

**Arctic Regional Hydrographic Commission (ARHC)
Portsmouth, New Hampshire, United States, January 29-30, 2014**

Grid for Greenlandic ENC's

Submitted by:	<i>Denmark</i>
Executive Summary:	<i>This report gives an introduction to the overall ideas about the Grid for Greenlandic ENC's - GriG.</i>
Related documents:	<i>S-4. Regulations for International (INT) Charts and Chart Specifications of the IHO S-11. Guidance for the Preparation and Maintenance of International Chart Schemes and Catalogue of International (INT) Charts S-11 Part A Guidance for the preparation and maintenance of International Chart (INT) and Electronic Navigational Chart (ENC) schemes.</i>
Related Projects:	<i>Non</i>

Introduction / Background

The Danish Geodata Agency has decided to use a grid-based approach to the ENC cells in Greenland. This paper presents the overall ideas about the Grid for Greenlandic ENC's - GriG.

This grid definition is not a commitment to neither produce nor release all cells in the grid, merely a frame of extent and a cell naming convention for Greenlandic ENC's.

Analysis/Discussion

Grid definition

- The grid is based on a latitude-longitude coordinate system.
- The outermost (coarsest) grid-net (so far) has cell size 8° x 8°.
- The South-West corner of the gridded area is 56°N, 76°W, to fit Greenland and surrounding waters in as few 8° x 8° cells as possible.
- This grid will be subdivided in a finer grid, by dividing each cell in 2x2 sub-cells. This process continues, generating still finer grids, always dividing cells in 2x2 sub-cells.
- The finest grid (so far) is 15' x 15' (i.e. ¼ degree on each side).

A specific cell size is not associated with a specific scale or scale-band. An ENC at 1:90,000 could typically be a 1° x 1° cell, but may just as well be a 2° x 2° or ½° x ½° cell, depending on information density in the relevant area. Similar a 1° x 1° cell may likely be in scale 1:90,000, but can legally be at scale 1:45,000, 1:180,000 or other scale.

The GriG system does not include any specifications on what is a legal scale or scale-band, this is described elsewhere, and is in general influenced by IHO standards on this subject.

Naming convention

The 15' grid is the skeleton of the naming convention.

The Lower Left (South-West) corner of each 15' x 15' cell represents a 'name-point'. The name-points are numbered from South to North and from West to East, on each axis using the following series (AA, AB, AC, ... AX, AY, AZ, BA, BB, ... , ZX, ZY, ZZ). Any name-point can thereby be identified by a four letter 'coordinate' from AAAA in the South-West most corner, to potentially ZZZZ in the North-East corner. This is illustrated in the figure below.

Every cell, independent of size and shape, is named by the four-letter name of its lower-left corner coordinate.

Each cell will have an 8-letter name, as described by IHO standards. The form of the name is as follows: DKxNNWwY, where DK is national code, x is scaleband (1-6) NNWw is a name-point label, and y is a shape indicator as described below.



Shape indicator

Each size/shape combination is described by a single number or letter.

