

BSHC 12th Conference

Harmonisation of Baltic Sea ENC's

13 June 2007

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Administration

13 June 2007

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Background:

[1] IHO Work Programme 2008 – 2012: Task 3.3.4 ENC Production, Distribution and Update.

- RHCs to work to ensure ENC consistency and a common level of IHO data quality.
- To encourage MS to work together on achieving ENC consistency across national boundaries.
- To audit the state of consistency in their regions and to report to WEND. (2008-2012)

[2] IHO CL 32/2007: Recommendations for Consistent ENC Data Encoding.
"Hydrographic Offices producing ENC's are again urged to adopt these procedures and to grasp opportunities as they arise to update previously issued ENC's".

[3] WEND Report to the XVII IH Conference:

"The IHO's efforts towards resolving inconsistencies between adjoining ENC cells, disconnecting to the mariner, will need to be pursued."

[4] WEND principle 2.8:

"Member state responsible for originating the data is also responsible for its validation in terms of content, conformance to standards and consistency across cell boundaries"

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Goal:

Uniform Baltic Sea regional implementation of the IHO recommendations for consistent ENC data encoding.

- 1. Harmonisation of compilation scales of Baltic Sea ENCs**
- 2. Analysis of inconsistencies on Baltic Sea ENCs**
- 3. Workshop to agree on harmonisation actions.**

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Proposal #1:

Harmonising of the compilation scales used in ENCs on the Baltic Sea

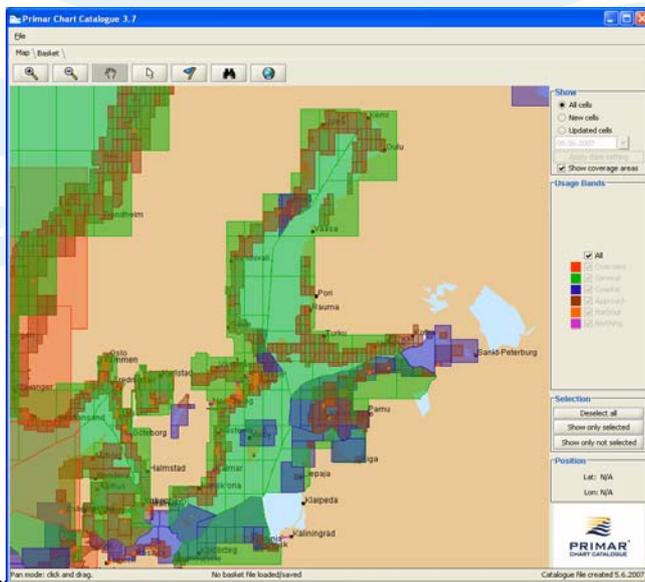
- To review the compilation scales used in ENCs on the Baltic Sea**
- To propose measures to harmonise the Baltic Sea ENC compilation scales**

