



ENC and ECDIS

Hydro 2016

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ENC and ECDIS

ENC – ECDIS – ENC and ECDIS – Bathymetry – Vanishing Details - Summary

Content

- ENC
- ECDIS
- ENC and ECDIS
- Bathymetric Detail in Medium Scale Charts
- Vanishing Details when Zooming In
- Summary

ENC and ECDIS

ENC – ECDIS – ENC and ECDIS – Bathymetry – Vanishing Details - Summary

ENC

Electronic
Navigational
Chart



ENC and ECDIS

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ENC Electronic Navigational Chart

is

- Data



Its content, structure
and format is defined
by IHO in IHO S-57

"IHO Transfer Standard for Digital Hydrographic Data".

It is issued for use with ECDIS
on the authority
of hydrographic offices

ENC and ECDIS

ENC – ECDIS – ENC and ECDIS – Bathymetry – Vanishing Details - Summary

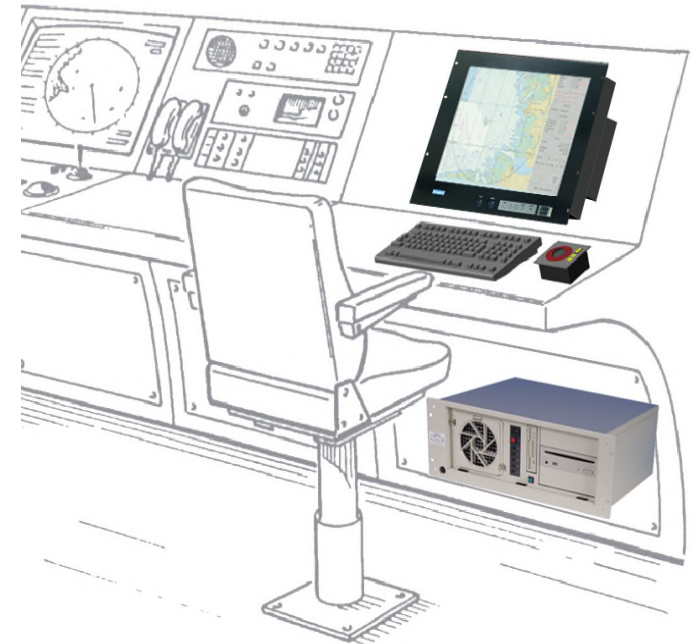
ECDIS

Electronic

Chart

Display and

Information **S**ystem



ENC and ECDIS

ENC – ECDIS – ENC and ECDIS – Bathymetry – Vanishing Details - Summary

ECDIS **E**lectronic **C**hart **D**isplay and **I**nformation **S**ystem

in a general understanding
it consists of

- Hardware
- Software

ECDIS is tested against IEC 61174

"Operational and performance requirements,
methods of testing and required test results"

ECDIS is developed and produced by
commercial ECDIS manufacturers



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ENC – ECDIS – ECDIS and ENC – Bathymetry – Vanishing Details - Summary

ENC and ECDIS

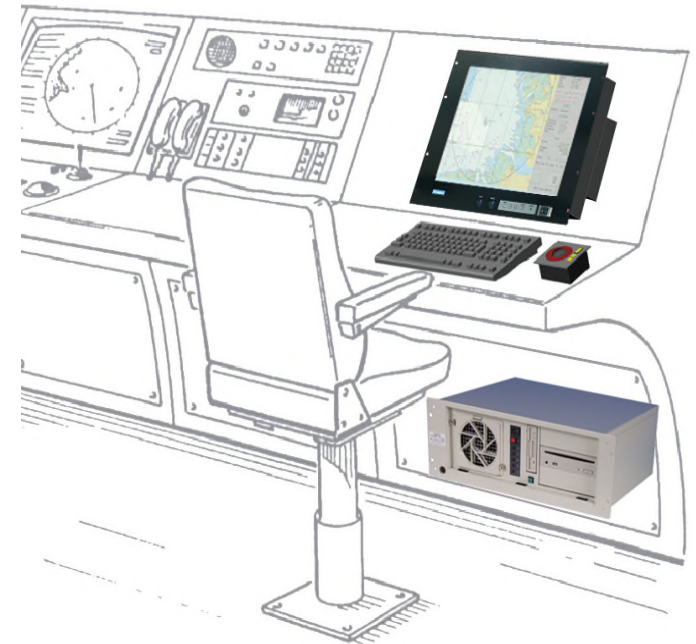
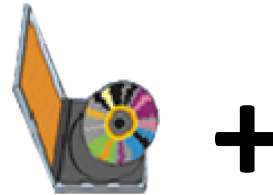
from HOs

from manufacturers

form together

a real-time

Geographic Information System



consisting of (as all GIS do)

- Data
- Hardware
- Software

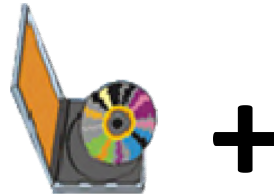
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ENC – ECDIS – ENC and ECDIS – Bathymetry – Vanishing Details - Summary

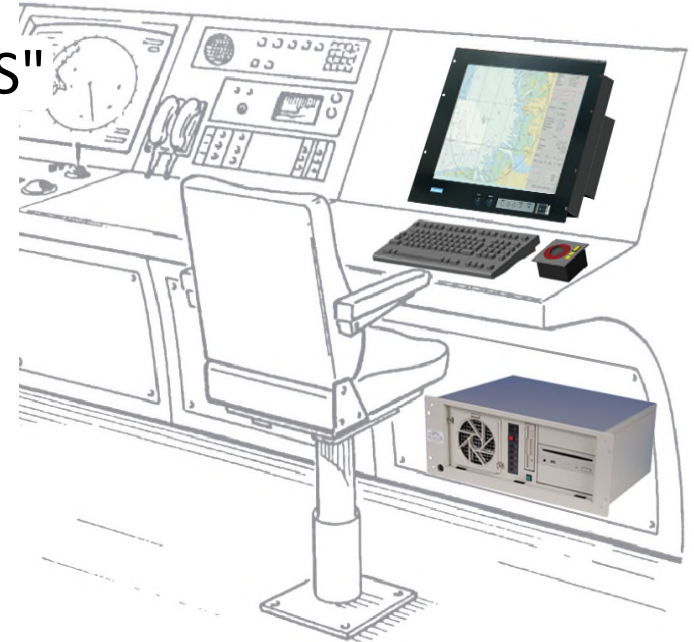
ENC and ECDIS

"IMO Performance Standard for ECDIS"

... ENC means
the database ...
issued for use with ECDIS ...



