

## SAC GFCM Sub-Committee on Stock Assessment

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Date\* 

18	October	2010
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 Code\* 

BOG0310Naj
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Authors\* 

Najib ELOUAMARI
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Affiliation\* 

Institut National de Recherche Halieutique
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- Species Scientific name\*
- 1 *Boops boops* - *BOG*  
Source: GFCM Priority Species
  - 2  
Source: -
  - 3  
Source: -

Geographical area\* 

GSA 03
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Geographical Sub-Area (GSA)\* 

03 - Southern Alboran Sea
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Combination of GSAs	1	
	2	
	3	

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

Code: BOG0310Naj

Date*	18	Oct	2010	Authors*	Najib ELOUAMARI
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Species Scientific name*	Boops boops - BOG	Species common name*	Bogue
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**Data Source**

GSA*	03 - Southern Alboran Sea	Period of time*	2000/2009
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**Description of the analysis**

Type of data*	Length frequency	Data source*	Biological sampling
Method of assessment*	LCA-Y/R	Software used*	VIT


**Sheets filled out**

B	P1	P2a	P2b	G	A1	A2	A3	Y	Other	D	Z	C
1	1	1	1	---	1	1	1	1	---	1	1	1

**Comments, bibliography, etc.**

Comments, bibliography, etc.

Sheet #0 (page 2)

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

Code: BOG0310Naj

<b>Biology</b>	Somatic magnitude measured (LH, LC, etc)*			LF	Units*	cm
	Sex	Fem	Mal	Both	Unsexed	
Maximum size observed				28 cm		Reproduction season
Size at first maturity				15 cm		Reproduction areas
Recruitment size						Nursery areas

**Parameters used (state units and information sources)**

		Units	Sex			
			female	male	both	unsexed
Growth model	$L_{\infty}$	cm			31.5	
	K	year-1			0.28	
	$t_0$	year			-0.96	
	Data source	Zoubi.A ., 2001. rapport interne				
Length weight relationship	a				0.00722	
	b				2.9369	
	M				0.59	
	sex ratio (mal/fem)					

**Comments**

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<b>SAC GFCM - Sub-Committee on Stock Assessment (SCSA)</b>	
Assessment form	Sheet P1 General information about the fishery

Code: BOG0310Naj

Data source*	Biological sampling	Year (s)*	2000/2009
Data aggregation (by year, average figures between years, etc.)*		by year	

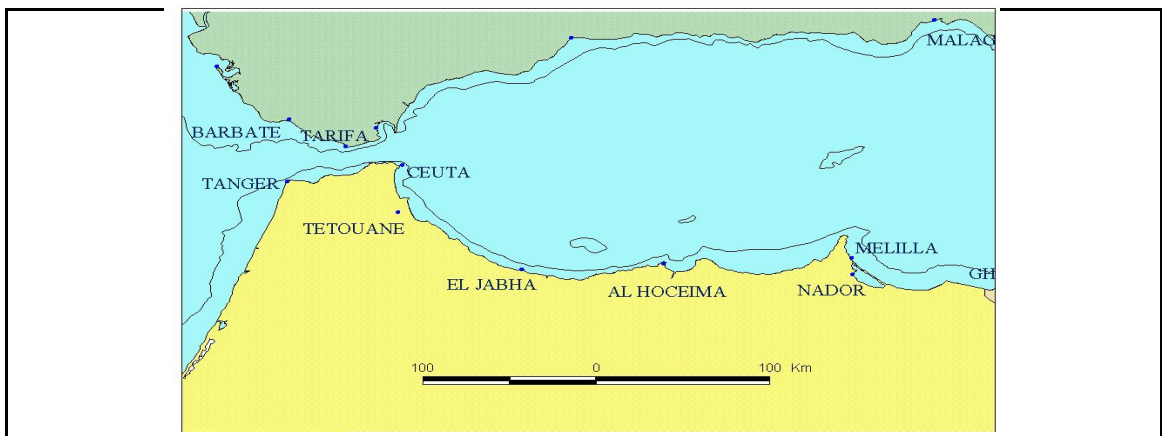
**Fleet and catches (please state units)**

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

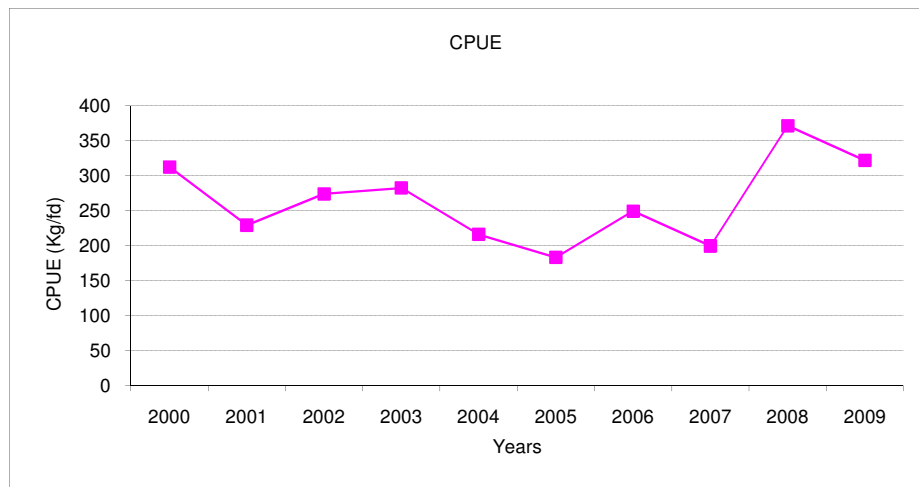
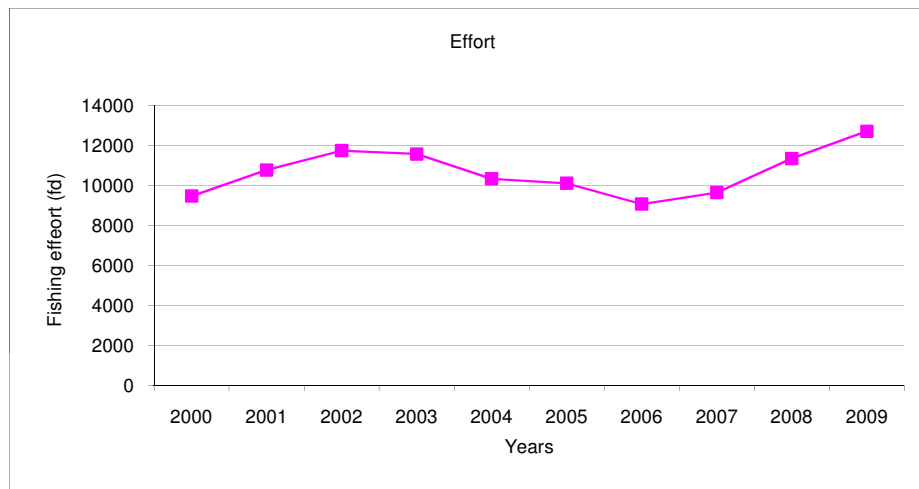
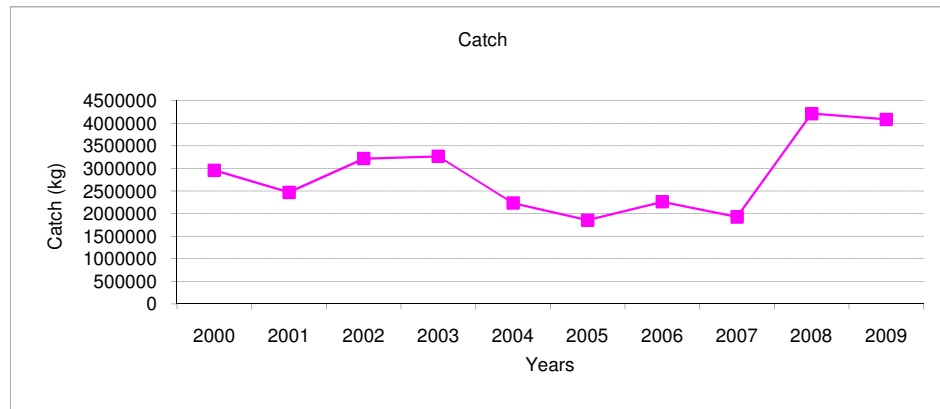
Operational Units*	Fleet (n° of boats)*	Kilos or Tons	Catch (species assessed)	Other species caught	Discards (species assessed)	Discards (other species caught)	Effort units
<b>MCO 03 E 03 33 - BOG</b>	121	Tons					ishing trip
<b>Total</b>	121						

