

## Other assessment methods

## ACOUSTICS

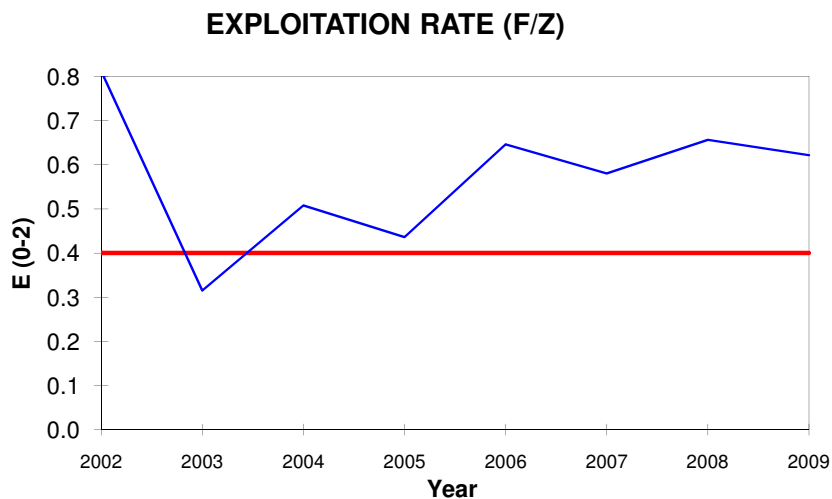
Tuning data series from acoustic surveys (ECOMED and MEDIAS) in the GSA01 is incomplete and fragmented:

- There is no survey data from 2002.
- Surveys did not cover the GSA01 in 2007 and 2009.
- The area was only partially covered in 2003, 2006 and 2010.
- The complete coverage was only achieved in 2004, 2005 and 2008.

## EXPLOITATION RATE

The annual exploitation rate  $E = F/(F+M)$  or  $F/Z$  was calculated and plotted over the years. The constant  $M$  value (0.64) was estimated as the mean of the 0-2 ages of the  $M$  vector. The values obtained were compared with the threshold  $F/Z = 0.4$  suggested as biological reference point for small pelagics (Patterson, 1992).

The trends in values of  $F/Z$  were plotted in the figure below:



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

Assessment form

Sheet other

Code: ANE0110Qui

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**Other assessment methods**

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**Other assessment methods**

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Code: ANE0110Qui

**Indicators and reference points**

Criterion	Current value	Units	Reference Point	Trend	Comments
B					Not Reference Point defined yet
SSB					Not Reference Point defined yet
F					Not Reference Point defined yet
Y					Not Reference Point defined yet
CPUE					Not Reference Point defined yet
E=F/Z	0.62		0.4		Exploitation Rate (Patterson, 1992) (SGMED WG)

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

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

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

**Comments**

The WG considers this XSA analysis as provisional and found it unacceptable as basis for advice. The main shortcoming of the analysis is the lack of reliable tuning data. The WG also would recommend that further consideration is given to the assumptions about natural mortality.

Catches are quite stable or slightly going down, the stock seems to be in a relatively comfortable situation, with good signs of recruitment and good amount of survivors, according with the size distributions. The stock seems to be able to sustain current level of exploitation but it is recommended not to increase effort.

