SAC GFCM
Sub-Committee on Stock Assessment

Date*	1	November	2011	Code*	PAC2611*El

Authors*

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Species Scientific name*

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

2
Source: -

3
Source: -

Geographical area*

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: PAC2611*El

Date*	1	Nov	2011	Authors*	*El-haweet A.A.K., **El-ganainy A.A. and **Mahmoud H.H

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

Data Source

GSA*	26 - South Levant	Period of time*	two years

Description of the analysis

Type of data*	Length frequency data	Data source*	Trawl survey in the entire Egyptian Mediterranean coast.
Method of assessment*	Yeild per recruit model and relative Y/R and B/R (knife edge selection) estimation of the biological ref. points	Software used*	FiSAT software

Sheets filled out

B	P1	P2a	P2b	G	A1	A2	A3	Y	Other	D	Z	C
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Comments, bibliography, etc.

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Comments, bibliography, etc.

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Assessment form	**Sheet B** **Biology of the species**

Code: PAC2611*EI

Biology

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

Sex	Fem	Mal	Both	Unsexed		
Maximum size observed				25.5	Reproduction season	
Size at first maturity					Reproduction areas	
Recruitment size					Nursery areas	

Parameters used (state units and information sources)

			Sex			
		Units	female	male	both	unsexed
Growth model	L∞	cm				40.086
	K					0.1744
	t0					-0.747
	Data source	Trawl survey				
Length weight relationship	a					0.014
	b					2.968
	M					0.476
	sex ratio (mal/fem)					

Comments

The length frequency was analyzed by Bhattacharya method in order to estimate the age composition and then Von Bertalanffy parameters.

Comments

SAC GFCM - Sub-Committee on Stock Assessment (SCSA)	
Assessment form	**Sheet P1** **General information about the fishery**

Code: PAC2611*EI

Data source*	Trawl survey in the entire Egyptian Mediterranean coast.	Year (s)*	2006-2007

Data aggregation (by year, average figures between years, etc.)*	Seasonally basis

Fleet and catches (please state units)

	Country	GSA	Fleet Segment	Fishing Gear Class	Group of Target Species	Species
Operational Unit 1*	EGY	26	F - Trawl (>24 metres)	03 - Trawls	33 - Demersal shelf species	PAC
Operational Unit 2						
Operational Unit 3						
Operational Unit 4						
Operational Unit 5						

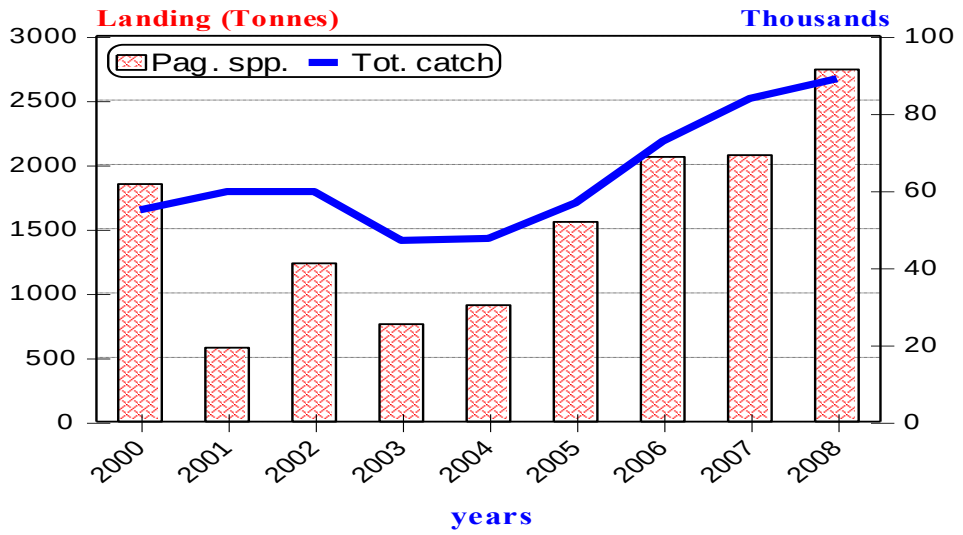
Operational Units*	Fleet (n° of boats)*	Kilos or Tons	Catch (species assessed)	Other species caught	Discards (species assessed)	Discards (other species caught)	Effort units
EGY 26 F 03 33 - PAC							
Total							

Legal minimum size	

Comments

Genus *Pagellus* is represented in the Egyptian Mediterranean waters by two species: *Pagellus erythrinus* (red or common pandora) and *Pagellus acarne* (axillary sea bream). Both species are usually found with *Pagrus* species in the catch and all are landed under one category. *Pagellus erythrinus* consider by about 60% of this category. The trawl fishery exploits the common Pandora with 22-30 mm diamond mesh size codend, thus the catches included small size specimens.