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Baltic Sea ENC

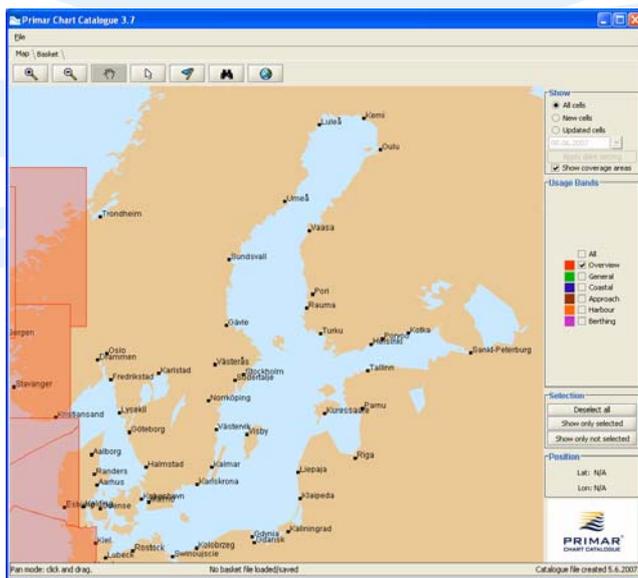


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Baltic Sea ENCs - Overview

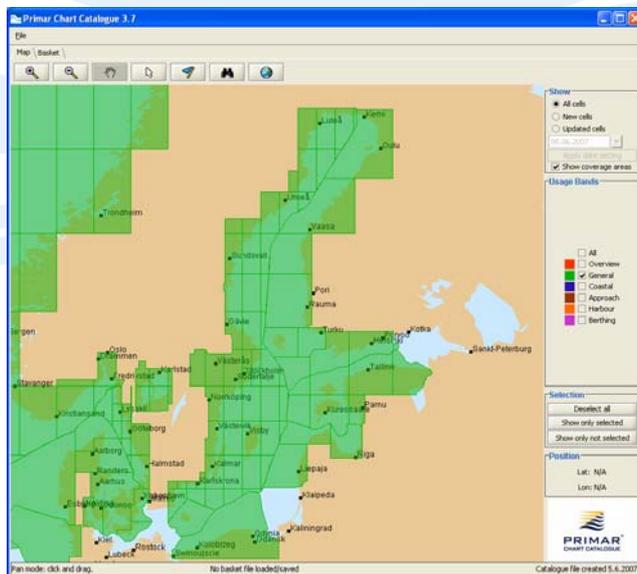


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Baltic Sea ENC's - General

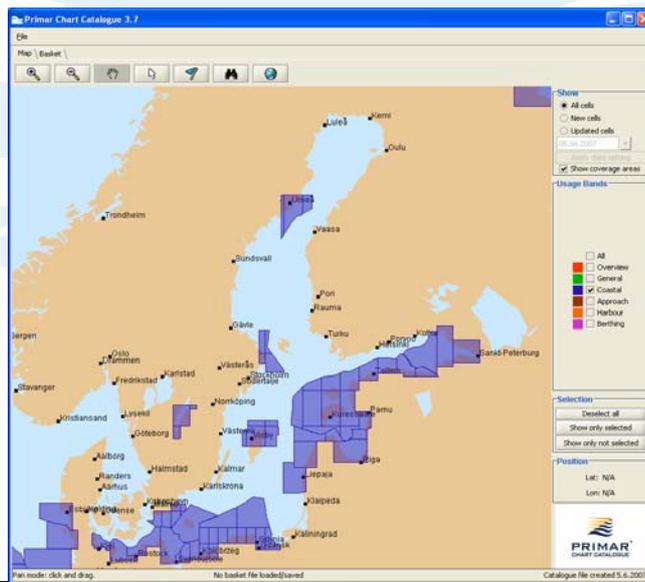


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Baltic Sea ENC's - Coastal

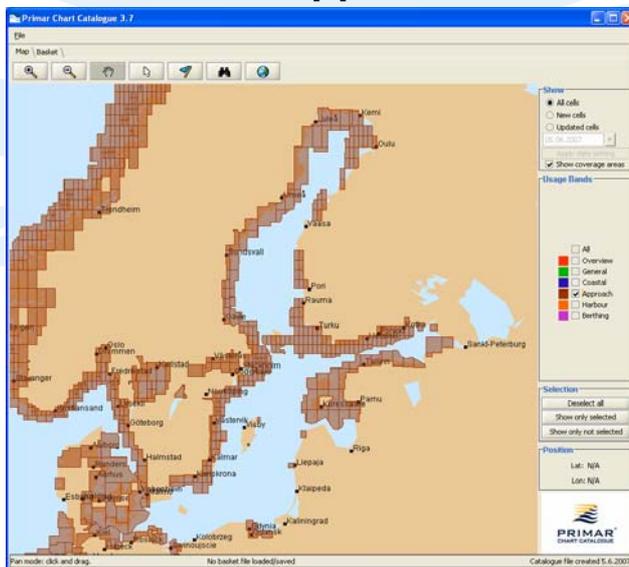


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Baltic Sea ENCs - Approach

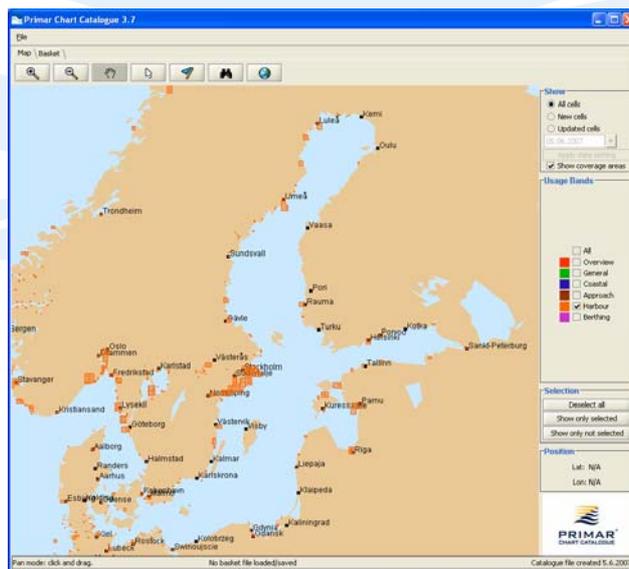


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Baltic Sea ENCs - Harbour

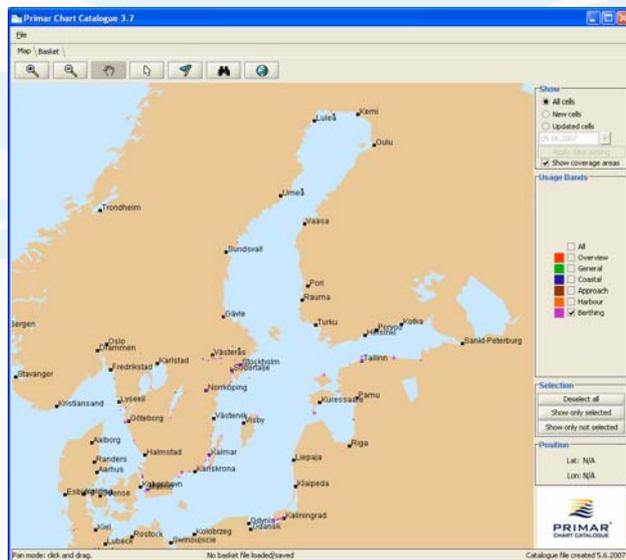


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Baltic Sea ENCs - Berthing



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Compilation scales in Baltic Sea ENCs

Country	Overview	General	Coastal	Approach	Harbour	Berthing
Denmark	[700 000]	180 000 [350 000]	[45 000] [90 000]	22 000 45 000	4 000 8 000 12 000	----
Estonia		180 000	90 000	50 000	7 500 10 000 12 500 25 000	2 000 5 000 7 500
Finland		180 000	----	25 000	12 000	----
Germany		----		12 500 25 000	2 000 6 250	
Latvia		180 000	90 000	22 000	7 500 8 000 10 000 25 000	2 000 5 000
Lithuania						
Poland		350 000	90 000	22 000	2 000 4 000 8 000 12 000	----
Russia		----	90 000	22 000 45 000	4 000 8 000 12 000	4 000
