

RULES

FOR THE CLASSIFICATION AND CONSTRUCTION OF SMALL SEA FISHING VESSELS

PART IV STABILITY AND FREEBOARD

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RULES FOR THE CLASSIFICATION AND CONSTRUCTION OF SMALL SEA FISHING VESSELS

Rules for the Classification and Construction of Small Sea Fishing Vessels of Russian Maritime Register of Shipping (RS, the Register) have been approved in accordance with the established approval procedure and come into force on 1 January 2023.

The present edition of the Rules is based on the 2022 edition taking into account the amendments and additions developed immediately before publication.

The Rules are published in the following parts:

Part I "Classification";

Part II "Hull";

Part III "Equipment, Arrangements and Outfit";

Part IV "Stability and Freeboard";

Part V "Subdivision";

Part VI "Fire Protection";

Part VII "Machinery Installations";

Part VIII "Systems and Piping";

Part IX "Machinery";

Part X "Boilers, Heat Exchangers and Pressure Vessels";

Part XI "Electrical Equipment";

Part XII "Refrigerating Plants";

Part XIII "Materials";

Part XIV "Welding";

Part XV "Automation";

Part XVI "Structure and Strength of Fiber-Reinforced Plastic Ships";

Part XVII "Radio Equipment";

Part XVIII "Navigational Equipment".

REVISION HISTORY

(purely editorial amendments are not included in the Revision History)

For this version, there are no amendments to be included in the Revision History.

1 GENERAL

1.1 APPLICATION

1.1.1 Requirements of this Part of the Rules for the Classification and Construction of Small Sea Fishing Vessels¹ apply to decked sea fishing vessels with length less than 24 m, as well as decked ships engaged in sea products catching.

To ships in service, the requirements of the rules effective for the period of construction of the given ship shall apply. After reconstruction, major repair, alteration or modification, the stability of ships shall comply with the requirements of these Rules.

¹ Hereinafter referred to as "these Rules".

1.2 DEFINITIONS AND EXPLANATIONS

1.2.1 Definitions and explanations concerning the general terminology of these Rules are given in Part I "Classification".

For the purpose of this Part, the following definitions have been adopted.

A n g l e o f f l o o d i n g is the angle of heel, at which the ship's interior spaces are flooded by water through openings considered to be open or openings, which may be opened as required by operation conditions of the ship in working position.

B o o k l e t is Stability Booklet.

L e n g t h o f s h i p is length as defined in accordance with the Load Line Rules for Sea-Going Ships. **L i g h t s h i p** is a fully ready ship less deadweight. **W a t e r b a l l a s t** is included in the deadweight.

O p e n i n g s c o n s i d e r e d t o b e o p e n are openings in upper deck or hull sides, as well as in decks, sides and bulkheads of superstructures and deckhouses, whose closing appliances not comply with the requirements of Section 9 of Part III "Equipment, Arrangements and Outfit" regarding their watertightness, strength and reliability. Small openings, such as discharges of ship's systems and pipes, which actually have no effect on stability in dynamical heeling of a ship, are not considered to be open. If they submerge at an angle of 30° or less, these openings shall be assumed open if they can be considered a source of significant flooding.

S t o r e s are fuel, fresh water, provision, oil, expendable supplies, etc.

1.3 SCOPE OF SUPERVISION

1.3.1 For the ships subject to the requirements of this Part, the scope of supervision shall be defined in compliance with 1.3 of Part IV "Stability" of the Rules for the Classification.

1.4 GENERAL TECHNICAL REQUIREMENTS

1.4.1 The general technical requirements given in 1.4 of Part IV "Stability" of the Rules for the Classification shall apply to the ships subject to the requirements of this Part.

1.4.2 In all loading conditions, which might occur in the ship's service, liquid ballast may be accommodated in the washing or fresh water bottom tanks only in special cases.

