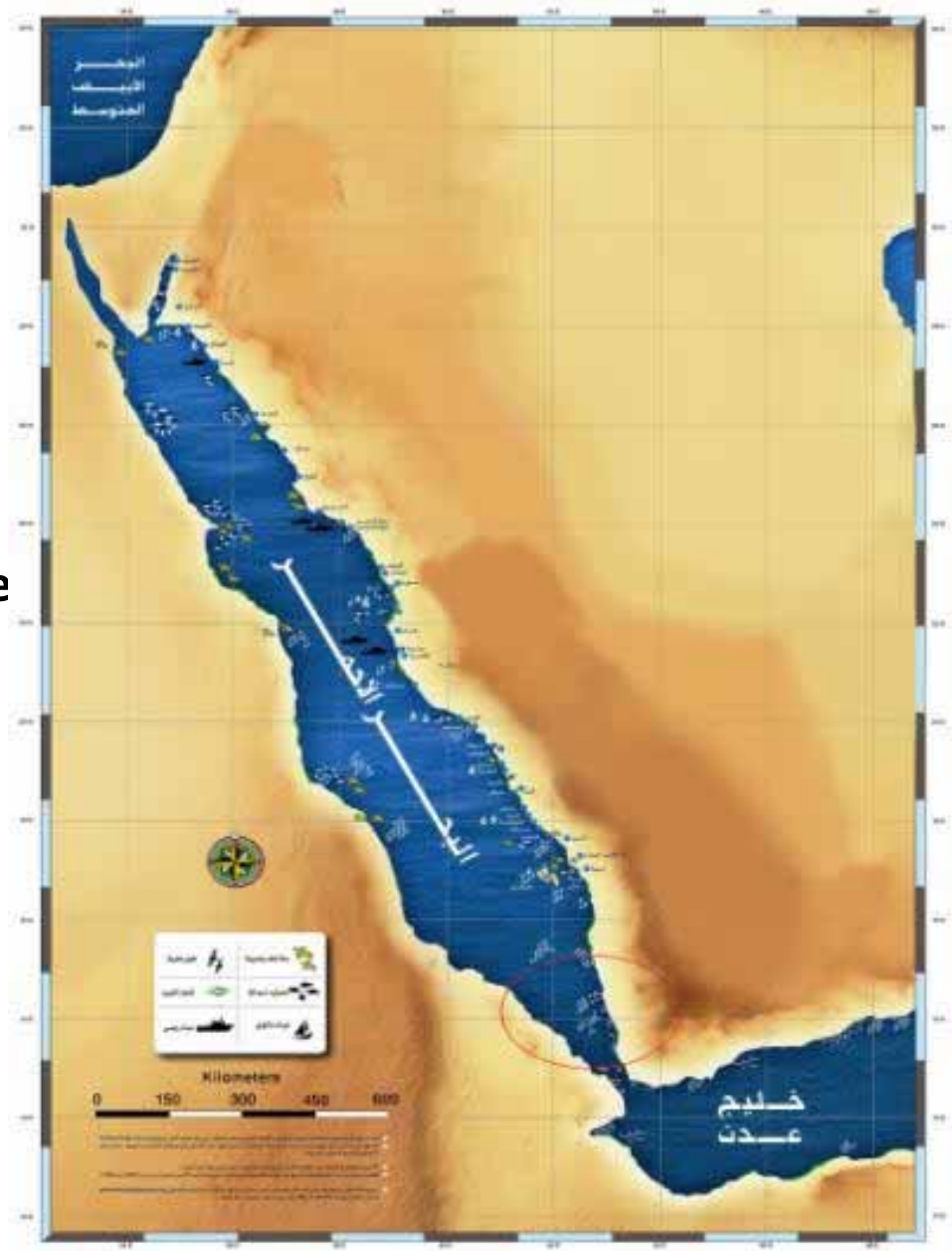
SFISH PERSGA WORLD BANK GROUP
Environment, Natural Resources & Blue Economy

Project on Sustainable Fishery Development in Red Sea and Gulf of Aden

Improving Fishery Statistics and their use in Fish Stock Assessment & Management in the Red Sea & Gulf of Ade



Gu1#P dkhu#Dp hu
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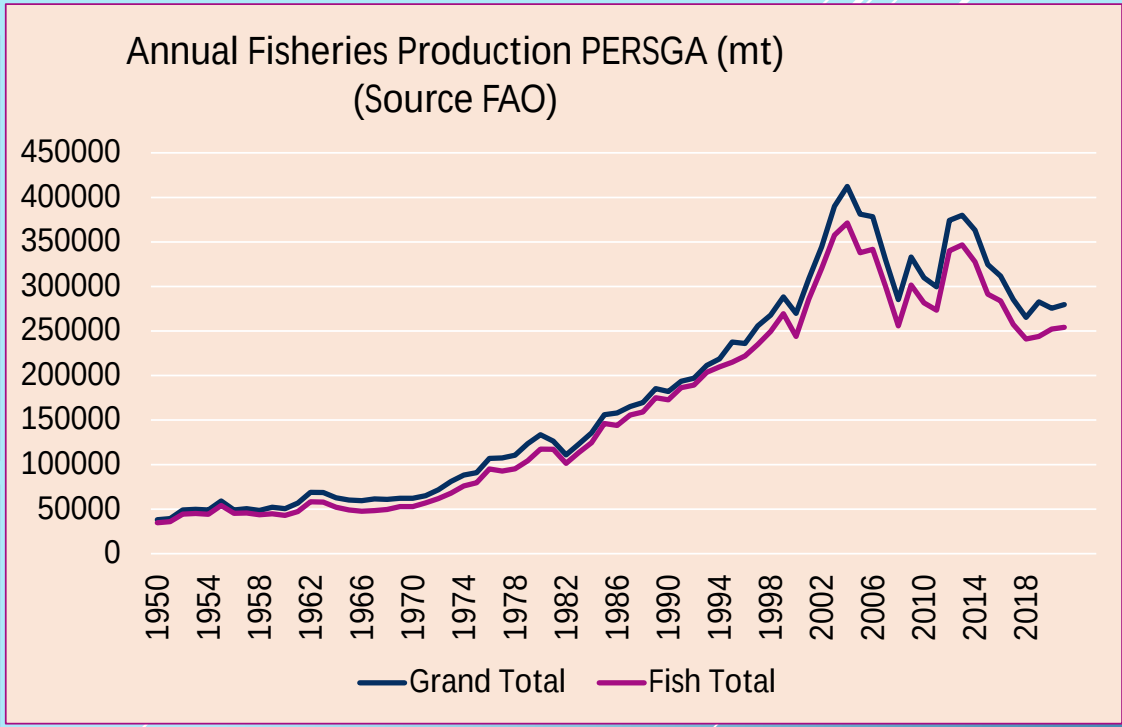
p dkhu1dp huC shuvjd1ruj

