ENC – ECDIS seminar
November 2008

SHOM experience of ENC production

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Outline

1. **1998 - 2008 : ten years of ENC production**

2. **Production plan and principles**

3. **Team skills and evolutions**

4. **Issues**

1. 1998-2008

- **1998 : first ENC produced by SHOM**
- **1995 – 1999 : GDS system**
- **1999 : <u>CARIS</u> GIS (paper charts) – HOM (ENC)**

=> continuous / common production process between paper charts and ENC

- **2001 – 2008 :**
    - *+ CARIS HOM*
    - *+ in-house control and post-processing tools*
    - *+ in-house ER automatic production tool*
    - *+ Dkart Inspector*
    - *+ ENC Analyzer (including custom checks).*

- **2009 : <u>CARIS HPD</u> solution replacing our current database**

… paper chart and ENC production to be studied.

Some figures

- **Original <u>paper chart</u> ~1200 hours**
   (40 people)

- **<u>ENC</u> ~300 hours**
   (13 people + outsourcing)
 => About 50 publications and/or editions a year
      (50 paper charts and 50 ENCs)

- **About 1200 Ntm a year**
      (6 people)

2. ENC production plan / areas

- metropolitan area : 250 ENC

- oversea french territories : 250 ENC

- foreign zones under French cartographic responsibility : 200 ENC

=> Status in October 2008 : 260 ENC (170 in metropolitan area)

Full portfolio : 700 ENC (done in 2017 at the current rhythm)

$\Rightarrow$ Temporary outsourcing of the encoding in order to speed up the creation of the initial ENC portfolio (~4 ENC/month = 80% of production is outsourced).
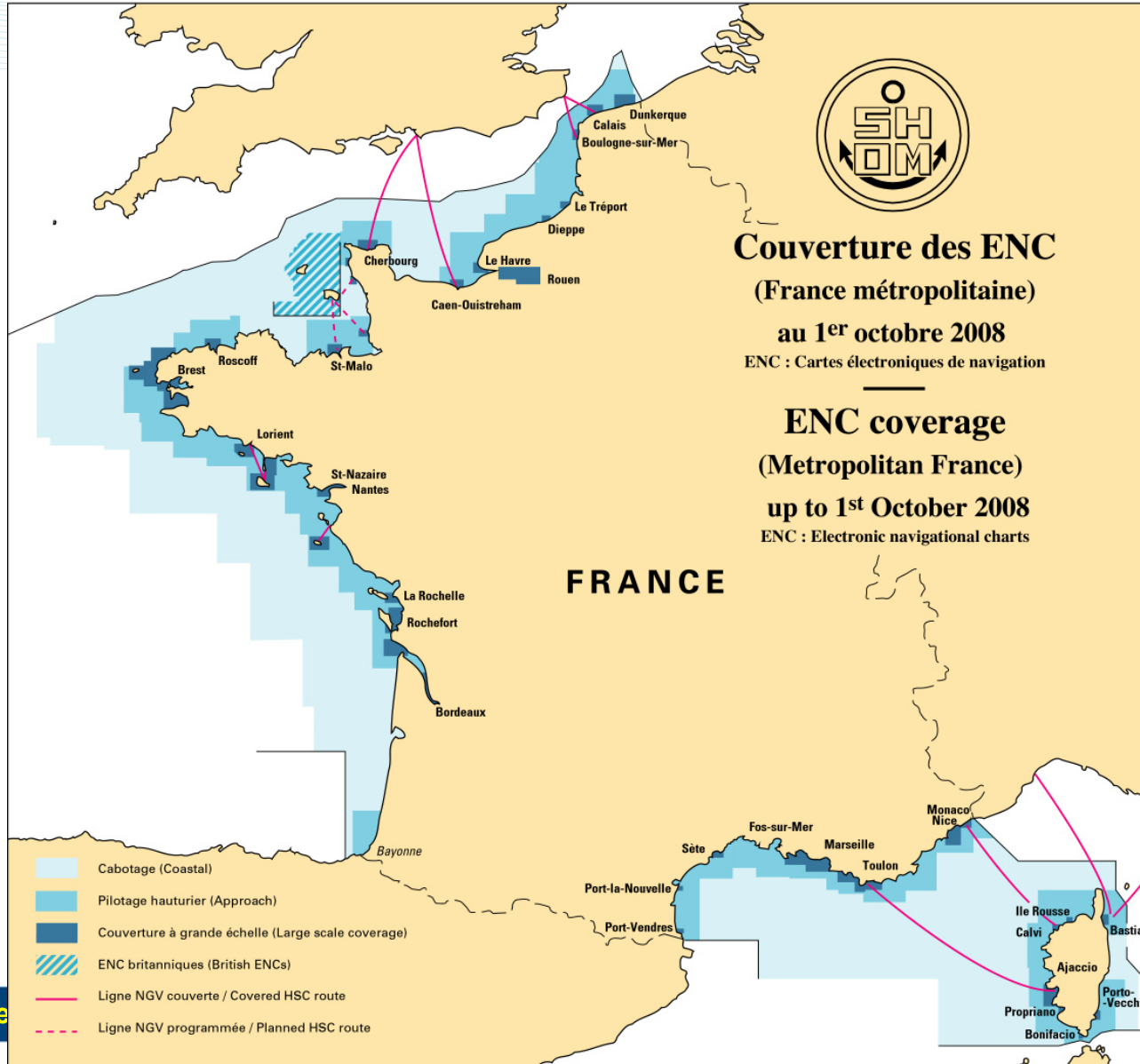
$\Rightarrow$ the more new ENC we have produced, the more updating (edition / ER) we have to do, (the less new ENC we can produce…)

