SAC GFCM
Sub-Committee on Stock Assessment

Date*	24	October	2011	Code*	YRC9911Bac

Authors*

Bachra CHEMMAM-ABDELKADER and Soufia EZZEDDINE

Affiliation*

INSTM 2025 SALAMMBO TUNISIE

Species Scientific name*

1 *Sphyraena sphyraena -Northern and Eastern area YRC*

Source: -

2

Source: -

3

Source: -

Geographical area*

Western and Central Mediterraenean

Geographical Sub-Area (GSA)*

99 - Combination of GSAs

Combination of GSAs

1 12 - Northern Tunisia

2 13 - Gulf of Hammamet

3

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Assessment form

Sheet #0

Basic data on the assessment

Code: YRC9911Bac

Date*	24	Oct	2011	Authors*	Bachra CHEMMAM-ABDELKADER and Soufia EZZEDDINE

Species Scientific name*	Sphyraena sphyraena -Northern and	Species common name*	barracuda

Data Source

GSA*	12 - Northern Tunisia, 13 - Gulf of Hammamet	Period of time*	2006/2008

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.

the sampling were realised in the landing points and some individuals from surveys
the gears were the gillnet (77%) and the purse seine (23%)
the small classes were provided from purse seine, the small scale fishing catch large individuals.
the adults were fished mainly in spawning season which corresponds at period comprised between April and August.
the size classes were as following: in the north: lower size: 17cm ; last size: 73cm
in the east: lower size: 17cm ; last size: 48cm

CHEMMAM-ABDELKADR B., EZZEDDINE S., 2007. période de ponte, sex ratio et maturité sexuelle du brochet de mer Sphyraena sphyraena (sphyraenidae, Teleostei) des côtes nord et est tunisiennes. Bull. Inst. Nat. Sc. tech. Mer, Salammbô, 34: (5-8).
DHRAIEF, I, CHEMMAM-ABDELKADER B., EZZEDDINE S., BEN SALEM M., 2008. Présence de Sphyraena viridensis (Sphyraenidae) sur les côtes nord tunisiennes. Bull. Inst. natn. Sc. tech. Mer, salammbô, 35: 181-185.
DHRAIEF, I., 2009- Etude écobiologique des Shyraenidae des côtes nord tunisiennes. Mastère, Fac. Sciences, Tunis, 120p.

Comments, bibliography, etc.

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

Code: YRC9911Bac

Biology

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

Sex	Fem	Mal	Both	Unsexed		
Maximum size observed			73		Reproduction season	April-August
Size at first maturity			26		Reproduction areas	in the deep sea>100m
Recruitment size			17		Nursery areas	on the low

Parameters used (state units and information sources)

			Sex			
		Units	female	male	both	unsexed
Growth model	L∞	cm			103.5	
	K	year-1			0.076	
	t0	Year			-2.342	
	Data source	Chemmam-abdelkader and al., 2007. Bull. Inst. Natr				
Length weight relationship	a				0.0064	
	b				2.86	
	M				0.173	

sex ratio (mal/fem)	0.7

Comments

- growth parameters were obtained by the indirected method based on size frequency (battacharya method, FISAT)
- growth parameters are made in both sexes (male and females together)
- the females dominate along the year excepted for the months corresponding to May and June.
- the sexual maturity takes place mainly between April and May and the spawning coincides in june-july.
- the male and female reach the first maturity at the same size (L50=26cm).-
- the major age that S.s. could be reached is estimated at 15 years in males and 18years in females.
- from the age of 2 years, the female shows a greater weight gain than the male.
- the diet of S.s. is mainly based on fishes (93%) and few crustaceans and molluscs; the fishes are specially composed by species belonging to carangidae family.

For 6 years, it appeared on the tunisian northern coasts, a second species. This is Sphyraena viridensis which becomes more and more nunerous.

- mortality index M is the mean of the estimated value from Djabaly and Pauly empirical equation.