The Outlines

- *Fishery Status in the Region*
- *Objectives of the Study*
- *Inventory of different issues related to industrial and artisanal fisheries as well as to research and stock assessment Challenges*
- *Criteria for species selection*
- *Methods of Stock assessments used (LF)*
- *Regional meeting (in person & virtual)*
- *Progress reports and data analysis*

Fishery Status in the Region

- The total production (fish, crustaceans, molluscs and other aquatic invertebrates) was 36,500 metric tonnes in 1950,
- increased to 121,200 mt in 1980,
- to 245,200 mt in 2000,
- The total production peaked in 2004 when 412,300 tonnes were harvested,
- came down to 280,000 mt in 2021



- It may be difficult to indicate that resources are overexploited based on the above figures without breakdown in species groups.
- Without reliable information on fleet sizes and fishing effort it is premature to state that fisheries resources are overexploited.
- Many difficulties & constrains for PERSGA region fishery

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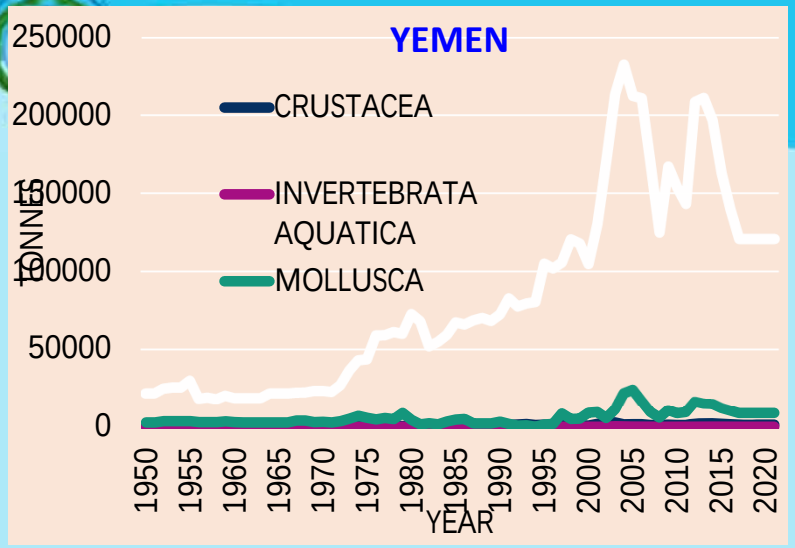
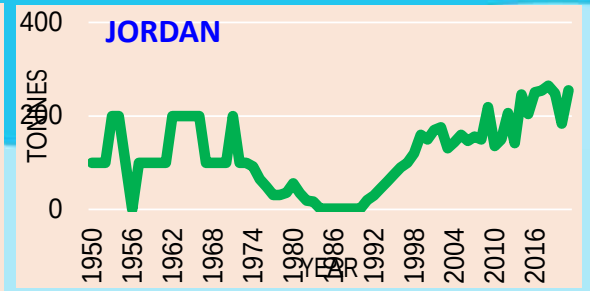
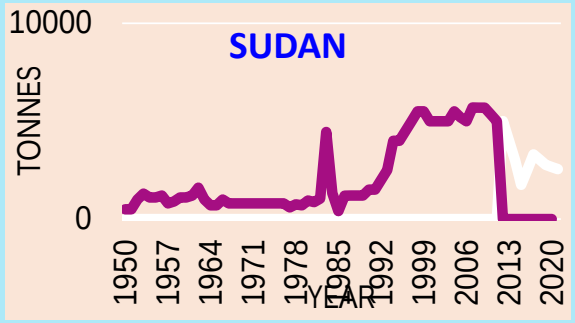
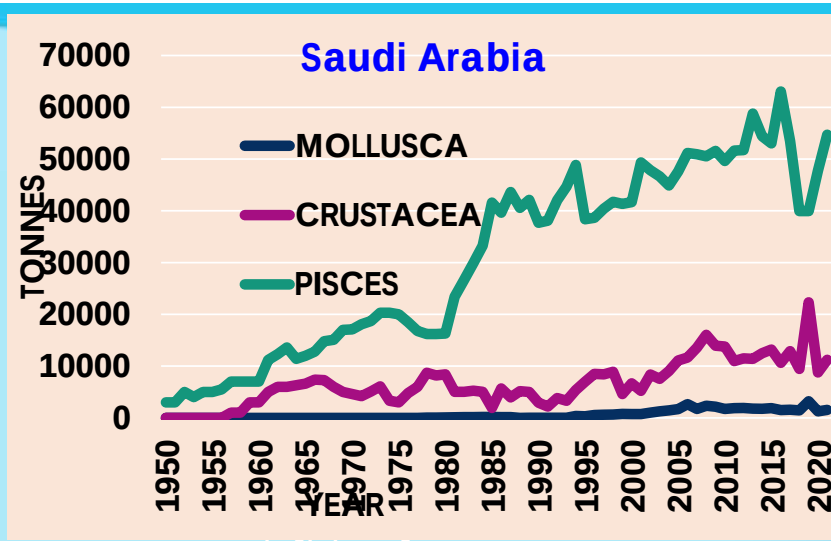
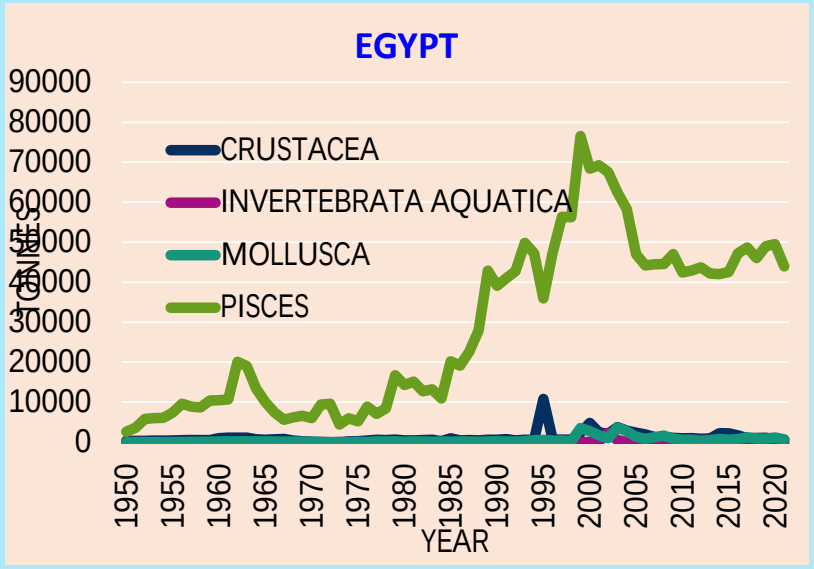
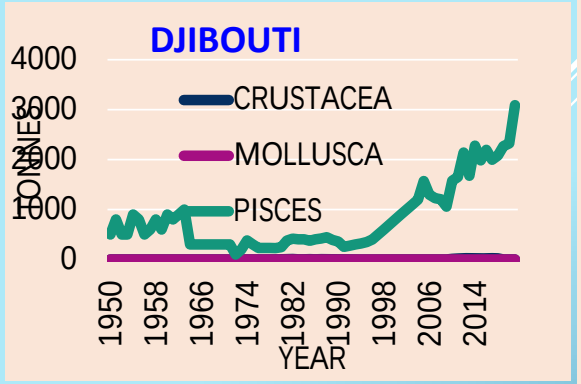

