



Environmental Bunker legislation and the Potential Impact on the Vancouver Market

May 2014



Key Organizations

- 4 IMO – International Maritime organization
- 4 MARPOL
- 4 Transport Canada – PSC officers
- 4 EC – European Union Environmental Directives



MARPOL: International Convention for the Prevention of Pollution from Ships

IMO Convention: MARPOL 73/78 ANNEX VI

Entered into force May 19, 2005 to set limits on Sulfur dioxide and Nitrogen Oxide emissions from ship exhausts and prohibits deliberate emissions of ozone depleting substances.

2011 was a groundbreaking year: IMO adopted mandatory technical and operational energy efficiency measures to significantly reduce GHGs from ships.

Currently:

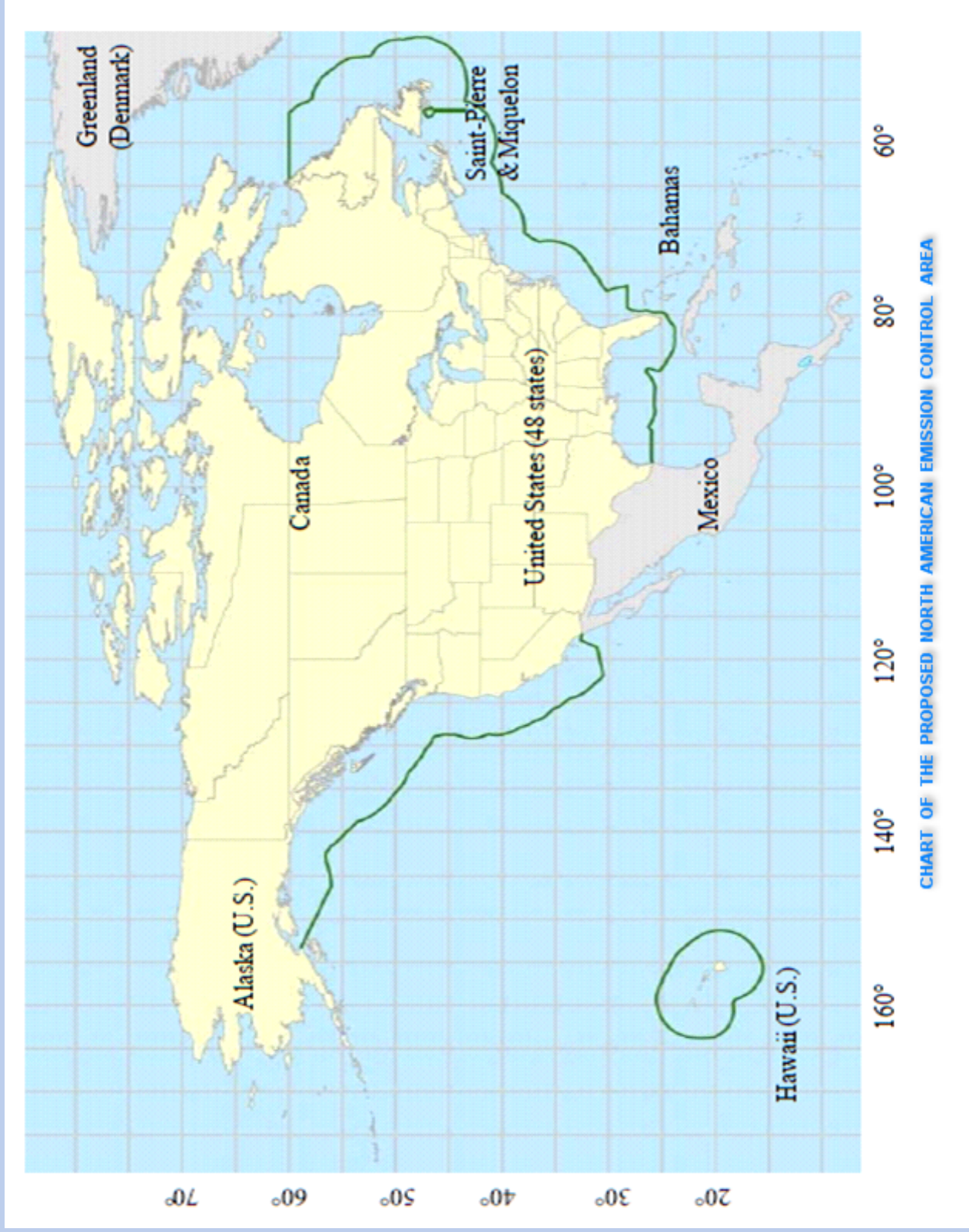
- A sulphur cap of 3.50% worldwide
- A max 1.00% sulphur in Emission Control Areas – ECAs
- Canadian 200 mile ECA enforced as of August 2013

USA/Canada environmental legislation

North American ECA

- 4 Approval made by IMO MEPC 60 in March 2010
- 4 Includes both the USA and Canada coastlines
- 4 ECA extends 200 miles from the territorial sea baseline
- 4 Became enforceable 1 August 2012 with the ECA limit at the current max 1.00% and a global limit of max 3.50% although Canada delayed enforcement to August 2013
- 4 According to the U.S. EPA, Mexico has been actively exploring the ratification of MARPOL Annex VI and establishment of a Mexican Emission Control Area (ECA)

