

GAP₂

Bridging the gap between science, stakeholders and policy makers:
Phase 2 – Integration of evidence-based knowledge and its application
to science and management of fisheries and the marine environment

Case Study (no. 10):

“New management strategies for the fishery of the Northwestern
Mediterranean red shrimp *Aristeus antennatus*”

Partners:

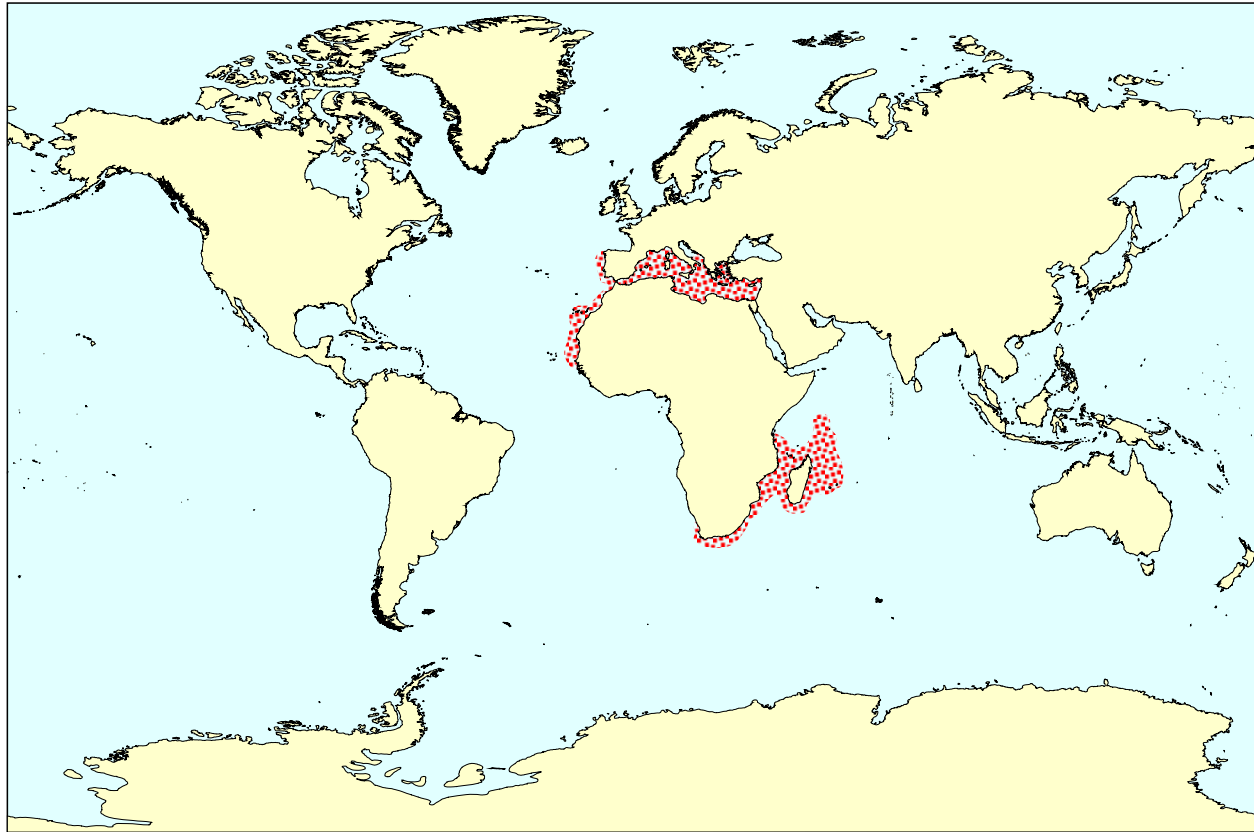
ICM-CSIC (partner #12): Marine Science Institute of the Spanish
Research Council. Participants: Joan B. Company and Francesc
Sardà

RFFOG (partner # 27): Regional Federation of Fishermen
Organisations of Girona (NE Spain). Participant: Pere Brull, Member
of the Fishermen Association of Palamós

Results from the collaborative process initiated during the development of GAP₁:

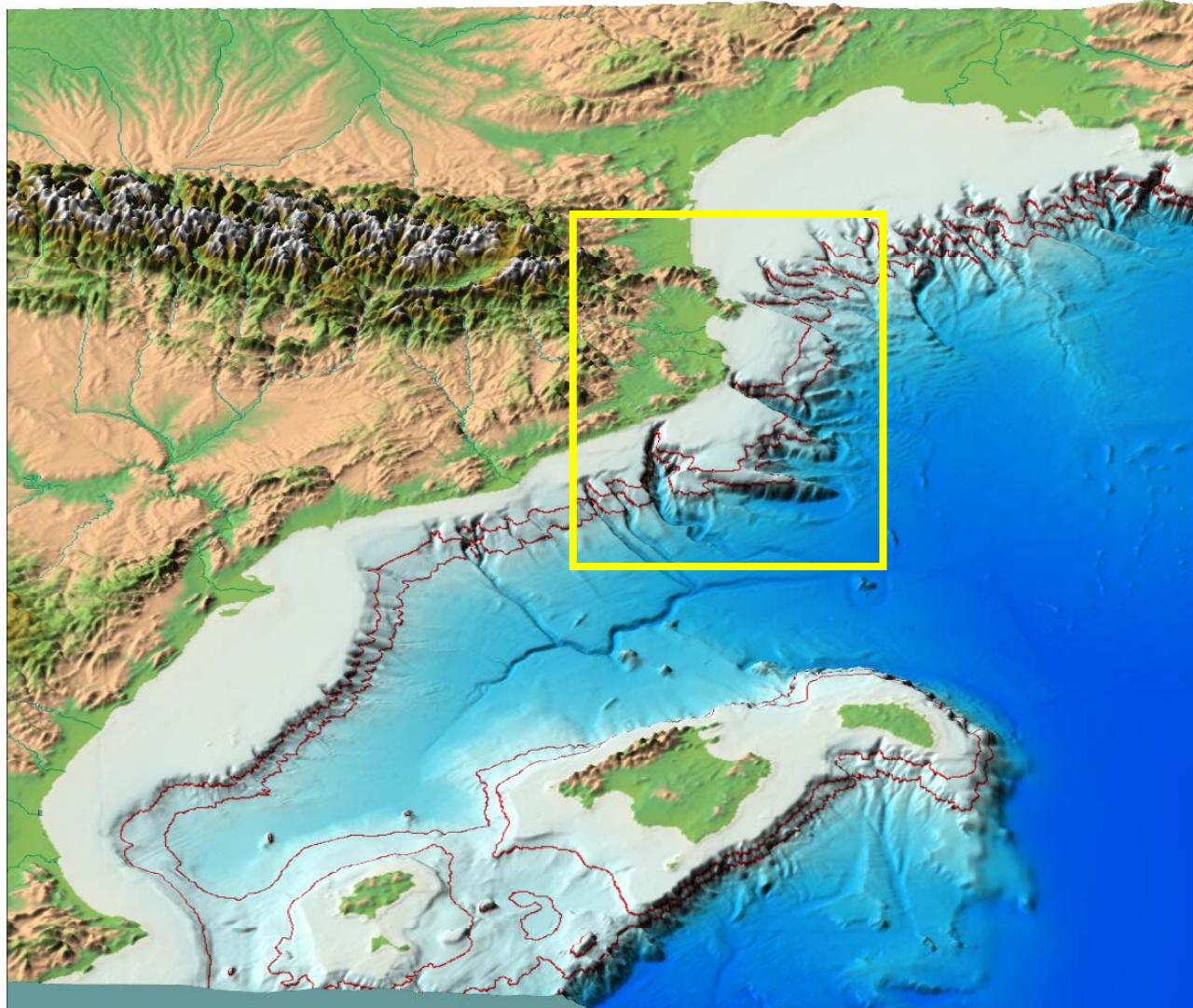
- a) Identification of the target fishery: deep-sea shrimp *Aristeus antennatus*
- b) Identification of the problems that fishermen wanted to study:
 - How to avoid capture of juveniles
 - Identification of areas and season where juveniles are present
- c) Establishment of the collaborative workplan to be developed during GAP₂ proposal