YEMEN
CRUSTACEA
INVERTEBRATA AQUATICA
MOLLUSCA
TONNES
YEAR

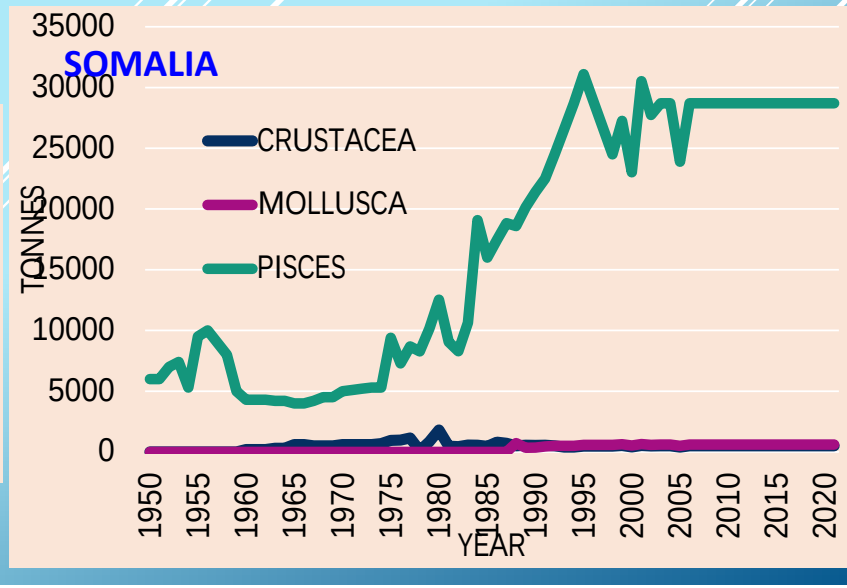

JORDAN
TONNES
YEAR


SUDAN
TONNES
YEAR


Saudi Arabia
MOLLUSCA
CRUSTACEA
PISCES
TONNES
YEAR


EGYPT
CRUSTACEA
INVERTEBRATA AQUATICA
MOLLUSCA
PISCES
TONNES
YEAR


DJIBOUTI
CRUSTACEA
MOLLUSCA
PISCES
TONNES
YEAR


SOMALIA
CRUSTACEA
MOLLUSCA
PISCES
TONNES
YEAR

Fishery constrains in PERSGA region

- The Red Sea are oligotrophic water basin
- Fisheries in the Red Sea and Gulf of Aden (RSGA) are generally small scale,
- These fisheries are characterized by their artisanal features: Multispecies, multi gears
- Artisanal landings occur on the coast at hundreds of landing sites
- Multi-stakeholder, and data poor.
- There is no Regional Fisheries Management Organisation (RFMO) for the RSGA
- Fisheries data management systems are limited

- The fishing pressure on marine resources is generally high, and many fish stocks are considered overexploited.
- Managing the multi-species fishery in the Red Sea is particularly challenging due to the vast numbers of fishers and fishing boats, catching relatively small quantities each fishing trip.
- Statistical monitoring of fishing activities is complicated, and the data are unreliable

Objectives of the Study

- Assessing the current status, management capacities efforts and gap analysis,
- Effective collection and management of fishery statistics,
- Harmonizing fishery statistics and data sharing at regional level,
- Organizing regular process for joint assessment of the status of fisheries in Red Sea and Gulf of Aden large marine ecosystem.
- Establish and promote devices and tools to sustain effective regional mechanism for collaboration in management of marine fisheries in the region.

8 consultants, 20 months period , started in Oct. 2023

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Implementation Approach

- Through regional workshop in person and many virtual meeting , the Lead consultant discussed the methods of study, prepared guidelines, questionnaires, framework, etc.
- All consultants (lead & nationals) selected the studied species based on some criteria and weight of these criteria.
- Seven national consultants were trained on the methodology
- Each national consultant trained national team on these methods
- In the landing sites, the national consultants with their national teams take the required measurements
- After data collection (monthly), each national consultant make a progress report supported with tables , graphs and also with the raw data.
- These reports go directly to the lead consultant for revieing, analyzing and make his directions and guidance and for making the regional report

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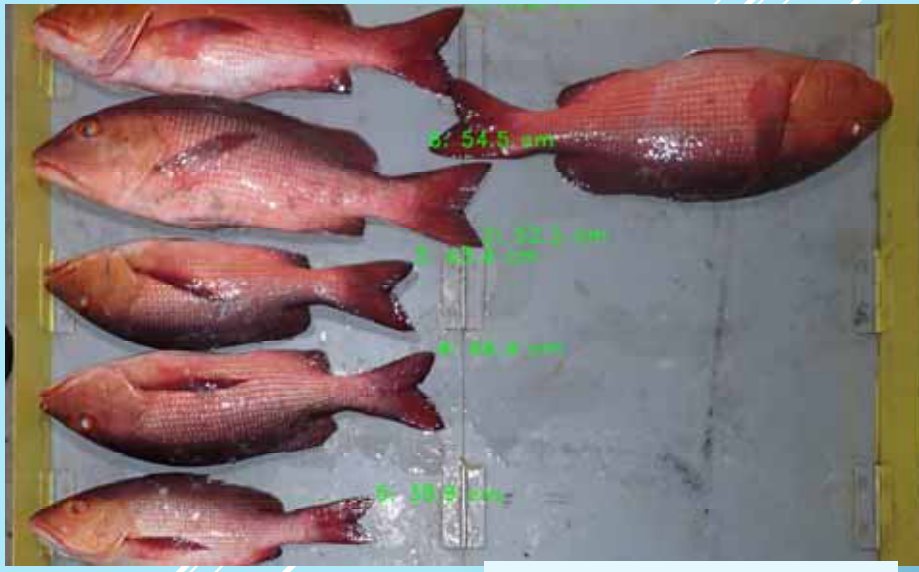
Criteria for Species selection

Score ranking (1-10)			
Availability & acces of data	Impotance		
	Commercial	Ecosystem	Food Security
(1-10)	(1-10)	(1-10)	(1-10)