North American ECA Chart



IMO MARPOL 73/78 Annex VI

The amended Annex VI stipulates the following sulphur reductions:

- 4 **As of 1 July 2010 – lowered sulphur limit in an ECA to 1.00% max**
With the introduction of particulate matter (PM) as an emission criteria, SECA was renamed ECA (Emission Control Area)
- 4 **1 January 2012 – lowered the global sulphur cap to 3.50% max**
Based on samples submitted to IMO by key testing services, the worldwide sulfur average was about 2.6%. – much lower than the new limit.
- 4 **1 January 2015 – lower sulphur limit in an ECA to 0.10% max**
Essentially this means using max 0.10% S DMA while in an ECA. Because of concerns with obtaining this fuel outside the USA and Europe, IMO introduced a “fuel availability” provision under Regulation 18 describing the actions required to document a ship’s inability to obtain such fuel.
- 4 **1 January 2020 – lower the global sulphur cap to 0.50% max**
The Petroleum Industry does not believe this is achievable and therefore this change is subject to a review to be completed no later than 2018. Should the review reach a negative conclusion, the effective date would default to 1 January 2025 except in Europe where the 2020 date remains. The “fuel availability” clause would also apply globally.

IMO MARPOL 73/78 Annex VI

Sulphur Summary

ECA

4	Prior to 1 July 2010	1.50% max
4	1 July 2010	1.00% max
4	1 January 2015	0.10% max

GLOBAL

4	Prior to 1 Jan. 2012	4.50% max
4	1 January 2012	3.50% max
4	1 January 2020	0.50% max

North American ECA enforcement

Canada

- 4 **Transport Canada** Port State Control Officers (PSCO) will check relevant documentation the ship should be carrying:
 - the ship's bunker delivery receipt "to verify sulphur content of fuel oil supplied", and also the Material Safety Data Sheet (MSDS) for fuel oil.
 - the ship's record of fuel oil changeover procedures prior entering into ECA, and the record of shipboard incinerator usage.
 - in case a vessel cannot comply with ECA requirements due to non-availability of low sulphur fuel oil during voyage, owners must show proof that an attempt has been made to obtain low-sulphur fuel oil
 - PSC will consider on a case-by-case basis if a penalty will be imposed for non-compliance. This leaves some room for interpretation in cases where ships are unable to source maximum 1.00% sulfur.
- 4 Failure to provide documentation could lead to fines anywhere from \$1,000 to \$25,000.

California

California Air Resources Board (ARB) legislation revised

- 4 CARB legislation requiring all ocean going vessels enroute a California port, & within 24 miles of the coastline, to use MGO max 1.5% or MDO max 0.5% S , has been revised.
- 4 On **August 1, 2012**, using either ISO 8217:2005 or 2010, the MGO limit is reduced to max 1.0% while the MDO limit remains at 0.5%
- 4 Legislation that requires both MGO and MDO to be max 0.1% in the main engine, auxiliary engines and auxiliary boilers has been deferred to **January 1, 2014** to roughly correspond with USA ECA shift to 0.1% in 2015 .

Table 1: New Fuel Requirements for Ocean-Going Vessels

Fuel Requirement	Effective Date	Percent Sulfur Content Limit
Phase I	July 1, 2009 ¹	Marine gas oil (DMA) at or below 1.5% sulfur; or Marine diesel oil (DMB) at or below 0.5% sulfur
	August 1, 2012 ²	Marine gas oil (DMA) at or below 1.0% sulfur; or Marine diesel oil (DMB) at or below 0.5% sulfur
Phase II	January 1, 2014 ³	Marine gas oil (DMA) or marine diesel oil (DMB) at or below 0.1% sulfur

1. No change from the existing requirements.

2. Marine gas oil sulfur limit reduced from 1.5% to 1%. No change in marine diesel oil limit.

3. Implementation delayed from 2012 to 2014.

Present & Possible Future Scenario



Global Cap
2013 3.50%
2020 0.50%

Baltic Sea & North Sea ECA

2013 1.00%
2015 0.10%

2015 W. Coast Norway

US & Canada
ECA & Puerto Rico/ U.S. Virgin
Islands by 2014 1.00%
2015 0.10%

California State & Port LSFO
legislation to be further
reduced in 2014

Except for France,
Mediterranean countries
not interested in an ECA

Japan study group reviewing the possibility of a national
coastline ECA.

No discussions underway for
South American ECA

Hong Kong plans to apply to IMO to designate its port and
the surrounding Pearl River Delta as an ECA, to apply a
"Ringleman" smoke test in port, to limit MGO sold in the
port to max 0.05% sulphur by 2014 and in 2015 mandate
max 0.50% sulphur while "at berth"

What does this mean for bunkering in Vancouver?

- 4 Availability and supply of LS Marine Gasoil
- 4 Different ports: will they have LS Gasoil available?
- 4 Increased delivery times due to multi-product requirements.
- 4 As regulation changes, cost increases by 20-25%



The Future

- 4 2020 Regulations
- 4 LNG Vessels

