



SUB-COMMITTEE ON SAFETY OF  
NAVIGATION  
52nd session  
Agenda item 18

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## REPORT TO THE MARITIME SAFETY COMMITTEE

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## 1 GENERAL

1.1 The Sub-Committee on Safety of Navigation held its fifty-second session from 17 to 21 July 2006 at the Headquarters of the Organization, 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	LATVIA
ANGOLA	LIBERIA
ANTIGUA AND BARBUDA	LITHUANIA
ARGENTINA	MALAYSIA
AUSTRALIA	MALTA
BAHAMAS	MARSHALL ISLANDS
BANGLADESH	MEXICO
BELGIUM	MOROCCO
BRAZIL	NETHERLANDS
CANADA	NEW ZEALAND
CHILE	NIGERIA
CHINA	NORWAY
CROATIA	PANAMA
CUBA	PAPUA NEW GUINEA
CYPRUS	PERU
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA	PHILIPPINES
DEMOCRATIC REPUBLIC OF THE CONGO	POLAND
DENMARK	PORTUGAL
ECUADOR	REPUBLIC OF KOREA
EGYPT	ROMANIA
ESTONIA	RUSSIAN FEDERATION
FINLAND	SAUDI ARABIA
FRANCE	SINGAPORE
GERMANY	SOUTH AFRICA
GREECE	SPAIN
HONDURAS	SWEDEN
ICELAND	THAILAND
INDONESIA	TUNISIA
IRAN (ISLAMIC REPUBLIC OF)	TURKEY
IRAQ	TUVALU
IRELAND	UKRAINE
ITALY	UNITED KINGDOM
JAPAN	UNITED STATES
KENYA	URUGUAY
	VENEZUELA

and of the following Associate Member of IMO:

HONG KONG, CHINA

1.3 The following IMO Non-Member also attended the session:

COOK ISLANDS

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

INTERNATIONAL HYDROGRAPHIC ORGANIZATION (IHO)  
LEAGUE OF ARAB STATES  
EUROPEAN COMMISSION (EC)  
INTERNATIONAL FEDERATION OF SHIPMASTERS' ASSOCIATIONS (IFSMA)  
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 CONFEDERATION OF FREE TRADE UNIONS (ICFTU)  
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 ASSOCIATION OF INDEPENDENT TANKER OWNERS  
(INTERTANKO)  
INTERNATIONAL ASSOCIATION OF DRY CARGO SHIPOWNERS  
(INTERCARGO)  
INTERNATIONAL SAILING FEDERATION (ISAF)  
WORLD NUCLEAR TRANSPORT INSTITUTE (WNTI)  
INTERNATIONAL LIFEBOAT FEDERATION (ILF)  
WORLD WIDE FUND FOR NATURE (WWF)  
INTERNATIONAL HARBOUR MASTERS' ASSOCIATION (IHMA)

1.5 In welcoming the participants, the Secretary-General referred to the previous week's terrorist attacks in Mumbai, with heavy loss of life, which had demonstrated, yet again, how vulnerable the transport system was. In Mumbai, as previously in Tokyo, Moscow, Madrid and London, the perpetrators of these evil acts had chosen the railway system to strike; in New York and Washington their preferred weapon of destruction had been the airplane. The fact that shipping had, fortuitously so far, escaped their attention should not lead to any comforting feeling of relaxation and should allow no space for any complacency. If there was a lesson that could be learned from the recent attacks, it was that it was necessary to continue relentlessly raising the industry's defences to the extent that terrorists might be dissuaded from launching an attack on ships and port facilities and, in the unfortunate event that such an act had been committed, that the industry was in a strong position to mitigate its impact on human life, property and the environment. The world community depended too much on shipping for the Organization not to do all that was humanly possible to ensure its uninterrupted flow. In the meantime, he asked the Indian delegation to convey the entire membership's, the Secretariat's and his own deep sympathy and condolences to the families, friends and colleagues of the innocent victims of the Mumbai tragedy.

He drew the delegates attention to the theme for this year's World Maritime Day, which was "Technical Co-operation: IMO's response to the 2005 World Summit", with special emphasis on the maritime needs of Africa. The theme was chosen to give the Organization the opportunity to contribute, from its perspective, to the fulfilment of the Millennium Development Goals, adopted by the 2000 Millennium Summit and re-affirmed by last year's World Summit, as the world community's response to identified new needs and challenges presented, first and foremost, by the fact that hundreds of millions of people were left defenceless against hunger, disease and environmental degradation, even though the means to protect them against these were available. Maritime activity had a key role to play in meeting these goals, for shipping moved the world's burgeoning trade, while international commerce promoted production, job creation and greater socio-economic prosperity. And the combination of all these had undoubtedly the potential to lift people from hunger and poverty and also eradicate life-threatening diseases.

Turning to the Sub-Committee's work at the current session, the Secretary-General referred to the fascinating voyage it was embarking on by taking the concept of e-navigation forward and he recalled his opening remarks regarding the development of a strategic vision for e-navigation to integrate existing and new navigational tools, in particular electronic tools, in an all-embracing system at the last May's eighty-first session of the Maritime Safety Committee. As the basic technologies for such an innovative step were already available, the challenge lay in ensuring the availability of all the other components of the system, including electronic navigational charts, and in using them effectively in order to simplify, to the benefit of the mariner, the display of the real-time environment in which his or her ship navigated.

He further alluded to his keynote address to the 16th IALA/AISM Conference, held in Shanghai last May, when he had reiterated that the strategic vision required would ensure that the new generation of navigational tools, available now and anticipated in the near future, could be drawn together in a holistic and systematic manner to secure a greater level of safety and accident prevention and, at the same time, to deliver substantial operating efficiencies with consequent commercial benefits. However, the design of the system should be such as not to reduce the navigator solely to the role of monitoring its function but also to enable him or her to obtain optimum navigational support and information to facilitate and ensure appropriate and timely navigational and anti-collision decision-making, in line with good seamanship. It was also very likely that, as the overall strategy for e-navigation became clearer, there would be implications for the international regulatory framework. At that stage, and as usual, IMO, in co-operation with all relevant entities, would have to act diligently and prudently to ensure that no aspect of the innovative concept that e-navigation presented was left unattended. One such aspect would be to engage, at an early stage, the developing countries so that the whole system might benefit from their capabilities and potential, thus narrowing the gap between them and the developed world and contributing to the elimination of the digital divide or the elimination of what branded, at last month's TCC meeting, as "maritime poverty", which seemed to exist nowadays.

Referring to the various items of operational significance on the Sub-Committee's agenda for the current session, he highlighted the numerous proposals on ships' routing, ship reporting and other measures aimed at enhancing the safety of navigation in areas of identified navigational hazards and environmentally sensitive sea areas including the use of the XML format for ship reporting systems.

He reminded the Sub-Committee that the importance of the role of the human element in the safety of navigation could never be over emphasized. The significance of the man/machine interface in safe operations was widely recognized including ergonomic issues with respect to shipboard operations and he was confident that the Sub-Committee would be able to make significant progress in its quest for sound INS and IBS performance standards. Still on the issue

of performance standards, he observed that progress on ECDIS performance standards and related issues would also assist in the development of the concept of e-navigation as a whole. With respect to navigational aids and related issues, the finalization of performance standards for shipborne Galileo receiver equipment would allow the industry to produce the relevant equipment in time for the introduction of the system so that when the Galileo system became operational, it would form part of the World-Wide Radionavigation System.

The Secretary-General then invited the Sub-Committee's attention to a few issues of a rather general nature. Firstly, referring to security in ports and on ships, he advised that in these turbulent times, there was no place for complacency about security at the Headquarters and no compromise should be allowed on this vital issue. He, therefore, appealed to everyone to promptly abide by the security rules in place.

Secondly, with reference to the implementation of the Voluntary IMO Member State Audit Scheme (resolution A.974(24)), he stated that he would appreciate receiving favourable responses from Members offering themselves for audit, nominating auditors to enable him to select audit teams to conduct the audit and nominating qualified auditors to participate in the planned regional training courses. He had pledged his personal commitment to the Scheme and would appreciate the support of, and co-operation in, the wide and effective implementation of the Scheme.

Thirdly, on the issue of the planned refurbishment of the Headquarters Building which would be closed for approximately 12 months between the summers of 2006 and 2007, the Secretary-General informed that the Secretariat would move temporarily to offices in London provided by the Host Government, and expressed hope that Members would be prepared to face, with resolute spirit and good humour, any discomfort and disruption from normal operations.

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

### **Adoption of the agenda**

1.7 The Sub-Committee adopted the agenda, as approved by MSC 81 (NAV 52/2/2, annex 2).

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

2.1 The Sub-Committee noted, in general, decisions and comments (NAV 52/2, NAV 52/2/1, NAV 52/2/2 and NAV 52/2/3) pertaining to its work made by A 24, DE 49, COMSAR 10, MEPC 54, MSC 81 and FSI 14 and considered them under the appropriate agenda items.

2.2 The Chairman informed the Sub-Committee that MSC 81 had considered the report of the fifty-first session of the Sub-Committee and taken action of relevance to the Sub-Committee regarding ships' routing and reporting systems namely it:

- .1 approved MSC.1/Circ.1060/Add.1 on Amendment to the Guidance note on the preparation of proposals on ships' routing systems and ship reporting systems for submission to the Sub-Committee on Safety of Navigation (MSC/Circ.1060);

- .2 reminded Governments of the requirement to provide “information on the adequacy of the state of hydrographic surveys and nautical charts in the area of a proposed routeing system”, as set out in MSC/Circ.1060;
- .3 advised the Sub-Committee that it might seek, where necessary, guidance from IHO regarding hydrographic surveying and nautical charting in areas of proposed routeing systems; and
- .4 noted that IHO would comment on proposed routeing systems where it considered this to be appropriate.

### **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, therefore 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 but not 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 52/WP.1, outlining a preliminary assessment of the ships’ routeing and ship reporting proposals. The Sub-Committee considered document NAV 52/WP.1 and noted that, in general, the proposals were in conformity with the criteria outlined in MSC/Circ.1060.

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

##### **New Traffic Separation Scheme – mandatory ships’ routeing system in international waters, off the coast of northern Norway from Vardø to Røst**

3.3 At the request of the Government of Norway (NAV 52/3/6 and Corr.1 (English only)), the Sub-Committee discussed briefly a proposal for the establishment of a mandatory ships’ routeing system in international waters, off the coast of northern Norway, from Vardø to Røst which would establish a safe route for sea transport, and in particular for the transport of oil from the increased petroleum activity in the Barents Region, thereby reducing the environmental risk related to ship movements in the area, especially with regard to tanker traffic.

3.4 The Sub-Committee also noted the additional information provided by WWF (NAV 52/INF.9) about the nature resources and environmental values in the area of Vardø – Røst in the Barents Sea including its support for routeing ship traffic far away from the coast to reduce environmental risks in this vulnerable area.

3.5 The delegation of the Russian Federation informed the Sub-Committee that Norway had been in touch with Russia in the early stages of its development of the ships’ routeing proposal. The Russian Federation fully shared the concerns of Norway and supported their proposal.

However, the Russian Federation was of the opinion that the growth of traffic flow in the region had been over estimated (for the year 2015, Norway had estimated a growth in traffic of 150 million tonnes whilst according to the Russian Federation it should be 50 million tonnes); there was no special regime under the COLREGs for a mandatory routeing system; as there are no restricted waters in the region the width of the traffic lanes of the proposed traffic separation scheme should be extended to 3 miles and accordingly the distance off from the shore of the proposed routeing system should be minimized taking into account navigational and hydrometeorological conditions of the region. The Russian Federation also stated that the Traffic Separation Scheme should apply to ships carrying hazardous cargo only.

### **New Traffic Separation Schemes – Modification and extension of the existing SUNK Precautionary Area**

3.6 At the request of the Government of the United Kingdom (NAV 52/3/9 and Corr.1 (English only)), the Sub-Committee discussed briefly a proposal for a comprehensive new routeing scheme for the northern approaches to the Thames Estuary consisting of a modification and extension of the existing SUNK Precautionary Area, which had not been adopted by IMO; it was originally established in 1998 as a national scheme within the United Kingdom territorial waters.

### **New Traffic Separation Scheme – “Off Neist Point” in the Minches**

3.7 At the request of the Government of the United Kingdom (NAV 52/3/14), the Sub-Committee discussed briefly a proposal for a new traffic separation scheme “Off Neist Point” consisting of one north and one south bound routes with a separation zone.

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

#### **Amendments to the existing Traffic Separation Scheme “In the Strait of Gibraltar”**

3.8 At the request of the Governments of Spain and Morocco (NAV 52/3/2), the Sub-Committee discussed briefly a proposal to amend the existing routeing system in the “In the Strait of Gibraltar” by the establishment of two precautionary areas, one adjoining the eastern end of the traffic separation scheme for the Strait of Gibraltar and the other off the Moroccan port of Tangiers-Med, together with the recommended directions for ships entering or leaving that port, and an amendment to the existing southern inshore traffic zone involving the creation of two new southern inshore traffic zones.

3.9 The delegation of the Republic of Korea sought clarification whether the existing mandatory ship reporting system “In the Strait of Gibraltar” would also be amended. The delegation of Spain stated that only the existing traffic separation scheme “In the Strait of Gibraltar” would be amended and that there was no need to amend the existing mandatory ship reporting system “In the Strait of Gibraltar”.

#### **Amendments to the existing Traffic Separation Scheme “In the approach to Boston, Massachusetts”**

3.10 At the request of the Government of the United States (NAV 52/3/3), the Sub-Committee discussed briefly a proposal to amend the existing traffic separation scheme (TSS) “In the approach to Boston, Massachusetts” that should result in a significant reduction in the likelihood of ship strike deaths and serious injuries to Right and other whales, while maintaining and improving maritime safety.

**Amendments to the existing Traffic Separation Schemes “In the Adriatic Sea”**

3.11 At the request of the Governments of Croatia and Italy (NAV 52/3/7), the Sub-Committee discussed briefly a proposal to amend the existing traffic separation schemes (TSS) “In the Adriatic Sea” intended to enhance maritime safety, safety of navigation and protection of the environment.

**Amendments to Existing Traffic Separation Schemes “Off Cani Island” and “Off Cape Bon”, off the coast of Tunisia**

3.12 At the request of the Government of Tunisia (NAV 52/3/10), the Sub-Committee discussed briefly a proposal to amend the existing traffic separation schemes (TSSs) “Off Cani Island” and “Off Cape Bon”, off the coast of Tunisia.

**Amendments to the existing Traffic Separation Scheme “Off Botney Ground”**

3.13 At the request of the Governments of the United Kingdom and the Netherlands (NAV 52/3/15), the Sub-Committee discussed briefly a proposal to amend the existing traffic separation scheme (TSS) “Off Botney Ground”.

**Routeing measures other than Traffic Separation Schemes (TSSs)****Establishment of an Area to be Avoided/Mandatory No Anchoring Area in the approaches to the Gulf of Venice**

3.14 At the request of the Government of Italy (NAV 52/3/8), the Sub-Committee discussed briefly a proposal for the establishment of an Area to be Avoided/Mandatory No Anchoring Area in the approaches to the Gulf of Venice.

**Establishment of a Precautionary Area off the west coast of the North Island of New Zealand**

3.15 At the request of the Government of New Zealand (NAV 52/3/11), the Sub-Committee discussed briefly a proposal for establishing a new Precautionary Area off the west coast of the North Island of New Zealand aimed at minimizing the risk of collision in an area of dense traffic.

**Amendments to the existing Deep-Water route west of the Hebrides**

3.16 At the request of the Government of the United Kingdom (NAV 52/3/12), the Sub-Committee discussed briefly a proposal for amending the existing Deep-Water route west of the Hebrides, as a measure to increase the protection of the marine environment in the area.

**Establishment of Recommended Routes in the Minches**

3.17 At the request of the Government of the United Kingdom (NAV 52/3/14), the Sub-Committee discussed briefly a proposal for upgrading the existing national Recommended Tracks in the Minches to IMO Recommended Routes.

### **Amendments to the Recommendations on navigation around the United Kingdom coast**

3.18 At the request of the Government of the United Kingdom (NAV 52/3/14), the Sub-Committee discussed briefly a proposal for amendments to the Recommendations on navigation around the United Kingdom coast (Resolution A.768(18), annex) adopted on 4 November 1993) relating to the existing voluntary reporting system in the Minches applicable to all ships.

#### **Abolition of the Area to Be Avoided around the EC 2 Lighted Buoy**

3.19 At the request of the Government of the United Kingdom (NAV 52/3/16), the Sub-Committee discussed briefly a proposal for the abolition of the Area to be Avoided around the EC 2 Lighted Buoy, due to the intended discontinuance of the EC 2 Lighted Buoy.

3.20 The Sub-Committee noted that this amendment would also entail a consequential amendment to the Recommended directions of traffic flow in the English Channel (Resolution A.475 (XII), annex 1, section 3 adopted on 19 November 1981).

### **Mandatory ship reporting systems**

#### **New mandatory ship reporting system for the Galapagos Particularly Sensitive Sea Area (PSSA)**

3.21 At the request of the Government of Ecuador (NAV 52/3, NAV 52/3/1 and Corr.1), the Sub-Committee discussed briefly a proposal for establishing a new mandatory ship reporting system for the Galapagos Particularly Sensitive Sea Area” (GALREP), for ships entering and leaving the PSSA, which would enable the Maritime Rescue Sub-Centre located in the Galapagos to obtain accurate information on these ships and give the alert promptly to ensure an immediate response, if necessary.

3.22 The Sub-Committee noted the submission by Ecuador (NAV 52/3) notifying the implementation of two mandatory traffic separation schemes for ships entering ports in the Galapagos archipelago. Recognizing the benefits to be obtained by the adoption of ships’ routing measures by the Organization, such as the marking of such measures on international charts and the inclusion in the Ships’ Routing Guide, the Sub-Committee encouraged Ecuador to submit a proposal for the adoption of traffic separation schemes by IMO.

#### **Amendments to the existing mandatory ship reporting system “In the Great Belt Traffic Area”**

3.23 At the request of the Government of Denmark (NAV 52/3/4), the Sub-Committee discussed briefly a proposal outlining an expansion of the existing mandatory ship reporting system “In the Great Belt Traffic Area” and the implementation of a structured Navigational Assistance Service in this area.

#### **Amendments to the existing mandatory ship reporting system “In the Gulf of Finland”**

3.24 At the request of the Governments of Estonia, Finland and the Russian Federation (NAV 52/3/5), the Sub-Committee discussed briefly a proposal outlining amendments to the existing mandatory ship reporting system “In the Gulf of Finland”.

### **XML format for ship reporting systems**

3.25 The Sub-Committee noted that COMSAR 10 (COMSAR 10/16, paragraphs 7.7 to 7.9) had agreed, in principle, that an XML format similar to that proposed by Japan in document COMSAR 10/7 should be standardized for the data exchange of ship reporting systems recognized by the Organization. It was noted that XML format standards for maritime services were being developed within other fora, notably through projects supported by the European Union, although these standards did not necessarily include ship reporting systems. Therefore, COMSAR 10 deemed that it was necessary to obtain further information and views from the European Union and maritime agencies on document COMSAR 10/7 and the use of the XML format for consideration at its next session, with a view towards developing an MSC resolution regarding this standard.

3.26 The Sub-Committee also noted that COMSAR 10 had further agreed that the NAV Sub-Committee should also be asked to provide relevant comments and advice on the issue.

3.27 The observer of the European Commission informed the Sub-Committee that European legislation required masters, owners, agents and operators to report to mandatory ship reporting systems, as well as other systems set up by the Member States. The way to report varied from voice on VHF to sophisticated IT systems. The information would primarily be used for different national vessel information and management systems. In the relevant European Directive 2002/59, European Union Member States are requested to participate in an European exchange of maritime information through a system called SafeSeaNet. The central server of SafeSeaNet receives notifications that a national system has information about a particular vessel and if other Member States request that information, SafeSeaNet would retrieve the information and send it to the requesting Member State. All exchange of information between the EU Member States systems and SafeSeaNet was done through messages in XML standard. At present, the messages covered almost all ships' arrival and departure notifications, ships position reporting through AIS, as well as reporting of dangerous or polluting cargo, SITREP and POLREP. In the near future, standard XML messages might also be available for waste information and ships position reporting through LRIT and ISPS arrival notification. This available extensive XML-based infrastructure for exchange of information onshore in the EU would be greatly enhanced with widely used standard messages using XML. It would also contribute to the possibility for direct exchange of information between the European SafeSeaNet system and similar systems in other countries outside the European Union. Therefore, the European Commission supported the development of such standard XML-based messages.

### **Other Matters**

#### **Amendment to the Aids to Navigation in the Dover Strait Traffic Separation Scheme**

3.28 The Sub-Committee noted the information provided by the United Kingdom (NAV 52/INF.7) on the intended discontinuance of the South Goodwin Light vessel and the consequential upgrading of the S W Goodwin Lighted Buoy.

#### **Planned new routeing measures in the southern part of the Baltic Sea**

3.29 The Sub-Committee noted with interest the information provided by Poland (NAV 52/INF.5) providing information on planned new routeing measures in the southern part of the Baltic Sea, which are intended to be submitted to the Sub-Committee in 2007 as a joint proposal.

3.30 The delegations of Denmark and Sweden expressed concern that the proposal for routing measures in the southern part of the Baltic Sea would increase the number of ships that cross the traffic flow in the Bornholmsgat, thus increasing the risk of collisions beyond an acceptable level in a region with a number of particularly vulnerable environmental areas.

3.31 The Sub-Committee requested Poland to continue consultations with Denmark and Sweden and other Baltic countries concerned during the formulation of planned new routing measures in the southern part of the Baltic Sea for submission to NAV 53.

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

3.32 The Chairman recalled that resolution MSC.43(64) – Guidelines and criteria for ship reporting systems, as amended by resolutions MSC.111(73) and MSC.189(79) relates to ship reporting systems. In addition, SOLAS regulation V/11.11 states 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 states 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.

3.33 The Sub-Committee was of the opinion that Member Governments responsible for overseeing the operation of IMO adopted ship reporting systems should, at suitable intervals, undertake a review and re-evaluation of systems based on the operational experience gained.

### **Terms of Reference for the Ships' Routing Working Group**

3.34 After a preliminary discussion, as reported in paragraphs 3.1 to 3.33 above, the Sub-Committee re-established the Ships' Routing 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):

- .1 consider all documents submitted under item 3 regarding routing of ships and related matters and prepare routing and reporting measures, as appropriate and recommendations for consideration and approval by Plenary;
- .2 consider the request of COMSAR 10 (COMSAR 10/16, paragraphs 7.7 to 7.9) to provide relevant comments and advice regarding the use of XML format to be standardized for data exchange of ship reporting systems and advise the Sub-Committee accordingly;
- .3 consider document MSC 81/23/12 and prepare draft revised text of the proposed amendments to Annex IV of the Convention on the International Regulations for Preventing Collisions at Sea, 1972, as amended;
- .4 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
- .5 submit a report to Plenary on Thursday, 20 July 2006 for consideration at Plenary.

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

3.35 Having received and considered the Working Group's report (NAV 52/WP.5), the Sub-Committee approved it in general and, in particular (with reference to paragraphs 3.1 to 9.6) took action as summarized hereunder.

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

#### **New Traffic Separation Schemes and recommended routes off the coast of Norway from Vardø to Røst**

3.36 The Sub-Committee noted that the working group had agreed in general to a routing system off the coast of northern Norway between Vardø to Røst to improve the safety of navigation and the protection of the marine environment. However, the majority of the working group could not agree to one mandatory traffic separation scheme of 560 nautical miles between Vardø and Røst and the delegation of Norway was invited to amend their proposal.

3.37 The Sub-Committee further noted that the delegation of Norway had agreed to revise their proposal. The revised proposal consists of eight new traffic separation schemes and seven recommended routes connecting them, off the coast of northern Norway, from Vardø to Røst. The proposed new traffic separation schemes and recommended routes would establish a safe route for sea transport, and in particular for the transport of oil from the increased petroleum activity in the Barents Region, thereby reducing the environmental risk related to ship movements in the area, especially with regard to tanker traffic. The new traffic separation schemes and recommended routes were not likely to cause a disproportionate burden to the shipping industry.

3.38 The Sub-Committee approved the proposed new traffic separation schemes and recommended routes "Off the coast of Norway from Vardø to Røst" with some corrections to the description, as set out in annex 1, which the Committee is invited to adopt.

#### **New Traffic Separation Schemes in the SUNK area and associated routing measures in the Northern approaches to the Thames Estuary**

3.39 The Sub-Committee approved the proposed new traffic separation schemes "In the SUNK area and in the northern approaches to the Thames Estuary" with some corrections to the description, as set out in annex 1, which the Committee is invited to adopt.

#### **New Traffic Separation Scheme – "Off Neist Point" in the Minches**

3.40 The Sub-Committee approved the proposed new traffic separation scheme "Off Neist Point" in the Minches 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 existing Traffic Separation Scheme "In the Strait of Gibraltar"**

3.41 The Sub-Committee approved the proposed amendments to the existing traffic separation scheme "In the Strait of Gibraltar" 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 approach to Boston, Massachusetts”**

3.42 The Sub-Committee approved the proposed amended traffic separation scheme “In the approach to Boston, Massachusetts” 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 Adriatic Sea”**

3.43 The Sub-Committee approved the proposed amendments to the existing traffic separation schemes “In the Adriatic Sea” 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 “Off Cani Island” and “Off Cape Bon”, off the coast of Tunisia**

3.44 The Sub-Committee noted that the amended existing traffic separation schemes (TSSs) “Off Cani Island” and “Off Cape Bon”, off the coast of Tunisia are based on ED50 Datum. Consequently, the delegation of Tunisia informed the Sub-Committee that the Tunisian Hydrographic Office will publish an *ad hoc* nautical chart based on WGS 84 in September 2006.

3.45 The Sub-Committee approved the proposed amendments to the existing traffic separation schemes (TSSs) “Off Cani Island” and “Off Cape Bon”, off the coast of Tunisia 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 “Off Botney Ground”**

3.46 The Sub-Committee approved the proposed amendments to the existing traffic separation scheme (TSS) “Off Botney Ground” as set out in annex 1, which the Committee is invited to adopt.

**Routeing measures other than Traffic Separation Schemes (TSSs)**

**Establishment of an Area to be Avoided/Mandatory No Anchoring Area in the approaches to the Gulf of Venice**

3.47 The Sub-Committee approved the proposed Area to be Avoided/Mandatory No Anchoring Area in the approaches to the Gulf of Venice with some corrections to the description, as set out in annex 2, which the Committee is invited to adopt.

**Establishment of a Precautionary Area off the west coast of the North Island of New Zealand**

3.48 The Sub-Committee approved the proposed new Precautionary Area off the west coast of the North Island of New Zealand with some corrections to the description, as set out in annex 2, which the Committee is invited to adopt.

**Amendments to the existing Deep-Water route west of the Hebrides**

3.49 The Sub-Committee approved the proposed amended Deep-Water route west of the Hebrides with some corrections to the description, as set out in annex 2, which the Committee is invited to adopt.

### **Establishment of Recommended Routes in the Minches**

3.50 The Sub-Committee approved the proposed Recommended Routes in the Minches, as set out in annex 2, which the Committee is invited to adopt.

### **Amendments to the Recommendations on navigation around the United Kingdom coast**

3.51 The Sub-Committee approved the proposed amendments to the Recommendations on navigation around the United Kingdom coast with some corrections to the description, as set out in annex 2, which the Committee is invited to adopt.

### **Abolition of the Area to Be Avoided around the EC 2 Lighted Buoy**

3.52 The Sub-Committee approved the proposed abolition of the Area to be Avoided around the EC 2 Lighted Buoy including the consequential amendment relating to the cancellation of the Recommendation on directions of traffic flow in the English Channel as set out in annex 2, which the Committee is invited to adopt.

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

3.53 The new TSSs and amendments to the existing TSSs and other routing measures mentioned in paragraphs 3.36 to 3.52 will be implemented at 0000 hours UTC 6 months after adoption by the Committee.

### **Mandatory ship reporting systems**

#### **New mandatory ship reporting system for the Galapagos Particularly Sensitive Sea Area (PSSA)**

3.54 The Sub-Committee approved the proposed new mandatory ship reporting system for the Galapagos Particularly Sensitive Sea Area (PSSA) with some corrections, as set out in annex 3, which the Committee is invited to adopt.

#### **Amendments to the existing mandatory ship reporting system “In the Storebælt (Great Belt) Traffic Area”**

3.55 The Sub-Committee approved the proposed amendments to the existing mandatory ship reporting system “In the Storebælt (Great Belt) Traffic Area” with some corrections, as set out in annex 4, which the Committee is invited to adopt.

#### **Amendments to the existing mandatory ship reporting system “In the Gulf of Finland”**

3.56 The Sub-Committee approved the proposed amendments to the existing mandatory ship reporting system “In the Gulf of Finland” with some corrections as set out in annex 5, which the Committee is invited to adopt.

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

3.57 The new and amended mandatory ship reporting systems mentioned in paragraphs 3.54 to 3.56 will be implemented at 0000 hours UTC 6 months after adoption by the Committee.

### **XML format for ship reporting systems**

3.58 The Sub-Committee noted that taking into consideration the recent changes in the technology in communications; it would be appropriate to standardize the format for ship reporting systems and agreed, in principle, with the proposed XML format standards for maritime services. XML format will contribute to reduce the heavy workload for masters and navigational officer during the navigational watch. Bearing in mind the reasons mentioned, the group felt that it would be appropriate to implement the standardized XML format in as little time as possible. Direct data exchange between ship to shore, but also between VTS and others (authorities, shipowners and shipping agencies) by XML format, would contribute to improved safety and security. The Secretariat was instructed to forward this information to COMSAR 11.

## **4 REVIEW OF PERFORMANCE STANDARDS FOR INS AND IBS**

4.1 The Sub-Committee noted that MSC 78 (MSC 78/26, paragraph 18.12.5) had agreed that there was no need to develop a new instrument to demonstrate compliance with SOLAS regulation V/15 and instructed NAV 50 to take this into account when considering documents MSC 78/11/3 (IACS) and MSC 78/11/4 (Republic of Korea).

4.2 The Sub-Committee recalled that the IACS observer had informed NAV 50 that the IACS Unified Interpretation (UI) 181, submitted as document MSC 78/11/3, was amended in co-operation with the delegation of the Republic of Korea to ensure that their concerns relating to MSC/Circ.982 as expressed in their paper MSC 78/11/4, and the additional comments made during the plenary discussion, were fully covered. The UI was further reviewed in co-operation with the delegation of Germany to ensure that it covered all the applicable parts of MSC/Circ.982. This revised UI would be submitted to MSC 79 and NAV 51.

4.3 The Sub-Committee also 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 further recalled that NAV 51 had agreed with the conclusions of the correspondence group that work should begin with a revision of INS performance standards and with a revision of the IBS performance standards following and in addition, 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, agreed to the revised draft structure of performance standards for INS together with terms of reference for the correspondence group to prepare the work under the co-ordination of Germany for consideration at NAV 52.

4.5 The Sub-Committee also noted 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 NAV 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 briefly discussed the report by Germany as co-ordinator of the Correspondence Group for INS and IBS (NAV 52/4).

4.7 The Observer from IACS informed the Sub-Committee that IACS Unified Interpretation (UI)181 was proving very difficult to come to an agreement on and therefore IACS was unable to submit anything to NAV 52. It was expected that as agreement is reached then IACS would be in a position to provide this information to the Correspondence Group and NAV 53.

4.8 The Sub-Committee agreed to refer document NAV 52/4 to the Technical Working Group to be established under agenda items 4, 5, 9, 10, 11 and 12.

### **Establishing the Technical Working Group**

4.9 Having also considered agenda items 5, 9, 10, 11 and 12, 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, taking into account any decisions of, and comments and proposals made in Plenary, undertake the following tasks:

- .1 consider NAV 52/4 and provide any comments and guidance on:
  - .1 the draft INS performance standards including the alert management module with a concept and structure, which could be extended to all alerts on the bridge (agenda item 4);
  - .2 the recommendation for the development of a bridge resource management standard or guidelines in the framework of the revision of the IBS performance standard to allow for a comprehensive application of the SOLAS regulation V/15 on board (agenda item 4); and
  - .3 the modular concept of INS and future revised individual equipment performance standards (agenda item 4).
- .2 prepare revised terms of reference for the Correspondence Group on INS and IBS issues to progress work on this issue for finalization at NAV 53 (agenda item 4);
- .3 consider NAV 52/5, NAV 52/5/1, NAV 52/5/2 and NAV 51/6/2 and prepare a complete revised draft performance standards for ECDIS (agenda item 5);
- .4 prepare, as appropriate, recommendations, opinions and liaison statements to appropriate ITU bodies in relation to NAV 52/9, NAV 52/9/1 and NAV 52/INF.2 (agenda item 9);

- .5 consider NAV 51/19 (annex 14), the relevant part of NAV 52/10 and NAV 52/10/1 and finalize the draft performance standards for shipborne Galileo receiver equipment (agenda item 10);
- .6 consider the relevant part of NAV 52/10 and NAV 52/INF.8 and provide any comments and guidance on the World-Wide Radionavigation Systems (WWRNs) issues, namely:
  - .1 review and amendment of IMO policy for GNSS (resolution A.915(22)) (agenda item 12);
  - .2 recognition of radionavigation systems as components of the WWRNS (resolution A.953(23)) (agenda item 12); and
  - .3 finalization of a draft liaison statement to IEC Technical Committee 80, Working Group 4A on shipboard GNSS receiver equipment (agenda item 12).
- .7 if time permits, consider NAV 52/11, NAV 52/11/1 and NAV 52/INF.3 and start work on the development of the draft performance standards for navigation lights, navigation light controllers and associated equipment; otherwise submit the outcome of its consideration to NAV 53 (agenda item 11);
- .8 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
- .9 submit a report to Plenary on Thursday, 20 July 2006 for consideration at Plenary.

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

4.10 Having received and considered the Technical Working Group's report (NAV 52/WP.4), the Sub-Committee (with reference to paragraphs 3.1 to 3.4), took action as summarized hereunder.

4.11 In considering the Review of performance standards for INS and IBS, the Sub-Committee 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 noted that the correspondence group had indicated the need for more work in several areas.

4.12 The Sub-Committee 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.

4.13 Further, the Sub-Committee agree with the Group that a proposal for a modular concept of INS and future revised individual performance standards should be developed further.

4.14 In conclusion, the Sub-Committee agreed with the opinion of the group that one more session was needed to complete the work. The Sub-Committee also approved revised terms of reference for the correspondence group and invited the Committee to extend the target completion date to 2007.

4.15 Accordingly, the Sub-Committee agreed to re-establish an intersessional Correspondence Group under the leadership of Germany\* with the following terms of reference:

- .1 develop draft revised performance standards for INS including an alert management module based on document NAV 52/4 and the outcome of the discussion in the Technical Working group (NAV 52/WP.4);
- .2 develop revised IBS performance standards together with Bridge Resource Management (BRM) guidelines to allow for a comprehensive application of SOLAS regulation V/15;
- .3 develop a proposal for an SN/Circ. for the application of the modular concept for future performance standards;
- .4 continue liaison with the Sub-Committee on Ship Design on Equipment (DE) to ensure consistent treatment of alerts; and
- .5 submit its report to NAV 53 for consideration.

## 5 AMENDMENTS TO THE ECDIS PERFORMANCE STANDARDS

5.1 The Sub-Committee recalled that, NAV 51 had noted that Greece and IHO had submitted a proposal to MSC 80 (MSC 80/21/2), outlining some amendments/improvements to the ECDIS performance standards (resolution A.817(19), as amended) and that MSC 80 (MSC 80/24, paragraph 21.22) had added a new high priority item on its work programme with a target completion date of 2007.

