



Economic and Social Council

Distr.: General
17 September 2014
English
Original: English, French and
English

Economic Commission for Europe

Inland Transport Committee

Working Party on Inland Water Transport

Fifty-eighth session

Geneva, 12–14 November 2014

Item 7 (b) of the provisional agenda

**Standardization of technical and safety requirements in inland navigation:
Recommendations on Harmonized Europe-Wide Technical Requirements
for Inland Navigation Vessels (Resolution No. 61, revised)**

Amendments to Resolution No. 61, revised

Note by the secretariat

I. Mandate

1. This document is submitted in line with cluster 5: Inland Waterway Transport, paragraph 5.2 of the programme of work 2014–2015 (ECE/TRANS/2014/23) adopted by the Inland Transport Committee on 27 February 2014.
2. At its fifty-seventh session, the Working Party on Inland Water Transport adopted amendments to the annex to Resolution No. 61, revised (ECE/TRANS/SC.3/195, para. 35). The Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation (SC.3/WP.3), at its forty-fourth and forty-fifth sessions, considered and approved additions and amendments to the annex of Resolution No. 61 (ECE/TRANS/SC.3/172/Rev.1, Amends.1 and 2) prepared by the Group of Volunteer Experts. These aimed at further development of the annex to Resolution No. 61 in the light of existing European Union and River Commissions' requirements applicable to inland navigation vessels (ECE/TRANS/SC.3/WP.3/88, paras. 52, 54, 56, 58 and ECE/TRANS/SC.3/WP.3/90, paras. 41, 49, 51). SC.3/WP.3 also agreed that the provisions of sections I and II of Annex 6 to CEVNI (sound signals) should be incorporated into Resolution No. 61 (ECE/TRANS/SC.3/WP.3/88, para. 59).
3. The Working Party is invited to consider and adopt as pending the draft additions and amendments to the annex to Resolution No. 61, as presented below, prior to adopting a new package of amendments to Resolution No. 61. The text to be deleted is shown as strikethrough and newly proposed text appears in bold.

II. Amendments to the annex to Resolution No. 61

A. Amendment to chapter 4, “Safety clearance, freeboard and draught marks”

4. *Amend chapter 4 as follows*

4-1 GENERAL

4-1.1 This chapter specifies the minimum freeboard for inland waterway vessels. It also contains requirements concerning the indication of the freeboard mark **and draught marks**.

4-1.2 This chapter assumes that the nature and stowage of the cargo, ballast, etc., are such as to ensure adequate stability and as to obviate any excessive structural fatigue.

4-1.3 Freeboards as prescribed in this chapter shall be assigned on the assumption, first, that navigation will cease when weather conditions are such that the maximum wave height defining the zone or zones in which a vessel is to navigate may be exceeded, and second that in such conditions vessels already under way will seek shelter as quickly as possible.

4-1.4 The Administration may consider it sufficient if the vessel has been built and maintained in conformity with the rules of a recognized Classification Society.

4-2 TYPES OF VESSELS

For the purpose of this chapter, vessels shall be divided into three types:

- (i) ~~Type A~~— Decked vessels;
- (ii) ~~Type B~~— Tankers;
- (iii) ~~Type C~~— Open vessels.

~~Type A~~ Decked vessels: Decked vessels are vessels whose hatch covers are satisfactorily strong, rigid, watertight for zone 1 and spray proof for zones 2 and 3.

~~Type B~~ Tankers and similar vessels: These vessels have only small openings giving access to the tanks, the openings being closed by steel or equivalent covers with watertight fittings. Such vessels have the following characteristics:

- (i) Very high watertight integrity of the exposed deck;
- (ii) Very high resistance to flooding, through low permeability of the loaded compartments and through the degree of subdivision applied in general.

~~Type C~~ Open vessels: Open vessels are either vessels whose hatch covers are not satisfactorily strong, rigid, sprayproof or vessels whose cargo hatchways are open.

~~4-3 APPLICATION AND DEROGATIONS~~

~~4-3.1 The maximum draught level shall be so determined that both the freeboard requirements and the safety distance requirements are observed. For safety reasons, however, the Administration may prescribe a higher figure for the freeboard.~~

~~4-3.2 Vessels so constructed that application of the provisions of this chapter is unwarranted or impracticable shall be assigned freeboards by the Administration in such a way that the safety conditions are equivalent to those of this chapter.~~

~~4.3.3 In the case of zone 1, derogations from the conditions of assignment of freeboard may be allowed to vessels to which a freeboard in excess of the minimum freeboard is assigned, provided that the safety conditions are deemed satisfactory by the Administration.~~

~~4.4 — DETERMINATION OF FREEBOARDS~~

~~4.4.1 — General~~

~~4.4.1.1 Deck line~~

~~The deck line is the upper edge of a horizontal rectangle 300 mm long and 25 mm wide. This rectangle shall be marked amidships on each side of the hull, and its upper edge shall normally pass through the point where the continuation outwards of the upper surface of the freeboard deck intersects the outer surface of the shell amidships. However, the deck line may also be marked at a different height provided that the freeboard is corrected accordingly.~~

4-3 DRAUGHT MARKS AND FREEBOARD MARK

4-3.1 The plane of maximum draught shall be determined in such a way that the specifications concerning minimum freeboard and minimum safety clearance are both met. However, for safety reasons, the competent authority may lay down a greater value for the safety clearance or freeboard. The plane of maximum draught shall be determined at least for zone 3.

4-3.2 The plane of maximum draught shall be indicated by means of highly visible, indelible draught marks.

4-3.3 Vessels shall have at least three pairs of draught marks, of which one pair shall be centrally located and the two others located, respectively, at a distance from the bow and stern that is equal to roughly one-sixth of the length.

However,

- (i) where a vessel is less than 40 m in length it will suffice to affix two pairs of marks at a distance from the bow and stern, respectively, that is equal to a quarter of the length;
- (ii) where vessels are not intended for the carriage of goods, a pair of marks located roughly halfway along the vessel will suffice.

4-3.4 The draught marks for Zone 3 shall consist of a rectangle 300 mm long and 40 mm deep, the base of which is horizontal and coincides with the plane of the maximum authorized draught. Any differing draught marks shall include such a rectangle.

4-3.5 Marks or indications which cease to be valid following a further inspection shall be deleted or marked as being no longer valid under the supervision of the Administration. Draught marks may only be replaced under the supervision of the Administration.

4-3.6 Where a vessel has been measured in implementation of the 1966 Convention on the Measurement of Inland Navigation Vessels and the plane of the measurement marks meets the requirements of this Resolution, those measurement marks shall take the place of the draught marks; this shall be mentioned in the Ship's certificate.

4-3.7 For vessels operating on zones of inland waterways other than Zone 3 (Zones 1, 2 or 4) the bow and stern pairs of draught marks provided for in 4.3.3 shall be supplemented by adding a vertical line to which one or, in the case of several zones,

several additional draught lines 150 mm long shall be affixed towards the bow, in relation to the draught mark for Zone 3.

This vertical line and the horizontal line shall be 30 mm thick. In addition to the draught mark towards the bow of the vessel, the relevant zone numbers shall be indicated in lettering 60 mm high × 40 mm deep (see Figure 4-3.7).

The lower edge of each freeboard draught line shall correspond to the freeboard prescribed plane of maximum authorised draught for the navigation zone concerned.

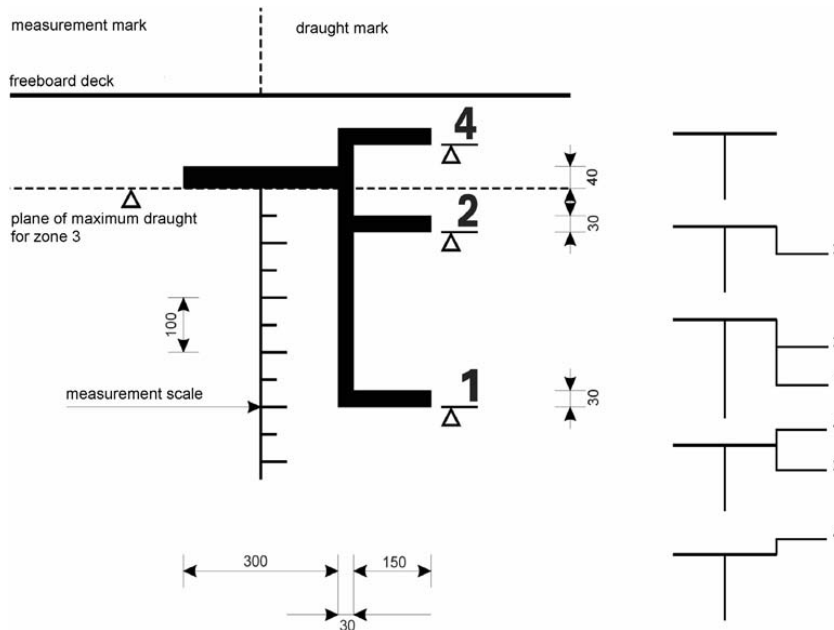


Figure 4-3.7
Measurement/draught scale

4.4.1.2 Freeboard mark

~~4.4.1.2 4-3.8~~ The freeboard mark for vessels for zone 3 consists of a horizontal band of 300 mm long and 40 mm width. The centrally located measurement/draught scale for zones 1 and 2 may be replaced by a freeboard mark.

The freeboard mark for zones 1 and 2 shall consist of a ring intersected through its centre by a horizontal line which shall be supplemented if necessary by additional freeboard lines.

The width of the ring and of all the other lines of the freeboard mark shall be 30 mm; the outer diameter of the ring shall be 200 mm; the length of the horizontal line intersecting the ring shall be 300 mm; and the size of the numerals designating the zones shall be 60 x 40 mm (Figure 4-3.8).

