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# EAtHC ICCWG: UKHO Data Improvement Team

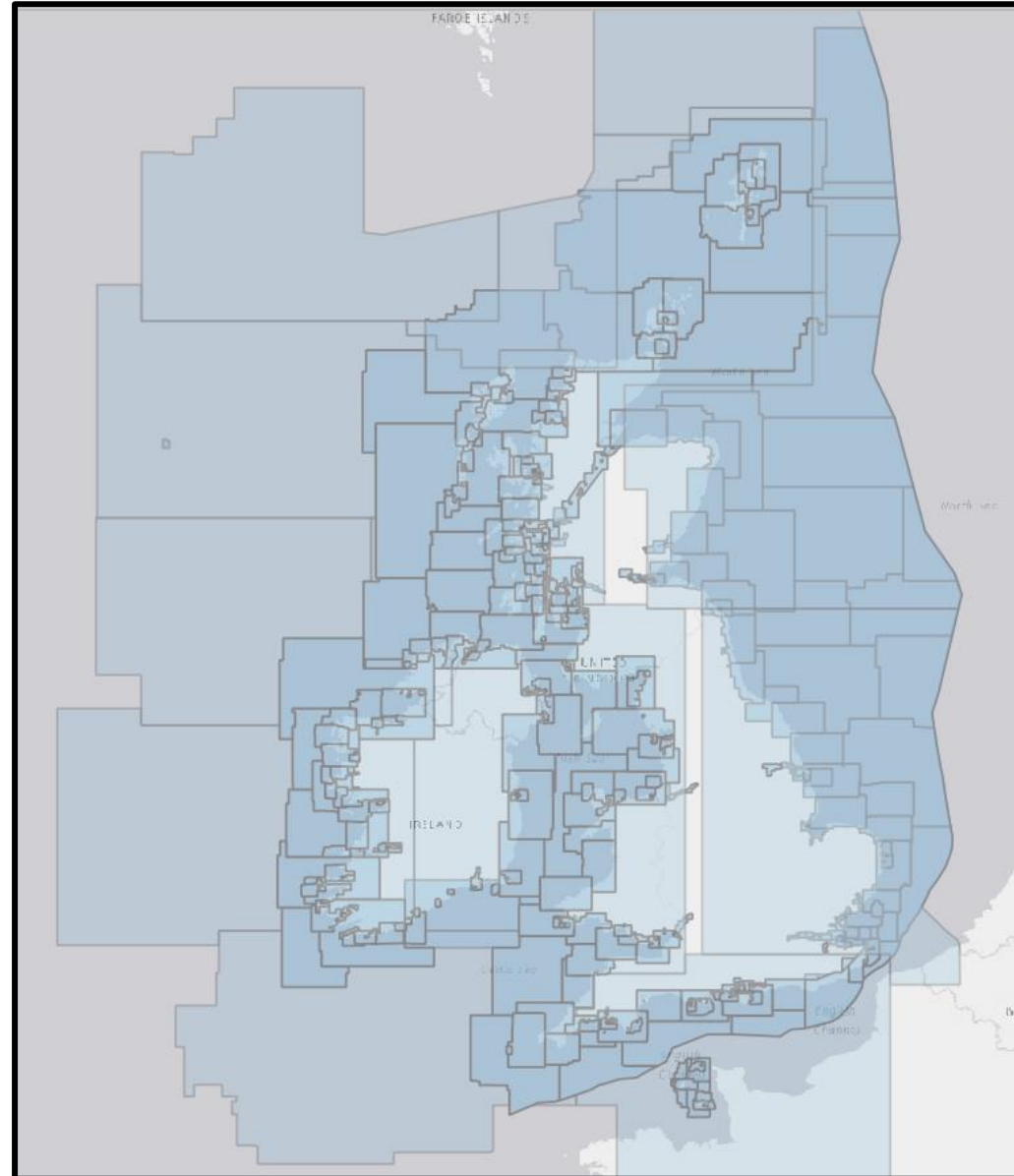
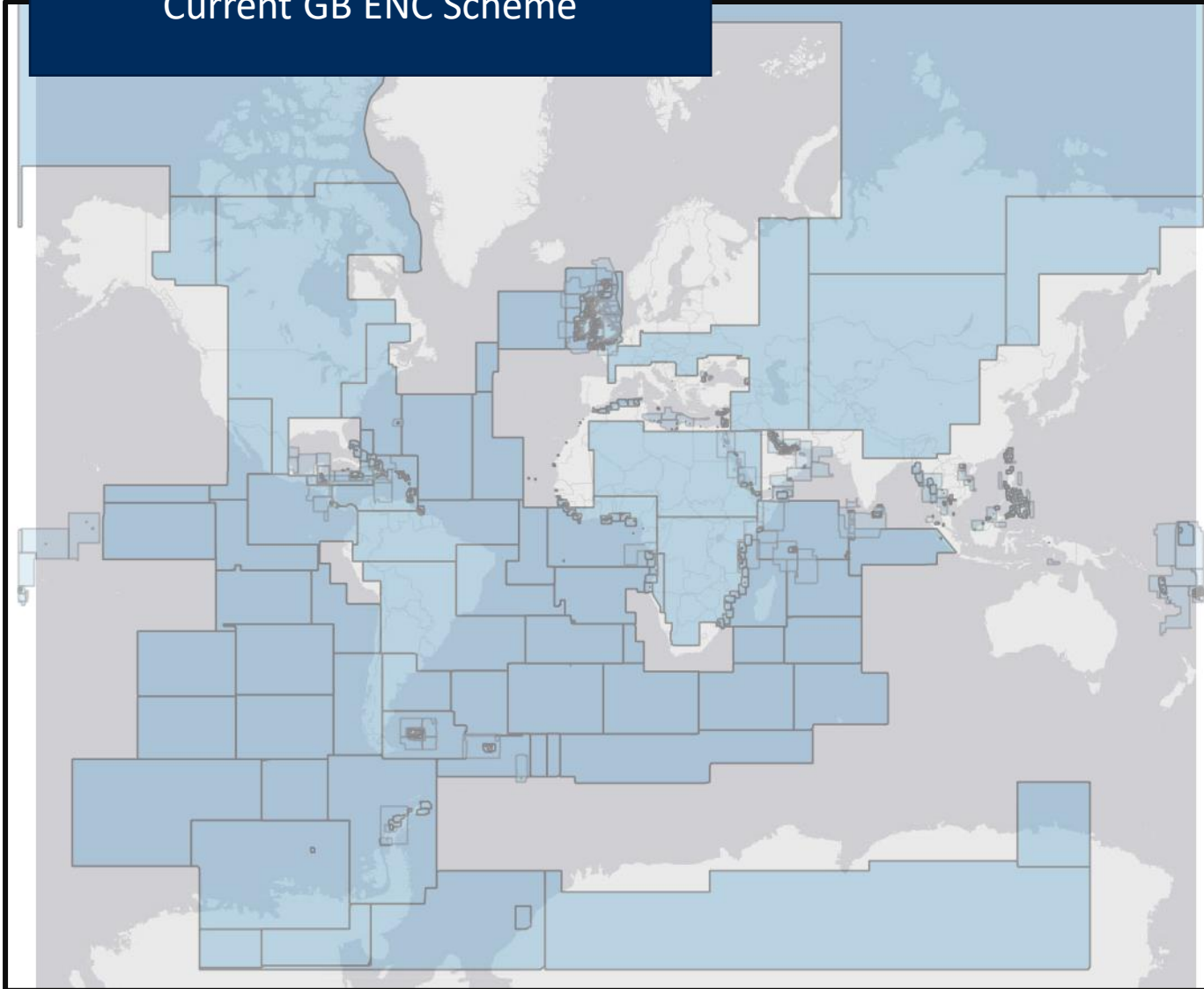
## Gridding Rescheme & Data Improvement

