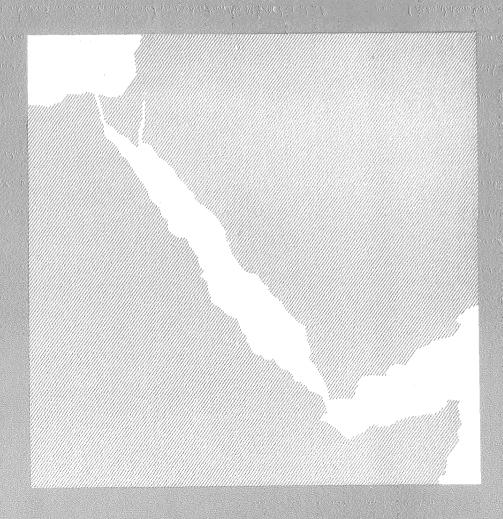
# RABIBILIDES EVELOPMENT OF FISHERIES IN AREAS OF THE RED SEA AND GULF OF ADEN

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MARINE FISHERIES STATISTICS IN THE

HASHIMITE KINGDOM OF JORDAN —
AN EXPANDED PLAN OF DEVELOPMENT



FOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONS

MARINE FISHERIES STATISTICS IN THE HASHIMITE KINGDOM OF JORDAN —
AN EXPANDED PLAN OF DEVELOPMENT

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Project for Development of Fisheries in Areas of the Red Sea and

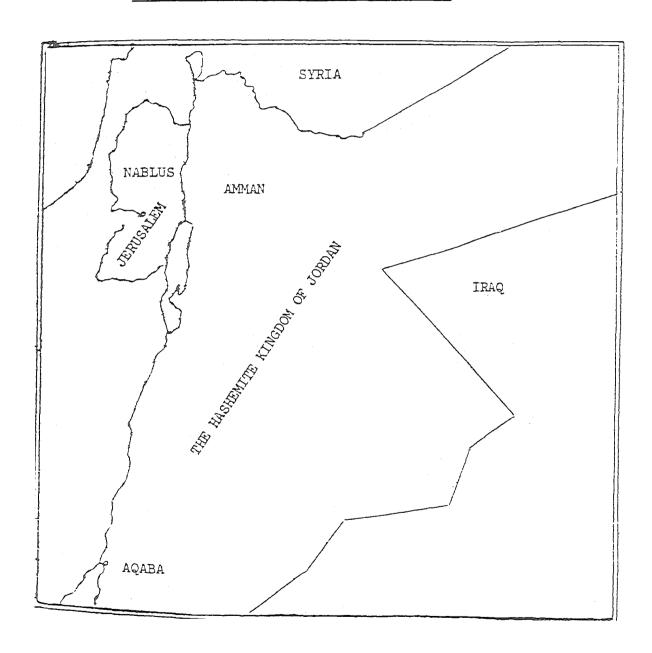
Gulf of Aden

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### MAP OF THE HASHEMITE KINGDOM OF JORDAN



### ABSTRACT

The paper evaluates the status of marine fishery statistics in the Hashemite Kingdom of Jordan and describes the type of data that are needed for economic evaluation of fisheries and biological/stock assessment studies.

A one-year plan of development of an adequate statistical system in Jordan is proposed. The system is based on regional concepts and uniform difinitions of statistical items to facilitate inter and intra country comparability of the collected fishery data. The methods of collection of data and their subsequent analysis are described in details; the facility requirement by way of manpower and equipment is examined. The cost estimate for running the one-year programme is worked out and the potential benefits are indicated.

### 1. INTRODUCTION

The Project for Development of Fisheries in Areas of the Red Sea and Gulf of Aden has given a high priority to establishment of an adequate Statistical System in the member countries. Statistical training courses have been organized at the national level and pilot surveys have been undertaken in selected landing sites. Information on landing sites, fishing activities and their intensities has been gathered. Based on the accumulated information it is now possible to prepare a plan for establishment of a statistical system to generate the needed fishery data on a continuing basis in the Hashemite Kingdom of Jordan. The present paper deals with this plan in some details.