5.2 The Sub-Committee also recalled that, NAV 51 had agreed that it would be more appropriate to consider the amendments to the ECDIS performance standards (NAV 51/6, paragraph 21.4), proposed by the Correspondence Group in conjunction with all other amendments, as proposed in document MSC 80/21/2, at NAV 52 and that NAV 51 should only concentrate on the other remaining issues outlined in document NAV 51/6, paragraph 21. Consideration of the document by the Russian Federation (NAV 51/6/2), referring mainly to the performance standards was, therefore, deferred to NAV 52, with some relevant parts being

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referred to the Working Group on ECDIS for consideration. NAV 51 also agreed that, to progress the work for NAV 52, an intersessional Correspondence Group should be established under the leadership of Norway.

5.3 The Sub-Committee briefly considered documents by Norway (NAV 52/5 and NAV 52/5/1), the co-ordinator of the Correspondence Group on ECDIS and by CIRM (NAV 52/5/2). The delegation of Norway, invited the Sub-Committee to consider proposed amendments to the ECDIS performance standards (resolution A.817(19), as amended) (NAV 52/5, annex 1) and the future restructuring of the ECDIS Performance Standards (NAV 52/5, annex 2), as suggested by Germany, whilst CIRM recommended changes to the draft revised performance standards for ECDIS as prepared by the Correspondence Group.

5.4 The Sub-Committee noted with appreciation the comprehensive report prepared by the Correspondence Group (NAV 52/5) co-ordinated by Norway and was of the opinion that the draft performance standards would form a good basis for revising the performance standards for ECDIS. Some delegations suggested that the Sub-Committee might wish to consider preparation of revised performance standards for ECDIS based on the modular concept.

5.5 The delegations of the Bahamas and Greece supported by a number of other delegations proposed that the ECDIS performance standards and those for INS and IBS should include a common layout of controls, common names or symbols for controls and a common output on the display for each control. It was recognized that this could not be accomplished in one session but it was proposed that a start be made in the Working Group.

5.6 The Sub-Committee, recognizing the need to make progress on the issue, instructed the Technical Working Group to consider documents NAV 52/5, NAV 52/5/1, NAV 52/5/2 and NAV 51/6/2 and prepare complete revised draft performance standards for ECDIS.

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

5.7 Having received and considered the Technical Working Group's report (NAV 52/WP.4/Add.1), the Sub-Committee (with reference to paragraphs 9.1 to 9.4 and annex) took action as summarized hereunder.

5.8 The Sub-Committee agreed with the view of the Group that the draft Performance Standards were mature enough to be forwarded to the Committee for adoption, bearing in mind that there were only editorial amendments and cross references to be completed before submission to the Committee. Accordingly, the Sub-Committee approved the draft MSC resolution on Adoption of the revised performance standards for ECDIS, set out in annex 6. and forwarded them to the Committee with a view to adoption (see paragraph 6.17).

5.9 The Sub-Committee also agreed with the Group that there might be positional inconsistencies in some charts, and that a circular needed to be developed giving methods of detection of these inconsistencies using radar overlay in advanced models of ECDIS.

5.10 Accordingly, the Sub-Committee prepared (NAV 52/WP.9 and Corr.1 (English only)) and approved SN.1/Circ.255 on additional guidance on chart datums and the accuracy of positions on charts. This guidance is in addition to the guidance contained in SN/Circ.213 dated 31 May 2000. The Committee was invited to endorse the action taken.

5.11 The Committee was invited to delete this agenda item from the Sub-Committee's Work Programme, as action on the issue had been completed.

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

6.1 The Sub-Committee noted that MSC 78 had referred documents by Australia (MSC 78/24/3), Norway (MSC 78/24/17) and France (MSC 78/24/18) to it and decided to include, in its work programme and the provisional agenda for NAV 51, a high priority item on “Evaluation of the use of ECDIS and ENC development”, with two sessions needed to complete the item; and also instructed NAV 50 to give a preliminary consideration to the matter.

6.2 The Sub-Committee recalled that NAV 50 had recognized that a number of issues needed to be considered and discussed before any decision on a revision of the performance standards of ECDIS including the carriage and back-up requirements could be taken and established a correspondence group (co-ordinated by Norway) to give consideration to documents MSC 78/24/3, MSC 78/24/17 and MSC 78/24/18 and exchange preliminary views. In addition, NAV 50 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 world-wide ENC coverage and present the outcome of the evaluation to NAV 51.

6.3 The Sub-Committee also recalled that NAV 51 had expressed support for the IHO initiative to establish a comprehensive online catalogue of available official charts, which would facilitate the determination of the “appropriate folio of up-to-date paper charts”. It 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” 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, it 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.

6.4 The Sub-Committee further recalled 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, it would be premature to revise it at present in view of the revision of the Performance Standards of ECDIS as from NAV 52.

6.5 The Sub-Committee considered document NAV 52/6 by Australia giving details of a navigation simulation exercise, a key outcome of which supported the fact that there was a need to revise and re-issue SN/Circ.207 relating to differences between RCDS and ECDIS.

6.6 The Sub-Committee had an extensive discussion with respect to the document by Australia (NAV 52/6) suggesting the revision of SN/Circ. 207. Some delegations were of the opinion that the findings were based on a very limited simulation exercise and there was no convincing argument to amend SN/Circ.207. Some delegations also pointed out the decision of NAV 51 not to amend SN/Circ.207 until the time the performance standards for ECDIS had been finalized.

6.7 The delegation of Norway supported by others expressed the opinion that ECDIS in RCDS mode had the same limitation as paper charts and SN/Circ.207 only highlighted the differences between the two modes of operations. Furthermore, the circular should not be revised based on the evaluation carried out by a single Member and it would be better to wait until the revised performance standards were finalized.

6.8 The observer from the Cook Islands, supported by other delegations expressed the opinion that Australia had provided useful information, which provided practical guidance to the mariner.

6.9 The delegation of the Russian Federation informed the Sub-Committee that they had carried out a similar exercise and had reported the findings to the previous sessions of the Sub-Committee. Furthermore, presently 20% of the world's paper as well as raster charts did not have any chart datum parameters. Therefore it was necessary for shipping companies to develop appropriate procedures so that seafarers were constantly on the alert and did not become over reliant on technology.

6.10 The Sub-Committee agreed that there was a need for revising/refining SN/Circ.207 and there was some support for finalizing the performance standards for ECDIS at this session. Accordingly, the Sub-Committee instructed the Working Group to prepare a draft revised SN/Circ.207 and also decided to request an extension of this agenda item to 2007 so that the revision of the performance standards and SN/Circ.207 could come together at NAV 53.

6.11 The Sub-Committee also considered briefly document NAV 52/6/1 by IHO regarding the development of the online catalogue of ENC, RNC and paper charts used as backup and noted that the IHO was currently working on the technical requirements for the catalogue and would provide a further report to NAV 53.

6.12 With reference to document NAV 52/6/2 by Japan providing the results of an FSA study relating to the evaluation of cost-effectiveness of ECDIS on routes of cargo ships taking into account ENC coverage, the Chairman was of the opinion that it was more relevant during the consideration of agenda item 17 under the sub-item on Development of carriage requirements for ECDIS. The delegation of Japan and the Sub-Committee concurred with the observation of the Chairman and considered that document under agenda item 17 – Any other business.

### **Establishing a Working Group on ECDIS**

6.13 The Sub-Committee further agreed to establish a Working Group on ECDIS and to refer documents NAV 52/6 and NAV 52/6/1 for its consideration. The ECDIS Working Group was instructed to:

- .1 consider documents NAV 52/6 (Australia) and NAV 52/6/1 (IHO) including comments and decisions made in Plenary to:
  - .1 prepare draft revised SN/Circ.207 with a view to finalization after the completion of the revised performance standards for ECDIS, and provide relevant comments and guidance, as appropriate, on the following:
    - .1 the proposed structure of the IHO online catalogue including the IHO initiative to establish a comprehensive online catalogue of available official charts, which will facilitate the determination of “appropriate portfolio of up-to-date paper charts”; and
    - .2 the invitation to coastal States to consider which paper charts would meet the requirements of an “appropriate portfolio of paper charts” in waters under their jurisdiction in consultation with the relevant hydrographic authorities and where ENCs do not exist to communicate this to IHO for inclusion in the online chart catalogue including information on “derived charts”;

- .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 by Thursday, 20 July 2006 for consideration at Plenary.

### **Report of the Working Group on ECDIS**

6.14 Having received and considered the report of the Working Group on ECDIS (NAV 52/WP.3), the Sub-Committee (with reference to paragraphs 3.1 to 4.6) took action as summarized hereunder.

### **Revision of SN/Circ. 207**

6.15 The Sub-Committee, using the information provided in document NAV 52/6 (Australia), 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.

6.16 The Sub-Committee 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 is invited to extend the target completion date to 2007.

6.17 The Sub-Committee 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 approved the draft MSC resolution on Adoption of the revised ECDIS performance standards with a view to adoption by MSC 82 (paragraph 5.8 refers). Hence, the conditions for approving the draft revised SN/Circ.207 at NAV 53 were already met.

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

6.18 The Sub-Committee considered the information in document NAV 52/6/1 (IHO) and a presentation by IHO on the development of a comprehensive online catalogue of available official charts. The presentation demonstrated a possible prototype of the catalogue which would provide information as to the availability of chart coverage in as clear and simple manner as possible. The catalogue was primarily aimed at ENCs and RNCs would be shown where ENCs were not available. This information would be provided as a graphic display showing chart and data limits.

6.19 The Sub-Committee was informed by IHO that there had been an increase in the production of ENCs worldwide. The Sub-Committee concurred with the view expressed by IHO and was of the opinion that with the possibility of mandatory carriage requirements for ECDIS, the production would increase further. The Sub-Committee requested IHO to provide more detailed information to NAV 53.

6.20 The Sub-Committee appreciated the efforts made by IHO relating to the development of an online catalogue of official charts. In discussing the paper charts to be included in the catalogue, the Sub-Committee agreed that a global index of paper charts should be included in the proposed online catalogue.

6.21 Recalling the discussions at NAV 51 (see paragraph 6.23 below), the delegation of the Netherlands supported by others, in referring to the appropriate folio of up-to-date paper charts, informed the Sub-Committee that under UNCLOS, the coastal States (of departure and destination) only had a right to specify carriage of charts under the port entry provisions and, that the flag State was responsible in other areas, including for transiting ships for which they may seek the advice of the coastal State. Hence the online catalogue should only provide recommendations of the coastal States.

6.22 While supporting the Netherlands, the delegation of the Bahamas supported by others expressed the opinion that coastal States should provide differentiated recommendations which could be used by flag States to specify carriage requirements for ships flying their flag depending on the type and size of ships in transit.

6.23 After in depth discussion, the Sub-Committee agreed that the proposed structure of the online catalogue should include the following:

- .1 ENC;
- .2 RNC where ENCs 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.

6.24 In considering the requirements of "appropriate folio of up-to-date paper charts", the Sub-Committee recalled the discussions at NAV 51 (NAV 51/19 paragraphs 6.30 to 6.33) and agreed that coastal States should consider which paper charts would meet the requirements of an "appropriate portfolio of paper charts" in waters under their jurisdiction in consultation with the relevant hydrographic authorities and where ENCs do not exist and to communicate this to IHO for inclusion in the online chart catalogue including information on "derived charts". Accordingly, the Sub-Committee invited coastal States to provide their recommendations to IHO at an early date.

6.25 The Sub-Committee, during its deliberation, also recognized that there was a need to provide guidance to coastal States to assist them in identifying the paper charts that would be required to meet the "appropriate folio of up-to-date paper charts" in waters under their jurisdiction.

## **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 will realize the maximum performance potential offered by the performance standards. Subsequently, MSC 80 had 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 the Sub-Committee to include the item in the provisional agenda for NAV 52.

7.2 The Sub-Committee considered document NAV 52/7 (Norway) providing a basic framework for developing draft Guidelines for the installation of shipborne radar equipment.

7.3 The delegation of Norway 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.

7.4 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.

7.5 The Sub-Committee invited Members to submit comments and suitable proposals for consideration at NAV 53.

## **8 AMENDMENTS TO COLREGs 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. According to Norway, 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 therefore be updated in accordance with the newest revised standard.

8.2 The Sub-Committee briefly considered the Norwegian proposal.

8.3 The delegation of the Netherlands 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. 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 COLREGs 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.

8.4 A number of delegations supported the views expressed by the Netherlands including the need for a FSA study and a Cost Benefit Analysis. Accordingly, the Sub-Committee requested Norway to re-consider its proposal and submit a revised document to NAV 53.

8.5 Norway agreed to reconsider this subject prior to NAV 53, and might submit a revised proposal. However, Norway also pointed out that COLREGs 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.

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

### **Maintenance and administration of AIS binary messages**

9.1 The Sub-Committee recalled that the responsibility for the maintenance of AIS binary messages had been transferred from the 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, who were reported to be 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.

9.2 The Sub-Committee noted that this matter was considered further at the 18th meeting of WP 8B in March 2006 and IMO was informed that ITU-R intended to remove the International Function Messages (IFMs 16, 17, 18, 19 and 40) during the revision of Recommendation ITU-R M.1371-2. These IFMs were superseded by IMO SN/Circ.236 and would not be part of the next edition of Recommendation ITU-R M.1371. Two IFMs were no longer available; Ship Waypoint and/or Route Plan Report, former IFM 17 and Advice of Waypoints and/or Route Plan of VTS, former IFM 18. ITU-R intended to continue to define the system-related messages in the revision to Recommendation ITU-R M.1371-2 and in any subsequent revisions. ITU-R had requested that IMO implements IFMs 0 to 9 by reference to Recommendation ITU-R M.1371 only. Similarly for IFMs 10 to 63, ITU-R in the revision of Recommendation ITU-R M.1371-2, intended to refer to IMO's publicly available reference of operational applications (currently SN/Circ.236). ITU-R had also requested that IMO maintains this publicly available reference of operational applications.

9.3 The Sub-Committee also noted that in summary, IMO was responsible for IFMs 10 to 63 and ITU-R was responsible for IFMs 0 to 9. This reflected the division of responsibilities identified in IMO SN/Circ.236. ITU-R was responsible for the technical characteristics, structure of the binary messages and the system related applications and IMO was responsible for the operational applications.

9.4 The Sub-Committee considered documents NAV 52/9, NAV 52/9/1 and NAV 52/INF.2 (Secretariat) and agreed to refer the documents to the Technical Working Group for consideration and comments, as appropriate.

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

9.5 Having received and considered the Technical Working Group's report (NAV 52/WP.4), the Sub-Committee (with reference to paragraphs 4.1 to 4.3 and annex), took action as summarized hereunder.

9.6 The Sub-Committee approved the draft Liaison Statement to ITU on Maintenance and Administration of AIS binary messages given in annex 7 and instructed the Secretariat to convey the statement to ITU for consideration by WP 8B in September 2006. The Sub-Committee invited the Committee to endorse this action.

9.7 The Committee was invited to extend the target completion date of this agenda item to 2009.

## **10 PERFORMANCE STANDARDS FOR SHIPBORNE GALILEO RECEIVER EQUIPMENT**

10.1 The Sub-Committee recalled that NAV 51 had considered the report by France (NAV 51/12), as co-ordinator of the Correspondence Group for Galileo, requesting it to review for approval the amended draft standards for Galileo Open and Safety of Life service receivers and also provide its views on the ability to shorten the recognition process for Galileo once the system becomes operational. The Chairman had explained that, since the work programme item only encompassed three specific sub-items, and performance standards for Galileo receivers were not explicitly mentioned, the Sub-Committee was not authorized to address the issue as per the Guidelines on the organization and method of work of the Committees and their subsidiary bodies. However to make progress on the issue, the Technical Working Group was instructed to consider document NAV 51/12 and provide the necessary justification for a corresponding new work programme item.

10.2 The Sub-Committee also recalled that NAV 51 had concurred with the Technical Working Group's opinion that both service receivers could be described in single performance standards and agreed that there was an urgent need to complete the performance standards by 2006 in order to give time for industry to produce equipment for the Galileo system becoming operational in 2008. NAV 51 also agreed to the revised performance standards (NAV 51/19, annex 14) together with the justification to include a new agenda item on "Performance standards for shipborne Galileo receiver equipment" in the Sub-Committee's work programme and was of the opinion that the performance standards should be finalized at NAV 52. Therefore, the Committee was invited to include the proposed new agenda item in the Sub-Committee's work programme.

10.3 The Sub-Committee further recalled that NAV 51 had agreed with the Technical Working Group's view that the recognition process could be achieved in a timely manner once the system became operational. Therefore, the Galileo system operators were invited to commence the process as soon as they were able to do so. This was subsequently endorsed by MSC 81 (MSC 81/25, paragraph 10.22).

10.4 The Sub-Committee observed that MSC 81, in considering document MSC 81/23/6 (France, Norway, United Kingdom) proposing to develop performance standards for Galileo satellite navigation system receiver equipment as a future part of the World-Wide Radionavigation System (WWRNS), had noted the proposal by NAV 51, following consideration, to include an appropriate item in its work programme and the provisional agenda for NAV 52. Subsequently, MSC 81 (MSC 81/25, paragraph 23.33) had endorsed the inclusion in the NAV Sub-Committee's work programme and the provisional agenda for NAV 52, a high priority item on "Performance standards for shipborne Galileo receiver equipment", with a target completion date of 2006.

10.5 The Sub-Committee briefly discussed documents NAV 52/10 by the United States concerning GPS damage from high-power shipborne radars and NAV 52/10/1 by the United Kingdom on proposed amendments to sections 3.9 and 3.20 of the draft performance standards for shipborne Galileo receiver equipment, as developed by NAV 51 (NAV 51/19, annex 14).

10.6 The Sub-Committee also agreed to refer documents NAV 52/10 and NAV 52/10/1 to the Technical Working Group.

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

10.7 Having received and considered the Technical Working Group's report (NAV 52/WP.4), the Sub-Committee (with reference to paragraphs 5.1 to 5.2 and annex 3) took action as summarized hereunder.

10.8 The Sub-Committee approved the draft MSC resolution on Adoption of Performance standards for shipborne Galileo receiver equipment, given at annex 8 for submission to the Committee for adoption.

10.9 The Sub-Committee noted that these performance standards were intended for a stand-alone Galileo receiver and that there might be a future need for performance standards for combined Galileo/GNSS receivers.

10.10 The Committee was invited to delete the sub-item "Performance standards for shipborne Galileo receiver equipment" 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 briefly discussed document NAV 52/11 (Denmark and Norway) providing a basic framework for the development of draft performance standards for Navigation Lights, Navigation Light Controllers and associated equipment and document NAV 52/11/1 (Republic of Korea) stating that the performance standards for navigation lights should include the standard for light bulbs and providing relevant information on this.

11.3 The Sub-Committee noted with interest the information provided by Japan (NAV 52/INF.3, paragraphs 1 to 6) on the result of a research on LED navigation lights and proposing that the two significant differences between LED navigation lights and ordinary navigation lights using incandescent bulbs should be taken into account during the development of draft performance standards for navigation lights, navigation light controllers and associated equipment.

11.4 The Sub-Committee agreed to refer documents NAV 52/11, NAV 52/11/1 and NAV 52/INF.3 to the Technical Working Group and instructed it, time permitting, to start work on the development of the draft performance standards for navigation lights, navigation light controllers and associated equipment; otherwise to submit the outcome of its consideration to NAV 53.

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

11.5 Having received and considered the Technical Working Group's report (NAV 52/WP.4), the Sub-Committee (with reference to paragraphs 7.1 to 7.4), took action as summarized hereunder.

11.6 In regard to the proposal for performance standards for navigation lights, navigation light controllers and associated equipment, the Sub-Committee 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 COLREGs would involve the development of a suitable measuring sensor otherwise review of the proposed requirement would be necessary.

11.7 The Sub-Committee invited Members to submit comments and suitable proposals for consideration at NAV 53.

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

12.1 The Sub-Committee recalled that, NAV 48 having reinstated the item on "World-wide radionavigation system" in the Sub-Committee's work programme, MSC 75 instructed the Sub-Committee to indicate specific sub-items within it with appropriate target completion dates. NAV 48 considered the issue and was of the opinion that the following sub-items be inserted under the item on "World-wide radionavigation system" in the Sub-Committee's work programme with a target completion date of 2005:

- .1 new developments in the field of GNSS, especially Galileo;
- .2 review and amendment of IMO policy for GNSS (resolution A.915(22)); and
- .3 recognition of radio navigation systems as components of the WWRNS (resolution A.815(19)).

12.2 The Sub-Committee also recalled that, NAV 51 subsequently, when reviewing its work programme, requested the extension of the target completion dates of all three sub-items to 2008; MSC 81 concurred with that request.

12.3 The Sub-Committee 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)".

12.4 The Sub-Committee 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.

12.5 The Sub-Committee referred documents NAV 52/10 and NAV 52/INF.8 to the Technical Working Group to provide any comments and guidance on the World-Wide Radionavigation Service (WWRNS) issues including the finalization of a draft liaison statement to IEC Technical Committee 80, Working Group 4A, on the shipboard GNSS receiver equipment.

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

12.6 Having received and considered the Technical Working Group's report (NAV 52/WP.4), the Sub-Committee (with reference to paragraphs 6.1 to 6.3), took action as summarized hereunder.

12.7 The Sub-Committee agreed with the views of the 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 agreed with the Group's opinion that a liaison statement to IEC Technical Committee 80 was therefore not necessary at this stage.

12.8 The Sub-Committee noted that, 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, no action needed to be taken at this session.

## **13 CASUALTY ANALYSIS**

13.1 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.

13.2 The Sub-Committee observed that at this session no documents had been submitted for consideration or referred to by either the FSI Sub-Committee or any other technical body of the Organization for action and agreed to defer further consideration of the item to NAV 53.

## **14 CONSIDERATION OF IACS UNIFIED INTERPRETATIONS**

14.1 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, as appropriate, to the sub-committees concerned. To this effect, MSC 78 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.

14.2 The Sub-Committee also recalled that, as instructed by MSC 78 (MSC 78/26, paragraph 22.10), NAV 50 had considered, on a preliminary basis, the proposal by IACS (MSC 78/22/1, annex 7) regarding the IACS Unified Interpretation SC139 relating to Navigation bridge visibility. The observer from IACS informed the Sub-Committee that some other IACS Unified Interpretations might also be submitted to NAV 51.

14.3 The Sub-Committee further recalled that, since no document had been submitted to NAV 51, the IACS observer had informed NAV 51 that IACS would submit relevant IACS Unified Interpretation proposals for its review to NAV 52.

### **Clarification for the application of Rules 23(a), 27(b) including sections 3(b) and 9(b) of Annex I to the 1972 COLREGs, as amended**

14.4 The Sub-Committee considered document NAV 52/14 (IACS) clarifying the application of Rules 23(a), 27(b) of the COLREGs 1972, as amended including sections 3(b) and 9(b) of Annex I to the 1972 COLREGs, as amended.

14.5 The Sub-Committee 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 COLREGs 1972, as amended, and set out in annex 9, for submission to MSC 82 for approval.

### **Clarification for the application of SOLAS regulation V/19.2.2.1**

14.6 The Sub-Committee considered document NAV 52/14/1 (IACS) clarifying the application of regulation V/19.2.2.1 of SOLAS chapter V.

14.7 The Sub-Committee concurred with the view of IACS and, having considered document NAV 52/WP.2, annex 2, agreed to the draft MSC circular on unified interpretations of SOLAS chapter V, set out in annex 10, for submission to MSC 82 for approval.

14.8 The Sub-Committee invited IACS to submit any further relevant IACS Unified Interpretation proposals to NAV 53 for its review.

## 15 WORK PROGRAMME AND AGENDA FOR NAV 53

15.1 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, 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.

15.2 The Sub-Committee noted that MSC 81 had agreed to include, in the NAV Sub Committee's work programme, high priority items on:

- .1 "Performance standards for shipborne Galileo receiver equipment", in the Sub-Committee's work programme and the provisional agenda for NAV 52;
- .2 "Carriage requirements for a bridge navigational watch alarm system", with two sessions needed to complete the item and instructed the Sub-Committee to include the item in the provisional agenda for NAV 53;
- .3 "Guidelines for the control of ships in an emergency", with one session needed to complete the item and instructed the Sub-Committee to include the item in the provisional agenda for NAV 53;
- .4 "Development of an e-navigation strategy", with two sessions needed to complete the item and instructed the Sub-Committee to consider including the item in the provisional agenda for NAV 53.
- .5 "Amendments to COLREGs Annex IV relating to distress signals", with one session needed to complete the item and instructed the Sub-Committee to include the item in the provisional agenda for NAV 53;
- .6 "Development of carriage requirements for ECDIS", with two sessions needed to complete the item and instructed the Sub-Committee to include the item in the provisional agenda for NAV 53;
- .7 "Guidelines for uniform operating limitations of high-speed craft", with three sessions needed to complete the item and instructed the Sub-Committee to include the item in the provisional agenda for NAV 53; and
- .8 "Guidelines on the lay-out and ergonomic design of safety centres on passenger ships", with three sessions needed to complete the item and instructed the Sub-Committee to include the item in the provisional agenda for NAV 53.

15.3 Taking into account the progress made at the current session, the decisions of MSC 81 and the provisions of the agenda management procedure, the Sub-Committee prepared a proposed revised work programme and a provisional agenda for NAV 53 (NAV 52/WP.7), as amended based on those approved by MSC 81 (NAV 52/2/2, annexes 1 and 2), and set out in

annexe 11, for consideration and approval by the Committee. While reviewing the work programme, the Sub-Committee agreed to invite the Committee to:

- .1 delete the following work programme sub-items/items, as work on them has been completed:
  - .1.1 sub-item H.1.2 performance standards for shipborne Galileo receiver equipment 2006
  - .1.2 item H.5 Amendments to the ECDIS performance standards 2006
  - .1.3 item H.12 Amendments to COLREGs Annex IV relating to distress signals 2007
- .2 extend the target completion date of the following work programme items:
  - .1.1 item H.2 ITU matters, including Radiocommunications ITU-R Study Group 8 matters 2009
  - .1.2 item H.3 Revision of the performance standards for INS and IBS 2007
  - .1.3 item H.4 Evaluation of the use of ECDIS and ENC development 2007

15.4 The Sub-Committee anticipated that Working Groups on the following subjects might be established at NAV 53:

- .1 Ships' Routeing;
- .2 Technical matters; and
- .3 E-Navigation.

15.5 The Sub-Committee noted that the fifty-third session of the Sub-Committee had been tentatively scheduled to be held from 23 to 27 July 2007 at the Royal Horticultural Halls and Conference Centre, in London.

## **16 ELECTION OF CHAIRMAN AND VICE-CHAIRMAN FOR 2007**

16.1 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. J.M. Sollosi (United States) as Vice-Chairman for 2007.

## **17 ANY OTHER BUSINESS**

### **Progress on standards published by the IEC**

17.1 The Sub-Committee recalled that, NAV 51 had agreed with its Technical Working Group's opinion that low-cost AIS devices, affordable for non-SOLAS vessels and pleasure craft, involving both SOTDMA and CSTDMA technology, and harmoniously operating with Class A devices, with a view to improve safety of navigation in general and safety of life at sea, in particular, should be developed as a matter of urgency. Therefore, Member Governments were

invited to actively participate in the work of IALA, ITU, IEC and other organizations dealing with the issue.

17.2 The Sub-Committee noted with interest the information provided by IEC (NAV 52/17) on the progress made in developing/revising standards for voyage data recorder and AIS by IEC TC80.

17.3 The delegation of Norway requested the observer from IEC to provide the Sub-Committee with an update of the situation on the difficulties being experienced by IEC WG1 in meeting the requirement for a benchmark test specified in IEC 62388 – Radar Test Standard (replacing 60872 and 60136 series of test standards) with respect to the revised IMO performance standards for radar equipment (resolution MSC.192(79) adopted on 6 December 2004), which would apply to radar equipment installed on or after 1 July 2008.

17.4 The observer from IEC informed the Sub-Committee that the IEC Marine Radar Working Group had made good progress in developing the radar equipment standard based on resolution MSC. 192(79). However, one issue that had not been resolved to the complete satisfaction of the Working Group concerned was the measurement of performance of a radar in the presence of sea and rain clutter (section 5.3.1.3.4 of resolution MSC 192(79)). These specific conditions were difficult to obtain in a live situation and the Working Group had been investigating whether radars could be more readily and consistently tested by injecting simulated signals into the radar receiver system. The national administrations of Norway, the United Kingdom and Germany had agreed to fund research work to produce such a simulator. The United Kingdom undertook an initial project which produced a prototype device, identifying a number of issues that needed to be resolved before an acceptable test device could be produced. The difficulties were magnified because of the need for such a simulator to work with coherent radars, sometimes known as New Technology radars, which require state-of-the-art simulation facilities to faithfully reproduce their complex signals reflected from targets and clutter. Although the design of an effective simulator was difficult, it was generally considered by the Working Group to be achievable in about three years with available technology. However, the envisaged cost of producing a simulator design was beyond the funding available to the Administrations currently contributing to this activity. Bearing in mind both the funding difficulties and the timescales associated with developing a simulator, an interim version of the standard was being prepared that was detailing over-the-sea tests from which an overall assessment of the radar performance in varying conditions of clutter could be made. It was anticipated that this draft standard would be completed in October 2006 and would then be circulated for international voting by IEC members. The interim IEC standard would then be revised when suitable simulators became available.

17.5 The Sub-Committee noted with appreciation the efforts by IEC in developing an interim standard for new radar testing.

17.6 The delegation of Norway informed the Sub-Committee that it would be submitting a document to MSC 82 on the issue explaining the funding situation.

#### **Vague expression in SOLAS chapter V**

17.7 The Sub-Committee considered document NAV 52/17/1 (Germany) informing it that Germany had recently discovered that shipyards and owners had tried to increase the container carrying capacity of vessels by permanently stowing on deck additional containers beyond the line of visibility. According to Germany's understanding of SOLAS chapter V, container stowage positions above the visibility line should only be temporarily used in some rare cases for

single overheight containers or flats with non-standardized overheight cargo. However, the regular and permanent use of all these stowage positions would dramatically reduce the horizontal field of vision from the other bridge workstations. Even if approved in accordance with the letter of regulation V/22, there were reasons to believe that the vessel concerned might be claimed “not seaworthy” by law and would not be able to document conformance with regulation V/15 and be detained by port State control.

17.8 A number of delegations spoke on the issue and there was general support for the German proposal. All were of the opinion that visibility of the sea surface from the bridge was of paramount importance. There were suggestions that the development of Guidelines for shore-side stowage planners including Port State Control officers was necessary.

17.9 The delegations of Denmark, the Netherlands and the observer from BIMCO were of the opinion that container ships loaded properly could comply with the requirements of regulation V/22 on navigation bridge visibility and there was no need for any amendments.

17.10 The Chairman informed the Sub-Committee that paragraph 3.8 of the Guidelines on the organization and method of work of the Committees and their subsidiary bodies, as amended (MSC/Circ.1099 and MEPC/Circ.405), stated clearly that subsidiary bodies should not develop amendments to, or interpretations of, any relevant IMO instrument without authorization from the Committee(s) and on this basis Germany might wish to submit an appropriate proposal to MSC 82 for the inclusion of a relevant new item on the Sub-Committee’s work programme.

17.11 The Sub-Committee noted that the deadline for submitting proposals for new work programme items to MSC 82 was 29 August 2006 due to a decision by MSC 81 that the deadline for submission of documents containing proposals for new work items should be reduced to 13 weeks.

### **IALA Risk Management Tool for ports and restricted waterways**

17.12 The Sub-Committee considered document NAV 52/17/2 (IALA) providing information that, following a successful validation process at a workshop held in Copenhagen from 2 to 5 May 2006 using The Sound as the restricted waterway, the Council of IALA had adopted a Recommendation on the IALA Risk Management Tool for Ports and Restricted Waterways, 2006.

17.13 The Sub-Committee noted that the IALA Risk Management Tool was capable of:

- .1 assessing the risk in ports or restricted waterways, compared with the risk level considered by Authorities and stakeholders to be acceptable; the elements that can be taken into consideration include those relating to vessel conditions, traffic conditions, navigational conditions, waterway conditions, immediate consequences and subsequent consequences;
- .2 identifying appropriate risk control options to decrease the risk to the level considered to be acceptable, which include improved co-ordination and planning; training; rules and procedures including enforcement; navigational, meteorological and hydrographical information; radio communications; active traffic management and waterway changes; and

- .3 identifying the effect on the risk level of an existing port or waterway that may result from a change or reduction of any of the risk control options in use including assistance in assessing the risk level of proposed new ports and waterways.

17.14 The Sub-Committee concurred with the view of IALA that the tool was a useful and convenient aid in assessing the risk in ports or restricted waterways.

17.15 The Sub-Committee invited Member Governments to use the tool for analysis and risk level management within waterways and port areas as recommended by IALA.

### **Emergency wreck marking buoy**

17.16 The Sub-Committee considered document NAV 52/17/3 (IALA) giving details of the IALA Guideline No.1046 - Response Plan for the Marking of New Wrecks (June 2005) which provided guidance to Authorities for an immediate, effective and well co-ordinated response to marking of new dangers and prevent collisions. However, in preparing the Guideline, the limitations of the present IALA Maritime Buoyage System, when providing initial marking of new dangers, were noted. At present, new dangers were generally marked by cardinal or lateral buoys, although it was recognised that a number of Authorities also deploy isolated danger marks. Recent groundings and collisions had indicated a need for a revision of how new dangers were to be marked, especially in an emergency. As a possible means of ensuring the clear and unambiguous marking of dangerous new wrecks, IALA had recently adopted Recommendation O-133, which introduced, on a trial basis, a new emergency wreck marking buoy. Results from the trials would be assessed in the 2006-2010 IALA work programme before being included into the overall IALA Buoyage system. An emergency wreck marking buoy was displayed inside the IMO premises, kindly provided by the United Kingdom Government (Trinity House) for the information of the delegates.

17.17 The Sub-Committee having considered document NAV 52/WP.8, annex agreed the draft SN/Circular on Emergency wreck marking buoy, set out in annex 12, for submission to MSC 82 for approval.

### **Development of an E-Navigation strategy**

17.18 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.

17.19 The Sub-Committee also recalled that the observer from IFSMA, in supporting the above proposal, drew the Committee's attention to MSC/Circ.1091 on Issues to be considered when introducing new technology on board ship, addressing matters of standardization, training needs and the human element, and stressed the need for these recommendations to be taken into account in all stages of the development of e-navigation.

17.20 The Sub-Committee further 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 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.

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

17.22 The Sub-Committee considered document MSC 81/23/10 (Japan, Marshall Islands, Netherlands, Norway, Singapore, United Kingdom and the United States) on the development of an e-navigation strategy.

17.23 The Sub-Committee also considered document (NAV 52/17/4 (Japan) outlining Japan’s approach to e-navigation which covered three issues, namely:

- .1 development of measures to prevent small vessels from accidents (e.g. utilization of Class-B AIS);
- .2 further development of information systems on the bridge, particularly in view of human element, to improve functions on recognition and judgment; and
- .3 reinforcement of shore-based navigational support by introducing broadband data communications at sea (e.g. up-to-date documents required on board including latest information on route).

17.24 There was an extensive debate on the issue. The Sub-Committee fully supported the concept of e-navigation and were of the opinion that the Sub-Committee should work expeditiously towards developing a strategic vision/concept relating to e-navigation in a well defined and structured manner.

17.25 The Sub-Committee was also of the opinion that IMO should take the lead in the development of the strategy for e-navigation, but it would also be important to invite other organizations, in particular, IALA and IHO, to participate in its work and provide relevant input.

17.26 The Sub-Committee further recognized that it would be essential, as a first step, to develop a clear definition and objectives for the concept of e-navigation. It was also of the opinion that a very careful and strict management of such a large project would be a critical factor for its success.