Geographical distribution of the red shrimp



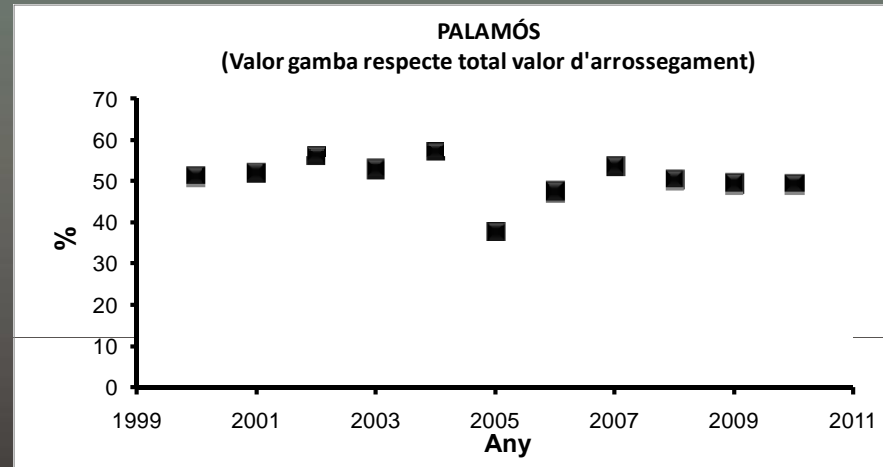
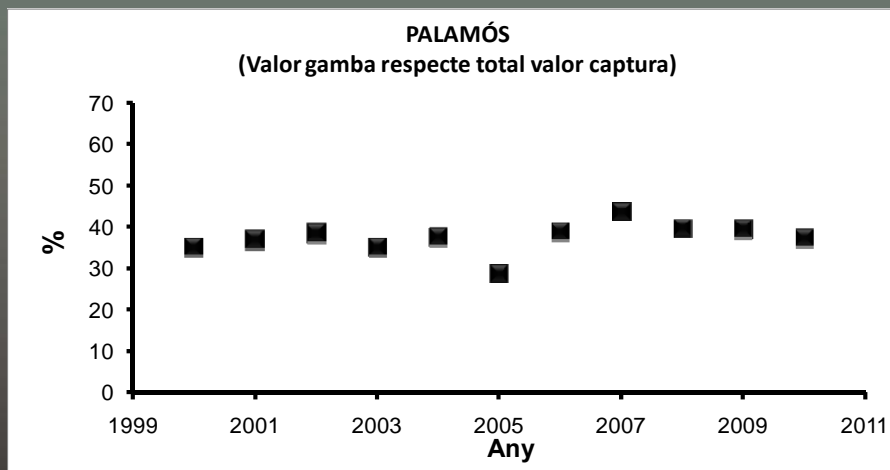
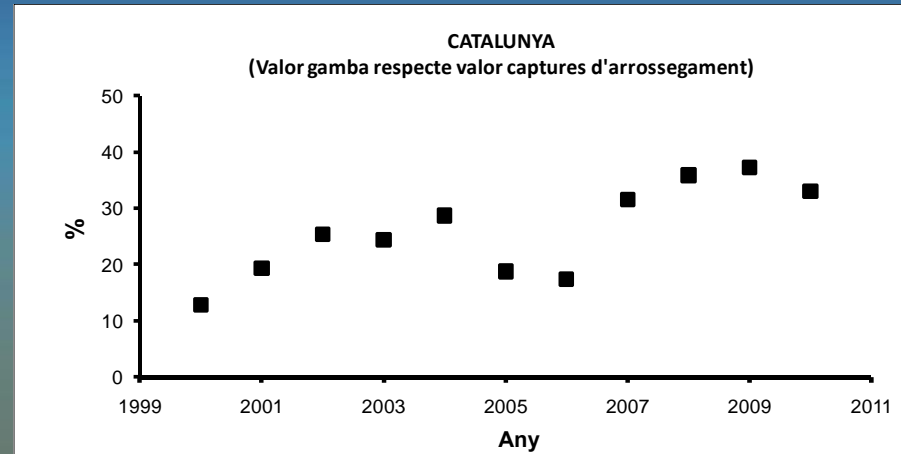
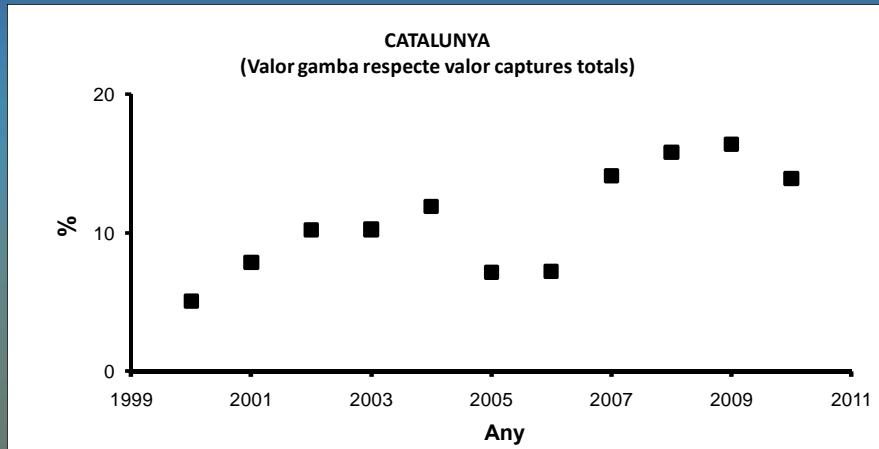
Food and Agriculture Organization (United Nations)