... ECDIS means
a navigation information system ...
displaying ... information from a SENC



ENC and ECDIS

ENC – ECDIS – ENC and ECDIS – Bathymetry – Vanishing Details - Summary

ENC and ECDIS

Carefully adjusted to each other
S57 and IEC 61174

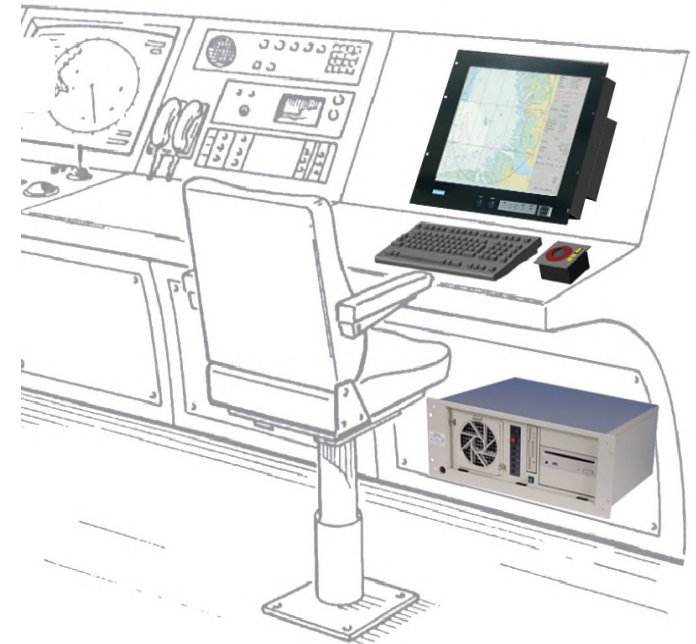
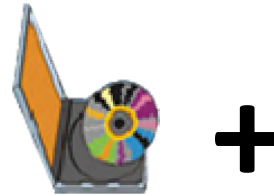
Purpose:

Civil sea surface navigation,
ENCs providing worldwide coverage

Attractive for other users, too

... but only, if the standards are carefully

- obeyed when producing ENC and developing ECDIS
- maintained to meet anticipations of users



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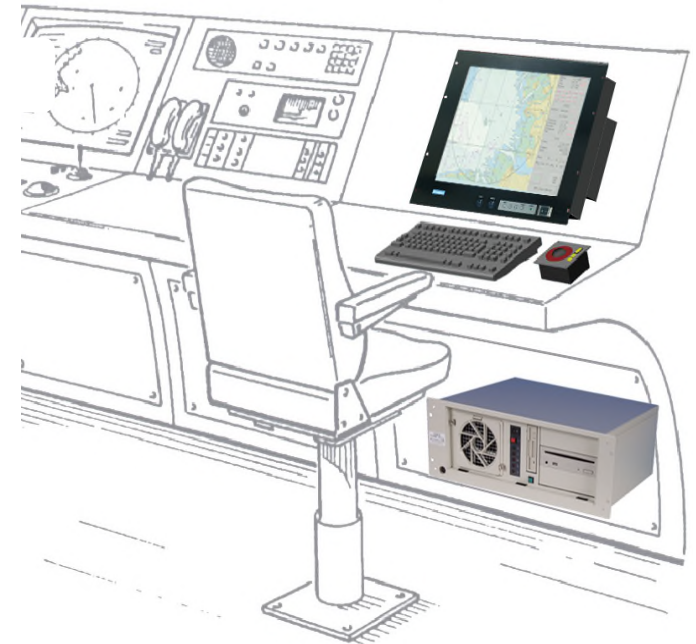
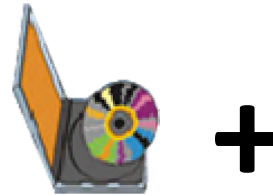
Examples where the appearance of
ENCs on ECDIS

has the potential

to deviate from

the expectations of

the navigator and other users:



- Missing medium scale bathymetry
- Vanishing details when zooming in

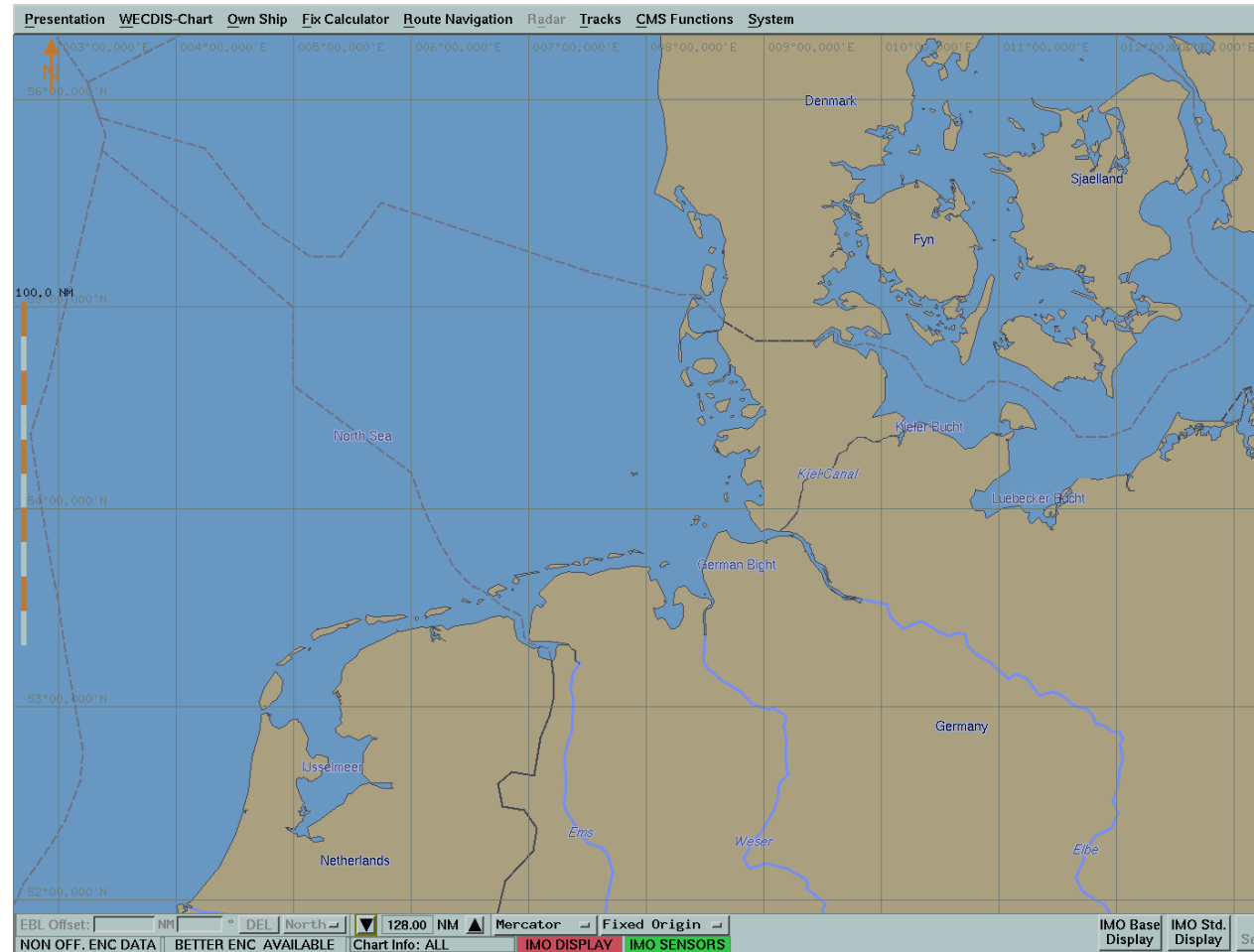
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ENC – ECDIS – ENC and ECDIS – **Bathymetry** – Vanishing Details - Summary

Bathymetry

In some areas:
Bathymetry in
detailed charts
only,
no medium scale
bathymetry

Example:
German Bight



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ENC – ECDIS – ENC and ECDIS – **Bathymetry** – Vanishing Details - Summary

