

CompMon

Compliance monitoring pilot for Marpol Annex VI

Compliance Level at Different Sea Areas

Results of Remote Monitoring from
Fixed and Mobile Platforms



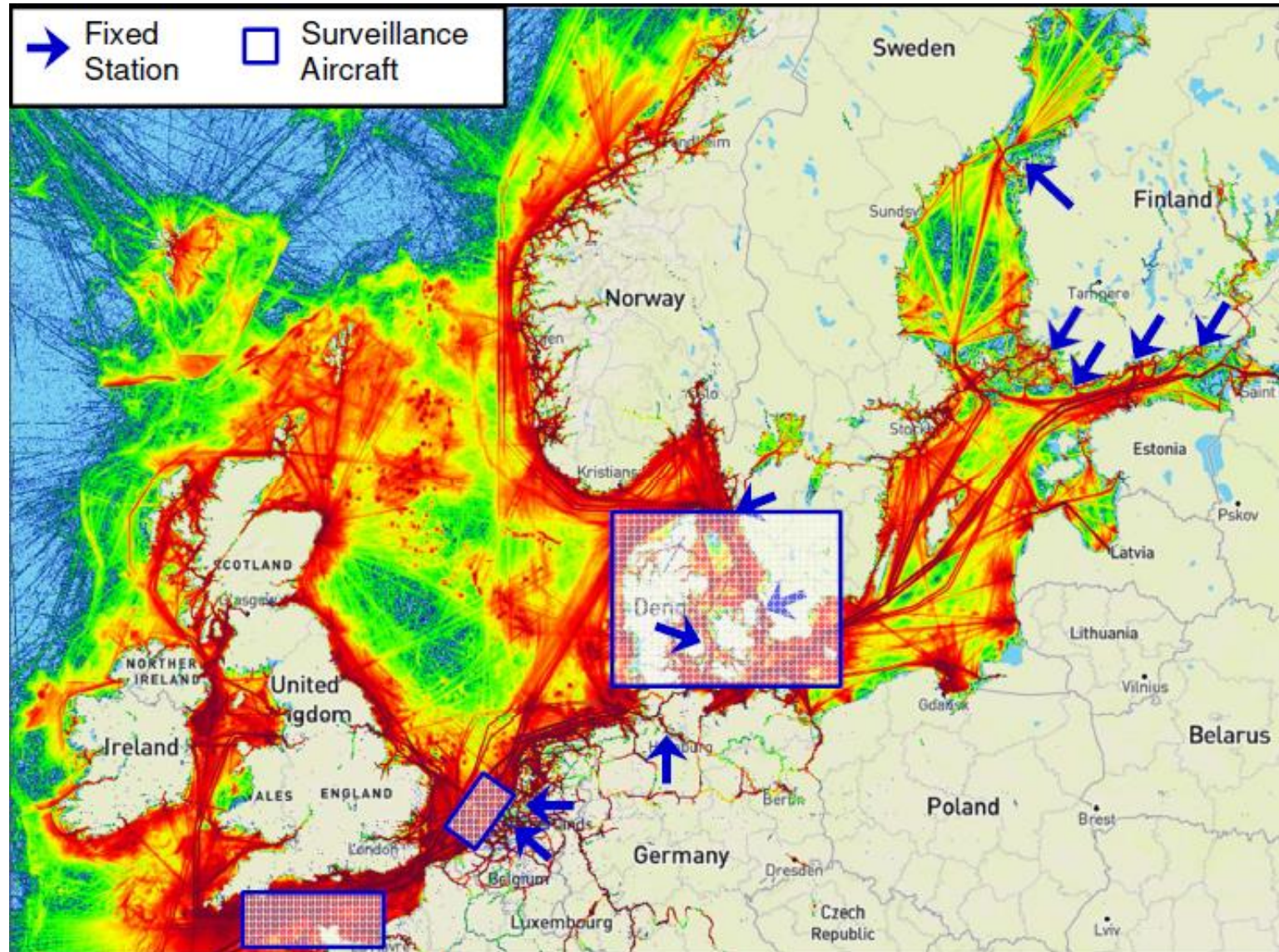
CompMon Measurement Areas

**North Sea S
English Ch./
SECA Border**

Belgium:
North Sea S

Netherlands:
Rotterdam,
North Sea S

CompMon
campaign:
SECA Border



"Inner SECA"

Finland:
Northern
Baltic

Sweden:
Gothenburg and
Oresund Bridge*

Denmark:
Great Belt
Bridge and
Danish Waters

Germany:
Wedel
(Hamborg
port)

Compliance Level...