The Catalano-Balearic Sea: Girona region



Red lines: Fishery bathymetric range, between 500 to 900 m depth

Economic importance of the red shrimp

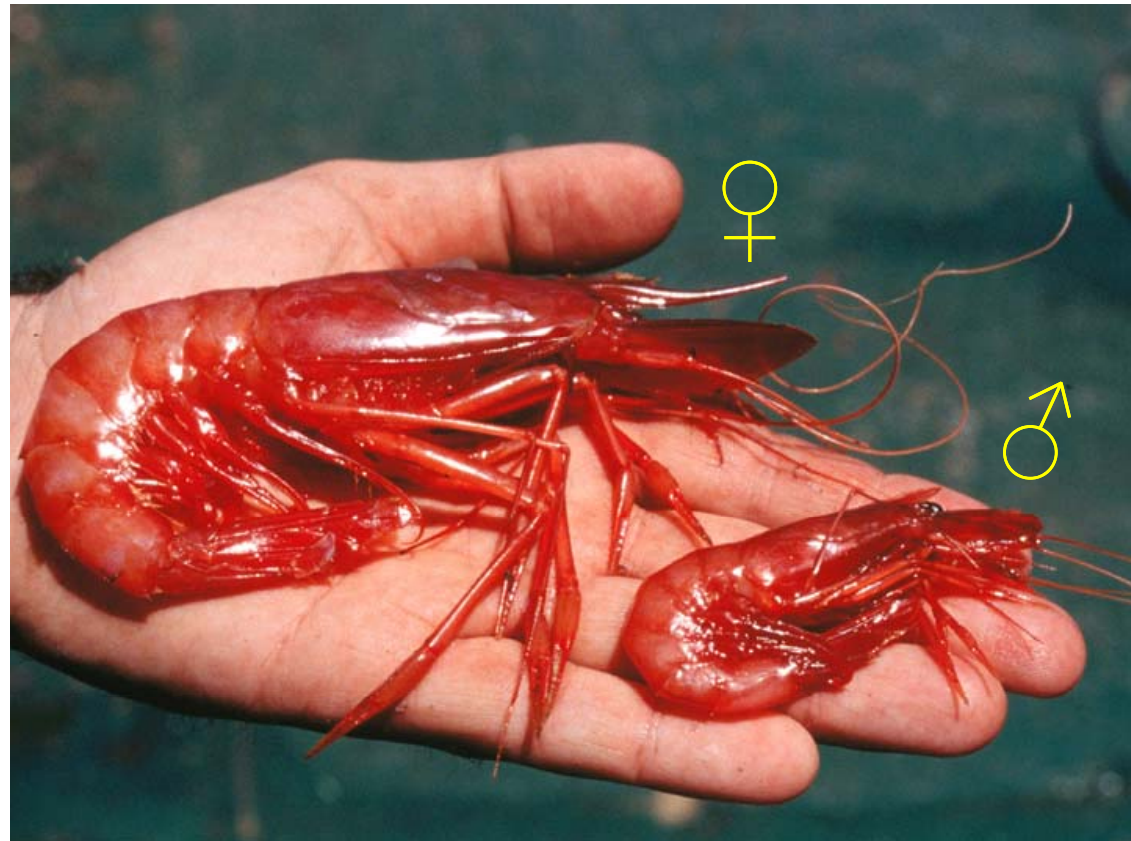


Shrimp total value in Catalonia (years 2000-2010): 144.919.177,82 Euros
Shrimp total value in Palamós (years 2000-2010): 44.003.893,21 Euros