November  
2023



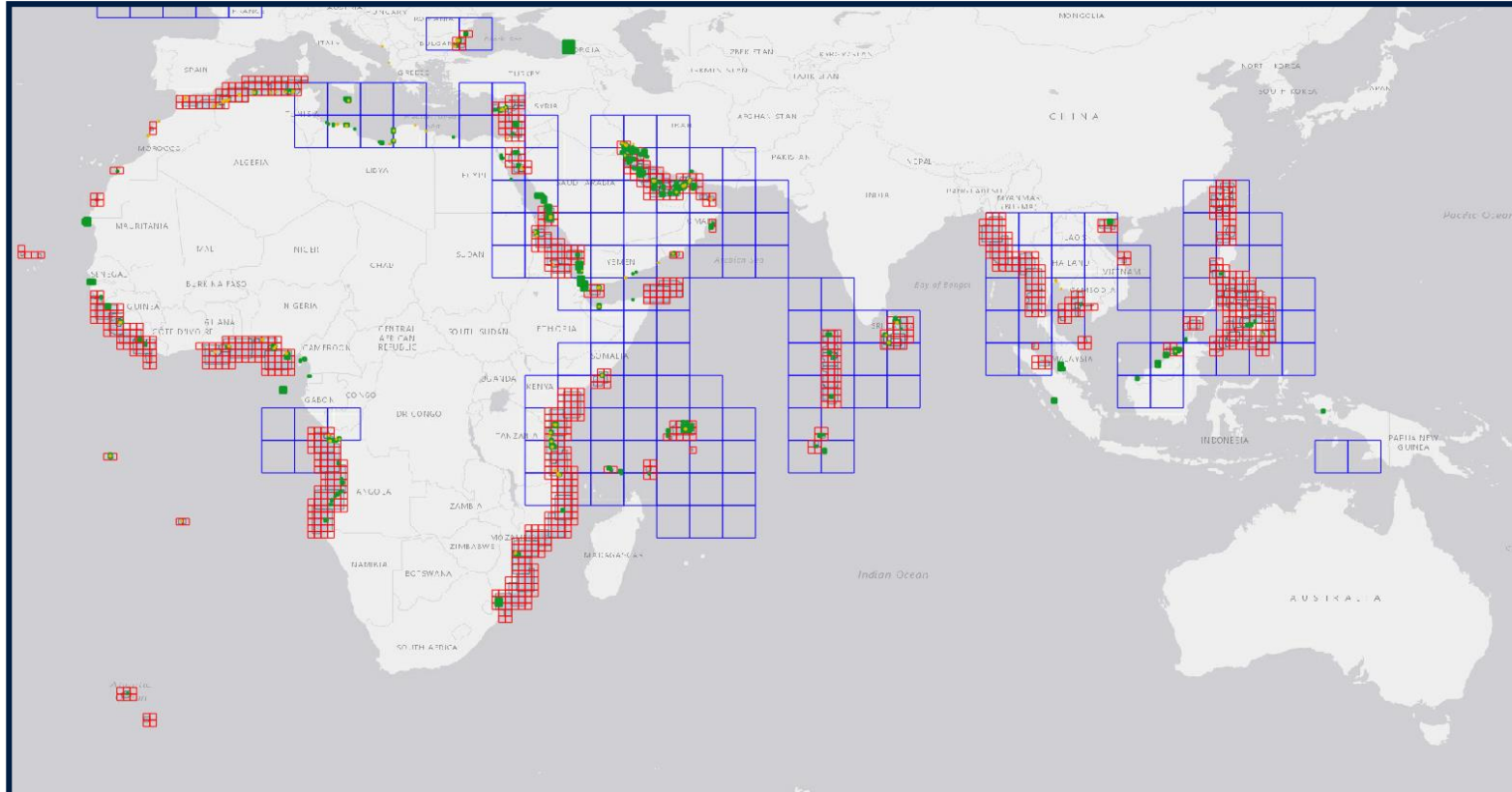
# A global grid is a complicated objective

## Current GB ENC Scheme





# A global grid is a complicated objective



Define a grid which is flexible enough to support the global coverage of 1,800 GB ENC's at all scale bands for current and future S-1XX Products


Many Coastal States use a gridded scheme, they are all different from each other and are only applied on a country (not global) scale.

# The chosen grid parameters

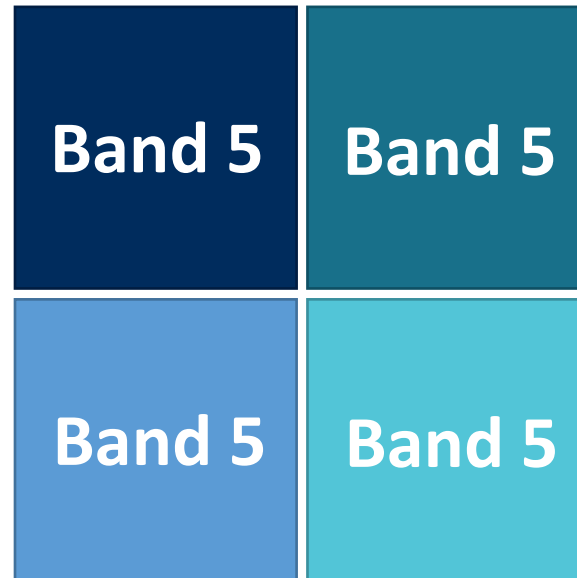
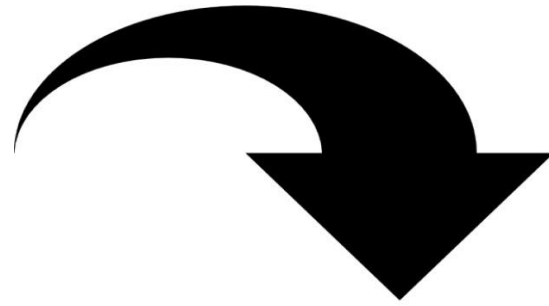
6 options were tested, the chosen solution aligns best with the GB ENC coverage. It is one of many solutions, you are welcome to trial and consider.

