



CHART STANDARDIZATION & PAPER CHART WORKING GROUP (CSPCWG)

[A Working Group of the Committee on Hydrographic Requirements for Information Systems – CHRIS]

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CSPCWG Circular Letter: 04/2003

UKHO ref: HA317/010/031-01

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To CSPCWG Members

Date 22 December

2003

Dear Colleagues,

Subject: Environmentally Sensitive Sea Areas (ESSA)

High on the priorities on the CSPCWG work plan is to “Review and develop depiction of ESSA (including PSSA & ATBA)”. The former CSC devoted much effort to this issue, which was original started under CSC CL 8/1998. A vast amount of correspondence on the subject was generated, and significantly different views were expressed by CSC members, Environmental Organizations and other interested parties. These are summarised in CSC CLs 7/2001 and 1, 2, 3 and 4/2002 (with annexes), which have been added to the CSPCWG page on the IHB website, for consultation if required.

New sections of M-4 were drafted by CSC secretary, combining the various views as much as it was possible and accepting the majority view where necessary. This was approved by the CSC, with the exception of the final paragraph of the specification for Coral symbology, which was the subject of CSC CL 04/2002.

It is not my intention that CSPCWG should revisit all the arguments. The CSC’s experience of this issue proved that it would be impossible to get a unanimous agreement and therefore I propose that the specification as drafted should be approved and included in M-4 without further delay. It is further noted that IMO had originally requested that the symbology should be agreed by January 2002, and several PSSA have now been implemented without approved symbology being available. Some HOs, however, have already used the proposed symbol on their charts.

A complete draft of the new section of M-4 for ESSA is at Annex A. Additionally, a revised section 435.7 and new section 435.11 for associated amendments is at Annex B. These are as approved by the CSC in 2002, apart from minor editorial changes. Please note that CSC left B-437.8 blank deliberately. It was considered that Coral was a slightly separate case from other ESSA specifications, and so a space was left for possible future ESSA types that might suitably be inserted before B-437.9. There were only a few responses to CSC CL 04/2002 (on the issue of coral) and a summary of these, with comments, is given in Annex C.

Australia submitted a paper to CHRIS at the 15th meeting in June 2003 (CHRIS 15-5.4A), a copy of which is at Annex D. CHRIS 15 approved the actions, which require CSPCWG to review the work already undertaken by CSC with the aim of providing a depiction of ESSA, PSSA and ATBA on paper charts that can be consistent with ENC and ECDIS. Many of the points made by Australia had already been considered by the CSC and reported in the annexes to the various CSC CLs. A summary of these discussions have now been added as comments within the text of Annex D, plus a reference paper at Annex E. There were also CHRIS 15 actions placed on C&SMWG and TSMAD; CSPCWG has not yet received any communications on the outcomes of those actions.

After studying the annexes, I would be grateful if recipients of this letter could give a response by the end of February 2004. Please state whether:

A: you consider that the draft specifications B-437 and B435.7 & 11 at annexes A and B should be adopted without further change.

B: you agree generally with the draft B-437 and B435.7 & 11, but suggest minor alterations (if so, please specify). In this case, we will incorporate the suggestions as appropriate and proceed to inviting Member States to endorse the new and revised specifications.

C: you consider that the draft B-437 and/or B435.7 & 11 require considerable reworking (if so, please specify what needs to be changed). Please note that this option will inevitably further delay the conclusion of this task and should not, therefore, be proposed lightly.

Please would the chairmen of C&SMWG and TSMAD provide responses to this CL on behalf of their WGs.

Yours sincerely,



Peter G.B. Jones,
Chairman

Annex A: Draft section B-437 for M-4

Annex B: Draft sections B-435.7 & 435.11 for M-4

Annex C: Responses to CSC CL 04/2002, with comments

Annex D: CHRIS 15-5.4A, with comments

Annex E: Copy of Appendix B from IHB paper to IMO NAV 48

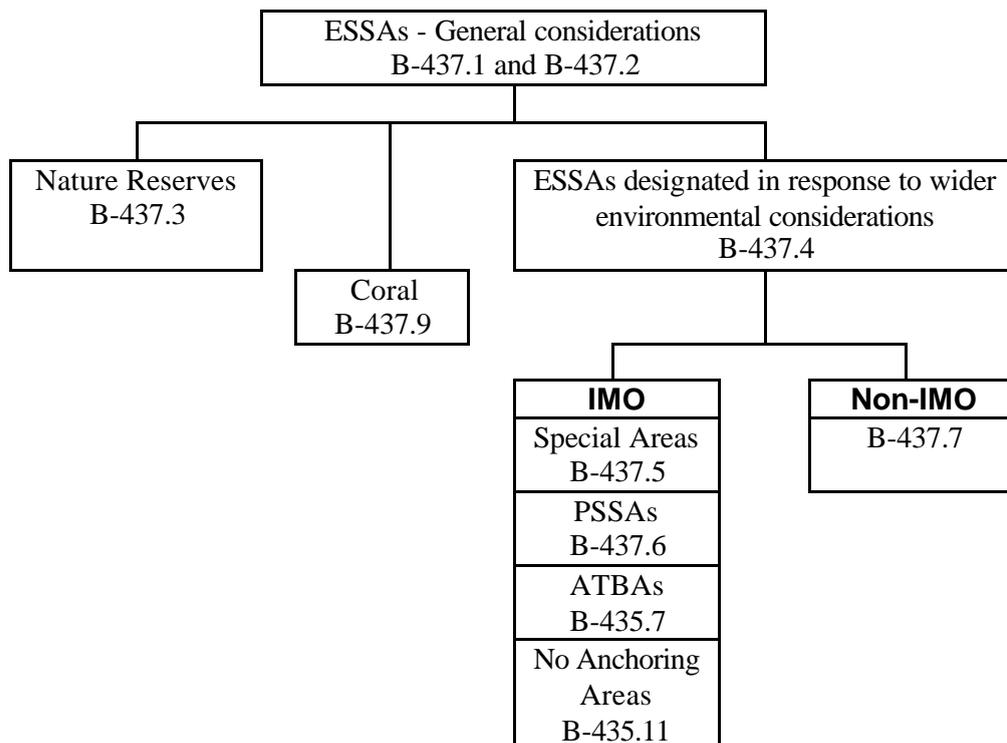
B-437 ENVIRONMENTALLY SENSITIVE SEA AREAS (ESSAs)

B-437.1 Environmentally Sensitive Sea Area (ESSA) is a generic term which may be used to describe a wide range of areas, considered sensitive for a variety of environmental reasons. The implications which each of these have for charting and navigation, may be different. Specific types of ESSA are detailed in the paragraphs which follow.

There are two broad types of Environmentally Sensitive Sea Areas (ESSAs):

- a. those established to protect specific types of nature from disturbance (usually close inshore and established under national legislation); see B-437.3;
- b. those specifically designated in response to wider environmental considerations, potentially ‘the total environment’, (usually including some degree of risk from shipping, possibly covering extensive sea areas, and established under national or international legislation); see B-437.4, B-437.5, B-437.6, B-437.7, B-437.9.

The relationships between the different types of ESSAs and the relevant paragraphs in B-437 may be tabulated as follows:



The **primary reason for charting ESSAs** is to inform the mariner of the impact their existence has on his activities (such as anti-pollution measures, restrictions on entry, anchoring or fishing) and, where possible, the reasons for their sensitivity. General considerations for the charting of ESSAs are detailed in B-437.2.

