

PILOTAGE ADVISORY COMMITTEE

The International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) Recommendation – O-133 on Emergency Wreck Marking Buoy

Purpose

1. This paper seeks members' views on the proposal of adopting the IALA Recommendation – O-133 on Emergency Wreck Marking Buoy.

Introduction

2. A marine accident may result in the formation of a new wreck, which creates hazards to navigation. It is of great importance that the wreck location is marked by the responsible authorities as soon as possible such that it can be readily recognized by ships as a new hazard.

3. At present, new dangers are generally marked by cardinal or lateral buoys. Some authorities, such as the Hong Kong Marine Department (HKMD) deploys an isolated danger buoy for marking a new wreck.

Background

4. In December 2002, a Norwegian car carrier “Tricolor” collided with a Bahamian container vessel in the English Channel, and sank in the busy waterway.

5. Despite the presence of patrol boats and with the wreck properly marked by lighted buoys, the wreck of “Tricolor” was struck by a German vessel and a Turkish tanker again in December 2002 and January 2003 respectively. The incidents have raised concerns on the effectiveness and adequacy of marking dangerous wrecks in order to prevent collisions with the wreck.

6. Following the “Tricolor” incident, the IALA issued Guideline No.1046 - Response Plan for the Marking of New Wrecks (June 2005) to provide guidance and recommendations for emergency wreck marking. The Guideline recommends Administrations to deploy

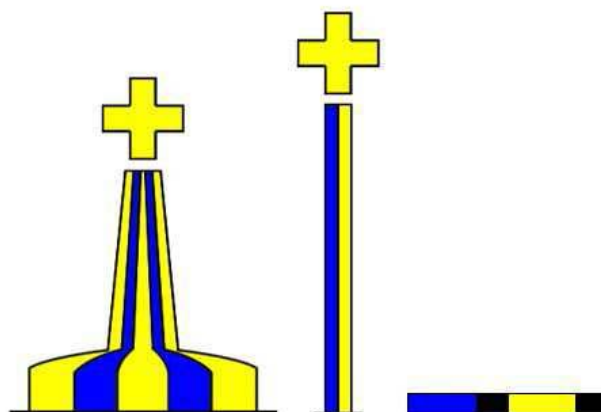
pecially designed “emergency wreck marking buoy” for easily distinguishing the existence of a new wreck by mariners.

7. Under this context, a number of trial tests were carried out internationally by various Port/Lighthouse Authorities, and it was concluded that a pillar or spar buoy coloured blue and yellow in vertical stripes and fitted with an alternating blue and yellow flashing light has been proved to be more effective and satisfactory than the traditional deployment of cardinal, lateral and isolated danger buoys. IALA Recommendation – O-133 sets out the characteristics and standard of this “Emergency Wreck Marking Buoy”. (Annexes I & II)

Characteristics

8. The following are the characteristics of the “Emergency Wreck Marking Buoy” recommended by IALA:

- a) Shape – pillar or spar
- b) Size – dependent on location
- c) Colour - blue and yellow vertical stripes in equal number and dimensions (minimum of 4 stripes and maximum of 8 stripes)
- d) Top-mark – a standing/upright yellow cross (optional)
- e) Light – alternating blue and yellow flashing light with a nominal range of 4 nautical miles (authorities may alter the range depending on local conditions) where the blue and yellow 1 second flashes are alternated with an interval of 0.5 seconds. (**Bu1.0s + 0.5s + Y1.0s + 0.5s = 3.0s**)



Present Situation

9. Hong Kong adopts IALA Maritime Buoy System and our current practice is to use an Isolated Danger buoy (pillar buoy coloured red and black horizontal stripes with flashing white light) to mark a new wreck. We noted that our counterparts at the Pearl River Estuary have recently adopted the IALA Recommendation – O-133 to mark a new wreck with the recommended “Emergency Wreck Marking Buoy”.