Band	1	2	3	4	5	6
Grid Size	20	4	0.8	0.2	0.1	0.05

The S-102 grid is 0.1 grid  
This will align with the UK's chosen grid

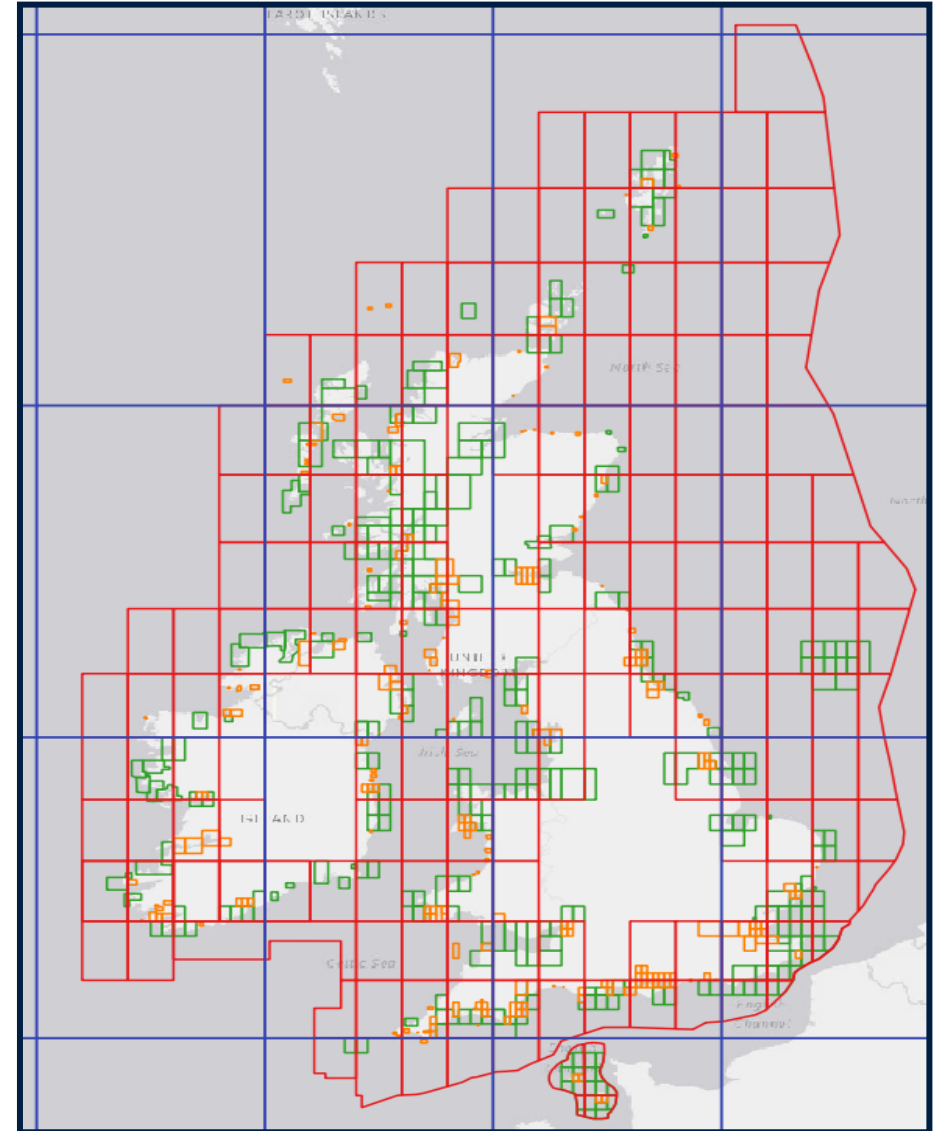
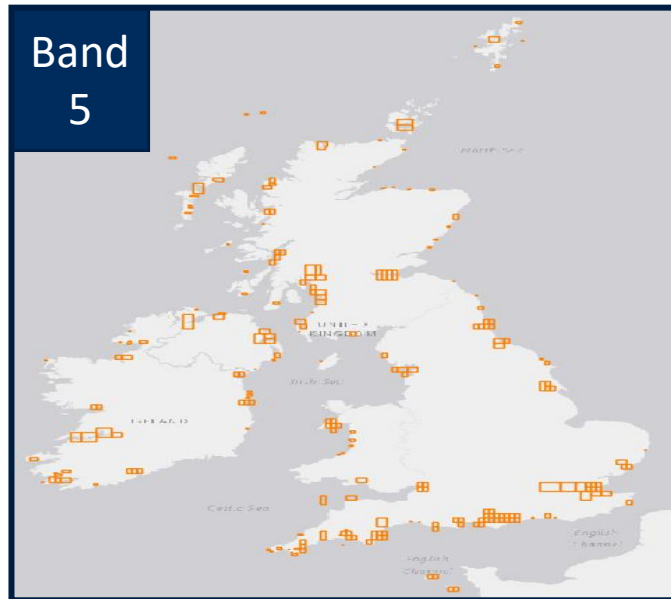
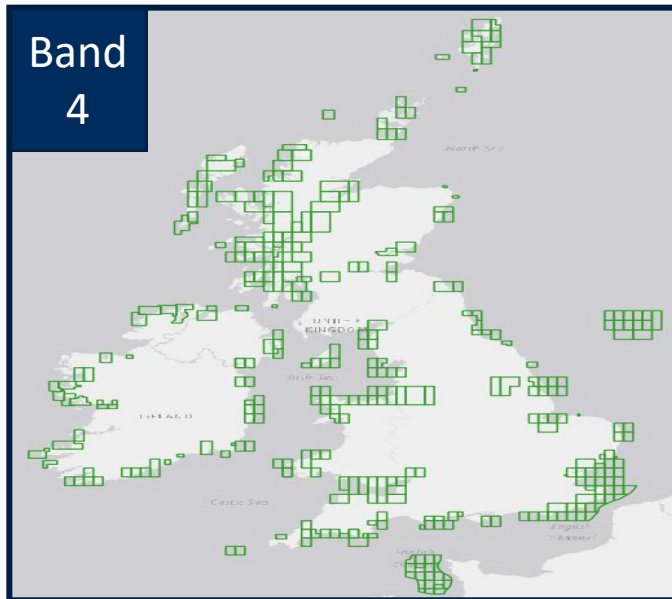
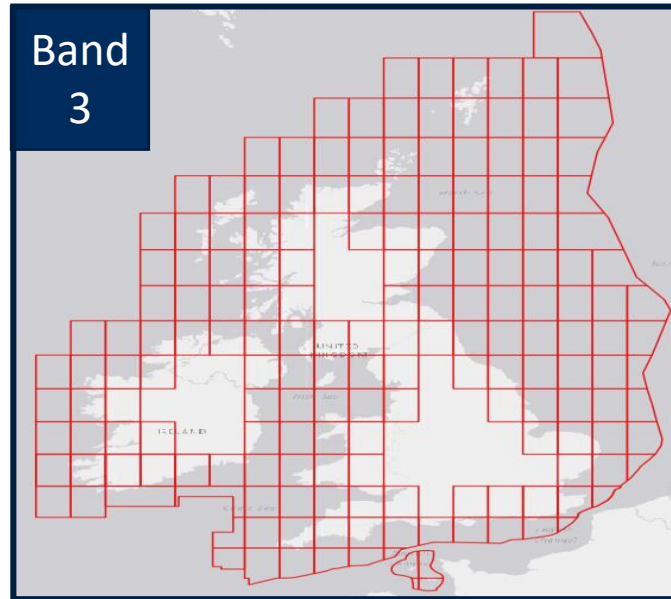
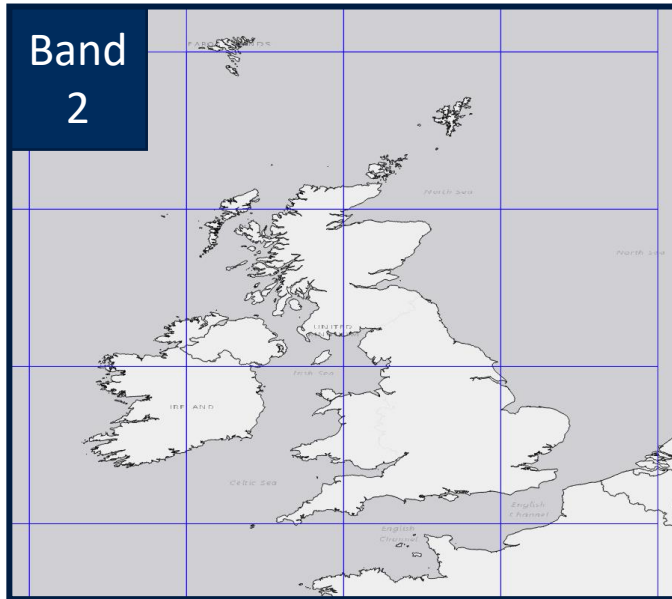


# How the grid interacts across the scale bands



The chosen grid fits together across the scales, subdividing as the scale increases

# The end result and chosen grid sizes and how the scale bands interact







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# Advantages



The grid can be applied at all scales and scale bands



The UK grid has been specifically designed so it can be applied across the whole world



Any Coastal State can choose to use the UK grid parameters to produce ENC's, aligning with any GB ENC coverage and other Coastal States choosing to use the same scheme



The grid can be flexibly applied to address concerns over safety and value for the user, to ensure too many ENC's are not created



The grid will also align with S-102 and enable S-101 to be part of an interoperable layer of digital data including S-100 products and services







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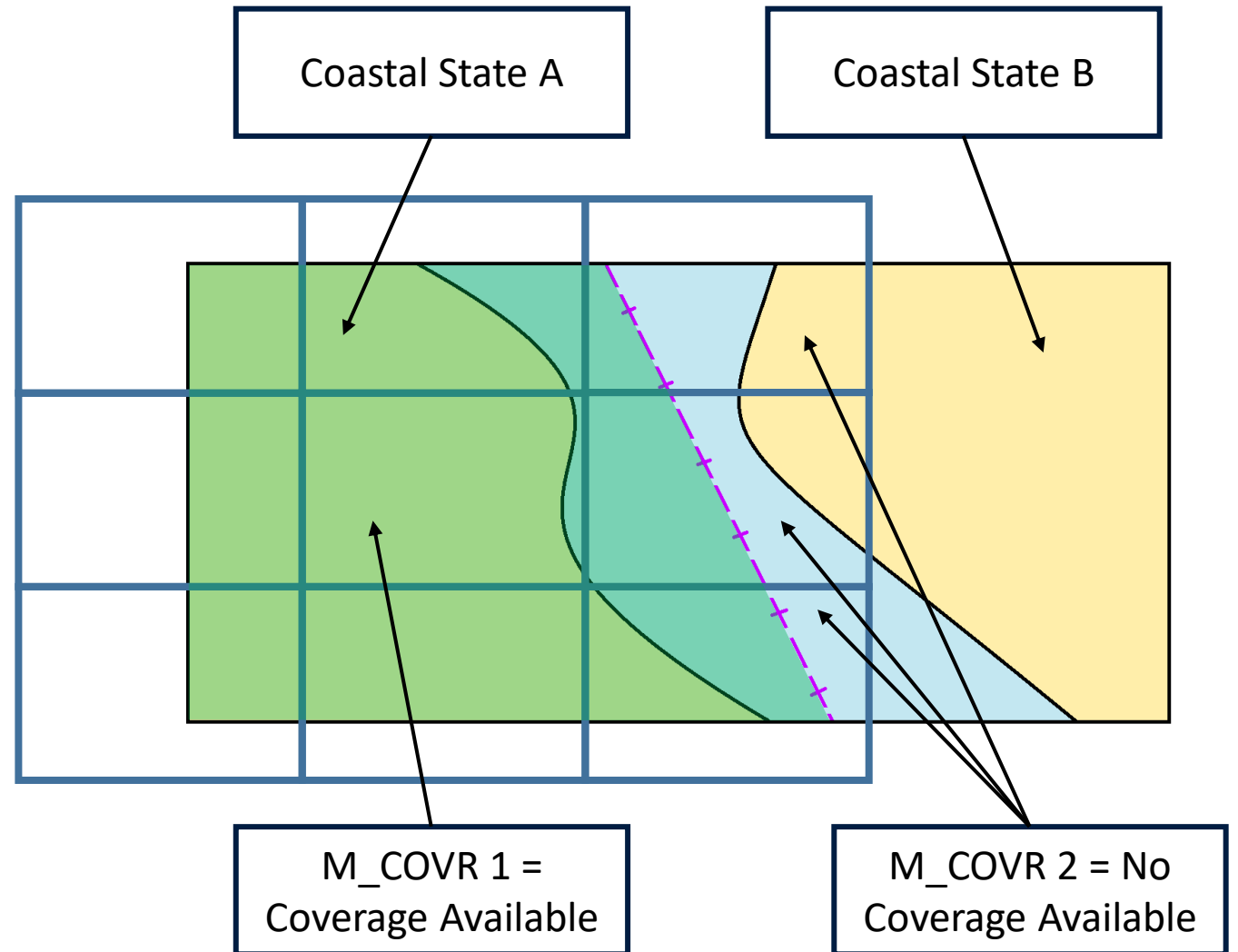
# Preventing overlaps with adjacent Coastal States

# Preventing overlaps

It is standard practice for Coastal States to use the 2 different M\_COVR categories to distinguish where there is data while maintaining seamless coverage

CATCOV 1 = Coverage Available

CATCOV 2 = No Coverage Available





# Preventing overlaps Summary

The UK gridded scheme will be applied within the limits of the current GB data coverage. Where grid squares are only partially filled with data, they may be merged with adjoining grid squares or, at larger scale bands, additional data could be captured to fill the grid square.