IHO publication S-59 (Status of Hydrographic Surveying and Nautical Charting in Antarctica) details symbology particular to ESSAs in Antarctica.

B-437.2 General considerations for the charting of ESSAs.

a. Inclusion on charts. ESSAs should be included on charts where there is a specifically identified requirement, and where it is practicable, given the scale of the chart and the extent of the ESSA. If there is no such requirement, or if it is not practicable, details of ESSAs should only be inserted in associated publications, such as Sailing Directions. It should be noted that their inclusion or mention on smaller scale charts may be appropriate for voyage planning purposes.

b. Colour. All details associated with ESSAs should be charted in green [the colour internationally associated with environmental matters] or in magenta [superimposed information], as preferred; see B-140-144. The use of green for ESSAs has the advantages of being immediately identifiable as an ESSA and of reducing the amount of detail on the magenta plate. The use of magenta has the advantage of being one of the four basic colours which all Member States use. All other aspects of specification B-437 apply equally, whichever colour is used. It is recommended that Member States move towards the use of green for ESSAs if there are no other considerations preventing this. However, certain areas discussed in B-435 and B-439 should be inserted in magenta for consistency.

c. Options available. The extremely varied extent and complexity of ESSAs means that, in theory, the appropriateness of each of the available options should be considered before charting a specific ESSA. In addition, the options available for consideration may be affected by the scale of the chart; for example, whilst limits may be inserted on larger scale charts, it may be more appropriate to insert just a note on a smaller scale chart of the same area.

The range of options available [which may be used in combination] includes insertion of the following:

- no details or reference on charts; rather, insertion of details in associated publications, such as Sailing Directions and Annual Notices to Mariners, only;
- a simple note on charts referring to details in associated publications, such as Sailing Directions and Annual Notices to Mariners, etc;
- a note giving details of ESSA;
- legend ‘... [*name or type of area*] ... (*see Note*)’;
- legend ‘... [*name or type of area*] ...’;
- limits of ESSA;
- details of associated restrictions;
- limits of associated restrictions;
- limits of ESSA and details and limits of associated restrictions, incorporated in a multi-feature line; see B-437.2.f;
- point symbol.

In practice, it is possible to define general guidelines for the charting of each general type of ESSA referred to in B-437.1; see B-437.3 and B-437.4.

d. ESSA limits and associated limits. To ensure that the differing measures and restrictions, which apply in all, or part, of an ESSA's area, are correctly interpreted, it is important to ensure that any limits which are charted, clearly indicate the area of coverage of each of the different areas. The following illustrate the combinations which may occur:

- the limit of the ESSA coincides with that of the measures or restrictions which apply in the ESSA area;
- the limit of the ESSA encompasses several other areas and their limits, for example, anchoring may be prohibited in part of an ESSA, whilst entry is restricted in another part of the ESSA;
- the limit of the ESSA overlaps with the limit of another area, for example an area where anchoring is prohibited.

Such limits should be inserted in accordance with the relevant guidance in B-437, B-435, B-439 and B-449.

e. Charting of ESSA limits. Where it is appropriate to chart the limits of ESSAs (see B-437.1 and B-437.2.a), it should be in accordance with the methods detailed below and, depending on the type of ESSA, in B-437.4 to B-437.9, as appropriate.

Limits may be shown by a symbolized line or, if such a line is not appropriate or available, limits may be charted by a maritime limit in general (see below), with an appropriate legend within the area of the ESSA. Where it is necessary to highlight specific restrictions, reference to a charted note may be included. Where symbols are incorporated in an ESSA limit, they should be positioned to indicate the side of the line on which the area lies.

In all cases, the basic line style employed in the depiction of these limits (which may or may not be amplified by specific ESSA symbology referred to below), should follow the normal conventions for charting of unrestricted and restricted areas (see B-439.2), that is:

- dashed line (IN 1.2), the general maritime limit, in green or magenta (see B-437.2.b), implying no restrictions or physical obstructions;
- T-shaped dashed line with down-strokes pointing inwards, in green or magenta (see B-437.2.b), if legislation prohibits certain activities such as anchoring or fishing (IN 2.1), or restricts entry to certain types of vessels (IN 2.2).

f. Multi-feature lines. Where the limit of the ESSA coincides with other limits which need to be charted, for example associated protective measures such as Areas To Be Avoided, which apply within the ESSA, they may be incorporated in the symbolized charted limit. Such limits are described as multi-feature lines and are discussed in B-439.6. –[to be prepared]

B-437.3 Nature Reserves are ESSAs which have been established to protect specific types of nature, or all nature within a defined area, against disturbance. They are usually close inshore and established under national legislation. They include:

- Conservation Areas;
- Marine Nature Reserves;
- Marine Sanctuaries;
- Bird Sanctuaries;
- Game Preserves;
- Seal Sanctuaries;
- National Parks;

For general points on the charting of ESSAs, see B-437.1 and B-437.2. Nature Reserves should only be inserted on charts when considered appropriate to the scale and purpose of the chart; they should be charted in accordance with the specifications which follow.

The limit of the Nature Reserve may be inserted using the appropriate basic line style as described in B-437.2.e. However, the use of a patterned line should be considered, combining the appropriate basic line style (see B-437.2.e) with the appropriate symbol positioned on the line so as to indicate the side on which the area falls (i.e. bottom of the symbol innermost). Symbols used should be selected from the following:

Bird Sanctuary,

other similar nature reserve  [green]  [magenta] **IN 22**

Seal sanctuary  [green]  [magenta] **IN 22**

Non-specific nature reserve,

National Park, Marine Sanctuary, **MR** **MR** **IN 22**

Marine Reserve, etc

If other limits which need to be charted coincide with the limit of the Nature Reserve, for example restrictions which apply within the Nature Reserve, they may be incorporated in the symbolized charted limit. Such limits are described as multi-feature lines and are discussed in B-439.6. [in preparation]

If insufficient space is available, they may, if required, be charted using one of the symbols above as a point symbol, e.g.:

 [green]  [magenta] **IN 22**

The legend ‘*Nature Reserve (see Note)*’ may be inserted within the area if required (omitting the reference ‘*(see Note)*’ if a cautionary note is not necessary).

If required, a suitably worded cautionary note may be inserted in the title area of relevant charts; the following are examples:

NATURE RESERVE / MARINE SANCTUARY

(...[insert approximate position] ...)

To avoid the risk of pollution and damage to the environment, this area has been designated a Nature Reserve/Marine Sanctuary. All vessels carrying dangerous or toxic cargoes, or any other vessel exceeding ... grt, should avoid the area.

NATURE RESERVE(S) / MARINE SANCTUARY

(...[insert approximate position] ...)

Entry into the Nature Reserve/Marine Sanctuary/nature reserves shown on this chart is affected by numerous restrictions and prohibitions. For further details, see ... [name of publication] ...

The exact wording of the cautionary note should be tailored to cover the specific case, i.e. location, the type of measures, restrictions, etc; it may be detailed or may be simply a reference which draws attention to the full details contained in a publication. Such a note may be combined with other related notes.

B-437.4 ESSAs specifically designated in response to wider environmental considerations, potentially ‘the total environment’. The basic reason for the establishment of most of these areas is the coincidence of environmental sensitivity and some degree of risk from shipping. One of the main reasons for charting them is to alert the mariner to their existence and to inform him of the reasons for their sensitivity. They may cover extensive sea areas and may be established under national or international legislation. They include:

- a. Environmental areas defined or designated by IMO:
 - Special Areas (SAs) - see B-437.5;
 - Particularly Sensitive Sea Areas (PSSAs) - see B-437.6;
 - Areas To Be Avoided - see B-435.7;
 - No Anchoring Areas defined by IMO - see B-435.11.

