First results from a pilot survey of recreational fishing in France

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Context, objectives and methodology for our French national pilot survey

- **Context:**
  - ☐ Lack of information on recreational fishing in France
  - ☐ Demand of policy makers
- **Development of a new information system for:**
  - ☐ Appraising the overall population of recreational sea fishers
  - ☐ Assessing fishing effort, catches and economic impact
  - ☐ Producing a first typology of fisher profiles
- **Methodology for building a new information system:**
  - ☐ A national steering committee = national administration, scientists, statistical institute, recreational fishing associations and federations, representatives of commercial fishers
  - ☐ Telephone survey (2006-2007) = 15 085 households interviewed
  - ☐ On site survey (2007-2008) = 1 700 fishers interviewed

Telephone survey

Sampling repartition :

➜ Seasonality : 5 waves of interviews

➜ A total of 15 085 households were interviewed in France mainland

➜ Over sampling of coastal zones

➜ Main goal: have a reference frame for recreational fishing and a first estimation of recreational fisher population

		France mainland	
	Survey date	Number of interviews	Reference period
	TEST STAGE		
WAVE 1	5 to 11 April 2006	2061 households interviewed	January, February and March 2006
	STUDY STAGE		
WAVE 2	15 to 24 June 2006	3003 households	April and May 2006
WAVE 3	September 2006	5012 households	June, July and August 2006
WAVE 4	November 2006	3003 households	September and October 2006
WAVE 5	January 2007	2006 households	November and December 2006

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Population size of recreational sea fishers in France

	Year 2005
Number of household with at least one recreational fishers (over 15 years old)	1 016
Average number of fishers per household	*1.57*
Total number of recreational fishers represented in our sample	1 599
Total number of persons (over 15) in our sample	31 377
Penetration rate in the population of 15+	5.1%

2.45 millions of recreational sea fishers (+/- 0.15 millions) in France ← *Extrapolation to the entire population (15+)*

The on-site survey

On-site survey objectives

Precise and validate the data from the telephone survey

➔ **1500 interviews directly at fishing access sites**
- **from August 2007 to August 2008**
- **in all France mainland**

➔ **Sampling plan based on information from telephone survey**
- **Statistical unit = fishing trip**
- **Sampling plan ⬅➔ data of telephone survey give us a reference frame**
    - **Number of trips : % per façade, per season, per fishing mode**
    - **Under sampling of shellfish gathering and over sampling of winter**

➔ **Main goal: accurate information regarding catches and expenditures**

Survey protocol : on-site survey

On-site survey sampling plan :

	Summer	Autumn	Winter	Spring	Total
English Channel					
Seashell gathering by food	40	50	40	20	150
Boat fishing	50	40	40	50	180
Sea shore fishing	50	30	70	40	190
Total English Channel	**140**	**120**	**150**	**110**	**520**
Atlantic Ocean					
Seashell gathering by food	70	30	40	40	180
Boat fishing	80	40	70	30	220
Sea shore fishing	60	30	60	30	180
Total Atlantic Ocean	**210**	**100**	**170**	**100**	**580**
Mediterranean Sea					
Seashell gathering by food	20	20	0	20	20
Boat fishing	30	50	40	40	110
Sea shore fishing	40	20	60	20	190
Spear fishing from shore	20		0		60
Spear fishing with a boat	20		0		20
Total Mediterranean Sea	**130**	**90**	**100**	**80**	**400**
TOTAL	**480**	**310**	**420**	**290**	**1500**

Access point survey

Fishing site choice and repartition:

- ➤ **1500 interviews → 10 X 150 sites**
- ➤ **Sites are chosen according to experts**
  - • **Administration**
  - • **Scientists**
  - • **Fishing club…**
- ➤ **Repartition :**
  - • **by façade**
  - • **by fishing mode**
  - • **by season**