2. ENC production plan / priorities

1. **Safety of Life at Sea (SOLAS - High Speed Crafts)** ✓

2. **Environmental sensitive areas (commercial vessels)** ✓

3. **Economy (fishing vessels)**

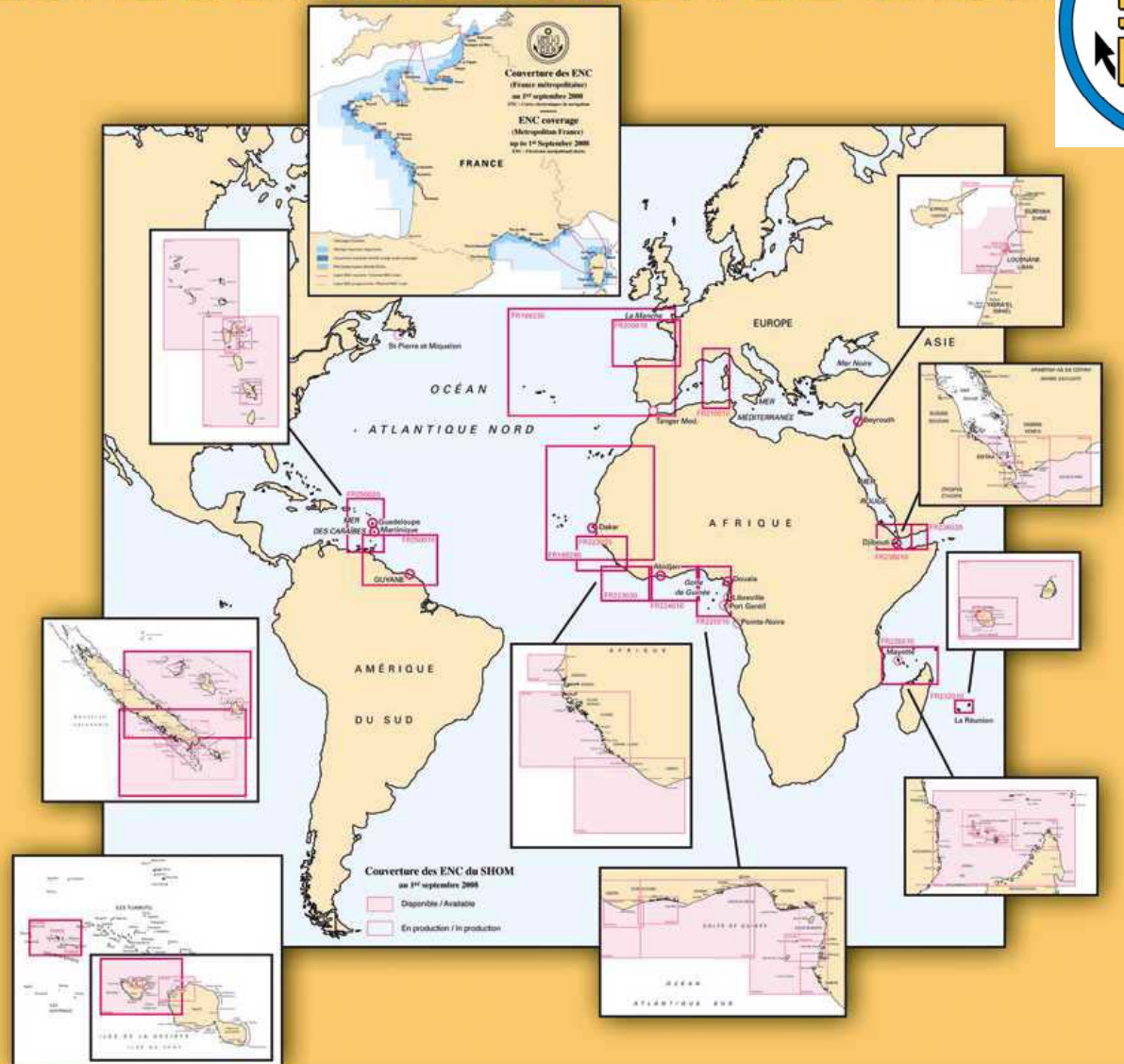4. **Leisure**

+ navy needs (military harbours, classified data)

ENC coverage (2008)

Couverture des ENC

(France métropolitaine)

au 1er octobre 2008

ENC : Cartes électroniques de navigation

———

ENC coverage

(Metropolitan France)

up to 1st October 2008

ENC : Electronic navigational charts

FRANCE

Legend:
- Cabotage (Coastal)
- Pilotage hauturier (Approach)
- Couverture à grande échelle (Large scale coverage)
- ENC britanniques (British ENCs)
