



GENERAL FISHERIES COMMISSION FOR
THE MEDITERRANEAN
COMMISSION GÉNÉRALE DES PÊCHES
POUR LA MÉDITERRANÉE



SAC GFCM
Sub-Committee on Stock Assessment

SCSA Assessment Forms

> Enter <



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SAC GFCM - Sub-Committee on Stock Assessment (SCSA)

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Colours and symbols meaning

WORKSHEETS

Green ► Not compulsory sheet


Orange ► Compulsory sheet

Red ►  Not completed sheet


Bright green ►  Completed sheet

CELLS

Black asterisk ► * Compulsory sheet/field

Turquoise ►  Compulsory field not yet completed

White ►  Free cell

Light green ►  Cell with the scroll-down menu

Light yellow ►  Auto-complete cell

Excel shortcuts

Ctrl + C Copy
Ctrl + V Paste

Ctrl + X Cut
Ctrl + Z Undo
Ctrl + P Print
Alt + Enter Line break within a cell

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SAC GFCM Sub-Committee on Stock Assessment

SCSA Assessment Forms Release 2 (2007) beta version

Since the SAC, and SCSA, inception (1999) a set of assessment forms were made available to scientists in order to provide a common framework to present assessments.

It has been decided to present a new release of these forms to facilitate their use. We took advantage of these upgrade to modify and amend some aspects. We would like to receive comments and suggestions from the users in order to improve the forms.

The structure of this new release is basically the same. The differences are:

- Migration from Word to Excel
- Some fields (yellow) are filled automatically
- Some sheets have been added
 - o A cover sheet with title, authors, species and GSAs
 - o A new sheet "other" allowing to include assessments based on methodologies other than the usual ones.
 - o An abstract sheet to be included (copy/paste) in the SCSA report
- It is more clear what sheets or fields are compulsory to fill
- The sheets for direct methods have not been yet upgraded

Excerpts from the presentation of 1st version of the assessment forms (1999), however the sheet "other" can be used in such a case

Each assessment consists of several sheets. Each assessment will take, at least, one sheet of paper numbered "0" (Sheet #0) and will also include no less than one copy of sheets "B", "P1" and "P2a" (now using the current "operational units" terminology). It is not compulsory to fill out any of the other sheets that make up this assessment form, but the person in charge is supposed to fill out some of them: otherwise no assessment is actually made. There may be more than one copy in several cases. Sheets "D" (diagnosis) and "Z" (conclusions and recommendations) should be considered as essential too.

Sheet	Title	Contents	# of sheets	Priority
0	Preliminary basic data on the assessment	Species, person in charge, date and code. All the sheets that belong to the same assessment share this code.	1	Indispensable
B	Biology of the species	Biological parameters used in the analyses (it is assumed that only one set of parameters is used).	1	Indispensable
P1	General information about the fishery	Catches by gear and associated fleet.	1 or more	Indispensable
P2a	Fishery by Operational Unit	Time series for the operational in question, including structure by size (or age).	At least as many as the OU numbers	Indispensable
P2b	Fishery by Operational Unit	Accompanying species and regulations applicable to operational unit.	At least as many as the OU numbers	If available
G	Indirect methods: global model	Description of model, data, parameters and results of each analysis.	As many as used in the analysis	If available
A1	Indirect methods: VPA, LCA	Description of model used and of general results of an analysis.	As many as used in the analysis	If available
A2	Indirect methods: data	Description of data used by gear for the analysis in A1.	As many as used in the analysis by OU	If available, requires A1
A3	Indirect methods: results of VPA	Detailed description of results by gear, structured by size or age.	As many as used in the analysis by OU	If available, requires A1
Y	Indirect methods: Y/R	Description of model, data, parameters and results.	As many as used in the analysis	If available
Other	Other assessment methods	Description of model, data, parameters and results of other assessment methods not included in the previous sheets.	1	If available
D	Diagnosis	Synthesis of results of analyses and diagnosis on the state of resources.	1	Indispensable
Z	Objectives and recommendations	Set the objectives to be attained and recommendations for their attainment.	1	Indispensable

C	Comments	At the option of the person in charge.	Unspecified	If available
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DPS0608Gar

García-Rodríguez2* M., J. L. Pérez-Gil1, A. Esteban1, E. Barcala1 and N. Carrasco1

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Source: GFCM Priority Species

Source: -

Source: -

Mediterranean Balearic 37.1.1 FAO

06 - Northern Spain

SAC GFCM - Sub-Committee on Stock Assessment (SCSA)	
Assessment form	Sheet #0 Basic data on the assessment

Code: DPS0608Gar

Date*	5	Aug	2008	Authors*	García-Rodríguez ² M., J. L. Pérez-Gil ¹ , A. Esteban ¹ , E. Barcala ¹ and N. Carrasco ¹
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Species Scientific name*	Parapenaeus longirostris - DPS	Species common name*	Rose shrimp Gamba blanca
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Data Source

GSA*	06 - Northern Spain	Period of time*	2001-2007
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Description of the analysis

Type of data*	Size composition of commercial landings	Data source*	I.E.O. Sampling and Information Network.
Method of assessment*	Extended Survivor Analysis (XSA); Y/R	Software used*	VIT ; Lowestof VPA suite ; FLR

Sheets filled out

B	P1	P2a	P2b	G	A1	A2	A3	Y	Other	D	Z	C
1	1	#REF!	---	#REF!	#REF!	1	4	#REF!	#REF!	1	1	#REF!

Comments, bibliography, etc.

ABELLÓ, P., A. ABELLA, A. ADAMIDOU, S. JUKIC-PELADIC, P. MAIORANO & M. T. SPEDICATO, 2002. Geographical patterns in abundance and population structure of *Nephrops norvegicus* and *Parapenaeus longirostris* (Crustacea: Decapoda) along the European Mediterranean coasts. *Scientia Marina*, 66: 125–141.

GARCÍA-RODRÍGUEZ, M., J. L. PÉREZ GIL, E. BARCALA, N. CARRASCO & A. ESTEBAN, 2007. Biology (growth and reproduction) of the Mediterranean deep-water rose shrimp (*Parapenaeus longirostris* Lucas, 1846), Crustacea, Decapoda) from the Alicante Gulf (S.E. Spain). *Rapp. Comm. int. Mer Méditerranée*, 38: 482.

GARCÍA-RODRÍGUEZ, M., J. L. PÉREZ GIL, E. BARCALA, 2008. Some biological aspects of *Parapenaeus longirostris* (Lucas, 1846) (Decapoda, Dendrobranchiata) in the Gulf of Alicante (S: E. Spain). *Crustaceana*, (in press).

GUIJARRO, B. & E. MASSUTI, 2006. Selectivity of diamond- and square-mesh codends in the deepwater crustacean trawl fishery off the Balearic Islands (western Mediterranean). *ICES Journ. mar. Sci.*, 63 (1): 52-67.

IHAKA, R. & R. GENTLEMAN, 1996. R: A language for data analysis and graphics. *Journal of Computational and Graphical Statistics*, 5 (3): 299-314. <http://www.amstat.org/publications/jcgs/>.

KAPIRIS, K., 2004. Feeding ecology of *Parapenaeus longirostris* (Lucas, 1846) (Decapoda: Penaeidae) from the Ionian Sea (central and eastern Mediterranean Sea). *Scientia Marina*, 68 (2): 247-256.

Comments, bibliography, etc.