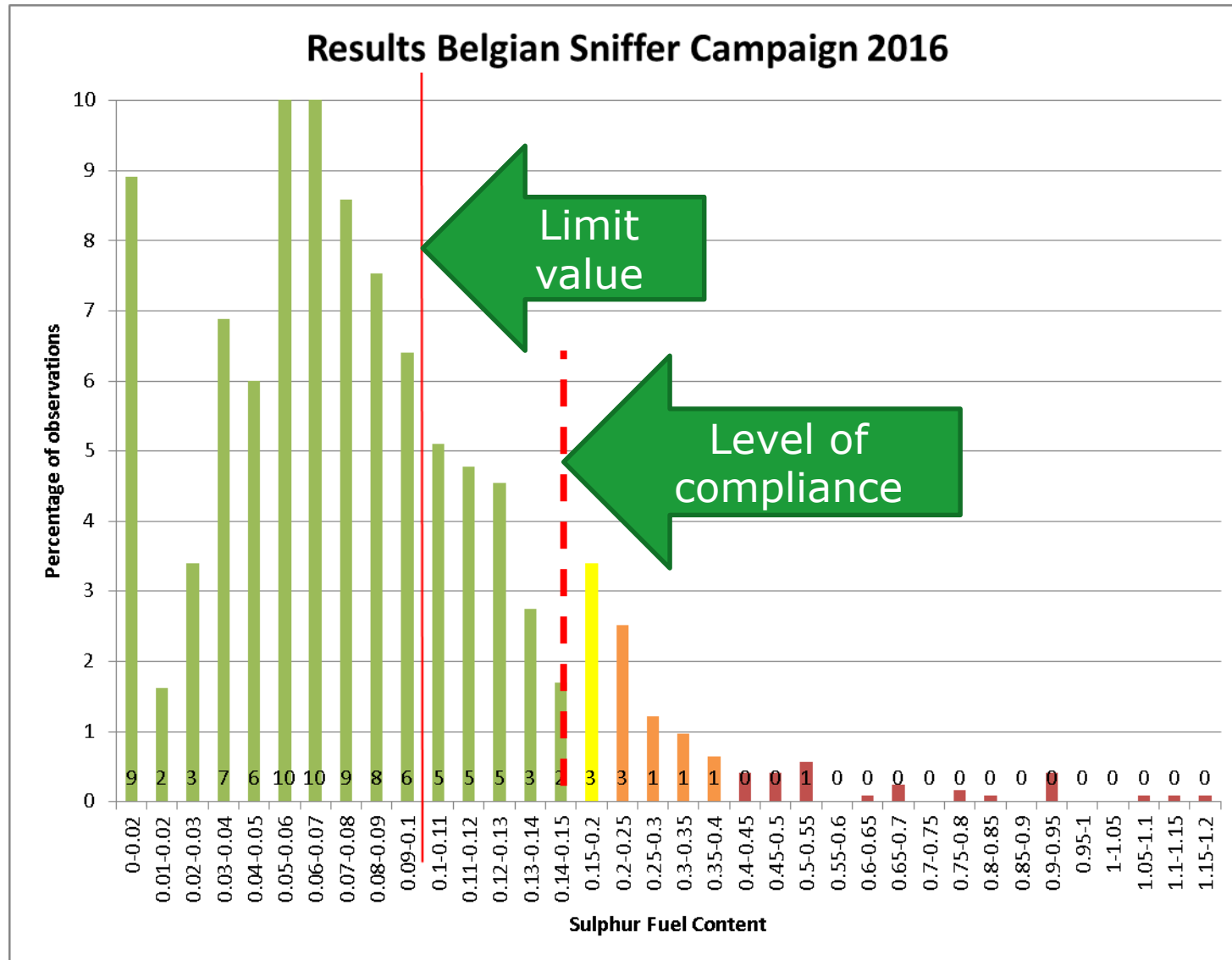
When is an observation considered non-compliant?

