HARMFUL AQUATIC ORGANISMS IN BALLAST WATER

Draft International Convention for the Control and Management of Ships Ballast Water and Sediments

Submitted by the International Sailing Federation (ISAF)

SUMMARY

Executive summary: This document comments further on Regulation A-5 in the Annex to the draft Convention that has not yet been agreed and contains a draft of Guidelines in support of the Convention.

Action to be taken: Paragraph 11

Related documents: MEPC-IBWWG 2/2/8 and MEPC 49/2/3

Introduction

1 ISAF is appreciative that the Intersessional Ballast Water Working Group realized that a small number of small ships, especially pleasure yachts would find it difficult to comply with the detailed provisions in the Annex to the draft Convention in terms appropriate to much larger vessels.

Application of the Convention to Pleasure Yachts

2 The re-draft of regulation A-5, which has yet to be fully agreed, still concerns ISAF. Paragraph 2.41 of the report of the Second Intersessional Meeting of the Ballast Water Working Group suggests that the definition of ‘pleasure yacht’ could be contained in the Guidelines to be developed by the organisation. ISAF submits that no further definition is needed. The phrase ‘pleasure yacht’ is used without further definition in the SOLAS and STCW Conventions and has not caused any difficulty in the past.

3 The use of the words ‘not engaged in trade’ is likely to cause difficulty. They have been imported from these Conventions, which are different in scope and intent from the proposed document. It has been held in Courts in the United Kingdom and the United States that the phrase ‘engaged in trade’ encompasses a vessel that is chartered or otherwise used for profit. This means that a vessel of a particular design not used for reward would only have to comply with guidelines whilst a vessel of identical design used for similar purposes but on charter would be subject to the full requirements of the Convention. It means that the application of regulation A-5 would depend on the intentions of the owner rather than by the actual design of the vessel. A pleasure yacht that is chartered for use for a holiday or as part of a financial arrangement for...
participation in a long distance race could be regarded as being ‘engaged in trade’ and therefore obliged to comply with the full rigours of the Convention.

**Dynamics of Ballast Water use in a sailing yacht**

4 It might be helpful to give some explanation of the use of Ballast Water in a Sailing vessel. The dynamics of ballast water trim are different from those to be found in power driven commercial vessels. It is necessary for the trim and stability of a sailing yacht designed or constructed to use ballast water for the ballast to be trimmed as frequently as the direction and force of the wind changes. A sailing yacht will periodically alter course to bring the wind from one side of the boat to the other, a process called tacking. Ballast water on pleasure yachts is continually pumped in and out and transferred from side to side as the boat tacks and the wind changes. Typically 60ft. boats of the type that undertake round the world sailing (Volvo 60’s) have 4 tonnes of ballast water; larger boats have 6-8 tonnes; others have 4 tanks of 1.5 tonnes. A yacht may be changing tacks 6-8 times a day and sometimes 20-30 times. The number of tacks may well be less in a large cruising yacht on an ocean passage.

5 Whenever a sailing yacht tacks the ballast water will have to be transferred from tanks on the windward side of the hull to the other. In most boats part of the transfer will be by gravity and the rest will be taken up from the sea. The surplus in the tanks that have newly become on the leeward will be discharged. This process will be repeated each time the vessel changes tack. Whenever the wind moves aft the yacht will discharge most of the ballast water from all tanks to lighten the hull. In contrast a tanker, bulk carrier or other powered vessel using ballast water for stability will trim its ballast water tanks only when cargo is loaded or discharged. Dependent on the weather conditions it is possible that at least 95% of the ballast water carried by a sailing yacht will have been wholly exchanged in the first hours of any passage.

**Treatment**

6 The small size of ballast water tanks in a yacht will make mechanical or UV treatment impracticable to produce ballast water to the Convention definition. Filtration will also not be practicable as the small size of the filters will delay the transfer time between tanks.

7 Any treatment will have to be chemically based. The available chemicals are toxic to marine life but degrade over a period to time to become less toxic. The main issues for pleasure yachts are:

   .1 Time required for biocide to be effective: Biocides being investigated for ballast tanks in large ships are assuming a long residence time of the water in the tank. This is not the case in the smaller pleasure yachts. Residence time needed for 100% mortality using the biocide Peraclean is advertised at highest recommended concentration as 8 hours (this can change with increased concentration and environmental conditions); and

   .2 Time required for the toxicity of the biocide used to be reduces to ‘environmentally acceptable standards’ (i.e., causing less damage that it solves).