Sheet #0 (page 2)

RINELLI, P., D. GIORDANO & FL. PERDICHIZZI, 2005. Trawl gear selectivity on the deep-water rose shrimp (*Parapenaeus longirostris* Lucas, 1846) in the Southern Tyrrhenian Sea (central Mediterranean). *Cah. Biol. Mar.*, 46 (1): 1-7.

SANPEDRO, P., M. SAINZA, & V. TRUJILLO, 2005. A simple tool to calculate biological parameters' uncertainty. Working Document. In: Workshop on Sampling Design for Fisheries Data. Pasajes (Spain).

SBRANA, M., P. SARTOR & P. BELCARI, 2003. Analysis of the factors affecting crustacean trawl fishery catch rates in the northern Tyrrhenian Sea (western Mediterranean). *Fisheries Research*, 65 (1-3): 271-284.

SBRANA, M., C. VIVA & P. BELCARI, 2006. Fishery of the deep-water rose shrimp *Parapenaeus longirostris* (Lucas, 1846) (Crustacea: decapoda) in the northern Tyrrhenian Sea (western Mediterranean). *Hydrobiologia*, 557:135–144.

SOBRINO, I., C. SILVA, M. SBRANA & K. Kapisir, 2005. A review of the biology and fisheries of the deep water rose shrimp, *Parapenaeus longirostris*, in European Atlantic and Mediterranean waters (Decapoda, Dendrobranchiata, Penaeidae). *Crustaceana*, 78: 1153-1184.

SAC GFCM - Sub-Committee on Stock Assessment (SCSA)	
Assessment form	Sheet B Biology of the species

Code: DPS0608Gar

Biology	Somatic magnitude measured (LH, LC, etc)*			CL	Units*	mm
	Sex	Fem	Mal	Both	Unsexed	
Maximum size observed		42	34	42		Reproduction season
Size at first maturity		25,6				Reproduction areas
Recruitment size				10		Nursery areas
						Edge of continental

Parameters used (state units and information sources)

		Sex				
		Units	female	male	both	unsexed
Growth model	L_{∞}	mm			45	
	K	year ⁻¹			0,39	
	t0	year			-0,1019	
	Data source	García-Rodríguez et al, 2008.				
Length weight relationship	a				0,0019	
	b				2,611	
M		1,25				
sex ratio (mal/fem)		1,23				

Comments

The parameters of the size-weight relationship estimated in this study are similar to those calculated by other authors, both in the Total Length-Carapace Length linear relationship for the Gulf of Cadiz (Sobrino, 1998), as well as for the Total Weight-Carapace Length potential relationship for Atlantic waters of southern Portugal (Ribeiro-Cascalho & Arrobas, 1987) and in the Aegean Sea (Tosunoglu et al., 2007), where the values of the allometry coefficient b were also lower than 3, especially in the males.

The estimates made for the VBGF parameters show, that, although the L_{inf} values were similar, the values for the growth rate (K) calculated in this study are lower than those presented by other authors both for the Mediterranean (Ardizzone et al., 1990; D'Ongia et al., 1998) and for the Atlantic (Ribeiro-Cascalho, 1988; Sobrino, 1998), with males exhibiting higher growth rates than females. From these results, the estimated sizes per age class show that the males would reach 13.2 mm CL and the females 14.8 mm CL in the first year, which would indicate a life expectancy of 4 and 6 years for males and females, respectively. These results yield a life span twice as long as the 2 and 3 years, for males and females, that Froglia (1982) found for Sicilian waters and Sobrino et al. (2005) in the Atlantic waters of the Gulf of Cadiz, as attributed to each generation of *P. longirostris*.

SAC GFCM - Sub-Committee on Stock Assessment (SCSA)

Assessment form

Sheet P1

General information about the fishery

Code: DPS0608Gar

Data source*	I.E.O. Sampling and Information Network.	Year (s)*	2001-2007
Data aggregation (by year, average figures between years, etc.)*	By year		

Fleet and catches (please state units)

	Country	GSA	Fleet Segment	Fishing Gear Class	Group of Target Species	Species
Operational Unit 1*	ESP	06	E - Trawl (12-24 metres)	03 - Trawls	33 - Demersal shelf species	DPS
Operational Unit 2						
Operational Unit 3						
Operational Unit 4						
Operational Unit 5						

Operational Units*	Fleet (n° of boats)*	Kilos or Tons	Catch (species assessed)	Other species caught	Discards (species assessed)	Discards (other species caught)	Effort units
ESP 06 E 03 33 - DPS	600	Tons	373				boat/day
Total	600		373				

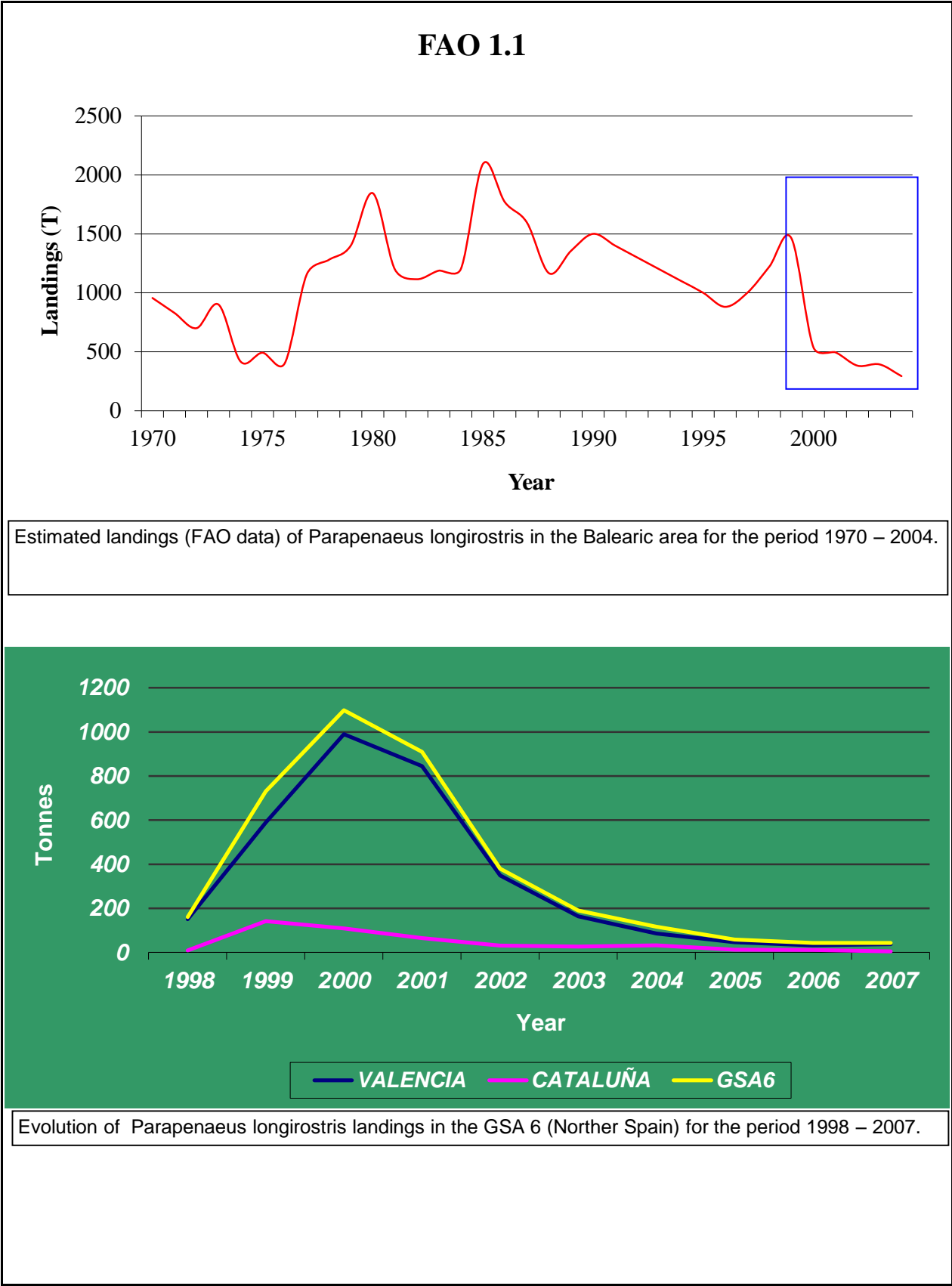
Legal minimum size	
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Comments