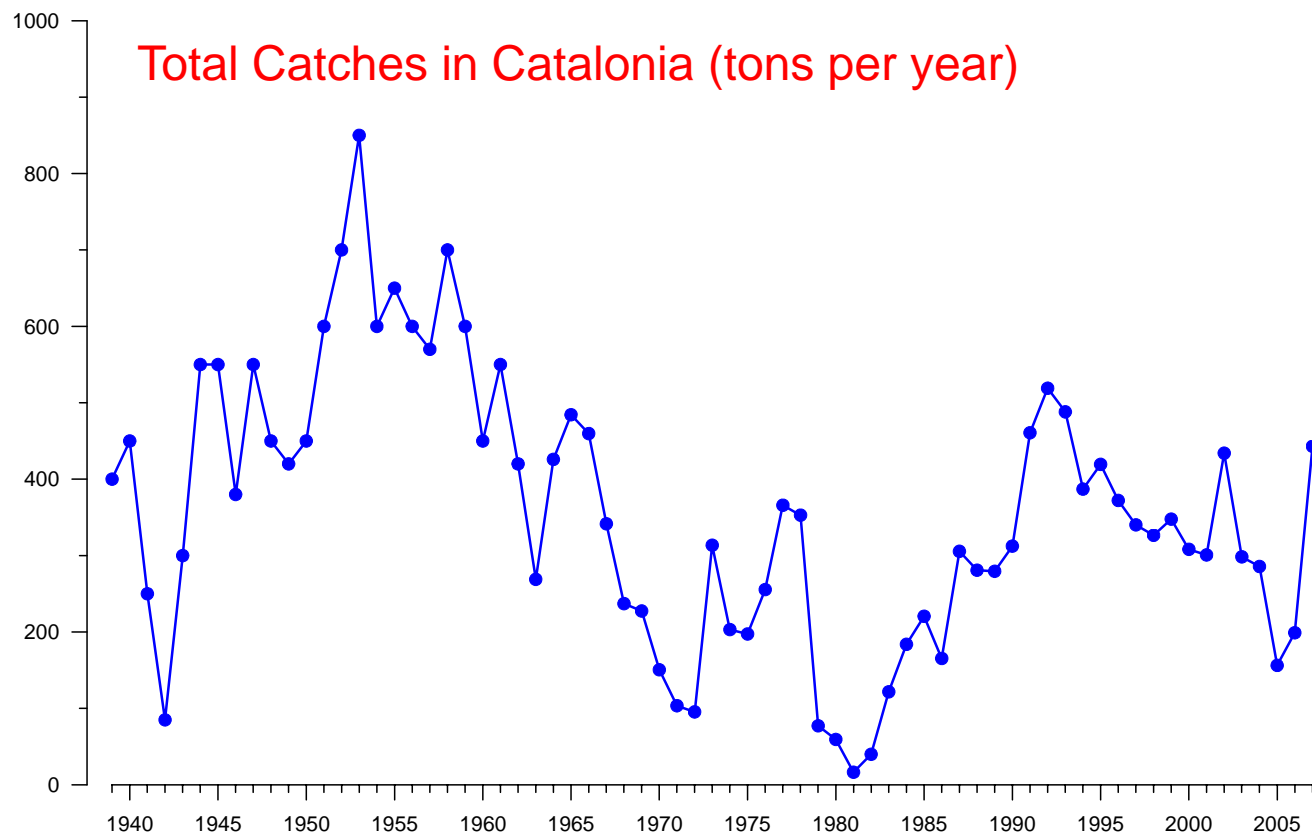
Characteristics of the fleet



Sexual dimorphism of the red shrimp



Interannual landing fluctuations of the red shrimp

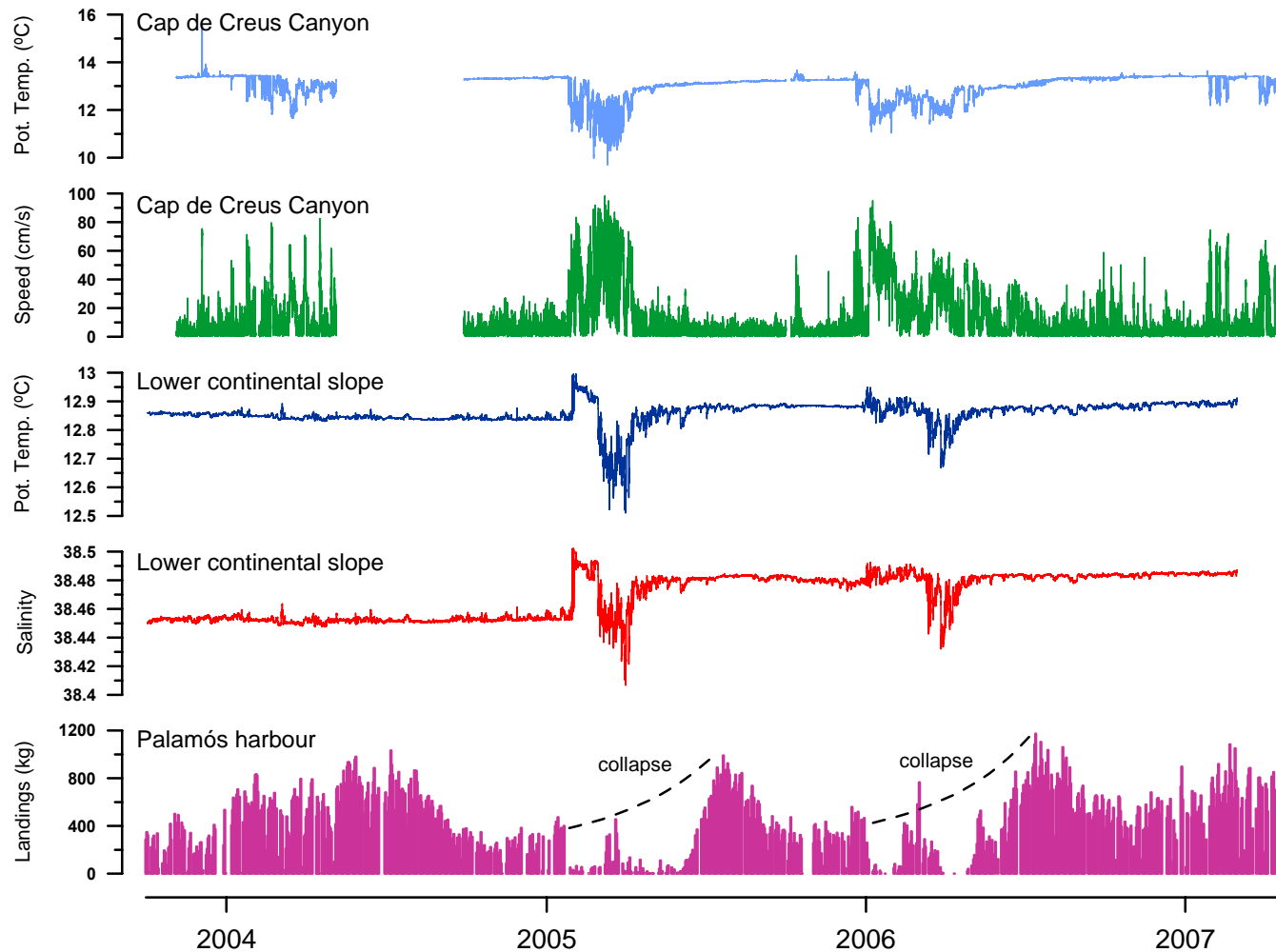


Objectives of the Case Study

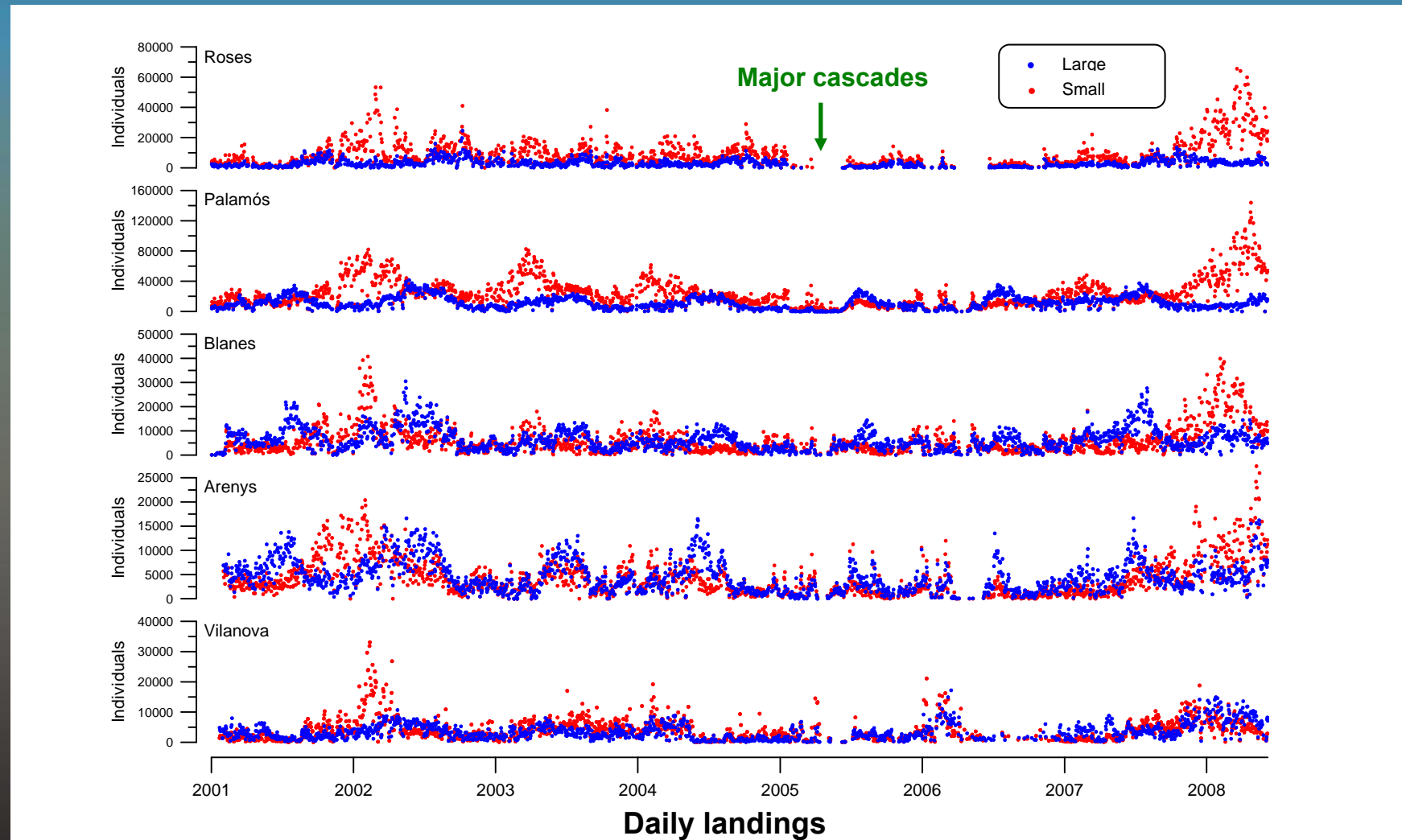
Main aim:

With the present knowledge of the biology and fishery of this species, we (fishermen associations and scientists) pretend to convince the Police Makers (fishery manager administrations: UE, Spanish and Catalan governments) that the fishery of the red shrimp have to be regulated throughout a Fishery Management Plan.

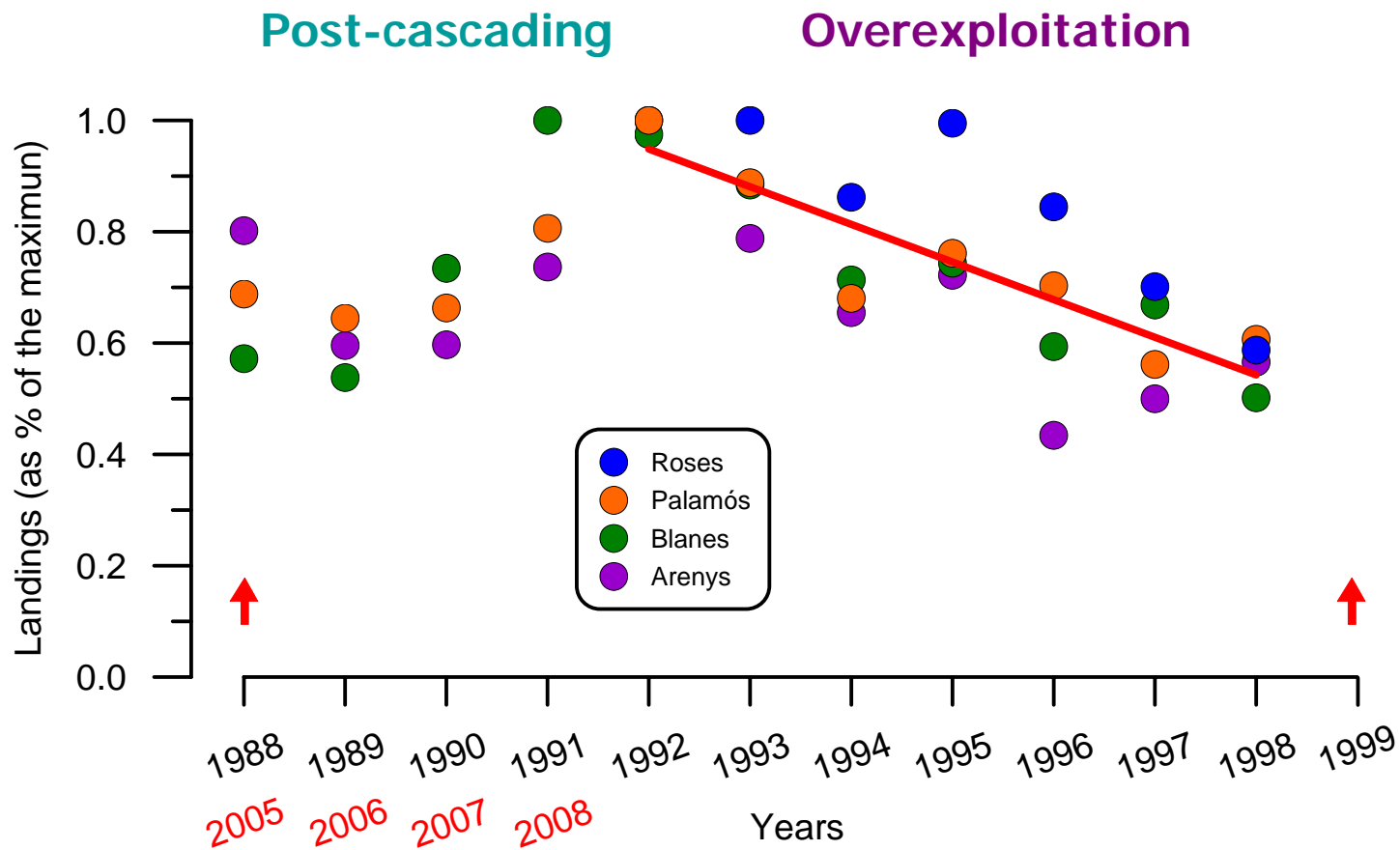
Monitoring dense shelf water cascades in the north-western Mediterranean



