



SUB-COMMITTEE ON SAFETY OF  
NAVIGATION  
53rd session  
Agenda item 22

NAV 53/22  
14 August 2007  
Original: ENGLISH

## REPORT TO THE MARITIME SAFETY COMMITTEE

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## 1 GENERAL

1.1 The Sub-Committee on Safety of Navigation held its fifty-third session from 23 to 27 July 2007 at the Royal Horticultural Halls and Conference Centre, London under the chairmanship of Mr. K. Polderman (The Netherlands). The Vice-Chairman, Mr. J. M. Sollosi (United States), was also present.

1.2 The session was attended by representatives of the following countries:

ALGERIA	KENYA
ANGOLA	KUWAIT
ANTIGUA AND BARBUDA	LATVIA
ARGENTINA	LIBERIA
AUSTRALIA	MALAYSIA
BAHAMAS	MALTA
BARBADOS	MARSHALL ISLANDS
BELGIUM	MEXICO
BOLIVIA	NETHERLANDS
BRAZIL	NIGERIA
CANADA	NORWAY
CHILE	PANAMA
CHINA	PAPUA NEW GUINEA
COLOMBIA	PERU
CUBA	PHILIPPINES
CYPRUS	POLAND
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA	PORTUGAL
DENMARK	REPUBLIC OF KOREA
DOMINICAN REPUBLIC	ROMANIA
ECUADOR	RUSSIAN FEDERATION
EGYPT	SAUDI ARABIA
ESTONIA	SINGAPORE
FINLAND	SOUTH AFRICA
FRANCE	SPAIN
GERMANY	SWEDEN
GHANA	SYRIAN ARAB REPUBLIC
GREECE	THAILAND
ICELAND	TURKEY
INDONESIA	TUVALU
IRAN (ISLAMIC REPUBLIC OF)	UNITED KINGDOM
IRELAND	UNITED STATES
ISRAEL	URUGUAY
ITALY	VANUATU
JAPAN	VENEZUELA

the following Associate Member of IMO:

HONG KONG, CHINA

and the following IMO non-Member:

COOK ISLANDS

1.3 The following intergovernmental and non-governmental organizations were also represented:

INTERNATIONAL HYDROGRAPHIC ORGANIZATION (IHO)  
EUROPEAN COMMISSION (EC)  
MARITIME ORGANISATION FOR WEST AND CENTRAL AFRICA (MOWCA)  
INTERNATIONAL MOBILE SATELLITE ORGANIZATION (IMSO)  
INTERNATIONAL CHAMBER OF SHIPPING (ICS)  
INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)  
INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)  
INTERNATIONAL UNION OF MARINE INSURANCE (IUMI)  
INTERNATIONAL TRANSPORT WORKERS' FEDERATION (ITF)  
INTERNATIONAL ASSOCIATION OF MARINE AIDS TO NAVIGATION AND  
LIGHTHOUSE AUTHORITIES (IALA)  
INTERNATIONAL RADIO MARITIME COMMITTEE (CIRM)  
BIMCO  
INTERNATIONAL ASSOCIATION OF CLASSIFICATION SOCIETIES (IACS)  
OIL COMPANIES INTERNATIONAL MARINE FORUM (OCIMF)  
INTERNATIONAL MARITIME PILOTS' ASSOCIATION (IMPA)  
INTERNATIONAL ASSOCIATION OF INSTITUTES OF NAVIGATION (IAIN)  
INTERNATIONAL FEDERATION OF SHIPMASTERS' ASSOCIATIONS (IFSMA)  
INTERNATIONAL ASSOCIATION OF INDEPENDENT TANKER OWNERS  
(INTERTANKO)  
ADVISORY COMMITTEE ON PROTECTION OF THE SEA (ACOPS)  
SOCIETY OF INTERNATIONAL GAS TANKER AND TERMINAL  
OPERATORS LIMITED (SIGTTO)  
INTERNATIONAL MARITIME RESCUE FEDERATION (IMRF)  
CRUISE LINES INTERNATIONAL ASSOCIATION (CLIA)  
INTERNATIONAL ASSOCIATION OF DRY CARGO SHIPOWNERS  
(INTERCARGO)  
IBEROAMERICAN INSTITUTE OF MARITIME LAW (IIDM)  
INTERNATIONAL SAILING FEDERATION (ISAF)  
THE INTERNATIONAL MARINE CONTRACTORS ASSOCIATION (IMCA)  
WORLD NUCLEAR TRANSPORT INSTITUTE (WNTI)  
INTERNATIONAL HARBOUR MASTERS' ASSOCIATION (IHMA)  
THE ROYAL INSTITUTION OF NAVAL ARCHITECTS (RINA)

1.4 In welcoming the participants, the Secretary-General stressed that, with regard to this year's theme for World Maritime Day: "IMO's response to current environmental challenges", this would be an opportunity to increase awareness about the threats to the environment stemming from shipping operations and, by taking appropriate preventive and remedial action, to show that the maritime sector does care about the environment and is, indeed, already at the forefront of that challenge. Over the years, Governments and the industry had adopted, through IMO, a wide range of measures to prevent and control any pollution caused by ships and to reduce the impact that shipping may have on our fragile environment. In this context, he also alluded to the Sub-Committee's contribution, particularly through its ceaseless efforts to enhance navigational safety, thereby reducing accidental pollution caused as a result of collisions or groundings.

Turning to the Sub-Committee's work at the current session, the Secretary-General referred to the development of an e-navigation strategy, and the Sub-Committee's continuous efforts towards mapping out a strategic vision to enable the integration of existing and new navigational tools, in particular electronic tools, in an all-embracing system that would contribute to enhanced navigational safety, while simultaneously reducing the burden on the navigator. As the technical and regulatory evolution of the system moved forward, it should not to be seen as an end in itself or as a panacea, but also here the human element should remain the key component in any integrated and coordinated e-navigation concept.

Whilst the basic technologies for an e-navigation system were available, the challenges lay, on the one hand, in ensuring the availability of all the other components (including electronic navigational charts) and, on the other, in combining them, in a holistic and systematic manner, so that they could be used effectively to simplify the display of all pertinent navigational information, thus enabling the mariner to be aware, in real-time, of the environment in which his or her ship was navigating. This would have a significant beneficial effect in enhancing navigational safety, accident prevention and environmental protection and, at the same time, deliver substantial operating efficiencies with consequent economic benefits far into the future.

Referring to the various items of operational significance on the Sub-Committee's agenda for the current session, the Secretary-General highlighted that no fewer than twenty-two proposals on ships' routing, ship reporting and other relevant measures all aimed at enhancing the safety of navigation in areas of identified navigational hazards and environmentally sensitive sea areas were to be considered.

Reminding the Sub-Committee of the importance of the role of the human element in safety of navigation, which could never be overemphasized, and the significance of the man/machine interface in safe operations, which was widely recognized, he referred to the ergonomic issues with respect to shipboard operations the Sub-Committee had been addressing for some time. In this regard he was confident that the Sub-Committee would be able to finalize the revision of the performance standards for Integrated Navigation Systems. This would assist ships' officers to become familiar with, and competent in, making full and effective use of the shipborne navigational equipment they came across in today's technologically-advanced ships.

Still on the issue of performance standards, the Secretary-General observed that MSC 82, acting on the Sub-Committee's recommendation, had adopted revised performance standards for Electronic Chart Display and Information Systems (ECDIS), which, under the revised SOLAS regulation V/19, might be accepted as meeting the chart carriage requirements. The Sub-Committee had been further instructed to review those performance standards; assess whether a common layout, names or symbols and display for controls could be appropriately included therein; and advise MSC 83 accordingly.

Furthermore, at this session, the Sub-Committee was also expected to finalize work on the evaluation of the use of ECDIS, including the evaluation of Electronic Navigational Chart availability and the development of a comprehensive online catalogue of available official charts. Specific proposals for the mandatory carriage requirements of ECDIS, by 1 July 2010, had been tabled for the current session. The Sub-Committee's task in considering them had been facilitated by IHO's evaluation of the availability of electronic navigational charts worldwide. IHO's report on this had indicated that there would be adequate coverage of uniform ENCs by the time IMO adopted relevant mandatory carriage requirements. He was pleased to note that IHO would continue to work to improve the global availability and consistency of ENCs and, wherever possible, to accelerate their production process. Substantial progress on these matters

would have a direct bearing on the successful development of e-navigation, which pointed to the seriousness of the issue in hand.

With respect to navigational aids and related issues, he noted that the Sub-Committee should also be able to finalize, at the current session, performance standards for navigation lights, navigation light controllers and associated equipment, whilst also finalizing guidelines for the installation of shipborne radar equipment and on the control of ships in an emergency.

1.5 The Chairman thanked the Secretary-General for his words of encouragement and stated that his advice and requests would be given every consideration in the Sub-Committee's deliberations.

### **Adoption of the agenda**

1.6 The Sub-Committee adopted the agenda, as approved by MSC 82 (NAV 53/1).

## **2 DECISIONS OF OTHER IMO BODIES**

2.1 The Sub-Committee noted, in general, decisions and comments (NAV 53/2, NAV 53/2/1 and Add.1, NAV 53/2/2 and NAV 53/2/3) pertaining to its work made by MSC 82, DSC 11, COMSAR 11, DE 50, FSI 15 and MEPC 56 and considered them under the appropriate agenda items.

### **Outcome of FSI 15**

#### **Code for the implementation of mandatory IMO instruments**

2.2 The Sub-Committee considered document NAV 53/2/2 (Secretariat) relating to the amendments to the Code for the implementation of mandatory IMO instruments. The Sub-Committee noted that FSI 15 (FSI 15/18, paragraph 3.9), having taken into account MSC 82's instruction regarding the proposed amendment to move the references to SOLAS regulations V/4 and V/9, contained in annex 1 on obligations of Contracting Governments/Parties, to annex 3 on specific obligations for coastal States, agreed to the draft Revised Code for the Implementation of Mandatory IMO Instruments and the associated draft Assembly resolution, (FSI 15/18/Add.1, annex 1), for approval by MEPC 56 and MSC 83 prior to submission to the Council and the Assembly at its twenty-fifth session for adoption.

2.3 The Sub-Committee further observed that in this context C 98, when considering the report of MSC 82, noted that on the related issue of amendments to resolution A.974(24) on Framework and procedures for the Voluntary IMO Member State Audit Scheme, Member Governments and NGOs should bear in mind that any proposals for amendments thereto needed to be submitted directly to the Council for consideration.

## **3 ROUTEING OF SHIPS, SHIP REPORTING AND RELATED MATTERS**

### **General**

3.1 The Chairman recalled that during NAV 51 (NAV 51/19, paragraph 3.4), in summing up the extensive discussion on the quality of ships' routeing proposals, he had stressed the need to use a procedure similar to the one being presently used by the Committee for the assessment of proposals for new work programme items to pre-assess such proposals. He had further recommended that for future sessions of the Sub-Committee, a preliminary assessment of these

proposals would be made by him in consultation with the Secretariat and the Chairman of the Ships' Routeing Working Group, following the general criteria in MSC/Circ.1060 and MSC.1/Circ.1060/Add.1 without addressing the technical aspects of the proposal. The results of the assessment would then be made available to the Sub-Committee by means of a Working Paper. The Sub-Committee had supported this proposed course of action.

3.2 The Chairman informed the Sub-Committee that accordingly, he had in co-operation with the Secretariat prepared document NAV 53/WP.1, outlining a preliminary assessment of the ships' routeing and ship reporting proposals. The Sub-Committee considered document NAV 53/WP.1 and noted that, in general, the proposals were in conformity with the criteria outlined in MSC/Circ.1060 and MSC.1/Circ.1060/Add.1.

3.3 The Chairman further provided the following general guidance on the submission of proposals under this agenda item:

.1 application of WGS-84 chart datum:

The General Provisions on Ships' Routeing require the application of WGS-84 as the chart datum for the description of ships' routeing measures. In case of proposals for amendments to existing ships' routeing measures that have not yet been adjusted to WGS-84 datum, Member Governments should provide, in a separate annex to their proposals, a full description of such routeing measures in WGS-84 datum;

.2 submission of related proposals:

- .1 Proposals for ships' routeing measures should at all times be kept separate and distinct from proposals for ship reporting systems. Where such proposals are related this may be indicated by cross-referencing the respective proposals;
- .2 Proposals for Traffic Separation Schemes should be kept separate from proposals for routeing measures other than TSSs, and such proposals should therefore, as a rule, be submitted as separate documents; and
- .3 However, in the case that proposals for Traffic Separation Schemes and proposals for routeing measures other than TSSs are directly related as part of a single ships' routeing system, such proposals may be submitted in one document; in such cases each individual ships' routeing proposal should be presented in separate annexes to that document.

## **New Traffic Separation Schemes (TSSs)**

### **New Traffic Separation Scheme – “Maas North-West”**

3.4 At the request of the Government of the Netherlands, the Sub-Committee briefly considered a proposal (NAV 53/3/2, annex 1) for the establishment of a new traffic separation scheme “Maas North-West” forming part of the routeing system “In the Approaches to Hook of Holland and at North Hinder”.

### **New Mandatory Traffic Separation Schemes – “Galapagos Area to be Avoided (ATBA)”**

3.5 At the request of the Government of Ecuador, the Sub-Committee briefly considered a proposal (NAV 53/3/3) for the establishment of a new ships’ routing system comprising two mandatory traffic separation schemes for the approach to the “Galapagos Area to be Avoided (ATBA)” and Particularly Sensitive Sea Area (PSSA). The proposed routing system is an associated protective measure (APM) designed to protect the island marine ecosystem of the PSSA, helping to preserve its unique character as a world natural heritage site. The main purpose of the routing system is to protect the marine environment, human life at sea and the safety of navigation, and prevent or reduce the risk of pollution or any other damage to the marine environment caused by the collision or grounding of ships in or near sensitive areas.

### **New Traffic Separation Schemes – “On the approaches to the Polish ports in the Gulf of Gdańsk”**

3.6 At the request of the Government of Poland, the Sub-Committee briefly considered a proposal (NAV 53/3/7, annex 1) to establish new traffic separation schemes “On the approaches to the Polish ports in the Gulf of Gdańsk”.

### **New Traffic Separation Schemes and attached two-way routes – “Off the southwest coast of Iceland”**

3.7 At the request of the Government of Iceland, the Sub-Committee briefly considered a proposal (NAV 53/3/8, annexes 2 and 3) for the establishment of new routing measures “Off the southwest coast of Iceland” consisting of a new traffic separation scheme northwest of Gardskagi Point with attached two-way routes at both ends; and a new traffic separation scheme southwest of the Reykjanes Peninsula, with an attached two-way route.

### **Amendments to existing Traffic Separation Schemes (TSSs)**

#### **Amendments to the “Mandatory route for tankers from North Hinder to the German Bight and vice versa” and to related traffic separation schemes “Off Texel”, “Off Vlieland, Vlieland North and Vlieland Junction”, “Terschelling-German Bight” and “German Bight western approaches”**

3.8 At the request of the Governments of Germany, the Netherlands, and the United Kingdom, the Sub-Committee briefly considered a proposal (NAV 53/3/1) for amendments to the application paragraph of the “Mandatory route for tankers from North Hinder to the German Bight and vice versa” and consequential amendments to related Traffic Separation Schemes “Off Texel”, “Off Vlieland, Vlieland North and Vlieland Junction”, “Terschelling-German Bight” and “German Bight western approaches”. The proposed amendments are a consequence of the revised Annex II to MARPOL 73/78, which entered into force on 1 January 2007.

#### **Amendments to the existing Traffic Separation Schemes “In the approaches to Hook of Holland and at North Hinder”**

3.9 At the request of the Government of the Netherlands, the Sub-Committee briefly considered proposals (NAV 53/3/2, annex 2 and NAV 53/3/6, annex 1) to amend the existing traffic separation schemes “In the Approaches to Hook of Holland and at North Hinder”.

**Amendments to the existing Traffic Separation Scheme “In the Sound”**

3.10 At the request of the Governments of Denmark and Sweden, the Sub-Committee briefly considered a proposal (NAV 53/3/10) to amend the existing traffic separation scheme “In the Sound” between Denmark and Sweden.

**Amendments to the existing Traffic Separation Scheme “In the Approaches to Chedabucto Bay”**

3.11 At the request of the Government of Canada, the Sub-Committee briefly considered a proposal (NAV 53/3/14) to amend the existing traffic separation scheme “In the Approaches to Chedabucto Bay” for enhancing the safety of navigation by reducing the risk of collision and grounding.

**Amendments to the traffic separation scheme “In the Strait of Dover and Adjacent Waters”**

3.12 At the request of the Governments of Belgium, France and the United Kingdom, the Sub-Committee briefly considered a proposal (NAV 53/3/18) to amend one of the three existing traffic separation schemes and the Precautionary Area in the vicinity of the Foxtrot 3 station, located at the north east extremity of the Dover Strait, for the purposes of better managing the flow of crossing traffic in the general area and thus the preservation of navigational safety and the protection of the marine environment.

**Routeing measures other than Traffic Separation Schemes (TSSs)****Establishment of an Area to be Avoided and modifications to the breadth of the Safety Zones around Oil Rigs located off the Brazilian Coast – Campos Basin**

3.13 At the request of the Government of Brazil, the Sub-Committee briefly considered a proposal (NAV 53/3) supplemented by a study carried out by DNV and PETROBRAS (NAV 53/INF.2), which aims at designating an Area to be Avoided in waters off the Brazilian south-east coast, in the Campos Basin region, in order to reduce the risk of collision in an area with a high concentration of oil rigs, production systems and FPSOs. The second part of the proposal would extend the safety zones around the units which constitute this oil production system, taking into consideration the peculiarities of each one of them, with a view to avoiding environmental damage caused by any collision of a vessel.

3.14 There was general support for the proposal by Brazil but some delegations were concerned by the extension of the designated safety zones to more than 500 metres, taking into consideration that there were not any established procedures and guidelines in order to determine any proposed extension.

3.15 The delegation of the United Kingdom stated that it supported Brazil’s proposal to designate an “Area to be Avoided” off their south east coast and to extend other safety zones. The United Kingdom delegation also expressed its desire that any approval of Brazil’s proposal should include a “sunset review clause” whereby any such measures should be reviewed by the Organization following a fixed period of time.

3.16 The delegation of the United States thanked Brazil for their proposal and bringing the issue of an expanded safety zone to the attention of the Sub-Committee. That delegation stated that it recognized that Article 60(5) of UNCLOS allowed the Sub-Committee to consider such

types of proposals; but it had no procedures to guide it in judging these proposals. For example, Article 60(5) mentioned structures, installations or artificial islands. The United States was unsure that FPSOs were covered by these categories. Also, there were other types of units in the EEZ, such as windfarms that also needed to be addressed. It was for this reason that the delegation urged caution and deliberation in considering the safety zone part of the proposal. Specifically, they believed that the Sub-Committee should develop uniform procedures, and guidelines by which safety zone proposals should be considered. Otherwise, the Sub-Committee would be considering proposals for safety zones greater than 500 metres on an *ad hoc* basis without guidelines, standards or objective measures by which to make a judgement. The development of uniform procedures would, in their view, ensure that safety of navigation was taken consistently into account. Proposals should be judged on an objective basis such that the size of any adopted safety zone was no larger than the minimum necessary to achieve safety of navigation.

### **Amendment and expansion of the six existing Area to be avoided “In the Region of the North-West Hawaiian Islands”**

3.17 At the request of the Government of the United States, the Sub-Committee briefly considered a proposal (NAV 53/3/4) to amend and expand the six existing Areas to be Avoided “In the Region of the North-West Hawaiian Islands”. The purpose of this proposal is to increase maritime safety where navigation is particularly hazardous, protect the fragile environment, preserve cultural resources and areas of cultural importance significant to native Hawaiians, and facilitate the ability to respond to developing maritime emergencies.

### **Amendment to the Deep-water route leading to Europoort**

3.18 At the request of the Government of the Netherlands, the Sub-Committee briefly considered a proposal (NAV 53/3/6, annex 2) for an amendment to the deep-water route leading to Europoort.

### **Amendment to the Area to be Avoided “At Maas Centre” and “At North Hinder Junction Point”**

3.19 At the request of the Government of the Netherlands, the Sub-Committee briefly considered a proposal (NAV 53/3/6, annex 3) for an amendment to the Area to be Avoided “At Maas Centre” and “At North Hinder Junction Point”.

### **Recommendations on navigation to the Polish ports through the Gulf of Gdańsk traffic area**

3.20 At the request of the Government of Poland, the Sub-Committee briefly considered a proposal (NAV 53/3/7, annex 2) on recommendations concerning navigation in and through the proposed new mandatory ship reporting area and near the proposed new traffic separation schemes in the Gulf of Gdańsk.

### **Establishment of a new two-way route – Off the southwest coast of Iceland**

3.21 At the request of the Government of Iceland, the Sub-Committee briefly considered a proposal (NAV 53/3/8, annex 1) for the establishment of routing measures off the southwest coast of Iceland consisting of a new two-way route located between the two proposed eastern and western Area to be Avoided.

### **Establishment of Areas to be Avoided – Off the south and southwest coast of Iceland**

3.22 At the request of the Government of Iceland, the Sub-Committee briefly considered a proposal (NAV 53/3/9) for the establishment of routeing measures off the south, southwest and west coast of Iceland consisting of two Areas to be Avoided, an eastern area and a western area plus an Area to be Avoided in shallow waters in Faxaflói Bay.

### **Amendments to the Recommendation on navigation through the entrances to the Baltic Sea**

3.23 At the request of the Governments of Denmark and Sweden, the Sub-Committee briefly considered a proposal (NAV 53/3/11) to amend the existing resolution MSC.138(76) regarding recommendation on navigation through the entrances to the Baltic Sea.

3.24 The delegation of Finland stated that it supported all kind of relevant actions for enhancing navigational safety through the entrances to the Baltic sea. However, resolution MSC.138(76) had been discussed to be in line with UNCLOS regulations in theory only while, unfortunately, in practice it had been different. It was a practice by Danish authorities to complain against all ships, even with experienced captains, which did not use pilots in the entrances to the Baltic sea by stating that “above mentioned ship failed to follow safe navigation practices and procedures”. This meant that Denmark had complained that masters purely on the grounds of not using a pilot had violated maritime law regarding good seamanship. The Finnish delegation felt that complying with UNCLOS was essential both in theory and practice. Therefore, they were of the opinion that this matter should also be discussed when considering document NAV 53/3/11 in the Ships’ Routeing Working Group, bearing in mind that resolution MSC.138(76) was a recommendation only.

3.25 On the issue of pilotage, Denmark stated that no amendments to the recommendation on pilotage were proposed in NAV 53/3/11. Furthermore Denmark was of the opinion that practical implementation on the recommendations on pilotage was not to be discussed in the working group.

### **Establishment of new mandatory No Anchoring Areas on Sharks Bank and Long Shoal**

3.26 At the request of the Government of Barbados, the Sub-Committee briefly considered a proposal (NAV 53/3/12) for the establishment of two new mandatory no anchoring areas on Sharks Bank and Long Shoal on the southwest and west coasts of Barbados by all ships on Sharks Bank, and ships 25ft and greater on Long Shoal.

### **Establishment of a seasonal Area to be avoided “In Roseway Basin, South of Nova Scotia”**

3.27 At the request of the Government of Canada, the Sub-Committee briefly considered a proposal (NAV 53/3/13) to establish a recommended **seasonal** Area to be Avoided “In Roseway Basin, south of Nova Scotia”. The objective of this proposal is to reduce the likelihood of ship strikes causing deaths and serious injuries to right whales from June through December. This would redirect ship traffic from an area with the highest density of right whales to areas where there is a lower density.

### **Amendments to the northerly and southerly limits of the Sandettie Deep-Water route and an amendment to the position of the Foxtrot 3 station**

3.28 At the request of the Government of the United Kingdom, the Sub-Committee briefly considered a proposal (NAV 53/3/16) as a consequence of the proposal by Belgium, France and the United Kingdom (NAV 53/3/18) to amend the traffic separation scheme “In the Strait of Dover and Adjacent Waters” in the vicinity of the Foxtrot 3 station. The amendments relate to:

- .1 the northerly and southerly limits of the Sandettie deep-water route; and
- .2 the position of the Foxtrot 3 station including the position of Area to be Avoided around this feature.

### **Amendments to the Recommendations on Navigation through the English Channel and the Dover Strait**

3.29 At the request of the Government of the United Kingdom, the Sub-Committee briefly considered a proposal (NAV 53/3/17) to update the “Recommendations on Navigation through the English Channel and the Dover Strait”, as a consequence, primarily, of the mandatory ship reporting system in the Dover Strait/Pas de Calais.

### **Amendments to the Deep-water route “North-east of Gedser”**

3.30 At the request of the Governments of Denmark and Germany, the Sub-Committee briefly considered a proposal (NAV 53/3/19) to amend the information given concerning the minimum depth of water below mean sea level, in the deep water route “North-east of Gedser”.

### **Mandatory ship reporting systems**

#### **New recommendatory/mandatory ship reporting system for the Papahānaumokuākea Marine National Monument**

3.31 At the request of the Government of the United States, the Sub-Committee briefly considered a proposal (NAV 53/3/5) for the establishment of a new partly recommendatory and partly mandatory ship reporting system for the Papahānaumokuākea Marine National Monument, which would be recommendatory for ships transiting through the Monument, and would be mandatory for ships entering or departing a United States port or place. The objective of this system is to improve maritime safety where navigation is particularly hazardous, protect the fragile environment, preserve cultural resources and areas of cultural importance significant to native Hawaiians, and facilitate the ability to respond to developing maritime emergencies.

#### **New mandatory ship reporting system “On the approaches to the Polish ports in the Gulf of Gdańsk”**

3.32 At the request of the Government of Poland, the Sub-Committee briefly considered a proposal (NAV 53/3/7, annex 3) to establish a new mandatory ship reporting system within the Polish territorial and internal waters in the Gulf of Gdańsk.

### **New mandatory ship reporting system “Off the south and southwest coast of Iceland”**

3.33 At the request of the Government of Iceland, the Sub-Committee briefly considered a proposal (NAV 53/3/20) for the establishment of a new mandatory ship reporting system, off the south and southwest coasts of Iceland.

### **Amendments to the existing mandatory ship reporting systems “Off Ushant”, “Off Les Casquets” and “Dover Strait/Pas de Calais”**

3.34 At the request of the Governments of France and the United Kingdom, the Sub-Committee briefly considered a proposal (NAV 53/3/15) to amend and standardize the reporting format for the three mandatory ship reporting systems in the Channel: “Off Ushant” (OUESSREP), “Off Les Casquets” (MANCHEREP) and “Dover Strait/Pas de Calais” (CALDOVREP).

### **Review of adopted mandatory ship reporting systems**

3.35 The Chairman recalled that, at NAV 52, he had taken the initiative to bring to the attention of Members the need for carrying out an evaluation of existing mandatory ship reporting systems as specified in resolution MSC.43(64) – Guidelines and criteria for ship reporting systems, as amended by resolutions MSC.111(73) and MSC.189(79) relating to ship reporting systems. In addition, SOLAS regulation V/11.11 stated that the Organization shall ensure that adopted ship reporting systems are reviewed under the guidelines and criteria developed by the Organization. Lastly, section 4.4 of resolution MSC.43(64), as amended, stated that the Organization should provide a forum for the review and re-evaluation of systems, as necessary, taking into account the pertinent comments, reports, and observations of the systems.

3.36 The Chairman suggested once again that Members should undertake a review and re-evaluation of existing mandatory ship reporting systems based on the operational experience gained and take action, as appropriate.

### **Terms of Reference for the Working Group**

3.37 After a preliminary discussion, as reported in paragraphs 3.1 to 3.36 above, the Sub-Committee re-established the Ships’ Routeing Working Group and instructed it, taking into account any decisions of, and comments and proposals made in plenary as well as relevant decisions of other IMO bodies (item 2) to:

- .1 consider from an operational point of view all documents submitted under item 3 regarding routeing of ships and related matters and prepare routeing and reporting measures, as appropriate, and recommendations for consideration and approval by plenary;
- .2 take into account the role of the human element guidance as updated at MSC 75 (MSC 75/24, paragraph 15.7) including the Human Element Analysing Process (HEAP) given in MSC/Circ.878-MEPC/Circ.346 in all aspects of the items considered; and
- .3 submit a report to plenary on Thursday, 26 July 2007 for consideration at plenary.

## **Report of the Ships' Routeing Working Group**

3.38 Having received and considered the Working Group's report (NAV 53/WP.3), the Sub-Committee approved it in general and, in particular (with reference to paragraphs 3.1 to 8.1) took action as summarized hereunder.

### **New traffic separation schemes (TSSs)**

#### **New Traffic Separation Scheme – “Maas North-West” forming part of the routeing system “In the Approaches to Hook of Holland and at North Hinder”**

3.39 The Sub-Committee approved the proposed new traffic separation scheme “On the Approaches to Hook of Holland and at North Hinder” with some corrections to the description as set out in annex 1, which the Committee is invited to adopt.

#### **New Traffic Separation Schemes – On the approaches to the Polish ports in the Gulf of Gdańsk**

3.40 The Sub-Committee approved the proposed new traffic separation schemes “On the approaches to the Polish ports in the Gulf of Gdańsk” with some corrections to the description as set out in annex 1, which the Committee is invited to adopt.

#### **New Traffic Separation Schemes and attached two-way routes – Off the southwest coast of Iceland**

3.41 The Sub-Committee approved the proposed new traffic separation schemes and two-way routes “Off the southwest coast of Iceland” with some corrections to the description as set out in annex 1, which the Committee is invited to adopt.

### **Amendments to existing Traffic Separation Schemes (TSSs)**

#### **Amendments to the “Mandatory route for tankers from North Hinder to the German Bight and vice versa” and to related traffic separation schemes “Off Texel”, “Off Vlieland, Vlieland North and Vlieland Junction”, “Terschelling-German Bight” and “German Bight western approaches”**

3.42 The Sub-Committee approved the proposed amendments to the existing “Mandatory route for tankers from North Hinder to the German Bight and vice versa” and to related traffic separation schemes “Off Texel”, “Off Vlieland, Vlieland North and Vlieland Junction”, “Terschelling-German Bight” and “German Bight western approaches” as set out in annex 1, which the Committee is invited to adopt.

#### **Amendments to the existing Traffic Separation Schemes “In the approaches to Hook of Holland and at North Hinder”**

3.43 The Sub-Committee approved the proposed amendments to the existing traffic separation schemes “In the Approaches to Hook of Holland and at North Hinder” with some corrections to the description as set out in annex 1, which the Committee is invited to adopt.

**Amendments to the existing Traffic Separation Schemes “In the Sound”**

3.44 The Sub-Committee approved the proposed amendments to the existing traffic separation scheme “In the Sound” with some corrections to the description as set out in annex 1, which the Committee is invited to adopt.

**Amendments to the existing Traffic Separation Scheme “In the Approaches to Chedabucto Bay”**

3.45 The Sub-Committee approved the proposed amendments to the existing traffic separation scheme “In the Approaches to Chedabucto Bay” with some corrections to the description as set out in annex 1, which the Committee is invited to adopt.

**Amendments to the existing traffic separation scheme “In the Strait of Dover and Adjacent Waters”**

3.46 The Sub-Committee approved the proposed amendments to the existing traffic separation scheme “In the Strait of Dover and Adjacent Waters” in the vicinity of the Foxtrot 3 station with some corrections to the description as set out in annex 1, which the Committee is invited to adopt.

**Routeing measures other than traffic separation schemes (TSSs)****New Recommended Tracks – Galapagos Area to be Avoided (ATBA) and PSSA**

3.47 The Sub-Committee, in reviewing the proposal from Ecuador to establish two mandatory Traffic Separation Schemes (TSSs), agreed with the objectives of the proposal and the need to protect the Galapagos. Bearing in mind that there was very little traffic flow in the area proposed by Ecuador, the Sub-Committee could not agree that a TSS was the most appropriate measure. Therefore, to accomplish the objectives of the Ecuadorean proposal, the Sub-Committee agreed that recommended tracks, that would be mandatory as a condition of port entry, would be the most appropriate measure.

3.48 Accordingly, the Sub-Committee approved the recommended tracks which would be mandatory as a condition of port entry through the Galapagos Area to be Avoided to enter the Particularly Sensitive Sea Area (PSSA) as set out in annex 2, which the Committee is invited to adopt.

**Establishment of an Area to be Avoided and modifications to the breadth of the Safety Zones around Oil Rigs located off the Brazilian Coast – Campos Basin**

3.49 The Sub-Committee noted that the delegation of the United Kingdom supported by others had stressed that every coastal State which authorized and regulated the operation and use of offshore installations and structures under its jurisdiction should follow the Recommendation on Safety zones and safety of navigation around offshore installations and structures as outlined in resolution A.671(16). Article 60(5) of UNCLOS related to artificial islands, installations and structures in the exclusive economic zone stated that safety zones should not exceed a distance of 500 metres around them. Accordingly, the delegation of the United Kingdom had suggested two options namely:

- .1 accepting the extended safety zones subject to a revision after a period of 2-3 years to be accepted in plenary; and

- .2 acceptance of 500-metre safety zones with a view to Brazil returning to IMO if extended safety zone was required in view of operational experience.

3.50 The Sub-Committee also noted that the majority of the group was concerned and did not agree to the extension of the safety zones, taking into consideration that there were not any established procedures and guidelines in order to determine the proposed extension.

3.51 The Sub-Committee further noted that, although the position of Brazil still remained that the area would not be safe without acceptance of the proposed measures concerning the establishment of extended safety zones, the delegation of Brazil – in view of the decision of the Working Group not to agree to the safety zones as proposed by Brazil – concurred with maintaining the breadth of the safety zones as provided by UNCLOS. However, the Brazilian delegation requested that Member Governments include a recommendatory note in nautical publications that, if it was necessary for a ship to enter the area to be avoided, it was strongly recommended not to approach within one mile of fixed and semi-submersible platforms and offshore terminals and two miles of FPSOs and Dynamic Positioned platforms.

3.52 The Sub-Committee approved the proposed new Area to be Avoided “Off the Brazilian south-east coast, in the Campos Basin region” with corrections to the description, as referred to in paragraphs 3.49 to 3.51 above, as set out in annex 2, which the Committee is invited to adopt.

3.53 The Sub-Committee observed that the majority of the group had recommended that the Sub-Committee ask the Committee to establish as a high priority work item development of guidelines, principles and standards for how extension of safety zones larger than 500 metres, which is provided for in UNCLOS, can be evaluated. UNCLOS Article 60(5) provides, *inter alia*, such safety zones “shall not exceed a distance of 500 metres around them, measured from each point of their outer edge, except ... as recommended by the competent international organization”, which is understood to mean the Organization.

3.54 The Sub-Committee also observed that the group had agreed to request the Sub-Committee to recommend the Committee to authorize a correspondence group to begin work to develop these guidelines, principles and standards immediately after MSC 83.

3.55 The Sub-Committee noted that Member Governments must individually or jointly request the Committee to establish new work items based on a properly justified proposal. Accordingly, the Sub-Committee observed that it could not follow the recommendation of the majority of the group to recommend that the Committee establish as a high priority work item on the development of guidelines, principles and standards for how extension of safety zones larger than 500 metres, which is provided for in UNCLOS, could be evaluated.

3.56 The Sub-Committee also noted that as per the Guidelines on the organization and method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their subsidiary bodies (MSC-MEPC.1/Circ.1, paragraph 3.38), the Sub-Committee could only, as a rule, establish correspondence groups only for high priority agenda items and this topic was neither on the work programme nor the agenda of the Sub-Committee.

3.57 The Chairman invited interested Parties to submit appropriate submissions on the matter to the Committee.

### **Amendment and expansion of the six existing Areas to be Avoided “In the Region of the North-West Hawaiian Islands”**

3.58 The Sub-Committee noted that MEPC 56 had approved, in principle, the designation of the Papahānaumokuākea Marine National Monument as a Particularly Sensitive Sea Area that the final PSSA designation would only be taken after approval of the proposed associated protective measures by NAV 53 and adoption by MSC 83.

3.59 The Sub-Committee approved the proposed amendments to the six existing recommended Areas to be Avoided “In the Region of the North-West Hawaiian Islands” with some corrections to the description as set out in annex 2, which the Committee is invited to adopt. The new name of the extended Area to be Avoided “In the Region of the North-West Hawaiian Islands” is “The Papahānaumokuākea Marine National Monument”.

### **Amendment to the Deep-water route leading to Europoort**

3.60 The Sub-Committee approved the proposed amendment to the deep-water route leading to Europoort with some corrections to the description as set out in annex 2, which the Committee is invited to adopt.

### **Amendment to the Area to be Avoided “At Maas centre” and “At North Hinder junction Point”**

3.61 The Sub-Committee approved the proposed amendments to the existing Area to be Avoided “At Maas centre” and “At North Hinder junction Point” with some corrections to the description as set out in annex 2, which the Committee is invited to adopt.

### **Recommendations on navigation to the Polish ports through the Gulf of Gdańsk traffic area**

3.62 The Sub-Committee considered the proposed Recommendations on navigation to the Polish ports through the Gulf of Gdańsk traffic area. The delegation of Poland insisted that with respect to the use of the words “should” and “shall” in paragraph 1.5 of the Recommendations on navigation to the Polish ports through the Gulf of Gdańsk traffic area using the word “shall” was necessary, as it was the most appropriate language considering the whole contents of this paragraph. This paragraph described the traffic requirements between the Polish ports only, and within the Poland’s internal waters only. Therefore, the usage of “shall” was absolutely right and appropriate.

3.63 The delegation of the Netherlands clarified that if a routeing measure and/or ship reporting system was a “recommendation” the measure and/or reporting system was recommendatory in nature. It was also mentioned that the words “shall” and “should” occur in previously IMO adopted Associated Rules and Recommendations on navigation and the basic intent and purpose of each of these routeing measures was a recommendation. The Sub-Committee noted the information provided by the Netherlands delegation.

3.64 The Sub-Committee approved the proposed Recommendations on navigation to the Polish ports through the Gulf of Gdańsk traffic area with some corrections to the description as set out in annex ..., with the proviso that the word “shall” in paragraph 1.5 would be finalized after due advice from the Legal Office of the Organization, about which the Committee would be informed at its forthcoming eighty-third session. The Committee is invited to adopt the aforementioned recommendations on navigation.

### **Establishment of new two-way route – Off the southwest coast of Iceland**

3.65 The Sub-Committee approved the proposed new two-way route “Off the southwest coast of Iceland” with some corrections to the description as set out in annex 2, which the Committee is invited to adopt.

### **Establishment of Areas to be Avoided – Off the south and southwest coast of Iceland**

3.66 The Sub-Committee approved the proposed new Areas to be Avoided “Off the south, southwest and west coast of Iceland” with some corrections to the description as set out in annex 2, which the Committee is invited to adopt.

### **Amendments to the Recommendation on navigation through the entrances to the Baltic Sea**

3.67 The Sub-Committee approved the proposed amendments to the Recommendation on navigation through the entrances to the Baltic Sea as set out in annex 2, which the Committee is invited to adopt.

### **Establishment of new mandatory No Anchoring Areas on Sharks Bank and Long Shoal**

3.68 The Sub-Committee approved the proposed new mandatory No Anchoring Areas “on Sharks Bank and Long Shoal” with some corrections to the description as set out in annex 2, which the Committee is invited to adopt.

### **Establishment of a seasonal Area to be Avoided “In Roseway Basin, South of Nova Scotia”**

3.69 The Sub-Committee approved the proposed new recommended seasonal Area to be Avoided “In Roseway Basin, south of Nova Scotia” with some corrections to the description as set out in annex 2, which the Committee is invited to adopt.

### **Amendments to the northerly and southerly limits of the Sandettie Deep-water route and an amendment to the position of the Foxtrot 3 station**

3.70 The Sub-Committee approved the proposed amendments to the existing Deep-Water route, and to the position of the Foxtrot 3 station “In the Strait of Dover and Adjacent Waters” TSS with some corrections to the description as set out in annex 2, which the Committee is invited to adopt.

### **Amendments to the Recommendations on Navigation through the English Channel and the Dover Strait**

3.71 The Sub-Committee approved the proposed amendments to the Recommendations on Navigation through the English Channel and the Dover Strait with some corrections to the description as set out in annex 2, which the Committee is invited to adopt.

### **Amendments to the Deep-water route “North-east of Gedser”**

3.72 The Sub-Committee noted that the delegation of the Russian Federation had stressed that there was no information concerning under keel clearance for the deep-water route as indicated and requested the delegations of Denmark and Germany to clarify this issue. The delegation of Denmark stated that, in the view of Denmark and Germany, it was up to the master of the ship to decide what draught to use for safe navigation. When deciding so, the master should, among other things, consider the draught increasing, due to squat, the effect of heel during course

alterations, the effect of sea level variations caused by tide and meteorological conditions, waves and swell, density of water including hogging and sagging of the ship.

3.73 The Sub-Committee further noted that the delegations of Denmark and Germany were of the view that common guidelines on this subject should be considered and that they would submit a detailed proposal to NAV 54.

3.74 The Sub-Committee approved the proposed amendments to the Deep-water route “North-east of Gedser” as set out in annex 2, which the Committee is invited to adopt.

### **Implementation of new and amended traffic separation schemes and other routeing measures**

3.75 New TSSs and amendments to the TSSs and other routeing measures mentioned in the above paragraphs will be implemented at 0000 hours UTC six months after adoption by the Committee.

### **MANDATORY SHIP REPORTING SYSTEMS**

#### **New recommendatory/mandatory ship reporting system for the Papahānaumokuākea Marine National Monument**

3.76 The Sub-Committee approved the proposed new ship reporting system for “The Papahānaumokuākea Marine National Monument”, with some corrections as set out in annex 3, which the Committee is invited to adopt.

#### **New mandatory ship reporting system “On the approaches to the Polish ports in the Gulf of Gdańsk”**

3.77 The Sub-Committee approved the proposed new mandatory ship reporting system “On the approaches to the Polish ports in the Gulf of Gdańsk” with some corrections as set out in annex 4, which the Committee is invited to adopt.

#### **New mandatory ship reporting system “Off the south and southwest coast of Iceland”**

3.78 The Sub-Committee approved the proposed new mandatory ship reporting system “Off the south and southwest coast of Iceland” with some corrections as set out in annex 5, which the Committee is invited to adopt.

#### **Amendments to the existing mandatory ship reporting systems “Off Ushant”, “Off Les Casquets” and “Dover Strait/Pas de Calais”**

3.79 The Sub-Committee approved the proposed amendments to the existing mandatory ship reporting systems “Off Ushant”, “Off Les Casquets” and “Dover Strait/Pas de Calais” with some corrections as set out in annex 6, which the Committee is invited to adopt.

### **Any Other Business**

3.80 The Sub-Committee noted that in specific circumstances it was important to use ship reporting systems provided for by SOLAS regulation V/11. There might be value in verbal contact with the mariner when a ship was entering or departing from a reporting area. AIS, although an important tool, was not always an appropriate substitute for voice to voice

communications between a ship's bridge and a shore-based Authority (e.g., a VTS centre). Accordingly, the Sub-Committee requested all Member Governments to reconsider and revise as necessary mandatory ship reporting systems so as to avoid duplication of information and reduce the items in the reporting format to those which are not available through AIS and other sources.

### **Implementation of Mandatory Ship Reporting Systems**

3.81 The new and amended mandatory ship reporting systems mentioned in above paragraphs 3.76 to 3.79 will be implemented at 0000 hours UTC six months after adoption by the Committee.

3.82 The delegation of Singapore in expressing their appreciation of the work of the Working Group on Routeing of Ships, Ship Reporting and Relating Matters, also highlighted that there were concerns regarding proposals which consisted of mandatory and recommendatory elements. For greater clarity, it was suggested that, in future, such proposals should state very clearly when the measure(s) and/or reporting system(s) should be complied with on a mandatory basis and when these should be followed on a recommendatory basis. The delegation further highlighted that some existing submissions as finalized in the Working Group, such as the ship reporting system for the Papahānaumokuākea PSSA and recommended tracks for the Galapagos PSSA, already reflected the aforementioned clarifications, and thanked the respective proposing delegations. The delegation of Singapore was of the opinion that such clarification would be useful to mariners and Administrations. This was supported by several other delegations.

3.83 The delegation of Singapore further thanked the delegation of the Netherlands for the general explanation that if a routeing measure and/or ship reporting system was titled as a "recommendation" the measure and/or reporting system was recommendatory in nature.

## **4 REVISION OF THE PERFORMANCE STANDARDS FOR INS AND IBS**

4.1 The Sub-Committee observed that MSC 82, noting that the Sub-Committee, under its agenda item on "Review of performance standards for INS and IBS", was developing revised INS and IBS performance standards to allow for a comprehensive application of SOLAS regulation V/15, had instructed NAV 53 to take ergonomic criteria, as set out in MSC-MEPC.7/Circ.3, into consideration when discussing this issue. Furthermore, the Committee had invited Member Governments and international organizations with human element expertise to participate during the deliberations at NAV 53 to ensure that the human element and, in particular, ergonomics were taken into account when reviewing the application of SOLAS regulations V/15 and V/23.

4.2 The Sub-Committee also observed that DE 50 had considered document DE 50/10/2/Rev.1 (IACS), containing a proposal for a draft revision of the Code on Alarms and Indicators and, noting that there was general agreement on the revised Code as proposed by IACS, and recalling that MSC 79 had instructed it to co-operate on this item with appropriate sub-committees, as necessary and when requested by the Sub-Committee, agreed to refer the draft revised Code (DE 50/10/2/Rev.1) to NAV 53, DSC 12, FP 52 and BLG 12 for comments on issues under these Sub-Committees' purview.

4.3 The Sub-Committee recalled that NAV 50, with a view to progressing the matter further intersessionally, had established a correspondence group under the co-ordination of Germany to give preliminary consideration to the revision of the performance standards for INS and IBS and advise the Sub-Committee.

4.4 The Sub-Committee also recalled that NAV 51 had agreed with the conclusions of the correspondence group that work should begin with a revision of INS performance standards with a revision of the IBS performance standards following. The Sub-Committee had further agreed with the correspondence group that performance standards for a bridge alarm management system were also required but was of the opinion that they could form a part of INS performance standards. NAV 51, therefore, had agreed to the revised draft structure of performance standards for INS together with terms of reference for the re-established correspondence group to prepare the work for consideration at NAV 52.

4.5 The Sub-Committee further recalled that DE 49 had considered document DE 49/13 (Germany), advising on the progress made by the correspondence group on the revision of Integrated Navigation System (INS) and Integrated Bridge System (IBS) performance standards, and the development of performance standards for bridge alarm management system, established by NAV 51, which had also been instructed to liaise with the DE Sub-Committee to ensure consistent treatment of alarm management when reviewing the Code on Alarms and Indicators; and document DE 49/13/1 (United Kingdom), supporting the proposals in document DE 49/13 to classify alarms on the basis of the urgency of the required response and suggesting common definitions between the INS activity and the revision of the Code and the inclusion of some aspects of alarms that are outside the scope of performance standards which are under development by the Sub-Committee. Following a brief discussion, DE 49 had invited Member Governments and international organizations to submit to DE 50 (5-9 March 2007), proposals for amendments to the Code on Alarms and Indicators, taking into account the outcome of NAV 52's consideration.

4.6 The Sub-Committee recalled that, NAV 52 had agreed with the conclusions of the Group that more work was required in section 3 (Application), in section 15 (Provision of on-board familiarization material) where guidance and requirements should be clearly differentiated and in Appendix 1 (Definitions) where a definition for Human Machine Interface should be added. The Sub-Committee further recalled that the correspondence group had indicated the need for more work in several areas.

4.7 The Sub-Committee also recalled that, NAV 52 had further agreed with the conclusion of the correspondence group's opinion that a revision of the performance standards for IBS should include the development of bridge resource management guidelines and be conducted in the framework of SOLAS regulation V/15 and that Appendix 3 of NAV 52/4 was a suitable base text. Further, the Sub-Committee had agreed that a proposal for a modular concept of INS and future revised individual performance standards should be developed further.

4.8 The Sub-Committee briefly discussed the report by Germany (NAV 53/4), summarizing the work and recommendations of the Correspondence Group regarding the revision of the performance standards for INS and IBS. A draft proposal for INS performance standards including an alarm management module as well as draft guidelines on the application of SOLAS regulation V/15 to INS and IBS had been prepared.

4.9 The Sub-Committee also briefly discussed document NAV 53/4/1 (Norway), providing general comments on the report of the Correspondence Group and information on experience gained from voice guiding alarms as tested on two Norwegian ro-ro passenger ships.

4.10 The Sub-Committee noted the information provided in documents NAV 53/INF.4, NAV 53/INF.5 and NAV 53/INF.6 (IACS) on IACS recommendations for the application of SOLAS regulation V/15.

4.11 The Sub-Committee noted that the Correspondence Group had prepared draft revised performance standards for INS, whilst recommending that for IBS it would be more appropriate to develop Guidelines rather than performance standards.

4.12 The observer from IACS informed the Sub-Committee that instead of a Unified Interpretation, IACS had now developed Recommendation on the application of SOLAS regulation V/15 relating to bridge design, design and arrangement of navigational systems and equipment and bridge procedures.

4.13 After a brief discussion, the Sub-Committee agreed that the INS performance standards should be stand alone and there should be no restriction on the application of the standard to all ships.