Comments



The landed catch of Pagellus and the total landed catch of the Egyptian Mediterranean coast in the years from 2000 to 2008.

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Assessment form

Sheet P2a
Fishery by Operational Unit

Code: PAC2611*EI

Data source*	Trawl survey in the entire Egyptian Mediterranean coast.	OpUnit 1*	EGY 26 F 03 33 - PAC

Time series

Year*	2006-2007					
Catch						
Minimum size	7.5					
Average size Lc	15.46					
Maximum size	25.5					
Fleet						

Year						
Catch						
Minimum size						
Average size Lc						
Maximum size						
Fleet						

Selectivity

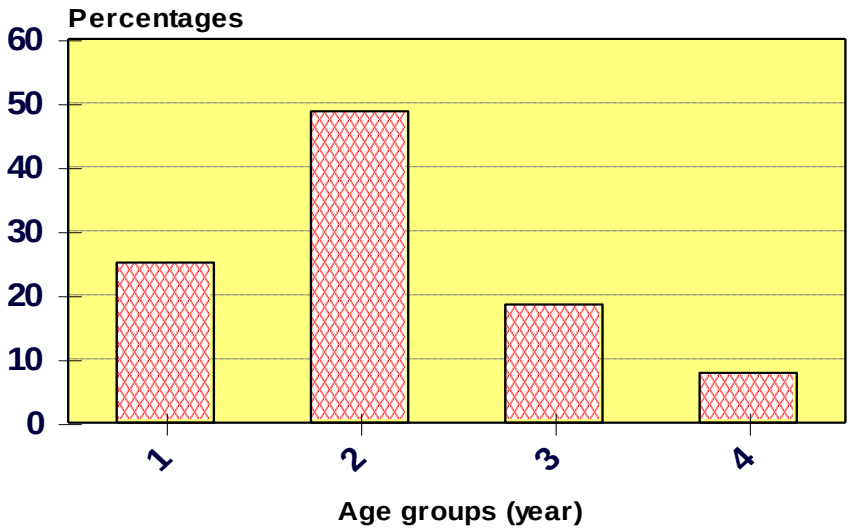
L25	
L50	
L75	
Selection factor	

Remarks

Structure by size or age

The fish samples represented by four age groups , the dominant age group is age group II by about 48.7% followed by age group I which represented by about 25%, age group III 18.5% and age group IV by about 7.8%.

Structure by size or age



Age composition of Pagellus erythrinus in the Egyptian Mediterranean .

