



*GIS interface to the French FIS*  
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# GIS interface to the French FIS

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# The french Fisheries Information System



- The FIS aims to build a monitoring network for scientific purposes

One Ifremer's mission is to *"Identify, evaluate, enhance marine resources and enable their sustainable exploitation"*

- The FIS must

- be *durable, operational* and *multidisciplinary* (= *biological, technical, environmental* and *economical*)

- allow a *comprehensive view* of the *fishery system*

- Developed in strong collaboration with the Direction of Fisheries of the French Ministry (DPMA)

- Organisation of the FIS

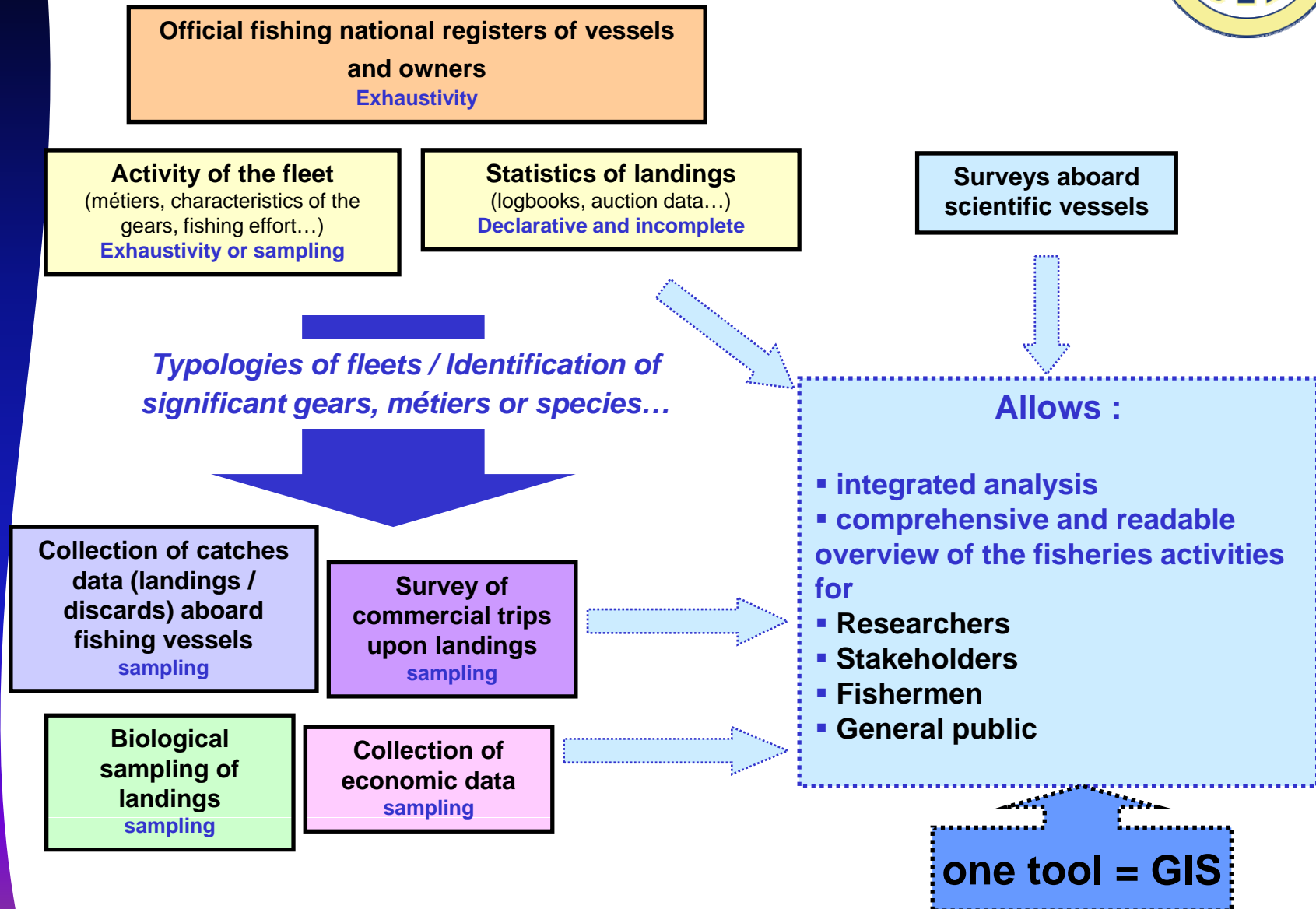
- Multidisciplinary management team (biologists, economists, statisticians and computer engineers...)