### 2. BACKGROUND INFORMATION

The coastline of the Hashemite Kingdom of Jordan is about 29 kilometres long on the Gulf of Aqaba. The coastal strip is rocky and deep waters are close to the shore. The port of Aqaba is very important for commerce and international trade. It is also the only fish landing site where fishing boats land their catches. Large and small fishing boats operate handlines and gill nets in this area; the fishing grounds varies from time to time, mainly due to political restrictions. A few years back, fishing units used to visit far off grounds as far as Tiran island in the South but now it is restricted to the near by Saudi Arabian – waters only.

The Ministry of Agriculture has a section of Animal production. This Section has got the responsibility of fisheries development. Among other things, it has got the responsibility of issuing fishing permits to the fishermen, inspecting the quality of the landed fish and certify its suitability for human consumption; collecting a tax at the rate of JD 0.005 per kilo of the landed fish. Fishes unsuitable for human consumption are not allowed to be landed. Based on the amount realized, the Inspector produces a Statement on the fish landings. Fish production in Jordan is low, the demand for fish is met through imports.

The port of Aqaba is guarded by the coast guard force who work under the supervision of the Ministry of Defence. The movements of the fishing boats are regulated and noted in a register by the Coastguard forces.

The faculty of Science, University of Jordan has got the Marine Research Station located in Aqaba. Some studies on fishes and fisheries are carried out here.

### 3. EXISTING STATUS

The basic source of the available marine fishery statistics in the Kingdom is the Statistical Statement prepared by the Fish Inspector. As the amount of tax is the same irrespective of the species, the species breakdown of the landings is entirely based on some subjective judgements of the Inspector. The decayed fishes which are unsuitable for human consumption and, therefore not subjected to taxes, are not at times carefully noted; fishermen also often throw them into the sea. Over and above, the fish inspection is generally confined to the landings by large boats which go on fishing trips lasting over 2 weeks. Twenty-five large fishing boats were in operation during 1983. There are 60 small boats which are engaged on daily trips are not subjected to inspection and as such their catches are not included in the fishery statistics.

Thus, the exisitng fishery Statistics in Jordan is the by-product of the fish-inspection process; and these are subject to 'coverage errors' and inadequate breakdown of species and fishing units, ... etc. It is therefore, essential that the ultimate users of the fisheries data should be identified and their data needs to be spelt out. The fishery Statistical System should generate all types of the fishery data needed by the ultimate users and free from errors due to subjective judgements.

### 4. DATA NEEDS

The type of data to be collected depends on the need of the ultimate users; it can be broadly divided into two categories: (i) statistics for economic evaluation, (ii) statistics for biological studies/stock assessment.

### 4.1 Statistics for economic evaluation:

- (i) Time division: (a) Month;
  - (b) Annual.
- (ii) Space division: (a) Aqaba landing site;
  - (b) Whole country.
- (iii) Fishing enterprise:(a) Semi-industrial;
  - (b) Traditional.
- (iv) Fishermen population:
  - (a) Active fishermen by age group;
  - (b) Total fishing population by sex and age group.
- (v) Fishing unit: (a) Semi-industrial;
  - (b) Traditional.
- (vi) Fishing effort: (a) Man-hours;
  - (b) Number of trips;
  - (c) Man power.
- (vii) Fish catch: (a) Total and value at retail and whole sale level;
  - (b) Important commercial varieties and value at retail and whole sale level.
- (viii) Trade statistics: (a) Import of fish and fishery products with respect to origin by quantity and value;
  - (b) Export of fish and fishery products with respect to country of destination by quantity and value.
- (ix) Service facilities:(a) Cold storage;
  - (b) Ice factory;
  - (c) Workshops;
  - (d) Licensing services.