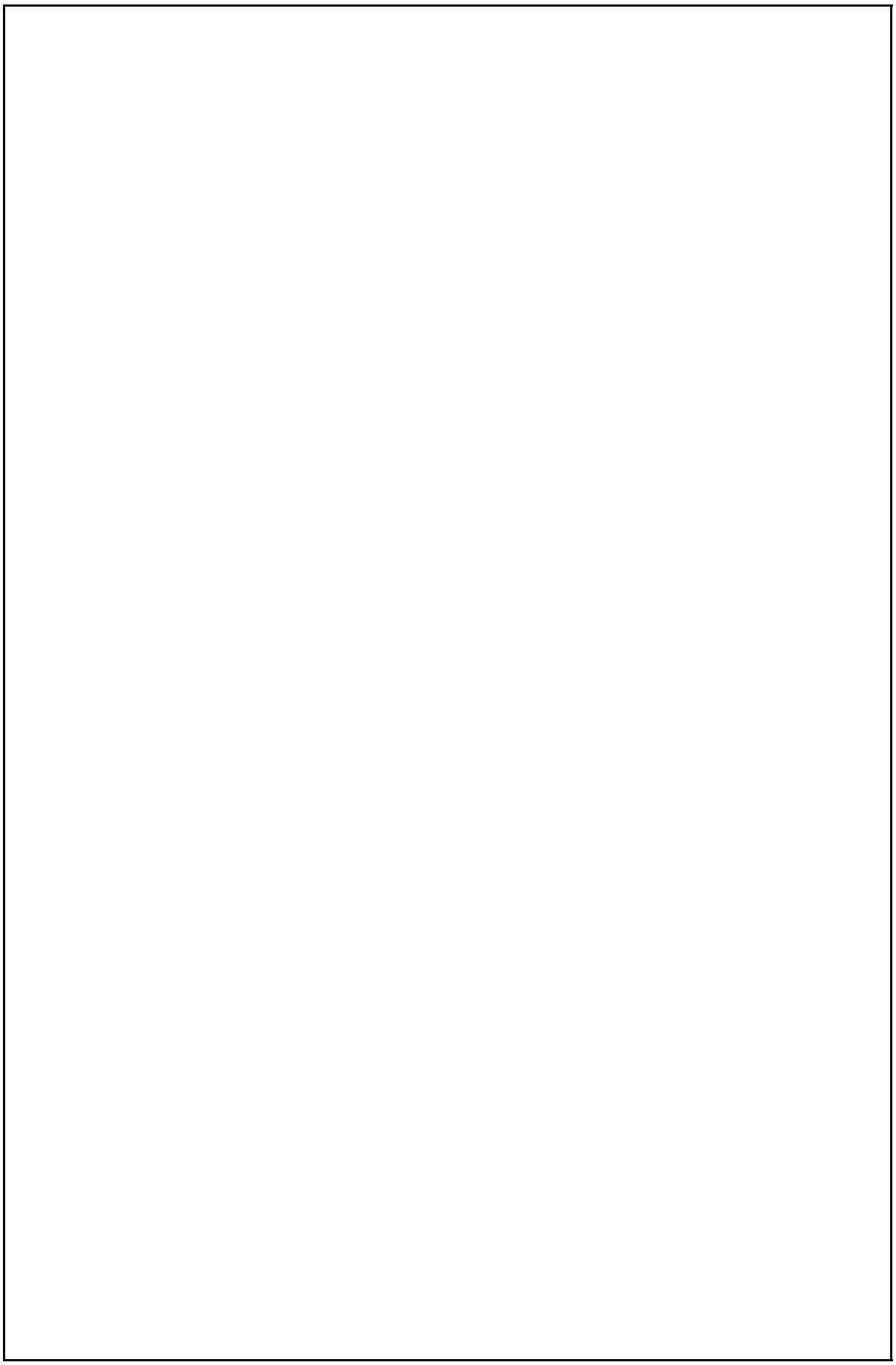
Data source*	Trawl survey in the entire Egyptian Mediterranean coa	OpUnit 1*	EGY 26 F 03 33 - PAC

Regulations in force and degree of observance of regulations

closed season during May and June since 2007.

Accompanying species

Penaeus semisulcatus, Metapenaeus stebbingi, Sepia officinalis, Mullus surmuletus and Saurida undosquamis



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Assessment form

Sheet G
Indirect methods. Global model

Code: PAC2611*EI

Analysis #*

Data source*	Trawl survey in the entire Egyptian Mediterranean coast.	Gear*	Trawl

Model characteristic

Type of model*	Analytical model	Fitting criterion	
Software	FiSAT	Bibliographical source	

Data

Year	2006-2007						
Catch							
Effort							
CPUE							

Year							
Catch							
Effort							
CPUE							

Adjustment

RMS	

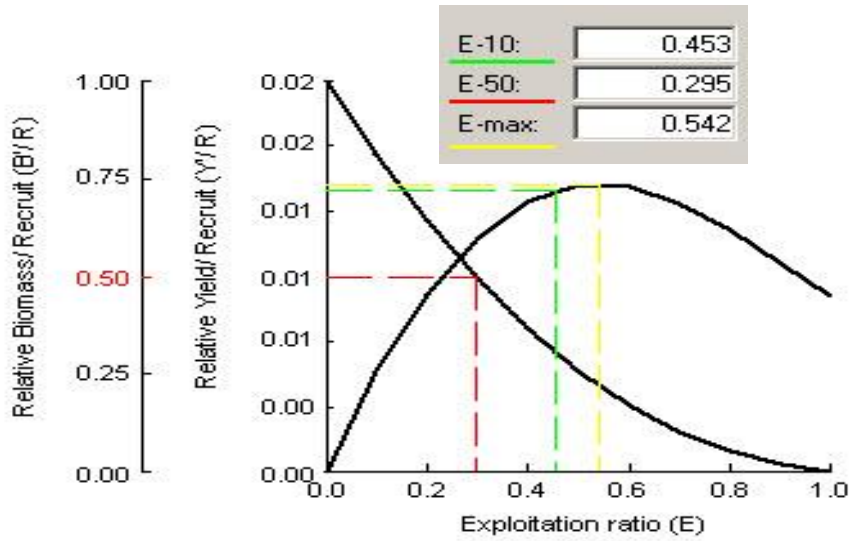
Results

Carryng capacity		a	0.014
Growth rate		b	2.968
Catchability			
MSY			
EMSY	0.542	TACMSY	
E0.1	0.453	TAC0.1	
Ecurrent	0.538		

