



MARPOL ANNEX VI- Emission Control Area Regulations

**Impact on United States and
Canadian Cruising**

Fuel Availability & Price

Overview

- Availability varies by port
 - ✓ Many ports not supplying
- Quality varies widely by port
 - ✓ Some ports very low viscosity product.
- Premium charged varies widely
 - ✓ \$50 - \$250/MT for LSFO
- Requires planning and contracting where possible
- Some routes are still not available
 - ✓ South Pacific routes to West Coast are most difficult



Fuel Availability & Price – Europe

(source: bunkerworld)



Analysis:

- Northern Europe was the “reference case” for North America ECA
 - ✓ Market is historically supplied with lower sulfur IFO
 - ✓ Function of local crude oil & refineries, not regulations
 - ✓ Product is generally available throughout region.
 - ✓ Premiums for 1% IFO typically traded \$40 - \$50/MT

Fuel Availability & Price – West Coast

(source: bunkerworld)



Vancouver, B.C.

- Product is available if contracted
- Low viscosity blend of fuels
- Premium > \$200/MT



Los Angeles, California

- Product is available contracted & spot
- Mix of fuel blends
- Premium \$100 - \$150/MT

Fuel Availability & Price – Gulf Coast

(source: bunkerworld)



Houston, Texas

- Product is usually available
- Premium \$80 - \$100/MT



New Orleans, Louisiana

- Product is usually available
- Premium ~\$100/MT

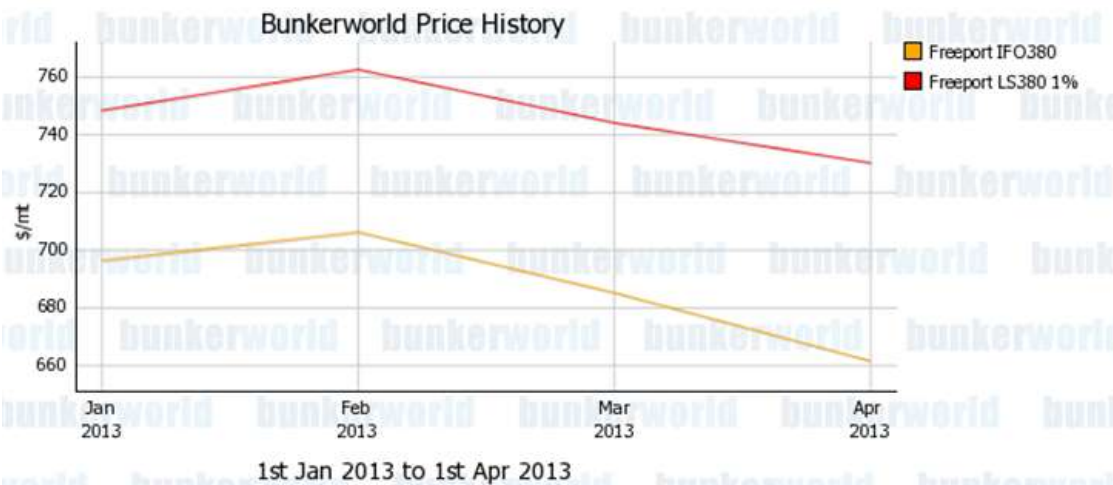
Fuel Availability & Price – East Coast

(source: bunkerworld)



New York, New York.

