

SUB-COMMITTEE ON SHIP DESIGN AND
CONSTRUCTION
7th session
Agenda item 4

SDC 7/4
1 November 2019
Original: ENGLISH
Pre-session public release:

SAFETY MEASURES FOR NON-SOLAS SHIPS OPERATING IN POLAR WATERS

Report of the Correspondence Group on Safety Measures for Non-SOLAS Ships Operating in Polar Waters

Submitted by New Zealand

SUMMARY

Executive summary: This document provides the report of the Correspondence Group on Safety Measures for Non-SOLAS Ships Operating in Polar Waters and draft guidelines for safety measures for fishing vessels of 24 m in length and over operating in polar waters, and for pleasure yachts of 300 gross tonnage and above not engaged in trade operating in polar waters

Strategic direction, if applicable: Other work

Output: OW 40

Action to be taken: Paragraph 51

Related documents: SDC 6/8, SDC 6/8/1 and SDC 6/13

Introduction

1 The Sub-Committee on Ship Design and Construction (SDC), at its sixth session, established a Correspondence Group on Safety Measures for Non-SOLAS Ships Operating in Polar Waters, under the coordination of New Zealand, to progress work on draft voluntary guidelines setting out safety measures for fishing vessels and pleasure yachts operating in polar waters.

Participants

2 Representatives from the following Member States participated in the Correspondence Group:

ARGENTINA	NEW ZEALAND
AUSTRALIA	NORWAY
CANADA	POLAND
CHILE	PORTUGAL
DENMARK	RUSSIAN FEDERATION
FRANCE	SINGAPORE
GERMANY	SPAIN
ITALY	SWEDEN
JAPAN	UNITED KINGDOM
MARSHALL ISLANDS	UNITED STATES
NETHERLANDS	

and observers from the following non-governmental organizations in consultative status:

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)
FRIENDS OF THE EARTH INTERNATIONAL (FOEI)
INTERNATIONAL COUNCIL OF MARINE INDUSTRY ASSOCIATIONS (ICOMIA)
WORLD WIDE FUND FOR NATURE (WWF)
INTERNATIONAL TRANSPORT WORKERS' FEDERATION (ITF)
SUPERYACHT BUILDERS ASSOCIATION (SYBAss)
PACIFIC ENVIRONMENT

Terms of Reference

3 The Sub-Committee instructed the Correspondence Group, taking into account comments and decisions taken at SDC 6, to:

- .1 further develop the draft guidelines for safety measures for fishing vessels of 24 m in length and over operating in polar waters, based on the annex to document SDC 6/8, as a high priority with a view to finalization at SDC 7;
- .2 further develop the draft guidelines for pleasure yachts of 300 GT and above not engaged in trade operating in polar waters, based on the annex to document SDC 6/8/1; and
- .3 submit a written report to SDC 7.

Method of work

4 To progress work on developing the draft fishing vessel guidelines, using document SDC 6/8 as the base document, and draft pleasure yacht guidelines, using document SDC 6/8/1 as the base document, the Correspondence Group undertook four rounds of consultation. All text was made available for discussion. Questions to be considered during each round were set out in a questionnaire, and the responses to each round were analysed to identify where there was support for an agreed way forward.

5 During the first round of consultation the Correspondence Group considered the following issues:

- .1 In respect of the fishing vessel guidelines:
 - .1 proposals for the overall structure and format of the guidelines;
 - .2 how to address alignment with, and references to, the Cape Town Agreement; and
 - .3 how to handle chapter 11: whether to keep it as a separate chapter setting out additional safety measures not covered by the Cape Town Agreement or whether to merge its provisions into other relevant chapters of the guidelines.
2. In respect of the fishing vessel and pleasure yacht guidelines jointly:
 - .1 a proposal to align the language and format of the preface and introductory sections of both sets of guidelines;
 - .2 the development of "goal-based standards" and their proposed use at the beginning of each chapter; and
 - .3 a review of the text of the guidelines to ensure it reflected standard non-mandatory language appropriate to recommendatory guidelines.

6 During the second round of consultation the Correspondence Group undertook a review of chapters 1 to 4 (except paragraph 1.2 (definitions)) of the fishing vessel guidelines and chapters 1, 3, 4, 5 and 11 of the pleasure yacht guidelines. This review aimed to resolve any square-bracketed text, to consider new drafting proposals and to consider whether existing provisions under each chapter should be retained, deleted or modified.

7 The chapter by chapter review was continued during the third round of consultation with the Correspondence Group considering chapters 5 to 10 of the fishing vessels guidelines and chapters 6 to 11 of the pleasure yacht guidelines.

8 During the fourth round of consultation, the Correspondence Group considered the following issues in respect of both sets of guidelines:

- .1 definitions set out in section 1.2 of the fishing vessel guidelines and section 2¹ of the pleasure yacht guidelines, in particular whether additional definitions were required or whether existing definitions should be modified;
- .2 the question of the application of both sets of guidelines in regard to voyage type, specifically whether application should be limited to vessels undertaking voyages in international waters or whether the guidelines should apply to all vessels voyaging in polar waters; other questions relating to the possible limitation of application, for example in regard to vessel type, were also considered during this round;
- .3 retention or deletion of the "Goals" section of each set of guidelines; and

¹ Section 2 of the base document for the pleasure yacht guidelines was subsequently incorporated into a reformatted chapter 1 for consistency with the fishing vessel guidelines.

- .4 consistency of the use of terms such as "vessel" or "ship", and "personnel" or "persons on board" throughout both sets of guidelines.

9 The Correspondence Group also conducted a review of the full draft texts of both sets of guidelines for consistency, completeness and cohesion in the fourth round.

10 As part of the round four consultation, the Coordinator of the Correspondence Group circulated a revised working draft of both sets of guidelines, reflecting agreement reached on drafting issues and editorial improvements considered during the first and second consultation rounds. New drafting proposals from the Correspondence Group members arising from the first and second consultation rounds were also considered at that time.

Progress to date

11 Considering feedback on proposals for amending text and other drafting issues from all four rounds of consultation, the Coordinator of the Correspondence Group prepared further revised texts of both sets of guidelines, as set out in annexes 1 and 2, respectively. The Coordinator's approach to the second revision of both sets of draft guidelines was to:

- .1 correct typos and editorial errors, renumber paragraphs and chapters where required to accommodate agreed amendments, and make other minor editorial improvements for clarity and consistency;
- .2 produce a version of the texts of both sets of guidelines as clean as possible, including:
 - .1 removing square brackets from the texts where there was a clear majority view on preferred language after the four consultation rounds;
 - .2 deleting definitions in both sets of guidelines where the term is not used in the texts; and
 - .3 reflecting as clean text other amendments proposed by the Group during the first two rounds of consultation, where a clear majority view was expressed on these proposals as part of the fourth consultation round;
- .3 improve consistency by aligning the language and format of both sets of guidelines, as appropriate, including:
 - .1 reformatting the pleasure yacht guidelines to replicate as far as is appropriate the chapter structure of the fishing vessel guidelines; and
 - .2 where new text has been proposed in square brackets for one set of guidelines, replicating it as far as is appropriate in the corresponding text of the other guidelines;

12 Any unresolved text, following the four consultation rounds, appears in square brackets and new drafting proposals are shown underlined in the second revision of the draft set out in the annexes.

Issues agreed by the Correspondence Group

13 Key issues considered, where a view has been agreed by a majority of Correspondence Group members, are described below. Views that diverged from the majority are also noted.

Alignment of structure and format of both sets of draft guidelines

14 It was agreed that, in the interests of consistency, the language, structure and format of both sets of guidelines should be aligned as far as is appropriate, taking account of their different genesis and audiences. It was not proposed that the two sets of guidelines should mirror each other completely. It was further agreed that:

- .1 the "Preamble" should replace the "Preface", in line with the format of a number of other IMO non-mandatory instruments;
- .2 additional background text would be included in the introductory sections of both sets of guidelines to provide further context to the development of the draft guidelines;
- .3 "chapter" rather than "section" headings would be used consistently throughout both sets of guidelines; and
- .4 the pleasure yacht guidelines would be restructured and chapters renumbered to bring them into closer alignment with the fishing vessel guidelines.

Alignment with and references to the Cape Town Agreement of 2012

15 The Correspondence Group agreed that alignment with, and references to, the Cape Town Agreement of 2012 should be retained in the fishing vessel guidelines. This approach is consistent with the instructions of the Maritime Safety Committee at its ninety-ninth session (MSC 99), to SDC 6 to develop recommendatory safety measures for fishing vessels of 24 m in length and over, "with a view to alignment with the 2012 Cape Town Agreement". It was with this in mind that the draft guidelines proposed in document SDC 6/8 were designed to mirror the structure of the Cape Town Agreement, except for chapter 11 which sets out recommendations for additional safety measures beyond the scope of or not provided for in the Cape Town Agreement.

16 However, a few Correspondence Group members remained of the view that it is inappropriate to align the guidelines to an instrument that is not in force globally and which, therefore, cannot provide a legal framework to underpin them.

17 This view was relevant to the Correspondence Group's consideration of paragraph 1.3.1 of the fishing vessel guidelines. A small majority were in favour of alternate text proposing reference to "the 2005 Code of Safety for Fishermen and Fishing Vessels, the *Voluntary guidelines for the design, construction, and equipment of small fishing vessels 2005*, an applicable national standard or the appropriate requirements of a recognized organization", rather than the Cape Town Agreement, as the baseline for performance standards. Both alternatives have, therefore, been left in square brackets for consideration by SDC 7.

Treatment of chapter 11 of the fishing vessel guidelines

18 The majority of Correspondence Group members who expressed a view were comfortable with retaining chapter 11 as an add-on to the current framework structured around the Cape Town Agreement. It was considered useful to capture in this chapter recommendations for additional safety measures beyond the scope of, or not provided for in, the Cape Town Agreement.

Avoidance of non-mandatory language

19 The Correspondence Group agreed that the use of language associated with mandatory instruments should generally be avoided in the definitions sections and throughout both sets of guidelines. Editorial improvements proposed by some Correspondence Group members to avoid "mandatory" language were incorporated into the draft guidelines. However, Correspondence Group members were also of the view that, where definitions were drawn from the International Code for Ships Operating in Polar Waters (Polar Code), the language used should be consistent with that of the Polar Code definitions, even when such language appears "mandatory".

Treatment of Goals sections in both sets of guidelines

20 While the use of goals at the heading of each section was generally supported, some members expressed the view that a goal-based structure was not appropriate for non-mandatory guidelines and noted that such an approach would require a certain structure (functional requirements followed by regulations).

21 The Correspondence Group agreed with a subsequent proposal from the Coordinator to head each section with "Purpose" rather than "Goal" as this sets out a useful clarification of what the section is intended to achieve. Editorial improvements proposed by some Correspondence Group members to the "Purpose" sections have been incorporated as far as possible with the aim of simplifying and clarifying the text.

References to "training" and "manning" or "crewing"

22 Two Correspondence Group members were reluctant to see references to "training" and "manning" or "crewing" in the draft fishing vessel guidelines, suggesting that these issues should be addressed either by guidance or by the mandatory requirements in the STCW-F Convention.

23 However, in the interests of achieving the desired safety outcomes, the majority of Correspondence Group members considered issues relating to training for operations in polar waters and guidance for appropriate crewing arrangements should be covered in the guidelines and therefore, wished, to retain references to "training" and "manning" or "crewing". The Group agreed to a subsequent proposal from the Coordinator to replace all references in both sets of guidelines to "manning" with the gender-neutral term "crewing", bearing in mind IMO's "Empowering Women" theme for 2019.

Questions concerning application of both sets of guidelines

24 The following questions relating to the application of both sets of guidelines were considered during the course of the four consultation rounds:

- .1 whether application of the guidelines should be limited to fishing vessels or yachts on international voyages in polar waters;

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- .2 whether the applicability of section 3.3 under chapter 3 of the fishing vessels guidelines should be limited to vessels of 100 m in length and over and with 100 or more crew, consistent with the damage stability requirements of the Cape Town Agreement; the same issue was raised in regard to paragraph 8.2.9 of the fishing vessel guidelines;
- .3 whether the application of chapter 2 of the pleasure yacht guidelines should be limited to "yachts operating in low temperatures" on the grounds that in the case of some types and sizes of yachts it would be difficult or onerous to satisfy the provisions relating to construction;
- .4 whether the application of the pleasure yacht guidelines should be extended to include pleasure yachts of 300 gross tonnage and above, but less than 500 gross tonnage, engaged in trade. Yachts in this category are currently not covered by the mandatory provisions of the Polar Code; in this respect, one Correspondence Group member noted during the consultation that a gap exists for this category of yacht. They state the situation as follows:

"Pleasure yachts engaged in trade of 500 gross tonnage and above carrying not more than 12 passengers need to comply in full with the SOLAS and the Polar Code requirements as they are considered cargo vessels. The term "pleasure yachts not Engaged in trade" is a general term from SOLAS I-3, therefore it should be assumed that yachts engaged in trade are not permitted to carry more than 12 passengers unless they are certified as a passenger ship. However, a regulatory gap exists for pleasure yachts of 300 gross tonnage and above, but less than 500 gross tonnage, engaged in trade. The same regulatory gap also applies to cargo vessels 300 gross tonnage – 500 gross tonnage."

25 The Correspondence Group noted that the terms of reference established at SDC 6 limited its consideration to fishing vessels of 24 m in length and above and pleasure yachts of 300 gross tonnage and above not engaged in trade, operating in polar waters. The scope of the application of the guidelines was also specified in the MSC 99 report. It might be understood from this that the guidelines apply to the specified vessels operating anywhere in polar waters, regardless as to whether they are on a "domestic" or "international" voyage.

26 Given the above, the Sub-Committee may wish to consider the issues concerning the scope of application and, in particular, whether to recommend to the Committee that the scope of the pleasure yacht guidelines should be extended to include pleasure yachts engaged in trade of 300 gross tonnage and above and less than 500 gross tonnage.

Treatment of references to survival kits in the pleasure yacht guidelines

27 To improve overall format and consistency, section 8.5 covering provisions for survival kits has been deleted. This section largely duplicates the provisions of section 4.1 of the pleasure yacht guidelines and is redundant. The text of 8.5.2 is not duplicative but has been moved to section 4.1 where it logically sits.