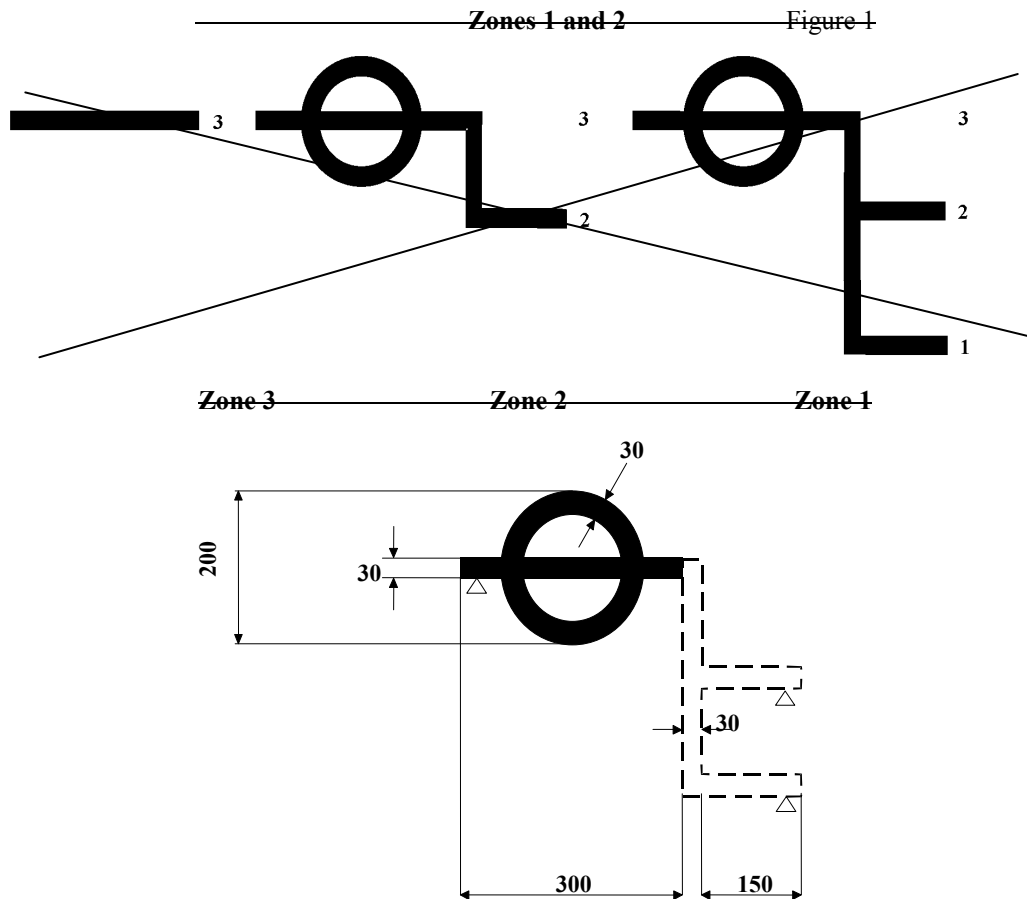


Figure 4-3.8

Freeboard mark

The centre of the ring shall be placed amidships. The lower edge of the horizontal line which intersects the ring shall pass through the centre of the ring and shall constitute the freeboard line

If the vessel is intended to navigate in several navigation zones, a vertical line and additional freeboard lines 150 mm in length shall be applied forward of the centre of the ring.

~~The lower edge of each freeboard line shall correspond to the freeboard prescribed for the navigation zone concerned.~~

~~If the vessel is measured in accordance with the Convention on the Measurement of Inland Navigation Vessels, it shall bear, in addition to the freeboard mark, a measurement mark in accordance with the requirements of this Convention.~~

The freeboard mark and the measurement draught mark may be combined. In this case, the width of the freeboard mark line rectangle (the width of the upper line if there are a number of freeboard marks) must be 40 mm.

4-3.9 Deck line and freeboard mark

The deck line is the upper edge of a horizontal rectangle 300 mm long and 25 mm wide. ~~When the centrally located measurement/draught scale has been replaced by a freeboard mark, the deck line must be indicated by the upper edge of a horizontal rectangle 300 mm long and 25 mm wide.~~ This rectangle shall be marked amidships on

each side of the hull, and its upper edge shall normally pass through the point where the continuation outwards of the upper surface of the freeboard deck intersects the outer surface of the shell amidships. However, the deck line may also be marked at a different height provided that the freeboard is corrected accordingly. **The distance between the upper edge of the deck line and the freeboard mark constitutes the freeboard as mentioned in section 4-4.1.**

4-4 FREEBOARD

4-4.2 4-4.1 Minimum freeboard in zones 1 and 2

4-4.2.1 4-4.1.1 Minimum freeboard (F) for ~~vessels of Type A~~ **decked vessels**

Length of the vessel [m]	Minimum freeboard (F) [mm]	
	Zone 1	Zone 2
≤ 30	250	250
40	340	300
50	440	340
≥ 60	570	340
70	570	340
≥ 80	570	340

Note: In this and all subsequent tables, the values for the intermediate lengths of vessels shall be obtained by linear interpolation.

4-4.2.2 4-4.1.2 Minimum freeboard (F) for ~~of type B~~ **tankers and flush deck vessels**

Length of the vessel [m]	Minimum freeboard (F) [mm]	
	Zone 1	Zone 2
≤ 30	180	160
40	250	220
50	330	220
≥ 60	420	220
70	420	220
≥ 80	420	220

~~4-4.2.3 The minimum freeboard of flush deck vessels should be obtained in the manner indicated for the vessel of tankers.~~

4-4.2.4 4-4.1.3 The minimum freeboard for **open** vessels ~~of Type C, regardless of length,~~ should be not less than:

- For zone 1 – 1 000 mm
- zone 2 – 600 mm.

Furthermore, the sum of the freeboard and the height of coamings for these vessels must be not less than:

- For zone 1 – 1 200 mm
- zone 2 – 1 000 mm.

~~4-4.2.5~~ **4-4.1.4** The Administration may authorize corrections for the freeboard for vessels with poop, sheer and forecastle, providing that such corrections are calculated in conformity with the rules of the Administration or of a recognized Classification Society.

4-4.2 Minimum freeboard in zone 3

4-4.2.1 The basic freeboard of vessels with a continuous deck without superstructures and sheer shall be 150 mm.

4-4.2.2 The freeboard of vessels with sheer and superstructures shall be calculated using the following formula:

$$F = 150 (1 - \alpha) - \frac{\beta_v \cdot Se_v + \beta_a \cdot Se_a}{15} \quad [\text{mm}]$$

where:

α is a correction coefficient that takes account of all of the superstructures involved;

β_v is a coefficient for correcting the effect of the forward sheer resulting from the presence of superstructures in the forward quarter of length L of the vessel;

β_a is a coefficient correcting the effect of the aft sheer resulting from the presence of superstructures in the aft quarter of length L of the vessel;

Se_v is the effective forward sheer in mm;

Se_a is the effective aft sheer in mm.

4-4.2.3 The coefficient α is calculated using the following formula:

$$\alpha = \frac{\sum le_a + \sum le_m + \sum le_v}{L}$$

where:

le_m is the effective length, in m, of a superstructure located in the median part corresponding to half of length L of the vessel;

le_v is the effective length, in m, of a superstructure in the forward quarter of vessel length L;

le_a is the effective length, in m, of a superstructure in the aft quarter of vessel length L.

The effective length of a superstructure is calculated using the following formulae:

$$le_m = 1 \left(2.5 \cdot \frac{b}{B} - 1.5 \right) \cdot \frac{h}{0.36} \quad [\text{m}]$$

$$le_v, le_a = 1 \left(2.5 \cdot \frac{b}{B_1} - 1.5 \right) \cdot \frac{h}{0.36} \quad [\text{m}].$$

where:

l is the effective length, in m, of the superstructure involved;

b is the width, in m, of the superstructure involved;

B_1 is the width of the vessel, in m, measured on the outside of the vertical sideplates at deck level halfway along the superstructure involved;

h is the height, in m, of the superstructure involved. However, in the case of hatches, h is obtained -y reducing the height of the coamings by half of the safety distance according to 4-5.2 and 4-5.3. In no case will a value exceeding 0.36 m be taken for h .

If $\frac{b}{B}$ or $\frac{b}{B_1}$ is less than 0.6, the effective length l_e of the superstructure will be

zero.

4-4.2.4 Coefficients β_v and β_a are calculated using the following formulae:

$$\beta_v = l - \frac{3 \cdot l e_v}{L}$$

$$\beta_a = l - \frac{3 \cdot l e_a}{L}$$

4-4.2.5 The effective aft/forward sheers Se_v/Se_a are calculated using the following formulae:

$$Se_v = S_v \cdot p$$

$$Se_a = S_a \cdot p$$

where:

S_v is the actual forward sheer, in mm; however S_v shall not be taken to be more than 1 000 mm;

S_a is the actual aft sheer, in mm; however S_a may not be taken to be more than 500 mm;

p is a coefficient calculated using the following formula:

$$p = 4 \cdot \frac{x}{L}$$

x is the abscissa, measured from the extremity of the point where the sheer is $0.25 S_v$ or $0.25 S_a$ (see figure 4-3.9).

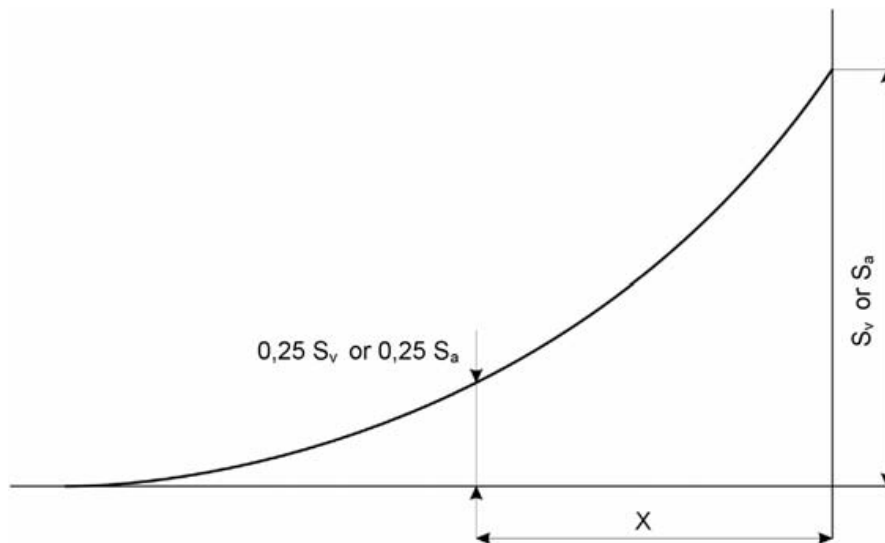


Figure 4-3.9

However, coefficient p will not be taken to be more than 1.

4-4.2.6 If $\beta a \cdot Se_a$ is greater than $\beta v \cdot Se_v$, the value of $\beta a \cdot Se_a$ will be taken as being the value for $\beta v \cdot Se_v$.

4-4.2.7 In view of the reductions referred to in 4-4.2.2 – 4-4.2.6 the minimum freeboard shall not be less than 0 mm.

4-5 SAFETY CLEARANCE

4-4.3.11 4-5.1 For ~~vessels of type A and type B~~ **decked vessels and tankers**, the safety clearance as defined in 1-2 must not be less than 600 mm for zone 2.

For ~~vessels of type C~~ **open vessels**, as well as other vessels navigating with open holds, this distance shall be increased ~~to~~ **by** 400 mm in zone 2. However, this increase applies only to the coamings of open holds.