There will be no change to coverage limits where GB cells border with ENC's created by other producer nations.

ENCs must be rectangular, this is achieved using M\_COVR CATCOV 1 (coverage available) and M\_COVR CATCOV 2 (no coverage available).

Gridded ENC's will use the M\_COVR CATCOV 1 coverage for the End User Catalogue, therefore the cells do not appear to infringe on neighbouring countries coverage

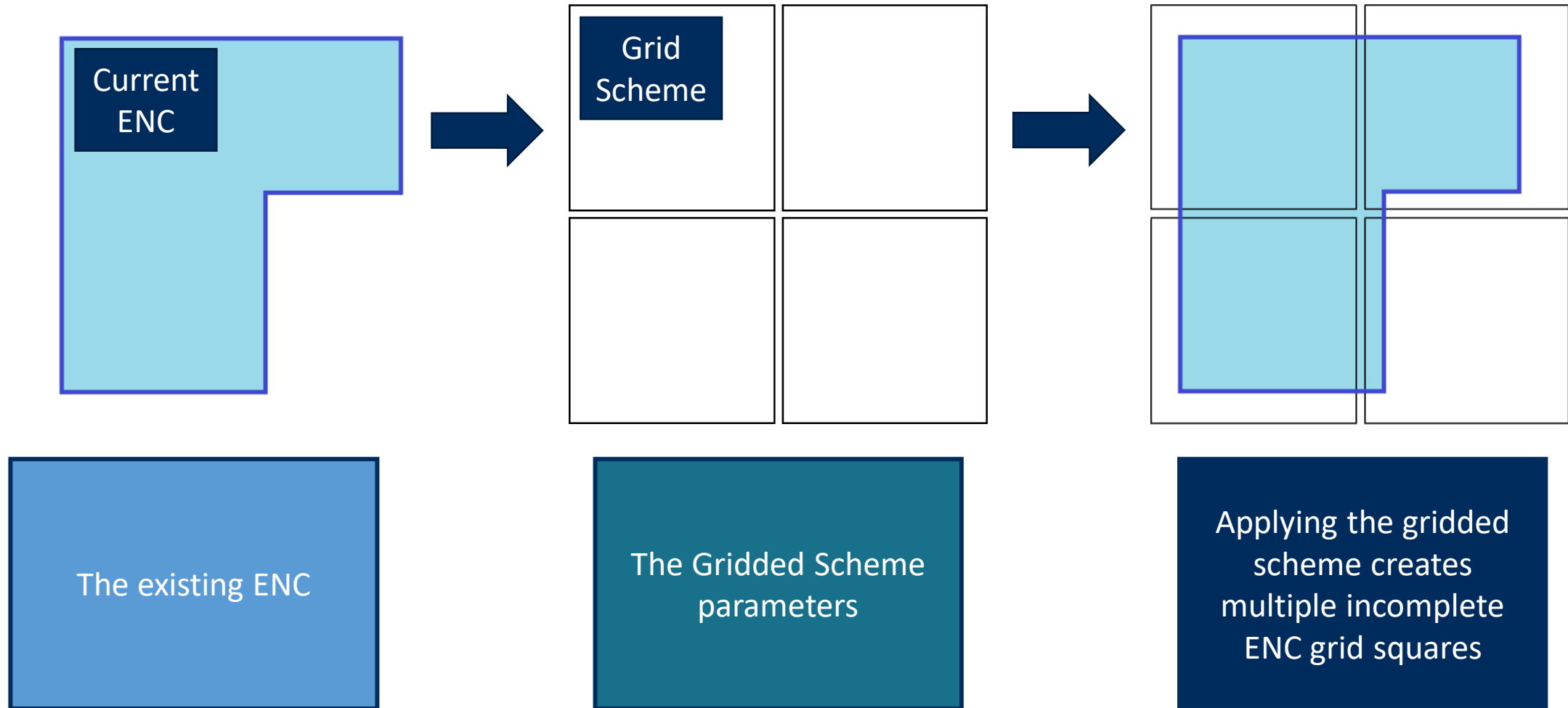




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# A flexible approach to the gridded scheme

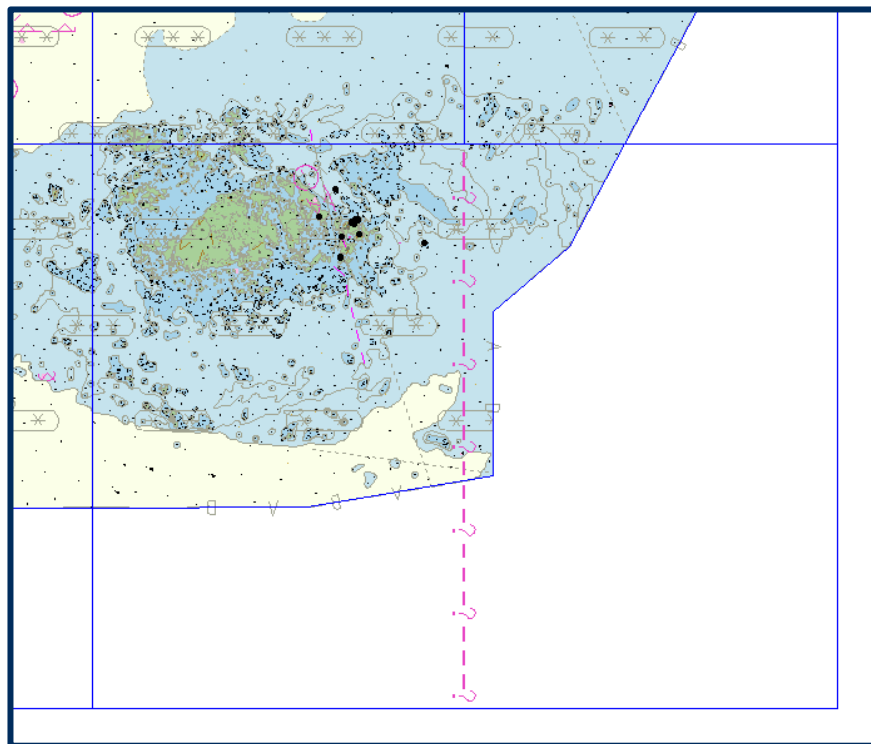
# Slivers, aggregating ENC data and capturing additional Information 1





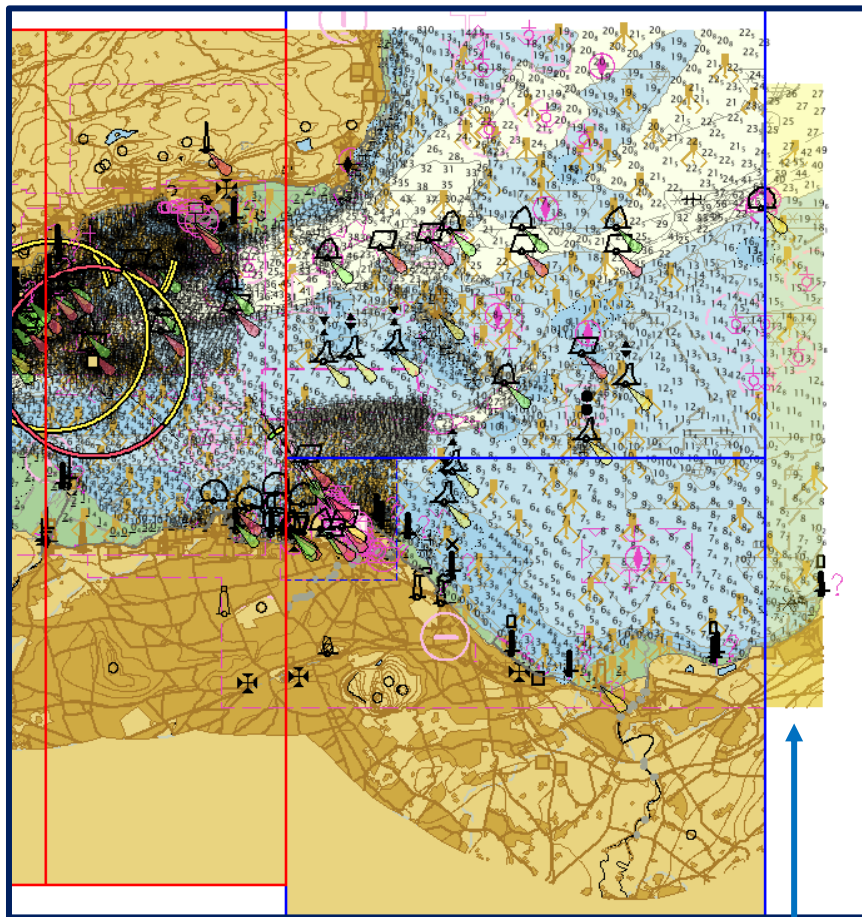
# Slivers, aggregating ENCs and capturing additional Information 2