Sweden		90 000	45 000 50 000	22 000 30 000	8 000 12 000	2 000 4 000

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Compilation scales in Baltic Sea ENC's

Observations:

- There is no *Overview* cells on the Baltic Sea.
- Swedish *General* cells are in 90 000, but that scale is used by the others for *Coastal* cells.
- For *Coastal* cells mainly 90 000 is used, except Sweden 45 000 and 50 000.
- The scales for *Approach*, *Harbour* and *Berthing* cells are varying.
- The scale ranges between *Approach*, *Harbour* and *Berthing* cells are overlapping.
- There are deviations from the recommended radar scales

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Standard Radar Scales

Selectable Range	Standard scale (rounded)
200 NM	1:3,000,000
96 NM	1:1,500,000
48 NM	1:700,000
24NM	1:350,000
12 NM	1:180,000
6 NM	1:90,000
3 NM	1:45,000
1.5 NM	1:22,000
0.75 NM	1:12,000
0.5 NM	1:8000
0.25 NM	1:4000

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Recommended Compilation Scales

Navigation al Purpose	Name	Scale Range	Available Compilation Scales	Matching Scale Ranges
1	Overview	< 1:1,499,999	3,000,000 and smaller 1,500,000	200 NM 96 NM
2	General	1:350,000 – 1:1,499,999	700,000 350,000	48 NM 24 NM
3	Coastal	1:90,000 – 1:349,999	180,000 90,000	12 NM 6 NM
4	Approach	1:22,000 – 1:89,999	45,000 22,000	3 NM 1.5 NM
5	Harbour	1:4000 – 1:21,999	12,000 8000 4000	0.75 NM 0.5 NM 0.25 NM
6	Berthing	> 1:4000	3999 and larger	< 0.25 NM