4-4.4.1 4-5.2 For **decked vessels and tankers** of ~~types A and B~~ **navigating in zone 3**, the safety clearance must not be less than 300 mm.

4-4.4.2 4-5.3 For **open vessels** ~~of the type C~~ **navigating in zone 3**, the safety clearance shall be increased in such a way that openings that cannot be closed by spray-proof and weathertight devices shall be at least 500 mm from the plane of maximum draught ~~must not be less than 500 mm~~.

4-4.3 4-6 ARRANGEMENT OF OPENINGS AND COAMINGS

4-4.3.1 4-6.1 All outside doors of superstructure, deckhouses and companionways, situated on the freeboard deck shall be watertight on vessels in zone 1 and sprayproof on vessels in zones 2 and 3.

4-4.3.2 4-6.2 The coamings of hatchways, companionways and access openings to superstructures shall be not less than 300 mm high on vessels in zone 1 and 150 mm on vessels in zone 2.

4-4.3.3 4-6.3 If the height of the coamings is less than that required by this chapter, the minimum freeboard height shall be increased by the difference between the height required in 4-4.3.2 4-6.2 and the actual height of the coamings.

~~4.4.3.4~~ **4-6.4** The freeboard height may not be reduced owing to an increase in the height of coamings below the figure indicated in ~~4.4.3.2~~ **4-6.2**.

~~4.4.3.5~~ — Exposed cargo hatchways and other hatchways on the freeboard deck shall be fitted with watertight closures on vessels in zone 1 and sprayproof closures on vessels in zones 2 and 3.

~~4.4.3.6~~ **4-6.5** Ventilator heads on the exposed parts of the freeboard deck shall be fitted with a strong steel coaming of a height not less than that required for hatchway coamings. Ventilator heads for vessels in zone 1 must have watertight closures.

~~4.4.3.7~~ **4-6.6** Pipe outlets in the ship's sides below the freeboard deck shall be fitted with efficient and accessible devices to prevent water from entering the vessel.

~~4.4.3.8~~ **4-6.7** On vessels in zone 1, side scuttles in spaces below the freeboard deck, windows in superstructures, deckhouses and companionways and windows in skylights on the freeboard deck ~~shall~~ **must** be watertight. In addition, side scuttles in spaces below the freeboard deck ~~shall~~ **must** be provided with permanently attached deadlights. The distance between side scuttles in the shell and the maximum draught level ~~shall~~ **must** not be less than 300 mm.

~~4.4.3.9~~ **4-6.8** Skylights and windows must be of sturdy construction.

~~4.4.3.10~~ **4-6.9** On vessels in zone 2, skylights and windows must be fitted with sprayproof covers which shall be permanently attached if the lowest part of the openings falls within the safety clearance ~~prescribed for the coamings of uncovered holds~~ (see ~~4.4.3.11~~ **4-5.1**). In this case, the height (h) of the superstructures in which the openings are provided is limited to the lowest point of these openings.

~~4.4.3.11~~ — For vessels of type A and type B, the safety clearance as defined in ~~1.2~~ must not be less than 600 mm for zone 2.

~~For vessels of type C, as well as other vessels navigating with open holds, this distance shall be increased to 400 mm in zone 2. However, this increase applies only to the coamings of open holds.~~

~~4.4.3.12~~ **4-6.10** The covers of Kingston valves and ice boxes must be watertight.

~~4.4.3.13~~ **4-6.11** The scuppers and freeing ports in bulwarks shall be of sufficient size to drain the decks of shipped water.

4-7 SPECIAL REQUIREMENTS FOR SAFETY CLEARANCE AND FREEBOARD IN ZONE 4

4-7.1 By way of derogation from ~~4-5.2~~ and ~~4-5.3~~, the safety clearance of doors and openings other than hold hatches for vessels navigating on zone 4 waterways is reduced as follows:

- (i) for openings which can be closed spray-proof and weathertight, to 150 mm;
- (ii) for openings which cannot be closed spray-proof and weathertight, to 200 mm.

4-7.2 By way of derogation from ~~4-4.2.1~~, the minimum freeboard of vessels navigating on zone 4 waterways is 0 mm, if the safety clearance according to ~~4-7.1~~ is respected.

4-8 MAXIMUM LOADED DRAUGHT OF VESSELS WHOSE HOLDS ARE NOT ALWAYS CLOSED SO AS TO BE SPRAY-PROOF AND WEATHERTIGHT

If the plane of maximum draught for zone 3 of a vessel is determined by assuming that the holds may be closed in such a way as to make them spray-proof and weathertight, and if the distance between the plane of maximum draught and the upper edge of the coamings is less than 500 mm, the maximum draught for sailing with uncovered holds shall be determined.

The following statement shall be entered on the ship's certificate:

“Where the hold hatches are totally or partly uncovered the vessel may only be loaded up to ... mm below the draught marks for zone 3.”

~~4.4.4 Special requirements for freeboard in zone 3~~

~~4.4.4.1 For vessels of types A and B, the safety clearance must not be less than 300 mm.~~

~~4.4.4.2 For vessels of the type C, the safety clearance must not be less than 500 mm.~~

~~4.4.4.3 The basic freeboard of vessels with a continuous deck without superstructures and sheer shall be 150 mm.~~

~~4.4.4.4 The Administration may authorize a correction for the freeboard for vessels with superstructures and sheer providing that such correction is calculated in conformity with the rules of the Administration or of a recognized Classification Society.~~

~~In view of the reduction referred to above the minimum freeboard shall not be less than 0 mm.~~

B. Amendment to chapter 15A, “Specific requirements for passenger sailing vessels”

5. *Add to chapter 15A the text below:*

15A-1 APPLICATION OF CHAPTER 3 TO CHAPTER 23

In addition to the provisions of chapter 3 to chapter 23, the requirements in this chapter shall apply to passenger sailing vessels.

15A-2 EXCEPTIONS FOR CERTAIN PASSENGER SAILING VESSELS

15A-2.1 For passenger sailing vessels having an L_{WL} not exceeding 45 m and a maximum permissible number of passengers not exceeding L_{WL} in whole meters, the following provisions shall not apply:

- (i) Paragraph 3-6.1 provided that anchors are not transported in hawse pipes;
- (ii) Paragraph 10-2.1, fifth bullet, with regard to length;
- (iii) Paragraph 15-8.3(i);
- (iv) Paragraph 15-14.6.

15A-2.2 By way of derogation from paragraph 15A-2.1, the number of passengers may be raised to 1,5 times the L_{WL} in whole meters, if sails, rigging and deck fittings so permit.

15A-3 STABILITY REQUIREMENTS FOR VESSELS UNDER SAIL

15A-3.1 For the calculation of the heeling moment according to paragraph 15-3.3, the furled sails shall be taken into account when determining the centre of gravity of the vessel.

15A-3.2 Taking into consideration all load conditions according to paragraph 15-3.2, and using a standard arrangement of sails, the heeling moment caused by wind pressure shall not be so high as to exceed a heeling angle of 20°. At the same time

- (i) a constant wind pressure of 0.07 kN/m² shall be applied for the calculation,
- (ii) the residual safety clearance shall be at least 100 mm, and
- (iii) the residual freeboard shall not be negative.

15A-3.3 The righting lever of static stability shall

- (i) reach its maximum value at a heeling angle of 25° or over,
- (ii) amount to at least 200 mm at a heeling angle of 30° or over,
- (iii) be positive at a heeling angle of up to 60°.

15A-3.4 The area under the righting lever curve shall not be less than

- (i) 0.055 mrad up to 30°;
- (ii) 0.09 mrad up to 40° or at the angle at which an unprotected opening reaches the water surface and which is less than 40°.

Between

- (iii) 30° and 40°, or
- (iv) 30° and the angle at which an unprotected opening reaches the water surface and which is less than 40°,

this area shall not be less than 0.03 mrad.

15A-4 SHIPBUILDING AND MECHANICAL REQUIREMENTS

15A-4.1 By way of derogation from paragraphs 6-1.3, and 9-1.1.2, the equipment must be designed for permanent lists of up to 20°.

15A-4.2 By way of derogation from paragraphs 15-6.5(i) and 15-6.9(ii), the competent authority may, in the case of passenger sailing vessels not more than 25 m long, authorise a clear width of less than 800 mm for connecting corridors and companionways. However, the clear width shall be at least 600 mm.

15A-4.3 By way of derogation from paragraph 15-6.11(i), the competent authority may, in specific cases, authorise the use of removable guard rails in areas where this is necessary for controlling the sails.

15A-4.4 Within the meaning of section 15-7, sails rank as a main propulsion system.

15A-4.5 By way of derogation from paragraph 15-14.5(iii), the height of the lower edge of the door opening may be reduced to 20 cm above the floor of the passenger area. Once opened, the door shall close and lock automatically.

15A-4.6 If there is a possibility of the propeller idling while the vessel is under sail, any endangered parts of the propulsion system shall be protected against potential damage.

15A-5 RIGGING IN GENERAL

15A-5.1 The parts of the rigging shall be arranged in such a way as to prevent unacceptable chafing.

15A-5.2 If a material other than wood is used or if special types of rigging are used, such a design shall guarantee equivalent levels of safety with the dimensions and strength values laid down in this chapter. As evidence of the strength

- (i) a strength calculation shall be carried out, or
- (ii) confirmation of sufficient strength shall have been obtained from an approved classification society, or
- (iii) dimensioning shall be based on the procedures set out in a recognised regulatory framework (e.g. Middendorf, Kusk-Jensen).

The evidence shall be presented to the competent authority.

15A-6 MASTS AND SPARS IN GENERAL

15A-6.1 All spars shall be made of high-quality material.

15A-6.2 Wood for masts shall:

- (i) be free of knot concentrations;
- (ii) be free of sapwood within the required dimensions;
- (iii) as far as possible be straight-grained;
- (iv) contain as little as possible twisted growth.

15A-6.3 If the chosen timber is either pitch pine or Oregon pine of quality level 'clear and better' the diameters in the tables reproduced in sections 15A-7 to 15A-12 can be reduced by 5 %.

15A-6.4 If the timbers used for masts, topmasts, yardarms, booms and bowsprits are not round in cross-section, such timbers must be of equivalent strength.

15A-6.5 Mast pedestals, mast trunks and fastenings on deck, on floor-plates and on stem or stern shall be constructed in such a way that they can either absorb the forces they are subjected to or transfer them to other connected parts of the structure.

15A-6.6 Depending on the stability of the vessel and the external forces it is subjected to and also the distribution of the available sail area, the competent authority may, on the basis of the dimensions laid down in sections 15A-7 to 15A-12, allow reductions in the cross-sections of the spars and, where appropriate, of the rigging. Evidence shall be submitted in accordance with paragraph 15A-5.2.