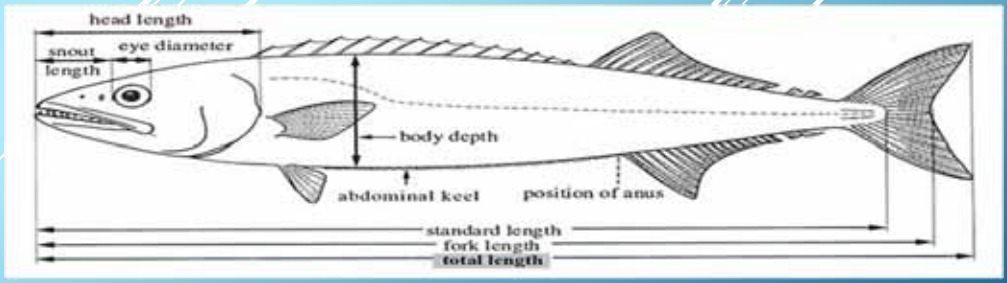
Latin name	Common Name	Egypt	Yemen	KSA	Jordan	Sudan	Somalia	Djibouti	Average
PELAGIC FISH SPECIES									
Euthynnus affinis	Kawakawa, Mackerel tuna	38	32	26	36	33	30	26	32
Scomberomorus commerson	Narrow-barred Spanish mackerel	36	35	26	14	33	30	31	30
DEMERSAL FISH SPECIES									
Lethrinus mahsena	Sky emperor	33	32	27	25	35	17	29	28
Epinephelus summana	Summan grouper	36	30	32	18	36	28	18	28
Lutjanus bohar	Two-spot red snapper	31	33	26	26	36	23	32	30
CRUSTACEANS									
Penaeus semisulcatus	Green tiger prawn	35	33	31	4	29	8	18	23
Panulirus homarus	Scalloped spiny lobster	34	36	34	4	29	18	17	25

Methods of Stock assessments used (LF)

- The national consultants prepared work plans and budgets to undertake the fieldwork in their countries. Unfortunately, their budgets exceeded the available consultancy allocated budget
- It was decided to restrict the activities to length-based methods and to drop the gonado-somatic studies
- The GSI would be relevant to determine the recruitment periods and the pattern of spawning (number of annual cohorts).



Credit: @Sheikheldin



Length Frequencies data Form

Length Frequency Data Collection Form

Species	*Latin name*	Local Name
Country:		
Location (Landing Site Name):		
Date:	dd/mm/yy	dd/mm/yy
Vessel Type:		
Gear Type:		
Mesh Size (stretched) in cm:		
Hook Size:		
Total catch Weight (kg):		
Sample Weight (kg):		

Length measurement (cm)	Frequency	Frequency
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		

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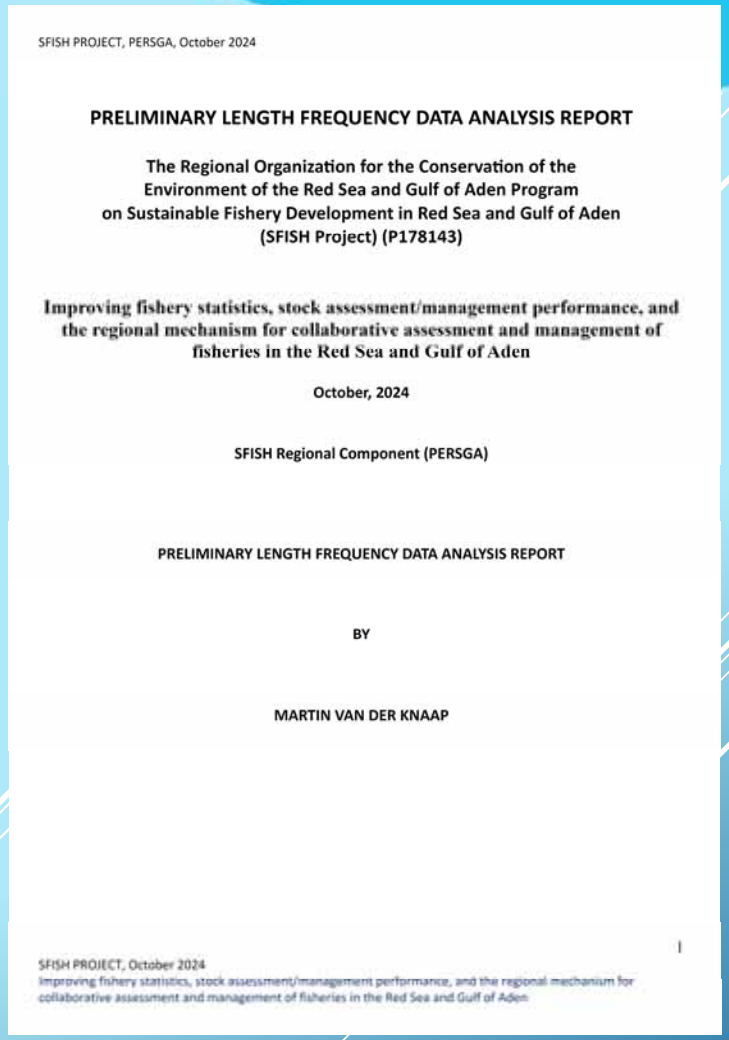
Progress reports and achieved outputs

General observation

- Data collection is not an easy task in the various countries;
- The number of samples presented is (very) limited, as well as the number of fish measured (some countries);
- Length data presentation in tables does not give a clear picture of the size distributions. Graphical presentations would be preferred;
- Data on certain species could not be collected due to management measures in place (closed season);
- The fish sample weight is difficult to obtain as fishers are in a rush to market their catches. This can be resolved by the application of the length-weight relationship to estimate the sample weight (estimating the total catch by species may be more complicated)



SFISH PROJECT, PERSGA, October 2024

PRELIMINARY LENGTH FREQUENCY DATA ANALYSIS REPORT

The Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden Program on Sustainable Fishery Development in Red Sea and Gulf of Aden (SFISH Project) (P178143)

Improving fishery statistics, stock assessment/management performance, and the regional mechanism for collaborative assessment and management of fisheries in the Red Sea and Gulf of Aden

October, 2024

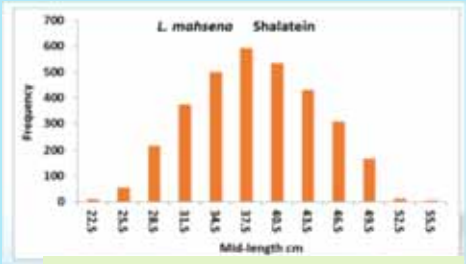
SFISH Regional Component (PERSGA)

