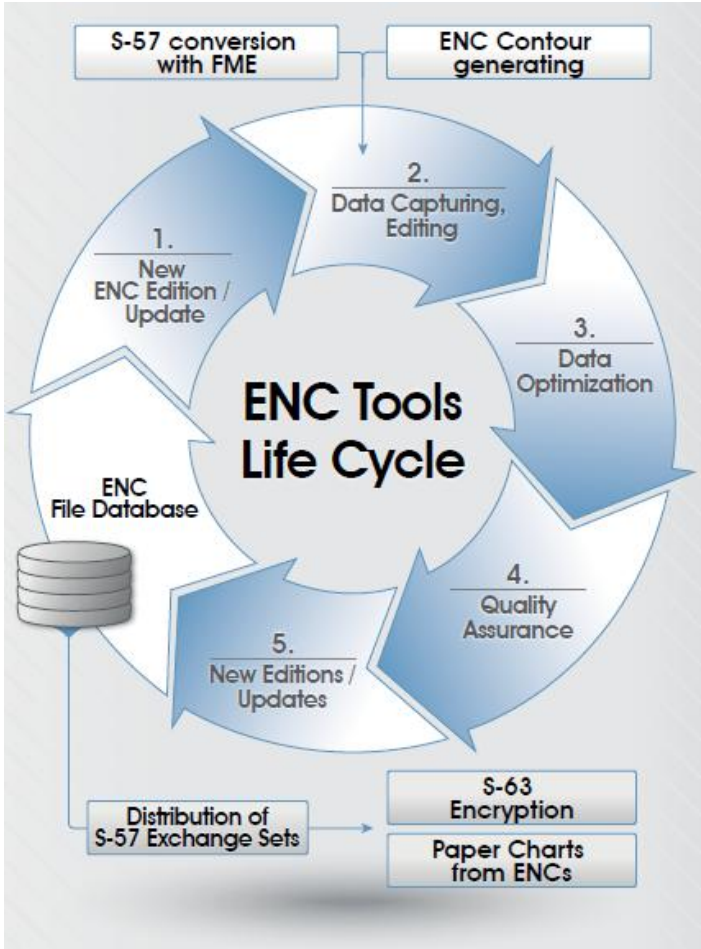
15th North Indian Ocean Hydrographic Commission (NIOHC) Meeting

Muscat, Oman

16-18 March 2015

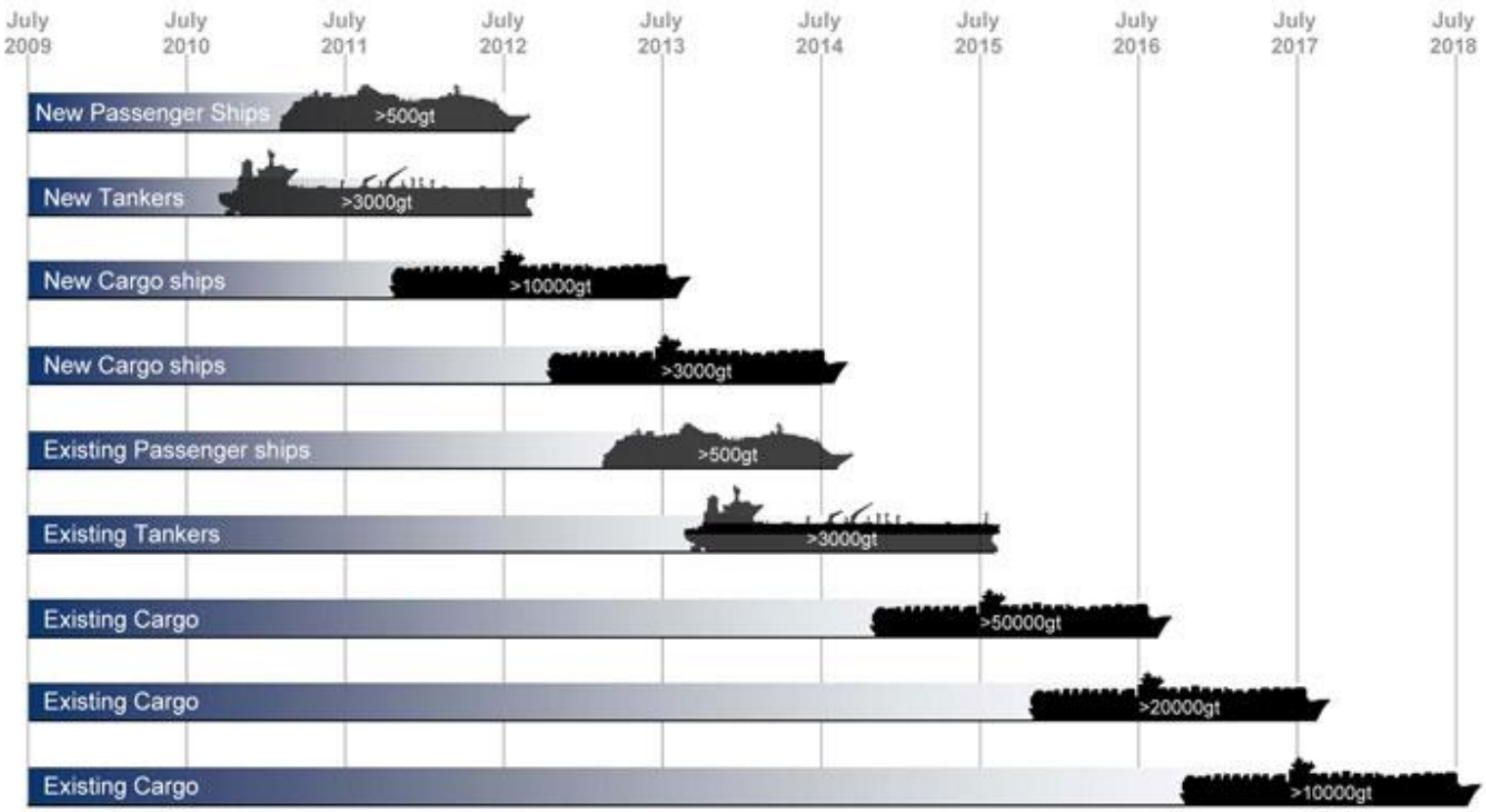
Products

- ENC Designer with ENC Manager
- ENC Contour Generator
- ENC Optimizer
- ENC Analyzer
- ENC Cartographer
- ENC Encryptor



***ENCs from a User Perspective*: current difficulties of ECDIS users, shipping companies, and manufacturers highlighting that S-100 is not the issue today for the users.**

Current issue: ECDIS implementation



Source: UKHO

Current issues of shipping companies

'King Peace' 79600 dwt 2011 dely Nantong 09/10 Dec
4/6 mos trading redel worldwide **$8000 daily - Cargill**

Average OPEX per day per vessel	$ 5,208	$ 5,664	$ 5,410	$ 5,596

Current issues of shipping companies

Why is fitting ECDIS so complicated?

- More than 35 makers
- More than 200 chart dealers
- Different communication infrastructure
- Different Flag State and class regulations
- Adoption of purchasing process, ISM procedures and bridge procedures
- Crew training (Generic and Type-Specific)

BSH BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE
BUREAU VERITAS
DNV·GL
ClassNK NIPPON KAIJI KYOKAI
ABS
mca Maritime and Coastguard Agency
RINA 1861
Lloyd's Register

Why is operating ECDIS so complicated?

- No knowledge of the status of the ECDIS
- No knowledge of the ECDIS skill of the user
- New standard for ECDIS at least every two (new PS 2009, new symbol library 2011, S-63 1.1 2013, new testing standard and symbol library 2015 etc)
- Constant work on the ECDIS project
- Low comms system on board of the vessel
- Often the shore staff have never sailed with ECDIS
- ENC supplier and ECDIS supplier often do not work hand in hand
- Differences between chart details in a paper chart and ENC chart – mariners believe paper charts provide greater details than ENC charts (this has nothing to do with the layers this is simply the chart data itself)

Why is operating ECDIS so complicated?

- Political matters which affect navigating with ENCs (such as the overlapping Korea/China/Japan charts at the same scale)
- Inconsistent information due to multiple HOs which produce charts (Malacca Straits is a good example of where some charts have different details on them which are produced by different nations)
- Belief that using ENCs, Mariners lose special awareness due to small screen size compared to paper charts
- Difficulty in maintaining their charts on ECDIS (some ECDIS not all of course) – difficulty of installing updates. Difficulty in checking their update status
- Mariners don't like the fact they have no "proof" of what corrections are applied to a chart (i.e. ENC chart updates are issued but no information on what the changes made are usually shown in ECDIS).
- Difficulty in applying manual updates on ECDIS – for Navtex / NavArea warnings etc.
- T&P information and lack of the information on a consistent level.

