SAC GFCM
Sub-Committee on Stock Assessment

Date*	20	October	2010	Code*	PAC2610Sah

Authors*

Sahar Fahmy Mehanna

Affiliation*

National Institute of Oceanography and Fisheries

Species Scientific name*

1 *Pagellus erythrinus* - *PAC*
Source: GFCM Priority Species

2
Source: -

3
Source: -

Geographical area*

Mediterranean, Egypt

Geographical Sub-Area (GSA)*

26 - South Levant

Combination of GSAs
1
2
3

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

Assessment form

Sheet #0
Basic data on the assessment

Code: PAC2610Sah

Date*	20	Oct	2010	Authors*	Sahar Fahmy Mehanna

Species Scientific name*	Pagellus erythrinus - PAC	Species common name*	Common pandora, Ghozayela

Data Source

GSA*	26 - South Levant	Period of time*	2007-2008

Description of the analysis

Type of data*	Length frequency data	Data source*	Commercial catch
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

Comments, bibliography, etc.

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

Assessment form

Sheet B
Biology of the species

Code: PAC2610Sah

Biology

Somatic magnitude measured (LH, LC, etc)*	TL	Units*	cm

Sex	Fem	Mal	Both	Unsexed		
Maximum size observed			30		Reproduction season	
Size at first maturity			15.1		Reproduction areas	
Recruitment size					Nursery areas	

Parameters used (state units and information sources)

			Sex			
		Units	female	male	both	unsexed
Growth model	L∞	cm			33.4	
	K				0.37	
	t0				-0.23	
	Data source	Mehanna & Fattouh, 2009				
Length weight relationship	a				0.0096	
	b				3.1181	
	M				0.46	
	sex ratio (mal/fem)					

Comments

M was estimated by Djabali et al. (1993)

Mehanna, S. F. and Fattouh, Sh. A., 2009. Fisheries management of the common pandora Pagellus erythrinus in the Egyptian Mediterranean waters. 3rd International Conference on aquatic resources "Integrated Coastal Zone Management and Sustainable Development", NIOF, 17-20 November, 2009, Alex., Egypt.

Comments

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

Assessment form

Sheet P1
General information about the fishery

Code: PAC2610Sah

Data source*	commercial catch	Year (s)*	2007-2008
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*	EGY	26	E - Trawl (12-24 metres)	03 - Trawls	33 - Demersal shelf species	PAC
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
EGY 26 E 03 33 - PAC	1190	Tons	337	33300		2000	vessel No.
Total	1190		337	33300		2000	

Legal minimum size	

Comments

The number of licensed vessels ranged between 1100 and 1500 during the period from 1997 to 2008.
The mean annual pandora landing is 250 tons (1997-2008) .
The discard means the undersized species, species of lesser commercial important, unidentified species and species which rarely appeard.
The mentioned values are the mean of two years 2007-2008.

Comments

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

Assessment form

Sheet P2a
Fishery by Operational Unit

Code: PAC2610Sah

Data source*	commercial catch	OpUnit 1*	EGY 26 E 03 33 - PAC

Time series

Year*	2000	2001	2002	2003	2004	2005
Catch						
Minimum size						
Average size Lc						
Maximum size						
Fleet	1171	1170	1157	1152	1161	1147

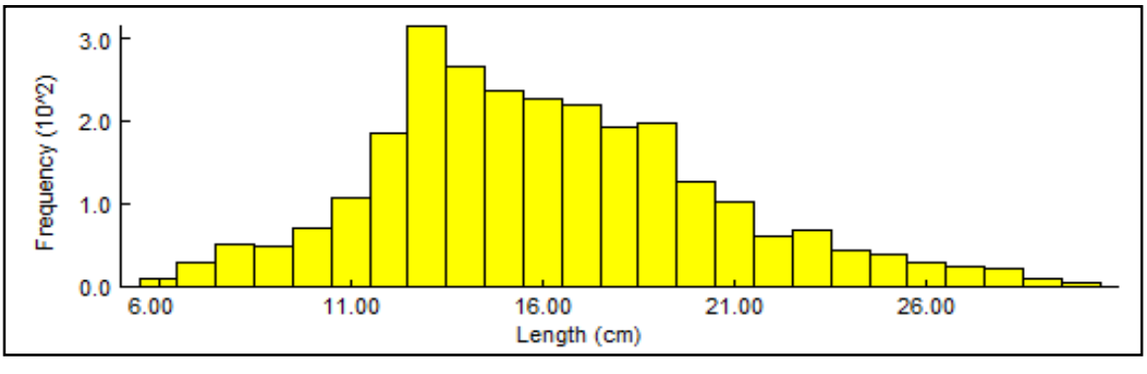
Year	2006	2007	2008			
Catch		353	320			
Minimum size		8	6			
Average size Lc		16.1	16			
Maximum size		30	30			
Fleet	1141	1135	1251			