- Network of observers and technicians along the French coasts

# Multidisciplinary data approach of the FIS



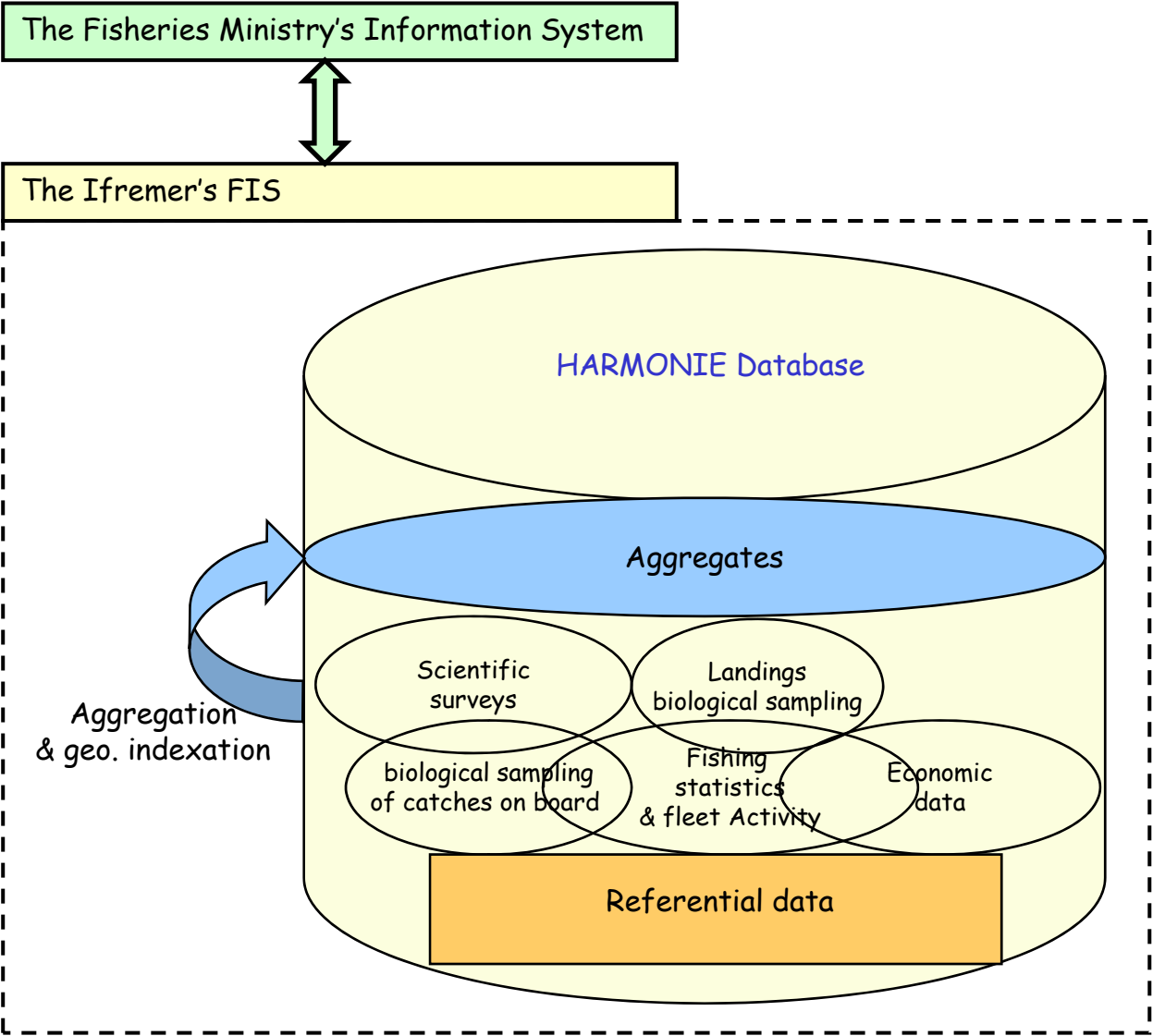
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# The FIS architecture



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All data of the FIS are centralized and integrated

