Tentative experiment of systematic conservation planning in the Eastern English Channel
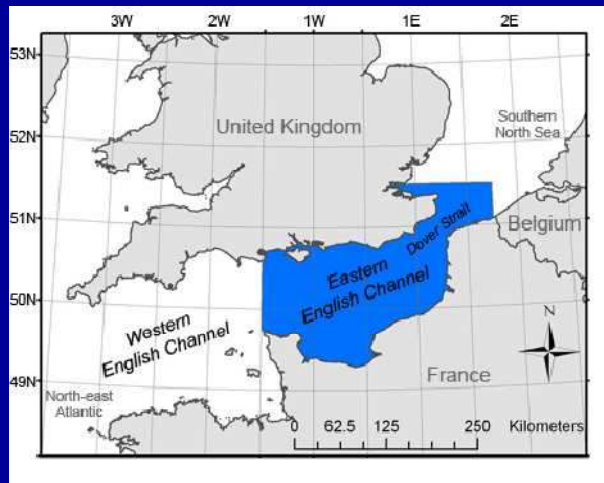
J. Delavenne[1], R.J Smith[2], S. Vaz[1]

1 IFREMER, Lab. Ressources Halieutiques, Boulogne sur Mer;

2 Durell Institute of Conservation and Ecology, University of Kent

Introduction- The Eastern English Channel

- **Biology**
  - Geographical Transition zone
  - Spawning areas and nurseries for various commercial species
  - Habitat diversity

- **Economy**
  - Fishing
  - Shipping
  - Aggregate extraction
  - Tourism…

Necessity of an integrated management covering all the Eastern English Channel

Introduction- Marxan et CLUZ

- MARXAN is based on a systematic conservation planning approach, identifying priority areas that meet representation targets for a range of conservation features.

- Use of a decision algorithm (simulated annealing)

- CLUZ is an extension of Arcview 3.2. Allowing to work with Marxan files with a graphical user interface.

Sytematic conservation planning
(Margules et Pressey, 2000)
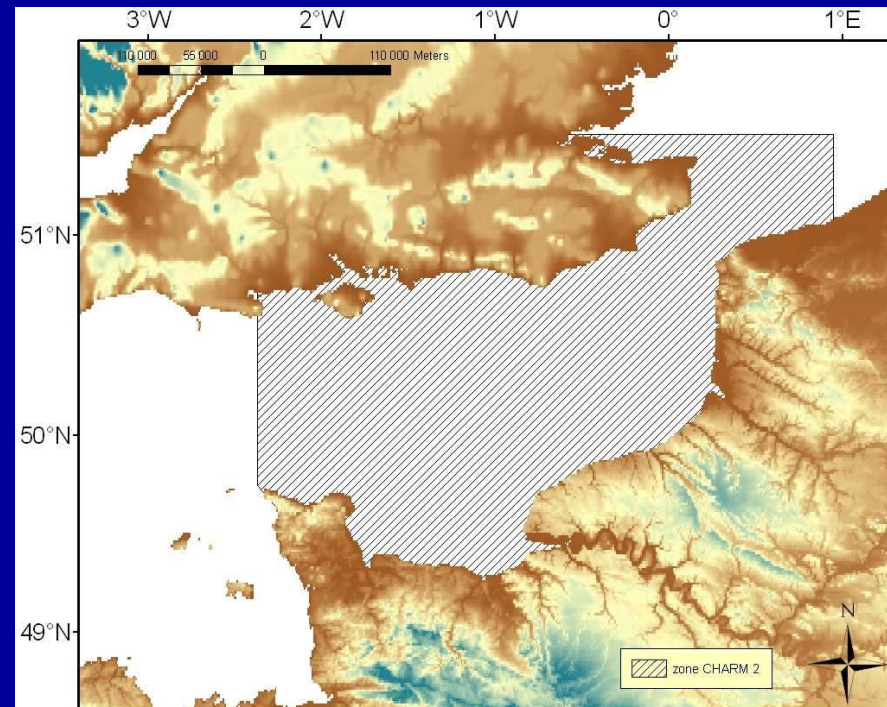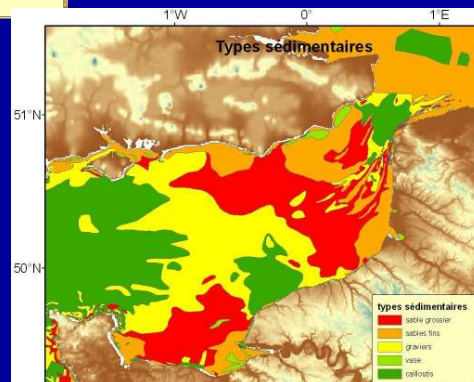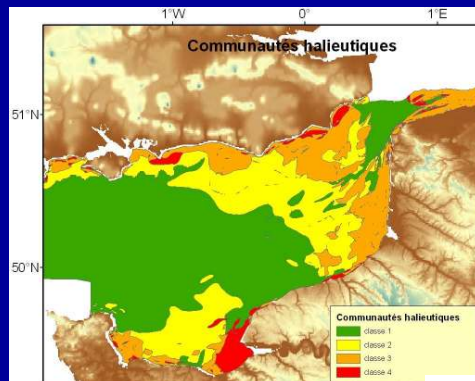
PROCESS
→Clear   →Defensible