Selectivity

L25	
L50	11.3
L75	
Selection factor	

Remarks

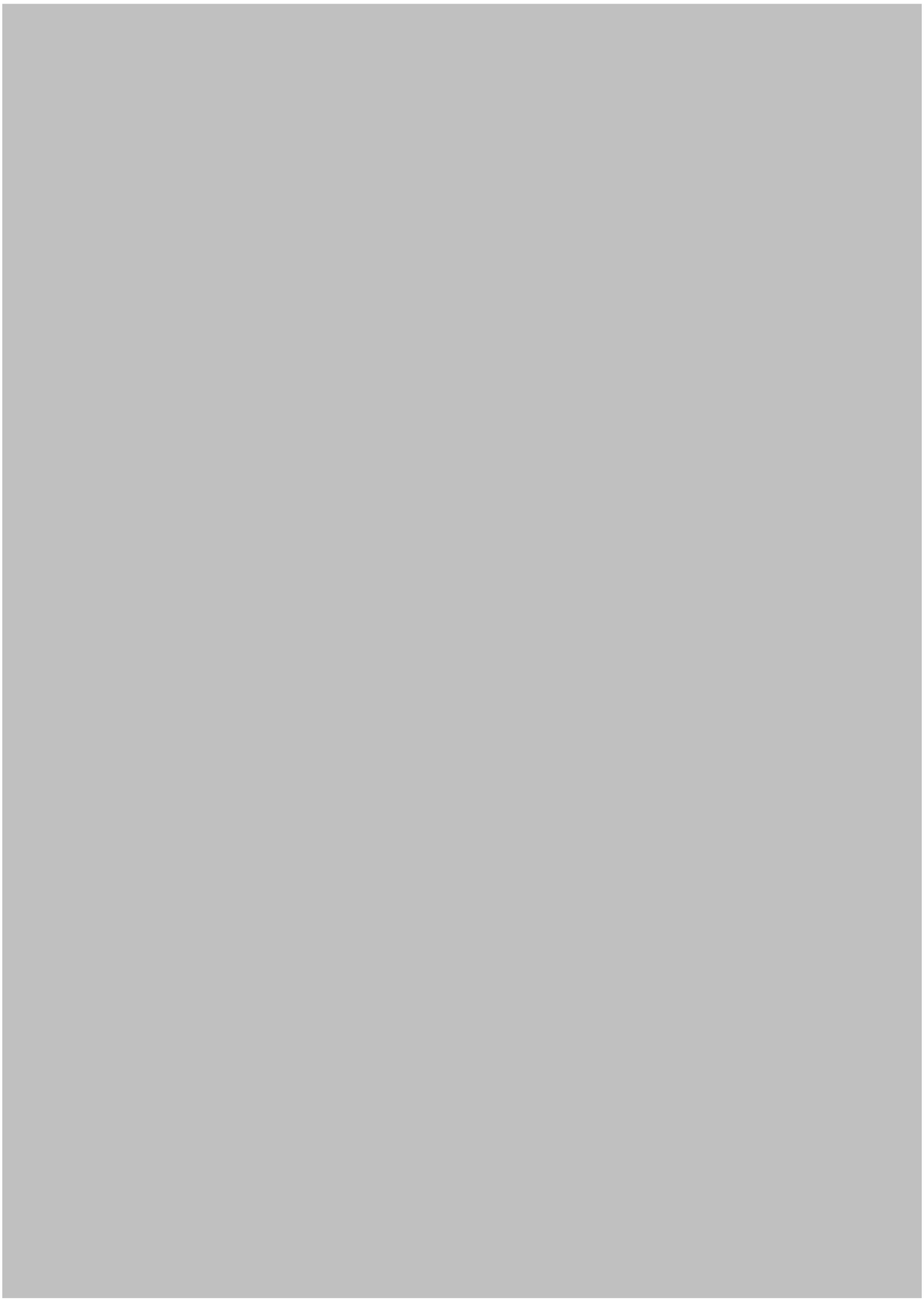
Structure by size or age



Structure by size or age