Proposal

10. This IALA Recommendation has been widely adopted by Port/Lighthouse Authorities as well as ports in the region of Pearl River Estuary. To provide mariners with a consistent buoyage system in the region and for easy identification of a new dangerous wreck, it is proposed to adopt the IALA recommended “Emergency Wreck Marking Buoy” for marking new dangerous wreck in Hong Kong waters.

11. If the proposal is endorsed, we would start the preparation of “Emergency Wreck Marking Buoy” and procurement of new lighting equipment. The proposal can be ready for implementation by the end of this year.

Advice Sought

12. Members are recommended to endorse the proposal for adopting IALA Recommendation – O-133 on Emergency Wreck Marking Buoy.

Port Logistics Section
Services Branch
Planning and Services Division
Marine Department

Date: 5 February 2009

**IALA Recommendation O-133
On**

**Emergency Wreck Marking
Buoy**

Edition 1

December 2005



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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;

RECOGNISING the significant hazard to shipping posed by new wrecks or obstructions;

RECOGNISING 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;

RECOGNISING 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.

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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 (AtoN) 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;
- A permanent form of marking of the wreck has been carried out.

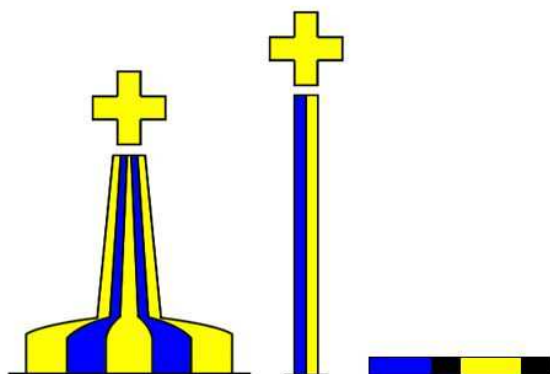
4.1 Characteristics

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.

$$\text{Bu}1.0\text{s} + \underline{0.5\text{s}} + \text{Y}1.0\text{s} + \underline{0.5\text{s}} = 3.0\text{s}$$

- If multiple buoys are deployed then the lights should be synchronised.
- 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.*

IALA Guideline No. 1046

On

Response Plan for the Marking of New Wrecks

Edition 1

June 2005



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IALA Guidelines on a Response Plan for the Marking of New Wrecks

1 INTRODUCTION

Following an incident as a result of which a new and dangerous wreck occurs, certain measures will have to be taken by the responsible authorities in order to avoid further incidents and to prevent loss of life and/or pollution. These measures are included in the existing IALA Maritime Buoyage System (MBS) under section 7 – New Dangers.

The wreck of the ‘Tricolor’ in the Dover Straits has brought into sharp focus the effective responses required to adequately mark such dangerous wrecks and to prevent further collisions with the wreck. Incidents following the wreck of the ‘Tricolor’ identified a requirement to provide marking options in addition to those identified in the MBS, as well as a requirement for emergency wreck marking contingency planning. The aim of such planning would be to ensure that an immediate, effective and well co-ordinated response can be given in such a situation.

1.1 Scope

These Guidelines provide the basis for developing an Emergency Wreck Marking Plan (EWMP). The EWMP points out procedures to be observed, as well as considerations to be taken into account with respect to all necessary measures that should be taken by the authorities when confronted with a new dangerous wreck or an obstruction as a result of an incident within their area of responsibility.

These Guidelines identify the considerations, decision process and possible actions that administration may take when responding to a requirement to mark a new and dangerous wreck or obstruction.

2 DEFINITIONS AND ACRONYMS

| | |
|------------------------|--|
| AIS | Automatic Identification System |
| Dangerous wreck | any wrecks or obstructions in navigable water that pose a hazard to navigation |
| DSC | Digital Selective Calling |
| ETV | Emergency Towing Vessel |
| EWMP | Emergency Wreck Marking Plan |
| Guard ship | A vessel which can be tasked to guard the area of a wreck to warn other vessels of the new danger posed. |
| Racon | Radar transponder beacon |
| VTS | Vessel Traffic Services |
| EGC | Enhanced Group Calling |
| NOTMAR | Notices to Mariners |