4.14 The Sub-Committee agreed, to refer documents NAV 53/4, NAV 53/4/1, NAV 53/INF.4, NAV 53/INF.5 and NAV 53/INF.6 to the Technical Working Group to be established under agenda items 4, 7, 9, 11, 18 and 21 (sub-item on revised ECDIS Performance Standards) for consideration and advice.

### **Establishing Technical Working Group**

4.15 Having also considered agenda items 7, 9, 11, 18 and 21 (sub-item on revised ECDIS Performance Standards), which were deemed to be within the remit of the Technical Working Group, the Sub-Committee re-established the Technical Working Group and instructed it to consider all relevant documents submitted under agenda items 4, 7, 9, 11, 18 and 21 (sub-item on revised ECDIS Performance Standards) and, taking into account any decisions of, and comments and proposals made in plenary, undertake the following tasks:

- .1 consider NAV 53/4 and, taking into account the framework for the consideration of ergonomics and the working environment in order to reduce the incidents of personal injuries and human errors (MSC-MEPC.7/Circ.3):
  - .1 finalize the draft INS performance standards (NAV 53/4, annex 1);
  - .2 finalize the draft Guidelines on the application of SOLAS regulation V/15 to INS, IBS and bridge design taking into the account the need for verifying compliance (NAV 53/4, paragraph 12, annex 2) (agenda item 4);
  - .3 review and develop further the draft outline of an SN circular (NAV 53/4, paragraph 13, annex 3) for the modular concept for future performance standards (agenda item 4);
  - .4 provide guidance and comments on the need to establish standard serial communication protocol to support compatibility and to allow interconnection and integration for the successful implementation of INS and IBS (NAV 53/4, paragraph 6) (agenda item 4); and
  - .5 provide recommendations and guidance as to the appropriate instrument for the revised IBS performance standards i.e. whether they should be re-drafted as performance standards or as guidelines (NAV 53/4, paragraphs 7 and 8) (agenda item 4);

- .2 provide proper justification for an extension of this agenda item for another two sessions to finalize the performance standards for IBS and also prepare the revised terms of reference for the Correspondence Group on IBS issues to progress work for finalization at NAV 55 (agenda item 4);
- .3 consider document DE 50/10/2/Rev.1 (IACS), containing a proposal for a draft revision of the Code on Alarms and Indicators and provide comments relating to alarms, including alarm management on the bridge (agenda item 4);
- .4 consider document NAV 53/7 and finalize a draft SN circular on Guidelines for the installation of shipborne radar equipment;
- .5 prepare, as appropriate, recommendations, opinions and liaison statements to appropriate ITU bodies in relation to document NAV 53/9/1;
- .6 finalize a draft MSC circular on Safety margins to protect radar systems (NAV 53/9/2, annex);
- .7 consider documents NAV 53/11 and NAV 53/18, taking into account IACS clarification on IACS Unified Interpretations of COLREG 2 and finalize the draft performance standards for navigation lights, navigation light controllers and associated equipment, and also undertake a review of the draft MSC circular on Unified Interpretation of COLREG 1972, as amended;
- .8 review resolution MSC.232(82) on Adoption of the revised performance standards for electronic chart display and information systems (ECDIS) and assess whether a common layout of controls; names or symbols for controls; and output on the display for each control could be appropriately included therein and provide relevant guidance and recommendations, as appropriate;
- .9 take into account the role of the human element guidance as updated at MSC 75 (MSC 75/24, paragraph 15.7) including the Human Element Analysing Process (HEAP) given in MSC/Circ.878-MEPC/Circ.346 in all aspects of the items considered; and
- .10 submit a report to plenary on Thursday, 26 July 2007 for consideration at plenary.

### **Report of the Technical Working Group**

4.16 Having received and considered the Technical Working Group report (NAV 53/WP.2), the Sub-Committee (with reference to paragraphs 3.1 to 3.11 and annexes 1, 2 and 3), took action as summarized hereunder.

4.17 The Sub-Committee noted that these proposed draft performance standards only address the larger integrated systems conforming to the INS definition in this new standard and they did not apply to smaller integrated systems, such as ECDIS integrated with track control. The Sub-Committee approved the draft MSC resolution on revised performance standards for Integrated Navigation Systems as set out in annex 7 for submission to the Committee for adoption.

4.18 The Sub-Committee noted that the Group had considered the proposed draft Guidelines on the application of SOLAS regulation V/15 to INS, IBS and bridge design and agreed that the guidelines should be made available for designers and system integrators on the one hand and for the development of performance standards on the other hand. To support their application the Group recommended that the guidelines be made available by means of an SN circular. The Sub-Committee agreed that the guidelines should not be attached as appendices to the revised performance standards for INS and IBS, because performance standards have a more prescriptive nature than guidelines.

4.19 The Sub-Committee also noted that the Group had discussed the need for possible means for flag States to verify compliance with the Guidelines and observed that the IACS recommendations (documents NAV 53/INF.4, NAV 53/INF.5 and NAV 53/INF.6) provide a way of verifying compliance with SOLAS regulation V/15.

4.20 The Sub-Committee agreed the draft SN circular on Guidelines on the application of SOLAS regulation V/15 to INS, IBS and bridge design, as set out in annex 8 with a view to approval by the Committee.

4.21 The Sub-Committee further agreed the draft outline of an SN circular for the application of the modular concept for future performance standards, as set out in annex 9. The Sub-Committee agreed to instruct the Correspondence Group to be established to progress the work and invited Member Governments and international organizations to submit comments and proposals for discussion at NAV 54.

4.22 The Sub-Committee concurred with the view of the Group that, for the successful implementation of INS and IBS, it was essential that all sensors and equipment adopt a standard serial communication protocol to support compatibility and allow interconnection and integration. The Sub-Committee agreed to invite IEC to further develop suitable interface standards on INS and IBS and closely liaise with the Organization on this matter.

4.23 Regarding the revision of the IBS performance standards, the Sub-Committee noted the view of the Group that the existing IBS performance standards were impractical to apply and enforce. Although there was some support for further performance standards, the Group had concluded that guidelines would be more appropriate for IBS and that some parts of the items which were identified as essential for an IBS document could have a broader range of application and could be made applicable for bridge design in general. In particular, the Sub-Committee agreed with the views of the Group that the matter of "bridge alert management" needed to be developed as performance standards and that for all other IBS issues guidelines were appropriate.

4.24 The Sub-Committee also agreed that there was a need for extension of the target completion date of this work programme item to 2009 and that the title should be changed to "Development of guidelines for IBS, including performance standards for Bridge Alert Management". The Sub-Committee noted that justification was given by the fact that the review of the INS performance standards had absorbed all the time of the Correspondence Group up to this session and that the development of a new IBS document was a very complex matter. Further work was also needed on the development of guidance on the application of the modular concept for future performance standards. The Sub-Committee endorsed the extension of the work programme item and the change of the title for submission to the Committee for approval.

4.25 The Sub-Committee further agreed with the Group's recommendation to re-establish an intersessional Correspondence Group on IBS under the leadership of Germany\* with the following terms of reference:

- .1 develop guidelines for IBS, including performance standards for Bridge Alert Management, taking into account the need to support the comprehensive application of SOLAS regulation V/15;
- .2 develop proposals for further development of a SN circular for the application of the modular concept for future performance standards;
- .3 continue liaison with the Sub-Committee on Ship Design and Equipment (DE) to ensure consistent treatment of alerts, including alarms and indicators; and
- .4 submit its report to NAV 54 for consideration.

4.26 The Sub-Committee agreed to instruct the Correspondence Group to continue liaison with the DE Sub-Committee to ensure consistent treatment of alerts, including alarms and indicators (DE 50/10/2/Rev.1).

## **5 EVALUATION OF THE USE OF ECDIS AND ENC DEVELOPMENT**

5.1 The Sub-Committee recalled that NAV 50 had welcomed the offer from the observer of IHO to evaluate, together with its members if, and to what extent, coastal waters were adequately covered by RNC in relation to safety of navigation, and also decided to request IHO to evaluate the extent of worldwide ENC coverage and present the outcome of that evaluation to NAV 51.

5.2 The Sub-Committee also recalled that NAV 51 had appreciated and expressed support for the IHO initiative to establish a comprehensive online catalogue of available official charts, which would facilitate the determination of "appropriate folio of up-to-date paper charts". It had further endorsed the view of the Working Group that Member States should be invited to consider which paper charts would meet the "appropriate folio of up-to-date paper charts" criteria in territorial seas and where ENCs did not exist, and communicate this information to the IHO for inclusion in its online chart catalogue. In considering what waters the coastal State should cover when advising an "appropriate folio of up-to-date paper charts", NAV 51 was of the view that this was only relevant in territorial seas not covered by ENCs and transiting ships should seek the advice of the coastal State.

5.3 The Sub-Committee further recalled that, NAV 52 had considered the information in document NAV 52/6/1 and an associated presentation by IHO on the development of a comprehensive online catalogue of available official charts. The presentation had demonstrated a

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possible prototype of the catalogue which would provide information as to the availability of chart coverage in an as clear and simple manner as possible. The catalogue was primarily aimed at ENC's and RNC's would be shown where ENC's were not available. The Sub-Committee was informed by IHO that there had been an increase in the production of ENC's worldwide. The Sub-Committee had concurred with the view expressed by IHO that with the possibility of mandatory carriage requirements for ECDIS, the production would increase further. The Sub-Committee had requested IHO to provide more detailed information to NAV 53. After in-depth discussion, NAV 52 had agreed that the proposed structure of the online catalogue should include the following:

- .1 ENC's;
- .2 RNC where ENC's are not available;
- .3 coastal States' recommendation on appropriate folio of up-to-date paper charts for areas where ECDIS is operated on RCDS mode; and
- .4 index of all globally available paper charts.

**Revision of SN/Circ.207 (pending issue from NAV 52)**

5.4 The Sub-Committee observed that NAV 51 had considered the need to review SN/Circ.207 to ensure consistency with the proposed clarifications for "an appropriate folio of up-to-date paper charts" and was of the view that while a review of the circular was necessary to update it in the light of experience gained, it would be premature to revise it at present in view of the revision of the Performance Standards of ECDIS as from NAV 52.

5.5 The Sub-Committee recalled that, NAV 52, using the information provided in document NAV 52/6 (Australia), had prepared a draft revised SN/Circ.207 on the differences between RCDS and ECDIS with a view to approval, after the finalization of the revised performance standards for ECDIS at NAV 53. NAV 52 had also agreed that, in order to approve this circular after the finalization of the revised performance standards for ECDIS at NAV 53, it was necessary to extend the target completion date for this item. Accordingly, the Committee was invited to extend the target completion date to 2007.

5.6 The Sub-Committee also recalled that, NAV 52 had further recognized that document NAV 52/WP.3 (Report of the Working Group on Evaluation of the use of ECDIS and ENC development) had been considered before document NAV 52/WP.4/Add.1 (Report of the Technical Working Group relating to amendments to the ECDIS performance standards). Accordingly, the Sub-Committee had noted the preparation of the draft revised SN/Circ.207 on the difference between RCDS and ECDIS with a view to approval after the finalization of the revised performance standards for ECDIS at NAV 53. However, after consideration of document NAV 52/WP.4/Add.1, the Sub-Committee had subsequently approved the draft MSC resolution on Adoption of the revised ECDIS performance standards with a view to adoption by MSC 82 (NAV 52/18, paragraph 5.8 refers). Hence, the conditions for approving the draft revised SN/Circ.207 at NAV 53 had been already met.

5.7 The Sub-Committee considered document NAV 52/WP.3, annex relating to the draft revised SN/Circ.207 on Differences between RCDS and ECDIS and agreed to the draft revised SN/Circ.207, and set out in annex 10, for submission to MSC 83 for approval.

### **Maintenance of ECDIS software**

5.8 The Sub-Committee considered document NAV 53/5 (IHO), proposing that consideration should be given to issuing an SN circular regarding the maintenance of ECDIS software.

5.9 The Sub-Committee considered document NAV 53/5/3 (United Kingdom) endorsing the above proposal by the IHO. However, the United Kingdom was also of the opinion that there might be a wider issue concerning software updating of a range of processor-based navigation and radio communications equipment which needed to be addressed.

5.10 The Sub-Committee also considered document NAV 53/5/4 (Australia) endorsing the IHO proposal and stating further that there might be a wider issue concerning the maintenance of software for a range of computer-based shipboard equipment that needed to be addressed.

5.11 The Sub-Committee noted that Australia and the United Kingdom (MSC 83/25/7) had also submitted a new work programme proposal on the afore-mentioned wider issue of maintenance of software for processor-based navigation and radiocommunications equipment to MSC 83.

5.12 The Sub-Committee was of the opinion that this was a real practical and operational issue that needed to be addressed on an urgent basis.

5.13 There was considerable support for the IHO proposal for the issuance of an SN circular regarding the maintenance of ECDIS software.

5.14 The Sub-Committee having considered document NAV 53/WP.6, annex, agreed the draft SN circular on the Maintenance of Electronic Chart Display and Information System (ECDIS) software, as set out in annex 11, for submission to the Committee for approval.

### **Development of a comprehensive online catalogue of available official charts**

5.15 The Sub-Committee considered document NAV 53/5/1 (IHO) providing updated information on the development of the IHO online catalogue of ENCs, RNCs and coastal States recommendations for the “appropriate portfolio of up-to-date paper charts” to be carried as back-up.

5.16 The delegation of the Russian Federation was of the opinion that responses of coastal States to the IHO letter and IMO Circular letter No.2773 must differentiate between the “appropriate portfolio of up-to-date paper charts” used in conjunction with ECDIS operated in RCDS mode, and “appropriate portfolio of up-to-date paper charts” as back up to a single ECDIS.

5.17 The delegation of Russian Federation further noted the importance of the global index of official paper charts in the world wide catalogue, as it had been originally planned by the IHO, and invited IHO to continue consideration of possible solutions in order to collect and maintain this data within the IHO catalogue.

### **Evaluation of Electronic Navigational Chart (ENC) availability**

5.18 The Sub-Committee considered document NAV 53/5/2 (IHO) providing updated information on the availability of ENCs. The figures provided showed that ENC coverage was increasing steadily and it was the opinion of the IHO that there would be adequate coverage of

consistent ENC's by the time any further mandatory carriage requirements were likely to be adopted by IMO.

5.19 The Sub-Committee noted with appreciation the information provided by IHO and requested it to update the Sub-Committee on further progress at NAV 54. The Sub-Committee was also of the opinion that the availability of ENC's worldwide was most important and requested IHO and Member Governments to continue their efforts in increasing the coverage of ENC's.

5.20 The delegation of Singapore stated that on 12 June 2007, Singapore and Indonesia Hydrographic Offices had signed an MOU on joint administration of ENC's covering ferry routes and terminals between Singapore and Rian Islands, Indonesia. The ENC's were jointly produced, quality assured and ECDIS sea trialled by both the Hydrographic Offices. The joint project was initiated in 2003 to further enhance the safety of navigation onboard ferries (High-Speed Craft) and in anticipation of mandatory ECDIS carriage requirements. The ENC's would be commercially distributed through appointed distributors.

5.21 The delegation of the United Kingdom was of the view that seamless and consistent coverage of ENC's of major routes and ports at a reasonable cost was a prerequisite for the implementation of any carriage requirement for ECDIS. The United Kingdom therefore welcomed the positive information provided by the IHO on increasing coverage and noted IHO's commitment to achieve "adequate coverage, availability, consistency and quality of ENC's by 2010". The cost to industry was a factor that had to be taken into account when considering the implementation of any new carriage requirement. At present the cost of an ENC could be some three to four times that of the equivalent paper chart and the United Kingdom was aware that this had generated adverse comment from ship operators. The original Formal Safety Assessment on ECDIS presented to MSC 81 had included an assumption that there would be no difference between the cost of paper charts and ENC's. This was an issue that should be addressed by the IHO. The task facing the IHO was large and complex. There were many coastal States that did not have a hydrographic capability to produce the required ENC's and even where such a capability existed, there was not necessarily the resources to ensure that standards of quality and consistency were quickly met. Additional resources were needed in many areas to update the surveys of critical areas to ensure that ENC's met the highest safety standards. There was no short term solution to this and in the interim one would have to accept that in many areas of the world the ENC would be a reflection of the existing paper chart. It was very encouraging to see IHO responding to this extremely significant challenge. There are already around two thousand vessels currently using ECDIS with ENC's. The more quickly IHO was able to influence the provision of adequate and consistent ENC coverage, the better this would be for safe and efficient navigation through the use of ECDIS. The United Kingdom concluded by stating that it was fully committed to supporting the IHO in its task.

5.22 The observer from IHO thanked the Sub-Committee for the supportive comments and confirmed that ECDIS production was increasing; IHO would provide support to coastal States requiring assistance, and IHO was committed to ensuring worldwide ENC coverage.

5.23 The Committee was invited to delete the item "Evaluation of the use of ECDIS and ENC development" from the Sub-Committee's work programme since work on this item had been completed.

## **6 CARRIAGE REQUIREMENTS FOR A BRIDGE NAVIGATIONAL WATCH ALARM SYSTEM**

6.1 The Sub-Committee recalled that MSC 81 had considered document MSC 81/23/2 (Bahamas and Denmark), proposing to amend the 1974 SOLAS Convention to require that all ships of 150 gross tonnage and upwards and passenger ships irrespective of size shall be fitted with a Bridge Navigational Watch Alarm System (BNWAS), to be in operation when the ship was at sea, with a view to enhancing the safety of navigation, taking into account the human element. Whilst the Performance standards for a bridge navigational watch alarm system was adopted by resolution MSC.128(75), no carriage requirements or guidelines for the use of such systems had been adopted yet. Following consideration, the Committee decided to include, in the Sub-Committee's work programme and the provisional agenda for NAV 53, a high priority item on "Carriage requirements for a bridge navigational watch alarm system", with a target completion date of 2008, and instructed NAV 52 to give preliminary consideration to the matter.

6.2 The Sub-Committee also recalled that NAV 52 had considered, on a preliminary basis, document MSC 81/23/2 (Bahamas and Denmark), containing the proposed draft amendment to SOLAS regulation V/19.2.2 (MSC 81/23/2, annex), and was of the opinion that further consideration was necessary. Members were invited to submit suitable proposals and comments for consideration at NAV 53.

6.3 The Sub-Committee considered document NAV 53/6 (Denmark), proposing an amendment to SOLAS regulation V/19 to require all ships of 150 gross tonnage and upwards and passenger ships irrespective of size to be fitted with a BNWAS, which should be in operation when the ship is at sea.

6.4 The Sub-Committee took note of the statistical information and analysis on marine accidents due to dozing provided in document NAV 53/INF.8 (Japan).

6.5 A number of delegations spoke on the issue. There was substantial support for the proposal by Denmark to amend SOLAS regulation V/19 for a carriage requirement of a BNWAS. The majority of the delegations were of the view that installation of a BNWAS should not lead to a reduction in manning levels on the bridge of a ship and that text to this effect should be included in the preambular paragraphs of the adopting resolution. The equipment fitted should be sensor based.

6.6 The observer from ICS was of the opinion that further research was necessary before a final decision was taken to mandate a carriage requirement for BNWAS.

6.7 The observers from IFSMA and ITF whilst supporting the proposal in principle stated that concerns on fatigue should be reflected in the report. A number of delegations supported this opinion.

6.8 The Chairman in summing up the discussions that had taken place, observed that there was substantial support to amend SOLAS regulation V/19 for a carriage requirement of a BNWAS. It was evident that Members were clear in their mind that carriage of BNWAS should not lead to a reduction in manning levels on the bridge. The equipment for BNWAS should include sensor based technology and should not be seen as a solution for the problem of fatigue.

6.9 The delegation of Japan, supported by some delegations, expressed the view that the existing performance standards (resolution MSC.128(75)) would not be suitable for small ships not exceeding 500 gross tonnage and for ships not engaged in international voyages and, therefore, modification to the existing performance standards could be considered when discussing the carriage requirement of BNWAS to those ships.

6.10 Taking into account the progress made, the Sub-Committee deferred further discussion to its next session. Member Governments were invited to submit suitable proposals and comments for consideration at NAV 54.

## **7 DEVELOPMENT OF GUIDELINES FOR THE INSTALLATION OF SHIPBORNE RADAR EQUIPMENT**

7.1 The Sub-Committee noted that MSC 80 (MSC 80/24, paragraph 21.23) had considered document MSC 80/21/4 (Norway), proposing to develop guidelines on installation of shipborne radar equipment with the aim of ensuring the proper installation and setting-up of such equipment, which would contribute to ensuring that the performance of future radar installations on board ships would realize the maximum performance potential offered by the performance standards. Subsequently, MSC 80 decided to include, in the Sub-Committee's work programme, a high priority item on "Development of guidelines for the installation of shipborne radar equipment", with three sessions needed to complete the item and instructed it to include the item in the provisional agenda for NAV 52.

7.2 The Sub-Committee also noted that NAV 52 had considered document NAV 52/7 (Norway), providing a basic framework for developing draft Guidelines for the installation of shipborne radar equipment. The delegation of Norway had requested Members to provide suitable comments and guidance including suggestions on the draft guidelines for the installation of shipborne radar equipment detailed in document NAV 52/7. A number of delegations spoke on the issue. Some were of the view that special consideration should be given to on-site installation practices with respect to shipyards. Others were of the opinion that new radar installations on existing ships should be according to the proposed Guidelines, as far as practicable, and from the operational aspect, the radar antenna should preferably be sited on the centre line of the ship. Accordingly, the Sub-Committee had invited Members to submit comments and suitable proposals for consideration at NAV 53.

7.3 The Sub-Committee considered document NAV 53/7 (Germany) containing a consolidated version of the draft Guidelines for the installation of shipborne Radar Equipment.

7.4 The Sub-Committee was of the opinion that the guidance developed in section 6.1 relating to interference of other antennas needed more elaboration.

7.5 The Sub-Committee agreed to refer document NAV 53/7 to the Technical Working Group to be established under agenda items 4, 7, 9, 11, 18 and 21 (sub-item on revised performance standards for ECDIS).

### **Report of the Technical Working Group**

7.6 Having received and considered the Technical Working Group's report (NAV 53/WP.2), the Sub-Committee (with reference to paragraph 4.1 and annex 4), took action as summarized hereunder.

7.7 The Sub-Committee agreed a draft SN circular on Guidelines for the installation of shipborne radar equipment as set out in annex 12 for submission to MSC 84 for approval.

7.8 The Committee was invited to delete the item “Development of guidelines for the installation of shipborne radar equipment”, from the Sub-Committee’s work programme, as the work on this item had been completed.

## **8 AMENDMENTS TO COLREG ANNEX I RELATED TO COLOUR SPECIFICATION OF LIGHTS**

8.1 The Sub-Committee recalled that MSC 80 (MSC 80/24, paragraph 21.24.1), based on a proposal by Norway (MSC 80/21/8), had agreed to add a high priority work item on “Revision of Annex I of the Convention on the International Regulations for Preventing Collisions at Sea, 1972, (COLREG) to the work programme of the Sub-Committee, with two sessions needed to complete the work. The colour specification of lights given in Annex I of COLREG had been revised by the International Commission on Illumination; the reference in the Annex I of COLREG was therefore no longer valid, and should be updated in accordance with the newest revised standard.

8.2 The Sub-Committee recalled also that NAV 52 had briefly considered the Norwegian proposal (NAV 52/8). The delegation of the Netherlands had stated that the use of established industrial standards, wherever possible, specifically those emanating from international standardization bodies, should be pursued by the Organization and its Members. According to the Netherlands, Norway had proposed the revision of the standards, as revised by the International Commission on Illumination, however, the reasons behind the revision had not been elaborated on and neither had Norway clarified the consequences of the proposed changes to section 7 (Colour specification of lights) of Annex I of the COLREGs. The change in the colour temperature range of lights had been initiated by the wish to make use of LED systems in navigation lights. This had led to a shift in the chromaticity of white light towards the blue. This might not seem very problematic; however, it presented a severe problem for the present range of navigation lights in use, in storage and in production. It was not only the shift of the white light to the blue that was creating the problem but the elimination of part of the colour temperature range of the white light, as it was specifically this part of the range that was covered by present white navigation lights. Research by a leading navigation light manufacturer in the Netherlands, carried out in co-operation with the German Bundesamt für Seeschifffahrt und Hydrografie, had shown that approximately 90% of all white navigation lights either in use or produced did not meet the new colour temperature standard. Annex I of the COLREG was clear in itself: it stated that “the colour temperature of navigation lights shall conform to the co-ordinates given”. This would mean that approximately 90% of all white navigation lights would have to be replaced at an enormous cost to the industry. The Netherlands for that reason and without the safety benefits having been demonstrated by way of an FSA study, could not accept the Norwegian proposal.

8.3 The Sub-Committee recalled further that at NAV 52, a number of delegations had supported the views expressed by the Netherlands, including the need for a FSA study and a Cost Benefit Analysis. Accordingly, the Sub-Committee had requested Norway to re-consider their proposal and submit a revised document to NAV 53. Norway agreed to the request, however, also pointed out that COLREG would have to be amended because the present text was incorrect as a consequence of the revision of the relevant standards as decided by the International Commission on Illumination.

8.4 The Sub-Committee noted that no new document or proposal had been submitted to this session.

8.5 The delegation of Norway apologized that it had not been able to submit any document to this session as indicated at NAV 52. Norway, however retained its position that COLREG's Annex I related to colour specification of lights needed to be amended. The current situation was that COLREG Annex I, section 7 stated that the standards specified in COLREG lay within the boundaries of the area of the diagram specified for each colour by the International Commission on Illumination (CIE). As CIE had amended their diagrams, this was no longer the case and the x and y co-ordinates specified in COLREG did not any longer coincide with the co-ordinates specified by the CIE. Amending the COLREG was therefore a kind of housekeeping that in Norway's view needed to be done. However, it was recognized that the housekeeping had some consequences. The Norwegian delegation therefore proposed that the Sub-Committee requested the Maritime Safety Committee for an extension of the target completion date of this item to 2008. Accordingly, Norway would submit a proposal to the next session and try to make the submission as early as possible to give the Sub-Committee ample time to study the proposal.

8.6 The Sub-Committee invited Member Governments and NGOs to submit comments and suitable proposals for consideration at NAV 54.

8.7 Accordingly, the Committee was invited to extend the target completion date of this agenda item to 2008.

## **9 ITU MATTERS, INCLUDING RADIOCOMMUNICATION ITU-R STUDY GROUP 8 MATTERS**

9.1 The Sub-Committee noted that NAV 52 had considered the issue of maintenance and administration of AIS binary messages, which had been transferred from IALA to IMO. ITU WP 8B had noted that SN/Circ.236 conflicted with Recommendation ITU-R M.1371-1, which included a set of international application identifier (IAI) definitions. The most significant conflict was the duplication and renumbering of messages. This had raised concerns, mainly from equipment manufacturers. They were confused as to which document to follow (ITU or IMO). Consequentially, there was a need to modify the existing equipment on board vessels in order to apply SN/Circ.236. Accordingly, the Sub-Committee approved the draft Liaison Statement to ITU on Maintenance and Administration of AIS binary messages given in NAV 52/18, annex 7 and instructed the Secretariat to convey the statement to ITU for consideration by WP 8B in September 2006.

9.2 The Sub-Committee noted the information provided in document NAV 53/9 (Secretariat) on the revised version of Recommendation ITU-R M.1371-2 adopted by ITU-R Study Group 8 concerning the technical characteristics for AIS using time division multiple access in the VHF maritime mobile band.

9.3 The Sub-Committee considered document NAV 53/9/1 (Secretariat) relating to the draft revision of Recommendation ITU-R M.824-2 on Technical parameters of radar beacons (racons).

9.4 The Sub-Committee also considered document NAV 53/9/2 (United Kingdom) relating to the need in any band-sharing considerations, for a "safety margin" to allow for the additional protection for variations in performance from different radar operators, under various environmental and other conditions because all of the maritime trials reported in ITU-R were carried out using non-fluctuating simulated marine targets.

9.5 The Sub-Committee was of the opinion that it was prudent to issue a draft MSC circular on Safety margin to protect radar systems.

9.6 The Sub-Committee agreed to refer documents NAV 53/9/1 (Secretariat) and NAV 53/9/2 (United Kingdom) to the Technical Working Group for consideration and comments, as appropriate.

### **Report of the Technical Working Group**

9.7 Having received and considered the Technical Working Group's report (NAV 53/WP.2), the Sub-Committee (with reference to paragraphs 5.1 and 5.2 and annex 5), took action as summarized hereunder.

9.8 The Sub-Committee noted document NAV 53/9 (Secretariat) containing a revised version of Recommendation ITU-R M.1371-2, which had been adopted by ITU-R Study Group 8 and brought to the attention of IMO. The Sub-Committee noted also document NAV 53/9/1 (Secretariat) containing the revised version of Recommendation ITU-R M.824-2, which had been adopted by ITU-R Study Group 8 and brought to the attention of IMO.

9.9 The Sub-Committee, noting the need in any band-sharing considerations, for a "safety margin" to allow for the additional protection for variations in performance from different radar operators, under various environmental and other conditions, concurred that there was a need to bring this to the attention of the radio regulatory authorities and agreed a draft MSC circular on Safety margins to protect radar systems as set out in annex 13 for submission to the Committee for approval.

## **10 GUIDELINES ON THE CONTROL OF SHIPS IN AN EMERGENCY**

10.1 The Sub-Committee recalled that MSC 81 had considered document MSC 81/23/4 (Bahamas), proposing to develop guidelines covering the responsibilities of all parties in a maritime emergency, which would not create a chain of command but, if implemented by Member States as part of their emergency action plans, would clarify what the chain should be. In the opinion of the Bahamas, the guidelines would not change the responsibilities of the master, but they might avoid misunderstandings as to what a master's role should be when coastal State laws would be enforced and what their effect would be on the master and others involved in an emergency. MSC 81 noted that, in commenting on the above proposal, IFSMA (MSC 81/23/22) had invited the Committee, to prepare clear and distinct guidelines in order to avoid misunderstanding as to where the responsibility lay in cases where the master was being ordered to take action against his own judgement.

10.2 The Sub-Committee also recalled that, in the context of the above proposal, the delegation of the United Kingdom, referring to the **Sea Empress** incident, had informed MSC 81 of the SOSREP system which was developed to establish the command, control and communication procedures that were needed during maritime emergencies. The delegation also had advised that, since the establishment of the SOSREP system, then six years ago, it had been put into action on more than 600 occasions of which about 30 were considered as very significant and, therefore, the delegation was of the opinion that the development of appropriate guidelines would not be a single incident issue. In the course of the ensuing debate, a number of delegations, having referred to the information provided by the delegation of the United Kingdom, had advised MSC 81 of similar national systems and supported the idea that appropriate measures should be taken to regulate internationally the issue of co-operation among parties involved in maritime emergencies.

10.3 The Sub-Committee further recalled that, in view of this debate, MSC 81, having recognized the importance of the issue and that this matter should be addressed in a generic manner and not as a single incident issue, had decided to include, in the work programmes of the NAV and COMSAR Sub-Committees and the provisional agendas for NAV 53 and COMSAR 11, a high priority item on “Guidelines for the control of ships in an emergency”, with a target completion date of 2007, and assigned the NAV Sub-Committee as a co-ordinator, instructing NAV 52 to give a preliminary consideration to the matter.

10.4 The Sub-Committee recalled that NAV 52 had considered document NAV 52/17/5 (Bahamas), suggesting the development of, and providing the framework for proposed generic guidelines on the control of ships in an emergency. There was considerable support for the Bahamas proposal to develop such guidelines. The Sub-Committee was also of the opinion that the International Salvage Union should be involved, since the proposed guidelines would include a section on Guidelines for salvors. The Sub-Committee, keeping in mind the close proximity of COMSAR 11 (February 2007) and the target completion date of 2007, agreed to instruct the Secretariat to forward document NAV 52/17/5 to COMSAR 11 together with the Sub-Committee’s comments thereon for that Sub-Committee’s review and comments. Members were invited to submit suitable proposals and comments for consideration at COMSAR 11 and NAV 53.

10.5 The Sub-Committee noted that COMSAR 11 had instructed the SAR Working Group to consider document NAV 52/17/5 and to further develop draft guidelines on the control of ships in an emergency for consideration at plenary. COMSAR 11 noted that comments had been provided only on the areas applicable to SAR. Editorial comments were provided for chapters 1 to 4 only, as other chapters would require advice from other experts. Accordingly, COMSAR 11 had revised the draft guidelines on the control of ships in an emergency (COMSAR 11/18, annex 16) and instructed the Secretariat to forward them to NAV 53 for further consideration and invited the Committee to endorse this action.

10.6 The Sub-Committee considered document NAV 53/10 (Bahamas and ISU), providing a complete draft text of the proposed generic guidelines on the control of ships in an emergency.

10.7 A number of delegations spoke on the issue and supported the development of the draft guidelines. The Sub-Committee agreed with the advice provided by the Legal Division of the Secretariat that in the draft guidelines a reference should be made to Article 221 of UNCLOS rather than the reference to the Intervention Convention. Some delegations expressed concerns regarding the delimitations of search and rescue issues including the need to clarify the text in sections on Guidelines for coastal state, master and salvors. The Sub-Committee therefore agreed that some redrafting of the guidelines was needed.

10.8 The Chairman, in his summing up, stated that there had been large support for the proposal. However, he was of the view that, in total, it was necessary to undertake some further work in plenary and then to entrust the task of redrafting to a Drafting Group.

10.9 Subsequently, the guidelines were discussed in detail, and the Sub-Committee agreed to amend the various sections of the Guidelines based on the comments and proposals made in plenary. The main elements of the agreed amendments were related to section 5 on Guidelines for coastal State, section 6 on Guidelines for Master and section 7 on Guidelines for salvors.

### **Establishing the Drafting Group on Guidelines on the control of ships in an emergency**

10.10 The Sub-Committee further agreed to establish a Drafting Group on Guidelines on the control of ships in an emergency and to refer document NAV 53/10 for its consideration. The Drafting Group was instructed to:

- .1 prepare a draft MSC circular on Guidelines on the control of ships in an emergency based on document NAV 53/10 (Bahamas and the ISU), taking into account any decisions of, and comments and proposals made in plenary; and
- .2 submit a report to plenary on Thursday, 26 July 2007 for consideration at plenary.

### **Report of the Drafting Group on Guidelines on the control of Ships in an emergency**

10.11 Having received and considered the report of the Drafting Group (NAV 53/WP.5), the Sub-Committee (with reference to paragraph 4.1), took action as summarized hereunder.

10.12 The Sub-Committee agreed to the draft MSC circular on Guidelines on the control of ships in an emergency, as set out in annex 14 for submission to MSC 83 for approval.

10.13 The Committee was invited to delete the item “Guidelines on the control of ships in an emergency”, from the Sub-Committee’s work programme, as the work on this item had been completed.

## **11 DEVELOPMENT OF PERFORMANCE STANDARDS FOR NAVIGATION LIGHTS, NAVIGATION LIGHT CONTROLLERS AND ASSOCIATED EQUIPMENT**

11.1 The Sub-Committee recalled that MSC 80 (MSC 80/24, paragraph 21.24.2), based on a proposal by Norway (MSC 80/21/8), had agreed to add a high priority work item on “Development of Performance Standards for Navigation Lights, Navigation Light Controllers and associated equipment” to the work programme of the Sub-Committee, with two sessions to complete the work and include it in the provisional agenda for NAV 52.

11.2 The Sub-Committee also recalled that, at NAV 52, the Technical Working Group had started work on the development of such draft performance standards. NAV 52 had noted the views of the Group that the proposed requirement, to connect the information of the navigational lights to the AIS and VDR, should only apply to larger ships which had carriage requirements for this equipment. In addition, the proposed requirement for an alarm notifying the OOW that the output of LED lamps had reduced below the level required by the COLREG would involve the development of a suitable measuring sensor otherwise review of the proposed requirement would be necessary. Members were invited to submit comments and suitable proposals for consideration at NAV 53.

11.3 The Sub-Committee briefly discussed document NAV 53/11 (Japan) providing the draft performance standards for Navigation Lights, Navigation Light Controllers and associated equipment.

11.4 The delegations of Japan and the Russian Federation supported by some other delegations were of the view that document NAV 53/11 should be considered along with document NAV 53/18 by the Technical Working Group as the issues in both the documents were interrelated with regard to navigation lights; the Sub-Committee agreed with the suggestion.

11.5 The Sub-Committee also agreed to refer document NAV 53/11 to the Technical Working Group to be established under agenda items 4, 7, 9, 11, 18 and 21 (sub-item on revised performance standards for ECDIS).

### **Report of the Technical Working Group**

11.6 Having received and considered the Technical Working Group's report (NAV 53/WP.2), the Sub-Committee (with reference to paragraph 6.1 and annex 6), took action as summarized hereunder.

11.7 The Sub-Committee recognized the need for standardized serial interface for the navigation lights controller to enable it to communicate with other marine navigation and communication systems and invited the IEC to develop a suitable interface. The Sub-Committee also approved the draft MSC resolution on Adoption of performance standards for navigation lights, navigation light controllers and associated equipment, as set out in annex 15 for submission to the Committee for adoption.

11.8 The observer of the EC stated that the fourth set of amendments to the European standard EN 14744 on navigation lights of sea-going and inland navigation vessels had been adopted. The Sub-Committee at its present session had tried to bring the draft performance standards for navigation lights, navigation light controllers and associated equipment in line with this European standard so as to avoid conflict between both these standards and therefore, problems for the shipping industry and manufacturers. However, it was necessary to check this and in the unlikely event that the EC was able to identify any overlooked conflicts between both standards, the EC might have to come back to this at MSC 83 to resolve it.

11.9 The Committee was invited to delete the item "Development of performance standards for navigation lights, navigation light controllers and associated equipment", from the Sub-Committee's work programme, as the work on this item had been completed.

## **12 WORLD-WIDE RADIONAVIGATION SYSTEM**

12.1 The Sub-Committee recalled that NAV 52 had briefly discussed the relevant part of document NAV 52/10 (United States) relating to the approval of a draft liaison statement to IEC Technical Committee 80, Working Group 4A, to take into account the high electromagnetic environment in the development or revision of relevant standards, including IEC Standard 61108 – "Maritime navigation and radiocommunication equipment and standards – Global Navigation Satellite Systems (GNSS)". The Sub-Committee had noted with interest the information provided by the Republic of Korea (NAV 52/INF.8) concerning communication techniques for high accuracy DGPS in the Republic of Korea.

12.2 The Sub-Committee also recalled that NAV 52 had agreed with the views of its Technical Working Group in regard to the results of commercial GPS antenna vulnerability tests to high power military radars, and that whilst the results of the tests presented showed some possible problems of damage to GPS antennas, the Sub-Committee was not aware of a widespread problem of this nature with civil use. Accordingly, the Sub-Committee did not consider that it had sufficient evidence of a problem and invited Members to submit more information to the next session. The Sub-Committee had agreed with the Group's opinion that a liaison statement to IEC Technical Committee 80 was therefore not necessary at this stage.

12.3 The Sub-Committee further recalled that, at NAV 52, with respect to resolution A.915(22) concerning the IMO policy for GNSS and resolution A.953(23) concerning recognition of radionavigation systems as components of the WWRNS, there was agreement that no action needed to be taken at that session.

12.4 The Sub-Committee observed that no document had been submitted to this session on this agenda item.

12.5 The United States advised the Sub-Committee that it had received no new information on the subject of military radar interference with GNSS signals.

12.6 The Sub-Committee therefore agreed that there was no need to forward any liaison statement to IEC Technical Committee 80.

12.7 The United States further advised the Sub-Committee that it intended to resubmit DGPS for acceptance as a component of the world-wide radionavigation system (WWRNS). The United States was presently validating that the DGPS signal met the relevant performance standards over the required (3-year) period of time.

### **13 DEVELOPMENT OF AN E-NAVIGATION STRATEGY**

13.1 The Sub-Committee recalled that MSC 81 had considered document MSC 81/23/10 (Japan, Marshall Islands, Netherlands, Norway, Singapore, United Kingdom and the United States) proposing to develop a broad strategic vision for incorporating the use of new technologies in a structured way and ensuring that their use was compliant with the various navigational communication technologies and services that were already available, with the aim of developing an overarching accurate, secure and cost-effective system with the potential to provide global coverage for ships of all sizes.

13.2 The Sub-Committee also recalled that following discussion, MSC 81 had decided to include, in the work programmes of the NAV and COMSAR Sub-Committees and the provisional agendas for NAV 53 and COMSAR 11, a high priority item on “Development of an e-navigation strategy”, with a target completion date of 2008, and assigned the NAV Sub-Committee as co-ordinator, instructing NAV 52 to give preliminary consideration to the matter. MSC 81 had also agreed that the two Sub-Committees should consider the issues with the aim of developing a strategic vision within their associated work programmes for taking this issue forward and to report to MSC 85, for it to develop the necessary policy direction for further progress of this important work.

13.3 The Sub-Committee further recalled that NAV 52 had considered documents MSC 81/23/10 (Japan, Marshall Islands, Netherlands, Norway, Singapore, United Kingdom and the United States) on the development of an e-navigation strategy and NAV 52/17/4 (Japan) outlining Japan’s approach to e-navigation and agreed, to progress the work for NAV 53, to establish an intersessional Correspondence Group under the co-ordination of the United Kingdom. It also instructed the Correspondence Group to submit a document to COMSAR 11, raising specific questions that should be addressed by COMSAR and prepare a comprehensive report for submission to NAV 53.

13.4 The Sub-Committee noted that COMSAR 11 had agreed that the user requirements should be clearly defined by the NAV Sub-Committee before the COMSAR Sub-Committee

could review the technical improvements that might be required if GMDSS equipment was to be utilized as a data communication network for e-navigation; the development of e-navigation should be user-driven and not technology driven; there should be equipment performance standardization, including a standard mode of operation for shipboard equipment; and the software installed in operating systems should follow a formal change control process to ensure that all elements of the e-navigation system would operate efficiently. COMSAR 11 had also agreed that with respect to the potential components of the e-navigation strategy and proposed system architecture, issues connected with search and rescue, data communication links, and operation of the GMDSS were within its remit. COMSAR 11 had further agreed that the existing GMDSS infrastructure supported SAR services and communications; however, with respect to e-navigation, broadband communication on a global basis using satellite technology would be necessary.

13.5 The Sub-Committee also noted that COMSAR 11 had instructed the Secretariat to convey the aforementioned views and conclusions to the NAV Sub-Committee and the Co-ordinator of the Correspondence Group on e-navigation for future work and guidance.

13.6 The Sub-Committee also recalled the Secretary-General's remarks at the opening session of the Sub-Committee underlining the need to make progress on the development of an e-navigation strategy.

13.7 The Sub-Committee briefly discussed document NAV 53/13 (United Kingdom), report of the Correspondence Group outlining the agreed scope of e-navigation and the approach to developing a system architecture, presenting complementary "component" and "descriptive" models including the key issues to be addressed in a future work programme.

13.8 The Sub-Committee also considered the comments by ICS (NAV 53/13/6) on the report of the outcome of the Correspondence Group. The observer from ICS requested that apart from the issues outlined in paragraph 6 of their submission, the E-navigation Working Group, should bear in mind that possible operational and technical developments should not lead but only support the strategy development.

13.9 The Sub-Committee was of the view that the support for the proposed e-navigation strategy should be based on user requirements rather than a system architecture based on possible operational and technological developments. The Sub-Committee further concluded that it could only undertake a gap analysis after the user requirements had been identified, as not to risk negating and constraining the work yet to be done thereon by the Organization.

13.10 With respect to the proposal by the United Kingdom (NAV 53/13/2) that a back-up to GNSS would be required in the event of any failure in the equipment and suggesting that LORAN-C and, in particular eLORAN, would be able to provide that capability, the Sub-Committee was of the view that it would be premature to opt for any particular back-up arrangements for GNSS at this stage of the development. In this context the Sub-Committee also noted the information provided by IALA (NAV 53/13/5) on the necessary redundancy of position fixing systems.

13.11 Furthermore, the Sub-Committee agreed with COMSAR 11, that the e-navigation strategy should be user, rather than technology driven and was of the view that it was first necessary to identify and define the user requirements before considering any technology standards. The Sub-Committee also agreed that it was necessary to determine the present limits of the e-navigation strategy, recognizing that this strategy had to be updated as and when necessary, before embarking on the development of the system architecture.

13.12 The Sub-Committee also briefly discussed documents NAV 53/13/1 (Japan), NAV 53/13/3 (IALA) and NAV 53/13/4 (IALA).

### **Establishing the E-Navigation Working Group**

13.13 After preliminary discussion, as reported in paragraphs 3.1 to 3.12 above, the Sub-Committee established the e-navigation Working Group and instructed it to consider all relevant documents submitted under agenda item 13 (NAV 53/13, NAV 53/13/1, NAV 53/13/2, NAV 53/13/3, NAV 53/13/4, NAV 53/13/5 and NAV 53/13/6) including the outcome of COMSAR 11 and taking into account any decisions of, and comments and proposals made in plenary, undertake the following tasks:

- .1 consider the report of the Correspondence Group (NAV 53/13) and, in particular:
  - .1 finalize at least provisionally the definition of e-navigation (NAV 53/13, paragraph 6 and NAV 53/13/3);
  - .2 finalize at least provisionally the core objectives of an integrated e-navigation strategy (NAV 53/13, paragraphs 8.1 to 8.15);
  - .3 provide comments and guidance on the migration from traditional aids to navigation (AtoN) to virtual e-navigation aids (NAV 53/13, paragraphs 9 and 10);
  - .4 provide comments and guidance on the proposed onboard, shore and communications elements of e-navigation (NAV 53/13, paragraph 11);
  - .5 provide comments and guidance on the three proposed e-navigation systems architectures in order to further develop such a structure (NAV 53/13, paragraphs 12 to 16 and annex 2);
  - .6 provide comments and guidance on the user requirements to further develop and define such requirements including the need for developing a standard mode (S-mode) for mariners (NAV 53/13, paragraphs 17 to 20); and
  - .7 provide comments and guidance on the preliminary gap analysis in order to assist further development of a gap analysis on the basis of user requirements (NAV 53/13, paragraphs 21 to 24, annex 3 and NAV 53/13/6); and
- .2 consider NAV 53/13/1 and provide comments and guidance on the identification of essential functions of e-navigation by marine accidents analysis;
- .3 consider NAV 53/13/2 and NAV 53/13/5 and provide comments and guidance on the issue of necessary redundancy of position fixing systems;
- .4 consider NAV 53/13/4 and provide comments and guidance on the introduction and use of AIS and as Aid to Navigation (AtoN);
- .5 prepare revised terms of reference for the Correspondence Group on e-navigation to progress work for finalization at NAV 54 (NAV 53/13, paragraphs 28 to 30);

- .6 take into account the role of the human element guidance as updated at MSC 75 (MSC 75/24, paragraph 15.7) including the Human Element Analysing Process (HEAP) given in MSC/Circ.878-MEPC/Circ.346 in all aspects of the items considered; and
- .7 submit a report to plenary on Thursday, 26 July 2007 for consideration at plenary.

### **Report of the E-Navigation Working Group**

13.14 Having received and considered the e-navigation Working Group's report (NAV 53/WP.4), the Sub-Committee (with reference to paragraphs 3.1 to 7.3), took action as summarized hereunder.

13.15 The Sub-Committee noted that the correspondence group (CG) had agreed to adopt the definition developed by IALA's e-NAV Committee (NAV 53/13, paragraph 6 and NAV 53/13/3, paragraph 2) and provisionally finalized the following definition for e-navigation as a concept based on harmonization of marine navigation system and supporting shore services driven by users' needs:

“E-Navigation is the harmonized collection, integration, exchange, presentation and analysis of maritime information onboard and ashore by electronic means to enhance berth to berth navigation and related services, for safety and security at sea and protection of the marine environment.”

### **Core objectives of e-navigation**

13.16 The Sub-Committee considered the core objectives identified by the CG (NAV 53/13, paragraphs 8.1 to 8.15) and provisionally agreed that the core objectives of an e-navigation concept using electronic data capture, communication, processing and presentation should:

- .1 facilitate safe and secure navigation of vessels having regard to hydrographic, meteorological and navigational information and risks;
- .2 facilitate vessel traffic observation and management from shore/coastal facilities, where appropriate;
- .3 facilitate communications, including data exchange, among ship to ship, ship to shore, shore to ship, shore to shore and other users;
- .4 provide opportunities for improving the efficiency of transport and logistics;
- .5 support the effective operation of contingency response, and search and rescue services;
- .6 demonstrate defined levels of accuracy, integrity and continuity appropriate to a safety-critical system;
- .7 integrate and present information onboard and ashore through a human interface which maximizes navigational safety benefits and minimizes any risks of confusion or misinterpretation on the part of the user;

- .8 integrate and present information onboard and ashore to manage the workload of the users, while also motivating and engaging the user and supporting decision-making;
- .9 incorporate training and familiarization requirements for the users throughout the development and implementation process;
- .10 facilitate global coverage, consistent standards and arrangements, and mutual compatibility and interoperability of equipment, systems, symbology and operational procedures, so as to avoid potential conflicts between users; and
- .11 be scalable, to facilitate use by all potential maritime users.