PRELIMINARY LENGTH FREQUENCY DATA ANALYSIS REPORT

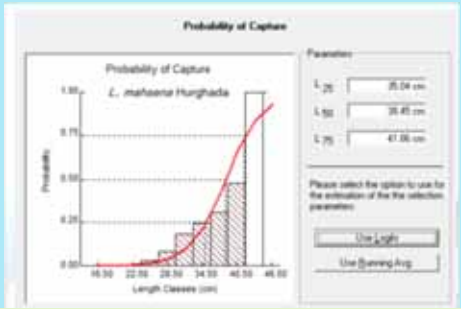
BY

MARTIN VAN DER KNAAP

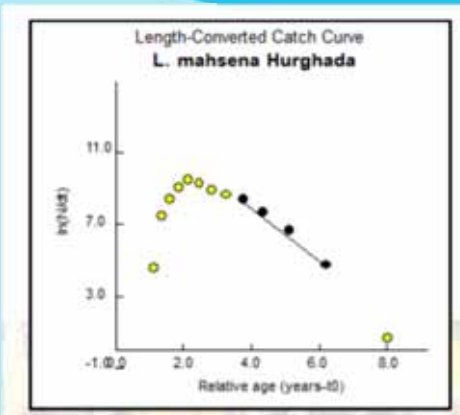
Annual data analysis & Outputs

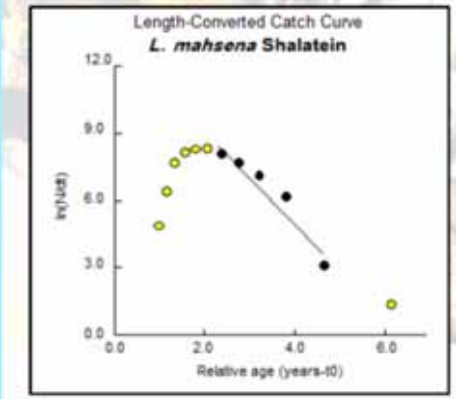


1- Length Frequencies

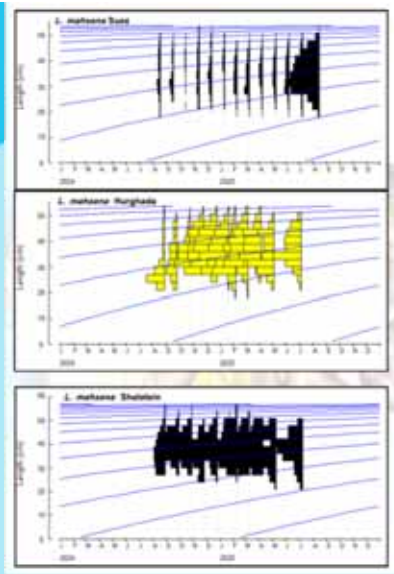


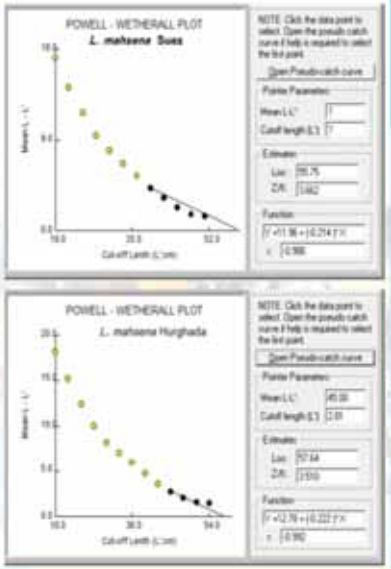
4- Length at first capture Lc

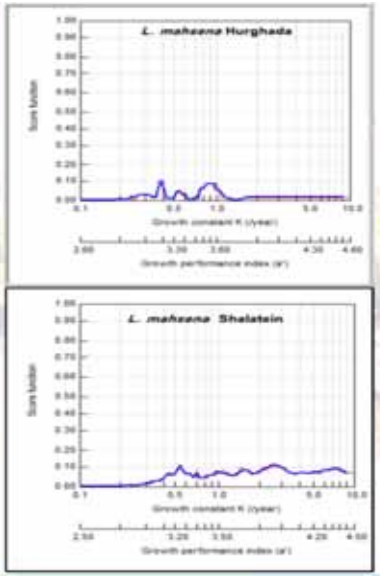




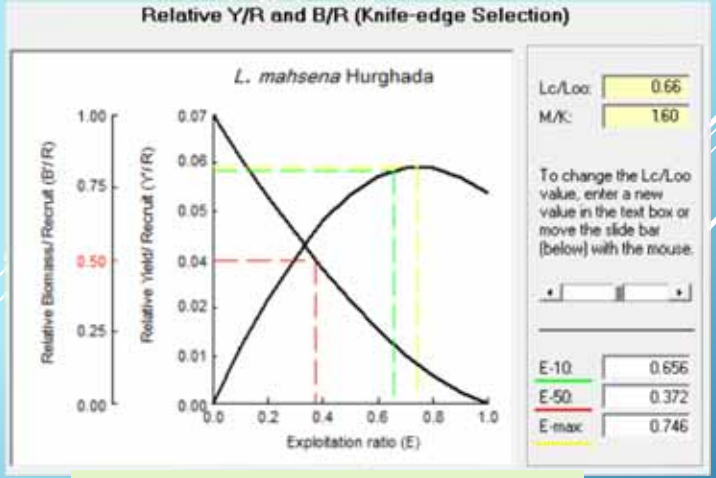
3- Mortality and Exploitation Rates







2- Longevity & growth



5- Relative Yield per Recruit

Lethrinus mahsena Egypt

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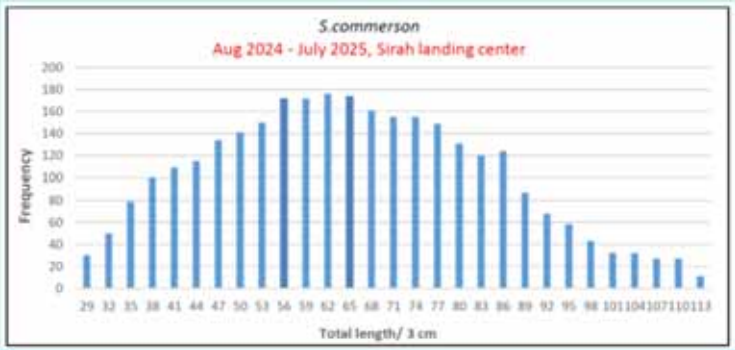
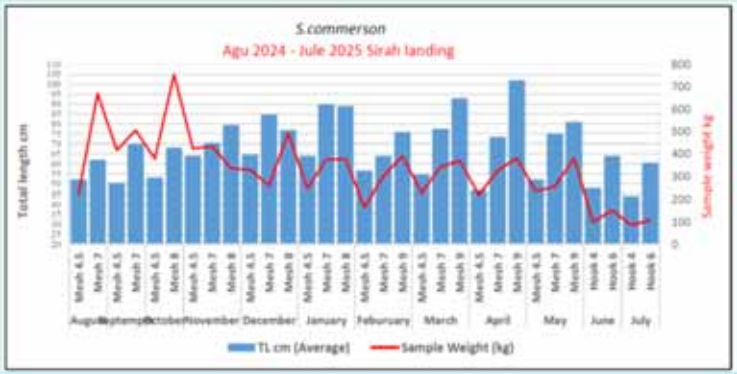
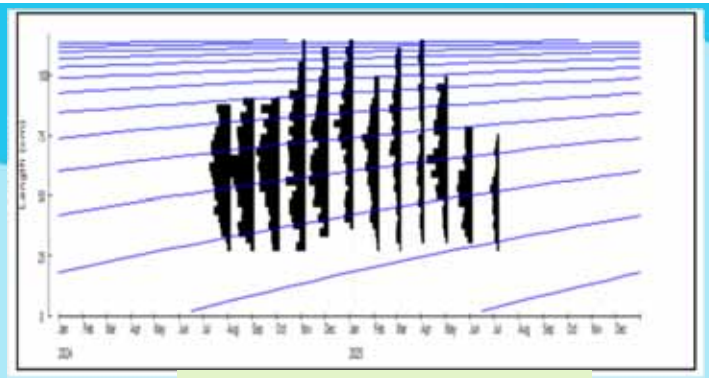
Annual data analysis & Outputs



