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Implementation of Shipping MRV Regulation Determination of cargo carried

European Sustainable Shipping Forum
Subgroup on Shipping MRV Monitoring

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MARENA

Agenda

Task 1: Determination of cargo carried for other ship types than passenger, ro-ro and container ships (Working Paper on Determination of Cargo Carried)

1. **Ship types for determination of cargo carried and definitions**
2. **Options for determination of cargo carried**

Ship types for determination of cargo carried

What are the 'ship types other than passenger, ro-ro and container ships':

- **Inputs:**
  - **List of ship types in the Regulation;**
  - **List of ship types in the EEDI (MARPOL Annex VI, Chapter 1, Regulation 2);**
  - **A consideration of operational profiles of ship types.**

- **Method:**
  - **Use list of ship types in the Regulation as a minimum**
  - **Use MARPOL Annex VI definitions to the extent possible**
  - **Distinguish ship types with specific operational profiles**
  - **Ensure complete coverage by mapping to Statcode 5 v1081**

Ship types for determination of cargo carried

Ship type	Definition	Remarks
Tanker	**"Tanker" as defined in MARPOL Annex I, regulation 1**	**Statcode A13**
Chemical tankers	**"Chemical tanker" or an "NLS tanker" as defined in MARPOL Annex II, regulation 1.**	**Statcode A12, A14**
LNG carrier	**A tanker for the bulk carriage of Liquefied Natural Gas (primarily methane) in independent insulated tanks. Liquefaction is achieved at temperatures down to -163 deg C**	**Statcode A11A**
Gas carriers	**A tanker for the bulk carriage of liquefied gases other than LNG.**	**Statcode A11B, A11C**
Bulk carrier	"Bulk carrier" means a ship which is intended primarily to carry dry cargo in bulk, including such types as ore carriers as defined in SOLAS chapter XII, regulation 1, but excluding combination carriers.	Covers Bulk Dry (Statcode A21); Self Discharging Bulk Dry (StatCode A23); and Other Bulk Dry (StatCode A24)

Ship types for determination of cargo carried

Ship type	Definition	Remarks
General cargo ship	"General cargo ship" means a ship with a multi-deck or single deck hull designed primarily for the carriage of general cargo. This definition excludes specialized dry cargo ships, which are not included in the calculation of reference lines for general cargo ships, namely livestock carrier, barge carrier, heavy load carrier, yacht carrier, nuclear fuel carrier.	Covers General Cargo (StatCode A31); and Passenger/General Cargo (StatCode A32)
Refrigerated cargo ship	"Refrigerated cargo carrier" means a ship designed exclusively for the carriage of refrigerated cargoes in holds.	StatCode A34
Vehicle carrier	"Vehicle carrier" means a multi deck roll-on-roll-off cargo ship designed for the carriage of empty cars and trucks.	StatCode A35B. Note that Bulk Carrier (with Vehicle Decks) (Statcode A21A2BV) would be included under bulk carriers, not under vehicle carriers.
Combination carrier	"Combination carrier" means a ship designed to load 100% deadweight with both liquid and dry cargo in bulk.	Covers Bulk Dry Liquid (StatCode A22); and Bulk Dry Oil (StatCode A22)

Ship types for determination of cargo carried

Ship type	Definition	Remarks
Ro-pax	**"Ro-pax ship" means a passenger ship with roll-on-roll-off cargo space**	**StatCode A34**
Container/ Ro-Ro cargo ship	"Container/ Ro-Ro cargo ship" means a hybrid of a container ship and a ro-ro cargo ship in independent sections	Statcode A35C2RC
Other ship types	"Other ship types" mean ships not covered by any of the above definitions**, which fall under the scope of the regulation.**	

Ship types for determination of cargo carried Questions for discussion

Do you have comments or suggestions on the proposed definitions?

Criteria for selection of cargo parameters

A. The technical rules should allow accurate monitoring of the amount of cargo carried;

B. The rules should result in monitoring that yields verifiable results;

C. The rules should be administratively efficient, which means that they are in line with industry standards and common practices;

D. The rules should result in robust information on energy efficiency that allows for fair comparison between ships.

Cargo parameter options: Chemical tankers

Options and evaluation

Options	Accuracy	Verifiability	Admin efficiency	Robust and Fair
Mass	++	++	++ (current industry practice)	Does not take variations in cargo density into account
Volume	++	++	+	Does not take variations in cargo density into account

In order to satisfy criteria D, it is recommended to include a voluntary memo field in the reporting template on cargo density

Cargo parameter options: Chemical tankers
Questions for discussion

- What is your assessment of the two options in particular regarding:
  - the accuracy and verifiability of the results,
  - the administrative efficiency/ coherence with industry standards and common practices, and
  - the suitability to express energy efficiency?

- Do you agree with the expressed preference to use cargo mass ?

- Do you agree to include a memo field on cargo density in the reporting template?

