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| **NAUTICAL CARTOGRAPHY Working Group** |

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**NCWG Letter: 02/2018**

UKHO ref: HA317/010/031-14

Finnish ref: LIVI/94/00.03.01/2018

Date 4 January 2018

**Subject: Follow-up to NCWG Letter 04/2017 (Secretary actions group 2)**

Dear Colleagues

Thank you to the 24 respondents to NCWG Letter 04/2017. A consolidated list of responses is attached at Annex A, with my comments added in red.

**Action 18**: Most of us are in favour of using the ‘yacht/boat’ symbol more widely, especially for a small craft anchorage. A smaller majority are also happy to use it for a small craft anchor berth, but extending it for small craft mooring trots and mooring areas was not considered a good idea. Both these latter uses were likely to be very rare anyway. Some small clarifications will be required in S-4 (detailed in Annex B), but the only change required to INT1 is to amend the term at F11.2, as the extended usages will be intuitive.

**Action 22**: Again, the draft revision was approved by the majority, but we can improve the text a little as the result of the comments. These are also detailed in Annex B.

**Action 27**: Everyone was happy with the draft changes to S-4 consequent on the 2017 revision of IHO Resolution 3/1919. However, Japan highlighted an issue with H20, which is different in S-4 and INT1, with both versions being potentially confusing. I have therefore suggested a small change to both, in my response to Japan’s comment in Annex A. France might also consider the last sentence of my comment.

**Action 28**: Everyone agrees to remove B-480.2 (the paragraph about Loran).

**Action 29**: Most people were happy with the proposed changes to B-270 et seq, to cover the use of decimal degrees for magnetic variation. Some minor changes were suggested; for details and my responses, see Annex A.

The final wording for changes to S-4 (and the proposed changes to INT1) are at Annex B. As the changes from letter 04/2017 are minor, I do not think another consultation round is required, but if you have any reservations about the proposals, please let me know, **not later than 1 February 2018**.

Yours sincerely,



Mikko Hovi,

Chair NCWG

Annex A: Consolidated Responses to NCWG Letter 04/2017

Annex B: Draft revisions to INT1 and S-4, as agreed by NCWG, for HSSC consideration