Current issues faced by the Mariner

- Old user interfaces still influenced from the first ECDIS in the market and not intuitive
- It is often harder to do the same operation on the ECDIS compared to the paper chart
- Too many functions in the ECDIS that can only be used by expert users
- Overreliance of the system
- Not enough integration. The user still need to consult too many other sensors and sources
- Even with digital navigation the user still need to do too much paper and documentation work
- Unnecessary update issue due to low communication system on board
- Fam. and type specific training needed for each ECDIS maker and version in use
- No unified ENC installation. Different ENC suppliers have different ways of sending the data

Current issues faced by the Mariner

- ENC supplier and ECDIS supplier often do not work hand in hand
- Not all necessary info are included in all ECDIS (ADP, Navtex, AIO, weather etc.)
- Too many different GUI and operation approaches, often designed by software engineers
- Shipping companies do not invest in training
- PSC/Vetting without sufficient knowledge of ECDIS and ECDIS that does not help user to satisfy PSC/Vetting (Vetting has more knowledge than PSC)
- Experts who set standards in the market that are not needed e.g. UKHO NP133c - a paper publication that shows the update status of an ECDIS
- No sufficient and adopted ISM procedures

……..and the list continues.

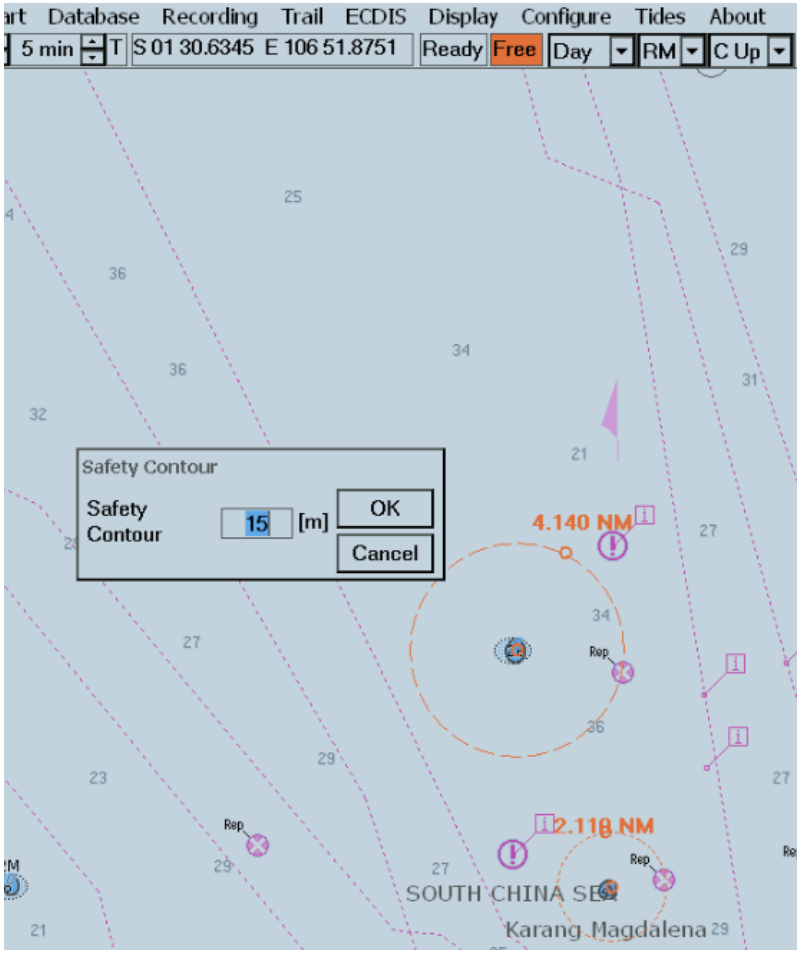
Current issues

Example:

Insufficient Hydrographic Data

Grounding on IN202873 ENC in April 2013

- **Only General Chart Available**
- **CATZOC UKN**



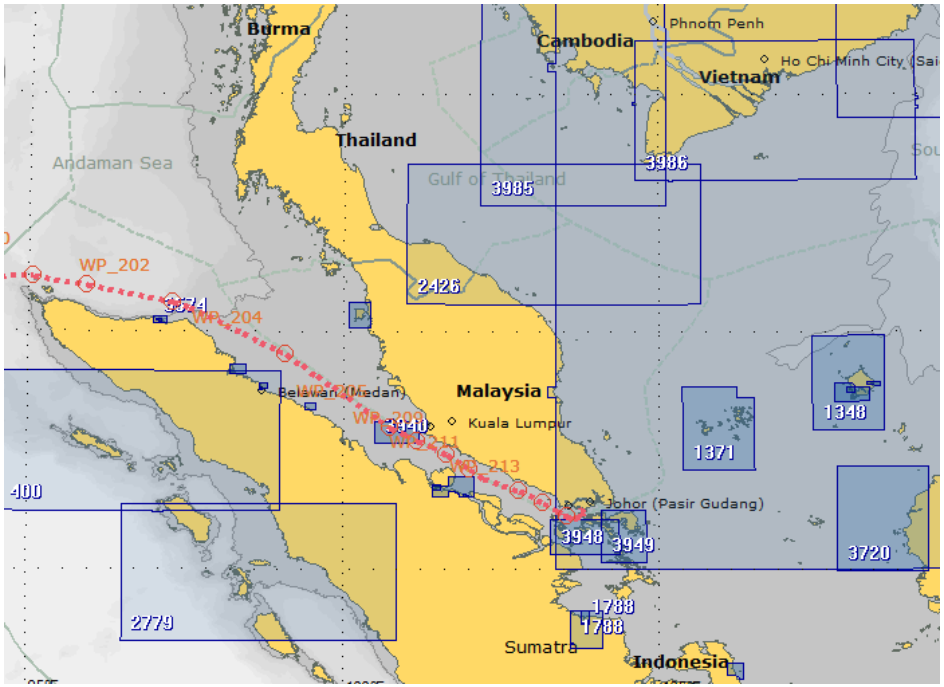
Current issues

Example:

Lack of coverage and exclusivity of data

In September 2014 348 paper charts where still lacking an ENC equivalent

SENC
PAYS

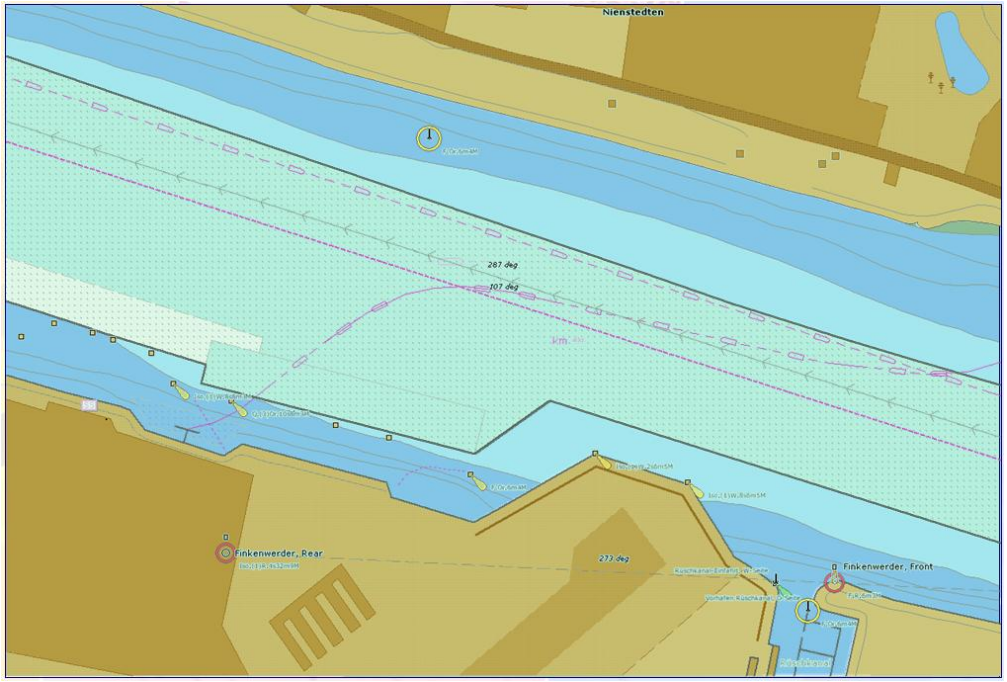


Current issues

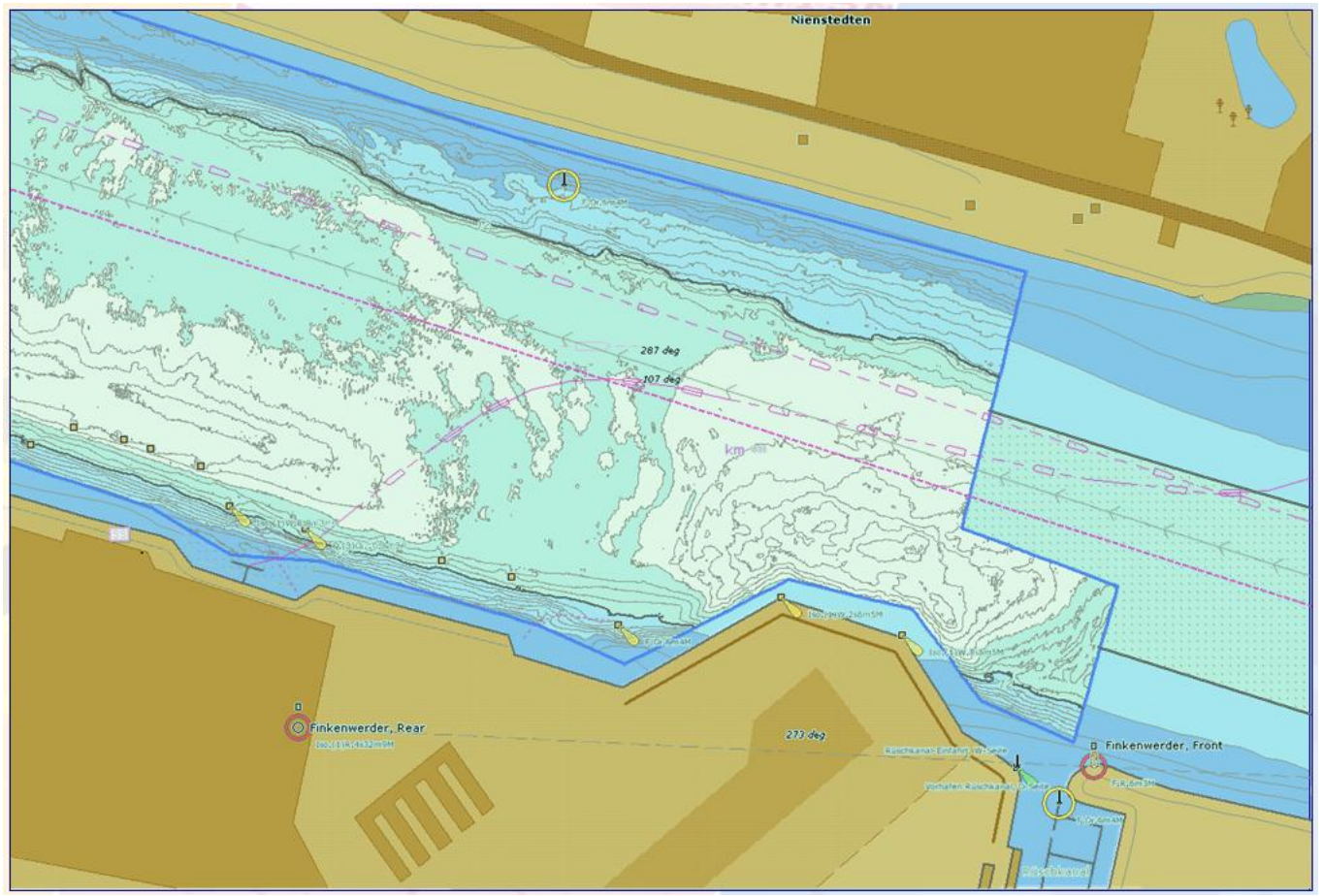
Example:

Insufficient Hydrographic Data

Lack of contour lines inside an ENC due to paper chart standards.



Current issues



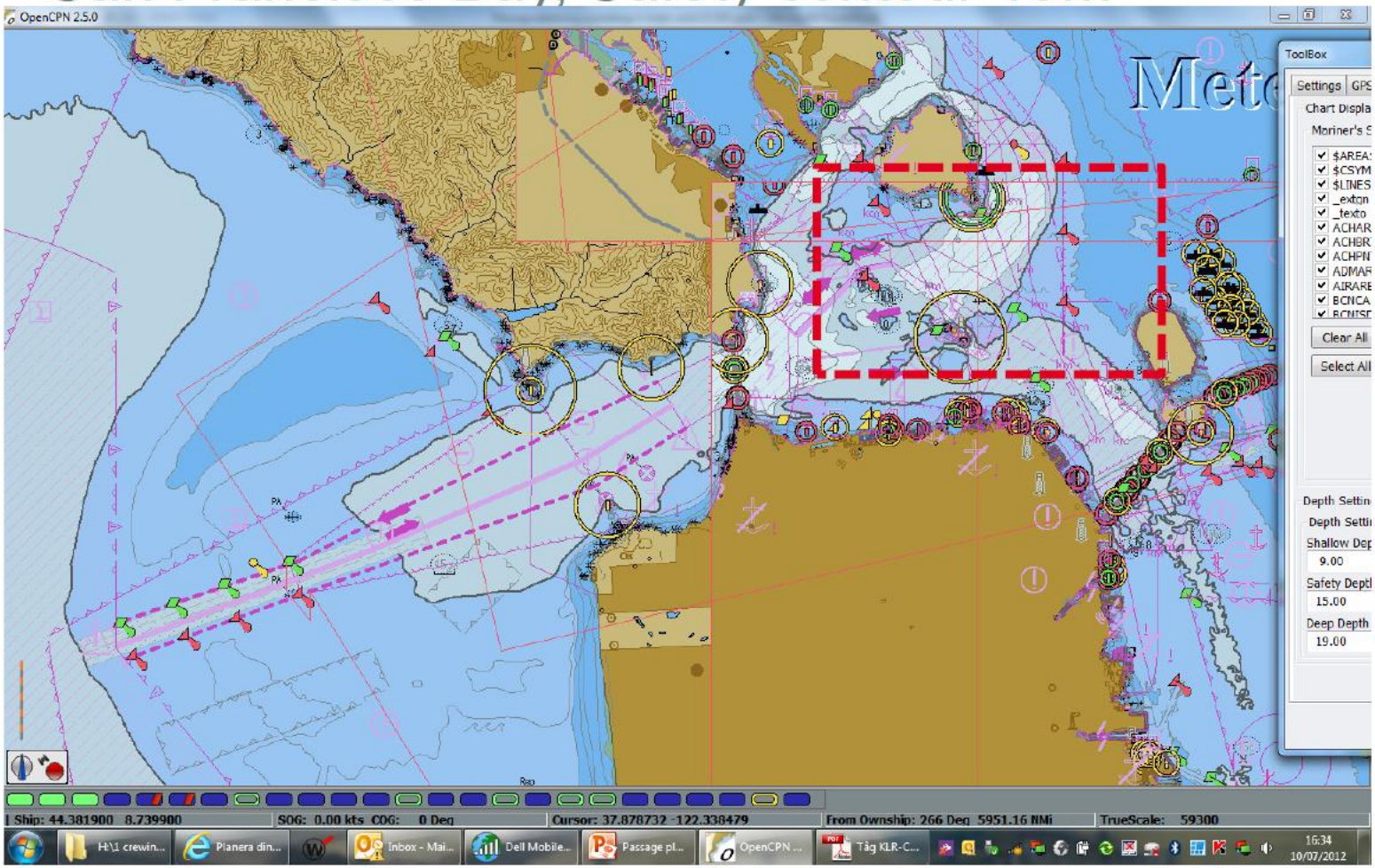
What it should look like....