3 CONSIDERATIONS

Administrations need to assess their areas of responsibility and response capability. This includes carrying out risk assessments, assessing response capabilities and resources and consideration of plans to deal with such situations¹. Aspects of such a risk assessment should include:

- 1 Analysis of responses capabilities;
- 2 Indication of areas of Responsibility;
- 3 Assessment of response required in specific areas;
- 4 Indication of response times;
- 5 Indication of intervention times;
- 6 Assessment of mobile resources e.g. pollution combating vessels, buoy tenders, Emergency Towing Vessels, guardships, buoys, Temporary VTS capability;
- 7 Assessment of electronic resources such as AIS and information systems.

A helpful tool for decision making with respect to the marking of wrecks that should be developed beforehand is a 'marking requirements map', indicating the different marking requirements in specific sea-areas. For each of these areas the marking requirements should be based on information and knowledge of the types and size of shipping in the area, traffic patterns and minimum under-keel clearance requirements.

4 DECISIONS AND ACTIONS

Authorities may consider their response in the following order of priority: (see flow diagram Annex 1)

1. Immediate broadcast of initial Safety message (navigational warning) concerning the new dangerous wreck.
2. Obtain as much information as possible about the new wreck.
3. Consider deployment of a Guard ship on the location of the new wreck.
4. Consider whether temporary VTS is necessary on the new wreck.
5. Consider AIS applications.
6. Initial marking of the wreck position.
7. Survey the wreck.
8. Consider the permanent marking of the wreck.
9. Issue updates.
10. Consider whether continuation of temporary VTS is necessary.
11. Consider whether removal of the wreck is necessary.
12. Identify steps to take if the wreck is not to be removed.

¹ IALA Guideline 1018 on Risk Management refers

4.1 Immediate broadcast of an initial Safety message concerning the new dangerous wreck

Especially in busy waterways, a new dangerous wreck or obstruction has the capability to cause loss of life, environmental damage and economic impact. Although, in most incidents detailed information is not directly available, it is very important that initial information of a new wreck or an obstruction, regardless of how scant it may be, is made known to shipping without delay.

An Initial Safety message (navigational warning), indicating the approximate position of the new wreck and any other relevant information, should be broadcast without delay on:

- VHF* (announced on DSC - digital selective calling)
- MF*(announced on DSC)
- HF*(announced on DSC)
- AIS
- NAVTEX*
- INMARSAT (EGC)
- Mobile phone
- Internet (email)
- and any other communications means available

*In certain circumstances it might be necessary to issue an urgent navigational warning.

4.2 Obtain as much information as possible about wreck

Information about a new wreck should be gathered as soon as possible. In certain situations this process might well start even before a wreck is actually a fact. For example, after a collision, as a result of which a ship is slowly drifting and sinking, any relevant information as to the status of the damaged vessel should be monitored. The sooner the actual location of a wreck is known the better as this will save valuable time so as to be able to initially mark the wreck and issue navigational warnings. This will also reduce the risk of other ships hitting the wreck whilst it is still unmarked.

In circumstances where a ship sinks with no other ship in the vicinity able to report/confirm the position, the wreck location should be established as soon as possible so that navigational warnings can be issued and initial marking of the wreck location can be carried out.

4.3 Consider Deployment of Guard Ship

A new wreck can be very dangerous for shipping, not only when its position is not exactly known and is still unmarked, but even when the position is known and the wreck is properly marked. In the past, many wrecks have caused numerous problems resulting in damage, pollution and even loss of life.

When confronted with a new, possibly dangerous wreck, authorities should decide as soon as possible if it is necessary to send a 'guard ship' to the location of the wreck in order to 'guard' the location and inform ships navigating near the wreck position of the new danger. The guard ship should be well equipped for her task and should be able to stay on position in all weather conditions and sea states. The guard ship may be fitted with a racon morse code "D". It may also be fitted with the proposed blue/yellow alternating lights that some administrations are promoting specifically for new dangerous wrecks.