15A-6.7 If the vessel's period of oscillation/period of roll, in seconds, is less than three quarters of its breadth, in metres, the dimensions set out in sections 15A-7 to 15A-12 shall be increased. Evidence shall be submitted in accordance with paragraph 15A-5.2.

15A-6.8 In the tables reproduced in sections 15A-7 to 15A-12 and 15A-14, possible intermediate values shall be interpolated.

15A-7 SPECIAL PROVISIONS FOR MASTS

15A-7.1 Wooden masts shall meet the following minimum requirements:

<i>Length¹</i> <i>(m)</i>	<i>Diameter on deck</i> <i>(cm)</i>	<i>Diameter on the cross-tree</i> <i>(cm)</i>	<i>Diameter on the mast cap</i> <i>(cm)</i>
10	20	17	15
11	22	17	15
12	24	19	17
13	26	21	18

¹ Distance from the cross-tree to the deck.

<i>Length¹</i> <i>(m)</i>	<i>Diameter on deck</i> <i>(cm)</i>	<i>Diameter on the cross-tree</i> <i>(cm)</i>	<i>Diameter on the mast cap</i> <i>(cm)</i>
14	28	23	19
15	30	25	21
16	32	26	22
17	34	28	23
18	36	29	24
19	39	31	25
20	41	33	26
21	43	34	28
22	44	35	29
23	46	37	30
24	49	39	32
25	51	41	33

If a mast has two yards, the diameters shall be increased by at least 10 %.

If a mast has more than two yards, the diameters shall be increased by at least 15 %.

In the case of masts fitted through the deck, the diameter at the mast foot shall be at least 75 % of the diameter of the mast at deck level.

15A-7.2 Mast fittings, mast bands, cross-trees and mast caps shall be sufficiently strongly dimensioned and attached.

15A-8 SPECIAL PROVISIONS FOR TOPMASTS

15A-8.1 Wooden topmasts shall meet the following minimum requirements:

<i>Length²</i> <i>(m)</i>	<i>Diameter at the foot</i> <i>(cm)</i>	<i>Half-length diameter</i> <i>(cm)</i>	<i>Diameter at fitting³</i> <i>(cm)</i>
4	8	7	6
5	10	9	7
6	13	11	8
7	14	13	10
8	16	15	11
9	18	16	13
10	20	18	15
11	23	20	16
12	25	22	17
13	26	24	18
14	28	25	20
15	31	27	21

If square sails are attached to a topmast, the dimensions set out in the table shall be increased by 10 %.

² Total length of the topmast, without the masthead.

³ Diameter of the topmast at the level of the masthead fitting.

15A-8.2 The overlap between the topmast and the mast shall be at least 10 times the required foot diameter of the topmast.

15A-9 SPECIAL PROVISIONS FOR BOWSPRITS

15A-9.1 Wooden bowsprits shall meet the following minimum requirements:

<i>Length⁴ (m)</i>	<i>Diameter at stem (cm)</i>	<i>Half-length diameter (cm)</i>
4	14,5	12,5
5	18	16
6	22	19
7	25	23
8	29	25
9	32	29
10	36	32
11	39	35
12	43	39

15A-9.2 The inboard section of the bowsprit shall have a length of at least four times the diameter of the bowsprit at the stem.

15A-9.3 The diameter of the bowsprit at its head shall be at least 60 % of the diameter of the bowsprit at the stem.

15A-10 SPECIAL PROVISIONS FOR JIB-BOOMS

15A-10.1 Wooden jib-booms shall meet the following minimum requirements:

<i>Length⁵ (m)</i>	2	3	4	5	6	7	8	9	10
<i>Diameter at the stem (cm)</i>	7	10	14	17	21	24	28	31	35

15A-10.2 The diameter of the jib-boom at its head shall be at least 60 % of the diameter at the stem.

15A-11 SPECIAL PROVISIONS FOR MAIN BOOMS

15A-11.1 Wooden main booms shall meet the following minimum requirements:

<i>Length⁶ (m)</i>	5	6	7	8	9	10	11	12	13	14	15	16
<i>Diameter (cm)</i>	14	15	16	17	18	20	21	23	24	25	26	27

15A-11.2 The diameter at the swivel pin shall be at least 72 % of the diameter specified in the table.

15A-11.3 The diameter at the clew shall be at least 85 % of the diameter specified in the table.

15A-11.4 Measured from the mast, the greatest diameter shall be at two thirds of the length.

⁴ Total length of the bowsprit.

⁵ Total length of the jib-boom.

⁶ Total length of the main boom.

15A-11.5 Where:

- (i) there is an angle of less than 65° between the main boom and the after leech and the main sheet is attached to the end of the boom, or
- (ii) the attachment point of the sheet is not abreast of the clew,

the competent authority may, according to paragraph 15A-5.2, require a greater diameter.

15A-11.6 For sail areas of less than 50 m², the competent authority may authorise reductions in the dimensions set out in the table.

15A-12 SPECIAL PROVISIONS FOR GAFFS

15A-12.1 Wooden gaffs shall meet the following minimum requirements:

<i>Length⁷ (m)</i>	4	5	6	7	8	9	10
<i>Diameter (cm)</i>	10	12	14	16	17	18	20

15A-12.2 The unsupported length of the gaff shall be not more than 75 %.

15A-12.3 The breaking strength of the crowfoot shall be at least equal to 1,2 times the breaking strength of the peak halyard.

15A-12.4 The top angle of the crowfoot shall be a maximum of 60°.

15A-12.5 If, by way of derogation from paragraph 4 15A-12.4, the top angle of the crowfoot is greater than 60°, the tensile strength shall be adjusted to accommodate the forces that will then occur.

15A-12.6 For sail areas of less than 50 m², the competent authority may authorise reductions in the dimensions set out in the table.

15A-13 GENERAL PROVISIONS FOR STANDING AND RUNNING RIGGING

15A-13.1 Standing and running rigging shall comply with the strength requirements set out in sections 15A-14 and 15A-15.

15A-13.2 Wire cable connections may take the form of:

- (a i) splicings,
- (b ii) compression sleeves, or
- (c iii) sealing sleeves.

Splicings shall be marled and ends shall be whipped.

15A-13.3 Eye splices shall be provided with thimbles.

15A-13.4 Ropes shall be routed in such a way as not to obstruct entrances and companionways.

⁷ Total length of the gaff.

15A-14 SPECIAL PROVISIONS FOR STANDING RIGGING

15A-14.1 Forestays and shrouds shall meet the following minimum requirements:

<i>Mast length⁸ (m)</i>	<i>11</i>	<i>12</i>	<i>13</i>	<i>14</i>	<i>15</i>	<i>16</i>	<i>17</i>	<i>18</i>
Tensile strength of the forestay (kN)	160	172	185	200	220	244	269	294
Tensile strength of the shrouds (kN)	355	415	450	485	525	540	630	720
Number of shroud cables and ropes per side	3	3	3	3	3	3	4	4

15A-14.2 Backstays, topmasts, flying jib-stays, jib-booms and bowsprit shrouds shall meet the following minimum requirements:

<i>Mast length⁹ (m)</i>	<i><13</i>	<i>13-18</i>	<i>>18</i>
Tensile strength of the backstay (kN)	89	119	159
Tensile strength of the topmast (kN)	89	119	159
Length of topmast (m)	< 6	6-8	> 8
Tensile strength of the flying jib-stay (kN)	58	89	119
Length of jib-boom (m)	< 5	5-7	> 7
Tensile strength of the bow sprit shrouds (kN)	58	89	119

15A-14.3 The preferred rope design shall be based on Rope Construction Method 6 × 7 FE in the strength class 1550 N/mm². Alternatively, at the same strength class, Construction Method 6 × 36 SE or 6 × 19 FE may be used. Because of the higher elasticity of Construction Method 6 × 19, the tensile strengths given in the table shall be increased by 10 %. Use of a different rope design shall be permitted provided it has comparable properties.

15A-14.4 If rigid rigging is used, the tensile strengths shown in the table shall be increased by 30 %.

15A-14.5 For rigging, only approved forks, round eyes and bolts may be used.

15A-14.6 Bolts, forks, round eyes and turnbuckles shall be capable of being properly secured.

15A-14.7 The tensile strength of the bobstay shall be at least 1,2 times the tensile strength of the respective jib-stay and flying jib-stay.

15A-14.8 For vessels with less than 30 m³ water displacement, the competent authority may permit the reductions in tensile strengths shown in the table set out below:

<i>Water displacement divided by the number of masts (m³)</i>	<i>Reduction (%)</i>
> 20 to 30	20
10 to 20	35
< 10	60

⁸ Distance from the top or cross-tree to the deck.

⁹ Distance from the top or cross-tree to the deck.

15A-15 SPECIAL PROVISIONS FOR RUNNING RIGGING

15A-15.1 For running rigging, fibre ropes or steel wire ropes shall be used. The minimum tensile strength and the diameter for running rigging shall, in relation to the sail area, meet the following minimum requirements:

<i>Type of running rigging</i>	<i>Rope material</i>	<i>Sail area (m²)</i>	<i>Minimum tensile strength (kN)</i>	<i>Diameter of rope (mm)</i>
Staysail halyards	Steel wire	up to 35	20	6
		> 35	38	8
	Fibre (polypropylene-PP)	Rope diameter of at least 14 mm and one rope sheave for every 25 m ² or part thereof		
Gaff sail halyards	Steel wire	up to 50	20	6
Top sail halyards	Steel wire	> 50 to 80	30	8
		> 80 to 120	60	10
		>120 to 160	80	12
		Fibre (PP)	Rope diameter of at least 18 mm and one rope sheave for every 30 m ² or part thereof	
Staysail sheets	Fibre (PP)	up to 40	14	
		> 40	18	
		For sail areas of more than 30 m ² , the sheet shall take the form of a tackle or shall be capable of being operated by a winch		
Gaff-/Top-sail sheets	Steel wire	< 100	60	10
		100 to 150	85	12
		> 150	116	14
	Fibre (PP)	Rope diameter of at least 18 mm and at least three rope sheaves. Where the sail area is greater than 60 m ² , one rope sheave per 20 m ²		

15A-15.2 Running rigging forming part of the staying shall have a tensile strength which corresponds to that of the respective stay or shrouds.

15A-15.3 If materials other than those stated in paragraph 15A-15.1 are used, the strength values given in the table in paragraph 15A-15.1 shall be complied with.

Fibre ropes of polyethylene shall not be used.