Consistency of language and other general drafting issues

28 Correspondence Group members expressed a preference for consistent use of language and terminology throughout the text of both sets of guidelines. In this context, consideration was given to the following issues:

- .1 use of the term "ship" or "vessel ": it was agreed that reference to these terms would be removed from the text where this could be done without affecting meaning or clarity. The term "ship" would be retained in the definitions sections of both sets of guidelines, consistent with Polar Code language. The term "ship's personnel", rather than "vessel's personnel", would be used where necessary for grammatical sense. Otherwise the term "ship" would be replaced with "vessel" where it appears in the fishing vessel guidelines, and "ship" with "yacht" where it appears in the pleasure yacht guidelines;
- .2 use of the terms "personnel" or "persons on board": it was noted that the two terms have specific meanings and may not be used interchangeably and reference to these terms were removed from the text where appropriate. The Correspondence Group favoured the use of "persons on board" for both sets of guidelines, unless the context required otherwise. This term allows for the presence on board a fishing vessel of persons other than those with an operational function on the vessel (such as captain, master or crew), for example fishing observers, camera crew or even passengers. On a pleasure yacht, the term allows for the presence of persons other than the captain or crew or owner, such as guests of the owner;
- .3 deletion of references to "operating in polar waters": the Correspondence Group considered repetition of this text throughout the guidelines unnecessary as the intention is captured in the title of the guidelines and deleted them throughout both sets of guidelines, unless it is considered necessary for clarity and context; and
- .4 use of the terms "ice strengthened vessel" or "vessels intended to operate in ice". The majority of Correspondence Group members preferred the term "vessels intended to operate in ice" to be used consistently throughout both sets of guidelines, on the grounds that any vessel operating in ice-covered waters is subject to the same hazards, even if not ice-strengthened. However, there were divergent views and one Correspondence Group member favoured using the term "vessels intended to operate in waters where ice can be encountered" in place of either term originally proposed. Another favoured using the term "vessels operating in polar waters" in place of either term originally proposed. Another disagreed with replacing one term with another, arguing they each have specific meanings and should be used in the correct context as appropriate.

Unresolved text or issues requiring further consideration

29 Unresolved drafting issues for SDC 7's consideration are shown in the draft guidelines in annexes 1 and 2 as alternative text options in square brackets, as text for possible deletion in square brackets, or proposed new text shown underlined. The attention of SDC 7 is drawn in particular to the drafting issues described below.

Definitions

30 A proposal to include a new definition of the term "maximum anticipated air temperature" was discounted as it would have largely replicated the existing definition of "mean daily low temperature (MDLT)" and the use of that term throughout both texts was ultimately preferred.

31 Other new definitions have been proposed, but agreement has yet to be reached. These are discussed below:

- .1 *Antarctic "waters" or "area"*: while both sets of guidelines include a definition of "Antarctic waters", some Correspondence Group members pointed out that the Polar Code and MARPOL Annexes I, II, and V refer to "the Antarctic area", and suggested there is a need for consistency. Both alternatives have been left in square brackets for consideration at SDC 7. However, it is noted that there is frequent reference to "Antarctic waters" in both sets of guidelines, whereas "Antarctic area" is only used in the title of the map in figure 1 of both sets of guidelines;
- .2 *Hull "niche areas" or "penetrations"*: the majority of Correspondence Group members wanted to include a definition of "hull niche areas", but no agreement was reached on a definition. One Correspondence Group member instead proposed defining the term "hull penetrations" and replacing references to "hull niche areas" in paragraph 1.3.4 of the fishing vessel guidelines and paragraph 1.3.3 of the pleasure yacht guidelines with this term. Another Correspondence Group member strongly disagreed that the term "hull niche areas" be used in the guidelines or included in the definitions and proposed reference could instead be made to "areas that can be penetrated through the hull". References to "hull niche areas" and its alternatives have been left in square brackets in the definitions sections and texts of paragraph 1.3.4 of the fishing vessel guidelines and paragraph 1.3.3 of the pleasure yacht guidelines;
- .3 *Maximum expected rescue time*: the majority of Correspondence Group members agreed that a definition was required for the term "maximum expected rescue time" in both sets of guidelines and supported a definition, drawn from the Polar Code. This specifies that the maximum expected rescue time "should never be less than five days". One member disagreed with specifying a maximum rescue time on the grounds that a rescue undertaken in the Arctic would always take much less than five days and the situation would be different to a rescue involving a large number of passengers from a passenger ship. It was suggested that it should be left to the owner or master to define the maximum expected rescue time depending on area of operation. The text specifying a maximum rescue time of five days has, therefore, been left in square brackets for consideration at SDC 7;
- .4 *Pleasure yacht*: some Correspondence Group members considered a definition of "pleasure yacht" (or "pleasure yacht not engaged in trade") is needed in the pleasure yacht guidelines. There was no agreement on the definition to be used. Other members disagreed with including such a definition, mainly on the grounds that any definition in the guidelines might conflict with definitions contained in domestic legislation. Since there was no consensus on including a definition of "pleasure yacht" or on a definition to be used, the entire paragraph 1.1.12 of the pleasure yacht guidelines and

each of the five alternative definitions proposed during the consultation, have been placed in square brackets for consideration at SDC 7;

- .5 Pleasure vessel: one Correspondence Group member proposed to include a definition of "pleasure vessel" in lieu of "pleasure yacht", arguing that this covers a wider range of vessels than "yacht". This was also not pursued, as the term "pleasure yacht" was specified in the report of MSC 99, and the Correspondence Group's terms of reference (see paragraph 3.2).
- .6 *Fishing vessel*: two Correspondence Group members proposed that, if a definition of "pleasure yacht" is to be included in the pleasure yacht guidelines, a definition of "fishing vessel" should be included in the fishing vessel guidelines. One proposed text taken from the 2005 Code of Safety for Fishermen and Fishing Vessels: "A fishing vessel is a vessel used commercially for catching fish, whales, seals, walrus or other living resources of the sea". Other Correspondence Group members have stated that, if a definition of "fishing vessel" is to be included, this should reflect the definition in the SOLAS Convention: "A fishing vessel is a vessel used for catching fish, whales, seals, walrus or other living resources of the sea". Both variations are shown in square brackets as paragraph 1.2.4 (bis) in the definitions section of the fishing vessel guidelines for consideration at SDC 7.

Reference to "Polar Water Operational Manual (PWOM)" rather than "safety management system"

32 The Correspondence Group favoured replacing the reference to "safety management system" in paragraph 1.4.1 of the fishing vessel guidelines with "Polar Water Operational Manual (PWOM)". However, adoption of the reference to a PWOM in paragraph 1.4.1 results in a conflict with the references to the "supplementary operating manual containing information directly relevant to operations in polar waters", referred to in paragraph 1.5.1. Further drafting amendments to paragraph 1.4.1 intended to resolve this conflict have, therefore, been proposed for consideration at SDC 7.

33 One Correspondence Group member considered that a PWOM should be implemented as part of an existing safety management system, rather than as a supplementary operating manual and it was agreed to refer the matter to the attention of SDC 7.

Survey provisions

34 The Correspondence Group favoured a proposal to redraft the survey provisions in paragraph 1.6.1 of the fishing vessel surveys to a recommended survey periodicity and to add an additional paragraph, (paragraph 1.6.2), specifying what the survey should cover. However, some members raised significant concerns about the "requirement" for annual surveys of fishing vessels in non-mandatory guidelines and others questioned how the surveys proposed in 1.6.1 would relate to the surveys routinely required by Administrations for certification of fishing vessels for normal operation. The original, and proposed alternative text, has been left in square brackets for consideration at SDC 7. This alternative text includes a new amendment proposed by the Coordinator specifying that these surveys are intended for fishing vessels intending to operate in polar waters which are specific and in addition to the existing mandatory surveys of fishing vessels required by national legislation.

Safety measures for persons on board

35 One Correspondence Group member proposed the deletion of paragraphs 6.4.1 and 6.4.2 of the fishing vessel guidelines, arguing they should be covered by applicable baseline standards or national legislation. The text of the two paragraphs has been left in square brackets for consideration with a view to deletion at SDC 7. The Sub-Committee may consider it useful to retain these recommendatory safety measures which are specific to vessels operating in ice.

36 One Correspondence Group member proposed the deletion of paragraph 6.4.4 of the fishing vessel guidelines, arguing it is redundant in light of paragraph 6.4.3. The text of the paragraph has been left in square brackets for consideration with a view to deletion at SDC 7. The Sub-Committee may consider that paragraphs 6.4.3 and 6.4.4 address different risks and both should be retained.

37 Two Correspondence Group members proposed the deletion of paragraph 6.5.3 of the fishing vessel guidelines, arguing they should be covered by applicable baseline standards or national legislation. The text of the paragraph has been left in square brackets for consideration with a view to deletion at SDC 7. The Sub-Committee may consider it useful to retain this recommendatory safety measure which is specific to vessels operating in ice.

Storage of drinking water on lifeboats

38 There is a proposal to replace the original text with language from the *Interim Guidelines for Life Saving Appliances* (MSC.1/Circ.1614) on the basis that water should be prevented from freezing if it is to be useful on survival craft. It is further suggested that the provision should apply to liferafts as well as lifeboats. The original and alternative proposed text has been left in square brackets for consideration at SDC 7. It is noted that, if the alternative text is preferred, this could be moved to section 7.1 of the fishing vessel guidelines where it would apply to liferafts as well as lifeboats. If the alternative text is preferred, it should also be replicated for the corresponding provision (paragraph 4.5.6) of the pleasure yacht guidelines.

Proposal to restructure chapter 8 of the fishing vessel guidelines

39 One Correspondence Group member proposed significant amendments to the structure, content and numbering of chapter 8. The original text of chapter 8 (with minor drafting amendments proposed by various Correspondence Group members during the course of consultation) and the proposed alternative text for the entire chapter has been left in square brackets for consideration at SDC 7.

Title of pleasure yachts guidelines

40 One Correspondence Group member noted that the terms "pleasure yachts" and "yachts not engaged in trade" mean the same and that the word "pleasure" could be removed from the title and throughout the text of the guidelines. This was not pursued as the term "pleasure yacht" was specified in the report of MSC 99 (paragraph 7.16) and the Correspondence Group's terms of reference.

Effect of cold water temperatures on Reverse Osmosis water-making plants

41 A Correspondence Group member proposed, during the round two consultation, to include a new paragraph under (then numbered) section 5.3 of the pleasure yacht guidelines, addressing the effect of cold water temperatures on reverse osmosis water-making systems.

This proposal was addressed during the round four consultation where a clear majority of Correspondence Group members disagreed with the need for such an addition.

42 However, the Correspondence Group member subsequently proposed new text for a paragraph to be included under (now renumbered) section 3.3 of the guidelines. For transparency, this has been shown in square brackets as a proposed new paragraph 3.3.4 in the pleasure yacht guidelines and replicated as proposed new paragraph 4.3.4 in the corresponding section of the fishing vessel guidelines.

New provisions covering radiocommunications in the pleasure yacht guidelines

43 There are no provisions covering radiocommunications in the draft pleasure yacht guidelines. SDC 7 may consider it appropriate and necessary to achieve the desired safety outcomes to include such provisions in the pleasure yacht guidelines, as for the fishing vessel guidelines. A new chapter, replicating the radiocommunications provisions from chapter 9 of the fishing vessels guidelines, could be included under current chapter 5 of the pleasure yacht guidelines. If there is agreement to this proposal, subsequent chapters would need to be renumbered.

Treatment of chapter 7 of the pleasure yacht guidelines

44 One Correspondence Group member proposed deleting this chapter or merging it with another, given its short length and high-level nature. SDC 7 may consider merging this chapter with chapter 1 (General) under a new section (1. 4 Operations). The text of chapter 7 has been left in square brackets for consideration at SDC 7.

Retitling chapter 9 of the pleasure yacht guidelines

45 To improve overall consistency, the Coordinator proposes to rename this chapter "Other safety measures" to align it with the format of the corresponding chapter 11 of the fishing vessel guidelines. Renaming the chapter would also allow logically for the addition of text in this chapter covering voyage planning requirements, as discussed in paragraph 49 below.

Reference to climate specific medical risks

46 There was no majority view from Correspondence Group members as to how to treat references to climate-specific medical risks in the pleasure yacht guidelines. Proposals were considered during the round four consultation to list such risks in a separate annex or refer to them under the Sources of Hazard section in the introduction to the guidelines.

47 There has since been a suggestion by one Correspondence Group member that a "polar" add-on might be needed to the *Cold Water Survival Guidelines* (MSC.1/Circ.1185/Rev.1) to address the question of medical risk specific to operation in polar conditions. SDC 7 is requested to consider this question which is beyond the scope of the Correspondence Group's terms of reference.

New provisions covering voyage planning in the pleasure yacht guidelines

48 Some Correspondence Group members referred during the consultation to the need for guidance for pleasure yachts on avoiding concentrations of ice, registering positions with maritime authorities, referring to ice charts and other voyage-related information sources. These are all essentially requirements for voyage planning to avoid hazards when planning a route through polar waters, which are currently missing from the pleasure yacht guidelines.

49 A new section 9.3 covering voyage planning requirements is now proposed in square brackets for consideration at SDC 7. New text could correspond to section 11.6 of the fishing vessel guidelines. The Sub-Committee may consider it necessary to achieve the desired safety outcomes by including provisions for voyage planning in the pleasure yacht guidelines, consistent with the provisions in the fishing vessel guidelines.

Proposal for the establishment of a working group

50 Taking note of the issues outlined above, the Correspondence Group proposes the establishment of a working group at SDC 7 to further develop, and possibly complete work on both sets of draft guidelines, on the basis of the following terms of reference:

- .1 consider the unresolved drafting proposals in both sets of guidelines, noting that alternative text options are shown in square brackets, text for possible deletion is shown in square brackets, and proposed new text is shown underlined;
- .2 further develop, with the aim of finalizing:
 - .1 the draft Guidelines for fishing vessels of 24 m in length and over operating in polar waters, based on annex 1; and
 - .2 the draft Guidelines for pleasure yachts of 300 gross tonnage and above not engaged in trade operating in polar waters based on annex 2; and
- .3 consider whether the *Cold Water Survival Guidelines* (MSC.1/Circ.1185/Rev.1) should be amended to take account of medical risk specific to operation in polar conditions and how such work should be progressed.

