

Bottom Fishes Collected by T/S Koyo-maru off Agadir, Morocco, with Notes on Some Fishery Aspects

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A total of 38 species to bottom fishes was collected off Agadir, Morocco, by the T/S Koyo-maru in December 1993. The research was conducted as a part of joint training and research with the Institut de Technologie des Peches Maritimes d'Agadir (ITPM). The research area was located south-east of the Port of Agadir. The total weight of the whole catch was 8,175.8 kg (8,050.5 kg fin-fishes). Of these fin-fishes, *Lepidopus caudatus* was the most abundant species and it dominated 95.4% (7,678 kg) of the fin-fish catch. *Trisopterus luscus*, *Merluccius merluccius*, *Trachurus trachurus* and Sparidae were relatively abundant besides *L. caudatus*. The fishes collected by the present research were common to the area except *Peristedion* sp., which differs from *P. cataphractum* in some meristic characteristics such as numbers of analfin soft rays and the spinous scutes in a longitudinal row.

1. Introduction

The Japan-Morocco joint research on the bottom fish fauna off Agadir, Morocco was carried out during the training voyage of the National Fisheries University, Japan, in December 1993. The research was conducted as a part of joint training for students of both the Fishery Technology and Marine Engineering courses of the National Fisheries University and the Institut de Technologie des Peches Maritimes d'Agadir, Morocco (ITPM).

The Atlantic offshore water of Morocco is extremely important for octopus and cuttlefish trawl fishery. According to the FAO statistics¹⁻²⁾ the catch of cuttlefish (Sepiidae, Sepiolidae) in the Eastern Central Atlantic area (FAO Fishing Area code #34) has been increased with large fluctuations since 1980 and a total of 51,433 tons was caught in 1991, which corresponds to 22.7% of the world catch of the same item. On the other hand, a total of 142,888 tons of octopus (Octopodidae) was caught in the same area, which was 48.3% of the world catch. Japan has

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imported a large quantity of the frozen cephalopods (including cuttlefishes, squids, octopuses) from Morocco. In 1993, a total of 65,848 tons valued at US\$228 million (about 95 % of the marine products imports from Morocco) of frozen cephalopods was imported from Morocco.³⁾

As mentioned above, Japan has a close connection with Morocco through the import and export of marine products. In order to maintain a good mutual relationship between both countries in fishery affairs, we consider that it is necessary to conduct joint investigations regarding fishery resources, fish fauna, etc. in Morocco and adjacent waters continuously.

In this paper, we give a list of the fishes collected off Agadir, Morocco, by the T/S Koyo-maru with some notes on their fishery aspects.

2. Materials and Methods

The research area is located off Agadir, Morocco, and ranges between 30°22.4'N and 30°01.9'N, 10°01.6'W and 09°16.8'W with depths between 88 m and 314m (Fig. 1). The bottom topography of the offshore part of the northwestern Africa is very steep and the continental shelf is scarcely developed. The research area is at the edge of the shelf.

During the research, two cruises were conducted: cruise #1 (Dec. 8-9, 1993; four hauls), cruise #2 (Dec. 12-13, 1993; three hauls). The details of the towing are shown in Appendix 1.

The fishing method was bottom trawling operated by the T/S Koyo-maru, along-distance stern trawler (1988.62 GT, L81.40m×W13.00m×D8.40m, 14.0 knots, 3,800PS).

The materials cited in the following list were arbitrarily sampled from each catch. Scientific names, common names, FAO names, and Japanese names follow Whitehead *et al.* (1984, 1986)⁴⁾, FAO (1993)¹⁾, Masuda *et al.* (1988)⁵⁾ and Abe (1987)⁶⁾. The taxonomical order follows Nelson (1994).⁷⁾

The body lengths of the samples are shown in mm of total or standard length (TL or SL). The mean value of the body length is revealed in parentheses. Capital N indicates the number of preserved samples.

Abbreviations of the languages used in the common and FAO names are the following: English (E), French (F), Japanese (J), Spanish (S).

The descriptions about the catch are based on the data of FAO statistics.¹⁻²⁾

3. Results

3.1. Weight Composition by Main Fish Group

A total of 8,175.8 kg of fishes and invertebrates was caught from seven stations (Fig. 1): St. 1 (149.6 kg), St. 2 (515.5 kg), St. 3 (658.0 kg), St. 4 (583.5 kg), St. 5 (515.5 kg), St. 6 (5,076.0 kg), St. 7 (1,141.7 kg). The proportion of fish was 98.5 % (8,050.8 kg), cephalopods 0.4 % (32 kg), and other invertebrates (mainly gastropods and holothurian) 1.1 % (93 kg). Table 1 indicates the number of species and weight composition by the main fish group of each catch. Silver scabbardfish *Lepidopus caudatus* (Trichiuridae) was the most dominant species in all stations (St. 1 70.2 %, St. 2 90.3 %, St. 3 83.6 %, St. 4 64.3 %, St. 5 24.3 %, St. 6 99.5 %, St. 7 98.1 %) and dominated 95.4 % of the total catch.