1.4.3 The width of enclosures in a fish hold or fish containers on the deck and in the hold shall not exceed 1 m. In case of greater width, the fish is considered as a liquid cargo.

1.4.4 Ships' inclining test shall be carried out in compliance with the requirements of 1.5 of Part IV "Stability" of the Rules for the Classification.

2 GENERAL REQUIREMENTS FOR STABILITY

2.1 GENERAL

2.1.1 For the purpose of this Section, ships are divided into two groups:

group I — trawlers. Namely, ships engaged in fishing with seine net, purse seine, trawl, drag, as well as ships engaged in fishing with drift net;

group II — other ships. Namely, ships engaged in fishing or sea product catching with traps, long-line, electric light or with the aid of divers and scuba divers servicing fixed nets.

2.1.2 Restrictions on the area of operation, distance to the port of refuge and sea state shall be set down and included in the Stability Booklet:

.1 for ships of less than 15 m in length restricted area of navigation **R3** may be prescribed;

for ships 15 — 20 m in length, an area of navigation not higher than **R2** may be prescribed;

for ships 20 — 24 m in length, an area of navigation not higher than **R1** may be prescribed;

.2 ships of less than 15 m in length may proceed to sea and be en route at sea state not more than 4, ships 15 — 20 m in length — not more than 5, ships 20 — 24 m — not more than 6;

.3 having regard to stability and seaworthiness of ships and depending on the reliable provision of the area of operation concerned with forecasts, as well as on the operating experience for ships of similar type and the same or approximately the same dimensions, the Register may change the restrictions on the area of navigation and permissible sea state specified in [2.1.2.1 — 2.1.2.2](#);

.4 when determining the maximum permissible sea state for small craft carried on depot ships (for example, small fishing boats carried on mother ships), in addition to the provisions of [2.1.2.2](#) and [2.1.2.3](#), the maximum sea state, at which the craft can be safely lifted on board the depot ship shall be taken into account;

.5 additional restrictions may be introduced in zones of special sea conditions.

Referred to such zones are:

zones of surf (breaking) waves;

zones of local abrupt increase in wave height and steepness (bars in estuaries, tossing, etc.).

Zones of special sea conditions are set on the basis of the data of local hydro meteorological and hydrographic offices.

2.2 REQUIREMENTS FOR STABILITY

2.2.1 The area under the righting lever curve shall not be less than 0,055 m·rad up to the heeling angle of 30° and not less than 0,090 m·rad up to the heeling angle of 40°. Besides, the area under the righting lever curve between the heeling angles of 30° and 40° shall not be less than 0,030 m·rad.

2.2.2 For group I ships the maximum righting lever l_{\max} shall be not less than 0,23 m at the heeling angle $\theta_{\max} > 30^\circ$. The value of righting lever at 60° heel shall not be less than 0,1 m. For the ship in the fishery $l_{\max} > 0,2$ m at $\theta_{\max} > 30^\circ$.

For group II ships the maximum righting lever l_{\max} shall be not less than 0,22 m at the heeling angle $\theta_{\max} > 30^\circ$. The value of righting lever at 60° heel shall not be less than 0,05 m. For the ship in the fishery $l_{\max} > 0,2$ m at $\theta_{\max} > 30^\circ$.

Where sufficiently technically justified, the angle corresponding to the maximum of righting lever curve may be reduced to 25°.

2.2.3 Small sea fishing vessels with ratio $B/D > 2,5$ may be allowed to navigate having a reduced angle of heel where the maximum of righting lever curve occurs θ_{\max} , provided the following criteria are satisfied:

.1 the angle of heel where the maximum of righting lever curve occurs θ_{\max} shall be not less than 15°;