### **Key outcomes of e-navigation**

13.17 The Sub-Committee considered the three key outcomes agreed by the CG (NAV 53/13, paragraph 11) focusing on the onboard, shore and communications elements of e-navigation:

- .1 **Onboard**  
navigation systems that benefit from the integration of own ship sensors, supporting information, a standard user interface, and a comprehensive system for managing guard zones and alerts. Core elements of such a system will include high integrity electronic positioning, electronic navigational charts (ENCs) and system functionality with analysis reducing human error, actively engaging the mariner in the process of navigation while preventing distraction and overburdening;
- .2 **Ashore**  
the management of vessel traffic and related services from ashore enhanced through better provision, co-ordination, and exchange of comprehensive data in formats that will be more easily understood and utilized by shore-based operators in support of vessel safety and efficiency; and
- .3 **Communications**  
an infrastructure providing authorized seamless information transfer onboard ship, between ships, between ship and shore and between shore authorities and other parties with many related benefits, including a reduction of single person error.

13.18 In this context, the Sub-Committee agreed that these were broad expectations rather than outcomes and should be taken into account by the CG as a starting point, when developing the users' requirements.

### **System architecture**

13.19 The Sub-Committee considered the three proposed e-navigation architectures developed by the CG (NAV 53/13, paragraphs 12 to 16 and annex 2) and noted that COMSAR 11 had not opted to formally favour any particular one, but stressed the importance of basing the vision and system architecture on agreed users' requirements. The Sub-Committee agreed that it was premature to agree on any one of the system architectures proposed by the CG before finalizing the users' requirements and that the system architecture should only be considered after MSC 85 had agreed upon the policy direction based on the strategic vision finalized by NAV 54.

## **User requirements**

13.20 The Sub-Committee considered the views of the CG on the users' requirements to further develop and define such requirements including the need for developing a standard mode for mariners (NAV 53/13, paragraphs 17 to 20) and noted that an e-navigation system should reduce some of the basic errors in perception, communication and decision-making that occurs on board and ashore. The Sub-Committee agreed that the E-Navigation strategy should be user driven rather than technology driven. In this context, the Sub-Committee was advised that the United Kingdom, IALA and IFSMA were working on developing a methodology to identify users and their needs and, would be providing the appropriate input to the CG. Accordingly, the Sub-Committee further agreed that the CG should continue its work related to identification of users and their needs.

13.21 The Sub-Committee noted the information provided by IFSMA on the project being undertaken by the Nautical Institute, titled 'S-mode'. The project was aimed at developing a standard presentation of information using a standard menu system for shipboard units. The Sub-Committee welcomed this initiative and invited IFSMA to keep the CG informed of their progress on the project. The Sub-Committee noted the recommendations of COMSAR 11 and agreed that pending further development, it would be premature at this stage to endorse a standard mode (S-mode) for mariners.

## **Gap analysis for e-navigation**

13.22 The Sub-Committee considered the preliminary gap analysis based on the current understanding of what is likely to be contained within an agreed e-navigation users' requirements and the consequential e-navigation capabilities (NAV 53/13, paragraphs 21 to 24 and annex 3) and the comments of ICS (NAV 53/13/6) thereof. The Sub-Committee noted with appreciation the work done by the CG in carrying the preliminary gap analysis. However, the Sub-Committee agreed that at this stage it was premature and could pre-empt the development of users' requirements, users' services and system architecture and that the gap analysis should be undertaken after development of users' requirements.

## **Identification of essential functions of E-Navigation by marine accidents analysis**

13.23 The Sub-Committee considered the information provided by Japan (NAV 53/13/1) on a method for identifying necessary functions for avoiding collisions with a view to facilitate the development of an E-Navigation strategy and agreed that this information should be considered by the CG when developing the users' requirements.

## **Redundancy of position fixing systems**

13.24 The Sub-Committee considered the information provided by the United Kingdom (NAV 53/13/2) and IALA (NAV 53/13/5) on the need to provide a back-up to the Global Navigation Satellite Systems (GNSS) because of the vulnerabilities of GNSS. The Sub-Committee agreed that there was a need to provide an internationally agreed alternative system for complementing the existing satellite navigation, positioning and timing services to support e-navigation and recognized that potential back up systems could be made available and that it was premature to identify any specific system before the users' requirements for e-navigation had been finalized.

## **Introduction and use of AIS and as Aid to Navigation (AtoN)**

13.25 The Sub-Committee considered the information provided by IALA (NAV 53/13/4) relating to the introduction and use of AIS and as Aid to Navigation (AtoN) and noted that IALA would submit a more detailed proposed to NAV 54.

## **Migration from traditional aids to navigation (AtoN) to virtual e-navigation aids**

13.26 The Sub-Committee noted the views of the CG relating to developing an e-navigation strategy was to reduce navigational errors – from whatever cause – to prevent shipping accidents and ship-source marine pollution and that the traditional aids would not necessarily disappear once e-navigation had been adopted (NAV 53/13, paragraphs 9 and 10). The Sub-Committee agreed that e-navigation should not be viewed as a means to reduce or eliminate existing AtoN and that any decision to employ e-navigation as a means to replace traditional AtoN should only be considered once a full risk assessment had been carried out and the users' requirements had been finalized.

13.27 The delegation of Panama expressed its concern at the reference to possible future replacement of the existing aids to navigation by electronic navigation. In its judgement, that should not be the objective in developing a strategy on electronic navigation.

## **Revised terms of reference for the Correspondence Group on E-Navigation**

13.28 The Sub-Committee agreed that, to progress the work for NAV 54, the intersessional Correspondence Group should be re-established under the co-ordination of the United Kingdom\* and approved the draft terms of reference of the proposed Correspondence Group, given below.

13.29 Taking into account documents NAV 53/WP.4 and NAV 53/13/1 (Japan) and, the progress made at NAV 53 relating to the development of an e-navigation strategy and the guidance in MSC/Circ.1091 on Issues to be considered when introducing new technology on board ship and MSC/Circ.878-MEPC/Circ.346 on Human Element Analysing Process (HEAP); the Correspondence Group on e-navigation should:

- .1 identify all potential users of e-navigation;
- .2 define the user needs for e-navigation;
- .3 review the need to consult other maritime agencies and interest groups – navigational practitioners, support agencies, research organizations, equipment manufactures and port managers; and
- .4 continue to develop other aspects of the strategic vision for e-navigation.

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In order to structure the task of developing a Strategic vision for e-navigation using a holistic and top-down approach it is essential to provide a methodology and logical phases to define the essential elements of e-navigation. In this context, the Correspondence Group should develop a strategic vision taking into account the logical phases relating to:

- user identification;
- user requirements;
- user services;
- identify existing systems;
- system requirements;
- gap analysis;
- role of cost benefit analysis; and
- system architecture.

The Correspondence Group should note that this is not a comprehensive list of logical phases and that some of the work can be undertaken simultaneously.

The Correspondence Group should submit a document to COMSAR 12 raising specific questions that should be addressed by COMSAR and prepare a final comprehensive report for submission to NAV 54.

13.30 The Sub-Committee instructed the Secretariat to inform COMSAR 12 on the progress made on the development of an e-Navigation strategy.

13.31 Bearing in mind the ongoing work on the development on an e-navigation strategy, the Sub-Committee invited the Committee to endorse the progress made at this session.

## **14 DEVELOPMENT OF CARRIAGE REQUIREMENTS FOR ECDIS**

14.1 The Sub-Committee recalled that, at NAV 51, the delegation of Norway, as co-ordinator of the Correspondence Group (NAV 51/6), had emphasized in particular the opinion of the Group that there was a sound basis for implementing a phased carriage requirement for ECDIS for certain types of ships. A phase-in programme for the carriage of ECDIS would provide certainty and clear direction to mariners, data distributors, equipment manufacturers and Hydrographic Offices. These measures would also accelerate the use and support of ECDIS which would benefit mariners and at the same time contribute to increasing the rates of ENC production.

14.2 The Sub-Committee also recalled that NAV 51 was of the view that there should be an FSA on the use of ECDIS on ships other than High-Speed Craft and Passenger Ships prior to any discussion on possible carriage requirement and that the outcome of this FSA would be taken into account when developing any proposals for a carriage requirement. With respect to the feasibility of an appropriate FSA on the safety benefits of the carriage of ECDIS, NAV 51 was of the view that such an analysis was feasible and desirable. It was recognized that there were a number of factors which needed to be taken into account in assessing the benefits, costs and risks so as to ensure that the results of any FSA were meaningful. These factors included, but were not limited to:

- Clarification of the regulatory regime and the status of associated Performance Standards;

- Electronic Navigational Charts (ENC) coverage and ease of availability; and
- ECDIS training and familiarization.

14.3 The Sub-Committee noted that MSC 81 had considered document MSC 81/23/13 (Denmark and Norway) proposing to develop carriage requirements for ECDIS equipment, for subsequent inclusion in SOLAS chapter V, where the lower size limit of ships and other ship parameters should be recommended by the NAV Sub-Committee, based on the results of the FSA study, as well as other relevant factors identified at NAV 51, while the factor of ECDIS training and familiarization should be dealt with by the STW Sub-Committee. Having noted, in the context of the above proposal, the outcome of the FSA study on ECDIS/ENCs provided by Denmark and Norway (MSC 81/24/5 and MSC 81/INF.9), MSC 81 decided to include in the NAV Sub-Committee's work programme and the provisional agenda for NAV 53, a high priority item on "Development of carriage requirements for ECDIS", with a target completion date of 2008, instructing NAV 52 to give preliminary consideration to the matter.

14.4 The Sub-Committee also noted that NAV 52 had considered the issue in depth on a preliminary basis. In summing up the debate the Chairman had concluded that there had been considerable support for the results of the FSA study conducted by Japan, including its recommendations. The majority of delegations had been of the view that ENC coverage was a necessary prerequisite for the introduction of a mandatory carriage requirement of ECDIS. Some delegations had been of the view that this did not mean a 100% ENC coverage would be necessary or achievable. The Sub-Committee had concurred with the Chairman's summary and reiterated its invitation to the IHO and Members of the Sub-Committee to continue progress towards ENC development. Member Governments were invited to submit suitable proposals and comments for consideration at NAV 53.

14.5 The Sub-Committee considered documents NAV 53/14 and NAV 53/INF.3 (Denmark, Finland, Norway and Sweden) proposing draft amendments to SOLAS regulation V/19, including the text of the detailed report of a study performed on the effect of ENC coverage on ECDIS Risk Reduction.

14.6 The Sub-Committee also considered document NAV 53/14/1 (Japan) providing a proposal for a draft amendment to SOLAS regulation V/19 for the application of carriage requirement for ECDIS.

14.7 There was an extensive debate on the development of carriage requirements for ECDIS. Some delegations were of the opinion that by making the carriage of ECDIS mandatory, the Organization was, in effect, banning the use of paper charts on many ships. Owners would not want to pay for, and keep up to date, folios of paper charts when forced into the installing and maintaining ECDIS. The benefits of ECDIS were acknowledged for many ships and many trades but taking into account the problems of developing countries when introducing new legislation one had to consider whether making it mandatory for all ships was not going to disadvantage many seafarers operating in the afore-mentioned areas. These seafarers already had a means to navigate safely; there was little or no benefit to them to have their ships fitted with ECDIS. Others pointed out the problems of no adequate global ENC coverage especially around the coast of some developing countries, small developing island States and Least Developed Countries, and on the human element and training aspects and related issues. Most members raising these concerns were of the opinion that a decision on a carriage requirement for ECDIS would therefore be premature at this stage, and called for postponing a decision thereon until these questions had been answered and existing problems including global ENC-coverage issues had

been solved. The ICS observer was of the opinion that it was premature to mandate ECDIS carriage requirements as the system was not yet clearly defined.

14.8 Some delegations were of the view that carriage of ECDIS would in the long run prove to be cost-effective, accurate and lighten the workload of the mariner on the bridge, leading to less fatigue. A number of delegations indicated that they were fully committed to mandatory carriage requirements for ECDIS, and could support a phased in implementation schedule.

14.9 The Russian Federation updated the Sub-Committee on a recent study that had been undertaken to measure the stress factor on the bridge. The research was undertaken on a control group of 30 people to evaluate stress levels on people using ECDIS and those not using ECDIS. Results had shown that by use of ECDIS accounted for a reduction of 10 to 12% in the pulse rate. The delegation also informed the Sub-Committee that by 2010, it was expected that there would be 85% ENC coverage worldwide.

14.10 The Chairman, in summing up the debate, stated that there had been a good intensive discussion. There had been a lot of arguments, both in favour and against the proposals for a mandatory carriage requirement for ECDIS. On the one hand, there was support, at least “in principle” for the introduction of a carriage requirement, either on the basis of the proposal by Denmark, Finland, Norway and Sweden, or on the basis of the proposal by Japan. On the other hand, concerns and questions had been raised on the necessity, the feasibility and the cost-effectiveness of such carriage requirements, on the uncertainties of global ENC-coverage and related shortcomings in the content of ENC’s, on the position of developing countries, small island developing States and Least Developed Countries and on the human element and training aspects and related issues. The positive aspect of this discussion was that it had provided the Sub-Committee with a clearer picture of the pros and cons of a carriage requirement, and this clearer picture might offer a good basis for the submission of proposals on the issue for NAV 54. In concluding, he invited Members and Observers to consider taking the following action:

- .1 the Russian Federation to provide further information on their research to NAV 54;
- .2 IHO to provide further updates on ENC-coverage and related issues to NAV 54; and
- .3 Member States as well as observers to submit any inputs of value to enable the Sub-Committee to further consider the matter and take a professional, well-informed and balanced decision at NAV 54.

14.11 Member Governments were invited to submit suitable proposals for further consideration at NAV 54.

## **15 GUIDELINES FOR UNIFORM OPERATING LIMITATIONS OF HIGH-SPEED CRAFT**

15.1 The Sub-Committee recalled that MSC 81 (MSC 81/25, paragraph 23.45), endorsing a proposal by DE 49, had decided to include, in the DE 50’s work programme and the provisional agenda, a high priority item on “Guidelines for uniform operating limitations of high-speed craft”, with a target completion date of 2009, and also in the work programmes of the COMSAR, NAV and SLF Sub-Committees and the provisional agendas for COMSAR 11, NAV 53 and SLF 50, with a target completion date of 2008.

15.2 The Sub-Committee noted that DE 50 had considered document DE 50/18 (China) and also revisited documents DE 49/5/3 and DE 49/INF.5 (RINA), which were proposing the development of an MSC circular to guide Administrations in determining the operating limitations in a consistent manner, together with document DE 49/INF.5 providing additional background information in relation to the setting of operating limitations for high-speed craft.

15.3 The Sub-Committee also noted that, while discussing the proposals for limitations to be included in the guidelines, DE 50 had agreed that it needed further thorough consideration, since it was referring to one aspect of operating limitations for high-speed craft only, namely speed, and that many more limitations, including, *inter alia*, wash waves, wind force, temperature, following seas, etc., needed to be identified and considered. DE 50 had also agreed to establish a Correspondence Group on Uniform Operating Limitations of High-Speed Craft, under the co-ordination of Australia, which would submit a report to DE 51.

15.4 The Sub-Committee considered document NAV 53/15 (RINA), identifying various subjects i.e. safe handling situations, wave height limitations, discretionary aspects, wash wave restrictions, navigational safety and departure sea conditions for discussion in relation to determination of operational limitations of high-speed craft.

15.5 There was general support for the proposals outlined in RINA's document (NAV 53/15) and some Members were of the opinion that some consideration should be given to operations in ice-conditions, training in accordance with the 2000 HSC Code, and consistent application of operating limitations.

15.6 The Sub-Committee requested Members, in the meanwhile, to provide relevant input on the navigational aspects directly to the DE 50 Correspondence Group on Uniform Operating Limitations of High-Speed Craft.

15.7 The Sub-Committee, observing that no other substantial documents had been submitted on this issue, agreed to postpone further consideration of this item to NAV 54, when the outcome of DE 51 on this issue would also be available. Members were invited to submit suitable proposals for consideration at NAV 54.

## **16 GUIDELINES ON THE LAYOUT AND ERGONOMIC DESIGN OF SAFETY CENTRES ON PASSENGER SHIPS**

16.1 The Sub-Committee recalled that MSC 81 had reviewed the report of the Working Group on Passenger Ship Safety (MSC 81/WP.6) and agreed with the group's recommendation that the NAV Sub-Committee should be instructed to develop guidelines on the lay-out and ergonomic design of safety centres (or modify MSC/Circ.982), bearing in mind that draft regulation II-2/23.4 specified that the layout and ergonomic design should take into account the guidelines developed by the Organization.

16.2 The Sub-Committee also recalled that MSC 81 (MSC 81/25, paragraph 23.42), had decided to include, in the Sub-Committee's work programme and the provisional agenda for NAV 53, a high-priority item on "Guidelines on the layout and ergonomic design of safety centres on passenger ships", with a target completion date of 2008.

16.3 The Sub-Committee noted in this context that, at MSC 82 (MSC 82/24, paragraph 3.104.1), the expanded Committee had adopted unanimously by resolution MSC.216(82) amendments to Chapter II-2, Construction – Fire Protection, Fire Detection and Fire Extinction, which would enter into force on 1 July 2010.

16.4 The Sub-Committee considered regulations II-2/3 and II-2/23 relating to safety centre on passenger ships in the context of development of Guidelines on the layout and ergonomic design of safety centres on passenger ships.

16.5 The observer from CLIA informed the Sub-Committee that some CLIA members were designing new ships based on the concept of the safety centre. CLIA indicated that it would submit a paper on the issue for consideration by NAV 54.

16.6 The Sub-Committee agreed that, since no other substantial documents had been submitted on this issue to this session, the matter should be postponed for further consideration at NAV 54. Members were invited to submit suitable proposals for consideration at NAV 54.

## **17 CASUALTY ANALYSIS**

17.1 The Sub-Committee recalled that MSC 78 (MSC 78/26, paragraph 24.8) had decided that the item on “Casualty analysis” should remain on the work programme of the sub-committees.

17.2 The Sub-Committee observed that, at this session, no documents had been either submitted for consideration or referred to by either the FSI Sub-Committee or any other technical body of the Organization for review, and agreed to defer further consideration of the item to NAV 54.

## **18 CONSIDERATION OF IACS UNIFIED INTERPRETATIONS**

18.1 The Sub-Committee recalled that, in order to expedite the consideration of IACS unified interpretations being submitted to the Committee on a continuous basis, MSC 78 had decided that IACS should submit them directly and, as appropriate, to the sub-committees concerned. To this effect, MSC 78 had agreed to retain, on a continuous basis, the item on “Consideration of IACS unified interpretations” in the work programmes of the BLG, DE, FP, FSI, NAV and SLF Sub-Committees and to include it in the agenda for their next respective sessions.

18.2 The Sub-Committee recalled also that NAV 52 had considered document NAV 52/14 (IACS) clarifying the application of Rules 23(a), 27(b) of the COLREG 1972, as amended, including sections 3(b) and 9(b) of Annex I to the 1972 COLREG, as amended. NAV 52 had concurred with the view of IACS and, having considered document NAV 52/WP.2, annex 1, agreed to the draft MSC circular on unified interpretations of COLREG 1972, as amended (NAV 52/18, annex 9), for submission to MSC 82 for approval.

18.3 The Sub-Committee noted that MSC 82 had considered the above draft MSC circular, but decided (MSC 82/24, paragraphs 11.13 and 11.14) to refer it to NAV 53 for further consideration prior to approval on the basis of two comments received in plenary:

- .1 the first by the delegation of Japan, arguing that IACS Unified Interpretation COLREG 2 would exceed the existing provisions of the COLREG 1972. If the content of this circular was considered appropriate, its text should exclude existing ships constructed on or after 1 July 2007; and
- .2 the second by the delegation of the Russian Federation, expressing the view that the unified interpretation would go beyond the provisions of COLREG 1972.

18.4 The Sub-Committee observed that the Secretariat had never issued any interpretation of the COLREG. However, the Maritime Safety Committee had in the past issued MSC Circulars on Guidance for the uniform application of certain rules of the COLREG (MSC/Circs.320 and 473 are of relevance).

18.5 The Sub-Committee considered document NAV 53/18 (IACS) providing clarifications on and the basis for development of IACS Unified Interpretations COLREG 2.

18.6 Having briefly discussed the matter, the Sub-Committee agreed (paragraph 11.4 refers) to refer document NAV 53/18 to the Technical Working Group to be established under agenda items 4, 7, 9, 11, 18 and 21 (sub-item on revised performance standards for ECDIS) because of its inter-relation with regard to navigation lights.

### **Report of the Technical Working Group**

18.7 Having received and considered the Technical Working Group's report (NAV 53/WP.2), the Sub-Committee (with reference to paragraph 8.1 and annex 7), took action as summarized hereunder.

18.8 The Sub-Committee agreed a revised draft MSC circular on the Unified Interpretation of COLREG. The Sub-Committee noted that the Group had taken into account the problems expressed during MSC 82 by Japan and the Russian Federation and agreed on modifications to the text developed at NAV 52 (document NAV 52/18, annex 9), as given at annex 16 for submission to the Committee for approval at its eighty-fourth session.

18.9 The Sub-Committee invited IACS to submit any further relevant IACS Unified Interpretation proposals to NAV 54 for its review.

## **19 WORK PROGRAMME AND AGENDA FOR NAV 54**

19.1 The Sub-Committee recalled that, at MSC 78, the Chairman, in addressing the Committee's method of work relating to the consideration of proposals for new work programme items, had clarified that the objective of the Committee when discussing these proposals was to decide, based upon justification provided by Member Governments in accordance with the Guidelines on the organization and method of work, whether the new item should or should not be included in the Sub-Committee's work programme. A decision to include a new item in a Sub-Committee's work programme did not mean that the Committee agreed with the technical aspects of the proposal. If it was decided to include the item in a sub-committee's work programme, detailed consideration of the technical aspects of the proposal and the development of appropriate requirements and recommendations should be left to the sub-committee concerned.

19.2 The Sub-Committee noted that MSC 82 had agreed to include, in the Sub-Committee's work programme high priority items on:

- .1 "Code of conduct during demonstrations/campaigns against ships in high seas", with two sessions needed to complete the item;
- .2 "Amendments to the General Provisions on Ships' Routeing", with one session needed to complete the item;

- .3 “Review of COLREGs regarding the right of way of vessels over pleasure craft”, with one session needed to complete the item;
- .4 “Measures to minimize incorrect data transmissions by AIS equipment”, with two sessions needed to complete the item;
- .5 “Review of vague expressions in SOLAS regulation V/22”, with two sessions needed to complete the item;
- .6 “Revision of the Guidance on the application of AIS binary messages”, with two sessions needed to complete the item; and
- .7 “Improved safety of pilot transfer arrangements”, with two sessions needed to complete the item.

19.3 Taking into account the progress made at the current session, the decisions of MSC 82, DE 50 and the provisions of the agenda management procedure, the Sub-Committee prepared a proposed revised work programme and a provisional agenda for NAV 54 (NAV 53/WP.7), as amended based on those approved by MSC 82 (NAV 53/2, annexes 1 and 2) and set out in annex 17, for consideration and approval by the Committee. While reviewing the work programme, the Sub-Committee invited the Committee to:

- .1 delete the following work programme items, as work on them has been completed:
  - .1.1 item H.4 Evaluation of the use of ECDIS and ENC development 2007
  - .1.2 item H.5 Development of guidelines for the installation of shipborne radar equipment 2008
  - .1.3 item H.7 Development of performance standards for navigation lights, navigation light controllers and associated equipment 2007
  - .1.4 item H.9 Guidelines on the control of ships in an emergency (in co-operation with COMSAR) 2007
- .2 extend the target completion date of the following work programme item:
  - .1.1 item H.6 Amendments to COLREG Annex IV relating to distress signals 2008
- .3 rename/extend the target completion date of the following work programme item:
  - .1.1 item H.3 Development of Guidelines for IBS including performance standards for bridge alert management 2009

### **Arrangements for the next session**

19.4 The Sub-Committee anticipated that Working Groups on the following subjects might be established at NAV 54:

- .1 Ships' Routing;
- .2 Technical matters; and
- .3 E-navigation.

### **Dates of the next session**

19.5 The Sub-Committee noted that the fifty-fourth session of the Sub-Committee had been tentatively scheduled to be held from 30 June to 4 July 2008 at IMO Headquarters.

## **20 ELECTION OF CHAIRMAN AND VICE-CHAIRMAN FOR 2008**

20.1 In accordance with Rule 16 of the rules of Procedure of the Maritime Safety Committee, the Sub-Committee unanimously re-elected Mr. K. Polderman (The Netherlands) as Chairman and Mr. M. Sollosi (United States) as Vice-Chairman for 2008.

## **21 ANY OTHER BUSINESS**

### **Revised Performance Standards for Electronic Chart Display and Information Systems (ECDIS)**

21.1 The Sub-Committee noted that the MSC 82, in accordance with resolution A.886(21), had adopted resolution MSC.232(82) on Adoption of the Revised performance standards for Electronic Chart Display and Information Systems (ECDIS). In this respect MSC 82 had further instructed NAV 53 to review the performance standards and assess whether a common layout of controls, names or symbols for controls and output on the display for each control could be appropriately included therein and advise MSC 83 accordingly.

21.2 The delegation of Cyprus supported by the delegation of Panama explained that the basic intent of the review was to investigate whether it was practically feasible to incorporate into new ECDIS equipment, a set of common standard operating procedures with which ships' officers could familiarize themselves easily. This would ensure that officers transferring/serving on any particular ship were fully conversant with the basic operating procedures for ECDIS equipment to ensure safety of navigation.

21.3 The Sub-Committee briefly considered the matter and agreed that the issue be referred to the Technical Working Group for review and advice so that the same could be conveyed to MSC 83.

### **Report of the Technical Working Group**

21.4 Having received and considered the report of the Technical Working Group (NAV 53/WP.2), paragraph 7, the Sub-Committee took action as summarized hereunder.

21.5 The Sub-Committee noted that the Organization had developed standards for common names and common output on the display in resolution MSC.191(79) and SN/Circ.243. The Sub-Committee also noted that the IEC had developed standards for symbols for controls. Moreover, the ongoing work on INS and IBS was also addressing default display configurations

and future work connected with E-navigation was considering a common S-mode configuration for bridge equipment. In the light of this ongoing work, the Sub-Committee concluded that it was premature to revise the ECDIS performance standards at this stage, but to await the outcome of these developments.

### **Conclusions and Recommendations of the XVIth IALA Conference**

21.6 The Sub-Committee recalled that MSC 82 had noted the information provided by IALA (MSC 82/23/7) outlining the conclusions and recommendations stemming from the XVIth IALA Conference (22 to 27 May 2006, Shanghai, China). The theme for the Conference had been *Aids to Navigation in a Digital World*, and the technical presentations had focused on these aspects and over 270 delegates, representing 42 countries had attended the Conference. MSC 82 had also referred document MSC 82/23/7 to the Sub-Committee for information and guidance in the course of its future work.

21.7 The Sub-Committee noted the information provided.

### **Guidance on providing safe working conditions for securing of containers**

21.8 The Sub-Committee noted that DSC 10 had established the correspondence group on Guidance on providing safe working conditions for securing of containers, under the co-ordination of the United Kingdom. DSC 11, having noted the views of the correspondence group, as detailed in document DSC 11/13, (paragraphs 5 and 6), concerning a possible way forward in assisting in the identification of best practice to ensure that containerships have suitable and safe securing access and identifying best design criteria for new containerships to ensure suitable and safe securing access, invited the DE and NAV Sub-Committees to give comments on the views of the Group.

21.9 The Sub-Committee observed that with respect to the above draft Guidance and the terms of reference of the aforementioned group, there were no items of relevance relating to navigational and operational matters. Hence, the Sub-Committee had no comments for the consideration of the Group.

21.10 The Secretariat was instructed to convey this outcome to the DSC Sub-Committee.

### **Consideration of the need for a presentation symbol for AIS-SART**

21.11 The Sub-Committee noted that COMSAR 11 recalled that COMSAR 10 had endorsed the draft amendments to performance standards for SART with respect to circular polarization and invited the Committee to adopt them. COMSAR 11 had also recognized that SART devices were not, and should not, be used for distress alerting. SART devices provided a means of locating, after the transmission of a distress alert, and were useful tools for SAR authorities. A corresponding amendment to the Performance Standards for AIS-SART to clearly distinguish between AIS-SART and AIS installation was accepted by COMSAR 11. In developing the Performance Standards, COMSAR 11 invited the Sub-Committee to consider the need for a presentation symbol for AIS-SART and invited the Committee to endorse this decision.

21.12 The observer from IEC informed the Sub-Committee that IEC Working Group 80 had already developed, in the context of resolutions MSC.192(79) and MSC.191(79), symbols for AIS Search and Rescue Transponder and AIS Aids to Navigation (both real and virtual).

21.13 The observer from IEC also agreed to offer these symbols to IMO as an input paper to NAV 54 for subsequent inclusion in SN/Circ.243 thereon.

### **Review of the draft amendments to the MODU Code**

21.14 The Sub-Committee recalled that DE 49 had established a correspondence group and instructed it, to further develop the draft amendments to the MODU Code on the basis of document DE 49/14, giving also consideration to the proposals in documents SLF 48/9 (IADC) and SLF 48/9/2 (IACS) and to developments in ICAO concerning helicopter facilities on board ships; and to consider whether other sub-committees should be requested to review certain parts of the Code, where their expertise was required, and advise the Sub-Committee accordingly.

21.15 The Sub-Committee also recalled that DE 50 had requested SLF 50 and COMSAR 12 to review the parts of the draft amendments to the Code, as identified in paragraphs 6, 7 and 9 of the correspondence group report (DE 50/11), noting that this would mean that the revision of the Code could not be finalized at DE 50. The DE Sub-Committee had further considered that the draft amendments to the Code could also be referred to NAV 53 and FP 52 for their comments.

21.16 The Sub-Committee considered the draft amendments to the draft revised MODU Code, Chapter 11 – Radiocommunications and navigation (pages 37 to 40 of document DE 50/11), sections 11.2 and 11.11, including section 12.2 on pilot transfer arrangement, which were of relevance to navigation issues and concluded that the proposed amendments were correct.

21.17 The Secretariat was instructed to convey the outcome of the review to the DE Sub-Committee.

### **Amendment of the Performance Standards for VDR AND S-VDR**

21.18 The Sub-Committee considered document NAV 53/21 (Germany) providing justification for the revision of the performance standards for VDR and S-VDR and to amend resolutions A.861(20) and MSC.163(78).

21.19 The Sub-Committee noted that Germany had also submitted document MSC 83/25/4 to the Committee, containing a suitable proposal for putting this issue on the work programme of the Sub-Committee.

### **Progress on Standards published by the IEC – VDR AND AIS**

21.20 The Sub-Committee considered document NAV 53/21/1 (IEC) providing an update on the progress made in developing various IEC standards for Voyage Data Recorder, Radar equipment and ECDIS and noted with appreciation the information provided.

21.21 The Sub-Committee requested IEC to keep the Sub-Committee updated on the progress relating to various IEC standards.

### **Prevention of maritime accidents due to driftwood**

21.22 The Sub-Committee noted that, at MSC 82, the delegation of Japan had advised the Committee of a recent incident off the Japanese coast where a high-speed craft collided with driftwood, resulting in some 100 passengers being injured. In trying and prevent similar accidents, the Japan Coast Guard had requested ships to report sightings of such driftwood and other floating dangers in accordance with their obligations under SOLAS regulation V/31.

The Japanese delegation had invited Member States to consider taking similar action. They had also advised the Committee that they would be submitting a paper to the Sub-Committee on the subject of such floating dangers.

21.23 The Sub-Committee considered document NAV 53/21/2 (Japan), suggesting that ships that find driftwood should be asked to communicate the information to ships in the vicinity and also to the competent authorities, in accordance with SOLAS regulation V/31.

21.24 The Sub-Committee having considered document NAV 53/WP.9 agreed the draft MSC circular on Prevention of maritime accidents due to driftwood, set out in annex 18, for submission to MSC 84 for approval.

21.25 The Sub-Committee noted the statement by the delegation of France concerning the need to amend SOLAS regulation V/31 in order to make provision for the compulsory reporting of lost cargo that presented a danger to navigation, whether or not it contained dangerous goods.

### **Review of vague expressions in SOLAS regulation V/22**

21.26 The Sub-Committee noted with interest the information provided by IACS (NAV 53/INF.7) relating to vagueness of requirements in SOLAS regulation V/22, which might lead to a lack of harmonized application. The Sub-Committee also noted that IACS Recommendation No.95, set out in document NAV 53/INF.5, addressed problems related to vague expressions in SOLAS regulation V/22 and contained material that might be of value to the Sub-Committee.

### **Review of COLREGs regarding the right of way of vessels over pleasure craft**

21.27 The Sub-Committee noted with interest the relevant information provided by Italy (NAV 53/INF.9) for amending the Convention on the International Regulation for Preventing Collisions at Sea, 1972, as amended to give commercial vessels the right of way over pleasure craft, in order to reduce the risk of collision in areas with high density of pleasure craft and where it was difficult to operate safely for large vessels. Italy wanted to underline that, if this general principle was recognized and endorsed, it would increase the level of safety at sea and would serve to prevent accidents in the future.

21.28 The Sub-Committee noted with interest document NAV 53/21/3 (ISAF), supporting any practical initiative to help prevent accidents, but strongly recommending that the case, set out in document NAV 53/INF.9 (Italy), did not justify the proposed changes to COLREG.

### **AIS incorrect transmissions**

21.29 The Sub-Committee noted with interest the information provided by IALA (NAV 53/INF.10) as the result of an IALA survey conducted in 2006 on AIS errors seen in VTS centres. The greatest obstacle to attaining improved standards of accuracy in the transmission of AIS data was the continuing existence of the Minimum Keyboard Display (MKD). Feedback had clearly indicated that the true value of AIS was only apparent when presented on a fully integrated graphical display.

### **Development of a code of conduct for assurance of the safety of crew and maritime navigation during demonstrations/campaigns against ships on the high seas**

21.30 The Sub-Committee noted with interest the information provided by Japan (NAV 53/INF.11) on the need for the development of a code of conduct to assure the safety of crew and maritime navigation during demonstrations/campaigns against ships on the high seas, including Japan's request that a corresponding item be included in the provisional agenda for NAV 54.

### **Use of AIS binary messages**

21.31 The Sub-Committee noted with interest the information provided by Germany and Sweden (NAV 53/INF.11), describing the technical limitations for the use of AIS binary messages and presenting the results of a study of the existing usage of the AIS VHF Data Link including further work needed to develop guidelines for the use of AIS Binary Messages.

### **Regional marine electronic highway in the East Asian seas**

21.32 The Sub-Committee recalled that at previous sessions, the Secretariat had updated the Sub-Committee on the key elements and expected outputs of the new project for the Development of a Regional Marine Electronic Highway (MEH) in the East Asian Seas including the progress made.

21.33 The Sub-Committee noted that the overall objectives of the MEH project are to enhance maritime services, improve navigational safety and security and promote marine environment protection and the sustainable development and use of the coastal and marine resources of the Straits' littoral States, Indonesia, Malaysia and Singapore. On 31 May 2006, a Memorandum of Agreement (MOA) was signed between the Ministry of Environment, representing the Government of Indonesia, and IMO for the establishment of the Project Management Office (PMO) in Batam. Implementation of project start-up activities commenced in June 2006. A Project Launching Consultant had commenced work in Indonesia on 5 February 2007 for a period of six months whilst a Procurement Specialist had commenced work for three months on 2 March 2007. The PMO hosted by the Government of Indonesia was established in Batam Island, Indonesia and had become operational on 9 March 2007. The First Meeting of the Project Steering Committee (PSC) was held from 29 to 31 May 2007 in Batam, and was jointly organized and hosted by the Government of Indonesia and IMO. The PSC had approved the revised Project Implementation Plan and the budget; approved the scope of services for the hydrographic survey of the Traffic Separation Scheme of the Straits of Malacca and Singapore, as amended for inclusion in the tender document for that survey; noted that the International Hydrographic Organization (IHO) would review the draft Terms of Reference for the consultancy on Environmental Marine Information Overlays; agreed to hold an intersessional PSC Meeting in Singapore in conjunction with the Singapore Meeting to consider the report of the Technical Committee on Shore Base Infrastructure and Facilities, which would work by correspondence, with the view to approval by the Second PSC Meeting. The meeting had further welcomed the offer of assistance of US\$850,000 (equivalent in Korean Won) by the Republic of Korea to the Project and agreed to integrate this offer of assistance and to reflect the partnership of the Republic of Korea in the Project Implementation Plan.

## **EXPRESSIONS OF APPRECIATION**

21.34 The Sub-Committee further expressed appreciation to the following delegates who had recently relinquished their duties, retired or were transferred to other duties or were about to, for their invaluable contribution to its work and wished them a long and happy retirement or, as the case might be, every success in their new duties:

- Capt. Wagner Lázaro Ribeiro, Junior (Brazil) (on transfer);
- Mr. Heru Prasetyo (Indonesia) (on transfer);
- Capt. Arnett E. Hill (Liberia) (on transfer);
- Mr. Yeang-Jun Jang (Republic of Korea) (on transfer);
- Capt. de Navío Guillermo Esteban Rangel Jalley (Venezuela) (on transfer);
- Capt. Torbjörn Edenius (Sweden) (on transfer); and
- Professor Dr. Bernhard Berking (Germany) (on retirement).

## **EXPRESSIONS OF CONDOLENCES**

21.35 The Sub-Committee, having been informed of the passing away of Captain Laszlo Kovats (IFSMA), and his contribution to the work of IMO and the promotion of maritime safety, in general, requested the observer of IFSMA to convey the Sub-Committee's and the Secretariat's condolences and sympathy to the family, friends and colleagues of Captain Kovats who would be sadly missed.

## **22 ACTION REQUESTED OF THE COMMITTEE**

22.1 The Committee, at its eighty-third session, is invited to:

- .1 in accordance with resolution A.858(20), adopt:
  - .1 the proposed new traffic separation schemes, including associated routing measures "In the Approaches to Hook of Holland and at North Hinder" (paragraph 3.39 and annex 1\*);
  - .2 the proposed two new traffic separation schemes including associated routing measures "On the approaches to the Polish ports in the Gulf of Gdańsk" (paragraph 3.40 and annex 1);
  - .3 the proposed new traffic separation scheme and two-way routes "Off the southwest coast of Iceland" (paragraph 3.41 and annex 1);
  - .4 the proposed amendments to the existing "Mandatory route for tankers from North Hinder to the German Bight and vice versa" and to related traffic separation schemes "Off Texel", "Off Vlieland, Vlieland North and Vlieland Junction", "Terschelling-German Bight" and "German Bight western approaches" (paragraph 3.42 and annex 1);
  - .5 the proposed amendments to the existing traffic separation schemes "In the Approaches to Hook of Holland and at North Hinder" (paragraph 3.43 and annex 1);

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\* All references are to paragraphs of, and annexes to, the report of NAV 53 (NAV 53/22).

- .6 the proposed amendments to the existing traffic separation scheme “In the Sound” (paragraph 3.44 and annex 1);
- .7 the proposed amendments to the existing traffic separation scheme “In the Approaches to Chedabucto Bay” (paragraph 3.45 and annex 1);
- .8 the proposed amendments to the existing traffic separation scheme “In the Strait of Dover and Adjacent Waters” in the vicinity of the Foxtrot 3 station (paragraph 3.46 and annex 1);
- .9 the proposed new recommended tracks which would be mandatory as a condition of port entry through the Galapagos Area to be Avoided to enter the Particularly Sensitive Sea Area (PSSA) (paragraph 3.48 and annex 2);
- .10 the proposed new Area to be Avoided “Off the Brazilian south-east coast, in the Campos Basin region” (paragraph 3.52 and annex 2);
- .11 the proposed amendments to the six existing recommended Areas to be Avoided “In the Region of the North-West Hawaiian Islands” (paragraph 3.59 and annex 2);
- .12 the proposed amendment to the deep-water route leading to Europoort (paragraph 3.60 and annex 2);
- .13 the proposed amendments to the existing Area to be Avoided “At Maas centre” and “At North Hinder junction Point” (paragraph 3.61 and annex 2);
- .14 the proposed new Recommendations on navigation to the Polish ports through the Gulf of Gdańsk traffic area (paragraph 3.64 and annex 2);
- .15 the proposed new two-way route “Off the southwest coast of Iceland” (paragraph 3.65 and annex 2);
- .16 the proposed new Areas to be Avoided “Off the south, southwest and west coast of Iceland” (paragraph 3.66 and annex 2);
- .17 the proposed amendments to the Recommendations on navigation through the entrances to the Baltic Sea (paragraph 3.67 and annex 2);
- .18 the proposed new mandatory No Anchoring Areas “on Sharks Bank and Long Shoal” (paragraph 3.68 and annex 2);
- .19 the proposed new recommended seasonal Area to be Avoided “In Roseway Basin, south of Nova Scotia” (paragraph 3.69 and annex 2);
- .20 the proposed amendments to the existing Deep-water route, and to the position of the Foxtrot 3 station “In the Strait of Dover and Adjacent Waters” TSS (paragraph 3.70 and annex 2);
- .21 the proposed amendments to the Recommendations on Navigation through the English Channel and the Dover Strait (paragraph 3.71 and annex 2);

- .22 the proposed amendments to the Deep-water route “North-east of Gedser” (paragraph 3.74 and annex 2);
  - .23 the proposed new ship reporting system for “The Papahānaumokuākea Marine National Monument”, (paragraph 3.76 and annex 3);
  - .24 the proposed new mandatory ship reporting system “On the approaches to the Polish ports in the Gulf of Gdańsk”, (paragraph 3.77 and annex 4);
  - .25 the proposed new mandatory ship reporting system “Off the south and southwest coast of Iceland”, (paragraph 3.78 and annex 5); and
  - .26 the proposed amendments to the existing mandatory ship reporting systems “Off Ushant”, “Off Les Casquets” and “Dover Strait/Pas de Calais” (paragraph 3.79 and annex 6);
- .2 adopt the draft MSC resolution on Adoption of the revised performance standards for Integrated Navigation Systems (paragraph 4.17 and annex 7);
  - .3 approve the draft SN circular on Guidelines on the application of SOLAS regulation V/15 to INS, IBS and bridge design (paragraph 4.20 and annex 8);
  - .4 approve the revised SN/Circ.207 on Differences between RCDS and ECDIS (paragraph 5.7 and annex 10);
  - .5 approve the draft SN circular on the Maintenance of Electronic Chart Display and Information System (ECDIS) software (paragraph 5.14 and annex 11);
  - .6 approve the draft MSC circular on Safety margins to protect radar systems (paragraph 9.9 and annex 13);
  - .7 approve the draft MSC circular on Guidelines on the control of ships in an emergency (paragraph 10.12 and annex 14);
  - .8 adopt the draft MSC resolution on Adoption of performance standards for navigation lights, navigation light controllers and associated equipment (paragraph 11.7 and annex 15); and
  - .9 note the conclusion of the Sub-Committee that it was premature to revise the ECDIS performance standards at this stage (paragraph 21.5).

22.2 In reviewing the work programme of the Sub-Committee, the Committee is invited to consider the revised work programme suggested by the Sub-Committee (annex 17) in general and, in particular, to:

- .1 delete “Evaluation of the use of ECDIS and ENC development”, as the task has been completed (paragraph 5.23);
- .2 delete “Development of guidelines for the installation of shipborne radar equipment”, as the task has been completed (paragraph 7.8);
- .3 delete “Guidelines on the control of ships in an emergency”, as the task has been completed (paragraph 10.13);

- .4 delete “Development of performance standards for navigation lights, navigation light controllers and associated equipment”, as the task has been completed (paragraph 11.9);
- .5 extend the target completion date of the following work programme item, namely:
  - .1 “Amendments to COLREG Annex IV relating to distress signals” with a target completion date of 2008 (paragraph 8.7);
- .6 rename/extend the target completion date of the following work programme item, namely:
  - .1 “Development of Guidelines for IBS including performance standards for bridge alert management” with a target completion date of 2009 (paragraph 4.24);

22.3 The Committee is also invited to approve the proposed agenda for the Sub-Committee’s fifty-fourth session (annex 17), which has been developed using the agenda management procedure.

22.4 The Committee, at its eighty-fourth session, is invited to:

- .1 note the progress on the development of carriage requirements for a bridge navigational watch alarm system (paragraphs 6.1 to 6.10);
- .2 approve the draft SN circular on Guidelines for the installation of shipborne radar equipment (paragraph 7.7 and annex 12);
- .3 note and endorse the progress on the development of an e-navigation strategy (paragraphs 13.1 to 13.31);
- .4 note the progress on the development of carriage requirements for ECDIS (paragraphs 14.1 to 14.11);
- .5 approve the draft revised MSC circular on the Unified Interpretations of COLREG (paragraph 18.8 and annex 16);
- .6 approve the draft MSC circular on Prevention of maritime accidents due to driftwood (paragraph 21.24 and annex 18); and
- .7 approve the report in general.

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## ANNEX 1

## NEW AND AMENDED TRAFFIC SEPARATION SCHEMES

**“MAAS NORTH-WEST” FORMING PART OF THE ROUTEING SYSTEM “IN THE APPROACHES TO HOOK OF HOLLAND AND AT NORTH HINDER”**

(Reference Chart: Netherlands 1630 (INT 1416) (Edition 1 dated February 2005)

*Note:* This chart is based on World Geodetic System 1984 Datum (WGS-84).

**2 Maas North-West traffic separation scheme**

(a) A separation zone is bounded by a line connecting the following geographical positions:

(13) 52° 08'.01 N 003° 39'.60 E      (14) 52° 06'.34 N 003° 43'.33 E  
 (15) 52° 06'.12 N 003° 42'.98 E      (16) 52° 07'.77 N 003° 39'.30 E

(b) A traffic lane for north-westbound traffic is established between the separation zone in paragraph (a) above and a line connecting the following geographical positions:

(11) 52° 07'.40 N 003° 45'.00 E      (12) 52° 09'.16 N 003° 41'.06 E

(c) A traffic lane for south-eastbound traffic is established between the separation zone in paragraph (a) above and a line connecting the following geographical positions:

(17) 52° 06'.61 N 003° 37'.84 E      (18) 52° 05'.06 N 003° 41'.32 E

**ON THE APPROACHES TO THE POLISH PORTS IN THE GULF OF GDAŃSK**

(Reference chart: Polish Chart No.73 (INT 1288) published by the Hydrographic Office of the Polish Navy (Edition 2004).

*Note:* This chart is based on World Geodetic System 1984 Datum (WGS-84).

**TRAFFIC SEPARATION SCHEME “EAST”**

The traffic separation scheme (TSS) “East” consists of:

- two traffic lanes 1.0 nautical mile wide;
- one intermediate traffic separation zone 0.5 mile wide in two parts: northeast and southwest;
- one traffic separation line connecting two parts of the intermediate traffic separation zone.

The direction of navigation is:

- inbound traffic lane, 163° (T) from the seaward limit of the scheme to the turning point marked by the buoy ZN, thence 206° to the southern limit of the scheme marked by the buoy ZS northeast of the Gdańsk Northern Port (Port Północny) pilot embarkation position;

- outbound traffic lane, 026° (T) as far as the turning point marked by the buoy ZN, thence 343° (T) to the seaward limit of the scheme.

Description of the traffic separation scheme (the co-ordinates listed below are in WGS-84):

- (a) A northeast separation zone is bounded by a line connecting the following geographical positions:

(1)	54° 40'.429 N	019° 03'.789 E
(2)	54° 40'.570 N	019° 04'.611 E
(3)	54° 37'.328 N	019° 06'.277 E
(4)	54° 37'.186 N	019° 05'.455 E

- (b) A southwest separation zone is bounded by a line connecting the following geographical positions:

(5)	54° 36'.471 N	019° 05'.357 E
(6)	54° 36'.255 N	019° 06'.130 E
(7)	54° 26'.452 N	018° 58'.026 E
(8)	54° 26'.668 N	018° 57'.254 E

- (c) A traffic separation line connecting the following geographical positions:

(9)	54° 37'.257 N	019° 05'.866 E
(10)	54° 36'.800 N	019° 06'.100 E (buoy ZN)
(11)	54° 36'.363 N	019° 05'.744 E

- (d) A traffic lane for inbound traffic is established between the separation zone line and a line connecting the following geographical positions:

(12)	54° 40'.145 N	019° 02'.145 E
(13)	54° 36'.902 N	019° 03'.812 E
(14)	54° 27'.102 N	018° 55'.708 E

- (e) A traffic lane for outbound traffic is established between the separation zone line and a line connecting the following geographical positions:

(15)	54° 40'.855 N	019° 06'.255 E
(16)	54° 36'.691 N	019° 08'.394 E
(17)	54° 26'.018 N	018° 59'.572 E

#### **TRAFFIC SEPARATION SCHEME “WEST”**

The traffic separation scheme (TSS) “West” consists of:

- two traffic lanes 0.75 to 0.5 mile wide (northeast part of the TSS) separated by traffic separation line;
- two traffic lanes 0.5 mile wide in two parts (southwest and west) separated by traffic separation line;

- one precautionary area;
- one associated inshore traffic zones.