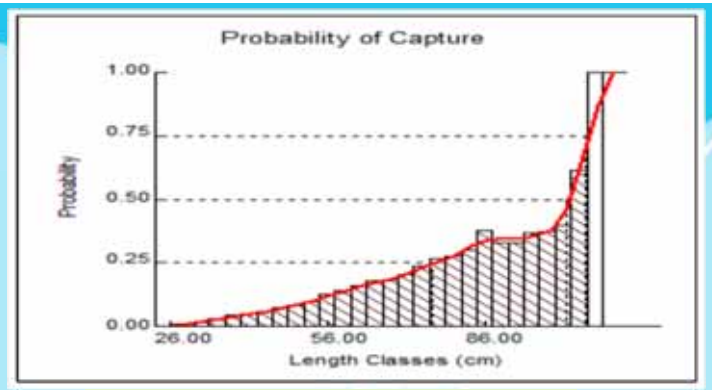
1- Length Frequencies



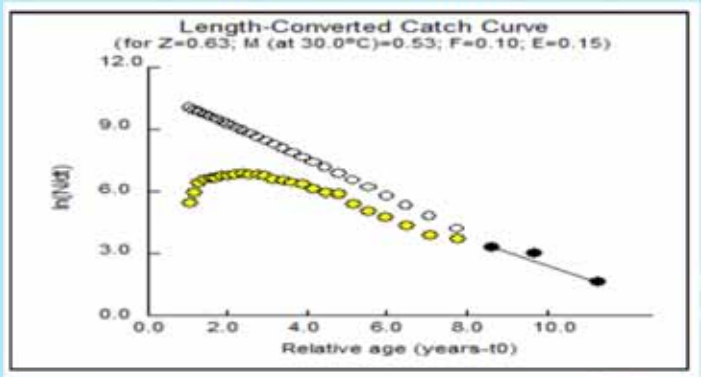
2- Length Frequencies, sample weight & gears



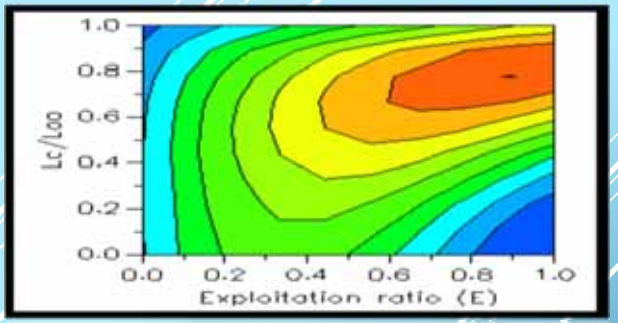
3- population growth

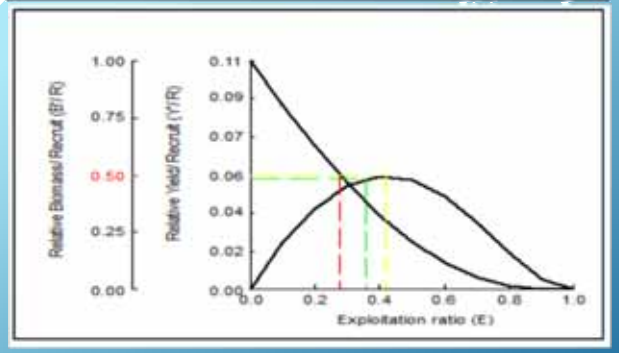


4- Length at first capture Lc



5- Mortality and Exploitation Rates





6- Yield per recruit (Y/R)

***Scomberomorus commerson* Yemen**

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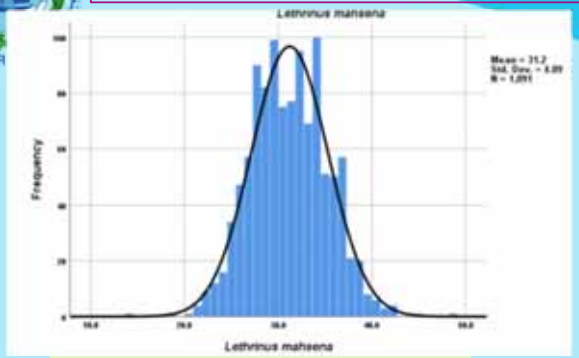
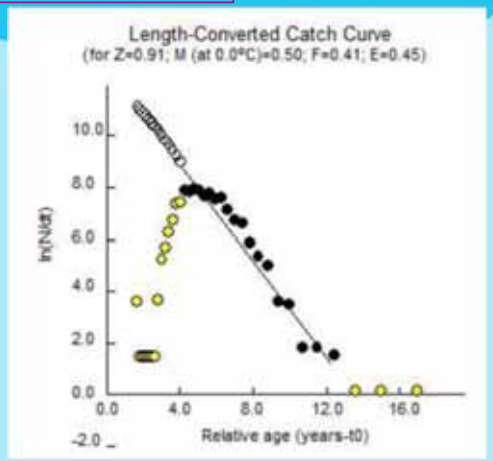
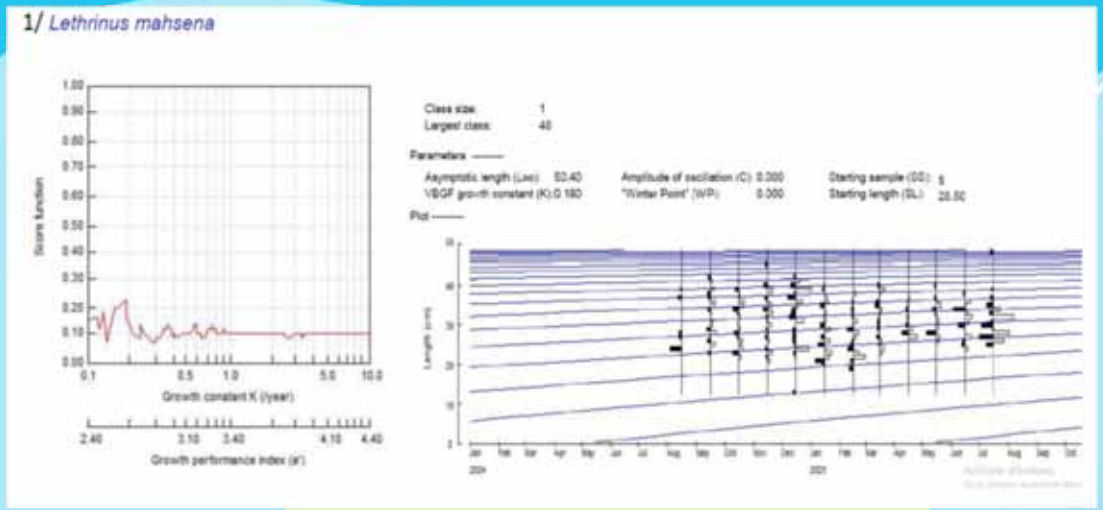
Annual data analysis & Outputs