- b. Other environmental areas defined nationally or internationally, which include:
 - Marine and Estuarine Protected Areas (MEPAs) in Australia;
 - Marine Environmentally Sensitive Areas (MESAs) in the European Union;
 - Particular Sensitive Areas (PSAs);
 - Sites of Special Scientific Interest (SSSIs).
 - Protected Areas (PAs) in the Antarctic;
 - Specially Protected Areas (SPAs) in the Antarctic;
 - Antarctic Specially Protected Areas (ASPAs) combining SPAs and SSSIs;
 - Marine Environmental High Risk Areas (MEHRAs) in the United Kingdom.
 See B-437.7.

For general points on the charting of ESSAs, see B-437.1 and B-437.2.

B-437.5 Special Area

A Special Area, is an IMO-adopted measure designated under the International Convention for the Prevention of Pollution from Ships 1973, modified by the Protocol of 1978 (MARPOL 73/78). It is defined in IMO Resolution A.927(22) as:

‘a sea area where for recognized technical reasons in relation to its oceanographical and ecological conditions and to the particular character of its traffic, the adoption of special mandatory methods for the prevention of sea pollution by oil, noxious liquid substances, or garbage, as applicable, is required’.

IMO Resolution A.720(17) states:

‘Sea can be seen as an oceanographical or geographical term; in both cases a sea will, by definition, be a rather large area. Every existing “special area”, is a (semi)-enclosed sea in an oceanographical sense and pursuant to the methods of protection a special area has to be rather large.’

A Special Area may encompass the maritime zones of several States, or even an entire enclosed or semi-enclosed area.

Special Areas are defined in terms of the pollution types covered in each of the Annexes to MARPOL 73/78 [Annex I- oil; Annex II - noxious liquid substances; Annex V- garbage; Annex VI - SO_x emission control areas]. They are designated by IMO's Marine Environment Protection Committee (MEPC) and include: the Mediterranean Sea area; Baltic Sea area; Black Sea area; Red Sea area; Gulfs area; Gulf of Aden; Antarctic area; North Sea; Wider Caribbean; North West European waters.

Given the wide extent of the area covered by individual designated Special Areas, and the fact that they are not directly related to safety of navigation, their **limits should not normally be inserted on navigation charts**. It is more appropriate to include details in associated publications, such as Sailing Directions, Annual Notices to Mariners or special charts depicting MARPOL 73/78 limits. If necessary, a note may be inserted on appropriate charts referring to the fact that the chart [or a specified part of it] lies within an IMO-designated Special Area:

MARPOL 73/78 SPECIAL AREA

This chart lies within a Special Area designated by IMO under MARPOL 73/78. For details, see[name of chart or publication].....

Special Areas may be identified as an Associated Protective Measure for Particularly Sensitive Sea Areas (PSSAs); see B-437.6.

B-437.6 Particularly Sensitive Sea Area (PSSA)

a. General.

A **Particularly Sensitive Sea Area (PSSA)** is an IMO-designated measure, established in accordance with IMO Resolution. It is defined in IMO Resolution A.927(22) as:

‘an area that needs special protection through action by IMO because of its significance for recognized ecological, socio-economic or scientific reasons and because it may be vulnerable to damage by international shipping activities.’

PSSAs vary in extent and include Great Barrier Reef in Australia, Archipelago of Sabana-Camagüey in Cuba, Malpelo Island and Florida Keys, the Wadden Sea.

Identification of areas as PSSAs is approved by the IMO's Marine Environment Protection Committee (MEPC), but no final determination is made until after the pertinent IMO Sub-Committee or Committee has approved the associated protective measures. In the case of the Great Barrier Reef, the charting of the PSSA, is itself considered to be a protective measure.

An **Associated Protective Measure** is defined in IMO Resolution A.885(21) as:

‘an international rule or standard that falls within the purview of IMO and regulates international maritime activities for the protection of the area at risk.’

Measures within the purview of IMO comprise:

- designation of an area as a Special Area under Annexes of MARPOL 73/78 or to apply special discharge restrictions to vessels operating in a PSSA;
- adoption of ships' routing and reporting measures near or in the area;
- other measures such as compulsory pilotage schemes or vessel traffic management

systems.

All associated protective measures should be identified on charts to comply with IMO Resolution A.927(22), which specifically states:

‘When a PSSA is finally designated, all associated protective measures should be identified on charts in accordance with symbols and methods of the International Hydrographic Organization (IHO).’

The relevant symbols and methods of the IHO, referred to in the IMO Resolution, are detailed in B-437 in general, and in B-437.6.b and B-437.6.c in particular. They include cross-references, as appropriate, to B-435, B-488 and B-491.

b. Charting of Particularly Sensitive Sea Areas.

A suitably worded cautionary note should be inserted in the title area of relevant charts; the following is an example:

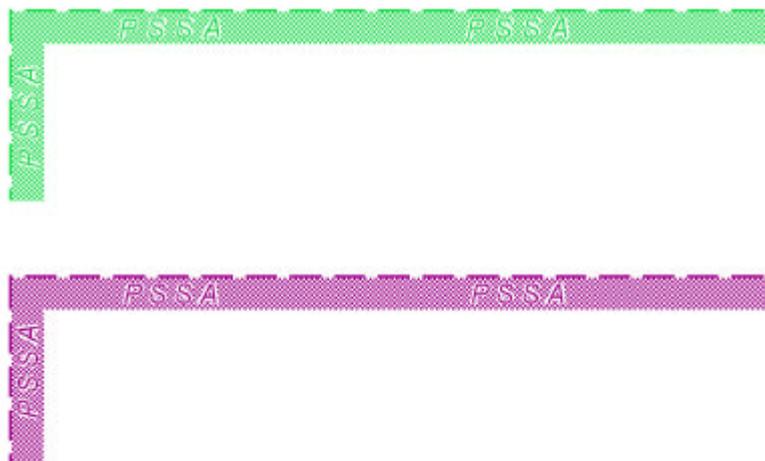
PARTICULARLY SENSITIVE SEA AREA (PSSA)

An IMO-approved Particularly Sensitive Sea Area (PSSA) is designated in [general area or the area of this chart]. Mariners ... [insert any special requirements, procedures, etc]. For further details, see [insert name of publication].

It is important to indicate that the measure is IMO-adopted. The exact wording of the cautionary note should be tailored to cover each specific area, i.e. location, the type of associated protective measures, etc. It may be detailed or may be simply a reference which draws attention to the full details contained in an associated publication such as Sailing Directions. Such a note may be combined with other related notes. A simple note, providing a reference to an associated publication may be the only way in which some Associated Protective Measures, such as special discharge restrictions, can be identified on charts.

The legend ‘*Particularly Sensitive Sea Area (see Note)*’ should be inserted within the area of the PSSA, at appropriate positions on relevant charts. Where space is limited, the abbreviated legend ‘*PSSA (see Note)*’ may be inserted.