→Transparent   →Participative

1) Compile data on the biodiversity of the planning region and choose the conservation features

2) Identify conservation goals for the planning region

3) Review existing conservation areas (and socio-economic data)

4) Select additional conservation areas

5) Implement conservation areas

6) Maintain the required values of conservation areas

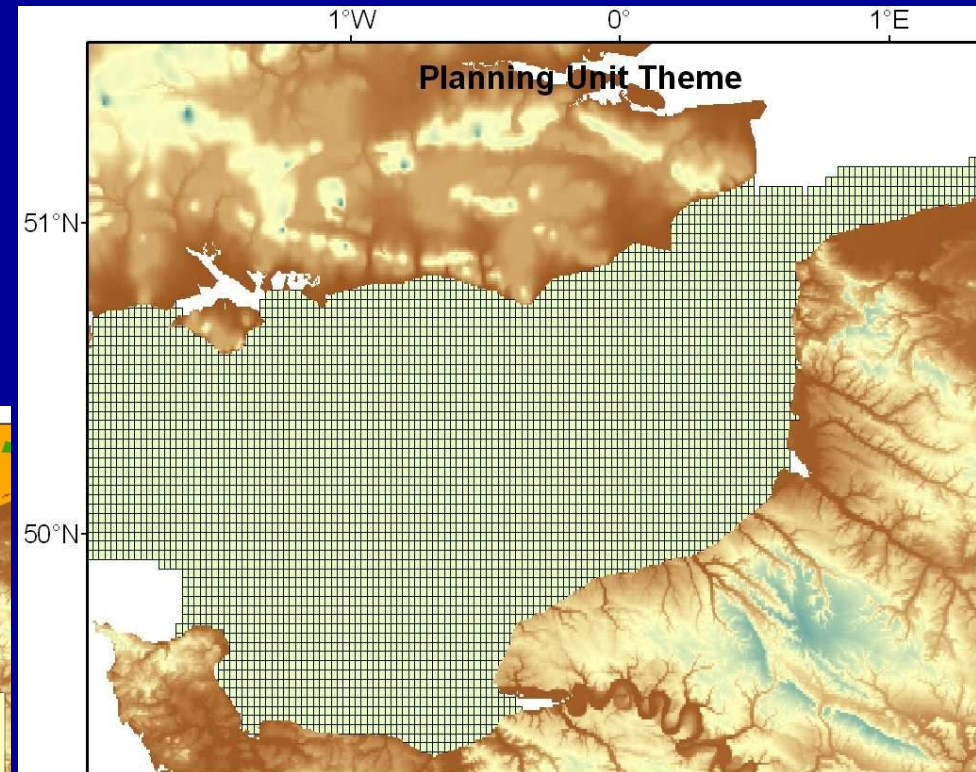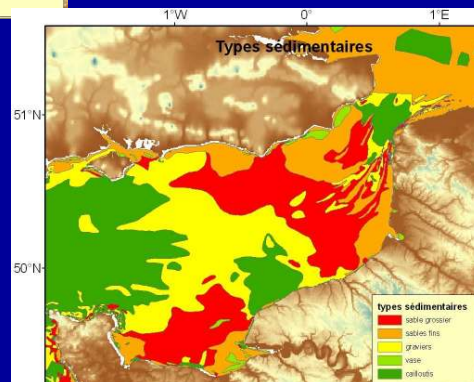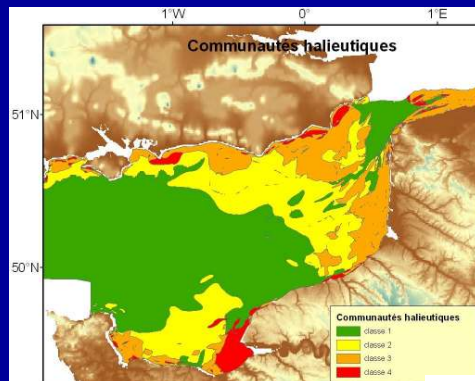# Designing PA networks with MARXAN