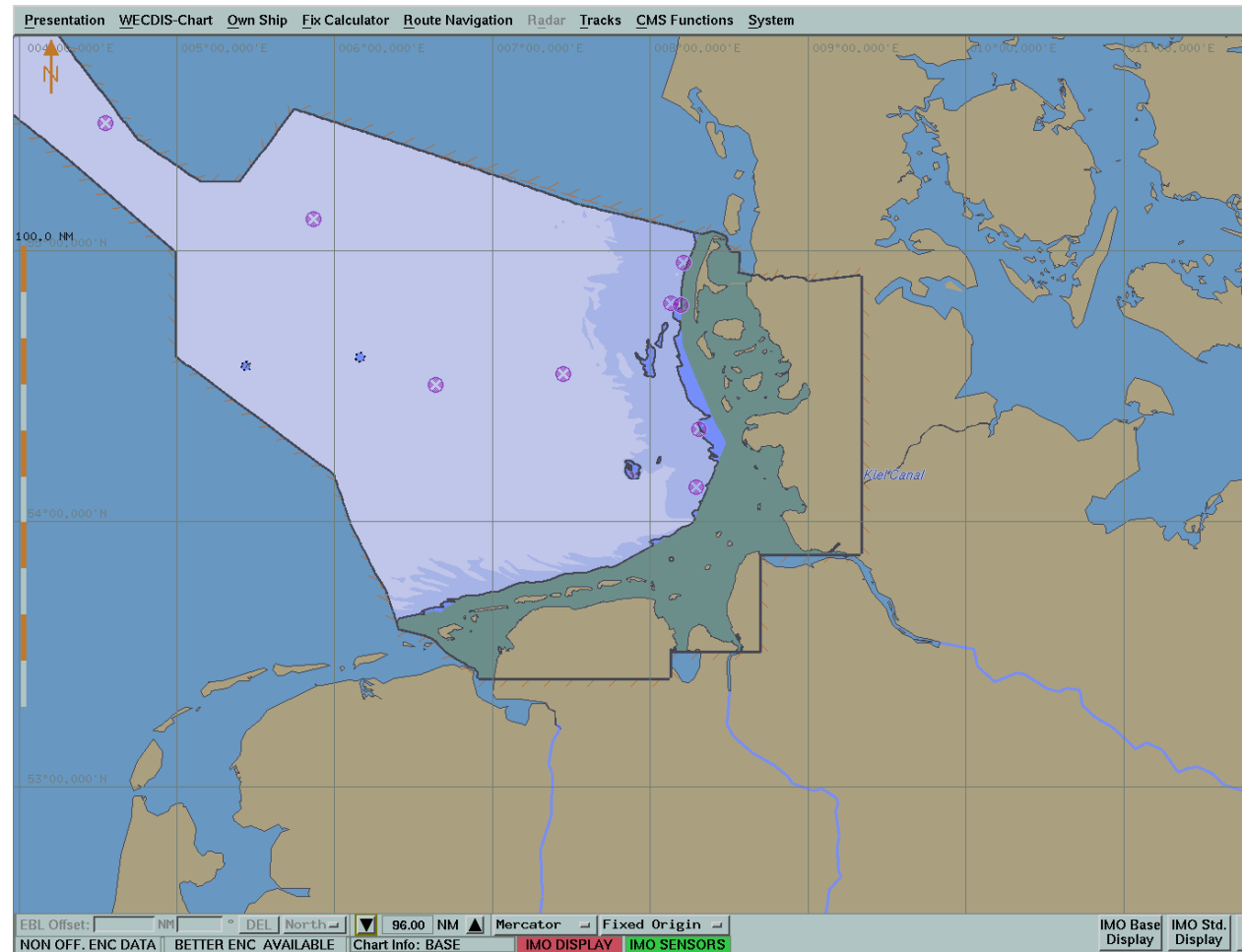
Bathymetry

In some areas:
Bathymetry in
detailed charts
only,
no medium scale
bathymetry

Example:
German Bight

General ENC

No approaches
indicated



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ENC – ECDIS – ENC and ECDIS – **Bathymetry** – Vanishing Details - Summary

