underwater noise





# Ocean Network Canada Partnership

Established a partnership with ONC to enhance operational excellence and increase collection of scientific data

- March 2016: ONC extended Smart Oceans BC network to north coast
- Codar and X-Band radar (surface currents and wave height)
- Early detection of earthquakes and tsunamis
- Water CTD
- Hydrophone



# Aquatic Invasive Species

Establish an early detection program for the harbour

- Program established in 2012
- Collaboration between PRPA, DFO, Northwest Community College and Smithsonian
- Platewatch Program
- Green Crab monitoring



# Water Quality

Establish a long-term monitoring program for the port region and work to minimize impacts and improve water quality

- Marine Environmental Water Quality Program
  - Established in 2013
  - 30 sites around the harbour
  - Collaboration between PRPA and four local proponents
- Storm water sampling and filters
- Commercial ship inspections

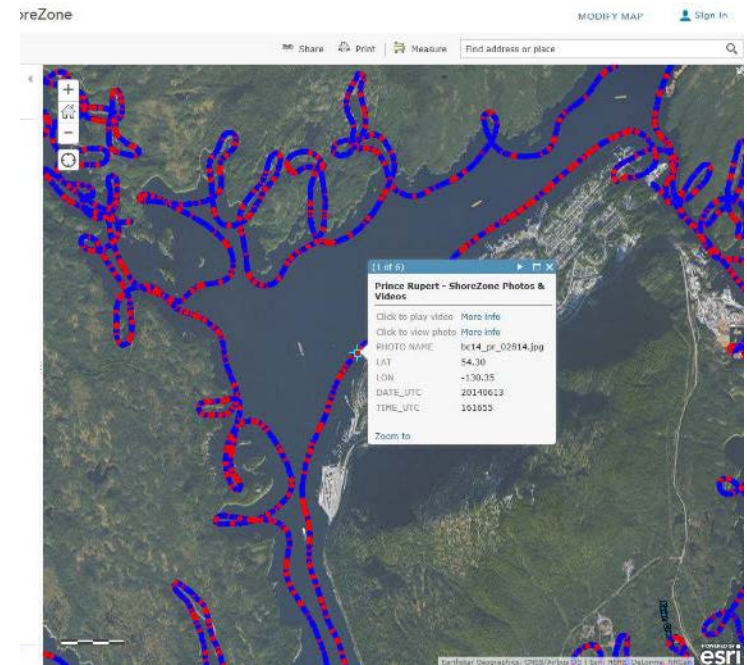
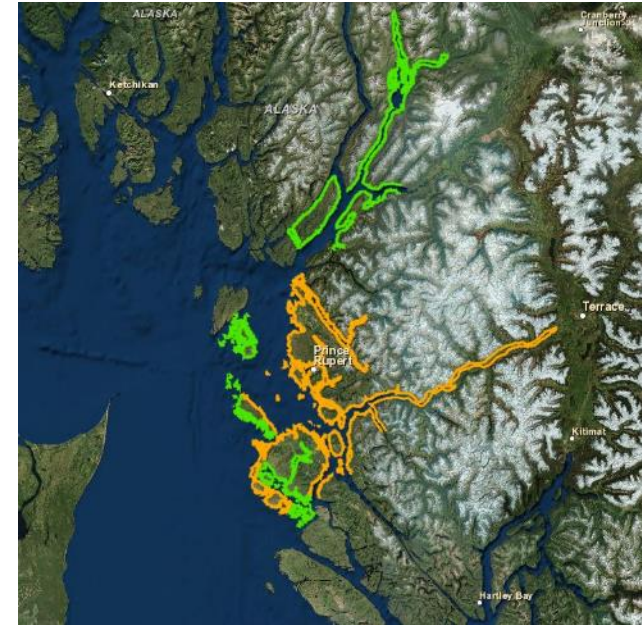




# ShoreZone Survey

Establish an understanding and inventory of shorelines and coast of the region

- Port led initiative with currently six partners
- Over 4000 km surveyed
- Photos and video available online
- Mapping of biological and physical features completed for 600 km
- Uses have included:
  - Project and environmental planning
  - Emergency preparedness and response
  - Traditional resources for First Nations







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# COMMITMENT TO COMMUNITY

## Inform, Engage, Invest

- Strong community and labour support for industry and expansion
- Building awareness & confidence in gateway economy, environmental stewardship, marine safety
- Public communication, dialogue and consultation commitments
- Establishment of the Community Information Forum
- Dedicated Community Investment Fund: \$2.5 million invested in past five years





## In Summary.....

- Commitment to operational and environmental excellence
- Strong leadership
- Continued engagement with First Nations, community and stakeholders
- Real collaboration and real partnerships



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