MARITIME NAVIGATION INNOVATION WEBINAR WEEK

WEBINAR

MONDAY 24 NOVEMBER
09:00-10:00 GMT

Beyond compliance: turning S-100 into your navigational advantage

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MARITIME
OPTIMISATION
& COMMUNICATIONS

MARITIME NAVIGATION INNOVATION WEBINAR WEEK

PANELLISTS



Simon Cooke
Technical Manager
Sperry Marine



Antonio Di Lieto
Manager Simulation Studies
CSMART (Carnival Corp.)



Thomas Mellor
Head of Technical Partnerships
UK Hydrographic Office

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S-100 for cruise ships in confined waters

Antonio Di Lieto
Senior Manager Simulation Studies
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CARNIVAL CORPORATION&PLC.

CSMART Center for Simulation & Maritime Training

CARNIVAL CORPORATION & PLC.

AIDA · Carnival · Costa · CUNARD · Holland America Line · P&O CRUISES · PRINCESS · SEABOURN

over **90** cruise ships

over **800** destinations





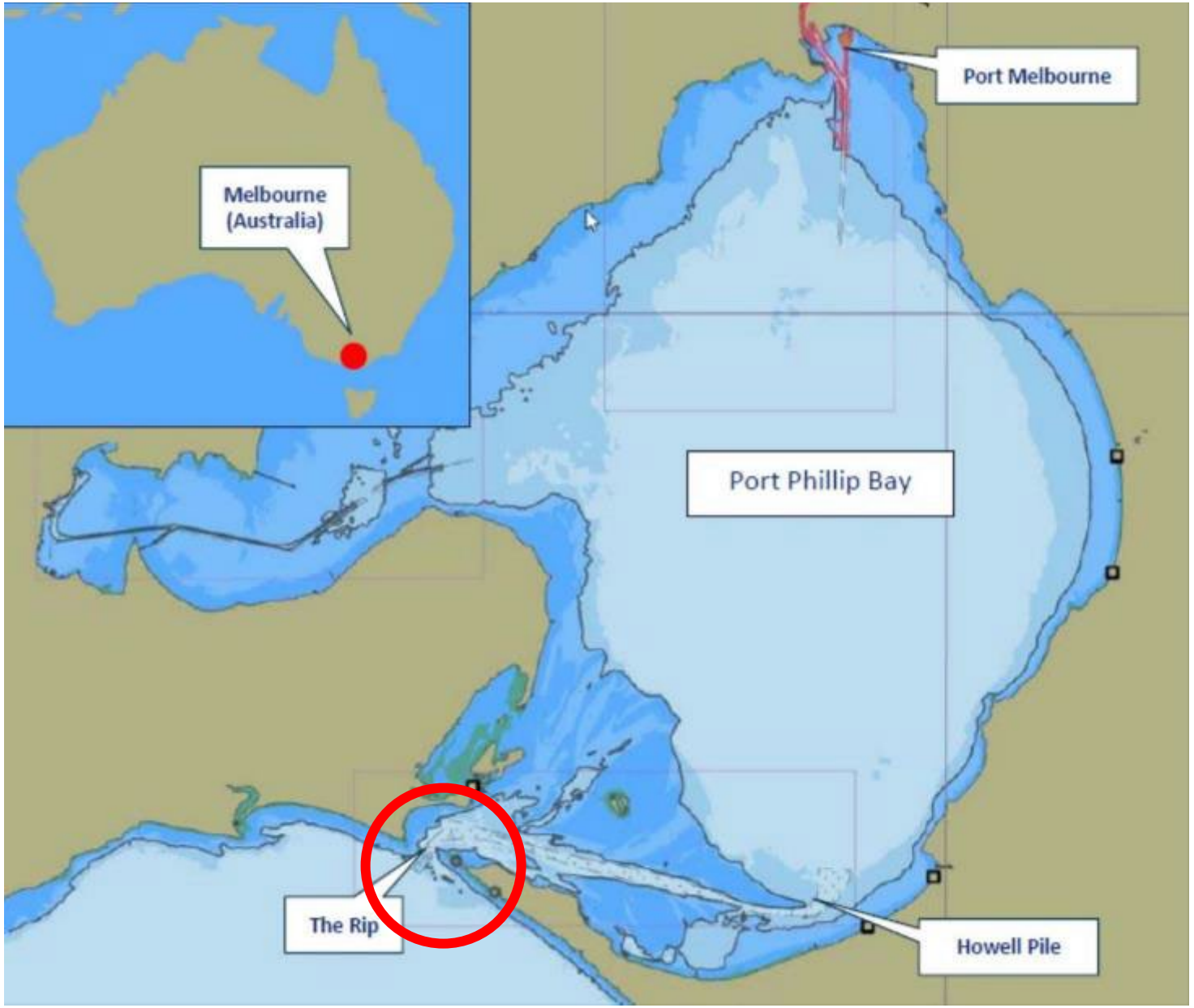
SMART
Center for Simulation & Maritime Training