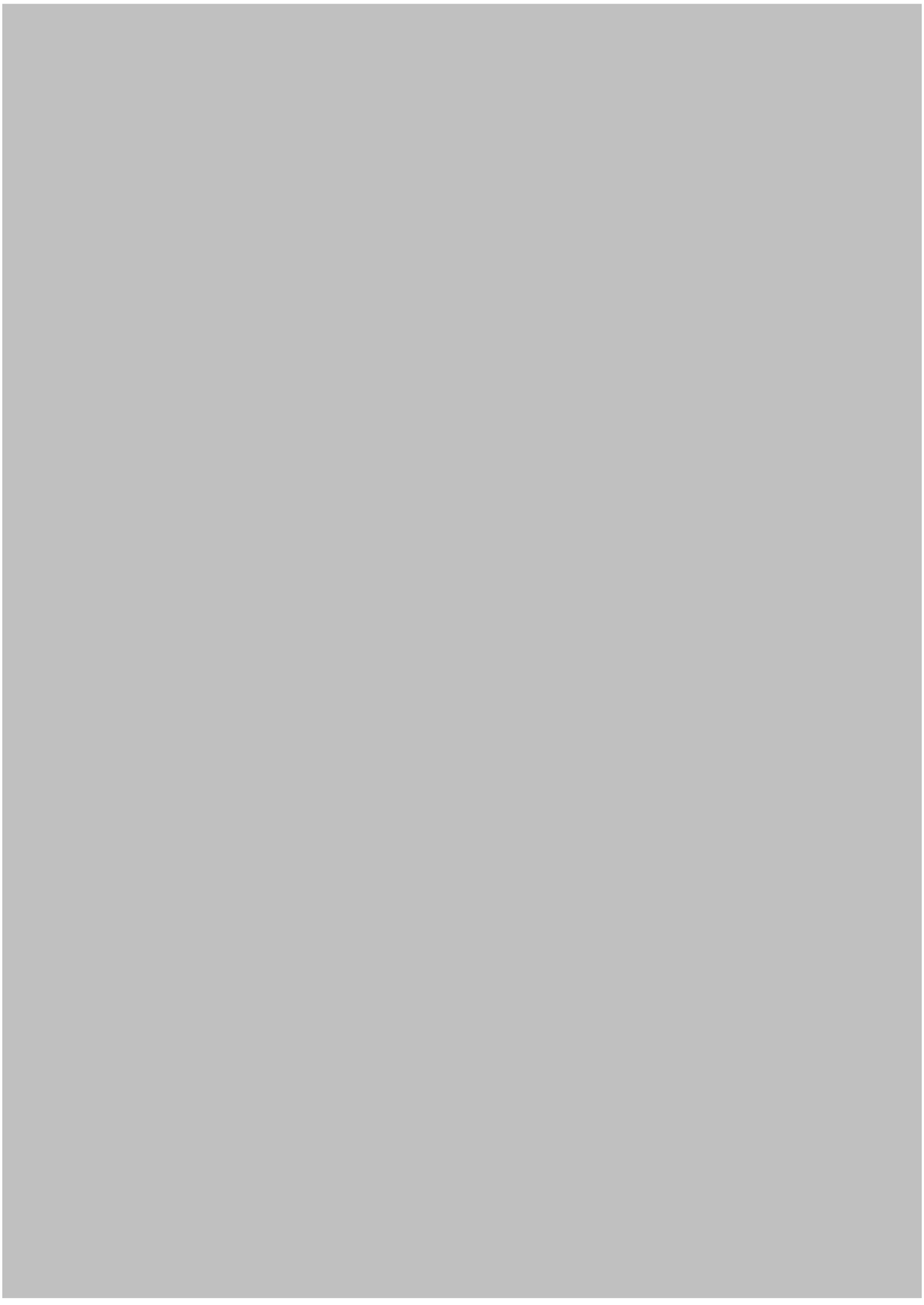
This sheet will be activated once the Operational Unit information (P1 section) will be successfully filled in