Comments

The curent exploitation ratio is more than E0.1 and nearly equal to Emax.

Comments


E-10: 0.453
E-50: 0.295
E-max: 0.542
Relative Biomass/ Recruit (B'/R)
1.00
0.75
0.50
0.25
0.00
Relative Yield/ Recruit (Y'/R)
0.02
0.02
0.01
0.01
0.01
0.00
0.00
0.0
0.2
0.4
0.6
0.8
1.0
Exploitation ratio (E)

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Assessment form

Sheet A1
Indirect methods: VPA, LCA

Code: PAC2611*EI

Sex*	

Analysis # *	

Time series

Data	Size	Age
(mark with X)	x	

Model	Cohorts	Pseudocohorts
(mark with X)	x	

Equation used	Yield per recruit equation	Tunig method	
# of gears	Trawl	Software	FiSAT
$F_{terminal}$	0.554		

Population results (please state units)

	Sizes	Ages		Amount	Biomass
Minimum	7.5		Recruitment		
Average	15.46		Average population		
Maximum	25.5		Virgin population		
Critical			Turnover		

Average mortality

		Gear					
	Total						
F_1	0.554						
F_2							
Z	1.03						

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

Comments

Fcur = 0.554, Fmax = 0.567 and F0.1 = 0.297

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

Code: PAC2611*EI

Sex*	combined	Gear*	Trawl	Analysis # *	

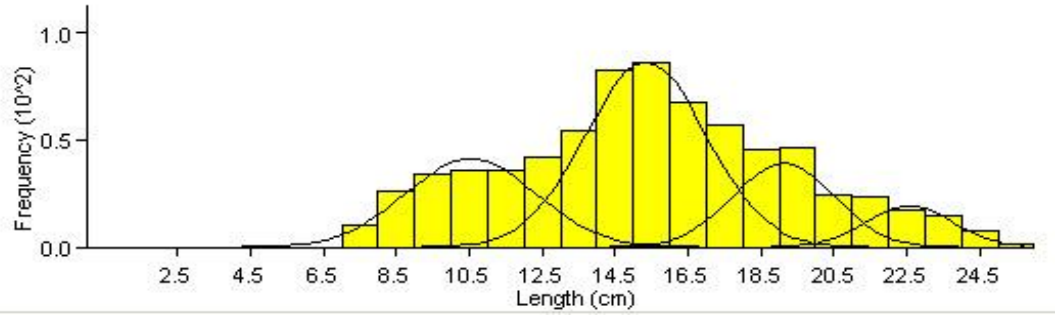
Data source	Length frequency data

Data

L. interval (cm	Mid. L. (cm)	survey
7 - 8	7.5	1.41
8 - 9	8.5	3.67
9 - 10	9.5	4.80
10 - 11	10.5	5.08
11 - 12	11.5	5.08
12 - 13	12.5	5.92
13 - 14	13.5	7.62
14 - 15	14.5	11.57
15 - 16	15.5	12.13
16 - 17	16.5	9.45
17 - 18	17.5	8.04
18 - 19	18.5	6.35
19 - 20	19.5	6.49
20 - 21	20.5	3.39
21 - 22	21.5	3.24
22 - 23	22.5	2.40
23 - 24	23.5	2.12
24 - 25	24.5	1.13
25 - 26	25.5	0.14
26 - 27	26.5	0.00
27 - 28	27.5	0.00