Recreational fishing sites (summer 2007)
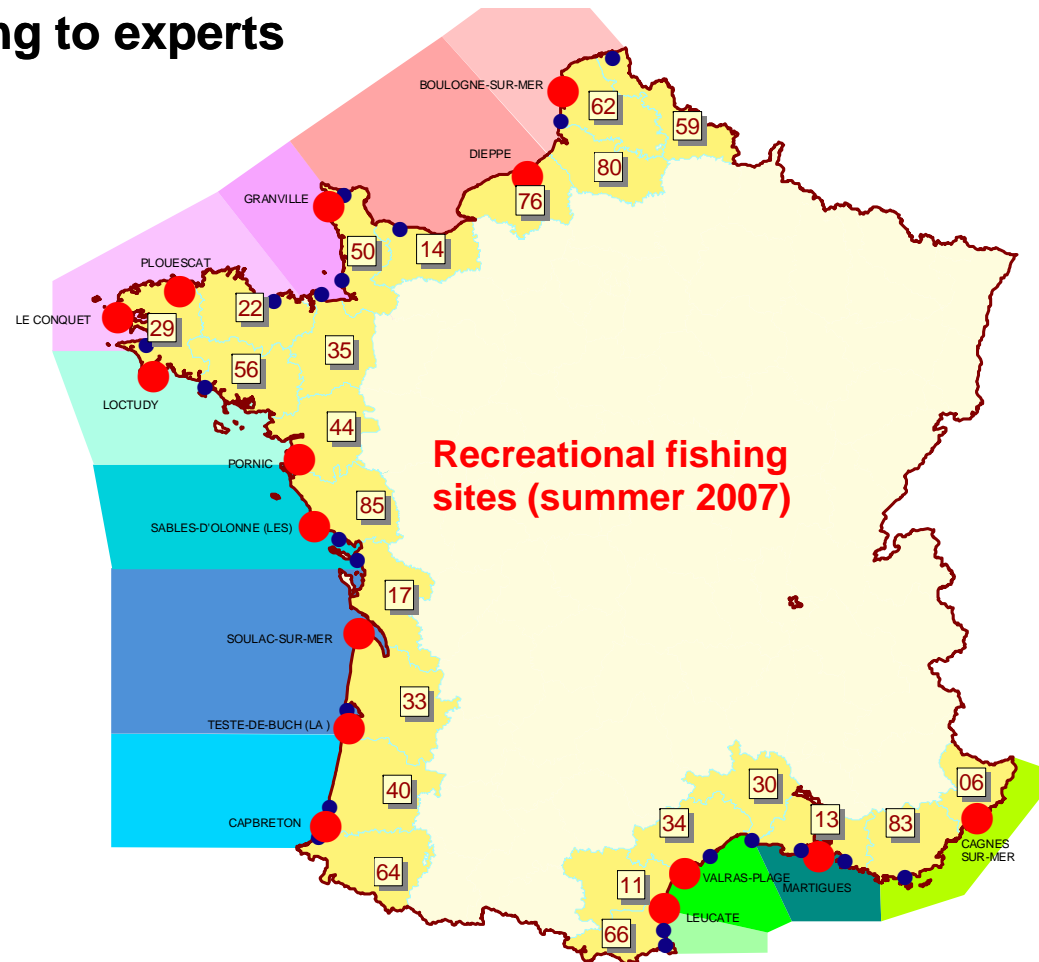
Pooling together telephone and on-site surveys for catches estimation

Catches estimations

Extrapolation in the French population of 15 years old and more

	Initial counting
	Telephone interviews
FISHES	
Global catches (tons). Fisherman >15 years	14 500 T (+/-5000)
Average weight per year	6.1 kg
SHELLFISHES	
Global catches (tons). Fisherman >15 years	8 300 T (+/-3000)
Average weight per year	3.5 kg
CRUSTACEANS	
Global catches (tons). Fisherman >15 years	6 700 T (+/-2600)
Average weight per year	2.8 kg
CEPHALOPODS	
Global catches (tons). Fisherman >15 years	1 600 T (+/-500)
Average weight per year	0.7 kg

	New counting
	Final estimation
FISHES	
Global catches (tons). Fisherman >15 years	Other species: 4 360-13 560 t
Average weight per year	
SHELLFISHES	
Global catches (tons). Fisherman >15 years	3 100 T (+/-1200)
Average weight per year	1.3 kg
CRUSTACEANS	
Global catches (tons). Fisherman >15 years	1 600 T (+/-900)
Average weight per year	0.7 kg
CEPHALOPODS	
Global catches (tons). Fisherman >15 years	495 T (+/-600)
Average weight per year	0.2 kg