From official data, the total trawl fleet of the whole geographical sub-area 06 (Northern Spain) is made up by 647 boats: on average, 47 TRB, 58 GT and 297 HP. Some of these units (smaller vessels) operate almost exclusively on the continental shelf (targeted at red mullet, octopus, hake and sea breams), others (bigger vessels) operate almost exclusively on the continental slope (targeted at decapod crustaceans) and the rest can operate indistinctly on the continental shelf and slope fishing grounds, depending on the season, the weather conditions and also economic factors (e.g. landings price). The percentage of these trawl fleet segments have been estimated* around 30, 40 and 30% of the boats, respectively.

Sheet P1 (page 2)

Comments



SAC GFCM - Sub-Committee on Stock Assessment (SCSA)

Assessment form

Sheet P2a

Fishery by Operational Unit

Code: DPS0608Gar

#REF!

Data source*	I.E.O. Sampling and Information Network.	OpUnit 1*	ESP 06 E 03 33 - DPS
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Time series

Year*	2001	2002	2003	2004	2005	2006
Catch	909,7	379,7	189,8	117,0	58,9	42,7
Minimum size	10	13	12	11	14	15
Average size Lc	24,2	24,2	26,4	25,4	26,8	27,0
Maximum size	41	41	41	41	43	42
Fleet	600	600	600	600	600	600

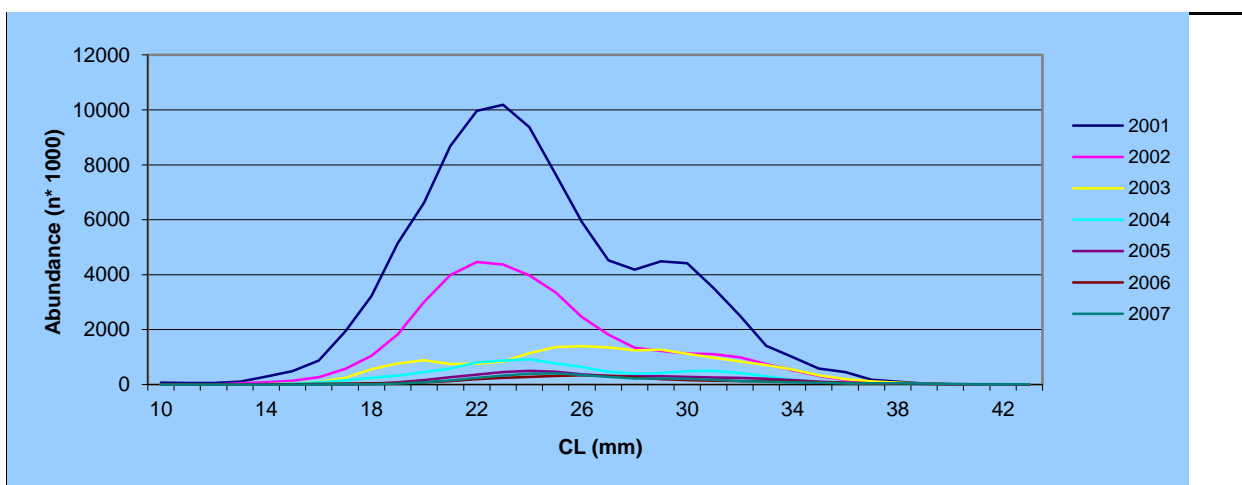
Year	2007					
Catch	42,8					
Minimum size	16					
Average size Lc	27,0					
Maximum size	43					
Fleet	600					

Selectivity

Remarks

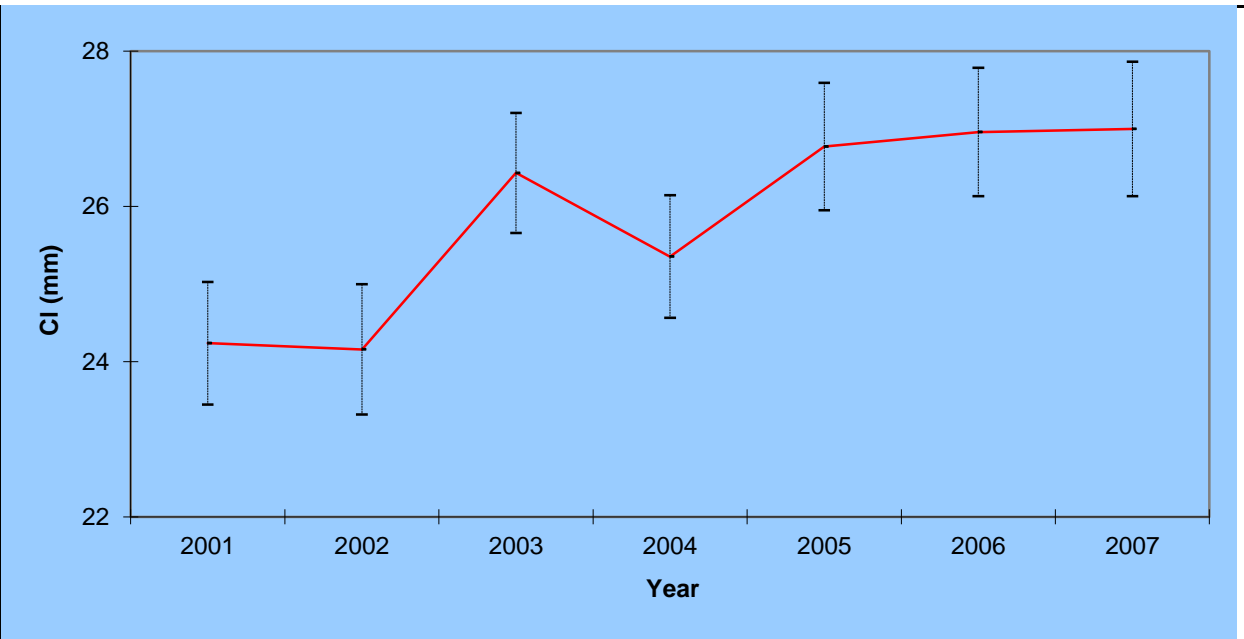
L25	16,3	MASSUTI, E., B. GUIJARRO, R. MAS & M. ^a M. GUARDIOLA, 2005. Selectividad de artes de arrastre en aguas de Mallorca (Illes Balears). Inf. Téc. Inst. Esp. Oceanogr., 184. 58 pp.
L50	17,5	
L75	18,7	
Selection factor		

Structure by size or age



Size class distribution of the landings. Yearly average contribution for the 2001-2007 period.

Structure by size or age



Yearly average length observed in the 2001-2007 landings.