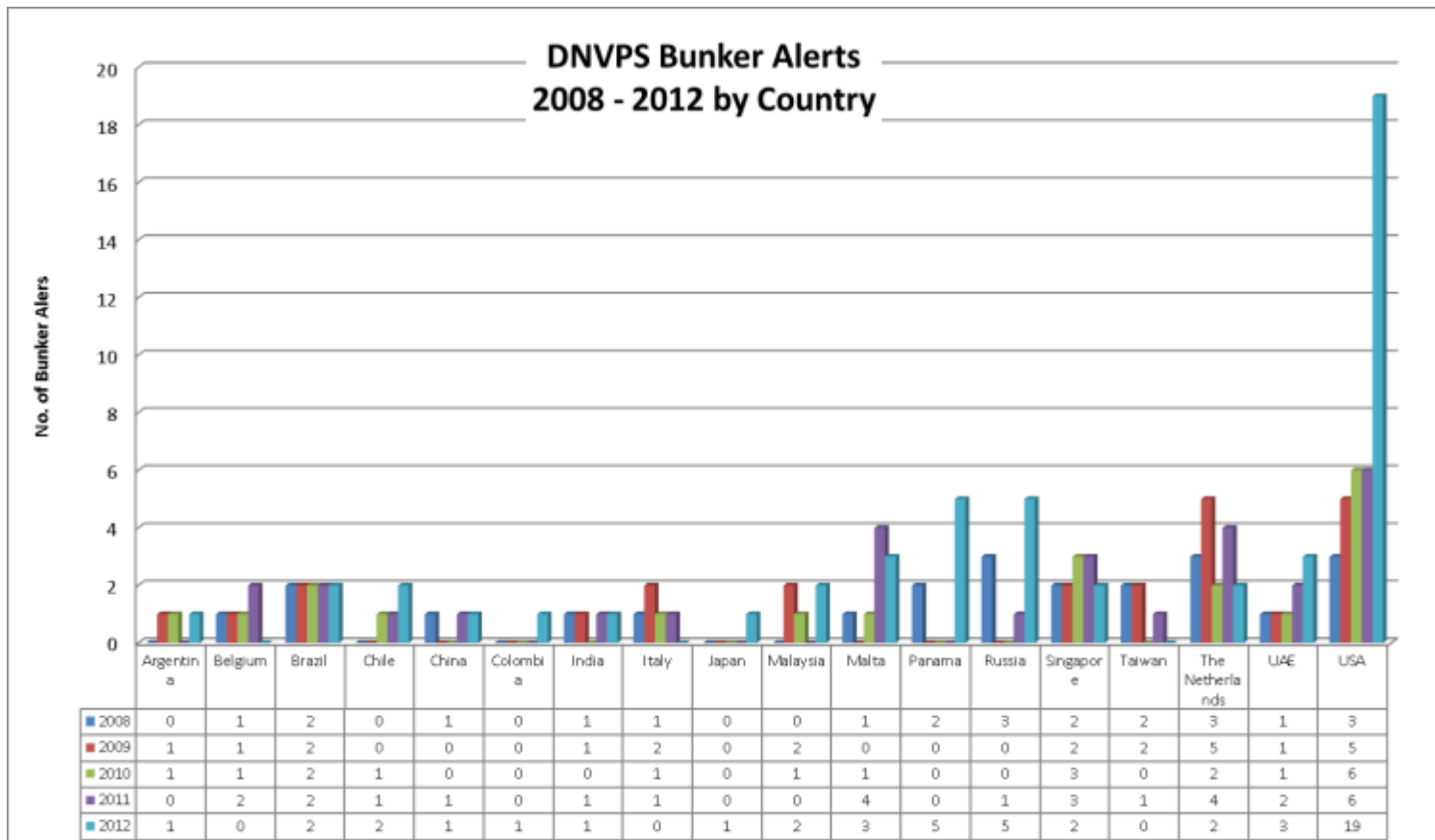
- Product is available spot & contract
- Premium \$40 - \$60/MT
- Most like Europe



Freeport, Bahamas

- Product is available if contracted
- Premium ~\$60 - \$80/MT

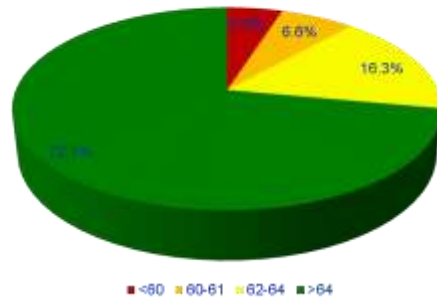
Fuel Quality Issues (source DNVPS)



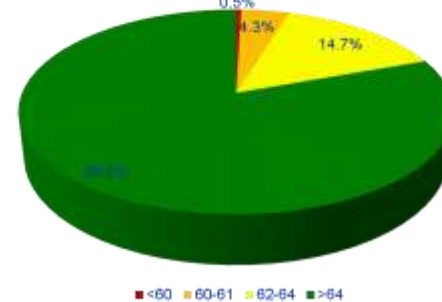
- Significant increase in bunker quality alerts in the United States since ECA
- Mostly high levels of Al & Si (abrasives) & density related issues
- Suppliers are struggling with quality control while blending to new spec

Fuel Quality Issues (source DNVPS)

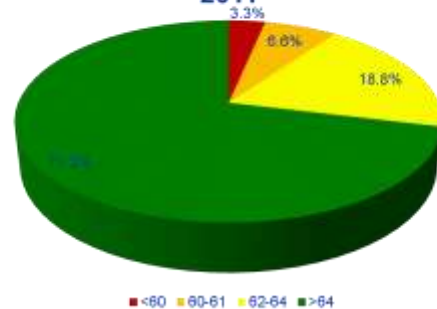
Distillate FP trends, US East Coast, 2009



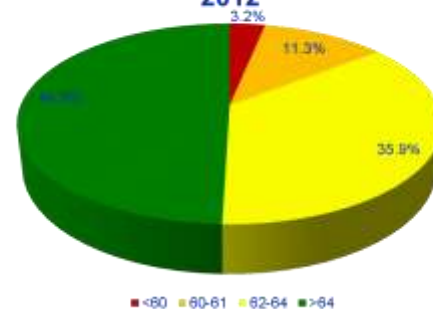
Distillate FP trends, US East Coast, 2010



Distillate FP trends, US East Coast, 2011



Distillate FP trends, US East Coast, 2012



- Looking toward 2015 ECA level of 0.1%, the main quality concern is flash point.
- Safety requirements for ships requires a higher flash point than automotive diesel
- Already seen a significant decrease in typical flash point supplied.

Other Options?

- Advanced Emissions Purification Systems / (Scrubbers)
- Alternative Compliance Methodology / (Averaging & Exemptions)
- Alternative Fuels
- Modified Deployments