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

Assessment form

Sheet Z

Objectives and recommendations

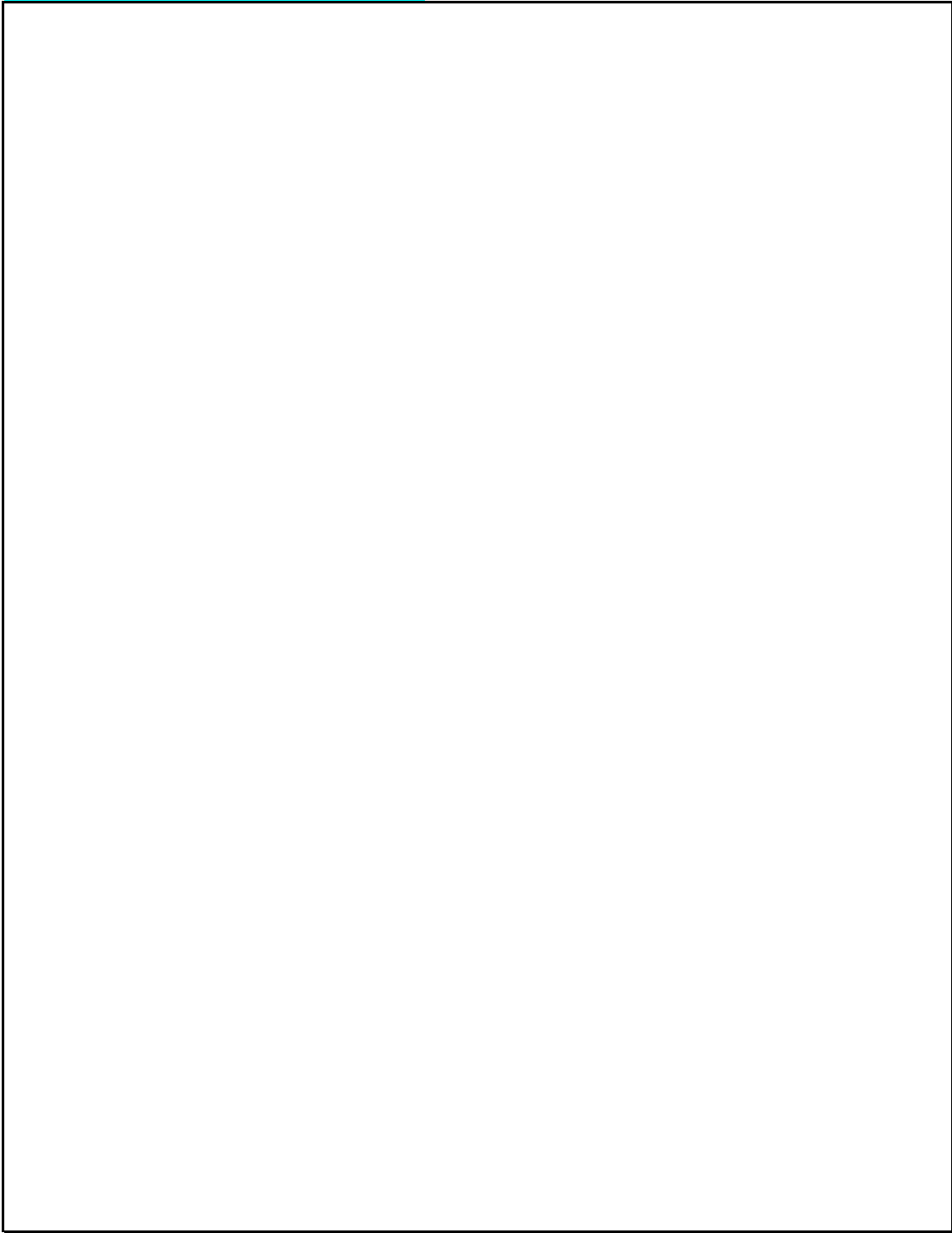
Code: ANE0110Qui

**Management advice and recommendations\***

Catches are quite stable or slightly going down, the stock seems to be in a relatively comfortable situation, with good signs of recruitment and good amount of survivors, according with the size distributions.

The stock seems to be able to sustain current level of exploitation but it is recommended not to increase effort.

**Advice for scientific research\***





**Comments\***

**Comments\***

**Comments\***

### Abstract for SCSA reporting

**Authors**

Quintanilla L.F.\*, Bellido J.M., Giráldez A., Torres P., Ceruso C., González M<sup>a</sup>.

**Year**

2010

**Species Scientific name**

Engraulis encrasicolus - ANE

Source: GFCM Priority Species

Source: -

Source: -

**Geographical Sub-Area**

01 - Northern Alboran Sea

**Fisheries (brief description of the fishery)\***

Sardine (*Sardina pilchardus*) and anchovy (*Engraulis encrasicolus*) are the main target species of the purse seine fleet in Northern Alboran GSA1, but other species with lower economical importance are also captured, sometimes representing a high percentage of the capture: horse mackerel (*Trachurus* spp.), mackerel (*Scomber* spp.), frigate mackerel (*Auxis rochei*), Atlantic saury (*Scorpaenopsis scorpaenoides*) and gilt sardine (*Sardinella aurita*).

This report is exclusively focused on fishery of anchovy

**Source of management advice\***

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

Fishery assessment by VPA methods of the spanish anchovy stock GSA01 is shown. VPA Lowestoft software suite was used and XSA was the assessment method. A separable VPA was also run as exploratory analysis for both stocks. Stochastic short term projections were also produced.

**Data used:**  
Landings from 2002-2008 from all Fishery ports from GSA01.  
Combined ALKs 2003-2008 for all the years. Length distribution 2003-2008. Length distrib 2003 was applied to 2002 landings.  
Biological sampling 2003-2008 for Maturity at age and Weight-Length relationships.  
Tuning data from acoustic survey ECOMED for years 2003 to 2008.

**Stock Status\***

F - Fully exploited. The fishery is operating at or close to an optimal yield level, with no expected room for further expansion;

**Exploitation rate**

Moderate fishing mortality

**Stock abundance**

Intermediate abundance

**Comments**

The WG considers this XSA analysis as provisional and found it unacceptable as basis for advice. The main shortcoming of the analysis is the lack of reliable tuning data. The WG also would recommend that further consideration is given to the assumptions about natural mortality.

Catches are quite stable or slightly going down, the stock seems to be in a relatively comfortable situation, with good signs of recruitment and good amount of survivors, according with the size distributions. The stock seems to be able to sustain current level of exploitation but it is recomended not to increase effort.

**Management advice and recommendations\***

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The stock seems to be able to sustain current level of exploitation but it is recommended not to increase effort.

**Advice for scientific research\***