SAC GFCM - Sub-Committee on Stock Assessment (SCSA)	
Assessment form	Sheet P2b Fishery by Operational Unit

Code: DPS0608Gar
####

Data source*		OpUnit 1*	ESP 06 E 03 33 - DPS
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Regulations in force and degree of observance of regulations

<ul style="list-style-type: none"> - Fishing license : fully observed - Engine power limited to 316 KW or 500 HP: not fully observed - Mesh size in the codend (40 mm stretched): fully observed - Fishing forbidden within upper 50 m depth: not fully observed - Time at sea (12 hours per day and 5 days per week): fully observed

Accompanying species

<ul style="list-style-type: none"> - Conger conger - Galeus melastomus - Helicolenus dactylopterus - Lepidopus caudatus - Lepidorhombus spp. - Lophius spp. - Merluccius merluccius - Micromesistius poutassou - Mullus barbatus - Mullus surmuletus - Nephrops norvegicus - Octopus vulgaris - Pagellus bogaraveo - Phycis blennoides - Scyliorhinus canicula - Scorpaena spp. - Trisopterus minutus capelanus 	

#REF!

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SAC GFCM - Sub-Committee on Stock Assessment (SCSA)	
Assessment form	Sheet A1 Indirect methods: VPA, LCA

Sex*	B	Code: DPS0608Gar	#REF!
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Time series	Analysis # *	VPA
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Data	Size	Age	Model	Cohorts	Pseudocohorts
(mark with X)		X	(mark with X)	X	

Equation used	Catch equation	Tuning method	XSA
# of gears	1	Software	Lowestof VPA suite; FLR
F _{terminal}			

Population results (please state units)

	Sizes	Ages		Amount	Biomass
Minimum	10	0	Recruitment	806941 (mill)	6656 mt
Average	11,403	0,73	Average population	6E+05 (mill)	1E+06 mt
Maximum	44	10	Virgin population		1333798 mt
Critical	15,73	1	Turnover		143,5
				B(max)/B(mean)	43,6
				B(max)/D	30,4

Average mortality

		Gear					
	Total	Trawl					
F ₁	0,25	Fterm					
F ₂	0,46	Fbar 2-4					
Z	1,5						

(F1 and F2 represent different possible calculations. Please state them)

Comments

SAC GFCM - Sub-Committee on Stock Assessment (SCSA)

Assessment form

Sheet A2

Indirect methods: data

Code: DPS0608Gar

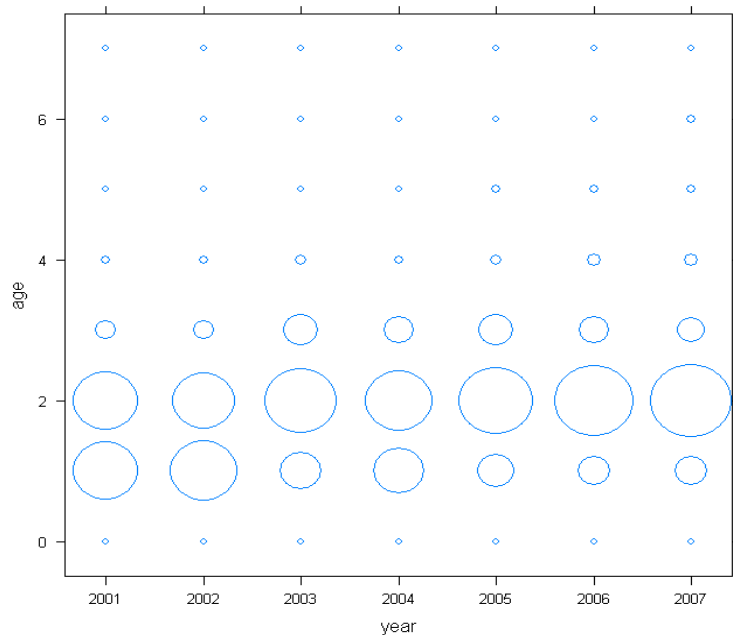
Sex* B Gear* Trawl

Analysis # * VPA

Data Catch number by age

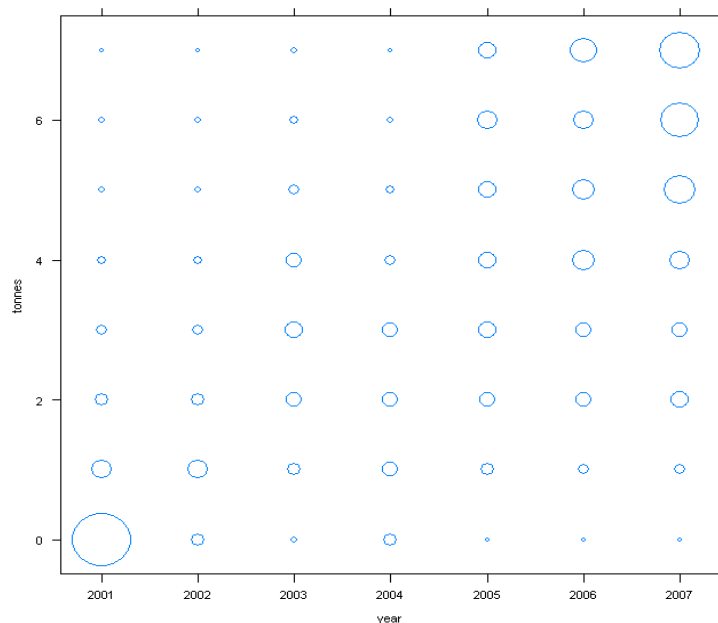
Data

Proportion at age for rose shrimp in GSA 6



Exploitation is based on very young age classes, mainly 2 and 1 year old individuals, indicating a dependence on recruitments.

Relative catch proportion at age for rose shrimp in GSA 6



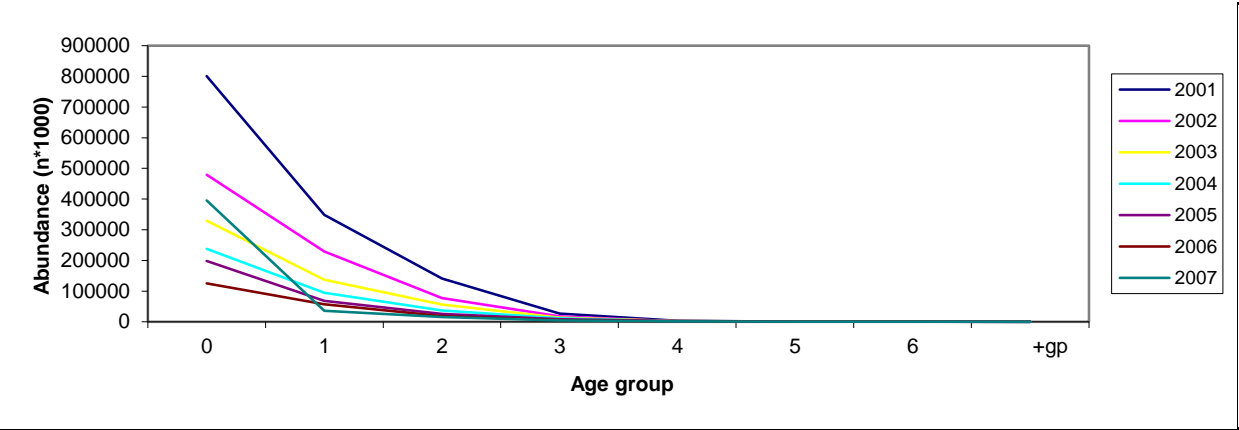
Landings have been passed to be dominated by immature animals (2001-2002) to mature since 2003 onwards.