Legal minimum size

**Comments**



Comments







<b>SAC GFCM - Sub-Committee on Stock Assessment (SCSA)</b>	
Assessment form	Sheet P2a Fishery by Operational Unit

Code: **BOG0310Naj**  
Page 1 / 1

<b>Data source*</b>	Office National des Peches; Institut National de Recherche Halieutique	<b>OpUnit 1*</b>	MCO 03 E 03 33 - BOG
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**Time series**

Year*	2000	2001	2002	2003	2004	2005
Catch	2959	2470	3216	3267	2233	1853
Minimum size						
Average size Lc						
Maximum size						
Fleet						

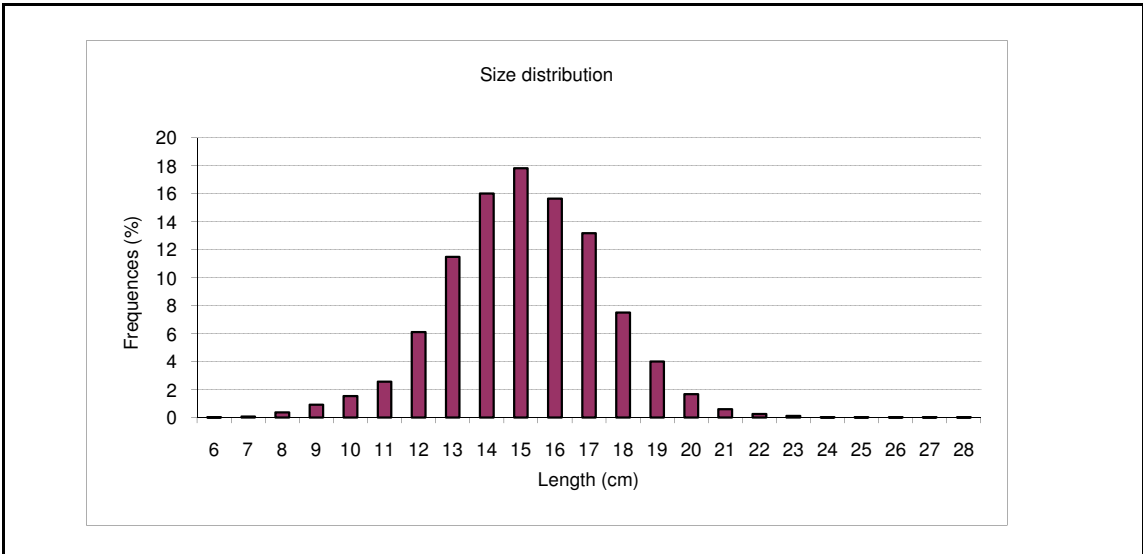
Year	2006	2007	2008	2009		
Catch	2260	1925	4213	4086		
Minimum size				6 cm		
Average size Lc				17 cm		
Maximum size				28 cm		
Fleet						