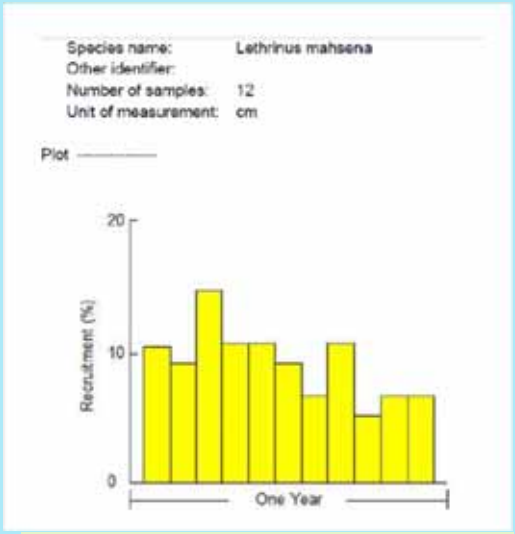
1- Length Frequencies



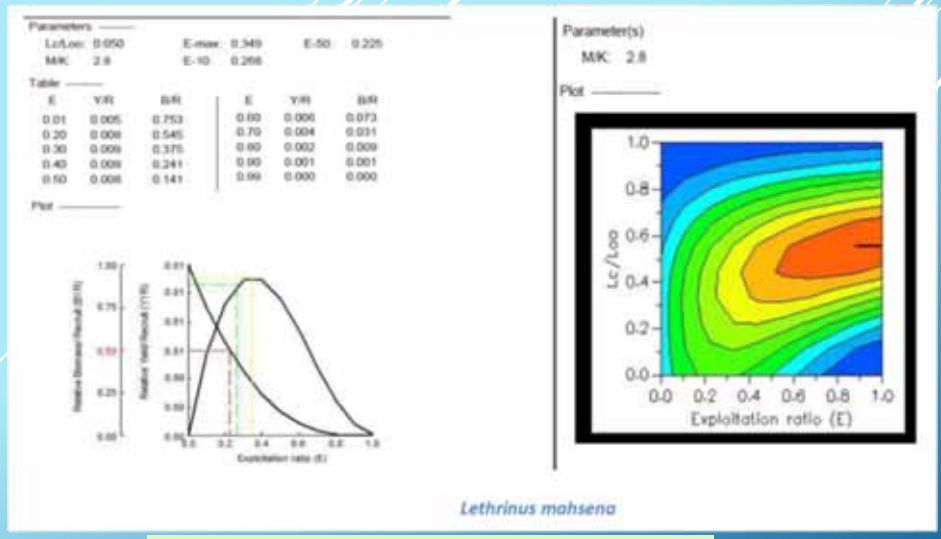
2- Mortality estimation



3- Von Bertalanffy growth parameter



4- Recruitment pattern



5- Relative Yield & recruit (Y/R)

Lethrinus mahsena Sudan

Annual Reports

Final Report For

Sustainable Fisheries Development in Red Sea and Gulf of Aden (SFISH project), Red Sea, Egypt

Prepared By
Prof. Sahar Fahmy Mehanna
Regional consultant
National Institute of Oceanography & Fisheries
sahar_mehanna@yahoo.com

Egypt

Sustainable Fishery Development in Red Sea and Gulf of Aden (SFISH)

(Project Number P178143)

Lump-sum Contract for Individual Consultant's Services

For

National consultants to assist improving fishery statistics, stock assessment/ recovery and MCS performance/functions, and supporting regional mechanism for assessment and collaborative management of fisheries in Saudi Arabia

A one Year Pro. Report for the Stock Assessment Study in Saudi Arabia

(Oct. 2024 – Sep. 2025)

Prepared by:
Feisal A. Bukhari PhD
National Consultant of Saudi Arabia

Nov.3rd - 2025

KSA

The Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden

PERSGA

Sustainable Fishery Development in Red Sea and Gulf of Aden (SFISH)

(Project Number P178143)

Annual Length Frequency Report – Regional Stock Assessment (PERSGA–SFISH World Bank Project)

Prepared by: Dr. Abdiaziz Hussein Hassan
National consultant- Somalia

Somalia

Annual Reports

The Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden

PERSGA

Sustainable Fishery Development in Red Sea and Gulf of Aden (SFISH)

(Project Number P178143)

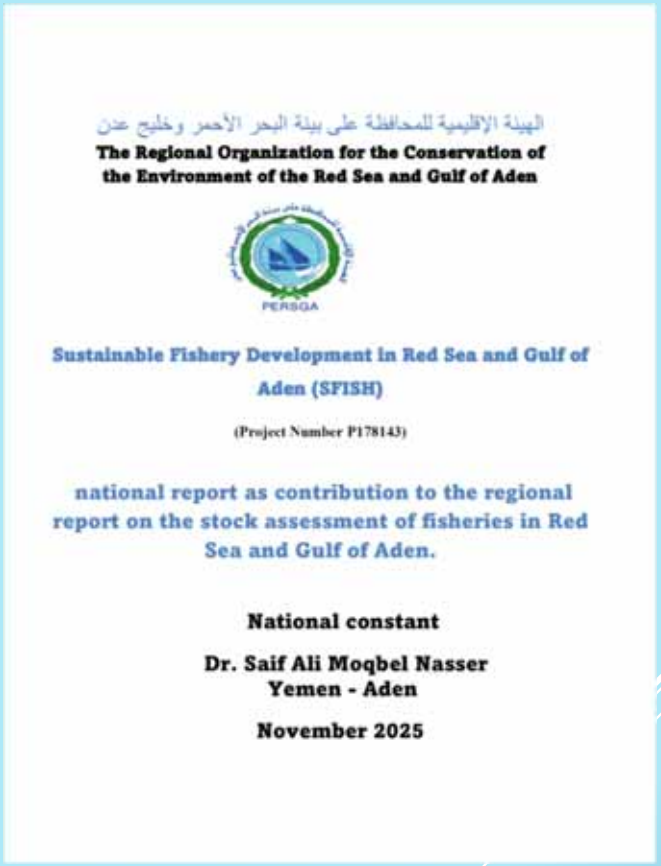
Annual report

This report includes a summary report of activities and covers the period from Aug. 2024 up to end of July 2025. Also planned activities for the following quarter.