Action requested of the Sub-Committee

- 51 The Sub-Committee is invited to approve the report in general and, in particular, to:
- .1 note the progress made by the Group on the draft guidelines for safety measures for fishing vessels of 24 m in length and over operating in polar waters;
 - .2 note the progress made by the Group on the draft guidelines for safety measures for pleasure yachts of 300 gross tonnage and above not engaged in trade operating in polar waters;
 - .3 consider the proposal to establish a working group to progress and possibly complete work on the draft guidelines, with the terms of reference outlined in paragraph 50;
 - .4 take any other action as deemed appropriate.

ANNEX 1

DRAFT GUIDELINES FOR SAFETY MEASURES FOR FISHING VESSELS OF 24 M IN LENGTH AND OVER OPERATING IN POLAR WATERS

Preamble

These Guidelines for fishing vessels of 24 metres in length and over have been developed to supplement existing IMO instruments in order to increase the safety of fishing vessels operating in polar waters, and persons on board, and to mitigate the impact on the people and environment in the remote, vulnerable and potentially harsh polar waters.

These Guidelines were designed to align with the Cape Town Agreement of 2012. The structure of these Guidelines reflects that of the Cape Town Agreement, with an additional chapter XI which sets out recommendations for other safety measures which are beyond the scope of, or not provided for in, the Cape Town Agreement. The International Code for Ships Operating in Polar Waters (Polar Code) also provides useful context to the current Guidelines.

These Guidelines are recommendatory, and their wording is designed to provide guidance rather than mandatory direction. These Guidelines are not intended to infringe on national systems of shipping control.

Introduction

1 Purpose

These Guidelines provide for the enhanced safety of fishing vessels of 24 m in length and over, and persons on board, by addressing risks specific to their operation in polar waters.

2 Background

These Guidelines were developed in acknowledgement that operating in polar waters imposes additional demands on vessel systems, including navigation, communications, life-saving, main and auxiliary machinery, environmental protection and damage control, beyond those normally encountered.

These Guidelines also recognize that safe operation in such conditions requires special attention to human factors including crewing arrangements and training in emergency and operational procedures to ensure their safety in a polar environment.

These Guidelines focus on the need to ensure that fishing vessel systems are capable of functioning effectively under anticipated operating conditions and to provide adequate levels of safety in accident and emergency situations.

In June 2018, the Maritime Safety Committee of the International Maritime Organization (IMO) reviewed the safety measures for non-SOLAS ships operating in polar waters. The Committee noted the lack of a legal framework to allow for the mandatory application of the Polar Code to non-SOLAS ships, and evidence on the number of accidents involving non-SOLAS ships operating in polar waters, particularly in Antarctic waters. Concluding that these facts revealed a significant risk to the safety of lives at sea, and a continuing threat to the marine environment, the Committee determined that urgent action needed to be taken. These Guidelines are the result of the IMO decision to develop recommendatory safety measures for fishing vessels of 24 metres in length and over, operating in polar waters.

3 Source of Hazards

These Guidelines consider hazards which may expose fishing vessels to elevated levels of risk, some of which are unique to polar conditions. These include:

- .1 ice, as it may affect hull structure, stability characteristics, machinery systems, navigation, the outdoor working environment, maintenance and emergency preparedness tasks and malfunction of safety equipment and systems;
- .2 experiencing topside icing, with potential reduction of stability and equipment functionality;
- .3 low temperature, as it affects the working environment and human performance, maintenance and emergency preparedness tasks, material properties and equipment efficiency, survival time and performance of safety equipment and systems;
- .4 extended periods of darkness or daylight as it may affect navigation and human performance;
- .5 high latitude, as it affects navigation systems, communication systems and the quality of ice imagery information;
- .6 remoteness and possible lack of accurate and complete hydrographic data and information, reduced availability of navigational aids and seamarks with increased potential for groundings compounded by remoteness, limited readily deployable search and rescue (SAR) facilities, delays in emergency response and limited communications capability, with the potential to affect incident response;
- .7 potential lack of experience in polar operations, with potential for human error;
- .8 potential lack of suitable emergency response equipment, with the potential for limiting the effectiveness of mitigation measures; and
- .9 rapidly changing and severe weather conditions, with the potential for escalation of incidents.

The risk level within polar waters may differ depending on the geographical location, time of the year with respect to daylight, ice-coverage, etc. Therefore, mitigating measures suitable to address the above specific hazards may vary within polar waters and may be different in Arctic and Antarctic waters.

These Guidelines also recognize that, while Arctic and Antarctic waters have a number of similarities, there are also significant differences, and that the specific features of the legal and political regimes applicable to their respective vulnerable marine environments should be taken into account.

Chapter I – General

Purpose

This chapter provides guidance on general operating and safety arrangements.

1.1 Application

These Guidelines provide guidance for fishing vessels of 24 metres in length and over operating in polar waters.

1.2 Definitions

The following definitions are applicable to these Guidelines.

1.2.1 *Antarctic [waters][area]* means those waters which are south of 60° S (see figure 1).

1.2.2 *Arctic waters* means those waters which are located north of a line extending from latitude 58°00'.0 N, longitude 042°00'.0 W to latitude 64°37'.0 N, longitude 035°27'.0 W and thence by a rhumb line to latitude 67°03'.9 N, longitude 026°33'.4 W and thence by a rhumb line to Sørkapp, Jan Mayen and by the southern shore of Jan Mayen to the Island of Bjørnøya and thence by a great circle line from the Island of Bjørnøya to Cap Kanin Nos and thence by the northern shore of the Asian continent eastward to the Bering Strait and thence from the Bering Strait westward to latitude 60° N as far as Il'pyskiy and following the 60th North parallel eastward as far as and including Etolin Strait and thence by the northern shore of the North American continent as far south as latitude 60° N and thence eastward along parallel of latitude 60° N, to longitude 56°37'.1 W and thence to the latitude 58°00'.0 N, longitude 042°00'.0 W (see figure 2).

1.2.3 *Directional control system* means any device or devices intended either as a primary or auxiliary means of steering the ship. The directional control system includes all associated power sources, linkages, controls and actuating systems.

1.2.4 *Escort* means any ship with superior ice capability in transit with another ship.

[1.2.4 bis *Fishing vessel* is a vessel used [commercially] for catching fish, whales, seals, walrus or other living resources of the sea.]

1.2.5 *[Hull niche areas] [Hull penetrations]* means areas where water can get into the hull, including seawater inlets, rudder pintails and propeller shaft seals.

1.2.6 *Ice-covered waters* means polar waters where local ice conditions present a structural risk to a ship.

1.2.7 *Icebreaker* means any ship whose operational profile may include escort or ice management functions, whose powering and dimensions allow it to undertake aggressive operations in ice-covered waters.

1.2.8 *Ice of land origin* means ice formed on land or in an ice shelf, found floating in water.

1.2.9 *Maximum expected rescue time* means the time adopted for the design of equipment and systems that provide survival support. [It should never be less than five days.]

1.2.10 *Mean Daily Low Temperature (MDLT)* means the mean value of the daily low temperature for each day of the year over a minimum 10-year period. A data set acceptable to the Administration may be used if 10 years of data is not available.

1.2.11 *Open water* means a large area of freely navigable water in which sea ice is present in concentrations less than 1/10. No ice of land origin is present.

1.2.12 *Polar service temperature (PST)* means a temperature specified for a ship which is intended to operate in low air temperature, which shall be set at least 10° C below the lowest MDLT for the intended area and season of operation in polar waters.

1.2.13 *Polar waters* includes both Arctic and Antarctic waters.

1.2.14 *Sea Ice* means any form of ice found at sea which has originated from the freezing of sea water.

1.2.15 *Ship intended to operate in low air temperature* means a ship which is intended to undertake voyages to or through areas where the lowest MDLT is below -10° C.

1.2.16 *"Sufficient positive stability"* means that the ship is in a state of equilibrium with a positive metacentric height of at least 150 mm, and a line 150 mm below the edge of the freeboard deck, is not submerged.

Figure 1 – Maximum extent of Antarctic area application

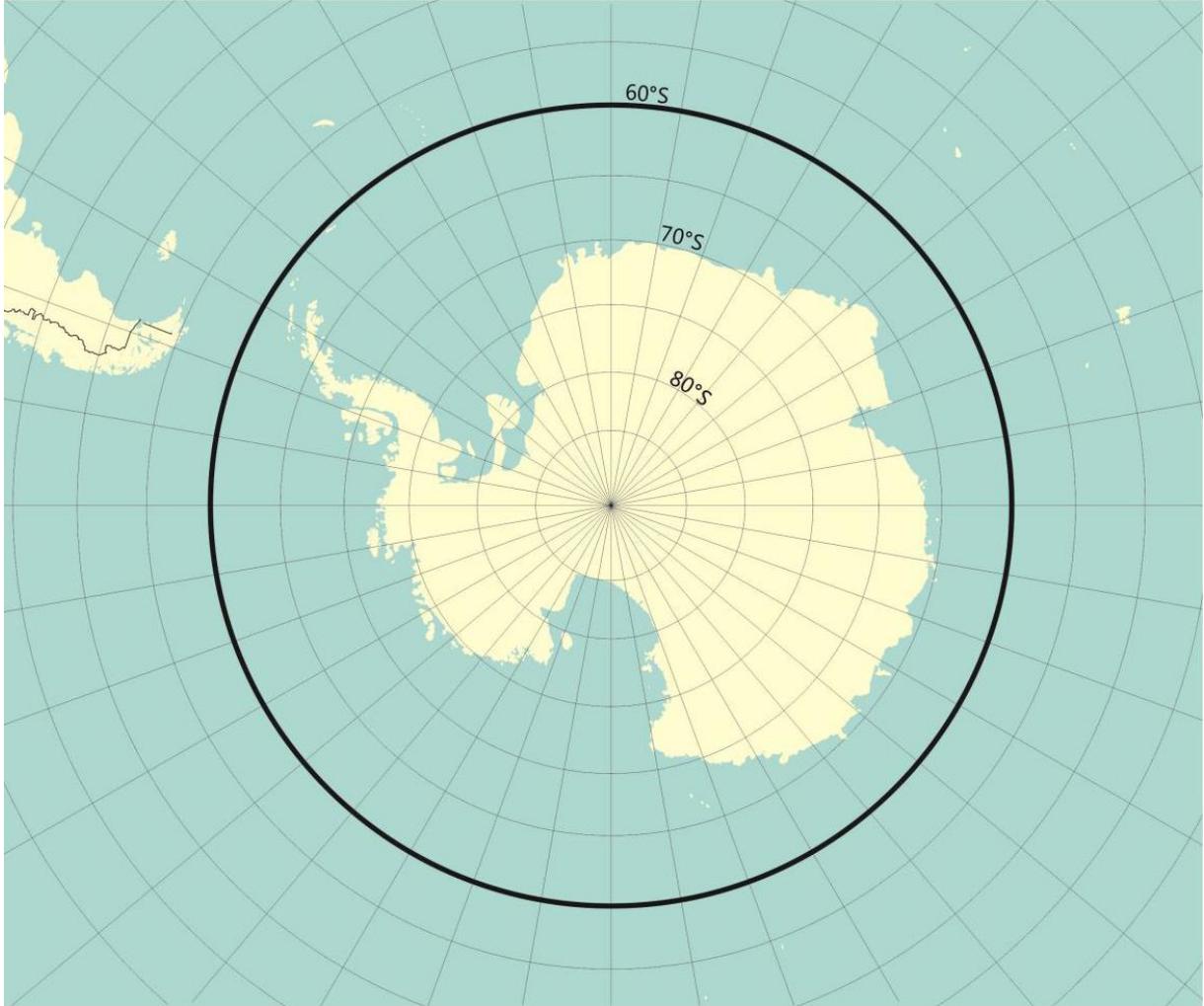


Figure 2 – Maximum extent of Arctic waters application



1.3 Performance standards

1.3.1 Unless provided otherwise, fishing vessel systems and equipment addressed in these Guidelines should satisfy at least the same performance standards referred to in the [Cape Town Agreement, 2012] [2005 Code of Safety for Fishermen and Fishing Vessels, the *Voluntary guidelines for the design, construction, and equipment of small fishing vessels 2005* an applicable national standard, or the appropriate requirements of a recognized organization"].

1.3.2 Fishing vessels and their equipment should be designed, constructed and maintained in compliance with applicable national standards of the Administration or the appropriate requirements of a recognized organization or competent body which provide an equivalent level of safety for its intended service.

1.3.3 The structures, equipment and arrangements essential for the safety and operation of the fishing vessel should take account of the anticipated temperatures.

1.3.4 Special attention should be given to essential operating and safety equipment and associated systems. For example, the potential for ice building up inside ballast tanks, sea chests and in other potential [hull niche areas] [areas that can be penetrated through the hull] [hull penetrations] affecting the ballast and piping system respectively should be considered. The fire-extinguishing and life-saving equipment specified in chapters V and VII of these Guidelines, when stored or located in an exposed position, should be of a type that is rated to

perform its design functions at the mean daily low temperature. In particular, attention is drawn to the inflation of life-saving equipment and the starting of engines in lifeboats and rescue boats.

1.3.5 For fishing vessels operating in low air temperature, a PST should be specified which should be at least 10°C below the lowest MDLT for the intended area and season of operation in polar waters. Systems and equipment recommended by these Guidelines should be fully functional at PST.

1.3.6 For fishing vessels operating in low air temperature, survival systems and equipment should be fully operational at PST during the maximum expected rescue time.

1.4 Operational arrangements

1.4.1 Fishing vessels not required to have a safety management system (International Safety Management (ISM) Code or similar) should carry on board a supplementary operating manual containing information directly relevant to operations in polar waters. Information that might be included in such a manual is suggested in paragraph 1.5.2.

1.4.2 The vessel should not be operated outside the worst intended conditions and design limitations, the details of which should be set out in the supplementary operating manual described in paragraph 1.4.1, if one is carried.

1.4.2bis Fishing vessels should take account of the distance from search and rescue facilities.

1.4.3 In order to establish procedures or operational limitations, an assessment should be made of fishing vessels intending to operate in polar waters, and their equipment. This assessment could be undertaken by the operator or shipowner to ensure that such fishing vessels are fit for the intended purpose. The assessment might consider the following:

- .1 the anticipated range of operating and environmental conditions, such as:
 - .1 operation in low air temperature;
 - .2 operation in ice;
 - .3 operation in areas, and during periods, where ice accretion is likely to occur;
 - .4 operation in high latitude; and
 - .5 potential for abandonment onto ice or land;
- .2 hazards which may potentially occur in polar waters, as listed in section 3 of the introduction to these Guidelines.