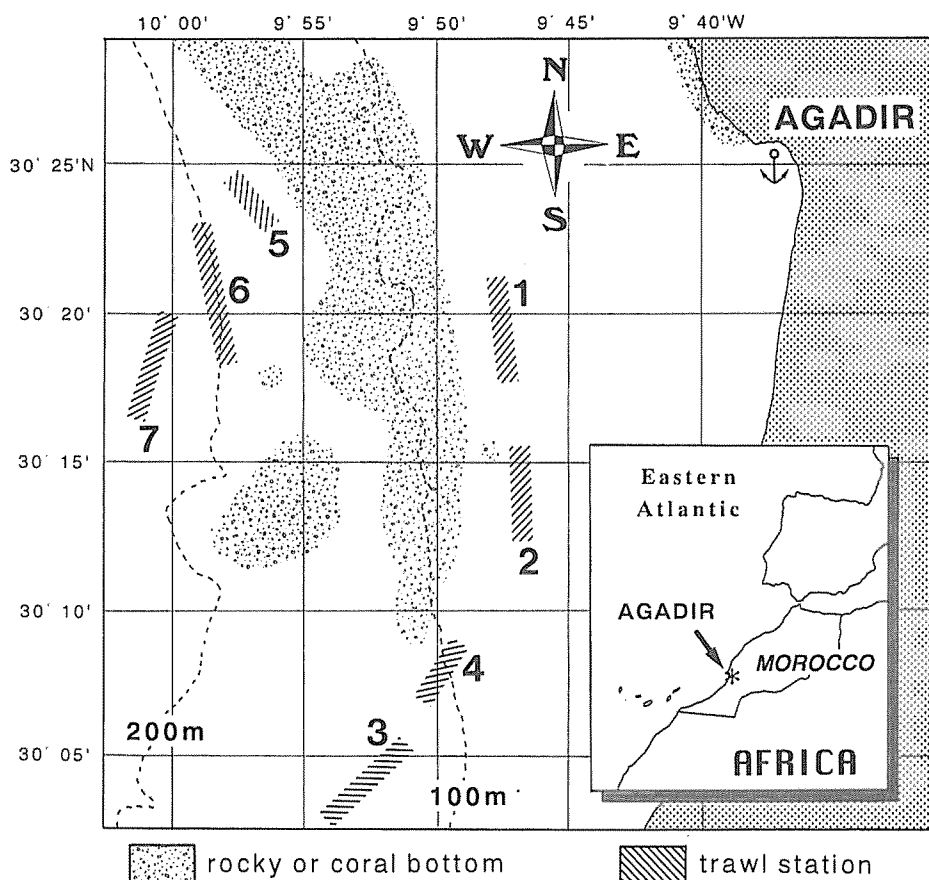


Fig. 1 Map of research area.

Table 1. Number of species and weight (kg) composition by main fish groups

Station Number	1	2	3	4	5	6	7	TOTAL
No. of Species	17	9	14	30	9	12	8	38
<i>Lepidopus caudatus</i>	105	465.5	550	375	12.5	5050	1120	7678
Gadidae, Merlucciidae	2.5	+	+	76	+	+	16	94.5<
Sparidae	+	+	+	35	10	+	+	45<
<i>Trachurus trachurus</i>	35	+	+	+	+	+	+	35<
Citharidae, Bothidae	+	+	11	12	+	+	+	33<
Scorpaenidae	+	+	+	29	+	+	+	29<
Triglidae	+	+	16	+	+	+	+	16<
Other fishes	<7.1	<50	<81	<56.5	<29	<26	<5.7	<225.3
TOTAL	149.6	515.5	658.0	583.5	51.5	5076.0	1141.7	8050.8

+: below 0.5 kg

3.2. Annotated list

CLASS CHONDRICHTHYS

Subclass Elasmobranchii

Order Carcharhiniformes

Family Scyliorhinidae

Scyliorhinus canicula (Linnaeus, 1758)

Common names: Smallspotted catshark (E), Petite roussette (F), Pintarroja (S)

FAO names: Smallspotted catshark (E), Petite roussette (F), Pintarroja (S)

Moroccan names: Gata, Hartouka

TL 555.0-635.0 mm (average 585), N=10 (St. 4, 10 individuals, male)

Scyliorhinus stellaris (Linnaeus, 1758)