A



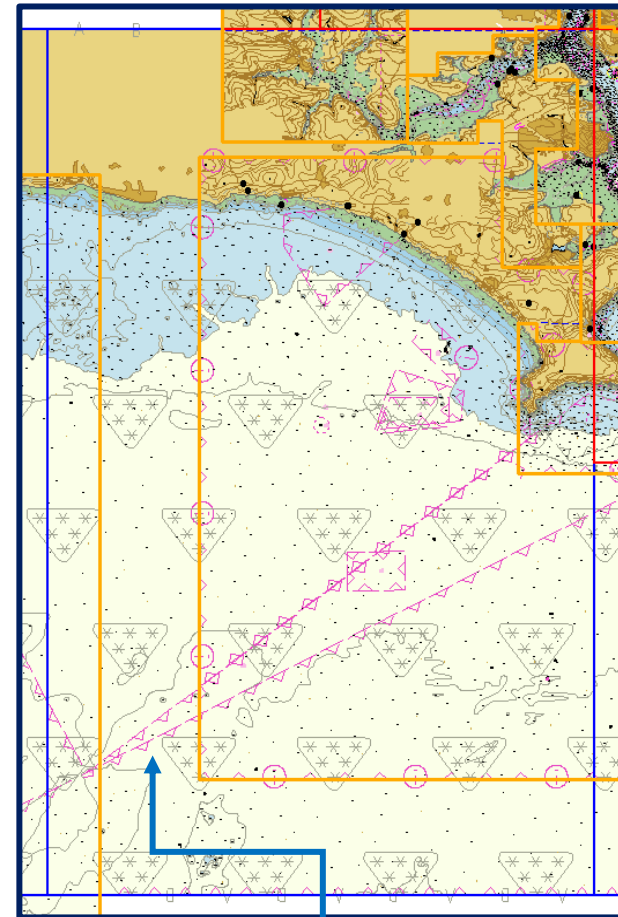
Here 2 Band 4 Grid cells are merged to retain the data. CATCOV2 is used surrounding the data captured

B



The sliver is deleted from ENC coverage. Retained in HDB for Paper Chart Only

C



Existing coverage (Orange limits) is extended to fill grid

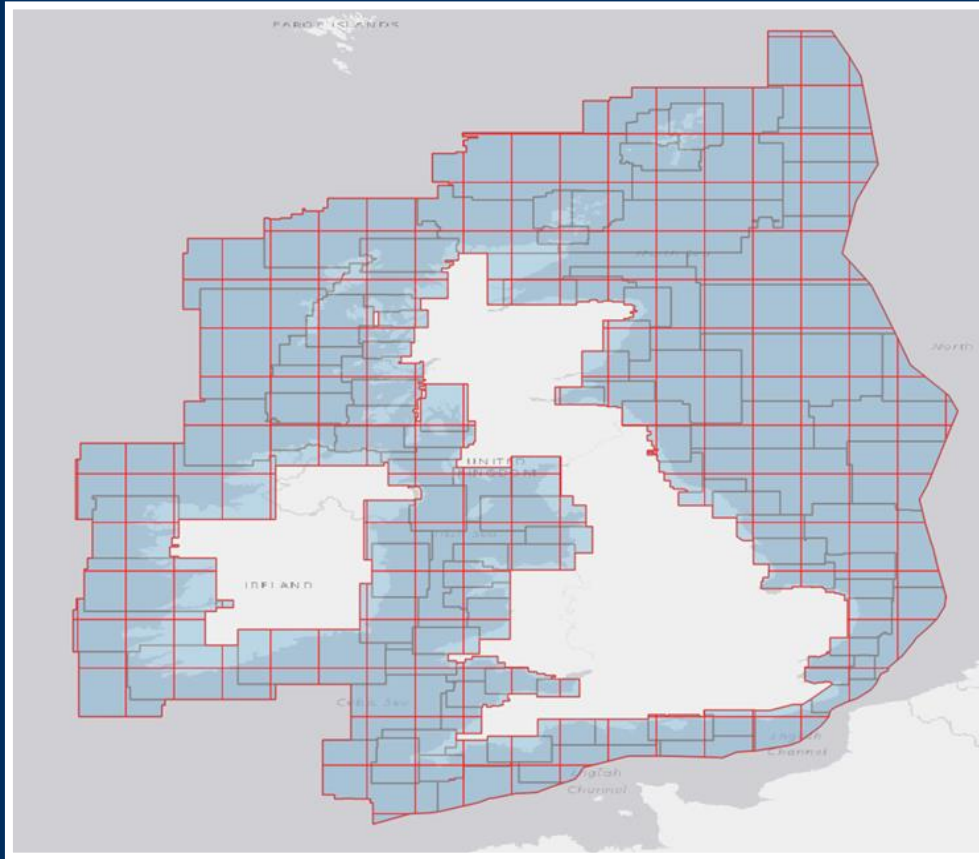




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# Data Improvement:



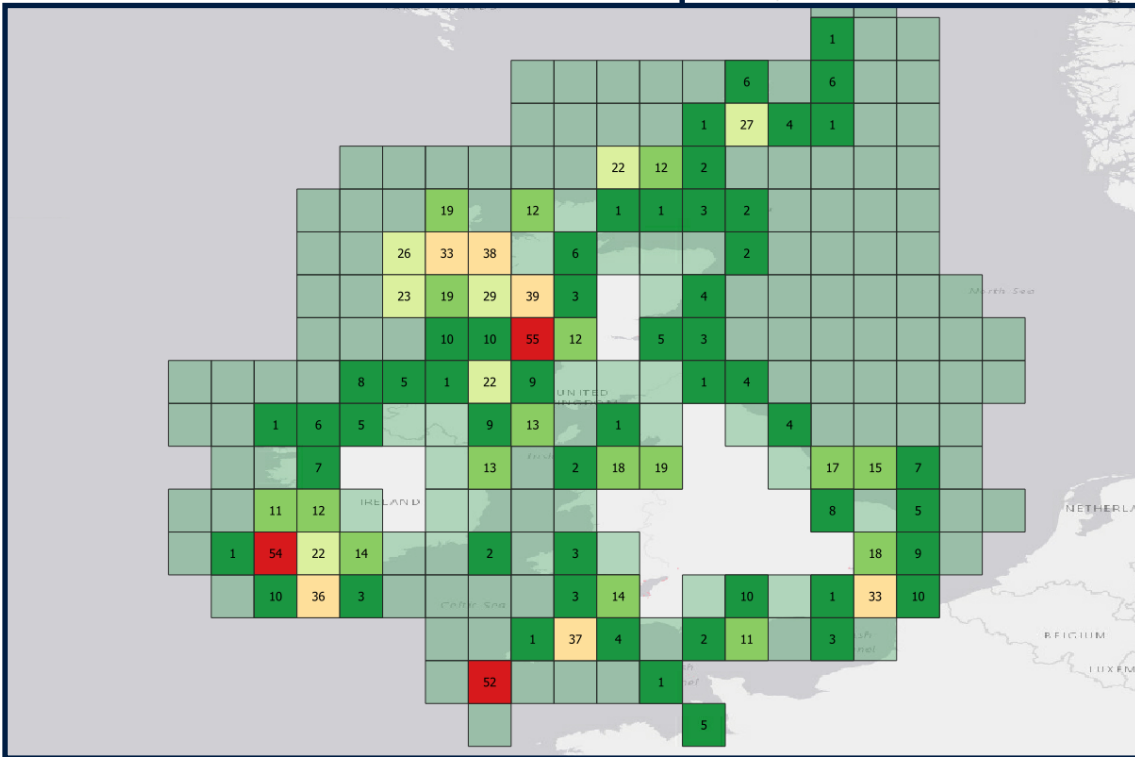
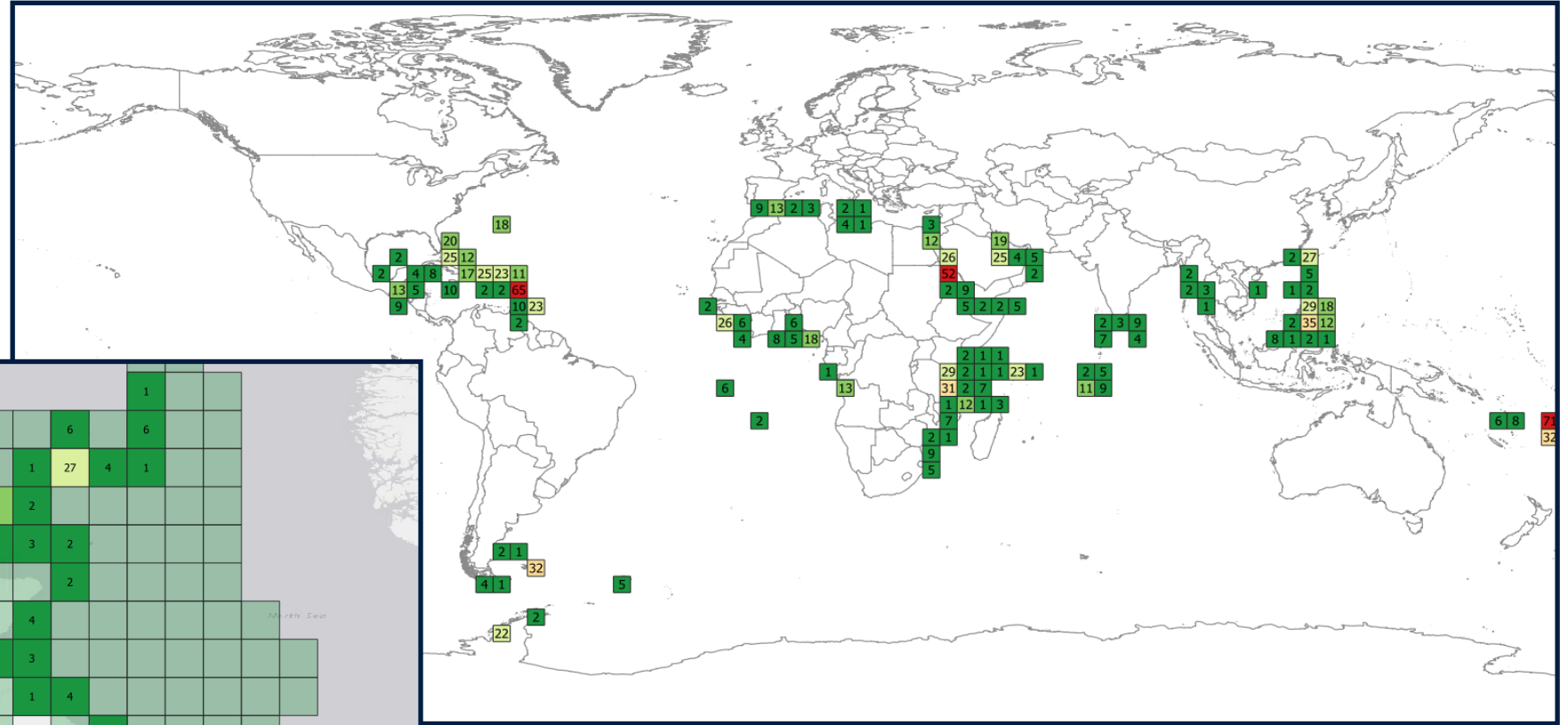