**Selectivity**

**Remarks**

L25		
L50		
L75		
Selection factor		

**Structure by size or age**



**Structure by size or age**

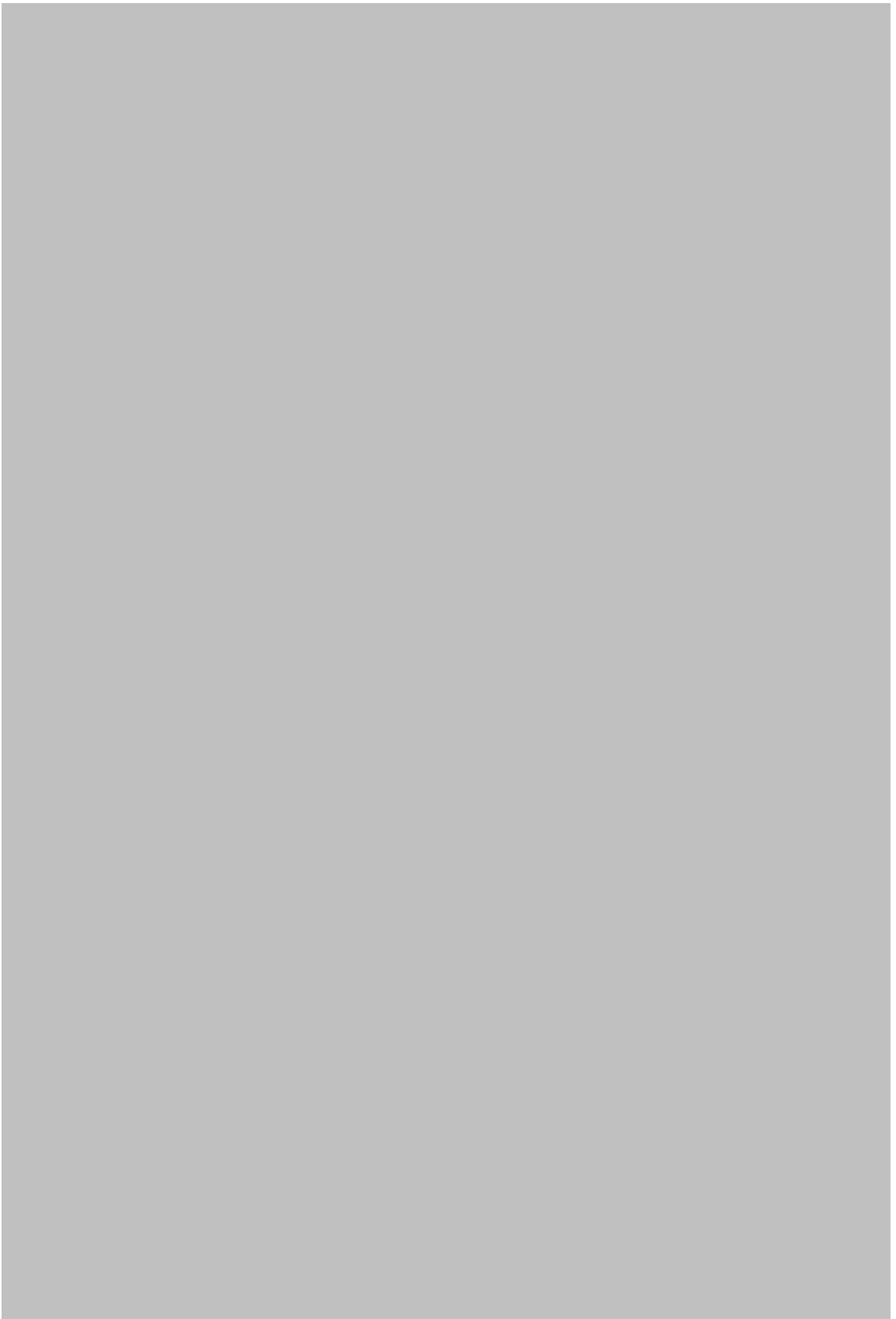
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<b>SAC GFCM - Sub-Committee on Stock Assessment (SCSA)</b>	
Assessment form	Sheet P2a Fishery by Operational Unit

**This sheet will be activated once the Operational Unit information (P1 section) will be successfully filled in**

Code: BOG0310Naj



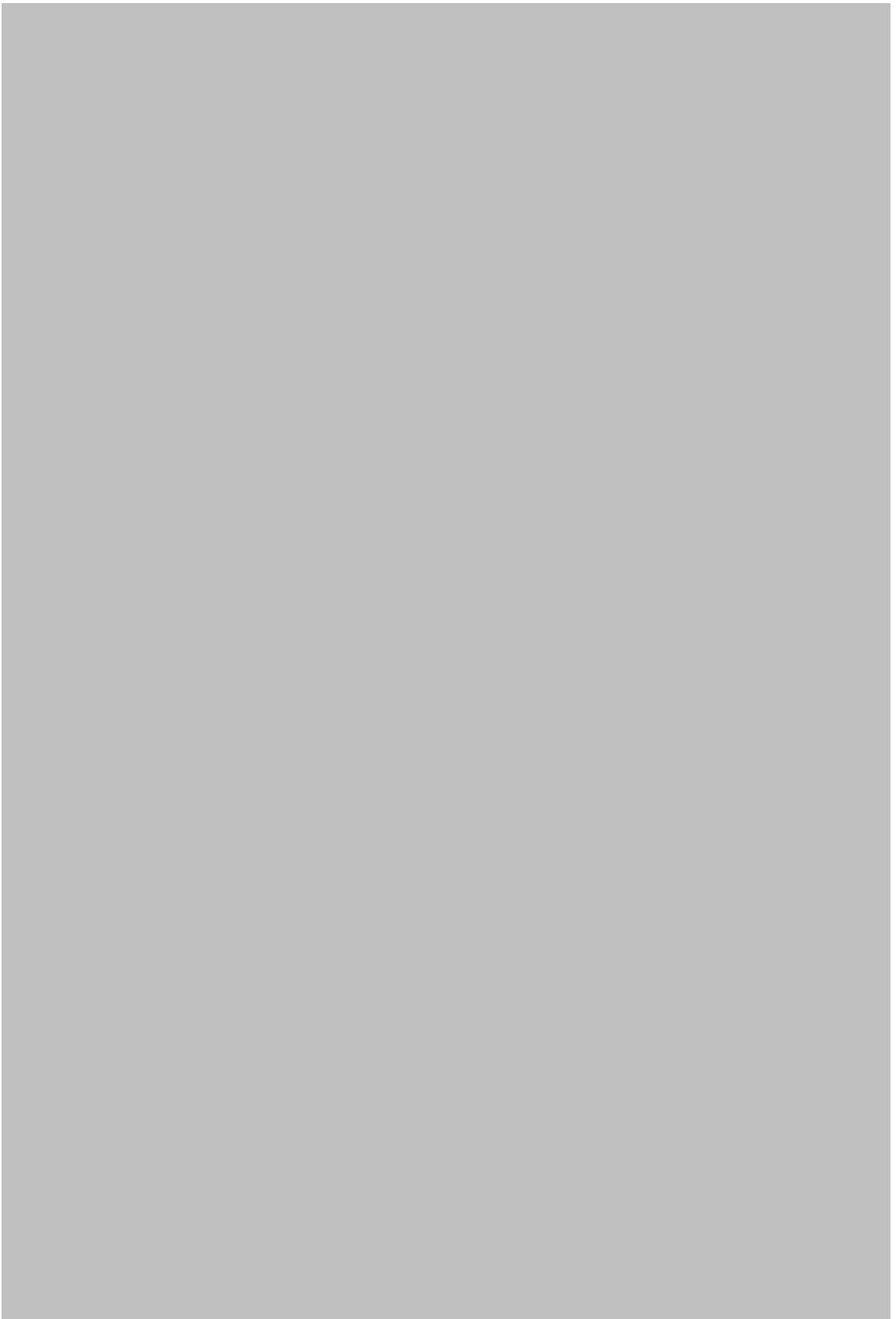


<b>SAC GFCM - Sub-Committee on Stock Assessment (SCSA)</b>	
Assessment form	Sheet P2a Fishery by Operational Unit