17.27 There was general support that the issue of the human element, in general, and training and education requirements, in particular, would form a key issue in the development of an e-navigation strategy.

17.28 The Sub-Committee agreed that, to progress the work for NAV 53, an intersessional Correspondence Group should be established under the co-ordination of the United Kingdom\* and approved the draft terms of reference of the proposed Correspondence Group, given below.

17.29 Taking into account document MSC 81/23/10 (Japan, Marshall Islands, Netherlands, Norway, Singapore, United Kingdom and the United States) and the relevant decisions of MSC 81 (MSC 81/25, paragraphs 23.34 to 23.37), document NAV 52/17/4 (Japan) and the comments and general views expressed and decisions taken by NAV 52 including 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 consider, provide comments and make recommendations on the following:

- .1 the definition and scope of the concept of e-navigation in terms of its purpose, components and limitations to produce a system architecture;
- .2 the identification of the key issues and priorities that will have to be addressed in a strategic vision and a policy framework on e-navigation;
- .3 the identification of both benefits of and obstacles that may arise in the further development of such a strategic vision and policy framework;
- .4 the identification of the roles of the Organization, its Member States, other bodies and industry in the further development of such a strategic vision and policy framework;
- .5 the formulation of a work programme for the further development of such a strategic vision and policy framework, including an outline migration plan and recommendations on the roles of the NAV and COMSAR Sub-Committees and the input of other parties concerned; and

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.

17.30 The Sub-Committee instructed the Secretariat to inform COMSAR 11 of the outcome of this debate.

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## **Guidelines on the control of ships in an emergency**

17.31 The Sub-Committee noted 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) invited the Committee, when considering the proposal, to develop 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 decision.

17.32 The Sub-Committee also noted 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 in the United Kingdom. The delegation also advised that, since the establishment of the SOSREP system, 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, advised the Committee 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.

17.33 The Sub-Committee further noted 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, 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.

17.34 The Sub-Committee 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.

17.35 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.

17.36 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 its review and comments.

17.37 Members were invited to submit suitable proposals and comments for consideration at COMSAR 11 and NAV 53.

### **Automatic Identification Systems: Accuracy of transmissions**

17.38 The Sub-Committee noted with interest the information provided by the United Kingdom (NAV 52/INF.4) on the active surveillance of Automatic Identification Systems (AIS) with the aim of identifying and informing ship operators of erroneous vessel data being transmitted whilst in United Kingdom waters.

### **Integrated navigational information system on seascape image**

17.39 The Sub-Committee noted with interest the information provided by Japan (NAV 52/INF.6) on a new integrated navigational information display developed in Japan i.e., (INT-NAV) and the results of the simulator study on the effectiveness of the collision avoidance supporting function of the INT-NAV.

### **Mandatory emergency towing systems in ships other than tankers of not less than 20,000 DWT**

17.40 The Sub-Committee noted that DE 49 had considered the issue of Mandatory Towing Systems in Ships other than tankers of not less than 20,000 DWT and agreed, in principle, to the draft amendments to SOLAS regulation II-1/3-4, for further consideration at DE 50, noting that the amendments should take into account comments made in plenary to focus on functional requirements for procedures rather than requiring additional equipment. In the context of the possible application of the proposed draft SOLAS amendments and in view of the decision made earlier to apply the proposed amendments to cargo ships above 500 gross tonnage and all passenger ships, DE 49 noted possible difficulties regarding the application to existing ships, in particular that for existing ships certain information may not always be available, e.g., capacity of bollards. However, DE 49 agreed that the proposed draft SOLAS amendments should apply to existing ships and the above-mentioned difficulties should be taken into account when developing the guidelines for procedures. Bearing in mind that one date of coming into force for all ships, both new and existing, could lead to a bottleneck in developing the required procedures, DE 49 agreed to split the date of entry into force into two phases: one date for new ships, existing cargo ships of not less than 20,000 DWT, and existing passenger ships; and another date for existing cargo ships of less than 20,000 DWT two years later. Noting that SOLAS regulation II-1/3-4 required emergency towing arrangements on tankers of not less than 20,000 DWT, DE 49 discussed the application of emergency towing procedures also to such tankers. Noting further that the existing SOLAS requirements as well as the Guidelines on emergency towing arrangements for tankers, adopted by resolution MSC.35(63), did not explicitly contain requirements for procedures, but on the other hand most of those ships were provided with respective procedures anyway, DE 49 agreed to apply the new procedures also to tankers of not less than 20,000 DWT.

17.41 The Sub-Committee also noted that, furthermore, DE 49 noted possible implications on navigational issues and instructed the Secretariat to inform the NAV Sub-Committee about the ongoing work on emergency towing procedures in the Sub-Committee.

17.42 The Sub-Committee further noted that MSC 81 had noted the outcome on the development of provisions for mandatory emergency towing systems in ships other than tankers of not less than 20,000 DWT, as reflected in paragraphs 7.3 to 7.18 of document DE 49/20, in particular that DE 49 had established a correspondence group to progress the work intersessionally, and that the matter would be further considered at DE 50 on the basis of the report of the group.

17.43 The Sub-Committee considered the annex to document DE 49/WP.5 and concurred with the draft SOLAS amendment on emergency towing procedures. The Sub-Committee deemed it appropriate to inform the DE Sub-Committee that existing shipboard equipment might limit the emergency towing capabilities in severe weather conditions.

### **Carriage requirements for a bridge navigational watch alarm system**

17.44 The Sub-Committee noted 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 be fitted with a bridge navigational watch alarm system (BNWAS), to be in operation when the ship is 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 had been adopted by resolution MSC.128(75), no carriage requirements or guidelines for the use of such systems had been adopted yet. Following consideration, MSC 81 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.

17.45 The Sub-Committee 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.

### **Revision of Annex IV to the 1972 COLREGs**

17.46 The Sub-Committee recalled that following consideration of a proposal by Norway (MSC 81/23/12) to amend the list of distress signals in Annex IV to the COLREGs to include GMDSS distress signals, as required in SOLAS chapter IV, and also to amend Annex IV by deleting distress signals which have been made redundant by the introduction of the GMDSS distress signals, 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 "Amendments to COLREGs Annex IV relating to distress signals", 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.

17.47 The Sub-Committee preliminary discussed the proposed amendments to ANNEX IV of the COLREGs based on the Norwegian proposal (MSC 81/23/12) and, in order to make progress on the issue, instructed its Ships' Routeing Working Group (agenda item 3) to consider the matter and report to Plenary.

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

17.48 Having received and considered the Ships' Routeing Working Group report (NAV 52/WP.5), the Sub-Committee (with reference to paragraphs: 10.1 to 10.2 and annex 18) took action as summarized hereunder.

17.49 The Sub-Committee endorsed the views of the working group that mobile satellite providers for the Global Maritime Distress and Safety System (GMDSS) other than Inmarsat should be recognized by the COLREGs and forwarded the draft Assembly resolution containing the revised text of the proposed amendments to Annex IV of the Convention on the International Regulations for Preventing Collisions at Sea, 1972, as amended, given at annex 13, to the

Committee for adoption and communication to all Contracting Parties and Members of the Organization at least six months prior to its consideration by the Assembly and instructed the Secretariat to forward them to COMSAR 11 for review and comments to MSC 83 (paragraph 10.2 and annex 18). The Committee was invited to delete this agenda item from the Sub-Committee's Work Programme as action on the issue had been completed.

### **Development of carriage requirements for ECDIS**

17.50 The Sub-Committee recalled that, at NAV 51 the delegation of Norway, as co-ordinator of the Correspondence Group (NAV 51/6), emphasized in particular the opinion of the Group that there was a sound basis to implement 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. In considering the report of the Correspondence Group, some delegations supported the phased-in approach for a carriage requirement for ECDIS for certain types of ships, with priority being given to High-Speed Craft. In opposing a possible carriage requirement, some delegations noted the present shortfall in the coverage of ENCs world-wide and stated that a full FSA on the use of ECDIS should be carried out before the consideration of any carriage requirement for ECDIS, which was premature to consider at this stage. Some delegations also noted that there were limitations to the use of ECDIS as well as training and qualification implications. There were also questions as to some flag and coastal States' interpretation and coastal State jurisdiction with regard to what constituted an "appropriate folio of up-to-date paper charts", when ECDIS was operated in the RCDS mode in areas where ENCs were not available.

17.51 The Sub-Committee also recalled that, NAV 51 it 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.

17.52 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 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 had 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 a preliminary consideration to the matter.

17.53 The Sub-Committee considered document MSC 81/23/13 (Denmark and Norway) on the development of carriage requirements for ECDIS equipment in SOLAS chapter V.

17.54 The Sub-Committee also considered document NAV 52/6/2 (Japan) providing the results of a study, which indicated that the mandatory installation of ECDIS to cargo ships was justified as being cost-effective if the ships sailed in routes or sea areas where suitable scaled ENCs are available. Hence, when considering a mandatory carriage requirement for ECDIS, the

implementation date should be harmonized with the date when ENC's become available in the route for the ships. In presenting the paper, the Japanese delegation stated that the mandatory application of ECDIS installations to existing ships and small ships should be carefully examined.

17.55 The Sub-Committee discussed the issue in depth. In summing up the debate the Chairman concluded that there had been considerable support for the results of the FSA study conducted by Japan including its recommendations. A majority of the 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 concurred with the Chairman's summary.

17.56 The Sub-Committee reiterated its invitation to the IHO and Members of the Sub-Committee to continue progress towards ENC development.

17.57 Member Governments were invited to submit suitable proposals and comments for consideration at NAV 53.

#### **Voluntary IMO Member State audit scheme**

17.58 The Sub-Committee recalled that MSC 81, having recognized that the issues raised in the two submissions (MSC 81/24/1 and MSC 81/24/4) relating to SOLAS chapter V were not currently developed enough by the Audit Standard, agreed, in principle, that further work should be carried out on the basis of the proposals made by IHO and IALA. In this context, and while acknowledging that the areas covered by the aforementioned proposals were not currently auditable, MSC 81 instructed FSI 14 to consider these proposals in the context of a potential review of annex 3 to the Code for the Implementation of Mandatory IMO Instruments (annex to resolution A.973(24)), seeking any necessary complementary input from NAV 52, if deemed appropriate, for reporting to MSC 82.

17.59 The Sub-Committee noted that, FSI 14 had considered the two proposals, which were introduced together with the advice, received from the submitting parties, that the two questionnaires could not be combined into one, since they might refer to two different types of administrative structures, as was reported to be the case in most countries. Having noted the positive comments made by those Member States which presented their own experience of the use of the two questionnaires under consideration in their preparation for the audit, FSI 14 agreed, for the purpose of assisting those Member States, volunteering for the audit, and auditors, in their preparatory work and in need of additional guidance, to recommend that interested parties could be made aware of the existence of this material, until such time when, on the basis of experience gained, a relevant proposal for amendments to the procedures for the voluntary IMO Member State audit could be prepared for consideration by the Council. The Secretariat was instructed to bring this outcome to the attention of NAV 52.

17.60 The Sub-Committee concurred with the decisions of FSI 14.

#### **Inspection of VDRs under the HSSC**

17.61 The Sub-Committee recalled that MSC 81 noted that the FSI Correspondence Group on Revised Survey Guidelines under the HSSC (resolution A.948(23)), reporting to FSI 14, had identified the need, based on the requirements contained in SOLAS regulation V/18(8), for an annual performance test for the voyage data recorder (VDR) system and for better guidance as to

what needs to be done during the annual performance test, including the adoption of a standard format for the required certificate of compliance. Having also noted the FSI Correspondence Group's opinion that the aforementioned matter was beyond the remit of the group, MSC 81 had considered the proposal contained in document MSC 81/8/2 (United Kingdom) on the inspection of VDRs under the HSSC and referred it to FSI 14 and NAV 52 for review and recommendation under their agenda items on "Review of the Survey Guidelines under the HSSC (resolution A.948(23))" and "Any other business", respectively, and reporting to MSC 82.

17.62 The Sub-Committee noted that FSI 14 had considered document MSC 81/8/2 (United Kingdom) and agreed to the draft Guidelines on annual testing of Voyage Data Recorders (VDR) and simplified Voyage Data Recorders (S-VDR) incorporating the Form for the Voyage Data Recorder Performance Test Certificate (FSI 14/19, annex 8), for review by NAV 52, subject to MSC 82's concurrence.

17.63 The Sub-Committee considered the relevant part of document NAV 52/2/3 (Secretariat), with respect to the draft MSC circular and the Form for the Voyage Data Recorder Performance Test Certificate (FSI 14/19, annex 8) and agreed to the draft Guidelines on annual testing of Voyage Data Recorders (VDR) and simplified Voyage Data Recorders (S-VDR).

17.64 The observer from CIRM informed the Sub-Committee that they would be submitting a document to MSC 82 proposing minor editorial amendments to draft Guidelines on annual testing of voyage data recorders (VDR) and simplified voyage data recorders (S-VDR).

17.65 The delegation of Greece was of the opinion that the checklist for the voyage data recorder performance test certificate was incomplete and further work was necessary to develop a more comprehensive format and also that the annual test interval should be re-evaluated.

### **AIS inspection and test report**

17.66 The Sub-Committee noted that FSI 14 had considered document FSI 14/11/2 (Norway) regarding technical survey of AIS installations and developed an adequate text for inclusion in the draft Survey Guidelines under the HSSC of inspection procedures of Automatic Identification Systems (AIS) equipment by radio inspectors. In addition, FSI 14 had also agreed to the draft Form for the AIS Test Report as developed by the Working Group (FSI 14/19, annex 6), for further review by NAV 52, subject to MSC 82's concurrence.

17.67 The Sub-Committee considered the relevant part of document NAV 52/2/3 (Secretariat), with respect to the Form for the AIS Test Report (FSI 14/19, annex 6) and agreed to the draft Form for the AIS Test Report.

### **Regional Marine Electronic Highway in the East Asian Seas**

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

17.69 The Sub-Committee noted that the signing of a US\$6.86 million grant agreement on 19 June 2006 between the Global Environment Facility (GEF)/World Bank and the International Maritime Organization (IMO) heralded the start of the four-year Marine Electronic Highway (MEH) Demonstration Project in the Straits of Malacca and Singapore. The demonstration project aims to integrate shore-based marine information and communication infrastructure with

the corresponding navigational and communication facilities aboard transiting ships, while being also capable of incorporating marine environmental management systems. The overall objectives 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. In addition to the US\$6.86 million assigned to IMO for the regional MEH demonstration project, the GEF/World Bank has also agreed to grant US\$1.44 million to Indonesia for the procurement of equipment for a Differential Global Positioning System (DGPS) station and Automatic Identification System (AIS) stations, as well as tidal instruments and an ocean data buoy. The MEH would be built upon a network of electronic navigational charts using Electronic Chart Display and Information Systems (ECDIS) and environmental management tools in an integrated platform covering the region that allows the maximum of information to be made available both to ships and shipmasters as well as to shore-based users, such as vessel traffic services. Work on the project is underway but actual start up activities such as the establishment of the Batam Project Management Office; holding of the 1<sup>st</sup> Project Steering Committee Meeting and recruitment of the Project Manager, among others, until commence when the Project Launching Consultant will be hired (possibly nearing September 2006). A procurement consultant will be hired also to prepare the bidding document for a hydrographic survey, scheduled to take place in 2007, of the Traffic Separation Scheme of the Malacca Strait Routeing System from One Fathom Bank to Pulau Iyu Kecil, using multi-beam technology, with the aim of producing electronic navigational charts of the Straits.

### **Navigational warnings**

17.70 The delegation of Japan, referring to the multiple launches of missiles conducted by the Democratic People's Republic of Korea on 5 July 2006 with no navigational warnings having been issued in advance, stated that such acts constituted a serious threat to maritime safety and urged all IMO Member States to reaffirm compliance with Assembly resolution A.706(17), as amended. The delegation of Japan stated that the issue should be seriously considered from the viewpoint of navigational safety at the next meeting of the Maritime Safety Committee and, to this end, Japan intended to submit an appropriate document to MSC 82. The text of the Japanese statement is reproduced at annex 14.

17.71 The serious concern over activities, such as those reported by the Japanese delegation, without prior navigational warning and the appeal for strict compliance with Assembly resolution A.706(17), as amended on the World-Wide Navigational Service raised by the delegation of Japan were supported by the delegations of the United States, the Russian Federation, the United Kingdom, France, Italy, the Republic of Korea and Finland. The text of the statement by the United States delegation is reproduced at annex 15.

17.72 In response to the statement by the Japanese delegation and the relevant comments made by other delegates, the delegation of the Democratic People's Republic of Korea stated that the latest successful missile launches were part of the routine military exercises staged by the Korean People's Army to increase the nation's military capacity for self-defence and that their military exercise for missile launches pertaining to its sovereign right to self-defence was not an issue to be discussed in international fora including IMO. The delegation of the Democratic People's Republic of Korea further stated its Government's position regarding the relevant UN Security Council resolution, which had been referred to by the United States delegation. The text of the statement of the delegation of the Democratic People's Republic of Korea is reproduced at annex 16.

17.73 The Sub-Committee noted the statements made on the issue raised by the delegation of Japan by various delegations and, upon proposal by the delegation of the United Kingdom, expressed support for, and the continued validity of resolution A.706(17), as amended on World-Wide Navigational Warning Service and MSC/Circ.893 on Navigational warnings concerning operations endangering the safety of navigation; and urged Members to comply with their requirements.

### **Compulsory Pilotage in the Torres Strait**

17.74 The delegation of Singapore stated that as the NAV Sub-Committee was the IMO forum for the safety of navigation and ships' routing measures, the delegation would like to register its concerns and restate its position at the current session regarding Australia's and Papua New Guinea's introduction of compulsory pilotage in the Torres Strait, a strait used for international navigation, with effect from 6 October 2006. The Australian Maritime Safety Authority in Marine Notice 8/2006, relating to this new requirement, referred to IMO resolution MEPC.133(53) as the basis for introducing a compulsory pilotage system in the Torres Strait. The Marine Notice also stated that under the new "laws and regulations" enacted by Australia to give effect to compulsory pilotage in the Torres Strait, the refusal to take a pilot on board would result in an "offence" being committed and "significant penalties" applied. The delegation of Singapore pointed out that this was not in line with the outcome and understanding reached at MEPC 53. The outcome and understanding at MEPC 53, as recorded in MEPC 53/24, paragraphs 8.5 to 8.6 was that resolution MEPC.133(53) was recommendatory and provided no international basis for mandatory pilotage for ships in transit in the Torres Strait or any other strait used for international navigation. This understanding had been supported by several delegations at MEPC 53, including Singapore. Singapore had also previously stated and would like to restate its position that the imposition of compulsory pilotage for ships transiting a strait used for international navigation would have the "practical effect of denying, hampering or impairing the right of transit passage" and thus be in contravention of Article 42(2) of UNCLOS. Singapore could not accept the application of a compulsory pilotage system in the Torres Strait, a strait used for international navigation. Singapore would however like to assure Member States, in particular Australia and Papua New Guinea, that it recognised and fully appreciated the environmental concerns relating to the Torres Strait and would continue to encourage ships flying the Singapore flag to engage pilots when transiting the Torres Strait, in line with the recommendatory nature of the measure. A complete text of the statement by the delegation of Singapore is given at annex 17.

17.75 The concerns raised by Singapore regarding Australia's and Papua New Guinea's introduction of compulsory pilotage in the Torres Strait and the view that resolution MEPC.133(53) was recommendatory and provided no international basis for mandatory pilotage for ships merely transiting an international strait were generally supported by the delegations of the Russian Federation, Japan, the United States, Panama, China, Norway, Greece, Liberia, Brazil, United Kingdom, Ukraine, Cyprus, the Bahamas and South Africa, including the observers from ICS and BIMCO. Several delegations, nevertheless, stated that they are recommending or requiring the pilotage for ships under their flags for the passage of the strait in question, in view of the importance attached to the strait.

17.76 The delegation of Australia stated that navigation safety matters related to extending the Great Barrier Reef pilotage arrangements to the Torres Strait had been considered by this Sub-Committee in the context of a submission to designate the Torres Strait as a Particularly Sensitive Sea Area. NAV 50 agreed "That the proposed compulsory pilotage in the Torres Strait was operationally feasible and largely proportionate to provide protection to the marine environment" (NAV 50/19, paragraph 3.29.14). Australia was confident that it was acting in

accordance with international law and within resolution MEPC.133(53) with the steps it was taking. Paragraph 8.3 of resolution A.982(24) designated MEPC as the IMO body with primary responsibility for Particularly Sensitive Sea Area applications. Australia considered that this matter was settled at previous meetings of MSC and MEPC and, as such, it did not think it was appropriate to discuss this matter further in this Sub-Committee.

#### **EXPRESSIONS OF APPRECIATION**

17.77 The Sub-Committee 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:

- Mr. Trygve Scheel (Norway) (on retirement);
- Mr. Hag-Bea Yoon (Republic of Korea) (on transfer);
- Mr. Fikret Hakgüden (Turkey) (on transfer);
- Captain Carlos Ormaechea (Uruguay) (on transfer);
- Captain Norman Cockroft (IAIN) (on retirement); and
- Captain Malcolm Ridge (IHMA) (on retirement).

#### **EXPRESSIONS OF CONDOLENCES**

17.78 The Sub-Committee, having been informed of the passing of Captain Hans Jürgen Roos (Germany), former long standing Chairman of the SPI Working Group, and his major contribution to the work of IMO and the promotion of maritime safety, in general, and in particular, both as an earlier delegate, requested the delegation of Germany to convey the Sub-Committee's and the Secretariat's condolences and sympathy to the family, friends and colleagues of Capt. Roos who would be sadly missed.

### **18 ACTION REQUESTED OF THE COMMITTEE**

18.1 The Committee, at its eighty-second session, is invited to:

- .1 in accordance with resolution A.858(20), adopt:
  - .1 the proposed new traffic separation schemes, including associated routing measures "Off the coast of Norway from Vardø to Røst" (paragraph 3.36 and annex 1\*);
  - .2 the proposed three new traffic separation schemes including associated routing measures "In the SUNK area and northern approaches to the Thames estuary" (paragraph 3.39 and annex 1);
  - .3 the proposed new traffic separation scheme "Off Neist Point" in the Minches (paragraph 3.40 and annex 1);
  - .4 the proposed amendments to the existing traffic separation schemes "In the Strait of Gibraltar" (paragraph 3.41 and annex 1);

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\* All references are to paragraphs of, and annexes to, the report of NAV 52 (NAV 52/18).

- .5 the proposed amendments to the existing traffic separation scheme “In the approach to Boston, Massachusetts” (paragraph 3.42 and annex 1);
- .6 the proposed amendments to the existing traffic separation schemes “In the Adriatic Sea” (paragraph 3.43 and annex 1);
- .7 the proposed amendments to the existing traffic separation schemes “Off Cani Island” and “Off Cape Bon”, off the coast of Tunisia (paragraph 3.45 and annex 1);
- .8 the proposed amendments to the existing traffic separation scheme “Off Botney Ground” (paragraph 3.46 and annex 1);
- .9 the proposed new Area to be Avoided/Mandatory No Anchoring Area in the approaches to the Gulf of Venice (paragraph 3.47 and annex 2);
- .10 the proposed new Precautionary Area off the west coast of the North Island of New Zealand (paragraph 3.48 and annex 2);
- .11 the proposed amendments to the Deep-Water route west of the Hebrides (paragraph 3.49 and annex 2);
- .12 the proposed new Recommended Routes in the Minches (paragraph 3.50 and annex 2);
- .13 the proposed amendments to the Recommendation on navigation around the United Kingdom coast (paragraph 3.51 and annex 2);
- .14 the proposed abolition of the Area to be Avoided around the EC2 Lighted Buoy including the consequential amendment relating to the cancellation of the Recommendations on directions of traffic flow in the English Channel (paragraph 3.52 and annex 2);
- .15 the proposed new mandatory ship reporting system “In the Galapagos Particularly Sensitive Sea Area (PSSA)” (paragraph 3.54 and annex 3);
- .16 the proposed amendments to the existing mandatory ship reporting system “In the Storebælt (Great Belt) Traffic Area” (paragraph 3.55 and annex 4);
- .17 the proposed amendments to the existing mandatory ship reporting system “In the Gulf of Finland” (paragraph 3.56 and annex 5);
- .2 endorse the action taken by the Sub-Committee in submitting the outcome of its deliberations on the issue of XML format for ship reporting systems to COMSAR 11 (paragraph 3.58);
- .3 adopt the draft MSC resolution on Adoption of the revised performance standards for ECDIS (paragraph 5.8 and annex 6);
- .4 endorse the action taken by the Sub-Committee in circulating SN.1/Circ.255 on Additional guidance on chart datums and the accuracy of position on charts (paragraph 5.10);

- .5 endorse the action taken by the Sub-Committee in submitting a liaison statement to ITU-R Working Party 8B on Maintenance and Administration of AIS binary messages (paragraph 9.6 and annex 7);
- .6 adopt the draft MSC resolution on Adoption of Performance Standards for shipborne Galileo receiver equipment (paragraph 10.8 and annex 8);
- .7 approve the draft MSC circular on Unified interpretations of COLREGs 1972, as amended (paragraph 14.5 and annex 9);
- .8 approve the draft MSC circular on Unified interpretations of SOLAS chapter V (paragraph 14.7 and annex 10);
- .9 approve the draft SN circular on Emergency wreck marking buoy (paragraph 17.17 and annex 12);
- .10 approve the draft Assembly resolution on Amendments to the International Regulations for Preventing Collisions at Sea, 1972, as amended (paragraph 17.49 and annex 13); and
- .11 approve the report in general.

18.2 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 11) in general and, in particular, to:

- .1 delete “Amendments to the ECDIS performance standards” as the task has been completed (paragraph 5.8);
- .2 delete “Performance standards for the shipborne Galileo receiver equipment”, as the task has been completed (paragraph 10.10);
- .3 delete “Amendments to COLREGs Annex IV relating to distress signals”, as the task has been completed (paragraph 17.49);
- .4 extend the target completion date of the following work programme items, namely:
  - .1 “Revision of the performance standards for INS and IBS” with a target completion date of 2007 (paragraph 4.14);
  - .2 “Evaluation of the use of ECDIS and ENC development” with a target completion date of 2007 (paragraph 6.16); and
  - .3 “ITU matters, including Radiocommunications ITU-R study Group 8 matters” with a target completion date of 2009 (paragraph 9.7).

18.3 The Committee is also invited to approve the proposed agenda for the Sub-Committee’s fifty-third session (annex 11), which has been developed using the agenda management procedure.

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## ANNEX 1

## NEW AND AMENDED TRAFFIC SEPARATION SCHEMES

## OFF THE COAST OF NORWAY FROM VARDØ TO RØST

(Reference charts are Norwegian Hydrographic Service Fisheries Chart Series:

No.	Title	Scale	Datum	Published
551	Barentshavet, sørvestlige del	1:700 000	ED 50	1963
552	Vesterålen – Vest Finnmark – Bjørnøya	1:700 000	ED 50	1964
557	Haltenbanken – Vesterålen	1:700 000	ED 50	1966

Position co-ordinates referred to the WGS 84 datum should be plotted direct on to these charts, as the difference between the WGS 84 and ED 50 datums is of no practical significance at the actual scale.

**Note:** The geographical positions, (1) – (98), listed below are given in the WGS-84 datum.)

### Categories of ships to which the traffic separation schemes apply

Tankers of all sizes, including gas and chemical tankers, and all other cargo ships of 5,000 gross tonnage and upwards engaged on international voyages should follow the routeing system consisting of a series of traffic separation schemes joined by recommended routes off the coast of Norway from Vardø to Røst.

### International voyages to or from ports in Norway from Vardø to Røst

Ships on international voyages to or from ports in Norway from Vardø to Røst should follow the ship's routeing system until a course to port can be clearly set. This also applies to ships calling at Norwegian ports for supplies or service.

### Description of the traffic separation schemes

#### I Off Vardø

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

(1) 70° 44'.55 N	031° 49'.52 E	(3) 70° 51'.05 N	031° 33'.87 E
(2) 70° 49'.44 N	031° 30'.08 E	(4) 70° 46'.20 N	031° 53'.31 E

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

(5) 70° 48'.59 N	031° 58'.90 E	(6) 70° 53'.40 N	031° 39'.19 E
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(c) A traffic lane for eastbound traffic is established between the separation zone described in paragraph (a) and a line connecting the following geographical positions:

(7) 70° 42'.22 N 031° 44'.20 E (8) 70° 47'.08 N 031° 24'.76 E

## II Off Slettnes

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

(9) 71° 23'.01 N 029° 11'.08 E (12) 71° 29'.21 N 028° 44'.33 E  
(10) 71° 26'.11 N 028° 58'.61 E (13) 71° 27'.86 N 029° 01'.25 E  
(11) 71° 27'.26 N 028° 42'.95 E (14) 71° 24'.63 N 029° 14'.78 E

(e) A traffic lane for westbound traffic is established between the separation zone described in paragraph (d) and a line connecting the following geographical positions:

(15) 71° 27'.06 N 029° 20'.38 E (17) 71° 32'.13 N 028° 46'.76 E  
(16) 71° 30'.60 N 029° 05'.28 E

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

(18) 71° 20'.58 N 029° 05'.48 E (20) 71° 24'.39 N 028° 40'.62 E  
(19) 71° 23'.35 N 028° 54'.38 E

## III Off North Cape

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

(21) 71° 40'.27 N 026° 08'.73 E (24) 71° 42'.53 N 025° 26'.58 E  
(22) 71° 41'.78 N 025° 49'.27 E (25) 71° 43'.72 N 025° 49'.45 E  
(23) 71° 40'.61 N 025° 27'.86 E (26) 71° 42'.19 N 026° 10'.46 E

(h) A traffic lane for westbound traffic is established between the separation zone described in paragraph (g) and a line connecting the following geographical positions:

(27) 71° 45'.05 N 026° 13'.20 E (29) 71° 45'.39 N 025° 24'.48 E  
(28) 71° 47'.03 N 025° 49'.12 E

(i) A traffic lane for eastbound traffic is established between the separation zone described in paragraph (g) and a line connecting the following geographical positions:

(30) 71° 37'.34 N 026° 06'.36 E (32) 71° 37'.60 N 025° 29'.77 E  
(31) 71° 38'.80 N 025° 48'.40 E

## IV Off Sørøya

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

(33) 71° 30'.11 N 022° 39'.50 E (36) 71° 28'.08 N 021° 59'.45 E  
(34) 71° 28'.95 N 022° 20'.05 E (37) 71° 30'.73 N 022° 18'.35 E  
(35) 71° 26'.29 N 022° 01'.90 E (38) 71° 32'.06 N 022° 38'.23 E

(k) A traffic lane for westbound traffic is established between the separation zone described in paragraph (j) and a line connecting the following geographical positions:

(39) 71° 35'.00 N 022° 36'.42 E (41) 71° 30'.85 N 021° 55'.63 E  
(40) 71° 33'.65 N 022° 15'.39 E

(l) A traffic lane for eastbound traffic is established between the separation zone described in paragraph (j) and a line connecting the following geographical positions:

(42) 71° 27'.17 N 022° 41'.31 E (44) 71° 23'.55 N 022° 05'.83 E  
(43) 71° 26'.00 N 022° 23'.00 E

#### V Off Torsvåg

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

(45) 71° 02'.07 N 019° 13'.93 E (48) 70° 56'.51 N 018° 36'.45 E  
(46) 70° 59'.63 N 018° 55'.90 E (49) 71° 01'.26 N 018° 52'.77 E  
(47) 70° 55'.07 N 018° 40'.45 E (50) 71° 03'.97 N 019° 11'.40 E

(n) A traffic lane for westbound traffic is established between the separation zone described in paragraph (m) and a line connecting the following geographical positions:

(51) 71° 06'.72 N 019° 07'.81 E (53) 70° 58'.73 N 018° 30'.34 E  
(52) 71° 03'.77 N 018° 47'.82 E

(o) A traffic lane for eastbound traffic is established between the separation zone described in paragraph (m) and a line connecting the following geographical positions:

(54) 70° 59'.40 N 019° 17'.65 E (56) 70° 52'.80 N 018° 46'.70 E  
(55) 70° 56'.97 N 019° 00'.60 E

#### VI Off Andenes

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

(57) 69° 48'.74 N 015° 06'.86 E (59) 69° 44'.77 N 014° 46'.12 E  
(58) 69° 43'.32 N 014° 50'.07 E (60) 69° 50'.22 N 015° 03'.14 E

(q) A traffic lane for westbound traffic is established between the separation zone described in paragraph (p) and a line connecting the following geographical positions:

(61) 69° 52'.41 N 014° 57'.25 E (62) 69° 47'.00 N 014° 40'.38 E

(r) A traffic lane for eastbound traffic is established between the separation zone described in paragraph (p) and a line connecting the following geographical positions:

(63) 69° 46'.52 N 015° 12'.75 E (64) 69° 41'.09 N 014° 55'.85 E

VII Off Røst (1)

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

(65)	68° 12'.89 N	010° 16'.07 E	(68)	68° 03'.57 N	009° 50'.12 E
(66)	68° 08'.36 N	010° 02'.92 E	(69)	68° 09'.41 N	009° 58'.73 E
(67)	68° 02'.64 N	009° 54'.93 E	(70)	68° 14'.26 N	010° 12'.03 E

(t) A traffic lane for westbound traffic is established between the separation zone described in paragraph (s) and a line connecting the following geographical positions:

(71)	68° 16'.38 N	010° 06'.20 E	(73)	68° 04'.83 N	009° 43'.01 E
(72)	68° 11'.32 N	009° 52'.34 E			

(u) A traffic lane for eastbound traffic is established between the separation zone described in paragraph (s) and a line connecting the following geographical positions:

(74)	68° 10'.82 N	010° 21'.89 E	(76)	68° 01'.24 N	010° 02'.10 E
(75)	68° 06'.71 N	010° 09'.50 E			

VIII Off Røst (2)

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

(77)	67° 37'.66 N	009° 21'.34 E	(79)	67° 31'.31 N	009° 07'.29 E
(78)	67° 30'.42 N	009° 12'.05 E	(80)	67° 38'.55 N	009° 16'.66 E

(w) A traffic lane for westbound traffic is established between the separation zone described in paragraph (v) and a line connecting the following geographical positions:

(81)	67° 40'.00 N	009° 09'.73 E	(82)	67° 32'.64 N	009° 00'.28 E
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(x) A traffic lane for eastbound traffic is established between the separation zone described in paragraph (v) and a line connecting the following geographical positions:

(83)	67° 36'.29 N	009° 28'.33 E	(84)	67° 29'.06 N	009° 18'.88 E
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**Description of the recommended routes**

(y) A recommended route is established between the traffic separation schemes Off Vardø to Off Slettnes with a central line between the following geographical positions:

(85)	70° 50'.43 N	031° 31'.22 E	(86)	71° 23'.64 N	029° 13'.67 E
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(z) A recommended route is established between the traffic separation schemes Off Slettnes to Off North Cape with a central line between the following geographical positions:

(87)	71° 28'.28 N	028° 42'.65 E	(88)	71° 41'.20 N	026° 10'.59 E
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(aa) A recommended route is established between the traffic separation schemes Off North Cape to Off Sørøya with a central line between the following geographical positions:

(89) 71° 41'.50 N 025° 26'.81 E (90) 71° 31'.20 N 022° 39'.83 E

(bb) A recommended route is established between the traffic separation schemes Off Sørøya to Off Torsvåg with a central line between the following geographical positions:

(91) 71° 27'.06 N 022° 00'.01 E (92) 71° 03'.18 N 019° 13'.28 E

(cc) A recommended route is established between the traffic separation schemes Off Torsvåg to Off Andenes with a central line between the following geographical positions:

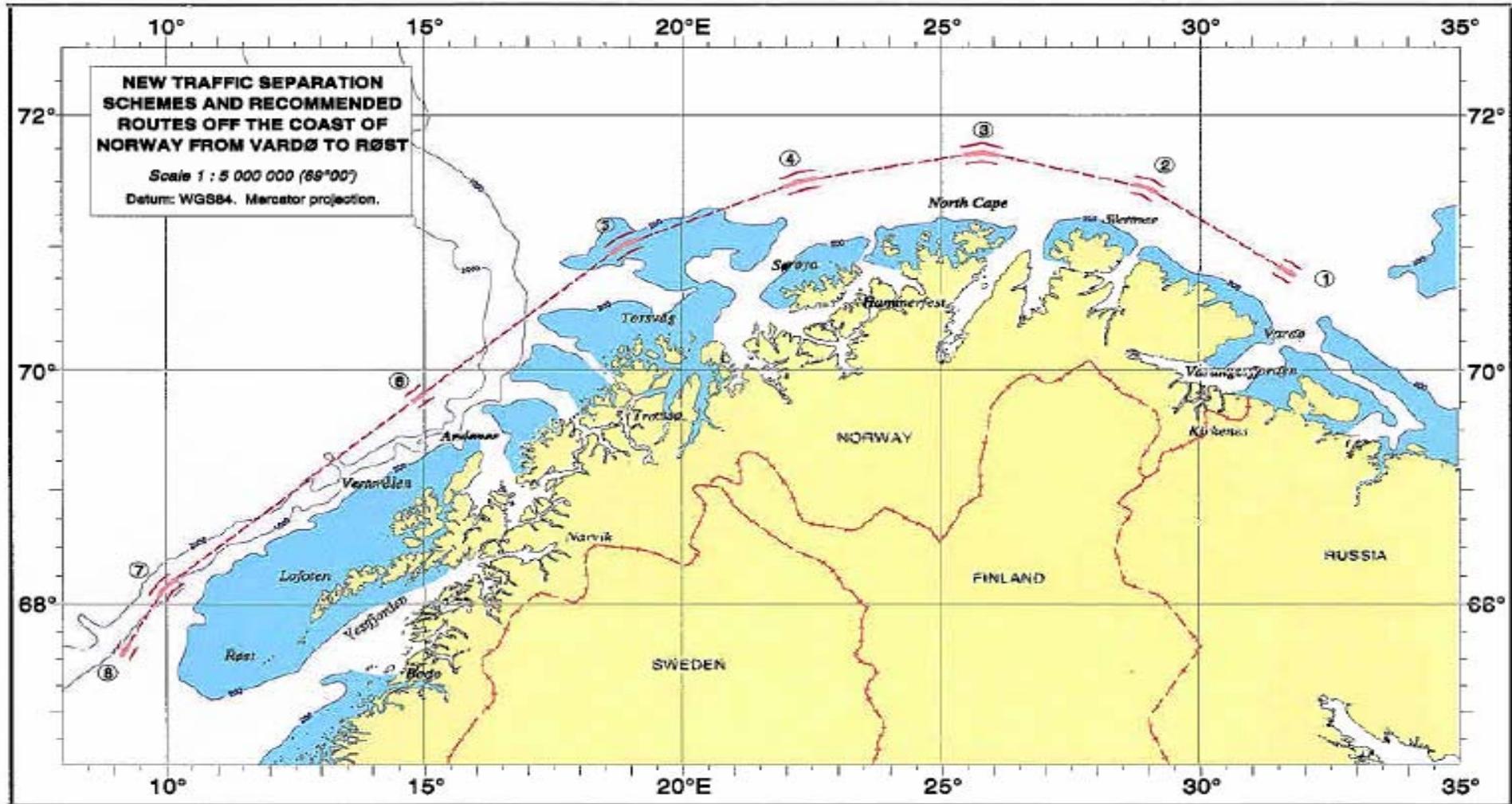
(93) 70° 55'.68 N 018° 38'.05 E (94) 69° 49'.78 N 015° 05'.38 E

(dd) A recommended route is established between the traffic separation schemes Off Andenes to Off Røst (1) with a central line between the following geographical positions:

(95) 69° 43'.79 N 014° 47'.17 E (96) 68° 13'.89 N 010° 15'.05 E

(ee) A recommended route is established between the traffic separation schemes Off Røst (1) to Off Røst (2) with a central line between the following geographical positions:

(97) 68° 02'.84 N 009° 52'.08 E (98) 67° 38'.34 N 009° 19'.26 E



## IN THE SUNK AREA AND IN THE NORTHERN APPROACHES TO THE THAMES ESTUARY

(Reference Chart: British Admiralty 1183, 2005 edition;

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

A new integrated traffic routing scheme for the SUNK Area consists of several elements comprising:

- a. One two-way route (Long Sand Head)
- b. Two traffic lanes 1.9 miles wide in two parts (SUNK TSS North and South)
- c. Two traffic lane 1.0 miles wide in one part (SUNK TSS East)
- d. A new inner Precautionary Area, named SUNK Inner Precautionary Area
- e. A new precautionary area, adjacent to the SUNK Inner Precautionary Area, named SUNK Outer Precautionary Area
- f. A 1 nautical mile diameter Area to be Avoided in the SUNK Outer Precautionary Area
- g. A recommended route ("Gallop" recommended route).