8 Chlorine is the most widely used biocide for water and wastewater treatment, swimming pools and household bleach. There are already massive discharges from these sources into the marine environment. Chlorine is also a naturally occurring substance in the marine environment. Additional discharges from the few ocean going pleasure yachts, which have ballast water tanks,
would be minimal. It may have a local impact if discharged at high concentrations in sensitive or enclosed areas:

.1 Chlorine when added to water dissociates into hypochlorous acid (HOCL) and Hypochlorite Ion (OCL). HOCL destroys organisms within 2 seconds whereas OCL can take 25-30 minutes. The ratio of HOCL to OCL is dependant on the pH (acidity) of the water. Suggested concentrations required for disinfection are around 5mg/l of free chlorine (US, Ballast Water Working Group for the Great Lakes). This concentration in a 4 tonne (4000 l) tank of water will be obtained by adding 20 g of free chlorine. At a pH of 8.5 (seawater) this is achieved by adding 1 litre of commercial (14%) sodium hypochlorite. Assuming the discharge of the maximum of 8 tonnes and no neutralisation prior to discharge the maximum amount of chlorine discharged into the marine environment would be 40g of free chlorine. When discharged into a minimum of 20 m³ receiving waters, a concentration of 2mg/l would be reached which has been identified as ‘safe to discharge’ into marine waters based on a continuous wastewater stream (Tomascik).

.2 To ensure safe discharge into enclosed waters, Chlorine can be neutralised prior to discharge by adding chemicals such as dichlor granual used in swimming pools lower the amount of available HOCL. This is an alkali and acts to increase the pH of the water.

9 The specifics of the quantities and identity of the chemicals will change over time as research continues. The guidelines have been drafted bearing this in mind.

Guidelines

10 ISAF has prepared a draft of Guidelines that take into account the particular requirements of sailing yachts for the assistance of the Committee and these are contained in the Annex.

Action requested of the Committee

11 The Committee is requested to take the information in this paper and in MEPC-IBWWG 2/2/8 into account when considering the draft Convention.

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ANNEX

GUIDELINES FOR BALLAST WATER MANAGEMENT FOR PLEASURE YACHTS

APPLICATION

1 These guidelines apply to all ships, however propelled, which are:
   .1 Pleasure yachts or other ships used solely for recreation, competition or tourism which make international voyages and which are constructed or designed to carry ballast water;
   .2 are less than 50 meters in overall length; and
   .3 carry less than 8 metric tons of Ballast Water.

EXCEPTIONS

2 All ships to which these Guidelines apply should comply therewith, except when:
   .1 prevented by stress of weather; and
   .2 necessary for ensuring the safety of the ship in an emergency situation or for saving life at sea.

BASIC PRINCIPLES

3 Ballast Water taken up in one area of territorial water shall not be exchanged in the territorial waters of another State unless the distance between the two is less than 200 miles.

4 Whenever Ballast Water exchange occurs more than 200 miles from the port of departure in the EEZ of another State this must be done with an efficiency of 95% of volumetric exchange of Ballast Water unless the Ballast Water has been treated in accordance with these Guidelines.

5 All ships should, so far as is practicable, avoid the uptake, transfer and discharge of Harmful Aquatic Organisms and Pathogens, as well as sediments that may contain such organisms.

DISCHARGE OF BALLAST WATER

6 Ballast Water may be discharged in whole or part:
   .1 within 200 miles of the coastline of the State of the port of departure;
   .2 more than 200 miles from the nearest coastline;
   .3 at any lesser distance from the nearest coastline if it has been treated in accordance with these Guidelines.
   .4 Except as permitted under paragraph 3.1 Ballast Water shall not be discharged within 50 miles of the coastline of the port of final destination unless during the voyage the ship has performed Ballast Water exchange with an efficiency of 95
percent of volumetric exchange of Ballast Water or the Ballast Water has been treated in accordance with these Guidelines.

.5 Ballast water taken up outside a Special Area should be discharged only if:

.1 it has been taken up more than 200 miles from the nearest coastline, or 
.2 it has been treated in accordance with these Guidelines.

Ballast Water taken up within a Special Area may be discharged anywhere within that Special area

TREATMENT OF BALLAST WATER

7 The chemical used in any chemical treatment must be effective within:

.1 a short exposure time;
.2 a salinity range of freshwater to seawater, and
.3 a temperature range of 4°C to 25°C.

8 There should be no remaining toxic effects or persistent metabolites in Ballast Water to be discharged or it should be treated in such a way that the risk of harm to the environment, human health, property and resources has been minimised.

9 It is recommended that discharge of treated Ballast Water be carried out in the open sea where rapid mixing is possible.

AREAS TO AVOID

10 All ships should avoid, so far as is practicable, uptake of Ballast Water in areas that are:

.1 known to contain outbreaks, infestations, or populations of Harmful Aquatic Organisms and Pathogens; and
.2 nearby sewage outfalls.

CLEANSING OF TANKS

11 Yachts that do not regularly exchange Ballast Water should chemically clean the ballast water tanks every 12 months and properly dispose of any sediment.