15A-16 FITTINGS AND PARTS OF THE RIGGING

15A-16.1 If steel wire ropes or fibre ropes are used, the diameters of the rope sheaves (measured from centre of rope to centre of rope) shall meet the following minimum requirements:

<i>Steel wire (mm)</i>	6	7	8	9	10	11	12
<i>Fibre (mm)</i>	16	18	20	22	24	26	28
<i>Rope sheave (mm)</i>	100	110	120	130	145	155	165

15A-16.2 By way of derogation from paragraph 15A-16.1, the diameter of the rope sheaves may be equal to six times the diameter of the steel wire, provided that the steel wire does not constantly run over sheaves.

15A-16.3 The tensile strength of the fittings (e.g. forks, round eyes, turnbuckles, eye-plates, bolts, rings and shackles) shall be compatible with the tensile strength of the standing or running rigging that is attached to them.

15A-16.4 The fastenings of stay and shroud futtocks shall be designed to take up the forces they are subjected to.

15A-16.5 Only one shackle, along with the relevant stay or shroud, may be attached to each eye.

15A-16.6 Blocks of halyards and topping lifts shall be securely fastened to the mast, and the revolving crowfeet used for this purpose shall be in good condition.

15A-16.7 Attachments of eye-bolts, cleats, belaying pins and fife-rails shall be designed to cope with the forces they are subjected to.

15A-17 SAILS

15A-17.1 It shall be ensured that sails can be taken in simply, swiftly and safely.

15A-17.2 The sail area shall be appropriate for the type of vessel and the water displacement.

15A-18 EQUIPMENT

15A-18.1 Vessels that are fitted with a jib-boom or a bowsprit shall have a jib-net and an adequate number of appropriate holding and tensioning devices.

15A-18.2 The equipment according to paragraph 15A-18.1 may be dispensed with if the jib-boom or bowsprit is equipped with a hand becket and a foot rope adequately dimensioned to allow for the attachment of a safety harness to be carried on board.

15A-18.3 For work on the rigging, a boatswain's chair shall be provided.

15A-19 TESTING

15A-19.1 The rigging shall be tested by the competent authority every 2,5 years. As a minimum, the test shall cover the following:

- (i) the sails, including leeches, clews and reef eyes;
- (ii) the state of the masts and spars;
- (iii) the state of the standing and running rigging together with cable wire connections;
- (iv) facilities for taking in the sail swiftly and safely;
- (v) the secure fastening of blocks of halyards and topping lifts;
- (vi) the fastening of mast trunks and other fastening points for standing and running rigging that are attached to the vessel;
- (vii) the winches for operating the sails;
- (viii) other facilities fitted for the purposes of sailing, such as lee-boards and the fittings for operating them;
- (ix) the measures taken to prevent the chafing of the spars, the running and standing rigging and the sails;
- (x) the equipment according to section 15A-18.

15A-19.2 That part of the wooden mast passing through the deck and located below the deck shall be re-examined at intervals to be determined by the competent authority, but at

the very least on the occasion of each periodical inspection according to section 2-4. The mast shall be extracted for this purpose.

15A-19.3 A certificate of the last inspection carried out in accordance with paragraph 15A-19.1 and issued, dated and signed by the competent authority, shall be carried on board.

C. Amendment to chapter 22A, “Specific requirements applicable to craft longer than 110 m”

6. *Add* to chapter 22A the text below:

22A-1 APPLICATION OF CHAPTER 2

22A-1.1 In addition to the requirements set out in section 2-6, the competent authority which is subsequently to issue the ship’s certificate shall be informed by the owner or his representative before building of craft longer than 110 m, except sea-going ships, begins (building of a new vessel or extension of a vessel already in service). That authority shall conduct inspections during the building stage. It may dispense with inspections during the building stage if a certificate is produced before building begins to show that an approved classification society declares that it is to supervise that building.

22A-2 APPLICATION OF CHAPTER 3 TO CHAPTER 23

22A-2.1 In addition to chapter 3 to chapter 23, the sections 22A-3 to 22A-5 shall apply to craft that are longer than 110 m.

22A-3 STRENGTH

22A-3.1 Sufficient hull strength in accordance with paragraph 3-1.1 (longitudinal, lateral and local strength) shall be verified by a certificate issued by an approved classification society.

22A-4 BUOYANCY AND STABILITY

22A-4.1 Paragraphs 22A-4.2 to 22A-4.10 shall apply to craft that are longer than 110 m, with the exception of passenger vessels.

22A-4.2 The basic values for the stability calculation, the vessel's lightweight and the location of the centre of gravity shall be determined by means of an inclining experiment carried out in accordance with Annex I to IMO Resolution MSC 267 (85).

22A-4.3 The applicant shall prove, by means of a calculation based on the method of lost buoyancy, that the buoyancy and stability of the vessel are appropriate in the event of flooding. All calculations shall be carried out with free sinkage, heel and trim.

Sufficient buoyancy and stability of the vessel in the event of flooding shall be proven with a cargo corresponding to its maximum draught and evenly distributed among all the holds and with maximum supplies and fully fuelled.

For diversified cargo, the stability calculation shall be performed for the most unfavourable loading condition. This stability calculation shall be carried on board.

For this purpose, mathematical proof of sufficient stability shall be determined for the intermediate stages of flooding (25 %, 50 % and 75 % of flood build up, and, where appropriate, for the stage immediately prior to transverse equilibrium) and for the final stage of flooding, in the loading conditions specified above.

22A-4.4 The following assumptions shall be taken into consideration for the damaged condition:

- (i) Extent of side damage:
longitudinal extent: at least 0.10 L,
transverse extent: 0.59 m,
vertical extent: from the bottom upwards without limit.
- (ii) Extent of bottom damage:
longitudinal extent: at least 0.10 L,
transverse extent: 3.00 m,
vertical extent: from the base 0.39 m upwards, the sump excepted.
- (iii) Any bulkheads within the damaged area shall be assumed damaged, which means that the subdivision shall be chosen so that the vessel remains afloat after the flooding of two or more adjacent compartments¹⁰ in the longitudinal direction. For the main engine room only the one compartment standard need be taken into account, i.e. the end bulkheads of the engine room shall be assumed as not damaged.

For bottom damage, adjacent athwart ship compartments shall also be assumed as flooded.

- (iv) Permeability
Permeability shall be assumed to be 95 %.

If a calculation proves that the average permeability of a compartment is less than 95 %, the calculated value may be used instead.

The values used shall not be less than:

1. engine and operation rooms: 85 %
2. cargo holds: 70 %
3. double bottoms, fuel tanks, ballast tanks, etc. depending on whether, according to their function, they have to be assumed as full or empty for the vessel floating at the maximum permissible draught: 0 or 95 %

- (v) The calculation of free surface effect in intermediate stages of flooding shall be based on the gross surface area of the damaged compartments.

22A-4.5 For all intermediate stages of flooding referred to in paragraph 22A-4.3, the following criteria shall be met:

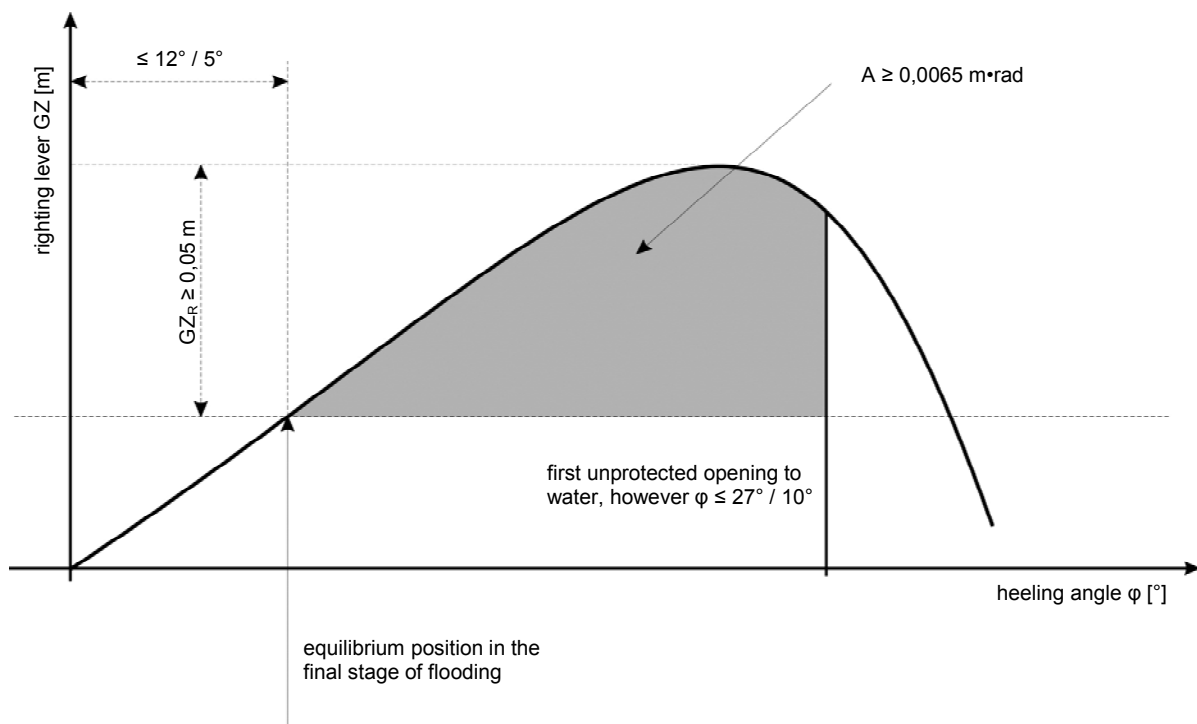
- (i) the heeling angle ϕ at the equilibrium position of the intermediate stage in question shall not exceed 15° (5° where containers are not secured);
- (ii) beyond the heel in the equilibrium position of the intermediate stage in question, the positive part of the righting lever curve shall display a righting lever value of $GZ \geq 0.02$ m (0.03 m where containers are not secured) before the first unprotected opening becomes immersed or a heeling angle ϕ of 27° is reached (15° where containers are not secured);

¹⁰ The basin administration may waive the requirements prescribed in this paragraph with regard to the 2-compartment status.

(iii) non-watertight openings shall not be immersed before the heel in the equilibrium position of the intermediate stage in question has been reached.

22A-4.6 During the final stage of flooding, the following criteria shall be met:

- (i) the lower edge of non-watertight openings (e.g. doors, windows, access hatches) shall be not less than 0.10 m above the damaged waterline;
- (ii) the heeling angle ϕ at the equilibrium position shall not exceed 12° (5° where containers are not secured);
- (iii) beyond the heel in the equilibrium position of the intermediate stage in question, the positive part of the righting lever curve shall display a righting lever value of $GZ \geq 0.05$ m and the area under the curve shall reach at least 0.0065 m.rad before the first unprotected opening becomes immersed or a heeling angle ϕ of 27° (10° where containers are not secured) is reached;



(iv) if non-watertight openings are immersed before the equilibrium position is reached, the rooms affording access shall be deemed flooded for the purposes of the damaged stability calculation.