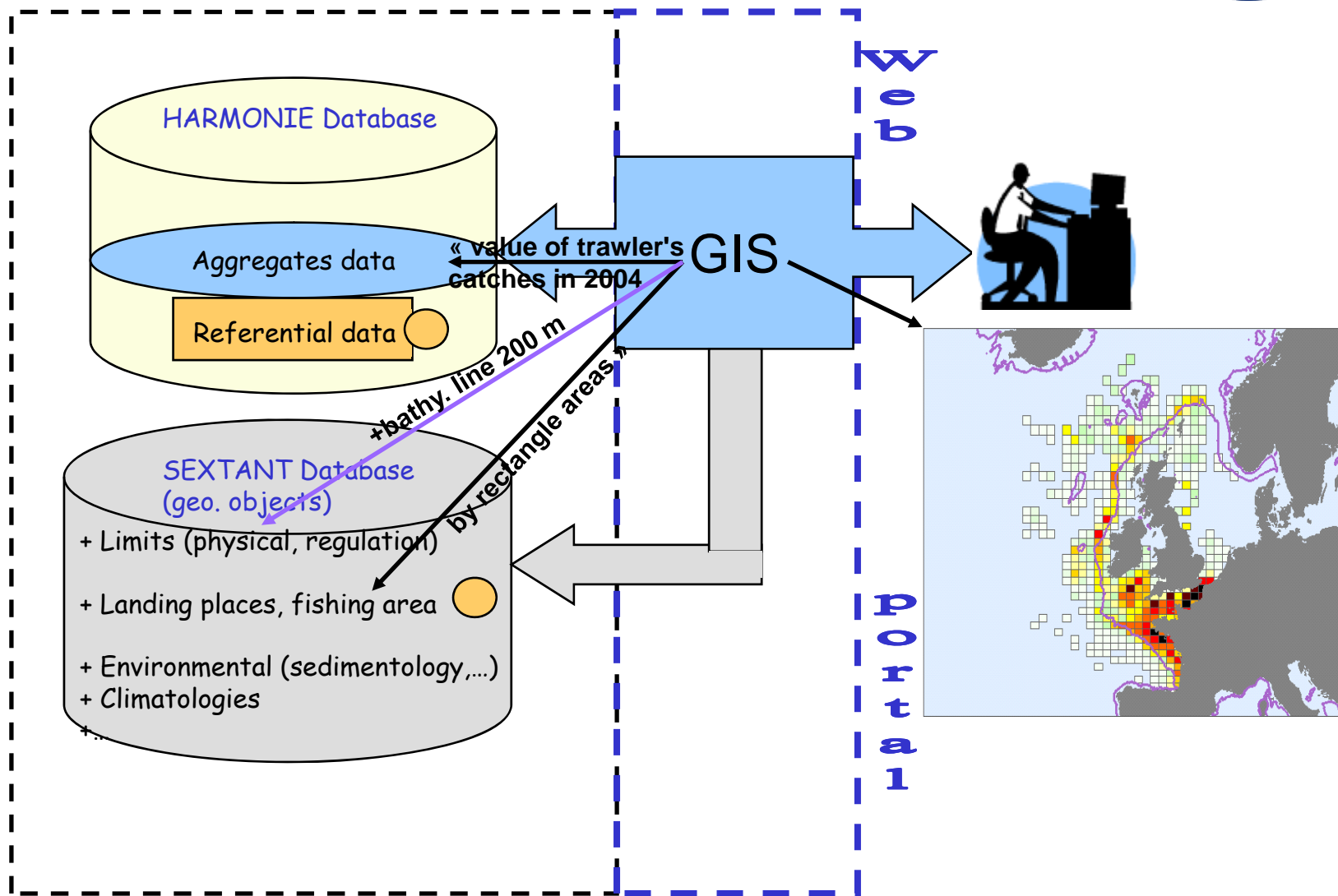
# The GIS interface to the FIS



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# GIS Architecture



## → Open source software

→ Mapserver engine

→ Framework : cartoweb

- CartoWeb is a comprehensive and ready-to-use Web-GIS as well as a convenient framework for building advanced and customized applications.
- released under the GNU General Public License (GPL).

→ Web 2.0 (Ajax) look and feel interface

→ Interface developed by Camptocamp (cartoweb)

→ Multi-lingual management for user interface

→ Database : Oracle 9i/10 with OracleSDO

→ Enables **direct access to up-to-date FIS data**

→ By controlled access (login/password)

→ Public access (restricted)

# GIS main user's interface



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**2. Tools (zoom, pan...)**

**3. Map display**

**1. Layers manager**

**4. Map information and tools**

**5. Layers description**

**Données**  
Variable à représenter: Quantité totale capturée, poids vit [kg]  
Type de couches: maree  
Échelle: Rectangle statistique

**Filtres**

- Espèces: 3202
- Dates: 520, 513, 511, 510, 519, 512, 510, 515, 52, 53
- Périodes: du 01/08/2004 au 31/10/2004
- fpc: erFPC

**Représentation**  
Type de représentation: choroplèthe

**Sommaire de la distribution**

Classification
[10] 1.4-23.7
[10] 33.7-332.7
[10] 332.7-1062.9
[10] 1062.9-4259.4
[10] 4259.4-20402
[10] 20402-46303
[7] 46303-81710.1

**Statistiques de pêche (agrégats bruts)**

Flottes.....(++):

Activité.....(++):

Marées.....(++):

- maree merlu filet
- maree merlu chalut
- maree merlu

Ventes.....(++):

- vente merlu euros

Actualiser

Couche Détails fournisseur Détail...

# GIS interface : map building



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Thèmes    Ordre des couches    Export

**Données physiques.....(+)**

- Contour continent
- Régions
- Sédimentologie

**Données réglementaires.....(+)**

**Statistiques de pêche (agrégats bruts)**

**Flottes.....(++)**

**Activité.....(++)**

**Marées.....(++)**

- maree merlu filet
- maree merlu chalut
- maree merlu

**Ventes.....(++)**

- vente merlu euros

Actualiser

- A map is made of several layers chosen by the user
  - (+) : Static layer (for SEXTANT data)
  - (++) User's defined layer for FIS data (Harmonie)
- Saving/loading « context » : all the map definition but not the data
- Exporting the map and information : in PDF or images (in a zip file)



# GIS : user defined layers



→ Lets the user build its own maps by **selecting data** with a **large range of queries** for each layer:

→ Variable

→ « Métiers »  
→ Species  
→ Gears

→ Data period

→ Vessels criteria selection

**Définition de la couche**

Nom de la couche

Variable à représenter

**Critères de sélection des données**

**Critères activité**

Métiers

Métiers agrégés

Espèces métier

Engins métier

**Période**

Date début

Date fin

**Critères navires**

Navires

# GIS: user defined layers



→ Large range of criteria for vessels selection

→ In/out European fleet register, Owners, flags,...