# What is Data Improvement?

- Harmonising and upgrading the ENC content to create consistency in scale and content, so the original footprint of paper charts is not visible in the reschemed data.
- The opportunity to incorporate user feedback to improve the user experience, address their pain-points, improve safety and or ensure future maintenance is more efficient.
- Preparing for S-101 conversion and aligning limits with other S-100 Standards.

# Data Improvement: Harmonising Features

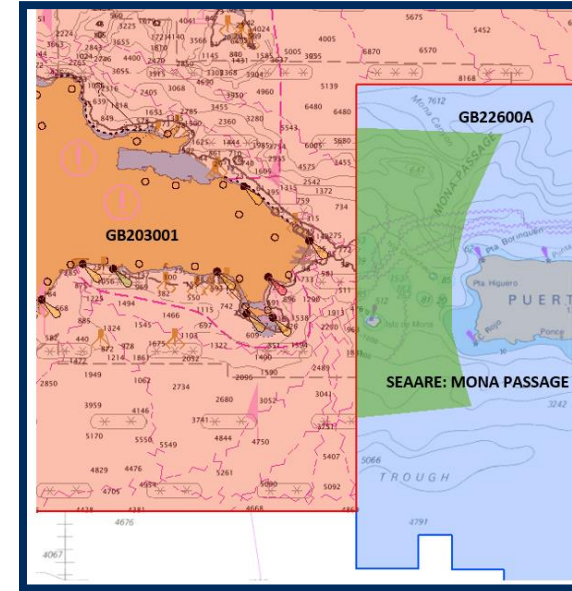
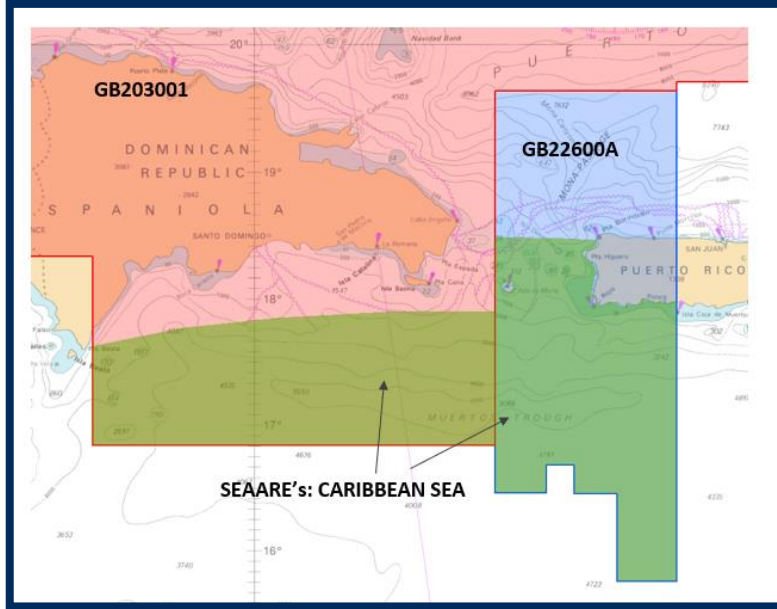
This slide shows how many inconsistencies there are between grid squares in GB ENC's



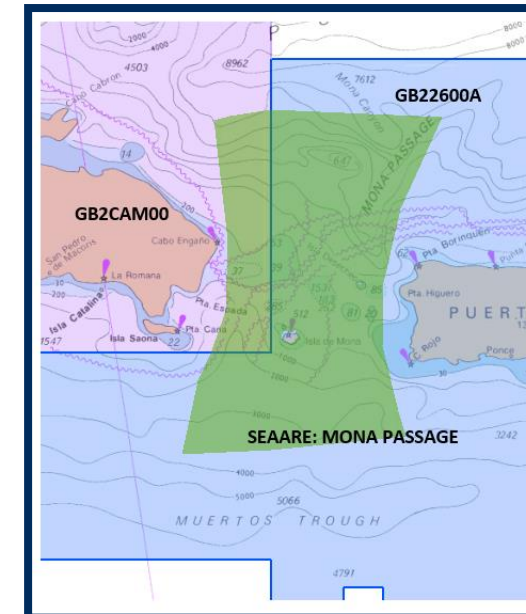
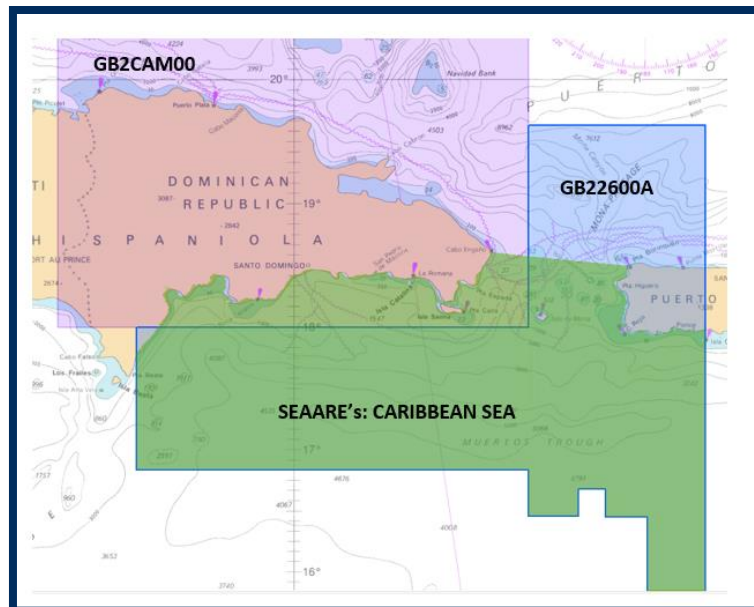
**Green** = minimal inconsistent features  
**Amber** = more inconsistent features  
**Red** = numerous inconsistent features