22A-4.7 If cross-flood openings to reduce asymmetrical flooding are provided, the following conditions shall be met:

- (i) for the calculation of cross-flooding, IMO Resolution A.266 (VIII) shall be applied;
- (ii) they shall be self-acting;
- (iii) they shall not be equipped with shut-off devices;
- (iv) the total time allowed for equalisation shall not exceed 15 minutes.

22A-4.8 If openings through which undamaged compartments may additionally become flooded are capable of being closed watertight, the shut-off devices shall bear the following readily legible instruction on both sides:

“Close immediately after passage”.

22A-4.9 The proof by calculation in accordance with paragraphs 22A-4.3 to 22A-4.7 shall be considered to have been provided if damaged stability calculations in accordance with Part 9 of the Regulations annexed to the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (hereinafter referred to as ADN) are produced with a positive result.

22A-4.10 Where necessary in order to meet the requirements in paragraph 22A-4.3 the plane of maximum draught shall be re-established.

22A-5 ADDITIONAL REQUIREMENTS

22A-5.1 Craft longer than 110 m shall:

(i) be fitted with a multi-propeller propulsion system, with at least two independent engines of equal power and a bow thruster that is controlled from the wheelhouse and is also effective when the craft is in an unladen state; or

have a single-propeller propulsion system and a bow thruster that is controlled from the wheelhouse with its own power supply and which is also effective when the craft is in an unladen state and makes it possible for the craft to proceed under its own power in the event of a breakdown of the main propulsion system;

(ii) be fitted with a radar navigation system, together with a rate-of-turn indicator in accordance with paragraph 7-4.1;

(iii) have a permanently-installed bilge pumping system in accordance with section 8-1.6;

(iv) meet the requirements of section 23-9.

22A-5.2 For craft, except passenger ships, with a length of more than 110 m, which in addition to paragraph 22A-5.1

(i) are capable of being separated, in the event of an accident, in the middle third of the vessel without the use of heavy salvage equipment while the separated parts of the vessel shall remain afloat after separation;

(ii) are provided with a certificate that shall be carried on board and which is issued by an approved classification society regarding the buoyancy, trim position and stability of the separate parts of the vessel, indicating the degree of loading above which buoyancy of the two parts is no longer ensured;

(iii) are built as double-hull vessels in accordance with the ADN, where for dry cargo vessels sections 9.1.0.91 to 9.1.0.95, and for tank vessels paragraph 9.3.2.11.7 and sections 9.3.2.13 to 9.3.2.15 or paragraph 9.3.3.11.7 and sections 9.3.3.13 to 9.3.3.15 of Part 9 of the ADN shall apply;

(iv) are fitted with a multi-screw propulsion system in accordance with paragraph 22A-5.1(i), first half sentence;

it shall be entered in item 52 of the ship's certificate that they comply with all the requirements of subparagraphs (i) to (iv).

22A-5.3 For passenger vessels with a length of more than 110 m which in addition to paragraph 22A-5.1

(i) are built or converted for their highest class under the supervision of an approved classification society, in which case compliance shall be confirmed by means of a certificate issued by the classification society while current class is not necessary;

(ii) either

have a double bottom with a height of at least 600 mm and subdivision to ensure that, in the event of flooding of any two adjacent watertight compartments, the vessel does not immerse lower than the margin line and a residual safety clearance of 100 mm remains,

or

have a double bottom with a height of at least 600 mm and a double hull with a distance of at least 800 mm between the side wall of the vessel and the longitudinal bulkhead;

(iii) are fitted with a multi-screw propulsion system with at least two independent engines of equal power and a bow thruster system which can be operated from the wheelhouse and which operates longitudinally as well as transversely;

(iv) allow the stern anchor to be operated directly from the wheelhouse;

it shall be entered in item 52 of the ship's certificate that they comply with all the requirements of points (i) to (iv).

D. Amendments to chapter 15, “Special provisions for passenger vessels”

7. Amend paragraph 3-4.1.2 as follows

15-1.1 The following provisions shall not apply:

(i) ~~4-4.2, 4.4.3.11 and 4-4.4 4-4 and 4-5.1;~~

8. Amend paragraph 15-1.4, first sentence, as follows

15-1.4 On passenger vessels, areas shall be provided for use by persons with reduced mobility, according to the provisions of this chapter and with due regard to the Guidelines for passenger vessels also suited for carrying persons with reduced mobility (annex to ~~Resolution No. 25, revised~~ **Resolution No. 69**).

9. Amend paragraph 15-2.8 as follows

15-2.8 Bulkheads according to 15-2.5 separating the engine rooms from passenger areas or crew and shipboard personnel accommodation shall have no doors.

10. Amend paragraph 15-2.13, sub-paragraph (iii) as follows

(iii) Where a pipe work system has no open outlet in a compartment, the pipe work shall be regarded as intact ~~in~~ in the event of this compartment being damaged, if it runs within the safe area and is more than 0.50 m from the bottom of the vessel.

11. Amend paragraph 15-3.3, sub-paragraph (iii), case 1 as follows

Case	A
1 $\varphi_{max} \leq 15^\circ$ or $\varphi_f \leq 15^\circ$	0.05 m rad up to the smaller of the angles to angles φ_{max} or φ_f

12. Amend paragraph 15-3.3, sub-paragraph (v) *as follows*
- (v) in each of the following two cases the heeling angle φ_{mom} shall not exceed 12°:
- in application of the heeling moment due to ~~passengers~~ **persons** and wind according to 15-3.4 and 15-3.5;
 - in application of the heeling moment due to ~~passengers~~ **persons** and turning according to 15-3.4 and 15-3.6
13. Amend paragraph 15-3.3, sub-paragraph (vi) *as follows*
- (vi) for a heeling moment resulting from moments due to ~~passengers~~ **persons**, wind and turning according to 15-3.4, 15-3.5 and 15-3.6, the residual freeboard shall be not less than ~~200 mm~~ **0.20 m**;
14. Amend paragraph 15-3.4 *as follows*
- The distribution of persons shall correspond to the most unfavorable one from the point of view of stability. Cabins shall be assumed unoccupied. ~~for the calculation of the persons' heeling moment.~~
15. Amend paragraph 15-3.5 *as follows*
- p_w = the specific wind pressure of ~~0.15 kN/m²~~ **0.25 kN/m²** for zone 3 and ~~0.25 kN/m²~~ **for zones 1 and 2. However on waterways of zones 1 and 2 the basin Administration may set higher values;**
16. Amend paragraph 15-3.7 *as follows*
- 15-3.7 It shall be proved, by means of a calculation **based on the method of lost buoyancy**, that the damaged stability of the vessel is appropriate. **All calculations shall be carried out with free sinkage, heel and trim.**
17. Amend paragraph 15-3.9 *as follows*
- 15-3.9 **Passenger** vessels operating in zones 1, 2 and 3 shall comply with 1-compartment status and 2-compartment status.
18. Add on the word status of the above amendment a footnote *as follows*
- The Basin administration may waive the requirements prescribed in this paragraph with regard to the 2-compartment status.**
19. Add at the end of paragraph 15-3.9, sub-paragraph (i)
- A bulkhead recess in a transverse bulkhead that is longer than 2.50 m, is considered a longitudinal bulkhead;**
20. Amend paragraph 15-3.9, sub-paragraph (ii) *as follows*
- (ii) For 2-compartment status, each bulkhead within the extent of damage, will be assumed to be damaged. ~~The vessel shall remain buoyant after flooding~~ **This means that the position of the bulkheads shall be selected in such a way as to ensure that the passenger vessel remains buoyant after flooding of two or more adjacent compartments in the longitudinal direction;**
21. Amend paragraph 15-6.3, sub-paragraph (ii), first sentence *as follows*
- (ii) If rooms are located below the bulkhead deck, one of the exits can be a watertight bulkhead door, according to 15-2.10, leading into an adjacent compartment from which the upper deck can be reached **directly.**

22. *Amend* paragraph 15–6.9, sub-paragraph (v), first bullet point *as follows*
The gradient of the stairs shall not exceed ~~32°~~ **38°**;
23. *Amend* paragraph 15–9.3 *as follows*
15–9.3 Passenger vessels shall have appropriate equipment to enable persons to be transferred safely to shallow water, to the bank or to another ~~vessel~~ **craft**.
24. *Renumber* existing paragraphs 15–9.5, 15–9.6, 15–9.7 and 15–9.8 *as follows*
~~15–9.5~~ **6**, ~~15–9.6~~ **7**, ~~15–9.7~~ **8**, ~~15–9.8~~ **9**
25. *Insert* after paragraph 15–9.4 a new paragraph 15–9.5 as follows
15–9.5 In addition to 10–5.1, the life raft must:
(i) offer adequate seating space for the permitted number of persons;
(ii) provide a buoyancy of at least 750 N per person in fresh water;
(iii) be provided with appropriate means of evacuation from the evacuation areas referred to in 15–6.8, onto the life rafts if the vertical distance between the deck of the evacuation areas and the plane of maximum draught is greater than 1 m.
26. *Replace* paragraph 15–10.5 *by*
15–10.5 There shall be an emergency power plant in accordance with 9–2.16, consisting of an emergency power source and emergency switchboard, which, in the event of a failure of the supply to the following electrical equipment, can immediately take over as their replacement supply, where the equipment does not have its own power source:
(i) signal lights;
(ii) audible warning devices;
(iii) emergency lighting in accordance with 9–2.16.6 and 15–10.4;
(iv) radiotelephone installations;
(v) alarm, loudspeaker and on-board message communications systems;
(vi) searchlights (spot light) according to 23–9.1 (viii);
(vii) Fire alarm system;
(viii) other safety equipment such as automatic pressurised sprinkler systems or fire extinguishing pumps;
(ix) Lifts and lifting equipment within the meaning of 15–6.10.
27. *Add* new paragraph 15–10.6 *as follows*
15–10.6 The light fittings for the emergency lighting shall be marked as such.
28. *Add* new paragraph 15–10.7 *as follows*
15–10.7 Cables feeding the electrical installations in the event of an emergency shall be installed and routed in such a way as to maintain the continuity of supply of these installations in the event of fire or flooding. These cables shall never be routed through the main engine room, galleys or rooms where the main power source and its connected equipment is installed, except insofar as it is necessary to provide emergency equipment in such areas.