- Ligne NGV couverte / Covered HSC route
- Ligne NGV programmée / Planned HSC route

Place names: Dunkerque, Calais, Boulogne-sur-Mer, Le Tréport, Dieppe, Le Havre, Rouen, Cherbourg, Caen-Ouistreham, St-Malo, Roscoff, Brest, Lorient, St-Nazaire, Nantes, La Rochelle, Rochefort, Bordeaux, Bayonne, Port-la-Nouvelle, Port-Vendres, Sète, Fos-sur-Mer, Marseille, Toulon, Monaco, Nice, Ile Rousse, Calvi, Bastia, Ajaccio, Propriano, Porto-Vecchio, Bonifacio

ENC coverage (2008)

ZONE DE PRODUCTION DU SHOM

ENC production principles - SHOM

Hydrographic database

(Aids to nav., wrecks, obstructions, restricted areas)
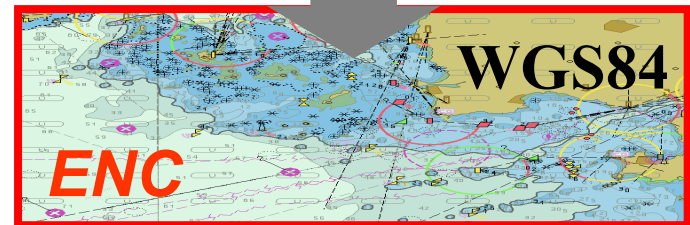
outsourced