Current issues

San Francisco Bay

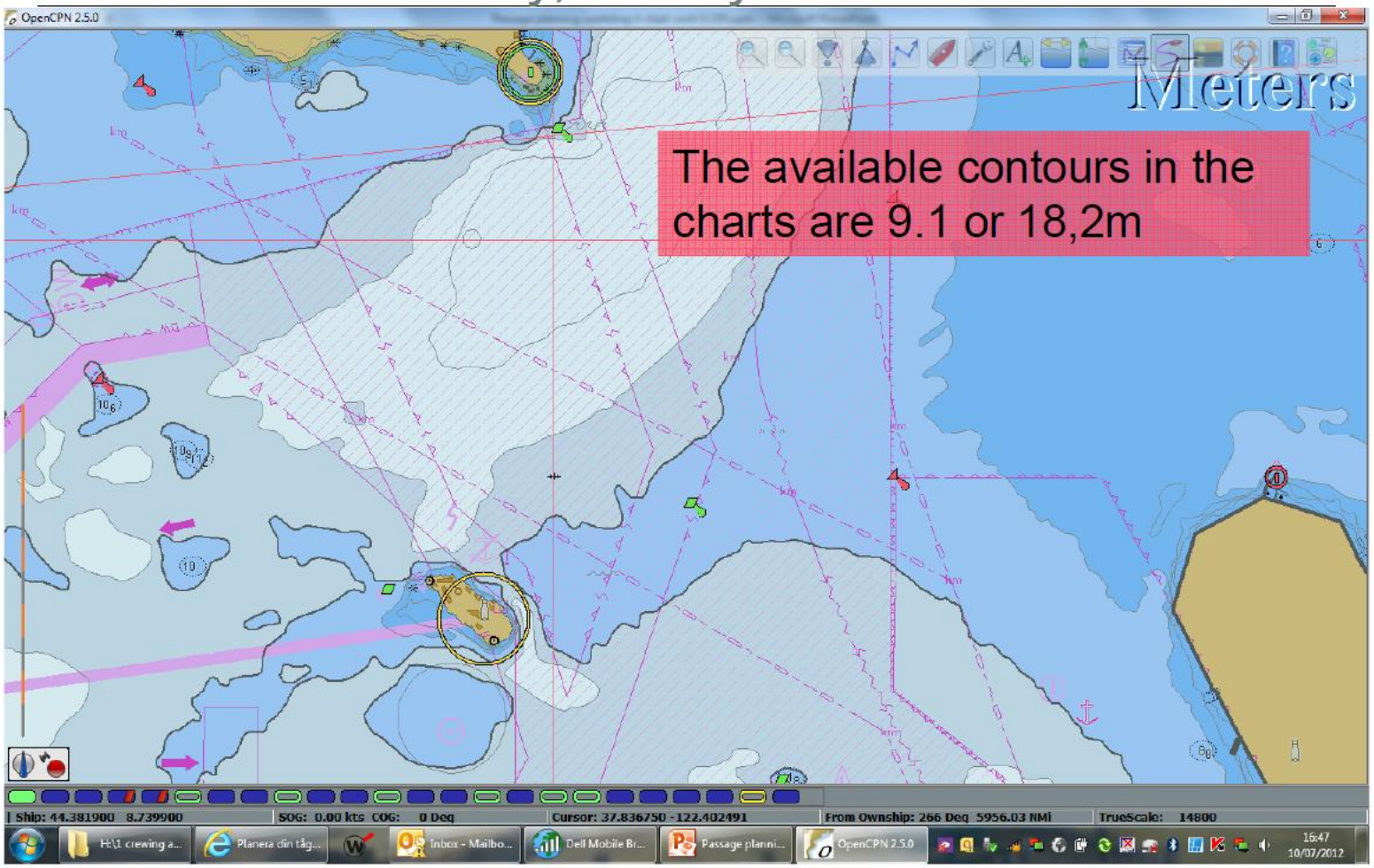
Current issues

San Francisco Bay, Safety contour 15m

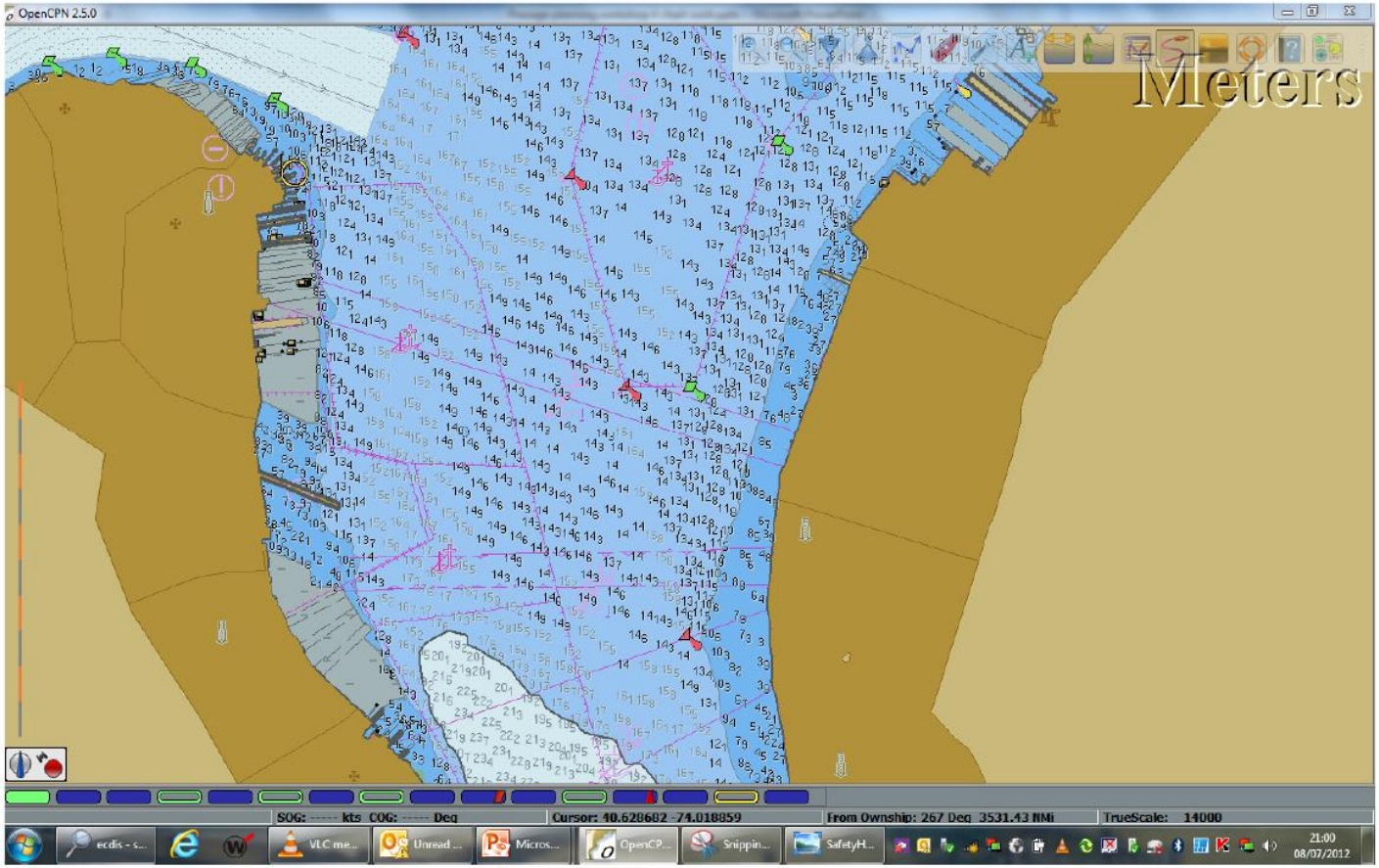


ECDIS Performance Standard v ENC Production

San Francisco Bay, Safety contour 15m

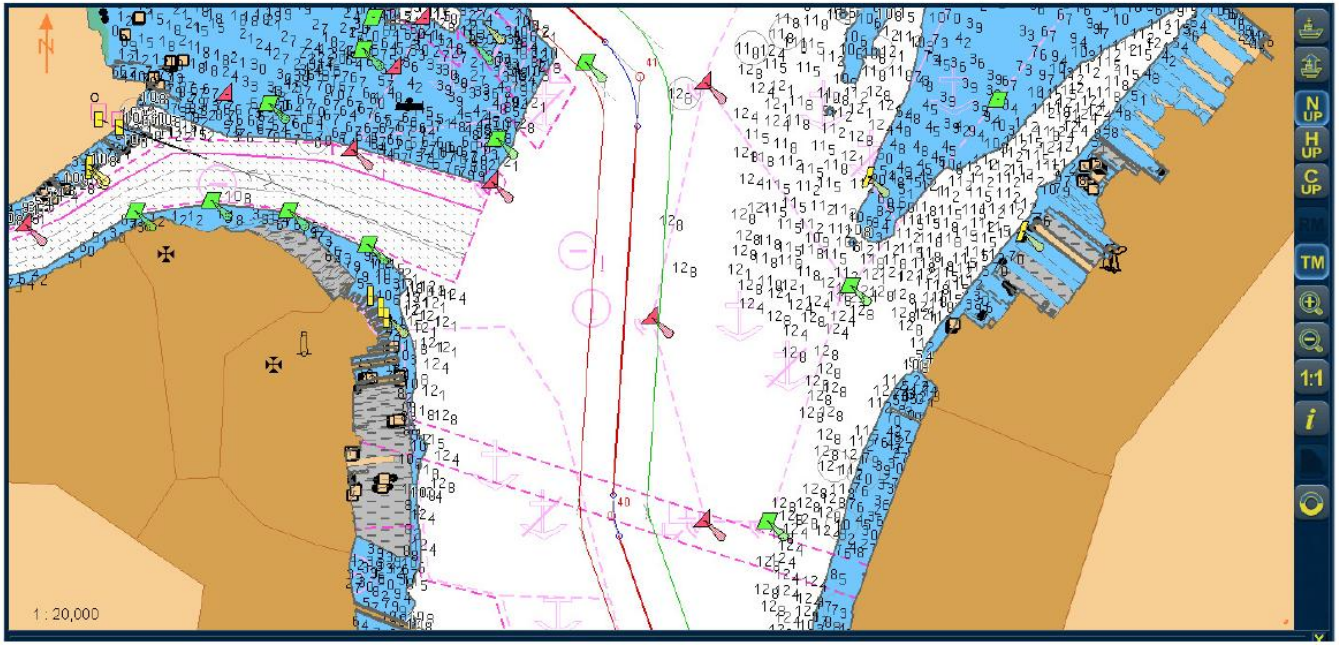


Current issues



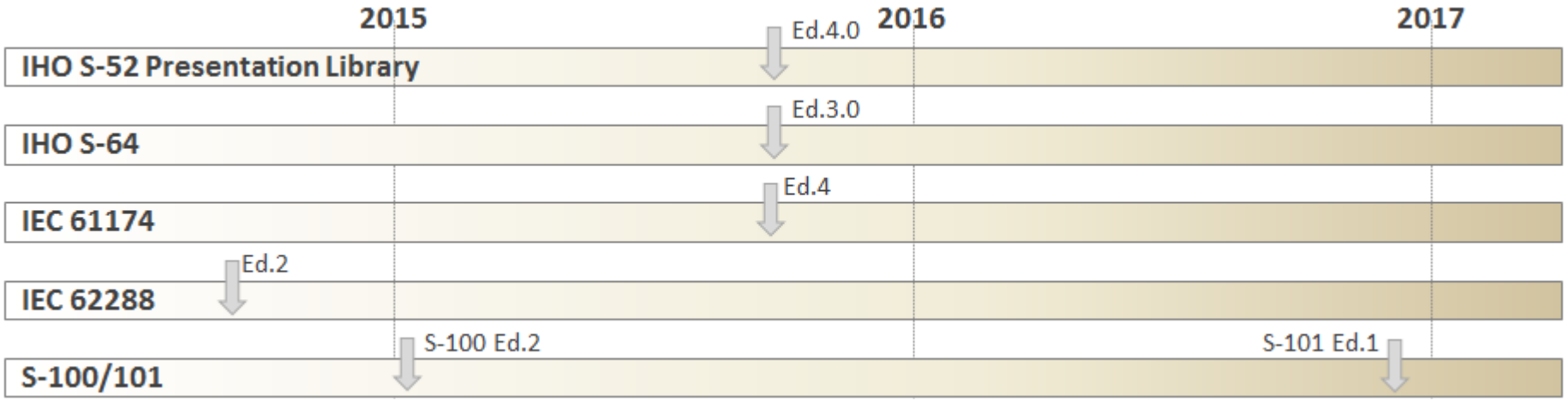
Safety depth set to 14.9m

Current issues



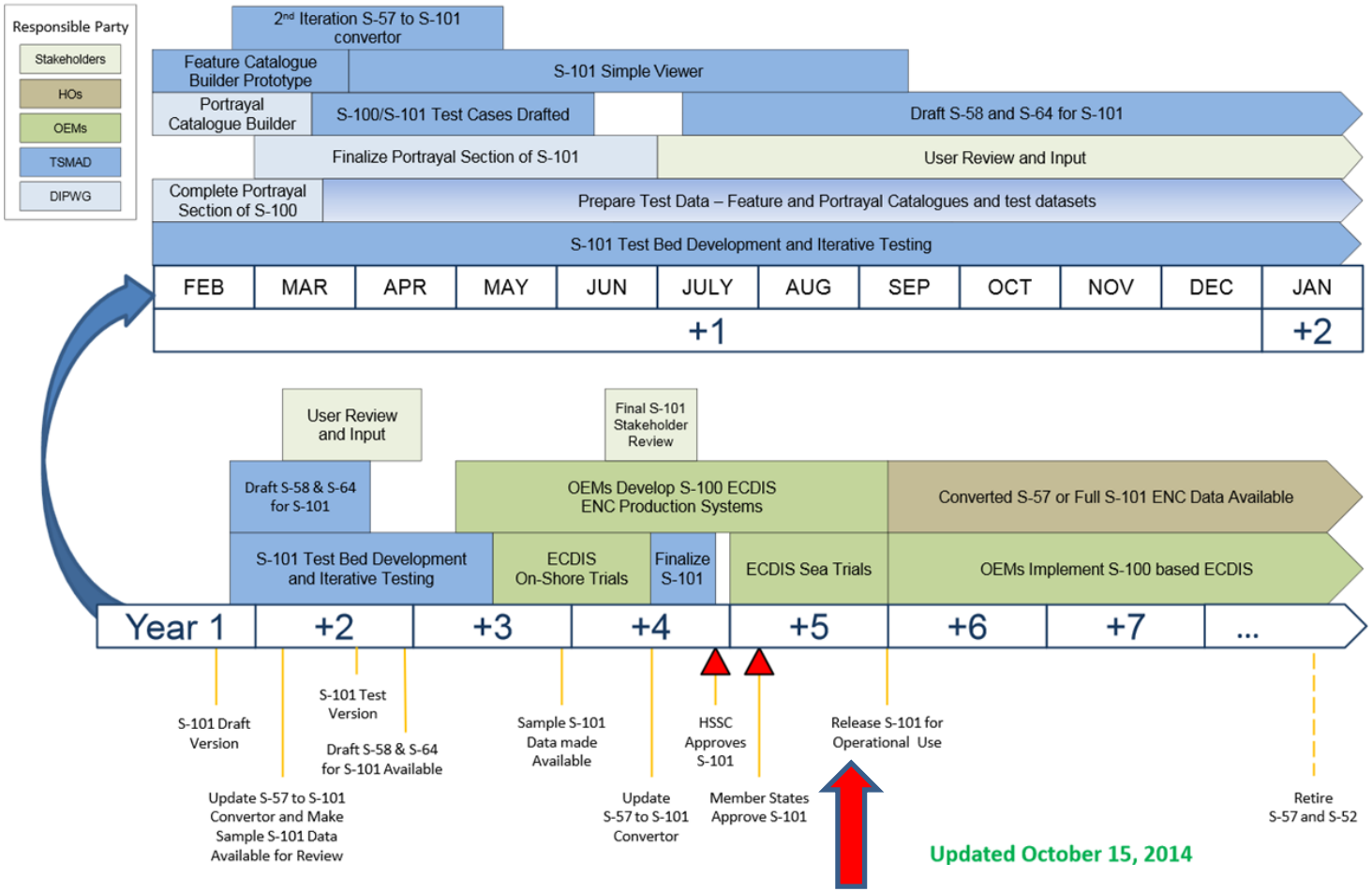
Soundings more than 13m suppressed

Current issues of OEMs



S-Mode
Unified route Exchange format
New presentation library
New testing standards
Weather information
Advanced AIS interface

Current issues of OEMs



Date when all ships have to be equipped with ECDIS – Please note: None of them will be S-100 compliant!


ChartWorld
ECDIS as a Service
Training
Charts
Service and Support
ECDIS
Going Paperless Action Plan
eSeries
ChartWorld's solution for ECDIS
Freedom & Flexibility – We Care!