Catches for main species

Extrapolation in the French population of 15 years old and more

INITIAL COUNTING	
	telephone interviews
FISHES	
SEABASS	5000 T (+/-1200)
MACKEREL	3300 T (+/-1000)
SEABREAM	1600 T (+/- 500)
SHELLS	
MUSSELS	4300 T (+/-1200)
OYSTERS	3000 T (+/-900)
COMMON COCKLE	2500 T (+/-800)
CARPET SHELL	2300 T (+/-700)

NEW COUTINGS	
	Final estimation
POISSONS	
SEABASS	5 600 T (+/-2000)
MACKEREL	3 600 T (+/-1600)
SEABREAM	2 000 T (+/- 960)
COQUILLAGES	
MUSSELS	460 T (+/-300)
OYSTERS	1 200 T(+/-1000)
COMMON COCKLE	490 T(+/-300)
CARPET SHELL	600 T (+/-400)

Catches

- Aggregation between on-site and telephone data sets is based on the confidence interval of each statistical estimation regarding each group of species
- More fish species for the on-site survey (better representativeness of catches)
- The three main species (seabass, mackerel and seabream) represent 67% of total catches into the telephone survey and only 40% into the on-site survey
- Less shellfish and crustaceous but same number of species (memory effect)
- Not enough data for cephalopods

Expenditure estimations

	Enquêtes téléphoniques	Global
DEPENSES RELATIVES A LA SORTIE Frais de déplacement et frais de bouche et d'hébergement	1,4 Milliards d'€	524 M €
EQUIPEMENT, REVUES, ECT.	249 M €	435 M €
DEPENSES RELATIVES A L'EMBARCATION	291 M €	341 M €

Expenditures

- Travel expenditures data are robust (but not enough precise to have travel cost analysis)
- Equipment expenditures and boat expenditures are precise enough but with high variability and high standard error
- Housing and fooding expenditures are more difficult to assess
- One possibility: ask about the additional cost coming especially from recreational fishing activity

# Profiles of french recreational fishers

A multi-factorial analysis for building a first typology of recreational fishers

- **Predictor variables:**
  - ☐ Group of target species
  - ☐ Fishing zone
  - ☐ Residence zone
  - ☐ Number of trips per season
  - ☐ Boat owning
  - ☐ Fishing mode