### 4.2 Statistics for biological studies/stock assessment:

(i) Time division: (a) Trip duration; (b) Month: (c) Annual. (ii) Space division: (a) Fishing area; (b) Whole country; (c) Depth range; (d) Bottom quality. (iii) Fishing unit: (a) Methods of fishing. (iv) Fishing effort: (a) Number of fishing units; (b) Number of trips; (c) Hours of fishing; (d) Number of fishing days;

(v) Fish catch:

(a) Total;

(a) 10ta1;

(vi) Biological data:

(a) Size composition of selected species;

(b) Sex ratio of selected species.

(Biological data are generally collected by the biologists based on their programme of work).

(e) Number of hauls.

(b) Species composition.

# 5. GENERAL OUTLINE OF STATISTICAL CONTENT

Before developing the survey methodology it is essential to enumerate the survey items on which data will be collected. The included survey items should cater to the needs of the ultimate users and be uniquely defined and classified according to International Classifications. This will ensure the comparability of the collected data at the national and international level and also diminish the non sampling arrors while executing the surveys.

### 5.1 Basic Concepts

### 5.1.1 Catch

The very fundamental item in fisheries statistics is catch. It is termed as the 'nominal catch' and is given by the live weight equivalent of landings i.e. landings on ex-water basis. So if catches are landed in any processed form, the landing data should be converted into the corresponding 'nominal catch' by applying a suitable conversion factor. In Jordan marine fishes are landed either in fresh and/or frozen condition; and as such no conversion factor is at present necessary.

### 5.1.2 Discards

In Jordan the decayed fishes which are not suitable for human consumption are not allowed to be landed. These may be thrown either at the sea or at the landing site. Barrania (1979) indicated that the percentage of the decayed fish to the total production in certain years ranged from 11 to 54. But these data are essential for economic studies and stock assessment purposes and should, therefore, be included in the survey programme.

The next step is to develop statistical standards for species, gear and fishing boat.

### 5.2 Statistical Standards

### 5.2.1 Species

A regional Statistical Standard for the commercial species in the Red Sea and Gulf of Aden has been established (Appendix 1). This has been prepared according to groupings indicated in the International Standard Statistical Classification of Aquatic Animals and Plants (ISSCAAP).

The catch statistics in Jordan should be collected and tabulated as per this classification of species and species groups to ensure the comparability of the data collected in the neighbouring countries.

### 5.2.2 Gear

A regional Statistical Standard for gear in the Red Sea and Gulf of Aden has also been established (Appendix 2). The landing data in Jordan should be broken up according to this classification of gear to facilitate the comparison of the parallel data collected in other countries and also in Jordan collected in future times.

### 5.2.3 Fishing crafts

The fishing craft in Jordan will be classified under the following two categories:

### i) Inboard powered boat

These boats are about 9 metre long and 2.27 metre wide and with diesel engines of 25-45 -horse power. They carry ice boxes and may spend one to two weeks at a stretch in the sea.

### (ii) Outboard powered boat

These boats are about 4 metres long and 1.5 metre wide and fitted without board engines ranging from 5 to 22 horse power. They sometimes carry sails as well.

### 5.3 Development of survey system

### 5.3.1 Current statistics

The current statistics will be collected through Catch Assessment Surveys at Aqaba landing site.

### 5.3.1.1 Catch Assessment Survey

(a) Objective

The objective of the Catch Assessment Survey is to build up estimates of:

- (i) Monthly landings (catch) by species and fishing units according to established statistical standards;
- (ii) Fishing effort in terms of fishing trips, fishing hours, man-hours, ... etc. expended to obtain the monthly landings (catch).