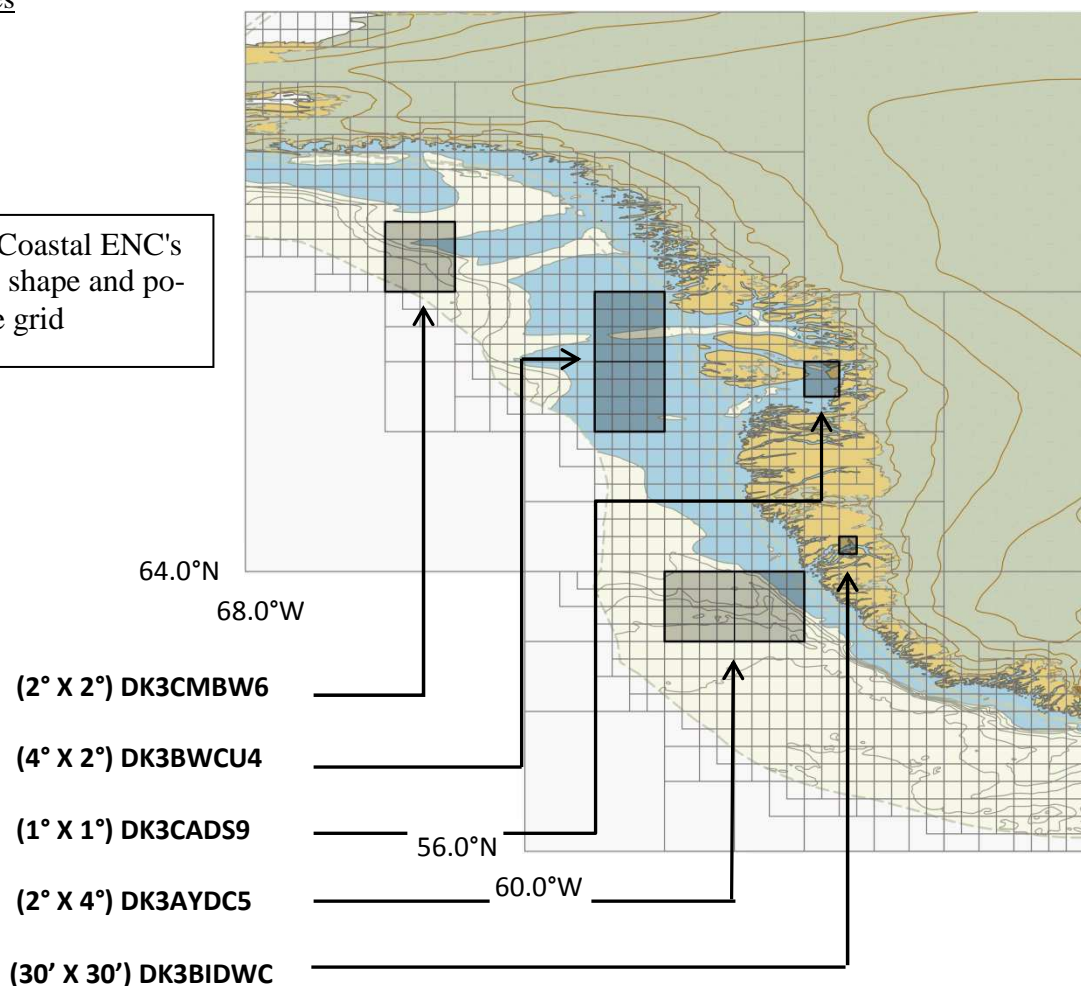
LAT \ LON	8°	4°	2°	1°	30'	15'
8°	0	1				
4°	2	3	4			
2°		5	6	7		
1°			8	9	A	
30'				B	C	D
15'					E	F

- 1° x 1° cell is a shape '9'
- 1° x 2° (horizontal) cell is a shape '8'
- 2° x 1° (vertical) cell is a shape '7'.

Note that 1°x2° refers to a cell 1° tall by 2° wide, which is in accordance with the maritime tradition, but may not seem intuitive to readers with a non-maritime background. So far only a number of the most likely to be used cell shapes have been named. The names are described by the table as shown below. Other shapes are allowed, and expected, and will be associated with letters later, as we gain experience with what shapes are likely to be most frequently used. Letters 'x', 'y' and 'z' are reserved for really odd shapes, no details are available on this at present.

Example grid cell names

Example of naming Coastal ENC's depending on extent, shape and position in the grid



Special cases and exceptions from the rules

The grid location and naming convention will not be used for detailed scale ENC's (Harbour and Berthing). ENC's at detailed scale, e.g. harbour plans, are not expected to seamlessly cover any larger areas, but are expected to exist as isolated instances.

The size and location of the detailed scale ENC's are not fixed to the 15' x 15' grid-net, but can freely be adjusted, as needed to best cover the area.

The naming of the detailed scale ENC's therefore cannot rely on the naming grid described above. The harbour plans, and other detailed scale ENC's, will likely be named with a 5-letter abbreviation of a relevant city- or place-name.

Actions required from the ARHC 4th Conference:

The ARHC 4th Conference is requested to consider this paper and to take appropriate actions.