Annex A to NCWG Letter 02/2018

**NCWG3 – Secretary actions (Group 2)**

**Consolidated Responses to NCWG Letter 04/2017**

| **No.** | **Question** | **Yes** | **No** |
| --- | --- | --- | --- |
| 1 | **Action 18:**  Do you agree with the proposal to allow the use of the ‘yacht’ symbol F11.2 to include ‘small craft’ in general (for example motorboats and pleasure craft)?  (Note: if your answer is ‘no’, you should still answer the following questions, as the WG’s overall vote on this question may be ‘yes’)  Chair: clear vote in favour | AU, CA, DE, DK, ES, ESRI, FI, FR, GR, IR, IT, JP, KR, LV, NL, NO, NZ, SE, TSSO, UA, UK, US, ZA | IN |
| 1.1 | If the agreed answer to 1 is ‘yes’:  Should the term at INT1 F11.2 be amended to read ‘Yacht/small craft berth without facilities’?  Chair: unanimous | AU, CA, DE, DK, ES, ESRI, FI, FR, GR, IN, IR, IT, JP, KR, LV, NL, NO, NZ, SE, TSSO, UA, UK, US, ZA |  |
| 1.2 | If the agreed answer to 1 is ‘yes’:  Do you agree to use F11.2 with an anchor to mean ‘small craft anchorage?  Chair: clear vote in favour | AU, CA, DE, DK, ESRI, FI, FR, GR, IN, IR, IT, JP, KR, LV, NL, NO, NZ, SE, TSSO, UA, UK, US, ZA | ES |
| 1.3 | If the agreed answer to 1.2 is ‘yes’:  Should there be an ‘N12.10’ INT1 entry for small craft anchorage?  (Note: You may consider that the note under N12.9 is sufficient)  Chair: a small majority of MS, importantly including all INT1 producers, consider this unnecessary | AU, GR, IR, IT, JP, NL, NO, NZ, SE, ZA | CA, DE, DK, ES, ESRI, FI, FR, IN, KR, LV, TSSO, UA, UK, US |
| 1.3.1 | If the agreed answer to 1.3 is ‘no’, should S-4 B-431.3 be clarified by addition of the symbol F11.2 in lieu of ‘small craft’ after (*Ref*) in the second paragraph?  Chair: a small majority in favour of this small change to S-4. | DE, ES, ESRI, FI, IN, KR, NO, UK, TSSO | CA, DK, FR, LV, UA, US |
| 1.3.2 | If the agreed answer to 1.3 is ‘yes’, should B-431.3 be clarified by deleting ‘small craft’ as above and including the new N12.10 at the end of the graphics?  Chair: becomes ‘not applicable’. | AU, FI, GR, IR, IT, JP, NL, NO, NZ, SE, UK, ZA | DE, ESRI, |
| 1.4 | Do you agree the F11.2 symbol could be used inside an anchor berth symbol N11.1?  (Note: It would be very unusual to chart individual anchor berths for small craft, but combined with an anchor it would be distinct from the mariner symbol F11.1 and therefore intuitive as a small craft anchor berth.)  Chair: vote in favour. | AU, CA, DK, FI, FR, GR, IT, JP, KR, LV, NO, NZ, SE, UK, US, ZA | DE, ES, ESRI, IN, IR, NL, TSSO |
| 1.4.1 | If the agreed answer to 1.4 is ‘yes’, should B-431.2 be clarified by adding ‘small craft’ in the parenthesis.  (Note: B-431.2 already allows use of symbols, i.e. flame, quarantine cross, which are not shown in INT1 as they are intuitive.)  Chair: vote in favour. | CA, DE, DK, ES, FI, FR, GR, LV, NO, UA, UK, US | AU, ESRI, FR, IT, JP, NZ, ZA |
| 1.5 | Would it be useful to allow the use of F11.2 within the berth circles at Q42? (Note: as 1.4, it would be very unusual to have a space on a charted mooring trot designated for a small craft, but the symbol would be intuitive.)  Chair: vote not in favour | AU, FI, GR, IT, KR, NO, NZ, SE, ZA | CA, DE, DK, ES, ESRI, FR, IN, IR, LV, NL, TSSO, UK, UA |
| 1.6 | Should the example of ‘small craft moorings’ at INT1 Q44 be replaced by the F11.2 symbol?  (Note: the limit and ‘moorings’ legend is black, as these are shown primarily because they are physical obstructions, like mooring buoys.)  Chair: vote not in favour | ES, FI, NO, SE, UA | CA, AU, DE, DK, ESRI, FR, GR, IN, IR, IT, KR, LV, NL, NZ, TSSO, UK, US, ZA |
| 1.6.1 | If the answer to 1.6 is ‘yes’:  Should the symbol F11.2 be black (to match the area limit and legend)?  Chair: not applicable | ES, FI, FR, NO, SE, UK | AU, ESRI, IT, UA |
| 2.1 | **Action 22:**  Do you agree with the following revised text at B-310.2?  **The coastline must be generalized** as necessary according to chart scale, but its essential characteristics must be preserved. An islet too small to be shown true to scale should be shown as a small circle of coastline thickness filled with land tint or may be shown as a black dot, if within a danger line, with no dimension less than 0.5mm. | AU, CA, DE, DK, ES, ESRI, FI, GR, IN, IR, IT, JP, KR, LV, NL, NZ, UA, ZA | FR, NO, SE, TSSO, UK, US |