Common names: Nursehound (E), Grande roussette (F), Alitán (S)

FAO names: Nursehound (E), Grande roussette (F), Alitán (S)

Moroccan names: Gata, Hartouka

TL 319, N=1 (female, St. 7)

Order Rajiformes

Suborder Torpedinoidei

Family Torpedinidae

Torpedo marmorata Risso, 1810

Common names: Marbled electric ray (E), Torpille marbrée (F), Tremolina mármol (S)

TL 254.0-343.0 (298.5), N=2 (St. 4)

Suborder Rajoidei

Family Rajidae

Raja miraletus Linnaeus, 1758

Common names: Brown ray (E), Raie miroir (F), Raya de espejos (S)

FAO names: Brown ray (E), Raie miroir (F), Raya des espejos (S)

Moroccan names: Raya, Raie

TL 385.0-565.0 (502.9), N=8 (St. 3, 7; St. 4, 1)

CLASS ACTINOPTERYGII

Subclass Neopterygii

Order Anguilliformes

Suborder Congroidei

Family Congridae

Conger conger (Linnaeus, 1758)

Common names : Conger eel (E), Congre (F), Congrio (S)
 FAO names : European conger (E), Congre d'Europe (F), Congrio común (S)
 Moroccan names : Congre, Farkh, Ghrang, Rhorhong, Sennour, Sighar
 TL 580.0-975.0 (756.4), N=7 (St. 4, 5; St. 3, 2)

Order Clupeiformes
Suborder Clupeoidei
Family Clupeidae

Sardina pilchardus (Walbaum, 1792)

Common names : European pilchard (E), Sardine commune (F), Sardina europea (S)
 FAO names : European pilchard (E), Sardine commune (F), Sardina europea (S)
 Moroccan name : Sardine
 SL 128.2-176.1 (149.7), N=40 (St. 1, 16; St. 2, 19; St. 3, 3; St. 4, 2)

Note: The catch of this species was maintained at about the 500,000 tons level until 1985, then it increased rapidly until 1989, and attained about 1.12 million tons in 1990. The catch in 1991 was 963,776 tons which dominated about 26.3 % (1st) of the total catch from Area #34. Morocco caught a total of 370,649 tons of *S. pilchardus* from Area #34 and the adjoining Mediterranean area (FAO Fishing Area code #37) which corresponds to 62.5 % of the total Moroccan catch in 1991.

Order Osmeriformes
Suborder Argentinoidei
Family Argentinidae

Argentina sphyraena Linnaeus, 1758

Common names : Argentine (E), Petite argentine (F)
 FAO names : Argentine (E), Argentine (F), Pez plate (S)
 Moroccan names : Eperlan, Belonizi, Laousi, Luiset
 SL 137.5-159.6 (148.6), N=3 (St. 4, 2; St. 6, 1)

Order Gadiformes
Family Phycidae

Phycis phycis (Linnaeus, 1766)

Common names : Mostelle de roche (F), Brotola de roca (S)
 FAO names : Forkbeard (E), Phycis de roche (F), Brotola de roca (S)
 Moroccan names : Bartola, Mostela, Mouya, Taoulkt
 SL 249.3, N=1 (St. 4)

Family Merlucciidae

Merluccius merluccius (Linnaeus, 1758)

Common names : Hake (E), Merlu blanc (F), Merluza (S)

FAO names: European hake (E), Merlu commun (F), Merluza europea (S)
 Moroccan names: Colin, Merlan, Merluza, Merouia, Peckhota, Pescadilla
 SL 108.1-480.0 (249.9), N=112 (St. 1, 25; St. 2, 5; St. 3, 51; St. 4, 19; St. 5, 1; St. 6, 4; St. 7, 7) (Fig. 2).

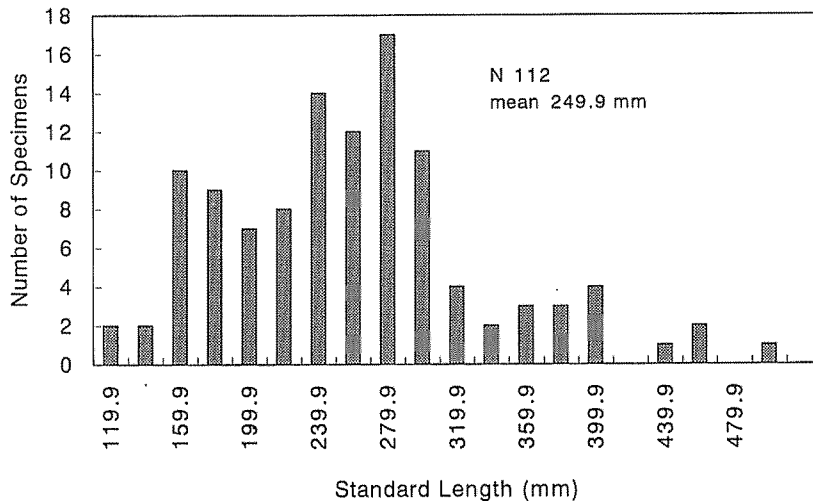


Fig. 2 Standard length frequency of European hake *Merluccius merluccius*

Family Gadidae

Trisopterus luscus (Linnaeus, 1758)