1) Identify the planning region

2) Identify the conservation features

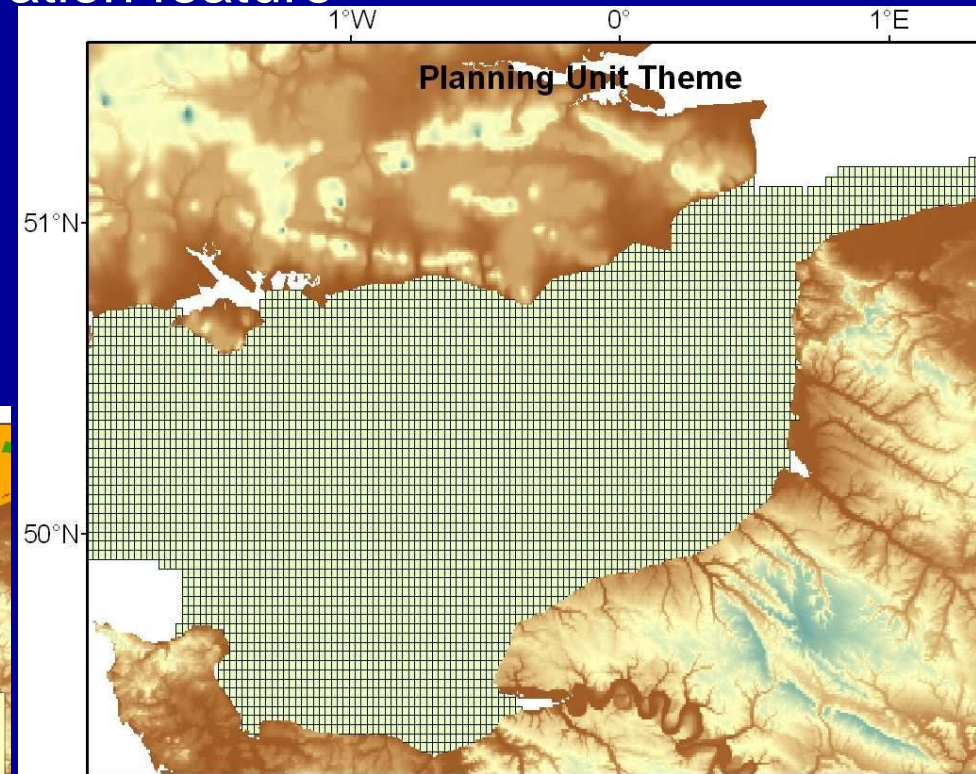3) Divide the region into planning units - any shape or size.

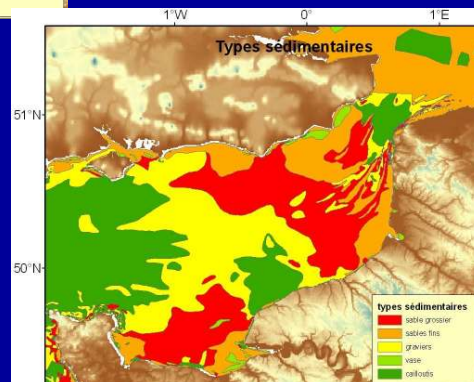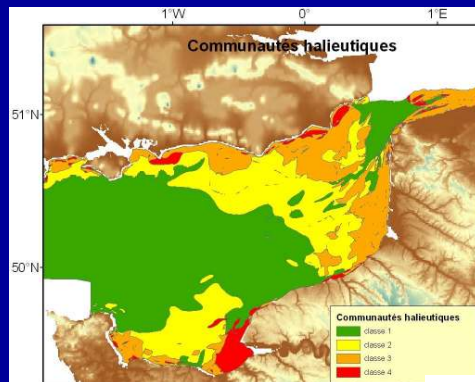# Designing PA networks with MARXAN

1) Identify the planning region

2) Identify the conservation features

3) Divide the region into planning units - any shape or size.

Designing PA networks with MARXAN

4) Measure the amount of each feature in each planning unit

5) Produce a cost value for each planning unit

6) Set the status of each planning unit (Conserved or Excluded)