Residence zone and fishing zone

Year 2005

Penetration rate

- Less than 5%
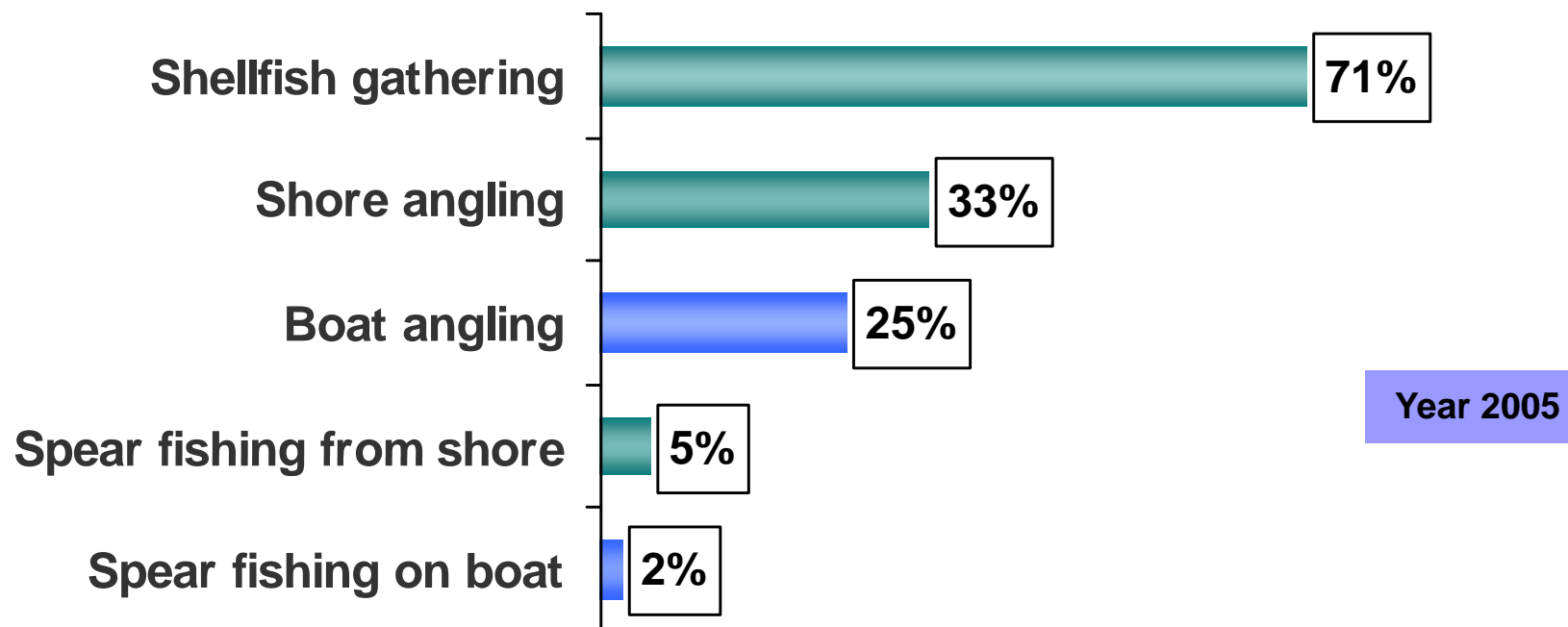- From 5% to 10%
- From 10% to 15%
- From 15% to 20%

35 %

47 %

23 %
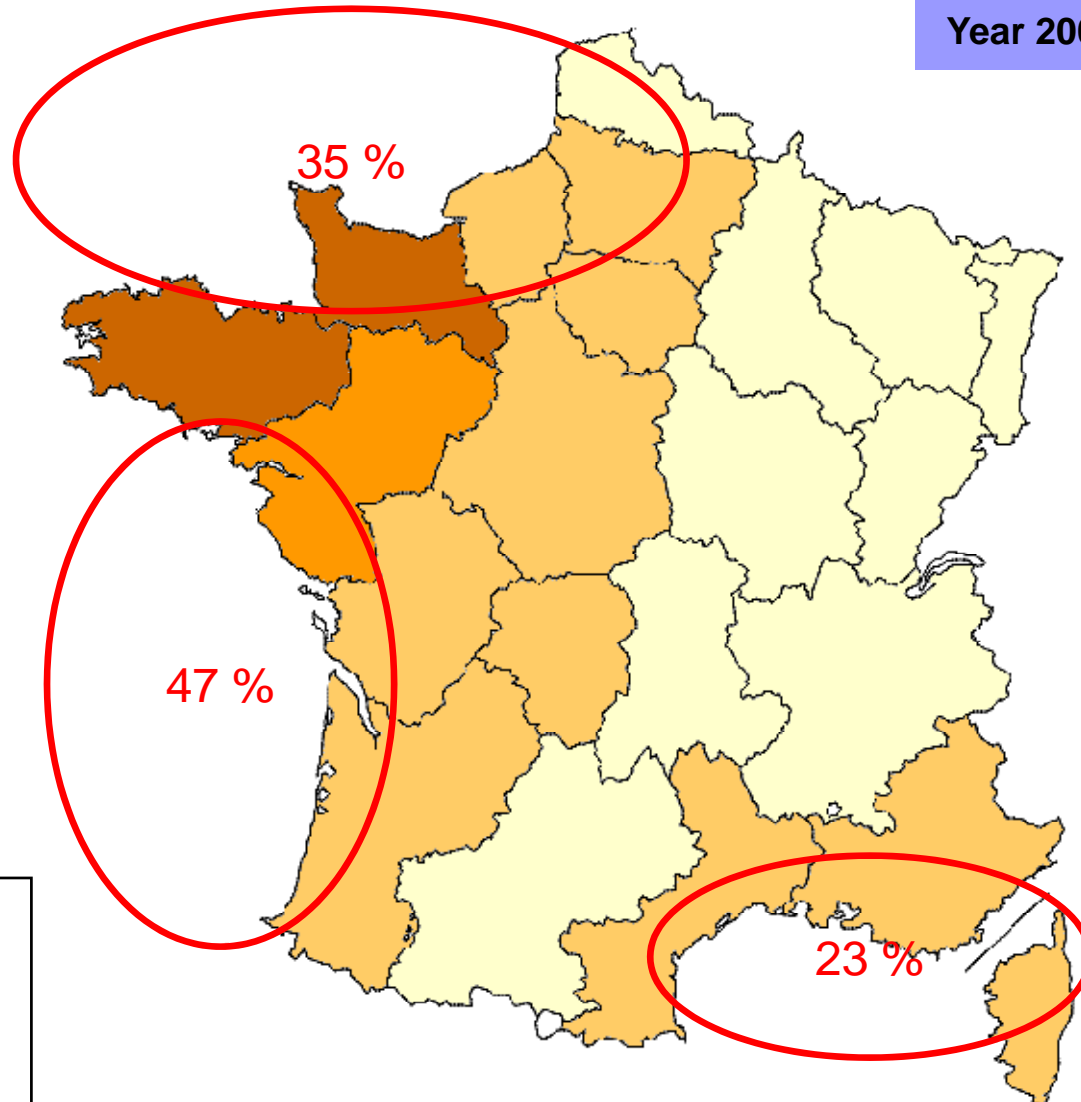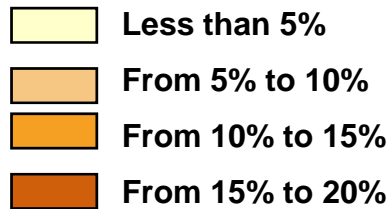
Households having at least
one recreational fishers:
- 11.1 % in littoral areas
- 5.4 % in inland areas