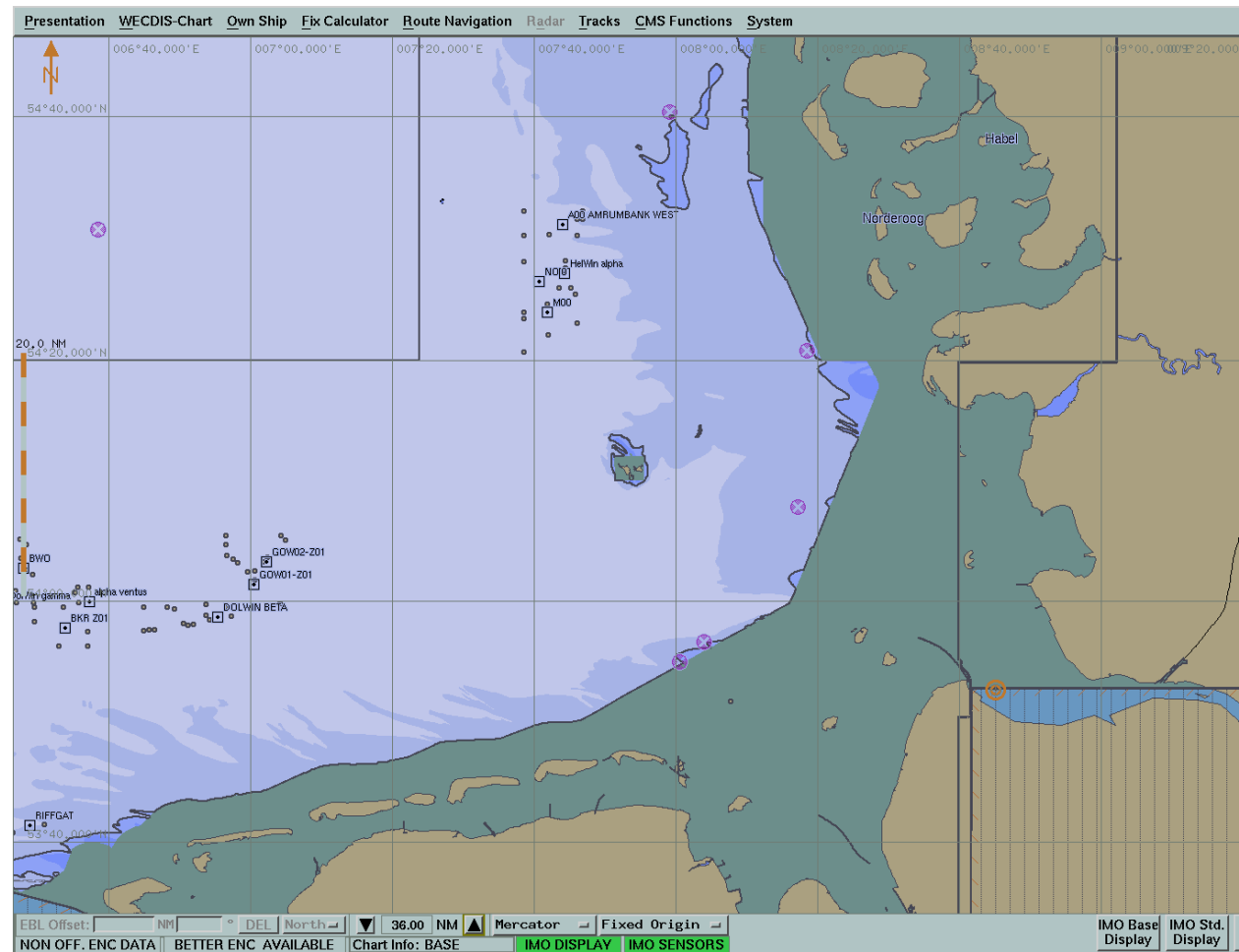
Bathymetry

In some areas:
Bathymetry in
detailed charts
only,
no medium scale
bathymetry

Example:
German Bight

Coastal ENC

No approaches
indicated either



ECDIS and ENC and ECDIS

ENC – ECDIS – ENC and ECDIS – **Bathymetry** – Vanishing Details - Summary

Bathymetry

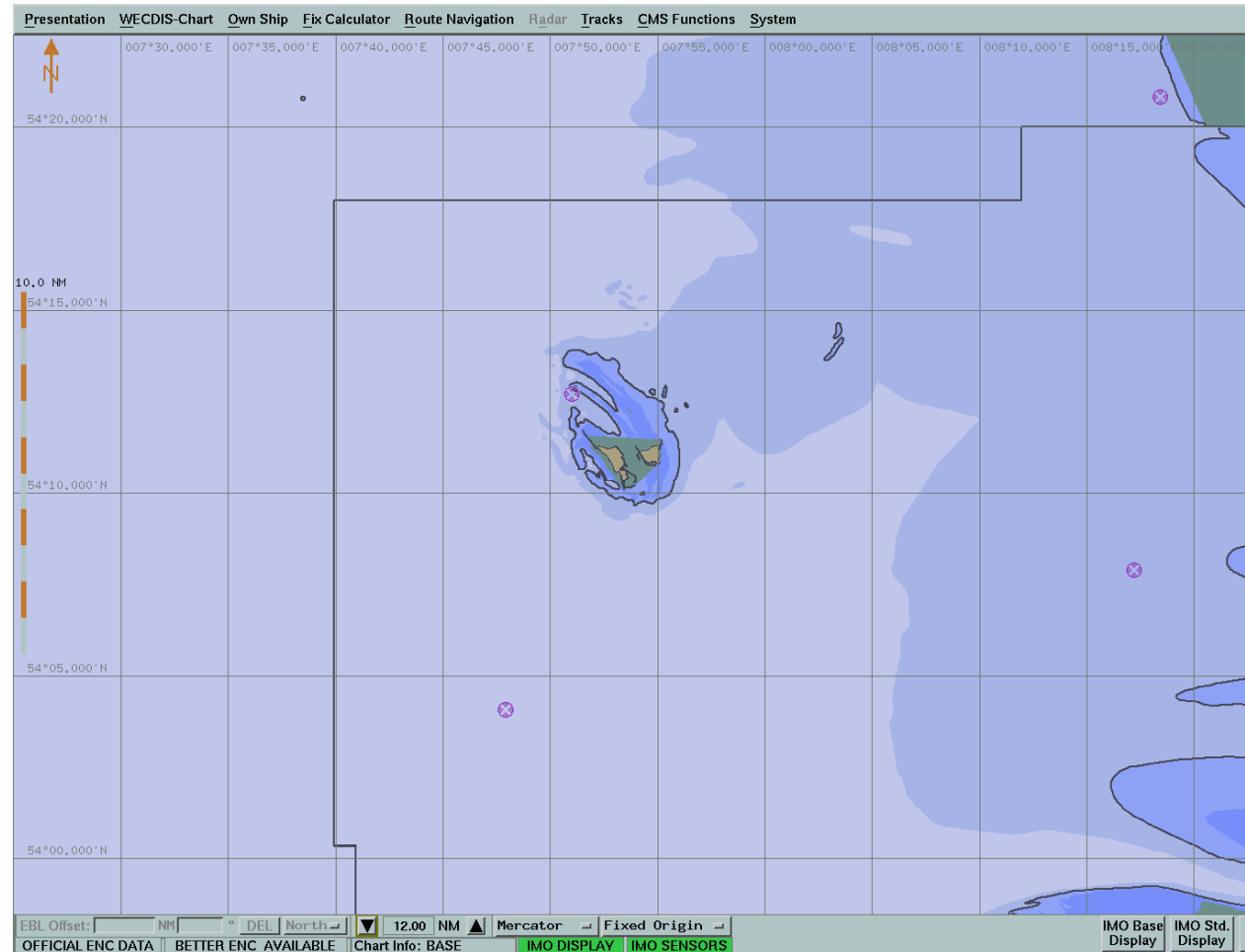
In some areas:
Bathymetry in
detailed charts
only,
no medium scale
bathymetry

Example:
German Bight

Approach ENCs

Approaches

are shown - but no ways to harbour entrances



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ENC – ECDIS – ENC and ECDIS – **Bathymetry** – Vanishing Details - Summary