The direction of navigation is:

- inbound traffic lane, 205° from the seaward limit of the scheme to the turning point marked by the buoy HEL (northeast part of the TSS), then 221° as far as the turning point at the buoy GN in the Precautionary Area, thence:
  - 221° to the southwestern limit of the scheme marked by the buoy NP northeast of the Gdańsk New Port (Nowy Port) pilot embarkation position; or
  - 092° to the western limit of the scheme marked by the buoy GD east of the Gdynia pilot embarkation position;
- outbound traffic lane: 041° (southwest part of the TSS for vessels leaving Gdańsk New Port (Nowy Port) or 272° (west part of the TSS for vessels leaving Gdynia) to the turning point marked by the buoy GN in the Precautionary Area, then 041° as far as the turning point at the buoy HEL, thence 025° to the seaward limit of the scheme.

Description of the traffic separation scheme (the co-ordinates listed below are in WGS-84):

**Northeast part:**

- (f) A separation line connecting the following geographical positions:

(18)	54° 40'.000 N	018° 57'.000 E
(19)	54° 36'.300 N	018° 54'.000 E
(20)	54° 35'.428 N	018° 53'.294 E (buoy HEL)
(21)	54° 35'.100 N	018° 52'.800 E
(22)	54° 32'.400 N	018° 48'.740 E

- (g) A traffic lane for inbound traffic is established between the separation line and a line connecting the following geographical positions:

(23)	54° 40'.317 N	018° 55'.836 E
(24)	54° 36'.618 N	018° 52'.836 E
(25)	54° 35'.428 N	018° 52'.154 E
(26)	54° 32'.728 N	018° 48'.094 E

- (h) A traffic lane for outbound traffic is established between the separation line and a line connecting the following geographical positions:

(27)	54° 39'.683 N	018° 58'.164 E
(28)	54° 35'.982 N	018° 55'.164 E
(29)	54° 34'.772 N	018° 53'.446 E
(30)	54° 32'.072 N	018° 49'.386 E

**Precautionary area:**

- (i) A precautionary area bounded by a line connecting the following geographical positions:

(31)	54° 32'.072 N	018° 49'.386 E
(32)	54° 32'.400 N	018° 48'.740 E
(33)	54° 32'.728 N	018° 48'.094 E
(34)	54° 32'.442 N	018° 46'.223 E
(35)	54° 31'.943 N	018° 46'.195 E
(36)	54° 31'.445 N	018° 46'.167 E
(37)	54° 31'.116 N	018° 46'.811 E
(38)	54° 30'.787 N	018° 47'.456 E
(39)	54° 31'.558 N	018° 48'.614 E

**Southwest part:**

- (j) A separation line connecting the following geographical positions:

(40)	54° 31'.116 N	018° 46'.811 E
(41)	54° 28'.480 N	018° 42'.840 E

- (k) A traffic lane for inbound traffic is established between the separation line and a line connecting the following geographical positions:

(42)	54° 31'.445 N	018° 46'.167 E
(43)	54° 28'.809 N	018° 42'.195 E

- (l) A traffic lane for outbound traffic is established between the separation line and a line connecting the following geographical positions:

(44)	54° 30'.787 N	018° 47'.456 E
(45)	54° 28'.151 N	018° 43'.485 E

**West part:**

- (m) A separation line connecting the following geographical positions:

(46)	54° 31'.943 N	018° 46'.195 E
(47)	54° 32'.040 N	018° 41'.100 E

- (n) A traffic lane for inbound traffic is established between the separation line and a line connecting the following geographical positions:

(48)	54° 32'.442 N	018° 46'.223 E
(49)	54° 32'.538 N	018° 41'.128 E

- (o) A traffic lane for outbound traffic is established between the separation line and a line connecting the following geographical positions:

(50)	54° 31'.445 N	018° 46'.167 E
(51)	54° 31'.542 N	018° 41'.072 E

- (p) Inshore traffic zone:

The inshore traffic zone is established in the waters between the inner limit of the northeastern and western part of the traffic separation scheme “WEST” and the adjacent Polish coast and limited:

- from north by a line connecting the following geographical positions:

(23)	54° 40'.317 N	018° 55'.836 E
(52)	54° 40'.317 N	018° 44'.848 E

- from west by a line connecting the following geographical positions:

(49)	54° 32'.538 N	018° 41'.128 E
(53)	54° 41'.660 N	018° 41'.128 E

#### **Recommended track between GD and NP buoys**

- 1 A recommended track is established between the following geographical positions:

(54)	54° 32'.045 N	018° 39'.835 E	(buoy GD)
(55)	54° 27'.900 N	018° 42'.050 E	(buoy NP)

- 2 The direction (T) of navigation is 163° – 343°.

#### **Recommended track between GN and PP buoys**

- 1 A recommended track is established between the following geographical positions:

(56)	54° 31'.558 N	018° 48'.614 E	(vicinity of buoy GN)
(57)	54° 28'.227 N	018° 54'.541 E	
(58)	54° 25'.876 N	018° 54'.541 E	(vicinity of buoy PP)

- 2 The directions (T) of navigation are: 134° – 314° and 000° – 180°.

#### **OFF THE SOUTHWEST COAST OF ICELAND**

(Reference chart: Icelandic Chart No.31 (INT 1105) Dyrhólaey – Snæfellsnes (new edition June 2004)

*Note:* The chart is based on World Geodetic System 1984 Datum (WGS-84).

## **Description of the traffic separation schemes**

### *Part I*

#### **Traffic separation scheme northwest of Gardskagi Point**

The routing measures consist of a traffic separation scheme northwest of Gardskagi Point with attached two-way routes at both ends.

A separation zone is established bounded by a line connecting the following geographical positions:

- (1) 64° 09'.02 N 022° 41'.40 W
- (2) 64° 09'.02 N 022° 49'.60 W
- (3) 64° 07'.03 N 022° 53'.25 W
- (4) 64° 06'.65 N 022° 52'.14 W
- (5) 64° 08'.40 N 022° 48'.92 W
- (6) 64° 08'.40 N 022° 41'.40 W

A traffic lane for north-east-/east-bound traffic is established between the separation zone and a line connecting the following geographical positions:

- (7) 64° 05'.91 N 022° 50'.06 W
- (8) 64° 07'.20 N 022° 47'.51 W
- (9) 64° 07'.20 N 022° 41'.40 W

A traffic lane for west-/south-west-bound traffic is established between the separation zone and a line connecting the following geographical positions:

- (10) 64° 10'.26 N 022° 41'.40 W
- (11) 64° 10'.26 N 022° 50'.94 W
- (12) 64° 07'.80 N 022° 55'.46 W

#### **Description of the two-way routes**

A two-way route for east/west-bound traffic north of Gardskagi Point is established by lines connecting the following geographical positions:

- (9) 64° 07'.20 N 022° 41'.40 W
- (10) 64° 10'.26 N 022° 41'.40 W
- (13) 64° 10'.26 N 022° 33'.26 W
- (14) 64° 07'.20 N 022° 33'.26 W

A two-way route for north-east/south-west-bound traffic west of Gardskagi Point is established by lines connecting the following geographical positions:

- (15) 64° 05'.63 N 022° 59'.45 W
- (12) 64° 07'.80 N 022° 55'.46 W

- (16) 64° 03'.54 N 022° 54'.70 W
- (7) 64° 05'.91 N 022° 50'.06 W

*Part II*

**Traffic separation scheme southwest of the Reykjanes Peninsula**

The routing measures consist of a traffic separation scheme southwest of the Reykjanes Peninsula, with an attached two-way route.

A separation zone is established bounded by a line connecting the following geographical positions:

- (30) 63° 31'.75 N 023° 32'.28 W
- (31) 63° 33'.90 N 023° 33'.92 W
- (32) 63° 31'.55 N 023° 33'.62 W
- (33) 63° 33'.69 N 023° 35'.26 W

A traffic lane for north-north-west-bound traffic is established between the separation zone and a line connecting the following geographical positions:

- (29) 63° 32'.00 N 023° 29'.50 W
- (34) 63° 34'.30 N 023° 31'.23 W

A traffic lane for south-south-east-bound traffic is established between the separation zone and a line connecting the following geographical positions:

- (35) 63° 30'.82 N 023° 36'.06 W
- (36) 63° 33'.37 N 023° 38'.00 W

**Description of the two-way route**

A two-way route (the outer route) west of the Reykjanes Peninsula, located off the southwest corner of the proposed western Area to be Avoided, is established by lines connecting the following geographical positions:

- (34) 63° 34'.30 N 023° 31'.23 W
- (36) 63° 33'.37 N 023° 38'.00 W
- (28) 63° 42'.00 N 023° 37'.00 W
- (37) 63° 41'.00 N 023° 43'.69 W

**Notes:**

- 1.1 All ships of over 5,000 gross tonnage in size and all ships carrying dangerous or noxious cargoes in bulk or cargo tanks should navigate the outer route, southwest of the Reykjanes Peninsula, unless they are permitted to navigate the inner route, Hullid Passage, according to the provisions of paragraphs 1.2 and 1.4 below.

- 1.2 Ships of up to 5,000 gross tonnage not carrying dangerous or noxious cargoes in bulk or cargo tanks may transit the inner route.
- 1.3 Ships of up to 20,000 gross tonnage may transit the inner route provided that:
  - .1 the ship does not carry any dangerous or noxious cargoes in bulk or cargo tanks; and
  - .2 the master of the ship has attended a course held by Icelandic authorities and achieved transit permit. In order to be eligible to attend the course, the master must have been involved in six passages without any incidents and/or remarks to Faxaflói Bay ports as master or chief mate in the preceding 18 months. The master's transit permit expires if the master has not navigated a ship to Faxaflói Bay port in 24 months.
- 1.4 Tankers with a cargo capacity of up to 5,000 gross tonnage may navigate the inner route carrying gas cargoes or petroleum products with a maximum kinematic viscosity of 11.0 cSt at 40°C<sup>1</sup>. The master shall fulfil the conditions as provided for in paragraph 1.3.2 above.
- 2 Mariners should be aware that fishing vessels may be encountered in the area and should navigate accordingly.
- 3 Exceptions applying to the routing measures are in accordance with SOLAS chapter V, regulation 1.1. Exempt are warships, naval auxiliaries and other ships owned or operated by a contracting Government and used only on Government non-commercial service. The exceptions do not apply to the TSS.

## **AMENDMENTS TO EXISTING MANDATORY ROUTE FOR TANKERS FROM NORTH HINDER TO THE GERMAN BIGHT AND VICE VERSA**

Replace the existing text under "Application and use of the route" by the following new text:

### **Application and use of the route**

The route is mandatory for use by the following classes of ships:

- (a) tankers of 10,000 tons gross tonnage and upwards, carrying oil as defined under Annex I to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78);
- (b) chemical tankers of 5,000 tons gross tonnage and upwards, carrying noxious liquid substances in bulk assessed or provisionally assessed as Category X or Y of Annex II to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78);

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<sup>1</sup> According to ISO 8217:2005.

- (c) chemical tankers and NLS tankers of 10,000 tons gross tonnage and upwards, carrying Noxious Liquid Substances in bulk assessed or provisionally assessed as Category Z of Annex II to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78); and
- (d) ships of 10,000 tons gross tonnage and upwards, carrying liquefied gasses in bulk.

These ships shall avoid the sea area between the mandatory route and the adjacent Frisian Islands' coast, except when joining or leaving the route at the nearest point of the route to the port of departure or destination which permits a safe passage to or from that port.

The classes of ships referred to above shall use the mandatory route or part of it:

- (i) when sailing from North Hinder to the Baltic or to North Sea ports of Norway, Sweden, Denmark, Germany or the Netherlands north of latitude 53°N and vice versa;
- (ii) when sailing between North Sea ports of the Netherlands north and/or Germany, except in cases of adjacent port areas;
- (iii) when sailing between United Kingdom or Continental North Sea ports south of latitude 53°N and Scandinavian and Baltic ports; and
- (iv) when sailing between North Hinder, United Kingdom or Continental ports south of latitude 53°N and offshore and offshore-based loading facilities in the North Sea area. However this provision does not apply to ships sailing between ports on the east coast of the United Kingdom, including Orkney and Shetland Islands.

Ships which, because of their draft, cannot safely navigate the mandatory route – in particular the southern part of it (the routeing measures a, b and c above) – are exempted from the requirements to use the southern part of the mandatory route and are strongly recommended to use the western route of the routeing system “Off Friesland” or part of it, as appropriate, instead.

This alternative western route is formed by the following routeing measures:

- .1 Deep-water route from North Hinder to Indefatigable Bank via DR 1 lightbuoy;
- .2 TSS “Off Botney Ground”; and
- .3 Deep-water route from TSS “Off Botney Ground” to the Precautionary Area “Friesland Junction”.

Shipmasters should enter this deviation in the ships' log.

**AMENDMENTS TO EXISTING TRAFFIC SEPARATION SCHEMES “OFF TEXEL”,  
“OFF VLIELAND, VLIELAND NORTH AND VLIELAND JUNCTION”,  
“TERSCHELLING-GERMAN BIGHT” AND “GERMAN BIGHT WESTERN APPROACH”**

Replace in each of the above-mentioned routeing systems the existing “Special Provisions” text by the following new text:

**Note:**

The following classes of ships are referred to the provisions being part of the description of the “Mandatory route for tankers from North Hinder to the German Bight and vice versa”:

- (a) tankers of 10,000 tons gross tonnage and upwards, carrying oil as defined under Annex I to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78);
- (b) chemical tankers of 5,000 tons gross tonnage and upwards, carrying Noxious Liquid Substances in bulk assessed or provisionally assessed as Category X or Y of Annex II to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78);
- (c) chemical tankers and NLS tankers of 10,000 tons gross tonnage and upwards, carrying Noxious Liquid Substances in bulk assessed or provisionally assessed as Category Z of Annex II to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78);
- (d) ships of 10,000 tons gross tonnage and upwards, carrying liquefied gases in bulk.

**AMENDMENTS TO THE TRAFFIC SEPARATION SCHEMES “IN THE APPROACHES TO  
HOOK OF HOLLAND AND AT NORTH HINDER”**

The following traffic separation schemes to be amended as presented below:

(Reference chart: Netherlands 1630 (INT 1416) (Edition 1, dated February 2005)

**Note:** This chart is based on World Geodetic System 1984 Datum (WGS-84)).

**1 Maas North traffic separation scheme**

(a) A separation zone is bounded by a line connecting the following geographical positions:

- |                  |               |                  |               |
|------------------|---------------|------------------|---------------|
| (1) 52° 15'.00 N | 003° 59'.38 E | (2) 52° 07'.18 N | 003° 56'.56 E |
| (3) 52° 15'.00 N | 003° 56'.42 E | (5) 52° 07'.27 N | 003° 54'.34 E |
| (4) 52° 10'.26 N | 003° 55'.54 E |                  |               |

- (b) A traffic lane for northbound traffic is established between the separation zone in paragraph (a) above and a line connecting the following geographical positions:

(7) 52° 07'.04 N      004° 00'.00 E      (6) 52° 15'.00 N      004° 02'.80 E

- (c) A traffic lane for southbound traffic is established between the separation zone in paragraph (a) above and a line connecting the following geographical positions:

(8) 52° 15'.00 N      003° 53'.39 E      (9) 52° 10'.26 N      003° 52'.49 E  
(10) 52° 07'.40 N      003° 51'.36 E

### 3 Maas West Inner traffic separation scheme

- (a) A separation zone to the north of the Eurochannel is outward bounded by a line connecting the following geographical positions:

(21) 52° 02'.36 N      003° 32'.20 E      (22) 52° 02'.74 N      003° 41'.25 E  
(23) 52° 01'.07 N      003° 41'.47 E      (24) 52° 00'.20 N      003° 30'.73 E

and inward bounded by a line connecting the following geographical positions:

(32) 52° 02'.17 N      003° 37'.83 E      (33) 52° 02'.00 N      003° 33'.98 E  
(34) 52° 00'.90 N      003° 33'.23 E      (35) 52° 01'.26 N      003° 37'.63 E

- (b) A separation zone to the south of the Eurochannel is bounded by a line connecting the following geographical positions:

(25) 52° 00'.42 N      003° 41'.55 E      (26) 51° 59'.48 N      003° 30'.24 E  
(27) 51° 58'.03 N      003° 29'.26 E      (28) 51° 59'.72 N      003° 41'.65 E

- (c) A traffic lane for westbound traffic is established between the separation zone in paragraph (a) above and a line connecting the following geographical positions:

(19) 52° 04'.84 N      003° 40'.97 E      (20) 52° 04'.73 N      003° 33'.81 E

- (d) A traffic lane for eastbound traffic is established between the separation zone in paragraph (b) above and a line connecting the following geographical positions:

(29) 51° 54'.59 N      003° 26'.92 E      (30) 51° 57'.10 N      003° 40'.05 E  
(31) 51° 57'.21 N      003° 41'.98 E

*Note:* The inside of the area in the separation zone to the north of the Eurochannel, bounded by a line connection geographical positions (32), (33), (34) and (35) above, is designated as an anchorage area.

#### 4 Inshore traffic zone

The area between the landward boundary of the Maas West Inner traffic separation scheme and the coast, which lies between a line connecting positions (29) 51° 54'.59 N 003° 26'.92 E, (59) 51° 51'.73 N 003° 24'.96 E and (60) 51° 43'.73 N 003° 42'.25 E and a line connecting geographical positions (29) above, (30) 51° 57'.10 N 003° 40'.05 E and (56) 51° 58'.27 N 004° 00'.62 E is designated as an inshore traffic zone.

#### 5 Maas Centre precautionary area

- (a) A precautionary area is established off the entrance to the Rotterdam Waterway. The area is bounded by a line connecting geographical positions: (58) North Mole Head Light, (57) South Mole Head Light, thence along the southern sea wall to geographical position (56) 51° 58'.27 N 004° 00'.62 E, thence to geographical positions (31), (19), (11), (7) and (58) North Mole head Light.
- (b) The focal point of the precautionary area is located at the following geographical position: (79) 52° 01'.68 N 03° 53'.11 E.

*Note:* An area to be avoided “At Maas Centre” is established around position (79) above. It consists of a circle of 0.6 mile radius.  
(See also Caution 1 and the description of the area to be avoided in part D I/5.6)

#### 6 Maas Junction precautionary area

A precautionary area is established at the junction between the Maas West Inner and Maas West Outer traffic separation schemes. The precautionary area is bounded by a line connecting the following geographical positions:

(20), (29), (50), (36) and (20) above.

#### 7 Maas West Outer traffic separation scheme

- (a) A separation zone to the north of the Eurochannel is outward bounded by a line connecting the following geographical positions:

(38) 52° 01'.40 N	003° 09'.19 E	(39) 52° 01'.99 N	003° 23'.17 E
(40) 51° 59'.42 N	003° 21'.43 E	(41) 51° 58'.46 N	003° 09'.83 E

and inward bounded by a line connecting the following geographical positions:

(42) 51° 59'.68 N	003° 21'.06 E	(43) 52° 01'.59 N	003° 22'.35 E
(44) 52° 01'.37 N	003° 16'.88 E	(45) 51° 59'.37 N	003° 17'.33 E

- (b) A separation zone to the south of the Eurochannel is outward bounded by a line connecting the following geographical positions:

(46) 51° 58'.71 N      003° 20'.95 E      (47) 51° 57'.81 N      003° 09'.99 E  
(48) 51° 55'.47 N      003° 10'.51 E      (49) 51° 56'.71 N      003° 19'.59 E

and inward bounded by a line connecting the following geographical positions:

(52) 51° 56'.96 N      003° 19'.25 E      (53) 51° 58'.36 N      003° 20'.19 E  
(54) 51° 58'.06 N      003° 16'.64 E      (55) 51° 56'.60 N      003° 16'.54 E

- (c) A traffic lane for westbound traffic is established between the separation zone in paragraph (a) above and a line connecting the following geographical positions:

(36) 52° 04'.61 N      003° 24'.96 E      (37) 52° 04'.37 N      003° 08'.52 E

- (d) A traffic lane for eastbound traffic is established between the separation zone in paragraph (b) above and a line connecting the following geographical positions:

(50) 51° 52'.66 N      003° 16'.84 E      (51) 51° 51'.62 N      003° 11'.37 E

*Note:* The inside of the area in the separation zone to the north of the Eurochannel, bounded by a line connecting geographical positions (42), (43), (44) and (45) above, and the inside of the area in the separation zone to the south of the Eurochannel, bounded by a line connecting geographical positions (52), (53), (54) and (55) above, are designated as anchorage areas.

## **8 North Hinder South traffic separation scheme**

- (a) A separation zone is bounded by a line connecting the following geographical positions:

(69) 51° 31'.07 N      002° 07'.90 E      (70) 51° 29'.84 N      002° 10'.62 E  
(71) 51° 47'.88 N      002° 35'.27 E      (72) 51° 48'.53 N      002° 34'.04 E

- (b) A traffic lane for north-eastbound traffic is established between the separation zone in paragraph (a) above and a line connecting the following geographical positions:

(73) 51° 26'.97 N      002° 16'.95 E      (74) 51° 36'.20 N      002° 27'.25 E  
(75) 51° 45'.42 N      002° 39'.92 E

- (c) A traffic lane for south-westbound traffic is established between the separation zone in paragraph (a) above and a line connecting the following geographical positions:

(76) 51° 33'.66 N      002° 02'.17 E      (77) 51° 51'.35 N      002° 28'.70 E

The delineations of North Hinder North traffic separation scheme and North Hinder Junction precautionary area remain the same.

The geographical positions for the description of the scheme are revised for WGS-84 chart Datum.

## 9 North Hinder North traffic separation scheme

- (a) A separation zone is bounded by a line connecting the following geographical positions:

(61) 52° 07'.53 N      003° 02'.64 E      (62) 52° 09'.78 N      003° 05'.84 E  
(63) 52° 11'.29 N      003° 03'.03 E      (64) 52° 09'.03 N      002° 59'.83 E

- (b) A traffic lane for south-westbound traffic is established between the separation zone in paragraph (a) above and a line connecting the following geographical positions:

(65) 52° 13'.26 N      002° 59'.34 E      (66) 52° 10'.99 N      002° 56'.14 E

- (c) A traffic lane for north-eastbound traffic is established between the separation zone in paragraph (a) above and a line connecting the following geographical positions:

(67) 52° 05'.54 N      003° 06'.31 E      (68) 52° 07'.81 N      003° 09'.51 E

around North Hinder buoy. All ships should keep the circular area to be avoided on their port side unless the density of traffic, the pilotage (helicopter operations) or the weather conditions warrant otherwise.

## 10 North Hinder Junction precautionary area

- (a) A precautionary area is established off North Hinder. The area is bounded by a line connecting the following geographical positions:

(75) 51° 45'.42 N      002° 39'.92 E      (51) 51° 51'.62 N      003° 11'.37 E  
(37) 52° 04'.37 N      003° 08'.52 E      (66) 52° 10'.99 N      002° 56'.14 E  
(77) 51° 51'.35 N      002° 28'.70 E      and (75) above.

- (b) The focal point of the precautionary area is located at the following geographical position:

(78) 52° 00'.09 N      002° 51'.09 E

This position coincides with the location of North Hinder buoy.

A circular area to be avoided with a diameter of one mile is established around position (78). (See also caution 5 and the description of the area to be avoided in Part D I/5.6.)

*Note:*

### Cautions

Amend as follows: (amended parts are underlined)

- 1 (In the “Maas Centre” precautionary area, near the area to be avoided)  
Ships should proceed with caution in the area where the traffic lanes merge. Any ship which is not compelled to adhere to the deep-water route should, if practicable, not enter

the circular area to be avoided “At Maas Centre”. All ships should keep this circular area on their port side unless the available water depth, the density of traffic, the pilotage or the weather conditions warrant otherwise.

- 2 (Maas Junction precautionary area between Maas West Outer traffic separation scheme and Maas West Inner traffic separation scheme). Mariners are warned that in this precautionary area ships on routes to and from TSS “Off Texel”, the river Scheldt and Europoort are merging or crossing.
- 3 (no change)
- 4 (no change)
- 5 (In the “North Hinder Junction” precautionary area, near the area to be avoided.) Ships should proceed with caution in this area where traffic lanes merge. Ships should, where practicable, not enter the area to be avoided “At North Hinder Junction Point” around North Hinder buoy. All ships should keep the circular area to be avoided on their port side unless the density of traffic, the pilotage (helicopter operations) or the weather conditions warrant otherwise.

## **AMENDMENTS TO THE EXISTING TRAFFIC SEPARATION SCHEME “IN THE SOUND”**

(Reference charts: Danish chart No.131 (INT 1331) (14th edition February 2006).  
Swedish chart No.922, 5th edition January 2007.

*Note:* These charts are based on World Geodetic System 1984 Datum (WGS-84)).

### **Description of the traffic separation scheme**

- (a) A separation line connects the following geographical positions:

(1)	56° 07'.30 N	012° 31'.46 E	(3)	55° 58'.88 N	012° 41'.23 E
(2)	56° 03'.27 N	012° 39'.01 E			
- (b) A traffic lane for northbound traffic is established between the separation line and a separation line connecting the following geographic positions:

(4)	56° 08'.03 N	012° 32'.69 E	(6)	56° 03'.35 N	012° 39'.97 E
(5)	56° 06'.39 N	012° 34'.74 E	(7)	55° 59'.08 N	012° 42'.37 E
- (c) A traffic lane for southbound traffic is established between the separation line and a separation line connecting the following geographical positions:

(8)	56° 06'.58 N	012° 30'.22 E	(10)	56° 03'.10 N	012° 38'.21 E
(9)	56° 05'.50 N	012° 33'.22 E	(11)	56° 01'.66 N	012° 37'.79 E

(d) In the southern part of this traffic lane the southbound traffic is divided into two lanes by a separation zone, by a line connecting the following geographical positions:

(12)	56° 00'.80 N	012° 38'.20 E	(14)	56° 00'.80 N	012° 39'.35 E
(13)	56° 01'.66 N	012° 38'.82 E			

(e) A traffic lane eastern most for southbound traffic is established between the separation line and a separation line connecting the following geographic positions:

(15)	56° 00'.80 N	012° 39'.35 E	(17)	55° 58'.82 N	012° 39'.98 E
(16)	55° 59'.98 N	012° 39'.87 E			

### **Inshore traffic zones**

#### *Western inshore traffic zone*

The area between the western landward boundary of the traffic separation scheme and the Danish coast and between a line drawn in the direction 224° from position (8) to position (20) and a line drawn in the direction of 257° from position (11) to position (21) is designated as an inshore traffic zone.

(8)	56° 06'.58 N	012° 30'.22 E
(20)	56° 05'.64 N	012° 28'.64 E
(11)	56° 01'.66 N	012° 37'.79 E
(21)	56° 01'.47 N	012° 36'.37 E

#### *Eastern inshore traffic zone*

The area between the eastern landward boundary of the traffic separation scheme and the Swedish coast and between a line drawn in a direction 049° from position (4) to position (18) and a line drawn in a direction of 060° from position (6) to position (19) is designated as an inshore traffic zone.

(4)	56° 08'.03 N	012° 32'.69 E
(18)	56° 08'.72 N	012° 34'.09 E
(6)	56° 03'.35 N	012° 39'.97 E
(19)	56° 03'.66 N	012° 40'.82 E

#### **Note:**

#### *Cross-channel traffic*

All precautions, including if necessary a reduction of speed, should be taken in the area between Helsingborg and Helsingør, which is widely used by local cross-channel ferry traffic.

## AMENDMENTS TO THE EXISTING TRAFFIC SEPARATION SCHEME “IN THE APPROACHES TO CHEDABUCTO BAY”

(Reference charts: Canadian Hydrographic Service 4013 (2002 edition; 4307, 2002 edition; 4335, 1998 edition.)

*Note:* These charts are based on North American 1983 Geodetic Datum, which is equivalent to WGS-84).

### Description of the traffic separation scheme

The traffic separation scheme “In the approaches to Chedabucto Bay” consists of three parts:

#### *Part I*

(a) A separation zone is bounded by a line connecting the following geographical positions:

- |                                |                                |
|--------------------------------|--------------------------------|
| (1) 45° 24'.00 N 060° 36'.70 W | (3) 45° 23'.70 N 060° 28'.20 W |
| (2) 45° 24'.20 N 060° 27'.17 W | (4) 45° 23'.82 N 060° 36'.48 W |

(b) A traffic lane for westbound traffic is established between the separation zone and a line connecting the following geographical positions:

- |                                |                                |
|--------------------------------|--------------------------------|
| (5) 45° 26'.00 N 060° 23'.20 W | (6) 45° 25'.43 N 060° 41'.70 W |
|--------------------------------|--------------------------------|

(c) A traffic lane for eastbound traffic is established between the separation zone and a line connecting the following geographical positions:

- |                                |                                 |
|--------------------------------|---------------------------------|
| (7) 45° 22'.30 N 060° 34'.50 W | (8) 45° 22'.15 N, 060° 31'.60 W |
|--------------------------------|---------------------------------|

#### *Part II*

(a) A separation zone is bounded by a line connecting the following geographical positions:

- |                                 |                                 |
|---------------------------------|---------------------------------|
| (9) 45° 22'.57 N 060° 40'.00 W  | (11) 45° 19'.30 N 060° 37'.80 W |
| (10) 45° 19'.88 N 060° 36'.50 W | (12) 45° 22'.68 N 060° 42'.17 W |

(b) A traffic lane for north-westbound traffic is established between the separation zone and a line connecting the following geographical positions:

- |                                 |                                 |
|---------------------------------|---------------------------------|
| (13) 45° 21'.35 N 060° 33'.30 W | (14) 45° 22'.30 N 060° 34'.50 W |
|---------------------------------|---------------------------------|

(c) A traffic lane for southbound traffic is established between the separation zone and a line connecting the following geographical positions:

- |                                 |                                 |
|---------------------------------|---------------------------------|
| (15) 45° 22'.90 N 060° 46'.50 W | (17) 45° 14'.47 N 060° 48'.38 W |
| (16) 45° 21'.28 N 060° 44'.40 W |                                 |

*Part III*

- (a) A separation zone is bounded by a line connecting the following geographical positions:

(18)	45° 24'.00 N	060° 41'.70 W	(22)	45° 28'.45 N	061° 10'.33 W
(19)	45° 23'.82 N	060° 41'.50 W	(23)	45° 24'.92 N	061° 06'.07 W
(20)	45° 23'.82 N	061° 05'.00 W	(24)	45° 24'.00 N	061° 02'.65 W
(21)	45° 28'.36 N	061° 10'.46 W			

- (b) A traffic lane for west inbound traffic is established between the separation line and a line connecting the following geographical positions:

(25)	45° 25'.43 N	060° 41'.70 W	(27)	45° 25'.63 N	061° 06'.29 W
(26)	45° 24'.77 N	061° 03'.26 W	(28)	45° 28'.70 N	061° 09'.94 W

- (c) A traffic lane for east outbound traffic is established between the separation line and a line connecting the following geographical positions:

(29)	45° 22'.90 N	060° 46'.50 W	(31)	45° 28'.12 N	061° 10'.83 W
(30)	45° 22'.89 N	061° 04'.52 W			

**AMENDMENTS TO THE EXISTING TRAFFIC SEPARATION SCHEME “IN THE STRAIT OF DOVER AND ADJACENT WATERS”**

*Note:* See “Recommendation on navigation through the English Channel and the Dover Strait” in part F and the mandatory ship reporting system “The Dover Strait/Pas de Calais” in part G, section I.

(Reference Chart: British Admiralty 2449, 2450, 2451 June 2007.

*Note:* These charts are based on World Geodetic System 1984 Datum (WGS-84)).

**Description of the traffic separation scheme**

- (a) A separation zone is bounded by the following geographical positions:

(1)	51° 25'.31 N	002° 04'.03 E
(2)	51° 26'.77 N	002° 01'.48 E
(3)	51° 31'.07 N	002° 07'.90 E
(4)	51° 29'.84 N	002° 10'.62 E

- (b) A separation line connects the following geographical positions:

(5)	51° 26'.97 N	002° 16'.95 E
(6)	51° 22'.83 N	002° 12'.29 E

(c) A separation zone is bounded by lines connecting the following geographical positions:

(7)	51° 22'.03 N	001° 58'.39 E
(8)	51° 22'.49 N	001° 57'.61 E
(9)	51° 16'.53 N	001° 52'.29 E

(d) A precautionary area with recommended directions of traffic flow is established connecting geographical positions (1), (2), (8) and (7) above.

(e) A separation line connects the following geographical positions:

(10)	51° 16'.53 N	001° 52'.29 E
(11)	51° 06'.13 N	001° 38'.10 E

(f) A separation zone is bounded by lines connecting the following geographical positions:

(12)	51° 05'.77 N	001° 38'.65 E
(13)	51° 06'.49 N	001° 37'.55 E
(14)	50° 57'.59 N	001° 23'.00 E
(15)	50° 51'.14 N	001° 17'.20 E
(16)	50° 33'.37 N	000° 36'.50 E
(17)	50° 26'.91 N	000° 01'.09 W
(18)	50° 22'.12 N	000° 00'.91 E
(19)	50° 32'.71 N	000° 57'.73 E
(20)	50° 42'.87 N	001° 18'.30 E
(21)	50° 56'.87 N	001° 24'.03 E

(g) A traffic lane for south-westbound traffic is established between the separation zones/lines described in paragraphs (a), (c), (e) and (f) above and the following separation line/zone:

a separation line connection the following geographical positions:

(22)	51° 33'.66 N	002° 02'.17 E
(23)	51° 27'.35 N	001° 52'.76 E
(24)	51° 14'.13 N	001° 43'.99 E
(25)	51° 06'.93 N	001° 30'.90 E
(26)	50° 52'.29 N	001° 02'.65 E

a separation zone bounded by lines connecting the following geographical positions:

(27)	50° 52'.47 N	001° 02'.45 E
(28)	50° 39'.37 N	000° 32'.50 E
(29)	50° 34'.64 N	000° 04'.29 W
(30)	50° 32'.71 N	000° 03'.49 W
(31)	50° 38'.91 N	000° 32'.70 E
(32)	50° 52'.09 N	001° 02'.85 E

- (h) A traffic lane for north-eastbound traffic is established between the separation zones/lines described in paragraphs (a), (c), (e) and (f) above and the following separation line/zone:

a separation zone is bounded by lines connecting the following geographical positions:

(33)	50° 16'.34 N	000° 03'.31 E
(34)	50° 14'.49 N	000° 04'.11 E
(35)	50° 26'.37 N	001° 00'.20 E
(36)	50° 39'.29 N	001° 22'.63 E
(37)	50° 39'.69 N	001° 22'.20 E
(38)	50° 26'.94 N	000° 59'.90 E

a separation line connects the following geographical positions:

(39)	50° 39'.49 N	001° 22'.40 E
(40)	50° 44'.54 N	001° 26'.90 E
(41)	50° 53'.64 N	001° 30'.70 E
(42)	51° 04'.34 N	001° 45'.89 E

a separation zone is bounded by lines connecting the following geographical positions:

(43)	51° 04'.34 N	001° 45'.89 E
(44)	51° 06'.44 N	001° 48'.89 E
(45)	51° 11'.23 N	002° 04'.09 E
(46)	51° 09'.84 N	002° 03'.12 E

an uncharted line representing the junction of the scheme with the adjacent scheme "At West Hinder" and joining the following geographical positions:

(47)	51° 11'.23 N	002° 04'.09 E
(6)	51° 22'.83 N	002° 12'.29 E

A separation zone is established within this lane as described in (i) below.

- (i) A separation zone is bounded by the lines connecting the following geographical positions:

(48)	51° 18'.43 N	002° 04'.69 E
(49)	51° 16'.03 N	002° 04'.19 E
(50)	51° 13'.71 N	002° 00'.99 E
(51)	51° 09'.35 N	001° 47'.10 E
(52)	51° 09'.75 N	001° 45'.61 E
(53)	51° 12'.35 N	001° 51'.03 E
(54)	51° 15'.05 N	001° 54'.40 E

- (j) A deep-water route forming part of the north-eastbound traffic lane between the separation zone described in (i) above and the separation zone/line described in paragraphs (c) and (e) above has been established between a line connecting the following geographical positions:

- (i) 51° 09'.75 N      001° 45'.61 E
- (ii) 51° 10'.26 N      001° 43'.74 E

and

- (iii) 51° 22'.03 N      001° 58'.39 E
- (iv) 51° 18'.43 N      002° 04'.69 E

**Note:**

An area to be avoided around the Foxtrot 3 station (51° 24'.15 N; 002° 00'.38 E) is described in part D, section I.

An uncharted line representing the junction of the scheme with the adjacent scheme “In the Approaches to Hook of Holland and At North Hinder” and joining the following geographical positions:

- (5) 51° 26'.97 N      002° 16'.95 E
- (4) 51° 29'.84 N      002° 10'.62 E
- (3) 51° 31'.07 N      002° 07'.90 E
- (22) 51° 33'.66 N      002° 02'.17 E

**Inshore traffic zones**

The area between the outer boundary of the traffic separation scheme and the English coast which lies between a line:

- (v) 51° 08'.42 N      001° 22'.24 E
- (vi) 51° 02'.53 N      001° 22'.24 E

and a line between:

- (vii) 50° 34'.64 N      000° 04'.29 W
- (viii) 50° 49'.60 N      000° 16'.86 W

is designated as an inshore traffic zone.

The area between the outer boundary of the traffic separation scheme and the French coast which lies between:

- (ix) 50° 53'.64 N      001° 30'.70 E
- (x) 50° 52'.10 N      001° 34'.96 E

and a line between:

- (xi) 50° 30'.09 N      001° 06'.66 E
- (xii) 50° 30'.09 N      001° 34'.59 E

is designated as an inshore traffic zone.

### **Warnings**

- 1 A deep-water route forming part of the north-eastbound traffic lane is established to the north-west of the Sandettie Bank, and masters considering the use of this route should take into account the proximity of traffic using the south-westbound lane.
- 2 The main traffic lane for north-eastbound traffic lies to the south-east of the Sandettie Bank and shall be followed by all such ships as can safely navigate therein having regard to their draught.
- 3 In the area of the deep-water route east of the separation line, ships are recommended to avoid overtaking.

### ***Note:***

It is important that ships passing through the Dover Strait listen to the appropriate VHF broadcasts by the Channel Navigation Information Service which provide information concerning traffic, navigation and visibility conditions in the Strait.

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## ANNEX 2

## ROUTEING MEASURES OTHER THAN TRAFFIC SEPARATION SCHEMES

**RECOMMENDED TRACKS, WHICH ARE MANDATORY AS A CONDITION OF PORT ENTRY, THROUGH THE GALAPAGOS AREA TO BE AVOIDED TO ENTER THE PARTICULARLY SENSITIVE SEA AREA (PSSA)**

(Reference charts: I.O.A. 2, latest edition 1992 and I.O.A. 20 (second edition, 1992)

*Note:* These charts are based on World Geodetic System 1984 Datum (WGS-84)).

All ships and barges carrying cargoes of oil or potentially hazardous material entering and departing any port in the Galapagos and all ship 500 gross tonnage and above entering and departing any port in the Galapagos shall use the following routes:

1. On the eastern side of the Area to be Avoided, westbound ships shall follow the route established by a recommended track between the following two geographical positions:

(1) 01° 05'.14 S	087° 54'.73 W
(2) 01° 05'.14 S	088° 41'.32 W

2. On the eastern side of the Area to be Avoided, eastbound ships shall follow the route established by a recommended track between the following two geographical positions:

(3) 01° 10'.16 S	087° 57'.71 W
(4) 01° 10'.16 S	088° 44'.26 W

3. On the western side of the Area to be Avoided, westbound ships shall follow the route established by a recommended track between the following two geographical positions:

(5) 01° 21'.08 S	092° 43'.73 W
(6) 01° 14'.47 S	092° 06'.35 W

4. On the western side of the Area to be Avoided, eastbound ships shall follow the route established by a recommended track between the following two geographical positions:

(7) 01° 26'.19 S	092° 43'.83 W
(8) 01° 18'.94 S	092° 02'.81 W

**ESTABLISHMENT OF AN AREA TO BE AVOIDED AROUND OIL RIGS OFF THE BRAZILIAN COAST – CAMPOS BASIN**

(Reference chart: Brazilian Hydrographic office, 23000 (First edition, October 2003.)

*Note:* This chart is based on World Geodetic System 1984 Datum (WGS-84)).

**Description of the area to be avoided**

In order to avoid risks of collision, pollution and environmental damage in the Area to be Avoided with a high concentration of oil rigs, production systems and FPSOs, all ships, except

those involved in support activities to oil and gas production and prospecting, should avoid the following area bounded by a line connecting the following geographical positions:

(1)	23° 02'.57 S	041° 03'.27 W
(2)	22° 41'.90 S	040° 56'.40 W
(3)	22° 07'.40 S	040° 22'.57 W
(4)	21° 35'.50 S	039° 34'.50 W
(5)	21° 54'.57 S	039° 13'.43 W
(6)	22° 57'.23 S	040° 14'.30 W

**Notes:**

- 1 Oil and gas production rigs display night signalling lights, comprising a fixed red light at the top and a white rhythmical light, indicative letter “U” (. . -) in Morse code – Mo(U)B. Non-authorized navigation inside safety zones around oil rigs is prohibited.
- 2 Transit of supply vessels between the harbour of the town of Macaé and the area of Oil Drilling and Production Rigs (area to be avoided): caution is advised in navigation when transiting the area of considerable volume of maritime traffic that crosses routes.

**EXPANSION AND AMENDMENTS TO THE AREAS TO BE AVOIDED “IN THE REGION OF THE NORTH-WEST HAWAIIAN ISLANDS” (THE PAPAĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT, PARTICULARLY SENSITIVE SEA AREA (PSSA))**

(Reference chart: United States 19016 (2007 edition; 19019, 2007 edition; 19022, 2007 edition.)

**Note:** These charts are based on World Geodetic System 1984 Datum (WGS-84) and astronomic datum<sup>1</sup>).

**Description of the Areas to be Avoided**

Given the magnitude of obstacles that make navigation in these areas hazardous, and in order to increase maritime safety, protection of the environment, preservation of cultural resources and areas of cultural importance significant to Native Hawaiians, and facilitate the ability to respond to developing maritime emergencies in the Papahānaumokuākea Marine National Monument, all ships solely in transit should avoid the following areas:

- 1 Those areas contained within a circle of radius of 50 nautical miles centred upon the following geographical positions:

(1)	28° 25'.18 N	178° 19'.75 W (Kure Atoll)
(2)	28° 14'.20 N	177° 22'.10 W (Midway Atoll)
(3)	27° 50'.62 N	175° 50'.53 W (Pearl and Hermes Atoll)
(4)	26° 03'.82 N	173° 58'.00 W (Lisianski Island)
(5)	25° 46'.18 N	171° 43'.95 W (Laysan Island)
(6)	25° 25'.45 N	170° 35'.32 W (Maro Reef)

<sup>1</sup> The charts are available in paper, raster, or ENC form and may be found at <http://chartmaker.ncd.noaa.gov/NSD/coastpilot.htm>. Mariners are also urged to consult the latest edition of the United States Coast Pilot No.7, available at <http://chartmaker.ncd.noaa.gov/nsd/coastpilot7.htm> and in particular Chapter 14 which pertains to Hawaii, available at [http://chartmaker.ncd.noaa.gov/nsd/Cp7/CP7-39ed-Ch14\\_7.pdf](http://chartmaker.ncd.noaa.gov/nsd/Cp7/CP7-39ed-Ch14_7.pdf).

- (7) 25° 19'.50 N                      170° 00'.88 W (Maro Reef and Raita Bank)
- (8) 25° 00'.00 N                      167° 59'.92 W (Gardner Pinnacles)
- (9) 23° 45'.52 N                      166° 14'.62 W (French Frigate Shoals)
- (10) 23° 34'.60 N                      164° 42'.02 W (Necker Island)
- (11) 23° 03'.38 N                      161° 55'.32 W (Nihoa Island)

2 The areas contained between the following geographical positions:

		Begin Co-ordinates		End Co-ordinates	
		Latitude	Longitude	Latitude	Longitude
<b>Area 1</b>	Lisianski Island (N) ---> Laysan Island	26° 53'.22 N	173° 49'.64 W	26° 35'.58 N	171° 35'.60 W
	Lisianski Island (S) ---> Laysan Island	25° 14'.42 N	174° 06'.36 W	24° 57'.63 N	171° 57'.07 W
<b>Area 2</b>	Gardner Pinnacles (N) --> French Frigate Shoals	25° 38'.90 N	167° 25'.31 W	24° 24'.80 N	165° 40'.89 W
	Gardner Pinnacles (S) --> French Frigate Shoals	24° 14'.27 N	168° 22'.13 W	23° 05'.84 N	166° 47'.81 W

### AMENDMENTS TO THE EXISTING DEEP-WATER ROUTE LEADING TO EUROPOORT

The Deep-water route leading to Europoort is not amended.  
The geographical positions for the description of the route are revised for WGS-84 chart datum.

(Reference chart: Netherlands 1630 (INT 1416) (Edition 1, dated February 2005.)

*Note:* This chart is based on World Geodetic System 1984 Datum (WGS-84)).

#### Description of the deep-water route

The deep-water route is bounded by a line connecting the following geographical positions:

- (i) 52° 00'.68 N    003° 56'.94 E
- (ii) 52° 00'.99 N    003° 57'.12 E
- (iii) 52° 02'.03 N    003° 54'.24 E
- (iv) 51° 58'.46 N    003° 09'.83 E                      (position (41) of the Maas West Outer traffic separation scheme)
- (v) 51° 59'.88 N    003° 09'.51 E
- (vi) 52° 00'.74 N    003° 02'.08 E
- (vii) 52° 00'.56 N    002° 59'.28 E
- (viii) 51° 57'.13 N    002° 54'.43 E
- (ix) 51° 57'.61 N    002° 59'.91 E
- (x) 51° 56'.96 N    003° 00'.06 E
- (xi) 52° 01'.26 N    003° 51'.70 E
- (xii) 52° 01'.23 N    003° 54'.22 E
- (xiii) 52° 00'.91 N    003° 56'.07 E                      and position (i)

*Note:*

*Least water depths*

Limiting depths in the route should be ascertained by reference to the latest large-scale navigational charts of the area, noting that the charted depth are checked and maintained by frequent surveys and dredging.

## **AMENDMENT TO THE AREA TO BE AVOIDED “AT MASS CENTRE” AND “AT NORTH HINDER JUNCTION POINT”**

### **AT MAAS CENTRE**

(Reference chart: Netherlands 1630 (INT 1416) (Edition 1, dated February 2005)

*Note:* This chart is based on World Geodetic System 1984 Datum (WGS-84).

Amend the geographical position of the area to be avoided “AT MAAS CENTRE” as follows:

52° 01'.68 N            003° 53'.11 E

### **AT NORTH HINDER JUNCTION POINT**

(Reference chart: Netherlands 1630 (INT.1416) (Edition 1, dated February 2005)

*Note:* This chart is based on World Geodetic System 1984 Datum (WGS-84).

The description of the area to be avoided “At North Hinder Junction point is not amended, but the geographical position of the centre of the circular area to be avoided is revised for chart datum WGS-84 as follows:

52° 00'.09 N            002° 51'.09 E

## **RECOMMENDATIONS ON NAVIGATION TO THE POLISH PORTS THROUGH THE GULF OF GDAŃSK TRAFFIC AREA**

### **1 Use of ships routeing system**

The Traffic Separation Schemes for the approaches to the ports of Gdańsk and Gdynia in the Gulf of Gdańsk have been adopted by IMO and rule 10 of the International Regulations for Preventing Collisions at Sea, 1972, as amended, applies. Subject to any factors that may adversely affect safe navigation, ships proceeding from the Baltic Sea to the ports of Gdańsk and Gdynia and vice versa are strongly recommended to use the traffic separation schemes in the Gulf of Gdańsk.

1.1 Ships proceeding from the Baltic Sea to Gdańsk Northern Port (Port Północny) and vice versa are strongly recommended to use the traffic separation scheme “EAST”.

1.2 Ships proceeding from the Baltic Sea to Gdańsk New Port (Nowy Port) and vice versa are strongly recommended to use the northeast part and southwest part of the traffic separation scheme “WEST”.

1.3 Ships proceeding from the Baltic Sea to Gdynia and vice versa are strongly recommended to use the northeast part and west part of the traffic separation scheme “WEST”.

1.4 Ships approaching and navigating within the precautionary area should navigate with caution and should follow the recommended direction of traffic flow.

1.5 Ships engaged on international voyages proceeding between Gdańsk New Port (Nowy Port) (port, road) and Gdynia (port, road) ~~should~~ [shall] proceed along the 163° – 343° recommended track established between GD and NP buoys or transit along the proper one-way traffic lanes between GD, GN and NP buoys.

Ships engaged on international voyages proceeding from Gdańsk Northern Port (Port Północny) to Gdynia (port, road) or to Gdańsk New Port (Nowy Port) (port, road) ~~should~~ [shall], after leaving pilot near the buoy PP, proceed into north direction. After passing anchorage No.5 for tankers they ~~should~~ [shall] alter course to 314° and steer into direction of the buoy GN established in the Precautionary Area, alter course at this buoy and proceed further along the proper one-way traffic lane.

Ships engaged on international voyages proceeding from Gdańsk New Port (Nowy Port) (port, road) or from Gdynia (port, road) to Gdańsk Northern Port (Port Północny) (port, road) ~~should~~ [shall] proceed along the proper one-way traffic lane to the Precautionary Area established around buoy GN, thence they ~~should~~ [shall] alter course to 134° and proceed along recommended track into direction of buoy ZS. After passing anchorage No.5 for tankers they ~~should~~ [shall] alter course to south and proceed into direction of the pilot embarkation position marked by the buoy PP.