→ Vessel characteristics

→ fleet criteria

103425,104641,114913,1

Liste des navires sélectionnés

- 103425 - PREMIER FLOT
- 104641 - YOUPI ONE
- 114913 - CORALIE
- 115934 - KOAXI
- 117753 - STERNE 2
- 119772 - VANVAN
- 123444 - LA MARGOTTE

Navires en FPC  Navires hors FPC

Navires

Lieux d'immatriculation

Armateurs

Pavillons

FRA

Longueur HT [cm]

Puissance [kW]

Jauge (1/100 TX)

jauge TJB  jauge GT

Année de construction

Critères annuels:

Année(s) 2007,2008

Flottes

Lieux d'exploitation ou d'attache principal

Rayons d'action

rechercher

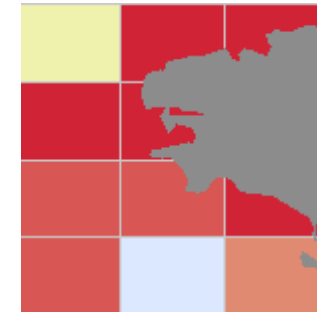
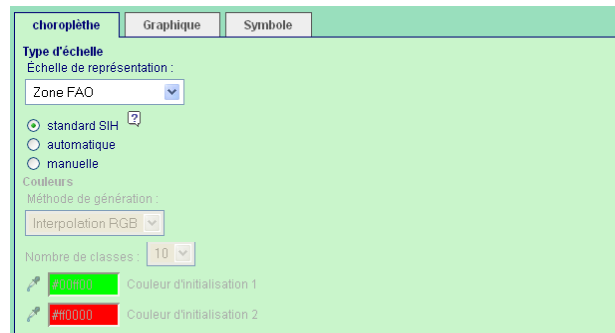
ajouter | annuler

# GIS : user defined layers

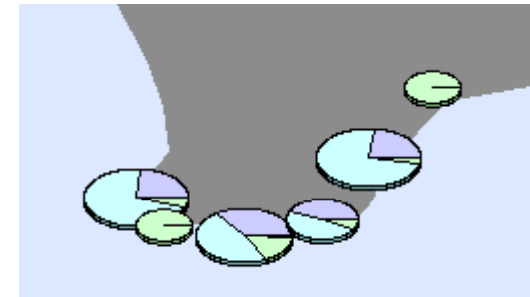
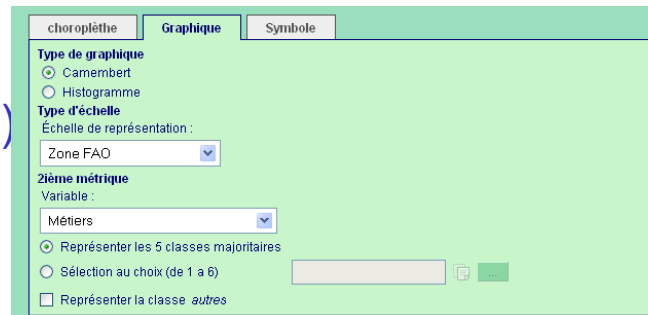


## 3 types of configurable outputs

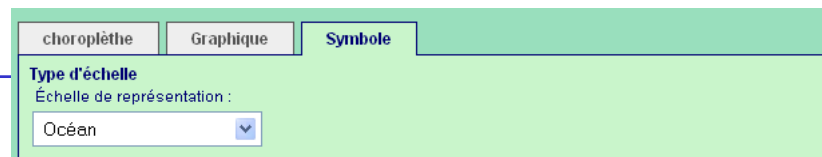
→ geostatistical (choropleth)



→ Statistic charts (pie or bar charts)