The limit of a PSSA should be charted using a dashed line in green (or magenta), with a 5 mm stipple band and abbreviation ‘PSSA’ on the PSSA side of the dashed line limit, in green or magenta as preferred:





Include INT1 reference

B-437.6.a indicates the complexities of charting PSSAs. Use of the stipple band in addition to the pecked limit, serves to emphasize the limit, provide visual continuity to the entirety of a PSSA's area and allows any Associated Protective Measures, whose limits coincide with those of the PSSA itself, to be charted more clearly.

c. Charting of the Associated Protective Measures

As stated in B-437.6.a, all associated protective measures should be identified on charts. Such identification on charts should be in accordance with the relevant specification for each specific associated protective measure:

Associated Protective Measure

Action on charts

Special Area under Annexes of MARPOL 73/78, or the application of special discharge restrictions to vessels operating in a PSSA

Combine Special Area note (B-437.5) with PSSA note (B-437.6.b). Limits of Special Area not normally charted.

Adoption of ships' routing and reporting measures

Insert ships' routing measures and reporting measures in accordance with appropriate specification (B-435 and (B-488).

Consider combining any associated note with PSSA note (B-437.6.b).

Other measures such as compulsory pilotage schemes or vessel traffic management systems

Consider combining any associated note with PSSA note (B-437.6.b).

Where the limits of any Associated Protective Measures which, according to the specifications detailed above should be inserted on charts, coincide with those of the PSSA, both limits should be inserted. The Associated Protective Measure limits should be in accordance with the appropriate specifications; the limit of the PSSA will be covered by the stipple band in B-437.6.b.

B-437.7 Other environmental areas, defined nationally or internationally

For general points on the charting of ESSAs, see B-437.1 and B-437.2.

B-437.4 detailed ESSAs specifically designated in response to wider environmental considerations, potentially 'the total environment'. Those designated by IMO are covered in B-437.5, B-437.6, B-435.7 and B-435.11. Other environmental areas, defined nationally or internationally, are listed in B-437.4.b; they include, for example, Marine and Estuarine Protected Areas (MEPAs) in Australia and Marine Environmental High Risk Areas (MEHRAs) in the United Kingdom.

The terms applied to ESSAs with a specific environmental element to their designation are often incorporated and defined in national or international legislation. Such specific terms carry with them an implication of associated measures. It is therefore important that these terms are reflected in the methods used to incorporate such ESSAs in charts and associated publications.

Although the normal preference is to avoid the use of legends where possible, in this specific case it is appropriate to use the specific legends defined in legislation; the very use of these names will, by definition, convey specific characteristics and implications to a proportion of chart users.

Consideration of the use of associated nautical publications is particularly important where ESSAs cover an extensive area and where specific requirements are attached to large areas.

Insert note:

... [INSERT TYPE OF AREA] (abbreviated name)....

... [Insert geographical coordinates if appropriate] ...

*A ...[insert type of area] ... exists in [general area or the area of this chart].
Mariners ... [insert any special requirements, procedures, etc]. For further details,
see [insert publication title and/or number].*

The exact wording of the cautionary note should be tailored to cover the specific case, i.e. location, associated restrictions or requirements, etc. It may be detailed or may be simply a reference which draws attention to the full details contained in a publication. Such a note may be combined with other related notes.

The legend '*... [insert type of area] ... (see Note)*' should be inserted within the area, at appropriate positions on relevant charts. For example, IHO publication S-59 (Status of Hydrographic Surveying and Nautical Charting in Antarctica) includes Protected Areas shown by simple pecked limit and legend 'Protected Area (see Note)'. Where space is limited, the legend may be abbreviated if appropriate.

The detailed methods used to depict such areas will depend upon the requirements which are defined for each specific type of area.

The guidelines in B-437.2 and below should be applied. The line style may be simple IN 1.2 (as in the example of the Protected Areas in Antarctica) or may incorporate an appropriate

symbol from those detailed in B-437.2 and in IN 22, for example the Australian Marine Protected Areas. The options available include:

Seahorse  [green]  [magenta]

Inanimate examples **MR**

MR

Accepted abbreviated name	ESSA	SSSI	MEPA
(examples)	ESSA	SSSI	MEPA

Such areas may have associated measures requiring charting. These should be charted in accordance with the relevant specifications.

B-437.8 *intentionally blank*

B-437.9 **Coral**

Coral areas represent a particularly distinctive type of ESSA, whilst at the same time having a number of similarities with other types of ESSA.

From the charting point of view, coral has two main characteristics:

- a. as the physical danger which its existence may present to shipping; for details see B-417.6, B-417.8, B-421.5 and B-426.3;
- b. as a sensitive habitat in its own right (see below)

Damage to sensitive coral habitats is taken very seriously, and is being approached from a number of angles:

- a. international discussions within IHO's Committees, Working Groups and Hydrographic Commissions;
- b. international discussions within IMO's Committees and Sub-Committees;
- c. international participation in the International Coral Reef Initiative;
- d. national discussions leading to national legislation to strengthen protection of ocean and coastal resources by creating marine protected areas to permanently protect the coral reefs.

All such initiatives can have an impact on the charting of coral areas; some are specific to coral areas, whilst others may also be appropriate in different contexts. They illustrate the range and complexity of overlaps and inter-relationships between different types of ESSA and different types of measures implemented to protect those areas; all are implemented as a means of preventing damage to areas of coral.

The following IMO-adopted measures may be used in coral areas; for details, see the referenced paragraphs:

- Area To Be Avoided - see B-435.7;
- No Anchoring Areas - see B-435.11;
- Particularly Sensitive Sea Areas - see B-437.6.

Other measures which may be used to chart coral areas include:

- non-IMO-adopted environmental areas, defined nationally or internationally; see B-437.7;
- symbols for the nature of the seabed; see B-425.5;
- areas with inadequate depth information; see B-417.6, 417.8;
- submerged coral reefs and pinnacles, and associated danger line; see B-421.5;
- coral reefs and foreshores; see B-426.3;

Associated amendments to specification B-435**B-435.7 Areas To Be Avoided (ATBA)**

Note: The specific term ‘Area To Be Avoided’ is used to identify the IMO routing measure of that name; such areas should be charted in accordance with the guidance provided in this section. For the charting of areas which should be avoided for any of a variety of other reasons, see B-439.

An **Area To Be Avoided** is defined in IMO’s General Provisions on Ships’ Routing as:

‘a routing measure comprising an area within defined limits in which either navigation is particularly hazardous or it is exceptionally important to avoid casualties and which should be avoided by all ships, or certain classes of ships.’

Areas To Be Avoided vary in size from small circular areas, which ‘protect’ vital buoys or major floating lights, to much larger areas which protect natural features, such as parts of the Great Barrier Reef in Australia. IM 29.1 IM 29.2

Areas To Be Avoided may be established specifically to provide additional environmental protection to the areas concerned. They may also be identified as an Associated Protective Measure for an IMO-designated Particularly Sensitive Sea Area (PSSA); see B-437.6.

The limits of an Area To Be Avoided shall be shown by T-shaped dashes in magenta (IN 2.1).

The legend ‘*Area To Be Avoided (see Note)*’ should be inserted, in magenta, within the area of the ATBA if possible, on relevant charts. Where space is limited, the abbreviated legend ‘*ATBA (see Note)*’ may be inserted.

A cautionary note, stating that the charted ATBA is IMO-adopted, shall be inserted in the title area of relevant charts. If appropriate, it should specify the vessels to which it applies and, if considered desirable, give the reasons for establishment of the area:

AREA TO BE AVOIDED (ATBA)

(...*[insert approximate position]* ...)

To avoid the risk of pollution and damage to the environment, this area has been designated an Area To Be Avoided. All vessels carrying dangerous or toxic cargoes, or any other vessel exceeding ... grt, should avoid the area. This Area is IMO-adopted.