Common names: Bib (E), Tacaud (F), Faneca (S), Furansu-dara (J)

FAO names: Pouting (E), Tacaud commun (F), Faneca (S)

Moroccan names: Capila, Faneka, Tacaud

SL 147.6-287.3 (194.2), N=403 (St. 1, 2; St. 2, 4; St. 4, 397) (Fig. 3).

Note: The total catch of the species has grown but with some fluctuations. A total of 2,297 tons was caught from Area #34 in 1991 (0.1%). Morocco dominated almost all the catch of this species.

Order Lophiiformes

Suborder Lophioidei

Family Lophiidae

Lophius budegassa Spinola, 1807

Common names: Anglerfish (E), Baudroies (F), Rape (S)

FAO names: European anglerfish (E), Baudroie rousse (F), Rape rojizo (S)

Moroccan names: Barbore, Baudroie, Lotte, Rape

SL 200.4-480.0 (307.5), N=11 (St. 3, 7; St. 4, 2; St. 7, 2)

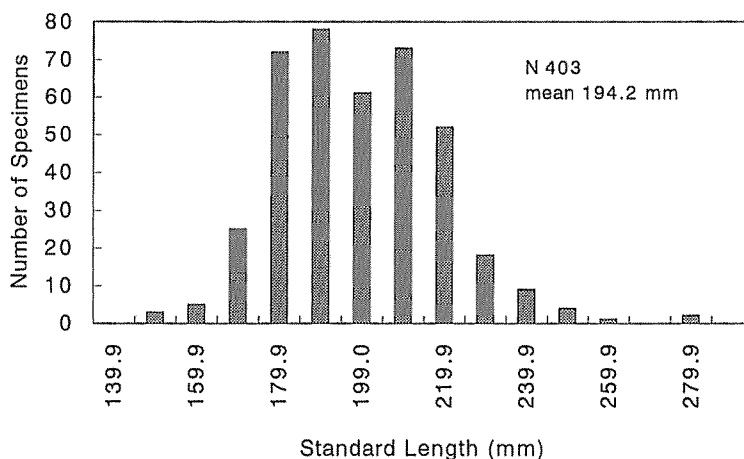


Fig. 3 Standard length frequency of pouting *Trisopterus luscus*

Order Zeiformes
Suborder Zeioidei
Family Zeidae

***Zeus faber* Linnaeus, 1758**

Common names : John Dory (E), Saint-Pierre (F), Pez de San Pedro (S), Matoudai (J)
 FAO names : John dory (E), Saint-Pierre (F), Pez de San Pedro (S)
 Moroccan names : Boukhatam, Chatra, Gaillot, Lafnar, Moussa, Saint-Pierre
 SL 77.2-238.8 (205.6), N=8 (St. 1, 3; St. 4, 5)

Suborder Caproidei
Family Caproidae

***Capros aper* (Linnaeus, 1758)**

Common names : Boarfish (E), Sanglier (F), Galleta (S)
 SL 37.8-91.2 (54.9), N=34 (St. 1, 1; St. 3, 6; St. 4, 4; St. 5, 16; St. 6, 4; St. 7, 3)

Order Gasterosteiformes
Suborder Syngnathoidei
Family Macroramphosidae

***Macroramphosus scolopax* (Linnaeus, 1758)**

Common names : Snipe fish, Trumpet fish (E), Bécasse de mer (F), Trompetero (S), Sagifue (J)
 FAO names : Longspine snipefish (E), Bécasse de mer (F), Trompetero (S)
 Moroccan names : Arrabouz, Trompetero, Rabouza, Raboz
 SL 84.0-157.3 (111.7), N=49 (St. 1, 1; St. 5, 30; St. 6, 18)

Order Scorpaeniformes
Suborder Scorpaenoidei
Family Scorpaenidae

Helicolenus dactylopterus (Delaroche, 1809)

Common names : Rockfish (E), Rascasse du nord (F), Gallineta (S)

FAO names : Rockfish (E), Rascassed de fond (F), Gallineta (S)

Moroccan names : Eagrab, Rascasse

SL 105.1-142.0 (127.2), N=6 (St. 4, 1; St. 7, 5)

Scorpaena notata Rafinesque, 1810

Common names : Petite rascasse (F), Escorpora (S)

SL 89.9-157.8 (119.8), N=99 (St. 4) (Fig. 4).