Comments

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Assessment form

Sheet P1

General information about the fishery

Code: YRC9911Bac

Data source*	biological and metrical sampling (size frequency)	2006/2008	

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*	TUN	12	H - Purse Seine (12-24 metres)	02 - Seine Nets	33 - Demersal shelf species	YRC
Operational Unit 2	TUN	13	C - Minor gear with engine (6-12 metres)	07 - Gillnets and Entangling Nets	33 - Demersal shelf species	YRC
Operational Unit 3						
Operational Unit 4						
Operational Unit 5						

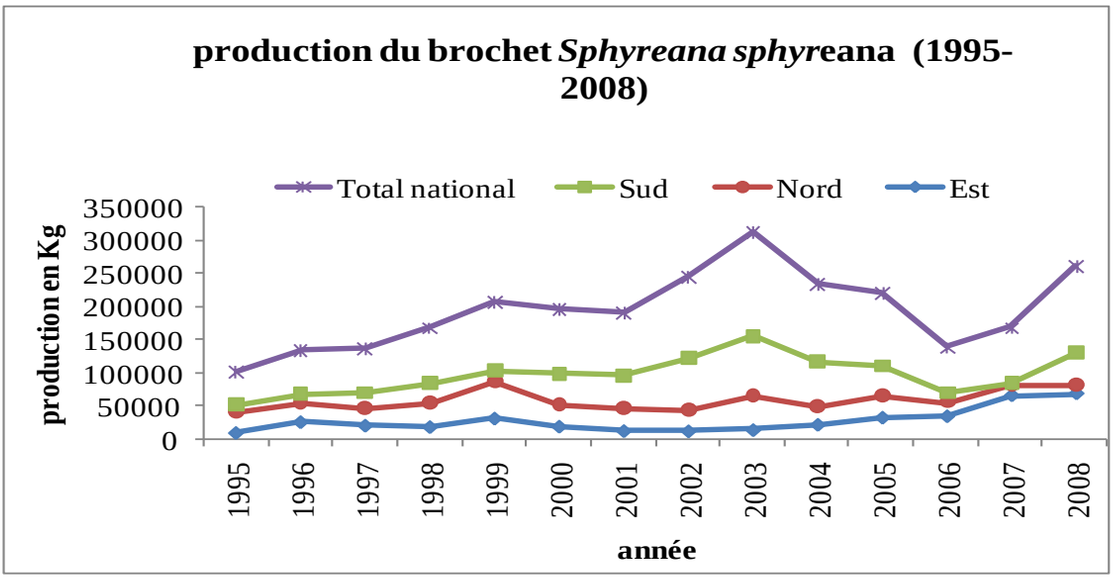
Operational Units*	Fleet (n° of boats)*	Kilos or Tons	Catch (species assessed)	Other species caught	Discards (species assessed)	Discards (other species caught)	Effort units
TUN 12 H 02 33 - YRC		Kg	72317				
TUN 13 C 07 33 - YRC		Kg	21479				
Total			93796				

Legal minimum size	no legal minimum size

Comments

the puse seinefishing is directed toward small individuals
the gillnets (in the northern area) catch mainly large individuals
S.s. is caught by catch
the spawning takes place in june-july.
the maximum of production corresponds in reproduction season (April-july).

Comments


production du brochet *Sphyreana sphyr*eana (1995-2008)
Total national
Sud
Nord
Est
production en Kg
350000
300000
250000
200000
150000
100000
50000
0
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
année

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Assessment form

Sheet P2a
Fishery by Operational Unit

Code: YRC9911Bac

Data source*		OpUnit 1*	TUN 12 H 02 33 - YRC

Time series

Year*	1997	1998	1999	2000	2001	2002
Catch	68760	84152.33	103375.85	98480.52	95562.29	122318.31
Minimum size						
Average size Lc						
Maximum size						
Fleet						