### (b) Survey method

The survey method depends on the level of development of the fishery, its organizational aspects, the localization pattern of the fishing units, their fishing and landing habits, ...etc. In Jordan, the large fishing boats fitted with diesel engines generally do fishing in the Saudi Arabian waters. They undertake long trips, bring the catches to Aqaba and sell to the fish mongers. Before the sale is finalized, catches have to pass through the quality-control inspection. The fisheries operated through the large fishing boats are more organized than the fisheries operated by the smaller ones which are mainly engaged in daily trips; their landings do not pass through the quality-control inspectation and are directly sold to the consumers.

The fisheries operated through the large fishing boats are, therefore, semi-industrial in nature while the fisheries operated by small boats constitute the traditional sector. The methodology of the collection of data differs and are, therefore, treated separately.

### Semi-Industrial Sector

### Masterlist

A list of the inboard powered boat will be prepared. During 1983, there were 25 such boats. The masterlist of these boats will contain the name/registration number of the boat, name of the owner/captain, crew size, the type of engine, the h.p and the type of gear which is generally used by the boat. This list will be updated from time to time based on ad hoc investigations.

### Total landings

At present the Inspector of the Ministry of Agriculture keeps a record of the total landings including descards. This should continue. In addition, the record of the Inspector should also contain the type of the gear used and the name of the fishing ground visited by the landing fishing boat.

From the day to day records of the Inspector, the total landings and discards will be transcribed in a specially designed form (Appendix 3) for each inboard powered boat landed. In this form the tabulation will be made for a particular

combination of the fishing gear and fishing ground. For different combinations different Statements will be prepared. The 'coverage' of these recordings will be checked by comparing the names of the boat/registration number of the landed fishing boats during a month with those recorded in the master list. Any missing data will be gathered by enquiry and interview with the concerned individuals. Monthly total landings by each type of gear operated in a particular fishing ground will be arrived at by summing over the corresponding daily totals shown in the bottom row of the Fishery Survey Form 1A. This has been designated as A(say).

### Catch composition and fishing effort expended

For the estimation of catch composition and fishing effort expended a continuing field survey will be undertaken according to the design given below:

### Design:

A month contains 3 or 4 complete weeks (Sunday to Saturday). Two days in each complete week will be selected at random and on the selected days, data will be collected as per the Fishery Survey Form 1 (Appendix 4). Only a few in-board powered fishing units land in a day; hence, it should be possible to cover all the landed fishing units. Data on catches will be collected as far as possible by physical verification and actual weighing while those relating to fishing,.. etc. will be collected by interviewing the fishermen of the fishing unit examined. (The landings at Aqaba Port are actually weighed by the buyers at the landing site itself).

### Method of estimation:

The method of estimation described below refers to a particular combination of fishing unit and fishing ground. (As for example, Handline operated in the Saudi waters).

The method involves the following steps:

Step 1: To work out species compostion and the quantum of fishing effort expended on each of the sample days.

If all the fishing units landed on the day of observation are examined and recorded in Fishery Survey Form No. 1 (Appendix 4), the relevant data

may be merely added. If however, only a few fishing units could be covered, the species composition/effort statistics of the landings of the fishing units examined will be first computed. These data will then be multiplied by a raising factor equal to the ratio of total landings during the day of observation by the particular fishing gear, fishing ground combination (obtained from Fishery Survey Form No. 1A) and total landings of the fishing units examined.

- Step 2: To enter the computed species composition and effort statistics relating to each of the sample days during a month in the Working Sheet given in Appendix 5.
- Step 3: Compute sample total for the month in column 9 of the Working Sheet (Appendix 5).
- Step 4: To compute the estimated total. This is done by multiplying the sample total (obtained in Step 3 and recorded under column 9 of the Wroking Sheet) by a raising factor (R.f.) equal to the ratic of monthly total landings by the particular combination of fishing gear and fishing ground under study (to be obtained from Appendix 3...) and the sample total landings for the month (by the same combination of fishing gear and fishing ground) as obtained by the 'Total' under column 9 of the Working Sheet (Appendix 5). The R.f. has been shown as  $\frac{A}{B}$  in the Working Sheet.