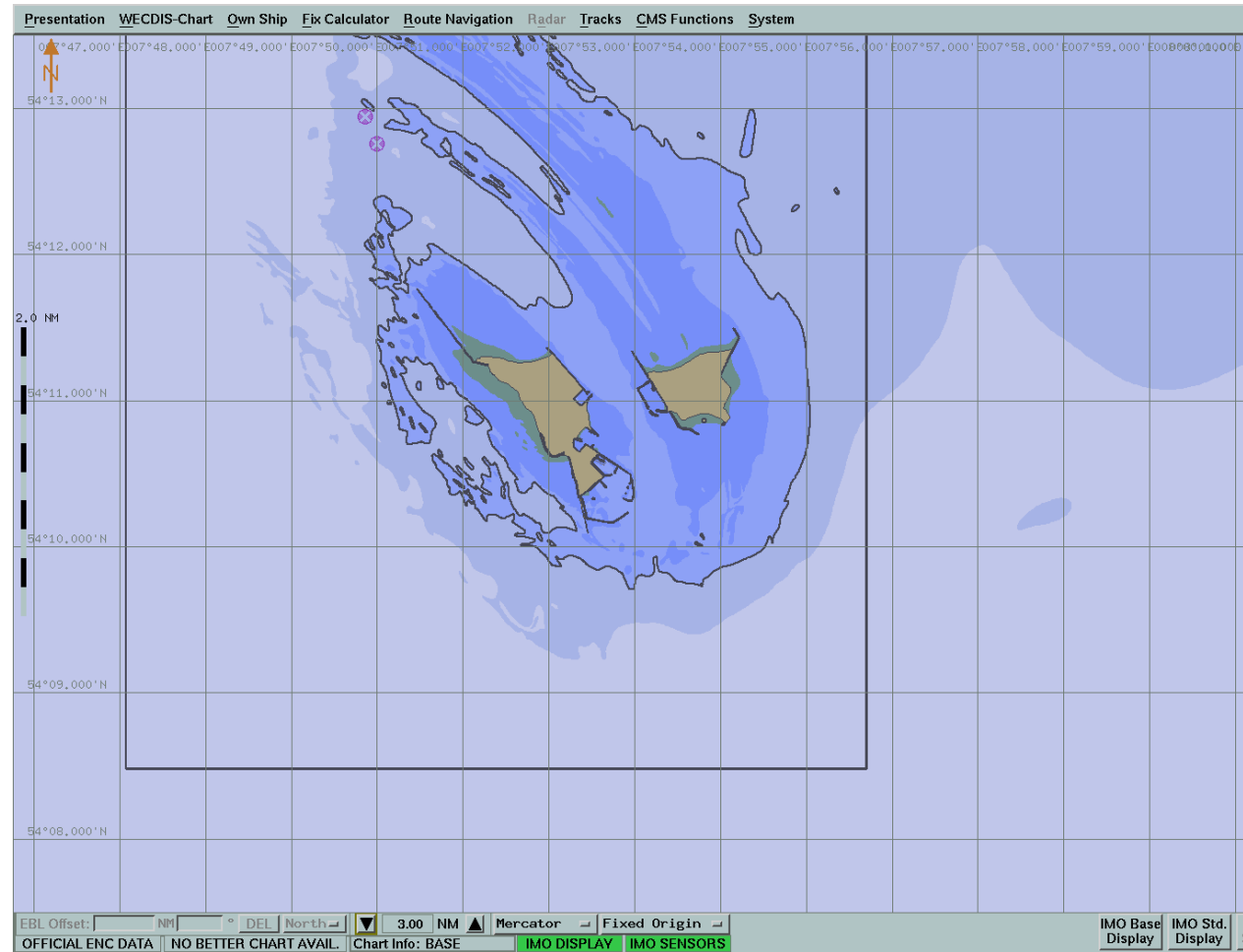
Bathymetry

In some areas:
Bathymetry in
detailed charts
only,
no medium scale
bathymetry

Example:
Heligoland

Harbour ENCs

Most detailed
chart - only now no "cartographic" intertidal areas



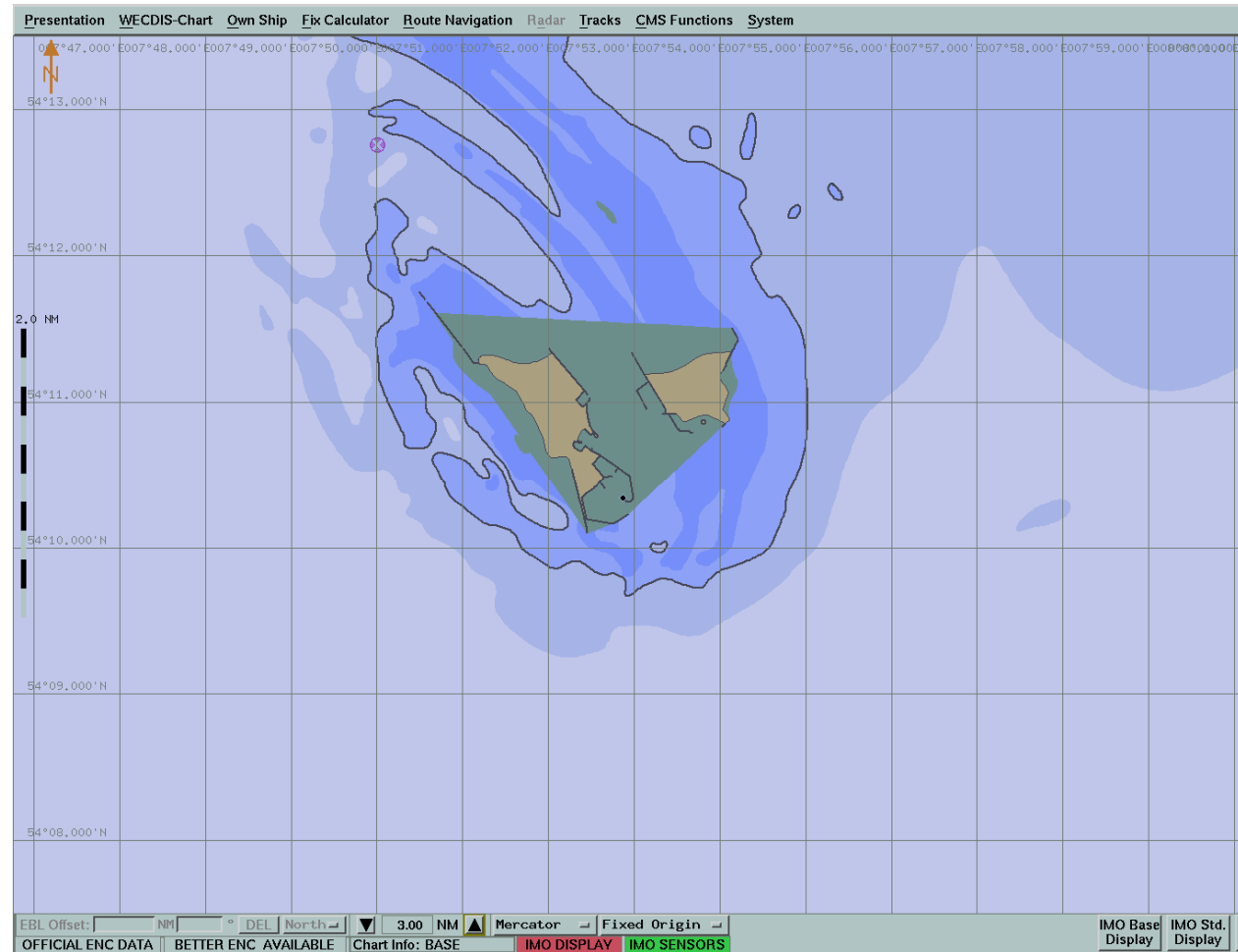
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ENC – ECDIS – ENC and ECDIS – **Bathymetry** – Vanishing Details - Summary

Bathymetry

Consequences of
"cartographic"
intertidal areas

- 1) No Overview
- 2) False alarms
- 3) Drawback for
other uses of
ENCs



Conclusion

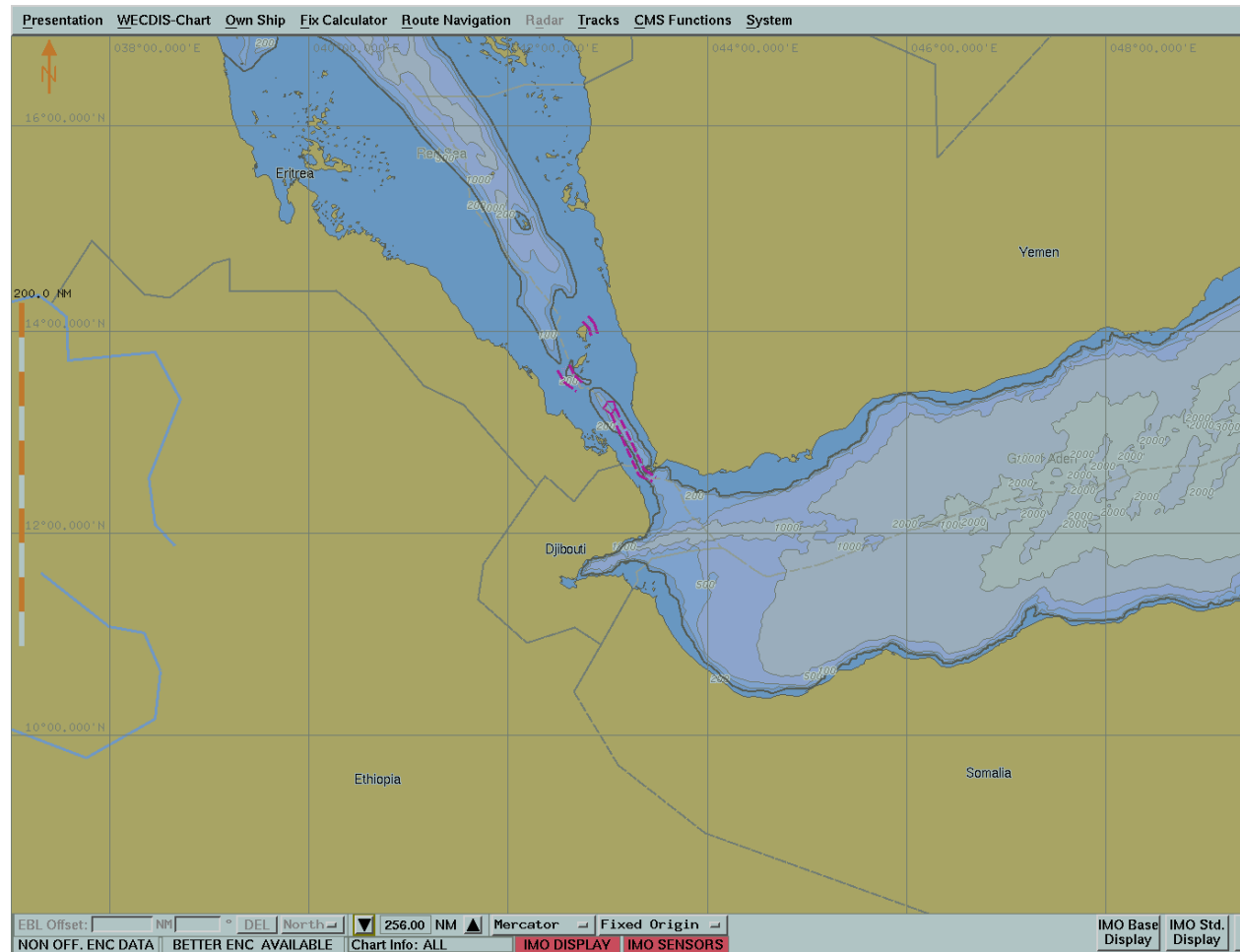
No distortion of geographic information in a GIS
to achieve cartographic effects

