

# NORTH AMERICAN EMISSION CONTROL AREA

## CANADA'S COMPLIANCE AND ENFORCEMENT PROGRAM

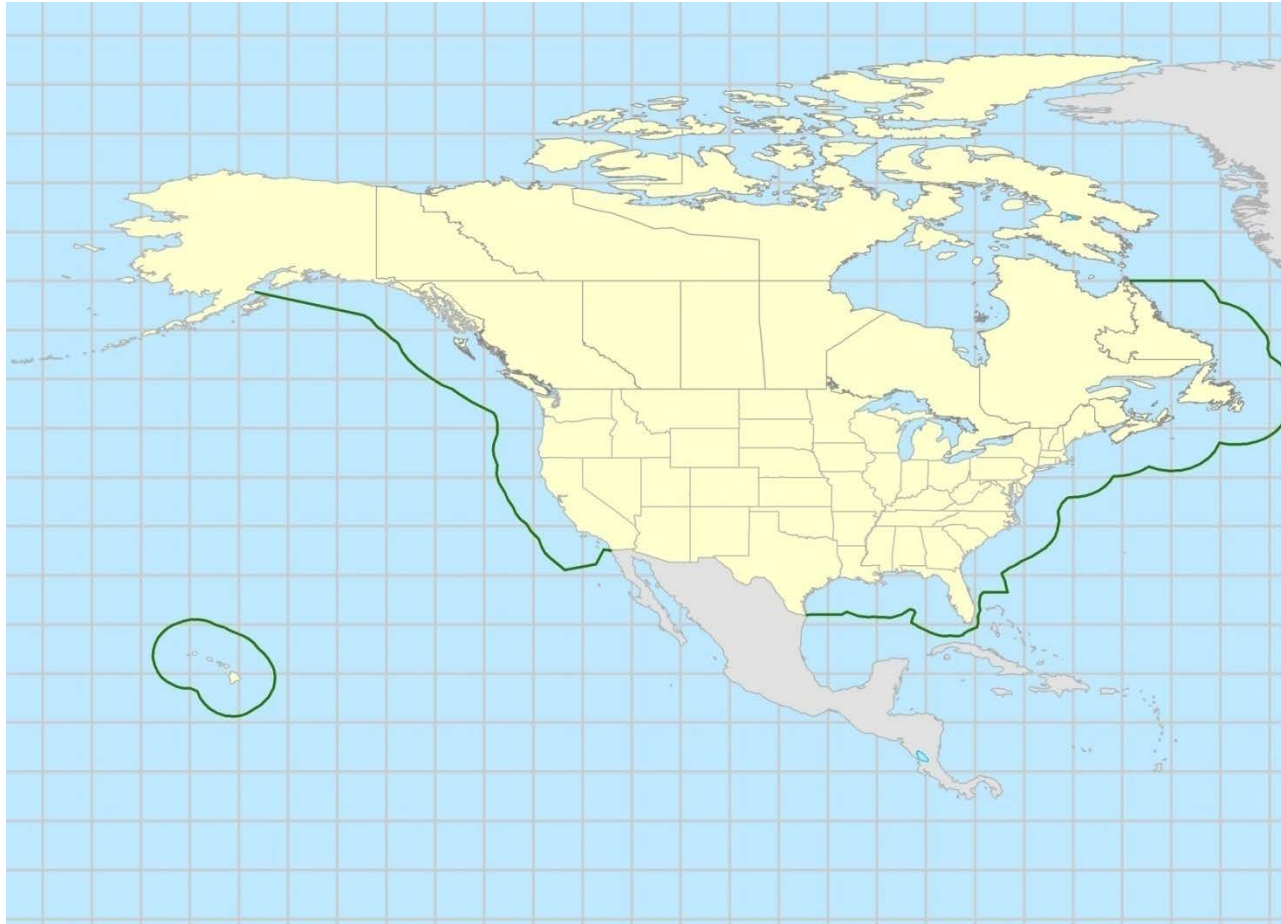




# BACKGROUND

- North American ECA proposed by Canada, the United States, and France was adopted by IMO on March 26, 2010, coming into force August 1, 2012
- May 8, 2013, Minister Lebel announces the ECA coming into force in Canada along with related regulatory changes.