### Traditional Sector

In the traditional Sector of fisheries, fishing is conducted by out-board powered boat. As indicated earlier the coast guard force under the Ministry of Defence note the movements of these boats in a register. It is thus possible to transcribe the <u>daily</u> number of trips undertaken by these boats from this register. This transcription can be completed by a single visit to the office of the coast guard authority during a month.

The total landings, the catch composition and effort statistics will be collected by a continuing sample survey. On the selected sample day for the semi-industrial fishery as described earlier, data on traditional fishing boats will also be collected using the same Fishery Survey Form No. 1.

(Here data on 'Total number of units landed' may not be possible to collect as the traditional fishing boats land any time during the day and the presence of the observer at the landing site will be limited to the time of landings of the semi-industrial fishing units only). Data will be collected on as many fishing units of the traditional type as possible. The period of estimation will be a month and a 'trip' by a fishing unit will constitute the 'sample unit'. No attempt will be made at present to estimate the catch effort data by gear, as the coast guard forces do not keep any information on the gear used by a fishing unit.

### Method of estimation:

Let there be  $\mathbf{x}_i$  fishing trips of the traditional fishery which have been examined on the i the sample day, the corresponding catch (effort) being  $\mathbf{y}_i$ . Let there be n sample days in a month; and X be the total number of trips during the month; (obtained from the record of the coast guard force).

The estimated monthly catch (effort) will be given by

$$Y = \frac{\sum_{i=1}^{n} y_i}{\sum_{i=1}^{n} x_i} . X$$

### 5.3.2 Trade statistics

As stated earlier fish production in Jordan is low; the demand for fish is met through imports. These figures at present are not readily available. FAO estimated annual imports during 1980 as 2,307 tonnes and the exports during the same period as 11 tonnes. It is, therefore, necessary to develop Statistical data on imports and exports of fish and fishery products in Jordan.

Generally the imports and exports take place through an established official channel. These statistics can be collected from the official records of the concerned ministries in the Kingdom. The statistical enumerator will visit the concerned officials on periodic basis and transcribe the necessary data. These should be published with a minimum time lag.

### 5.3.3 Statistics on infrastructure facilities

This will cover the number, the capacity and the existing level of utilization of the service facilities like cold storage, ice factory, workshops, ... etc available in Jordan.

### 6. IMPLEMENTATION

The implementation of the programme of work for establishment of an adequate Statistical System in Jordan should be undertaken in the following sequential stages:

- (i) Develop the statistical standards;
- (ii) Organize the data collection systems covering the semi-industrial and traditional fisheries;
- (iii) Collect statistics on fish trade and infrustructure facilities.

### 6.1 First year

The regional statistical standards have already been developed. These standards are to be made use of while collecting and tabulating the fishery data.

The next step is to organize the continuing Catch Assessment Survey at Aqaba port. These data will be matched with the data recorded by the Inspector of the Ministry of Agriculture and the coast guard forces of the Ministry of Defence; and the required fishery data will be available on a continuing fashion.

During the second half of the year, steps will be initiated to collect data on trade statistics and infrastructure facilities.

### 7. ORGANIZATIONAL SET-UP

### 7.1 Headquarters

The Headquarters of the proposed Statistical System should be so located as to facilitate the administration and management of the system; and it should also function in close collaboration with the ultimate users of the collected data. The Marine Science Research Station in Aqaba is the main user of these data and at present some fishery data are collected by this Research Station in

connection with its programmes of work. The Marine Science Research Station should house the Headquarters of the newly organized Statistical System.

The requirement by way of manpower and other facilities for running the system is indicated below.

### 7.2 Manpower

Only one person should be able to cope with the work both in the field as well as in the office. He should have some familiarity with local fisheries and fishing conditions and be trained and helped by an International Expert for a period of 2-3 months while implementing the programmes.

### 7.3 Equipment

For the field work spring balances of suitable range will be necessary. Field note book to record the data and plastic clip-board will also be provided.

