



INTERTANKO

PERSPECTIVE ON DISTILLATE FUELS

**Clean Ships:
Advanced Technology for Clean Air**

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International Association of Independent Tanker Owners

- **Voice of independent tanker owners since 1970**
- **Membership:**
 - 242 members
 - combined fleet > 2,160 tankers
 - 70% of the worlds independent tanker fleet
 - 81% of the worlds chemical fleet
- **Main Objectives:**
 - Safe Transport
 - Cleaner Seas – zero tolerance
 - Free Competition
- **Tankers use 30% - 35% of the total marine fuels**



MARPOL Annex VI PROPOSAL FOR AMENDMENTS

- **Lower limits for SO_x & NO_x emissions**
- **SECAs with lower S cap (1.0% or 0.5%)**
- **NO_x emission limitation on existing engines**
- **NECAs – NO_x controlled areas**
- **Restriction on Particulate Matters (PM) emissions**
- **Further controls on VOC emissions from cargo oil tanks**



MARPOL ANNEX VI REVISION INTERTANKO OBSERVATIONS

- **Type/quality of fuel is the KEY to control all air emissions from ships**
- **None of the suggestions for revision addressed the type & the quality of fuels**
- **Responsible ship owners know they have a duty to take initiatives**
- **Important to have an open debate at the international level**
- **There should be full and frank discussion of the various solutions possible, including abatement equipment**



INTERTANKO Guiding Principles

- **Solid platform of requirements**
- **Long term and positive reduction of air emissions from ships**
- **Long term and a predictable regulatory regime**
- **Prevent fragmented regulations - International standards via IMO**
- **A global standard for at sea, coastal and at berth operations (maybe no SECAs)**
- **Realistic and feasible solution**
- **Regulations based on a fuel standard rather than an emissions performance standard only**



REVISION OF MARPOL ANNEX VI INTERTANKO PROPOSAL

- **Distillate fuels & 2-tiered S cap program:**
 - from [2010], a maximum of 1.00% S content
 - for ships' engines installed on and after [2015], a maximum [0.50]% S content
- **A Global Sulphur Emission Control Area**
- **A Single Fuel specification in Annex VI**
- **Simpler monitoring of compliance**



MDO – ADVANTAGES AIR EMISSIONS

- Applies to ALL existing ships/engines
- With no other measure, reduces:
 - SOx emissions by 80% to 90%
 - PM emissions by 90%
 - NOx emissions by 10% to 15%
- Reduces fuel consumption with some 4% from ALL ships and thus CO₂ emissions
- Facilitates NOx reductions by in-engine modifications for IMO's Tier II & III



MDO – ADVANTAGES AIR EMISSIONS

- **Engines designed for use of MDO only will tolerate further emission reductions over their entire life time**
- **Further regulatory reduction of air emissions from ships will be a function of better quality fuels and not limited by engine's functional parameters**



MDO - ADDITIONAL BENEFITS

- **ENVIRONMENTAL:**
 - Reduces onboard fuel generated waste
 - ALL ships become “greener”
 - The waste is “cleaner” and free of hazardous elements contained in residual fuels
 - Minimising the waste from abatement technologies
 - Safer working environment for crews
- **SAFETY:**
 - Less incidents with engine breakdowns caused by poorer quality fuels
 - No need of complex fuel change-over operations
 - No risk of incompatibility of blended fuels



WHY GLOBAL SULPHUR CAP

- All agree proliferation of SECAs is imminent
- Governments have clear strategies to reduce emissions around their coasts
- Threat of unilateral legislation and non harmonised local requirements
- For ships, SECA is a serious burden:
 - changeover to low sulphur fuel
 - operating scrubbers & waste processing



FUEL CHANGE OVER

- Increase/diversify of bunker storage capacity
- Complete segregation of HS & LS fuels
- A 3rd/4th storage tanks for 0.1%/0.5% S fuels
- Storage for low BN number lube/cylinder oil
- Manifolds modifications & segregation for bunkering & fuel sampling