Year	2003	2004	2005	2006	2007	2008
Catch	156508.13	117171.27	110466.68	69185	84134.62	130420.38
Minimum size				17	17	23
Average size Lc						
Maximum size				73	47	50
Fleet						

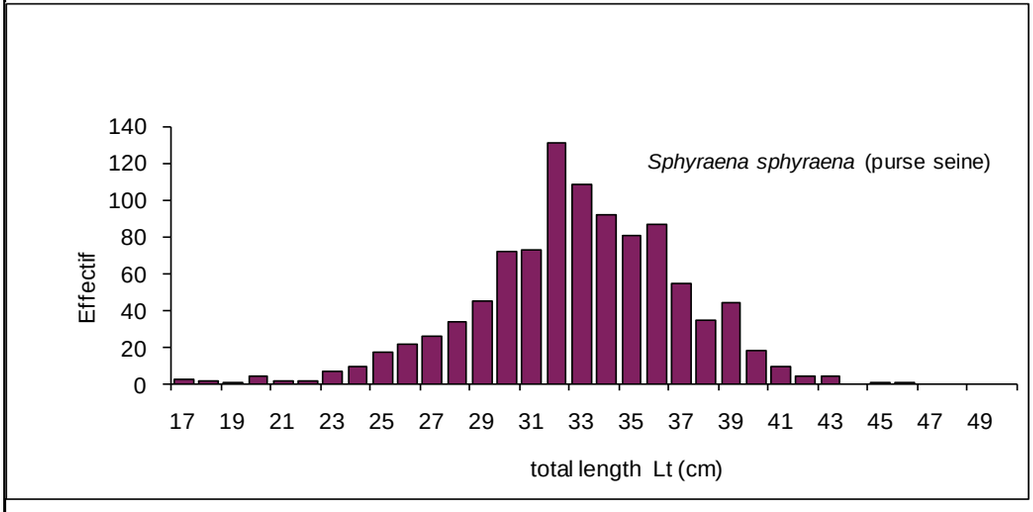
Selectivity

L25	
L50	
L75	
Selection factor	

Remarks

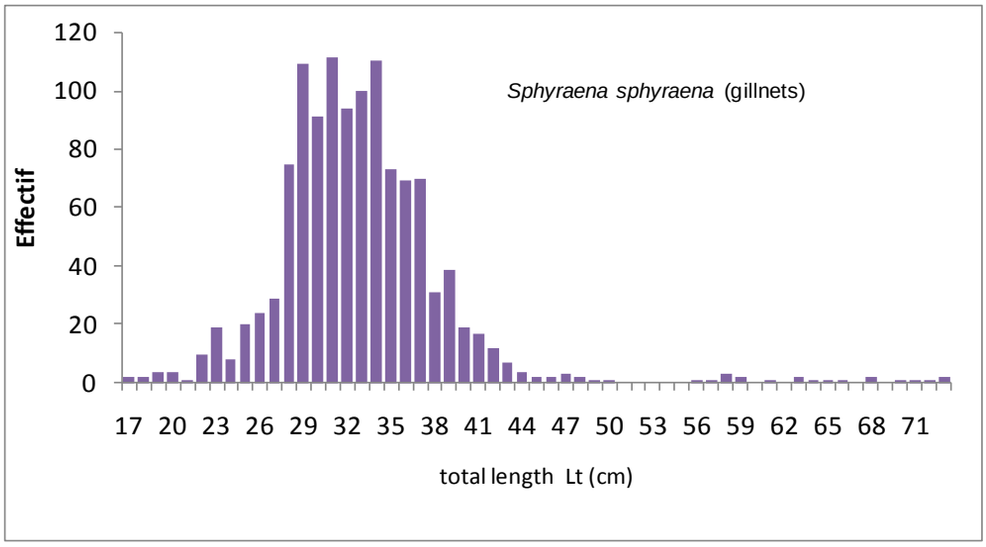
Structure by size or age

size frequency of



Structure by size or age

size frequency



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Assessment form

Sheet G
Indirect methods. Global model

Code: YRC9911Bac

Analysis #*	

Data source*		Gear*	

Model characteristic

Type of model*	VPA	Fitting criterion	
Software	VIT	Bibliographical source	

Data

Year							