## **2 Crossing traffic**

There is a crossing traffic consisting mainly of recreational sailing vessels, fishing vessels and high-speed crafts between Polish harbours situated in the Gulf of Gdańsk. This increases the risk of collision in this area. Mariners are reminded that when risk of collision is deemed to exist the rules of the 1972 Collision Regulations fully apply and in particular the rules of part B, sections II and III, of which rules 15 and 19(d) are of specific relevance in the crossing situation.

## **3 Fishing and recreational sailing activities**

Mariners should be aware that concentrations of recreational crafts may be encountered in the summer in the Gulf of Gdańsk between Gdynia, Sopot, Hel and Gdańsk and should navigate with caution. Fishing vessels are operating mainly from harbours situated in the Pucka Bay to fishing grounds in the Gulf of Gdańsk. Fishing vessels are reminded of the requirements of rule 10(i), and sailing vessels and all other vessels of less than 20 metres in length of the requirements of rule 10(j) of the 1972 Collision Regulations.

## **4 Pilotage**

Under national laws pilotage is mandatory in the roads and ports.

## **5 Defects affecting safety**

Ships having defects affecting operational safety should take appropriate measures to overcome these defects before entering the Gulf of Gdańsk.

## **6 Ship reporting system and navigation information service**

A mandatory ship reporting system (GDANREP) is established in the SW part of the Gulf of Gdańsk in the territorial and internal waters of Poland.

All ships navigating in the GDANREP ship reporting area are required to make use of the mandatory ship reporting system and information broadcasts made and operated by the Polish Maritime Administration through VTS “Gulf of Gdańsk”, and to keep watch on VHF as appropriate.

Vessel Traffic Service “Gulf of Gdańsk” monitors compliance with the ships routing system and mandatory ship reporting system adopted by the Organization.

## **7 Areas temporarily closed to navigation and fishing**

Mariners are reminded that there the extensive areas temporarily closed to navigation and fishing are established in the waters of Gulf of Gdańsk.

### **ESTABLISHMENT OF A NEW TWO-WAY ROUTE OFF THE SOUTHWEST COAST OF ICELAND**

(Reference chart: Icelandic Chart No.31 (INT 1105) Dyrhólaey – Snæfellsnes (new edition June 2004.)

*Note:* The chart is based on World Geodetic System 1984 Datum (WGS-84)).

#### **Description of the two-way route in the Hullid passage**

The routing measures consist of a two-way route (the inner route) west of the Reykjanes Peninsula, located between the proposed eastern and western Areas to be Avoided, established by lines connecting the following geographical positions:

(18)	64° 01'.70 N	022° 58'.30 W
(19)	63° 49'.20 N	022° 47'.30 W
(20)	63° 48'.00 N	022° 48'.40 W
(21)	63° 47'.00 N	022° 47'.60 W
(22)	63° 45'.80 N	022° 44'.40 W
(23)	63° 40'.90 N	022° 40'.20 W
(26)	63° 39'.70 N	022° 46'.70 W
(27)	63° 59'.10 N	023° 03'.50 W

### **ESTABLISHMENT OF AREAS TO BE AVOIDED OFF THE SOUTHWEST COAST OF ICELAND**

(Reference chart: Icelandic Chart No.31 (INT 1105) Dyrhólaey – Snæfellsnes (new edition June 2004.)

*Note:* The chart is based on World Geodetic System 1984 Datum (WGS-84)).

## Description of areas to be avoided

### (a) Off the south and southwest coast – Eastern Area

The area to be avoided is bounded by lines connecting the following geographical positions:

(25)	Dyrhólaey Light	63° 24'.13 N	019° 07'.83 W
(24)	S of Surtsey Island	63° 10'.00 N	020° 38'.00 W
(23)	S of Reykjanes Point	63° 40'.90 N	022° 40'.20 W
(22)	SW of Reykjanes Point	63° 45'.80 N	022° 44'.40 W
(21)	Húllid Passage SE part	63° 47'.00 N	022° 47'.60 W
(20)	Húllid Passage NE part	63° 48'.00 N	022° 48'.40 W
(19)	SW of Litla Sandvik	63° 49'.20 N	022° 47'.30 W
(18)	Off Sandgerdi	64° 01'.70 N	022° 58'.30 W
(8)	NW of Gardskagi Point	64° 07'.20 N	022° 47'.50 W
(9)	N of Gardskagi Point	64° 07'.20 N	022° 41'.40 W
(17)	Gardskagi Light	64° 04'.92 N	022° 41'.40 W

### (b) West of Reykjanes Peninsula – Western Area

The area to be avoided is bounded by lines connecting the following geographical positions:

(26)	SE corner	63° 39'.70 N	022° 46'.70 W
(27)	N corner	63° 59'.10 N	023° 03'.50 W
(28)	W corner	63° 42'.00 N	023° 37'.00 W
(29)	SW corner	63° 32'.00 N	023° 29'.50 W

### (c) Faxaflói Bay – Sydra-Hraun Bank Area

The area to be avoided is bounded by lines connecting the following geographical positions:

(1)	SW corner	64° 10'.30 N	022° 29'.00 W
(2)	SE corner	64° 10'.30 N	022° 20'.00 W
(3)	E corner	64° 12'.00 N	022° 17'.50 W
(4)	NE corner	64° 14'.20 N	022° 20'.00 W
(5)	NW corner	64° 14'.20 N	022° 29'.00 W
(6)	W corner	64° 12'.00 N	022° 31'.00 W

#### Notes:

1. The routing measures are applicable to all SOLAS ships of 500 gross tonnage or more. The eastern area may, however, be transited by ships as specified in paragraph 2 below.
2. Ships calling at ports located within the Eastern ATBA may navigate inside the area. Ships of less than 5,000 gross tonnage engaged on voyages between Icelandic ports and not carrying dangerous or noxious cargoes in bulk or in cargo tanks may transit the area south of latitude 63° 45' N.

## **RECOMMENDATION ON NAVIGATION THROUGH THE ENTRANCES TO THE BALTIC SEA**

### **Route – T**

1. When passing through the entrances to the Baltic Sea, ships should note that the maximum obtainable depth in most parts of route T is 17 metres. However, in some areas the maximum obtainable depth is to some extent permanently reduced due to sand migration.
2. The effect of sea level variations caused by a combination of tide and metrological conditions together with unknown obstructions on the sea bottom and sand migration could decrease the depth with as much as 2 metres. Bearing these facts in mind, ships should:
  - .1 not pass the area unless they have a draught, with which it is safe to navigate, taking into account draught increasing effects such as squat effect and the effect of a course alteration, etc.;
  - .2 exhibit the signal prescribed in rule 28 of the International Regulations for Preventing Collisions at Sea, 1972, as amended, in certain areas in the Storebælt (Great Belt), Hatter Rev, Vengeancegrund and in the narrow route east of Langeland, when constrained by their draught.
3. Ships with a draught of 11 metres or more should, furthermore:
  - .1 use for the passage the pilotage services locally established by the coastal States; and
  - .2 be aware that anchoring may be necessary owing to the weather and sea conditions in relation to the size and draught of the ship and the sea level and, in this respect, take special account of the information available from the pilot and from radio navigation information services in the area.
4. Ships irrespective of size or draught, carrying a shipment of irradiated nuclear fuel, plutonium and high level radioactive wastes on board ships (INF-Code materials) should:
  - .1 use for the passage the pilotage services locally established by the coastal States.
5. Shipowners and masters should consider the full potential of new and improved navigation equipment in the SOLAS chapter V, including Electronic Chart Display and Information System (ECDIS) when navigating these narrow waters.

### **THE SOUND**

1. Loaded oil tankers with a draught of 7 metres or more, loaded chemical tankers and gas carriers, irrespective of size, and ships carrying a shipment of irradiated nuclear fuel, plutonium and high level radioactive wastes (INF-Code materials), when navigating the Sound between a line connecting Svinbådan Lighthouse and Hornbæk Harbour and a line connecting Skanör Harbour and Aflandshage (the southernmost point of Amager Island) should:

- .1 use the pilotage services established by the Governments of Denmark and Sweden;
- .2 be aware that anchoring may be necessary owing to the weather and sea conditions in relation to the size and draught of the ship and the sea level and, in this respect, take special account of the information available from the pilot and from radio navigation information services in the area.

2. Shipowners and masters should consider the full potential of new and improved navigation equipment in the SOLAS chapter V, including Electronic Chart Display and Information System (ECDIS) when navigating these narrow waters.

### **ESTABLISHMENT OF NEW MANDATORY NO ANCHORING AREAS ON SHARKS BANK AND LONG SHOAL**

(Reference charts: Chart No.502 (edition 2, January 2006.)

*Note:* This chart is based on World Geodetic System 1984 Datum (WGS-84)).

#### **Description of the mandatory No Anchoring Areas**

##### **Shark Bank**

To avoid destruction of this unique, fragile and pristine coral reef ecosystem from anchoring, all ships shall avoid anchoring in the area bounded by a line connecting the following geographical positions which is designated as a mandatory no anchoring area:

(1)	13° 05' 18".6 N	059° 38' 06".1 W
(2)	13° 05' 23".6 N	059° 37' 56".7 W
(3)	13° 05' 08".6 N	059° 37' 57".1 W
(4)	13° 05' 16".0 N	059° 37' 49".3 W

##### **Long Shoal**

To avoid destruction of this unique, fragile and pristine coral reef ecosystem from anchoring, ships 25 ft and greater shall avoid anchoring in the area bounded by a line connecting the following geographical positions which is designated as a mandatory no anchoring area:

(1)	13° 07' 25".4 N	059° 38' 40".2 W
(2)	13° 07' 22".9 N	059° 38' 27".4 W
(3)	13° 07' 00".8 N	059° 38' 43".3 W
(4)	13° 07' 00".7 N	059° 38' 30".5 W

### **ESTABLISHMENT OF NEW RECOMMENDED SEASONAL AREA TO BE AVOIDED IN ROSEWAY BASIN, SOUTH OF NOVA SCOTIA**

(Reference chart: Canadian Hydrographic Service Chart 4003 (2003 edition)

*Note:* This chart is based on North American 1983 Geodetic Datum, which is equivalent to WGS-84 Datum).

### **Description of the area to be avoided**

In order to significantly reduce the risk of ship strikes of the highly endangered North Atlantic right whale, it is recommended that ships of 300 gross tonnage and upwards solely in transit **during the period of 1 June through 31 December** should avoid the area bounded by lines connecting the following geographical positions:

(1)	43° 16'.00 N	064° 55'.00 W
(2)	42° 47'.00 N	064° 59'.00 W
(3)	42° 39'.00 N	065° 31'.00 W
(4)	42° 52'.00 N	066° 05'.00 W

### **AMENDMENTS TO THE EXISTING DEEP-WATER ROUTE FORMING PART OF THE NORTH-EASTBOUND TRAFFIC LANE OF THE STRAIT OF DOVER AND ADJACENT WATERS TRAFFIC SEPARATION SCHEME**

(Reference chart: British Admiralty 2449 (edition 9, June 2007).

*Note:* This chart is based on the World Geodetic System 1984 Datum (WGS-84)).

### **Description of the deep-water route**

The deep-water route forming part of the north-eastbound traffic lane between the separation zone described in paragraph (i) and the separation zone/line described in paragraphs (c) and (e) of the separation scheme “In the Strait of Dover and adjacent waters” has been established between a line connecting the following geographical positions:

(i)	51° 09'.75 N	001° 45'.61 E
(ii)	51° 10'.26 N	001° 43'.74 E
(iii)	51° 22'.03 N	001° 58'.39 E
(iv)	51° 18'.43 N	002° 04'.69 E

*Notes:*

### **WARNING**

The main traffic lane for north-eastbound traffic lies to the south-east of the Sandettie Bank and should be followed by all such ships as can safely navigate therein having regard to their draught.

### **AMENDMENTS TO THE EXISTING AREA TO BE AVOIDED AROUND THE FOXTROT 3 STATION “IN THE STRAIT OF DOVER AND ADJACENT WATERS” TRAFFIC SEPARATION SCHEME**

(Reference chart: British Admiralty 2449 (edition 9, June 2007).

*Note:* This chart is based on the World Geodetic System 1984 Datum (WGS-84)).

### **Description of the area to be avoided, by all ships**

The Foxtrot 3 station is in an area of heavy crossing traffic with some 11,000 crossing movements per annum and has suffered damage on several occasions. Therefore, with the aim of

preventing further damage, an “area to be avoided” has been established centred on the Foxtrot 3 station.

The area to be avoided, by all ships with a radius of 500 metres, is centred on the following geographical position:

Foxtrot 3 51° 24'.15 N 002° 00'.38 E

## **AMENDMENTS TO THE RECOMMENDATIONS ON NAVIGATION THROUGH THE ENGLISH CHANNEL AND THE DOVER STRAIT**

1. Amend the existing paragraph 1.4 as follows:

1.4 “Ships leaving the traffic separation scheme “At West Hinder” and intending to proceed through the Dover Strait should, when crossing the north-eastbound traffic lane of the traffic separation scheme “In the Strait of Dover and adjacent waters” and proceeding through the precautionary area in the vicinity of the Foxtrot 3 station (51° 24'.15 N; 002° 00'.38 E), maintain a course so as to leave the Foxtrot 3 station on their port side.”

2. Amend the existing section 7 as follows:

### **7 “Mandatory and voluntary ship movement reporting schemes**

7.1 A mandatory ship movement reporting scheme (CALDOVREP) has been jointly operated by the Governments of the United Kingdom and France in the English Channel and the Dover Strait since 1 July 1999. It is compulsory for all merchant ships of 300 gross tonnage and over to participate in the scheme.

7.2 Ships of less than 300 gross tonnage should continue to make reports under the existing voluntary MAREP scheme in circumstances where they:

- are “not under command” or at anchor in the TSS or its ITZs;
- are “restricted in their ability to manoeuvre”; or
- have defective navigational aids.

The MAREP arrangements outside the coverage area remain unchanged.”

3. Amend the existing paragraph 8.1 as follows:

8.1 “Ships having defects affecting operational safety, in addition to reporting such defects through the CALDOVREP scheme or by participating in the MAREP scheme, should take appropriate measures to overcome these defects before entering the Dover Strait.”

4. Amend the existing paragraph 9.1 as follows:

9.1 “All ships navigating in the English Channel and the Dover Strait are recommended to make use of the information broadcasts made by the information services operated by the Governments of the United Kingdom and France, and to keep watch on VHF as appropriate, as set out in the CALDOVREP and MAREP schemes.”

## AMENDMENTS TO THE DEEP-WATER ROUTE “NORTH-EAST OF GEDSER”

(Reference charts: Danish chart No.197 (3<sup>rd</sup> edition, April 2006).

German chart No.163 (INT 1351) (12<sup>th</sup> edition 2006).

*Note:* These charts are based on World Geodetic System 1984 Datum (WGS-84)).

### Description of the deep-water route

A deep-water route with a minimum depth of water below mean sea level of 16.5 metres is bounded by a line connecting the following geographical positions:

(1) 54° 27'.10 N	012° 10'.50 E	(6) 54° 46'.06 N	012° 44'.03 E
(2) 54° 27'.73 N	012° 11'.30 E	(7) 54° 35'.36 N	012° 16'.93 E
(3) 54° 31'.30 N	012° 12'.80 E	(8) 54° 31'.00 N	012° 15'.20 E
(4) 54° 36'.46 N	012° 15'.83 E	(9) 54° 27'.40 N	012° 13'.10 E
(5) 54° 46'.86 N	012° 43'.23 E	(10) 54° 26'.57 N	012° 11'.90 E

### *Note:*

Ships, other than ships which must use the deep-water route due to their draught, are recommended to use the areas to the north and south of this route, in such manner that eastbound ships proceed on the south side of the deep-water route and westbound ships on the north side.

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## ANNEX 3

## DRAFT RESOLUTION MSC.[.....](83)

(adopted on (...) October 2007)

**ADOPTION OF THE NEW SHIP REPORTING SYSTEM FOR  
“THE PAPAĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT,  
PARTICULARLY SENSITIVE SEA AREA (PSSA)”**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO regulation V/11 of the International Convention for the Safety of Life at Sea, 1974 (SOLAS Convention), in relation to the adoption of ship reporting systems by the Organization,

RECALLING FURTHER resolution A.858(20) resolving that the function of adopting ship reporting systems shall be performed by the Committee on behalf of the Organization,

TAKING INTO ACCOUNT the guidelines and criteria for ship reporting systems adopted by resolution MSC.43(64), as amended by resolutions MSC.111(73) and MSC.189(79),

HAVING CONSIDERED the recommendations of the Sub-Committee on Safety of Navigation at its fifty-third session,

1. ADOPTS, in accordance with SOLAS regulation V/11, the new ship reporting system for “The Papahānaumokuākea Marine National Monument, Particularly Sensitive Sea Area (PSSA)”;
2. DECIDES that the ship reporting system for “The Papahānaumokuākea Marine National Monument, Particularly Sensitive Sea Area (PSSA), (CORAL SHIPREP)”, will enter into force at [0000] hours UTC on [... 2008]; and
3. REQUESTS the Secretary-General to bring this resolution and its Annex to the attention of the Member Governments and SOLAS Contracting Governments to the 1974 SOLAS Convention.

ANNEX

**SHIP REPORTING SYSTEM FOR THE PAPAĀNAUMOKUĀKEA MARINE  
NATIONAL MONUMENT, PSSA “CORAL SHIPREP”**

**A Ship reporting system is established in the Papahānaumokuākea Marine National  
Monument, Particularly Sensitive Sea Area (PSSA)**

**1 Categories of ships**

**1.1 Ships required to participate in the system**

1.1.1 As a condition of entry to a United States port or place, all ships 300 gross tonnage or greater, and all ships in the event of a developing emergency, and that are in transit through the reporting area are required to participate in CORAL SHIPREP, except for sovereign immune vessels which are exempt under SOLAS regulation V/1.

**1.2 Ships recommended to participate in the system**

1.2.1 All ships 300 gross tonnage or greater, fishing vessels, and all ships in the event of a developing emergency, and that are in transit through the reporting area are recommended to participate in CORAL SHIPREP.

**2 Geographical coverage of the system and the number and edition of the reference chart used for the delineation of the system**

2.1 The geographical coverage of CORAL SHIPREP is depicted by the geographical positions in the appendix.

2.2 The reference charts that include the ship reporting area are United States 19016, 2007 edition, 19019, 2007 edition, and 19022, 2007 edition. These charts are based on World Geodetic System 1984 Datum (WGS-84) and astronomic datum.

**3 Format, content of reports, times and geographical positions for submitting reports, authorities to whom reports should<sup>1</sup> be sent, available services**

**3.1 *Format***

3.1.1 The ship report should be drafted in accordance with the format shown in paragraph 2 of the appendix to resolution A.851(20).

**3.2 *Content***

3.2.1 The report for a ship entering the system should contain the following information:

System identifier: CORAL SHIPREP

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<sup>1</sup> For those ships that are required to report, the use of the word “should” in this annex is to be read as “shall.”

A	Name of the ship, call sign, or IMO identification number
B	Date and Time (UTC)
C or D	Position
E or F	Course and speed of ship
I	Destination
L	Intended route through the reporting area
O	Vessel draft
P	General categories of hazardous cargo on board
Q or R	Defects or deficiencies, if relevant
T	Contact information of ship's agent or owner
U	Ship size and type (e.g., length, tonnage, and type)
W	Total number of persons on board

3.2.2 The report for a ship leaving the system should contain the following information:

System identifier: CORAL SHIPREP

A	Name of the ship, call sign, or IMO identification number
B	Date and Time (UTC)
C or D	Position

3.2.3 A ship may elect, for reasons of commercial confidentiality, to communicate that section of the report which provides information on general categories of hazardous cargo by non-verbal means prior to entering the reporting area.

### 3.3 *Geographical positions for submitting reports*

3.3.1 Each ship should submit a full report in accordance with paragraph 3.2.1 as soon as it crosses the boundary to enter the ship reporting system.

3.3.2 Each ship should submit a report in accordance with paragraph 3.2.2 as soon as it crosses the boundary to leave the ship reporting system.

3.3.3 Further reports should be made whenever there is a change in navigation status or circumstances, particularly in relation to item Q of the reporting format.

### 3.4 *Authority to whom reports should be sent*

3.4.1 The shore-based Authority is the United States Coast Guard's Communication Area Master Station Pacific (CAMSPAC). For ships 300 gross tonnage and greater, an e-mail address to be used for reporting through INMARSAT-C will be provided in advance of implementation

of this system through Notices to Mariners. In the event of a developing emergency, ships are urged to call the United States Coast Guard 14th District. Vessels unable to report in through INMARSAT-C should report to [nwhi.notification@noaa.gov](mailto:nwhi.notification@noaa.gov).

#### **4 Information to be provided to ship and procedures to be followed**

4.1 The CORAL SHIPREP shore-based Authority will provide critical alerts and information to shipping about specific and urgent situations and other information that may affect safety of navigation within the IMO-adopted Areas To Be Avoided and the Papahānaumokuākea Marine National Monument<sup>2</sup>, as well as remind ships about the existence of the IMO-adopted Areas To Be Avoided [and necessity of navigating with extreme caution through the Particularly Sensitive Sea Area].<sup>3</sup>

4.2 Navigational warnings and emergency broadcasts will be issued as NAVTEX messages or specifically directed at GMDSS equipped vessels using INMARSAT-C.

#### **5 Radio Communication required for the system and frequencies on which reports should be transmitted**

5.1 This system will be based on INMARSAT-C and an e-mail and ships equipped with such capabilities should report through INMARSAT-C.

5.2 In the event of a developing emergency, a ship is urged to call the United States Coast Guard 14th District at 001-808-541-2500 to request a response and assistance.

5.3 For vessels unable to communicate through INMARSAT-C, reports should be made prior to, during, or after transiting through the reporting area to [nwhi.notification@noaa.gov](mailto:nwhi.notification@noaa.gov).

5.4 Commercially sensitive information will be kept confidential and should be transmitted prior to entry into the reporting system. Such information may be sent to [nwhi.notification@noaa.gov](mailto:nwhi.notification@noaa.gov).

5.5 The language used for reports to the system should be English, employing the IMO *Standard Marine Communications Phrases*, where necessary.

5.6 Communications associated with CORAL SHIPREP are, in accordance with SOLAS regulation V/11, free of charge to affected vessels.

#### **6 Relevant rules and regulations in force in the area of the system**

##### *6.1 International actions*

6.1.1 The United States has taken appropriate action to implement the international conventions to which it is party.

6.1.2 In recognition of the fragile environment in this area and potential hazards to navigation, the IMO has adopted several Areas To Be Avoided to protect the Northwestern Hawaiian Islands

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<sup>2</sup> The words “Particularly Sensitive Sea Area” should be added here after final action is taken by MEPC.

<sup>3</sup> This language will have to be updated after final action is taken by MEPC.

[and has designated the area as a Particularly Sensitive Sea Areas where mariners should navigate with extreme caution].<sup>3</sup>

6.1.3 The United States applies its laws in accordance with international law, which includes navigational rights under customary international law as reflected in the United Nations Convention on the Law of the Sea. No restrictions shall apply to or be enforced against foreign flagged vessels unless in accordance with such law.

## 6.2 *Domestic Actions*

6.2.1 The United States has taken considerable action to ensure maritime safety and to protect the fragile environment and cultural resources and areas of cultural importance significant to Native Hawaiians in the NWHI. This area has been the subject of a variety of protective measures, including designation of this area as the Northwestern Hawaiian Islands Marine National Monument (subsequently renamed the Papahānaumokuākea Marine National Monument) in recognition of its fragility and to protect the many species of coral, fish, birds, marine mammals, and other flora and fauna, as well as to protect historical and archaeological heritage resources, including cultural resources and areas of significant importance to Native Hawaiians.

6.2.2 Regulations in this area, *inter alia*, prohibit taking, possessing, injuring, or disturbing any resource; altering the seabed; anchoring or deserting a vessel; and possessing fishing gear unless stowed. All of these activities may be allowed by permit; however, permits cannot be issued for such things as releasing an introduced species. Activities such as discharging or depositing any material into the Monument, or discharging or depositing any material outside the Monument that subsequently injures Monument resources, except discharges incidental to vessel use, such as approved marine sanitation device effluent, cooling water, and engine exhaust are also prohibited. The United States strictly regulates entry into the Monument and, for those vessels subject to United States jurisdiction, requires the mandatory use of vessel monitoring systems on those vessels that may be allowed into the Monument for specific purposes.

## 7 **Shore-based facilities to support operation of the system**

7.1 The shore-based Authority is the United States Coast Guard's Communications Area Master Station Pacific (CAMSPAC). CAMSPAC provides maritime distress communication services and safety and weather broadcasts to commercial and recreational mariners, and also provides secure voice communications and record message delivery services for all United States Coast Guard cutters, aircraft, and shore units. Additionally, CAMSPAC is one of the United States Coast Guard's Pacific Area's (PACAREA) Continuity of Operations sites. CAMSPAC delivers contingency and interagency communication services for Incident Commanders by deploying a state-of-the-art transportable communications center. CAMSPAC is the Operational Commander of the United States Coast Guard's Pacific Area Communications System, consisting of communication stations in Honolulu Hawaii, Kodiak Alaska, and remote facilities in Guam. There are approximately 150 people assigned to CAMSPAC.

7.2 CORAL SHIPREP will use INMARSAT-C communications equipment. A computer server handles and sorts incoming reports and sends the return message. Incoming reports are

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<sup>3</sup> This language will have to be updated after final action is taken by MEPC.

text messages that arrive via either internet e-mail or telex. When the ship reporting system server receives a report, the server sends the ship a specific return message. Area co-ordinators will monitor and update the information to the server for inclusion in the outgoing message.

## **8 Alternative communication if the shore-based facilities fail**

8.1 NAVTEX Broadcast Notice to Mariners may be used to notify mariners of the temporary failure of the system and can provide mariners with basic information necessary to navigate safely through this area.

8.2 For those ships reporting through INMARSAT-C, the standard protocol now used for such systems will be used to re-route incoming and outgoing communications through an alternative address and it is expected that this will minimize the system's downtime, though a short delay may occur.

## **9 Measures to be taken if a ship does not report**

9.1.1 All means will be used to encourage and promote the full participation of the ships recommended to submit reports.

9.1.2 If reports are not submitted by those ships required to report and the ship can be positively identified, appropriate action will be taken – including interaction with the flag State – in accordance with customary international law as reflected in the 1982 United Nations Convention on the Law of the Sea.

APPENDIX

GEOGRAPHICAL CO-ORDINATES

SHIP REPORTING SYSTEM

(Reference chart: United States 19016 (2007 edition; 19019, 2007 edition; 19022, 2007 edition.)  
These charts are based on World Geodetic System 1984 Datum (WGS-84) and astronomic datum.)

1 Outer Boundary

Point	LATITUDE	LONGITUDE
1	29°25'.47 N	178°16'.97 W
2	28°43'.73 N	175°13'.84 W
3	27°00'.77 N	173°25'.78 W
4	26°44'.91 N	171°28'.07 W
5	26°24'.23 N	170°20'.59 W
6	25°56'.43 N	167°32'.10 W
7	24°50'.20 N	165°58'.69 W
8	24°05'.52 N	161°56'.86 W
9	24°05'.29 N	161°56'.62 W
10	24°04'.37 N	161°51'.53 W
11	24°03'.44 N	161°46'.45 W
12	24°02'.41 N	161°41'.39 W
13	24°01'.31 N	161°36'.35 W
14	23°59'.68 N	161°31'.55 W
15	23°57'.85 N	161°26'.85 W
16	23°55'.54 N	161°22'.31 W
17	23°52'.96 N	161°17'.92 W
18	23°50'.12 N	161°13'.72 W
19	23°46'.94 N	161°10'.08 W
20	23°43'.49 N	161°06'.47 W
21	23°39'.71 N	161°03'.09 W
22	23°35'.72 N	161°00'.14 W
23	23°31'.59 N	160°57'.46 W
24	23°27'.32 N	160°55'.23 W
25	23°22'.74 N	160°53'.71 W
26	23°18'.29 N	160°52'.17 W
27	23°13'.57 N	160°51'.04 W
28	23°08'.68 N	160°50'.46 W
29	23°03'.70 N	160°50'.17 W
30	22°58'.67 N	160°50'.35 W
31	22°53'.84 N	160°51'.04 W
32	22°49'.11 N	160°52'.20 W
33	22°44'.46 N	160°53'.56 W
34	22°40'.03 N	160°55'.52 W
35	22°35'.73 N	160°57'.68 W
36	22°31'.54 N	161°00'.25 W
37	22°27'.57 N	161°03'.23 W

38	22°23'.76 N	161°06'.64 W
39	22°20'.24 N	161°10'.23 W
40	22°17'.02 N	161°14'.13 W
41	22°14'.04 N	161°18'.34 W
42	22°11'.35 N	161°22'.80 W
43	22°09'.19 N	161°27'.45 W
44	22°07'.29 N	161°32'.11 W
45	22°05'.87 N	161°36'.94 W
46	22°04'.62 N	161°41'.89 W
47	22°03'.94 N	161°47'.09 W
48	22°03'.41 N	161°52'.36 W
49	22°03'.41 N	161°57'.51 W
50	22°03'.82 N	162°02'.83 W
51	22°04'.49 N	162°08'.04 W
52	22°05'.43 N	162°13'.12 W
53	22°05'.97 N	162°16'.41 W
54	22°06'.29 N	162°16'.85 W
55	22°34'.57 N	164°47'.27 W
56	22°47'.60 N	166°38'.23 W
57	24°03'.82 N	168°27'.91 W
58	24°25'.76 N	170°45'.39 W
59	24°46'.54 N	171°53'.03 W
60	25°07'.60 N	174°28'.71 W
61	27°05'.82 N	176°35'.51 W
62	27°27'.32 N	178°38'.66 W
63	27°28'.93 N	178°43'.56 W
64	27°30'.64 N	178°48'.40 W
65	27°32'.74 N	178°52'.96 W
66	27°35'.06 N	178°57'.30 W
67	27°37'.89 N	179°01'.49 W
68	27°40'.90 N	179°05'.60 W
69	27°44'.17 N	179°09'.41 W
70	27°47'.74 N	179°12'.85 W
71	27°51'.45 N	179°16'.00 W
72	27°55'.32 N	179°18'.82 W

73	27°59'.33 N	179°21'.13 W
74	28°03'.49 N	179°23'.15 W
75	28°07'.82 N	179°24'.76 W
76	28°12'.31 N	179°26'.18 W
77	28°16'.95 N	179°27'.05 W
78	28°21'.61 N	179°27'.63 W
79	28°26'.18 N	179°27'.77 W
80	28°30'.87 N	179°27'.48 W
81	28°35'.61 N	179°26'.95 W
82	28°40'.09 N	179°25'.75 W
83	28°44'.46 N	179°24'.31 W
84	28°48'.70 N	179°22'.50 W
85	28°52'.81 N	179°20'.43 W
86	28°56'.71 N	179°17'.77 W

87	29°00'.58 N	179°14'.92 W
88	29°04'.18 N	179°11'.69 W
89	29°07'.62 N	179°08'.20 W
90	29°10'.86 N	179°04'.37 W
91	29°13'.76 N	179°00'.21 W
92	29°16'.24 N	178°55'.78 W
93	29°18'.51 N	178°51'.26 W
94	29°20'.45 N	178°46'.50 W
95	29°22'.26 N	178°41'.67 W
96	29°23'.52 N	178°36'.64 W
97	29°24'.53 N	178°31'.54 W
98	29°25'.16 N	178°26'.31 W
99	29°25'.42 N	178°20'.92 W
100	29°25'.29 N	178°16'.70 W

## 2 Inner Boundary Around Kure Atoll, Midway Atoll, and Pearl and Hermes Atoll

Point	LATITUDE	LONGITUDE
1	27°14'.76 N	176°29'.87 W
2	27°24'.95 N	177°33'.31 W
3	27°35'.87 N	178°29'.90 W
4	27°36'.64 N	178°33'.93 W
5	27°37'.53 N	178°37'.32 W
6	27°38'.60 N	178°40'.65 W
7	27°39'.85 N	178°43'.90 W
8	27°41'.28 N	178°47'.05 W
9	27°42'.89 N	178°50'.10 W
10	27°44'.66 N	178°53'.03 W
11	27°46'.59 N	178°55'.83 W
12	27°48'.67 N	178°58'.49 W
13	27°50'.89 N	179°01'.00 W
14	27°53'.22 N	179°03'.39 W
15	27°55'.69 N	179°05'.61 W
16	27°58'.29 N	179°07'.61 W
17	28°01'.01 N	179°09'.47 W
18	28°03'.81 N	179°11'.10 W
19	28°06'.71 N	179°12'.53 W
20	28°09'.67 N	179°13'.75 W
21	28°12'.70 N	179°14'.75 W
22	28°15'.78 N	179°15'.54 W
23	28°18'.91 N	179°16'.11 W
24	28°22'.04 N	179°16'.45 W
25	28°24'.72 N	179°16'.56 W
26	28°25'.20 N	179°16'.57 W
27	28°25'.81 N	179°16'.56 W
28	28°28'.35 N	179°16'.44 W
29	28°31'.49 N	179°16'.10 W
30	28°34'.61 N	179°15'.54 W

31	28°37'.69 N	179°14'.75 W
32	28°40'.71 N	179°13'.74 W
33	28°43'.68 N	179°12'.54 W
34	28°46'.58 N	179°11'.13 W
35	28°49'.39 N	179°09'.52 W
36	28°52'.11 N	179°07'.70 W
37	28°54'.72 N	179°05'.70 W
38	28°57'.21 N	179°03'.51 W
39	28°59'.58 N	179°01'.15 W
40	29°01'.81 N	178°58'.62 W
41	29°03'.90 N	178°55'.93 W
42	29°05'.83 N	178°53'.10 W
43	29°07'.60 N	178°50'.13 W
44	29°09'.21 N	178°47'.04 W
45	29°10'.64 N	178°43'.84 W
46	29°11'.89 N	178°40'.54 W
47	29°12'.95 N	178°37'.16 W
48	29°13'.82 N	178°33'.71 W
49	29°14'.50 N	178°30'.21 W
50	29°14'.99 N	178°26'.66 W
51	29°15'.28 N	178°23'.08 W
52	29°15'.36 N	178°19'.49 W
53	29°15'.25 N	178°15'.90 W
54	29°14'.94 N	178°12'.32 W
55	29°14'.43 N	178°08'.78 W
56	29°03'.47 N	177°12'.07 W
57	29°02'.55 N	177°07'.29 W
58	28°38'.96 N	175°35'.47 W
59	28°38'.67 N	175°34'.35 W

60	28°34'.91 N	175°19'.74 W
61	28°26'.24 N	175°10'.65 W
62	28°24'.61 N	175°08'.95 W
63	28°24'.53 N	175°09'.04 W
64	28°20'.09 N	175°04'.91 W
65	28°16'.05 N	175°01'.92 W
66	28°11'.78 N	174°59'.33 W
67	28°07'.29 N	174°57'.23 W
68	28°02'.63 N	174°55'.68 W
69	27°57'.84 N	174°54'.62 W
70	27°53'.01 N	174°54'.05 W
71	27°48'.12 N	174°54'.05 W
72	27°43'.28 N	174°54'.62 W
73	27°38'.48 N	174°55'.71 W
74	27°33'.81 N	174°57'.32 W
75	27°29'.30 N	174°59'.43 W
76	27°25'.00 N	175°02'.03 W
77	27°20'.93 N	175°05'.07 W

78	27°17'.18 N	175°08'.59 W
79	27°13'.73 N	175°12'.47 W
80	27°10'.59 N	175°16'.67 W
81	27°07'.88 N	175°21'.25 W
82	27°05'.57 N	175°26'.09 W
83	27°03'.66 N	175°31'.15 W
84	27°02'.22 N	175°36'.40 W
85	27°01'.29 N	175°41'.78 W
86	27°00'.73 N	175°47'.22 W
87	27°00'.68 N	175°52'.74 W
88	27°01'.09 N	175°58'.16 W
89	27°01'.99 N	176°03'.53 W
90	27°03'.34 N	176°08'.81 W
91	27°05'.12 N	176°13'.91 W
92	27°07'.37 N	176°18'.79 W
93	27°09'.98 N	176°23'.40 W
94	27°13'.02 N	176°27'.74 W
95	27°13'.77 N	176°28'.70 W

### 3 Inner Boundary Around Lisianski Island, Laysan Island, Maro Reef, and Raita Bank

Point	LATITUDE	LONGITUDE
1	26°50'.89 N	173°30'.79 W
2	26°36'.00 N	171°37'.70 W
3	26°35'.49 N	171°33'.84 W
4	26°35'.10 N	171°30'.84 W
5	26°34'.07 N	171°27'.50 W
6	26°33'.35 N	171°25'.16 W
7	26°14'.26 N	170°23'.04 W
8	26°08'.69 N	169°48'.96 W
9	26°08'.36 N	169°49'.03 W
10	26°07'.62 N	169°45'.83 W
11	26°06'.03 N	169°40'.57 W
12	26°03'.97 N	169°35'.64 W
13	26°01'.51 N	169°30'.91 W
14	25°58'.65 N	169°26'.45 W
15	25°55'.32 N	169°22'.34 W
16	25°51'.67 N	169°18'.60 W
17	25°47'.78 N	169°15'.19 W
18	25°43'.54 N	169°12'.34 W
19	25°39'.05 N	169°09'.93 W
20	25°34'.37 N	169°08'.08 W
21	25°29'.54 N	169°06'.76 W
22	25°24'.61 N	169°05'.93 W
23	25°19'.63 N	169°05'.64 W
24	25°14'.65 N	169°05'.93 W

25	25°09'.69 N	169°06'.66 W
26	25°04'.85 N	169°08'.02 W
27	25°00'.17 N	169°09'.96 W
28	24°55'.66 N	169°12'.35 W
29	24°51'.35 N	169°15'.14 W
30	24°47'.37 N	169°18'.48 W
31	24°43'.69 N	169°22'.22 W
32	24°40'.34 N	169°26'.31 W
33	24°37'.42 N	169°30'.78 W
34	24°35'.00 N	169°35'.64 W
35	24°33'.02 N	169°40'.66 W
36	24°31'.34 N	169°45'.88 W
37	24°30'.31 N	169°51'.08 W
38	24°29'.68 N	169°56'.53 W
39	24°29'.56 N	170°01'.81 W
40	24°29'.61 N	170°04'.57 W
41	24°35'.77 N	170°44'.39 W
42	24°36'.29 N	170°47'.58 W
43	24°37'.18 N	170°50'.37 W
44	24°37'.76 N	170°52'.17 W
45	24°56'.23 N	171°50'.19 W
46	25°16'.61 N	174°24'.84 W
47	25°29'.56 N	174°38'.45 W
48	25°33'.28 N	174°42'.03 W
49	25°37'.33 N	174°45'.20 W

50	25°41'.68 N	174°47'.84 W
51	25°46'.23 N	174°50'.05 W
52	25°50'.93 N	174°51'.77 W
53	25°55'.80 N	174°52'.91 W
54	26°00'.71 N	174°53'.47 W
55	26°05'.67 N	174°53'.61 W
56	26°10'.59 N	174°53'.07 W
57	26°15'.46 N	174°52'.08 W
58	26°20'.20 N	174°50'.57 W
59	26°24'.75 N	174°48'.44 W
60	26°29'.15 N	174°45'.94 W
61	26°33'.26 N	174°42'.96 W
62	26°37'.11 N	174°39'.49 W
63	26°40'.60 N	174°35'.63 W
64	26°43'.75 N	174°31'.43 W

65	26°46'.49 N	174°26'.87 W
66	26°48'.90 N	174°22'.09 W
67	26°50'.79 N	174°17'.03 W
68	26°52'.20 N	174°11'.79 W
69	26°53'.21 N	174°06'.43 W
70	26°53'.74 N	174°00'.98 W
71	26°53'.74 N	173°55'.48 W
72	26°53'.29 N	173°50'.02 W
73	26°52'.56 N	173°44'.58 W
74	26°51'.85 N	173°39'.14 W
75	26°51'.13 N	173°33'.69 W
76	26°50'.75 N	173°30'.87 W

**4 Inner Boundary Around Gardner Pinnacles, French Frigate Shoals, and Necker Island**

Point	LATITUDE	LONGITUDE
1	25°49'.64 N	167°52'.66 W
2	25°49'.70 N	167°52'.65 W
3	25°48'.99 N	167°48'.35 W
4	25°47'.09 N	167°36'.72 W
5	25°39'.84 N	167°26'.48 W
6	25°35'.10 N	167°19'.79 W
7	25°10'.43 N	166°45'.00 W
8	24°40'.91 N	166°03'.36 W
9	24°35'.64 N	165°34'.99 W
10	24°23'.78 N	164°31'.12 W
11	24°23'.59 N	164°31'.14 W
12	24°23'.31 N	164°29'.74 W
13	24°21'.85 N	164°24'.52 W
14	24°20'.10 N	164°19'.39 W
15	24°17'.75 N	164°14'.56 W
16	24°14'.99 N	164°09'.97 W
17	24°11'.86 N	164°05'.69 W
18	24°08'.30 N	164°01'.80 W
19	24°04'.48 N	163°58'.23 W
20	24°00'.27 N	163°55'.22 W
21	23°55'.85 N	163°52'.59 W
22	23°51'.17 N	163°50'.56 W
23	23°46'.33 N	163°48'.98 W
24	23°41'.37 N	163°47'.99 W
25	23°36'.34 N	163°47'.56 W
26	23°31'.27 N	163°47'.60 W
27	23°26'.27 N	163°48'.28 W
28	23°21'.34 N	163°49'.50 W

29	23°16'.53 N	163°51'.14 W
30	23°11'.96 N	163°53'.47 W
31	23°07'.54 N	163°56'.15 W
32	23°03'.46 N	163°59'.38 W
33	22°59'.65 N	164°03'.01 W
34	22°56'.27 N	164°07'.10 W
35	22°53'.22 N	164°11'.49 W
36	22°50'.60 N	164°16'.18 W
37	22°48'.48 N	164°21'.16 W
38	22°46'.73 N	164°26'.28 W
39	22°45'.49 N	164°31'.60 W
40	22°44'.83 N	164°37'.03 W
41	22°44'.65 N	164°42'.51 W
42	22°44'.92 N	164°47'.99 W
43	22°45'.11 N	164°49'.52 W
44	22°45'.39 N	164°51'.48 W
45	22°45'.17 N	164°51'.53 W
46	22°50'.26 N	165°34'.99 W
47	22°55'.50 N	166°19'.63 W
48	22°55'.93 N	166°23'.32 W
49	22°57'.41 N	166°36'.00 W
50	23°03'.75 N	166°45'.00 W
51	23°05'.48 N	166°47'.45 W
52	24°12'.70 N	168°22'.86 W
53	24°12'.88 N	168°22'.78 W
54	24°16'.05 N	168°27'.28 W
55	24°19'.15 N	168°31'.66 W

56	24°22'.27 N	168°35'.95 W
57	24°25'.71 N	168°39'.94 W
58	24°29'.51 N	168°43'.55 W
59	24°33'.67 N	168°46'.63 W
60	24°38'.06 N	168°49'.29 W
61	24°42'.68 N	168°51'.46 W
62	24°47'.45 N	168°53'.12 W
63	24°52'.34 N	168°54'.28 W
64	24°57'.32 N	168°54'.82 W
65	25°02'.32 N	168°54'.95 W
66	25°07'.30 N	168°54'.43 W
67	25°12'.19 N	168°53'.32 W
68	25°16'.99 N	168°51'.76 W

69	25°21'.57 N	168°49'.60 W
70	25°25'.94 N	168°46'.93 W
71	25°30'.09 N	168°43'.86 W
72	25°33'.89 N	168°40'.42 W
73	25°37'.37 N	168°36'.52 W
74	25°40'.49 N	168°32'.24 W
75	25°43'.24 N	168°27'.68 W
76	25°45'.57 N	168°22'.82 W
77	25°47'.43 N	168°17'.76 W
78	25°48'.79 N	168°12'.47 W
79	25°49'.72 N	168°07'.09 W
80	25°50'.11 N	168°01'.62 W
81	25°50'.18 N	168°00'.09 W

## 5 Inner Boundary Around Nihoa Island

Point	LATITUDE	LONGITUDE
1	23°52'.82 N	161°44'.54 W
2	23°52'.10 N	161°41'.20 W
3	23°51'.18 N	161°37'.92 W
4	23°50'.08 N	161°34'.71 W
5	23°48'.79 N	161°31'.58 W
6	23°47'.33 N	161°28'.55 W
7	23°45'.69 N	161°25'.62 W
8	23°43'.88 N	161°22'.81 W
9	23°41'.92 N	161°20'.13 W
10	23°39'.80 N	161°17'.60 W
11	23°37'.54 N	161°15'.21 W
12	23°35'.14 N	161°12'.99 W
13	23°32'.62 N	161°10'.93 W
14	23°29'.99 N	161°09'.05 W
15	23°27'.25 N	161°07'.35 W
16	23°24'.42 N	161°05'.85 W
17	23°21'.51 N	161°04'.54 W
18	23°18'.52 N	161°03'.43 W
19	23°15'.48 N	161°02'.53 W
20	23°12'.39 N	161°01'.84 W
21	23°09'.27 N	161°01'.35 W
22	23°06'.13 N	161°01'.09 W
23	23°02'.97 N	161°01'.03 W
24	22°59'.82 N	161°01'.19 W
25	22°56'.69 N	161°01'.57 W
26	22°53'.58 N	161°02'.15 W
27	22°50'.51 N	161°02'.95 W
28	22°47'.50 N	161°03'.95 W
29	22°44'.55 N	161°05'.15 W
30	22°41'.67 N	161°06'.54 W

31	22°38'.88 N	161°08'.13 W
32	22°36'.19 N	161°09'.90 W
33	22°33'.61 N	161°11'.85 W
34	22°31'.14 N	161°13'.97 W
35	22°28'.81 N	161°16'.25 W
36	22°26'.61 N	161°18'.69 W
37	22°24'.56 N	161°21'.26 W
38	22°22'.66 N	161°23'.97 W
39	22°20'.92 N	161°26'.80 W
40	22°19'.35 N	161°29'.74 W
41	22°17'.95 N	161°32'.78 W
42	22°16'.73 N	161°35'.90 W
43	22°15'.70 N	161°39'.10 W
44	22°14'.85 N	161°42'.37 W
45	22°14'.20 N	161°45'.68 W
46	22°13'.73 N	161°49'.03 W
47	22°13'.47 N	161°52'.41 W
48	22°13'.40 N	161°55'.80 W
49	22°13'.53 N	161°59'.18 W
50	22°13'.85 N	162°02'.55 W
51	22°14'.31 N	162°05'.45 W
52	22°14'.37 N	162°05'.89 W
53	22°14'.59 N	162°06'.88 W
54	22°15'.87 N	162°12'.18 W
55	22°17'.70 N	162°17'.31 W
56	22°19'.97 N	162°22'.20 W
57	22°22'.73 N	162°26'.84 W
58	22°25'.88 N	162°31'.15 W
59	22°29'.41 N	162°35'.09 W

60	22°33'.28 N	162°38'.61 W
61	22°37'.47 N	162°41'.72 W
62	22°41'.93 N	162°44'.34 W
63	22°46'.63 N	162°46'.47 W
64	22°51'.48 N	162°48'.05 W
65	22°56'.46 N	162°49'.09 W
66	23°01'.50 N	162°49'.58 W
67	23°06'.58 N	162°49'.49 W
68	23°11'.61 N	162°48'.89 W
69	23°16'.57 N	162°47'.70 W
70	23°21'.36 N	162°45'.98 W
71	23°26'.02 N	162°43'.75 W
72	23°30'.40 N	162°41'.01 W
73	23°34'.51 N	162°37'.83 W

74	23°38'.26 N	162°34'.18 W
75	23°41'.69 N	162°30'.18 W
76	23°44'.72 N	162°25'.79 W
77	23°47'.36 N	162°21'.11 W
78	23°49'.55 N	162°16'.16 W
79	23°51'.24 N	162°10'.99 W
80	23°52'.44 N	162°05'.63 W
81	23°53'.14 N	162°00'.25 W
82	23°53'.36 N	161°54'.75 W
83	23°53'.09 N	161°49'.28 W
84	23°52'.82 N	161°47'.09 W
85	23°52'.39 N	161°44'.67 W

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## ANNEX 4

**DRAFT RESOLUTION MSC.[.....](83)****(adopted on (....) October 2007)****ADOPTION OF THE NEW MANDATORY SHIP REPORTING SYSTEM “ON THE APPROACHES TO THE POLISH PORTS IN THE GULF OF GDAŃSK”**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO regulation V/11 of the International Convention for the Safety of Life at Sea, 1974 (SOLAS Convention), in relation to the adoption of ship reporting systems by the Organization,

RECALLING FURTHER resolution A.858(20) resolving that the function of adopting ship reporting systems shall be performed by the Committee on behalf of the Organization,

TAKING INTO ACCOUNT the guidelines and criteria for ship reporting systems adopted by resolution MSC.43(64), as amended by resolutions MSC.111(73) and MSC.189(79),

HAVING CONSIDERED the recommendations of the Sub-Committee on Safety of Navigation at its fifty-third session,

1. ADOPTS, in accordance with SOLAS regulation V/11, the new mandatory ship reporting system “On the approaches to the Polish ports in the Gulf of Gdańsk”;
2. DECIDES that the ship reporting system, “On the approaches to the Polish ports in the Gulf of Gdańsk (GDANREP)”, will enter into force at [0000] hours UTC on [.... 2008]; and
3. REQUESTS the Secretary-General to bring this resolution and its Annex to the attention of the Member Governments and SOLAS Contracting Governments to the 1974 SOLAS Convention.