7) Set targets for each conservation feature

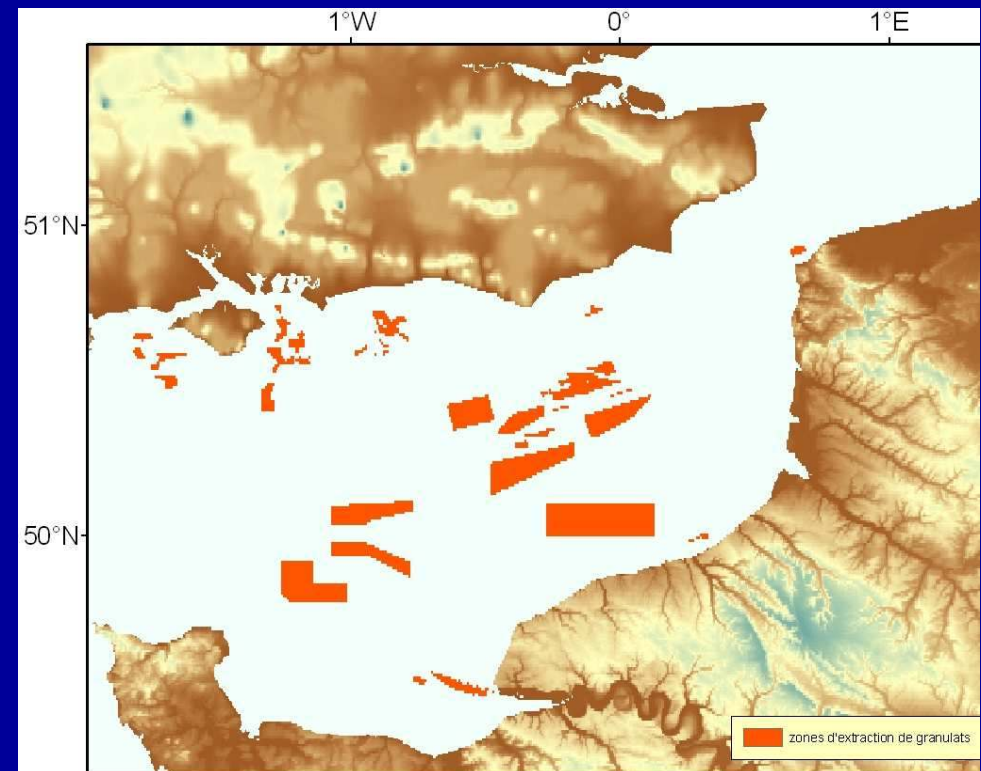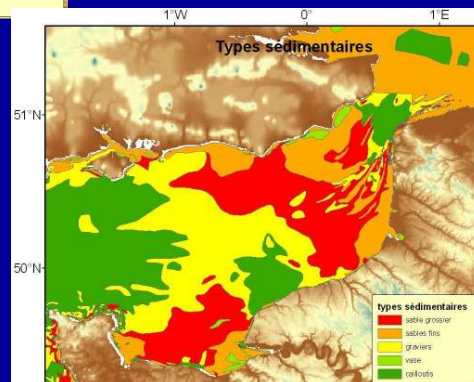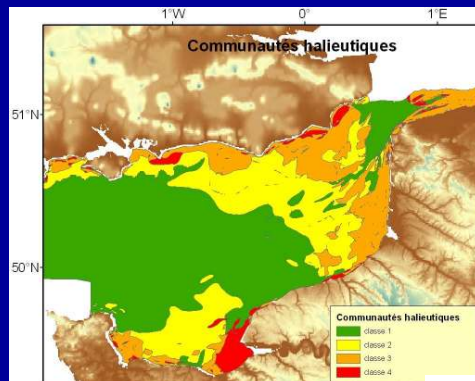# Designing PA networks with MARXAN