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Proposals to harmonise the Baltic Sea ENC Compilation scales:

<i>General</i>	180 000, 350 000
<i>Coastal</i>	90 000
<i>Approach</i>	22 000, 45 000
<i>Harbour</i>	4 000, 8 000, 12 000
<i>Berthing</i>	2 000

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Proposal #2:

Analysis of inconsistencies on the ENC's in the Baltic Sea

Finland is aware that many harmonisation actions have been done by the RENCs (IC-ENC and Primar Stavanger).

However, it is proposed that an independent study will be made for collecting and analysing existing inconsistencies on the ENC's in the Baltic Sea. Also recommendations to harmonise found inconsistencies are expected.

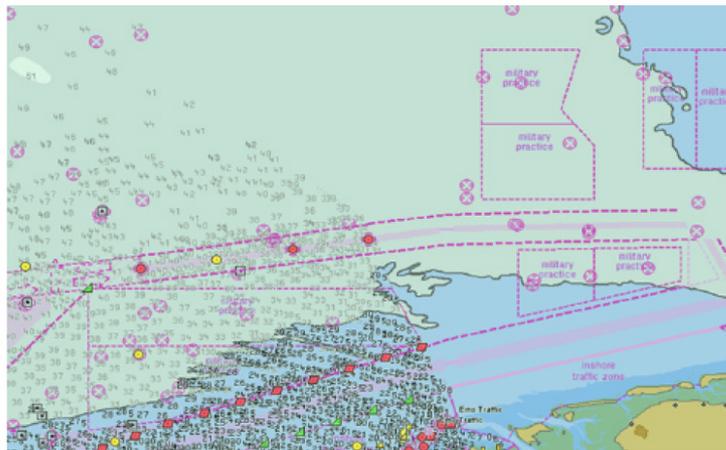
Some independent body or organisation or some private company (e.g. IIC Technologies) may be hired to do this in summer/autumn 2007.