Code: DPS0608Gar

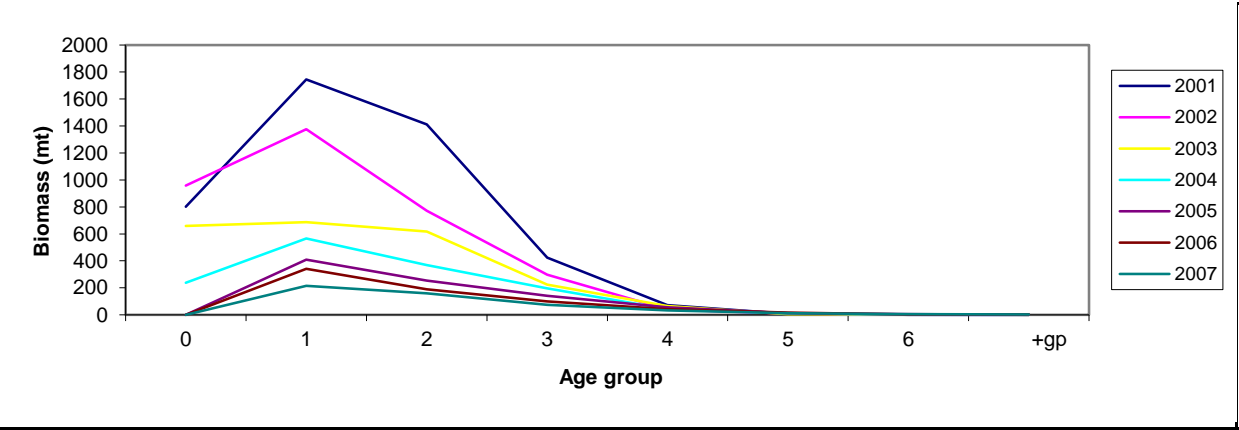
Page 1 / 4

Sex*	B	Gear*	Trawl	Analysis #*	VPA
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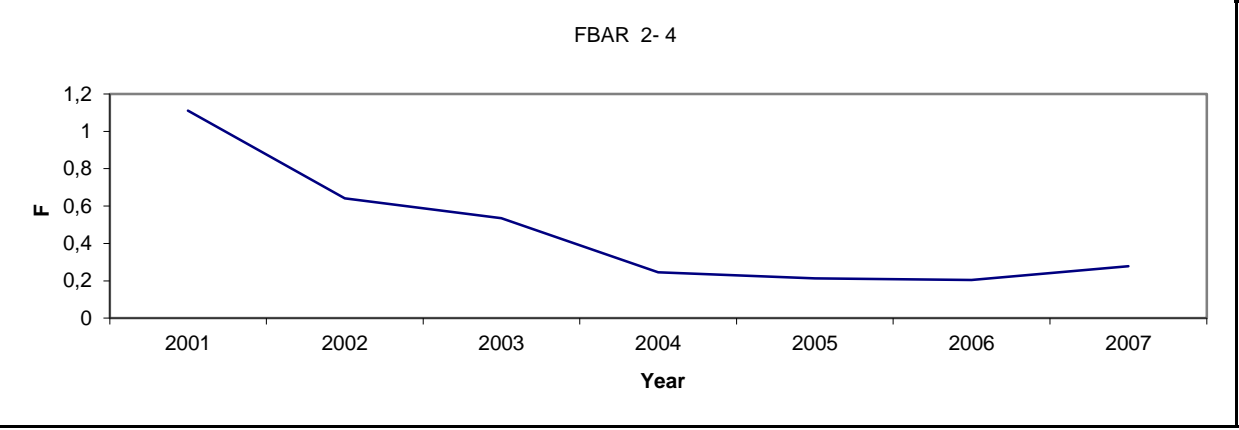
Population in figures