**This sheet will be activated once the Operational Unit information (P1 section) will be successfully filled in**

Code: BOG0310Naj





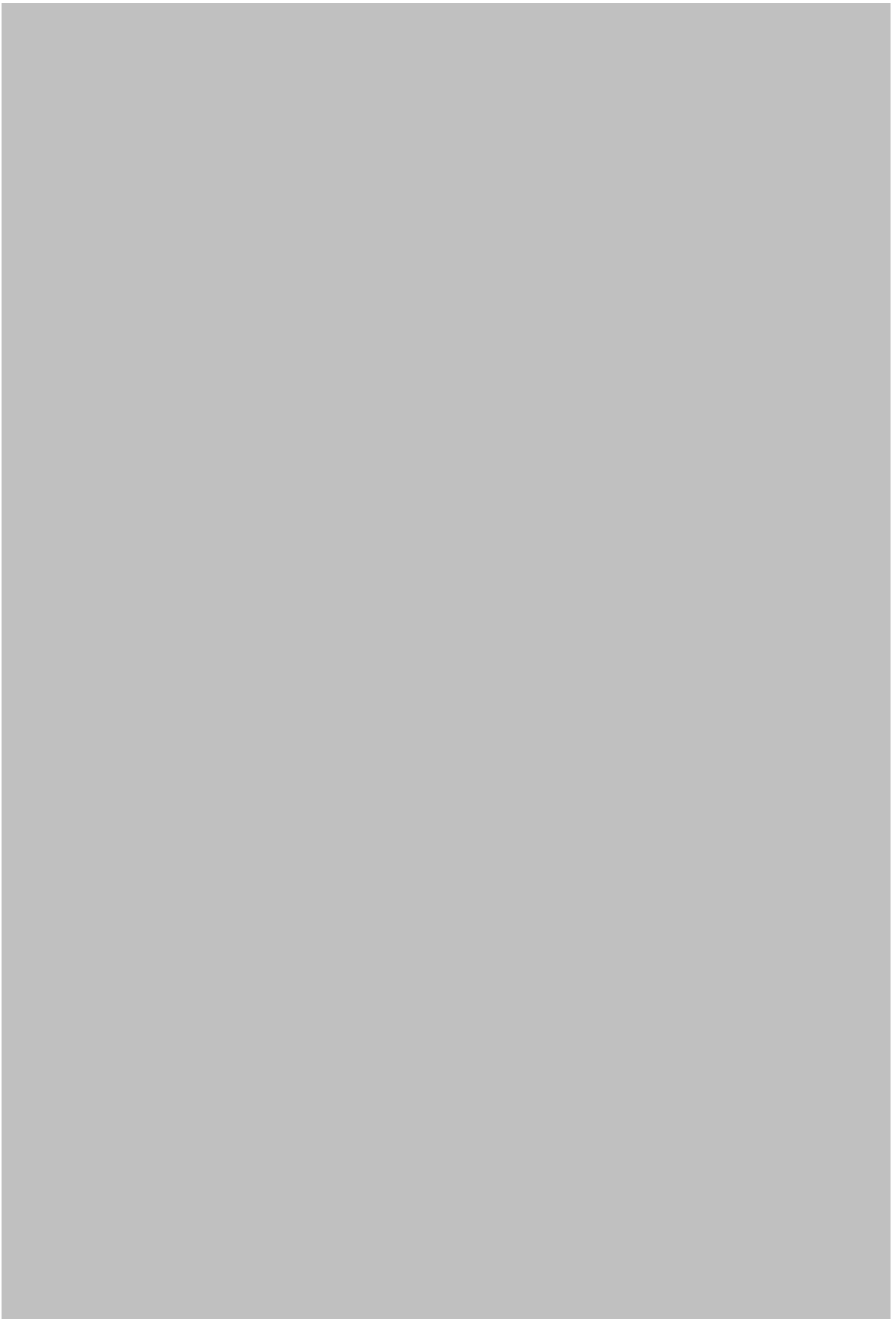
<b>SAC GFCM - Sub-Committee on Stock Assessment (SCSA)</b>	
Assessment form	Sheet P2a Fishery by Operational Unit