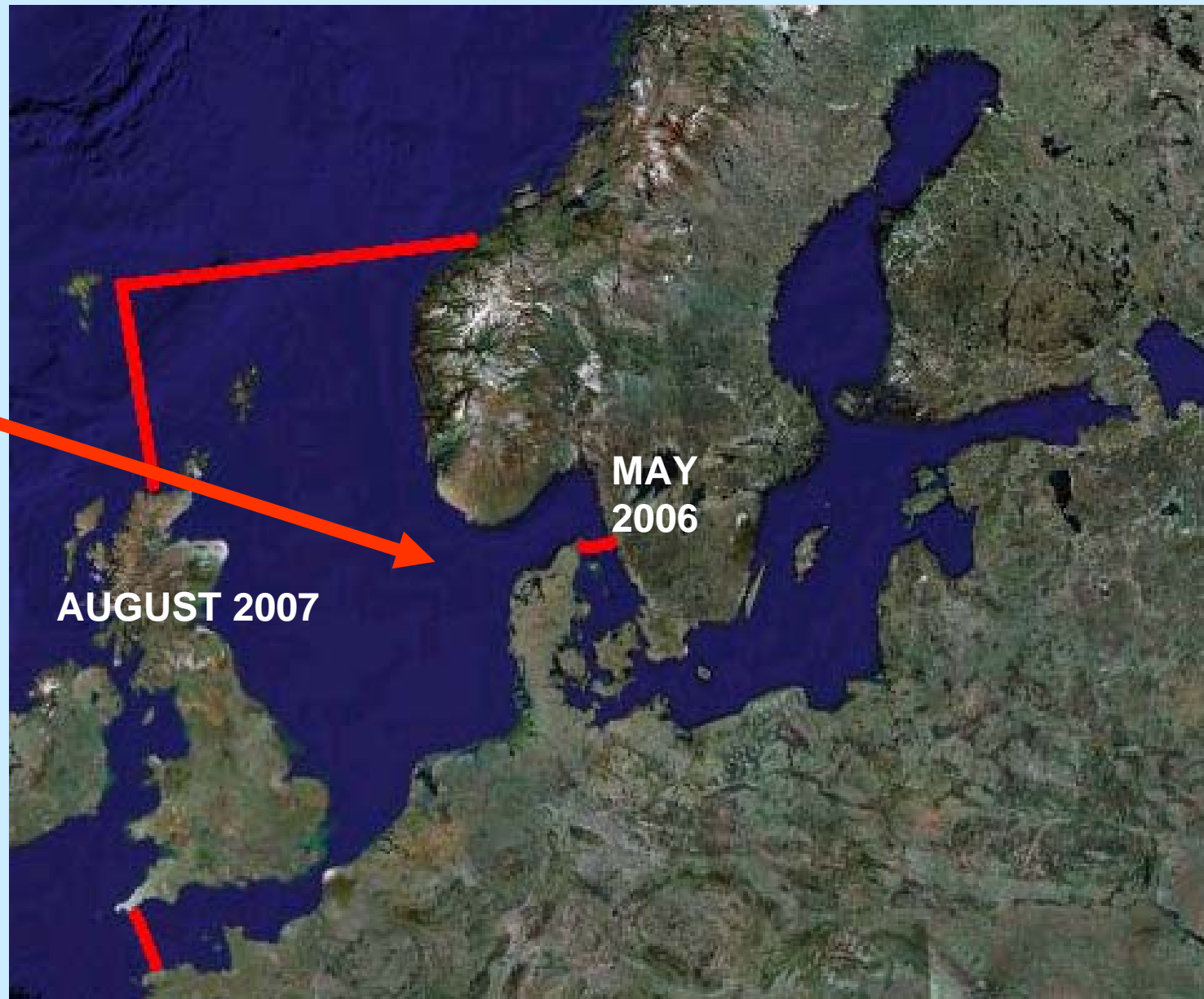


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SECAs & CHANGE OVER AREAS

Source: <http://maps.google.com/>

**Changeover
Area**