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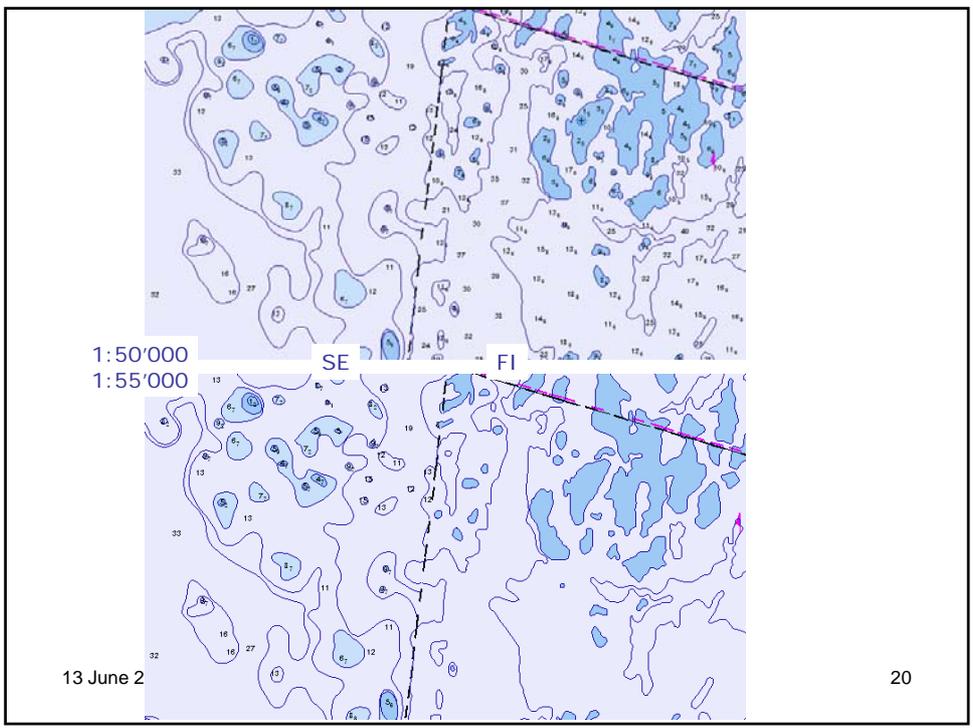
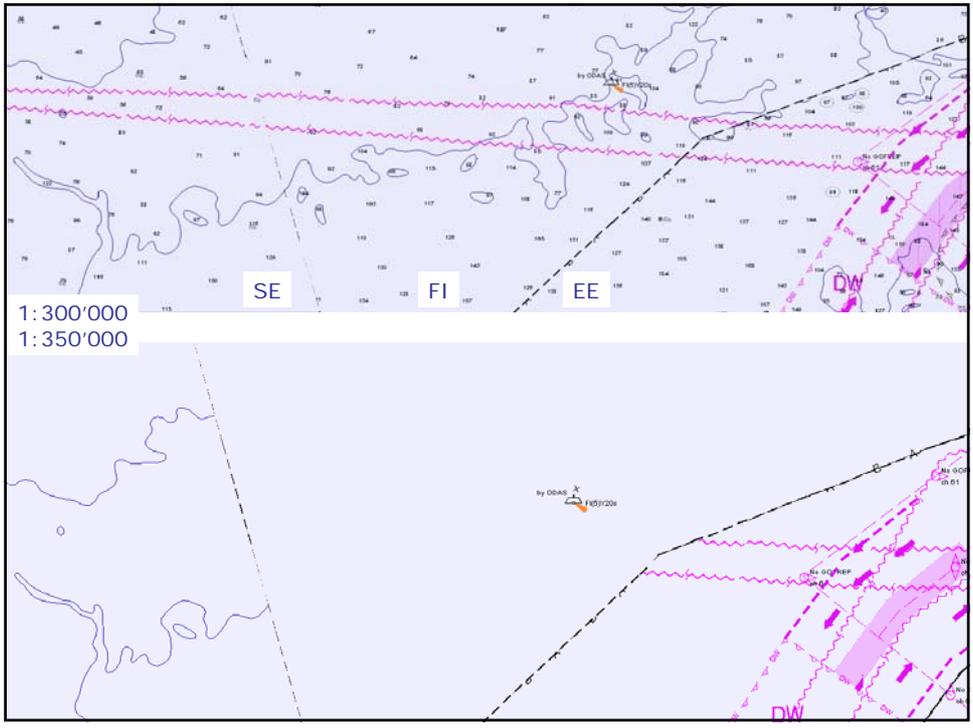
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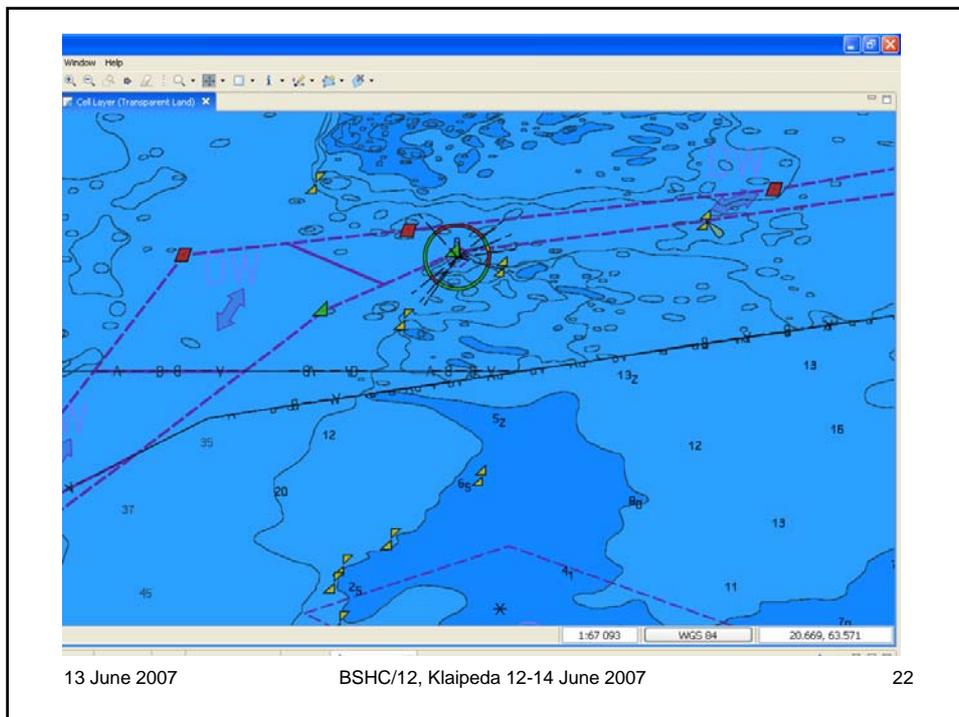