Fishing modes, frequencies and boat owning

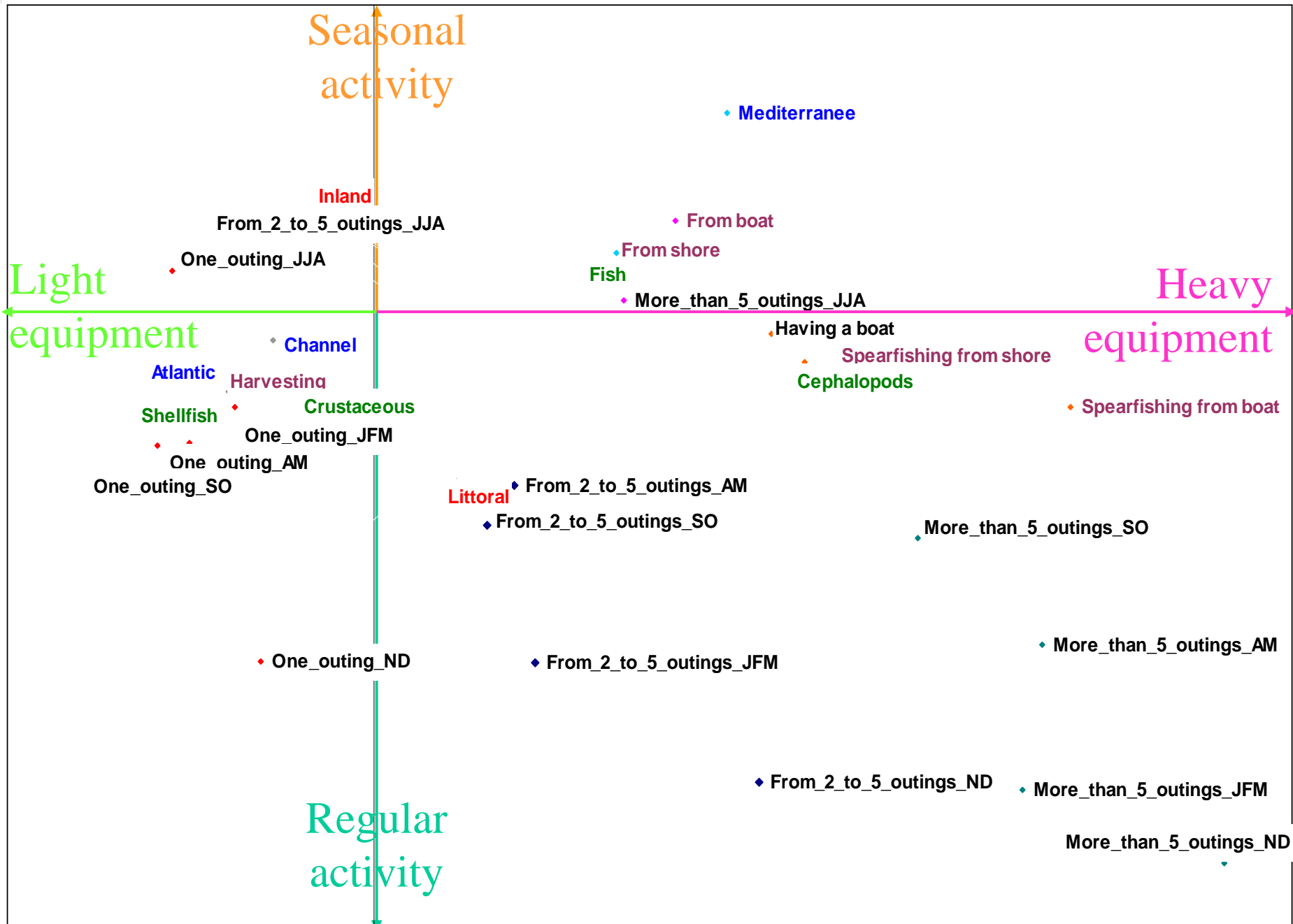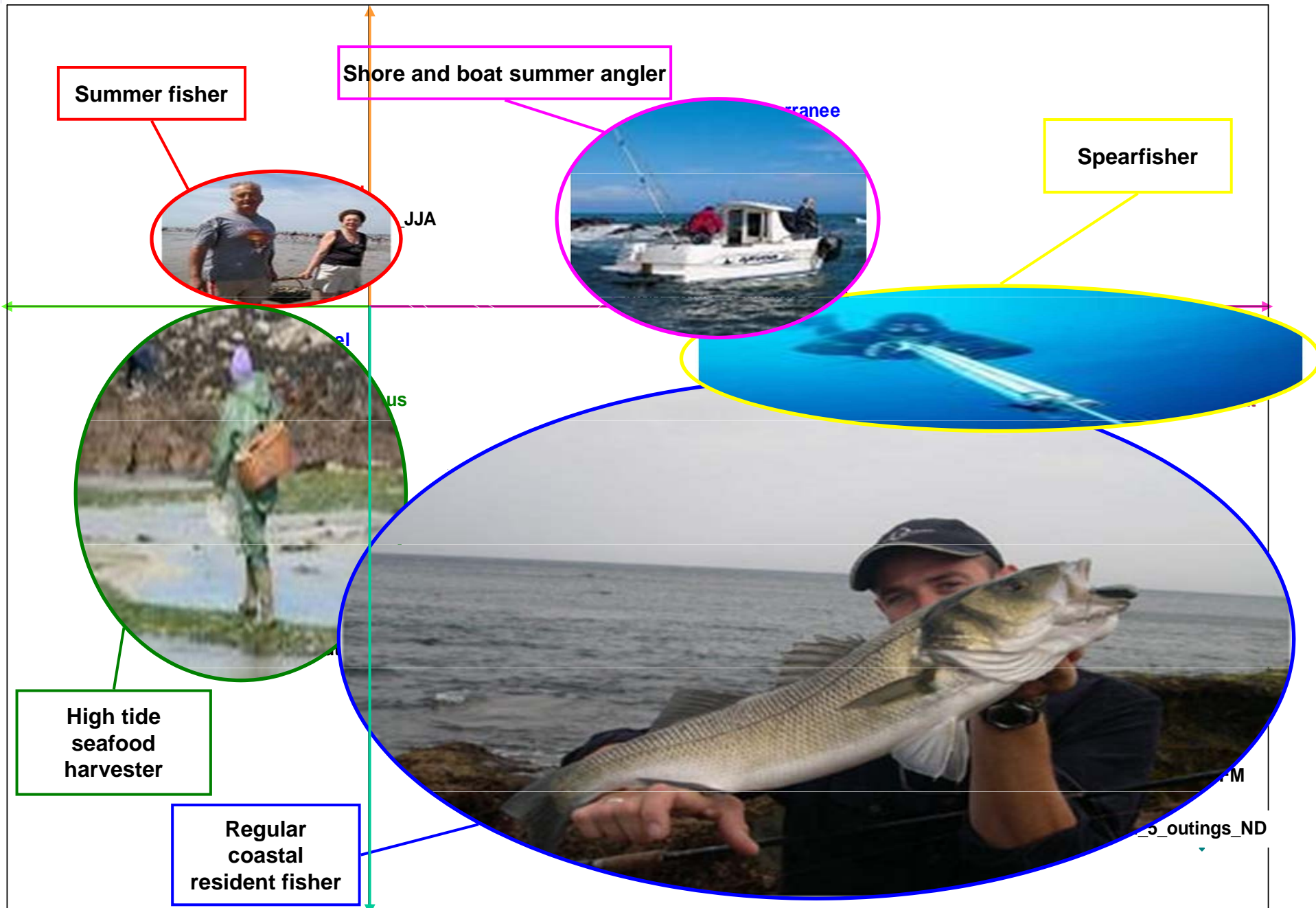|	
Shellfish gathering	**71%**
Shore angling	**33%**
Boat angling	**25%**
Spear fishing from shore	**5%**
Spear fishing on boat	**2%**