### Description of the two-way route

#### *Part I:*

Long Sand Head two-way route is established. (Note that entry is restricted to piloted vessels, vessels operated under pilotage exemption certificate (PEC), and vessels exempt from pilotage under the destination ports pilotage directions.)

- a) A boundary line connecting the following geographical positions:

1	51° 38'.09N	001° 40'.43E
2	51° 47'.90N	001° 39'.42E
3	51° 47'.77N	001° 38'.16E

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

4	51° 38'.31N	001° 43'.60E
5	51° 38'.33N	001° 43'.89E
6	51° 42'.16N	001° 43'.20E
7	51° 48'.29N	001° 42'.08E
8	51° 48'.98N	001° 41'.64E
9	51° 49'.28N	001° 40'.72E
10	51° 49'.49N	001° 40'.06E
11	51° 49'.30N	001° 38'.16E
12	51° 49'.11N	001° 38'.16E
13	51° 49'.30N	001° 40'.01E
14	51° 48'.84N	001° 41'.40E
15	51° 48'.24N	001° 41'.79E

- c) A two-way route bounded by the boundary line described in (a) above and the separation zone described in (b) above.

*Part II:*

**Description of the traffic separation schemes**

**SUNK Traffic Separation Scheme  
South**

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

16	51° 38'.54N	001° 46'.87E
17	51° 38'.61N	001° 47'.85E
18	51° 42'.44N	001° 47'.16E
19	51° 42'.37N	001° 46'.18E

- e) A traffic lane for northbound traffic between the separation zone described in (d) above and a line connecting the following geographical positions:

20	51° 38'.82N	001° 50'.83E
21	51° 42'.65N	001° 50'.14E

- f) A traffic lane for southbound traffic between the separation zone described in (d) above and that portion of the separation zone described in (b) above connecting the following geographic positions:

5	51° 38'.33N	001° 43'.89E
6	51° 42'.16N	001° 43'.20E

**SUNK Traffic Separation Scheme  
East**

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

22	51° 50'.91N	002° 00'.00E
23	51° 51'.21N	002° 00'.00E
24	51° 48'.84N	001° 51'.86E
25	51° 48'.54N	001° 51'.85E

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

26	51° 52'.29N	002° 00'.00E
27	51° 49'.92N	001° 51'.89E
28	51° 52'.06N	001° 49'.37E
29	51° 53'.90N	001° 49'.96E
30	51° 55'.72N	001° 50'.54E
31	51° 55'.59N	001° 51'.73E
32	51° 52'.31N	001° 50'.68E
33	51° 50'.99N	001° 52'.27E
34	51° 53'.24N	002° 00'.00E

i) A traffic lane for eastbound traffic between the separation zone described in (g) above and a line connecting the following geographical positions:

35	51° 47'.45N	001° 51'.82E
36	51° 49'.84N	002° 00'.00E

j) A traffic lane for westbound traffic between the separation zone described in (g) above and that portion of the separation zone described in (h) above connecting the following geographical positions:

26	51° 52'.29N	002° 00'.00E
27	51° 49'.92N	001° 51'.89E

**SUNK Traffic Separation Scheme  
North**

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

37	51° 56'.06N	001° 47'.40E
38	51° 56'.16N	001° 46'.45E
39	51° 54'.34N	001° 45'.87E
40	51° 54'.24N	001° 46'.81E

l) A traffic lane for northbound traffic between the separation zone described in (k) above and that portion of the separation zone described in (h) above connecting the following geographical positions:

29	51° 53'.90N	001° 49'.96E
30	51° 55'.72N	001° 50'.54E

m) A traffic lane for southbound traffic between the separation zone described in (k) above and a line connecting the following geographical positions:

41	51° 56'.50N	001° 43'.31E
42	51° 54'.68N	001° 42'.72E

### **SUNK Inner Precautionary Area**

- n) A precautionary area will be established by a line connecting the following geographical positions:

12	51° 49'.11N	001° 38'.16E
11	51° 49'.30N	001° 38'.16E
10	51° 49'.49N	001° 40'.06E
9	51° 49'.28N	001° 40'.72E
43	51° 52'.61N	001° 41'.12E
44	51° 53'.03N	001° 39'.03E
45	51° 52'.73N	001° 34'.26E
46	51° 52'.46N	001° 33'.20E
47	51° 52'.46N	001° 32'.35E
48	51° 51'.59N	001° 31'.32E
49	51° 49'.61N	001° 31'.32E
50	51° 48'.51N	001° 29'.50E
51	51° 46'.07N	001° 33'.42E
52	51° 47'.50N	001° 35'.64E
3	51° 47'.77N	001° 38'.16E

### **SUNK Outer Precautionary Area**

- o) A precautionary area will be established by a line connecting the following geographical positions:

43	51° 52'.61N	001° 41'.12E
9	51° 49'.28N	001° 40'.72E
8	51° 48'.98N	001° 41'.64E
7	51° 48'.29N	001° 42'.08E
6	51° 42'.16N	001° 43'.20E
21	51° 42'.65N	001° 50'.14E
35	51° 47'.45N	001° 51'.82E
27	51° 49'.92N	001° 51'.89E
28	51° 52'.06N	001° 49'.37E
29	51° 53'.90N	001° 49'.96E
42	51° 54'.68N	001° 42'.72E

### **Area to be avoided**

- p) An area to be avoided, 1 nautical mile in diameter, centred upon the following geographical position:

53	51° 50'.10N	001° 46'.02E
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**Note:** The flow of traffic around the ATBA is counter-clockwise as indicated by the recommended directions of traffic flow in the Precautionary Area. All ships should avoid the area within a circle of radius 0.5 miles, centred upon the following geographical position: 51° 50'.10N 001° 46'.02E.

This area is established to avoid hazard to a navigational aid which is established at the geographical position listed above, and which is considered vital to the safety of navigation.

*Part III:*

### **Description of the recommended Route**

- q) A recommended route (“Galloper” recommended route in the south-east sector of the scheme to enable regular ferry traffic sailing to and from the Port of Ostend to enter and leave the SUNK Outer Precautionary Area without deviating unnecessarily to use traffic separation lanes) connecting the following geographical positions:

54	51° 44'.93N	001° 50'.93E
55	51° 41'.33N	002° 00'.03E

### **OFF NEIST POINT IN THE MINCHES**

(Reference charts: British Admiralty Chart No.2635, 1794, 1795.

**Note:** These charts are based on the Ordnance Survey of Great Britain, 1936 (OSGB 36)).

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

#### **Little Minches Separation Scheme**

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

(1)	57° 23'.90 N	006° 53'.40 W
(2)	57° 26'.20 N	006° 52'.80 W
(3)	57° 27'.90 N	006° 51'.60 W
(4)	57° 28'.20 N	006° 53'.06 W
(5)	57° 26'.50 N	006° 54'.40 W
(6)	57° 24'.06 N	006° 55'.10 W

- b) A **traffic lane** for **northbound** traffic between the separation zone and a line connecting the following geographical positions:

(7)	57° 23'.70 N	006° 50'.50 W
(8)	57° 25'.80 N	006° 50'.10 W
(9)	57° 27'.44 N	006° 48'.86 W

- c) A **traffic lane** for **southbound** traffic between the separation zone and a line connecting the following geographical positions:

(10)	57° 24'.26 N	006° 57'.60 W
(11)	57° 26'.94 N	006° 57'.08 W
(12)	57° 28'.70 N	006° 55'.55 W

**Note:** Positions co-ordinates referred to the OSGB 36 datum, can be adjusted to the WSG-84 datum by the following values:

Positions in OSGB 36 datum to WGS-84 datum:

0.02 minutes southward  
0.06 minutes westward

## **AMENDMENTS TO THE EXISTING TSS “IN THE STRAIT OF GIBRALTAR”**

(Reference chart is No.445 issued by the Hydrographic Institute of the Spanish Navy, Datum WGS-84, 3rd edition, December 2003, covering the south coast of Spain (from Punta Camariñal to Punta Europa) and north Morocco (from Cape Espartel to Punta Almina)).

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

(a) A separation zone, half a mile wide, is centred upon the following geographical positions:

(1) 35°59'.01 N      005°25'.68 W  
(2) 35°58'.36 N      005°28'.19 W

(b) A separation zone, half a mile wide, is centred upon the following geographical positions:

(3) 35°57'.08 N      005°33'.08 W  
(4) 35°56'.21 N      005°36'.48 W  
(5) 35°56'.21 N      005°44'.98 W

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

(7) 36°01'.21 N      005°25'.68 W  
(8) 36°00'.35 N      005°28'.98 W

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

(9) 35°59'.07 N      005°33'.87 W  
(10) 35°58'.41 N      005°36'.48 W  
(11) 35°58'.41 N      005°44'.98 W

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

(12) 35°52'.51 N      005°44'.98 W  
(13) 35°53'.81 N      005°36'.48 W  
(14) 35°54'.97 N      005°32'.25 W

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

- (15) 35°56'.35 N      005°27'.40 W
- (16) 35°56'.84 N      005°25'.68 W

(g) A precautionary area is established on the eastern side of the Gibraltar TSS by the lines connecting the following geographical positions:

- (6)      36° 02'.80 N    005° 19'.68 W
- (7)      36° 01'.21 N    005° 25'.68 W
- (16)     35° 56'.84 N    005° 25'.68 W
- (17)     35° 58'.78 N    005° 18'.55 W

(h) A precautionary area is established off the Moroccan port of Tanger-Med in the Gibraltar TSS formed by the lines connecting the following geographical positions:

- (8)      36° 00'.35 N    005° 28'.98 W
- (9)      35° 59'.07 N    005° 33'.87 W
- (14)     35° 54'.97 N    005° 32'.25 W
- (15)     35° 56'.35 N    005° 27'.40 W

### **Inshore traffic zones**

#### **Northern inshore traffic zone**

(a) The area between the northern boundary of the scheme formed by the continuing line that links points 7,8,9,10 and 11 and the Spanish coast, and lying between the following limits is designated as an inshore traffic zone:

(1) Eastern limit: That part of the meridian 005°25'.68 W (23) between the northern boundary of the westbound traffic lane (latitude 36° 01'.21 N, corresponding to point (7) on the attached chartlet) and the Spanish coast.

(2) Western limit: That part of the meridian 005°44'.98 W (22) between the northern boundary of the westbound traffic lane (latitude 35°58'.41 N, corresponding to point (11) on the attached chartlet) and the Spanish coast.

#### **Description of the south-eastern and the south-western inshore traffic zones**

The existing southern inshore traffic zone is divided into two inshore traffic zones to east and west, with a free navigational area between them, located between the southern limit of the TSS and the coast of Morocco; these are bounded by eight geographical positions.

(a) South-eastern zone: a traffic zone within the inshore traffic zone formed by the coast of Morocco, the external limit of the traffic lane for the traffic heading towards the eastern area of the current scheme and the lines connecting the following geographical positions:

(16)	35°56'.84 N	005°25'.68 W
(18)	35°54'.45 N	005°25'.68 W
(15)	35°56'.35 N	005°27'.40 W
(19)	35°54'.88 N	005°27'.40 W

(b) South-western zone: a traffic zone within the inshore zone formed by the coast of Morocco, the external limit of the traffic lane for the traffic heading towards the eastern area of the current scheme and the lines connecting the following geographical positions:

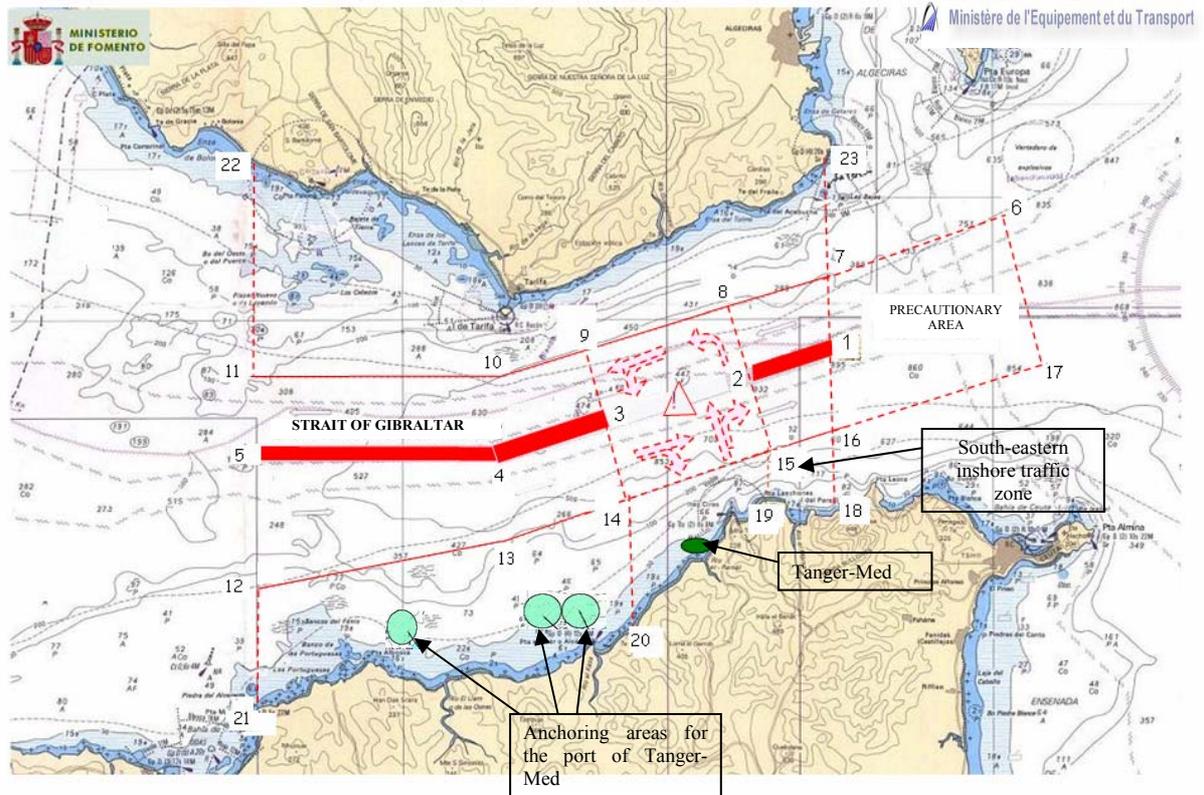
(20)	35°51'.33 N	005°32'.25 W
(14)	35°54'.97 N	005°32'.25 W
(12)	35°52'.51 N	005°44'.98 W
(21)	35°49'.09 N	005°44'.98 W

**Notes:**

- 1 Within this zone are arranged three areas serving the port of Tanger-Med as anchoring areas.  
  
These areas are configured as three circles centred on the following co-ordinates and having a radius of 0.4 miles.  
  

First anchoring area	(A):	35°51'.05 N	005°40'.34 W
Second anchoring area	(B):	35°52'.03 N	005°34'.65 W
Third anchoring area	(C):	35°52'.03 N	005°33'.49 W
- 2 Ships heading for the anchorages indicated in the south-western inshore traffic zone must sail through that zone if coming from the Atlantic or from the port of Tanger or if proceeding from these areas to anchorages at Tanger-Med or *vice versa*.
- 3 Given the absence of ports or any type of facility in the south-eastern inshore traffic zone, ships entering or leaving the port of Tanger-Med must sail along the corresponding traffic lanes.
- 4 Ships sailing from the Atlantic Ocean or the Mediterranean Sea towards the port of Tanger-Med, or departing from it for the Atlantic or the Mediterranean Sea must sail along the corresponding traffic lanes.
- 5 Ships heading from the Atlantic to the anchoring areas of the south-western inshore traffic zone must sail, in accordance with rule 10 of the 1972 COLREGs, through that same inshore traffic zone.

- 6 Ships heading from the port of Tanger-Med to the anchoring areas of the south-western inshore traffic zone must sail, in accordance with rule 10 of the 1972 COLREGs, through that same inshore traffic zone.
- 7 Ships heading from the anchoring areas of the south-western inshore traffic zone towards the Atlantic must sail, in accordance with rule 10 of the 1972 COLREGs, through that same inshore traffic zone.



## AMENDMENTS TO THE EXISTING TSS IN THE APPROACH TO BOSTON, MASSACHUSETTS

(Reference charts: United States 13009, 2004 edition; 13200, 2005 edition; 13246, 2003 edition; 13267, 2004 edition.)

**Note:** These charts are based on North American 1983 Datum, which for charting purposes is considered equivalent to the WGS-84.)

### Description of the amended traffic separation scheme

(a) A separation zone, one mile wide, is centred upon the following geographic positions:

- |                 |              |                 |              |
|-----------------|--------------|-----------------|--------------|
| (1) 42°20'.84 N | 070°40'.70 W | (3) 40°49'.16 N | 068°59'.97 W |
| (2) 42°18'.24 N | 070°00'.40 W |                 |              |

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

- |                 |              |                 |              |
|-----------------|--------------|-----------------|--------------|
| (4) 40°50'.27 N | 068°56'.97 W | (6) 42°22'.81 N | 070°40'.22 W |
| (5) 42°20'.08 N | 069°57'.92 W |                 |              |

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

- |                 |              |                 |              |
|-----------------|--------------|-----------------|--------------|
| (7) 42°18'.95 N | 070°42'.52 W | (9) 40°48'.03 N | 069°02'.96 W |
| (8) 42°16'.39 N | 070°02'.88 W |                 |              |

### Precautionary areas

(a) A precautionary area of radius five miles is centred upon geographical position 42°22'.71 N, 070°46'.97 W.

(b) A precautionary area is bounded to the east by a circle of radius 15.5 miles, centred upon geographical position 40°35'.01 N, 068°59'.97 W, intersected by the traffic separation schemes “In the approach to Boston, Massachusetts” and “Eastern Approach, Off Nantucket” (part II of the traffic separation scheme “Off New York”) at the following geographical positions:

- |                 |              |                  |              |
|-----------------|--------------|------------------|--------------|
| (4) 40°50'.27 N | 068°56'.97 W | (11) 40°23'.75 N | 069°13'.95 W |
|-----------------|--------------|------------------|--------------|

The precautionary area is bounded to the west by a line connecting the two traffic separation schemes between the following geographical positions:

- |                 |              |                  |              |
|-----------------|--------------|------------------|--------------|
| (9) 40°48'.03 N | 069°02'.96 W | (10) 40°36'.76 N | 069°15'.13 W |
|-----------------|--------------|------------------|--------------|

## **AMENDMENTS TO THE EXISTING TRAFFIC SEPARATION SCHEMES IN THE ADRIATIC SEA**

### **IN THE NORTH ADRIATIC SEA – WESTERN PART (amended)**

Reference chart: No. 435 of the Italian Navy Hydrographical Institute, Edition 1993, Datum ED-50, and No. 101 of the Hydrographical Institute of the Republic of Croatia, Edition 1998, Datum Hermanskogel, Bessel Ellipsoid.

**The co-ordinates listed below are in WGS-84**

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

- 8 A separation zone is bounded by a line connecting the following geographical positions:
- |                   |               |                   |               |
|-------------------|---------------|-------------------|---------------|
| (8a) 43° 54'.90 N | 013° 49'.20 E | (8d) 44° 45'.50 N | 013° 00'.00 E |
| (8b) 43° 56'.40 N | 013° 50'.50 E | (8e) 44° 45'.40 N | 012° 59'.40 E |
| (8c) 44° 17'.20 N | 013° 12'.80 E | (8f) 44° 12'.10 N | 013° 14'.50 E |
- 9 A traffic lane for northbound traffic is established between the separation zone and a line connecting the following geographical positions:
- |                   |               |                   |                |
|-------------------|---------------|-------------------|----------------|
| (9a) 43° 58'.40 N | 013° 52'.70 E | (9c) 44° 46'.10 N | 013° 03'.450 E |
| (9b) 44° 18'.80 N | 013° 15'.90 E |                   |                |
- 10 A traffic lane for southbound traffic is established between the separation zone and a line connecting the following geographical positions:
- |                    |               |                    |               |
|--------------------|---------------|--------------------|---------------|
| (10a) 43° 53'.00 N | 013° 47'.40 E | (10c) 44° 44'.70 N | 012° 55'.80 E |
| (10b) 44° 10'.50 N | 013° 11'.20 E |                    |               |

The established directions of traffic flow are: 162° – 124° and 342° – 307°

## **PRECAUTIONARY AREA AT THE SOUTHERN LIMITS OF THE TRAFFIC SEPARATION SCHEME (amended)**

#### **Description of the precautionary area**

Precautionary area is established by a line connecting the following geographical positions:

- |                   |               |                    |               |
|-------------------|---------------|--------------------|---------------|
| (3') 43° 47'.50 N | 013° 58'.20 E | (6a) 44° 04'.40 N  | 014° 00'.97 E |
| (4') 43° 59'.85 N | 014° 16'.61 E | (9a) 43° 58'.40 N  | 013° 52'.70 E |
| (5a) 44° 08'.20 N | 014° 08'.77 E | (10a) 43° 53'.00 N | 013° 47'.40 E |

## **APPROACHES TO GULF OF VENICE (amended)**

Reference chart: No 435 of the Italian Hydrographical Institute, Edition 1993, Datum ED-50, and No. 101 of the Hydrographical Institute of the Republic of Croatia, Edition 1998, Datum Hermanskogel, Bessel Ellipsoid.

**The co-ordinates listed below are in WGS-84**

### **Description of the traffic separation scheme approaches to Gulf of Venice**

The separation zone in the approaches to Gulf of Venice is amended with the establishments of a new scheme consisting of two new separation scheme connected by a precautionary area for the transversal traffic from and to the LNG platform.

#### **14 NORTHERN PART**

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

- |                  |              |                  |              |
|------------------|--------------|------------------|--------------|
| (1) 45° 09'.10 N | 12° 38'.50 E | (2) 45° 10'.50 N | 12° 40'.40 E |
| (3) 45° 14'.30 N | 12° 34'.00 E | (4) 45° 12'.00 N | 12° 31'.50 E |

A traffic lane for northbound traffic is established between the separation zone and a line connecting the following geographical positions:

- |                  |              |                  |              |
|------------------|--------------|------------------|--------------|
| (5) 45° 12'.00 N | 12° 42'.40 E | (6) 45° 15'.70 N | 12° 35'.70 E |
|------------------|--------------|------------------|--------------|

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

- |                  |              |                  |              |
|------------------|--------------|------------------|--------------|
| (7) 45° 07'.70 N | 12° 36'.50 E | (8) 45° 10'.30 N | 12° 29'.50 E |
|------------------|--------------|------------------|--------------|

The established directions of traffic flow are: 120° – 309°

#### **15 SOUTHERN PART**

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

- |                   |              |                   |              |
|-------------------|--------------|-------------------|--------------|
| (9) 44° 57'.20 N  | 12° 50'.30 E | (10) 44° 57'.90 N | 12° 53'.00 E |
| (11) 45° 07'.80 N | 12° 47'.10 E | (12) 45° 06'.80 N | 12° 43'.80 E |

A traffic lane for northbound traffic is established between the separation zone and a line connecting the following geographical positions:

- |                   |              |                   |              |
|-------------------|--------------|-------------------|--------------|
| (13) 44° 58'.50 N | 12° 55'.60 E | (14) 45° 08'.50 N | 12° 49'.50 E |
|-------------------|--------------|-------------------|--------------|

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

- |                   |              |                   |              |
|-------------------|--------------|-------------------|--------------|
| (15) 44° 56'.50 N | 12° 47'.60 E | (16) 45° 06'.00 N | 12° 40'.50 E |
|-------------------|--------------|-------------------|--------------|

The established directions of traffic flow are: 337° – 154°

## 16 PRECAUTIONARY AREA

Description of the precautionary area connecting the southern and northern part of the separation scheme in the approaches to Gulf of Venice.

Precautionary area is established by a line connecting the following geographical positions:

(16) 45° 06'.00 N	12°40'.50 E	(7) 45° 07'.70 N	12°36'.50 E
(5) 45° 12'.00 N	12°42'.40 E	(14) 45° 08'.50 N	12°49'.50 E

### AREA TO BE AVOIDED IN THE NORTH ADRIATIC SEA – Northern Part (amended)

Reference chart: No. 435 of the Italian Navy Hydrographical Institute, Edition 1993, Datum ED-50, and No. 101 of the Hydrographical Institute of the Republic of Croatia, Edition 1998, Datum Hermanskogel, Bessel Ellipsoid.

**The co-ordinates listed below are in WGS-84**

#### Description of the area to be avoided (amended)

7 In order to avoid the risk of pollution due to damage of oil rigs, oil and gas pipelines in this area the area described below should be avoided by ships of more than 200 gross tonnage. The area to be avoided is bounded by a line connecting the following geographical positions:

(7a) 44° 12'.80 N	013° 37'.50 E	(7f) 44° 52''.00 N	013° 17'.07 E
(7b) 44° 17'.00 N	013° 43'.77 E	(7g) 44° 52''.00 N	013° 05'.77 E
(7c) 44° 25'.30 N	013° 37'.47 E	(7h) 44° 37''.70 N	013° 07'.90 E
(7d) 44° 34'.50 N	013° 25'.47 E	(7i) 44° 23''.00 N	013° 14'.30 E
(7e) 44° 41'.90 N	013° 24'.97 E		

### AREA TO BE AVOIDED IN THE NORTH ADRIATIC SEA – Southern Part (new)

Reference chart: No. 435 of the Italian Navy Hydrographical Institute, Edition 1993, Datum ED-50, and No. 101 of the Hydrographical Institute of the Republic of Croatia, Edition 1998, Datum Hermanskogel, Bessel Ellipsoid.

**The co-ordinates listed below are in WGS-84**

#### Description of the area to be avoided (new)

7 In order to avoid the risk of pollution due to damage of oil rigs, oil and gas pipelines in this area the area described below should be avoided by ships of more than 200 gross tonnage. The area to be avoided is bounded by a line connecting the following geographical positions:

(7l) 43° 58'.40 N	013° 52'.70 E	(7n) 44° 09'.00 N	013° 40'.50 E
(7m) 44° 01'.40 N	013° 56'.80 E	(7o) 44° 06'.60 N	013° 37'.90 E

## AMENDMENT TO THE TRAFFIC SEPARATION SCHEME NORTH OF CANI ISLAND

Reference charts:

- The reference chart is No.948 of the Italian Hydrographic Institute, geodetic system ED50, scale 1:/250000, published in 1962 (4th edition 1998), updated to 2003, for the area “From Bizerte to Ras El Melah (Trapani and Pantelleria)”.
- Also relevant is chart 4314 (French Navy Hydrographic Institute), geodetic system not known, scale: 1/328130, published in 1955 (7th edition), updated to 2005, for the area “Bône to Tunis”.

### Description of the amended traffic separation scheme

The proposed amended traffic separation scheme will comprise:

- Two traffic lanes, three miles wide.
  - A separation zone between the two above-mentioned lanes, two miles wide.
  - Another separation zone, one mile wide, separating the eastbound traffic lane and the inshore traffic zone.
  - An inshore traffic zone in the form of a triangle, whose base is the separation zone located to the south of the scheme and whose apex is represented on the chart by the Cani Islands light (Lat: 37° 21' 24" N; Long: 010° 07' 36" E) (in Italian chart 948).
- (a) To the south of the TSS, a separation zone is established between the inshore traffic zone and the eastbound traffic lane, bounded by the following geographical positions:
- |     |               |                |     |               |                |
|-----|---------------|----------------|-----|---------------|----------------|
| (1) | 37° 31' 30" N | 010° 02' 30" E | (2) | 37° 31' 30" N | 010° 13' 25" E |
| (3) | 37° 32' 30" N | 010° 02' 30" E | (4) | 37° 32' 30" N | 010° 13' 25" E |
- (b) In the centre of the TSS, a separation zone is established between the eastbound and westbound traffic lanes, bounded by the following geographical positions:
- |     |               |                |     |               |                |
|-----|---------------|----------------|-----|---------------|----------------|
| (5) | 37° 35' 30" N | 010° 02' 30" E | (6) | 37° 35' 30" N | 010° 13' 25" E |
| (7) | 37° 37' 30" N | 010° 02' 30" E | (8) | 37° 37' 30" N | 010° 13' 25" E |
- (c) To the north of the TSS, a separation line is established between the westbound traffic lane and the open sea, bounded by the following geographical positions:
- |     |               |               |      |               |               |
|-----|---------------|---------------|------|---------------|---------------|
| (9) | 37° 40' 30" N | 010 02' 30" E | (10) | 37° 40' 30" N | 010 13' 25" E |
|-----|---------------|---------------|------|---------------|---------------|
- (d) The inshore traffic zone to be established to the south of the TSS will form a triangle whose base will be a line joining the following geographical positions:
- |     |               |                |     |               |                |
|-----|---------------|----------------|-----|---------------|----------------|
| (1) | 37° 31' 30" N | 010° 02' 30" E | (2) | 37° 32' 30" N | 010° 13' 25" E |
|-----|---------------|----------------|-----|---------------|----------------|

and whose apex will be represented on the Italian chart (CM 948) by the Cani Islands light, with the co-ordinates: Lat: 37° 21' 24" N; Long: 010° 07' 36" E.

## AMENDMENT TO THE TRAFFIC SEPARATION SCHEME NORTH OF CAPE BON

### Reference charts

- The reference chart is No. 948 of the Italian Hydrographic Institute, geodetic system ED50, scale 1:250000, published in 1962 (4th edition 1998), updated to 2003, for the area “From Bizerte to Ras El Melah (Trapani and Pantelleria)”.
- Also relevant is chart 4314 (French Navy Hydrographic Institute), geodetic system not known, scale: 1/328130, published in 1955 (7th edition), updated to 2005, for the area “Bône to Tunis”.

### Description of the amended traffic separation scheme

The proposed amended traffic separation scheme will comprise:

- Two traffic lanes, three miles wide.
  - A separation zone between the two above-mentioned lanes, two miles wide.
  - Another separation zone, one mile wide, separating the eastbound traffic lane and the inshore traffic zone.
  - An inshore traffic zone in the form of a triangle, whose base is the separation zone located to the south of the scheme and whose apex is represented on the chart by the Cape Bon light (Lat: 37° 04' 42" N; Long: 011° 02' 42" E) (in Italian chart 948).
- (a) To the south of the TSS, a separation zone is established between the inshore traffic zone and the eastbound traffic lane, bounded by the following geographical positions:
- |                   |                |                   |                |
|-------------------|----------------|-------------------|----------------|
| (1) 37° 21' 08" N | 011° 06' 33" E | (2) 37° 16' 50" N | 011° 15' 45" E |
| (3) 37° 22' 00" N | 011° 07' 10" E | (4) 37° 17' 45" N | 011° 16' 25" E |
- (b) In the centre of the TSS, a separation zone is established between the eastbound and westbound traffic lanes, bounded by the following geographical positions:
- |                   |                |                   |                |
|-------------------|----------------|-------------------|----------------|
| (5) 37° 24' 36" N | 011° 09' 03" E | (6) 37° 20' 20" N | 011° 18' 20" E |
| (7) 37° 26' 20" N | 011° 10' 18" E | (8) 37° 22' 05" N | 011° 19' 30" E |
- (c) To the north of the TSS, a separation line is established between the westbound traffic lane and the open sea, bounded by the following geographical positions:
- |                   |                |                    |                |
|-------------------|----------------|--------------------|----------------|
| (9) 37° 29' 00" N | 011° 12' 12" E | (10) 37° 24' 41" N | 011° 21' 26" E |
|-------------------|----------------|--------------------|----------------|
- (d) The inshore traffic zone to be established to the south of the TSS will form a triangle whose base will be a line joining the following geographical positions:
- |                   |                |                   |                |
|-------------------|----------------|-------------------|----------------|
| (1) 37° 21' 08" N | 011° 06' 33" E | (2) 37° 16' 50" N | 011° 15' 45" E |
|-------------------|----------------|-------------------|----------------|

and whose apex will be represented on the Italian chart (CM 948) by the Cape Bon light, with the co-ordinates: (Lat: 37° 04' 48" N ; Long: 011° 02' 36" E).