Population in biomass

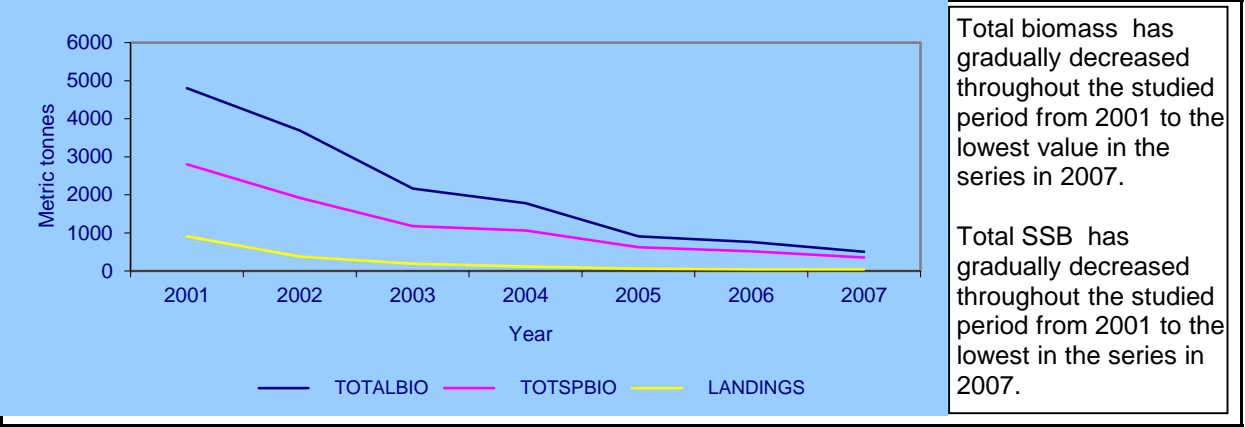


Fishing mortality rates

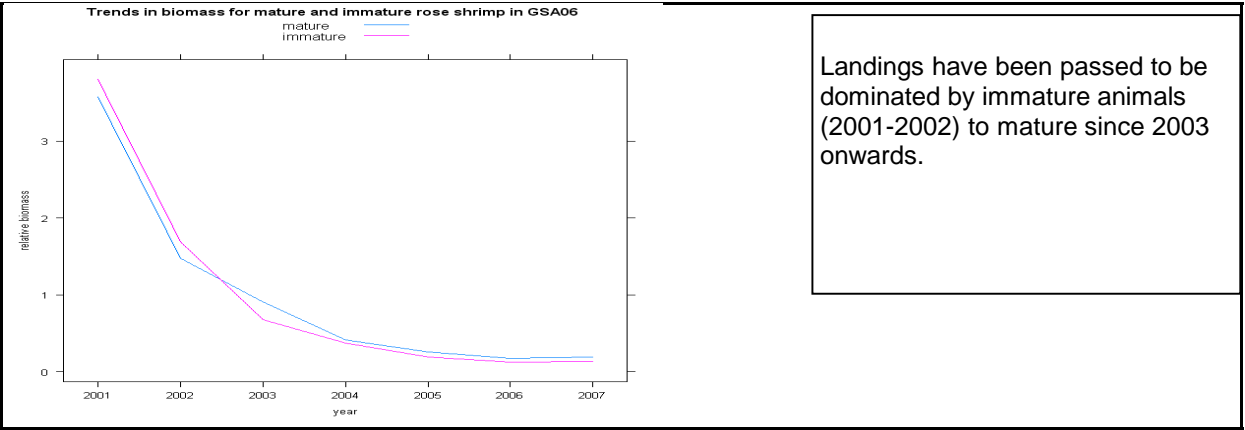


Sex*	B	Gear*	Trawl	Analysis #*	VPA
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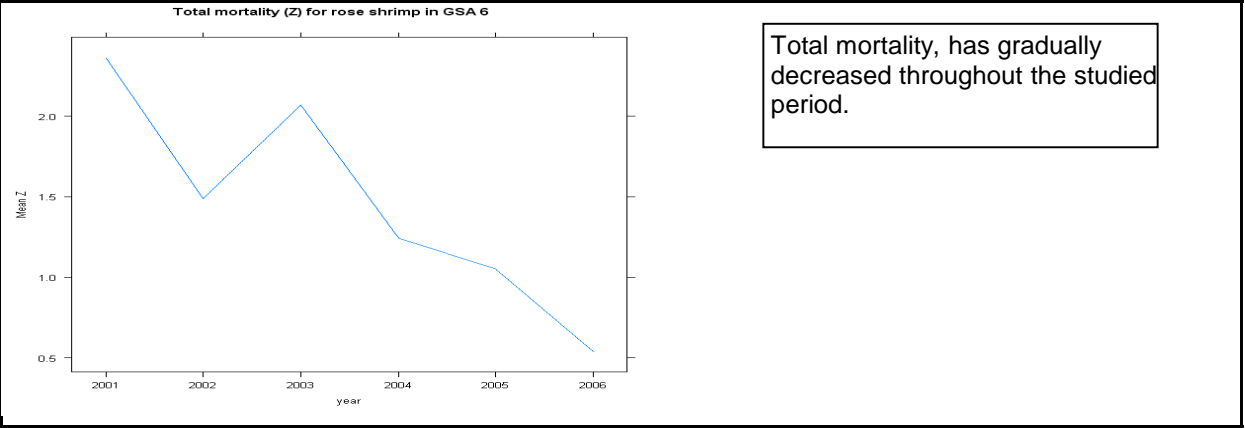
Population in figures



Population in biomass

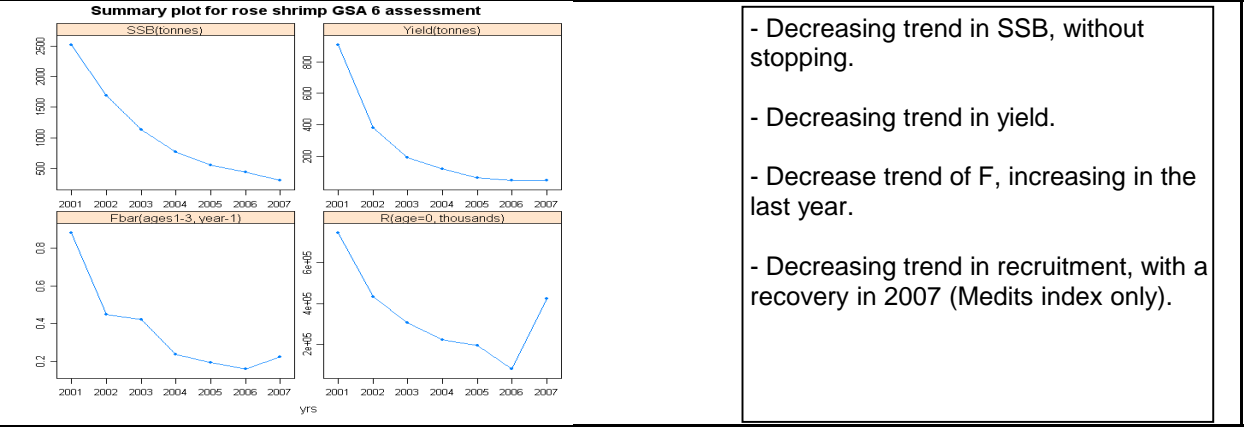


Fishing mortality rates

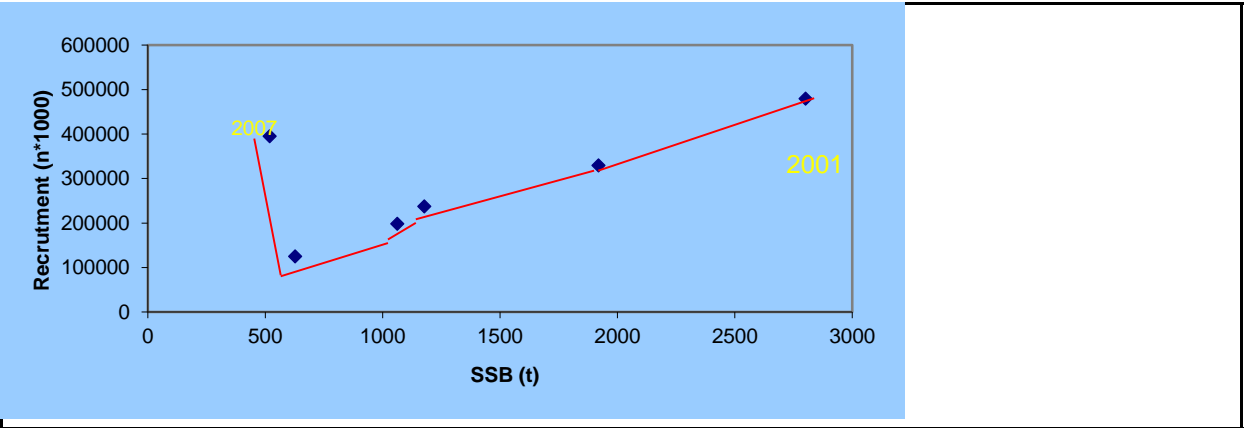


Sex*	B	Gear*	Trawl	Analysis #*	VPA
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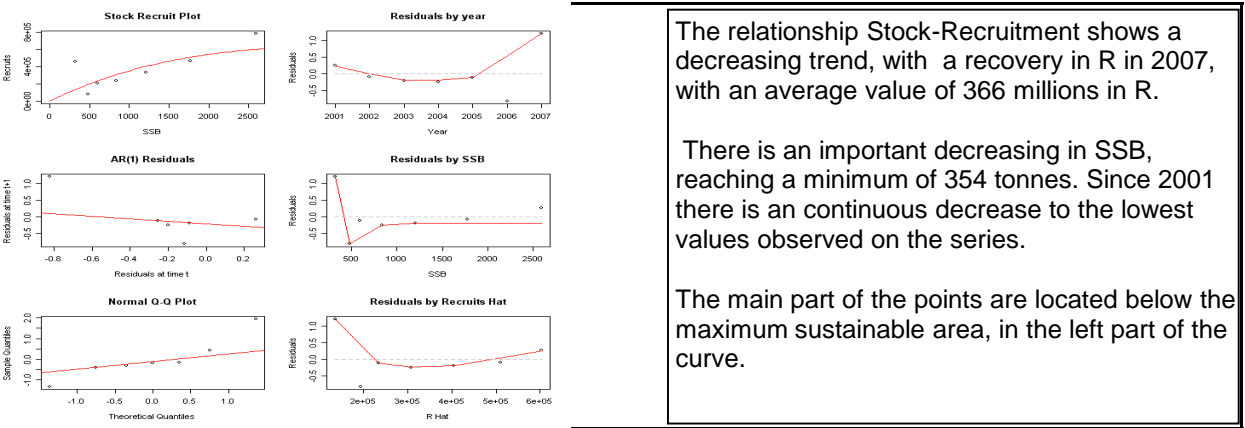
Population in figures