A desk computer with the suitable storage capacity depending on the volume of data will be required.

### 7.4 Other facilities

Transport

For conducting field work the staff should be provided with suitable transport.

### 8. ESTIMATED COSTS (US \$)

### A. Personnel

		<u>Total</u>	<u>lst. Year</u>
	International Staff		
l.	Fishery Statistician (P-5)/3 m/m	27,000	27,000
	National Staff		
1.	Fishery Statistician @ \$1000/month	12,000	12,000
	Component Total	39,000	39,000

(Cor	nt'd)	Total	<u>lst. Year</u>
В.	Other Costs		
1.	Equipment & Supplies	15,000	15,000
2.	Vehicle (1)	6,000	6,000
3.	Reporting	2,000	2,000
4.	Driver (1) @ \$ 500/month	6,000	6,000
5.	Miscellaneous	2,000	2,000
	Component Total	31,000	31,000
	<u>Total Cost</u>	<u>70,000</u>	<u>70,000</u>

### 9. PROJECT OPERATION

During the extended Phase of the Project RAB/81/002, the planned proposals can be executed through the Regional Project. This will reduce the financial commitment due to the international staff. The national government is to bear the cost of the national staff and other costs which cannot be met by the Regional Project.

### 10. CONCLUSIONS

The Statistical System will generate the diversified marine fishery data based on objective survey methods. The data will be available to the ultimate users on a timely fashion. Hopefully these will lead to better understanding of the marine fisheries in the Fashemite Kingdom of Jordan.

The national staff will work shoulder to shoulder with the international expert for a period of 2-3 months. This will develop local expertise in the field of marine fishery statistics.

### REFERENCE

Barrania, A. (1979)

Report on the Socio-Economic Survey of the Gulf of Aqaba, the Hashimite Kingdom of Jordan.

# Appendix (1): Statistical Standard for Species in the Red Sea and Gulf of Aden Region

Statistical Item	Family / Genus Name	Scientific Name
GROUP 24 : SE	ADS, MILKFISHES, ETC.	
Milkfish	Chanidae	Chanes chanes
GPOUP 33: PF	POHES, BREAMS, SNAPPE Redfishes, Easses, Cor	RS, ETC. gers, etc.)
Groupers	Serranidae	Examples: Ephinephelus summana
		E. areclatus
		E. <u>Tauvina</u>
		E. microdon
		E. chlorostigma
		<u>Variola louti</u>
		Cephalopholis sp.
		Plectropomus maculatus
Croakers	Sciaenidae	Example: Otolithes sp.
Snappers	Lutjanidae	Examples: Lutjanus lineolatus
		L. gibbus
		L. bohar
		L. argentimaculatus
		Pristipomoides typus
Grunts	Pomadasyidae	Examples: Pomadasys hasta Pomadasys opercularis
Sweetlips	Pomadasyidae	Example: Plectorhynchus pictus
Red Mullets	Mullidae	Examples: Mulloidichthys flavoli- neatus, Upeneus sp.
Parrot fishes	Scaridae	Examples: Scarus harid
		S. phobban

Appendix (1): Statistical Standard for Species in the Red Sea and Gulf Cont'd. of Adem Region

Statistical Item	Family / Genus Name	Scientific Name
GROUF 33 (contd.)	: PERCHES, BREAMS, (Redfishes, Basse	SNAPPERS, ETC. es, Congers, etc.)
Emperors	Lethrinidae	Examples: Lethrinus harak
		L. Mahsena
		L. nebulosus
Sea Breams	Sparidae	Examples: Argyrops spinifer
		Mylio bifasciatus
Threadfin Breams	Nemipterus spo.	Example : <u>Nemipterus</u> japonicus
Lizard fishes	Synodontidae	Examples: Saurida undosquamis
		S. tumbil
Pony fishes	Leiognathidae	Example: <u>Leiognathus</u> sp.
Moharras	Gerreidae	Example: <u>Cerres oyena</u>
Seacatfishes	Ariidae	Example: Arius thalassinus
Therapons	Theraponidae	Example: Therapon jarbua
Rabbit fishes	Siganidae	Example: <u>Siganus rivulatus</u>
Squirrel fishes	Holocentridae	Example: Holocentrus spinifer
Surgeon fishes	Acanthuridae	Example: Acanthurus sp.
Unicorn fishes		Naso unicornis
GROUP 34 : JACK	S, SCADS, MULLETS, G	SARFISHES, ETC.
Jacks	Carangidae	Examples: Caranx sexfaciatus
		C. ignobilis
		Alepes djeddaba
		Carangoides bajad.