4.4 Consider Temporary VTS

In busy shipping areas such as Traffic Separation Schemes (TSS), precautionary areas, channels, harbour approaches, etc. the establishment of a guard ship may not be sufficient / appropriate. Action to establish a temporary VTS at the wreck location should be considered.

When a temporary VTS is established at the wreck location, certified VTS operators should ideally be employed to staff the centre.

4.5 Consider AIS applications

AIS applications may be appropriate to physically mark the area of the wreck, promulgate information concerning the wreck or virtually mark the wreck (virtual AIS). This may be particularly relevant if the weather and sea state prevent ship deployment.

4.6 Initial marking of the Wreck.

A new dangerous wreck, which is a danger to shipping, must be marked. Weather conditions, sea state and unknown facts about the new wreck can all hamper timely marking. Irrespective of these circumstances it is of great importance that the wreck location is marked as soon as possible and can be readily recognised by ships as a new wreck location. The IALA MBS provides a means of marking new dangers through the use of appropriate Cardinal or Lateral buoys using VQ or Q light characters, with duplicate marks that are identical to their partners in all respects. In addition, new dangers may be marked by a racon with coded morse 'D'.

Some administrations have developed an 'emergency wreck buoy' designed specifically for new, dangerous wrecks and to have 'high impact recognition' for the navigator. Administrations are invited to consider the deployment of such a buoy to mark a new, dangerous wreck. The buoy should be placed as close to the wreck as possible, and within any other marks that may be deployed. This buoy is coloured blue and yellow in vertical stripes. It is fitted with an alternating blue and yellow light. Ideally it should be fitted with a racon Morse Code "D". The characteristics and location of the buoy should be promulgated to the mariner by all available means.

The wreck buoy should be maintained in position until the wreck is well known and has been promulgated in nautical publications, or until the wreck has been fully surveyed and exact details such as position and swept clearance above the wreck are known, and permanent marking of the wreck has been carried out.

4.7 Survey of the wreck

A survey of the new wreck should be performed as soon as possible. Survey information and details should include, as a minimum, the:

- exact position of the wreck,
- stability of the wreck,
- wreck orientation or heading,
- swept depth above the wreck.

4.8 Consider the permanent marking of the wreck

As soon as the wreck survey details are available, taking into account factors such as shipping routes and traffic density, the marking of the wreck should be reconsidered. When considering more permanent marking solutions, factors to take into account include:

- The use of the MBS
 - Is the initial marking, as per MBS, sufficient?
 - Is there a requirement to reposition the marks?
 - Is additional marking needed?
 - Are there other solutions?
- Danger indicators on the wreck.
- AIS and AtoN information

4.9 Issue Updates

As soon as further survey details and information concerning the wreck becomes available, shipping and relevant authorities should be informed immediately.

As survey information and updates are received, mariners should be informed through MSI (Marine Safety Information) systems such as EGC, NAVTEX, NOTMARs, etc.

4.10 Consider whether continuation of VTS is necessary

Irrespective of all measures taken earlier (navigational warnings, marking, etc.) it may be necessary to decide to continue VTS on the wreck location. In case of an extremely dangerous wreck, for instance in the middle of a busy shipping route or shipping lane, a VTS on location may be considered essential to avoid collision, either with the wreck or between ships which are manoeuvring past the dangerous wreck. As an ongoing aspect of the EWMP, Pilot stations, VTS and other allied services in the area should notify mariners of the dangerous wreck.

4.11 Consider whether removal of the wreck is necessary

Based on risk assessment, taking into account traffic densities, traffic patterns, under-keel clearances, draft restrictions, etc. authorities should consider whether the removal of the wreck is necessary.

If the decision is made to remove the wreck, a comprehensive salvage plan must be developed. It should again assess the risk and consider all aspects of the operation.

4.12 Identify steps to take if wreck is not to be removed.

If it is decided not to remove the wreck, permanent marking requirements must be reconsidered as per 4.8, and the wreck must be charted permanently through the hydrographic office.

Annex 1 – Flow Chart for Emergency Marking of Dangerous Wrecks