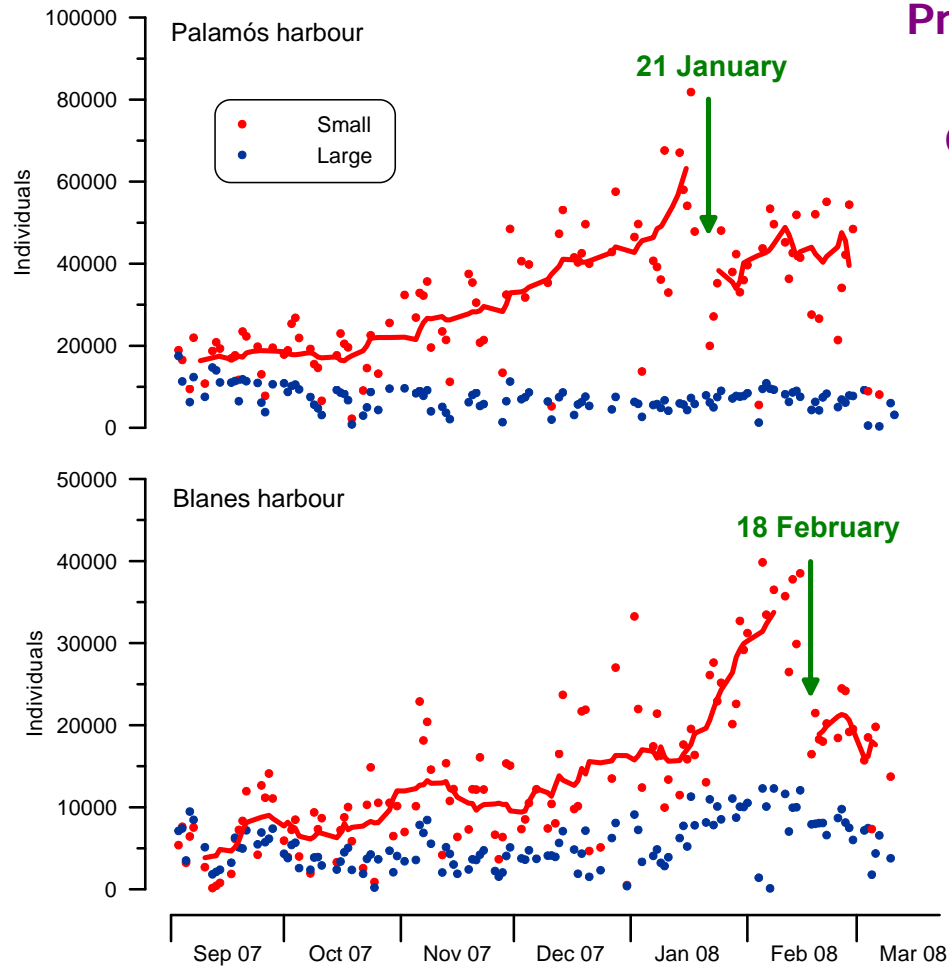
Evidence of a unusual recruitment success after the cascading episode of the year 2005



Evidence of overexploitation effects in *Aristeus antennatus* populations



Self-managing fishery practices towards sustainability



Preservation of juvenile grounds

Change of cod-end mesh size

40 mm (polyester 5 mm)



50 mm (nylon 3 mm)



Specific objectives of Case Study no. 10

1.- Stock evaluation: To evaluate the biomass of the resource and to determine how it respond to this specific exploitation and calculation of the MSY.

Methodologies to capture knowledge: logbook per each single boat and observers.

(Present progress status: field data acquisition started last autumn through financial support from GAP₂).

2.- Pilot action: Research actions to study the effects of the protection of vulnerable phases of the life cycle of the red shrimp. Fishermen's main concern is to protect juveniles by:

a) Selectivity measures by increasing mesh size;

b) Establishing closing areas and seasons.

(Present status: financial support through GAP₂ and negotiations with Catalan government for extra financial support).

3.- Environmental monitoring: to plan ahead the effects of the major cascade events on the interannual catches fluctuations.

(Present status: trying to find financial support from the Research National calls of the Spanish Government).