- Compliance level is linked to **quality** and **uncertainty** of the individual observation
- Uncertainty and quality of observations are **affected by many factors** (measurement method, platform, weather conditions ect.)
- Assessment of quality of the measurement **cannot easily be harmonized.**

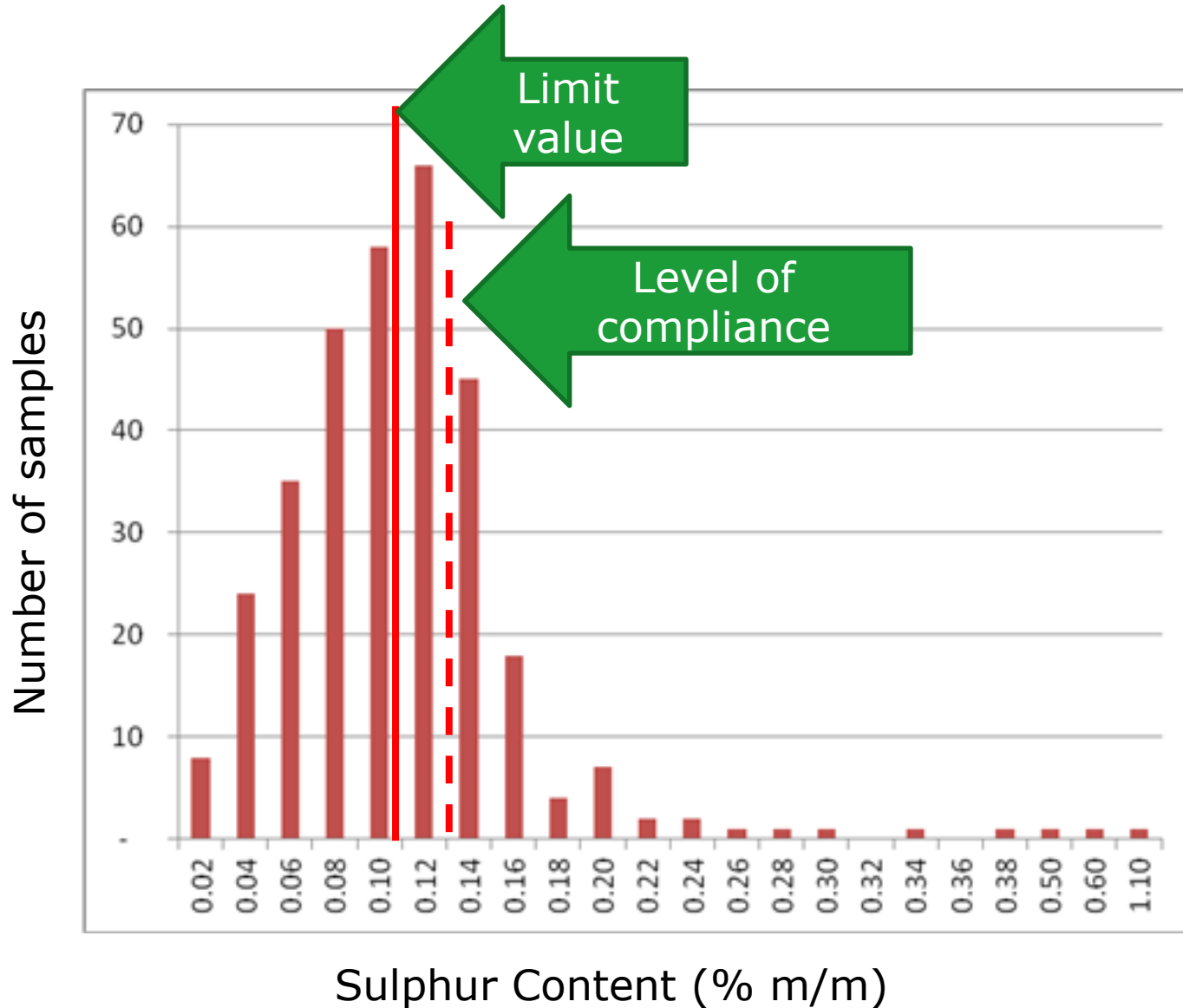
Technology defines compliance level!!!