Code: PAC2610Sah



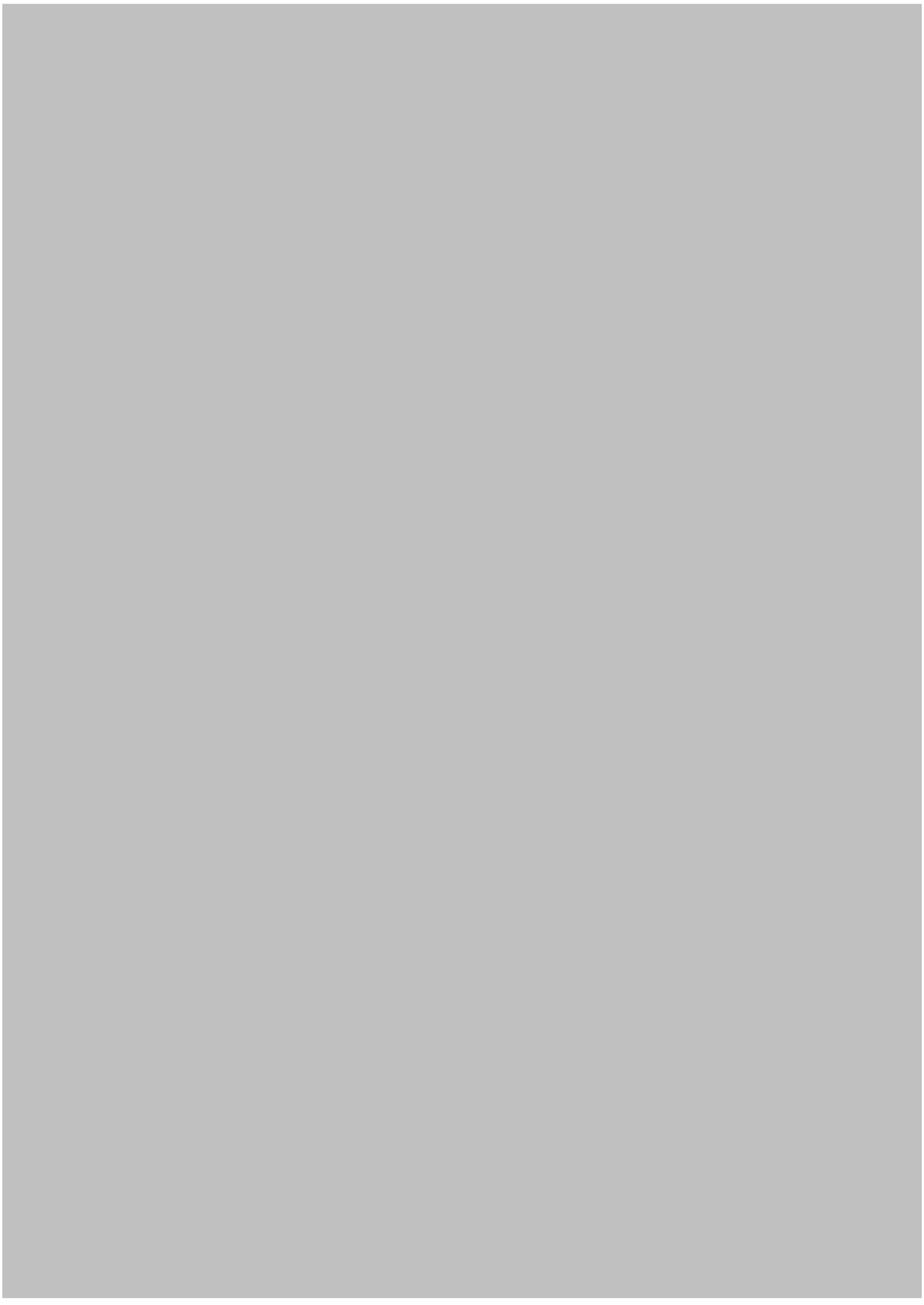
This sheet will be activated once the Operational Unit information (P1 section) will be successfully filled in