Alternatively, the note may begin:

“An IMO-adopted Area To Be Avoided

The exact wording of the cautionary note should be tailored to reflect the specific criteria for each area; it may be detailed, as in the example above, or may be simply a reference which draws attention to the full details contained in a publication.

B-435.11 No Anchoring Areas

Note: The specific term ‘No Anchoring Area’ is used to identify the IMO routing measure of that name; such areas should be charted in accordance with the guidance provided in this section. For the charting of areas where anchoring is prohibited for any of a variety of other reasons, see B-439.

A **No Anchoring Area** is defined in IMO’s General Provisions on Ships’ Routing, as amended by IMO SN/Circ.215 dated 19 January 2001, as:

‘A routing measure comprising an area within defined limits where anchoring is hazardous or could result in unacceptable damage to the marine environment. Anchoring in a no anchoring area should be avoided by all ships or certain classes of ships, except in case of immediate danger to the ship or the persons on board.’

It is worth noting that there is no restriction to navigation over these areas. In considering the initial concept of such areas, IMO concluded that anchoring is a normal part of following a route during a voyage, so that establishment of a no anchoring area could be regarded as a routing measure, the establishment of which should be governed by the General Provisions on Ships’ Routing. When establishing a no anchoring area for all ships or certain classes of ships, the necessity for creating such an area should be well demonstrated and the reasons stated. In general, these areas should be established only in areas where anchoring is hazardous, or where there is a possibility that unacceptable damage to the marine environment could result. The classes of ships which should avoid anchoring in an area should be considered and clearly identified in each particular case.

No anchoring areas could be adopted in areas where anchoring is unsafe, unstable, hazardous, or it is particularly important to avoid damage to the marine environment, and therefore anchoring should be avoided by all ships or certain classes of ships. In 2001, No Anchoring Areas had been adopted in the Gulf of Mexico.

The limits of the No Anchoring Area should be inserted using symbol IN 20.

The symbol  should be inserted within the area.

The legend ‘*No Anchoring Area*’ should be inserted within the area, in accordance with IMO SN/Circ.215.

Notes on conditions governing no anchoring areas (classes and sizes of ships, etc) should preferably be given on charts and should always be given in Sailing Directions. It is important to note that the charted No Anchoring Area is IMO-adopted, that it is mandatory and to specify the vessels to which it applies. The following note provides an example:

NO ANCHORING AREA

(.....[insert approximate position].....)

To avoid the risk of damage to the environment, [all vessels or detail certain classes or sizes of vessels, if appropriate] should avoid anchoring in the charted IMO-adopted mandatory No Anchoring Area.

The exact wording of the cautionary note should be tailored to reflect the specific criteria for each area; it may be detailed as in the example above or may be simply a reference which draws attention to the full details contained in an associated publication.

RESPONSES TO CSC 4/2002 “Depiction of Coral Areas”
(WITH CHAIRMAN’S COMMENTS)

1. From among several different proposals for a new symbol for depicting coral areas, only one was selected for further consideration, which was that the use of the existing symbol IJ22 (coral reef) be extended to cover the limits of all coral areas, whatever the depth of water, with intertidal and shallow water tints inserted as appropriate. This proposal was originally put forward by Australia, see (3) below.
2. Only seven hydrographic offices responded to CSC CL 4/2002. Two of those (South Africa and Denmark, on behalf of the Nordic Countries) merely stated that they had nothing further to add to their comments on CSC CL 3/2002, to which they had stated they saw no need for a special coral ESSA symbol.
3. Australia agreed with the proposal in CSC CL4/02. It should be noted, however, that it was Australia who originally made the suggestion on which the proposal for using the coral edge symbol for underwater coral was based. Australia had commented in their reply to CSC CL 3/02 that they did not see the requirement for yet another new symbol for sensitive habitat coral areas. Their suggestion was that if consensus requires a new symbol, then consideration should be given to using the existing black coral symbol IJ 22 when the extents are known, with blue infill to be used for submerged coral reefs. However, they also commented that they considered depth contours and danger lines to be more important and felt there was a risk of causing clutter and confusion.
4. US(NOAA) still supported the idea of a unique symbol, but recognized that there was very little support for it and were prepared to accept the recommendation of the CSC.
5. UK felt that the current symbology is adequate for standard navigational charts, but were nevertheless happy to support the CSC proposal.
6. New Zealand and Japan were clear in their opposition to the proposal, expressing concern that it would add clutter and cause confusion. They considered the use of a danger line to be appropriate to dangerous reefs.

CSPCWG Chairman’s comments

There was no clear endorsement of the proposal. Only one country (US) can be described as truly in favour; Australia’s suggestion really falls as there was not a consensus for a new symbol. I agree with those comments that express the concern that use of the symbol in the way suggested will add clutter to the chart, which could result in masking the danger line and depth contours. The first priority for the chart must be safety of navigation, and this proposal could undermine that.

There is plenty of scope within the general symbols proposed for ESSA to indicate any areas designated by competent authorities as having particular measures to protect coral. As with other ESSA, most restrictions, such as no entry, no anchoring or no fishing can be adequately expressed by existing symbology. Chart notes and references to associated publications can also be used to give any details which cannot be so covered.

It is also possible that the suggested change to the use of the coral edge symbol would be difficult to include on ENCs, at least for the existing version of S-57.

Conclusion: I propose that the draft ESSA specification at annex A does not need extending beyond the comments drafted by the CSC.

15th CHRIS MEETING
IHB, MONACO, 10-13 JUNE 2003

PROPOSAL FOR A NEW WORK ITEM
– DEPICTION OF ESSA, PSSA AND ATBA

SUBMITTED BY AUSTRALIA

Executive Summary:

This proposal highlights the need to consider concurrently the impact on both paper charts and ECDIS of introducing new chart symbology, such as Environmentally Sensitive Sea Areas (ESSA), Particularly Sensitive Sea Areas (PSSA) and Areas to be Avoided (ATBA). In particular, urgent new work items are required to rationalise the symbology and associated parameters for ESSA, PSSA and ATBA to be shown on paper charts and in ECDIS.

Actions to be taken:

The CHRIS is invited to endorse the following new work items: 1. The CSPCWG (in consultation with TSMAD and C&SMWG) should review the work already undertaken by the CSC with the aim of providing a depiction of ESSAs, PSSAs and ATBAs on paper charts that can be consistent with ENC and ECDIS.

2. The C&SMWG (in consultation with CSPCWG and TSMAD) should consider the requirements for consistent ECDIS symbology for ESSAs, PSSAs and ATBAs and propose appropriate solutions.

3. The TSMAD (in consultation with CSPCWG and C&SMWG) should determine the requirements for S57 to encode ESSAs and PSSAs and propose appropriate solutions.

Related Documents:

CSC C/L 7/2001 Environmentally Sensitive Sea Areas (ESSAs)
CSC CL 1/2002 Environmentally Sensitive Sea Areas (ESSAs)
CSC CL 2/2002 Environmentally Sensitive Sea Areas (ESSAs)
CHRIS 15/5B – Instructions for submission of proposals to CHRIS and CHRIS subsidiary bodies

COMMENTS BY CHAIRMAN CSPCWG (in red italic): *In their submission to CHRIS15, Australia helpfully included at Annex A to this paper, a list of issues which we should consider; I will therefore concentrate on commenting on each of the issues raised in that annex. However, before getting to that, I have made a few comments relating to the paragraphs numbered in the main document.*

Introduction / Scope

1. This submission for consideration of a new work item is raised in accordance with the proposed instructions in CHRIS 15/5B.