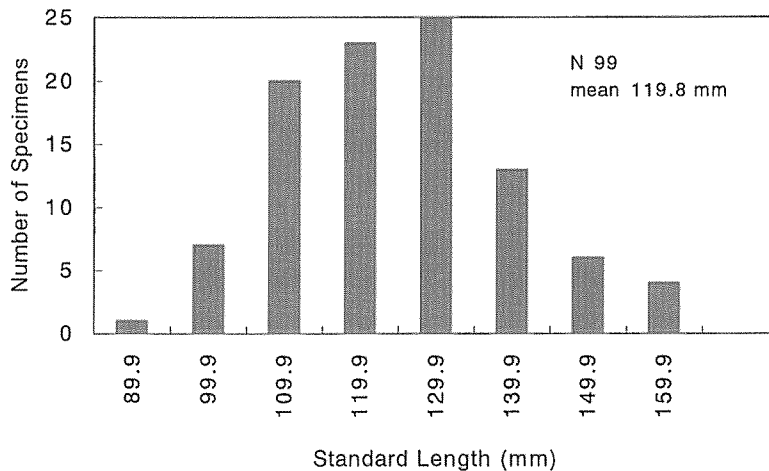


Fig. 4 Standard length frequency of scorpionfish *Scorpaena notata*

Scorpaena scrofa Linnaeus, 1758

Common names : Red scorpionfish (E), Rascasse rouge (F), Cabracho (S)

FAO names : Red scorpionfish (E), Rascasse rouge (F), Cabracho (S)

Moroccan names : Rascasse

SL 292.3, 365.0, N=2 (St. 4)

Family Triglidae

Lepidotrigla dieuzeidei Audoin, 1973

Common names : Spiny gurnard (E), Grondin de Dieuzeide (F), Cabete espinudo (S)

FAO names : Spiny gurnard (E), Grondin de Dieuzeide (F), Cabete espinudo (S)

Moroccan names : Aghounja, Grondin, Roubiot

SL 64.0-145.9 (115.4), N=339 (St. 1, 1; St. 3, 121; St. 4, 178; St. 5, 6; St. 6, 30; St. 7, 3) (Fig. 5).

Note: This species was widely collected from the present research area, with the exception of St. 2.

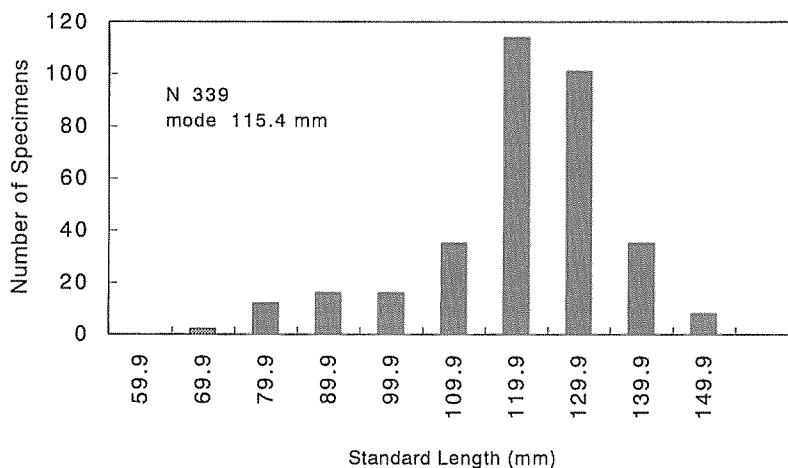


Fig. 5 Standard length frequency of spiny gurnard *Lepidotrigla dieuzeidei*

Peristedion sp.

SL 117.7-149.4 (mean 132.1 mm), N=14 (St. 1, 2; St. 3, 2; St. 6, 8; St. 7, 2)

Note: So far, only *Peristedion cataphractum* (Linnaeus, 1758) was recorded in Moroccan waters.⁴⁾ The present specimens differ from *P. cataphractum* in the following characteristics (counts of *P. cataphractum* in parentheses): dorsal soft rays 18-20 (18 or 19), anal soft rays 19-21 (27-30), scutes in a longitudinal row 33 or 34 (17-21).