## AMENDMENT TO THE TRAFFIC SEPARATION SCHEME OFF BOTNEY GROUND

(Reference Chart: British Admiralty 1632, 2005 edition

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

The proposed amendment consists of three distinct elements:

- Extension of the existing separation zone of the Off Botney Grounds TSS to the south west;
- Extension of the existing south west traffic lane of the Off Botney Grounds TSS to the south west; and
- Extension of the existing north east traffic lane of the Off Botney Grounds TSS to the south west.

**Note:** Certain geographical positions for the revised scheme also correspond to positions found in both the “Off Friesland” DWR and “Off Botney Ground” TSS. Such positions are identified below (e.g. equates to existing (46)) and any positional discrepancy is due to the use of the WGS-84 datum for the revised scheme, as opposed to the ED 50 datum for the original schemes.

a) An extension to the separation zone extension is bounded by the following geographical positions:

- |    |              |               |                          |
|----|--------------|---------------|--------------------------|
| 1) | 53° 35'.25 N | 003° 03'.05 E | Equates to existing (46) |
| 2) | 53° 36'.22 N | 002° 58'.80 E | Equates to existing (47) |
| 3) | 53° 21'.38 N | 002° 49'.20 E |                          |
| 4) | 53° 20'.69 N | 002° 52'.13 E |                          |
| 5) | 53° 29'.82 N | 002° 58'.05 E |                          |

b) An extension to the traffic lane for south west bound traffic is bounded by the extended separation zone in (a) above and a line connecting the following geographical positions:

- |    |              |               |                          |
|----|--------------|---------------|--------------------------|
| 6) | 53° 36'.70 N | 002° 56'.40 E | Equates to existing (53) |
| 7) | 53° 21'.88 N | 002° 46'.88 E |                          |

c) An extension to the traffic lane for north east bound traffic is bounded by the extended separation zone in (a) above and a line joining the following geographic positions:

- |     |              |               |                          |
|-----|--------------|---------------|--------------------------|
| 8)  | 53° 20'.15 N | 002° 54'.48 E |                          |
| 9)  | 53° 29'.40 N | 003° 00'.60 E | Equates to existing (61) |
| 10) | 53° 34'.66 N | 003° 05'.40 E | Equates to existing (54) |

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## ANNEX 2

## ROUTEING MEASURES OTHER THAN TRAFFIC SEPARATION SCHEMES

## ESTABLISHMENT OF AN AREA TO BE AVOIDED/MANDATORY NO ANCHORING AREA IN THE APPROACHES TO THE GULF OF VENICE

(Reference chart: Italy 924, 2005 edition.

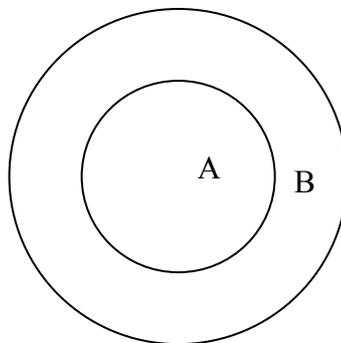
**Note:** This chart is based on DATUM Rome 1940)

**The co-ordinates listed below are in WGS-84**

**Description of an Area to be Avoided and Mandatory No Anchoring Area****(a) Area to be Avoided and Mandatory No Anchoring Area**

The area within the circle of 1.5 nautical miles centred on the following geographical positions:

(a)  $45^{\circ} 05'.30 \text{ N}$        $012^{\circ} 35'.10 \text{ E}$

**Notes:**

A = Safety zone within a circle of 2,000 metres radius from the centre of the terminal.

B = Area to be Avoided/Mandatory No Anchoring Area within a circle of 1.5 nautical miles radius from the centre of the terminal (overlaps the safety zone).

## **ESTABLISHMENT OF A PRECAUTIONARY AREA OFF WEST COAST OF THE NORTH ISLAND OF NEW ZEALAND**

(Reference Charts: New Zealand North Island NZ23. April 2005 Edition. (WGS-84 Datum). Western Approaches to Cook Strait NZ48. April 2000 Edition. (WGS-84)).

### **Description of Precautionary Area**

The precautionary area is defined by a line connecting the following geographical positions, the landward extent of which is determined by mean high water spring:

- (1) The charted line of MHWS at approximately 38° 31' S 174° 37'.8° E
- (2) 39° 18'.5°S 173° 05' E
- (3) 39° 26' S 173° 01' E
- (4) 40° 03' S 173° 04' E
- (5) 40° 10' S 173° 16' E
- (6) The charted line of MHWS at approximately 39° 53'.5°S 174° 54'.5°E

**Note:** All ships should navigate with particular caution in order to reduce the risk of maritime casualty and resulting marine pollution in the precautionary area.

## **AMENDMENTS TO THE EXISTING DEEP-WATER ROUTE WEST OF THE HEBRIDES**

(Reference Chart: British Admiralty 2635, 1996 edition.

**Note:** This chart is based on Ordnance Survey of Great Britain (1936) datum)

### **Description of the amended Deep Water Route**

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

- (1) 56° 46'.75 N 008° 03'.00 W
- (2) 57° 36'.80 N 008° 03'.00 W
- (3) 58° 21'.40 N 007° 08'.00 W
- (4) 58° 37'.40 N 006° 26'.00 W
- (5) 58° 40'.54 N 006° 30'.76 W
- (6) 58° 24'.23 N 007° 13'.58 W
- (7) 57° 37'.97 N 008° 10'.50 W
- (8) 56° 46'.75 N 008° 10'.29 W

**Note:** Positions co-ordinates referred to the OSGB 36 datum, can be adjusted to the WSG-84 datum by the following values:

Positions in OSGB 36 datum to WGS-84 datum:

0.02 minutes southward

0.06 minutes westward

## ESTABLISHMENT OF RECOMMENDED ROUTES IN THE MINCHES

(Reference charts: British Admiralty Chart No.2635, 1794, 1795.  
Datum: Ordnance Survey of Great Britain, 1936 (OSGB 36)).

### Description of recommended routes in the Minches

Recommended route for south-bound traffic is defined by a line connecting the following geographical positions:

- (1) 57° 58'.00 N 006° 17'.00 W (2) 57° 54'.00 N 006° 30'.00 W  
57° 57'.98 N 006° 17'.07 W (WGS 84) 57° 53'.98 N 006° 30'.06 W (WGS 84)
- (3) 57° 47'.00 N 006° 41'.00 W  
57° 46'.98 N 006° 41'.06 W (WGS 84)

Recommended route for north-bound traffic is defined by a line connecting the following geographical positions:

- (4) 57° 40'.00 N 006° 32'.14 W (5) 57° 45'.00 N 006° 16'.00 W  
57° 40'.35 N 006° 32'.20 W (WGS 84) 57° 44'.98 N 006° 16'.06 W (WGS 84)
- (6) 57° 52'.00 N 006° 03'.00 W  
57° 51'.98 N 006° 03'.07 W (WGS 84)

## AMENDMENTS TO THE RECOMMENDATIONS ON NAVIGATION AROUND THE UNITED KINGDOM COAST

1 Amend resolution A.768(18), annex as follows:

Section 3.2 Reporting requirements

Amend Route “The Minches” to read as follows:

“

Route	Ship condition	Report to Coastguard	Report on VHF channel
The Minches	All Ships over 300 G.T.	Stornoway	16

”

2 Additionally, increase the number of reporting points (B, C, E and F) as detailed below.

	Reporting Reference	Latitude	Longitude
<b>South Bound</b>			
Initial report	When passing	58° 30'.00 N	
	B	57° 58'.00 N	006° 17'.00 W
	C	57° 28'.50 N	006° 54'.40 W
Final Report	When passing	57° 00'.00 N	
<b>North Bound</b>			
Initial Report	When passing	57° 00'.00 N	
	E	57° 23'.80 N	006° 51'.80 W
	F	57° 40'.40 N	006° 32'.00 W
Final Report	When passing	58° 30'.00 N	

## **ABOLITION OF THE AREA TO BE AVOIDED AROUND THE EC 2 LIGHTED BUOY**

Resolution A.475 (XII) on Ships' Routeing is amended as follows:

### **ANNEX 1**

#### **ROUTEING SYSTEMS OTHER THAN TRAFFIC SEPARATION SCHEMES**

##### **2 AREAS TO BE AVOIDED**

###### **2.1 IN THE ENGLISH CHANNEL AND ITS APPROACHES (new areas)**

The area to be avoided (7) centred on geographical position 50° 12'.10 N, 001° 12'.40 W is abolished as a result of the discontinuation of the EC 2 Lighted Buoy in March 2007.

##### **3 OTHER ROUTEING MEASURES**

###### **3.1 RECOMMENDED DIRECTIONS OF TRAFFIC FLOW IN THE ENGLISH CHANNEL**

The recommended directions of traffic flow in the English Channel given in section 3.1 (as shown below) are cancelled as a result of the abolition of the area to be avoided.

~~“Ships proceeding from the traffic separation scheme “Off Casquets” to the traffic separation scheme “In the Dover Strait and Adjacent Waters” or vice versa are recommended to leave the mid-Channel areas to be avoided to port (see paragraph 2.1 of this Annex) proceeding parallel to a line connecting the centre of those areas.”~~

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## ANNEX 3

**DRAFT RESOLUTION MSC.[...](82)****(adopted on xxxx)****ADOPTION OF A NEW MANDATORY SHIP REPORTING SYSTEM “IN THE GALAPAGOS 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 mandatory ship reporting systems by the Organization, and

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 on Navigation at its fifty-second regular session,

1. ADOPTS in accordance with SOLAS regulation V/11, the new mandatory ship reporting system “In the Galapagos Particularly Sensitive Sea Area (PSSA)”;
2. DECIDES that the mandatory ship reporting system “In the Galapagos Particularly Sensitive Sea Area (PSSA) (GALREP)” will enter into force at [0000] hours UTC on [1 July 2007];
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  
FOR THE GALAPAGOS PARTICULARLY SENSITIVE SEA AREA (PSSA)(GALREP)**

**1 Categories of ships required to participate in the system**

1.1 All ships are required to participate in the mandatory ship reporting system.

**2 Geographical coverage of the system and the number and edition of the reference chart used for delineation of the system**

2.1 The operational area of GALREP covers the Galapagos Area to be Avoided and the Particularly Sensitive Sea Area as shown on the chartlet given in Appendix 1.

2.1.1 The co-ordinates of the mandatory ship reporting system are as follows:

<b>Point</b>	<b>Latitude</b>	<b>Longitude</b>
A	02° 30' N	092° 21' W
D1	01° 26' N	089° 03' W
E1	00° 01' S	088° 06' W
F1	00° 12' S	088° 01' W
G1	00° 35' S	087° 54' W
H1	01° 02' S	087° 53' W
I1	02° 34' S	088° 48' W
J1	02° 46' S	089° 30' W
K1	02° 42' S	090° 42' W
L1	02° 05' S	092° 18' W
M1	01° 32' S	092° 44' W
L	01° 49' N	092° 40' W

2.2 The reference chart is I.O.A 20 (2nd edition 1992, updated and reprinted in 2006), issued by the Ecuadorean Navy Oceanography Institute (INOCAR), based on WGS-84 datum.

**3 Format and content of report, times and geographical positions for submitting reports, Authority to whom reports should be sent and available services**

3.1 Reports may be sent by any modern means of communication, including Inmarsat C, telephone, fax and e-mail, and other available means as described in appendix 2.

3.2 *Format*

3.2.1 The ship report shall be drafted in accordance with the format shown in appendix 3. The information requested from ships is derived from the Standard Reporting Format shown in paragraph 2 of the appendix to IMO resolution A.851(20).

### 3.3 *Content*

3.3.1 A full report from a ship should contain the following information:

- A: Ship identification (name, call sign, IMO number, MMSI number or registration number)
- B: Date/time group
- C: Position
- E: True course
- F: Speed
- G: Name of last port of call
- I: Destination and expected time of arrival
- P: Type(s) of oil cargo, and quantity, quality and density. If these tankers are also carrying other hazardous material, the type, quantity and IMO classification should be stated, as appropriate.
- Q: Used in the event of defects or deficiencies which affect normal navigation
- T: Address for communication of information concerning cargo
- W: Number of persons on board
- X: Miscellaneous information concerning ships:
  - estimated quantity and characteristics of liquid fuel
  - navigational status (*e.g.*, moving under own propulsion, limited manoeuvrability, etc.)

3.3.2 Every reporting message must begin with the word GALREP and include a two-letter prefix to enable identification, *i.e.*, sailing plan “SP”, final report “FR” or deviation report “DR”. Messages using these prefixes will be cost-free to ships.

3.3.3 The reports must be written in accordance with the following table:

- .1 Designators A, B, C, E, F, G, I, P, T, W and X are compulsory for sailing plans;
- .2 Designators A, B, C, E and F must be used for final reports;
- .3 Designators A, B, C, E, F and I must be used for deviation reports; and
- .4 Designator Q is included whenever a problem arises in the reporting area, whether defects, damage, deficiencies or circumstances that affect normal navigation in the reporting area.

### 3.4 *Geographical position for submitting reports*

3.4.1 A ship must give a full report at the following positions:

- .1 on entering the reporting area;
- .2 immediately after leaving a port or anchorage located in the Galapagos PSSA (the coordinates of which are at Appendix 4);
- .3 when deviating from the route leading to the port of destination or anchorage reported originally;

- .4 when it is necessary to deviate from the planned route owing to weather conditions, damaged equipment or a change in navigational status; and
- .5 on finally leaving the reporting area.

### 3.5 *Authority*

3.5.1 On entering the GALREP mandatory reporting area, ships must send a message to notify the Santa Cruz Maritime Rescue Sub-Centre via Puerto Ayora Radio or Baquerizo Moreno Radio. The Maritime Rescue Sub-Centres and coastal radio stations to which reports must be sent are shown in appendix 2.

3.5.2 If a ship is not able to send a message to Puerto Ayora Radio, it must send one to Baquerizo Moreno Radio, in accordance with the information given in appendix 2.

## **4 Information to be provided to ships and procedures to be followed**

4.1 Ships are required to keep a continuous listening watch in the area.

4.2 The Puerto Ayora Maritime Rescue Sub-Centre will provide ships with the information necessary for safe navigation in the reporting area as required, using the radio transmission resources available in the area.

4.3 If necessary, a specific ship may be informed individually about particular local weather conditions.

## **5 Communication required for the system, frequencies on which reports should be transmitted and information reported**

5.1 Radiocommunications required for the system is as follows:

The reports can be made by any modern means of communication, including Inmarsat C, telephone, fax, and email, and other available means as described in appendix 2.

5.2 Information of commercial confidential nature may be transmitted by non-verbal means.

5.3 The languages of communication used in this system are Spanish or English, using IMO Standard Marine Communication Phrases, where necessary.

## **6 Rules and regulations in force in the area of the system**

6.1 *Vessel Traffic Services (VTS)*

Vessel traffic services are available at Puerto Ayora through Puerto Ayora Radio, which provides information for shipping in the Galapagos Particularly Sensitive Sea Area.

## 6.2 *SAR Plan*

6.2.1 The national maritime SAR plan establishes the Coast Guard Command as the maritime rescue coordination centre and DIGMER as the SAR coordination centre, with its headquarters under the supervision of the Director General for the Merchant Marine. The Galapagos PSSA comes under the jurisdiction of the Galapagos Archipelago administrative area, at the SAR coordination sub-centre for the island region, which is responsible for deploying coast guard units operating in that area.

6.2.2 The National Maritime Authority is responsible for prevention and control of pollution produced by oil and other harmful substances in Ecuador's waters and along its coasts. Given the extent of the damage that can be caused by oil spills, there is a national contingency plan to deal with them, whether at sea or along the coasts or rivers. The plan covers the mainland waters, the Galapagos island waters and the rivers of the western region. With regards to planning, implementation and control, geographical areas have been established corresponding to the maritime section of the island region, which includes the Galapagos PSSA, under the responsibility of the island naval operations command in co-ordination with the harbour masters' offices at Puerto Ayora, Puerto Baquerizo Moreno, Puerto Villamil and Seymour, and supported by the fleet air arm, the coast guard and the Galapagos National Park.

## **7 Shore-based facilities to support the operation of the system**

### 7.1 *System capability*

7.1.1 The VTS, Maritime Rescue Sub-Centres, and coastal radio stations are shown in appendix 2; all have skilled personnel constantly on duty.

7.1.2 The accepted means of radiocommunication that are available are listed in appendix 2.

## **8 Information concerning the applicable procedures if the communication facilities of shore based Authority fail**

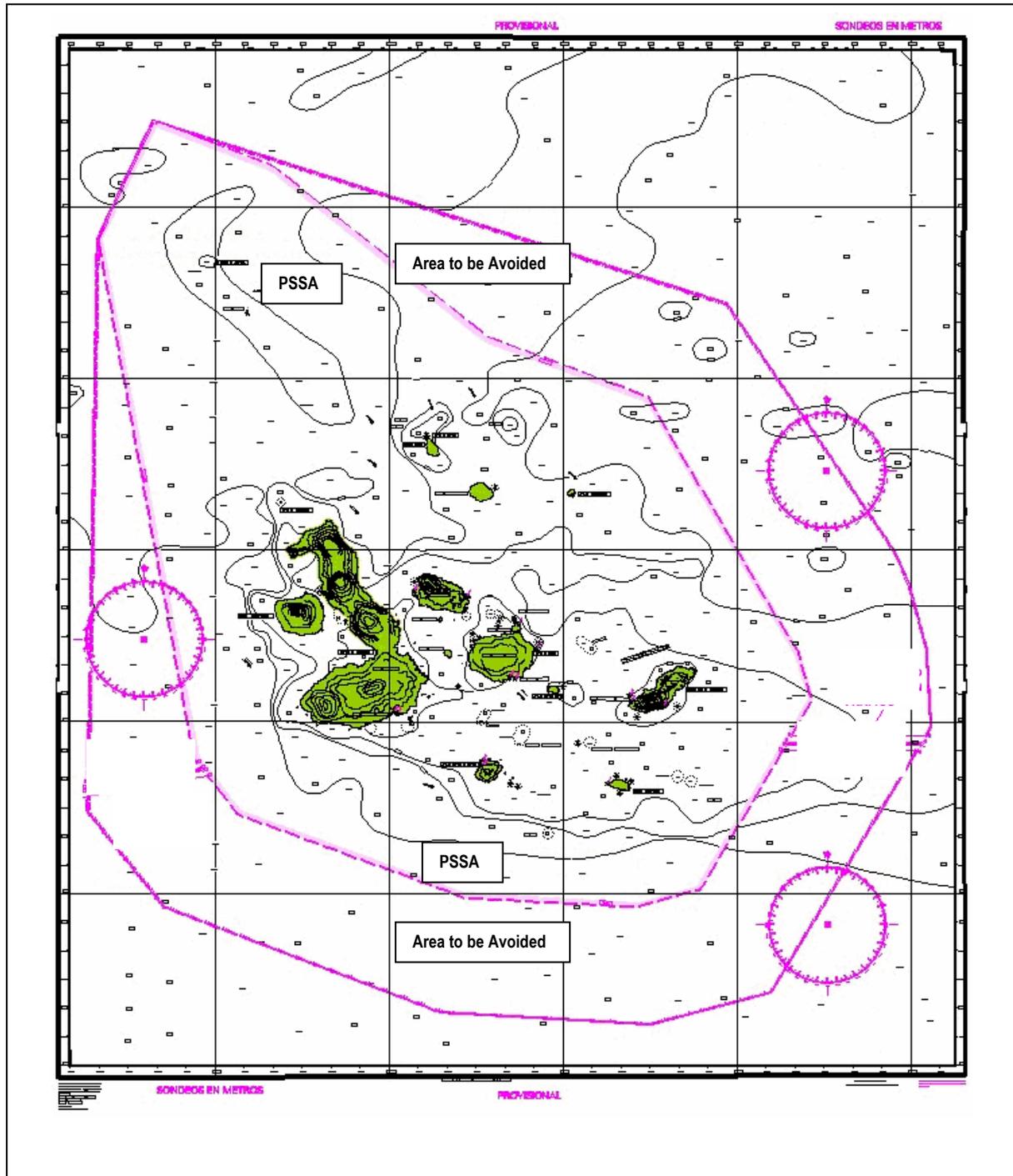
If a ship is not able to send a message to Puerto Ayora Radio, it must send one to Baquerizo Moreno Radio, in accordance with the information given in appendix 2.

## **9 Measures to be taken if a ship fails to comply with the requirements of the system**

If a ship in breach of the mandatory ship reporting system can be identified, any enforcement actions taken shall not be incompatible with international law.

APPENDIX 1

Chart of area covered by the mandatory ship reporting system



**Note:** The two traffic separation schemes in this chart are deleted.

APPENDIX 2

**Vessel traffic services, maritime rescue sub-centres, coastal radio stations and other establishments to which reports must be sent.**

**ECUADOR – GALAPAGOS ISLANDS**

**SANTA CRUZ: PUERTO AYORA RADIO**

**Name:** HCY

**Geographical co-ordinates:** 00° 44'.59 S, 090° 28'.29 W

**MRSC – SAR Puerto Ayora:** 00° 44'.59 S, 090° 28'.29 W

Tel. : + 593 5 2527473

Fax : + 593 5 2527473

E-mail: [ayoraradio@islasantacruz.com](mailto:ayoraradio@islasantacruz.com)

Inmarsat-C: 473575713

Inmarsat Mini – M:

Voice : 761609548

Fax : 761609549

Data : 761609550

VHF channels:

156.800 MHZ H-24 SIMPLEX C-16

156.525 MHZ H-24 SIMPLEX C-70

MF channels:

4125.0 KHZ H-24 SIMPLEX C-421

2182.0 KHZ H-24 SIMPLEX

2187.5 KHZ H-24 DSC SIMPLEX

MMSI: 007354757.

**PUERTO BAQUERIZO MORENO: BAQUERIZO MORENO RADIO**

**Name:** HCW

**Geographical co-ordinates:** 00° 54' S, 089° 37' W

**MRSC – SAR Puerto Baquerizo Moreno:** 00° 54' S, 089° 37' W

Tel. : +593 5 2520346

Fax : +593 5 2520346

E-mail : [capbaq@digmer.org](mailto:capbaq@digmer.org)

VHF channels :

156.800 MHZ H-24 SIMPLEX C-16

156.525 MHZ H-24 SIMPLEX C-70

MF channels:

4125.0 KHZ H-24 SIMPLEX C-421

2182.0 KHZ H-24 SIMPLEX

2187.5 KHZ H-24 DSC SIMPLEX

MMSI: 007350090

APPENDIX 3

Designator	Function	Text
System name	Code word	GALREP
	Type of report: Sailing plan: Final report:  Deviation report	One of the following 2-letter identifiers: SP FR (on <u>finally</u> leaving reporting area) to include only <b>A, B, C, E and F</b> . DR to include only <b>A, B, C, E, F and I</b> .
A	Ship	Name and call sign (Name of ship, call sign, IMO No. and MMSI No.), (e.g., TAURUS/HC4019/T-04-0561)
B	Date and time corresponding to position at C, expressed as UTC.	A six-digit group followed by a Z. The first two digits indicate day of the month, the second two the hours and the last two the minutes. The Z indicates that the time is given in UTC (e.g., 081340Z).
C	Position (latitude and longitude)	A 4-digit group giving latitude in degrees and minutes, with the suffix N or S, and a 5-digit group giving longitude in degrees and minutes, with the suffix W (e.g., 0030S 08805W).
E	Course	True course. A 3-digit group (e.g., 270).
F	Speed	Speed in knots. A 2-digit group (e.g., 14).
G	Name of last port of call	Name of the last port of call (e.g., Guayaquil)
I	Destination and ETA (UTC)	Name of destination and date and time group as expressed in B (e.g., Puerto Ayora 082200Z)
P	Cargo	Type(s) of oil cargo, quantity, quality and density of heavy crude, heavy fuel, asphalt and coal tar. If the ships are carrying other potentially hazardous cargoes, indicate type, quantity and IMO classification (e.g., 10,000 TN DIESEL OIL).
Q	Defects, damage, deficiencies, limitations.	Brief details of defects, including damage, deficiencies and other circumstances that impair normal navigation.
T	Address for the communication of cargo information	Name, telephone no., and either fax or e-mail
W	Total no. of people on board	State how many
X	Miscellaneous	Miscellaneous information concerning these ships: Characteristics and approximate quantity of bunker fuel for tankers carrying an amount of it greater than 5,000 tonnes. Navigational status (e.g., at anchor, moving under own propulsion, no steering, limited manoeuvrability, depth restriction, moored, aground, etc.)

APPENDIX 4

**Particularly Sensitive Sea Area (PSSA)**

<b>Point</b>	<b>Latitude</b>	<b>Longitude</b>
A	02° 30' N	092° 21' W
B	02° 14' N	091° 40' W
C	01° 14' N	090° 26' W
D	00° 53' N	089° 30' W
E	00° 35' S	088° 38' W
F	00° 52' S	088° 34' W
G	01° 59' S	089° 13' W
H	02° 05' S	089° 34' W
I	02° 01' S	090° 35' W
J	01° 32' S	091° 52' W
K	01° 13' S	092° 07' W
L	01° 49' N	092° 40' W

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## ANNEX 4

## DRAFT RESOLUTION MSC.[...](82)

(adopted on xxxx)

**ADOPTION OF AMENDMENTS TO THE EXISTING MANDATORY SHIP REPORTING SYSTEM “IN THE STOREBÆLT (GREAT BELT) TRAFFIC AREA”**

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 mandatory ship reporting systems by the Organization, and

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 on Navigation at its fifty-second regular session,

1. ADOPTS in accordance with SOLAS regulation V/11, the amendments to the existing mandatory ship reporting system “In the Great Belt Traffic Area”;
2. DECIDES that the said amendments to the existing mandatory ship reporting system “In the Storebælt (Great Belt) Traffic Area (BELTREP)” will enter into force at [0000] hours UTC on [1 July 2007];
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

### **AMENDED TEXT TO THE EXISTING MANDATORY SHIP REPORTING SYSTEM “IN THE STOREBÆLT (GREAT BELT) TRAFFIC AREA (BELTREP)”**

#### **1 Categories of ships required to participate in the system**

1.1 Ships required to participate in the ship reporting system:

1.1.1 ships with a gross tonnage of 50 and above; and

1.1.2 all ships with an air draught of 15 m or more.

#### **2 Geographical coverage of the system and the number and edition of the reference chart used for delineation of the system**

2.1 The operational area of BELTREP covers the central and northern part of the Storebælt (Great Belt) and the Hatter Barn area north of Storebælt (Great Belt) as shown below and on the chartlet given in Appendix 1. The area includes the routeing systems in the Storebælt (Great Belt) area and at Hatter Barn.

##### 2.1.1 Northern borderlines

Fyn:	55°36'.00 N,	010°38'.00 E (Korshavn)
Samsø:	55°47'.00 N,	010°38'.00 E (East coast of Samsø)
	56°00'.00 N,	010°56'.00 E (At sea near Marthe Flak)
Sjælland:	56°00'.00 N,	011°17'.00 E (Sjællands Odde)

##### 2.1.2 Southern borderlines

Stignæs:	55°12'.00 N,	011°15'.40 E (Gulf Oil's Pier)
Omø:	55°08'.40 N,	011°09'.00 E (Ørespids, Omø)
	55°05'.00 N,	011°09'.00 E (At sea South of Ørespids)
Langeland E:	55°05'.00 N,	010°56'.10 E (Snøde Øre)
Langeland W:	55°00'.00 N,	010°48'.70 E (South of Korsebølle Rev)
Thurø Rev:	55°01'.20 N,	010°44'.00 E (Thurø Rev Light buoy)

2.1.3 The area is divided into two sectors at latitude 55°35'.00 N; each sector has an assigned VHF channel as shown in appendix 2.

2.2 The reference charts which include the operational areas of BELTREP are Danish charts Nos. 112 (11th edition 2005), 128 (8th edition 2005) 141(18th edition 2006), 142 (15th edition 2006), 143 (16th edition 2005) and 160 (6th edition 2006) (Datum: World Geodetic System 1984, WGS-84), which provide large-scale coverage of the VTS area.

### **3 Format, content of reports, times and geographical positions for submitting reports, Authority of whom reports should be sent and available services**

3.1 Reports to the VTS authority should be made using VHF voice transmissions. However ships equipped with AIS (automatic identification system) can fulfil certain reporting requirements of the system through the use of AIS approved by the Organization.

3.2 A ship must give a full report when entering the mandatory ship reporting area. The full report may be combined by voice or by non-verbal means. A ship may select, for reason of commercial confidentiality, to communicate that section of the report, which provides information on next port of call by non-verbal means prior to entering the ship reporting area.

#### *3.3 Format*

3.3.1 The ship report shall be drafted in accordance with the format shown in appendix 3. The information requested from ships is derived from the Standard Reporting Format shown in paragraph 2 of the appendix to IMO resolution A.851(20).

#### *3.4 Content*

3.4.1 A full report from a ship to the VTS Authority by voice or by non-verbal means should contain the following information:

- A Name of the ship, call sign and IMO identification number (if available)
- C Position expressed in latitude and longitude
- I Next port of call
- L Route information on the intended track through the Storebælt (Great Belt) area.
- O Maximum present draught
- Q Defects and deficiencies
- U Deadweight tonnage and air draught

3.4.2 A short report by voice from a ship to the VTS authority should contain the following information:

- A Name of the ship, call sign and IMO identification number (if available)
- C Position expressed in latitude and longitude

**Note:** On receipt of a report, operators of the VTS Authority will establish the relation to the ship's position and the information supplied by the facilities available to them. Information on position will help operators to identify a ship. Information on current in specific parts of the VTS area will be provided to the ship.

#### *3.5 Geographical position for submitting reports*

3.5.1 Ships entering the VTS area shall submit a full report when crossing the lines mentioned in paragraph 2.1, 2.1.1 and 2.1.2 or on departure from a port within the VTS area.

3.5.2 Ships passing the reporting line between sector 1 and sector 2 at latitude 55° 35'.00 N. shall submit a short report.

3.5.3 Further reports should be made whenever there is a change in navigational status or circumstance, particularly in relation to item Q of the reporting format.

### 3.6 *Crossing traffic*

3.6.1 Recognizing that ferries crossing Samsø Bælt from Århus, Ebeltoft and Samsø to Odden and Kalundborg generally operate in according to published schedules special reporting arrangements can be made on a ship-to-ship basis.

### 3.7 *Authority*

3.7.1 The VTS Authority for the BELTREP is Great Belt VTS.

## **4 Information to be provided to ships and procedures to be followed**

4.1 Ships are required to keep a continuous listening watch in the area.

4.2 BELTREP provides information to shipping about specific and urgent situations, which could cause conflicting traffic movements as well as other information concerning safety of navigation for instance, information about weather, current, ice, water level, navigational problems or other hazards.

4.2.1 Information of general interest to shipping in the area will be given by request or will be broadcasted by BELTREP on VHF channel as specified by the VTS operator. A broadcast will be preceded by an announcement on VHF channel 16. All ships navigating in the area should listen to the announced broadcast.

4.2.2 If necessary BELTREP can provide individual information to a ship particularly in relation to positioning and navigational assistance or local conditions.

4.3 If a ship needs to anchor due to breakdown, low visibility, adverse weather, changes in the indicated depth of water, etc. BELTREP can recommend suitable anchorages and place of refuge within the VTS area. The anchorages are marked on the nautical charts covering the area and are shown on the chartlet in appendix 1.

## **5 Communication required for the system, frequencies on which reports should be transmitted and information reported**

5.1 *Radio communications required for the system is as follows:*

5.1.1 The reports to the VTS authority can be made by voice on VHF radio using:

- In sector 1: Channel 74
- In sector 2: Channel 11

5.1.2 Information of commercial confidential nature may be transmitted by non-verbal means.

5.1.3 Broadcast by BELTREP and individual assistance to ships will be made on channel 10 or on any other available channel as assigned by BELTREP.

5.2 BELTREP is monitoring VHF channels 10, 11, 74 and 16.

5.3 The language used for communication shall be English, using IMO Standard Marine Communication Phrases, where necessary.

## **6 Rules and regulations in force in the area of the system**

### *6.1 Regulations for preventing collisions at sea*

6.1.1 The International Regulations for Preventing Collisions at sea are applicable throughout the operational area of BELTREP.

### *6.2 Traffic separation scheme "Between Korsoer and Sprogø"*

6.2.1 The Traffic separation scheme "Between Korsoer and Sprogø", situated in the narrows of the Eastern Channel between the islands of Fyn and Sjælland, has been adopted by IMO, and rule 10 of the International Regulations for Preventing Collisions at Sea therefore applies.

### *6.3 Traffic separation scheme "At Hatter Barn"*

6.3.1 The separation scheme "At Hatter Barn" situated north of the Storebælt (Great Belt) between the islands of Sjælland and Samsø, has been adopted by IMO, and rule 10 of the International Regulations for Preventing Collisions at Sea therefore applies.

6.3.2 The minimum depth in the traffic separation scheme is 15 metres at mean sea level. Ships with a draught of more than 13 meters should use the deep-water route, which lies west of the traffic separation scheme.

### *6.4 The Great Belt Bridges*

6.4.1 Passage through the marked spans at the West Bridge is allowed only for ships below 1,000 tonnes deadweight and with an air draught of less than 18 metres.

6.4.2 Passage through the traffic separation scheme under the East Bridge is allowed only for ships with an air draught of less than 65 metres. There is a recommended speed limit of 20 knots in the traffic separation scheme.

### *6.5 IMO resolution MSC.138 (76)*

6.5.1 IMO resolution MSC.138(76) on Recommendation on Navigation through the entrances to the Baltic Sea, adopted on 5 December 2002, recommends that ships with a draught of 11 metres or more or ships irrespective of size or draught, carrying a shipment of irradiated nuclear fuel, plutonium and high-level radioactive wastes (INF-cargoes) should use the pilotage services locally established by the coastal States.

### *6.6 Mandatory pilotage*

6.6.1 Harbours within the BELTREP area are covered by provisions about mandatory pilotage for certain ships bound for or coming from Danish harbours.

## **7 Shore based facilities to support the operation of the system**

### *7.5.1 System capability*

7.1.1 The control centre is situated at the Naval Regional Centre at Korsør. The VTS system comprises several remote sensor sites. The sites provide surveillance of the VTS area using a combination of radar, radio direction finding, Automatic Identification System (AIS) and electro-optic sensors. An integrated network of seven radar systems integrated with AIS provides surveillance of the VTS area.

7.1.2 All the sensors mentioned will be controlled or monitored by the VTS operators.

7.1.3 There are five operator consoles in the control centre, one of which is intended for system maintenance and diagnostic purposes, which allows these activities to be carried out without disruption of the normal operations. The operator can from each of the consoles control and display the status of the sensors. The VTS centre will at all times be manned with a duty officer and three operators.