12 Bridge Simulators

- Training
- Port Studies

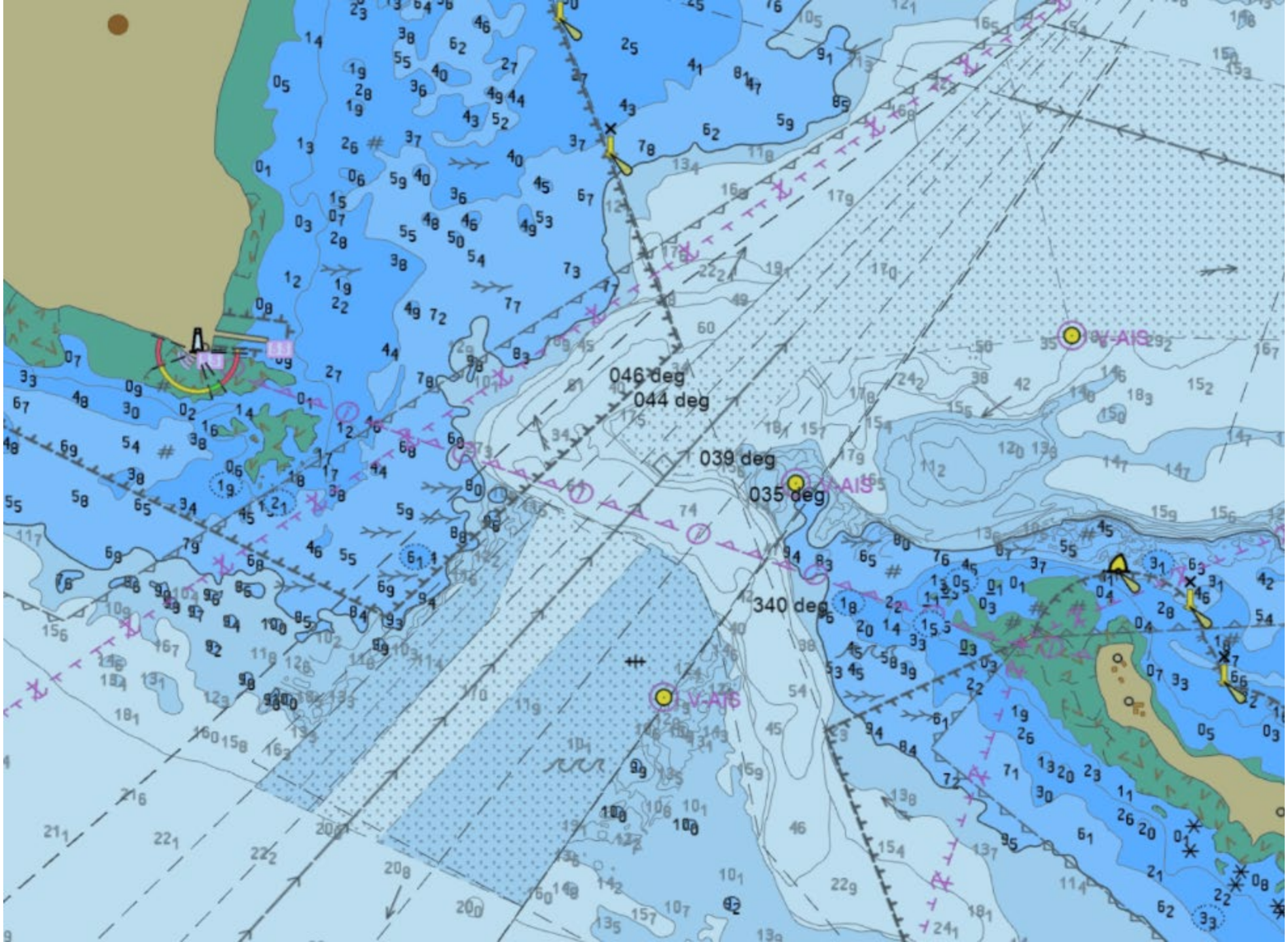

Melbourne
(Australia)
Port Melbourne
Port Phillip Bay
The Rip
Howell Pile

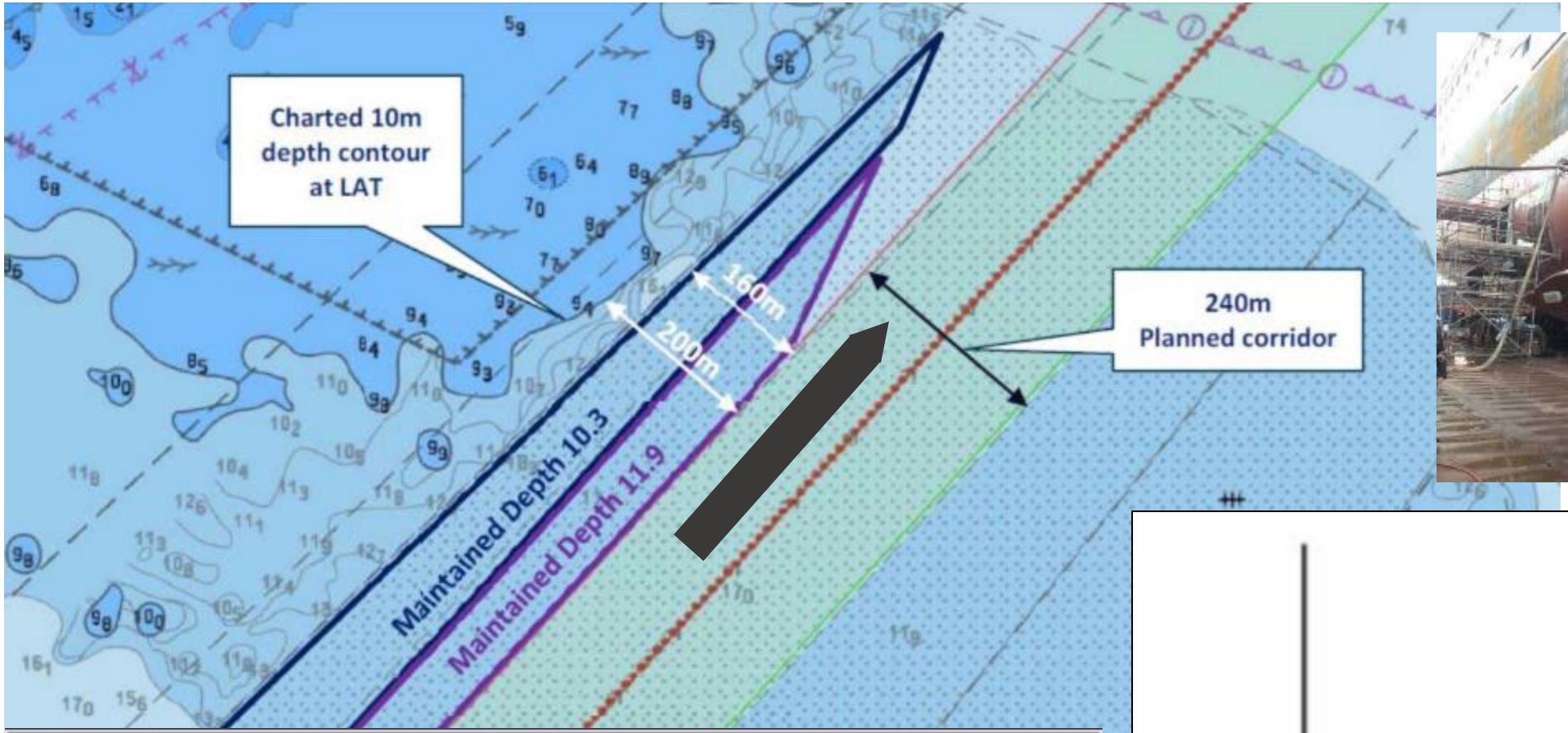

Grand Class
LOA 290m


Royal Class
LOA 330m

ENC