# Data Improvement: Harmonising Features

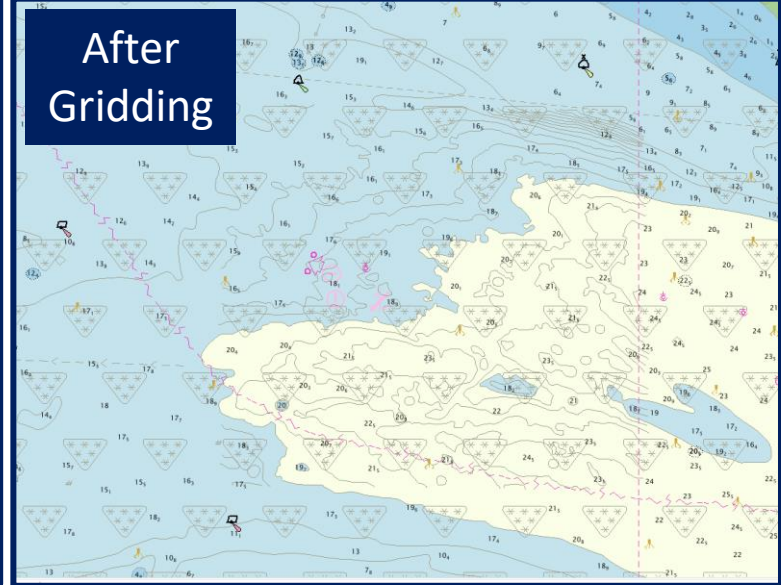
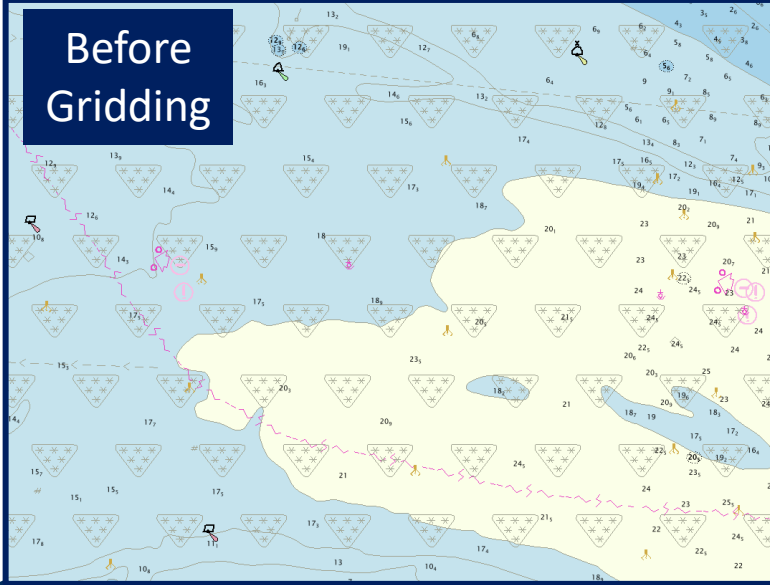
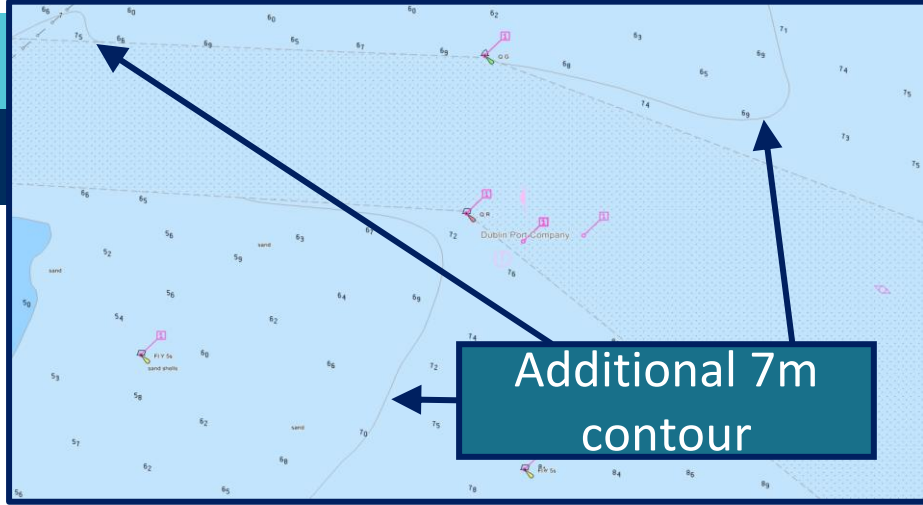


Before  
Gridding



After  
Gridding

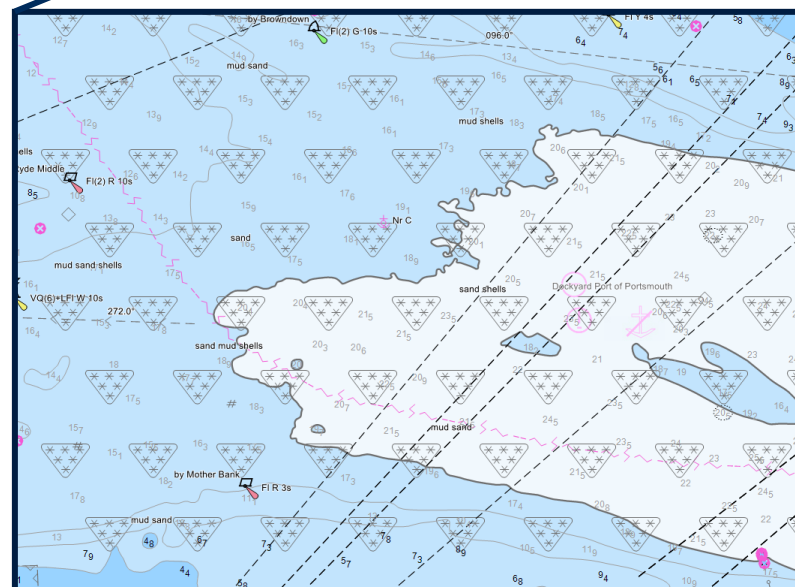
# Safety Enhancements and Voyage Optimisation