Cargo parameter options: bulk carriers

Options and evaluation

Options	Accuracy	Verifiability	Admin efficiency	Robust and Fair
Mass	++	++	++	Does not take variations in cargo density into account
Volume	+ (calculated from mass and stowage factor)	++ (calculated from mass and stowage factor)	+ (calculated from mass and stowage factor)	Does not take variations in cargo density into account
Mass + correction factor	Depends on accuracy and verifiability of correction factor			
Mass *and* volume	++ (higher accuracy for mass than for volume)	++	+ (additional monitoring required)	Will result in two energy efficiency figures per ship

Cargo parameter options: bulk carriers
Questions for discussion

- Do you have suggestions for a correction factor to take variations of cargo density into account?

- What is your assessment of the two options in particular regarding:
  - the accuracy and verifiability of the results,
  - the administrative efficiency/ coherence with industry standards and common practices, and
  - the suitability to express energy efficiency?

- Which option do you prefer?

Cargo parameter options: General cargo ships and refrigerated cargo ships

Options and evaluation

Options	Accuracy	Verifiability	Admin efficiency	Robust and Fair
Mass	++	++	++	+
Volume	- (For cargo with irregular shapes) + (when a stowage factor is known)			+
Deadweight carried	++	++	++	++ (deadweight carried is correlated with draught)
A combination of two of the above	Depends on the combination		+ (requires additional monitoring and reporting)	Depends on the combination

Cargo parameter options: General cargo ships and refrigerated cargo ships

Questions for discussion

- What is your assessment of the two options in particular regarding:
  - the accuracy and verifiability of the results,
  - the administrative efficiency/ coherence with industry standards and common practices, and
  - the suitability to express energy efficiency?

- Which option do you prefer?

Cargo parameter options: Ro-ro / passenger ships

Options and evaluation

Options	Accuracy	Verifiability	Admin efficiency	Robust and Fair
Mass (in order to express passengers and cargo in the same unit)	+ (requires standard value for passenger mass and possibly also for mass per occupied lane metre)	++	+	+

Cargo parameter options: Ro-ro / passenger ships
Question for discussion

Do you agree with the assessment and the recommendation to monitor cargo in the same way as for Ro-ro Cargo ships: the number of cargo units (trucks, cars, etc.)/ passengers or lane-meters multiplied by default values for their mass?

Cargo parameter options: LNG carriers

Options and evaluation

Options	Accuracy	Verifiability	Admin efficiency	Robust and Fair
Mass	+ (relies on volumetric and density measurements)	++	+ (additional multiplication and monitoring of density required)	+
Volume	++ (using CTMS)	++	++	+

Cargo parameter options: LNG carriers
Questions for discussion

- What is your assessment of the two options in particular regarding:
  - the accuracy and verifiability of the results,
  - the administrative efficiency/ coherence with industry standards and common practices, and
  - the suitability to express energy efficiency?

- Which option do you prefer?

Cargo parameter options: Gas carriers

Options and evaluation

Options	Accuracy	Verifiability	Admin efficiency	Robust and Fair
Mass	+ (relies on volumetric and density measurements)	++	+ (additional multiplication and monitoring of density required)	+
Volume	++ (using CTMS or ISO 5024)	++	++	+

Cargo parameter options: Gas carriers
Questions for discussion

- What is your assessment of the two options in particular regarding:
  - the accuracy and verifiability of the results,
  - the administrative efficiency/ coherence with industry standards and common practices, and
  - the suitability to express energy efficiency?

- Which option do you prefer?

Cargo parameter options: Vehicle carriers

Options and evaluation

Options	Accuracy	Verifiability	Admin efficiency	Robust and Fair
Occupied lane metres * default mass	?	?	- (lane metres are not currently monitored by oceangoing carriers, no defaults for mass)	?
Actual mass	+	+	+	o (comparability between typesof carriers may be lacking)
Occupied lane metres	?	?	- (lane metres are not currently monitored by oceangoing carriers)	?
Vehicle units	+ (for PCCs and PCTCs but not for heavy vehicle carriers)	+ (for PCCs and PCTCs but not for heavy vehicle carriers)	+ (for PCCs and PCTCs but not for heavy vehicle carriers)	o (comparability between types of carriers may be lacking)
Volume	?	?	- (volume is not currently monitored by oceangoing carriers)	?

Cargo parameter options: Vehicle carriers
Questions for discussion

- What is your assessment of the two options in particular regarding:
  - the accuracy and verifiability of the results,
  - the administrative efficiency/ coherence with industry standards and common practices, and
  - the suitability to express energy efficiency?

- Which option do you prefer?

Cargo parameter options: Container/ Ro-Ro cargo ships

Options and evaluation

Options	Accuracy	Verifiability	Admin efficiency	Robust and Fair
Mass	+	+	+	Does not take variations in cargo density into account
Deadweight carried	+	+	+	?
TEUs	+	+	? (Not clear whether all ships monitor TEUs)	?

Cargo parameter options: Container/ Ro-Ro cargo ships

Questions for discussion

- What is your assessment of the two options in particular regarding:
  - the accuracy and verifiability of the results,
  - the administrative efficiency/ coherence with industry standards and common practices, and
  - the suitability to express energy efficiency?

- Which option do you prefer?

Thank you for your input