***Final goal:* to convince police makers and fishery managers to enforce new management strategies for the improvement of the sustainability of the red shrimp fishery exploitation and to develop a Fishery Management Plan**

Collaborative process with stakeholders of Case Study no. 10

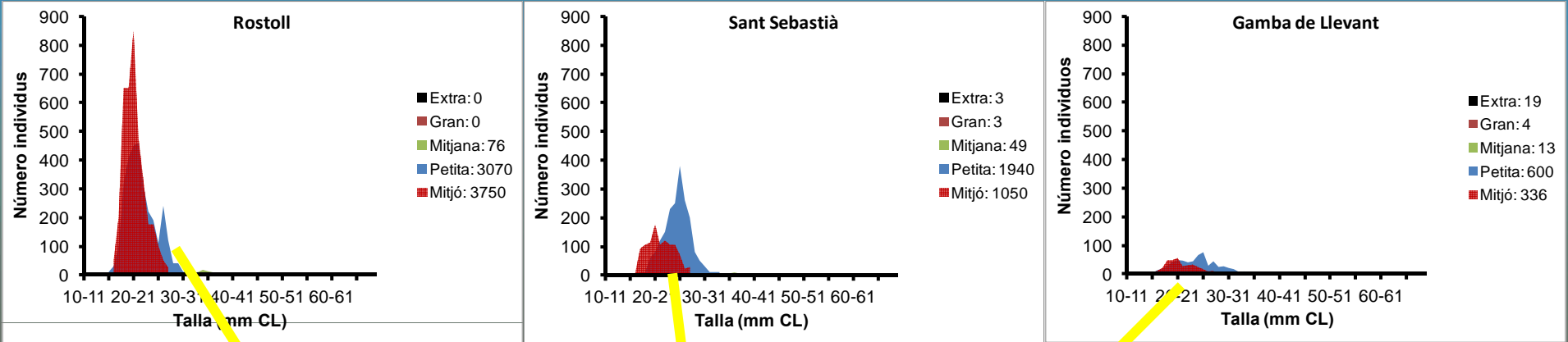
Education process: two regional workshops per year, seminars, ongoing specific talks at small scale, flyers to be distributed to all Fishery Associations of Girona.

Contribution of the stakeholders on the research: open discussions on the societal and economic effects of the potential management initiatives, enquiries to skippers and crew of all fishing boats of the Girona Region.

Direct participation of fishermen in the development of the case study: research facilities, facilitation of having observers on board, logbook daily updates by the entire fleet, fishery statistics of the 3 main harbors.

Future new management plan: agreements to be developed during GAP₃

Closing season and two fishing grounds Palamós (19 January 2012): Juveniles presence at different fishery grounds



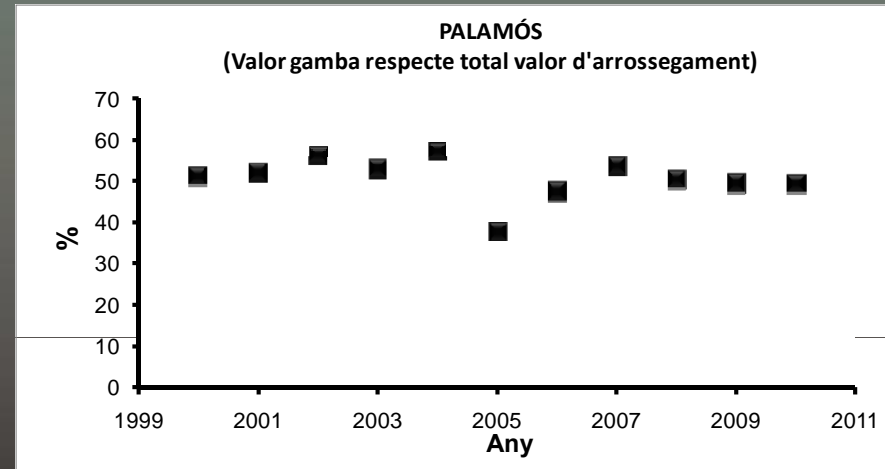
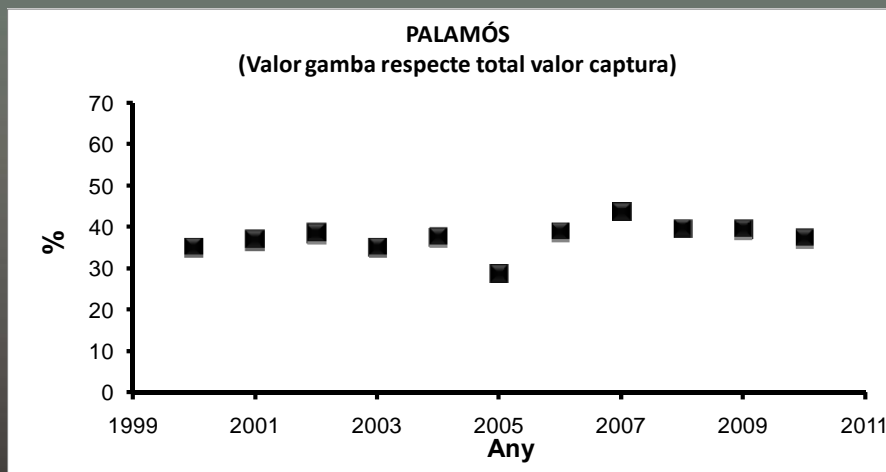
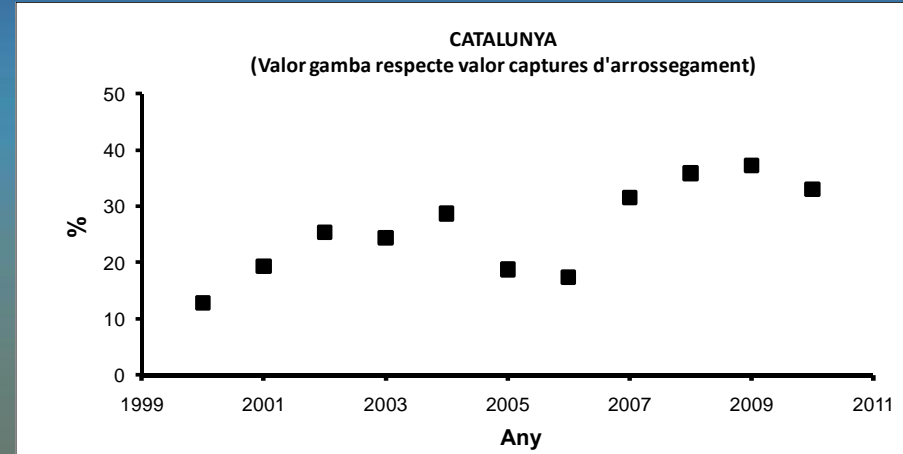
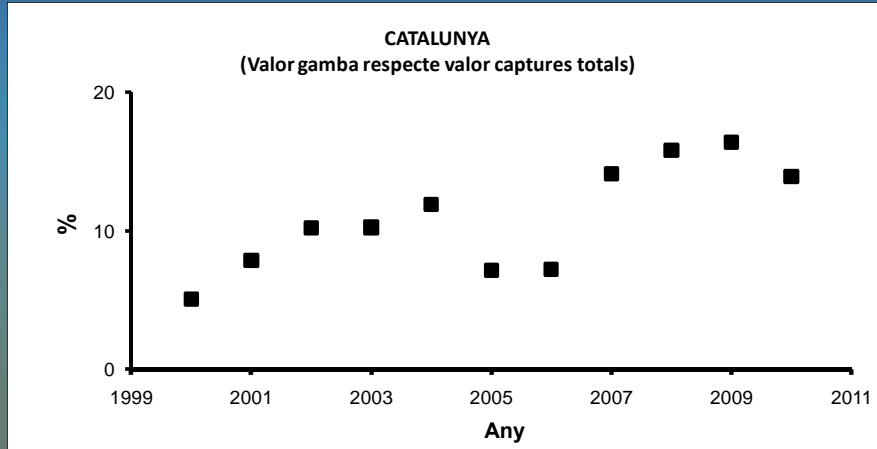
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Economic importance of the red shrimp



