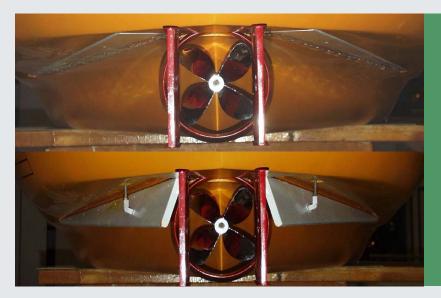
### CENTRAL COMMISSION FOR THE NAVIGATION OF THE RHINE COMMISSION CENTRALE POUR LA NAVIGATION DU RHIN ZENTRALKOMMISSION FÜR DIE RHEINSCHIFFFAHRT CENTRALE COMMISSIE VOOR DE RIJNVAART





Parallel Workshop 4 Operational measures
to reduce the CO<sub>2</sub> emissions
from inland navigation

Ivo ten Broeke

Commissioner of the Netherlands to the CCNR

#### Presentation 1: Energy Efficiency Indices



## The Energy Efficiency Indices of the IMO (design/operation) – useful tools also for inland navigation?

Torsten Mundt, Germanischer Lloyd

- EEDI and EEOI can be used in inland navigation
- EEDI and EEOI will set a reference
- Benchmarks are needed, but difficult to agree
- Authorities or the industry need to take the initiative to set the benchmark

#### Presentation 2: CO<sub>2</sub> reduction Netherlands



#### CO<sub>2</sub>-reduction of inland navigation in the Netherlands

Martin Koopmans, Ministry of Infrastructure and the Environment

- Last 20 years, relative rise in Nox, decrease of CO<sub>2</sub>
   for total transport volume
- Behaviour adaptation can result in 8%
- CO<sub>2</sub> competition leads in individual cases to 40%
- LNG can result in 25%

### Presentation 3: Automatic navigation systems



### Reduction of fuel consumption by using automatic navigation systems

Alexander Lutz, University Stuttgart

- Saving potential up to 6% CO<sub>2</sub>
- Optimal lane (lateral position) is important
- Sailing strategy for entire route depends on current and available water depth

#### Presentation 4: Operational measures



### Operational measures to reduce fuel consumption in inland navigation

Desire Savelkoul, Autena Marine

- Fuel saving based on real time information of waterway
- Gathering information from navigation
- Advice on optimal position, route and speed

### Presentation 5: Ship handling simulators as training tool



CO<sub>2</sub> reduction due to "topography orientated" voyage-planning and navigation – Prerequisites of ship handling simulators as training tool

Olaf Kammertöns, DST

- Shallow water effects are crucial
- Topography is important to take into account
- Awareness is unsufficient
- Simulation can be a great help

# Parallel Worshop 4: Operational measures to reduce the CO<sub>2</sub> emissions from inland navigation



#### **Main conclusions**

- Operational measures have big CO<sub>2</sub> reduction potential
- Taking into account shallow water effects are crucial
- Awareness of potential is low, but increasing
- CO<sub>2</sub> reduction is part of education; the use of simulators will increase awareness
- 3 presentations have added value to eachother
- No discussion if results are reached: saving fuel is reduction of CO<sub>2</sub> emission