# NORTH AMERICAN EMISSION CONTROL AREA (ECA)





# NORTH AMERICAN ECA: BENEFITS

## Expected benefits

- The ECA is expected to reduce ship emissions of sulphur oxides by 95% and nitrogen oxides by 80%
- Annual benefits estimated to be over \$1 billion in public health savings

## Reduced health impacts attributable to ship emissions

Health Impact	Percent reduction
Premature Mortality	45%
Adult Chronic Bronchitis Cases	54%
Hospital Admissions and Emergencies	31%
Child Acute Bronchitis Episodes	52%
Asthma Symptom Days	25%
Minor Restricted Activity Days	19%
Acute Respiratory Symptom Days	37%
Restricted Activity Days	52%

# TIMELINE FOR AIR EMISSIONS STANDARDS

2011

- Global sulphur standard 4.5%
- Emission Control Areas at 1%
- New ships need to meet NOx Tier II standards

2015

- **All ECAs set to 0.1% sulphur**

2012

- January, global sulphur standard reduced to 3.5%
- **August, North American ECA comes into force (1% sulphur)**

2016

- **All new ships operating in an North American ECA must meet NOx Tier III standard**
- Study completed on low Sulphur fuel availability for 2020.

2013

- **May 8, 2013**, Updated Canadian Regulations come into effect

2020

- Global standard for sulphur reduced to 0.5%, including Canadian waters north of 60 degrees