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SECAs & CHANGE OVER AREAS

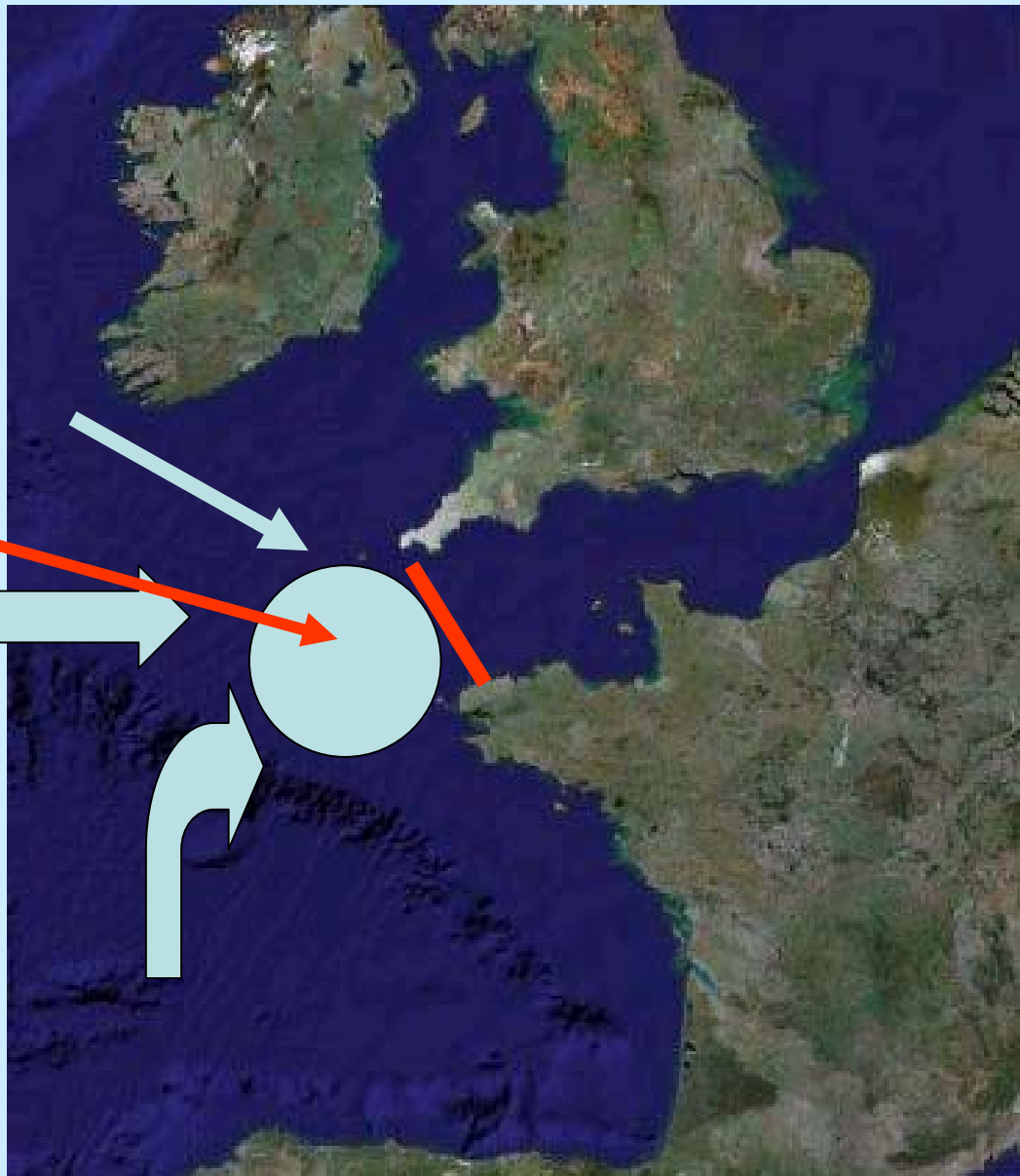
Source: <http://maps.google.com/>

Next Changeover Area?