## ANNEX

### **MANDATORY SHIP REPORTING SYSTEM ON THE APPROACHES TO THE POLISH PORTS IN THE GULF OF GDAŃSK**

A ship reporting system (GDANREP) is established in the Gulf of Gdańsk in the territorial and internal waters of Poland.

#### **1 Categories of ships required to participate in the system**

1.1 Ships of the following categories are required to participate in the system proceeding to or from Polish ports or passing through the reporting area between Polish ports in the Gulf of Gdańsk, or ships visiting the area:

- all passenger ships as defined in Chapter 1 of 1974 SOLAS, as amended;
- ships of 150 gross tonnage and above;
- all vessels engaged in towing.

#### **2 Geographical coverage of the system and the number and edition of the reference chart used for the delineation of the system**

2.1 The operational area of the mandatory ship reporting system covers the territorial and internal waters of Poland in the Gulf of Gdańsk, south of parallel 54° 45' N, between Reporting Line and Polish coastline.

2.2 The reference chart is Polish chart No.151 (INT 1291) published by the Hydrographic Office of the Polish Navy (Edition 2004). Chart datum is World Geodetic System 1984 (WGS-84) Datum.

2.3 For the purpose of this system Reporting Line means the line joining the following geographical positions:

(1)	54° 45'.000 N	018° 32'.556 E
(2)	54° 45'.000 N	019° 06'.100 E
(3)	54° 36'.200 N	019° 24'.200 E
(4)	54° 27'.490 N	019° 38'.300 E

2.4 For the purpose of this system Reporting Points are situated in the following geographical positions:

(5)	54° 35'.577 N	018° 52'.823 E
(6)	54° 35'.232 N	018° 53'.764 E
(8)	54° 36'.763 N	019° 04'.674 E
(9)	54° 36'.656 N	019° 07'.510 E
(10)	54° 31'.700 N	018° 40'.700 E
(11)	54° 28'.100 N	018° 42'.900 E
(12)	54° 25'.300 N	018° 54'.800 E

### **3 Format, content of reports, times and geographical positions for submitting reports, authority to whom reports should be sent and available services**

Reports should be made using VHF voice transmissions. A ship may elect, for reasons of commercial confidentiality, to communicate, in compliance with the relevant national regulations, that section of the report which provides information on cargo by non-verbal means prior to entering the ship reporting area.

#### *3.1 Format*

Designators to be used in the GDANREP area are derived from the format-type given in paragraph 2 of the appendix to resolution A.851(20).

System identifier: GDANREP (SP)(PR)(FR)

#### *3.2 Content*

A full report from a ship to the shore-based Authority by voice should contain the following information:

##### *3.2.1 Sailing Plan (SP)*

- |         |  |
|---------|--|
| A       | Name of the ship, call sign, IMO identification number (if applicable), MMSI number, flag  |
| C or D  | Position (expressed in latitude and longitude or bearing to and distance from a landmark)  |
| E and F | Course and speed of the ship   |
| G       | Name of last port of call  |
| I       | Destination, ETA and ETD   |
| O       | Maximum present draught  |
| P       | Cargo and, if dangerous or polluting goods present on board, quantity and UN numbers and IMO hazard classes or pollution category thereof, as appropriate  |
| Q or R  | Defects, damage, deficiencies or other limitations (vessels towing are to report length of tow and name of object in tow) or any other circumstances affecting normal navigation in accordance with the provisions of the SOLAS and MARPOL Conventions |
| T       | Contact information of ship's agent or owner   |
| W       | Total number of persons on board   |
| X       | Miscellaneous remarks, amount and nature of bunkers if over 5000 tons, navigational status   |

### 3.2.2 Position Report (PR)

- A Name of the ship, call sign, IMO identification number (or MMSI for transponder reports)
- C or D Position (expressed in latitude and longitude or bearing to and distance from a landmark)

### 3.2.3 Final Report (FR)

- A Name of the ship, call sign, IMO identification number (or MMSI for transponder reports)
- C or D Position (expressed in latitude and longitude or bearing to and distance from a landmark)

### 3.2.4 Other Reports

When an incident or accident which can affect the safety of the ship, safety of navigation or any incident giving rise to pollution, or threat of pollution, to the marine environment occurs within the ship reporting system area, the vessel(s) shall immediately report to the shore-based Authority the type, time, and location of the incident, extent of damage or pollution, and whether assistance is needed. The vessel(s) shall provide without delay any additional information related to the incident or accident as requested by the shore-based Authority, given, when appropriate, in the format-type of detailed report as given in paragraph 3 of the appendix to resolution A.851(20).

**Note:**

On receipt of a position message, the system operators will establish the relationship between the ship's position and the information supplied by the position-fixing equipment available to them. Information on course and speed will help operators to identify one ship among a group of ships.

All VHF-, telephone-, radar-, AIS- and other relevant information are recorded and the records are stored for 30 days.

### 3.3 *Times and geographical position for submitting reports*

Participating vessels are to report to the shore-based authorities the information required in paragraph 3.2 in the following schedule:

- 3.3.1 The ship shall transmit the Sailing Plan (SP) on entry into the ship reporting system area by crossing Reporting Line.
- 3.3.2 The ship shall transmit the Position Report (PR) on passing the Reporting Points.
- 3.3.3 The ship shall transmit the Final Report (FR) when finally exiting from the ship reporting system area by crossing Reporting Line.

3.3.4 In the case of incidents or accidents as described in paragraph 3.2.4 the ship(s) shall transmit the Other Report(s) immediately to the shore-based Authority. The vessel(s) shall provide any additional information related to the incident or accident as requested by the shore-based Authority.

#### 3.4 *Authority to whom reports should be sent and available services*

The shore-based Authority is Director of Maritime Office in Gdynia, Poland. The ships participating in the system shall transmit reports by radio to VTS Centre “Gulf of Gdańsk”. The authority monitor shipping within the mandatory ship reporting area of the Gulf of Gdańsk by radar and AIS. This does not relieve ship masters of their responsibility for the navigation of their ship.

### **4 Information to be provided to participating ships and procedures to be followed**

#### 4.1 *Information provided*

4.1.1 Authority provides information to shipping about specific and urgent situations which could cause conflicting traffic movements and other information concerning safety of navigation, for instance:

- information on weather conditions, ice, water level;
- information on navigational conditions including navigational warnings (status of aids to navigation, presence of other ships and, if necessary, their position, etc.);
- recommended route to be followed and status of areas temporarily closed for navigation.

4.1.2 Information is broadcasted by VTS Centre “Gulf of Gdańsk” station on the working channel or on the reserve channel, following the announcement on the working channel in the form of routine bulletins or when necessary or on request. Scheduled times of the routine weather bulletins and navigational warnings broadcasts are available in the relevant nautical publications.

4.1.3 Participating ships shall maintain listening watch on the designated VTS working channel.

4.1.4 Information broadcasts will be preceded by an announcement on VHF channel 16 on which channel it will be made. All ships navigating in the area should listen to the announced broadcast.

4.1.5 If necessary, individual information can be provided to a ship on the working channel, particularly in relation to positioning and navigational assistance or local conditions. If a ship needs to anchor due to breakdown or emergency the operator can recommend suitable anchorage in the area.

#### 4.2 *Ice routeing in winter*

During severe ice conditions the traffic separation schemes may be declared not valid. Mariners will be informed of the cancellation through Notices to Mariners and by

VHF broadcasts from the VTS Centre. Ships reporting to the Centre, will receive information on the recommended route through the ice and/or are requested to contact the regional ice-braking co-ordinator for further instructions.

#### 4.3 *Deviations*

If a ship participating in the mandatory ship reporting system fails to appear on the radar screen or fails to communicate with the authority or an emergency is reported, MRCC in the area is responsible for initiating a search for the ship in accordance with the rules laid down for the search and rescue service, including the involvement of other participating ships known to be in that particular area.

### **5 Radiocommunication required for the system, frequencies on which reports should be transmitted and information to be reported**

5.1 The radio communications equipment required for the system is that defined in the GMDSS for sea area A1.

5.2 Reports shall be made by voice on VHF radio using the primary VTS working channel.

5.3 When submitting reports the system identifier GDANREP can be omitted.

5.4 The voice call sign of the VTS Centre “Gulf of Gdańsk” is “VTS Zatoka”.

5.5 The VHF working channels of the VTS Centre “Gulf of Gdańsk” are:

Primary	channel 71	call and short report information
Reserve	channel 66	as designated by VTS
Other	channel 16	call and distress

5.6 Ships are required to maintain a continuous listening watch in the area on VTS working channel and to report and take any action required by the maritime Authorities to reduce risks.

5.7 Confidential information may be transmitted by other means, including electronically, in compliance with relevant national regulations.

5.8 The language used for communication shall be English or Polish, using the IMO Standard Marine Communications Phrases, where necessary.

### **6 Relevant rules and regulations in force in the area of the system**

#### 6.1 *Regulations for Preventing Collisions at Sea*

The International Regulations for Preventing Collisions at Sea, 1972, as amended, are applicable throughout the reporting area.

## 6.2 *Traffic Separation Schemes*

The Traffic Separation Schemes in the Gulf of Gdańsk have been adopted by IMO and rule 10 of the International Regulations for Preventing Collisions at Sea applies.

## 6.3 *Pilotage*

Pilotage is mandatory in national waters under national laws.

## 6.4 *National regulations*

Relevant local regulations issued under authority of Director of Maritime Office in Gdynia, including Port Regulations, are in force in the Polish internal waters and are promulgated in the nautical publications.

## 6.5 *Dangerous and polluting cargoes*

Ships carrying dangerous or polluting cargoes and bound to or from any port within the ship reporting area must comply with the international and national regulations. The ship reporting system does not relieve ships masters of their responsibility to give the nationally required reports and information to any other relevant authorities. Discharges of oil and ship-generated waste is monitored by the authority. Ships causing pollution within the area can be prosecuted and fined.

## **7 Shore-based facilities to support operation of the system**

7.1 VTS “Gulf of Gdańsk” is equipped with radars network, VHF communications network, VHF-DF, Automatic Identification System (AIS) facilities, hydro-meteorological sensors and information processing and retrieval system. Its functions are data collection and evaluation, provision of information, navigation assistance, and provision of maritime safety-related information to allied services.

7.2 VTS Centre maintains a continuous 24-hour watch and is manned by two operators at all times. The VTS Centre is staffed with personnel trained according to national and international recommendations.

7.3 VTS Centre shares traffic image and ship reporting data with MRCC in Gdynia and other allied services.

## **8 Information concerning the applicable procedures if the communication facilities of the shore-based Authority fail**

The system is designed with sufficient system redundancy to cope with normal equipment failure, with multiple receivers on each channel. Should a VTS Centre suffer an irretrievable breakdown and call off itself from the system until the failure is repaired, it could be relieved by one of the Harbour Master’s Traffic Control, which jointly use the VTS traffic image and reporting data and is operated by the shore-based Authority.

**9 Description of plans for providing a response to an emergency that poses a risk to the safety of life at sea or threatens the marine environment**

9.1 *SAR plan*

The national maritime SAR plan establishes the MRCC in Gdynia, which is responsible in the event of an emergency that poses risk to the safety of life at sea and for deploying SAR units operating in the reporting area.

9.2 *National contingency plan*

The Director of Maritime Office in Gdynia is the authority responsible for prevention and control of pollution produced by oil and other harmful substances in the reporting area waters. Given the extent of the damage that can be caused by oil spills, there is a National Contingency Plan to deal with them, upon which various authorities co-operate under operational co-ordination of MRCC.

**10 Measures to be taken if a ship fails to comply with the requirements of the system**

10.1 The primary objective of the system is to enhance the safe navigation and the protection of the marine environment through the exchange of information between the ship and the shore. All means will be used to encourage and promote the full participation of ships required to submit reports under SOLAS regulation V/11.

10.2 If reports are not submitted and the offending ship can be positively identified, then information will be passed to the relevant Flag State Authorities for investigation and possible prosecution in accordance with national legislation. Information will be passed also to Port State Control, while at the same time an investigation will be launched with a view to possible legal action being taken in accordance with national legislation.

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## ANNEX 5

**DRAFT RESOLUTION MSC.[.....](83)****(adopted on (...) October 2007)****ADOPTION OF THE NEW MANDATORY SHIP REPORTING SYSTEM “OFF THE SOUTHWEST COAST OF ICELAND”**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO regulation V/11 of the International Convention for the Safety of Life at Sea, 1974 (SOLAS Convention), in relation to the adoption of ship reporting systems by the Organization,

RECALLING FURTHER resolution A.858(20) resolving that the function of adopting ship reporting systems shall be performed by the Committee on behalf of the Organization,

TAKING INTO ACCOUNT the guidelines and criteria for ship reporting systems adopted by resolution MSC.43(64), as amended by resolutions MSC.111(73) and MSC.189(79),

HAVING CONSIDERED the recommendations of the Sub-Committee on Safety of Navigation at its fifty-third session,

1. ADOPTS, in accordance with SOLAS regulation V/11, the new mandatory ship reporting system “Off the southwest coast of Iceland”;
2. DECIDES that the ship reporting system, “Off the southwest coast of Iceland (TRANSREP)”, will enter into force at [0000] hours UTC on [... 2008]; and
3. REQUESTS the Secretary-General to bring this resolution and its Annex to the attention of the Member Governments and SOLAS Contracting Governments to the 1974 SOLAS Convention.

ANNEX

**MANDATORY SHIP REPORTING SYSTEM “OFF THE SOUTHWEST COAST OF ICELAND”**

**1 Categories of ships required to participate in the system**

1.1 Ships of the following categories are required to participate in the system:

- .1 ships calling at ports located within the eastern ATBA off the south and southwest coast of Iceland; and
- .2 ships of less than 5,000 gross tonnage permitted to transit the eastern ATBA south of latitude 63° 45' N when engaged on voyages between Icelandic ports and not carrying dangerous or noxious cargoes in bulk or in cargo tanks.

Pursuant to SOLAS 1974, the mandatory ship reporting system does not apply to any warship, naval auxiliary, coast guard vessel, or other vessel owned or operated by a contracting government and used, for the time being, only on government non-commercial service. However, such ships are encouraged to participate in the reporting system. The mandatory ship reporting system does not apply to fishing vessels with fishing rights within Iceland's exclusive economic zone (EEZ) and research vessels.

**2 Geographical coverage of the system and the number and edition of the reference charts used for the delineation of the system**

The reporting system covers the proposed ATBA (the eastern area) off the south and southwest coast of Iceland located entirely within Icelandic territorial waters, and is bounded by lines connecting the following geographical positions:

(25)	Dyrhólaey Light	63° 24'.13 N	019° 07'.83 W
(24)	S of Surtsey Island	63° 10'.00 N	020° 38'.00 W
(23)	S of Reykjanes Point	63° 40'.90 N	022° 40'.20 W
(22)	SW of Reykjanes Point	63° 45'.80 N	022° 44'.40 W
(21)	Húllid Passage SE part	63° 47'.00 N	022° 47'.60 W
(20)	Húllid Passage NE part	63° 48'.00 N	022° 48'.40 W
(19)	SW of Litla Sandvik	63° 49'.20 N	022° 47'.30 W
(18)	Off Sandgerdi	64° 01'.70 N	022° 58'.30 W
(8)	NW of Gardskagi Point	64° 07'.20 N	022° 47'.50 W
(9)	N of Gardskagi Point	64° 07'.20 N	022° 41'.40 W
(17)	Gardskagi Light	64° 04'.92 N	022° 41'.40 W

(The reference chart, which includes all the area of coverage for the system is Icelandic Chart No.31, INT 1105 *Dyrhólaey – Snæfellsnes*, (new edition June 2004) based on Datum WGS-84).

### **3 Format, contents of report, times and geographical positions for submitting reports, Authority to whom reports must be sent and available services**

The ship report, short title ‘‘TRANSREP’’, shall be made to the shore-based Authority, Icelandic Maritime Traffic Service (MTS), located in Reykjavík. Reports should be made using VHF voice transmissions.

#### *3.1 Format*

The ship report to the shore-based Authority shall be in accordance with the format shown in paragraph 5.5. The information requested from ships is derived from the standard reporting format and procedures set out in paragraph 2 of the appendix to resolution A.851(20).

#### *3.2 Content*

The report required from a ship to the shore-based Authority contains only information which is essential to meet the objectives of the system:

Information considered to be essential:

A	Name of ship, call sign and IMO number
C or D	Position (latitude and longitude or in relation to a landmark)
E	Course
F	Speed
G	Port of departure
H	Date, time and point of entry into system
I	Port of destination
K	Date, time and point of exit from system or departure from a harbour within the ATBA
L	Intended track within the ATBA

In the event of defect, pollution or goods lost overboard, additional information may be requested.

#### *3.3 Geographical position for submitting reports*

Ships entering the ATBA shall report to the MTS their estimated time of crossing the area limits, specified in paragraph 2, 4 hours prior to entering the area or when departing from harbours in Faxaflói Bay. Ships leaving harbours within the ATBA shall report on departure.

#### *3.4 Authority*

The shore-based Authority is the Icelandic Maritime Traffic Service (MTS), which is operated by the Icelandic Coast Guard.

### **4 Information to be provided to ships and procedures to be followed**

Detected and identified ships are monitored by AIS, which in no way releases their master from his responsibility for safe navigation.

Following the reception of a report, the Maritime Traffic Service can, on request, provide:

- information on navigational conditions; and
- information on weather conditions.

## **5 Radiocommunication required for the system, frequencies on which reports should be transmitted and information to be reported**

- .1 TRANSREP will be based on VHF voice radiocommunications.
- .2 The call to the shore-based Authority shall be made on VHF channel 70 (16).
- .3 However, a ship which cannot use VHF channel 70 (16) in order to transmit the reports should use MF DSC or INMARSAT.
- .4 The language used for communication shall be English, using the IMO Standard Marine Communication Phrases, where necessary.
- .5 Information to be reported:
  - A Name of ship, call sign and IMO number
  - C or D Position (latitude and longitude or in relation to a landmark)
  - E Course
  - F Speed
  - G Port of departure
  - H Date, time and point of entry into system
  - I Port of destination
  - K Date, time and point of exit from system or departure from a harbour within the ATBA
  - L Intended track within the ATBA

## **6 Rules and regulations in force in the areas of the system**

Relevant laws in force include domestic legislation and regulations to implement the Convention on the International Regulations for Preventing Collisions at Sea, 1972, the International Convention for the Safety of Life at Sea, 1974, and the International Convention for the Prevention of Pollution from Ships, 73/78.

## **7 Shore-based facilities to support operation of the system**

The Icelandic Maritime Traffic Service (MTS).

- The MTS is equipped with AIS covering the whole of the ATBA;
- VHF, MF, HF and INMARSAT communication equipment;
- Telephone, telefax and e-mail communication facilities, and
- Personnel operating the system: The MTS is manned by Coast Guard personnel on a 24-hour basis.

## **8 Alternative communication if the communication facilities of the shore-based Authority fail**

TRANSREP is planned with a sufficient system redundancy to cope with normal equipment failure.

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## ANNEX 6

**DRAFT RESOLUTION MSC.[.....](83)****(adopted on (...) October 2007)****ADOPTION OF AMENDMENTS TO THE EXISTING MANDATORY SHIP REPORTING SYSTEMS “OFF USHANT”, “OFF LES CASQUETS” AND “DOVER STRAIT/PAS DE CALAIS”**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO regulation V/11 of the International Convention for the Safety of Life at Sea, 1974 (SOLAS Convention), in relation to the adoption of ship reporting systems by the Organization,

RECALLING FURTHER resolution A.858(20) resolving that the function of adopting ship reporting systems shall be performed by the Committee on behalf of the Organization,

TAKING INTO ACCOUNT the guidelines and criteria for ship reporting systems adopted by resolution MSC.43(64), as amended by resolutions MSC.111(73) and MSC.189(79),

HAVING CONSIDERED the recommendations of the Sub-Committee on Safety of Navigation at its fifty-third session,

1. ADOPTS, in accordance with SOLAS regulation V/11, the amendments to the existing mandatory ship reporting systems “Off Ushant” (OUESSREP), “Off Les Casquets” (MANCHEREP) and “Dover Strait/Pas de Calais” (CALDOVREP);
2. DECIDES that the said amendments to the existing mandatory ship reporting systems, “OUESSREP”, “MANCHEREP” and “CALDOVREP”, will enter into force at [0000] hours UTC on [... 2008]; and
3. REQUESTS the Secretary-General to bring this resolution and its annex to the attention of the Member Governments and SOLAS Contracting Governments to the 1974 SOLAS Convention.

ANNEX

**AMENDMENTS TO THE EXISTING MANDATORY SHIP REPORTING SYSTEMS  
“OFF USHANT”, “OFF LES CASQUETS” AND “IN DOVER  
STRAIT/PAS DE CALAIS”**

**1 OFF USHANT**

**Amend paragraph 3.1 “Content” and paragraph 1.4 “Reporting format” of the SUMMARY to read as follows:** (see Appendix)

**2 OFF LES CASQUETS**

**Amend paragraph 3.1 “Content” to read as follows:** (see Appendix)

**3 IN DOVER STRAIT/PAS DE CALAIS**

**Amend paragraph 3.2 “Content” and section 4 “Reporting format” of the SUMMARY to read as follows:** (see Appendix)

**Appendix**

“The report required should include:

- A – Name, call sign, IMO No. (or MMSI No. for reporting by transponder);
- B – Date and time;
- C or D – Position in latitude and longitude or true bearing and distance from a clearly identified landmark;
- E – True course;
- F – Speed;
- G – Port of departure;
- I – Port of destination and expected time of arrival;
- O – Present draught;
- P – Cargo and, if dangerous goods are on board, IMO quantity and class;
- Q or R – Defect, damage and/or deficiencies affecting ship’s structure, cargo or equipment, or any other circumstance affecting normal navigation, in accordance with the SOLAS or MARPOL Conventions;
- T – Address for provision of information concerning a cargo of dangerous goods;
- W – Number of persons on board;
- X – Miscellaneous:
  - Estimated quantity of bunker fuel and characteristics for ships carrying over 5,000 tonnes bunker fuel;
  - Navigation conditions.”

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## ANNEX 7

**DRAFT RESOLUTION MSC.[...](83)****(adopted on [.. ..... 2007])****ADOPTION OF THE REVISED PERFORMANCE STANDARDS FOR  
INTEGRATED NAVIGATION SYSTEMS**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution A.886(21), by which the Assembly resolved that the function of adopting performance standards and technical specifications, as well as amendments thereto shall be performed by the Maritime Safety Committee and/or the Marine Environment Protection Committee, as appropriate, on behalf of the Organization,

RECALLING FURTHER regulation V/15 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, concerning principles relating to bridge design, design and arrangement of navigational systems and equipment and bridge procedures,

NOTING that SOLAS regulation V/18 requires type approved navigational systems conforming to appropriate performance standards,

RECOGNIZING the need to revise the performance standards for Integrated Navigation Systems to enhance the safety of navigation by providing integrated and augmented functions to avoid geographic, traffic and environmental hazards,

HAVING CONSIDERED the recommendation on the revised performance standards for Integrated Navigation Systems made by the Sub-Committee on Safety of Navigation at its fifty-third session, and the Maritime Safety Committee at its eighty-third session,

1. ADOPTS the Revised Recommendation on performance standards for Integrated Navigation Systems, set out in the Annex to the present resolution;
2. RECOMMENDS Governments ensure that Integrated Navigation Systems:
  - (a) if installed on or after [1 January 2011], conform to performance standards not inferior to those specified in the Annex to the present resolution; and
  - (b) if installed on or after 1 January 2000 but before [1 January 2011], conform to performance standards not inferior to those specified in the Annex 3 to resolution MSC.86(70).

## ANNEX

### **PERFORMANCE STANDARDS FOR INTEGRATED NAVIGATION SYSTEMS**

#### **1 Purpose of integrated navigation systems**

1.1 The purpose of integrated navigation systems (INS) is to enhance the safety of navigation by providing integrated and augmented functions to avoid geographic, traffic and environmental hazards.

1.2 By combining and integrating functions and information the INS provides “added value” for the operator to plan, monitor and/or control safety of navigation and progress of the ship.

1.3 Integrity monitoring is an intrinsic function of the INS. The INS supports safety of navigation by evaluating inputs from several sources, combining them to provide information giving timely alerts of dangerous situations and system failures and degradation of integrity of this information.

1.4 The INS presents correct, timely, and unambiguous information to the users and provides subsystems and subsequent functions within the INS and other connected equipment with this information.

1.5 The INS supports mode and situation awareness.

1.6 The INS aims to ensure that, by taking human factors into consideration; the workload is kept within the capacity of the operator in order to enhance safe and expeditious navigation and to complement the mariner's capabilities, while at the same time to compensate for their limitations.

1.7 The INS aims to be demonstrably suitable for the user and the given task in a particular context of use.

1.8 The purpose of the alert management is specified in module C.

#### **2 Scope**

##### **2.1 Navigational tasks**

2.1.1 An INS comprises navigational tasks such as “Route planning”, “Route monitoring”, “Collision avoidance”, “Navigation control data”, “Navigation status and data display” and “Alert management”, including the respective sources, data and displays which are integrated into one navigation system. These tasks are described in paragraph 7.

2.1.2 An INS is defined as such if work stations provide multifunctional displays integrating at least the following navigational tasks/functions:

- “Route monitoring”
- “Collision avoidance”

and may provide manual and/or automatic navigation control functions.

### 2.1.3 Other mandatory tasks

2.1.3.1 An alert management is a part of the INS. The scope and the requirements of the alert management are specified in module C.

2.1.3.2 The presentation of navigation control data for manual control as specified in paragraph 7.5.2 of these performance standards is part of the INS.

2.1.4 Other navigational tasks/functions may also be integrated in the INS.

## 2.2 Task stations

2.2.1 The tasks are allocated to, and operated by the operator on, a defined set of multi-functional “task stations”.

2.2.2 The scope of an INS may differ dependent on the number and kind of tasks integrated.

2.2.3 Configuration, use, operation and display of the INS is situation-dependent for:

- vessels underway, at anchor, and moored,
- manual and automatic navigation control in different waters,
- planned routine navigation and special manoeuvres.

## 3 Application of these performance standards

### 3.1 Purpose of these standards

3.1.1 The purpose of these performance standards is to support the proper and safe integration of navigational functions and information.

3.1.2 The purpose is in particular:

- to allow the installation and use of an INS instead of stand-alone navigational equipment onboard ships; and
- to promote safe procedures for the integration process;

both for

- comprehensive integration; and
- partial integration,

of navigational functions, data and equipment.

3.1.3 These standards supplement for INS functional requirements of the individual Performance Standards adopted by the Organization.

### 3.2 Application to tasks

3.2.1 These performance standards are applicable to systems where functions/equipment of at least the navigational tasks mentioned in paragraph 2.1.2 are combined.

3.2.2 If further tasks are integrated, the requirements of these standards should apply to all additional functions implemented in the INS.

### 3.3 Modules of these standards

3.3.1 These performance standards are based on a modular concept which should provide for individual configurations and for extensions, if required.

3.3.2 These standards contain four modules:

- Module A for the requirements for the integration of navigational information,
- Module B for the operational/functional requirements for INS based on a task-related structure,
- Module C for the requirements of the Alert management, and
- Module D for the Documentation requirements.

### 3.4 Application of modules

These performance standards are applicable to all INS as follows:

3.4.1 Modules A, C, D and paragraphs 6, 8 to 13 of module B are applicable for any INS.

3.4.2 Additionally, for each task integrated into the INS, the INS should fulfil both:

- the requirements of the respective tasks as specified in paragraph 7 of module B and
- the relevant modules of performance standards for stand-alone equipment as specified in Table 1.

Table 1

INS Tasks and functions (Para of this standard)	Additionally applicable modules of specific equipment standards for task integrated into the INS. The modules are specified in the appendices of these performance standards, if not specified in the equipment standards.
Collision avoidance (7.4)	Radar PS (Res. MSC.192(79)) (Modules specified in Appendix 3) Module A: "Sensor and Detection" Module B: "Operational requirements" Module C: "Design and Technical requirements"
Route planning (7.2) Route monitoring (7.3)	ECDIS PS (Res. MSC.232(82)) Module A: "Database" Module B: "Operational and functional requirements"
Track control (7.5.3 and 8.6, 8.7)	Track Control PS Res. MSC.74(69), Annex 2 (Modules specified in Appendix 4) Module B: "Operational and functional requirements"

### 3.5 Acceptance of INS as navigational equipment

3.5.1 These standards may allow for accepting INS to substitute for some carriage requirements of navigational equipment as equivalent to other means under SOLAS regulation V/19. In this case, the INS should comply with:

- these performance standards; and
- for the relevant tasks of these performance standards, with the applicable modules of the equipment performance standards as specified in Table 2.

Table 2

Allow for accepting the INS as	INS in compliance with	
	Tasks and functions (Para of this standard)	Applicable modules of specific equipment standards as specified in the Appendices of the document
Radar system	Collision avoidance (7.4)	Radar PS (Res. MSC.192(79)) (Modules specified in Appendix 3) Module A: "Sensor and Detection" Module B: "Operational requirements" Module C: "Design and Technical requirements"
ECDIS	Route planning (7.2) Route monitoring (7.3)	ECDIS PS (Res. MSC.232(82)) Module A: "Database" Module B: "Operational and functional requirements"
Heading control system (HCS)	Navigation control data (7.5) or Navigation status and data display (7.7)	Res. A.342, as amended – MSC.64(67), Annex 3
Track control system, (TCS)	Navigation control data and track control (7.5.3 and 8.6, 8.7)	Track Control Res. MSC.74(69), Annex 2 (Modules specified in Appendix 4) Module B: "Operational and functional requirements"
Presentation of AIS data	Collision avoidance (7.4) Navigation control data (7.5)	MSC.74 (69), Annex 3
Echo sounding system	Route monitoring (7.3)	MSC.74(69), Annex 4
EPFS	Navigation control data (7.5) or Navigation status and data display (7.7)	GPS Res. A.819(19), as amended, MSC.112(73) or GALILEO, Res. MSC.233(82) or GLONAS, Res. MSC.53(66), as amended MSC.113(73)
SDME	Navigation control data (7.5) or Navigation status and data display (7.7)	Res. MSC.96(72)

3.6 The application of the alert management is specified in module C.

3.7 Other relevant standards

3.7.1 The workstation design, layout and arrangement is not addressed in this performance standards, but in the MSC/Circ.982.

## **4 Definitions**

For the purpose of these standards the definitions in Appendix 1 apply.

### **Module A – Integration of Information**

## **5 Requirements for integration of navigational information**

### **5.1 Interfacing and data exchange**

5.1.1 An INS should combine, process and evaluate data from connected sensors and sources.

5.1.2 The availability, validity and integrity of data exchange within the INS and from connected sensors and sources should be monitored.

5.1.3 A failure of data exchange should not affect any independent functionality.

5.1.4 Interfacing to, from, and within the INS should comply with international standards for data exchange and interfacing as appropriate.

5.1.5 The interface(s) should comply with the interface requirements of the alert management as described in Module C of these performance standards.

### **5.2 Accuracy**

5.2.1 INS data should comply with the accuracy and resolution required by applicable performance standards of the Organization.

### **5.3 Validity, plausibility, latency**

#### **5.3.1 Validity**

5.3.1.1 Data failing validity checks should not be used by the INS for functions dependent on these data, unless for cases where the relevant performance standards specifically allow use of invalid data. There should be no side effects for functions not depending on this data.

5.3.1.2 When data used by the INS for a function becomes invalid, or unavailable, a warning should be given. When data not actually in use by the INS becomes invalid, or unavailable, a this should be indicated at least as a caution.

#### **5.3.2 Plausibility**

5.3.2.1 Received or derived data that is used or distributed by the INS should be checked for plausible magnitudes of values.

5.3.2.2 Data which has failed the plausibility checks should not be used by the INS and should not affect functions not dependent on these data.

### 5.3.3 Latency

5.3.3.1 Data latency (timeliness and repetition rate of data) within the INS should not degrade the functionality specified in the relevant performance standards.

## 5.4 Consistent common reference system (CCRS)

### 5.4.1 Consistency of data

5.4.1.1 The INS should ensure that the different types of information are distributed to the relevant parts of the system, applying a “consistent common reference system” for all types of information.

5.4.1.2 Details of the source and the method of processing of such data should be provided for further use within INS.

5.4.1.3 The CCRS should ensure that all parts of the INS are provided with the same type of data from the same source.

### 5.4.2 Consistent common reference point

5.4.2.1 The INS should use a single consistent common reference point for all spatially related information. For consistency of measured ranges and bearings, the recommended reference location should be the conning position. Alternative reference locations may be used where clearly indicated or distinctively obvious. The selection of an alternative reference point should not affect the integrity monitoring process.

### 5.4.3 Consistency of thresholds

5.4.3.1 The INS should support the consistency of thresholds for monitoring and alert functions.

5.4.3.2 The INS should ensure by automatic means that consistent thresholds are used by different parts of an INS, where practicable.

5.4.3.3 A caution may be given when thresholds entered by the bridge team differ from thresholds set in other parts of the INS.

## 5.5 Integrity monitoring

5.5.1 The integrity of data should be monitored and verified automatically before being used, or displayed.

5.5.2 The integrity of information should be verified by comparison of the data derived independently from at least two sensors and/or sources, if available.

5.5.3 The INS should provide manual or automatic means to select the most accurate method of integrity monitoring from the available sensors and/or sources.

5.5.4 A clear indication of the sensors and sources of data selected for integrity monitoring should be provided.

5.5.5 The INS should provide a warning, if integrity verification is not possible or failed.

5.5.6 Data which fails the integrity monitoring function or data where integrity monitoring is not possible should not be used for automatic control systems/functions.

## 5.6 Marking of data

5.6.1 The data should be marked with the source and the results of validity, plausibility checks and integrity monitoring to enable subsequent functions to decide whether their input data complies with their requirements or not.

## 5.7 Selection of sensors and sources

5.7.1 INS should provide two user selectable sensor/source selection modes when multiple sensors/sources are available; manual sensor/source selection mode and automatic sensor/source selection mode.

5.7.2 In manual sensor/source selection mode it should be possible to select individual sensors/sources for use in the INS. In case a more suitable sensor/source is available this should be indicated.

5.7.3 In automatic sensor/source selection mode, the most suitable sensors/sources available should be automatically selected for use in the INS. It should further be possible to manually exclude individual sensors/sources from being automatically selected.

## **Module B – Task related requirements for Integrated Navigation Systems**

### **6 Operational requirements**

6.1 The design of the INS should ease the workload of the bridge team and pilot in safely and effectively carrying out the navigation functions incorporated therein.

6.2 The integration should provide all functions, depending of the task for which the INS is used and configured, to facilitate the tasks to be performed by the bridge team and pilot in safely navigating the ship.

6.3 Each part of the INS should comply with all applicable requirements adopted by the Organization, including the requirements of these performance standards.

6.4 When functions of equipment connected to the INS provide facilities in addition to these performance standards, the operation and, as far as is reasonably practicable, the malfunction of such additional facilities should not degrade the performance of the INS below the requirements of these standards.

6.5 The integration of functions of individual equipment into the INS should not degrade the performance below the requirements specified for the individual equipment by the Organization.

6.6 Alerts should be generated and presented according to Module C.

## 7 Task and functional requirements for an INS

### 7.1 General

7.1.1 The configuration of the INS should be modular and task - oriented. The navigational tasks of an INS are classified as “Route planning”, “Route monitoring”, “Collision avoidance”, “Navigation control data”, “Status and data display” and “Alert management”. Each of these tasks comprises the respective functions and data.

7.1.2 All tasks of an INS should use the same electronic chart data and other navigational databases such as routes, maps, tide information.

7.1.3 If Electronic Navigational Charts (ENCs) are available, they should be used as common data source for INS.

7.1.4 Paragraphs 7.2 to 7.5 and 7.7 apply, if the respective task is integrated into the INS.

### 7.2 Task “Route planning”

#### 7.2.1 ECDIS performance standards related mandatory functions and data

The INS should provide the route planning functions and data as specified in Module A and B of the ECDIS performance standards.

#### 7.2.2 Procedures for voyage planning

The INS should be capable of supporting procedures for relevant parts of voyage planning, as adopted by the Organization<sup>1</sup>.

#### 7.2.3 Additional mandatory functions

The INS should provide means for

- administering the route plan (store and load, import, export, documentation, protection),
- having the route check against hazards based on the planned minimum under keel clearance as specified by the mariner,
- checking of the route plan against manoeuvring limitation, if available in the INS, based on parameters turning radius, rate of turn (ROT), wheel-over and course changing points, speed, time, ETAs,
- drafting and refining the route plan against meteorological information if available in the INS.

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<sup>1</sup> A.893(21).

### 7.3 Task “Route monitoring”

#### 7.3.1 ECDIS performance standards related mandatory functions and data

The INS should provide the route monitoring functions and data as specified in Module A and B in the ECDIS performance standards.

#### 7.3.2 Additional mandatory functions

The INS should provide capability for

- optionally overlaying radar video data on the chart to indicate navigational objects, restraints and hazards to own ship in order to allow position monitoring evaluation and object identification,
- determination of deviations between set values and actual values for measured under-keel clearance and initiating an under-keel clearance alarm, if fitted,
- the alphanumeric display the present values of Lat, Lon, heading, COG, SOG, STW, under-keel clearance, ROT (measured or derived from change of heading),
- AIS reports of AtoNs,

and if track control is integrated into the INS,

- it should be possible to include the planned track and to provide, monitor and display the track related and manoeuvring data.

#### 7.3.3 Optional Functions

For navigational purposes, the display of other route-related information on the chart display is permitted, e.g.,

- tracked radar targets and AIS targets
- AIS binary and safety-related messages
- initiation and monitoring of man-over-board and SAR manoeuvres (search and rescue and man-over-board modes)
- NAVTEX
- tidal and current data
- weather data
- ice data.

#### 7.3.4 Search and rescue mode

7.3.4.1 If available it should be possible to select on the route monitoring display a predefined display mode for a “search and rescue” situation, that can be accessed upon simple operator command.

7.3.4.2 In the search and rescue mode a superimposed graphical presentation of the datum (geographic point, line, or area used as a reference in search planning), initial most probable area for search, commence search point and search pattern chosen by the operator (expanding square search pattern, sector search pattern or parallel track search pattern) with track spacing defined by him should be presented.

### 7.3.5 Man-over-board (MOB) mode

7.3.5.1 If available it should be possible to select on the route monitoring display a predefined display mode for a “man-over-board” situation, that can be accessed upon simple operator command.

7.3.5.2 In the man-over-board mode a superimposed graphical presentation of a operator selectable man-over-board manoeuvre should be presented.

7.3.5.3 The man-over-board position should be memorised by a simple operator action.

7.3.5.4 An urgency manoeuvring procedure should be available at the display taking set and drift into consideration.

### 7.4 Task “Collision Avoidance”

#### 7.4.1 Radar performance standards related mandatory functions and data

The INS should provide the collision avoidance functions and data as specified in Module A and B of the Radar performance standards.

#### 7.4.2 Additional mandatory functions

7.4.2.1 It should be possible to present less information of ENC database objects than specified in MSC.232(82) for display base.

#### 7.4.2.2 Target association and target data integration

If target information from multiple sensors/sources (radar and AIS; 2 radar sensors) are provided on one task station:

- the possibility of target association should be provided for mutual monitoring and to avoid the presentation of more than one symbol for the same target,
- the association of AIS and radar targets should follow the requirements of resolutions MSC.192(79) and MSC.191(79),
- common criteria should be used for raising target related alerts, e.g., CPA/TCPA.

#### 7.4.2.3 Target identifier

For identical targets unique and identical target identifiers should be used for presentation on all INS displays.

Where a target from more than one source can be presented on one display the identifier should be amended as required. Amended target identifiers should be used for all INS display presentations.

#### 7.4.2.4 Combined radar signals

A display may present combined radar signals from more than one radar source. The malfunctions of this additional facility should not degrade the presentation of the radar source selected as primary. The primary and the other source(s) should be indicated as such.

#### 7.4.3 Optional functions

Optionally, the following information may be displayed:

- true scaled ship symbols and CPA/TCPA and bow crossing range (BCR) / bow crossing time (BCT) related to the real dimensions
- chart data from the common database of INS: traffic-related object layers.

### 7.5 Task “Navigation Control Data”

#### 7.5.1 General

To support the manual and automatic control of the vessels primary movement the INS navigation control task should provide the following functionality:

- display of data for the manual control of the vessels’ primary movement
- display of data for the automatic control of the vessels’ primary movement
- presentation and handling of external safety related messages.

#### 7.5.2 Presentation of navigation control data for manual control

7.5.2.1 For manual control of the vessels primary movement the INS navigation control display should allow at least to display the following information:

- under keel clearance (UKC) and UKC profile
- STW, SOG, COG
- position
- heading, ROT (measured or derived from change of heading)
- rudder angle
- propulsion data
- set and drift, wind direction and speed (true and/or relative selectable by the operator), if available
- the active mode of steering or speed control
- time and distance to wheel-over or to the next waypoint
- safety related messages e.g., AIS safety-related and binary messages, Navtex.

#### 7.5.3 Presentation of navigation control data for automatic control

7.5.3.1 For automatic control of the vessels primary movement, the INS navigation control display should allow at least and as default the display of the following information:

- all information listed for manual control
- set and actual radius or rate of turn to the next segment.

7.5.4 The navigation control data should be presented:

- in digital and where appropriate in analogue form, e.g., mimic elements, logically arranged on and around a symbolic outline of a ship,
- if applicable, together with their “set- values”,
- if applicable and on demand together with a history presentation to indicate the trend of the parameter.

7.6 Task “Alert management”

7.6.1 Scope, operational requirements and alert-related requirements are specified in Module C of these performance standards.

7.7 Task “Status and data display”

7.7.1 Mandatory data display functions

The INS should provide the following data display functions:

- presentation of mode and status information
- presentation of the ship’s static, dynamic and voyage-related AIS data
- presentation of the vessel’s available relevant measured motion data together with their “set – values”
- presentation of received safety related messages, such as AIS safety-related and binary messages, Navtex
- presentation of INS configuration
- presentation of sensor and source information.

7.7.2 Mandatory data management functions

The INS should provide the following management functions:

- setting of relevant parameters
- editing AIS own ship’s data and information to be transmitted by AIS messages.

7.7.3 Optional data display functions

The INS may provide on demand:

- tidal and current data
- weather data, ice data
- additional data of the tasks Navigation control and Route monitoring and AIS target data.

## **8 Functional requirements for INS task stations**

### 8.1 Number of task stations

8.1.1 The number of task stations on the bridge depends on the tasks integrated into the INS. It should support the simultaneous operation and presentation of at least the minimum set of tasks necessary to meet the carriage requirements of SOLAS regulation V/19.

8.1.2 To specify the required number of task stations the required backup arrangements as mandated by the carriage requirements of SOLAS regulation V/19 should be taken into account.

### 8.2 For each tasks of:

- route monitoring
- collision avoidance
- navigation control data,

a task station should be provided, if the respective task is part of the INS.

### 8.3 Additional tasks

For the tasks of:

- route planning,
- status and data display, and
- alert management,

means should be provided to operate the tasks at least at one of the task stations referred to on paragraph 8.2 or at least at another additional task station at the choice of the bridge team and pilot.

### 8.4 Remote route planning

For the task “Route planning”, a separate remote task station may be provided.

8.5 The allocation of the tasks to the task stations should be sufficiently flexible, to support all navigational situations, and should be sufficiently simple to support team working and awareness of operator roles. The selection of the task at the task station should be possible by a simple operator action.

### 8.6 Track control

If the function of track control is implemented in the INS,

8.6.1 it should be possible to display the planned route graphically on the task stations for:

- “Route monitoring”, and/or
- “Collision avoidance”.

8.6.2 the control and operation of this function by the user should be possible via the task stations for:

- “Route monitoring”, and/or
- “Collision avoidance”.

## 8.7 Automatic control functions

### 8.7.1 Task station with control

Only one, clearly indicated task station should be in control of an automatic function and only one task station should at any time be assigned to accept control commands. It should clearly be indicated to the bridge team and pilot, if not otherwise obvious, which task station is in control of these functions.

8.7.2 It should be possible to take over the control from a task station. In this case the set control values and limits should remain unchanged.

8.7.3 The information relevant for the selected control function should be available for continuous display, at least upon a single operator command, and should in be presented when an automatic control function is activated or changed.

### 8.7.4 Override

8.7.4.1 It should be allowed by a single operator action to override or by-pass any automated function, regardless of the operational mode and the failure status of the INS.

8.7.4.2 The INS should resume automatic functions only after an appropriate message and intentional operator action, considering all necessary starting conditions.

## **9 Functional requirements for displays of INS**

### 9.1 General

9.1.1 The INS should comply with the presentation requirements adopted by the Organization<sup>2</sup>.

9.1.2 All essential information should be displayed clearly and continuously. Additional navigational information may be displayed, but should not mask, obscure or degrade essential information required for the display by its primary task, as specified in this performance standards.

9.1.3 The INS should be capable of displaying data available from the sensors.

9.1.4 The information should be displayed together with the indication of its source (sensor data, result of calculation or manual input), unit of measurement and status, including mode.

9.1.5 Display and update of essential information available in the equipment as well as safety related automatic functions should not be inhibited due to operation of the equipment.

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<sup>2</sup> MSC.191(79), SN/Circ.243.

## 9.2 Default display configurations and operational modes

9.2.1 The INS should offer default display configurations for the tasks route monitoring and collision avoidance selectable at each task station to provide the bridge team and pilot with a standardized display. This configuration should be accessible by a simple operator action. The basic requirements for these display configurations are specified in Appendix 6.

9.2.2 The INS should provide operational modes for open sea, coastal, confined waters (pilotage, harbour berthing, anchorage).

### 9.2.3 User-defined display modes

It is recommended that the INS provides means to generate pre-defined or operator-defined display modes, that are optimally suitable to the navigation task.

9.2.4 When switching the task from one task station to another, the current display configuration should be maintained.

## 9.3 Mode and status awareness

9.3.1 The operational mode in use should be clearly indicated to the bridge team and pilot.

9.3.2 If the mode in use is not the normal mode, to fully perform the functions required for the INS, this should be clearly indicated.

Example of modes other than the normal mode are:

- degraded condition modes, in which the INS cannot fully perform all functions
- “service modes”
- simulation mode
- training (familiarization) mode
- other modes, in which the INS cannot be used for navigation.

9.3.3 If the system is in a degraded condition this should be sufficiently clear that the bridge team and pilot can understand the nature of the failure and its consequences.

9.3.4 The INS should indicate the operational status of automated functions and integrated components, systems and/or subsystems.

## 9.4 Information display

9.4.1 It should be possible to display the complete system configuration, the available configuration and the configuration in use.

9.4.2 The INS should provide the means to display the type of data, source and availability.

9.4.3 The INS should provide the means to display the type of function and availability.

9.4.4 The INS should provide the means to display the device identification and its availability.

9.4.5 Ships and system related parameters and settings should be displayed on demand.

## **10 Human Machine Interface**

### **10.1 General**

10.1.1 For the design and layout of human machine interface (HMI) of the INS, MSC/Circ.982 and relevant guidance on application of SOLAS regulation V/15 adopted by the Organization should be taken into account.

10.1.2 Integrated graphical and alphanumeric display and control functions should adopt a consistent human machine interface (HMI) philosophy and implementation.

10.1.3 The design and implementation of the INS should ensure that it is simple to operate by a trained user.

### **10.2 System Design**

10.2.1 The design of the system should facilitate the tasks to be performed by the bridge team and pilot in navigating the ship safely under all operational conditions.

10.2.2 The configuration of the equipment and presentation of information at workstations should permit observation or monitoring by the bridge team and pilot under all operating conditions.

10.2.3 The design of the system should avoid the potential single point failure by one person during operation, and should minimize the risk of human error.

10.2.4 The operation of the system should be designed to avoid distraction from the task of safe navigation.

### **10.3 Display**

10.3.1 Information should be presented consistently within and between different sub-systems. Standardized information presentation, symbols and coding should be used according to MSC.191(79).

### **10.4 Input**

10.4.1 The INS should be so designed that the requested manual inputs are consistent throughout the system and can be easily executed.

10.4.2 The INS should be designed that the basic functions can be easily operated.

10.4.3 Complex or error-prone interaction with the system should be avoided.

10.4.4 For manual inputs that may cause unintended results, the INS should request confirmation before acceptance, thus providing a plausibility check.