1.5 Documentation

1.5.1 It is recommended that a supplementary operating manual containing information directly relevant to operations in polar waters is carried on board. The supplementary manual is intended to provide persons on board with sufficient information regarding the vessel's operational capabilities and limitations in order to support their decision-making process. The supplementary manual might include the type of information and procedures suggested below. Not every issue on the list will be applicable to every fishing vessel. Vessels that undertake

occasional or limited polar voyages would not need to have procedures in place for situations of very low probability of occurrence.

1.5.2 Information in such a supplementary manual for operations in polar waters might include:

- .1 details of the vessel's specific capabilities and operating limitations relevant to normal operations and to anticipated ice conditions and temperatures, including:
 - .1 systems susceptible to damage or loss of functionality by exposure to low temperatures, and measures to avoid malfunction;
 - .2 information on limitations on vessel endurance such as fuel tankage, freshwater capacity, provisions stores, etc.; and
 - .3 information on the icing allowance included in the stability calculations;
- .2 operating procedures to be followed in normal conditions and in order to avoid encountering ice conditions that exceed the vessel's capabilities;
- .3 procedures to be followed in the event of incidents in polar waters, including evacuation procedures and damage control;
- .4 procedures for checking the integrity of hull structure in polar conditions;
- .5 special measures to maintain equipment and system (especially communications and navigational) functionality under low temperatures, topside icing and the presence of sea ice, as applicable;
- .6 description and operation of fire detection and fire-extinguishing equipment in a polar environment;
- .7 guidance on how to prevent or mitigate icing by operational means, how to monitor and assess ice accretion, how to conduct de-icing using available equipment, and how to maintain safety of the vessel and persons on board during all of these aspects of the operation;
- .8 guidance on how to monitor, prevent, or mitigate ice ingestion by seawater systems when operating in ice or in low water temperatures;
- .9 procedures for voyage planning to avoid ice and/or temperatures that exceed the vessel's design capabilities or limitations;
- .10 procedures to mitigate risk in adverse ice conditions, including:
 - .1 guidance on the use of low speeds in the presence of hazardous ice;
 - .2 procedures for enhanced watchkeeping and lookout crewing in situations with high risks from ice, e.g. in proximity to icebergs, operation at night and other situations of low visibility;

- .3 where possibilities for contact with hazardous ice exist, procedures for regular monitoring, e.g. soundings or inspections of compartments and tanks below the waterline;
- .11 procedures to establish requirements for supplies and appropriate safety levels for safety margins, taking into account various scenarios, e.g. slower than expected steaming, course alterations, adverse ice conditions, places of refuge and access to provisions. Sources for, and availability of, fuel types should be established, taking into account long lead times required for deliveries;
- .12 guidance for human resources management, taking into account anticipated ice conditions and requirements for ice navigation, increased levels of watch keeping, hours of rest, fatigue and a process that ensures that these procedures are met;
- .13 arrangements for receiving forecasts of the environmental conditions, including appropriate ice and weather information;
- .14 arrangements for addressing any limitations of the hydrographic, meteorological and navigational information available;
- .15 procedures to increase the effectiveness of emergency response measures where hazards specific to the polar environment are likely to be encountered;
- .16 details for contacting emergency response providers for salvage, search and rescue (SAR), spill response, etc.; and
- .17 procedures for maintaining life support and vessel integrity in the event of prolonged entrapment by ice.

1.6 Surveys

1.7

[1.6.1 To mitigate the structural degradation that can occur to fishing vessels operating in polar waters, structural surveys should cover areas identified as being at high risk of accelerated degradation and areas where there is physical evidence of degradation, such as coating breakdowns.]

Or

[1.6.1 Surveys of fishing vessels intending to operate in polar waters should be carried out at least once annually.

1.6.2 Surveys should include a complete inspection of the structure, safety equipment and other equipment, fittings, arrangements and material to ensure that they comply with the provisions of these Guidelines, are in satisfactory condition and are fit for the service for which the vessel is intended. Particular attention should be paid to structures at high risk of accelerated degradation due to operation in polar waters, and areas where there is physical evidence of degradation, such as coating breakdowns.

Chapter II – Construction, and Watertight Integrity

Purpose

This chapter sets out standards sufficient to maintain structural construction and watertight integrity for fishing vessels operating in polar conditions.

2.1 General

2.1.1 The structure should be designed to resist both global and local loads anticipated under expected ice conditions.

2.1.2 Structural arrangements should aim to limit damage resulting from accidental overloads to local areas.

2.2 Materials

2.2.1 For fishing vessels intended to operate in low air temperature, materials used should be suitable for operation at the vessel's PST.

2.2.2 Abrasion and corrosion-resistant coatings and claddings used in ice-strengthened areas should be matched to the anticipated loads and structural response.

2.3 Weathertight integrity

2.3.1 All closing appliances and doors relevant to watertight and weathertight integrity should be operable in polar conditions.

2.3.2 When operating in areas and during periods where ice accretion is likely to occur, means should be provided to remove or prevent ice and snow accretion around hatches and doors.

2.3.3 If the hatches or doors are hydraulically operated, means should be provided to prevent freezing or excessive viscosity of liquids.

2.3.4 Watertight and weathertight doors, hatches and closing devices which are not within a habitable environment and require access while at sea, should be capable of being operated by persons wearing heavy winter clothing including thick mittens.

2.4 Subdivision

2.4.1 Where double bottoms are fitted over the breadth and the length between forepeak and afterpeak bulkheads, the height of the double bottom height should be in accordance with the rules of a recognized organization or competent body.

Chapter III – Stability

Purpose

This chapter sets out standards for adequate stability of fishing vessels in both intact and damaged conditions.

3.1 General

3.1.1 Account should be taken of the effect of icing in the stability calculations in accordance with the International Code on Intact Stability, 2008 (IS Code).

3.2 Stability in intact conditions

3.2.1 The supplementary manual, if carried (see 1.5.1), should include information on the icing allowance included in the stability calculations.

3.2.2 Ice accretion should be monitored and appropriate measures taken to ensure that the ice accretion does not exceed the values given in the supplementary manual, if carried.

3.2.3 For each standard loading condition, vessels should be shown by design calculations to meet the intact stability criteria of Part B/2.1 of the IS Code.

3.3 Stability in damaged conditions

3.3.1 For each standard loading condition, vessels should be shown by design calculations to be capable of remaining afloat with sufficient positive stability, after the flooding of any one compartment assumed damage, having regard to the type of vessel, the intended service, and area of operation.

Chapter IV – Machinery and electrical installations

Purpose

This chapter sets out the required functionality for machinery and electrical installations necessary for the fishing vessel's safe operation.

4.1 General

4.1.1 The design, rating, installation, operation and maintainability of all onboard machinery and equipment should be suitable for operation and navigation in polar waters and the harsh weather conditions that often occur. Factors to be taken into account include:

- .1 ice accretion and/or snow accumulation;
- .2 ice ingestion from seawater;
- .3 freezing and increased viscosity of liquids;
- .4 seawater intake temperature; and
- .5 snow ingestion.

4.1.2 In addition, for fishing vessels intended to operate in low air temperatures, factors to be taken into account include:

- .1 cold and dense inlet air; and
- .2 loss of performance of battery or other stored energy device.

4.1.3 Materials used for machinery and electrical installations should be suitable for operation at the vessel's PST. In particular, machinery and electrical installations which are essential for the safe operation when:

- .1 located outside and above the waterline in any operating condition; or
- .2 in unheated locations inside,

should not be susceptible to brittle fracture within the range of operating conditions.

4.1.4 For vessels intended to operate in ice-covered waters, machinery and electrical installations should provide functionality under the anticipated environmental conditions, taking into account loads imposed directly by ice interaction.

4.1.5 The layout and construction of machinery essential for the safe operation of the fishing vessel should be such that repairs which can be affected using the resources on board may be completed safely and effectively.

4.1.6 Ventilation systems should provide sufficient air at an appropriate temperature for the operation of machinery.

4.2 Main propulsion systems

4.2.1 The main propulsion machinery should be designed and protected against the effects of the anticipated environmental and operational conditions. The reliability and availability of the equipment and systems, including spare parts for components which can be readily repaired, should be considered.

4.2.2 Main propulsion machinery and all auxiliary machinery essential to the propulsion system should be:

- .1 designed for loads and vibrations resulting from propeller/hull/rudder-ice interactions;
- .2 located to provide protection from freezing spray, ice and snow;
- .3 designed to operate when the vessel is inclined at any combined angle of heel or trim that may be expected during operations in ice; and
- .4 designed to be protected from a direct hit by ice.

4.2.3 The installed propulsive power should be sufficient to ensure that the vessel can navigate safely, without risk of structural damage under the design ice, weather and anticipated operational conditions.

4.2.4 Piping and intake systems associated with the main propulsion plant and auxiliary machinery essential to the propulsion system should be designed to withstand frost so as not to be affected by the impact of the polar environment.

4.3 Auxiliary machinery systems

4.3.1 Equipment and systems should be designed so that exposure of persons on board to cold temperatures and other environmental hazards during normal operations including routine maintenance is minimized.

4.3.2 Essential equipment or systems required for safe operation, located within spaces which, upon failure of the primary heating system, could be subject to outside ambient air temperatures should be:

- .1 provided with an independent source of heat; and
- .2 fabricated from materials that are not susceptible to brittle fracture under the anticipated loads and temperatures.

[4.3.3 Reverse Osmosis plants are up to 50% less efficient in polar waters and can often require more frequent filter changes if in areas with glacial run-off, therefore there is a need to carry sufficient stock.]

4.4 Directional control systems

4.4.1 Directional control systems, if fitted, should be of adequate strength and suitable design to enable efficient operation in polar waters.

4.4.2 Where interaction between the vessel's directional control systems and propulsion systems occurs or where dual purpose components are fitted, the provisions of this chapter relating to propulsion systems should also be followed.

4.5 Electrical installations

4.5.1 Electrical installations should be designed for operation in polar waters and for the provision of emergency heat and power.

4.5.2 For vessels intended to operate in ice-covered waters, precautions should be taken to minimise risk of supplies to essential and emergency services being interrupted by the inadvertent or accidental opening of switches or circuit breakers due to vibrations or accelerations during icebreaking operations.

4.5.3 Emergency power batteries including the reserve source of energy for the radio installation, including those stored in deck boxes, should be secured in a position where excessive movement is prevented during ice-transiting operations and explosive gas ventilation is not restricted by the accumulation of ice or snow.

4.5.4 Control systems based on computers and other electronic hardware installations necessary for the proper functioning of essential equipment should be designed for redundancy and resistance to vibration, dampness and low humidity.

Chapter V – Fire protection, fire detection, fire extinction and fire fighting

Purpose

This chapter sets out standards for fire safety systems and appliances on fishing vessels to ensure they are effective and operable in polar conditions, and that means of escape remain available so persons on board can safely and swiftly escape under the expected environmental conditions.

5.1 General

5.1.1 Components of fire safety systems and appliances should be designed to ensure availability and effectiveness under PST.

5.1.2 Components of the fire-fighting system and appliances which may be exposed to icing and snow accumulation that could interfere with the proper functioning of that component should be adequately protected.

5.1.3 Local equipment and machinery controls should be arranged so as to avoid freezing, snow accumulation and ice accretion and their location to remain accessible at all times.

5.1.4 Fire safety systems and appliances should be capable of being operated normally by persons wearing bulky and cumbersome polar clothing.

5.1.5 Means should be provided to remove or prevent ice and snow accretion from accesses.

5.1.6 Extinguishing media should be suitable for the intended operation.

5.2 Ventilation

5.2.1 Closing apparatus for ventilation inlets and outlets should be designed and located to protect them from ice or snow accumulation that could interfere with the effective closure of such systems.

5.3 Fire detection and fire-extinguishing systems

5.3.1 Fire-extinguishing systems should be designed or located so that they are not made inaccessible or inoperable by ice or snow accumulation or low temperature such that:

- .1 equipment, appliances, systems and extinguishing agents should be protected from freezing for the intended voyage;
- .2 precautions should be taken to prevent nozzles, piping and valves of any fire-extinguishing system from becoming clogged by impurities, corrosion or ice build-up; and
- .3 exhaust gas outlets and pressure vacuum arrangements should be protected from ice build-up that could interfere with effective operation.

5.3.2 Water or foam extinguishers should not be located in any position that is exposed to freezing temperatures. These locations should be provided with extinguishers capable of operation under such conditions.

5.4 Fire pumps and associated equipment

5.4.1 Where a fixed water-based fire-extinguishing system or an alternative fire-extinguishing system situated in a space separate from the compartment containing the main fire pumps utilizes its own independent sea suction, this sea suction should be capable of being cleared of ice accumulation.

5.4.2 Fire pumps, including emergency fire pumps, water mist and water spray pumps should, wherever reasonable and practicable, be installed in heated compartment(s) and in any event should be adequately protected from freezing.

5.4.3 Isolating valves should be located so that they are accessible. Any isolating valves located in exposed positions should not be subject to icing from freezing spray. The fire main should be arranged so that exposed sections can be isolated and means of draining exposed sections should be provided.

5.4.4 Hydrants should be positioned or designed to remain operable under all anticipated temperatures. Ice accumulation and freezing should be taken into account.

5.4.5 All hydrants should be equipped with an efficient two-handed valve handle.

5.4.6 In addition, for fishing vessels intended to operate in low air temperature portable and semi-portable extinguishers should be located in positions protected from freezing temperatures, as far as practical. Locations subject to freezing should be provided with extinguishers capable of operation under PST.

5.5 Firefighters' outfits

5.5.1 Sufficient firefighters' outfits, including one spare, should be readily available to the accommodation area and elsewhere as appropriate. Such firefighters' outfits should be stored in warm positions as widely separated as practical.

Chapter VI – Protection of persons on board

Purpose

This chapter sets out standards for the protection of persons on board when the vessel is operating in polar water conditions.

6.1 General

6.1.1 Particular care should be taken to ensure that decks are designed or treated so as to minimize the possibility of slipping in icy deck conditions.

6.1.2 Fishing vessels should have sufficiently available and reliable facilities to maintain a life sustaining environment in the event of an emergency and/or of extended ice entrapment.

