



Energy efficiency of ships – Further measures

Data collection system for fuel oil consumption adopted at MEPC 70

Step 1 Data collection Step 2 Data analysis Step 3 Decision-making on what further measures, if any, are required

Step 1: data collection will provide the basis for an objective, transparent and inclusive policy debate in the MEPC

Other outcomes of MEPC 70

- Resolution MEPC.282(70): 2016
 Guidelines for the development of a Ship Energy Efficiency Management Plan (SEEMP)
- Guidelines for Administration data verification procedures and Guidelines for the development and management of the IMO Ship Fuel Consumption Database to be adopted (correspondence group report submitted to MEPC 71)



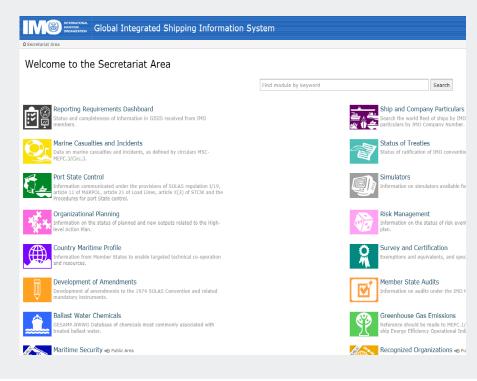
Overview of database development

 Consultation between the Marine Environment Division (MED) and the Information and Communication Technology Services (ICTS)

Review of the technical and security issues identified with regard to the establishment of the

database

- Module within the Global Integrated Shipping Information System (GISIS) platform
- Integrated IMO Web Accounts framework utilized to manage secure access to the module
- Prototype version of this module ready for consideration by MEPC 71





Data reporting format and submission

- Extensible Markup Language (XML) format
 - Preferred means for bulk submission of data from Member States
 - In line with other GISIS modules
 - Complexity of implementation and ongoing support more manageable
 - Secretariat will develop an XML format for use by all Member States wishing to develop facilities for automated data submission to GISIS
- Additional user interface will be developed
 - Option for Member States wishing to manually input their annual data
- IMO Web Accounts system of permissioning
 - Secure access by specific designated users for the purposes of data upload
 - Separate read-only access to the data
 - Flexibly designed to any desired configuration
 - Applies both to system-to-system data transfer mechanisms and to direct interfaces



Data for non-Party ships

- Segregation of data for non-Party ships can be achieved within the GISIS framework
- Non-Party data submitters can be easily accommodated, via both the user interface and the automated exchange mechanism

Data validation and cross-referencing by the database

- Incoming data will be checked by the system to ensure expected format
- Data from the Ship Particulars module of GISIS (copy of the IHS World Fleet database) could be utilized to crossreference data inputted into the database
- ! Possible discrepancies as ship characteristics within the Ship Particulars module are up-to-date whereas fuel oil consumption data may be up to 18 months old when submitted





Granularity of submitted data

- Data of a numerical nature (ship particulars and fuel oil consumption figures) submitted to the nearest integer value in the units specified in the guidelines
 - Examples: "fuel oil consumption" rounded up/down to the nearest metric tonne; "distance travelled" rounded up/down to the nearest nautical mile; "hours underway" rounded up/down to the nearest hour

Database access

- IMO Web Accounts system: managing permissions and limiting access to the database as per specified requirements
- Management of individual accounts for access to anonymized data delegated to Member States
- Each user can be identified as:
 - data manager (able to input and edit data for their country); or
 - viewer (read-only access); or
 - any other level of access that might be identified



Anonymity of data made available to users

- Actual values submitted by the Member States will be held in the database and used for analysis and reporting by the Secretariat to the MEPC
- Datasets accessible to all Member States and other users:
 - Rounded to two significant digits

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Examples:
167,430 GT shown as 170,000 GT
32,710 GT shown as 33,000 GT
6,940 GT shown as 6,900 GT
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- IMO number and ship flag not shown
- Fuel oil consumption data provided in full without modification, to allow analysis
- With aforementioned anonymization data will not be attributable to specific ships



Data analysis and export

- GISIS module could provide basic statistical results based on pre-defined reporting requirements and according to criteria to be defined within the guidelines
- Could also be integrated with the GISIS Reporting Dashboard module for a general overview on the status of information submitted
- Bulk data could be exported for analysis using external tools (anonymized!)

Alerts and Administration contact person

- Automatic notifications and reminders can be incorporated as features in the module
- Contact person designated in each Administration for the database

Ice class

- Different categorizations used within IMO instruments including the Polar Code
- Notation from Polar Ship Certificate could be used in the database
 - ! Variety of notations making analysis of the data more complex



Demonstration of the Database (working prototype)



Global Integrated Shipping Information System

Welcome to the Members Area

Logged in as a data manager of a Party Administration



Ship Fuel Oil Consumption

Mandatory reporting of fuel oil consumption by ships.



Contact Points & Public Area

Electronic database for Contact Points.



Marine Casualties and Incidents ← Public Area

Data on marine casualties and incidents as defined by circulars MSC-MEPC.3/Circ.1.



Pollution Prevention Equipment ← Public Area

Equipment required by MARPOL 73/78 and anti-fouling systems compliant with the AFS Convention.



Facilitation of International Maritime Traffic & Public Area

Reports on stowaway incidents (FAL.2/Circ.50/Rev.2); Reports on unsafe practice associated with the trafficking or transport of migrants by sea (MSC/Circ.896/Rev.1).



Simulators ← Public Area

Information on simulators available for use in maritime training.



Maritime Security ← Public

Information communicated und (SOLAS chapter X1-2 and the I



Recognized Organizations

Information submitted by Meml
... MEPC/Circ.382.



Port Reception Facilities +

Data on the available port receptenerated waste.



Piracy and Armed Robbei

Reported incidents of piracy and



Inter-agency platform for smuggling by sea ← Public



Global SAR Plan ← Public Ar

Information on the availability



GISIS: Ship Fuel Oil Consumption

Consumption Records

Ship Fuel Oil Consumption

MEPC 70 (October 2016) adopted mandatory MARPOL Annex VI requirements for ships to record and report their fuel oil consumption. Under the amendments, ships of 5,000 GT and above will be required to collect fuel oil consumption data for each type of fuel oil they use, as well as, other specified data, including proxies for transport work.

The aggregated data will be reported to the flag State after the end of each calendar year and the flag State, having determined that the data have been reported in accordance with the requirements, will issue a Statement of Compliance to the ship.

Flag States will be required to subsequently transfer this data to an IMO Ship Fuel Oil Consumption Database.

This module provides the IMO Ship Fuel Oil Consumption Database which allows Member States to transfer ships' fuel oil consumption data and to download anonymised consumption records.

Add/view/export consumption records





GISIS: Ship Fuel Oil Consumption

△ Members Area > Ship Fuel Oil Consumption > Consumption records

Consumption Records

Consumption records

Add new record »

Export data

Reporting year: 2016 ✓ Export

Existing consumption records

Select a reporting year, then click on a record for details.

Reporting year: 2016 ✓

Flag Administration: Bahamas

Count: 2

IMO Number ↑	Ship type \$	Distance travelled (NM) \$	Hours underway (hours) \$	Fuel oil consumption total (metric tonnes) ‡
IMO 9706504	Gas carrier	80000	7000	5000
IMO 9717632	Containership	10000	800	800



GISIS: Ship Fuel Oil Consumption

△ Members Area > Ship Fuel Oil Consumption > Consumption records > Consumption record

Consumption record

Reporting year:	2016			
Start date:	2016-01-01			
End date:	2016-12-31			

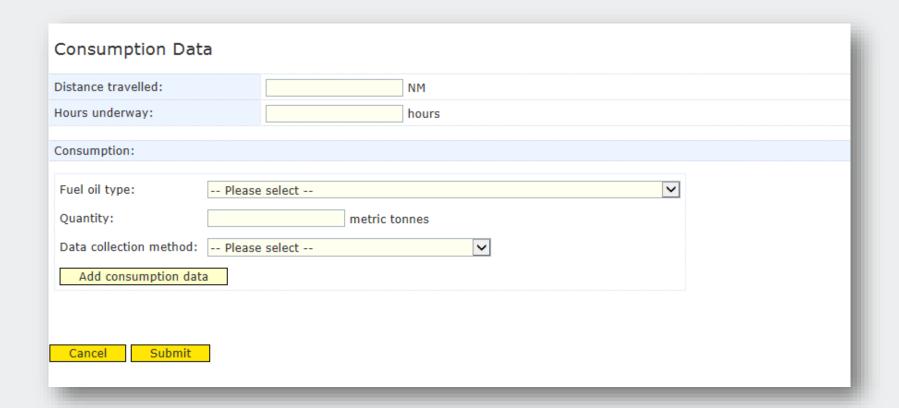
Ship Particulars

Flag Administration:	Bahamas							
IMO Number:	IMO Populate ship particulars							
Party to MARPOL Annex VI:	Yes							
1 Ship type:	Please select							
Gross tonnage:								
Net tonnage:								
Deadweight tonnage:								
Main propulsion power output:	kW							
Auxiliary engine(s) power output:	kW							
EEDI:								
Ice class:	Please select 🗸							

1 Ship type:	Please select	
Gross tonnage:	Bulk carrier	
Orosa tollilage.	Gas carrier	
Net tonnage:	LNG carrier	
	Tanker	
Deadweight tonnage:	Containership	
	General cargo ship	
Main propulsion power output:	Refrigerated cargo carrier	
	Combination carrier	
Auxiliary engine(s) power output:	Passenger ship	
FERT	Ro-ro cargo ship (vehicle carrier)	
EEDI:	Ro-ro cargo ship	
Ico class.	Ro-ro passenger ship	
Ice class:	Cruise passenger ship	
	Other	

Auxiliary engine(s) power output:		kW
EEDI:		
Ice class:	Please select Not applicable A B C	







Consumption Data								
Distance travelled:	NM							
Hours underway:	hours							
Consumption:								
Di Quantity: Lig	Please select Diesel/Gas Oil (MDO/MGO) - ISO 8217 Grades DMX through DMB (Cf: 3.206) Light Fuel Oil (LFO) - ISO 8217 Grades RMA through RMD (Cf: 3.151)							
Data collection method: Lic Lic Add consumption data Me Et	Heavy Fuel Oil (HFO) - ISO 8217 Grades RME through RMK (Cf: 3.114) Liquefied Petroleum Gas (LPG-Propane) (Cf: 3.000) Liquefied Petroleum Gas (LPG-Butane) (Cf: 3.030) Liquefied Natural Gas (LNG) (Cf: 2.750) Methanol (Cf: 1.375) Ethanol (Cf: 1.913) Other							

Consumption:

Fuel oil type: -- Please select --

Diesel/Gas Oil (MDO/MGO) - ISO 8217 Grades DMX through DMB (Cf: 3.206)

Quantity: Light Fuel Oil (LFO) - ISO 8217 Grades RMA through RMD (Cf: 3.151)

Heavy Fuel Oil (HFO) - ISO 8217 Grades RME through RMK (Cf: 3.114)

Data collection method: Liquefied Petroleum Gas (LPG-Propane) (Cf: 3.000)

Liquefied Petroleum Gas (LPG-Butane) (Cf: 3.030)

Add consumption data Liquefied Natural Gas (LNG) (Cf: 2.750)

Methanol (Cf: 1.375) Ethanol (Cf: 1.913)

Other

Consumption:

Fuel type Quantity Data collection method

Diesel/Gas Oil (MDO/MGO) - ISO 8217 Grades DMX through DMB (Cf: 3.206) 500 Method using BDNs Edit Delete

Fuel oil type: -- Please select --

Diesel/Gas Oil (MDO/MGO) - ISO 8217 Grades DMX through DMB (Cf: 3.206)

Quantity: Light Fuel Oil (LFO) - ISO 8217 Grades RMA through RMD (Cf: 3.151)

Heavy Fuel Oil (HFO) - ISO 8217 Grades RME through RMK (Cf: 3.114)

Data collection method: Liquefied Petroleum Gas (LPG-Propane) (Cf: 3.000)

Liquefied Petroleum Gas (LPG-Butane) (Cf: 3.030)

Add consumption data Liquefied Natural Gas (LNG) (Cf: 2.750)

Methanol (Cf: 1.375)

Ethanol (Cf: 1.913)

Other

Cancel Submit



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	6	Party	Bulk carrie	93000	92000	180000	19000	3000	N/A	Not applic	6000	12000	Diesel/Gas (3.206	800	Method using	3
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	10	Party	Tanker	11000	16000	17000	4400	o	9.52	Α	5700	5000	Heavy Fuel	3.114	800	Method using	g
28								-		1			Diesel/Gas			Method using	- 111
29																	
30	11	Party	Container	80000	80000	60000	50000	3000	22.5	Not applic	10000	800	Other: AAA	4.220	800	Method using	g
31	_					-	-										



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