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Code: BOG0310Naj





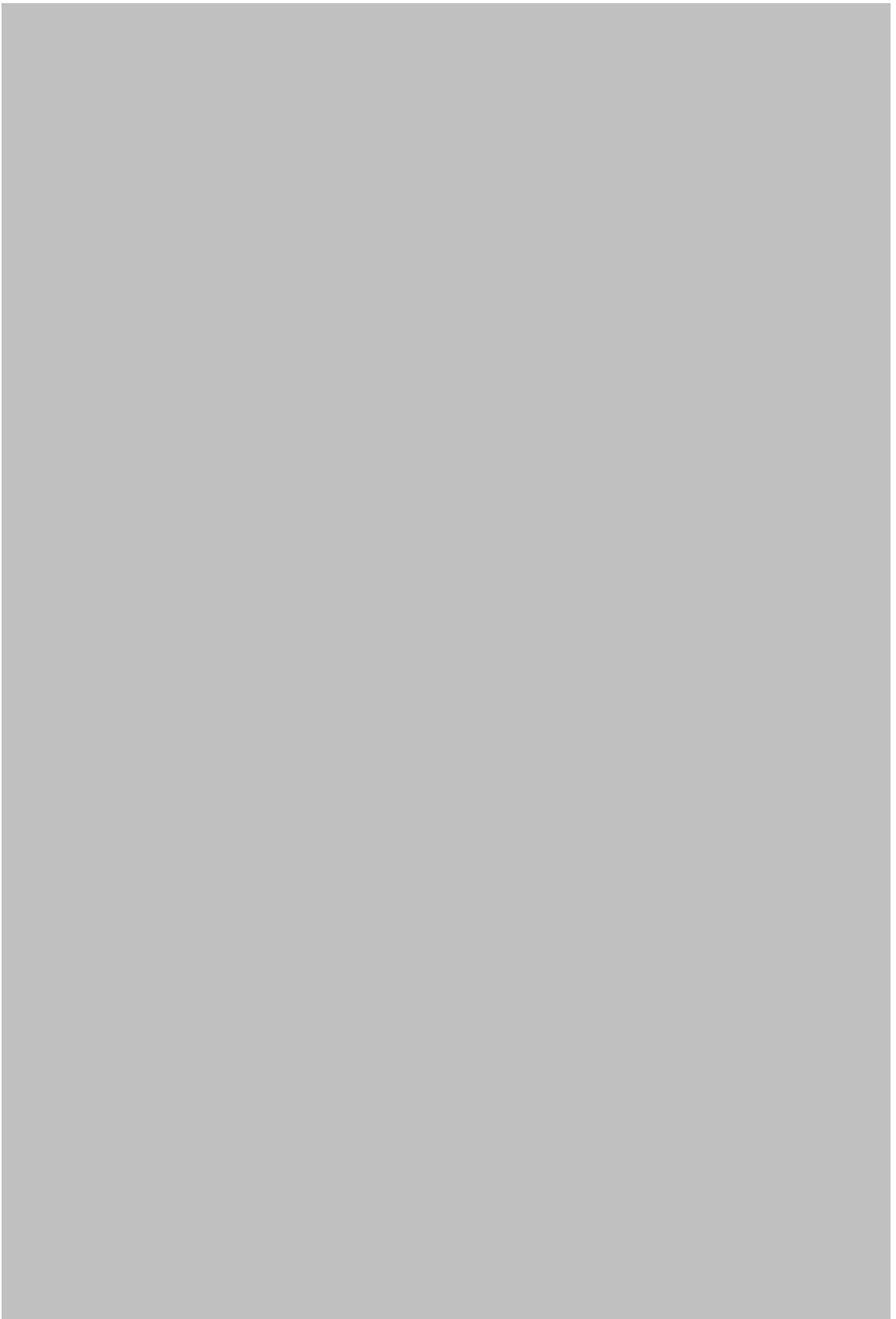


<b>SAC GFCM - Sub-Committee on Stock Assessment (SCSA)</b>	
Assessment form	Sheet P2a Fishery by Operational Unit

**This sheet will be activated once the Operational Unit information (P1 section) will be successfully filled in**

Code: BOG0310Naj





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

Assessment form

Sheet P2b  
Fishery by Operational Unit

Code: BOG0310Naj

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Data source\*

Biological sampling

OpUnit 1\*

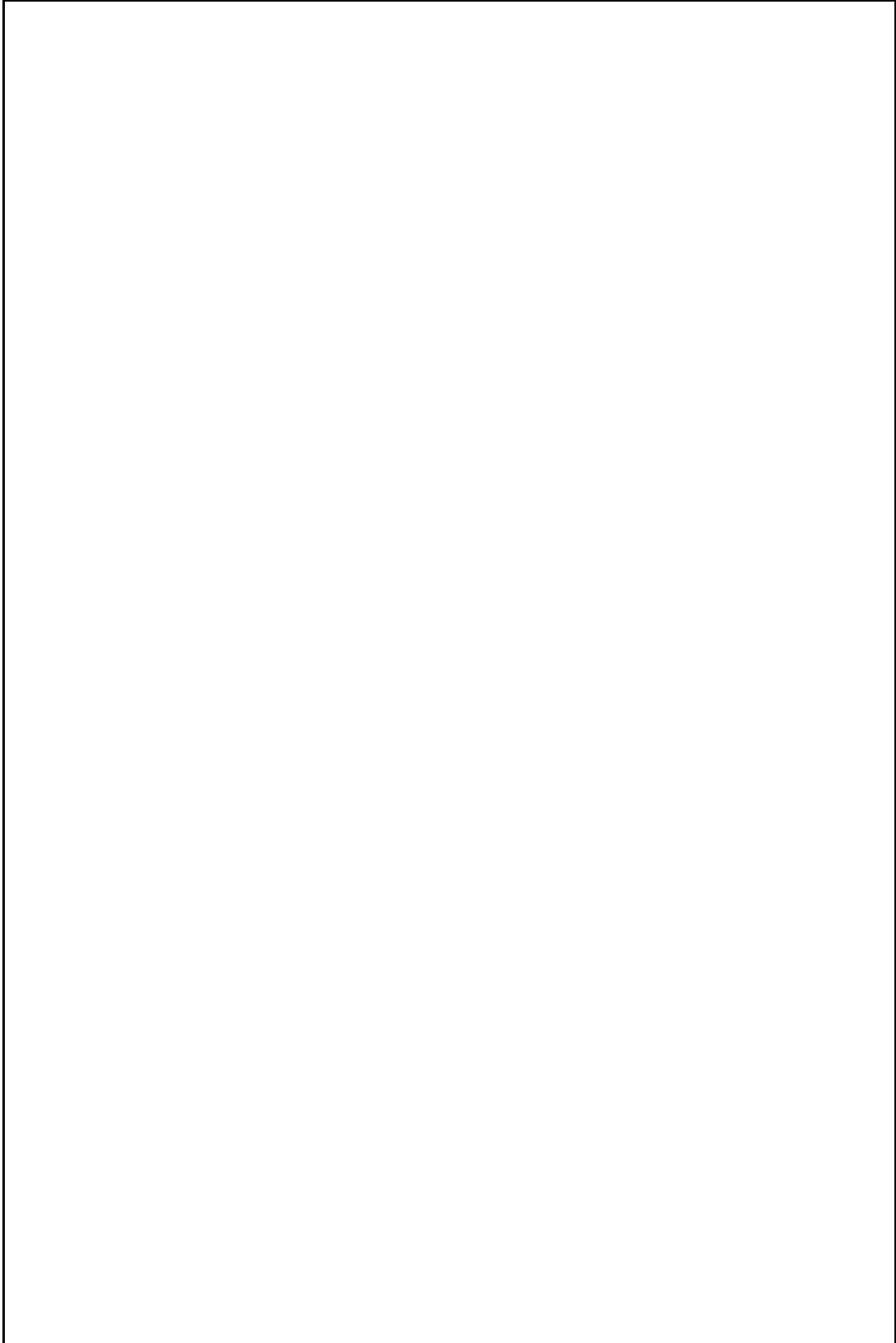
MCO 03 E 03 33 - BOG

**Regulations in force and degree of observance of regulations**

- Fishing license: Full observed
- Engine power limited to 500 CV: observed
- Mesh size in the cod-end (50 mm stretched): not fully observed
- fishing forbidden upper 80 depth in west mediterranean and 3 milles in the east of the mediteranean: not fully observed.