Trigla lucerna Linnaeus, 1758

Common names: Tub gurnard (E), Grondin perlon (F), Bejel (S)

FAO names: Tub gurnard (E), Grondin perlon (F), Bejel (S)

Moroccan names: Aghounja, Grondin, Roubiot

SL 171.8-449.0 (257.1), N=22 (St. 2, 6; St. 3, 15; St. 4, 1)

Trigla lyra Linnaeus, 1758

Common names: Piper gurnard (E), Grondin lyre (F), Garneo (S)

FAO names: Piper gurnard (E), Grondin lyre (F), Garneo (S)

Moroccan names: Aghounja, Grondin, Roubiot

SL 235.3, N=1 (St. 1)

Order Perciformes

Suborder Percoidei

Family Serranidae

Anthias anthias (Linnaeus, 1758)

Common names : Swallowtail sea perch (E), Barbier hirondelle (F), Tres colas (S)
SL 84.0-152.8 (134.2), N=16 (St. 4)

Serranus cabrilla (Linnaeus, 1758)

Common names : Comber (E), Serran chevrette, Saran (F), Cabrilla (S)
FAO names : Comber (E), Serran chèvre (F), Cabrilla (S)
Moroccan names : Choukhat, Hajla, Labguira
SL 160.2-193.9 (180.0), N=5 (St. 4, 4; St. 5, 1)

Family Carangidae

Trachurus trachurus (Linnaeus, 1758)

Common names : Atlantic horse-mackerel (E), Chinchard d'Europe, Chinchard commun (F), Jurel (S), Dover-maaji, Nishi-maaji (J)
FAO names : Atlantic horse mackerel (E), Chinchard d'Europe (F), Jurel (S)
Moroccan names : Chrenne, Hringa, Jurel, Saurel
SL 181.4-377.0 (306.3), N=31 (St. 1, 25; St. 2, 1; St. 4, 1; St. 5, 1; St. 6, 3)
Note : Although three *Trachurus* species (*T. trachurus*, *T. picturatus*, *T. trecae*) are distributed in Area #34^{4,8}), they are not actually discriminated in FAO Statistics. The whole catch of these three species has been decreased with fluctuations and was 243,736 tons (6.7 %, 4th) in 1991. Morocco caught a total of 14,737 tons of *Trachurus* from Area #34 and the adjoining Area #37, which corresponds to 2.5 % of the total Moroccan catch in 1991.

Family Sparidae

Dentex macrophthalmus (Bloch, 1791)

Common names : Large-eye dentex (E), Denté aux gros yeux (F), Cachucho (S), Oome-renko (J)
FAO names : Large-eye dentex (E), Dente à gros yeux (F), Cachucho (S)
Moroccan names : Coq rouge, Galette, Katchoucho, Katachou, Pageot, Paghar
SL 81.9-250.6 (145.2), N=173 (St. 1, 2; St. 3, 55; St. 4, 102; St. 5, 11; St. 6, 3) (Fig. 6).

Dentex maroccanus Valenciennes, 1830

Common names : Morocco dentex (E), Denté du Maroc (F), Sama marroqui (S), Nami-renko (J)
FAO names : Morocco dentex (E), Denté du Maroc (F), Sama marroqui (S)
Moroccan names : Breka, Katchoucho, Koko rouge, Paghar, Voracé
SL 241.9, N=1 (St. 4)

Pagellus acarne (Risso, 1826)

Common names : Axillary sea bream (E), Pageot acarné (F), Aligote (S), Besugo (J)
FAO names : Axillary seabream (E), Pageot acarné (F), Aligote (S)
Moroccan names : Besugo, Boka, Bokha, Boubrahim, Pageot, Pageot blanc, Petit pageot, Taznacht
SL 215.2-265.2 (248.6), N=7 (St. 1, 1; St. 4, 6)

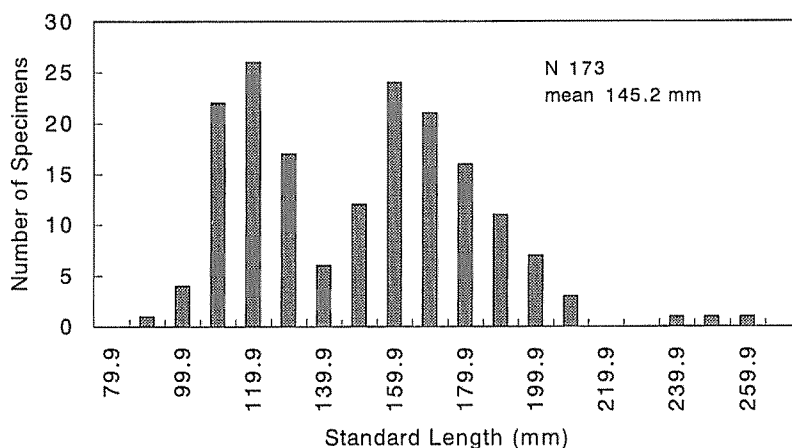


Fig. 6 Standard length frequency of large-eye dentex *Dentex macrophthalmus*

Family Sciaenidae

Umbrina canariensis Valenciennes, 1843

Common names : Canary drum (E), Ombrine bronze (F), Verrugato de Canarias (S)
 FAO names : Canary drum (E), Ombrine bronze (F), Verrugato de Canarias (S)
 Moroccan names : Chevrette, Corvina, Courbina, Maâza, Ombrina
 SL 275.0-345.0 (310.6), N=11 (St. 4)