Prof. Sheikheldin Mohamed Elamin

Sudan National Consultant

Sudan



الهيئة الإقليمية للمحافظة على بيئة البحر الأحمر وخليج عدن

The Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden

PERSGA

Sustainable Fishery Development in Red Sea and Gulf of Aden (SFISH)

(Project Number P178143)

national report as contribution to the regional report on the stock assessment of fisheries in Red Sea and Gulf of Aden.

National constant

Dr. Saif Ali Moqbel Nasser
Yemen - Aden

November 2025

Yemen

Jordan

Djibouti

WORLD BANK GROUP

Frame Survey

Vessels

Country الدولة	Area المنطقة	Landing Site موقع الإنزال		Location الاحداثيات		Date التاريخ
				lat. عرضي	Long. طولي	

Vessel Code Nr. (given in this survey) رقم القارب (كود لغرض هذا المسح)	Vessel Description معلومات القارب																
	Regist. Nr. رقم ترخيص القارب	Regist Port/ Landing site ميناء سجل الترخيص	Size (LOA) meter الحجم	Power/ Engine Description وصف المحرك					Category التصنيف				Fishing Type طريقة الصيد			Active نشط (A) / Non-Active غير نشط (NA)	Crew (number) عدد أفراد الطاقم
				Non-motoriz. غير مزود بمحرك	Outboard خارجي	Inboard داخلي	Horse-power القدرة	Engine Age عمر المحرك	Subsist. كفاف	Artisa. تقليدي	Semi-indust. شبه صناعي	Indust. صناعي	Line خيط	Net شباك	Trap فخوخ		
vessel-1																	
vessel-2																	
vessel-3																	
vessel-4																	
vessel-5																	
vessel-6																	
vessel-7																	
vessel-8																	

WORLD BANK GROUP
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Gears

Country الدولة	Area المنطقة	Landing Site موقع الإنزال		Location الاحداثيات		Date التاريخ
				lat. عرضي	Long. طولي	

Vessel Code Nr. (given in this survey) رقم القارب (كود لغرض هذا المسح)	Gear Description معلومات أدوات الصيد															Comments
	Handlines سنار يدوي	Longlines خيوط جر -سنار		Sein-net شانشولا		Gillnet شباك خيشومية الكنار		Castnet طراحة		Trap جوابي		Trolling lines سنار متحرك		Trawler nets شباك الجر		
	Hooksize حجم الخطاف	Nr of Hooks عدد الخاطيف	Hooksize حجم الخطاف	Length الطول	Mesh الماجه	Length الطول	Mesh الفتحة	Radius نصف القطر	Mesh الفتحة	Size الحجم	Mesh الماجه	Nr. of Hooks عدد الخطاطيف	Hooksize حجم الخطاف	Length الطول	Mesh (cod end) الفتحة	
vessel-1																
vessel-2																
vessel-3																
vessel-4																
vessel-5																
vessel-6																
vessel-7																
vessel-8																
vessel-9																

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Catch

Country الدولة	Area المنطقة	Landing Site موقع الإنزال		Location الاحداثيات		Date التاريخ
				lat. عرضي	Long. طولي	

Vessel Code Nr. (given in this survey) رقم القارب (كود لغرض هذا المسح)	معلومات المصيد Catch																				
	Average fishing trips and duration متوسط عدد وفترة رحلات الصيد			Seasonality: Describe each Month as L=Low; M=Medium; or H=High fishing and catch month of the season موسمية الصيد: صف كل شهر حسب نشاط وحجم المصيد، منخفض=L، وسط=M، مرتفع= H												Average catch /trip (kg) at Low, Medium, High seasons متوسط حجم المصيد بالكيلوغرام في الموسم المنخفض والوسط والمرتفع			Main catch composition (top species) at summer and winter seasons الأنواع الرئيسية في المصيد في موسمي الصيف والشتاء	
	Trips/ Year الرحلا ت في العام	Days/ month الأيام في الشهر	Hours/ trip الساعات في الرحلة	Jan يناير	Feb فبراير	Mar مارس	Apr ابريل	May مايو	Jun يونيو	Jul يوليو	Aug أغسطس	Sep سبت مبر	Oct اكتوبر	Nov نوفمبر	Dec ديسمبر	Low منخفض	Med- ium وسط	High مرتفع	Summer الصيف	Winter الشتاء
vessel-1																					
vessel-2																					
vessel-3																					
vessel-4																					
vessel-5																					
vessel-6																					
vessel-7																					
vessel-8																					
vessel-9																					

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Landing site

Evaluating potential of the landing site/port to be used as a station for sampling and monitoring fish catch تقييم إمكانية استخدام موقع الإنزال/الميناء كمحطة لأخذ العينات ورصد صيد الأسماك	
Criteria المعيار الرئيسي	Subcriteria معيار فرعي
Accessibility الوصول للموقع	Access to site (easiness to reach by transport) الوصول للموقع (المواصلات)
	Access to internet connection at the site الاتصال بالانترنت
	Access to mobile network at the site الاتصال بشبكة الموبايل
	Access to electric supply (e.g. for operating, charging devices) توفر الكهرباء (لشحن الأجهزة
Human Resource الموارد البشرية	Resident fishery personnel as enumerators at site توفر عدادين من إدارة المصايد بالموقع
	Local community that can particpate as enumerators at site مشاركة عدادين من المجتمع المحلي
Fishing effort جهد الصيد	Density of fishing boats using the landing site كثافة القوراب التي تستخدم الموقع
	Density of fishers using the landing site عدد الصيادين الذين يستخدمون الموقع
	Seasonality (duarion of the year) of using the landing site مدة نشاط الموقع موسمياً
Representetiv-eness مثالية الموقع	Diversity of fishing boats (sizes, types, etc. تنوع القوارب بالموقع (من حيث الحجم والنوع
	Diversity of fishing methods and gears (line, net, etc.) تنوع وسائل وأدوات الصيد
	Diversity of the landed catches (species, categories) تنوع المصيد من حيث الأنواع والفئات
Safety and health الصحة والسلامة	Security at the site (for safety of workers, equipment, etc.) الأمان المتوفر بالموقع (العاملين-المعدات)
	Availability of docks, jetties, marina, etc. at the site توفر أرصفة -سقالات بالموقع
	Access to primary health first aid care الوصول لخدمات الرعاية الصحية والاسعافات الأولية

Upcoming work and Way forward

- Monthly length frequencies data measurement will go on until June 2026.
- National workshops for discussing the stock assessment data and the current situation of the stock of these species (Done in Yemen) .
- Complied national assessment of fish stock status reports for the selected species, including recommendation for management measures.
- The 1st regional report on the status of fisheries in the RSGA will be completed.

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THANKS ….

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