| 2.2 | Do you agree with the following revised text at B-421.1?  **Rocks (or large boulders) which do not cover** must be shown as **islets** ~~(that is: using the coastline symbol and, where the size permits, land tint)~~. Where the height is shown, it must be in metres, or metres and decimetres for heights of less than 5m, above the height datum for the chart as stated in the explanatory notes. The same style of numeral as used for land spot heights must be used (see B-352.2). If there is not sufficient space to insert the numeral within the rock it must be inserted adjacent to it, in brackets (see also B-302.3). An islet too small to be shown true to scale should be shown as a small circle of coastline thickness filled with land tint or may be shown as a black dot, if within a danger line, with no dimension less than 0.5mm. Islets may be landmarks; for the charting of landmarks and conspicuous objects, see B-340.  Chair: There is clearly a vote in favour of clarifying how small islets should be shown (for 2.1 and 2.2), and the draft text is acceptable to most, but valid concerns are expressed by a minority, explained in their comments. See my comment under TSSO below for a way forward. | AU, CA, DE, DK, ES, ESRI, FI, GR, IN, IR, IT, JP, KR, LV, NL, NZ, UA, ZA | FR, NO, SE, TSSO, UK, US |
| 3.1 | **Action 27:**  Do you agree with draft changes to S-4 detailed in NCWG3-09.1A?  Chair: Vote in favour | AU, CA, DE, DK, ES, ESRI, FI, FR, GR, IT, KR, LV, NL, NO, SE, TSSO, UA, UK, US, ZA |  |
| 3.2 | Do you agree that no changes are necessary to H20 consequent on the revision of IHO Resolution 3/1919?  Chair: Vote in favour, but see my comment under Japan below. | AU, CA, DE, DK, ES, ESRI, FI, FR, GR, IN, IR, IT, KR, LV, NL, NO, SE, TSSO, UA, UK, US, ZA | JP (inferred from comment) |
| 4 | Action 28:  Do you agree that B-480.2 can be deleted from S-4 (if agreed by HSSC)? | AU, CA, DE, DK, ES, ESRI, FI, FR, GR, IN, IT, JP, KR, LV, NL, NO, NZ, SE, TSSO, UA, UK, US |  |
| 5.1 | **Action 29:**  Do you agree to add the following text to B-260?  Variation on the arrows may be expressed in degrees and decimals (to one decimal place) or in degrees and minutes to the nearest 5′ and rate of change in decimals of degrees (up to two decimal places) or in minutes.  Chair: vote in favour. | AU, CA, DK, ES, ESRI, GR, IN, IR, IT, JP, KR, LV, NL, NO, NZ, SE, UA, UK, ZA | DE, FI, FR, TSSO, US |
| 5.2 | Do you agree to amend B-272.1b and c as follows?  b. The magnetic variation must be shown in degrees followed by the letter E or W as appropriate. Where the isogonal of 0° is charted, it must be so labelled. The annual rate of change, expressed in up to two decimals of degrees or in minutes and followed by the letter E or W as appropriate, must immediately follow the variation, in brackets….  c…..  MAGNETIC VARIATION LINES ARE FOR (YEAR)  The Magnetic Variation is shown in degrees, followed by the letter W or E, as appropriate, at certain positions on the lines. The annual change is expressed in [decimals of degrees / minutes] with the letter W or E and is given in brackets, immediately following the variation.  Chair: vote in favour. | AU, CA, DE, DK, ES, ESRI, FI, FR, GR, IN, IR, IT, JP, KR, LV, NL, NO, NZ, SE, TSSO, UA, UK, US, ZA |  |
| 5.3 | Do you agree to amend B-272.3 as follows?  The Magnetic North arrow must be labelled with the value of the variation, the year to which the value applies and, in brackets, the rate of annual change of variation. Variation must be given to the nearest 0.1° or 5′, change to the nearest 0.01° or 1′. To both, values E or W must be added as appropriate. Where the increase or decrease in the rate of annual change is 0.01° or 0.5′ or less, it must be shown as (0.0° or 0′).  Chair: vote in favour. | AU, DK, ES, ESRI, FI, FR, GR, IN, IR, IT, JP, KR, LV, NL, NO, NZ, TSSO, UA, UK, ZA | CA, DE, SE, US |
| 5.4 | Do you agree to amend B-273 as follows?  If a hydrographic office finds the values based on its national data differ by more than 0.75° ~~45’~~ for variation or more than 0.05° ~~3’~~ for annual change…  Chair: vote in favour. | AU, CA, DE, DK, ES, ESRI, FI, FR, GR, IN, IR, IT, JP, LV, NL, NO, NZ, SE, TSSO, UA, UK, US, ZA | KR |