ChartWorld
ECDIS as a Service

eSeries
ChartWorld's solution for ECDIS

The Future of Digital Navigation – Emerging Trends and Future Technologies

- "Smart" Chart management
- Intuitive touch controls
- Easy to Activate Scenario profiles
- Flexible user interface
- Optimized functionality
- Integrated 'Watch Handover' checks

ChartWorld
ECDIS as a Service

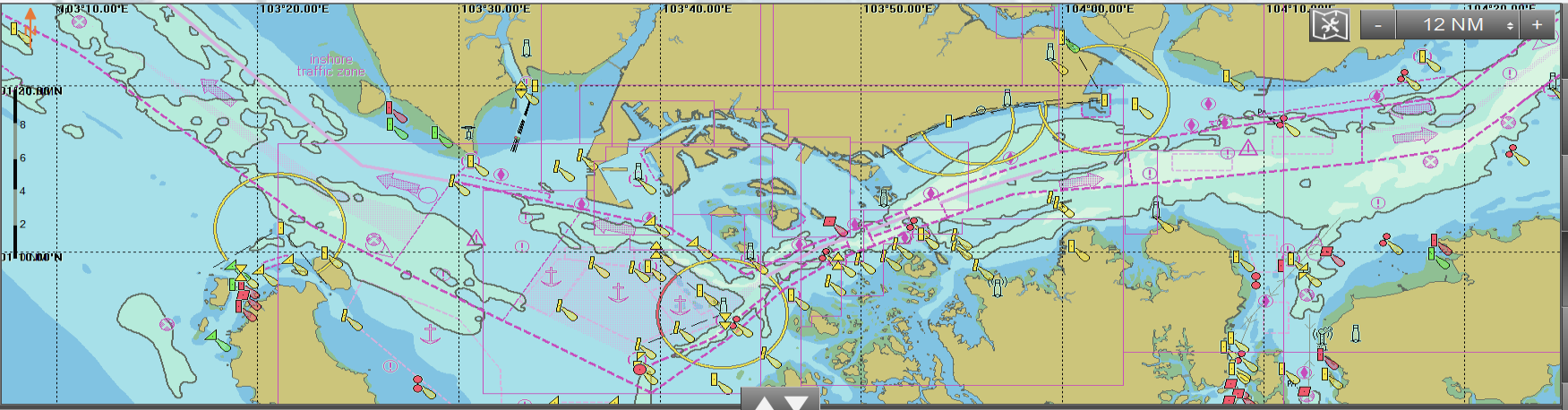
eSeries
ChartWorld's solution for ECDIS

"Smart" Chart Management

- One button data updates without leaving the system
- Fast, reliable and networked

ChartWorld
ECDIS as a Service

eSeries
ChartWorld's solution for ECDIS



S-Mode
Sailing Mode
Planning Mode
Chart Loader
View Alerts
Settings
Profiles
Integrator

Chart Loading | Chart Inventory | Reports | Settings | Review Updates | Manual Updates | Chart 1

Scan

Scan Drives

Press Scan Drives to load Permit, Data and Products.txt from defined local path.