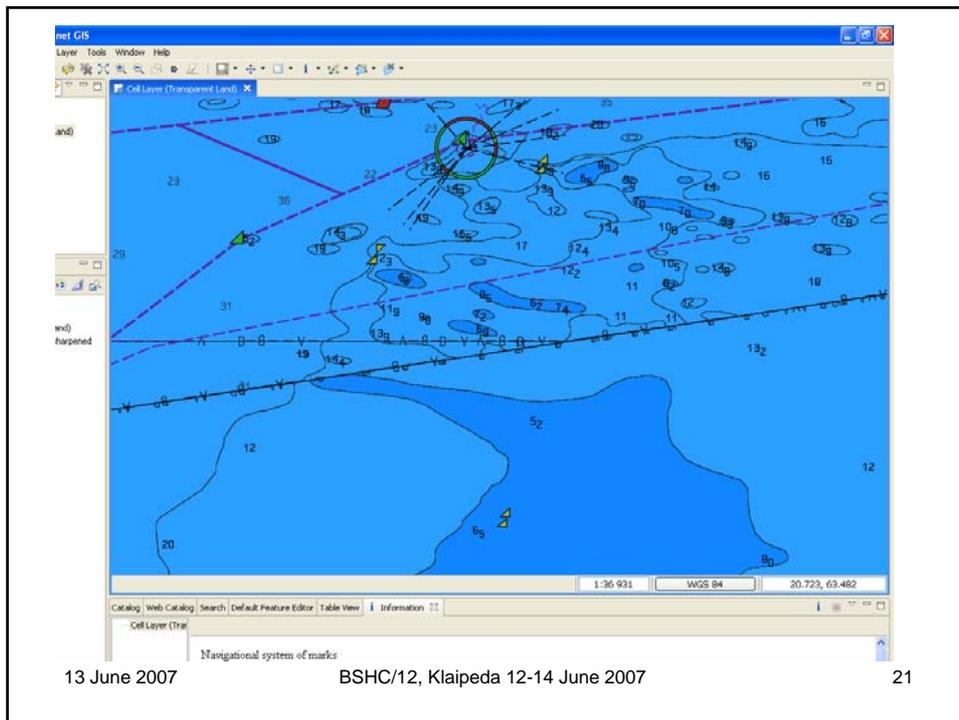
The following ECDIS screen dump shows two adjacent datasets where SCAMIN has been used for the eastern cell but not for the western cell.