29. *Add new paragraph 15–10.8 as follows*
- 15–10.8 The insulation resistances and the earthing for electrical systems shall be tested on the occasion of inspections according to 2–5.1.
30. *Add new paragraph 15–10.9 as follows*
- 15–10.9 The power sources according to 9–1.2.1 must be independent of each other.
31. *Add new paragraph 15–10.10 as follows*
- 15–10.10 A failure of the main or emergency power equipment shall not mutually affect the operational safety of the installations.
32. *Amend paragraph 15–11, table "Table for partitions between rooms, in which no pressurized sprinkler systems according to 10–3.6 are installed" as follows*

<i>Rooms</i>	<i>Control centres</i>	<i>Stairwells</i>	<i>Muster areas</i>	<i>Lounges</i>	<i>Engine rooms</i>	<i>Galleys</i>	<i>Store rooms</i>
Control centres	-	A0	A0/B15 ⁵	A30	A60	A60	A30 /A60 ⁹
Stairwells		-	A0	A30	A60	A60	A60 A30
Muster areas			-	A30/B15 ⁶	A60	A60	A30/A60 ⁹
Lounges				A0 /B15 ⁷	A60	A60	A60 A30
Engine rooms					A60/A0 ⁸	A60	A60
Galleys						A0	A60 A30/B15 ^{9,10}
Store rooms							-

33. *Amend paragraph 15–11, table "Table for partitions between rooms, in which pressurized sprinkler systems according to 10–3.6 are installed" as follows*

<i>Rooms</i>	<i>Control centres</i>	<i>Stairwells</i>	<i>Muster areas</i>	<i>Lounges</i>	<i>Engine rooms</i>	<i>Galleys</i>	<i>Store rooms</i>
Control centres	-	A0	A0/B15 ⁵	A0	A60	A60 A30	A0/A30 ⁹
Stairwells		-	A0	A0	A60	A30	A0
Muster areas			-	A30/B15 ⁶	A60	A60 A30	A60 A0/A30 ⁹
Lounges				B15 /B0 ⁷	A0 A60	A30	A0
Engine rooms					A60/A0 ⁸	A60	A60
Galleys						-	A0/B15 ¹⁰
Store rooms							-

34. *Add* at the end of footnote No. 7, in paragraph 15–11, table "Table for partitions between rooms, in which no pressurized sprinkler systems according to 10–3.6 are installed"

Partitions between cabins and saunas shall comply with Type A0, for rooms fitted with pressurised sprinkler systems B15.

35. *Replace* existing footnote No. 9 in paragraph 15–11, table "Table for partitions between rooms, in which no pressurized sprinkler systems according to 10–3.6 are installed" *by*

Partitions between store rooms for the storage of flammable liquids and control centres and muster areas shall comply with Type A60, for rooms fitted with pressurised sprinkler systems A30.

36. *Add* new footnote No. 10 in paragraph 15–11, table "Table for partitions between rooms, in which no pressurized sprinkler systems according to 10–3.6 are installed" *as follows*

B15 is sufficient for the partitions between galleys and cold-storage rooms or food storage rooms.

37. *Add* at the end of paragraph 15–11.4

The first sentence shall not apply to saunas.

38. *Add* at the end of paragraph 15–11.6

This shall be proven on the basis of appropriate test methods recognized by the Administration.

39. *Amend* existing paragraph 15–11.8, sub-paragraph (ii) *as follows*

- (ii) They shall be self-closing in the case of doors in partition walls according to ~~15–11.10~~ **15–11.11** or in the case of enclosures around engine rooms, galleys and stairwells;

40. *Renumber* existing paragraphs 15–11.8, 15–11.9, 15–11.10 and 15–11.11 *as follows*

15–11.8 **9**, 15–11.9 **10**, 15–11.10 **11**, 15–11.11 **12**

41. *Insert* after paragraph 15–11.7 a new paragraph 15–11.8 *as follows*

15–11.8 Awnings and similar mobile installations with which deck areas are fully or partially enclosed and their substructures shall be at least flame-retardant.

42. *Amend* existing paragraph 15–11.12, sub-paragraph (ii) *as follows*

- (ii) In a lounge, stairs need not be encapsulated if they are located entirely within the interior of this room, and
- If this room extends over only two decks, or
 - If there is a pressurized sprinkler system according to 10–3.6 installed in this room on all decks, this room has a smoke extraction system according to ~~15–11.15~~ **15–11.17** and the room has access on all decks to a stairwell.

43. *Amend* existing paragraph 15–11.13, sub-paragraphs (iii) and (iv) *as follows*

- (iii) Ventilation ducts shall be made of steel or an equivalent non-combustible material **and be securely connected to each other and to the superstructure of the vessel;**

- (iv) When ventilation ducts with a cross-section of more than 0.02 m² are passed through partitions according to 15-11.2 of Type A or partitions according to ~~15-11.10~~ **15-11.11**, they shall be fitted with automatic fire dampers which can be operated from a location permanently manned by shipboard personnel or crew members;
44. *Amend* existing paragraph 15-11.14 *as follows*
Galleys shall be fitted with ventilation systems and stoves with extractors. The air extraction ducts of the extractors shall satisfy the requirements according to ~~15-11.13~~ **15-11.15** and, additionally, be fitted with manually operated fire dampers at the inlet openings.
45. *Amend* existing paragraph 15-11.15, sub-paragraph (vi) *as follows*
(vi) Natural smoke extraction systems shall be fitted with an opening mechanism, operated either manually or by a power source inside the ~~ventilator~~ **extraction system**;
46. *Renumber* existing paragraphs 15-11.12, 15-11.13, 15-11.14, 15-11.15 and 15-11.16 *as follows*
~~15-11.12~~ **14**, ~~15-11.13~~ **15**, ~~15-11.14~~ **16**, ~~15-11.15~~ **17**, ~~15-11.16~~ **18**
47. *Insert* after existing paragraph 15-11.11 a new paragraph 15-11.13 *as follows*
15-11.13 Stairs shall be made of steel or another equivalent non-combustible material
48. *Amend* paragraph 15-12.1, sub-paragraph (iii) *as follows*
(iii) One portable extinguisher in each galley and in the vicinity of any room in which flammable liquids are stored or used. In galleys the ~~quenching material~~ **extinguishing** agent shall be suitable for fighting fat fires.
49. *Amend* end of paragraph 15-12.2 *as follows*
~~For smaller vessels the Basin administration may give exemptions from these requirements.~~
50. *Amend* paragraph 15-12.3, sub-paragraphs (i), (ii) *as follows*
(i) Any point of the vessel can be reached from at least two hydrants in different places, each with a single hose length of not more than 20 m; ~~and~~
(ii) The pressure at the hydrants is at least 300 kPa **and**
51. *Add in* paragraph 15-12.3, after sub-paragraph (ii), a new sub-paragraph (iii) *as follows*
(iii) On all decks, a water jet length of at least 6 m can be attained.
52. *Amend* paragraph 15-12.7 *as follows*
15-12.7 ~~Fire fighting systems shall be arranged in such a way that they can be completely drained to avoid the possibility of freezing.~~ **Pipes and hydrants shall be arranged in such a way that the possibility of freezing is avoided.**
53. *Amend* paragraph 15-12.8 *as follows*
15-12.8 The fire **extinguishing** pumps shall:
(i) ~~Not be located~~ **installed or housed in separate rooms the same room**;
(ii) Be such that they can be operated independently of each other;

(iii) Each be capable, on all decks, of maintaining the necessary pressure at the hydrants **and achieving the requisite length of water jet**;

(iv) Be installed forward of the aft bulkhead.

Fire extinguishing pumps may also be used for general purposes.

54. *Amend* paragraph 15–12.10, sub-paragraph (i) *as follows*

(i) Two self-contained breathing apparatus sets **with full-face masks corresponding to international regulations and standards**;

55. *Insert* before chapter 15–13 a new chapter 15–12.A and its respective paragraphs *as follows*

15–12.A WASTE WATER COLLECTION AND DISPOSAL FACILITIES

15–12.A.1 Passenger vessels shall be equipped with collection tanks for domestic waste water in accordance with the section 8B–3 or appropriate equipment for the treatment of domestic water in accordance with the section 8B–4.

15–12.A.2 It shall be possible to pass waste water from other vessels through

56. *Amend* paragraph 15–13.2, sub-paragraph (ix) *as follows*

(ix) Doors pursuant to ~~15–11.8~~ **15–11.9**;

57. *Amend* paragraph 15–13.4 *as follows*

15–13.4 Code of conduct for passengers shall be posted up in each cabin and also a simplified safety plan containing only the information referred to in 15–13.2 (i) to (vi).

~~The instructions~~ **This code of conduct** shall include at least:

- (i) ~~Emergency cases~~ **Designation of emergencies**
 - Fire
 - Flooding
 - General hazard
- (ii) Description of various alarm signals
- (iii) ~~Information on~~ **Instructions concerning the following**
 - Escape routes
 - What to do
 - Need to keep calm
- (iv) ~~Information to prevent accidents due to~~ **Instructions concerning the following**
 - Smoking
 - Use of fire and open flames
 - Opening windows
 - Use of certain items of equipment

This information shall be prominently displayed in appropriate languages.

58. *Insert* after existing paragraph 15–14.5 a new paragraph 15–14.5A *as follows*
 15–14.5A On passenger vessels in accordance with 15–14.5, by way of derogation from 15–6.6 (iii), one escape route may lead through a galley, as long as there is a second escape route available.
59. *Amend* paragraph 15–14.9, sub-paragraph (iii) *as follows*
 (iii) ~~15–11.15~~ **15–11.17**, smoke extraction systems.