2. In 2001, the IMO endorsed the concept of Environmentally Sensitive Sea Areas (ESSA), Particularly Sensitive Sea Areas (PSSA) and Areas to be Avoided (ATBA) and raised with the IHB the issue of depiction of these areas on charts. Subsequently, the matter was referred to the then CSC whose chairman sought 'urgent consideration' from members of CSC via CSC CL 1/2002. At that time CSC was not formally part of CHRIS and in the event initiated new symbology proposals without full consideration by either the TSMAD (responsible for the encoding rules for ENCs), nor the C&SMWG (responsible for the display of the colours and symbols on ECDIS). It is understood that the Chairman, TSMAD made a suggestion that the existing S57 object Restricted Area (RESARE) with attribute category "restricted area" could be used as an interim solution in S57e3.1; however there is no specific value for ESSA or PSSA.

The specific discussion on PSSA was prompted by an IMO request to IHO for a quick response on symbology for PSSA. The IHB sent its letter requesting input to both the CSC and to C&SMWG. So far as we are aware, only the CSC did work on it. The symbology was developed, discussed and agreed by CSC, whose membership included a number of members of CHRIS and its working groups. The CSC's proposals were discussed with Chairman of TSMAD and the Chairman of CHRIS amongst others, who were in agreement with the view that S-57 couldn't change in the time scales necessary and that this was the way such developments should be handled. The paper prepared by IHB on depiction on digital charts (at Annex E to this CL) confirms that the impact on ENCs was considered.

Analysis / Discussion

3. A long standing aim of the IHO has been to standardise symbology on charts. Until recently, the Chart Standardisation Committee (CSC) has undertaken this role for the paper chart. Meanwhile, the Colours and Symbols Maintenance Working Group (C&SMWG), in conjunction with the Transfer Standards Maintenance and Applications Working Group (TSMAD) has worked to ensure consistency in the depiction of similar information displayed in ECDIS.
4. For the most part, the C&SMWG has taken its lead from the paper chart and has been able to adopt very similar symbology. Creating novel symbology or making significant departures from established paper chart symbols has only occurred in order to depict ENC information not available on a paper chart or where colour and other limitations have been imposed by the ECDIS Performance Standard or electronic screen technology. However, in the case of ESSAs and PSSAs it is probably not possible to simply adopt the paper chart solution proposed by the CSC.
5. For example, the CSC has designated green as an optional colour for ESSAs, but this colour may conflict badly with other features displayed on ECDIS such as radar. It may also result in the ECDIS using different colours or symbology thereby compromising the principles of standardisation. The IMO Performance Standard for ECDIS clause 1.7 states that:

“ ECDIS should have the same reliability and availability of presentation as the paper chart published by government authorized hydrographic offices.”

As stated, the use of green for depicting ESSA on paper charts is optional. It reflects the practice of many HOs who have the facility for using more than the standard four colours, to depict "environmental areas" in green, thereby increasing the clarity of the paper chart. (See

M4-B-140, which permits use of red or green in lieu of magenta). When such areas are captured for ENC, the line is given the appropriate attribute, which results in it being displayed in magenta.

6. One unfortunate result would be that on a dual-fuelled ECDIS incorporating an ENC/RNC chart mosaic capability (such equipment exists) there could be two different line symbols for ESSA on the same screen. This can only lead to confusion at a time when many are already critical about the quality and quantity of ENCs and the IHO role in ECDIS.

While it is true that in dual fuel systems a mosaic of ENC/RNC charts would mean different line styles on the same screen, this is a fact of life, as the displays of ENC and RNCs are very different in many respects; they are not identical products and never will be. In effect, the user will quickly learn two different chart “languages”. I do not see that the ESSA proposals exacerbate an existing situation.

7. It is also Australia’s understanding that the CSC proposals have yet to be formally ratified by M/S. *It is true that the CSC proposals were not formally ratified, though only because of the delays in resolving the coral issue. The general symbology for ESSA had been agreed by CSC before it was disestablished.* This leads to uncertainty over what individual M/S should do regarding ESSAs and PSSAs on charts. *Absolutely true, which emphasises the need to resolve this issue quickly.* In any event, there are a number of technical issues that are unresolved and further guidance is required. At least the following needs to be addressed:

- .1 The new section B-437 for the Chart Specifications of the IHO (M-4) proposed by the CSC provides a number of options for compiling HOs; for example symbolisation - including green line, magenta line, combined lines and symbols, choice of symbols within the complex lines, green stipple borders, acronyms as text, et cetera. It is Australia’s view that in the interests of standardisation such choices or discretion for compiling HO’s should be very limited. M-4 is meant to be a standard and as such it should clearly describe the method of portraying these features and avoid allowing options and wide discretion. Ideally, there should be one agreed recommended symbol with appropriate compilation guidelines. This standard symbology should obviously be compatible with ECDIS.

*Although B-437.2 gives a list of options available for the charting of ESSA, which option is selected will depend on the type of area, and its size in relation to the scale of the chart. Apart from the colour, B-437.2 is not a menu for the national HO to choose from according to preference. Generally, there will only be one option for a specific situation (though on occasion a compiler may have to make a judgement between two options). In practice, national HOs have already developed many different symbols for inserting in standard line limits (e.g. Australia’s sea-horse symbol). The draft B-437.2 **reduces** the number of approved symbols available. The fact that the symbol IN22 has no associated INT spec is why so many national variations have developed. It is therefore important that formal specifications are available as soon as possible.*

- .2 The CSC proposals include an option to omit details on paper charts; but rather to insert relevant details in associated publications. This clearly compromises standardisation and at the same time provides no guidance for corresponding treatment of the same information in an ENC. The options of using simple or

detailed notes on charts referring to details in associated publications, similarly provides no realistic guidance on how to depict the same boundaries and areas in ENC's. A legend or the encoding of such areas as points only helps partially; and in particular, any look-ahead functionality within ECDIS can be severely restricted if areas, and particularly larger areas, are indicated only by a point rather than an area polygon.

- *The problem of references to navigational publications is not new. Indeed, it has long been established that paper charts and nautical publications together form an integral navigation package.*
- *Paper charts simply do not have room for all the details, so references to associated publications such as Sailing Directions are necessary. **Clutter is an issue for paper charts which also has safety implications.***
- *The chart notes are connected to the associated areas on the ENC, which still refers the ENC user to the same publication. Publications provide for details of descriptive and more qualitative information. Eventually, ENC's will have the advantage of being able to display the relevant portion from the associated digital publication.*
- *Creating data points beyond the given specification potentially creates liability and subjectivity.*
- *It is not intended or implied that large areas should be indicated by a point symbol; they should be reserved for cases when, at the scale of the chart, the area is too small to be shown as an area (B-437.3). ENC look-ahead can pick-up point symbols, as in the case of significant soundings.*

.3 In order for ESSAs and PSSAs to be encoded, what specific feature codes and attributes will be required for S-57?

.4 What can be done in the event that S-57 e3.1 remains frozen as a standard?

*These areas exist **now** and there is an urgent need for specific guidance.*

.5 Are the CSC proposed colours and symbols in conflict with others already portrayed within the S-52 Presentation Library?

8. In reaching its position on this matter, Australia has sought input from a wide range of its officers across all the chart disciplines. As a result a number of questions and uncertainties have been raised regarding the consequences for Australian paper chart and ENC production. Most are likely to be equally relevant to other M/S and have therefore been included as Annexes to this submission as a means of further highlighting the issues that require further consideration and clarification.