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Vanishing Details when Zooming In

In many areas:
Details vanish
when zooming in
Example:
Bab el Mandeb



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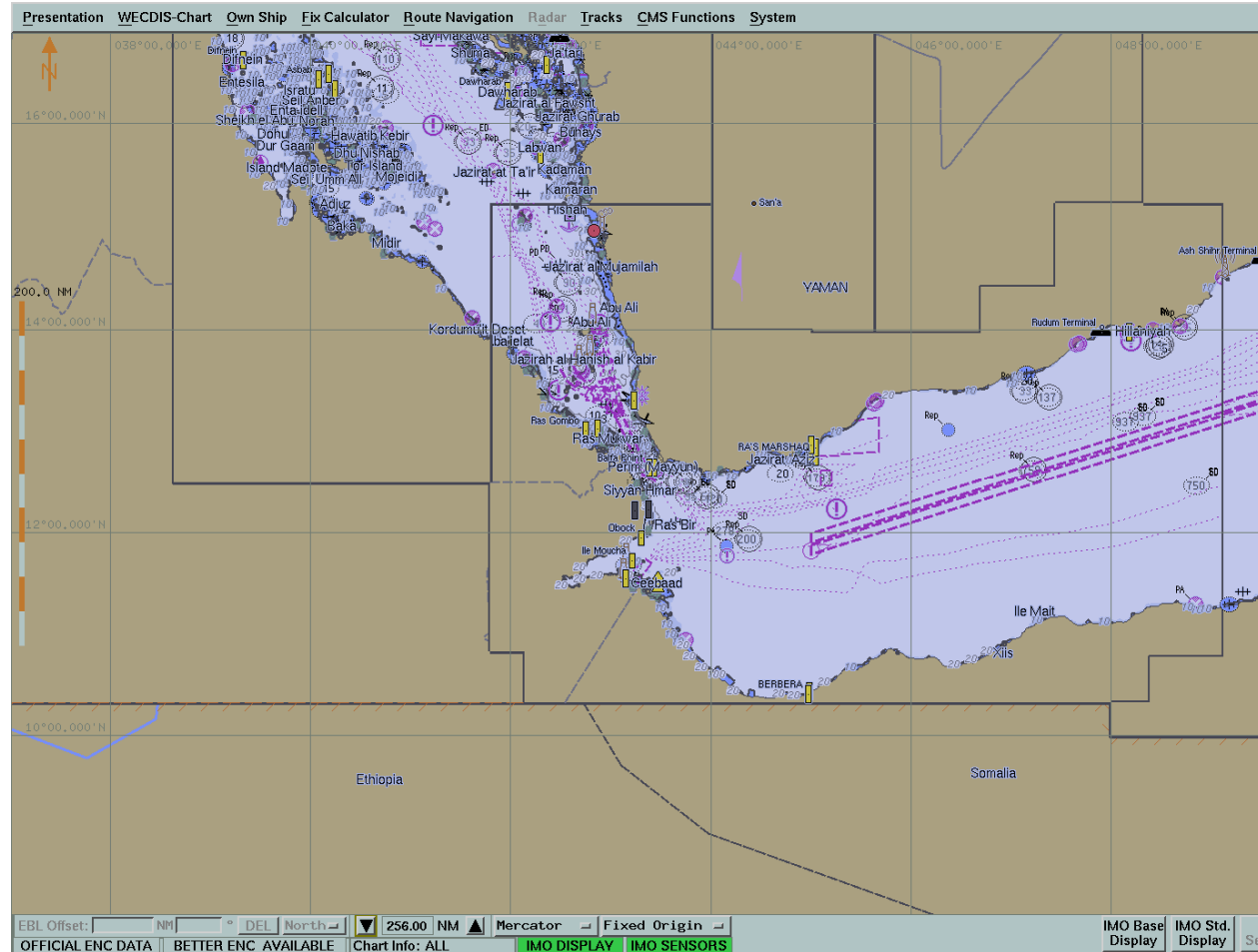
ENC – ECDIS – ENC and ECDIS – Bathymetry – Vanishing Details - Summary

Vanishing Details when Zooming In

In many areas:
Details vanish
when zooming in

Example:
Bab el Mandeb

General ENC



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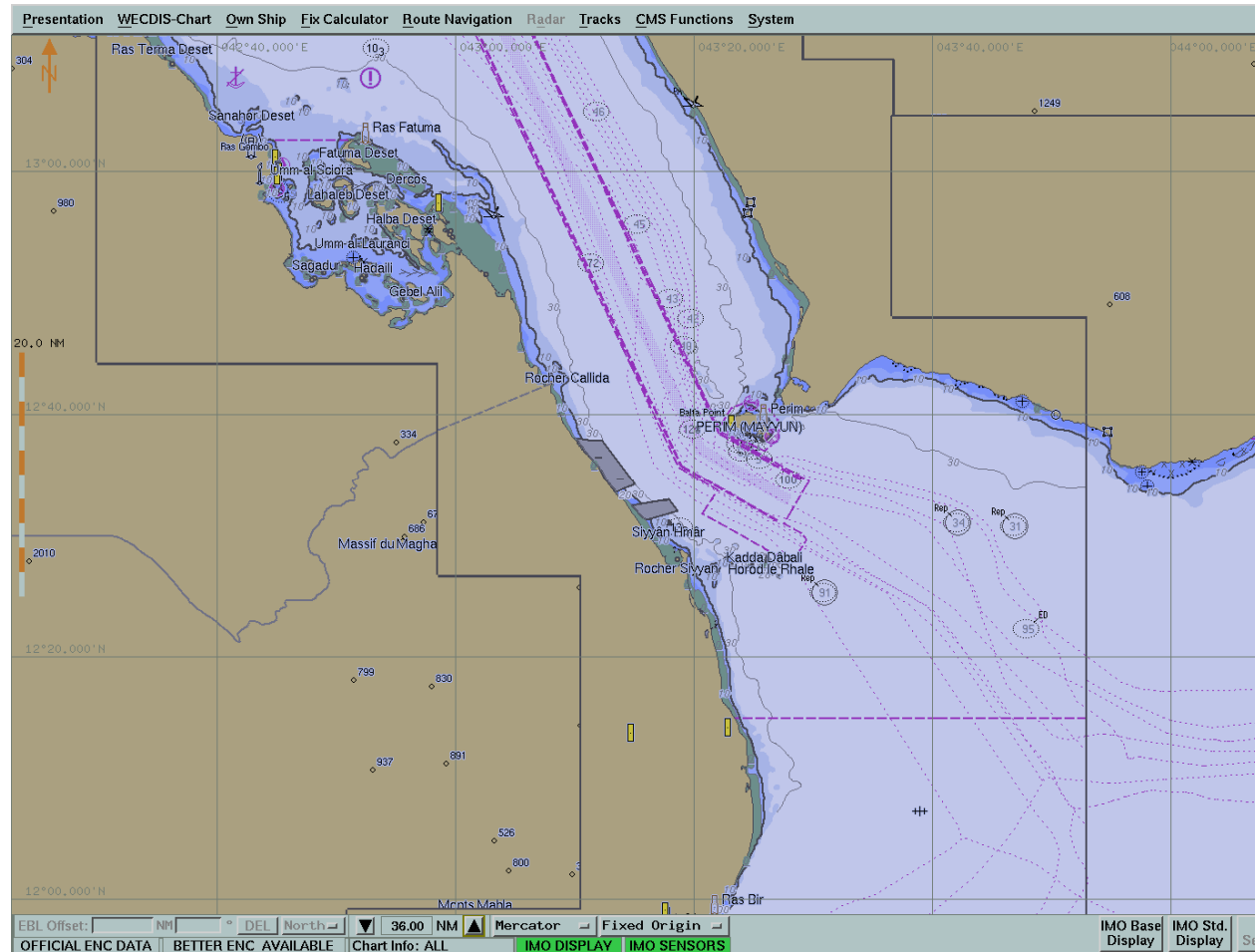
ENC – ECDIS – ENC and ECDIS – Bathymetry – **Vanishing Details** - Summary