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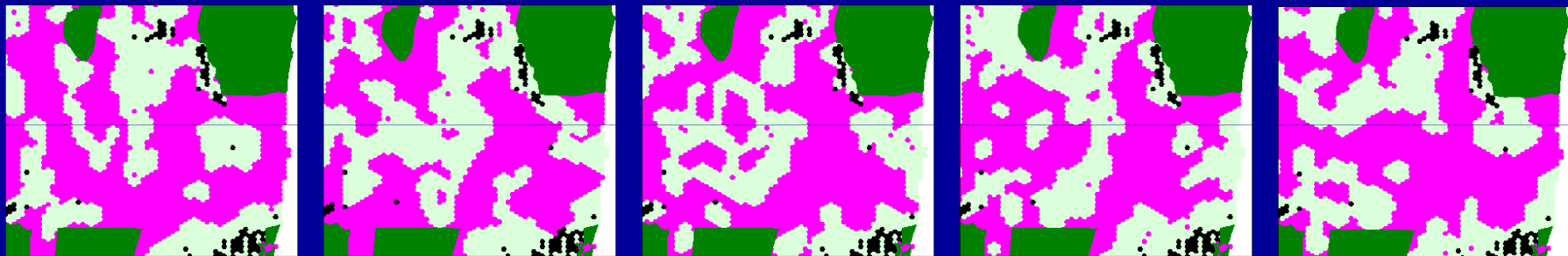
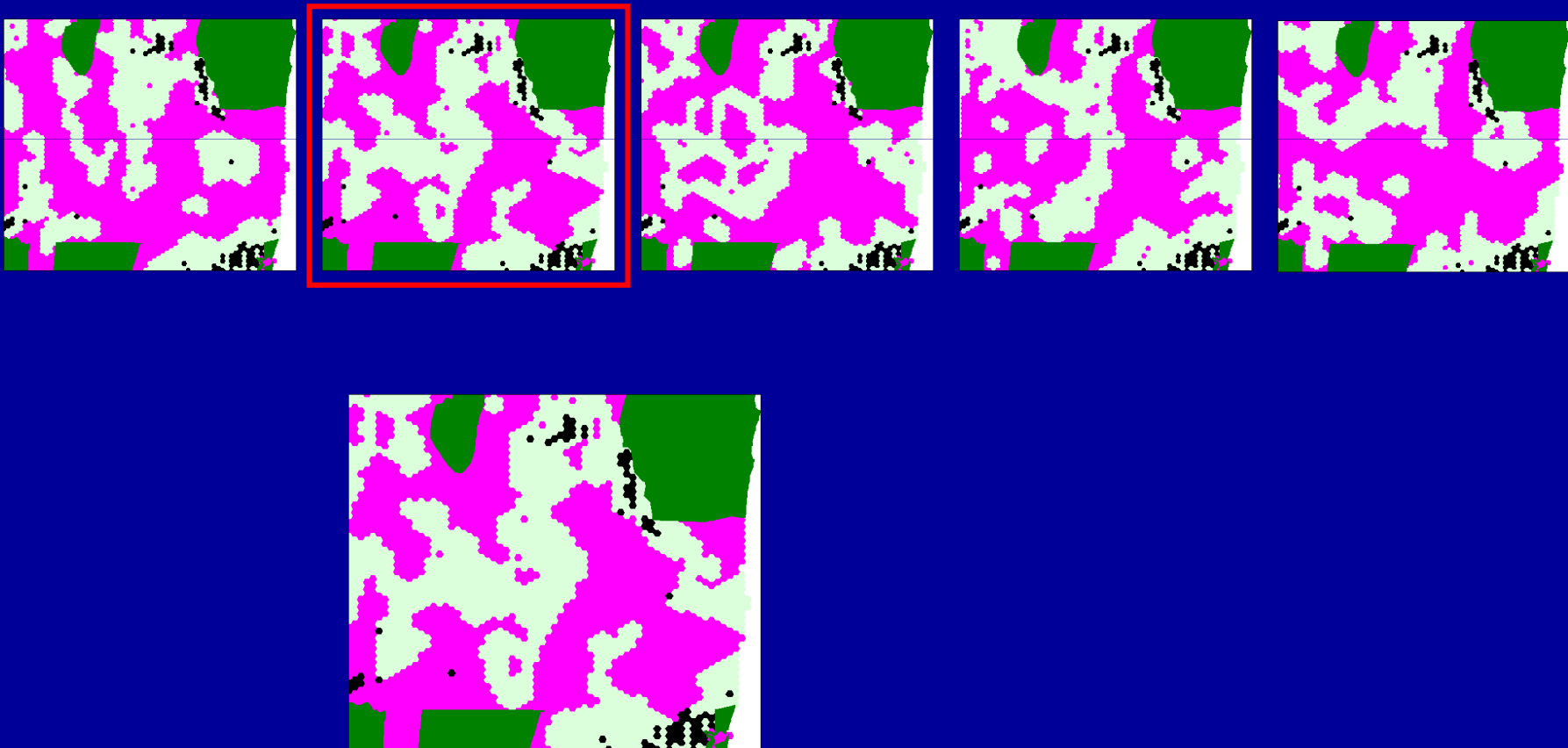7) Set targets for each conservation feature