6.2 Bulwarks, rails and guards

6.2.1 Particular care should be taken to ensure that the bulwarks or guard rails that are to be fitted on all exposed parts of the working deck and on superstructure decks if they are working platforms, should be designed so as to provide adequate protection of persons on board in the harsher weather conditions that can occur in polar regions.

6.3 Stairways and ladders

6.3.1 All stairways and ladders should be dimensioned so as not to hinder passage for persons wearing suitable polar clothing.

6.4 Other safety measures

[6.4.1 For vessels intended to operate in ice, galley facilities should be provided with grab rails projecting from the front on cooking equipment for use by persons on board during ice operations.]

6.4.2 For vessels intended to operate in ice, equipment designed to heat oil for cooking purposes, such as deep fat fryers, should be located in a position suitably separated from hotplates or other hot surfaces. Such appliances should also be secured to the deck or other fixed structure and provided with an oil-tight lid or closure to prevent splashing or spillage during ice operations.]

6.4.3 Accommodation should be designed and arranged to protect the occupants from unfavourable environmental conditions and minimize risk of injury during normal (including ice transiting or icebreaking) operations and emergency conditions.

[6.4.4 Accommodation, public spaces and the equipment installed in them should be designed to prevent injury to each person making proper use of them during normal open water operations, designed ice transiting modes of operation, and emergency manoeuvring conditions.]

6.5 Means of escape

6.5.1 Means of escape from accommodation or interior working spaces should not be rendered inoperable by ice accretion or by malfunction due to low external ambient air temperatures.

6.5.2 Escape routes should remain accessible and safe, taking into consideration the potential icing of structures and snow accumulation. They should be of a dimension so as not to hinder passage for persons wearing suitable polar clothing.

[6.5.3 Escape routes should be designed to minimize the distance between their exit to an open deck and the survival equipment to which they lead.]

6.5.4 All means of escape from accommodation or interior working spaces in the case of fire should be in accordance with the relevant provisions relating to fire safety in chapter 5 of these Guidelines.

Chapter VII – Life-saving appliances and arrangements

Purpose

This chapter sets out standards for the safe escape, evacuation and survival of persons on board.

7.1 General

7.1.1 Fishing vessels should carry life-saving appliances and survival equipment suited to the polar environment.

7.1.2 All survival craft, rescue boats, appliances and associated equipment, and survival equipment should be designed so as to remain functional under the possible adverse environmental conditions during the maximum expected time of rescue.

7.1.3 All survival craft and rescue boats should be designed so as to provide effective protection against possible adverse environmental conditions including direct wind chill, for all on board.

7.1.4 All survival craft, rescue boats, life-saving appliances and associated equipment, and survival equipment should take account of the potential of operation in long periods of darkness, taking into consideration the intended voyage.

7.1.5 Adequate supplies of protective clothing and thermal insulating materials should be provided, taking into account the intended voyage, anticipated weather conditions and the potential for immersion in polar water.

7.1.6 Survival craft should have sufficient space to accommodate persons equipped with polar clothing suitable for the environment.

7.1.7 Survival craft should carry equipment, appropriate for use in polar conditions, to communicate with rescue assets.

7.1.8 Survival craft should carry adequate emergency rations for the maximum expected time of rescue, taking account of high rates of energy expenditure under polar conditions.

7.1.9 Insulated immersion suits should be carried.

7.1.10 Training in the use of emergency equipment, as appropriate, and training on action to take in an emergency, should be included as an element of the operating procedures and drills described in chapter VIII.

7.2 Embarkation into survival craft

7.2.1 Embarkation arrangements should be such as to not hinder passage by persons wearing suitable polar clothing.

7.2.2 Embarkation arrangements should be adequate to ensure the safety of persons on board taking into consideration the possible adverse environmental conditions during an emergency.

7.2.3 Embarkation arrangements should provide for the safe deployment of survival craft and associated equipment and be functional under the possible adverse environmental conditions during the maximum expected time of rescue. Where survival equipment requires a source of power, this should be able to operate independently of the vessel's main source of power.

7.3 Lifeboats

7.3.1 All lifeboats should be either of the partially or totally enclosed type to provide adequate shelter from the anticipated operating environment.

7.3.2 The capacity of lifeboats should be evaluated with regard to operability, accessibility, seating capacity and overall space, considering the needs of personnel wearing suitable polar clothing.

7.3.3 Any ice accretion should be regularly removed from the lifeboats, launch area and launching equipment to ensure readiness for launching when required. [An icing removal mallet should be available in the vicinity of the lifeboats].

7.3.4 All lifeboat engines should be equipped with a means to ensure they start readily when required at the MDLT.

7.3.5 The lifeboat engine fuel oil should be suitable for operation in the minimum anticipated operating temperature.

7.3.6 For vessels intended to operate in extended periods of darkness, searchlights suitable for continuous use to facilitate identification of ice should be provided for each lifeboat.

[7.3.7 Drinking water should be stored in containers that allow for expansion due to freezing.]

Or

[7.3.7 [Survival craft] [Lifeboats] and containers for group survival equipment in their stowed position should have means to mitigate the freezing of drinking water supplies.]

7.4 Liferafts

7.4.1 Any ice accretion should be regularly removed from the liferafts, cradles, launch area and launching equipment to ensure readiness for launching and inflation when required. An icing removal mallet should be available in the vicinity of the liferafts.

7.4.2 Fishing vessels should carry in a warm space in the vicinity of the liferafts manual inflation pumps that are proven to be effective in PST.

7.4.3 Air or other proven cold temperature gas should be used for the inflation of life-saving equipment according to their environmental conditions of operation.

7.5 Additional survival kits for polar conditions

7.5.1 Sufficient personal and group survival kits should be carried to cover at least 110% of the persons on board the vessel.

7.5.2 Personal survival kits (PSK) should be carried whenever a voyage is anticipated to encounter mean daily temperatures below 0°C.

7.5.3 PSKs should be stored so that they may be easily retrieved in an emergency situation. Arrangements such as storage in dedicated lockers near the assembly stations may be considered.

7.5.4 Persons on board should be advised as appropriate that their PSK is for emergency survival use only and items should not be removed from the carrying bag.

7.5.5 Suggested contents of a PSK are listed in the table below.

Table 7.1: Sample of items for inclusion in a personal survival kit

Suggested equipment
Protective clothing (hat, gloves, socks, face and neck protection, thermal underwear, boots)
Skin protection cream
Insulated immersion suit or thermal protective aid, as appropriate
Handwarmers
Sunglasses or goggles
Survival candle
Matches
Whistle
Signal mirror
Personal Locator Beacon
Drinking mug
Emergency food
Penknife
Handbook (Polar Survival)
Carrying bag

7.5.6 Group survival kits (GSK) should be carried whenever a voyage is anticipated to encounter ice conditions which may prevent the lowering and operation of survival craft, potentially involving abandonment onto ice or land.

7.5.7 GSKs should be stored so that they may be easily retrieved and deployed in an emergency situation. Any containers should be located adjacent to the survival craft and liferafts. Containers should be designed so that they may be easily moved over the ice and be floatable.

7.5.8 Suggested contents of a GSK are listed in the table below.

Table 7.2: Sample of items for inclusion in a group survival kit

Suggested equipment
Shelter – tents or storm shelters or equivalent – sufficient for maximum number of persons
Thermal protective aids or similar – sufficient for maximum number of persons
Foam sleeping mats or similar – sufficient for at least one between two persons
Sleeping bags – sufficient for at least one between two persons
Shovels – at least 2
Sanitation (e.g. toilet paper)
Stove and fuel – sufficient for maximum number of persons ashore and maximum anticipated time of rescue
Emergency food – sufficient for maximum number of persons ashore and maximum anticipated time of rescue
One first aid kit in a waterproof case
Flashlights – one per shelter
Waterproof and windproof matches – two boxes per shelter
Whistle
Signal mirror
Emergency Position Indicating Radio Beacon
Appropriate communications equipment, separate from that carried on the vessel or survival craft
Water containers & water purification tablets
Spare set of personal survival equipment
Snow saw and snow knife
Tarpaulin
Group survival equipment container (waterproof and floatable)

7.5.9 PSK and GSK inspections should be carried out no less frequently than [on an annual basis] [six monthly]. [The contents of personal survival kits and group survival kits should be periodically reviewed.]

7.5.10 Where PSK and/or GSK are fitted, consideration should be given to providing additional kits for training and demonstration purposes.

Chapter VIII – Emergency procedures, musters and drills

Purpose

This chapter sets out standards to ensure that persons on board fishing vessels are adequately trained and familiar with emergency procedures, their duties, musters and drills specific to an emergency in polar waters.

[8.1 General

8.1.1 Training equipment should be maintained in good condition. A number of sewing kits and replacement parts (buttons, boot laces, etc.) should be kept on board for the purpose of minor repair to training kit items.

8.1.2 Emergency drills should be carried out on a regular basis.

8.2 Abandon ship training and emergency drills

8.2.1 Instructions for drills and emergency instructions as detailed in this section should be incorporated as annexes to the training manual referred to in 11.5.5 of these Guidelines.

8.2.2 On board instruction and operation of evacuation, fire and damage control appliances and systems should include appropriate cross training of crew members with appropriate emphasis to changes to standard procedure made necessary by operations in polar waters.

8.2.3 Abandon ship drills should be varied so that different emergency conditions are simulated, including abandonment into the water, onto the ice, or a combination of the two.

8.2.4 The abandon ship drills could include:

- .1 checking that all persons on board are suitably dressed;
- .2 donning of immersion suits or thermal protective clothing;
- .3 testing of emergency lighting for assembling and abandonment; and
- .4 giving instructions in the use of life-saving appliances, and in survival at sea, on the ice, or a combination of both, as appropriate.

8.2.5 Rescue boat drills should be conducted as far as is reasonable and practicable with due consideration of the dangers of launching into polar ice-covered waters.

8.2.6 Individual instructions may cover different parts of the vessel's life-saving system, but all life-saving equipment and appliances should be covered within any period of two months. All persons on board should be given instructions which might include:

- .1 awareness of problems of cold shock, snow blindness, sun burn, hypothermia, first aid treatment of hypothermia and other appropriate first aid procedures; and
- .2 special instructions necessary for use of life-saving appliances in severe weather and severe sea conditions, on the ice or in a combination of water and ice cover.

8.2.7 Fire drills should be varied so that emergency conditions are simulated for different compartments of the vessel, with appropriate emphasis on those changes to standard procedures made necessary by operations in polar waters and low temperatures.

8.2.8 Fire drills should include elements made necessary by operation in a polar environment.

8.2.9 [When applicable] Damage control drill scenarios should be varied so that emergency conditions are simulated for different damage conditions with appropriate emphasis to those conditions resultant from operations in polar waters.]

Or

[8.1 General

8.1.1 Training equipment such as [xx, yy, zz] should be maintained in good condition. A number of sewing kits and replacement parts (buttons, boot laces, etc.) should be kept on board for the purpose of minor repair to training kit items.

8.2 Onboard instruction for emergency operations

8.2.1 Instructions for drills and emergency instructions as detailed in this section should be incorporated as annexes to the training manual referred to in 11.5.5 of these Guidelines.

8.2.2 On board instruction and operation of life-saving, fire and damage control appliances and systems should include appropriate cross training of crew members with appropriate emphasis to changes to standard procedure made necessary by operations in polar waters.

8.2.3 Individual instructions may cover different parts of the vessel's life-saving system, but all life-saving equipment and appliances should be covered within any period of two months. All personnel should be given instructions which might include:

- .1 awareness of problems of cold shock, snow blindness, sun burn, hypothermia, first-aid treatment of hypothermia and other appropriate first-aid procedures; and
- .2 special instructions necessary for use of life-saving appliances in severe weather, and severe sea conditions on the ice or in a combination of water and ice cover.

8.3 Abandon ship drills

8.3.1 Abandon ship drills should be varied so that different emergency conditions are simulated, including abandonment into the water, onto the ice, or a combination of the two.

8.3.2 The abandon ship drills could include:

- .1 checking that all personnel are suitably dressed;
- .2 donning of immersion suits or thermal protective clothing;
- .3 testing of emergency lighting for assembling and abandonment; and

- .4 giving instructions in the use of life-saving appliances, and in survival at sea, on the ice, or a combination of both, as appropriate.

8.4 Rescue boat drill

8.4.1 Rescue boat drills should be conducted as far as is reasonable and practicable with due consideration of the dangers of launching into polar ice-covered waters.

8.5 Fire drills

8.5.1 Fire drills should be varied so that emergency conditions are simulated for different compartments of the vessel, with appropriate emphasis on those changes to standard procedures made necessary by operations in polar waters and low temperatures.

8.5.2 Fire drills should include elements made necessary by operation in a polar environment.

8.6 Damage control drills

8.6.1 Damage control drill scenarios should be varied so that emergency conditions are simulated for different damage conditions with appropriate emphasis to those conditions resultant from operations in polar waters.]

Chapter IX – Radiocommunications

Purpose

This chapter provides standards for effective communication for fishing vessels and survival craft in polar waters during normal operation and in emergency situations.

9.1 General

9.1.1 Communications equipment should be suitable to provide adequate ship-to-ship and ship-to-shore communication at all points along the intended operating routes, taking into account the limitations of communications systems in high latitudes and the anticipated low temperature.

9.1.2 All two-way portable radio communication equipment should be operable at the polar service temperature.

9.1.3 Means for two-way on-scene and SAR coordination communications for search and rescue purposes including aeronautical frequencies should be provided.

9.1.4 Appropriate communication equipment to enable telemedical assistance in polar areas should be provided.

9.1.5 Emergency power for communications equipment provided by battery should be provided with a means whereby the batteries are protected from extreme low temperatures.

9.2 Survival craft and rescue boat communications capabilities

9.2.1 For fishing vessels intended to operate in low air temperature, all rescue boats and lifeboats, whenever released for evacuation, should maintain capability for distress alerting, locating and on-scene communications.

9.2.2 For fishing vessels intended to operate in low air temperature, all other survival craft, whenever released, should maintain capability for transmitting signals for location and on-scene communications.

9.2.3 Communication equipment intended for use in survival craft, including liferafts, and rescue boats should be capable of operation during the maximum expected time of rescue.

Chapter X – Shipborne navigational equipment and arrangements

Purpose

This chapter provides for safe navigation in polar waters.