CARIS **HOM**

editing ◄ ► control

digitalisation, topology
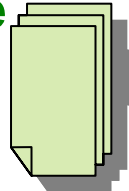
WGS84
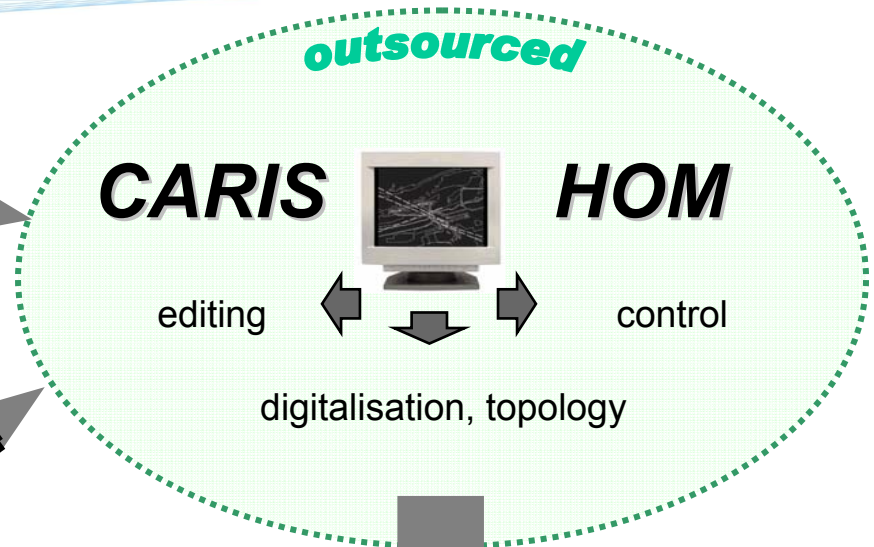
Paper chart (reference)

- Vector / S57 data
- structured digital archives
- repromats for old charts

Control + validation + Primar

WGS84

ENC

Check of ENC content

Compliance with S-57 standard

Internal consistency (« SHOM » additionnal specification)

Reliability and accuracy of the data

Consistency with neighbouring producers

Updating

Identical to paper chart Notices to Mariners, except T and P

notices which are not encoded so far)

3. Team skills for ENC production

Encoding (all former paper chart cartographers)

* Paper chart + CARIS + S57 knowledge

* 1 Engineer day to day support for problems and special cases

    => temporarily outsourced (CARIS/IIC)

Checking (former hydrographers + paper chart cartographers)

* Paper chart + S57 + S52 knowledge

* Safety of navigation awareness

    => role of the Hydrographic Office

Team evolutions ?

- With constant resources, ENC production has obviously lowered the paper chart branch capacity (10/60 people   =>   15%).

- All cartographers will progressively do paper and electronic charts ; they will acquire both skills which will be probably required in the future…

- Training in ENC production = companionship

- Some cartographers having a navy background : interesting for checking, with a user point of view.

4. Issues

Time delay between paper chart edition and corresponding ENC edition

The 2 products are not simultaneously produced : up to 6 months delay between the 2 releases (only critical corrections are done via ER in the meantime).