Further comments:

CANADA

1.3 Note under 12.9 is sufficient.

1.5 no need. Almost is the opposite of what we are trying to do with Future (simplification) of the paper chart.

1.6 Agree with US comment.

5.3 Agree with US comment.

ESRI:

1.4 The symbol would need to be large to create enough detail. Would be rarely used.

1.6 Legend isn’t necessary or should be optional if F.11.2 is within the area limit.

FRANCE:

1.6/1.6.1 Not replaced by: this new black symbol could be added beside the current Q44 symbol (two symbols in this row, like for F20, N13 etc…)

2.1/2.2

France, like USA (NOAA; see NCWG3-08.6B), uses a “minimum-size islet” symbol, but which is slightly different:

It’s a filled 0.75 mm by 0.5 mm oval (all black, no land tint because the size doesn’t unable us to show it, with a 0.2mm thick coastline).

We certainly have some of them depicted on paper charts which are not within danger lines.

We would prefer:

An islet too small to be shown true to scale should be shown as a black dot, but with no dimension less than 0.5mm to ensure visibility. When isolated, and especially if not enclosed within a danger line, it may be shown as a small circle of coastline thickness filled with land tint.

Chair: see my comment under TSSO

GERMANY:

5.1: The guidance on compass rose legends is given under B-272.3. There is no need to add the sentence under B-260.

Chair: Majority is in favour of adding the sentence. I can see this is useful, as the examples only show minutes but the text allows for decimal degrees

5.2: The change / addition can be done in S-4 but INT 1 should keep showing national practice.

Chair: agree.

5.3: I support the comments from NOAA and NGA.

INDIA:

1.3: N 12.9 with relevant text can solve the purpose.

5.1: Since B-260 is meant for specimens, changes to the text is recommended at B-272.3

Chair: see comment at Germany.

JAPAN:

1.5 & 1.6

Yacht/small craft anchor berths without facility may not be established in Japan. However, it seems no problem in a combined use F11.2 with Q42 and Q44.

3.1 & 3.2

It was resolved that heights on shore and heights of lights shall be referred to mean sea level at the first IHC in 1919. Japan have changed HW to MSL in 1948 taking 30 years after the IHO resolution. Otherwise the range of light has been adopted into the effective intensity by IALA recommendation (1980) and it does not result in elevation of light. Japan proposes to change the diagram of S-4 H20 into a diagram of "Symbols, Abbreviations and Terms used on Charts, current French version, Ed. 6, 2016". The heights of lights should be referred to HW or MSL as far as practicable.

Chair: Elevations above MSL is allowed by Res.3/1919 and the draft revised text in S-4, but only in areas where tidal range is negligible. S-4 revised text agrees, so 3.1 is not a problem. All INT1 versions show elevation of lights above HW or MSL, but the line used is not aligned with any datum line on the left side. S-4 shows it above Charted HW (coast) line. Both versions are potentially confusing; only by reading S-4 text (for the compiler) or the chart notes (for the chart user), will the appropriate elevation of the light be clear. On reflection, I think a better and simpler depiction would be to label the coastline as ‘Charted coastline (HW or MSL)’ and put the elevation of light arrow between the light focal plane and the coastline. This assumes that the elevation of the light will always be given above the charted coastline of course, in conformity with Res.3/1919. This will result in a small change to all versions of H20. I notice French INT1 adds a ‘height’ arrow for the lighthouse. This 'height' refers to distance above ground, and therefore I am not sure that this is useful and does not really belong in a graphic dealing with Tidal levels.

Res3/1919(2017) *In oceanic tidal areas*: 5 It is resolved that heights on shore, including elevations of lights, should be referred to a Highest Water (HW) datum. Item 5 should be amended to:

- coast line ... HW

- elevations of light source ... HW or MSL

- Land survey datum ... HW or MSL

Both of "HW or MSL" are defined on chart.

NCWG does not have authority or expertise to change Res.3/1919: please refer your comments to the TWCWG.

KOREA (REPUBLIC OF):

1.3 Note under N12.9 is sufficient.

1.4 The symbol is too small. Would be rarely used.

5.4 We are used to minute.

more than 0.75° or 45’ for variation or more than 0.05° or 3’ for annual change…

Chair: I think that is acceptable and is consistent with the other B-270 sections.

NETHERLANDS:

1.4 In these scales where individual berths are indicated there would be space to add a legend with the usage of the anchorages

NEW ZEALAND:

\* NZ unlikely to use this symbol but can see the merit for use on very large scale charts

\*\* NZ see this as over detailed and prone to chart clutter. It is not required.

Chair: no asterisks were included on the response form, so it is not clear to which question \* and \*\* refer.

\*\*\* INT1 Q44 - Safest and clearest depiction is to retain the status-quo.

\*\*\*\* NZ has limited awareness of these discussions and thus would like to reserve comment. However, from what is understood, it is unlikely that H20 requires updating.

NORWAY:

2.1 and 2.2: with no dimension less than 0.5mm. Norway is using a black dot of a size of 1.36 mm, which is found very suitable for the complex areas in Norwegian waters. 0.5 mm will be too big.

Chair: See my comment under TSSO.

SPAIN:

1.2. ESP consider to use F11.2 with an anchor to mean ‘small craft anchorage can be

confused to use in Harbour Installations.

Chair: not understood

1.3 Even ESP has answered in 1.2 “NO”, ESP consider that the note under N12.9.

(Reserved anchorage area) is sufficient.