Vanishing Details ...

In many areas:
Details vanish
when zooming in

Example:
Bab el Mandeb

Coastal ENC
cables vanish
cables re-appear



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ENC – ECDIS – ENC and ECDIS – Bathymetry – **Vanishing Details** - Summary

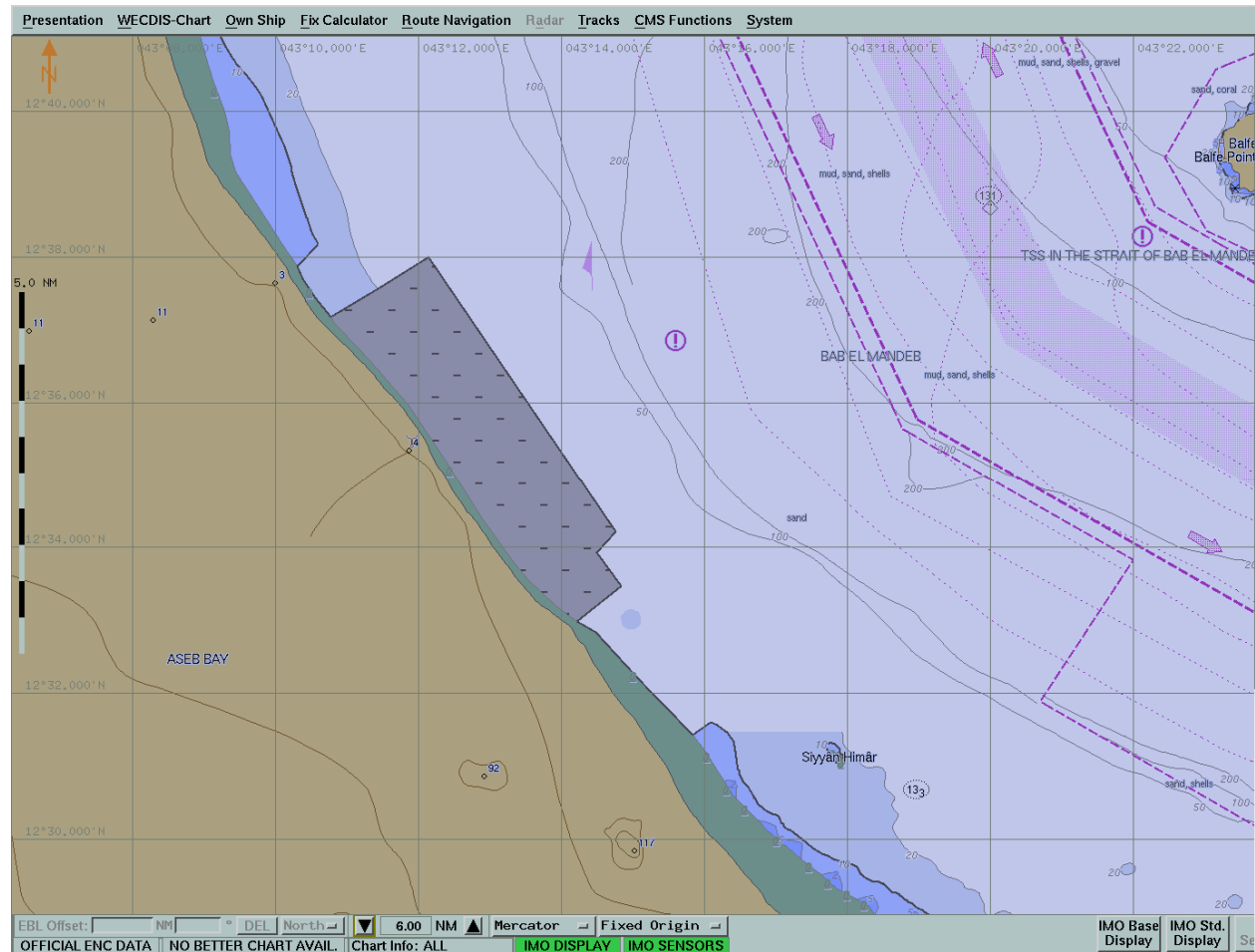
Vanishing Details ...

In many areas:
Details vanish
when zooming in

Example:

Bab el Mandeb

Approach ENC
cables vanish
cables re-appear



Effect has been observed with other objects, too (parts of anchorage area schemes)

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Vanishing details ...