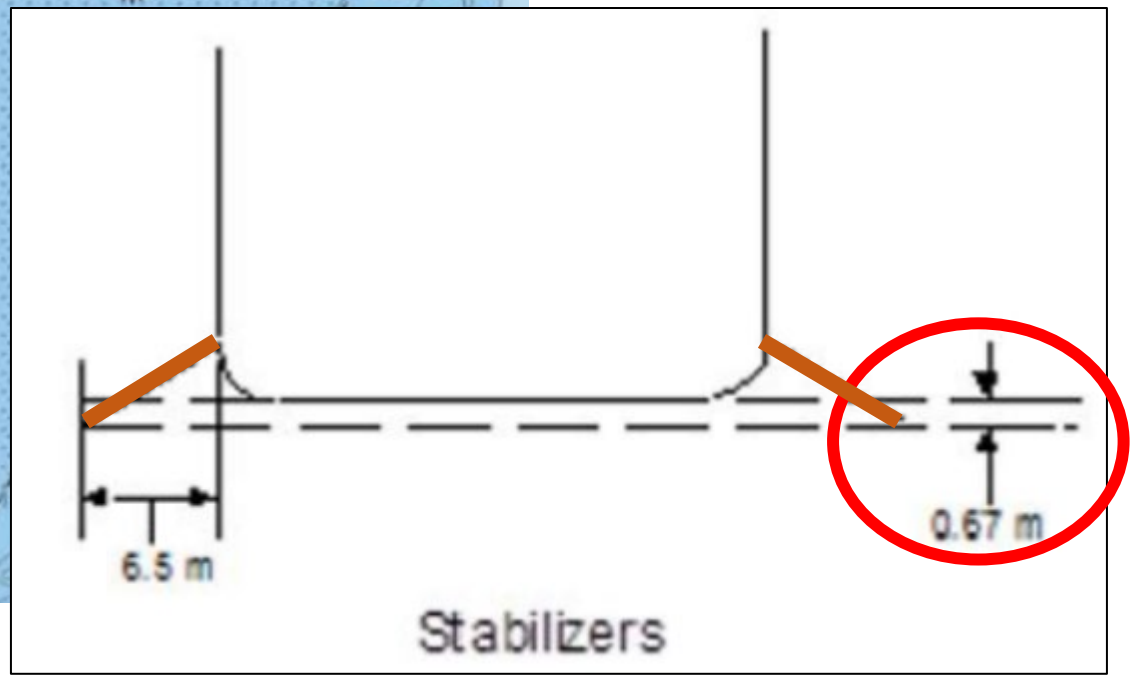
S-57





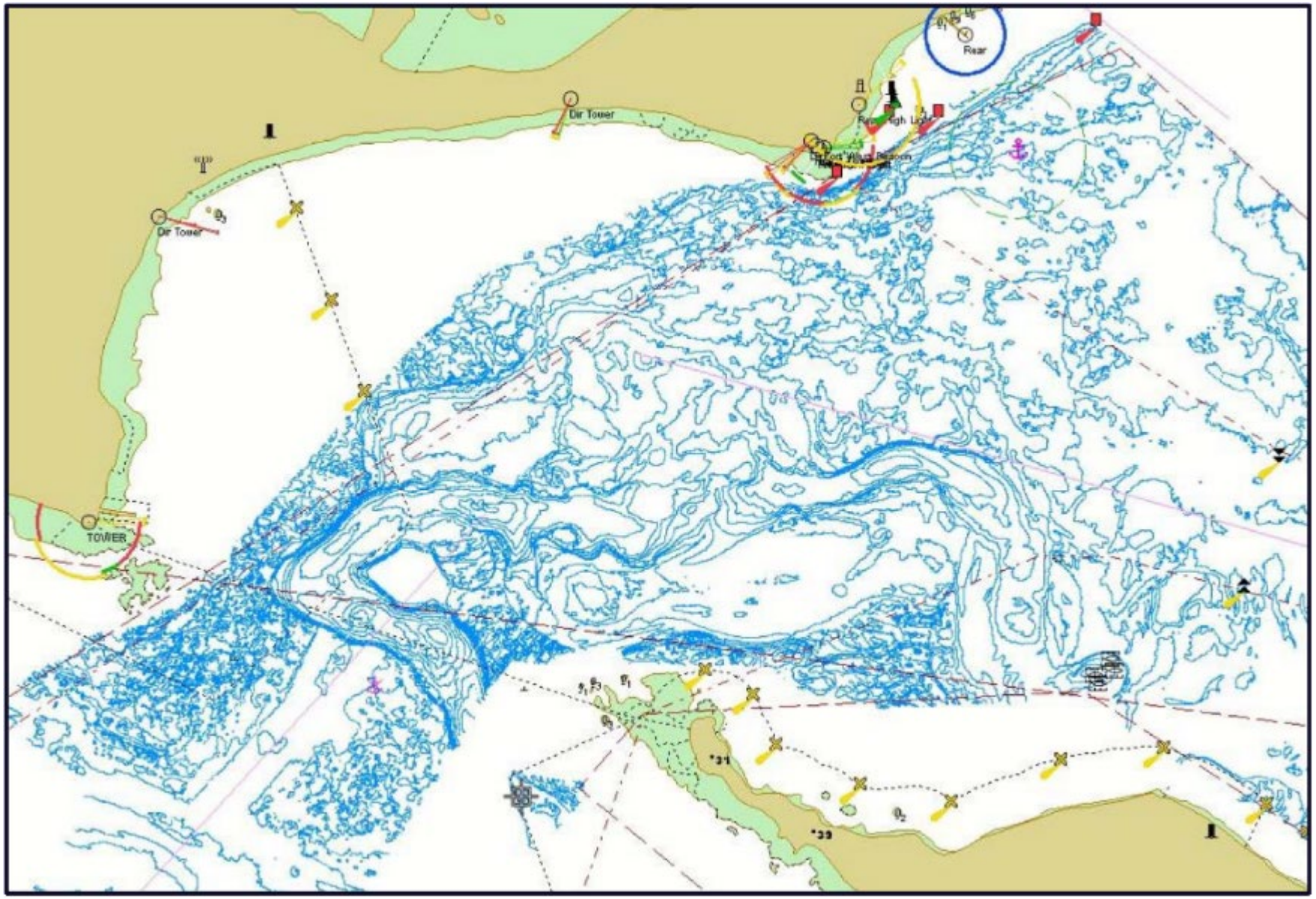


Angle	Increase of draft(compared to sample draft)	
List	without	with stabilizers
0	0	0.670
1	0.280	1.064
2	0.557	1.454
3	0.832	1.842
4	1.104	2.227
5	1.373	2.609