Appendix (1): Statistical Standard for Species in the Red Sea and Cont'd. Gulf of Aden Region

itatistical Item	Family / Genus Name	Scientific Name		
GROUP 34 (contd.)	: JACKS, SCADS, MUL	LETS, GARFISHES, ETC.		
Rainbow runner	Carangidae	Elagatis bipinnulatus		
Bigeye scad	tī	Selar crumenophthalmus		
Hardtail scad	tt .	Megalaspis cordyla		
Golden toothless trevally	TT .	Gnathanodon speciosus		
Queen fish	11	Scomberoides lysan		
Talang Queen fish	11	S. commersonianus		
Pompanos	tt	Example: Trachinotus blochii		
Scads	11	Example: Decapterus maruadsi		
Horse mackerel	11	Trachurus indicus		
Grey Mullets	Mugilidae	Example: <u>Valamugil seheli</u>		
Dolphin fishes	Coryphaenidae	Example: Corvphaena hippurus		
Needle fishes	Belonidae	Example: Tylosurus crocodilus		
Barracudas	Sphyraenidae	Examples: Sphyraena jello S. barracuda		
GROUP 35 : HERRINGS, SARDINES, ANSHOVIES, ETC.				
Herrings/Sardines	Clubeidse	Examples: <u>Herklotsichthys</u> <u>punctatus</u>		
		Sardinella gibbosa		
		S. Longiceps		
Anchovies	Engraulidae	Example: Stolephorus sp.		
GROUP 36 : TUNAS	s, pomitos, ethlets	JES, ETC.		
bing fish	Scombni lae	Scomberomorus Commerson		

Appendix (1): Statistical Standard for Species in the Red Sea and Cont'd. Gulf of Aden Region

Statistical Item	Family / Genus Name	Scientific Name
GROUP 36 (contd.)	: TUNAS, BONITOS, B	ILLFISHES, ETC.
Spanish mackerel	Scombridae	Scomberomorus guttatus
Auxis spp.	11	Example: Auxis thazard
Eastern little	tt.	Euthynnus affinis
Skipjack tuna	11	Katsuwonus pelamis
Thunnus spp.	11	Examples: Thunnus albacares
	11	Thunnus alalunga
	11	Thunnus tonggol
Dogtooth tuna	11	Gvmnosarda unicolor
Oriental bonito	11	Sarda orientalies
Sailfish/billfish	Istiophoridae	Example: <u>Istiophorus</u> sp.
Sword fishes	Xiphiidae	Example: Xiphias sp.
GROUP 37 : MACI	KERELS, SNOEKS, CUTL	ASSFISHES, ETC.
Indian mackerel	Scombridae .	Rastrelliger kanagurta
Cutlassfishes/ Hairtails	Trichiuridae	Trichiurus haumela
GROUP 38 : SHAN	RKS, RAYS, CHIMAERAS	, ETC.
Sharks	Carcharhinidae etc.	Example: Carcharhinus sp.
Rays	Dasyatidae	Example: Dasvatis sp.
GROUP 42 : SEA	SPIDERS, CRABS, ETC	•
Crabs	Portunidae	Example: Lupa pelagica
GROUP 43 : LOBS	STERS, SPINY LOBSTER	S, ETC.
Spiny lobsters	Falinuridae	Example: Palinurus sp.