Designing PA networks with MARXAN

MARXAN is run a number of times and produces a different near-optimal portfolio each time.
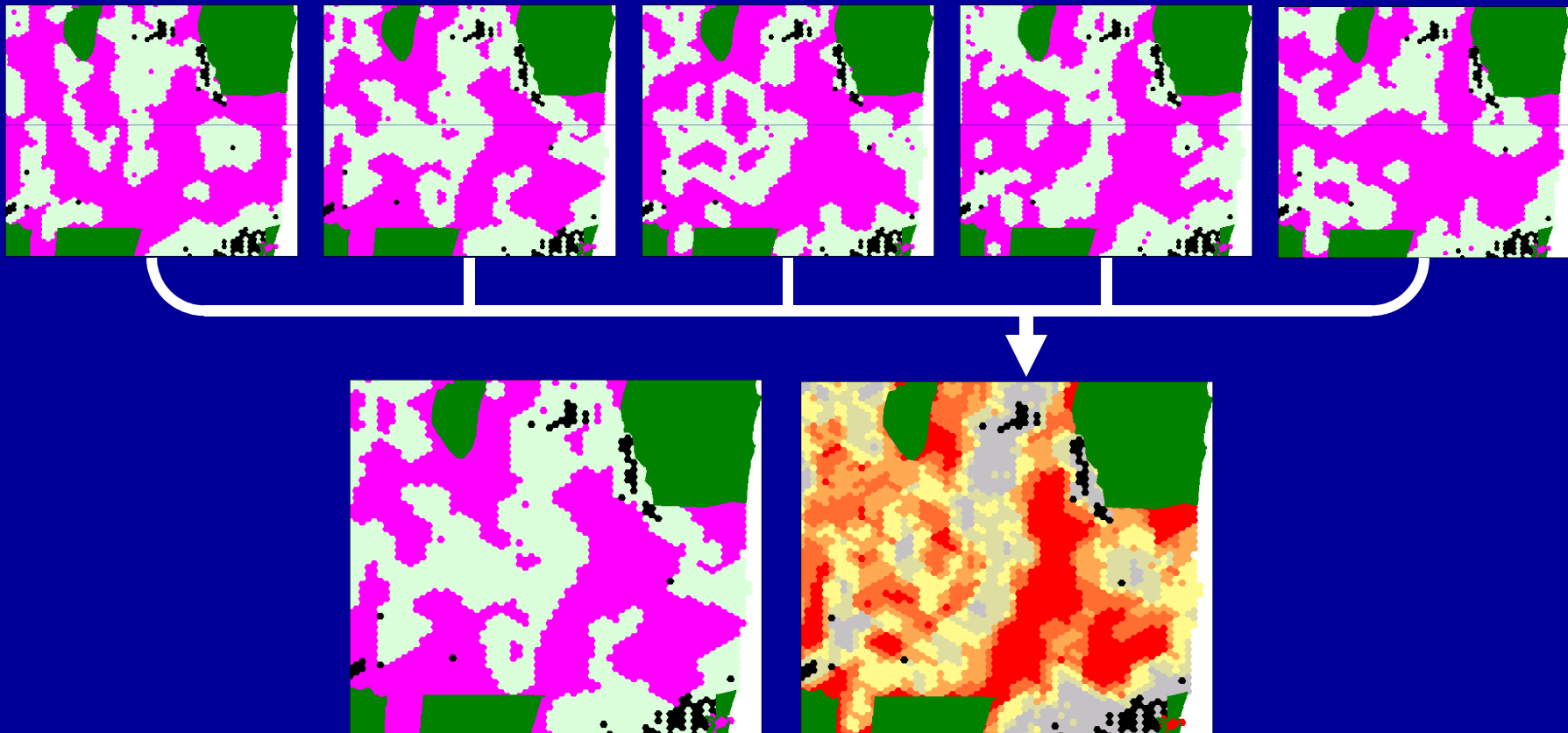
Designing PA networks with MARXAN

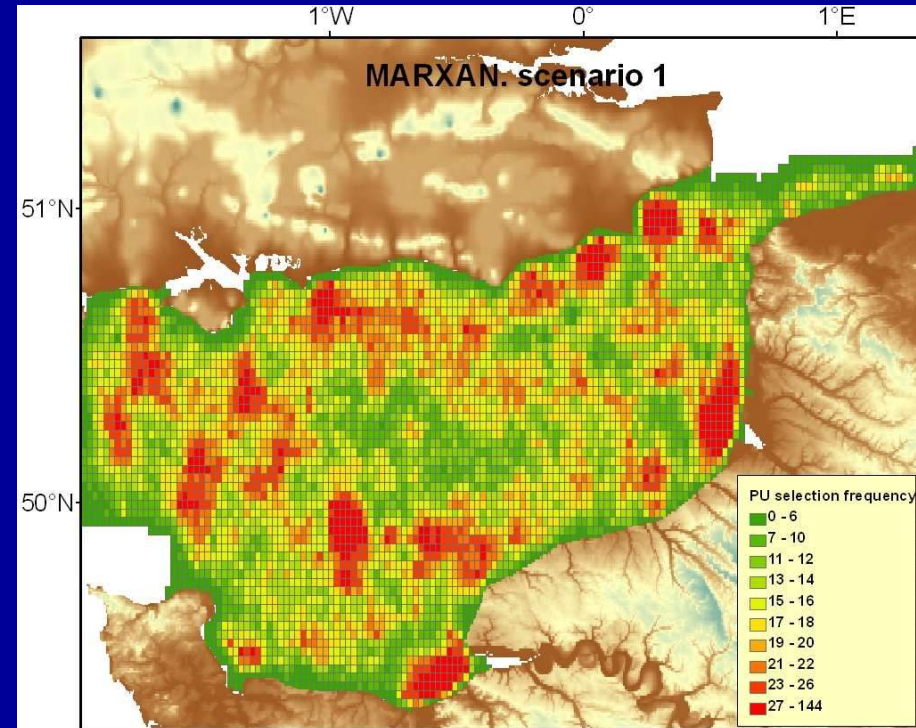It then identifies the best portfolio (the one with the lowest cost).