10.1 General

10.1.1 Taking account of the fact that use in high latitudes may affect their performance, navigational equipment and systems for providing reference headings and position fixing should be designed, constructed, and installed to retain their functionality under [the expected environmental] [polar] conditions in the intended area of operation.

10.1.2 Fishing vessels should have means of receiving and displaying current and forecasted information on ice conditions in the intended area of operation.

10.1.3 Sensors, antennas and other navigational equipment should be protected from ice accretion.

10.2 Additional navigational equipment for operations in polar waters

[10.2.1 Fishing vessels should be fitted with at least one gyro-compass and should consider, in addition, the need for installation of a satellite compass or alternative means.]

Or

[10.2.1 Fishing vessels should be fitted with two non-magnetic means to determine and display their heading.]

[10.2.2 Fishing vessels should be fitted with at least one appropriate speed and distance measuring system.]

Or

[10.2.2 Fishing vessels should be fitted with an appropriate speed and distance system.]

10.2.3 Fishing vessels should be fitted with at least two independent echo-sounding devices which provide an indication of the depth of water under the keel. Due account should be taken of the potential for ice interference or damage to any device designed to operate below the waterline.

10.2.4 Fishing vessels should be fitted with a total of at least two functionally independent radar systems. One of these should operate in the 3 GHz (10 cm, S-band) frequency range.

10.2.5 The use of radars equipped with enhanced ice detection capability should be encouraged.

10.2.6 Radar plotting systems that may be installed should have the capability of operating in both the sea and the ground stabilized mode.

10.2.7 A satellite system (GPS or GLONASS or equivalent) should be fitted on any vessel intending to navigate in areas outside of reliable coverage by a terrestrial hyperbolic system.

10.2.8 Fishing vessels should be provided with automatic identification system (AIS).

10.2.9 Separate rudder angle indicators should be provided for each rudder on fishing vessels with more than one independently operable rudder.

10.2.10 Fishing vessels should be equipped with suitable searchlights.

10.2.11 The searchlights described in paragraph 10.2.10 should be installed to provide, as far as is practicable.

10.2.12 The searchlights described in paragraph 10.2.10 should be fitted with an adequate means of de-icing to ensure proper directional movement.

10.2.13 Fishing vessels should be fitted with a suitable means to de-ice sufficient helm position windows to provide sufficient watchkeeping capability.

10.2.14 All indicators providing information to the helm positions should be fitted with means of illumination control to ensure readability under all operating conditions.

10.3 Vision enhancement equipment

10.3.1 The windows described in paragraph 10.2.13 should be fitted with an efficient means of clearing melted ice, freezing rain, snow, mist and spray from outside and accumulated condensation from inside. A mechanical means to clear moisture from the outside face of a window should have operating mechanisms protected from freezing or the accumulation of ice that would impair effective operation.

10.3.2 All persons engaged in navigating the vessel should be provided with adequate protection from direct and reflected glare from the sun.

10.4 Navigating from chart information in polar waters

10.4.1 As the chart coverage of polar waters in many areas may not currently be adequate for coastal navigation, navigational officers should:

- .1 exercise care to plan and monitor their voyage accordingly, taking due account of the information and guidance in the appropriate nautical publications;
- .2 be familiar with the status of hydrographic surveys and the availability and quality of chart information for the areas in which they intend to operate;
- .3 be aware of potential chart datum discrepancies with GNSS positioning; and
- .4 aim to plan their route through charted areas and well clear of known shoal depths, following established routes whenever possible.

10.4.2 Any deviations from the planned route should be undertaken with particular caution. For example, and when operating on the continental shelf:

- .1 the echo-sounder should be monitored to detect any sign of unexpected depth variation, especially when the chart is not based on a full search of the sea floor; and
- .2 independent cross-checking of positioning information (e.g. visual and radar fixing and GNSS) should be undertaken at every opportunity. Mariners should ensure to report to the relevant charting authority (Hydrographic Office) any information that might contribute to improving the nautical charts and publications.

Chapter XI – Other safety measures

Purpose

This chapter sets out additional measures to improve the safety of fishing vessels, and their personnel.

11.1 Anchoring and towing arrangements

11.1.1 Fishing vessels should, as far as is practicable, be designed so the anchor is protected from being dislodged from its stowed position and from jamming or damaging the hull by direct impact with ice.

{11.1.2 Anchoring systems should be provided with an independent means of securing the anchor so that the anchor cable can be disconnected for use as an emergency towing bridle.}

11.1.3 As far as is practical, fishing vessels should be capable of anchoring and providing limited assistance in the case of debilitating damage or breakdown, towards the prevention of a catastrophic loss or incident. The capability of vessels to provide assistance should be considered, having due regard to the lack of repair facilities, the limited number of dedicated towing vessels available and the response time that may be required by a dedicated towing vessel to be able to provide effective assistance in polar ice-covered waters.

11.1.4 Fishing vessels designed to perform dedicated towing operations should be equipped with line throwing apparatus in addition to that required for life-saving. This apparatus should be capable of delivering messenger lines for the transfer of towing equipment. Such line throwing apparatus should not be of the powder or rocket type, in order that it may be safely used to make a transfer to a tanker.

11.1.5 Fishing vessels designed to perform dedicated towing operations should be provided with a quick release system, operable from the conning position.

11.1.6 Where fitted, close-coupled bow to stern towing arrangements should comprise strengthened bow plating on the towed vessel, appropriate towing slings, non-interfering positioning of bower anchors and disallowance of bulbous bows. In this case, arrangements should be provided for securing the anchor in the stowed position.

11.1.7 Fishing vessels should be capable of receiving emergency towing assistance.

11.1.8 Where appropriate, towing arrangements should facilitate connection and release of a towline and provide bollards, fairleads, and other components suitable for the size of vessel on which they are fitted.

11.2 Fuel and other flammable fluid tanks and systems

11.2.1 Refuelling of fishing vessels should be carried out while taking into account the special conditions imposed by low temperatures and ice conditions, where applicable.

11.3 Emergency equipment

11.3.1 Fishing vessels should be provided with an adequate number of first aid kits and equipment with contents suitable to the onboard location and the recognized provisions for personnel safety hazards of such locations.

11.3.2 Medical equipment, medicines and facilities should be considered with a view to the nature of the voyage, vessel operations and the ability to communicate and obtain timely medical aid, medical evacuation, or other medical assistance.

11.3.3 Crews should be provided with appropriate equipment and training to safely evacuate an individual in a medical emergency from the vessel.

11.3.4 Special consideration should be given to the reserve supply of fuel and lubricants taking into account the effect of heavy ice on fuel consumption.

11.3.5 Vessels operating in remote areas should give special consideration to carrying spare parts and equipment.

11.3.6 Fishing vessels should consider carrying the following emergency equipment:

- .1 portable gas welding and cutting equipment with a reserve of consumables; and
- .2 portable electro-submersible pump of 100 tonnes/h capacity, with a set of hoses.

11.4 Crewing

11.4.1 Arrangements for crewing should take account of the relative lack of shore and support infrastructure which may be available to assist in any operations.

11.4.2 Arrangements for crewing should take account of anticipated ice conditions and requirements for ice navigation, increased levels of watch keeping, hours of rest, and fatigue.

11.5 Training

11.5.1 In addition to the training requirements specified in the International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel, 1995 (STCW-F), consideration should be given to additional training that may be required to equip persons on board appropriately to operate safely in conditions specific to polar waters.

11.5.2 As a minimum, all persons on board should be made familiar with cold weather survival by training or self-study of course material or publications, addressing in particular, the measures described in 8.2.

11.5.2 The vessel's deck and engine officers should have appropriate training and experience in operations in ice-covered waters.

11.5.3 Officers in charge of navigation should have appropriate training and experience in recognizing navigational dangers specific to polar ice-covered waters.

11.5.4 All persons on board should be made familiar with the relevant procedures and equipment in the supplementary manual for operations in polar waters referred to in 1.5, should one be carried.

11.5.5 In addition to the supplementary manual for operations in polar waters referred to in 1.4.1 and 1.5, fishing vessels should consider carrying a training manual covering relevant aspects of operations in polar waters. Information contained in the manual might include:

- .1 these Guidelines;
- .2 ice recognition;
- .3 navigation in ice; and
- .4 escorted operation.

11.6 Voyage planning

11.6.1 When planning a route through polar waters, in order to avoid potential hazards, the master of the fishing vessel should be taking into account the following factors:

- .1 the procedures described in the supplementary manual for operations in polar waters referred to in 1.5, should one be carried;
- .2 any limitations of the hydrographic information and aids to navigation available;
- .3 current information on the extent and type of ice and icebergs in the vicinity of the intended route;
- .4 statistical information on ice and temperatures from former years;
- .5 places of refuge;
- .6 current information and measures to be taken when marine mammals are encountered relating to known areas with densities of marine mammals, including seasonal migration areas;
- .7 current information on relevant routing systems, speed recommendations and vessel traffic services relating to known areas with densities of marine mammals, including seasonal migration areas;
- .8 national and international designated protected areas along the route; and
- .9 operation in areas remote from SAR capabilities.

ANNEX 2

DRAFT GUIDELINES FOR SAFETY MEASURES FOR PLEASURE YACHTS OF 300 GROSS TONNAGE AND ABOVE NOT ENGAGED IN TRADE OPERATING IN POLAR WATERS

Preamble

These Guidelines for pleasure yachts of 300 gross tonnage and above have been developed to supplement existing industry and/or national standards by providing additional guidance aimed at increasing the safety of yachts and persons on board, to mitigate the additional risk arising from the climatic conditions and other hazards when operating in polar waters.

These Guidelines are recommendatory, and their wording is designed to provide guidance rather than mandatory direction. These Guidelines are not intended to infringe on national systems of shipping control.

Introduction

1 Purpose

These Guidelines provide for the enhanced safety of pleasure yachts of 300 gross tonnage and above not engaged in trade, and persons on board, specific to their operation in polar waters.

2 Background

These Guidelines were developed in acknowledgement that operating in polar waters imposes additional demands on yacht systems, including navigation, communications, life-saving, main and auxiliary machinery, environmental protection and damage control, beyond those normally encountered.

These Guidelines also recognize that safe operation in such conditions requires special attention to human factors including crewing arrangements and training in emergency and operational procedures to ensure their safety in a polar environment.

These Guidelines focus on the need to ensure that yacht systems are capable of functioning effectively under anticipated operating conditions and to provide adequate levels of safety in accident and emergency situations.

In June 2018, the Maritime Safety Committee of the International Maritime Organization (IMO) reviewed the safety measures for non-SOLAS ships operating in polar waters. The Committee noted the lack of a legal framework to allow for the mandatory application of the Polar Code to non-SOLAS ships, and evidence on the number of accidents involving non-SOLAS ships operating in polar waters, particularly in Antarctic waters. Concluding that these facts revealed a significant risk to the safety of lives at sea, and a continuing threat to the marine environment, the Committee determined that urgent action needed to be taken. These Guidelines are the result of the IMO decision to develop recommendatory safety measures for pleasure yachts of 300 gross tonnage and above not engaged in trade, operating in polar waters.

3 Source of Hazards

These Guidelines consider hazards which may expose pleasure yachts to elevated levels of risk, some of which are unique to polar conditions. These include:

- .1 ice, as it may affect hull structure, stability characteristics, machinery systems, navigation, the outdoor working environment, maintenance and emergency preparedness tasks and malfunction of safety equipment and systems;
- .2 experiencing topside icing, with potential reduction of stability and equipment functionality;
- .3 low temperature, as it affects the working environment and human performance, maintenance and emergency preparedness tasks, material properties and equipment efficiency, survival time and performance of safety equipment and systems;
- .4 extended periods of darkness or daylight as it may affect navigation and human performance;
- .5 high latitude, as it affects navigation systems, communication systems and the quality of ice imagery information;
- .6 remoteness and possible lack of accurate and complete hydrographic data and information, reduced availability of navigational aids and seamarks with increased potential for groundings compounded by remoteness, limited readily deployable search and rescue (SAR) facilities, delays in emergency response and limited communications capability, with the potential to affect incident response;
- .7 potential lack of experience in polar operations, with potential for human error;
- .8 potential lack of suitable emergency response equipment, with the potential for limiting the effectiveness of mitigation measures; and
- .9 rapidly changing and severe weather conditions, with the potential for escalation of incidents.

The risk level within polar waters may differ depending on the geographical location, time of the year with respect to daylight, ice-coverage, etc. Therefore, mitigating measures suitable to address the above specific hazards may vary within polar waters and may be different in Arctic and Antarctic waters.

These Guidelines also recognize that while Arctic and Antarctic waters have a number of similarities, there are also significant differences, and that the specific features of the legal and political regimes applicable to their respective vulnerable marine environments should be taken into account.

Chapter I – General

Purpose

This chapter provides guidance on general operating and safety arrangements.

3.1 Application

These Guidelines provide guidance for pleasure yachts of 300 GT and over not engaged in trade operating in polar waters. However, Administrations are encouraged to apply them, as appropriate, to all yachts seeking to operate in polar waters.

1.2 Definitions

The following definitions are applicable to these Guidelines.

1.2.1 *Antarctic [waters][area]* means those waters which are south of 60° S (see figure 1).

1.2.2 *Arctic waters* means those waters which are located north of a line extending from latitude 58°00'.0 N, longitude 042°00'.0 W to latitude 64°37'.0 N, longitude 035°27'.0 W and thence by a rhumb line to latitude 67°03'.9 N, longitude 026°33'.4 W and thence by a rhumb line to Sørkapp, Jan Mayen and by the southern shore of Jan Mayen to the Island of Bjørnøya and thence by a great circle line from the Island of Bjørnøya to Cap Kanin Nos and thence by the northern shore of the Asian continent eastward to the Bering Strait and thence from the Bering Strait westward to latitude 60° N as far as Il'pyrskiy and following the sixtieth North parallel eastward as far as and including Etolin Strait and thence by the northern shore of the North American continent as far south as latitude 60° N and thence eastward along parallel of latitude 60° N, to longitude 56°37'.1 W and thence to the latitude 58°00'.0 N, longitude 042°00'.0 W (see figure 2).

1.2.3 *Directional control system* means any device or devices intended either as a primary or auxiliary means of steering the ship. The directional control system includes all associated power sources, linkages, controls and actuating systems.

1.2.4 *Escort* means any ship with superior ice capability in transit with another ship.