10.4.5 Checks in the dialogue and in the input handling should be provided to prevent erroneous data or control inputs.

10.4.6 Wherever possible, an “undo” function should be provided.

## **11 INS Back-up requirements and redundancies**

### **11.1 General**

11.1.1 Adequate back-up arrangements should be provided to ensure safe navigation in case of a failure within the INS.

11.1.1.1 In case of failure of one part or function of the INS, including network failures, it should be possible to operate each other individual part or function separately; at least the requirements specified for individual equipment adopted by the Organization should be met, as far as applicable.

11.1.1.2 The back-up arrangement should enable a safe take-over of the INS functions and ensure that an INS failure does not result in a critical situation.

11.1.2 The failure of a single task station should not result in the loss of a function mandated by the carriage requirements of SOLAS.

11.1.3 In case of a breakdown of one task station, at least one task station should be able to take over the tasks.

11.1.4 The failure or loss of one hardware component of the INS should not result in the loss of any one of the INS tasks:

- Route planning
- Route monitoring
- Collision avoidance
- Navigation control data
- Status and data display
- Alert management.

Where track control is an INS function, this would not require the duplication of heading control or autopilot.

11.1.5 The INS should allow that the back-up component automatically (if possible) takes over the operation of the primary component.

### **11.2 Hardware Redundancies**

#### **11.2.1 Required navigational sensor/source back-up**

For the following sensors/sources of an INS, an approved back-up should be available for the INS:

- electronic position fixing
- heading measurement
- speed measurement
- radar
- chart database.

## **12 System failures and fallback arrangement**

12.1 The INS should, after a failure, and when the back-up activation is not successful support the availability of essential information and functions through the use of appropriate fallback arrangements (see 12.7).

### 12.2 Restored operation

Normal operation, after use of a fallback arrangement, should only be restored upon confirmation by the operator.

### 12.3 Failure or change of sensor

12.3.1 The failure or change of a sensor should not result in sudden changes of control commands or loss of manoeuvring control. This may be accomplished by appropriate integrity checks using the information from several sources.

12.3.2 In case of a sensor or source failure, the system should provide an alert and indicate (an) alternative sensor(s) or source(s), as available.

12.3.3 If sensors or sources are not able to provide necessary ship status or navigation data for automatic control functions, a dead reckoning procedure should provide the missing information, as far as practicable.

### 12.4 Storage of system related parameters

All system related parameters and settings should be stored in a protected way for reconfiguration of the INS.

12.5 The automatic response to malfunctions should result in the safest possible configuration accompanied by an alert.

### 12.6 Alert management

12.6.1 System failures should be alerted according to the requirements described in Module C.

12.6.2 Loss of system communication between the alert management and the navigational systems and sensors should be indicated as a warning at the central alert management HMI.

12.6.3 A system failure of the alert management or the loss of system communication between the alert management and the navigational functions, sources and/or sensors, should not lead to the loss of the alert announcement functionality of the individual navigational functions, sources/sensors.

## 12.7 Fallback for navigational information failure

12.7.1 In the event of failures of navigational information and to maintain minimum basic operation,

- there should be a permanent indication of the failed input information and the fallback activated,
- the respective actions of the alert management should be activated, and
- the fallback arrangements listed below should be provided.

### 12.7.2 Route monitoring

#### 12.7.2.1 Failure of heading information (Azimuth Stabilization)

The INS should display own ship's position and over-ground-motion vector in the chart and not the ship's heading line.

#### 12.7.2.2 Failure of course and speed over ground information

The INS should display own ship's position and heading line.

### 12.7.3 Collision avoidance

In the case of failure of:

- Heading information
- Speed through the water information
- Course and speed over ground information
- Position input information
- Radar video input information
- AIS input information,

the INS should operate as defined in the operational Module B4 of the radar PS as adopted by the Organization.

### 12.7.4 Heading/Track control

The requirements for the applicable control function as specified in the individual performance standards should apply.

## 13 Technical requirements

### 13.1 General

13.1.1 In addition to meeting the relevant requirements of resolution A.694(17)\*, the INS should comply with the requirements of these performance standards.

13.1.2 Means should be provided to monitor and to display hardware malfunctions of the INS. Alerts should be provided in case of malfunctions.

### 13.2 Requirements for hardware and/or processors

#### 13.2.1 Sensor

13.2.1.1 A sensor or part thereof is not part of the INS, if it only supplies raw data.

13.2.1.2 Processing of raw data from sensors may be part of the INS.

13.2.1.3 In case sources perform functions of the INS these functions and interfaces should conform with the relevant parts of these performance standards.

#### 13.2.2 Actuator and controller

An actuator, controller or part thereof is not part of the INS, if it only receives data or commands and does not perform other functions of the INS as required by these standard.

### 13.3 Requirements for software

13.3.1 The operational software should fulfil the requirements of the relevant international standards related to maritime navigation and communication equipment.

### 13.4 Requirements for power supply

13.4.1 Power supply requirements applying to parts of the INS as a result of other IMO requirements should remain applicable.

13.4.2 The INS including the sensors for position, speed, heading and depth should be supplied:

- .1 from both the main and the emergency source of electrical power with automated changeover through a local distribution board with provision to preclude inadvertent shutdown; and
- .2 from a transitional source of electrical power for a duration of not less than 45 s.

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\* Refer to publication IEC 60945.

### 13.5 Power interruptions and shutdown

13.5.1 After a power interruption full functionality of the INS should be available after recovery of all subsystems. The INS should not increase the recovery time of individual subsystem functions after power restoration.

13.5.2 If subjected to a power interruption the INS should, upon restoration of power, maintain the configuration in use and continue automated operation, as far as practicable. Automatic control functions should only be restored upon confirmation by the operator.

### 13.6 Communication protocols

13.6.1 Standardized and approved communication protocols for interfaces should be used where possible\*.

### 13.7 Installation

13.7.1 The INS should be installed so that it can meet the requirements of the relevant International Standards.

13.7.2 The INS should be installed taking into account the guidelines MSC/Circ.982 and relevant guidance on application of SOLAS regulation V/15, adopted by the Organization.

## **Module C – Alert management**

### **14 Purpose**

14.1 The purpose of the alert management is to enhance the handling, distribution and presentation of alerts within an INS.

### **15 Scope**

15.1 To enhance the safety of navigation these performance standards provide requirements for the treatment of alerts within an INS and its associated individual operational/functional-modules and sensor/source-modules.

15.2 The alert management harmonizes the priority, classification, handling, distribution and presentation of alerts, to enable the bridge team to devote full attention to the safe navigation of the ship and to immediately identify any abnormal situation requiring action to maintain the safe navigation of the ship.

15.3 These performance standards specify a central alert management HMI to support the bridge team in the immediate identification of any abnormal situation, of the source and reason for the abnormal situation and support the bridge team in its decisions for the necessary actions to be taken.

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\* Refer to publication IEC 61162.

15.4 The alert management architecture and the acknowledgement concept specified, avoid unnecessary distraction of the bridge team by redundant and superfluous audible and visual alarm announcements and reduces the cognitive load on the operator by minimizing the information presented to which is necessary to assess the situation.

15.5 The alert management should support the proper application of SOLAS regulation V/15.

15.6 The architecture of the module of the performance standards is kept extendable to allow to include further alerts on the bridge and the development of performance standards for a bridge alert management.

## **16 Application**

16.1 These performance standards are applicable to any navigational aid within an INS and its associated individual operational/functional-modules and sensor/source-modules.

16.2 In addition to meeting the requirements of these performance standards the INS alert management should comply with the relevant requirements of the Organization<sup>3</sup>.

16.3 The general principles of these standards as described in paragraphs 19 and 20 of these performance standards should apply to all alerts presented on the bridge, as far as practicable.

## **17 Definitions**

For the purpose of these standards the definitions in Appendix 1 apply.

## **18 General requirements**

18.1 The alert management should provide:

- the means used to draw the attention of the bridge team to the existence of abnormal situations,
- the means to enable the bridge team to identify and address that condition,
- the means for the bridge team and pilot to assess the urgency of different abnormal situations in cases where more than one abnormal situation has to be handled,
- the means to enable the bridge team to handle alert announcements, and
- the means to manage all alert related states in a distributed system structure in consistent manner.

18.2 If practicable, there should be not more than one alert for one situation that requires attention.

18.3 The alert management should as a minimum be able to handle all alerts required by performance standards adopted by the Organization for navigational equipment comprised by the INS or connected to the INS. The alert management should have the capability to handle all other alerts of navigational equipment comprised by the INS or connected to the INS in identical manner and should incorporate all alerts that are critical to the safety of navigation.

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<sup>3</sup> MSC.128(75), MSC.191(79).

18.4 The logical architecture of the alert management and the handling concept for alerts should provide the capability to minimize the number of alerts especially those on a high priority level (e.g. using system knowledge from redundancy concepts inside INS and evaluating inherent necessities for alerts against navigational situations, operational modes or activated navigational functions).

18.5 It should be possible to provide the central alert management HMI at least on the navigating and manoeuvring workstation and allowing the handling by the bridge team.

18.6 The audible announcement of alerts should enhance the guidance of the bridge team to the task stations or displays which are directly assigned to the function generating the alert and presenting the cause of the announcement and related information for decision support, e.g., dangerous target alarms should appear and have to be acknowledged at the workstation where the collision avoidance function is provided.

18.7 As alerts can be displayed at several locations, the system should be consistent as far as practicable with respect to how alerts are displayed, silenced and acknowledged at any one task station of the INS.

## **19 Priorities and categories**

### 19.1 Priorities of alerts

19.1.1 The alert management should distinguish between the three priorities listed:

- Alarms
- Warnings and
- Cautions

19.1.2 Alarms should indicate conditions requiring immediate attention and action by the bridge team.

19.1.3 Warnings should indicate changed conditions and should be presented for precautionary reasons which are not immediately hazardous but which may become so, if no action is taken.

19.1.4 Cautions should indicate a condition which does not warrant an alarm or warning condition, but still requires attention and out of the ordinary consideration of the situation or of given information.

19.1.5 Alerts additional to the alerts required by the organization should be assigned to an priority level using the criteria for classification.

### 19.2 Criteria for classification of alerts

19.2.1 Criteria for classification of alarms:

- conditions requiring immediate attention and action by the bridge team to avoid any kind of hazardous situation and to maintain the safe navigation of the ship
- or escalation required as alarm from not acknowledged warning.

#### 19.2.2 Criteria for classification of warnings:

- Conditions or situations which require immediate attention for precautionary reasons, to make the bridge team aware of conditions which are not immediately hazardous, but may become so.

#### 19.2.3 Criteria for classification of cautions:

- awareness of a condition which still requires attention out of the ordinary consideration of the situation or of given information.

### 19.3 Categories of alerts

#### 19.3.1 Alerts should be separated for the alert handling in INS into two categories of alerts:

##### 19.3.1.1 Category A alerts

Category A alerts are specified as alerts where graphical e.g. radar, ECDIS, information at the task station directly assigned to the function generating the alert is necessary, as decision support for the evaluation the alert related condition.

Category A alerts should include alerts indicating:

- danger of collision
- danger of grounding.

##### 19.3.1.2 Category B alerts

Category B alerts are specified as alerts where no additional information for decision support is necessary besides the information which can be presented at the central alert management HMI. Category B alerts are all alerts not falling under Category A.

19.4 A classification in priorities and categories of alerts for INS and for alerts of the individual performance standards is attached as Appendix 5.

## 20 State of alerts

### 20.1 General

20.1.1 The presentation of alarms and warnings is defined in the performance standards for presentation of navigation-related information on shipborne navigational displays (MSC.191(79)).

20.1.2 The state of an alert should be unambiguous for the alert management, the INS and all associated operational and sensor/source displays.

## 20.2 Alarms

20.2.1 The alert management should distinguish between different announcement states of each individual alarm:

- unacknowledged alarm
- acknowledged alarm.

20.2.2 When an alarm condition is detected, it should be indicated as unacknowledged alarm:

- (a) initiate an audible signal, accompanied by the visual alarm announcement;
- (b) provide a message of sufficient detail to enable the bridge team to identify and address the alarm condition;
- (c) may be accompanied by speech output presented at least in English.

20.2.3 An unacknowledged alarm should be clearly distinguishable from those existing and already acknowledged. Unacknowledged alarms should be indicated flashing and by an audible signal.

20.2.4 The characteristics of the audible alarm signal, whether used singly or in combination with speech, should be such that there is no possibility of mistaking it for the audible signal used for a warning.

20.2.5 It should be possible to temporarily silence alarms. If an alarm is not acknowledged within 30 s the audible signal should start again or as specified in the equipment performance standards.

20.2.6 The audible signal, if not temporarily silenced, and the visual signal for an unacknowledged alarm should continue until the alarm is acknowledged, except specified otherwise in the equipment performance standards.

20.2.7 An acknowledged alarm should be indicated by a steady visual indication.

20.2.8 The visual signal for an acknowledged alarm should continue until the alarm condition is rectified.

## 20.3 Warnings

20.3.1 The alert management should distinguish between different announcement states of each individual warning:

- unacknowledged warning
- acknowledged warning.

20.3.2 When a warning condition is detected, it should be indicated as unacknowledged warning:

- (a) initiate an momentarily audible signal, accompanied by the visual warning announcement;
- (b) provide a message of sufficient detail to enable the bridge team to identify and address the warning condition;
- (c) may be accompanied by speech output presented at least in English.

20.3.3 An unacknowledged warning should be clearly distinguishable from those existing and already acknowledged. Unacknowledged warnings should be indicated flashing and by an audible signal.

20.3.4 When a warning occurs a momentarily audible signal should be given. The characteristics of the audible warning signal, whether used singly or in combination with speech, should be such that there is no possibility of mistaking it for the audible signal used for an alarm.

20.3.5 The visualization for an unacknowledged warning should continue until the warning is acknowledged, except specified otherwise in the equipment performance standards.

20.3.6 An acknowledged warning should be indicated by a steady visual indication.

20.3.7 The visual signal for an acknowledged warning should continue until the warning condition is rectified.

## 20.4 Cautions

20.4.1 A caution should be indicated by a steady visual indication. No acknowledgement should be necessary for a caution.

20.4.2 A caution should be automatically removed after the condition is rectified.

20.4.3 A message should be provided of sufficient detail to enable the bridge team to identify and address the caution condition.

## 20.5 Alert escalation

20.5.1 After a time defined by the user unless otherwise specified by the organization, an unacknowledged alarm should be transferred to the bridge navigational watch alarm system (BNWAS), if available. The unacknowledged alarm should remain visible and audible.

20.5.2 An unacknowledged warning should be changed to alarm priority, as required by specific requirements for the individual equipment or after 60 s unless otherwise set by the user.

20.5.3 The alert escalation should be in compliant with the alert escalation requirements of the individual performance standards.

## **21 Consistent presentation of alerts within the INS**

21.1 To ensure a consistent presentation of alerts and the presentation of a reduced number of high priority alerts within the INS:

- .1 the alerts released by navigational functions, sensors, sources should be presented as far as practicable, after evaluation with the system knowledge of the INS, to reduce the number of high priority alerts;
- .2 the priority of the alert is to be defined in compliance with the relevant paragraphs of this performance standards;
- .3 the priority of any alert should be assigned and presented consistently for all parts of the INS;
- .4 the alert releasing sensor/source or function (system) should provide the alert related information of the alert message for explanation and decision support, including information for user support in respect to the alert messages, as far as possible;
- .5 if additional information regarding decision support and user guidance is available with the system knowledge of the INS, this information should be made available for the user;
- .6 HMI's presenting alert information should have the capability to present the alert information, provided by the alert releasing sensor/source or function (system) and the information added with system knowledge of the INS.

21.2 The audible announcement of category A alerts should occur at the task stations or displays which are directly assigned to the function generating the alert.

## **22 Central alert management HMI**

22.1 All alerts should be displayed on the central alert management HMI.

22.2 The central alert management HMI should offer the possibility to display category A alerts as "aggregated alerts", *i.e.*, a single visual indication indicates the existence of many alerts on the task station presenting the function, e.g. one alert should indicate the existence of multiple dangerous target alerts existing at the task station for collision avoidance.

22.3 The central alert management HMI should provide the means to announce and indicate alerts to draw the attention of the bridge team.

22.4 The central alert management HMI should have the capability to substitute the audible alert announcement of the individual equipment, except for category A alerts.

22.5 The central alert management HMI should allow to identify alerts, and enable the immediate identification of the alert releasing function or sensor/source.

22.6 The central alert management HMI should be designed that alert messages of the different priorities are clearly distinguishable from each other.

22.7 The alert messages should be completed with aids for decision making, as far as practicable. An explanation or justification of an alert should be available on request.

22.8 The central alert management HMI should enable an immediate acknowledgement of the alarms and warnings by a single operator action, except for category A.

22.9 The central alert management HMI should be able to display at least 20 recent incidents/faults at the same time.

22.10 If the central alert management HMI is such that it can't contain all active messages requiring the bridge team's attention, then there should be a clear and unambiguous indication that there are additional active messages requiring attention.

22.11 It should be possible to display the additional active messages by a single operator action.

22.12 It should be possible to return to the display containing the highest priority alerts by a single operator action.

22.13 Silencing of audible alerts

22.13.1 It should be possible to temporarily silence all audible alerts at the central alert management HMI.

22.13.2 The audible signal should be reactivated, if the alert has not been acknowledged within the specified times in paragraph 20 for alarms and warnings.

22.14 Category B Alert history list

22.14.1 An operator accessible alert history list should be provided by the central alert management HMI.

22.14.2 When a category B alert is no longer active the message should be kept with its entire content in an alert history list, with the date and time the alert was raised, acknowledged and rectified.

22.14.3 The messages of the alert history list should be displayed in chronological order.

22.14.4 Access to the alert history list and return to the active alert display should be possible by a simple operator action.

22.14.5 The system should provide a clear and unambiguous indication when the alert history list is being accessed and displayed.

22.14.6 The system should revert automatically to the active alert display when it detects a new alert condition.

22.14.7 The central alert management HMI should support the search and identification of alerts in the alert history list.

22.14.8 It should be possible to keep the content of the alert history list at least for 24 h.

## **23 Acknowledgement and cancellation location**

### **23.1 Acknowledgement**

23.1.1 The acknowledgement of alarms and warnings should only be possible at a HMI (task station) where an appropriate situation assessment and decision support can be carried out.

## **24 Self-monitoring of alert management**

24.1 The system communication between the alert management and the systems and sources/sensors initiating the alerts should be monitored.

24.2 Provisions should be made for functional testing of alerts, including the system communication between the alert management and the systems and sources/sensors initiating the alerts.

24.3 The alert management should have the capability to provide alerts for failure and loss of functions (systems), sources and sensors. These should be indicated at the central alert management HMI.

## **25 Interface requirements for alert related communication**

25.1 Connected sources, sensors and systems taking part in the alert related communication should follow a standardized communication concept. Internal alert related communication within an individual source, sensor and equipment may use an alternative communication concept.

25.2 The communication protocol should allow the implementation of the functions described in these standards. In particular, this includes:

25.2.1 Transmission of all relevant alert priorities, states, associated quality information, additional alert message information for, e.g., explanation of alert, decision support.

25.2.2 Transmission of alert source identity so that originator component and/or function can be determined, as well as it being possible to differentiate between alerts originating from the same device but at different time and also between alerts indicating different conditions from the same device at the same time.

25.2.3 Transmission of acknowledgement and silence signals between the device where the alert was silenced or acknowledged and the device where it originates and where it may also have to be silenced/acknowledged.

25.2.4 Transmission mechanisms that avoid that signals in one or the other directions are lost (by fully reliable transmissions or by suitable retransmissions).

25.2.5 Mechanisms that allow consistent reconnection of a component of the INS system to the system after disconnect at any time and in any alert condition.

25.2.6 In general, mechanisms that allows consistency in the complete INS with regards to alert management.

## **26 Integration of systems in alert management**

26.1.1 All systems, sources and sensors incorporated, connected in the INS should be part of the alert management.

26.1.2 The following equipment and systems, if installed, and not incorporated in the INS should be also included in the alert management as far as possible:

- heading information system
- heading/track control system
- electronic position-fixing systems
- speed and distance measuring equipment
- radar with target tracking functions
- ECDIS
- AIS
- echo sounding equipment
- GMDSS equipment
- relevant machinery alarms for early warning.

26.1.3 The following equipment and systems, if installed, should be connected to the alert management:

- bridge navigational watch alarm.

## **Module D – Documentation requirements**

### **27 Manuals**

27.1 Operating manuals should include:

- an overall functional description of the INS
- the redundancy concept and the availability of functions
- a description of possible failures and their effects on the system (e.g. by using part of the failure analysis)
- guidance for the adjustment of the limits for alerts
- the implications of using different reference locations
- details of each data convention and common references: attitude axis, rotation, reference location of CCRP
- details of the integrity monitoring provided by external sensors or subsystems and their required settings

- details of the mechanism for marking valid, doubtful and invalid data
- for an INS providing automatic control functions (e.g. for heading, track or speed) details of the external override and/or bypassing devices used in the reversionary mode.

27.2 The installation manuals should include adequate information to allow the INS to be installed so that it can meet all requirements adopted by the Organization.

27.3 The installation manuals should include the following:

- details of sources, components and the interconnections forming the INS
- details of the interfaces and connections for data import and export and the interconnection diagrams and interfacing details for external parts of the INS and for devices, sensors to be connected
- instructions for the installation and connection of facilities for alert acknowledgement and cancellation including the back-up officer alarm in case of an INS providing automatic control functions (e.g. for heading, track or speed)
- the details of the power supply arrangements
- recommendations on the physical layout of equipment and necessary space for maintenance
- for an INS providing automatic control functions (e.g. for heading, track or speed) details of the installation and connection of external override and/or bypassing devices used in the reversionary mode and if rudder angle, heading, propulsion data – e.g. power, propeller pitch, are not be presented on a display of the INS workstation, the necessary details.

## **28 Information regarding the system configuration**

28.1 Manufacturer or system integrator of INS should declare the following information relating to the system configuration, if applicable:

- basic system configuration
- interconnecting block diagram (Hardware)
- sources identification
- override
- priority of control (task stations)
- data flow schematic diagram and its interpretation
- default conditions
- back-up arrangement
- redundancy arrangement
- explanation of scope to fulfil requirements of SOLAS regulation V/19 with particular INS (for one equipment concept)

other useful materials for inspector (such evidence of fulfilled requirements as other means).

## **29 Failure analysis**

29.1.1 A failure analysis, at INS functional level, should be performed and documented for the INS. The failure analysis should verify that the INS is designed on “fail-to-safe” principle and

that failure of one part of the integrated system should not affect the functionality of other parts, except for those functions directly dependent on the defective part.

**30 Guidance to equipment manufacturers for the provision of onboard familiarization material**

Material enabling onboard familiarization training should be provided for the INS. The onboard familiarization material should explain all configuration, functions, limitations, controls, displays, alerts and indications of the INS. Guidance and recommendations to the equipment manufacturers for the provision of onboard familiarization material are given in Appendix 2.

## Appendix 1 – Definitions

<b>Added Value</b>	The functionality and information, which are provided by the INS, in addition to the requirements of the performance standard for the individual equipment.
<b>Alarm</b>	An alarm is the highest priority of an alert. Condition requiring immediate attention and action by the bridge team, to maintain the safe navigation of the ship.
<b>Alert</b>	Alerts are announcing abnormal situations and conditions requiring attention. Alerts are divided in three priorities: alarms, warnings and cautions.
<b>Alert announcements</b>	Visual and acoustical presentation of alerts.
<b>Alert history list</b>	Accessible list of past alerts.
<b>Alert management</b>	Concept for the harmonized regulation of the monitoring, handling, distribution and presentation of alerts on the bridge.
<b>Automatic control functions</b>	Functions that include automatic heading, and/or track and/or speed control or other navigation related automatic control functions.
<b>Category A alerts</b>	Alerts where graphical information at the task station directly assigned to the function generating the alert is necessary, as decision support for the evaluation the alert related condition.
<b>Category B alerts</b>	Alerts where no additional information for decision support is necessary besides the information which can be presented at the central alert management HMI.
<b>Caution</b>	Lowest priority of an alert. Awareness of a condition which does not warrant a alarm or warning condition, but still requires attention out of the ordinary consideration of the situation or of given information.
<b>Collision avoidance</b>	The navigational task of detecting and plotting other ships and objects to avoid collisions.
<b>Consistent common reference system (CCRS)</b>	A sub-system or function of an INS for acquisition, processing, storage, surveillance and distribution of data and information providing identical and obligatory reference to sub-systems and subsequent functions within an INS and to other connected equipment, if available.

<b>Consistent common reference point (CCRP)</b>	The Consistent Common Reference Point (CCRP) is a location on own ship, to which all horizontal measurements such as target range, bearing, relative course, relative speed, closest point of approach (CPA) or time to closest point of approach (TCPA) are referenced, typically the conning position of the bridge.
<b>Degraded condition</b>	Reduction in system functionality resulting from failure.
<b>Essential functions</b>	Indispensable functions to be available as required for the relevant operational use.
<b>Essential information</b>	Indispensable information to be available as required for the relevant functions.
<b>External safety related messages</b>	Data received from outside of the vessel concerning the safety of navigation, through equipment listed in SOLAS chapter V and/or NAVTEX.
<b>Failure analysis</b>	The logical, systematic examination of an item, including its diagrams or formulas, to identify and analyse the probability, causes and consequences of potential and real failures.
<b>Human factor</b>	Workload, capabilities and limits of a user trained according to the regulations of the Organization.
<b>Human machine interface (HMI)</b>	The part of a system an operator interacts with. The interface is the aggregate of means by which the users interact with a machine, device, and system (the system). The interface provides means for input, allowing the users to control the system and output, allowing the system to inform the users.
<b>Indication</b>	Display of regular information and conditions, not part of alert management.
<b>Integrated navigation system</b>	An INS is a composite navigation system which performs at least the following tasks: collision avoidance, route monitoring thus providing “added value” for the operator to plan, monitor and safely navigate the progress of the vessel. The INS allows meeting the respective parts of SOLAS regulation V/19 and supports the proper application of SOLAS regulation V/15.
<b>Integrity</b>	Ability of the INS to provide the user with information within the specified accuracy in a timely, complete and unambiguous manner, and alerts within a specified time when the system should be used with caution or not at all.

<b>Partial integrations</b>	Smaller integrations which are not covering the tasks “route monitoring” and “collision avoidance”.
<b>Man-over-board mode (MOB)</b>	Display mode for operations and actions of a vessel after a Man over board accident happened (release of safety equipment, e.g., life buoy and life belt, performance of a return manoeuvre etc.).
<b>Multifunction display</b>	A single visual display unit that can present, either simultaneously or through a series of selectable pages, information from more than a single function of an INS.
<b>Mode awareness</b>	The perception of the mariner regarding the currently active Modes of Control, Operation and Display of the INS including its subsystems, as supported by the presentations and indications at an INS display or workstation.
<b>Navigation control data</b>	Task that provides information for the manual and automatic control of the vessels movement on a task station.
<b>One equipment concept</b>	The equipment which is recognized as one type of equipment by integrating the function of mandatory equipment of SOLAS of a plural number.
<b>Operational modes</b>	Modes of operation depending on the sea area.
<b>Operational/functional modules</b>	Modules comprising the operational/functional requirements for navigational systems.
<b>Plausibility of data</b>	The quality representing, if data values are within the normal range for the respective type of data.
<b>Route monitoring</b>	The navigational task of continuous surveillance of own ships position in relation to the pre-planned route and the waters.
<b>Safety related automatic functions</b>	Automatic functions that directly impinge on hazards to vessel or personnel, e.g. target tracking.
<b>Search and rescue mode</b>	Display mode for operations of a vessel involved in search and rescue actions.
<b>Sensor</b>	A navigational aid (measuring device), with or without its own display, processing and control as appropriate, automatically providing information to operational systems or INS.
<b>Sensor/source modules</b>	Modules comprising the sensor/source requirements.

<b>Simple operator action</b>	A procedure achieved by no more than two hard-key or soft-key actions, excluding any necessary cursor movements, or voice actuation using programmed codes.
<b>Single operator action</b>	A procedure achieved by no more than one hard-key or soft-key action, excluding any necessary cursor movements, or voice actuation using programmed codes.
<b>Situation awareness</b>	Situation awareness is the mariner's perception of the navigational and technical information provided, the comprehension of their meaning and the projection of their status in the near future, as required for timely reaction to the situation. Situation awareness includes mode awareness.
<b>Source</b>	A device, or location of generated data or information (e.g. chart database), which is part of the INS automatically providing information to INS.
<b>System alerts</b>	Alerts related to equipment failure or loss (system failures).
<b>System integrator</b>	The organization responsible for ensuring that the INS complies with the requirements of this standard.
<b>System position</b>	Position calculated in the INS out of at least two positioning sensors.
<b>Task station</b>	Multifunction display with dedicated controls providing the possibility to display and operate any navigational tasks. A task station is part of a workstation.
<b>Track</b>	Path to be followed over ground.
<b>Track control</b>	Control of the ship movement along a track.
<b>Vessels primary movement</b>	The longitudinal directional, lateral directional and heading-rotational movement of the vessel.
<b>Warning</b>	Condition requiring no-immediate attention or action by the bridge team. Warnings are presented for precautionary reasons to make the bridge team aware of changed conditions which are not immediately hazardous, but may become so, if no action is taken.
<b>Watchdog</b>	System which monitors the software and Hardware well running at regular intervals.
<b>Workstation</b>	The combination of all job-related items, including the console with all devices, equipment and the furniture, to fulfil certain tasks. Workstations for the Bridge are specified in MSC/Circ.982.

## **Appendix 2 – Guidance to equipment manufacturers for the provision of on-board familiarization material**

### **1 General**

1.1 It is a requirement of the International Safety Management Code (ISM) that personnel working on assignments related to safety and the protection of the environment need to be given proper familiarization with their duties.

1.2 To assist with this process it is required that the INS equipment manufacturer or system integrator provides suitable training material that may be used by the ship operator as a basis for onboard familiarization of users.

1.3 The material is intended to be used by bridge officers who have had generic training in the use of INS through attending shore-based instruction based on the Organization's Model Course 1.32 "Operational use of Integrated Bridge Systems including Integrated Navigation Systems".

1.4 The intention of the familiarization material is that it should give a rapid means of understanding the configuration of the INS and its method of operation. General concepts concerning the use of INS are not required to be part of the material, as these would unnecessarily increase the duration of the familiarization training.

1.5 The material should be organized such that it represents the actual equipment and configuration that is fitted to the ship.

### **2 On-board familiarization training for INS**

2.1 The aim of familiarization training is to explain the configuration, functions, limitations, controls, displays, alerts and indications of the specifically installed INS.

2.2 It should allow an OOW, unfamiliar with the ship's equipment but trained in the generic use of INS, to become rapidly acquainted with the installed system.

2.3 Emphasis should be given on producing effective familiarization training that can be completed in the shortest possible time. This will help maximize the probability that the process will be properly completed.

2.4 For a typical system it may be expected that it will take no longer than 30 minutes for a qualified user to undertake INS familiarization training. This time does not include the time taken to become familiar with major interconnected functionality, such as radar and ECDIS.

2.5 Familiarization can take a number of forms. The following are illustrative examples but other effective methods of training are acceptable:

- computer-based training on the vessel. Such training may also be appropriate to be used remotely (e.g. on a notebook computer of a new user, prior to joining the ship)
- a training mode on the fitted INS

- a training video (on tape, disk or solid state memory), supported by a self-training manual
- a stand-alone self-training manual.

2.6 The topics that need to be covered are listed in section 3 below.

2.7 The functions of the INS should be broken down into logical top-down descriptions.

2.8 The familiarization material does not replace the User Instruction Manual. Appropriate references can be made to it from within the material. This may be beneficial when describing more detailed operations or to reference large diagrams.

2.9 For lesser used, non-critical functions it is only necessary to reference the relevant section in the User Instruction Manual, rather than them having to be included in their entirety in the familiarization material. Ideally, material is provided for such functions but with instructions to enable the user to skip these sections, as appropriate, until a more convenient opportunity.

2.10 Familiarization is best given within the context of the vessel's normal bridge operating procedures. These procedures are normally contained within the Vessel Operating Manual or equivalent document.

### **3 Familiarization training framework**

#### **3.1 General description**

3.1.1 This should start with a top-level functionality description including the identification of the types of automatic control that are provided (if any).

3.1.2 A description should be given of the connected equipment that forms the INS, to a level that a normal user would require for operation (not maintenance). This description could be in the form of a block diagram.

3.1.3 The general philosophy of operation should be explained, including a description of the human machine interfaces. If automatic modes of operation are provided a general description of these is also required.

3.1.4 The physical location of all workstations and other displays and controls should be identified.

3.1.5 A description of the CCRS and identification of the CCRS (s) should be given. If more than one point is defined, the intended use of all individual reference points should be given, together with an explanation of how a point is selected and indicated.

3.1.6 For all navigation parameters the manual and/or automatic backup and fall-back sequences when sensors become inoperable should be explained.

3.1.7 Instructions on setting basic display controls such as brightness, contrast, colour and day/night colour schemes should be given.

### 3.2 Detailed operation (normal conditions)

3.2.1 The functions described should include all systems and subsystems that are part of the INS and any ship's functionality that can be controlled through the INS, such as the:

- navigation subsystems
- steering controls
- propulsion controls

3.2.2 Depending on the type of INS fitted the following specific information should be given:

- detailed operation of the automatic controls that are included, such as track controller functions
- the method(s) used to switch between operating modes and how to revert to manual operation
- the method of accessing the main/top-level display of all workstations and other INS equipment, including instructions to rapidly revert to such a display from whatever configuration has been set previously
- description of the displayed information on non-controllable displays, (if included within the installed configuration), e.g., a basic conning display
- the route planning and checking functions that are available
- the route monitoring functions that are available
- the operation of the Bridge navigational watch alarm facility, if fitted.

3.2.3 Where appropriate, for each function, the following information should be included:

- function name
- function description
- description of menu structure and displayed information
- description of operator controls
- required manually input information, if any
- description of how to configure task stations and user-modifiable displays and other data to user preferences. The method to rapidly revert to 'sensible' defaults must be given, even if it is considered that user configurations are not essential functions that need to be included as part of the familiarization material
- description of alerts and indicators, including mode indication. Procedural action on receiving alarms and warnings is covered in section 3.3
- the access of latency, integrity and accuracy data.

### 3.3 Detailed operation (abnormal and emergency conditions)

3.3.1 The following information should be included:

- details of conditions in which any automatic mode should not be used or should be used with certain restrictions or cautions
- identification of major failure alarms and warnings
- procedures involving the INS to follow on encountering alarms and warnings, other major failures, incidents or accidents, including:
  - (i) reversion to a mode with lesser automation or to manual operation
  - (ii) emergency disabling of functions that are causing or worsening the emergency.

**Appendix 3 – Draft modular structure for radar performance standards  
(MSC.192(79))**

<b>Module</b>	<b>Paragraph of MSC.192(79)</b>	<b>Contents</b>
<b>A</b>		<b>Sensor and Technical Requirements</b>
<b>A1</b>		<b>Sensor and Signals</b>
	5.1 5.3.3.1-3 5.3.4 5.6	Frequency Signal processing SARTs and radar beacons Roll and pitch (Detection)
<b>A2</b>		<b>Target detection, discrimination and accuracy</b>
	5.2 5.3 5.3.1.1 5.3.1.2 5.3.1.3.1-4 5.4 5.5	Range and bearing accuracy Detection Detection in clear conditions Detection at close ranges Detection in clutter conditions Minimum range Range and bearing discrimination
<b>A3</b>		<b>Design and Installation</b>
	5.8 5.9.1 7.1.1 part 7.1.2 7.3 7.4 7.5	Radar availability delay CCRP and off-set compensation Design for maximum availability Record operational hours Transmitter mute over preset sector Antenna Radar system installation
<b>B</b>		<b>Operational Requirements</b>
<b>B1</b>		<b>Display and operation</b>
	2 Application 5.3.2 5.7 5.9.2-5.9.4 5.10 5.11 5.12 5.13 5.14 5.15 5.16 5.17 5.18 5.19 5.20 5.21 5.22 5.23 5.35 7.6.2	Table 1: Screen size Gain and anti-clutter functions (Means for) Radar performance optimization and tuning Radar measurements - CCRP Display range scales Fixed rings Variable range markers Bearing scale Heading line EBLs Parallel Index lines Remote measurement of range and bearing User cursor Azimuth stabilization Display mode of the radar picture Off-centring Ground and sea stabilization Target trails and past positions Integrating multiple radars Target simulation for training

<b>B2</b>		<b>Target information (tracking and AIS)</b>
	2 Application	Table 1: Screen size
	5.24	Presentation
	5.25	Target (radar) tracking and acquisition
	5.26	AIS reported targets
	5.27	AIS graphical presentation
	5.28	AIS and radar target data
	5.29	Operational alarms
	5.30	AIS and radar target association
	5.31	Trial manoeuvre
<b>B3</b>		<b>Chart and route overlay</b>
	5.32	Display of maps, navigation lines and routes
	5.33	Display of charts
<b>B4</b>		<b>Failure, back-up and fallback arrangements</b>
	5.34.1	Picture freeze alarm
	5.34.2	Signal or sensor failure
	7.1 part	Design to facilitate simple fault diagnosis
	9	Backup and failure arrangement
<b>B5</b>		<b>Ergonomic Criteria</b>
	5.34 para 1	Presentation of alarms
	6.1	Operational controls
	6.2	Display presentation
	7.2	Display device requirements
	7.6.1	(General:) Design for simple use by trained person
<b>C</b>		<b>Interfacing</b>
	8.1	Input data
	8.2	Input data integrity and latency
	8.3	Output data
<b>D</b>		<b>Documentation</b>
	5.3.1.3.5	Degradation in performance
	5.3.3.4	Basic aspects of signal processing
	6.3	Instructions and documentation
	7.1.3	Routine servicing and restricted life components

**Appendix 4 – Draft modular structure for track control performance standards  
 MSC.74(69), Annex 2**

<b>Module</b>	<b>Modular structure with paragraphs of track control PS (MSC.74(69))</b>
<b>B</b>	<b>Operational Requirements</b>
<b>B1</b>	<b>Functionality</b> 5 Operational requirements
<b>B2</b>	<b>Operation</b> 6 Ergonomic criteria
<b>B3</b>	<b>Connection to sensors</b> 7.1 Sensors
<b>B4</b>	<b>Failure, back-up and fallback arrangements</b> 8 Fallback arrangements
<b>C</b>	<b>Interfacing</b>
	7.2 Status Information 7.3 Standards

### Appendix 5 – Classification of alerts

For the purpose of transferring requirements for alarms and indications of existing individual performance standards into 3 priority classes of alerts within the INS performance standard, the alarms of the individual performance standards are subdivided into two classes of alarms being alarms and warnings in the INS performance standard.

Table 1: Classification of INS alerts as specified in these performance standards

Source	Cause	Alarm	Warn.	Caut.	Categ. A	Categ. B
INS	System function lost	X				X
	Integrity verification not possible (5.5.5)		X			X
	Invalid information for functions in use (5.3.1.2)		X			X
	Invalid information for functions not in use (5.3.1.2)			X		X
	Different thresholds entered (5.4.3.3)			X		X
	Loss of system communication (12.6.2)		X			X

Table 2: Classification for INS for alerts specified in the individual equipment performance standards

Source	Cause	Alarm	Warn.	Caut.	Categ. A	Categ. B
Heading control systems	Failure or reduction in power supply	X				X
	Off heading alarm		X		X	
	Heading monitor (deviation from second heading source)		X			X
Track Control systems	Early course change indication (track control via waypoints)		X		X	
	Actual course change indication		X		X	
	Wheel over line (actual course change indication not acknowledged) 1) alarm 2) back-up navigator alarm	X			X	
	Failure or reduction in power supply		X			X
	Position monitor		X		X	
	Heading monitor		X		X	
	Sensor failure (heading, position, speed) 1) alarm 2) back-up navigator alarm	X				X
	Cross-track alarm	X			X	
	Course difference (heading deviates from track course)		X		X	
	Low speed alarm		X			X
ECDIS	Positioning system failure		X			X
	Crossing safety contour	X			X	
	Deviation from planned route – off-track alarm	X			X	
	Area with special conditions - cross the boundary		X*	X*	X	
	Approach to critical point		X		X	
	Different geodetic datum		X			X
	System malfunction (system malfunction of backup device)		X			X
RADAR/AIS	Target capacity		X		X	
	CPA/TCPA alarm	X			X	
	Acquisition/activation zone		X		X	
	Lost target alarm		X		X	
	Failure of any signal or sensor in use		X			X
GNSS	HDOP exceeded			X		X
	No calculation of position					X
	Loss of position		X			X
	Loss of differential signal		X			X
	Differential corrections not applied		X			X
	Differential integrity status		X			X

Echo sounder	Depth below keel alarm	X			X	
	Failure or reduction in power supply		X			X
Gyro compass	System fault		X			X
Bridge watch alarm	Malfunction		X			X
	Power supply failure		X			X

x\* : selected by the user.

### Appendix 6 – Default display configurations

As required in paragraph 9.2.1, the INS should offer as basic operational settings the following default display configurations for the tasks route monitoring and collision avoidance.

#### Task “Route monitoring”

Function	Setting
Display category	ECDIS Standard display
Selected sea area	Around own ship with appropriate off-set
Range	3 nm
Orientation	True motion, north-up
Manual updates	If applied
Operator’s notes	If applied
position sensor	GNSS (system position provided by INS)
Past track	On
Selected route	Last selected route, including route parameters
Look-ahead time	6 min

**Task “Collision avoidance”**

<b>Function</b>	<b>Setting</b>
Band	X-band, if selectable
Gain and anti-clutter functions	Automatically optimized
Tuning	Automatically optimized
Range	6 nm
Fixed rings	Off
VRMs	One VRM on
EBLs	One EBL on
Parallel index lines	Off or last setting, if applied
Display mode of the radar picture	True motion, north-up
Off-centring	Appropriate look-ahead
Target trails	On
Past positions	Off
Radar target tracking	Continued
Vector mode	Relative
Vector time	6 min
Automatic radar target acquisition	Off
Graphical AIS reported target display	On
Radar and AIS Target fusion	On
Operational alarms (except collision warnings)	Off
Collision warnings	On (limits CPA 2 nm; TCPA 12 min)
Display of maps, navigation lines and routes	Last setting
Display of charts	Off

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**ANNEX 8**

**DRAFT SN CIRCULAR**

**GUIDELINES ON THE APPLICATION OF SOLAS REGULATION V/15  
TO INS, IBS AND BRIDGE DESIGN**

1 The Maritime Safety Committee (MSC), at its [eighty-third session (3 to 12 October 2007)], recognizing the importance of Guidelines on the application of SOLAS regulation V/15 to INS, IBS and bridge design, to be taken into account by designers and system integrators, approved the Guidelines on the application of SOLAS regulation V/15 to INS, IBS and bridge design prepared by the Sub-Committee on Safety of Navigation (NAV), at its fifty-third session, as set out in the annex.

2 Member Governments are invited to bring the annexed guidelines to the attention of designers, manufactures and all other parties concerned.

## ANNEX

### **GUIDELINES ON THE APPLICATION OF SOLAS REGULATION V/15 TO INS, IBS AND BRIDGE DESIGN**

#### **1 Purpose**

SOLAS regulation V/15 requires that the design and arrangement of navigation systems and equipment on the bridge facilitate the tasks to be performed by the bridge team and the pilot and promote safe and effective Bridge Resource Management (BRM). The purpose of this document is to identify the needs of the bridge team and the pilot and the BRM principles that should be taken into account in the design and arrangement of INS, IBS and for bridge design for the installation of INS and IBS on the bridge.

#### **2 Application**

2.1 These guidelines should be taken into account by designers and system integrators designing and installing INS and IBS systems on board, for bridge design and installation of navigation equipment. The guidelines should also be taken into account in the development of performance standards.

#### **3 Definitions**

**System** Unless otherwise noted or clear from the context of the statement, the term “system” used in this document means either an INS and/or an IBS.

#### **4 General**

4.1 The system should facilitate the tasks to be performed by the bridge team and pilot in navigating the ship safely under all operational conditions. The physical arrangement of the systems on the bridge and presentation of information should permit observation or monitoring by all members of the bridge team and pilot.

4.2 The system should avoid the potential for a single-person failure during operation and should minimize the risk of human error by facilitating monitoring and cross checks between members of the bridge team and pilot and to conduct supervision of operator interaction with the system.

4.3 The system and its physical arrangement should facilitate the bridge team and pilot in maintaining a full appraisal of the situation by both observing information provided by the system and validating that information by actual observation of the surrounding environment.

4.4 The system and its physical arrangement should promote safe and effective exchange of information amongst the members of the bridge team and with pilots.

4.5 The system and its physical arrangements should comply with appropriate ergonomic standards, e.g., Guidelines on Ergonomic Criteria for Bridge Equipment and Layout, MSC/Circ.982.

## **5 Support to tasks**

5.1 The system should have the capability of allowing the operator to decline or override the automated ship control functions at any time or intervene part way through a process by means of a simple operator action.

5.2 Recognizing that the bridge team and pilot are required to use ‘any means available’ to safely navigate the ship including visual position fixing and lookout as well as communications with external sources of information such as other traffic and VTS stations, the design of the system should therefore support the use of all means and their correlation.

5.3 The system and its physical arrangement should enable the bridge team and pilot to conn (i.e. direct the movement of) the ship by verbal instructions from any position on the bridge while still having access to heading, rudder or azipod angle, and propeller RPM or pitch and, if available, rate-of-turn information.

5.4 The system should support procedures and actions to address failure modes and default to manual controls on failure of automated ship control functions.

5.5 The system should be designed so that its operation minimizes distraction on the bridge that may interfere with the vigilance of the bridge team and the pilot. The focus should be on handling the ship rather than on operating the system.

5.6 The workload involved in navigation tasks employing the system should be analysed and tested during the design phase. Complex or error-prone interaction with the system should be avoided in its design.

5.7 The system should support the bridge team and the pilot in navigating the ship safely under all operational conditions. All conditions should be considered in design tasks such as failure analysis, task analysis, user interface design, etc. During design, functional and operational testing or analysis should be conducted.

5.8 The system and its physical arrangement should support team working, including the assignment of tasks among the bridge team and pilot.

5.9 All navigation and watch keeping tasks required by the STCW, SOLAS, and COLREGs, as appropriate, should be considered in the system design phase. The usability of the system and its arrangement, when employed for such tasks should be assessed during functional and operational analysis and tests.

## **6 Human error prevention and detection**

6.1 User inputs and commands related to ship control should be displayed so that all members of the bridge team and the pilot are able to monitor and detect single-person errors.

6.2 The system should provide means to rapidly correct erroneous inputs or commands related to ship control. Wherever possible, an “undo” function should be provided.

6.3 The system should provide checks in the human-machine interface dialogue and in the user input handling to prevent erroneous data or control inputs.

## **7 Traffic awareness**

7.1 The system and its physical arrangement should facilitate effective lookout by visual, audible and electronic means under all conditions.

7.2 The system and its physical arrangement should provide means to acquire and maintain timely and accurate situational awareness of current and projected traffic conditions.

## **8 Operational mode awareness**

8.1 The system and its physical arrangement should provide convenient and continuous access to essential information such as heading, rudder or azipod angle, and propeller RPM or pitch and, if available, rate-of-turn for both the bridge team and the pilot to information necessary for the safe navigation. If any auxiliary or separate console or workstation is provided for the pilot, it should provide the same quality and quantity of navigation information needed by the pilot as the main console or workstation.

8.2 The system should continuously indicate to the bridge team and pilot the system operating modes currently in use and provide simple access to other available operating modes.

8.3 The system should indicate failures in a clear and unambiguous manner to enable the bridge team and pilot to understand the nature of the failure.

8.4 Information should be presented consistently within and between different subsystems. Standardized information presentation, symbols, abbreviations and coding should be used according to resolution MSC.191(79).

8.5 Where standardized symbols are not available, information, symbols and coding should be visually representative and should be consistent with established information presentation, symbols and coding. The used symbols should not conflict with the symbols specified in SN/Circ.243. Any inconsistencies that might cause confusion or errors should be avoided.

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**ANNEX 9**

**DRAFT SN CIRCULAR**

**APPLICATION OF THE MODULAR CONCEPT FOR FUTURE  
PERFORMANCE STANDARDS**

1 The Maritime Safety Committee, at its [eighty-fifth session (24 November to 5 December 2008)], with a view to improving the safety of navigation, approved the circulation of the attached guidance on the application of the modular concept for future performance standards.

2 Member Governments are invited to bring the information to the attention of all parties concerned.

## ANNEX

### **APPLICATION OF THE MODULAR CONCEPT FOR FUTURE PERFORMANCE STANDARDS**

#### **1 Purpose**

1.1 Due to the diversity of ships types and their individual needs, future navigational systems must be of a modular structure, to allow to customize the systems to support the users in all their navigational tasks and situations and support their situation awareness. A modular structure of navigational systems itself leads to a modular structure of the applying performance standards.

1.2 With the modular concept operational/functional and sensor/source modules are specified. This will allow to clearly separate between operational requirements for the task orientated use and presentation of the navigational information on standalone and integrated navigation systems (INS) and between the sensor specific technical performance requirements.

1.3 The modular concept will allow to design future navigational systems flexible, task and situation orientated.

#### **2 Scope**

2.1 The scope of these guidelines is to provide guidance on the proper application of the modular concept for drafting future performance standards for navigational systems and equipment.