Code: PAC2610Sah



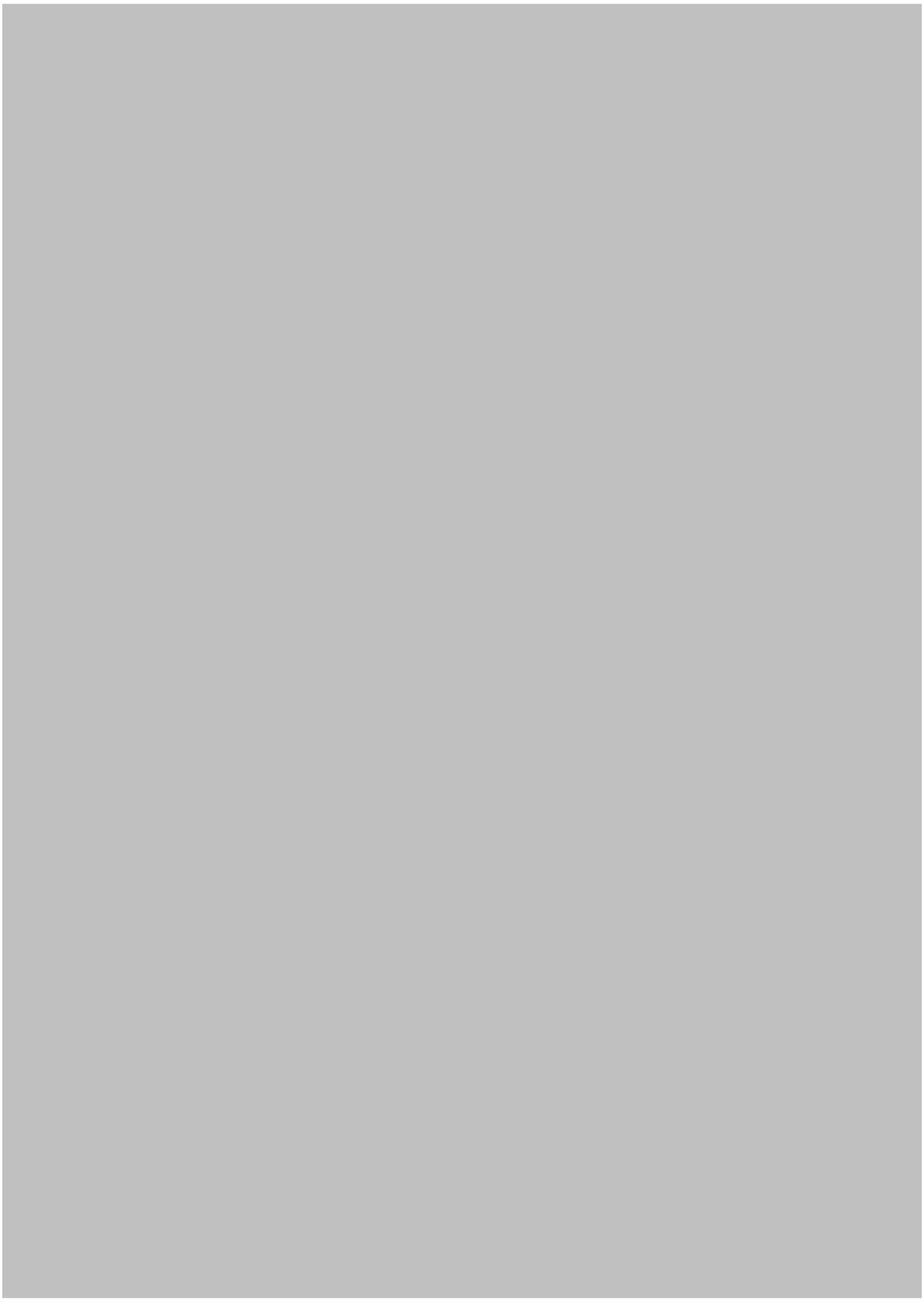
This sheet will be activated once the Operational Unit information (P1 section) will be successfully filled in