Bay of Biscay?

Is THAT safe?

Adding a NECA?





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SCRUBBERS

Scrubbers for Pride of Kent



- big space required in the ship's funnel;
- for a main engine of 20 MW, a total of up to 22,000 t/day might be necessary (45t/hr/MW*)
- up to 100 kg/day of hazardous sludge (5kg/day/MW*)

* data supplied by Krystallon



MDO AVAILABILITY

- A CHALLENGE BUT:
 - more feasible than producing LS RMFOs
 - refinery capacity can be slightly increased
 - additional demand of MDO represents some 6% to 9% of the current refining capacity on primary distillation
 - ADO mixed with 10% bio-component = more capacity for producing MDO
 - 2005 average utilisation of refinery capacity:
 - World wide - 86.3%
 - EU - 92.4%
 - Asia-Paific - 91.5% and
 - North America - 89.4%
 - thus quite possible also through increased refining efficiency



NET ENVIRONMENTAL BENEFIT

- **POSSIBLE INCREASE OF CO₂ EMISSIONS?**
 - if any, much less than de-sulphurisation of residuals
 - much less than producing and operating scrubbers
 - lower CO₂ emissions by lower fuel consumption by ships
 - lower CO₂ emissions by no need to heat the residual fuel prior to treatment & injection



- **SO_x, NO_x & PM - LOCAL PROBLEMS?**
 - PM & SO_x "travel" for hundreds/thousands of miles
 - NO_x is a global issue
 - Should ships need to be "green" in restricted areas but can continue "business as usual" in most of seas?
 - Should ships continue to be the World incinerator? If yes, who decides so?



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INTERTANKO sustains that ships are the most environmental means of transportation

Comparison: ship, train, truck

Same cargo, same distance:



Atmospheric pollutants	1 (15.73g/t-km)	1.4	7.6
Energy consumption	1 (130kjoule/t-km)	2.2	9.7

Source: Canadian Shipowners' Association, MARPOL Annex VI
Consultation Meeting, Washington, DC, February, 2006

**SHIPPING SHOULD NOT BECOME THE "WASTE TREATMENT PLANT"
FOR OTHER MODES OF TRANSPORTATION**



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Who bears the responsibility for verification and compliance

- **Owner for :**
 - Combustion process
 - Exhaust gas emission standards
 - Disposal of by-products

OR

- **Fuel supplier for:**
 - Quality of fuel supplied

AND

- **Engine Manufacturers**
 - Facilitate a design of an engine that copes with a predictable rule development on lowering emissions



USE OF MDO - CONCLUSIONS

- **Ensures a solid platform of requirements**
- **Simple, Straightforward & Realistic**
- **Long term & positive reduction of air emissions from ships**
- **Long term & predictable regulatory regime**
- **Simpler and workable monitoring and control procedures**
- **Only advantages for ship operations**
- **Technical changes manageable**
- **Better work environment for crews**



USE OF MDO - CONCLUSIONS

- **Prevents fragmented regulations = A global standard for at sea, coastal and at berth operations**
- **International standards via IMO**
- **Regulations on a fuel standard not on emissions performance standard only**
- **Overall environmental impact better than any of the current alternative measures**
- **Coast & sea pollution from bunker spills significantly less harmful and messy**



USE OF MDO - CONCLUSIONS



"The use of vegetable oils for engine fuels may seem insignificant today. But such oils may become in course of time as important as petroleum and the coal tar products of the present time."

Rudolf Diesel (early 1900s)



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USE OF MDO - CONCLUSIONS

INTERTANKO message:

*Better to deal with the cause of a problem
than to concentrate on the effects only!*

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