7.1.4 Recording equipment automatically stores information from all tracks, which can be replayed. In case of incidents the VTS authority can use records as evidence. VTS operators have access to different ship registers, pilot information and hazardous cargo data.

### *7.2 Radar, electro-optic facilities and other sensors*

7.5.2 Information necessary to evaluate the traffic activities within the operational area of BELTREP is compiled via VTS area remote controlled sensors comprising:

- High-resolution radar systems;
- infra-red sensor systems;
- daylight TV systems;
- VHF communications systems; and
- DF systems.

### *7.3 Radio communication facilities*

7.5.3 Radio communication equipment in the control centre consists of six VHF radios including DSC facilities. The VHF channels used are:

- Channel 74 Working channel
- Channel 11 Working channel
- Channel 10 Broadcast channel and reserve channel

### *7.4 AIS facilities*

7.4.1 BELTREP is linked to the national shore based AIS network and can continually receive messages broadcast by ships with transponders to gain information on their identity and position. The information is displayed as part of the VTS system and is covering the VTS area.

## 7.5 *Personnel qualifications and training*

7.5.4 The VTS centre is staffed with civilian personnel all experienced as officers at a competency level required in the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers chapter II, section A-II/1 or A-II/2.

7.5.2 Training of personnel will meet the standards recommended by IMO. Furthermore it will comprise an overall study of the navigation safety measures established in Danish waters and in particular the operational area of BELTREP including a study of relevant international and national provisions with respect to safety of navigation. The training also includes real-time training in simulators.

7.5.5 Refresher training is carried out at least every third year.

## **8 Information concerning the applicable procedures if the communication facilities of shore based Authority fail**

8.1 The system is designed with sufficient system redundancy to cope with normal equipment failure.

8.2 In the event that the radio communication system or the radar system at the VTS centre breaks down, the communications will be maintained via a standby VHF system. To continue the VTS operation in order to avoid collisions in the bridge area, Great Belt VTS has two options. Either to man the VTS emergency centre at Sprogø or to hand over the responsibility to the VTS Guard vessel, which at all times is stationed in the BELTREP operational area.

8.3 The VTS emergency centre is equipped with radar, VHF radio sets and CCTV cameras.

8.4 The VTS Guard vessel is equipped with VHF and radars with ARPA and AIS. Furthermore, it is equipped with ECDIS, which displays radar targets.

## **9 Measures to be taken if a ship fails to comply with the requirements of the system**

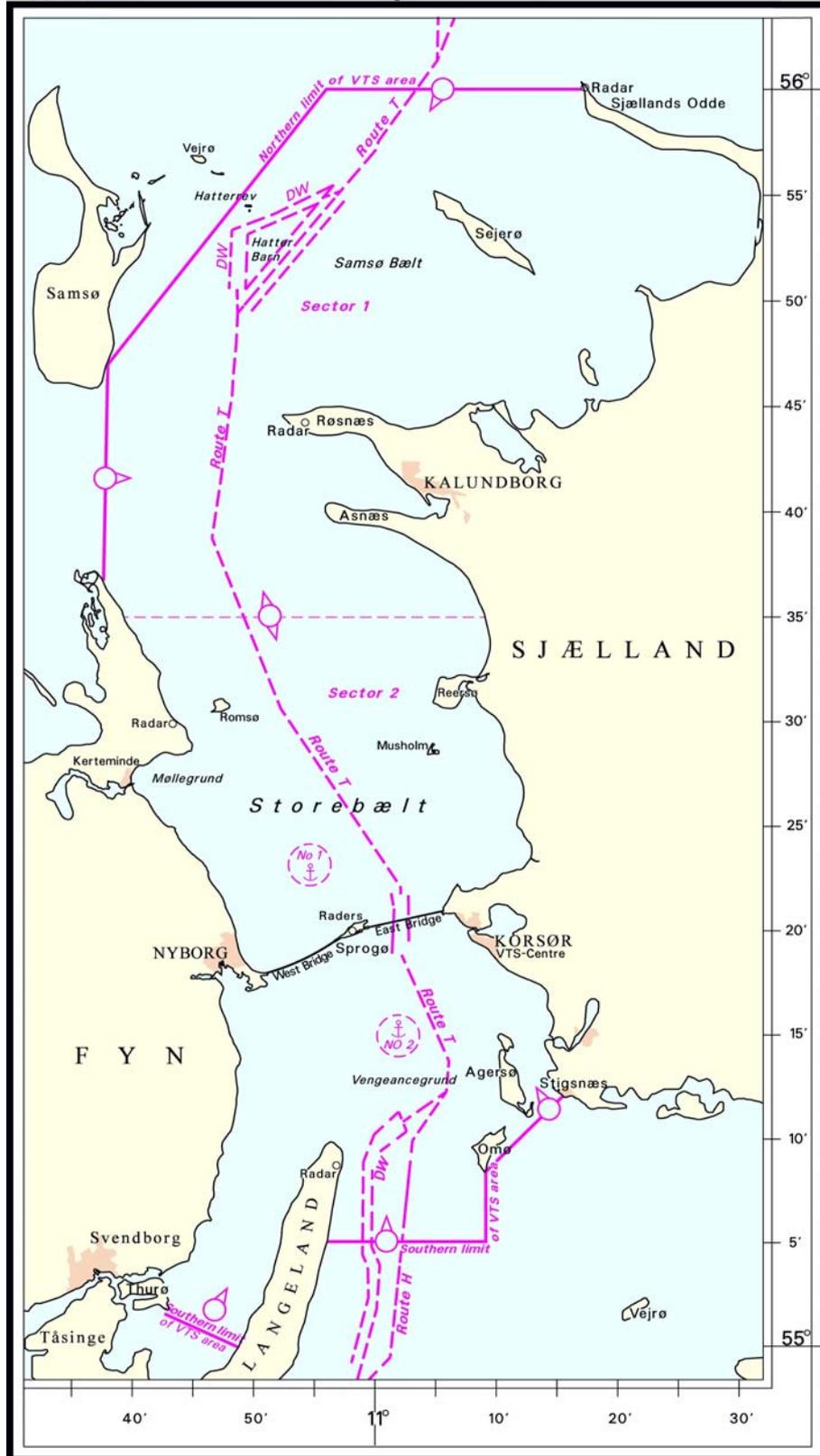
9.1 The objective of the VTS Authority is to facilitate the exchange of information between the shipping and the shore in order to ensure safe passages of the bridges, support safety of navigation and protection of the marine environment.

9.2 The VTS Authority seeks to prevent collisions with the bridges crossing Storebælt (Great Belt). When a ship appears to be on a collision course with one of the bridges, the VTS guard vessel will be sent out to try to prevent such a collision.

9.3 All means will be used to encourage and promote the full participation of ships required to submit reports under SOLAS regulation V/11. If reports are not submitted and the offending ship can be positively identified, then information will be passed to the relevant Flag State Authority for investigation and possible prosecution in accordance with national legislation. Information will also be made available to Port State Control inspectors.

### Appendix 1

BELTREP Operational Area



## Appendix 2

Assigned VHF channels for sectors in the mandatory reporting system

### IN THE STOREBÆLT (GREAT BELT) AREA (BELTREP)

Sector	VHF Channel	Authority receiving the report
Sector 1	VHF Channel 74	Great Belt VTS
Sector 2	VHF Channel 11	Great Belt VTS

## Appendix 3

Drafting of radio reports to the mandatory ship reporting system  
In the Storebælt (Great Belt) Area (BELTREP)

Designator	Function	Information required
A	Ship	Name of the ship, call sign and IMO identification number (if available)
C	Position	A 4-digit group giving latitude in degrees and minutes suffixed with N and a 5-digit group giving longitude in degrees and minutes suffixed with E
I	Next port of call	The name of the expected destination
L	Route	A brief description of the intended route as planned by the master (see below)
O	Draught	A 2 or 3-digit group giving the present maximum draught in metres (E.g.: 8.7 metres or 10.2 metres)
Q	Defects and deficiencies	Details of defects and deficiencies affecting the equipment of the ship or any other circumstances affecting normal navigation and manoeuvrability
U	Deadweight tonnage and air draught	

### Examples of routes as given under designator L

*Example 1. A southbound ship with a draught of 13.2 metres:*

DW route at Hatter Barn

Route T

DW route off east coast of Langeland

*Example 2. A northbound ship with a draught of 5.3 metres:*

Route H

Route T at Agersø Flak

TSS at Hatter Barn

*Example 3. A small southbound ship:*

Coastal east of Fyn

West Bridge

Between Fyn and Langeland

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## ANNEX 5

**DRAFT RESOLUTION MSC.[...](82)****(adopted on xxxx)****ADOPTION OF AMENDMENTS TO THE EXISTING MANDATORY SHIP  
REPORTING SYSTEM “IN THE GULF OF FINLAND”**

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 mandatory ship reporting systems by the Organization, and

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 on Navigation at its fifty-second regular session,

1. ADOPTS in accordance with SOLAS regulation V/11, the amendments to the existing mandatory ship reporting system “In the Gulf of Finland”;
2. DECIDES that the said amendments to the existing mandatory ship reporting system “In the Gulf of Finland Traffic Area ” will enter into force at [0000] hours UTC on [1 July 2007];
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 SYSTEM  
“IN THE GULF OF FINLAND”**

**Amend sub-section 1.1 to read as follows:**

1.1 Ships of 300 gross tonnage and over are required to participate in the mandatory ship reporting system. Ships under 300 gross tonnage should make reports in circumstances where they:

- .1 are not under command or at anchor in the TSS;
- .2 are restricted in their ability to manoeuvre; and
- .3 have defective navigational aids.

**Amend sub-section 2.1 to read as follows:**

2.1 The mandatory ship reporting system in the Gulf of Finland covers the international waters in the Gulf of Finland. In addition, Estonia and Finland have implemented mandatory ship reporting systems to their national water areas outside VTS areas. These reporting systems provide same services and make same requirements to shipping as the system operating in the international waters. The mandatory ship reporting system and the Estonian and Finnish national mandatory ship reporting systems are together referred as the GOFREP and their area of coverage respectively as the GOFREP area.

**Amend sub-section 2.2 to read as follows:**

2.2 The reference charts are:

- .1 Finnish Maritime Administration chart 901 (2006 edition, scale 1:200 000), Geodetic datum is the national geodetic chart coordinate system (KKJ). WGS-84 latitude correction is -0'.01 and the longitude correction +0'.19. Finnish Maritime Administration charts 952 (2004 edition, scale 1:250 000) and 953 (2004 edition, scale 1:250 000). Geodetic datum for charts 952 and 953 is WGS-84.
- .2 Head Department of Navigation and Oceanography RF Ministry of Defence charts 22060-INT1213 (edition 2000, scale 1:250000). Geodetic datum of year 1942 (Pulkovo). For obtaining position in WGS-84 datum such positions should be moved 0,12' westward. 22061-INT1214 (edition 2002, scale 1:250000). For obtaining position in WGS-84 datum such positions should be moved 0,14' westward.
- .3 Estonian Maritime Administration updated charts 502, 504, 507, 509, 511 (all charts in scale 1:100 000, datum WGS-84).

**Borderline point by point of the Gulf of Finland ship reporting area**

**The co-ordinates below are in WGS-84**

1)	59°33'.3N	022°30'.0E	26)	60°08'.5N	026°57'.5E
2)	59°36'.5N	022°38'.1E	27)	60°08'.2N	026°54'.5E
3)	59°38'.1N	022°51'.4E	28)	60°05'.0N	026°49'.0E
4)	59°39'.4N	023°21'.1E	29)	60°08'.9N	026°49'.0E
5)	59°47'.0N	024°12'.4E	30)	60°06'.5N	026°38'.0E
6)	59°47'.8N	024°19'.9E	31)	60°06'.1N	026°32'.2E
7)	59°49'.0N	024°29'.3E	32)	60°05'.0N	026°30'.0E
8)	59°53'.5N	024°47'.1E	33)	59°57'.0N	026°30'.0E
9)	59°55'.3N	024°55'.8E	34)	59°56'.3N	026°26'.1E
10)	59°56'.6N	025°10'.2E	35)	59°54'.0N	026°09'.1E
11)	59°55'.9N	025°28'.3E	36)	59°48'.9N	026°01'.2E
12)	59°55'.7N	025°35'.0E	37)	59°49'.6N	025°34'.6E
13)	59°55'.9N	025°37'.2E	38)	59°42'.2N	024°28'.8E
14)	59°58'.6N	026°01'.0E	39)	59°34'.6N	023°57'.1E
15)	60°00'.8N	026°04'.5E	40)	59°28'.9N	023°31'.2E
16)	60°02'.3N	026°11'.3E	41)	59°29'.0N	023°11'.4E
17)	60°02'.8N	026°17'.7E	42)	59°28'.2N	023°08'.5E
18)	60°09'.2N	026°29'.5E	43)	59°27'.4N	023°06'.4E
19)	60°09'.7N	026°36'.7E	44)	59°17'.5N	022°43'.9E
20)	60°11'.4N	026°44'.5E	45)	59°17'.7N	022°36'.1E
21)	60°12'.0N	026°45'.9E	46)	59°16'.2N	022°23'.8E
22)	60°12'.0N	027°13'.4E	47)	59°14'.7N	022°18'.4E
23)	60°12'.0N	027°17'.6E	48)	59°03'.4N	021°50'.9E
24)	60°10'.3N	027°10'.9E	49)	59°02'.1N	021°49'.0E
25)	60°08'.5N	027°04'.2E	50)	59°10'.0N	021°30'.0E

**Amend section 3 to read as follows:**

Short report is always reported verbally on VHF. The short title for ship report is GOFREP. Vessels are urged to update their AIS information before entering the Gulf of Finland since they may fulfil the Full Report reporting requirements through the use of AIS. In cases where it is not possible to transmit the report fully with AIS additional information may be reported by other means.

**Amend sub-section 3.2.1 to read as follows:**

3.2.1 A short report by voice from a ship to the shore-based Authorities should contain the following information:

- A Vessel's name, call sign and IMO identification. MMSI may be reported.
- C Geographical position by two 6 digit groups; or
- D Bearing and distance in nautical miles from a clearly identified landmark and
- E True course in three (3) digit group.

**Amend sub-section 3.2.2 to read as follows:**

3.2.2 A full report from a ship to the shore-based Authorities by voice or by non-verbal means should contain the following information:

- A Vessel's name, call sign and IMO identification. MMSI may be reported.
- C Geographical position by two 6-digit groups; or
- D Bearing and distance in nautical miles from a clearly identified landmark and
- E True course in three (3) digit group.
- F Speed in knots with one decimal.
- H Time (UTC) and point of entry into the GOFREP area.
- I Destination and ETA.
- O Vessel's present draught in metres with one decimal.
- P Dangerous goods on board, main classes and total quantity in metric tons with up to two decimals. The amount of classes 1 and 7, if any, shall be reported separately.\*)
- Q Brief details of defects or restrictions of manoeuvrability.
- R Description of pollution or dangerous goods lost overboard.
- T Address for the communication of cargo information.
- U Ship's type and length in meters.
- W Total number of persons onboard.
- X Characteristics and estimated quantity of bunker fuel for ships carrying more than 5000 tons of bunker and navigational status.

\*) In addition to designator P report, information on cargo other than dangerous goods is collected from all ships entering or leaving the ports of European Union countries in the Gulf of Finland. Ships are not required to report the information on cargo other than dangerous goods. Information is asked from ships only if it can not be obtained by other means.

All VHF, telephone, radar, AIS and other relevant information will be recorded and the records stored for 30 days.

**Amend sub-section 3.3 to read as follows:**

3.3.1 The Gulf of Finland mandatory Ship Reporting System area is divided into three areas of monitoring responsibility with a borderline. This borderline is referred as Central Reporting Line and it consists of two parts.

The western part is drawn through the midpoints of the separation zones of the traffic separation schemes off Kõpu, Hankoniemi, Porkkala and Kalbådagrund to 59°59'.15N 026°30'.0E.

The eastern part of the Central Reporting Line is drawn from the point 59°57'.0N 026°30'.0E to 60°05'.0N 026°30'.0E and further through the borderline of the Russian territorial sea and the outer limit of the Finnish Exclusive Economic Zone eastwards until the point 60°08'.9N 026°49'.0E. From this point the Central Reporting Line continues through the limit of the Exclusive Economical Zone (EEZ) of Finland and the EEZ of Russia further to the point 60°10'.3N 026°57'.5E to 60°10'.3N 027°10'.9E and to 60°12'.0N 027°17'.6E.

Monitoring of the GOFREP area north of the Central Reporting Line is the responsibility of the Helsinki Traffic and, south of the Central Reporting Line in the area west of longitude 26°30'.0E is the monitoring area of the Tallinn Traffic and east of the longitude 26°30'.0E south of the Central Reporting Line is the monitoring area of St. Petersburg Traffic. Thus,

- the vessels entering the mandatory ship reporting area north of the Central Reporting Line report to Helsinki Traffic,
- south of the Central Reporting Line east of longitude 26° 30'.00 E report to St. Petersburg Traffic, and
- south of the Central Reporting Line west of longitude 26° 30'.00 E or from Väinameri report to Tallinn Traffic.

### 3.3.2 Ships shall submit a Full Report:

1. when entering the GOFREP area from the west or from Väinameri,
2. on departure from a port or latest before entering the reporting area,
3. on departure from a port if it shall not enter the reporting area at all,
4. before departing from Russian Port areas.

A Full Report on departure from a port is given to the Traffic Centre of the country whose port the vessel is departing in the Gulf of Finland traffic area.

3.3.3 Ships that are registered in domestic traffic navigating exclusively inside the inner territorial waters are not required to make a Full Report when departing from a port in the Gulf of Finland.

### 3.3.4 Ships shall submit a Short Report:

1. on entering the GOFREP area from the Estonian or Finnish VTS areas in the Gulf of Finland,
2. on crossing the Western or Väinameri Reporting Line inward-bound to Gulf of Finland,
3. on crossing the Central Reporting Line,
4. whenever there is a change in the vessel's navigational status excluding the change of status when berthing or unberthing.

Short Report is given on VHF when crossing the Central Reporting Line to the Traffic Centre of the country to which monitoring area the vessel is proceeding.

### **Amend sub-section 4.1.1 to read as follows:**

4.1.1 Each 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 about weather, ice, water level, navigational problems or other hazards. Information is broadcast on the following frequencies when necessary or on request.

<b>Station</b>	<b>Frequency</b>	<b>Times</b>	<b>Additional broadcasts in wintertime</b>
Tallinn	Main channel 61 Reserve channel 81	on request or when needed	on request or when needed
Helsinki	Main channel 60 Reserve channel 80	on request or when needed	on request or when needed
St. Petersburg	Main channel 74 Reserve channel 10	on request or when needed	on request or when needed

**Amend sub-section 5.4 to read as follows:**

5.4 The reports can be made verbally on VHF, by AIS or by facsimile as follows:

- Full Report in advance is to be sent by facsimile or e-mail.
- Short Report is to be made verbally on VHF.
- Full Report is made by non-verbal means (facsimile, AIS or e-mail) or verbally on VHF.

**Delete sub-section 5.5.**

**Replace term “working channel” with term “reserve channel” in sub-sections 7.1.3.1 and 7.3.3.1.**

**Amend sub-section 7.2.1.1 to read as follows:**

7.2.1.1 The system is managed from the Tallinn VTS Centre. There are two operator’s positions with expansion capabilities and equipment for technical supervision of the systems.

**Amend sub-section 7.2.3.1 to read as follows:**

7.2.3.1 VHF radio transceivers cover all the Tallinn Traffic area of responsibility. The working channels are as follows:

- Channel 61 main channel
- Channel 81 reserve channel

**Delete sub-section 7.2.3.2.**

**Amend sub-section 7.2.4 to read as follows:**

7.2.4 AIS facilities

7.2.4.1 AIS system covers all the Tallinn Traffic area of responsibility. The relevant information can be displayed at the operators working positions on the screens and database.

**Amend new sub-section 7.2.5:**

7.2.5 Personnel qualifications and training

7.2.5.1 TALLINN TRAFFIC is staffed with personnel trained according to national and international recommendations.

7.2.5.2 The training of the personnel comprises an overall study of the navigation safety measures, the relevant international (IMO) and national provisions with respect to safety of navigation. The training also includes thorough real-time simulations.

**Delete sub-section Summary of Ship reporting System in the Gulf of Finland.**

**Amend Appendix 1 to read as follows:**

Designators used in the Gulf of Finland mandatory ship reporting system and the format of the reports

<b>Designator</b>	<b>Function</b>	<b>Information required</b>
A	Ship	Vessel's name, call sign and IMO identification. MMSI may be reported.
C	Position	Geographical position by two 6 digit groups; or
D	Position	Bearing and distance in nautical miles from a clearly identified landmark
E	Course	True course in three (3) digit group
F	Speed	Speed in knots with one decimal
H	Entry	Time (UTC) and point of entry into the GOFREP area
I	Destination and ETA	Destination and expected time of arrival
O	Draught	Vessel's present draught in metres with one decimal
P	Cargo	Dangerous goods on board, main classes and total quantity in metric tons with up to two decimals. The amount of classes 1 and 7, if any, shall be reported separately. *)
Q	Deficiencies	Brief details of defects or restrictions of manoeuvrability
R	Pollution	Description of pollution or dangerous goods lost overboard
T	Owner or agent	Contact information of agent in the Gulf of Finland
U	Size and type	Ship's type and length in meters
W	Persons	Total number of persons onboard
X	Bunkers and navigational status	Characteristics and estimated quantity of bunker fuel for ships carrying more than 5000 tons of bunker and navigational status

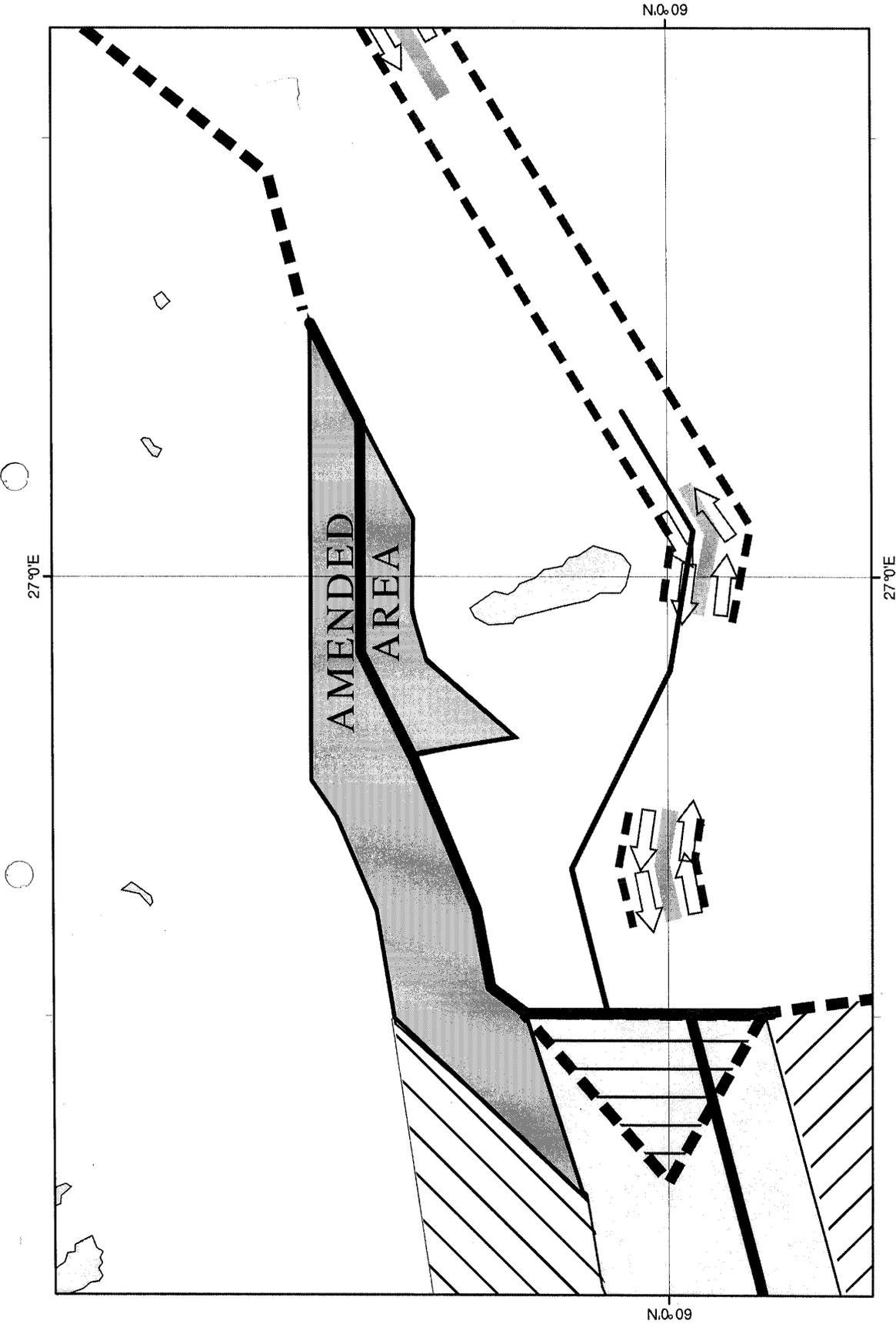
\*) In addition to designator P report, information on cargo other than dangerous goods is collected from all ships entering or leaving the ports of European Union countries in the Gulf of Finland. Ships are not required to report the information on cargo other than dangerous goods. Information is asked from ships only if it can not be obtained by other means.

A Short Report consists of designators A, C or D and E. Vessels may additionally be requested to report designator F.

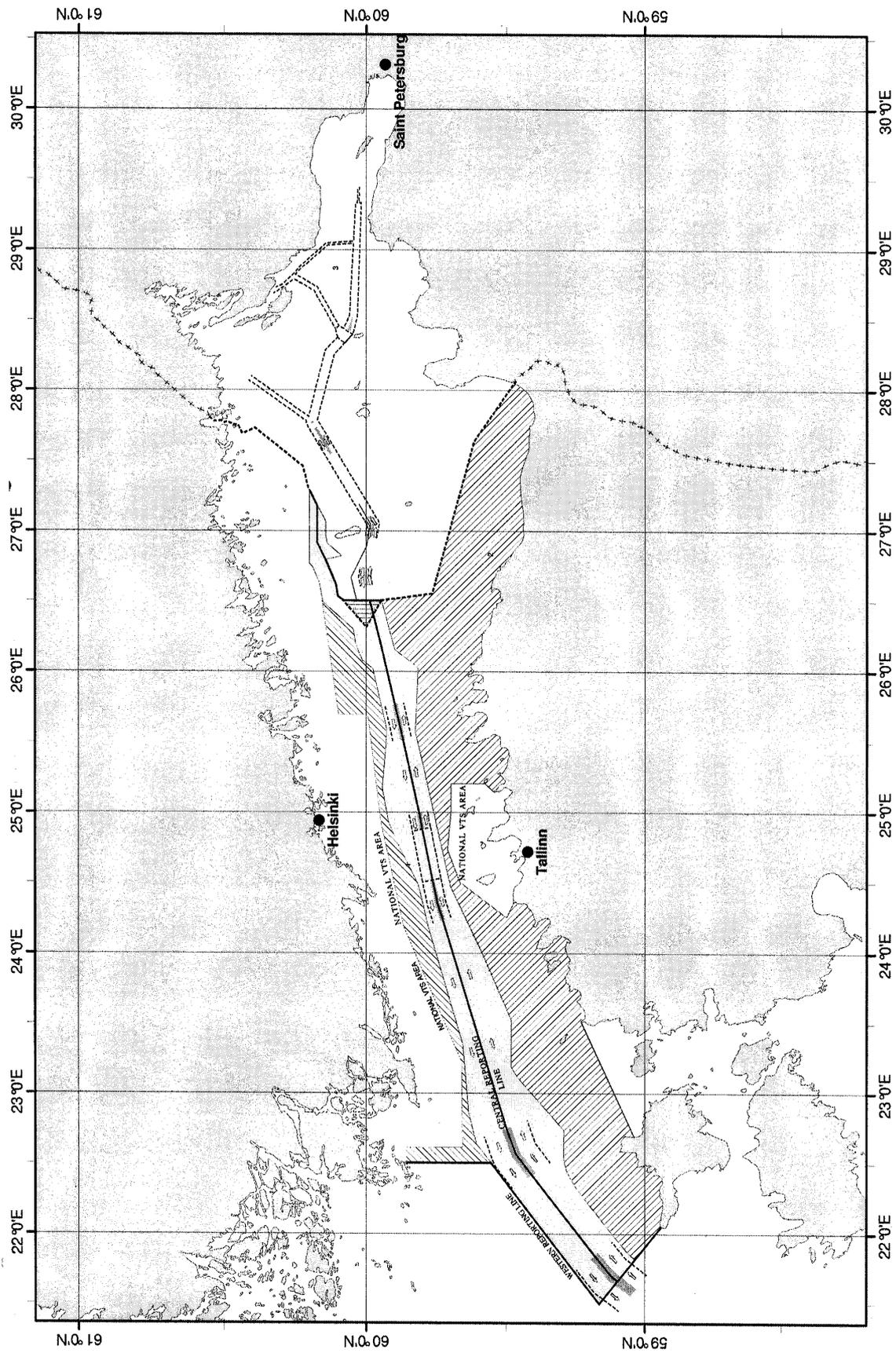
A Full Report consists of designators A, C or D, E, I, O, P, T, U, W and X. Vessels may additionally be requested to report designators F or H.

Vessels not equipped with AIS entering the GOFREP area from the Northern Baltic or Väinameri, are recommended to give a Full Report to the relevant Traffic Centre by fax or e-mail at least one hour before entering the area. In any case, a Full Report shall be given prior to entering the GOFREP area.

If there are any circumstances affecting normal navigation in accordance with the provisions of the SOLAS and MARPOL Conventions, the Master of the vessel in question is obliged to report designator Q or R, whichever is relevant under the prevailing circumstances. This report shall be made without delay.



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## ANNEX 6

**DRAFT RESOLUTION MSC.[...](82)  
(adopted on [.. ..... 2006])****ADOPTION OF THE REVISED PERFORMANCE STANDARDS FOR  
ELECTRONIC CHART DISPLAY AND INFORMATION SYSTEMS (ECDIS)**

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 ALSO regulations V/19 and V/27 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, which requires all ships to carry adequate and up-to-date charts, sailing directions, lists of lights, notices to mariners, tide tables and all other nautical publications necessary for the intended voyage,

NOTING that the up-to-date charts required by SOLAS regulations V/19 and V/27 can be provided and displayed electronically on board ships by electronic chart display and information systems (ECDIS), and that the other nautical publications required by regulation V/27 may also be so provided and displayed,

RECOGNIZING the need to improve the previously adopted, by resolution A.817(19), as amended, performance standards for ECDIS in order to ensure the operational reliability of such equipment and taking into account the technological progress and experience gained,

HAVING CONSIDERED the recommendation made by the Sub-Committee on Safety of Navigation at its fifty-second session,

1. ADOPTS the Revised Recommendation on Performance Standards for ECDIS, set out in the Annex to the present resolution;
2. RECOMMENDS Governments ensure that ECDIS equipment:
  - (a) if installed on or after [1 January 2009], 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 1996 but before [1 January 2009], conform to performance standards not inferior to those specified in the Annex to resolution A.817(19), as amended by resolutions MSC.64(67) and MSC.86(70).

## ANNEX

### **DRAFT REVISED PERFORMANCE STANDARDS FOR ELECTRONIC CHART DISPLAY AND INFORMATION SYSTEMS (ECDIS)**

#### **1 SCOPE OF ECDIS**

- 1.1 The primary function of the ECDIS is to contribute to safe navigation.
- 1.2 ECDIS with adequate back-up arrangements may be accepted as complying with the up-to-date charts required by regulations V/19 and V/27 of the 1974 SOLAS Convention, as amended.
- 1.3 ECDIS should be capable of displaying all chart information necessary for safe and efficient navigation originated by, and distributed on the authority of, government authorized hydrographic offices.
- 1.4 ECDIS should facilitate simple and reliable updating of the electronic navigational chart.
- 1.5 ECDIS should reduce the navigational workload compared to using the paper chart. It should enable the mariner to execute in a convenient and timely manner all route planning, route monitoring and positioning currently performed on paper charts. It should be capable of continuously plotting the ship's position.
- 1.6 The ECDIS display may also be used for the display of radar, radar tracked target information, AIS and other appropriate data layers to assist in route monitoring.
- 1.7 ECDIS should have at least the same reliability and availability of presentation as the paper chart published by government authorized hydrographic offices.
- 1.8 ECDIS should provide appropriate alarms or indications with respect to the information displayed or malfunction of the equipment (see appendix 5).
- 1.9 When the relevant chart information is not available in the appropriate form (see section 4), some ECDIS equipment may operate in the Raster Chart Display System (RCDS) mode as defined in appendix 7. RCDS mode of operation should conform to performance standards not inferior to those set out in appendix 7.

#### **2 APPLICATION OF THESE STANDARDS**

- 2.1 These performance standards should apply to all ECDIS equipment carried on all ships, as follows:
  - dedicated standalone workstation.
  - a multifunction workstation as part of an INS.
- 2.2 These performance standards apply to ECDIS mode of operation, ECDIS in RCDS mode of operation as specified in appendix 7 and ECDIS backup arrangements as specified in appendix 6.

- 2.3 Requirements for structure and format of the chart data, encryption of chart data as well as the presentation of chart data are within the scope of relevant IHO standards, including those listed in appendix 1.
- 2.4 In addition to the general requirements set out in resolution A.694(17)\*, the presentation requirements set out in resolution MSC.191(79), ECDIS equipment should meet the requirements of these standards and follow the relevant guidelines on ergonomic principles adopted by the Organization<sup>1</sup>.

### 3 DEFINITIONS

For the purpose of these performance standards:

- 3.1 *Electronic Chart Display and Information System (ECDIS)* means a navigation information system which with adequate back-up arrangements can be accepted as complying with the up-to-date chart required by regulations V/19 and V/27 of the 1974 SOLAS Convention, as amended, by displaying selected information from a system electronic navigational chart (SENC) with positional information from navigation sensors to assist the mariner in route planning and route monitoring, and if required display additional navigation-related information.
- 3.2 *Electronic Navigational Chart (ENC)* means the database, standardized as to content, structure and format, issued for use with ECDIS by or on the authority of a Government, authorized Hydrographic Office or other relevant government institution, and conform to IHO standards. The ENC contains all the chart information necessary for safe navigation and may contain supplementary information in addition to that contained in the paper chart (e.g. sailing directions) which may be considered necessary for safe navigation.
- 3.3 *System Electronic Navigational Chart (SENC)* means a database, in the manufacturer's internal ECDIS format, resulting from the lossless transformation of the entire ENC contents and its updates. It is this database that is accessed by ECDIS for the display generation and other navigational functions, and is equivalent to an up-to-date paper chart. The SENC may also contain information added by the mariner and information from other sources.
- 3.4 *Standard Display* is the display mode intended to be used as a minimum during route planning and route monitoring. The chart content is listed in appendix 2.
- 3.5 *Display Base* means the chart content as listed in appendix 2 and which cannot be removed from the display. It is not intended to be sufficient for safe navigation.
- 3.6 Further information on ECDIS definitions may be found in IHO Hydrographic Dictionary Special Publication S-32 (see appendix 1).