1.4.1 Even ESP has answered in 1.2 “yes”, ESP consider that B-431.2 already allows use of

symbols, i.e. flame, quarantine cross, which are not shown in INT1 as they are

intuitive.

1.5 ESP consider that similar last point it would be very unusual to have a space on a

charted mooring trot designated for a small craft, but the symbol would be intuitive.

1.6.1 ESP consider that the symbol should black to match with the limits colour.

SWEDEN:

1.4 and 1.5. Sweden has currently no intention to use this symbol and therefore chooses not to answer.  
2.1 and 2.2. Sweden considers that the suggested amendment is open for interpretation. In the Swedish archipelago the symbol for rock (black dot) is often used, for that reason Sweden doesn’t use the danger line symbolization associated with rock (black dot). Also the suggested size 0.5mm, as we interpreted, is too big. Sweden suggests the minimum size of 0.3mm for rock (black dot).

Chair: see my comment under TSSO.  
5.3. The suggested amendments in 5.1 and 5.2 say “up to two decimals of degrees”. Sweden suggests that “up to two decimals of degrees” should be inserted in B-272.3 (to obtain consistency between B-260, B-272.1b and B272.3) for annual change.

Chair: the draft wording was intended for minimal change to S-4. However, I agree for consistency B-272.3 would be better expressed as:

The Magnetic North arrow must be labelled with the value of the variation, the year to which the value applies and, in brackets, the rate of annual change of variation. Variation must be given to one decimal place of a degree or 5′, change to two decimal places of a degree or 1′. To both, values E or W must be added as appropriate. Where the increase or decrease in the rate of annual change is 0,01° or 0,5′ or less, it must be shown as (0,0° or 0′).

We will also amend the decimal separator to a comma.

TSSO:

1.3: Agree that the Note under 12.9 is sufficient.

1.3.1: Suggest that the symbols be added in brackets in addition to the text, rather than in lieu of, as has been done for refuge anchorage. Therefore consider text should be “….vessels, for example refuge area (*Ref*), small craft (**IU1**).”

Chair: Agree

1.4: I cannot see that there would be many instances where there would be a designated anchor berth specific to small craft, and if so I do not think it would be something that would need to be identified on the navigational chart.

2.1: The general convention of the use of a danger circle around a navigational danger to emphasize the existence of the danger if the cartographer considers that it is not prominent enough should be the first consideration. Suggest therefore that further emphasis be placed on this rather than changing the symbol specifications, which I think would be ignored by most existing HOs as this would be a large undertaking to change on a full chart portfolio (as has been pointed out), and the additional issue (as has also been pointed out) of the possibility of additional clutter. Suggest therefore that the text be amended to read:

**The coastline must be generalized** as necessary according to chart scale, but its essential characteristics must be preserved. An islet too small to be shown true to scale must not be reduced to a width less than the width of the coastline symbol to ensure visibility (see also B-421.1).

2.2: To follow on from the above comment, suggest amending similar to:

**Rocks (or large boulders) which do not cover** must be shown as **islets** (that is: using the coastline symbol and, where the size permits, land tint). Where the height is shown, it must be in metres, or metres and decimetres for heights of less than 5m, above the height datum for the chart as stated in the explanatory notes. The same style of numeral as used for land spot heights must be used (see B-352.2). If there is not sufficient space to insert the numeral within the rock it must be inserted adjacent to it, in brackets (see also B-302.3). An islet too small to be shown true to scale must not be reduced to a width less than the width of the coastline symbol. Where there is no associated shoal water depth information (contours and/or intertidal or shoal water blue tint) shown at the chart scale to further emphasize an islet that may be considered a danger to navigation, a danger circle, filled with solid blue tint, should also be shown centred on the islet. Islets may be landmarks; for the charting of landmarks and conspicuous objects, see B-340.

Chair: This is helpful, although we must also remember the original reasons for raising this issue (by IT who are now content and US): the need for a recognised symbol for describing NM action and for ENC. I suggest the following revised text:

**B-310.2** (2nd sentence): For an islet too small to be shown true to scale, see B-421.1.

**B421.1**: … An islet too small to be shown true to scale should be shown as a small circle of coastline thickness filled with land tint, emphasized if required by a danger circle (K1) and/or associated text. Scattered islets within a foul area (see B-422.8), delimited by a danger line (K1) and shallow water tint, may be shown as black dots, ideally with no dimension less than 0.5mm. Islets may be landmarks; for the charting of landmarks and conspicuous objects, see B-340.