=> main improvement for SHOM production

4. Issues

ENC scheme : **back to a scheme based on paper chart limits**

- 1 ENC = 1 cartographic unit

- more rational and efficient as long as ENC are based on paper charts (for management, updating, catalogs, etc.)
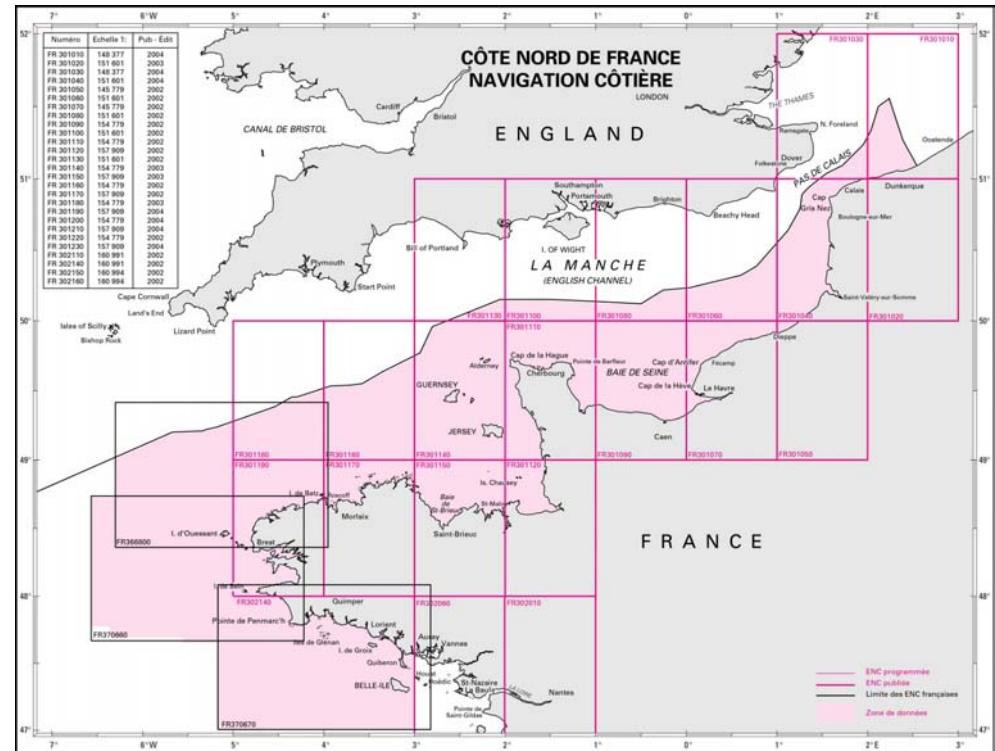
4. Issues