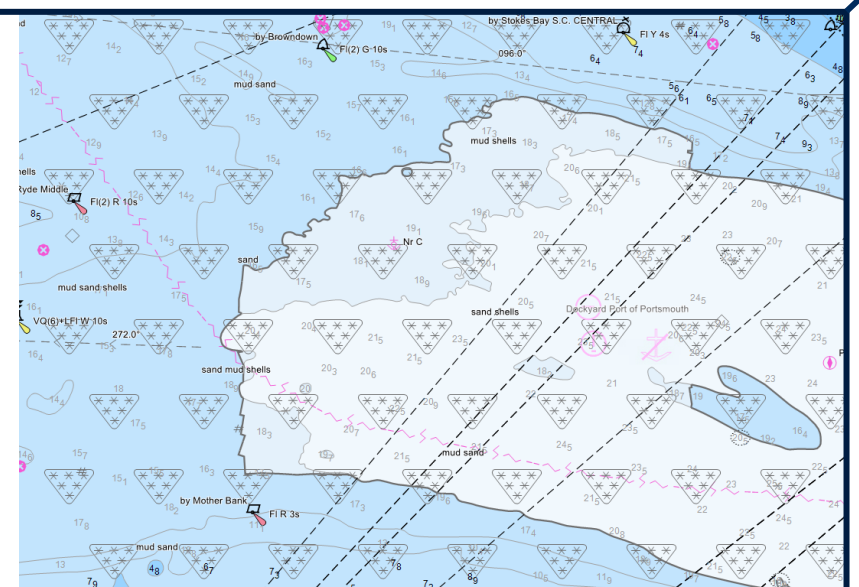
Standard ENC



ENC containing  
HD bathymetric data



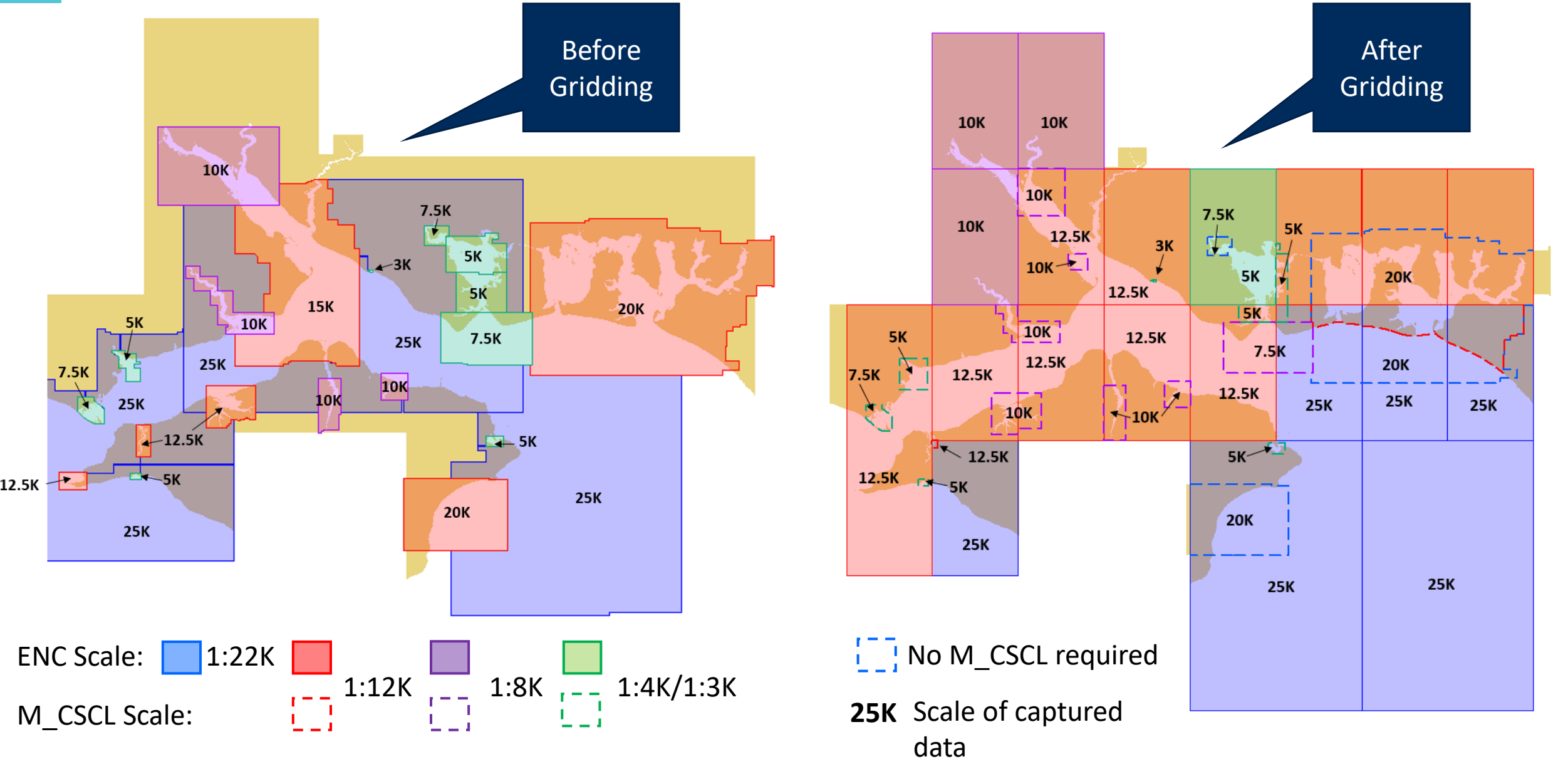
20m Safety contour



17m Safety contour

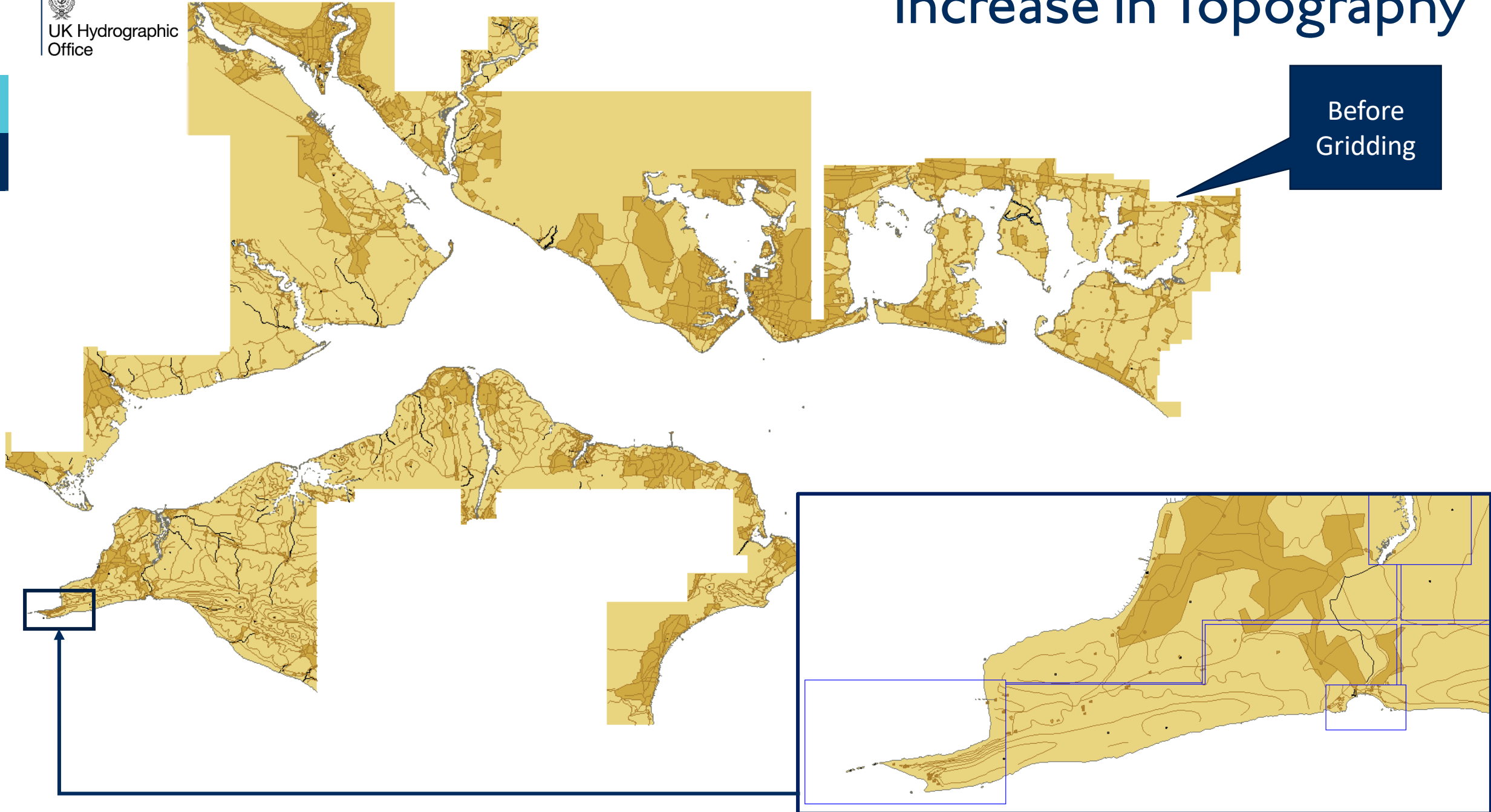


# Enhancement in Scale of Data Capture



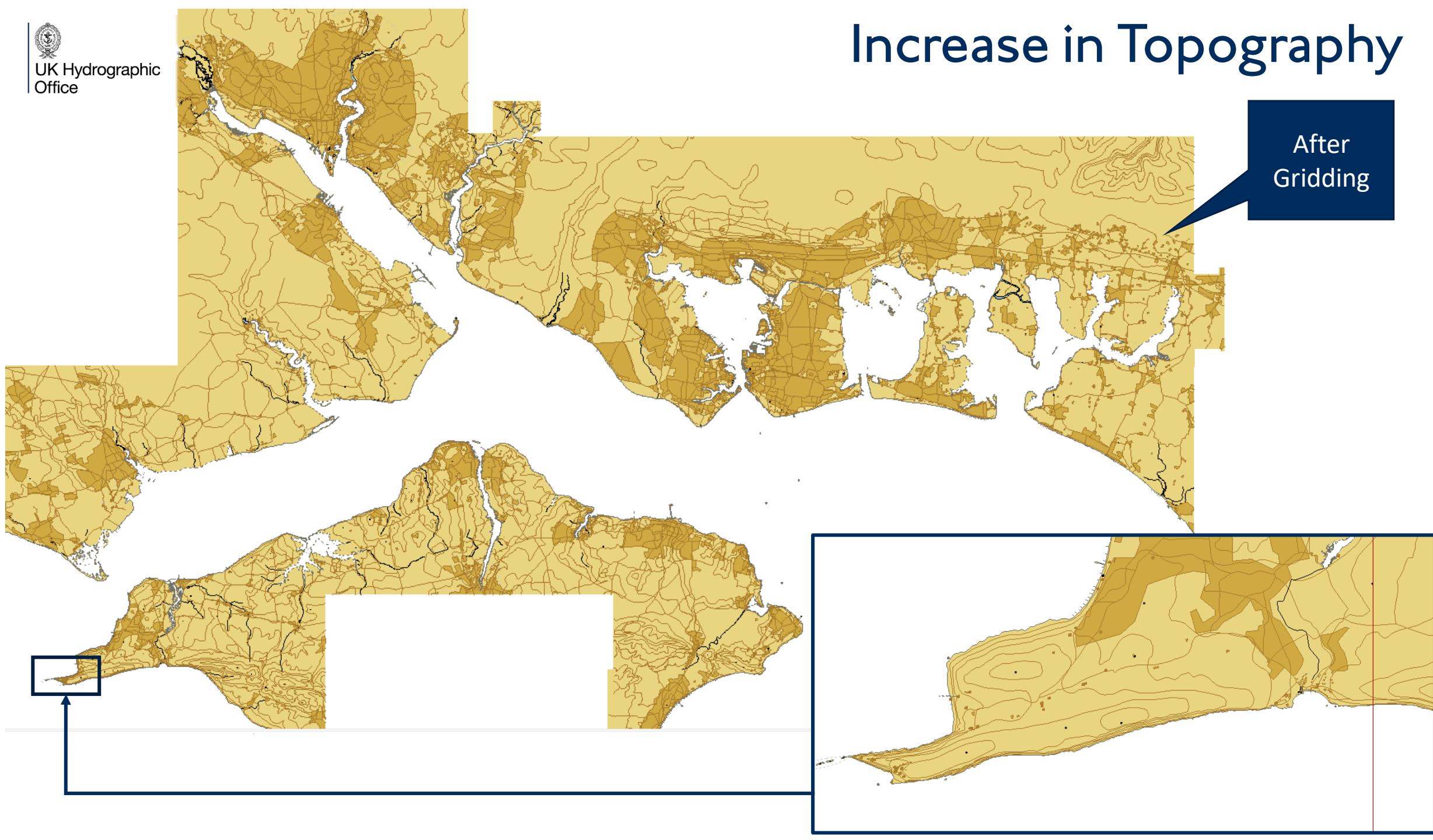


# Increase in Topography



Before  
Gridding

# Increase in Topography







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Thank you –  
any  
questions?