2.2 The use of these guidelines will ensure that future performance standards will be drafted according to the modular concept to allow for a future task- and situation-dependend design of navigational equipment to enhance the safety of navigation.

2.3 The modular concept will allow to apply requirements specified in the equipment performance standards for one system, for other systems as well, by just referencing the applicable module. This supports to ensure a consistent use of navigational information on the various systems.

#### **3 Application**

3.1 These guidelines apply to all new or revised performance standards for navigational systems and equipment.

#### **4 Definitions**

For the purpose of these standards the definitions in the Appendix apply.

#### **5 Modular structure of performance standards**

5.1 Revised or new developed performance standards for navigational equipment should be structured in major modules.

5.2 The structure should consist, if possible of the modules:

- Sensor/source module;
- Operational/functional module;
- Interfacing/integration module;
- Documentation module.

## **6 Sensor/source module**

6.1 The sensor/source module should include requirements for:

- Sensor performance requirements;
- Sensor installation requirements;
- Database requirements.

## **7 Operational/functional module**

7.1 The operational/functional module should include requirements for:

- Functional requirements for the task to be fulfilled with the system;
- Amount and content of necessary navigational information;
- Required alerts;
- Human-machine-interface with the user:
  - Operation of system
  - Functional requirements for Display of information;
- Functional redundancy.

## **8 Interfacing/integration module**

The interfacing/integration module should include requirements for:

- Connection with other equipment;
- Power supply.

## **9 Documentation module**

The documentation module should include requirements for:

- Information regarding system configuration;
- Operating manuals;
- Familiarization material for the user.

## **10 Referencing and applying of modules in performance standards**

## APPENDIX

### DEFINITIONS

<b>Interfacing and integration modules</b>	Module comprising the interfacing and integration requirements navigational systems and sensors
<b>Modular concept</b>	Concept for a modular layout of navigational system and equipment performance standards
<b>Operational/functional modules</b>	Modules comprising the operational/functional requirements for navigational systems and sensors/sources
<b>Sensor/source modules</b>	Modules comprising the sensor/source requirements for navigational systems and sensors/sources

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**ANNEX 10****DRAFT REVISED SN/CIRC.207****DIFFERENCES BETWEEN RCDS AND ECDIS**

1 The Maritime Safety Committee, at its [eighty-third session (3 to 12 October 2007)], adopted revised performance standards for Electronic Chart Display and Information Systems (ECDIS) and accordingly agreed to the revision of SN/Circ.207 on difference between Raster Chart Display System (RCDS) and ECDIS.

2 ECDIS has the ability to operate in two modes:

- .1 the ECDIS mode when Electronic Navigational Charts (ENCs) are used; and
- .2 the RCDS mode when ENCs are not available and Raster Navigational Charts (RNCs) are used instead.

However, the RCDS mode does not have the full functionality of ECDIS, and can only be used together with an appropriate portfolio of up-to-date paper charts.

3 The mariners' attention is therefore drawn to the following limitations of the RCDS mode:

- .1 unlike ENC, where there are no displayed boundaries, RNCs are based on paper charts and as such have boundaries which are evident in ECDIS;
- .2 RNCs will not trigger automatic alarms (e.g., anti-grounding). However alarms and indications can be generated with the manual addition, during passage planning e.g. of clearing lines, ship safety contour lines, isolated danger markers and danger areas to mitigate these limitations;
- .3 horizontal datums and chart projections may differ between RNCs. Mariners should understand how a chart's horizontal datum relates to the datum of the position fixing system in use. In some instances, this may appear as a shift in position. This difference may be most noticeable at grid intersections;
- .4 a number of RNCs cannot be referenced to either WGS-84 or PE 90 geodetic datums. Where this is the case, ECDIS should give a continuous indication;
- .5 the display of RNCs features cannot be simplified by the removal of features to suit a particular navigational circumstance or task at hand. This could affect the superimposition of radar/ARPA;
- .6 without selecting different scale charts the look-ahead capability may be limited. This may lead to inconvenience when determining range and bearing or the identity of distant objects;
- .7 orientation of the RCDS display to other than chart-up, may affect the readability of chart text and symbols (e.g., course-up, route-up);

- .8 it is not possible to interrogate RNC features to gain additional information about charted objects. Whether using ENC or RNC, in the planning process a navigator should consult all relevant publications (such as sailing directions, etc.);
  - .9 with RNC it is not possible to display a ship's safety contour or safety depth and highlight it on the display, unless these features are manually entered during route planning;
  - .10 depending on the source of the RNC, different colours may be used to show similar chart information. There may also be differences in colours used during day and night time;
  - .11 an RNC is intended to be used at the scale of the equivalent paper chart. Excessive zooming in or zooming out can seriously degrade the displayed image. If the RNC is displayed at a larger scale than the equivalent paper chart, the ECDIS will provide an indication; and
  - .12 ECDIS provides an indication in the ENC which allows a determination of the quality of hydrographic the data. When using RNCs, mariners are invited to consult the source diagram or the zone of confidence diagram, if available.
- 4 Member Governments are requested to bring this information to the attention of the relevant authorities and all seafarers for guidance and action, as appropriate.

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**ANNEX 11****DRAFT SN CIRCULAR****MAINTENANCE OF ELECTRONIC CHART DISPLAY AND INFORMATION SYSTEM (ECDIS) SOFTWARE**

1 The Sub-Committee on Safety of Navigation (NAV), at its fifty-third session (23-27 July 2007), considered the issue of maintenance of Electronic Chart Display and Information System (ECDIS) software and agreed that proper maintenance of ECDIS software was an important issue for ensuring the safety of navigation.

2 The Maritime Safety Committee, at its [eighty-third session (3 to 12 October 2007)], concurred with the Sub-Committee's views, approved the Guidance on maintenance of Electronic Chart Display and Information System (ECDIS) software, as set out at annex and encouraged their use by the relevant authorities.

3 Member Governments are invited to bring the attached SN circular to the attention of all concerned for information and in particular to ensure that mariners always have the latest safety related information available to them.

## ANNEX

1 The amendments, made in the year 2000, to the International Convention for the Safety of Life at Sea (SOLAS) accepted that ECDIS may meet the chart carriage requirements of SOLAS. ECDIS Performance Standards have been adopted by IMO and in turn refer to the International Hydrographic Organization (IHO) Standards that govern the transfer and presentation of the chart information used in ECDIS.

2 ECDIS in operation comprises hardware, software and data. It is important for the safety of navigation that the application software within the ECDIS works fully in accordance with the Performance Standards and is capable of displaying all the relevant digital information contained within the Electronic Navigational Chart (ENC).

3 ECDIS that is not updated for the latest version of IHO Standards may not meet the chart carriage requirements as set out in SOLAS regulation V/19.2.1.4.

4 In January 2007, Supplement No.1 to the IHO ENC Product Specification<sup>1</sup> was introduced in order to include, within the ENC, the recently introduced IMO requirements for Particularly Sensitive Sea Areas (PSSA), Archipelagic Sea Lanes (ASL) and to cater for any future Safety of Navigation requirements.

5 Any ECDIS which has not been upgraded to the latest version of the Product Specification or the S-52 Presentation Library<sup>2</sup> may be unable to correctly display the latest charted features. Additionally the appropriate alarms and indications may not be activated even though the features have been included in the ENC. Similarly any ECDIS which is not updated to be fully compliant with the S-63 Data Protection Standard may fail to decrypt or to properly authenticate some ENCs, leading to failure to load or install.

6 In 2007 the status of IHO standards governing ECDIS are:

IHO ECDIS Standards	Current Edition
Electronic Navigational Chart (ENC)	S-57 Edition 3.1, S-57 Edition 3.1.1 and S-57 Maintenance Document (Cumulative) Number 8
Raster Navigational Chart (RNC)	S-61 Edition 1.0
ECDIS Display and Presentation	S-52 PresLib Edition 3.3 (to be replaced by Ed 3.4 on 1 Jan 2008)
ENC Data Protection	S-63 Edition 1.0

However, a list of all the current IHO standards is maintained within the ENC/ECDIS section of the IHO website ([www.iho.int](http://www.iho.int)).

<sup>1</sup> S-57 Appendix B.1, ENC Product Specification, ed. 3.1.1.

<sup>2</sup> S-52 Appendix 2, Annex A, Presentation Library, ed. 3.3.

7 The need for safe navigation requires that manufacturers should provide a mechanism to ensure software maintenance arrangements are adequate. This may be achieved through the provision of software version information using a website. Such information should include the IHO Standards which have been implemented.

8 Administrations should inform shipowners and operators that proper ECDIS software maintenance is an important issue and that adequate measures need to be implemented by masters, shipowners and operators in accordance with the International Safety Management (ISM) Code.

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**ANNEX 12**

**DRAFT SN CIRCULAR**

**GUIDELINES FOR THE INSTALLATION OF SHIPBORNE RADAR EQUIPMENT**

1 The Maritime Safety Committee, at its [eighty-fourth session (7 to 16 May 2008)], with a view to improving the safety of navigation, approved the circulation of the attached Guidelines for the installation of shipborne radar equipment.

2 Member Governments are invited to bring the information to the attention of all parties concerned.

## ANNEX

### **GUIDELINES FOR THE INSTALLATION OF A SHIPBORNE RADAR**

#### **1 General**

Information provided by radar is of vital importance for navigators and the safe navigation of ships.

Special care should be taken to ensure the correct installation of the radar, in order to improve the performance of the radar system.

This document contains guidelines for owners, ship designers, manufacturers, installers, yards, suppliers and ship surveyors. It does not replace documentation supplied by the manufacturer.

#### **2 Application**

These guidelines apply to all shipborne radar installations mandated by the 1974 SOLAS Convention, as amended. The guidelines take into account IMO resolution MSC.192(79): Adoption of the revised performance standard for radar equipment.

#### **3 Definitions**

- (a) CCRP: Consistent Common Reference Point: A location on own ship, to which all horizontal measurements such as target range, bearing, relative course, relative speed, closest point of approach (CPA) or time to closest point of approach (TCPA) are referenced, typically the conning position of the bridge.
- (b) OOW: Officer of the Watch.

#### **4 Survey**

Surveys on Convention ships should be carried out in accordance with the rules laid down in resolution A.948(23) – Revised Survey Guidelines under the harmonized system of survey and certification, and – Protocol of 1988 relating to the International Convention for the Safety of Life at Sea, 1974, as amended.

#### **5 Documentation**

Prior to the radar installation, the following documentation should be made available and provided to the installer by the shipyard, owner or manufacturer as appropriate:

- (a) Scaled drawing(s) of the ship with views from the port, starboard,, fore, aft and from above the vessel on which the radar and other antenna positions are indicated. Any ship structure or cargo that may obstruct or degrade radar performance should also be shown, for example masts, funnels, superstructure and containers. The possible turning and jib range of movable objects like cranes are to be indicated.

- (b) Scaled drawing of the antenna arrangement including the outline drawing for the rotation radius.
- (c) Drawing(s) of the bridge layout showing the position of the radar display unit(s) and additional locations (for example, electronic rooms) for housing radar units.
- (d) Manufacturers documentation describing the installation and interconnection of the radar system, the equipment units including radar frequency band and antenna size, and equipment type and evidence of type approval documentation.
- (e) List of auxiliary equipment connected with the radar system including manufacturer, type with block diagram (interconnection diagram) and evidence of type approval.
- (f) In the case of retrofit installations, a document agreed by the owner, installer and manufacturer stating that the use of original cabling, transmission lines and auxiliary units of the radar equipment may be retained.

## **6 Radar antenna installation**

Correct location of the radar antenna is an important factor of the performance of the radar system. Interference, either by reflecting constructions or other transmitters, may heavily reduce the radar performance by creating blind sectors, clutter on the radar display or generation of false echoes.

### **6.1 Interference**

Due care should be taken with regard to the location of radar antennas relative to other antennas which may cause interference to either equipment. The location of the antenna should comply with the following:

- (a) The radar antenna should be installed safely away from interfering high-power energy sources and other transmitting and receiving radio antennas.
- (b) The lower edge of a radar antenna should be a minimum of 500 mm above any safety rail.
- (c) Radar antennas in close proximity should have a minimum vertical elevation separation angle of 20° and a minimum vertical separation of 1 m where possible.

### **6.2 Location relative to masts, funnels and other constructions**

Due care should be taken with regard to the location of radar antennas relative to masts, funnels and other constructions.

The location of the antenna should comply with the following:

- (a) The antenna should generally be mounted clear of any structure that may cause signal reflections.

- (b) Ensure that any support or other obstacles are clear of the rotation of the antenna (see specific antenna outline drawing for rotational radius).
- (c) Install antenna and turning unit so that the installation complies with the compass safe distance for the equipment.

### **6.3 *Blind sectors and range***

To make full benefit from the radar, it is vitally important for the OOW that horizontal and vertical blind sectors for the radar antennae are minimized. The objective is to see the horizon freely through 360° as nearly as possible, noting the requirement of 7.1 below.

For all radar systems and where practical,

- a) A line of sight from the radar antenna to the bow of the ship should hit the surface of the sea in not more than 500 m or twice the ship length, depending which value is smaller, for all load and trim conditions.
- b) The radar antenna should be located in an elevated position to permit maximum target visibility.
- c) Blind sectors should be kept to a minimum, and should not occur in an arc of the horizon from right ahead to 22.5° abaft the beam to either side.  
*Note:* Any two blind sectors separated by 3° or less should be treated as one blind sector.
- d) Individual blind sectors of more than 5°, or a total arc of blind sectors of more than 20°, should not occur in the remaining arc, excluding the arc in the above subparagraph (c).
- e) For radar installations with two radar systems, where possible, the antennas should be placed in such a way as to minimize the blind sectors.

### **6.4 *Lifting radar equipment***

Where special equipment, such as cranes, hoists and jibs are required to install the radar system, consideration should be given to ensure that the radar system(s) are located such that the required equipment can be positioned to facilitate the installation. Radar equipment should be lifted in accordance with the information provided by the manufacturer.

## **7 General requirements**

- (a) All installations should facilitate protection of equipment, including cabling, from damage.
- (b) Safe service access should be provided using service platforms where necessary having a minimum size of 1m<sup>2</sup> at a suitable height and with a safety rail of suitable height.

- (c) Consideration should be given to the compass safety distance as supplied by the manufacturer when positioning equipment units.
- (d) The design of the mounting platform for the antenna and antenna pedestal should take into account the vibration requirements of resolution A.694(17) and furthermore defined by IEC 60945. In addition to vibration, the design of the mounting platform should consider shock and whiplash due to seagoing conditions.

### **7.1 *Interaction with sea and false echoes***

Considerations of interaction with the sea imply that the radar antenna should be only as high as necessary to clear major objects, and as high to be consistent with other requirements regarding acceptable horizon and target detection range. The location of the antenna should minimize sea clutter returns and the-number of multi-path nulls.

### **7.2 *Cables and grounding***

The cables and the grounding should comply with the following:

- (a) Cable screens, especially coaxial cable screens, should be installed in accordance with manufacturer's documentation.
- (b) The cables should be kept as short as possible to minimize attenuation of the signal.
- (c) All cables between antenna and radar system units should be routed as directly as possible, consistent with consideration for other equipment, in order to reduce electromagnetic interference effects.
- (d) Cables should not be installed close to high-power lines, such as radar or radio-transmitter lines.
- (e) Crossing of cables should be done at right angles (90°) to minimize magnetic field coupling.
- (f) All outdoor installed connectors should be waterproof by design to protect against water penetration into the cables.
- (g) Cables and microwave transmission lines should not be exposed to sharp bends.
- (h) Cables and microwave transmission lines should be installed with sufficient physical separation, as defined in the manufacturer's documentation.
- (i) Grounding of equipment units should be carried out according to the manufacturer's documentation.

### **7.3 *Power source***

The radar should be connected to an emergency power source, as required by SOLAS chapter II-1.

#### **7.4 *Radar controls and display***

- (a) If the control panel is a separate unit, the functionality of the radar controls should be available for the mariner at all workstations where a radar display is available.
- (b) The orientation of the display unit should be such that the user is looking ahead. The lookout view should not be obscured and the ambient light should cause minimum degradation on the display screen in accordance with MSC/Circ.982.

#### **7.5 *Initial installation of radar***

Radar systems are functionally integrated with a number of instruments (refer to MSC.192(79), section 8). As various systems are getting increasingly more integrated and complex, correct system settings are very important.

The following documents should be kept on board of the vessel:

- (1) The installation company should sign an installation report that to the best of their knowledge the installation and setup has been carried out according to the manufactures documentation and to these guidelines.
- (2) Information about possible performance limitations, including blind sectors, due to the radar system installation that may be of vital importance for mariners and should be stated in this documentation.
- (3) The setup of interfaces and system parameters (including CCRP position offset) should be carried out in accordance with the manufacturer's documentation. This information should be attached as an annex to the installation report noted under paragraph (1) above.

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**ANNEX 13**

**DRAFT MSC CIRCULAR**

**SAFETY MARGIN TO PROTECT RADAR SYSTEMS**

1 The Maritime Safety Committee (MSC), at its [eighty-third session (3 to 12 October 2007)], recognizing the importance of safety margins to be taken into account when developing protection criteria for maritime radar systems, approved the guidance prepared by the Sub-Committee on Safety of Navigation (NAV), at its fifty-third session, as set out in the annex.

2 Member Governments are invited to bring the annexed guidance to the attention of the radio regulatory authorities in their Administrations.

ANNEX

**SAFETY MARGIN TO PROTECT RADAR SYSTEMS**

1 The Sub-Committee on Safety of Navigation, at its fifty-third session (23 to 27 July 2007), expressed concerns about sharing between the maritime radar frequency bands and non-radar services, and noted that some Administrations are actively developing protection criteria for radar systems to use as the basis for sharing trials with non-radar systems. These protection criteria include various parameters that feature in ITU-R recommendations. However, they are not likely to include allowances to take account of the “human element” aspects of maritime radar operation.

2 The aeronautical world has been well aware of this shortcoming for many years. During any sharing discussions, a “safety margin” is included which takes account of the additional protection required to allow for variations in performance from different radar operators, and various environmental and other conditions.

3 Recent sea trials had been reported which used radars required to be carried under SOLAS regulation V/19 on an operational ship, together with (non-radar) interference sources located on shore, using realistic small maritime targets and experienced maritime radar operators. These trials indicated that there were significant variations in the detection of the targets which can be attributed to the human element.

4 The Sub-Committee concluded that there was a need to ensure that a “safety margin” was taken into account to give additional protection, should sharing with other services become an active possibility, to ensure that the maritime radar as a safety service was adequately protected.

5 Member Governments are urged to bring the above information to the attention of the radio regulatory authorities in their Administrations.

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**ANNEX 14****DRAFT MSC CIRCULAR****GUIDELINES ON THE CONTROL OF SHIPS IN AN EMERGENCY**

1 The Maritime Safety Committee (the Committee), at its [eighty-third session (3 to 12 October 2007)], approved the Guidelines on the control of ships in an emergency for Member Governments, shipmasters, companies, salvors and others engaged in a maritime emergency, with a view to providing them with a framework of authority within which they would be expected to operate.

2 Member Governments are invited to bring the Guidelines to the attention of shipmasters, companies, salvors and other interested parties of the shipping industry as they deem appropriate.

3 The Committee also decided to review the annexed Guidelines, in the future, with a view to improving them on the basis of new technical developments and in the light of experience gained from their application.

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ANNEX

**GUIDELINES ON THE CONTROL OF SHIPS IN AN EMERGENCY**

**Table of Contents**

1	Introduction
2	Purpose
3	Definitions
4	General Guidance
5	Guidelines for Coastal States
6	Guidelines for Masters
7	Guidelines for Salvors

## 1 INTRODUCTION

1.1 It is recognized that, in an emergency, the lines of command and control must be clear and the responsibilities of each of the parties involved must be unambiguous.

1.2 There are two major issues:

- .1 having a clear chain of command in an emergency is essential if efforts to save life and property and prevent pollution are to be maximized; and
- .2 there has been a growing tendency for those involved in an incident to be treated as if they have committed a crime; these Guidelines will help to clarify one element of the problems leading to seafarers and others being criminalized.

1.3 Where safety of life is involved, the provisions of the SAR Convention should be followed. Where a ship is in need of assistance but safety of life is not involved, these Guidelines should be followed. However, the MRCC should always be kept informed about actions to enable the MRCC to determine if there is a need for them to declare an emergency phase.

1.4 In the event that the ship in need of assistance requires a place of refuge, these Guidelines should be followed in conjunction with the Guidelines on places of refuge for ships in need of assistance (resolution A.949(23)).

## 2 PURPOSE OF THESE GUIDELINES

2.1 The purpose of these Guidelines is to provide Member Governments, shipmasters, companies, salvors and others engaged in a maritime emergency with a framework of authority within which they will be expected to operate.

## 3 DEFINITIONS

*Ship in need of assistance* means a ship in a situation, apart from one requiring an operation co-ordinated by a MRCC in accordance with one of the three emergency phases; uncertainty, alert and distress phase, that could give rise to loss of the vessel or an environmental or navigational hazard.

*Company* means the owner of the ship or any other organization or person such as the manager, or the bareboat charterer, who has assumed the responsibility for operation of the ship from the owner of the ship and who on assuming such responsibility has agreed to take over all duties and responsibilities imposed by the International Safety Management Code.

*IAMSAR MANUAL* means the International Aeronautical and Maritime Search and Rescue Manual.

*UNCLOS* means the United Nations Convention on the Law of the Sea, 1982.

*Intervention Convention* means the International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties (1969) and the Protocol relating to Intervention on the High Seas in Cases of Pollution by Substances other than Oil (1973).

*ISM Code* means the International Safety Management Code, made mandatory under SOLAS regulation XI/3.1.

*Place of Refuge means* a place where a ship in need of assistance can take action to enable it to stabilize its condition and reduce the hazards to navigation, and to protect human life and the environment, as defined in Assembly resolution A.949(23).

*MRCC* means Maritime Rescue Co-ordination Centre.

*MAS* means the Maritime Assistance Service as defined in Assembly resolution A.950(23).

*SAR Convention* means the International Convention on Maritime Search and Rescue, 1979.

## **4 GENERAL GUIDANCE**

4.1 During the search and rescue (SAR) phase of a maritime emergency, there is an assumption within the SAR Convention that co-ordination of the SAR response will be carried out either by the MRCC or by an on-scene co-ordinator who will not normally be the Master of the ship in distress. However, the underlying premise is that the Master remains in command of the ship and co-operation with the SAR operation is assumed.

4.2 If, once the SAR phase of an emergency is over, or a ship does not require any action from SAR services but is still in need of assistance, the role and responsibilities of the various parties are less clear. Any actions at sea on salvage should be conducted in close co-operation with the responsible MRCC or other relevant authority as notified by the MRCC to enable them to assess the situation and if needed declare an appropriate emergency phase.

4.3 The ISM Code, section 5, Master's Responsibility and Authority, states that:

“The Company should establish in the safety management system that the Master has the overriding authority and the responsibility to make decisions with respect to safety and pollution prevention and to request the Company's assistance as may be necessary.”

4.4 This indicates that the Master has the authority and responsibility to take decisions in an emergency and to speak with the Company as necessary. However, it does not deal with the responsibilities and duties of a coastal State which may have legislation governing the conduct of a maritime emergency in waters under its jurisdiction or which wishes to exercise its powers to intervene to avoid pollution arising from maritime casualties, in particular beyond the territorial sea.

4.5 At no time should the Master be prohibited from taking action which, in the Master's judgment, is required to protect the lives of crew and passengers or others on board.

## **5 GUIDELINES FOR COASTAL STATES**

5.1 Assembly resolution A.950(23) outlines the situations in which the services of the MAS are involved; they are:

- .1 the ship is involved in an incident (e.g. loss of cargo, accidental discharge of oil, etc.) that does not impair its seakeeping ability but nevertheless has to be reported;
- .2 the ship, according to its Master's assessment, is in need of assistance but not in a distress situation (about to sink, fire developing, etc.) that requires the rescue of those on board; and
- .3 the ship is found to be in a distress situation and those on board have already been rescued, with the possible exception of those who had remained aboard or have been placed on board to attempt to deal with the ship's situation.

These are the situations which these Guidelines seek to address.

5.2 The MAS serves mainly as the point of contact during the resolution of the situation, however, the resolution recommends that national instructions should at least indicate to the organization discharging MAS functions:

- .1 the authority or organization to which it transmits the information obtained from a ship; and
- .2 the authority or organization from which it receives instructions concerning its action and the particulars to be transmitted to the ship.

5.3 When more than one coastal State is involved, the States concerned should agree between themselves which will co-ordinate the operation and be responsible for transmitting orders and information.

5.4 Some States have legislation which allows them to intervene more actively in the situations outlined in 5.1 when a ship is in waters under their jurisdiction. A State intending to use its powers under such legislation should ensure that:

- .1 the chain of command within its shore organization is clear and each level of the chain has procedures setting out what actions it should take and the limits of its powers;
- .2 the Master of the ship, the Company and any salvage team are told clearly what the shore command structure is;
- .3 the flag State is informed as early as possible in the proceedings and its advice sought;
- .4 the Master of the ship, the Company and any salvage team involved are told clearly what degree of responsibility remains with them and what limitations are being placed on their freedom of action;
- .5 when an order is issued, it is clear to the recipient who issued the order, to whom it is addressed and under what authority;

- .6 it is preferable for all orders from ashore to pass through a single focal point to ensure a consistent approach. All messages from the ship should pass through the same focal point;
- .7 the freedom to take necessary action to resolve a situation is not removed from the people on the ship unless deemed to be necessary to resolve the situation; and
- .8 unless time pressures make such communication impossible, the Master is allowed to speak with the Company in accordance with the ISM Code provisions.

5.5 Article 221 of UNCLOS recognizes the right of coastal States “pursuant” to international law, both customary and conventional, to take and enforce measures beyond the territorial sea proportionate to the actual or threatened damage to protect their coastline or related interests, including fishing, from pollution or threat of pollution following upon a maritime casualty, which may be reasonably expected to result in major harmful consequences”. The right of States to intervene in the high seas to prevent or reduce pollution damage as a consequence is also regulated by the Intervention Convention. States may take measures beyond their territorial sea in accordance with customary international law of the sea.

5.6 States taking measures in accordance with paragraph 5.5 should indicate that they are doing so in accordance with UNCLOS, and/or the Intervention Convention or customary international law of the sea. In doing so, States should follow the guidance in paragraph 5.4.

## **6 GUIDELINES FOR MASTERS**

6.1 At the earliest possible stage in an emergency, the Master should inform the appropriate coastal State authorities<sup>1</sup>, including that of the nearest coastal State, the flag State and the Company, of the nature of the emergency and what assistance is required.

6.2 Unless specifically instructed otherwise the Master has the authority and responsibilities specified in the ISM Code as in paragraph 4.3 above.

6.3 If the Company engages a salvor to attempt to save the ship, a contract will be signed which sets out the respective responsibilities of the parties involved. When a salvage Master has been appointed to supervise the salvaging of a ship, the Master should co-operate with the salvage Master to the maximum extent.

6.4 When a ship requiring assistance is in waters which are under the jurisdiction of a coastal State and that State has laws allowing it to intervene in an emergency and wishes to do so, then the Master should:

- .1 ask for clarification as to who is exercising the coastal States powers;
- .2 if necessary and time permits, speak with Company as in paragraph 4.3;

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<sup>1</sup> Refer to MSC/Circ.892 on Alerting of Search and Rescue Authorities.

- .3 seek clarification of the extent to which the Master can still exercise authority in relation to the operation and salvage of the ship;
- .4 ask the coastal State for an expert assessment of the condition of the ship if in doubt about the actions being taken; and
- .5 if still in doubt or in disagreement with the actions or instructions given by the coastal State, clearly state so.

6.5 If a State is intervening in accordance with paragraphs 5.5 and 5.6 when a ship is on the high seas, the guidance under paragraph 6.4 should be followed.

6.6 It is most important that a ship should keep the most accurate records of events possible. Where a VDR is fitted, the limitations of the period of time covered by its recording should be borne in mind. A separate chronological order of events should also be kept.

## **7 GUIDELINES FOR SALVORS**

7.1 The first requirement of any salvor is to be provided with the most reliable information about the vessel, the nature of the casualty, the situation of the persons, cargo and bunkers on board.

7.2 In particular this information will include:

- .1 vessel plans;
- .2 cargo manifest, including hazardous cargo list;
- .3 stowage plan and nature/position of dangerous goods on board;
- .4 position and quantity of remaining bunkers on board;
- .5 general casualty information relating to position, damage and condition of the vessel; and
- .6 any emergency towing procedures adopted by the Organization.

7.3 The salvor's obligations are to use their best endeavours to salve the vessel and its cargo, and whilst engaged in such operations, to avoid or minimise damage to the environment.

7.4 The salvor should communicate and co-ordinate with the Master and the coastal State to the maximum extent possible.

7.5 The salvor should advise the Company/Master and the coastal State authorities as soon as possible of their salvage plan, and the personnel and equipment that will be utilized to carry out the salvage operations.

7.6 The salvor should nominate a focal point to provide 24-hour contact with the Master Company and coastal State authorities.

7.7 The coastal State exercising authority should allow the salvor access to the vessel.

7.8 The salvor should ensure that the salvage plan and actions represent the best environmental option for the Company and the coastal State(s) concerned.

7.9 In the event that the casualty needs to be taken to a place of refuge in order to carry out necessary salvage operations, such as diving, patching, transfer of cargo, etc. the salvor should comply with section 2 of the IMO Guidelines on places of refuge for ships in need of assistance, as should the Master/Company and seek similar compliance by the coastal State(s) as under section 3 of the same Guidelines.

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**ANNEX 15****DRAFT RESOLUTION MSC.[...](83)****(adopted on [..... 2007])****ADOPTION OF THE PERFORMANCE STANDARDS FOR NAVIGATION LIGHTS,  
NAVIGATION LIGHT CONTROLLERS AND ASSOCIATED EQUIPMENT**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution A.886(21), by which the Assembly resolved that the function of adopting performance standards and technical specifications, as well as amendments thereto shall be performed by the Maritime Safety Committee and/or the Marine Environment Protection Committee, as appropriate, on behalf of the Organization,

RECALLING FURTHER Rule 21, Rule 23 and Rule 34(b) of the Convention on the International Regulations for Preventing Collisions at sea (COLREGs), 1972, concerning the requirements on the use of Navigation Lights,

NOTING that that the purpose of Navigation Lights is to identify ships and to notify their intentions at sea and that the purpose of Navigation Light Controllers is to provide means of control and monitoring of the status of navigation lights onboard the vessel to the Officer of the Watch (OOW),

RECOGNIZING the need to develop performance standards for Navigation Lights, Navigation Light Controllers and associated equipment to be fitted onboard vessels in accordance with COLREGs,

HAVING CONSIDERED the recommendation made by the Sub-Committee on Safety of Navigation at its fifty-third session, and the Maritime Safety Committee at its eighty-third session,

1. ADOPTS the Recommendation on Performance Standards for Navigation Lights, Navigation Light Controllers and associated equipment, set out in the annex to the present resolution;
2. RECOMMENDS Governments ensure that Navigation Lights, Navigation Light Controllers and associated equipment installed on or after [1 January 2009] conform to performance standards not inferior to those specified in the annex to the present resolution.

## ANNEX

### **PERFORMANCE STANDARDS FOR NAVIGATION LIGHTS, NAVIGATION LIGHT CONTROLLERS AND ASSOCIATED EQUIPMENT**

#### **1 Scope**

These performance standards apply to Navigation Lights, Navigation Light Controllers and associated equipment to be fitted onboard vessels in accordance with COLREGs. These equipment should be designed, tested, installed and maintained based on these standards, taking into account that the purpose of Navigation Lights is to identify ships and to notify their intentions at sea and that the purpose of a Navigation Lights Controller is to provide means of control and monitoring of the status of navigation lights onboard the vessel to the Officer of the Watch (OOW).

#### **2 Application**

In addition to the general requirements set out in resolution A.694(17)<sup>1</sup>, navigation lights, navigation lights controllers and associated equipment should meet the requirements of these standards.

#### **3 Definitions**

3.1 *Associated equipment* means equipment necessary for operation of NLs and NLCs.

3.2 *COLREGs* means Convention on the International Regulations for Preventing Collisions at Sea, 1972, including their annexes.

3.3 *Lamp* means a source producing light, including incandescent sources, Light Emitting Diodes (LED) and other non-incandescent sources.

3.4 *Length* means the length overall.

3.5 *Navigation Light (NL)* means the following lights:

- .1 masthead light, sidelights, sternlight, towing light, all-round light, flashing light as defined in Rule 21 of COLREGs;
- .2 all-round flashing yellow light required for air-cushion vessels by Rule 23 of COLREGs; and
- .3 manoeuvring light required by Rule 34(b) of COLREGs.

The light source includes lamps, its housing, placing and means for delimiting the angle of lighting.

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<sup>1</sup> Refer to publication IEC 60945.

3.6 *Navigation Light Controller (NLC)* means a device enabling operational control of a Navigation Light.

3.7 *SOLAS* means the International Convention for the Safety of Life at Sea, 1974, as amended.

## **4 Navigation Lights**

### **4.1 General**

4.1.1 Unless expressly required otherwise, NLs should appear steady and non-flashing.

4.1.2 Lenses of NLs should be produced in a robust, non-corroding material, which should ensure a long-term durability for the optical qualities of the lens.

4.1.3 A masthead light, sidelights and a sternlight installed on board a ship not less than 50 m in length should be duplicated or be fitted with duplicate lamps.

4.1.4 Only lamps specified by the manufacturer should be used in each particular NL to avoid reduction of NL's performance due to unsuitable lamps.

4.1.5 A sufficient number of spare lamps for NLs should be carried onboard, taking into account the duplication of NLs or lamps, as appropriate.

### **4.2 Luminous intensity distribution**

4.2.1 In the horizontal directions where decrease of luminous intensity to "practical cut-off" is required by section 9 of Annex I to COLREGs, the luminous intensity should be no more than 10% of the average luminous intensity within the prescribed sector for vessels not less than 12 m in length.

4.2.2 Within the prescribed sector in which the minimum luminous intensity is required by section 9 of Annex I to COLREGs, the horizontal intensity distribution of the light should be uniform in such a way that the measured minimum and maximum luminous intensity values (in candelas) do not differ by more than a factor of 1.5, to avoid luminous intensity changes which may result in the appearance of a flashing light for vessels not less than 12 m in length.

4.2.3 Within the prescribed sector in which the minimum luminous intensity is required by section 10 of Annex I to COLREGs, the vertical intensity distribution of the light should be uniform in such a way that the measured minimum and maximum luminous intensity values (in candelas) do not differ by more than a factor of 1.5, to avoid luminous intensity changes which may result in the appearance of a flashing light for vessels not less than 12 m in length.

### **4.3 Special requirements for lights using LEDs**

The luminous intensity of LEDs gradually decreases while the electricity consumption remains unchanged. The rate of decrease of luminous intensity depends on the output of LEDs and temperatures of LEDs. To prevent shortage of luminous intensity of LEDs:

- .1 An alarm function should be activated to notify the Officer of the Watch that the luminous intensity of the light reduces below the level required by COLREGs;
- or
- .2 LEDs should only be used within the lifespan (practical term of validity) specified by the manufacturer to maintain the necessary luminous intensity of LEDs. The lifespan of LEDs should be determined and clearly notified by the manufacturer based on the appropriate test results on the decrease of luminous intensity of the LEDs under various temperature conditions and on the temperature condition of LEDs in the light during operation, taking the appropriate margin into account.

## **5 Navigation Light Controller**

- 5.1 An NLC should facilitate ON/OFF controls of individual NLs.
- 5.2 An NLC should provide visual indications of “ON”/“OFF” status of NLs.
- 5.3 Pre-programmed NL group settings may be provided.
- 5.4 An NLC on board a ship not less than 50 m in length should provide the alarm for:
  - .1 failure of power supply to NLs; and
  - .2 failure, including short circuit, of a lamp which is switched ON.
- 5.5 An NLC on board a ship not less than 50 m in length should present the status of all NLs in a logical presentation, meeting the requirements set out in resolution MSC.191(79), *e.g.*, by symbol marks on a display.
- 5.6 All indicators of an NLC should be dimmable to ensure easy reading without disturbing the night vision of the Officer of the Watch. The brightness of a display, if fitted, of an NLC should be controllable.
- 5.7 An NLC should support the use of standardized serial interfaces for marine navigation and communication systems<sup>2</sup>.
- 5.8 The NLC should have a bi-directional interface to transfer alarms to external systems and receive acknowledgements of alarms from external systems. The interface should comply with the relevant international standards<sup>2</sup>.

## **6 Power supply and fallback arrangements**

- 6.1 Each NL should be connected, via separate circuits, to a NLC located on the bridge in order to avoid any NL failure, including short circuit, that affect any other NLs connected to the NLC. A NLC may only be additionally connected to special signal lights such as lights required by canal authorities.

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<sup>2</sup> Refer to IEC 61162 series.

6.2 It should be possible to operate the NLC and NLs when supplied by an emergency source of electrical power in accordance with the appropriate requirements of chapter II-1 of the 1974 SOLAS Convention, as amended.

6.3 Automatic switch over to the alternative source of power is permitted.

## **7 Associated equipment**

Screens for sidelight may be a part of a ship's structure. All associated equipment should be produced in a robust, non-corroding material, which should ensure a long-term durability for the relevant operation.

## **8 Marking**

Each NL should be marked with:

- .1 the manufacturers name or symbol, and designation of type;
- .2 the type/category of the NL in accordance with COLREGs;
- .3 serial and certificate number;
- .4 head line directions;
- .5 range in nautical miles; and
- .6 nominal wattage of the light source in watts, if different values lead to different ranges.

## **9 Installation of navigation lights and associated equipment**

In addition to the relevant requirements of COLREGs, the installation of NLs and associated equipment should comply with the following requirements:

- .1 The manufacturer of NLs should provide guidance on the installation of NLs and the design and installation of screens for sidelights, as required by COLREGs;
- .2 NLs should be installed in such a way so as to prevent navigation watch keeping personnel from direct or reflected undue glare;
- .3 NLs should be installed in such way as to ensure that the light shows over the required arcs of visibility, and should satisfy the required vertical separation and location requirements in all normal operating trim conditions; and
- .4 Equipment for operation of the manoeuvring light, mounted in accordance with COLREGs, should be located at conning position. The equipment may be located near the steering wheel or the autopilot/track control.

## **10 Maintenance**

10.1 NLs should be so designed that the lamp specified by the manufacturer can be efficiently and readily replaced, without elaborate recalibration or readjustment.

10.2 NLs, NLCs and associated equipment should be so constructed and installed, as necessary, that they are readily accessible for inspection and maintenance purposes.

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**ANNEX 16****DRAFT MSC CIRCULAR****UNIFIED INTERPRETATIONS OF COLREG 1972, AS AMENDED**

1 The Maritime Safety Committee, at its [eighty-third session ( 3 to 12 October 2007)], with a view to providing more specific guidance for certain Rules, which are open to different interpretations contained in IMO instruments, approved the unified interpretations of COLREG 1972, as amended prepared by the Sub-Committee on Safety of Navigation, as set out in the annex.

2 Member Governments are invited to use the annexed unified interpretations as guidance when applying relevant provisions of COLREGs to vessels constructed on or after [1 January 2009] and to bring the unified interpretations to the attention of all parties concerned.

ANNEX

**UNIFIED INTERPRETATIONS OF COLREG 1972, AS AMENDED**

**Rule 27(b)(i) – Vessels not under command or restricted in their ability to manoeuvre**

“Not under command” (NUC) all-round red lights (Rule 27(a)(ii)) may be used as part of the “Restricted Ability to Manoeuvre” (RAM) lights provided the vertical and horizontal distances required by COLREG 1972 are complied with and the electrical system is arranged so that the all-round white light (RAM) may be switched on independently from the two all-round red lights (NUC).

**Annex I, section 3(b) – Horizontal positioning and spacing of lights**

The term “near the side” is interpreted as being a distance of not more than 10% of the breadth of the vessel inboard from the side, up to a maximum of 1 metre. Where the application of above requirement is impractical (e.g. small ships with superstructure of reduced width) exemption may be given on the basis of the Flag Authority acceptance.

**Annex I, section 9(b) – Horizontal sectors**

In order to comply with the 1 mile requirement in 9(b)(ii), the all-round lights shall be screened less than 180 degrees. However, as a light source is not a point but has a certain extension, it may be accepted that all-round lights are screened up to 180 degrees. Screening details are to be considered by Societies when carrying out the drawing approval process.

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## ANNEX 17

**DRAFT REVISED WORK PROGRAMME OF THE SUB-COMMITTEE AND  
PROVISIONAL AGENDA FOR THE FIFTY-FOURTH SESSION**

**SUB-COMMITTEE ON SAFETY OF NAVIGATION (NAV)**

		<b>Target completion date/number of sessions needed for completion</b>	<b>Reference</b>
1	<b>Routeing of ships, ship reporting and related matters</b>	Continuous	MSC 72/23, paragraphs 10.69 to 10.71, 20.41 and 20.42; NAV 53/22, section 3
2	<b>Casualty analysis</b> (co-ordinated by FSI)	Continuous	MSC 70/23, paragraphs 9.17 and 20.4; NAV 53/22, section 17
3	<b>Consideration of IACS unified interpretations</b>	Continuous	MSC 78/26, paragraph 22.12; NAV 53/22, section 18
H.1	<b>World-wide radionavigation system (WWRNS)</b>	2008	MSC 75/24, paragraph 22.37; NAV 53/22, section 12
.1	new developments in the field of GNSS, especially Galileo	2008	
.2	review and amendment of IMO policy for GNSS (resolution A.915(22))	2008	
.3	recognition of radionavigation systems as components of the WWRNS (resolution A.953(23))	2008	
H.2	<b>ITU matters, including Radiocommunication ITU-R Study Group 8 matters</b>	2009	MSC 69/22, paragraphs 5.69 and 5.70; NAV 53/22, section 9

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- Notes:**
- 1 "H" means a high priority item and "L" means a low priority item. However, within the high and low priority groups, items have not been listed in any order of priority.
  - 2 The struck-out text indicates proposed deletions and the shaded text indications proposed additions or changes.
  - 3 Items printed in bold letters have been selected for the provisional agenda for NAV 54.

**Sub-Committee on Safety of Navigation (NAV) (continued)**

		<b>Target completion date/number of sessions needed for completion</b>	<b>Reference</b>
H.3	<b>Development of guidelines Revision of the performance standards for INS and IBS, including performance standards for bridge alert management</b>	2007 2009	MSC 78/26, paragraph 24.30; NAV 53/22, section 4
H.4	<b>Evaluation of the use of ECDIS and ENC development</b>	2007	MSC 78/26, paragraph 24.33; NAV 52/18, section 5
H.5	<b>Development of guidelines for the installation of shipborne radar equipment</b>	2008	MSC 80/24, paragraph 21.23; NAV 52/18, section 7
H.6 H.4	<b>Amendments to COLREG Annex I related to colour specification of lights</b>	2007 2008	MSC 80/24, paragraph 21.24.1; NAV 53/22, section 8
H.7	<b>Development of performance standards for navigation lights, navigation light controllers and associated equipment</b>	2007	MSC 80/24, paragraph 21.24.2; NAV 52/18, section 11
H.8 H.5	<b>Carriage requirements for a bridge navigational watch alarm system</b>	2008	MSC 81/25, paragraph 23.27; NAV 53/22, section 6
H.9	<b>Guidelines on the control of ships in an emergency (in co-operation with COMSAR)</b>	2007	MSC 81/25, paragraphs 23.28 to 23.32; NAV 52/18, section 17
H.10 H.6	<b>Development of an e-navigation strategy (in co-operation with COMSAR)</b>	2008	MSC 81/25, paragraphs 23.34 to 23.37; NAV 53/22, section 13
H.11 H.7	<b>Development of carriage requirements for ECDIS</b>	2008	MSC 81/25, paragraphs 23.39 and 23.40; NAV 53/22, section 14

Sub-Committee on Safety of Navigation (NAV) (continued)

		<b>Target completion date/number of sessions needed for completion</b>	<b>Reference</b>
<del>H.12</del> <del>H.8</del>	<b>Guidelines for uniform operating limitations of high-speed craft</b> (co-ordinated by DE)	2008	MSC 81/25, paragraph 23.45; NAV 53/22, section 15
<del>H.13</del> <del>H.9</del>	<b>Guidelines on the layout and ergonomic design of safety centres on passenger ships</b>	2008	MSC 81/25, paragraph 23.42; NAV 53/22, section 16
<del>H.14</del> <del>H.10</del>	<b>Amendments to the General Provisions on Ships' Routeing</b>	<del>1 session</del> 2008	MSC 82/24, paragraph 21.34
<del>H.15</del> <del>H.11</del>	<b>Review of COLREGs regarding the right of way of vessels over pleasure craft</b>	<del>1 session</del> 2008	MSC 82/24, paragraph 21.35
<del>H.16</del> <del>H.12</del>	<b>Code of conduct during demonstrations/campaigns against ships on high seas</b> (in co-operation with FSI)	<del>2 sessions</del> 2009	MSC 82/24, paragraph 21.36
<del>H.17</del> <del>H.13</del>	<b>Measures to minimize incorrect data transmissions by AIS equipment</b> (in co-operation with FSI and COMSAR, as necessary)	<del>2 sessions</del> 2009	MSC 82/24, paragraph 21.38
<del>H.18</del> <del>H.14</del>	<b>Review of vague expressions in SOLAS regulation V/22</b>	<del>2 sessions</del> 2009	MSC 82/24, paragraphs 21.39 to 21.40
<del>H.20</del> <del>H.15</del>	<b>Revision of the Guidance on the application of AIS binary messages</b>	<del>2 sessions</del> 2009	MSC 82/24, paragraph 21.41
<del>H.21</del> <del>H.16</del>	<b>Improved safety of pilot transfer arrangements</b> (in co-operation with DE)	<del>2 sessions</del> 2009	MSC 82/24, paragraph 21.42

**DRAFT PROVISIONAL AGENDA FOR NAV 54\***

- Opening of the session
- 1 Adoption of the agenda
  - 2 Decisions of other IMO bodies
  - 3 Routeing of ships, ship reporting and related matters
  - 4 Development of guidelines for IBS, including performance standards for bridge alert management
  - 5 Amendments to the General Provisions on Ships' Routeing
  - 6 Carriage requirements for a bridge navigational watch alarm system
  - 7 Review of COLREGs regarding the right of way of vessels over pleasure craft
  - 8 Amendments to COLREG Annex I related to colour specification of lights
  - 9 ITU matters, including Radiocommunication ITU-R Study Group 8 matters
  - 10 Code of conduct during demonstrations/campaigns against ships on high seas
  - 11 Measures to minimize incorrect data transmissions by AIS equipment
  - 12 World-wide radionavigation system (WWRNS)
  - 13 Development of an e-navigation strategy
  - 14 Development of carriage requirements for ECDIS
  - 15 Guidelines for uniform operating limitations of high-speed craft
  - 16 Guidelines on the layout and ergonomic design of safety centres on passenger ships
  - 17 Review of vague expressions in SOLAS regulation V/22
  - 18 Revision of the Guidance on the application of AIS binary message
  - 19 Improved safety of pilot transfer arrangements

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\* Agenda item numbers do not necessarily indicate priority.

- 20 Casualty analysis
- 21 Consideration of IACS unified interpretations
- 22 Work programme and agenda for NAV 55
- 23 Election of Chairman and Vice-Chairman for 2009
- 24 Any other business
- 25 Report to the Maritime Safety Committee

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**ANNEX 18**

**DRAFT MSC CIRCULAR**

**PREVENTION OF MARITIME ACCIDENTS DUE TO DRIFTWOOD  
AND OTHER FLOATING OBSTACLES**

1 The Maritime Safety Committee (MSC), at its [eighty-fourth session (5 to 16 May 2008)], recognizing the importance of the prevention of accidents due to driftwood and other floating obstacles, approved the guidance prepared by the Sub-Committee on Safety of Navigation (NAV), at its fifty-third session, as set out in the annex.

2 Member Governments are invited to bring the information to the attention of all parties concerned.

ANNEX

**PREVENTION OF MARITIME ACCIDENTS DUE TO DRIFTWOOD  
AND OTHER FLOATING OBSTACLES**

1 On April 2006, a collision of a high-speed craft with driftwood occurred off the Japanese coast, which caused over 100 injuries. Accidents due to floating obstacles such as driftwood could happen not only in the vicinity of Japan, but also in other parts of the world.

2 SOLAS regulation V/31, “Danger Messages”, prescribes that “The master of every ship which meets with dangerous ice, a dangerous derelict, or any other direct danger to navigation, ..... is bound to communicate the information by all means at his disposal to ships in the vicinity, and also to the competent authorities”. It is obvious that driftwood and other floating obstacles are regarded as “direct danger to the safety of navigation”.

3 In order to prevent similar accidents, it is important to collect information on driftwood and other floating obstacles and to notify ships in the vicinity of such information. Thus, the Member States are invited to ask ships that detect driftwood and other floating obstacles (including containers, other large cargo items, etc.) which could cause a maritime accident, especially for a high-speed craft, to communicate the information to ships in the vicinity and competent authorities, in accordance with SOLAS regulation V/31.

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