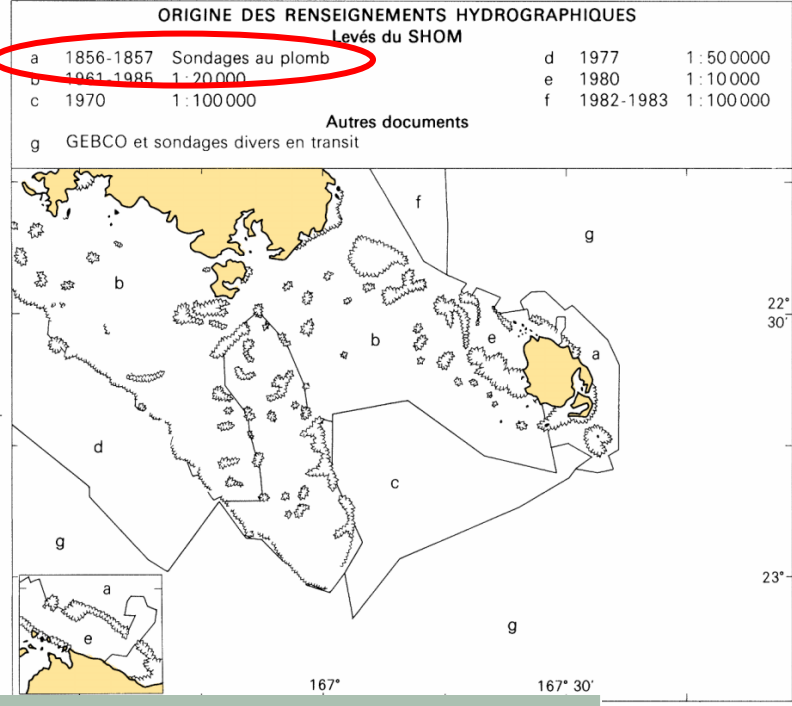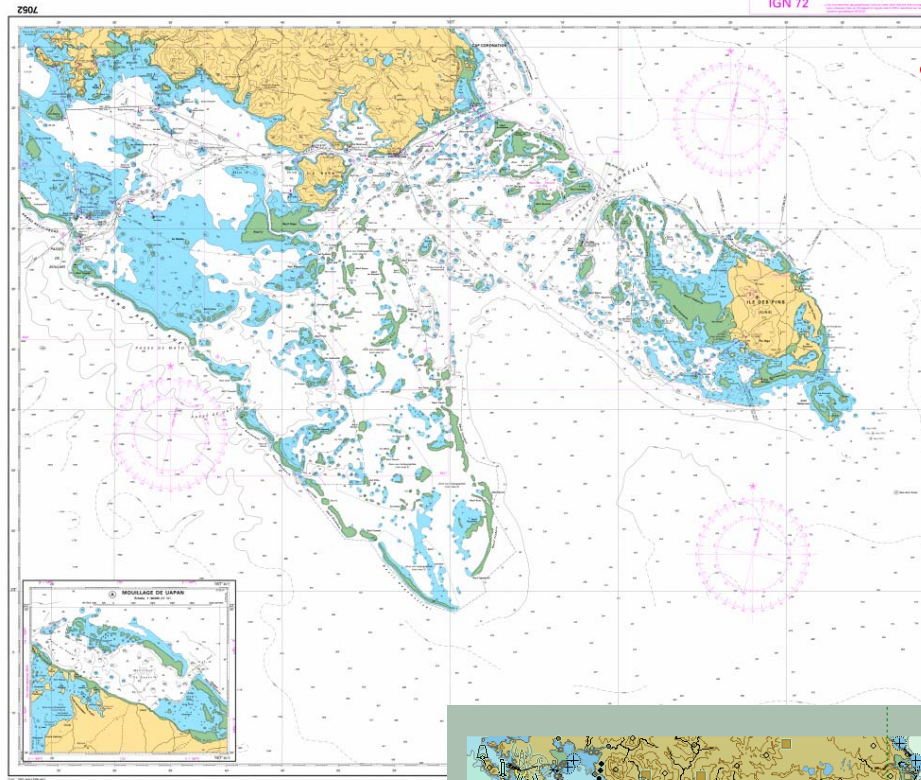**Old data source** is not compatible with e-navigation