Appendix (1): Statistical Standard for Species in the Red Sca and Cont'd. Gulf of Aden Region

1		
Statistical Item	Family / Genus Name	ientific Name
GROUF 45 : SHR	IMPS, FRAWNS, ETC.	
Shrimps/prawns	Penaeidae	Example: Penaeus sp.
GROUF 57 : SQU	IDS, CUTTLEFISHES, O	בייספויפריכ, דיים.
Squids	Loliginidae	
Cuttlefishes	Sepiidae	
·		
	·	

### Appendix 2

## STATISTICAL STANDARD FOR GEAR IN THE RED SEA AND GULF OF ADEN REGION

### Gear Categories

### SURPOUNDING NETS

Purse seine (one boat operated) Ring net (one boat operated) Ring net (two boat operated)

### SEINE NETS

Beach Seine Seine net (not specified)

### TRAWLS

Otter trawls V-D Otter trawls

### FALLING GEAR

Cast net

### GILL NETS AND ENTANGLINOR NETS

Set gill net (anchored)
Drift net
Encircling gill net
Fixed gill net (on stake)
Tramel net
Combined gill net-tramel net
Veranda net
Crab gill net
Sardine gill net

### TRAPS

Pot Others

### HOOKS AND LINES

Hnad lines (hand operated) Set longlines Drifting longlines Trolling lines

### GRAPPLING AND WOUNDING

Spears Harpoons Others

Appendix 3

- 21 -

- AQABA
STATTON
RESEARCH
MARINE

Landings by inboard-powered fishing units at Aqaba port.	board-po	wered fi	shing (	mits at f	Aqaba po:	r L				i'i Mo	Fishery Wonth	Surves	Fishery Survey Form No. 1 (A) Month	No. 1	(A)	
Gear Used:	Gi. Hau	Gillnet Handlines			Unit:	t: Kg.				Fi	ahing .	rrounc	Fishing ground visited:		Saudi waters Jordan waters	1 11 1
Prepare one statement for a particular combination of	atement	for a pa	rticuls	ur combine	ation of		nd fishi	gear and fishing ground	pu	:	;   	•				
DATTE	1	23	33							30	31	- 01	Sub to ta l		TOIM	
Name/Regis- ration no. of boat	T D	T D	L	D					17	Q .	ı	D	T D			
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Subtotal								and the second s								
IOLAL															A (say)	

N.B.: L = Landings D = Discards

# MARINE RESEARCH STATION - AQABA

Fishery Survey Form No. 1  To. of Units landed	REMARKS (Specially on discards)	
Fishery Survey Fon Date Total No. of Units landed	TOTAL (kg)	
Unit	Weight of fish landed by species (kg)	
Fishing	Lauraction of actual guidait	
ort.	No. of hand lines/	
ng Effc	Name of the fishing ground.	
Details of Sample Catch & Fishing Effort Landing SiteObserver	Absence from fishing Port Departure Arrival	
of Sa Site r	hanpower employed	
Details Landing (Observer	Serial no. on LaireS examined.	

MARINE RESEARCH STATION - AQABA

Working Sheet for monthly Species composition and fishing effort in respect of landings by inboard powered fishing units at Agaba port

Unit: Kg.

Gillnet. Handlines

Gear Used:

198

Month

Saudi Waters Jordan waters

			<u> </u>		
	Estinated total = Sample totalx B.f	1.0			
	Sample   Total	6		B(say)	
	8	8			
	7	2			
	9	9			
	2 )	5			
·	4 ( )	4			
	3	3			
	2	2			
	1 ( )				
	Sample days (Dates)	Column number	Species	ТОТАГ	Fishing effort: in no. Trips Fishing hours Man-hours

BIA 11 R.f (For a combination of gear and fishing ground) = Total monthly catch from Appendix 3

Sample total for the month