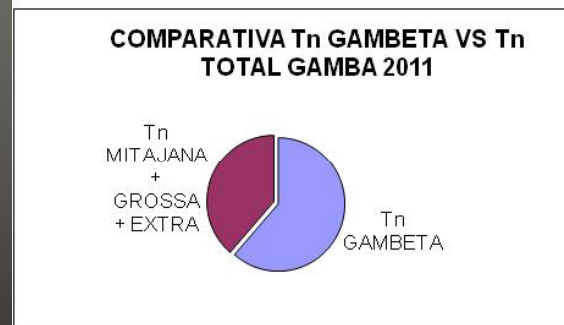
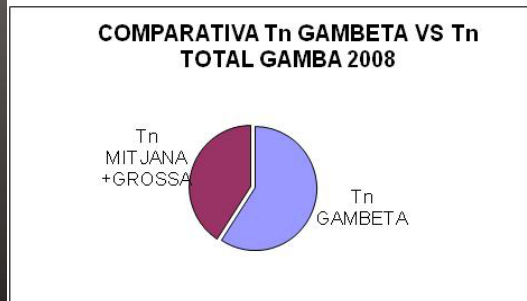
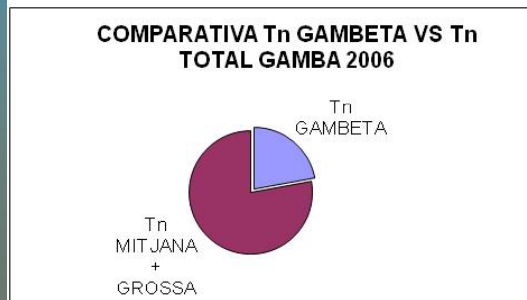
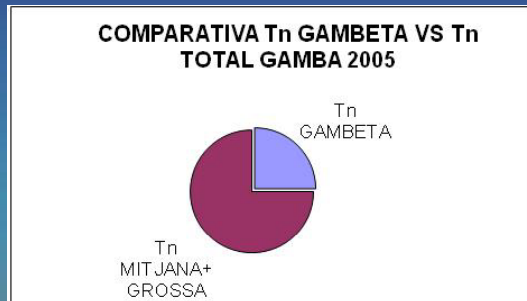
Shrimp total value in Catalonia (years 2000-2010): 144.919.177,82 Euros
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Problem: juveniles are necessary for the economical viability of the fleet

2.011	NOM BARCA	Kg GAMBETA	€ GAMBETA	Kg PEIX TOTAL	€ PEIX TOTAL	% Ingresos gambeta
4	Bahia de Palamós	4.433,70	47.733,16	28.872,14	232.227,20	21
10	Bonomar F.	8.674,10	105.601,81	23.163,90	355.472,48	30
25	Canigó	5.214,91	66.423,21	13.742,66	231.002,72	29
14	Estrella del Sur III	5.544,05	70.213,47	14.119,86	237.507,71	30
16	Nova Gacela	5.601,30	7.246,58	26.261,02	29.545,72	25
15	Germanor	4.185,90	53.692,40	12.867,62	221.009,14	24
19	Germans Gras	6.188,20	77.315,14	13.301,52	230.109,80	34
27	J. Pijoan II	265,57	30.439,67	15.860,60	141.945,60	21
30	Mandorri	4.489,60	54.286,06	61.847,00	364.904,54	15
39	Miguel Cardenal	4.352,95	54.077,20	22.878,32	223.496,53	24
41	Nuevo Siboney	662,60	7.936,60	34.873,19	243.424,40	3
40	Nou Gisbert	5.844,82	73.219,13	32.601,35	345.473,68	21
21	La Puntaire	4.858,50	55.849,54	23.353,02	232.701,83	24
48	Perla IV	3.558,00	41.485,07	63.920,73	312.428,24	13
46	Pepita Martí	4.460,25	62.089,45	20.115,71	254.185,25	24
28	L'Arjau	7.156,20	88.545,89	19.668,45	320.784,55	28
26	L'Espavil	2.425,31	27.541,11	16.720,65	168.899,73	16

Cortesy of Cristina Mañas, Fishery Association of Palamós

Problem: juveniles are necessary for the economical viability of the fleet



**Number individuals
YEAR 2010**

**Medium/Big/Extra:
1.999.230 individuals**

**Juveniles:
13.412.596 individuals**