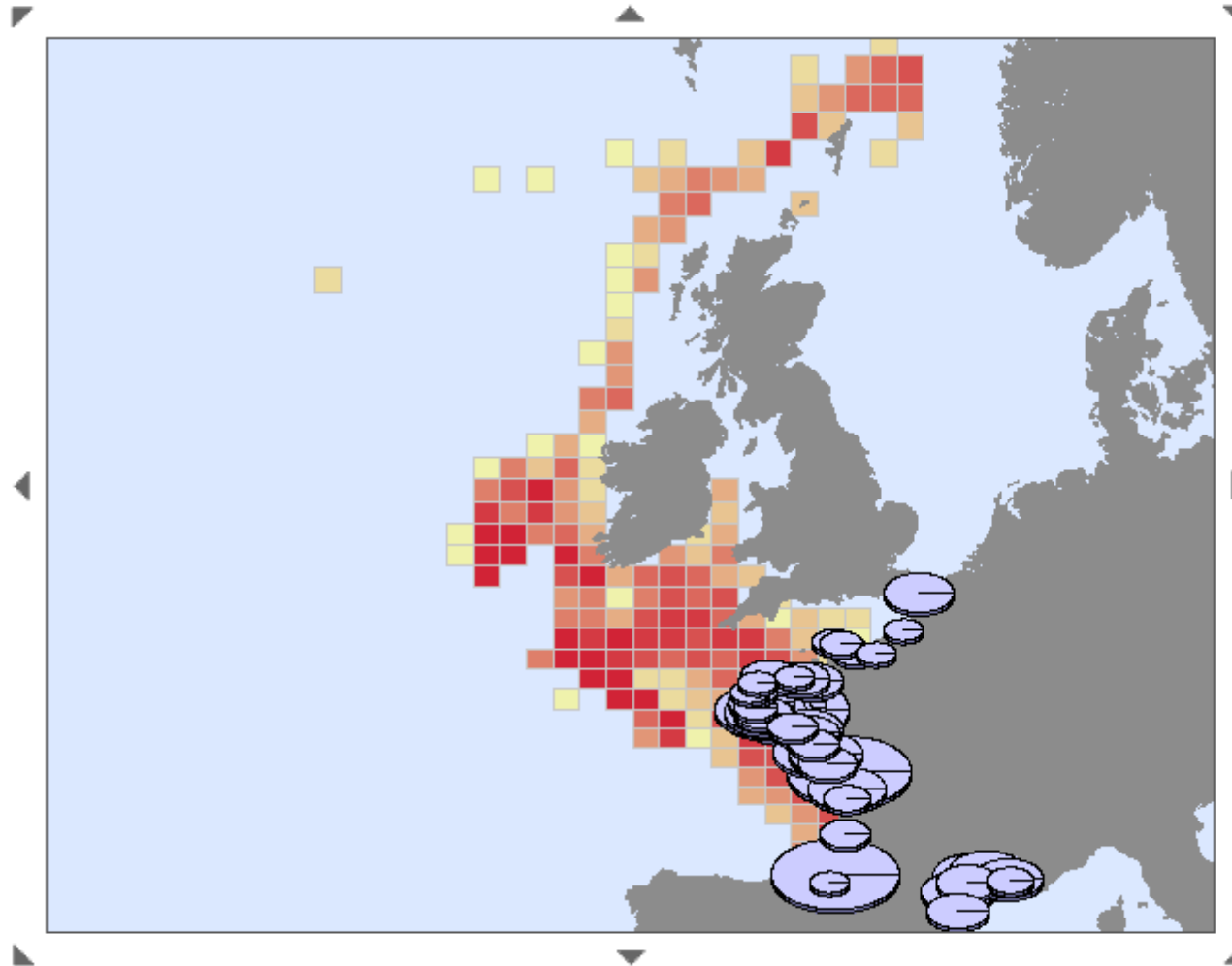
→ Symbols



# GIS user's maps : examples



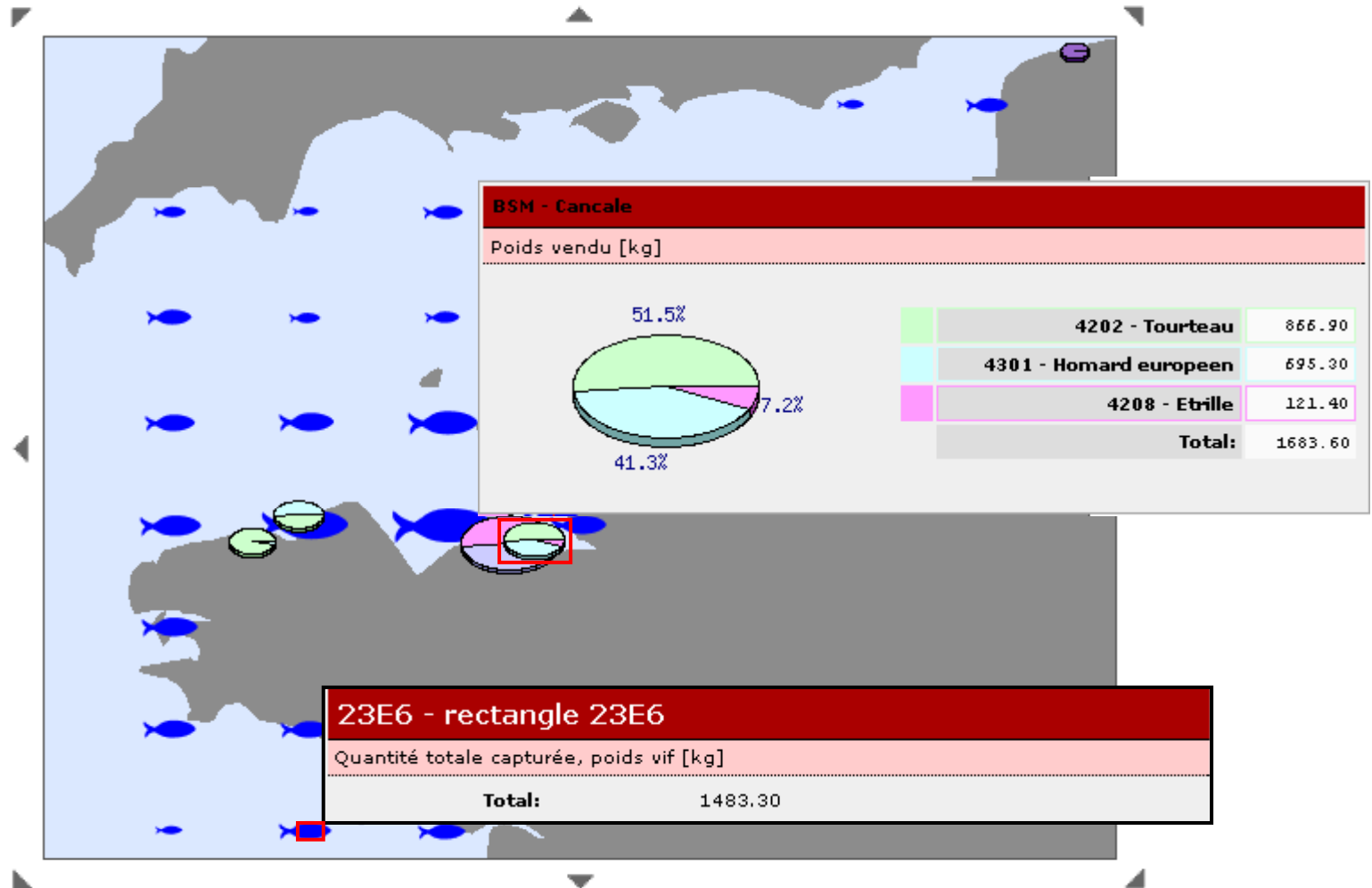
- Distribution of trawlers' or liners' hake catches & distribution of hake landings