Suborder Blennioidei

Family Blenniidae

Blennius ocellaris Linnaeus, 1758

Common names : Butterfly blenny (E), Blennie papillon (F), Babosa (S)
 SL 104.1, N=1 (St. 4)

Suborder Callionymoidei

Family Callionymidae

Callionymus lyra Linnaeus, 1758

Common names : Dragonet (E), Dragonet lyre (F), Primita (S)
 SL 166.9, N=1 (St. 4)

Synchiropus phaeton (Günther, 1861)

Common names : Lagarto rojo (S)
 SL 150.6, N=1 (male, St. 1)

Suborder Gobioidae
Family Gobiidae

Lesueurigobius suerii (Risso, 1810)

Common names : Lesueur's goby (E), Gobie de Lesueur (F)

SL 55.5-62.2 (59.0), N=7 (St. 1, 3; St. 2, 4)

Suborder Scombroidei
Family Trichiuridae

Lepidopus caudatus (Euphrasen, 1788)

Common names : Silver scabbard fish (E), Sabre argenté (F), Pez cinto (S), Obiredachi (J)

FAO names : Silver scabbardfish (E), Sabre argenté (F), Pez cinto (S)

Moroccan names : Ceinture, Semta, Sif

SL 388.0-1220.0 (974.4), N=12 (St. 1)

Note : Although the catch of this species dominated 95.4 % of the catch of the present research, only 5350 tons (0.1 %) were caught from the Area #34 in 1991. The catch has rapidly increased since 1988, although it was maintained about 1000-2000 tons level until 1988.

Family Scombridae

Scomber japonicus Houttuyn, 1782

Common names : Chub mackerel (E), Maquereau espagnol (F), Estornino (S), Masaba (J)

FAO names : Chub mackerel (E), Maquereau espagnol (F), Estornino (S)

Moroccan names : Kabaila, Maquereau, Zaroug

SL 152.8-178.8 (166.4), N=3 (St. 3)

Note : The catch of this species is not stable and was 133,436 tons (3.6 %, 7th) in 1991. Although *S. japonicus* stands seventh in Area #34's total catch, Morocco caught only 11,156 tons from Area #34 and the adjacent Area #37.

Order Pleuronectiformes
Suborder Pleuronectoidei
Family Citharidae

Citharus linguatula (Linnaeus, 1758)

Common names : Spotted flounder (E), Feuille (F), Solleta (S)

FAO names : Spotted flounder (E), Feuille (F), Solleta (S)

Moroccan names : Limande, Palaya, Sole

SL 80.1-206.6 (144.3), N=370 (St. 1, 1; St. 2, 4; St. 3, 209; St. 4, 152; St. 5, 1; St. 6, 1) (Fig. 7).

Family Bothidae

Arnoglossus imperialis (Rafinesque, 1810)

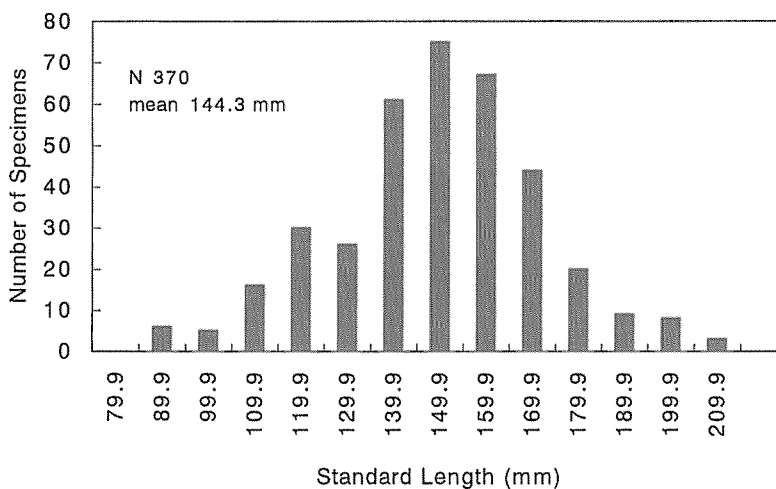


Fig. 7 Standard length frequency of spotted flounder *Citharus linguatula*

Common names : Scaldfish (E), Arnoglosse impérial (F), Serrandel imperial (S)
 FAO names : Imperial scaldfish (E), Arnoglosse impérial (F), Serrandel imperial (S)
 SL 154.6, N=1 (St. 6)