Example 1 : Nouvelle-Calédonie, at same scale

less accurate data ⟶

modern data ⟶
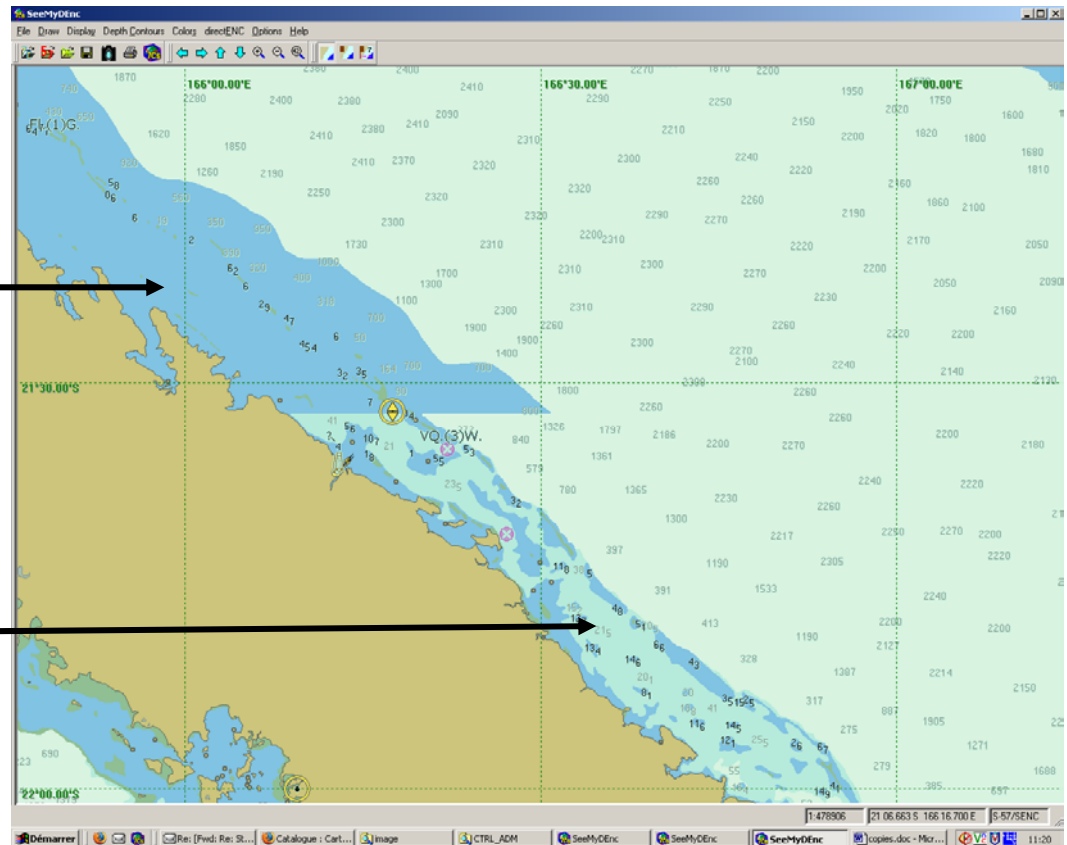
**ENC = same
source data
as paper charts**
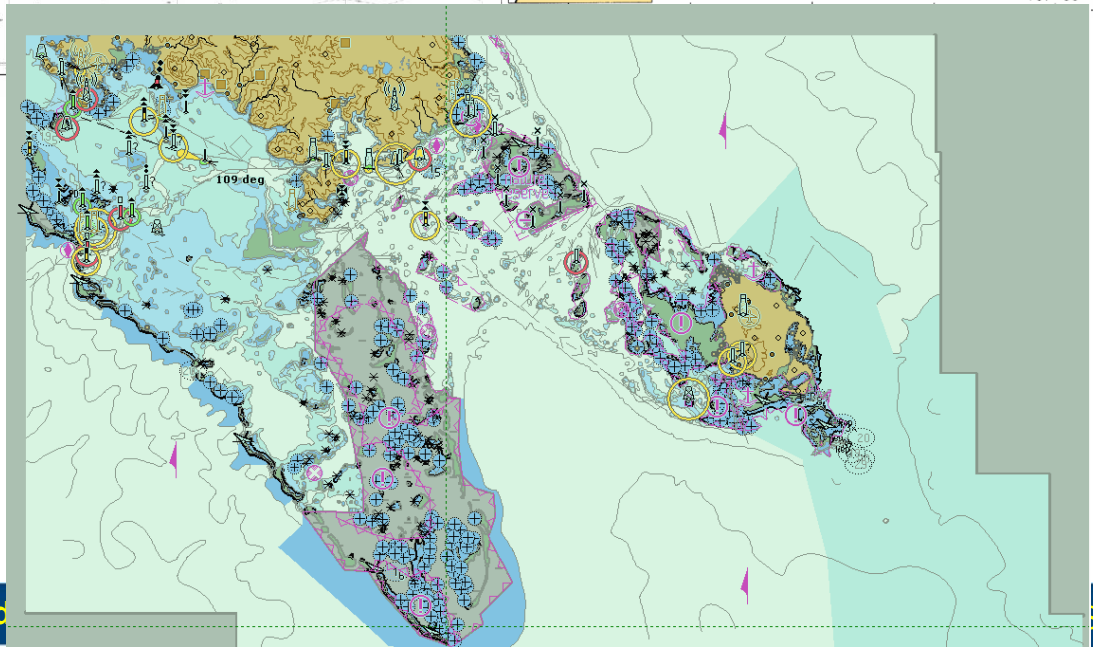
Thank you for your attention

QUESTIONS ?

http://www.shom.fr/ENC.htm

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