# GIS user's maps : examples



- Distribution by port of the shellfish landings & distribution of lobster catches



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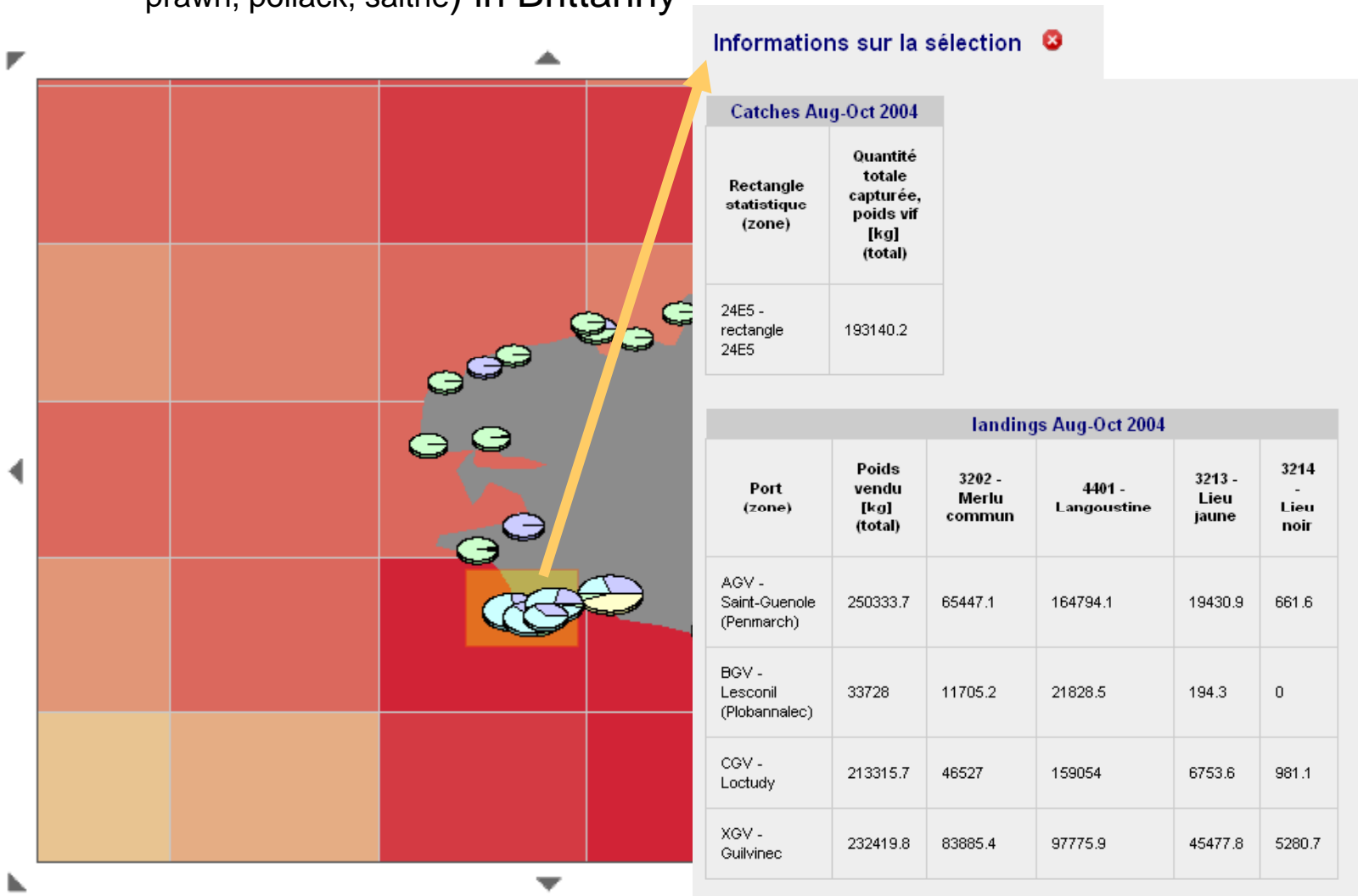
# GIS user's maps : examples