**Accompanying species**

*Mullus surmuletus, Mullus barbatus, Octopus vulgaris, Pagelus acarne...*



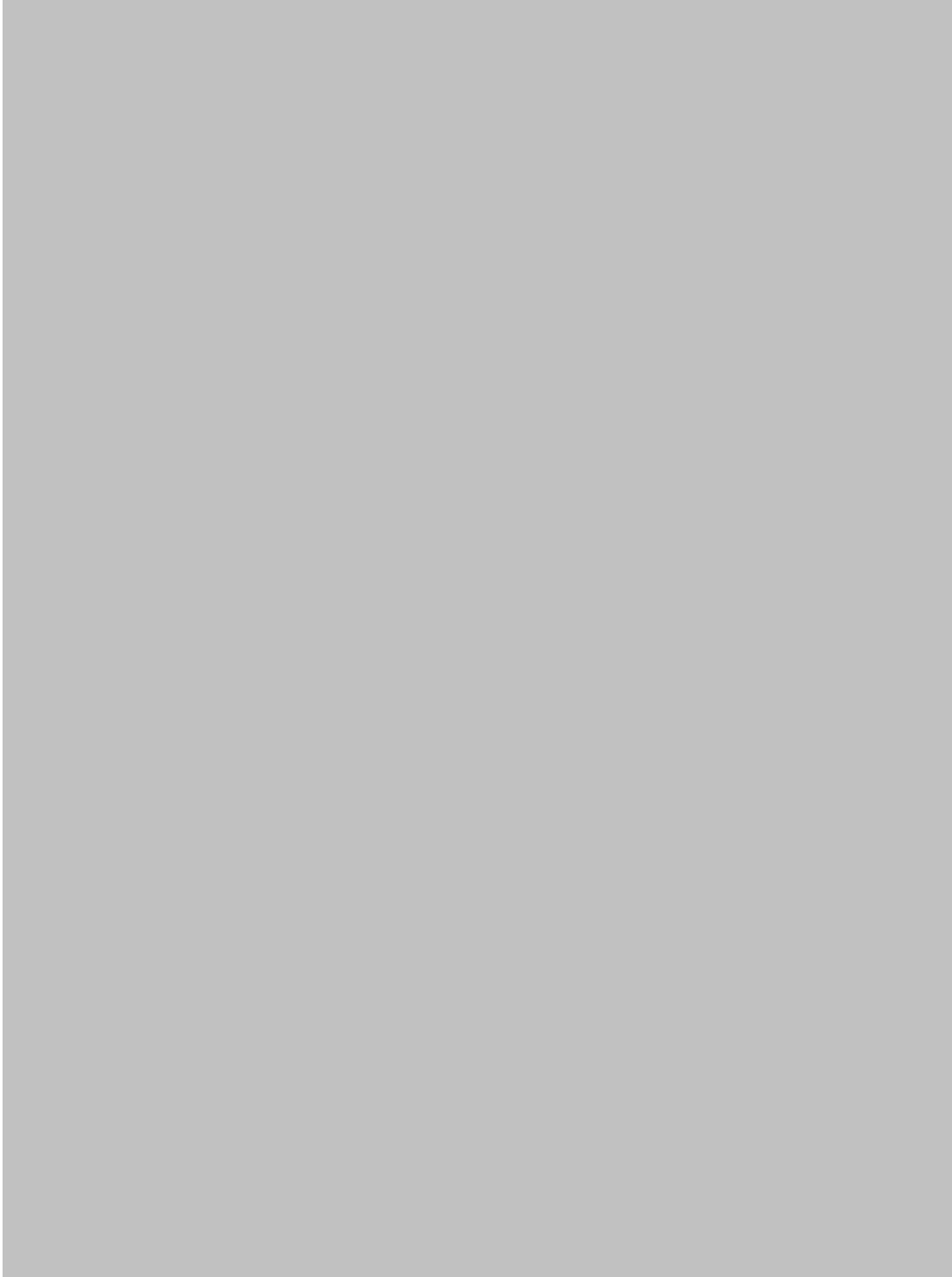
**SAC GFCM - Sub-Committee on Stock Assessment (SCSA)**

Assessment form

Sheet P2b  
Fishery by Operational Unit

**This sheet will be activated once the Operational Unit information (P1 section) will be successfully filled in**

Code: BOG0310Naj



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Assessment form

Sheet P2b  
Fishery by Operational Unit

**This sheet will be activated once the Operational Unit information (P1 section) will be successfully filled in**

Code: BOG0310Naj



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

Assessment form

Sheet P2b  
Fishery by Operational Unit

**This sheet will be activated once the Operational Unit information (P1 section) will be successfully filled in**

**Code: BOG0310Naj**





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

Assessment form

Sheet P2b  
Fishery by Operational Unit

**This sheet will be activated once the Operational Unit information (P1 section) will be successfully filled in**

Code: BOG0310Naj



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

Sex*	Both
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Code: BOG0310Naj  
Page 1 / 1

**Time series**

Analysis # *	VPA
--------------	-----

Data	Size	Age
(mark with X)	x	

Model	Cohorts	Pseudocohorts
(mark with X)		x

Equation used	Standar VPA	Tunig method	
# of gears	1	Software	VIT
F <sub>terminal</sub>	0.5		

**Population results (please state units)**

	Sizes	Ages		Amount	Biomass
Minimum	6 cm		Recruitment		
Average	17 cm		Average population		
Maximum	28 cm		Virgin population		
Critical			Turnover		

**Average mortality**

	Total	Gear				
F <sub>1</sub>						
F <sub>2</sub>						
Z						

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

**Comments**

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

Sex\*

Code: BOG0310Naj  
Page 2 / 1

**Time series**

Analysis # \*

Data	Size	Age
(mark with X)		

Model	Cohorts	Pseudocohorts
(mark with X)		

Equation used		Tunig method	
# of gears		Software	
F <sub>terminal</sub>			

**Population results (please state units)**

	Sizes	Ages		Amount	Biomass
Minimum			Recruitment		
Average			Average population		
Maximum			Virgin population		
Critical			Turnover		

**Average mortality**

	Total	Gear				
F <sub>1</sub>						
F <sub>2</sub>						
Z						

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

**Comments**

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

Assessment form

Sheet A1

Indirect methods: VPA, LCA

**This sheet will be activated once the previous page will be successfully completed**

Code: BOG0310Naj



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

Assessment form

Sheet A1

Indirect methods: VPA, LCA

**This sheet will be activated once the previous page will be successfully completed**

Code: BOG0310Naj



<b>SAC GFCM - Sub-Committee on Stock Assessment (SCSA)</b>	
Assessment form	Sheet A2 Indirect methods: data

Code: BOG0310Naj

Sex*	Both	Gear*	Bottom trawl	Analysis # *	VPA
------	------	-------	--------------	--------------	-----

Data source	Length frequency
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**Data**

The data used in this assessment is obtained by biological sampling for length frequencies of *Boops boops* landed during 2000-2009, in the GSA 03 corresponding to the morrocan mediterranean waters at the level of the ports of Nador and Al hoceima.