Sex*		Gear*		Analysis #*	

Population in figures



Population in biomass

Fishing mortality rates

F_{cur} = 0.554, F_{max} = 0.567 and $F_{0.1}$ = 0.297

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

Assessment form

Sheet Y

Indirect methods: Y/R

Code: PAC2611*EI

Sex		Analysis #	

# of gears	trawl	Software	FiSAT

Parameters used

Vector F	
Vector M	
Vector N	

Model characteristics

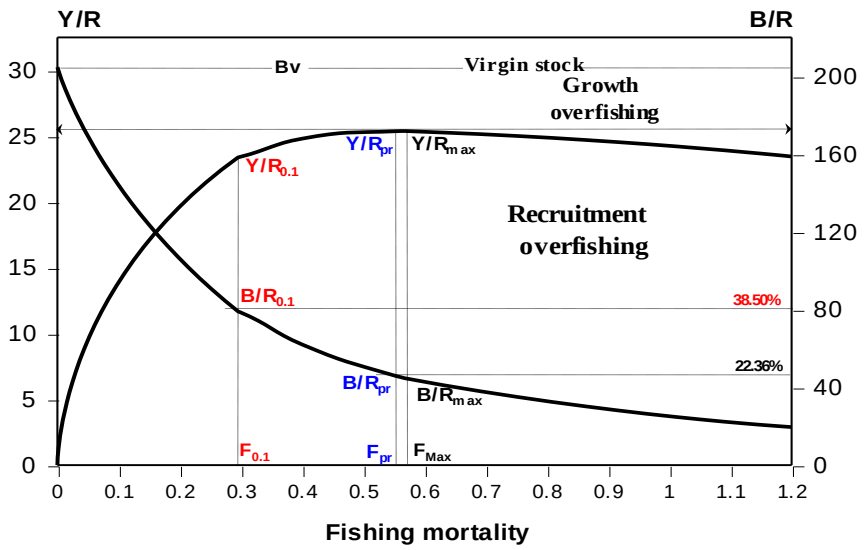
Total mortality was estimated by the length converted catch curve and natural mortality was estimated by the Pauly equation. Beverton and Holt yield per recruit model and relative yield per recruit analysis (knife edge selection) were performed with FiSAT software, in order to estimate also the reference points.

Results

	Total	Gear			
Current YR	25.377				
Maximum Y/R	25.379				
Y/R 0.1	23.4071				
F_{max}	0.567				
$F_{0.1}$	0.297				
Current B/R	45.78				
Maximum B/R	204.71				
B/R 0.1	78.81				

Comments

Comments



Yield per recruit and biomass per recruit curves of *P. erythrinus* in Egyptian Mediterranean coast.

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

Code: PAC2611*EI

Indicators and reference points

Criterion	Current value	Units	Reference Point	Trend	Comments
B					
SSB					
F	0.554		0.297		
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: PAC2611*EI

Management advice and recommendations*

improvement of the trawl exploitation pattern (40 mm square mesh size or 50 mm diamond mesh size) and reduction of fishing mortality up to 45% for the entire Egyptian coast to reach F0.1.

Advice for scientific research*

Abstract for SCSA reporting

Authors *El-haweet A.A.K., **El-ganainy A.A. and **Mahmoud H.H

Year 2011

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 main fishing ground used by the Egyptian fishing fleet is the continental shelf off the Nile delta. Recently the fleet also extended its activities to the Eastern side off Sinai and seasonally to the Western side of Alexandria. The region near the Nile delta has a large continental shelf which becomes progressively narrow on the western and eastern parts. Along the middle and eastern coast the seabed is flat with mostly muddy and sandy bottoms. On the western coast trawlable grounds are limited since the region is dominated by rocky bottoms. Apart from trawling inshore fisheries are very common, with a high number of artisanal fishers along the coast. There are ten fisheries centres along the coast with five developed fishing ports in Alexandria, Maaddia, Borollus, Damietta and Port Said

Source of management advice*

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

The main fishing ground used by the Egyptian fishing fleet is the continental shelf off the Nile delta. Recently the fleet also extended its activities to the Eastern side off Sinai and seasonally to the Western side of Alexandria. The region near the Nile delta has a large continental shelf which becomes progressively narrow on the western and eastern parts. Along the middle and eastern coast the seabed is flat with mostly muddy and sandy bottoms. On the western coast trawlable grounds are limited since the region is dominated by rocky bottoms. Apart from trawling inshore fisheries are very common, with a high number of artisanal fishers along the coast. There are ten fisheries centres along the coast with five developed fishing ports in Alexandria, Maaddia, Borollus, Damietta and Port Said

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*

improvement of the trawl exploitation pattern (40 mm square mesh size or 50 mm diamond mesh size) and reduction of fishing mortality up to 45% for the entire Egyptian coast to reach F0.1.

Advice for scientific research*