Population in biomass



Fishing mortality rates

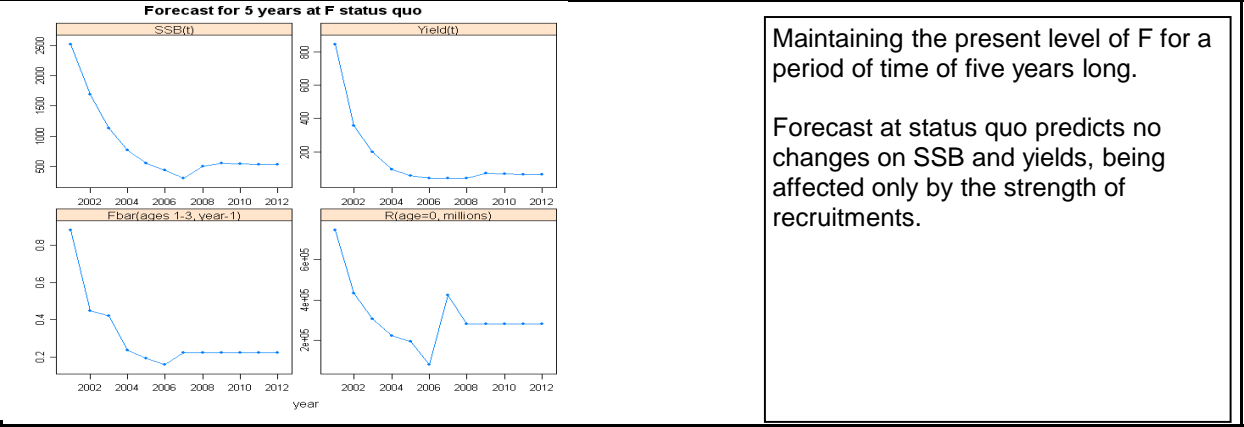


Code: DPS0608Gar

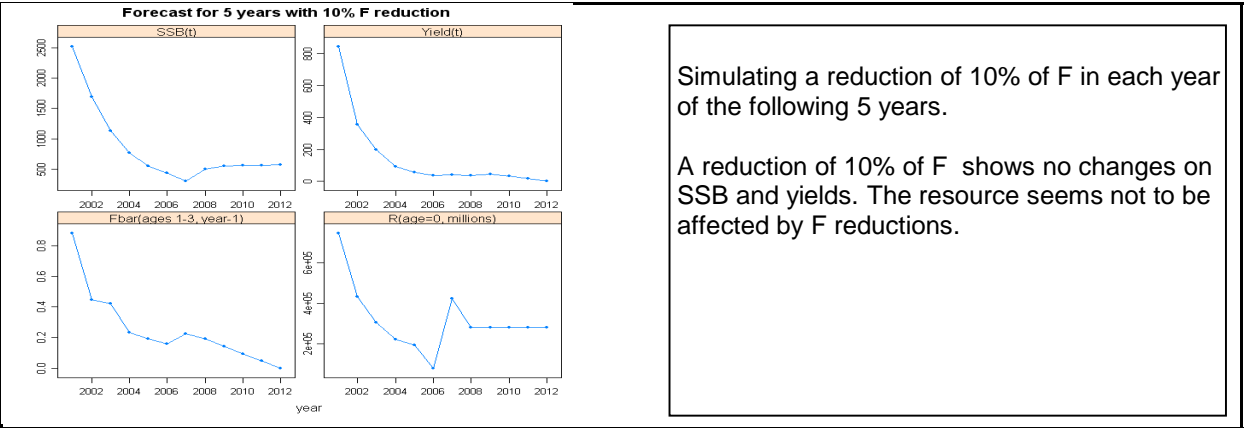
Page 4 / 4

Sex*	B	Gear*	Trawl	Analysis #*	VPA
------	---	-------	-------	-------------	-----

Population in figures



Population in biomass



Fishing mortality rates



SAC GFCM - Sub-Committee on Stock Assessment (SCSA)	
Assessment form	Sheet D Diagnosis

Code: DPS0608Gar

Indicators and reference points

Criterion	Current value	Units	Reference Point	Trend	Comments
B	505	mt	Bmean	-	Bnow is below Bmean (2088 t), ad is the actual Bloss (505 t)
SSB	354	mt	SSBmean	-	SSB now is belowr the SSBmean (1209 t), and is the actual SSBloss (354 t)
F	0,28		Fbar 2-4	-	Fnow is lower than Fmean (0.46) and slightly over the Floss (0.21)
Y	43	mt	Ymean	-	Ynow is below Ymean (249 t), ad is the actual Yloss (43 t)
CPUE	7,28	Kg/day	CPUEmean		CPUEnow is below to the CPUEmean (8.64 kg/day), and slightly over t

Stock Status* Use one (or both) of the following two systems for the stock assessment status description

Unidimensional	<input type="radio"/>	? - (or blank) Not known or uncertain. Not much information is available to make a judgment;
	<input type="radio"/>	U - Underexploited, undeveloped or new fishery. Believed to have a significant potential for expansion in total production;
	<input type="radio"/>	M - Moderately exploited, exploited with a low level of fishing effort. Believed to have some limited potential for expansion in total production;
	<input type="radio"/>	F - Fully exploited. The fishery is operating at or close to an optimal yield level, with no expected room for further expansion;
	<input type="radio"/>	O - Overexploited. The fishery is being exploited at above a level which is believed to be sustainable in the long term, with no potential room for further expansion and a higher risk of stock depletion/collapse;
	<input checked="" type="radio"/>	D - Depleted. Catches are well below historical levels, irrespective of the amount of fishing effort exerted;
	<input type="radio"/>	R - Recovering. Catches are again increasing after having been depleted or a collapse from a previous;

Bidimensional	Exploitation rate		Stock abundance	
	<input type="radio"/>	No or low fishing	<input type="radio"/>	Virgin or high abundance
	<input type="radio"/>	Moderate fishing	<input type="radio"/>	Intermediate abundance
	<input checked="" type="radio"/>	High fishing mortality	<input type="radio"/>	Low abundance
	<input type="radio"/>	Uncertain / Not assessed	<input checked="" type="radio"/>	Depleted
			<input type="radio"/>	Uncertain / Not assessed

Comments

The results show a decreasing trend, both in landings and total biomass of the stock, along the studied period. Exploitation is based on very young age classes, mainly 2 and 1 year old individuals, indicating a dependence on recruitments. There is a decreasing trend in SSB, as well as in yield, without being over. Fishing mortality shows a decreasing trend, but increasing in the last year. Decreasing trend in recruitment, with a recovery in 2007 (Meditis index). The SSB-R relationship also shows a decreasing trend in both components. Forecast at status quo predicts no changes on SSB and yields, being affected only by the strength of recruitments. A reduction of 10% of F shows no changes on SSB and yields. The resource seems not to be affected by F reductions.

In the Balearic area, this resource is characterized by his high temporal variability, due probably to both biotic and abiotic factors. The fisheries of *Parapenaeus longirostris* in the study area show important inter- annual variations in landings, as well as a decreasing trend both in landings and in vessels involved, throughout the study period. However trends diminish heavily: Currents indicators represent only a 5% of the values observed five years ago. It can be concluded that the stock is overexploited.