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

Assessment form

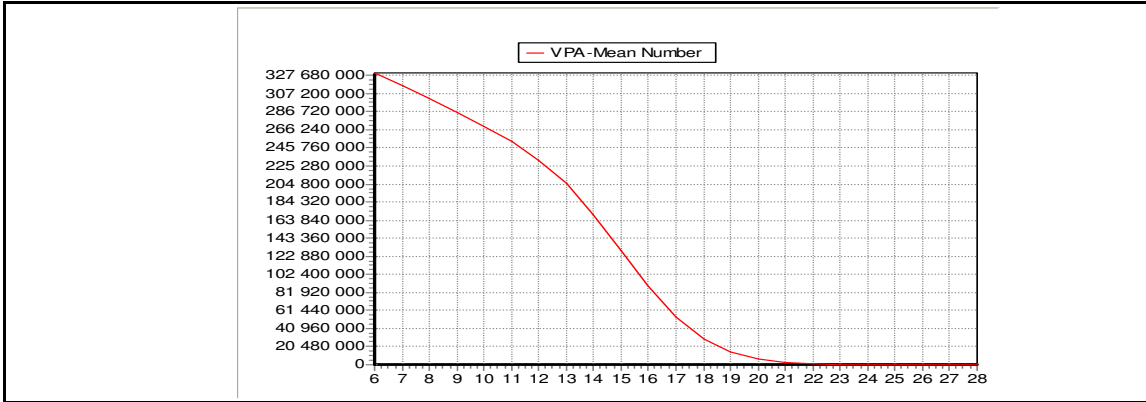
Sheet A3  
Indirect methods: VPA results

Code: BOG0310Naj

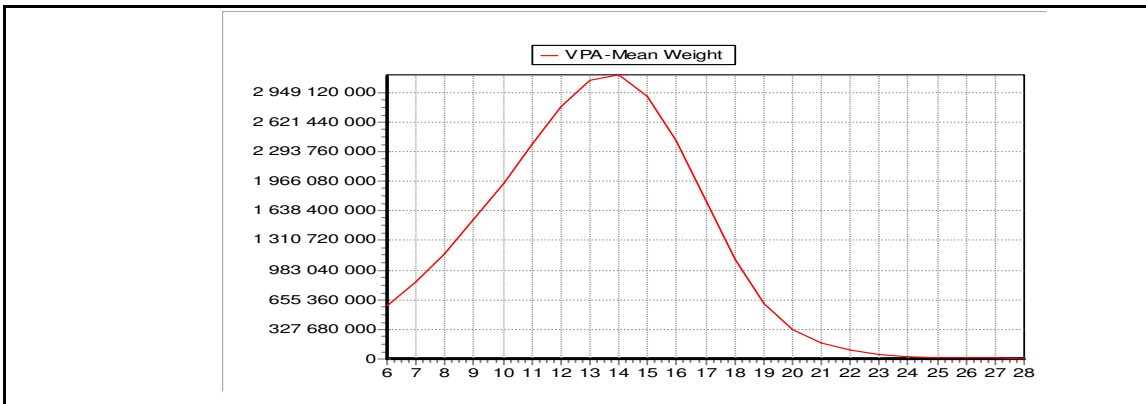
Page 1 / 1

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

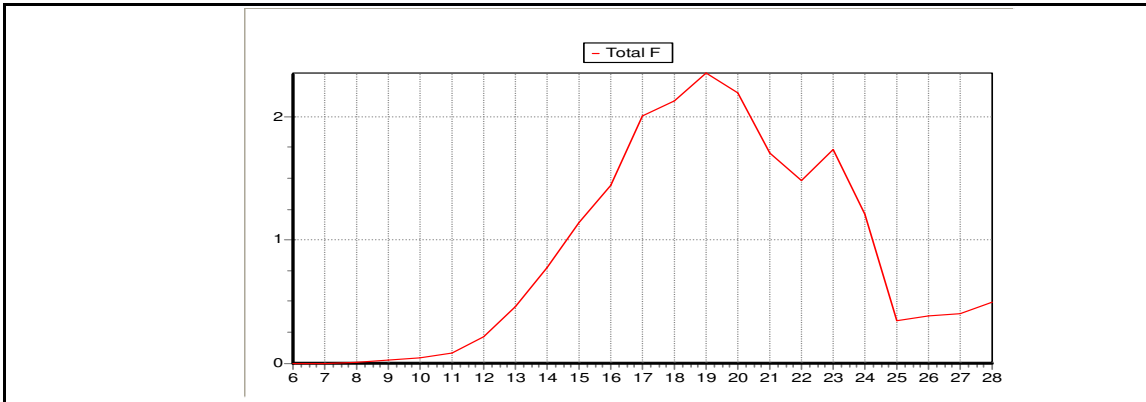
**Population in figures**



**Population in biomass**



**Fishing mortality rates**



Code: BOG0310Naj

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Sex*		Gear*		Analysis #*	
------	--	-------	--	-------------	--

**Population in figures**

**Population in biomass**

**Fishing mortality rates**



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

Assessment form

Sheet A3

Indirect methods: VPA results

**This sheet will be activated once the previous page will be successfully completed**

Code: BOG0310Naj



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

Assessment form

Sheet A3

Indirect methods: VPA results

**This sheet will be activated once the previous page will be successfully completed**

Code: BOG0310Naj



SAC GFCM - Sub-Committee on Stock Assessment (SCSA)	
Assessment form	Sheet Y Indirect methods: Y/R

Sex	Both	Code: BOG0310Naj
		Analysis #      Standard VPA

# of gears	1	Software	VIT
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**Parameters used**

Vector F	
Vector M	Constant
Vector N	

**Model characteristics**

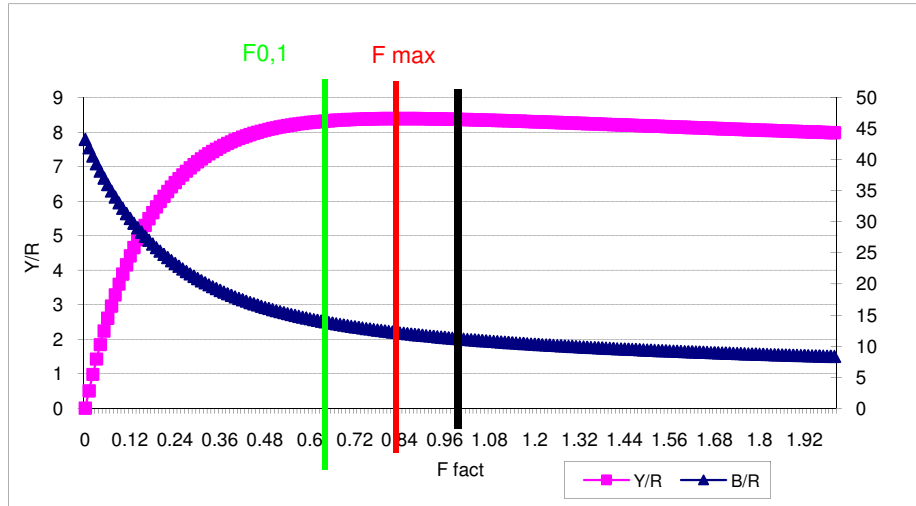
**Results**

	Total	Gear			
Current YR	8.368				
Maximum Y/R	8.38				
Y/R 0.1	8.29				
F <sub>max</sub>	0.75				
F <sub>0.1</sub>	0.61				
Current B/R	11.171				
Maximum B/R	12.825				
B/R 0.1	14.262				