Limit Value vs. Compliance Level ("cut-off value")

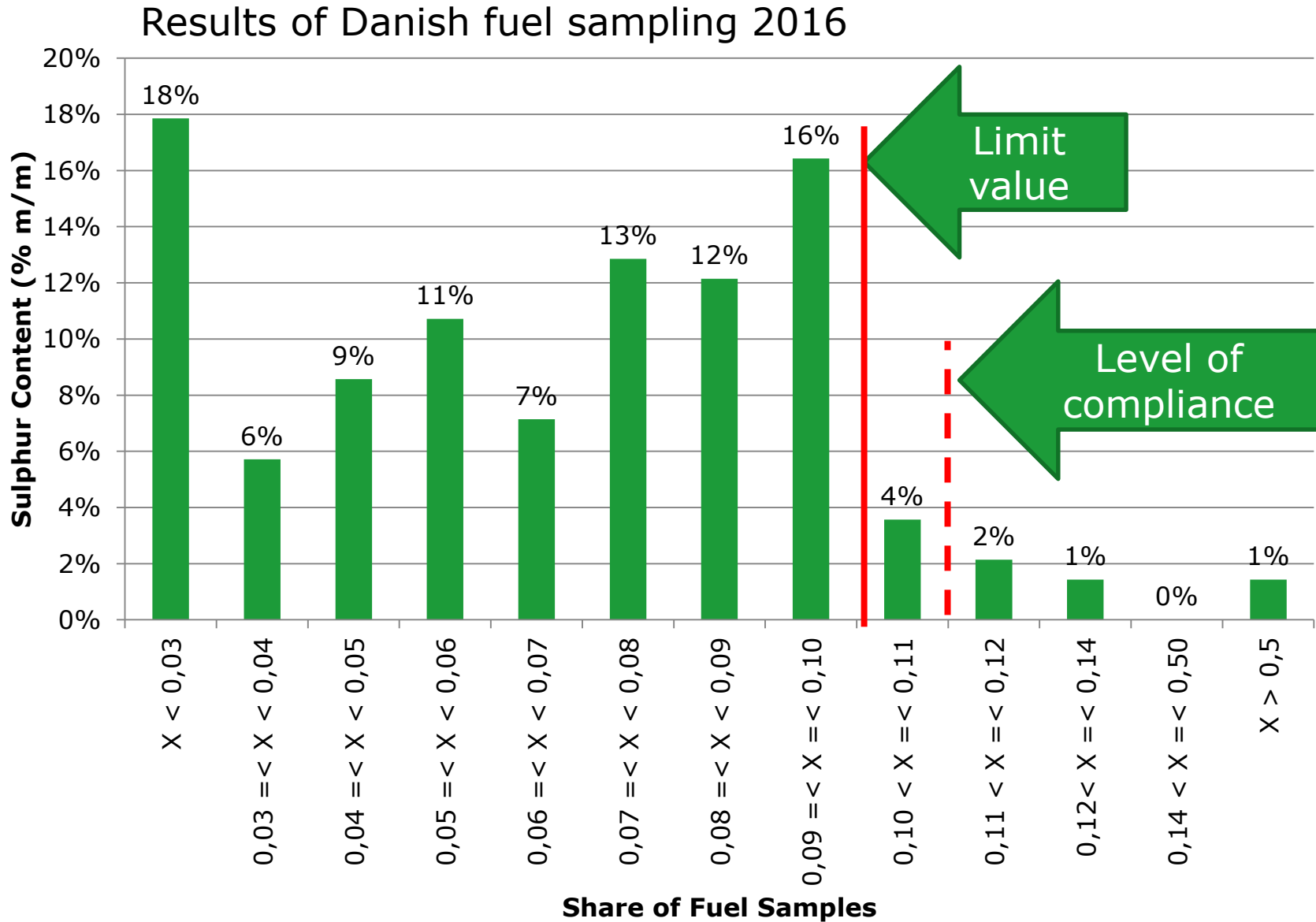


Limit Value vs. Compliance Level ("cut-off value")



Netherlands
"Mini"sniffer campaign
(Helicopter)