Scan FTP

Press Scan FTP to load Permit, Data and Products.txt from Chart World Server.

Process

The following tasks will be performed:

Check FTP 88.198.255.183
Check Path USB
Check Path internal CD/DVD

Last Report

No Errors

Synchronization

Revert | Apply Changes

This Host:AcerAspire

Day

VECTOR: 2min T GND
AIS: not filtered
ACTIVE:

position by
EPFS1
NO INPUT

Edit | Undo | Redo | Select | Deselect | Pick | Chart Settings | Goto ship

Depth/Height in meters
WGS84

Intuitive touch control

- Touch screens make software easier to use
- Try and zoom

ChartWorld
ECDIS as a Service

eSeries
ChartWorld's solution for ECDIS

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ChartWorld's solution for ECDIS

Easy to activate Scenario profiles

- No need to change the system once you have covered the scenario's
- Safer, Easier, Faster

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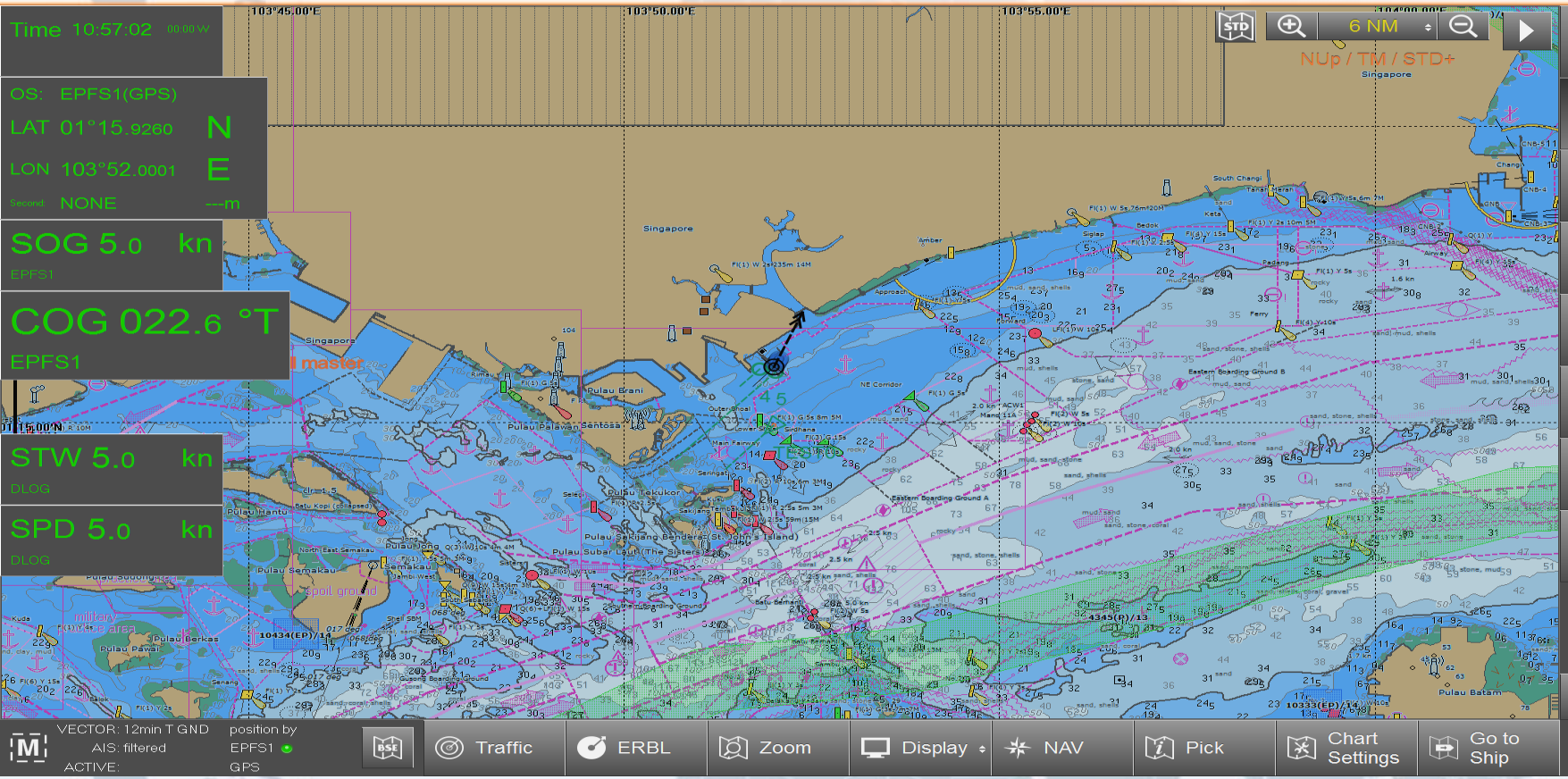
ChartWorld's solution for ECDIS



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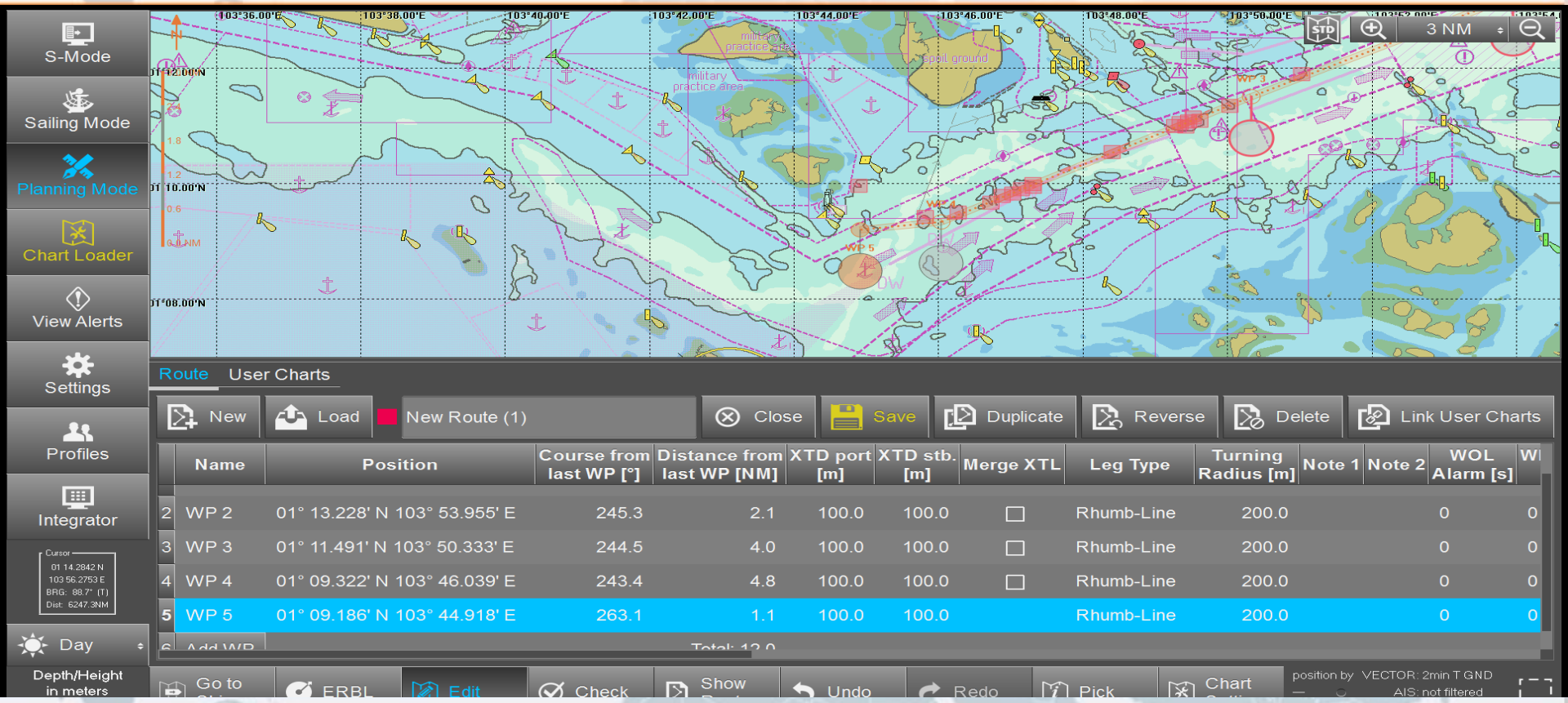
eSeries
ChartWorld's solution for ECDIS