1.2.5 *[Hull niche areas] [Hull penetrations] means areas where water can get into the hull, including seawater inlets, rudder pintails and propeller shaft seals.*

1.2.6 *Ice-covered waters* means polar waters where local ice conditions present a structural risk to a ship.

1.2.7 *Icebreaker* means any ship whose operational profile may include escort or ice management functions, whose powering and dimensions allow it to undertake aggressive operations in ice-covered waters.

1.2.8 *Ice of land origin* means ice formed on land or in an ice shelf, found floating in water.

1.2.9 *Maximum expected rescue time* means the time adopted for the design of equipment and systems that provide survival support. [It should never be less than five days.]

1.2.10 *Mean Daily Low Temperature (MDLT)* means the mean value of the daily low temperature for each day of the year over a minimum 10-year period. A data set acceptable to the Administration may be used if 10 years of data is not available.

1.2.11 *Open water* means a large area of freely navigable water in which sea ice is present in concentrations less than 1/10. No ice of land origin is present.

[1.2.12 *Pleasure yacht not engaged in trade*

[.1 means a yacht that is not offered or used for hire or reward, and is used exclusively for:

.1 the owner's pleasure or at the owner's residence; or

.2 recreational purposes by:

.1 the members of a club that owns the ship;

.2 the beneficiaries of a personal trust that owns the ship;

.3 the members of an incorporated society that owns the ship for recreational purposes;

.2 excludes a yacht that is:

.1 provided for transport, sport, or recreation by, or on behalf of, an institution, hotel, motel, place of entertainment, or other establishment or business;

.2 used on a voyage for pleasure if the yacht is normally used, or intended to be normally used, as a fishing ship or for the carriage of passengers or cargo for hire or reward; and/or

.3 operated or provided by:

.1 a club, [incorporated society], or trust for non-recreational purposes; or

.2 a business.]

Or

[.1 means a yacht that is used for pleasure and does not carry passengers.]

Or

[.1 means a pleasure yacht as defined in an Administration's national legislation.]

Or

[.1 means any yacht not carrying passengers for hire, not engaged in trade or commerce, and being used solely for pleasure or recreational purposes of its owner, which, at the time it is being used, is:

(a) in the case of a yacht owned by a corporate entity, one on which the persons on the yacht are employees, officers, directors, or beneficial owners of the corporate entity, or their immediate family or friends; or

- (b) in the case of other ownership arrangements, one on which the persons on board the yacht are beneficiaries under the trust or the employees, officers, beneficial owners, or persons with similar designations of the ownership arrangement, or their immediate family or friends; or
- (c) in private use.^{2]}

Or

[.1 means a vessel powered by sails or mechanical means which is exclusively used for recreational purpose.]]

1.2.13 *Polar service temperature* (PST) means a temperature specified for a ship which is intended to operate in low air temperature, which shall be set at least 10° C below the lowest MDLT for the intended area and season of operation in polar waters.

1.2.14 *Polar waters* includes both Arctic and Antarctic waters.

[1.2.14 bis *Private Use* means that the yacht is used on a private voyage or excursion, and during such use is not engaged in trade by transporting merchandise or carrying passengers for reward or remuneration.]

1.2.15 *Sea Ice* means any form of ice found at sea which has originated from the freezing of sea water.

1.2.16 *Ship intended to operate in low air temperature* means a ship which is intended to undertake voyages to or through areas where the lowest Mean Daily Low Temperature (MDLT) is below [-10° C].

² This definition, if favoured, would require definition of "private use" as proposed in 1.2.14 *bis*.

Figure 1 – Maximum extent of Antarctic area application

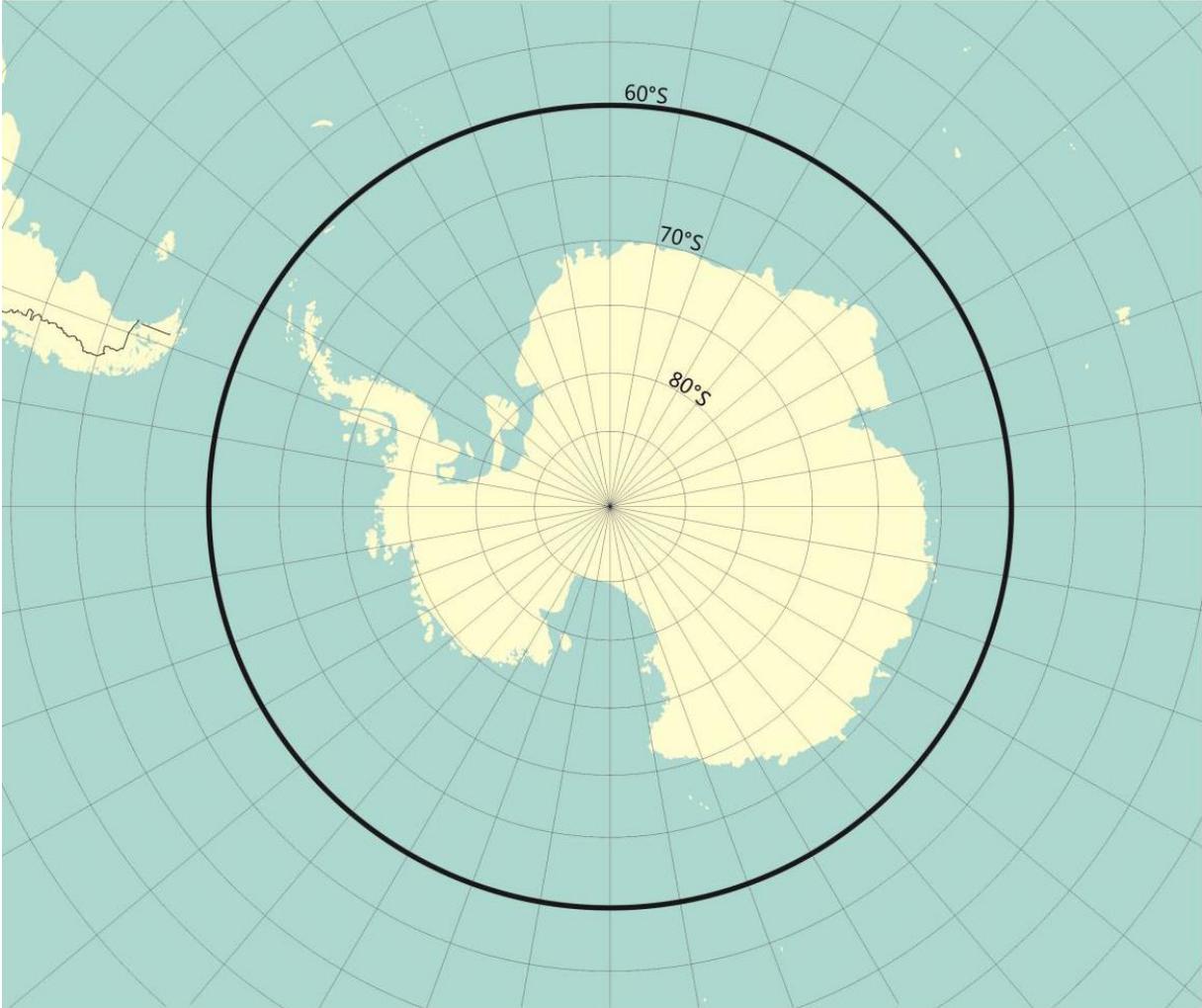


Figure 2 – Maximum extent of Arctic waters application



1.3 Performance standards

1.3.1 Yachts and their equipment should be designed, constructed and maintained in compliance with the applicable national standards of the Administration or the appropriate requirements of a recognized organization or competent body which provide an equivalent level of safety for its intended service.

1.3.2 The structures, equipment and arrangements essential for the safety and operation of the yacht should take account of the anticipated temperatures.

1.3.3 Special attention should be given to essential operating and safety equipment and associated systems. For example, the potential for ice building up inside the ballast tanks and sea chests and in other potential [hull niche areas] [areas that can be penetrated through the hull][hull penetrations] affecting the ballast and piping system respectively should be considered. The fire-extinguishing and life-saving equipment specified in sections 5 and 6 of chapters IV and V of these Guidelines, when stored or located in an exposed position, should be of a type that is rated to perform its design functions at the MDLT. In particular, attention should be given to the inflation of life-saving equipment and the starting of engines in lifeboats and rescue boats.

1.3.4 Operations in polar waters should take account of factors such as: yacht class, environmental conditions, icebreaker escort, prepared tracks, routeing, crew experience, support technology and services such as ice-mapping, availability of hydrographic information, communications, safe ports, repair facilities, and maximum expected rescue time.

Chapter II – Construction and Watertight Integrity

Purpose

This chapter sets out standards sufficient to maintain the structural construction and watertight integrity of yachts and their equipment operating in polar conditions.

- 2.1 Yachts should be strong and stable. Yachts undertaking regular expeditions in polar waters should be made of alloy or steel construction.
- 2.2 The structure should be designed to resist both global and local loads anticipated under the expected ice conditions.
- 2.3 For sailing yachts intended to operate in low air temperature, materials used shall be suitable for operation at the yacht's PST.
- 2.4 The structure should be designed so as to maintain weather and watertight integrity in the anticipated sea and ice conditions.
- 2.5 Deck areas should be fitted with safety harness, jackstays and attachment points.
- 2.6 Yachts should be fitted with a sturdy boarding ladder or platform suitable for operations in the anticipated environmental conditions.

Chapter III – Machinery and electrical installations

Purpose

This chapter sets out the required functionality for machinery and electrical installations necessary for the yacht's safe operation.

3.1 General

3.1.1 The design, rating, installation, operation and maintainability of all onboard machinery and equipment should be suitable for operation and navigation in polar waters and the harsh weather conditions that often occur. Factors to be taken into account include:

- .1 ice accretion and/or snow accumulation;
- .2 ice ingestion from seawater;
- .3 freezing and increased viscosity of liquids;
- .4 seawater intake temperature; and
- .5 snow ingestion.

3.1.2 In addition, for yachts intended to operate in low air temperatures, factors to be taken into account include:

- .1 cold and dense inlet air; and
- .2 loss of performance of battery or other stored energy device.

3.1.3 Materials used for machinery and electrical installations should be suitable for operation at the yacht's PST. In particular, machinery and electrical installations which are essential for safe operation when:

.1 located outside and above the waterline in any operating condition;

Or

.2 in unheated locations inside,

should not be susceptible to brittle fracture within the range of operating conditions.

3.1.4 For yachts intended to operate in ice-covered waters, machinery and electrical installations should provide functionality under the anticipated environmental conditions, taking into account loads imposed directly by ice interaction.

3.1.5 The layout and construction of machinery essential for the safe operation of the yacht should be such that repairs which can be affected using the resources on board may be completed safely and effectively. Ventilation systems should provide sufficient air at an appropriate temperature for the operation of machinery.

3.2 Main propulsion systems

3.2.1 The main propulsion machinery should be designed and protected against the effects of the anticipated environmental and operational conditions. The reliability and availability of the equipment and systems, including spare parts for components which can be readily repaired, should be considered.

3.2.2 Main propulsion machinery and all auxiliary machinery essential to the propulsion system should be:

.1 designed for loads and vibrations appropriate to the anticipated environmental and operational conditions;

.2 located to provide protection from freezing spray, ice and snow; and

.3 designed to operate when the yacht is inclined at any combined angle of heel or trim that may be expected during operations in ice.

3.2.3 The installed propulsive power should be sufficient to ensure that the yacht can navigate safely, without risk of structural damage under the design ice, weather and anticipated operational conditions.

3.2.4 Piping and intake systems associated with the main propulsion plant and auxiliary machinery essential to the propulsion system should be designed so as not to be affected by the impact of the polar environment.

3.3 Auxiliary machinery systems

3.3.1 Equipment and systems should be designed so that the exposure of persons on board to cold temperatures and other environmental hazards during normal operations including routine maintenance is minimized.

3.3.2 Ventilation systems should provide sufficient air for the operation of auxiliary machinery, air conditioning and heating purposes.

3.3.3 Essential equipment or systems located within spaces subject to outside ambient air temperatures upon failure of the primary heating system should be:

- .1 provided with an independent source of heat; and
- .2 fabricated from materials that are not susceptible to brittle fracture under the anticipated loads and temperatures.

[3.3.4 Reverse Osmosis plants are up to 50% less efficient in polar waters and can often require more frequent filter changes if in areas with glacial run-off, therefore there is a need to carry sufficient stock.]

3.4 Directional control systems

3.4.1 Directional control systems, if fitted, should be of adequate strength and suitable design to enable efficient operation in ice-covered waters.

3.4.2 Where interaction between the yacht's directional control systems and propulsion systems occurs or where dual purpose components are fitted, the provisions of this chapter, relating to propulsion systems should also be followed.

3.5 Electrical installations

3.5.1 Electrical installations should be designed for operation in polar waters and for the provision of emergency heat and power.

3.5.2 Precautions should be taken to minimize the risk of supplies to essential and emergency services being interrupted by the inadvertent or accidental opening of switches or circuit breakers due to vibrations or accelerations during any icebreaking operations.

3.5.3 Emergency power batteries, including the reserve source of energy for the radio installation, including those stored in deck boxes, should be secured in a position where excessive movement is prevented during ice-transiting operations and explosive gas ventilation is not restricted by the accumulation of ice or snow.

3.5.4 Control systems based on computers and other electronic hardware installations necessary for the proper functioning of essential equipment should be designed for redundancy and resistance to vibration, dampness and low humidity.

Chapter IV – Life-saving appliances and arrangements

Purpose

This chapter sets out standards for the safe escape, evacuation and survival of persons on board.

4.1 General life-saving appliances and survival arrangements

4.1.1 Yachts should carry life-saving appliances and survival equipment suited to the polar environment. Components of life-saving appliances should be designed to ensure availability and effectiveness under polar conditions.

4.1.2 Adequate supplies of protective clothing and thermal insulating materials should be provided, taking into account the intended voyage.

4.1.3 Training in the use of all emergency equipment, as appropriate, should be included as an element of the operating procedures and drills. Where appropriate, dedicated training equipment, including additional personal and group survival kits, should be carried to avoid compromising the performance of the emergency equipment itself.

4.1.4 Training equipment should be maintained in good condition. A number of sewing kits and replacement parts (buttons, boot laces, etc.) should be kept on board for the purpose of minor repair to training kit items.

4.2 Categories of life-saving equipment

4.2.1 Yachts should carry life-saving appliances and survival equipment according to their environmental conditions of operation.