Note: We have not included any precise dimensions for the islet symbol, which I suppose will vary slightly according to the coastline thickness as used by different Member States.

5.1: Agree with US comment.

5.3: Agree with US comment.

UK:

1.3-1.3.2: The symbol is intuitive and its use is covered by an existing note in INT1, therefore no further entry in INT1 is required. Consequently, the only possible and necessary amendment to S-4 would be to add the symbol after the words ‘small craft’.

1.5: The standard circles in the mooring trot are smaller than for anchor berths: it would not be possible to insert a ‘boat’ symbol without considerably enlarging them. Given that such a symbol would be rare (possibly non-existent), we recommend no action.

1.6: If the symbol were to be approved, it should be black (symbol + ‘*moorings*’), but in general we think it is better to maintain the status quo.

2.1-2: UK has many charts world-wide where islets are shown as small dots (with no precise dimensions), although they are always within a danger line, or otherwise emphasized (text, shallow water, danger circle as appropriate). It would not be practical to change all these within the remaining life time of paper charts and in many cases would actually reduce clarity.

US:

1.3 Note under N12.9 is sufficient.

1.5 We recommend not making an additional INT1 entry of example using the small craft symbol.

1.6 The text is preferred. This makes it clear that there are multiple moorings (obstructions) in the enclosed area. This also prevents mariners from confusing the area as a small craft anchorage area (with or without moorings).

2.1 The text as proposed is unclear as to what should be enclosed within a danger line. Suggest the following, which more clearly indicates that the circle does not need a danger line, but the black dot does.

An islet too small to be shown true to scale should be shown as a small circle of coastline thickness filled with land tint or, if within a danger line, as a black dot. The diameter of the circle or dot should not be less than 0.5mm.

2.2 Same text suggested above in 2.1 is recommended for the applicable portion of B-421.1.

Chair: see my comment under TSSO.

5.1 All the guidance on compass rose legends is in B-272.3. We do not see the need to add it again here. If anything, “See B-272.3 for magnetic legends,” could be added.

5.3 The last sentence conflicts with the sentence before it. Change is to be shown to the nearest 0.01°, but if it is 0.01°, then it must be shown as 0.0°. Also, wouldn’t 0.5’ round up to 1’ and if the change must be shown to the nearest 0.01, shouldn’t zero be shown as 0.00°?

Recommend the following:

**B-272.3**

Variation must be given to the nearest 0.1° or 5′, change to the nearest 0.01° or 1′. To both, values E or W must be added as appropriate. Where the increase or decrease in the rate of annual change is less than 0.01° or 0.5′, it must be shown as (0.00° or 0′).

Chair: the draft wording allows for use of decimals of a degree, to be consistent with B-130, but no change was suggested to existing guidance on rounding 0.5′ down to 0′. I presume the reason is that such a small rate of change can be safely ignored. Draft wording is accepted (with decimal separator corrected to comma).

Annex B to NCWG Letter 02/2018

**Draft revisions to INT1 and S-4, as agreed by NCWG, for HSSC consideration**

INT1

INT1 F11.2: change term to ‘Yacht/small craft berths without facilities’.

INT1 H20: amend graphic so that the coastline is labelled as ‘Charted coastline (HW or MSL)’ and put the elevation of light arrow between the focal plane of the light and the coastline.

S-4

S-4 B-431.2:

**Designated anchor berths** must be shown, normally by means of a magenta anchor with a circle superimposed. The number or letter assigned to the berth, and/or possibly symbol describing the purpose (for example: small craft ‘boat’, dangerous cargo ‘flame’, quarantine cross) must be inserted within the circle. If necessary, to contain a 3-figure (or longer) designation, the circle may be extended to an oval:…

S-4 B-431.3:

… Numbered or named anchorage areas, or anchorages for particular vessels, should be identified as in the following examples (sloping text, anchor symbol upright, all magenta) where possible. These symbols may be adapted for other purposes or types of vessels, for example refuge area (*Ref*), small craft (). Size of text and associated anchor symbol may be adjusted to suit the size of the area.

S-4 B-310.2 (2nd sentence):

For an islet too small to be shown true to scale, see B-421.1.

S-4 B-421.1:

… An islet too small to be shown true to scale should be shown as a small circle of coastline thickness filled with land tint, emphasized if required by a danger circle (K1) and/or associated text. Scattered islets within a foul area (see B-422.8), delimited by a danger line (K1) and shallow water tint, may be shown as black dots, ideally with no dimension less than 0,5mm. Islets may be landmarks; for the charting of landmarks and conspicuous objects, see B-340.