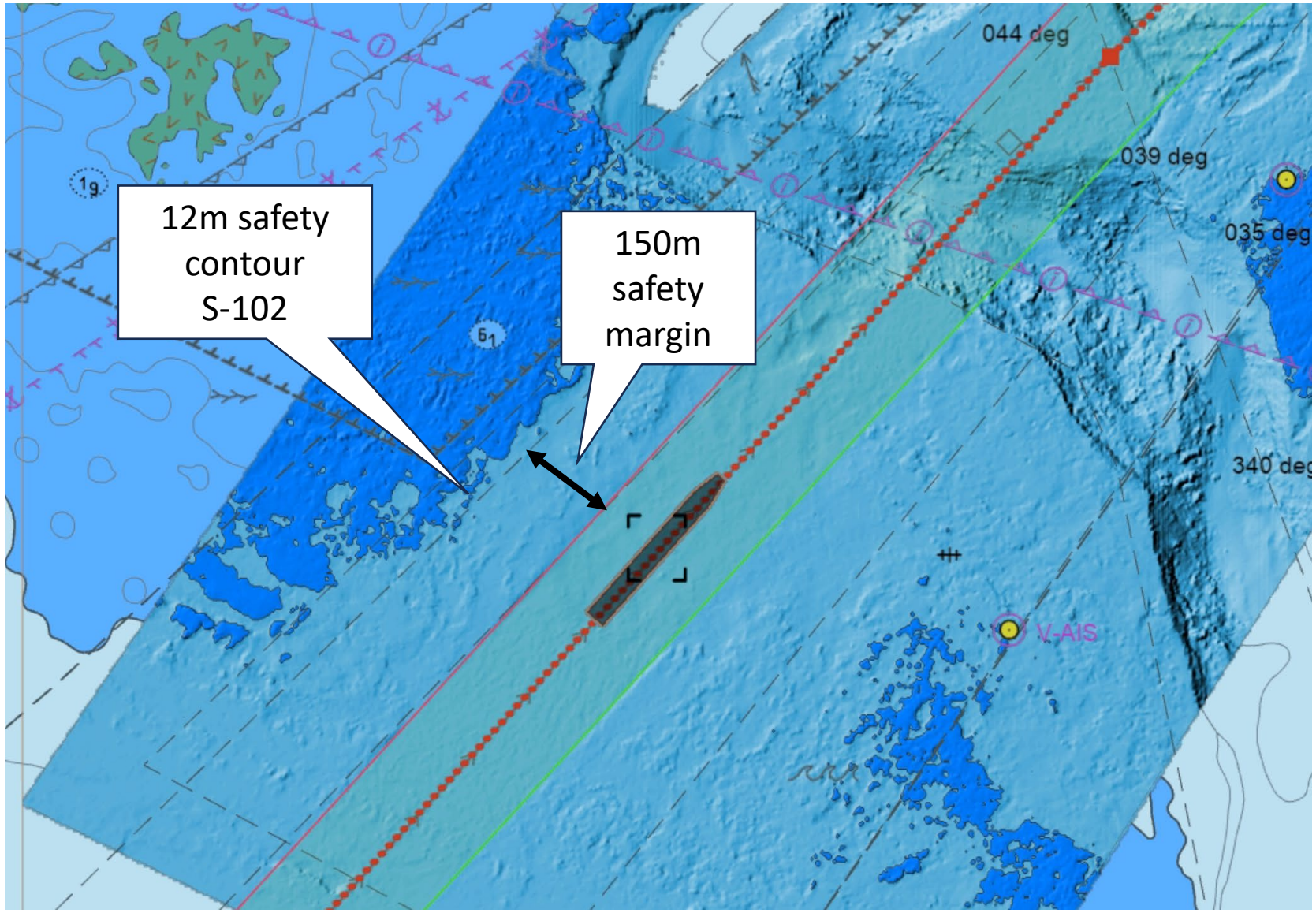


Port Survey data

Simulator model



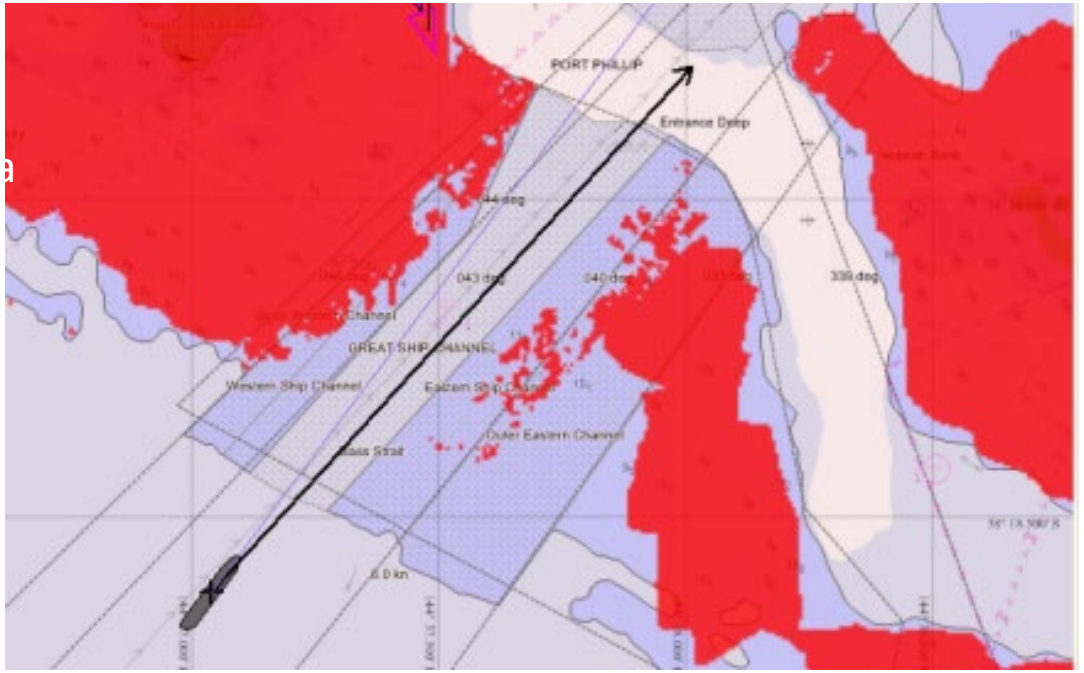
S-102


12m safety contour S-102
150m safety margin
044 deg
039 deg
035 deg
340 deg
V-AIS