4.2.2 Personal survival kits (PSKs) should be carried whenever a voyage is anticipated to encounter mean daily temperatures below 0°C.

4.2.3 Group survival kits (GSKs) should be carried whenever a voyage is anticipated to encounter ice conditions which may prevent the lowering and operation of survival craft.

4.2.4 Sufficient PSKs and GSKs (as applicable) should be carried to cover at least 110% of the persons on board.

4.2.5 Personal survival kits should be stored so that they may be easily retrieved in an emergency situation. Arrangements such as storage in dedicated lockers near the assembly stations might be considered.

4.2.6 Group survival kits should be stored so that they may be easily retrieved and deployed in an emergency situation. Any containers should be located adjacent to the survival craft and liferafts. Containers should be designed so that they may be easily moved over the ice and be floatable.

4.3 Personal survival kit (PSK)

4.3.1 A sample of the contents of a personal survival kit is listed in the table below.

Table 4.1: Sample of items for inclusion in a personal survival kit

Suggested equipment
Protective clothing (hat, gloves, socks, face and neck protection, thermal underwear, boots)
Skin protection cream
Insulated immersion suit or thermal protective aid
Handwarmers
Sunglasses
Survival candle
Matches
Whistle
Signal mirror
Personal Locator Beacon
Drinking mug
Emergency food
Penknife
Handbook (Polar Survival)
Carrying bag

4.3.2 Personal survival kits should not be opened for training purposes.

4.3.3 The contents of personal survival kits should be [periodically reviewed] [reviewed no less frequently than [annually] [six monthly]].

4.4 Group survival kit (GSK)

4.4.1 A sample of the contents of the group survival kit is listed in the table below.

Table 4.2: Sample of items for inclusion in a group survival kit

Suggested equipment
Shelter – tents or storm shelters or equivalent – sufficient for maximum number of persons
Thermal protective aids or similar – sufficient for maximum number of persons
Foam sleeping mats or similar – sufficient for at least one between two persons
Sleeping bags - sufficient for at least one between two persons
Shovels – at least 2
Sanitation (e.g. toilet paper)
Stove and fuel – sufficient for maximum number of persons ashore and maximum anticipated time of rescue
Emergency food – sufficient for maximum number of persons ashore and maximum anticipated time of rescue
One first aid kit in a waterproof case
Flashlights – one per shelter
Waterproof and windproof matches – two boxes per shelter
Whistle
Signal mirror
Emergency Position Indicating Radio Beacon
Appropriate communications equipment, separate from that carried on the vessel or survival craft
Water containers & water purification tablets
Spare set of personal survival equipment
Snow saw and snow knife
Tarpaulin
Group survival equipment container (waterproof and floatable)

4.4.2 Group survival kits should not be opened for training purposes.

4.4.3 The contents of group survival kits should be [periodically reviewed] [reviewed no less frequently than [annually] [six monthly]].

4.5 Lifeboats [(if carried)] [(where applicable)]

4.5.1 Lifeboats should be either of the partially or totally enclosed type to provide adequate shelter from the anticipated operating environment.

4.5.2 The capacity of lifeboats should be evaluated with regard to operability, accessibility, seating capacity and overall space, considering the needs of persons wearing suitable polar clothing.

4.5.3 Any ice accretion should be regularly removed from the lifeboats, launch area and launching equipment to ensure readiness for launching when required. An icing removal mallet should be available in the vicinity of the lifeboats.

4.5.4 Lifeboat engines should be equipped with a means to ensure they start readily when required at the minimum anticipated operating temperature.

4.5.5 The lifeboat engine fuel oil should be suitable for operation in the minimum anticipated operating temperature.

[4.5.6 Drinking water should be stored in containers that allow for expansion due to freezing.]

Or

[4.5.6 [Survival craft][Lifeboats] and containers for group survival equipment in their stowed position should have means to mitigate the freezing of drinking water supplies.]

4.5.7 Consideration should be given to the provision of additional emergency rations to account for high rates of energy expenditure under polar conditions.

4.6 Liferrafts

4.6.1 Any ice accretion should be regularly removed from the liferafts, cradles, launch area and launching equipment to ensure readiness for launching and inflation when required. An icing removal mallet should be available in the vicinity of the liferafts.

4.6.2 Yachts should carry, in a warm space, in the vicinity of the liferafts, manual inflation pumps that are proven to be effective in PST.

4.6.3 Air or other proven cold temperature gas should be used for the inflation of life-saving equipment according to their environmental conditions of operation.

4.6.7 Consideration should be given to the provision of additional emergency rations to account for high rates of energy expenditure under polar conditions.

Chapter V – Fire protection, fire detection, fire extinction and fire fighting

Purpose

This chapter sets out standards for fire safety systems and appliances on yachts to ensure they are effective and operable in polar conditions, and that means of escape remain available so persons on board can safely and swiftly escape under the expected environmental conditions.

5.1 General

5.1.1 Components of fire safety systems and appliances should be designed to ensure availability and effectiveness under PST.

5.1.2 Components of the fire-fighting system and appliances which may be exposed to icing and snow accumulation that could interfere with the proper functioning of that component should be adequately protected.

5.1.3 Local equipment and machinery controls should be arranged so as to avoid freezing, snow accumulation and ice accretion and their location to remain accessible at all times.

5.1.4 The design of fire safety systems and appliances should take into consideration the need for persons to wear bulky and cumbersome polar clothing.

5.1.5 Means should be provided to remove or prevent ice and snow accretion from accesses.

5.1.6 Extinguishing media should be suitable for the intended operation.

5.2 Ventilation

5.2.1 Closing apparatus for ventilation inlets and outlets should be designed and located to protect them from ice or snow accumulation that could interfere with the effective closure of such systems.

5.3 Fire detection and fire-extinguishing systems

5.3.1 Fire-extinguishing systems should be designed or located so that they are not made inaccessible or inoperable by ice or snow accumulation or low temperature such that:

- .1 equipment, appliances, systems and extinguishing agents should be protected from freezing for the intended voyage;
- .2 precautions should be taken to prevent nozzles, piping and valves of any fire extinguishing system from becoming clogged by impurities, corrosion or ice build-up; and
- .3 exhaust gas outlets and pressure vacuum arrangements should be protected from ice build-up that could interfere with effective operation.

5.3.2 Water or foam extinguishers should not be located in any position that is exposed to freezing temperatures. These locations should be provided with extinguishers capable of operation under such conditions.

5.4 Fire pumps and associated equipment

5.4.1 Where a fixed water-based fire-extinguishing system or alternative fire-extinguishing system situated in a space separate from the compartment containing the main fire pumps utilizes its own independent sea suction, this sea suction should be capable of being cleared of ice accumulation.

5.4.2 Fire pumps, including emergency fire pumps, water mist and water spray pumps should, wherever reasonable and practicable, be installed in heated compartment(s) and in any event should be adequately protected from freezing.

5.4.3 Isolating valves should be located so that they are accessible. Any isolating valves located in exposed positions should not be subject to icing from freezing spray. The fire main

should be arranged so that exposed sections can be isolated and means of draining exposed sections should be provided.

5.4.4 Hydrants should be positioned or designed to remain operable under all anticipated temperatures. Ice accumulation and freezing should be taken into account.

5.4.5 All hydrants should be equipped with an efficient two-handed valve handle.

5.4.6 In addition, portable and semi-portable extinguishers should be located in positions protected from freezing temperatures, as far as practical. Locations subject to freezing should be provided with extinguishers capable of operation under PST.

5.5 Firefighters' outfits

5.5.1 Sufficient firefighters' outfits, including one spare, should be readily available to the accommodation area and elsewhere as appropriate. Such firefighters' outfits should be stored in warm positions as widely separated as practical.

5.5.2 Training should be considered for persons on board a yacht not familiar with the wearing or use of firefighters' outfits.

[Chapter V bis – Radiocommunications

Insert text replicating as appropriate provisions from chapter IX of the fishing vessel guidelines.]

Chapter VI – Navigational equipment

Purpose

This chapter provides for safe navigation in polar waters.

6.1 General

6.1.1 Taking account of the fact that use in high latitudes may affect their performance, navigational equipment and systems for providing reference headings and position fixing should be designed, constructed, and installed to retain their functionality under polar conditions.

6.1.2 Yachts should have means of receiving and displaying current and forecasted information on ice conditions in the intended area of operation.

6.1.3 Sensors, antennas and other navigational equipment should be protected from ice accretion.

6.2 Speed and distance measurement

[6.2.1 Yachts should be fitted with at least one gyro-compass and should consider, in addition, the need for installation of a satellite compass or alternative means.]

Or

[6.2.1 Yachts should be fitted with two non-magnetic means to determine and display their heading.]

[6.2.2 Yachts should be fitted with at least one appropriate speed and distance measuring system.]

Or

[6.2.2 Yachts should be fitted with an appropriate speed and distance system.]

6.3 Depth sounding device

6.3.1 Yachts should be fitted with at least two independent echo-sounding devices which provide an indication of the depth of water under the keel. Due account should be taken of the potential for ice interference or damage to any device designed to operate below the waterline.

6.4 Radar installations

6.4.1 Yachts should be fitted with a total of at least two functionally independent radar systems. One of these should operate in the 3 GHz (10 cm, S-band) frequency range.

6.4.2 Radar plotting systems that may be installed should have the capability of operating in both the sea and the ground stabilized mode.

6.5 Electronic positioning and electronic chart systems

6.5.1 Yachts should be provided with an electronic position fixing system.

6.5.2 A satellite system (GPS or GLONASS or equivalent) should be fitted on any yacht intending to navigate in areas outside of reliable coverage by a terrestrial hyperbolic system.

6.6 Automatic identification system (AIS)

6.6.1 Yachts should be provided with automatic identification system (AIS).

6.7 Rudder angle indicator

6.7.1 Separate rudder angle indicators should be provided for each rudder on yachts with more than one independently operable rudder.

6.7.2 In yachts without a rudder, indication should be given of the direction of steering thrust.

6.8 Searchlights and visual signals

6.8.1 Yachts operating in polar waters should be equipped with at least two suitable searchlights which should be controllable from helm positions.

6.8.2 The searchlights described in paragraph 6.8.1 should be installed to provide, as far as is practicable, all-round illumination suitable for docking, astern manoeuvres or emergency towing.

6.8.3 The searchlights described in paragraph 6.8.1 should be fitted with an adequate means of de-icing to ensure proper directional movement.

6.9 Vision enhancement equipment

6.9.1 Yachts should be fitted with a suitable means to de-ice sufficient helm position windows to provide unimpaired forward and astern vision from helm positions.

6.9.2 The windows described in paragraph 6.9.1 should be fitted with an efficient means of clearing melted ice, freezing rain, snow, mist and spray from outside and accumulated condensation from inside. A mechanical means to clear moisture from the outside face of a window should have operating mechanisms protected from freezing or the accumulation of ice that would impair effective operation.

6.9.3 Persons engaged in navigating the yacht should be provided with adequate protection from direct and reflected glare from the sun.

6.9.4 Indicators providing information to the helm positions should be fitted with means of illumination control to ensure readability under all operating conditions.

[Chapter VII – Operations

Purpose

This chapter sets out operational procedures to enhance the safety of yachts and persons on board.

7.1 Operational control

7.1.1 The yacht should not be operated outside the worst intended conditions and design limitations which should be included in the operational guidelines.

7.1.2 Yachts operating in polar waters should take account of the distance from search and rescue facilities.

Chapter VIII – Drills and emergency instructions

Purpose

This chapter sets out standards to ensure that persons on board yachts are adequately trained and familiar with emergency procedures, their duties, and musters specific to an emergency in polar waters.

8.1 General

8.1.1 Onboard instruction and operation of evacuation, fire and damage control appliances and systems should include appropriate cross training for all persons on board with appropriate emphasis to changes to standard procedure made necessary by operations in polar waters.

8.1.2 Emergency drills should be carried out on a regular basis.

8.2 Evacuation

8.2.1 Evacuation drill scenarios should be varied so that different emergency conditions are simulated, including abandonment into the water, onto the ice if appropriate, or a combination of the two.

8.2.2 Each evacuation drill should include:

- .1 exercises in control of persons on board in cold temperatures as appropriate;
- .2 checking that all persons on board are suitably dressed;
- .3 donning of immersion suits or thermal protective clothing;
- .4 testing of emergency lighting for assembling and abandonment; and
- .5 giving instructions in the use of the yacht's life-saving appliances and in survival at sea, on the ice or a combination of both, as appropriate.

8.2.3 Rescue boat drills should be conducted as far as is reasonable and practicable.

8.2.4 Each person on board should be given instructions which should include but not necessarily be limited to:

- .1 problems of cold shock, hypothermia, first-aid treatment of hypothermia and other appropriate first-aid procedures; and
- .2 special instructions necessary for use of the yacht's life-saving appliances in severe weather and severe sea conditions on the ice, or in a combination of water and ice cover.

8.3 Fire drills

8.3.1 Fire drill scenarios should be varied so that emergency conditions are simulated for different compartments of the yacht, with appropriate emphasis on those changes to standard procedures made necessary by operations in polar waters and low temperatures.

8.4 Damage control

8.4.1 Damage control drill scenarios should be varied so that emergency conditions are simulated for different damage conditions with appropriate emphasis to those conditions resultant from operations in polar waters.

Chapter IX – [Additional emergency equipment][Other safety measures]

Purpose

This chapter sets out standards for additional emergency equipment that could be carried and other safety measures to improve the safety of yachts and those on board.

9.1 Medical equipment

9.1.1 Yachts should be provided with an adequate number of first-aid kits and equipment with contents suitable to the onboard location and the recognized provisions for safety hazards of such locations.

9.1.2 Medical equipment, medicines and facilities should be considered with a view to the nature of the voyage, yacht operations and the ability to communicate and obtain timely medical aid, medical evacuation, or other medical assistance.

9.1.3 Crews should be provided with appropriate equipment and training to safely evacuate an individual in a medical emergency from the yacht.

9.2 Reserve supplies

9.2.1 Special consideration should be given to the reserve supply of fuel and lubricants taking into account the effect of heavy ice on fuel consumption of the yacht.

9.2.3 Single screw yachts may require special consideration (redundancy) in remote areas where conditions impose a risk of damage to machinery components.

9.3 Voyage planning

Insert text as appropriate from 11.6 of the fishing vessel guidelines.]