→ Distribution of catches & landings for 4 main species (hack, prawn, pollack, saithe) in Brittany

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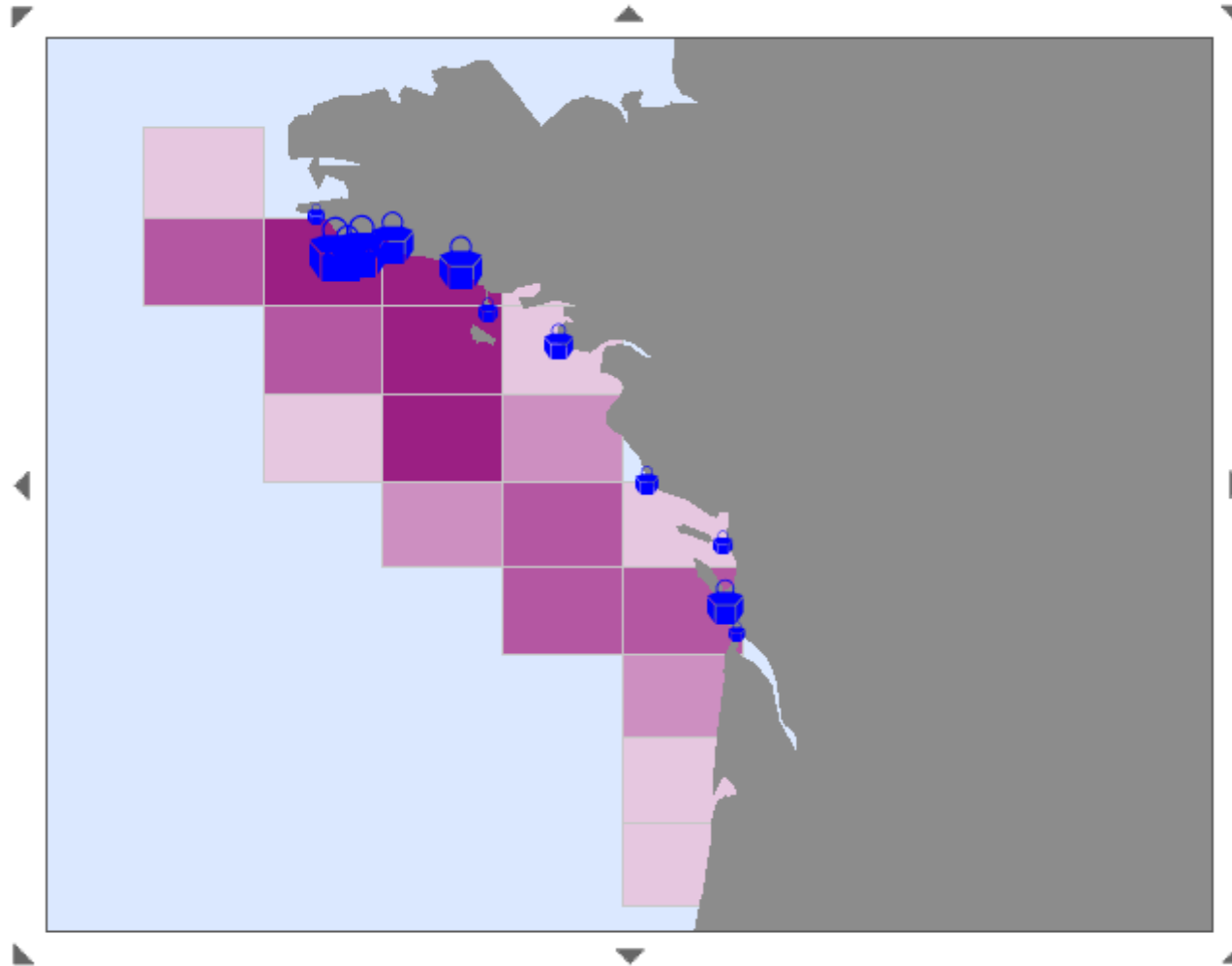
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# GIS user's maps : examples