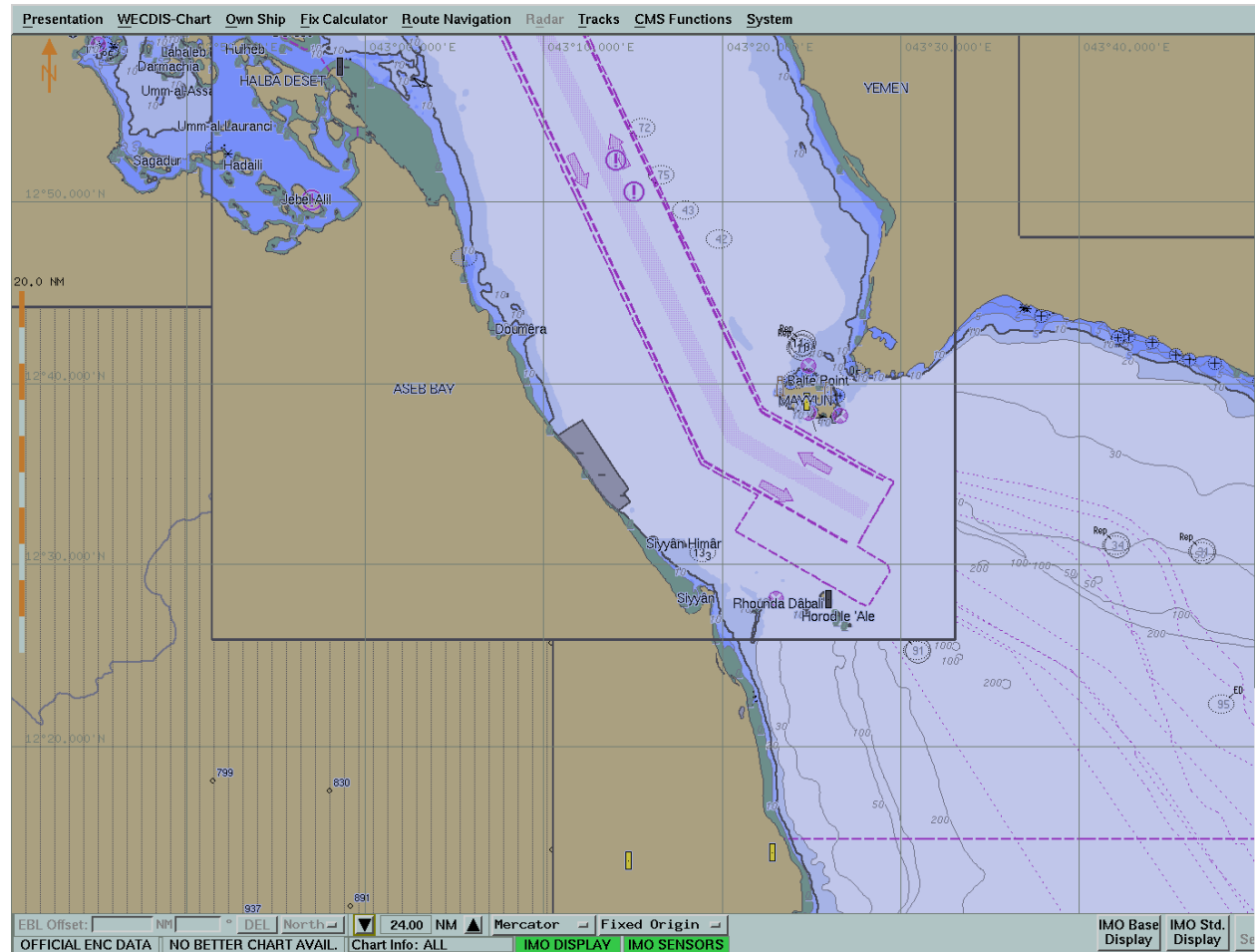
Consequences of vanishing details when zooming in

1) Anticipations not met

2) No planning at medium scales

Conclusion

No chart details should vanish when zooming in



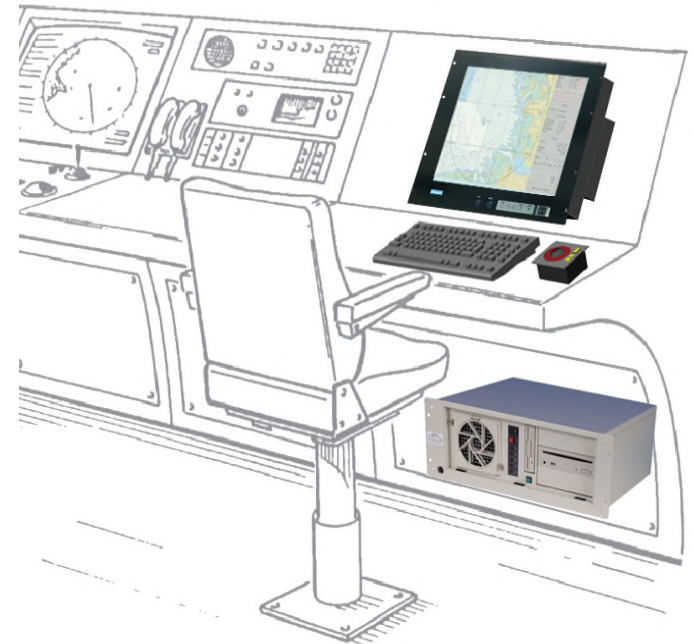
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ENC – ECDIS – ENC and ECDIS – Bathymetry – Vanishing Details - **Summary**

Summary

... ENC and ECDIS

form together a
real-time GIS
based on a
common set of
carefully
maintained rules



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ENC – ECDIS – ENC – ENC and ECDIS – Bathymetry – Vanishing Details - **Summary**

Summary

... ENC

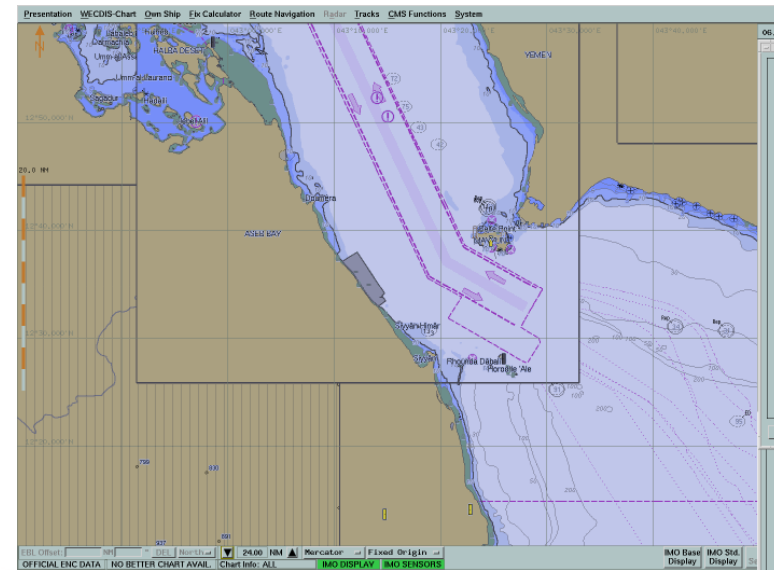
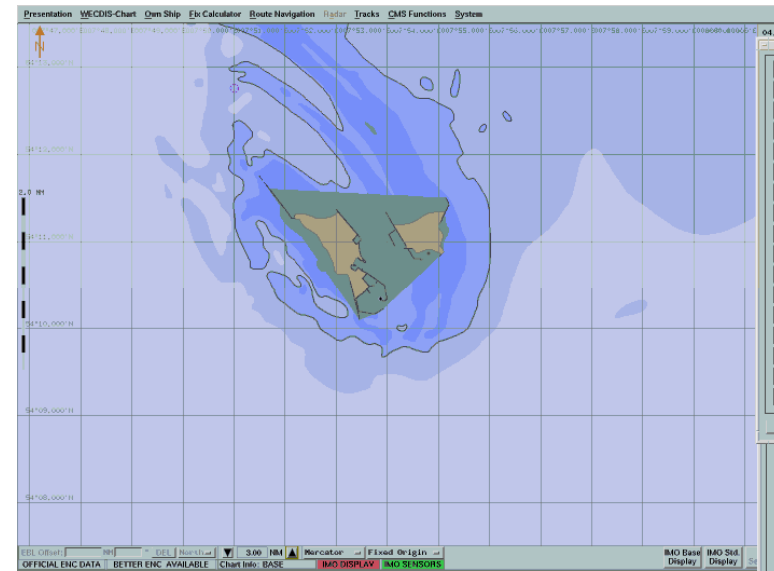
Acceptance

Other usage

1) No distortion of geographic information

2) No vanishing details when zooming in

Thank you for your attention!



ENC and ECDIS

ENC – ECDIS – ENC and ECDIS – Bathymetry – Vanishing Details - Summary

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**Thank you for your
attention!**

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