E. Amendments to appendix 1

60. *Amend* chapter II, zone 2, "France" *as follows*
~~Dordogne, downstream from the stone bridge at Libourne.~~
~~Garonne, downstream from the stone bridge at Bordeaux.~~
Gironde, downstream from the stone bridge at Bordeaux **from kilometre point (KP) 402 to the transversal limit of the sea defined by the line joining the Pointe de Grave to the Pointe de Suzac.**
~~Loire, downstream from Haudaudine bridge on the Madeleine branch and downstream from Pirmil bridge on the Pirmil branch~~ **from Cordemais (KP 25) to the transversal limit of the sea defined by the line joining the Pointe de Mindin to the Pointe de Penhoët.**
Rhône, downstream from Trinquetaille bridge at Arles and beyond towards Marseilles.
~~Seine, downstream from Jeanne-d'Arc bridge at Rouen~~ **from the start of the Tancarville Canal to the transversal limit of the sea defined by the line from Cape Hode, on the right bank, to the point, on the left bank, where the planned dyke meets the coast below Berville.**
Vilaine, from the Arzal Dam to the transversal limit of the sea defined by the line joining the Pointe du Scal to the Pointe du Moustoir.
Lake Geneva.
61. *Amend* chapter II, zone 2, "Germany" *as follows*
Ems, from a line across the river Ems near the entrance to Papenburg harbour between Diemen **the former** pumping station and the opening of the dyke at Halte as far as a line linking the former Greetsiel lighthouse and the western pier of the port entrance at Eemshaven.
Jade, inside a line linking the **former** Schillighörn cross light and Langwarden church tower.
Weser, from the north-western edge of the Bremen railway bridge as far as a line linking Langwarden and Cappel church towers with the side branches: Westergate, Rekumer Loch, Rechter Nebenarm and Schweiburg.
Elbe, **Bützflether Süderelbe (from km 0,69 till the mouth in the Elbe), Ruthenstrom (from km 3,75 till the mouth in the Elbe), Wischhafener Süderelbe (from km 8,03 till the mouth in the Elbe)** from the lower limit of the port of Hamburg to a line linking the Döse beacon and the north-western point of the Friedrichskoog dyke (Dieksand) with the Nebenelben as well as the tributaries: Este,

Lühe, Schwinge, Oste, Pinnau, Krückau and Stör (in each case from the barrage to the mouth).

Meldorfer Bucht, inside a line linking the western edge of Friedrichskoog dyke (Dieksand) and Büsum west pier head.

Eider, from ~~the Gieselau Canal to the Eider barrage~~ **the mouth of the Gieselau Canal (km 22,64) to the line between the middle of the fortress (Tränke) and the churchtower of Vollerwiek.**

Gieselau Canal, from the mouth in the Eider till the the mouth in the Nord-Ostsee Canal.

Flensburger Förde, inside a line linking Kegnäs lighthouse and Birknack **and North from the German-Danish border in the Flensburger Förde.**

Schlei, inside a line linking the Schleimünde pier heads.

Eckernförder Bucht, inside a line linking Boknis-Eck to the north-eastern point of the mainland near Dänisch Nienhof.

Kieler Förde, inside a line linking Bülk lighthouse at the Laboe naval memorial.

Nord-Ostsee-Kanal (Kiel Canal including Audorfer See and Schirnauer See), from the line linking the Brunsbüttel pier heads to a line linking the entrance lights of Kiel-Holtenau including Obereidersee with Enge, Audorfer See, Bergstedter See, Schirnauer See, Flemhuder See and Achterwehrer Schiffahrtskanal.

Trave, from the north-western edge of the railway lift bridge ~~and the northern edge of the Holsten Bridge (Stadttrave) in Lübeck to a line linking the two outer pier heads at Travemünde including the Pötenitzer Wiek, Dassower See and the Altarmen at Teerhof island in Lübeck with the Pötenitzer Wiek, and the Dassower See as far as a line linking the southern inner and northern outer pier heads at Travemünde.~~

Leda, from the entrance to the outer harbour of the Leer sea lock to the mouth **in the Eems.**

Hunte, from Oldenburg harbour and from 140 m downstream of the Amalienbrücke in Oldenburg to the mouth **in the Weser.**

Lesum, from ~~the Bremen Burg railway bridge to the mouth~~ **the confluence of the Hamme and Wümme (km 0,00) to the mouth in the Weser.**

Este, from the tail water of Buxtehude lock ~~to the Este barrage~~ **(km 0,25) to the mouth in the Elbe.**

Lühe, from the tail water of the Au-Mühle in Horneburg **(km 0,00) to the Lühe barrage mouth in the Elbe.**

Schwinge, from the **north edge of the** Salztor lock in Stade ~~to the Schwinge barrage~~ **the mouth in the Elbe.**

Freiburger Hafenpriel, from the eastern edge of the sluice in Freiburg/Elbe as far as the mouth.

Oste, ~~from the north-eastern edge of the Bremervörde mill dam to the Oste barrage~~ **from 210 m above the middleline of the traffic bridge over the Oste barrage (km 69,360) to the mouth in the Elbe.**

Pinnau, from the south-western edge of the ~~Pinneberg railway bridge to the Pinnau barrage~~ **Pinneberg railway bridge in Pinneberg to the mouth in the Elbe.**

Krückau, from the south-western edge of the bridge leading to/from the Wedenkamp in Elmshorn to the Krückau barrage to the mouth in the Elbe.

Stör, from the Rensing tide gauge to the Stör barrage mouth in the Elbe.

Freiburger Hafenpriel, from the eastern edge of the sluice in Freiburg an der Elbe as far as the mouth in the Elbe.

Wismarbucht, Kirchsee, Breitling, Salzhaff and Wismar port area, limited seawards by a line: Hohen Wieschendorf Huk and Timmendorf light as well as Gollwitz light on the Island of Poel and the southern point of Wustrow Peninsula.

Warnow, including Breitling and side branches, downstream of the Mühlendamm from the northern edge of the Geinitzbrücke in Rostock towards the sea as far as a line linking the northern points of the western and eastern piers in Warnemünde.

Waters between the mainland and the Darss and Zingst peninsulas as well as the Hiddensee and Rügen islands (including Stralsund port area), limited seawards between:

- the Zingst peninsula and the island of Bock by the parallel of latitude 54°26'42" N;
- the islands of Bock and Hiddensee by a line linking the northern point of the island of Bock and the southern point of the island of Hiddensee;
- the island of Hiddensee and the island of Rügen (Bug) by a line linking the south-eastern point of Neubessin to Buger Haken.

Kleine Jasmunder Bodden.

Greifswalder Bodden and Greifswald port area including the river Ryck, Bodden limited seawards by as far as a line linking from the eastern point Thiessower Haken (Südpärd) to the eastern point of the island of Ruden and further continuing to the northern point of the island of Usedom (54° 10'37" N, 13°47'51" E).

Ryck, east from the Steinbecker bridge in Greifswald to the linking line over the heads of the jetties.

Waters between enclosed by the mainland and the island of Usedom (Peenestrom including Wolgast port area, Achterwasser, and the Stettiner Oder Haff), limited in the east by the border between the Federal Republic of Germany and the Republic of Poland in the Stettiner Haff.

Uecker, from the south-west edge of the traffic bridge in the Uekermünde to the linking line over the heads of the jetties.

62. *Amend* chapter III, zone 3, "France" as follows

Adour, from the Bec du Gave to the sea.

Aulne, from the lock at Châteaulin to the transversal limit of the sea defined by the Passage de Rosnoën.

Blavet, from Pontivy to the Pont du Bonhomme.

Calais Canal.

Charente, from the bridge at Tonnay-Charente to the transverse limit of the sea defined by the line passing through the centre of the downstream light on the left bank and through the centre of the Fort de la Pointe.

Dordogne, from the confluence with the Lidoire to the Bec d'Ambès.

Garonne, from the bridge at Castet en Dorthe to the Bec d'Ambès.

Gironde, from the Bec d'Ambès to the transversal line at KP 48,50 and passing through the downstream point of the Ile de Patiras.

Hérault, from the port of Bessan to the sea, as far as the upper limit of the tidal foreshore.

Isle, from the confluence with the Dronne to the confluence with the Dordogne.

Loire, from the confluence with the Maine to Cordemais (KP 25).

Marne from the bridge at Bonneuil (KP 169bis900) and the lock at St Maur to the confluence with the Seine.

Rhine.

Nive, from the Haïtze dam at Ustaritz to the confluence with the Adour.

Oise, from Janville lock to the confluence with the Seine.

Orb, from Sérignan to the sea, as far as the upper limit of the tidal foreshore.

Rhône, from the frontier with Switzerland to the sea, with the exception of the Petit Rhône.

Saône, from the Pont de Bourgogne bridge at Chalon-sur-Saône to the confluence with the Rhône.

Seine, from the lock at Nogent-sur-Seine to the start of the Tancarville Canal.

Sèvre Niortaise, from the lock at Marans at the transverse limit of the sea opposite the guardhouse to the mouth.

Somme, from the downstream side of the Pont de la Portelette bridge at Abbeville to the viaduct of the Noyelles to Saint-Valéry-sur-Somme railway.

Vilaine, from Redon (KP 89,345) to the Arzal Dam.

Lake Amance.

Lake Annecy.

Lake Biscarosse.

Lake Bourget.

Lake Carcans.

Lake Cazaux.

Lake Der-Chantecoq.

Lake Guerlédan.

Lake Hourtin.

Lake Lacanau.

Lake Orient.

Lake Pareloup.

Lake Parentis.

Lake Sanguinet.

Lake Serre-Ponçon.

Lake Temple.

63. *Amend* chapter III, zone 3, "Germany" *as follows*

Danube, from Kelheim (2,414.72 km) to the German/Austrian border at **Jochenstein**.

Rhine with Lampertheimer Altrhein (from km 4,75 to the Rhine), Altrhein Stockstadt-Erfelden (from km 9,80 to the Rhine), from the German/Swiss border to the German/Netherlands border.

Elbe (Norderelbe) including Süderelbe en Köhlbrand, from the mouth of the Elbe-Seitenkanal to the lower limit of the port of Hamburg.

Müritz.

F. Amendments to appendix 7

64. *Add* a new chapter IV. Sound signals *as follows*

IV. Sound signals

A. Sound intensity of signals

Mechanically-operated sound signalling devices used by inland waterway vessels shall be capable of producing sound signals with the following characteristics:

1. Frequency

(a) For motorized vessels other than the small craft referred to in paragraph (b), the fundamental frequency shall be 200 Hz, with a tolerance of $\pm 20\%$;

(b) For non-motorized vessels and small craft the fundamental frequency shall be above 350 Hz;

(c) For the three-tone signals used by vessels navigating by radar under conditions of reduced visibility, the fundamental frequencies of the tones shall be between 165 and 297 Hz, with an interval of at least two full tones between the highest-pitched and the lowest-pitched sound.

2. Sound pressure level

The sound pressure levels given below shall be measured at, or referred to, a point 1 metre in front of the centre of the opening of the horn, the measurement being made, as far as possible, away from any sound reflecting surfaces.

(a) For motorized vessels other than the small craft referred to in paragraph (b), the weighted sound pressure level shall be between 120 and 140 dB (A);

(b) For non-motorized vessels and small craft which are not equipped or used to tow vessels other than small craft, the weighted sound pressure level shall be between 100 and 125 dB (A);

(c) For the three-tone signals used by vessels navigating by radar under conditions of reduced visibility, the weighted sound pressure level of each tone shall be between 120 and 140 dB (A).

B. Monitoring of sound pressure level

The sound pressure level shall be checked by the competent authorities by means of the sonometer standardized by the International Electrotechnical Commission (reference IEC.179) or by means of the ordinary sonometer standardized by IEC (reference IEC.123).