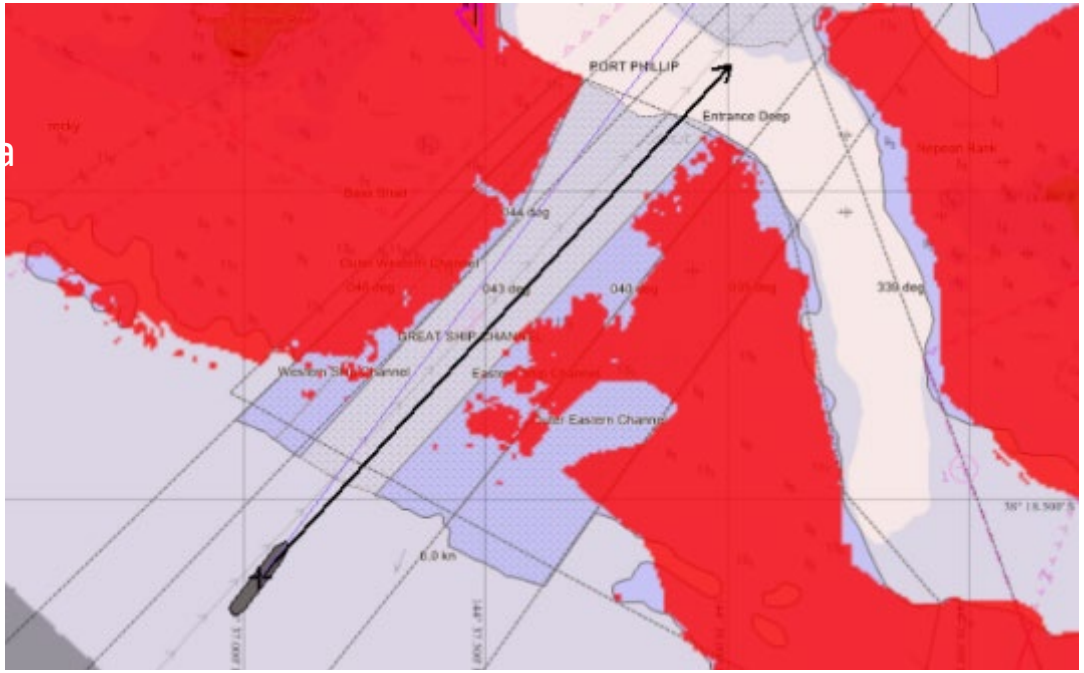
S-129

DUKC® OMC International

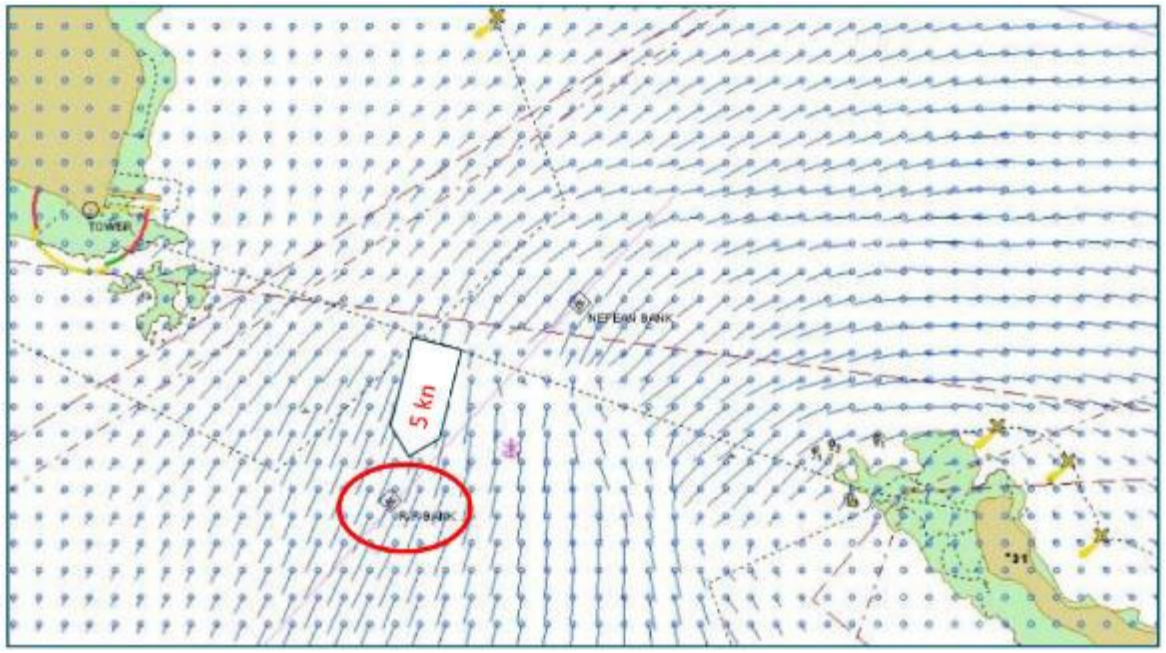
0.4m swell

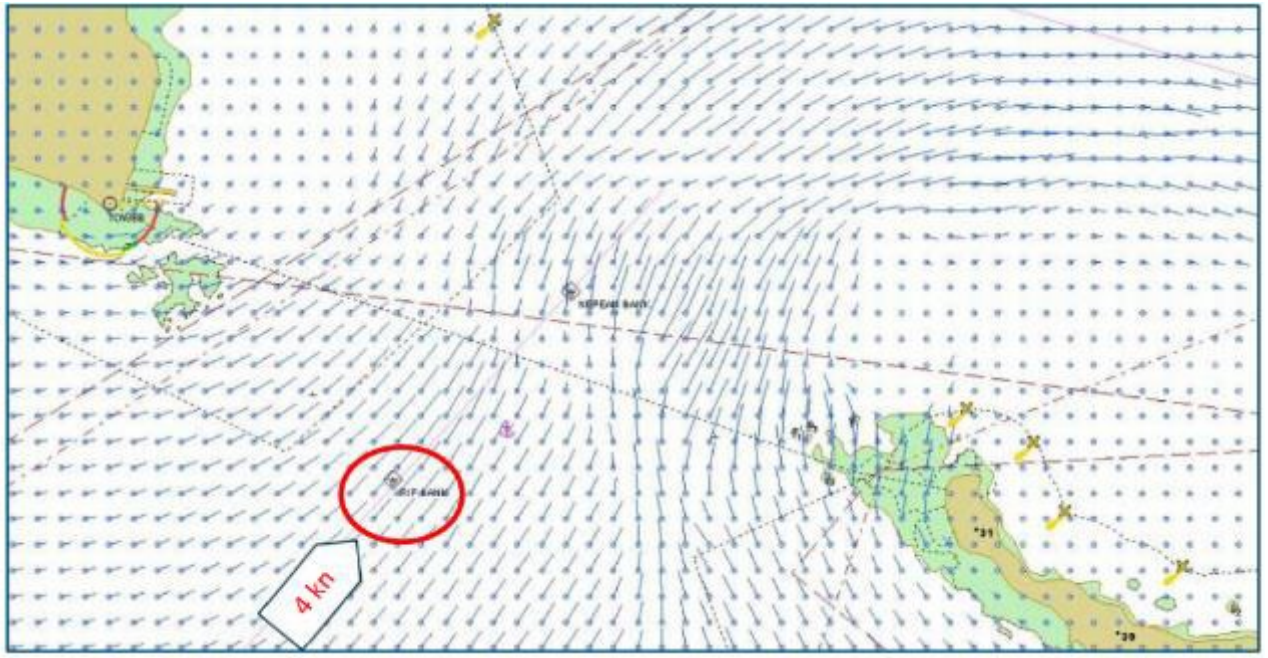


3.4m swell



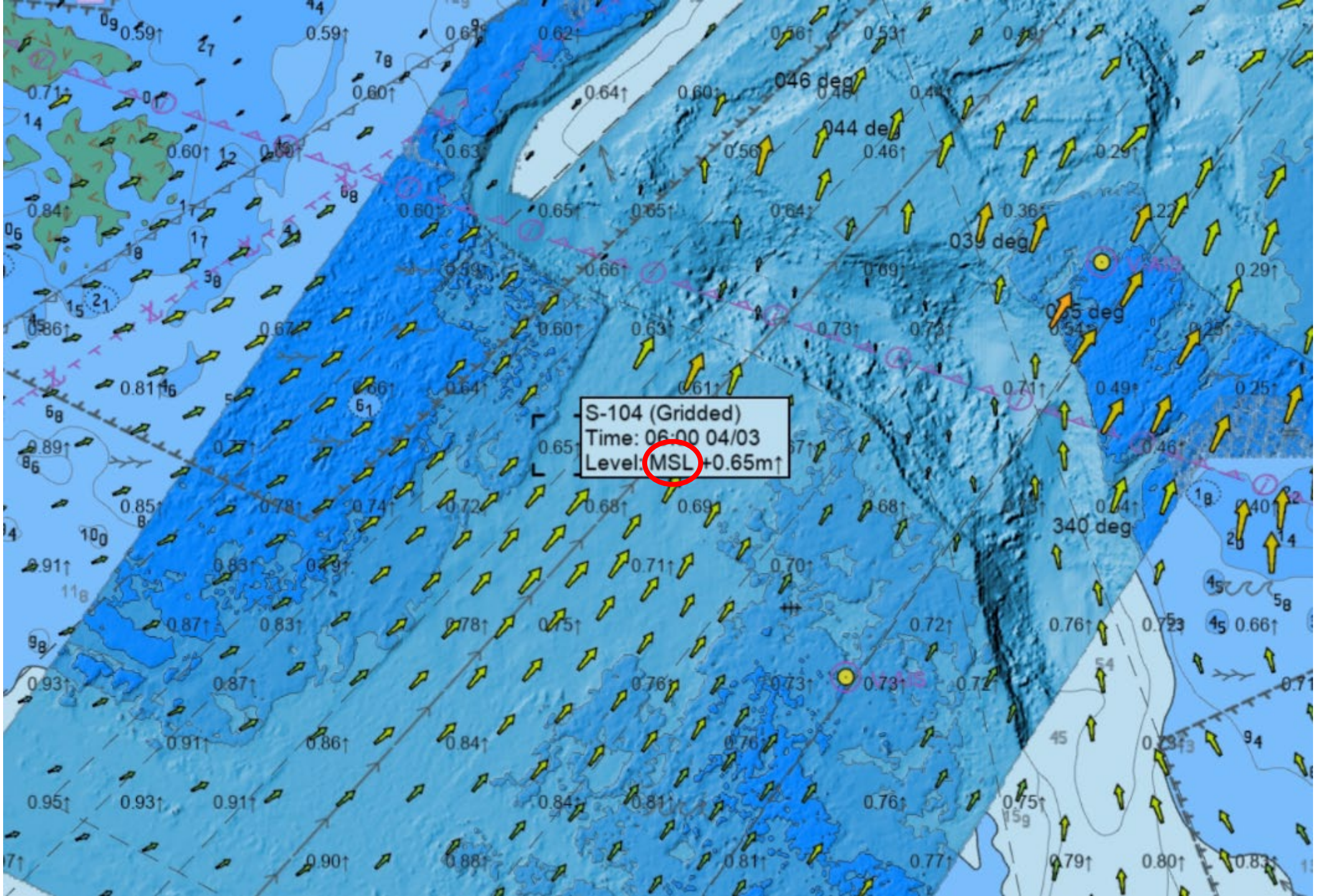
Tidal Stream model - Simulator model





S-111

S-104


S-104 (Gridded)
Time: 06:00 04/03
Level: MSL +0.65m
046 deg
044 deg
039 deg
340 deg

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Beyond compliance: Turning S-100 into your navigational advantage



Simon Cooke
Technical Manager

Sperrymarine
the navigation experts

Current challenges

Sperrymarine

Safety Contour
The frequent impracticality of the setting of an efficient safety contour, leading to the use of ‘official workarounds’ and ‘unofficial workarounds’ to optimise the display to make the best of a bad job. Alternatively, the safety contour is ignored altogether.

Alert Fatigue
The number and types of alerts generated during automatic route checks that leads to them either being ignored or increases the risk of planners missing safety critical alerts among numerous more trivial ones.

MAIB/DMAIB ECDIS Safety Study 2022

Extensibility
Current IHO standards are ENC focussed

Maintainability
Revised IHO standards need ECDIS software update

Benefits of the S-100 ECDIS

Sperrymarine

Delivering value to mariners

Enhanced Safety Contour using S-102

Water Level Adjustment using S-104

Mariner control of **safety checking alerts**

Improved **Route danger indications**

Automated **horizontal accuracy checks**

Don't need S-100 data !