Code: PAC2610Sah



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

Code: PAC2610Sah

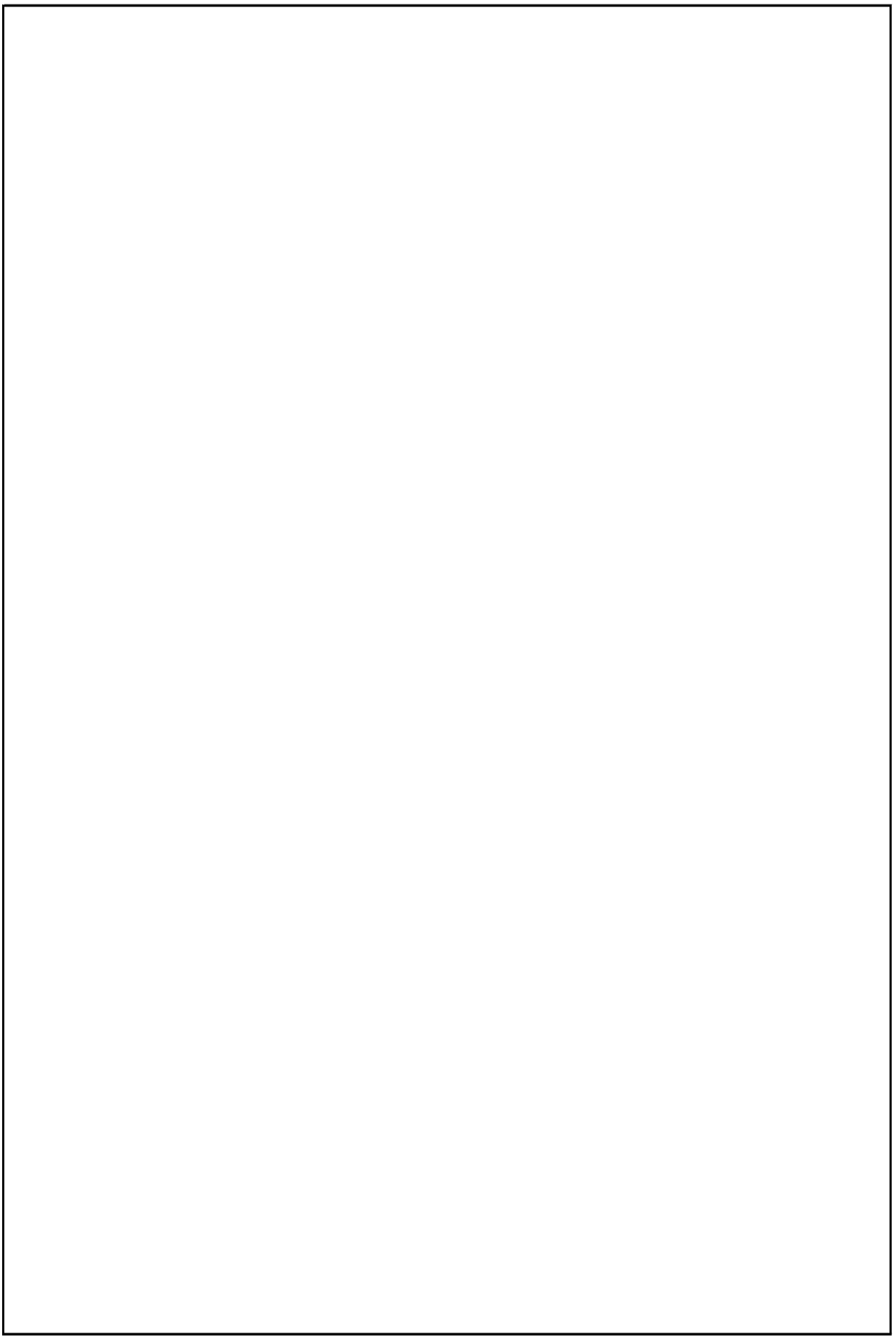


Data source*	commercial catch	OpUnit 1*	EGY 26 E 03 33 - PAC

Regulations in force and degree of observance of regulations

Closed season for 45 days (from 1st May- mid of June) since 2006 (not fully observed)
No new licenses are given since 1996 (not fully observed)
prevention any improvements on fishing vessels (not fully observed)
Mesh size regulation (not fully observed)

Accompanying species



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: PAC2610Sah

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: PAC2610Sah

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: PAC2610Sah

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: PAC2610Sah

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

Assessment form

Sheet A1
Indirect methods: VPA, LCA

Code: PAC2610Sah

Sex*	both

Analysis # *	**VPA**

Time series

Data	Size	Age
(mark with X)	X	

Model	Cohorts	Pseudocohorts
(mark with X)		X

Equation used	standard VPA	Tunig method	
# of gears	1	Software	VIT
$F_{terminal}$	0.5		