Similar Approach for Fuel Sampling Results



Compliance Rates

“Inner SECA”: Baltic and Eastern North Sea

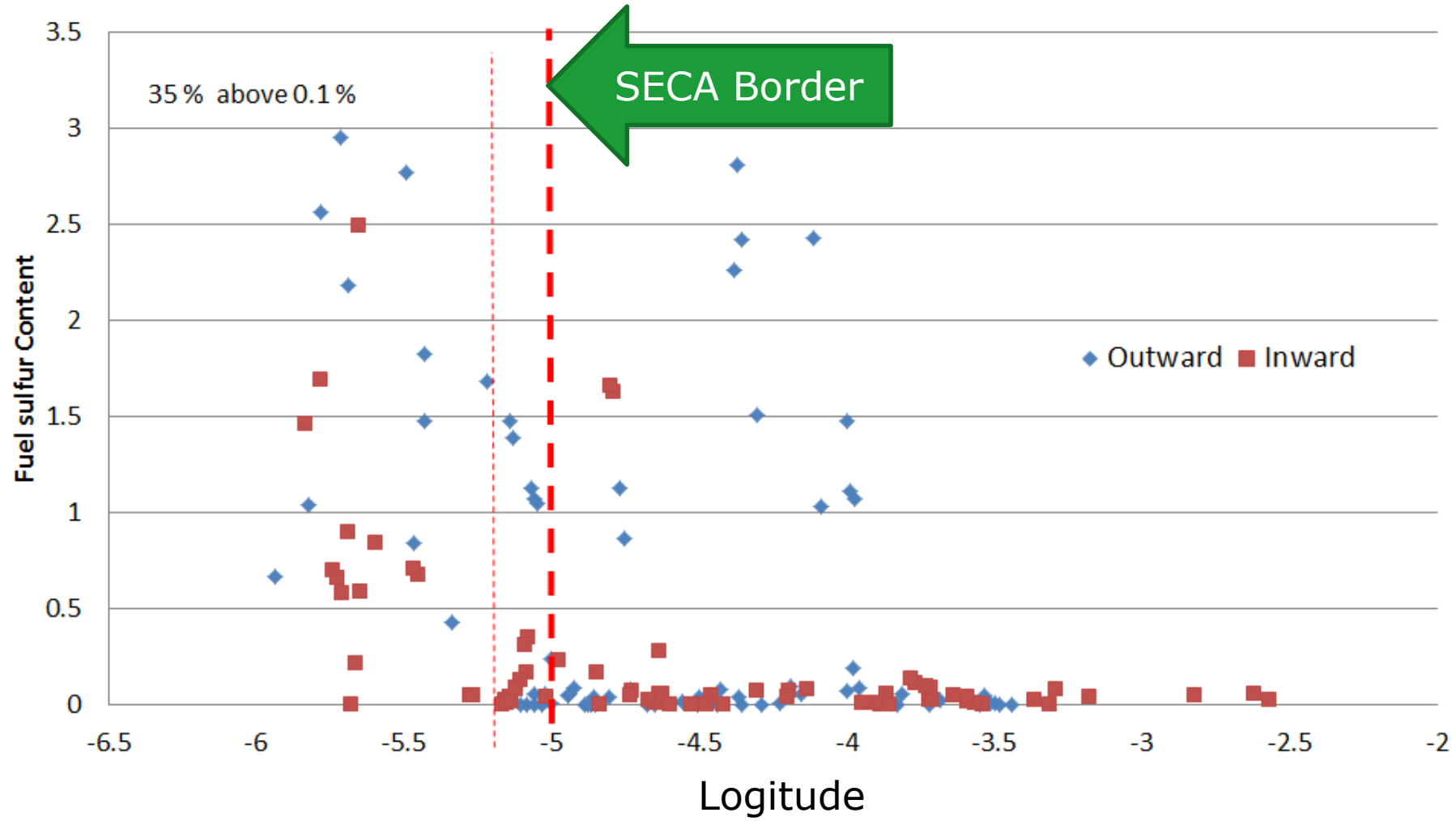
Station/Area	Period	# of measurements (quality OK)	Cut-off level	Ratio of non-compliance
Finland Northern Baltic	2016	2570 (Fixed) 430 (Boat)	0,15	0,6 %
Sweden Gothenburg	2016	3389 (Observations) 483 (Individual)	0,15	1%
Denmark Great Belt Bridge	June-Nov 2016	2011 (Observations) 1167 (Individual)	0,15	4 %
Denmark Waters Aircraft	June 2015 – Oct. 2016	1052 (Observations) 480 (Individual)	0,20	6 %
Germany Hamburg Harbor (Wedel)	Nov. 2014 - Nov. 2016	6523	0,15	1.66%