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Flexible user interface

- More screen for the chart

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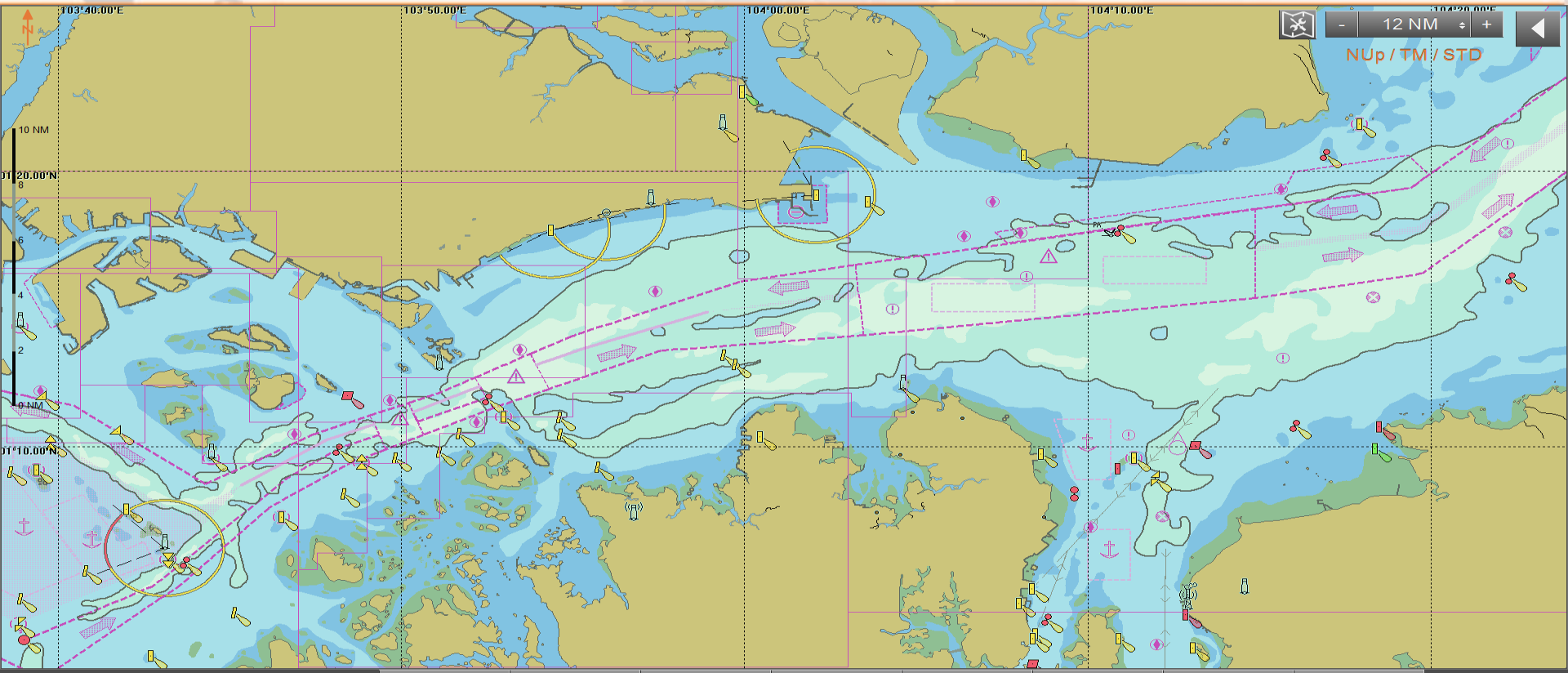
ChartWorld's solution for ECDIS



VECTOR: 2min T GND
AIS: not filtered
ACTIVE:
position by
EPFS1
NO INPUT

Traffic | ERBL | Zoom | Display | NAV | Pick | Chart Settings | Goto ship

Depth/Height in meters
WGS84

Optimized functionality

- We spent a lot of time thinking about what not to put in.
- Over complicated = Under utilized
- Toolbar - Tab - Select

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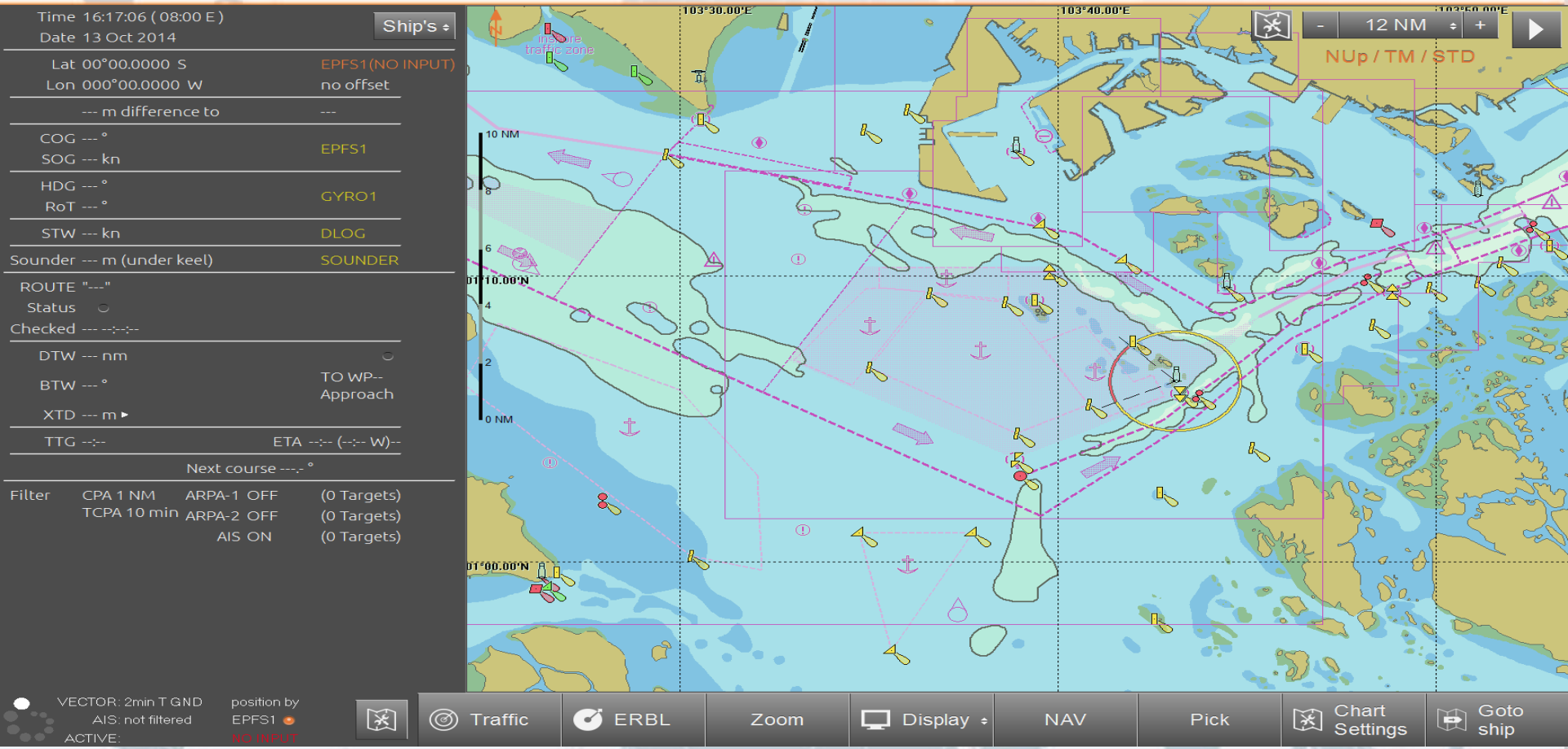
ECDIS as a Service