Catch							
Effort							
CPUE							

Year							
Catch							
Effort							
CPUE							

Adjustment

RMS	

Results

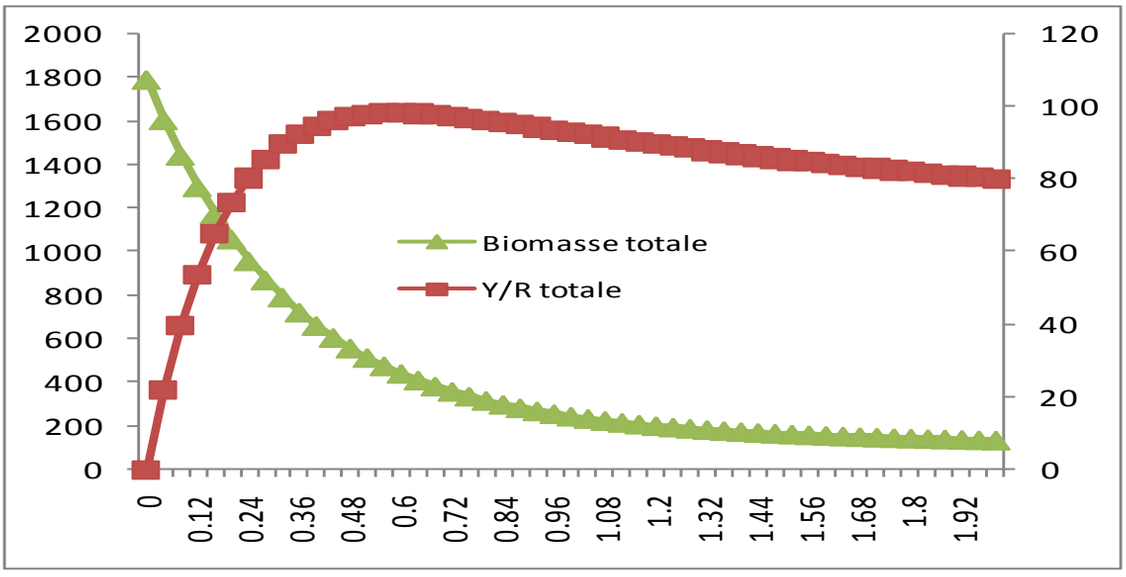
Carryng capacity		a	
Growth rate		b	
Catchability			
MSY			
EMSY		TACMSY	
E0.1		TAC0.1	
Ecurrent			

Comments

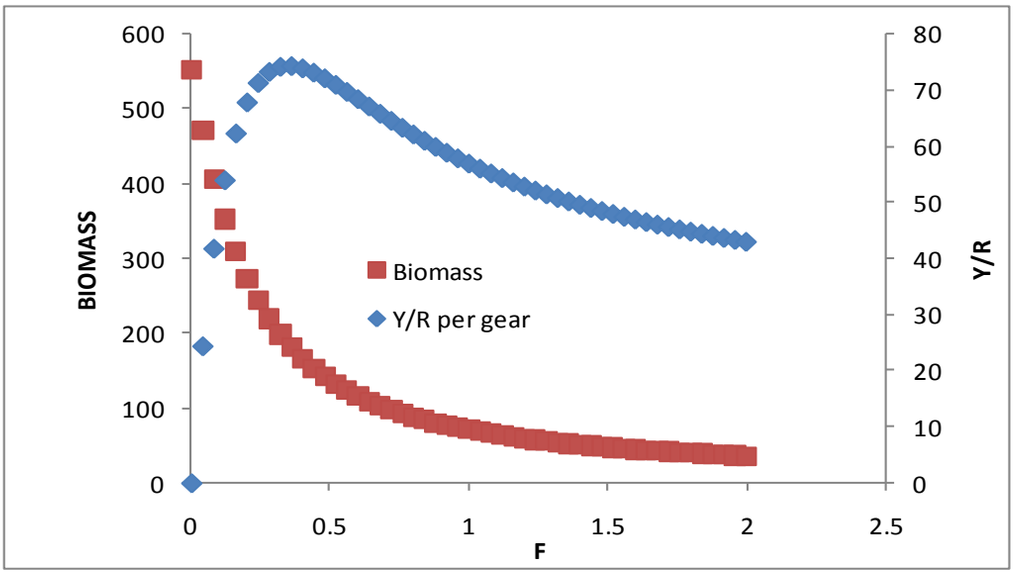
In the North, the exploitation profile is weakly overexploited; in order to return in optimal conditions, the actual effort by catch in the last region would be reduced to the 40%.
Nevertheless the exploitation profile highly overexploited in the east; it order to return in optimal conditions, the actual effort by catch in the last region would be reduced to the 64%.