Because of both factors, the high inter-annual variability in landings in long term and the current indicators of the resource status that are the lowest values in the time series, a special monitoring on the rose shrimp fishery is needed. An effort reduction seems not to be effective on SSB recovery. Only a significant recruitment, followed by a reduction in effort, can help to recover the stock. The stock seems to be near collapse or collapsed. We assume that environmental conditions can affect the stock, and also that there are others factors, such as intensity of fishing effort, which can influence the landings.

SAC GFCM - Sub-Committee on Stock Assessment (SCSA)	
Assessment form	Sheet Z Objectives and recommendations

Code: DPS0608Gar

Management advice and recommendations*

- An effort reduction seems to be not effective on SSB recovery. Only an important recruitment can recover the stock.
- Because of both factors, the high inter-annual variability in landings at long term and the current indicators of the resource status, that shows the lowest values of the time series, a special monitoring on the rose shrimp fishery is needed.

Advice for scientific research*

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Abstract for SCSA reporting**Authors**García-Rodríguez² M., J. L. Pérez-Gill, A.
Esteban¹, E. Barcala¹ and N. Carrasco¹**Year**

2008

Species Scientific name

Parapenaeus longirostris - DPS

Source: GFCM Priority Species

Source: -

Source: -

Geographical Sub-Area

06 - Northern Spain

Fisheries (brief description of the fishery)*

Deep-water pink shrimp (*Parapenaeus longirostris*) is one of the most important crustacean species for the trawl fisheries developed along the GFCM geographical sub-area Northern Spain (GSA-06). This resource is an important component of commercial landings in some ports of the Mediterranean Northern Spain and occasionally target species of the trawl fleet, composed by around 600 vessels, and especially by 260 vessels which operate on the upper slope. During the last years, a sharp increase in landings was observed, starting in 1998 and reaching the maximum value in 2000, followed by a decreasing trend during the period 2001-2007. In 2007 the annual landings of this species amounts 43 tons in the whole area, which it has been the lowest value of the historical series.

Source of management advice***(brief description of material -data- and methods used for the assessment)**

The state of exploitation was assessed for the period 2001-2007 for the GFCM geographical sub-area Northern Spain (GSA-06). A VPA tuned with standardised CPUE from commercial fleet and abundance indices from two trawl surveys, was carried out applying the Extended Survivor Analysis (XSA) method (Lowestoft program; Darby and Flatman, 1994 and FLR (Fisheries Libraries in R), over the period 2001-2007. Both methods were performed from size composition of trawl catches (obtained from on board and on port monthly sampling) and official landings, transforming length data to age data by slicing (L2AGE). Available standardised CPUE data series, both of commercial fisheries from Santa Pola fleet, and scientific surveys (MEDITS – LEDER) were used. A forecast analysis was carried out maintaining the present level of F during each of the following 5 years and simulating a reduction of 10% of F for the same period of time, considering a constant recruitment obtained as an average of the data series (FLR software).

Stock Status*

D - Depleted. Catches are well below historical levels, irrespective of the amount of fishing effort exerted;

Exploitation rate

High fishing mortality

Stock abundance

Depleted

Comments

The results show a decreasing trend, both in landings and total biomass of the stock, along the studied period. Exploitation is based on very young age classes, mainly 2 and 1 year old individuals, indicating a dependence on recruitments. There is a decreasing trend in SSB, as well as in yield, without being over. Fishing mortality shows a decreasing trend, but increasing in the last year. Decreasing trend in recruitment, with a recovery in 2007 (Medits index). The SSB-R relationship also shows a decreasing trend in both components. Forecast at status quo predicts no changes on SSB and yields, being affected only by the strength of recruitments. A reduction of 10% of F shows no changes on SSB and yields. The resource seems not to be affected by F reductions.

In the Balearic area, this resource is characterized by his high temporal variability, due probably to both biotic and abiotic factors. The fisheries of *Parapenaeus longirostris* in the study area show important inter- annual variations in landings, as well as a decreasing trend both in landings and in vessels involved, throughout the study period. However trends diminish heavily: Currents indicators represent only a 5% of the values observed five years ago. It can be concluded that the stock is overexploited.

Because of both factors, the high inter-annual variability in landings in long term and the current indicators of the resource status that are the lowest values in the time series, a special monitoring on the rose shrimp fishery is needed. An effort reduction seems not to be effective on SSB recovery. Only a significant recruitment, followed by a reduction in effort, can help to recover the stock. The stock seems to be near collapse or collapsed. We assume that environmental conditions can affect the stock, and also that there are others factors, such as intensity of fishing effort, which can influence the landings.

Management advice and recommendations*

- An effort reduction seems to be not effective on SSB recovery. Only an important recruitment can recover the stock.
- Because of both factors, the high inter-annual variability in landings at long term and the current indicators of the resource status, that shows the lowest values of the time series, a special monitoring on the rose shrimp fishery is needed.

Advice for scientific research*

Assessment of Rose shrimp Gamba blanca (*Parapenaeus longirostris* - DPS) from 06 - Northern Spain. García-Rodríguez^{2*} M., J. L. Pérez-Gill¹, A. Esteban¹, E. Barcala¹ and N. Carrasco¹

Description of fishery: Deep-water pink shrimp (*Parapenaeus longirostris*) is one of the most important crustacean species for the trawl fisheries developed along the GFCM geographical sub-area Northern Spain (GSA-06). This resource is an important component of commercial landings in some ports of the Mediterranean Northern Spain and occasionally target species of the trawl fleet, composed by around 600 vessels, and especially by 260 vessels which operate on the upper slope. During the last years, a sharp increase in landings was observed, starting in 1998 and reaching the maximum value in 2000, followed by a decreasing trend during the period 2001-2007. In 2007 the annual landings of this species amounts 43 tons in the whole area, which it has been the lowest value of the historical series.

Source of management advice: The state of exploitation was assessed for the period 2001-2007 for the GFCM geographical sub-area Northern Spain (GSA-06). A VPA tuned with standardised CPUE from commercial fleet and abundance indices from two trawl surveys, was carried out applying the Extended Survivor Analysis (XSA) method (Lowestoft program; Darby and Flatman, 1994 and FLR (Fisheries Libraries in R), over the period 2001-2007. Both methods were performed from size composition of trawl catches (obtained from on board and on port monthly sampling) and official landings, transforming length data to age data by slicing (L2AGE). Available standardised CPUE data series, both of commercial fisheries from Santa Pola fleet, and scientific surveys (MEDITS – LEDER) were used. A forecast analysis was carried out maintaining the present level of F during each of the following 5 years and simulating a reduction of 10% of F for the same period of time, considering a constant recruitment obtained as an average of the data series (FLR software).

Exploitation rate: High fishing mortality

Stock abundance: Depleted

Comments: The results show a decreasing trend, both in landings and total biomass of the stock, along the studied period. Exploitation is based on very young age classes, mainly 2 and 1 year old individuals, indicating a dependence on recruitments. There is a decreasing trend in SSB, as well as in yield, without being over. Fishing mortality shows a decreasing trend, but increasing in the last year. Decreasing trend in recruitment, with a recovery in 2007 (Medits index). The SSB-R relationship also shows a decreasing trend in both components. Forecast at status quo predicts no changes on SSB and yields, being affected only by the strength of recruitments. A reduction of 10% of F shows no changes on SSB and yields. The resource seems not to be affected by F reductions.

Management advice and recommendation: - An effort reduction seems to be not effective on SSB recovery. Only an important recruitment can recover the stock.

- Because of both factors, the high inter-annual variability in landings at long term and the current indicators of the resource status, that shows the lowest values of the time series, a special monitoring on the rose shrimp fishery is needed.

Advice for scientific research:

