MARPOL ANNEX VI

64th. Session of the Maritime Environment Protection Committee at the International Maritime Organization, 01 to 05 October 2012.

Regulations for the prevention of air pollution from ships

This document was prepared by Mr. John Fitzpatrick[1] who, on behalf of FAO, attended the 64th. Session of the Maritime Environment Protection Committee at the International Maritime Organization, 01 to 05 October 2012. It draws attention to aspects of GHG emission control that relate, wholly or in part, to capture fisheries and sea going aquaculture operations.

In his opening speech to the Committee, the Secretary-General of IMO highlighted the outcome the document of the Rio+20 Conference, entitled "The Future We Want", and referred to IMO's own contribution to the follow-up of the United Nations led work within the context of Sustainable Development Goals. To this end, the Secretary-General defined eight key elements on which IMO's Sustainable Development Goals for shipping and the maritime industries should focus. These are:

- safety culture and environmental stewardship;
- **energy efficiency**;
- new technology and innovation;
- maritime education and training;
- maritime security and anti-piracy actions;
- maritime traffic management;
- maritime infrastructure development; and
- implementation of global standards developed, adopted and maintained by IMO.

AIR POLLUTION AND ENERGY EFFICIENCY

Annex VI of MARPOL (as revised) provides Regulations for the Prevention of Air Pollution and Energy Efficiency and these regulations are supported by technical codes, such as the NOx Technical Code, as well as a series of guidelines, for example on-board exhaust gas-SOx cleaning systems. With regard to Nitrogen oxides, Regulation 13 applies to each marine diesel engine with a power output of more than 130kW installed on a ship.

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There are three stages in force each covering the various stages of development (and testing). **Tier I** refers to the operation of a marine diesel engine installed on a ship constructed after I January 2000 and prior to I January 2011.

Tier II prohibits the installation of a marine diesel engine on a vessel constructed on or after 2011 unless the emissions of nitrous oxides are within the limits set out in the Technical Code.

Tier III prohibits the operation of a ship constructed after 1 January 2016 unless it meets the emission level of nitrous oxides (calculated as the total weighted emission of NOx) and complies with the requirement for operation in emission control areas. There are, however, exceptions the first being a vessel of less than 24 metres in length (L as defined in the convention) and specifically designed for recreational purposes only. The second exception refers to a combined engine power of less than 750 kW if it is demonstrated that the ship cannot comply with Tier III criteria because of the design or construction limitations of the ship. The working group made some progress related to Tier III concerning testing procedures but at this stage more work has to be done.

Regarding Tier III, Japan made a presentation of the test procedures they had developed that included tests on a fisheries training vessel. However, with regard to fishing vessels it was pointed out that there had been insufficient room for the test equipment. Indeed, in small machinery spaces, it is unlikely that the current generation of equipment for such test procedures can be accommodated.

The Committee considered proposals related to the limitation on installed HP in ships[2] and the possible consequence of a reduction in the ability to maintain directional stability in the event of heavy weather. Following long debate, an Intercessional Correspondence Group on Energy-Efficient Measures for Ships was established to develop the draft guidelines for determining minimum propulsion power to enable safe manoeuvring in adverse conditions; improve further the draft guidance on treatment of innovative energy-efficiency technologies; and review the interim guidelines for the calculation of the coefficient *fw* for decrease of ship speed in representative sea conditions for trial use.

The Ship Energy Efficiency Management Plan (SEEMP) incorporates best practices for the fuel efficient operation of ships, such as better speed management throughout a ships voyage, for example. Such efficiency measures will significantly reduce fuel consumption and, consequently, CO2 emissions. The SEEMP was developed through detailed discussions between member states, and with the advice and assistance of the international shipping industry, through

[2] It should be kept in mind, that live fish and frozen fish carriers, may be classified as merchant ships. Similarly, many types of vessels used in direct support of aquaculture activities, particularly in the marine environment, may also be classified as merchant ships

a specialized working group on greenhouse gas emissions convened by the International Maritime Organization's (IMO) Marine Environment Protection Committee (MEPC). The working group also discussed measures such as an Energy Efficiency Design Index, which should help to ensure that new ships (not fishing vessels at this stage) are built as energy efficient as possible.

The subject of ozone depleting substances was also addressed but the discussion centered on such substances used to service ships. The conclusion being to request the IMO Secretariat to continue liaising with the Ozone Secretariat and provide an update on the work of the Montreal Protocol to the Committee. MEPC64/WP 11 [3] refers. Fisheries interest in this subject may extend to the very large fishing vessels and those vessels, classified as merchant ships that operate in support of fisheries activities.

ONSHORE POWER SUPPLY

The intention of IMO is to ensure that ports provide power connections at ports. It became clear during the discussion that although standards had been put forward by ISO, the majority view was that ports equipped with power supply points for ships are limited and that mandatory requirements should not be developed at this stage. Whereas the main interest of the industry relates to saving fuel when in port and complying with port rules regard to levels of exhaust gas discharge, there could well influence the design of fishing vessel harbours, especially where these are an integral part of a large port facility. The ISO guidelines on such connections are set out in TEC/ISO/IEEE 80005-1: 2012 and although not urgent at this stage, the subject should be kept in mind by fisheries administrations.

IMO MODEL COURSE ON ENERGY-EFICIENT OPERATION OF SHIPS

The Committee considered progress on the validation of the draft model course on energy-efficient operation of ships that had been developed by the World Maritime University. It was agreed that the secretariat should forward the draft model course to the ship validation group (for model courses) under the STCW Convention (Standards of Training, Certification and Watchkeeping) for review and comments. In evidently, over time this would have to be addressed under the STCW-F convention in relation to fishing vessel operations

REDUCTION OF GHG EMISSIONS FROM SHIPS

The Committee recalled that MEPC had noted that uncertainty exists in the estimates and projections of emissions from international shipping. It further noted that any update must be undertaken in accordance with the Subsidiary Body for Scientific and Technological advice of the UNFCCC. In addition it was stressed that there is an urgent need for information on the actual fuel consumption of ships using a bottom up (ship activity) approach as well as the top-down analysis used in the past by IMO. From a technical point of view, Fisheries Administrations should keep abreast of developments but in general, it could extend to, for

[3] MEPC Documents may be downloaded from the IMO website.

example Port State Control, especially due to progress made at the Cape Town Conference in relation to the Protocol to the Torremolinos Convention**.**

MARKET BASED MEASURES

IMO is addressing Market Based Measures one of which is referred to as the Efficiency Incentive Scheme (EIS). Effectively, the scheme involves ship owners and bunkers suppliers and the extent to which ships comply with the EEDI (energy efficiency design index) values. Document MEPC64/5/2 offers modifications to earlier work to establish the EIS that had been submitted by Denmark. Further work had been carried out by Japan (modifying the Danish proposal) in the form of draft legal text as set out in MEPC64/5/2. Japan also submitted document MEPC 64/INF/15 which provides a schematic outline of the modified Efficiency Incentive Scheme (EIS) as described in documentMEPC64/5/2.

It should be kept in mind, however, that the initiative targets international shipping (400GT and over), nevertheless Fisheries Administrations could follow progress without committing fishing vessels to the EEDI principle

Document MEPC64/Inf/14 discusses slow speed operations in relation to ships (as opposed to fishing vessels) and states, inter-alia, that slow steaming has significant multiple environmental benefits. It also claims that "a 10 per cent reduction in fleet average speed results in a 19 per cent reduction of CO2 emissions even after accounting for the emissions of additional ships needed to deliver the same amount of transport work and the emissions associated with building the necessary additional ships. Emissions of SOx, NOx and probably black carbon will decrease in line with fuel use and CO2 emissions. A ship speed reduction of 25 per cent leads to a reduction of main engine fuel consumption of approximately 58 per cent on a ship year basis. Fuel savings on a fleet level will be somewhat less as explained in the report. Lower ship speeds will also reduce "whale strikes and other harmful wildlife interactions" (related document MEPC64/58 by the Clean Shipping Coalition).
In a sense, the statement runs parallel with the FAO initiative not to run at full throttle. However, there is a distinct difference between fishing vessels and merchant ships, in that the latter steam at constant speed when under way. In theory, fishing vessels have a similar option from port to the fishing grounds and back but completion and markets demands, commonly call for full speed. Furthermore, when on the fishing grounds, any possibility to save fuel depends on the type of fishing operation to be performed.

ASSESSMENT OF AVAILABILITY OF FUEL OIT UNDER MARPOL ANNEX VI[4]

Regulation 14 of Annex VI refers to Sulphur oxides and particulate matter. The general requirements are that the sulphur content of any fuel oil used on board ships shall exceed the following limits:

.1 4.50% mm/m prior to 1 January 2o12;
.2 3.5% m/m on and after 1 January 2012; and
.3 0.5% m/m on and after 1 January 2020.

Requirements within emission control areas

[4] Regulation 18 of Annex VI of MARPOL addresses Fuel Oil Availability and Fuel Oil Quality.

While ships are operating within an emission control area, the sulphur content of fuel oil used on board ships shall not exceed the following limits:

.1 1.50% m/m prior to 1 July 2010:
.2 1,00 % m/m on and after 1 July 2010; and
.3 0.10 m/m on and after 1 January 2015.

Although not discussed in relation to the availability of "compliant fuel oils" it should be kept in mind that in parallel with the reduction of sulphur, it is necessary to develop and ensure the supply of new generations of lubricating oils. Currently, some lubricating oil manufacturers have made good progress with impressive reductions in wear to engine cylinders/piston rings and bearings. The downside is that they are more expensive. However, whereas many ships in support of fisheries and aquaculture ships may already be included in the IMO initiative, it could be a matter of concern, as and when, fishing vessels are targeted.

Discussion on this matter was inconclusive and led to the Committee agreeing that this matter should be reconsidered at a future session and invited interested delegations to submit proposals to MEPC 66.

TECHNICAL CO-OPERATION ACTIVITIES FOR THE PROTECTION OF THE MARINE ENVIRONMENT

Many delegations stressed the need for a build up in the IMO Technical Cooperation Programme pointing out that legislation to implement the technical measure that are under development, particularly in relation to energy efficiency and GHG should not precede transfer of technology. A working group was established and one of the concerns raised was in relation *Intellectual Property Rights*, in that the demand was not simply how to adapt to new technology. However, although legal issues would have to be addressed, strengthening of technical co-operation was encouraged.

IDENTIFICATION AND PROTECTION OF SENSITIVE AREAS AND PARTICULARLY SENSITIVE SEA AREAS

The Saba Bank, in the north-eastern Caribbean area of the Kingdom of the Netherlands, was designated as a Particularly Sensitive Sea Area (PSSA), following approval, in principle, at the previous session. Associated Protective Measures were approved by the Sub Committee on Safety of Navigation (NAV), at its meeting in July 2012, namely, the establishment of a new mandatory "no anchoring' area "for all ships and a new "area to be avoided'' for ships of 300 gross tonnage or over in the PSSA.

There are also Emission Control Areas that currently carry a limitation of the sulphur content of fuel oil. This of course requires that ships of States bordering emission control area have access to low sulphur fuel.