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\* Refer to IEC Publication 60945

<sup>1</sup> MSC/Circ.982

## **MODULE A - DATABASE**

### **4 PROVISION AND UPDATING OF CHART INFORMATION**

- 4.1** The chart information to be used in ECDIS should be the latest edition, as corrected by official updates, of that issued by or on the authority of a Government, government-authorized Hydrographic Office or other relevant government institution, and conform to IHO standards<sup>2</sup>.
- 4.2** The contents of the SENC should be adequate and up-to-date for the intended voyage to comply with regulation V/27 of the 1974 SOLAS Convention as amended.
- 4.3** It should not be possible to alter the contents of the ENC or SENC information transformed from the ENC.
- 4.4** Updates should be stored separately from the ENC.
- 4.5** ECDIS should be capable of accepting official updates to the ENC data provided in conformity with IHO standards. These updates should be automatically applied to the SENC. By whatever means updates are received, the implementation procedure should not interfere with the display in use.
- 4.6** ECDIS should also be capable of accepting updates to the ENC data entered manually with simple means for verification prior to the final acceptance of the data. They should be distinguishable on the display from ENC information and its official updates and not affect display legibility.
- 4.7** ECDIS should keep and display on demand a record of updates including time of application to the SENC. This record should include updates for each ENC until it is superseded by a new edition.
- 4.8** ECDIS should allow the mariner to display updates in order to review their contents and to ascertain that they have been included in the SENC.
- 4.9** ECDIS should be capable of accepting both non-encrypted ENCs and ENCs encrypted in accordance with the IHO Data Protection Scheme<sup>3</sup>.

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<sup>2</sup> IHO Special Publication S-52 and S-57 (see appendix 1)

<sup>3</sup> IHO Special Publication S-63 (see appendix 1)

## **MODULE B – OPERATIONAL AND FUNCTIONAL REQUIREMENTS**

### **5 DISPLAY OF SENC INFORMATION**

- 5.1** ECDIS should be capable of displaying all SENC information. An ECDIS should be capable of accepting and converting an ENC and its updates into a SENC. The ECDIS may also be capable of accepting a SENC resulting from conversion of ENC to SENC ashore, in accordance with IHO TR 3.11<sup>4</sup>. This method of ENC supply is known as SENC delivery.
- 5.2** SENC information available for display during route planning and route monitoring should be subdivided into the following three categories, Display Base, Standard Display and All Other Information (see appendix 2).
- 5.3** ECDIS should present the Standard Display at any time by a single operator action.
- 5.4** When an ECDIS is switched on following a switch off or power failure, it should return to the most recent manually selected settings for display.
- 5.5** It should be easy to add or remove information from the ECDIS display. It should not be possible to remove information contained in the Display Base.
- 5.6** For any operator identified geographical position (e.g. by cursor picking) ECDIS should display on demand the information about the chart objects associated with such a position.
- 5.7** It should be possible to change the display scale by appropriate steps e.g. by means of either chart scale values or ranges in nautical miles.
- 5.8** It should be possible for the mariner to select a safety contour from the depth contours provided by the SENC. ECDIS should emphasize the safety contour over other contours on the display, however:
- .1 if the mariner does not specify a safety contour, this should default to 30m. If the safety contour specified by the mariner or the default 30 m contour is not in the displayed SENC, the safety contour shown should default to the next deeper contour;
  - .2 if the safety contour in use becomes unavailable due to a change in source data, the safety contour should default to the next deeper contour; and
  - .3 in each of the above cases, an indication should be provided.
- 5.9** It should be possible for the mariner to select a safety depth. ECDIS should emphasize soundings equal to or less than the safety depth whenever spot soundings are selected for display.
- 5.10** The ENC and all updates to it should be displayed without any degradation of their information content.

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<sup>4</sup> IHO Miscellaneous Publication M-3  
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**5.11** ECDIS should provide a means to ensure that the ENC and all updates to it have been correctly loaded into the SENC.

**5.12** The ENC data and updates to it should be clearly distinguishable from other displayed information, including those listed in appendix 3.

## **6 SCALE**

**6.1** ECDIS should provide an indication if:

- .1 the information is displayed at a larger scale than that contained in the ENC; or
- .2 own ship's position is covered by an ENC at a larger scale than that provided by the display.

## **7 DISPLAY OF OTHER NAVIGATIONAL INFORMATION**

**7.1** Radar information and/or AIS information may be transferred from systems compliant with the relevant standards of the Organization. Other navigational information may be added to the ECDIS display. However, it should not degrade the displayed SENC information and it should be clearly distinguishable from the SENC information.

**7.2** It should be possible to remove the radar information, AIS information and other navigational information by single operator action.

**7.3** ECDIS and added navigational information should use a common reference system. If this is not the case, an indication should be provided.

**7.4** Radar

**7.4.1** Transferred radar information may contain a radar image and/or tracked target information.

**7.4.2** If the radar image is added to the ECDIS display, the chart and the radar image should match in scale, projection and in orientation.

**7.4.3** The radar image and the position from the position sensor should both be adjusted automatically for antenna offset from the conning position.

## **8 DISPLAY MODE AND GENERATION OF THE NEIGHBOURING AREA**

**8.1** It should always be possible to display the SENC information in a "north-up" orientation. Other orientations are permitted. When such orientations are displayed, the orientation should be altered in steps large enough to avoid unstable display of the chart information.

**8.2** ECDIS should provide for true motion mode. Other modes are permitted.

**8.3** When true motion mode is in use, reset and generation of the chart display of the neighbouring area should take place automatically at own ship's distance from the edge of the display as determined by the mariner.

- 8.4** It should be possible to manually change the displayed chart area and the position of own ship relative to the edge of the display.
- 8.5** If the area covered by the ECDIS display includes waters for which no ENC at a scale appropriate for navigation is available, the areas representing those waters should carry an indication (see appendix 5) to the mariner to refer to the paper chart or to the RCDS mode of operation (see appendix 7).

## **9 COLOURS AND SYMBOLS**

- 9.1** IHO recommended colours and symbols should be used to represent SENC information<sup>5</sup>.
- 9.2** The colours and symbols other than those mentioned in 9.1 should comply with the applicable requirements contained in the IMO standards for navigational symbols<sup>6</sup>.
- 9.3** SENC information displayed at the scale specified in the ENC should use the specified size of symbols, figures and letters<sup>5</sup>.
- 9.4** ECDIS should allow the mariner to select whether own ship is displayed in true scale or as a symbol.

## **10 DISPLAY REQUIREMENTS**

- 10.1** ECDIS should be capable of displaying information for:
- .1 route planning and supplementary navigation tasks; and
  - .2 route monitoring.
- 10.2** The effective size of the chart presentation for route monitoring should be at least 270 mm x 270 mm.
- 10.3** The display should be capable of meeting colour and resolution recommendations of IHO<sup>5</sup>.
- 10.4** The method of presentation should ensure that the displayed information is clearly visible to more than one observer in the conditions of light normally experienced on the bridge of the ship by day and by night.
- 10.5** If information categories included in the Standard Display (See appendix 2) are removed to customize the display, this should be permanently indicated. Identification of categories which are removed from the Standard Display should be shown on demand.

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<sup>5</sup> Special Publication S-52, Appendix 2 (see appendix 1)

<sup>6</sup> Resolution MSC.191(79)

## **11 ROUTE PLANNING, MONITORING AND VOYAGE RECORDING**

**11.1** It should be possible to carry out route planning and route monitoring in a simple and reliable manner.

**11.2** The largest scale data available in the SENC for the area given should always be used by the ECDIS for all alarms or indications of crossing the ship's safety contour and of entering a prohibited area, and for alarms and indications according to appendix 5.

### **11.3 Route Planning**

**11.3.1** It should be possible to carry out route planning including both straight and curved segments.

**11.3.2** It should be possible to adjust a planned route alphanumerically and graphically including:

- .1** adding waypoints to a route;
- .2** deleting waypoints from a route; and
- .3** changing the position of a waypoint.

**11.3.3** It should be possible to plan one or more alternative routes in addition to the selected route. The selected route should be clearly distinguishable from the other routes.

**11.3.4** An indication is required if the mariner plans a route across an own ship's safety contour.

**11.3.5** An indication should be given if the mariner plans a route closer than a user-specified distance from the boundary of a prohibited area or a geographic area for which special conditions exist (see appendix 4). An indication should also be given if the mariner plans a route closer than a user-specified distance from a point object, such as a fixed or floating aid to navigation or isolated danger.

**11.3.6** It should be possible for the mariner to specify a cross track limit of deviation from the planned route at which an automatic off-track alarm should be activated.

### **11.4 Route monitoring**

**11.4.1** For route monitoring the selected route and own ship's position should appear whenever the display covers that area.

**11.4.2** It should be possible to display a sea area that does not have the ship on the display (e.g. for look ahead, route planning), while route monitoring. If this is done on the display used for route monitoring, the automatic route monitoring functions (e.g. updating ship's position, and providing alarms and indications) should be continuous. It should be possible to return to the route monitoring display covering own ship's position immediately by single operator action.

- 11.4.3** ECDIS should give an alarm if, within a specified time set by the mariner, own ship will cross the safety contour.
- 11.4.4** ECDIS should give an alarm or indication, as selected by the mariner, if, within a specified time set by the mariner, own ship will cross the boundary of a prohibited area or of a geographical area for which special conditions exist (see appendix 4).
- 11.4.5** An alarm should be given when the specified cross track limit for deviation from the planned route is exceeded.
- 11.4.6** An indication should be given to the mariner if, continuing on its present course and speed, over a specified time or distance set by the mariner, own ship will pass closer than a user-specified distance from a danger (e.g. obstruction, wreck, rock) that is shallower than the mariner's safety contour or an aid to navigation.
- 11.4.7** The ship's position should be derived from a continuous positioning system of an accuracy consistent with the requirements of safe navigation. Whenever possible, a second independent positioning source, preferably of a different type, should be provided. In such cases ECDIS should be capable of identifying discrepancies between the two sources.
- 11.4.8** ECDIS should provide an alarm when the input from position, heading or speed sources is lost. ECDIS should also repeat, but only as an indication, any alarm or indication passed to it from position, heading or speed sources.
- 11.4.9** An alarm should be given by ECDIS when the ship reaches a specified time or distance, set by the mariner, in advance of a critical point on the planned route.
- 11.4.10** The positioning system and the SENC should be on the same geodetic datum. ECDIS should give an alarm if this is not the case.
- 11.4.11** It should be possible to display alternative routes in addition to the selected route. The selected route should be clearly distinguishable from the other routes. During the voyage, it should be possible for the mariner to modify the selected sailing route or change to an alternative route.
- 11.4.12** It should be possible to display:
- .1 time-labels along a ship's track manually on demand and automatically at intervals selected between 1 and 120 minutes; and
  - .2 an adequate number of: points, free movable electronic bearing lines, variable and fixed range markers and other symbols required for navigation purposes and specified in appendix 3.
- 11.4.13** It should be possible to enter the geographical co-ordinates of any position and then display that position on demand. Also, it should be possible to select any point (features, symbol or position) on the display and read its geographical co-ordinates on demand.

**11.4.14** It should be possible to adjust the displayed geographic position of the ship manually. This manual adjustment should be noted alpha-numerically on the screen, maintained until altered by the mariner and automatically recorded.

**11.4.15.1** ECDIS should provide the capability to enter and plot manually obtained bearing and distance lines of position (LOP), and calculate the resulting position of own ship. It should be possible to use the resulting position as an origin for dead-reckoning.

**11.4.15.2** ECDIS should indicate discrepancies between the positions obtained by continuous positioning systems and positions obtained by manual observations.

## **11.5 Voyage recording**

**11.5.1** ECDIS should store and be able to reproduce certain minimum elements required to reconstruct the navigation and verify the official database used during the previous 12 hours. The following data should be recorded at one minute intervals:

- .1 to ensure a record of own ship's past track: time, position, heading, and speed; and
- .2 to ensure a record of official data used: ENC source, edition, date, cell and update history.

**11.5.2** In addition, ECDIS should record the complete track for the entire voyage, with time marks at intervals not exceeding 4 hours.

**11.5.3** It should not be possible to manipulate or change the recorded information.

**11.5.4** ECDIS should have a capability to preserve the record of the previous 12 hours and of the voyage track.

## **12 CALCULATIONS AND ACCURACY**

**12.1** The accuracy of all calculations performed by ECDIS should be independent of the characteristics of the output device and should be consistent with the SENC accuracy.

**12.2** Bearings and distances drawn on the display or those measured between features already drawn on the display should have accuracy no less than that afforded by the resolution of the display.

**12.3** The system should be capable of performing and presenting the results of at least the following calculations:

- .1 true distance and azimuth between two geographical positions;
- .2 geographic position from known position and distance/azimuth; and
- .3 geodetic calculations such as spheroidal distance, rhumb line, and great circle.

### **13 PERFORMANCE TESTS, MALFUNCTIONS ALARMS AND INDICATIONS**

- 13.1** ECDIS should be provided with means for either automatically or manually carrying out on-board tests of major functions. In case of a failure, the test should display information to indicate which module is at fault.
- 13.2** ECDIS should provide a suitable alarm or indication of system malfunction.

### **14 BACK-UP ARRANGEMENTS**

Adequate back-up arrangements should be provided to ensure safe navigation in case of an ECDIS failure; see appendix 6.

- .1** Facilities enabling a safe take-over of the ECDIS functions should be provided in order to ensure that an ECDIS failure does not develop into a critical situation.
- .2** A back-up arrangement should provide means of safe navigation for the remaining part of a voyage in the case of an ECDIS failure.

## **MODULE C – INTERFACING AND INTEGRATION**

### **15 CONNECTIONS WITH OTHER EQUIPMENT <sup>7</sup>**

- 15.1** ECDIS should not degrade the performance of any equipment providing sensor inputs. Nor should the connection of optional equipment degrade the performance of ECDIS below this standard.
- 15.2** ECDIS should be connected to the ship's position fixing system, to the gyro compass and to the speed and distance measuring device. For ships not fitted with a gyro compass, ECDIS should be connected to a marine transmitting heading device.
- 15.3** ECDIS may provide a means to supply SENC information to external equipment.

### **16 POWER SUPPLY**

- 16.1** It should be possible to operate ECDIS and all equipment necessary for its normal functioning 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.
- 16.2** Changing from one source of power supply to another or any interruption of the supply for a period of up to 45 seconds should not require the equipment to be manually re-initialized.

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7 IEC Publication 61162

## Appendix 1

### REFERENCE DOCUMENTS

The following international organizations have developed technical standards and specifications, as listed below, for use in conjunction with this standard. The latest edition of these documents should be obtained from the organization concerned:

#### INTERNATIONAL MARITIME ORGANIZATION (IMO)

Address: International Maritime Organization	Phone: +44 207 735 76 11
4 Albert Embankment	Fax: +44 207 587 32 10
London SE1 7SR	E-mail: info@imo.org
United Kingdom	Web: <a href="http://www.imo.org">http://www.imo.org</a>

#### Publications

IMO resolution MSC.191(79) on Performance Standards for the presentation of navigation related information on shipborne navigational displays

IMO resolution A.694(17) on Recommendations on general requirements for shipborne radio equipment forming part of the Global Maritime Distress and Safety System (GMDSS) and for electronic navigational aids.

SN.Circ/207 (1999) on Differences between RCDS and ECDIS

IMO SN/Circ.243 (2004) on Guidelines for the Presentation of Navigation-related Symbols, Terms and Abbreviations

IMO MSC/Circ.982 (2000) on Guidelines on ergonomic criteria for bridge equipment and layout

#### INTERNATIONAL HYDROGRAPHIC ORGANIZATION (IHO)

Address: Directing Committee	Phone: +377 93 10 81 00
International Hydrographic Bureau	Fax: +377 93 10 81 40
BP 445	E-mail: info@ihb.mc
MC 98011 Monaco Cedex	Web: <a href="http://www.iho.shom.fr">http://www.iho.shom.fr</a>
Principality of Monaco	

## **Publications**

*Special Publication No. S-52, Specifications for Chart Content and Display Aspects of ECDIS.*

Special Publication No. S-52 appendix 1, Guidance on Updating the Electronic Navigational Chart.

Special Publication No. S-52 appendix 2, Colour and Symbol Specifications for ECDIS.

Special Publication No. S-32, Hydrographic Dictionary

Special Publication No. S-57, IHO Transfer Standard for Digital Hydrographic Data.

Special Publication No. S-61, IHO Product specification for Raster Navigational Charts (RNC)

Special Publication No. S-63, IHO Data Protection Scheme

Miscellaneous Publication No. M-3, *Resolutions of the IHO*

## **INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)**

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PO Box 131  
CH-1211 Geneva 20  
Switzerland

Phone: +41 22 734 01 50  
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## **Publications**

IEC Publication 61174, Electronic Chart Display and Information Systems (ECDIS) - Operational and Performance Requirements, Method of Testing and Required Test Results.

IEC Publication 60945, General Requirements for Shipborne Radio Equipment Forming Part of the Global Maritime Distress and Safety System and Marine Navigational Equipment.

IEC Publication 61162, *Digital Interfaces - Navigation and Radiocommunication Equipment On board Ship.*

[IEC Publication 62288, Maritime Navigation and Radiocommunication Equipment and Systems – Presentation of navigation related information – General requirements, methods of test and required test results.]

## Appendix 2

### SENC INFORMATION AVAILABLE FOR DISPLAY DURING ROUTE PLANNING AND ROUTE MONITORING

- 1 Display base to be permanently shown on the ECDIS display, consisting of:
  - .1 coastline (high water);
  - .2 own ship's safety contour;
  - .3 isolated underwater dangers of depths less than the safety contour which lie within the safe waters defined by the safety contour;
  - .4 isolated dangers which lie within the safe water defined by the safety contour, such as fixed structures, overhead wires, etc.,
  - .7 scale, range and north arrow;
  - .8 units of depth and height; and
  - .9 display mode.
  
- 2 Standard display consisting of:
  - .1 display base
  - .2 drying line
  - .3 buoys, beacons, other aids to navigation and fixed structures
  - .4 boundaries of fairways, channels, etc.
  - .5 visual and radar conspicuous features
  - .6 prohibited and restricted areas
  - .7 chart scale boundaries
  - .8 indication of cautionary notes
  - .9 ships' routing [systems] and ferry routes
  - .10 archipelagic sea lanes.
  
- 3 All other information, to be displayed individually on demand, for example:
  - .1 spot soundings
  - .2 submarine cables and pipelines
  - .3 details of all isolated dangers
  - .4 details of aids to navigation
  - .5 contents of cautionary notes
  - .6 ENC edition date
  - .7 most recent chart update number
  - .8 magnetic variation
  - .9 graticule
  - .10 place names.

### Appendix 3

#### NAVIGATIONAL ELEMENTS AND PARAMETERS

- 1 Own ship.
  - .1 Past track with time marks for primary track.
  - .2 Past track with time marks for secondary track.
- 2 Vector for course and speed made good.
- 3 Variable range marker and/or electronic bearing line.
- 4 Cursor.
- 5 Event.
  - .1 Dead reckoning position and time (DR).
  - .2 Estimated position and time (EP).
- 6 Fix and time.
- 7 Position line and time.
- 8 Transferred position line and time.
  - .1 Predicted tidal stream or current vector with effective time and strength.
  - .2 Measured tidal stream or current vector with effective time and strength.
- 9 Danger highlight.
- 10 Clearing line.
- 11 Planned course and speed to make good.
- 12 Waypoint.
- 13 Distance to run.
- 14 Planned position with date and time.
- 15 Visual limits of lights arc to show rising/dipping range.
- 16 Position and time of “wheel over”.

## **Appendix 4**

### **AREAS FOR WHICH SPECIAL CONDITIONS EXIST**

The following are the areas which ECDIS should detect and provide an alarm or indication under sections 11.3.5 and 11.4.4:

- [Traffic separation zone]
- [Inshore traffic zone]
- Restricted area
- Caution area
- Offshore production area
- [Areas to be avoided]
- User defined areas to be avoided
- Military practise area
- Seaplane landing area
- Submarine transit lane
- Anchorage area
- Marine farm / aquaculture
- PSSA (Particularly Sensitive Sea Area)

## Appendix 5

### ALARMS AND INDICATORS

Section	Requirements	Information
11.4.3	Alarm	Crossing safety contour
11.4.4	Alarm or Indication	Area with special conditions
11.4.5	Alarm	Deviation from route
11.4.8	Alarm	Positioning system failure
11.4.9	Alarm	Approach to critical point
11.4.10	Alarm	Different geodetic datum
13.2	Alarm or Indication	Malfunction of ECDIS
5.8.3	Indication	Default safety contour
6.1.1	Indication	Information overscale
6.1.2	Indication	Larger scale ENC available
7.3	Indication	Different reference system
8.5	Indication	No ENC available
10.5	Indication	Customized display
11.3.4	Indication	Route planning across safety contour
11.3.5	Indication	Route planning across specified area
11.4.6	Indication	Crossing a danger in route monitoring mode
13.1	Indication	System test failure

In this Performance Standard the definitions of Indicators and Alarms provided in the IMO resolution A.830(19) "Code on Alarms and Indicators, 1995" apply.

**Alarm:** An alarm or alarm system which announces by audible means, or audible and visual means, a condition requiring attention.

**Indicator:** Visual indication giving information about the condition of a system or equipment.

## **Appendix 6**

### **BACK-UP REQUIREMENTS**

#### **1 INTRODUCTION**

As prescribed in section 14 of this performance standard, adequate independent back-up arrangements should be provided to ensure safe navigation in case of ECDIS failure. Such arrangements include:

- .1 facilities enabling a safe take-over of the ECDIS functions in order to ensure that an ECDIS failure does not result in a critical situation;
- .2 a means to provide for safe navigation for the remaining part of the voyage in case of ECDIS failure.

#### **2 PURPOSE**

The purpose of an ECDIS back-up system is to ensure that safe navigation is not compromised in the event of ECDIS failure. This should include a timely transfer to the back-up system during critical navigation situations. The back-up system shall allow the vessel to be navigated safely until the termination of the voyage.

#### **3 FUNCTIONAL REQUIREMENTS**

##### **3.1 Required functions and their availability**

###### **3.1.1 Presentation of chart information**

The back-up system should display in graphical (chart) form the relevant information of the hydrographic and geographic environment which are necessary for safe navigation.

###### **3.1.2 Route planning**

The back-up system should be capable of performing the route planning functions, including:

- .1 taking over of the route plan originally performed on the ECDIS;
- .2 adjusting a planned route manually or by transfer from a route planning device.

###### **3.1.3 Route monitoring**

The back-up system should enable a take-over of the route monitoring originally performed by the ECDIS, and provide at least the following functions:

- .1 plotting own ship's position automatically, or manually on a chart;
- .2 taking courses, distances and bearings from the chart;
- .3 displaying the planned route;

- .4 displaying time labels along ship's track;
- .5 plotting an adequate number of points, bearing lines, range markers, etc., on the chart.

### **3.1.4 Display information**

If the back-up is an electronic device, it should be capable of displaying at least the information equivalent to the standard display as defined in this performance standard.

### **3.1.5 Provision of chart information**

- .1 The chart information to be used in the backup arrangement should be the latest edition, as corrected by official updates, of that issued by or on the authority of a Government, authorized Hydrographic Office or other relevant government institution, and conform to IHO standards.
- .2 It should not be possible to alter the contents of the electronic chart information.
- .3 The chart or chart data edition and issuing date should be indicated.

### **3.1.6 Updating**

The information displayed by the ECDIS back-up arrangements should be up-to-date for the entire voyage.

### **3.1.7 Scale**

If an electronic device is used, it should provide an indication:

- .1 if the information is displayed at a larger scale than that contained in the database;  
and
- .2 if own ship's position is covered by a chart at a larger scale than that provided by the system.

**3.1.8** If radar and other navigational information are added to an electronic back-up display, all the corresponding requirements for radar information and other navigation information of this performance standard should be met.

**3.1.9** If an electronic device is used, the display mode and generation of the neighbouring area should be in accordance with section 8 of this performance standard.

### **3.1.10 Voyage recording**

The back-up arrangements should be able to keep a record of the ship's actual track, including positions and corresponding times.

### **3.2 Reliability and accuracy**

#### **3.2.1 Reliability**

The back-up arrangements should provide reliable operation under prevailing environmental and normal operating conditions.

#### **3.2.2 Accuracy**

Accuracy should be in accordance with section 12 of this performance standard.

### **3.3 Malfunctions, warnings, alarms and indications**

If an electronic device is used, it should provide a suitable alarm or indication of system malfunction.

## **4 OPERATIONAL REQUIREMENTS**

### **4.1 Ergonomics**

If an electronic device is used, it should be designed in accordance with the ergonomic principles of ECDIS.

### **4.2 Presentation of information**

If an electronic device is used:

- .1 Colours and symbols should be in accordance with the colours and symbols requirements of ECDIS.
- .2 The effective size of the chart presentation should be not less than 250 mm x 250 mm or 250 mm diameter.

## **5 POWER SUPPLY**

If an electronic device is used:

- .1 the back-up power supply should be separate from the ECDIS; and
- .2 conform to the requirements in this ECDIS performance standard.

## **6 CONNECTIONS WITH OTHER EQUIPMENT**

**6.1** If an electronic device is used, it should:

- .1 be connected to systems providing continuous position-fixing capability; and
- .2 not degrade the performance of any equipment providing sensor input.

**6.2** If radar with selected parts of the ENC chart information overlay is used as an element of the back-up, the radar should comply with resolution MSC.192(79).

## Appendix 7

### RCDS MODE OF OPERATION

Whenever in this appendix reference is made to any provisions of the annex related to ECDIS, the term ECDIS should be substituted by the term RCDS, SENC by SRNC and ENC by RNC, as appropriate.

This appendix refers to each paragraph of the performance standards for ECDIS (i.e. the Annex to which this part is appendix 7) and specifies which paragraphs of the Annex either:

- .1 apply to RCDS; or
- .2 do not apply to RCDS; or
- .3 are modified or replaced as shown in order to apply to RCDS.

Any additional requirements applicable to RCDS are also described.

#### **1 SCOPE**

**1.1** Paragraph applies to RCDS.

**1.2** When operating in RCDS-mode, an appropriate portfolio of up-to-date paper charts (APC) should be carried on board and be readily available to the mariner.

**1.3 - 1.7** Paragraphs apply to RCDS.

**1.8** RCDS should provide appropriate alarms or indications with respect to the information displayed or malfunction of the equipment (see Table 1 of this appendix).

**1.9** Refers to Appendix 7 and applies to RCDS.

#### **2 APPLICATION OF THESE STANDARDS**

**2.1 – 2.4** Paragraphs apply to RCDS.

#### **3 DEFINITIONS**

**3.1** *Raster Chart Display System (RCDS)* means a navigation information system displaying RNCs with positional information from navigation sensors to assist the mariner in route planning and route monitoring, and if required, display additional navigation-related information.

**3.2** *Raster Navigational Chart (RNC)* means a facsimile of a paper chart originated by, or distributed on the authority of, a government-authorized hydrographic office. RNC is used in these standards to mean either a single chart or a collection of charts.

- 3.3** *System Raster Navigational Chart Database (SRNC)* means a database resulting from the transformation of the RNC by the RCDS to include updates to the RNC by appropriate means.
- 3.4-3.5** Paragraphs do not apply to RCDS.
- 3.6** Paragraph applies to RCDS.
- 3.7** Appropriate Portfolio of up to date paper Charts (APC) means a suite of paper charts of a scale to show sufficient detail of topography, depths, navigational hazards, aids to navigation, charted routes, and routing measures to provide the mariner with information on the overall navigational environment. The APC should provide adequate look-ahead capability. Coastal States will provide details of the charts which meet the requirement of this portfolio, and these details are included in a world-wide database maintained by the IHO. Consideration should be given to the details contained in this database when determining the content of the APC.

## **MODULE A - DATABASE**

### **4 PROVISION AND UPDATING OF CHART INFORMATION**

- 4.1** The RNC used in RCDS should be the latest edition of that originated by, or distributed on the authority of, a government authorized hydrographic office and conform to IHO standards. RNCs not on WGS-84 or PE-90 should carry meta-data (i.e., additional data) to allow geo-referenced positional data to be displayed in the correct relationship to SRNC data.
- 4.2** The contents of the SRNC should be adequate and up-to-date for that part of the intended voyage not covered by ENC.
- 4.3** It should not be possible to alter the contents of the RNC.
- 4.4 – 4.8** All paragraphs apply to RCDS.
- 4.9** Paragraph does not apply to RCDS

## **MODULE B – OPERATIONAL AND FUNCTIONAL REQUIREMENTS**

### **5 DISPLAY OF SRNC INFORMATION**

- 5.1** RCDS should be capable of displaying all SRNC information.
- 5.2** SRNC information available for display during route planning and route monitoring should be subdivided into two categories:
- .1 the RCDS standard display consisting of RNC and its updates, including its scale, the scale at which it is displayed, its horizontal datum, and its units of depths and heights; and
  - .2 any other information such as mariner's notes.

- 5.3- 5.4** Paragraphs apply to RCDS.
- 5.5** It should be easy to add to, or remove from; the RCDS display any information additional to the RNC data, such as mariner's notes. It should not be possible to remove any information from the RNC.
- 5.6 – 5.9** Paragraphs do not apply to RCDS.
- 5.10 – 5.12** Paragraphs apply to RCDS.
- 5.13** There should always be an indication if the ECDIS equipment is operating in RCDS mode.
- 6** **SCALE**
- This section applies to RCDS.
- 7** **DISPLAY OF OTHER NAVIGATIONAL INFORMATION**
- 7.1 - 7.4** All paragraphs apply to RCDS.
- 8** **DISPLAY MODE AND GENERATION OF THE NEIGHBOURING AREA**
- 8.1** It should always be possible to display the SRNC in "chart-up" orientation. Other orientations are permitted.
- 8.2 - 8.4** All paragraphs apply to RCDS.
- 8.5** Paragraph refers to RCDS mode of operation.
- 9** **COLOURS AND SYMBOLS**
- 9.1** IHO recommended colours and symbols should be used to represent SRNC information.
- 9.2** Paragraph applies to RCDS.
- 9.3** Paragraph does not apply to RCDS.
- 9.4** Paragraph applies to RCDS.
- 10** **DISPLAY REQUIREMENTS**
- 10.1-10.2** Paragraphs apply to RCDS.
- 10.3** Paragraph does not apply to RCDS.

- 10.4** Paragraph applies to RCDS.
- 10.5** Paragraph does not apply to RCDS.
- 10.6** RCDS should be capable of displaying, simply and quickly, chart notes which are not located on the portion of the chart currently being displayed.
- 11** **ROUTE PLANNING, MONITORING AND VOYAGE RECORDING**
- 11.1** Paragraphs apply to RCDS.
- 11.2** Paragraph does not apply to RCDS.
- 11.3** **Route Planning**
- 11.3.1-11.3.3** Paragraphs apply to RCDS.
- 11.3.4-11.3.5** Paragraphs do not apply to RCDS.
- 11.3.6** Paragraph applies to RCDS.
- 11.3.7** It should be possible for the mariner to enter points, lines and areas which activate an automatic alarm. The display of these features should not degrade the SRNC information and it should be clearly distinguishable from the SRNC information.
- 11.4** **Route monitoring**
- 11.4.1** Paragraph applies to RCDS.
- 11.4.2** It should be possible to display a sea area that does not have the ship on the display (e.g. for look ahead, route planning), while route monitoring. If this is done on the display used for route monitoring, the automatic route monitoring functions in 10.4.6 and 10.4.7 should be continuous. It should be possible to return to the route monitoring display covering own ship's position immediately by single operator action.
- 11.4.3-11.4.4** Paragraphs do not apply to RCDS.
- 11.4.5** Paragraph apply to RCDS.
- 11.4.6** Paragraphs do not apply to RCDS.
- 11.4.7-11.4.9** Paragraphs apply to RCDS.
- 11.4.10** The RCDS should only accept positional data referenced to the WGS-84 or PE-90 geodetic datum. RCDS should give an alarm if the positional data is not referenced to one of these datum. If the displayed RNC cannot be referenced to the WGS-84 or PE-90 datum then a continuous indication should be provided.

**11.4.11-11.4.15** Paragraphs apply to RCDS.

**11.4.16** RCDS should allow the user to manually align the SRNC with positional data. This can be necessary, for example, to compensate for local charting errors.

**11.4.17** It should be possible to activate an automatic alarm when the ship crosses a point, line, or is within the boundary of a mariner entered feature within a specified time or distance.

## **11.5 Voyage recording**

**11.5.1-11.5.4** All paragraphs apply to RCDS.

## **12 CALCULATIONS AND ACCURACY**

**12.1-12.3** All paragraphs apply to RCDS.

**12.4** RCDS should be capable of performing transformations between a local datum and WGS-84

## **13 PERFORMANCE TESTS, MALFUNCTION ALARMS AND INDICATIONS**

**13.1-13.2** All paragraphs apply to RCDS.

## **14 BACK-UP ARRANGEMENTS**

All paragraphs apply to RCDS.

## **MODULE C – INTERFACING AND INTEGRATION**

### **15 CONNECTIONS WITH OTHER EQUIPMENT**

**15.1-15.3** All paragraphs apply to RCDS.

### **16 POWER SUPPLY**

**16.1-16.2** All paragraphs apply to RCDS.

**Table 1**

**ALARMS AND INDICATORS IN THE RCDS MODE OF OPERATION**

<b>Paragraph</b>	<b>Requirement</b>	<b>Information</b>
11.4.5	Alarm	Deviation from route
11.4.17	Alarm	Approach to mariner entered feature, e.g. area, line
11.4.8	Alarm	Position system failure
11.4.9	Alarm	Approach to critical point
11.4.10	Alarm or indication	Different geodetic datum
13.2	Alarm or indication	Malfunction of RCDS mode
5.13	Indication	ECDIS operating in the raster mode
6.1	Indication	Larger scale information available, or overscale
6.1.2	Indication	Larger scale RNC available for the area of the vessel

**The definitions of alarms and indicators are given in appendix 5**

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## ANNEX 7

**LIAISON STATEMENT TO THE INTERNATIONAL TELECOMMUNICATION  
UNION RADIOCOMMUNICATION STUDY GROUP'S WORKING PARTY 8B****MAINTENANCE AND ADMINISTRATION OF AIS BINARY MESSAGES**

The IMO would like to thank the ITU-R for the liaison statement concerning maintenance and administration of binary messages (Source document: 8B/TEMP/154(Rev.1). IMO concurs with the principles in the liaison statement.

IMO recognizes that IMO is responsible for the operation of the International Function Messages (IFM) 10 to 63. IMO also recognises that IMO SN/Circ.236 defines the operational requirements and use of international binary messages.

Further IMO:

- requests Recommendation ITU-R M.1371-1, Annex 5 be amended to:
  - reflect Table 37 Function Identifiers (FI) 10 to 63 Description and Function Identifier Group (FIG) as “reserved for IMO use” and, “reserved”, respectively;
  - remove Sections 3.6 to 3.10; and,
  - replace “IALA” with “IMO” in Section 4 with respect to messages 10 to 63.
- agrees that the International Function Messages 0 to 9 will be implemented by reference to Recommendation ITU-R M.1371.
- agrees to maintain and provide guidance on the international application identifier (IAI) branch through the publication of Safety of Navigation Circulars (currently SN/Circ.236).