**Comments**

- The values of Fmax and F0,1 in the table are absolutes and obtined by using F"terminal"= 0,5

Comments



Code: BOG0310Naj

**Indicators and reference points**

Criterion	Current value	Units	Reference Point	Trend	Comments
B					
SSB					
F					
Y					
CPUE					

**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) <b>Not known or uncertain</b> . Not much information is available to make a judgment;
	<input type="checkbox"/>	U - <b>Underexploited, undeveloped or new fishery</b> . Believed to have a significant potential for expansion in total production;
	<input type="checkbox"/>	M - <b>Moderately exploited</b> , exploited with a low level of fishing effort. Believed to have some limited potential for expansion in total production;
	<input type="checkbox"/>	F - <b>Fully exploited</b> . The fishery is operating at or close to an optimal yield level, with no expected room for further expansion;
	<input checked="" type="checkbox"/>	O - <b>Overexploited</b> . 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 - <b>Depleted</b> . Catches are well below historical levels, irrespective of the amount of fishing effort exerted;
	<input type="checkbox"/>	R - <b>Recovering</b> . 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 checked="" type="checkbox"/>	Intermediate abundance
	<input checked="" type="checkbox"/>	High fishing mortality	<input type="checkbox"/>	Low abundance
	<input type="checkbox"/>	Uncertain / Not assessed	<input type="checkbox"/>	Depleted
			<input type="checkbox"/>	Uncertain / Not assessed

**Comments**

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

Assessment form

Sheet Z

Objectives and recommendations

Code: BOG0310Naj

**Management advice and recommendations\***

- Reduire la mortalite par peche exercee sur le stock du Bogue,
- Veiller a appliquer la reglementation existante concernant les zone de peche et le maillage de l'engin de peche utilise. En effet, la reglementation impose la peche dans les zone au dela de 3 miles a l'Est d'Alhoceima et au dela de 80 metres de profondeur a l'Ouest.
- La reduction de la mortalite par peche peut etre realisee en limitant la migration des bateaux chalutiers de l'Atlantique vers la mediterranee durant certaines periode de l'annee.

**Advice for scientific research\***

-Standardisation des methodologies appliquees pour l'estimation des parametres de croissance et de mortalite, ainsi que les methodes d'evaluation des stocks mediterraneens.

- Realisation de l'echantillonnage biologique sur les captures de la peche artisanale en cette.



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

Assessment form

Sheet C  
Comments

Code: BOG0310Naj

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**Comments\***

The values of biological reference points  $F_{max}$  and  $F_{0,1}$  obtained indicates an overexploitation but without no signal of collaps.

-The fishing mortality is targeted on individuals of size between 16 cm and 23 cm.

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

Assessment form

Sheet C  
Comments

**Comments\***

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<b>SAC GFCM - Sub-Committee on Stock Assessment (SCSA)</b>	
Assessment form	Sheet C Comments

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<b>SAC GFCM - Sub-Committee on Stock Assessment (SCSA)</b>	
Assessment form	Sheet C Comments

**This sheet will be activated once the previous page will be successfully completed**



**Abstract for SCSA reporting**

**Authors**

Najib ELOUAMARI

**Year**

2010

**Species Scientific name**

Boops boops - BOG

Source: GFCM Priority Species

Source: -

Source: -

**Geographical Sub-Area**

03 - Southern Alboran Sea

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

La pêche des espèces demersales en méditerranée marocaine est pratiquée principalement par une flottille chalutière composée de 121 unités, mais également par une flotte de pêche artisanale quoique d'une manière nettement moins importante. La puissance motrice des chalutiers est très variable, oscillant entre un minimum de 80 CV et un maximum de 520 CV avec une moyenne de 339 CV. Aussi, le TJB est très variable oscillant entre 9.19 et 125 tonnes. La valeur moyenne de TJB est de 52 tonnes.

D'une manière générale, l'évolution des captures demersales a connue une augmentation, passant de 7680 tonnes en 2000 à plus de 17000 tonnes en 2009. Les débarquements de la bogue Boops boops ont fluctué considérablement avec une hausse spectaculaire en 2008 où on a enregistré un pic de 4213 soit une augmentation de plus de 200% par rapport à l'année 2007. La capture annuelle moyenne de cette espèce est de l'ordre de 2848 tonnes.

L'évolution de nombre de sorties annuelles montre une tendance à la hausse avec une augmentation plus significative au cours des dernières années. Le nombre de sorties réalisées varie entre 9070 et 12705 sorties/année, avec une moyenne annuelle de l'ordre de 10676 sortie/année. Cette évolution est due essentiellement à l'augmentation de nombre de bateaux en provenance des ports atlantiques.

**Source of management advice\***

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

Les données de fréquences de tailles utilisées dans cette étude proviennent de l'échantillonnage des débarquements de la bogue réalisés par la flotte chalutière opérationnelle en méditerranée marocaine, et plus particulièrement, les chalutiers opérants à partir des ports de Nador et d'Al-Hoceima.

Une matrice de données annuelles a été constituée puis les données annuelles sont regroupées pour la construction d'une pseudocohorte. Les paramètres de croissance utilisés dans cette étude (Loo, k, to, a et b) sont résumés dans le tableau suivant : a =0.00722; b=2.9369; Loo=31.5 K=0.28; to=-0.96(an) (Zoubi.A, 2001)

Il a été retenu une valeur de mortalité naturelle M= 0,59. Cette valeur de mortalité a été supposée constante pour toutes les classes de tailles et pendant toute la période considérée.

Plusieurs estimations du stock ont été essayées avec différentes valeurs de F terminales (0,4 < Fterm > 0,7) pour comparer les résultats. La valeur de F terminale adoptée est de l'ordre de 0.5. Le niveau d'exploitation du stock de la bogue a été déterminé à travers l'analyse de la courbe de rendement par recrue et le calcul des points de référence biologique F max et F0,1.

Les traitements de données ont été réalisés moyennant le logiciel VIT (LEONART & SALAT, 2000) conçu spécialement pour les analyses virtuelles des populations (VPA) et de rendements par recrue (Y/R) à partir de pseudocohortes en tailles

**Stock Status\***

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;

**Exploitation rate**

High fishing mortality

**Stock abundance**

Intermediate abundance

**Comments**

#### Management advice and recommendations\*

- Reduire la mortalite par peche exercee sur le stock du Bogue,
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**Advice for scientific research\***

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