Designing PA networks with MARXAN

It also counts the number of times each planning unit appears in the different portfolios to give a measure of irreplaceability.
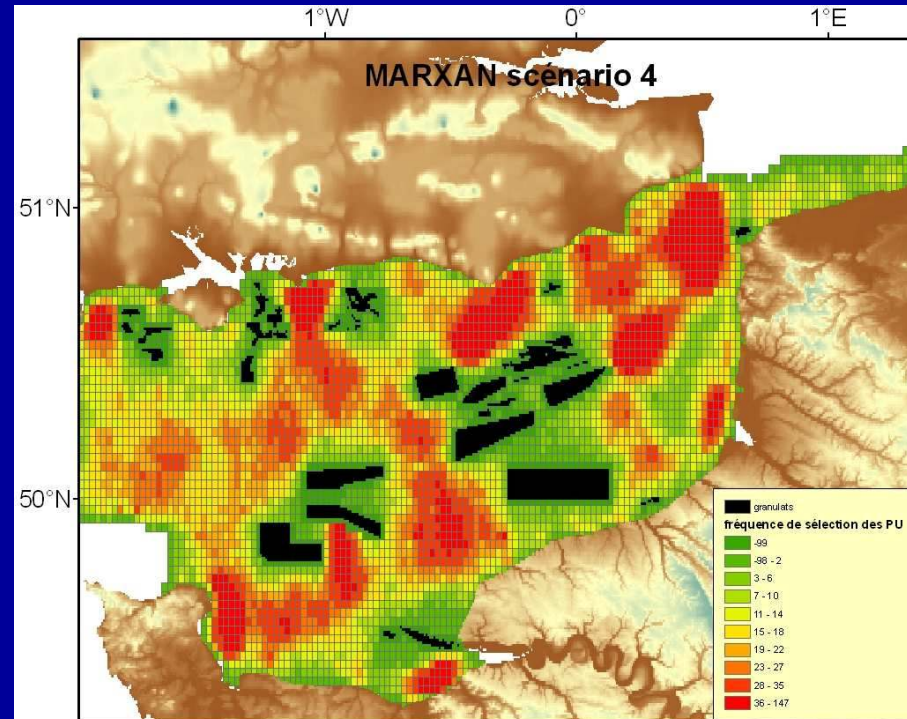
Some results with MARXAN

-Target=10%
-Cost=area

-features to conserve
   -A range of physical data
   -Fish communities
   -Benthic communities

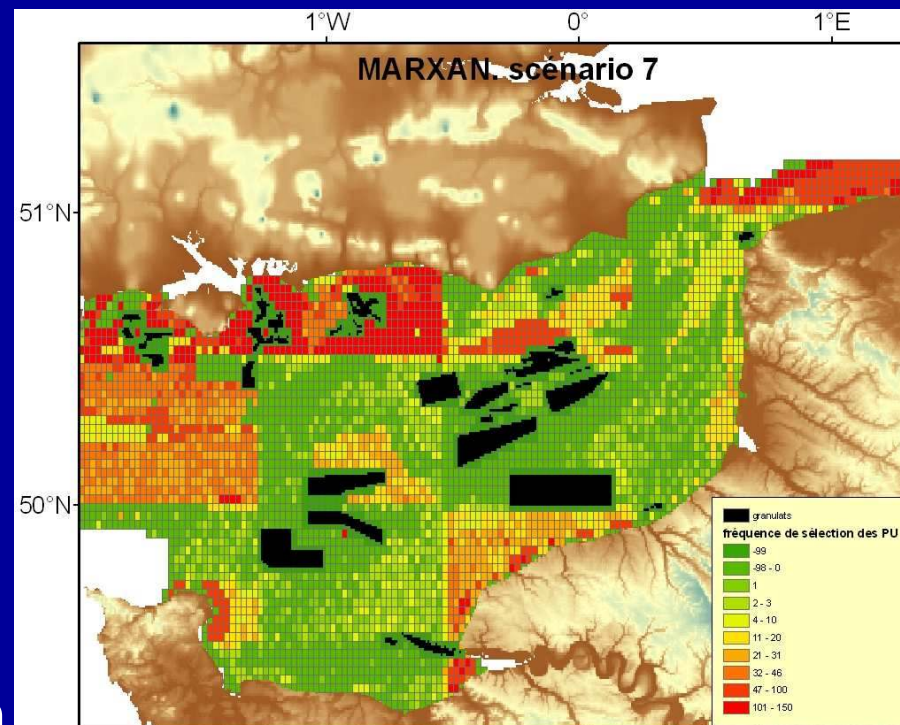Ignore this map – it is based on poor data