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**ANNEX 8****DRAFT RESOLUTION MSC.[...]  
(adopted on [.. ..... ..])****ADOPTION OF THE PERFORMANCE STANDARDS FOR SHIPBORNE  
GALILEO RECEIVER 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 that, in accordance with resolution A.815(19) by which the Assembly adopted the IMO policy for the recognition and acceptance of suitable radionavigation systems intended for international use to provide ships with navigational position-fixing throughout their voyages, the GALILEO satellite system may be recognized as a possible component of the world-wide radionavigation system,

NOTING that shipborne receiving equipment for the world-wide radionavigation system should be designed to satisfy the detailed requirements of the particular system concerned,

RECOGNIZING the need to develop performance standards for shipborne GALILEO receiver equipment in order to ensure the operational reliability of such equipment and taking into account the technological progress and experience gained,

HAVING CONSIDERED the recommendation made by the Sub-Committee on Safety of Navigation at its fifty-second session,

1. ADOPTS the Recommendation on Performance Standards for Shipborne GALILEO Receiver Equipment, set out in the annex to the present resolution.
2. RECOMMENDS Governments ensure that GALILEO Receiver 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

### DRAFT PERFORMANCE STANDARDS FOR SHIPBORNE GALILEO RECEIVER EQUIPMENT

#### 1 INTRODUCTION

- 1.1 Galileo is the European satellite navigation system. Galileo is designed as a wholly civil system, operated under public control. Galileo comprises 30 medium earth orbit (MEO) satellites in 3 circular orbits. Each orbit has an inclination of 56° and contains 9 operational satellites plus one operational spare. This geometry ensures that a minimum of 6 satellites are in view to users world-wide with a position dilution of precision (PDOP)  $\leq 3.5$ .
- 1.2 Galileo transmits 10 navigation signals and 1 search and rescue (SAR) signal. The SAR signal is broadcast in one of the frequency bands reserved for the emergency services (1544-1545 MHz) whereas the 10 navigation signals are provided in the radio-navigation satellite service (RNSS) allocated bands:
- 4 signals occupy the frequency range 1164-1215 MHz (E5a-E5b).
  - 3 signals occupy the frequency range 1260-1300 MHz (E6).
  - 3 signals occupy the frequency range 1559-1591 MHz (E2, L1, E1).

Each frequency carries two signals; the first is a tracking signal – the so-called pilot signal – that contains no data but increases the tracking robustness at the receiver whereas the other carries a navigation data message.

Galileo provides two different services of use for the maritime community.

- 1.3 The Galileo Open Service provides positioning, navigation and timing services, free of direct user charges. The Open Service can be used on one (L1), two (L1 and E5a or L1 and E5b) or three (L1, E5a and E5b) frequencies.
- 1.4 The Galileo Safety of Life Service can be used on one (L1 **or** E5b) or two (L1 and E5b) frequencies<sup>1</sup>. Each of the L1 and E5b frequencies carries a navigation data message that includes integrity information. The E5a frequency does not include integrity data.
- 1.5 Galileo receiver equipment intended for navigation purposes on ships of speeds not exceeding 70 knots, in addition to the general requirements specified in resolution A.694(17)<sup>2</sup>, should comply with the following minimum performance requirements.

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<sup>1</sup> The integrity parameters broadcast by the Galileo Safety of Life service will be unencrypted and therefore fully accessible. Service Guarantees and Authentication services can be made available, at a charge, through contractual means if desired.

<sup>2</sup> Refer to publication IEC 60945.

- 1.6 These standards cover the basic requirements of position fixing, determination of course over ground (COG), speed over ground (SOG) and timing, either for navigation purposes or as input to other functions. The standards do not cover the other computational facilities which may be in the equipment nor cover the requirements for any other systems that may take input from the Galileo receiver.

## 2 GALILEO RECEIVER EQUIPMENT

- 2.1 The words “*Galileo receiver equipment*” as used in these performance standards include all the components and units necessary for the system properly to perform its intended functions. The Galileo receiver equipment should include the following minimum facilities:

- .1 antenna capable of receiving Galileo signals;
- .2 Galileo receiver and processor;
- .3 means of accessing the computed latitude/longitude position;
- .4 data control and interface; and
- .5 position display and, if required, other forms of output.

Note: If Galileo forms part of an approved Integrated Navigation System, requirements of 2.1.3, 2.1.4, 2.1.5 may be provided within the INS

- 2.2 The antenna design should be suitable for fitting at a position on the ship which ensures a clear view of the satellite constellation, taking into consideration any obstructions that might exist on the ship.

## 3 PERFORMANCE STANDARDS FOR GALILEO RECEIVER EQUIPMENT

The Galileo receiver equipment should:

- .1 be capable of receiving and processing the Galileo positioning and velocity, and timing signals on:
  - i) for a single frequency receiver, the L1 frequency alone. The receiver should use the ionospheric model broadcast to the receiver by the constellation to generate ionospheric corrections;
  - ii) for a dual frequency receiver, **either** the L1 and E5b frequencies **or** the L1 and E5a frequencies. The receiver should use dual frequency processing to generate ionospheric corrections;
- .2 provide position information in latitude and longitude in degrees, minutes and thousandths of minutes<sup>3</sup>;

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<sup>3</sup> Galileo uses Galileo Terrestrial Frame System (GTRF) datum which is a realization of the International Terrestrial Frame Reference (ITRF) system and differs from WGS 84 by less than 5 cm worldwide.

- .3 provide time referenced to universal time coordinated UTC (BIPM)\*;
- .4 be provided with at least two outputs from which position information, UTC, course over ground (COG), speed over ground (SOG) and alarms can be supplied to other equipment. The output of position information should be based on the WGS84 datum and should be in accordance with international standards<sup>4</sup>. The output of UTC, course over ground (COG), speed over ground (SOG) and alarms should be consistent with the requirements of 3.16 and 3.18;
- .5 have static accuracy such that the position of the antenna is determined to within:
  - i) 15 m horizontal (95%) and 35 m vertical (95%) for single frequency operations on the L1 frequency;
  - ii) 10 m horizontal (95%) and 10 m vertical (95%) for dual frequency operations on L1 and E5a or L1 and E5b frequencies<sup>5</sup>;
- .6 have dynamic accuracy equivalent to the static accuracy specified in .5 above under the sea states and motion experienced in ships<sup>6</sup>;
- .7 have position resolution equal or better than 0.001 minutes of latitude and longitude;
- .8 have timing accuracy such that time is determined within 50ns of UTC;
- .9 be capable of selecting automatically the appropriate satellite-transmitted signals to determine the ship's position and velocity, and time with the required accuracy and update rate;
- .10 be capable of acquiring satellite signals with input signals having carrier levels in the range of -128dBm to -118dBm. Once the satellite signals have been acquired, the equipment should continue to operate satisfactorily with satellite signals having carrier levels down to -131dBm;
- .11 be capable of operating satisfactorily under normal interference conditions consistent with the requirements of resolution A.694(17);

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\* Bureau International des poids et mesures.

<sup>4</sup> IEC Publication 61162.

<sup>5</sup> The minimum accuracy requirements specified for dual frequency processing are based on the performance requirements established by the Organization in resolution A.915(22) and resolution A.953(23) for navigation in harbour entrances, harbour approaches and coastal waters.  
The Galileo satellite navigation system will be able to provide better accuracy (4 m horizontal 95% and 8 m vertical 95%).

<sup>6</sup> Refer to resolution A.694(17), Publications IEC 6721-3-6 and IEC 60945.

- .12 be capable of acquiring position, velocity and time to the required accuracy within 5 min when there is no valid almanac data (cold start);
- .13 be capable of acquiring position, velocity and time to the required accuracy within 1 min when there is valid almanac data (warm start);
- .14 be capable of re-acquiring position, velocity and time to the required accuracy within 1 minute when there has been a service interruption of 60 s or less;
- .15 generate and output to a display and digital interface<sup>7</sup> a new position solution at least once every 1 s for conventional craft and at least once every 0.5 s for high-speed craft;
- .16 provide the COG, SOG and UTC outputs, with a validity mark aligned with that on the position output. The accuracy requirements for COG and SOG should not be inferior to the relevant performance standards for heading<sup>8</sup> and speed and distance measuring equipment (SDME)<sup>9</sup> and the accuracy should be obtained under the various dynamic conditions that could be experienced onboard ships;
- .17 provide at least one normally closed contact, which should indicate failure of the Galileo receiver equipment;
- .18 have a bidirectional interface to facilitate communication so that alarms can be transferred to external systems and so that audible alarms from the Galileo receiver can be acknowledged from external systems; the interface should comply with the relevant international standards;<sup>10</sup> and
- .19 have the facilities to process differential Galileo (dGalileo) data fed to it in accordance with the standards of ITU-R<sup>11</sup> and the appropriate RTCM<sup>12</sup> standard and provide indication of the reception of dGalileo signals and whether they are being applied to the ship's position.

#### **4 INTEGRITY CHECKING, FAILURE WARNINGS AND STATUS INDICATIONS**

- 4.1 The Galileo receiver equipment should also indicate whether the performance of Galileo is outside the bounds of requirements for general navigation in the ocean, coastal, port approach and restricted waters, and inland waterway phases of the voyage as specified in either resolution A.953(23) or Appendix 2 to resolution A.915(22) and any subsequent amendments as appropriate. The Galileo receiver equipment should as a minimum:

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<sup>7</sup> Conforming to the IEC 61162 series.

<sup>8</sup> Resolution A.424 (XI) for conventional craft and resolution A.821(19) for high-speed craft.

<sup>9</sup> Resolution A.824(19).

<sup>10</sup> IEC Publication 61162.

<sup>11</sup> ITU-R Recommendation M.823.

<sup>12</sup> RTCM 10402 or 10403.

- .1 provide a warning within 5 s of loss of position or if a new position based on the information provided by the Galileo constellation has not been calculated for more than 1 s for conventional craft and 0.5 s for high-speed craft. Under such conditions the last known position and the time of last valid fix, with the explicit indication of the state so that no ambiguity can exist, should be output until normal operation is resumed;
  - .2 use receiver autonomous integrity monitoring (RAIM) to provide integrity performance appropriate to the operation being undertaken;
  - .3 provide a self-test function.
- 4.2 For receivers having the capability to process the Galileo Safety of Life Service, integrity monitoring and alerting algorithms should be based on a suitable combination of the Galileo integrity message and receiver autonomous integrity monitoring (RAIM). The receiver should provide an alarm within 10 s Time to Alarm (TTA) of the start of an event if an alert limit of 25 m Horizontal Alert Limit (HAL) is exceeded for a period of at least 3 s. The probability of detection of the event should be better than 99.999% over a 3-h period (integrity risk  $\leq 10^{-5}/3$  h).

## **5 PROTECTION**

Precautions should be taken to ensure that no permanent damage can result from an accidental short circuit or grounding of the antenna or any of its input or output connections or any of the Galileo receiver equipment inputs or outputs for a duration of 5 min or less.

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**ANNEX 9****DRAFT MSC CIRCULAR****UNIFIED INTERPRETATIONS OF COLREGs 1972, AS AMENDED**

1 The Maritime Safety Committee, [at its eighty-second session (29 November to 8 December 2006)], 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 COLREGs 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 ships on or after [1 July 2007] and to bring the unified interpretations to the attention of all parties concerned.

ANNEX

**UNIFIED INTERPRETATIONS OF COLREGs 1972, AS AMENDED**

**Rule 23(a) – Power-driven vessels underway**

Navigation lights (masthead light(s), sidelights and sternlight) installed on board shall be duplicated or shall be fitted with duplicate lamps.

**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 10**

**DRAFT MSC CIRCULAR**

**UNIFIED INTERPRETATIONS OF SOLAS CHAPTER V**

1 The Maritime Safety Committee, [at its eighty-second session (29 November to 8 December 2006)], with a view to providing more specific guidance for vague expressions such as “other means”, which are open to different interpretations contained in IMO instruments, approved the unified interpretations of SOLAS chapter V 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 SOLAS chapter V to construction, installation, arrangements and equipment to be installed on board ships on or after [1 July 2007] and to bring the unified interpretations to the attention of all parties concerned.

ANNEX

**UNIFIED INTERPRETATIONS OF SOLAS CHAPTER V**

**Regulation V/19.2.5.1 – Shipborne navigational equipment and systems**

A gyrocompass can be fitted, as the “other means” mentioned in regulation V/19.2.2.1, to comply with that regulation. However, this gyrocompass:

- cannot be credited to fulfil regulation V/19.2.5.1; and
- shall be fed by both main and emergency power supply and, in addition, it shall be provided with a transitional source of power (e.g. a battery).

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## ANNEX 11

**DRAFT REVISED WORK PROGRAMME OF THE SUB-COMMITTEE AND  
PROVISIONAL AGENDA FOR THE FIFTY-THIRD SESSION**

**DRAFT REVISED WORK PROGRAMME OF THE SUB-COMMITTEE**

		<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 52/18, section 3
2	<b>Casualty analysis</b> (co-ordinated by FSI)	Continuous	MSC 70/23, paragraphs 9.17 and 20.4; NAV 52/18, section 13
3	<b>Consideration of IACS unified interpretations</b>	Continuous	MSC 78/26, paragraph 22.12; NAV 52/18, section 14
H.1	<b>Worldwide radionavigation system (WWRNS)</b>	2008	MSC 75/24, paragraph 22.37
.1	new developments in the field of GNSS, especially Galileo	2008	NAV 52/18, section 12
<del>2</del>	<del><b>performance standards for shipborne Galileo receiver equipment</b></del>	<del>2006</del>	<del>NAV 51/19, paragraphs 12.8, 12.9 and 16.3.3 NAV 52/18, paragraph 10.10</del>
<del>3</del> 2	review and amendment of IMO policy for GNSS (resolution A.915(22))	2008	NAV 52/18, section 12
<del>4</del> 3	recognition of radionavigation systems as components of the WWRNS (resolution A.953(23))	2008	NAV 52/18, section 12

**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 Items printed in bold letters have been selected for the provisional agenda for NAV 53.

**Sub-Committee on Safety of Navigation (NAV) (continued)**

		<b>Target completion date/number of sessions needed for completion</b>	<b>Reference</b>
H.2	<b>ITU matters, including Radiocommunication ITU-R Study Group 8 matters</b>	<del>2006</del> 2009	MSC 69/22, paragraphs 5.69 and 5.70; NAV 52/18, section 9
H.3	<b>Revision of the performance standards for INS and IBS</b>	<del>2006</del> 2007	MSC 78/26, paragraph 24.30; NAV 52/18, section 4
H.4	<b>Evaluation of the use of ECDIS and ENC development</b>	<del>2006</del> 2007	MSC 78/26, paragraph 24.33; NAV 52/18, section 6
H.5	<del><b>Amendments to the ECDIS performance standards</b></del>	2007	<del>MSC 80/24, paragraph 21.22; NAV 52/18 section 5</del>
H.6 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.7 6	<b>Amendments to COLREGs Annex I related to colour specification of lights</b>	2007	MSC 80/24, paragraph 21.24.1 ; NAV 52/18 section 8
H.8 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.9 8	<b>Carriage requirements for a bridge navigational watch alarm system</b>	2008	MSC 81/25, paragraph 23.27; NAV 52/18 paragraphs 17.44 to 45

Sub-Committee on Safety of Navigation (NAV) (continued)

		<b>Target completion date/number of sessions needed for completion</b>	<b>Reference</b>
H.10 9	<b>Guidelines on the control of ships in an emergency (in co-operation with COMSAR)</b>	2007	MSC 81/25, paragraph 23.22 and paragraphs 23.28 to 23.32; NAV 52/18 paragraphs 17.31 to 17.37
H.11 10	<b>Development of an e-navigation strategy (in co-operation with COMSAR)</b>	2008	MSC 81/25, paragraphs 23.34 to 23.37; NAV 52/18 Paragraphs 17.18 to 17.30
H.12	<del><b>Amendments to COLREGs Annex IV relating to distress signals (in co-operation with COMSAR)</b></del>	2007	<del>MSC 81/25, paragraphs 23.24 and 23.38; NAV 52/18, paragraphs 17.48 &amp; 17.49</del>
H.13 11	<b>Development of carriage requirements for ECDIS</b>	2008	MSC 81/25, paragraphs 23.39 to 23.40; NAV 52/18, paragraphs 17.50 to 17.57
H.14 12	<b>Guidelines for uniform operating limitations of high-speed craft (co-ordinated by DE)</b>	2008	MSC 81/25, paragraph 23.45
H.15 13	<b>Guidelines on the lay-out and ergonomic design of safety centres on passenger ships</b>	2008	MSC 81/25, paragraph 23.42

**DRAFT PROVISIONAL AGENDA FOR NAV 53\***

- 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 Revision of the performance standards for INS and IBS
  - 5 Evaluation of the use of ECDIS and ENC development
  - 6 Carriage requirements for a bridge navigational watch alarm system
  - 7 Development of guidelines for the installation of shipborne radar equipment
  - 8 Amendments to COLREGs Annex I related to colour specification of lights
  - 9 ITU matters, including Radiocommunication ITU-R Study Group 8 matters
  - 10 Guidelines for the control of ships in an emergency
  - 11 Development of performance standards for navigation lights, navigation light controllers and associated 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 lay-out and ergonomic design of safety centres on passenger ships
  - 17 Casualty analysis
  - 18 Consideration of IACS unified interpretations
  - 19 Work programme and agenda for NAV 54
  - 20 Election of Chairman and Vice-Chairman for 2008
  - 21 Any other business
  - 22 Report to the Maritime Safety Committee

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\* Agenda items do not necessarily indicate priority.

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**ANNEX 12**

**DRAFT SN CIRCULAR**

**Emergency Wreck Marking Buoy**

1 The Maritime Safety Committee, [at its eighty-second session (29 November to 8 December 2006)], at the request of IALA and with a view to improving the safety of navigation, approved the circulation of a recently adopted IALA **Recommendation O-133**, which introduces, on a trial basis, a new emergency wreck marking buoy that could be used in addition to the IALA Buoyage System.

2 Member Governments are invited to bring the information contained in the IALA recommendation annexed to the present circular to the attention of masters of their ships.

ANNEX

**IALA Recommendation on Emergency Wreck Marking Buoy**

**Recommendation O-133**

**THE COUNCIL,**

**NOTING** the function of IALA with respect to the safety of marine navigation, the efficiency of maritime transport and the protection of the environment;

**NOTING ALSO** the provisions contained within the IALA Maritime Buoyage System (MBS), and related IALA Recommendations and IALA Guidelines;

**RECOGNIZING** the significant hazard to shipping posed by new wrecks or obstructions;

**RECOGNIZING ALSO** that it is a matter for a National Authority to assess the danger to shipping, navigational requirement, the risk involved, and to decide on emergency wreck marking;

**RECOGNIZING FURTHER** that emergency marking of dangerous wrecks is intended to preserve the safety of life, safety of navigation and to protect the marine environment;

**HAVING CONSIDERED** the proposals by the IALA Aids to Navigation Management Committee and taking into account IALA Guideline No. 1046 Response Plan for the Marking of New Wrecks;

**ADOPTS** the “Emergency Wreck Marking Buoy”, set out in the Annex to this Recommendation, for use on a trial basis; and

**RECOMMENDS** that Responsible Authorities, in addition to the use of the MBS and in conjunction with other measures, consider the deployment of Emergency Wreck Marking Buoys, as described in the Annex to this Recommendation.

## Annex

### Emergency Wreck Marking Buoy

#### 1 INTRODUCTION

The wreck of the 'Tricolor' in the Dover Straits in 2002 has brought into sharp focus the effective responses required to adequately and quickly mark such new dangers and prevent collisions. Responsible Authorities need to assess their areas of responsibility and rapid response capability as part of their contingency planning.

The **IALA Guideline No.1046 - Response Plan for the Marking of New Wrecks (June 2005)** provides guidance to Authorities for an immediate, effective and well co-ordinated response in such a situation. The guidelines recommend procedures to be observed, as well as considerations to be taken into account with respect to all necessary measures when confronted with a new danger or an obstruction as a result of an incident within their area of responsibility.

Furthermore, there has been discussion with regards to the limitations of the present IALA Maritime Buoyage System when providing initial marking of new dangers. At present, new dangers are generally marked by cardinal or lateral buoys, although it is recognised that a number of Authorities also deploy isolated danger marks. Recent groundings and collisions have indicated a need for a revision of how new dangers are to be marked, especially in an emergency. As such, Guideline No. 1046 provides guidance and recommendations for emergency wreck marking.

#### 2 SCOPE & OBJECTIVES

Within the Guideline, reference is made to an 'emergency wreck marking buoy'. This Recommendation provides details of a new buoy configuration, in addition to that already found in the IALA Maritime Buoyage System, which Authorities may consider deploying when responding to a new danger or obstruction.

#### 3 CONSIDERATIONS

A new wreck can be very dangerous for shipping, not only when its exact position is unknown and is still unmarked, but even when the position is known and the wreck is properly marked. In the past, new wrecks have caused problems to other shipping resulting in damage, pollution and even loss of life. As detailed in the Guideline No.1046, Authorities should consider a range of responses including the deployment of guardships, the use of AIS, temporary VTS and deployment of buoys amongst other risk mitigation measures.

Whatever additional risk mitigation measures are initiated, a new danger must be physically marked. Weather conditions, sea state and unknown facts about the danger can all hamper timely marking. However, it is of great importance that the location of the danger is marked as soon as practicable and that this marking can be readily recognised by ships as a new hazard.

The volume of traffic, background lighting and proliferation of Aids to Navigation (A to N) in the area may make the deployment of cardinal or lateral marks difficult for mariners to quickly identify a new danger in the initial stages of an incident. In these instances, Authorities are invited to consider the deployment of an emergency wreck marking buoy that is specifically designed to mark new dangers.

## 4 EMERGENCY WRECK MARKING BUOY

The emergency wreck-marking buoy is designed to provide high visual and radio aid to navigation recognition. It should be placed as close to the wreck as possible, or in a pattern around the wreck, and within any other marks that may be subsequently deployed.

The emergency wreck marking buoy should be maintained in position until:

- the wreck is well known and has been promulgated in nautical publications;
- the wreck has been fully surveyed and exact details such as position and least depth above the wreck are known; and
- a permanent form of marking of the wreck has been carried out.

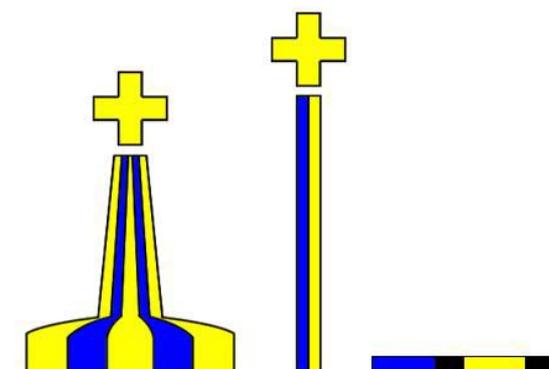
### 4.1 Characteristics

The buoy has the following characteristics:

- A pillar or spar buoy, with size dependant on location.
- Coloured in equal number and dimensions of blue and yellow vertical stripes (minimum of 4 stripes and maximum of 8 stripes).
- Fitted with an alternating blue\* and yellow flashing light with a nominal range of 4 nautical miles (authorities may wish to alter the range depending on local conditions) where the blue and yellow 1 second flashes are alternated with an interval of 0.5 seconds.

$$- \quad B1.0s + \underline{0.5s} + Y1.0s + \underline{0.5s} = 3.0s$$

- If multiple buoys are deployed then the lights should be synchronized.
- Consideration should be given to the use of a racon Morse Code "D" and/or AIS transponder.
- The top mark, if fitted, is to be a standing/upright yellow cross.



\* The light characteristic was chosen to eliminate confusion with blue lights to identify law enforcement, security and emergency services.

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**ANNEX 13****DRAFT ASSEMBLY RESOLUTION ON AMENDMENTS TO THE INTERNATIONAL REGULATIONS FOR PREVENTING COLLISIONS AT SEA, 1972**

THE ASSEMBLY,

RECALLING article VI of the Convention on the International Regulations for Preventing Collisions at Sea, 1972, on amendments to the Regulations,

HAVING CONSIDERED the amendments to the International Regulations for Preventing Collisions at Sea, 1972, adopted by the Maritime Safety Committee at its [eighty-second] session and communicated to all Contracting Parties in accordance with paragraph 2 of article VI of that Convention and also the recommendations of the Maritime Safety Committee concerning entry into force of these amendments,

1. ADOPTS, in accordance with paragraph 3 of article VI of the Convention, the amendments set out in the Annex to the present resolution;
2. DECIDES, in accordance with paragraph 4 of article VI of the Convention, that the amendments shall enter into force on [... November 2009] unless by [... May 2008] more than one third of the Contracting Parties have notified their objection to the amendments;
3. REQUESTS the Secretary-General, in conformity with paragraph 3 of article VI, to communicate this resolution to all Contracting Parties to the Convention for acceptance.
4. INVITES Contracting Parties to notify any objections to the amendments not later than [... May 2008], whereafter the amendments will be deemed to have been accepted to enter into force as determined in the present resolution.

ANNEX

**DRAFT AMENDMENTS TO COLREG, 1972**

Amend Annex IV to COLREG, 1972 to read as follows:

**Annex IV**

Distress signals

1 The following signals, used or exhibited either together or separately, indicate distress and need of assistance:

- (a) a gun or other explosive signals fired at intervals of about a minute;
- (b) a continuous sounding with any fog-signalling apparatus;
- (c) rockets or shells, throwing red stars fired one at a time at short intervals;
- (d) a signal made ~~by radiotelegraphy~~ or by any other signalling method consisting of the group . . . --- . . . (SOS) in the Morse Code;
- (e) a signal sent by radiotelephony consisting of the spoken word "MAYDAY";
- (f) the International Code Signal of distress indicated by N.C.;
- (g) a signal consisting of a square flag having above or below it a ball or anything resembling a ball;
- (h) flames on the vessel (as from a burning tar barrel, oil barrel, etc.);
- (i) a rocket parachute flare or a hand-flare showing a red light;
- (j) a smoke signal giving off orange-coloured smoke;
- (k) slowly and repeatedly raising and lowering arms outstretched to each side;
- (l) ~~the radiotelegraph alarm signal;~~ a distress alert by means of digital selective calling (DSC) transmitted on:
  - (a) VHF channel 70, or
  - (b) MF/HF on the frequencies 2187,5 kHz, 8414,5 kHz, 4207,5 kHz, 6312 kHz, 12577 kHz or 16804,5 kHz.
- (m) ~~the radiotelephone alarm signal;~~ a ship-to-shore distress alert transmitted by the ship's Recognized Mobile Satellite Service Provider (RMSSP) ship earth station;
- (n) signals transmitted by emergency position-indicating radio beacons;
- (o) approved signals transmitted by radiocommunications systems.

2 The use or exhibition of any of the foregoing signals except for the purpose of indicating distress and need of assistance and the use of other signals which may be confused with any of the above signals is prohibited.

3 Attention is drawn to the relevant sections of the International Code of Signals, the International Aeronautical and Maritime Merchant Ship Search and Rescue Manual, Volume III and the following signals:

- (a) a piece of orange-coloured canvas with either a black square and circle or other appropriate symbol (for identification from the air);
- (b) a dye marker.

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**ANNEX 14****STATEMENT BY THE DELEGATION OF JAPAN****IN CONNECTION WITH AGENDA ITEM ON  
“ANY OTHER BUSINESS”**

Thank you, Mr. Chairman.

1. You may recall that in 1991 the IMO Assembly adopted IMO Assembly Resolution A.706(17), which contains the IMO/IHO World-Wide Navigational Warning Service Guidance Document. By this resolution, the member governments are asked to notify the designated coordinators of incidents which might affect the safety of navigation, in order to transmit navigational warning and maritime safety information to the ships in the sea area concerned.

2. In connection with the resolution, this delegation would like to draw your attention to the fact that on 5 July, Japan time, the Democratic People's Republic of Korea conducted seven launches of missiles without issuing prior notices or warnings in accordance with the resolution A.706(17). It is reported that when the launches were conducted, a large number of Japanese fishing vessels were sailing in the sea area and surrounding sea areas where the missiles are estimated to have landed. It is also reported that Japanese cargo ships, too, were sailing in those areas at that time.

3. You may recall that in August 1998 the Democratic People's Republic of Korea launched a missile without giving prior navigational warnings. I would like to remind all the delegates that the later year, subsequent to that launch, the Maritime Safety Committee of IMO issued a circular, MSC/Circ.893, which appealed to all Member States to strictly comply with IMO resolution A.706(17).

4. The missile launches on 5 July were the second incident where such acts were conducted without regard to the resolution A.706(17) and MSC/Circ.893. By these launches, many ships and seafarers were exposed to a grave threat.

5. Japan firmly believes that these acts constitute a serious threat not only to neighbouring States but also to the established order of maritime safety, and are unacceptable to all IMO Member States who have interests in the safe use of the sea.

6. Japan would like to take this opportunity to urge all IMO Member States to reaffirm compliance with IMO Resolution A.706(17), which deals with the World-Wide Navigational Warning Service. Japan considers it appropriate for the issue to be considered in a serious way from the viewpoint of navigational safety at the next meeting of Maritime Safety Committee, which is scheduled in November 2006. To this end, Japan intends to submit a proposal on this issue for the next MSC.

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**ANNEX 15****STATEMENT BY THE DELEGATION OF THE  
UNITED STATES****IN CONNECTION WITH AGENDA ITEM ON  
“ANY OTHER BUSINESS”**

On July 15, the United Nations Security Council unanimously adopted a resolution that condemns the multiple launches by the Democratic People’s Republic of Korea of ballistic missiles on 5 July, 2006. The resolution expresses concern that the Democratic People’s Republic of Korea endangered shipping through its failure to provide adequate advance notice.

The United States fully supports the points made by Japan in respect to the danger to navigation and world shipping raised by Democratic People’s Republic of Korea’s launch of missiles, which fell into waters in the vicinity of Japan, as well as Democratic People’s Republic of Korea’s failure to provide adequate notice prior to its launch of those missiles. We are concerned that this is not the first time that this has happened and refer to the incident to which MSC/Circ.893 has referenced when Governments were urged to comply with the recommendations in resolution A.706(17). We join Japan and others in calling on the Democratic People’s Republic of Korea to provide adequate notice for all operations that affect the safety of navigation.

We also support and look forward to a full discussion at the Maritime Safety Committee of the Democratic People’s Republic of Korea maritime safety issues. We encourage Members to support the Maritime Safety Committee and Council discussions of the hazardous safety and environmental issues of Democratic People’s Republic of Korea flagged vessels that affect all IMO Member States.

Thank you Mr. Chairman.

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**ANNEX 16****STATEMENT BY THE DELEGATION OF THE  
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA****IN CONNECTION WITH AGENDA ITEM ON  
"ANY OTHER BUSINESS"**

Thank you, Mr. Chairman.

The delegation of the Democratic People's Republic of Korea wishes to make it clear that our military exercise for missile launches pertaining to its sovereign right to self-defence is not an issue to be discussed in the international forums including IMO meetings.

However, my delegation would like to make it further clear its position of the issue since Japanese delegation slandered us through its statement in this session with a view to achieving its improper political purpose against DPRK.

With regard to missile launches by Korean People's Army, as you are aware, our Government stated that the latest successful missile launches were part of the routine military exercises staged by the Korean People's Army to increase the nation's military capacity for self-defence.

The DPR Korea's exercise of its legitimate right as a sovereign state is neither bound to any international law nor to bilateral or multilateral agreements such as the DPRK-Japan Pyongyang Declaration and the joint statement of the six-party talks.

Now my delegation would like to quote here the statement of the Foreign Ministry of the DPR Korea stated our nation's resolute and firm position on "Resolution of UN Security Council" which was just referred by Japanese delegation in his statement.

The Democratic People's Republic of Korea, through the Foreign Ministry's Statement, vehemently denounced and totally refuted the "resolution" of the UN Security Council against the DPRK, a product of the U.S. hostile policy toward it:

The vicious hostile policy of the United States towards the DPRK and the irresponsibility of the UN Security Council have created an extremely dangerous situation on the Korean Peninsula where the sovereignty of the Korean nation and the security of the state have been seriously infringed.

The U.S. has recently kicked up much row after bringing the issue of the missile launches conducted by our army as part of the routine military training for self-defence to the UN under the motto of reacting to it in one voice.

It was against this backdrop that the U.S. forced the UN to adopt a UN Security Council resolution taking a serious note of our exercise of its right to self-defence on July 15.

The U.S. sponsored “resolution” called for an international pressure for disarming the DPRK and stifling it, terming the missile launches pertaining to its right to self-defence “a threat to international peace and security”.

By doing so the U.S. sought to describe the issue between the DPRK and the U.S. as an issue between the DPRK and the UN and form an international alliance against the DPRK.

This has brought such serious consequences as gravely violating the dignity and sovereignty of the DPRK and driving the situation to an extreme pitch of tension, thereby seriously disturbing peace and security on the peninsula and in Northeast Asia.

It was an entirely unreasonable and brigandish act that that U.S. brought to the UN the DPRK’s missile launches nothing contradictory to any international law after branding them as violation.

This time the U.S. attempted till the last moment to apply Chapter 7 of the UN Charter legalizing a military action against the DPRK. This indicates that the “resolution” constitutes a prelude to the provocation of the second Korean War.

It is a brigandish logic to claim that missile launches conducted by the U.S. and Japan are legal while the training of missile launches conducted by the DPRK to defend itself is illegal.

Any missile fire or any nuclear test approved by the U.S. is connived at and they are not subject to discussion at the UN.

This is the reality today.

The U.S. has made mockery of the DPRK’s true heart and sincere efforts to realize the denuclearization of the Korean Peninsula in a peaceful manner through dialogue and negotiations. Yet the U.S. is now asserting that it will not punish the DPRK once it come out for the six-party talks but punish it if it fails to do so. This is sheer sophism which can never be justified.

Only the strong can defend justice in the world today where the jungle law prevails.

Neither the UN nor anyone else can protect us.

The past history and the present reality show that only a country with its powerful force can defend the national dignity and its sovereignty and independence.

It is a day-dream to calculate that our principle will alter due to the change of the world.

We have already clarified that we will have no option but to take stronger physical actions should someone take issue with our army’s training of missile launches for self-defence and put pressure on it.

The Foreign Ministry of the DPRK was authorized to clarify as follows in view of the grave situation prevailing on the peninsula:

First, our Republic vehemently denounces and roundly refutes the UNSC “resolution”, a product of the U.S. hostile policy towards the DPRK, and will not be bound to it in the least.

Second, our Republic will bolster its war deterrent for self-defence in every way by all means and methods now that the situation has reached the worst phase due to the extreme hostile act of the U.S.

We will firmly defend our own way the ideology and system chosen by our people, true to the Songun policy, a treasured sword.

Thank you for your attention.

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**ANNEX 17****STATEMENT BY THE DELEGATION OF SINGAPORE****IN CONNECTION WITH AGENDA ITEM ON  
“ANY OTHER BUSINESS”**

As the NAV Sub-Committee is the IMO forum for safety of navigation and ship routing measures, Singapore would like to register our concerns and restate our position at this session regarding Australia's and Papua New Guinea's introduction of compulsory pilotage in the Torres Strait, a strait used for international navigation, with effect from 6 October 2006.

The Australian Maritime Safety Authority (Marine Notice 8/2006) relating to this new requirement, refers to IMO Resolution MEPC.133(53) as the basis for introducing compulsory pilotage system in the Torres Strait. The Marine Notice also states that under the new “laws and regulations” enacted by Australia to give effect to compulsory pilotage in the Torres Strait, the refusal to take a pilot on board would result in an “offence” being committed and “significant penalties” applied.

This delegation would like to point out that this is not in line with the outcome and understanding reached at the 53rd session of the MEPC meeting.

The outcome and understanding at MEPC 53, as recorded in MEPC 53/24 (paragraph 8.5 - 8.6), is that Resolution MEPC.133(53) was recommendatory and provided no international basis for mandatory pilotage for ships in transit in the Torres Strait or any other strait used for international navigation. This understanding was supported by several delegations at MEPC 53, including this delegation.

We had also previously stated and would like to restate our position that the imposition of compulsory pilotage for ships transiting a strait used for international navigation would be the “practical effect of denying, hampering or impairing the right of transit passage” and this be in contravention of Article 42(2) of UNCLOS.

Singapore cannot accept the application of a compulsory pilotage system in the Torres Strait, a strait used for international navigation.

We would however like to assure Member States, in particular Australia and Papua New Guinea, that Singapore recognizes and fully appreciates the environmental concerns relating to the Torres Strait and we will continue to encourage ships flying the Singapore flag to engage pilots when transiting the Torres Strait, in line with the recommendatory nature of the measure.