Conclusion

9. Notwithstanding the urgent circumstances, it is Australia's view that the ESSA and PSSA proposals agreed by the CSC should have given greater consideration to their impact on ENC and ECDIS. Notwithstanding the pressing requirement to resolve the issues, there was still a case for urgent discussion and collaboration between the relevant members of CSC, TSMAD and C&SMWG. As a result, a less than satisfactory outcome has been achieved.

10. Unless there is appropriate consistency between paper charts and the depiction and handling of

the same information in ECDIS, there is significant potential to adversely affect the credibility of ENC's and ECDIS.

11. It is therefore appropriate that the Chart Standardisation and Paper Chart Working Group (CSPCWG) (formerly CSC) re-open consideration of the depiction of ESSAs, PSSAs and ATBAs on paper charts in close liaison with the TSMAD and C&SMWG. Such a consideration can be achieved relatively quickly and efficiently through the establishment and use of dedicated web-based discussion groups. While this may lead to a consequent delay in endorsing the extant CSC recommendations, it should nevertheless result in a more consistent, acceptable and universal solution that is suitable both for paper charts and for ECDIS.

Priority

12. This proposal seeks to correct significant inadequacies in existing IHO standards and technical resolutions. In accordance with the guidelines provided in CHRIS 15/5B, it should therefore be considered Priority level 2.

Target Completion Date

13. In view of the importance of consistently depicting ESSAs, PSSAs and ATBAs on charts this work should be completed as soon as possible and in any case within 12 months.

Action Required

14. The CHRIS is invited to endorse the following new work items:
 - .1 The CSPCWG (in consultation with TSMAD and C&SMWG) should review the work already undertaken by the CSC with the aim of providing a depiction of ESSAs, PSSAs and ATBAs on paper charts that can be consistent with ENC and ECDIS.
 - .2 The C&SMWG (in consultation with CSPCWG and TSMAD) should consider the requirements for consistent ECDIS symbology for ESSAs, PSSAs and ATBAs and propose appropriate solutions.
 - .3 The TSMAD (in consultation with CSPCWG and C&SMWG) should determine the requirements for S57 to encode ESSAs and PSSAs and propose appropriate solutions.

POTENTIAL ISSUES FOR HYDROGRAPHIC OFFICES' CONSIDERATION

HO's may need to consider the following:

- a. Would ESSA boundaries (and areas) be indicated on national charts or special charts? (see B-437.5 bold text on page 7 of CL 1/2002) Some HOs already indicate MEPAs and MPAs.

It is important to realise that ESSA is a generic term, referring to many different types of "environmental" areas. The chart at draft B-437.1 is helpful in demonstrating this. B-437.5 refers specifically to IMO Special Areas, which are not usually shown on charts because of their large extent. MEPAs, which may be charted, are covered at B-437.7.

- b. Would the proposed charted notes also be in green if the ESSA boundaries are indicated in green? It is unclear from B-437.3

Yes, if the limits are green, the notes will be green. It does not need to be explicitly stated in B-437; B-144 and 242.3 make this colour connection clear for all chart notes. We have expanded the cross-reference in the draft B-437.2b to include B-144.

- c. A problem may also exist in encoding areas within an ENC when the extents are not clearly defined on the paper chart. This is difficult to accommodate in an ECDIS that has the potential to trigger indications and alarms from such areas.

See comments at paragraph 7.2 above.

- d. Are several separate symbols required when there are ESSAs within ESSAs or there are common boundaries between ESSAs? What about combinations of ESSAs and PSSAs or other restricted areas?

The appropriate symbols should be used for whichever type of ESSA is shown. The case where PSSA limits are contiguous with other ESSA limits is specifically dealt with in the final paragraphs of B437.6 b & c.

- e. Would PSSA boundaries (and areas) be indicated on national charts or special charts, as the charting of these is considered to be a protective measure and the IMO Resolution A.885(21) states that 'When a PSSA is finally designated, all associated protective measures should be identified on charts in accordance with symbols and methods of the IHO. (see B-437.6a., page 8 of CL 1/2002)?

*The charting of a PSSA is itself a protective measure. **Associated** protective measures (e.g. TSS) should be shown by the appropriate symbols; this is covered at B-437.6c.*

- f. If HO's indicate PSSAs on national charts, can they logically NOT show ESSAs?

A PSSA is a type of ESSA. Showing PSSA does not exclude charting other ESSA in

any way.

- g. Can all HO's support an additional colour in printing charts? (green for ESSAs, PSSAs and associated notes, together with an optional green stipple band for PSSAs). The CSC CL summary at the rear indicates that many HOs are opposed to an additional colour in printing.

Not all HOs can support more than the four base colours, but many HOs can and do use green as an additional colour (as permitted by INT spec 140). This is why the use of green on paper charts must be optional.

- h. What is the impact of using a complex line style incorporating the sea horse, seal or bird together with IN 1.2 or 2.1? (see B-437.7, bottom of page 12 in the CL 1/2002).

Many limits shown on charts are a combination of pecked or T peck lines with a point symbol incorporated (e.g. anchorages and anchoring prohibited areas).

- i. What is the impact of adopting multi-colour/feature lines incorporating green and magenta?

There is no suggestion in B-437 that there would be multi-coloured symbols; usually the symbol would be all green or all magenta. However, combining two colours in a line symbol is not without precedent (e.g. IM 5).

- j. B-435.7 includes the definition of 'Areas to be avoided' (ATBA) which has been expanded to include the protection of natural features such as the 'reef areas' (see Annex B, page 1). This has the potential to impact on some nations' paper charts, RNCs and ENC's with potential clutter and misunderstanding between existing, adjoining and overlapping maritime boundaries, as the common INT 1 IN 2.1 'T' magenta symbol is proposed as well as an additional charted note.

Although B-435.7 has been revised, to include the IMO definition and more advice about the use of the symbol, the symbol for ATBA is not new, nor has the specification been extended. The existing B-435.7 referred specifically to the Great Barrier Reef as an example.

- k. B-435.11 proposes a new category of 'No anchoring areas' under the IMO's General provisions on Ships' Routing, as amended by IMO SN/Circ.215 dated 19 January, 2001 (see Annex B, page 2 to the CL 1/2002). This again has implications for reef areas and may require formal adoption by the other national authorities concerned.

No new limit is specified; the existing limit IN20 is used, with a new legend and associated note. The limit is clear and cannot be confused with any other area. In fact, IMO did not consult CSC about this new type of ESSA, CSC merely included what IMO had already decided.

- l. This development may open the door to many other maritime boundaries and areas being portrayed on the paper and electronic charts. Just how far are Member States prepared to go with this? Is it time to rethink what information should (needs to be?) portrayed on the national (and International) nautical chart? The features we are now talking about have

national interests at stake, more than just navigation. If HOs do not chart them, who will?

Naturally if HOs portrayed such features, they would be taking on an extra level of responsibility, but this responsibility could be shared by insisting that the authorities responsible for the legislation and policing of any restrictions, be made responsible for advising HOs of any alterations and changes to such boundaries and or areas. The time frames for promulgating such information must also be agreed. It may be advisable for HOs to discuss the issues with other national authorities responsible for such areas.

The role of the CSPCWG is to consider and approve the new symbology required. The issue of whether it is appropriate to chart such areas is a matter for individual HOs in consultation with their national authorities. B-437.2 states "ESSAs should be included on charts where there is a specifically identified requirement..." The main consideration is whether mariners need the information, for navigational reasons. In many cases they do, not least of which is the fact that transgressing the restrictions may result in heavy fines. Certainly there is a wider question here, of what information should be contained on charts and associated publications, although such a debate should not be used to delay the adoption of specific symbols for ESSA.