S-4: Revise text conform with IHO Resolution 3/1919 (as amended 2017), taken from NCWG3-09.1A:

**B-302.2 The plane of reference** for all heights (including elevations of lights but excluding drying heights) must normally be a High Water (HW) datum, for example: Mean High Water Springs (MHWS); Mean Higher High Water (MHHW); Highest Astronomical Tide (HAT). Where there is little appreciable tide or change in water level at the adjacent shoreline, then Mean Sea Level (MSL) may be used. **~~Comments:~~** ~~TR~~ IHO Resolution 3/1919 (as amended 2017), contains the following guidance:

**In oceanic tidal areas** heights on shore, including elevations of lights, should be referred to a Highest Water (HW) datum (paragraph 5).

Highest Astronomical Tide (HAT), or a datum as closely equivalent to this level as is practical and acceptable to Hydrographic Offices, should be adopted as the datum for **vertical clearances**. Alternatively, another, similar datum may be used if high water levels in a specific area frequently deviate from HAT, or a different datum has been established by national policy (paragraph 7).

**In geographical areas where the tidal range is negligible** (for example less than 0.30m) and in non-tidal areas depths, **and all other navigational information**, should be referred to Mean Sea Level (MSL) or other level as closely equivalent to this as is practical and acceptable to Hydrographic Offices (paragraph 10). (Note: The adopted level may be a well-defined geodetic datum as used for heights in land survey applications or an observed local Mean Sea Level (MSL) based on long series of water level observations.)

~~1. It is resolved that heights on shore, including elevations of lights, should be referred to a HW datum. Heights should be referred to Mean Sea Level (MSL) where the tidal range is not appreciable. The datum used should be clearly stated on all charts.~~

~~2b. It is resolved that Highest Astronomical Tide (HAT) be adopted as the datum for vertical clearances where tides have an appreciable effect on the water level. Alternatively the differences between HAT and national datums for vertical clearances may be specified on nautical documents. If high water levels in a specific area frequently deviate from HAT, the datum for vertical clearances may be adapted accordingly. It is further resolved that a HW datum be used for vertical clearances in non-tidal waters.~~

**B-380 OVERHEAD OBSTRUCTIONS AND CLEARANCES: BRIDGES, CABLES, PIPES**

On charts which include vertical clearances under overhead obstructions, a statement of the height datum from which the vertical clearance is measured must always be given in the title block, see B-241.6

**B-380.1 Vertical clearance:** IHO Resolution 3/1919 (as amended 2017), ~~states that~~ contains the following guidance:

**Highest Astronomical Tide** (HAT), or a datum as closely equivalent to this level as is practical and acceptable to Hydrographic Offices, should be adopted as the datum for vertical clearances. Alternatively, another, similar datum may be used if high water levels in a specific area frequently deviate from HAT, or a different datum has been established by national policy (paragraph 7).

However, in **geographical areas where the tidal range is negligible** (for example less than 0,30m) and in non-tidal areas depths, **and all other navigational information**, should be referred to Mean Sea Level (MSL) or other level as closely equivalent to this as is practical and acceptable to Hydrographic Offices (paragraph 10).

~~It is resolved that Highest Astronomical Tide (HAT) be adopted as the datum for vertical clearances where tides have an appreciable effect on the water level. Alternatively the differences between HAT and national datums for vertical clearances may be specified on nautical documents. If high water levels in a specific area frequently deviate from HAT, the datum for vertical clearances may be adapted accordingly. It is further resolved that a HW datum be used for vertical clearances in non-tidal waters.~~

Vertical clearances must be rounded **down** to the nearest whole metre (unless under 10m, when metres and decimetres may be quoted, if the measurements are considered to be sufficiently accurate). The principle aim is to chart the predicted minimum safe clearance.

**B-405 CHART DATUM**

Chart Datum (CD) is the plane of reference to which all charted depths and drying heights are related. In tidal areas CD is chosen to show the least depth of water found in any place under ‘normal’ meteorological conditions. CD will vary from place to place in relation to the land survey datum or mean sea level. For further information, see ~~Technical~~ IHO Resolution 3/1919 (as amended 2017).