Some results with MARXAN

-Target=10%
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-Favouring coastal areas (3nm)
-Excluding aggregate extraction
areas

Ignore this map – it is based on poor data

Some results with MARXAN

- Target=10%
- Cost= fishing profitability

-features to conserve
- -A range of physical data
- -Fish communities
- -Benthic communities

-Favouring coastal areas (3nm)
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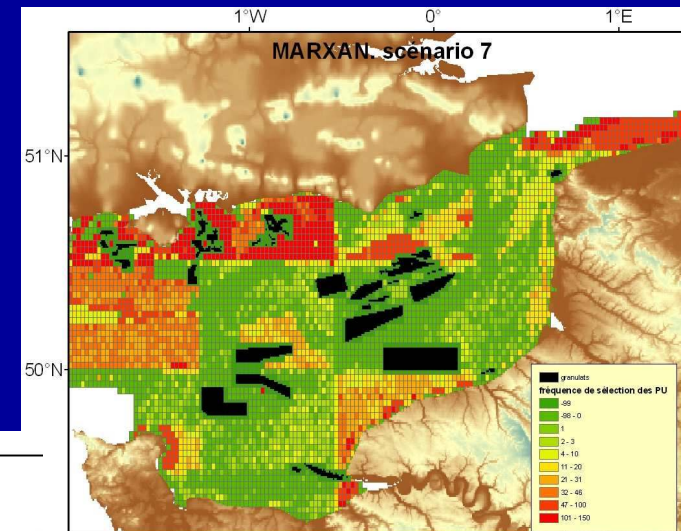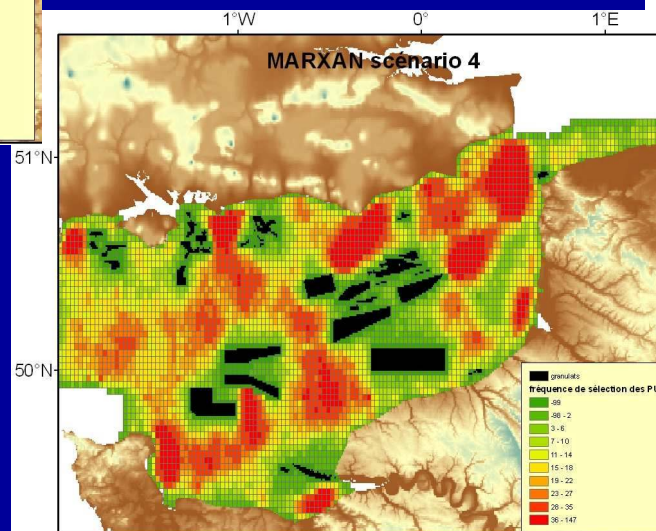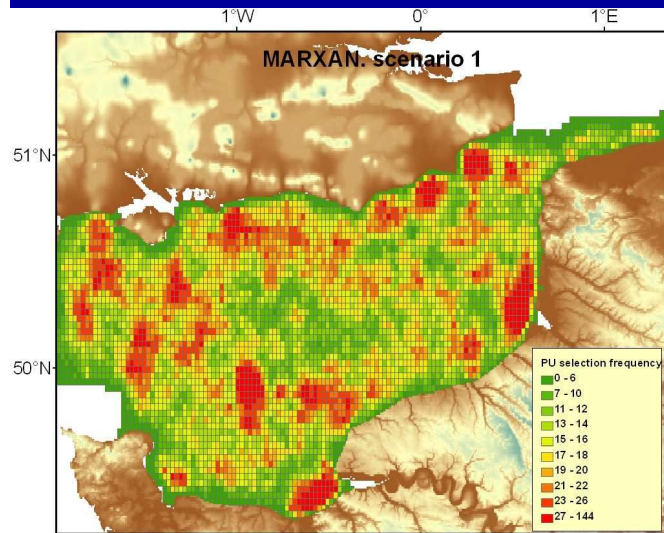

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Different options → different results

Limitations and risks

These preliminary results highlighted problems and lacks with Marxan use.

- Used options modify significantly the results
- Use of the available data, which are maybe not the more appropriate.
- The targets are not scientifically defensible.

Maps are **very** powerful dissemination tools. People judge the value of the approach on the results they produce, particularly if they do not know how they were produced.

Perspective

Improving scientific defensibility

1. Selecting relevant conservation features

2. Setting targets

3. Producing the cost and socio-economical data

4. Assessing connectivity

Conclusions

- This work is a preliminary approach for an application of systematic conservation planning process in the Channel.

  It shows what are the limitations of this process.

- Further work will be done to improve the quality and the scientific defensability of the results.

- Stakeholders need to be involved in these projects, contributing viewpoints, expertise and data.

Thank you for your attention