Comments

Northern area



Eastern area



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Assessment form

Sheet A1
Indirect methods: VPA, LCA

Code: YRC9911Bac

Sex*	combined sexes

Analysis # *	**VPA**

Time series

Data	Size	Age
(mark with X)	X	

Model	Cohorts	Pseudocohorts
(mark with X)		X

Equation used		Tunig method	
# of gears	two gears: gillnet and purse seine	Software	VIT
$F_{terminal}$	1.7 in the north; 1.4 in the east		

Population results (please state units)

North	Sizes(gillnets)	age		Amount	Biomass
Minimum	17		Recruitment		3950t
Average	33 cm		Average population		
Maximum	73cm		Virgin population		
Critical	30	2.16	Turnover	56.1	

Average mortality

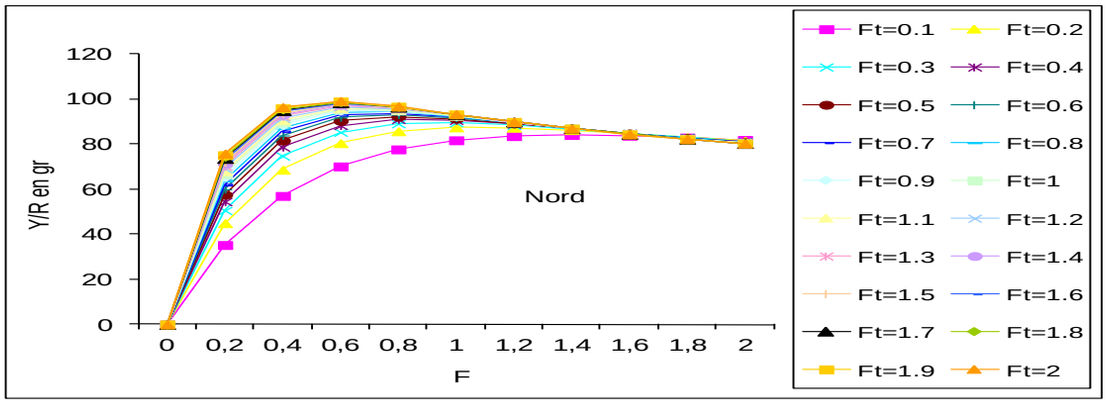
		Gear					
	Total						
F_1							
F_2							
Z							