Arnoglossus laterna (Walbaum, 1792)

Common names : Scaldfish (E), Fausse limande (F), Serrandel (S)
 SL 80.6-149.3 (115.5), N=33 (St. 1, 3; St. 2, 5; St. 3, 8; St. 4, 16; St. 6, 1)

Order Tetraodontiformes

Suborder Tetraodontoidei

Family Molidae

Mola mola (Linnaeus, 1758)

Common names : Ocean sunfish (E), Poisson lune (F), Pez luna (S), Manbou (J)
 SL 294.0, N=1 (St. 4)

4. Conclusions

As mentioned in the introduction, the Eastern-central Atlantic, namely the coastal and offshore area of Morocco southward to Gambia is extremely important as a fishery ground, especially for cephalopods fishery to export. It is necessary to reveal and assess the condition of the fishery resources of this area continually in order to maintain the fishery products. For this purpose, a marine faunal study is indispensable to further fishery related analyses including population biology, stock assessment, etc. We, however, have only scanty knowledge of fish fauna of the coastal and offshore areas of Morocco and the adjacent waters.^{4, 9-12)}

Appendix 1. Outline of towing

St.	DATE	TIME	LOCALITY	DEPTH (m)	Water Temperature (°C)
1	Dec.8,1993	13:13	30° 22.5'N 09° 48.2'W	90	17.4
		↓	↓	↓	
		14:45	30° 17.2'N 09° 47.3'W	92	
2	Dec.8,1993	14:54	30° 16.5'N 09° 47.0'W	88	17.5
		↓	↓	↓	
		16:25	30° 11.7'N 09° 46.8'W	92	
3	Dec.9,1993	6:39	30° 01.9'N 09° 53.9'W	116	17.3
		↓	↓	↓	
		8:12	30° 05.6'N 09° 51.3'W	111	
4	Dec.9,1993	8:29	30° 06.4'N 09° 48.2'W	112	17.3
		↓	↓	↓	
		9:37	30° 00.9'N 09° 49.1'W	112	
5	Dec.12,1993	12:57	30° 25.5'N 09° 58.7'W	161	18.3
		↓	↓	↓	
		14:06	30° 22.4'N 09° 56.1'W	139	
6	Dec.12,1993	14:29	30° 22.5'N 09° 58.7'W	204	18.3
		↓	↓	↓	
		15:56	30° 17.8'N 09° 58.1'W	196	
7	Dec.13,1993	6:38	30° 20.7'N 10° 00.6'W	270	18.1
		↓	↓	↓	
		8:18	30° 16.3'N 10° 01.6'W	314	

We consider that we should carry out continuous joint research between major fishing countries like Japan and the concerned countries and pay careful attention to the condition of the fishery resources.

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練習船耕洋丸が大西洋中東部のモロッコ王国アガディール沖で 採集した底生魚類

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耕洋丸第80次航海の実習・調査の一環として、平成5年12月8日から12月13日にかけて、大西洋中東部のモロッコ王国アガディール沖において水産大学校およびアガディール高等漁業技術院の共同で底曳網試験操業が実施された。調査海域はアガディール港の南西沖合の水深約90~310mの海域である。計7回の操業で27科38種の底生魚類が採集された。漁獲物の総重量は8,175.8 kgで、そのうち8,050.5 kgが魚類であった。魚類漁獲物のうちオビレダチ (*Lepidopus caudatus*) (タチウオ科) が95.4%にあたる7,678 kgを占めていた。その他比較的多く漁獲されたのは、フランスダラ (*Trisopterus luscus*) (タラ科), メルルーサ (*Merluccius merluccius*) (メルルーサ科), 大西洋マアジ (ドーバーマアジ) (*Trachurus trachurus*) (アジ科), *Dentex macrophthalmus* (タイ科) であった。今回採集された魚類のうち、*Trachurus trachurus*, *Sardina pilchardus*, *Scomber japonicus* は同海域の漁業生産においても重要な地位を占めている。最も多く採集された *Lepidopus caudatus* の漁業生産量に占める割合はあまり高くない。既往の文献から推察すれば同海域には200種弱の底生魚類が分布すると考えられるが、今回採集されたほとんどすべての種は従来から報告のあるもので、特に希少種と考えられるものはなかった。しかし、ホウボウ科キホウボウ属 (*Peristedion*) の1種は、同海域に分布する唯一のキホウボウ属魚類である *P. cataphractum* と重要な形態形質において異なるため、本研究では暫定的に未同定種とした。

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