Year 2005

Average number of fishing modes : 1.4

Percentage of boat owners : 14 %

Average number of trips per year : 13

More than the half during June, July and August

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Seasonal activity

• Mediterranee

Inland

From_2_to_5_outings_JJA

• **From boat**

One_outing_JJA

• **From shore**

Light equipment

Fish

• **More_than_5_outings_JJA**

Heavy equipment

• Having a boat

• **Channel**

• **Spearfishing from shore**

Atlantic

Harvesting

Cephalopods

Crustaceous

Shellfish

• **Spearfishing from boat**

One_outing_JFM

One outing_AM

One_outing_SO

Littoral

• **From_2_to_5_outings_AM**

• **From_2_to_5_outings_SO**

• **More_than_5_outings_SO**

• **More_than_5_outings_AM**

• **One_outing_ND**

• **From_2_to_5_outings_JFM**

• **From_2_to_5_outings_ND**

• **More_than_5_outings_JFM**

More_than_5_outings_ND

Regular activity

Summer fisher

Shore and boat summer angler

Spearfisher

JJA

ranee

High tide seafood harvester

Regular coastal resident fisher

_outings_ND

Use of the « profiles »

- Same philosophy than commercial fishing monitoring system
  - □ Example of tjhe French Halieutics Information System (SIH) developped by IFREMER
  - □ « Métiers » as unit of reference for describing fishing activities (regarding « gears » and « target species »)
- More precise estimation of effort
- Important information for management
- More efficient sampling frame

Perspectives for the DCR

Perspectives for the DCR

- Make a specific effort for the monitoring of DCR species

- Build a dual monitoring system based on:
  - ☐ a reference frame for recreational fisher population (telephone survey)   REPRESENTATIVNESS
  - ☐ a panel of recreational fishers regarding the DCR species for each fishing zone (on-site survey and logbook) ACCURACY / FEW PARAMETERS

- New philosophy regarding representativness

- Organisation: IFREMER + National statistical institute

2009-2010 : a pilot study for DCR

- Seabass on Atlantic and Channel coasts
- Description of population of seabass recreational fishers based on two previous national surveys (2004 and 2007)
- Randomly digit dialing
- Building of a panel regarding :

  -occasional, regular, intensive fisherman

  -main modes : anglers from shore

  anglers from boat

  spear fisherman from shore

  spear fisherman from boat

- Have a web site tool for panel fishermen to declare monthly their capture and fishing effort
- Correct bias from a national telephone survey