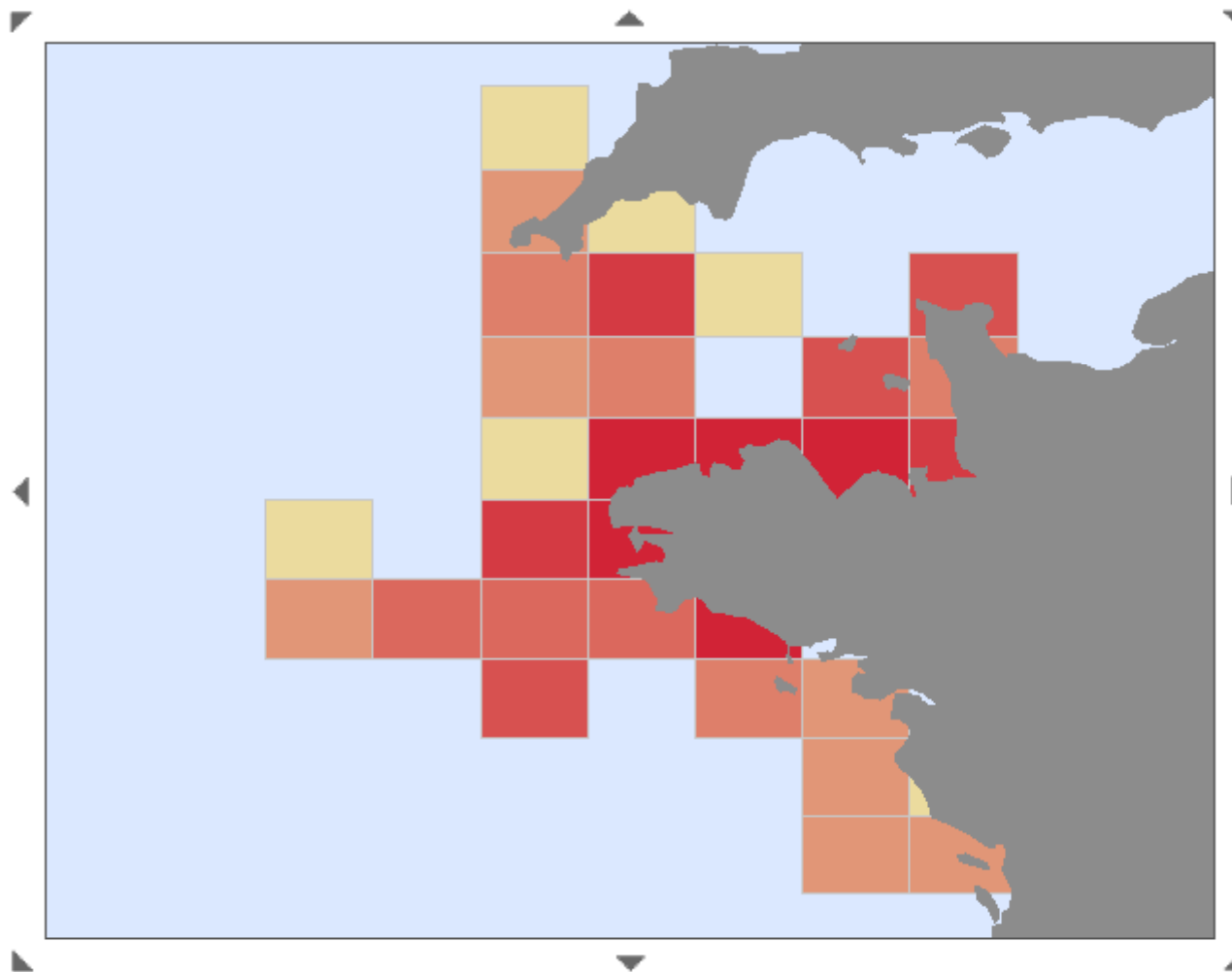
- Distribution of fishing activity of the vessels targetting prawn & landings of prawn





# GIS user's maps : examples

- ➔ Distribution of fishing activity of the north Brittany vessels using pots





# GIS development roadmap



- ➔ First version : All functions for **Fishing Statistics and fleets activity**
  - ➔ Log-books (declared fishing effort and catches)
  - ➔ Landings (auction sales)
  - ➔ Fishing activities
  - ➔ Fishing fleets (number and characteristics)
- ➔ **On-line by the end of 2008**
- ➔ FIS data : next data to be integrated
  - ➔ Biological surveys
  - ➔ Estimation of catches aboard fishing vessels (landings/discards)
  - ➔ ...

# GIS development roadmap



- ➔ **Complementary data : regulation limits**
  - ➔ to integrate new layers referencing regulation database of the French Ministry of Fisheries
  - ➔ to give access as PDF files to regulations texts
  
- ➔ **Other fonctionnalités foreseen**
  - ➔ to interact with available OGC-WMS and WFS on the net for complementary data
  - ➔ to serve predefined and validated maps from the FIS as WMS and WFS
  - ➔ Information facility to display the ISO-19115 metadata of complementary data layers

# The GIS interface to the FIS



Thank you for your attention !