**B-405.1 Uniformity** of formulae for establishing CD for different nations would be difficult to achieve and is not essential for practical purposes. On charts of scale 1:500 000 and larger a general statement of the datum used must be included in the explanatory notes close to the chart title (see B-241.5 and Resolution 3/1919 paragraph 2) ~~on charts of scale 1:500 000 and larger~~.

**B-405.2 ~~Where the tidal range is not appreciable~~** ~~(that is: less than about 0.3m), CD~~ ~~may be Mean Sea Level (MSL)~~ **In geographical areas where the tidal range is negligible** (for example less than 0,30m) and in non-tidal areas, CD should be Mean Sea Level (MSL) or other level as closely equivalent to this as is practical and acceptable to Hydrographic Offices (Resolution 3/1919 paragraph 10).

**B-405.3 In oceanic tidal areas,** Lowest Astronomical Tide (LAT), or a datum as closely equivalent to this level as is practical and acceptable to Hydrographic Offices, must be adopted as CD. Alternatively, another, similar datum may be used if low water levels in a specific area frequently deviate from LAT, or a different datum has been established by national policy (Resolution 3/1919 paragraph 6). **~~Where the tidal range is appreciable~~**~~, the Lowest Astronomical Tide (LAT), or as closely equivalent to this level as is practically acceptable to hydrographic offices, should be adopted as CD. Alternatively, the differences between LAT and national CD may be specified on nautical documents. If low water levels in a specific area frequently deviate from LAT, CD may be adapted accordingly.~~ Since LAT is the recommended CD with worldwide application, and has the additional merit of removing all negative values from tide tables, this should be adopted as a long term objective, and be considered when opportunity for change arises.

For vertical clearances, see B-380. ~~Highest Astronomical Tide (HAT) should be adopted as the datum for vertical clearances. Alternatively the differences between HAT and national datums for vertical clearances may be specified on nautical documents. If high water levels in a specific area frequently deviate from HAT, the datum for vertical clearances may be adapted accordingly. A HW datum should be used for vertical clearances in non-tidal waters (see Technical Resolution 3/1919 as amended 2008).~~

**B-405.4 In some offshore areas**, co-tidal charts and atlases may be available for use as a basis for reduction of soundings (for new surveys) to CD, for example co-tidal charts for the North Sea compiled under the auspices of the North Sea Hydrographic Commission. In depths greater than 200m, a reduction for tide is not necessary.

**B-405.5 Tide Tables and Chart Datum.** IHO Resolution 3/1919 (as amended 2017) states that the datum of tide/water level observations and predictions for mariners shall be the same as CD. ~~Whatever CD is used, it is essential that it is the same as the datum adopted for the predictions given in the authoritative Tide Tables.~~ Where, over a long period of time, datums are under adjustment to conform to LAT, or to take account of changes in sea level, the changes to Tide Tables and charts should be co-ordinated as far as possible.

**B-405.6 The connection between Chart Datum and land survey datums** should not be quoted on charts but should be readily available for the use of surveyors and engineers in national Tide Tables.

**B-405.7 Rivers and estuaries.** On the largest scale charts it may be desirable to indicate marked changes in CD over short distances by means of a diagram.

B-260 New text under graphics:

Variation on the arrows may be expressed in degrees and decimals (to one decimal place) or in degrees and minutes to the nearest 5′ and rate of change in decimals of degrees (up to two decimal places) or in minutes.

B-272.1b & c:

b. The magnetic variation must be shown in degrees followed by the letter E or W as appropriate. Where the isogonal of 0° is charted, it must be so labelled. The annual rate of change, expressed in up to two decimals of degrees or in minutes and followed by the letter E or W as appropriate, must immediately follow the variation, in brackets….

c…..

MAGNETIC VARIATION LINES ARE FOR (YEAR)

The Magnetic Variation is shown in degrees, followed by the letter W or E, as appropriate, at certain positions on the lines. The annual change is expressed in [decimals of degrees / minutes] with the letter W or E and is given in brackets, immediately following the variation.

B-272.3:

The Magnetic North arrow must be labelled with the value of the variation, the year to which the value applies and, in brackets, the rate of annual change of variation. Variation must be given to one decimal place of a degree or 5′, change to two decimal places of a degree or 1′. To both, values E or W must be added as appropriate. Where the increase or decrease in the rate of annual change is 0,01° or 0,5′ or less, it must be shown as (0,0° or 0′).

B-273:

If a hydrographic office finds the values based on its national data differ by more than 0,75° or 45′ for variation or more than 0,05° or 3′ for annual change…