eSeries
ChartWorld's solution for ECDIS



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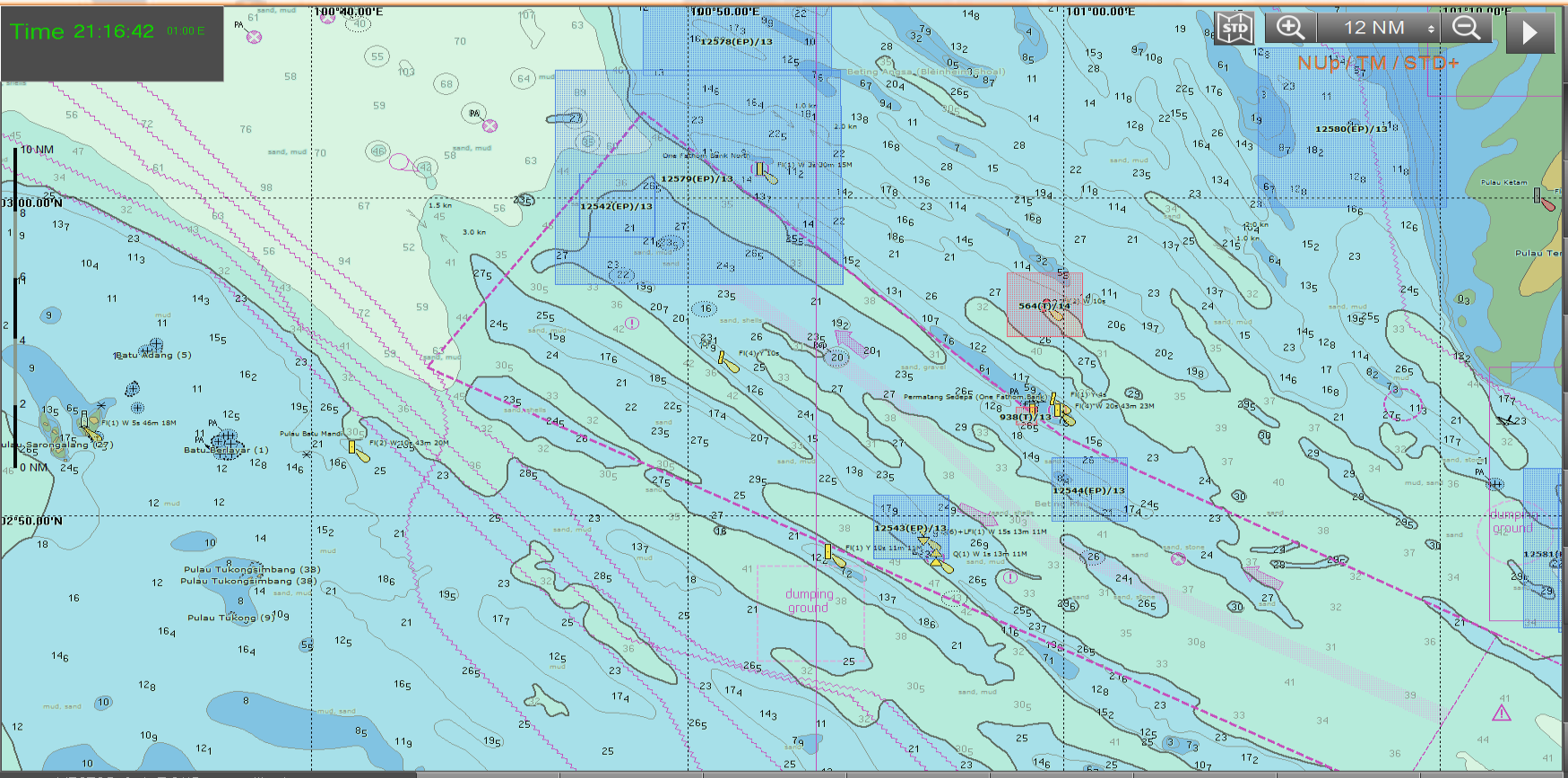

S-Mode
Sailing Mode
Planning Mode
Chart Loader
View Alerts
Settings
Profiles
Integrator

Cursor
03 02.8042 N
100 39.1754 E
BRG: 86.9° (T)
Dist: 6049.1NM

Day

VECTOR: 2min T GND
AIS: not filtered
ACTIVE:

position by
EPFS1

BSE | Traffic | ERBL | Zoom | Display | NAV | Pick | Chart Settings | Go to Ship

Depth/Height in meters
WGS84

ChartWorld
ECDIS as a Service

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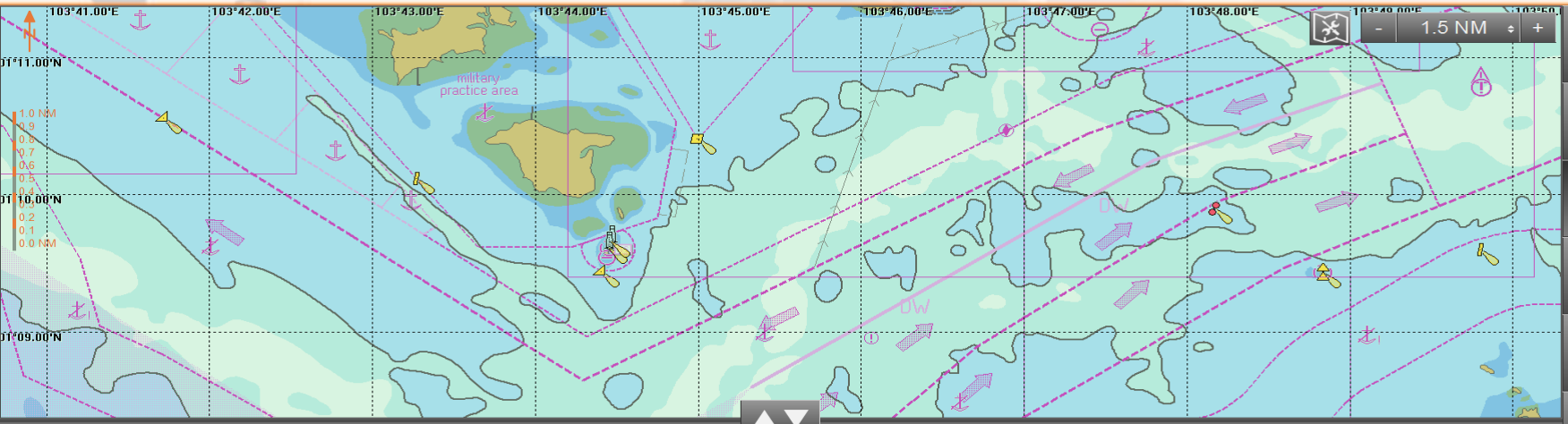
ChartWorld's solution for ECDIS



S-Mode
Sailing Mode
Planning Mode
Chart Loader
View Alerts
Settings
Profiles
Integrator

Route | User Charts

New | New Route (1) | Save | Duplicate | Reverse | Delete | Properties | Check

	Name	Position	Course from last WP [°]	Distance from last WP [NM]	XTE port [m]	XTE stb. [m]	Merge XTL	PI port [m]	PI stb. [m]	Leg Type	Turning Radius [m]	Note 1	Note 2	WOL Alarm [s]	WP Approach Alarm [s]
1	Add WP			Total: 0.0											

Day

VECTOR: 2min T GND
AIS: not filtered
ACTIVE:
position by
EPFS1
NO INPUT

ERBL | Edit | Show Routes | Undo | Redo | Pick | Chart Settings | Goto ship

Depth/Height in meters
WGS84

Integrated ‘Watch Handover’ checklist

- The new standard in every bridges ‘watch handover’ process.

Watch Handover Check list - ECDIS - 20.01.2015 06:25:55 (00:00 W)

1. Positioning

Main Position:
59 25.4567 N
007 16.1236 E by EPFS1 DGPS
+ 225m

Secondary Position:
DIST 1234.5m by EPFS2 DGPS
BRG 087 T

Last Manual LOP/FIX at 56 min ago

2. System and Sensors Check!

eGlobe G2 ECDIS version 1.0.7

	eGlobeMaster	eGlobeBackup
Station Rank	2(MASTER)	-
	Master	Backup
EPFS1	OK	OK
EPFS2	OK	OK
GYRO1	OK	OK
GYRO2	NC	NC
LOG	OK	OK
SOUNDER	OK	NC
ARPA1	OK	NC
ARPA2	NC	OK
AIS	OK	OK
VDR link	OK	OK

3. Safety Parameters and Watchdog settings

Safety Contour	=	10.0 m
Safety Depth	=	12.0 m
Safety vertical clearance	=	38.0 m
Look ahead	=	7 min
Starboard	=	25 degrees
Port	=	10 degrees
Minimum speed	=	1 kt

Status: Risk of grounding!

AREA entry check: Selected areas

Status: OK No entry/approach to area detected

Chart layers in Monitoring: Standard +
Chart layers in S-Mode: Base +

4. Route Monitoring

Route: Hamburg-Valparaiso 2014 VT
Created/Last modified: 23.01.2014 12:12 UTC
Checked Safe 12.08.2014 23:34 UTC

Sf. Contour = 10.0m / Sf. Depth = 10m / Air Draft = 40m
(Safety parameters mismatch! Check Watchdog settings!)

Next waypoint: 029 "Mona straight"
BTW: 254.2T DWT: 1257.75m XTD: 356m >>
ETA: 14.08.2014 14:54 (UTC-4)
Checked Safe No Water Level offset used

Schedule: ON TIME
WP 042 "Cristobal Pilot"
ETA: 16.08.2014 23:35 (02:00 W)
00hr 05 min delay
Route distance: 2045.71nm sailed
2577.25 nm ahead

5. ECDIS Chart Inventory

6. ECDIS Alerts

Active Alarms: 3
Active Warnings: None

7. Traffic

AIS (837) ON Sleeping targets filtered
ARPA1 (22) ON CPA: 2.0 nm
ARPA2 (11) ON TCPA: 15 min
Dangerous targets: 0

Save Report

ChartWorld
ECDIS as a Service

eSeries
ChartWorld's solution for ECDIS

The Future of Digital Navigation – Emerging Trends and Future Technologies

- Live SMS for ECDIS
- eQuip – transition planning
- Live chart updating from surveys
- Ship to shore management
- Customised user layers
- Mobile communications