Benefits

- Improved safety of navigation
- Reduced Mariner workload
- Potential for improved fuel-efficiency
- Reduced alert fatigue

S-100 Introduction timeline

New IMO Performance Standard MSC.530(106)/Rev.1

New ECDIS installations
May conform from 1 January 2026

New ECDIS installations
Must conform from 1 January 2029

In-service ECDIS
No update needed at this time

IHO to approve S-100 standards
2026

IEC to publish type approval test standards
2027

National type approval legislation updated
2028

IMO to update ECDIS Model course 1.27
2027



VisionMaster S-100 ECDIS

Extensible to new data products
Improved safety of navigation
Reduced Mariner workload
Improved fuel-efficiency
Reduced alert fatigue

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ADMIRALTY

The new IHO S-100 standard

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UK Hydrographic Office

Head of Technical Partnerships



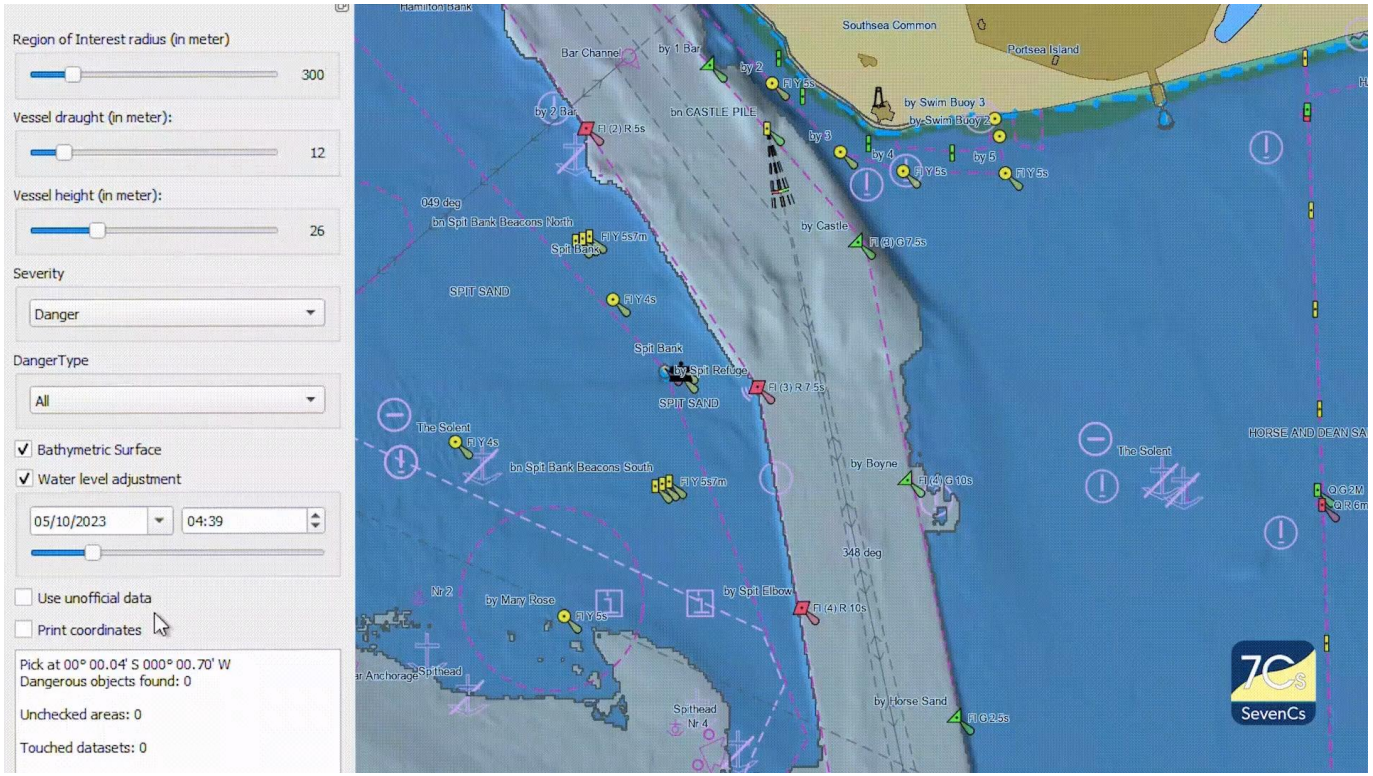
S-57 is the current IHO standard for ENCs

- The IHO S-57 standard for was developed in 1992 to support exchange of ENC data
- Defines how hydrographic offices construct an ENC for display in ECDIS
- Standard was frozen in 2000; unable to accommodate new user requirements
- Not resilient against emerging cyber security threats



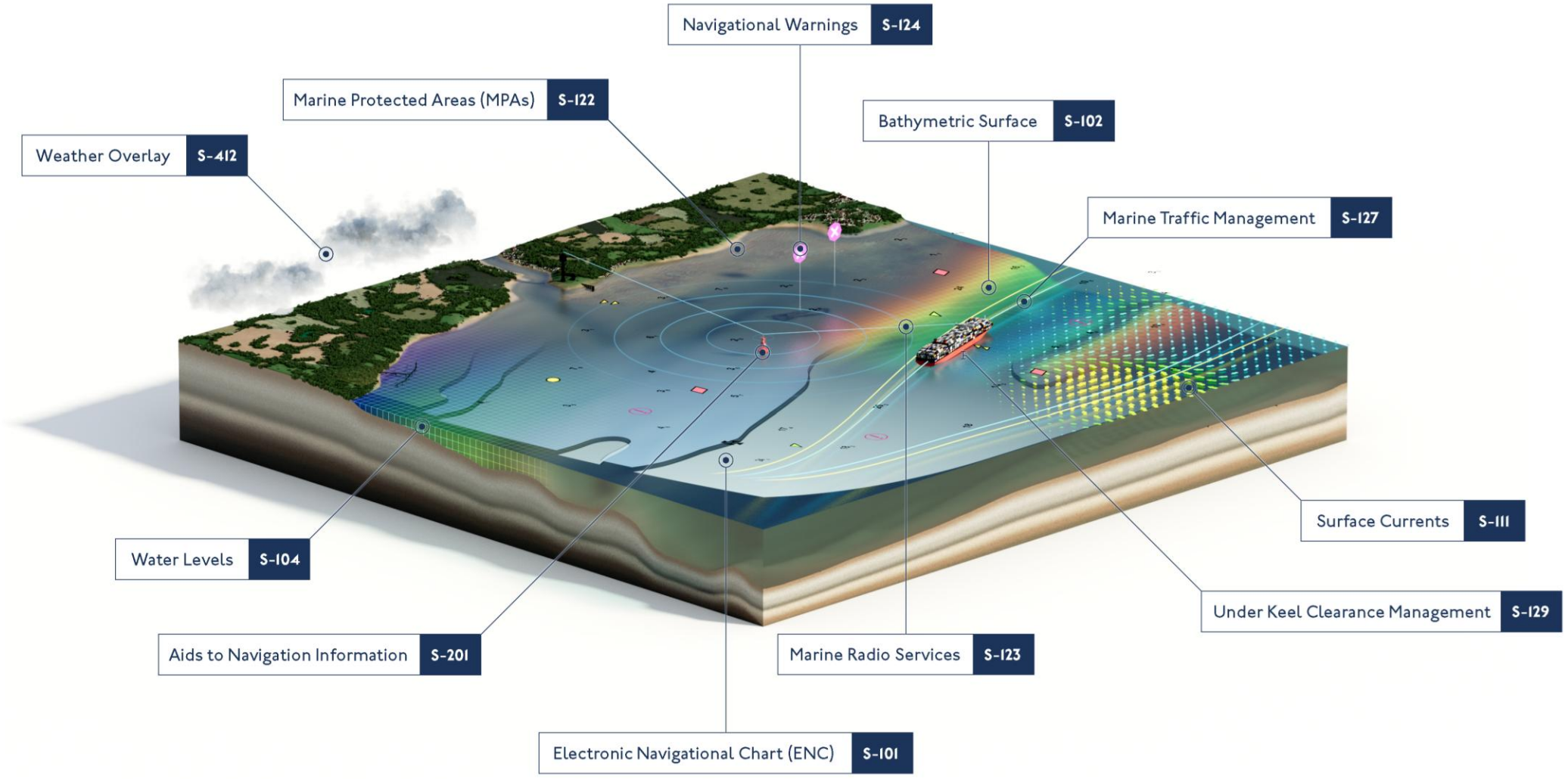
What is S-100?