.2 the area under the righting lever curve shall be not less than 0,070 m·rad up to an angle of heel of 15° when the maximum of the righting lever curve occurs at an angle of heel of 15°, or 0,055 m·rad up to an angle of heel of 30°, when the maximum of the righting lever curve occurs at an angle of heel of 30° and above. When the maximum of the righting lever curve occurs at angles of between 15° and 30°, the corresponding area under the righting lever curve, in m·rad, shall be not less than the value determined by the formula

$$A_{\max} = 0,055 + 0,001(30^\circ - \theta_{\max}). \quad (2.2.3)$$

2.2.4 The angle of flooding shall not be less than 40°.

2.2.5 The stability of fishing vessels hauling in the nets and catch with cargo booms shall be sufficient to ensure that the static heel angle of the ship when handling the nets and operating the cargo boom at its maximum outreach would not exceed 10° or the angle at which the deck is immersed, whichever is less.

2.3 METACENTRIC HEIGHT

2.3.1 Under all loading conditions, except for the light-ship condition and the ship in the fishery, the value of corrected initial metacentric height shall be not less than 0,5 m.

2.3.2 The corrected initial metacentric height of a ship in the fishery shall be not less than 0,35 m.

2.4 ICING CONSIDERATIONS

2.4.1 Icing considerations shall be made in accordance with 2.4 of Part IV "Stability" of the Rules for the Classification, however, the mass of ice per 1 m² of the total area of horizontal projection of exposed weather decks shall be assumed to be 40 kg.

3 LOADING CONDITIONS

3.1 Stability shall be checked for the following loading conditions:

- .1** departure for fishing grounds with full stores;
- .2** arrival at a port from fishing grounds with full catch in holds and on deck, if provision is made for the deck cargo in the design, and stores are nearly exhausted;
- .3** arrival at a port from fishing grounds with 20 % of catch in holds or on deck, if provision is made in the design for stowage of cargo on deck, 70 % of ice and salt rating and stores are nearly exhausted;
- .4** departure from fishing grounds with full catch and amount of stores ensuring the ship's draught up to the load line.

3.2 Stores nearly exhausted — fuel is held only in the service tank for 4 h of operation. Other stores — 10 %.

3.3 For net fishing vessels, allowance shall be made for wet fishing nets on deck loading conditions as in [3.1.2 — 3.1.4](#).

3.4 The amount of full catch is determined depending on the ship's type, capacity of cargo spaces and stability characteristics. It shall correspond to the load line position and shall be specified in stability calculations, as well as in the Booklet.

The amount of catch allowed to be stowed on deck shall be specified both in stability calculations, as well as in the Booklet.

For ships with stern ramp engaged in trawling, amount of the maximum catch in the trawl belly end shall be specified in the stability calculations, as well as in the Booklet.

3.5 Stability of the ship, while being on fishing grounds, shall be checked for the following loading conditions:

- .1** ship engaged in fishing, with no catch in holds, catch and wet nets stowed on deck, the hatches of the holds open, stores are nearly exhausted, with no ice and salt;
- .2** ship engaged in fishing, with no catch in holds, catch is hauled to the deck by means of fishing gear (boom, power block, winch), the hatches of the holds open, stores are nearly exhausted, with no ice and salt.

Cargo hoisted on the boom or power block shall be equal to their safe working load and the winch pulling force shall be taken equal to this value stated in the certificate.

4 FREEBOARD

4.1 GENERAL

4.1.1 Assignment of the minimum freeboard and load line marking shall be performed in compliance with Section 7 "Load Lines of Ships of Less than 24 m in Length" of the Load Line Rules for Sea-Going Ships.

4.1.2 Conditions of assignment of freeboards shall be provided according to [4.2](#).

4.2 CONDITIONS OF ASSIGNMENT OF FREEBOARDS

4.2.1 Watertightness of the hull, superstructures and deckhouses shall comply with the requirements of Section 5 of Part II "Hull", and deck railing shall comply with the requirements of Section 10 of Part III "Equipment, Arrangements and Outfit".

Russian Maritime Register of Shipping

Rules for the Classification and Construction of Small Sea Fishing Vessels

Part IV

Stability and Freeboard

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