Compliance Rates

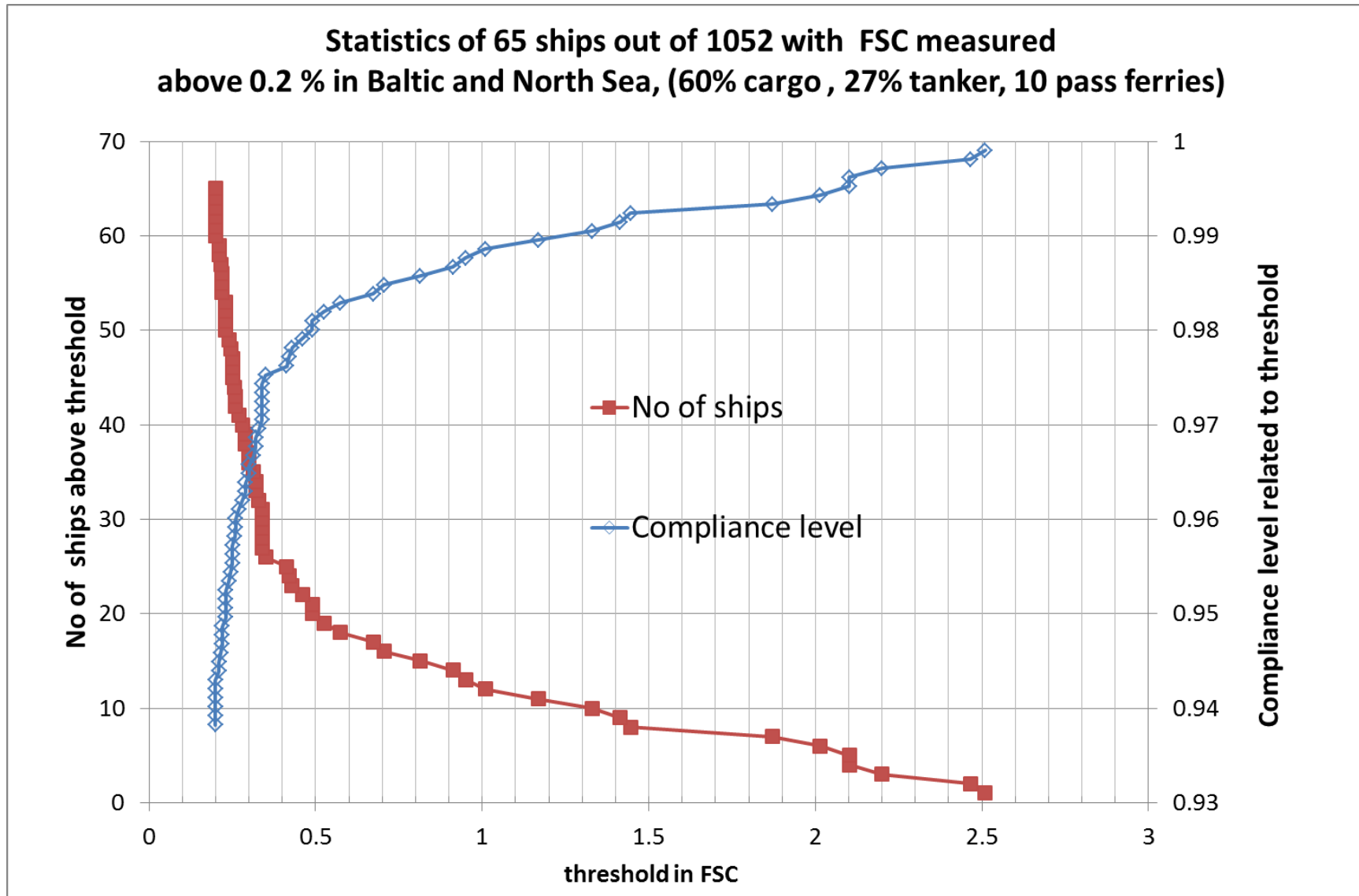
SECA Border/English Channel/Southern North Sea

Station/Area	Period	# of measurements (quality OK)	Cut-off level	Ratio of non-compliance
Netherlands (Fixed, Rotterdam)	2016	1229	Varies	7 %
Netherlands Southern North Sea (Helicopter)	Sept. 2016	327	0,13	18 %
Belgium Aircraft Southern North Sea	2016	1233	0,15	11%
CompMon SECA Border (Aircraft)	Sept. 2016	74	0,20	16 %