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

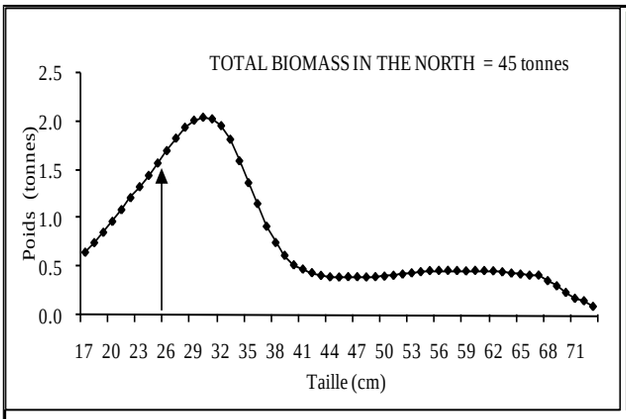
Comments

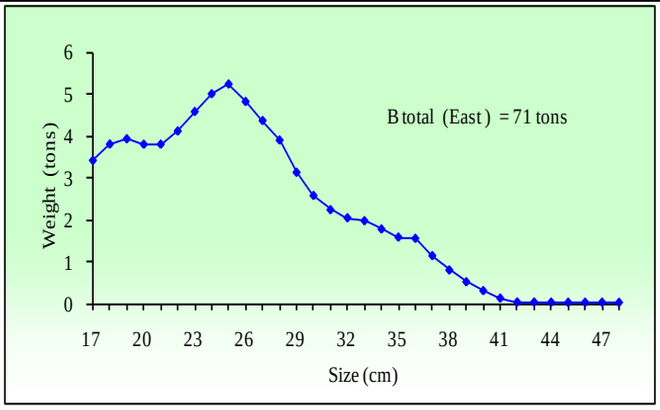
Sex*		Gear*		Analysis #*	

Population in figures

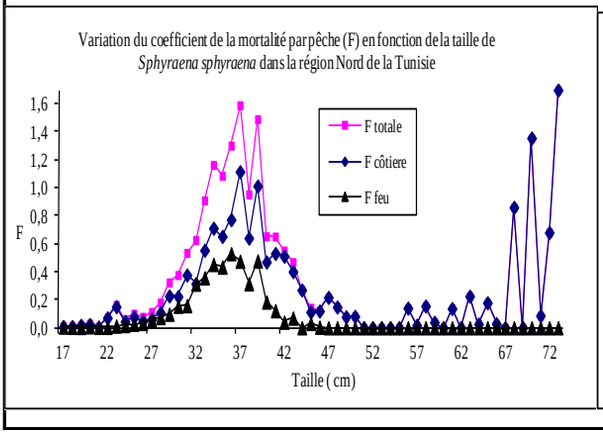


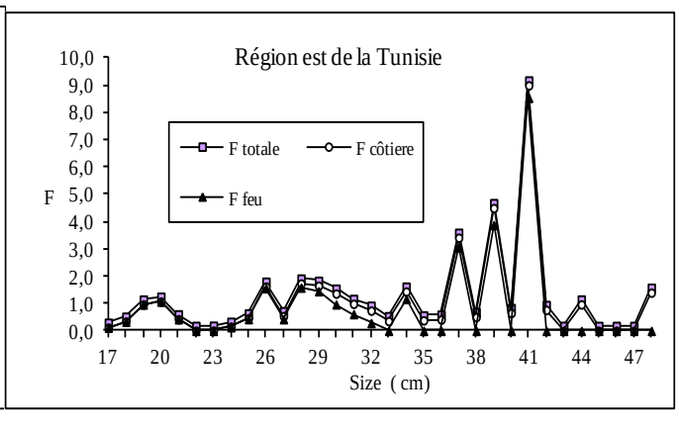
Population in biomass





Fishing mortality rates





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Assessment form	**Sheet D** **Diagnosis**

Code: YRC9911Bac

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

Abstract for SCSA reporting

Authors Bachra CHEMMAM-ABDELKADER and Soufia EZZEDDINE

Year 2011

Species Scientific name Sphyraena sphyraena -Northern and Eastern area YRC

Source: -

Source: -

Source: -

Geographical Sub-Area 12 - Northern Tunisia, 13 - Gulf of Hammamet

Fisheries (brief description of the fishery)*

Source of management advice*

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

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*