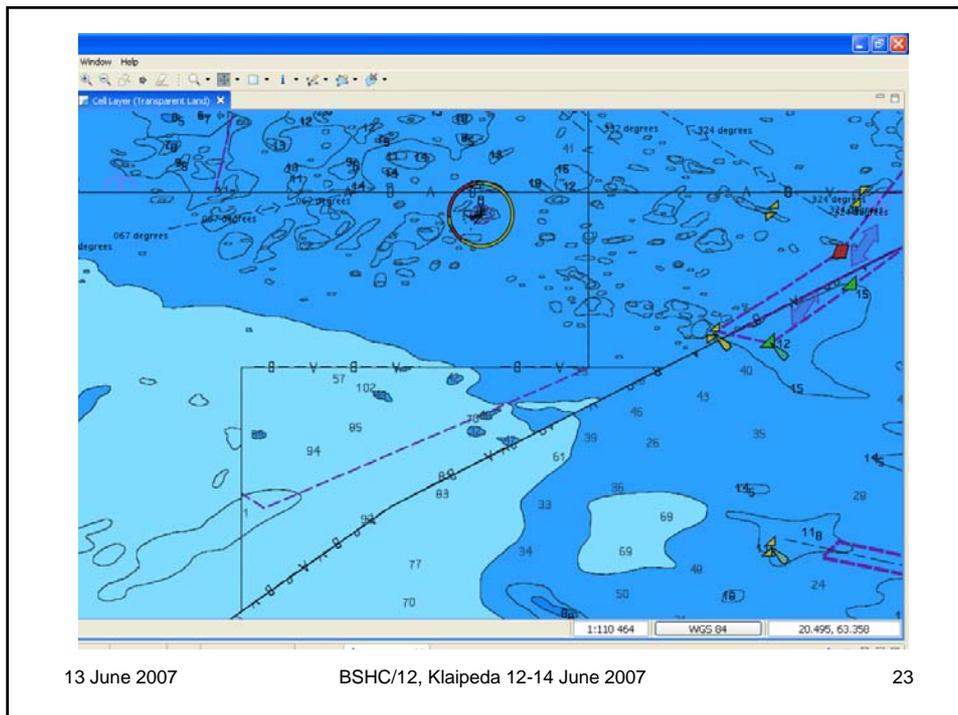


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IIC Technology Proposal for making an Analysis of inconsistencies on the ENC's in the Baltic Sea

SCAMIN: it may be applied, not applied or not applied consistently by each HO.

Edgematching: an HO may or may not edgematch data that continues from one ENC to another. HOs also do not normally edgematch their ENC's with those from neighbouring nations.

Contours: contour values may not be consistent between HOs. One ENC may have many more contour lines than an adjacent ENC.

Feature objects: in some cases, a feature may appear on one ENC but not on the adjacent ENC. For example, an underwater pipeline may not continue on the adjacent ENC.

Feature collection: different criteria for features to be in ENC's

Degree of attribution: different attributes populated

Data Scheming: release of ENC's based on cells or on printed chart schemas

Vertical datum: this datum may vary from HO to HO

Compilation scale: this may vary from HO to HO.

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IIC Technology Proposal for making an Analysis of inconsistencies on the ENC's in the Baltic Sea

- To gain a solid understanding of each production specification.
- To compare the specifications will uncover all the different production instructions.
- To study a number of sample ENC's from each nation. Ideally, these would cover all the scale bands used.
- To identify the production differences, such as the level of attribution for different features, the existence or omission of certain features, and the application of SCAMIN.

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IIC Technology Proposal for making an Analysis of inconsistencies on the ENC's in the Baltic Sea

- To divide these "differences" into two categories: **navigationally significant** and **non-navigationally significant**. Implement changes on a priority basis.
- To group those inconsistencies that are **easier to fix** and those that are **more difficult**.
- To develop **recommendations** and options to address them
- A **workshop** to further discuss the harmonization options
- Some **software scripts** could be develop to implement certain changes in an entire batch of ENC's. SCAMIN differences could possibly be harmonized in this way.

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IIC Technology Proposal for making an Analysis of inconsistencies on the ENC's in the Baltic Sea

BSHC/12 to decide:

The BSHC countries are asked to give a permission to use their unencrypted ENC data for this kind of study.

The data itself can be delivered by a RENC.

Costs:

The scope will vary according to the number of ENC's that are to be studied from all the different Baltic states

A study of this nature will require some efforts, roughly [10 - 30 days??].

The cost could vary greatly according to the scope; a rough estimate is € 10,000 - 30,000??.

Finland is prepared to cover some of the costs.

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Proposal #3:

**ENC Harmonisation Workshop
Within the Baltic Sea countries**

- The workshop may be organised **late 2007**.
- **One or two experts** from each country
- **Duration 1 or 2 days workshop**

Preliminary the Workshop may deal with the following issues:

- To make proposals to **resolve the found inconsistencies**
- To make proposals to **harmonise the ENC compilation scales on the Baltic Sea**
- To develop an **Action plan** for resolving found inconsistencies and for common BSHC regional implementation of the recommendations for consistent ENC data encoding [Ref. 2]
- To make (possible) **proposals to the TSMADWG or to the CHRIS**, e.g. for S-101 development
- To draft a **Report to be sent to the WEND Committee** (with possible proposals)

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