- S-100 is the new universal data framework developed by the International Hydrographic Organization (IHO)
- Based on ISO 19100 family of Geographic Information standards
- Developed to support a much richer set of geographic information, it enables the integration of dynamic data sources, such as weather and tidal information, into ECDIS for improved safety and efficiency
- S-100 is fully extensible and can be developed to support future technological changes and new sectors

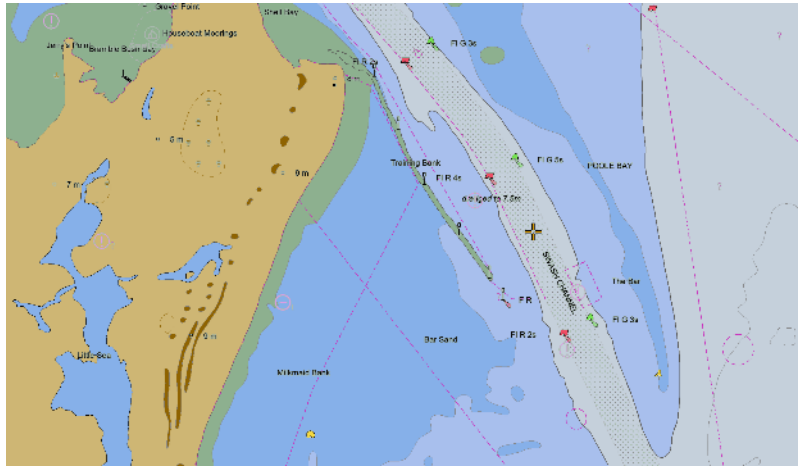


UK Hydrographic Office

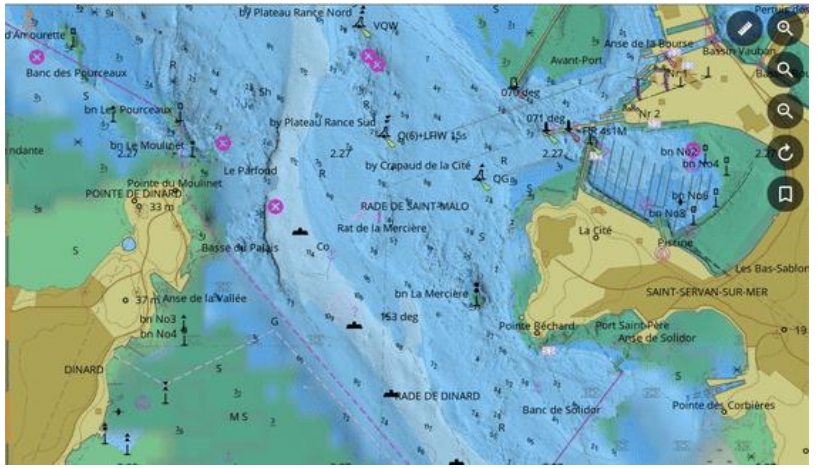
ADMIRALTY



S-100 digital products – Phase1



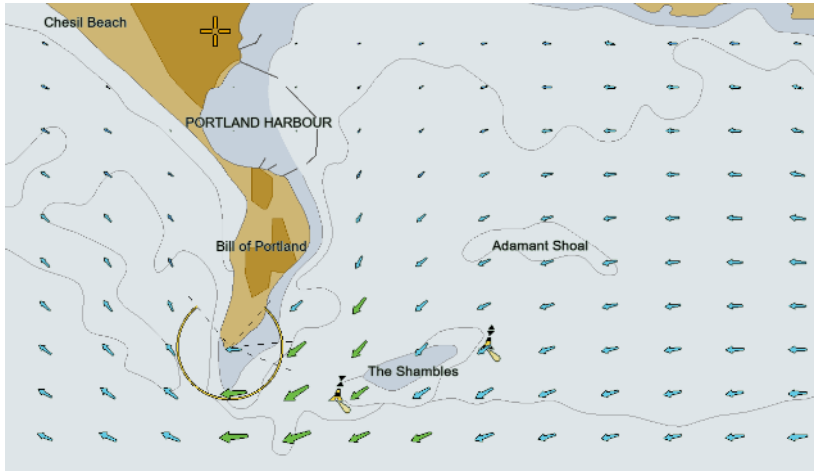
S-101 ENC



S-104 water levels



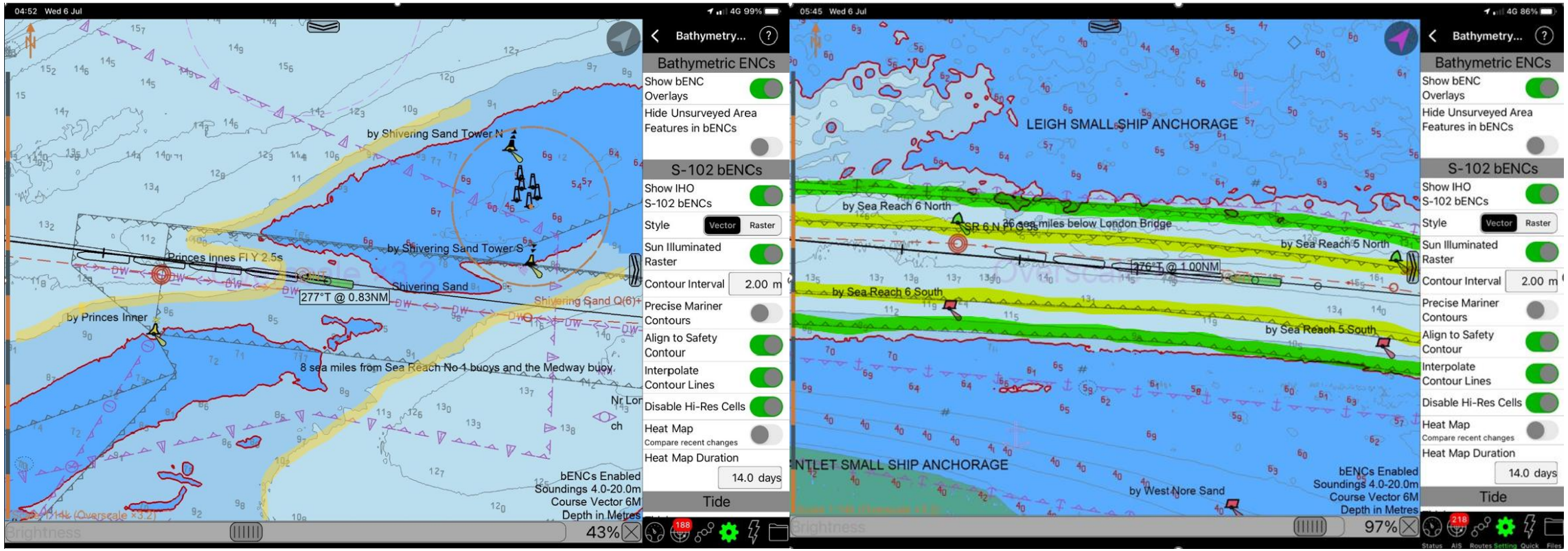
S-102 bathymetric surface



S-111 surface currents

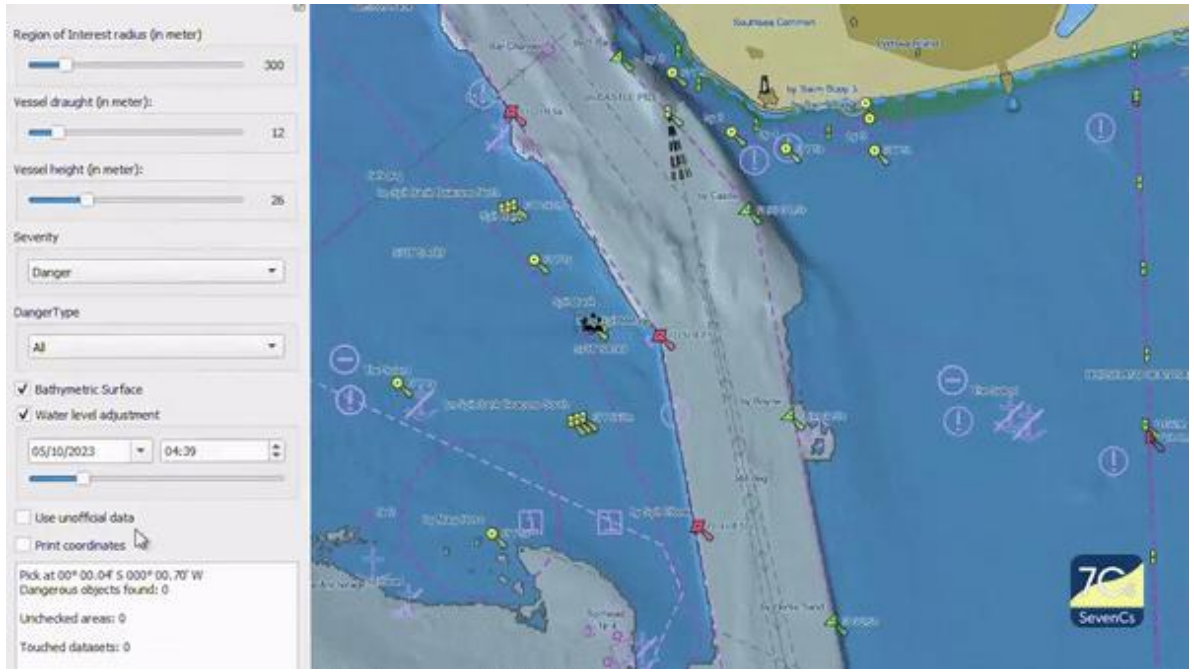
S-102 will enhance navigational precision

– Allowing the generation of more precise contours, will open up more safe navigable space



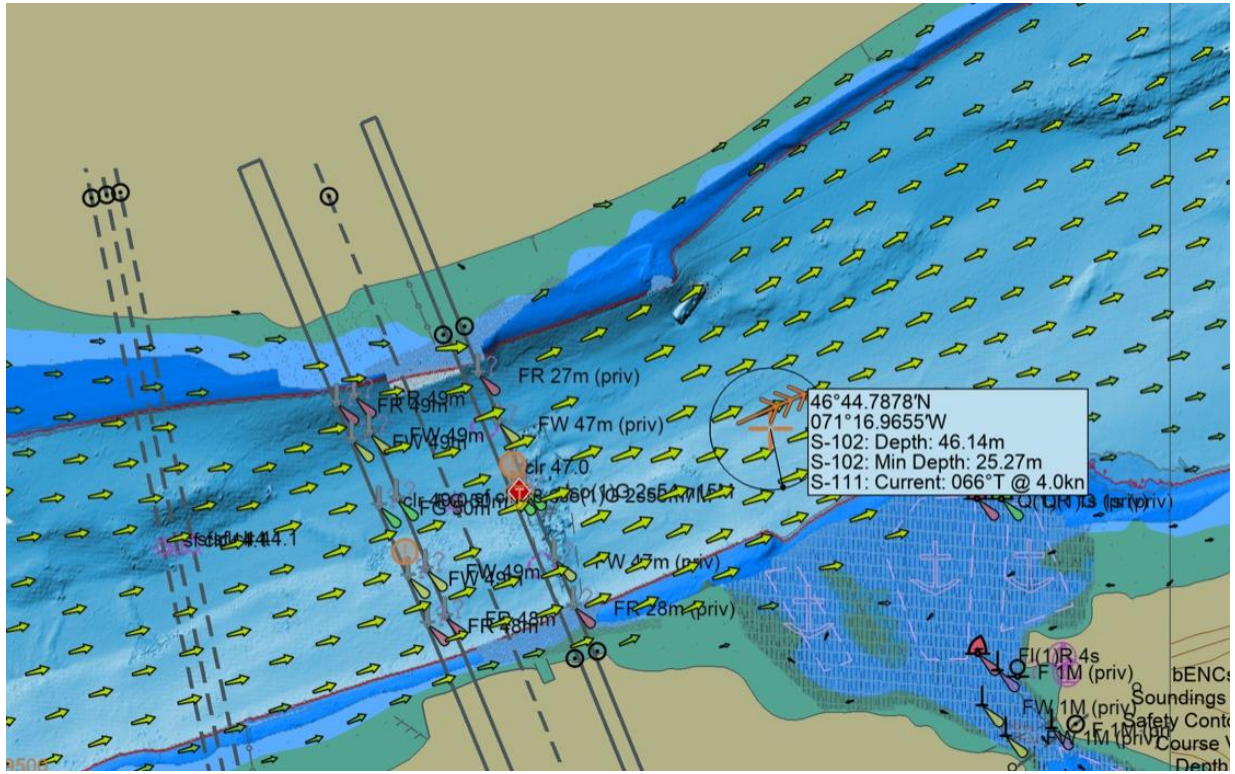
S-104 and S-111 will enable dynamic under-keel clearance

- Enabling more sophisticated tidal modelling in near real-time (inc. forecasts incorporate tidal surge and weather data)
- Providing more accurate depth of water under the keel and could open up the tidal window for vessels



Bringing data layers into a single view

- Providing a decluttered, simplified view for the mariner