- m. If HOs decide not to chart the new boundaries and areas, should they be described or depicted graphically in Annual Notices to Mariners and or the Sailing Directions?

It is a matter for the local HO (in consultation with the relevant authorities) to decide how best to make the information about ESSA available to mariners. It will also depend on what navigation publications are available to them. For HOs which do not produce related publications, the annual Notices to Mariners would often be a sensible solution.

Australia have pointed out some issues relating to the transfer of paper chart symbology to ENC's, which needs to be considered carefully by the ENC experts. In particular, the issue of how ENC's can cope with the frequent need for new symbols for paper charts, when S-57 is frozen for such long periods of time. I would be interested in progress by C&SMWG and TSMAD on the issues raised in the following annexes. The attached Annex E to this CL is relevant. However, in my judgement, none of the issues raised in CHRIS 15-5.4A are reason to further delay the adoption of the CSC approved symbols for ESSA.

Annex B to CHRIS 15-5.4A

POTENTIAL ISSUES FOR C&SMWG CONSIDERATION

C&SMWG may wish to consider at least the following:

1. If green was adopted for paper charts, could it be used within the S-52 presentation Library without conflicting with other green objects, such as radar and green sector lights? A green line for ESSAs may be invisible under a green sector light. What are the implications?
2. If paper charts use green lines, the RNCs will also have green lines. If the SENCs do not display green line symbols, there will be a miss match between multi-fuelled ECDIS which display both RNCs and SENCs at the same time side by side on the one display.
3. What potential is there for these areas and boundaries to lose their contrast and clarity if merged with other complex areas where several maritime boundaries already exist? What happens when ESSAs have a common boundary with other ESSAs or restricted areas (**RESAREs**)? What happens when ESSAs are within ESSAs with different attributes? Which has priority? These situations all have potential to cause clutter and obliterate several overlapping maritime areas or boundaries.
4. The C&SMWG has agreed that no new symbols will be introduced without extensive sea trials. If this issue is so urgent, can an interim solution be investigated without the agreed sea trails?
5. If a new symbol(s) need to be adopted, will these require tests within IEC 61174 for Type Approval?

POTENTIAL ISSUES FOR TSMAD CONSIDERATION

TSMAD members may wish to consider at least the following:

1. Is there an existing object(s) and associated attributes/values suitable within S-57 Edition 3.1 to cover such areas as ESSAs, PSSAs, ATBAs? The existing object classes **RESARE** and **CTNARE** appear to be suitable, however what attributes/values are required? There is no attribute 'Category of Caution Area' for example and there may not be adequate values for the attributes 'Categories of Restricted Area' nor 'Restriction'. There has already been discussion for S-57 Edition 4.0 to include new objects such as "Maritime Boundaries" and "Maritime Areas", which may also include some new attributes not within S-57 Edition 3.1. It would appear from the CSC CLs on ESSA, etc that these features are very important thereby warranting a new section within M-4. Perhaps they also require a specific Object Class within S-57?
2. If a new object is required, will the ENC test data sets require updating and subsequent new editions issued?
3. The CSC circular letters broaden the definition for IMO 'Areas To Be Avoided' (ATBA) and if adopted, would require a clarification and correction to S-57, edition 3.1 for value 14 for attribute RESTRNAs. S-57 Edition 3.1 is frozen, so there is no maintenance mechanism available to make such clarifications or corrections.

**Annex E to
CSPCWG CL 04/2003**

Extract from IHO paper for IMO-NAV 48:

In accordance with an undertaking given to NAV 47 by the IHO, charting of Special Areas and Particularly Sensitive Sea Areas (PSSAs) has been worked out by the IHO Chart Standardization Committee. The results are provided in Appendix 1. An interim solution for encoding these areas in Electronic Navigational Charts (ENCs) and presenting them on Electronic Chart Display and Information Systems (ECDIS), is provided in Appendix 2.

Note by CSPCWG Secretary: Appendix 1 was an early draft of new M-4 section 437. Appendix 2 follows:

Appendix 2

ELECTRONIC NAVIGATIONAL CHARTS (ENCs)

Electronic Navigational Charts (ENCs) are produced by IHO Member States' Hydrographic Offices, based on the IHO Transfer Standard S-57 and its product specification for ENCs.

A. Special Areas

Special Areas are described in Appendix 1 (Specification B-437.5). As stated in B-437.5, their **limits should not normally be inserted on navigation charts**. It is more appropriate to include details in associated publications, such as Sailing Directions, Annual Notices to Mariners or special charts depicting MARPOL 73/78 limits.

Special Areas may be identified as an Associated Protective Measure for Particularly Sensitive Sea Areas (PSSAs); see below. If necessary, a note may be inserted on appropriate ENCs referring to the fact that the ENC [or a specified part of it] lies within an IMO-designated Special Area:

MARPOL 73/78 SPECIAL AREA

This ENC lies within a Special Area designated by IMO under MARPOL 73/78.

For details, see[*name of chart or publication*].....

In that case, the note will appear in a text file, which will be referred to in an S-57 attribute "Text Description" (Code: TXTDSC). For the display of this information on ECDIS, see B.2 below.

B. Particularly Sensitive Sea Areas (PSSAs)

PSSAs are described in Appendix 1 (Specification B-437.6).

Note: The following describes the IHO interim method used to encode PSSAs in ENCs and display them on ECDIS. The matter will be addressed by the relevant IHO working groups, with a view to devising a definite solution.

B.1 Encoding of PSSAs in ENCs

As an interim measure, PSSAs will be encoded in using the S-57 object "Restricted Area" (Code: RESARE), with the associated S-57 attribute "Category of Restricted Area" (Code: CATREA) being

set to the value “ecological reserve” (Code: 28) and the S-57 attribute “Information” (Code: INFORM) containing the text “Particularly Sensitive Sea Area (PSSA)”.

Associated protective measures should be encoded on ENC’s as follows:

<i>Associated Protective Measure</i>	<i>Action on ENC’s</i>
Special Area under Annexes of MARPOL 73/78, or the application of special discharge restrictions to vessels operating in a PSSA.	Combine Special Area note (App.1, B-437.5) with PSSA note (App.1, B-437.6.b). The resulting note to appear in a text file, which will be referred to in an S-57 attribute “Text Description” (Code: TXTDSC).
Adoption of ships’ routeing and reporting measures.	Insert ships’ routeing measures and reporting measures in using appropriate objects and attributes, as specified in S-57. Consider combining any associated note with PSSA note (App.1, B-437.6.b). The resulting note to appear in a text file, which will be referred to in an S-57 attribute “Text Description” (Code: TXTDSC).
Other measures such as compulsory pilotage schemes or vessel traffic management systems.	Insert ships’ routeing measures and reporting measures in using appropriate objects and attributes, as specified in S-57. Consider combining any associated note with PSSA note (App.1, B-437.6.b). The resulting note to appear in a text file, which will be referred to in an S-57 attribute “Text Description” (Code: TXTDSC).

B.2 Display of PSSAs on ECDIS

As an interim measure, the limits of PSSAs will be displayed on ECDIS by means of the IHO symbology used for the S-57 object “Restricted Area” (Code: RESARE), as follows:

IN 2.1



The information contained in the associated attributes INFORM and TXTDSC (see B.1 above) can be accessed by the mariner through cursor picking. The relevant text will be displayed in a window on the ECDIS screen.