Population results (please state units)

	Sizes	Ages		Amount	Biomass
Minimum	6		Recruitment		
Average	16		Average population		
Maximum	30		Virgin population		
Critical			Turnover		

Average mortality

		Gear					
	Total						
F_1							
F_2							
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

Code: PAC2610Sah

Sex*	

Analysis # *	

Time series

Data	Size	Age
(mark with X)		

Model	Cohorts	Pseudocohorts
(mark with X)		

Equation used		Tunig method	
# of gears		Software	
$F_{terminal}$			

Population results (please state units)

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

Average mortality

		Gear					
	Total						
F_1							
F_2							
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: PAC2610Sah

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: PAC2610Sah

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

Assessment form

Sheet A2
Indirect methods: data

Code: PAC2610Sah

Sex*	both	Gear*	bottom trawl	Analysis # *	**Y/R**

Data source	Biological samples

Data

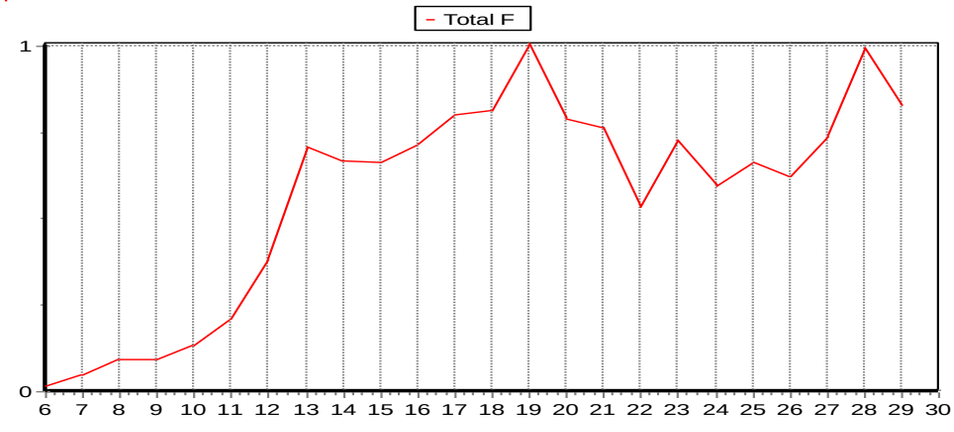
Based on monthly fish samples collected from landing sites and local market, the stock assessment of *Pagellus erythrinus* in GSA 26 was done.