- Interoperable data layers
- Fit for the future – inc. **autonomous vessels**
- Supporting efficiencies to **reduce costs and fuel consumption**



Who is using S-100?

Organization	S-100 Product Specification	
IHO	S-101 ENC S-102 Bathymetric Surface S-104 Water Levels S-111 Surface Currents S-122 Marine Protected Areas S-123 Marine Radio Services S-126 Marine Physical Environment S-127 Marine Traffic Management	S-127 Marine Traffic Management S-129 UKC Management S-131 Marine Harbour Infrastructure S-164 IHO Test Data Sets for S-100 ECDIS
WMO	S-411 Ice S-412 Weather and Wave Hazards S-413 Weather and Wave Conditions S-414 Weather and Wave Observations	
IALA	S-201 AtoNs S-210 Inter VTS exchange format S-211 Port Call Message Format S-212 VTS Digital Service S-230 Application Specific Messages	
IEC	S-421 Route Exchange	
NATO	S-500 Additional Military Layers	

Thank you

Questions

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UPCOMING EVENTS

4 DEC 2025 • ONLINE

Floating energy:
promise, peril, and what comes after

ENERGY MARITIME ASSOCIATES riviera

9-10 DEC 2025 • DUBAI

OFFSHORE SUPPORT JOURNAL CONFERENCE
MIDDLE EAST



osj offshore support journal

16 DEC 2025 • ONLINE

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WEBINAR WEEK

marine propulsion & auxiliary machinery

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