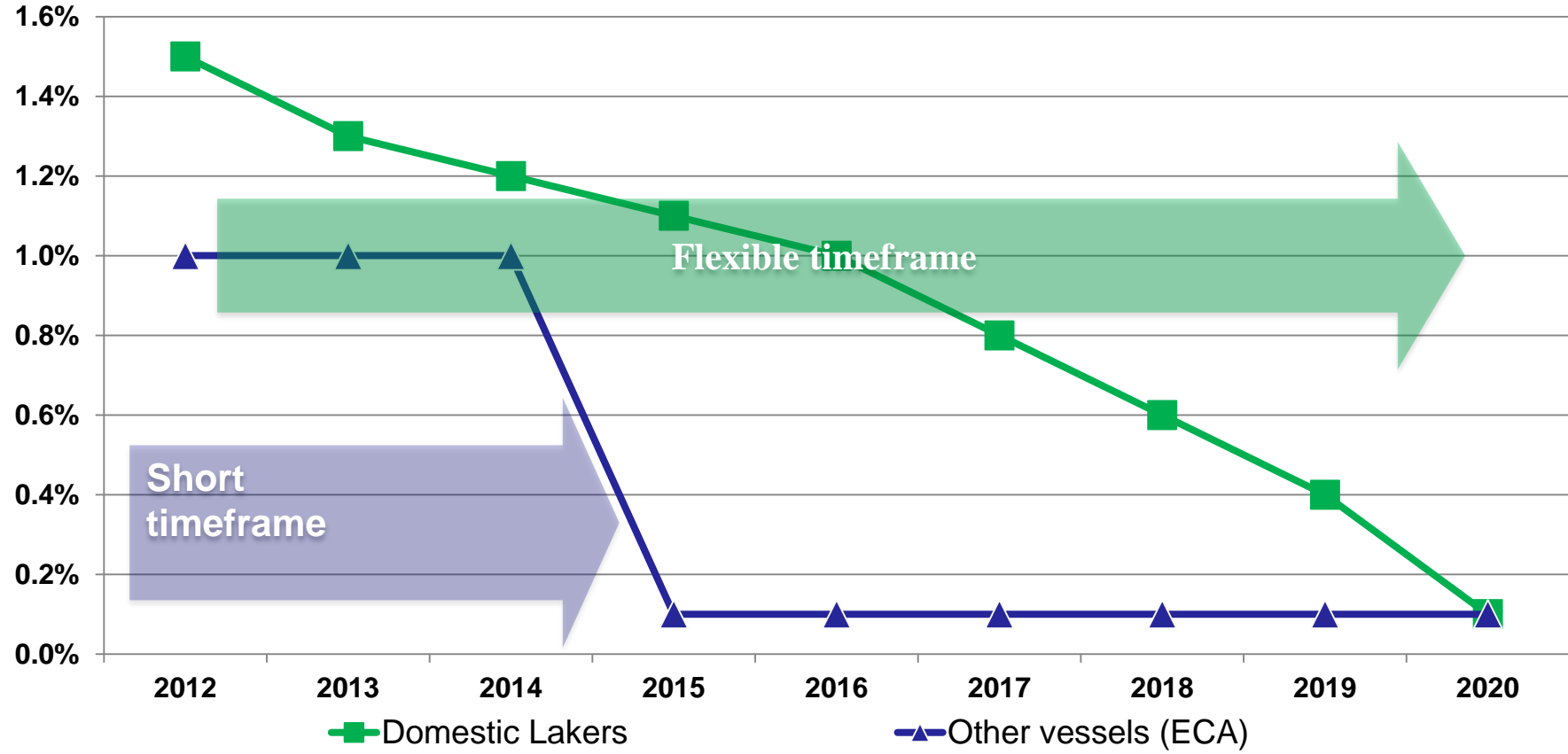
# SULPHUR CONTENT IN FUEL

- Canadian Waters north of 60 degrees:
  - 3.5% sulphur content until December 31, 2019
  - 0.5% sulphur content after January 1, 2020
- Canadian waters south of 60 degrees:
  - 1.0% sulphur content until December 31, 2014
  - 0.1% sulphur content after January 1, 2015



# FLEET AVERAGING PROGRAM

- **Fleet targets for fuel sulphur content for domestic “laker” vessels compared to ECA**





# PRE-ARRIVAL INFORMATION REPORT SYSTEM (PAIRS)

- Required 96 Hours Prior To Arrival
- Vessels are required to report:
  - Classification society
  - Required certificates
  - P&I club
  - Master information
  - Cargo carried
  - Type and quantity of bunkers carried, including sulphur content
  - List of charts ID numbers and country catalogue to be used for transit approach to Canada
  - Any conditions of class against ship with brief details.





# NON-AVAILABILITY OF LOW SULPHUR FUEL

- While voyaging in Canadian waters designated as an Emission Control Area, vessels must make an effort to obtain compliant fuel.
- If compliant fuel is not available, vessels must complete a Compliant Fuel Oil Non-Availability Report and submit it prior to arriving at the next Canadian port without deviating from the vessel's planned route.



# ALTERNATIVE COMPLIANCE

- Alternative compliance to meet SO<sub>x</sub> and NO<sub>x</sub> emissions is available through the use of:
  - Scrubbers
  - SCR's
  - Alternative fuels
  - and other technology



# TIER III NO<sub>x</sub> STANDARD

- Applies to marine diesel engines more than 130kW installed on:
  - A vessel constructed on or after Jan 1, 2016
  - A vessel constructed before January 1, 2016, whereby an engine is replaced by a non-identical engine after on or after January 1, 2016
- Does not apply to Canadian vessels operating:
  - in Arctic waters
  - in waters not under Canadian jurisdiction and not within an ECA
- Does not apply to foreign vessels operating in Arctic waters or in Hudson Bay, James Bay or Ungava Bay

# ENFORCEMENT ACTIVITIES

- PAIRS report review, follow up
- FONAR review, follow up approve/reject
- Paris MOU – concentration inspection campaign for 2018
- Fuel testing during inspections followed by certified laboratory testing.



BRUKER XRF S1 TITAN FUEL ANALYZER



# FUEL NON-AVAILABILITY REPORTS (FONAR) 2013 – 2017

Year	East	West	Total
2013 (May – Dec)	36	20	56
2014 (Jan – Oct)	38	19	57
2015	50	22	72
2016	33	15	48
2017	27	10	37



# LESSONS LEARNED/PATH FORWARD

- The fuel testing results have shown a 94% compliance rate
- Fuel non-availability reports are declining yearly
- There are significant challenges in applying NOx Tier III standards to smaller vessels
- Continuing to encourage alternative measures such as better technologies where applicable
- Continue to work with Industry Stakeholders and NGO's to improve environmental performance which is achievable