Sex*	both	Gear*	bottom trawl	Analysis #*	VPA

Population in figures

Population in biomass

Fishing mortality rates



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: PAC2610Sah

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: PAC2610Sah

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

Assessment form

Sheet Y
Indirect methods: Y/R

Code: PAC2610Sah

Sex	both

Analysis #	1

# of gears	1	Software	VIT

Parameters used

Vector F	
Vector M	constant
Vector N	

Model characteristics

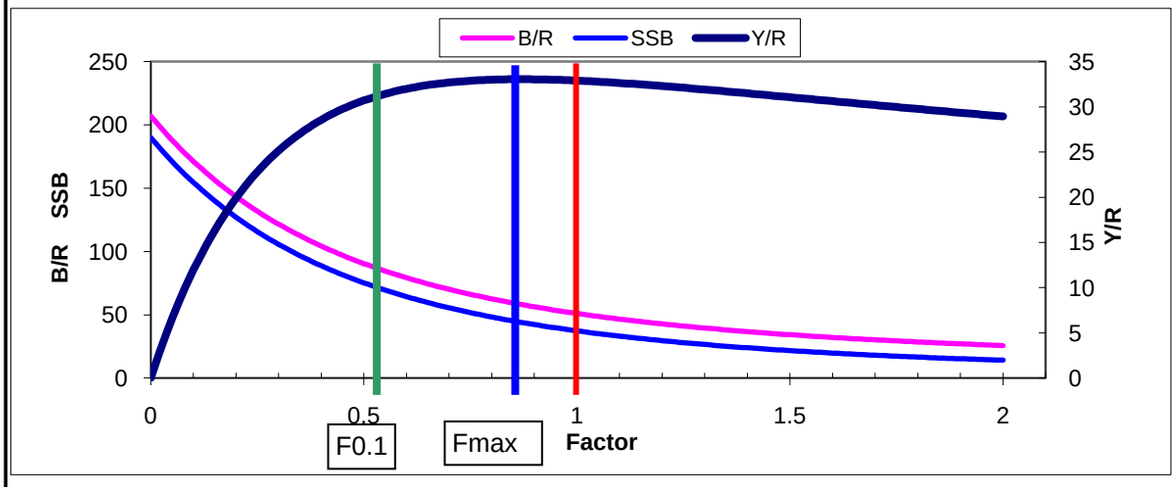
Results

	Total	Gear			
Current YR	32.39				
Maximum Y/R	33.4				
Y/R 0.1	26.34				
F_{max}	0.57				
$F_{0.1}$	0.34				
Current B/R	74.48				
Maximum B/R	207				
B/R 0.1	115.96				

Comments

The mean length-frequency data of two combined years (2007-2008) raised to the mean total catch of those two years was used.

Comments


B/R
SSB
Y/R
250
200
150
100
50
0
35
30
25
20
15
10
5
0
B/R SSB
Y/R
0
0.5
1
1.5
2
Factor
F0.1
Fmax

Other assessment methods

Other assessment methods

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

Assessment form **Sheet other**

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

Code: PAC2610Sah

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

Assessment form **Sheet other**

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

Code: PAC2610Sah

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

Code: PAC2610Sah

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

Unidimensional

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

Bidimensional

Exploitation rate

○	No or low fishing
○	Moderate fishing
◉	High fishing mortality
○	Uncertain / Not assessed

Stock abundance

○	Virgin or high abundance
○	Intermediate abundance
○	Low abundance

○	Depleted
○	Uncertain / Not assessed

Comments

Code: PAC2610Sah

Management advice and recommendations*

Fishing mortality should be reduced by about 40-60% to achieve F0.1.
Mesh sizes should be regulated.
Nursery grounds should be identified and protected from illegal fishing techniques.

Advice for scientific research*

Advice for scientific research

With possible support of regional projects
The necessity to work in order to provide a common management information system for the Mediterranean countries.
The necessity to standardize the stock assessment methods to facilitate the comparison between species in different areas.
It is necessary to make an accurate data base about our fisheries involving good records for fishery statistics.

Abstract for SCSA reporting

Authors Sahar Fahmy Mehanna

Year 2010

Species Scientific name Pagellus erythrinus - PAC

Source: GFCM Priority Species

Source: -

Source: -

Geographical Sub-Area 26 - South Levant

Fisheries (brief description of the fishery)*

The number of licensed trawl vessels ranged between 1100 and 1500 during the period from 1997 to 2008.
This fleet targets many species such as red mullet, Mullus surmuletus and M. barbatus; the sparids, Sparus aurata, Pagellus spp., Boops boops, Lithognathus mormyrus, Diplodus spp.; the soles, Solea spp.; the European hake, Merluccius merluccius; the picarels, Spicara spp.; the lizardfishes, Synodus saurus; the cephalopods, Sepia spp., Loligo spp. and Octopus spp.; crabs, Portunus pelagicus and shrimp which represented by about 10 species.

The vessel length varied between 18 and 22 m and its width varied from 4 to 6 m.
Each vessel is powered by main engine of 150 to 600 hp but the majority of 250 hp engine.
The fishing trip is about 7 to 10 days and the number of crew is about 6 to 15 persons.

The mean annual landing of trawl fishery is around 17 thousand tons accounting for approximately 33% of total catches in Egyptian Mediterranean.

Source of management advice*

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

The fish samples were collected monthly from the trawl fishery during two years (2007-2008). Also, some of these samples were collected from local markets.
Age and growth was done based on the scale's readings
The growth parameters (L8 , k and t0) were estimated following the Von Bertalanffy growth curve
The length at first capture (Lc) was estimated from the catch curve analysis
The length at first sexual maturity (Lm) was estimated by fitting the maturation curve between the observed points of mid-class interval and the percentage maturity of fish corresponding to each length interval.
The yield per recruit (Y/R) analysis was performed using VIT software and Beverton and Holt model
The total mortality coefficient (Z) was estimated using the converted catch curve and VPA
The natural mortality coefficient was estimated according to Djabali et al. (1993).

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

Comments

Management advice and recommendations*

Advice for scientific research*