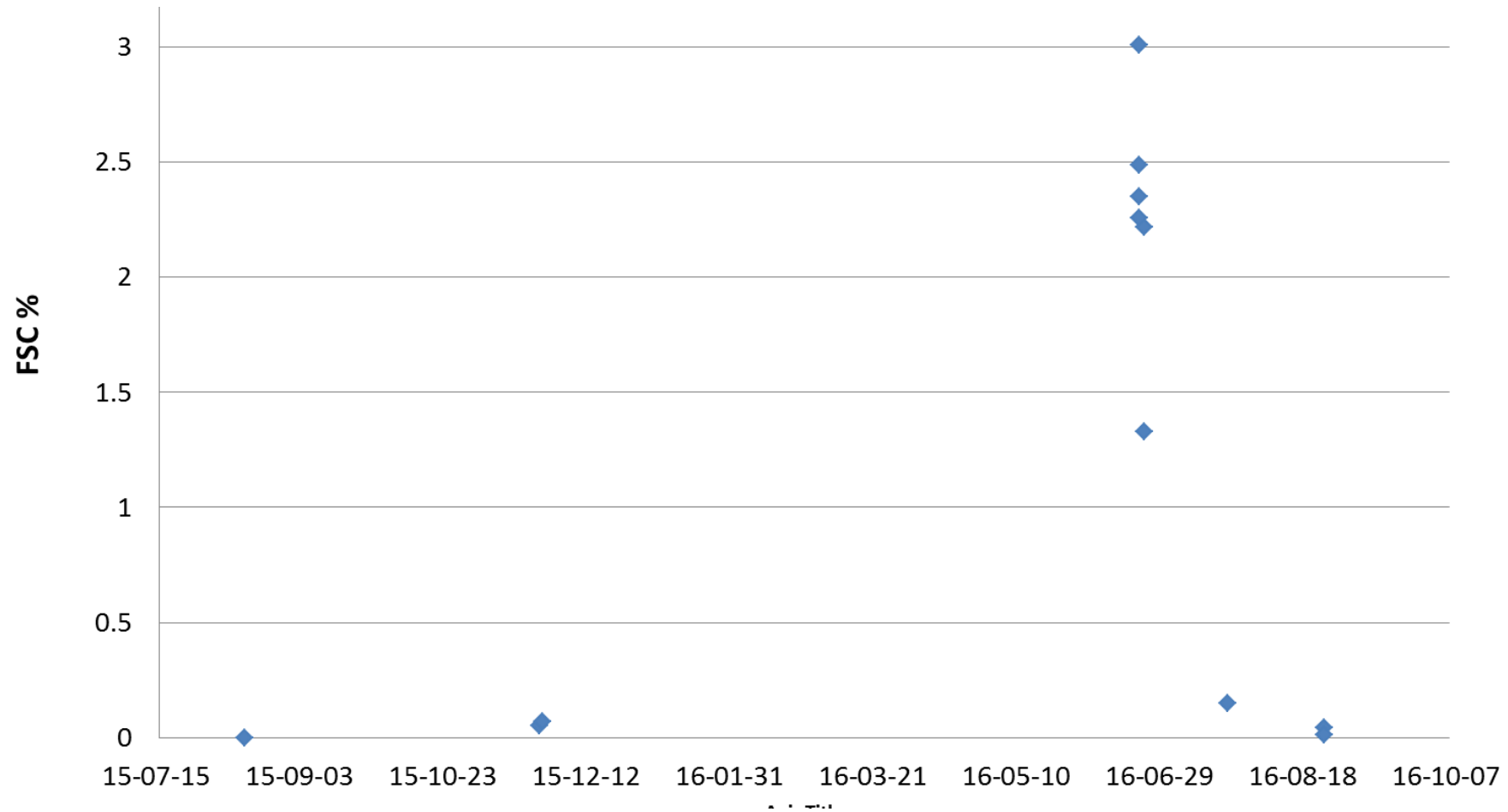
Early fuel switchching..



Few incidents of Gross Non-compliance



Example: Passenger ferry with malfunctioning scrubber in S Baltic



Conclusions & Trends

- >15.000 successful observations from fixed platforms
- >2500 successful observations from mobile platforms
- Technology defines compliance levels !!
- General good compliance rate in the Baltic and around Denmark
- Rate of non-compliance seems to increase closer to SECA boarder (early/late fuel switching)
- Low rate of gross non-compliance ($> 0,5 \% S$)



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